

FCC RF Test Report

APPLICANT : Palm, Inc.
EQUIPMENT : Phone
BRAND NAME : HP and Palm
MODEL NUMBER : P160UEU
FCC ID : O8F-BROY
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Sep. 17, 2010 and completely tested on Dec. 20, 2010. 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:



Anderson Chiu / Deputy Manager



SPORTON INTERNATIONAL INC.

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

TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 RF Power	7
2.2 Test Mode	8
2.3 Connection Diagram of Test System	9
2.4 RF Utility	10
3 TEST RESULT	11
3.1 6dB and 99% Bandwidth Measurement	11
3.2 Output Power Measurement	24
3.3 Band Edges Measurement	26
3.4 Spurious Emission Measurement	34
3.5 Power Spectral Density Measurement	44
3.6 AC Conducted Emission Measurement	51
3.7 Radiated Emission Measurement	55
3.8 Antenna Requirements	76
4 LIST OF MEASURING EQUIPMENT	77
5 UNCERTAINTY OF EVALUATION	78
APPENDIX A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR091719B	Rev. 01	Initial issue of report	Jan. 13, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	N/A	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.4 dB at 0.438 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.18 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

Palm, Inc.

950 W Maude Avenue, Sunnyvale, CA 94085

1.2 Manufacturer

Palm, Inc.

950 W Maude Avenue, Sunnyvale, CA 94085

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Phone
Brand Name	HP and Palm
Model Number	P160UEU
FCC ID	O8F-BROY
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 : 20.42 dBm (0.110 W) 802.11g : 22.83 dBm (0.192 W) 802.11n (BW 20MHz) : 22.73 dBm (0.187 W)
Antenna Type	Integral Antenna with gain 1.6 dBi
HW Version	D3
SW Version	2.1.1
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

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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	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	20.19	-	-	20.35
CH 06	2437 MHz	20.20	20.28	20.35	20.42
CH 11	2462 MHz	19.82	-	-	19.99

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	22.74	-	-	-	-	-	-	-
CH 06	2437 MHz	22.83	22.82	22.68	22.68	22.69	22.64	22.53	22.30
CH 11	2462 MHz	22.51	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)	
		OFDM Data Rate	
		m0	m7
CH 01	2412 MHz	22.59	-
CH 06	2437 MHz	22.73	22.58
CH 11	2462 MHz	22.49	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, and m0 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. 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).

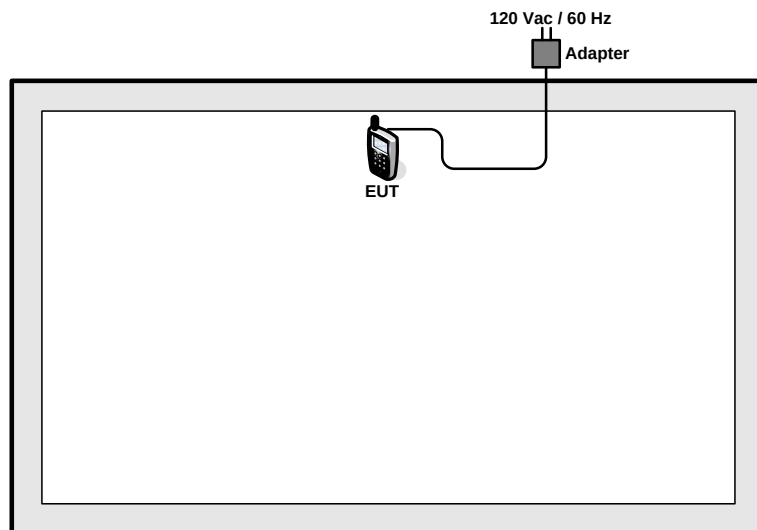
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

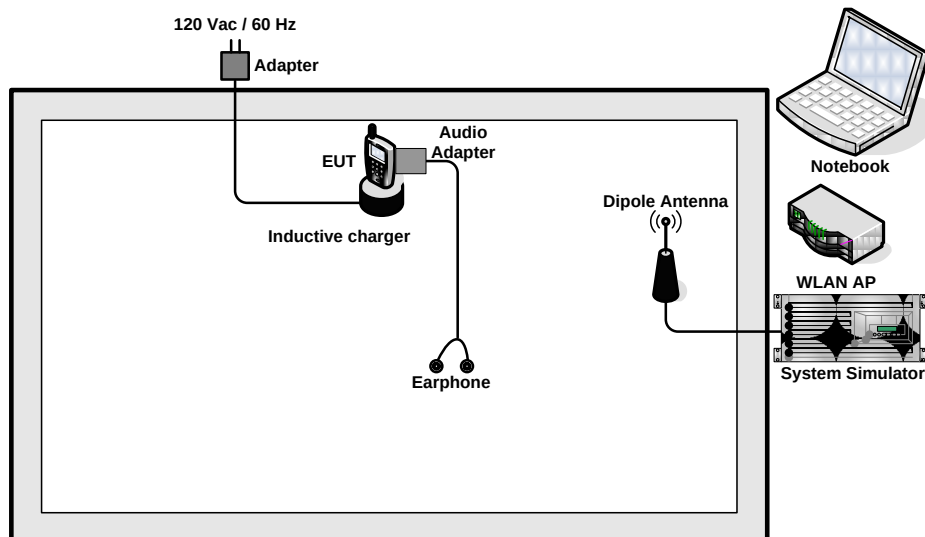
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 + TC Mode 2 : 802.11b CH06_2437 MHz + TC Mode 3 : 802.11b CH11_2462 MHz + TC	Mode 4: 802.11g_CH01_2412 MHz + TC Mode 5: 802.11g_CH06_2437 MHz + TC Mode 6: 802.11g_CH11_2462 MHz + TC Mode 7: 802.11n (BW 20M)_CH01_2412 MHz + TC Mode 8: 802.11n (BW 20M)_CH06_2437 MHz + TC Mode 9: 802.11n (BW 20M)_CH11_2462 MHz + TC
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN Link + Battery 1 + Earphone + Audio Adapter + Inductive Charger + USB Cable 1 (Charging from Adapter 1) Mode 2 : WCDMA Band II Idle + Bluetooth Link + WLAN Link + Battery 2 + USB Cable 2 (Charging from Adapter 2)	
Remark: 1. TC stands for Test Configuration, and consists of USB cable 2 and adapter 2. 2. The worst case of conducted emission is mode 2; only the test data of it was reported. 3. KDB 680106 "Client Device Considerations" was considered and evaluation performed as applicable to this device. The inductive charger has been certified under FCC ID: O8F-TST1. For more information, please refer to this inductive charger FCC ID. EUT is working in charging mode with the inductive charger. The inductive backcover (receiving hardware) is non-removable, is part of the phone.		

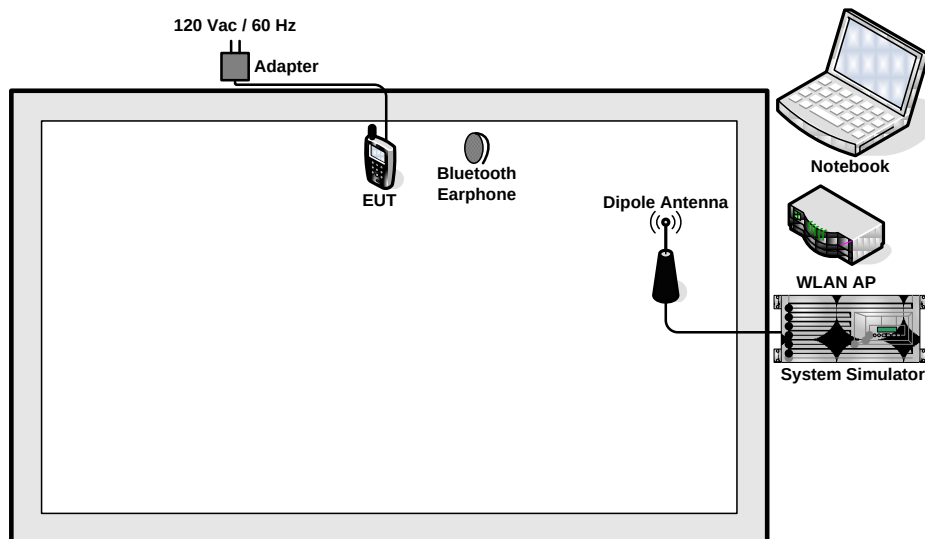
2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<EUT with Inductive charger Mode>



<EUT with Adapter Mode>


2.4 RF Utility

The programmed RF utility "Compliance" 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.

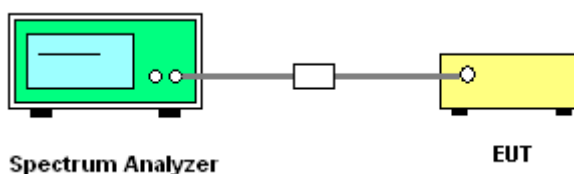
3.1.2 Measuring Instruments

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

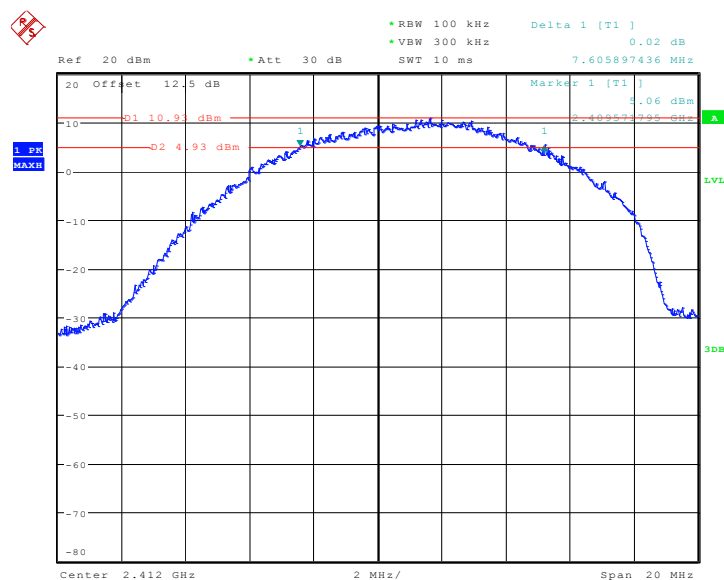


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1~3	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.61	0.5	Pass
06	2437	7.65	0.5	Pass
11	2462	7.72	0.5	Pass

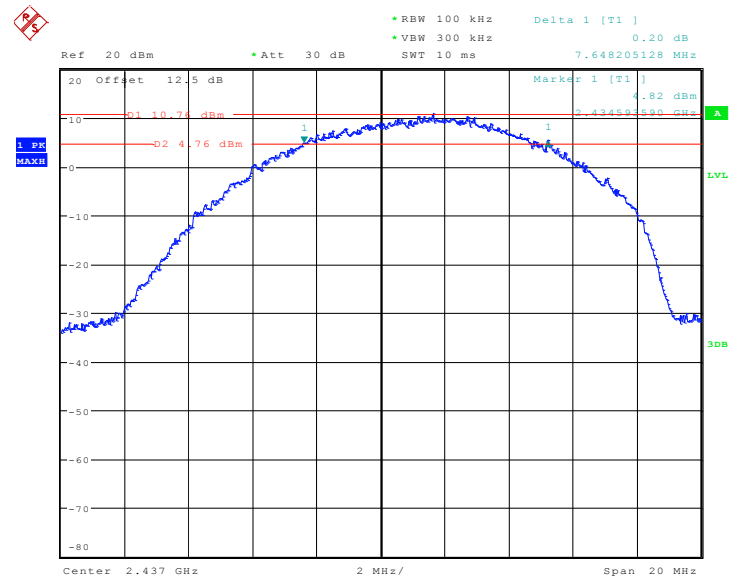
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



Date: 18.NOV.2010 10:08:38

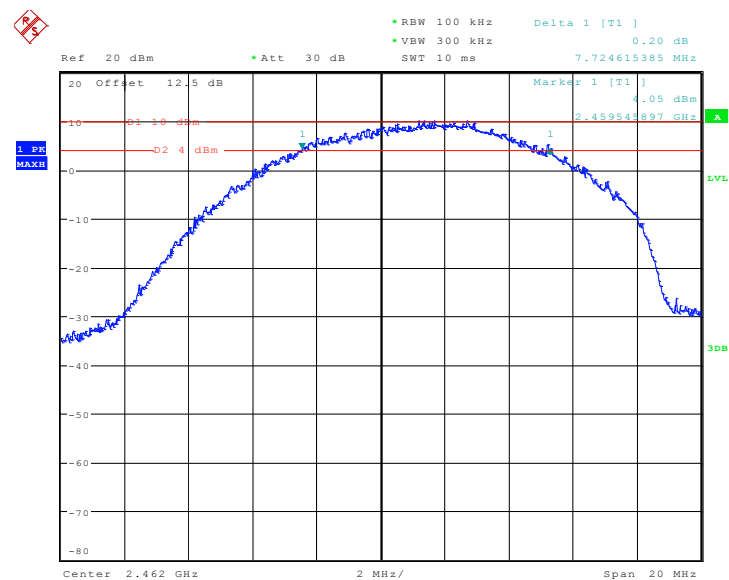


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 18.NOV.2010 10:27:30

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



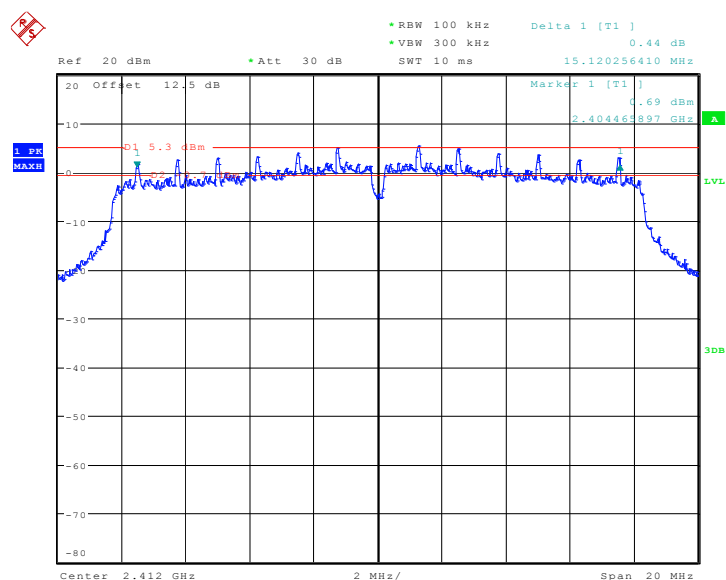
Date: 18.NOV.2010 10:49:06



Test Mode :	Mode 4~6	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.12	0.5	Pass
06	2437	15.14	0.5	Pass
11	2462	15.13	0.5	Pass

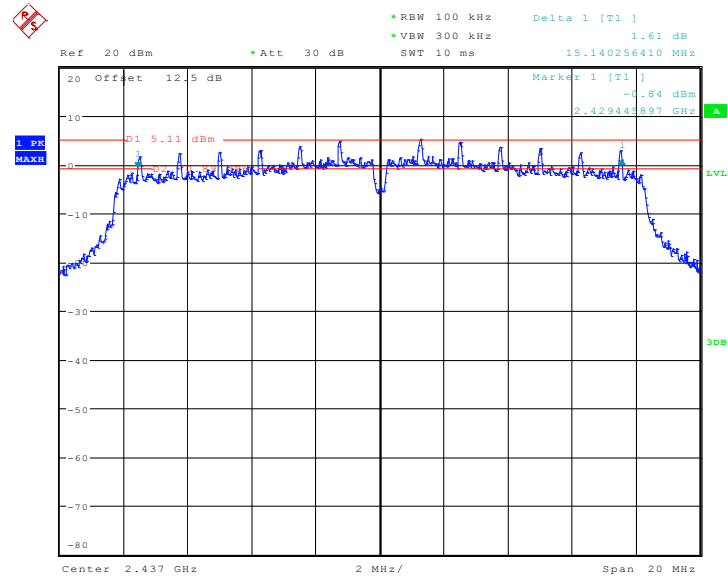
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 18.NOV.2010 11:34:05

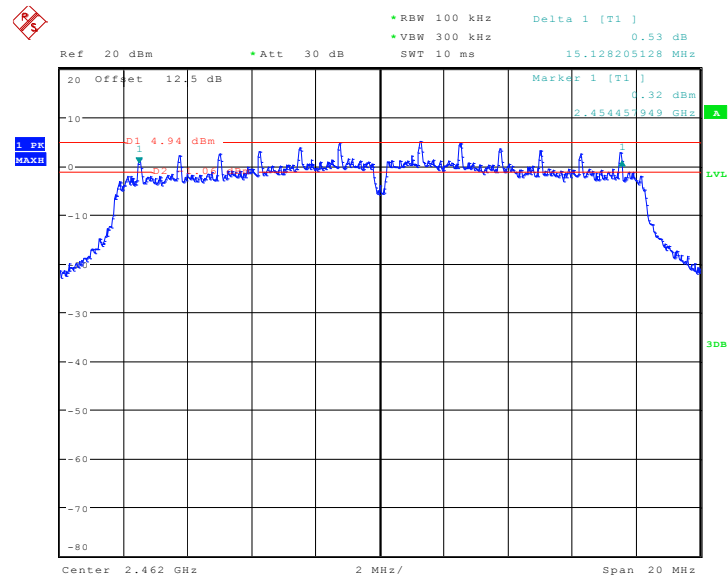


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 18.NOV.2010 11:17:42

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



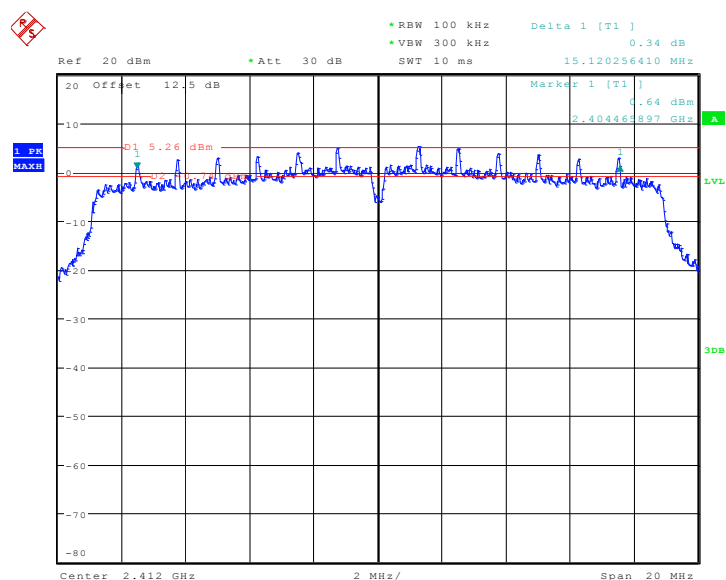
Date: 18.NOV.2010 11:04:50



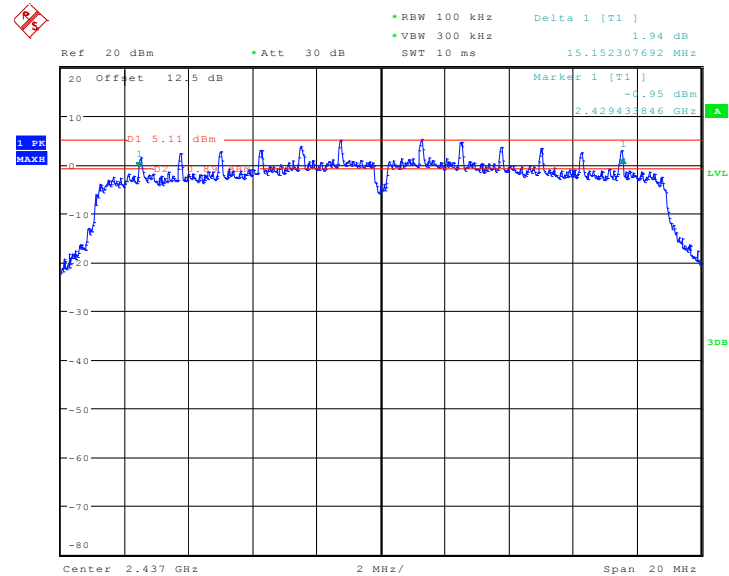
Test Mode :	Mode 7~9	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.12	0.5	Pass
06	2437	15.15	0.5	Pass
11	2462	15.14	0.5	Pass

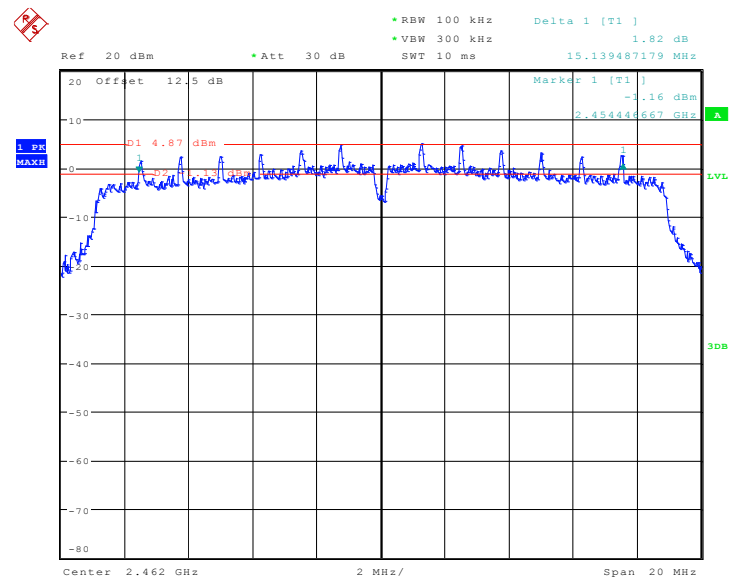
Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01



Date: 18.NOV.2010 11:50:55

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


Date: 18.NOV.2010 12:05:09

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


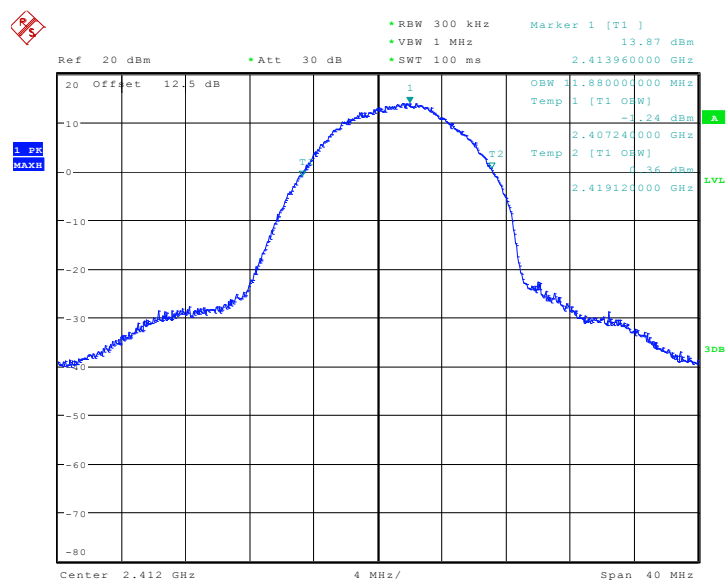
Date: 18.NOV.2010 12:17:35

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1~3	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	11.88	N/A
06	2437	11.76	N/A
11	2462	11.80	N/A

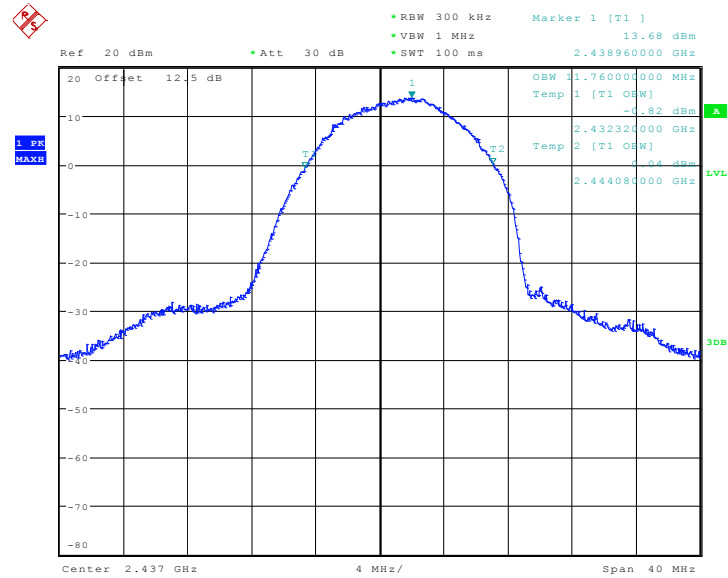
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 18.NOV.2010 10:11:59

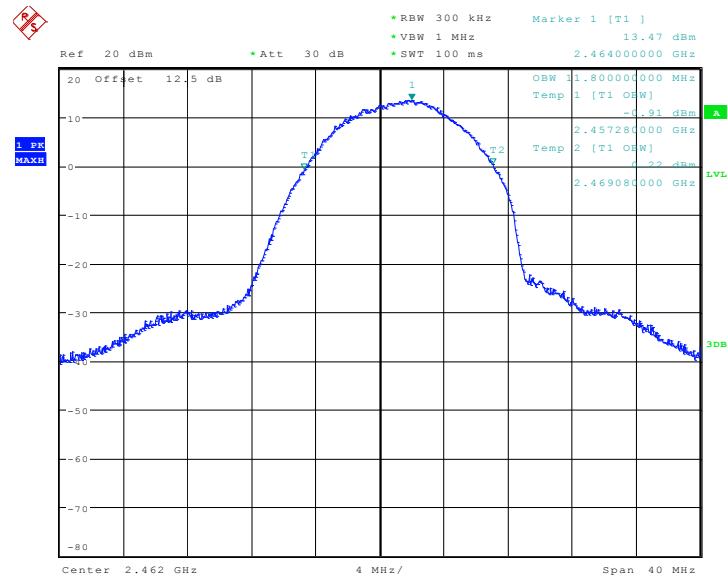


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 18.NOV.2010 10:28:07

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

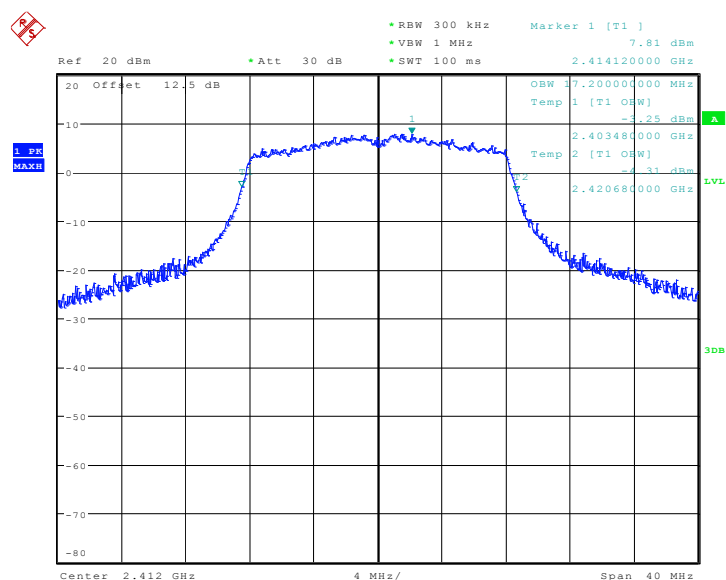


Date: 18.NOV.2010 10:50:25



Test Mode :	Mode 4~6	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

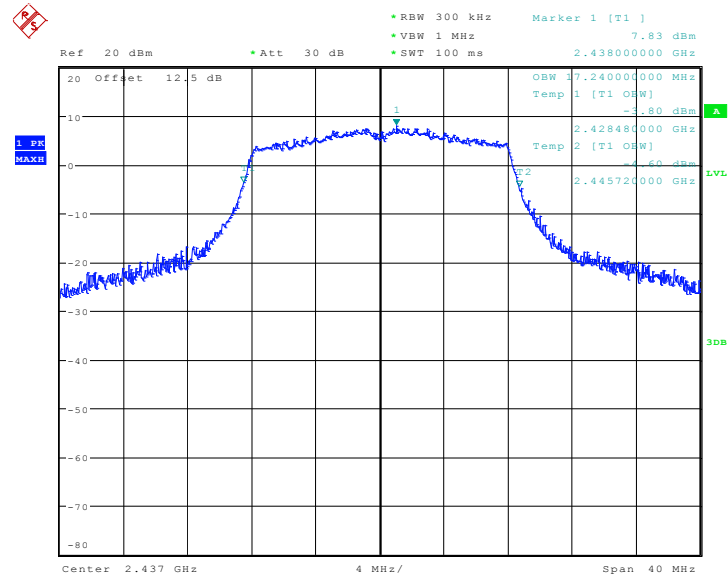
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.20	N/A
06	2437	17.24	N/A
11	2462	17.20	N/A

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

Date: 18.NOV.2010 11:35:45

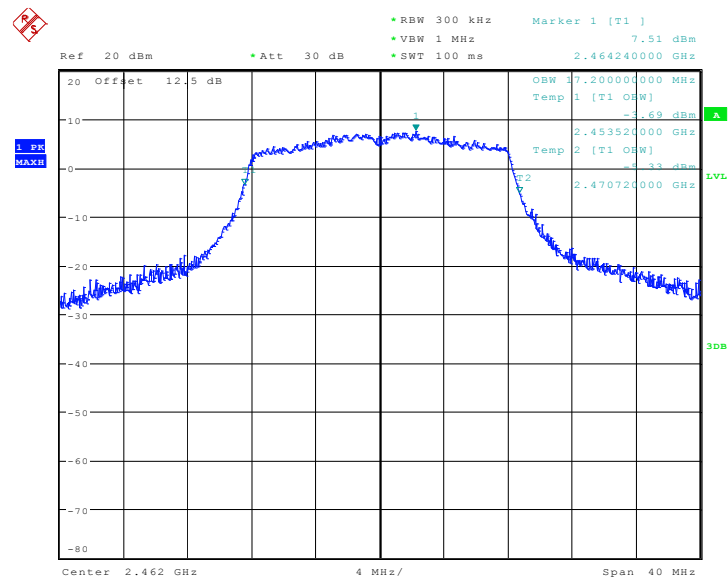


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 18.NOV.2010 11:18:18

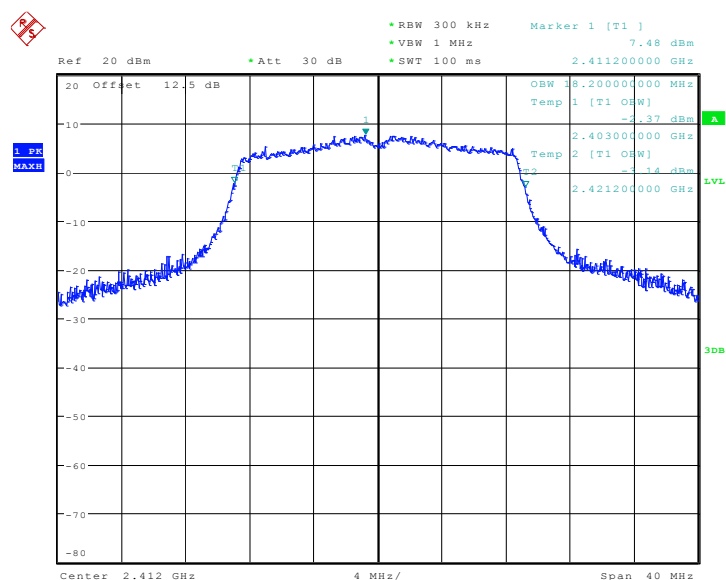
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 18.NOV.2010 11:06:09

Test Mode :	Mode 7~9	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

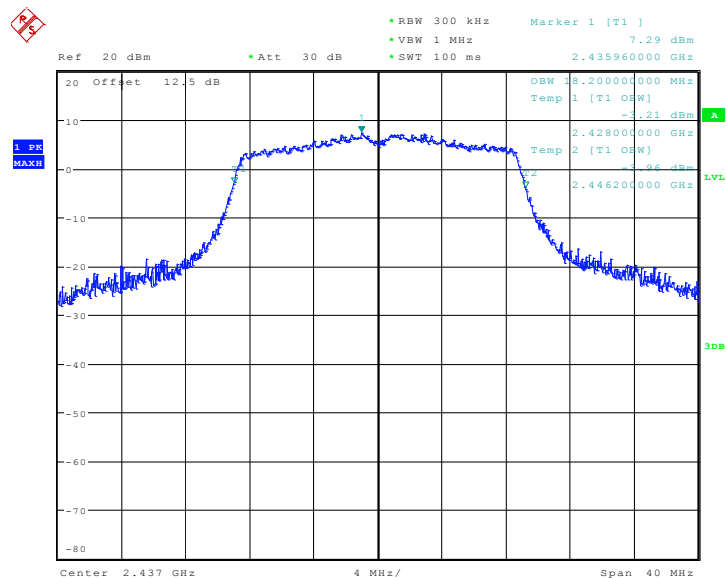
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.20	N/A
06	2437	18.20	N/A
11	2462	18.20	N/A

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


Date: 18.NOV.2010 11:52:35

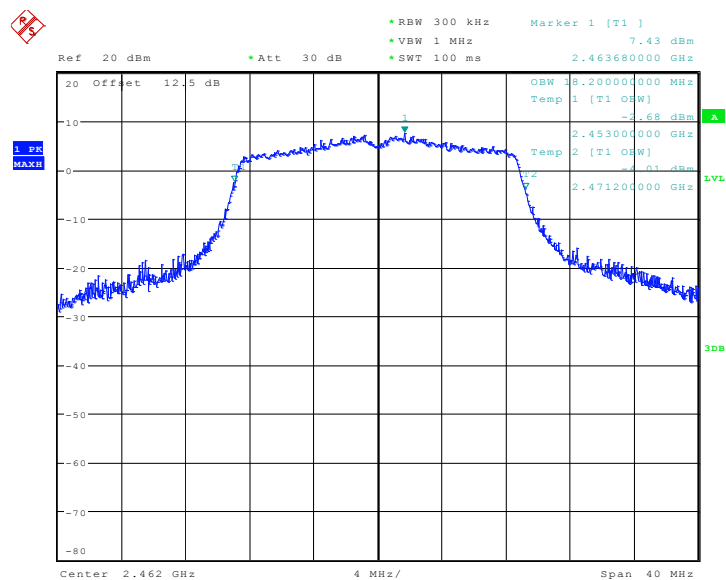


Mode 8 : 99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06



Date: 18.NOV.2010 12:05:45

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



Date: 18.NOV.2010 12:18:54

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.

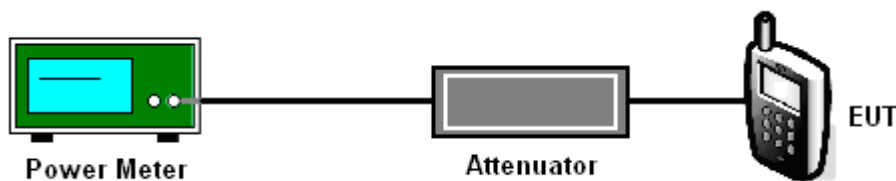
3.2.2 Measuring Instruments

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 1~3	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.35	30	Pass
06	2437	20.42	30	Pass
11	2462	19.99	30	Pass

Test Mode :	Mode 4~6	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.74	30	Pass
06	2437	22.83	30	Pass
11	2462	22.51	30	Pass

Test Mode :	Mode 7~9	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.59	30	Pass
06	2437	22.73	30	Pass
11	2462	22.49	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

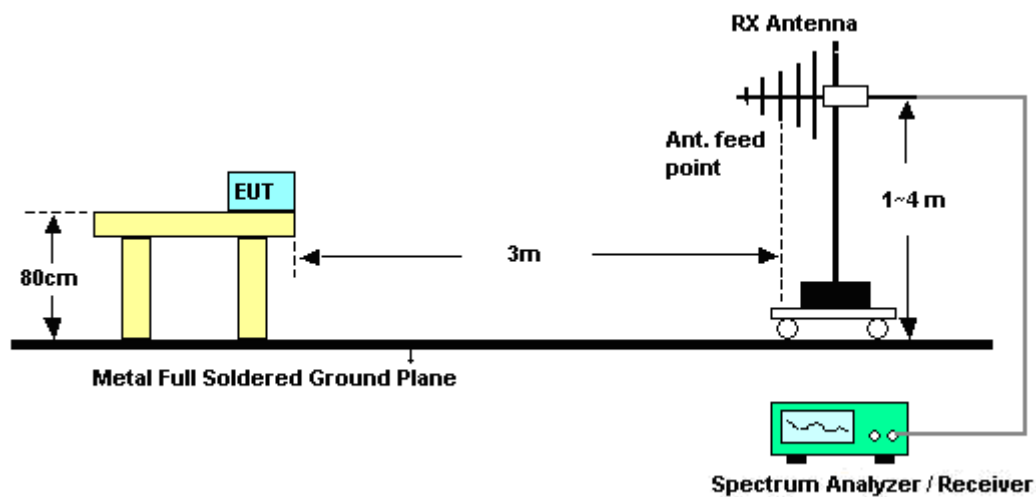
See list of measuring instruments of this test report.

3.3.3 Test Procedures

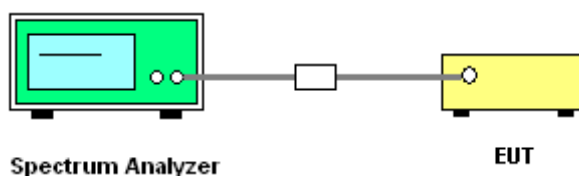
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	25~27°C
Test Band :	802.11b	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	55.19	-18.81	74.00	53.18	32.48	3.92	34.39	132	339	Peak
2389.61	42.65	-11.35	54.00	40.64	32.48	3.92	34.39	132	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
2332.61	51.85	-22.15	74.00	50.01	32.39	3.86	34.41	100	142	Peak
2332.61	41.73	-12.27	54.00	39.89	32.39	3.86	34.41	100	142	Average

Test Mode :	Mode 3	Temperature :	25~27°C
Test Band :	802.11b	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.98	53.60	-20.40	74.00	51.32	32.60	4.05	34.37	102	351	Peak
2488.98	41.66	-12.34	54.00	39.38	32.60	4.05	34.37	102	351	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	49.53	-24.47	74.00	47.27	32.58	4.05	34.37	103	234	Peak
2483.50	37.73	-16.27	54.00	35.47	32.58	4.05	34.37	103	234	Average

Test Mode :	Mode 4	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	73.82	-0.18	74.00	37.42	32.48	3.92	34.39	106	3	Peak
2389.99	53.68	-0.32	54.00	17.28	32.48	3.92	34.39	106	3	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	64.62	-9.38	74.00	28.22	32.48	3.92	34.39	100	150	Peak
2389.99	46.72	-7.28	54.00	10.32	32.48	3.92	34.39	100	150	Average

Test Mode :	Mode 6	Temperature :	25~27°C
Test Band :	802.11g	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	73.59	-0.41	74.00	36.96	32.58	4.05	34.37	106	352	Peak
2483.50	51.95	-2.05	54.00	15.32	32.58	4.05	34.37	106	352	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	65.43	-8.57	74.00	28.80	32.58	4.05	34.37	100	139	Peak
2483.50	43.71	-10.29	54.00	7.08	32.58	4.05	34.37	100	139	Average



Test Mode :	Mode 7	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~50%
Test Channel :	01	Test Engineer :	Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.66	73.65	-0.35	74.00	37.25	32.48	3.92	34.39	106	358	Peak
2389.66	53.81	-0.19	54.00	17.41	32.48	3.92	34.39	106	358	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	64.95	-9.05	74.00	28.55	32.48	3.92	34.39	100	148	Peak
2389.99	47.29	-6.71	54.00	10.89	32.48	3.92	34.39	100	148	Average

Test Mode :	Mode 9	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~50%
Test Channel :	11	Test Engineer :	Kai Wang

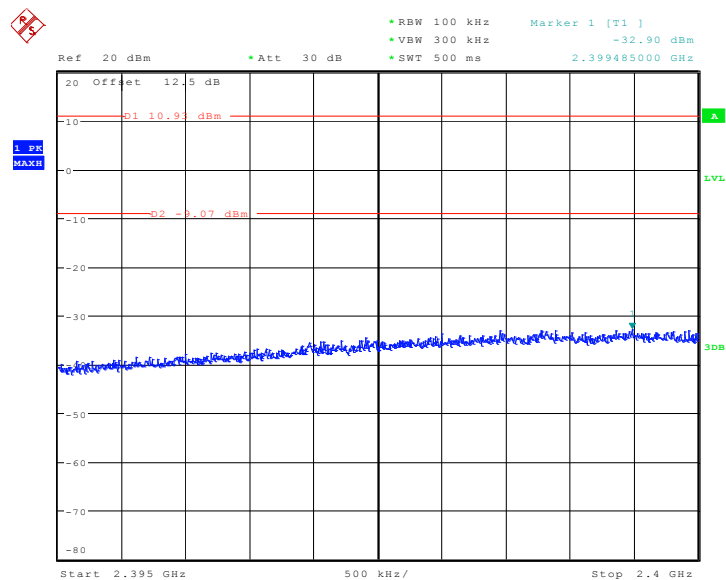
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	73.00	-1.00	74.00	70.74	32.58	4.05	34.37	103	354	Peak
2483.50	52.40	-1.60	54.00	50.14	32.58	4.05	34.37	103	354	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
2484.61	70.95	-3.05	74.00	68.69	32.58	4.05	34.37	107	233	Peak
2484.61	47.50	-6.50	54.00	45.24	32.58	4.05	34.37	107	233	Average

3.3.6 Test Plots of Conducted Band Edges

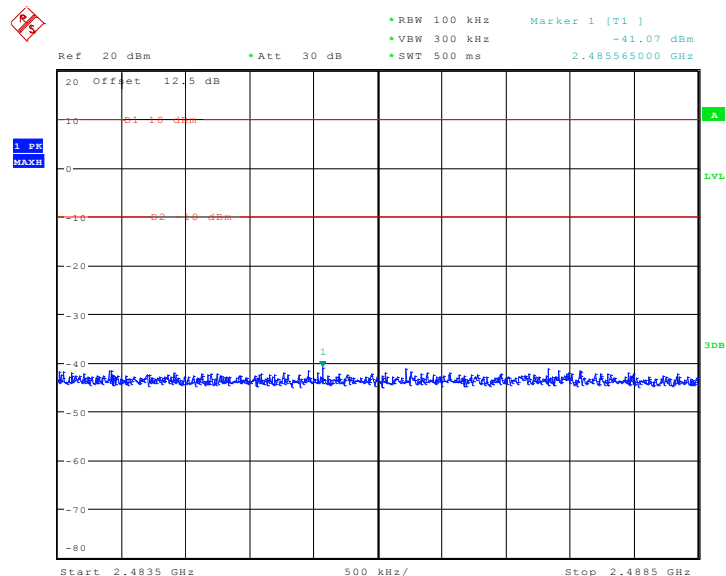
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 18.NOV.2010 10:11:01

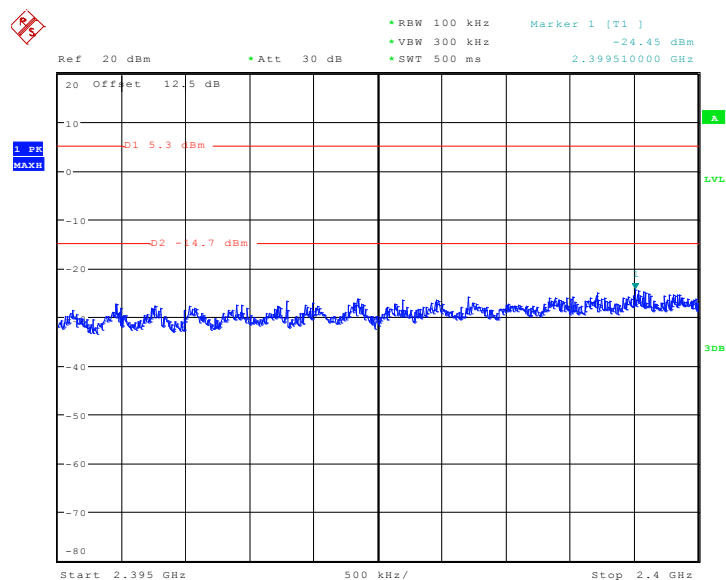
High Band Edge Plot on 802.11b Channel 11



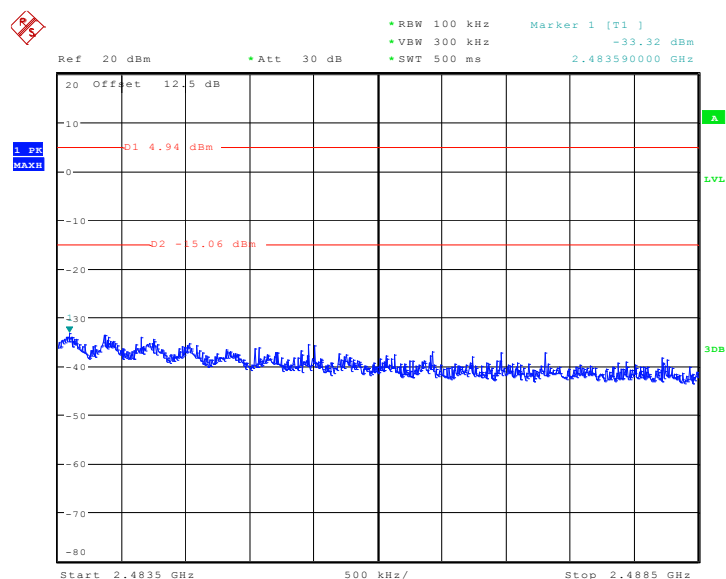
Date: 18.NOV.2010 10:49:53



Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

Low Band Edge Plot on 802.11g Channel 01

Date: 18.NOV.2010 11:35:14

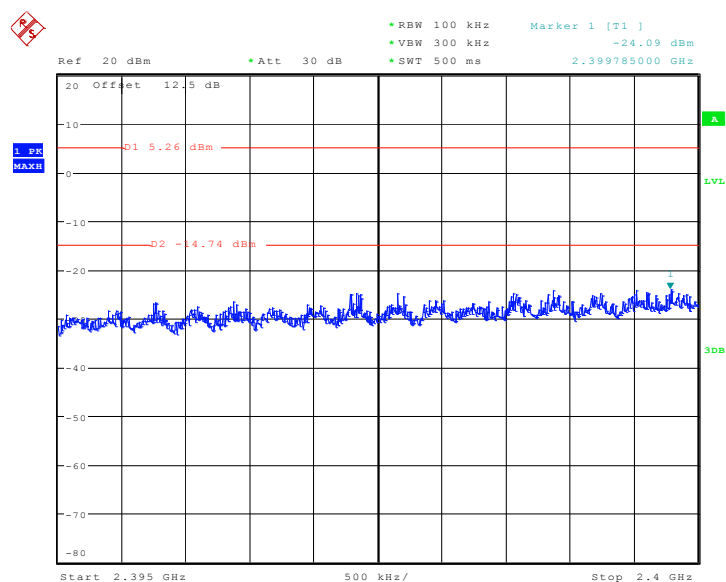
High Band Edge Plot on 802.11g Channel 11

Date: 18.NOV.2010 11:05:37



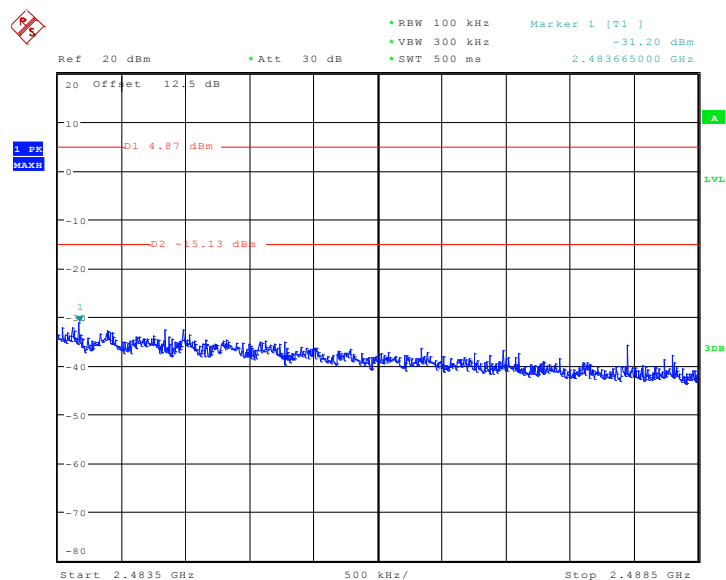
Test Mode :	Mode 7 and 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Lancelot Chen

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



Date: 18.NOV.2010 11:52:04

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



Date: 18.NOV.2010 12:18:22

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

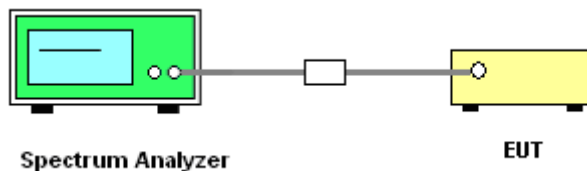
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

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

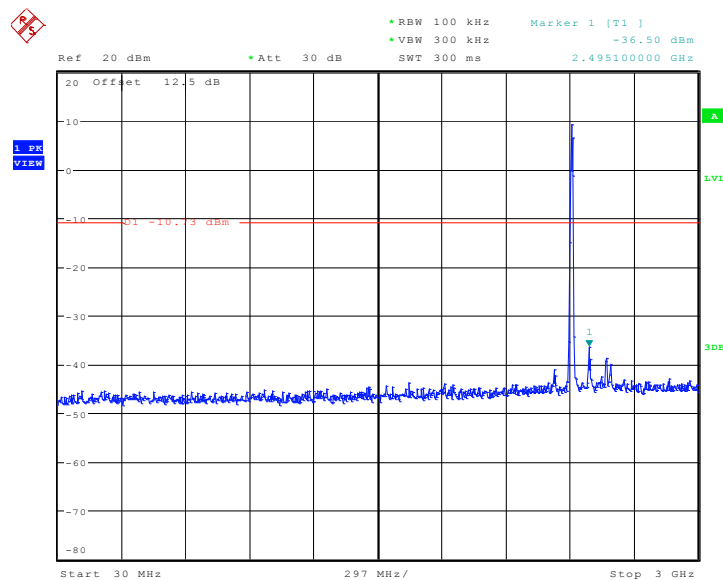
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

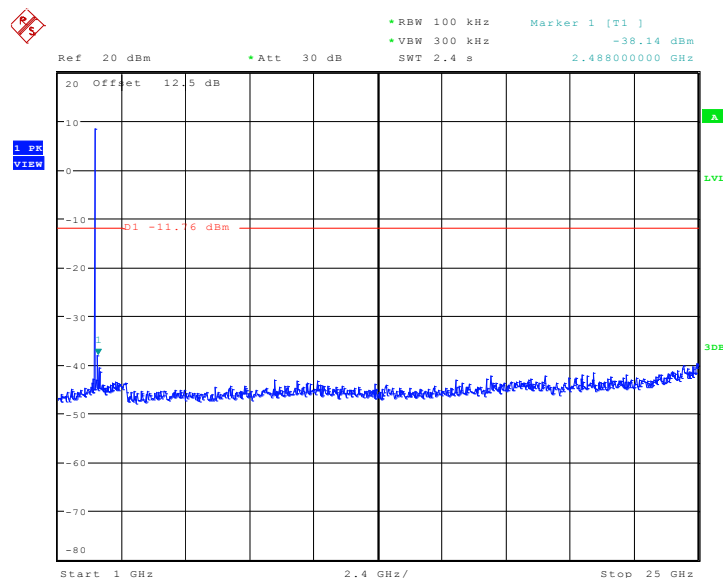
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 10:12:23

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

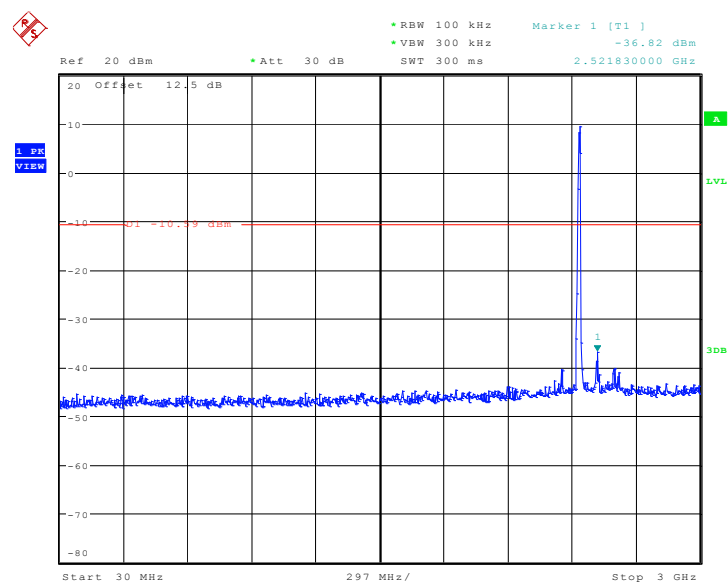


Date: 18.NOV.2010 10:12:39



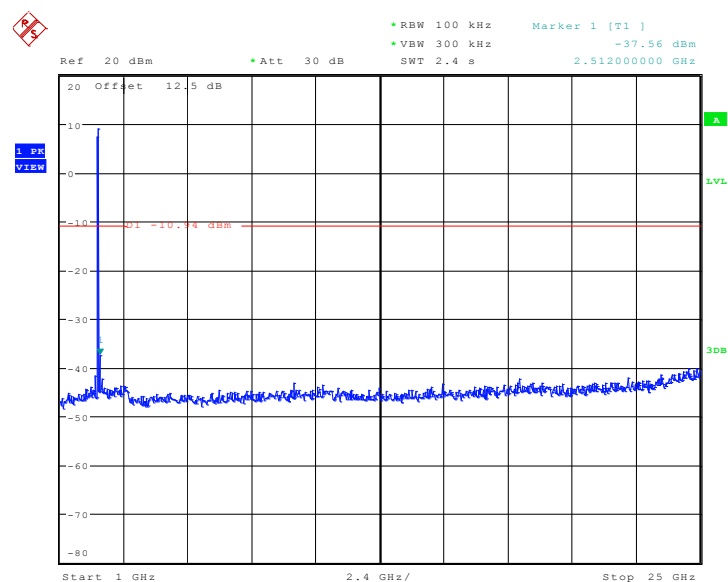
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 10:36:50

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

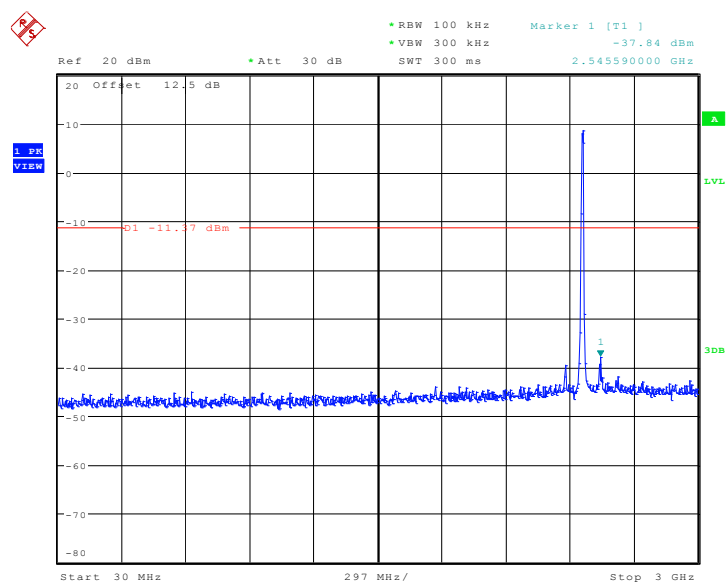


Date: 18.NOV.2010 10:37:06



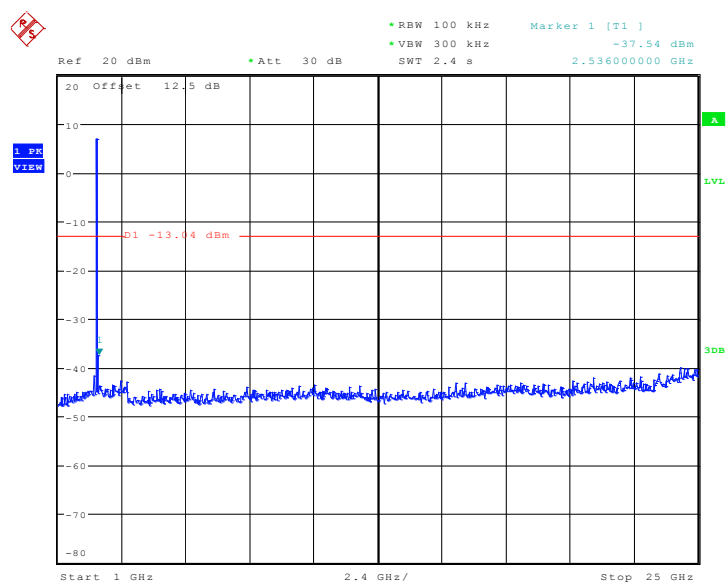
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 10:58:58

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

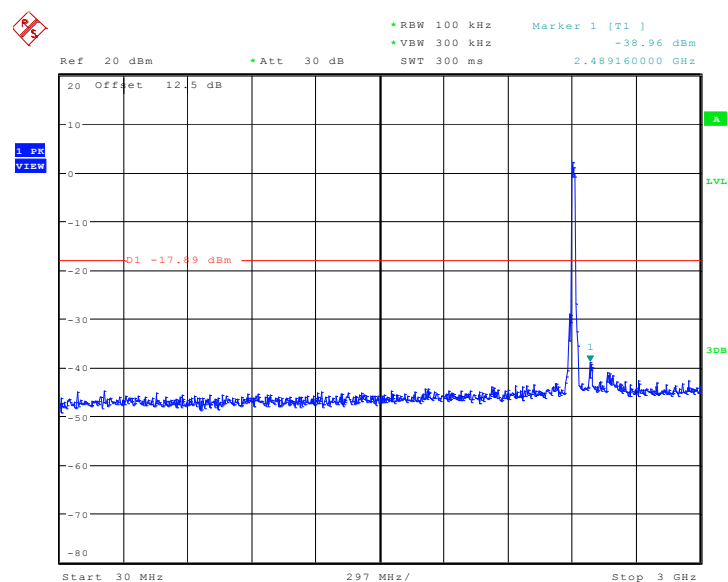


Date: 18.NOV.2010 10:59:15



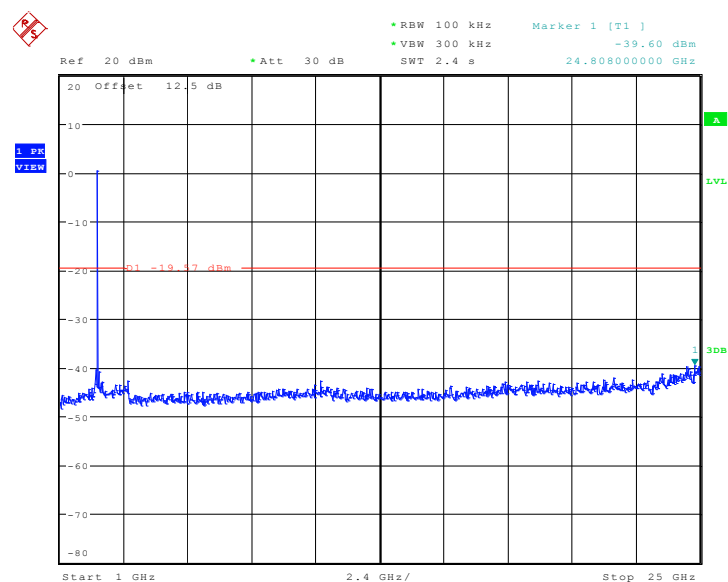
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 11:38:47

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

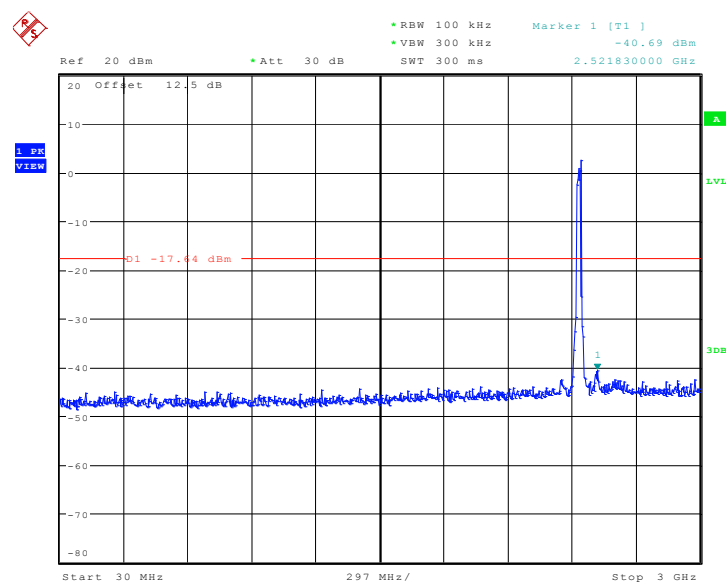


Date: 18.NOV.2010 11:39:03



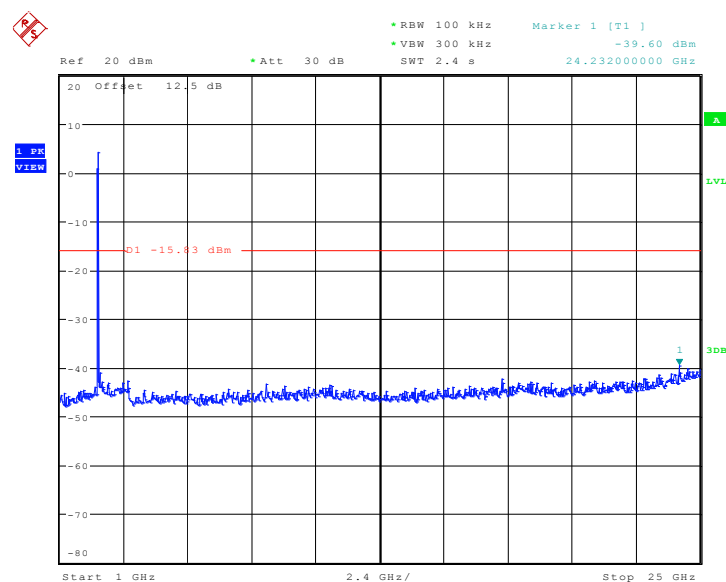
Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 11:29:56

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

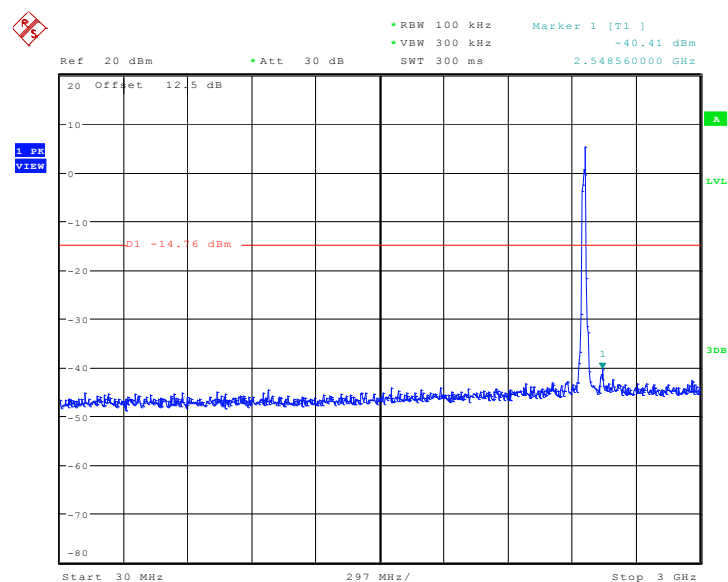


Date: 18.NOV.2010 11:30:13



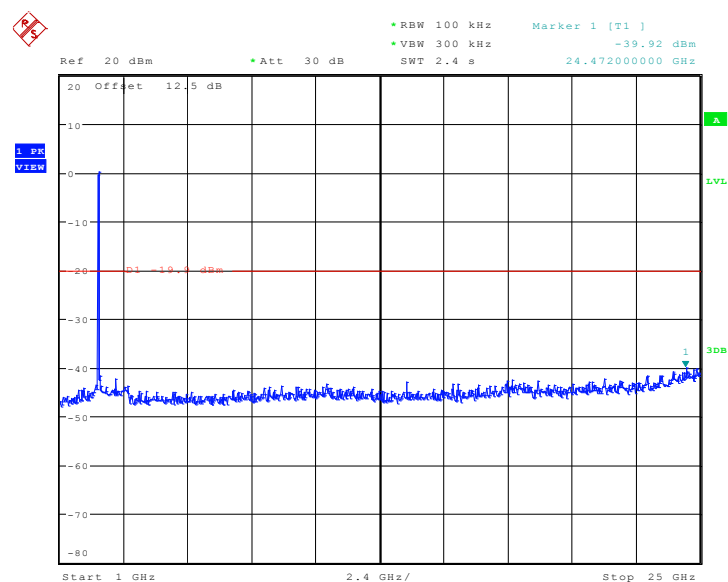
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 11:14:45

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

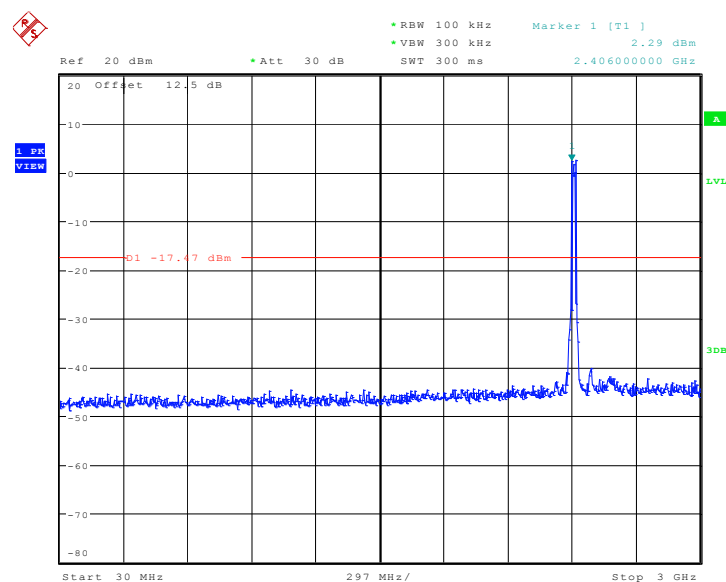


Date: 18.NOV.2010 11:15:02



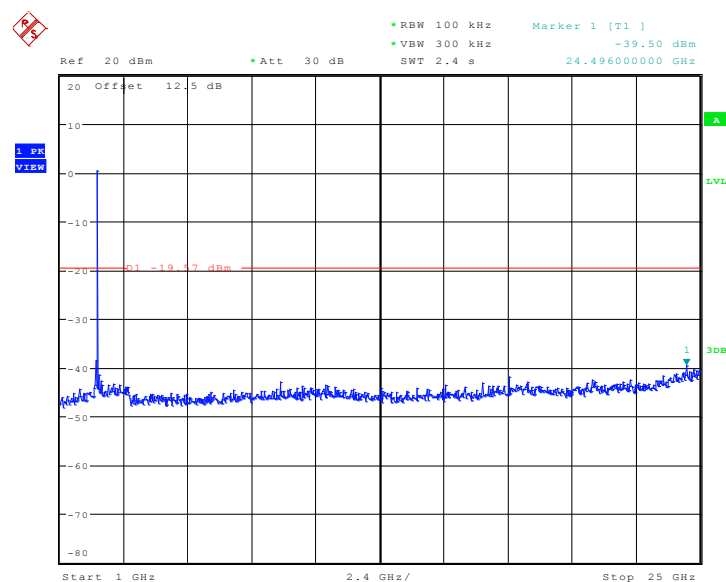
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 12:02:07

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

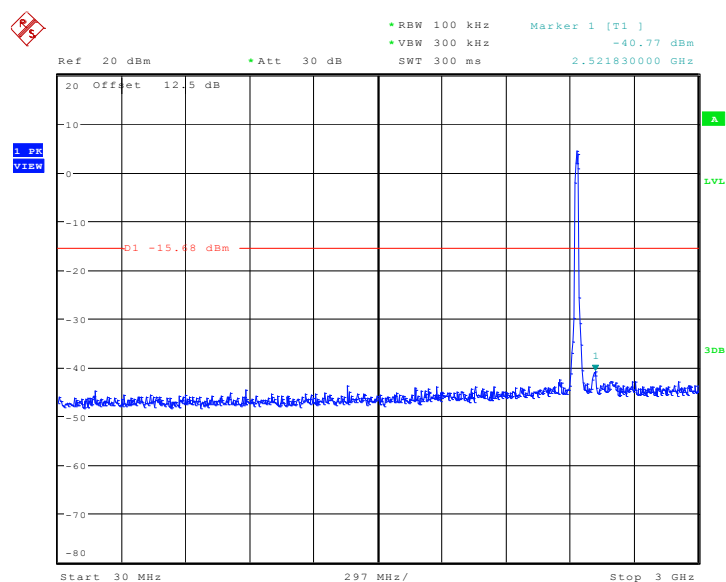


Date: 18.NOV.2010 12:02:24



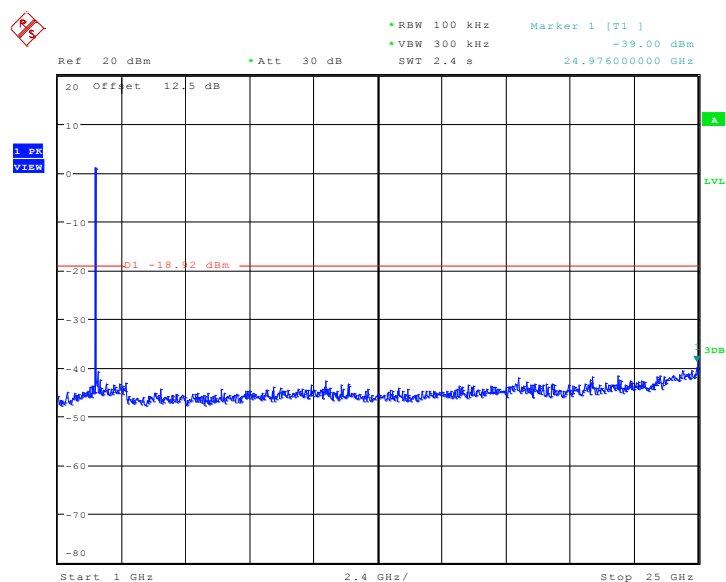
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 12:15:09

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

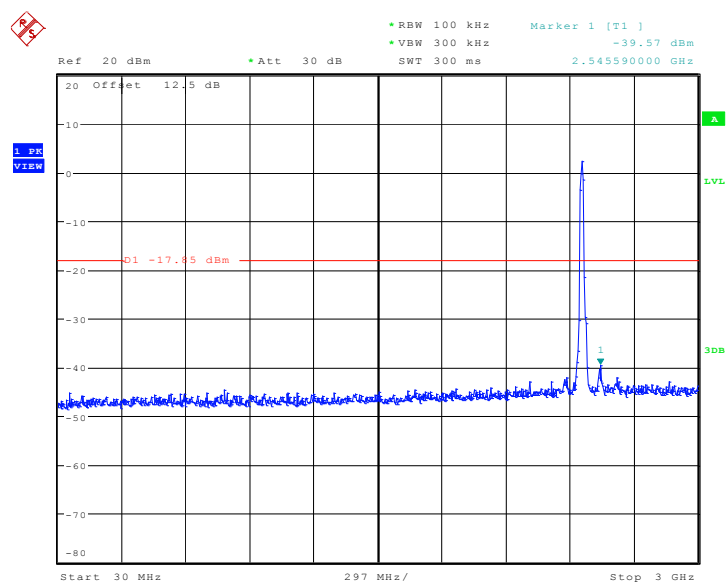


Date: 18.NOV.2010 12:15:25



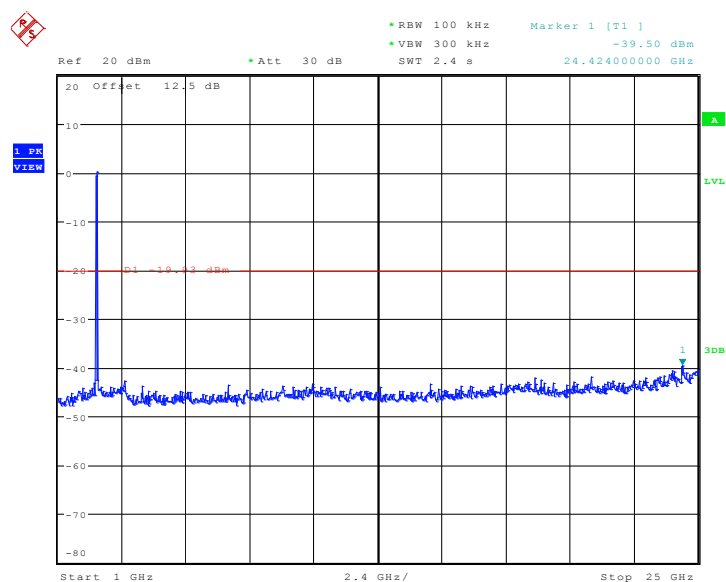
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Lancelot Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 18.NOV.2010 12:28:41

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz



Date: 18.NOV.2010 12:28:58

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.

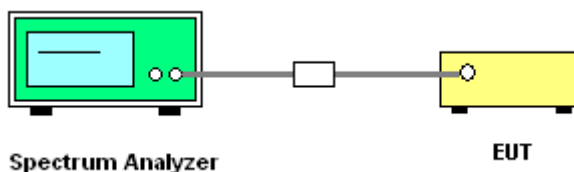
3.5.2 Measuring Instruments

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

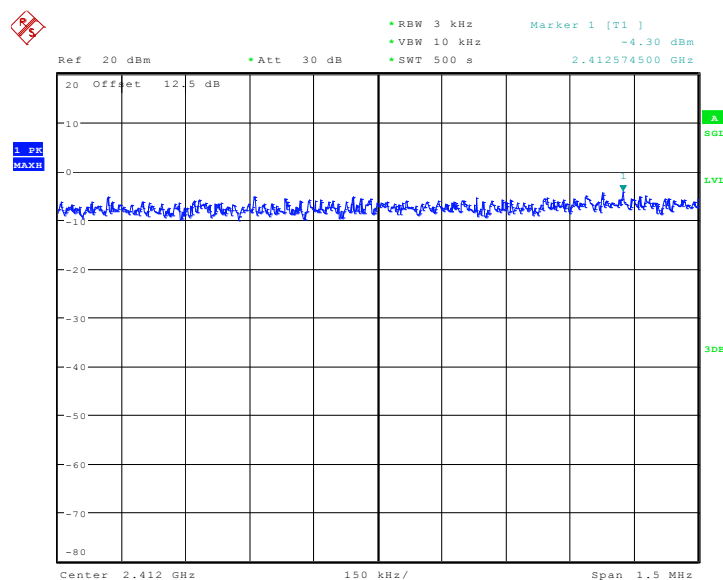


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1~3	Temperature :	24~26℃
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-4.30	8	Pass
06	2437	-4.68	8	Pass
11	2462	-4.96	8	Pass

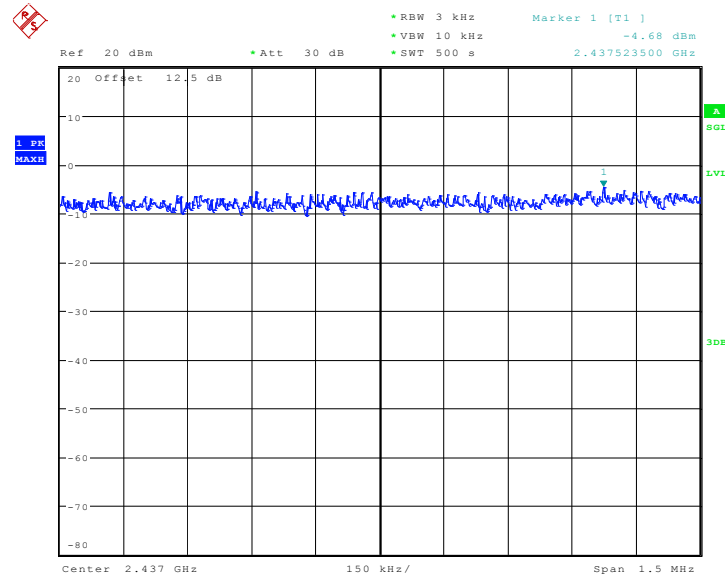
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 18.NOV.2010 10:46:27

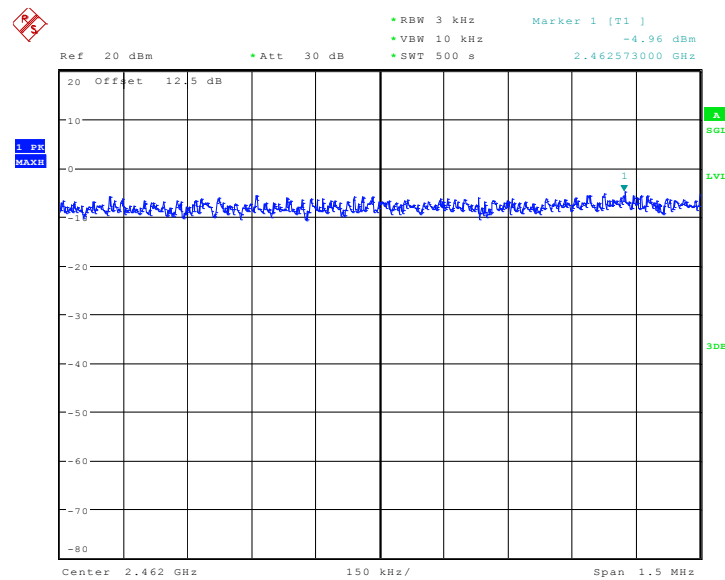


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 18.NOV.2010 10:36:29

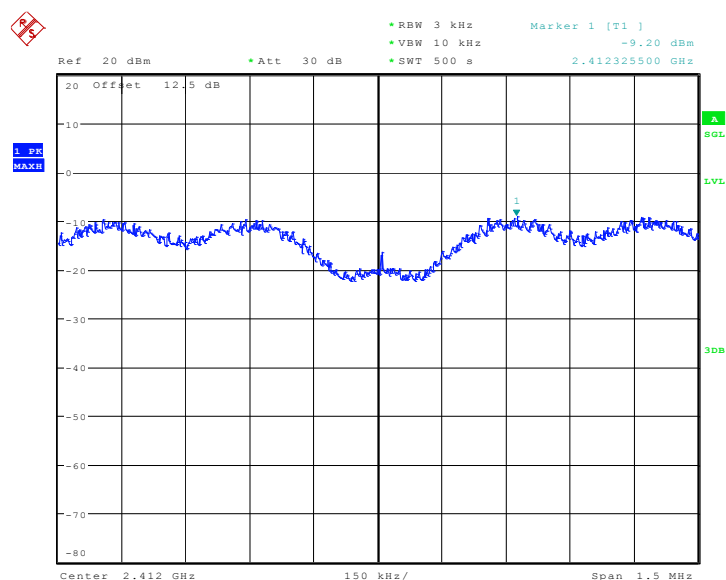
Mode 3 : PSD Plot on 802.11b Channel 11



Date: 18.NOV.2010 10:58:37

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

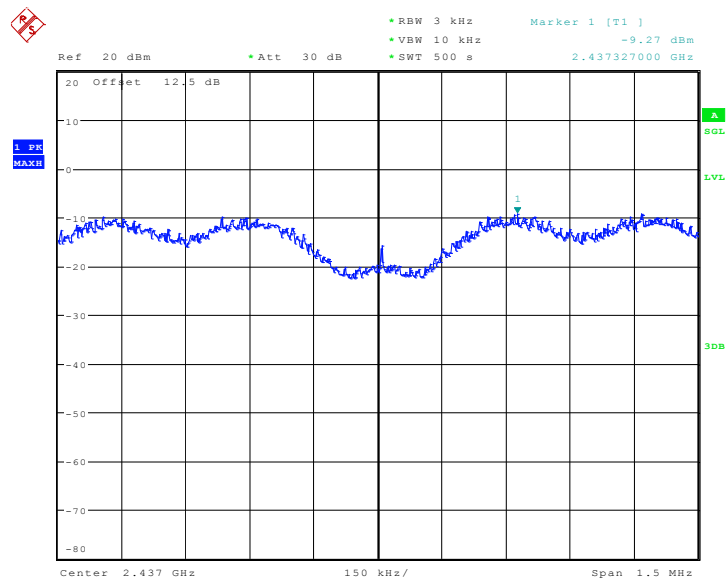
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.20	8	Pass
06	2437	-9.27	8	Pass
11	2462	-9.68	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 18.NOV.2010 11:47:43

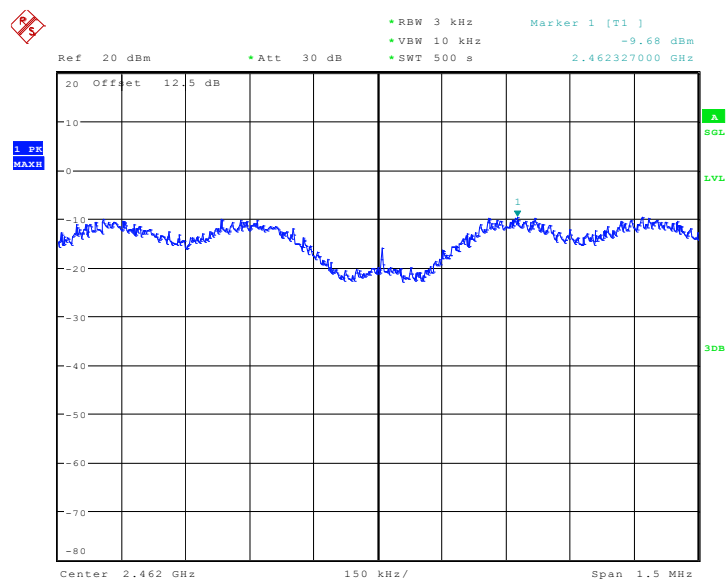


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 18.NOV.2010 11:29:33

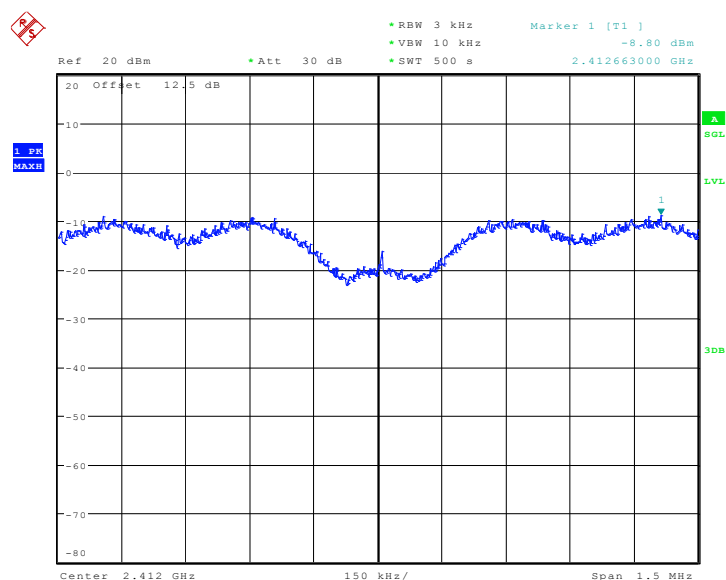
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 18.NOV.2010 11:14:24

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Lancelot Chen	Relative Humidity :	50~53%

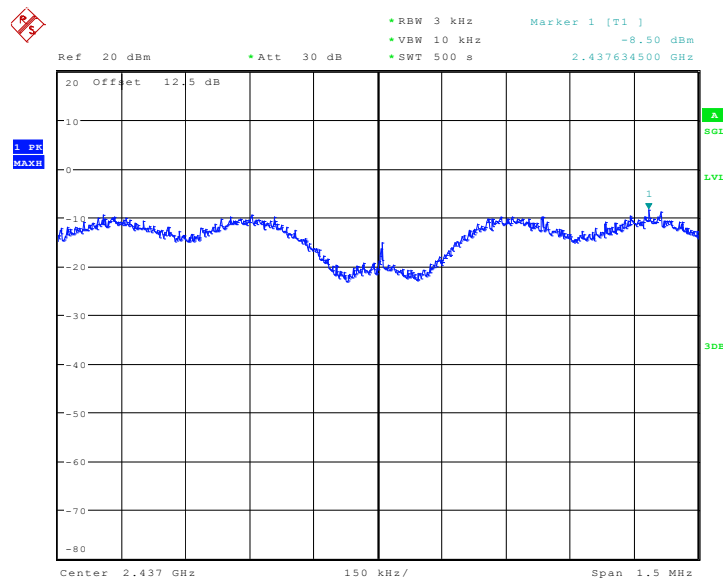
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.80	8	Pass
06	2437	-8.50	8	Pass
11	2462	-8.92	8	Pass

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


Date: 18.NOV.2010 12:01:46

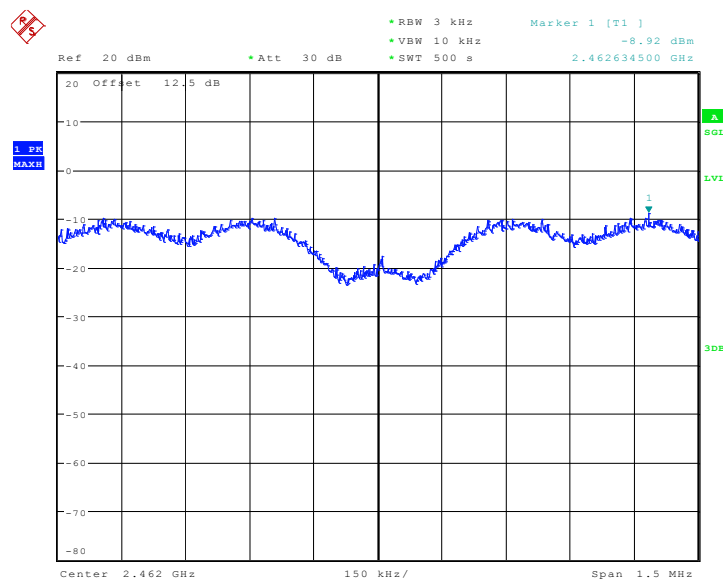


Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06



Date: 18.NOV.2010 12:14:48

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



Date: 18.NOV.2010 12:28:20

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.

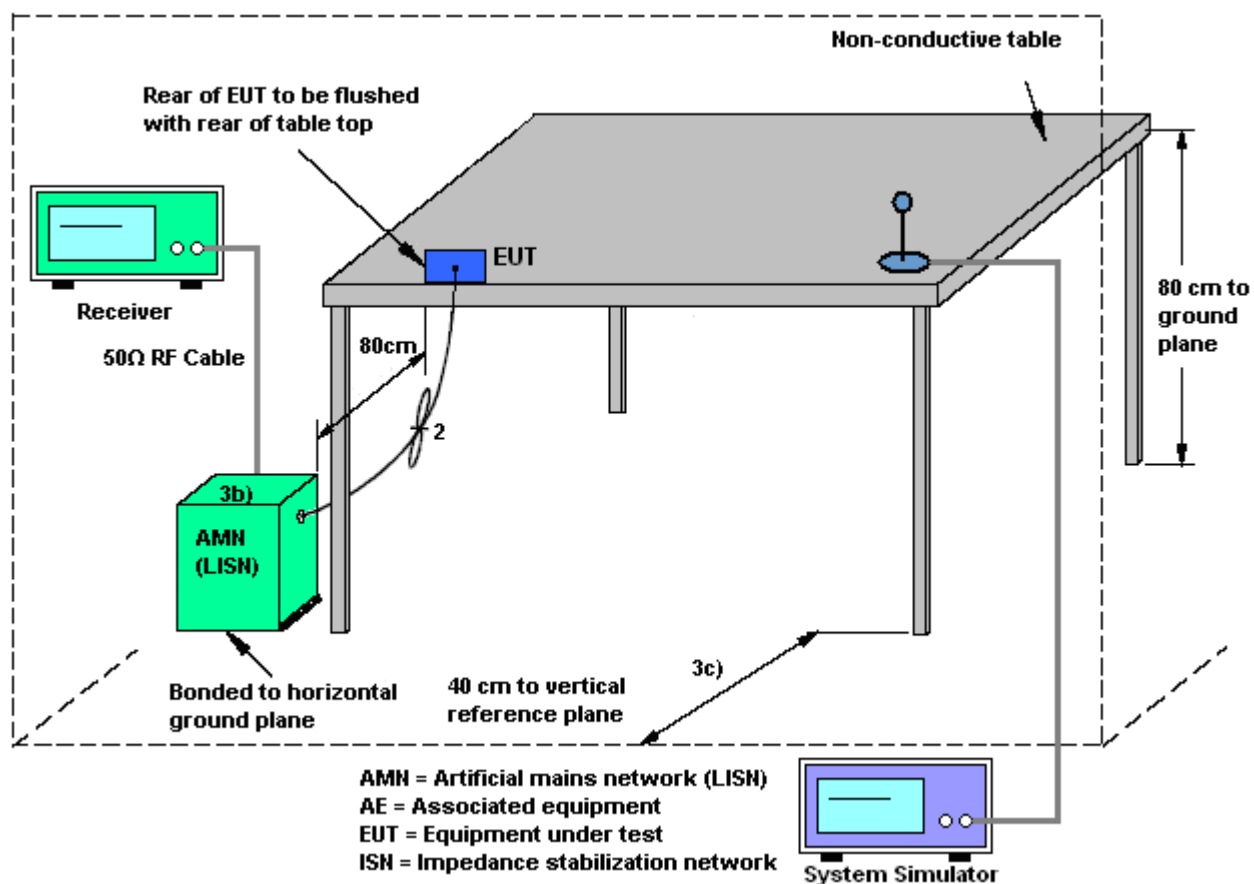
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

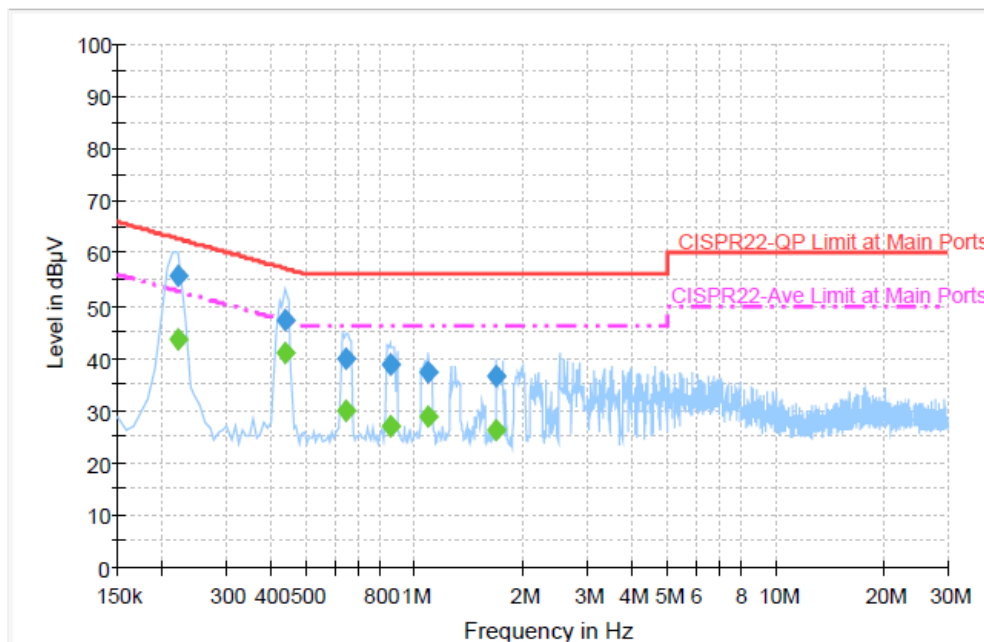
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	Novic Jiang	Relative Humidity :	36~38%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN Link + Battery 2 + USB Cable 2 (Charging from Adapter 2)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



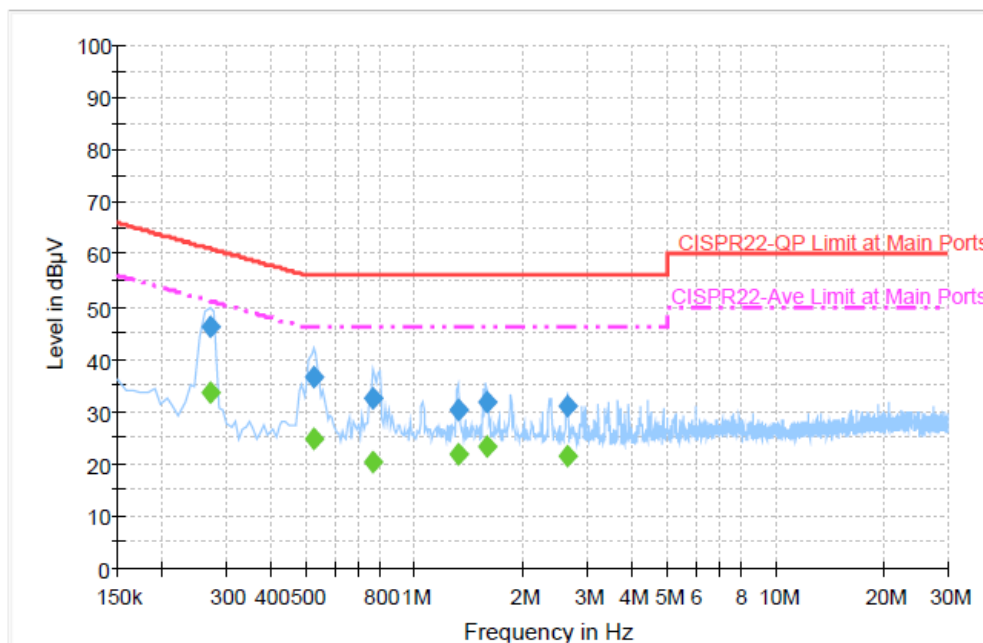
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.222000	55.6	Off	L1	19.3	7.4	63.0
0.438000	47.2	Off	L1	19.4	10.1	57.3
0.646000	40.0	Off	L1	19.3	16.0	56.0
0.854000	38.8	Off	L1	19.5	17.2	56.0
1.094000	37.3	Off	L1	19.4	18.7	56.0
1.678000	36.5	Off	L1	19.5	19.5	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.222000	43.4	Off	L1	19.3	9.6	53.0
0.438000	40.9	Off	L1	19.4	6.4	47.3
0.646000	29.9	Off	L1	19.3	16.1	46.0
0.854000	27.0	Off	L1	19.5	19.0	46.0
1.094000	28.9	Off	L1	19.4	17.1	46.0
1.678000	26.2	Off	L1	19.5	19.8	46.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	36~38%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN Link + Battery 2 + USB Cable 2 (Charging from 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	46.3	Off	N	19.4	15.1	61.4
0.526000	36.4	Off	N	19.3	19.6	56.0
0.766000	32.3	Off	N	19.4	23.7	56.0
1.318000	30.1	Off	N	19.5	25.9	56.0
1.590000	31.9	Off	N	19.4	24.1	56.0
2.646000	30.9	Off	N	19.5	25.1	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.270000	33.6	Off	N	19.4	17.8	51.4
0.526000	24.8	Off	N	19.3	21.2	46.0
0.766000	20.3	Off	N	19.4	25.7	46.0
1.318000	21.8	Off	N	19.5	24.2	46.0
1.590000	23.4	Off	N	19.4	22.6	46.0
2.646000	21.3	Off	N	19.5	24.7	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

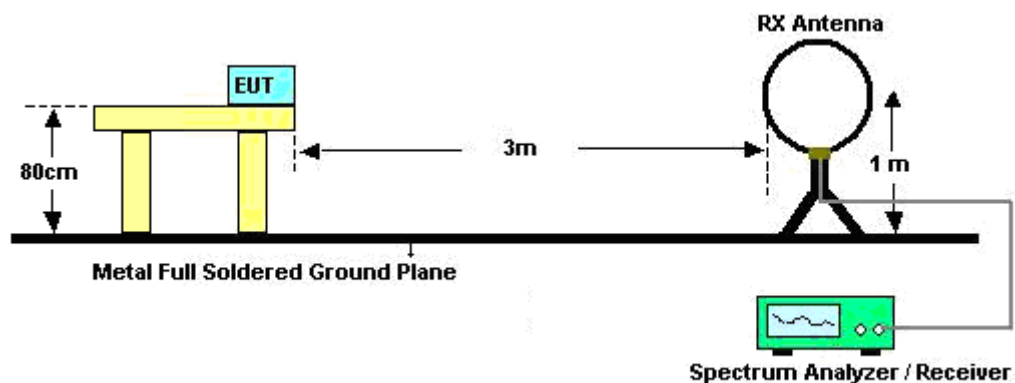
See list of measuring instruments of this test report.

3.7.3 Test Procedures

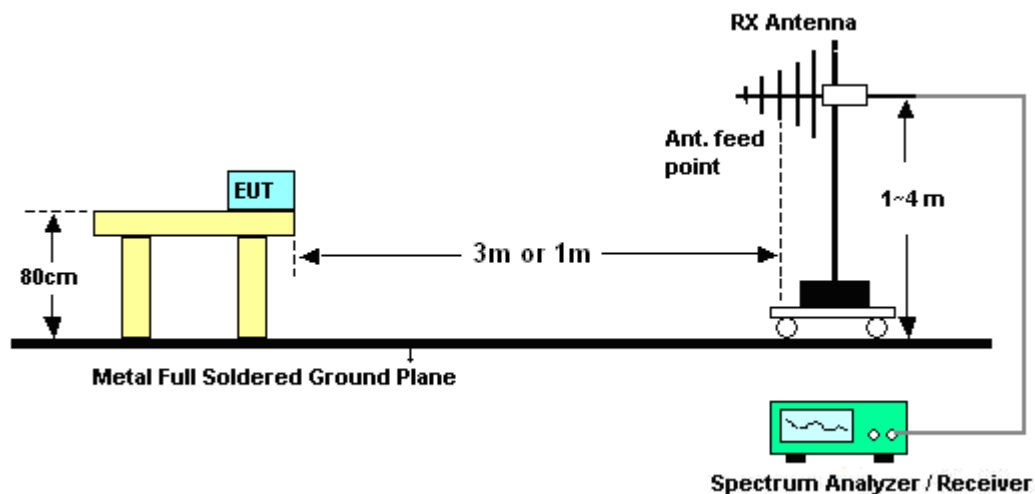
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - 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)
- 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 (9 kHz ~ 30 MHz)

Test Engineer :	Kai Wang	Temperature :	25~27℃	
		Relative Humidity :	48~50%	

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 = $40 \log (\text{specific distance} / \text{test distance})$ (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 :	25~27℃
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
37.29	28.55	-11.45	40.00	45.69	13.69	0.78	31.61	100	37	Peak
159.33	29.80	-13.70	43.50	49.61	10.14	1.48	31.43	-	-	Peak
192.54	29.72	-13.78	43.50	50.21	9.38	1.62	31.49	-	-	Peak
472.90	29.13	-16.87	46.00	40.76	17.27	2.58	31.48	-	-	Peak
910.40	30.21	-15.79	46.00	35.63	21.68	3.77	30.87	-	-	Peak
957.30	30.99	-15.01	46.00	35.86	21.89	3.79	30.55	-	-	Peak
2334.00	54.08	-19.92	74.00	52.24	32.39	3.86	34.41	132	339	Peak
2334.00	44.76	-9.24	54.00	42.92	32.39	3.86	34.41	132	339	Average
2389.61	55.19	-18.81	74.00	53.18	32.48	3.92	34.39	132	339	Peak
2389.61	42.65	-11.35	54.00	40.64	32.48	3.92	34.39	132	339	Average
2412.00	100.34	-	-	98.28	32.50	3.95	34.39	132	339	Average
2412.00	110.67	-	-	108.61	32.50	3.95	34.39	132	339	Peak
2494.00	61.25	-12.75	74.00	58.97	32.60	4.05	34.37	132	339	Peak
2494.00	52.28	-1.72	54.00	50.00	32.60	4.05	34.37	132	339	Average
2572.00	56.34	-34.33	90.67	53.82	32.69	4.12	34.29	132	339	Peak
7236.00	58.67	-15.33	74.00	49.18	36.20	7.18	33.89	100	358	Peak
7236.00	48.54	-5.46	54.00	39.05	36.20	7.18	33.89	100	358	Average

Test Mode :	Mode 1	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
31.89	31.74	-8.26	40.00	45.94	16.72	0.73	31.65	100	117	Peak
75.09	31.52	-8.48	40.00	55.46	6.62	1.07	31.63	-	-	Peak
192.54	34.30	-9.20	43.50	54.79	9.38	1.62	31.49	-	-	Peak
530.30	27.36	-18.64	46.00	37.89	18.23	2.78	31.54	-	-	Peak
908.30	30.96	-15.04	46.00	36.43	21.67	3.76	30.90	-	-	Peak
959.40	30.13	-15.87	46.00	34.97	21.90	3.80	30.54	-	-	Peak
2332.61	41.73	-12.27	54.00	39.89	32.39	3.86	34.41	100	142	Average
2332.61	51.85	-22.15	74.00	50.01	32.39	3.86	34.41	100	142	Peak
2412.00	102.05	-	-	99.99	32.50	3.95	34.39	100	142	Peak
2412.00	91.58	-	-	89.52	32.50	3.95	34.39	100	142	Average
2494.00	40.15	-13.85	54.00	37.87	32.60	4.05	34.37	100	142	Average
2494.00	50.28	-23.72	74.00	48.00	32.60	4.05	34.37	100	142	Peak
7236.00	54.54	-19.46	74.00	45.05	36.20	7.18	33.89	100	56	Peak
7236.00	44.19	-9.81	54.00	34.70	36.20	7.18	33.89	100	56	Average



Test Mode :	Mode 2	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
159.33	30.34	-13.16	43.50	50.15	10.14	1.48	31.43	100	227	Peak
192.54	29.62	-13.88	43.50	50.11	9.38	1.62	31.49	-	-	Peak
276.24	27.47	-18.53	46.00	43.86	13.09	1.96	31.44	-	-	Peak
339.90	25.46	-20.54	46.00	40.23	14.38	2.19	31.34	-	-	Peak
472.90	28.90	-17.10	46.00	40.53	17.27	2.58	31.48	-	-	Peak
910.40	30.84	-15.16	46.00	36.26	21.68	3.77	30.87	-	-	Peak
2358.00	58.28	-15.72	74.00	56.36	32.43	3.89	34.40	106	345	Peak
2358.00	49.04	-4.96	54.00	47.12	32.43	3.89	34.40	106	345	Average
2437.00	99.95	-	-	97.80	32.54	3.99	34.38	106	345	Average
2437.00	110.64	-	-	108.49	32.54	3.99	34.38	106	345	Peak
2494.00	50.83	-23.17	74.00	48.55	32.60	4.05	34.37	106	345	Peak
2494.00	38.21	-15.79	54.00	35.93	32.60	4.05	34.37	106	345	Average
2518.00	60.54	-30.10	90.64	58.20	32.62	4.07	34.35	106	345	Peak
7311.00	54.70	-19.30	74.00	45.25	36.18	7.20	33.93	100	349	Peak
7311.00	44.00	-10.00	54.00	34.55	36.18	7.20	33.93	100	349	Average

Test Mode :	Mode 2	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.74	-8.26	40.00	55.68	6.62	1.07	31.63	100	22	Peak
128.28	30.74	-12.76	43.50	49.06	11.85	1.38	31.55	-	-	Peak
194.43	34.76	-8.74	43.50	55.25	9.37	1.63	31.49	-	-	Peak
476.40	27.72	-18.28	46.00	39.28	17.33	2.59	31.48	-	-	Peak
544.30	27.93	-18.07	46.00	38.25	18.42	2.83	31.57	-	-	Peak
910.40	30.35	-15.65	46.00	35.77	21.68	3.77	30.87	-	-	Peak
2358.00	51.25	-22.75	74.00	49.33	32.43	3.89	34.40	195	332	Peak
2358.00	41.36	-12.64	54.00	39.44	32.43	3.89	34.40	195	332	Average
2437.00	93.24	-	-	91.09	32.54	3.99	34.38	195	332	Average
2437.00	103.24	-	-	101.09	32.54	3.99	34.38	195	332	Peak
2492.00	48.49	-25.51	74.00	46.21	32.60	4.05	34.37	195	332	Peak
2492.00	36.10	-17.90	54.00	33.82	32.60	4.05	34.37	195	332	Average
2518.00	54.80	-28.44	83.24	52.46	32.62	4.07	34.35	195	332	Peak
7311.00	52.91	-21.09	74.00	43.46	36.18	7.20	33.93	100	340	Peak
7311.00	42.83	-11.17	54.00	33.38	36.18	7.20	33.93	100	340	Average

Test Mode :	Mode 3	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
30.54	26.30	-13.70	40.00	39.93	17.31	0.72	31.66	-	-	Peak
158.79	30.08	-13.42	43.50	49.89	10.14	1.48	31.43	-	-	Peak
192.54	30.27	-13.23	43.50	50.76	9.38	1.62	31.49	100	57	Peak
476.40	28.86	-17.14	46.00	40.42	17.33	2.59	31.48	-	-	Peak
908.30	30.82	-15.18	46.00	36.29	21.67	3.76	30.90	-	-	Peak
959.40	29.79	-16.21	46.00	34.63	21.90	3.80	30.54	-	-	Peak
2382.00	57.16	-16.84	74.00	55.17	32.46	3.92	34.39	102	351	Peak
2382.00	48.61	-5.39	54.00	46.62	32.46	3.92	34.39	102	351	Average
2462.00	109.62	-	-	107.42	32.56	4.02	34.38	102	351	Peak
2462.00	99.50	-	-	97.30	32.56	4.02	34.38	102	351	Average
2488.98	41.66	-12.34	54.00	39.38	32.60	4.05	34.37	102	351	Average
2488.98	53.60	-20.40	74.00	51.32	32.60	4.05	34.37	102	351	Peak
2542.00	59.56	-30.06	89.62	57.14	32.67	4.08	34.33	102	351	Peak
8625.00	51.70	-22.30	74.00	42.32	36.21	7.36	34.19	100	261	Peak
8625.00	39.48	-14.52	54.00	30.10	36.21	7.36	34.19	100	261	Average

Test Mode :	Mode 3	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.77	-8.23	40.00	55.71	6.62	1.07	31.63	100	22	Peak
130.44	30.91	-12.59	43.50	49.33	11.74	1.39	31.55	-	-	Peak
196.59	34.33	-9.17	43.50	54.82	9.36	1.64	31.49	-	-	Peak
472.90	27.97	-18.03	46.00	39.60	17.27	2.58	31.48	-	-	Peak
908.30	30.60	-15.40	46.00	36.07	21.67	3.76	30.90	-	-	Peak
959.40	31.03	-14.97	46.00	35.87	21.90	3.80	30.54	-	-	Peak
2382.00	50.36	-23.64	74.00	48.37	32.46	3.92	34.39	103	234	Peak
2382.00	39.92	-14.08	54.00	37.93	32.46	3.92	34.39	103	234	Average
2462.00	102.70	-	-	100.50	32.56	4.02	34.38	103	234	Peak
2462.00	92.39	-	-	90.19	32.56	4.02	34.38	103	234	Average
2483.50	37.73	-16.27	54.00	35.47	32.58	4.05	34.37	103	234	Average
2483.50	49.53	-24.47	74.00	47.27	32.58	4.05	34.37	103	234	Peak
2542.00	56.65	-26.05	82.70	54.23	32.67	4.08	34.33	103	234	Peak
8658.00	51.82	-22.18	74.00	42.42	36.22	7.39	34.21	100	239	Peak
8658.00	40.30	-13.70	54.00	30.90	36.22	7.39	34.21	100	239	Average

Test Mode :	Mode 4	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
39.18	22.02	-17.98	40.00	39.57	13.27	0.80	31.62	-	-	Peak
159.33	30.26	-13.24	43.50	50.07	10.14	1.48	31.43	100	217	Peak
192.54	29.29	-14.21	43.50	49.78	9.38	1.62	31.49	-	-	Peak
472.90	29.52	-16.48	46.00	41.15	17.27	2.58	31.48	-	-	Peak
908.30	31.11	-14.89	46.00	36.58	21.67	3.76	30.90	-	-	Peak
957.30	29.19	-16.81	46.00	34.06	21.89	3.79	30.55	-	-	Peak
2326.00	53.12	-20.88	74.00	16.91	32.39	3.82	34.41	106	3	Peak
2326.00	42.12	-11.88	54.00	5.91	32.39	3.82	34.41	106	3	Average
2389.99	53.68	-0.32	54.00	17.28	32.48	3.92	34.39	106	3	Average
2389.99	73.82	-0.18	74.00	37.42	32.48	3.92	34.39	106	3	Peak
2412.00	105.29	-	-	68.84	32.50	3.95	34.39	106	3	Peak
2412.00	94.43	-	-	57.98	32.50	3.95	34.39	106	3	Average
2493.00	47.34	-6.66	54.00	10.69	32.60	4.05	34.37	106	3	Average
2493.00	58.04	-15.96	74.00	21.39	32.60	4.05	34.37	106	3	Peak
2572.00	52.98	-32.31	85.29	16.17	32.69	4.12	34.29	106	3	Peak
7236.00	53.72	-20.28	74.00	44.23	36.20	7.18	33.89	100	356	Peak
7236.00	41.01	-12.99	54.00	31.52	36.20	7.18	33.89	100	356	Average

Test Mode :	Mode 4	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
76.98	31.62	-8.38	40.00	55.42	6.75	1.07	31.62	100	23	Peak
130.44	30.79	-12.71	43.50	49.21	11.74	1.39	31.55	-	-	Peak
194.43	34.07	-9.43	43.50	54.56	9.37	1.63	31.49	-	-	Peak
539.40	28.28	-17.72	46.00	38.68	18.35	2.81	31.56	-	-	Peak
908.30	31.33	-14.67	46.00	36.80	21.67	3.76	30.90	-	-	Peak
946.80	31.00	-15.00	46.00	35.99	21.84	3.79	30.62	-	-	Peak
2389.99	46.72	-7.28	54.00	10.32	32.48	3.92	34.39	100	150	Average
2389.99	64.62	-9.38	74.00	28.22	32.48	3.92	34.39	100	150	Peak
2412.00	97.51	-	-	61.06	32.50	3.95	34.39	100	150	Peak
2412.00	85.72	-	-	49.27	32.50	3.95	34.39	100	150	Average
2492.00	38.04	-15.96	54.00	1.39	32.60	4.05	34.37	100	150	Average
2492.00	49.81	-24.19	74.00	13.16	32.60	4.05	34.37	100	150	Peak
8565.00	51.61	-22.39	74.00	42.31	36.15	7.27	34.12	100	68	Peak
8565.00	39.98	-14.02	54.00	30.68	36.15	7.27	34.12	100	68	Average

Test Mode :	Mode 5	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
79.14	21.08	-18.92	40.00	44.66	6.95	1.08	31.61	-	-	Peak
159.33	29.96	-13.54	43.50	49.77	10.14	1.48	31.43	100	237	Peak
194.43	28.95	-14.55	43.50	49.44	9.37	1.63	31.49	-	-	Peak
339.90	24.82	-21.18	46.00	39.59	14.38	2.19	31.34	-	-	Peak
472.90	28.77	-17.23	46.00	40.40	17.27	2.58	31.48	-	-	Peak
908.30	29.47	-16.53	46.00	34.94	21.67	3.76	30.90	-	-	Peak
2358.00	56.21	-17.79	74.00	19.89	32.43	3.89	34.4	106	351	Peak
2358.00	44.73	-9.27	54.00	8.41	32.43	3.89	34.4	106	351	Average
2390.00	37.29	-16.71	54.00	0.89	32.48	3.92	34.39	106	351	Average
2390.00	59.31	-14.69	74.00	22.91	32.48	3.92	34.39	106	351	Peak
2437.00	106.74	-	-	70.21	32.54	3.99	34.38	106	351	Peak
2437.00	94.50	-	-	57.97	32.54	3.99	34.38	106	351	Average
2484.00	38.84	-15.16	54.00	2.21	32.58	4.05	34.37	106	351	Average
2484.00	52.45	-21.55	74.00	15.82	32.58	4.05	34.37	106	351	Peak
2519.00	58.08	-28.66	86.74	21.39	32.62	4.07	34.35	106	351	Peak
8817.00	51.54	-22.46	74.00	41.96	36.35	7.59	34.36	100	33	Peak
8817.00	39.62	-14.38	54.00	30.04	36.35	7.59	34.36	100	33	Average

Test Mode :	Mode 5	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.38	-8.62	40.00	55.32	6.62	1.07	31.63	100	122	Peak
128.28	31.82	-11.68	43.50	50.14	11.85	1.38	31.55	-	-	Peak
192.54	34.55	-8.95	43.50	55.04	9.38	1.62	31.49	-	-	Peak
474.30	27.25	-18.75	46.00	38.86	17.29	2.58	31.48	-	-	Peak
544.30	27.41	-18.59	46.00	37.73	18.42	2.83	31.57	-	-	Peak
910.40	30.22	-15.78	46.00	35.64	21.68	3.77	30.87	-	-	Peak
2390.00	51.02	-22.98	74.00	14.62	32.48	3.92	34.39	183	340	Peak
2390.00	36.99	-17.01	54.00	0.59	32.48	3.92	34.39	183	340	Average
2437.00	98.80	-	-	62.27	32.54	3.99	34.38	183	340	Peak
2437.00	87.51	-	-	50.98	32.54	3.99	34.38	183	340	Average
2484.00	36.61	-17.39	54.00	-0.02	32.58	4.05	34.37	183	340	Average
2484.00	49.65	-24.35	74.00	13.02	32.58	4.05	34.37	183	340	Peak
2518.00	54.45	-24.35	78.80	17.76	32.62	4.07	34.35	183	340	Peak
8829.00	51.90	-22.10	74.00	42.30	36.37	7.59	34.36	100	195	Peak
8829.00	40.55	-13.45	54.00	30.95	36.37	7.59	34.36	100	195	Average



Test Mode :	Mode 6	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
40.53	26.15	-13.85	40.00	44.65	12.32	0.81	31.63	-	-	Peak
159.33	30.59	-12.91	43.50	50.40	10.14	1.48	31.43	100	7	Peak
194.43	29.11	-14.39	43.50	49.60	9.37	1.63	31.49	-	-	Peak
341.30	25.00	-21.00	46.00	39.72	14.42	2.20	31.34	-	-	Peak
476.40	28.26	-17.74	46.00	39.82	17.33	2.59	31.48	-	-	Peak
910.40	28.57	-17.43	46.00	33.99	21.68	3.77	30.87	-	-	Peak
2382.00	55.42	-18.58	74.00	19.04	32.46	3.92	34.39	106	352	Peak
2382.00	44.79	-9.21	54.00	8.41	32.46	3.92	34.39	106	352	Average
2462.00	105.39	-	-	68.81	32.56	4.02	34.38	106	352	Peak
2462.00	93.92	-	-	57.34	32.56	4.02	34.38	106	352	Average
2483.50	51.95	-2.05	54.00	15.32	32.58	4.05	34.37	106	352	Average
2483.50	73.59	-0.41	74.00	36.96	32.58	4.05	34.37	106	352	Peak
2539.00	59.12	-26.27	85.39	22.37	32.67	4.08	34.33	106	352	Peak
8961.00	51.50	-22.50	74.00	41.76	36.46	7.77	34.49	100	36	Peak
8961.00	40.10	-13.90	54.00	30.36	36.46	7.77	34.49	100	36	Average

Test Mode :	Mode 6	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.53	-8.47	40.00	55.47	6.62	1.07	31.63	100	22	Peak
128.28	31.07	-12.43	43.50	49.39	11.85	1.38	31.55	-	-	Peak
196.59	33.86	-9.64	43.50	54.35	9.36	1.64	31.49	-	-	Peak
474.30	27.30	-18.70	46.00	38.91	17.29	2.58	31.48	-	-	Peak
544.30	28.07	-17.93	46.00	38.39	18.42	2.83	31.57	-	-	Peak
908.30	28.26	-17.74	46.00	33.73	21.67	3.76	30.90	-	-	Peak
2382.00	51.02	-22.98	74.00	14.64	32.46	3.92	34.39	100	139	Peak
2382.00	38.02	-15.98	54.00	1.64	32.46	3.92	34.39	100	139	Average
2462.00	96.51	-	-	59.93	32.56	4.02	34.38	100	139	Peak
2462.00	83.96	-	-	47.38	32.56	4.02	34.38	100	139	Average
2483.50	43.71	-10.29	54.00	7.08	32.58	4.05	34.37	100	139	Average
2483.50	65.43	-8.57	74.00	28.80	32.58	4.05	34.37	100	139	Peak
9000.00	51.62	-22.38	74.00	41.83	36.50	7.80	34.51	100	103	Peak
9000.00	39.82	-14.18	54.00	30.03	36.50	7.80	34.51	100	103	Average

Test Mode :	Mode 7	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
79.68	21.72	-18.28	40.00	45.30	6.95	1.08	31.61	-	-	Peak
159.33	30.51	-12.99	43.50	50.32	10.14	1.48	31.43	100	227	Peak
192.54	29.24	-14.26	43.50	49.73	9.38	1.62	31.49	-	-	Peak
339.90	24.34	-21.66	46.00	39.11	14.38	2.19	31.34	-	-	Peak
477.80	28.28	-17.72	46.00	39.79	17.37	2.59	31.47	-	-	Peak
918.80	28.10	-17.90	46.00	33.44	21.71	3.77	30.82	-	-	Peak
2334.00	53.72	-20.28	74.00	17.47	32.39	3.86	34.41	106	358	Peak
2334.00	43.21	-10.79	54.00	6.96	32.39	3.86	34.41	106	358	Average
2389.66	53.81	-0.19	54.00	17.41	32.48	3.92	34.39	106	358	Average
2389.66	73.65	-0.35	74.00	37.25	32.48	3.92	34.39	106	358	Peak
2412.00	93.58	-	-	57.13	32.50	3.95	34.39	106	358	Average
2412.00	104.89	-	-	68.44	32.50	3.95	34.39	106	358	Peak
2494.00	60.58	-13.42	74.00	23.93	32.60	4.05	34.37	106	358	Peak
2494.00	49.01	-4.99	54.00	12.36	32.60	4.05	34.37	106	358	Average
2572.00	54.45	-30.44	84.89	17.64	32.69	4.12	34.29	106	358	Peak
8505.00	51.70	-22.30	74.00	42.47	36.10	7.21	34.08	100	79	Peak
8505.00	40.02	-13.98	54.00	30.79	36.10	7.21	34.08	100	79	Average

Test Mode :	Mode 7	Temperature :	25~27°C
Test Channel :	01	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	Polarization :	Vertical
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
31.89	29.28	-10.72	40.00	43.48	16.72	0.73	31.65	-	-	Peak
75.09	31.33	-8.67	40.00	55.27	6.62	1.07	31.63	100	122	Peak
192.54	33.96	-9.54	43.50	54.45	9.38	1.62	31.49	-	-	Peak
472.90	28.44	-17.56	46.00	40.07	17.27	2.58	31.48	-	-	Peak
539.40	28.47	-17.53	46.00	38.87	18.35	2.81	31.56	-	-	Peak
908.30	28.59	-17.41	46.00	34.06	21.67	3.76	30.90	-	-	Peak
2389.99	47.29	-6.71	54.00	10.89	32.48	3.92	34.39	100	148	Average
2389.99	64.95	-9.05	74.00	28.55	32.48	3.92	34.39	100	148	Peak
2412.00	96.73	-	-	60.28	32.50	3.95	34.39	100	148	Peak
2412.00	85.44	-	-	48.99	32.50	3.95	34.39	100	148	Average
2492.00	38.07	-15.93	54.00	1.42	32.60	4.05	34.37	100	148	Average
2492.00	50.05	-23.95	74.00	13.40	32.60	4.05	34.37	100	148	Peak
8502.00	51.79	-22.21	74.00	42.56	36.10	7.21	34.08	100	12	Peak
8502.00	39.35	-14.65	54.00	30.12	36.10	7.21	34.08	100	12	Average

Test Mode :	Mode 8	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
79.14	21.49	-18.51	40.00	45.07	6.95	1.08	31.61	-	-	Peak
159.33	30.15	-13.35	43.50	49.96	10.14	1.48	31.43	100	67	Peak
194.43	29.43	-14.07	43.50	49.92	9.37	1.63	31.49	-	-	Peak
341.30	24.88	-21.12	46.00	39.60	14.42	2.20	31.34	-	-	Peak
472.90	27.95	-18.05	46.00	39.58	17.27	2.58	31.48	-	-	Peak
908.30	27.92	-18.08	46.00	33.39	21.67	3.76	30.90	-	-	Peak
2356.00	55.48	-18.52	74.00	53.60	32.43	3.86	34.41	106	345	Peak
2356.00	44.56	-9.44	54.00	42.68	32.43	3.86	34.41	106	345	Average
2390.00	37.79	-16.21	54.00	35.78	32.48	3.92	34.39	106	345	Average
2390.00	57.10	-16.90	74.00	55.09	32.48	3.92	34.39	106	345	Peak
2437.00	93.55	-	-	91.40	32.54	3.99	34.38	106	345	Average
2437.00	104.95	-	-	102.80	32.54	3.99	34.38	106	345	Peak
2486.00	51.56	-22.44	74.00	49.30	32.58	4.05	34.37	106	345	Peak
2486.00	38.67	-15.33	54.00	36.41	32.58	4.05	34.37	106	345	Average
2518.00	58.65	-26.30	84.95	56.31	32.62	4.07	34.35	106	345	Peak
8937.00	51.23	-22.77	74.00	41.51	36.45	7.74	34.47	100	107	Peak
8937.00	39.83	-14.17	54.00	30.11	36.45	7.74	34.47	100	107	Average

Test Mode :	Mode 8	Temperature :	25~27°C
Test Channel :	06	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.29	-8.71	40.00	55.23	6.62	1.07	31.63	100	222	Peak
130.44	30.70	-12.80	43.50	49.12	11.74	1.39	31.55	-	-	Peak
190.38	34.17	-9.33	43.50	54.67	9.40	1.60	31.50	-	-	Peak
476.40	27.24	-18.76	46.00	38.80	17.33	2.59	31.48	-	-	Peak
540.80	27.23	-18.77	46.00	37.59	18.38	2.82	31.56	-	-	Peak
948.90	28.08	-17.92	46.00	33.05	21.85	3.79	30.61	-	-	Peak
2310.24	45.94	-28.06	74.00	44.16	32.37	3.82	34.41	107	314	Peak
2310.24	36.90	-17.10	54.00	35.12	32.37	3.82	34.41	107	314	Average
2437.00	96.17	-	-	94.04	32.52	3.99	34.38	107	314	Peak
2437.00	84.61	-	-	82.46	32.54	3.99	34.38	107	314	Average
2484.00	47.44	-26.56	74.00	45.18	32.58	4.05	34.37	107	314	Peak
2484.00	35.72	-18.28	54.00	33.46	32.58	4.05	34.37	107	314	Average
2516.00	51.11	-25.06	76.17	48.77	32.62	4.07	34.35	107	314	Peak
8850.00	51.41	-22.59	74.00	41.79	36.38	7.62	34.38	100	17	Peak
8850.00	39.79	-14.21	54.00	30.17	36.38	7.62	34.38	100	17	Average



Test Mode :	Mode 9	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
79.14	22.44	-17.56	40.00	46.02	6.95	1.08	31.61	-	-	Peak
159.33	30.51	-12.99	43.50	50.32	10.14	1.48	31.43	100	267	Peak
192.54	29.69	-13.81	43.50	50.18	9.38	1.62	31.49	-	-	Peak
474.30	28.85	-17.15	46.00	40.46	17.29	2.58	31.48	-	-	Peak
617.80	25.04	-20.96	46.00	34.53	19.21	2.97	31.67	-	-	Peak
908.30	28.40	-17.60	46.00	33.87	21.67	3.76	30.90	-	-	Peak
2382.00	55.30	-18.70	74.00	53.31	32.46	3.92	34.39	103	354	Peak
2382.00	43.98	-10.02	54.00	41.99	32.46	3.92	34.39	103	354	Average
2462.00	104.94	-	-	102.74	32.56	4.02	34.38	103	354	Peak
2462.00	92.94	-	-	90.74	32.56	4.02	34.38	103	354	Average
2483.50	52.40	-1.60	54.00	50.14	32.58	4.05	34.37	103	354	Average
2483.50	73.00	-1.00	74.00	70.74	32.58	4.05	34.37	103	354	Peak
2542.00	58.22	-26.72	84.94	55.80	32.67	4.08	34.33	103	354	Peak
8589.00	51.26	-22.74	74.00	41.94	36.17	7.30	34.15	100	44	Peak
8589.00	39.66	-14.34	54.00	30.34	36.17	7.30	34.15	100	44	Average

Test Mode :	Mode 9	Temperature :	25~27°C
Test Channel :	11	Relative Humidity :	48~50%
Test Engineer :	Kai Wang	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
75.09	31.41	-8.59	40.00	55.35	6.62	1.07	31.63	100	122	Peak
130.44	30.68	-12.82	43.50	49.10	11.74	1.39	31.55	-	-	Peak
194.43	34.13	-9.37	43.50	54.62	9.37	1.63	31.49	-	-	Peak
313.30	26.46	-19.54	46.00	42.00	13.77	2.11	31.42	-	-	Peak
539.40	27.03	-18.97	46.00	37.43	18.35	2.81	31.56	-	-	Peak
908.30	28.46	-17.54	46.00	33.93	21.67	3.76	30.90	-	-	Peak
2382.00	50.85	-23.15	74.00	48.86	32.46	3.92	34.39	107	233	Peak
2382.00	38.68	-15.32	54.00	36.69	32.46	3.92	34.39	107	233	Average
2462.00	97.13	-	-	94.93	32.56	4.02	34.38	107	233	Peak
2462.00	86.25	-	-	84.05	32.56	4.02	34.38	107	233	Average
2484.61	47.50	-6.50	54.00	45.24	32.58	4.05	34.37	107	233	Average
2484.61	70.95	-3.05	74.00	68.69	32.58	4.05	34.37	107	233	Peak
2550.00	52.47	-24.66	77.13	50.01	32.67	4.10	34.31	107	233	Peak
8874.00	51.65	-22.35	74.00	42.01	36.39	7.65	34.40	100	53	Peak
8874.00	40.17	-13.83	54.00	30.53	36.39	7.65	34.40	100	53	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 Integral 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	FSP30	101329	9kHz~30GHz	Apr. 26, 2010	Apr. 25, 2011	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	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)
System Simulator	R&S	CMU200	117997	N/A	May 14, 2009	May 13, 2011	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000MHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 31, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 02, 2010	Aug. 01, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct.19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 15, 2010	Apr. 14, 2011	Radiation (03CH06-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	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				