

FCC RF Test Report

APPLICANT : SerComm Corporation
EQUIPMENT : FemtoCell Router
BRAND NAME : SerComm
MODEL NAME : FC235U, NSN
FCC ID : P27FC235U
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Sep. 15, 2011 and completely tested on Oct. 25, 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.

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FCC ID : P27FC235U

Page Number : 1 of 144

Report Issued Date : Oct. 26, 2011

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR191547	Rev. 01	Initial issue of report	Oct. 26, 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 4.6.1	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	-
3.5	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 8.7 dB at 0.422 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.43 dB at 7311 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

SerComm Corporation

8F., No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan

1.2 Manufacturer

SerComm Corporation

8F., No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	FemtoCell Router
Brand Name	SerComm
Model Name	FC235U, NSN
FCC ID	P27FC235U
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 : 20.19 dBm (0.1045 W) 802.11g : 16.78 dBm (0.0476 W) 802.11n (BW 20MHz) : 18.22 dBm (0.0664 W) 802.11n (BW 40MHz) : 18.24 dBm (0.0667 W)
Antenna Type	PCB Antenna with gain 4.2 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
2.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	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.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	USB Dongle	Kingston	DataTraveler 100	FCC DoC	N/A	N/A
6.	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 (Chain A) RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	18.92	-	-	19.03
CH 06	2437 MHz	19.03	19.16	19.94	20.09
CH 11	2462 MHz	19.00	-	-	18.97

Channel	Frequency	2.4GHz 802.11b (Chain B) RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	18.94	-	-	19.05
CH 06	2437 MHz	18.94	18.88	19.76	20.13
CH 11	2462 MHz	19.11	-	-	19.25

Channel	Frequency	2.4GHz 802.11b (Chain A+B) RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	19.19	-	-	19.07
CH 06	2437 MHz	18.99	19.05	20.10	20.19
CH 11	2462 MHz	18.89	-	-	19.37

Channel	Frequency	2.4GHz 802.11g (Chain A) 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	16.27	-	-	-	-	-	-	-
CH 06	2437 MHz	16.37	16.11	16.11	16.20	16.10	16.26	16.16	16.10
CH 11	2462 MHz	16.27	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11g (Chain B) 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	15.74	-	-	-	-	-	-	-
CH 06	2437 MHz	16.00	15.97	15.91	15.88	15.78	15.56	15.53	15.52
CH 11	2462 MHz	15.63	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11g (Chain A+B) 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	16.31	-	-	-	-	-	-	-
CH 06	2437 MHz	16.78	16.69	16.52	16.52	16.07	16.23	16.42	16.52
CH 11	2462 MHz	16.67	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) (Chain A) RF Power (dBm)							
		OFDM Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	17.23	-	-	-	-	-	-	-
CH 06	2437 MHz	18.15	18.13	17.19	17.16	16.08	16.19	15.30	15.32
CH 11	2462 MHz	17.00	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) (Chain B) RF Power (dBm)							
		OFDM Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	17.12	-	-	-	-	-	-	-
CH 06	2437 MHz	18.16	18.16	16.80	17.06	16.04	16.11	15.15	14.95
CH 11	2462 MHz	17.06	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) (Chain A+B) RF Power (dBm)							
		OFDM Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	17.09	-	-	-	-	-	-	-
CH 06	2437 MHz	18.22	17.80	17.28	16.74	15.87	15.89	15.04	15.08
CH 11	2462 MHz	17.24	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 40MHz) (Chain A) RF Power (dBm)							
		OFDM Data Rate							
		13.5 Mbps	27 Mbps	40.5 Mbps	54 Mbps	81 Mbps	108 Mbps	121.5 Mbps	135 Mbps
CH 03	2422 MHz	17.45	-	-	-	-	-	-	-
CH 06	2437 MHz	18.16	18.11	17.07	17.06	16.11	16.21	14.93	14.97
CH 09	2452 MHz	17.12	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 40MHz) (Chain B) RF Power (dBm)							
		OFDM Data Rate							
		13.5 Mbps	27 Mbps	40.5 Mbps	54 Mbps	81 Mbps	108 Mbps	121.5 Mbps	135 Mbps
CH 03	2422 MHz	17.03	-	-	-	-	-	-	-
CH 06	2437 MHz	18.21	18.15	17.15	17.01	16.07	15.88	15.27	15.20
CH 09	2452 MHz	17.10	-	-	-	-	-	-	-

Channel	Frequency	2.4GHz 802.11n (BW 40MHz) (Chain A+B) RF Power (dBm)							
		OFDM Data Rate							
		13.5 Mbps	27 Mbps	40.5 Mbps	54 Mbps	81 Mbps	108 Mbps	121.5 Mbps	135 Mbps
CH 03	2422 MHz	15.79	-	-	-	-	-	-	-
CH 06	2437 MHz	18.24	17.64	17.19	17.22	15.96	15.92	15.48	15.46
CH 09	2452 MHz	16.89	-	-	-	-	-	-	-

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n (BW 20MHz), and 13.5Mbps for 802.11n (BW 40MHz) 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.

2.2 Test Mode

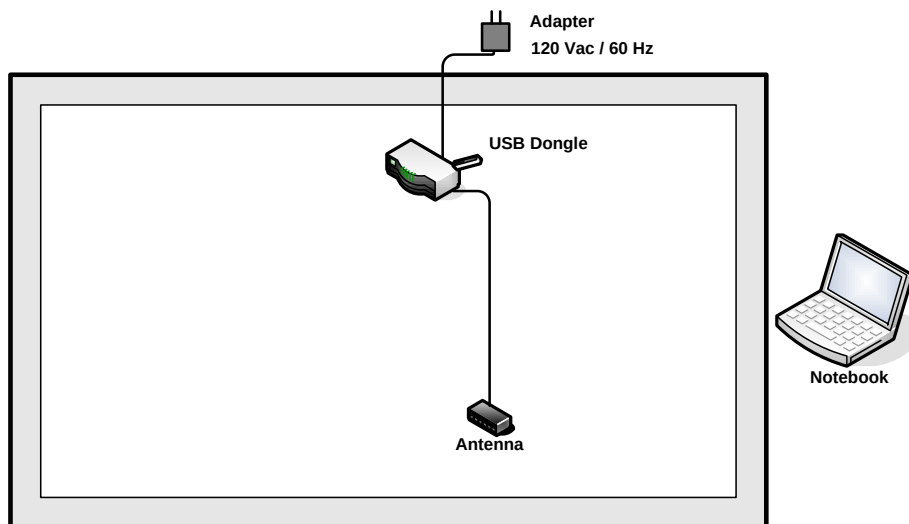
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic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

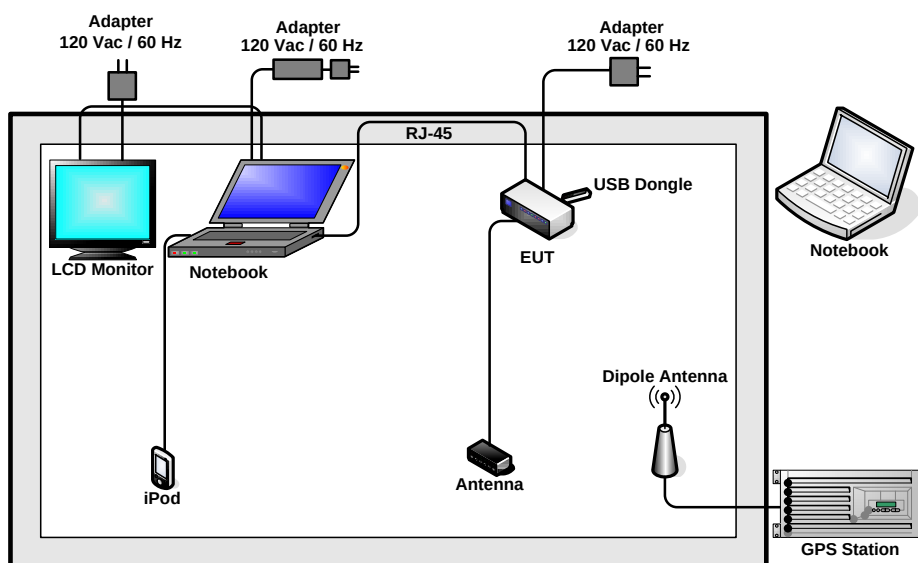
Test Cases	
Test Item	802.11b (Modulation : DSSS) / 802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz Mode 4 : 802.11g_CH01_2412 MHz Mode 5 : 802.11g_CH06_2437 MHz Mode 6 : 802.11g_CH11_2462 MHz Mode 7 : 802.11n (BW 20M)_CH01_2412 MHz Mode 8 : 802.11n (BW 20M)_CH06_2437 MHz Mode 9 : 802.11n (BW 20M)_CH11_2462 MHz Mode 10 : 802.11n (BW 40M)_CH03_2422 MHz Mode 11 : 802.11n (BW 40M)_CH06_2437 MHz Mode 12 : 802.11n (BW 40M)_CH09_2452 MHz
Radiated TCs	Mode 1 : 802.11b CH01_2412 MHz (Chain A+B) Mode 2 : 802.11b CH06_2437 MHz (Chain A+B) Mode 3 : 802.11b CH11_2462 MHz (Chain A+B) Mode 4 : 802.11b CH06_2437 MHz (Chain A) Mode 5 : 802.11b CH06_2437 MHz (Chain B) Mode 6 : 802.11g_CH01_2412 MHz (Chain A+B) Mode 7 : 802.11g_CH06_2437 MHz (Chain A+B) Mode 8 : 802.11g_CH11_2462 MHz (Chain A+B) Mode 9 : 802.11g_CH06_2437 MHz (Chain A) Mode 10 : 802.11g_CH06_2437 MHz (Chain B) Mode 11 : 802.11n (BW 20M)_CH01_2412 MHz (Chain A+B) Mode 12 : 802.11n (BW 20M)_CH06_2437 MHz (Chain A+B) Mode 13 : 802.11n (BW 20M)_CH11_2462 MHz (Chain A+B) Mode 14 : 802.11n (BW 40M)_CH03_2422 MHz (Chain A+B) Mode 15 : 802.11n (BW 40M)_CH06_2437 MHz (Chain A+B) Mode 16 : 802.11n (BW 40M)_CH09_2452 MHz (Chain A+B)
AC Conducted Emission	Mode 1 : WCDMA Band IV Idle + WLAN Link + GPS Rx + RJ-45 Link with Notebook + USB Dongle (Idle) + Adapter Mode 2 : GSM850 Sniffer + WLAN Link + GPS Rx + RJ-45 Link with Notebook + USB Dongle (Idle) + Adapter Mode 3 : GSM1900 Sniffer + WLAN Link + GPS Rx + RJ-45 Link with Notebook + USB Dongle (Idle) + Adapter
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility "RT3050QA.exe" 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.

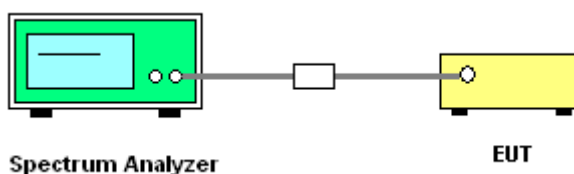
3.1.2 Measuring Instruments

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



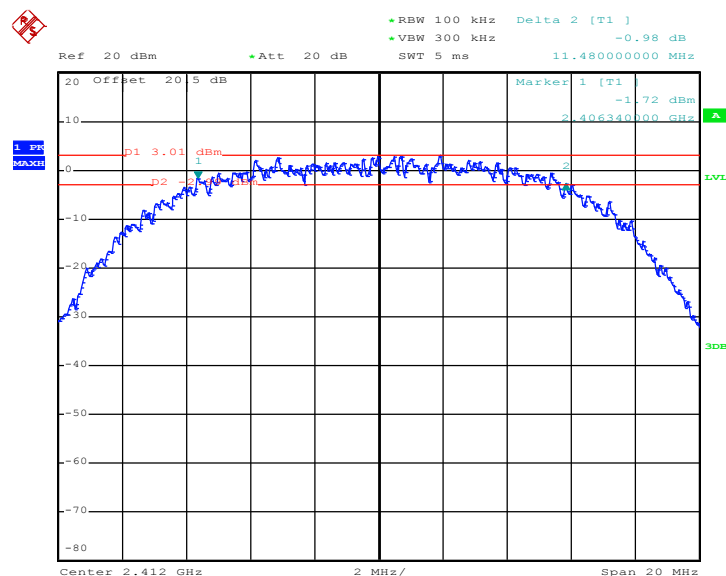
3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

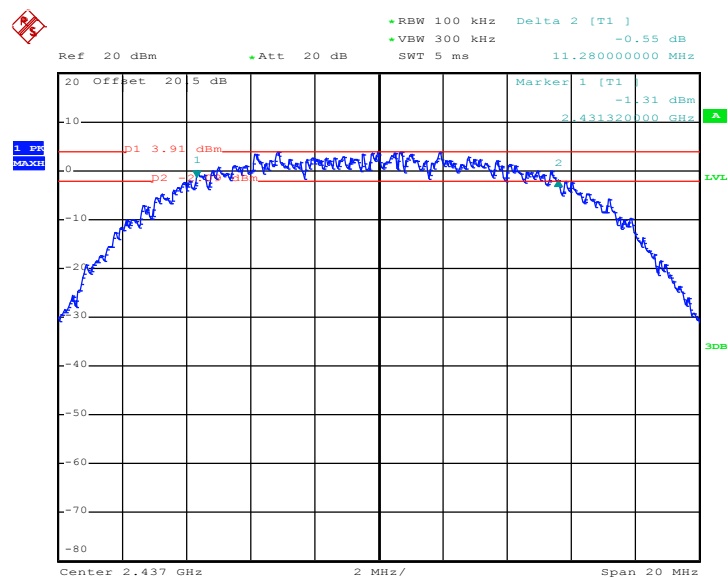
Channel	Frequency (MHz)	802.11b (Chain A) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	11.48	0.5	Pass
06	2437	11.28	0.5	Pass
11	2462	11.48	0.5	Pass

Channel	Frequency (MHz)	802.11b (Chain B) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	11.48	0.5	Pass
06	2437	11.68	0.5	Pass
11	2462	11.68	0.5	Pass

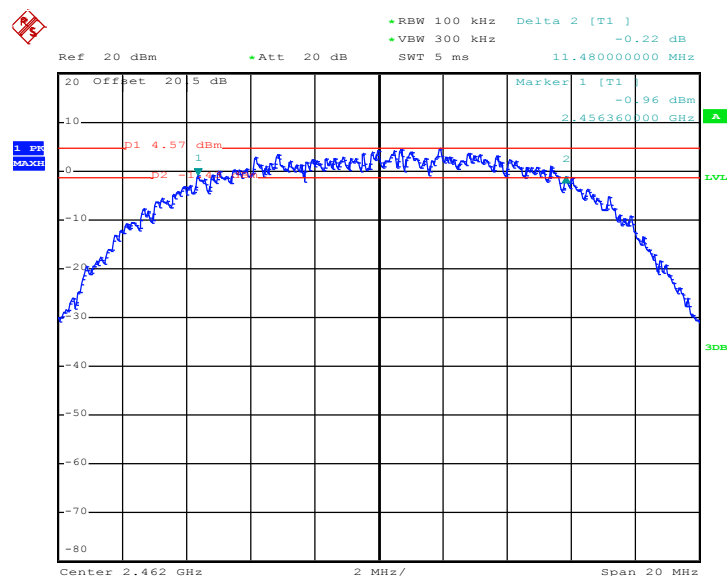
6 dB Bandwidth Plot on 802.11b Channel 01 - Chain A



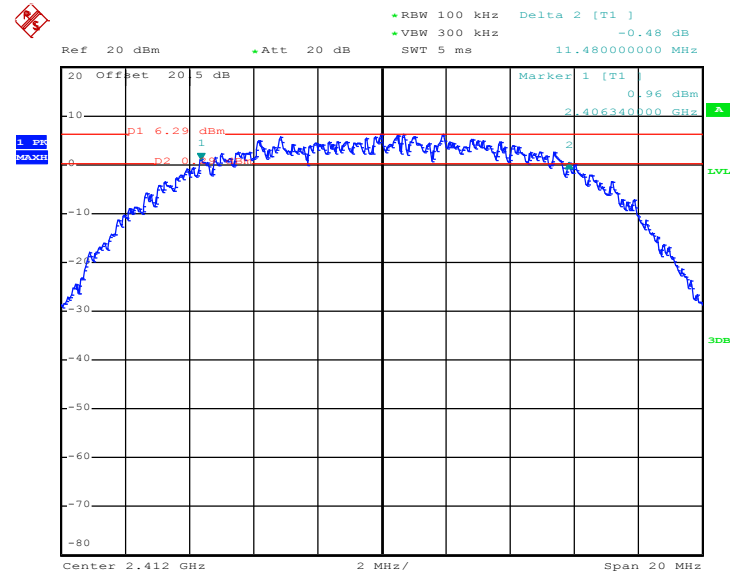
Date: 22.OCT.2011 16:58:25

6 dB Bandwidth Plot on 802.11b Channel 06- Chain A


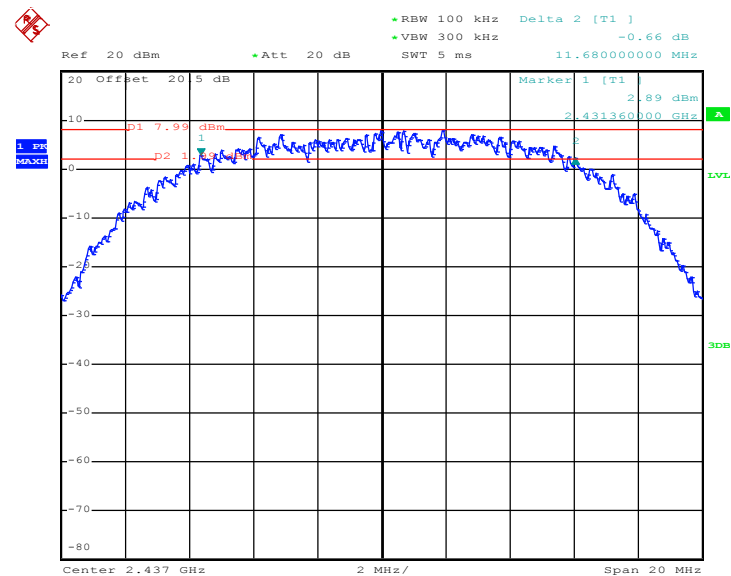
Date: 22.OCT.2011 17:11:10

6 dB Bandwidth Plot on 802.11b Channel 11- Chain A


Date: 23.OCT.2011 18:52:41

6 dB Bandwidth Plot on 802.11b Channel 01- Chain B


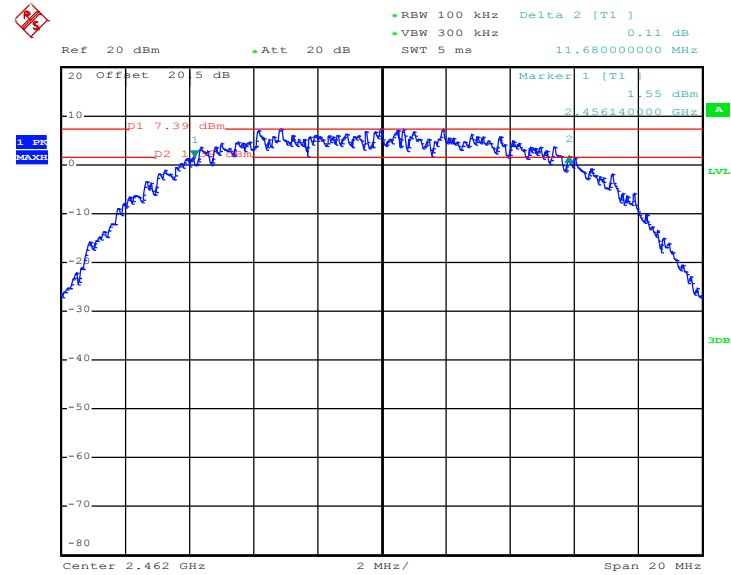
Date: 22.OCT.2011 16:42:12

6 dB Bandwidth Plot on 802.11b Channel 06- Chain B


Date: 22.OCT.2011 17:26:56



6 dB Bandwidth Plot on 802.11b Channel 11- Chain B



Date: 22.OCT.2011 17:39:48

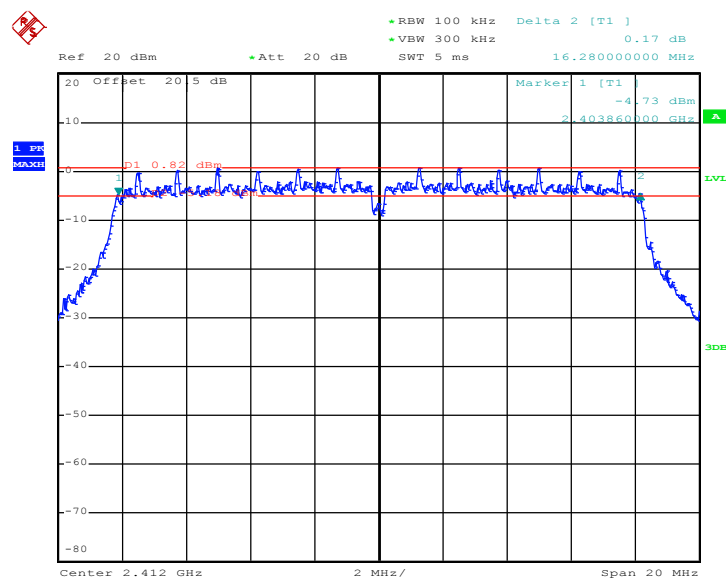


Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

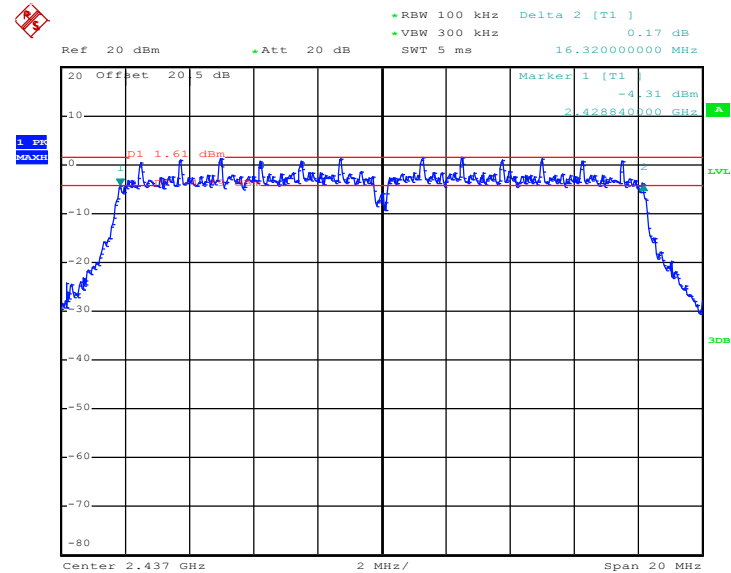
Channel	Frequency (MHz)	802.11g (Chain A) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.28	0.5	Pass
06	2437	16.32	0.5	Pass
11	2462	16.28	0.5	Pass

Channel	Frequency (MHz)	802.11g (Chain B) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.08	0.5	Pass
06	2437	16.28	0.5	Pass
11	2462	16.28	0.5	Pass

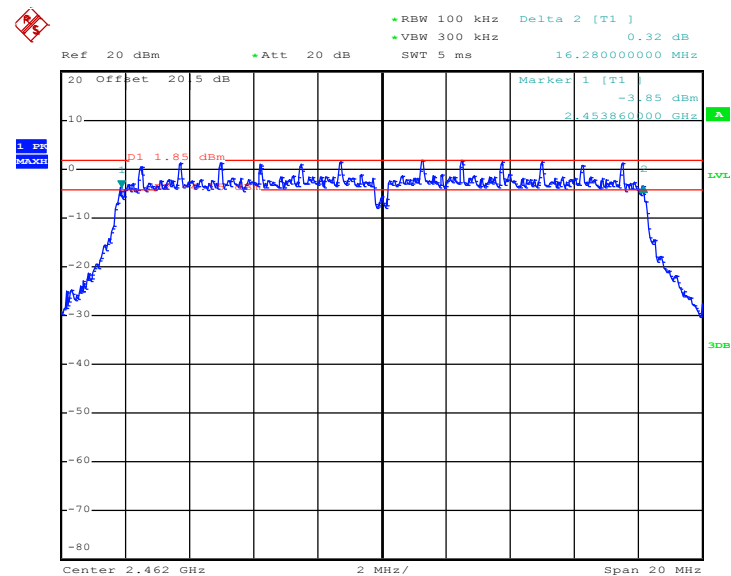
6 dB Bandwidth Plot on 802.11g Channel 01 - Chain A



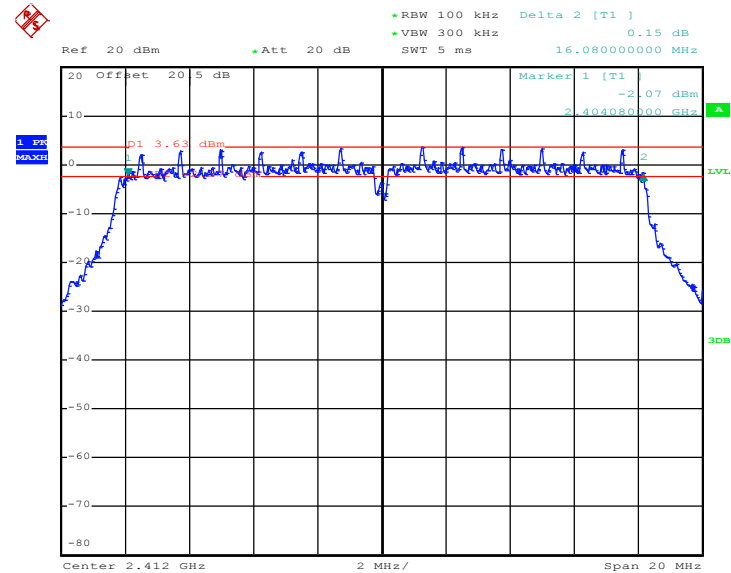
Date: 24.OCT.2011 22:04:58

6 dB Bandwidth Plot on 802.11g Channel 06 - Chain A


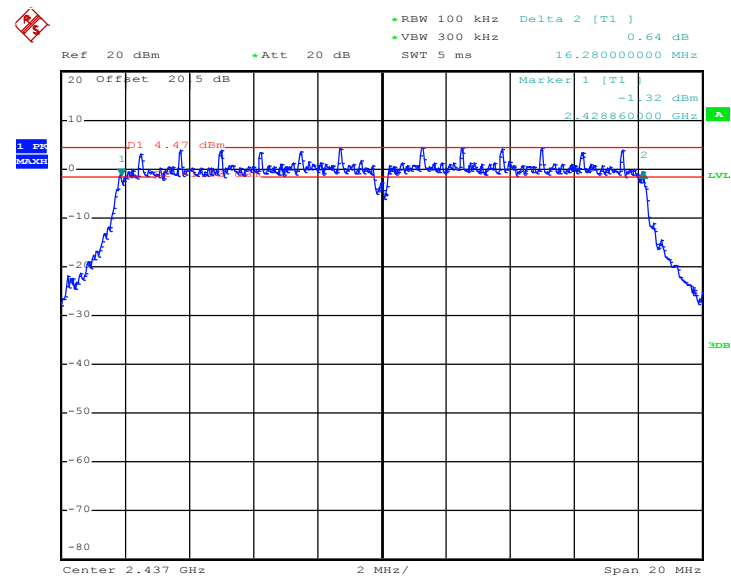
Date: 24.OCT.2011 22:16:51

6 dB Bandwidth Plot on 802.11g Channel 11 - Chain A


Date: 24.OCT.2011 22:27:46

6 dB Bandwidth Plot on 802.11g Channel 01 - Chain B


Date: 24.OCT.2011 17:48:41

6 dB Bandwidth Plot on 802.11g Channel 06 - Chain B


Date: 24.OCT.2011 18:15:28



Ref 20 dBm Att 20 dB RBW 100 kHz Delta 2 [T1] 0.18 dB
 VBW 300 kHz SWT 5 ms 16.28000000 MHz

Marker 1 [T1] -1.50 dBm
 2.45386000 GHz

d1 4.22 dBm

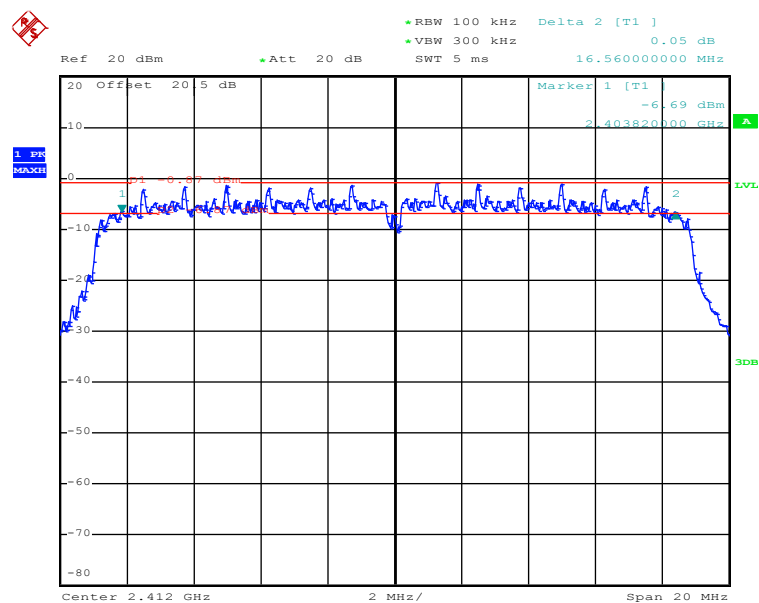
Center 2.462 GHz Span 20 MHz

Date: 24.OCT.2011 18:28:38

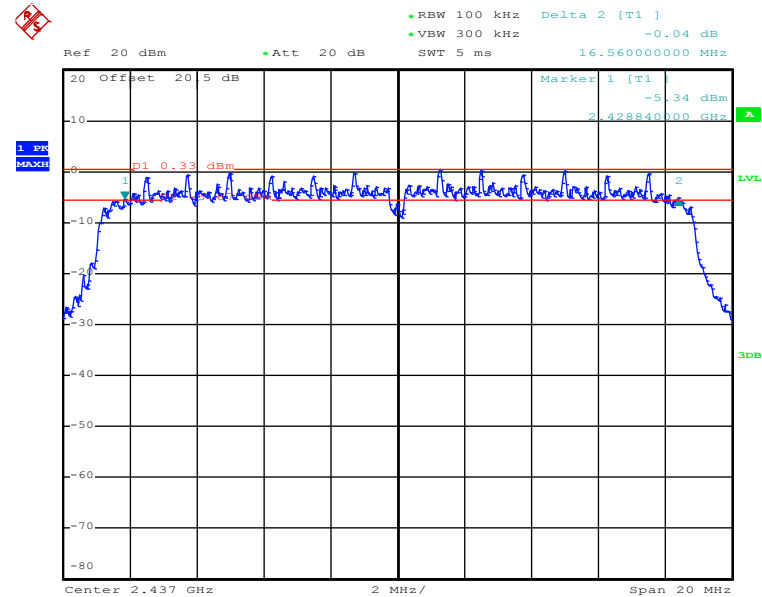
Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) (Chain A) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.56	0.5	Pass
06	2437	16.56	0.5	Pass
11	2462	16.56	0.5	Pass

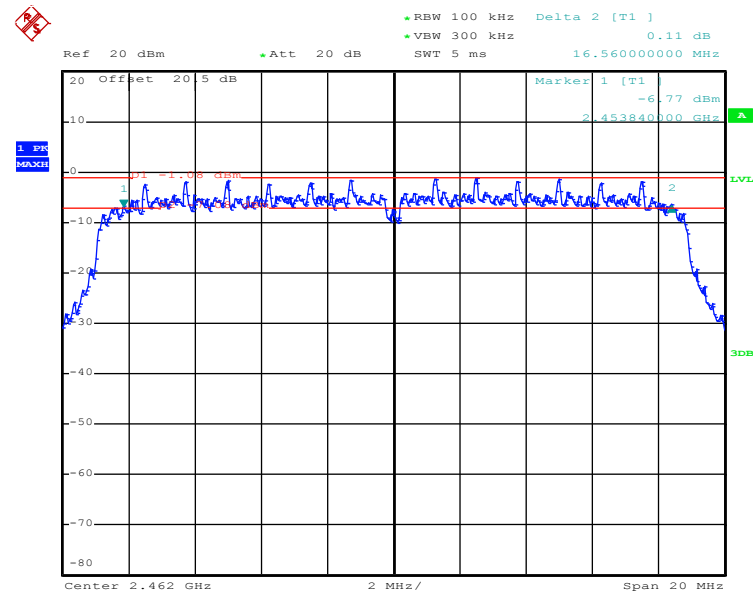
Channel	Frequency (MHz)	802.11n (BW 20MHz) (Chain B) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.56	0.5	Pass
06	2437	16.62	0.5	Pass
11	2462	16.76	0.5	Pass

6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01 - Chain A


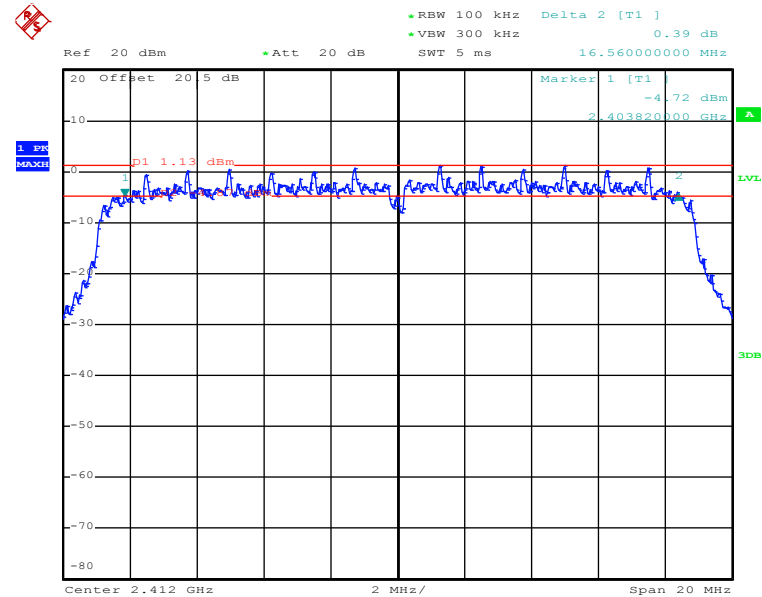
Date: 24.OCT.2011 22:39:49

6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06 - Chain A


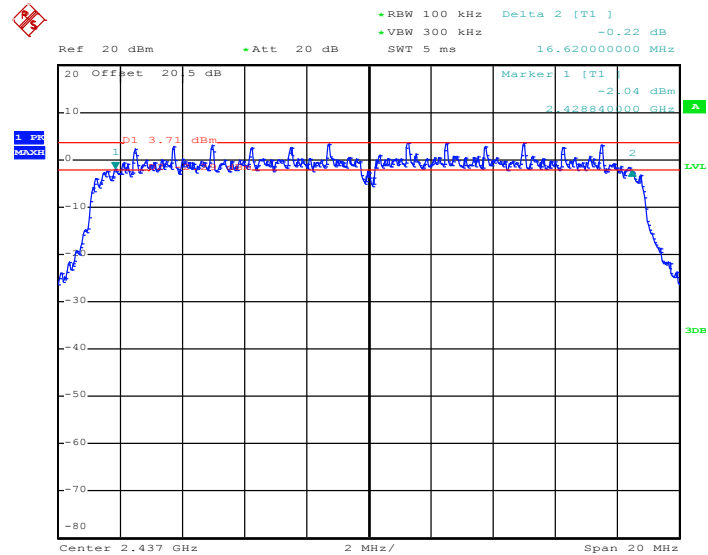
Date: 24.OCT.2011 22:55:29

6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11- Chain A


Date: 25.OCT.2011 00:36:37

6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01 - Chain B


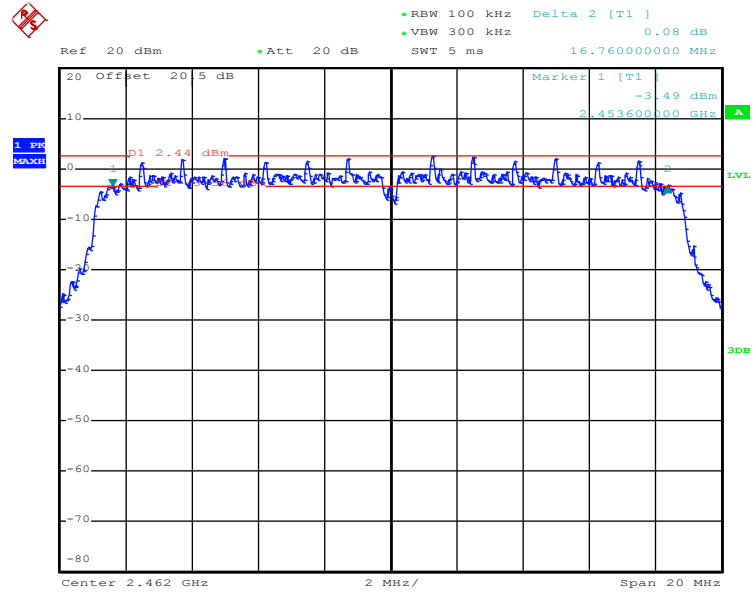
Date: 25.OCT.2011 00:32:01

6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06 - Chain B


Date: 24.OCT.2011 19:26:14



6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11- Chain B

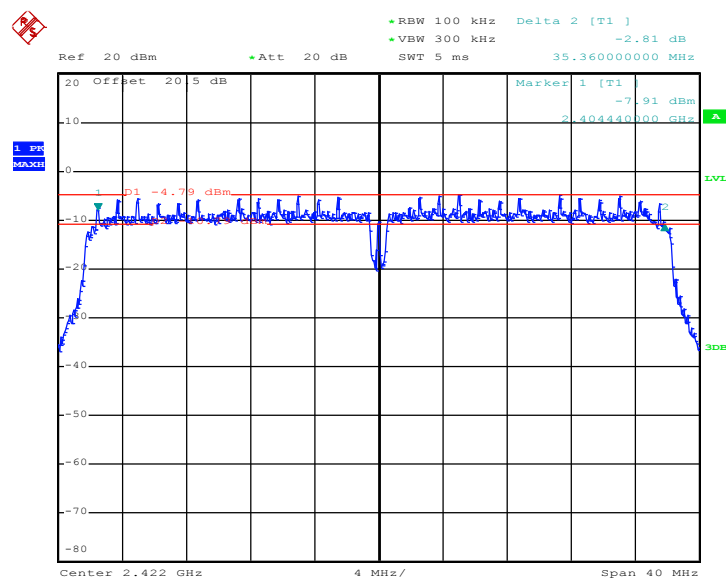


Date: 24.OCT.2011 19:42:03

Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 40MHz) (Chain A) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	35.36	0.5	Pass
06	2437	35.28	0.5	Pass
09	2452	35.36	0.5	Pass

Channel	Frequency (MHz)	802.11n (BW 40MHz) (Chain B) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	35.28	0.5	Pass
06	2437	35.28	0.5	Pass
09	2452	35.12	0.5	Pass

6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 03- Chain A


Date: 24.OCT.2011 23:18:51



Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz Delta 2 [T1] SWT 5 ms

Marker 1 [T1] -6.77 dBm 2.419440000 MHz

1.56 MHz RAUCH

Offset 20.5 dB

D1 -3.09 dBm

Center 2.437 GHz Span 40 MHz

Date: 25.OCT.2011 00:04:21

The screenshot shows a Spectrum Analyzer interface with the following settings and data:

- Settings:**
 - Ref: 20 dBm
 - Att: 20 dB
 - RBW: 100 kHz
 - VBW: 300 kHz
 - SWT: 5 ms
 - Delta 2 [T1]
- Frequency and Span:**
 - Center: 2.452 GHz
 - Span: 40 MHz
 - Marker 1: 2.434440000 GHz
- Amplitude and Levels:**
 - Marker 1: -7.42 dBm
 - Marker 2: -3.92 dBm
 - Level 1: -3.92 dBm
 - Level 2: -7.42 dBm
- Data Table:**

Marker	Frequency (GHz)	Amplitude (dBm)
1	2.434440000	-7.42
2	2.434440000	-3.92

Date: 24.OCT.2011 23:45:11



1.56 MHz
RASHA

Ref 20 dBm Att 20 dB SWT 5 ms

RBW 100 kHz Delta 2 [T1] -1.98 dB
VBW 300 kHz 35.28000000 MHz

Marker 1 [T1] -4.36 dBm
2.404480000 GHz

Offset 20.5 dB

Center 2.422 GHz 4 MHz/ Span 40 MHz

Date: 24.OCT.2011 19:55:10

Ref 20 dBm Att 20 dB SWT 5 ms Delta 2 [T1] -2.21 dB 35.28000000 MHz

20 Offset 20 5 dB

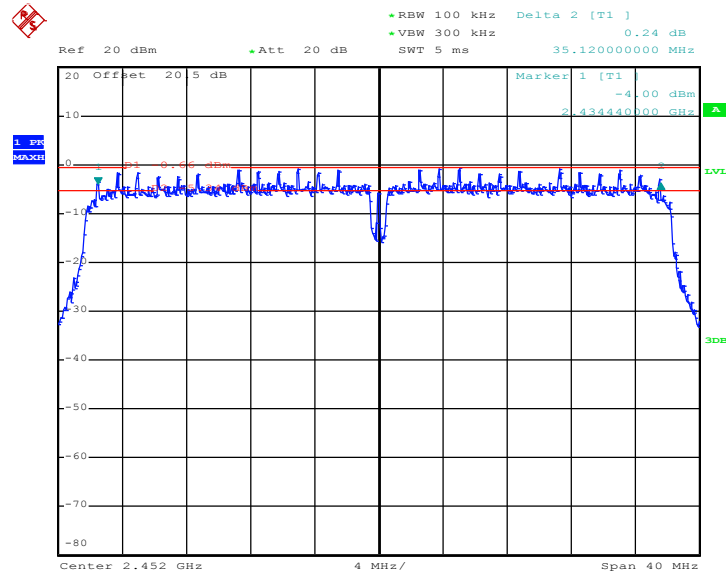
Marker 1 [T1] -2.53 dBm 2.419480000 GHz

1.96 dBm

Center 2.437 GHz 4 MHz/ Span 40 MHz

Date: 24.OCT.2011 20:08:07

6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09- Chain B



Date: 24.OCT.2011 20:21:43

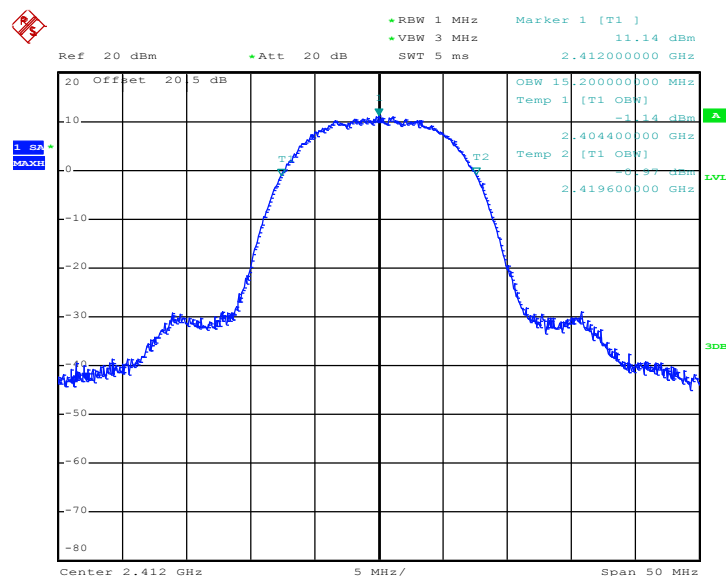
3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

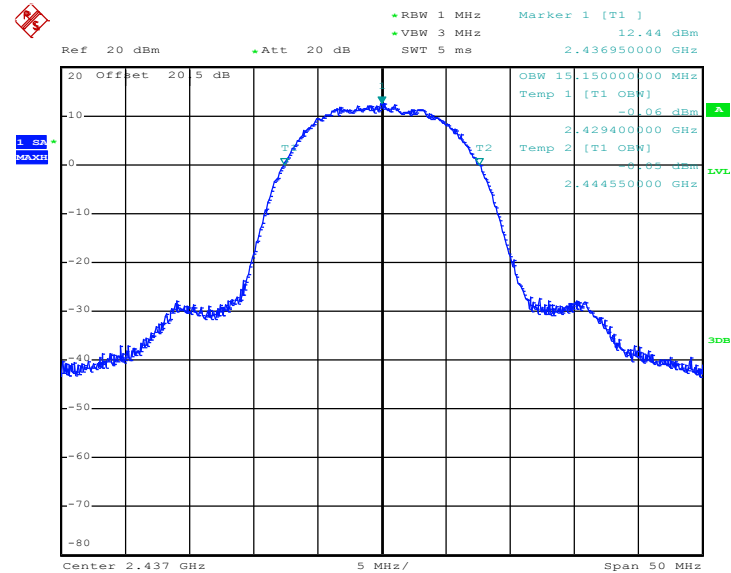
Channel	Frequency (MHz)	802.11b (Chain A) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.20	Pass
06	2437	15.15	Pass
11	2462	15.05	Pass

Channel	Frequency (MHz)	802.11b (Chain B) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.15	Pass
06	2437	15.25	Pass
11	2462	15.20	Pass

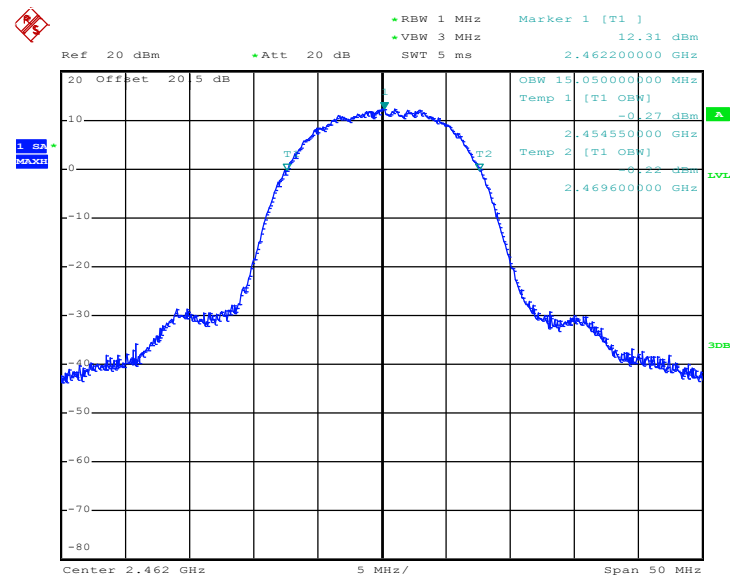
99% Occupied Bandwidth Plot on 802.11b Channel 01 - Chain A



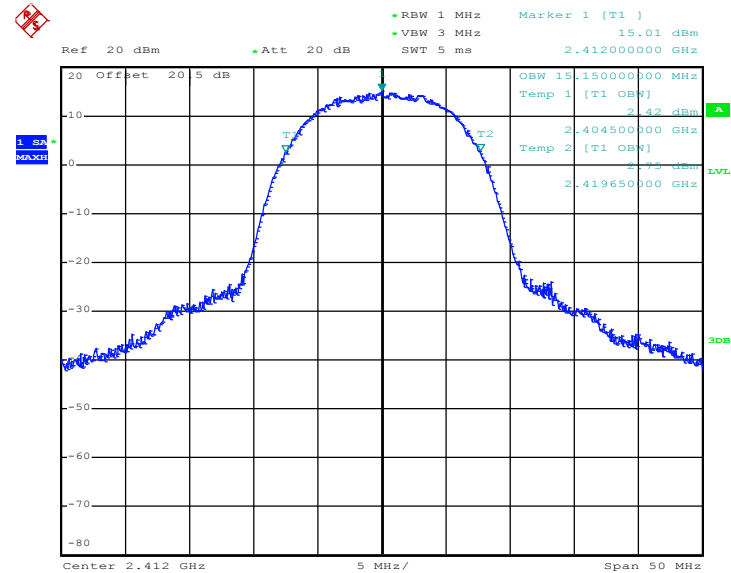
Date: 22.OCT.2011 16:59:57

99% Occupied Bandwidth Plot on 802.11b Channel 06 - Chain A


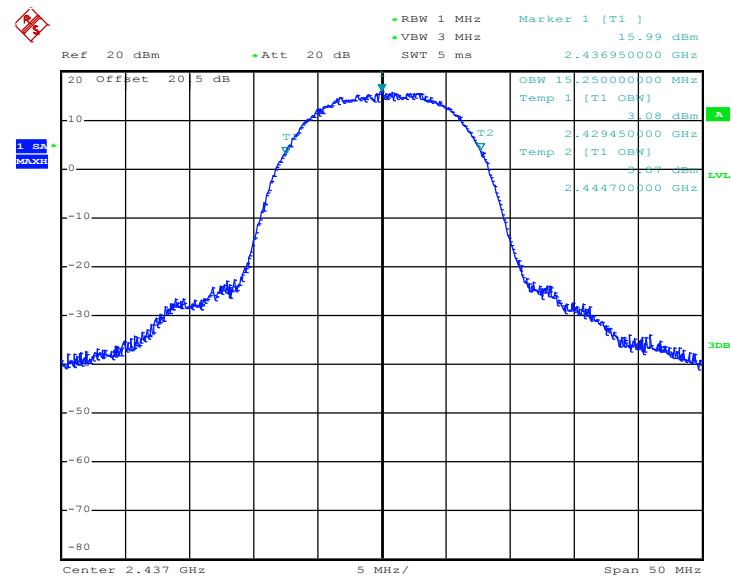
Date: 22.OCT.2011 17:11:35

99% Occupied Bandwidth Plot on 802.11b Channel 11 - Chain A


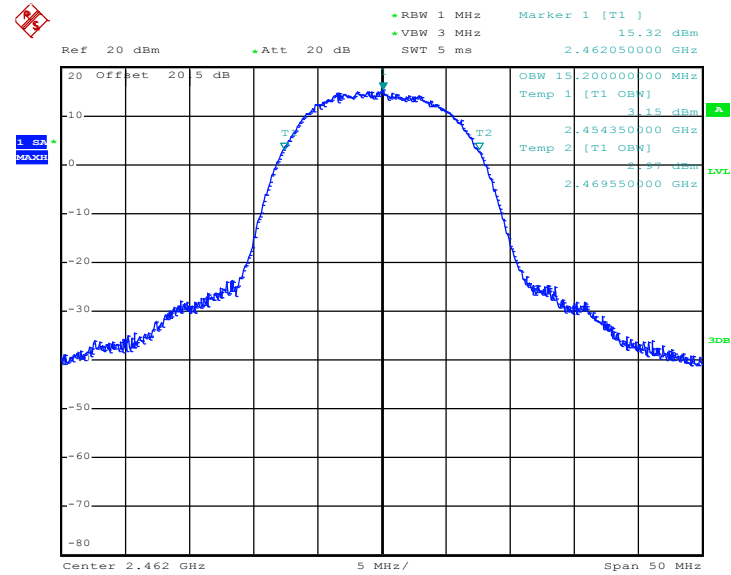
Date: 23.OCT.2011 18:54:09

99% Occupied Bandwidth Plot on 802.11b Channel 01 - Chain B


Date: 22.OCT.2011 16:43:46

99% Occupied Bandwidth Plot on 802.11b Channel 06 - Chain B


Date: 22.OCT.2011 17:27:22

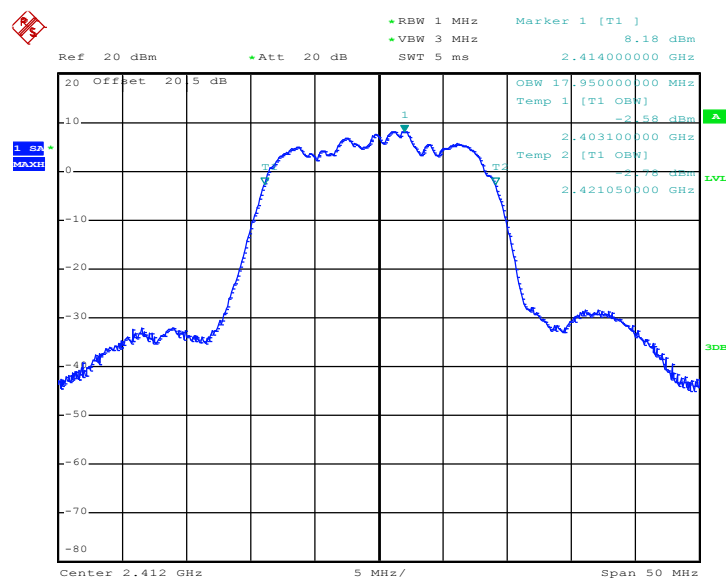
99% Occupied Bandwidth Plot on 802.11b Channel 11 - Chain B


Date: 22.OCT.2011 17:41:03

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

Channel	Frequency (MHz)	802.11g (Chain A) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.95	Pass
06	2437	17.35	Pass
11	2462	17.05	Pass

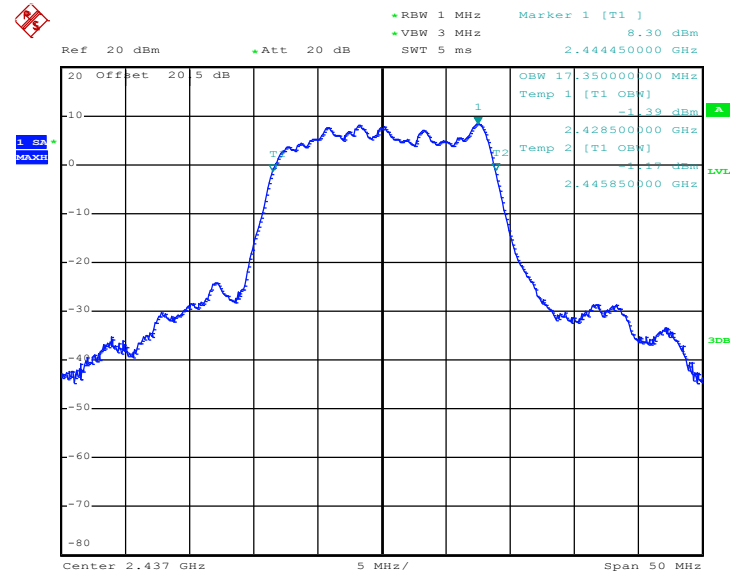
Channel	Frequency (MHz)	802.11g (Chain B) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.95	Pass
06	2437	17.20	Pass
11	2462	16.90	Pass

99% Occupied Bandwidth Plot on 802.11g Channel 01 – Chain A


Date: 22.OCT.2011 18:11:30

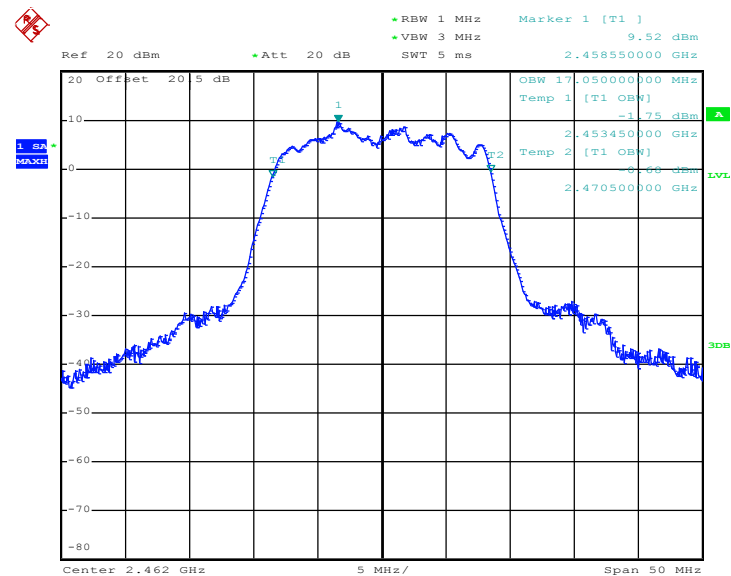


99% Occupied Bandwidth Plot on 802.11g Channel 06 – Chain A



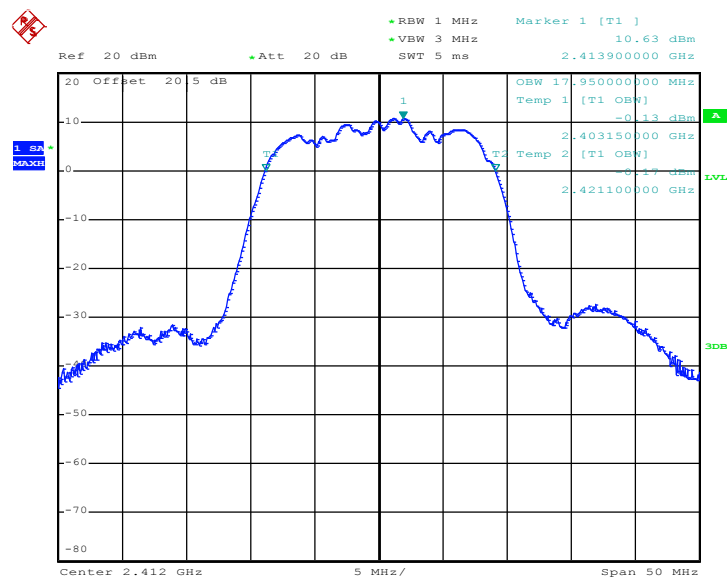
Date: 22.OCT.2011 18:22:47

99% Occupied Bandwidth Plot on 802.11g Channel 11 – Chain A



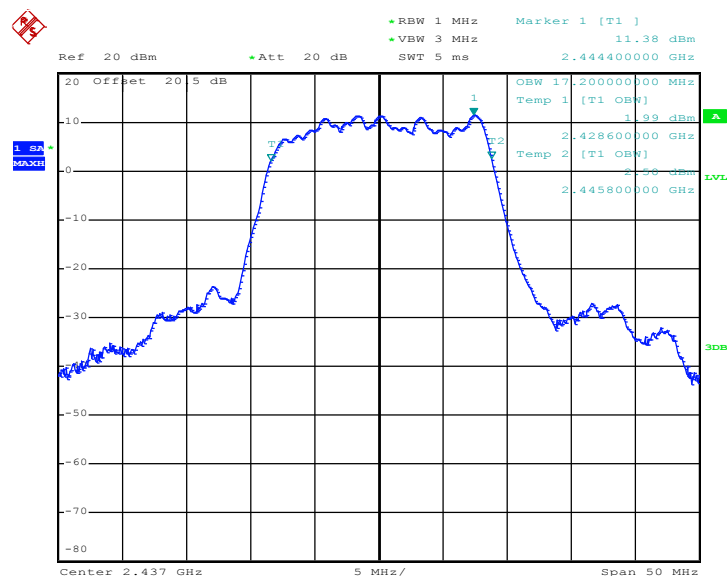
Date: 22.OCT.2011 18:59:10

99% Occupied Bandwidth Plot on 802.11g Channel 01 – Chain B



Date: 22.OCT.2011 17:55:41

99% Occupied Bandwidth Plot on 802.11g Channel 06 – Chain B



Date: 22.OCT.2011 18:34:14



1.5A
PNAUX

Ref 20 dBm Att 20 dB RBW 1 MHz VBW 3 MHz SWT 5 ms

Marker 1 [T1] 11.19 dBm 2.460450000 GHz

OBW 16.900000000 MHz Temp 1 [T1 OBW] 2.19 dBm 2.453550000 GHz Temp 2 [T1 OBW] 2.44 dBm 2.470450000 GHz

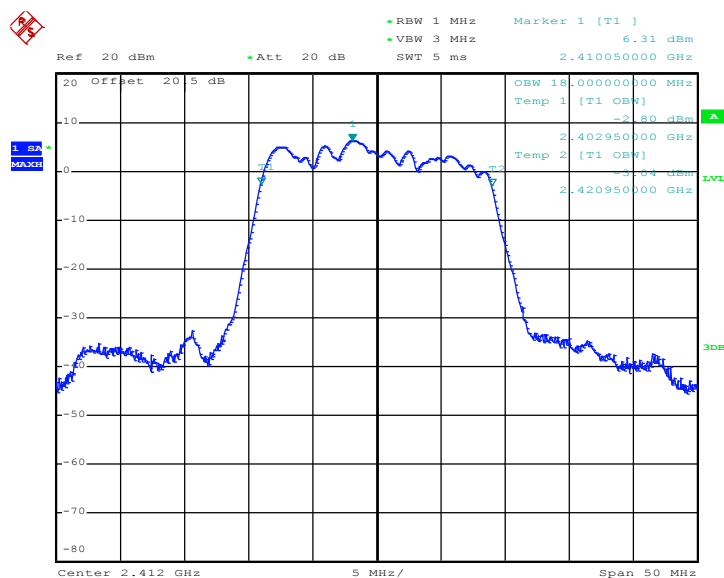
Center 2.462 GHz Span 50 MHz

Date: 23.OCT.2011 20:10:21

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

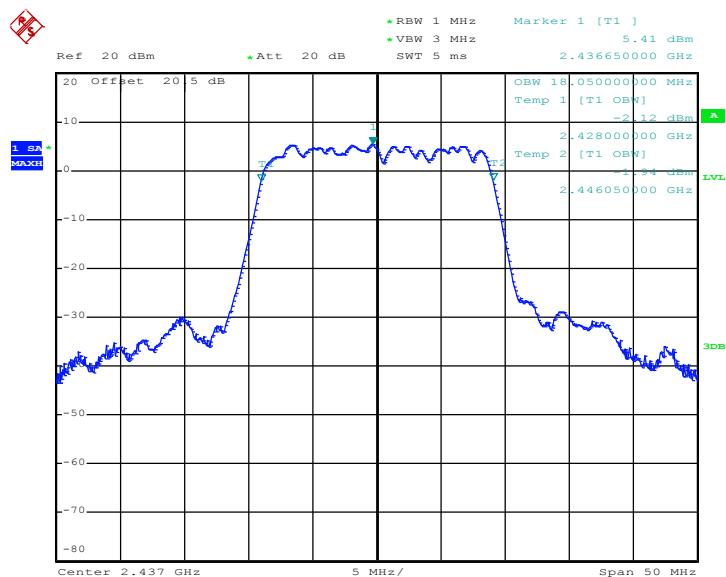
Channel	Frequency (MHz)	802.11n (BW 20MHz) (Chain A) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.00	Pass
06	2437	18.05	Pass
11	2462	17.85	Pass

Channel	Frequency (MHz)	802.11n (BW 20MHz) (Chain B) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.85	Pass
06	2437	17.85	Pass
11	2462	17.90	Pass

99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01– Chain A


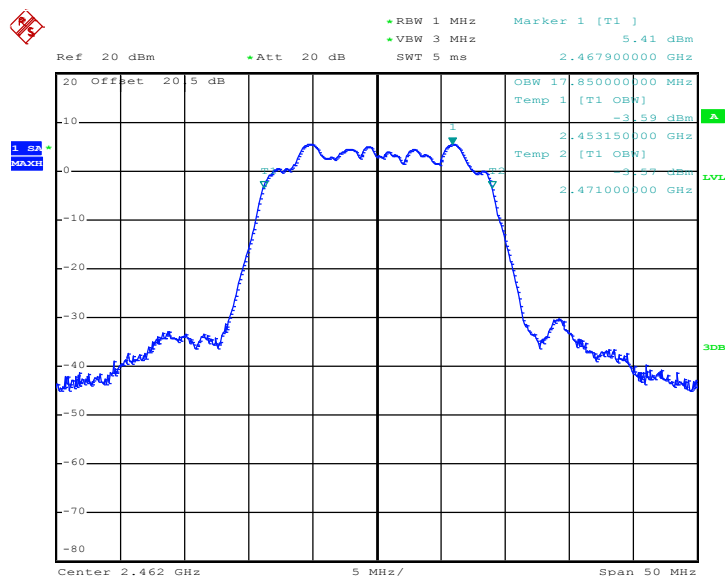
Date: 23.OCT.2011 21:28:43

99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06– Chain A

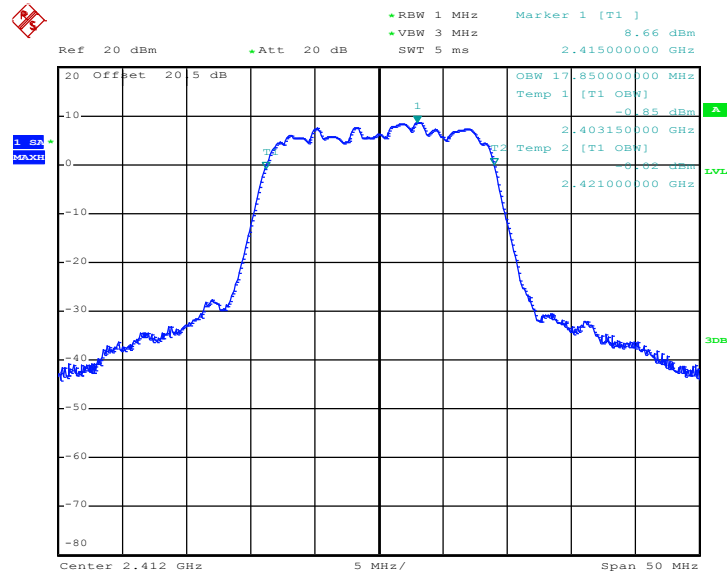


Date: 23.OCT.2011 21:14:35

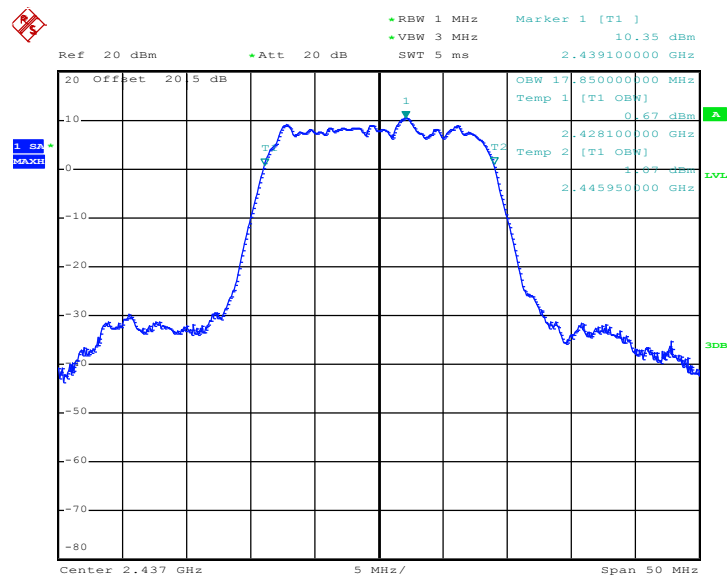
99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 11– Chain A



Date: 23.OCT.2011 20:56:37

99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 01– Chain B


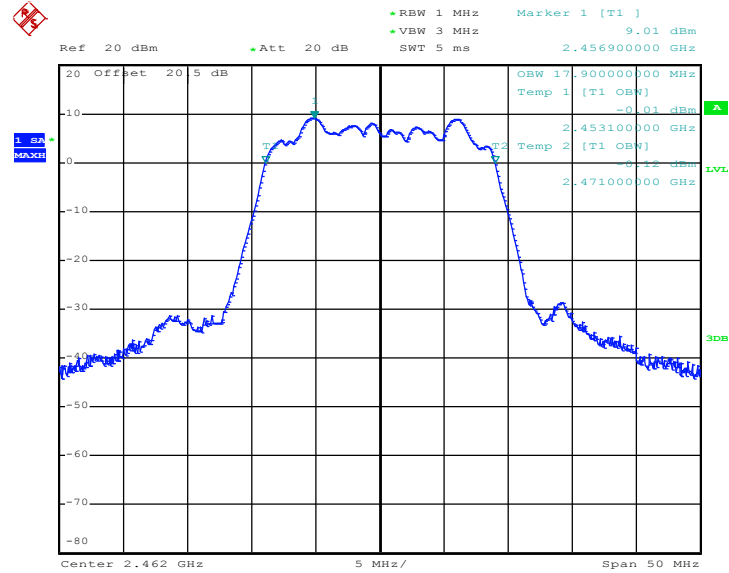
Date: 23.OCT.2011 20:17:54

99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 06– Chain B


Date: 23.OCT.2011 20:30:11



99% Occupied Bandwidth Plot on 802.11n(BW 20MHz) Channel 11– Chain B



Date: 23.OCT.2011 20:42:36

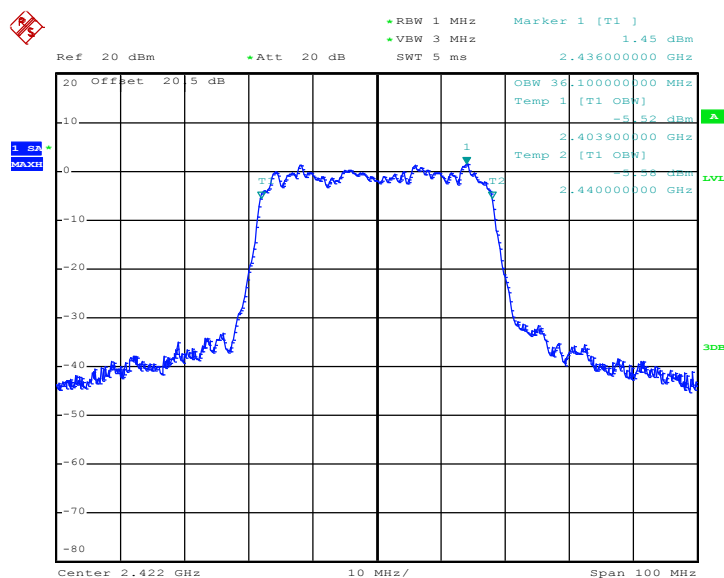


Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

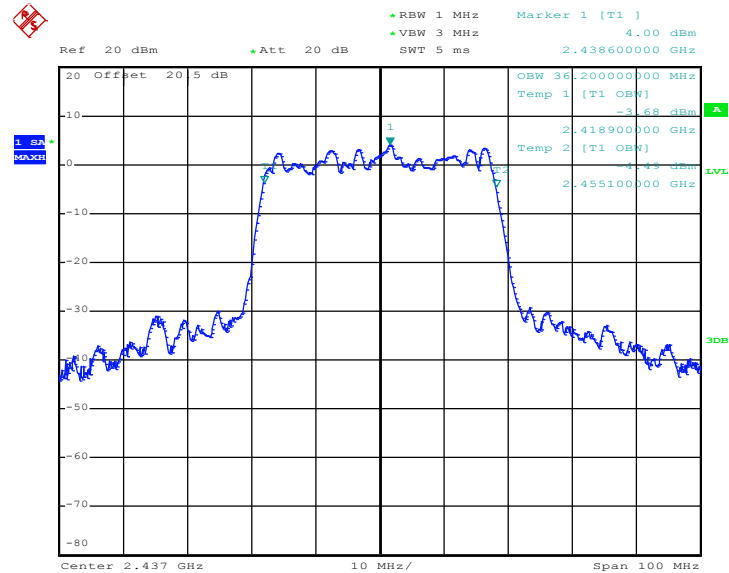
Channel	Frequency (MHz)	802.11n (BW 40MHz) (Chain A) 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	36.10	Pass
06	2437	36.20	Pass
09	2452	36.30	Pass

Channel	Frequency (MHz)	802.11n (BW 40MHz) (Chain B) 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	36.10	Pass
06	2437	36.10	Pass
09	2452	36.20	Pass

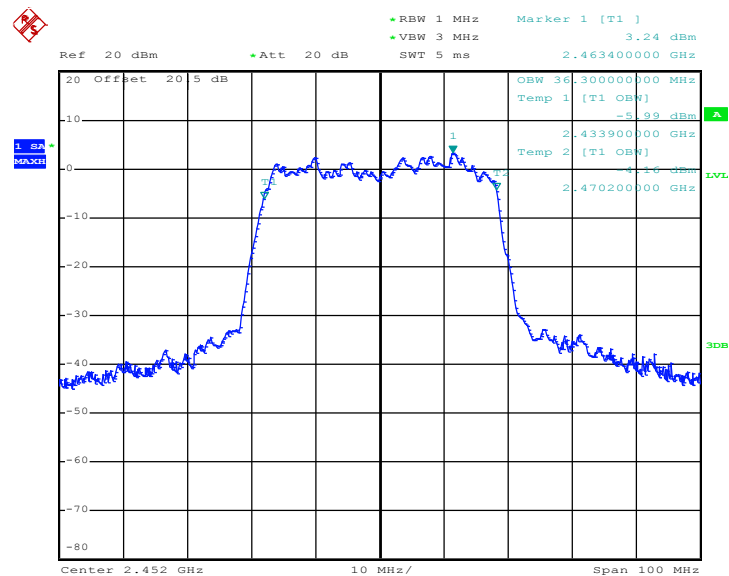
99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 03 – Chain A



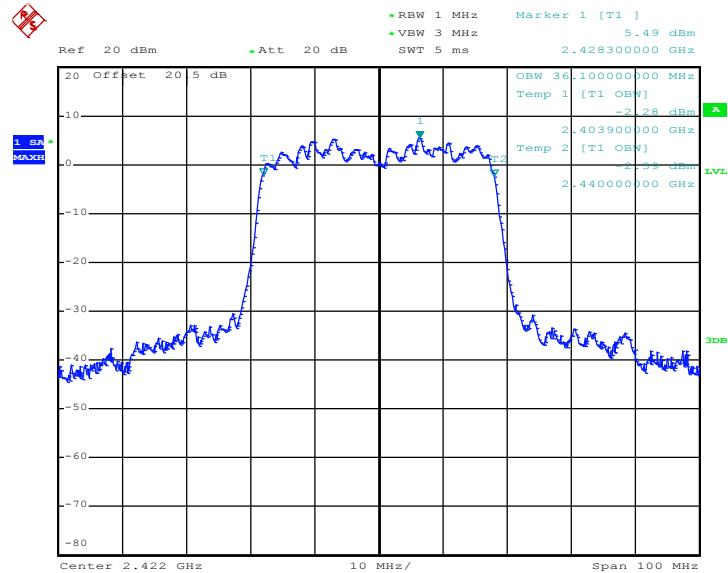
Date: 23.OCT.2011 21:57:27

99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 06 – Chain A


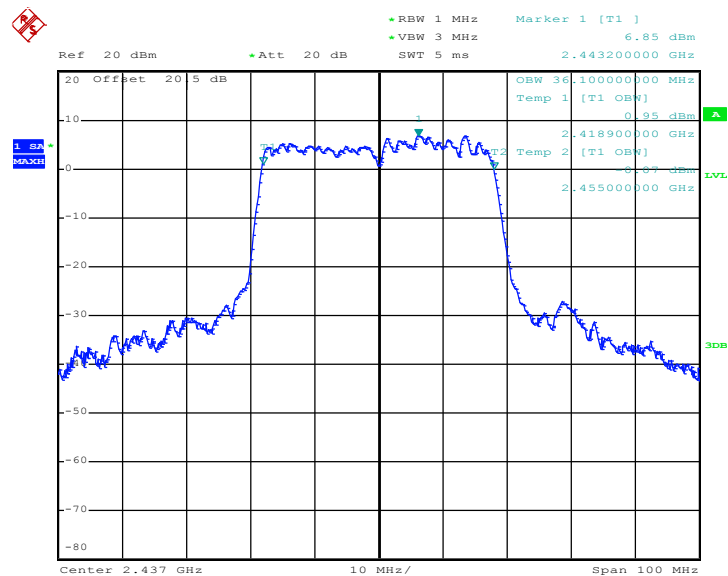
Date: 23.OCT.2011 22:10:24

99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 09 – Chain A


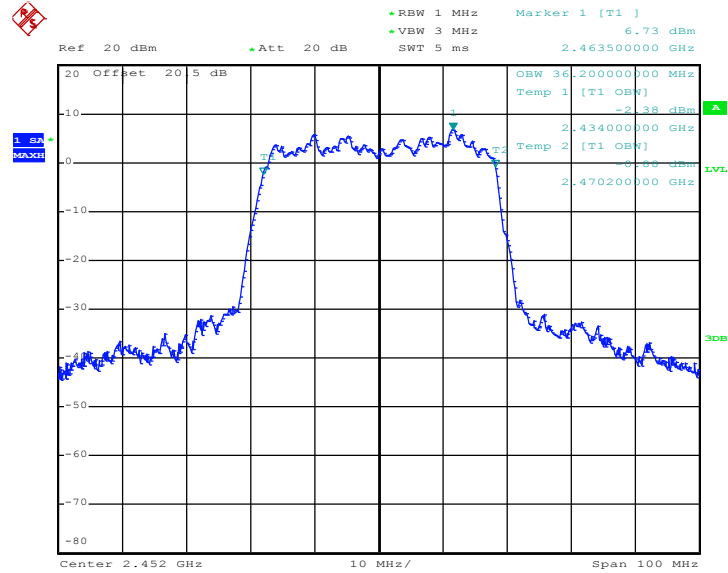
Date: 23.OCT.2011 22:23:59

99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 03 – Chain B


Date: 23.OCT.2011 23:16:23

99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 06 – Chain B


Date: 23.OCT.2011 23:01:56

99% Occupied Bandwidth Plot on 802.11n(BW 40MHz) Channel 09 – Chain B


Date: 23.OCT.2011 22:50:12

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.

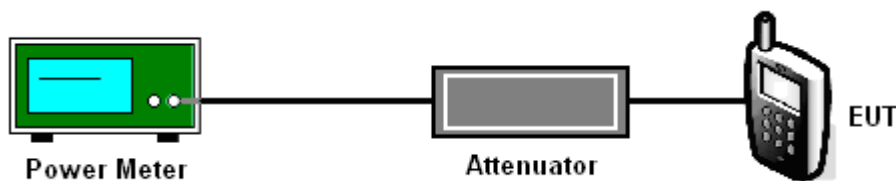
3.2.2 Measuring Instruments

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 :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)		Total Power(dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	13.38	17.70	19.07	30	Pass
06	2437	15.43	18.43	20.19	30	Pass
11	2462	15.08	17.35	19.37	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)		Total Power(dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	11.76	14.43	16.31	30	Pass
06	2437	12.02	15.01	16.78	30	Pass
11	2462	11.75	14.98	16.67	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)		Total Power(dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	12.13	15.42	17.09	30	Pass
06	2437	13.52	16.43	18.22	30	Pass
11	2462	12.56	15.43	17.24	30	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured Output Power (dBm)		Total Power(dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
03	2422	11.02	14.03	15.79	30	Pass
06	2437	13.57	16.43	18.24	30	Pass
09	2452	12.21	15.08	16.89	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

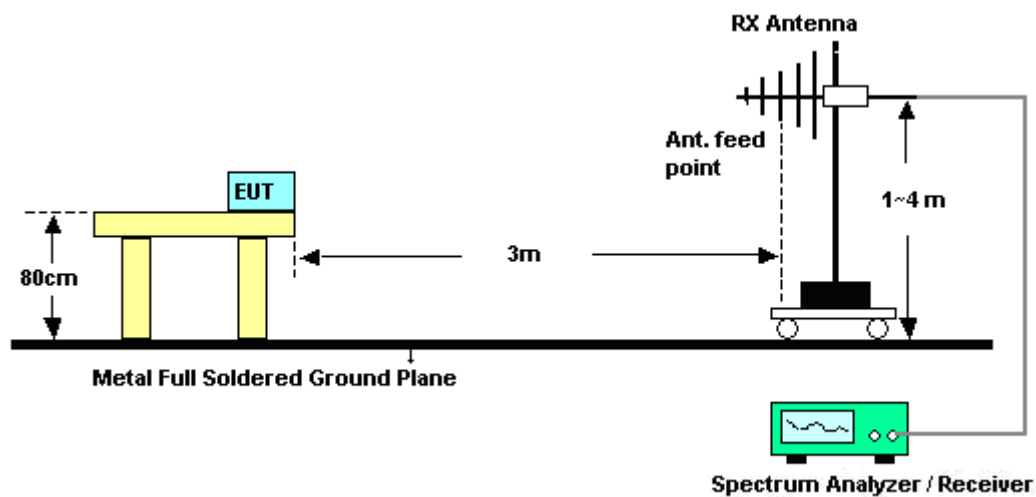
See list of measuring instruments of this test report.

3.3.3 Test Procedures

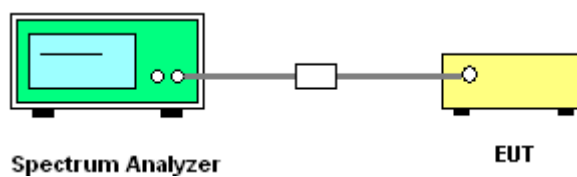
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	23~24℃
Test Band :	802.11b	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Kai Wang and Wii Chang

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
2347.05	50.19	-23.81	74	47.36	31.86	5.37	34.4	101	51	Peak
2347.05	36.96	-17.04	54	34.13	31.86	5.37	34.4	101	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	51.79	-22.21	74	48.88	31.9	5.4	34.39	100	275	Peak
2389.99	40.71	-13.29	54	37.8	31.9	5.4	34.39	100	275	Average

Test Mode :	Mode 3	Temperature :	23~24℃
Test Band :	802.11b	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Kai Wang and Wii Chang

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	55.55	-18.45	74	50.8	31.98	5.52	32.75	100	331	Peak
2483.5	44.42	-9.58	54	39.67	31.98	5.52	32.75	100	331	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
2484.42	56.66	-17.34	74	51.91	31.98	5.52	32.75	100	155	Peak
2484.42	45.34	-8.66	54	40.59	31.98	5.52	32.75	100	155	Average



Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Kai Wang and Wii Chang

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	57.78	-16.22	74	53.21	31.9	5.4	32.73	102	310	Peak
2389.99	44.81	-9.19	54	40.24	31.9	5.4	32.73	102	310	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
2359.78	53.44	-20.56	74	48.94	31.86	5.37	32.73	122	272	Peak
2359.78	43.18	-10.82	54	38.68	31.86	5.37	32.73	122	272	Average

Test Mode :	Mode 8	Temperature :	23~24°C
Test Band :	802.11g	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Kai Wang and Wii Chang

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	56.01	-17.99	74	51.26	31.98	5.52	32.75	101	288	Peak
2483.5	47.58	-6.42	54	42.83	31.98	5.52	32.75	101	288	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	61.76	-12.24	74	57.01	31.98	5.52	32.75	118	270	Peak
2483.66	50.9	-3.1	54	46.15	31.98	5.52	32.75	118	270	Average



Test Mode :	Mode 11	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	Kai Wang and Wii Chang

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	50.07	-23.93	74	45.5	31.9	5.4	32.73	100	335	Peak
2389.99	38.35	-15.65	54	33.78	31.9	5.4	32.73	100	335	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	57.43	-16.57	74	52.86	31.9	5.4	32.73	106	175	Peak
2389.99	39.22	-14.78	54	34.65	31.9	5.4	32.73	106	175	Average

Test Mode :	Mode 13	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	Kai Wang and Wii Chang

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
2497.34	53.33	-20.67	74	48.56	32	5.52	32.75	102	289	Peak
2497.34	41.41	-12.59	54	36.64	32	5.52	32.75	102	289	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
2485.94	61.65	-12.35	74	56.9	31.98	5.52	32.75	100	156	Peak
2485.94	42.36	-11.64	54	37.61	31.98	5.52	32.75	100	156	Average



Test Mode :	Mode 14	Temperature :	23~24°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	46~47%
Test Channel :	03	Test Engineer :	Kai Wang and Wii Chang

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	60.49	-13.51	74	55.92	31.9	5.4	32.73	112	279	Peak
2389.99	52.19	-1.81	54	47.62	31.9	5.4	32.73	112	279	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.38	59.61	-14.39	74	55.04	31.9	5.4	32.73	103	156	Peak
2386.38	48.48	-5.52	54	43.91	31.9	5.4	32.73	103	156	Average

Test Mode :	Mode 16	Temperature :	23~24°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	46~47%
Test Channel :	09	Test Engineer :	Kai Wang and Wii Chang

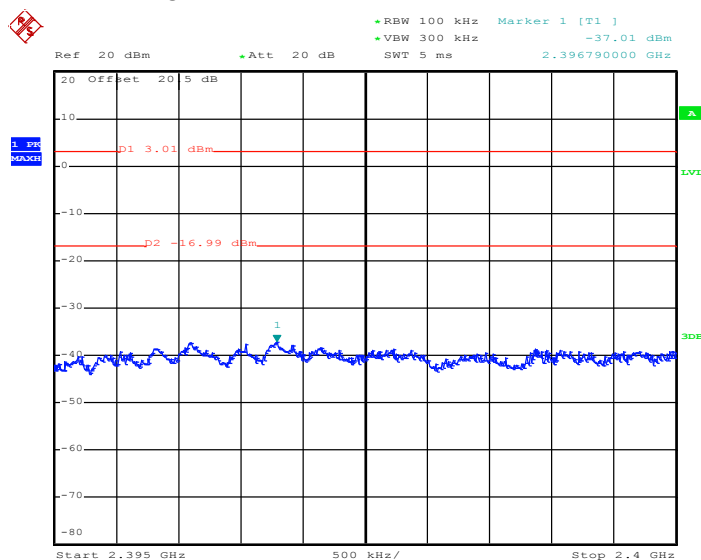
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	64.19	-9.81	74	59.44	31.98	5.52	32.75	132	288	Peak
2483.5	50.97	-3.03	54	46.22	31.98	5.52	32.75	132	288	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.13	63.82	-10.18	74	59.07	31.98	5.52	32.75	100	128	Peak
2486.13	52.15	-1.85	54	47.4	31.98	5.52	32.75	100	128	Average

3.3.6 Test Plots of Conducted Band Edges

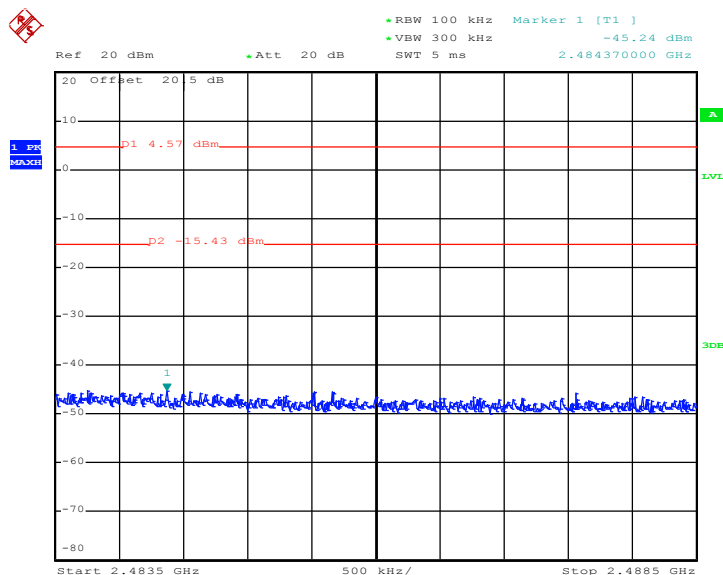
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11b Channel 01- Chain A

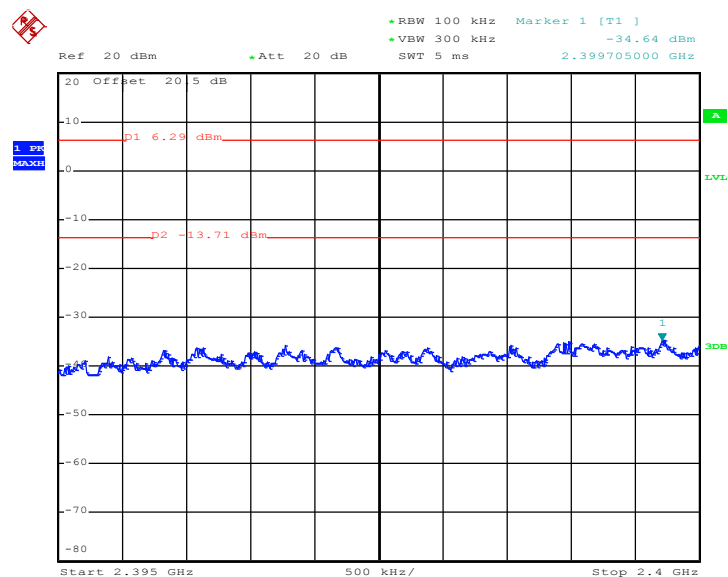


Date: 22.OCT.2011 16:59:32

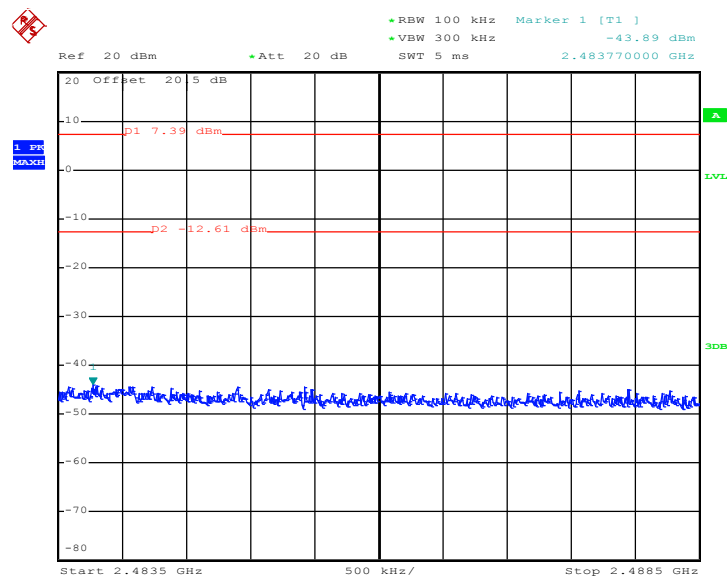
High Band Edge Plot on 802.11b Channel 11- Chain A



Date: 23.OCT.2011 18:53:43

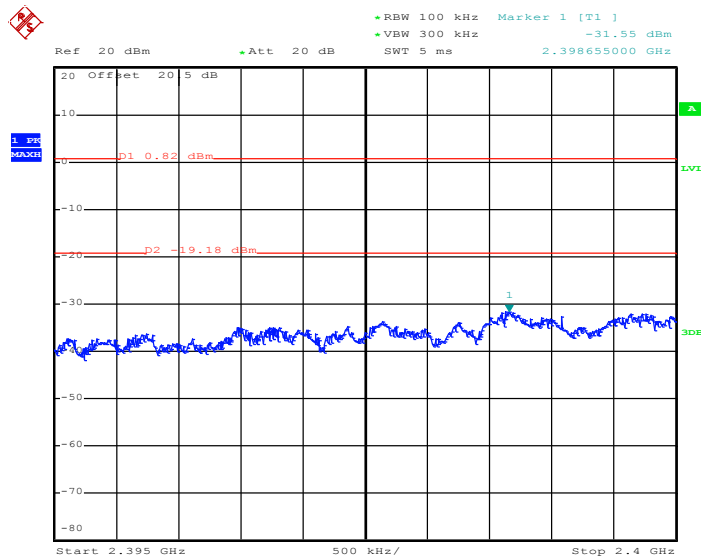
Low Band Edge Plot on 802.11b Channel 01- Chain B


Date: 22.OCT.2011 16:43:20

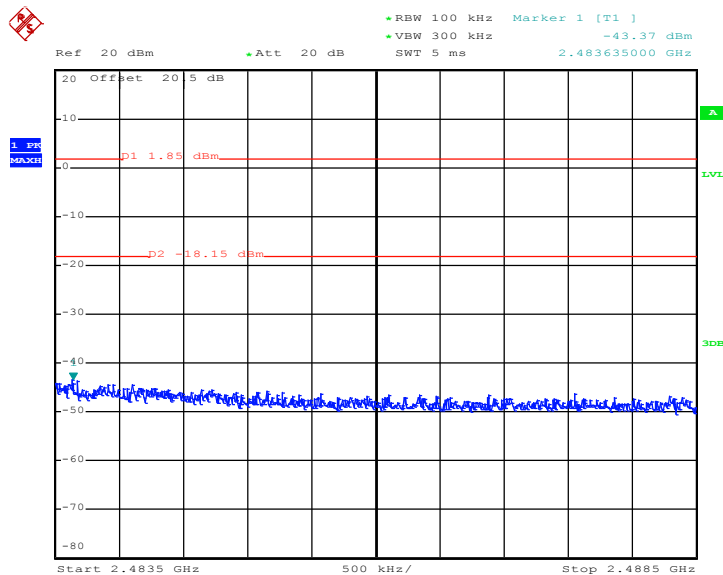
High Band Edge Plot on 802.11b Channel 11- Chain B


Date: 22.OCT.2011 17:40:34

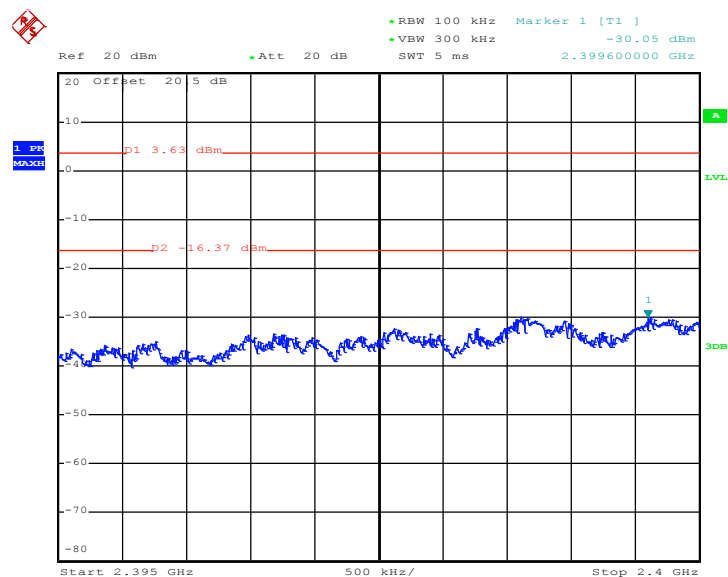
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11g Channel 01- Chain A


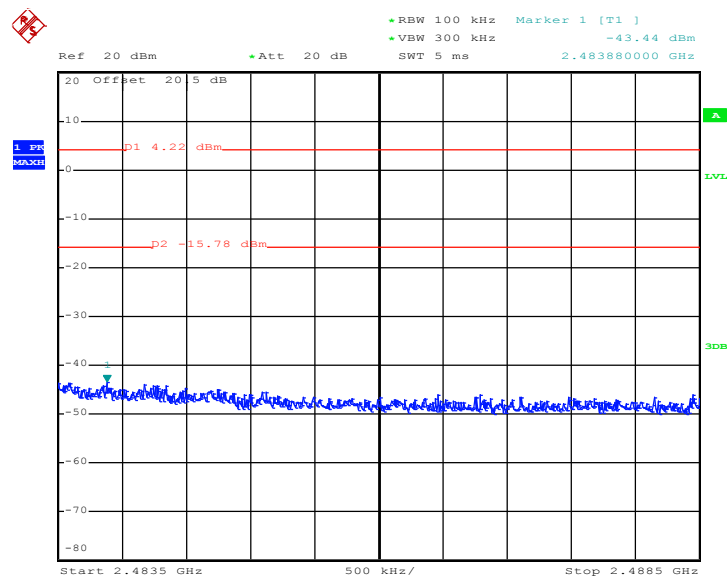
Date: 24.OCT.2011 22:06:06

High Band Edge Plot on 802.11g Channel 11- Chain A


Date: 24.OCT.2011 22:28:31

Low Band Edge Plot on 802.11g Channel 01- Chain B


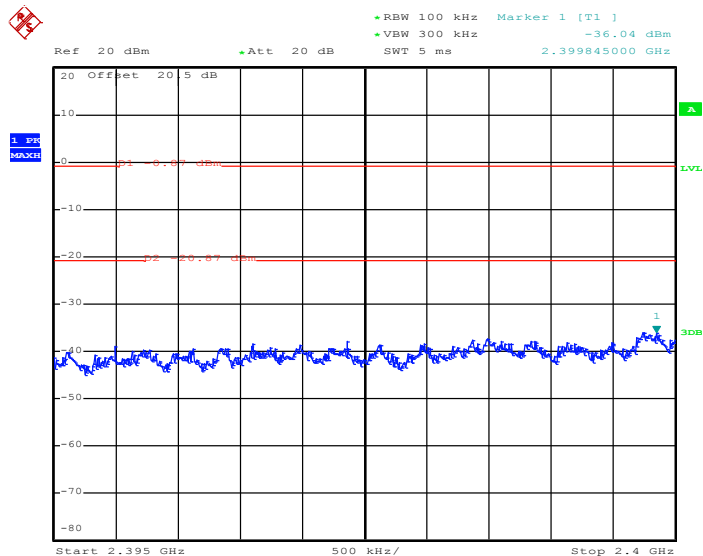
Date: 24.OCT.2011 17:49:56

High Band Edge Plot on 802.11g Channel 11- Chain B


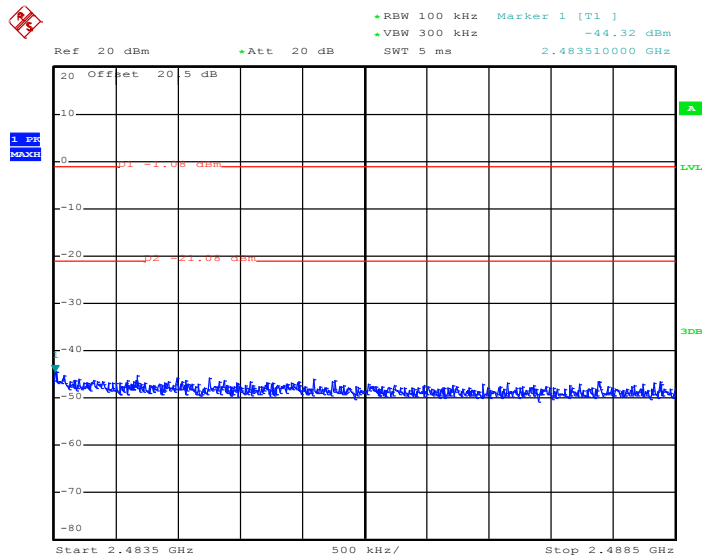
Date: 24.OCT.2011 18:29:36



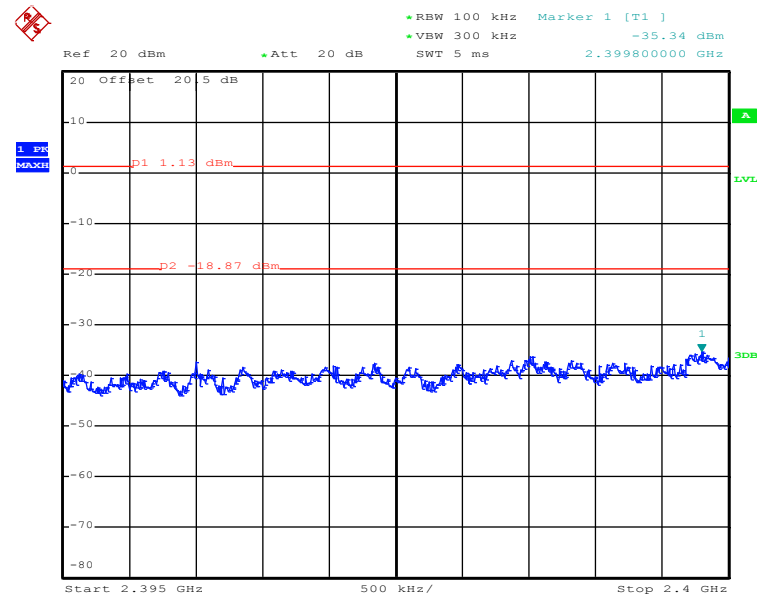
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

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

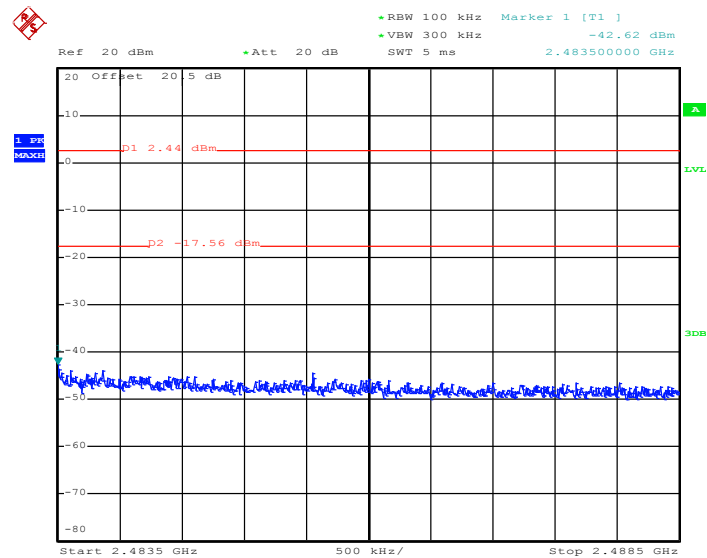
Date: 24.OCT.2011 22:40:56

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

Date: 25.OCT.2011 00:37:22

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


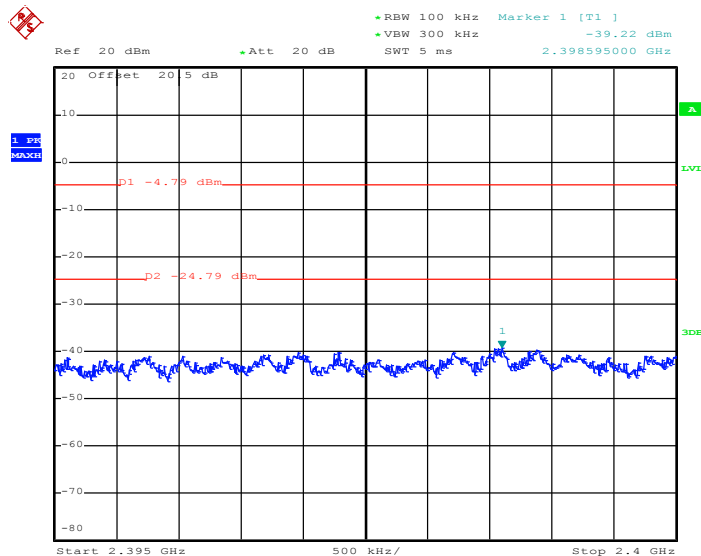
Date: 25.OCT.2011 00:33:15

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


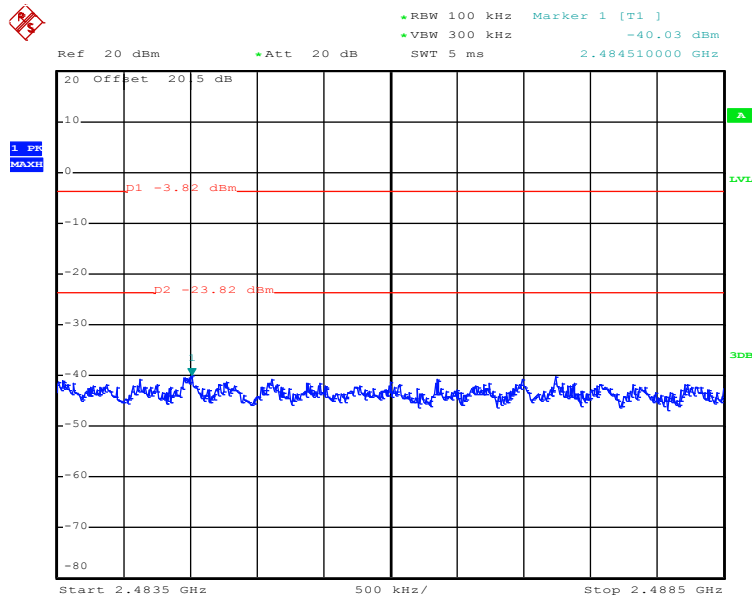
Date: 24.OCT.2011 19:42:48



Test Mode :	Mode 10 and 12	Temperature :	24~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Book Lin

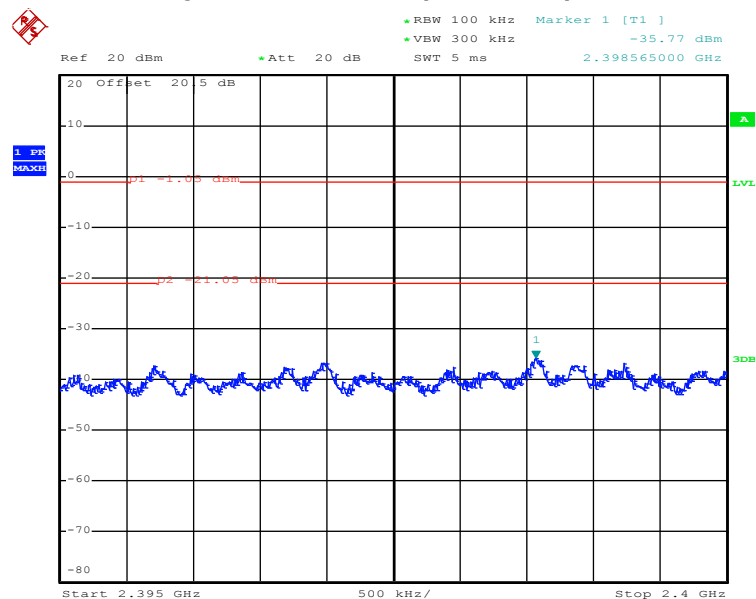
Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03-Chain A

Date: 24.OCT.2011 23:19:57

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09-Chain A

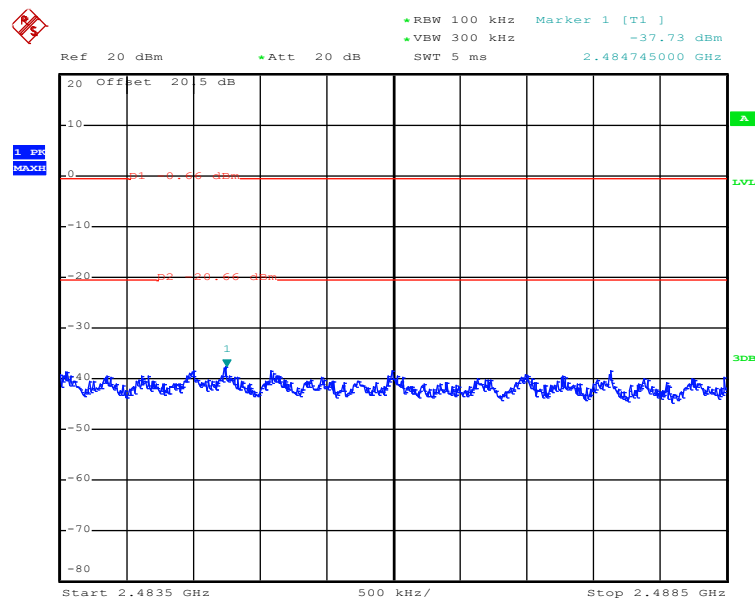
Date: 24.OCT.2011 23:45:35

Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03-Chain B



Date: 24.OCT.2011 19:56:19

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09-Chain B



Date: 24.OCT.2011 20:22:07

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.

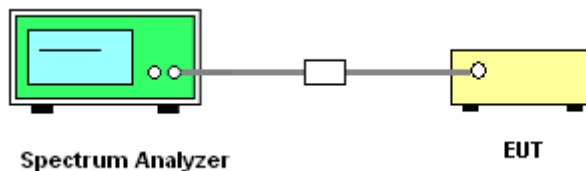
3.4.2 Measuring Instruments

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.

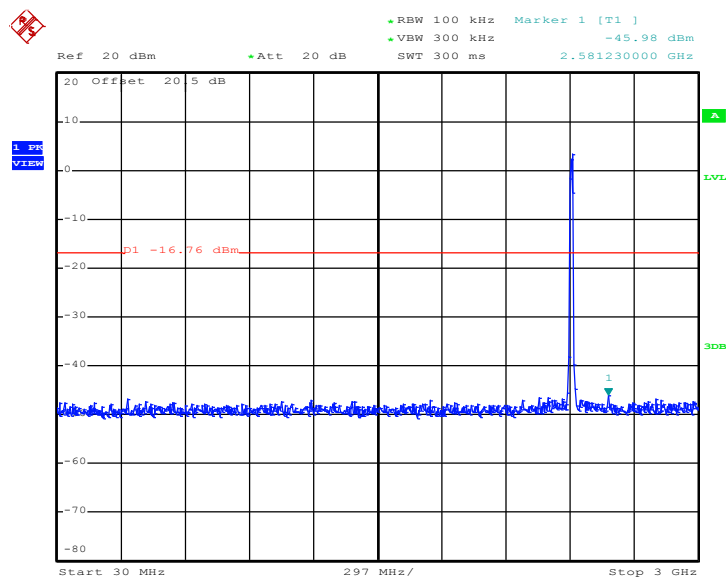
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

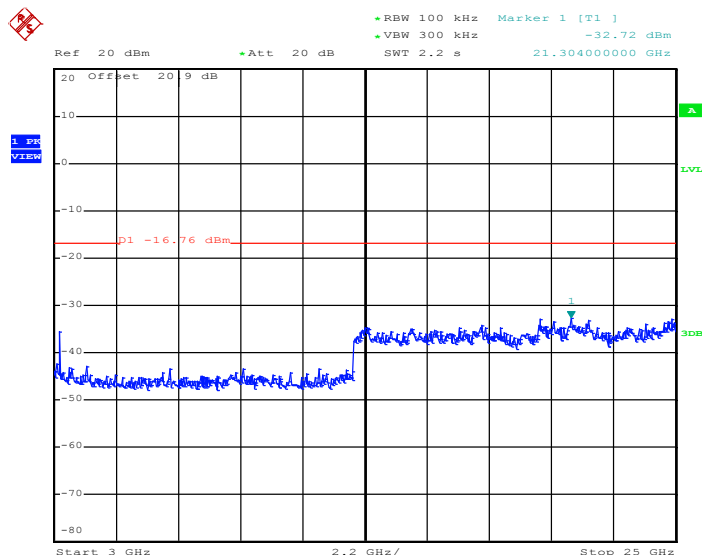
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A

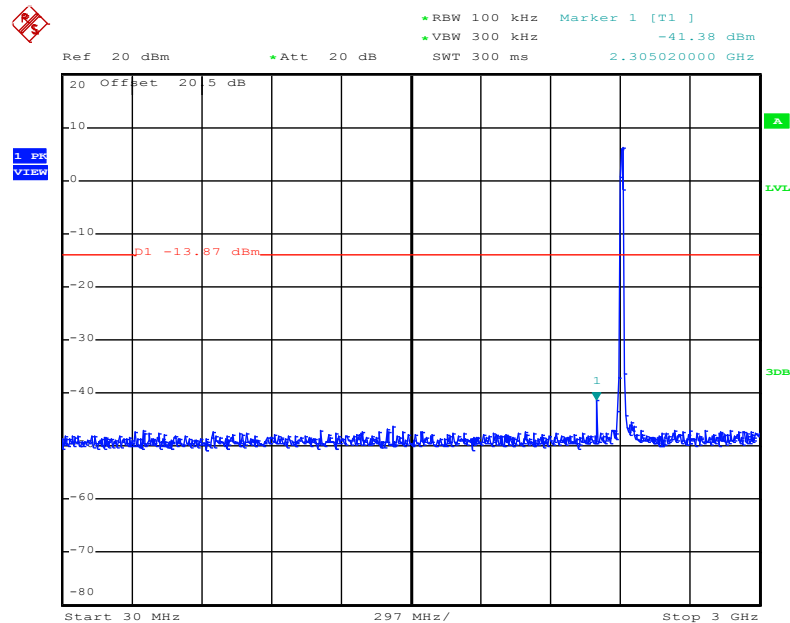


Date: 23.OCT.2011 19:41:12

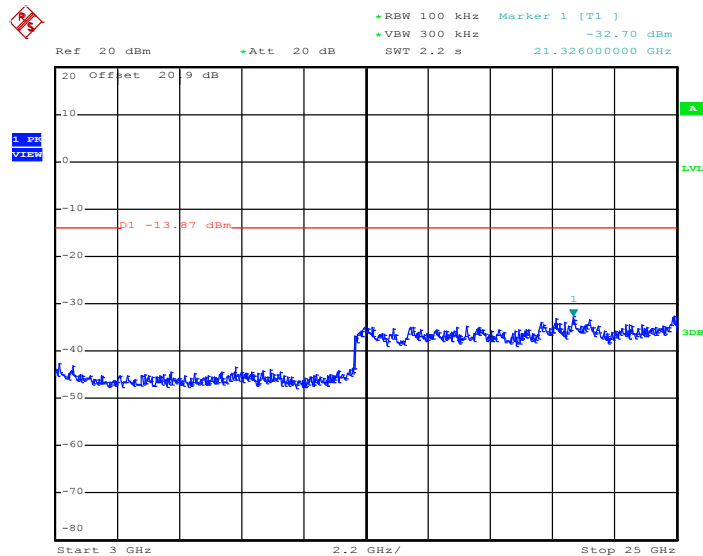
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A



Date: 23.OCT.2011 19:41:29

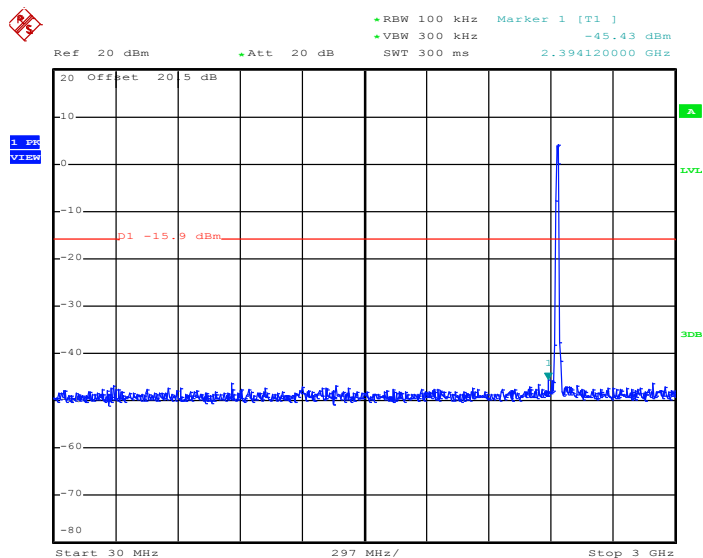
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 19:10:30

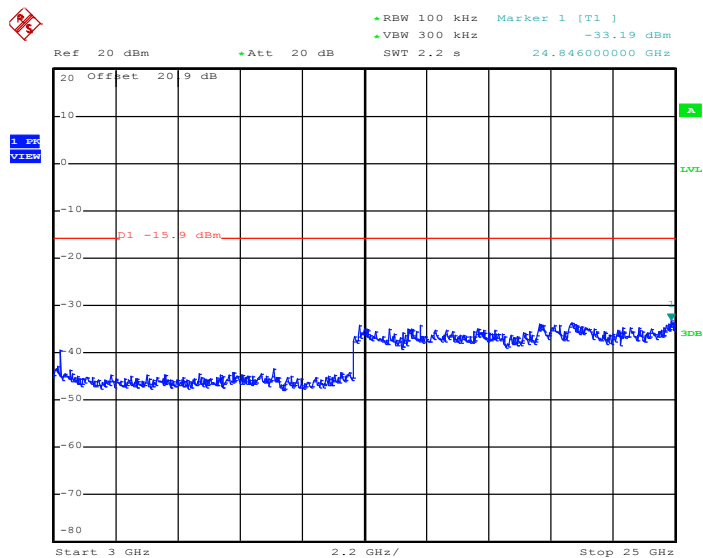
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


Date: 23.OCT.2011 19:10:48

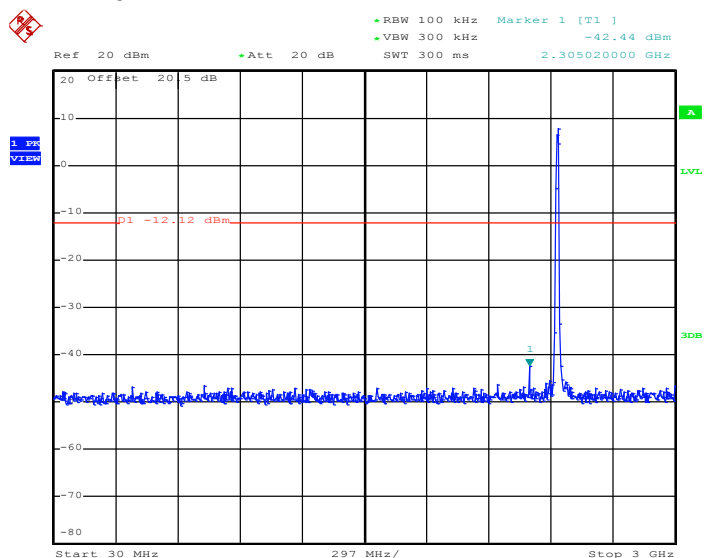
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain A


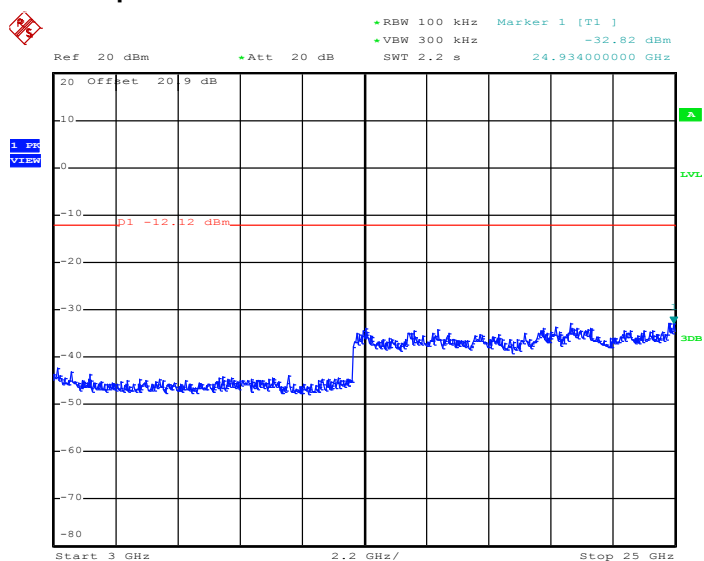
Date: 23.OCT.2011 19:42:38

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A


Date: 23.OCT.2011 19:42:55

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain B


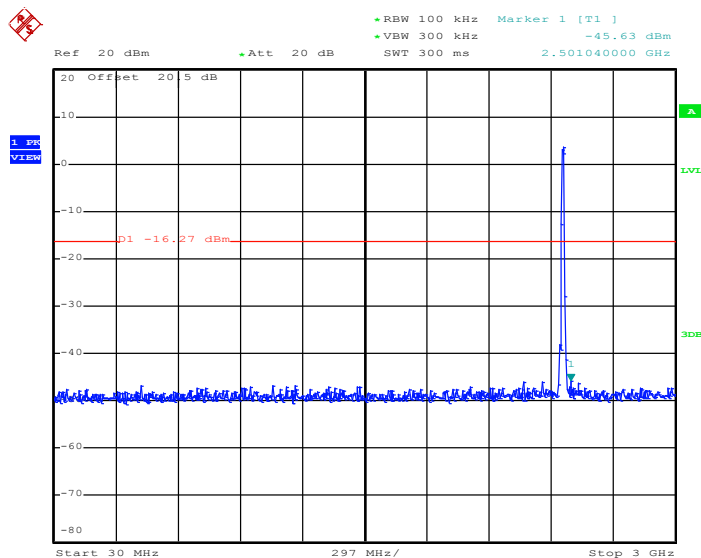
Date: 23.OCT.2011 19:44:27

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


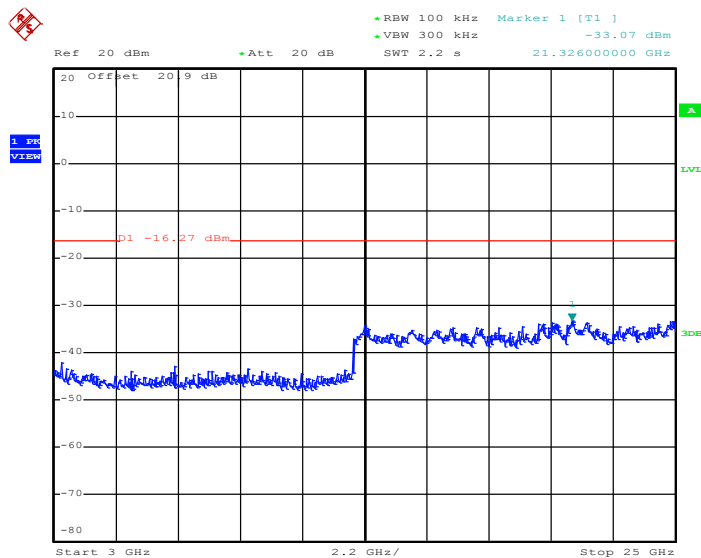
Date: 23.OCT.2011 19:44:45



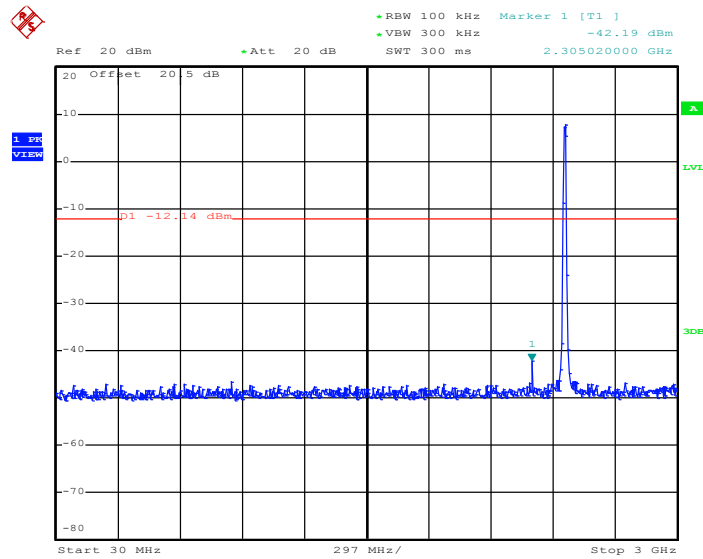
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A

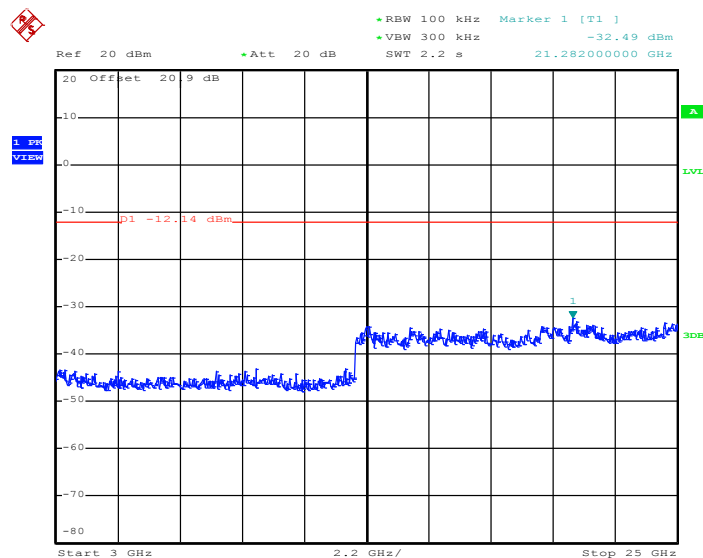
Date: 23.OCT.2011 18:55:37

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A

Date: 23.OCT.2011 18:55:54

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


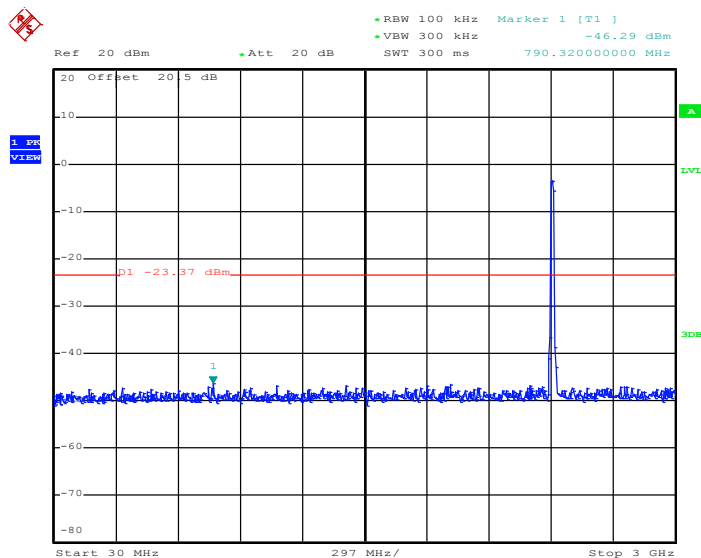
Date: 23.OCT.2011 19:06:32

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


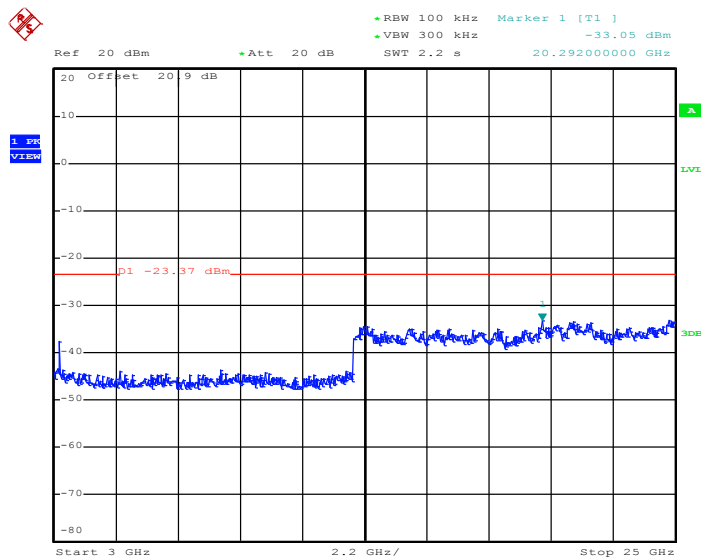
Date: 23.OCT.2011 19:06:49

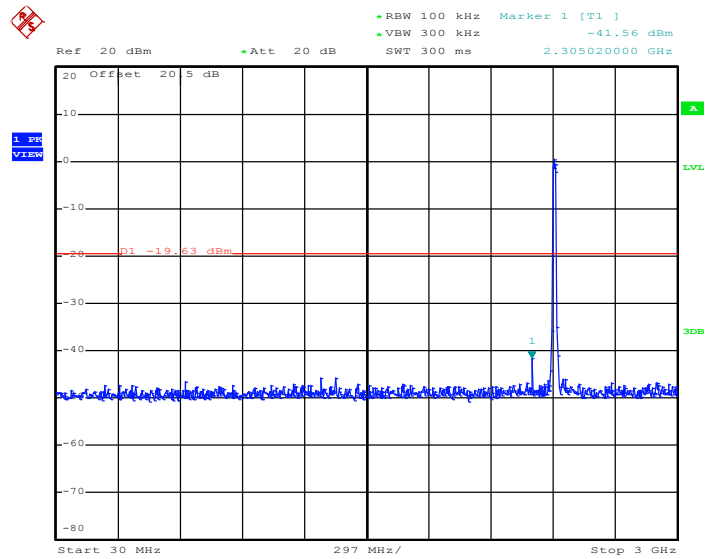


Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Book Lin

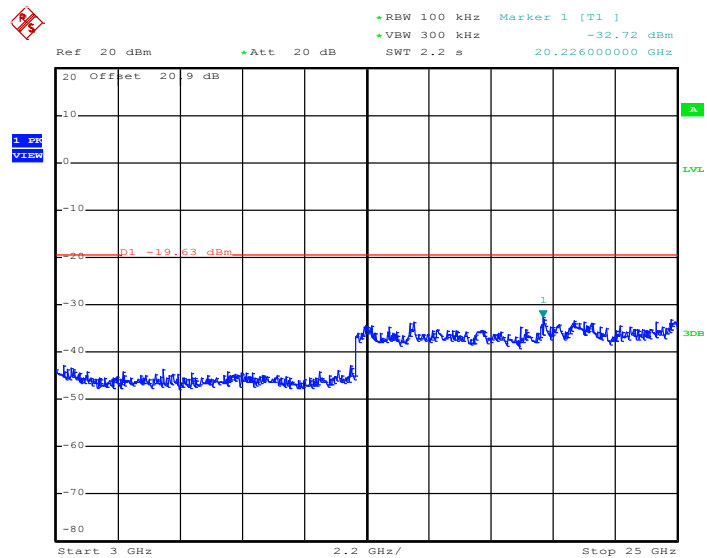
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A

Date: 23.OCT.2011 20:03:06

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A

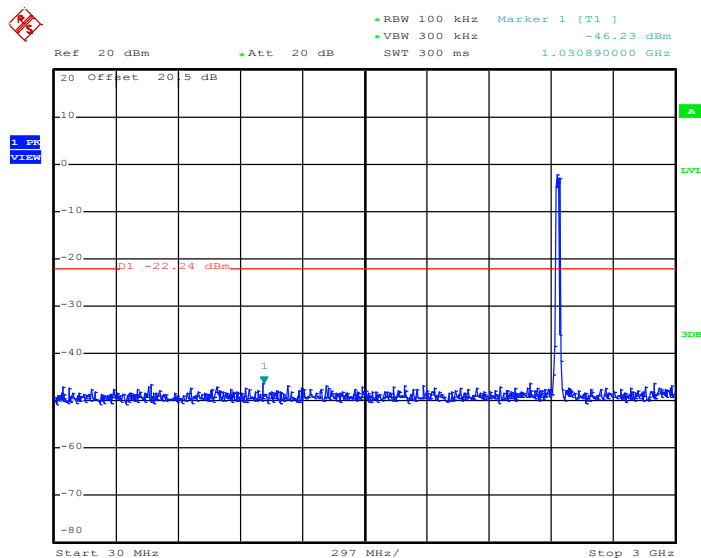
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 19:55:40

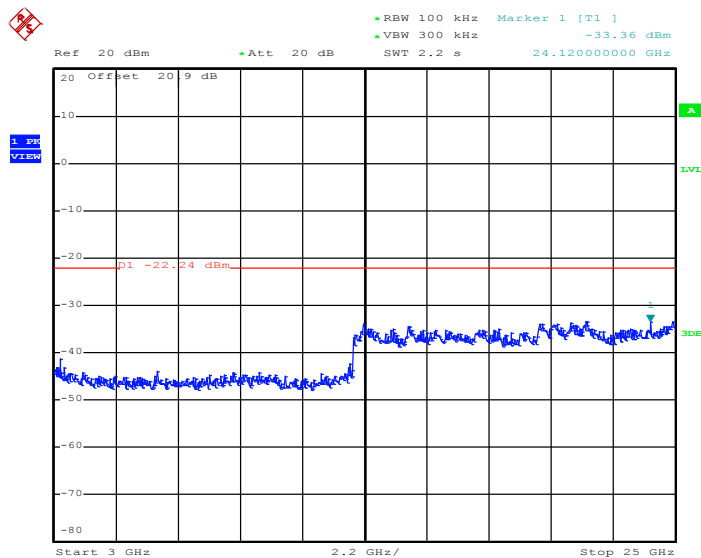
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


Date: 23.OCT.2011 19:55:57

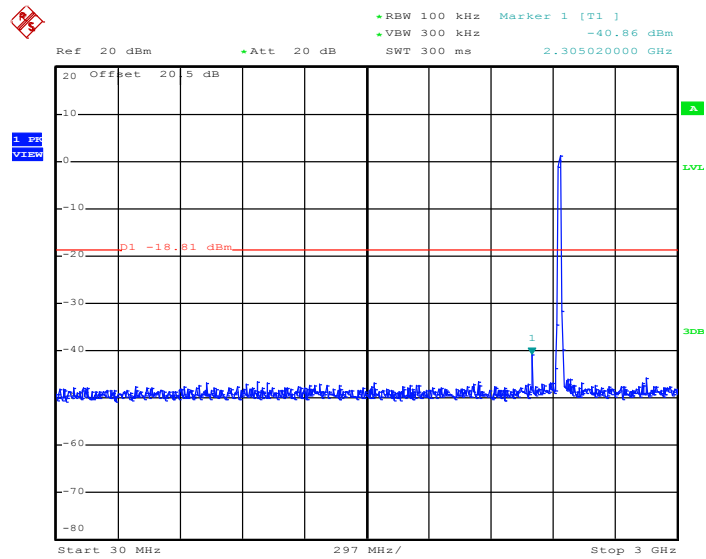
Test Mode :	Mode 5	Temperature :	24~26
Test Band :	802.11g	Relative Humidity :	50~53
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A


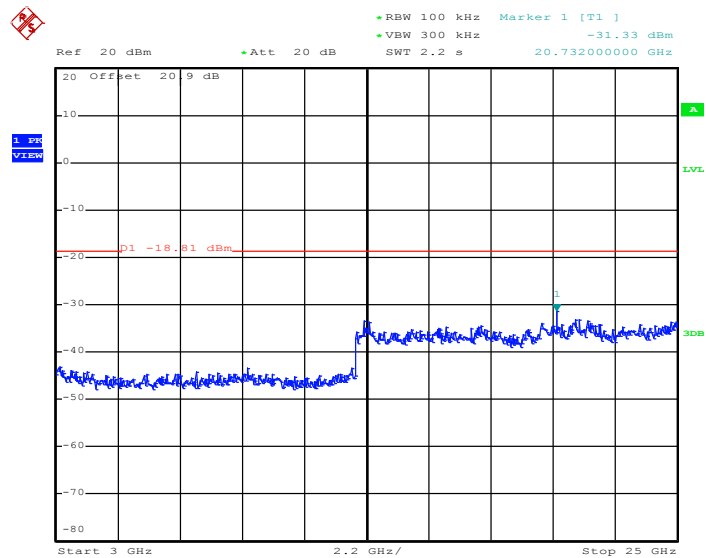
Date: 23.OCT.2011 20:01:52

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A


Date: 23.OCT.2011 20:02:09

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 19:57:46

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


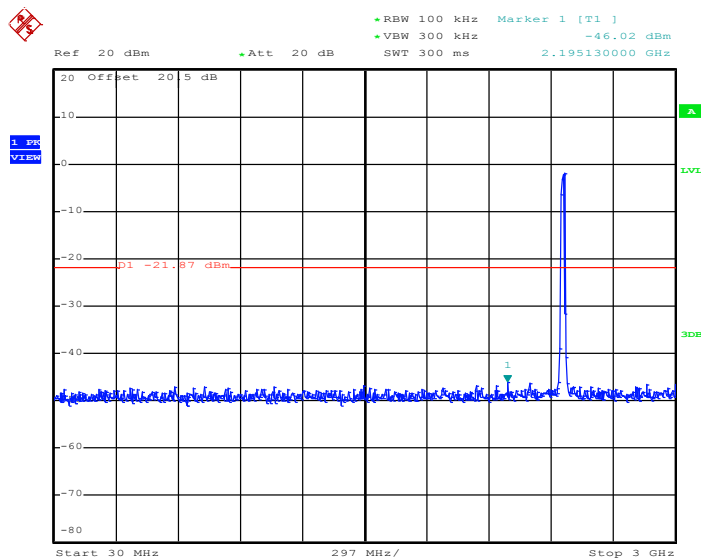
Date: 23.OCT.2011 19:58:03



Report No. : FR191547

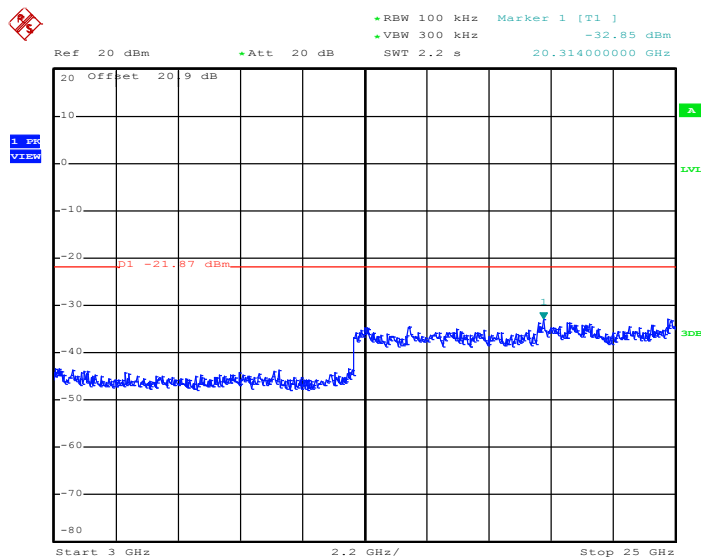
Test Mode :	Mode 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A



Date: 23.OCT.2011 20:00:41

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A



Date: 23.OCT.2011 20:00:59



Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz Marker 1 [T1] -41.48 dBm

SWT 300 ms 2.305020000 GHz

20 Offset 20 5 dB

1. dBm VIEW

01 -18.76 dBm

1

Start 30 MHz 297 MHz/ Stop 3 GHz

Date: 23.OCT.2011 19:59:17

Ref 20 dBm Att 20 dB RBW 100 kHz Marker 1 [T1] -33.05 dBm
 VBW 300 kHz SWT 2.2 s 15.56200000 GHz

20 Offset 20 9 dB

1. PR VIEW

20 -10 -0 -10 -20 -30 -40 -50 -60 -70 -80

2.2 GHz

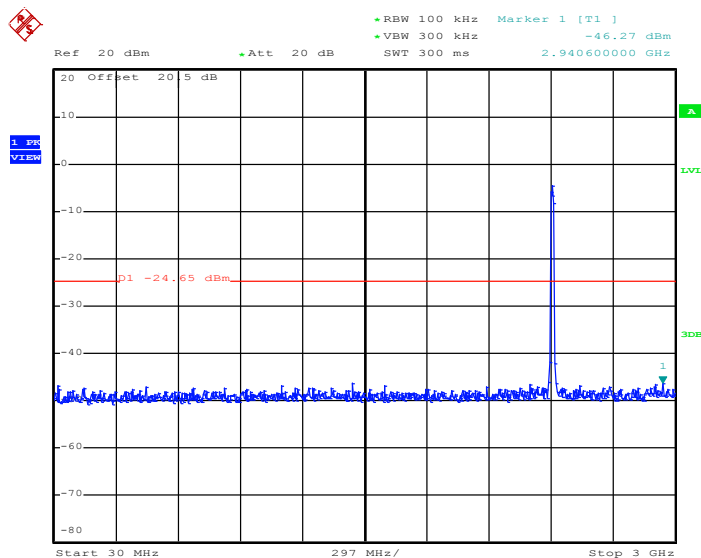
Start 3 GHz Stop 25 GHz

Date: 23.OCT.2011 19:59:34



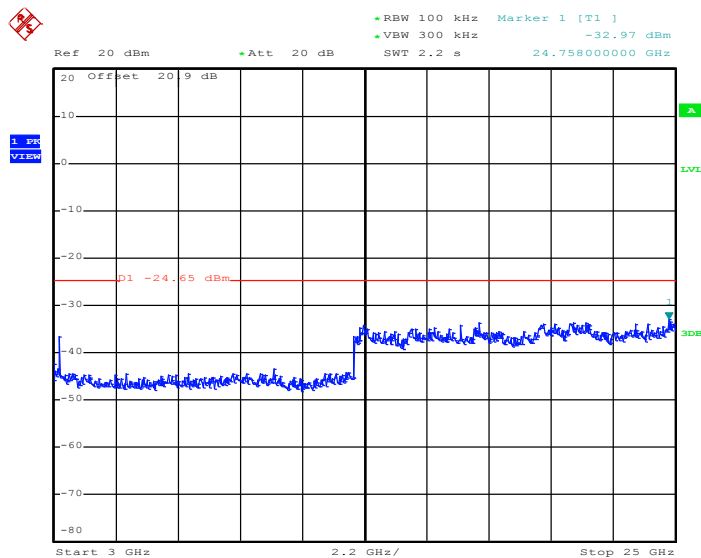
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A



Date: 23.OCT.2011 21:38:13

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A



Date: 23.OCT.2011 21:38:30



Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz Marker 1 [T1] -40.97 dBm
 SWT 300 ms 2.30502000 GHz

Offset 20.5 dB

1 5%
 View

p1 -22.11 dBm

1

Start 30 MHz 297 MHz/ Stop 3 GHz

Date: 23.OCT.2011 20:27:01

Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz SWT 2.2 s Marker 1 [T1] -32.85 dBm 21.326000000 GHz

1 5% VIEW

20 Offset 20 9 dB

20 -10 -0 -10 -20 -30 -40 -50 -60 -70 -80

31 -22.11 dBm

1

3dB

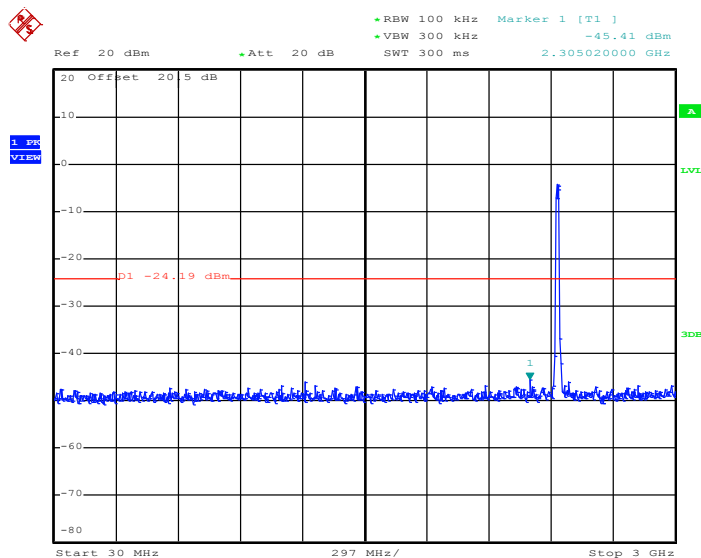
Start 3 GHz Stop 25 GHz 2.2 GHz/

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



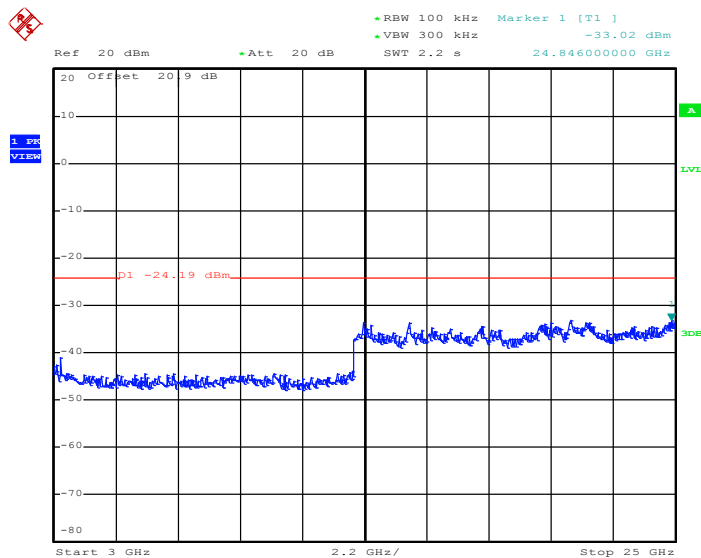
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A



Date: 23.OCT.2011 21:23:46

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A



Date: 23.OCT.2011 21:24:03



Ref 20 dBm Att 20 dB RBW 100 kHz VBW 300 kHz SWT 300 ms

Marker 1 [T1] -41.66 dBm

2.305020000 GHz

1. dBm VIEW

20 Offset 20 5 dB

10 -10 -20 -30 -40 -50 -60 -70 -80

Start 30 MHz Stop 3 GHz

297 MHz/

Date: 23.OCT.2011 20:39:11

Ref 20 dBm +Att 20 dB RBW 100 kHz VBW 300 kHz Marker 1 [T1] -31.74 dBm
SWT 2.2 s 21.32600000 GHz

20 Offset 20 9 dB

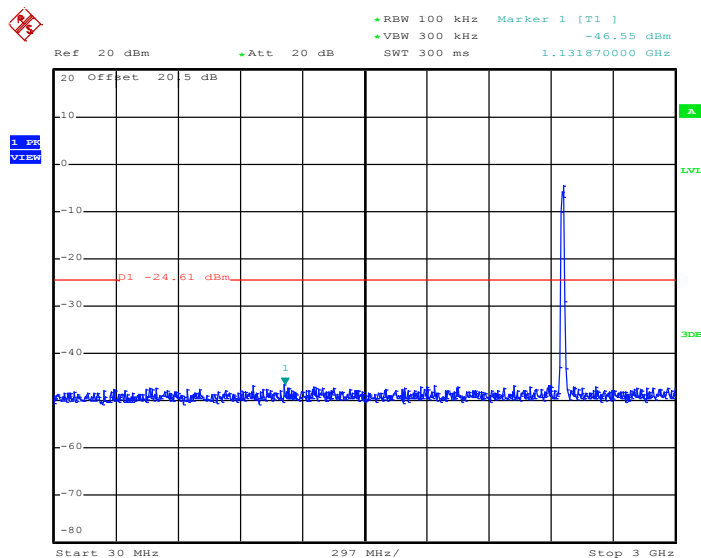
1. PR VIEW

20 -10 -0 -10 -20 -30 -40 -50 -60 -70 -80

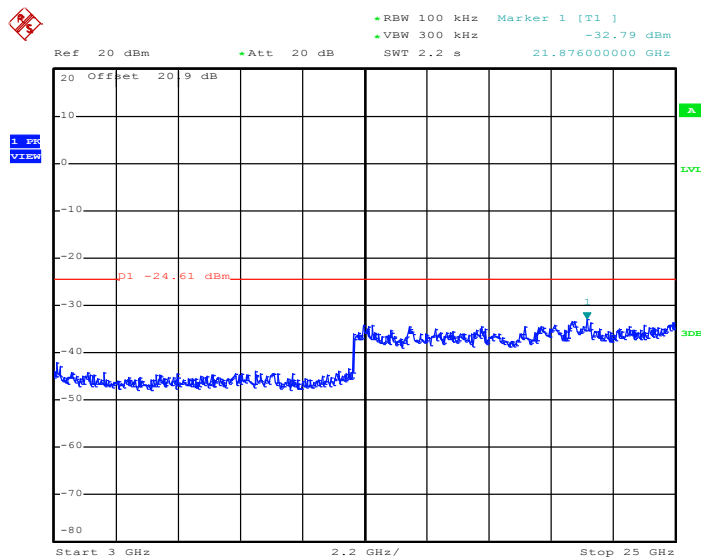
Start 3 GHz 2.2 GHz/ Stop 25 GHz

Date: 23.OCT.2011 20:39:28

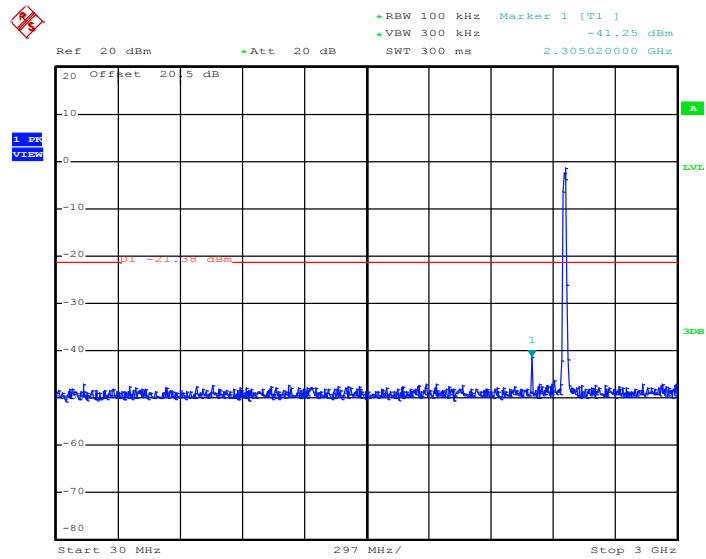
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A


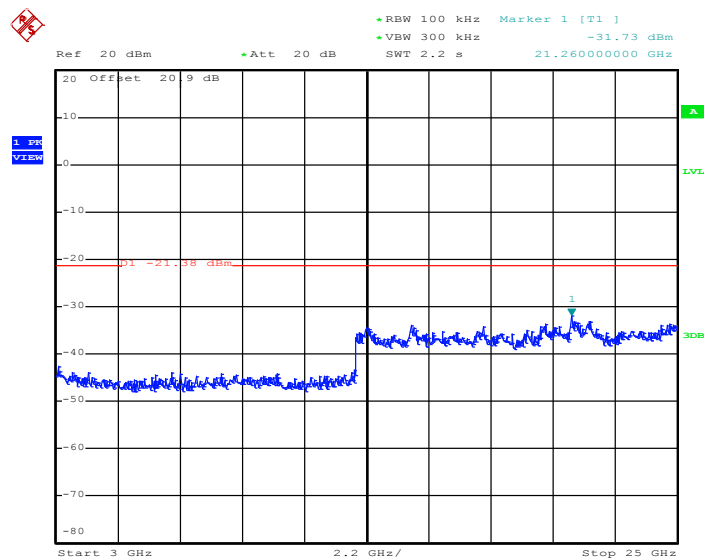
Date: 23.OCT.2011 21:07:37

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A


Date: 23.OCT.2011 21:07:54

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 20:51:42

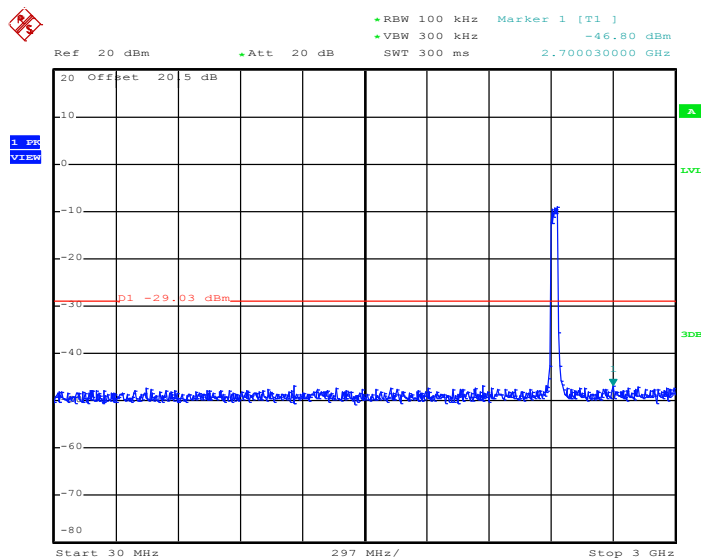
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


Date: 23.OCT.2011 20:51:59



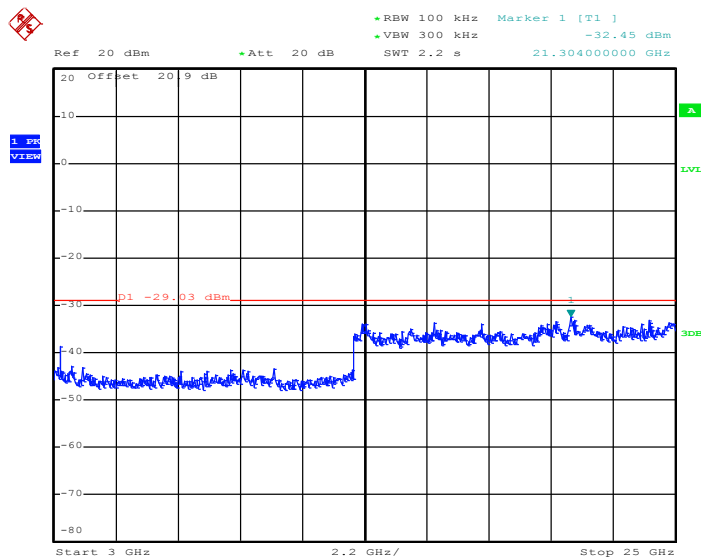
Test Mode :	Mode 10	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	03	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A

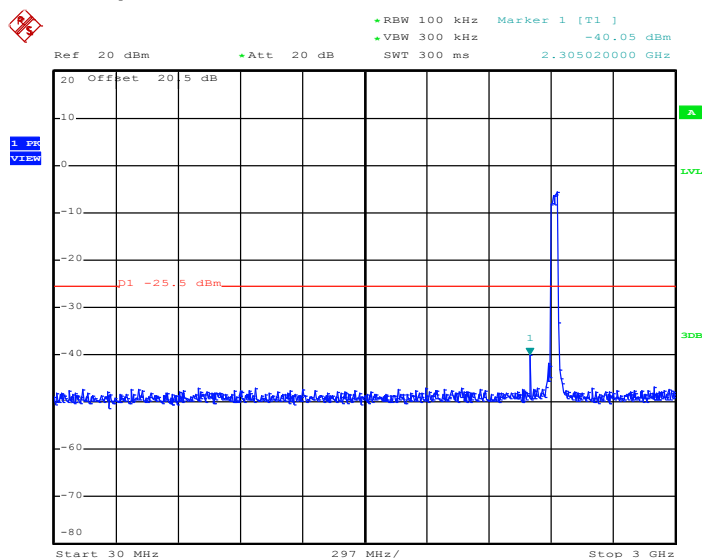


Date: 23.OCT.2011 22:06:42

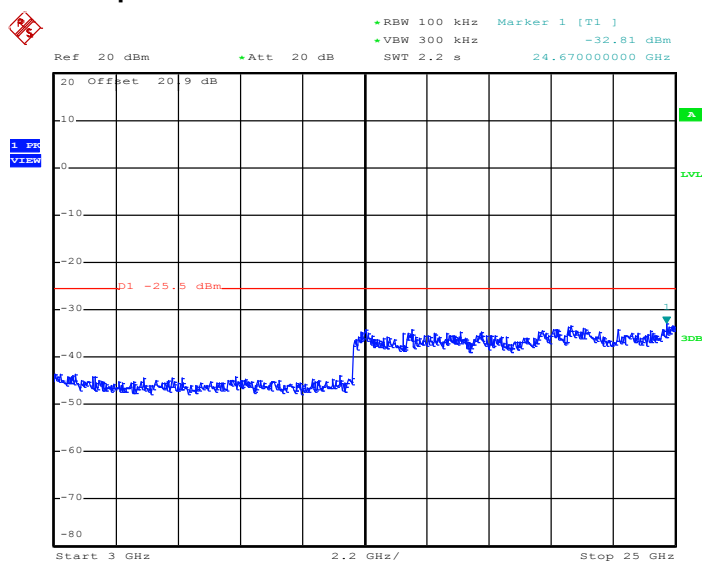
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A



Date: 23.OCT.2011 22:06:59

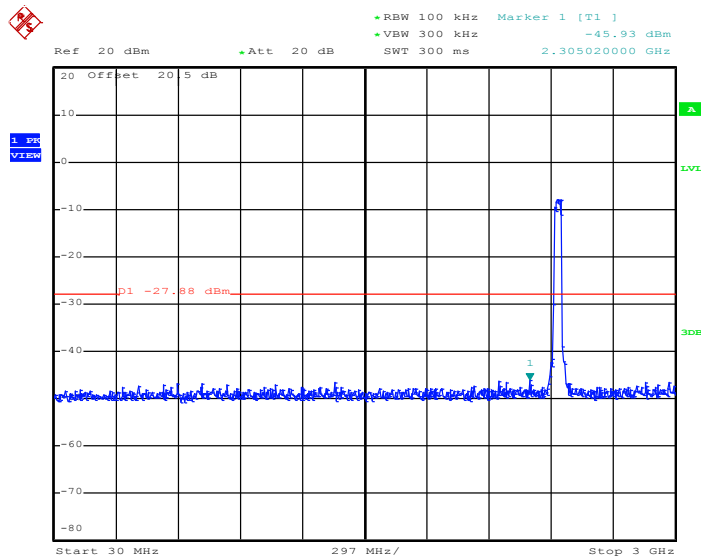
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 23:26:41

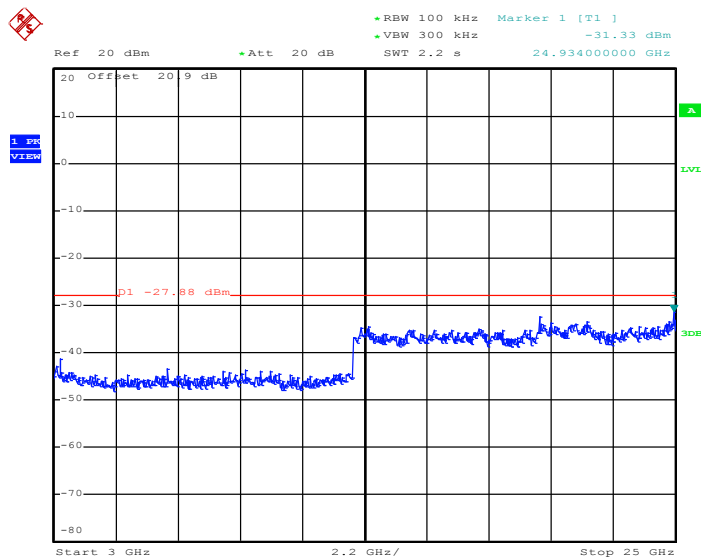
Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


Date: 23.OCT.2011 23:26:58

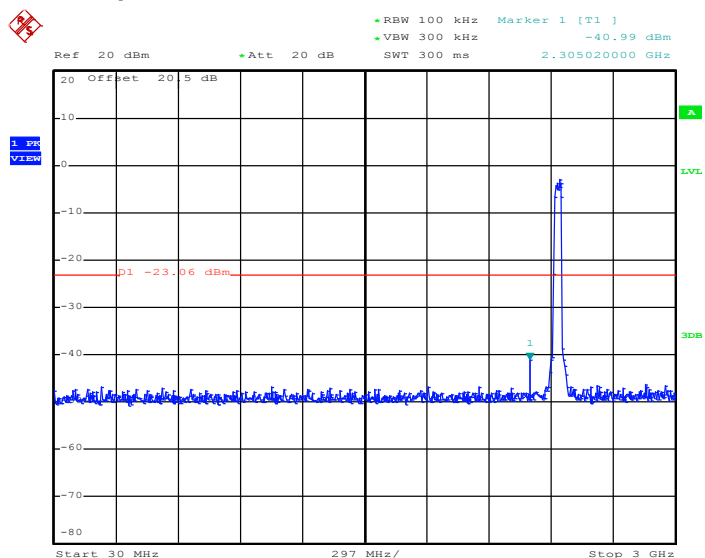
Test Mode :	Mode 11	Temperature :	24~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A


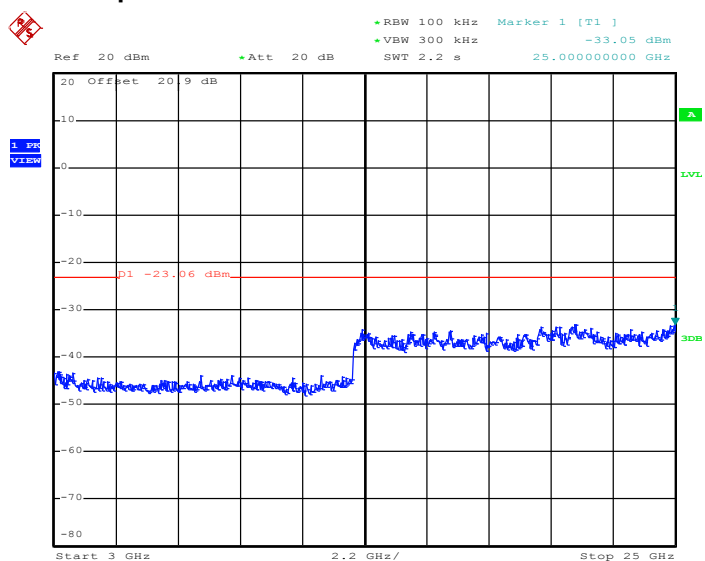
Date: 23.OCT.2011 22:20:10

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A


Date: 23.OCT.2011 22:20:27

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


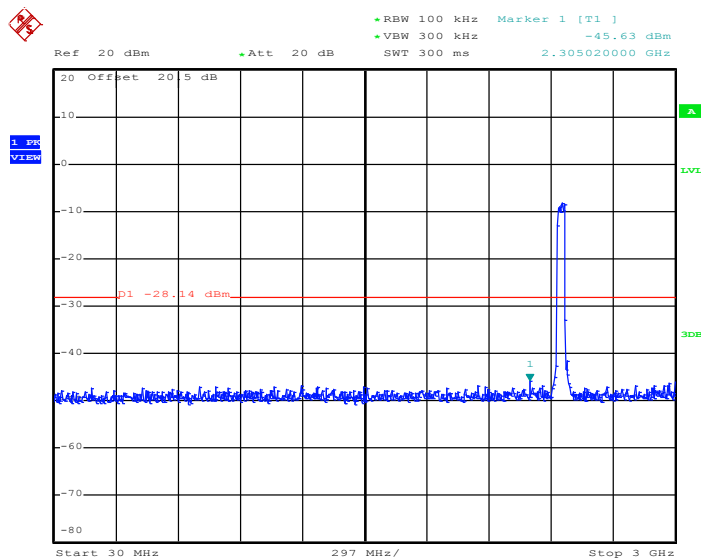
Date: 23.OCT.2011 23:12:52

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


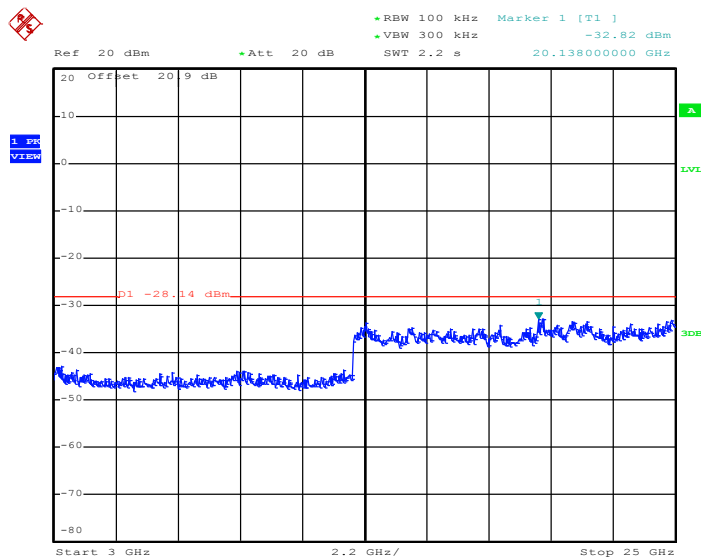
Date: 23.OCT.2011 23:13:09



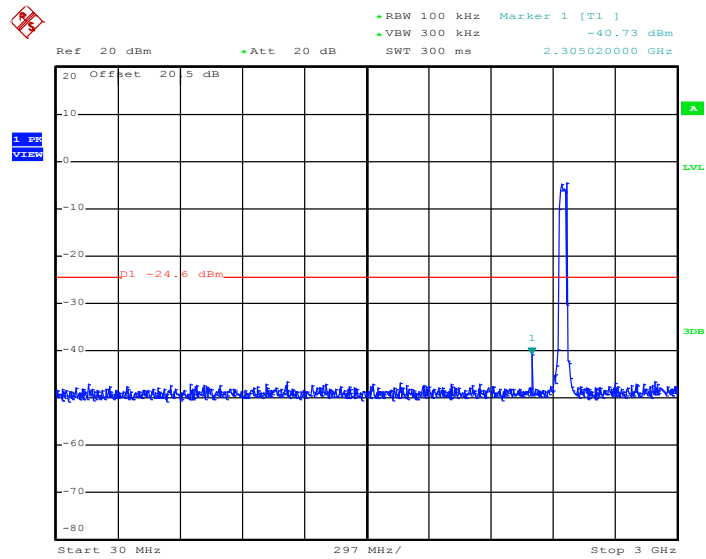
Test Mode :	Mode 12	Temperature :	24~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	09	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain A

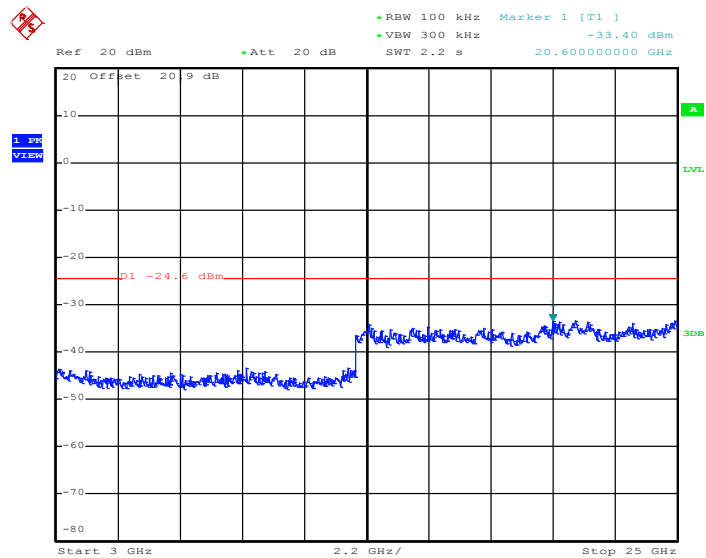
Date: 23.OCT.2011 22:33:14

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain A

Date: 23.OCT.2011 22:33:34

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz- Chain B


Date: 23.OCT.2011 22:59:33

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz- Chain B


Date: 23.OCT.2011 22:59:50

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.

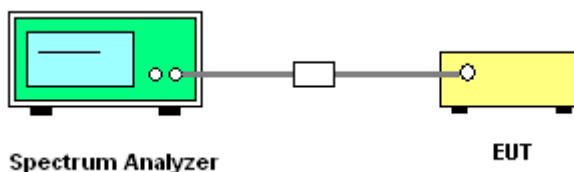
3.5.2 Measuring Instruments

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

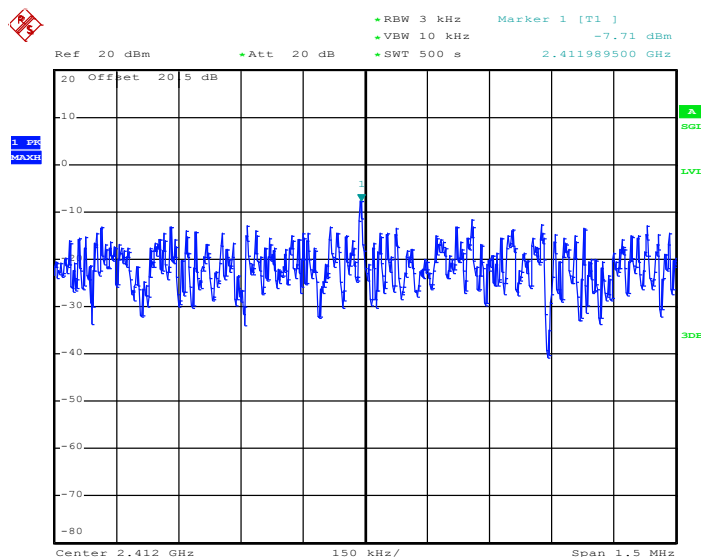


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

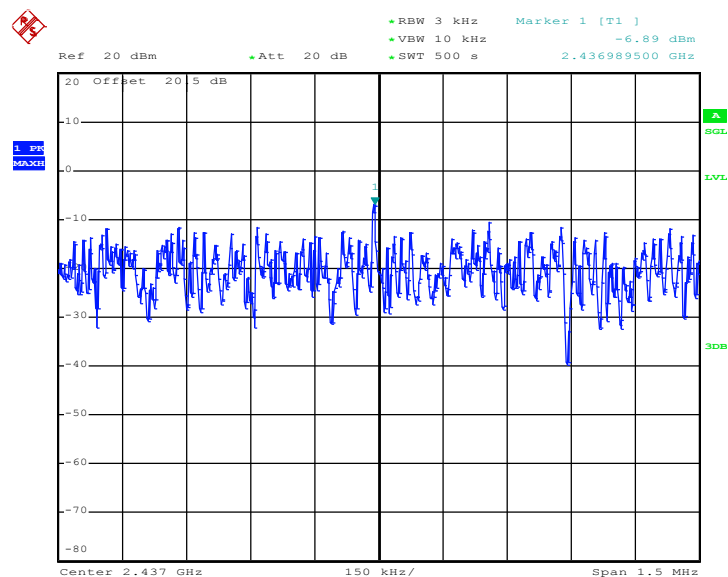
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)		Total Power Density (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	-7.71	-3.27	-1.94	8	Pass
06	2437	-6.89	-2.51	-1.16	8	Pass
11	2462	-6.69	-2.87	-1.36	8	Pass

PSD Plot on 802.11b Channel 01 – Chain A



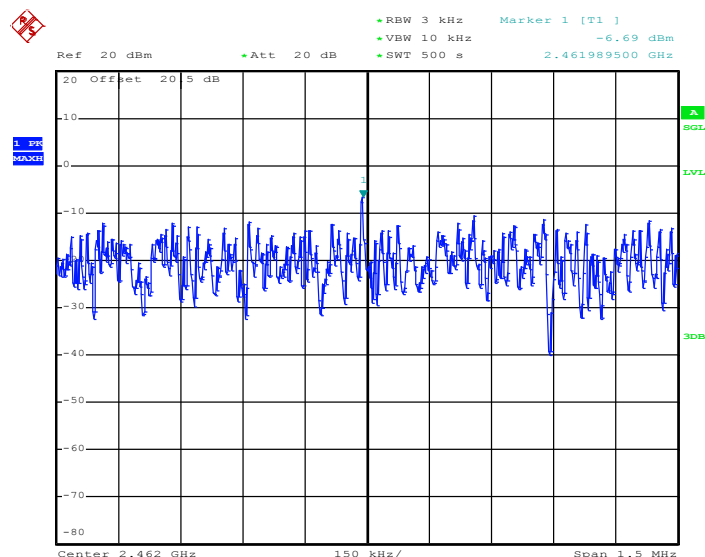
Date: 22.OCT.2011 17:08:56

PSD Plot on 802.11b Channel 06 – Chain A



Date: 22.OCT.2011 17:20:56

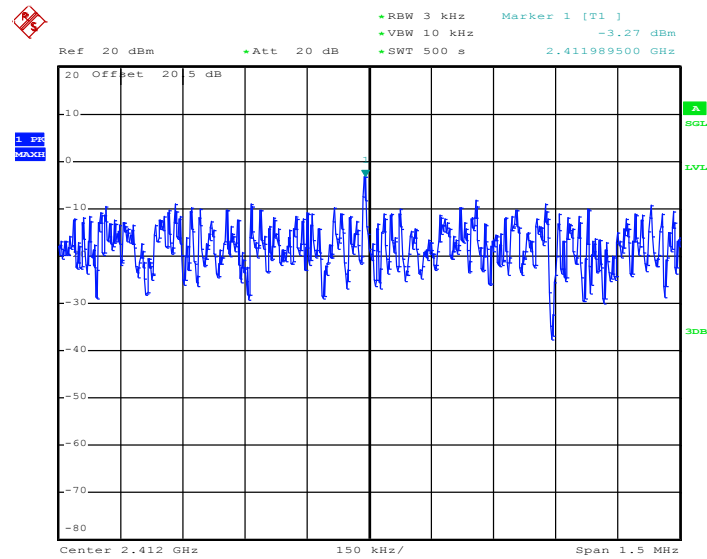
PSD Plot on 802.11b Channel 11 – Chain A



Date: 23.OCT.2011 19:04:35

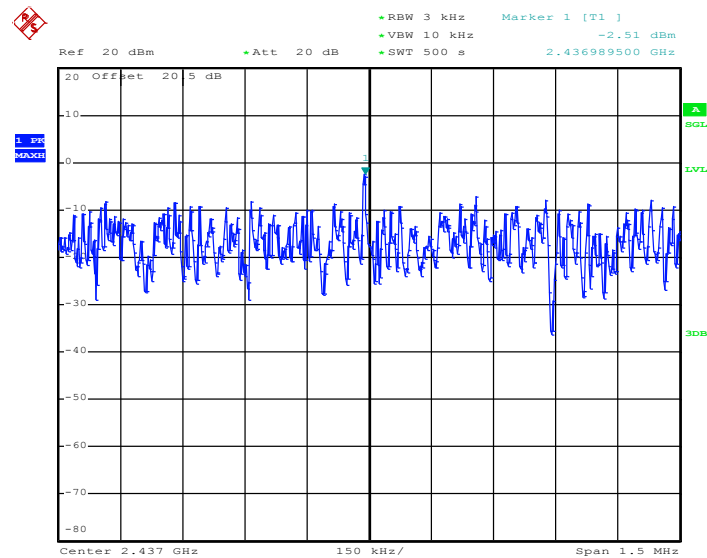


PSD Plot on 802.11b Channel 01 – Chain B



Date: 22.OCT.2011 16:56:17

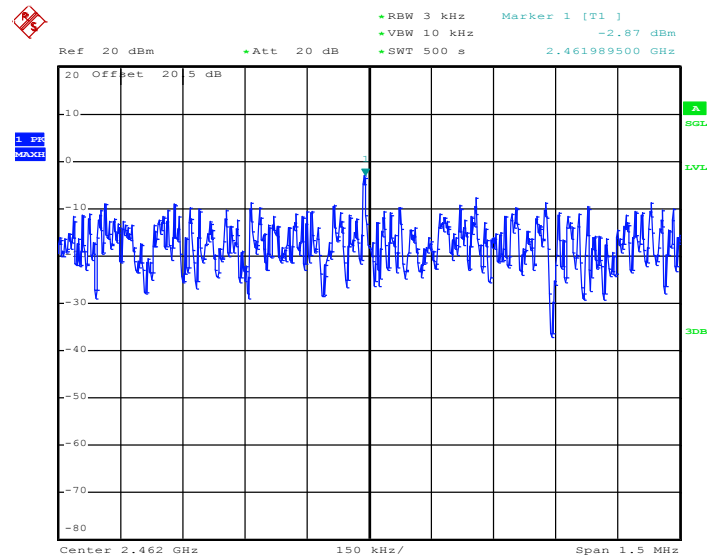
PSD Plot on 802.11b Channel 06 – Chain B



Date: 22.OCT.2011 17:37:14



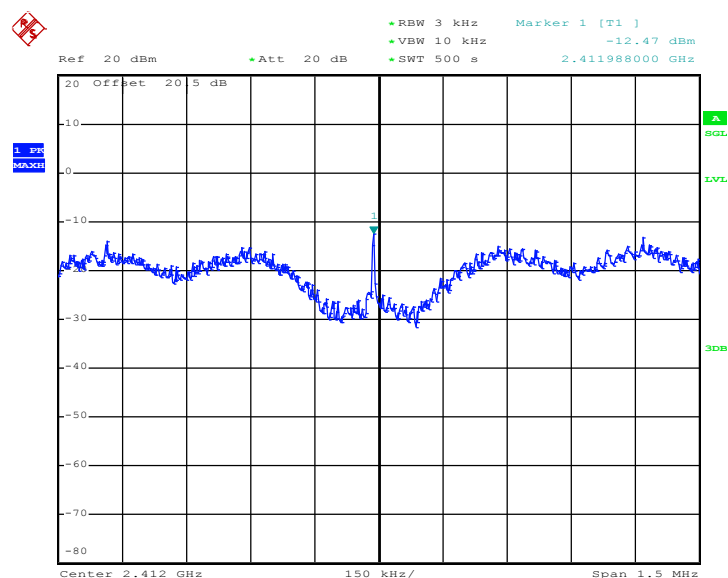
PSD Plot on 802.11b Channel 11 – Chain B



Date: 22.OCT.2011 17:51:28

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

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)		Total Power Density (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	-12.47	-8.75	-7.21	8	Pass
06	2437	-11.24	-6.66	-5.36	8	Pass
11	2462	-11.44	-7.97	-6.36	8	Pass

PSD Plot on 802.11g Channel 01- Chain A


Date: 24.OCT.2011 22:15:01



1.5% RUCK

Ref 20 dBm Att 20 dB

RBW 3 kHz VBW 10 kHz SWT 500 s

Marker 1 [T1] -11.24 dBm 2.436991000 GHz

Offset 20.5 dB

Center 2.437 GHz 150 kHz/ Span 1.5 MHz

Date: 24.OCT.2011 22:25:24

1. 198 000000

Ref 20 dBm Att 20 dB RBW 3 kHz VBW 10 kHz SWT 500 s Marker 1 [T1] -11.44 dBm 2.461989500 GHz

20 Offset 20.5 dB

10

0

-10

-20

-30

-40

-50

-60

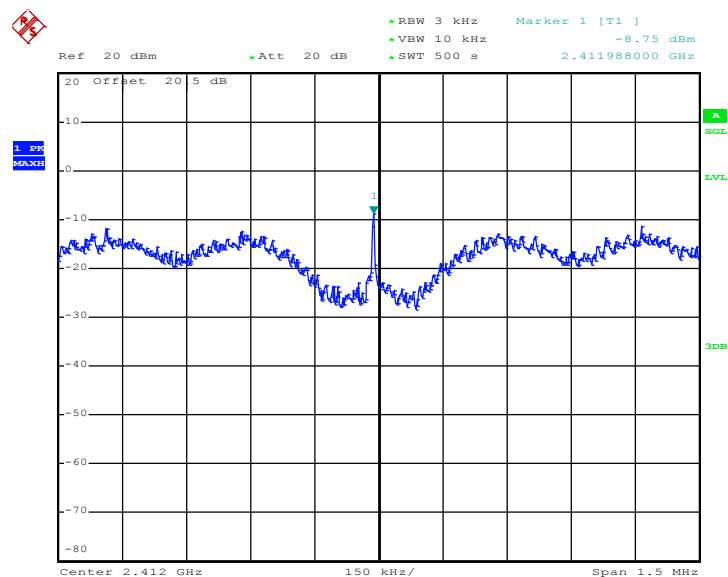
-70

-80

Center 2.462 GHz 150 kHz/ Span 1.5 MHz

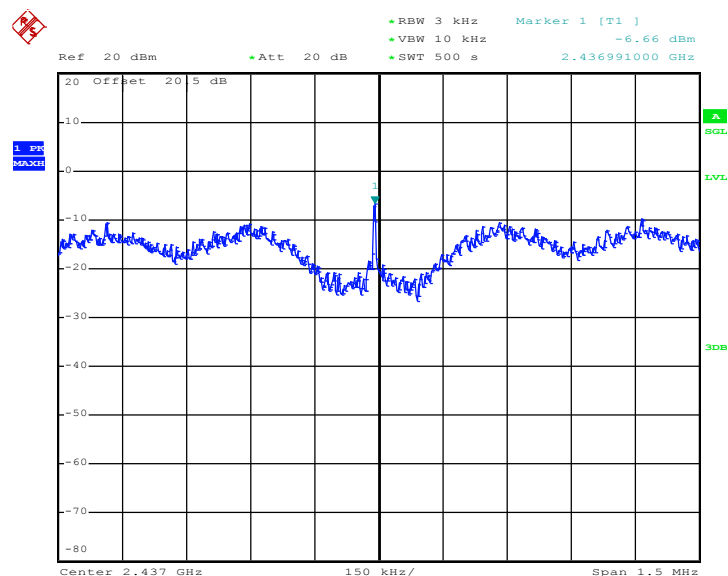
Date: 24.OCT.2011 22:37:19

PSD Plot on 802.11g Channel 01- Chain B



Date: 25.OCT.2011 00:52:24

PSD Plot on 802.11g Channel 06- Chain B

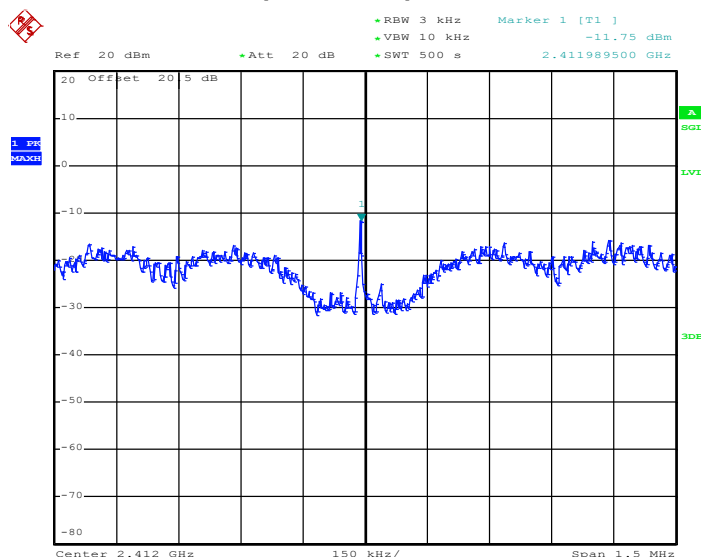


Date: 24.OCT.2011 19:09:31



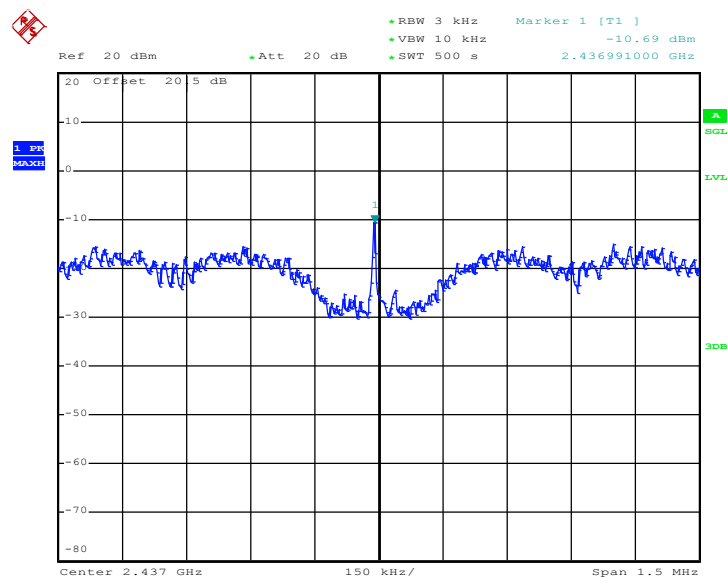
Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)		Total Power Density (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
01	2412	-11.75	-7.72	-6.27	8	Pass
06	2437	-10.69	-6.60	-5.17	8	Pass
11	2462	-11.65	-7.29	-5.93	8	Pass

PSD Plot on 802.11n (BW 20MHz) Channel 01- Chain A


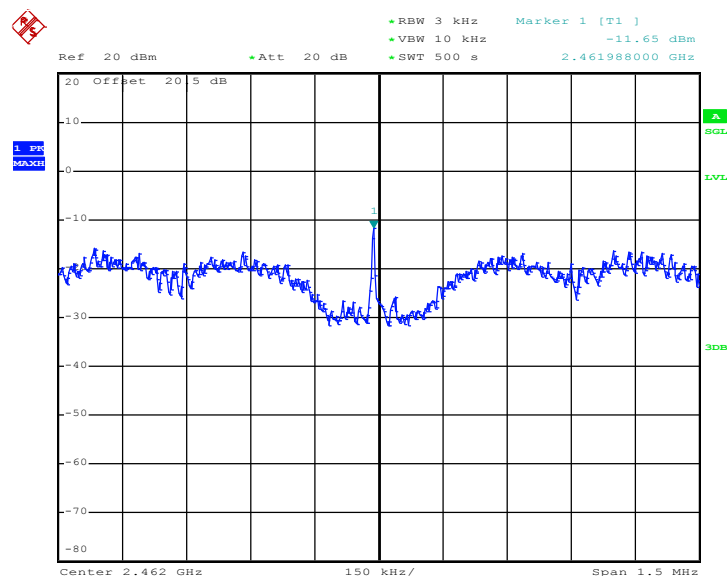
Date: 24.OCT.2011 22:51:29

PSD Plot on 802.11n (BW 20MHz) Channel 06- Chain A



Date: 24.OCT.2011 23:04:30

PSD Plot on 802.11n (BW 20MHz) Channel 11- Chain A



Date: 24.OCT.2011 23:16:36



Ref 20 dBm • Att 20 dB • RBW 3 kHz Marker 1 [T1] -7.72 dBm
 • VBW 10 kHz • SWT 500 s 2.411991000 GHz

20 Offset 20.5 dB

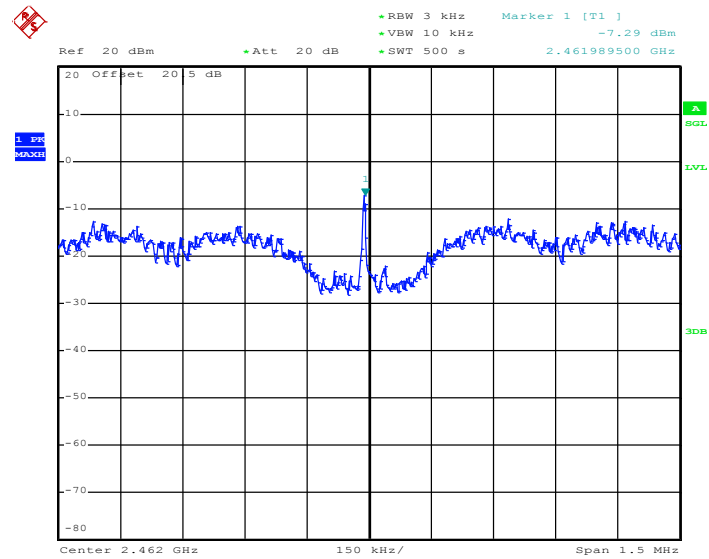
1.56 MHz
WALSH

1

Center 2.412 GHz 150 kHz/ Span 1.5 MHz

Date: 24.OCT.2011 19:24:23

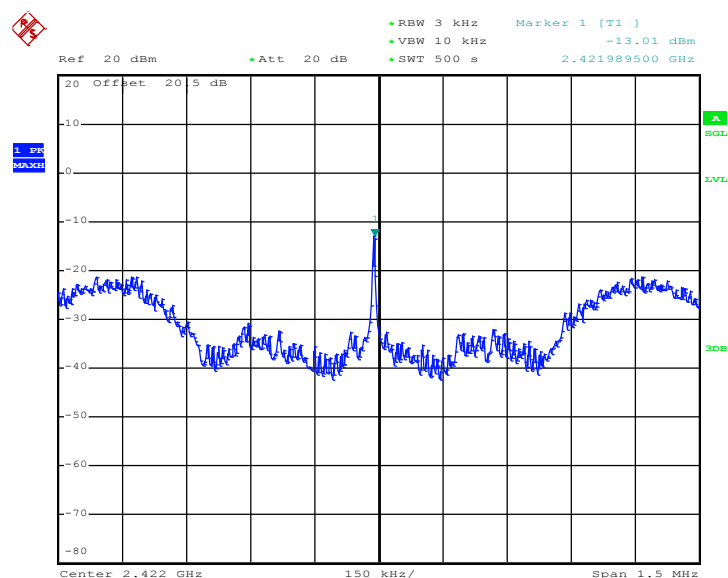
Date: 24.OCT.2011 19:39:49

PSD Plot on 802.11n (BW 20MHz) Channel 11- Chain B


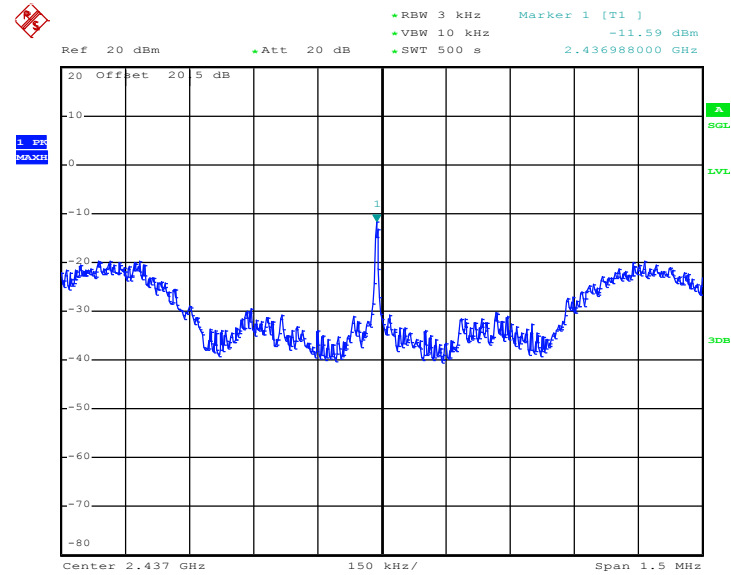
Date: 24.OCT.2011 19:51:59

Test Mode :	Mode 10, 11, 12	Temperature :	24~26
Test Engineer :	Book Lin	Relative Humidity :	50~53

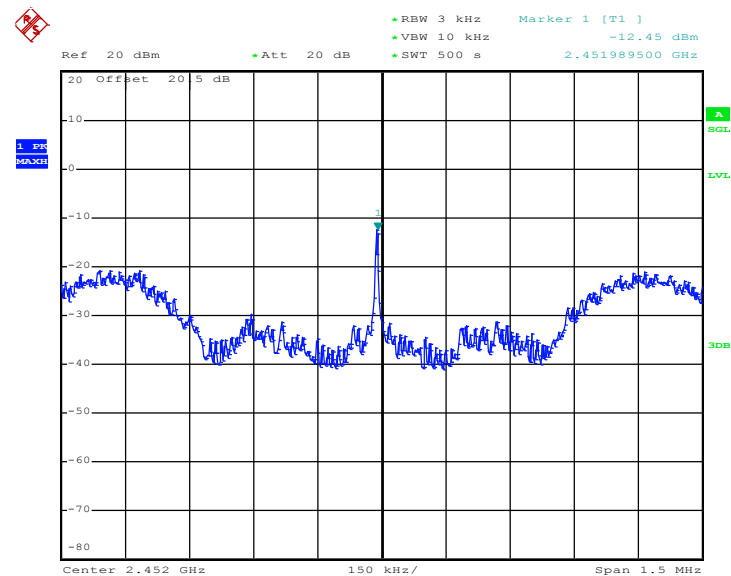
Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)		Total Power Density (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B			
03	2422	-13.01	-8.51	-7.19	8	Pass
06	2437	-11.59	-6.83	-5.58	8	Pass
09	2452	-12.45	-8.37	-6.94	8	Pass

PSD Plot on 802.11n (BW 40MHz) Channel 03- Chain A


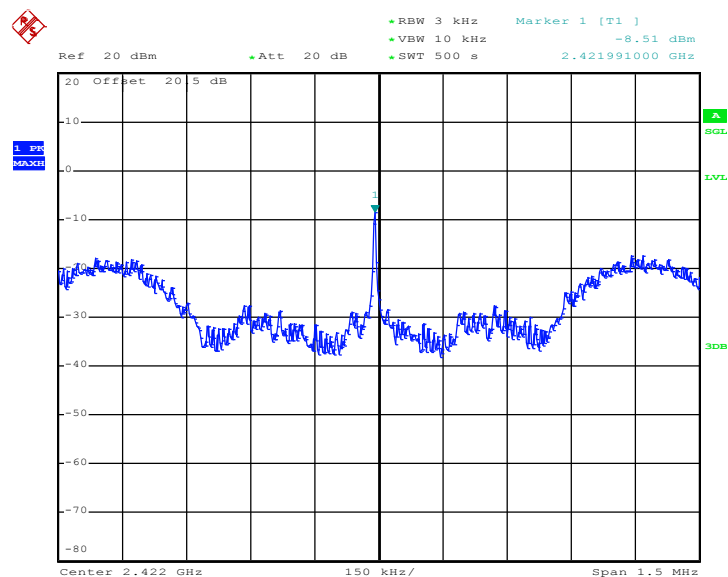
Date: 24.OCT.2011 23:29:08

PSD Plot on 802.11n (BW 40MHz) Channel 06 - Chain A


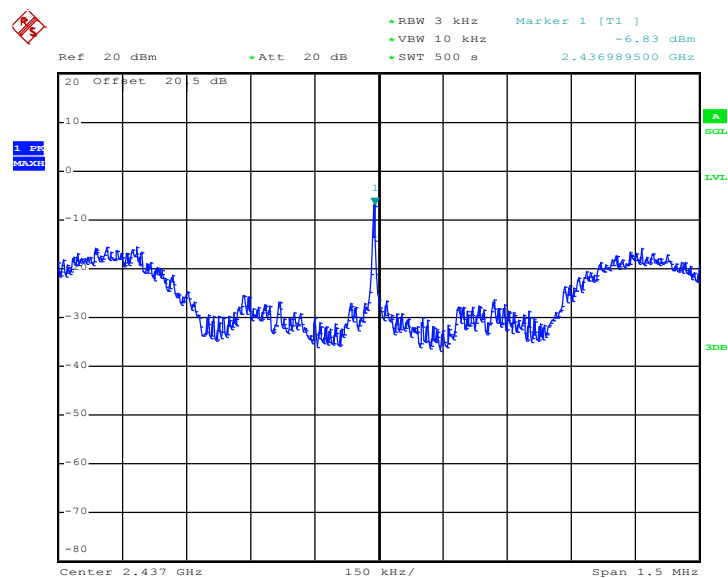
Date: 24.OCT.2011 23:41:01

PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain A


Date: 24.OCT.2011 23:54:55

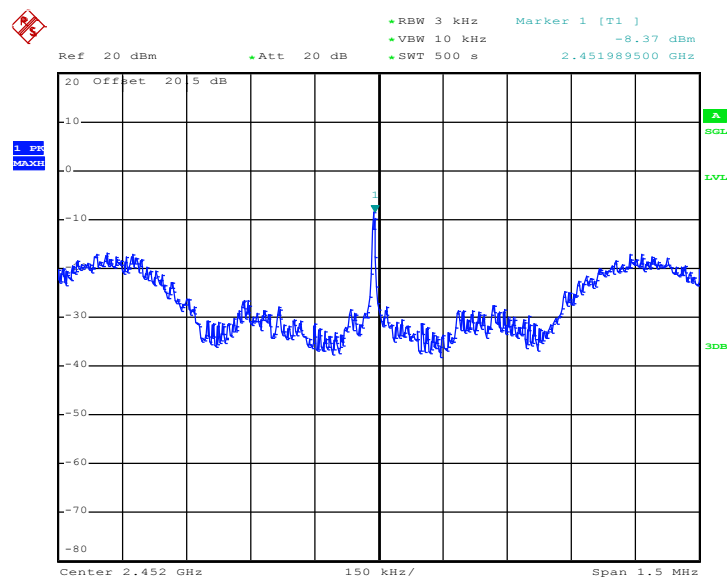
PSD Plot on 802.11n (BW 40MHz) Channel 03- Chain B


Date: 24.OCT.2011 20:05:07

PSD Plot on 802.11n (BW 40MHz) Channel 06 - Chain B


Date: 24.OCT.2011 20:18:46

PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain B



Date: 24.OCT.2011 20:31:26

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.

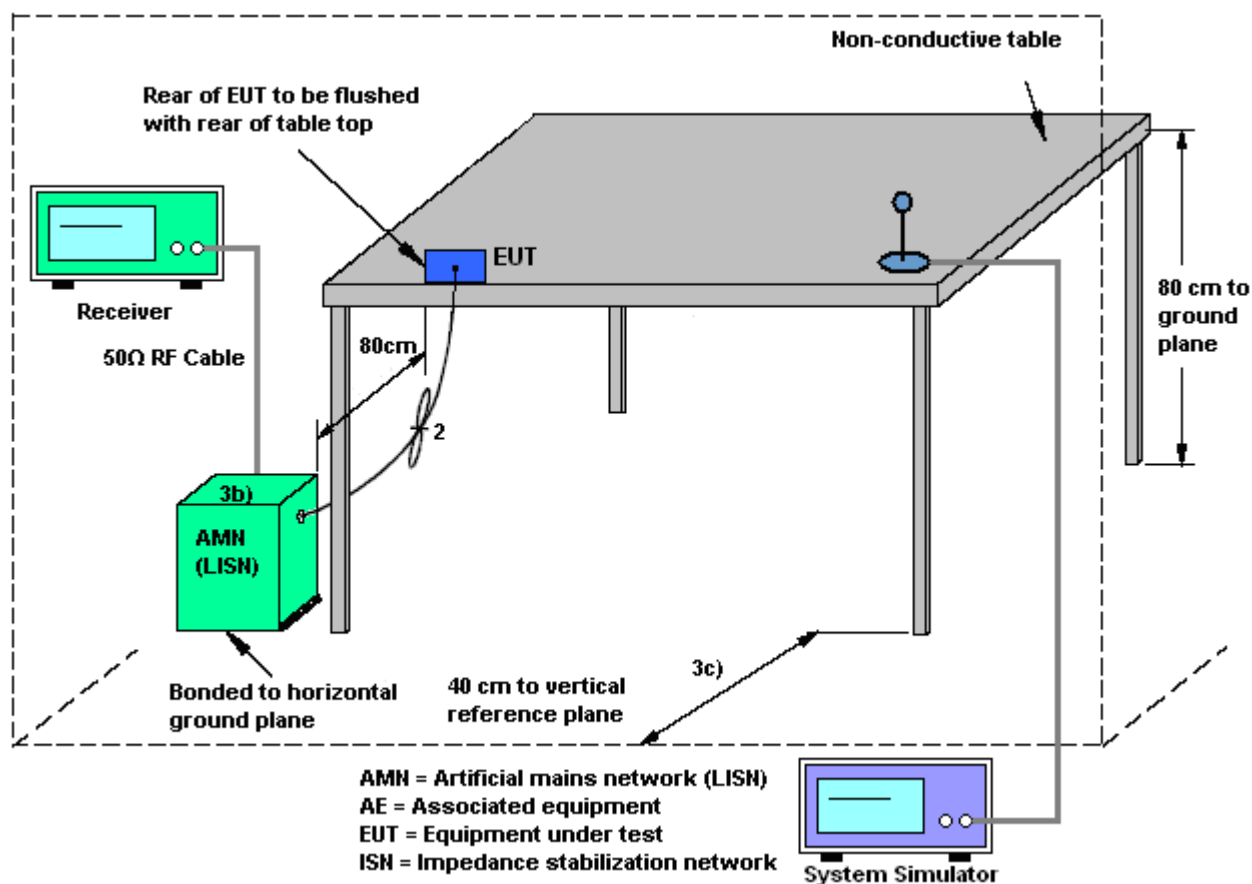
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

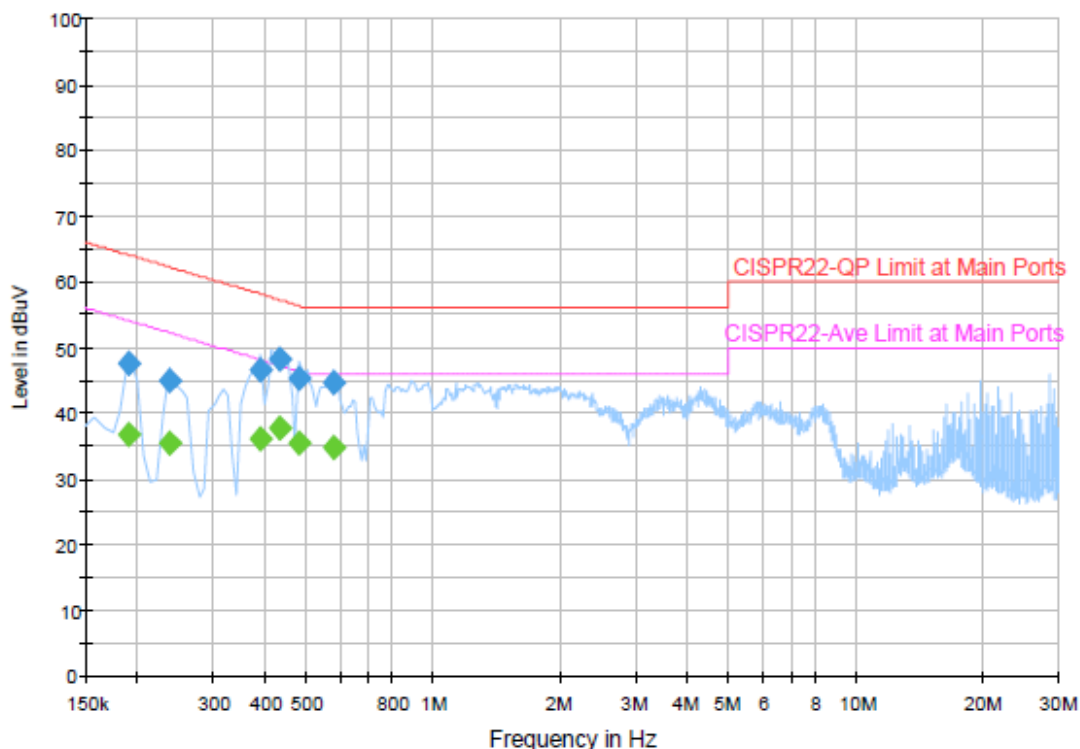
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 Chiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Sniffer + WLAN Link + GPS Rx + RJ-45 Link with Notebook + USB Dongle (Idle) + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



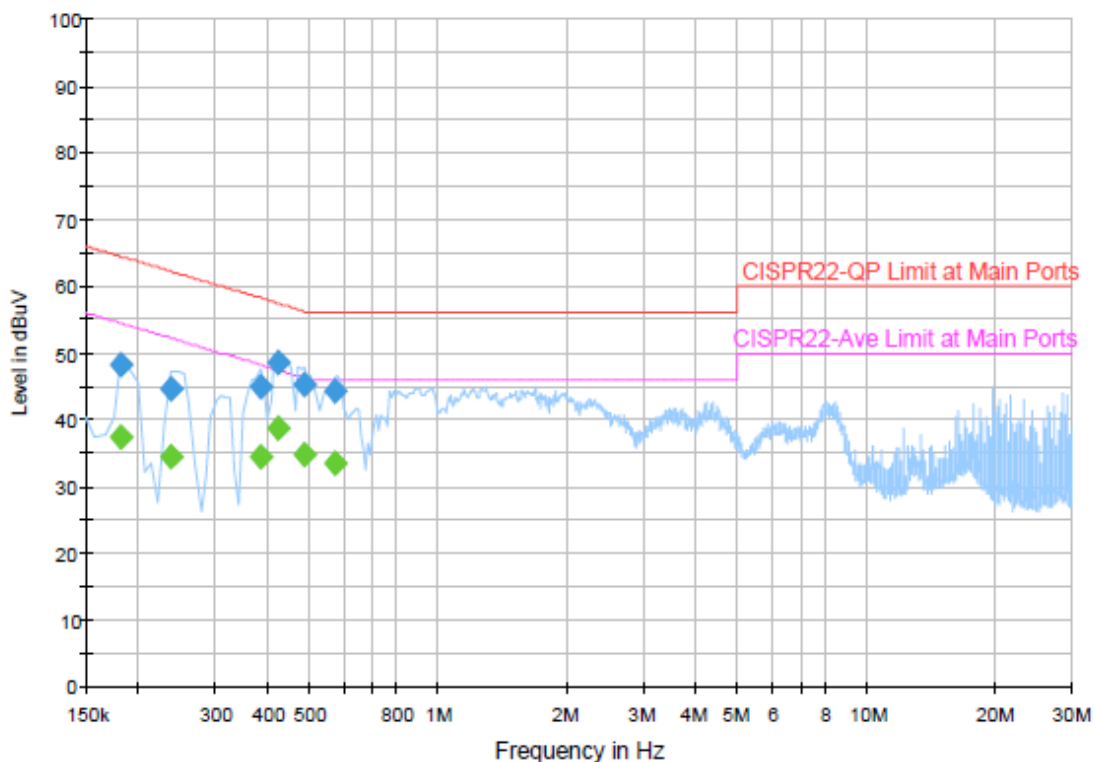
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	47.7	Off	L1	19.4	16.3	64.0
0.238000	45.0	Off	L1	19.4	17.2	62.2
0.390000	46.7	Off	L1	19.4	11.4	58.1
0.430000	48.2	Off	L1	19.5	9.1	57.3
0.478000	45.3	Off	L1	19.4	11.1	56.4
0.582000	44.6	Off	L1	19.4	11.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	36.6	Off	L1	19.4	17.4	54.0
0.238000	35.5	Off	L1	19.4	16.7	52.2
0.390000	36.0	Off	L1	19.4	12.1	48.1
0.430000	37.8	Off	L1	19.5	9.5	47.3
0.478000	35.4	Off	L1	19.4	11.0	46.4
0.582000	34.6	Off	L1	19.4	11.4	46.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Sniffer + WLAN Link + GPS Rx + RJ-45 Link with Notebook + USB Dongle (Idle) + Adapter		
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)
0.182000	48.1	Off	N	19.4	16.3	64.4
0.238000	44.7	Off	N	19.4	17.5	62.2
0.382000	45.0	Off	N	19.4	13.2	58.2
0.422000	48.7	Off	N	19.5	8.7	57.4
0.486000	45.4	Off	N	19.4	10.8	56.2
0.574000	44.4	Off	N	19.4	11.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.182000	37.5	Off	N	19.4	16.9	54.4
0.238000	34.4	Off	N	19.4	17.8	52.2
0.382000	34.4	Off	N	19.4	13.8	48.2
0.422000	38.5	Off	N	19.5	8.9	47.4
0.486000	34.7	Off	N	19.4	11.5	46.2
0.574000	33.4	Off	N	19.4	12.6	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

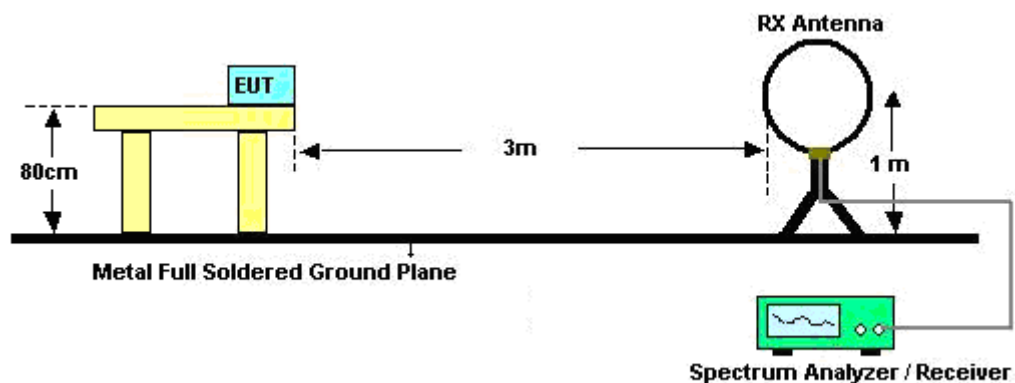
See list of measuring instruments of this test report.

3.7.3 Test Procedures

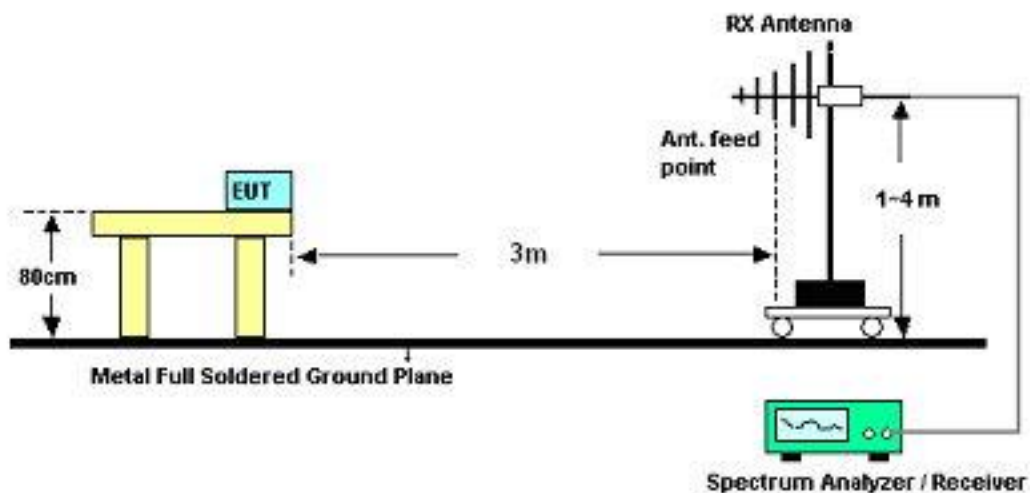
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep =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

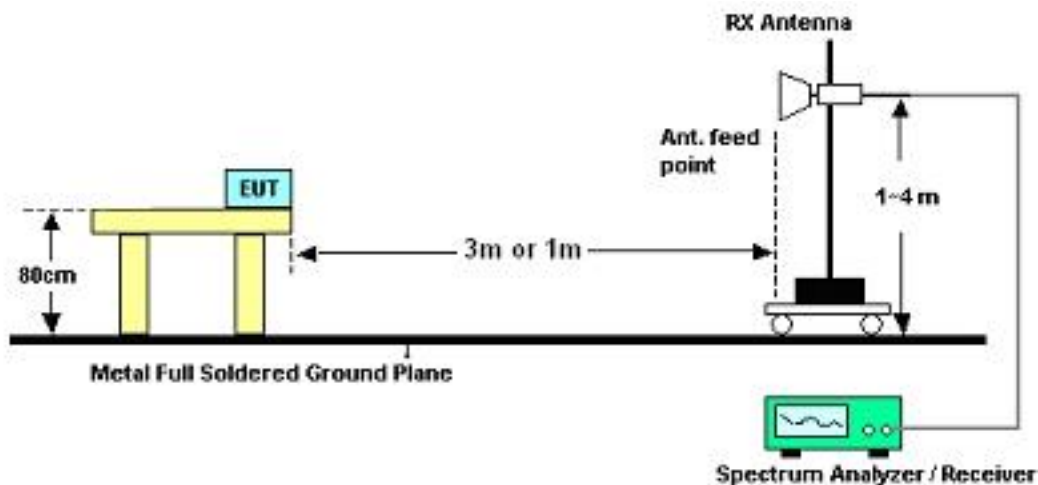
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Kai Wang and Wui Chang	Temperature :	23~24℃	
		Relative Humidity :	46~47%	

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 :	23~24℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2622 MHz is not within a restricted band. 3. 3213 MHz is not within a restricted band. 4. 5241 MHz is not within a restricted band. 5. 7236 MHz is not within a restricted band. 6. 7917 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
30.54	21.75	-18.25	40	35.44	17.31	0.72	31.72	-	-	Peak
149.88	24.34	-19.16	43.5	43.88	10.7	1.46	31.7	-	-	Peak
249.78	31.62	-14.38	46	48.75	12.67	1.85	31.65	-	-	Peak
383.3	32.11	-13.89	46	46.14	15.38	2.35	31.76	100	248	Peak
498.8	27.51	-18.49	46	38.84	17.79	2.66	31.78	-	-	Peak
896.4	28.73	-17.27	46	35.01	21.6	3.74	31.62	-	-	Peak
2347.05	50.19	-23.81	74	47.36	31.86	5.37	34.4	101	51	Peak
2347.05	36.96	-17.04	54	34.13	31.86	5.37	34.4	101	51	Average
2412	96.55	-	-	93.6	31.91	5.43	34.39	101	51	Average
2412	104.14	-	-	101.19	31.91	5.43	34.39	101	51	Peak
2494	35.85	-18.15	54	32.7	32	5.52	34.37	101	51	Average
2494	53.41	-20.59	74	50.26	32	5.52	34.37	101	51	Peak
2622	62.44	-	-	58.89	32.12	5.68	34.25	101	51	Peak
3213	63.58	-	-	79.28	32.58	6.35	54.63	100	0	Peak
5241	51.69	-	-	65.03	34.49	8.36	56.19	100	0	Peak
7236	57.73	-	-	67.4	35.67	11.02	56.36	100	0	Peak
7917	53.73	-	-	63.48	35.58	10.67	56	100	0	Peak
10626	52.78	-21.22	74	60.48	37.57	10.62	55.89	100	178	Peak
10626	42.96	-11.04	54	50.66	37.57	10.62	55.89	100	178	Average
13257	54.89	-19.11	74	57.41	39.29	11.25	53.06	100	305	Peak
13257	44.38	-9.62	54	46.9	39.29	11.25	53.06	100	305	Average

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2652 MHz is not within a restricted band. 3. 3213 MHz is not within a restricted band. 4. 5250 MHz is not within a restricted band. 5. 7236 MHz is not within a restricted band. 6. 7866 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
30.54	33.43	-6.57	40	47.12	17.31	0.72	31.72	100	114	Peak
147.99	34.01	-9.49	43.5	53.42	10.83	1.46	31.7	-	-	Peak
249.78	35	-11	46	52.13	12.67	1.85	31.65	-	-	Peak
383.3	29.78	-16.22	46	43.81	15.38	2.35	31.76	-	-	Peak
619.9	32.15	-13.85	46	42.04	19.21	2.97	32.07	-	-	Peak
1000	33.93	-20.07	54	38.84	22.09	3.82	30.82	-	-	Peak
2389.99	51.79	-22.21	74	48.88	31.9	5.4	34.39	100	275	Peak
2389.99	40.71	-13.29	54	37.8	31.9	5.4	34.39	100	275	Average
2412	102.49	-	-	99.54	31.91	5.43	34.39	100	275	Average
2412	109.67	-	-	106.72	31.91	5.43	34.39	100	275	Peak
2492	40.53	-13.47	54	37.38	32	5.52	34.37	100	275	Average
2492	53.91	-20.09	74	50.76	32	5.52	34.37	100	275	Peak
2652	61.84	-	-	58.21	32.15	5.71	34.23	100	275	Peak
3213	55.17	-	-	70.87	32.58	6.35	54.63	100	0	Peak
5250	51.93	-	-	65.28	34.5	8.36	56.21	100	0	Peak
7236	52.35	-	-	62.02	35.66	11.02	56.35	100	0	Peak
7866	51.52	-	-	61.23	35.57	10.75	56.03	100	0	Peak
10626	51.11	-22.89	74	58.81	37.57	10.62	55.89	100	148	Peak
10626	41.32	-12.68	54	49.02	37.57	10.62	55.89	100	148	Average

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2622 MHz is not within a restricted band. 3. 3246 MHz is not within a restricted band. 4. 5241 MHz is not within a restricted band. 5. 7926 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
30.54	20.96	-19.04	40	34.65	17.31	0.72	31.72	-	-	Peak
149.88	24.58	-18.92	43.5	44.12	10.7	1.46	31.7	-	-	Peak
249.78	35.08	-10.92	46	52.21	12.67	1.85	31.65	100	158	Peak
383.3	31.9	-14.1	46	45.93	15.38	2.35	31.76	-	-	Peak
749.4	26.47	-19.53	46	35.16	20.07	3.35	32.11	-	-	Peak
896.4	30.37	-15.63	46	36.65	21.6	3.74	31.62	-	-	Peak
2382	52.51	-21.49	74	49.62	31.88	5.4	34.39	101	254	Peak
2382	41.59	-12.41	54	38.7	31.88	5.4	34.39	101	254	Average
2437	110.75	-	-	107.72	31.95	5.46	34.38	101	254	Peak
2437	103.48	-	-	100.45	31.95	5.46	34.38	101	254	Average
2484	55.16	-18.84	74	52.03	31.98	5.52	34.37	101	254	Peak
2484	42.64	-11.36	54	39.51	31.98	5.52	34.37	101	254	Average
2622	61.81	-	-	58.26	32.12	5.68	34.25	200	0	Peak
3246	58.63	-	-	74.27	32.6	6.4	54.64	100	0	Peak
5241	51.31	-	-	64.65	34.49	8.36	56.19	100	0	Peak
7311	60.34	-13.66	74	69.93	35.61	11.12	56.32	100	272	Peak
7311	50.43	-3.57	54	60.02	35.61	11.12	56.32	100	272	Average
7926	53.52	-	-	63.31	35.58	10.63	56	100	0	Peak
10614	52.48	-21.52	74	60.18	37.57	10.62	55.89	106	283	Peak
10614	42.77	-11.23	54	50.47	37.57	10.62	55.89	106	283	Average
13257	54.65	-19.35	74	57.17	39.29	11.25	53.06	100	312	Peak
13257	44.28	-9.72	54	46.8	39.29	11.25	53.06	100	312	Average

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2652 MHz is not within a restricted band. 3. 3246 MHz is not within a restricted band. 4. 5241 MHz is not within a restricted band. 5. 7857 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
30.54	33.33	-6.67	40	47.02	17.31	0.72	31.72	100	58	Peak
141.24	33.95	-9.55	43.5	52.94	11.27	1.44	31.7	-	-	Peak
249.78	34.8	-11.2	46	51.93	12.67	1.85	31.65	-	-	Peak
383.3	28.73	-17.27	46	42.76	15.38	2.35	31.76	-	-	Peak
617.8	31.18	-14.82	46	41.07	19.21	2.97	32.07	-	-	Peak
749.4	28.89	-17.11	46	37.58	20.07	3.35	32.11	-	-	Peak
2390	50.21	-23.79	74	47.3	31.9	5.4	34.39	100	271	Peak
2390	40.72	-13.28	54	37.81	31.9	5.4	34.39	100	271	Average
2437	112.59	-	-	109.58	31.93	5.46	34.38	100	271	Peak
2437	105.84	-	-	102.81	31.95	5.46	34.38	100	271	Average
2492	54.82	-19.18	74	51.67	32	5.52	34.37	100	271	Peak
2492	44.96	-9.04	54	41.81	32	5.52	34.37	100	271	Average
2652	61.18	-	-	57.55	32.15	5.71	34.23	100	271	Peak
3246	51.11	-	-	66.75	32.6	6.4	54.64	100	0	Peak
5241	51.5	-	-	64.84	34.49	8.36	56.19	100	0	Peak
7311	57	-17	74	66.59	35.61	11.12	56.32	100	291	Peak
7311	47.25	-6.75	54	56.84	35.61	11.12	56.32	100	291	Average
7857	51.25	-	-	60.97	35.57	10.75	56.04	100	0	Peak
10602	53.07	-20.93	74	60.83	37.56	10.59	55.91	100	281	Peak
10602	43.29	-10.71	54	51.05	37.56	10.59	55.91	100	281	Average



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2676 MHz is not within a restricted band. 4. 3282 MHz is not within a restricted band. 5. 5241 MHz is not within a restricted band. 6. 7950 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
30.54	20.81	-19.19	40	34.5	17.31	0.72	31.72	-	-	Peak
149.88	25	-18.5	43.5	44.54	10.7	1.46	31.7	-	-	Peak
249.78	34.42	-11.58	46	51.55	12.67	1.85	31.65	100	246	Peak
383.3	31.94	-14.06	46	45.97	15.38	2.35	31.76	-	-	Peak
498.8	26.81	-19.19	46	38.14	17.79	2.66	31.78	-	-	Peak
896.4	29.74	-16.26	46	36.02	21.6	3.74	31.62	-	-	Peak
2302	50.77	-	-	46.4	31.81	5.28	32.72	100	331	Peak
2388	48.68	-25.32	74	44.11	31.9	5.4	32.73	100	331	Peak
2388	37.71	-16.29	54	33.14	31.9	5.4	32.73	100	331	Average
2462	110.36	-	-	105.65	31.97	5.49	32.75	100	331	Peak
2462	102.72	-	-	98.01	31.97	5.49	32.75	100	331	Average
2483.5	55.55	-18.45	74	50.8	31.98	5.52	32.75	100	331	Peak
2483.5	44.42	-9.58	54	39.67	31.98	5.52	32.75	100	331	Average
2676	53.72	-	-	48.59	32.18	5.73	32.78	100	331	Peak
3282	52.36	-	-	67.98	32.61	6.43	54.66	100	0	Peak
5241	51.22	-	-	64.56	34.49	8.36	56.19	100	0	Peak
7386	58.69	-15.31	74	68.19	35.57	11.22	56.29	100	276	Peak
7386	48.96	-5.04	54	58.47	35.56	11.22	56.29	100	276	Average
7950	53.27	-	-	63.08	35.59	10.58	55.98	100	0	Peak
10626	53.2	-20.8	74	60.9	37.57	10.62	55.89	100	312	Peak
10626	43.39	-10.61	54	51.09	37.57	10.62	55.89	100	312	Average
13257	54.13	-19.87	74	56.65	39.29	11.25	53.06	100	308	Peak
13257	44.21	-9.79	54	46.73	39.29	11.25	53.06	100	308	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2678 MHz is not within a restricted band. 4. 3282 MHz is not within a restricted band. 5. 5241 MHz is not within a restricted band. 6. 7902 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
30.54	33.08	-6.92	40	46.77	17.31	0.72	31.72	100	59	Peak
141.24	33.73	-9.77	43.5	52.72	11.27	1.44	31.7	-	-	Peak
249.78	35.17	-10.83	46	52.3	12.67	1.85	31.65	-	-	Peak
383.3	29.54	-16.46	46	43.57	15.38	2.35	31.76	-	-	Peak
619.9	31.22	-14.78	46	41.11	19.21	2.97	32.07	-	-	Peak
875.4	27.75	-18.25	46	34.43	21.42	3.65	31.75	-	-	Peak
2302	50.76	-	-	46.39	31.81	5.28	32.72	100	155	Peak
2382	50.84	-23.16	74	46.29	31.88	5.4	32.73	100	155	Peak
2382	38.84	-15.16	54	34.29	31.88	5.4	32.73	100	155	Average
2462	111.01	-	-	106.3	31.97	5.49	32.75	100	155	Peak
2462	103.33	-	-	98.62	31.97	5.49	32.75	100	155	Average
2484.42	56.66	-17.34	74	51.91	31.98	5.52	32.75	100	155	Peak
2484.42	45.34	-8.66	54	40.59	31.98	5.52	32.75	100	155	Average
2678	52.19	-	-	47.06	32.18	5.73	32.78	100	155	Peak
3282	52.68	-	-	68.3	32.61	6.43	54.66	100	0	Peak
5241	51.34	-	-	64.68	34.49	8.36	56.19	100	0	Peak
7386	54.71	-19.29	74	64.22	35.56	11.22	56.29	100	251	Peak
7386	44.95	-9.05	54	54.46	35.56	11.22	56.29	100	251	Average
7902	51.33	-	-	61.09	35.58	10.67	56.01	100	0	Peak
10611	50.63	-23.37	74	58.39	37.56	10.59	55.91	100	182	Peak
10611	40.82	-13.18	54	48.58	37.56	10.59	55.91	100	182	Average

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2670 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
2302	57.54	-	-	53.17	31.81	5.28	32.72	102	320	Peak
2382	58.28	-15.72	74	53.73	31.88	5.4	32.73	102	320	Peak
2382	46.89	-7.11	54	42.34	31.88	5.4	32.73	102	320	Average
2437	115.3	-	-	110.63	31.95	5.46	32.74	102	320	Peak
2437	107.42	-	-	102.75	31.95	5.46	32.74	102	320	Average
2492	59.29	-14.71	74	54.52	32	5.52	32.75	102	320	Peak
2492	47.96	-6.04	54	43.19	32	5.52	32.75	102	320	Average
2670	57.41	-	-	52.29	32.17	5.73	32.78	102	320	Peak

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2658 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
2382	56.72	-17.28	74	52.17	31.88	5.4	32.73	102	25	Peak
2382	44.4	-9.6	54	39.85	31.88	5.4	32.73	102	25	Average
2437	107.23	-	-	102.56	31.95	5.46	32.74	102	25	Peak
2437	99.64	-	-	94.97	31.95	5.46	32.74	102	25	Average
2486	55.85	-18.15	74	51.1	31.98	5.52	32.75	102	25	Peak
2486	44.39	-9.61	54	39.64	31.98	5.52	32.75	102	25	Average
2658	56.6	-	-	51.5	32.17	5.71	32.78	102	25	Peak

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	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
2324	55.3	-18.7	74	50.88	31.83	5.31	32.72	101	15	Peak
2324	43.42	-10.58	54	39	31.83	5.31	32.72	101	15	Average
2437	106.94	-	-	102.27	31.95	5.46	32.74	101	15	Peak
2437	97	-	-	92.33	31.95	5.46	32.74	101	15	Average
2486	55.82	-18.18	74	51.07	31.98	5.52	32.75	101	15	Peak
2486	43.96	-10.04	54	39.21	31.98	5.52	32.75	101	15	Average

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	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
2388	57.05	-16.95	74	52.48	31.9	5.4	32.73	104	145	Peak
2388	46.05	-7.95	54	41.48	31.9	5.4	32.73	104	145	Average
2437	114.04	-	-	109.37	31.95	5.46	32.74	104	145	Peak
2437	105.75	-	-	101.08	31.95	5.46	32.74	104	145	Average
2484	58.04	-15.96	74	53.29	31.98	5.52	32.75	104	145	Peak
2484	46.98	-7.02	54	42.23	31.98	5.52	32.75	104	145	Average



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2688 MHz is not within a restricted band. 4. 3213 MHz is not within a restricted band. 5. 5250 MHz is not within a restricted band. 6. 7938 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
92.64	19.53	-23.97	43.5	40.52	9.56	1.16	31.71	-	-	Peak
149.88	24.61	-18.89	43.5	44.15	10.7	1.46	31.7	-	-	Peak
249.78	33.31	-12.69	46	50.44	12.67	1.85	31.65	-	-	Peak
383.3	34.36	-11.64	46	48.39	15.38	2.35	31.76	-	-	Peak
498.8	31.2	-14.8	46	42.53	17.79	2.66	31.78	-	-	Peak
959.4	38.9	-7.1	46	44.27	21.9	3.8	31.07	100	129	Peak
2302	50.81	-	-	46.44	31.81	5.28	32.72	102	310	Peak
2389.99	57.78	-16.22	74	53.21	31.9	5.4	32.73	102	310	Peak
2389.99	44.81	-9.19	54	40.24	31.9	5.4	32.73	102	310	Average
2412	101.8	-	-	97.2	31.91	5.43	32.74	102	310	Average
2412	107.5	-	-	102.9	31.91	5.43	32.74	102	310	Peak
2484	48.71	-25.29	74	43.96	31.98	5.52	32.75	102	310	Peak
2484	37.89	-16.11	54	33.14	31.98	5.52	32.75	102	310	Average
2688	53.29	-	-	48.16	32.18	5.73	32.78	102	310	Peak
3213	62.45	-	-	78.15	32.58	6.35	54.63	100	0	Peak
5250	50.94	-	-	64.29	34.5	8.36	56.21	100	0	Peak
7236	62.54	-11.46	74	72.21	35.67	11.02	56.36	100	158	Peak
7236	52.18	-1.82	54	61.85	35.66	11.02	56.35	100	158	Average
7938	53.06	-	-	62.83	35.59	10.63	55.99	100	0	Peak
10602	53.28	-20.72	74	61.04	37.56	10.59	55.91	100	229	Peak
10602	43.48	-10.52	54	51.24	37.56	10.59	55.91	100	229	Average
13305	54.33	-19.67	74	56.81	39.25	11.3	53.03	100	59	Peak
13305	44.67	-9.33	54	47.15	39.25	11.3	53.03	100	59	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2686 MHz is not within a restricted band. 4. 3213 MHz is not within a restricted band. 5. 5241 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
30	33.04	-6.96	40	46.13	17.91	0.72	31.72	100	218	Peak
149.88	27.8	-15.7	43.5	47.34	10.7	1.46	31.7	-	-	Peak
249.78	36.05	-9.95	46	53.18	12.67	1.85	31.65	-	-	Peak
383.3	30.49	-15.51	46	44.52	15.38	2.35	31.76	-	-	Peak
619.9	31.68	-14.32	46	41.57	19.21	2.97	32.07	-	-	Peak
959.4	35.28	-10.72	46	40.65	21.9	3.8	31.07	-	-	Peak
2302	49.35	-	-	44.98	31.81	5.28	32.72	122	272	Peak
2359.78	43.18	-10.82	54	38.68	31.86	5.37	32.73	122	272	Average
2359.78	53.44	-20.56	74	48.94	31.86	5.37	32.73	122	272	Peak
2412	107.54	-	-	102.94	31.91	5.43	32.74	122	272	Peak
2412	100.57	-	-	95.97	31.91	5.43	32.74	122	272	Average
2484	51.28	-22.72	74	46.53	31.98	5.52	32.75	122	272	Peak
2484	38.4	-15.6	54	33.65	31.98	5.52	32.75	122	272	Average
2686	51.85	-	-	46.72	32.18	5.73	32.78	122	272	Peak
3213	54.38	-	-	70.08	32.58	6.35	54.63	100	0	Peak
5241	51.39	-	-	64.73	34.49	8.36	56.19	100	0	Peak
7236	57.36	-16.64	74	67.03	35.66	11.02	56.35	100	251	Peak
7236	46.36	-7.64	54	56.03	35.66	11.02	56.35	100	251	Average
10602	51.13	-22.87	74	58.89	37.56	10.59	55.91	100	148	Peak
10602	41.32	-12.68	54	49.08	37.56	10.59	55.91	100	148	Average

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2684 MHz is not within a restricted band. 4. 3246 MHz is not within a restricted band. 5. 5250 MHz is not within a restricted band. 6. 7965 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
92.64	18.76	-24.74	43.5	39.75	9.56	1.16	31.71	-	-	Peak
149.88	24.18	-19.32	43.5	43.72	10.7	1.46	31.7	-	-	Peak
249.78	34.85	-11.15	46	51.98	12.67	1.85	31.65	-	-	Peak
383.3	33.27	-12.73	46	47.3	15.38	2.35	31.76	-	-	Peak
498.8	31.72	-14.28	46	43.05	17.79	2.66	31.78	-	-	Peak
959.4	38.26	-7.74	46	43.63	21.9	3.8	31.07	100	289	Peak
2302	50.63	-	-	46.26	31.81	5.28	32.72	101	346	Peak
2390	39.33	-14.67	54	34.76	31.9	5.4	32.73	101	346	Average
2390	49.6	-24.4	74	45.03	31.9	5.4	32.73	101	346	Peak
2437	100.7	-	-	96.03	31.95	5.46	32.74	101	346	Average
2437	106.09	-	-	101.44	31.93	5.46	32.74	101	346	Peak
2492	42.36	-11.64	54	37.59	32	5.52	32.75	101	346	Average
2492	53.52	-20.48	74	48.75	32	5.52	32.75	101	346	Peak
2684	50.29	-	-	45.16	32.18	5.73	32.78	101	346	Peak
3246	57.75	-	-	73.39	32.6	6.4	54.64	100	0	Peak
5250	50.04	-	-	63.39	34.5	8.36	56.21	100	0	Peak
7311	60.2	-13.8	74	69.79	35.61	11.12	56.32	131	274	Peak
7311	52.57	-1.43	54	62.16	35.61	11.12	56.32	131	274	Average
7965	51.38	-	-	61.18	35.59	10.58	55.97	100	0	Peak
10629	52.92	-21.08	74	60.62	37.57	10.62	55.89	100	149	Peak
10629	43.12	-10.88	54	50.82	37.57	10.62	55.89	100	149	Average
13287	53.81	-20.19	74	56.3	39.27	11.28	53.04	100	193	Peak
13287	43.98	-10.02	54	46.47	39.27	11.28	53.04	100	193	Average

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wui Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2684 MHz is not within a restricted band. 4. 3246 MHz is not within a restricted band. 5. 5250 MHz is not within a restricted band. 6. 7869 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
30.54	33.51	-6.49	40	47.2	17.31	0.72	31.72	100	119	Peak
147.99	28.01	-15.49	43.5	47.42	10.83	1.46	31.7	-	-	Peak
249.78	35.93	-10.07	46	53.06	12.67	1.85	31.65	-	-	Peak
383.3	31.5	-14.5	46	45.53	15.38	2.35	31.76	-	-	Peak
619.9	30.79	-15.21	46	40.68	19.21	2.97	32.07	-	-	Peak
959.4	35.68	-10.32	46	41.05	21.9	3.8	31.07	-	-	Peak
2302	48.85	-	-	44.48	31.81	5.28	32.72	120	272	Peak
2382	41.48	-12.52	54	36.93	31.88	5.4	32.73	120	272	Average
2382	50.94	-23.06	74	46.39	31.88	5.4	32.73	120	272	Peak
2437	107.46	-	-	102.79	31.95	5.46	32.74	120	272	Peak
2437	101.14	-	-	96.47	31.95	5.46	32.74	120	272	Average
2484	52.37	-21.63	74	47.62	31.98	5.52	32.75	120	272	Peak
2484	41.41	-12.59	54	36.66	31.98	5.52	32.75	120	272	Average
2684	51.81	-	-	46.68	32.18	5.73	32.78	120	272	Peak
3246	51.82	-	-	67.46	32.6	6.4	54.64	100	0	Peak
5250	51.45	-	-	64.8	34.5	8.36	56.21	100	0	Peak
7311	55.34	-18.66	74	64.93	35.61	11.12	56.32	100	289	Peak
7311	47.62	-6.38	54	57.21	35.61	11.12	56.32	100	289	Average
7869	51.04	-	-	60.75	35.57	10.75	56.03	100	0	Peak
10617	51.53	-22.47	74	59.23	37.57	10.62	55.89	100	159	Peak
10617	41.68	-12.32	54	49.38	37.57	10.62	55.89	100	159	Average



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2654 MHz is not within a restricted band. 4. 3282 MHz is not within a restricted band. 5. 4924 MHz is not within a restricted band. 6. 5241 MHz is not within a restricted band. 7. 7926 MHz is not within a restricted band. 8. 10590 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
92.64	20.67	-22.83	43.5	41.66	9.56	1.16	31.71	-	-	Peak
147.99	24.3	-19.2	43.5	43.71	10.83	1.46	31.7	-	-	Peak
249.78	34.54	-11.46	46	51.67	12.67	1.85	31.65	-	-	Peak
383.3	33.66	-12.34	46	47.69	15.38	2.35	31.76	-	-	Peak
498.8	31.66	-14.34	46	42.99	17.79	2.66	31.78	-	-	Peak
959.4	38.89	-7.11	46	44.26	21.9	3.8	31.07	100	148	Peak
2302	49.78	-	-	45.41	31.81	5.28	32.72	101	288	Peak
2380	46.05	-27.95	74	41.5	31.88	5.4	32.73	101	288	Peak
2380	34.93	-19.07	54	30.38	31.88	5.4	32.73	101	288	Average
2462	101.68	-	-	96.97	31.97	5.49	32.75	101	288	Average
2462	107.07	-	-	102.36	31.97	5.49	32.75	101	288	Peak
2483.5	47.58	-6.42	54	42.83	31.98	5.52	32.75	101	288	Average
2483.5	56.01	-17.99	74	51.26	31.98	5.52	32.75	101	288	Peak
2654	57.01	-	-	51.93	32.15	5.71	32.78	101	288	Peak
3282	51.81	-	-	67.43	32.61	6.43	54.66	100	0	Peak
4924	46.65	-	-	60.17	34.34	8.04	55.9	100	0	Peak
5241	51.06	-	-	64.4	34.49	8.36	56.19	100	0	Peak
7386	60.34	-13.66	74	69.85	35.56	11.22	56.29	115	210	Peak
7386	52.44	-1.56	54	61.95	35.56	11.22	56.29	115	210	Average
7926	53.92	-	-	63.71	35.58	10.63	56	100	0	Peak
10590	53.86	-	-	61.65	37.55	10.59	55.93	100	0	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2684 MHz is not within a restricted band. 4. 3282 MHz is not within a restricted band. 5. 5241 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
30.54	33.62	-6.38	40	47.31	17.31	0.72	31.72	100	79	Peak
151.23	26.77	-16.73	43.5	46.36	10.64	1.46	31.69	-	-	Peak
249.78	36.93	-9.07	46	54.06	12.67	1.85	31.65	-	-	Peak
383.3	31.09	-14.91	46	45.12	15.38	2.35	31.76	-	-	Peak
617.8	31.39	-14.61	46	41.28	19.21	2.97	32.07	-	-	Peak
959.4	35.71	-10.29	46	41.08	21.9	3.8	31.07	-	-	Peak
2302	50.41	-	-	46.04	31.81	5.28	32.72	118	270	Peak
2374	47.36	-26.64	74	42.84	31.88	5.37	32.73	118	270	Peak
2374	36.69	-17.31	54	32.17	31.88	5.37	32.73	118	270	Average
2462	107.7	-	-	102.99	31.97	5.49	32.75	118	270	Peak
2462	101.24	-	-	96.53	31.97	5.49	32.75	118	270	Average
2483.66	50.9	-3.1	54	46.15	31.98	5.52	32.75	118	270	Average
2483.66	61.76	-12.24	74	57.01	31.98	5.52	32.75	118	270	Peak
2684	54.37	-	-	49.24	32.18	5.73	32.78	118	270	Peak
3282	47.76	-	-	63.38	32.61	6.43	54.66	100	0	Peak
5241	51.61	-	-	64.95	34.49	8.36	56.19	100	0	Peak
7386	56.89	-17.11	74	66.4	35.56	11.22	56.29	100	54	Peak
7386	47.17	-6.83	54	56.68	35.56	11.22	56.29	100	54	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2652 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
2302	58.18	-	-	53.81	31.81	5.28	32.72	100	320	Peak
2382	47.6	-6.4	54	43.05	31.88	5.4	32.73	100	320	Average
2382	57.99	-16.01	74	53.44	31.88	5.4	32.73	100	320	Peak
2437	104.78	-	-	100.11	31.95	5.46	32.74	100	320	Average
2437	112.03	-	-	107.36	31.95	5.46	32.74	100	320	Peak
2492	51.09	-2.91	54	46.32	32	5.52	32.75	100	320	Average
2492	60.35	-13.65	74	55.58	32	5.52	32.75	100	320	Peak
2652	57.92	-	-	52.84	32.15	5.71	32.78	100	320	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2622 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
2302	55.9	-	-	51.53	31.81	5.28	32.72	104	25	Peak
2366	55.56	-18.44	74	51.06	31.86	5.37	32.73	104	25	Peak
2366	45.14	-8.86	54	40.64	31.86	5.37	32.73	104	25	Average
2437	106.19	-	-	101.52	31.95	5.46	32.74	104	25	Peak
2437	99.2	-	-	94.53	31.95	5.46	32.74	104	25	Average
2492	56.01	-17.99	74	51.24	32	5.52	32.75	104	25	Peak
2492	44.76	-9.24	54	39.99	32	5.52	32.75	104	25	Average
2622	56.86	-	-	51.83	32.12	5.68	32.77	104	25	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2658 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
2302	56.76	-	-	52.39	31.81	5.28	32.72	156	273	Peak
2382	56.48	-17.52	74	51.93	31.88	5.4	32.73	156	273	Peak
2382	43.67	-10.33	54	39.12	31.88	5.4	32.73	156	273	Average
2437	105.18	-	-	100.51	31.95	5.46	32.74	156	273	Peak
2437	97.82	-	-	93.15	31.95	5.46	32.74	156	273	Average
2492	57.25	-16.75	74	52.48	32	5.52	32.75	156	273	Peak
2492	46.55	-7.45	54	41.78	32	5.52	32.75	156	273	Average
2658	61.89	-	-	56.79	32.17	5.71	32.78	156	273	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2670 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
2302	57.61	-	-	53.24	31.81	5.28	32.72	100	134	Peak
2382	59.26	-14.74	74	54.71	31.88	5.4	32.73	100	134	Peak
2382	48.9	-5.1	54	44.35	31.88	5.4	32.73	100	134	Average
2437	110.97	-	-	106.3	31.95	5.46	32.74	100	134	Peak
2437	103.29	-	-	98.62	31.95	5.46	32.74	100	134	Average
2484	60.48	-13.52	74	55.73	31.98	5.52	32.75	100	134	Peak
2484	49.86	-4.14	54	45.11	31.98	5.52	32.75	100	134	Average
2670	58.6	-	-	53.48	32.17	5.73	32.78	100	134	Peak

Test Mode :	Mode 11	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2620 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
2302	51.05	-	-	46.68	31.81	5.28	32.72	100	335	Peak
2389.99	50.07	-23.93	74	45.5	31.9	5.4	32.73	100	335	Peak
2389.99	38.35	-15.65	54	33.78	31.9	5.4	32.73	100	335	Average
2412	96.87	-	-	92.27	31.91	5.43	32.74	100	335	Average
2412	103.27	-	-	98.67	31.91	5.43	32.74	100	335	Peak
2494	48.93	-25.07	74	44.16	32	5.52	32.75	100	335	Peak
2494	36.38	-17.62	54	31.61	32	5.52	32.75	100	335	Average
2620	51.52	-	-	46.49	32.12	5.68	32.77	100	335	Peak

Test Mode :	Mode11	Temperature :	23~24°C
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2654 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
2302	49.94	-	-	45.57	31.81	5.28	32.72	106	175	Peak
2389.99	57.43	-16.57	74	52.86	31.9	5.4	32.73	106	175	Peak
2389.99	39.22	-14.78	54	34.65	31.9	5.4	32.73	106	175	Average
2412	99.66	-	-	95.06	31.91	5.43	32.74	106	175	Average
2412	104.63	-	-	100.03	31.91	5.43	32.74	106	175	Peak
2484	49.36	-24.64	74	44.61	31.98	5.52	32.75	106	175	Peak
2484	36.97	-17.03	54	32.22	31.98	5.52	32.75	106	175	Average
2654	49.88	-	-	44.8	32.15	5.71	32.78	106	175	Peak

Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2684 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
2302	50.88	-	-	46.51	31.81	5.28	32.72	101	342	Peak
2382	37.87	-16.13	54	33.32	31.88	5.4	32.73	101	342	Average
2382	49.36	-24.64	74	44.81	31.88	5.4	32.73	101	342	Peak
2437	98.8	-	-	94.13	31.95	5.46	32.74	101	342	Average
2437	105.26	-	-	100.59	31.95	5.46	32.74	101	342	Peak
2484	38.82	-15.18	54	34.07	31.98	5.52	32.75	101	342	Average
2484	50.82	-23.18	74	46.07	31.98	5.52	32.75	101	342	Peak
2684	51.38	-	-	46.25	32.18	5.73	32.78	101	342	Peak

Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2638 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
2302	50.3	-	-	45.93	31.81	5.28	32.72	100	146	Peak
2382	51.57	-22.43	74	47.02	31.88	5.4	32.73	100	146	Peak
2382	42.83	-11.17	54	38.28	31.88	5.4	32.73	100	146	Average
2437	99.84	-	-	95.17	31.95	5.46	32.74	100	146	Average
2437	104.53	-	-	99.86	31.95	5.46	32.74	100	146	Peak
2492	46.54	-7.46	54	41.77	32	5.52	32.75	100	146	Average
2492	54.95	-19.05	74	50.18	32	5.52	32.75	100	146	Peak
2638	49.9	-	-	44.86	32.13	5.68	32.77	100	146	Peak

Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2670 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
2302	51.37	-	-	47	31.81	5.28	32.72	102	289	Peak
2374	47.14	-26.86	74	42.62	31.88	5.37	32.73	102	289	Peak
2374	35.65	-18.35	54	31.13	31.88	5.37	32.73	102	289	Average
2462	106.42	-	-	101.71	31.97	5.49	32.75	102	289	Peak
2462	97.26	-	-	92.55	31.97	5.49	32.75	102	289	Average
2497.34	53.33	-20.67	74	48.56	32	5.52	32.75	102	289	Peak
2497.34	41.41	-12.59	54	36.64	32	5.52	32.75	102	289	Average
2670	57.01	-	-	51.89	32.17	5.73	32.78	102	289	Peak

Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2676 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
2302	51.25	-	-	46.88	31.81	5.28	32.72	100	156	Peak
2388	50.5	-23.5	74	45.93	31.9	5.4	32.73	100	156	Peak
2388	36.6	-17.4	54	32.03	31.9	5.4	32.73	100	156	Average
2462	105.51	-	-	100.8	31.97	5.49	32.75	100	156	Peak
2462	98.98	-	-	94.27	31.97	5.49	32.75	100	156	Average
2485.94	61.65	-12.35	74	56.9	31.98	5.52	32.75	100	156	Peak
2485.94	42.36	-11.64	54	37.61	31.98	5.52	32.75	100	156	Average
2676	53.42	-	-	48.29	32.18	5.73	32.78	100	156	Peak

Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	03	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2422 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2668 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
2302	54.37	-	-	50	31.81	5.28	32.72	112	279	Peak
2389.99	60.49	-13.51	74	55.92	31.9	5.4	32.73	112	279	Peak
2389.99	52.19	-1.81	54	47.62	31.9	5.4	32.73	112	279	Average
2422	92.23	-	-	87.61	31.93	5.43	32.74	112	279	Average
2422	100.44	-	-	95.82	31.93	5.43	32.74	112	279	Peak
2486	47.36	-26.64	74	42.61	31.98	5.52	32.75	112	279	Peak
2486	35.44	-18.56	54	30.69	31.98	5.52	32.75	112	279	Average
2668	53.02	-	-	47.9	32.17	5.73	32.78	112	279	Peak

Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	03	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2422 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2662 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
2302	51.89	-	-	47.52	31.81	5.28	32.72	103	156	Peak
2386.38	59.61	-14.39	74	55.04	31.9	5.4	32.73	103	156	Peak
2386.38	48.48	-5.52	54	43.91	31.9	5.4	32.73	103	156	Average
2422	93.99	-	-	89.37	31.93	5.43	32.74	103	156	Average
2422	101.94	-	-	97.32	31.93	5.43	32.74	103	156	Peak
2492	50.57	-23.43	74	45.8	32	5.52	32.75	103	156	Peak
2492	37.82	-16.18	54	33.05	32	5.52	32.75	103	156	Average
2662	51.79	-	-	46.69	32.17	5.71	32.78	103	156	Peak

Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2652 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
2302	50.93	-	-	46.56	31.81	5.28	32.72	162	277	Peak
2390	38.55	-15.45	54	33.98	31.9	5.4	32.73	162	277	Average
2390	51.88	-22.12	74	47.31	31.9	5.4	32.73	162	277	Peak
2437	96.13	-	-	91.46	31.95	5.46	32.74	162	277	Average
2437	103.5	-	-	98.83	31.95	5.46	32.74	162	277	Peak
2484	42.5	-11.5	54	37.75	31.98	5.52	32.75	162	277	Average
2484	56.1	-17.9	74	51.35	31.98	5.52	32.75	162	277	Peak
2652	53.75	-	-	48.67	32.15	5.71	32.78	162	277	Peak

Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2662 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
2302	52.48	-	-	48.11	31.81	5.28	32.72	100	114	Peak
2390	44.31	-9.69	54	39.74	31.9	5.4	32.73	100	114	Average
2390	55.29	-18.71	74	50.72	31.9	5.4	32.73	100	114	Peak
2437	96.22	-	-	91.55	31.95	5.46	32.74	100	114	Average
2437	104.57	-	-	99.9	31.95	5.46	32.74	100	114	Peak
2484	44.9	-9.1	54	40.15	31.98	5.52	32.75	100	114	Average
2484	56.77	-17.23	74	52.02	31.98	5.52	32.75	100	114	Peak
2662	51.34	-	-	46.24	32.17	5.71	32.78	100	114	Peak

Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	09	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Horizontal
Remark :	1. 2452 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2668 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
2302	49.32	-	-	44.95	31.81	5.28	32.72	132	288	Peak
2390	35.83	-18.17	54	31.26	31.9	5.4	32.73	132	288	Average
2390	46.9	-27.1	74	42.33	31.9	5.4	32.73	132	288	Peak
2452	94.86	-	-	90.19	31.95	5.46	32.74	132	288	Average
2452	101.56	-	-	96.89	31.95	5.46	32.74	132	288	Peak
2483.5	50.97	-3.03	54	46.22	31.98	5.52	32.75	132	288	Average
2483.5	64.19	-9.81	74	59.44	31.98	5.52	32.75	132	288	Peak
2668	53.5	-	-	48.38	32.17	5.73	32.78	132	288	Peak

Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	09	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and Wii Chang	Polarization :	Vertical
Remark :	1. 2452 MHz is Fundamental Signals which can be ignored. 2. 2302 MHz is not within a restricted band. 3. 2670 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
2302	52.14	-	-	47.77	31.81	5.28	32.72	100	128	Peak
2366	48.26	-25.74	74	43.76	31.86	5.37	32.73	100	128	Peak
2366	38.52	-15.48	54	34.02	31.86	5.37	32.73	100	128	Average
2452	103.15	-	-	98.44	31.97	5.49	32.75	100	128	Peak
2452	95.29	-	-	90.58	31.97	5.49	32.75	100	128	Average
2486.13	63.82	-10.18	74	59.07	31.98	5.52	32.75	100	128	Peak
2486.13	52.15	-1.85	54	47.4	31.98	5.52	32.75	100	128	Average
2670	53.83	-	-	48.71	32.17	5.73	32.78	100	128	Peak

3.8 Antenna Requirements

3.8.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PCB 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)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	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	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)
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 EP191547 as below.