



FCC RF Test Report

APPLICANT : NetComm Wireless Limited
EQUIPMENT : AirCard Hub
BRAND NAME : NetComm
MODEL NAME /
MARKETING NAME : NHD1W
FCC ID : XIA-NHD1W
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Jan. 31, 2012 and completely tested on Mar. 15, 2012. 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 : XIA-NHD1W

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 12.30 dB at 0.486 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.72 dB at 4874.000 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

NetComm Wireless Limited

Level 2, 18-20 Orion Road Lane Cove, NSW Australia

1.2 Manufacturer

NetComm Wireless Limited

Level 2, 18-20 Orion Road Lane Cove, NSW Australia

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	AirCard Hub
Brand Name	NetComm
Model Name / Marketing Name	NHD1W
FCC ID	XIA-NHD1W
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 17.63 dBm (0.058 W) 802.11g : 17.87 dBm (0.061 W) 802.11g/n (BW 20MHz) : 17.73 dBm (0.059 W) 802.11g/n (BW 40MHz) : 16.85 dBm (0.048 W)
Duty Cycle	802.11b : 99.66% 802.11g : 96.92% 802.11g/n (BW 20MHz) : 96.35% 802.11g/n (BW 40MHz) : 89.36%
Antenna Type	PCB Antenna with gain 4.35 dBi
HW Version	V1.3
SW Version	V1.0.95.0
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark: 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	03CH05-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 D01 DTS Meas. Guidance v01
- ♦ 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.	USB Dongle	ADATA	S101	FCC DoC	N/A	N/A
2.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Hotspot	Sierra Wireless	AirCard 763S	N7NAC763S	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11b, 11g, 11g/n (BW 20MHz), 11g/n (BW 40MHz) modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

2.4GHz 802.11b mode					
Data Rate (MHz)	Chain	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	A	17.63	17.46	17.45	17.33
	B	16.07	16.00	15.80	15.94
	A+B(A)	13.67	13.56	13.45	13.53
	A+B(B)	12.10	11.94	11.91	11.94
	A+B	15.97	15.84	15.76	15.82

2.4GHz 802.11g mode									
Data Rate (MHz)	Chain	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	A	17.87	17.85	17.58	17.67	17.86	17.84	17.77	17.78
	B	16.03	15.76	15.68	15.80	15.75	15.79	15.89	15.99
	A+B(A)	14.40	14.34	13.97	14.03	14.22	14.17	14.22	14.29
	A+B(B)	12.53	12.23	11.88	11.97	12.29	12.45	12.47	12.69
	A+B	16.58	16.42	16.06	16.13	16.37	16.40	16.44	16.57

2.4GHz 802.11g/n (BW 20MHz) mode									
Data Rate (MHz)	Chain	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	A	17.73	17.59	17.46	17.71	17.66	17.71	17.54	17.42
	B	16.07	15.97	15.73	15.95	16.00	15.98	15.99	16.00
	A+B(A)	14.16	13.90	13.61	13.79	14.02	13.91	13.87	13.88
	A+B(B)	13.56	13.26	13.20	13.30	13.55	13.18	13.22	13.02
	A+B	16.88	16.60	16.42	16.56	16.80	16.57	16.57	16.48



2.4GHz 802.11g/n (BW 20MHz) mode									
Data Rate (MHz)	Chain	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	A	17.08	17.27	17.32	17.40	17.46	17.44	17.46	17.46
	B	15.45	15.59	15.67	15.96	15.90	15.88	15.83	16.00
	A+B(A)	13.14	13.53	13.59	13.69	13.75	13.98	13.86	14.08
	A+B(B)	12.41	12.40	12.55	12.81	12.98	12.80	12.76	12.76
	A+B	15.80	16.01	16.11	16.28	16.39	16.44	16.36	16.48

2.4GHz 802.11g/n (BW 40MHz) mode									
Data Rate (MHz)	Chain	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	A	16.85	16.48	16.24	16.73	16.80	16.82	16.73	16.76
	B	15.00	14.58	14.65	14.88	14.74	14.85	14.72	14.82
	A+B(A)	13.67	13.30	13.52	13.55	13.54	13.61	13.66	13.58
	A+B(B)	12.17	11.45	11.31	11.47	11.42	11.73	11.79	11.84
	A+B	15.99	15.48	15.56	15.64	15.62	15.78	15.84	15.81

2.4GHz 802.11g/n (BW 40MHz) mode									
Data Rate (MHz)	Chain	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	A	16.46	16.52	16.56	16.79	16.75	16.71	16.76	16.65
	B	14.62	14.59	14.66	14.78	14.73	14.72	14.83	14.74
	A+B(A)	12.64	12.80	12.92	13.24	13.41	13.37	13.47	13.46
	A+B(B)	11.06	11.08	11.21	11.56	12.00	11.76	11.88	11.98
	A+B	14.93	15.03	15.16	15.49	15.77	15.65	15.76	15.79

2.2 Maximum Peak Conducted Output Power:

Band	Chain	2.4GHz 802.11b RF Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Peak Power	A	17.63	16.11	14.7
	B	16.07	14.90	13.58
	A+B(A)	13.67	11.96	10.60
	A+B(B)	12.10	10.67	9.56
	A+B	15.97	14.37	13.12

Band	Chain	2.4GHz 802.11g RF Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Peak Power	A	17.87	16.25	14.65
	B	16.03	14.27	12.63
	A+B(A)	14.40	12.08	10.35
	A+B(B)	12.53	10.62	8.86
	A+B	16.58	14.42	12.68

Band	Chain	2.4GHz 802.11g/n (BW 20MHz) RF Peak Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Peak Power	A	17.73	16.31	14.72
	B	16.07	14.73	13.10
	A+B(A)	14.16	12.19	10.83
	A+B(B)	13.56	10.76	8.93
	A+B	16.88	14.54	12.99



Band	Chain	2.4GHz 802.11g/n (BW 40MHz) RF Peak Power (dBm)		
Channel		3	6	09
Frequency (MHz)		2422	2437	2452
Peak Power	A	16.85	15.78	14.86
	B	15.00	14.14	13.16
	A+B(A)	13.67	11.91	11.04
	A+B(B)	12.17	10.44	9.44
	A+B	15.99	14.25	13.32

Remark:

The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b (Chain A), 6Mbps for 802.11g (Chain A), MCS0 for 802.11g/n (BW 20MHz) (Chain A), MCS0 for 802.11g/n (BW 40MHz) (Chain A) for all the test cases due to the highest RF output power.

2.3 Maximum Average Conducted Output Power:

Band	Chain	2.4GHz 802.11b RF Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Average Power	A	15.13	13.66	12.20
	B	13.66	12.45	11.07
	A+B(A)	11.25	9.60	8.23
	A+B(B)	9.72	8.38	6.93
	A+B	13.56	12.04	10.64

Band	Chain	2.4GHz 802.11g RF Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Average Power	A	11.74	10.23	8.64
	B	9.88	8.29	6.61
	A+B(A)	8.26	5.95	4.53
	A+B(B)	6.09	4.79	2.85
	A+B	10.32	8.42	6.78

Band	Chain	2.4GHz 802.11g/n (BW 20MHz) RF Average Power (dBm)		
Channel		1	6	11
Frequency (MHz)		2412	2437	2462
Average Power	A	11.40	9.88	8.22
	B	9.72	8.37	6.49
	A+B(A)	7.73	6.02	4.39
	A+B(B)	7.14	4.28	2.65
	A+B	10.46	8.25	6.62



Band	Chain	2.4GHz 802.11g/n (BW 40MHz) RF Average Power (dBm)		
Channel		3	6	09
Frequency (MHz)		2422	2437	2452
Average Power	A	10.55	9.83	8.93
	B	9.04	8.22	7.18
	A+B(A)	7.31	5.89	5.20
	A+B(B)	5.73	4.66	3.42
	A+B	9.60	8.33	7.41

Remark:

1. The average power, which is used by the test method, AVG2, in DTS Meas. Guidance v01, is reporting only.
2. The EUT is programmed to transmit signals continuously.

2.4 Test Mode

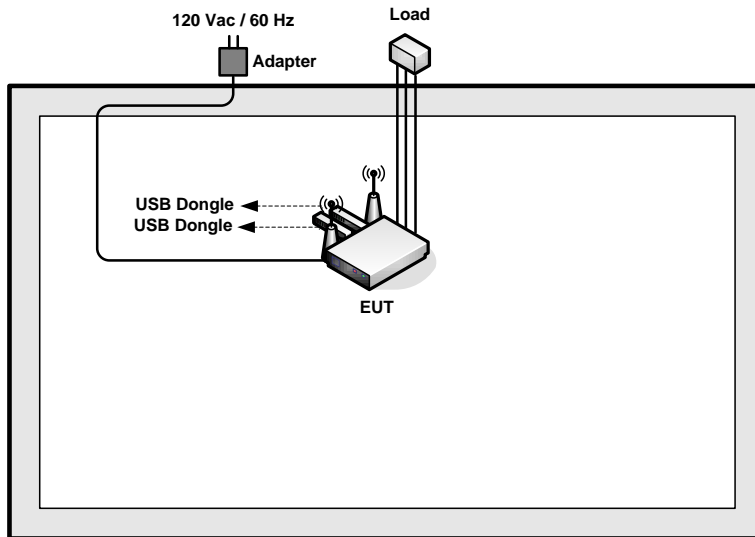
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic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

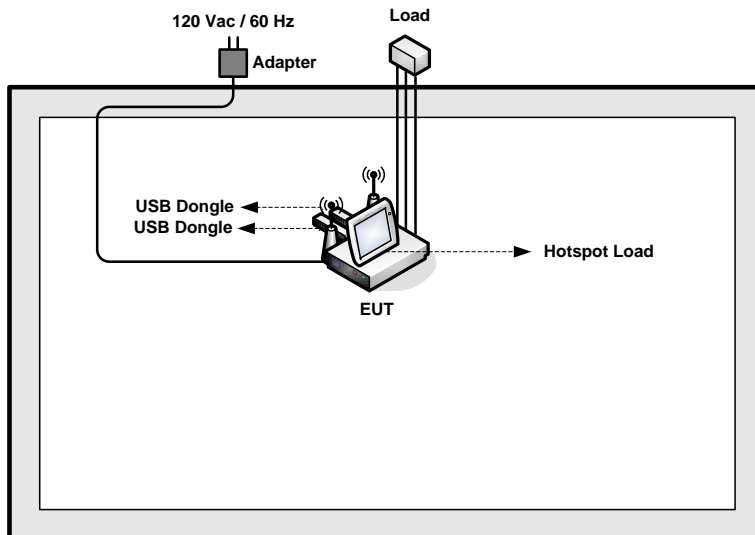
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b CH01_2412 MHz Mode 2: 802.11b CH06_2437 MHz Mode 3: 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11g/n (BW 20M)_CH01_2412 MHz Mode 8: 802.11g/n (BW 20M)_CH06_2437 MHz Mode 9: 802.11g/n (BW 20M)_CH11_2462 MHz Mode 10: 802.11g/n (BW 40M)_CH03_2422 MHz Mode 11: 802.11g/n (BW 40M)_CH06_2437 MHz Mode 12: 802.11g/n (BW 40M)_CH09_2452 MHz
Radiated TCs	Mode 1: 802.11b CH01_2412 MHz for Chain A Mode 2: 802.11b CH06_2437 MHz for Chain A Mode 3: 802.11b CH11_2462 MHz for Chain A Mode 4: 802.11b CH06_2437 MHz for Chain B Mode 5: 802.11b CH06_2437 MHz for Chain A+B Mode 6: 802.11b CH06_2437 MHz + Hotspot LOAD for Chain A	Mode 7: 802.11g_CH01_2412 MHz for Chain A Mode 8: 802.11g_CH06_2437 MHz for Chain A Mode 9: 802.11g_CH11_2462 MHz for Chain A Mode 10: 802.11g/n (BW 20M)_CH01_2412 MHz for Chain A Mode 11: 802.11g/n (BW 20M)_CH06_2437 MHz for Chain A Mode 12: 802.11g/n (BW 20M)_CH11_2462 MHz for Chain A Mode 13: 802.11g/n (BW 40M)_CH03_2422 MHz for Chain A Mode 14: 802.11g/n (BW 40M)_CH06_2437 MHz for Chain A Mode 15: 802.11g/n (BW 40M)_CH09_2452 MHz for Chain A
AC Conducted Emission	Mode 1 : WLAN Link + LAN Link + WAN Link + Adapter + Hotspot LOAD + USB Dongle (Data Link with Notebook)	

2.5 Connection Diagram of Test System

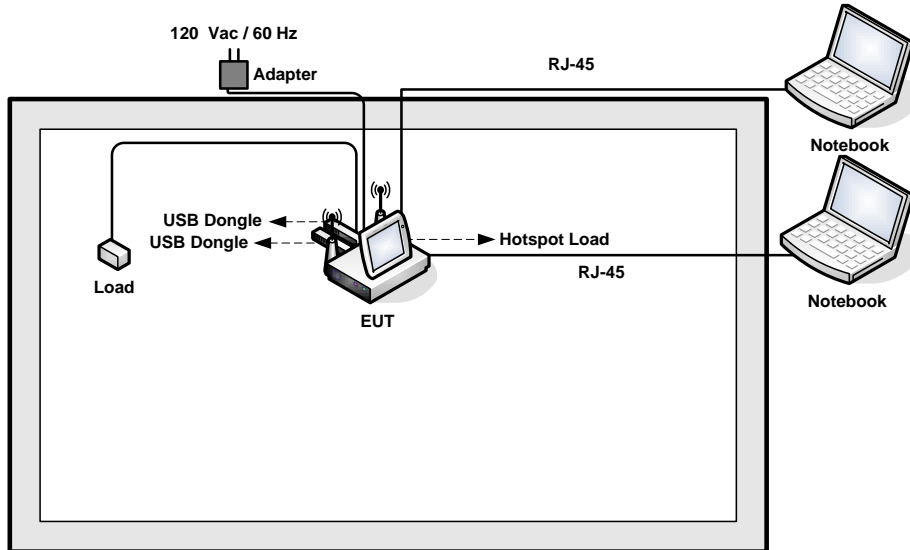
<WLAN Tx Mode>



<WLAN Tx Mode with Hotspot Load>



<AC Conducted Emission Mode>



2.6 RF Utility

The programmed RF utility “QA tool” 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.

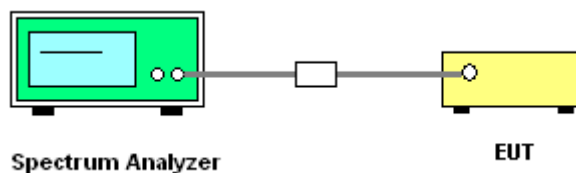
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * RBW$. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



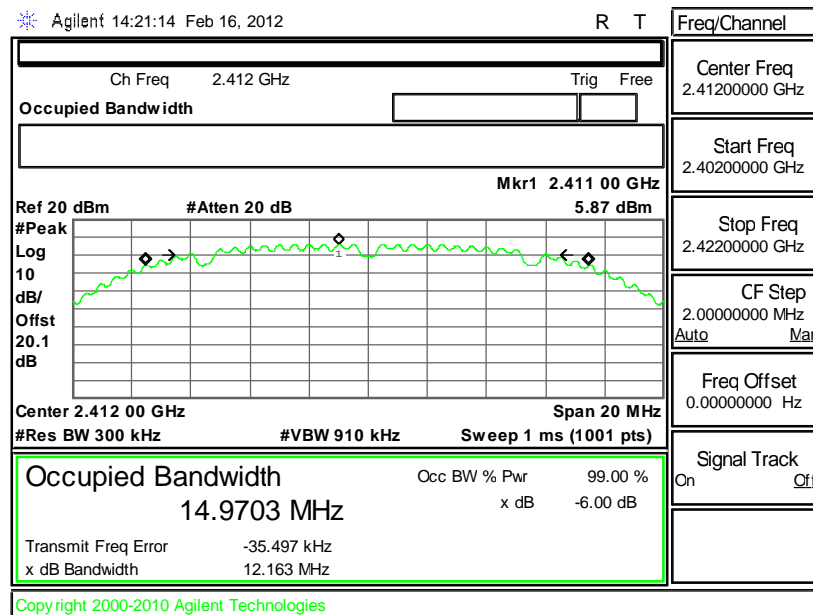


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

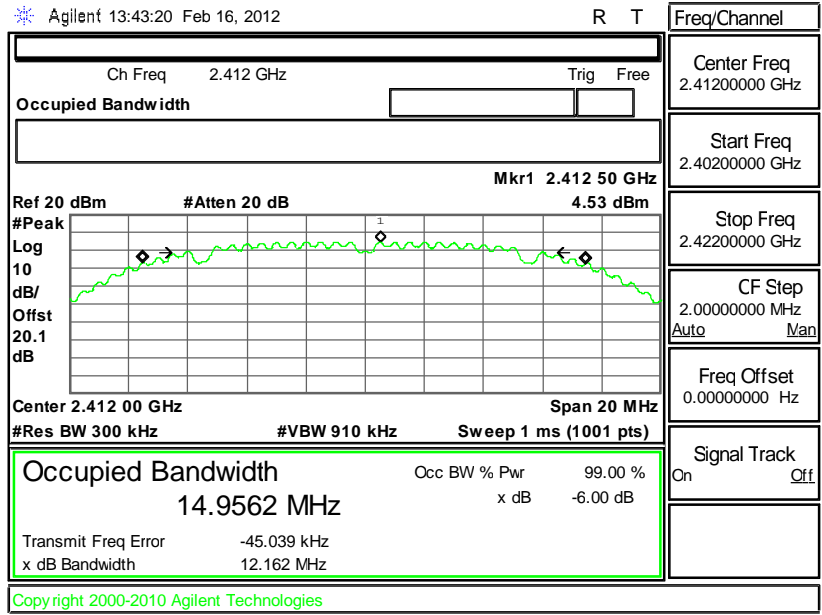
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)				6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	12.163	12.162	12.160	12.160	0.5	Pass
06	2437	12.154	12.154	12.171	12.004	0.5	Pass
11	2462	12.164	12.163	12.166	12.161	0.5	Pass

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

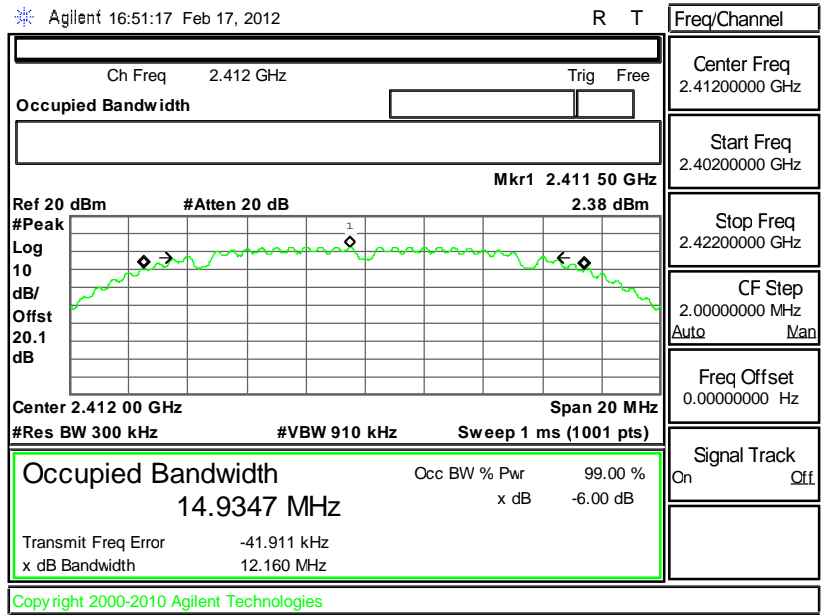




Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01 – Chain B



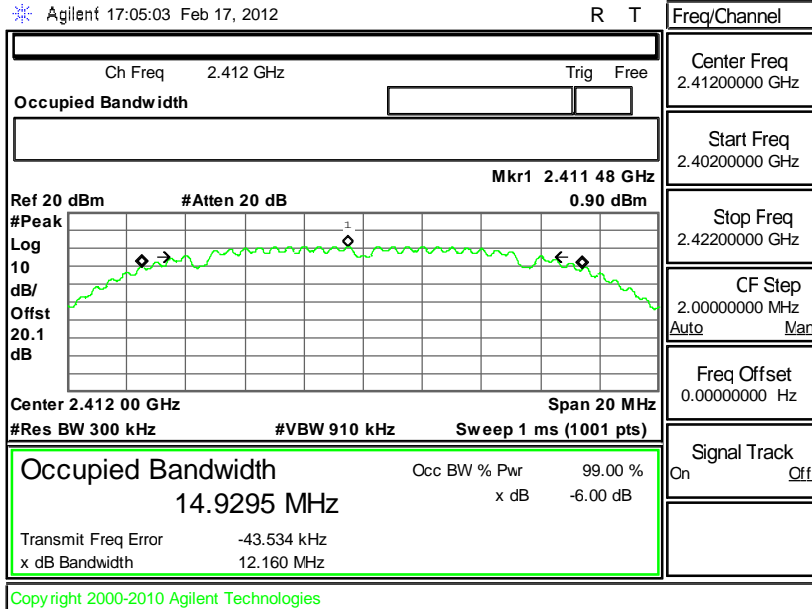
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01 – Chain A+B(A)



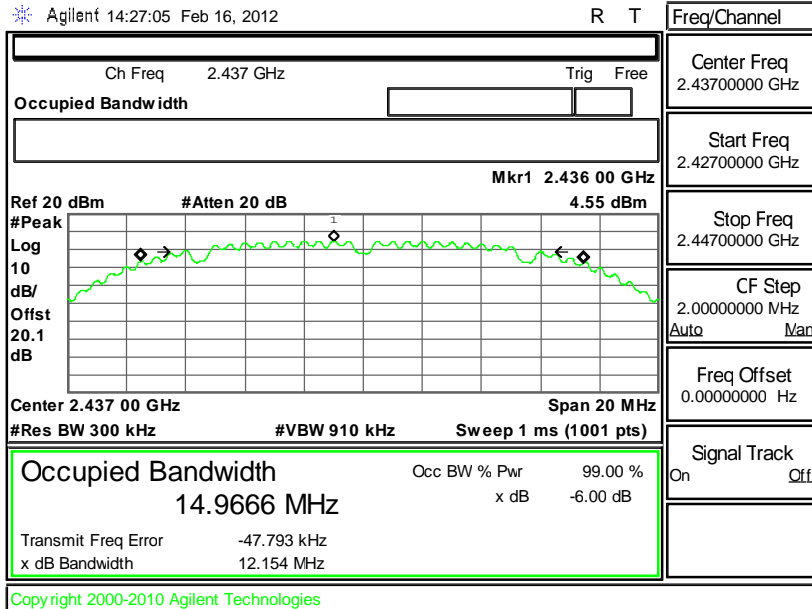


Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01 – Chain

A+B(B)

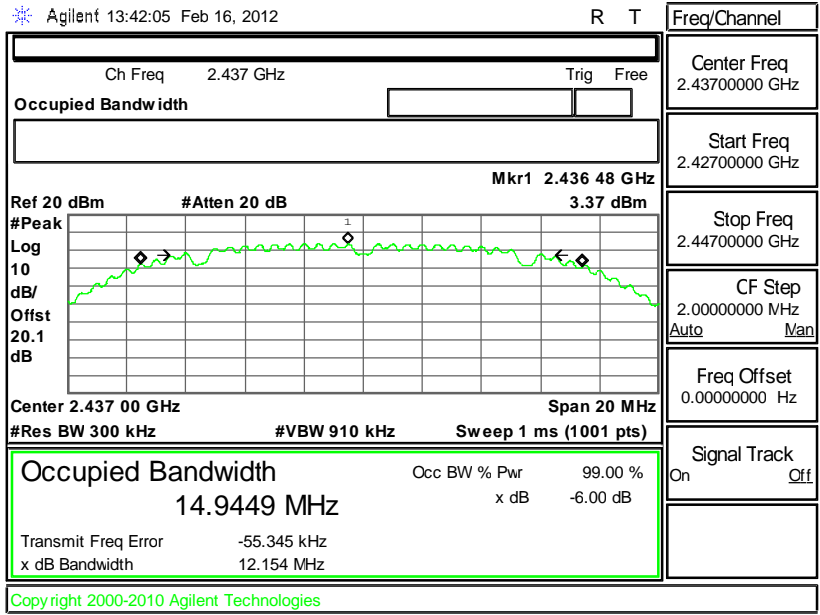


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06 – Chain A

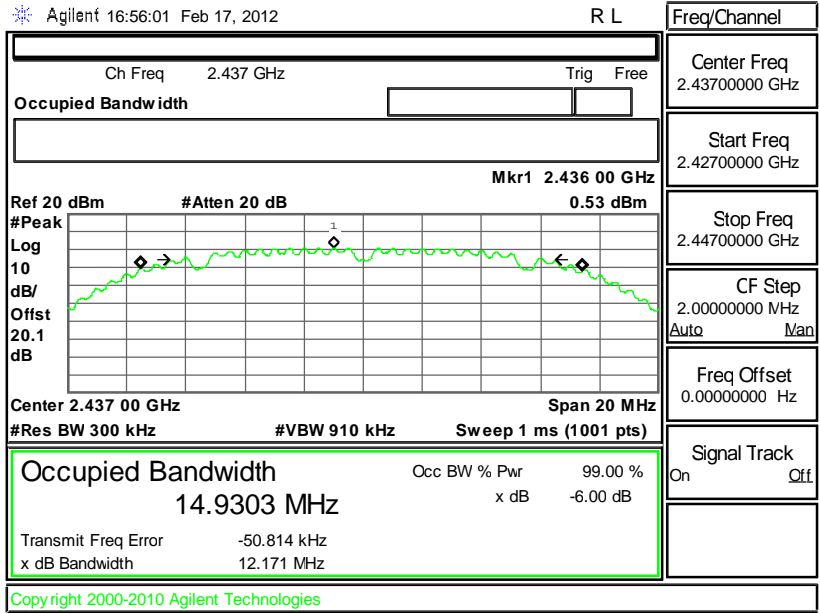




Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06 – Chain B



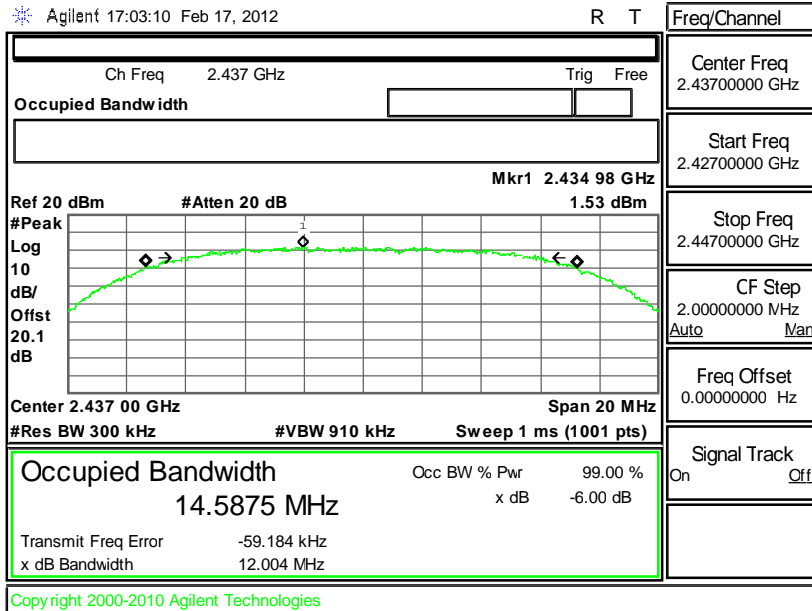
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06 – Chain A+B(A)



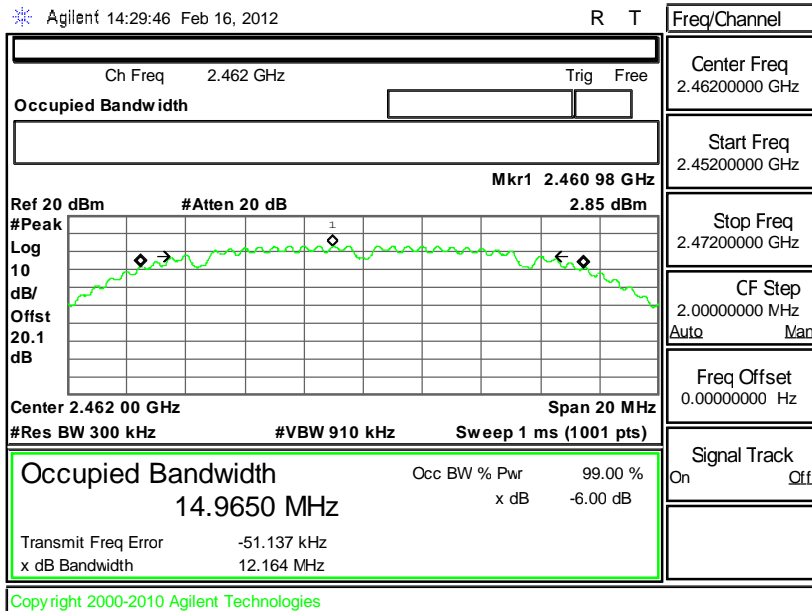


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06 – Chain

A+B(B)

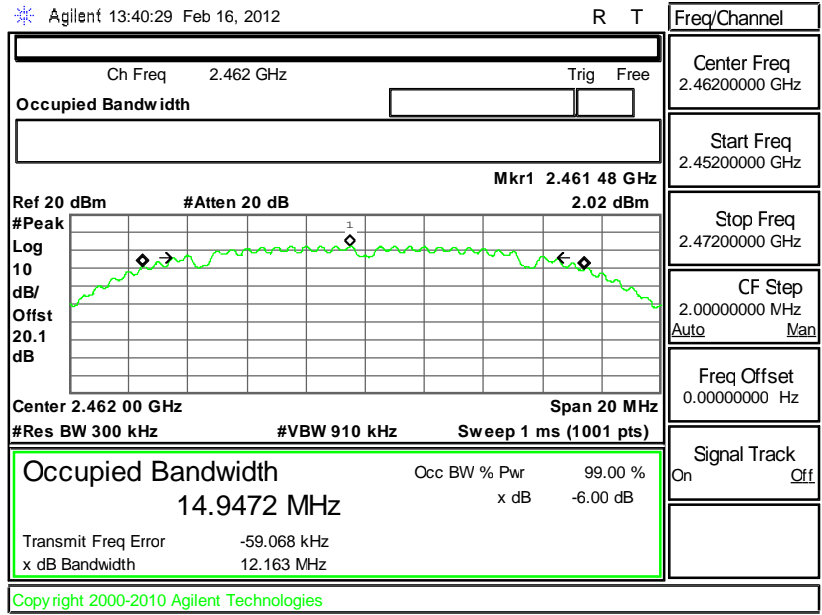


Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11 – Chain A

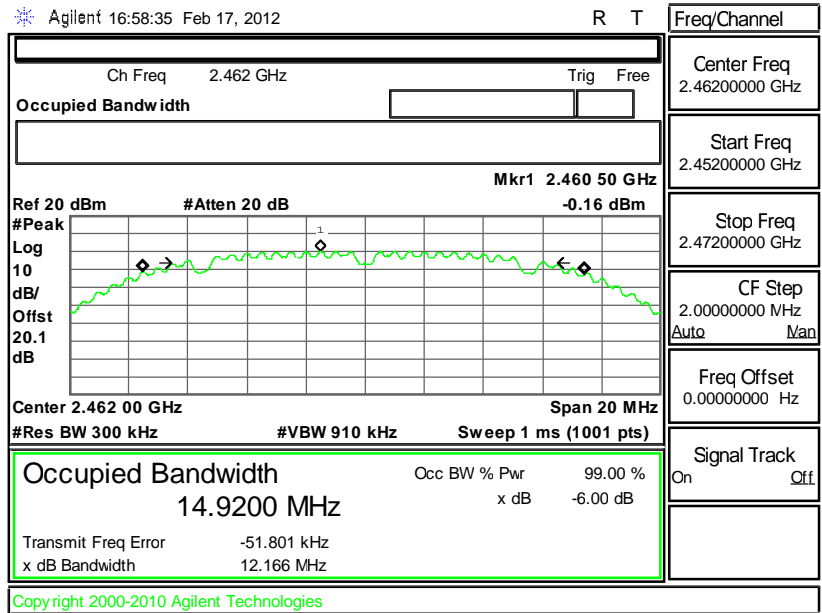




Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11 – Chain B



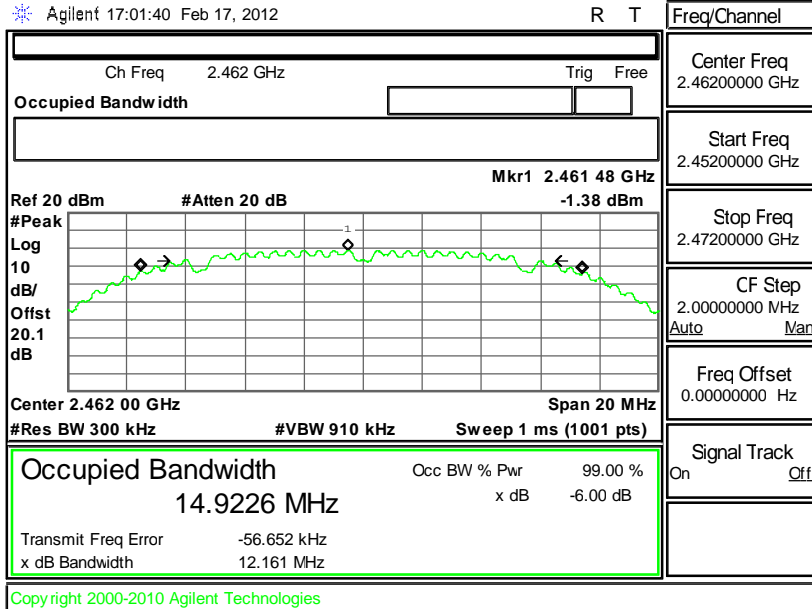
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11 – Chain A+B(A)





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

A+B(B)

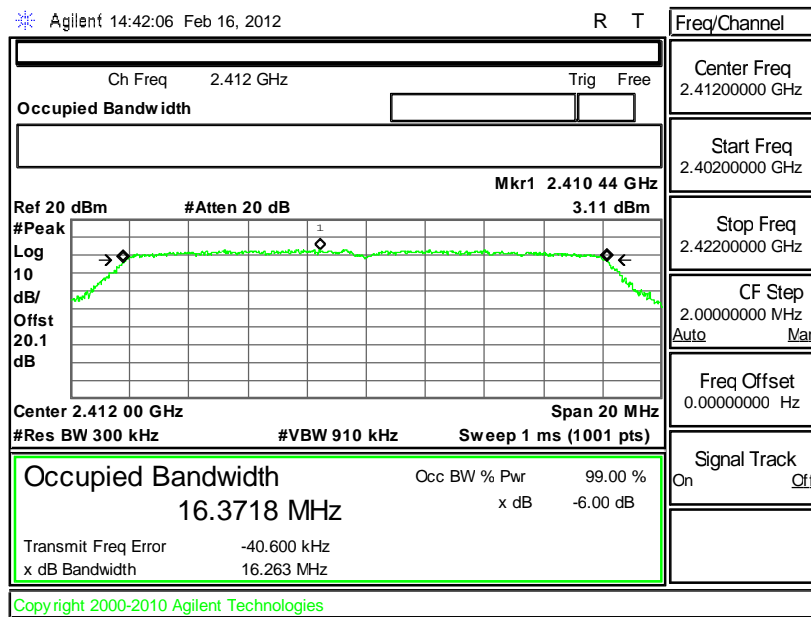




Test Mode :	Mode 4, 5, 6	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

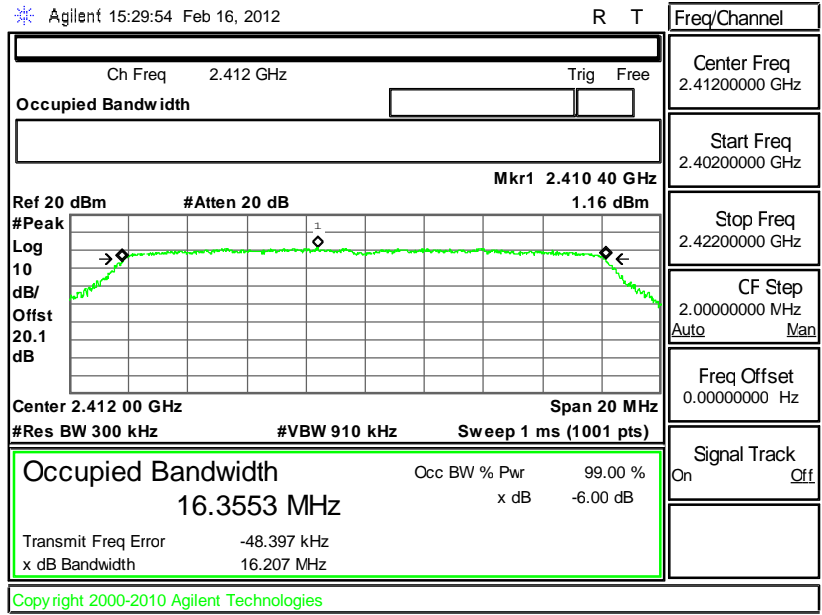
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)				6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	16.263	16.207	16.251	16.254	0.5	Pass
06	2437	16.126	16.188	16.241	16.245	0.5	Pass
11	2462	16.211	16.300	16.258	16.273	0.5	Pass

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

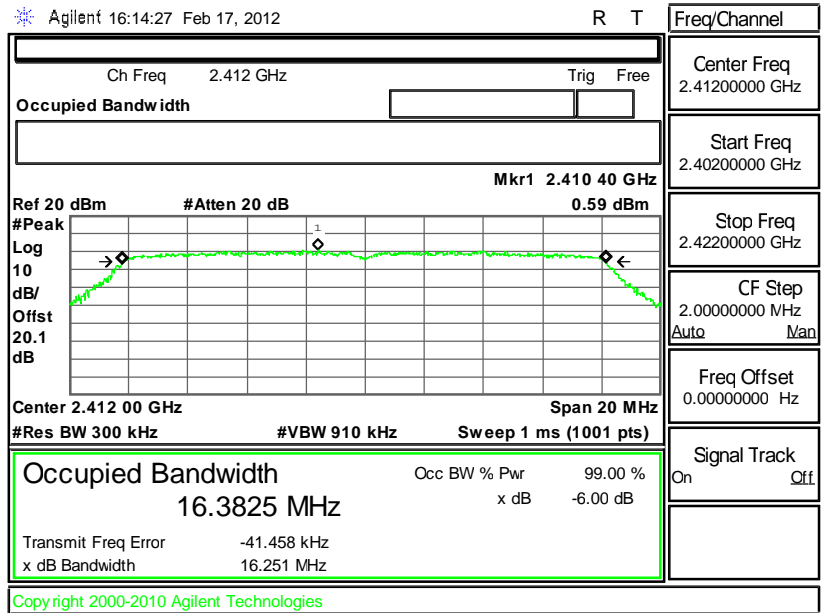




Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01 – Chain B



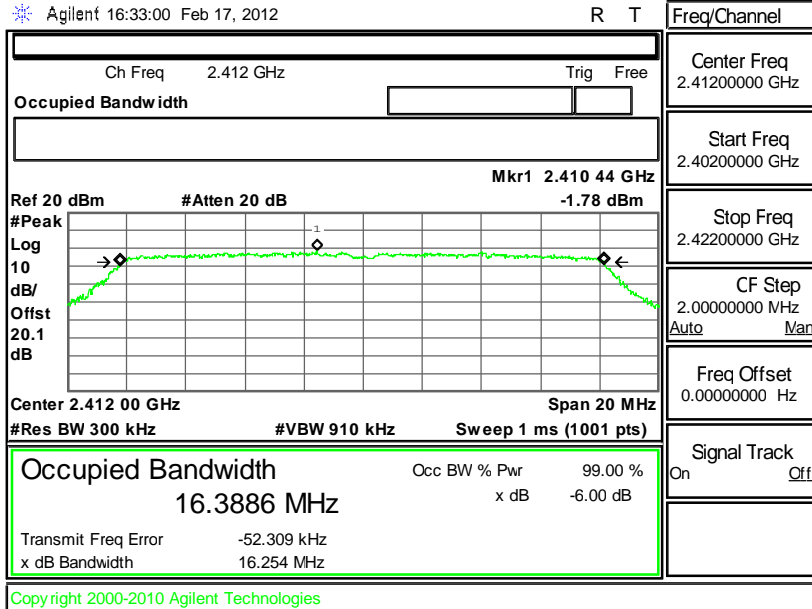
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01 – Chain A+B(A)



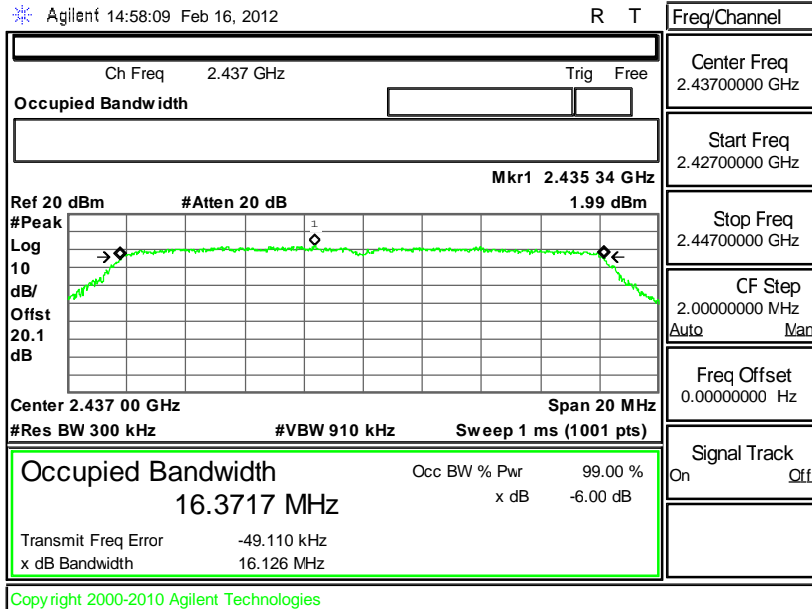


Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01 – Chain

A+B(B)

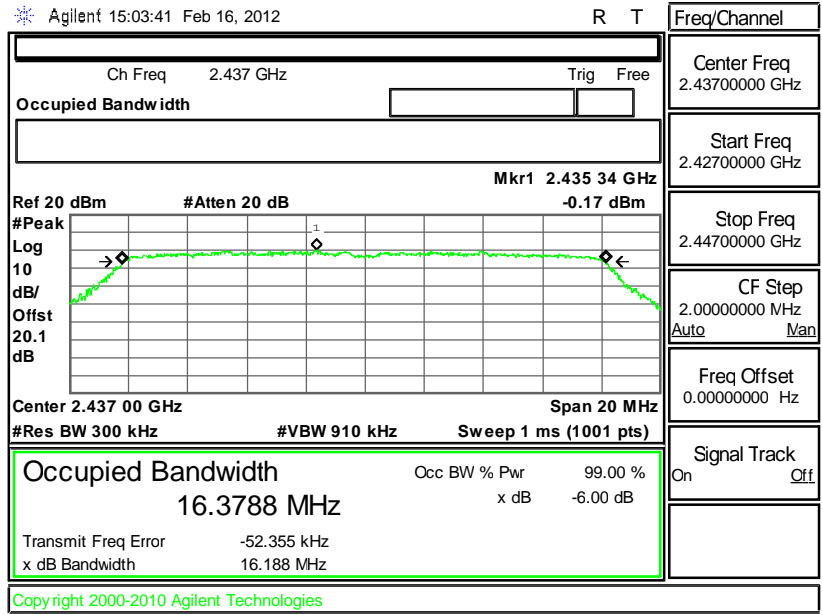


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 – Chain A

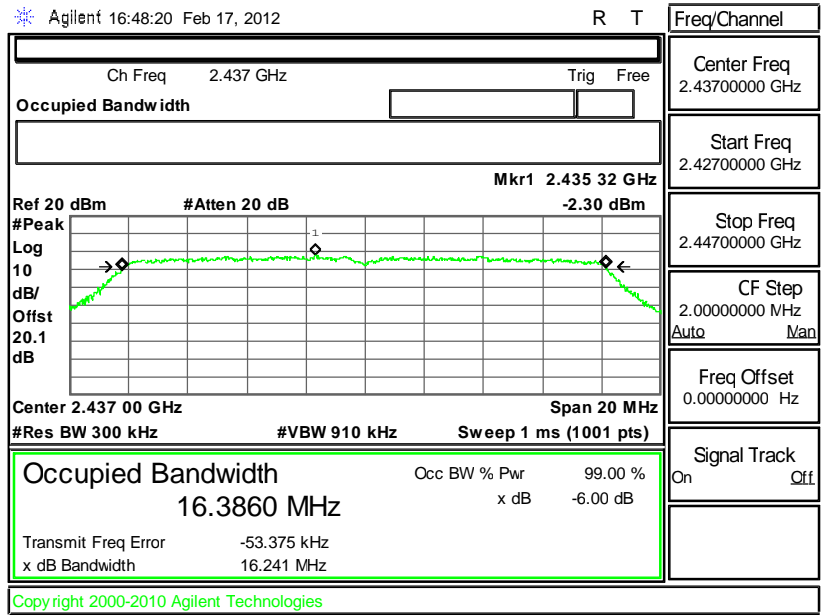




Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 – Chain B



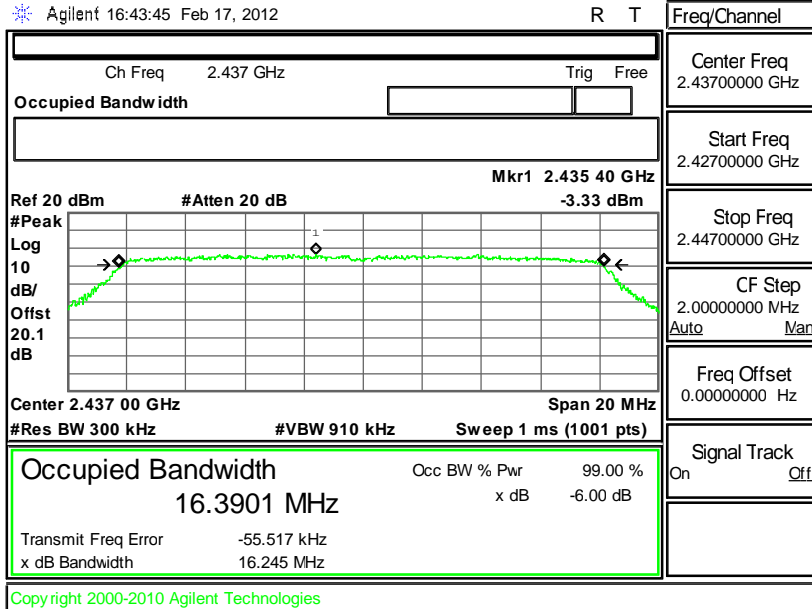
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 – Chain A+B(A)



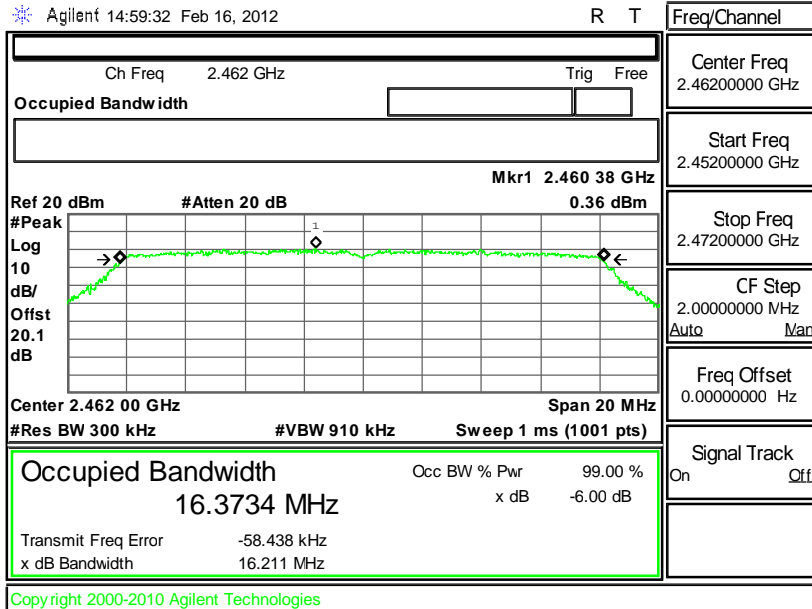


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 – Chain

A+B(B)

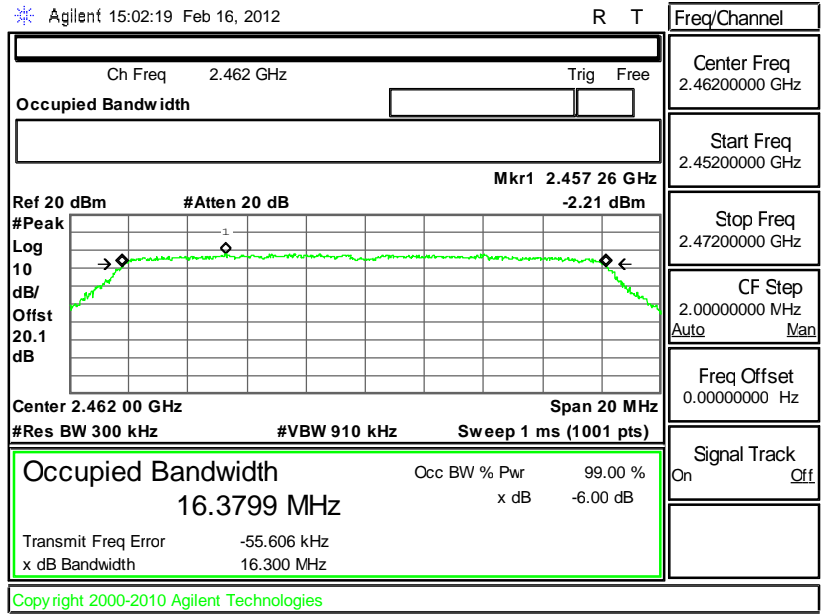


Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11 – Chain A

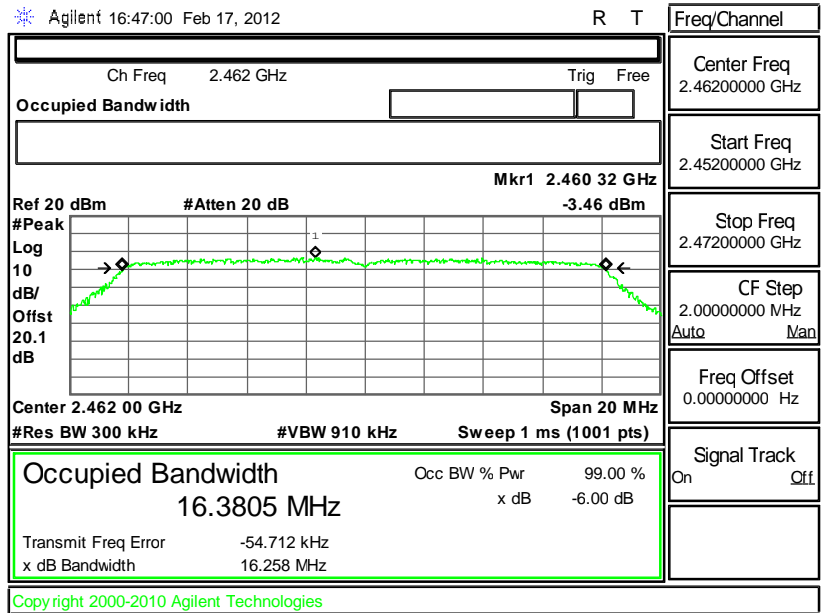




Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11 – Chain B



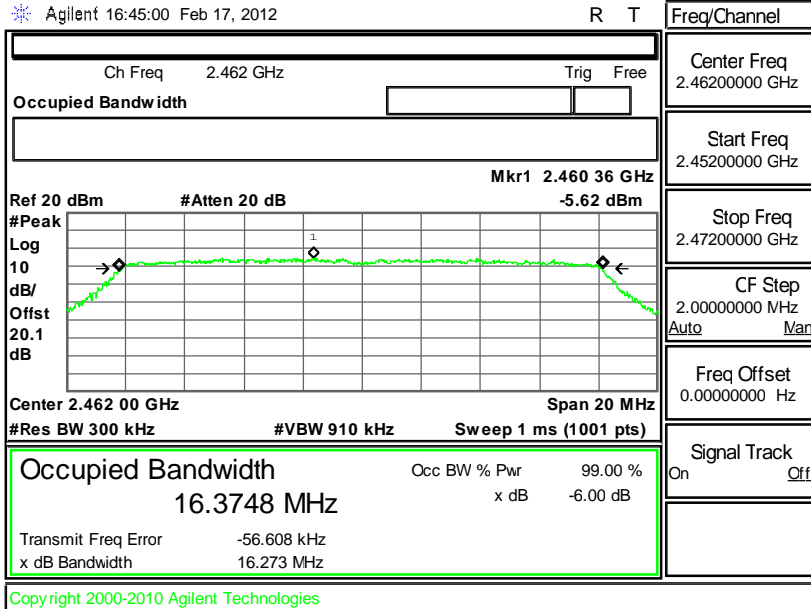
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11 – Chain A+B(A)





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

A+B(B)



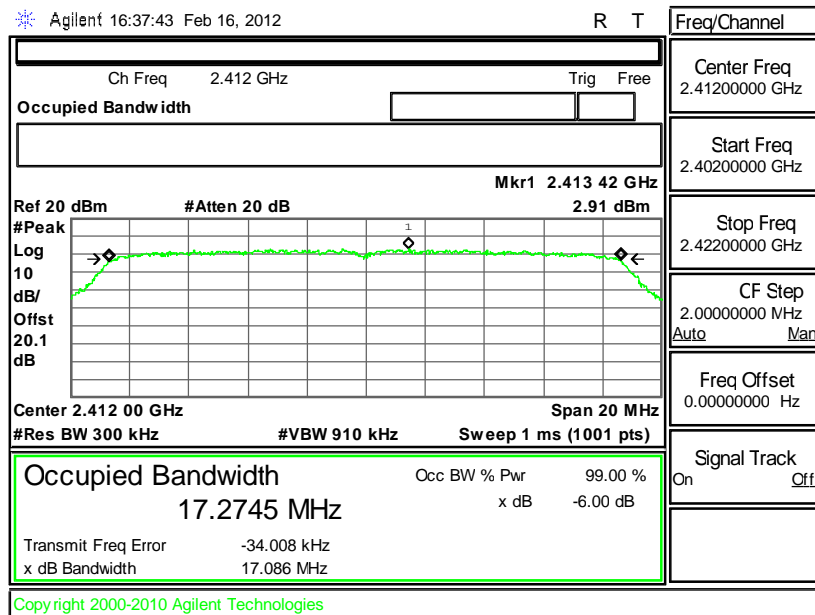


Test Mode :	Mode 7, 8, 9	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 6dB Bandwidth (MHz)				6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	17.086	17.075	17.053	17.159	0.5	Pass
06	2437	17.232	17.265	17.161	17.150	0.5	Pass
11	2462	17.105	17.127	17.209	17.181	0.5	Pass

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

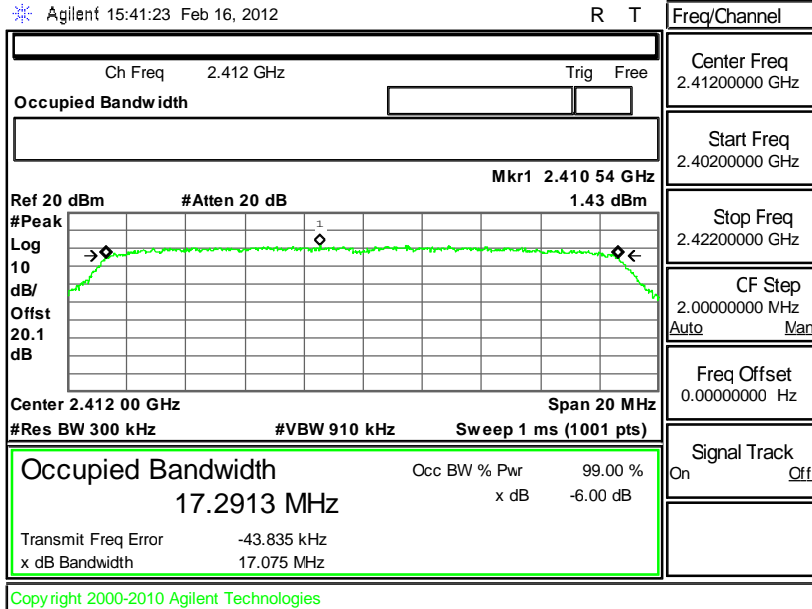
01 – Chain A





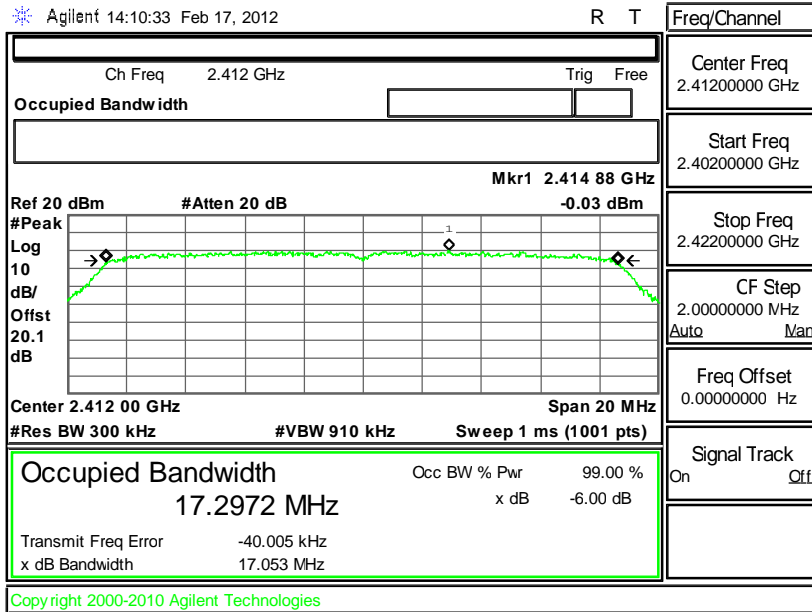
Mode 7 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

01 – Chain B



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

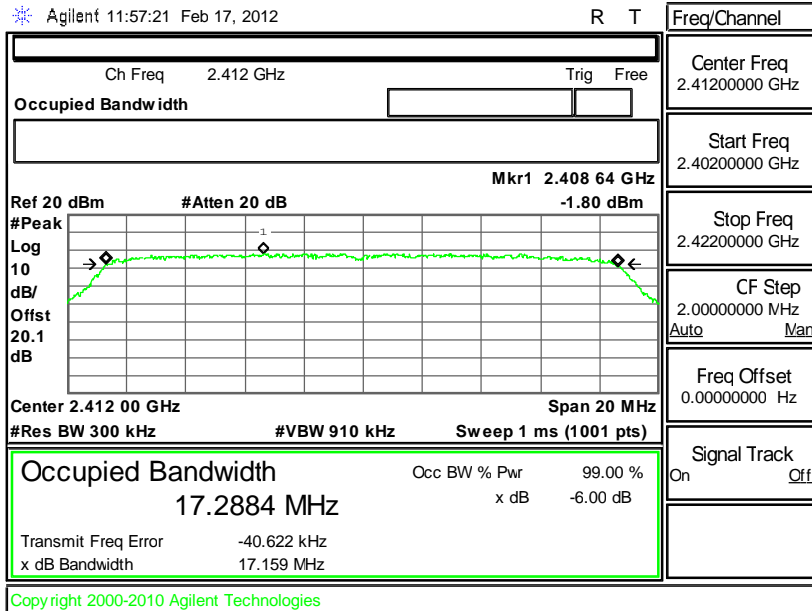
01 – Chain A+B(A)





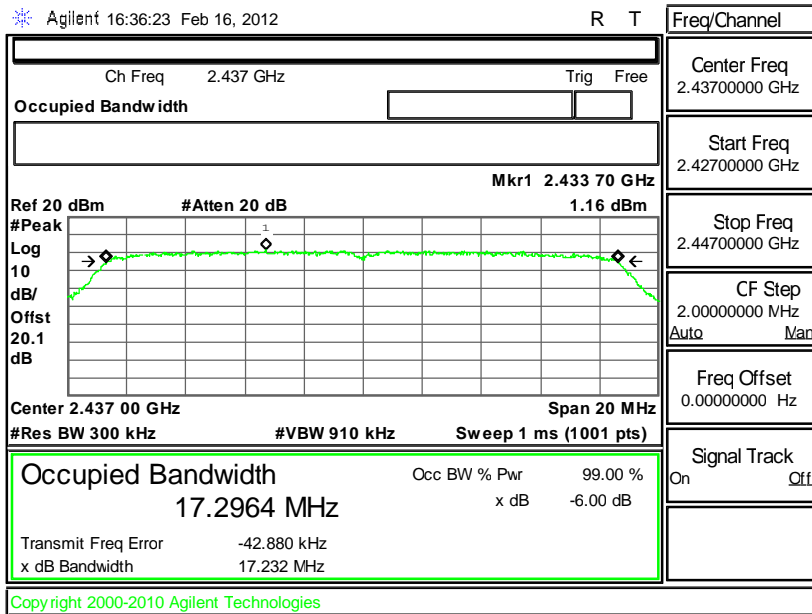
Mode 7 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

01 – Chain A+B(B)



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

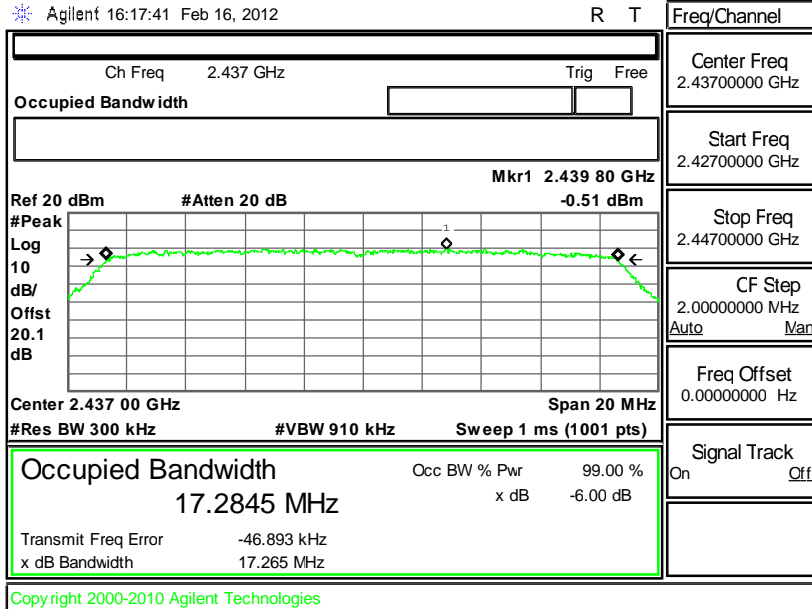
06 – Chain A





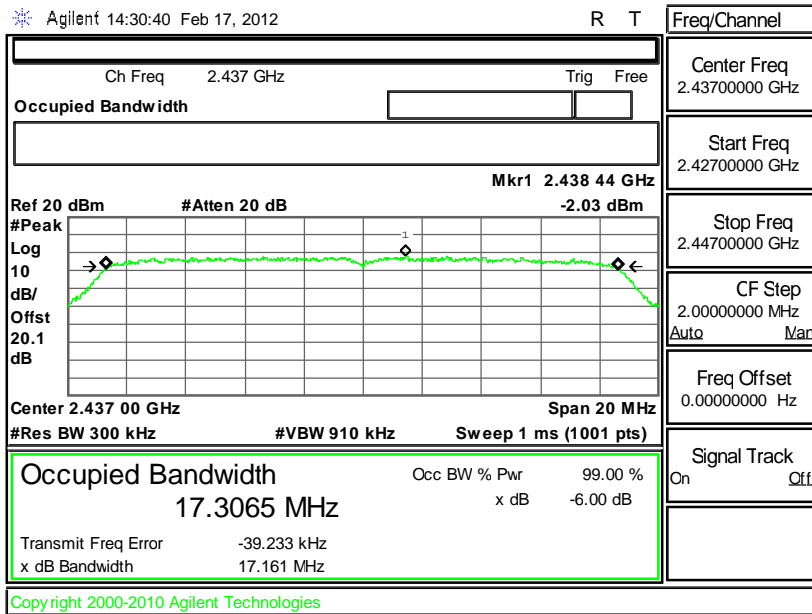
Mode 8 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

06 – Chain B



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

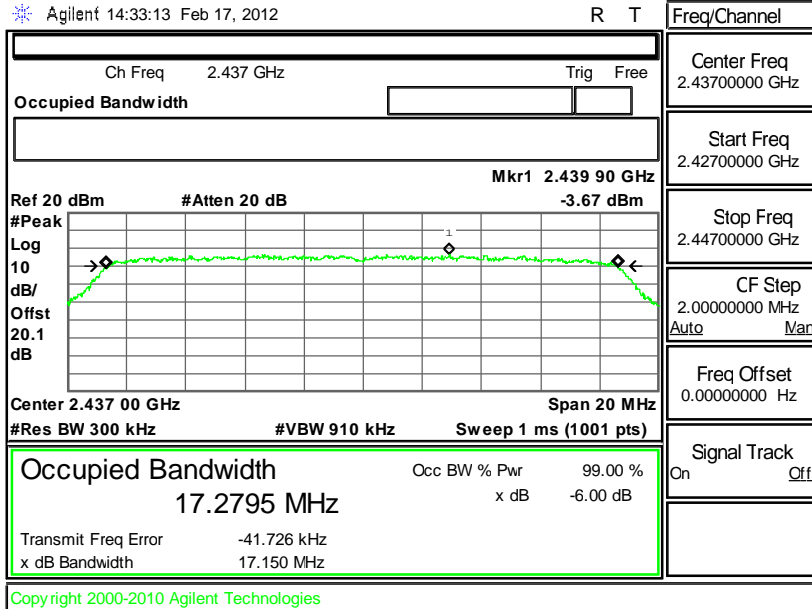
06 – Chain A+B(A)





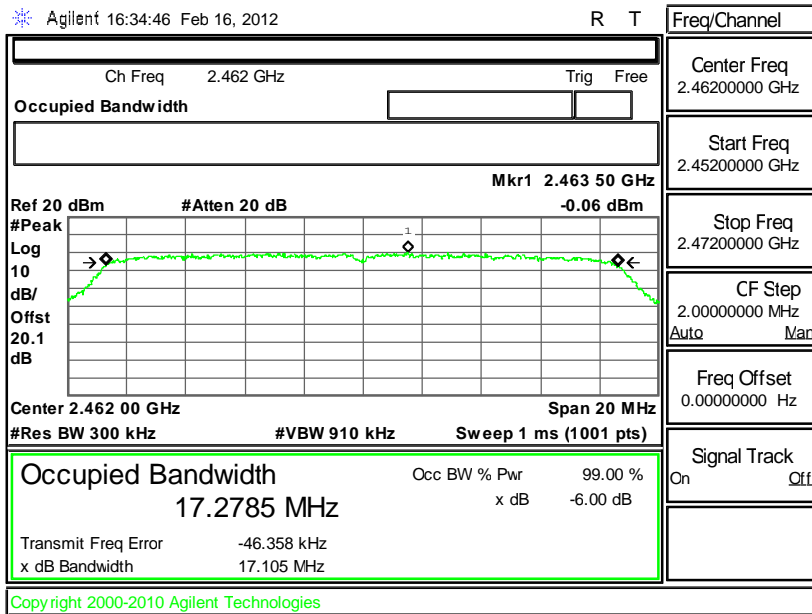
Mode 8 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

06 – Chain A+B(B)



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

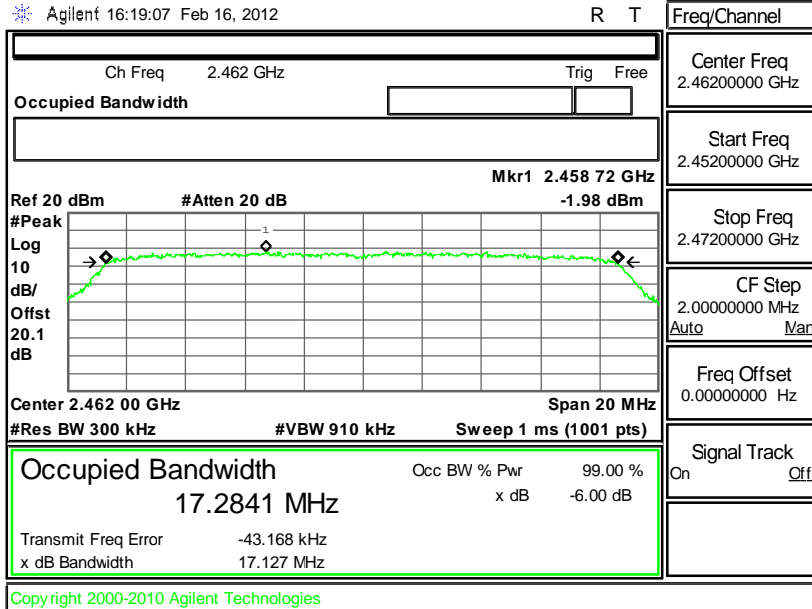
11 – Chain A





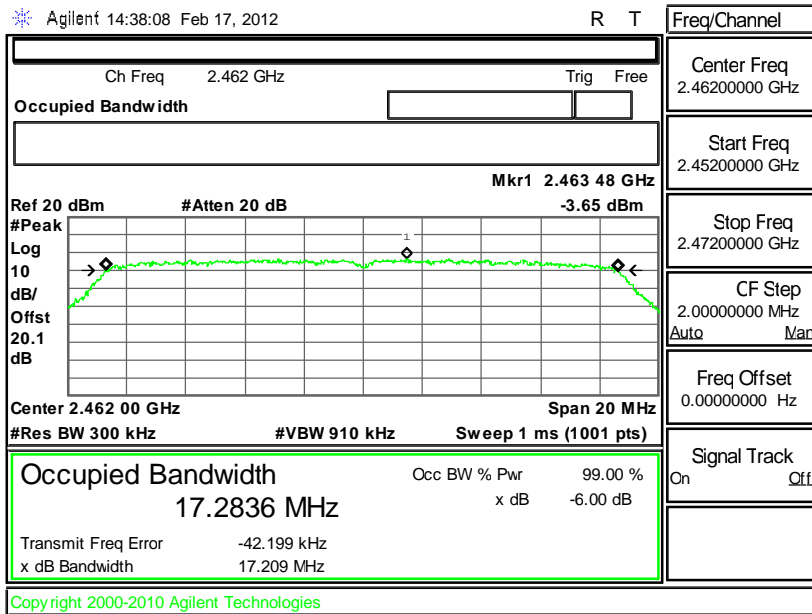
Mode 9 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

11 – Chain B



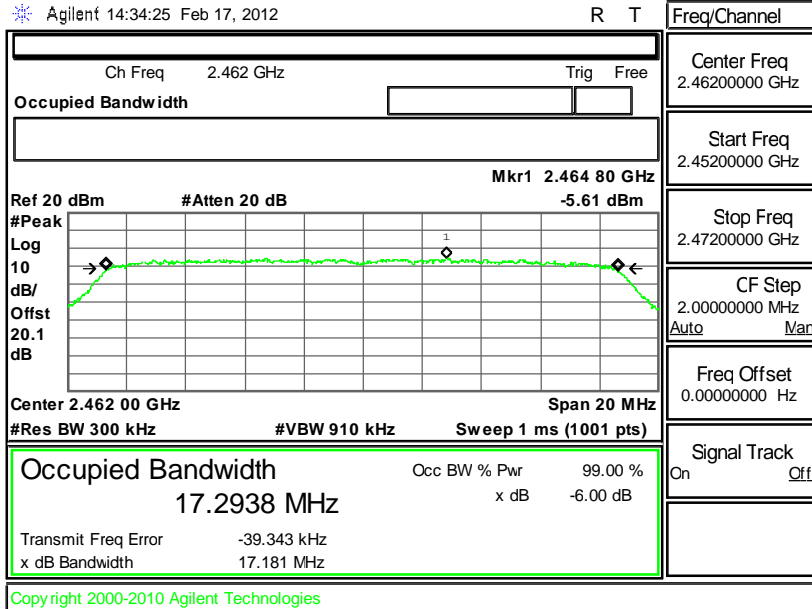
Mode 9 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel

11 – Chain A+B(A)





Mode 9 : 6 dB Bandwidth Plot on 802.11g/n(BW 20MHz) Channel
11 – Chain A+B(B)

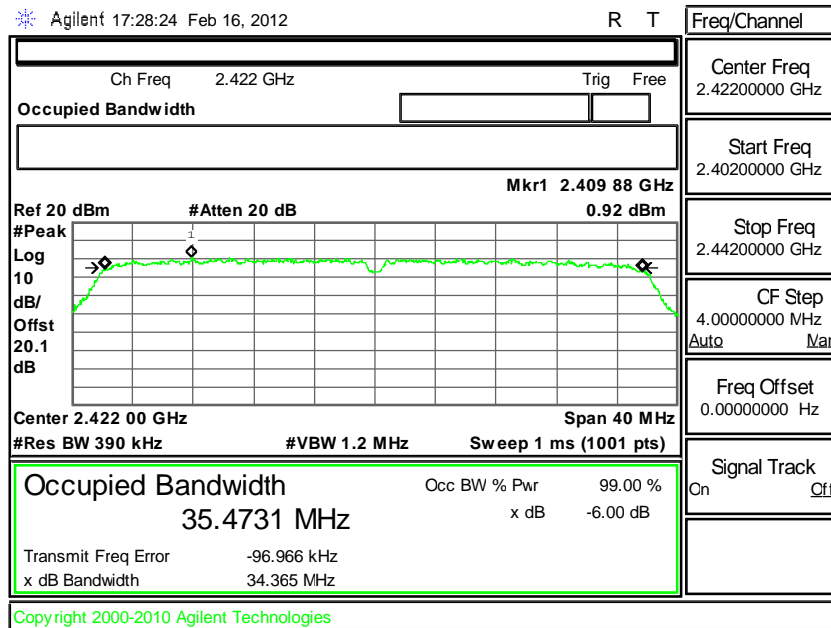




Test Mode :	Mode 10, 11, 12	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

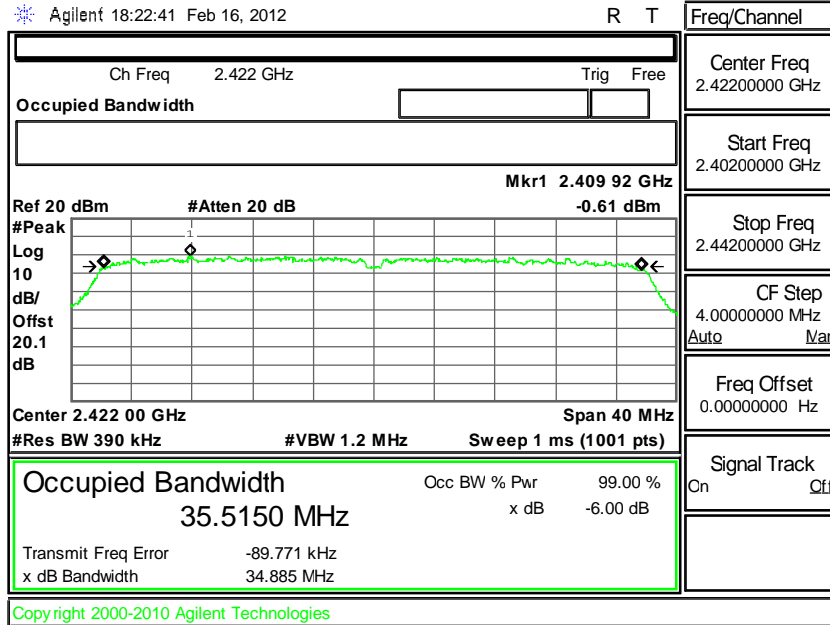
Channel	Frequency (MHz)	802.11g/n (BW 40MHz) 6dB Bandwidth (MHz)				6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
03	2422	34.365	34.885	34.435	34.802	0.5	Pass
06	2437	34.921	35.044	34.324	34.417	0.5	Pass
09	2452	34.959	34.727	34.314	34.281	0.5	Pass

Mode 10 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
03 – Chain A

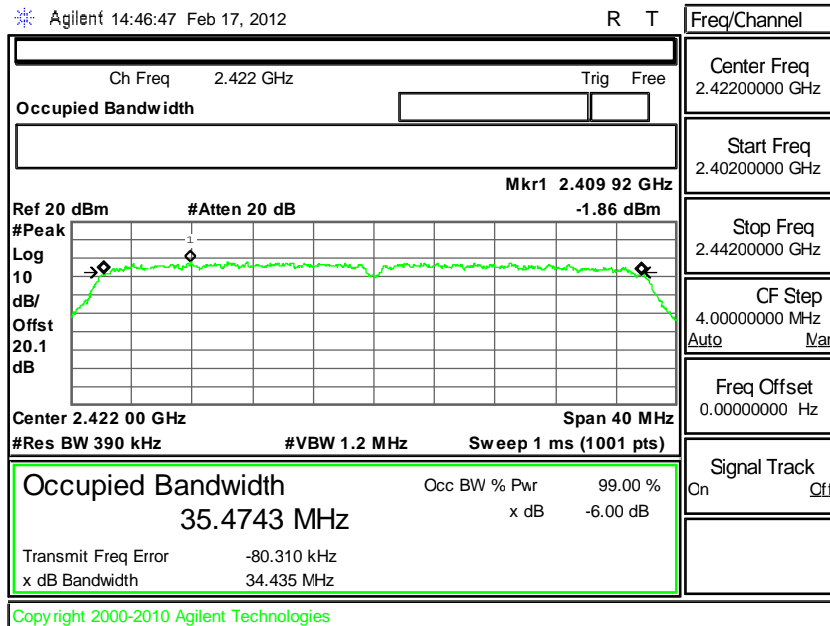




**Mode 10 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
03 – Chain B**

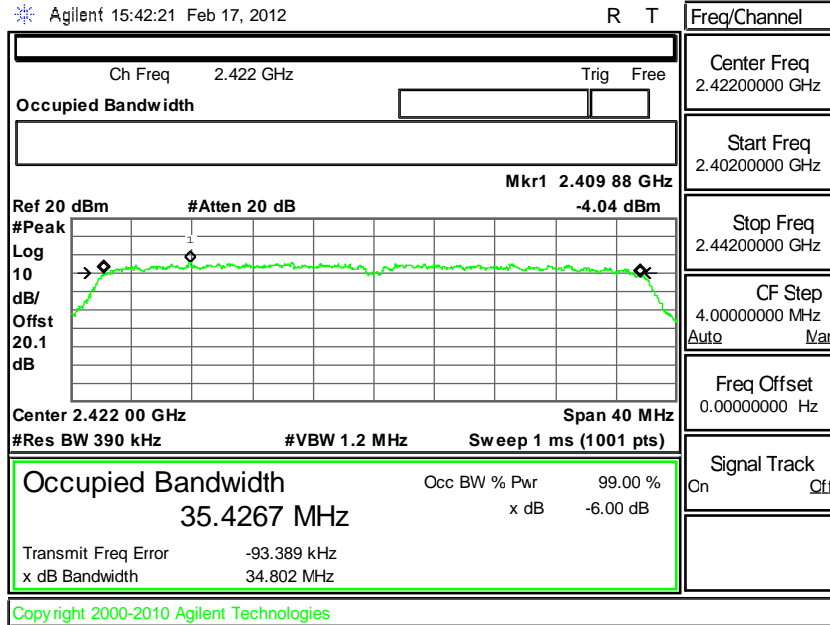


**Mode 10 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
03 – Chain A+B(A)**

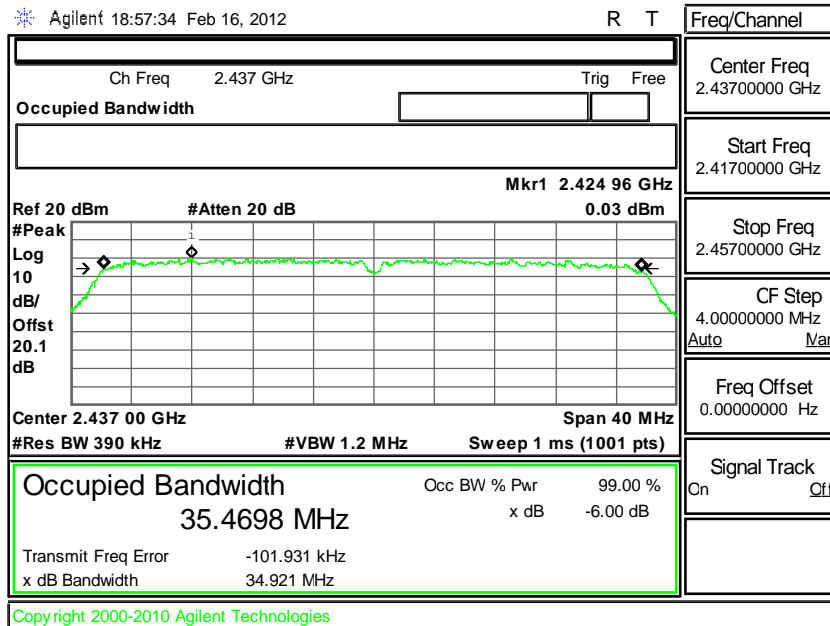




**Mode 10 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
03 – Chain A+B(B)**

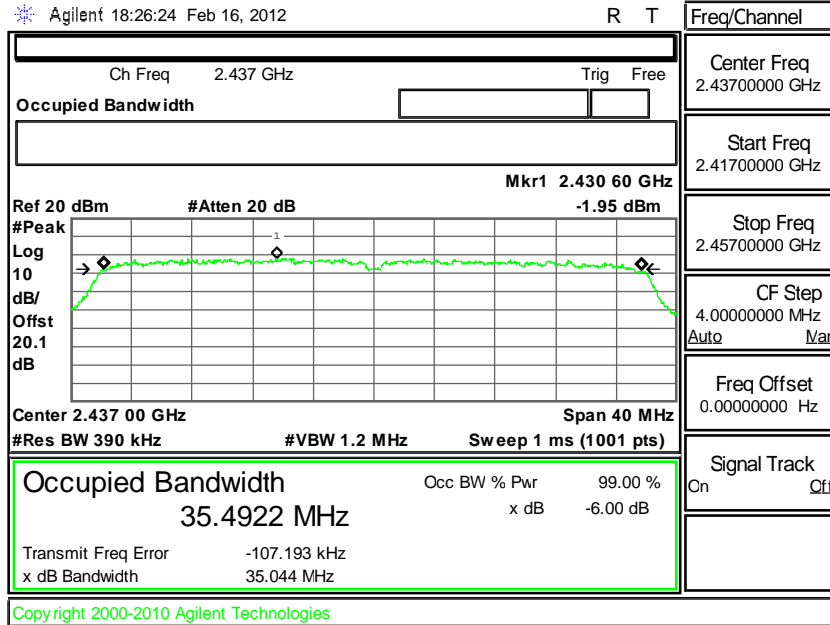


**Mode 11 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
06 – Chain A**

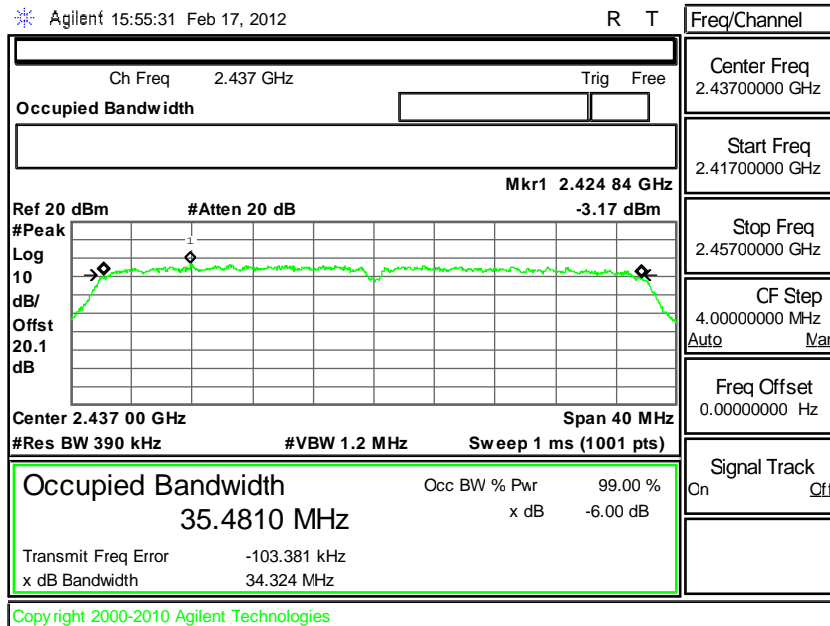




**Mode 11 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
06 – Chain B**

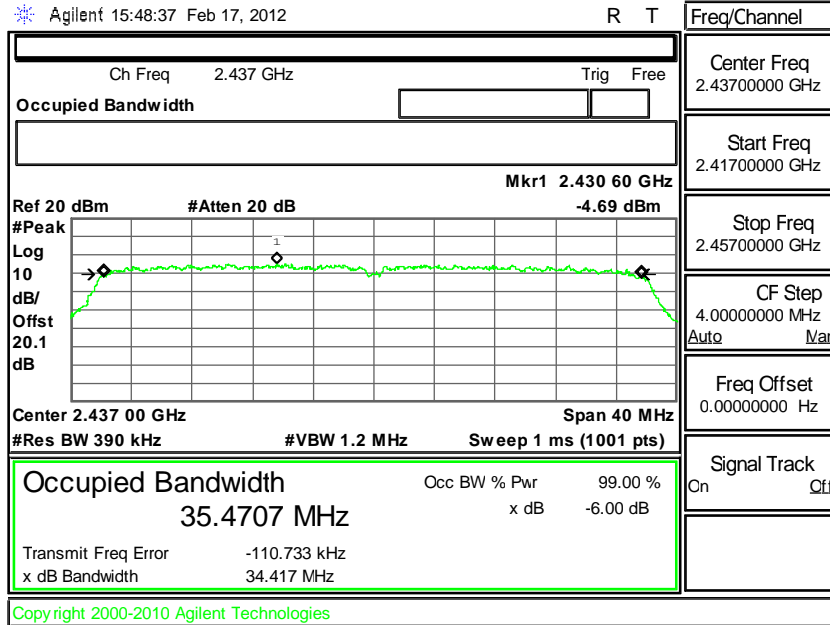


**Mode 11 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
06 – Chain A+B(A)**

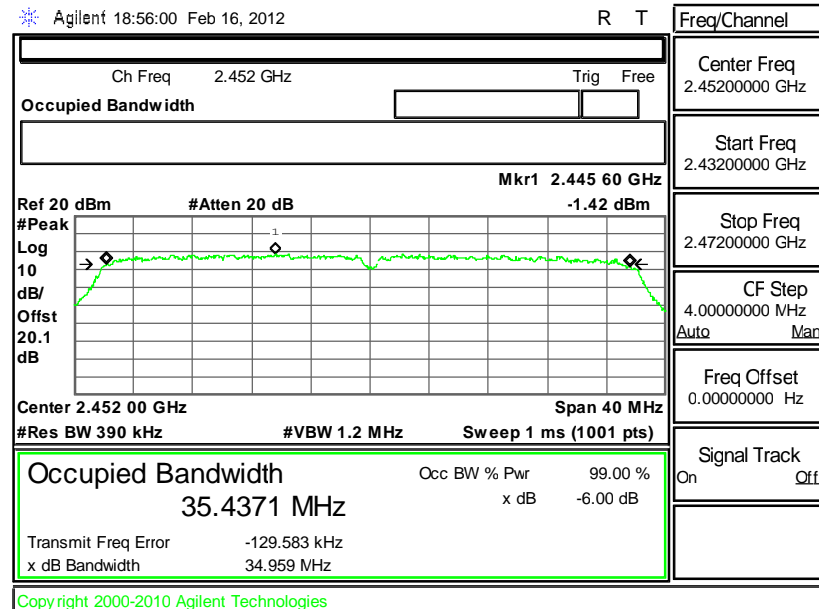




**Mode 11 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
06 – Chain A+B(B)**

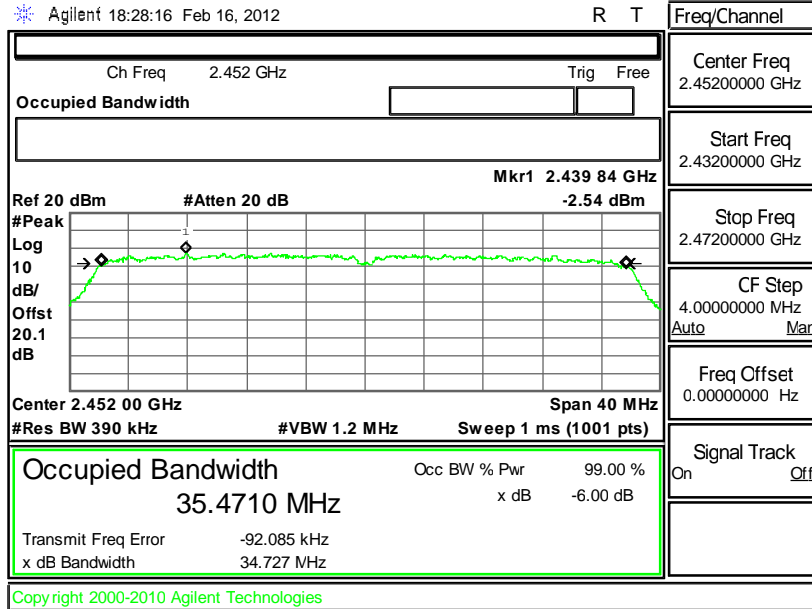


**Mode 12 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
09 – Chain A**

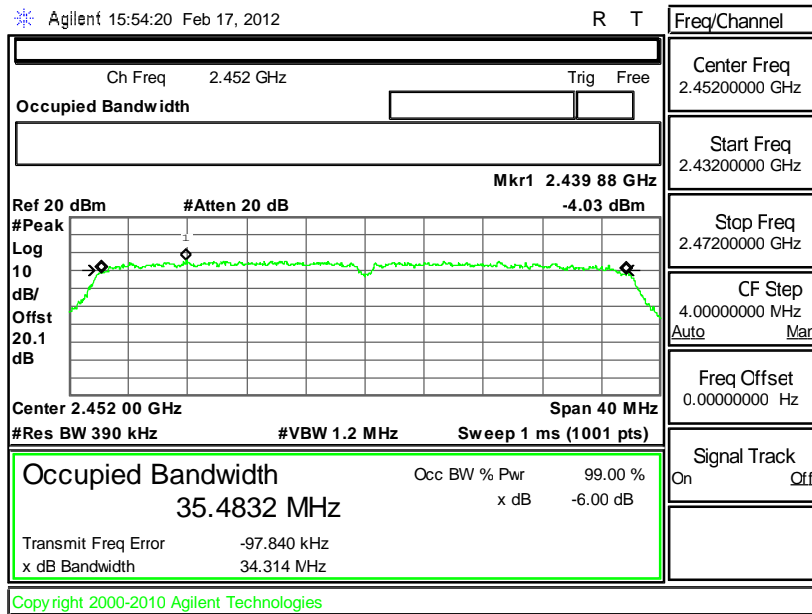




**Mode 12 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
09 – Chain B**

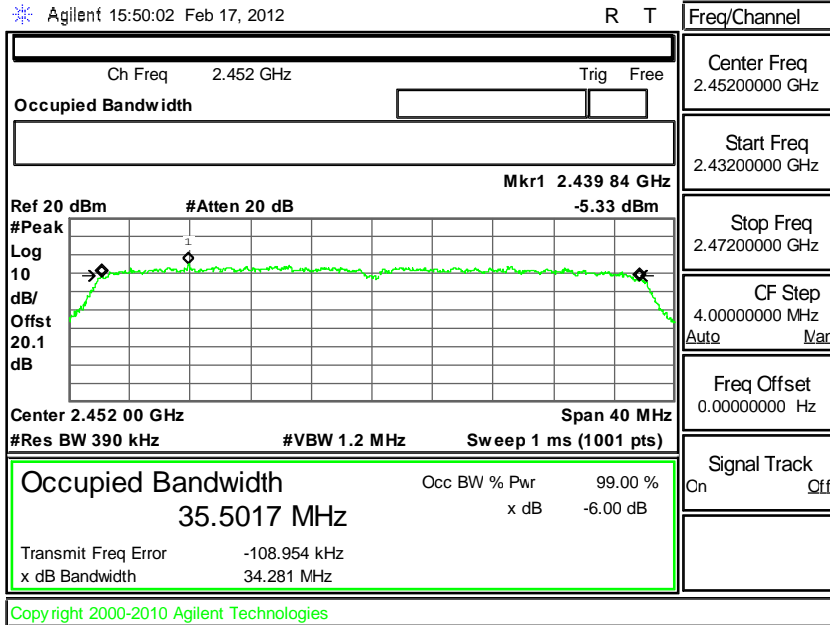


**Mode 12 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
09 – Chain A+B(A)**





Mode 12 : 6 dB Bandwidth Plot on 802.11g/n(BW 40MHz) Channel
09 – Chain A+B(B)



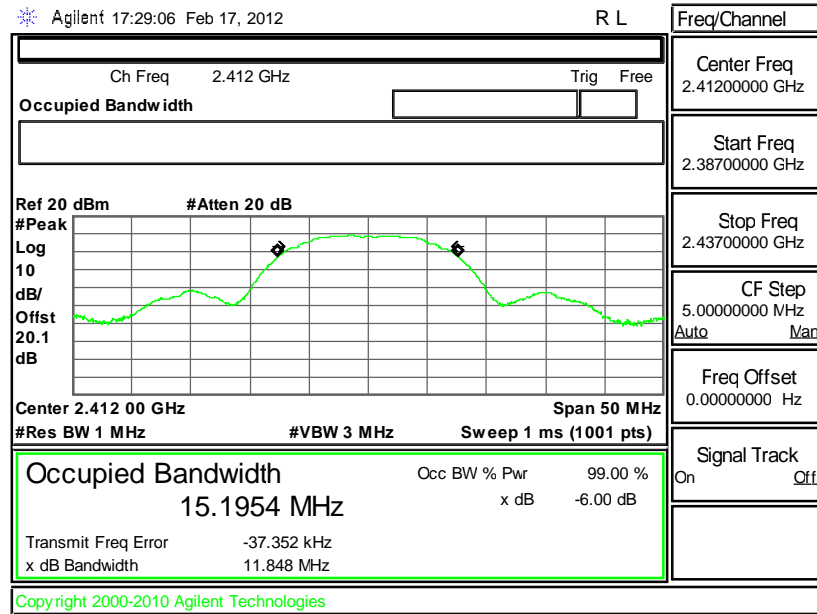


3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

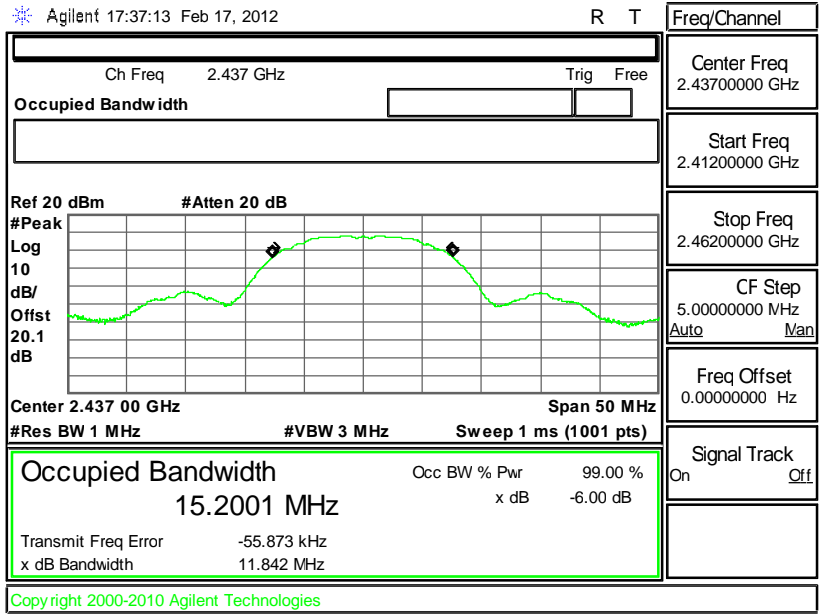
Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.1954	Pass
06	2437	15.2001	Pass
11	2462	15.1880	Pass

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

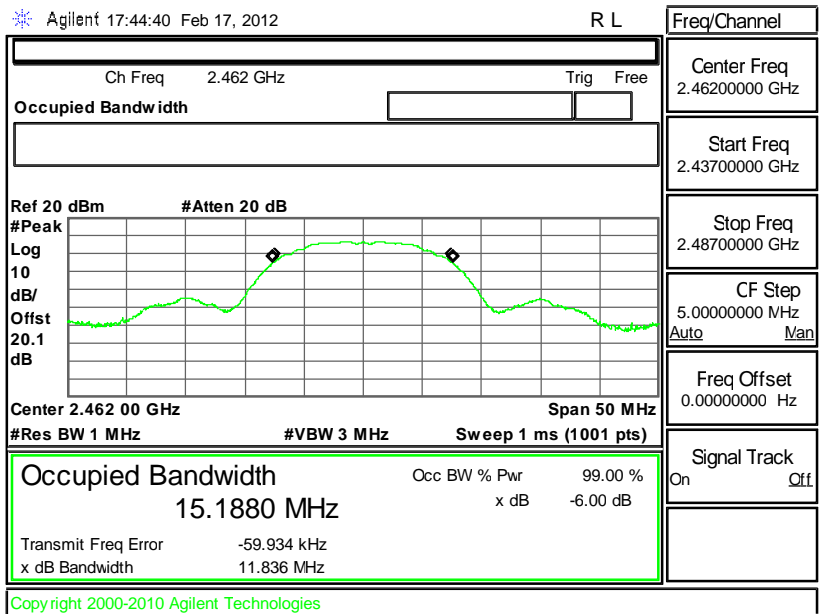




Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



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

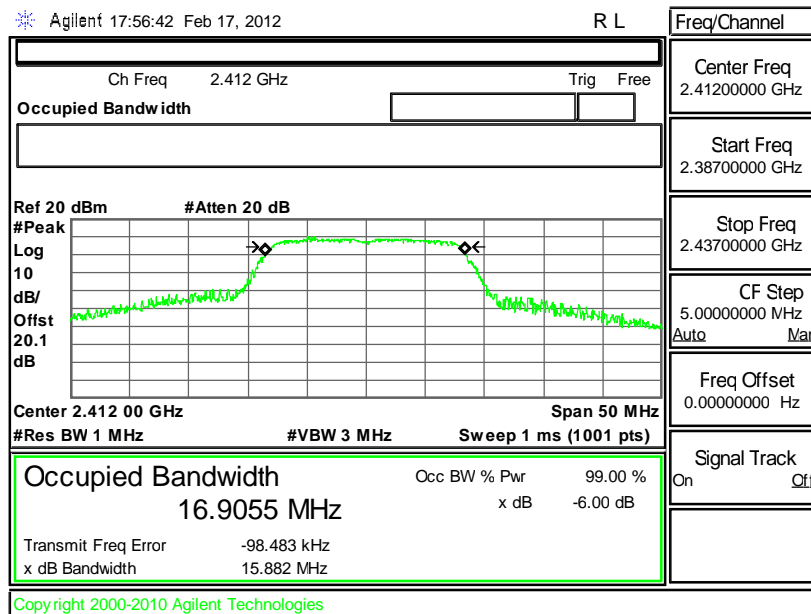




Test Mode :	Mode 4, 5, 6	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

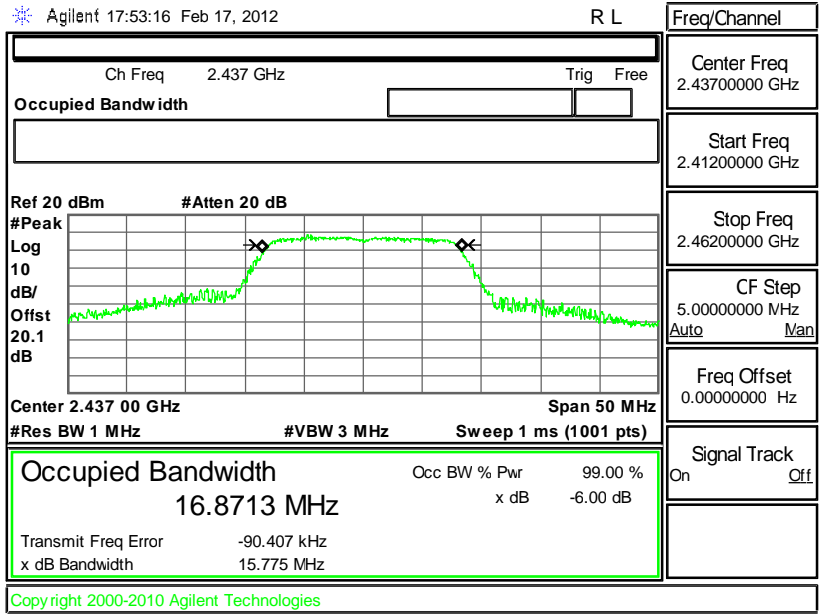
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.9055	Pass
06	2437	16.8713	Pass
11	2462	16.7913	Pass

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

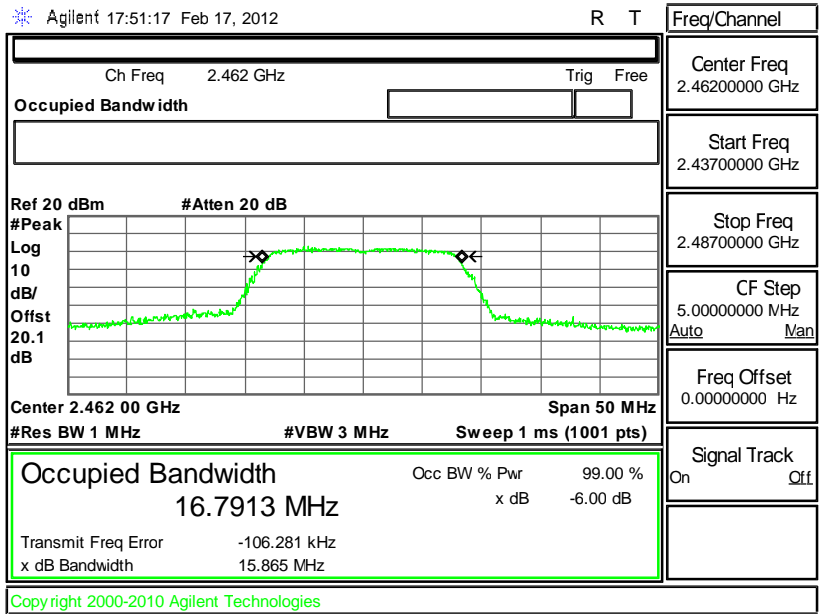




Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



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

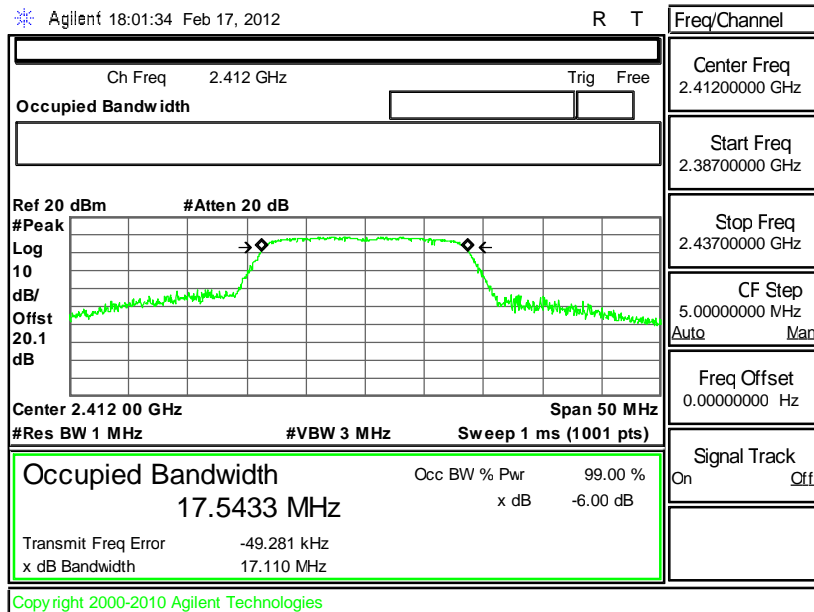




Test Mode :	Mode 7, 8, 9	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

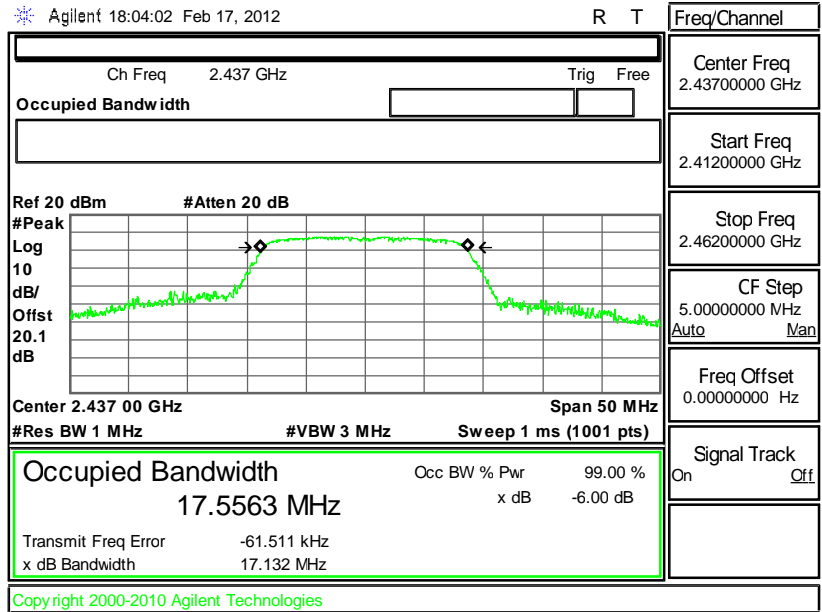
Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.5433	Pass
06	2437	17.5563	Pass
11	2462	17.5485	Pass

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

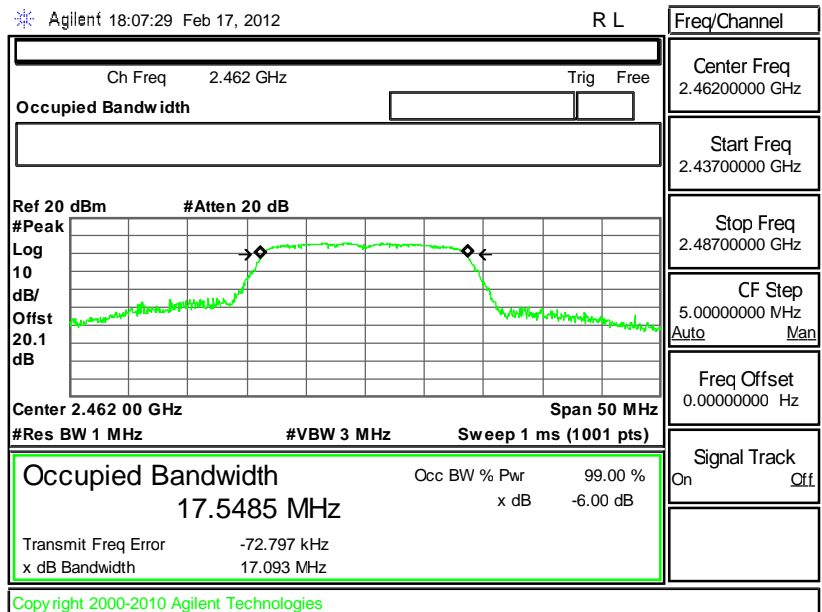




Mode 8 : 99% Occupied Bandwidth Plot on 802.11g/n(BW 20MHz) Channel 06



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



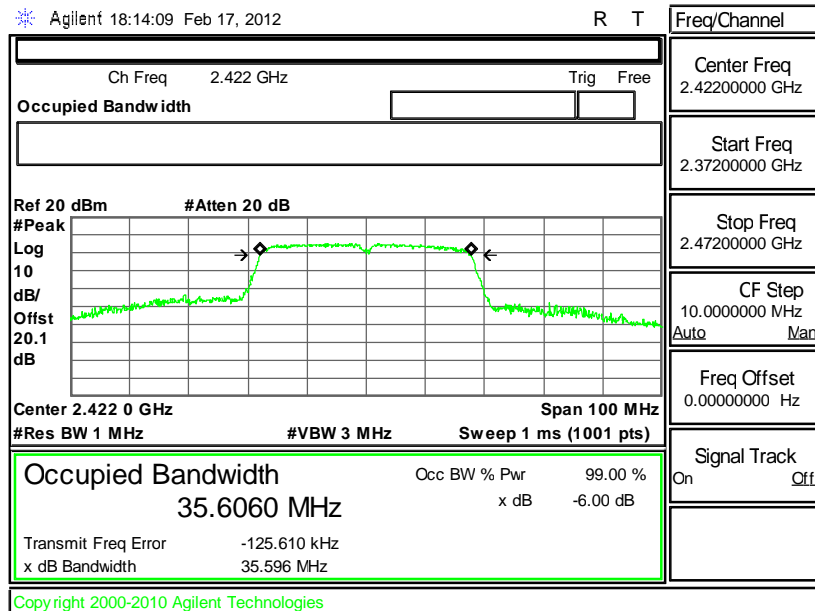


Test Mode :	Mode 10, 11, 12	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	35.6060	Pass
06	2437	35.6047	Pass
09	2452	35.6039	Pass

Mode 10 : 99% Occupied Bandwidth Plot on 802.11g/n(BW 40MHz) Channel

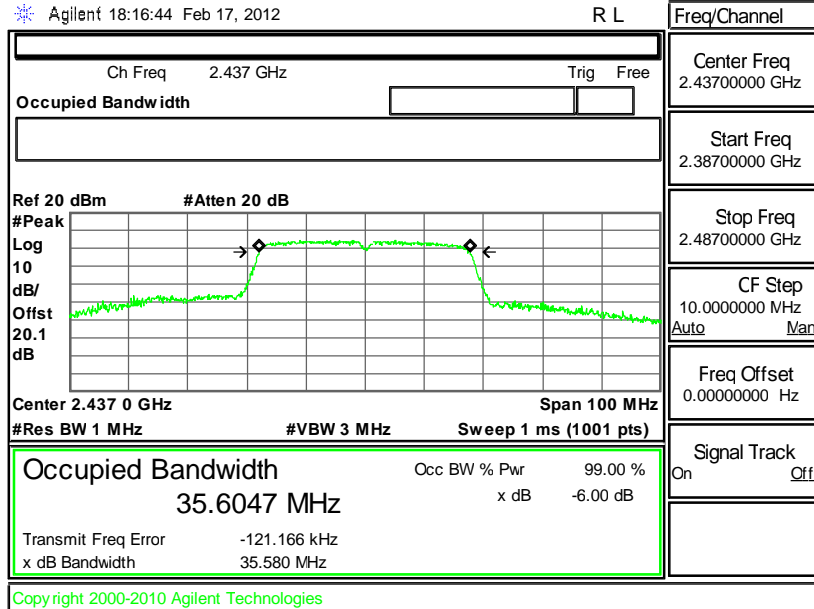
03





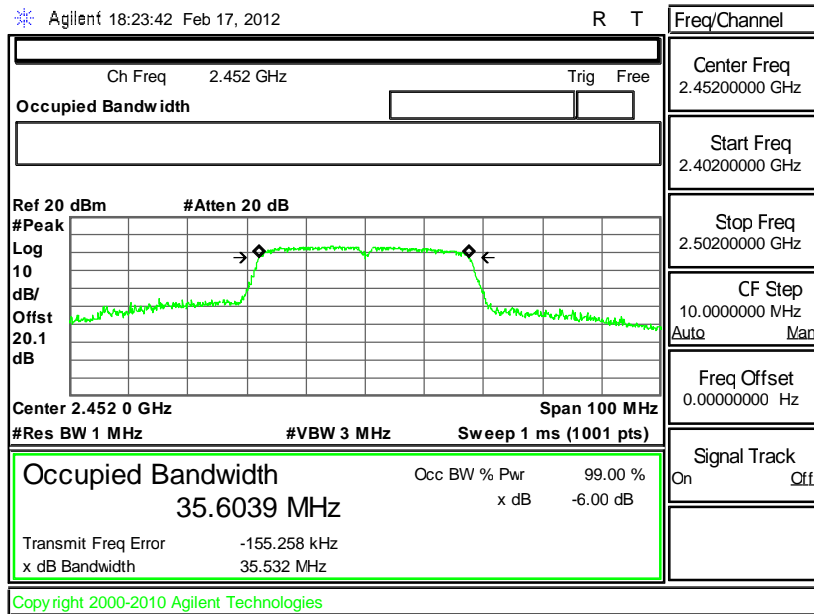
Mode 11 : 99% Occupied Bandwidth Plot on 802.11g/n(BW 40MHz) Channel

06



Mode 12 : 99% Occupied Bandwidth Plot on 802.11g/n(BW 40MHz) Channel

09



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.

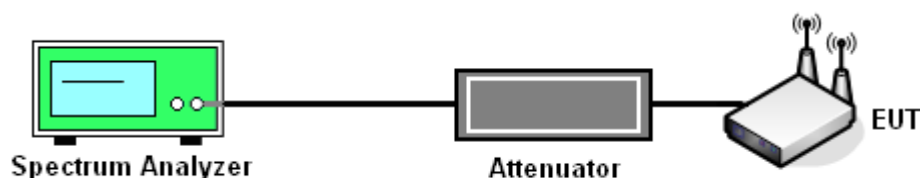
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure PK2 of FCC KDB No. 558074 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. The spectrum analyzer's settings are Resolution bandwidth (RBW) = 1MHz, Video bandwidth (VBW) = 3MHz, Peak Detector, auto sweep time, and the frequency span to a value that is 5-30 % greater than the EBW.
4. The spectrum analyzer's integrated band power measurement function is used to measure the peak power and the test results are demonstrated to compliance to the limit line as following plots.

3.2.4 Test Setup



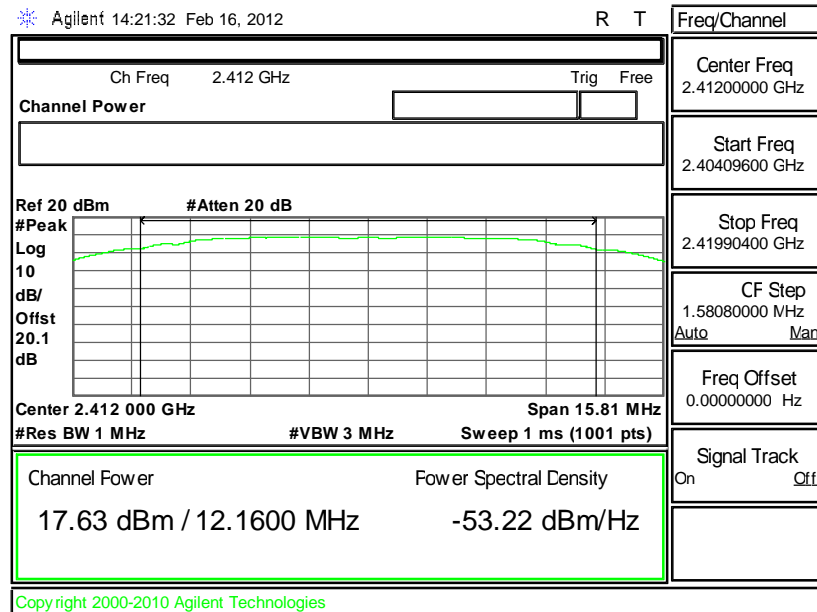


3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

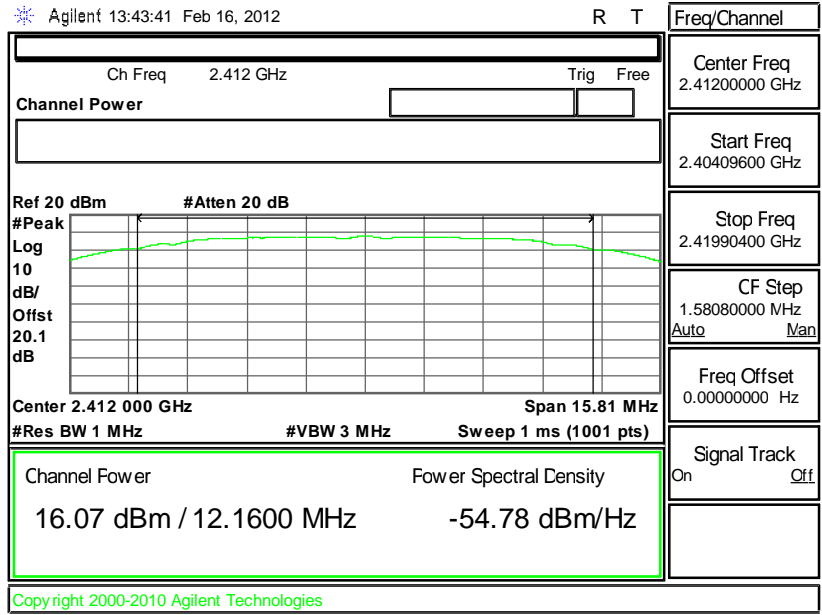
Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	17.63	16.07	13.67	12.10	30	Pass
06	2437	16.11	14.90	11.96	10.67	30	Pass
11	2462	14.70	13.58	10.60	9.56	30	Pass

Mode 1 : Output Power Plot on 802.11b Channel 01 – Chain A

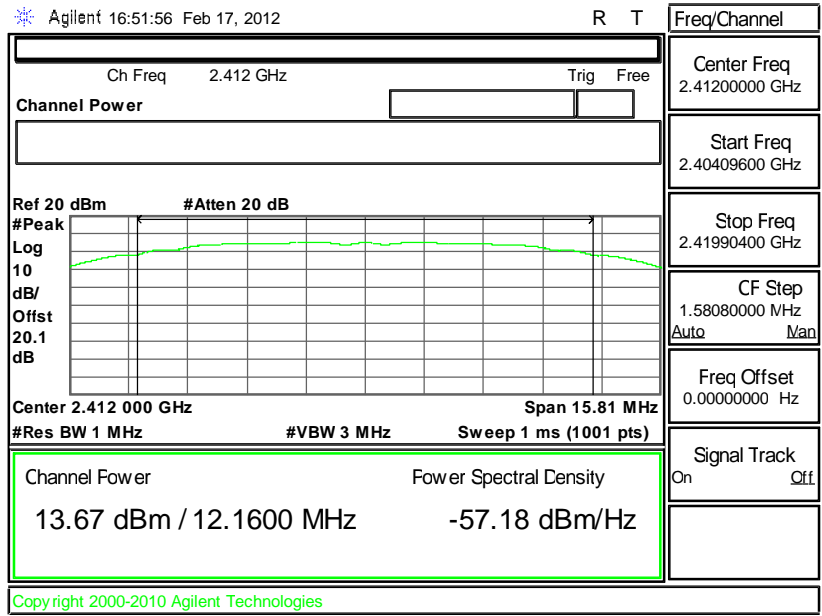




Mode 1 : Output Power Plot on 802.11b Channel 01 – Chain B



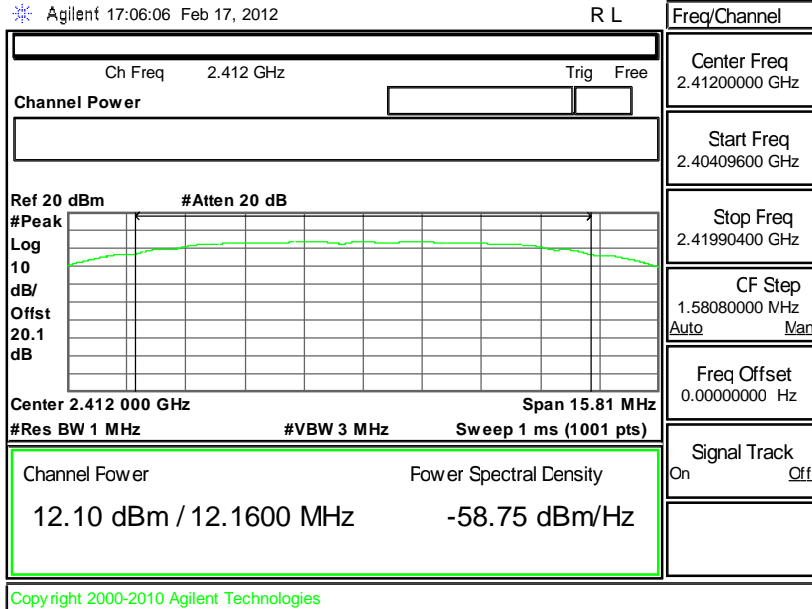
Mode 1 : Output Power Plot on 802.11b Channel 01 – Chain A+B(A)



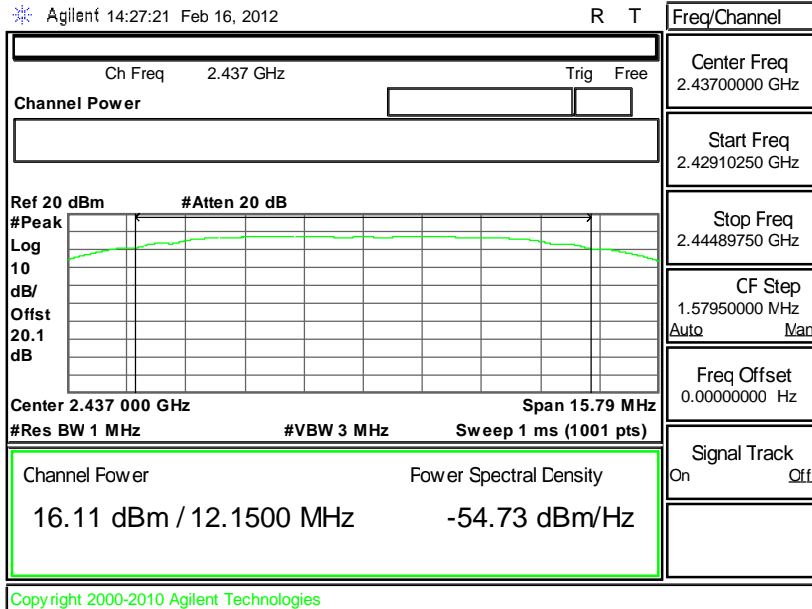


Mode 1 : Output Power Plot on 802.11b Channel 01 – Chain

A+B(B)

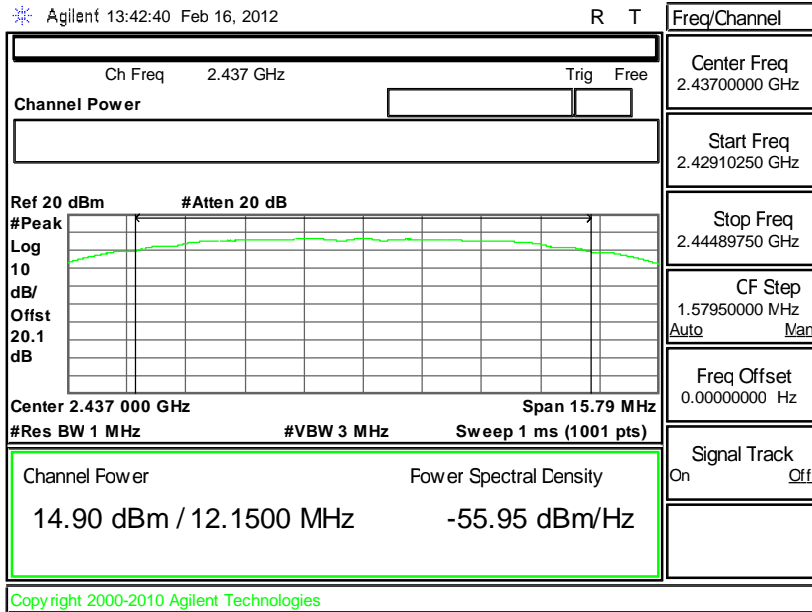


Mode 2 : Output Power Plot on 802.11b Channel 06 – Chain A

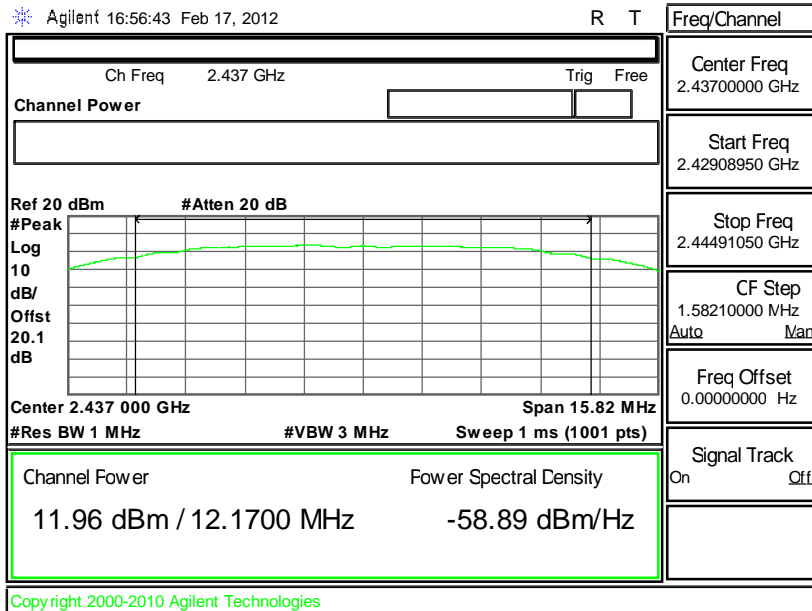




Mode 2 : Output Power Plot on 802.11b Channel 06 – Chain B



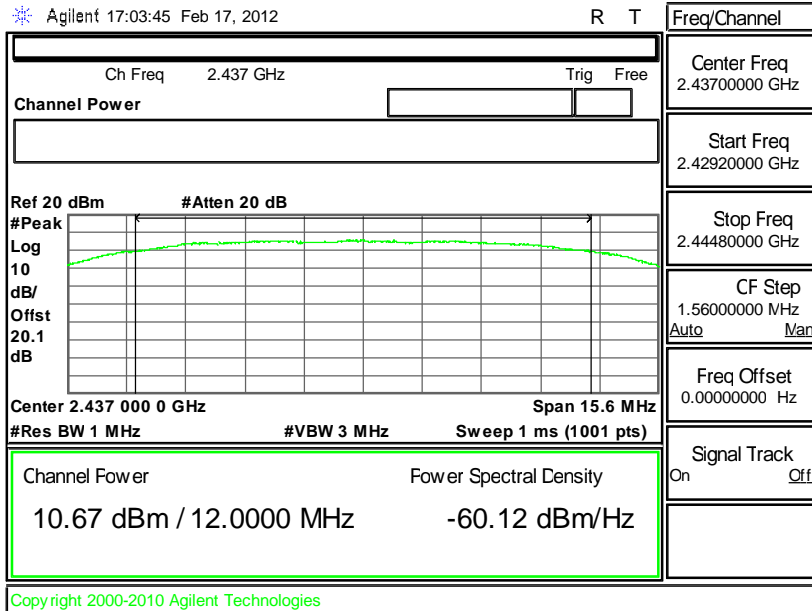
Mode 2 : Output Power Plot on 802.11b Channel 06 – Chain A+B(A)



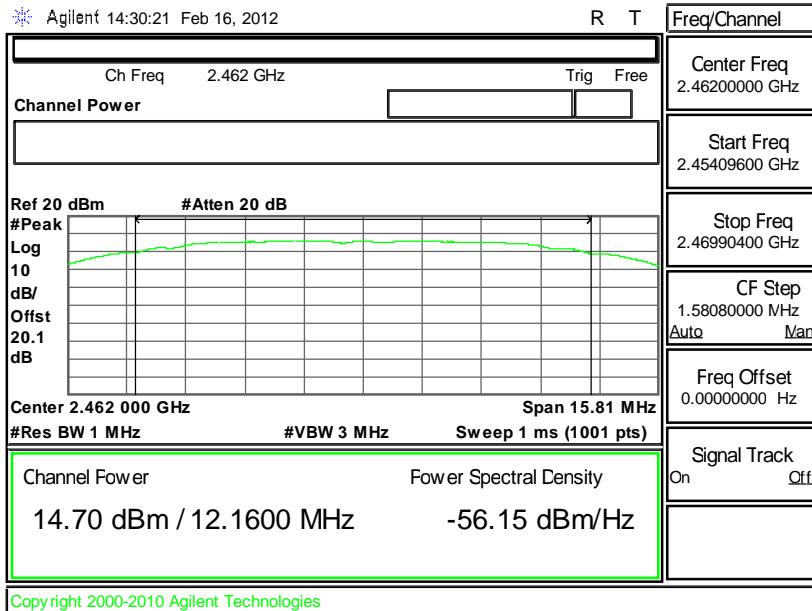


Mode 2 : Output Power Plot on 802.11b Channel 06 – Chain

A+B(B)

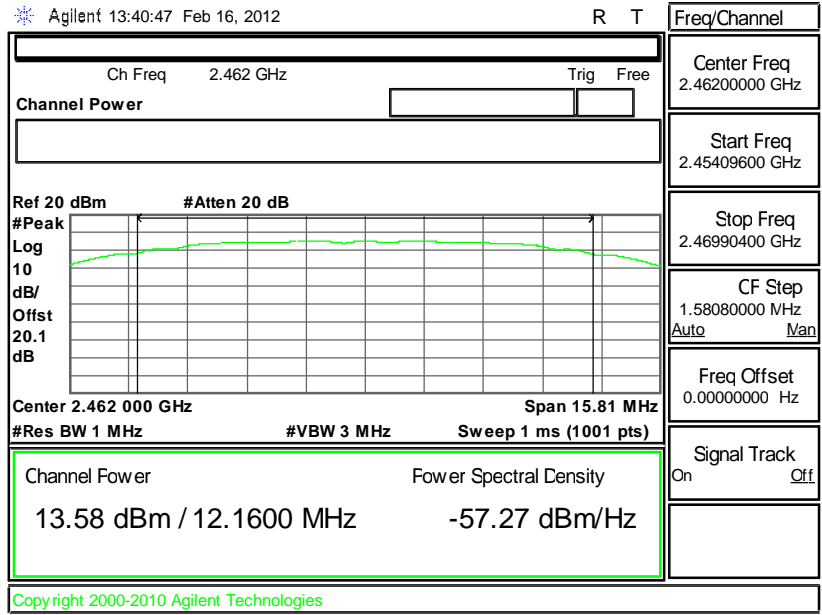


Mode 3 : Output Power Plot on 802.11b Channel 11 – Chain A

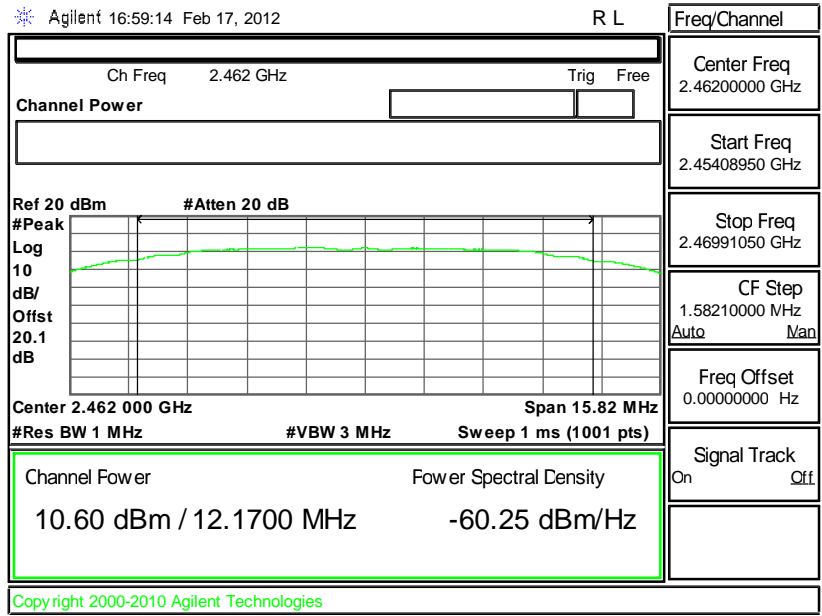




Mode 3 : Output Power Plot on 802.11b Channel 11 – Chain B



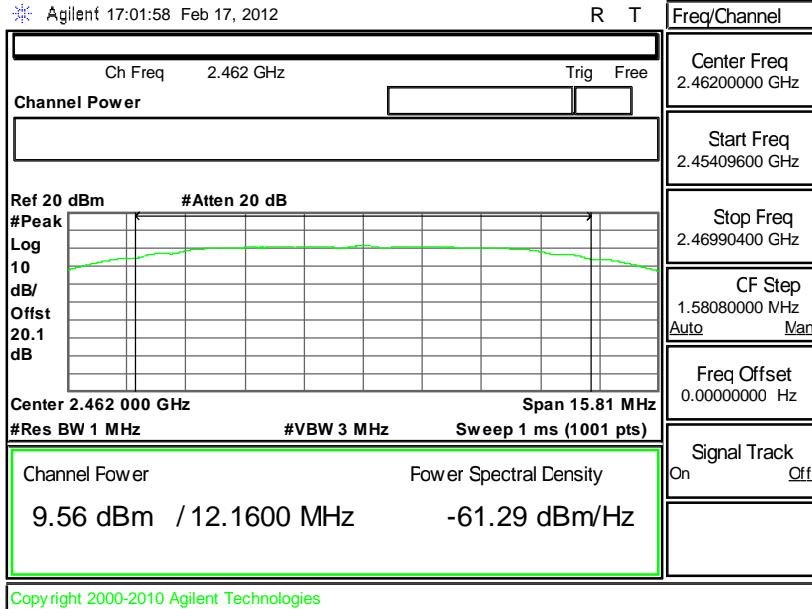
Mode 3 : Output Power Plot on 802.11b Channel 11 – Chain A+B(A)





Mode 3 : Output Power Plot on 802.11b Channel 11 – Chain

A+B(B)

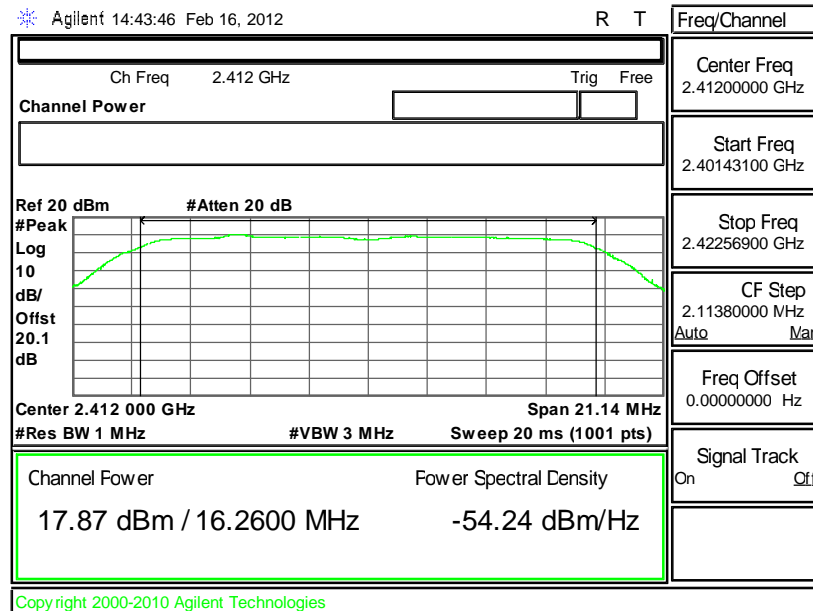




Test Mode :	Mode 4, 5, 6	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

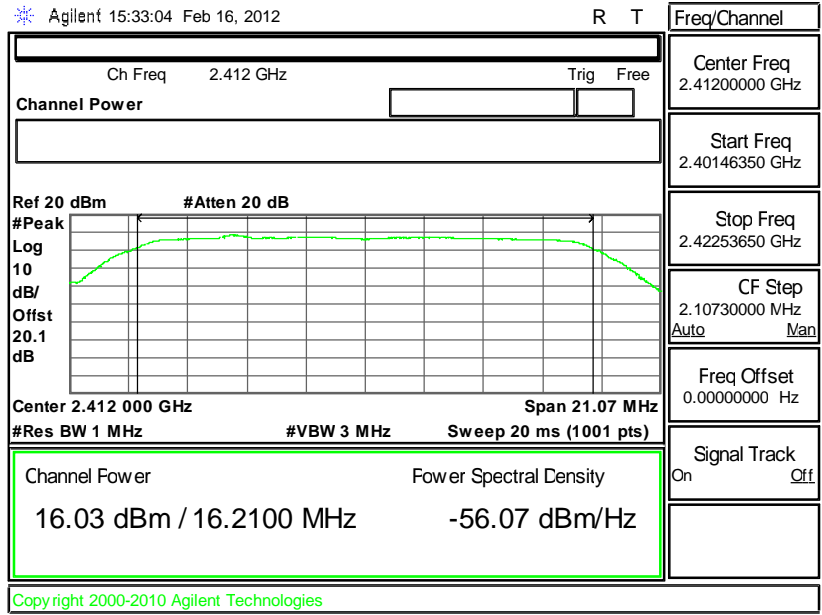
Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	17.87	16.03	14.4	12.53	30	Pass
06	2437	16.25	14.27	12.08	10.62	30	Pass
11	2462	14.65	12.63	10.35	8.86	30	Pass

Mode 4 : Output Power Plot on 802.11g Channel 01 – Chain A

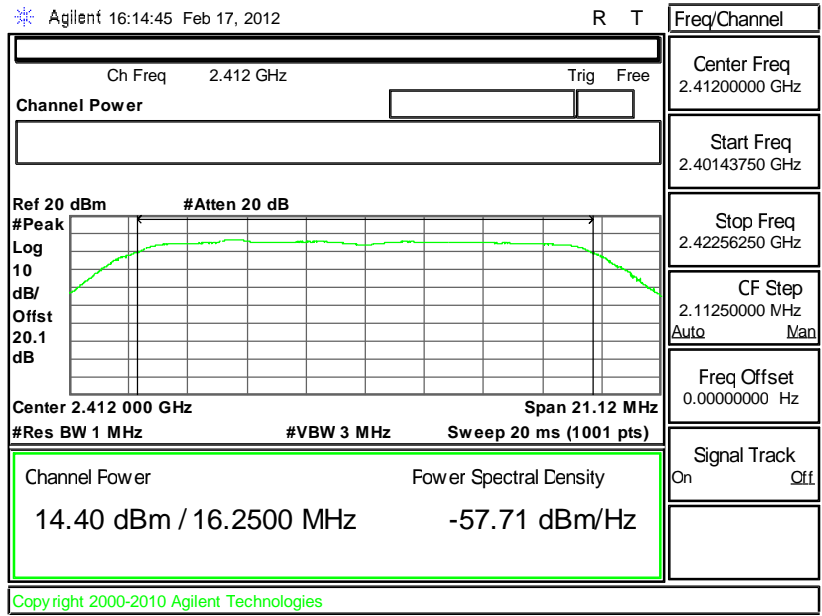




Mode 4 : Output Power Plot on 802.11g Channel 01 – Chain B



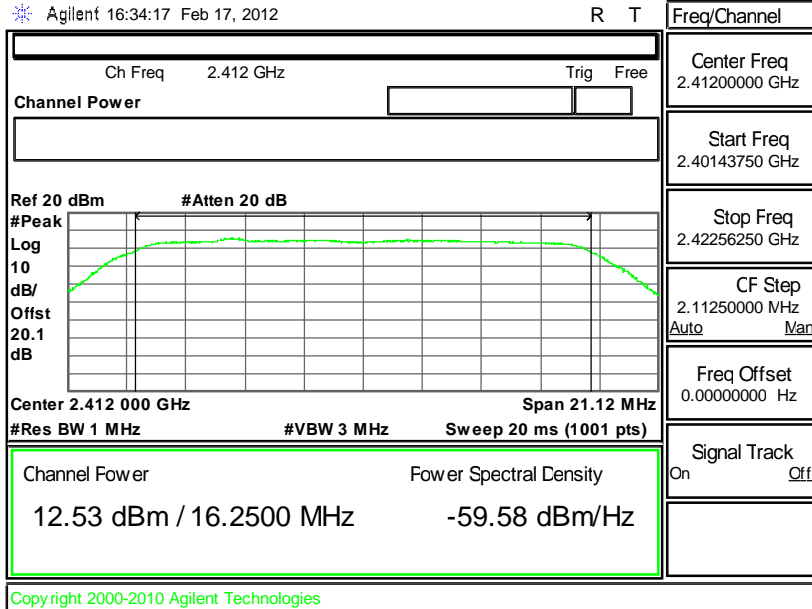
Mode 4 : Output Power Plot on 802.11g Channel 01 – Chain A+B(A)



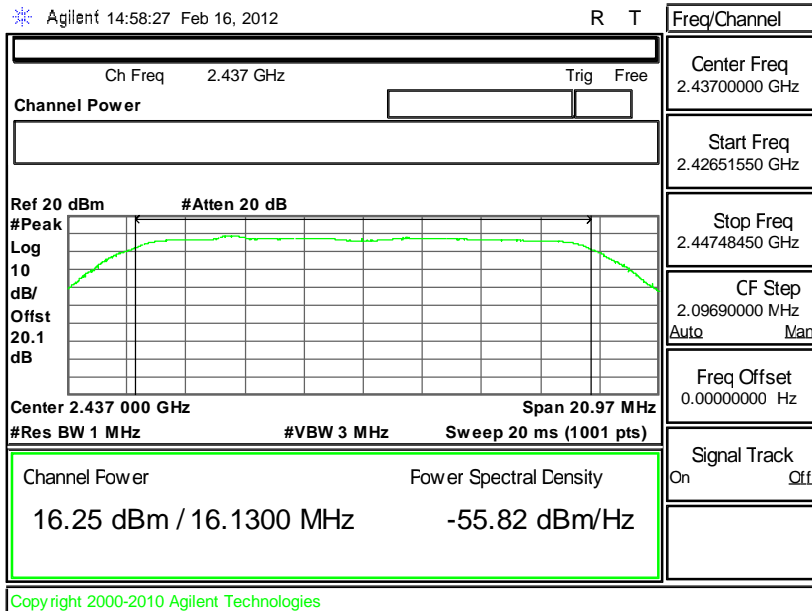


Mode 4 : Output Power Plot on 802.11g Channel 01 – Chain

A+B(B)

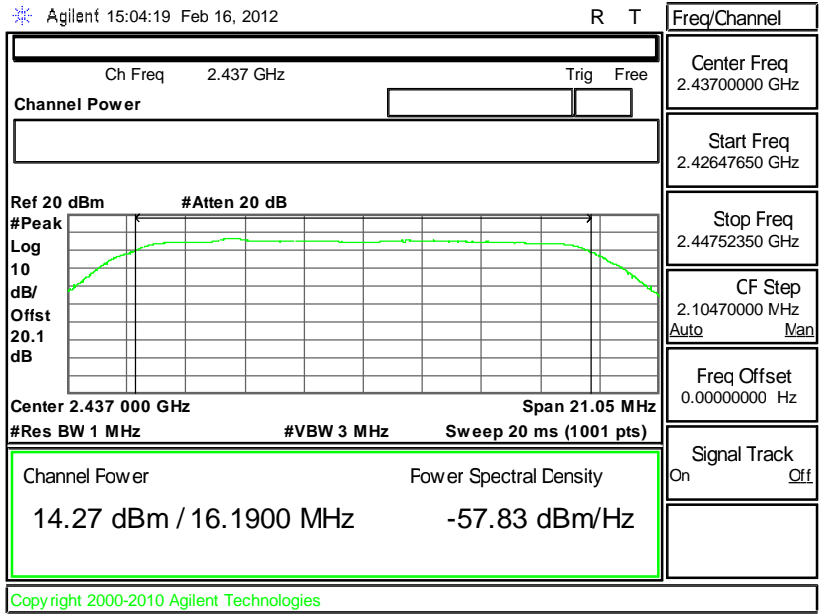


Mode 5 : Output Power Plot on 802.11g Channel 06 – Chain A

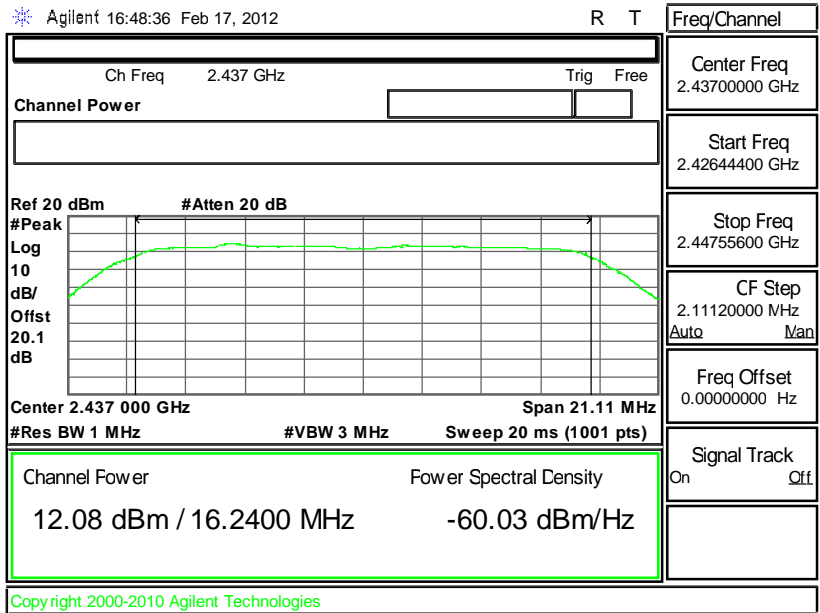




Mode 5 : Output Power Plot on 802.11g Channel 06 – Chain B



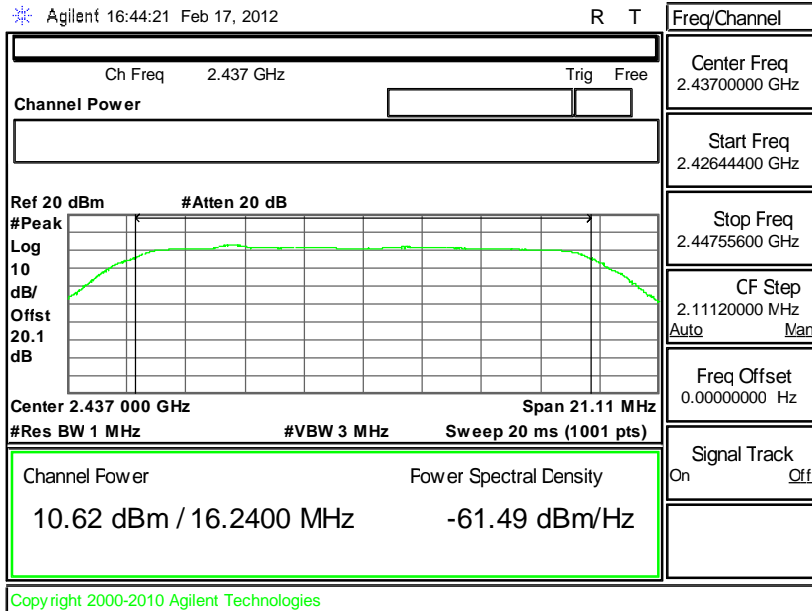
Mode 5 : Output Power Plot on 802.11g Channel 06 – Chain A+B(A)



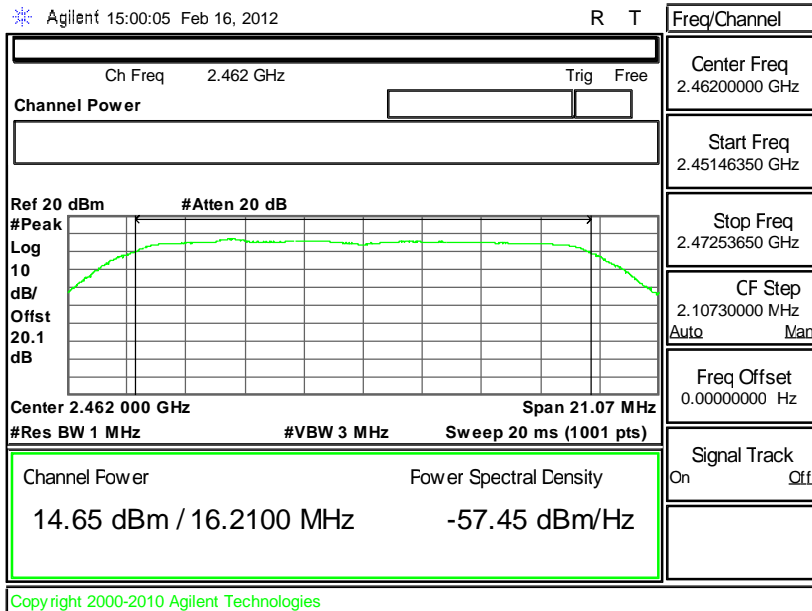


Mode 5 : Output Power Plot on 802.11g Channel 06 – Chain

A+B(B)

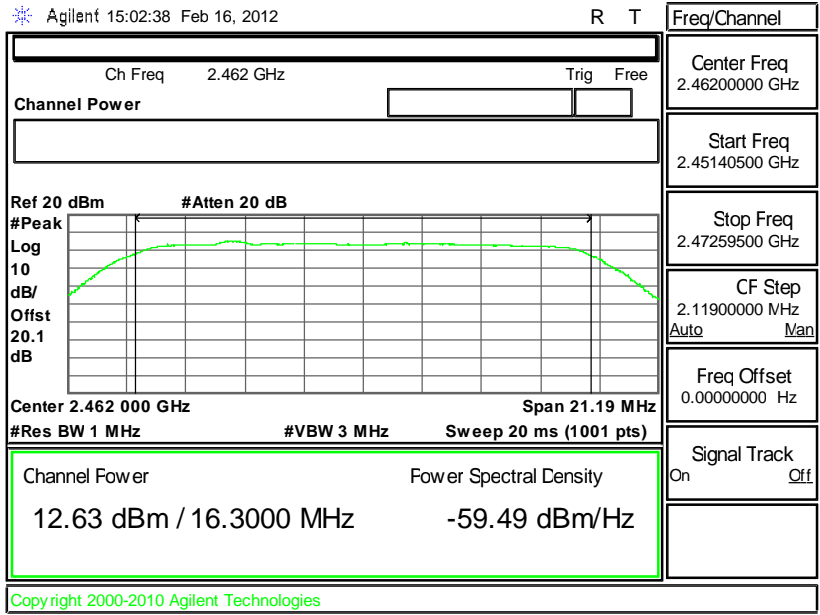


Mode 6 : Output Power Plot on 802.11g Channel 11 – Chain A

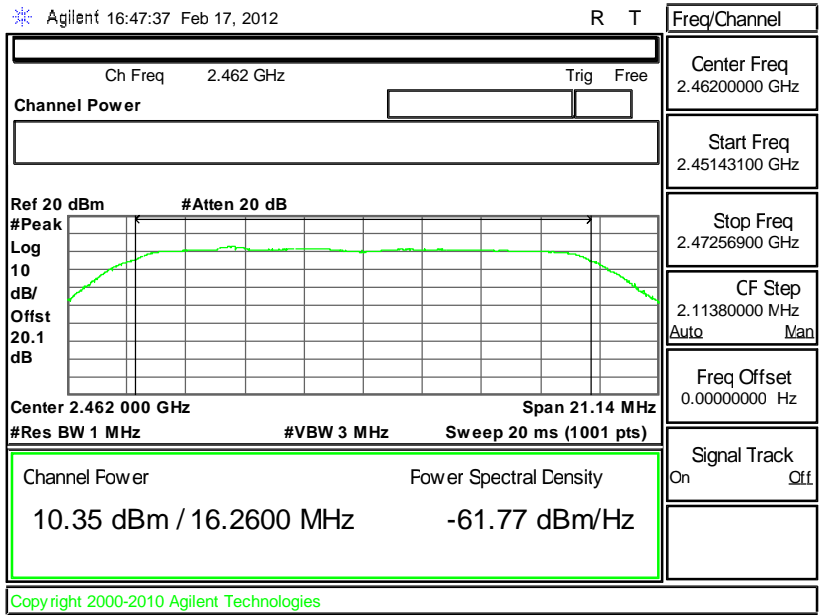




Mode 6 : Output Power Plot on 802.11g Channel 11 – Chain B



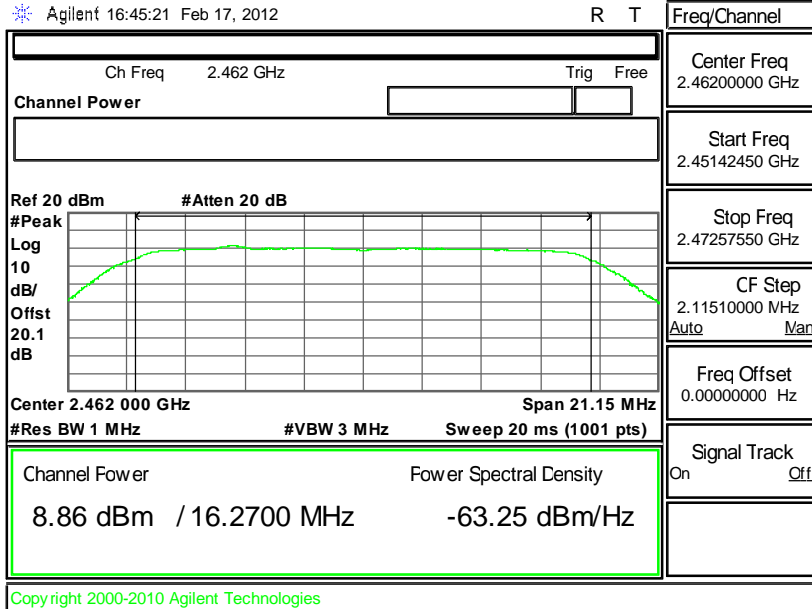
Mode 6 : Output Power Plot on 802.11g Channel 11 – Chain A+B(A)





Mode 6 : Output Power Plot on 802.11g Channel 11 – Chain

A+B(B)



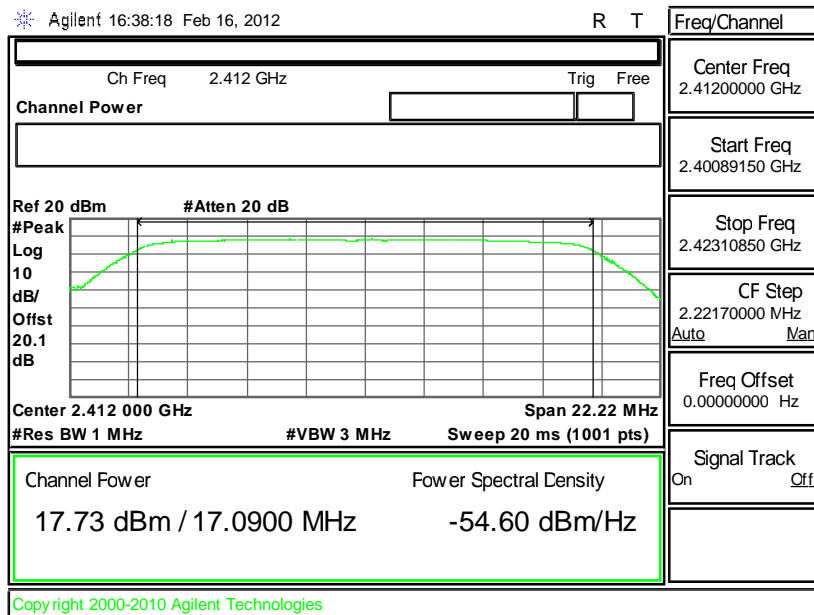


Test Mode :	Mode 7, 8, 9	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
01	2412	17.73	16.07	14.16	13.56	30	Pass
06	2437	16.31	14.73	12.19	10.76	30	Pass
11	2462	14.72	13.1	10.83	8.93	30	Pass

Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel

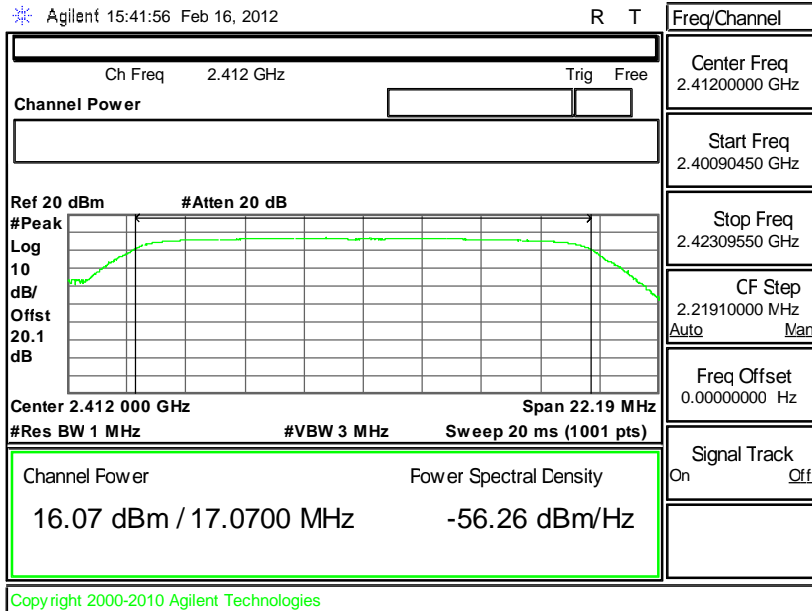
01 – Chain A





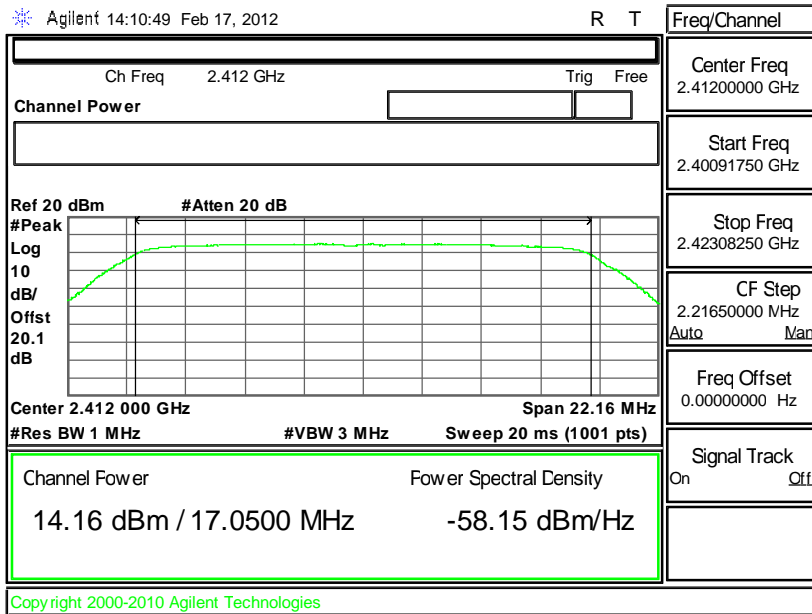
Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel

01 – Chain B



Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel

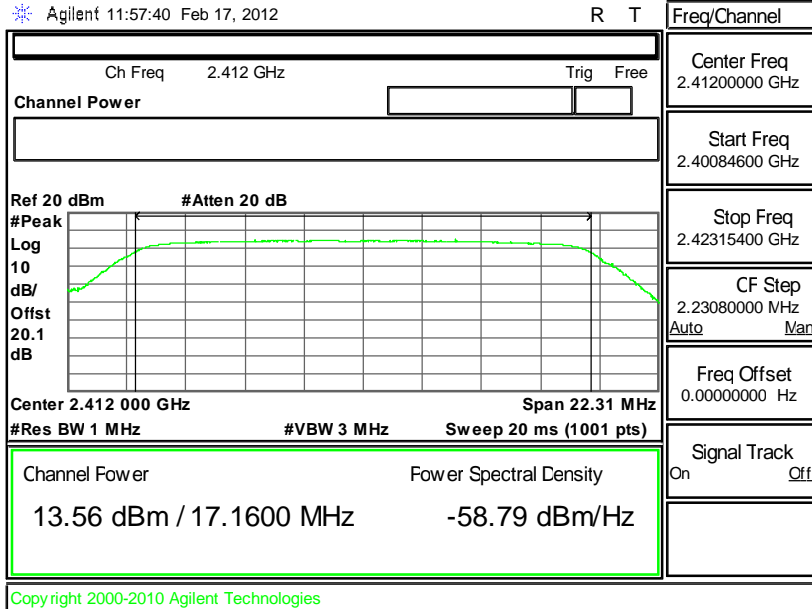
01 – Chain A+B(A)





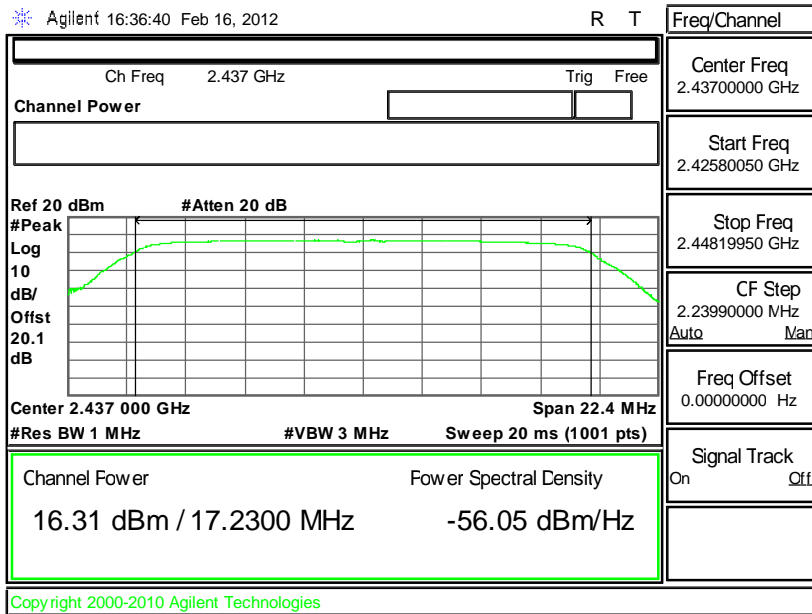
Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel

01 – Chain A+B(B)



Mode 8 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

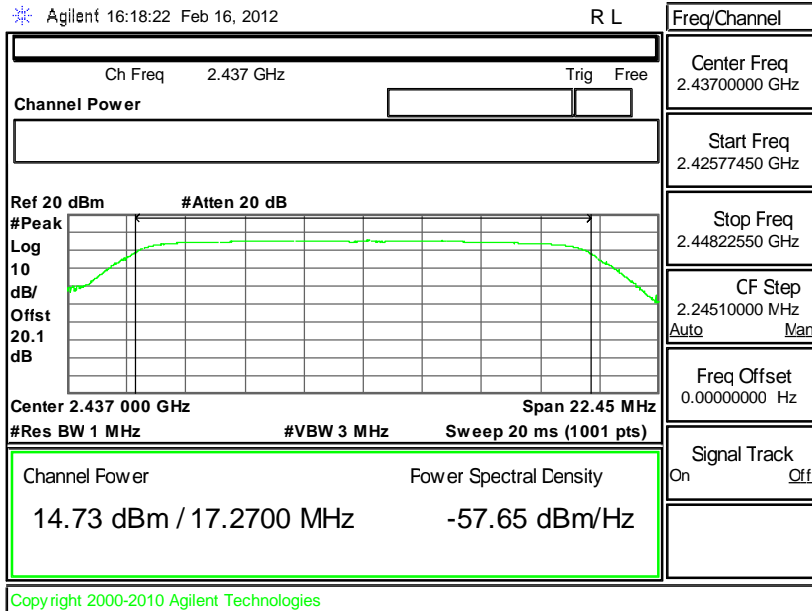
06 – Chain A





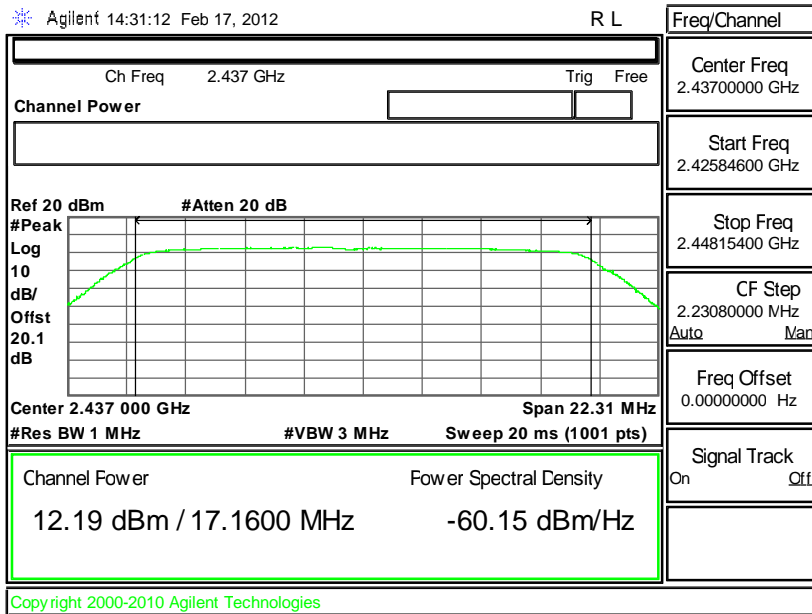
Mode 8 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

06 – Chain B



Mode 8 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

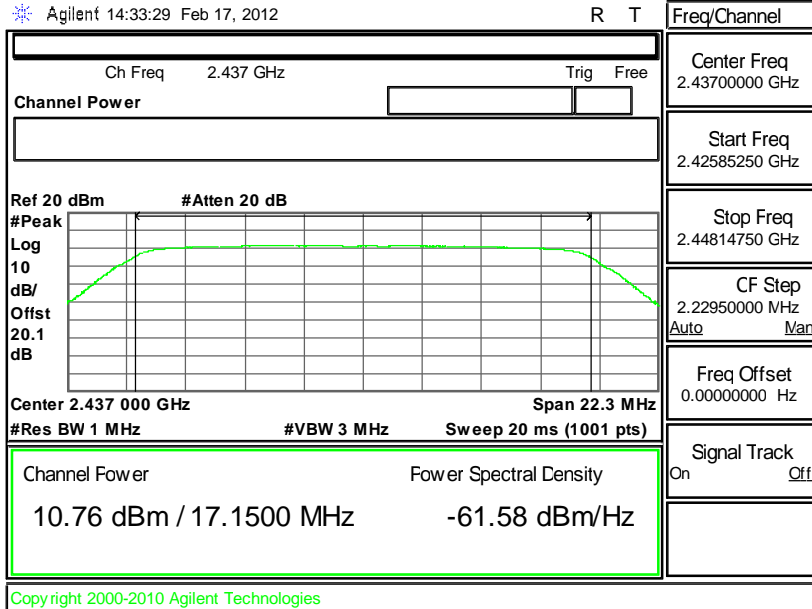
06 – Chain A+B(A)





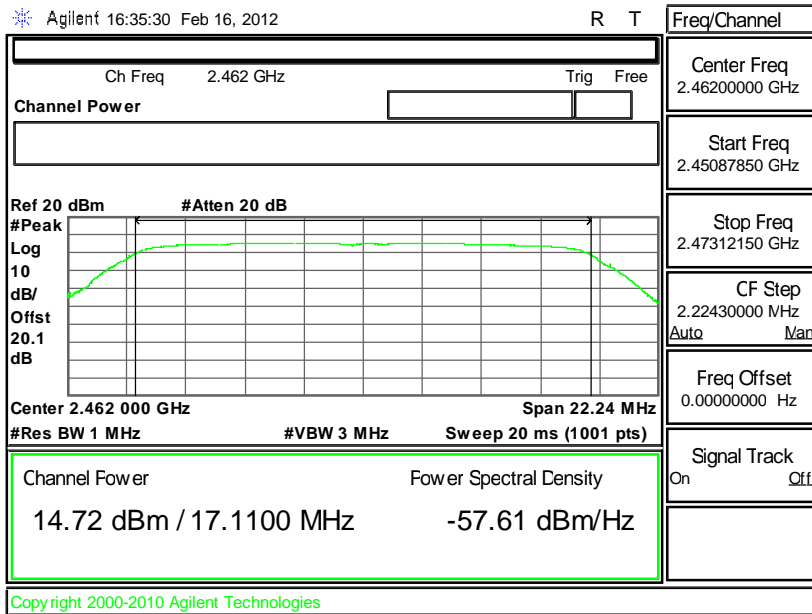
Mode 8 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

06 – Chain A+B(B)



Mode 9 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

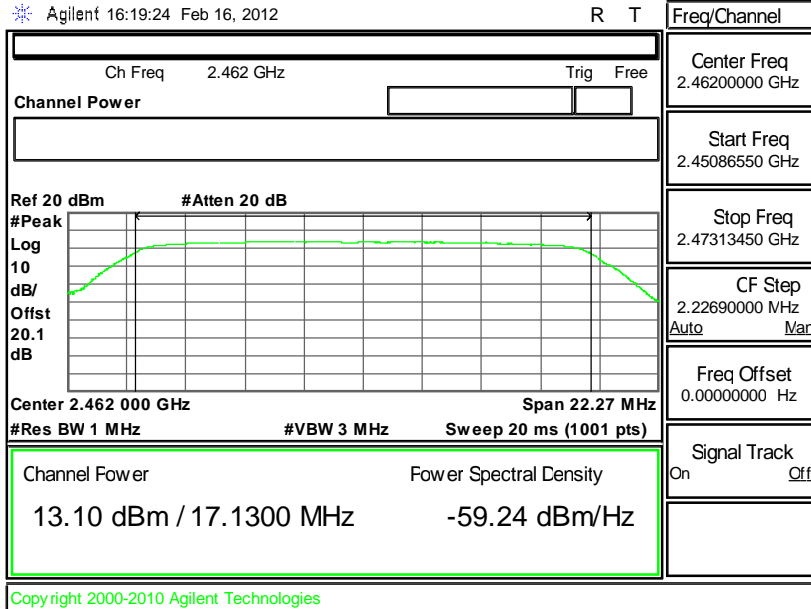
11 – Chain A





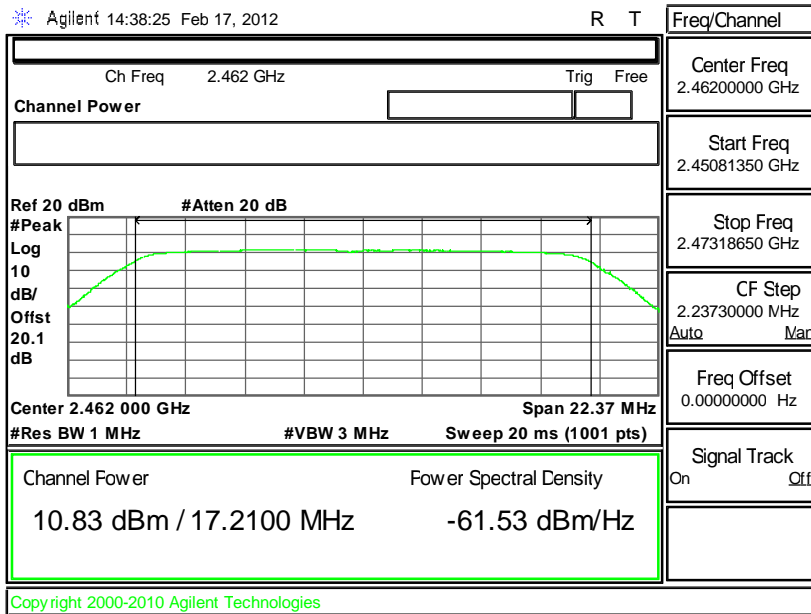
Mode 9 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

11 – Chain B



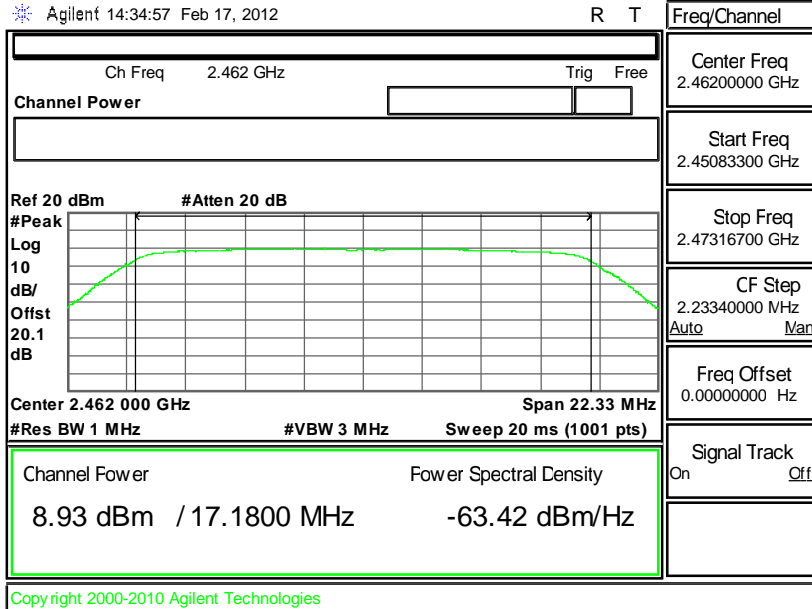
Mode 9 : Output Power Plot on 802.11g/n (BW 20MHz) Channel

11 – Chain A+B(A)





Mode 9 : Output Power Plot on 802.11g/n (BW 20MHz) Channel
11 – Chain A+B(B)



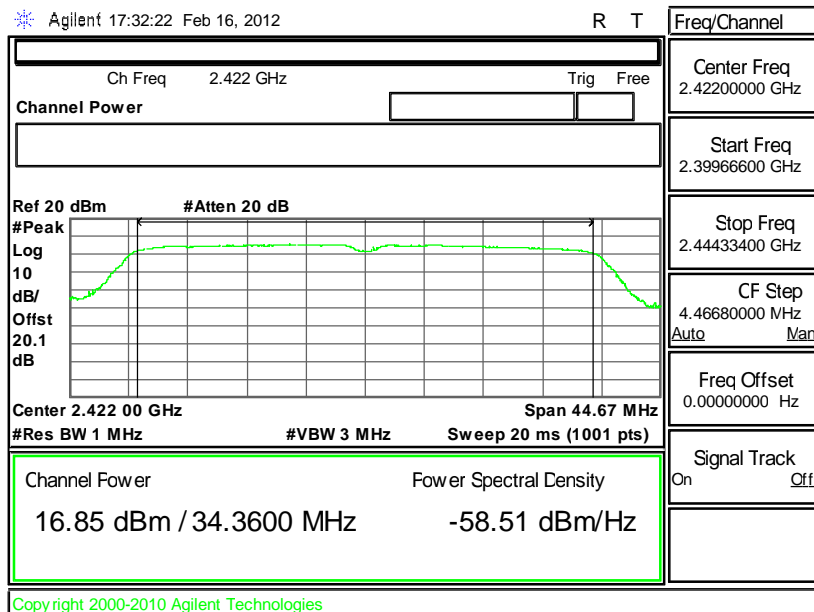


Test Mode :	Mode 10, 11, 12	Temperature :	23~26
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55

Channel	Frequency (MHz)	802.11g/n (BW 40MHz) Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B(A)	Chain A+B(B)		
03	2422	16.85	15.00	13.67	12.17	30	Pass
06	2437	15.78	14.14	11.91	10.44	30	Pass
09	2452	14.86	13.16	11.04	9.44	30	Pass

Mode 10: Output Power Plot on 802.11g/n (BW 40MHz) channel

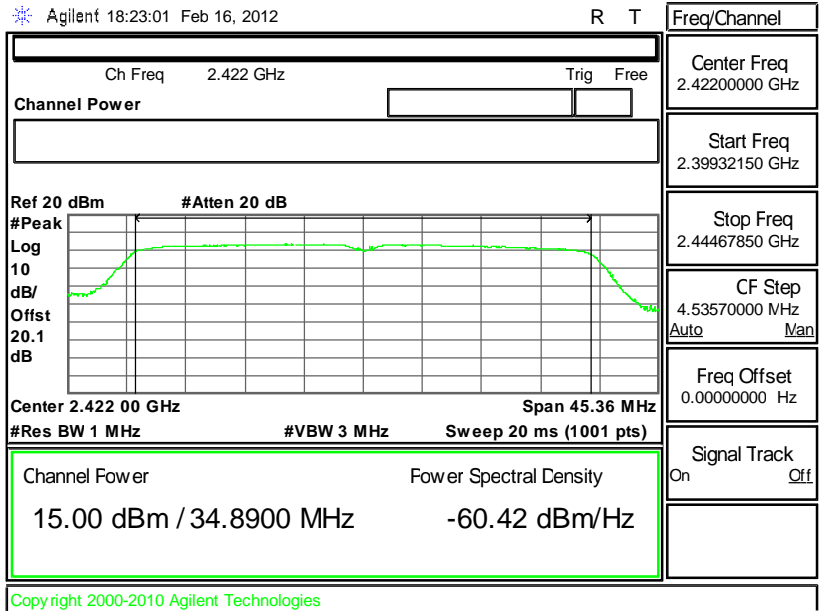
03 – Chain A





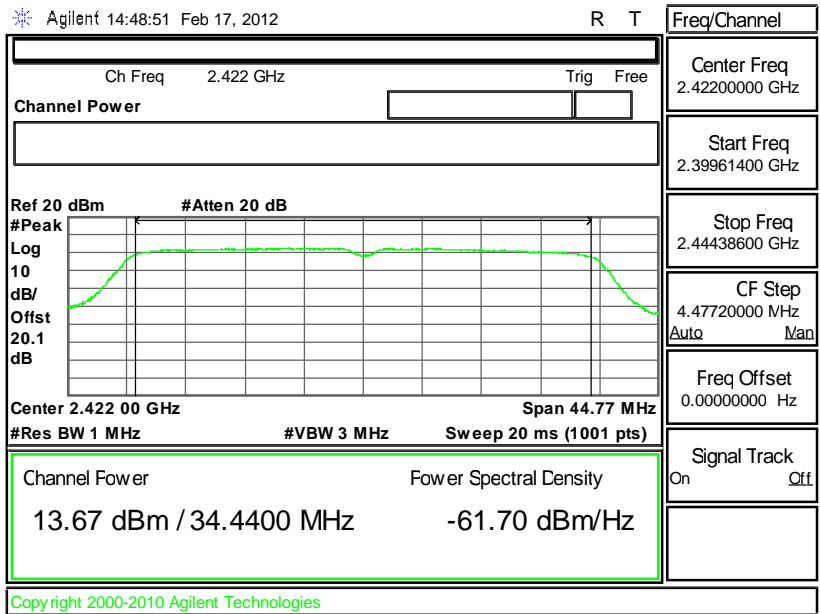
Mode 10: Output Power Plot on 802.11g/n (BW 40MHz) channel

03 – Chain B



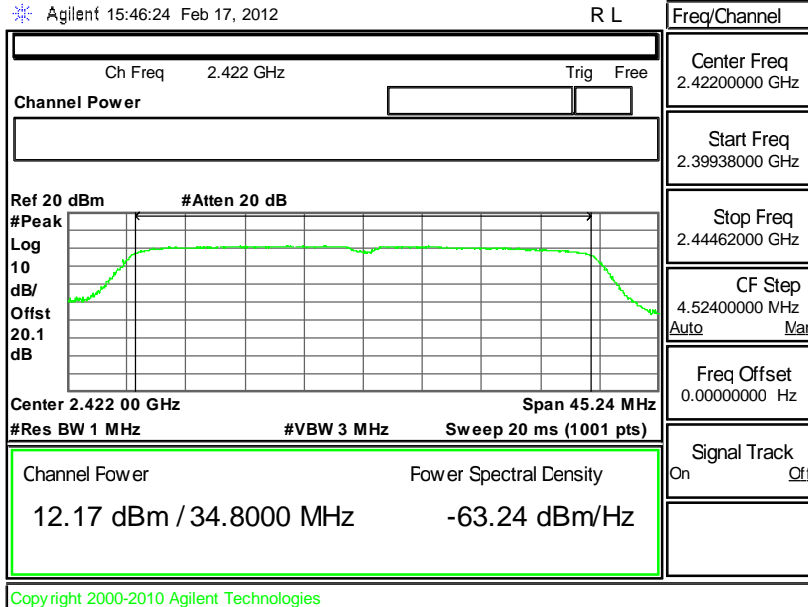
Mode 10: Output Power Plot on 802.11g/n (BW 40MHz) channel

03 – Chain A+B(A)

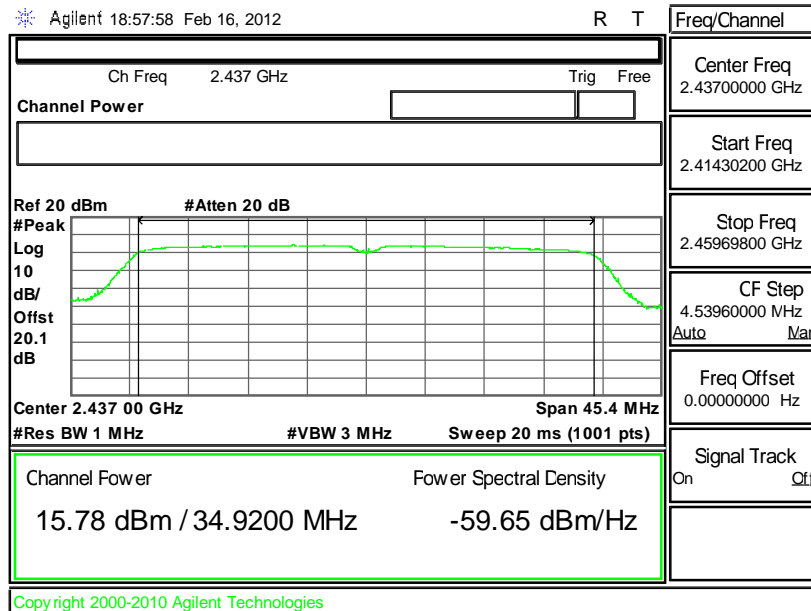




**Mode 10: Output Power Plot on 802.11g/n (BW 40MHz) channel
03 – Chain A+B(B)**



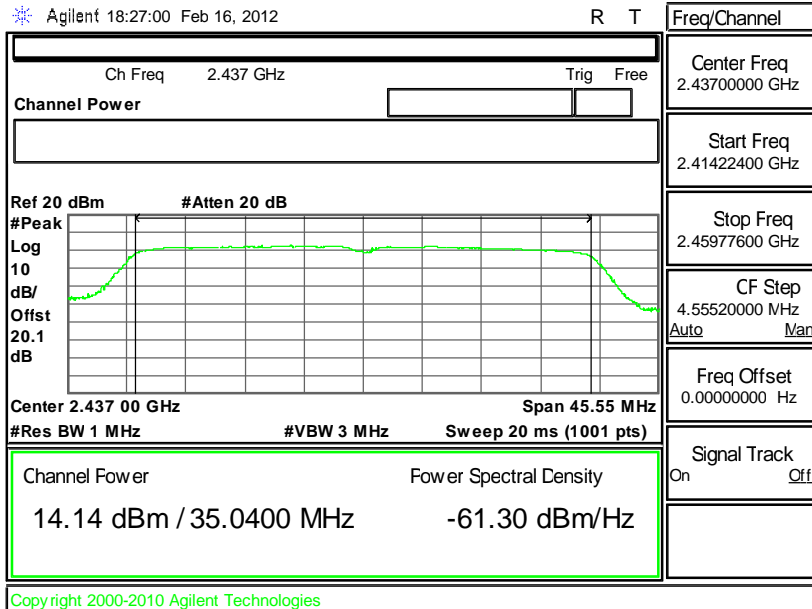
**Mode 11: Output Power Plot on 802.11g/n (BW 40MHz) channel
06 – Chain A**





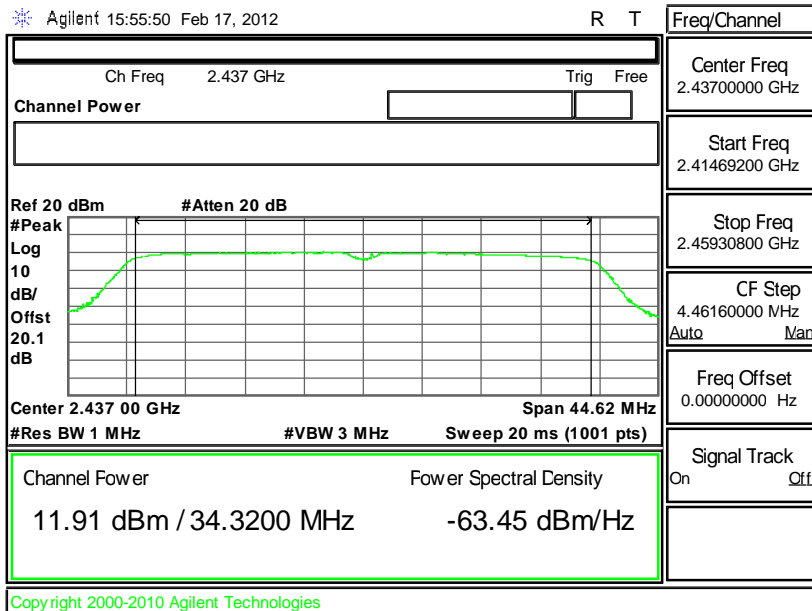
Mode 11: Output Power Plot on 802.11g/n (BW 40MHz) channel

06 – Chain B



Mode 11: Output Power Plot on 802.11g/n (BW 40MHz) channel

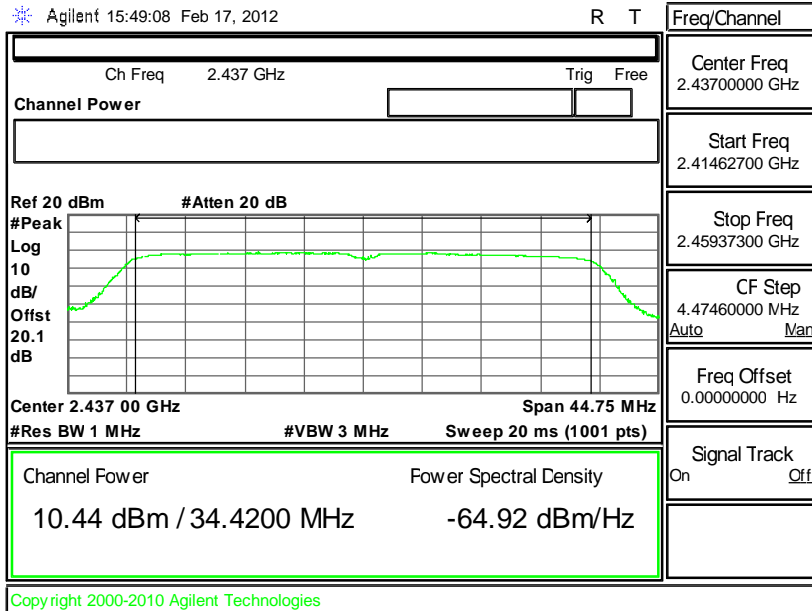
06 – Chain A+B(A)





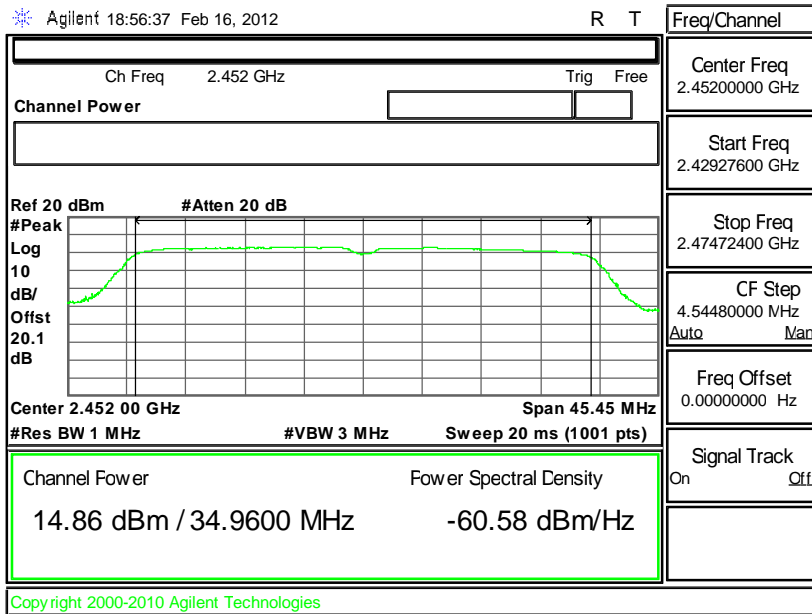
Mode 11: Output Power Plot on 802.11g/n (BW 40MHz) channel

06 – Chain A+B(B)



Mode 12: Output Power Plot on 802.11g/n (BW 40MHz) channel

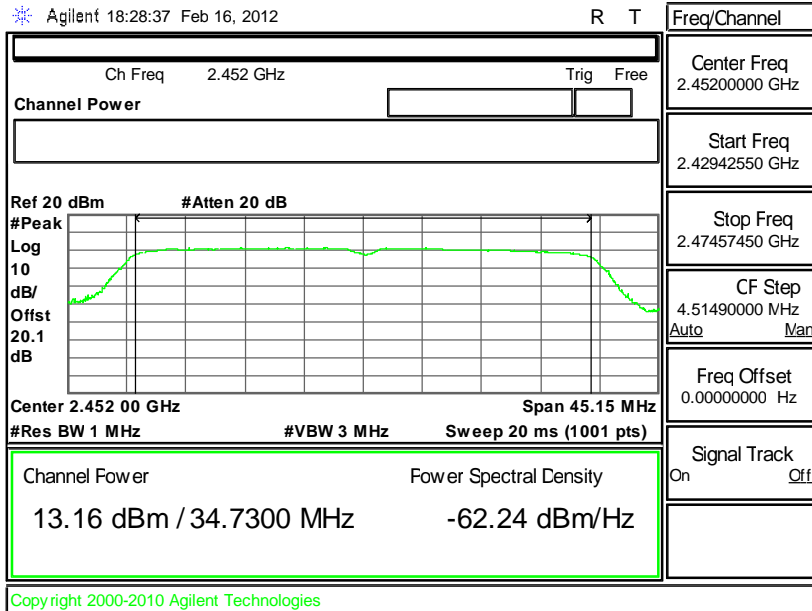
09 – Chain A





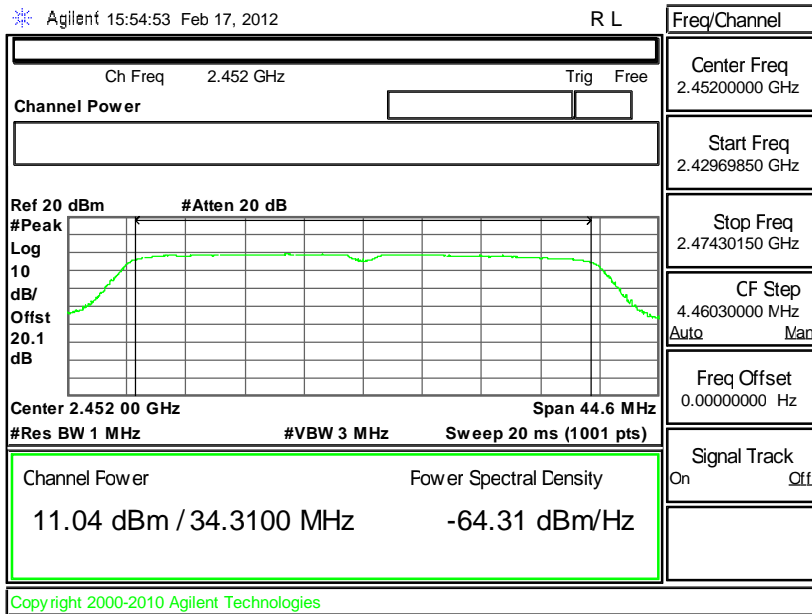
Mode 12: Output Power Plot on 802.11g/n (BW 40MHz) channel

09 – Chain B



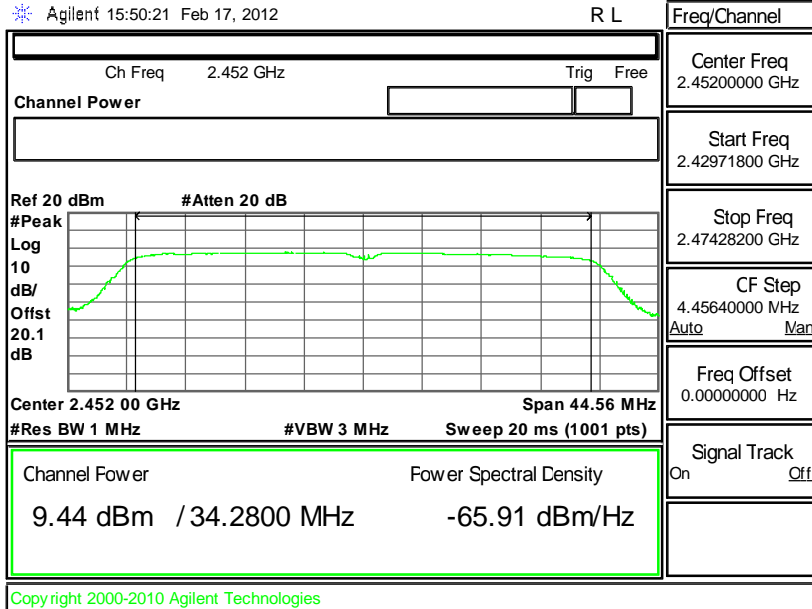
Mode 12: Output Power Plot on 802.11g/n (BW 40MHz) channel

09 – Chain A+B(A)





Mode 12: Output Power Plot on 802.11g/n (BW 40MHz) channel
09 – Chain A+B(B)





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

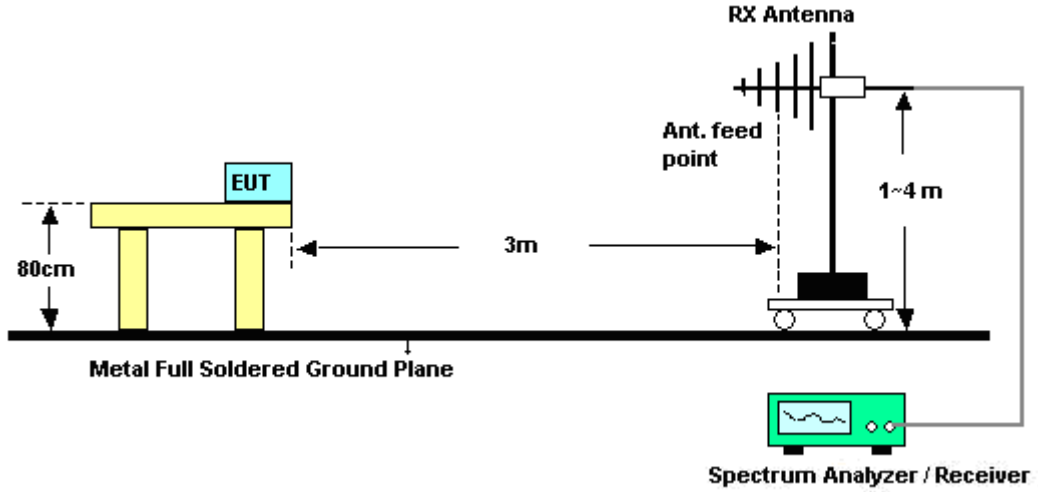
See list of measuring instruments of this test report.

3.3.3 Test Procedures

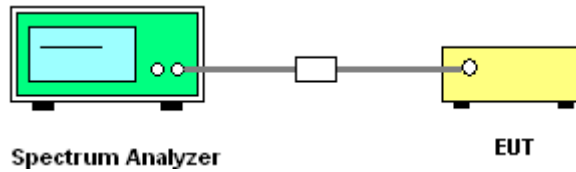
1. The testing follows the guidelines in ANSI C63.4-2003 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) \geq RBW. Out of the authorized frequency band emissions must be at least 20 dB lower than the highest emission level within the authorized band as measured with a 100 KHz RBW. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
3. Radiated emission test: Apply to band edge emissions that falling on 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 measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, then modify the unit for continuous operation. Use the settings in this paragraph to correct the reading level by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation per 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 :	20~22°C
Test Band :	802.11b	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382.01	49.94	-24.06	74	49.24	32	4.58	35.88	100	270	Peak
2382.01	37.81	-16.19	54	37.11	32	4.58	35.88	100	270	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	51.69	-22.31	74	50.95	32.02	4.58	35.86	122	143	Peak
2389.8	40.19	-13.81	54	39.45	32.02	4.58	35.86	122	143	Average

Test Mode :	Mode 3	Temperature :	20~22°C
Test Band :	802.11b	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2485.18	49.14	-24.86	74	48.22	32.09	4.64	35.81	100	271	Peak
2485.18	36.9	-17.1	54	35.98	32.09	4.64	35.81	100	271	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	49.21	-24.79	74	48.29	32.09	4.64	35.81	100	17	Peak
2484.42	36.57	-17.43	54	35.65	32.09	4.64	35.81	100	17	Average



Test Mode :	Mode 7	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	57.97	-16.03	74	57.23	32.02	4.58	35.86	105	274	Peak
2389.99	41.6	-12.4	54	40.86	32.02	4.58	35.86	105	274	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	64.68	-9.32	74	63.96	32.02	4.58	35.88	112	90	Peak
2389.42	47.98	-6.02	54	47.26	32.02	4.58	35.88	112	90	Average

Test Mode :	Mode 9	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	54.71	-19.29	74	53.79	32.09	4.64	35.81	100	284	Peak
2483.5	38.77	-15.23	54	37.85	32.09	4.64	35.81	100	284	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	53.76	-20.24	74	52.84	32.09	4.64	35.81	100	0	Peak
2483.5	39.15	-14.85	54	38.23	32.09	4.64	35.81	100	0	Average



Test Mode :	Mode 10	Temperature :	20~22°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	54.2	-19.8	74	53.46	32.02	4.58	35.86	102	274	Peak
2389.8	38.99	-15.01	54	38.25	32.02	4.58	35.86	102	274	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	60.38	-13.62	74	59.66	32.02	4.58	35.88	100	350	Peak
2389.61	43.55	-10.45	54	42.83	32.02	4.58	35.88	100	350	Average

Test Mode :	Mode 12	Temperature :	20~22°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	55.77	-18.23	74	54.85	32.09	4.64	35.81	101	274	Peak
2483.66	39.86	-14.14	54	38.94	32.09	4.64	35.81	101	274	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	56.24	-17.76	74	55.32	32.09	4.64	35.81	100	0	Peak
2484.42	39.64	-14.36	54	38.72	32.09	4.64	35.81	100	0	Average



Test Mode :	Mode 13	Temperature :	20~22°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	40~42%
Test Channel :	03	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.95	64.64	-9.36	74	63.92	32.02	4.58	35.88	172	70	Peak
2386.95	48.36	-5.64	54	47.64	32.02	4.58	35.88	172	70	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.95	67.65	-6.35	74	66.93	32.02	4.58	35.88	100	0	Peak
2386.95	49.66	-4.34	54	48.94	32.02	4.58	35.88	100	0	Average

Test Mode :	Mode 15	Temperature :	20~22°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	40~42%
Test Channel :	09	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.13	59.77	-14.23	74	58.85	32.09	4.64	35.81	101	276	Peak
2486.13	44.36	-9.64	54	43.44	32.09	4.64	35.81	101	276	Average

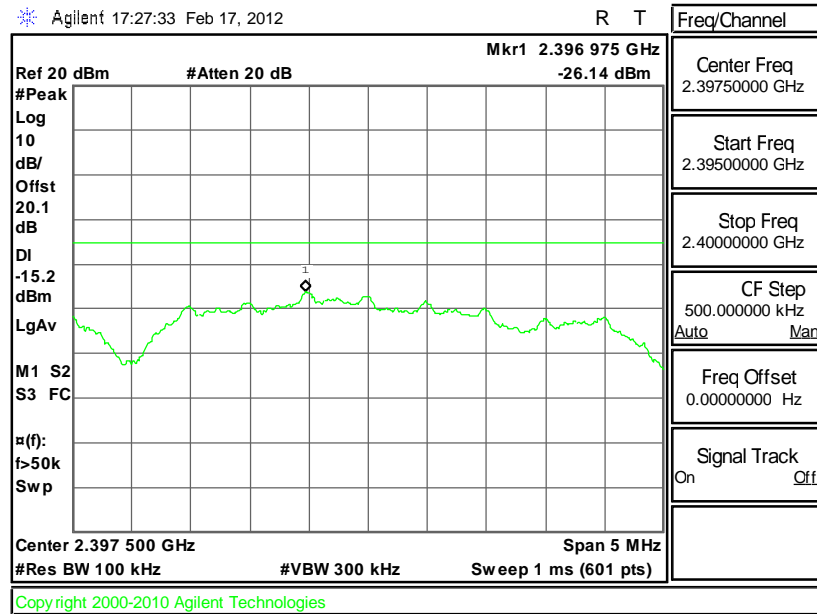
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.32	59.31	-14.69	74	58.39	32.09	4.64	35.81	100	0	Peak
2486.32	43.95	-10.05	54	43.03	32.09	4.64	35.81	100	0	Average



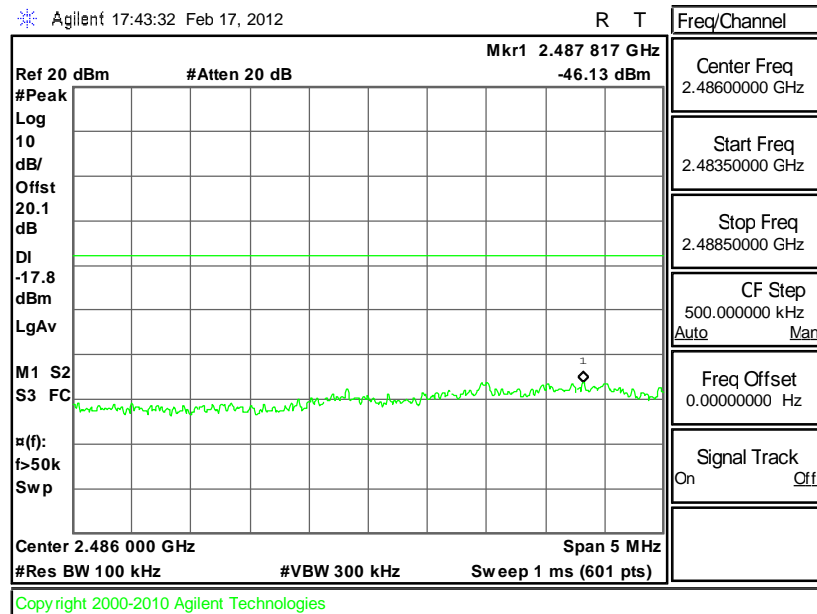
3.3.6 Test Plots of Conducted Band Edges

Test Mode :	Mode 1 and 3	Temperature :	23~26°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01



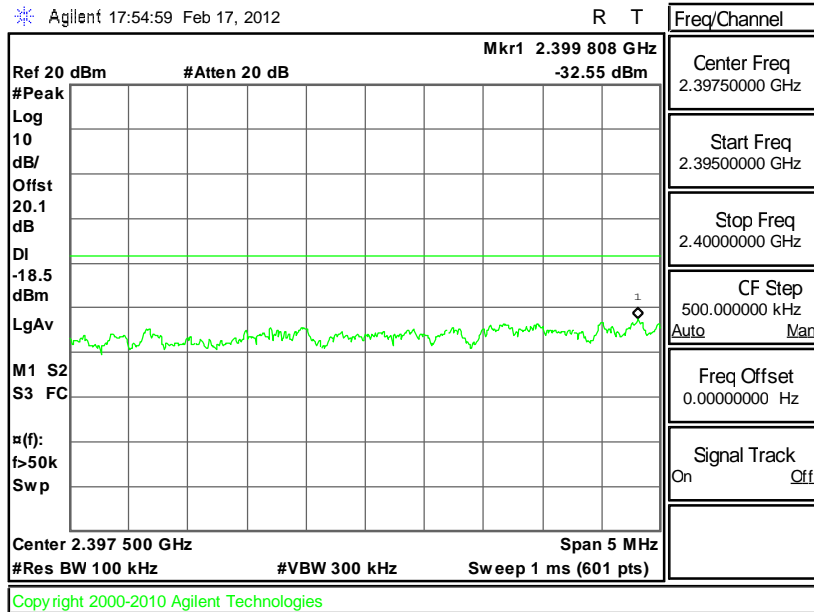
High Band Edge Plot on 802.11b Channel 11



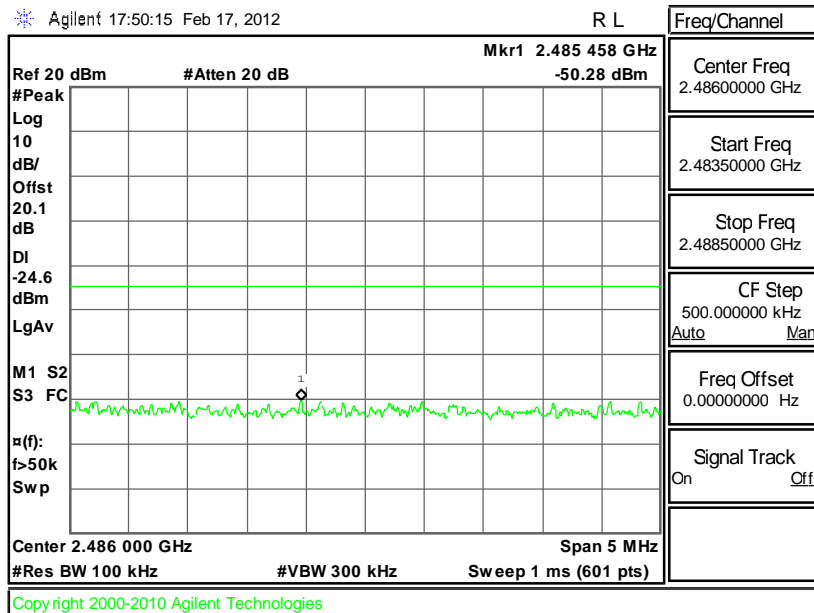


Test Mode :	Mode 4 and 6	Temperature :	23~26°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



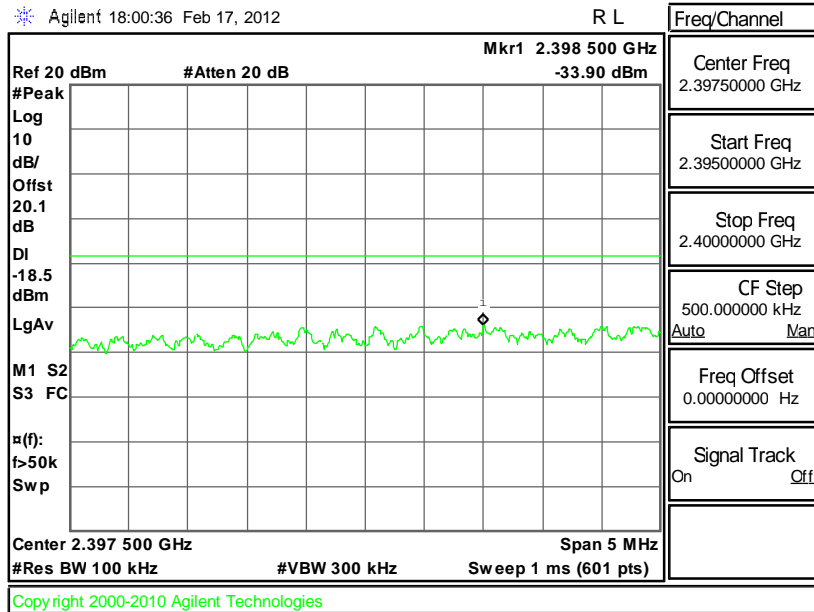
High Band Edge Plot on 802.11g Channel 11



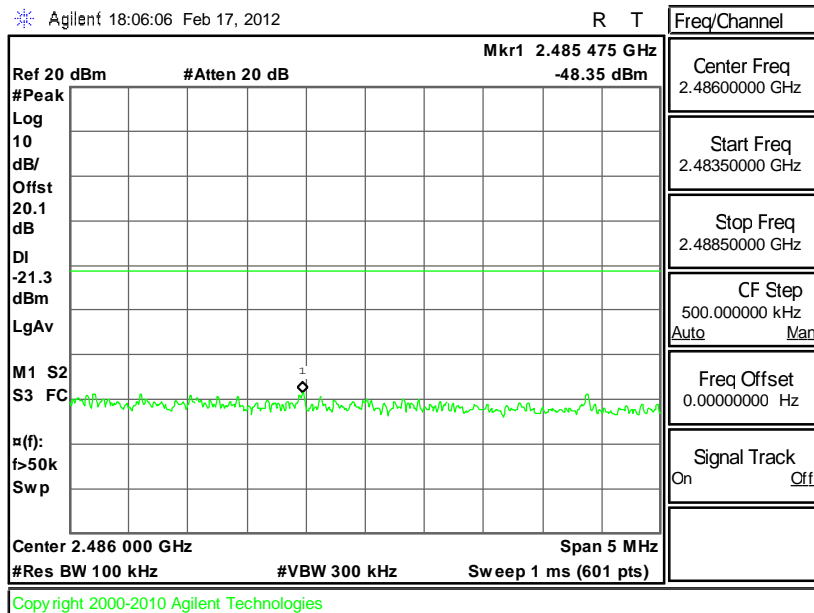


Test Mode :	Mode 7 and 9	Temperature :	23~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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



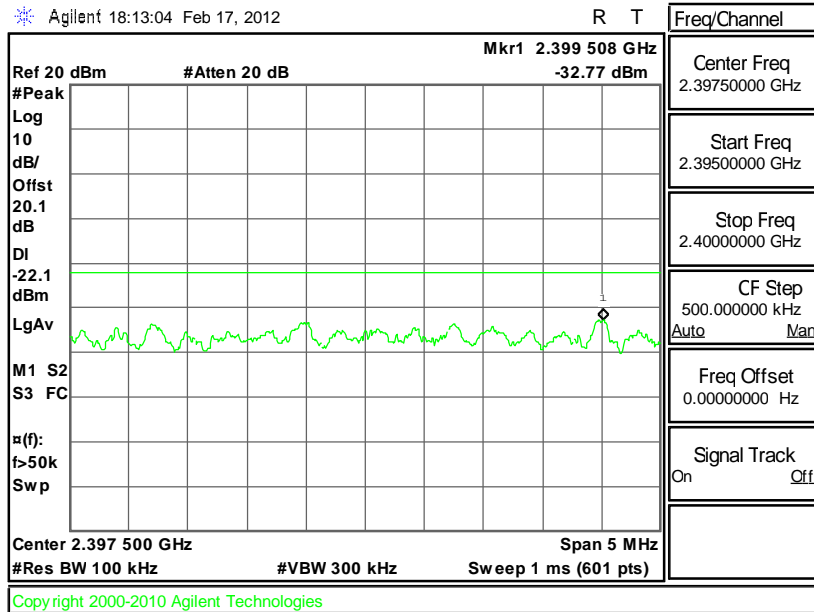
High Band Edge Plot on 802.11g/n (BW 20MHz) Channel 11



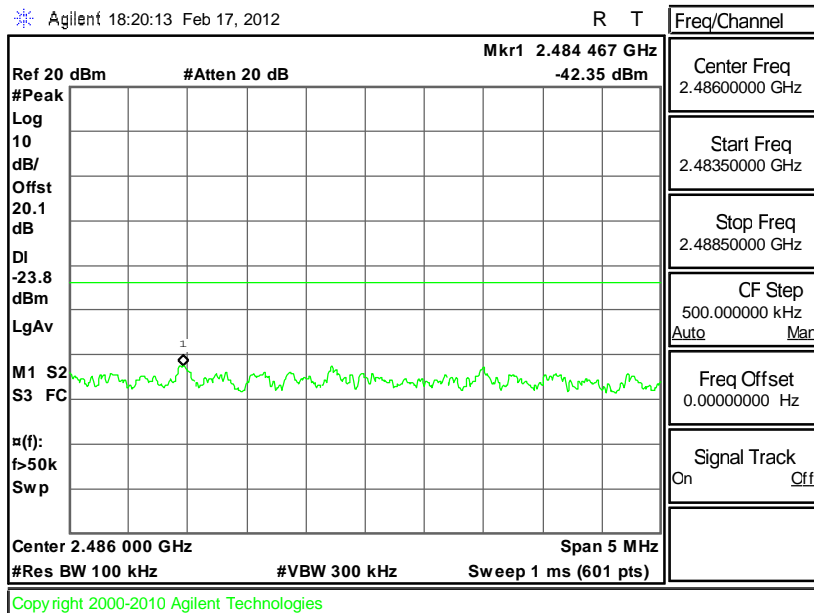


Test Mode :	Mode 10 and 12	Temperature :	23~26°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	03 and 09	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g/n (BW 40MHz) Channel 03



High Band Edge Plot on 802.11g/n (BW 40MHz) Channel 09



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.

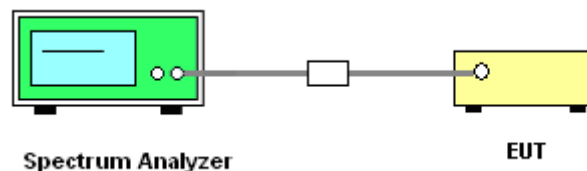
3.4.2 Measuring Instruments

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. The path loss was compensated to the results for each measurement.
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

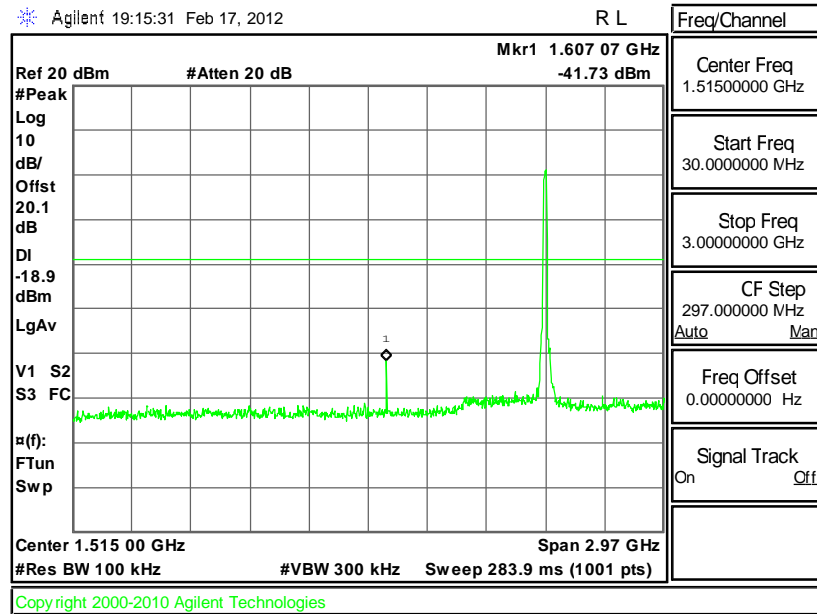




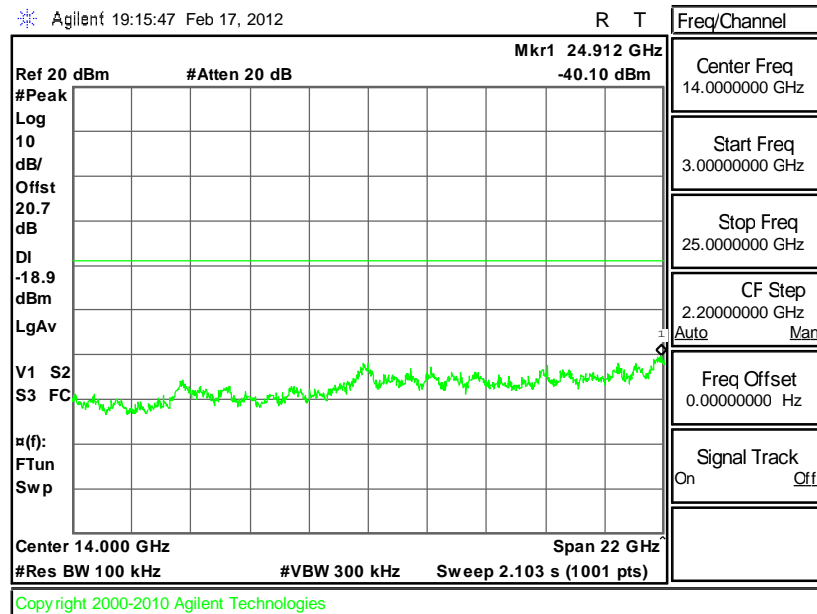
3.4.5 Test Plots of Spurious Emission

Test Mode :	Mode 1	Temperature :	23~26°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



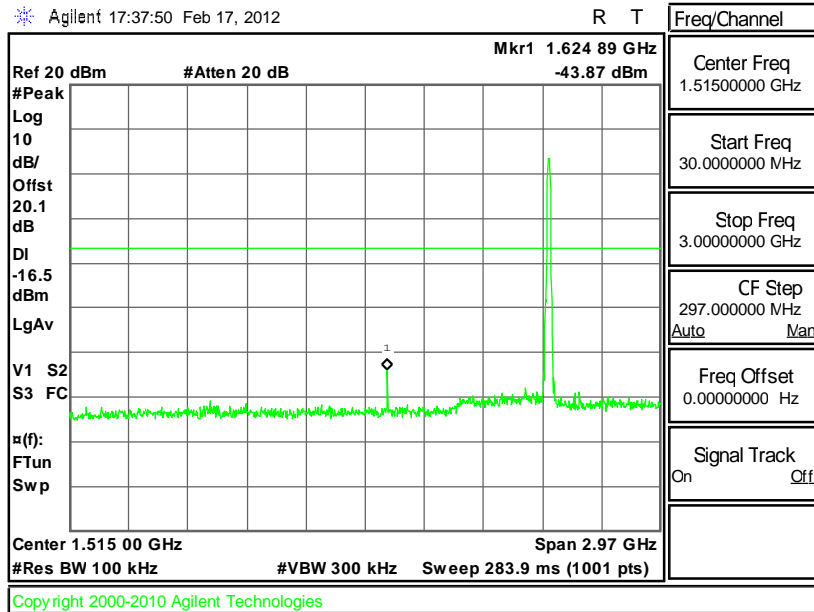
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



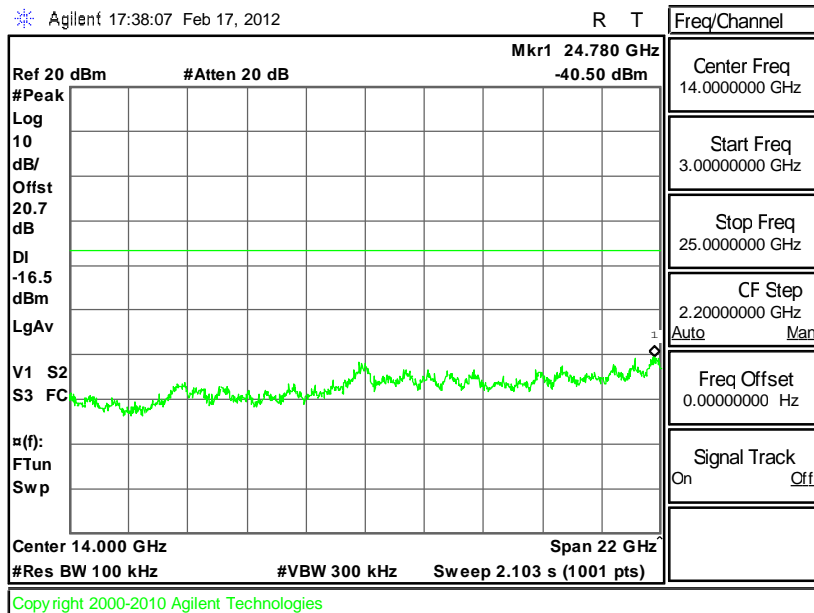


Test Mode :	Mode 2	Temperature :	23~26°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



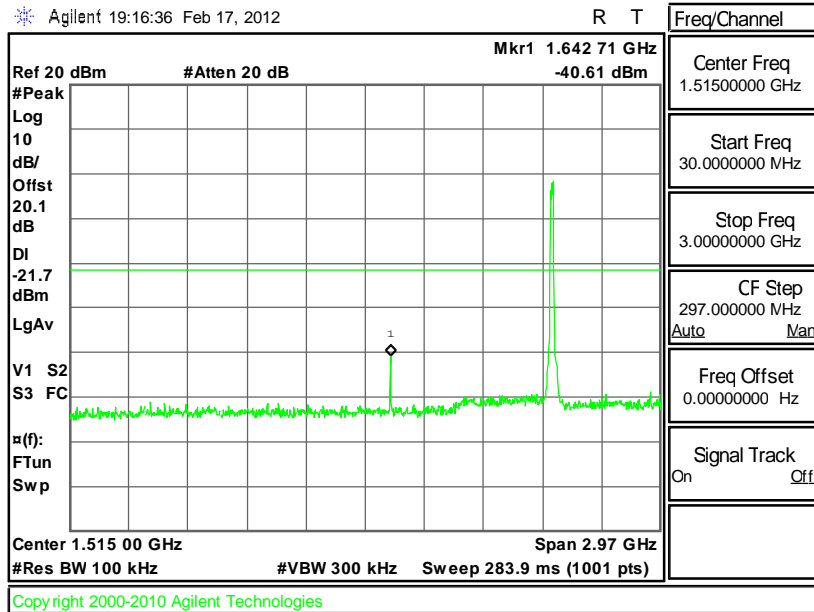
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



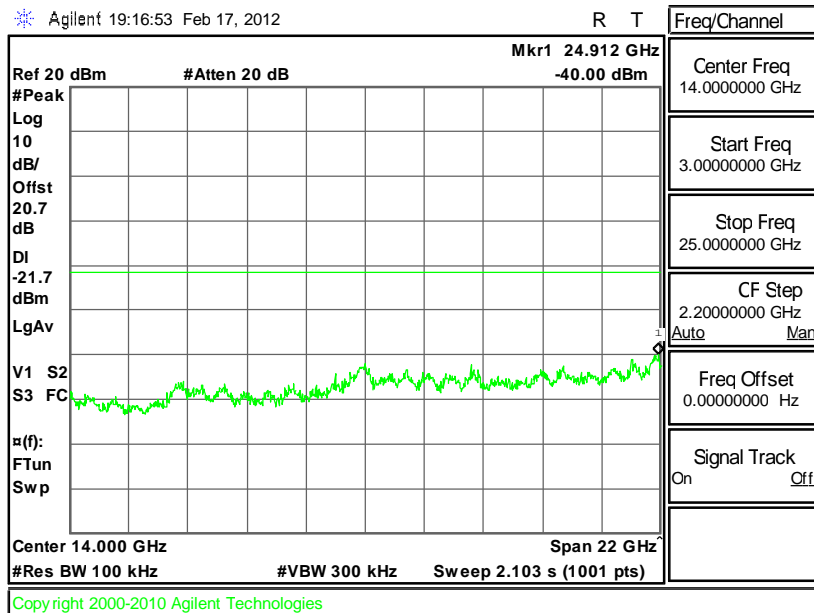


Test Mode :	Mode 3	Temperature :	23~26°C
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



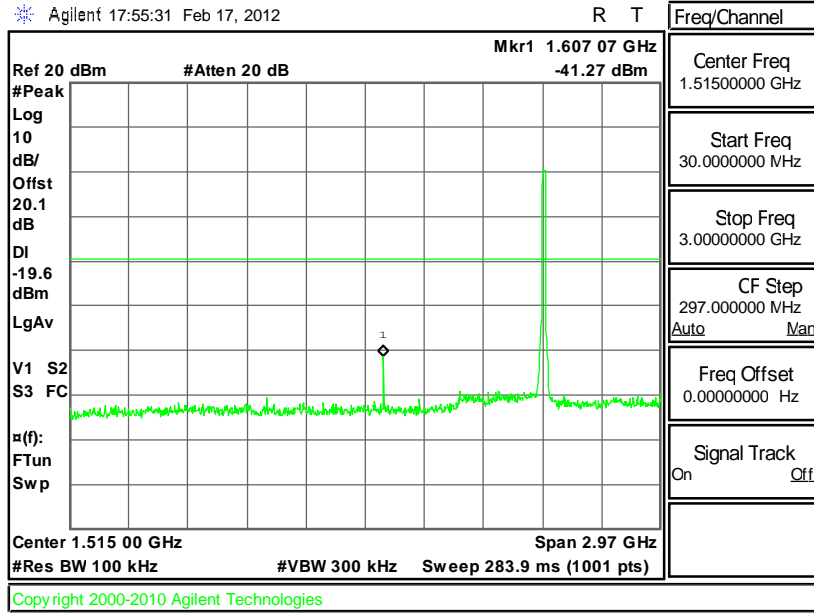
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



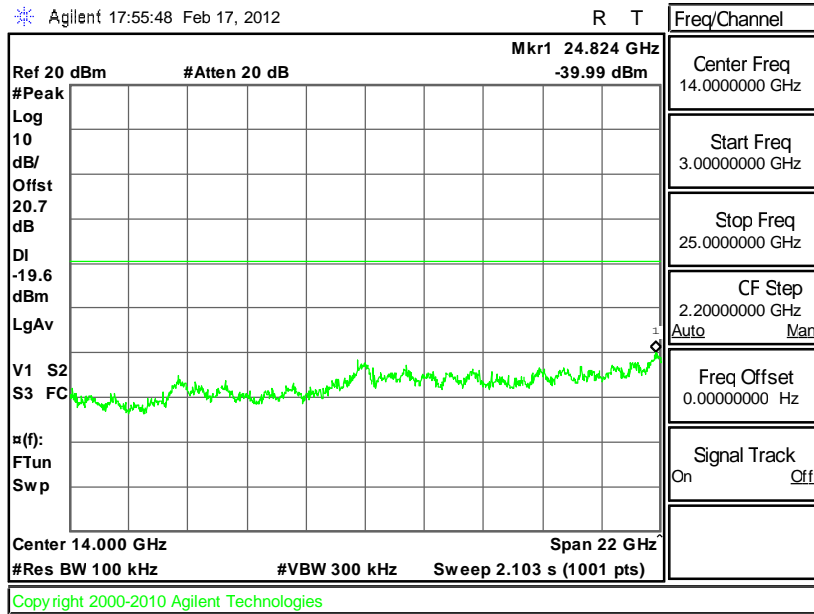


Test Mode :	Mode 4	Temperature :	23~26°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



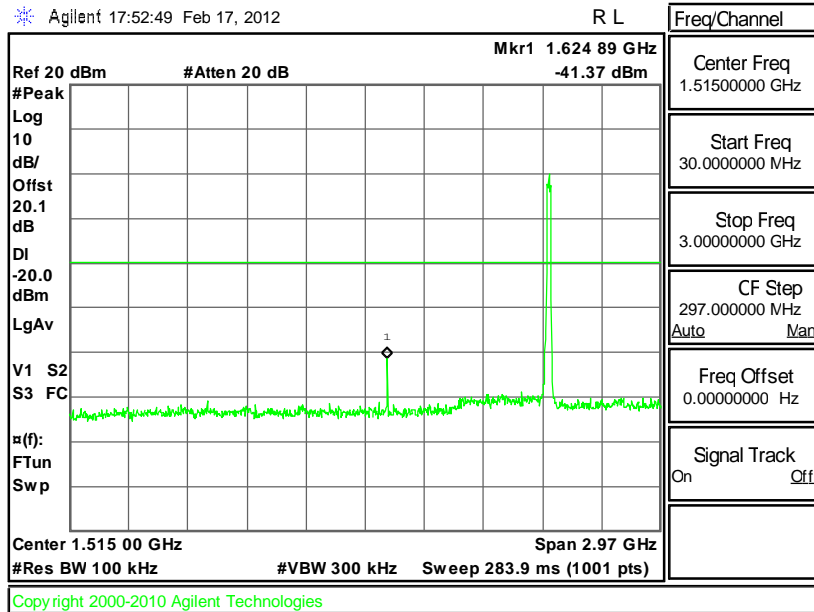
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



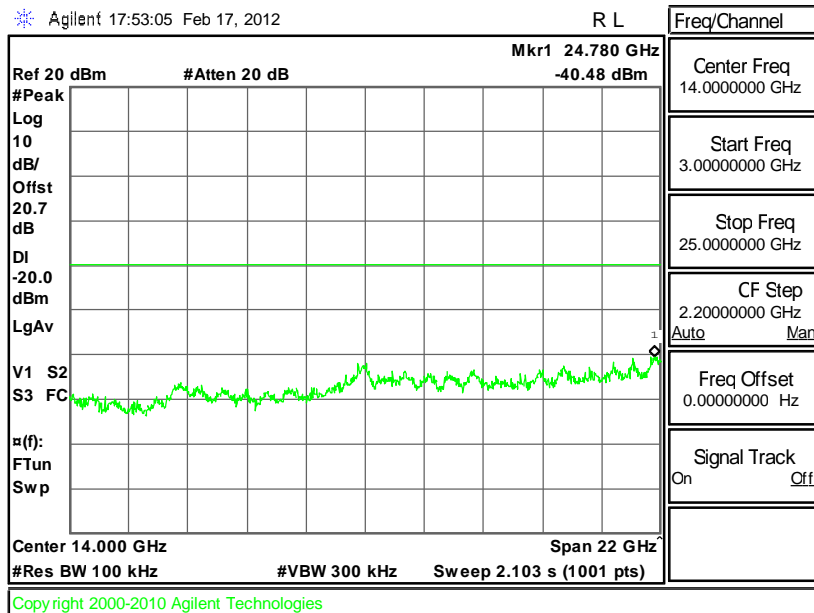


Test Mode :	Mode 5	Temperature :	23~26
Test Band :	802.11g	Relative Humidity :	52~55
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



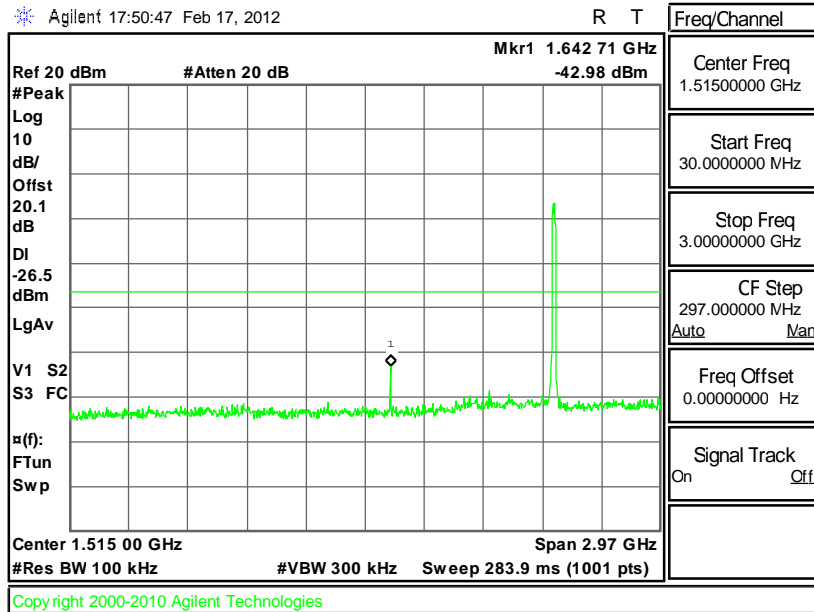
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



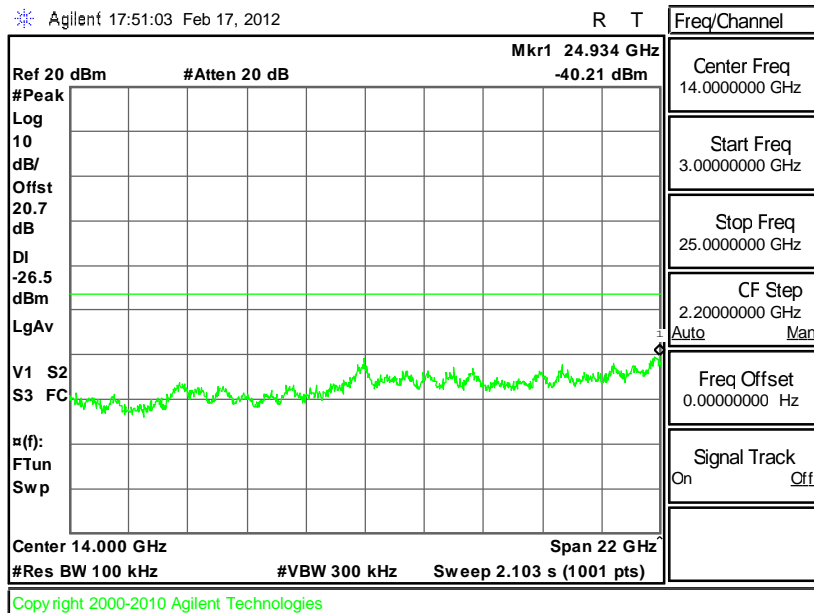


Test Mode :	Mode 6	Temperature :	23~26°C
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



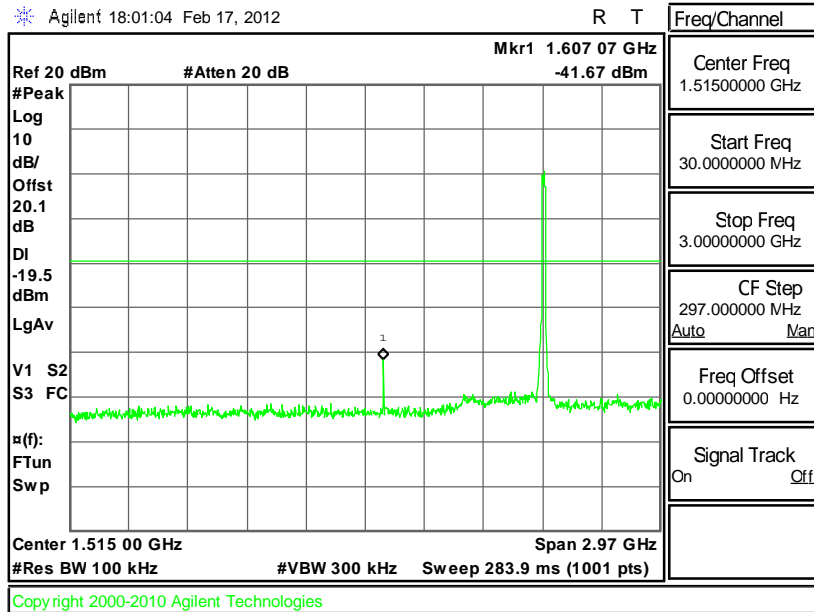
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



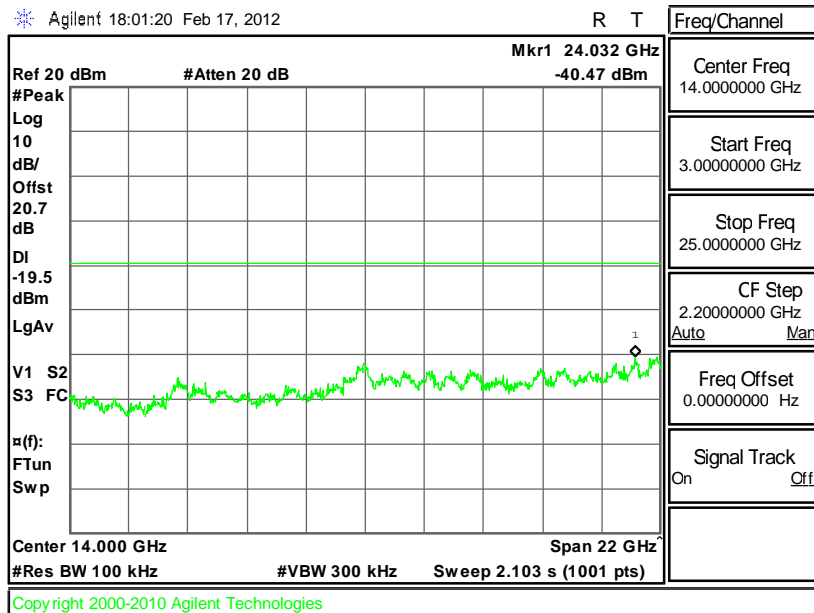


Test Mode :	Mode 7	Temperature :	23~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



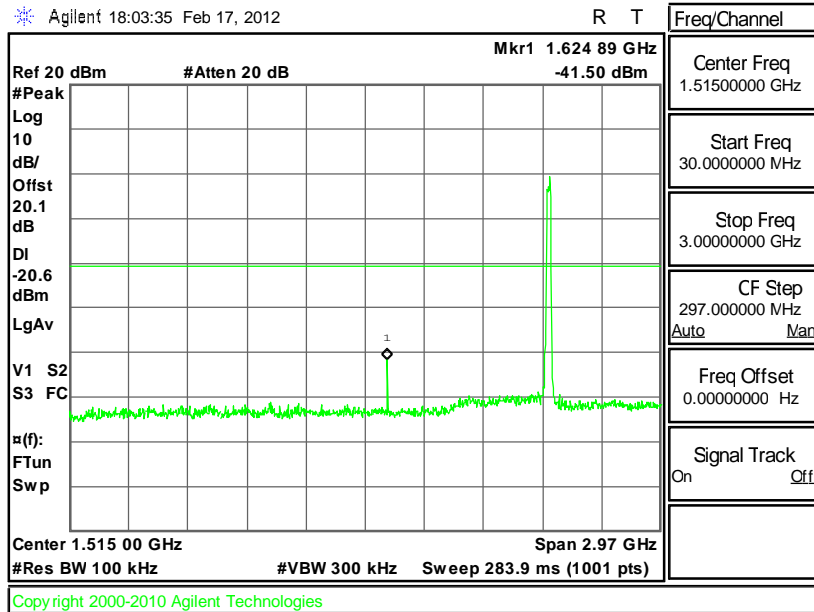
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



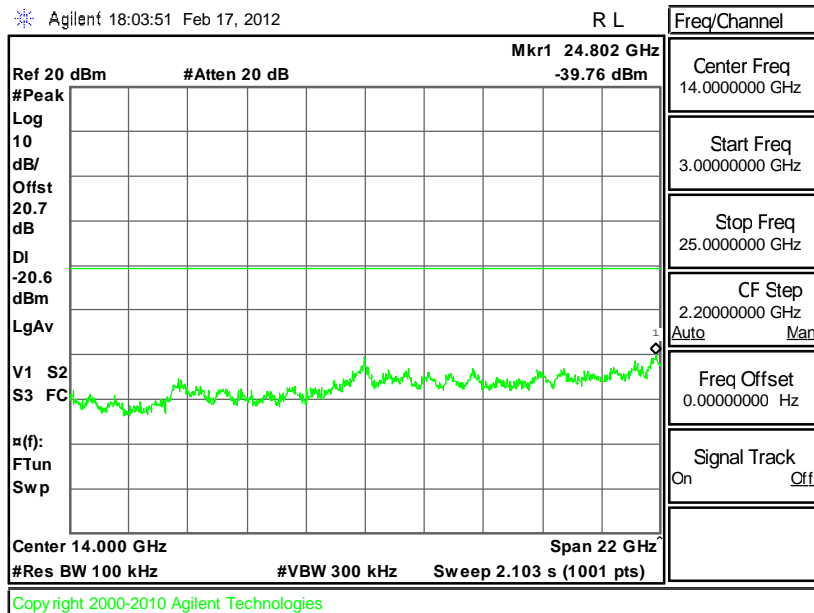


Test Mode :	Mode 8	Temperature :	23~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



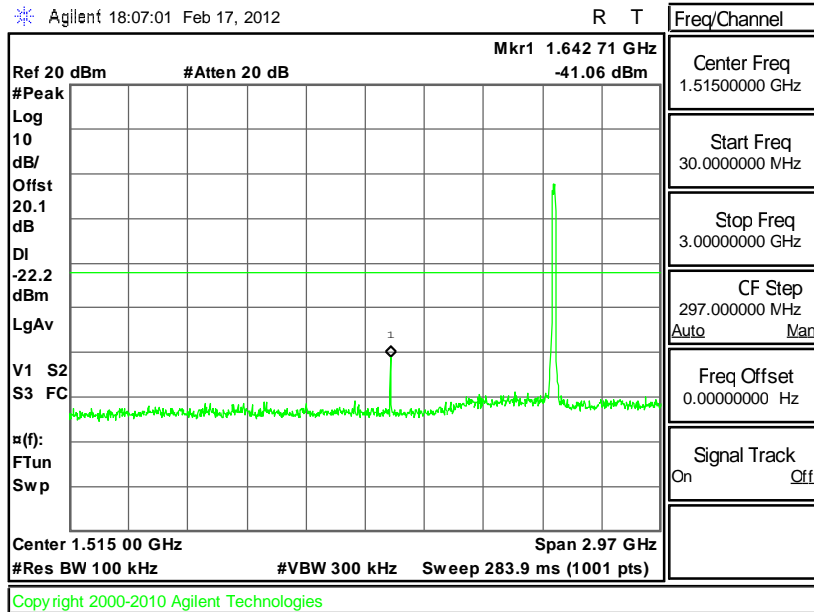
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



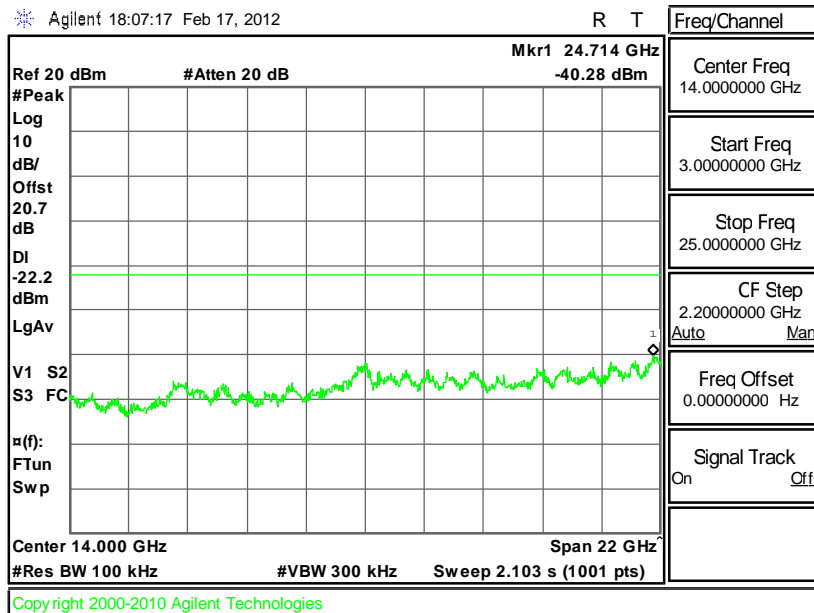


Test Mode :	Mode 9	Temperature :	23~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



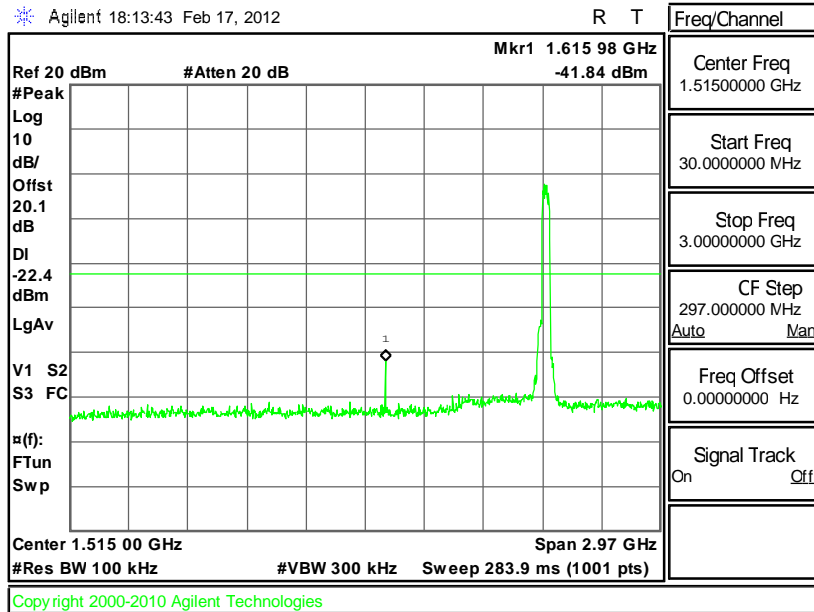
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



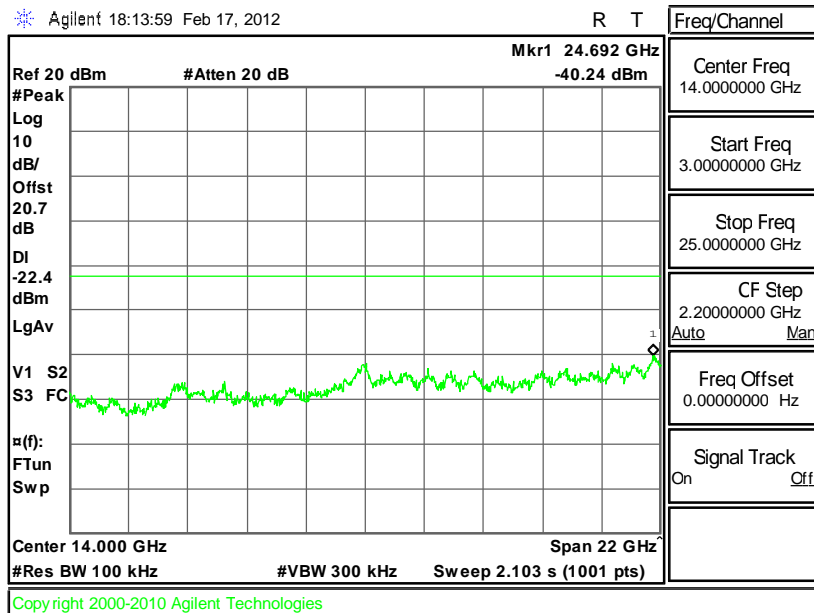


Test Mode :	Mode 10	Temperature :	23~26°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	03	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



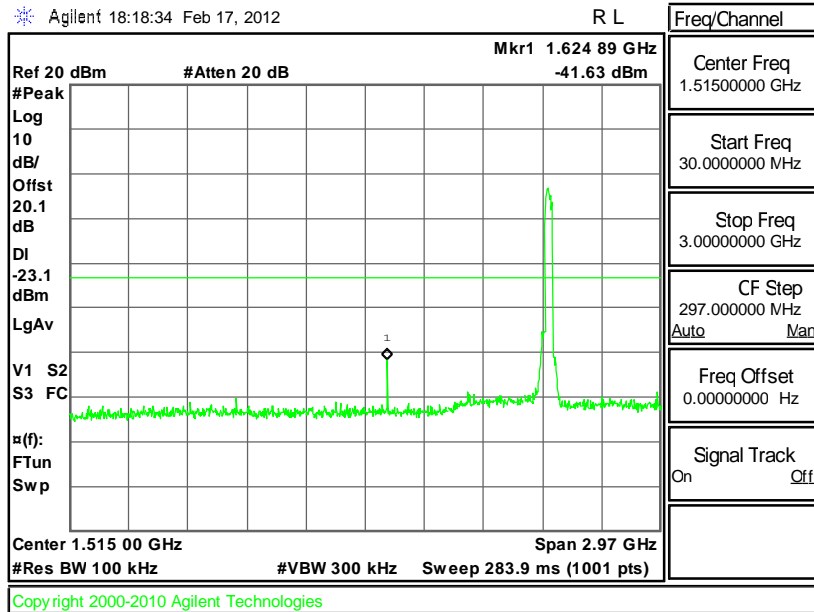
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



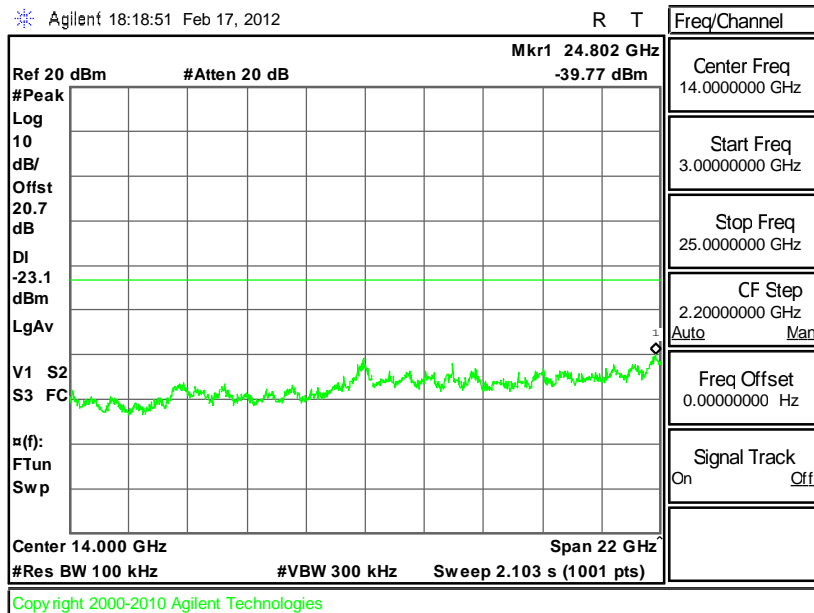


Test Mode :	Mode 11	Temperature :	23~26°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



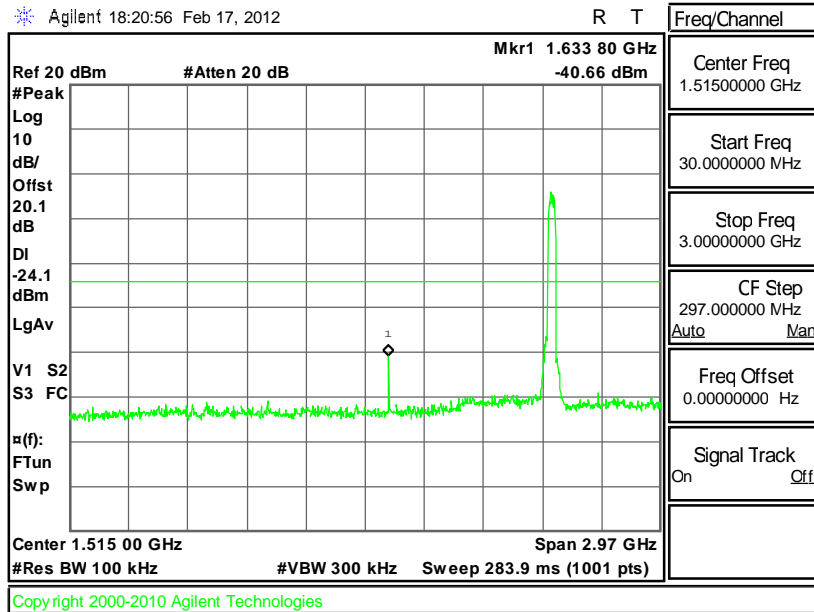
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



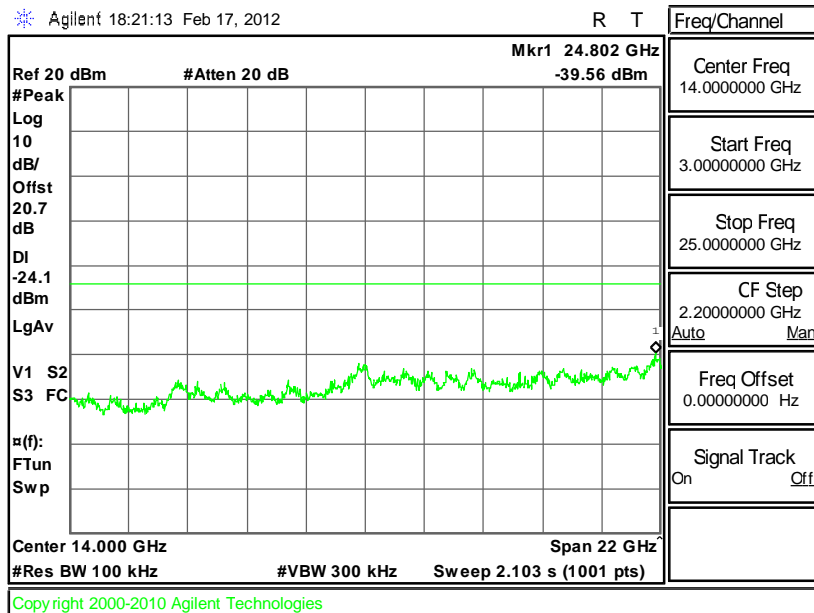


Test Mode :	Mode 12	Temperature :	23~26°C
Test Band :	802.11g/n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	09	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



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.

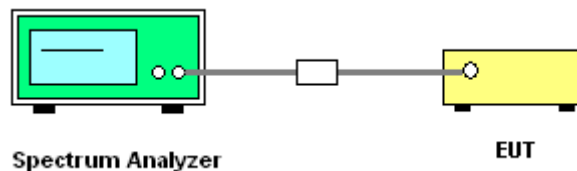
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows Measurement Procedure PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) \geq 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.

3.5.4 Test Setup





3.5.5 Test Result of Power Spectral Density

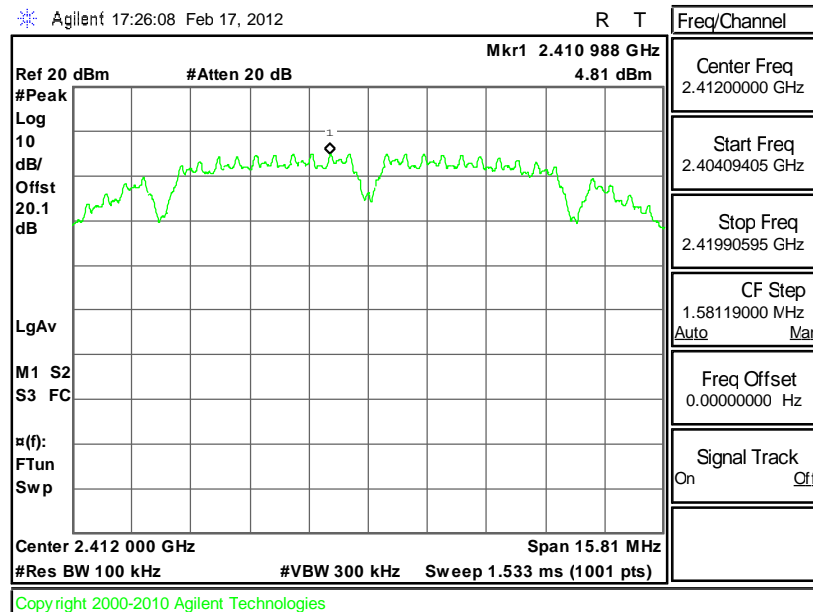
Test Mode :	Mode 1, 2, 3	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	4.81	-10.39	8	Pass
06	2437	3.72	-11.48	8	Pass
11	2462	2.20	-13.00	8	Pass

Note:

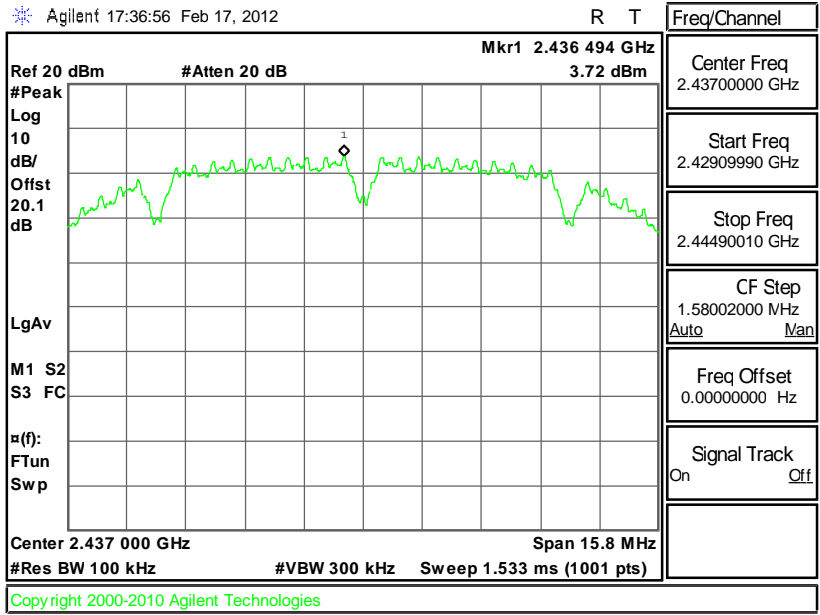
1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3kHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

Mode 1 : PSD Plot on 802.11b Channel 01

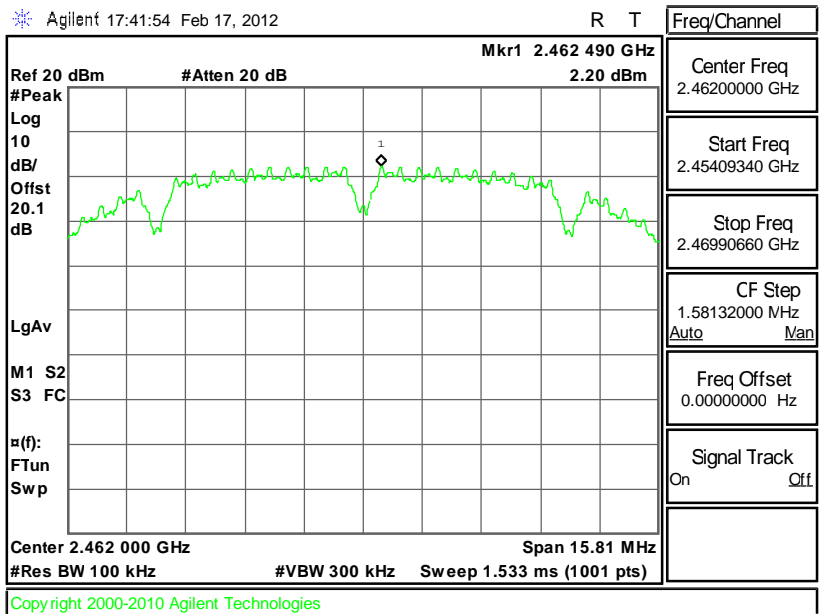




Mode 2 : PSD Plot on 802.11b Channel 06



Mode 3 : PSD Plot on 802.11b Channel 11





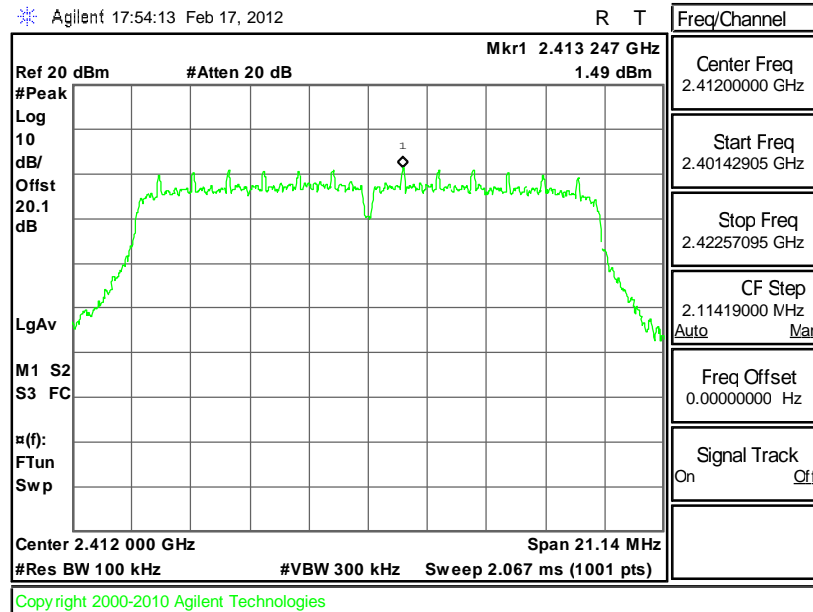
Test Mode :	Mode 4, 5, 6	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.49	-13.71	8	Pass
06	2437	-0.12	-15.32	8	Pass
11	2462	-4.62	-19.82	8	Pass

Note:

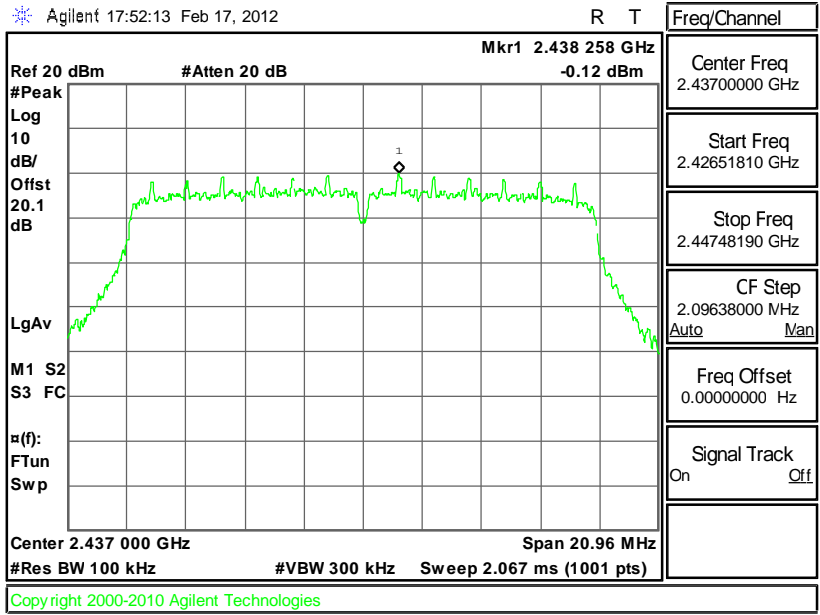
1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

Mode 4 : PSD Plot on 802.11g Channel 01

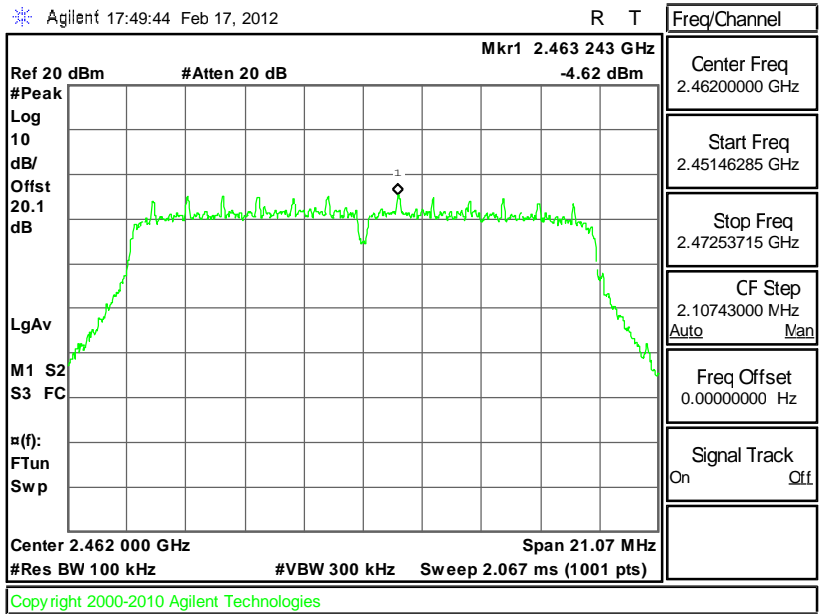




Mode 5 : PSD Plot on 802.11g Channel 06



Mode 6 : PSD Plot on 802.11g Channel 11





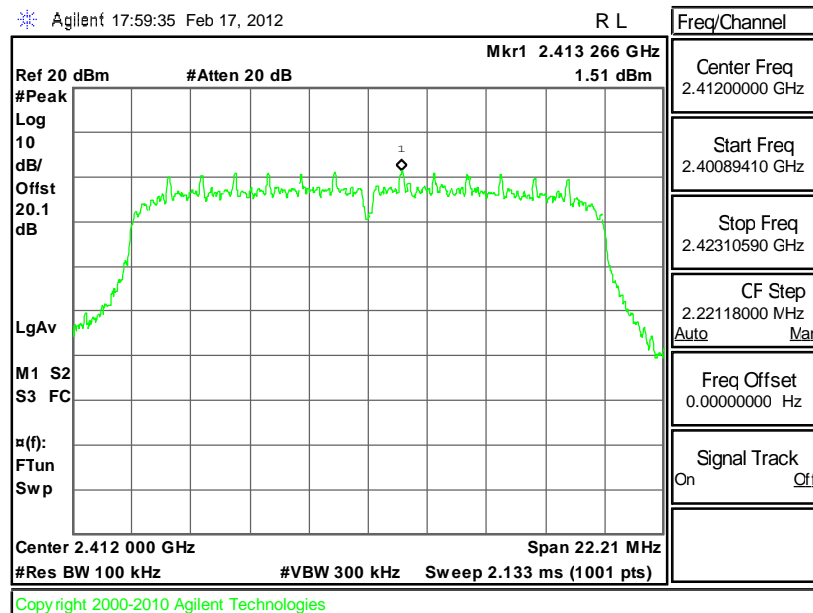
Test Mode :	Mode 7, 8, 9	Temperature :	23~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.51	-13.69	8	Pass
06	2437	0.19	-15.01	8	Pass
11	2462	-1.34	-16.54	8	Pass

Note:

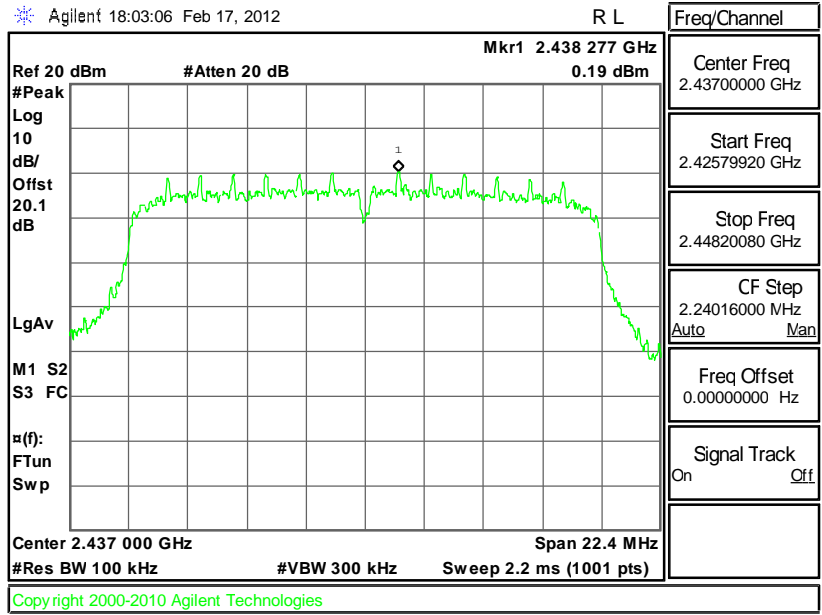
1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

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

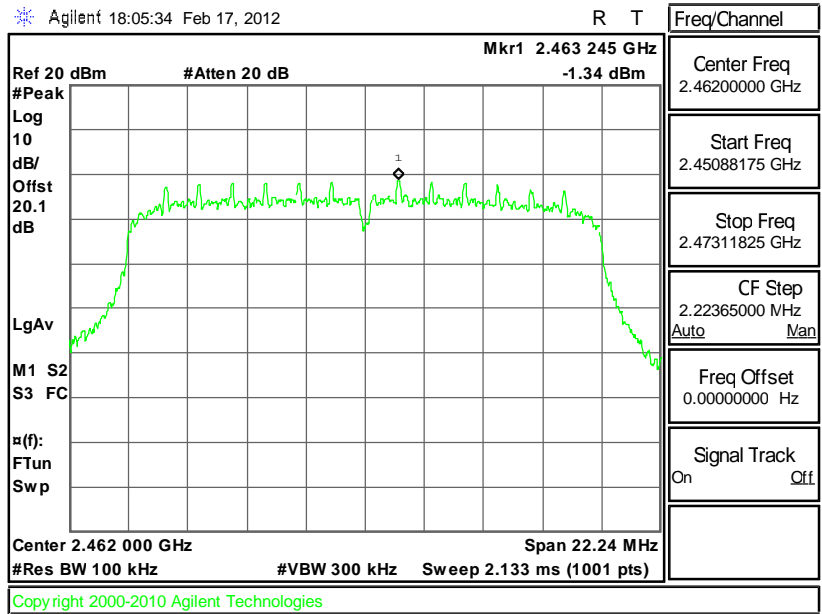




Mode 8 : PSD Plot on 802.11g/n (BW 20MHz) Channel 06



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





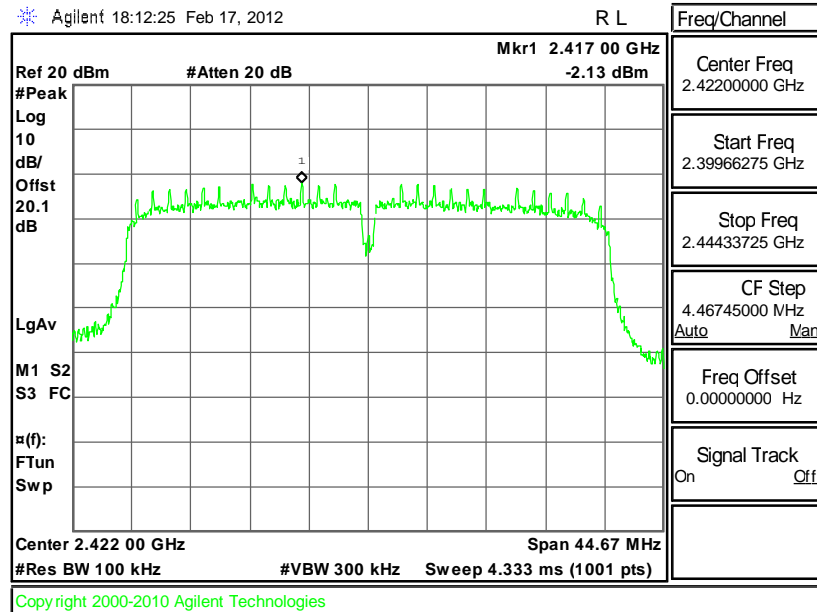
Test Mode :	Mode 10, 11, 12	Temperature :	23~26
Test Engineer :	Pinkston Tu	Relative Humidity :	52~55

Channel	Frequency (MHz)	802.11g/n (BW 40MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	-2.13	-17.33	8	Pass
06	2437	-2.99	-18.19	8	Pass
09	2452	-3.76	-18.96	8	Pass

Note:

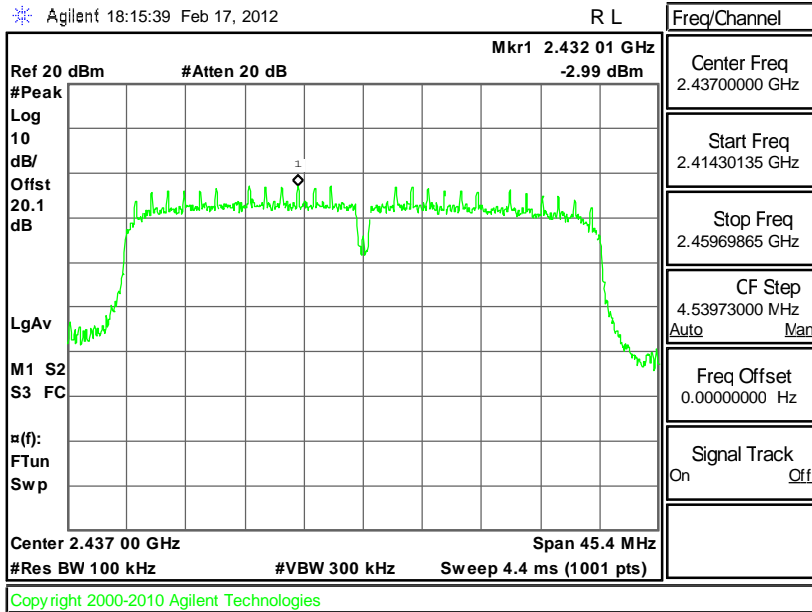
1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

Mode 10 : PSD Plot on 802.11g/n (BW 40MHz) Channel 03

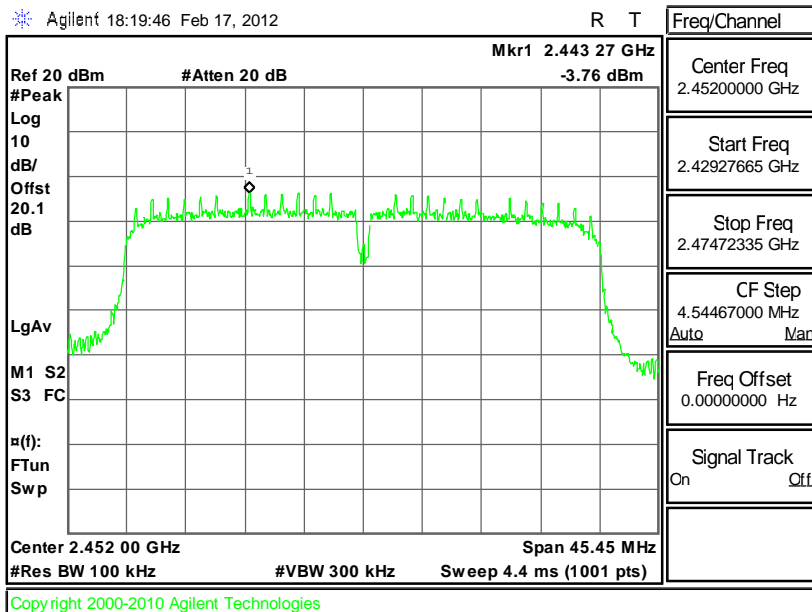




Mode 11 : PSD Plot on 802.11g/n (BW 40MHz) Channel 06



Mode 12 : PSD Plot on 802.11g/n (BW 40MHz) Channel 09



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.

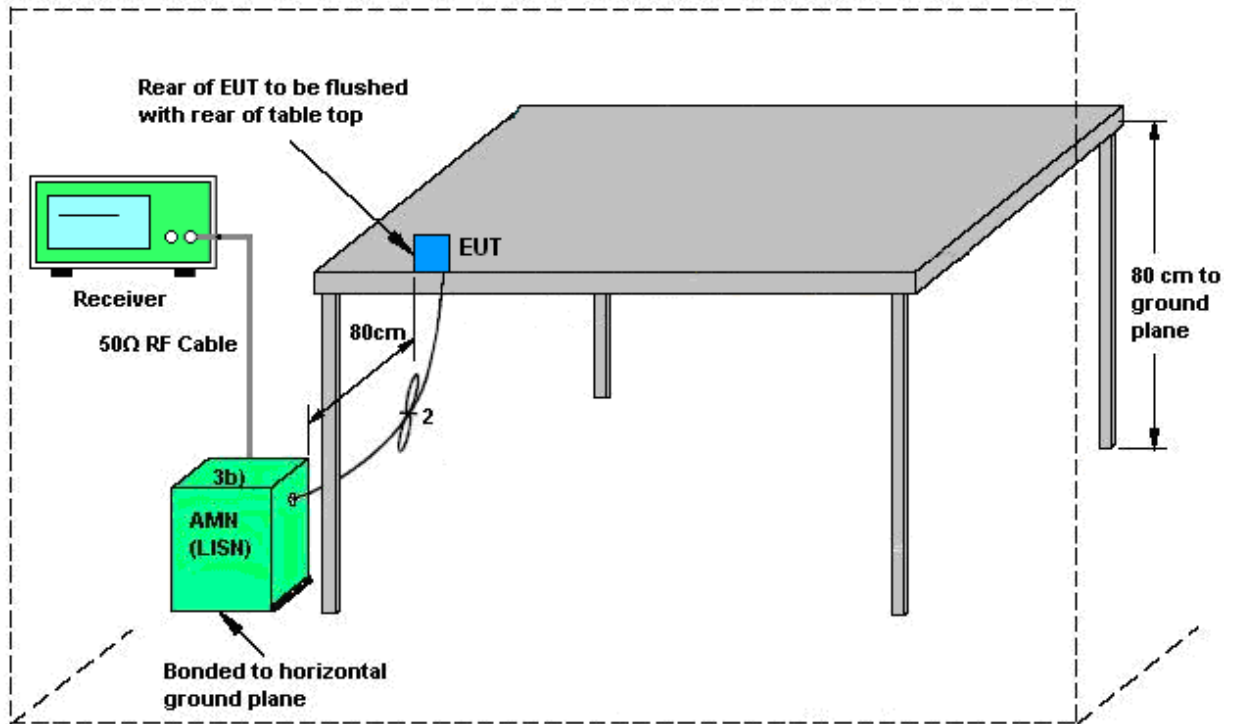
3.6.2 Measuring Instruments

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.

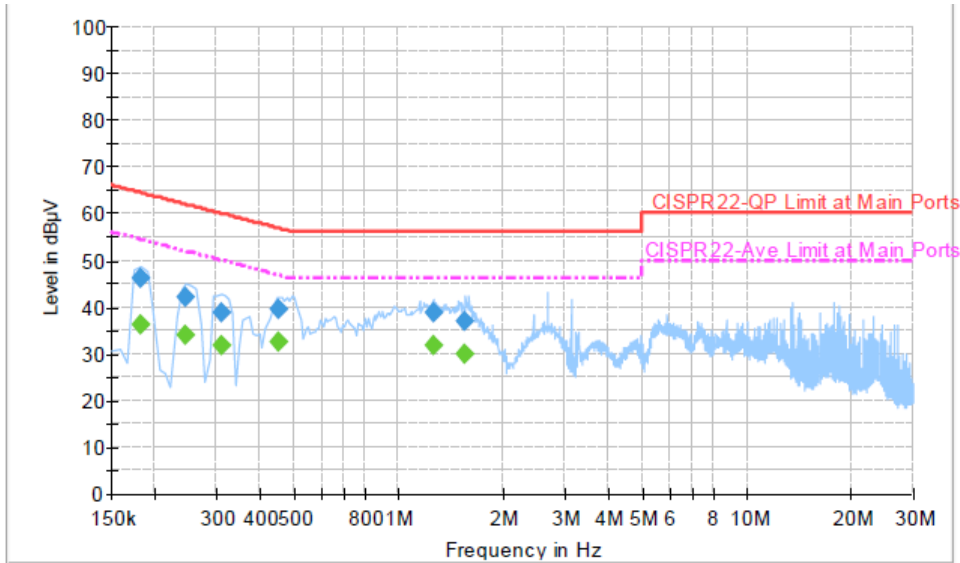
3.6.4 Test Setup



AMN = Artificial mains network (LISH)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	47~49%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + LAN Link + WAN Link + Adapter + Hotspot LOAD + USB Dongle (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



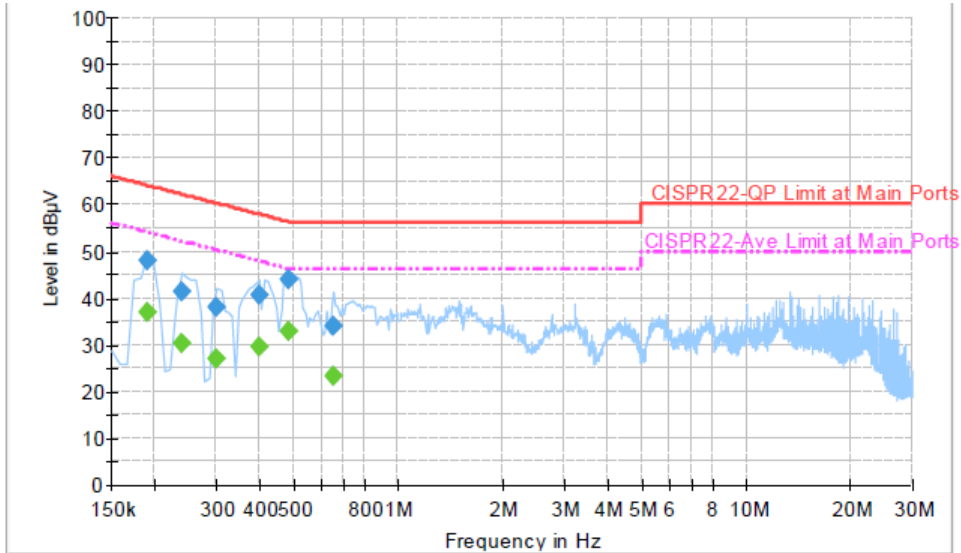
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	46.1	Off	L1	19.4	18.3	64.4
0.246000	42.0	Off	L1	19.4	19.9	61.9
0.310000	38.6	Off	L1	19.3	21.4	60.0
0.454000	39.4	Off	L1	19.3	17.4	56.8
1.262000	38.7	Off	L1	19.4	17.3	56.0
1.558000	36.9	Off	L1	19.4	19.1	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.182000	36.2	Off	L1	19.4	18.2	54.4
0.246000	34.0	Off	L1	19.4	17.9	51.9
0.310000	31.7	Off	L1	19.3	18.3	50.0
0.454000	32.5	Off	L1	19.3	14.3	46.8
1.262000	31.7	Off	L1	19.4	14.3	46.0
1.558000	30.0	Off	L1	19.4	16.0	46.0

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	47~49%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + LAN Link + WAN Link + Adapter + Hotspot LOAD + USB Dongle (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	47.8	Off	N	19.4	16.2	64.0
0.238000	41.3	Off	N	19.4	20.9	62.2
0.302000	38.0	Off	N	19.3	22.2	60.2
0.398000	40.5	Off	N	19.4	17.4	57.9
0.486000	43.9	Off	N	19.4	12.3	56.2
0.654000	34.1	Off	N	19.4	21.9	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.190000	36.9	Off	N	19.4	17.1	54.0
0.238000	30.2	Off	N	19.4	22.0	52.2
0.302000	27.1	Off	N	19.3	23.1	50.2
0.398000	29.4	Off	N	19.4	18.5	47.9
0.486000	32.8	Off	N	19.4	13.4	46.2
0.654000	23.2	Off	N	19.4	22.8	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.7.2 Measuring Instruments

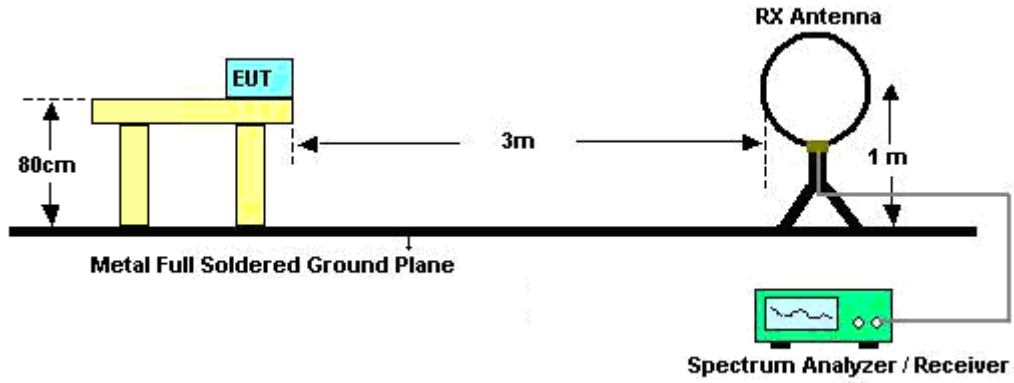
See list of measuring instruments of this test report.

3.7.3 Test Procedures

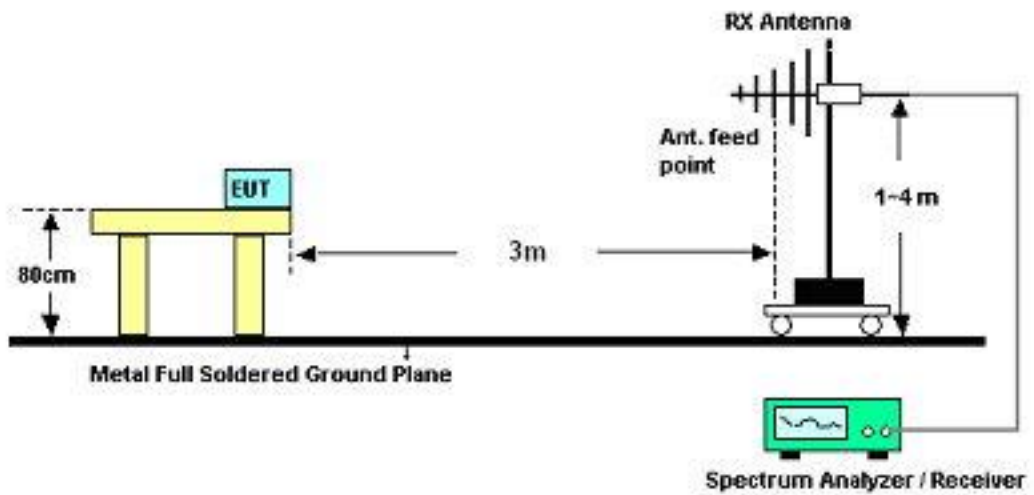
1. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.
 Distance extrapolation factor = $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
2. Maximize the emission by rotating the EUT for three orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines in ANSI C63.4-2003.

3.7.4 Test Setup

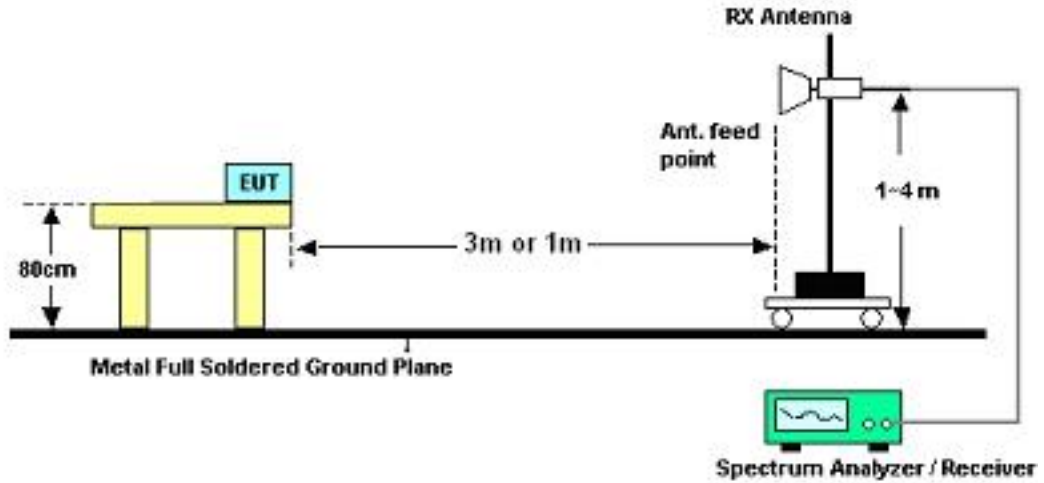
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



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

Test Mode :	Mode 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 95.31 dBuV/m - 20dB = 75.31 dBuV/m.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.22	-17.78	40	33.28	19.8	0.7	31.56	-	-	Peak
250.05	38.71	-7.29	46	55.98	12.6	1.66	31.53	-	-	Peak
284.61	26.09	-19.91	46	42.64	13.06	1.74	31.35	-	-	Peak
373.5	32.93	-13.07	46	47.24	14.99	1.95	31.25	-	-	Peak
479.9	29.25	-16.75	46	40.47	17.7	2.19	31.11	-	-	Peak
666.8	39.49	-6.51	46	47.37	20.26	2.61	30.75	100	42	Peak
2382.01	37.81	-16.19	54	37.11	32	4.58	35.88	100	270	Average
2382.01	49.94	-24.06	74	49.24	32	4.58	35.88	100	270	Peak
2412	91.51	-	-	90.75	32.03	4.59	35.86	100	270	Average
2412	95.31	-	-	94.55	32.03	4.59	35.86	100	270	Peak
2490	35.61	-18.39	54	34.68	32.1	4.64	35.81	100	270	Average
2490	46.89	-27.11	74	45.96	32.1	4.64	35.81	100	270	Peak
3216	51.22	-24.09	75.31	71.3	32.76	5.56	58.4	100	0	Peak
4824	50.71	-3.29	54	68.83	33.83	6.51	58.46	100	86	Average
4824	52.99	-21.01	74	71.11	33.83	6.51	58.46	100	86	Peak



Test Mode :	Mode 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
55.65	28.83	-11.17	40	53.02	6.5	0.83	31.52	100	27	Peak
159.06	22.02	-21.48	43.5	41.6	10.58	1.34	31.5	-	-	Peak
250.05	31.84	-14.16	46	49.11	12.6	1.66	31.53	-	-	Peak
359.5	29.59	-16.41	46	44.35	14.6	1.92	31.28	-	-	Peak
479.9	30.51	-15.49	46	41.73	17.7	2.19	31.11	-	-	Peak
666.8	34.31	-11.69	46	42.19	20.26	2.61	30.75	-	-	Peak
2389.8	40.19	-13.81	54	39.45	32.02	4.58	35.86	122	143	Average
2389.8	51.69	-22.31	74	50.95	32.02	4.58	35.86	122	143	Peak
2412	94.4	-	-	93.64	32.03	4.59	35.86	122	143	Average
2412	98.81	-	-	98.05	32.03	4.59	35.86	122	143	Peak
2498	35.63	-18.37	54	34.69	32.1	4.64	35.8	122	143	Average
2498	47.69	-26.31	74	46.75	32.1	4.64	35.8	122	143	Peak
3216	49.6	-29.21	78.81	69.68	32.76	5.56	58.4	100	0	Peak
4824	52.82	-1.18	54	70.94	33.83	6.51	58.46	100	259	Average
4824	53.8	-20.2	74	71.92	33.83	6.51	58.46	100	259	Peak



Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.18	-17.82	40	33.24	19.8	0.7	31.56	-	-	Peak
250.05	37.67	-8.33	46	54.94	12.6	1.66	31.53	-	-	Peak
283.8	26.25	-19.75	46	42.8	13.06	1.74	31.35	-	-	Peak
400.1	30.47	-15.53	46	43.61	16.03	2.01	31.18	-	-	Peak
533.1	29.9	-16.1	46	40.08	18.51	2.3	30.99	-	-	Peak
666.8	39.59	-6.41	46	47.47	20.26	2.61	30.75	100	55	Peak
2380	36.21	-17.79	54	35.51	32	4.58	35.88	102	271	Average
2380	48.14	-25.86	74	47.44	32	4.58	35.88	102	271	Peak
2437	89.03	-	-	88.2	32.06	4.61	35.84	102	271	Average
2437	92.8	-	-	91.97	32.06	4.61	35.84	102	271	Peak
2486	35.99	-18.01	54	35.07	32.09	4.64	35.81	102	271	Average
2486	47.69	-26.31	74	46.77	32.09	4.64	35.81	102	271	Peak
3249	50.18	-22.62	72.8	70.27	32.75	5.58	58.42	100	0	Peak
4874	50.77	-23.23	74	68.78	33.82	6.53	58.36	100	0	Peak



Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
55.11	29.52	-10.48	40	53.71	6.5	0.83	31.52	100	98	Peak
159.87	20.86	-22.64	43.5	40.51	10.5	1.35	31.5	-	-	Peak
250.05	33.22	-12.78	46	50.49	12.6	1.66	31.53	-	-	Peak
400.1	29.21	-16.79	46	42.35	16.03	2.01	31.18	-	-	Peak
479.9	30.1	-15.9	46	41.32	17.7	2.19	31.11	-	-	Peak
666.8	34.19	-11.81	46	42.07	20.26	2.61	30.75	-	-	Peak
2350	38.91	-15.09	54	38.27	31.98	4.55	35.89	100	352	Average
2350	52.2	-21.8	74	51.56	31.98	4.55	35.89	100	352	Peak
2437	91.59	-	-	90.76	32.06	4.61	35.84	100	352	Average
2437	95.31	-	-	94.48	32.06	4.61	35.84	100	352	Peak
2484	35.71	-18.29	54	34.79	32.09	4.64	35.81	100	352	Average
2484	48.09	-25.91	74	47.17	32.09	4.64	35.81	100	352	Peak
3249	50.22	-25.09	75.31	70.31	32.75	5.58	58.42	100	0	Peak
4874	53.28	-0.72	54	71.29	33.82	6.53	58.36	100	255	Average
4874	54.49	-19.51	74	72.5	33.82	6.53	58.36	100	255	Peak



Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	22.59	-17.41	40	33.65	19.8	0.7	31.56	-	-	Peak
250.05	38.95	-7.05	46	56.22	12.6	1.66	31.53	-	-	Peak
284.07	24.77	-21.23	46	41.32	13.06	1.74	31.35	-	-	Peak
377.7	32.52	-13.48	46	46.69	15.11	1.96	31.24	-	-	Peak
479.9	32.59	-13.41	46	43.81	17.7	2.19	31.11	-	-	Peak
666.8	40.12	-5.88	46	48	20.26	2.61	30.75	100	42	Peak
2374	37.16	-16.84	54	36.47	32	4.57	35.88	100	271	Average
2374	48.19	-25.81	74	47.5	32	4.57	35.88	100	271	Peak
2462	90.82	-	-	89.96	32.07	4.62	35.83	100	271	Average
2462	94.43	-	-	93.57	32.07	4.62	35.83	100	271	Peak
2485.18	36.9	-17.1	54	35.98	32.09	4.64	35.81	100	271	Average
2485.18	49.14	-24.86	74	48.22	32.09	4.64	35.81	100	271	Peak
3282	48.03	-26.4	74.43	68.15	32.74	5.59	58.45	100	0	Peak
4924	49.98	-24.02	74	67.88	33.81	6.55	58.26	100	0	Peak



Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
49.98	28.63	-11.37	40	51.49	7.9	0.81	31.57	100	86	Peak
158.52	20.91	-22.59	43.5	40.42	10.66	1.33	31.5	-	-	Peak
250.05	32.63	-13.37	46	49.9	12.6	1.66	31.53	-	-	Peak
479.9	32.35	-13.65	46	43.57	17.7	2.19	31.11	-	-	Peak
533.1	30.04	-15.96	46	40.22	18.51	2.3	30.99	-	-	Peak
666.8	33.86	-12.14	46	41.74	20.26	2.61	30.75	-	-	Peak
2382	37.13	-16.87	54	36.43	32	4.58	35.88	100	17	Average
2382	49.05	-24.95	74	48.35	32	4.58	35.88	100	17	Peak
2462	91.17	-	-	90.31	32.07	4.62	35.83	100	17	Average
2462	95.1	-	-	94.24	32.07	4.62	35.83	100	17	Peak
2484.42	36.57	-17.43	54	35.65	32.09	4.64	35.81	100	17	Average
2484.42	49.21	-24.79	74	48.29	32.09	4.64	35.81	100	17	Peak
3282	49.48	-25.62	75.1	69.6	32.74	5.59	58.45	100	0	Peak
4924	52.91	-1.09	54	70.8	33.81	6.56	58.26	100	255	Average
4924	54.09	-19.91	74	71.99	33.81	6.55	58.26	100	255	Peak



Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.27	-17.73	40	33.33	19.8	0.7	31.56	-	-	Peak
250.05	38.15	-7.85	46	55.42	12.6	1.66	31.53	-	-	Peak
283.8	24.97	-21.03	46	41.52	13.06	1.74	31.35	-	-	Peak
400.1	36.82	-9.18	46	49.96	16.03	2.01	31.18	-	-	Peak
479.9	32.08	-13.92	46	43.3	17.7	2.19	31.11	-	-	Peak
666.8	39.84	-6.16	46	47.72	20.26	2.61	30.75	100	92	Peak
2372	38.69	-15.31	54	38	32	4.57	35.88	129	294	Average
2372	50.4	-23.6	74	49.71	32	4.57	35.88	129	294	Peak
2437	92.69	-	-	91.86	32.06	4.61	35.84	129	294	Average
2437	96.02	-	-	95.19	32.06	4.61	35.84	129	294	Peak
2486	35.2	-18.8	54	34.28	32.09	4.64	35.81	129	294	Average
2486	46.62	-27.38	74	45.7	32.09	4.64	35.81	129	294	Peak
3249	48.62	-27.4	76.02	68.71	32.75	5.58	58.42	100	0	Peak
4874	50.82	-23.18	74	68.83	33.82	6.53	58.36	100	0	Peak



Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.52	28.39	-11.61	40	51.25	7.9	0.81	31.57	100	68	Peak
154.47	21.06	-22.44	43.5	40.3	10.96	1.3	31.5	-	-	Peak
250.05	33.5	-12.5	46	50.77	12.6	1.66	31.53	-	-	Peak
400.1	30.02	-15.98	46	43.16	16.03	2.01	31.18	-	-	Peak
479.9	32.55	-13.45	46	43.77	17.7	2.19	31.11	-	-	Peak
666.8	34.28	-11.72	46	42.16	20.26	2.61	30.75	-	-	Peak
2386	44.23	-9.77	54	43.51	32.02	4.58	35.88	100	171	Average
2386	55.97	-18.03	74	55.25	32.02	4.58	35.88	100	171	Peak
2437	97.44	-	-	96.61	32.06	4.61	35.84	100	171	Average
2437	100.91	-	-	100.08	32.06	4.61	35.84	100	171	Peak
2494	36.32	-17.68	54	35.38	32.1	4.64	35.8	100	171	Average
2494	47.78	-26.22	74	46.84	32.1	4.64	35.8	100	171	Peak
3249	47.83	-33.08	80.91	67.92	32.75	5.58	58.42	100	0	Peak
4874	51.2	-2.8	54	69.21	33.82	6.53	58.36	101	10	Average
4874	52.03	-21.97	74	70.04	33.82	6.53	58.36	101	10	Peak



Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.36	-17.64	40	33.42	19.8	0.7	31.56	-	-	Peak
250.05	38.23	-7.77	46	55.5	12.6	1.66	31.53	-	-	Peak
283.8	25.49	-20.51	46	42.04	13.06	1.74	31.35	-	-	Peak
400.1	30.77	-15.23	46	43.91	16.03	2.01	31.18	-	-	Peak
479.9	30.71	-15.29	46	41.93	17.7	2.19	31.11	-	-	Peak
666.8	39.63	-6.37	46	47.51	20.26	2.61	30.75	100	71	Peak
2360	36.25	-17.75	54	35.58	31.99	4.57	35.89	102	251	Average
2360	48.04	-25.96	74	47.37	31.99	4.57	35.89	102	251	Peak
2437	90.54	-	-	89.71	32.06	4.61	35.84	102	251	Average
2437	94.85	-	-	94.02	32.06	4.61	35.84	102	251	Peak
2500	35.28	-18.72	54	34.34	32.1	4.64	35.8	102	251	Average
2500	47.05	-26.95	74	46.11	32.1	4.64	35.8	102	251	Peak
3249	49.11	-25.74	74.85	69.2	32.75	5.58	58.42	100	0	Peak
4874	46.9	-27.1	74	64.91	33.82	6.53	58.36	100	0	Peak



Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
49.71	28.3	-11.7	40	50.75	8.32	0.8	31.57	100	85	Peak
156.36	20.28	-23.22	43.5	39.64	10.82	1.32	31.5	-	-	Peak
250.05	34.13	-11.87	46	51.4	12.6	1.66	31.53	-	-	Peak
400.1	29.42	-16.58	46	42.56	16.03	2.01	31.18	-	-	Peak
479.9	30.94	-15.06	46	42.16	17.7	2.19	31.11	-	-	Peak
666.8	34.04	-11.96	46	41.92	20.26	2.61	30.75	-	-	Peak
2382	42.54	-11.46	54	41.84	32	4.58	35.88	100	171	Average
2382	53.84	-20.16	74	53.14	32	4.58	35.88	100	171	Peak
2437	94.97	-	-	94.14	32.06	4.61	35.84	100	171	Average
2437	99.17	-	-	98.34	32.06	4.61	35.84	100	171	Peak
2488	36.15	-17.85	54	35.22	32.1	4.64	35.81	100	171	Average
2488	47.45	-26.55	74	46.52	32.1	4.64	35.81	100	171	Peak
3249	48.97	-30.2	79.17	69.06	32.75	5.58	58.42	100	0	Peak
4874	48.81	-25.19	74	66.82	33.82	6.53	58.36	100	0	Peak



Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.13	-17.87	40	33.19	19.8	0.7	31.56	-	-	Peak
250.05	37.69	-8.31	46	54.96	12.6	1.66	31.53	-	-	Peak
283.53	27.07	-18.93	46	43.67	13.02	1.74	31.36	-	-	Peak
400.1	34.83	-11.17	46	47.97	16.03	2.01	31.18	-	-	Peak
479.9	29.14	-16.86	46	40.36	17.7	2.19	31.11	-	-	Peak
666.8	39.73	-6.27	46	47.61	20.26	2.61	30.75	100	55	Peak
2354	35.65	-18.35	54	35	31.99	4.55	35.89	101	288	Average
2354	46.56	-27.44	74	45.91	31.99	4.55	35.89	101	288	Peak
2437	86.78	-	-	85.95	32.06	4.61	35.84	101	288	Average
2437	90.71	-	-	89.88	32.06	4.61	35.84	101	288	Peak
2484	35.27	-18.73	54	34.35	32.09	4.64	35.81	101	288	Average
2484	46.59	-27.41	74	45.67	32.09	4.64	35.81	101	288	Peak
3249	49.52	-21.19	70.71	69.61	32.75	5.58	58.42	100	0	Peak
4874	50.55	-23.45	74	68.56	33.82	6.53	58.36	100	0	Peak



Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
57.27	29.14	-10.86	40	53.53	6.3	0.85	31.54	100	72	Peak
159.33	21.65	-21.85	43.5	41.23	10.58	1.34	31.5	-	-	Peak
250.05	33.39	-12.61	46	50.66	12.6	1.66	31.53	-	-	Peak
400.1	30.66	-15.34	46	43.8	16.03	2.01	31.18	-	-	Peak
479.9	30.53	-15.47	46	41.75	17.7	2.19	31.11	-	-	Peak
666.8	34.11	-11.89	46	41.99	20.26	2.61	30.75	-	-	Peak
2358	36.21	-17.79	54	35.54	31.99	4.57	35.89	100	14	Average
2358	47.53	-26.47	74	46.86	31.99	4.57	35.89	100	14	Peak
2437	89.98	-	-	89.15	32.06	4.61	35.84	100	14	Average
2437	93.78	-	-	92.95	32.06	4.61	35.84	100	14	Peak
2492	36.16	-17.84	54	35.22	32.1	4.64	35.8	100	14	Average
2492	47.97	-26.03	74	47.03	32.1	4.64	35.8	100	14	Peak
3249	50.07	-23.71	73.78	70.16	32.75	5.58	58.42	100	0	Peak
4874	50.65	-3.35	54	68.66	33.82	6.53	58.36	101	260	Average
4874	52.29	-21.71	74	70.3	33.82	6.53	58.36	101	260	Peak



Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.39	-17.61	40	33.45	19.8	0.7	31.56	-	-	Peak
250.05	37.78	-8.22	46	55.05	12.6	1.66	31.53	-	-	Peak
283.26	25.91	-20.09	46	42.51	13.02	1.74	31.36	-	-	Peak
400.1	30.56	-15.44	46	43.7	16.03	2.01	31.18	-	-	Peak
479.9	29.33	-16.67	46	40.55	17.7	2.19	31.11	-	-	Peak
666.8	39.75	-6.25	46	47.63	20.26	2.61	30.75	100	54	Peak
2389.99	41.6	-12.4	54	40.86	32.02	4.58	35.86	105	274	Average
2389.99	57.97	-16.03	74	57.23	32.02	4.58	35.86	105	274	Peak
2412	89.37	-	-	88.61	32.03	4.59	35.86	105	274	Average
2412	99.98	-	-	99.22	32.03	4.59	35.86	105	274	Peak
2488	36.2	-17.8	54	35.27	32.1	4.64	35.81	105	274	Average
2488	47.66	-26.34	74	46.73	32.1	4.64	35.81	105	274	Peak
3216	51.05	-28.93	79.98	71.13	32.76	5.56	58.4	100	0	Peak
4824	47.7	-6.3	54	65.82	33.83	6.51	58.46	100	338	Average
4824	59.38	-14.62	74	77.49	33.83	6.52	58.46	100	338	Peak



Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
49.17	28.59	-11.41	40	51.04	8.32	0.8	31.57	100	75	Peak
160.68	20.63	-22.87	43.5	40.36	10.42	1.35	31.5	-	-	Peak
250.05	33.22	-12.78	46	50.49	12.6	1.66	31.53	-	-	Peak
359.5	30.64	-15.36	46	45.4	14.6	1.92	31.28	-	-	Peak
533.1	28.61	-17.39	46	38.79	18.51	2.3	30.99	-	-	Peak
666.8	34.57	-11.43	46	42.45	20.26	2.61	30.75	-	-	Peak
2389.42	47.98	-6.02	54	47.26	32.02	4.58	35.88	112	90	Average
2389.42	64.68	-9.32	74	63.96	32.02	4.58	35.88	112	90	Peak
2412	94.77	-	-	94.01	32.03	4.59	35.86	112	90	Average
2412	107.14	-	-	106.38	32.03	4.59	35.86	112	90	Peak
2496	37.85	-16.15	54	36.91	32.1	4.64	35.8	112	90	Average
2496	51.34	-22.66	74	50.4	32.1	4.64	35.8	112	90	Peak
3216	51.14	-36	87.14	71.22	32.76	5.56	58.4	100	0	Peak
4824	49.9	-4.1	54	68.02	33.83	6.51	58.46	100	263	Average
4824	61	-13	74	79.12	33.83	6.51	58.46	100	263	Peak



Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.25	-17.75	40	33.31	19.8	0.7	31.56	-	-	Peak
250.05	37.82	-8.18	46	55.09	12.6	1.66	31.53	-	-	Peak
283.53	25.21	-20.79	46	41.81	13.02	1.74	31.36	-	-	Peak
400.1	30.9	-15.1	46	44.04	16.03	2.01	31.18	-	-	Peak
479.9	29.7	-16.3	46	40.92	17.7	2.19	31.11	-	-	Peak
666.8	39.75	-6.25	46	47.63	20.26	2.61	30.75	100	91	Peak
2354	37.93	-16.07	54	37.28	31.99	4.55	35.89	106	274	Average
2354	48	-26	74	47.35	31.99	4.55	35.89	106	274	Peak
2437	86.99	-	-	86.16	32.06	4.61	35.84	106	274	Average
2437	98.27	-	-	97.44	32.06	4.61	35.84	106	274	Peak
2490	36.97	-17.03	54	36.04	32.1	4.64	35.81	106	274	Average
2490	47.91	-26.09	74	46.98	32.1	4.64	35.81	106	274	Peak
3249	49.47	-28.8	78.27	69.56	32.75	5.58	58.42	100	0	Peak
4874	47.87	-6.13	54	65.88	33.82	6.53	58.36	113	90	Average
4874	58.74	-15.26	74	76.75	33.82	6.53	58.36	113	90	Peak



Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.52	28.08	-11.92	40	50.94	7.9	0.81	31.57	300	22	Peak
158.25	20.98	-22.52	43.5	40.49	10.66	1.33	31.5	-	-	Peak
250.05	32.4	-13.6	46	49.67	12.6	1.66	31.53	-	-	Peak
400.1	29.7	-16.3	46	42.84	16.03	2.01	31.18	-	-	Peak
479.9	32.97	-13.03	46	44.19	17.7	2.19	31.11	-	-	Peak
666.8	34.02	-11.98	46	41.9	20.26	2.61	30.75	-	-	Peak
2356	40.04	-13.96	54	39.39	31.99	4.55	35.89	100	356	Average
2356	51.15	-22.85	74	50.5	31.99	4.55	35.89	100	356	Peak
2437	89.34	-	-	88.51	32.06	4.61	35.84	100	356	Average
2437	100.28	-	-	99.45	32.06	4.61	35.84	100	356	Peak
2490	36.95	-17.05	54	36.02	32.1	4.64	35.81	100	356	Average
2490	48.16	-25.84	74	47.23	32.1	4.64	35.81	100	356	Peak
3249	50.07	-30.21	80.28	70.16	32.75	5.58	58.42	100	0	Peak
4874	50.35	-3.65	54	68.36	33.82	6.53	58.36	100	258	Average
4874	62.81	-11.19	74	80.82	33.82	6.53	58.36	100	258	Peak
7311	47.95	-26.05	74	61.63	35.6	8.42	57.7	100	0	Peak



Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23	-17	40	34.06	19.8	0.7	31.56	-	-	Peak
250.05	38.73	-7.27	46	56	12.6	1.66	31.53	-	-	Peak
285.15	26.33	-19.67	46	42.84	13.1	1.74	31.35	-	-	Peak
373.5	34.27	-11.73	46	48.58	14.99	1.95	31.25	-	-	Peak
479.9	29.02	-16.98	46	40.24	17.7	2.19	31.11	-	-	Peak
666.8	39.44	-6.56	46	47.32	20.26	2.61	30.75	100	105	Peak
2376	36.67	-17.33	54	35.98	32	4.57	35.88	100	284	Average
2376	48.47	-25.53	74	47.78	32	4.57	35.88	100	284	Peak
2462	88.2	-	-	87.34	32.07	4.62	35.83	100	284	Average
2462	98.89	-	-	98.03	32.07	4.62	35.83	100	284	Peak
2483.5	38.77	-15.23	54	37.85	32.09	4.64	35.81	100	284	Average
2483.5	54.71	-19.29	74	53.79	32.09	4.64	35.81	100	284	Peak
3282	47.86	-31.03	78.89	67.98	32.74	5.59	58.45	100	0	Peak
4924	44.03	-9.97	54	61.92	33.81	6.56	58.26	100	211	Average
4924	56.73	-17.27	74	74.63	33.81	6.55	58.26	100	211	Peak



Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
55.11	28.27	-11.73	40	52.46	6.5	0.83	31.52	-	-	Peak
157.17	20.64	-22.86	43.5	40.07	10.74	1.33	31.5	-	-	Peak
250.05	33.5	-12.5	46	50.77	12.6	1.66	31.53	-	-	Peak
368.6	28.92	-17.08	46	43.39	14.85	1.94	31.26	-	-	Peak
479.9	33.67	-12.33	46	44.89	17.7	2.19	31.11	-	-	Peak
666.8	34.49	-11.51	46	42.37	20.26	2.61	30.75	100	65	Peak
2348	38.76	-15.24	54	38.12	31.98	4.55	35.89	100	0	Average
2348	51.41	-22.59	74	50.77	31.98	4.55	35.89	100	0	Peak
2462	89.96	-	-	89.1	32.07	4.62	35.83	100	0	Average
2462	102.18	-	-	101.32	32.07	4.62	35.83	100	0	Peak
2483.5	39.15	-14.85	54	38.23	32.09	4.64	35.81	100	0	Average
2483.5	53.76	-20.24	74	52.84	32.09	4.64	35.81	100	0	Peak
3282	48.84	-33.34	82.18	68.96	32.74	5.59	58.45	100	0	Peak
4924	49.23	-4.77	54	67.12	33.81	6.56	58.26	102	352	Average
4924	61.4	-12.6	74	79.3	33.81	6.55	58.26	102	352	Peak
7386	48.94	-25.06	74	62.54	35.6	8.55	57.75	100	0	Peak



Test Mode :	Mode 10	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	38.99	-15.01	54	38.25	32.02	4.58	35.86	102	274	Average
2389.8	54.2	-19.8	74	53.46	32.02	4.58	35.86	102	274	Peak
2412	87.51	-	-	86.75	32.03	4.59	35.86	102	274	Average
2412	97.96	-	-	97.2	32.03	4.59	35.86	102	274	Peak
2490	36.42	-17.58	54	35.49	32.1	4.64	35.81	102	274	Average
2490	48.66	-25.34	74	47.73	32.1	4.64	35.81	102	274	Peak

Test Mode :	Mode 10	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	43.55	-10.45	54	42.83	32.02	4.58	35.88	100	350	Average
2389.61	60.38	-13.62	74	59.66	32.02	4.58	35.88	100	350	Peak
2412	90.28	-	-	89.52	32.03	4.59	35.86	100	350	Average
2412	100.81	-	-	100.05	32.03	4.59	35.86	100	350	Peak
2486	36.24	-17.76	54	35.32	32.09	4.64	35.81	100	350	Average
2486	48.43	-25.57	74	47.51	32.09	4.64	35.81	100	350	Peak



Test Mode :	Mode 11	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2374	36.56	-17.44	54	35.87	32	4.57	35.88	100	282	Average
2374	48.38	-25.62	74	47.69	32	4.57	35.88	100	282	Peak
2437	86.52	-	-	85.69	32.06	4.61	35.84	100	282	Average
2437	97.13	-	-	96.3	32.06	4.61	35.84	100	282	Peak
2492	37.21	-16.79	54	36.27	32.1	4.64	35.8	100	282	Average
2492	48.61	-25.39	74	47.67	32.1	4.64	35.8	100	282	Peak

Test Mode :	Mode 11	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386	40.36	-13.64	54	39.64	32.02	4.58	35.88	100	355	Average
2386	51.57	-22.43	74	50.85	32.02	4.58	35.88	100	355	Peak
2437	89.08	-	-	88.25	32.06	4.61	35.84	100	355	Average
2437	99.53	-	-	98.7	32.06	4.61	35.84	100	355	Peak
2492	37.1	-16.9	54	36.16	32.1	4.64	35.8	100	355	Average
2492	48.04	-25.96	74	47.1	32.1	4.64	35.8	100	355	Peak



Test Mode :	Mode 12	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382	36.88	-17.12	54	36.18	32	4.58	35.88	101	274	Average
2382	48.19	-25.81	74	47.49	32	4.58	35.88	101	274	Peak
2462	87.91	-	-	87.05	32.07	4.62	35.83	101	274	Average
2462	98.6	-	-	97.74	32.07	4.62	35.83	101	274	Peak
2483.66	39.86	-14.14	54	38.94	32.09	4.64	35.81	101	274	Average
2483.66	55.77	-18.23	74	54.85	32.09	4.64	35.81	101	274	Peak

Test Mode :	Mode 12	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2358	39.01	-14.99	54	38.34	31.99	4.57	35.89	100	0	Average
2358	51.46	-22.54	74	50.79	31.99	4.57	35.89	100	0	Peak
2462	89.86	-	-	89	32.07	4.62	35.83	100	0	Average
2462	100.62	-	-	99.76	32.07	4.62	35.83	100	0	Peak
2484.42	39.64	-14.36	54	38.72	32.09	4.64	35.81	100	0	Average
2484.42	56.24	-17.76	74	55.32	32.09	4.64	35.81	100	0	Peak



Test Mode :	Mode 13	Temperature :	20~22°C
Test Channel :	03	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2422 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.95	48.36	-5.64	54	47.64	32.02	4.58	35.88	172	70	Average
2386.95	64.64	-9.36	74	63.92	32.02	4.58	35.88	172	70	Peak
2422	83.5	-	-	82.71	32.04	4.59	35.84	172	70	Average
2422	94.74	-	-	93.95	32.04	4.59	35.84	172	70	Peak
2490	35.76	-18.24	54	34.83	32.1	4.64	35.81	172	70	Average
2490	47.59	-26.41	74	46.66	32.1	4.64	35.81	172	70	Peak

Test Mode :	Mode 13	Temperature :	20~22°C
Test Channel :	03	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2422 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.95	49.66	-4.34	54	48.94	32.02	4.58	35.88	100	0	Average
2386.95	67.65	-6.35	74	66.93	32.02	4.58	35.88	100	0	Peak
2422	84.45	-	-	83.66	32.04	4.59	35.84	100	0	Average
2422	96.95	-	-	96.16	32.04	4.59	35.84	100	0	Peak
2486	36.61	-17.39	54	35.69	32.09	4.64	35.81	100	0	Average
2486	49.5	-24.5	74	48.58	32.09	4.64	35.81	100	0	Peak



Test Mode :	Mode 14	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	45.16	-8.84	54	44.42	32.02	4.58	35.86	100	19	Average
2390	62.45	-11.55	74	61.71	32.02	4.58	35.86	100	19	Peak
2437	87.61	-	-	86.78	32.06	4.61	35.84	100	19	Average
2437	100.82	-	-	100.01	32.04	4.61	35.84	100	19	Peak
2484	41.74	-12.26	54	40.82	32.09	4.64	35.81	100	19	Average
2484	58.27	-15.73	74	57.35	32.09	4.64	35.81	100	19	Peak

Test Mode :	Mode 14	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	39.53	-14.47	54	38.79	32.02	4.58	35.86	123	306	Average
2390	54.51	-19.49	74	53.77	32.02	4.58	35.86	123	306	Peak
2437	83.78	-	-	82.95	32.06	4.61	35.84	123	306	Average
2437	96.33	-	-	95.52	32.04	4.61	35.84	123	306	Peak
2484	38.34	-15.66	54	37.42	32.09	4.64	35.81	123	306	Average
2484	54.18	-19.82	74	53.26	32.09	4.64	35.81	123	306	Peak



Test Mode :	Mode 15	Temperature :	20~22°C
Test Channel :	09	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2452 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2372	35.98	-18.02	54	35.29	32	4.57	35.88	101	276	Average
2372	48.38	-25.62	74	47.69	32	4.57	35.88	101	276	Peak
2452	77.13	-	-	76.29	32.06	4.61	35.83	101	276	Average
2452	96.36	-	-	95.52	32.06	4.61	35.83	101	276	Peak
2486.13	44.36	-9.64	54	43.44	32.09	4.64	35.81	101	276	Average
2486.13	59.77	-14.23	74	58.85	32.09	4.64	35.81	101	276	Peak

Test Mode :	Mode 15	Temperature :	20~22°C
Test Channel :	09	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2452 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2384	38.49	-15.51	54	37.79	32	4.58	35.88	100	0	Average
2384	51.64	-22.36	74	50.94	32	4.58	35.88	100	0	Peak
2452	79.14	-	-	78.3	32.06	4.61	35.83	100	0	Average
2452	98.2	-	-	97.36	32.06	4.61	35.83	100	0	Peak
2486.32	43.95	-10.05	54	43.03	32.09	4.64	35.81	100	0	Average
2486.32	59.31	-14.69	74	58.39	32.09	4.64	35.81	100	0	Peak



3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

The antennas type used in this product is 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	Test Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 03, 2011	Feb. 16, 2012 ~ Feb. 19, 2012	Apr. 02, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Feb. 25, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Feb. 25, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Feb. 25, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000 W	N/A	N/A	N/A	Feb. 25, 2012	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	ESU26	100390	20Hz ~ 26.5GHz	Dec. 22, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Dec. 21, 2012	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1GHz ~ 18GHz	N/A	Feb. 23, 2012 ~ Mar. 15, 2012	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 2GHz	Oct. 22, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Feb. 23, 2012 ~ Mar. 15, 2012	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Feb. 23, 2012 ~ Mar. 15, 2012	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	10Hz ~ 1000MHz Gain:32dB	Mar. 29, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz~18GHz	Jul. 18, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Jul. 17, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Aug. 30, 2011	Feb. 23, 2012 ~ Mar. 15, 2012	Aug. 29, 2012	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Feb. 23, 2012 ~ Mar. 15, 2012	Jul. 28, 2012	Radiation (03CH05-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 EP213125 as below.