

FCC/IC RF Test Report

APPLICANT : PSION INC.
EQUIPMENT : EP10 Hand-Held Computer
BRAND NAME : 
MODEL NAME : 7515
FCC ID : GM37515UB
IC : 2739D-7515UB
STANDARD : FCC Part 15 Subpart C §15.247
IC RSS-210 Issue 8
CLASSIFICATION : Digital Transmission System (DTS)
EMISSION DESIGNATOR : <2400 MHz ~ 2483.5 MHz>
19M2D1D
<5725 MHz ~ 5850 MHz>
21M1D1D

The product was received on Jun. 08, 2011 and completely tested on Apr. 20, 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.

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



TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Feature of Equipment Under Test	6
1.4 Testing Site.....	7
1.5 Applied Standards	8
1.6 Ancillary Equipment List	8
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	9
2.1 Pre-Scanned RF Power.....	9
2.2 Maximum Peak Conducted Output Power:	10
2.3 Maximum Average Conducted Output Power:	11
2.4 Test Mode.....	12
2.5 Connection Diagram of Test System.....	13
2.6 RF Utility	14
3 TEST RESULT	15
3.1 6dB and 99% Bandwidth Measurement	15
3.2 Output Power Measurement.....	36
3.3 Band Edges Measurement.....	47
3.4 Spurious Emission Measurement.....	59
3.5 Power Spectral Density Measurement	75
3.6 AC Conducted Emission Measurement.....	86
3.7 Radiated Emission Measurement.....	90
3.8 Antenna Requirements.....	123
4 LIST OF MEASURING EQUIPMENT	124
5 UNCERTAINTY OF EVALUATION	125
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1D0814B	Rev. 01	Initial issue of report	Apr. 24, 2012

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 Measurement	$\leq 30\text{dBm}$	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 13.10 dB at 2.822 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.04 dB at 33.240 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

PSION INC.

2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.2 Manufacturer

PSION INC.

2100 Meadowvale Blvd, Mississauga ON L5N 7J9, CANADA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	EP10 Hand-Held Computer
Brand Name	PSION
Model Name	7515
FCC ID	GM37515UB
IC	2739D-7515UB
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	<2400 MHz ~ 2483.5 MHz> 802.11b : 20.16 dBm (0.1038 W) 802.11g : 23.56 dBm (0.2270 W) 802.11g/n (BW 20MHz) : 22.48 dBm (0.1770 W) <5725 MHz ~ 5850 MHz> 802.11a : 15.06 dBm (0.0321 W) 802.11a/n (BW 20MHz) : 14.64 dBm (0.0291 W)
Duty Cycle	<2400 MHz ~ 2483.5 MHz> 802.11b : 98.15% 802.11g : 98.14% 802.11g/n (BW 20MHz) : 97.77% <5725 MHz ~ 5850 MHz> 802.11a : 98.07% 802.11a/n (BW 20MHz) : 97.77%
Antenna Type	802.11b/g/n : PIFA Antenna with gain 3.73 dBi 802.11a/n : PIFA Antenna with gain 4.87 dBi
HW Version	3
SW Version	2.2.0.0
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Type of Emission	<2400 MHz ~ 2483.5 MHz> 19M2D1D <5725 MHz ~ 5850 MHz> 21M1D1D
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

List of Accessory:

Specification of Accessory		
AC Adapter 1	Brand Name	Leader
	Model Name	IU18-2050300-WP
AC Adapter 2	Brand Name	Phihong
	Model Name	PSA15R-050P
Battery	Brand Name	PSION / ETI
	Model Name	RV3010 / BP08-000760
Car Charger	Brand Name	AOEM
	Model Name	C15C-0520CD0-C0
Desktop Charger Cradle (Single Dock)	Brand Name	PSION
	Model Name	RV4000
Desktop Charger Cradle (AC Adapter)	Brand Name	FSP
	Model Name	FSP050-DBAB1
Charger Snap Module 1	Brand Name	PSION
	Model Name	RV4001
Charger Snap Module 2	Brand Name	PSION
	Model Name	RV4002
LCD Panel	Brand Name	Sharp
	Model Name	LS037V7DW01
Pouch	Brand Name	Psion
	Model Name	RV6091

Remark: For accessories equipped with this EUT, please refer to Appendix A.

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	03CH07HY	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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
5.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
6.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 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), 11a, 11a/n (BW 20MHz) 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)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	19.75	19.79	19.72	20.16

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	23.56	23.54	22.84	22.79	20.99	20.91	20.93	20.83

2.4GHz 802.11g/n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.48	22.35	22.39	22.43	22.27	22.24	22.19	21.3

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	15.06	14.87	14.89	14.88	14.87	14.81	14.76	14.69

5GHz 802.11a/n (BW 20MHz) mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	14.64	14.52	14.59	14.5	14.26	14.25	14.22	14.24

2.2 Maximum Peak Conducted Output Power:

Band	2.4GHz 802.11b RF Power (dBm)			2.4GHz 802.11g RF Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	20.16	20.03	19.59	23.56	23.55	23.42

Band	2.4GHz 802.11g/n (BW 20MHz) RF Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	21.99	21.82	22.48

Band	5GHz 802.11a RF Power (dBm)		
Channel	149	157	165
Frequency (MHz)	5745	5785	5825
Peak Power	14.26	15.06	14.65

Band	5GHz 802.11a/n (BW 20MHz) RF Power (dBm)		
Channel	149	157	165
Frequency (MHz)	5745	5785	5825
Peak Power	14.58	14.18	14.64

Remark:

The data rates of WLAN 802.11b/g/n/a were set in 11Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11g/n (BW 20MHz), 6Mbps for 802.11a, MCS0 for 802.11a/n (BW 20MHz) for all the test cases due to the highest RF output power.

2.3 Maximum Average Conducted Output Power:

Band	2.4GHz 802.11b RF Power (dBm)			2.4GHz 802.11g RF Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Average Power	17.66	17.35	17.24	17.65	17.56	17.37

Band	2.4GHz 802.11g/n (BW 20MHz) RF Power (dBm)		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Average Power	15.96	15.76	16.43

Band	5GHz 802.11a RF Power (dBm)		
Channel	149	157	165
Frequency (MHz)	5745	5785	5825
Average Power	11.44	12.14	11.82

Band	5GHz 802.11a/n (BW 20MHz) RF Power (dBm)		
Channel	149	157	165
Frequency (MHz)	5745	5785	5825
Average Power	11.62	11.25	11.88

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).

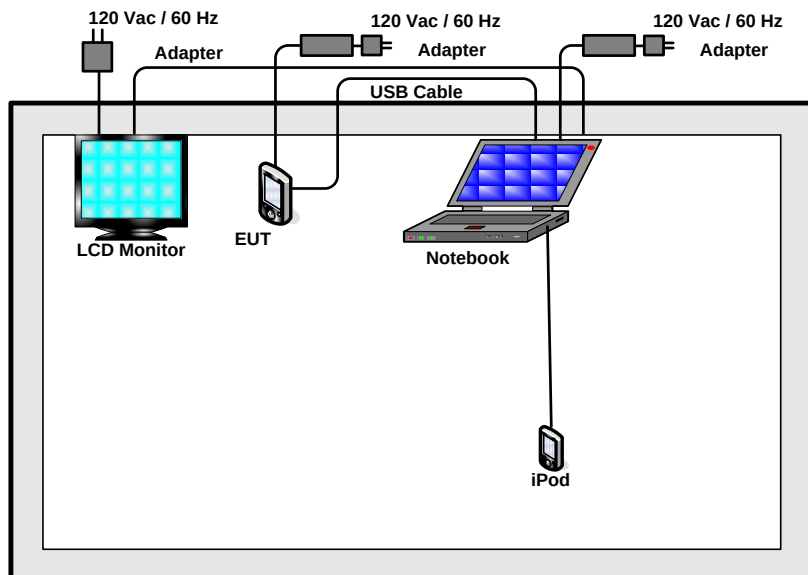
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

The following table is showing the total pre-scanned test modes, and the worst cases (X plane for 2.4G and are Z plane for 5G) are recorded in this report only.

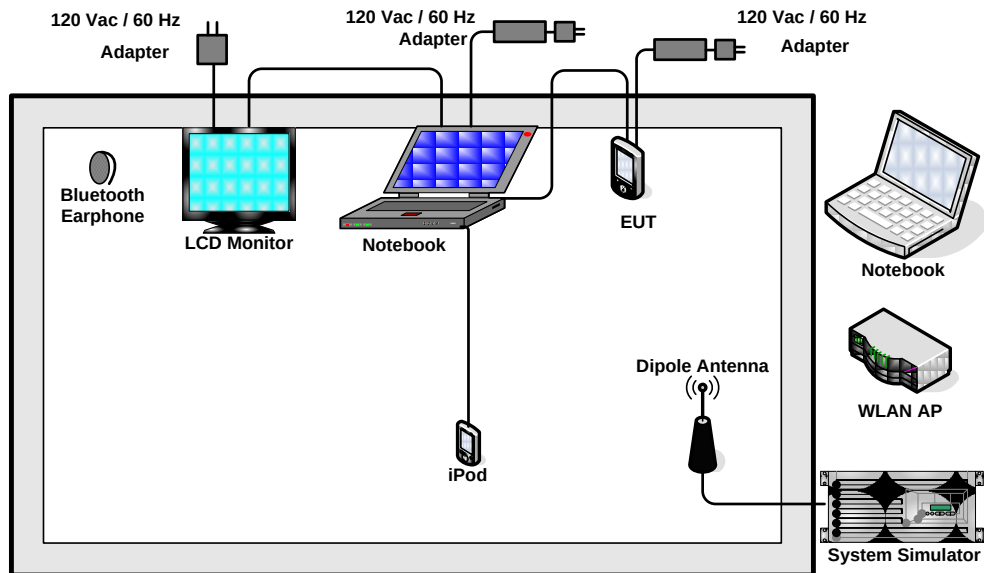
Test Cases		
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)	802.11a/n (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz	Mode 10: 802.11a_CH149_5745 MHz
	Mode 2: 802.11b_CH06_2437 MHz	Mode 11: 802.11a_CH157_5785 MHz
	Mode 3: 802.11b_CH11_2462 MHz	Mode 12: 802.11a_CH165_5825 MHz
	Mode 4: 802.11g_CH01_2412 MHz	Mode 13: 802.11a/n_CH149_5745 MHz (BW 20M)
	Mode 5: 802.11g_CH06_2437 MHz	Mode 14: 802.11a/n_CH157_5785 MHz (BW 20M)
	Mode 6: 802.11g_CH11_2462 MHz	Mode 15: 802.11a/n_CH165_5825 MHz (BW 20M)
	Mode 7: 802.11g/n_CH01_2412 MHz (BW 20M)	
	Mode 8: 802.11g/n_CH06_2437 MHz (BW 20M)	
	Mode 9: 802.11g/n_CH11_2462 MHz (BW 20M)	
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz	Mode 10: 802.11a_CH149_5745 MHz
	Mode 2: 802.11b_CH06_2437 MHz	Mode 11: 802.11a_CH157_5785 MHz
	Mode 3: 802.11b_CH11_2462 MHz	Mode 12: 802.11a_CH165_5825 MHz
	Mode 4: 802.11g_CH01_2412 MHz	Mode 13: 802.11a/n_CH149_5745 MHz (BW 20M)
	Mode 5: 802.11g_CH06_2437 MHz	Mode 14: 802.11a/n_CH157_5785 MHz (BW 20M)
	Mode 6: 802.11g_CH11_2462 MHz	Mode 15: 802.11a/n_CH165_5825 MHz (BW 20M)
	Mode 7: 802.11g/n_CH01_2412 MHz (BW 20M)	
	Mode 8: 802.11g/n_CH06_2437 MHz (BW 20M)	
	Mode 9: 802.11g/n_CH11_2462 MHz (BW 20M)	
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery	
Remark: TC stands for Test Configuration, and consists of of Sleeve, Battery, USB Cable, and adapter 2 for Radiation test.		

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.6 RF Utility

The programmed RF utility “Cal1273WM”, 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.

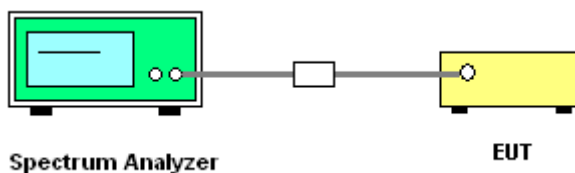
3.1.2 Measuring Instruments

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

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	11.111	0.5	Pass
06	2437	10.320	0.5	Pass
11	2462	10.968	0.5	Pass

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.109	0.5	Pass
06	2437	16.133	0.5	Pass
11	2462	16.254	0.5	Pass

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

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.342	0.5	Pass
06	2437	17.134	0.5	Pass
11	2462	17.367	0.5	Pass

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

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.199	0.5	Pass
157	5785	16.280	0.5	Pass
165	5825	16.185	0.5	Pass

Test Mode :	Mode 13, 14, 15	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a/n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	17.303	0.5	Pass
157	5785	17.183	0.5	Pass
165	5825	17.362	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

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

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.5736	Pass
06	2437	14.5218	Pass
11	2462	14.5505	Pass

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

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.5857	Pass
06	2437	18.6108	Pass
11	2462	18.3894	Pass

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

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.0519	Pass
06	2437	19.1096	Pass
11	2462	19.2476	Pass

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

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	19.0820	Pass
157	5785	19.7768	Pass
165	5825	18.6825	Pass

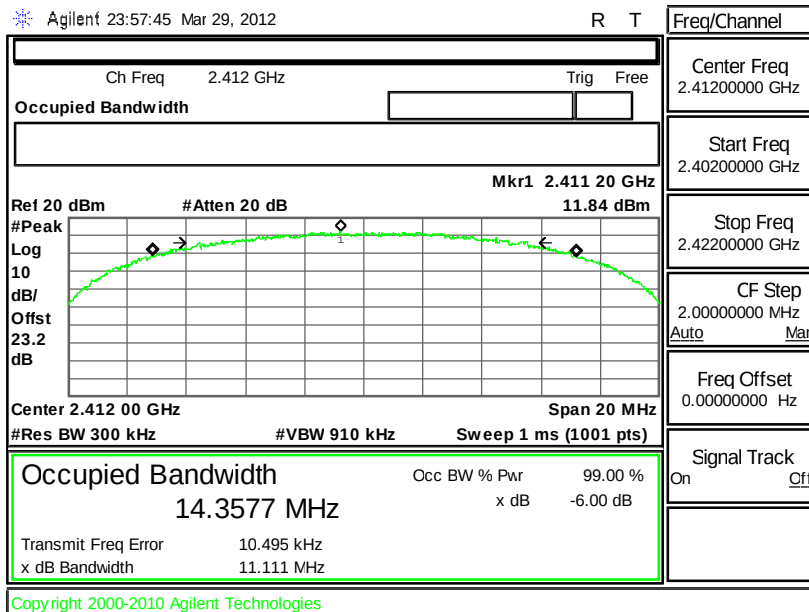
Test Mode :	Mode 13, 14, 15	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a/n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	21.1485	Pass
157	5785	20.4113	Pass
165	5825	20.2497	Pass

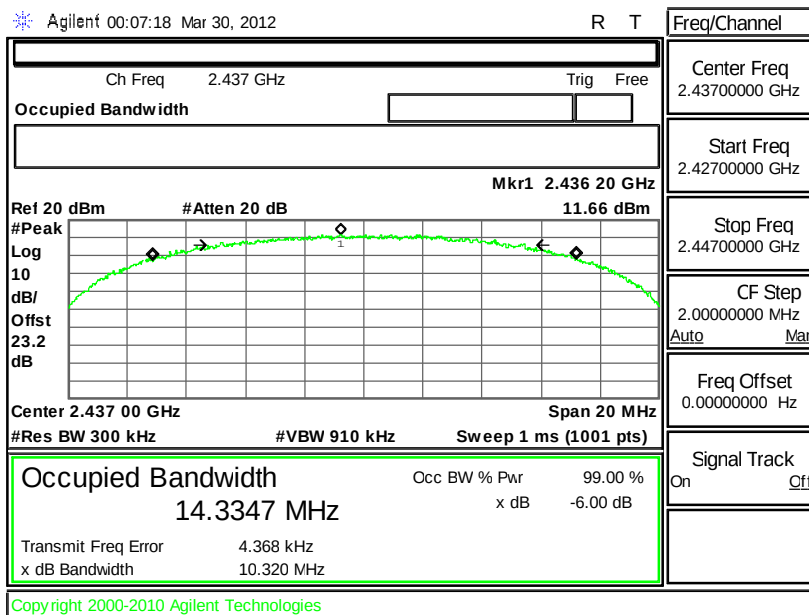


3.1.7 Test Result of 6dB Bandwidth Plots

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

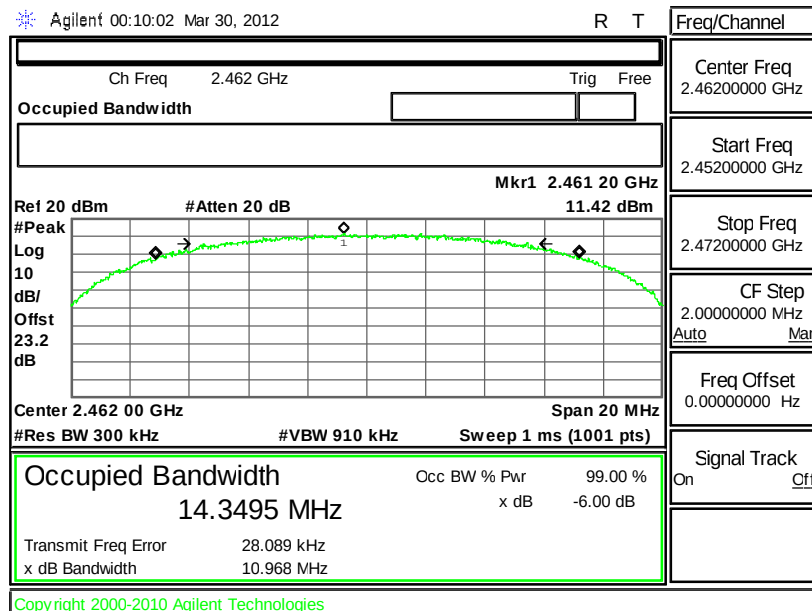


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06

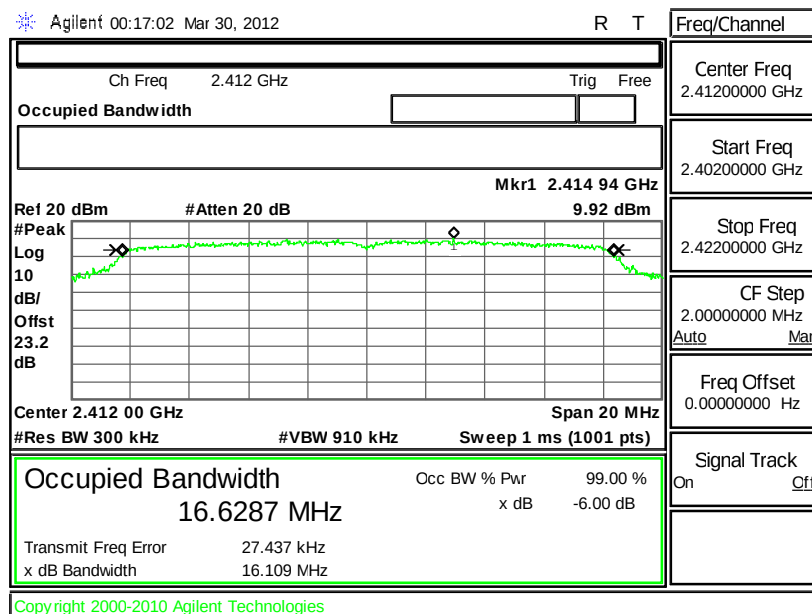




Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11

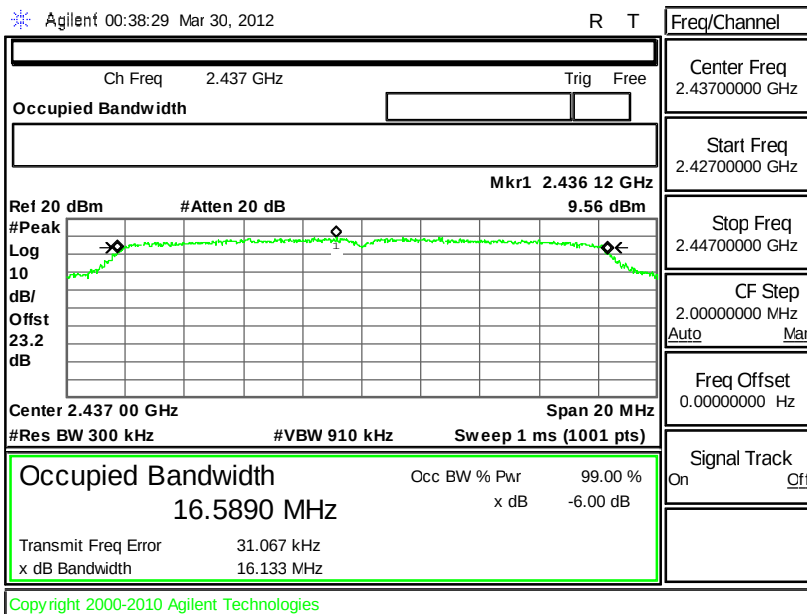


Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01

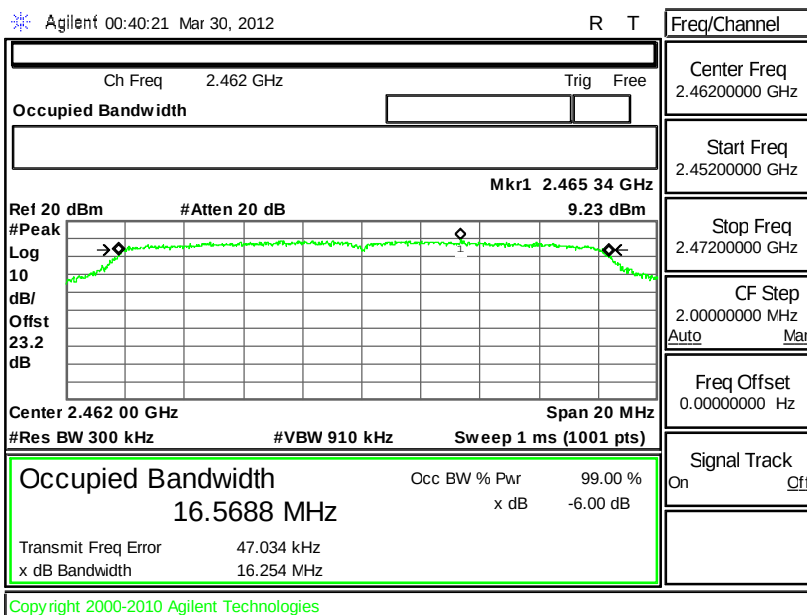




Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06

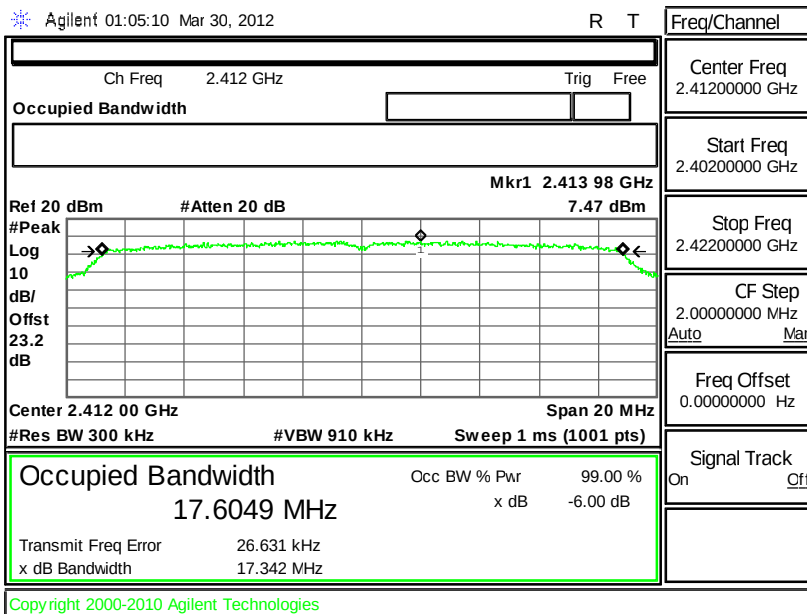


Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11

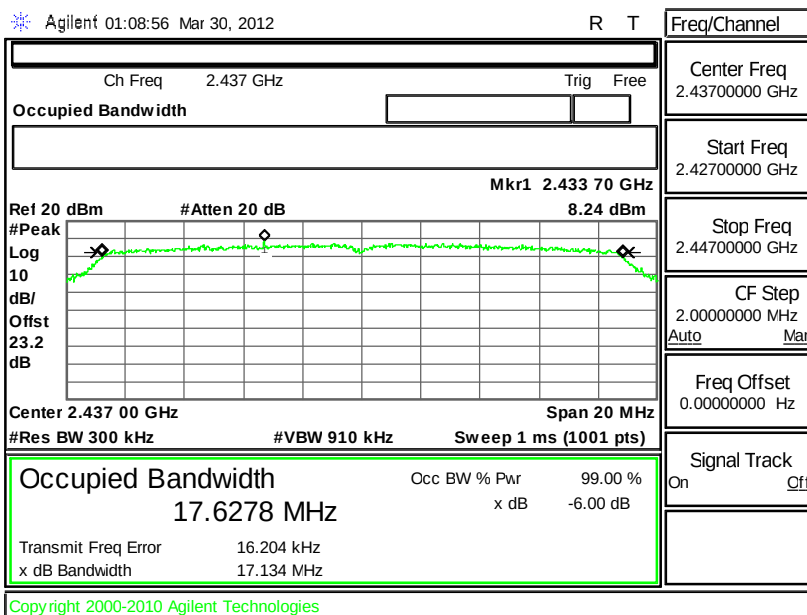




Mode 7 : 6 dB Bandwidth Plot on 802.11g/n Channel 01

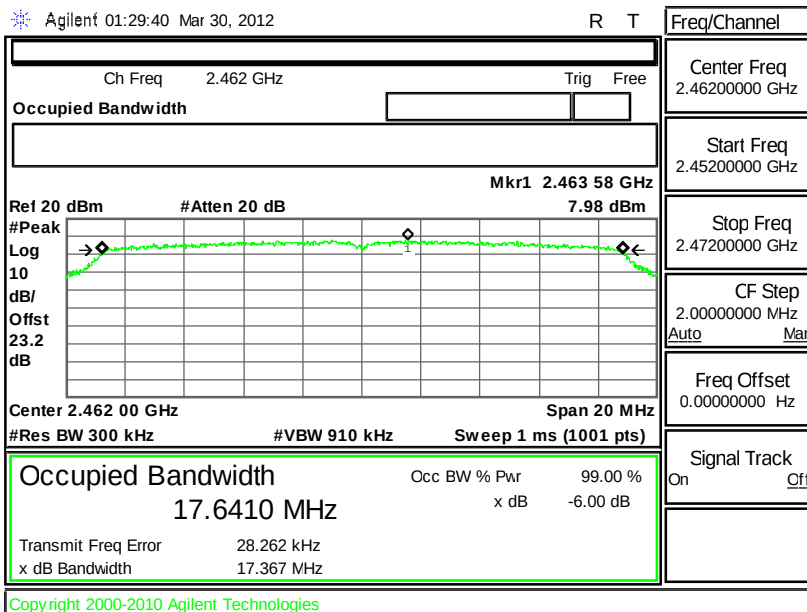


Mode 8 : 6 dB Bandwidth Plot on 802.11g/n Channel 06

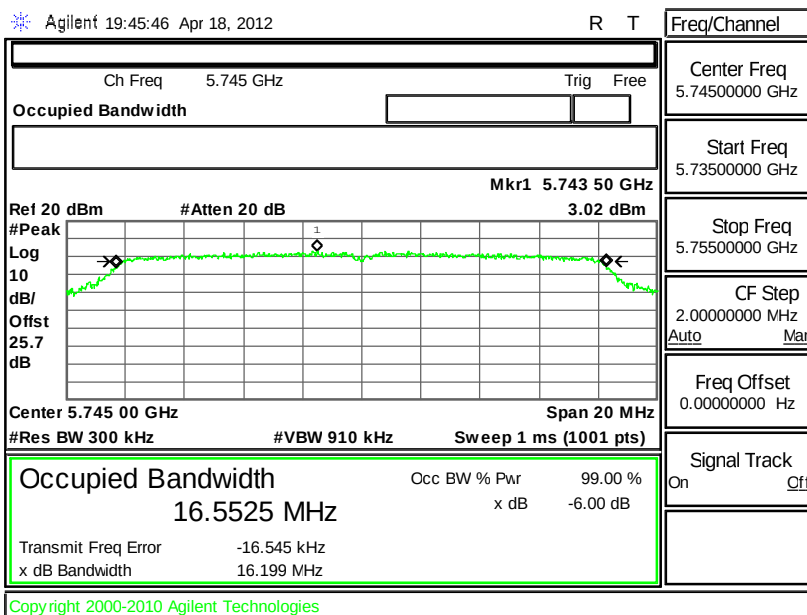




Mode 9 : 6 dB Bandwidth Plot on 802.11g/n Channel 11



Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149

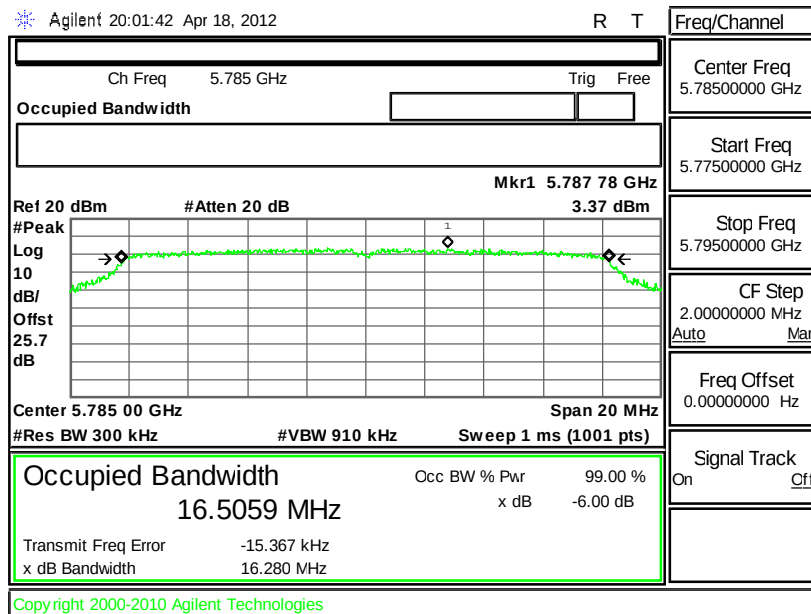




Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157

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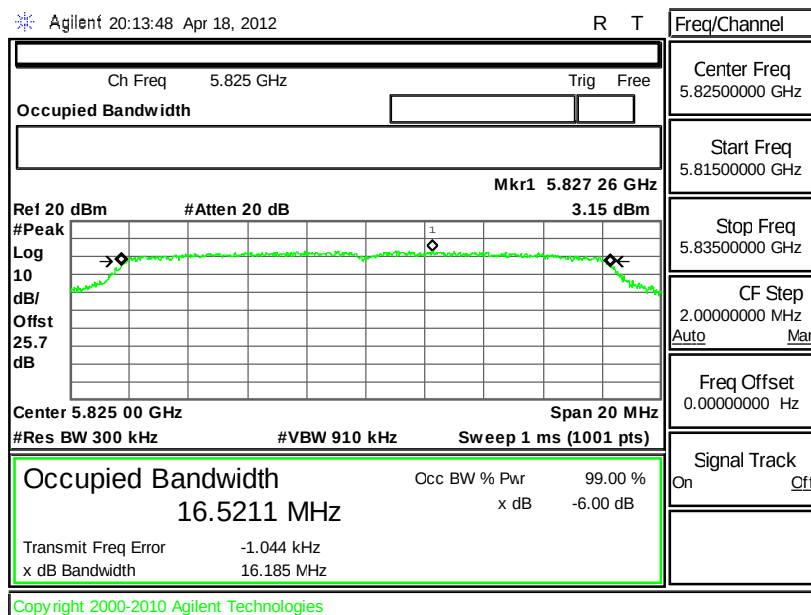
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Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165

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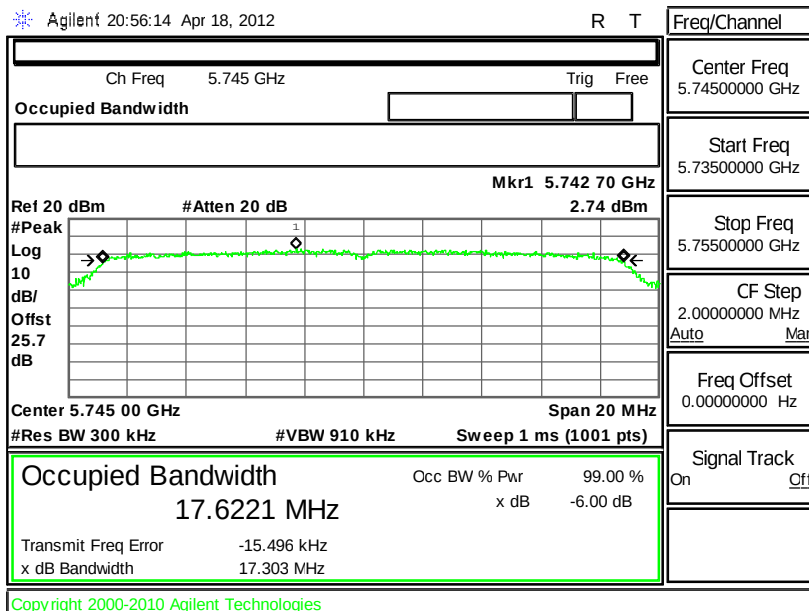
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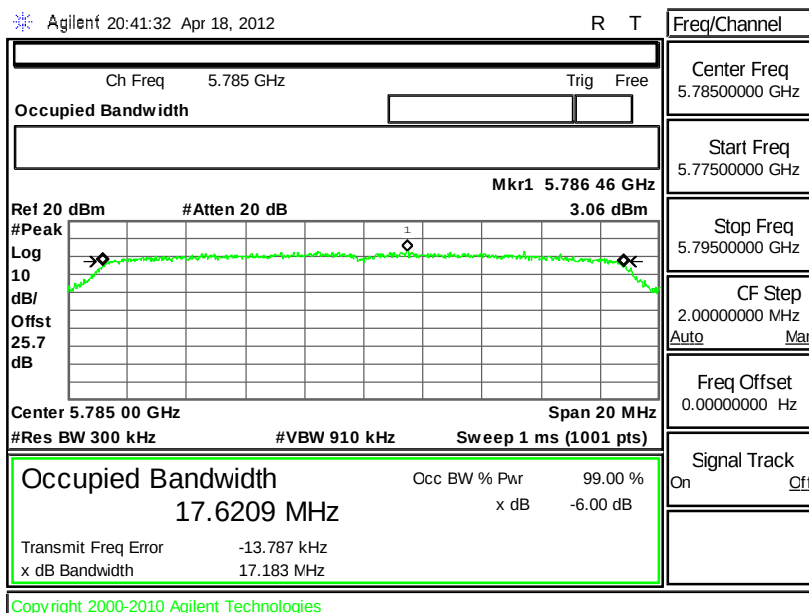
Mode 13 : 6 dB Bandwidth Plot on 802.11a/n (BW 20MHz) Channel

149



Mode 14 : 6 dB Bandwidth Plot on 802.11a/n (BW 20MHz) Channel

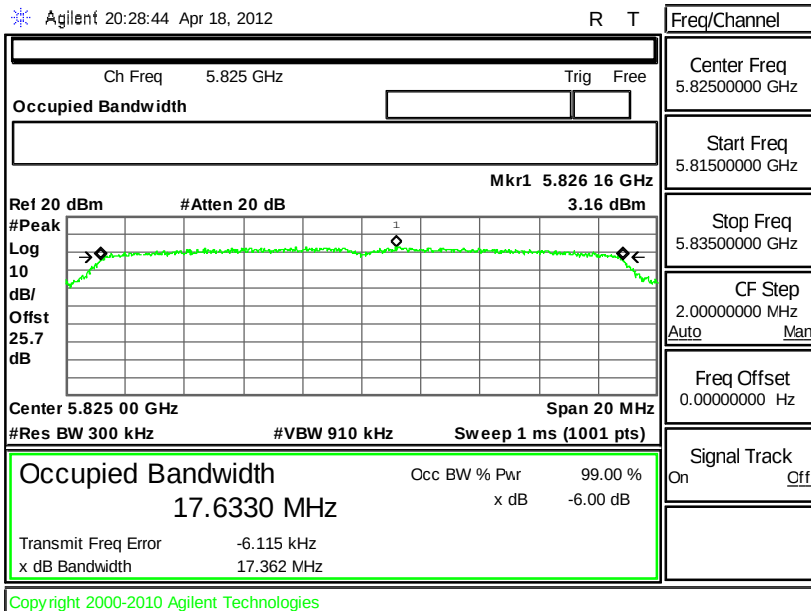
157





Mode 15 : 6 dB Bandwidth Plot on 802.11a/n (BW 20MHz) Channel

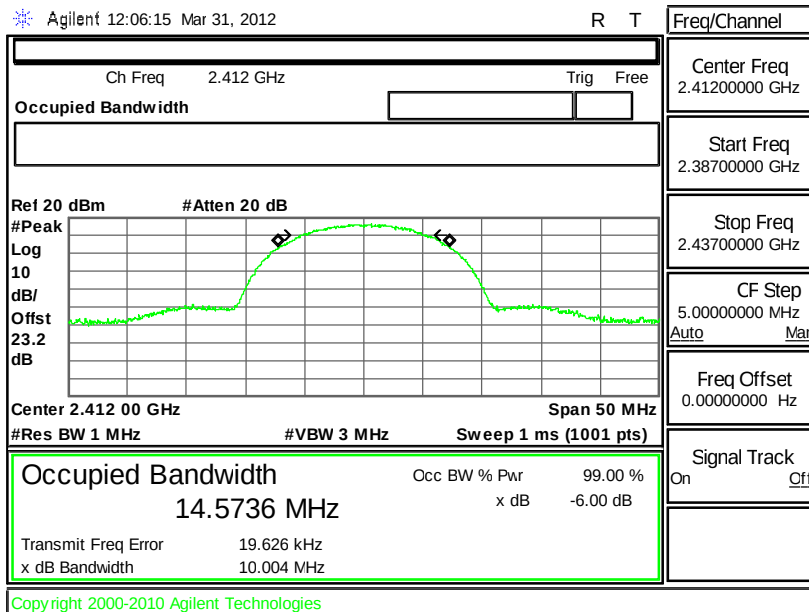
165



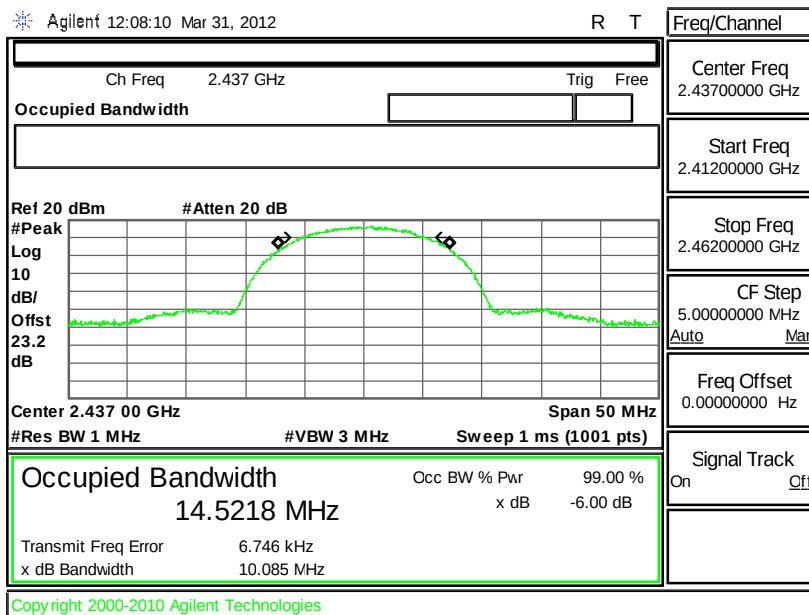


3.1.8 Test Result of 99% Bandwidth Plots

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

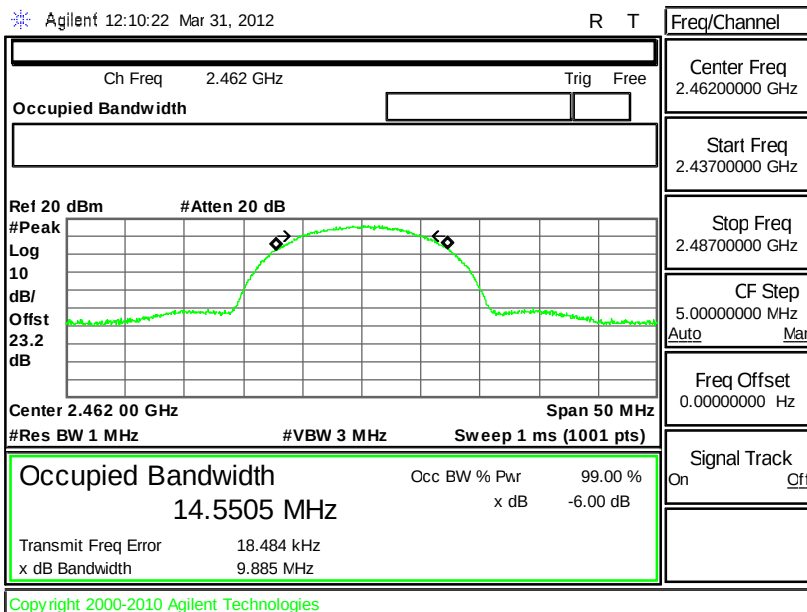


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06

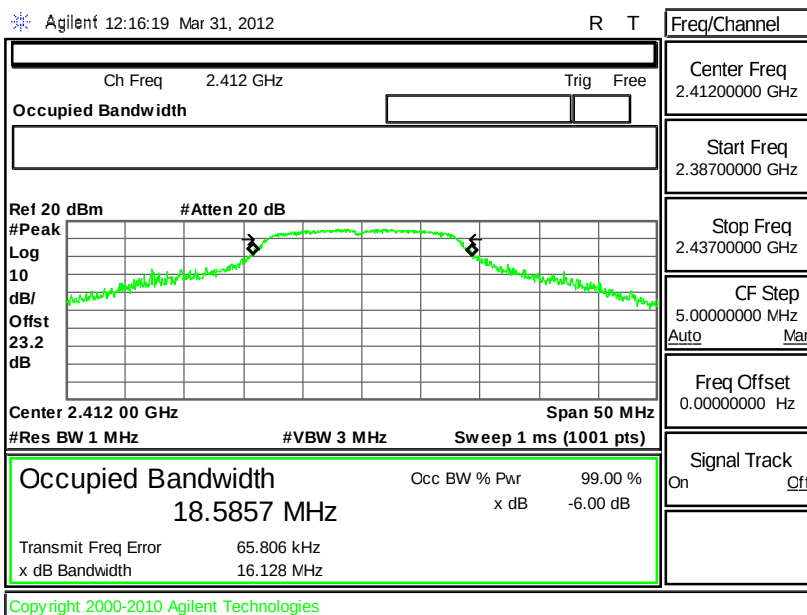


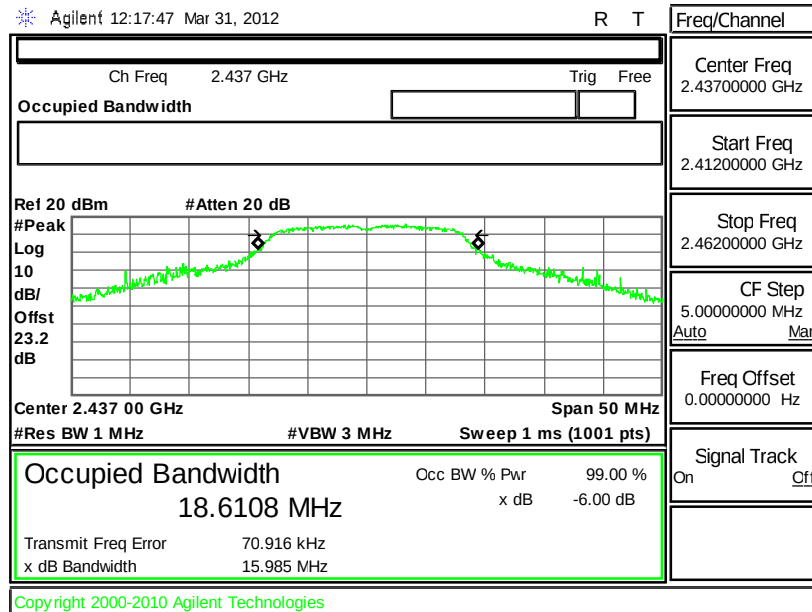
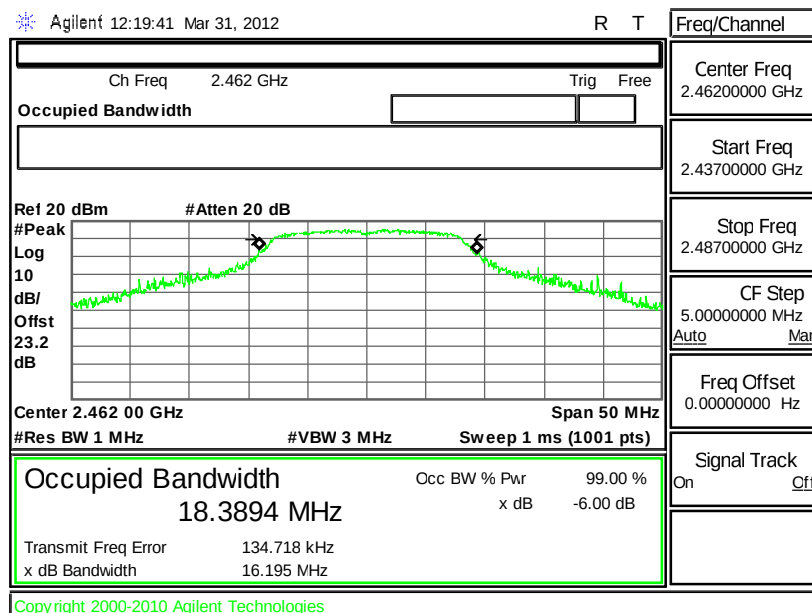


Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



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

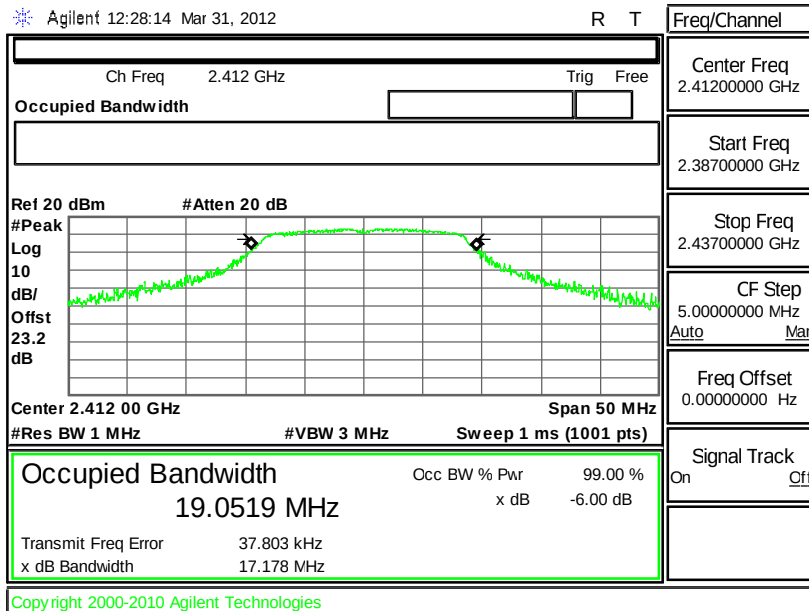


**Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06****Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11**



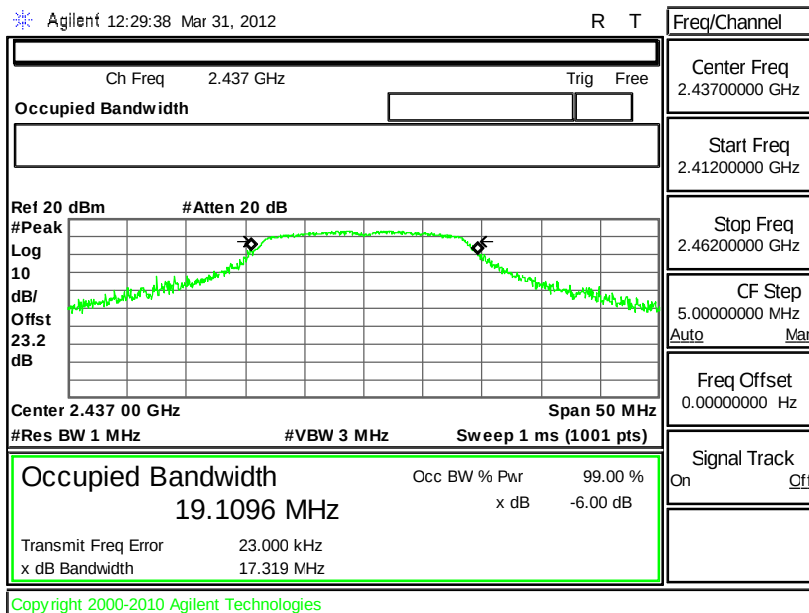
Mode 7 : 99% Occupied Bandwidth Plot on 802.11g/n (BW 20MHz)

Channel 01



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

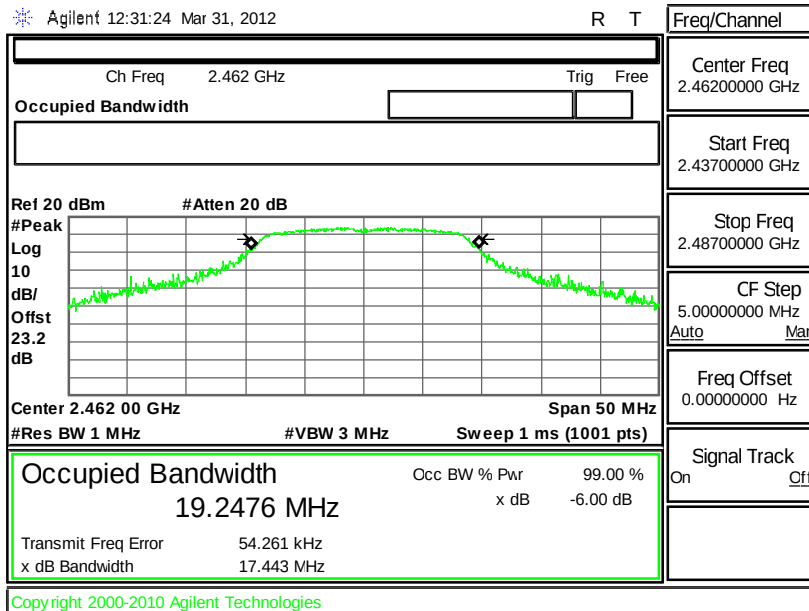
Channel 06



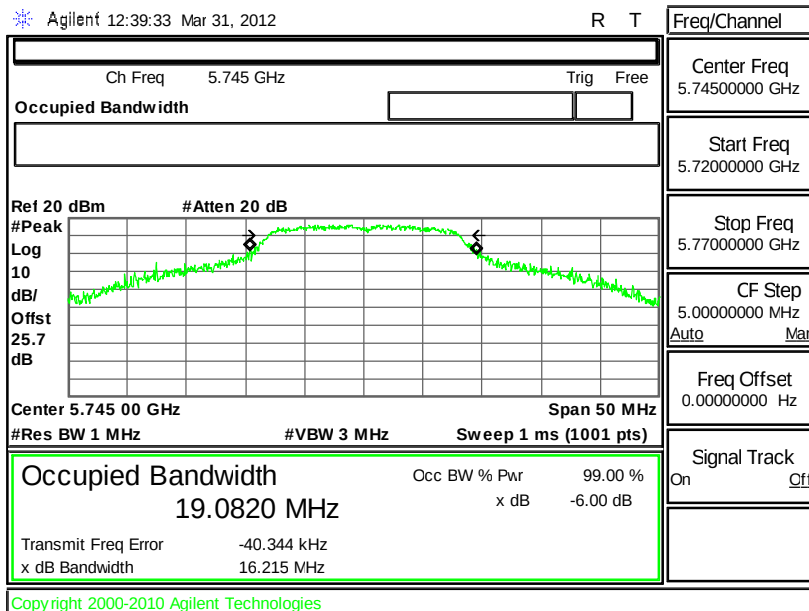


Mode 9 : 99% Occupied Bandwidth Plot on 802.11g/n (BW 20MHz)

Channel 11

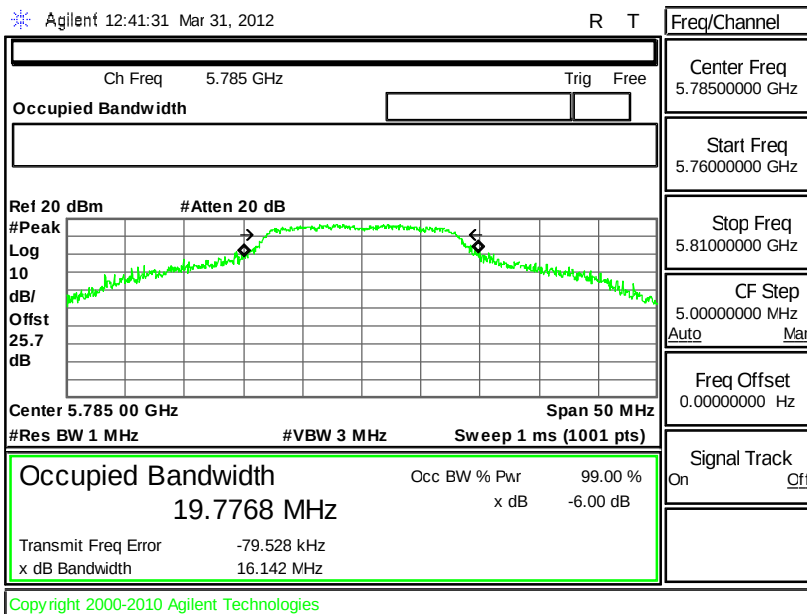


Mode 10: 99% Occupied Bandwidth Plot on 802.11a Channel 149

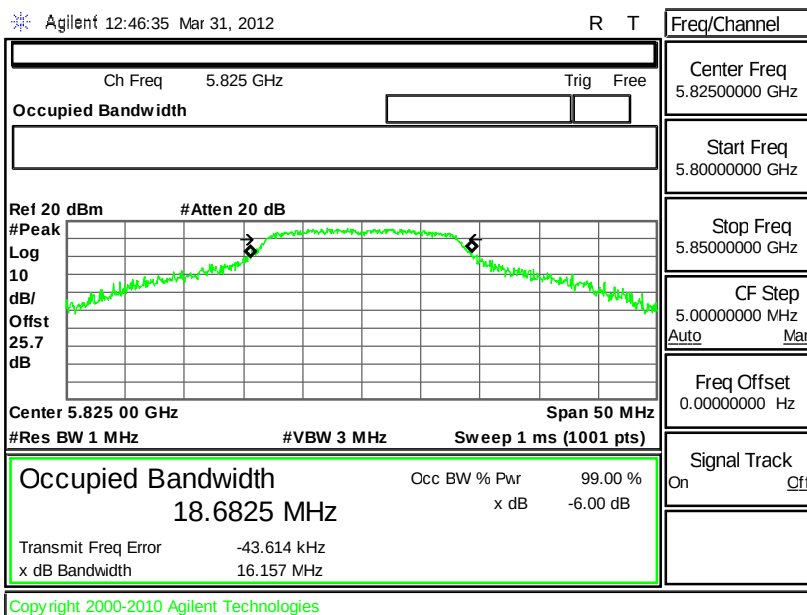




Mode 11: 99% Occupied Bandwidth Plot on 802.11a Channel 157



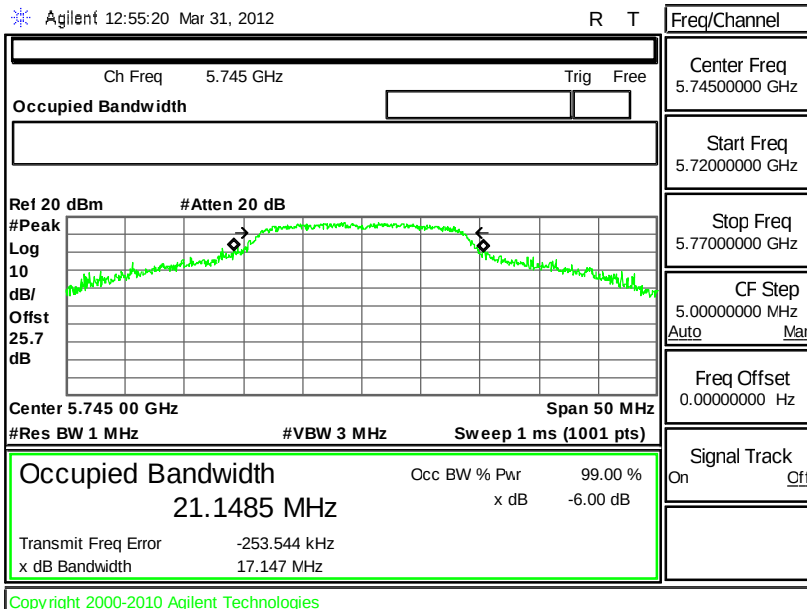
Mode 12: 99% Occupied Bandwidth Plot on 802.11a Channel 165





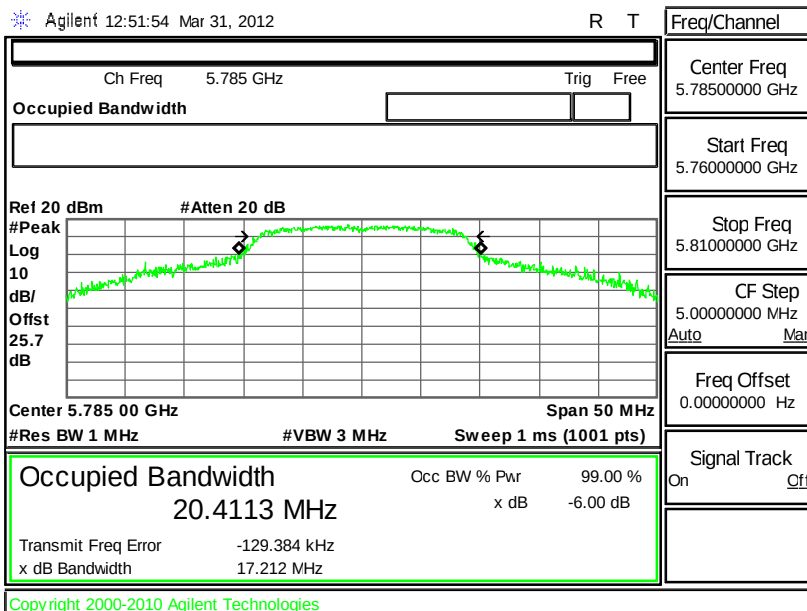
Mode 13 : 99% Occupied Bandwidth Plot on 802.11a/n (BW 20MHz)

Channel 149



Mode 14 : 99% Occupied Bandwidth Plot on 802.11a/n (BW 20MHz)

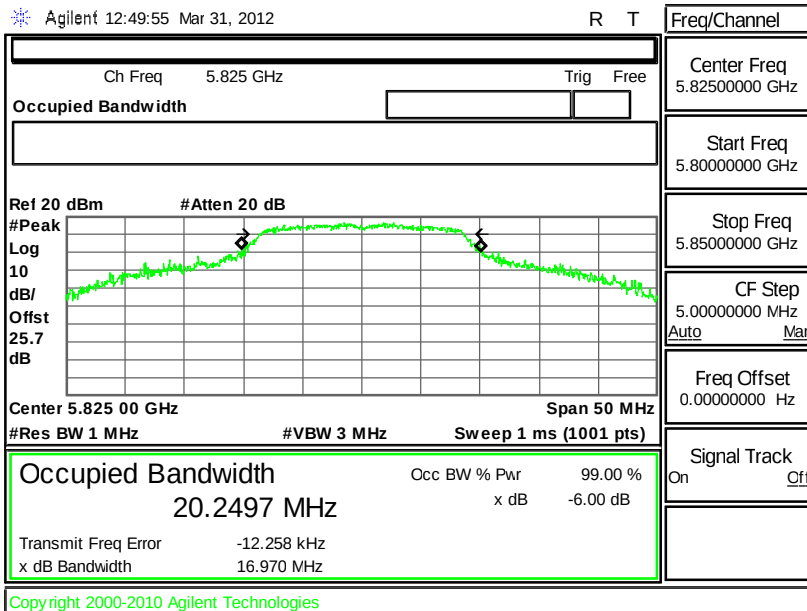
Channel 157





Mode 15 : 99% Occupied Bandwidth Plot on 802.11a/n (BW 20MHz)

Channel 165



3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, 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.

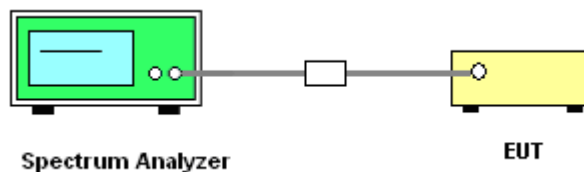
3.2.2 Measuring Instruments

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

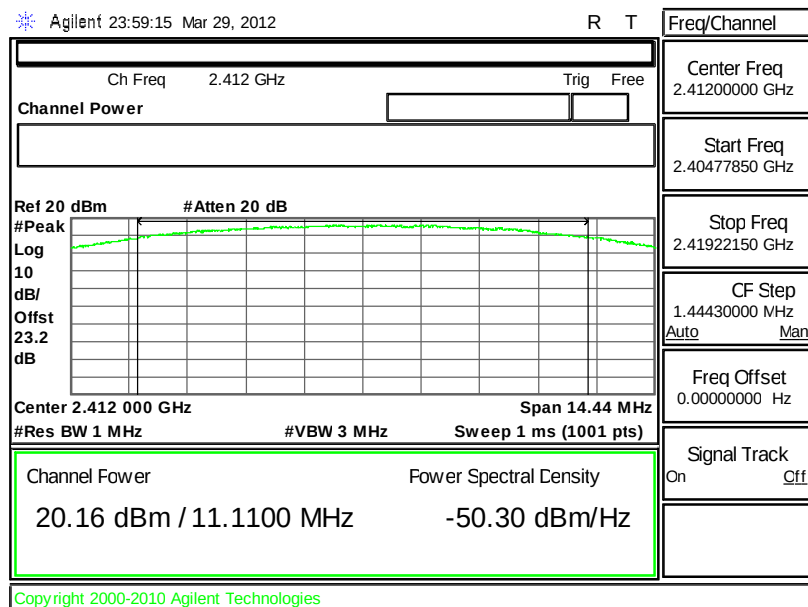


3.2.5 Test Result of Output Power

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

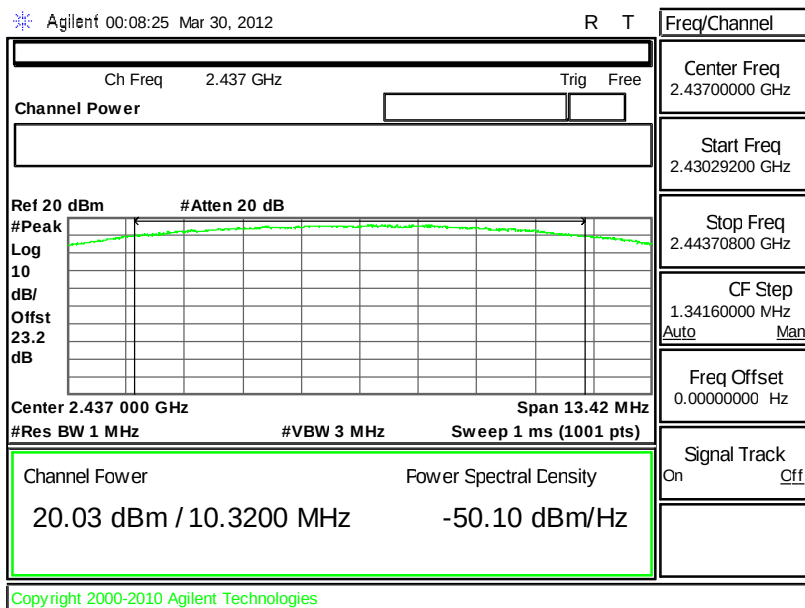
Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.16	30	Pass
06	2437	20.03	30	Pass
11	2462	19.59	30	Pass

Mode 1 : Output Power Plot on 802.11b Channel 01

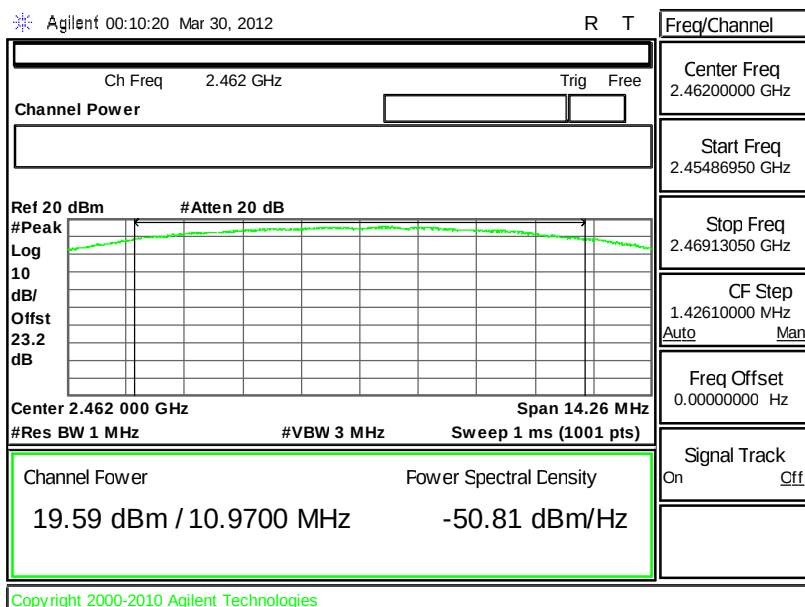




Mode 2 : Output Power Plot on 802.11b Channel 06



Mode 3 : Output Power Plot on 802.11b Channel 11

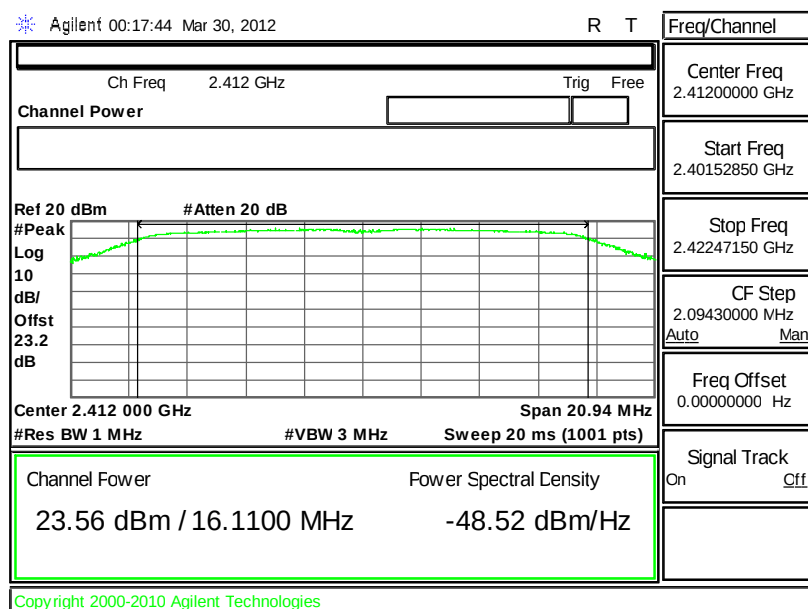




Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

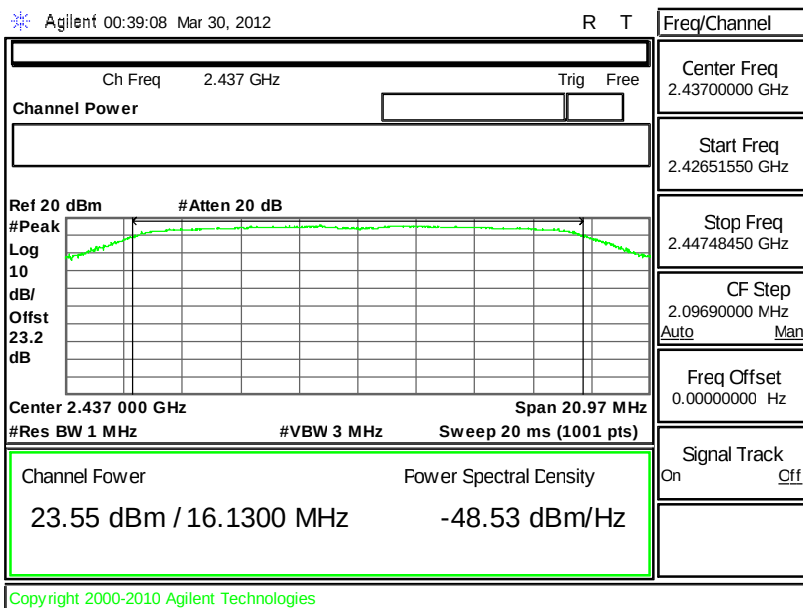
Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.56	30	Pass
06	2437	23.55	30	Pass
11	2462	23.42	30	Pass

Mode 4 : Output Power Plot on 802.11g Channel 01

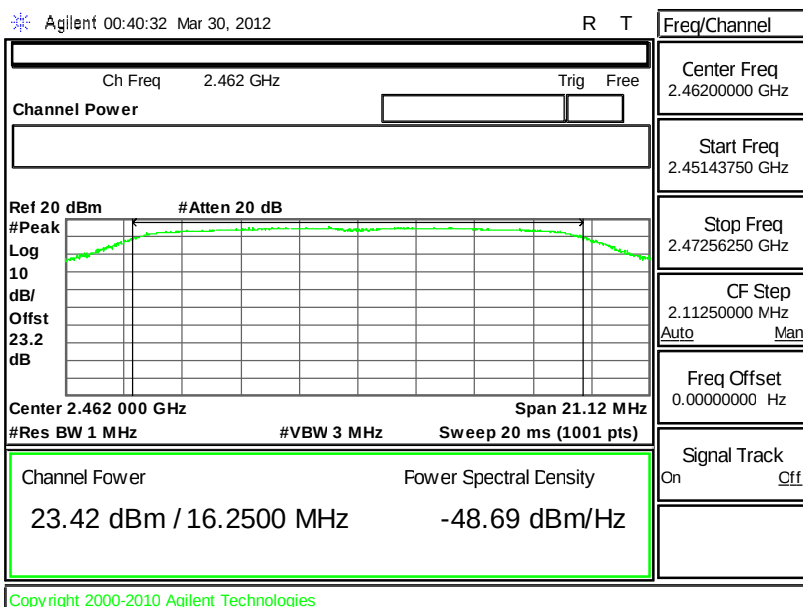




Mode 5 : Output Power Plot on 802.11g Channel 06



Mode 6 : Output Power Plot on 802.11g Channel 11

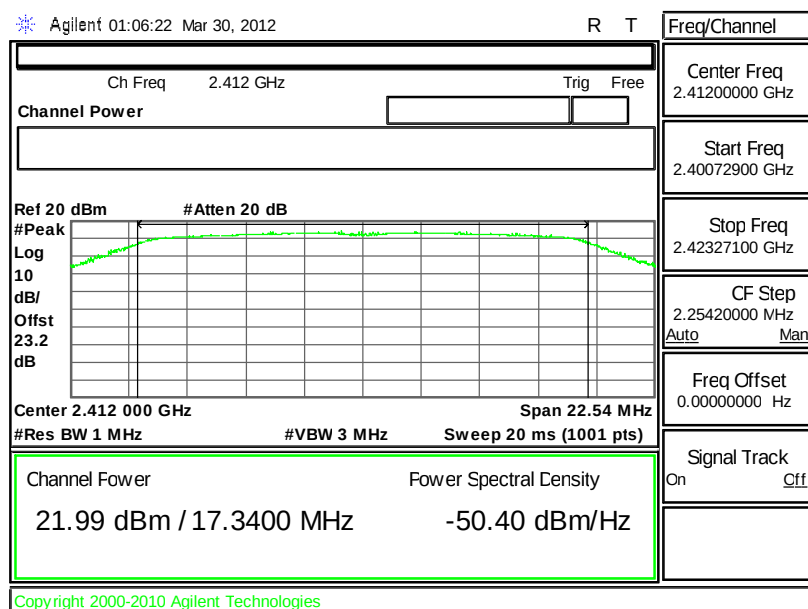




Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

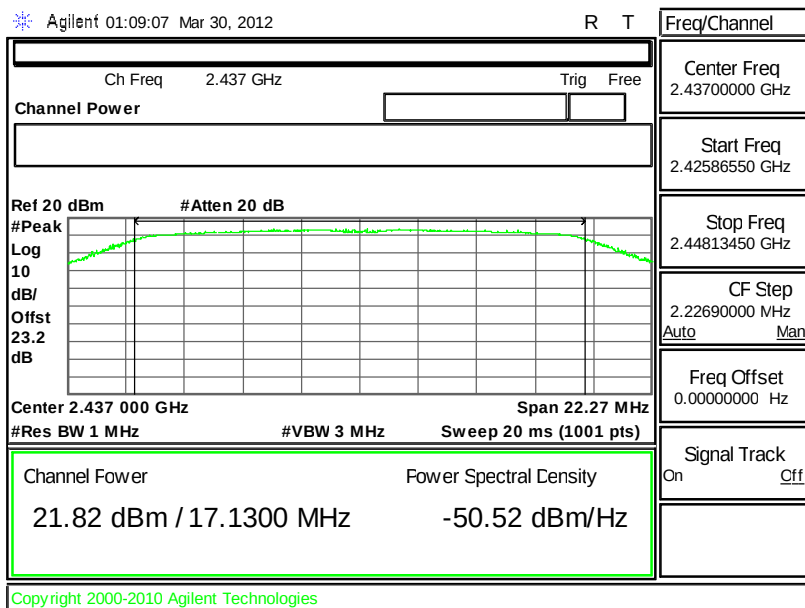
Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.99	30	Pass
06	2437	21.82	30	Pass
11	2462	22.48	30	Pass

Mode 7: Output Power Plot on 802.11g/n (BW 20MHz) channel 01

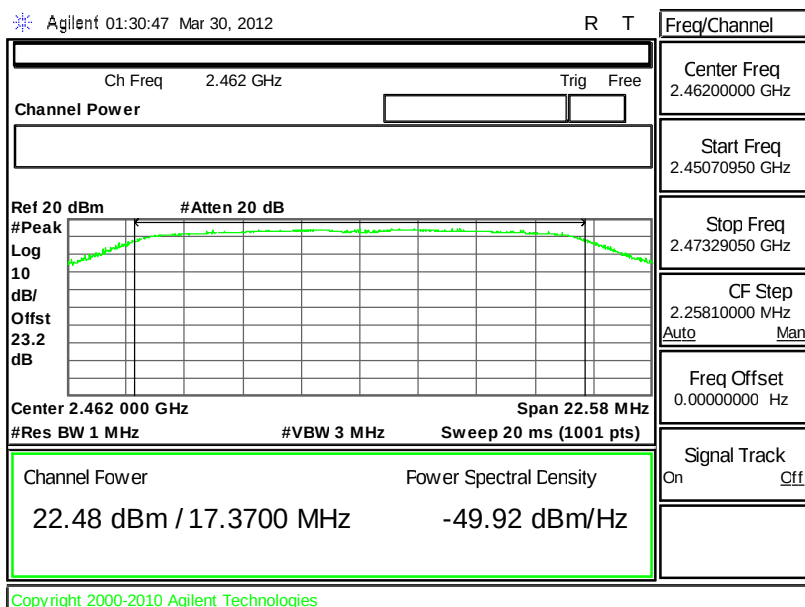




Mode 8 : Output Power Plot on 802.11g/n (BW 20MHz) Channel 06



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

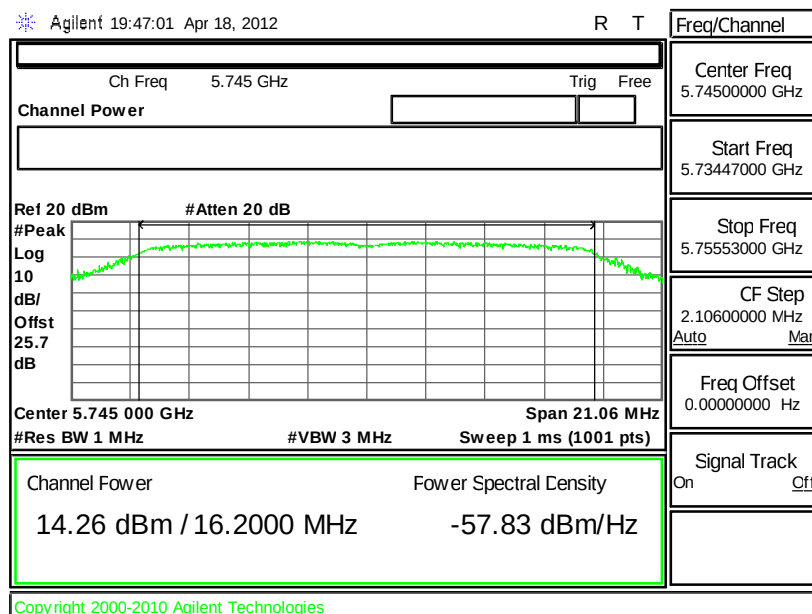




Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

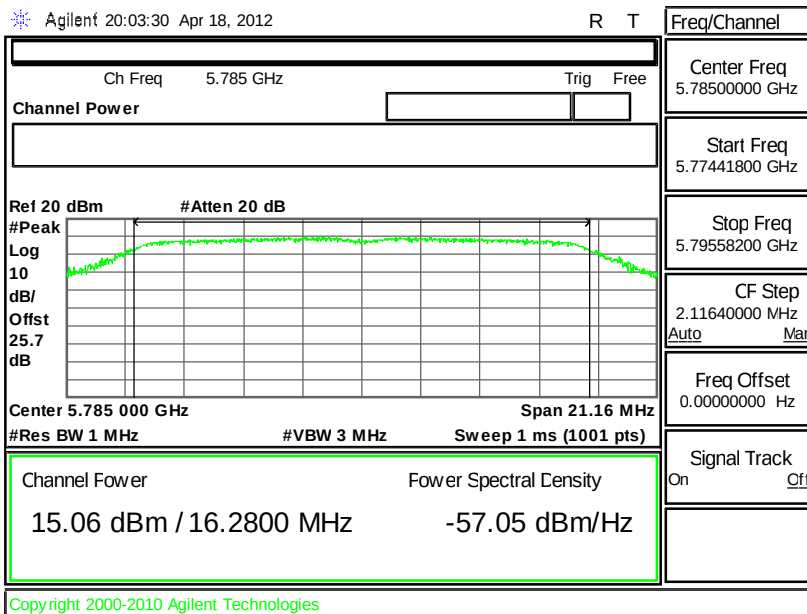
Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	14.26	30	Pass
157	5785	15.06	30	Pass
165	5825	14.65	30	Pass

Mode 10 : Output Power Plot on 802.11a Channel 149

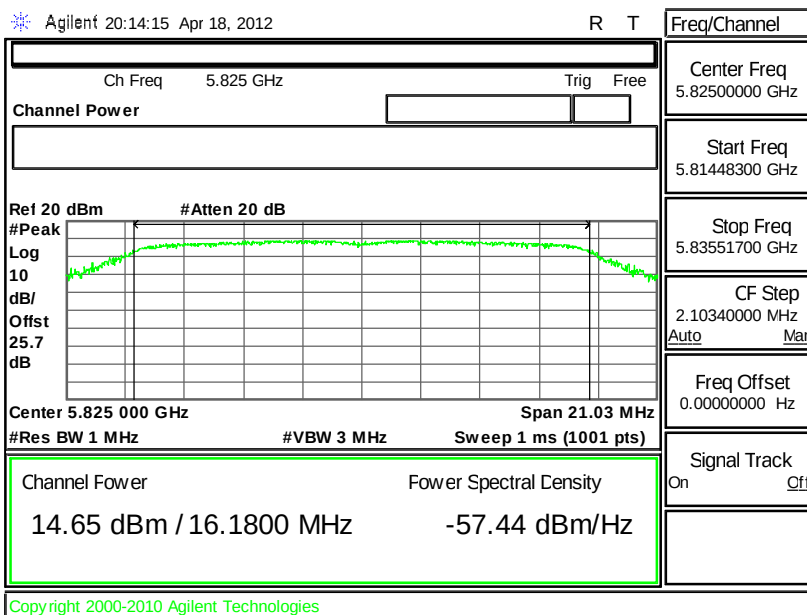




Mode 11 : Output Power Plot on 802.11a Channel 157



Mode 12 : Output Power Plot on 802.11a Channel 165

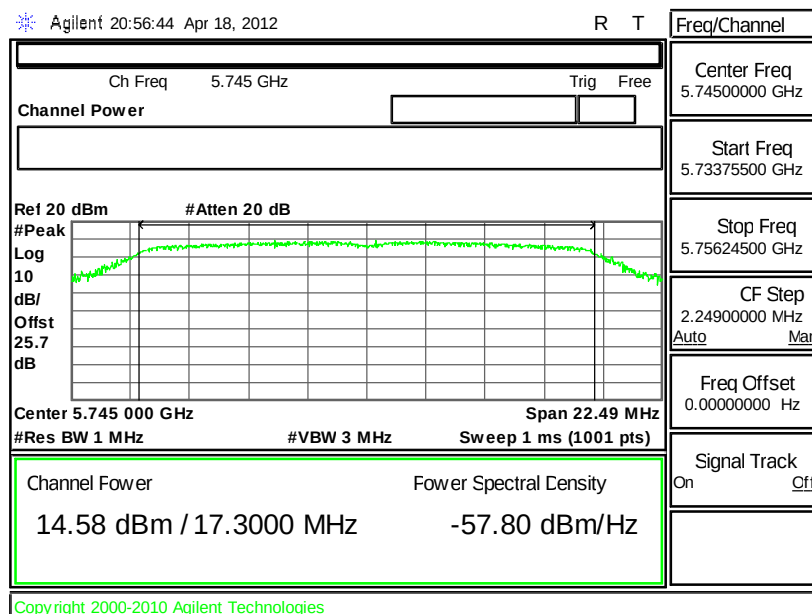




Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	50~53%

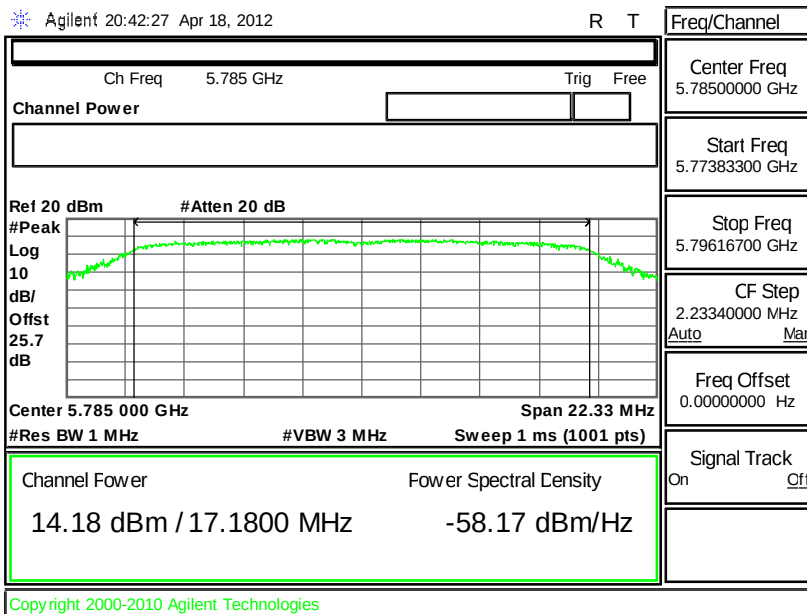
Channel	Frequency (MHz)	802.11a/n (BW 20MHz) Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	14.58	30	Pass
157	5785	14.18	30	Pass
165	5825	14.64	30	Pass

Mode 13 : Output Power Plot on 802.11a/n (BW 20MHz) Channel 149

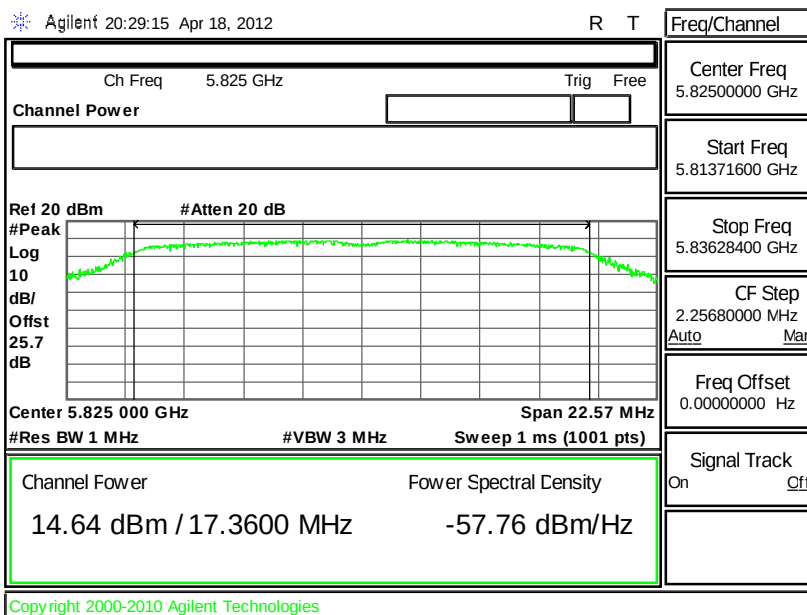




Mode 14 : Output Power Plot on 802.11a/n (BW 20MHz) Channel 157



Mode 15 : Output Power Plot on 802.11a/n (BW 20MHz) Channel 165



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

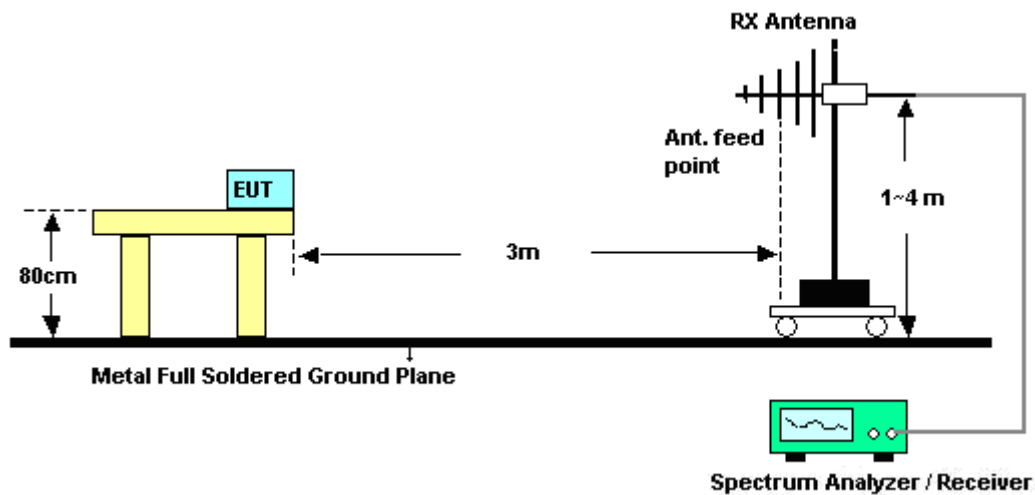
See list of measuring instruments of this test report.

3.3.3 Test Procedures

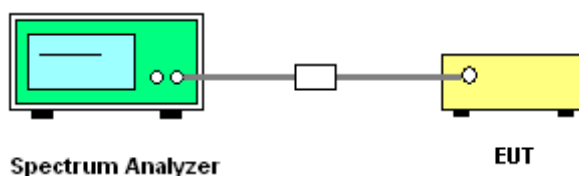
1. The testing follows the guidelines in ANSI C63.4-2003 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) $\geq$ RBW. Out of the authorized frequency band emissions must be at least 20 dB lower 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 :	21~25°C
Test Band :	802.11b	Relative Humidity :	49~54%
Test Channel :	01	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
2384.1	55.8	-18.2	74	51.46	32.16	6.03	33.85	188	40	Peak
2384.1	46.24	-7.76	54	41.9	32.16	6.03	33.85	188	40	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
2384.1	54.27	-19.73	74	49.93	32.16	6.03	33.85	100	326	Peak
2384.1	44.53	-9.47	54	40.19	32.16	6.03	33.85	100	326	Average

Test Mode :	Mode 3	Temperature :	21~25°C
Test Band :	802.11b	Relative Humidity :	49~54%
Test Channel :	11	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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	57.22	-16.78	74	52.86	32.18	6.18	34	100	360	Peak
2485.18	43.94	-10.06	54	39.58	32.18	6.18	34	100	360	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
2498.1	59.24	-14.76	74	54.86	32.2	6.18	34	188	47	Peak
2498.1	45.31	-8.69	54	40.93	32.2	6.18	34	188	47	Average

Test Mode :	Mode 4	Temperature :	21~25°C
Test Band :	802.11g	Relative Humidity :	49~54%
Test Channel :	01	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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	63.45	-10.55	74	59.09	32.18	6.03	33.85	118	42	Peak
2389.99	42.8	-11.2	54	38.44	32.18	6.03	33.85	118	42	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	62.49	-11.51	74	58.13	32.18	6.03	33.85	100	326	Peak
2389.42	43.1	-10.9	54	38.74	32.18	6.03	33.85	100	326	Average

Test Mode :	Mode 6	Temperature :	21~25°C
Test Band :	802.11g	Relative Humidity :	49~54%
Test Channel :	11	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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	63.83	-10.17	74	59.27	32.28	6.18	33.9	186	347	Peak
2483.5	45.8	-8.2	54	41.24	32.28	6.18	33.9	186	347	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	62.66	-11.34	74	58.1	32.28	6.18	33.9	100	318	Peak
2483.5	44.05	-9.95	54	39.49	32.28	6.18	33.9	100	318	Average

Test Mode :	Mode 7	Temperature :	21~25°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	49~54%
Test Channel :	01	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
2389.61	59.15	-14.85	74	54.79	32.18	6.03	33.85	119	41	Peak
2389.61	41.37	-12.63	54	37.01	32.18	6.03	33.85	119	41	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
2389.99	64.02	-9.98	74	59.66	32.18	6.03	33.85	100	33	Peak
2389.99	44.06	-9.94	54	39.7	32.18	6.03	33.85	100	33	Average

Test Mode :	Mode 9	Temperature :	21~25°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	49~54%
Test Channel :	11	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
2484.61	62.7	-11.3	74	58.14	32.28	6.18	33.9	185	345	Peak
2484.61	43.95	-10.05	54	39.39	32.28	6.18	33.9	185	345	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	61.75	-12.25	74	57.19	32.28	6.18	33.9	100	29	Peak
2483.5	42.8	-11.2	54	38.24	32.28	6.18	33.9	100	29	Average



Test Mode :	Mode 10	Temperature :	21~25°C
Test Band :	802.11a	Relative Humidity :	49~54%
Test Channel :	149	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
5725	76.1	-12.97	89.07	64.63	34.81	9.92	33.26	109	333	Peak

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
5725	84.88	-10.69	95.57	73.41	34.81	9.92	33.26	107	307	Peak

Test Mode :	Mode 12	Temperature :	21~25°C
Test Band :	802.11a	Relative Humidity :	49~54%
Test Channel :	165	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
5850	63.92	-24.29	88.21	52.53	34.98	9.87	33.46	107	329	Peak

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
5850	74.75	-20.16	94.91	63.36	34.98	9.87	33.46	105	308	Peak



Test Mode :	Mode 13	Temperature :	21~25°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	49~54%
Test Channel :	149	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

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
5725	82.32	-7.35	89.67	70.85	34.81	9.92	33.26	110	333	Peak

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
5725	85.75	-9.9	95.65	74.28	34.81	9.92	33.26	106	308	Peak

Test Mode :	Mode 15	Temperature :	21~25°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	49~54%
Test Channel :	165	Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang

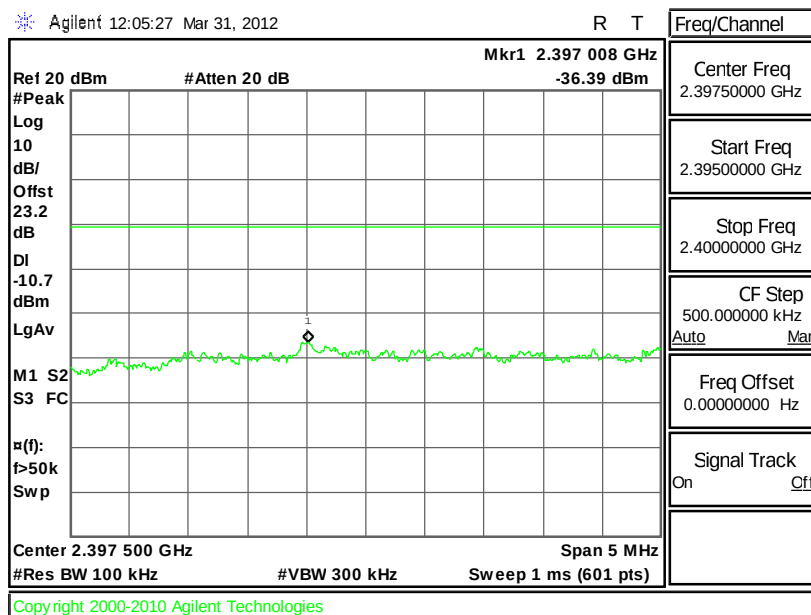
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	71.03	-17.37	88.4	59.64	34.98	9.87	33.46	108	334	Peak

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
5850	75.62	-20.13	95.75	64.23	34.98	9.87	33.46	106	308	Peak

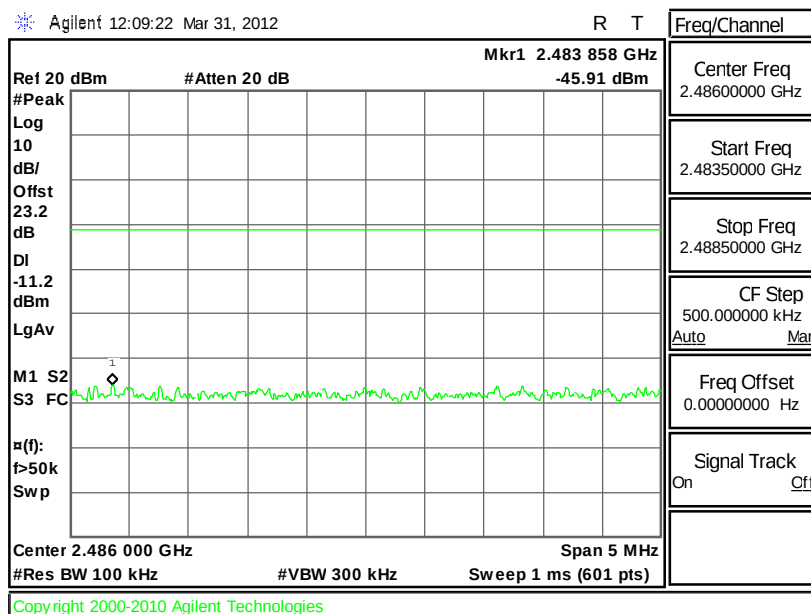
3.3.6 Test Result of Conducted Band Edges

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

Low Band Edge Plot on 802.11b Channel 01



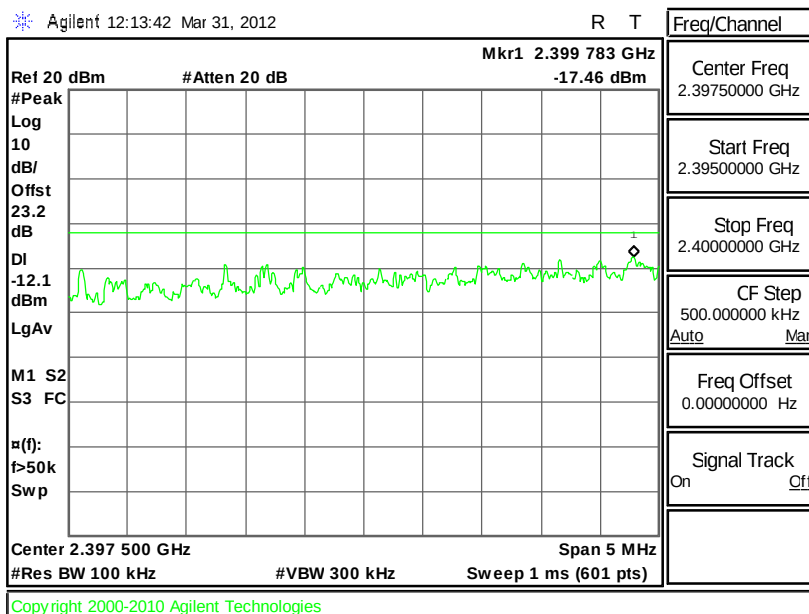
High Band Edge Plot on 802.11b Channel 11



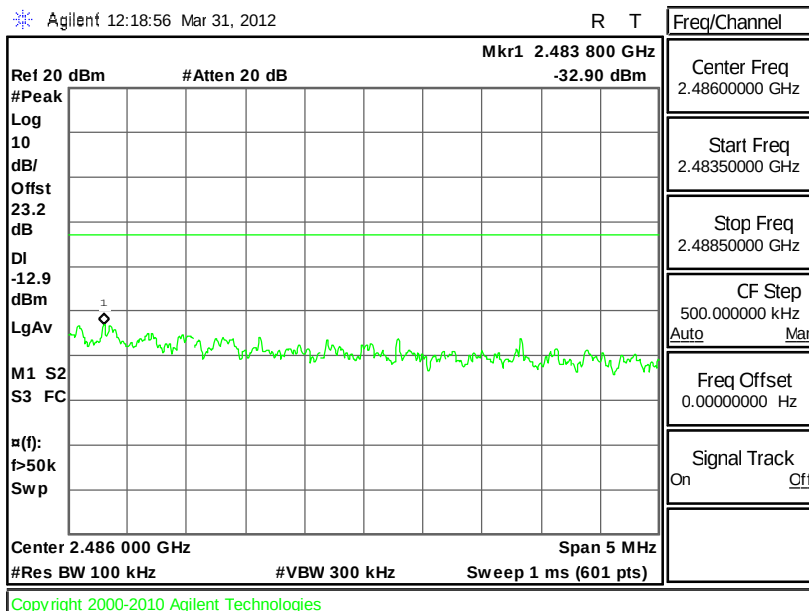


Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11g Channel 01

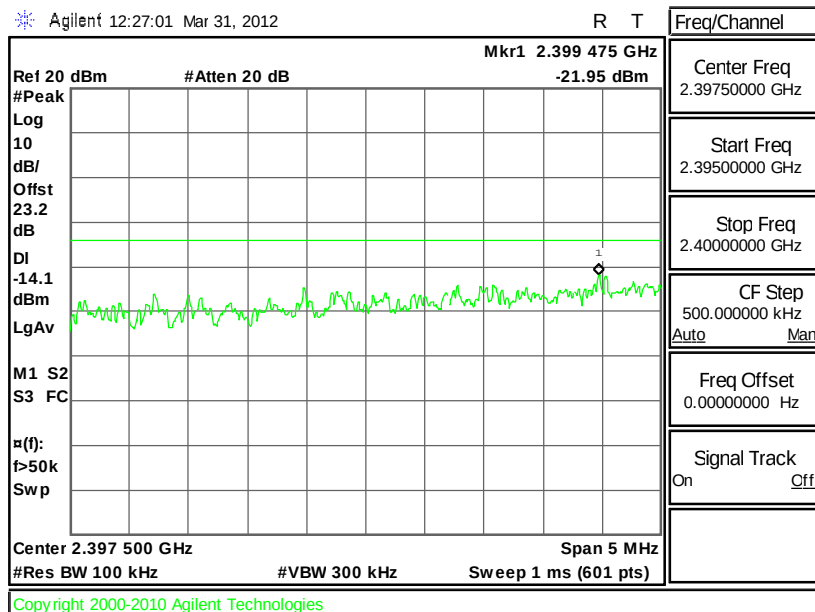
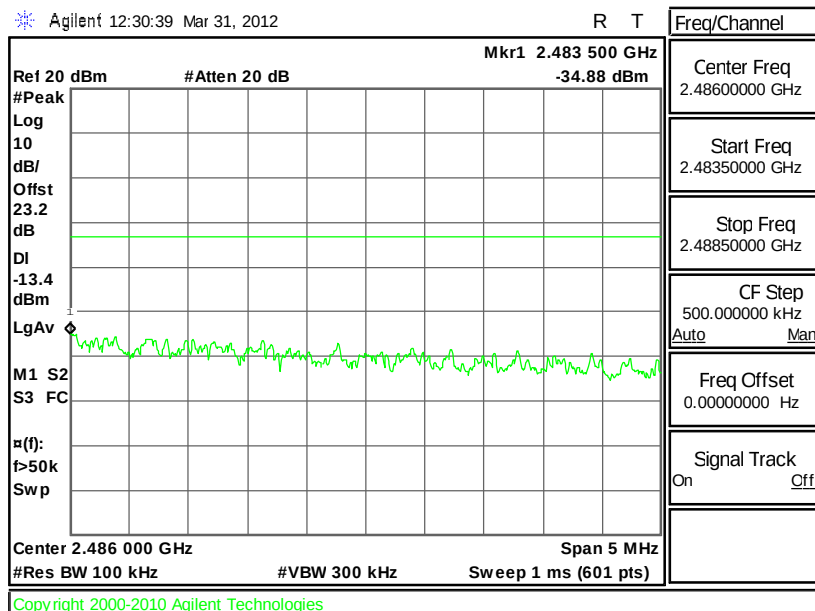


High Band Edge Plot on 802.11g Channel 11



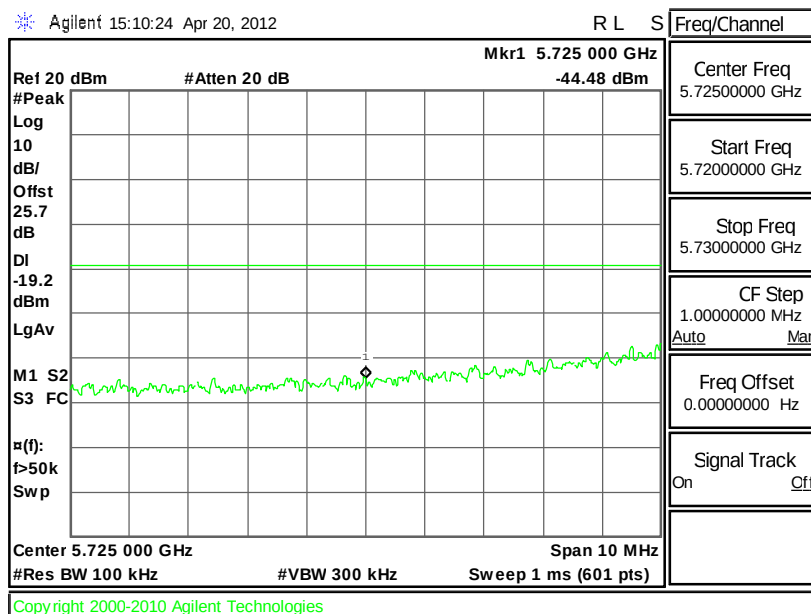
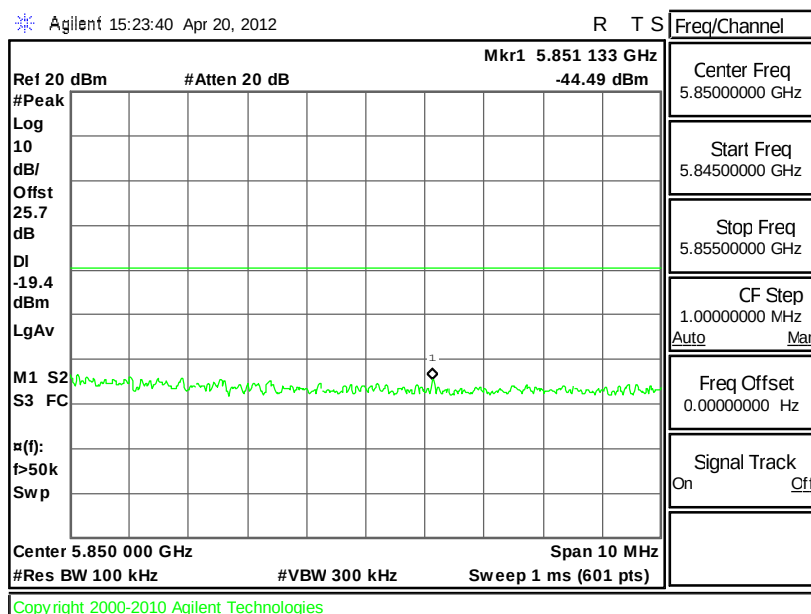


Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11g/n Channel 01**High Band Edge Plot on 802.11g/n Channel 11**

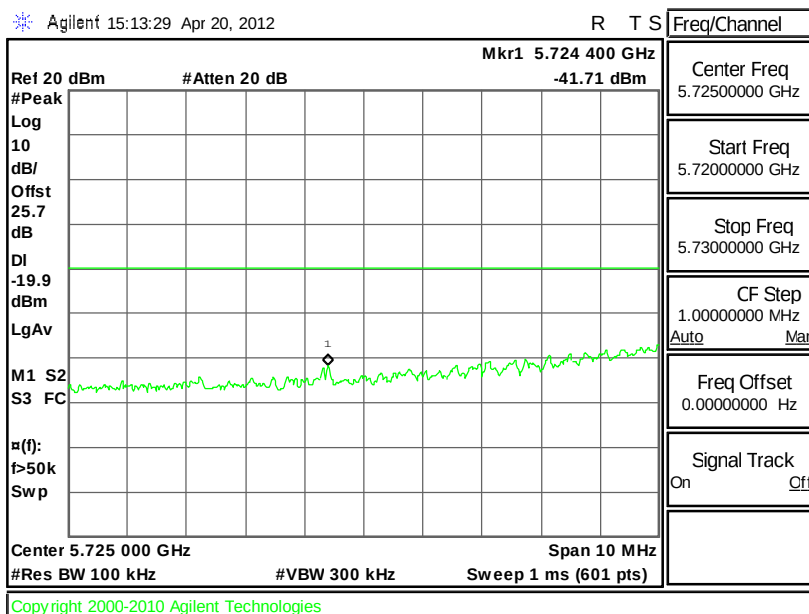
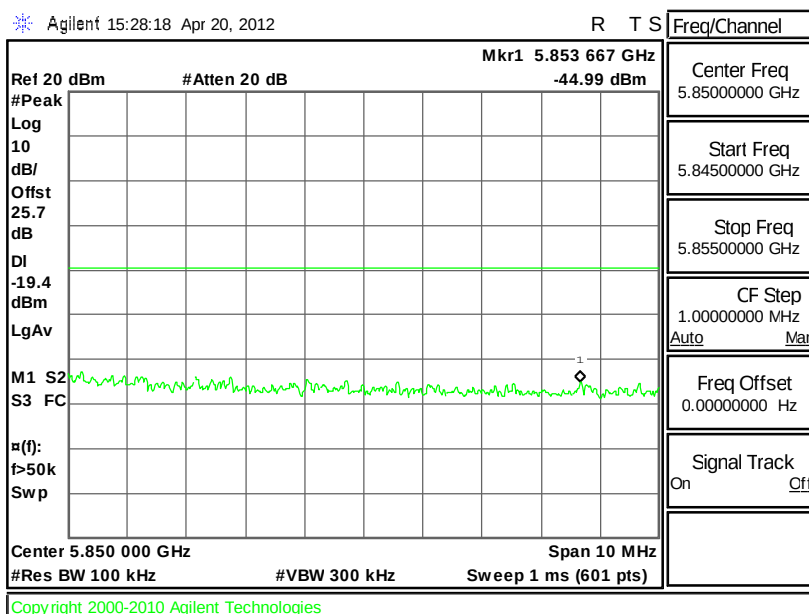


Test Mode :	Mode 10 and 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11a Channel 149**High Band Edge Plot on 802.11a Channel 165**



Test Mode :	Mode 13 and 15	Temperature :	24~26°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Book Lin

Low Band Edge Plot on 802.11a/n (BW 20MHz) Channel 149**High Band Edge Plot on 802.11a/n (BW 20MHz) Channel 165**

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.

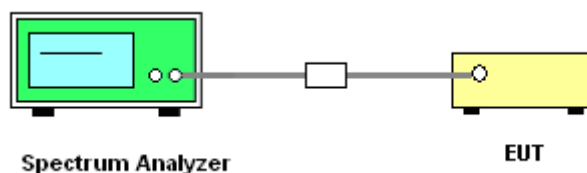
3.4.2 Measuring Instruments

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.

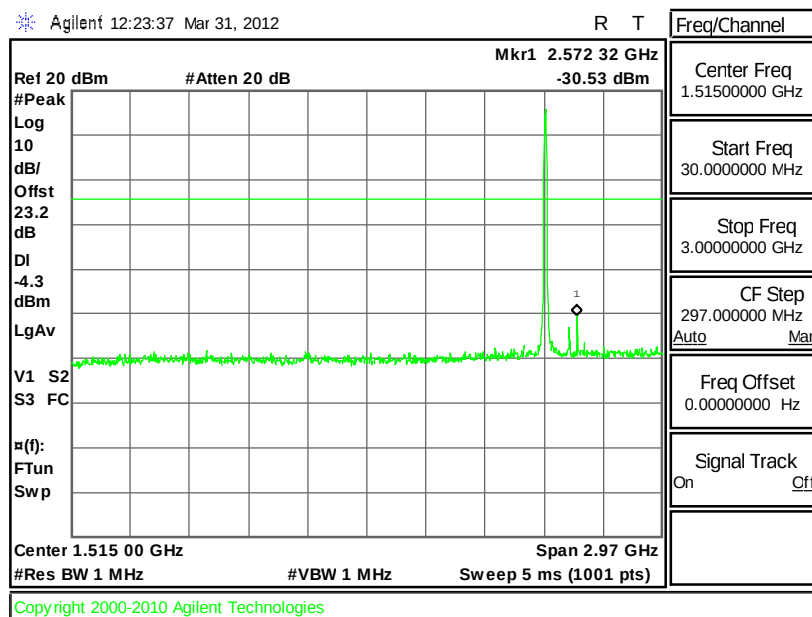
3.4.4 Test Setup



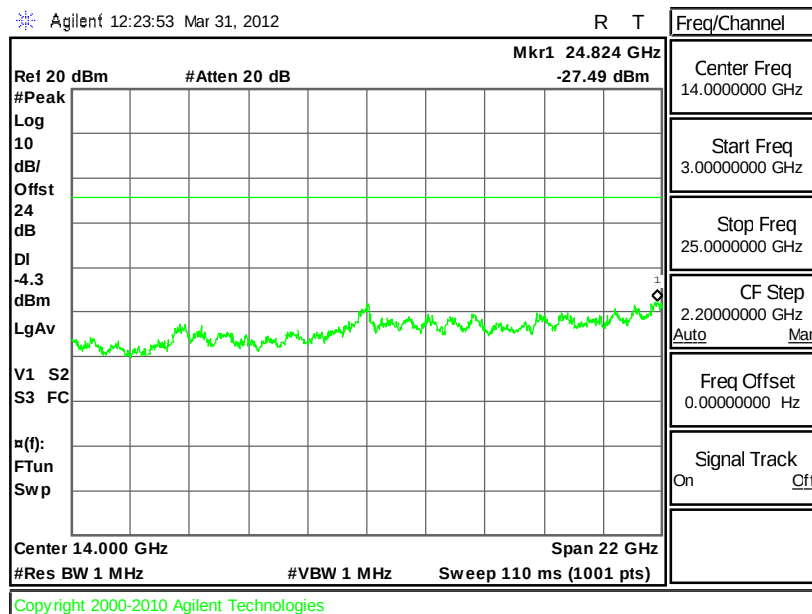
3.4.5 Test Result

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

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

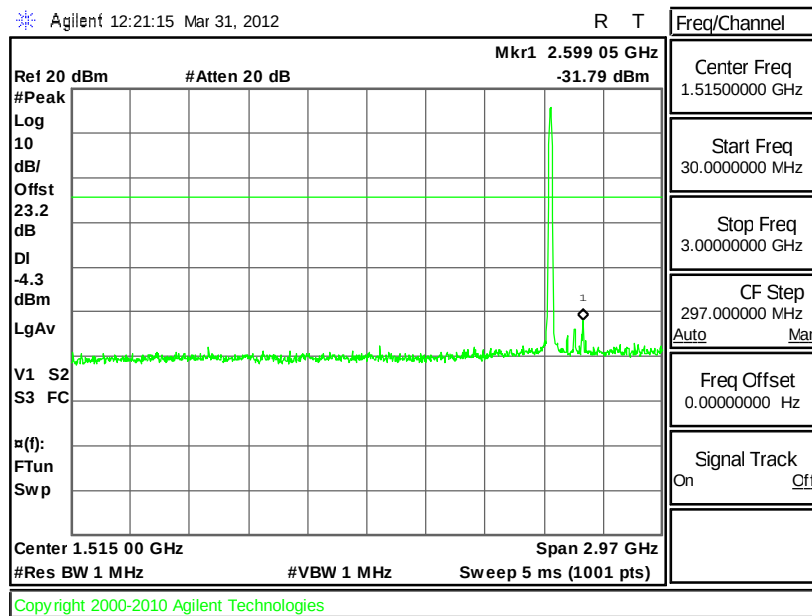
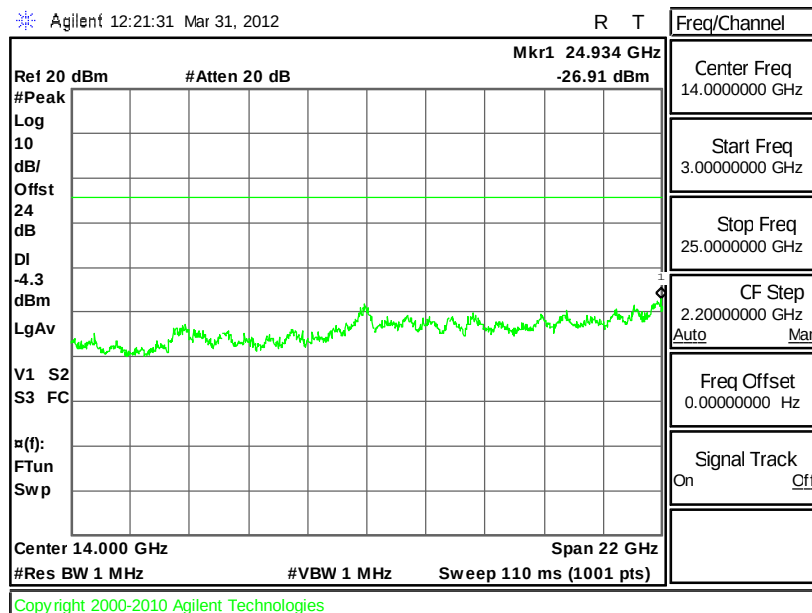


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



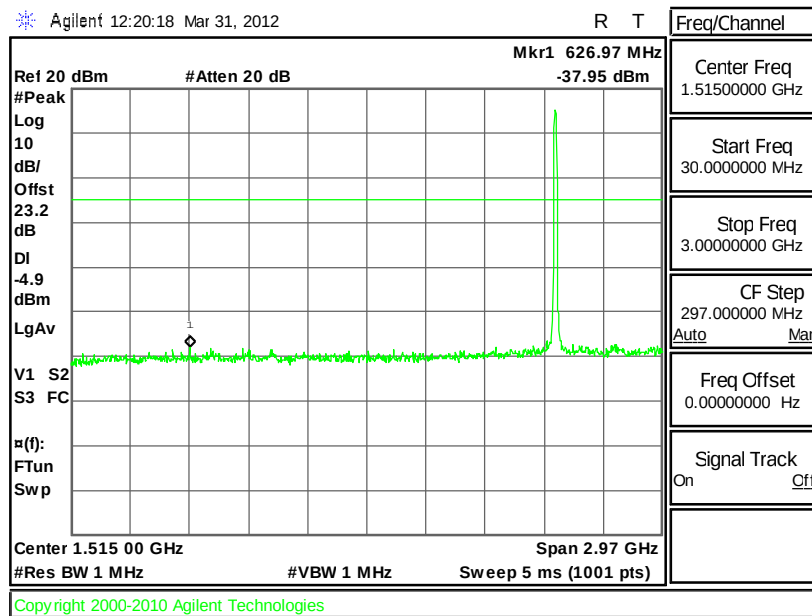
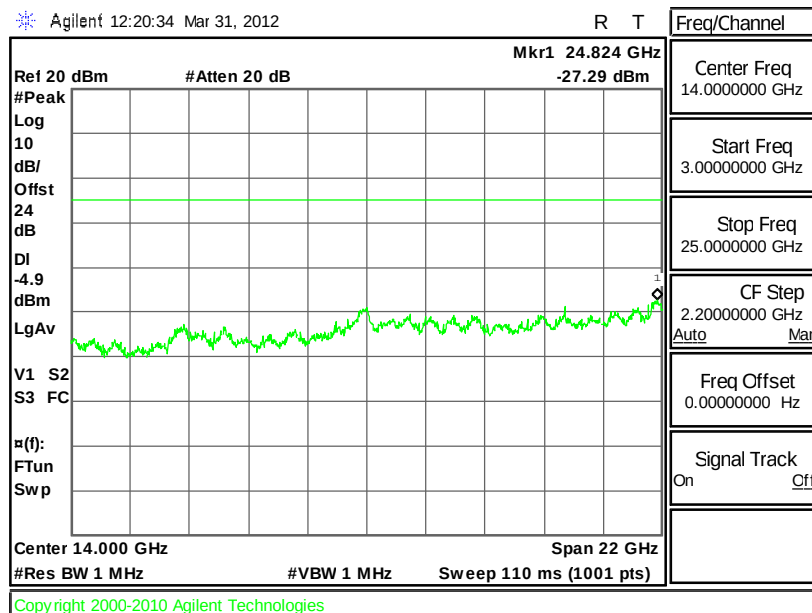


Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

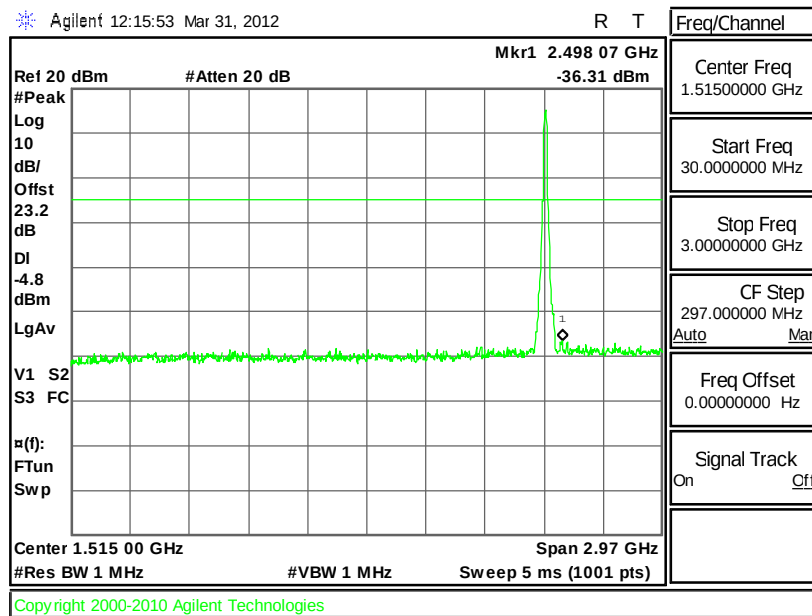
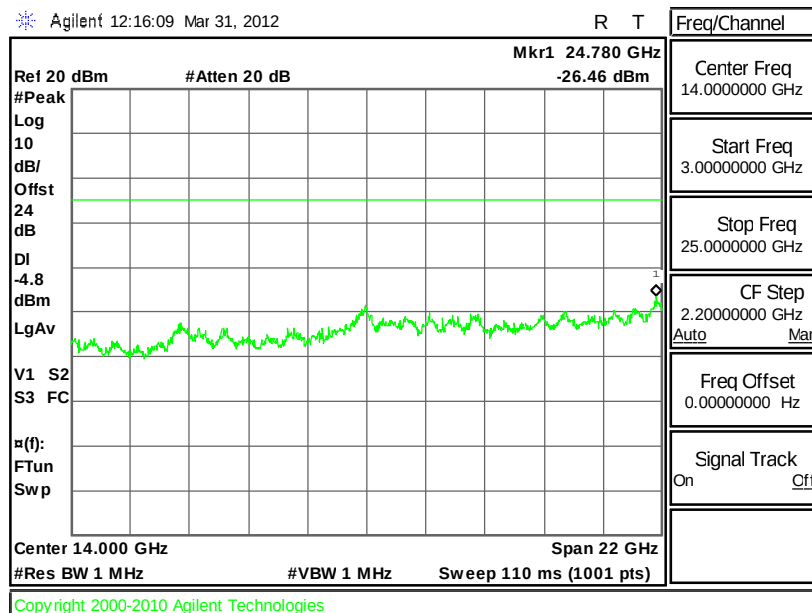


Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

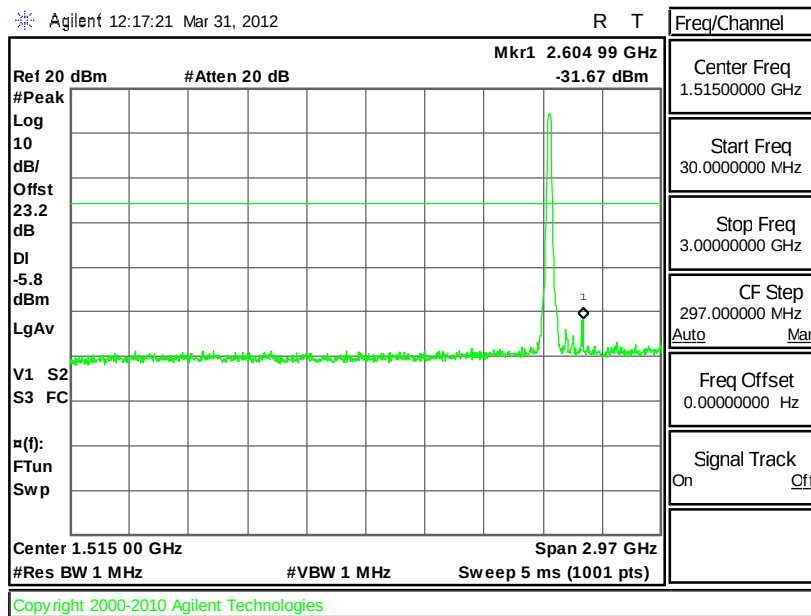
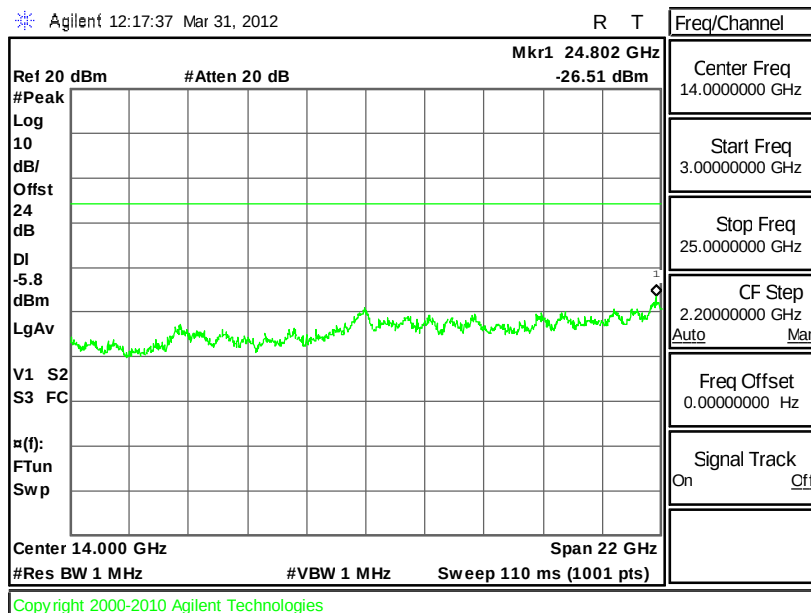


Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

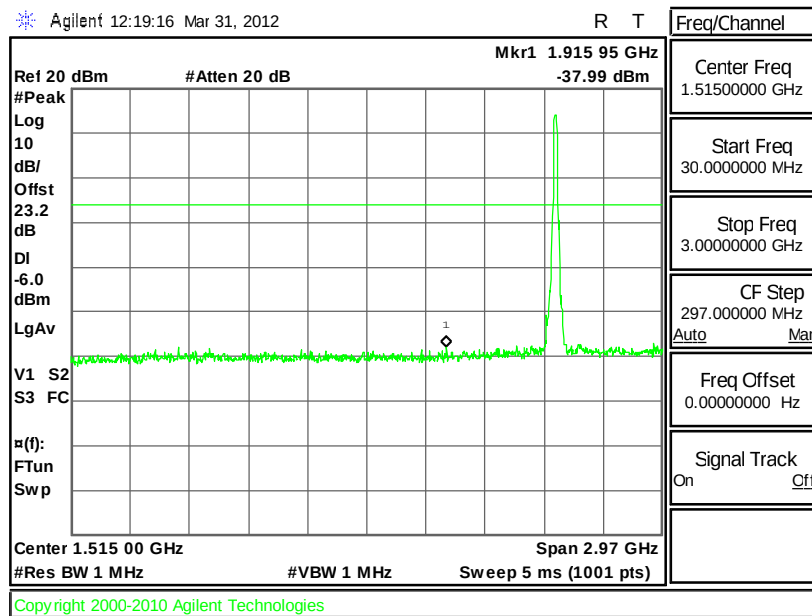
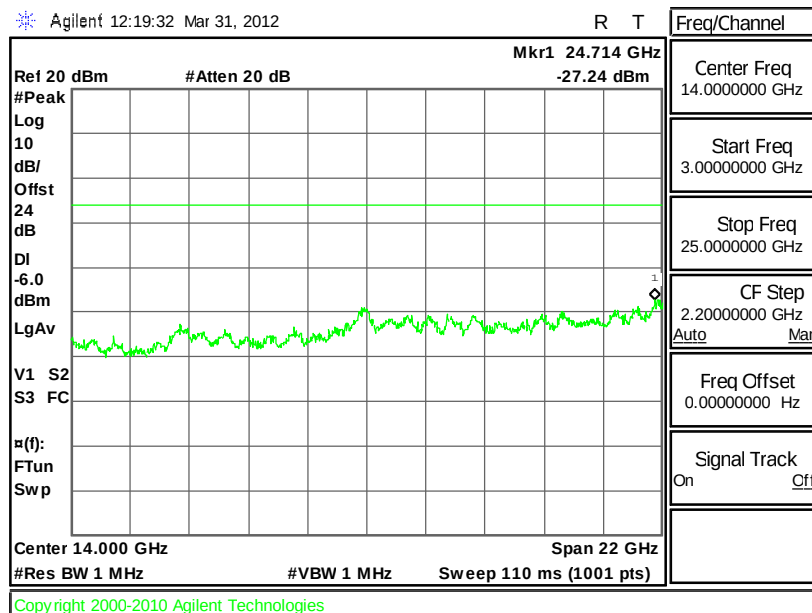


Test Mode :	Mode 5	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**



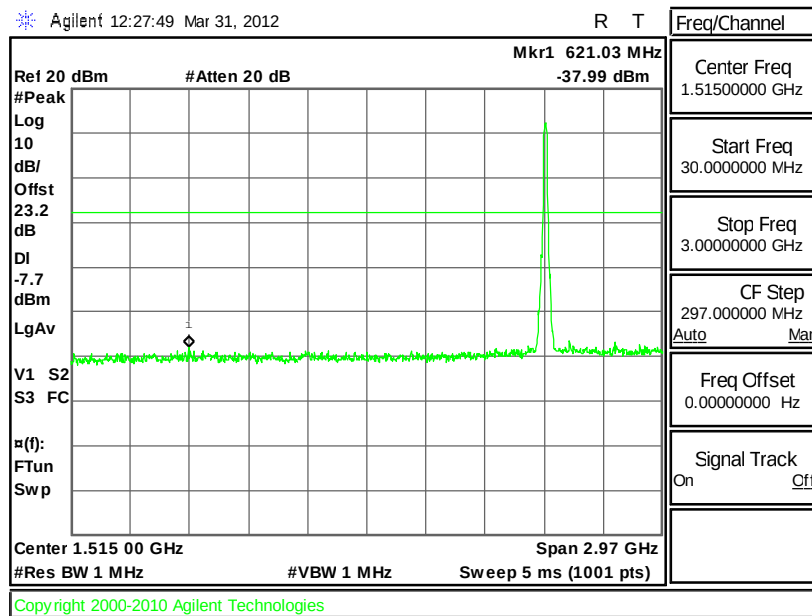
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz**

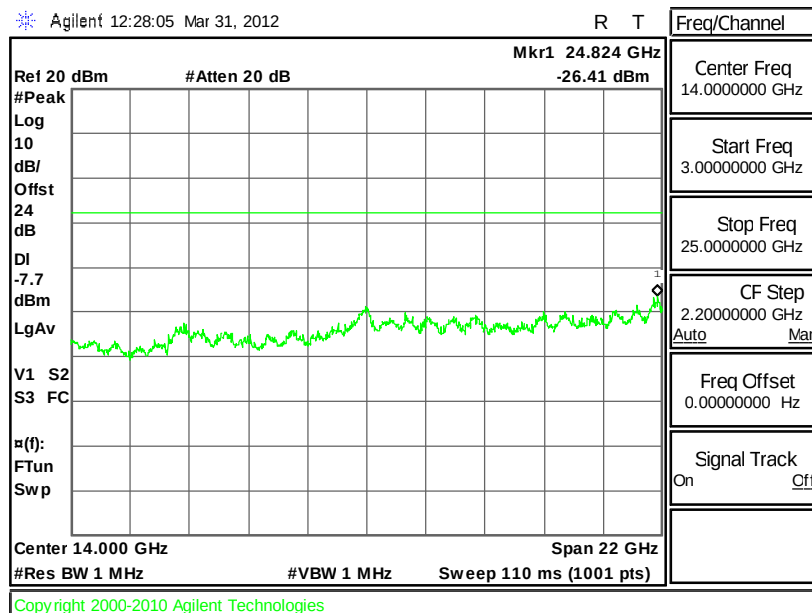


Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

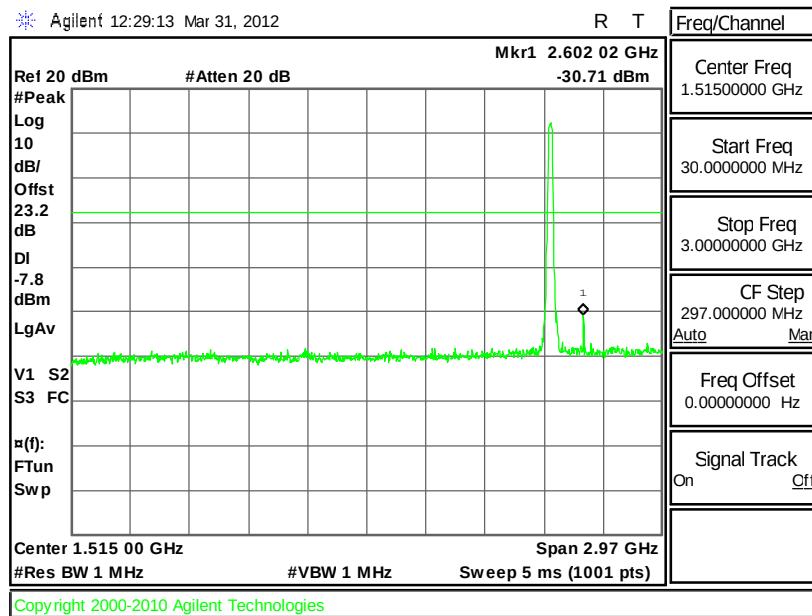
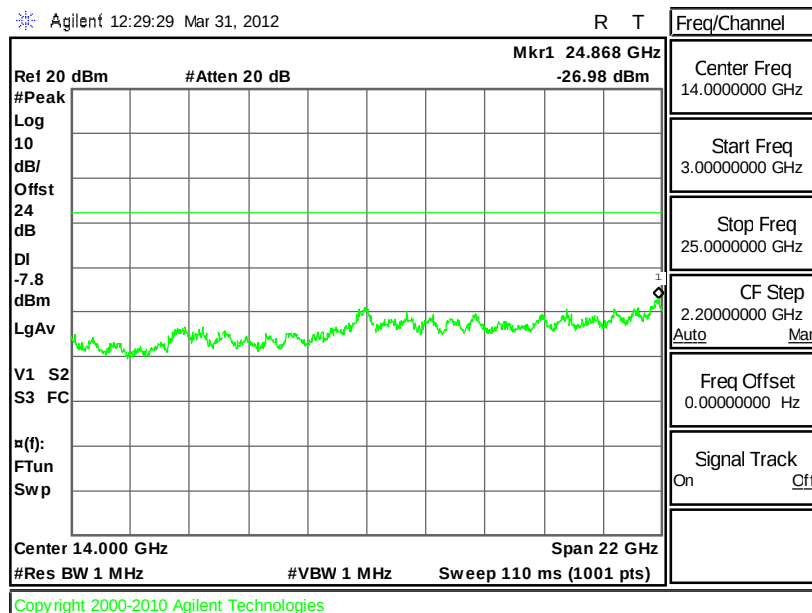


Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



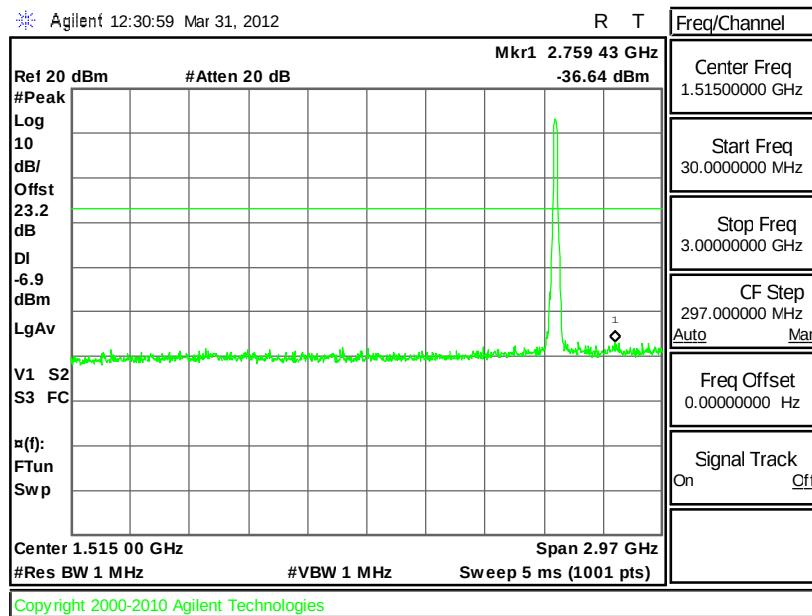
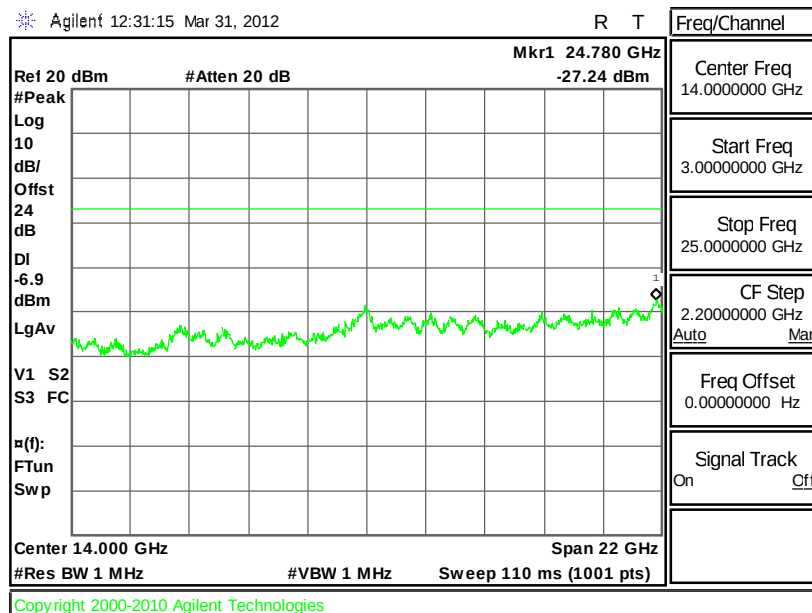


Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

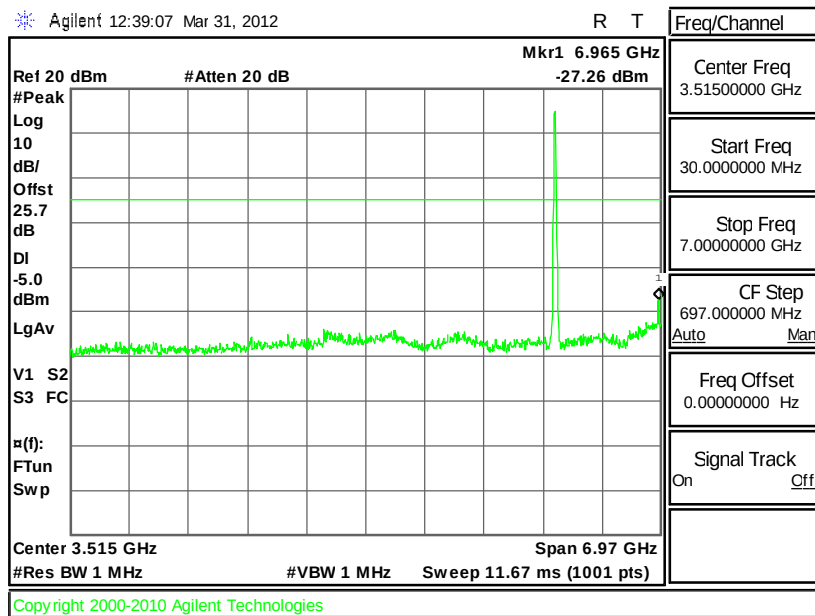
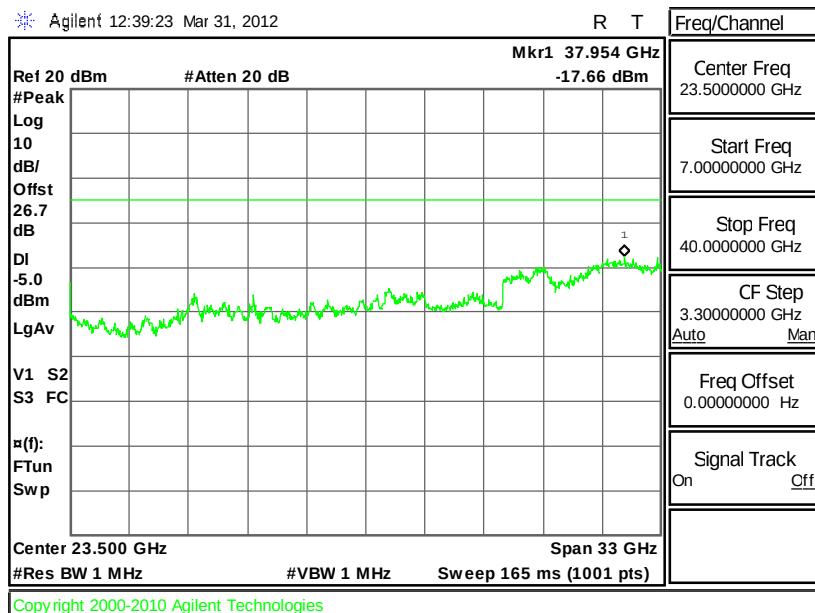


Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11g/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz**

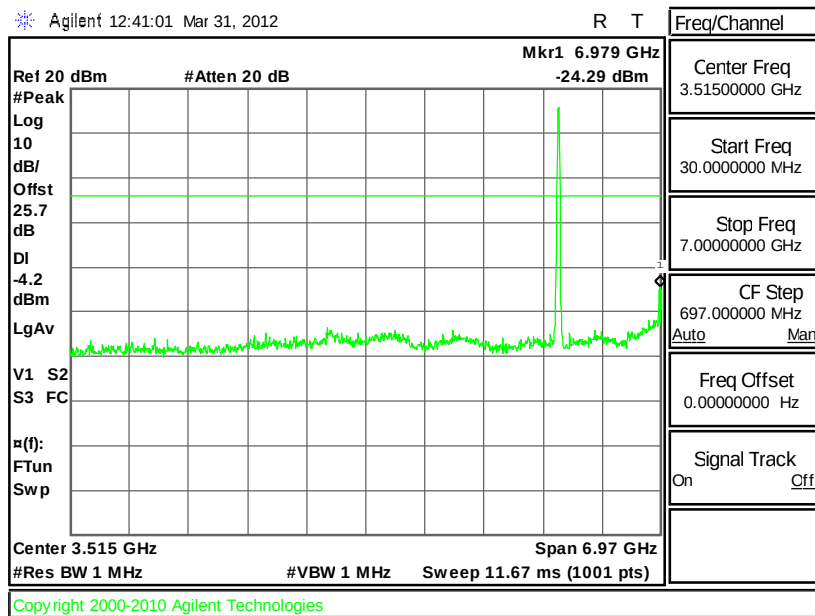
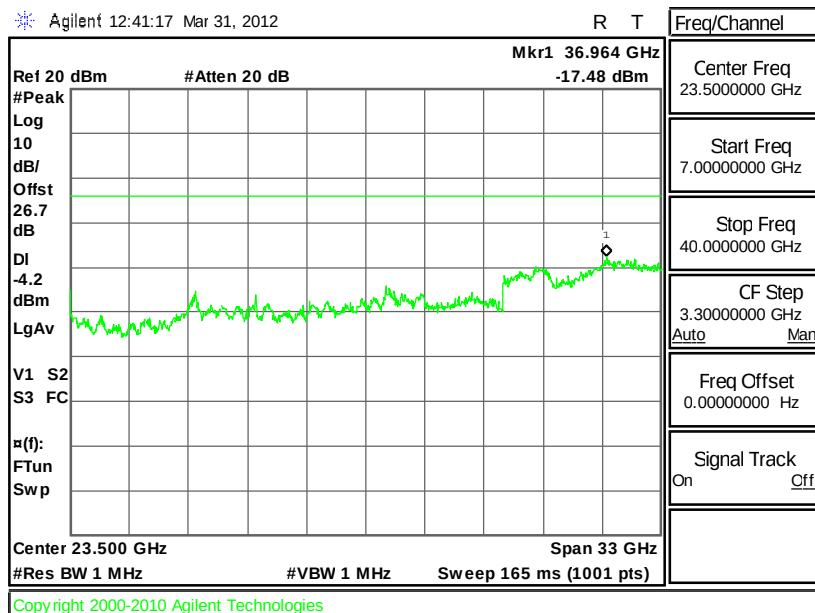


Test Mode :	Mode 10	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz**

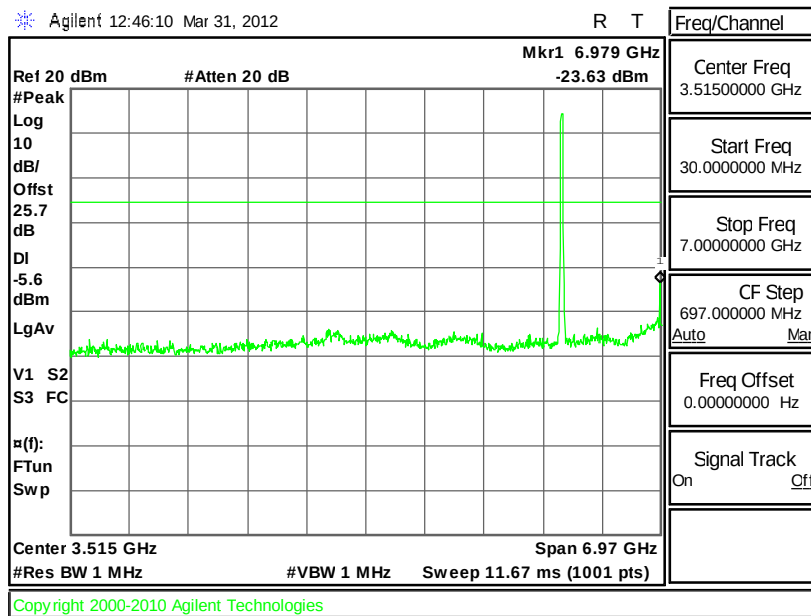
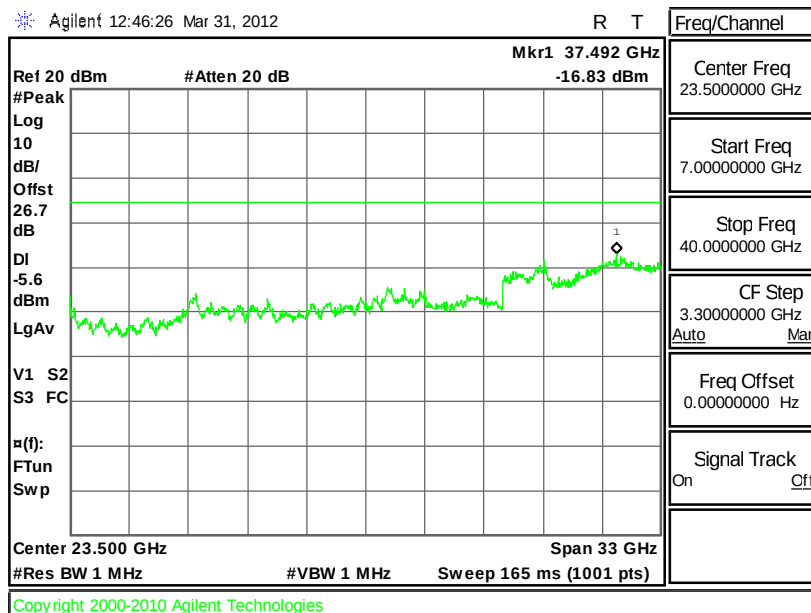


Test Mode :	Mode 11	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz**

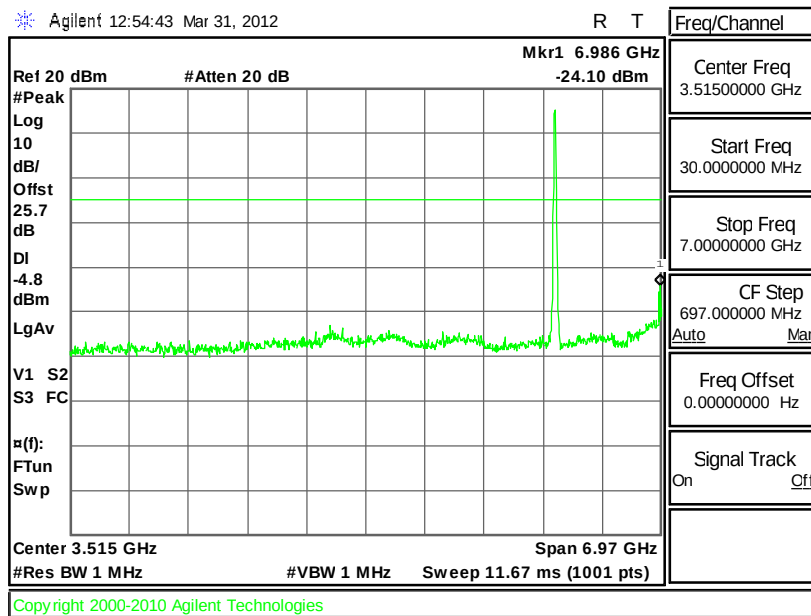
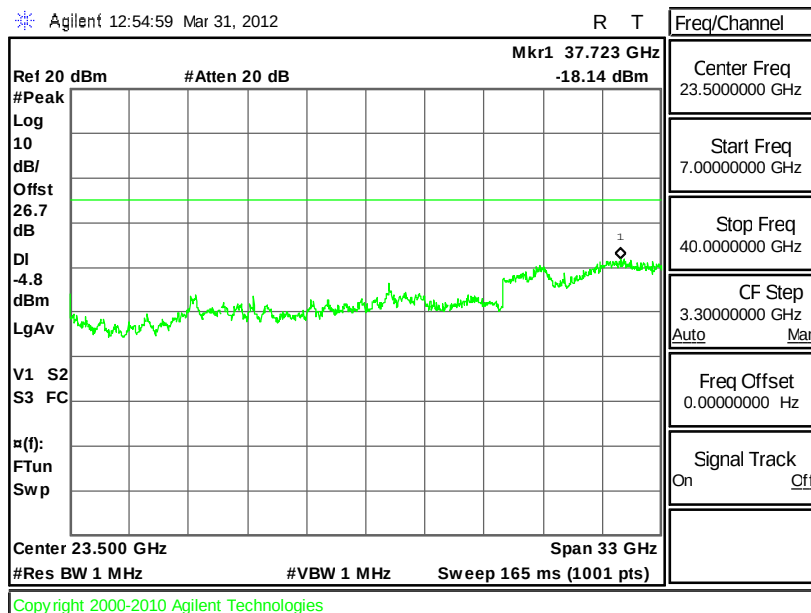


Test Mode :	Mode 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz**

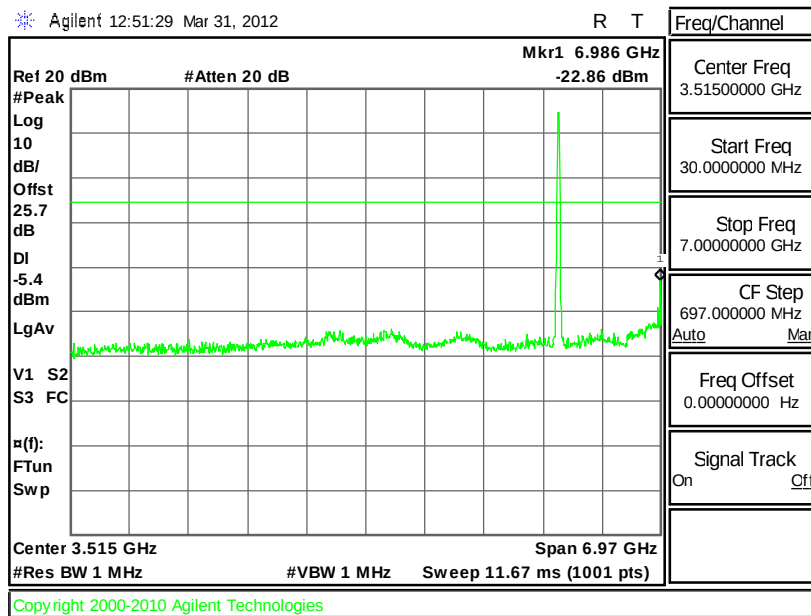
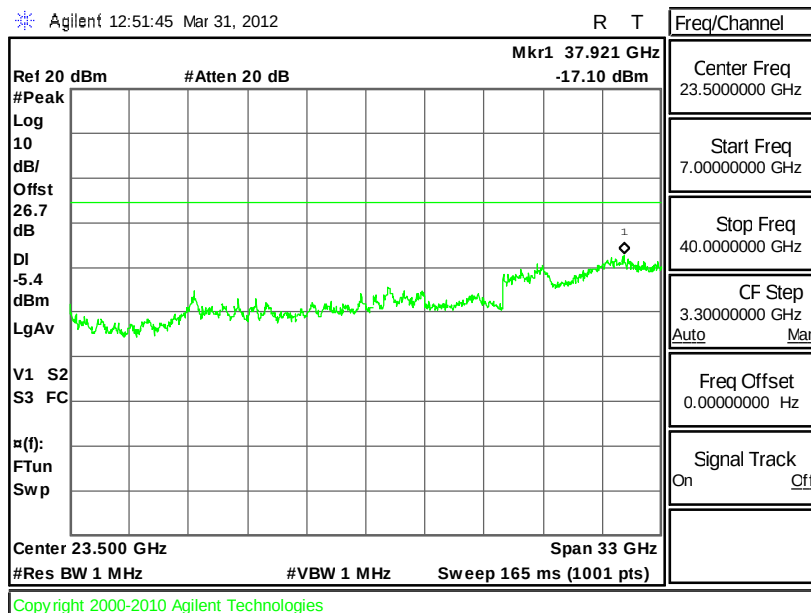


Test Mode :	Mode 13	Temperature :	24~26°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz**

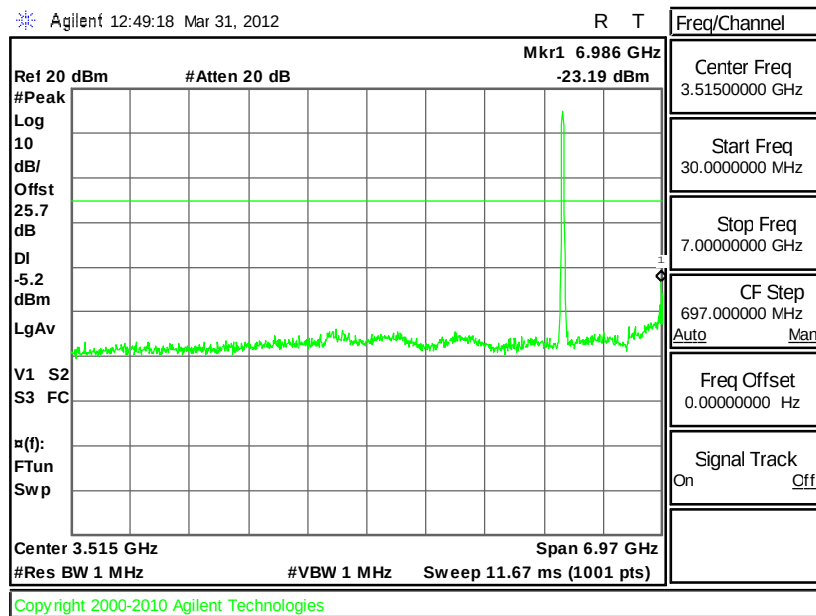
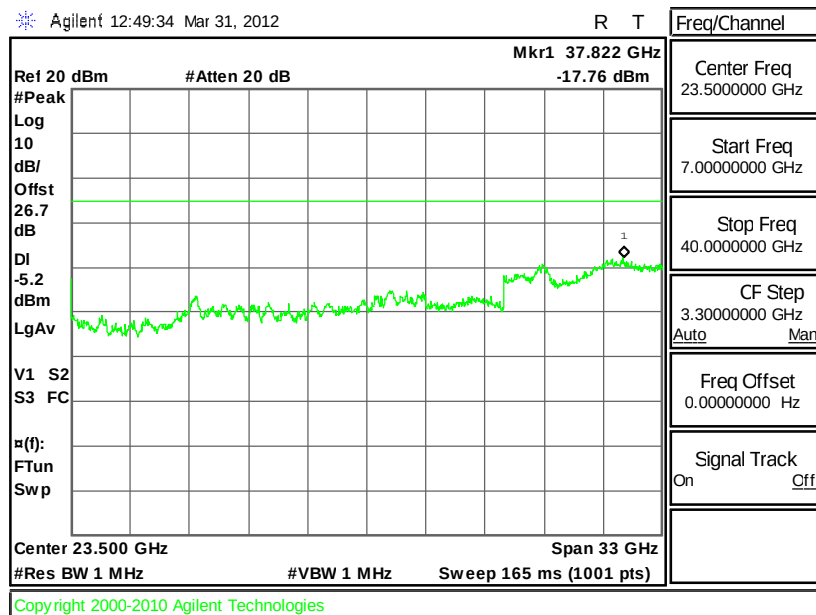


Test Mode :	Mode 14	Temperature :	24~26°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz**



Test Mode :	Mode 15	Temperature :	24~26°C
Test Band :	802.11a/n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Book Lin

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz**Conducted Spurious Emission Plot between 7 GHz ~ 40 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.

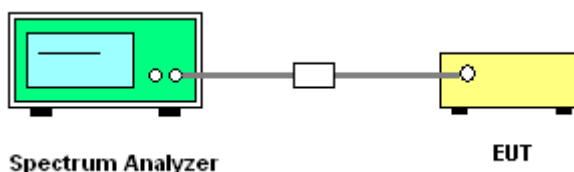
3.5.2 Measuring Instruments

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

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	9.28	-5.92	8	Pass
06	2437	9.10	-6.10	8	Pass
11	2462	8.75	-6.45	8	Pass

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

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	7.85	-7.35	8	Pass
06	2437	7.85	-7.35	8	Pass
11	2462	7.12	-8.08	8	Pass

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

Channel	Frequency (MHz)	802.11g/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	5.93	-9.27	8	Pass
06	2437	5.89	-9.31	8	Pass
11	2462	6.65	-8.55	8	Pass



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

Channel	Frequency (MHz)	802.11a Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	0.84	-14.36	8	Pass
157	5785	1.59	-13.61	8	Pass
165	5825	0.59	-14.61	8	Pass

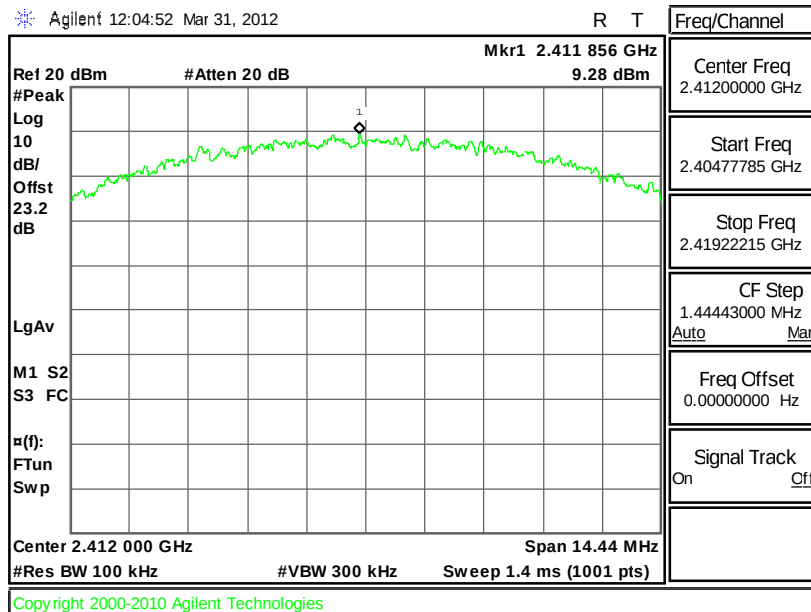
Test Mode :	Mode 16, 17, 18	Temperature :	24~26℃
Test Engineer :	Book Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a/n (BW 20MHz) Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	0.15	-15.05	8	Pass
157	5785	0.07	-15.13	8	Pass
165	5825	0.59	-14.61	8	Pass

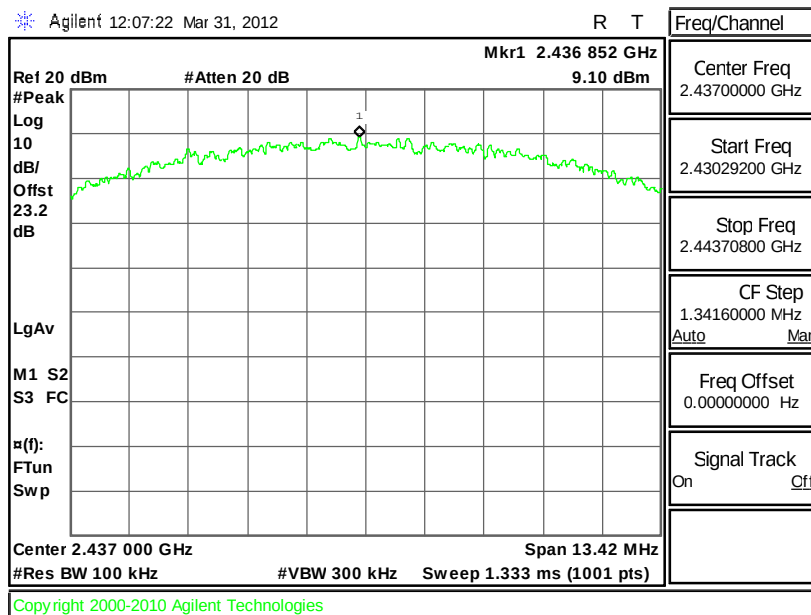


3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



Mode 2 : PSD Plot on 802.11b Channel 06

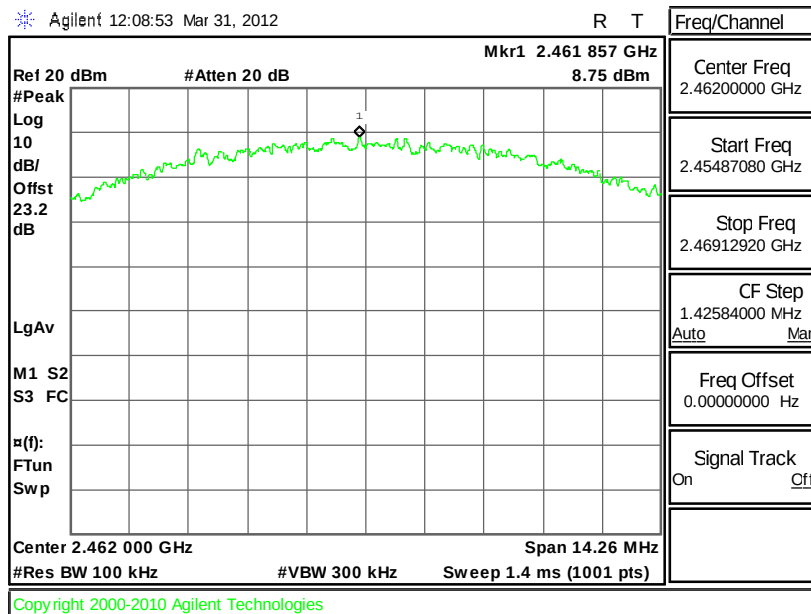




Mode 3 : PSD Plot on 802.11b Channel 11

Agilent 12:08:53 Mar 31, 2012

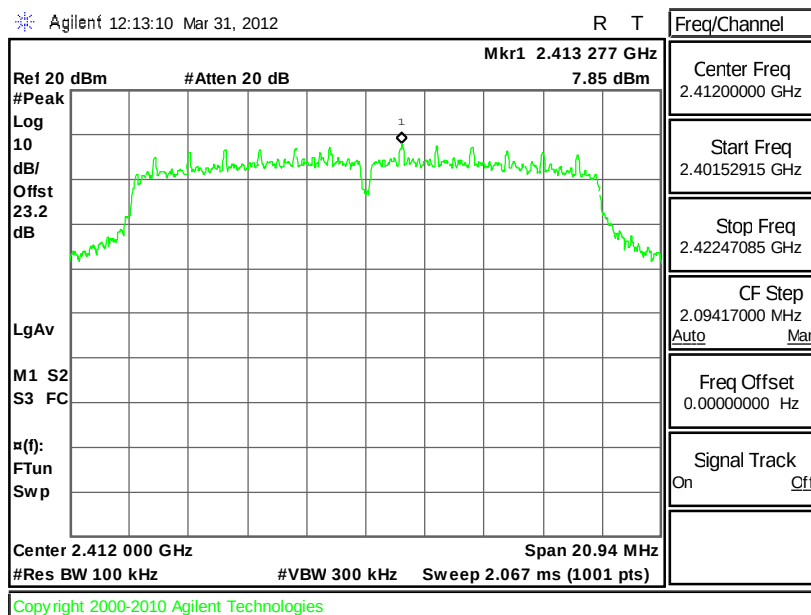
R T



Mode 4 : PSD Plot on 802.11g Channel 01

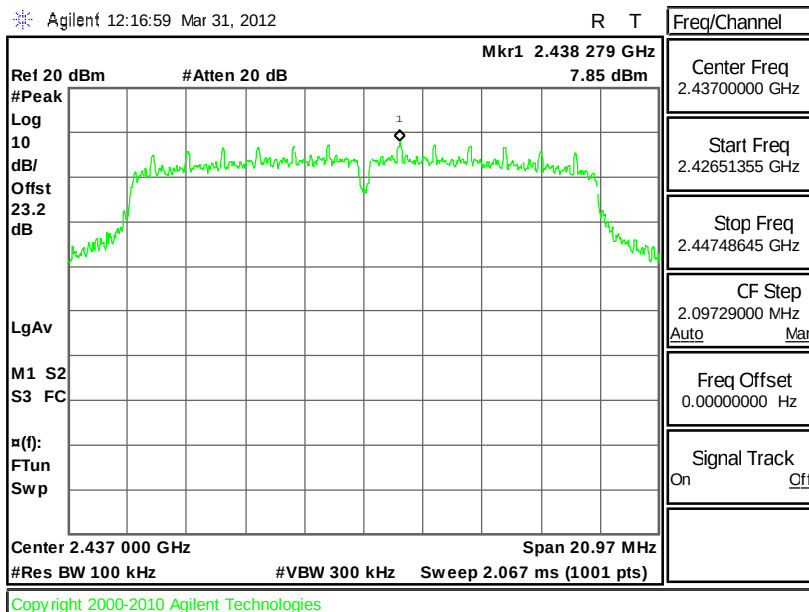
Agilent 12:13:10 Mar 31, 2012

R T

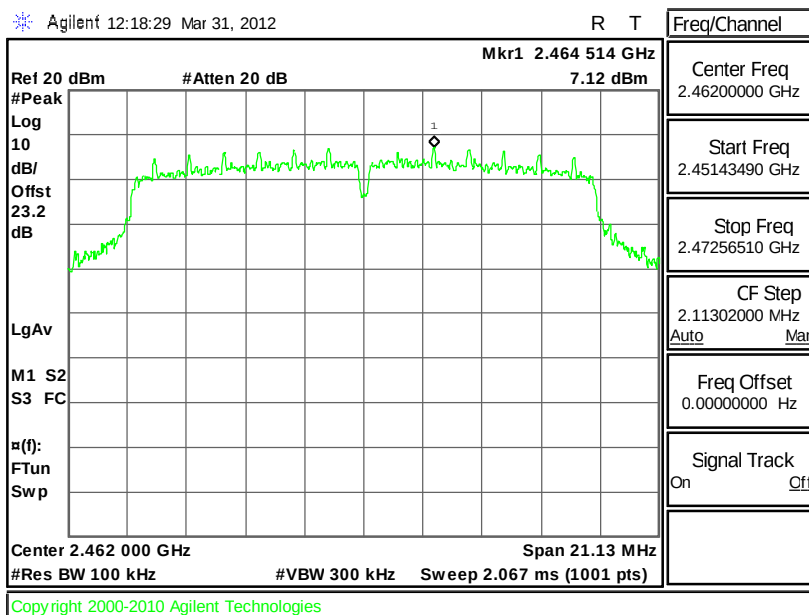




Mode 5 : PSD Plot on 802.11g Channel 06

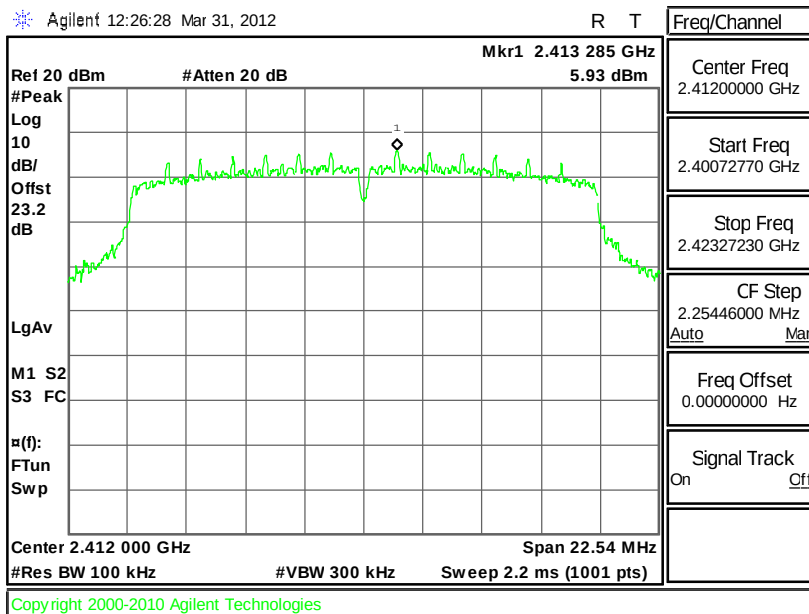


Mode 6 : PSD Plot on 802.11g Channel 11

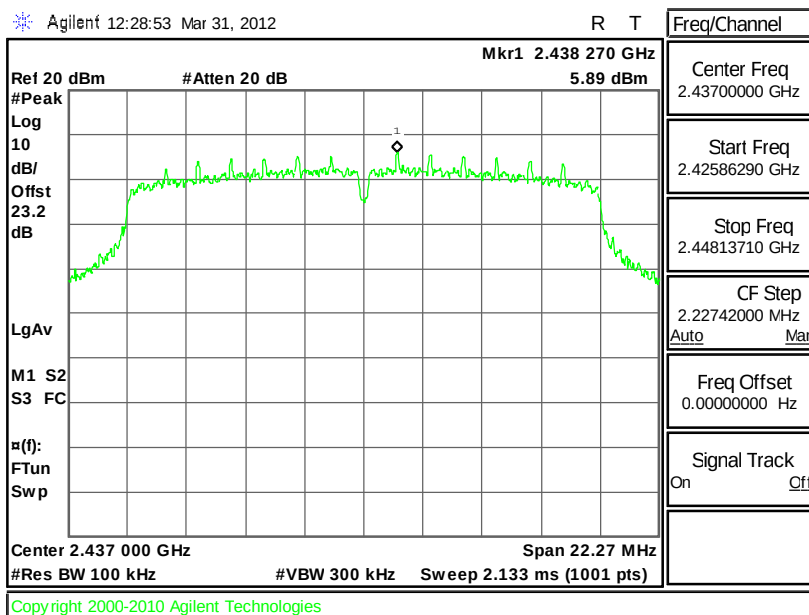




Mode 7 : PSD Plot on 802.11g/n (BW 20MHz) Channel 01

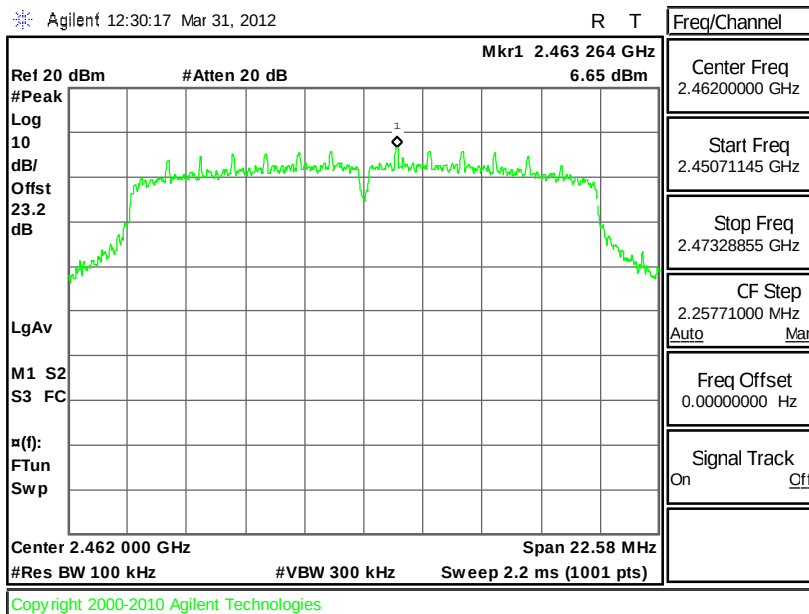


Mode 8 : PSD Plot on 802.11g/n (BW 20MHz) Channel 06

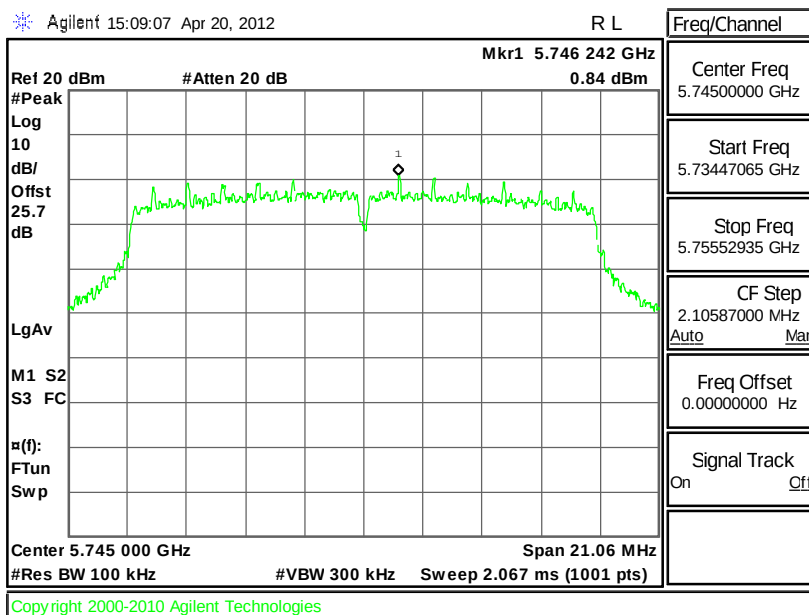




Mode 9 : PSD Plot on 802.11g/n (BW 20MHz) Channel 11

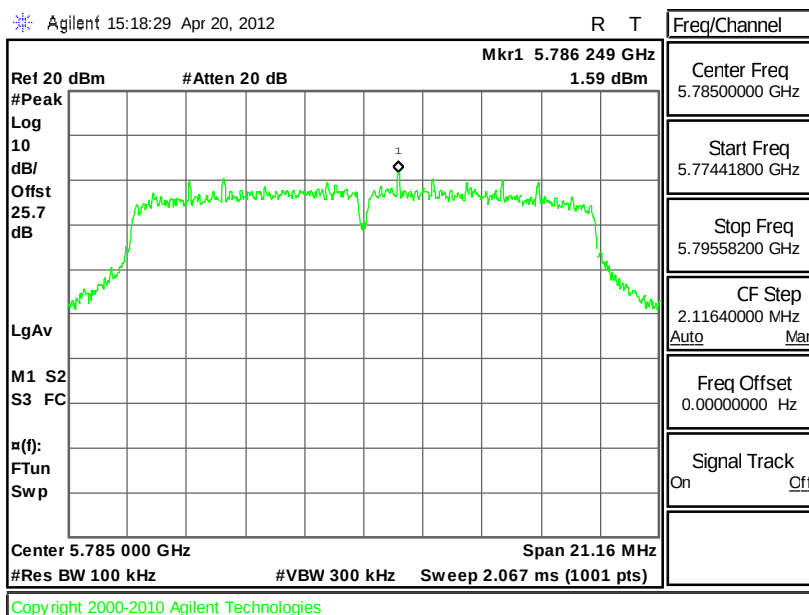


Mode 10: PSD Plot on 802.11a Channel 149

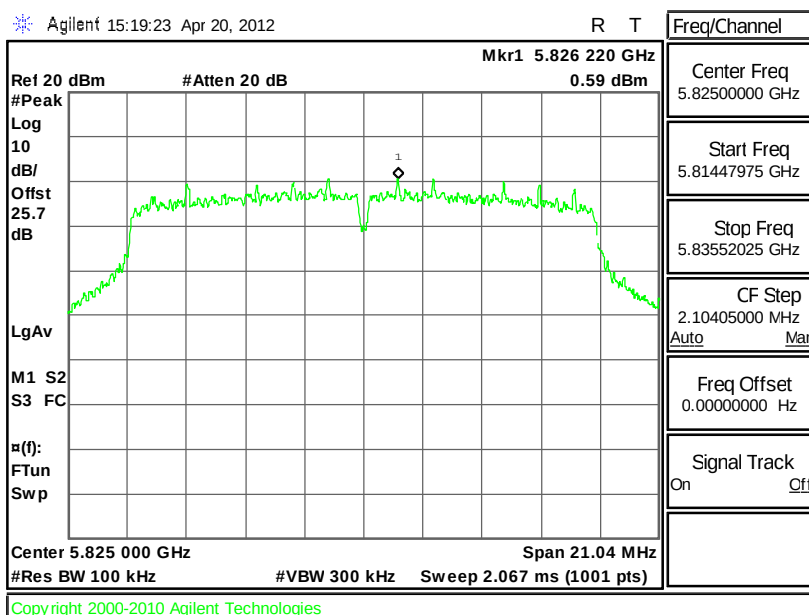




Mode 11: PSD Plot on 802.11a Channel 157

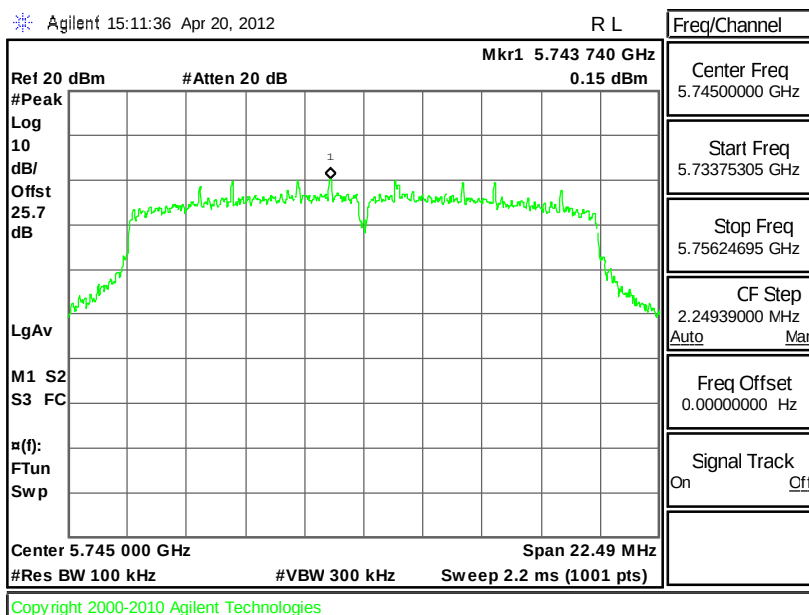


Mode 12: PSD Plot on 802.11a Channel 165

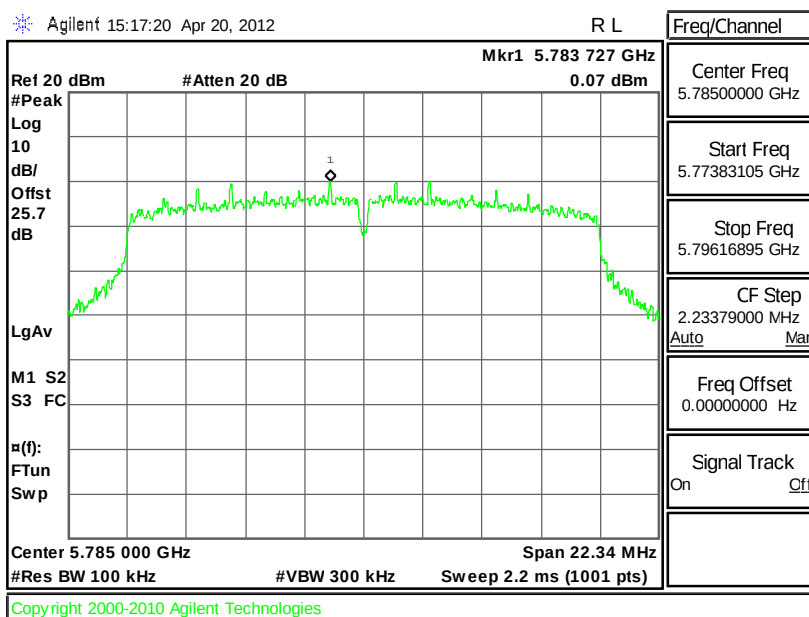




Mode 13: PSD Plot on 802.11a/n (BW 20MHz) Channel 149

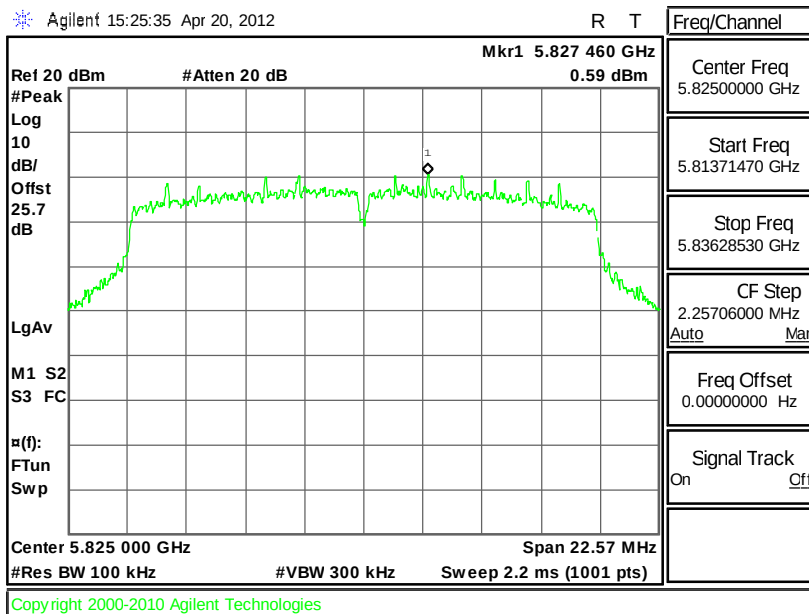


Mode 14: PSD Plot on 802.11a/n (BW 20MHz) Channel 157





Mode 15: PSD Plot on 802.11a/n (BW 20MHz) Channel 165



3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

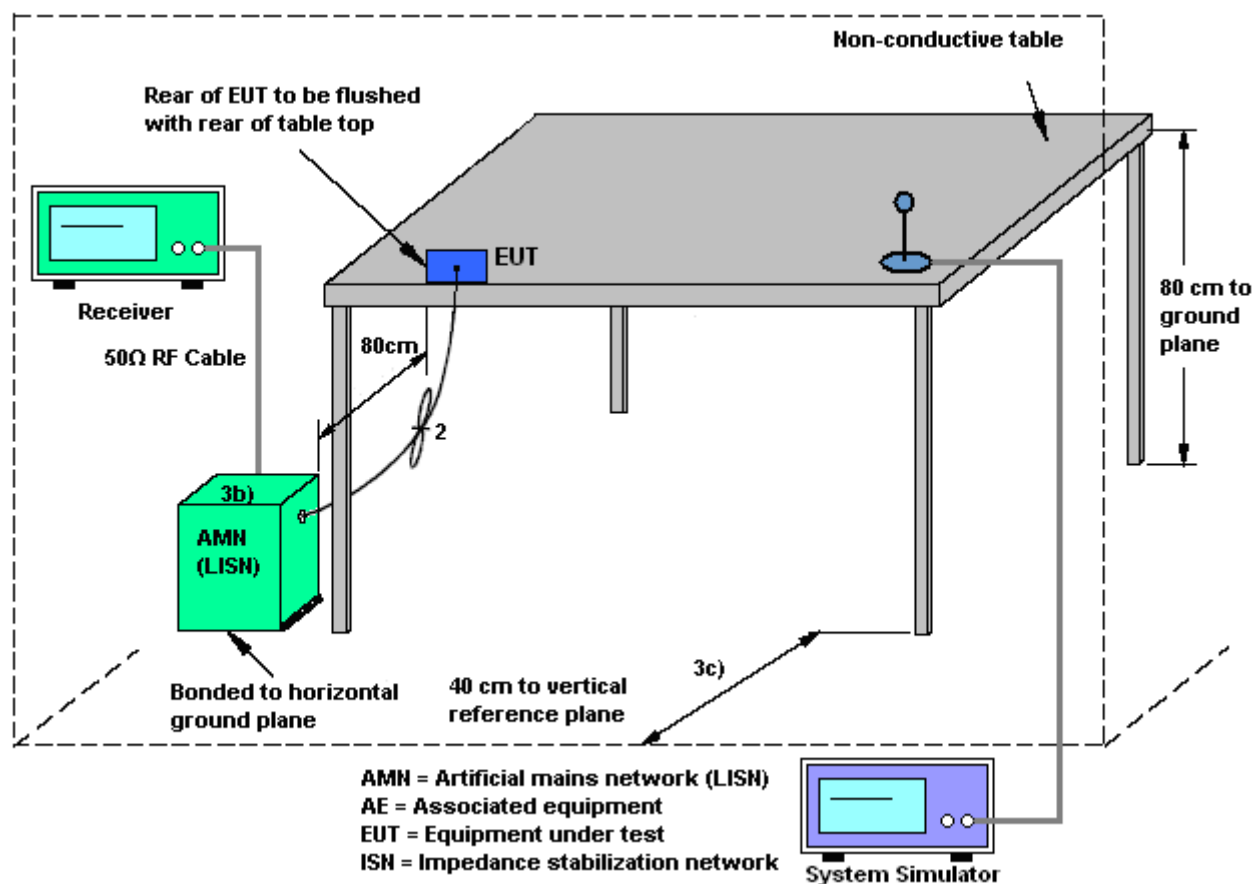
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

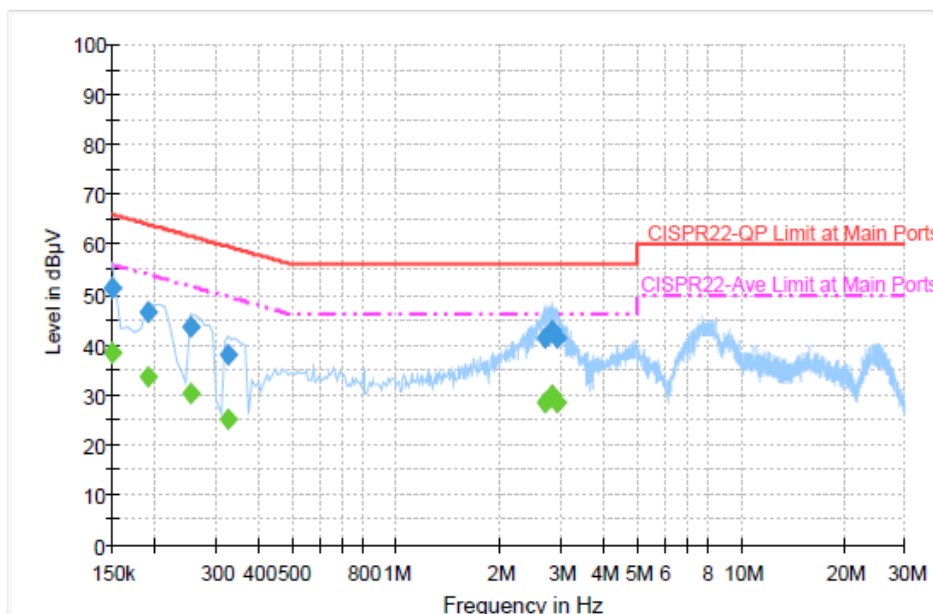
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	48~49%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



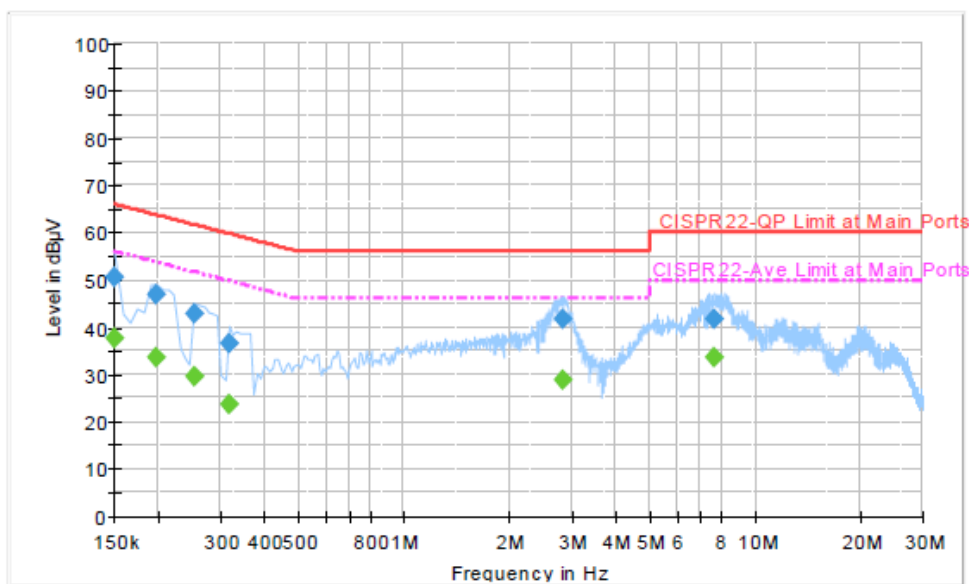
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	51.4	Off	L1	19.4	14.6	66.0
0.190000	46.6	Off	L1	19.4	17.4	64.0
0.254000	43.6	Off	L1	19.4	18.0	61.6
0.326000	38.0	Off	L1	19.4	21.6	59.6
2.718000	41.3	Off	L1	19.4	14.7	56.0
2.822000	42.9	Off	L1	19.4	13.1	56.0
2.950000	41.5	Off	L1	19.4	14.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.5	Off	L1	19.4	17.5	56.0
0.190000	33.5	Off	L1	19.4	20.5	54.0
0.254000	30.4	Off	L1	19.4	21.2	51.6
0.326000	25.2	Off	L1	19.4	24.4	49.6
2.718000	28.4	Off	L1	19.4	17.6	46.0
2.822000	29.8	Off	L1	19.4	16.2	46.0
2.950000	28.3	Off	L1	19.4	17.7	46.0

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	48~49%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + MP3 + Camera + Sleeve (USB Port) + USB Cable (Link with Notebook) + Adapter1 + Battery		
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)
0.150000	50.5	Off	N	19.4	15.5	66.0
0.198000	46.8	Off	N	19.4	16.9	63.7
0.254000	42.7	Off	N	19.4	18.9	61.6
0.318000	36.7	Off	N	19.4	23.1	59.8
2.846000	41.6	Off	N	19.5	14.4	56.0
7.686000	41.7	Off	N	19.6	18.3	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	37.6	Off	N	19.4	18.4	56.0
0.198000	33.6	Off	N	19.4	20.1	53.7
0.254000	29.7	Off	N	19.4	21.9	51.6
0.318000	23.8	Off	N	19.4	26.0	49.8
2.846000	28.7	Off	N	19.5	17.3	46.0
7.686000	33.6	Off	N	19.6	16.4	50.0

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

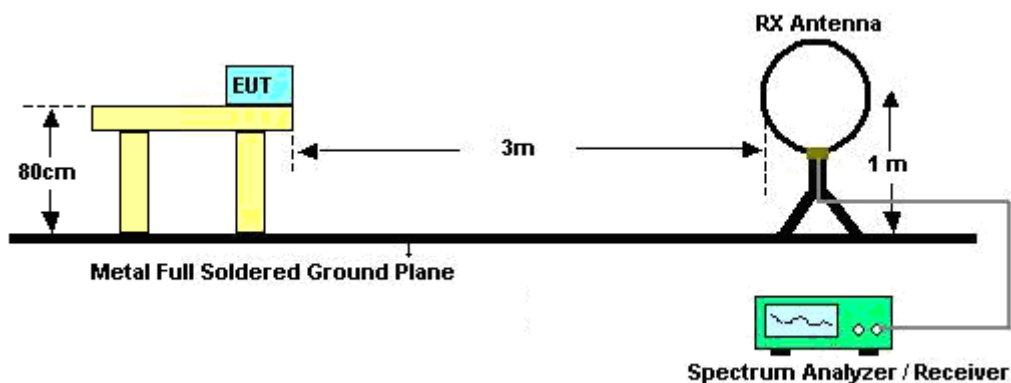
See list of measuring instruments of this test report.

3.7.3 Test Procedures

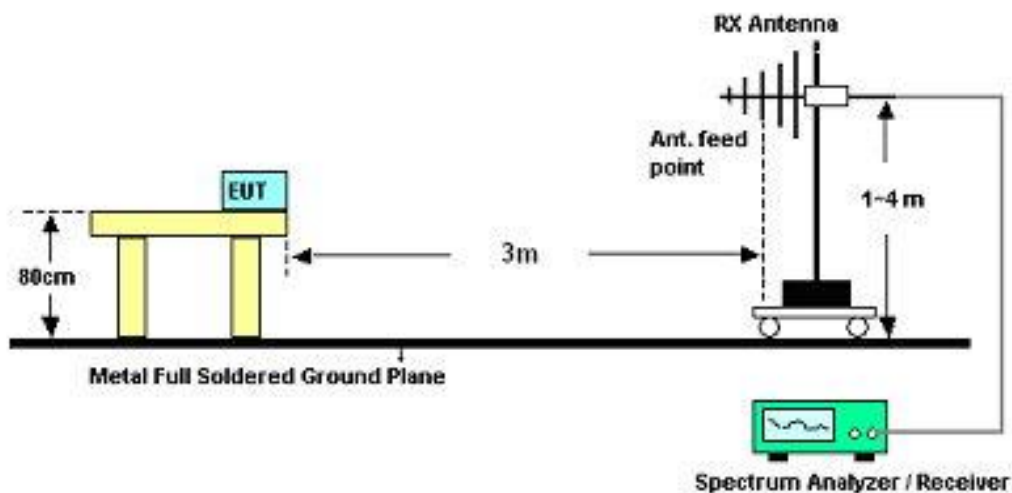
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured;
 - Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - Measurement above 18 GHz shall be extrapolated 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)
- 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

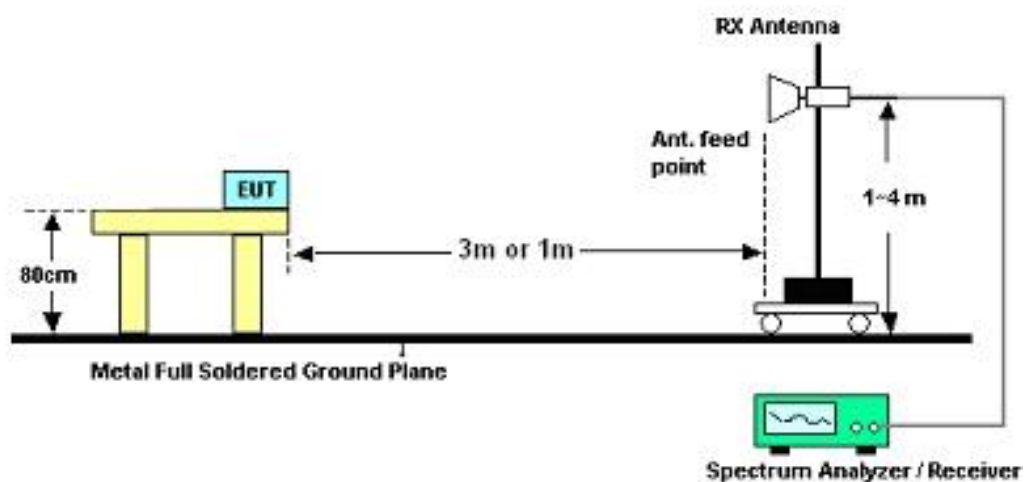
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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 (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2566 and 2612 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 110.53 dBuV/m - 20dB = 90.53 dBuV/m.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
215.49	26.3	-17.2	43.5	46.18	10.2	1.39	31.47	-	-	Peak
263.82	30.64	-15.36	46	47.54	12.89	1.61	31.4	-	-	Peak
287.85	32.31	-13.69	46	48.69	13.27	1.68	31.33	-	-	Peak
310.5	35.88	-10.12	46	51.62	13.79	1.79	31.32	-	-	Peak
358.1	36.29	-9.71	46	50.25	15.27	2.04	31.27	124	188	Peak
394.5	28.08	-17.92	46	40.74	16.41	2.13	31.2	-	-	Peak
2384.1	55.8	-18.2	74	51.46	32.16	6.03	33.85	188	40	Peak
2384.1	46.24	-7.76	54	41.9	32.16	6.03	33.85	188	40	Average
2412	110.53	-	-	106.13	32.2	6.07	33.87	188	40	Peak
2412	106.7	-	-	102.3	32.2	6.07	33.87	188	40	Average
2500	35.92	-18.08	54	31.34	32.3	6.18	33.9	188	40	Average
2500	51.63	-22.37	74	47.05	32.3	6.18	33.9	188	40	Peak
2566	58.73	-31.8	90.53	54.1	32.38	6.26	34.01	100	0	Peak
2612	53.76	-36.77	90.53	49.09	32.44	6.31	34.08	100	0	Peak



Test Mode :	Mode 1	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.07	-9.93	40	44.94	16.04	0.55	31.46	109	58	Peak
51.33	24.4	-15.6	40	47.21	8.02	0.71	31.54	-	-	Peak
127.74	22.94	-20.56	43.5	41.8	11.57	1.14	31.57	-	-	Peak
310.5	23.32	-22.68	46	39.06	13.79	1.79	31.32	-	-	Peak
346.9	23.02	-22.98	46	37.43	14.93	1.95	31.29	-	-	Peak
654.9	21.55	-24.45	46	29.19	20.38	2.85	30.87	-	-	Peak
2384.1	54.27	-19.73	74	49.93	32.16	6.03	33.85	100	326	Peak
2384.1	44.53	-9.47	54	40.19	32.16	6.03	33.85	100	326	Average
2412	109.78	-	-	105.38	32.2	6.07	33.87	100	326	Peak
2412	105.88	-	-	101.48	32.2	6.07	33.87	100	326	Average
2494	35.88	-18.12	54	31.3	32.3	6.18	33.9	100	326	Average
2494	58.16	-15.84	74	53.58	32.3	6.18	33.9	100	326	Peak

Test Mode :	Mode 2	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2596 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	19.77	-20.23	40	34.88	15.8	0.56	31.47	-	-	Peak
264.09	31.25	-14.75	46	48.15	12.89	1.61	31.4	-	-	Peak
287.85	28.93	-17.07	46	45.31	13.27	1.68	31.33	-	-	Peak
310.5	33.57	-12.43	46	49.31	13.79	1.79	31.32	137	153	Peak
360.2	31.73	-14.27	46	45.61	15.33	2.06	31.27	-	-	Peak
407.8	28.91	-17.09	46	41.22	16.69	2.17	31.17	-	-	Peak
2390	47.82	-26.18	74	43.46	32.18	6.03	33.85	189	337	Peak
2390	36.47	-17.53	54	32.11	32.18	6.03	33.85	189	337	Average
2437	110.43	-	-	105.96	32.24	6.11	33.88	189	337	Peak
2437	106.45	-	-	101.98	32.24	6.11	33.88	189	337	Average
2494	51.27	-22.73	74	46.69	32.3	6.18	33.9	189	337	Peak
2494	40.59	-13.41	54	36.01	32.3	6.18	33.9	189	337	Average
2596	57.96	-32.47	90.43	53.3	32.42	6.28	34.04	100	0	Peak

Test Mode :	Mode 2	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2516 and 2604 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.4	-9.6	40	45.27	16.04	0.55	31.46	104	221	Peak
51.06	23.93	-16.07	40	46.74	8.02	0.71	31.54	-	-	Peak
203.61	25.01	-18.49	43.5	45.79	9.37	1.33	31.48	-	-	Peak
335	26.89	-19.11	46	41.79	14.54	1.87	31.31	-	-	Peak
587	21	-25	46	29.73	19.56	2.65	30.94	-	-	Peak
831.3	25.09	-20.91	46	29.75	22.83	3.22	30.71	-	-	Peak
2390	50.83	-23.17	74	46.47	32.18	6.03	33.85	100	36	Peak
2390	39.02	-14.98	54	34.66	32.18	6.03	33.85	100	36	Average
2437	109.87	-	-	105.4	32.24	6.11	33.88	100	36	Peak
2437	105.93	-	-	101.46	32.24	6.11	33.88	100	36	Average
2484	51.22	-22.78	74	46.66	32.28	6.18	33.9	100	36	Peak
2484	37.91	-16.09	54	33.35	32.28	6.18	33.9	100	36	Average
2516	56.06	-33.81	89.87	51.47	32.32	6.21	33.94	100	0	Peak
2604	52.69	-37.18	89.87	48.04	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 3	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2544, 2582, and 2622 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	31.68	-8.32	40	42.79	20	0.53	31.64	113	158	Peak
46.2	29.42	-10.58	40	50.55	9.7	0.67	31.5	-	-	Peak
96.69	16.61	-26.89	43.5	37.62	9.44	0.98	31.43	-	-	Peak
479.9	25.03	-20.97	46	35.67	17.68	2.38	30.7	-	-	Peak
540.1	24.93	-21.07	46	34.59	18.78	2.53	30.97	-	-	Peak
701.1	22.8	-23.2	46	29.46	20.61	2.94	30.21	-	-	Peak
2382	35.81	-18.19	54	31.71	32.03	6.03	33.96	100	360	Average
2382	53.79	-20.21	74	49.69	32.03	6.03	33.96	100	360	Peak
2462	104.54	-	-	100.24	32.15	6.14	33.99	100	360	Average
2462	112.98	-	-	108.68	32.15	6.14	33.99	100	360	Peak
2485.18	43.94	-10.06	54	39.58	32.18	6.18	34	100	360	Average
2485.18	57.22	-16.78	74	52.86	32.18	6.18	34	100	360	Peak
2544	57.42	-35.56	92.98	52.93	32.25	6.23	33.99	100	0	Peak
2582	57.73	-35.25	92.98	53.15	32.28	6.28	33.98	100	0	Peak
2622	61.78	-31.2	92.98	57.1	32.32	6.33	33.97	100	0	Peak

Test Mode :	Mode 3	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2542, 2582, and 2622 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	33.95	-6.05	40	45.77	19.28	0.54	31.64	102	225	Peak
43.5	33.09	-6.91	40	52.89	11.1	0.64	31.54	-	-	Peak
53.22	32.68	-7.32	40	55.95	7.5	0.72	31.49	-	-	Peak
479.9	28.56	-17.44	46	39.2	17.68	2.38	30.7	-	-	Peak
660.5	29.07	-16.93	46	36.06	20.28	2.86	30.13	-	-	Peak
836.9	30.38	-15.62	46	34.39	22.47	3.24	29.72	-	-	Peak
2384	35.26	-18.74	54	31.16	32.03	6.03	33.96	188	47	Average
2384	53.82	-20.18	74	49.72	32.03	6.03	33.96	188	47	Peak
2462	105.64	-	-	101.34	32.15	6.14	33.99	188	47	Average
2462	114.24	-	-	109.94	32.15	6.14	33.99	188	47	Peak
2498.1	45.31	-8.69	54	40.93	32.2	6.18	34	188	47	Average
2498.1	59.24	-14.76	74	54.86	32.2	6.18	34	188	47	Peak
2542	59.64	-34.6	94.24	55.15	32.25	6.23	33.99	100	0	Peak
2582	59.39	-34.85	94.24	54.81	32.28	6.28	33.98	100	0	Peak
2622	59.87	-34.37	94.24	55.19	32.32	6.33	33.97	100	0	Peak

Test Mode :	Mode 4	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2534 and 2580 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	20.2	-19.8	40	35.31	15.8	0.56	31.47	-	-	Peak
240.06	27.84	-18.16	46	45.75	11.98	1.53	31.42	-	-	Peak
287.85	33.35	-12.65	46	49.73	13.27	1.68	31.33	-	-	Peak
335	36.18	-9.82	46	51.08	14.54	1.87	31.31	-	-	Peak
358.1	36.24	-9.76	46	50.2	15.27	2.04	31.27	156	318	Peak
430.9	25.65	-20.35	46	37.46	17.07	2.25	31.13	-	-	Peak
2389.99	63.45	-10.55	74	59.09	32.18	6.03	33.85	118	42	Peak
2389.99	42.8	-11.2	54	38.44	32.18	6.03	33.85	118	42	Average
2412	110.1	-	-	105.7	32.2	6.07	33.87	118	42	Peak
2412	96.07	-	-	91.67	32.2	6.07	33.87	118	42	Average
2492	57.34	-16.66	74	52.76	32.3	6.18	33.9	118	42	Peak
2492	36.34	-17.66	54	31.76	32.3	6.18	33.9	118	42	Average
2534	55.14	-34.96	90.1	50.54	32.34	6.23	33.97	100	0	Peak
2580	58.41	-31.69	90.1	53.77	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 4	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2532 and 2580 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.14	-9.86	40	45.25	15.8	0.56	31.47	114	182	Peak
51.33	24.25	-15.75	40	47.06	8.02	0.71	31.54	-	-	Peak
210.9	24.14	-19.36	43.5	44.39	9.86	1.36	31.47	-	-	Peak
335	27.28	-18.72	46	42.18	14.54	1.87	31.31	-	-	Peak
360.2	24.28	-21.72	46	38.16	15.33	2.06	31.27	-	-	Peak
660.5	22.27	-23.73	46	29.83	20.44	2.86	30.86	-	-	Peak
2389.42	62.49	-11.51	74	58.13	32.18	6.03	33.85	100	326	Peak
2389.42	43.1	-10.9	54	38.74	32.18	6.03	33.85	100	326	Average
2412	109.62	-	-	105.22	32.2	6.07	33.87	100	326	Peak
2412	95.55	-	-	91.15	32.2	6.07	33.87	100	326	Average
2492	35.57	-18.43	54	30.99	32.3	6.18	33.9	100	326	Average
2492	56.37	-17.63	74	51.79	32.3	6.18	33.9	100	326	Peak
2532	53.58	-36.04	89.62	48.98	32.34	6.23	33.97	100	0	Peak
2580	55.5	-34.12	89.62	50.86	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 5	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2518, 2550, and 2604 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20.93	-19.07	40	35.8	16.04	0.55	31.46	-	-	Peak
264.09	31.71	-14.29	46	48.61	12.89	1.61	31.4	-	-	Peak
287.85	32.68	-13.32	46	49.06	13.27	1.68	31.33	-	-	Peak
335	33.86	-12.14	46	48.76	14.54	1.87	31.31	144	236	Peak
358.1	32.29	-13.71	46	46.25	15.27	2.04	31.27	-	-	Peak
407.8	26.02	-19.98	46	38.33	16.69	2.17	31.17	-	-	Peak
2350	48.24	-25.76	74	44.01	32.11	5.95	33.83	189	335	Peak
2350	34.41	-19.59	54	30.18	32.11	5.95	33.83	189	335	Average
2437	108.87	-	-	104.4	32.24	6.11	33.88	189	335	Peak
2437	95.44	-	-	90.97	32.24	6.11	33.88	189	335	Average
2484	52.56	-21.44	74	48	32.28	6.18	33.9	189	335	Peak
2484	36.83	-17.17	54	32.27	32.28	6.18	33.9	189	335	Average
2518	59.5	-29.37	88.87	54.91	32.32	6.21	33.94	100	0	Peak
2550	56.03	-32.84	88.87	51.42	32.36	6.26	34.01	100	0	Peak
2604	59.08	-29.79	88.87	54.43	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 5	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2516 is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.25	-9.75	40	45.36	15.8	0.56	31.47	-	-	Peak
86.97	33.25	-6.75	40	55.62	8.24	0.92	31.53	111	83	Peak
269.22	25.71	-20.29	46	42.47	12.98	1.64	31.38	-	-	Peak
335	26.08	-19.92	46	40.98	14.54	1.87	31.31	-	-	Peak
358.1	23.75	-22.25	46	37.71	15.27	2.04	31.27	-	-	Peak
668.2	22.21	-23.79	46	29.65	20.53	2.88	30.85	-	-	Peak
2350	51.18	-22.82	74	46.95	32.11	5.95	33.83	100	312	Peak
2350	34.83	-19.17	54	30.6	32.11	5.95	33.83	100	312	Average
2437	108.31	-	-	103.84	32.24	6.11	33.88	100	312	Peak
2437	95.13	-	-	90.66	32.24	6.11	33.88	100	312	Average
2484	49.33	-24.67	74	44.77	32.28	6.18	33.9	100	312	Peak
2484	34.97	-19.03	54	30.41	32.28	6.18	33.9	100	312	Average
2516	56.38	-31.93	88.31	51.79	32.32	6.21	33.94	100	0	Peak

Test Mode :	Mode 6	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2542, 2582, and 2628 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	20.63	-19.37	40	35.74	15.8	0.56	31.47	-	-	Peak
216.3	27.35	-18.65	46	47.14	10.27	1.4	31.46	-	-	Peak
287.85	32.91	-13.09	46	49.29	13.27	1.68	31.33	136	218	Peak
335	32.23	-13.77	46	47.13	14.54	1.87	31.31	-	-	Peak
407.8	28.64	-17.36	46	40.95	16.69	2.17	31.17	-	-	Peak
716.5	23.39	-22.61	46	30.04	21.15	2.98	30.78	-	-	Peak
2382	48.45	-25.55	74	44.11	32.16	6.03	33.85	186	347	Peak
2382	33.89	-20.11	54	29.55	32.16	6.03	33.85	186	347	Average
2462	96.06	-	-	91.55	32.26	6.14	33.89	186	347	Average
2462	109.79	-	-	105.28	32.26	6.14	33.89	186	347	Peak
2483.5	63.83	-10.17	74	59.27	32.28	6.18	33.9	186	347	Peak
2483.5	45.8	-8.2	54	41.24	32.28	6.18	33.9	186	347	Average
2542	60.32	-29.47	89.79	55.7	32.36	6.23	33.97	100	0	Peak
2582	55.45	-34.34	89.79	50.81	32.4	6.28	34.04	100	0	Peak
2628	58.27	-31.52	89.79	53.59	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 6	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2540, 2582, and 2628 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	30.24	-9.76	40	45.11	16.04	0.55	31.46	105	44	Peak
51.06	24.17	-15.83	40	46.98	8.02	0.71	31.54	-	-	Peak
225.21	28.77	-17.23	46	47.88	10.89	1.45	31.45	-	-	Peak
335	28.32	-17.68	46	43.22	14.54	1.87	31.31	-	-	Peak
358.1	25.83	-20.17	46	39.79	15.27	2.04	31.27	-	-	Peak
637.4	22.66	-23.34	46	30.56	20.18	2.8	30.88	-	-	Peak
2380	52.03	-21.97	74	47.69	32.16	6.03	33.85	100	318	Peak
2380	34.36	-19.64	54	30.02	32.16	6.03	33.85	100	318	Average
2462	95	-	-	90.49	32.26	6.14	33.89	100	318	Average
2462	108.44	-	-	103.93	32.26	6.14	33.89	100	318	Peak
2483.5	62.66	-11.34	74	58.1	32.28	6.18	33.9	100	318	Peak
2483.5	44.05	-9.95	54	39.49	32.28	6.18	33.9	100	318	Average
2540	53.48	-34.96	88.44	48.86	32.36	6.23	33.97	100	0	Peak
2582	50.18	-38.26	88.44	45.54	32.4	6.28	34.04	100	0	Peak
2628	55.06	-33.38	88.44	50.38	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 7	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2526 and 2580 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
240.06	29.73	-16.27	46	47.64	11.98	1.53	31.42	-	-	Peak
264.09	31.17	-14.83	46	48.07	12.89	1.61	31.4	-	-	Peak
287.85	32.27	-13.73	46	48.65	13.27	1.68	31.33	-	-	Peak
358.1	34.97	-11.03	46	48.93	15.27	2.04	31.27	162	174	Peak
383.3	27.76	-18.24	46	40.83	16.05	2.11	31.23	-	-	Peak
612.2	21.83	-24.17	46	30.11	19.9	2.73	30.91	-	-	Peak
2389.61	59.15	-14.85	74	54.79	32.18	6.03	33.85	119	41	Peak
2389.61	41.37	-12.63	54	37.01	32.18	6.03	33.85	119	41	Average
2412	108.7	-	-	104.3	32.2	6.07	33.87	119	41	Peak
2412	91.31	-	-	86.91	32.2	6.07	33.87	119	41	Average
2494	33.89	-20.11	54	29.31	32.3	6.18	33.9	119	41	Average
2494	55.42	-18.58	74	50.84	32.3	6.18	33.9	119	41	Peak
2526	55.15	-33.55	88.7	50.55	32.34	6.23	33.97	100	0	Peak
2580	58.19	-30.51	88.7	53.55	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 7	Temperature :	21~25°C
Test Channel :	01	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 2534 and 2580 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.08	-9.92	40	45.19	15.8	0.56	31.47	106	223	Peak
82.65	28.63	-11.37	40	51.76	7.51	0.89	31.53	-	-	Peak
162.3	23.07	-20.43	43.5	43.11	10.26	1.22	31.52	-	-	Peak
358.1	24.58	-21.42	46	38.54	15.27	2.04	31.27	-	-	Peak
615	21.78	-24.22	46	30.03	19.93	2.73	30.91	-	-	Peak
825	25.35	-20.65	46	30.09	22.76	3.21	30.71	-	-	Peak
2389.99	64.02	-9.98	74	59.66	32.18	6.03	33.85	100	33	Peak
2389.99	44.06	-9.94	54	39.7	32.18	6.03	33.85	100	33	Average
2412	90.89	-	-	86.49	32.2	6.07	33.87	100	33	Average
2412	107.46	-	-	103.06	32.2	6.07	33.87	100	33	Peak
2494	34.55	-19.45	54	29.97	32.3	6.18	33.9	100	33	Average
2494	57.25	-16.75	74	52.67	32.3	6.18	33.9	100	33	Peak
2534	55.87	-31.59	87.46	51.27	32.34	6.23	33.97	100	0	Peak
2580	60.73	-26.73	87.46	56.09	32.4	6.28	34.04	100	0	Peak

Test Mode :	Mode 8	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2516, 2556, and 2604 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
55.65	30.74	-9.26	40	54.59	6.97	0.73	31.55	-	-	Peak
264.09	30.71	-15.29	46	47.61	12.89	1.61	31.4	-	-	Peak
287.85	34.14	-11.86	46	50.52	13.27	1.68	31.33	-	-	Peak
335	37.69	-8.31	46	52.59	14.54	1.87	31.31	152	228	Peak
358.1	36.47	-9.53	46	50.43	15.27	2.04	31.27	-	-	Peak
407.8	31.06	-14.94	46	43.37	16.69	2.17	31.17	-	-	Peak
2358	47.43	-26.57	74	43.15	32.13	5.99	33.84	188	339	Peak
2358	34.24	-19.76	54	29.96	32.13	5.99	33.84	188	339	Average
2437	107.71	-	-	103.24	32.24	6.11	33.88	188	339	Peak
2437	90.26	-	-	85.79	32.24	6.11	33.88	188	339	Average
2484	52.05	-21.95	74	47.49	32.28	6.18	33.9	188	339	Peak
2484	36.15	-17.85	54	31.59	32.28	6.18	33.9	188	339	Average
2516	58.3	-29.41	87.71	53.71	32.32	6.21	33.94	100	0	Peak
2556	54.27	-33.44	87.71	49.64	32.38	6.26	34.01	100	0	Peak
2604	57.35	-30.36	87.71	52.7	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 8	Temperature :	21~25°C
Test Channel :	06	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 2510, and 2604 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	30.59	-9.41	40	45.46	16.04	0.55	31.46	100	132	Peak
51.06	24.15	-15.85	40	46.96	8.02	0.71	31.54	-	-	Peak
167.7	20.97	-22.53	43.5	41.37	9.89	1.23	31.52	-	-	Peak
335	24.57	-21.43	46	39.47	14.54	1.87	31.31	-	-	Peak
477.8	18.43	-27.57	46	29.26	17.86	2.37	31.06	-	-	Peak
813.8	24.79	-21.21	46	29.67	22.63	3.18	30.69	-	-	Peak
2358	50.13	-23.87	74	45.85	32.13	5.99	33.84	100	36	Peak
2358	35.18	-18.82	54	30.9	32.13	5.99	33.84	100	36	Average
2437	107.1	-	-	102.65	32.22	6.11	33.88	100	36	Peak
2437	90.29	-	-	85.82	32.24	6.11	33.88	100	36	Average
2484	48.71	-25.29	74	44.15	32.28	6.18	33.9	100	36	Peak
2484	34.72	-19.28	54	30.16	32.28	6.18	33.9	100	36	Average
2510	54.78	-32.32	87.1	50.19	32.32	6.21	33.94	100	0	Peak
2604	55.68	-31.42	87.1	51.03	32.42	6.31	34.08	100	0	Peak

Test Mode :	Mode 9	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2542, 2582, and 2628 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
215.49	23.78	-19.72	43.5	43.66	10.2	1.39	31.47	-	-	Peak
240.06	26.66	-19.34	46	44.57	11.98	1.53	31.42	-	-	Peak
264.09	29.57	-16.43	46	46.47	12.89	1.61	31.4	-	-	Peak
310.5	32.6	-13.4	46	48.34	13.79	1.79	31.32	114	100	Peak
335	32.17	-13.83	46	47.07	14.54	1.87	31.31	-	-	Peak
358.1	31	-15	46	44.96	15.27	2.04	31.27	-	-	Peak
2382	48.49	-25.51	74	44.15	32.16	6.03	33.85	185	345	Peak
2382	33.75	-20.25	54	29.41	32.16	6.03	33.85	185	345	Average
2462	107.87	-	-	103.36	32.26	6.14	33.89	185	345	Peak
2462	90.77	-	-	86.26	32.26	6.14	33.89	185	345	Average
2484.61	62.7	-11.3	74	58.14	32.28	6.18	33.9	185	345	Peak
2484.61	43.95	-10.05	54	39.39	32.28	6.18	33.9	185	345	Average
2542	59.07	-28.8	87.87	54.45	32.36	6.23	33.97	100	0	Peak
2582	54.01	-33.86	87.87	49.37	32.4	6.28	34.04	100	0	Peak
2628	57.24	-30.63	87.87	52.56	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 9	Temperature :	21~25°C
Test Channel :	11	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 2542, 2588, and 2628 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	30.39	-9.61	40	45.5	15.8	0.56	31.47	126	304	Peak
226.02	28.36	-17.64	46	47.4	10.95	1.46	31.45	-	-	Peak
287.85	24.4	-21.6	46	40.78	13.27	1.68	31.33	-	-	Peak
358.1	24.3	-21.7	46	38.26	15.27	2.04	31.27	-	-	Peak
590.5	21.26	-24.74	46	29.91	19.62	2.66	30.93	-	-	Peak
794.2	24.12	-21.88	46	29.29	22.38	3.13	30.68	-	-	Peak
2382	51.95	-22.05	74	47.61	32.16	6.03	33.85	100	29	Peak
2382	34.71	-19.29	54	30.37	32.16	6.03	33.85	100	29	Average
2462	107.71	-	-	103.2	32.26	6.14	33.89	100	29	Peak
2462	89.86	-	-	85.35	32.26	6.14	33.89	100	29	Average
2483.5	61.75	-12.25	74	57.19	32.28	6.18	33.9	100	29	Peak
2483.5	42.8	-11.2	54	38.24	32.28	6.18	33.9	100	29	Average
2542	53.79	-33.92	87.71	49.17	32.36	6.23	33.97	100	0	Peak
2588	52.25	-35.46	87.71	47.61	32.4	6.28	34.04	100	0	Peak
2628	59.23	-28.48	87.71	54.55	32.46	6.33	34.11	100	0	Peak

Test Mode :	Mode 10	Temperature :	21~25°C
Test Channel :	149	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6866 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	31.58	-8.42	40	43.4	19.28	0.54	31.64	100	31	Peak
216.03	20.06	-25.94	46	39.47	10.24	1.4	31.05	-	-	Peak
264.09	19.21	-26.79	46	35.84	12.79	1.61	31.03	-	-	Peak
384	22.82	-23.18	46	36.17	15.58	2.11	31.04	-	-	Peak
540.1	25.21	-20.79	46	34.87	18.78	2.53	30.97	-	-	Peak
836.9	26.92	-19.08	46	30.93	22.47	3.24	29.72	-	-	Peak
5725	76.1	-12.97	89.07	64.63	34.81	9.92	33.26	109	333	Peak
5745	98.31	-	-	86.86	34.84	9.91	33.3	109	333	Average
5745	109.07	-	-	97.62	34.84	9.91	33.3	109	333	Peak
5850	52.35	-36.72	89.07	40.96	34.98	9.87	33.46	109	333	Peak
6866	64.99	-24.08	89.07	53.38	35.67	9.88	33.94	100	0	Peak

Test Mode :	Mode 10	Temperature :	21~25°C
Test Channel :	149	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6872 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.77	32.82	-7.18	40	52.62	11.1	0.64	31.54	100	62	Peak
86.7	22.62	-17.38	40	44.84	8.24	0.92	31.38	-	-	Peak
254.91	25.56	-20.44	46	42.27	12.67	1.56	30.94	-	-	Peak
419.7	24.25	-21.75	46	36.68	16.42	2.21	31.06	-	-	Peak
540.1	29.1	-16.9	46	38.76	18.78	2.53	30.97	-	-	Peak
660.5	29.23	-16.77	46	36.22	20.28	2.86	30.13	-	-	Peak
5725	84.88	-10.69	95.57	73.41	34.81	9.92	33.26	107	307	Peak
5745	104.65	-	-	93.2	34.84	9.91	33.3	107	307	Average
5745	115.57	-	-	104.12	34.84	9.91	33.3	107	307	Peak
5850	55.06	-40.51	95.57	43.67	34.98	9.87	33.46	107	307	Peak
6872	73.3	-22.27	95.57	61.69	35.67	9.89	33.95	100	0	Peak

Test Mode :	Mode 11	Temperature :	21~25°C
Test Channel :	157	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6868 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	31.59	-8.41	40	42.7	20	0.53	31.64	100	20	Peak
98.58	19.49	-24.01	43.5	40.26	9.68	0.99	31.44	-	-	Peak
240.06	21.41	-24.59	46	38.9	11.93	1.53	30.95	-	-	Peak
384	24.57	-21.43	46	37.92	15.58	2.11	31.04	-	-	Peak
540.1	24.9	-21.1	46	34.56	18.78	2.53	30.97	-	-	Peak
780.2	24.75	-21.25	46	29.81	21.79	3.11	29.96	-	-	Peak
5725	53.85	-36.17	-	42.38	34.81	9.92	33.26	109	333	Peak
5785	99.22	-	-	87.77	34.89	9.9	33.34	109	333	Average
5785	110.02	-	-	98.6	34.91	9.89	33.38	109	333	Peak
5850	53.45	-36.57	90.02	42.06	34.98	9.87	33.46	109	333	Peak
6868	64.76	-25.26	90.02	53.15	35.67	9.88	33.94	100	0	Peak

Test Mode :	Mode 11	Temperature :	21~25°C
Test Channel :	157	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6872 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.52	32.71	-7.29	40	55.32	8.1	0.7	31.41	100	74	Peak
73.74	27.31	-12.69	40	51.07	6.81	0.85	31.42	-	-	Peak
119.91	19.48	-24.02	43.5	38.04	11.7	1.1	31.36	-	-	Peak
479.9	28.68	-17.32	46	39.32	17.68	2.38	30.7	-	-	Peak
540.1	28.83	-17.17	46	38.49	18.78	2.53	30.97	-	-	Peak
660.5	28.91	-17.09	46	35.9	20.28	2.86	30.13	-	-	Peak
5725	57.6	-39.17	96.77	46.13	34.81	9.92	33.26	107	307	Peak
5785	105.79	-	-	94.34	34.89	9.9	33.34	107	307	Average
5785	116.77	-	-	105.32	34.89	9.9	33.34	107	307	Peak
5850	55.73	-41.04	96.77	44.34	34.98	9.87	33.46	107	307	Peak
6872	73.14	-23.63	96.77	61.53	35.67	9.89	33.95	100	0	Peak

Test Mode :	Mode 12	Temperature :	21~25°C
Test Channel :	165	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6878 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	27	-13	40	38.11	20	0.53	31.64	100	41	Peak
96.69	16.87	-26.63	43.5	37.88	9.44	0.98	31.43	-	-	Peak
264.09	21.57	-24.43	46	38.2	12.79	1.61	31.03	-	-	Peak
384	24.36	-21.64	46	37.71	15.58	2.11	31.04	-	-	Peak
540.1	25.23	-20.77	46	34.89	18.78	2.53	30.97	-	-	Peak
774.6	24.38	-21.62	46	29.56	21.72	3.1	30	-	-	Peak
5725	52.78	-35.43	88.21	41.31	34.81	9.92	33.26	107	329	Peak
5825	97.71	-	-	86.29	34.96	9.88	33.42	107	329	Average
5825	108.21	-	-	96.79	34.96	9.88	33.42	107	329	Peak
5850	63.92	-24.29	88.21	52.53	34.98	9.87	33.46	107	329	Peak
6878	66.48	-21.73	88.21	54.86	35.68	9.89	33.95	100	0	Peak

Test Mode :	Mode 12	Temperature :	21~25°C
Test Channel :	165	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6872 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	33.96	-6.04	40	47.19	17.84	0.56	31.63	100	52	Peak
86.7	22.14	-17.86	40	44.36	8.24	0.92	31.38	-	-	Peak
269.49	18.16	-27.84	46	34.74	12.87	1.64	31.09	-	-	Peak
419.7	24.74	-21.26	46	37.17	16.42	2.21	31.06	-	-	Peak
540.1	29.06	-16.94	46	38.72	18.78	2.53	30.97	-	-	Peak
659.8	29.28	-16.72	46	36.28	20.27	2.86	30.13	-	-	Peak
5725	54.94	-39.97	94.91	43.47	34.81	9.92	33.26	105	308	Peak
5825	103.86	-	-	92.44	34.96	9.88	33.42	105	308	Average
5825	114.91	-	-	103.49	34.96	9.88	33.42	105	308	Peak
5850	74.75	-20.16	94.91	63.36	34.98	9.87	33.46	105	308	Peak
6872	73.61	-21.3	94.91	62	35.67	9.89	33.95	100	0	Peak

Test Mode :	Mode 13	Temperature :	21~25°C
Test Channel :	149	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6870 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	31.34	-8.66	40	42.45	20	0.53	31.64	100	36	Peak
96.69	16.82	-26.68	43.5	37.83	9.44	0.98	31.43	-	-	Peak
264.09	21.75	-24.25	46	38.38	12.79	1.61	31.03	-	-	Peak
384	22.37	-23.63	46	35.72	15.58	2.11	31.04	-	-	Peak
479.9	24.44	-21.56	46	35.08	17.68	2.38	30.7	-	-	Peak
820.8	25.26	-20.74	46	29.53	22.3	3.19	29.76	-	-	Peak
5725	82.32	-7.35	89.67	70.85	34.81	9.92	33.26	110	333	Peak
5745	98.93	-	-	87.48	34.84	9.91	33.3	110	333	Average
5745	109.67	-	-	98.22	34.84	9.91	33.3	110	333	Peak
5850	51.97	-37.7	89.67	40.58	34.98	9.87	33.46	110	333	Peak
6870	64.04	-25.63	89.67	52.43	35.67	9.89	33.95	100	0	Peak

Test Mode :	Mode 13	Temperature :	21~25°C
Test Channel :	149	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725, 5850, 6870, and 17235 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	33.37	-6.63	40	53.17	11.1	0.64	31.54	100	85	Peak
87.51	22.4	-17.6	40	44.53	8.33	0.92	31.38	-	-	Peak
216.03	17.02	-28.98	46	36.43	10.24	1.4	31.05	-	-	Peak
419.7	24.7	-21.3	46	37.13	16.42	2.21	31.06	-	-	Peak
540.1	29.56	-16.44	46	39.22	18.78	2.53	30.97	-	-	Peak
660.5	29.32	-16.68	46	36.31	20.28	2.86	30.13	-	-	Peak
5725	85.75	-9.9	95.65	74.28	34.81	9.92	33.26	106	308	Peak
5745	104.96	-	-	93.51	34.84	9.91	33.3	106	308	Average
5745	115.65	-	-	104.2	34.84	9.91	33.3	106	308	Peak
5850	54.75	-40.9	95.65	43.36	34.98	9.87	33.46	106	308	Peak
6870	73.16	-22.49	95.65	61.55	35.67	9.89	33.95	100	0	Peak
17235	49.8	-45.85	95.65	50.88	42.07	14.37	57.52	100	0	Peak

Test Mode :	Mode 14	Temperature :	21~25°C
Test Channel :	157	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6878 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	29.16	-10.84	40	40.27	20	0.53	31.64	100	81	Peak
216.03	19.38	-26.62	46	38.79	10.24	1.4	31.05	-	-	Peak
240.06	21.17	-24.83	46	38.66	11.93	1.53	30.95	-	-	Peak
384	24.02	-21.98	46	37.37	15.58	2.11	31.04	-	-	Peak
540.1	25.29	-20.71	46	34.95	18.78	2.53	30.97	-	-	Peak
829.9	25.17	-20.83	46	29.29	22.4	3.22	29.74	-	-	Peak
5725	54.14	-35.67	89.81	42.67	34.81	9.92	33.26	109	334	Peak
5785	98.89	-	-	87.44	34.89	9.9	33.34	109	334	Average
5785	109.81	-	-	98.36	34.89	9.9	33.34	109	334	Peak
5850	52.86	-36.95	89.81	41.47	34.98	9.87	33.46	109	334	Peak
6878	65.29	-24.52	89.81	53.67	35.68	9.89	33.95	100	0	Peak

Test Mode :	Mode 14	Temperature :	21~25°C
Test Channel :	157	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725, 5850, 6872, and 17355 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	33.7	-6.3	40	53.5	11.1	0.64	31.54	100	10	Peak
73.74	27.18	-12.82	40	50.94	6.81	0.85	31.42	-	-	Peak
119.91	19.45	-24.05	43.5	38.01	11.7	1.1	31.36	-	-	Peak
419.7	24.53	-21.47	46	36.96	16.42	2.21	31.06	-	-	Peak
479.9	29.62	-16.38	46	40.26	17.68	2.38	30.7	-	-	Peak
660.5	29.67	-16.33	46	36.66	20.28	2.86	30.13	-	-	Peak
5725	56.83	-39.12	95.95	45.36	34.81	9.92	33.26	106	307	Peak
5785	105.27	-	-	93.82	34.89	9.9	33.34	106	307	Average
5785	115.95	-	-	104.48	34.91	9.9	33.34	106	307	Peak
5850	56.92	-39.03	95.95	45.53	34.98	9.87	33.46	106	307	Peak
6872	73.06	-22.89	95.95	61.45	35.67	9.89	33.95	100	0	Peak
17355	49.62	-46.33	95.95	50.64	41.95	14.41	57.38	100	0	Peak

Test Mode :	Mode 15	Temperature :	21~25°C
Test Channel :	165	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725, 5850, and 6878 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	31.12	-8.88	40	42.94	19.28	0.54	31.64	100	25	Peak
216.03	20.57	-25.43	46	39.98	10.24	1.4	31.05	-	-	Peak
264.09	21.7	-24.3	46	38.33	12.79	1.61	31.03	-	-	Peak
419.7	24.18	-21.82	46	36.61	16.42	2.21	31.06	-	-	Peak
479.9	25.33	-20.67	46	35.97	17.68	2.38	30.7	-	-	Peak
540.1	24.57	-21.43	46	34.23	18.78	2.53	30.97	-	-	Peak
5725	52.96	-35.44	88.4	41.49	34.81	9.92	33.26	108	334	Peak
5825	97.33	-	-	85.91	34.96	9.88	33.42	108	334	Average
5825	108.4	-	-	96.98	34.96	9.88	33.42	108	334	Peak
5850	71.03	-17.37	88.4	59.64	34.98	9.87	33.46	108	334	Peak
6878	65.35	-23.05	88.4	53.73	35.68	9.89	33.95	100	0	Peak

Test Mode :	Mode 15	Temperature :	21~25°C
Test Channel :	165	Relative Humidity :	49~54%
Test Engineer :	Kyle Jhuang, Ivan Chiang, and David Yang	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725, 5850, 6874 and 17475 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
47.28	32.86	-7.14	40	54.37	9.3	0.67	31.48	100	87	Peak
86.43	22.4	-17.6	40	44.62	8.24	0.92	31.38	-	-	Peak
248.16	21.73	-24.27	46	38.64	12.47	1.53	30.91	-	-	Peak
479.9	28.73	-17.27	46	39.37	17.68	2.38	30.7	-	-	Peak
540.1	29.83	-16.17	46	39.49	18.78	2.53	30.97	-	-	Peak
660.5	29.62	-16.38	46	36.61	20.28	2.86	30.13	-	-	Peak
5725	55.53	-40.22	95.75	44.06	34.81	9.92	33.26	106	308	Peak
5825	104.41	-	-	92.99	34.96	9.88	33.42	106	308	Average
5825	115.75	-	-	104.33	34.96	9.88	33.42	106	308	Peak
5850	75.62	-20.13	95.75	64.23	34.98	9.87	33.46	106	308	Peak
6874	73.43	-22.32	95.75	61.81	35.68	9.89	33.95	100	0	Peak
17475	49.07	-46.68	95.75	50.03	41.83	14.45	57.24	100	0	Peak

3.8 Antenna Requirements

3.8.1 Standard Applicable

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

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Mar. 30, 2012 ~ Apr. 20, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 03, 2011	Mar. 30, 2012 ~ Apr. 20, 2012	Apr. 02, 2012	Conducted (TH02-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 17, 2012	Mar. 30, 2012 ~ Apr. 20, 2012	Apr. 16, 2013	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Mar. 27, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Mar. 27, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Mar. 27, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Mar. 27, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Mar. 27, 2012	Jul. 27, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Jun. 08, 2011 ~ Apr. 11, 2012	Oct. 30, 2011	Radiation (03CH07-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jun. 08, 2011 ~ Apr. 11, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Jun. 08, 2011 ~ Apr. 11, 2012	Dec. 02, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jun. 08, 2011 ~ Apr. 11, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Jun. 08, 2011 ~ Apr. 11, 2012	Aug. 18, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jun. 08, 2011 ~ Apr. 11, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Jun. 08, 2011 ~ Apr. 11, 2012	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Jun. 08, 2011 ~ Apr. 11, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Jun. 08, 2011 ~ Apr. 11, 2012	Mar. 28, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Jun. 08, 2011 ~ Apr. 11, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jun. 08, 2011 ~ Apr. 11, 2012	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

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 (30MHz ~ 1000MHz)

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 (1GHz ~ 40GHz)

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 EP1D0814 as below.