

FCC RF Test Report

APPLICANT : Honeywell International Inc
EQUIPMENT : Dolphin 7800
BRAND NAME : Honeywell
MODEL NAME : Dolphin® 7800
FCC ID : HD57800LW
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure TX

The product was received on Jun. 20, 2011 and completely tested on Nov. 14, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

SPORTON INTERNATIONAL INC.

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FCC ID : HD57800LW

Page Number : 1 of 128

Report Issued Date : Nov. 17, 2011

Report Version : Rev. 02



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR162005-01C	Rev. 01	Initial issue of report	Nov. 16, 2011
FR162005-01C	Rev. 02	Update report of revising test data of Channel 116	Nov. 17, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	$\leq 17, 24, 30$ dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	$\leq 4, 11, 17$ dBm (depend on band)	Pass	-
3.4	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 13.1 dB at 0.262 MHz
3.5	15.407(b)	A9.3	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 2.36 dB at 5725.000 MHz
3.6	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.7	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Honeywell International Inc
9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.2 Manufacturer

Honeywell International Inc
9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Dolphin 7800
Brand Name	Honeywell
Model Name	Dolphin® 7800
FCC ID	HD57800LW
Integrated Module	Brand Name : Murata Model Name : LBEH1Z9PFC-TEMP
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz
Maximum Output Power to Antenna	<5150 MHz ~ 5250 MHz> 802.11a : 15.49 dBm / 0.0354 W 802.11n (BW 20MHz) : 15.40 dBm / 0.0347 W <5250 MHz ~ 5350 MHz> 802.11a : 15.70 dBm / 0.0372 W 802.11n (BW 20MHz) : 15.54 dBm / 0.0358 W <5470 MHz ~ 5725 MHz> 802.11a : 15.49 dBm / 0.0354 W 802.11n (BW 20MHz) : 15.38 dBm / 0.0345 W
Antenna Type	PIFA Antenna with gain 1.60 dBi
HW Version	010
SW Version	01
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D01 General UNII Test Procedures v01
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issued 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.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
8.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

802.11a Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	132	5660	136	5680	140	5700

802.11n (BW 20MHz) Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	132	5660	136	5680	140	5700

2.2 RF Power

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

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	15.05	15.04	15.02	15.00	14.86	14.80	14.12	14.09
CH 44	5220 MHz	15.48	15.45	15.45	15.31	15.15	15.05	14.06	14.05
CH 48	5240 MHz	15.49	15.38	15.38	15.36	15.17	15.04	14.05	13.98
CH 52	5260 MHz	15.70	15.57	15.60	15.52	15.44	15.35	14.62	14.60
CH 60	5300 MHz	15.34	15.26	15.20	15.09	15.05	14.96	14.18	14.14
CH 64	5320 MHz	15.26	15.21	15.19	15.15	15.08	14.97	14.20	14.26
CH 100	5500 MHz	15.49	15.46	15.44	15.36	15.28	15.10	14.58	14.57
CH 116	5580 MHz	14.94	14.83	14.83	14.76	14.74	14.60	14.54	14.53
CH 140	5700 MHz	15.37	15.34	15.31	15.25	15.30	14.96	14.68	14.62

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 36	5180 MHz	14.98	14.93	14.86	14.78	14.79	13.95	13.95	13.07
CH 44	5220 MHz	15.33	15.32	15.23	15.10	14.92	13.94	13.82	12.93
CH 48	5240 MHz	15.40	15.35	15.16	14.97	14.94	13.84	13.84	12.97
CH 52	5260 MHz	15.54	15.39	15.35	15.35	15.17	14.41	14.36	13.52
CH 60	5300 MHz	15.16	15.09	15.10	15.07	14.84	14.08	14.06	13.13
CH 64	5320 MHz	15.16	15.09	15.02	15.03	14.93	14.11	13.98	13.04
CH 100	5500 MHz	15.38	15.24	15.17	15.15	15.04	14.46	14.44	13.61
CH 116	5580 MHz	15.30	15.26	15.25	15.19	15.10	14.54	14.54	13.54
CH 140	5700 MHz	15.24	15.20	15.07	15.11	14.90	14.36	14.34	13.41

Remark:

1. The data rates of WLAN 802.11a/n were set in 6Mbps for 802.11a and 6.5Mbps for 802.11n (BW 20MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.

2.3 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: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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

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

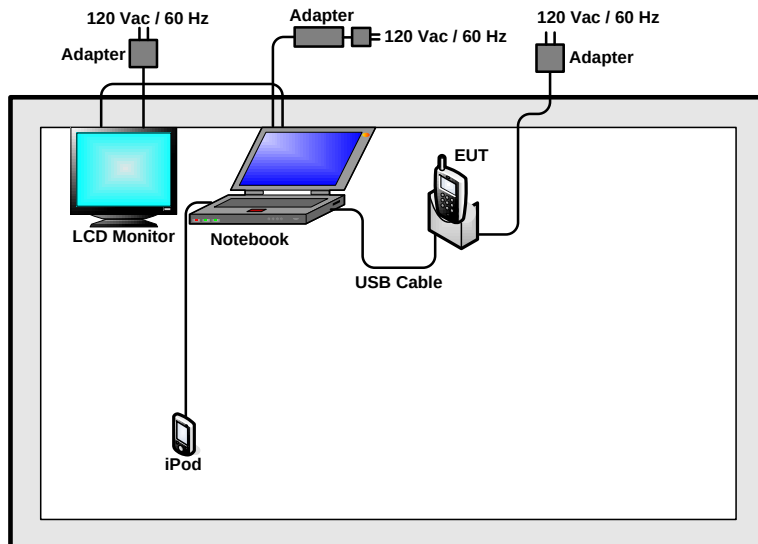
The following tables are showing the test modes as the worst cases (H plane for keypad 1 and E1 plane for keypad 2) and recorded in this report.

Test Cases	
Test Item	802.11a (Modulation : OFDM)
Conducted TCs	■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH44_5220 MHz ■ Mode 3: 802.11a_CH48_5240 MHz ■ Mode 4: 802.11a_CH52_5260 MHz ■ Mode 5: 802.11a_CH60_5300 MHz ■ Mode 6: 802.11a_CH64_5320 MHz ■ Mode 7: 802.11a_CH100_5500 MHz ■ Mode 8: 802.11a_CH116_5580 MHz ■ Mode 9: 802.11a_CH140_5700 MHz ■ Mode 10: 802.11a_CH36_5180 MHz (BW 20M) ■ Mode 11: 802.11a_CH44_5220 MHz (BW 20M) ■ Mode 12: 802.11a_CH48_5240 MHz (BW 20M) ■ Mode 13: 802.11a_CH52_5260 MHz (BW 20M) ■ Mode 14: 802.11a_CH60_5300 MHz (BW 20M) ■ Mode 15: 802.11a_CH64_5320 MHz (BW 20M) ■ Mode 16: 802.11a_CH100_5500 MHz (BW 20M) ■ Mode 17: 802.11a_CH116_5580 MHz (BW 20M) ■ Mode 18: 802.11a_CH140_5700 MHz (BW 20M)

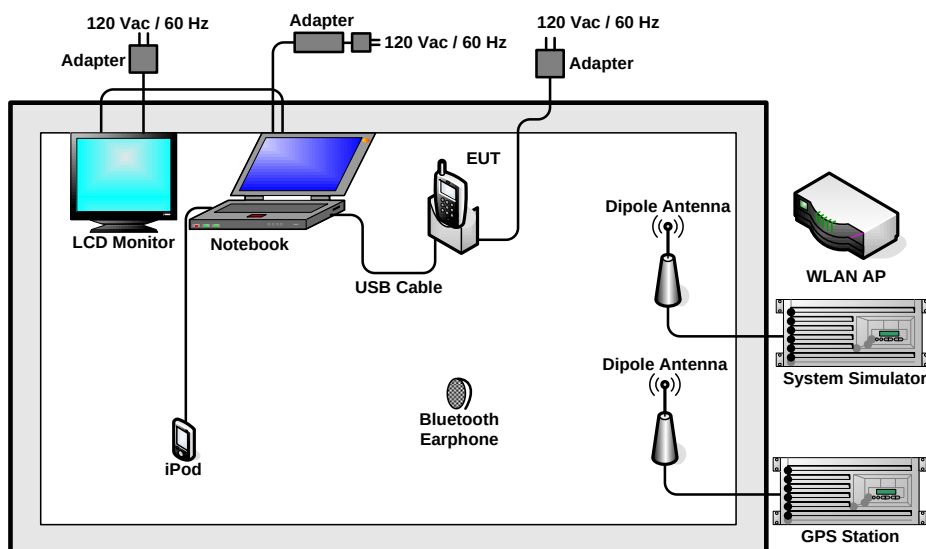
Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Radiated TCs	■ de 1: 802.11a_CH36_5180 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 2: 802.11a_CH44_5220 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 3: 802.11a_CH48_5240 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 4: 802.11a_CH52_5260 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 5: 802.11a_CH60_5300 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 6: 802.11a_CH64_5320 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 7: 802.11a_CH100_5500 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 8: 802.11a_CH116_5580 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 9: 802.11a_CH140_5700 MHz for EUT with Keypad 1 and Battery 1 ■ Mode 10: 802.11a_CH140_5700 MHz for EUT with Keypad 2 and Battery 2 ■ Mode 11: 802.11a_CH36_5180 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 12: 802.11a_CH44_5220 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 13: 802.11a_CH48_5240 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 14: 802.11a_CH52_5260 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 15: 802.11a_CH60_5300 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 16: 802.11a_CH64_5320 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 17: 802.11a_CH100_5500 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 18: 802.11a_CH116_5580 MHz (BW 20M) for EUT with Keypad 1 and Battery 1 ■ Mode 19: 802.11a_CH140_5700 MHz (BW 20M) for EUT with Keypad 1 and Battery 1
AC Conducted Emission	Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN Link (5G) + GPS Rx + USB Charging Cable with AC Power + USB Cable (Data Link with Notebook) for Keypad 1 Mode 2 : WCDMA Band IV Idle + Bluetooth Link + WLAN Link (5G) + GPS Rx + USB Charging Cable with AC Power + USB Cable (Data Link with Notebook) for Keypad 2
Remark: - The worst case of conducted emission is mode 1; only the test data of it was reported. - Link with Notebook means data application transferred mode between EUT and Notebook	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

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

3 Test Result

3.1 26dB & 99% Bandwidth Measurement

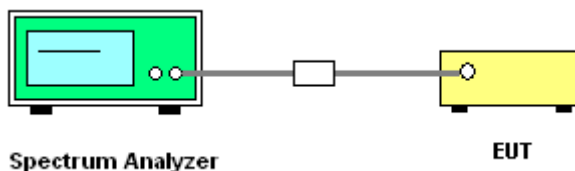
3.1.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.2 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

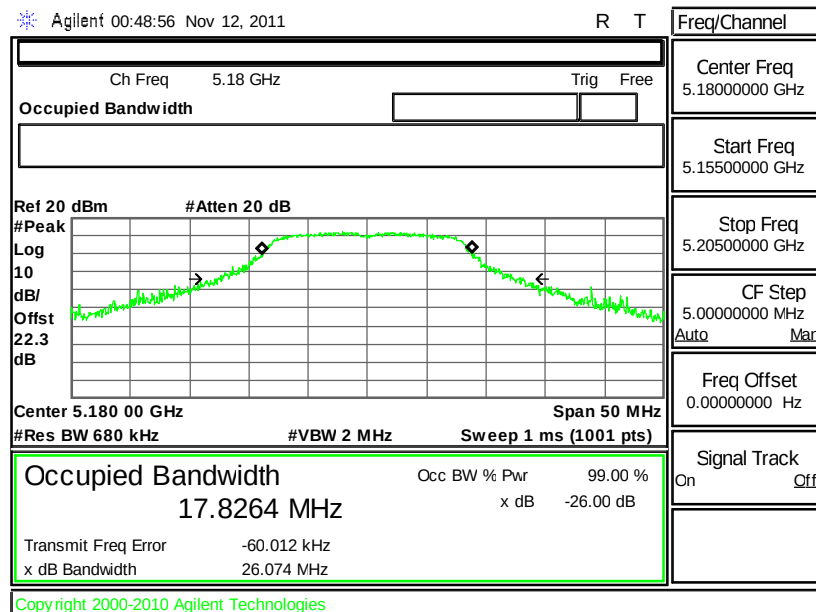
3.1.3 Test Setup



3.1.4 Test Result of 26dB Bandwidth Plots

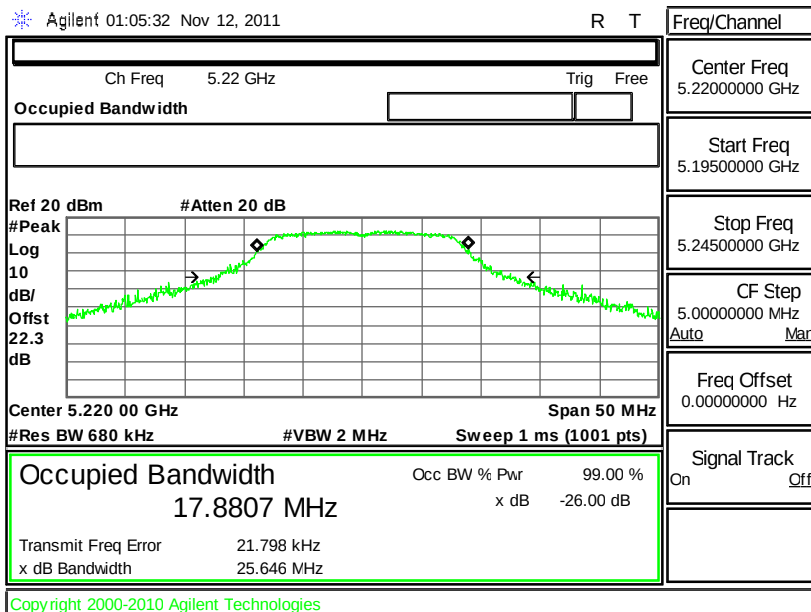
Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	26.074	Pass
44	5220	25.646	Pass
48	5240	28.922	Pass
52	5260	26.857	Pass
60	5300	26.325	Pass
64	5320	26.463	Pass
100	5500	26.288	Pass
116	5580	27.146	Pass
140	5700	30.771	Pass

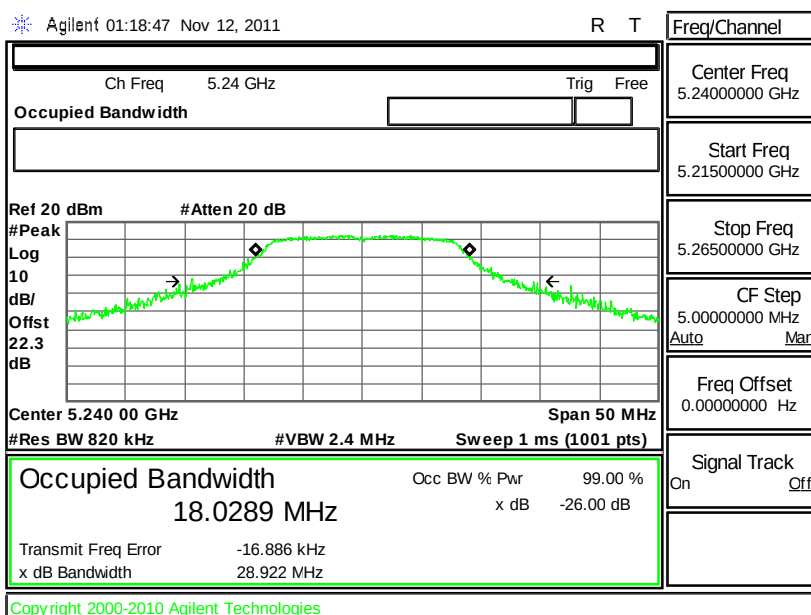
26 dB Bandwidth Plot on 802.11a Channel 36




26 dB Bandwidth Plot on 802.11a Channel 44

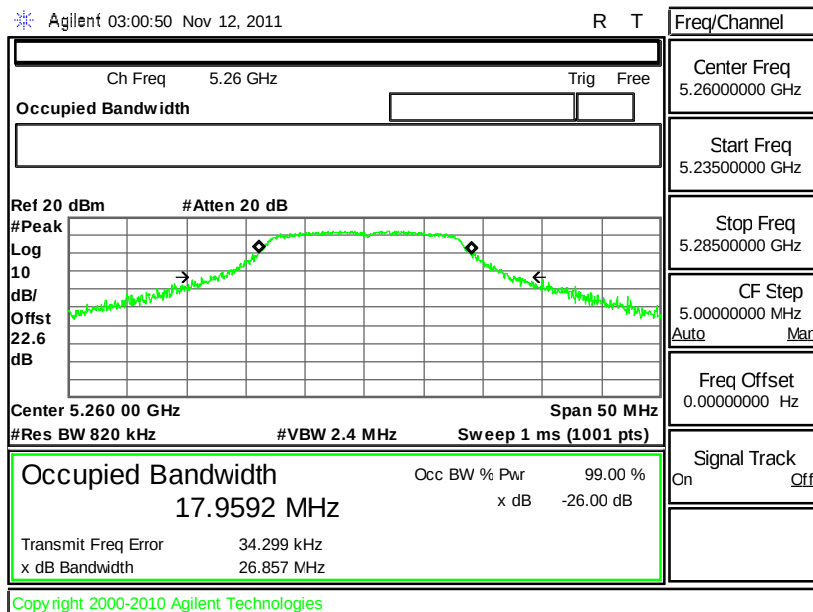


26 dB Bandwidth Plot on 802.11a Channel 48

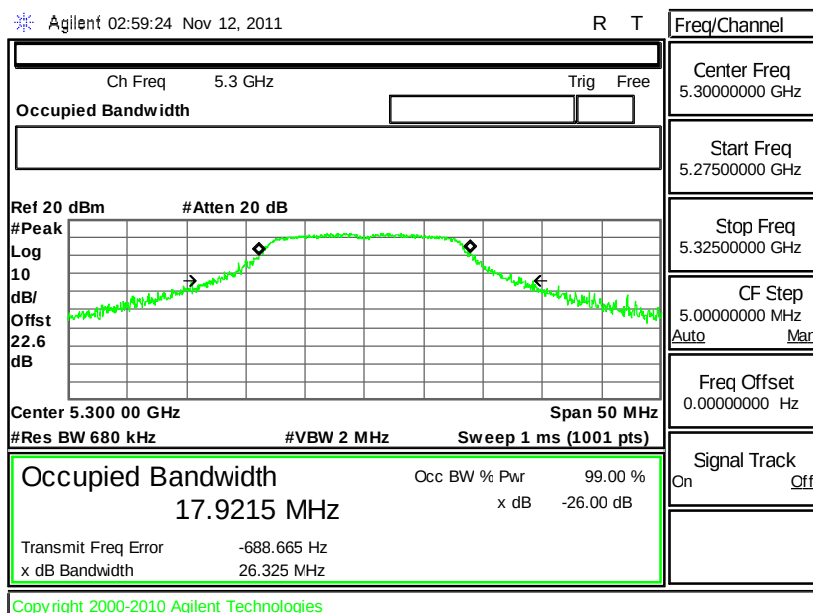




26 dB Bandwidth Plot on 802.11a Channel 52

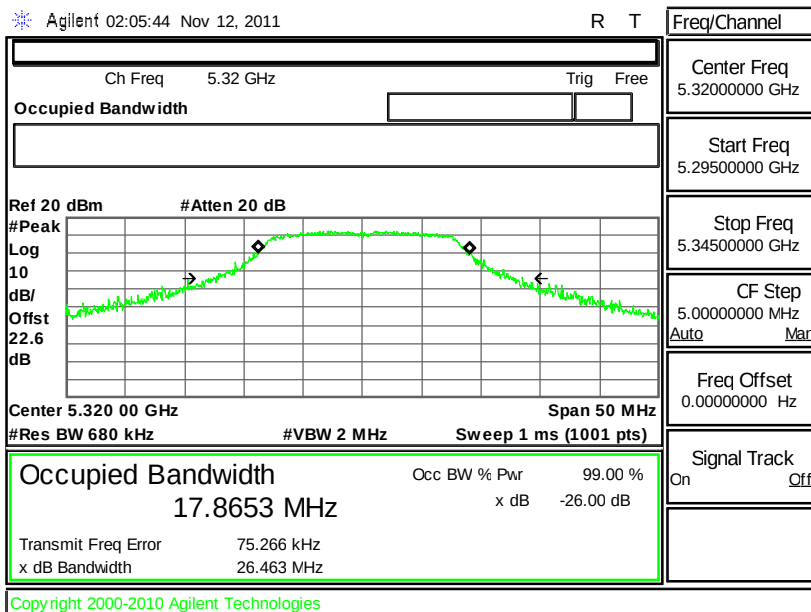


26 dB Bandwidth Plot on 802.11a Channel 60

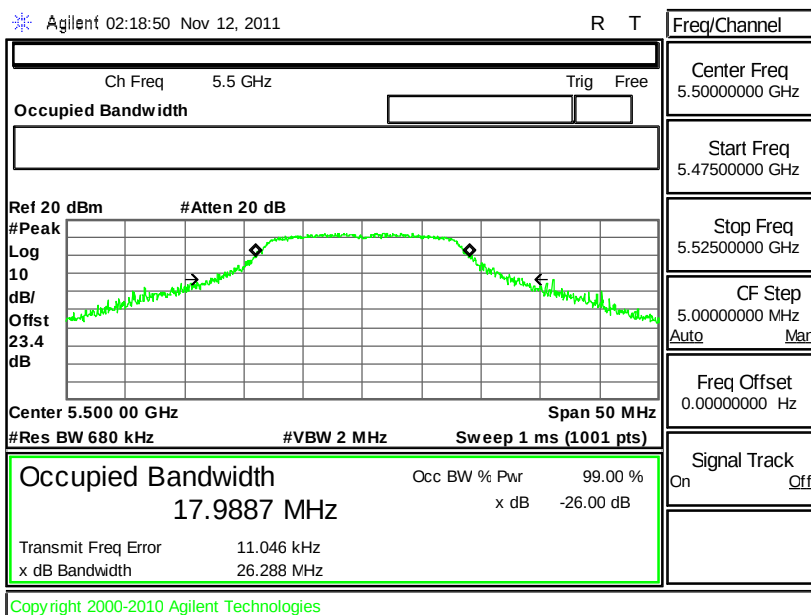




26 dB Bandwidth Plot on 802.11a Channel 64

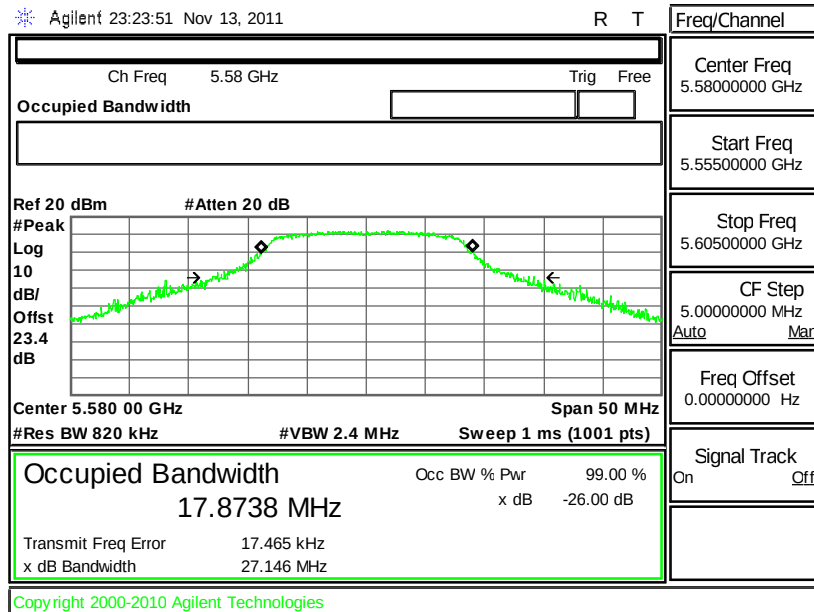


26 dB Bandwidth Plot on 802.11a Channel 100

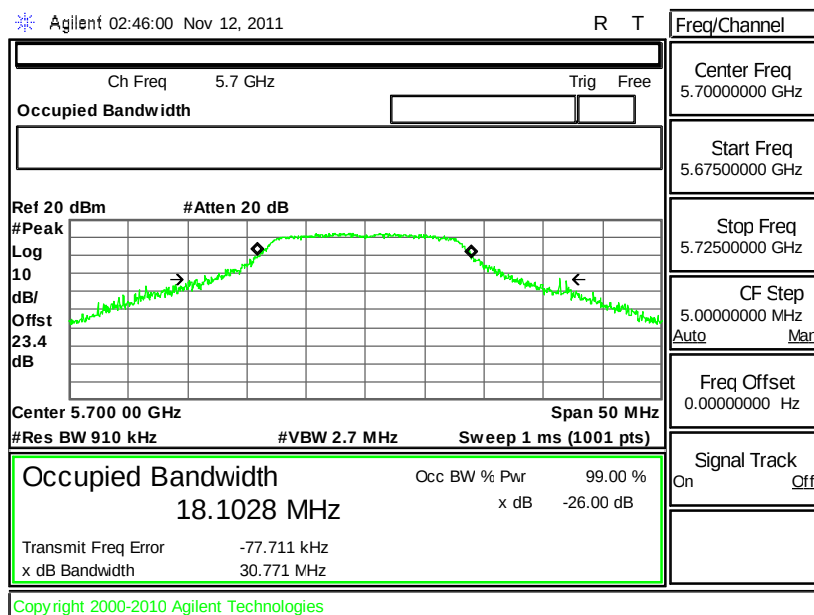




26 dB Bandwidth Plot on 802.11a Channel 116



26 dB Bandwidth Plot on 802.11a Channel 140

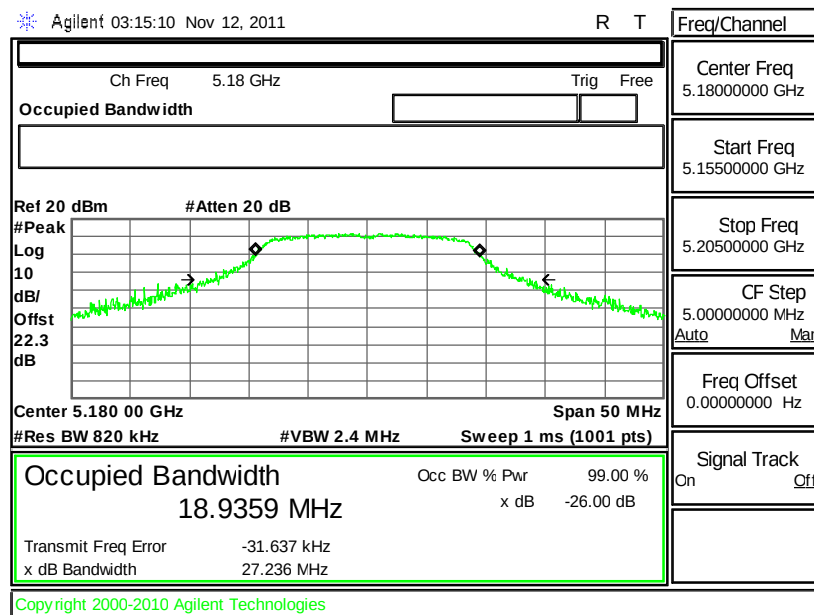




Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

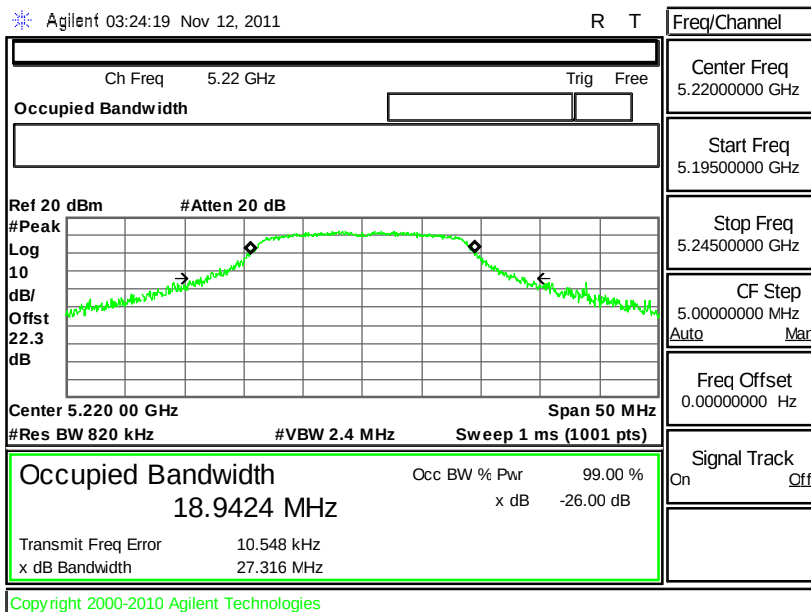
Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	27.236	Pass
44	5220	27.316	Pass
48	5240	27.272	Pass
52	5260	26.924	Pass
60	5300	27.418	Pass
64	5320	27.056	Pass
100	5500	26.417	Pass
116	5580	27.830	Pass
140	5700	29.078	Pass

26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 36

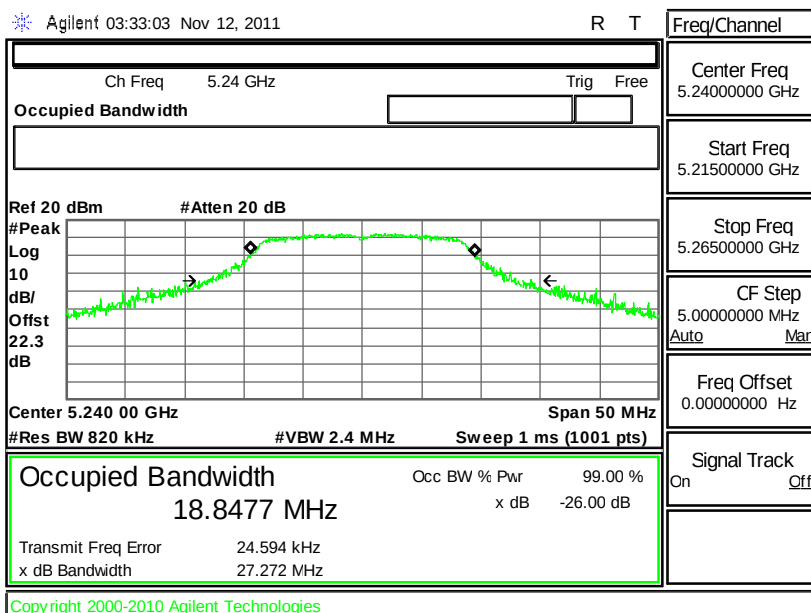




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 44

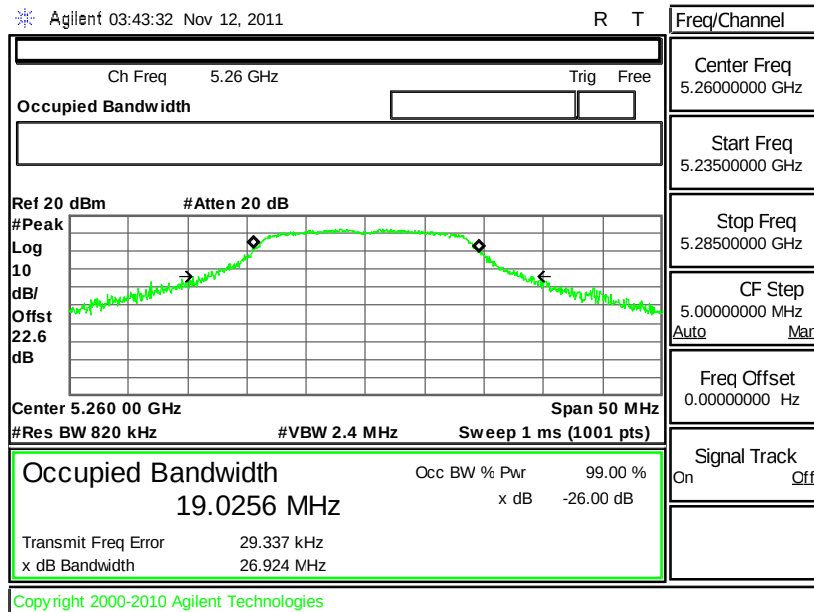


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 48

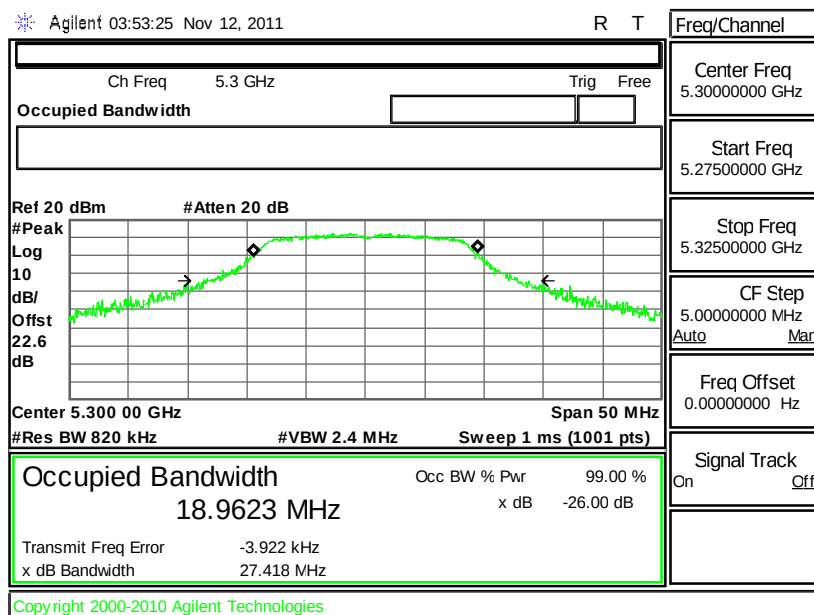




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 52

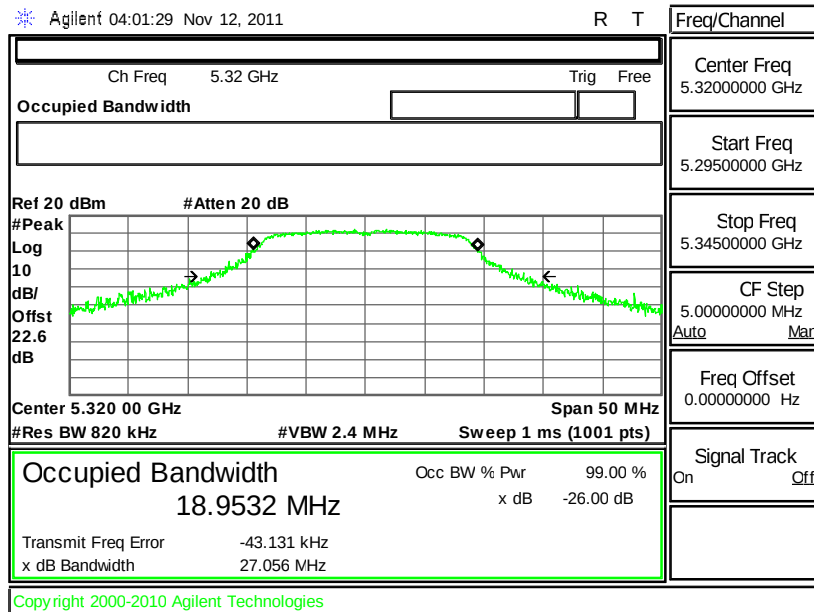


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 60

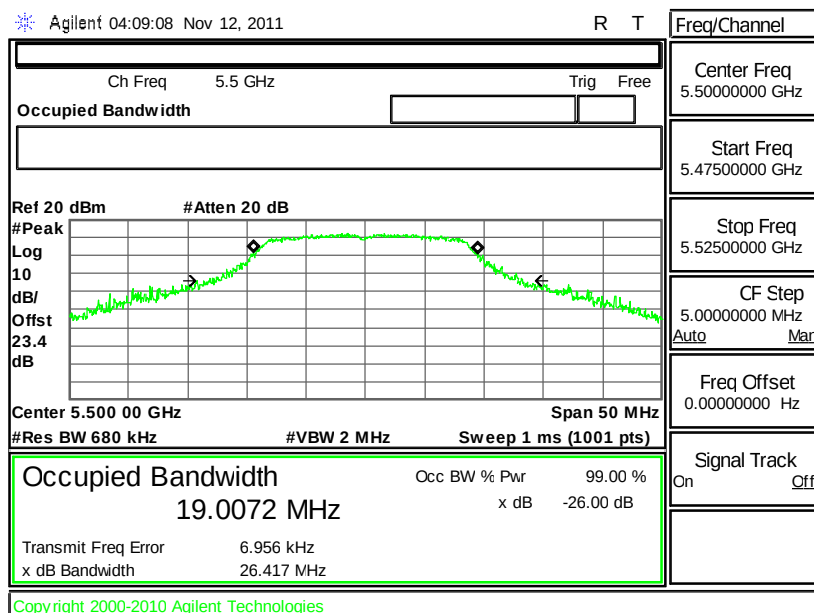




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 64

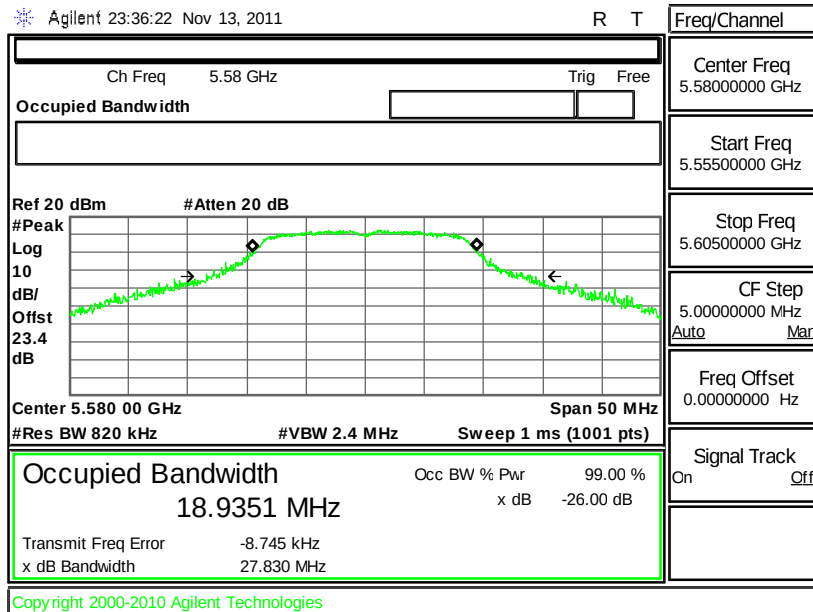


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 100

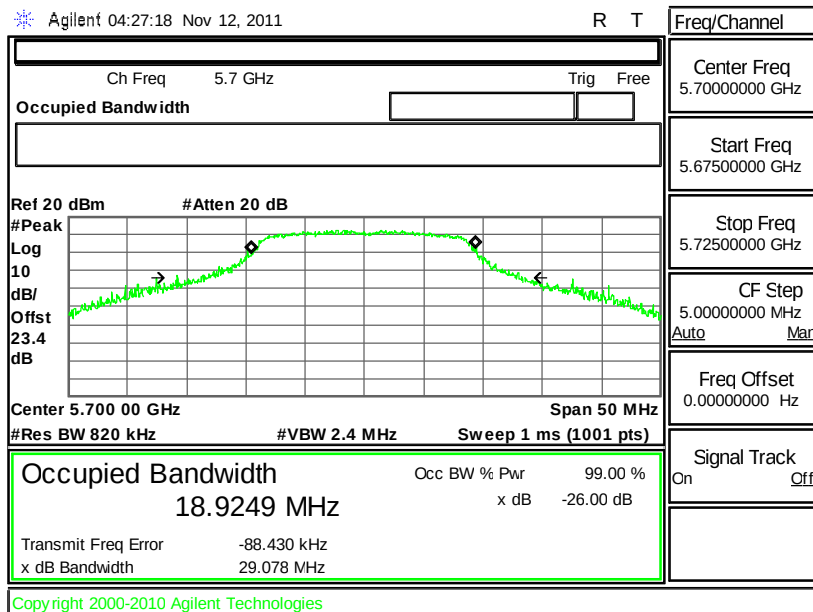




26 dB Bandwidth Plot on 802.11a Channel 116



26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 140

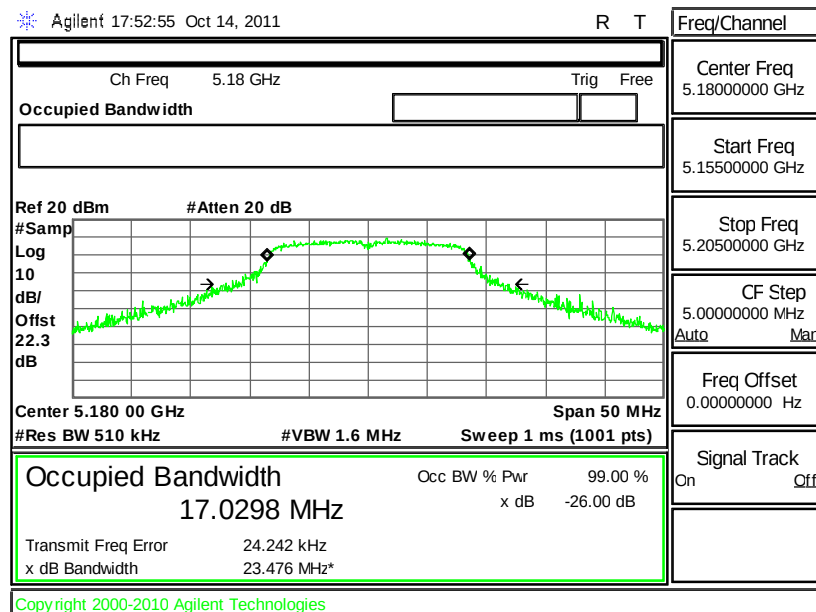


3.1.5 Test Result of 99% Bandwidth Plots

Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

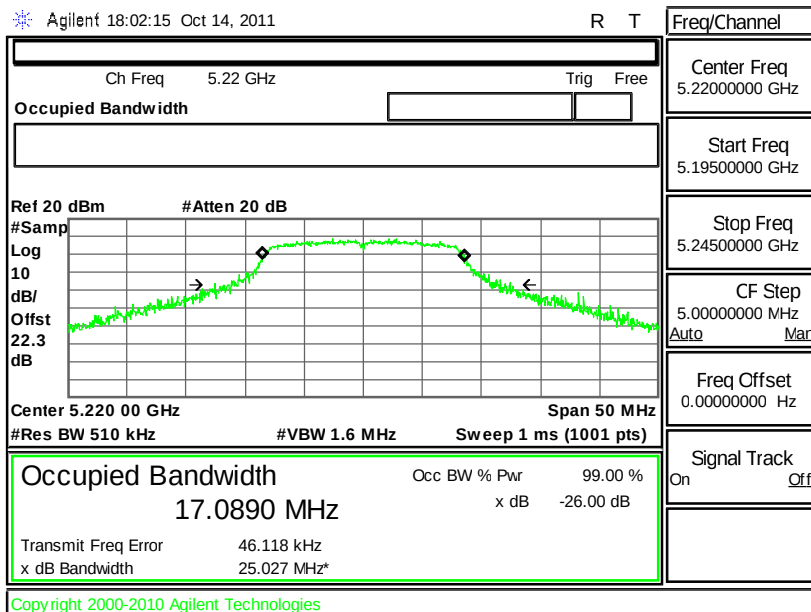
Channel	Frequency (MHz)	802.11a 99% Bandwidth (MHz)	Pass/Fail
36	5180	17.0298	Pass
44	5220	17.0890	Pass
48	5240	17.0029	Pass
52	5260	17.0621	Pass
60	5300	17.1402	Pass
64	5320	16.9851	Pass
100	5500	17.0732	Pass
116	5580	17.0198	Pass
140	5700	17.0447	Pass

99% Bandwidth Plot on 802.11a Channel 36

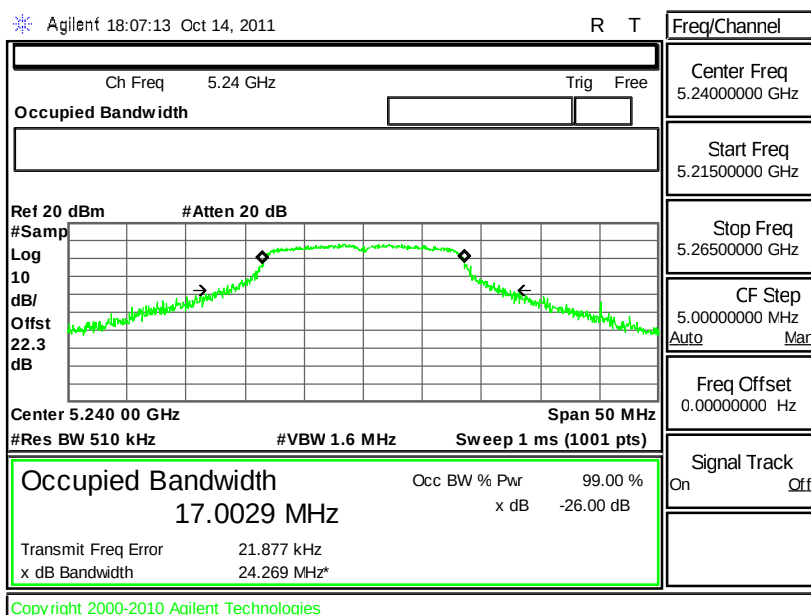




99% Bandwidth Plot on 802.11a Channel 44

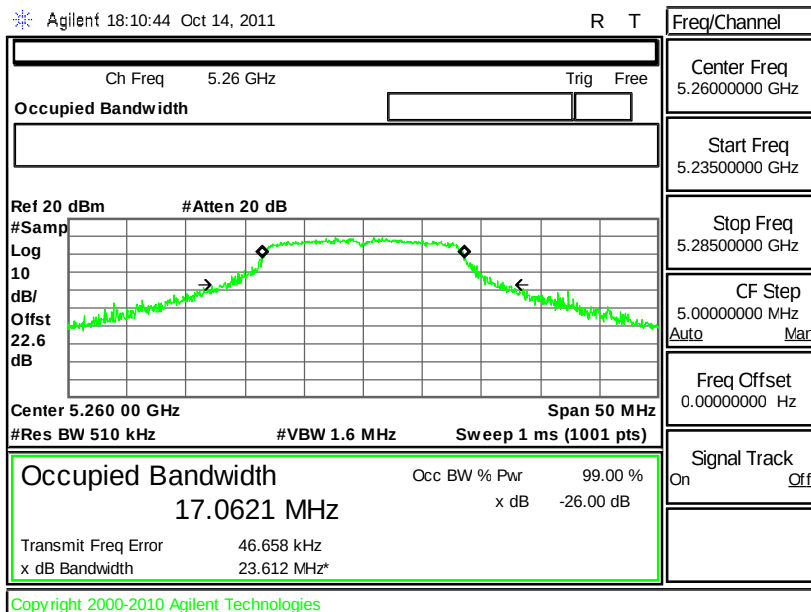


99% Bandwidth Plot on 802.11a Channel 48

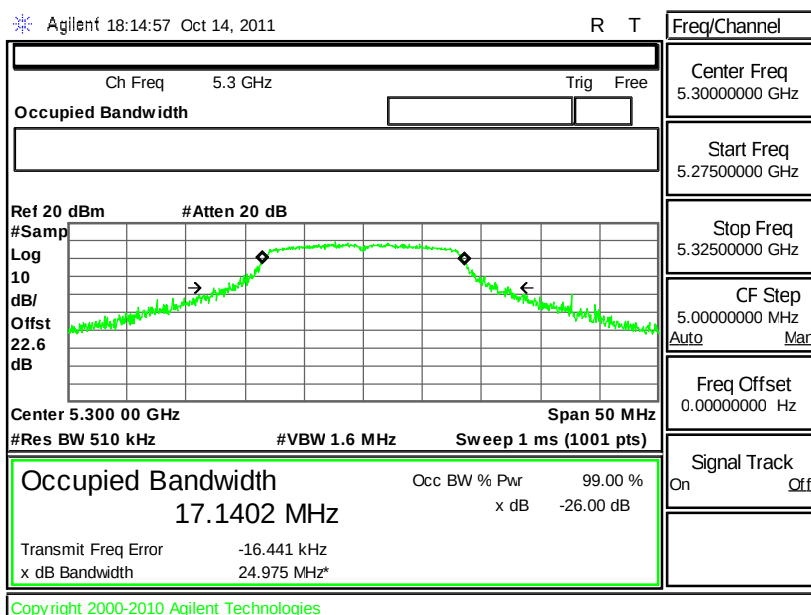




99% Bandwidth Plot on 802.11a Channel 52

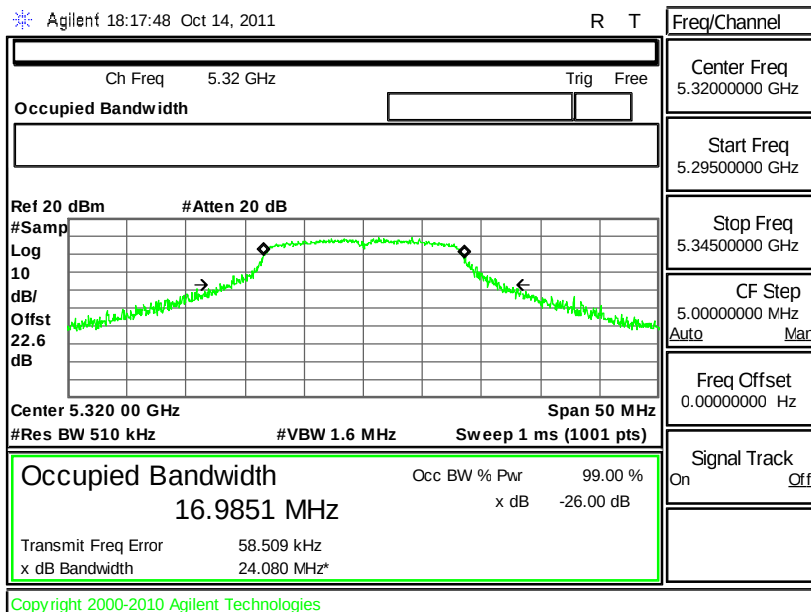


99% Bandwidth Plot on 802.11a Channel 60

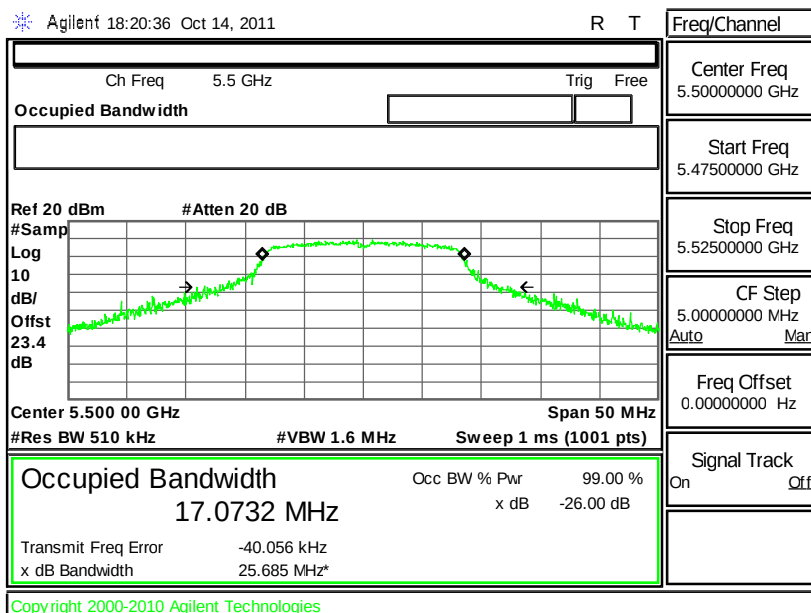




99% Bandwidth Plot on 802.11a Channel 64

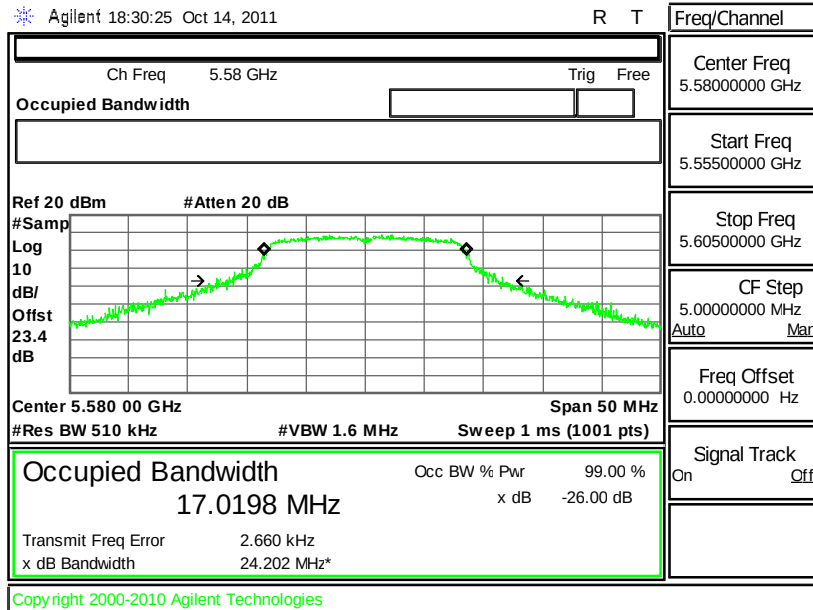


99% Bandwidth Plot on 802.11a Channel 100

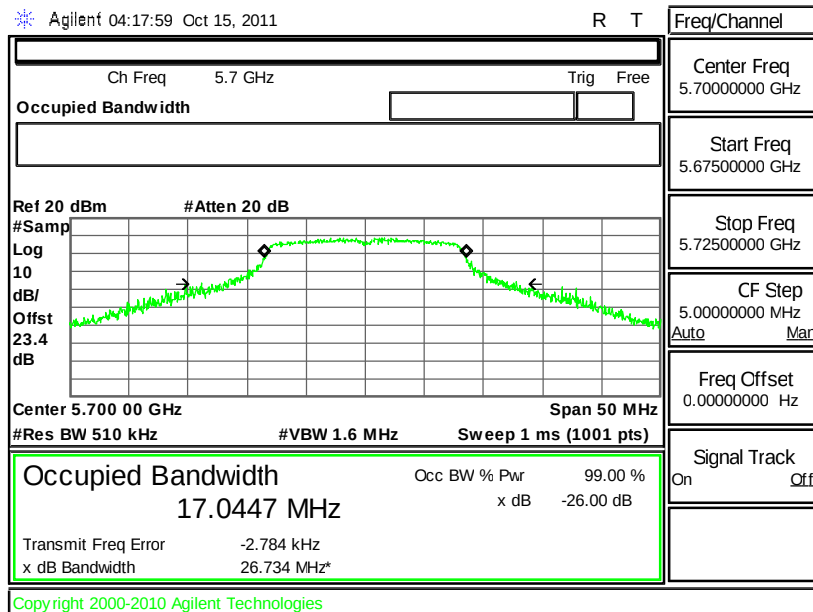




99% Bandwidth Plot on 802.11a Channel 116



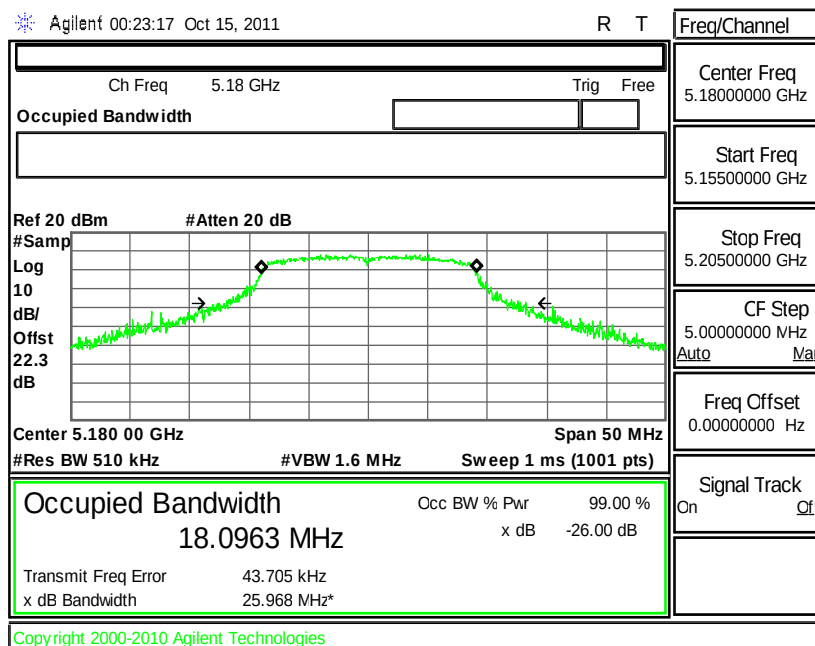
99% Bandwidth Plot on 802.11a Channel 140





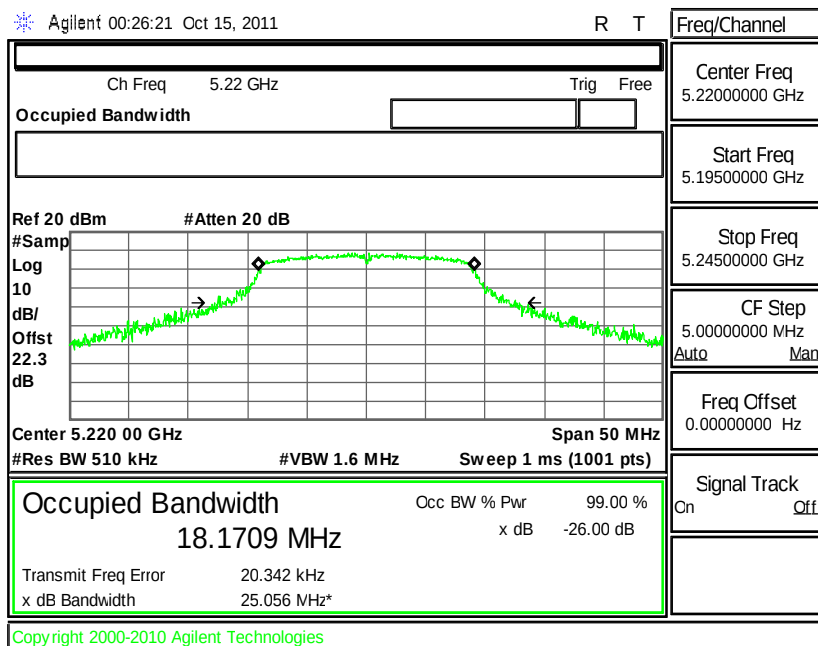
Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Bandwidth (MHz)	Pass/Fail
36	5180	18.0963	Pass
44	5220	18.1709	Pass
48	5240	18.0666	Pass
52	5260	18.0081	Pass
60	5300	18.0512	Pass
64	5320	18.0707	Pass
100	5500	18.0888	Pass
116	5580	18.1965	Pass
140	5700	18.2191	Pass

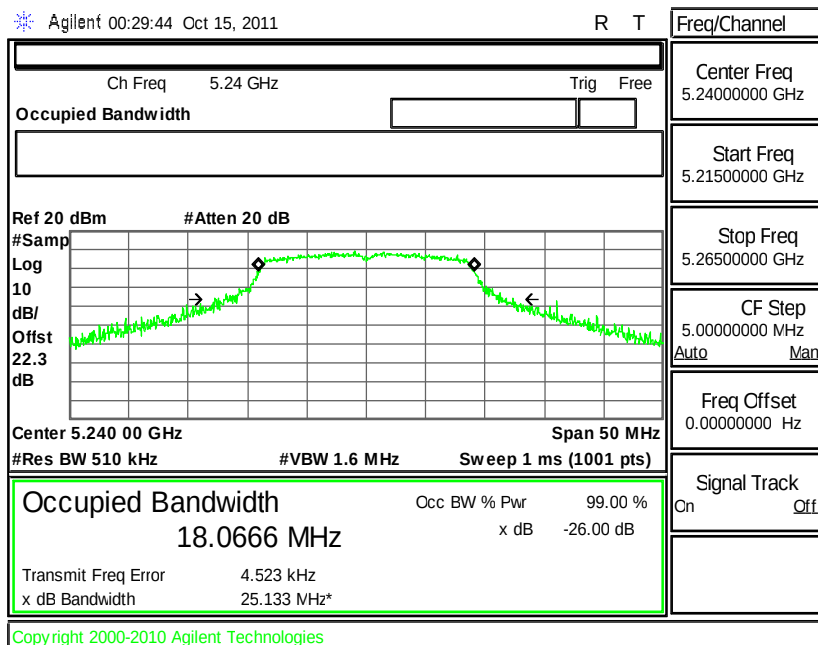
99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 36



99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 44

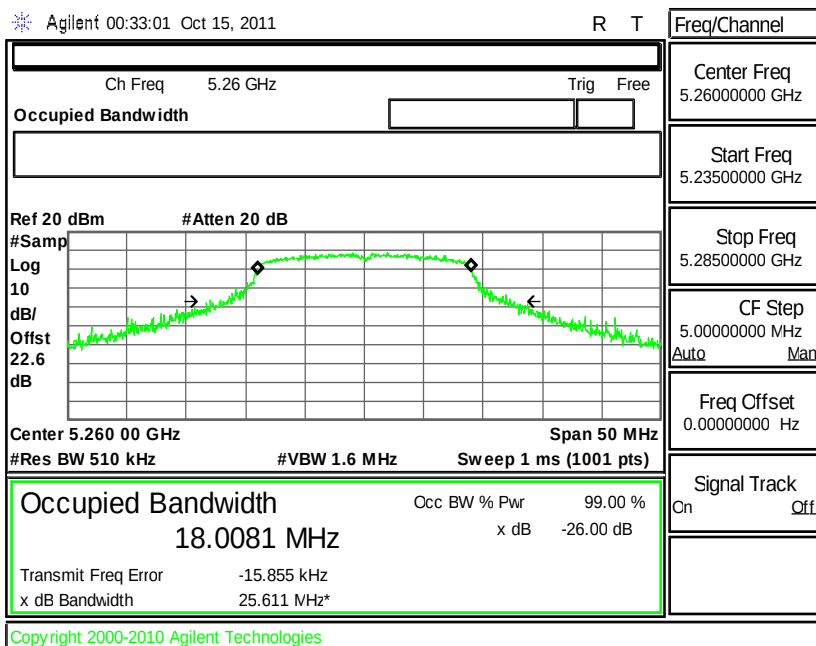


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 48

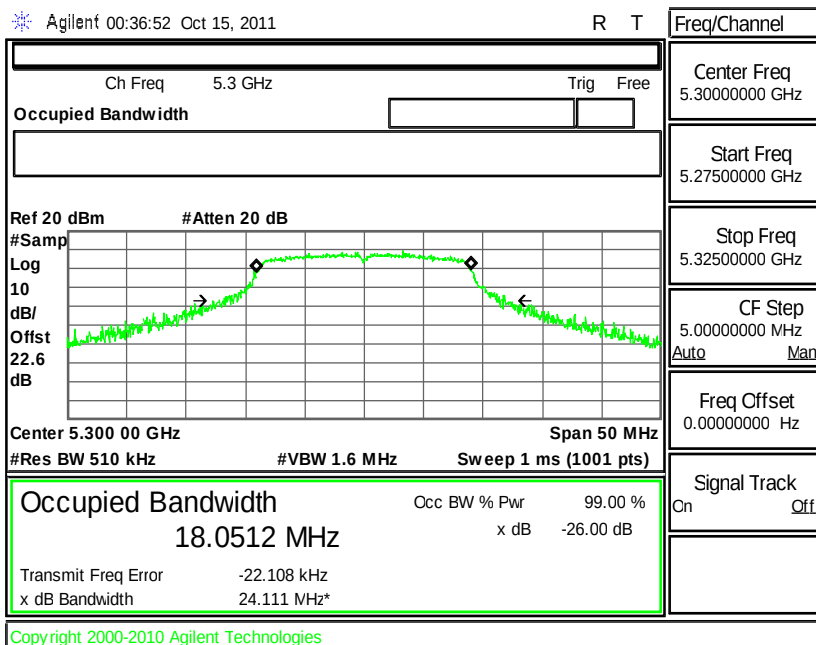




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 52

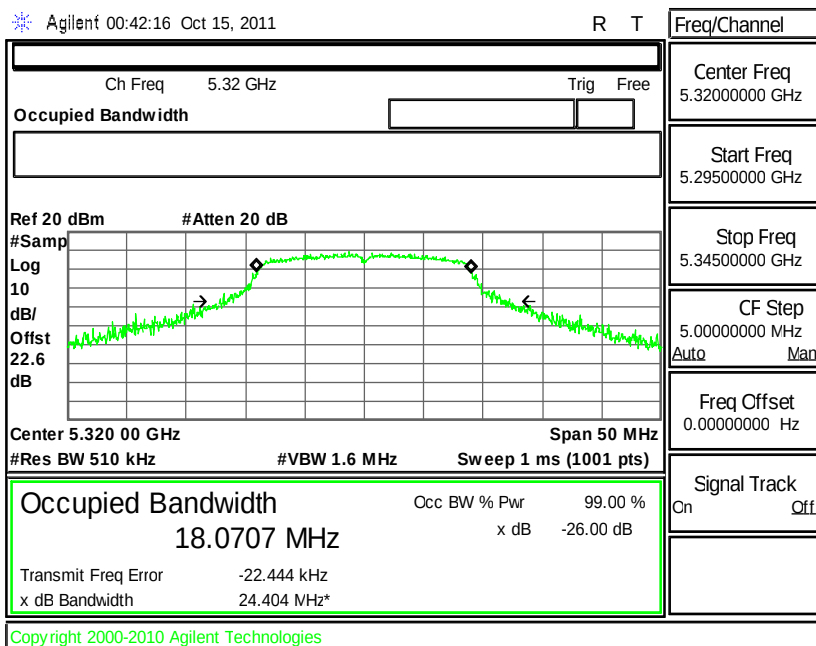


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 60

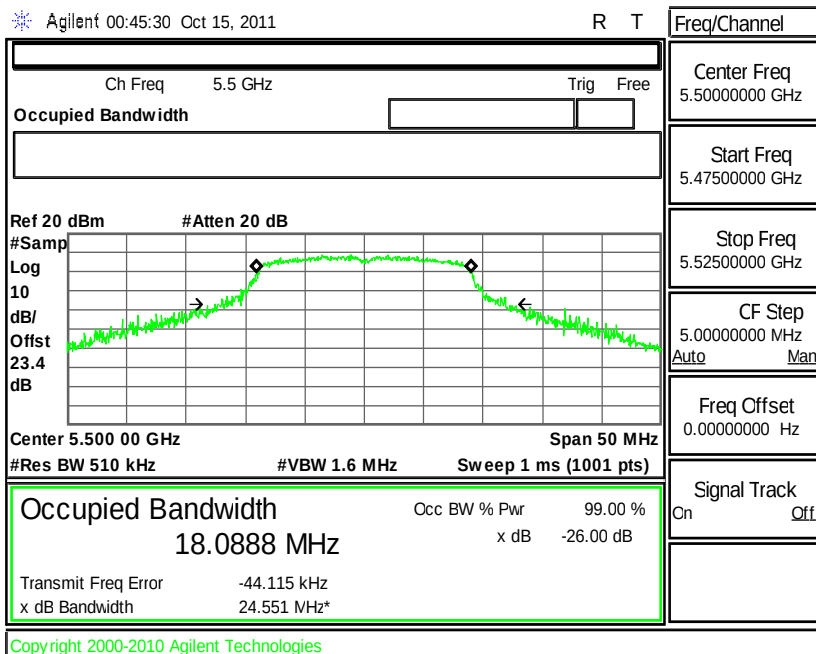




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 64

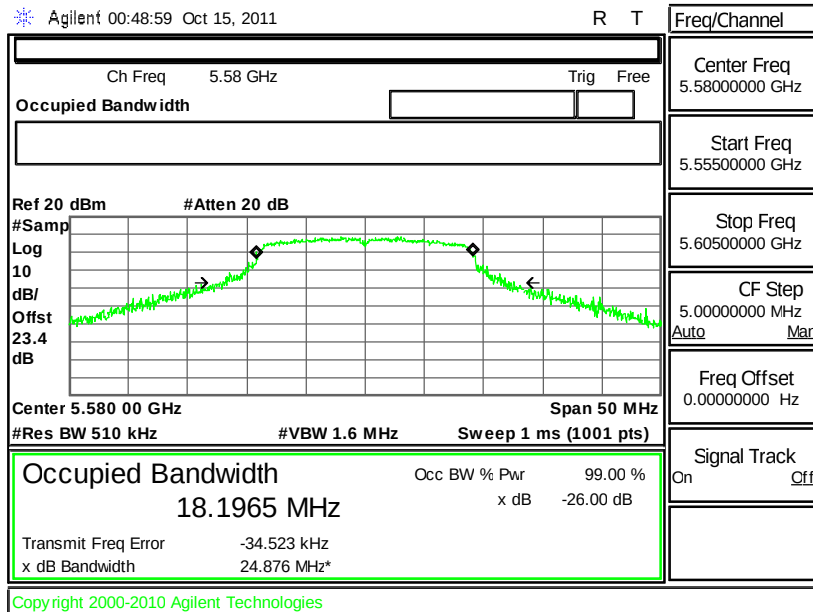


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 100

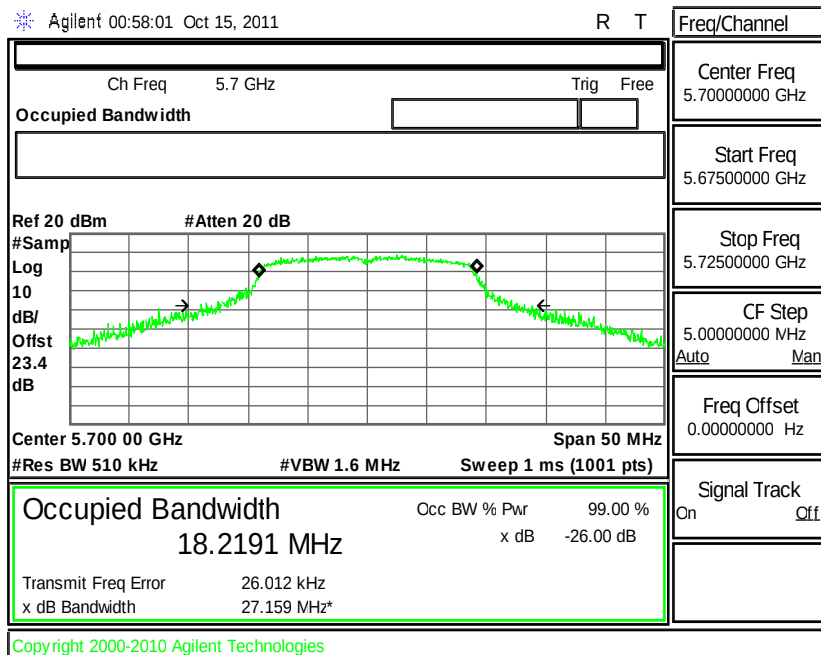




99% Bandwidth Plot on 802.11a Channel 116



99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 140



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or $4 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

The duty cycle of WLAN 802.11a/n were 100 % for 802.11a and 100 % for 802.11n (BW 20MHz).

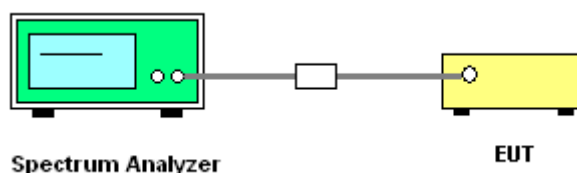
1. The testing follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
 - Compute power by integrating the spectrum across the 26 dB EBW of the signal using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. If the spectrum analyzer does not have a band power function, sum the spectrum levels at 1 MHz intervals extending across the 26 dB EBW of the spectrum.

2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable, as below example,

For 802.11a Channel 36, the final power in test report is 10.41 dBm which is the reading of spectrum analyzer with offset cable loss (0.5 dB), and attenuator loss (25.6 dB).

3. Measure the power and record it.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	15.05	17	Pass
44	5220	15.48	17	Pass
48	5240	15.49	17	Pass
52	5260	15.70	24	Pass
60	5300	15.34	24	Pass
64	5320	15.26	24	Pass
100	5500	15.49	24	Pass
116	5580	14.94	24	Pass
140	5700	15.37	24	Pass

Note:

1. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW)
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (26dB BW).

Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	14.98	17	Pass
44	5220	15.33	17	Pass
48	5240	15.40	17	Pass
52	5260	15.54	24	Pass
60	5300	15.16	24	Pass
64	5320	15.16	24	Pass
100	5500	15.38	24	Pass
116	5580	15.30	24	Pass
140	5700	15.24	24	Pass

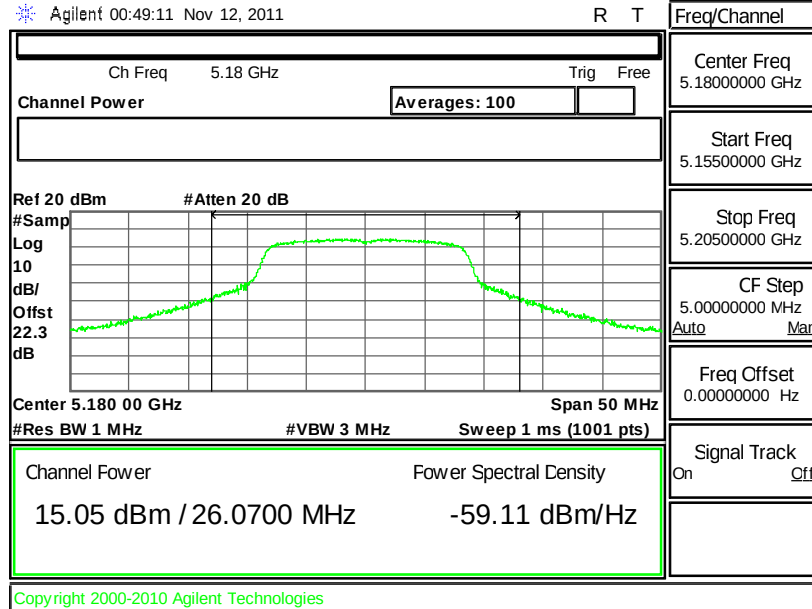
Note:

1. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (26dB BW).

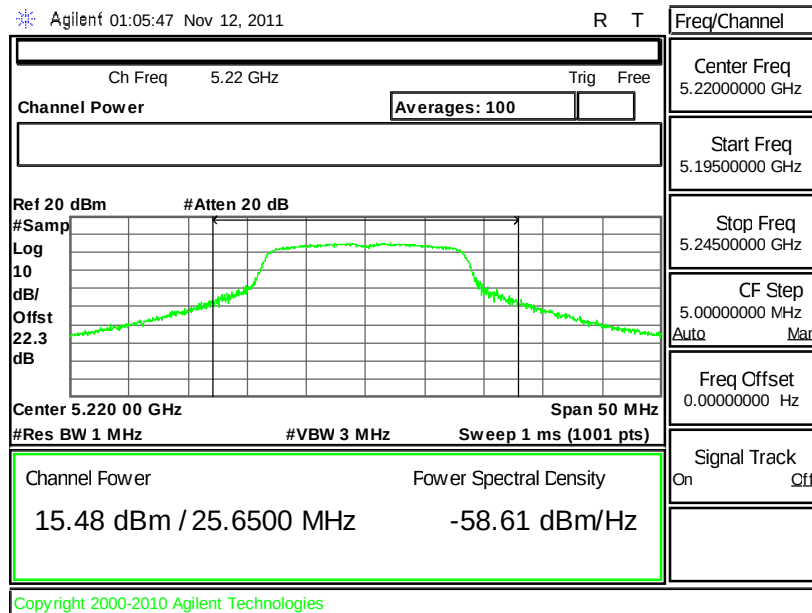


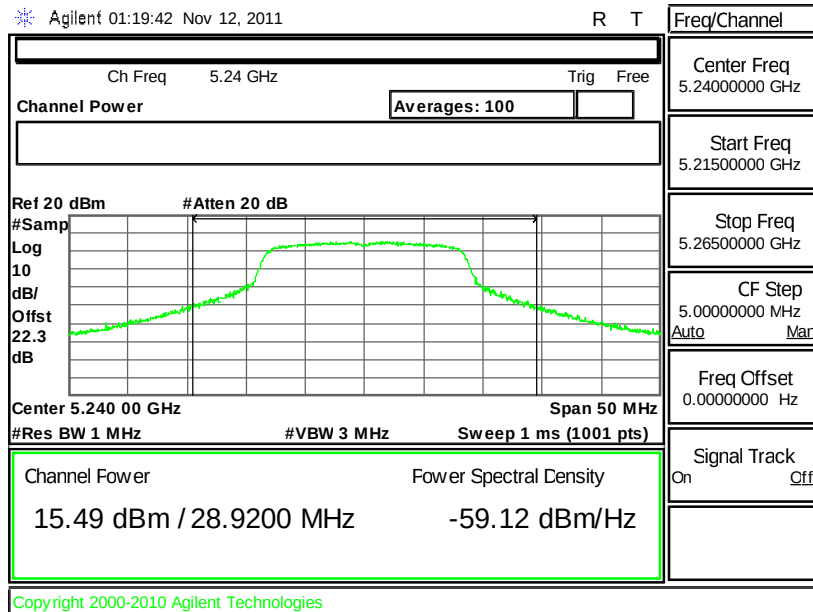
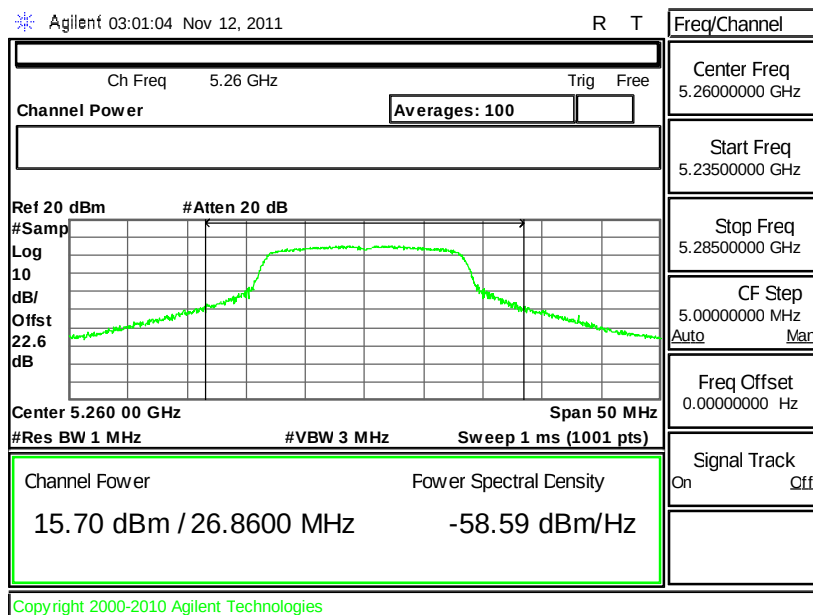
3.2.6 Test Result of Power Output Plots

Output Power Plot on 802.11a Channel 36



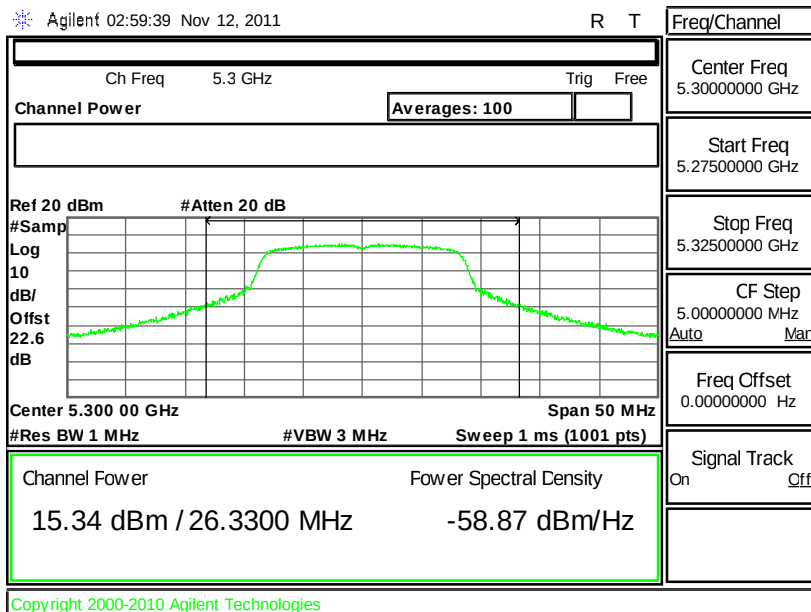
Output Power Plot on 802.11a Channel 44



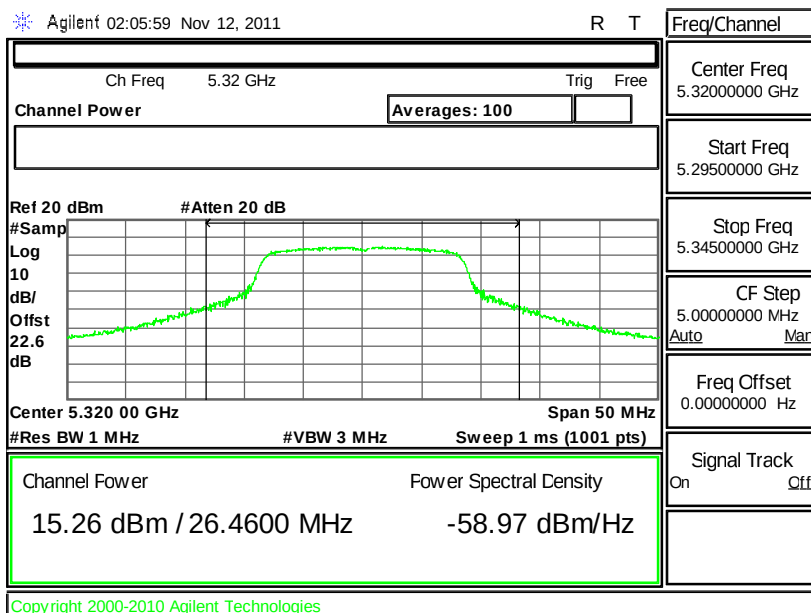
**Output Power Plot on 802.11a Channel 48****Output Power Plot on 802.11a Channel 52**



Output Power Plot on 802.11a Channel 60

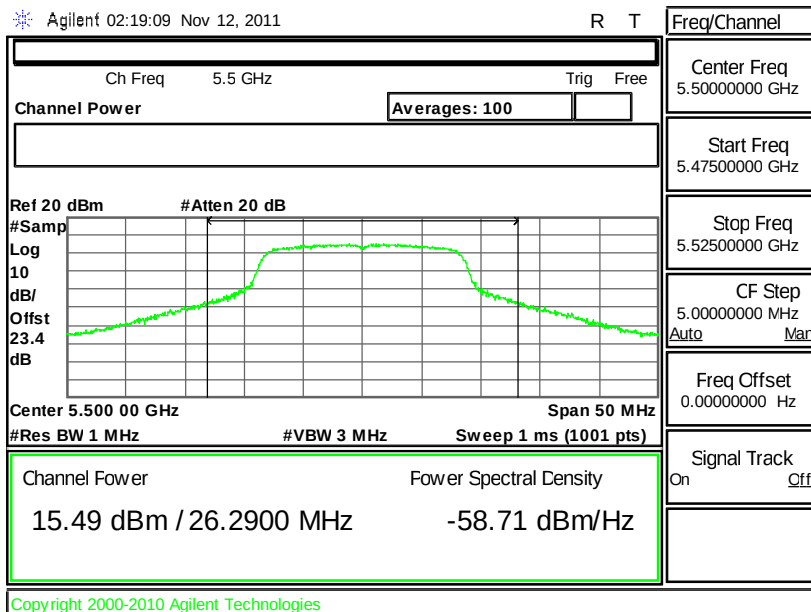


Output Power Plot on 802.11a Channel 64

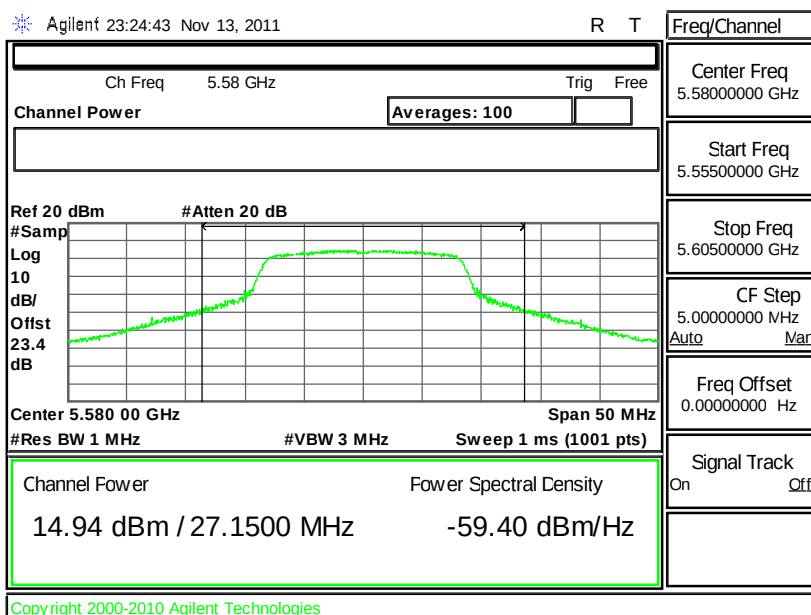




Output Power Plot on 802.11a Channel 100

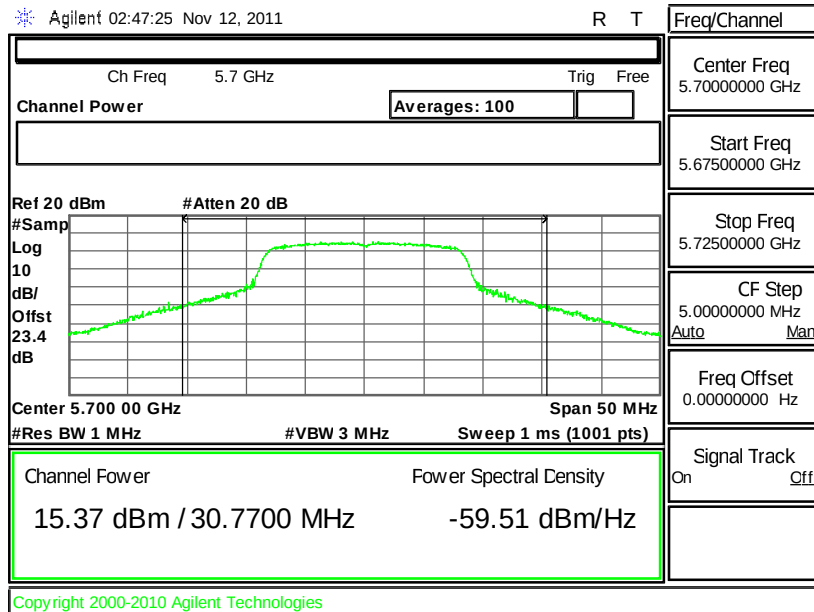


Output Power Plot on 802.11a Channel 116



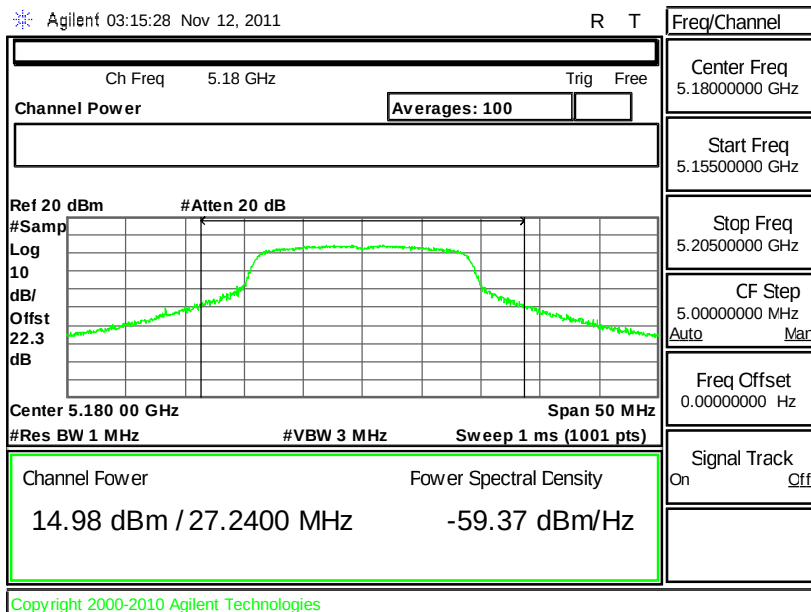


Output Power Plot on 802.11a Channel 140

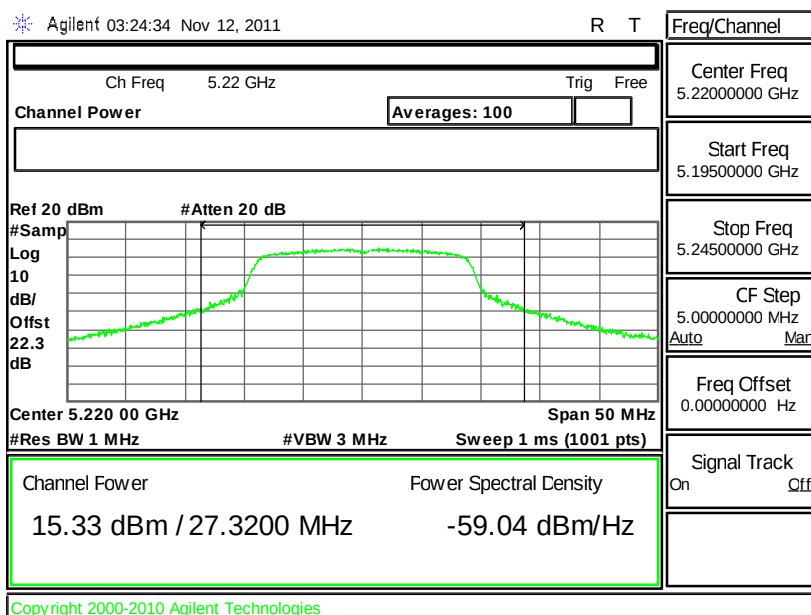


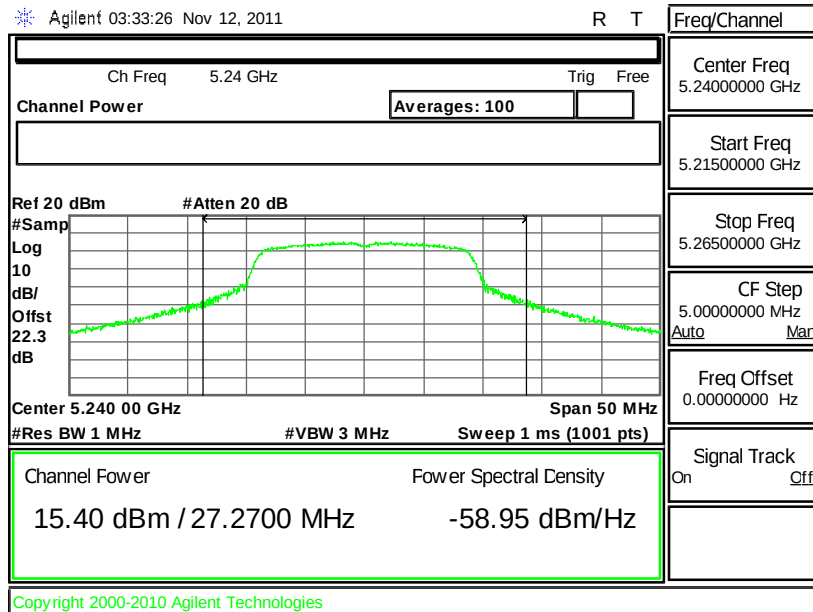
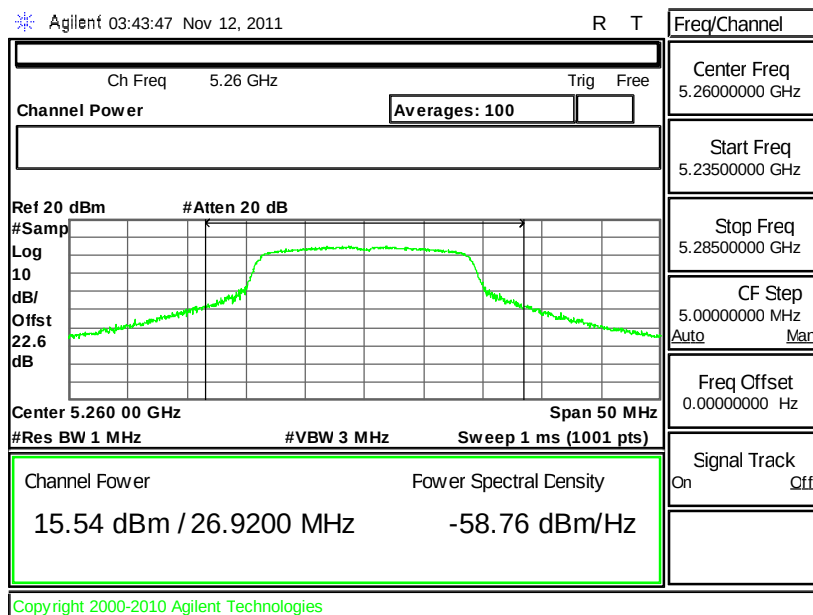


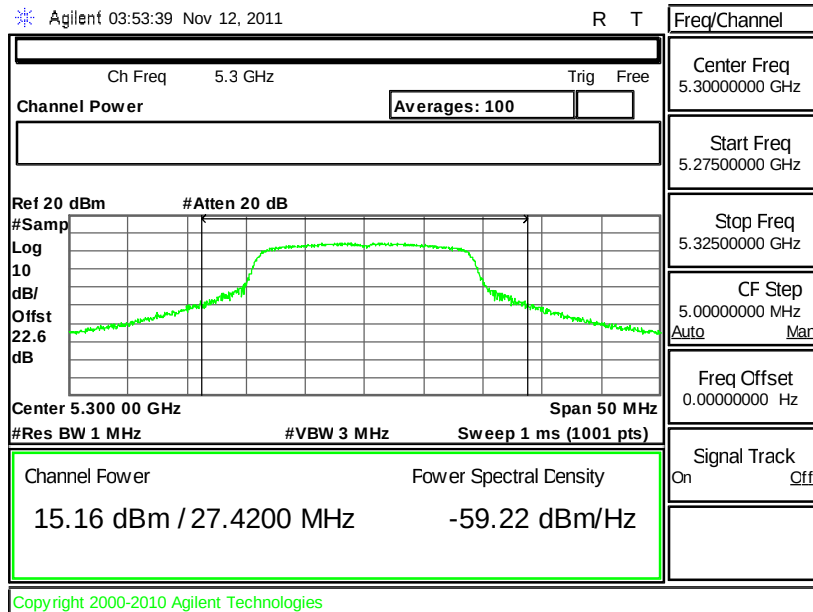
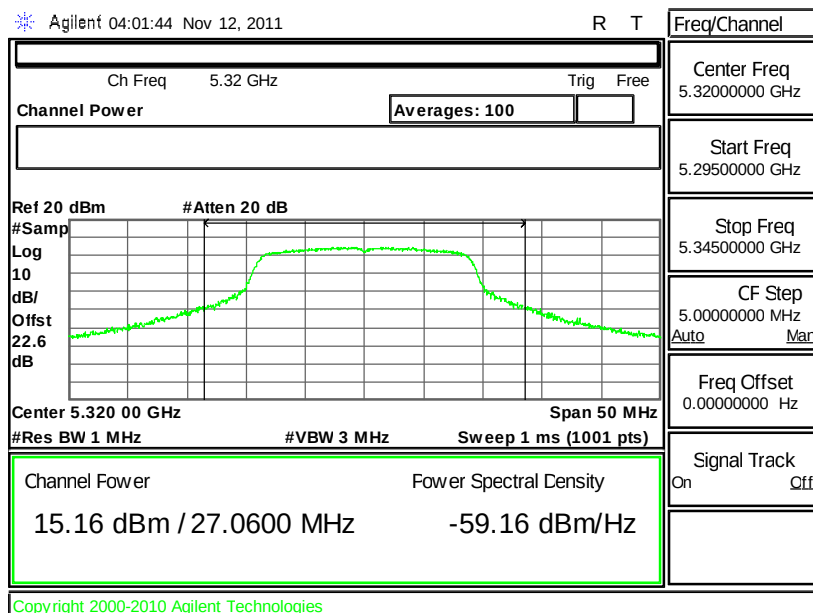
Output Power Plot on 802.11n (BW 20MHz) Channel 36



Output Power Plot on 802.11n (BW 20MHz) Channel 44

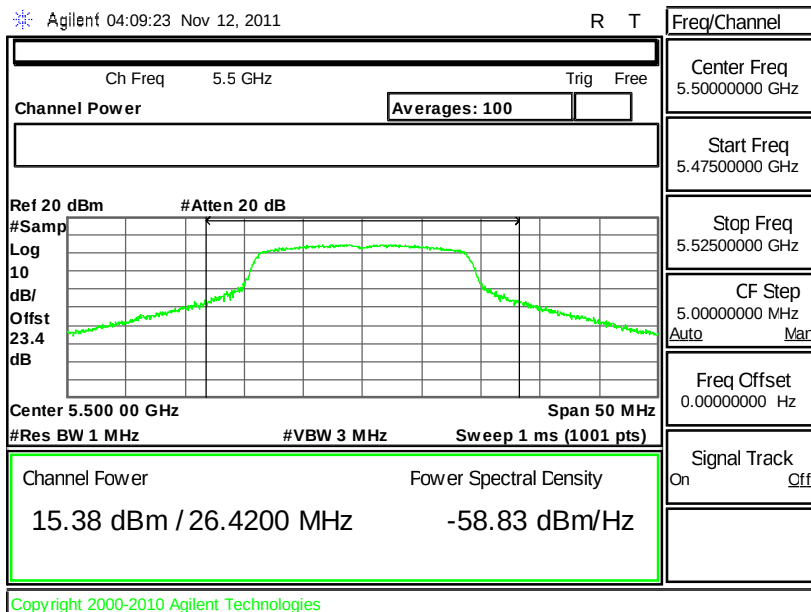


**Output Power Plot on 802.11n (BW 20MHz) Channel 48****Output Power Plot on 802.11n (BW 20MHz) Channel 52**

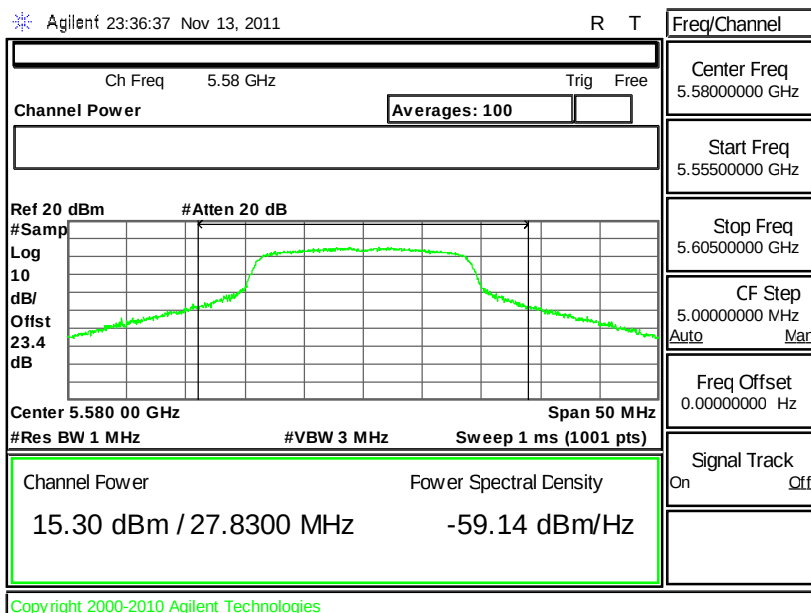
**Output Power Plot on 802.11n (BW 20MHz) Channel 60****Output Power Plot on 802.11n (BW 20MHz) Channel 64**



Output Power Plot on 802.11n (BW 20MHz) Channel 100

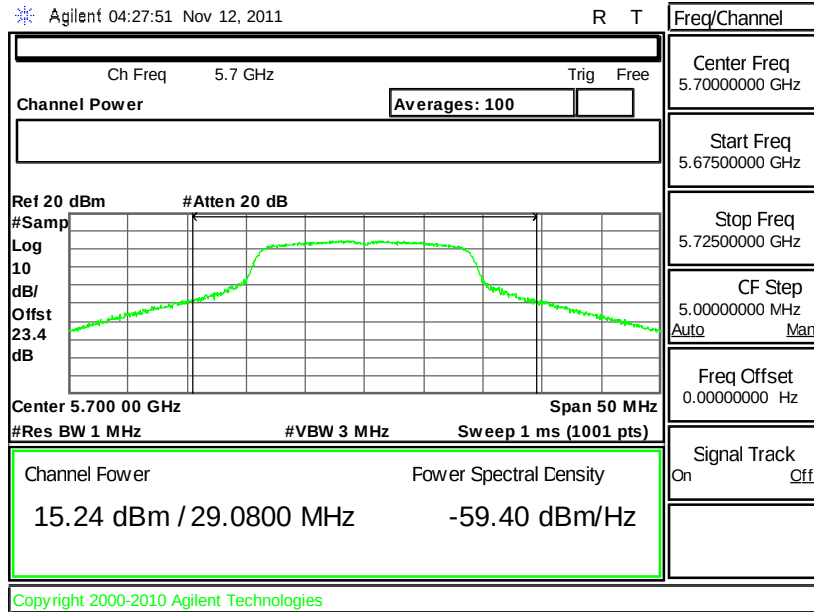


Output Power Plot on 802.11n (BW 20MHz) Channel 116





Output Power Plot on 802.11n (BW 20MHz) Channel 140



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.15–5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1MHz band. For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

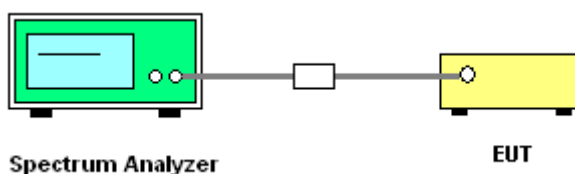
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = RMS
 - Trace average at least 100 traces in power averaging mode.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup

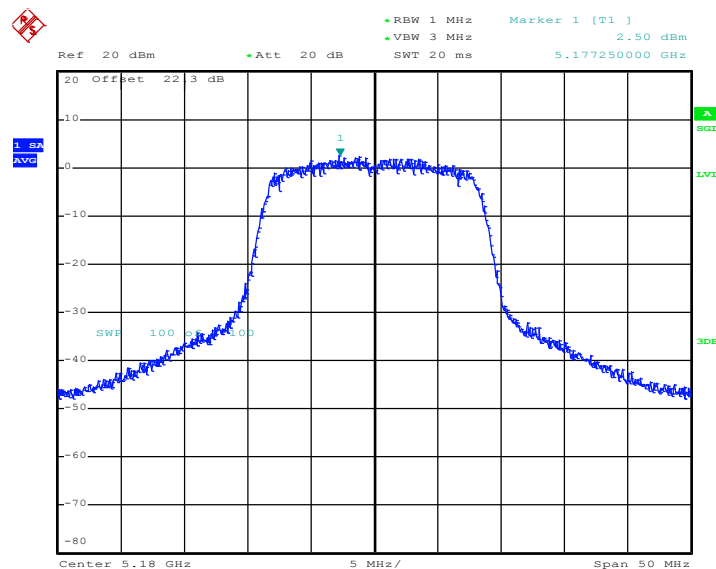


3.3.5 Test Result of Power Spectral Density

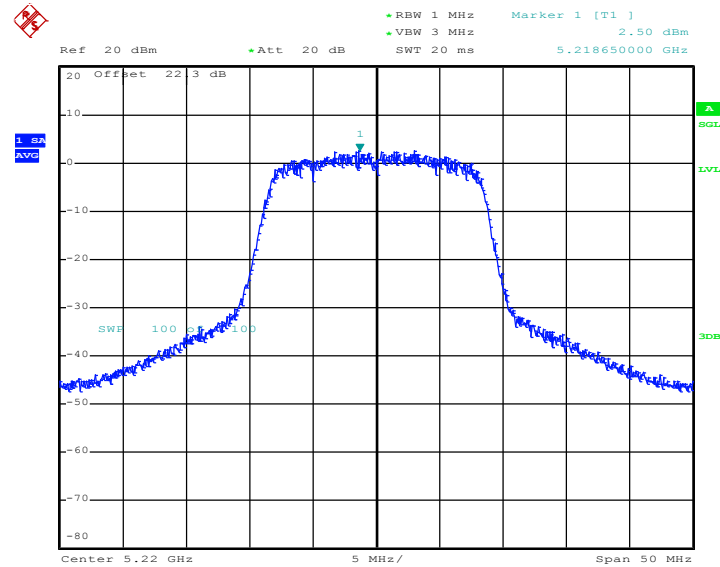
Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.500	4	Pass
44	5220	2.500	4	Pass
48	5240	2.440	4	Pass
52	5260	3.030	11	Pass
60	5300	3.200	11	Pass
64	5320	3.430	11	Pass
100	5500	3.580	11	Pass
116	5580	2.870	11	Pass
140	5700	3.240	11	Pass

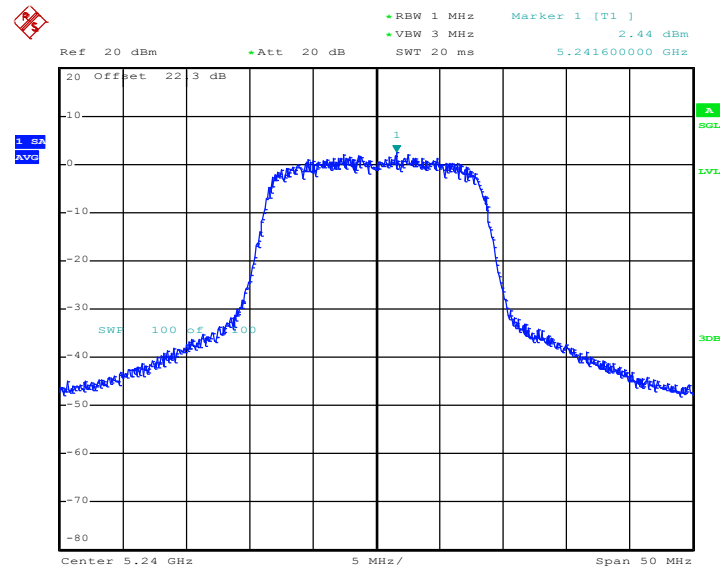
PSD Plot on 802.11a Channel 36



Date: 11.NOV.2011 11:00:36

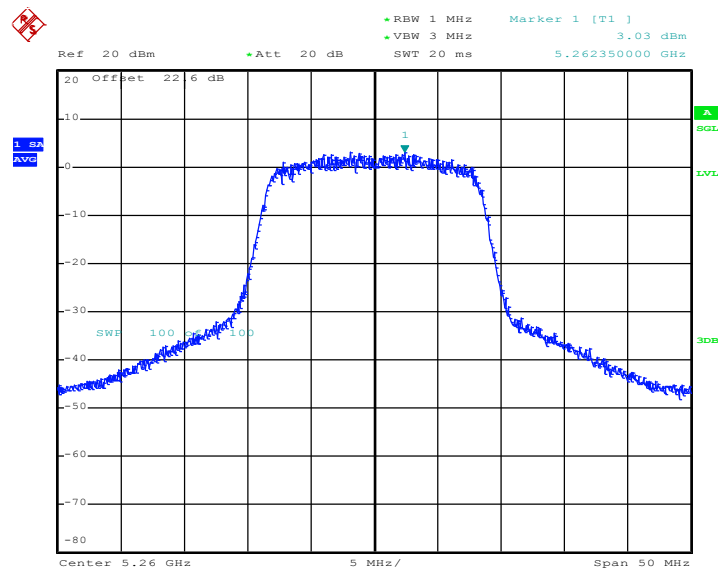
PSD Plot on 802.11a Channel 44


Date: 11.NOV.2011 10:59:55

PSD Plot on 802.11a Channel 48


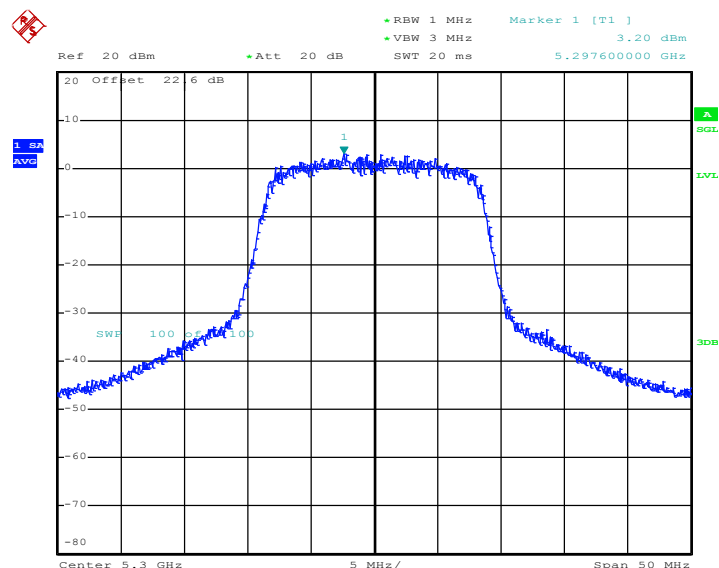
Date: 11.NOV.2011 11:04:43

PSD Plot on 802.11a Channel 52



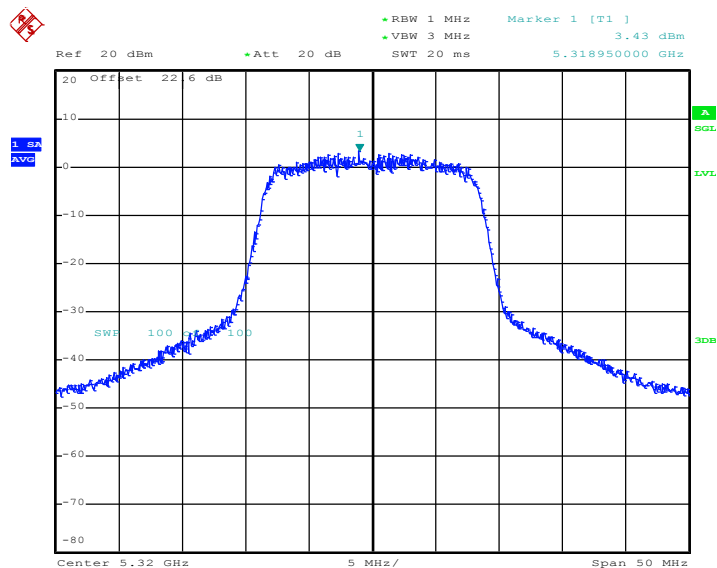
Date: 11.NOV.2011 11:33:39

PSD Plot on 802.11a Channel 60



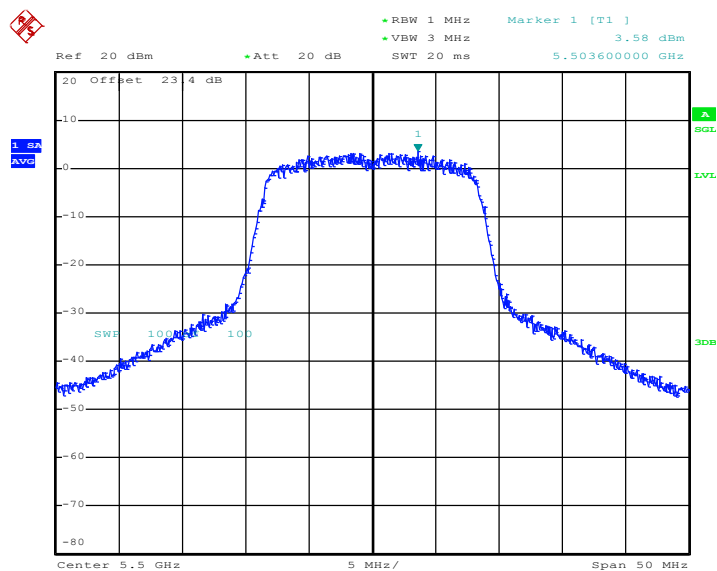
Date: 11.NOV.2011 11:34:38

PSD Plot on 802.11a Channel 64

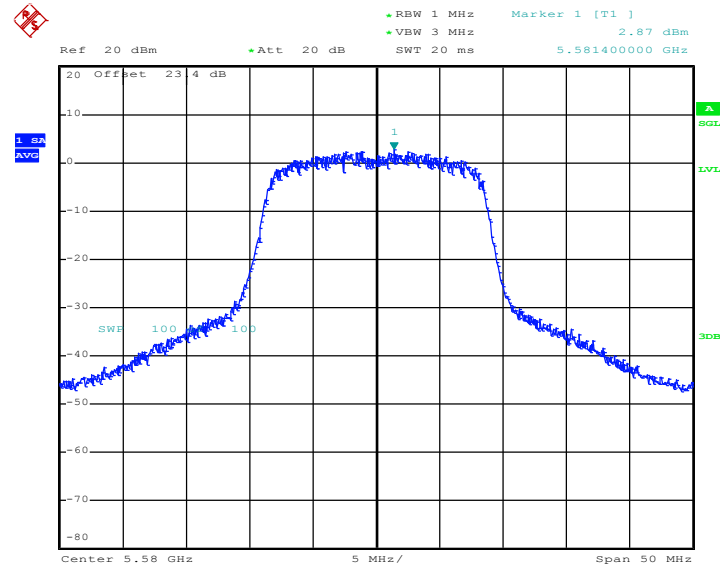


Date: 11.NOV.2011 11:35:21

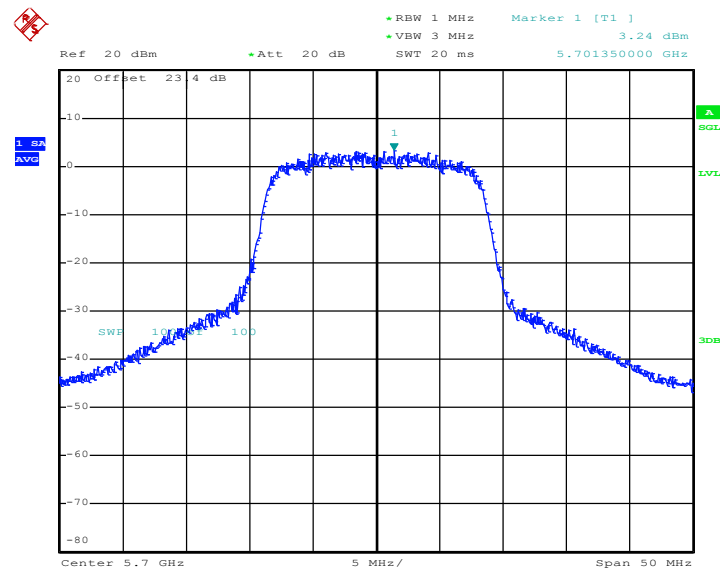
PSD Plot on 802.11a Channel 100



Date: 11.NOV.2011 11:36:24

PSD Plot on 802.11a Channel 116


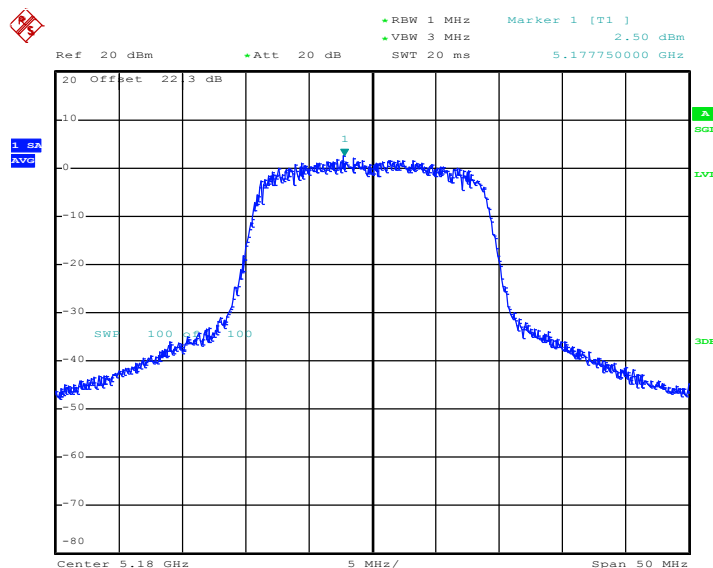
Date: 11.NOV.2011 11:38:18

PSD Plot on 802.11a Channel 140


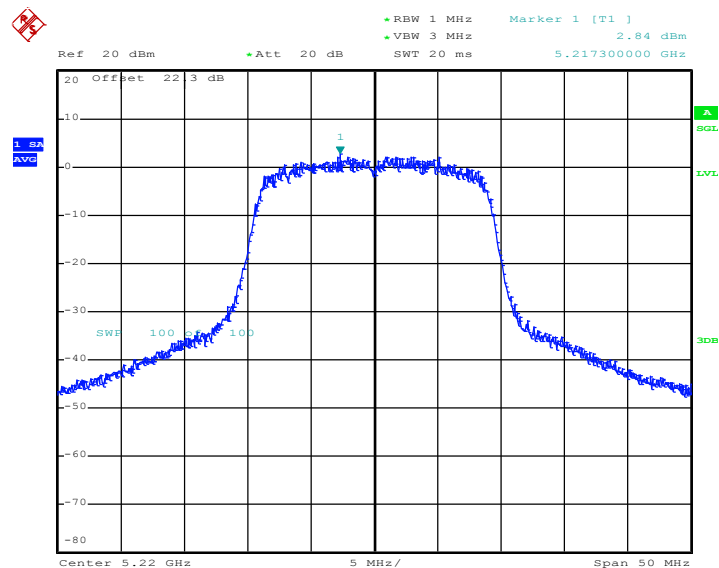
Date: 11.NOV.2011 11:41:33

Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

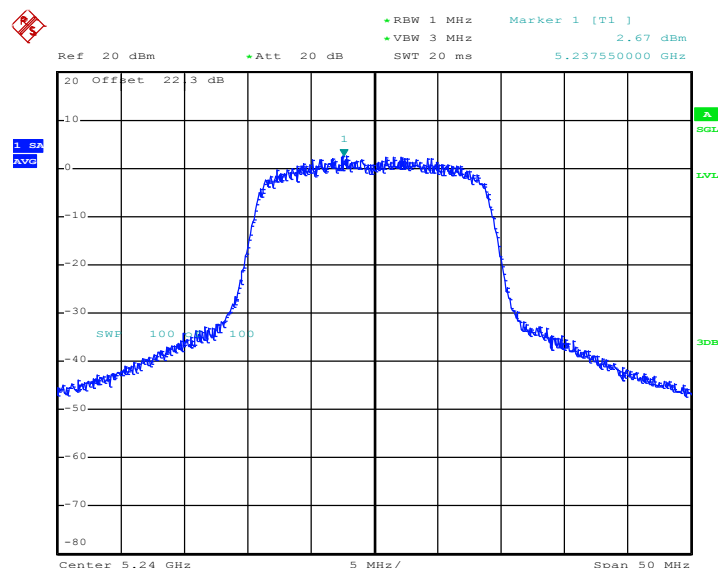
Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.500	4	Pass
44	5220	2.840	4	Pass
48	5240	2.670	4	Pass
52	5260	3.140	11	Pass
60	5300	2.490	11	Pass
64	5320	3.170	11	Pass
100	5500	3.160	11	Pass
116	5580	2.820	11	Pass
140	5700	3.050	11	Pass

PSD Plot on 802.11n (BW 20MHz) Channel 36


Date: 11.NOV.2011 12:01:29

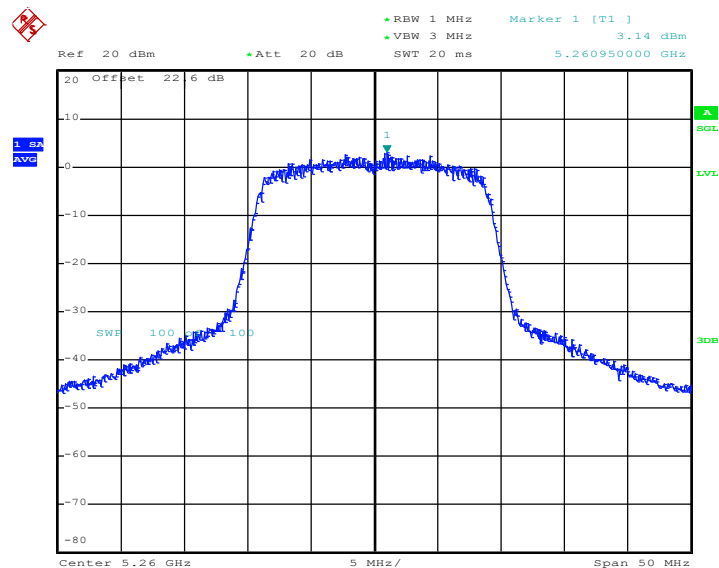
PSD Plot on 802.11n (BW 20MHz) Channel 44


Date: 11.NOV.2011 12:00:20

PSD Plot on 802.11n (BW 20MHz) Channel 48


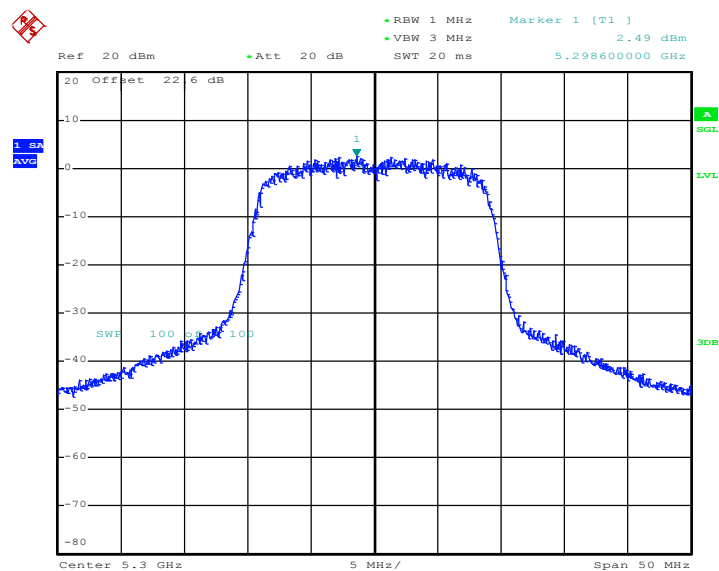
Date: 11.NOV.2011 11:57:40

PSD Plot on 802.11n (BW 20MHz) Channel 52



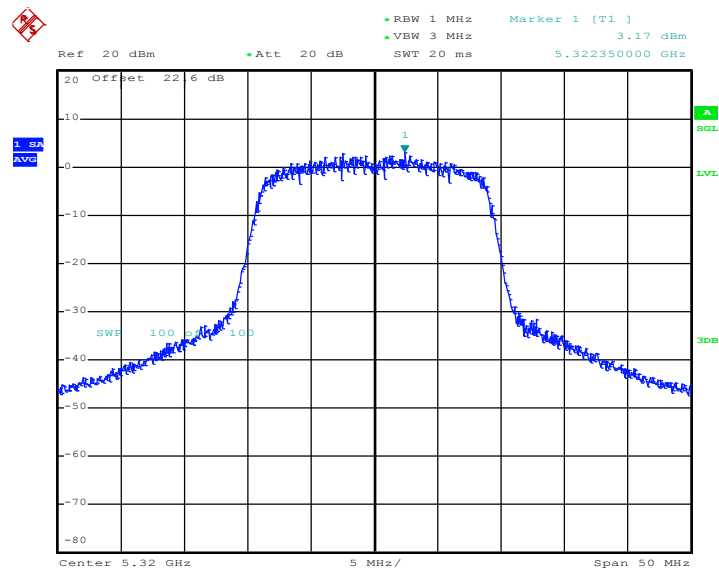
Date: 11.NOV.2011 11:56:43

PSD Plot on 802.11n (BW 20MHz) Channel 60



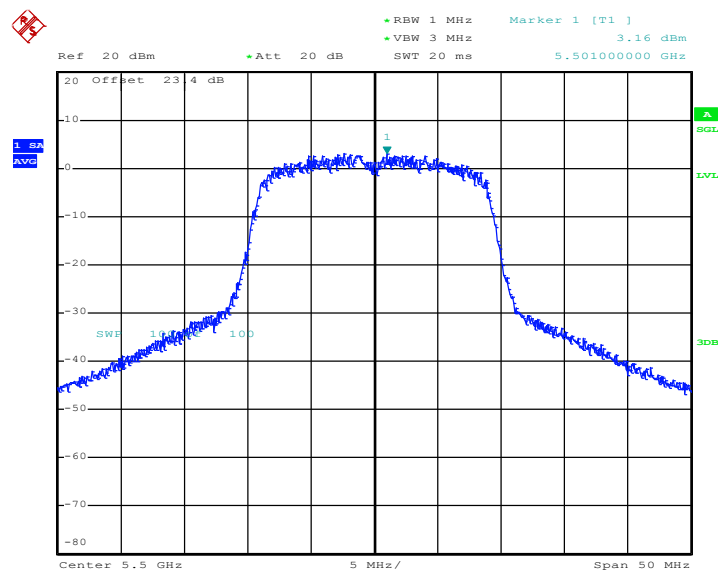
Date: 11.NOV.2011 11:55:29

PSD Plot on 802.11n (BW 20MHz) Channel 64

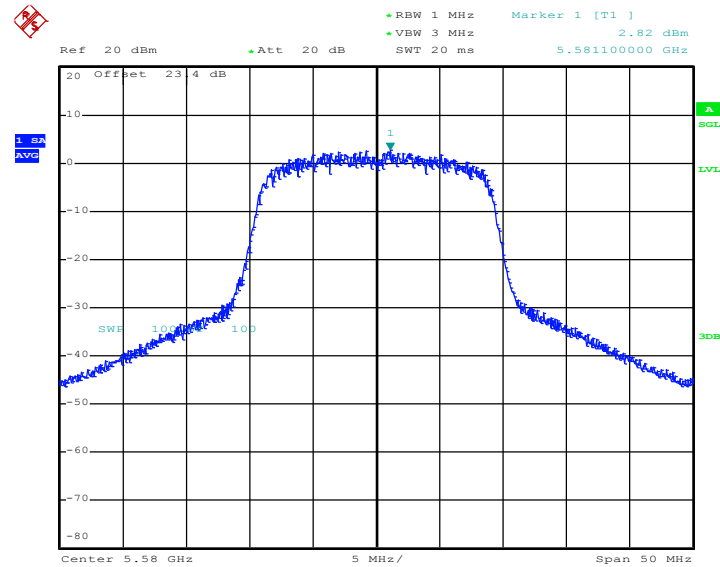


Date: 11.NOV.2011 11:54:05

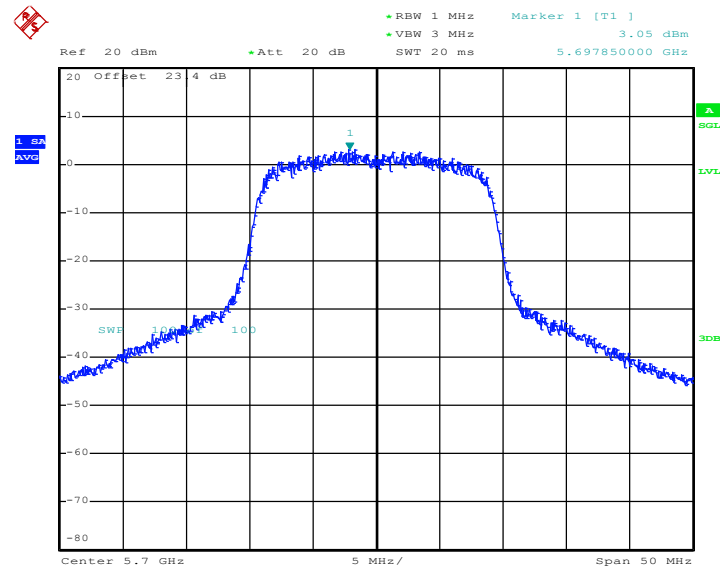
PSD Plot on 802.11n (BW 20MHz) Channel 100



Date: 11.NOV.2011 11:51:48

PSD Plot on 802.11n (BW 20MHz) Channel 116


Date: 11.NOV.2011 11:49:55

PSD Plot on 802.11n (BW 20MHz) Channel 140


Date: 11.NOV.2011 11:42:54

3.4 AC Conducted Emission Measurement

3.4.1 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.

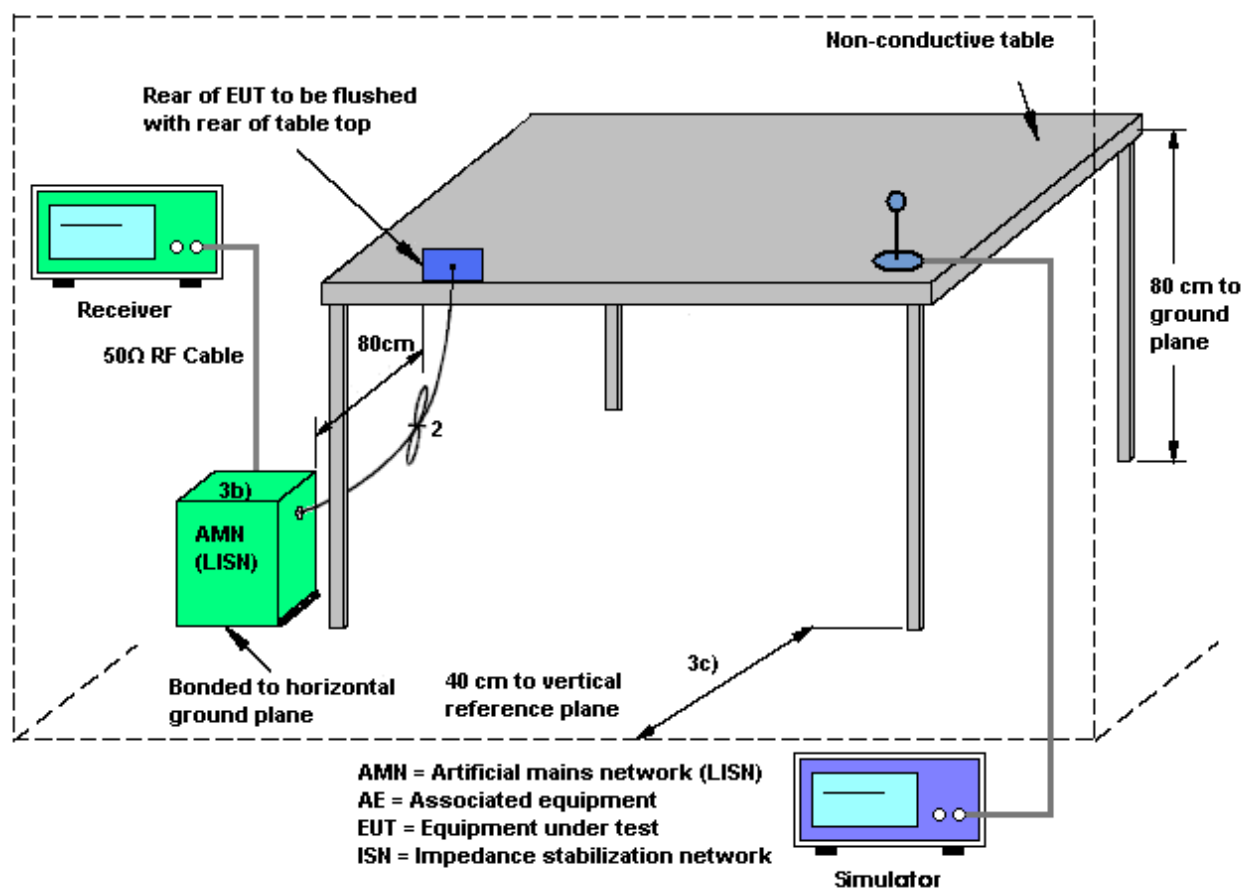
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

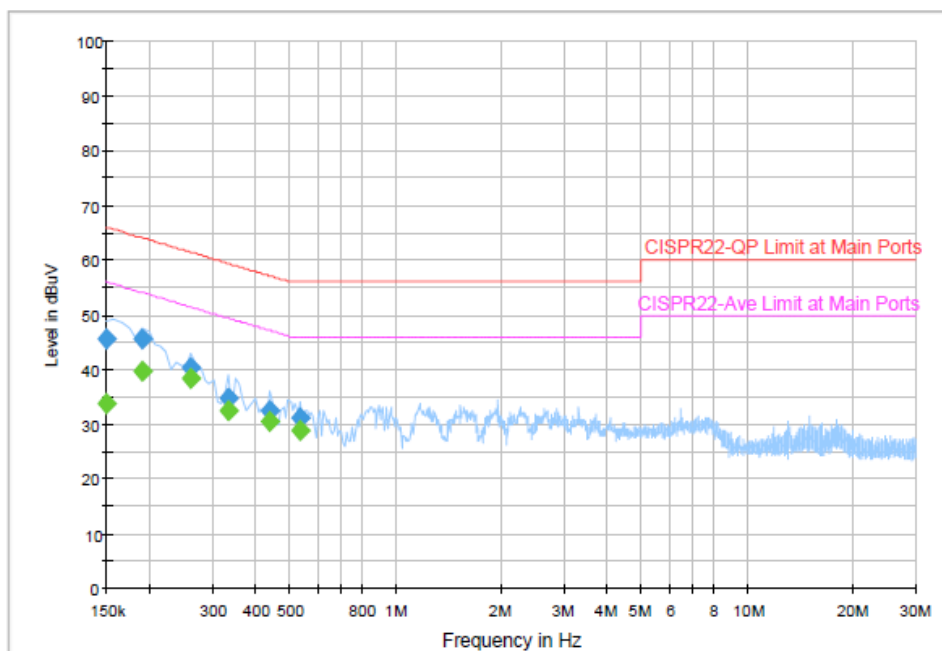
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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.

3.4.4 Test Setup



3.4.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	36~38%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN Link (5G) + GPS Rx + USB Charging Cable with AC Power + USB Cable (Data Link with Notebook) for Keypad 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



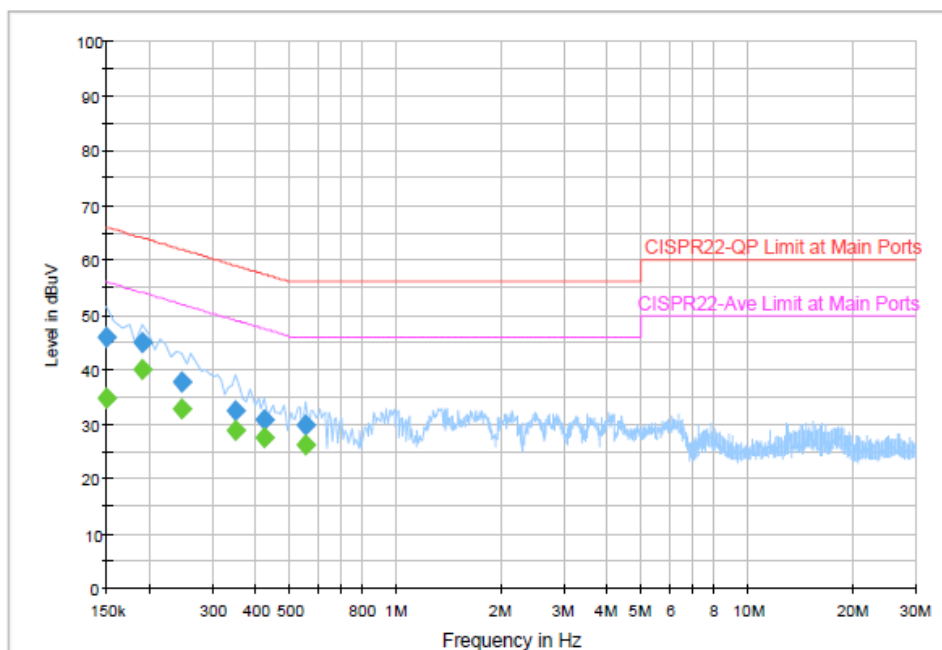
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.5	Off	L1	19.4	20.5	66.0
0.190000	45.6	Off	L1	19.4	18.4	64.0
0.262000	40.2	Off	L1	19.4	21.2	61.4
0.334000	34.9	Off	L1	19.4	24.5	59.4
0.438000	32.4	Off	L1	19.5	24.7	57.1
0.534000	31.0	Off	L1	19.4	25.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	33.7	Off	L1	19.4	22.3	56.0
0.190000	39.6	Off	L1	19.4	14.4	54.0
0.262000	38.3	Off	L1	19.4	13.1	51.4
0.334000	32.6	Off	L1	19.4	16.8	49.4
0.438000	30.4	Off	L1	19.5	16.7	47.1
0.534000	29.0	Off	L1	19.4	17.0	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	36~38%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN Link (5G) + GPS Rx + USB Charging Cable with AC Power + USB Cable (Data Link with Notebook) for Keypad 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.8	Off	N	19.4	20.2	66.0
0.190000	44.9	Off	N	19.4	19.1	64.0
0.246000	37.7	Off	N	19.4	24.2	61.9
0.350000	32.6	Off	N	19.4	26.4	59.0
0.422000	30.9	Off	N	19.5	26.5	57.4
0.550000	30.0	Off	N	19.4	26.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	34.6	Off	N	19.4	21.4	56.0
0.190000	40.0	Off	N	19.4	14.0	54.0
0.246000	32.9	Off	N	19.4	19.0	51.9
0.350000	28.9	Off	N	19.4	20.1	49.0
0.422000	27.5	Off	N	19.5	19.9	47.4
0.550000	26.2	Off	N	19.4	19.8	46.0

3.5 Unwanted Radiated Emission Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.5.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz. For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m).
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

Note: The following formula is used to convert the EIRP to field strength.

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$

EIRP (dBm)	Field Strength at 3m (dBuV/m)
- 27	68.3

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

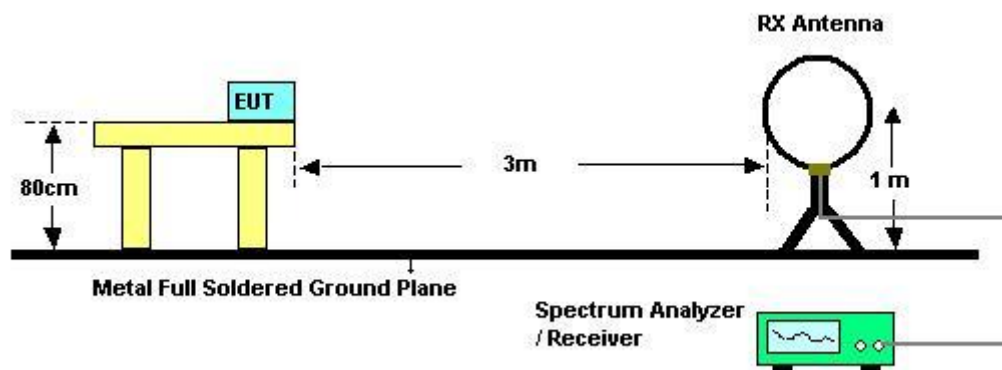
3.5.3 Test Procedures

1. The testing follows the guidelines in FCC KDB 789033 D01 General UNII Test Procedures v01.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 KHz
 - VBW = 300 KHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - The setting follows the G) 5) of FCC KDB 789033.
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - The setting follows G) 6) of FCC KDB 789033.
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.

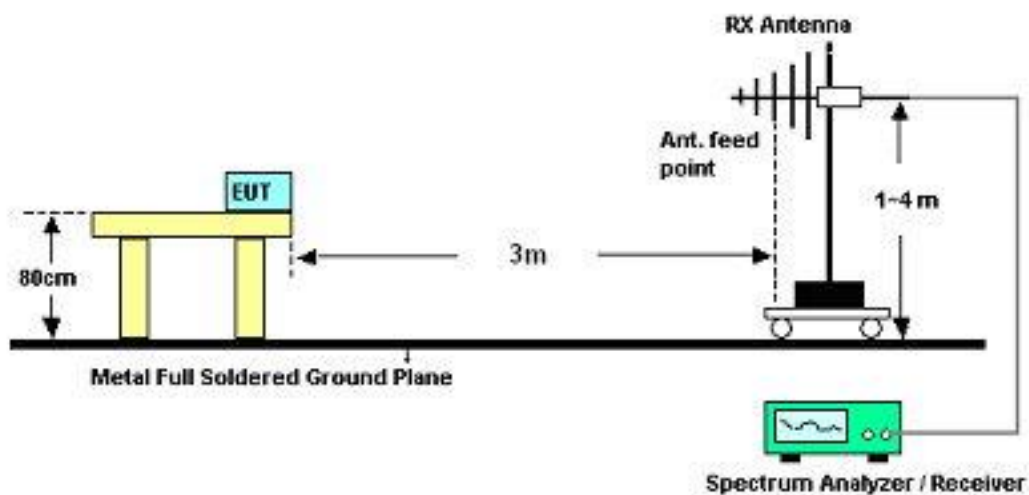
6. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

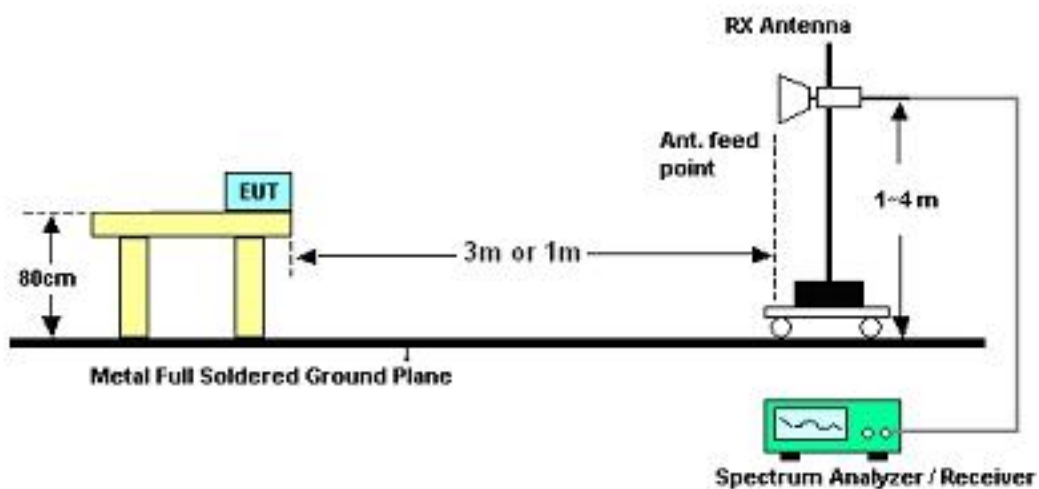
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Result

3.5.6 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	50~52%
Test Channel :	36	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	58.12	-15.88	74	48.14	34.22	9.41	33.65	100	0	Peak
5150	43.31	-10.69	54	33.33	34.22	9.41	33.65	100	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	56.17	-17.83	74	46.19	34.22	9.41	33.65	100	333	Peak
5150	41.01	-12.99	54	31.03	34.22	9.41	33.65	100	333	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	50~52%
Test Channel :	64	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	61.38	-12.62	74	50.52	34.38	9.74	33.26	115	343	Peak
5350	44.84	-9.16	54	33.98	34.38	9.74	33.26	115	343	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	56.93	-17.07	74	46.07	34.38	9.74	33.26	100	293	Peak
5350	42.83	-11.17	54	31.97	34.38	9.74	33.26	100	293	Average

Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	50~52%
Test Channel :	100	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	56.69	-11.61	68.3	45.29	34.47	9.94	33.01	139	3	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	57.66	-10.64	68.3	46.26	34.47	9.94	33.01	125	360	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	50~52%
Test Channel :	140	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.76	-2.54	68.3	54.21	34.81	9.92	33.18	110	3	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	59.3	-9	68.3	47.75	34.81	9.92	33.18	107	289	Peak



Test Mode :	Mode 10	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	50~52%
Test Channel :	140	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	61.54	-6.76	68.3	49.99	34.81	9.92	33.18	100	259	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.94	-2.36	68.3	54.39	34.81	9.92	33.18	100	305	Peak

Test Mode :	Mode 11	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~52%
Test Channel :	36	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	57.79	-16.21	74	47.81	34.22	9.41	33.65	100	314	Peak
5150	42.41	-11.59	54	32.43	34.22	9.41	33.65	100	314	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	55.91	-18.09	74	45.93	34.22	9.41	33.65	108	336	Peak
5150	40.5	-13.5	54	30.52	34.22	9.41	33.65	108	336	Average

Test Mode :	Mode 16	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~52%
Test Channel :	64	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	60.42	-13.58	74	49.56	34.38	9.74	33.26	100	316	Peak
5350	44.14	-9.86	54	33.28	34.38	9.74	33.26	100	316	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	56.79	-17.21	74	45.93	34.38	9.74	33.26	100	288	Peak
5350	40.18	-13.82	54	29.32	34.38	9.74	33.26	100	288	Average



Test Mode :	Mode 17	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~52%
Test Channel :	100	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	62.22	-6.08	68.3	50.82	34.47	9.94	33.01	105	331	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	58.15	-10.15	68.3	46.75	34.47	9.94	33.01	137	0	Peak

Test Mode :	Mode 19	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~52%
Test Channel :	140	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.69	-2.61	68.3	54.14	34.81	9.92	33.18	101	338	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	59.83	-8.47	68.3	48.28	34.81	9.92	33.18	100	311	Peak

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

Temperature	23~24°C	Humidity	50~52%
Test Engineer	Ivan Chiang		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5180 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
32.97	18.41	-21.59	40	33.52	15.8	0.56	31.47	-	-	Peak
240.06	23.83	-22.17	46	41.74	11.98	1.53	31.42	-	-	Peak
259.77	25.35	-20.65	46	42.36	12.82	1.59	31.42	136	172	Peak
360.2	19.92	-26.08	46	33.8	15.33	2.06	31.27	-	-	Peak
519.8	21.76	-24.24	46	31.77	18.53	2.49	31.03	-	-	Peak
755.7	22.78	-23.22	46	28.65	21.76	3.07	30.7	-	-	Peak
5150	58.12	-15.88	74	48.14	34.22	9.41	33.65	100	0	Peak
5150	43.31	-10.69	54	33.33	34.22	9.41	33.65	100	0	Average
5180	106.68	-	-	96.58	34.25	9.45	33.6	100	0	Peak
5180	94.92	-	-	84.82	34.25	9.45	33.6	100	0	Average
5382	52.46	-21.54	74	41.39	34.41	9.82	33.16	100	0	Peak
5382	40.45	-13.55	54	29.38	34.41	9.82	33.16	100	0	Average

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5180 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
106.41	20.31	-23.19	43.5	40.46	10.37	1.03	31.55	-	-	Peak
240.06	23.35	-22.65	46	41.26	11.98	1.53	31.42	-	-	Peak
251.94	24.43	-21.57	46	41.6	12.7	1.54	31.41	112	193	Peak
337.8	22.39	-23.61	46	37.18	14.63	1.88	31.3	-	-	Peak
519.8	21.06	-24.94	46	31.07	18.53	2.49	31.03	-	-	Peak
741	23.08	-22.92	46	29.23	21.53	3.04	30.72	-	-	Peak
5150	56.17	-17.83	74	46.19	34.22	9.41	33.65	100	333	Peak
5150	41.01	-12.99	54	31.03	34.22	9.41	33.65	100	333	Average
5180	103.91	-	-	93.81	34.25	9.45	33.6	100	333	Peak
5180	93.58	-	-	83.48	34.25	9.45	33.6	100	333	Average
5454	40.63	-13.37	54	29.24	34.46	9.94	33.01	100	333	Average
5454	52.3	-21.7	74	40.91	34.46	9.94	33.01	100	333	Peak

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5220 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
33.78	18.48	-21.52	40	33.81	15.57	0.57	31.47	-	-	Peak
240.06	23.71	-22.29	46	41.62	11.98	1.53	31.42	-	-	Peak
259.77	25.47	-20.53	46	42.48	12.82	1.59	31.42	131	144	Peak
349	19.99	-26.01	46	34.32	14.99	1.97	31.29	-	-	Peak
519.8	20.89	-25.11	46	30.9	18.53	2.49	31.03	-	-	Peak
775.3	23.92	-22.08	46	29.44	22.07	3.1	30.69	-	-	Peak
5124	51.61	-22.39	74	41.73	34.21	9.37	33.7	100	0	Peak
5124	39.38	-14.62	54	29.5	34.21	9.37	33.7	100	0	Average
5220	106.03	-	-	95.73	34.27	9.53	33.5	100	0	Peak
5220	93.75	-	-	83.45	34.27	9.53	33.5	100	0	Average
5414	52.58	-21.42	74	41.4	34.43	9.86	33.11	100	0	Peak
5414	40.5	-13.5	54	29.32	34.43	9.86	33.11	100	0	Average

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.86	19.99	-20.01	40	35.55	15.33	0.58	31.47	100	112	Peak
129.9	20.72	-22.78	43.5	39.57	11.57	1.15	31.57	-	-	Peak
240.06	23.26	-22.74	46	41.17	11.98	1.53	31.42	-	-	Peak
337.8	22.7	-23.3	46	37.49	14.63	1.88	31.3	-	-	Peak
519.8	20.87	-25.13	46	30.88	18.53	2.49	31.03	-	-	Peak
676.6	23.91	-22.09	46	31.23	20.63	2.89	30.84	-	-	Peak
5150	51.31	-22.69	74	41.33	34.22	9.41	33.65	100	329	Peak
5150	39.17	-14.83	54	29.19	34.22	9.41	33.65	100	329	Average
5220	104.19	-	-	93.89	34.27	9.53	33.5	100	329	Peak
5220	92.91	-	-	82.61	34.27	9.53	33.5	100	329	Average
5404	53.67	-20.33	74	42.5	34.42	9.86	33.11	100	329	Peak
5404	40.36	-13.64	54	29.19	34.42	9.86	33.11	100	329	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5240 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
32.97	18.83	-21.17	40	33.94	15.8	0.56	31.47	-	-	Peak
233.85	23.74	-22.26	46	42.17	11.5	1.5	31.43	-	-	Peak
259.77	25.44	-20.56	46	42.45	12.82	1.59	31.42	136	224	Peak
354.6	20.28	-25.72	46	34.36	15.18	2.02	31.28	-	-	Peak
640.2	21.4	-24.6	46	29.25	20.22	2.81	30.88	-	-	Peak
786.5	24.05	-21.95	46	29.36	22.26	3.12	30.69	-	-	Peak
5126	52.37	-21.63	74	42.49	34.21	9.37	33.7	101	325	Peak
5126	39.47	-14.53	54	29.59	34.21	9.37	33.7	101	325	Average
5240	105.04	-	-	94.63	34.29	9.57	33.45	101	325	Peak
5240	95.35	-	-	84.94	34.29	9.57	33.45	101	325	Average
5396	56.76	-17.24	74	45.68	34.42	9.82	33.16	101	325	Peak
5396	41.03	-12.97	54	29.95	34.42	9.82	33.16	101	325	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5240 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
49.17	19.35	-20.65	40	41.51	8.68	0.69	31.53	105	38	Peak
155.82	17.28	-26.22	43.5	36.93	10.67	1.22	31.54	-	-	Peak
240.06	24	-22	46	41.91	11.98	1.53	31.42	-	-	Peak
337.8	21.87	-24.13	46	36.66	14.63	1.88	31.3	-	-	Peak
419.7	22.22	-23.78	46	34.26	16.9	2.21	31.15	-	-	Peak
707.4	22.98	-23.02	46	29.82	21	2.96	30.8	-	-	Peak
5134	50.95	-23.05	74	41.07	34.21	9.37	33.7	100	310	Peak
5134	39.06	-14.94	54	29.18	34.21	9.37	33.7	100	310	Average
5240	103.54	-	-	93.22	34.29	9.53	33.5	100	310	Peak
5240	92.54	-	-	82.13	34.29	9.57	33.45	100	310	Average
5356	53.13	-20.87	74	42.18	34.38	9.78	33.21	100	310	Peak
5356	40.32	-13.68	54	29.37	34.38	9.78	33.21	100	310	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5260 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
31.62	19.2	-20.8	40	34.07	16.04	0.55	31.46	-	-	Peak
240.06	24.73	-21.27	46	42.64	11.98	1.53	31.42	-	-	Peak
259.77	25.81	-20.19	46	42.82	12.82	1.59	31.42	125	187	Peak
329.4	19.78	-26.22	46	34.85	14.39	1.85	31.31	-	-	Peak
615.7	20.8	-25.2	46	29.02	19.94	2.74	30.9	-	-	Peak
799.8	23.32	-22.68	46	28.39	22.47	3.14	30.68	-	-	Peak
5150	52.25	-21.75	74	42.27	34.22	9.41	33.65	110	323	Peak
5150	39.25	-14.75	54	29.27	34.22	9.41	33.65	110	323	Average
5260	107.29	-	-	96.77	34.31	9.62	33.41	110	323	Peak
5260	96.54	-	-	86.02	34.31	9.62	33.41	110	323	Average
5396	53.04	-20.96	74	41.96	34.42	9.82	33.16	110	323	Peak
5396	40.78	-13.22	54	29.7	34.42	9.82	33.16	110	323	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5260 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
138.81	20.05	-23.45	43.5	38.8	11.6	1.2	31.55	-	-	Peak
240.06	23.83	-22.17	46	41.74	11.98	1.53	31.42	-	-	Peak
298.65	23.14	-22.86	46	39.27	13.44	1.76	31.33	-	-	Peak
337.8	21.57	-24.43	46	36.36	14.63	1.88	31.3	-	-	Peak
603.8	21.84	-24.16	46	30.25	19.81	2.7	30.92	-	-	Peak
814.5	24.45	-21.55	46	29.32	22.64	3.18	30.69	130	194	Peak
5126	51.81	-22.19	74	41.93	34.21	9.37	33.7	100	298	Peak
5126	39.13	-14.87	54	29.25	34.21	9.37	33.7	100	298	Average
5260	103.15	-	-	92.63	34.31	9.62	33.41	100	298	Peak
5260	91.4	-	-	80.88	34.31	9.62	33.41	100	298	Average
5412	54.01	-19.99	74	42.83	34.43	9.86	33.11	100	298	Peak
5412	40.66	-13.34	54	29.48	34.43	9.86	33.11	100	298	Average

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5300 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
32.97	18.79	-21.21	40	33.9	15.8	0.56	31.47	-	-	Peak
155.82	16.06	-27.44	43.5	35.71	10.67	1.22	31.54	-	-	Peak
259.77	25.82	-20.18	46	42.83	12.82	1.59	31.42	127	188	Peak
360.2	20.41	-25.59	46	34.29	15.33	2.06	31.27	-	-	Peak
519.8	21.84	-24.16	46	31.85	18.53	2.49	31.03	-	-	Peak
750.1	23.08	-22.92	46	29.05	21.67	3.06	30.7	-	-	Peak
5134	52.48	-21.52	74	42.6	34.21	9.37	33.7	100	311	Peak
5134	39.16	-14.84	54	29.28	34.21	9.37	33.7	100	311	Average
5300	107.09	-	-	96.45	34.34	9.66	33.36	100	311	Peak
5300	95.9	-	-	85.26	34.34	9.66	33.36	100	311	Average
5358	53.73	-20.27	74	42.78	34.38	9.78	33.21	100	311	Peak
5358	41.61	-12.39	54	30.66	34.38	9.78	33.21	100	311	Average



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5300 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
49.98	22.31	-17.69	40	44.87	8.28	0.7	31.54	100	149	Peak
106.41	19.77	-23.73	43.5	39.92	10.37	1.03	31.55	-	-	Peak
240.06	23.15	-22.85	46	41.06	11.98	1.53	31.42	-	-	Peak
337.8	22.01	-23.99	46	36.8	14.63	1.88	31.3	-	-	Peak
615.7	20.87	-25.13	46	29.09	19.94	2.74	30.9	-	-	Peak
792.1	24.59	-21.41	46	29.79	22.35	3.13	30.68	-	-	Peak
5148	52.38	-21.62	74	42.4	34.22	9.41	33.65	100	294	Peak
5148	39.28	-14.72	54	29.3	34.22	9.41	33.65	100	294	Average
5300	103.71	-	-	93.07	34.34	9.66	33.36	100	294	Peak
5300	92.73	-	-	82.09	34.34	9.66	33.36	100	294	Average
5350	53.42	-20.58	74	42.56	34.38	9.74	33.26	100	294	Peak
5350	41.01	-12.99	54	30.15	34.38	9.74	33.26	100	294	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5320 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
33.78	18.96	-21.04	40	34.29	15.57	0.57	31.47	117	131	Peak
233.85	23.57	-22.43	46	42	11.5	1.5	31.43	-	-	Peak
240.06	23.9	-22.1	46	41.81	11.98	1.53	31.42	-	-	Peak
310.5	19.94	-26.06	46	35.68	13.79	1.79	31.32	-	-	Peak
519.8	21.94	-24.06	46	31.95	18.53	2.49	31.03	-	-	Peak
745.9	22.45	-23.55	46	28.5	21.61	3.05	30.71	-	-	Peak
5036	52.32	-21.68	74	42.88	34.13	9.21	33.9	115	343	Peak
5036	39.23	-14.77	54	29.79	34.13	9.21	33.9	115	343	Average
5320	107.78	-	-	97.04	34.35	9.7	33.31	115	343	Peak
5320	97.36	-	-	86.62	34.35	9.7	33.31	115	343	Average
5350	44.84	-9.16	54	33.98	34.38	9.74	33.26	115	343	Average
5350	61.38	-12.62	74	50.52	34.38	9.74	33.26	115	343	Peak



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5320 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.86	20.09	-19.91	40	35.65	15.33	0.58	31.47	100	142	Peak
49.17	19.74	-20.26	40	41.9	8.68	0.69	31.53	-	-	Peak
240.06	23.55	-22.45	46	41.46	11.98	1.53	31.42	-	-	Peak
337.8	22.25	-23.75	46	37.04	14.63	1.88	31.3	-	-	Peak
519.8	20.43	-25.57	46	30.44	18.53	2.49	31.03	-	-	Peak
761.3	23.55	-22.45	46	29.31	21.86	3.08	30.7	-	-	Peak
5148	52.4	-21.6	74	42.42	34.22	9.41	33.65	100	293	Peak
5148	39.25	-14.75	54	29.27	34.22	9.41	33.65	100	293	Average
5320	103.77	-	-	93.03	34.35	9.7	33.31	100	293	Peak
5320	93.06	-	-	82.32	34.35	9.7	33.31	100	293	Average
5350	42.83	-11.17	54	31.97	34.38	9.74	33.26	100	293	Average
5350	56.93	-17.07	74	46.07	34.38	9.74	33.26	100	293	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 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
48.9	28.09	-11.91	40	49.86	9.08	0.68	31.53	128	172	Peak
240.06	23.72	-22.28	46	41.63	11.98	1.53	31.42	-	-	Peak
259.77	25.84	-20.16	46	42.85	12.82	1.59	31.42	-	-	Peak
310.5	20.3	-25.7	46	36.04	13.79	1.79	31.32	-	-	Peak
519.8	22.19	-23.81	46	32.2	18.53	2.49	31.03	-	-	Peak
744.5	22.83	-23.17	46	28.89	21.6	3.05	30.71	-	-	Peak
5470	56.69	-11.61	68.3	45.29	34.47	9.94	33.01	139	3	Peak
5500	98.48	-	-	86.87	34.5	10.02	32.91	139	3	Average
5500	108.42	-	-	96.81	34.5	10.02	32.91	139	3	Peak
5725	53.08	-15.22	68.3	41.53	34.81	9.92	33.18	139	3	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 and 16500 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	19.25	-20.75	40	34.12	16.04	0.55	31.46	111	100	Peak
92.37	20.18	-23.32	43.5	41.84	8.9	0.96	31.52	-	-	Peak
218.73	24.79	-21.21	46	44.37	10.47	1.41	31.46	-	-	Peak
337.8	21.83	-24.17	46	36.62	14.63	1.88	31.3	-	-	Peak
623.4	22.59	-23.41	46	30.7	20.03	2.76	30.9	-	-	Peak
805.4	24.02	-21.98	46	29.02	22.53	3.15	30.68	-	-	Peak
5470	57.66	-10.64	68.3	46.26	34.47	9.94	33.01	125	360	Peak
5500	94.78	-	-	83.17	34.5	10.02	32.91	125	360	Average
5500	105.14	-	-	93.53	34.5	10.02	32.91	125	360	Peak
5725	52.69	-15.61	68.3	41.14	34.81	9.92	33.18	125	360	Peak
16500	52.18	-16.12	68.3	54.12	41.4	14.06	57.4	100	0	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5580 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 MHz, and 16740 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	19.59	-20.41	40	34.46	16.04	0.55	31.46	133	141	Peak
240.06	23.96	-22.04	46	41.87	11.98	1.53	31.42	-	-	Peak
259.77	25.54	-20.46	46	42.55	12.82	1.59	31.42	-	-	Peak
360.2	19.64	-26.36	46	33.52	15.33	2.06	31.27	-	-	Peak
519.8	21.94	-24.06	46	31.95	18.53	2.49	31.03	-	-	Peak
732.6	22.53	-23.47	46	28.85	21.4	3.02	30.74	-	-	Peak
5470	53.12	-15.18	68.3	41.72	34.47	9.94	33.01	101	336	Peak
5580	108.69	-	-	97.1	34.6	9.99	33	101	336	Peak
5580	98.31	-	-	86.72	34.6	9.99	33	101	336	Average
5725	51.72	-16.58	68.3	40.17	34.81	9.92	33.18	101	336	Peak
16740	51	-17.3	68.3	52.65	41.83	14.17	57.65	100	0	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5580 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 MHz and 16740 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
49.17	20.24	-19.76	40	42.4	8.68	0.69	31.53	111	315	Peak
196.86	20.09	-23.41	43.5	41.18	9.09	1.31	31.49	-	-	Peak
240.06	23.29	-22.71	46	41.2	11.98	1.53	31.42	-	-	Peak
337.8	23.11	-22.89	46	37.9	14.63	1.88	31.3	-	-	Peak
519.8	21.63	-24.37	46	31.64	18.53	2.49	31.03	-	-	Peak
676.6	24.24	-21.76	46	31.56	20.63	2.89	30.84	-	-	Peak
5470	51.1	-17.2	68.3	39.7	34.47	9.94	33.01	102	310	Peak
5580	106.41	-	-	94.82	34.6	9.99	33	102	310	Peak
5580	95.54	-	-	83.95	34.6	9.99	33	102	310	Average
5725	51.81	-16.49	68.3	40.26	34.81	9.92	33.18	102	310	Peak
16740	51.94	-16.36	68.3	53.61	41.8	14.16	57.63	100	0	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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	19.6	-20.4	40	34.47	16.04	0.55	31.46	150	326	Peak
240.06	24.77	-21.23	46	42.68	11.98	1.53	31.42	-	-	Peak
259.77	25.46	-20.54	46	42.47	12.82	1.59	31.42	-	-	Peak
360.2	19.77	-26.23	46	33.65	15.33	2.06	31.27	-	-	Peak
519.8	22.31	-23.69	46	32.32	18.53	2.49	31.03	-	-	Peak
706.7	21.78	-24.22	46	28.62	21	2.96	30.8	-	-	Peak
5470	52.15	-16.15	68.3	40.75	34.47	9.94	33.01	110	3	Peak
5700	101.34	-	-	89.79	34.77	9.93	33.15	110	3	Average
5700	110.58	-	-	99.03	34.77	9.93	33.15	110	3	Peak
5725	65.76	-2.54	68.3	54.21	34.81	9.92	33.18	110	3	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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
48.9	20.15	-19.85	40	41.92	9.08	0.68	31.53	111	99	Peak
122.61	22.59	-20.91	43.5	41.5	11.54	1.11	31.56	-	-	Peak
240.06	22.72	-23.28	46	40.63	11.98	1.53	31.42	-	-	Peak
337.8	22	-24	46	36.79	14.63	1.88	31.3	-	-	Peak
519.8	20.94	-25.06	46	30.95	18.53	2.49	31.03	-	-	Peak
676.6	22.96	-23.04	46	30.28	20.63	2.89	30.84	-	-	Peak
5470	51.67	-16.63	68.3	40.27	34.47	9.94	33.01	107	289	Peak
5700	96.5	-	-	84.95	34.77	9.93	33.15	107	289	Average
5700	106.1	-	-	94.55	34.77	9.93	33.15	107	289	Peak
5725	59.3	-9	68.3	47.75	34.81	9.92	33.18	107	289	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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	19.6	-20.4	40	34.47	16.04	0.55	31.46	150	326	Peak
240.06	24.77	-21.23	46	42.68	11.98	1.53	31.42	-	-	Peak
259.77	25.46	-20.54	46	42.47	12.82	1.59	31.42	-	-	Peak
360.2	19.77	-26.23	46	33.65	15.33	2.06	31.27	-	-	Peak
519.8	22.31	-23.69	46	32.32	18.53	2.49	31.03	-	-	Peak
706.7	21.78	-24.22	46	28.62	21	2.96	30.8	-	-	Peak
5470	52.39	-15.91	68.3	40.99	34.47	9.94	33.01	100	259	Peak
5700	106.75	-	-	95.2	34.77	9.93	33.15	100	259	Peak
5700	97.29	-	-	85.74	34.77	9.93	33.15	100	259	Average
5725	61.54	-6.76	68.3	49.99	34.81	9.92	33.18	100	259	Peak

Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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
48.9	20.15	-19.85	40	41.92	9.08	0.68	31.53	111	99	Peak
122.61	22.59	-20.91	43.5	41.5	11.54	1.11	31.56	-	-	Peak
240.06	22.72	-23.28	46	40.63	11.98	1.53	31.42	-	-	Peak
337.8	22	-24	46	36.79	14.63	1.88	31.3	-	-	Peak
519.8	20.94	-25.06	46	30.95	18.53	2.49	31.03	-	-	Peak
676.6	22.96	-23.04	46	30.28	20.63	2.89	30.84	-	-	Peak
5470	52.38	-15.92	68.3	40.98	34.47	9.94	33.01	100	305	Peak
5700	110.28	-	-	98.73	34.77	9.93	33.15	100	305	Peak
5700	101	-	-	89.45	34.77	9.93	33.15	100	305	Average
5725	65.94	-2.36	68.3	54.39	34.81	9.92	33.18	100	305	Peak



Test Mode :	Mode 11	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5180 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
32.97	18.77	-21.23	40	33.88	15.8	0.56	31.47	-	-	Peak
240.06	24.05	-21.95	46	41.96	11.98	1.53	31.42	-	-	Peak
259.77	26.06	-19.94	46	43.07	12.82	1.59	31.42	149	215	Peak
360.2	20.54	-25.46	46	34.42	15.33	2.06	31.27	-	-	Peak
623.4	22.04	-23.96	46	30.15	20.03	2.76	30.9	-	-	Peak
822.9	24.66	-21.34	46	29.43	22.73	3.2	30.7	-	-	Peak
5150	57.79	-16.21	74	47.81	34.22	9.41	33.65	100	314	Peak
5150	42.41	-11.59	54	32.43	34.22	9.41	33.65	100	314	Average
5180	105.97	-	-	95.87	34.25	9.45	33.6	100	314	Peak
5180	95.85	-	-	85.75	34.25	9.45	33.6	100	314	Average
5366	40.82	-13.18	54	29.86	34.39	9.78	33.21	100	314	Average
5366	52.51	-21.49	74	41.55	34.39	9.78	33.21	100	314	Peak

Test Mode :	Mode 11	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5180 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
48.09	19.44	-20.56	40	41.2	9.08	0.68	31.52	101	75	Peak
106.41	19.56	-23.94	43.5	39.71	10.37	1.03	31.55	-	-	Peak
231.69	25.06	-20.94	46	43.64	11.37	1.49	31.44	-	-	Peak
337.8	22.55	-23.45	46	37.34	14.63	1.88	31.3	-	-	Peak
519.8	20.8	-25.2	46	30.81	18.53	2.49	31.03	-	-	Peak
752.9	23.55	-22.45	46	29.47	21.72	3.06	30.7	-	-	Peak
5150	55.91	-18.09	74	45.93	34.22	9.41	33.65	108	336	Peak
5150	40.5	-13.5	54	30.52	34.22	9.41	33.65	108	336	Average
5180	102.78	-	-	92.68	34.25	9.45	33.6	108	336	Peak
5180	92.76	-	-	82.66	34.25	9.45	33.6	108	336	Average
5356	40.41	-13.59	54	29.46	34.38	9.78	33.21	108	336	Average
5356	53.72	-20.28	74	42.77	34.38	9.78	33.21	108	336	Peak

Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.05	18.57	-21.43	40	33.9	15.57	0.57	31.47	-	-	Peak
240.06	24.04	-21.96	46	41.95	11.98	1.53	31.42	-	-	Peak
259.77	25.71	-20.29	46	42.72	12.82	1.59	31.42	136	200	Peak
346.2	21.34	-24.66	46	35.79	14.9	1.94	31.29	-	-	Peak
519.8	22.76	-23.24	46	32.77	18.53	2.49	31.03	-	-	Peak
752.9	23.23	-22.77	46	29.15	21.72	3.06	30.7	-	-	Peak
5110	52.57	-21.43	74	42.8	34.19	9.33	33.75	100	314	Peak
5110	39.35	-14.65	54	29.58	34.19	9.33	33.75	100	314	Average
5220	106.26	-	-	95.96	34.27	9.53	33.5	100	314	Peak
5220	95.38	-	-	85.08	34.27	9.53	33.5	100	314	Average
5374	54.88	-19.12	74	43.92	34.39	9.78	33.21	100	314	Peak
5374	40.59	-13.41	54	29.63	34.39	9.78	33.21	100	314	Average



Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5220 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	19.66	-20.34	40	34.53	16.04	0.55	31.46	-	-	Peak
48.09	19.64	-20.36	40	41.4	9.08	0.68	31.52	-	-	Peak
106.41	20.15	-23.35	43.5	40.3	10.37	1.03	31.55	-	-	Peak
309.8	26.68	-19.32	46	42.46	13.76	1.79	31.33	133	118	Peak
519.8	21.5	-24.5	46	31.51	18.53	2.49	31.03	-	-	Peak
774.6	23.03	-22.97	46	28.55	22.07	3.1	30.69	-	-	Peak
5124	52.47	-21.53	74	42.59	34.21	9.37	33.7	200	296	Peak
5124	39.15	-14.85	54	29.27	34.21	9.37	33.7	200	296	Average
5220	103.07	-	-	92.77	34.27	9.53	33.5	200	296	Peak
5220	90.76	-	-	80.46	34.27	9.53	33.5	200	296	Average
5350	54.19	-19.81	74	43.33	34.38	9.74	33.26	200	296	Peak
5350	40.27	-13.73	54	29.41	34.38	9.74	33.26	200	296	Average



Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5240 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
47.01	24.13	-15.87	40	45.5	9.48	0.67	31.52	151	247	Peak
233.85	23.51	-22.49	46	41.94	11.5	1.5	31.43	-	-	Peak
259.77	25.83	-20.17	46	42.84	12.82	1.59	31.42	-	-	Peak
338.5	19.71	-26.29	46	34.47	14.66	1.88	31.3	-	-	Peak
519.8	21.74	-24.26	46	31.75	18.53	2.49	31.03	-	-	Peak
791.4	24.14	-21.86	46	29.36	22.33	3.13	30.68	-	-	Peak
5150	39.59	-14.41	54	29.61	34.22	9.41	33.65	117	358	Average
5150	52.27	-21.73	74	42.29	34.22	9.41	33.65	117	358	Peak
5240	106.43	-	-	96.02	34.29	9.57	33.45	117	358	Peak
5240	95.61	-	-	85.2	34.29	9.57	33.45	117	358	Average
5398	55.54	-18.46	74	44.46	34.42	9.82	33.16	117	358	Peak
5398	40.99	-13.01	54	29.91	34.42	9.82	33.16	117	358	Average

Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5240 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
32.7	29.04	-10.96	40	44.15	15.8	0.56	31.47	100	128	Peak
94.53	27.77	-15.73	43.5	49.08	9.24	0.98	31.53	-	-	Peak
240.06	24	-22	46	41.91	11.98	1.53	31.42	-	-	Peak
337.8	24.5	-21.5	46	39.29	14.63	1.88	31.3	-	-	Peak
519.8	21.1	-24.9	46	31.11	18.53	2.49	31.03	-	-	Peak
780.2	23.11	-22.89	46	28.54	22.15	3.11	30.69	-	-	Peak
5142	51.92	-22.08	74	41.94	34.22	9.41	33.65	153	303	Peak
5142	39.3	-14.7	54	29.32	34.22	9.41	33.65	153	303	Average
5240	102.08	-	-	91.67	34.29	9.57	33.45	153	303	Peak
5240	91.44	-	-	81.03	34.29	9.57	33.45	153	303	Average
5358	39.77	-14.23	54	29.36	34.29	9.57	33.45	153	303	Average
5358	53.65	-20.35	74	42.7	34.38	9.78	33.21	153	303	Peak



Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5260 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	18.68	-21.32	40	33.55	16.04	0.55	31.46	-	-	Peak
240.06	24.19	-21.81	46	42.1	11.98	1.53	31.42	-	-	Peak
259.77	25.63	-20.37	46	42.64	12.82	1.59	31.42	138	300	Peak
355.3	20.15	-25.85	46	34.23	15.18	2.02	31.28	-	-	Peak
519.8	21.76	-24.24	46	31.77	18.53	2.49	31.03	-	-	Peak
792.1	23.62	-22.38	46	28.82	22.35	3.13	30.68	-	-	Peak
5100	52.69	-21.31	74	42.93	34.18	9.33	33.75	100	315	Peak
5100	39.44	-14.56	54	29.68	34.18	9.33	33.75	100	315	Average
5260	107.3	-	-	96.78	34.31	9.62	33.41	100	315	Peak
5260	96.32	-	-	85.8	34.31	9.62	33.41	100	315	Average
5414	53.07	-20.93	74	41.89	34.43	9.86	33.11	100	315	Peak
5414	41.27	-12.73	54	30.09	34.43	9.86	33.11	100	315	Average



Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5260 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
41.61	23.13	-16.87	40	41.97	12.04	0.63	31.51	100	94	Peak
106.41	20.83	-22.67	43.5	40.98	10.37	1.03	31.55	-	-	Peak
278.13	25.09	-20.91	46	41.68	13.12	1.64	31.35	-	-	Peak
337.8	21.84	-24.16	46	36.63	14.63	1.88	31.3	-	-	Peak
623.4	21.31	-24.69	46	29.42	20.03	2.76	30.9	-	-	Peak
811	23.62	-22.38	46	28.55	22.59	3.17	30.69	-	-	Peak
5140	51.77	-22.23	74	41.88	34.22	9.37	33.7	118	337	Peak
5140	39.17	-14.83	54	29.28	34.22	9.37	33.7	118	337	Average
5260	102.26	-	-	91.84	34.3	9.57	33.45	118	337	Peak
5260	91.69	-	-	81.17	34.31	9.62	33.41	118	337	Average
5356	53.38	-20.62	74	42.43	34.38	9.78	33.21	118	337	Peak
5356	40.7	-13.3	54	29.75	34.38	9.78	33.21	118	337	Average



Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5300 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
31.62	18.91	-21.09	40	33.78	16.04	0.55	31.46	-	-	Peak
240.06	24.44	-21.56	46	42.35	11.98	1.53	31.42	-	-	Peak
259.77	26.24	-19.76	46	43.25	12.82	1.59	31.42	121	149	Peak
419	20.54	-25.46	46	32.6	16.88	2.21	31.15	-	-	Peak
626.2	21.56	-24.44	46	29.62	20.06	2.77	30.89	-	-	Peak
802.6	24.11	-21.89	46	29.15	22.49	3.15	30.68	-	-	Peak
5134	53.53	-20.47	74	43.65	34.21	9.37	33.7	100	318	Peak
5134	39.39	-14.61	54	29.51	34.21	9.37	33.7	100	318	Average
5300	96.89	-	-	86.25	34.34	9.66	33.36	100	318	Average
5300	108.07	-	-	97.43	34.34	9.66	33.36	100	318	Peak
5350	54.37	-19.63	74	43.51	34.38	9.74	33.26	100	318	Peak
5350	41.58	-12.42	54	30.72	34.38	9.74	33.26	100	318	Average



Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5300 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	20.18	-19.82	40	35.05	16.04	0.55	31.46	100	312	Peak
106.41	19.81	-23.69	43.5	39.96	10.37	1.03	31.55	-	-	Peak
254.1	26.02	-19.98	46	43.15	12.73	1.55	31.41	-	-	Peak
337.8	21.66	-24.34	46	36.45	14.63	1.88	31.3	-	-	Peak
519.8	20.83	-25.17	46	30.84	18.53	2.49	31.03	-	-	Peak
738.2	23.26	-22.74	46	29.47	21.49	3.03	30.73	-	-	Peak
5142	51.31	-22.69	74	41.33	34.22	9.41	33.65	102	351	Peak
5142	39.3	-14.7	54	29.32	34.22	9.41	33.65	102	351	Average
5300	103.17	-	-	92.53	34.34	9.66	33.36	102	351	Peak
5300	92.94	-	-	82.3	34.34	9.66	33.36	102	351	Average
5398	54.27	-19.73	74	43.19	34.42	9.82	33.16	102	351	Peak
5398	41.32	-12.68	54	30.24	34.42	9.82	33.16	102	351	Average



Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5320 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	19.55	-20.45	40	34.2	16.27	0.54	31.46	-	-	Peak
240.06	24.69	-21.31	46	42.6	11.98	1.53	31.42	-	-	Peak
259.77	25.56	-20.44	46	42.57	12.82	1.59	31.42	129	97	Peak
360.2	21.51	-24.49	46	35.39	15.33	2.06	31.27	-	-	Peak
519.8	21.64	-24.36	46	31.65	18.53	2.49	31.03	-	-	Peak
708.1	22.63	-23.37	46	29.46	21.01	2.96	30.8	-	-	Peak
5094	39.23	-14.77	54	29.47	34.18	9.33	33.75	100	316	Average
5094	51.98	-22.02	74	42.22	34.18	9.33	33.75	100	316	Peak
5320	107.94	-	-	97.2	34.35	9.7	33.31	100	316	Peak
5320	96.61	-	-	85.87	34.35	9.7	33.31	100	316	Average
5350	60.42	-13.58	74	49.56	34.38	9.74	33.26	100	316	Peak
5350	44.14	-9.86	54	33.28	34.38	9.74	33.26	100	316	Average



Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5320 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
40.53	21.58	-18.42	40	39.96	12.5	0.63	31.51	100	141	Peak
106.41	19.7	-23.8	43.5	39.85	10.37	1.03	31.55	-	-	Peak
253.02	24.67	-21.33	46	41.81	12.72	1.55	31.41	-	-	Peak
337.8	22.4	-23.6	46	37.19	14.63	1.88	31.3	-	-	Peak
519.8	21.42	-24.58	46	31.43	18.53	2.49	31.03	-	-	Peak
710.2	23.46	-22.54	46	30.25	21.04	2.96	30.79	-	-	Peak
5110	51.28	-22.72	74	41.51	34.19	9.33	33.75	100	288	Peak
5110	39.09	-14.91	54	29.32	34.19	9.33	33.75	100	288	Average
5320	102.28	-	-	91.54	34.35	9.7	33.31	100	288	Peak
5320	91.62	-	-	80.88	34.35	9.7	33.31	100	288	Average
5350	56.79	-17.21	74	45.93	34.38	9.74	33.26	100	288	Peak
5350	40.18	-13.82	54	29.32	34.38	9.74	33.26	100	288	Average

Test Mode :	Mode 17	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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	18.94	-21.06	40	34.05	15.8	0.56	31.47	-	-	Peak
267.33	37.3	-8.7	46	54.1	12.95	1.63	31.38	135	108	Peak
291.9	24.77	-21.23	46	41.04	13.34	1.71	31.32	-	-	Peak
357.4	20.89	-25.11	46	34.85	15.27	2.04	31.27	-	-	Peak
519.8	22.43	-23.57	46	32.44	18.53	2.49	31.03	-	-	Peak
786.5	23.78	-22.22	46	29.09	22.26	3.12	30.69	-	-	Peak
5470	62.22	-6.08	68.3	50.82	34.47	9.94	33.01	105	331	Peak
5500	109.51	-	-	97.9	34.5	10.02	32.91	105	331	Peak
5500	98.21	-	-	86.6	34.5	10.02	32.91	105	331	Average
5725	53.4	-14.9	68.3	41.85	34.81	9.92	33.18	105	331	Peak

Test Mode :	Mode 17	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5500 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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
48.09	22.08	-17.92	40	43.84	9.08	0.68	31.52	115	107	Peak
106.41	20.07	-23.43	43.5	40.22	10.37	1.03	31.55	-	-	Peak
240.06	23.7	-22.3	46	41.61	11.98	1.53	31.42	-	-	Peak
337.8	21.94	-24.06	46	36.73	14.63	1.88	31.3	-	-	Peak
519.8	21	-25	46	31.01	18.53	2.49	31.03	-	-	Peak
773.9	23.03	-22.97	46	28.56	22.06	3.1	30.69	-	-	Peak
5470	58.15	-10.15	68.3	46.75	34.47	9.94	33.01	137	0	Peak
5500	105.09	-	-	93.48	34.5	10.02	32.91	137	0	Peak
5500	93.58	-	-	81.97	34.5	10.02	32.91	137	0	Average
5725	52.52	-15.78	68.3	40.97	34.81	9.92	33.18	137	0	Peak



Test Mode :	Mode 18	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5580 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz, 5725 MHz, and 16740 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	18.48	-21.52	40	33.59	15.8	0.56	31.47	-	-	Peak
240.06	23.81	-22.19	46	41.72	11.98	1.53	31.42	-	-	Peak
259.77	25.52	-20.48	46	42.53	12.82	1.59	31.42	145	125	Peak
360.2	20.58	-25.42	46	34.46	15.33	2.06	31.27	-	-	Peak
519.8	22.51	-23.49	46	32.52	18.53	2.49	31.03	-	-	Peak
797	24.28	-21.72	46	29.4	22.42	3.14	30.68	-	-	Peak
5470	51.93	-16.37	68.3	40.53	34.47	9.94	33.01	109	32	Peak
5580	107.03	-	-	95.44	34.6	9.99	33	109	32	Peak
5580	96.47	-	-	84.88	34.6	9.99	33	109	32	Average
5725	52.43	-15.87	68.3	40.88	34.81	9.92	33.18	109	32	Peak
16740	51.24	-17.06	68.3	52.89	41.83	14.17	57.65	100	0	Peak

Test Mode :	Mode 18	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	3. 5580 MHz is Fundamental Signals which can be ignored. 4. 5470 MHz, 5725 MHz, and 16740 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
62.13	25.18	-14.82	40	50.15	5.79	0.78	31.54	109	264	Peak
233.85	25.28	-20.72	46	43.71	11.5	1.5	31.43	-	-	Peak
253.02	26.3	-19.7	46	43.44	12.72	1.55	31.41	-	-	Peak
338.5	24.49	-21.51	46	39.25	14.66	1.88	31.3	-	-	Peak
399.4	22.93	-23.07	46	35.41	16.56	2.14	31.18	-	-	Peak
646.5	21.95	-24.05	46	29.7	20.29	2.83	30.87	-	-	Peak
5470	50.75	-17.55	68.3	39.35	34.47	9.94	33.01	110	300	Peak
5580	95.17	-	-	83.58	34.6	9.99	33	110	300	Average
5580	105.45	-	-	93.86	34.6	9.99	33	110	300	Peak
5725	52.4	-15.9	68.3	40.85	34.81	9.92	33.18	110	300	Peak
16740	52.75	-15.55	68.3	54.4	41.83	14.17	57.65	100	0	Peak

Test Mode :	Mode 19	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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	18.28	-21.72	40	33.15	16.04	0.55	31.46	-	-	Peak
240.06	24.71	-21.29	46	42.62	11.98	1.53	31.42	-	-	Peak
259.77	25.72	-20.28	46	42.73	12.82	1.59	31.42	121	103	Peak
358.1	20.61	-25.39	46	34.57	15.27	2.04	31.27	-	-	Peak
519.8	22.1	-23.9	46	32.11	18.53	2.49	31.03	-	-	Peak
791.4	23.36	-22.64	46	28.58	22.33	3.13	30.68	-	-	Peak
5470	53.09	-15.21	68.3	41.69	34.47	9.94	33.01	101	338	Peak
5700	110.01	-	-	98.46	34.77	9.93	33.15	101	338	Peak
5700	100.61	-	-	89.06	34.77	9.93	33.15	101	338	Average
5725	65.69	-2.61	68.3	54.14	34.81	9.92	33.18	101	338	Peak

Test Mode :	Mode 19	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5700 MHz is Fundamental Signals which can be ignored. 2. 5470 MHz and 5725 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
92.37	19.38	-24.12	43.5	41.04	8.9	0.96	31.52	-	-	Peak
211.17	23.36	-20.14	43.5	43.54	9.92	1.37	31.47	136	200	Peak
240.06	23.75	-22.25	46	41.66	11.98	1.53	31.42	-	-	Peak
344.1	23.3	-22.7	46	37.83	14.84	1.92	31.29	-	-	Peak
441.4	19.9	-26.1	46	31.49	17.25	2.28	31.12	-	-	Peak
676.6	22.6	-23.4	46	29.92	20.63	2.89	30.84	-	-	Peak
5470	52.15	-16.15	68.3	40.75	34.47	9.94	33.01	100	311	Peak
5700	106.53	-	-	94.98	34.77	9.93	33.15	100	311	Peak
5700	97.51	-	-	85.96	34.77	9.93	33.15	100	311	Average
5725	59.83	-8.47	68.3	48.28	34.81	9.92	33.18	100	311	Peak

3.6 Peak Excursion Ratio Measurement

3.6.1 Limit of Peak Excursion Ratio

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

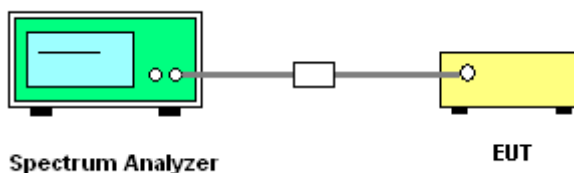
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

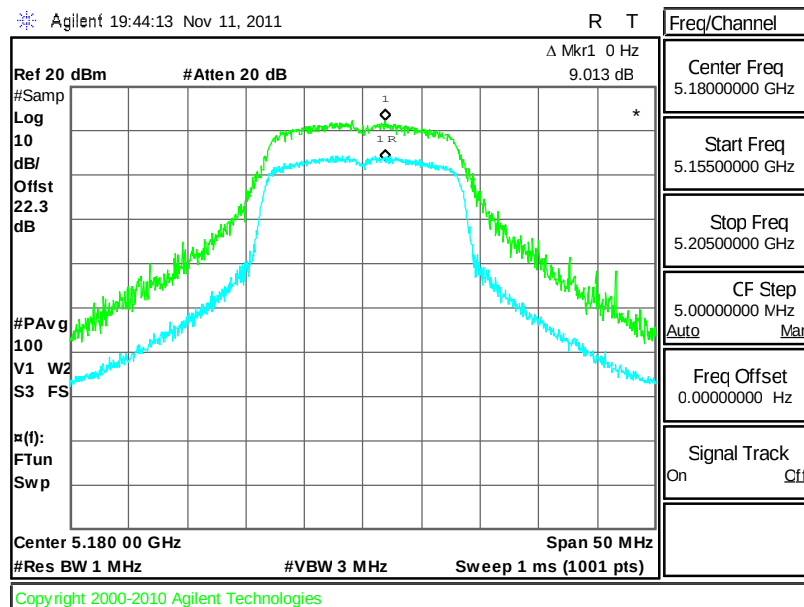
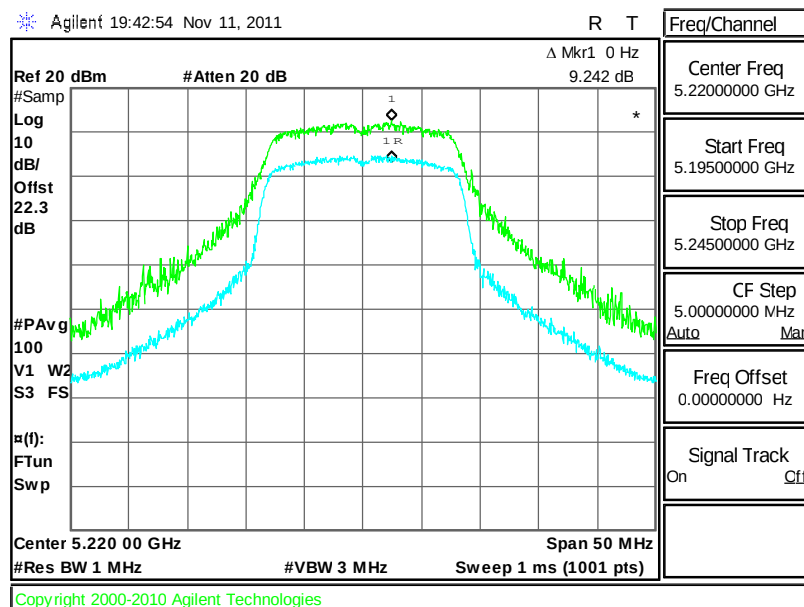
1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
 - * Set RBW = 1 MHz.
 - *Set VBW $\leq$ 3 MHz.
 - *Detector = peak.
 - *Trace mode = max-hold.
 - *Allow the sweeps to continue until the trace stabilizes.
 - *Use the peak search function to find the peak of the spectrum.
4. Use the procedure found under section 3.3 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

3.6.4 Test Setup



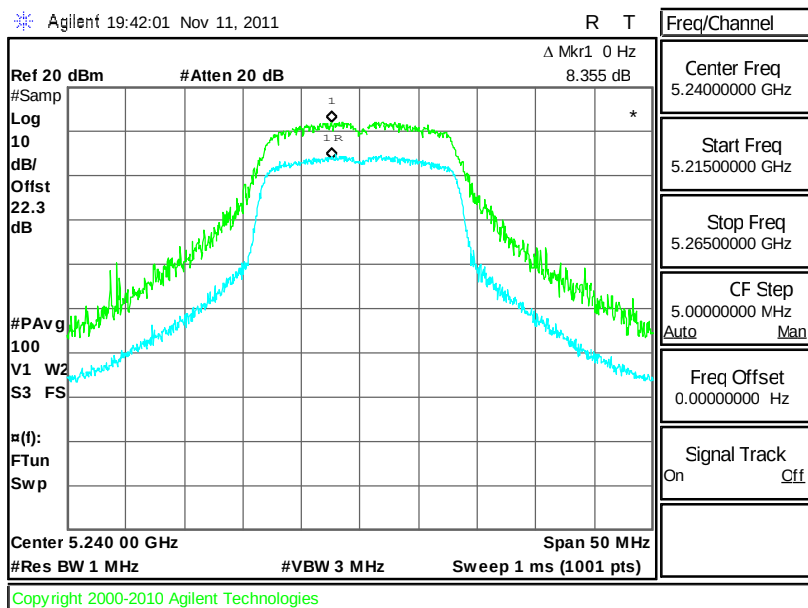
3.6.5 Test Result of Peak Excursion Ratio

Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

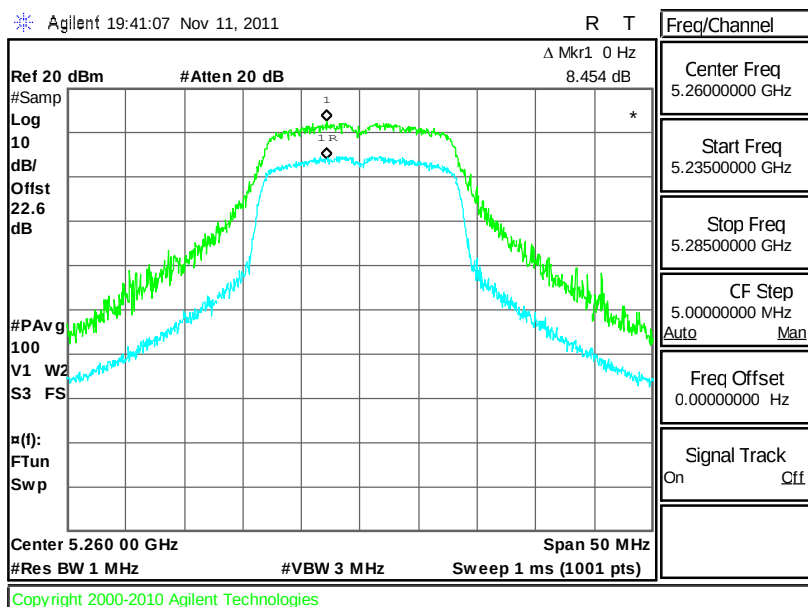
Peak Excursion Ratio Plot on 802.11a Channel 36

Peak Excursion Ratio Plot on 802.11a Channel 44




Peak Excursion Ratio Plot on 802.11a Channel 48

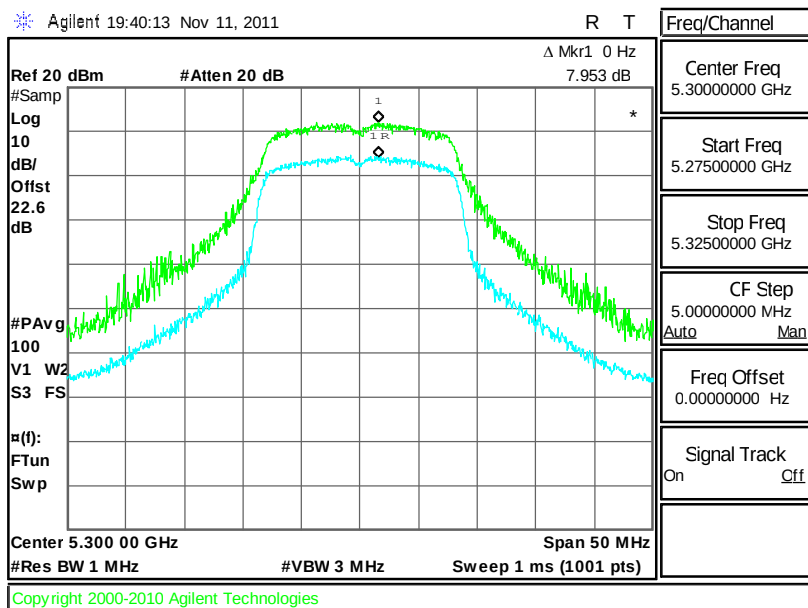


Peak Excursion Ratio Plot on 802.11a Channel 52

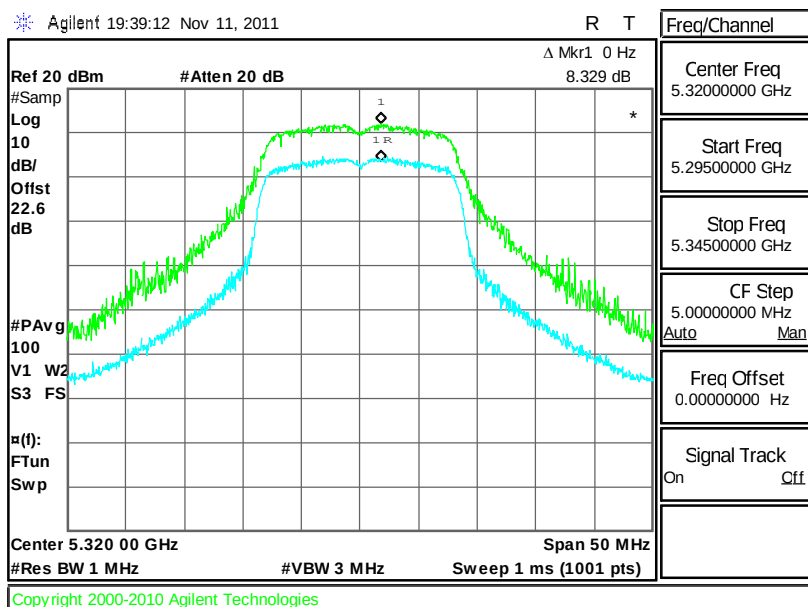




Peak Excursion Ratio Plot on 802.11a Channel 60

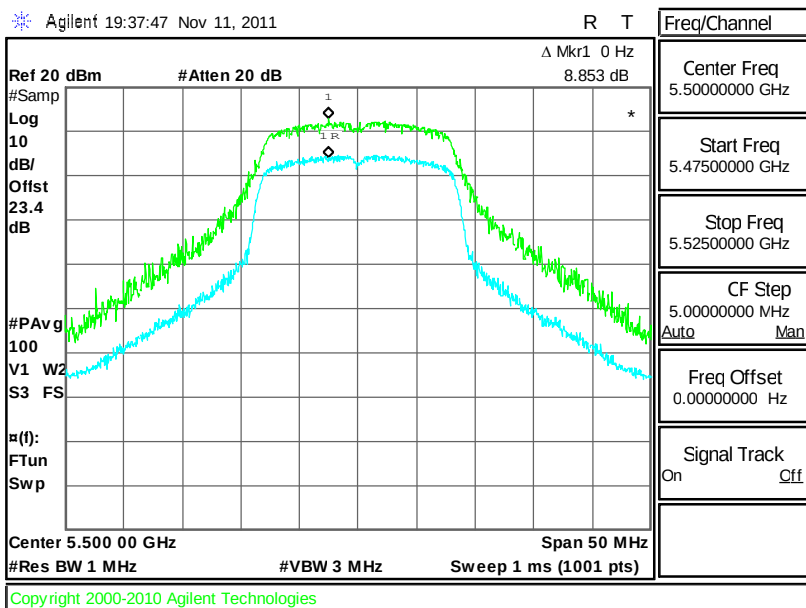


Peak Excursion Ratio Plot on 802.11a Channel 64

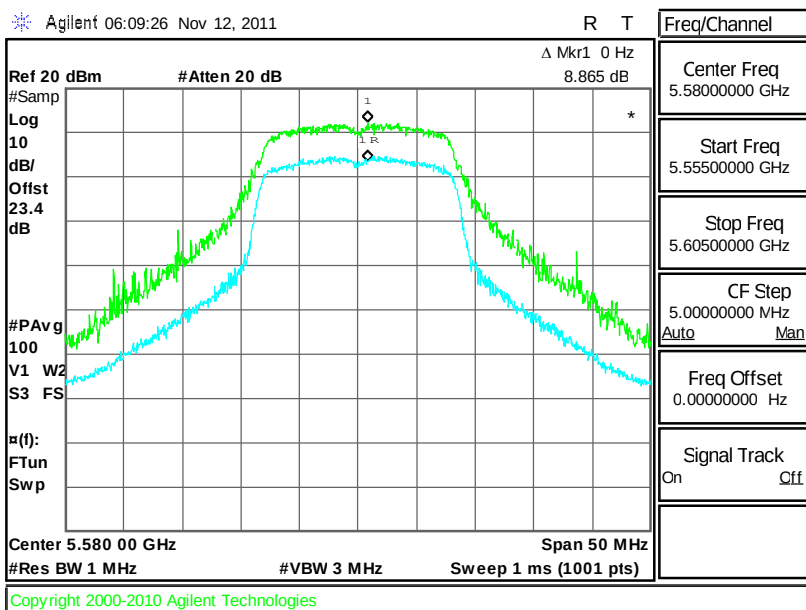




Peak Excursion Ratio Plot on 802.11a Channel 100



Peak Excursion Ratio Plot on 802.11a Channel 116

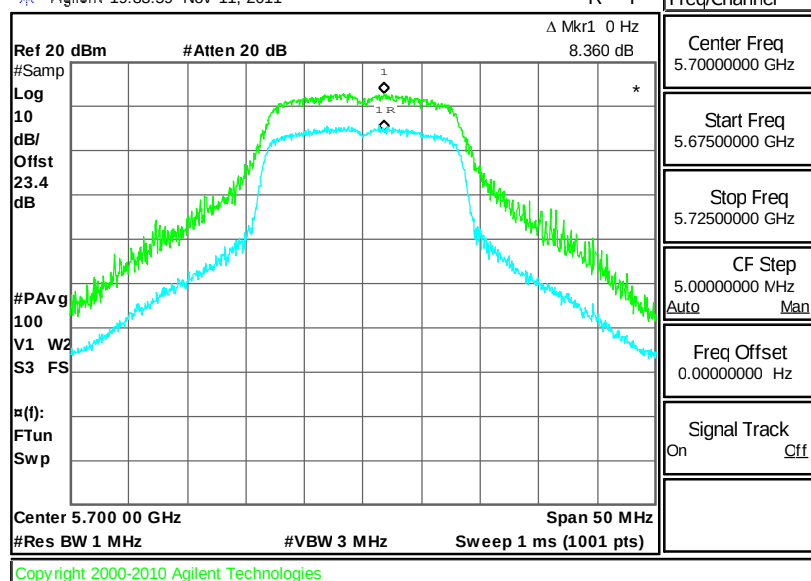




Peak Excursion Ratio Plot on 802.11a Channel 140

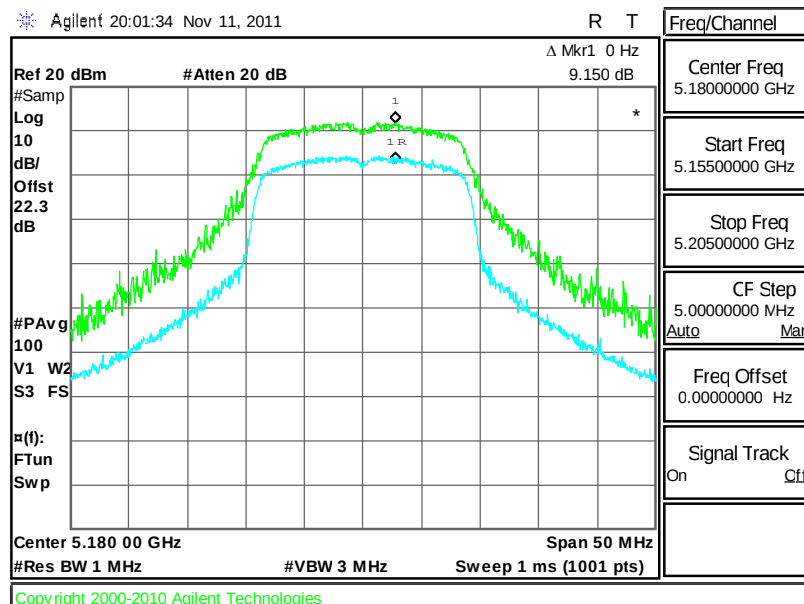
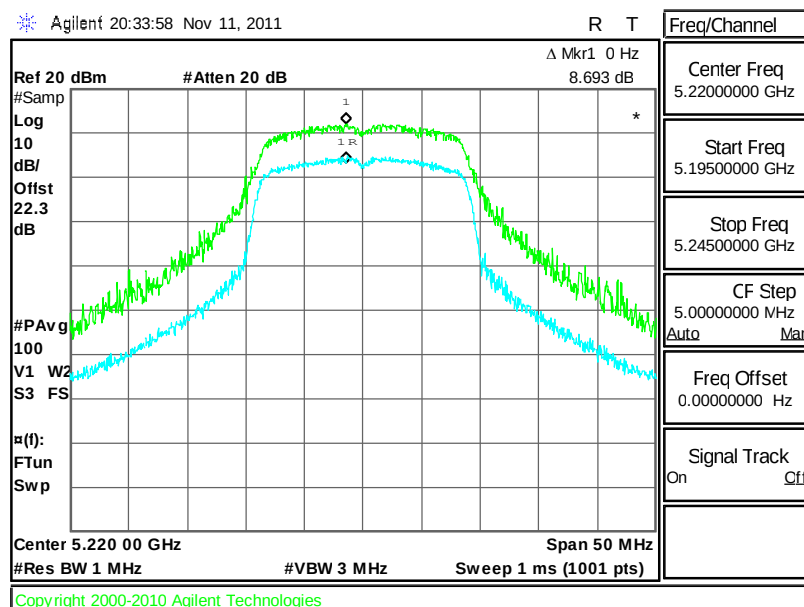
Agilent 19:33:59 Nov 11, 2011

R T



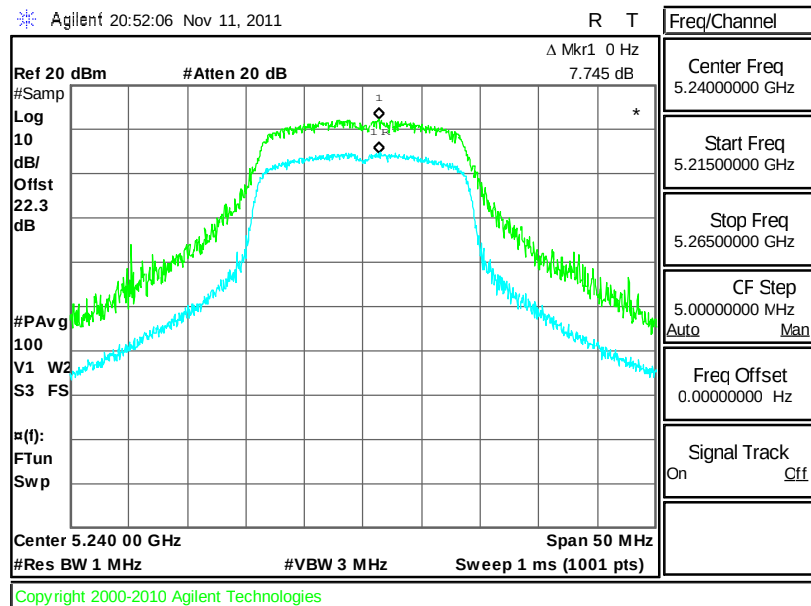


Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

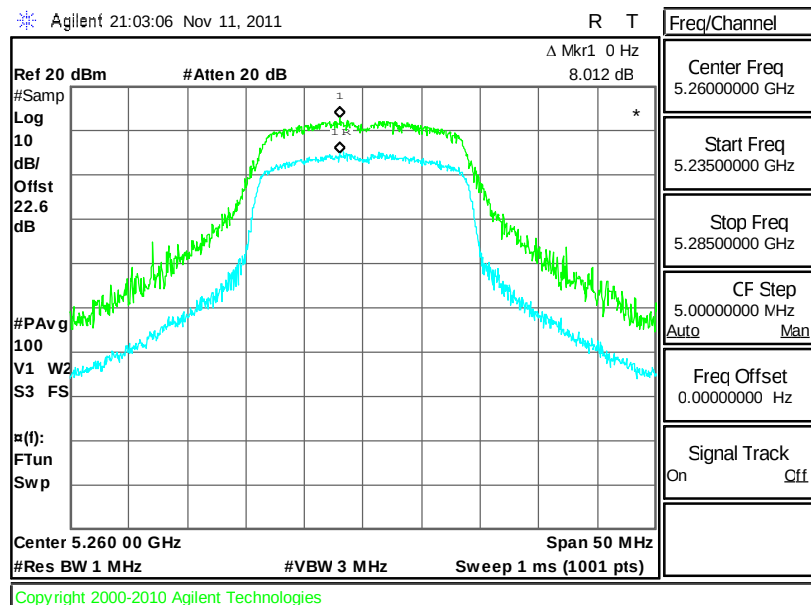
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 36**Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 44**



Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 48

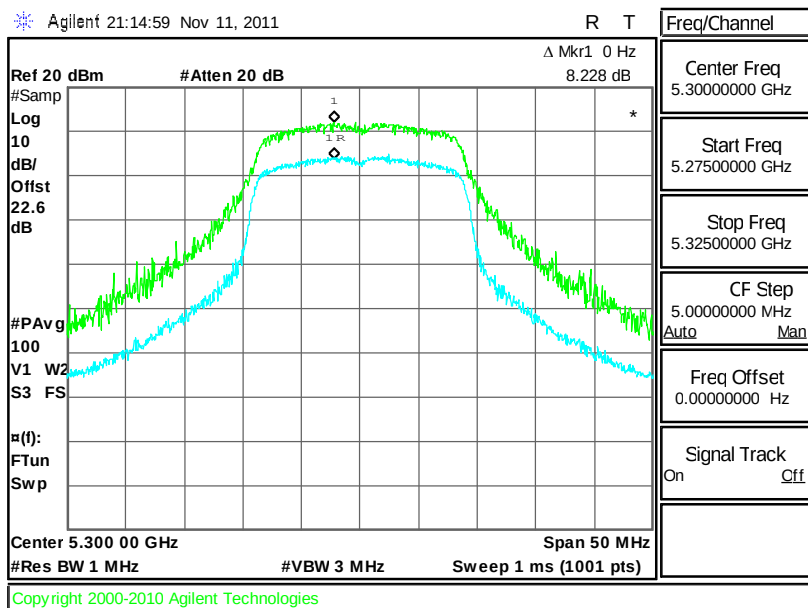


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 52

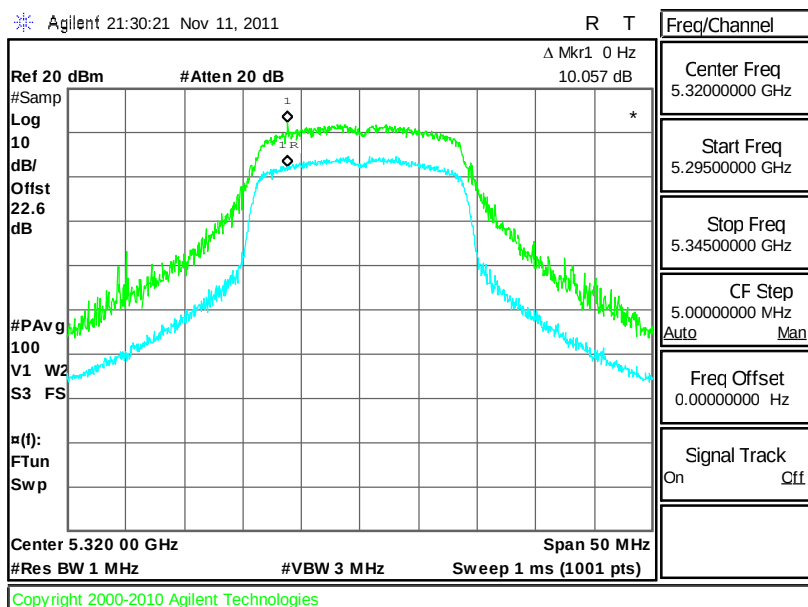




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 60

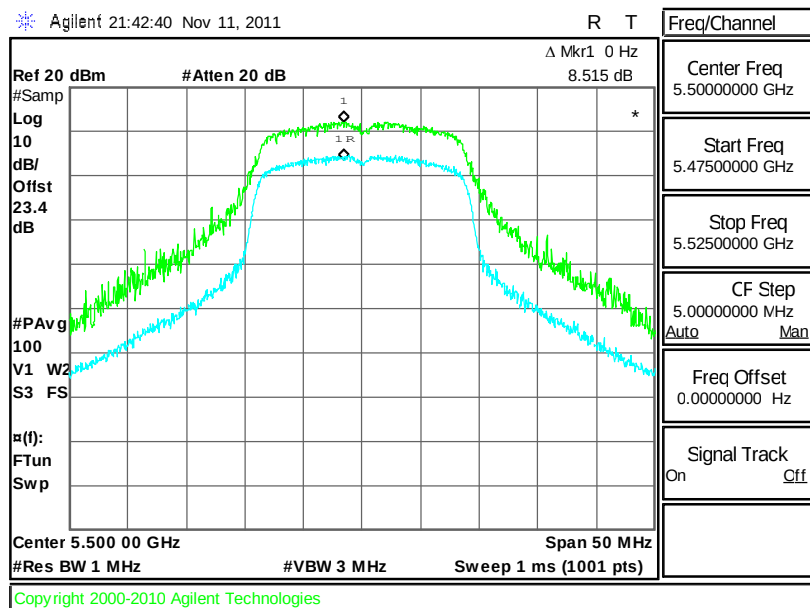


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 64

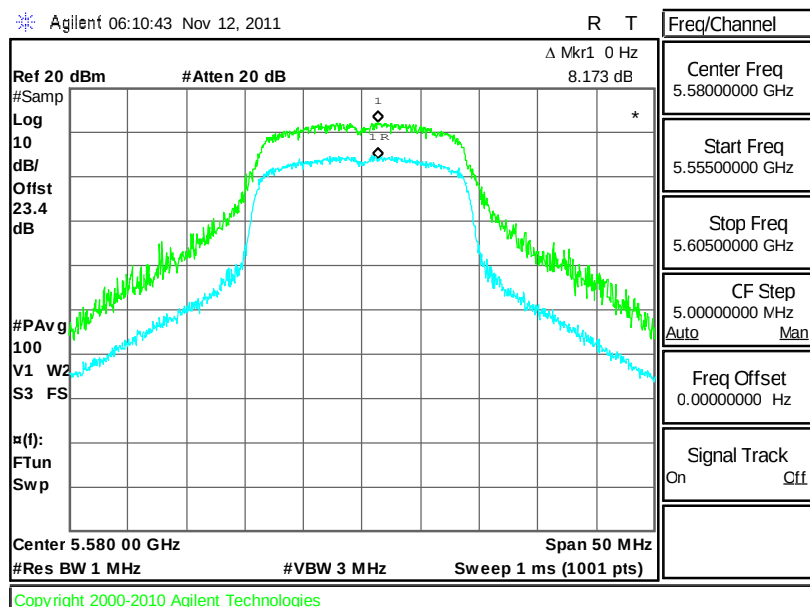




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 100

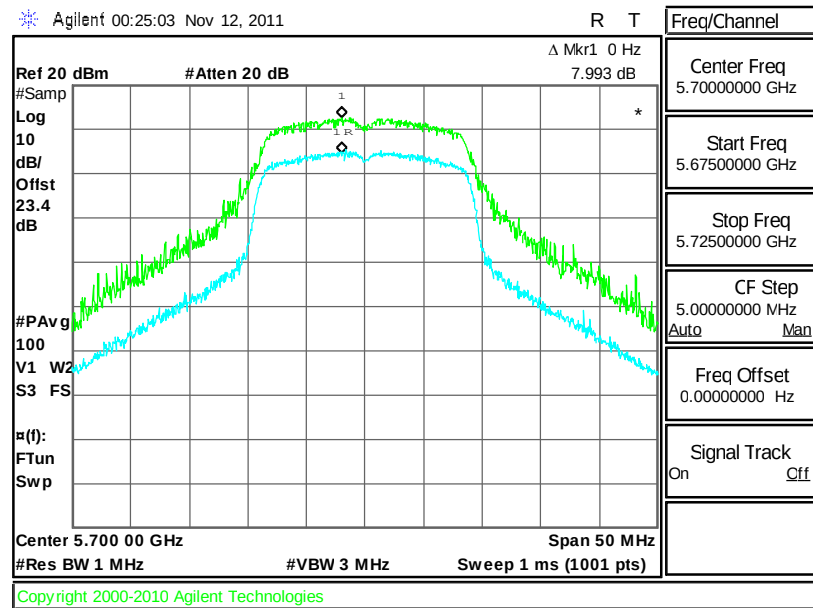


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 116





Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 140



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Result of Automatically Discontinue Transmission

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.8 Frequency Stability Measurement

3.8.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

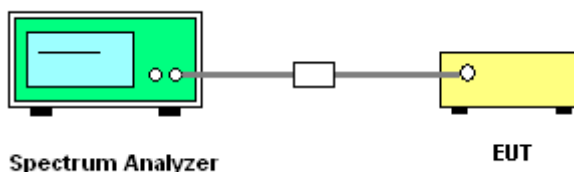
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.8.4 Test Setup



3.8.5 Test Result of Frequency Stability

Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.725	5188.275	0.00
44	5220	5211.725	5228.275	0.00
48	5240	5231.725	5248.275	0.00
52	5260	5251.725	5268.275	0.00
60	5300	5291.725	5308.275	0.00
64	5320	5311.725	5328.275	0.00
100	5500	5491.750	5508.275	2.27
116	5580	5571.725	5588.275	0.00
140	5700	5691.725	5708.275	0.00

Test Mode :	Mode 10~18	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.125	5188.875	0.00
44	5220	5211.125	5228.875	0.00
48	5240	5231.125	5248.875	0.00
52	5260	5251.125	5268.875	0.00
60	5300	5291.125	5308.875	0.00
64	5320	5311.100	5328.875	-2.35
100	5500	5491.100	5508.850	-4.55
116	5580	5571.100	5588.825	-6.72
140	5700	5691.100	5708.875	-2.19



3.9 Antenna Requirements

3.9.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2), if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.9.2 Antenna Connected Construction

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

3.9.3 Antenna Gain

The antenna gain 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	Oct. 14, 2011 ~Nov. 12, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Oct. 14, 2011 ~Nov. 12, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Oct. 14, 2011 ~Nov. 12, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Oct. 14, 2011 ~Nov. 12, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Oct. 14, 2011 ~Nov. 12, 2011	Jun. 12, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Oct. 06, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 03, 2010	Oct. 06, 2011	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 01, 2010	Oct. 06, 2011	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Oct. 06, 2011	N/A	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	Oct. 06, 2011	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	Oct. 06, 2011	Feb. 21, 2012	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Oct. 31, 2011 ~Nov. 14, 2011	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 03, 2010	Oct. 31, 2011 ~Nov. 14, 2011	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Oct. 31, 2011 ~Nov. 14, 2011	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Oct. 31, 2011 ~Nov. 14, 2011	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Oct. 31, 2011 ~Nov. 14, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Oct. 31, 2011 ~Nov. 14, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Oct. 31, 2011 ~Nov. 14, 2011	Feb. 20, 2012	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 EP162005-01 as below.