



FCC RF Test Report

APPLICANT : Motorola Solutions, Inc.
EQUIPMENT : Enterprise Digital Assistant (EDA)
BRAND NAME : Motorola
MODEL NAME : MC67NA
FCC ID : UZ7MC67NA
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Jun. 19, 2012 and completely tested on Jun. 29, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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FCC ID : UZ7MC67NA

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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	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.5	15.407(b)	A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 1.09 dB at 5725.000 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 9.70 dB at 0.198 MHz
3.7	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Motorola Solutions, Inc.
One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Motorola Solutions, Inc.
One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Digital Assistant (EDA)
Brand Name	Motorola
Model Name	MC67NA
FCC ID	UZ7MC67NA
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/ WLAN 11abgn(BW 20MHz)/Bluetooth2.1 EDR
HW Version	DV2
SW Version	01.21.0010 (RF Fusion Version : X_2.00.0.0.041E)
FW Version	2.28
EUT Stage	Identical Prototype

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

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 12.01 dBm / 0.0159 W 802.11n (BW 20MHz) : 11.51 dBm / 0.0142 W <5260 MHz ~ 5320 MHz> 802.11a : 13.29 dBm / 0.0213 W 802.11n (BW 20MHz) : 13.31 dBm / 0.0214 W <5500 MHz ~ 5700 MHz> 802.11a : 13.78 dBm / 0.0239 W 802.11n (BW 20MHz) : 12.95 dBm / 0.0197 W



Product Specification subjective to this standard	
99% Occupied Bandwidth	802.11a : 17.7286 MHz 802.11n (BW 20MHz) : 18.5597 MHz
Antenna Type	Fixed Internal Antenna with gain 3.34 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

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.
	TH02-HY	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 v01r01
- 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	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	Vostro 1510	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	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
8.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
9.	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)
36	5180	44	5220	48	5240
52	5260	60	5300	64	5320
100	5500	116	5580	140	5700

802.11n (BW 20MHz) Carrier Frequency Channel					
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	44	5220	48	5240
52	5260	60	5300	64	5320
100	5500	116	5580	140	5700



2.2 Pre-Scanned RF Power

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

The conducted power tables of Sample A are as follows:

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	11.97	11.80	11.73	11.75	11.60	11.60	11.47	11.42
CH 44	5220 MHz	11.96	11.91	11.78	11.68	11.63	11.60	11.38	11.48
CH 48	5240 MHz	11.85	11.69	11.73	11.57	11.58	11.53	11.37	11.43
CH 52	5260 MHz	13.36	13.35	12.76	12.93	12.88	12.91	12.84	12.81
CH 60	5300 MHz	13.28	13.27	13.10	12.85	12.97	12.89	12.80	12.86
CH 64	5320 MHz	13.17	13.10	13.05	12.79	12.95	12.64	12.68	12.71
CH 100	5500 MHz	12.71	12.68	12.47	12.45	12.37	12.36	12.27	12.24
CH 116	5580 MHz	12.63	12.57	12.44	12.31	12.31	12.29	11.97	12.16
CH 140	5700 MHz	13.33	13.32	13.19	13.15	12.96	12.85	12.90	12.81
Duty Cycle (%)		100.00	100.00	97.57	96.09	95.38	93.43	90.74	90.91
Duty Cycle Offset		0.00	0.00	0.11	0.17	0.21	0.30	0.42	0.41
CH 36	5180 MHz	11.97	11.80	11.84	11.92	11.81	11.90	11.89	11.83
CH 44	5220 MHz	11.96	11.91	11.89	11.85	11.84	11.90	11.80	11.89
CH 48	5240 MHz	11.85	11.69	11.84	11.74	11.79	11.83	11.79	11.84
CH 52	5260 MHz	13.36	13.35	12.87	13.10	13.09	13.21	13.26	13.22
CH 60	5300 MHz	13.28	13.27	13.21	13.02	13.18	13.19	13.22	13.27
CH 64	5320 MHz	13.17	13.10	13.16	12.96	13.16	12.94	13.10	13.12
CH 100	5500 MHz	12.71	12.68	12.58	12.62	12.58	12.66	12.69	12.65
CH 116	5580 MHz	12.63	12.57	12.55	12.48	12.52	12.59	12.39	12.57
CH 140	5700 MHz	13.33	13.32	13.30	13.32	13.17	13.15	13.32	13.22



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	11.27	11.07	10.96	10.91	10.80	10.72	10.80	10.74
CH 44	5220 MHz	11.42	11.24	11.18	11.19	10.94	10.81	10.78	10.83
CH 48	5240 MHz	11.40	11.15	11.18	11.13	11.04	10.92	10.91	10.84
CH 52	5260 MHz	13.37	12.90	12.61	12.55	12.44	12.47	12.49	12.54
CH 60	5300 MHz	12.79	12.54	12.31	12.38	12.33	12.29	12.28	12.37
CH 64	5320 MHz	12.83	12.61	12.45	12.55	12.46	12.33	12.21	12.33
CH 100	5500 MHz	12.83	12.31	12.33	12.38	12.33	12.22	12.26	12.18
CH 116	5580 MHz	12.80	12.33	12.52	12.43	12.40	12.10	12.02	12.24
CH 140	5700 MHz	11.18	10.90	10.83	10.73	10.64	10.62	10.50	10.51
Duty Cycle (%)		100.00	97.45	95.93	95.29	92.75	90.91	90.20	89.36
Duty Cycle Offset		0.00	0.11	0.18	0.21	0.33	0.41	0.45	0.49
CH 36	5180 MHz	11.27	11.18	11.14	11.12	11.13	11.13	11.25	11.23
CH 44	5220 MHz	11.42	11.35	11.36	11.40	11.27	11.22	11.23	11.32
CH 48	5240 MHz	11.40	11.26	11.36	11.34	11.37	11.33	11.36	11.33
CH 52	5260 MHz	13.37	13.01	12.79	12.76	12.77	12.88	12.94	13.03
CH 60	5300 MHz	12.79	12.65	12.49	12.59	12.66	12.70	12.73	12.86
CH 64	5320 MHz	12.83	12.72	12.63	12.76	12.79	12.74	12.66	12.82
CH 100	5500 MHz	12.83	12.42	12.51	12.59	12.66	12.63	12.71	12.67
CH 116	5580 MHz	12.80	12.44	12.70	12.64	12.73	12.51	12.47	12.73
CH 140	5700 MHz	11.18	11.01	11.01	10.94	10.97	11.03	10.95	11.00

Remark: The EUT is programmed to transmit signal continuously for all testing.



The conducted power tables of Sample B are as follows:

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	11.81	11.77	11.64	11.65	11.72	11.66	11.59	11.47
CH 44	5220 MHz	11.85	11.82	11.73	11.67	11.63	11.53	11.30	11.12
CH 48	5240 MHz	11.81	11.79	11.72	11.59	11.50	11.47	11.44	11.36
CH 52	5260 MHz	13.29	13.25	13.17	13.00	13.07	12.98	12.86	12.86
CH 60	5300 MHz	13.05	12.97	12.94	12.82	12.62	12.71	12.74	12.68
CH 64	5320 MHz	13.14	13.11	13.05	13.07	12.91	12.86	12.82	12.78
CH 100	5500 MHz	12.78	12.57	12.42	12.60	12.56	12.45	12.34	12.34
CH 116	5580 MHz	12.59	12.58	12.53	12.51	12.41	12.36	12.35	12.41
CH 140	5700 MHz	13.78	13.60	13.48	13.41	13.43	13.40	13.34	13.32
Duty Cycle (%)		100.00	100.00	97.57	96.09	95.38	93.43	90.74	90.91
Duty Cycle Offset		0.00	0.00	0.11	0.17	0.21	0.30	0.42	0.41
CH 36	5180 MHz	11.81	11.77	11.75	11.82	11.93	11.96	12.01	11.88
CH 44	5220 MHz	11.85	11.82	11.84	11.84	11.84	11.83	11.72	11.53
CH 48	5240 MHz	11.81	11.79	11.83	11.76	11.71	11.77	11.86	11.77
CH 52	5260 MHz	13.29	13.25	13.28	13.17	13.28	13.28	13.28	13.27
CH 60	5300 MHz	13.05	12.97	13.05	12.99	12.83	13.01	13.16	13.09
CH 64	5320 MHz	13.14	13.11	13.16	13.24	13.12	13.16	13.24	13.19
CH 100	5500 MHz	12.78	12.57	12.53	12.77	12.77	12.75	12.76	12.75
CH 116	5580 MHz	12.59	12.58	12.64	12.68	12.62	12.66	12.77	12.82
CH 140	5700 MHz	13.78	13.60	13.59	13.58	13.64	13.70	13.76	13.73

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	11.32	11.30	11.17	11.18	11.06	10.97	10.86	10.97
CH 44	5220 MHz	11.32	11.28	11.24	11.15	11.08	10.96	10.98	11.02
CH 48	5240 MHz	11.48	11.30	11.23	11.25	11.14	11.03	11.00	10.98
CH 52	5260 MHz	13.31	13.17	13.10	13.08	12.97	12.89	12.83	12.79
CH 60	5300 MHz	12.85	12.76	12.70	12.79	12.72	12.63	12.59	12.61
CH 64	5320 MHz	12.41	12.38	12.29	12.18	12.13	12.00	12.02	11.97
CH 100	5500 MHz	12.78	12.72	12.60	12.64	12.59	12.44	12.43	12.46
CH 116	5580 MHz	12.82	12.67	12.63	12.60	12.47	12.40	12.35	12.31
CH 140	5700 MHz	11.03	10.97	10.83	10.78	10.68	10.61	10.57	10.69
Duty Cycle (%)		100.00	97.45	95.93	95.29	92.75	90.91	90.20	89.36
Duty Cycle Offset		0.00	0.11	0.18	0.21	0.33	0.41	0.45	0.49
CH 36	5180 MHz	11.32	11.41	11.35	11.39	11.39	11.38	11.31	11.46
CH 44	5220 MHz	11.32	11.39	11.42	11.36	11.41	11.37	11.43	11.51
CH 48	5240 MHz	11.48	11.41	11.41	11.46	11.47	11.44	11.45	11.47
CH 52	5260 MHz	13.31	13.28	13.28	13.29	13.30	13.30	13.28	13.28
CH 60	5300 MHz	12.85	12.87	12.88	13.00	13.05	13.04	13.04	13.10
CH 64	5320 MHz	12.41	12.49	12.47	12.39	12.46	12.41	12.47	12.46
CH 100	5500 MHz	12.78	12.83	12.78	12.85	12.92	12.85	12.88	12.95
CH 116	5580 MHz	12.82	12.78	12.81	12.81	12.80	12.81	12.80	12.80
CH 140	5700 MHz	11.03	11.08	11.01	10.99	11.01	11.02	11.02	11.18

Remark:

1. The data rates of WLAN 802.11a/n were set in 48Mbps for 802.11a (5180MHz ~ 5240MHz), 6Mbps for 802.11a (5260MHz ~ 5320MHz and 5500MHz ~ 5700MHz), 65Mbps for 802.11n (BW 20MHz) (5180MHz ~ 5240MHz and 5500MHz ~ 5700MHz) and 6.5Mbps for 802.11n (BW 20MHz) (5260MHz ~ 5320MHz) and for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.
3. The Sample A and Sample B are electric identical,. The maximum output power levels for two samples are close and met the production target . Thus, Sample A was used for conducted measurement at the antenna terminal, and Sample B was used for radiated measurement.

2.3 Test Mode

The EUT supports 802.11 a/n with single antenna, and different components as below table. The test configurations are reported in following sections to demonstrate in compliance with the FCC limit line.

Definition of each configuration about keypad and Camera for EUT

Keypads	Cameras
(1) Qwerty	(1) With camera
(2) Numeric	(2) Without camera
(3) PIM	

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, X, Y, Z in three orthogonal panels with different components (Keypads/Cameras) were conducted to determine the worst configuration, Sample B with Keypad 1, and Camera 1, from all possible combinations.

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

Test Modes					
Radiated TCs					
No.	Band	Modulation	Mode	Keypad	Camera
1.	802.11a	OFDM	CH36_5180 MHz	1	1
2.	802.11a	OFDM	CH44_5220 MHz	1	1
3.	802.11a	OFDM	CH48_5240 MHz	1	1
4.	802.11a	OFDM	CH52_5260 MHz	1	1
5.	802.11a	OFDM	CH60_5300 MHz	1	1
6.	802.11a	OFDM	CH64_5320 MHz	1	1
7.	802.11a	OFDM	CH100_5500 MHz	1	1
8.	802.11a	OFDM	CH116_5580 MHz	1	1
9.	802.11a	OFDM	CH140_5700 MHz	1	1
10.	802.11a	OFDM	CH140_5700 MHz	2	1
11.	802.11a	OFDM	CH140_5700 MHz	3	1
12.	802.11a	OFDM	CH140_5700 MHz	1	2



Test Modes					
Radiated TCs					
No.	Band	Modulation	Mode	Keypad	Camera
13.	802.11n (BW 20MHz)	OFDM	CH36_5180 MHz	1	1
14.	802.11n (BW 20MHz)	OFDM	CH44_5220 MHz	1	1
15.	802.11n (BW 20MHz)	OFDM	CH48_5240 MHz	1	1
16.	802.11n (BW 20MHz)	OFDM	CH52_5260 MHz	1	1
17.	802.11n (BW 20MHz)	OFDM	CH60_5300 MHz	1	1
18.	802.11n (BW 20MHz)	OFDM	CH64_5320 MHz	1	1
19.	802.11n (BW 20MHz)	OFDM	CH100_5500 MHz	1	1
20.	802.11n (BW 20MHz)	OFDM	CH116_5580 MHz	1	1
21.	802.11n (BW 20MHz)	OFDM	CH140_5700 MHz	1	1
22.	802.11n (BW 20MHz)	OFDM	CH140_5700 MHz	2	1
23.	802.11n (BW 20MHz)	OFDM	CH140_5700 MHz	3	1
24.	802.11n (BW 20MHz)	OFDM	CH140_5700 MHz	1	2

Remark: For radiated TCs, test was performed together with USB charging cable with AC power.



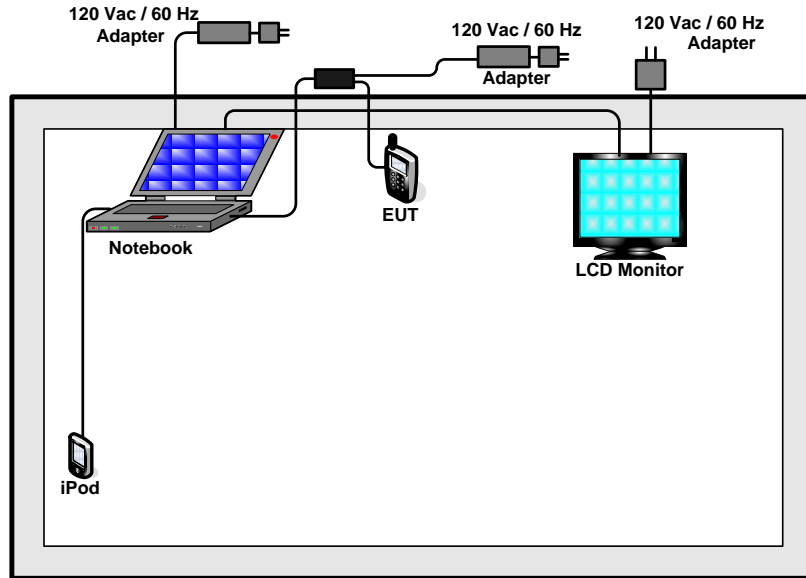
Test Modes			
Conducted TCs			
No.	Band	Modulation	Mode
1.	802.11a	OFDM	CH36_5180 MHz
2.	802.11a	OFDM	CH44_5220 MHz
3.	802.11a	OFDM	CH48_5240 MHz
4.	802.11a	OFDM	CH52_5260 MHz
5.	802.11a	OFDM	CH60_5300 MHz
6.	802.11a	OFDM	CH64_5320 MHz
7.	802.11a	OFDM	CH100_5500 MHz
8.	802.11a	OFDM	CH116_5580 MHz
9.	802.11a	OFDM	CH140_5700 MHz
10.	802.11n (BW 20MHz)	OFDM	CH36_5180 MHz
11.	802.11n (BW 20MHz)	OFDM	CH44_5220 MHz
12.	802.11n (BW 20MHz)	OFDM	CH48_5240 MHz
13.	802.11n (BW 20MHz)	OFDM	CH52_5260 MHz
14.	802.11n (BW 20MHz)	OFDM	CH60_5300 MHz
15.	802.11n (BW 20MHz)	OFDM	CH64_5320 MHz
16.	802.11n (BW 20MHz)	OFDM	CH100_5500 MHz
17.	802.11n (BW 20MHz)	OFDM	CH116_5580 MHz
18.	802.11n (BW 20MHz)	OFDM	CH140_5700 MHz



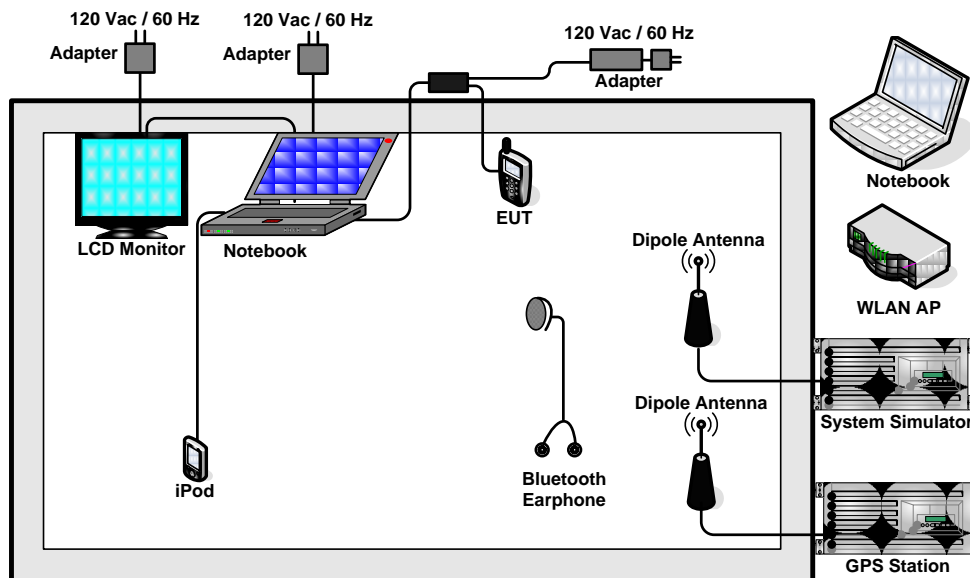
Test Cases
AC Conducted Emission
802.11a (Modulation : OFDM)
Mode 1 : GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camrea + USB Charging Cable with AC Power + USB Link
Mode 2 : WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Camera + Numeric Keypad without Camera + USB Charging Cable with AC Power + USB Link
Mode 3 : WCDMA Band II Idle + WLAN (5G) Link + Bluetooth Link + Scanner + PIM Keypad without Camera + USB Charging Cable with AC Power + USB Link
Remark: <ol style="list-style-type: none">1. "BT Link" stands for EUT linked to Bluetooth Earphone by BT function.2. "WLAN Link" stands for EUT associated with AP at 5GHz band.3. "Scanner" stands for scanning and decoding a barcode by scanner.4. "Camera" stands for playing camera to capture picture.5. "USB Link" stands for file transfer.6. The DSD keypad PCB is the same as Numeric Keypad PCB, only difference is printed.

2.4 Connection Diagram of Test System

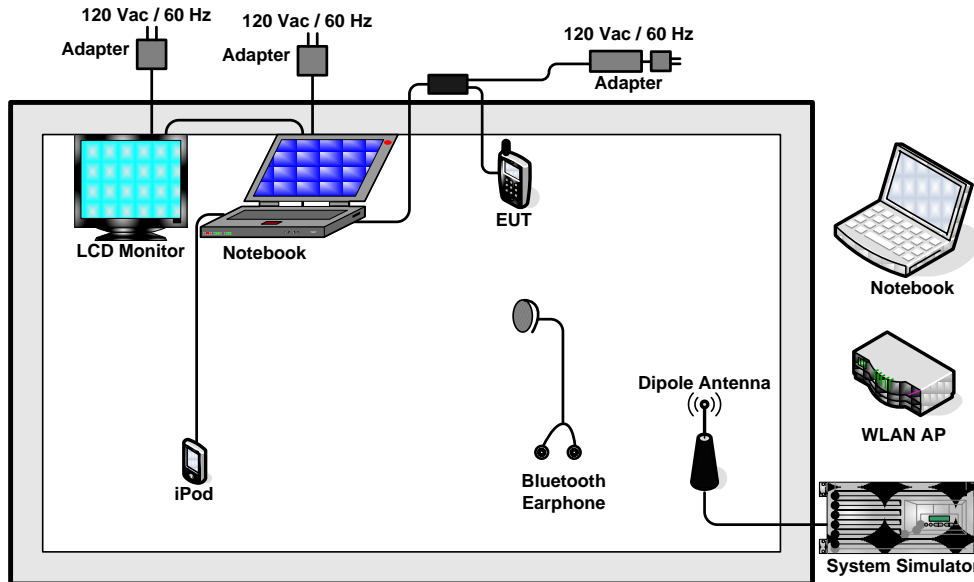
<WLAN Tx Mode>



<AC Conducted Emission with GPS Rx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF Utility "FILE EXPLORER → My Device → Click ticon first then Click XWingcon → Execute the program to change Regulatory and click Enable Manufacturing Test mode → after Enable then change to Scripts" 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

There is no restriction limits for bandwidth. The maximum conducted output power can be limited by measured emission bandwidth (B). For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W (30dBm) or 17 dBm + 10log B.

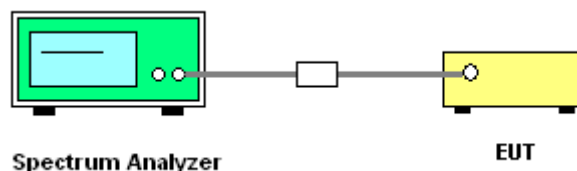
3.1.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.2 Test Procedures

1. The testing follows the of Section D) Emission bandwidth of FCC KDB 789033 D01 General UNII Test Procedures v01r01.
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



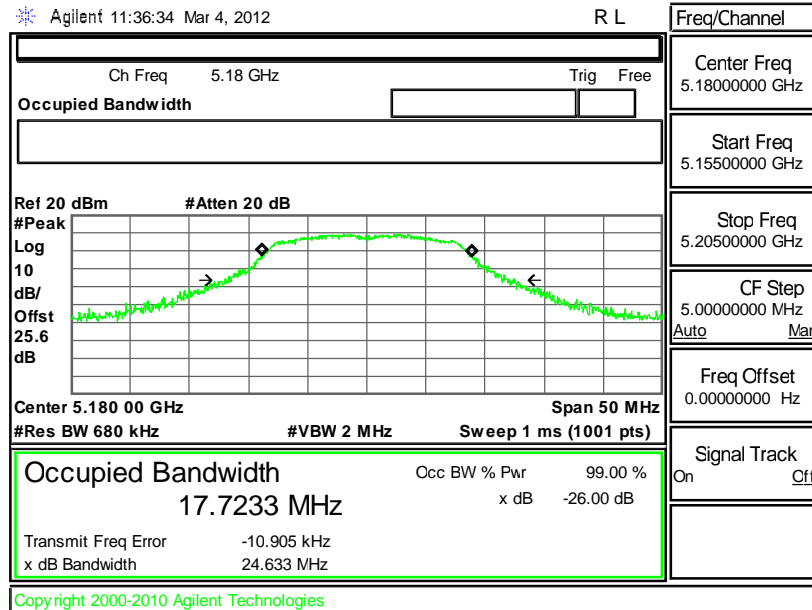


3.1.4 Test Result of 26dB Bandwidth Plots

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

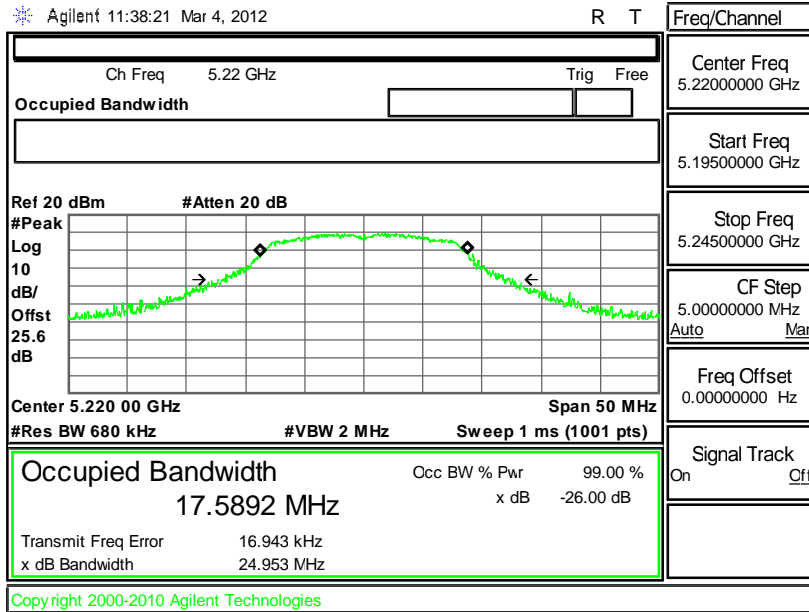
Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	24.633	N/A
44	5220	24.953	N/A
48	5240	24.739	N/A
52	5260	24.840	N/A
60	5300	25.891	N/A
64	5320	24.980	N/A
100	5500	28.115	N/A
116	5580	26.821	N/A
140	5700	25.570	N/A

26 dB Bandwidth Plot on 802.11a Channel 36

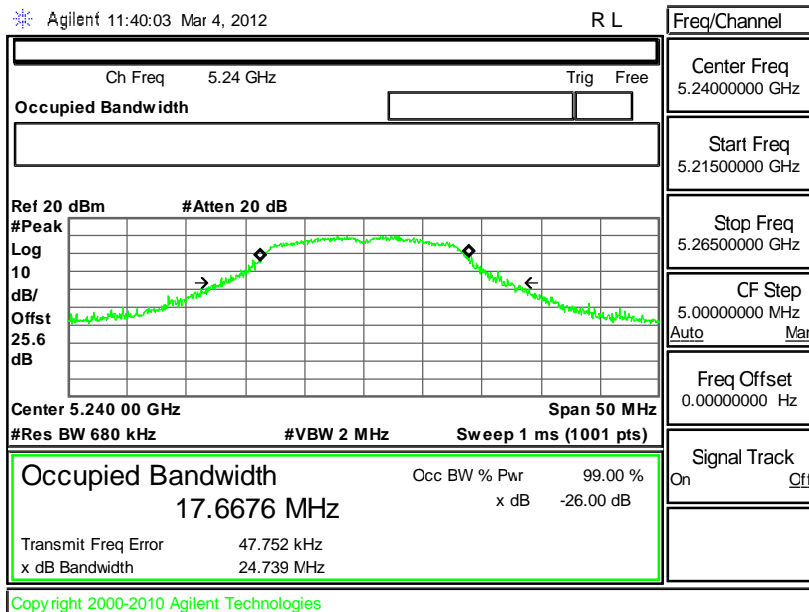




26 dB Bandwidth Plot on 802.11a Channel 44

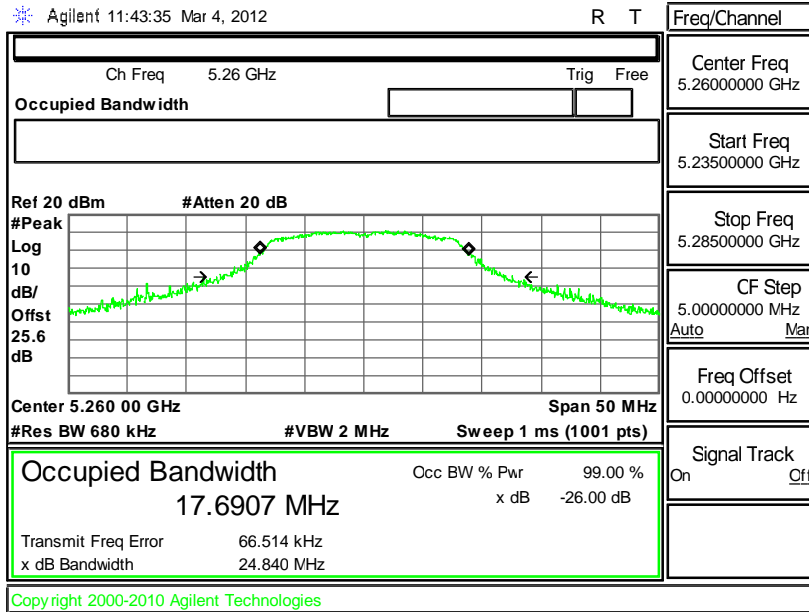


26 dB Bandwidth Plot on 802.11a Channel 48

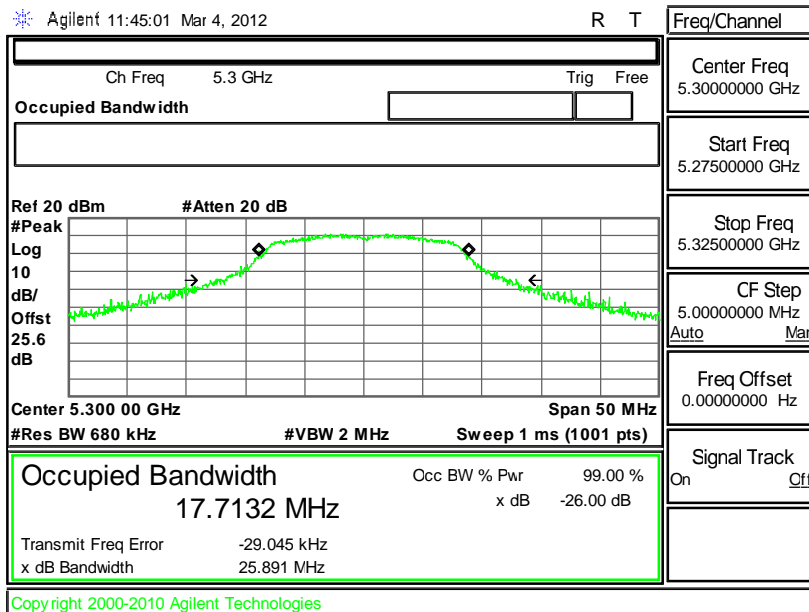




26 dB Bandwidth Plot on 802.11a Channel 52

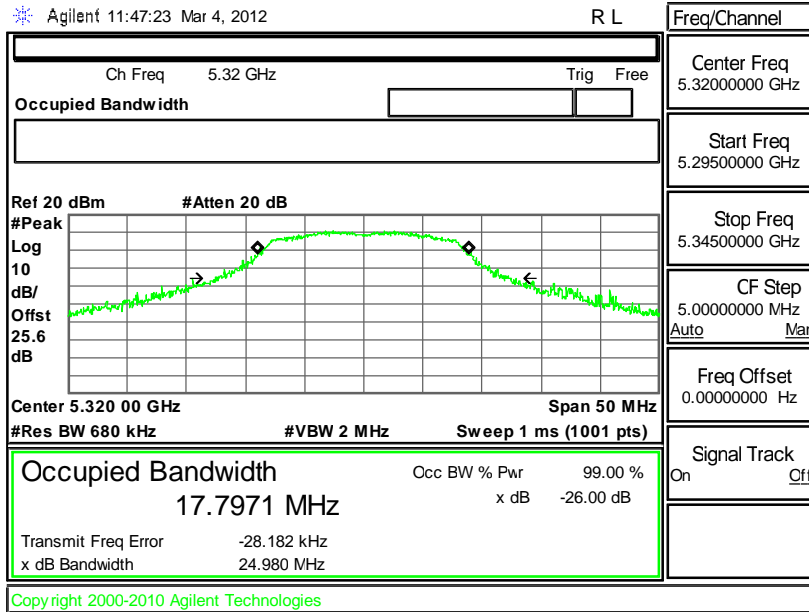


26 dB Bandwidth Plot on 802.11a Channel 60

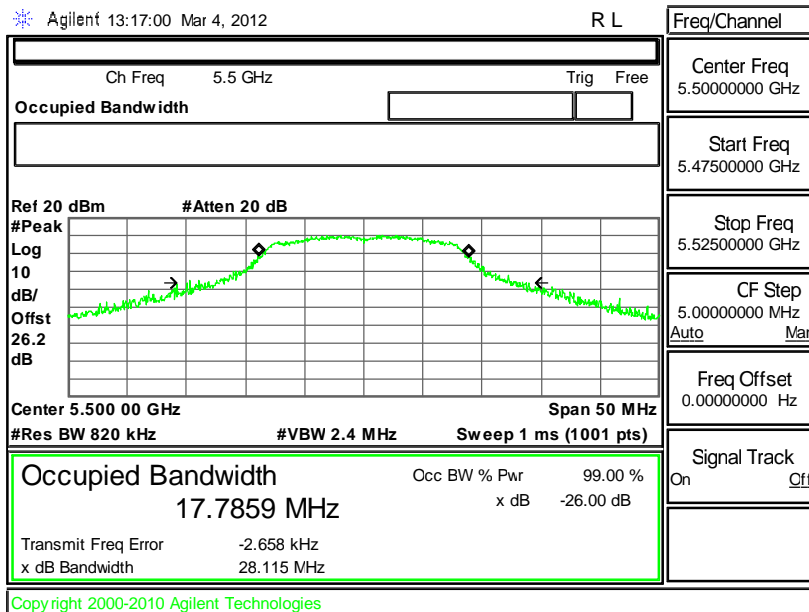




26 dB Bandwidth Plot on 802.11a Channel 64

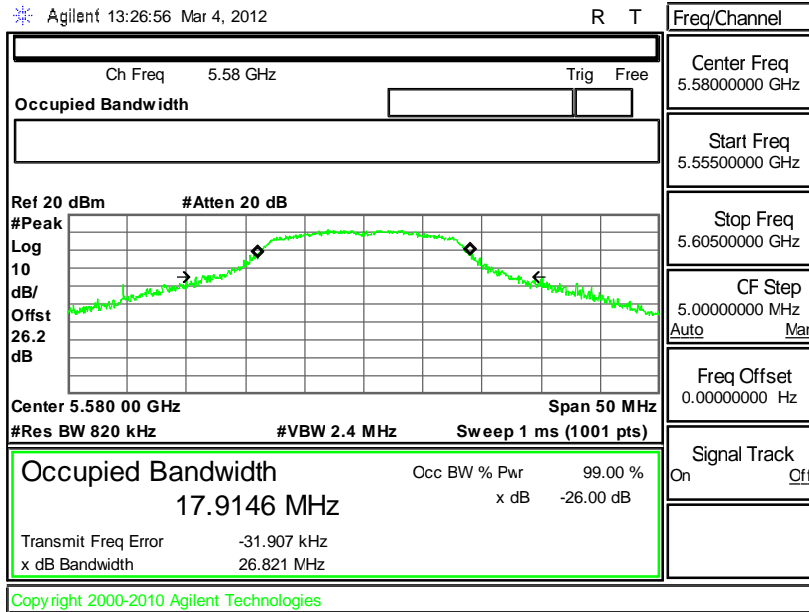


26 dB Bandwidth Plot on 802.11a Channel 100

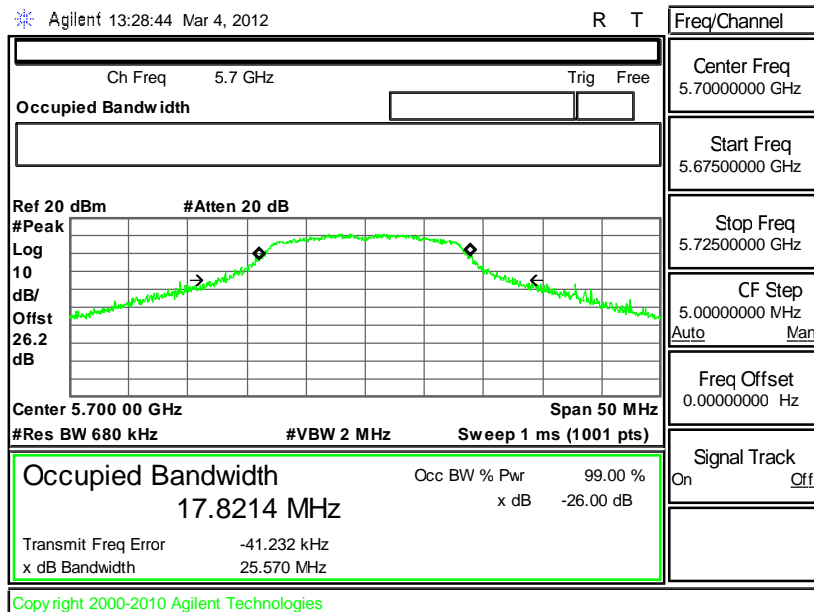




26 dB Bandwidth Plot on 802.11a Channel 116



26 dB Bandwidth Plot on 802.11a Channel 140

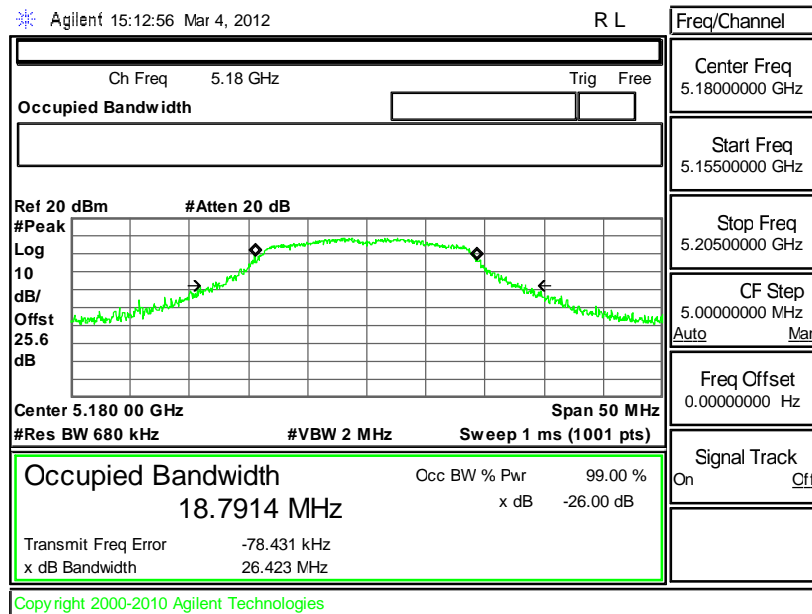




Test Mode :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

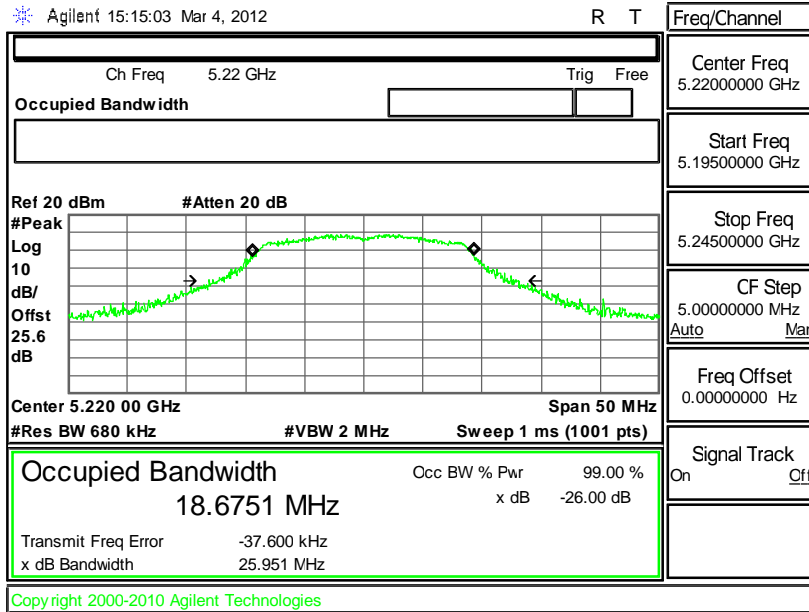
Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	26.423	N/A
44	5220	25.951	N/A
48	5240	26.259	N/A
52	5260	27.371	N/A
60	5300	27.768	N/A
64	5320	26.478	N/A
100	5500	25.693	N/A
116	5580	28.357	N/A
140	5700	26.325	N/A

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

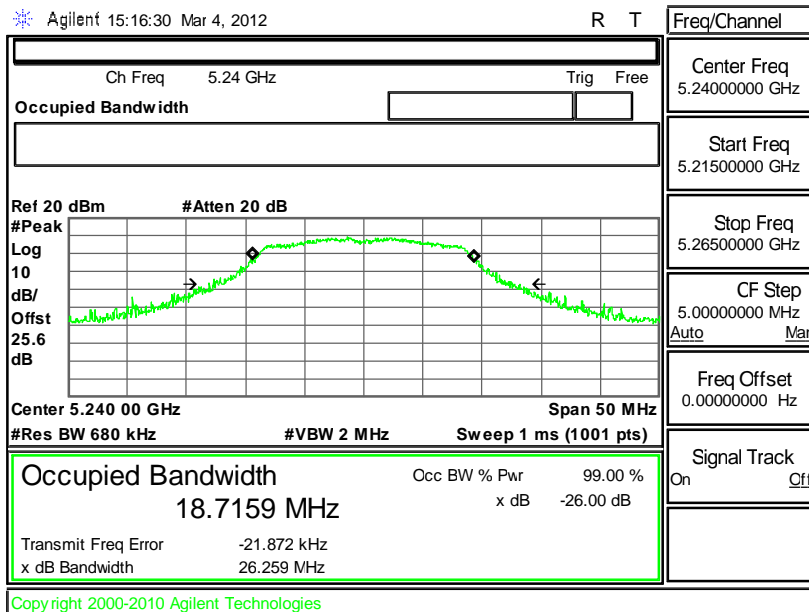




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 44

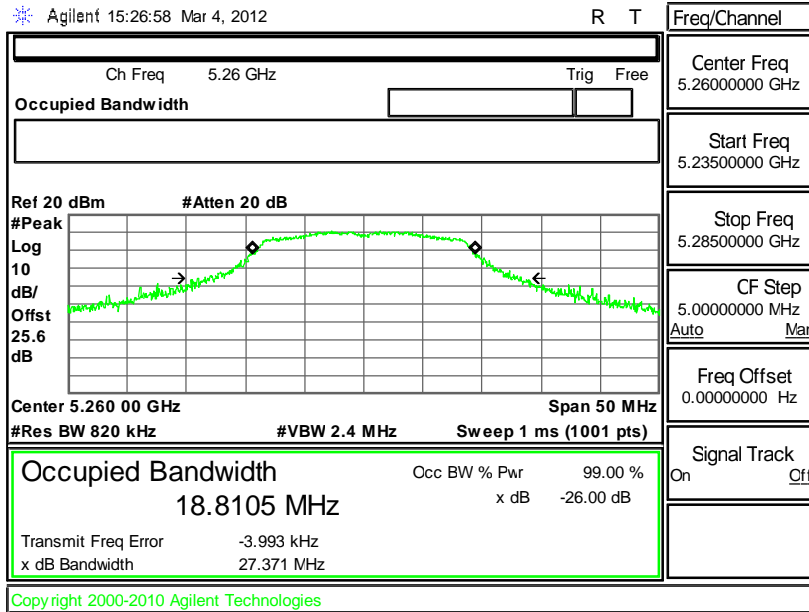


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 48

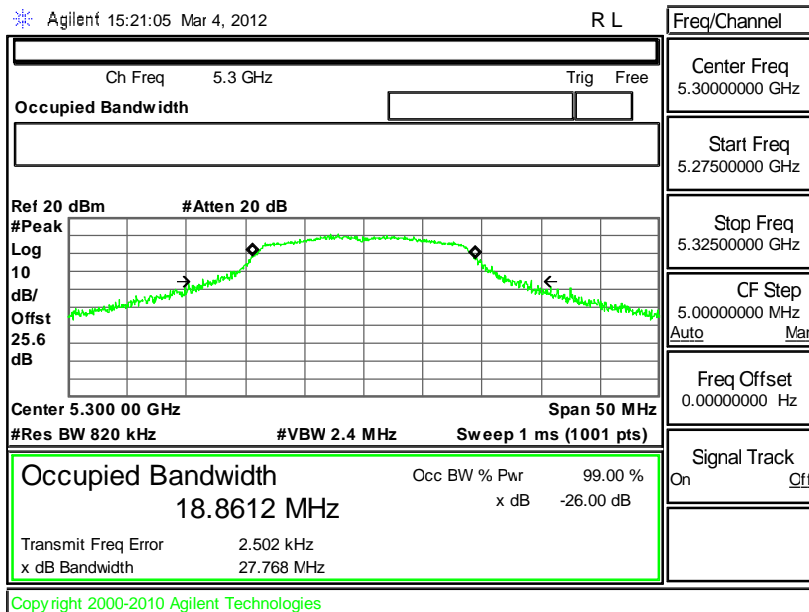




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 52

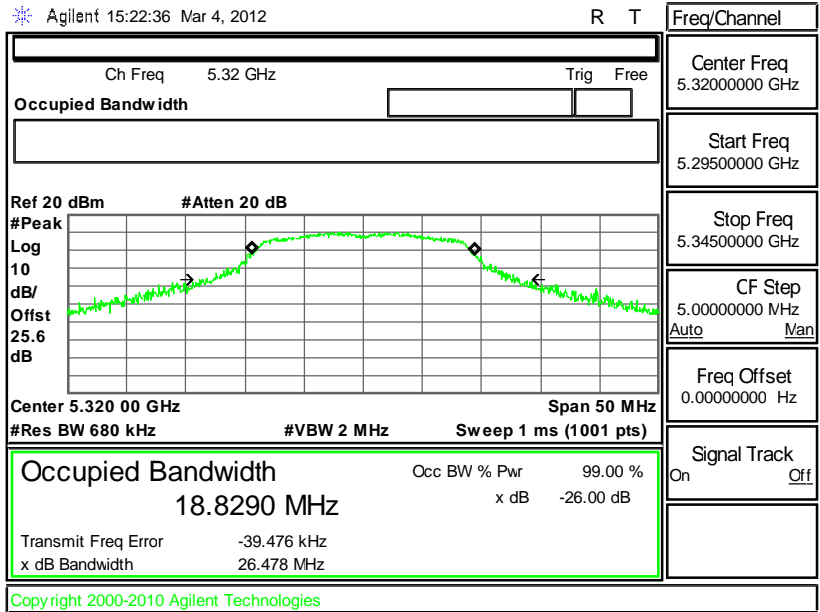


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 60

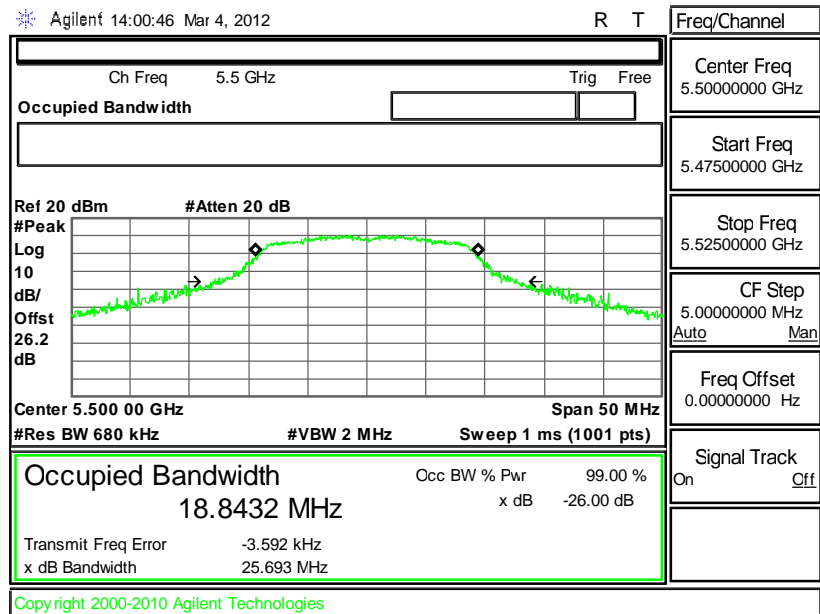




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 64

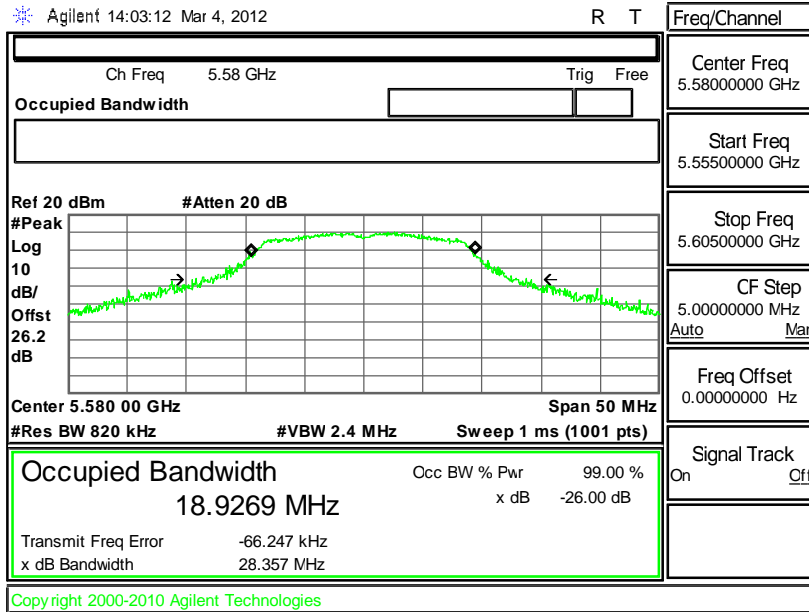


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 100

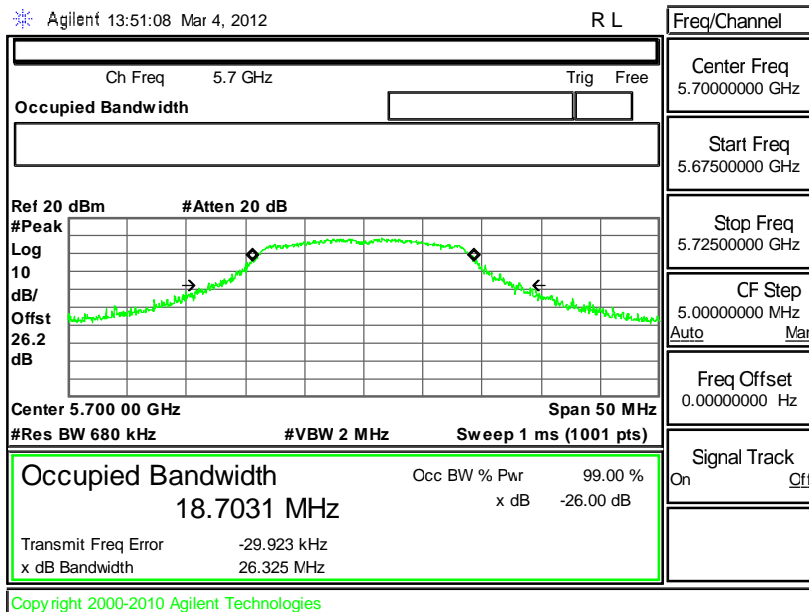




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 116



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



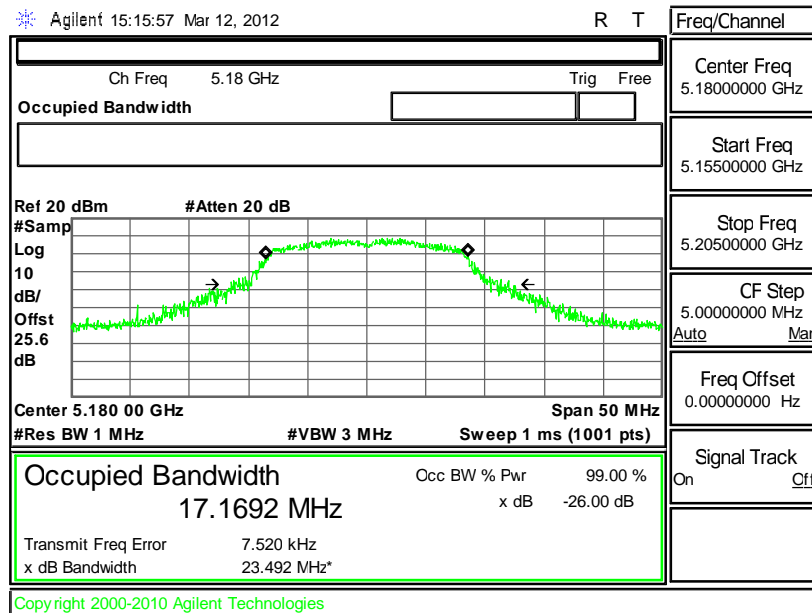


3.1.5 Test Result of 99% Occupied Bandwidth Plots

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

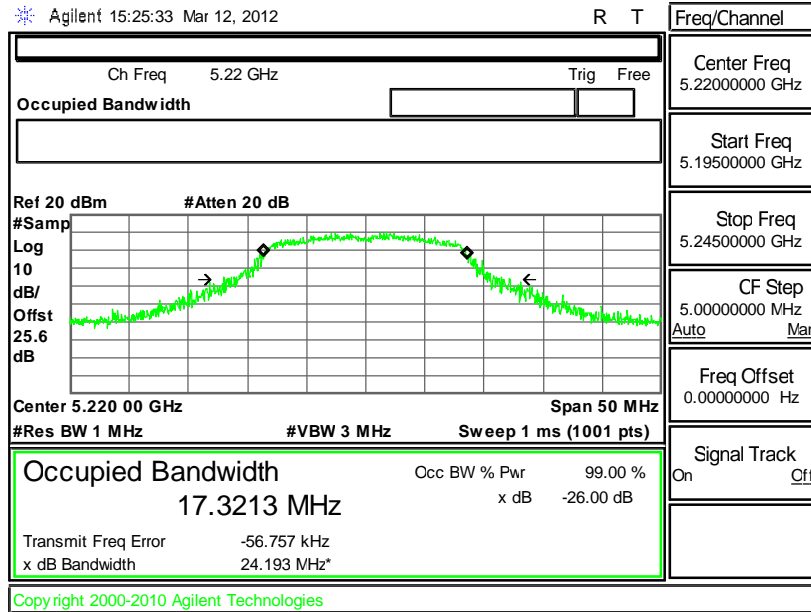
Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	17.1692	N/A
44	5220	17.3213	N/A
48	5240	17.1226	N/A
52	5260	17.1118	N/A
60	5300	17.2246	N/A
64	5320	17.3411	N/A
100	5500	17.2615	N/A
116	5580	17.3509	N/A
140	5700	17.2234	N/A

99% Occupied Bandwidth Plot on 802.11a Channel 36

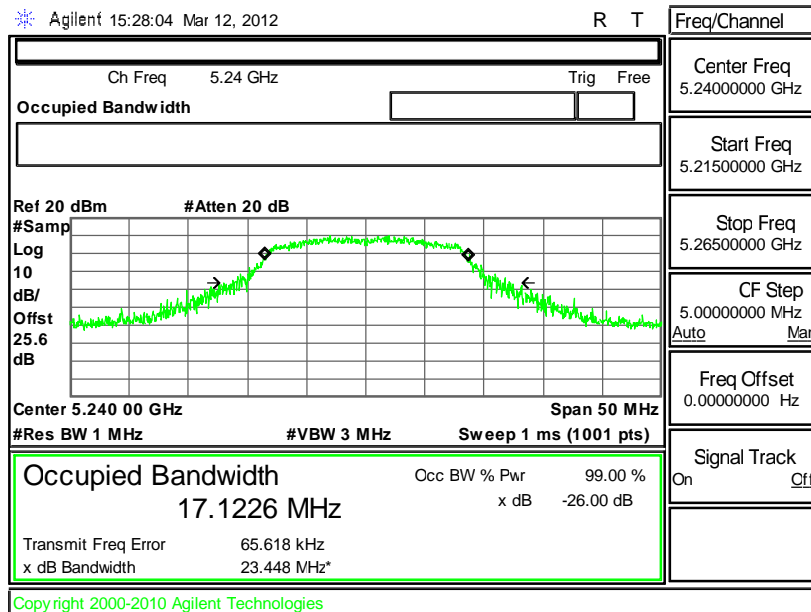




99% Occupied Bandwidth Plot on 802.11a Channel 44

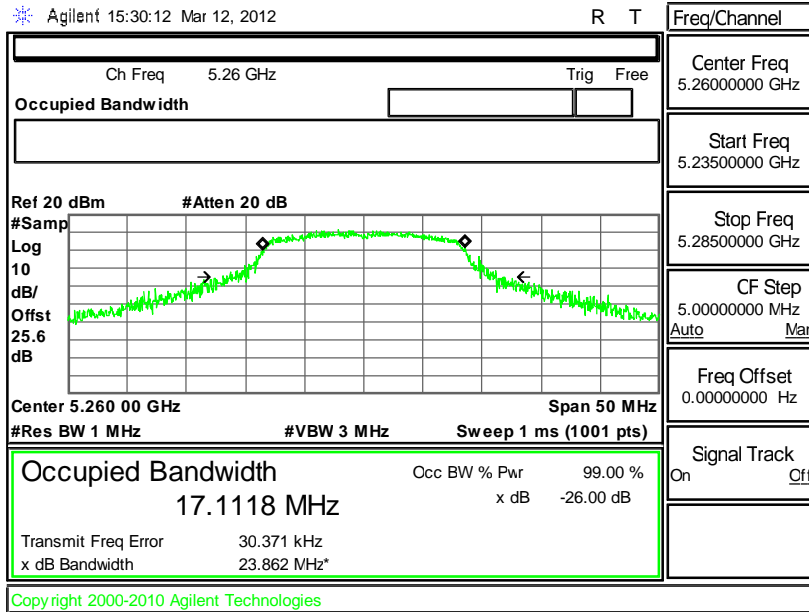


99% Occupied Bandwidth Plot on 802.11a Channel 48

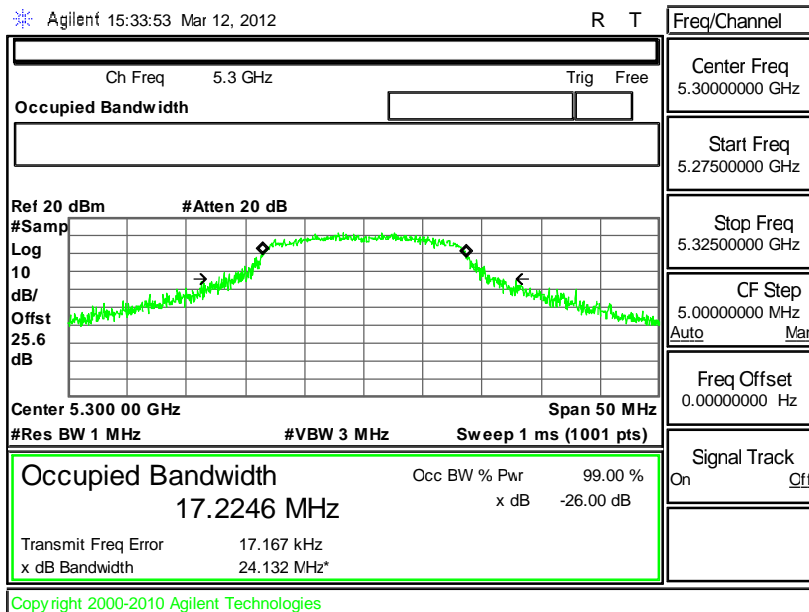




99% Occupied Bandwidth Plot on 802.11a Channel 52

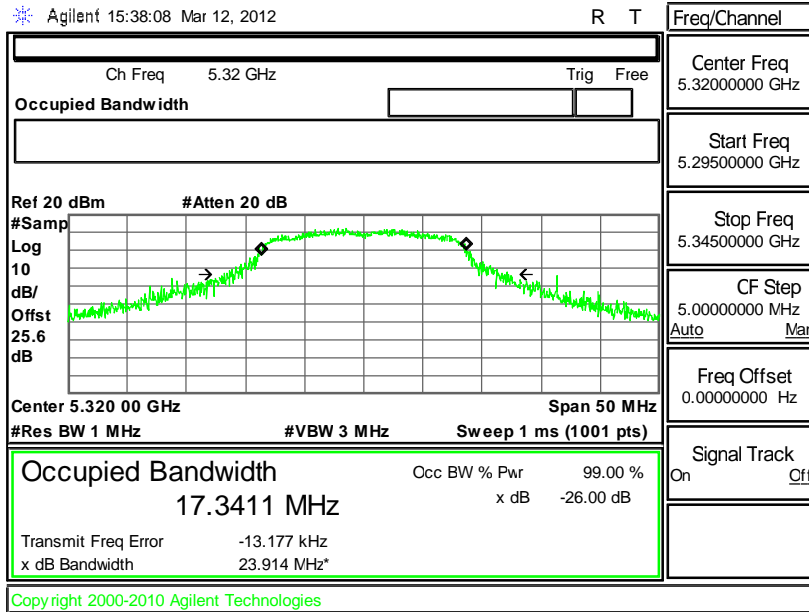


99% Occupied Bandwidth Plot on 802.11a Channel 60

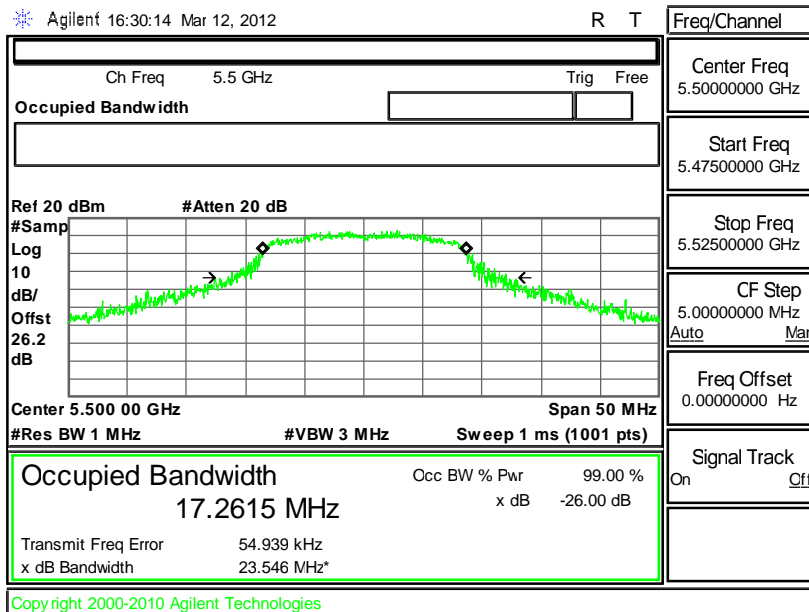




99% Occupied Bandwidth Plot on 802.11a Channel 64

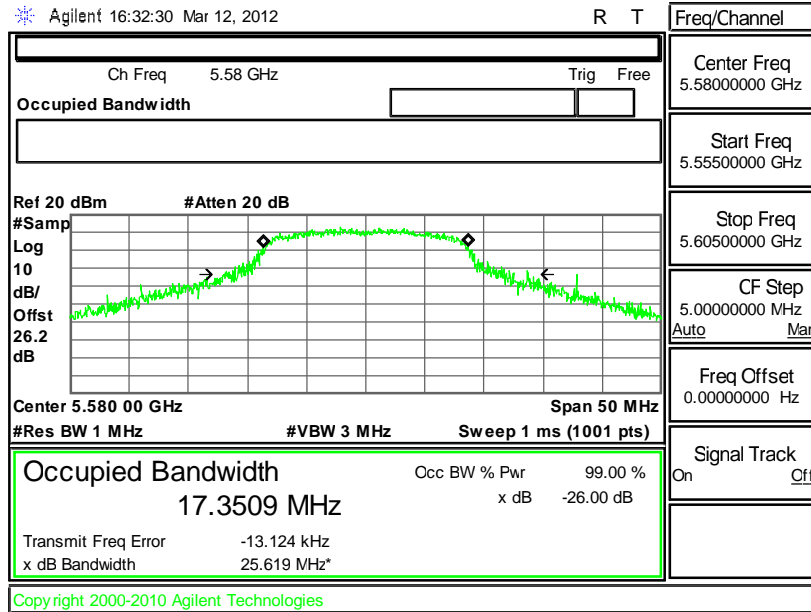


99% Occupied Bandwidth Plot on 802.11a Channel 100

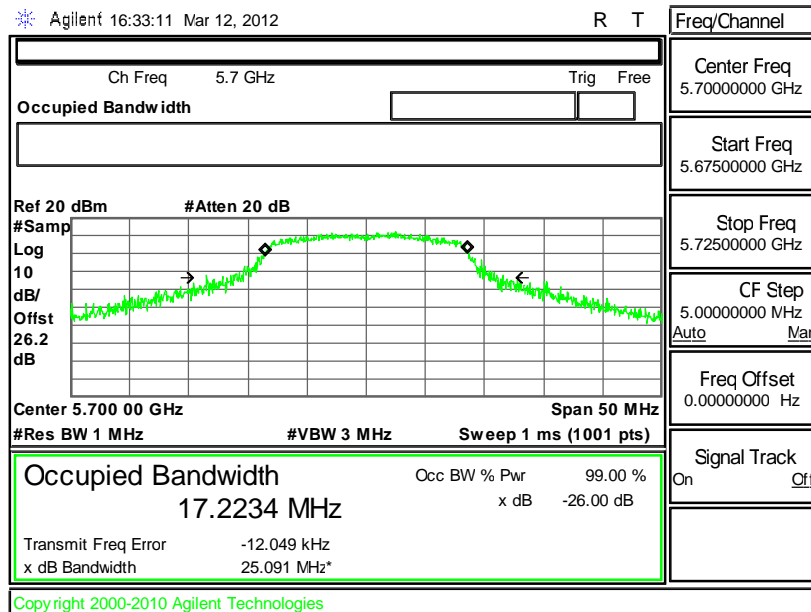




99% Occupied Bandwidth Plot on 802.11a Channel 116



99% Occupied Bandwidth Plot on 802.11a Channel 140

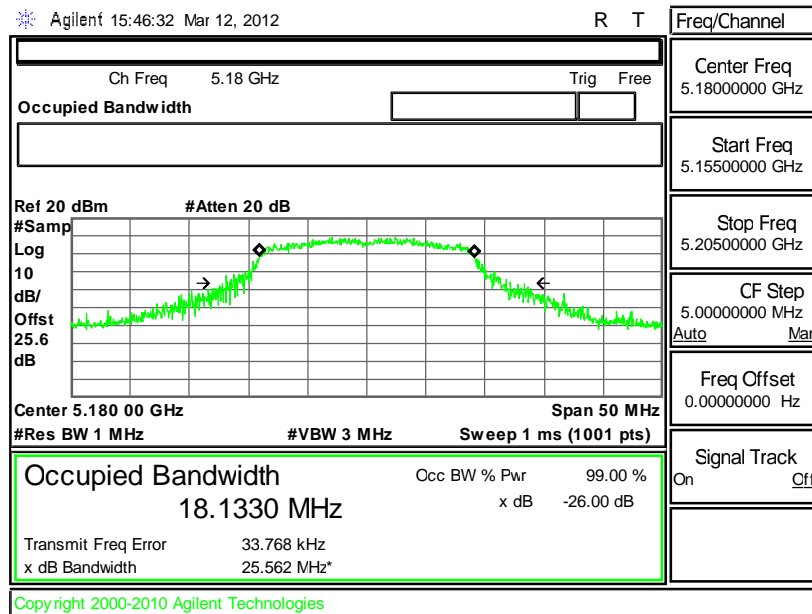




Test Mode :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

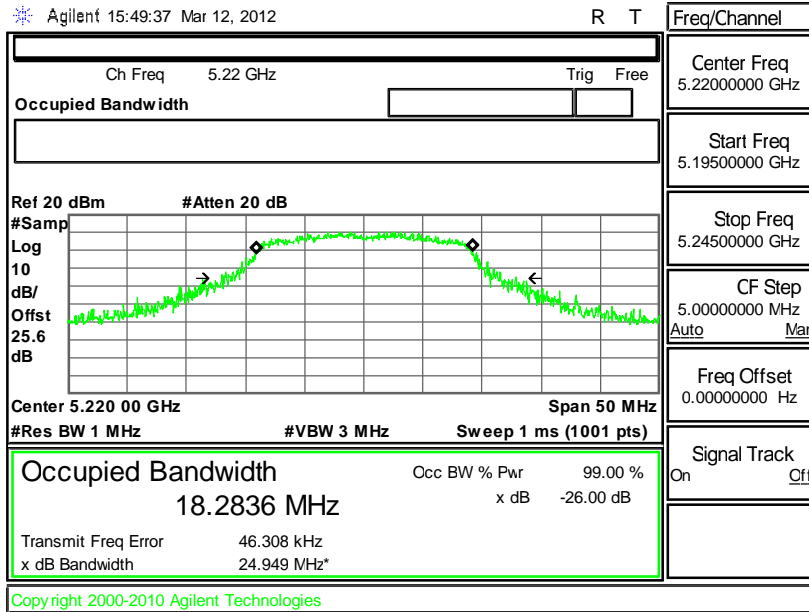
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	18.1330	N/A
44	5220	18.2836	N/A
48	5240	18.3676	N/A
52	5260	18.3238	N/A
60	5300	18.5597	N/A
64	5320	18.4007	N/A
100	5500	18.3384	N/A
116	5580	18.4386	N/A
140	5700	18.1855	N/A

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

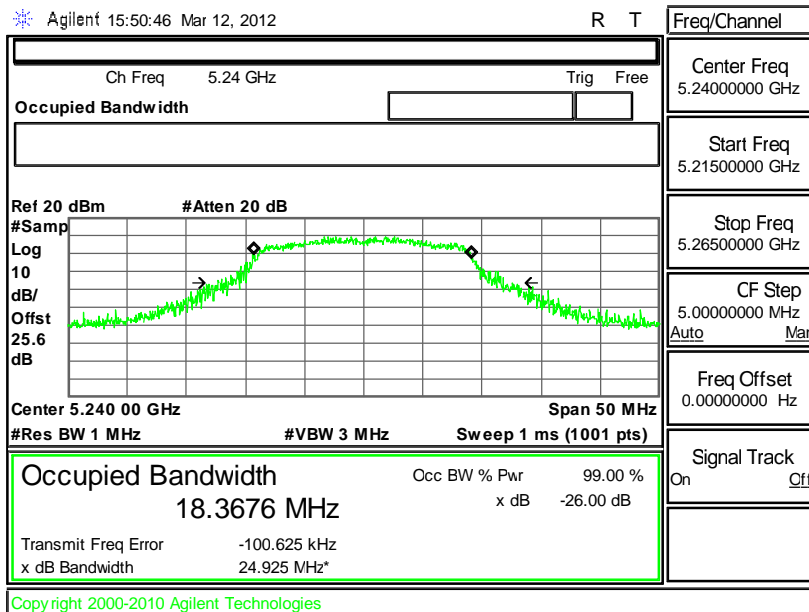




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 44

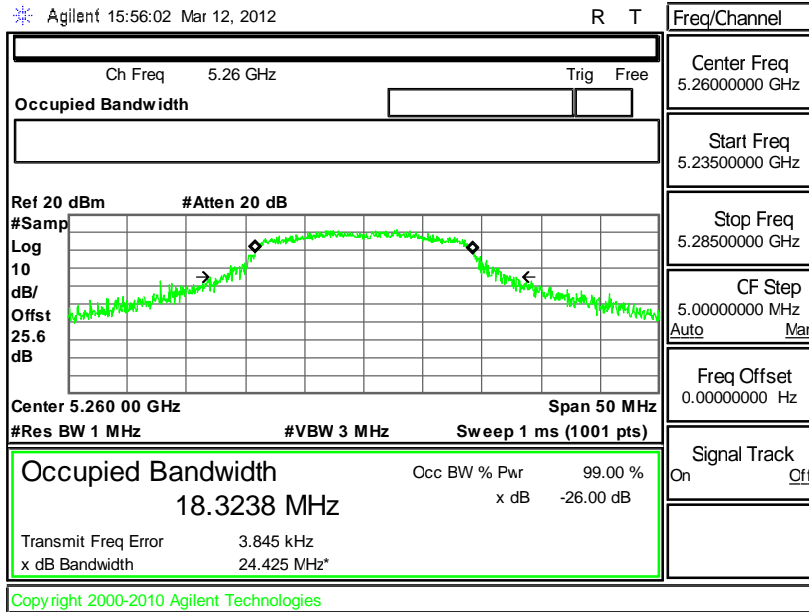


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 48

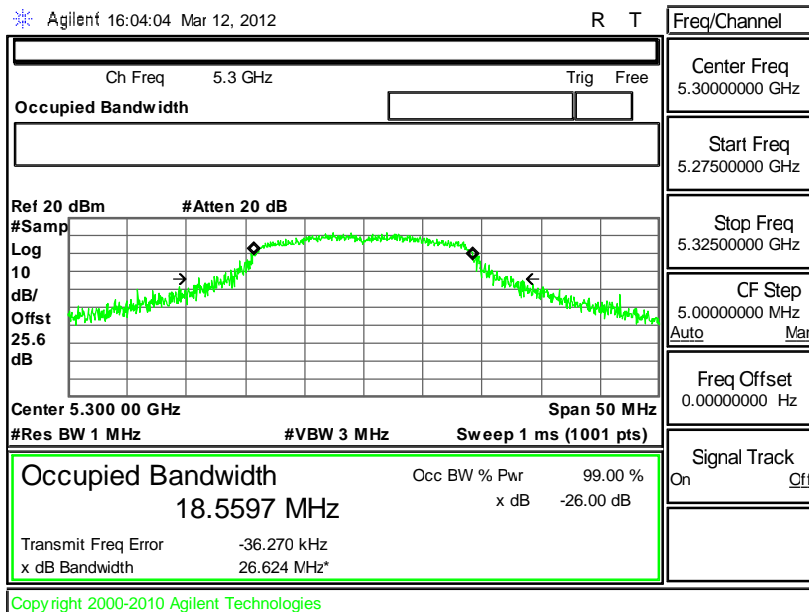




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 52

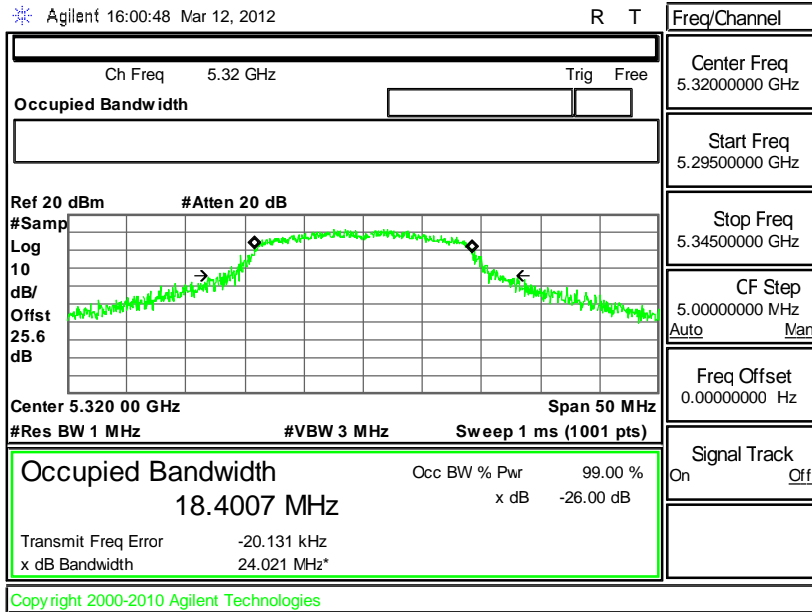


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 60

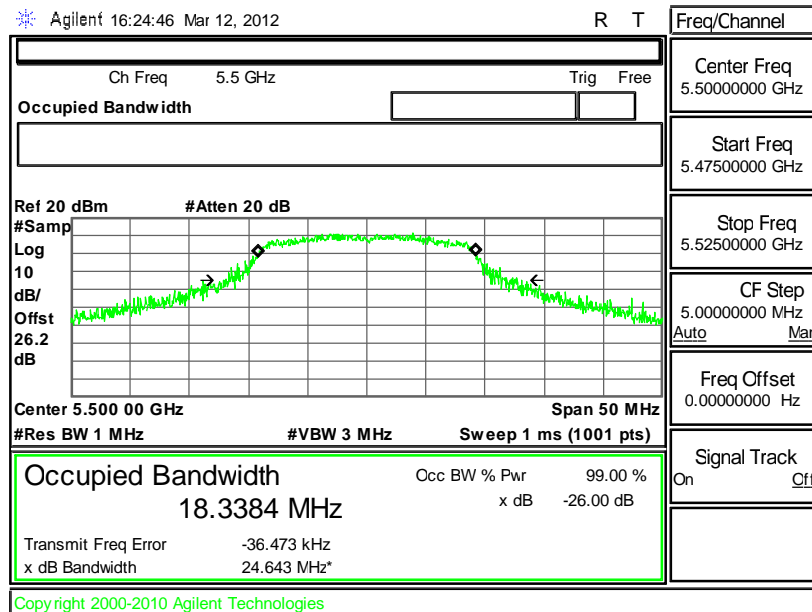




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 64

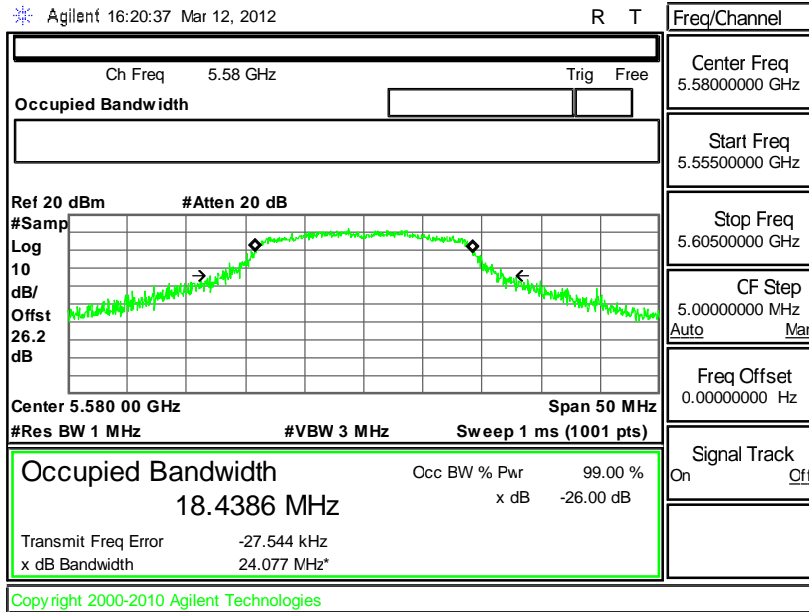


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 100

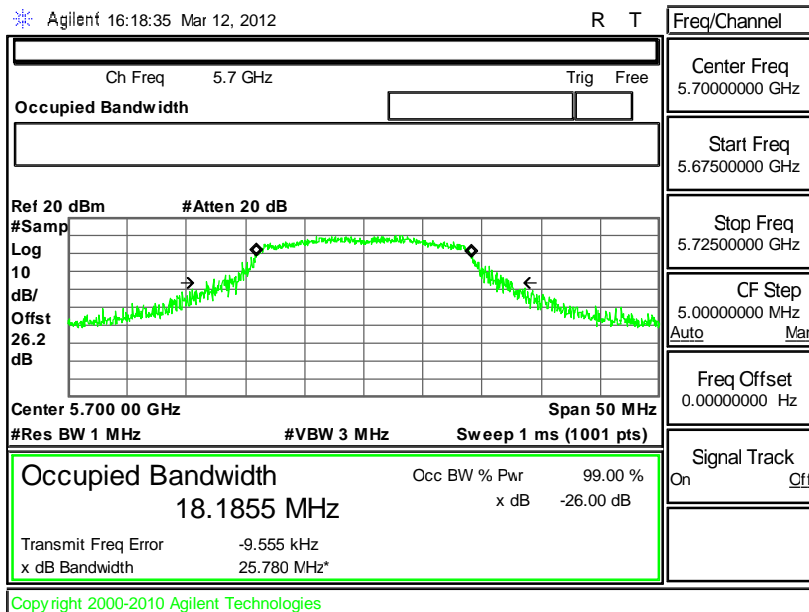




99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 116



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 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power 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 $11 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

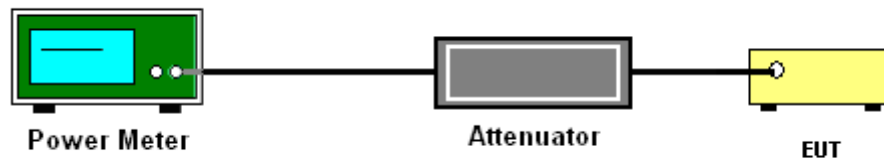
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r01, Method PM (Measurement using an RF average power meter):
2. Measurement is performed using a wideband RF power meter.
3. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
4. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x) = 0$, where x is the duty cycle, where $x = 100\%$ is the duty cycle, for sample A in 802.11a/n mode to the measured power in order to compute the average power during the actual transmission times.
5. 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 11.97dBm which is the reading of spectrum analyzer with offset cable loss (0.2 dB), and attenuator loss (25.6 dB).
6. Measure the power and record it.

3.2.4 Test Setup





3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	11.97	17	Pass
44	5220	11.96	17	Pass
48	5240	11.85	17	Pass
52	5260	13.36	24	Pass
60	5300	13.28	24	Pass
64	5320	13.17	24	Pass
100	5500	12.71	24	Pass
116	5580	13.63	24	Pass
140	5700	13.33	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 :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Measured Power Output (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	11.27	17	Pass
44	5220	11.42	17	Pass
48	5240	11.40	17	Pass
52	5260	13.37	24	Pass
60	5300	12.79	24	Pass
64	5320	12.83	24	Pass
100	5500	12.83	24	Pass
116	5580	12.80	24	Pass
140	5700	11.18	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)

3.3 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.

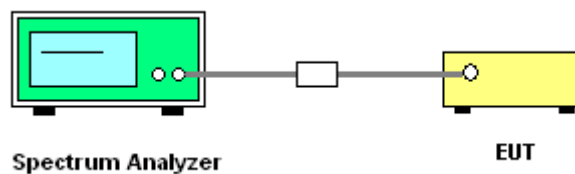
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r01.
 - Measure the duty cycle.
 - 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 = sample
 - Do not use sweep triggering.
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log (1/x)=0$, where $x = 100\%$ is the duty cycle, with duty factor, for sample A in 802.11a/n 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



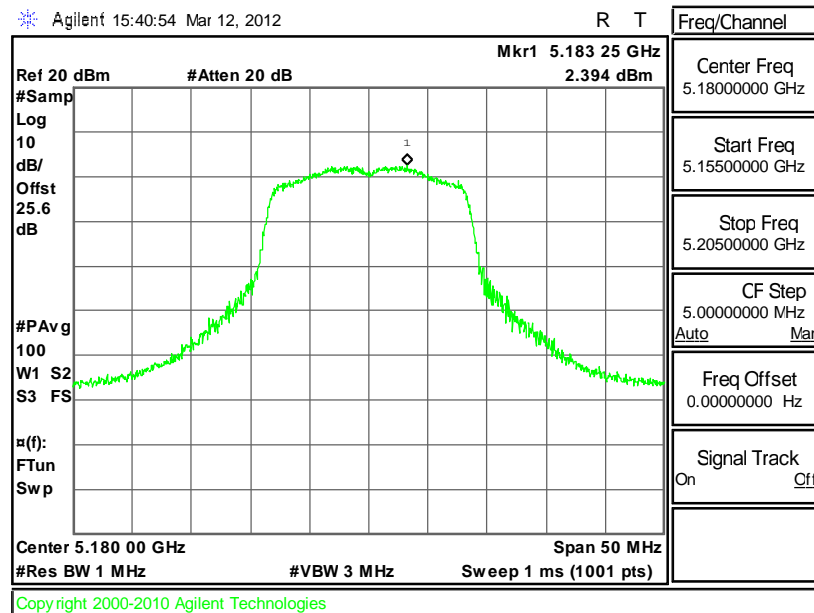


3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

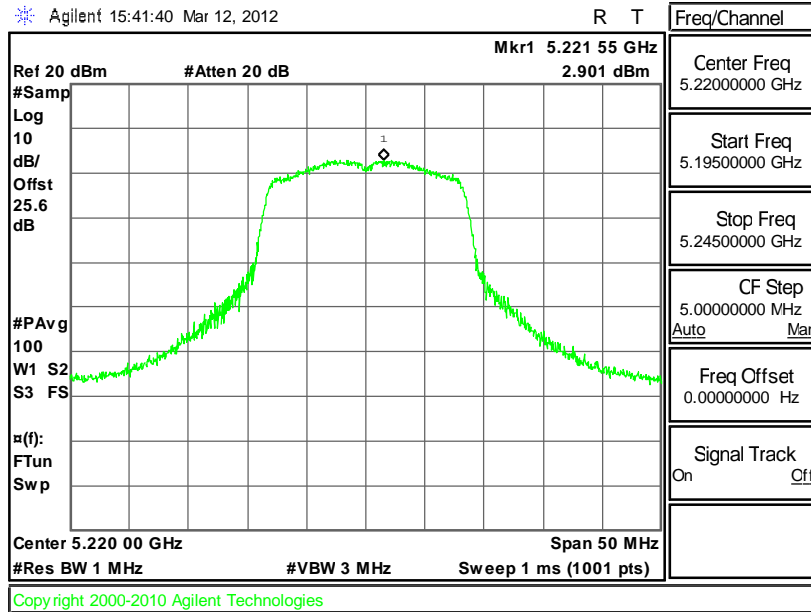
Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.394	4	Pass
44	5220	2.901	4	Pass
48	5240	3.209	4	Pass
52	5260	4.418	11	Pass
60	5300	4.270	11	Pass
64	5320	4.511	11	Pass
100	5500	5.344	11	Pass
116	5580	5.767	11	Pass
140	5700	5.388	11	Pass

PSD Plot on 802.11a Channel 36

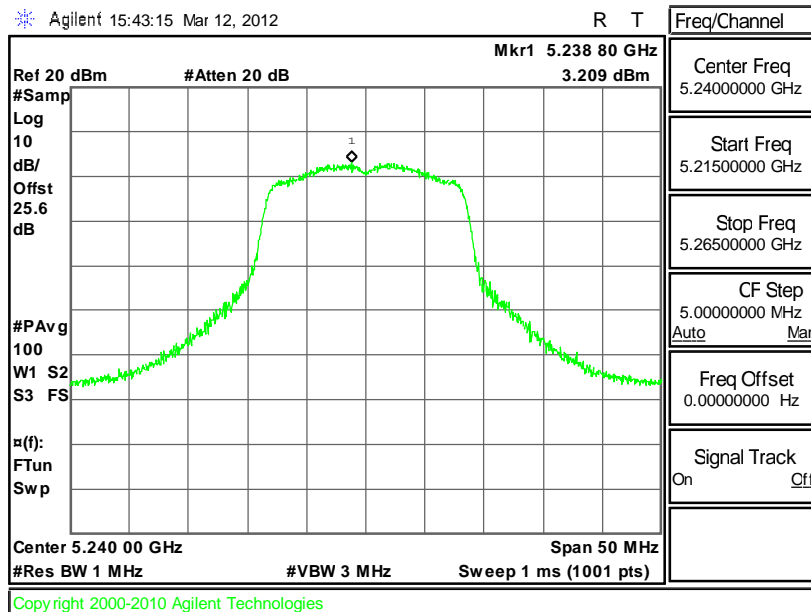




PSD Plot on 802.11a Channel 44

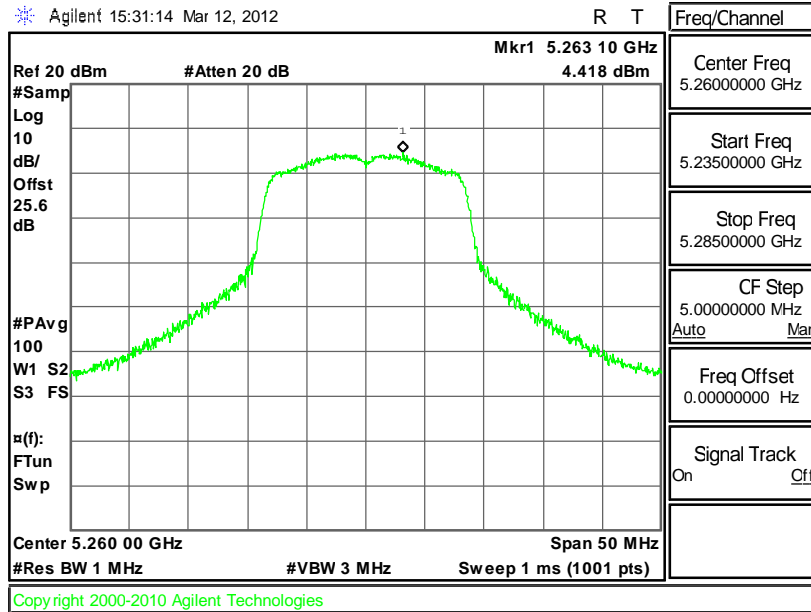


PSD Plot on 802.11a Channel 48

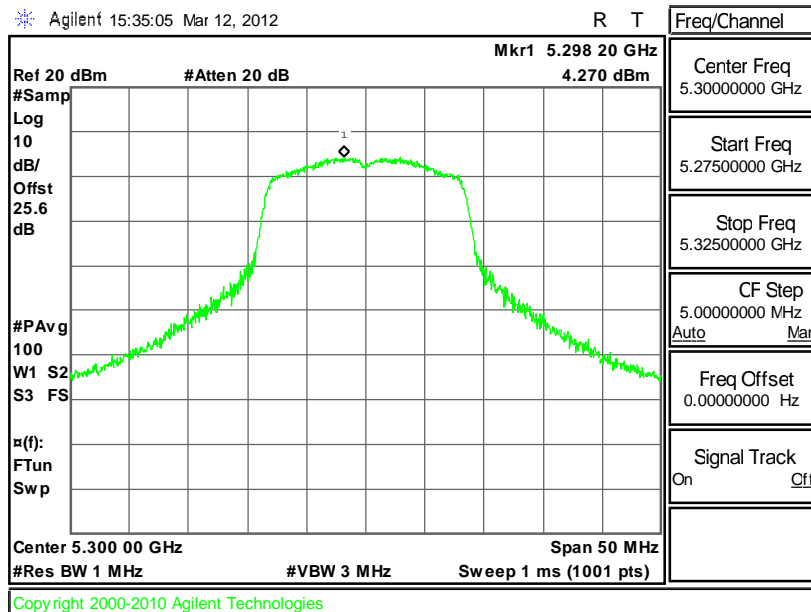




PSD Plot on 802.11a Channel 52

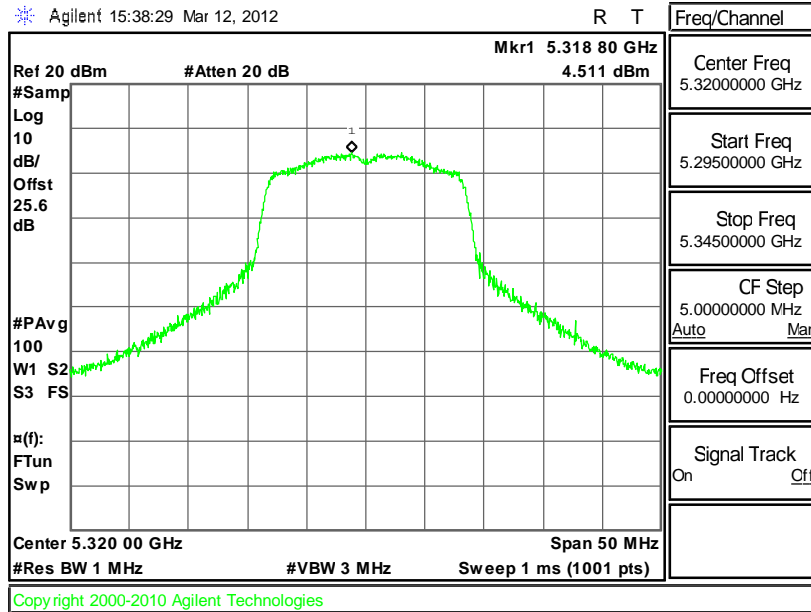


PSD Plot on 802.11a Channel 60

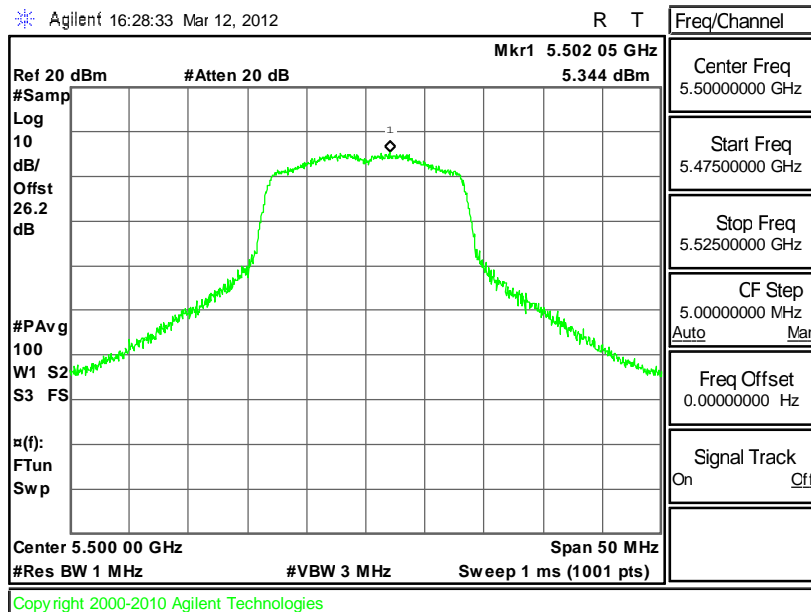




PSD Plot on 802.11a Channel 64

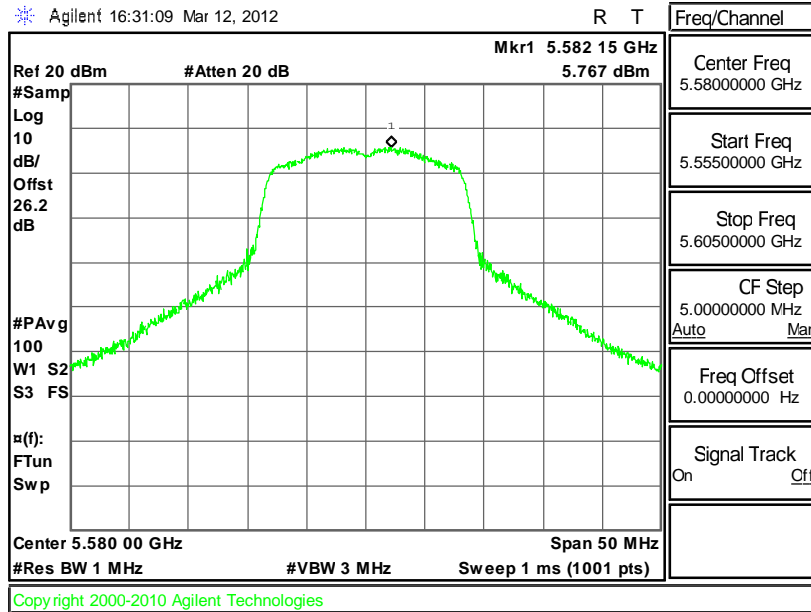


PSD Plot on 802.11a Channel 100

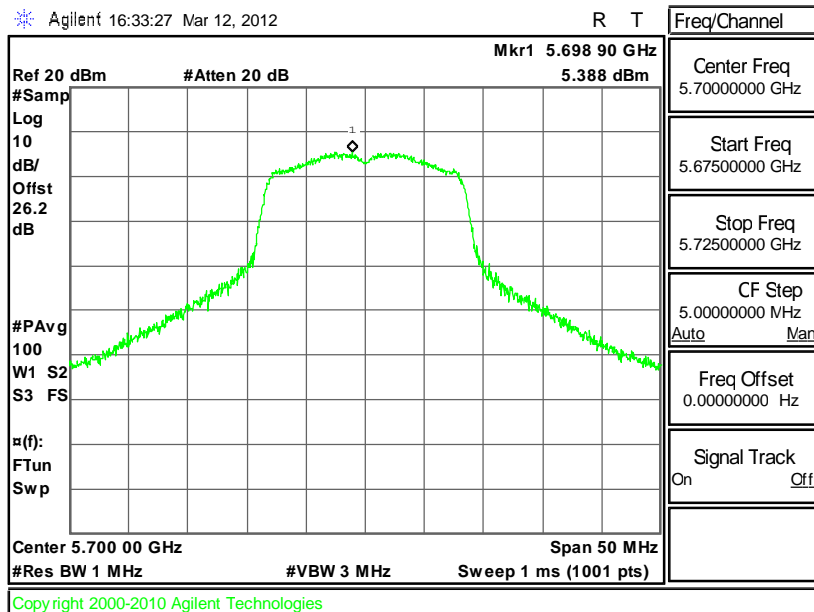




PSD Plot on 802.11a Channel 116



PSD Plot on 802.11a Channel 140

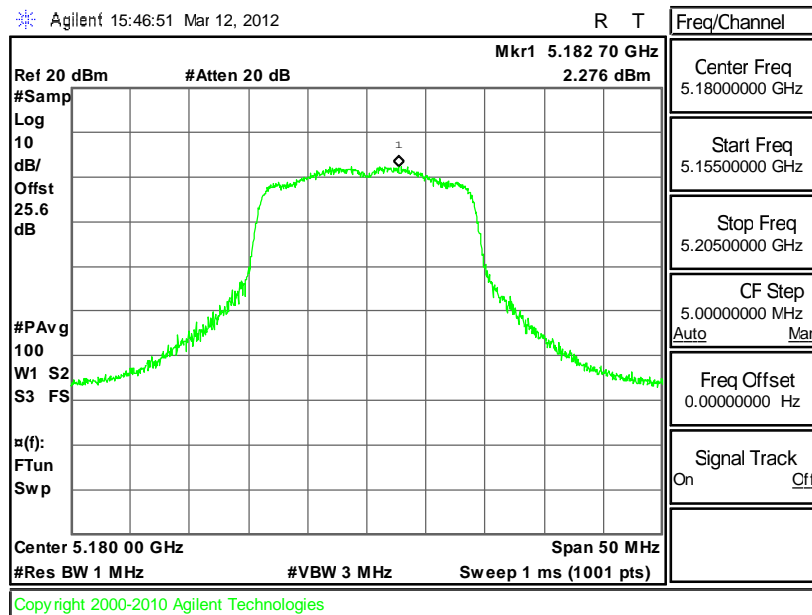




Test Mode :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

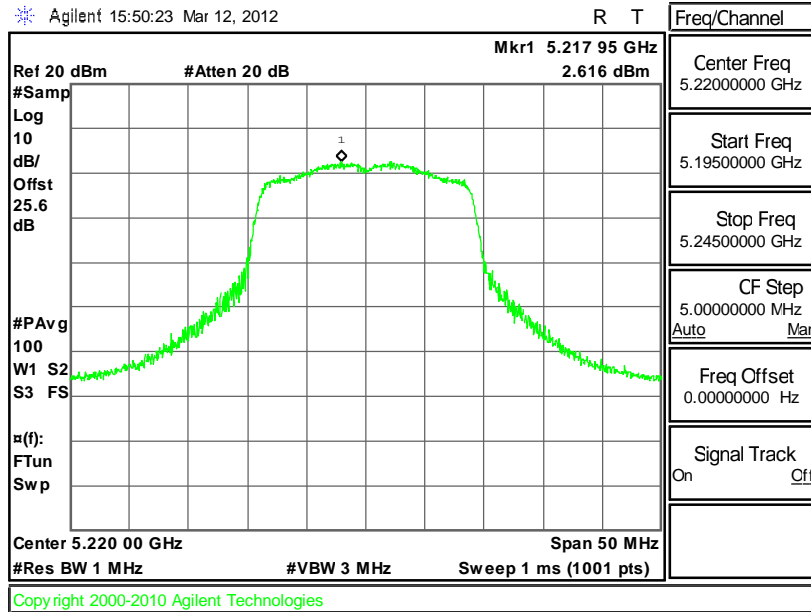
Channel	Frequency (MHz)	Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.276	4	Pass
44	5220	2.616	4	Pass
48	5240	2.825	4	Pass
52	5260	4.795	11	Pass
60	5300	4.278	11	Pass
64	5320	4.391	11	Pass
100	5500	4.459	11	Pass
116	5580	4.605	11	Pass
140	5700	3.055	11	Pass

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

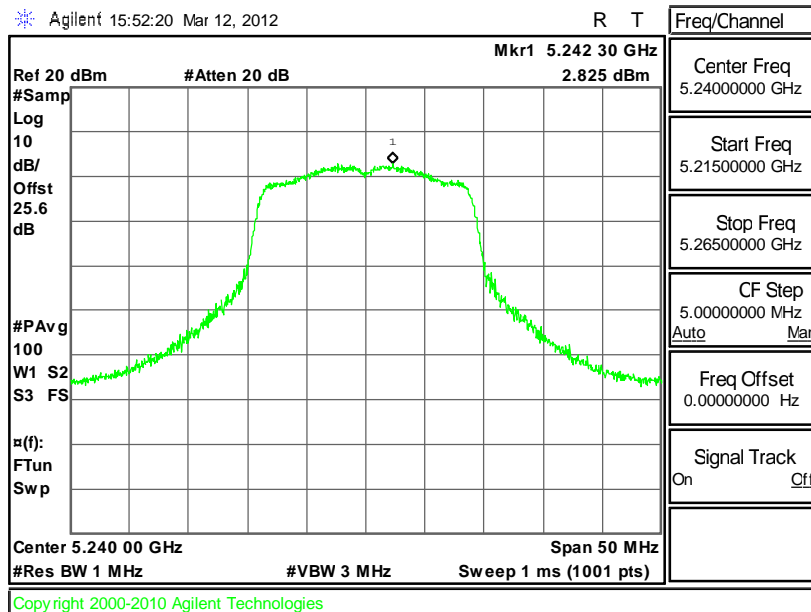




PSD Plot on 802.11n (BW 20MHz) Channel 44

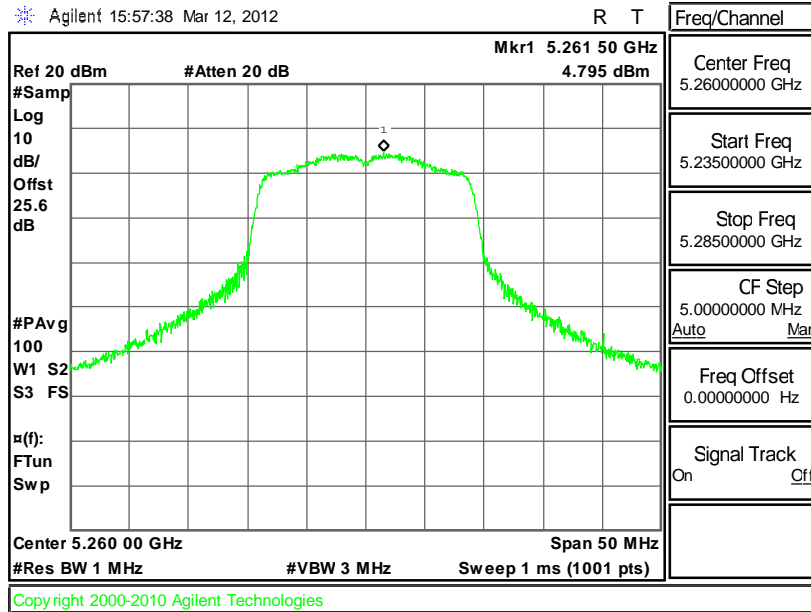


PSD Plot on 802.11n (BW 20MHz) Channel 48

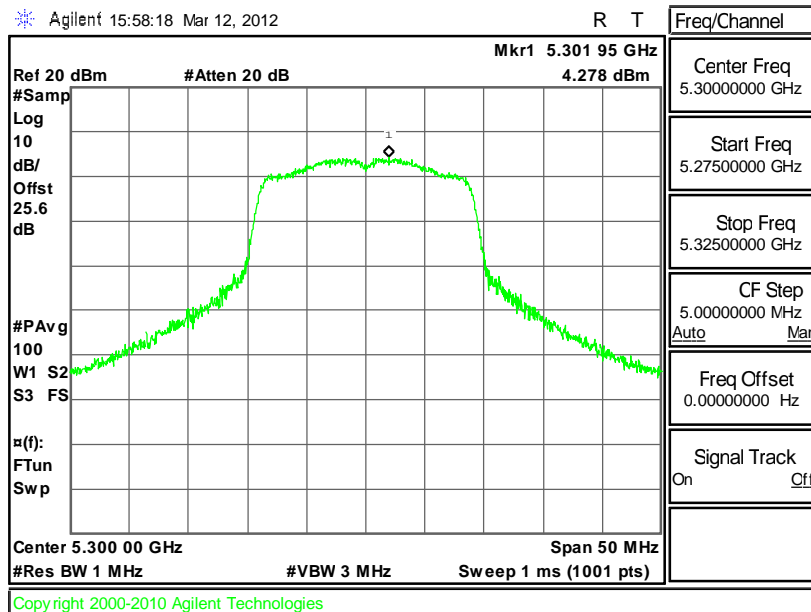




PSD Plot on 802.11n (BW 20MHz) Channel 52

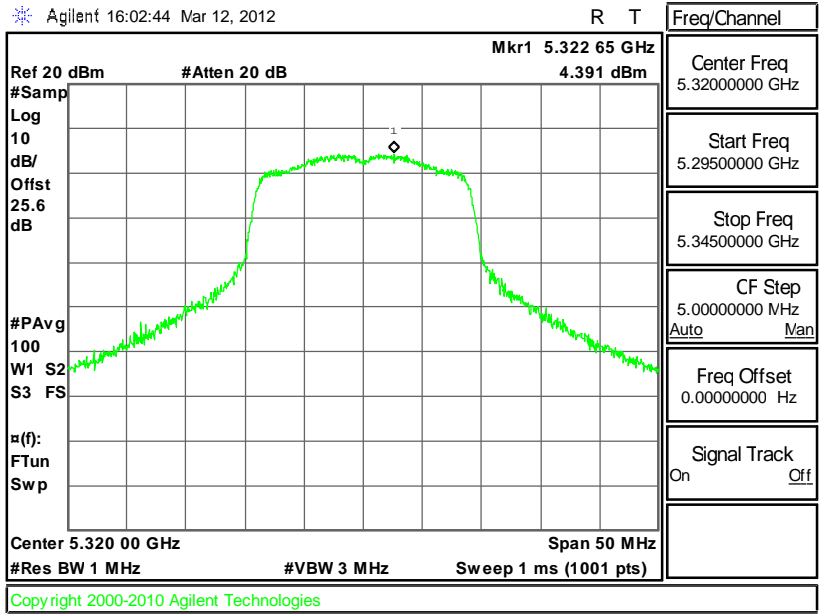


PSD Plot on 802.11n (BW 20MHz) Channel 60

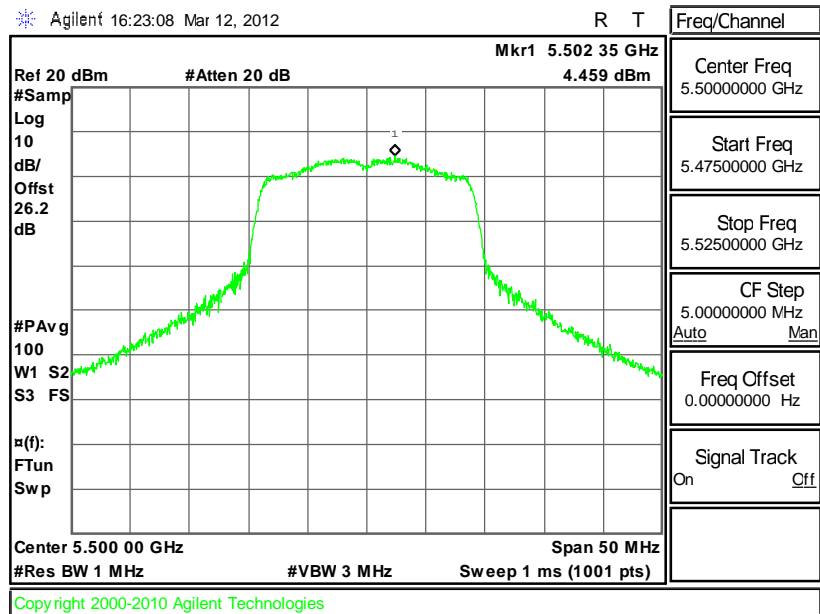




PSD Plot on 802.11n (BW 20MHz) Channel 64

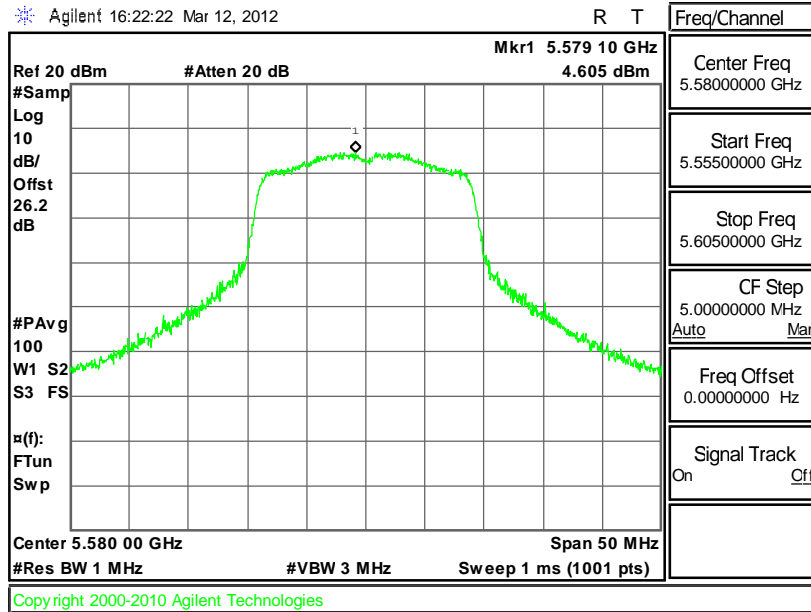


PSD Plot on 802.11n (BW 20MHz) Channel 100

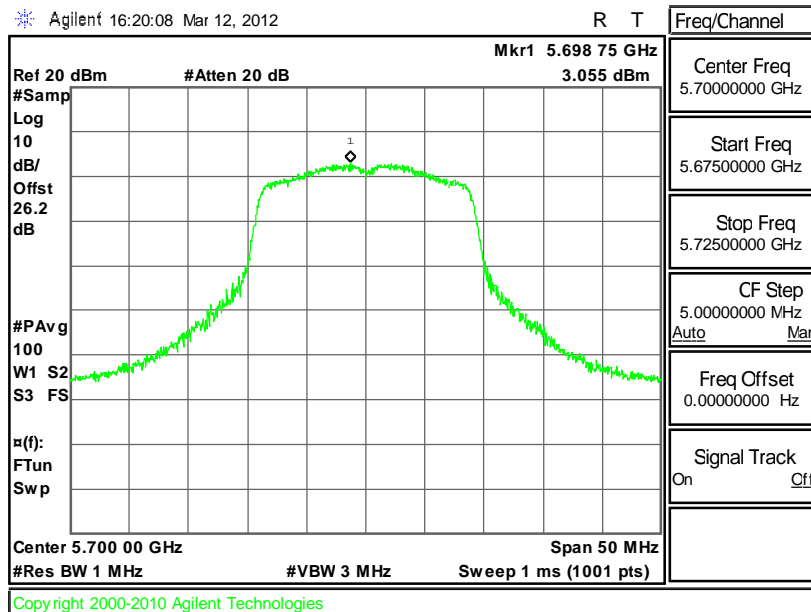




PSD Plot on 802.11n (BW 20MHz) Channel 116



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



3.4 Peak Excursion Ratio Measurement

3.4.1 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.

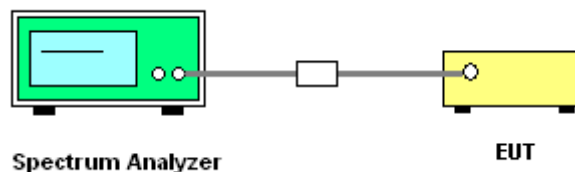
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r01.
2. The transmitter output is connected to the spectrum analyzer.
3. Set the spectrum analyzer span to view the entire emission bandwidth.
4. Find the maximum of the peak-max-hold spectrum for Trace 1.
 - *Set RBW = 1MHz.
 - *Set VBW \geq 3MHz.
 - *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.
5. Use the procedure found under section 3.3 to measure the PPSD for Trace 2.
6. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

3.4.4 Test Setup

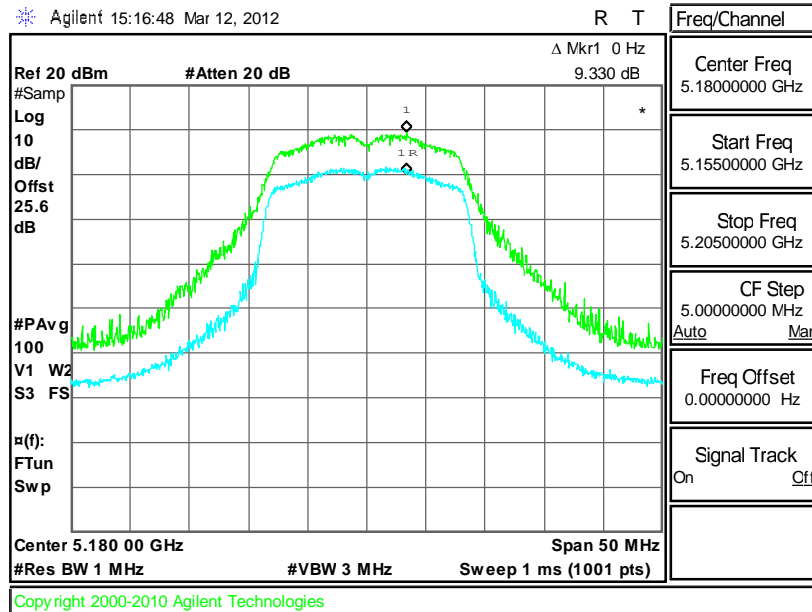




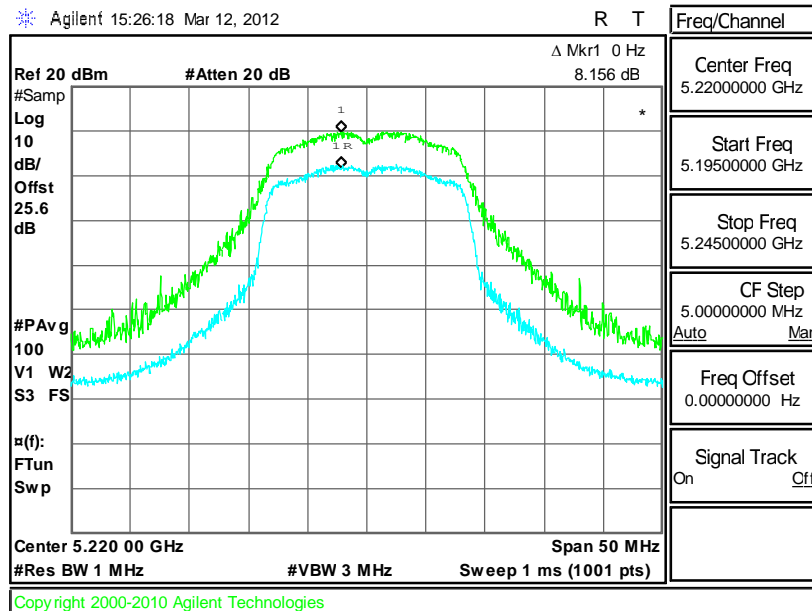
3.4.5 Test Result of Peak Excursion Ratio

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11a Channel 36

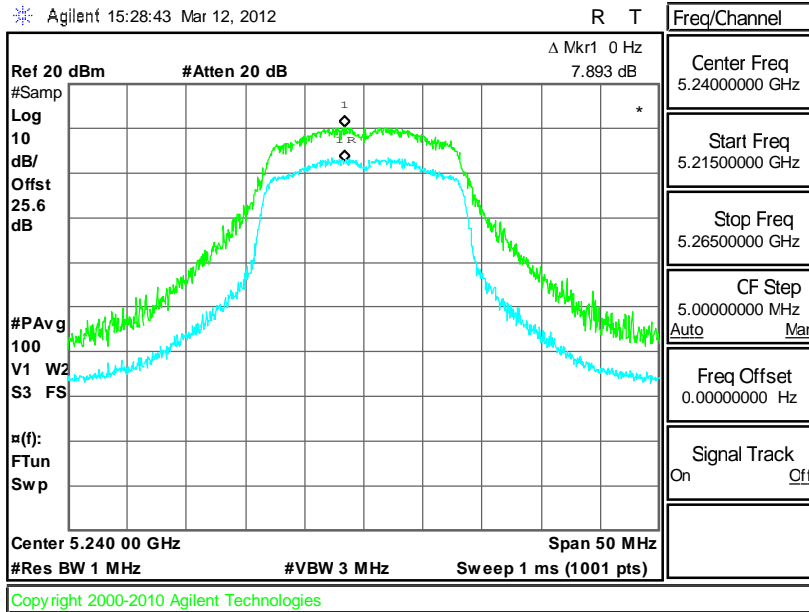


Peak Excursion Ratio Plot on 802.11a Channel 44

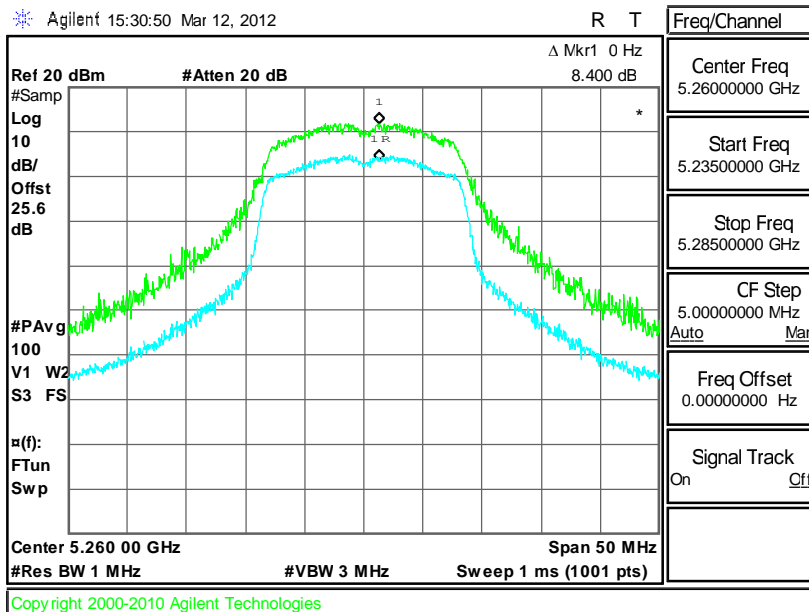




Peak Excursion Ratio Plot on 802.11a Channel 48

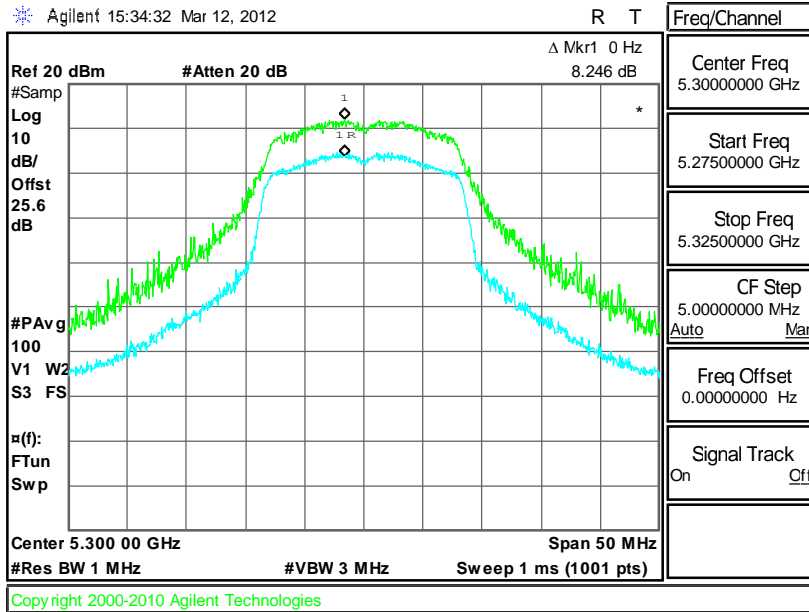


Peak Excursion Ratio Plot on 802.11a Channel 52

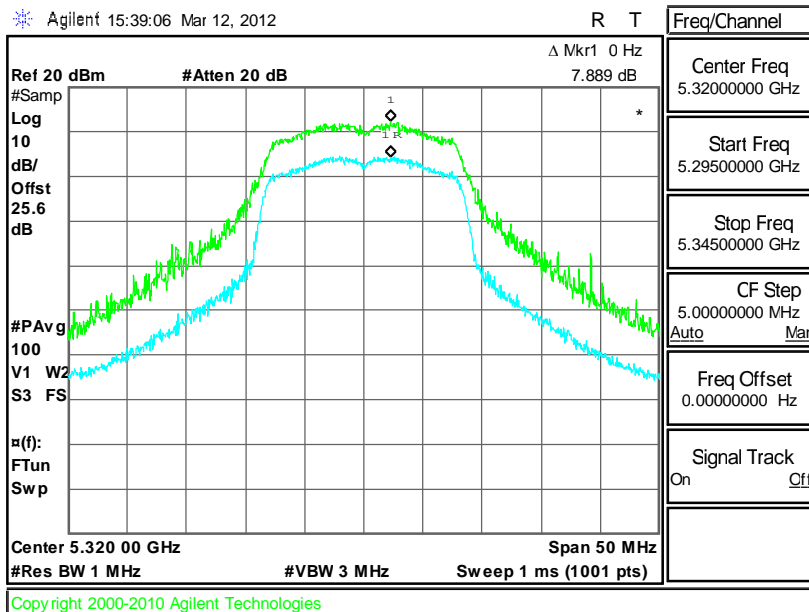




Peak Excursion Ratio Plot on 802.11a Channel 60

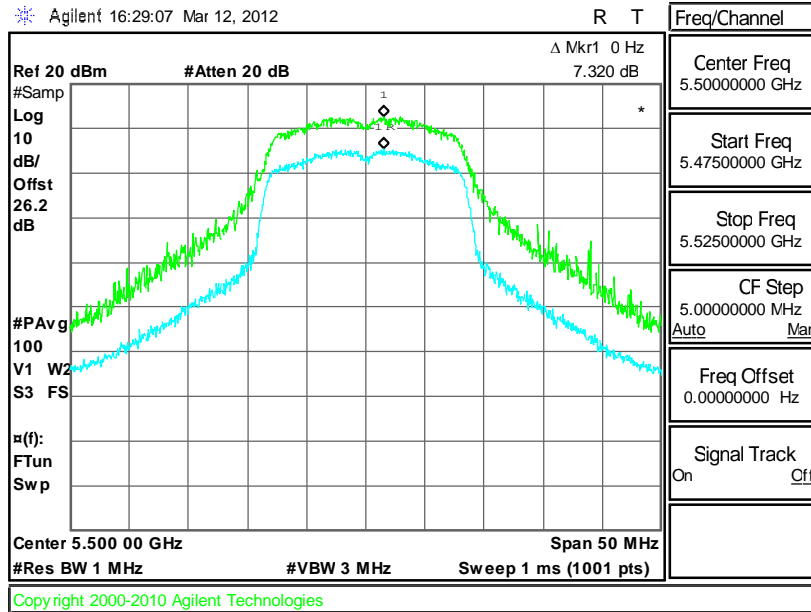


Peak Excursion Ratio Plot on 802.11a Channel 64

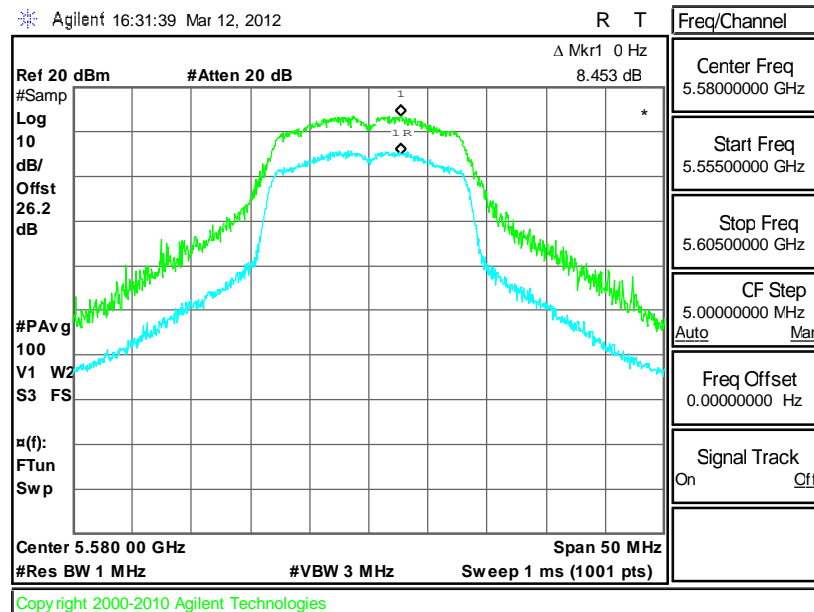




Peak Excursion Ratio Plot on 802.11a Channel 100

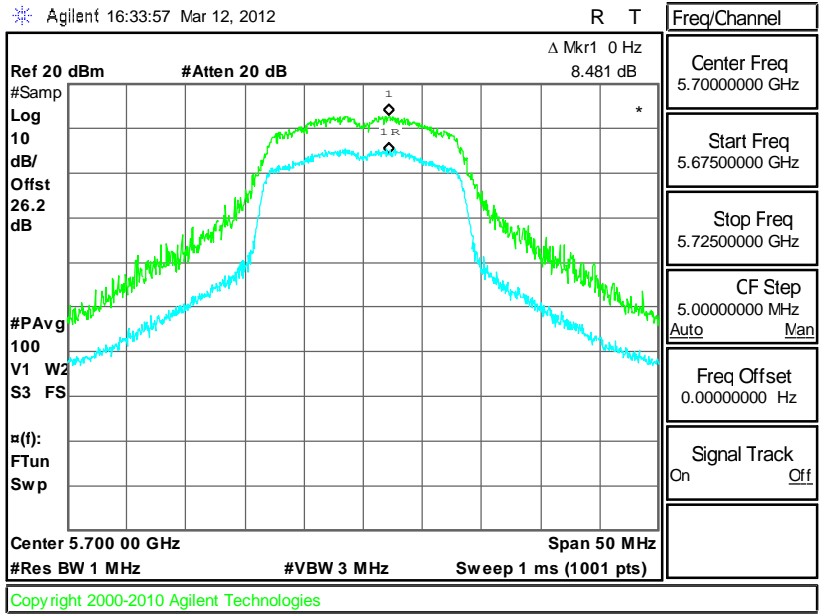


Peak Excursion Ratio Plot on 802.11a Channel 116





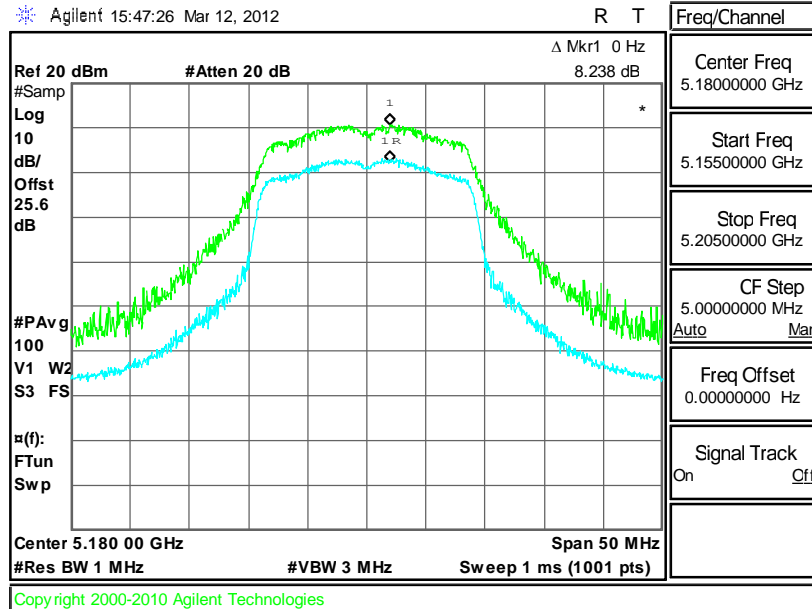
Peak Excursion Ratio Plot on 802.11a Channel 140



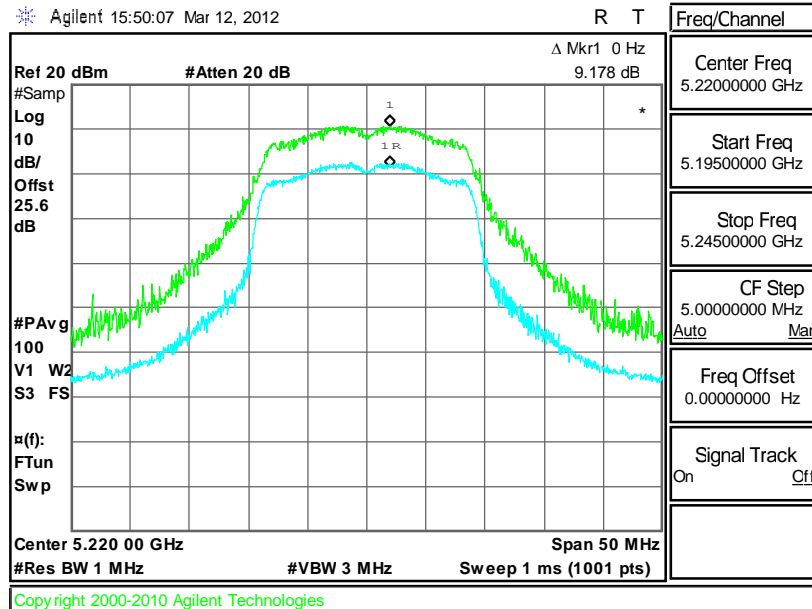


Test Mode :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

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

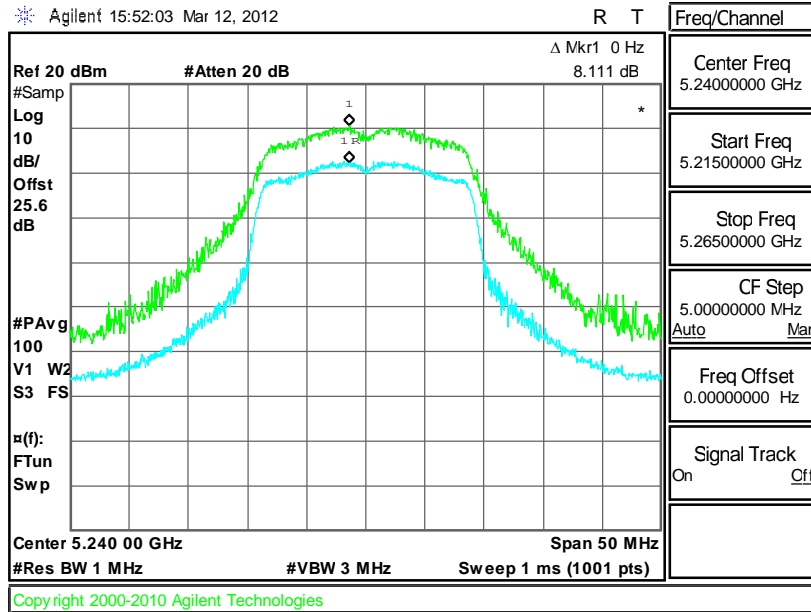


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 44

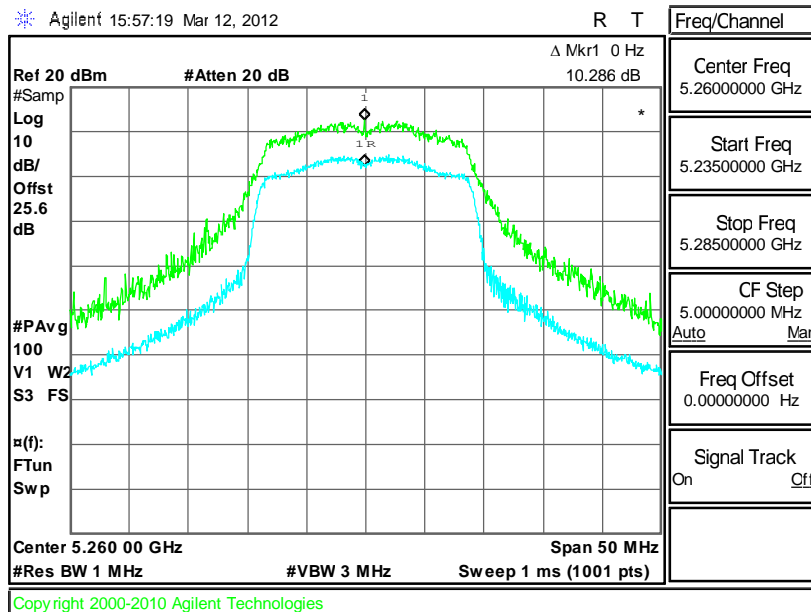




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 48

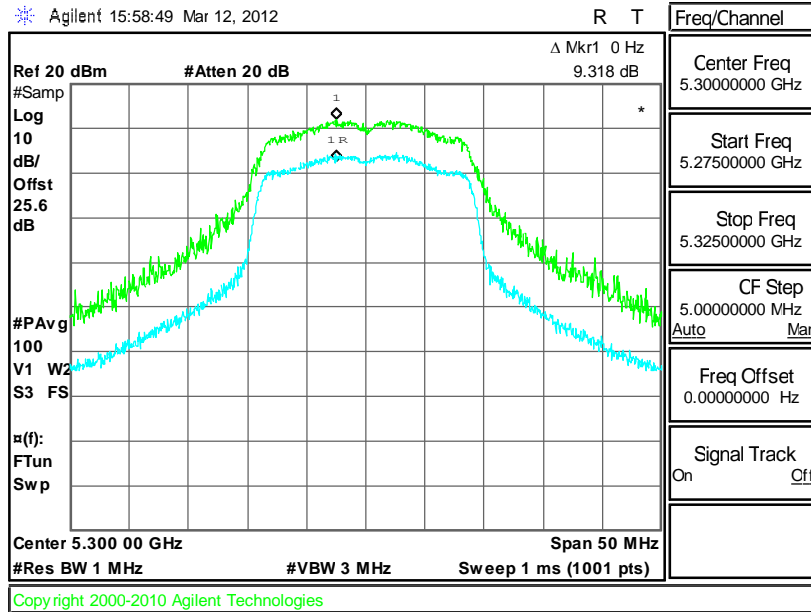


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 52

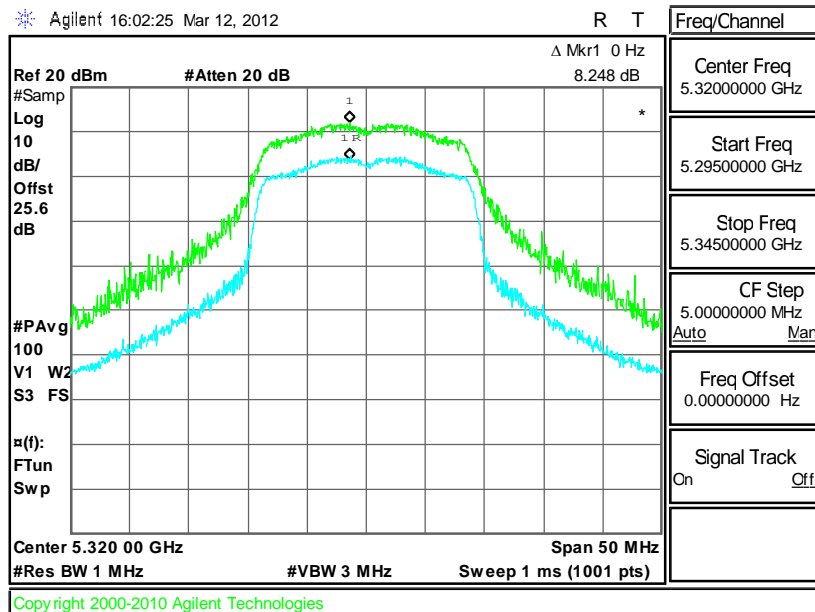




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 60

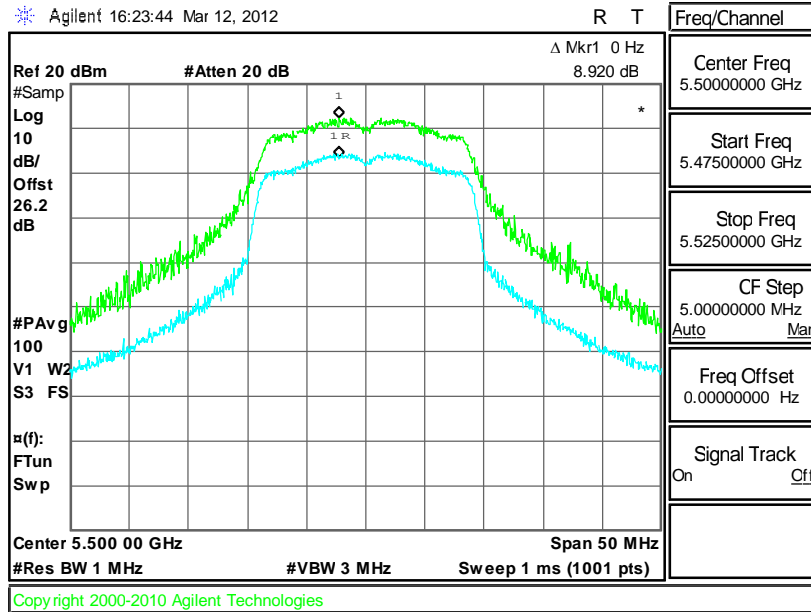


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 64

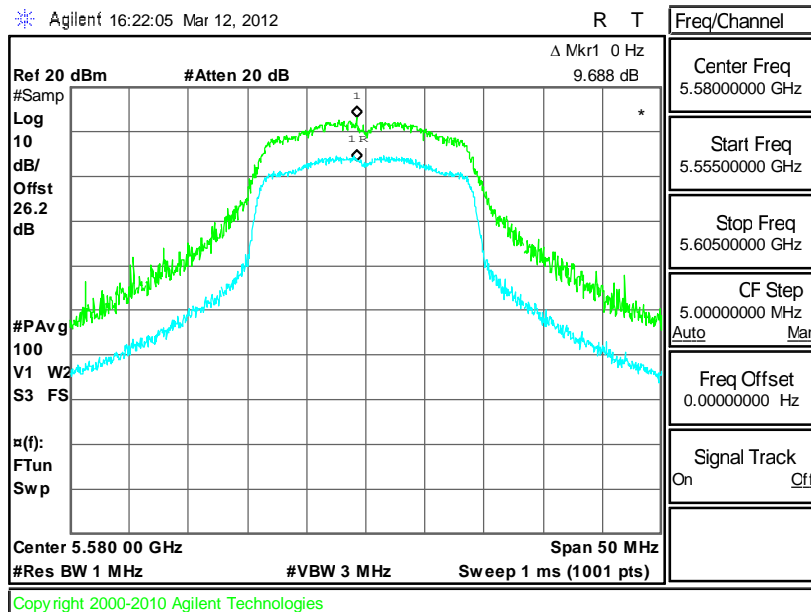




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 100

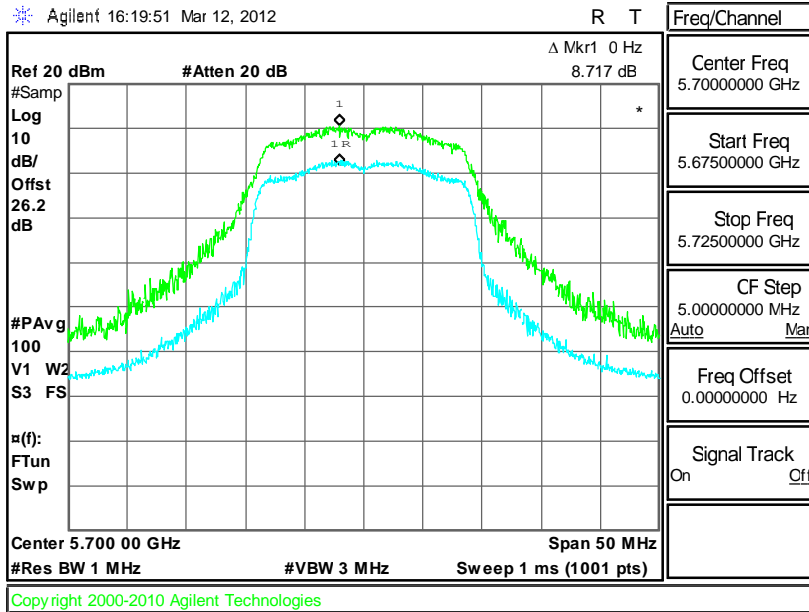


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 116





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



3.5 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 Part 15.205.

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 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz . Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/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)
-17	78.3
- 27	68.3

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.



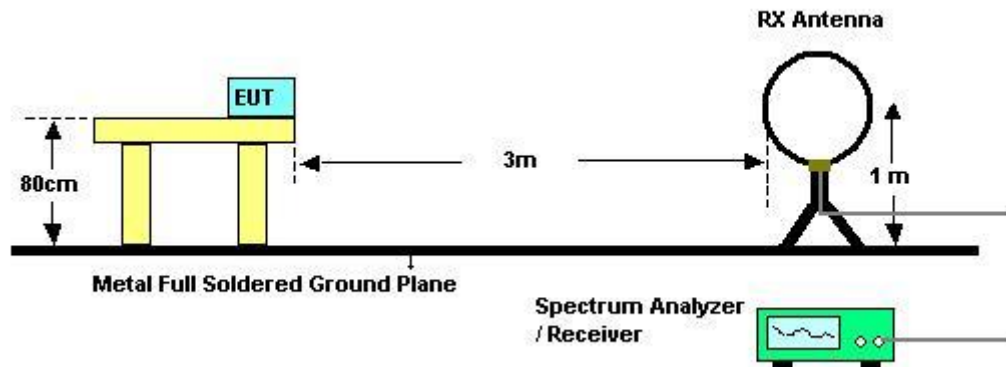
3.5.3 Test Procedures

1. The testing follows the guidelines in fulfills ANSI C63.4-2003 test site requirement and FCC KDB 789033 D01 General UNII Test Procedures v01r01.
Section G) Unwanted emissions measurement.
(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 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.
5. 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.

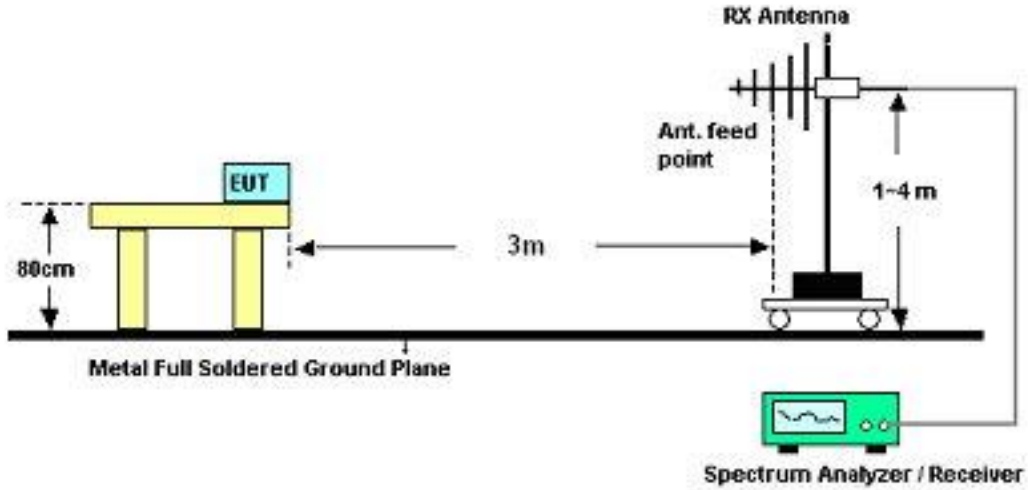
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level 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 peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again 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

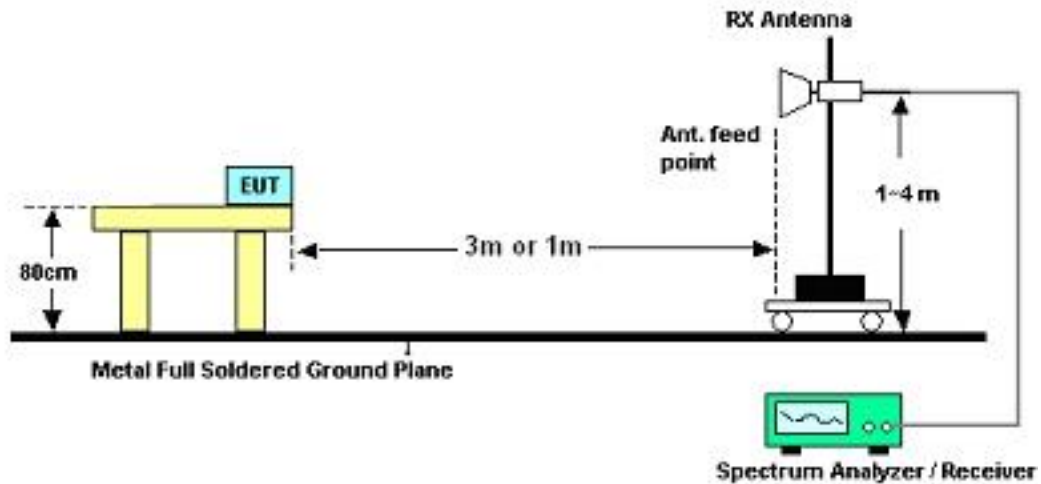
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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



3.5.6 Test Result

3.5.7 Test Result of Radiated Band Edges

<Qwerty Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	61.6	-12.4	74	50.94	34.22	9.41	32.97	149	56	Peak
5150	46.29	-7.71	54	35.63	34.22	9.41	32.97	149	56	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	62.69	-11.31	74	52.03	34.22	9.41	32.97	100	269	Peak
5150	47.09	-6.91	54	36.43	34.22	9.41	32.97	100	269	Average

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5402	53.72	-20.28	74	42.4	34.42	9.82	32.92	100	65	Peak
5402	42.36	-11.64	54	31.04	34.42	9.82	32.92	100	65	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5396	53.35	-20.65	74	42.03	34.42	9.82	32.92	110	269	Peak
5396	41.88	-12.12	54	30.56	34.42	9.82	32.92	110	269	Average



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5134	53.73	-20.27	74	43.13	34.21	9.37	32.98	100	307	Peak
5134	41.44	-12.56	54	30.84	34.21	9.37	32.98	100	307	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5082	52.95	-21.05	74	42.48	34.17	9.29	32.99	112	236	Peak
5082	40.98	-13.02	54	30.51	34.17	9.29	32.99	112	236	Average

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	68.71	-5.29	74	57.52	34.38	9.74	32.93	100	61	Peak
5350	51.37	-2.63	54	40.18	34.38	9.74	32.93	100	61	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	64.85	-9.15	74	53.66	34.38	9.74	32.93	112	240	Peak
5350	49.06	-4.94	54	37.87	34.38	9.74	32.93	112	240	Average



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	61.4	-6.9	68.3	49.9	34.47	9.94	32.91	170	50	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	62.17	-6.13	68.3	50.67	34.47	9.94	32.91	100	218	Peak

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	66.38	-1.92	68.3	54.91	34.81	9.92	33.26	102	318	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	60.67	-7.63	68.3	49.2	34.81	9.92	33.26	100	207	Peak



<Numeric Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	66.37	-1.93	68.3	54.9	34.81	9.92	33.26	100	314	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.41	-2.89	68.3	53.94	34.81	9.92	33.26	100	205	Peak

<PIM Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	64.93	-3.37	68.3	53.46	34.81	9.92	33.26	100	317	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	63.63	-4.67	68.3	52.16	34.81	9.92	33.26	100	216	Peak



< Qwerty Keypad without Camera >

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.7	-2.6	68.3	54.23	34.81	9.92	33.26	100	320	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.1	-3.2	68.3	53.63	34.81	9.92	33.26	100	204	Peak



<Qwerty Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	62.81	-11.19	74	52.15	34.22	9.41	32.97	160	51	Peak
5150	46.77	-7.23	54	36.11	34.22	9.41	32.97	160	51	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	64.78	-9.22	74	54.12	34.22	9.41	32.97	100	270	Peak
5150	48.36	-5.64	54	37.7	34.22	9.41	32.97	100	270	Average

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5376	53.83	-20.17	74	42.59	34.39	9.78	32.93	100	59	Peak
5376	41.57	-12.43	54	30.33	34.39	9.78	32.93	100	59	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5422	54.52	-19.48	74	43.15	34.43	9.86	32.92	100	258	Peak
5422	41.26	-12.74	54	29.89	34.43	9.86	32.92	100	258	Average



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	53.24	-20.76	74	42.58	34.22	9.41	32.97	109	55	Peak
5150	42.57	-11.43	54	31.91	34.22	9.41	32.97	109	55	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	53.16	-20.84	74	42.5	34.22	9.41	32.97	102	307	Peak
5150	42.92	-11.08	54	32.26	34.22	9.41	32.97	102	307	Average

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.88	68.42	-5.58	74	57.23	34.38	9.74	32.93	100	65	Peak
5350.88	52.53	-1.47	54	41.34	34.38	9.74	32.93	100	65	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.26	68.07	-5.93	74	56.88	34.38	9.74	32.93	101	308	Peak
5350.26	52.38	-1.62	54	41.19	34.38	9.74	32.93	101	308	Average



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	64.87	-3.43	68.3	53.37	34.47	9.94	32.91	112	54	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	63.41	-4.89	68.3	51.91	34.47	9.94	32.91	100	220	Peak

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	67.21	-1.09	68.3	55.74	34.81	9.92	33.26	170	65	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.92	-2.38	68.3	54.45	34.81	9.92	33.26	100	274	Peak



<Numeric Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	67.1	-1.2	68.3	55.63	34.81	9.92	33.26	100	321	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	66.39	-1.91	68.3	54.92	34.81	9.92	33.26	100	206	Peak

<PIM Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.55	-2.75	68.3	54.08	34.81	9.92	33.26	100	313	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.81	-2.49	68.3	54.34	34.81	9.92	33.26	100	207	Peak



<Qwerty Keypad without Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	66.55	-1.75	68.3	55.08	34.81	9.92	33.26	100	325	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	65.34	-2.96	68.3	53.87	34.81	9.92	33.26	100	205	Peak



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

<Qwerty Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	20.61	-19.39	40	31.95	20	0.53	31.87	-	-	Peak
172.83	25.69	-17.81	43.5	46.41	9.29	1.24	31.25	-	-	Peak
180.66	30.87	-12.63	43.5	51.91	8.9	1.25	31.19	105	220	Peak
665.4	23.19	-22.81	46	30.39	20.32	2.87	30.39	-	-	Peak
759.9	23.17	-22.83	46	29.06	21.49	3.08	30.46	-	-	Peak
790	23.94	-22.06	46	29.1	21.95	3.12	30.23	-	-	Peak
5150	46.29	-7.71	54	35.63	34.22	9.41	32.97	149	56	Average
5150	61.6	-12.4	74	50.94	34.22	9.41	32.97	149	56	Peak
5180	101.21	-	-	90.48	34.25	9.45	32.97	149	56	Average
5180	111.45	-	-	100.72	34.25	9.45	32.97	149	56	Peak
5394	42.09	-11.91	54	30.78	34.41	9.82	32.92	149	56	Average
5394	54.2	-19.8	74	42.89	34.41	9.82	32.92	149	56	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.68	-6.32	40	45.02	20	0.53	31.87	110	175	Peak
130.98	29.79	-13.71	43.5	48.62	11.58	1.15	31.56	-	-	Peak
181.2	31.69	-11.81	43.5	52.72	8.91	1.25	31.19	-	-	Peak
716.5	21.92	-24.08	46	28.59	20.85	2.98	30.5	-	-	Peak
771.8	23.56	-22.44	46	29.15	21.68	3.1	30.37	-	-	Peak
806.1	24.19	-21.81	46	29.08	22.16	3.16	30.21	-	-	Peak
5150	47.09	-6.91	54	36.43	34.22	9.41	32.97	100	269	Average
5150	62.69	-11.31	74	52.03	34.22	9.41	32.97	100	269	Peak
5180	101.33	-	-	90.6	34.25	9.45	32.97	100	269	Average
5180	110.88	-	-	100.15	34.25	9.45	32.97	100	269	Peak
5388	41.69	-12.31	54	30.38	34.41	9.82	32.92	100	269	Average
5388	53.3	-20.7	74	41.99	34.41	9.82	32.92	100	269	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5220 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.53	-19.47	40	31.87	20	0.53	31.87	-	-	Peak
173.37	25.69	-17.81	43.5	46.51	9.19	1.24	31.25	-	-	Peak
180.66	30.76	-12.74	43.5	51.8	8.9	1.25	31.19	104	157	Peak
593.3	20.39	-25.61	46	28.68	19.68	2.67	30.64	-	-	Peak
648.6	22.58	-23.42	46	29.9	20.19	2.84	30.35	-	-	Peak
745.9	23.29	-22.71	46	29.49	21.28	3.05	30.53	-	-	Peak
5018	40.95	-13.05	54	30.67	34.11	9.17	33	100	61	Average
5018	53.55	-20.45	74	43.27	34.11	9.17	33	100	61	Peak
5220	102.13	-	-	91.29	34.27	9.53	32.96	100	61	Average
5220	111.76	-	-	100.92	34.27	9.53	32.96	100	61	Peak
5382	42.34	-11.66	54	31.03	34.41	9.82	32.92	100	61	Average
5382	53.82	-20.18	74	42.51	34.41	9.82	32.92	100	61	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5220 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.24	-6.76	40	44.58	20	0.53	31.87	106	220	Peak
131.25	29.9	-13.6	43.5	48.73	11.58	1.15	31.56	-	-	Peak
180.66	31.69	-11.81	43.5	52.73	8.9	1.25	31.19	-	-	Peak
657	22.39	-23.61	46	29.66	20.25	2.85	30.37	-	-	Peak
762.7	23.22	-22.78	46	29.04	21.53	3.08	30.43	-	-	Peak
777.4	23.54	-22.46	46	29	21.77	3.1	30.33	-	-	Peak
5026	41.21	-12.79	54	30.87	34.13	9.21	33	100	267	Average
5026	53.87	-20.13	74	43.53	34.13	9.21	33	100	267	Peak
5220	100.14	-	-	89.3	34.27	9.53	32.96	100	267	Average
5220	109.52	-	-	98.68	34.27	9.53	32.96	100	267	Peak
5420	41.85	-12.15	54	30.48	34.43	9.86	32.92	100	267	Average
5420	53.92	-20.08	74	42.55	34.43	9.86	32.92	100	267	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5240 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.91	-19.09	40	32.25	20	0.53	31.87	-	-	Peak
171.48	25.3	-18.2	43.5	45.96	9.38	1.23	31.27	-	-	Peak
180.12	30.71	-12.79	43.5	51.74	8.9	1.25	31.18	104	168	Peak
670.3	22.08	-23.92	46	29.25	20.36	2.88	30.41	-	-	Peak
728.4	22.82	-23.18	46	29.3	21.02	3.01	30.51	-	-	Peak
780.2	23.35	-22.65	46	28.76	21.79	3.11	30.31	-	-	Peak
5144	40.87	-13.13	54	30.21	34.22	9.41	32.97	100	65	Average
5144	52.93	-21.07	74	42.27	34.22	9.41	32.97	100	65	Peak
5240	101.56	-	-	90.65	34.29	9.57	32.95	100	65	Average
5240	110.76	-	-	99.85	34.29	9.57	32.95	100	65	Peak
5402	42.36	-11.64	54	31.04	34.42	9.82	32.92	100	65	Average
5402	53.72	-20.28	74	42.4	34.42	9.82	32.92	100	65	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5240 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.98	-6.02	40	45.32	20	0.53	31.87	102	223	Peak
140.43	29.25	-14.25	43.5	48.13	11.38	1.2	31.46	-	-	Peak
181.2	31.58	-11.92	43.5	52.61	8.91	1.25	31.19	-	-	Peak
610.1	21.17	-24.83	46	29.07	19.88	2.72	30.5	-	-	Peak
678.7	22.22	-23.78	46	29.32	20.43	2.9	30.43	-	-	Peak
741.7	23.3	-22.7	46	29.55	21.23	3.04	30.52	-	-	Peak
5120	40.99	-13.01	54	30.41	34.19	9.37	32.98	110	269	Average
5120	53.26	-20.74	74	42.68	34.19	9.37	32.98	110	269	Peak
5240	100.11	-	-	89.2	34.29	9.57	32.95	110	269	Average
5240	109.33	-	-	98.42	34.29	9.57	32.95	110	269	Peak
5396	41.88	-12.12	54	30.56	34.42	9.82	32.92	110	269	Average
5396	53.35	-20.65	74	42.03	34.42	9.82	32.92	110	269	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5260 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.86	-19.14	40	32.2	20	0.53	31.87	-	-	Peak
172.29	25.81	-17.69	43.5	46.54	9.29	1.24	31.26	-	-	Peak
181.2	31.06	-12.44	43.5	52.09	8.91	1.25	31.19	110	147	Peak
666.8	22.5	-23.5	46	29.7	20.33	2.87	30.4	-	-	Peak
719.3	22.49	-23.51	46	29.12	20.89	2.99	30.51	-	-	Peak
775.3	23.71	-22.29	46	29.24	21.72	3.1	30.35	-	-	Peak
5134	41.44	-12.56	54	30.84	34.21	9.37	32.98	100	307	Average
5134	53.73	-20.27	74	43.13	34.21	9.37	32.98	100	307	Peak
5260	102.54	-	-	91.56	34.31	9.62	32.95	100	307	Average
5260	112.22	-	-	101.24	34.31	9.62	32.95	100	307	Peak
5372	43.31	-10.69	54	32.07	34.39	9.78	32.93	100	307	Average
5372	54.68	-19.32	74	43.44	34.39	9.78	32.93	100	307	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5260 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	33.37	-6.63	40	45.42	19.28	0.54	31.87	106	198	Peak
133.14	29.71	-13.79	43.5	48.55	11.54	1.16	31.54	-	-	Peak
181.74	31.86	-11.64	43.5	52.91	8.91	1.25	31.21	-	-	Peak
642.3	22.93	-23.07	46	30.36	20.13	2.82	30.38	-	-	Peak
743.8	23.04	-22.96	46	29.26	21.26	3.05	30.53	-	-	Peak
787.2	23.97	-22.03	46	29.2	21.91	3.12	30.26	-	-	Peak
5082	40.98	-13.02	54	30.51	34.17	9.29	32.99	112	236	Average
5082	52.95	-21.05	74	42.48	34.17	9.29	32.99	112	236	Peak
5260	100.47	-	-	89.49	34.31	9.62	32.95	112	236	Average
5260	109.83	-	-	98.85	34.31	9.62	32.95	112	236	Peak
5434	43.28	-10.72	54	31.84	34.45	9.9	32.91	112	236	Average
5434	53.81	-20.19	74	42.37	34.45	9.9	32.91	112	236	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	60	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.16	20.6	-19.4	40	33.36	18.56	0.55	31.87	-	-	Peak
171.21	25.57	-17.93	43.5	46.23	9.38	1.23	31.27	-	-	Peak
181.2	31.03	-12.47	43.5	52.06	8.91	1.25	31.19	111	130	Peak
705.3	22.49	-23.51	46	29.36	20.67	2.95	30.49	-	-	Peak
782.3	23.39	-22.61	46	28.73	21.84	3.11	30.29	-	-	Peak
804	25.43	-20.57	46	30.33	22.14	3.15	30.19	-	-	Peak
5128	41.21	-12.79	54	30.61	34.21	9.37	32.98	109	62	Average
5128	54.11	-19.89	74	43.51	34.21	9.37	32.98	109	62	Peak
5300	103.48	-	-	92.42	34.34	9.66	32.94	109	62	Average
5300	113.36	-	-	102.3	34.34	9.66	32.94	109	62	Peak
5352	46.42	-7.58	54	35.23	34.38	9.74	32.93	109	62	Average
5352	58.03	-15.97	74	46.84	34.38	9.74	32.93	109	62	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	60	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.44	-6.56	40	44.78	20	0.53	31.87	103	178	Peak
130.71	29.84	-13.66	43.5	48.67	11.58	1.15	31.56	-	-	Peak
181.2	31.79	-11.71	43.5	52.82	8.91	1.25	31.19	-	-	Peak
679.4	22.31	-23.69	46	29.41	20.43	2.9	30.43	-	-	Peak
771.1	23.33	-22.67	46	28.95	21.66	3.09	30.37	-	-	Peak
795.6	24.84	-21.16	46	29.87	22.03	3.13	30.19	-	-	Peak
5036	40.96	-13.04	54	30.62	34.13	9.21	33	100	241	Average
5036	52.44	-21.56	74	42.1	34.13	9.21	33	100	241	Peak
5300	99.82	-	-	88.76	34.34	9.66	32.94	100	241	Average
5300	108.9	-	-	97.84	34.34	9.66	32.94	100	241	Peak
5350	44.51	-9.49	54	33.32	34.38	9.74	32.93	100	241	Average
5350	55.49	-18.51	74	44.3	34.38	9.74	32.93	100	241	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	20.51	-19.49	40	31.85	20	0.53	31.87	-	-	Peak
171.48	25.15	-18.35	43.5	45.81	9.38	1.23	31.27	-	-	Peak
181.2	30.81	-12.69	43.5	51.84	8.91	1.25	31.19	112	168	Peak
606.6	21.87	-24.13	46	29.82	19.85	2.71	30.51	-	-	Peak
705.3	22.58	-23.42	46	29.45	20.67	2.95	30.49	-	-	Peak
779.5	23.13	-22.87	46	28.55	21.79	3.11	30.32	-	-	Peak
5144	41.79	-12.21	54	31.13	34.22	9.41	32.97	100	61	Average
5144	55.19	-18.81	74	44.53	34.22	9.41	32.97	100	61	Peak
5320	103.73	-	-	92.62	34.35	9.7	32.94	100	61	Average
5320	113.17	-	-	102.06	34.35	9.7	32.94	100	61	Peak
5350	51.37	-2.63	54	40.18	34.38	9.74	32.93	100	61	Average
5350	68.71	-5.29	74	57.52	34.38	9.74	32.93	100	61	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	33.8	-6.2	40	45.85	19.28	0.54	31.87	106	221	Peak
130.17	29.51	-13.99	43.5	48.33	11.6	1.15	31.57	-	-	Peak
181.2	31.59	-11.91	43.5	52.62	8.91	1.25	31.19	-	-	Peak
654.9	22.39	-23.61	46	29.67	20.23	2.85	30.36	-	-	Peak
746.6	23.35	-22.65	46	29.53	21.3	3.05	30.53	-	-	Peak
789.3	24.22	-21.78	46	29.4	21.94	3.12	30.24	-	-	Peak
5024	41	-13	54	30.66	34.13	9.21	33	112	240	Average
5024	53.39	-20.61	74	43.05	34.13	9.21	33	112	240	Peak
5320	100.44	-	-	89.33	34.35	9.7	32.94	112	240	Average
5320	109.85	-	-	98.74	34.35	9.7	32.94	112	240	Peak
5350	49.06	-4.94	54	37.87	34.38	9.74	32.93	112	240	Average
5350	64.85	-9.15	74	53.66	34.38	9.74	32.93	112	240	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.3	-19.7	40	31.64	20	0.53	31.87	-	-	Peak
171.21	25.5	-18	43.5	46.16	9.38	1.23	31.27	-	-	Peak
181.2	30.93	-12.57	43.5	51.96	8.91	1.25	31.19	109	157	Peak
642.3	21.98	-24.02	46	29.41	20.13	2.82	30.38	-	-	Peak
764.1	23.28	-22.72	46	29.07	21.56	3.08	30.43	-	-	Peak
806.1	24.97	-21.03	46	29.86	22.16	3.16	30.21	-	-	Peak
5470	61.4	-6.9	68.3	49.9	34.47	9.94	32.91	170	50	Peak
5500	101.18	-	-	89.56	34.5	10.02	32.9	170	50	Average
5500	111.07	-	-	99.45	34.5	10.02	32.9	170	50	Peak
5725	52.58	-15.72	68.3	41.11	34.81	9.92	33.26	170	50	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	32.61	-7.39	40	43.95	20	0.53	31.87	105	195	Peak
52.68	29.1	-10.9	40	52.36	7.7	0.71	31.67	-	-	Peak
181.2	31.64	-11.86	43.5	52.67	8.91	1.25	31.19	-	-	Peak
688.5	22.32	-23.68	46	29.35	20.51	2.92	30.46	-	-	Peak
763.4	23.08	-22.92	46	28.88	21.55	3.08	30.43	-	-	Peak
785.8	23.92	-22.08	46	29.18	21.88	3.12	30.26	-	-	Peak
5470	62.17	-6.13	68.3	50.67	34.47	9.94	32.91	100	218	Peak
5500	100.56	-	-	88.94	34.5	10.02	32.9	100	218	Average
5500	110.26	-	-	98.64	34.5	10.02	32.9	100	218	Peak
5725	51.26	-17.04	68.3	39.79	34.81	9.92	33.26	100	218	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.72	-19.28	40	32.06	20	0.53	31.87	-	-	Peak
171.75	25.7	-17.8	43.5	46.35	9.38	1.23	31.26	-	-	Peak
181.2	31.02	-12.48	43.5	52.05	8.91	1.25	31.19	107	157	Peak
617.1	21.63	-24.37	46	29.44	19.93	2.74	30.48	-	-	Peak
752.2	22.73	-23.27	46	28.8	21.39	3.06	30.52	-	-	Peak
766.2	23.85	-22.15	46	29.58	21.59	3.09	30.41	-	-	Peak
5470	52.38	-15.92	68.3	40.88	34.47	9.94	32.91	100	23	Peak
5580	102.17	-	-	90.6	34.6	9.99	33.02	100	23	Average
5580	111.14	-	-	99.57	34.6	9.99	33.02	100	23	Peak
5725	53.37	-14.93	68.3	41.9	34.81	9.92	33.26	100	23	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.82	-6.18	40	45.16	20	0.53	31.87	105	187	Peak
129.09	29.35	-14.15	43.5	48.17	11.62	1.14	31.58	-	-	Peak
180.66	31.71	-11.79	43.5	52.75	8.9	1.25	31.19	-	-	Peak
645.1	22.27	-23.73	46	29.65	20.16	2.83	30.37	-	-	Peak
696.9	22.47	-23.53	46	29.44	20.58	2.93	30.48	-	-	Peak
815.2	24.5	-21.5	46	29.34	22.25	3.18	30.27	-	-	Peak
5470	53.3	-15	68.3	41.8	34.47	9.94	32.91	100	200	Peak
5580	100.27	-	-	88.7	34.6	9.99	33.02	100	200	Average
5580	109.61	-	-	98.04	34.6	9.99	33.02	100	200	Peak
5725	52.6	-15.7	68.3	41.13	34.81	9.92	33.26	100	200	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	20.83	-19.17	40	32.17	20	0.53	31.87	-	-	Peak
172.83	26.06	-17.44	43.5	46.78	9.29	1.24	31.25	-	-	Peak
180.66	31.04	-12.46	43.5	52.08	8.9	1.25	31.19	105	222	Peak
626.9	22.13	-23.87	46	29.79	20.01	2.77	30.44	-	-	Peak
689.2	23.41	-22.59	46	30.44	20.51	2.92	30.46	-	-	Peak
750.1	22.81	-23.19	46	28.94	21.34	3.06	30.53	-	-	Peak
5470	53.1	-15.2	68.3	41.6	34.47	9.94	32.91	102	318	Peak
5700	100.26	-	-	88.78	34.77	9.93	33.22	102	318	Average
5700	111.76	-	-	100.26	34.79	9.93	33.22	102	318	Peak
5725	66.38	-1.92	68.3	54.91	34.81	9.92	33.26	102	318	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	33.87	-6.13	40	45.92	19.28	0.54	31.87	106	215	Peak
130.17	30.49	-13.01	43.5	49.31	11.6	1.15	31.57	-	-	Peak
182.28	31.5	-12	43.5	52.53	8.92	1.26	31.21	-	-	Peak
643.7	21.83	-24.17	46	29.23	20.15	2.82	30.37	-	-	Peak
717.2	22.35	-23.65	46	29.02	20.85	2.98	30.5	-	-	Peak
747.3	22.77	-23.23	46	28.95	21.3	3.05	30.53	-	-	Peak
5470	51.18	-17.12	68.3	39.68	34.47	9.94	32.91	100	207	Peak
5700	97.04	-	-	85.56	34.77	9.93	33.22	100	207	Average
5700	107.75	-	-	96.25	34.79	9.93	33.22	100	207	Peak
5725	60.67	-7.63	68.3	49.2	34.81	9.92	33.26	100	207	Peak



<Numeric Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	19.79	-20.21	40	31.13	20	0.53	31.87	-	-	Peak
173.64	25.37	-18.13	43.5	46.18	9.19	1.24	31.24	-	-	Peak
181.47	30.99	-12.51	43.5	52.02	8.91	1.25	31.19	106	205	Peak
573.7	19.03	-26.97	46	27.97	19.35	2.62	30.91	-	-	Peak
651.4	20.37	-25.63	46	27.67	20.21	2.84	30.35	-	-	Peak
723.5	21.52	-24.48	46	28.08	20.95	3	30.51	-	-	Peak
5470	50.73	-17.57	68.3	39.23	34.47	9.94	32.91	100	314	Peak
5700	98.99	-	-	87.51	34.77	9.93	33.22	100	314	Average
5700	109.31	-	-	97.83	34.77	9.93	33.22	100	314	Peak
5725	66.37	-1.93	68.3	54.9	34.81	9.92	33.26	100	314	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.67	-6.33	40	45.01	20	0.53	31.87	112	168	Peak
130.98	27.38	-16.12	43.5	46.21	11.58	1.15	31.56	-	-	Peak
183.63	30.12	-13.38	43.5	51.17	8.93	1.26	31.24	-	-	Peak
639.5	20.29	-25.71	46	27.76	20.11	2.81	30.39	-	-	Peak
713.7	20.26	-25.74	46	26.99	20.8	2.97	30.5	-	-	Peak
786.5	22.46	-23.54	46	27.7	21.9	3.12	30.26	-	-	Peak
5470	50.23	-18.07	68.3	38.73	34.47	9.94	32.91	100	205	Peak
5700	98.19	-	-	86.71	34.77	9.93	33.22	100	205	Average
5700	108.71	-	-	97.23	34.77	9.93	33.22	100	205	Peak
5725	65.41	-2.89	68.3	53.94	34.81	9.92	33.26	100	205	Peak



<PIM Keypad with Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.98	-20.02	40	31.32	20	0.53	31.87	-	-	Peak
172.29	25.91	-17.59	43.5	46.64	9.29	1.24	31.26	-	-	Peak
180.12	30.94	-12.56	43.5	51.97	8.9	1.25	31.18	116	168	Peak
627.6	21.1	-24.9	46	28.74	20.02	2.77	30.43	-	-	Peak
707.4	21.52	-24.48	46	28.36	20.7	2.96	30.5	-	-	Peak
774.6	21.89	-24.11	46	27.42	21.72	3.1	30.35	-	-	Peak
5470	52.11	-16.19	68.3	40.61	34.47	9.94	32.91	100	317	Peak
5700	99.04	-	-	87.56	34.77	9.93	33.22	100	317	Average
5700	109.59	-	-	98.11	34.77	9.93	33.22	100	317	Peak
5725	64.93	-3.37	68.3	53.46	34.81	9.92	33.26	100	317	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.67	-6.33	40	45.01	20	0.53	31.87	108	157	Peak
130.44	28.78	-14.72	43.5	47.62	11.58	1.15	31.57	-	-	Peak
180.93	31.18	-12.32	43.5	52.21	8.91	1.25	31.19	-	-	Peak
671	21.1	-24.9	46	28.26	20.37	2.88	30.41	-	-	Peak
735.4	21.26	-24.74	46	27.64	21.12	3.02	30.52	-	-	Peak
815.9	22.85	-23.15	46	27.69	22.26	3.18	30.28	-	-	Peak
5470	52.1	-16.2	68.3	40.6	34.47	9.94	32.91	100	216	Peak
5700	97.35	-	-	85.87	34.77	9.93	33.22	100	216	Average
5700	107.35	-	-	95.87	34.77	9.93	33.22	100	216	Peak
5725	63.63	-4.67	68.3	52.16	34.81	9.92	33.26	100	216	Peak



<Qwerty Keypad without Camera>

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.98	-20.02	40	31.32	20	0.53	31.87	-	-	Peak
172.02	25.56	-17.94	43.5	46.21	9.38	1.23	31.26	-	-	Peak
179.31	30.15	-13.35	43.5	51.16	8.93	1.25	31.19	101	165	Peak
608.7	20.07	-25.93	46	27.99	19.87	2.72	30.51	-	-	Peak
717.9	21.11	-24.89	46	27.77	20.86	2.98	30.5	-	-	Peak
785.1	22.67	-23.33	46	27.95	21.87	3.12	30.27	-	-	Peak
5470	52.4	-15.9	68.3	40.9	34.47	9.94	32.91	100	320	Peak
5700	99.09	-	-	87.61	34.77	9.93	33.22	100	320	Average
5700	109.45	-	-	97.97	34.77	9.93	33.22	100	320	Peak
5725	65.7	-2.6	68.3	54.23	34.81	9.92	33.26	100	320	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.67	-6.33	40	45.01	20	0.53	31.87	109	208	Peak
130.71	29.36	-14.14	43.5	48.19	11.58	1.15	31.56	-	-	Peak
180.39	31.69	-11.81	43.5	52.72	8.9	1.25	31.18	-	-	Peak
643	21.56	-24.44	46	28.98	20.14	2.82	30.38	-	-	Peak
717.9	21.1	-24.9	46	27.76	20.86	2.98	30.5	-	-	Peak
815.9	22.85	-23.15	46	27.69	22.26	3.18	30.28	-	-	Peak
5470	51.46	-16.84	68.3	39.96	34.47	9.94	32.91	100	204	Peak
5700	98.22	-	-	86.74	34.77	9.93	33.22	100	204	Average
5700	108.26	-	-	96.78	34.77	9.93	33.22	100	204	Peak
5725	65.1	-3.2	68.3	53.63	34.81	9.92	33.26	100	204	Peak



<Qwerty Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.26	-19.74	40	31.6	20	0.53	31.87	-	-	Peak
172.56	25.79	-17.71	43.5	46.51	9.29	1.24	31.25	-	-	Peak
181.2	30.91	-12.59	43.5	51.94	8.91	1.25	31.19	104	167	Peak
614.3	21.5	-24.5	46	29.35	19.91	2.73	30.49	-	-	Peak
648.6	21.87	-24.13	46	29.19	20.19	2.84	30.35	-	-	Peak
727	23.25	-22.75	46	29.74	21.01	3.01	30.51	-	-	Peak
5150	46.77	-7.23	54	36.11	34.22	9.41	32.97	160	51	Average
5150	62.81	-11.19	74	52.15	34.22	9.41	32.97	160	51	Peak
5180	101.56	-	-	90.83	34.25	9.45	32.97	160	51	Average
5180	111.45	-	-	100.72	34.25	9.45	32.97	160	51	Peak
5440	42.2	-11.8	54	30.76	34.45	9.9	32.91	160	51	Average
5440	54.56	-19.44	74	43.12	34.45	9.9	32.91	160	51	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.19	-6.81	40	44.53	20	0.53	31.87	107	216	Peak
130.44	28.85	-14.65	43.5	47.69	11.58	1.15	31.57	-	-	Peak
181.2	31.62	-11.88	43.5	52.65	8.91	1.25	31.19	-	-	Peak
630.4	21.91	-24.09	46	29.52	20.04	2.78	30.43	-	-	Peak
686.4	22.7	-23.3	46	29.75	20.49	2.91	30.45	-	-	Peak
771.1	23.39	-22.61	46	29.01	21.66	3.09	30.37	-	-	Peak
5150	48.36	-5.64	54	37.7	34.22	9.41	32.97	100	270	Average
5150	64.78	-9.22	74	54.12	34.22	9.41	32.97	100	270	Peak
5180	100.84	-	-	90.11	34.25	9.45	32.97	100	270	Average
5180	110.54	-	-	99.81	34.25	9.45	32.97	100	270	Peak
5440	41.48	-12.52	54	30.04	34.45	9.9	32.91	100	270	Average
5440	53.6	-20.4	74	42.16	34.45	9.9	32.91	100	270	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5220 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	21.09	-18.91	40	33.85	18.56	0.55	31.87	-	-	Peak
172.29	26.2	-17.3	43.5	46.93	9.29	1.24	31.26	-	-	Peak
181.2	31.14	-12.36	43.5	52.17	8.91	1.25	31.19	106	146	Peak
668.9	22.52	-23.48	46	29.69	20.35	2.88	30.4	-	-	Peak
726.3	22.83	-23.17	46	29.35	20.99	3	30.51	-	-	Peak
763.4	25.39	-20.61	46	31.19	21.55	3.08	30.43	-	-	Peak
5150	41.92	-12.08	54	31.26	34.22	9.41	32.97	112	64	Average
5150	52.79	-21.21	74	42.13	34.22	9.41	32.97	112	64	Peak
5220	101.44	-	-	90.6	34.27	9.53	32.96	112	64	Average
5220	111.01	-	-	100.17	34.27	9.53	32.96	112	64	Peak
5398	42.31	-11.69	54	30.99	34.42	9.82	32.92	112	64	Average
5398	54.72	-19.28	74	43.4	34.42	9.82	32.92	112	64	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5220 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.71	-6.29	40	45.05	20	0.53	31.87	102	184	Peak
129.63	30.09	-13.41	43.5	48.91	11.6	1.15	31.57	-	-	Peak
181.2	31.86	-11.64	43.5	52.89	8.91	1.25	31.19	-	-	Peak
645.8	21.79	-24.21	46	29.16	20.17	2.83	30.37	-	-	Peak
722.8	22.23	-23.77	46	28.82	20.93	2.99	30.51	-	-	Peak
750.8	23.63	-22.37	46	29.73	21.36	3.06	30.52	-	-	Peak
5150	42.14	-11.86	54	31.48	34.22	9.41	32.97	100	265	Average
5150	53.15	-20.85	74	42.49	34.22	9.41	32.97	100	265	Peak
5220	99.91	-	-	89.07	34.27	9.53	32.96	100	265	Average
5220	109.1	-	-	98.26	34.27	9.53	32.96	100	265	Peak
5390	41.69	-12.31	54	30.38	34.41	9.82	32.92	100	265	Average
5390	53.15	-20.85	74	41.84	34.41	9.82	32.92	100	265	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5240 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	20.27	-19.73	40	32.32	19.28	0.54	31.87	-	-	Peak
172.02	25.84	-17.66	43.5	46.49	9.38	1.23	31.26	-	-	Peak
181.2	31.1	-12.4	43.5	52.13	8.91	1.25	31.19	104	198	Peak
639.5	22.19	-23.81	46	29.66	20.11	2.81	30.39	-	-	Peak
749.4	22.55	-23.45	46	28.68	21.34	3.06	30.53	-	-	Peak
804	24.21	-21.79	46	29.11	22.14	3.15	30.19	-	-	Peak
5150	41.88	-12.12	54	31.22	34.22	9.41	32.97	100	59	Average
5150	50.8	-23.2	74	40.14	34.22	9.41	32.97	100	59	Peak
5240	101.56	-	-	90.65	34.29	9.57	32.95	100	59	Average
5240	111.02	-	-	100.11	34.29	9.57	32.95	100	59	Peak
5376	41.57	-12.43	54	30.33	34.39	9.78	32.93	100	59	Average
5376	53.83	-20.17	74	42.59	34.39	9.78	32.93	100	59	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5240 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.85	-6.15	40	45.19	20	0.53	31.87	112	168	Peak
130.71	29.65	-13.85	43.5	48.48	11.58	1.15	31.56	-	-	Peak
180.66	31.91	-11.59	43.5	52.95	8.9	1.25	31.19	-	-	Peak
659.8	21.97	-24.03	46	29.22	20.27	2.86	30.38	-	-	Peak
739.6	22.91	-23.09	46	29.19	21.2	3.04	30.52	-	-	Peak
775.3	24.3	-21.7	46	29.83	21.72	3.1	30.35	-	-	Peak
5150	41.62	-12.38	54	30.96	34.22	9.41	32.97	100	258	Average
5150	51.21	-22.79	74	40.55	34.22	9.41	32.97	100	258	Peak
5240	99.82	-	-	88.91	34.29	9.57	32.95	100	258	Average
5240	109.07	-	-	98.16	34.29	9.57	32.95	100	258	Peak
5422	41.26	-12.74	54	29.89	34.43	9.86	32.92	100	258	Average
5422	54.52	-19.48	74	43.15	34.43	9.86	32.92	100	258	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5260 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20	-20	40	32.76	18.56	0.55	31.87	-	-	Peak
172.83	25.81	-17.69	43.5	46.53	9.29	1.24	31.25	-	-	Peak
180.66	31.06	-12.44	43.5	52.1	8.9	1.25	31.19	108	135	Peak
583.5	21.13	-24.87	46	29.75	19.52	2.64	30.78	-	-	Peak
666.8	22.8	-23.2	46	30	20.33	2.87	30.4	-	-	Peak
748.7	22.7	-23.3	46	28.84	21.33	3.06	30.53	-	-	Peak
5150	42.57	-11.43	54	31.91	34.22	9.41	32.97	109	55	Average
5150	53.24	-20.76	74	42.58	34.22	9.41	32.97	109	55	Peak
5260	104.3	-	-	93.32	34.31	9.62	32.95	109	55	Average
5260	113.67	-	-	102.69	34.31	9.62	32.95	109	55	Peak
5354	44.56	-9.44	54	33.37	34.38	9.74	32.93	109	55	Average
5354	55.32	-18.68	74	44.13	34.38	9.74	32.93	109	55	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5260 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	33.25	-6.75	40	45.3	19.28	0.54	31.87	111	187	Peak
130.17	30.19	-13.31	43.5	49.01	11.6	1.15	31.57	-	-	Peak
180.66	31.68	-11.82	43.5	52.72	8.9	1.25	31.19	-	-	Peak
638.1	21.68	-24.32	46	29.18	20.1	2.8	30.4	-	-	Peak
687.8	22.35	-23.65	46	29.4	20.5	2.91	30.46	-	-	Peak
801.2	23.99	-22.01	46	28.91	22.11	3.14	30.17	-	-	Peak
5150	42.92	-11.08	54	32.26	34.22	9.41	32.97	102	307	Average
5150	53.16	-20.84	74	42.5	34.22	9.41	32.97	102	307	Peak
5260	103.97	-	-	92.99	34.31	9.62	32.95	102	307	Average
5260	113.21	-	-	102.23	34.31	9.62	32.95	102	307	Peak
5364.52	43.25	-10.75	54	32.01	34.39	9.78	32.93	102	307	Average
5364.52	56.02	-17.98	74	44.78	34.39	9.78	32.93	102	307	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	60	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.86	-19.14	40	32.2	20	0.53	31.87	-	-	Peak
172.29	25.66	-17.84	43.5	46.39	9.29	1.24	31.26	-	-	Peak
180.93	30.9	-12.6	43.5	51.93	8.91	1.25	31.19	105	145	Peak
615.7	21.64	-24.36	46	29.46	19.92	2.74	30.48	-	-	Peak
695.5	22.85	-23.15	46	29.84	20.56	2.93	30.48	-	-	Peak
799.1	23.8	-22.2	46	28.74	22.09	3.14	30.17	-	-	Peak
5150	42.22	-11.78	54	31.56	34.22	9.41	32.97	125	41	Average
5150	53.09	-20.91	74	42.43	34.22	9.41	32.97	125	41	Peak
5300	103.57	-	-	92.51	34.34	9.66	32.94	125	41	Average
5300	113.49	-	-	102.43	34.34	9.66	32.94	125	41	Peak
5350	46.33	-7.67	54	35.14	34.38	9.74	32.93	125	41	Average
5350	61.35	-12.65	74	50.16	34.38	9.74	32.93	125	41	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	60	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	33.87	-6.13	40	45.92	19.28	0.54	31.87	108	220	Peak
130.98	29.33	-14.17	43.5	48.16	11.58	1.15	31.56	-	-	Peak
181.74	31.64	-11.86	43.5	52.69	8.91	1.25	31.21	-	-	Peak
646.5	22.38	-23.62	46	29.75	20.17	2.83	30.37	-	-	Peak
725.6	22.52	-23.48	46	29.05	20.98	3	30.51	-	-	Peak
771.8	23.5	-22.5	46	29.09	21.68	3.1	30.37	-	-	Peak
5150	42.83	-11.17	54	32.17	34.22	9.41	32.97	103	310	Average
5150	52.22	-21.78	74	41.56	34.22	9.41	32.97	103	310	Peak
5300	102.44	-	-	91.38	34.34	9.66	32.94	103	310	Average
5300	111.25	-	-	100.19	34.34	9.66	32.94	103	310	Peak
5350.88	45.87	-8.13	54	34.68	34.38	9.74	32.93	103	310	Average
5350.88	58.13	-15.87	74	46.94	34.38	9.74	32.93	103	310	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	20.79	-19.21	40	32.84	19.28	0.54	31.87	-	-	Peak
172.02	25.88	-17.62	43.5	46.53	9.38	1.23	31.26	-	-	Peak
181.2	30.97	-12.53	43.5	52	8.91	1.25	31.19	111	198	Peak
630.4	21.76	-24.24	46	29.37	20.04	2.78	30.43	-	-	Peak
722.1	23.55	-22.45	46	30.14	20.93	2.99	30.51	-	-	Peak
808.2	24.35	-21.65	46	29.23	22.18	3.16	30.22	-	-	Peak
5150	42.12	-11.88	54	31.46	34.22	9.41	32.97	100	65	Average
5150	51.69	-22.31	74	41.03	34.22	9.41	32.97	100	65	Peak
5320	103.66	-	-	92.55	34.35	9.7	32.94	100	65	Average
5320	113.45	-	-	102.34	34.35	9.7	32.94	100	65	Peak
5350.88	52.53	-1.47	54	41.34	34.38	9.74	32.93	100	65	Average
5350.88	68.42	-5.58	74	57.23	34.38	9.74	32.93	100	65	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.45	-6.55	40	44.79	20	0.53	31.87	105	204	Peak
130.98	29.3	-14.2	43.5	48.13	11.58	1.15	31.56	-	-	Peak
180.66	31.7	-11.8	43.5	52.74	8.9	1.25	31.19	-	-	Peak
631.1	22.92	-23.08	46	30.51	20.05	2.78	30.42	-	-	Peak
706.7	22.35	-23.65	46	29.19	20.7	2.96	30.5	-	-	Peak
740.3	24.17	-21.83	46	30.45	21.2	3.04	30.52	-	-	Peak
5150	41.79	-12.21	54	31.13	34.22	9.41	32.97	101	308	Average
5150	50.91	-23.09	74	40.25	34.22	9.41	32.97	101	308	Peak
5320	103.14	-	-	92.03	34.35	9.7	32.94	101	308	Average
5320	112.56	-	-	101.45	34.35	9.7	32.94	101	308	Peak
5350.26	52.38	-1.62	54	41.19	34.38	9.74	32.93	101	308	Average
5350.26	68.07	-5.93	74	56.88	34.38	9.74	32.93	101	308	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	20.76	-19.24	40	33.52	18.56	0.55	31.87	-	-	Peak
172.83	25.8	-17.7	43.5	46.52	9.29	1.24	31.25	-	-	Peak
180.66	31.24	-12.26	43.5	52.28	8.9	1.25	31.19	105	221	Peak
628.3	22.42	-23.58	46	30.04	20.03	2.78	30.43	-	-	Peak
708.1	22.47	-23.53	46	29.29	20.72	2.96	30.5	-	-	Peak
820.1	24.34	-21.66	46	29.16	22.3	3.19	30.31	-	-	Peak
5470	64.87	-3.43	68.3	53.37	34.47	9.94	32.91	112	54	Peak
5500	102.11	-	-	90.49	34.5	10.02	32.9	112	54	Average
5500	111.99	-	-	100.37	34.5	10.02	32.9	112	54	Peak
5725	51.81	-16.49	68.3	40.34	34.81	9.92	33.26	112	54	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.73	-6.27	40	45.07	20	0.53	31.87	111	208	Peak
130.17	29.58	-13.92	43.5	48.4	11.6	1.15	31.57	-	-	Peak
181.2	31.9	-11.6	43.5	52.93	8.91	1.25	31.19	-	-	Peak
716.5	22.3	-23.7	46	28.97	20.85	2.98	30.5	-	-	Peak
780.2	23.83	-22.17	46	29.24	21.79	3.11	30.31	-	-	Peak
833.4	24.63	-21.37	46	29.38	22.43	3.23	30.41	-	-	Peak
5470	63.41	-4.89	68.3	51.91	34.47	9.94	32.91	100	220	Peak
5500	101.3	-	-	89.68	34.5	10.02	32.9	100	220	Average
5500	111.12	-	-	99.5	34.5	10.02	32.9	100	220	Peak
5725	50.37	-17.93	68.3	38.9	34.81	9.92	33.26	100	220	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.33	-19.67	40	31.67	20	0.53	31.87	-	-	Peak
172.83	25.77	-17.73	43.5	46.49	9.29	1.24	31.25	-	-	Peak
180.66	31.16	-12.34	43.5	52.2	8.9	1.25	31.19	117	185	Peak
597.5	21.12	-24.88	46	29.27	19.75	2.68	30.58	-	-	Peak
699	22.27	-23.73	46	29.23	20.59	2.94	30.49	-	-	Peak
730.5	23.04	-22.96	46	29.49	21.05	3.01	30.51	-	-	Peak
5470	53.68	-14.62	68.3	42.18	34.47	9.94	32.91	100	12	Peak
5580	100.16	-	-	88.59	34.6	9.99	33.02	100	12	Average
5580	111.39	-	-	99.82	34.6	9.99	33.02	100	12	Peak
5725	53.58	-14.72	68.3	42.11	34.81	9.92	33.26	100	12	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.45	-6.55	40	44.79	20	0.53	31.87	112	205	Peak
130.98	29.63	-13.87	43.5	48.46	11.58	1.15	31.56	-	-	Peak
180.66	31.83	-11.67	43.5	52.87	8.9	1.25	31.19	-	-	Peak
580	21.82	-24.18	46	30.57	19.45	2.63	30.83	-	-	Peak
664	22.37	-23.63	46	29.58	20.31	2.87	30.39	-	-	Peak
784.4	23.55	-22.45	46	28.84	21.87	3.12	30.28	-	-	Peak
5470	52.57	-15.73	68.3	41.07	34.47	9.94	32.91	100	212	Peak
5580	100.02	-	-	88.45	34.6	9.99	33.02	100	212	Average
5580	111.01	-	-	99.44	34.6	9.99	33.02	100	212	Peak
5725	51.67	-16.63	68.3	40.2	34.81	9.92	33.26	100	212	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	20.22	-19.78	40	32.27	19.28	0.54	31.87	-	-	Peak
171.48	25.55	-17.95	43.5	46.21	9.38	1.23	31.27	-	-	Peak
181.47	30.99	-12.51	43.5	52.02	8.91	1.25	31.19	104	163	Peak
644.4	21.74	-24.26	46	29.14	20.15	2.82	30.37	-	-	Peak
696.9	22.63	-23.37	46	29.6	20.58	2.93	30.48	-	-	Peak
758.5	23.81	-22.19	46	29.74	21.47	3.07	30.47	-	-	Peak
5470	51.68	-16.62	68.3	40.18	34.47	9.94	32.91	170	65	Peak
5700	99.21	-	-	87.73	34.77	9.93	33.22	170	65	Average
5700	108.65	-	-	97.15	34.79	9.93	33.22	170	65	Peak
5725	67.21	-1.09	68.3	55.74	34.81	9.92	33.26	170	65	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.57	-6.43	40	44.91	20	0.53	31.87	116	187	Peak
140.43	29.36	-14.14	43.5	48.24	11.38	1.2	31.46	-	-	Peak
181.2	31.56	-11.94	43.5	52.59	8.91	1.25	31.19	-	-	Peak
598.2	20.73	-25.27	46	28.85	19.77	2.68	30.57	-	-	Peak
657.7	22.37	-23.63	46	29.62	20.26	2.86	30.37	-	-	Peak
755	23.05	-22.95	46	29.05	21.42	3.07	30.49	-	-	Peak
5470	52.31	-15.99	68.3	40.81	34.47	9.94	32.91	100	274	Peak
5700	98.86	-	-	87.38	34.77	9.93	33.22	100	274	Average
5700	107.92	-	-	96.42	34.79	9.93	33.22	100	274	Peak
5725	65.92	-2.38	68.3	54.45	34.81	9.92	33.26	100	274	Peak



<Numeric Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.98	-20.02	40	31.32	20	0.53	31.87	-	-	Peak
171.75	25.51	-17.99	43.5	46.16	9.38	1.23	31.26	-	-	Peak
179.58	30.4	-13.1	43.5	51.4	8.93	1.25	31.18	108	198	Peak
631.8	20.61	-25.39	46	28.2	20.05	2.78	30.42	-	-	Peak
678.7	21.66	-24.34	46	28.76	20.43	2.9	30.43	-	-	Peak
776.7	21.95	-24.05	46	27.43	21.75	3.1	30.33	-	-	Peak
5470	51.35	-16.95	68.3	39.85	34.47	9.94	32.91	100	321	Peak
5700	98.26	-	-	86.78	34.77	9.93	33.22	100	321	Average
5700	108.53	-	-	97.05	34.77	9.93	33.22	100	321	Peak
5725	67.1	-1.2	68.3	55.63	34.81	9.92	33.26	100	321	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.67	-6.33	40	45.01	20	0.53	31.87	111	167	Peak
130.44	28.78	-14.72	43.5	47.62	11.58	1.15	31.57	-	-	Peak
179.58	30.73	-12.77	43.5	51.73	8.93	1.25	31.18	-	-	Peak
597.5	20.4	-25.6	46	28.55	19.75	2.68	30.58	-	-	Peak
717.9	21.1	-24.9	46	27.76	20.86	2.98	30.5	-	-	Peak
778.8	22.64	-23.36	46	28.07	21.78	3.11	30.32	-	-	Peak
5470	52.82	-15.48	68.3	41.32	34.47	9.94	32.91	100	206	Peak
5700	96.54	-	-	85.06	34.77	9.93	33.22	100	206	Average
5700	106.95	-	-	95.47	34.77	9.93	33.22	100	206	Peak
5725	66.39	-1.91	68.3	54.92	34.81	9.92	33.26	100	206	Peak



<PIM Keypad with Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.98	-20.02	40	31.32	20	0.53	31.87	-	-	Peak
172.02	25.56	-17.94	43.5	46.21	9.38	1.23	31.26	-	-	Peak
181.47	30.99	-12.51	43.5	52.02	8.91	1.25	31.19	104	187	Peak
598.2	21.98	-24.02	46	30.1	19.77	2.68	30.57	-	-	Peak
731.9	22.67	-23.33	46	29.09	21.08	3.02	30.52	-	-	Peak
758.5	23.81	-22.19	46	29.74	21.47	3.07	30.47	-	-	Peak
5470	52.5	-15.8	68.3	41	34.47	9.94	32.91	100	313	Peak
5700	100.01	-	-	88.53	34.77	9.93	33.22	100	313	Average
5700	109.25	-	-	97.77	34.77	9.93	33.22	100	313	Peak
5725	65.55	-2.75	68.3	54.08	34.81	9.92	33.26	100	313	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	33.81	-6.19	40	45.15	20	0.53	31.87	105	157	Peak
140.43	29.36	-14.14	43.5	48.24	11.38	1.2	31.46	-	-	Peak
181.2	31.56	-11.94	43.5	52.59	8.91	1.25	31.19	-	-	Peak
605.9	21.7	-24.3	46	29.66	19.85	2.71	30.52	-	-	Peak
685	22.81	-23.19	46	29.87	20.48	2.91	30.45	-	-	Peak
806.1	25	-21	46	29.89	22.16	3.16	30.21	-	-	Peak
5470	52.33	-15.97	68.3	40.83	34.47	9.94	32.91	100	207	Peak
5700	96.43	-	-	84.95	34.77	9.93	33.22	100	207	Average
5700	107.02	-	-	95.54	34.77	9.93	33.22	100	207	Peak
5725	65.81	-2.49	68.3	54.34	34.81	9.92	33.26	100	207	Peak



<Qwerty Keypad without Camera>

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	19.98	-20.02	40	31.32	20	0.53	31.87	-	-	Peak
171.48	25.55	-17.95	43.5	46.21	9.38	1.23	31.27	-	-	Peak
180.66	31	-12.5	43.5	52.04	8.9	1.25	31.19	105	179	Peak
601.7	20.36	-25.64	46	28.39	19.81	2.69	30.53	-	-	Peak
739.6	21.79	-24.21	46	28.07	21.2	3.04	30.52	-	-	Peak
842.5	23.63	-22.37	46	28.33	22.53	3.25	30.48	-	-	Peak
5470	51.88	-16.42	68.3	40.38	34.47	9.94	32.91	100	325	Peak
5700	97.16	-	-	85.68	34.77	9.93	33.22	100	325	Average
5700	107.44	-	-	95.96	34.77	9.93	33.22	100	325	Peak
5725	66.55	-1.75	68.3	55.08	34.81	9.92	33.26	100	325	Peak



Test Mode :	802.11n (BW 20MHz)	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	33.67	-6.33	40	45.01	20	0.53	31.87	111	216	Peak
140.7	27.82	-15.68	43.5	46.69	11.38	1.2	31.45	-	-	Peak
181.2	31.56	-11.94	43.5	52.59	8.91	1.25	31.19	-	-	Peak
645.8	20.64	-25.36	46	28.01	20.17	2.83	30.37	-	-	Peak
738.2	22.67	-23.33	46	28.99	21.17	3.03	30.52	-	-	Peak
820.8	23.93	-22.07	46	28.76	22.3	3.19	30.32	-	-	Peak
5470	51.03	-17.27	68.3	39.53	34.47	9.94	32.91	100	205	Peak
5700	96.96	-	-	85.48	34.77	9.93	33.22	100	205	Average
5700	107.46	-	-	95.98	34.77	9.93	33.22	100	205	Peak
5725	65.34	-2.96	68.3	53.87	34.81	9.92	33.26	100	205	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

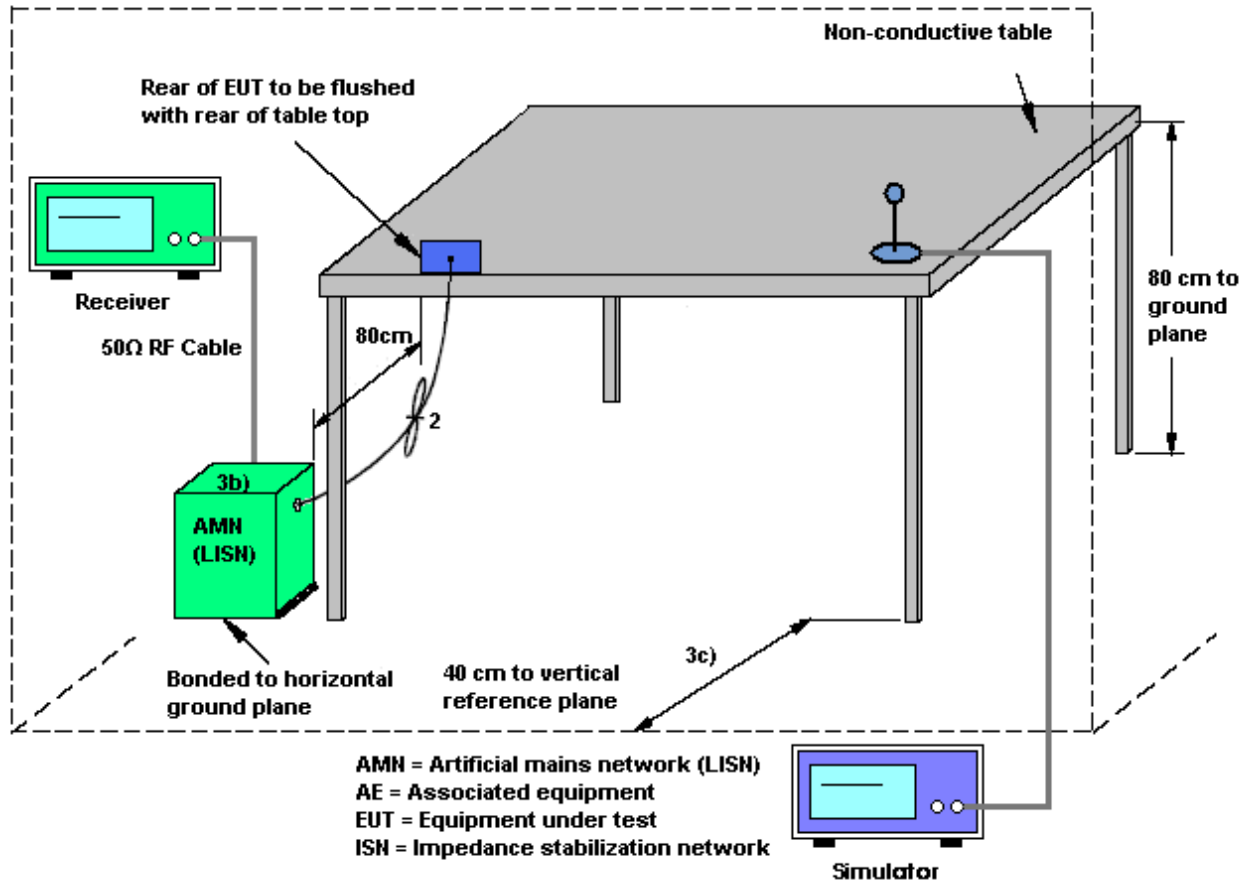
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

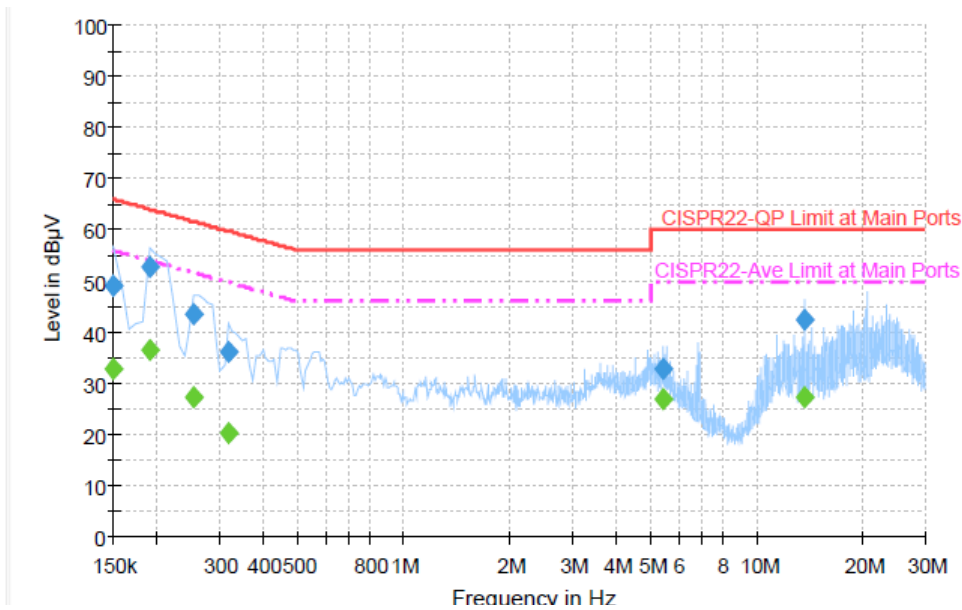
1. The testing follows the guidelines in ANSI C63.4-2003 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization 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.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camrea + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



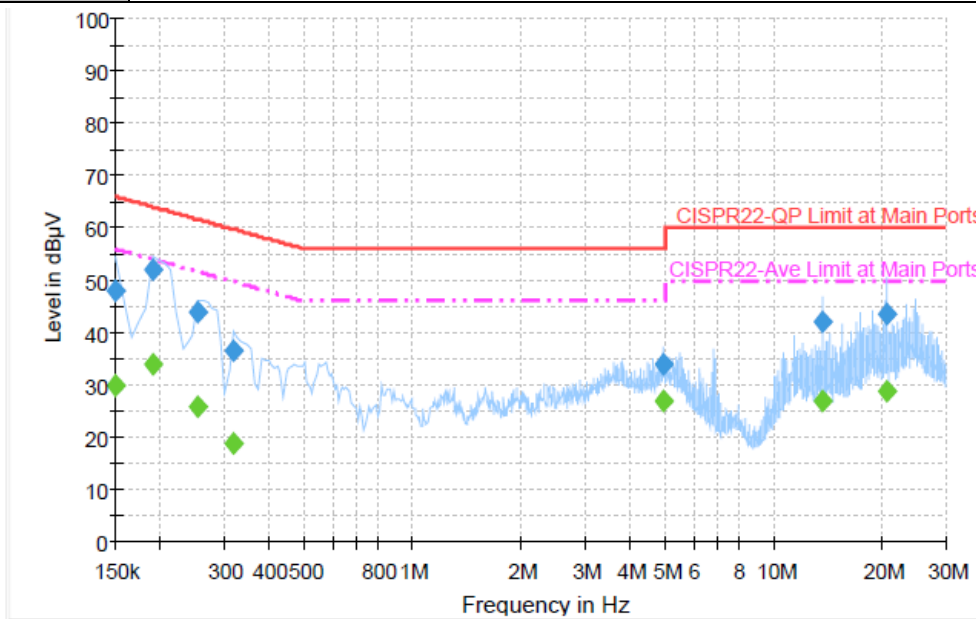
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.0	Off	L1	19.4	17.0	66.0
0.190000	52.8	Off	L1	19.4	11.2	64.0
0.254000	43.5	Off	L1	19.3	18.1	61.6
0.318000	36.3	Off	L1	19.3	23.5	59.8
5.438000	32.9	Off	L1	19.5	27.1	60.0
13.678000	42.3	Off	L1	19.7	17.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.0	Off	L1	19.4	23.0	56.0
0.190000	36.7	Off	L1	19.4	17.3	54.0
0.254000	27.4	Off	L1	19.3	24.2	51.6
0.318000	20.2	Off	L1	19.3	29.6	49.8
5.438000	27.0	Off	L1	19.5	23.0	50.0
13.678000	27.3	Off	L1	19.7	22.7	50.0

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camrea + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



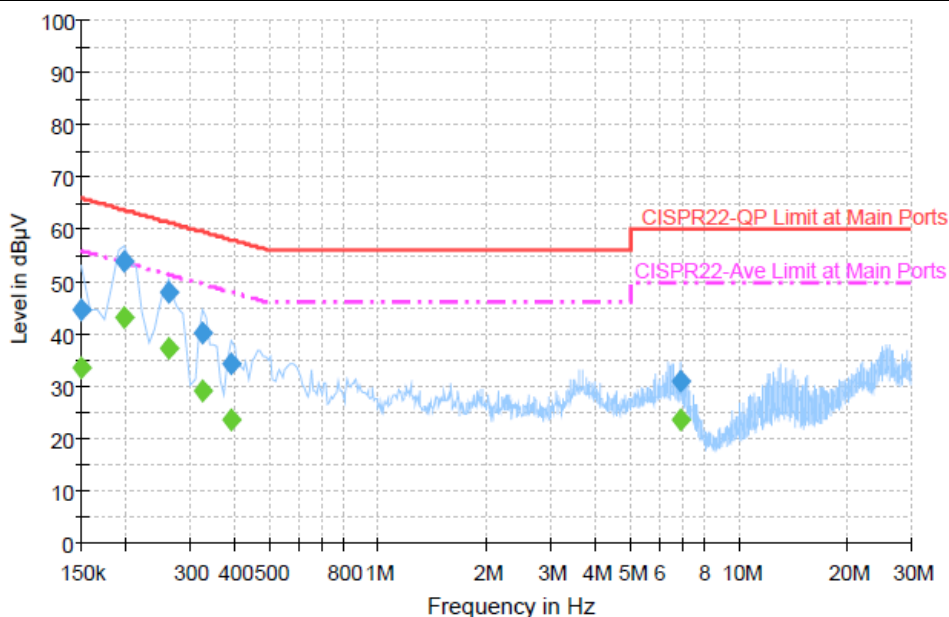
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	47.9	Off	N	19.4	18.1	66.0
0.190000	52.1	Off	N	19.4	11.9	64.0
0.254000	43.8	Off	N	19.4	17.8	61.6
0.318000	36.7	Off	N	19.3	23.1	59.8
4.934000	33.9	Off	N	19.6	22.1	56.0
13.678000	42.0	Off	N	19.7	18.0	60.0
20.494000	43.7	Off	N	19.9	16.3	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	30.0	Off	N	19.4	26.0	56.0
0.190000	34.0	Off	N	19.4	20.0	54.0
0.254000	25.7	Off	N	19.4	25.9	51.6
0.318000	18.8	Off	N	19.3	31.0	49.8
4.934000	27.0	Off	N	19.6	19.0	46.0
13.678000	27.0	Off	N	19.7	23.0	50.0
20.494000	28.6	Off	N	19.9	21.4	50.0

Test Mode :	Mode 2	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Camera + Numeric Keypad without Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



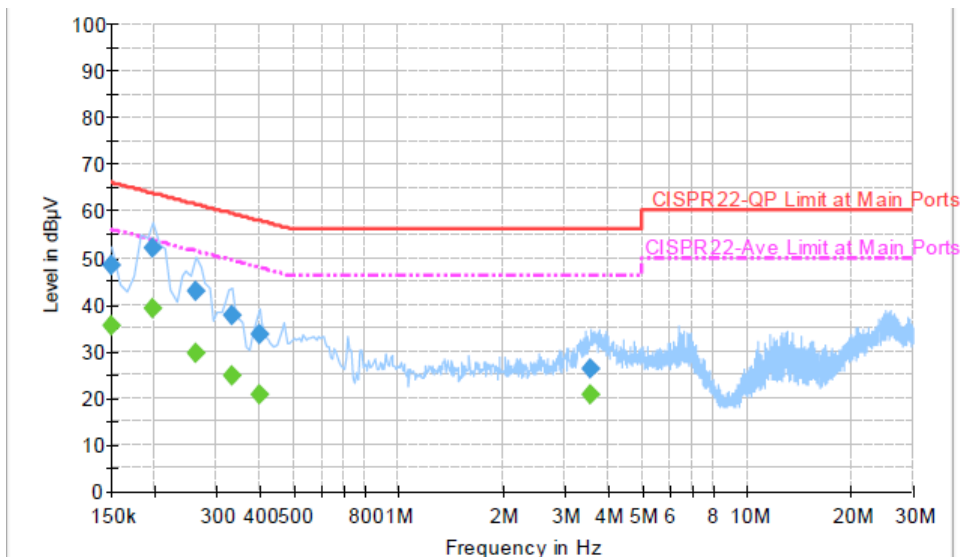
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	44.7	Off	L1	19.4	21.3	66.0
0.198000	54.0	Off	L1	19.3	9.7	63.7
0.262000	48.0	Off	L1	19.3	13.4	61.4
0.326000	40.4	Off	L1	19.3	19.2	59.6
0.390000	34.3	Off	L1	19.4	23.8	58.1
6.862000	30.9	Off	L1	19.5	29.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.7	Off	L1	19.4	22.3	56.0
0.198000	43.0	Off	L1	19.3	10.7	53.7
0.262000	37.1	Off	L1	19.3	14.3	51.4
0.326000	29.2	Off	L1	19.3	20.4	49.6
0.390000	23.5	Off	L1	19.4	24.6	48.1
6.862000	23.6	Off	L1	19.5	26.4	50.0

Test Mode :	Mode 2	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Camera + Numeric Keypad without Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



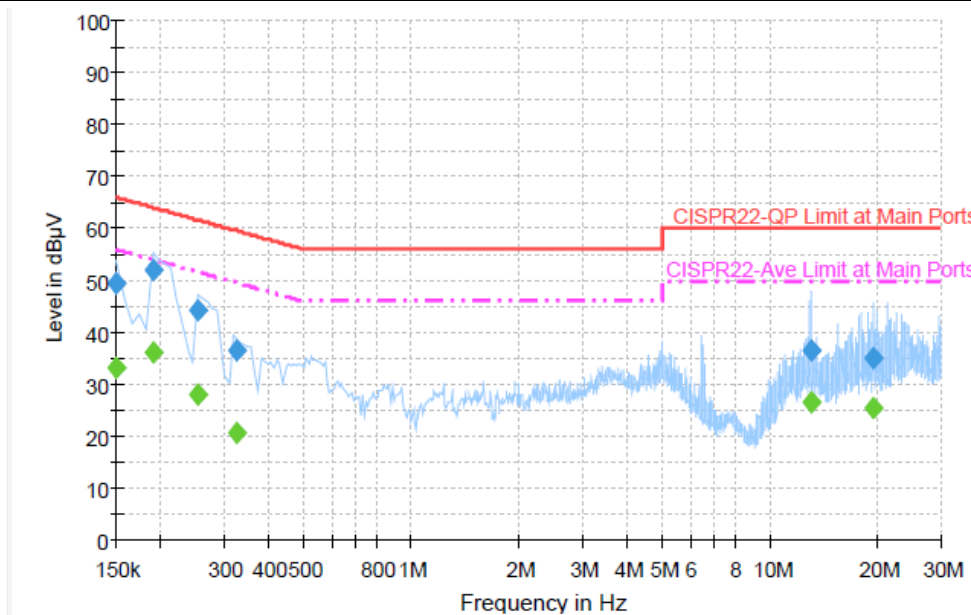
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	48.4	Off	N	19.4	17.6	66.0
0.198000	52.1	Off	N	19.3	11.6	63.7
0.262000	42.7	Off	N	19.4	18.7	61.4
0.334000	37.7	Off	N	19.3	21.7	59.4
0.398000	33.5	Off	N	19.4	24.4	57.9
3.566000	26.3	Off	N	19.5	29.7	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	35.6	Off	N	19.4	20.4	56.0
0.198000	39.0	Off	N	19.3	14.7	53.7
0.262000	29.5	Off	N	19.4	21.9	51.4
0.334000	24.8	Off	N	19.3	24.6	49.4
0.398000	20.6	Off	N	19.4	27.3	47.9
3.566000	20.5	Off	N	19.5	25.5	46.0

Test Mode :	Mode 3	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + WLAN (5G) Link + Bluetooth Link + Scanner + PIM Keypad without Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



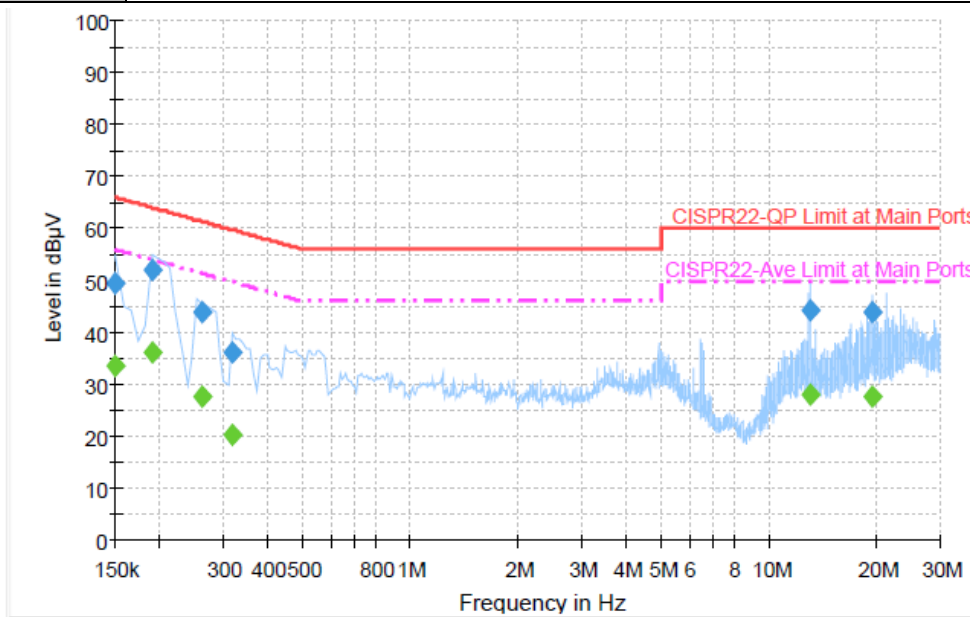
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.4	Off	L1	19.4	16.6	66.0
0.190000	52.2	Off	L1	19.4	11.8	64.0
0.254000	44.1	Off	L1	19.3	17.5	61.6
0.326000	36.7	Off	L1	19.3	22.9	59.6
13.006000	36.7	Off	L1	19.7	23.3	60.0
19.486000	35.2	Off	L1	19.7	24.8	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.3	Off	L1	19.4	22.7	56.0
0.190000	36.3	Off	L1	19.4	17.7	54.0
0.254000	28.2	Off	L1	19.3	23.4	51.6
0.326000	20.6	Off	L1	19.3	29.0	49.6
13.006000	26.6	Off	L1	19.7	23.4	50.0
19.486000	25.3	Off	L1	19.7	24.7	50.0

Test Mode :	Mode 3	Temperature :	21~23°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + WLAN (5G) Link + Bluetooth Link + Scanner + PIM Keypad without Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.6	Off	N	19.4	16.4	66.0
0.190000	51.9	Off	N	19.4	12.1	64.0
0.262000	43.9	Off	N	19.4	17.5	61.4
0.318000	36.3	Off	N	19.3	23.5	59.8
13.006000	44.3	Off	N	19.7	15.7	60.0
19.478000	43.9	Off	N	19.8	16.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.4	Off	N	19.4	22.6	56.0
0.190000	36.0	Off	N	19.4	18.0	54.0
0.262000	27.8	Off	N	19.4	23.6	51.4
0.318000	20.4	Off	N	19.3	29.4	49.8
13.006000	28.2	Off	N	19.7	21.8	50.0
19.478000	27.8	Off	N	19.8	22.2	50.0

3.7 Frequency Stability Measurement

3.7.1 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.

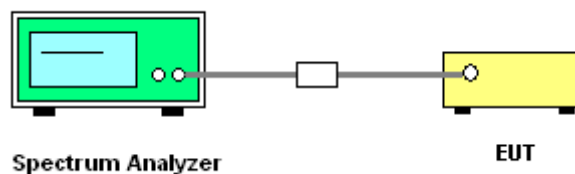
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 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.

3.7.4 Test Setup





3.7.5 Test Result of Frequency Stability

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.74	5188.28	1.93
44	5220	5211.74	5228.26	0.00
48	5240	5231.74	5248.26	0.00
52	5260	5251.74	5268.26	0.00
60	5300	5291.74	5308.26	0.00
64	5320	5311.74	5328.26	0.00
100	5500	5491.82	5508.24	5.45
116	5580	5571.74	5588.26	0.00
140	5700	5691.76	5708.22	-3.51

Test Mode :	802.11n (BW 20MHz)	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.18	5188.88	5.79
44	5220	5211.12	5228.88	0.00
48	5240	5231.20	5248.86	5.73
52	5260	5251.18	5268.82	0.00
60	5300	5291.14	5308.86	0.00
64	5320	5311.18	5328.80	0.00
100	5500	5491.20	5508.80	0.00
116	5580	5571.18	5588.82	0.00
140	5700	5691.18	5708.82	0.00



3.8 Automatically Discontinue Transmission

3.8.1 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.

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 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.



3.9 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

Non-standard connector used.

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 Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Mar. 04, 2012 ~ Jun. 28, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Mar. 04, 2012 ~ Jun. 28, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Mar. 04, 2012 ~ Jun. 28, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Mar. 04, 2012 ~ Jun. 28, 2012	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Mar. 09, 2012~ Mar. 16, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Mar. 09, 2012~ Mar. 16, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Mar. 09, 2012~ Mar. 16, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Mar. 09, 2012~ Mar. 16, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117997	N/A	Aug. 22, 2011	Mar. 09, 2012~ Mar. 16, 2012	Aug. 21, 2012	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	Mar. 09, 2012~ Mar. 16, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Jun. 23, 2012 ~ Jun. 29, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Jun. 23, 2012 ~ Jun. 29, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz ~ 40GHz	Oct. 21, 2011	Jun. 23, 2012 ~ Jun. 29, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jun. 23, 2012 ~ Jun. 29, 2012	Jul. 28, 2012	Radiation (03CH07-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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Appendix A. Photographs of EUT

Please refer to Sporton report number EP221518-01 as below.