



FCC RF Test Report

APPLICANT : Motorola Solutions, Inc.
EQUIPMENT : Enterprise Digital Assistant (EDA)
BRAND NAME : MOTOROLA
MODEL NAME : MC67ND
FCC ID : UZ7MC67ND
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Feb. 04, 2013 and completely tested on Feb. 20, 2013. 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:

Louis Wu / Manager

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	RSS-210 A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	RSS-210 A9.2	Maximum Conducted Output Power	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	RSS-210 A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	RSS-210 A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.5	15.407(b)	RSS-210 A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 6.42 dB at 5725.000 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.80 dB at 0.190 MHz
3.7	15.407(g)	RSS-210 A9.5	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	RSS-210 A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	RSS-210 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	MC67ND
FCC ID	UZ7MC67ND
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/WLAN 11abgn (HT20)/Bluetooth 2.1 EDR
HW Version	EV
SW Version	90.28.21 (RF Fusion Version : X_2.00.0.0.072R)
FW Version	2.47
EUT Stage	Identical Prototype

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

1.4 Product Specification of Equipment Under Test

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 : 12.08 dBm / 0.0161 W 802.11n HT20 : 11.72 dBm / 0.0149 W <5260 MHz ~ 5320 MHz> 802.11a : 13.41 dBm / 0.0219 W 802.11n HT20 : 13.58 dBm / 0.0228 W <5500 MHz ~ 5700 MHz> 802.11a : 13.20 dBm / 0.0209 W 802.11n HT20 : 13.15 dBm / 0.0207 W
99% Occupied Bandwidth	802.11a : 17.70 MHz 802.11n HT20 : 18.80 MHz
Antenna Type	Fixed Internal Antenna type (PIFA Antenna) with gain 3.34 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 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

The test site complies with ANSI C63.4 2003 requirement.



1.6 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 v01r02
- ♦ ANSI C63.10-2009
- ♦ IC RSS-210 Issued 8
- ♦ IC RSS-Gen Issue 3
- ♦ NOTICE 2012-DRS0126

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.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.



2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals pursuant to ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.



2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1	36	5180	44	5220
	38	5190	46	5230
	40	5200	48	5240

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2	52	5260	60	5300
	54	5270	62	5310
	56	5280	64	5320

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3	100	5500	116	5580
	102	5510	132	5660
	104	5520	134	5670
	108	5540	136	5680
	110	5550	140	5700
	112	5560		



2.2 RF Power

Preliminary tests were performed in different data rate as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

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	12.02	11.91	11.94	11.89	11.70	11.63	11.54	11.47
CH 44	5220 MHz	11.85	11.82	11.77	11.76	11.66	11.55	11.41	11.44
CH 48	5240 MHz	11.91	11.84	11.82	11.78	11.64	11.63	11.53	11.46
CH 52	5260 MHz	13.35	13.30	13.24	13.20	13.15	13.00	12.58	12.64
CH 60	5300 MHz	13.26	13.13	13.10	13.02	12.85	12.82	12.35	12.16
CH 64	5320 MHz	13.21	13.10	13.12	12.96	12.91	12.80	12.20	12.14
CH 100	5500 MHz	12.94	12.89	12.85	12.73	12.72	12.57	12.00	11.83
CH 116	5580 MHz	12.58	12.43	12.39	12.30	12.34	12.17	11.67	11.53
CH 140	5700 MHz	13.14	13.01	12.94	12.84	12.77	12.72	11.26	11.20
Duty Cycle (%)		98.62	98.17	97.34	96.88	94.90	92.75	90.65	90.40
Duty Cycle Offset		0.06	0.08	0.12	0.14	0.23	0.33	0.43	0.44
CH 36	5180 MHz	12.08	11.99	12.06	12.03	11.93	11.96	11.97	11.91
CH 44	5220 MHz	11.91	11.90	11.89	11.90	11.89	11.88	11.84	11.88
CH 48	5240 MHz	11.97	11.92	11.94	11.92	11.87	11.96	11.96	11.90
CH 52	5260 MHz	13.41	13.38	13.36	13.34	13.38	13.33	13.01	13.08
CH 60	5300 MHz	13.32	13.21	13.22	13.16	13.08	13.15	12.78	12.60
CH 64	5320 MHz	13.27	13.18	13.24	13.10	13.14	13.13	12.63	12.58
CH 100	5500 MHz	13.00	12.97	12.97	12.87	12.95	12.90	12.43	12.27
CH 116	5580 MHz	12.64	12.51	12.51	12.44	12.57	12.50	12.10	11.97
CH 140	5700 MHz	13.20	13.09	13.06	12.98	13.00	13.05	11.69	11.64

Channel	Frequency	5GHz 802.11n HT20 mode							
		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	11.15	11.02	10.96	10.96	10.79	10.72	10.74	10.70
CH 44	5220 MHz	11.65	11.54	11.47	11.43	11.34	11.24	11.23	10.43
CH 48	5240 MHz	11.64	11.53	11.45	11.40	11.28	11.25	11.18	10.45
CH 52	5260 MHz	13.51	13.41	13.36	13.29	13.21	12.59	12.61	11.30
CH 60	5300 MHz	12.74	12.60	12.58	12.52	12.41	11.73	11.67	11.45
CH 64	5320 MHz	12.85	12.65	12.43	12.40	12.43	12.07	12.03	11.22
CH 100	5500 MHz	12.85	12.54	12.47	12.53	12.32	12.06	12.04	11.24
CH 116	5580 MHz	13.08	12.88	12.81	12.84	12.77	11.61	11.68	9.37
CH 140	5700 MHz	11.14	11.00	10.88	10.94	10.84	10.56	10.44	9.65
Duty Cycle (%)		98.37	96.30	95.58	94.32	92.13	90.20	89.83	88.99
Duty Cycle Offset		0.07	0.16	0.20	0.25	0.36	0.45	0.47	0.51
CH 36	5180 MHz	11.22	11.18	11.16	11.21	11.15	11.17	11.21	11.21
CH 44	5220 MHz	11.72	11.70	11.67	11.68	11.70	11.69	11.70	10.94
CH 48	5240 MHz	11.71	11.69	11.65	11.65	11.64	11.70	11.65	10.96
CH 52	5260 MHz	13.58	13.57	13.56	13.54	13.57	13.04	13.08	11.81
CH 60	5300 MHz	12.81	12.76	12.78	12.77	12.77	12.18	12.14	11.96
CH 64	5320 MHz	12.92	12.81	12.63	12.65	12.79	12.52	12.50	11.73
CH 100	5500 MHz	12.92	12.70	12.67	12.78	12.68	12.51	12.51	11.75
CH 116	5580 MHz	13.15	13.04	13.01	13.09	13.13	12.06	12.15	10.39
CH 140	5700 MHz	11.21	11.16	11.08	11.19	11.20	11.01	10.91	10.16

Remark:

1. The data rates of WLAN 802.11a/n were set in 6Mbps for 802.11a, and 6.5Mbps for 802.11n HT20 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.

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	

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

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

Preliminary test for Radiated Spurious Emissions and AC Conducted Emission:

The preliminary test purpose is to find out the worst configuration among all components, and choose the worst configuration to perform final test demonstrated in compliance with FCC standard.

MC67ND HW/SW design is the same as FCC ID UZ7MC67NA granted on 2012/07/25, except the WWAN module replacement (PH8-P module in MC67NA, and PXS8 module in MC67ND). Due to the similarity, MC67NA RF performance is representative (Sporton RF Report of FCC ID: UZ7MC67NA, Report No: FR221518-01C Rev.01, Date of available on FCC website: 2012/07/25) and is referenced in this report.

Due to the similarity between MC67NA and MC67ND, the worst configuration is chosen according that found in MC67NA test 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.	802.11n HT20	OFDM	CH36_5180 MHz	1	1
11.	802.11n HT20	OFDM	CH44_5220 MHz	1	1
12.	802.11n HT20	OFDM	CH48_5240 MHz	1	1
13.	802.11n HT20	OFDM	CH52_5260 MHz	1	1
14.	802.11n HT20	OFDM	CH60_5300 MHz	1	1
15.	802.11n HT20	OFDM	CH64_5320 MHz	1	1
16.	802.11n HT20	OFDM	CH100_5500 MHz	1	1
17.	802.11n HT20	OFDM	CH116_5580 MHz	1	1
18.	802.11n HT20	OFDM	CH140_5700 MHz	1	1

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

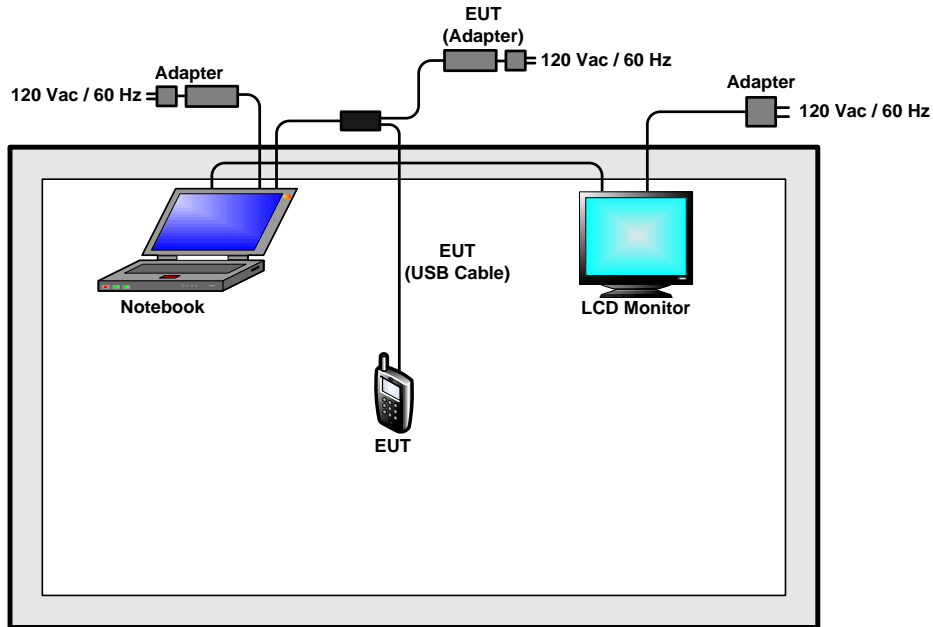


Test Modes			
Conducted TCs			
No.	Band	Modulation	Mode
1.	802.11a	OFDM	CH36_5180 MHz
2.	802.11a	OFDM	CH44_5220 MHz
3.	802.11a	OFDM	CH48_5240 MHz
4.	802.11a	OFDM	CH52_5260 MHz
5.	802.11a	OFDM	CH60_5300 MHz
6.	802.11a	OFDM	CH64_5320 MHz
7.	802.11a	OFDM	CH100_5500 MHz
8.	802.11a	OFDM	CH116_5580 MHz
9.	802.11a	OFDM	CH140_5700 MHz
10.	802.11n HT20	OFDM	CH36_5180 MHz
11.	802.11n HT20	OFDM	CH44_5220 MHz
12.	802.11n HT20	OFDM	CH48_5240 MHz
13.	802.11n HT20	OFDM	CH52_5260 MHz
14.	802.11n HT20	OFDM	CH60_5300 MHz
15.	802.11n HT20	OFDM	CH64_5320 MHz
16.	802.11n HT20	OFDM	CH100_5500 MHz
17.	802.11n HT20	OFDM	CH116_5580 MHz
18.	802.11n HT20	OFDM	CH140_5700 MHz

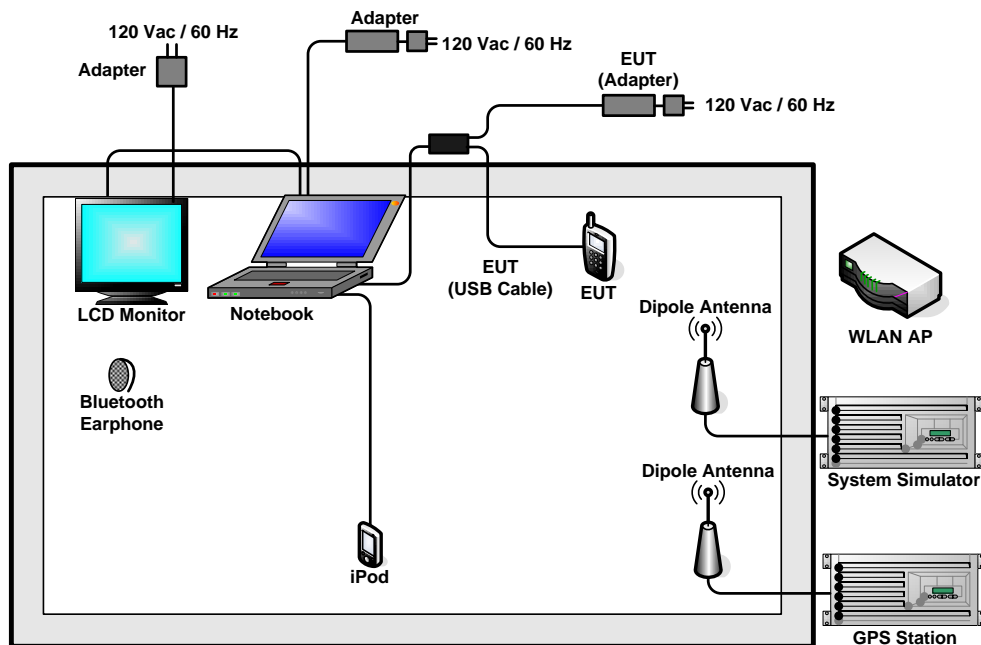
Test Cases
AC Conducted Emission
802.11a (Modulation : OFDM)
Mode 1 : GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camera + USB Charging Cable with AC Power + USB Link
Remark:
1. "BT Link" stands for EUT linked to Bluetooth Earphone by BT function.
2. "WLAN Link" stands for EUT associated with AP at 5GHz band.
3. "USB Link" stands for data file transfer.
4. 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 Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
7.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
8.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.6 Description of RF Function Operation Test Setup

The programmed RF utility "FILE EXPLORER → XW2DMT → Calibration → Run Tx bip → Regulatory and click Enable Manufacturing Test mode", 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.



2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 26dB & 99% Bandwidth Measurement

3.1.1 Description of 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 5150-5250 MHz, 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 bands 5250-5350 MHz and 5470-5725MHz, 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.

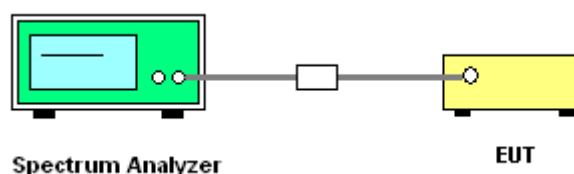
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.
Section D) Emission bandwidth
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%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) $\geq 3 * RBW$.
8. Measure and record the results in the test report.

3.1.4 Test Setup



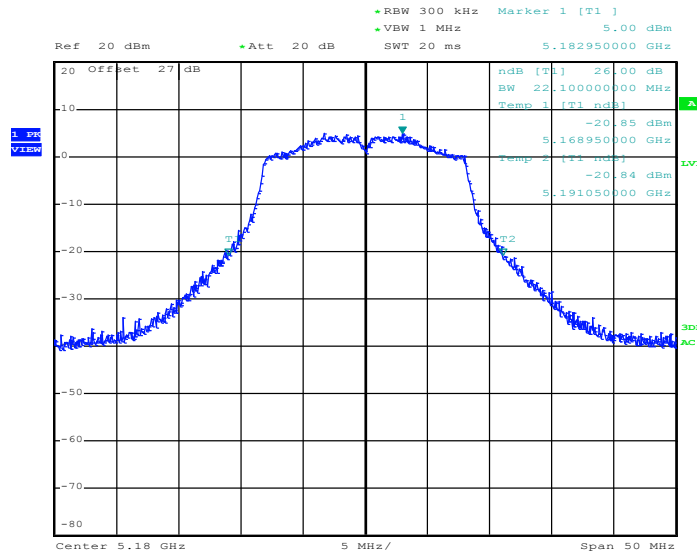


3.1.5 Test Result of 26dB Bandwidth Plots

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

Band	Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
NII Band 1	36	5180	22.10	N/A
	44	5220	21.95	N/A
	48	5240	22.15	N/A
NII Band 2	52	5260	21.15	N/A
	60	5300	22.35	N/A
	64	5320	22.50	N/A
NII Band 3	100	5500	21.70	N/A
	116	5580	21.40	N/A
	140	5700	21.70	N/A

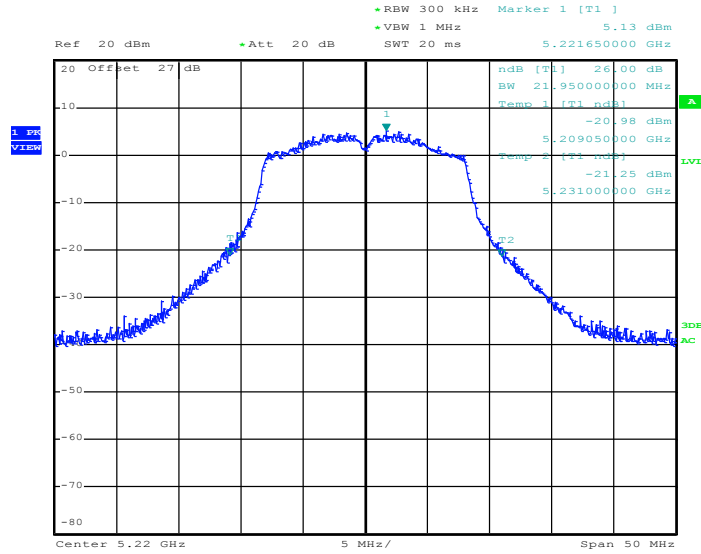
26 dB Bandwidth Plot on 802.11a Channel 36



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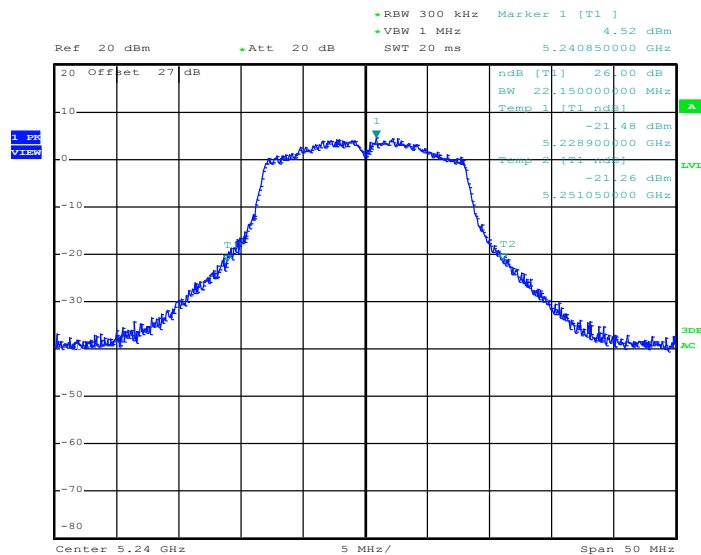


26 dB Bandwidth Plot on 802.11a Channel 44



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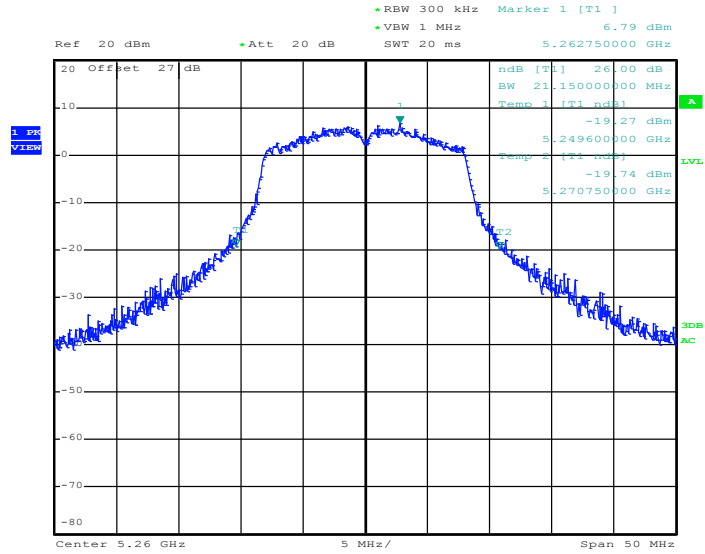
26 dB Bandwidth Plot on 802.11a Channel 48



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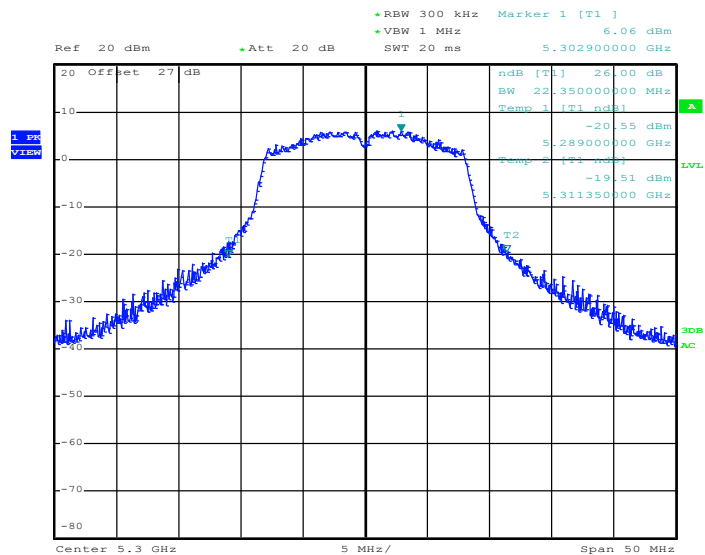


26 dB Bandwidth Plot on 802.11a Channel 52



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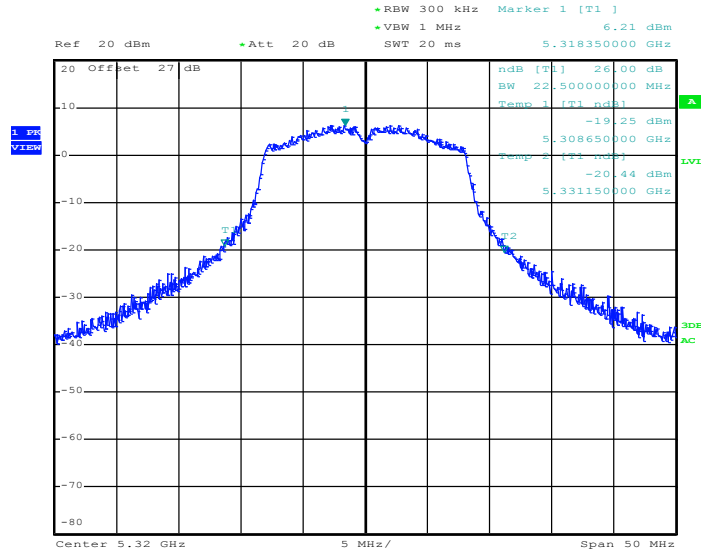
26 dB Bandwidth Plot on 802.11a Channel 60



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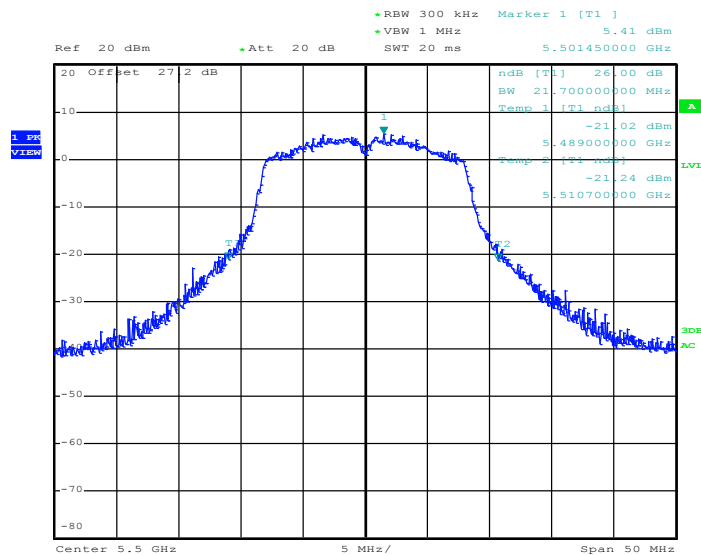


26 dB Bandwidth Plot on 802.11a Channel 64



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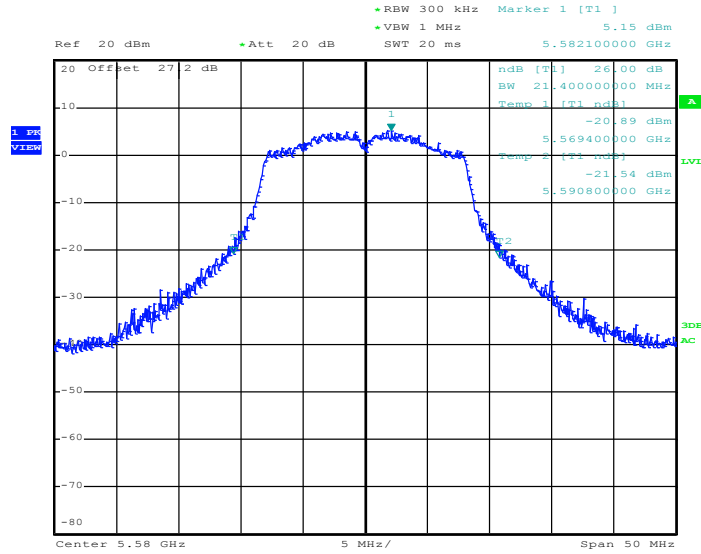
26 dB Bandwidth Plot on 802.11a Channel 100



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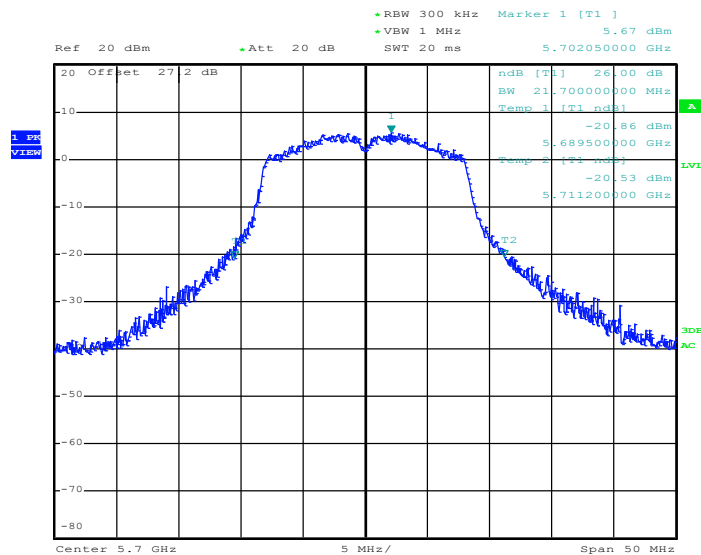


26 dB Bandwidth Plot on 802.11a Channel 116



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26 dB Bandwidth Plot on 802.11a Channel 140



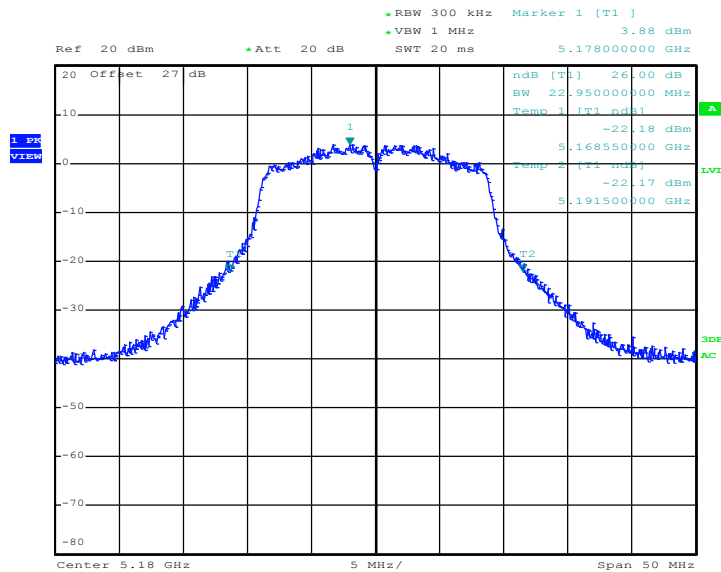
Date: 5.FEB.2013 21:37:59



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Band	Channel	Frequency (MHz)	802.11n HT20 26dB Bandwidth (MHz)	Pass/Fail
NII Band 1	36	5180	22.95	N/A
	44	5220	23.15	N/A
	48	5240	22.95	N/A
NII Band 2	52	5260	22.45	N/A
	60	5300	22.90	N/A
	64	5320	22.75	N/A
NII Band 3	100	5500	22.05	N/A
	116	5580	22.55	N/A
	140	5700	22.60	N/A

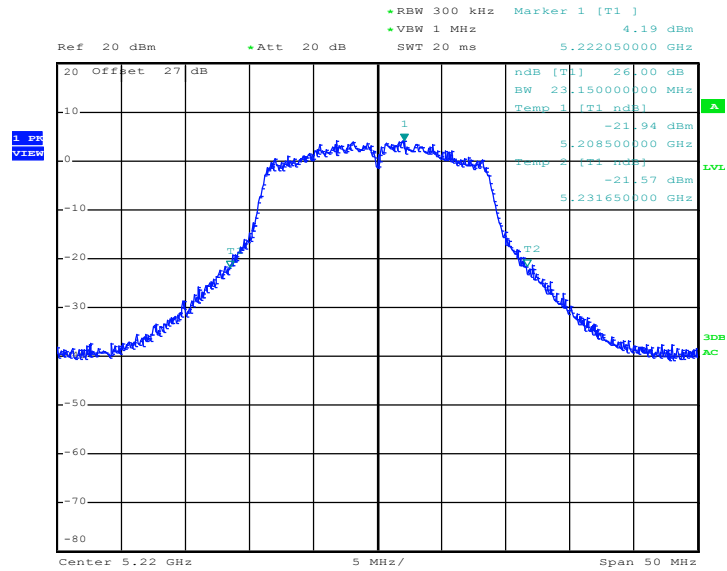
26 dB Bandwidth Plot on 802.11n HT20 Channel 36



Date: 5.FEB.2013 22:05:29

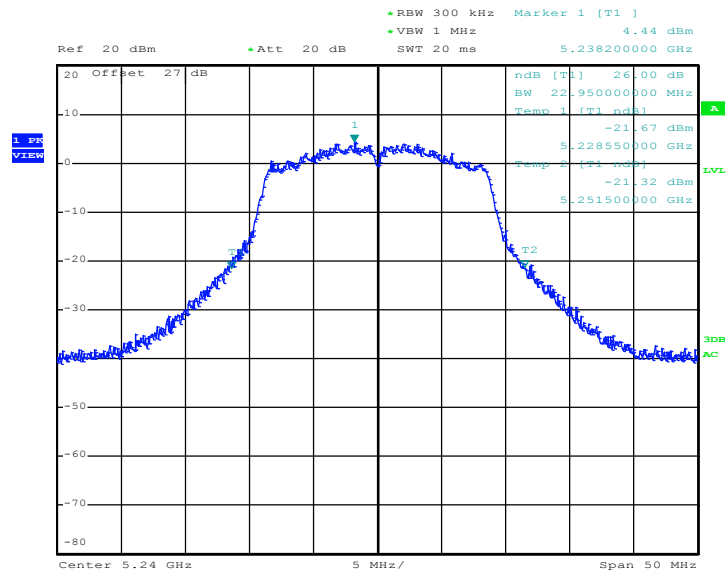


26 dB Bandwidth Plot on 802.11n HT20 Channel 44



Date: 5.FEB.2013 22:02:38

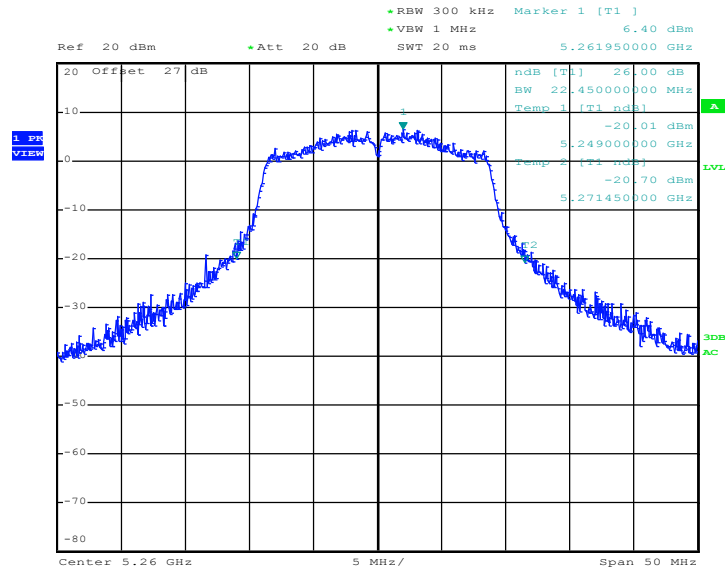
26 dB Bandwidth Plot on 802.11n HT20 Channel 48



Date: 5.FEB.2013 21:59:46

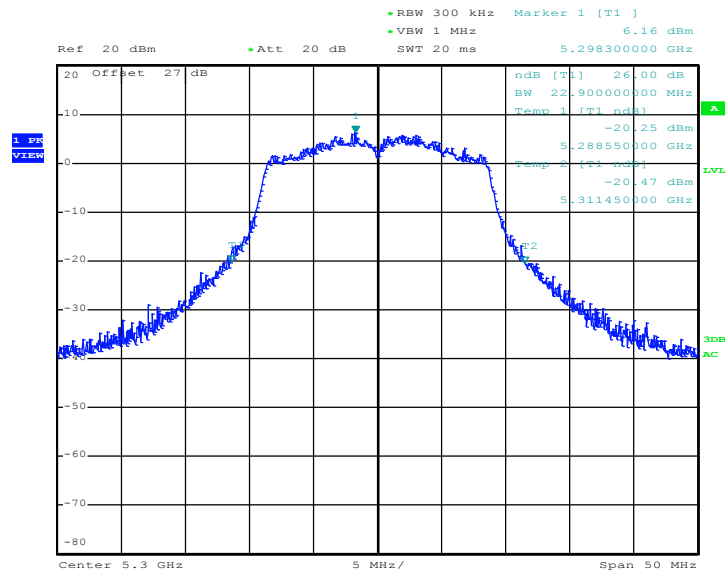


26 dB Bandwidth Plot on 802.11n HT20 Channel 52



Date: 5.FEB.2013 21:57:05

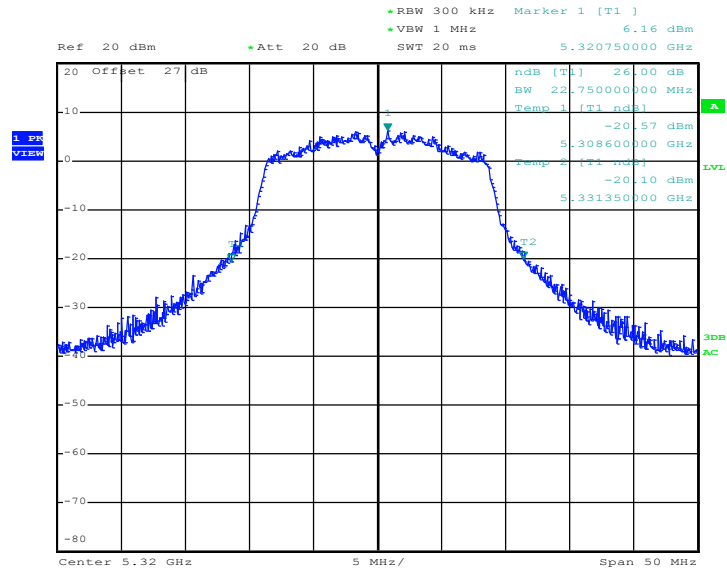
26 dB Bandwidth Plot on 802.11n HT20 Channel 60



Date: 5.FEB.2013 21:54:09

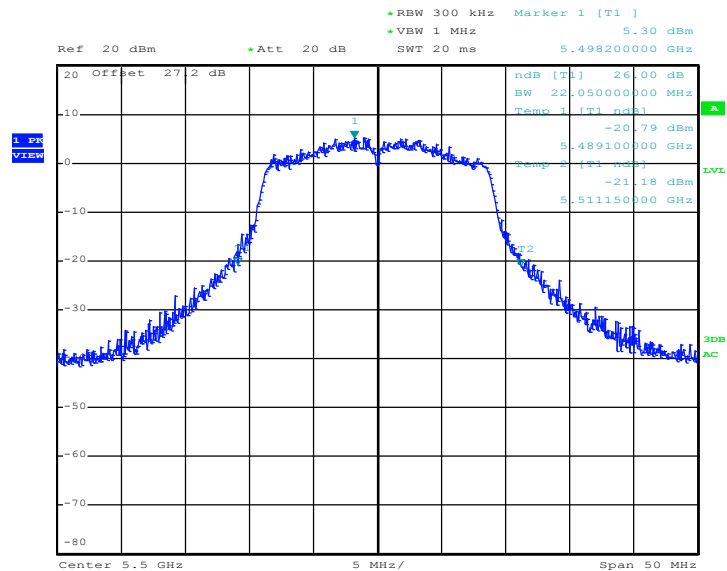


26 dB Bandwidth Plot on 802.11n HT20 Channel 64



Date: 5.FEB.2013 21:49:42

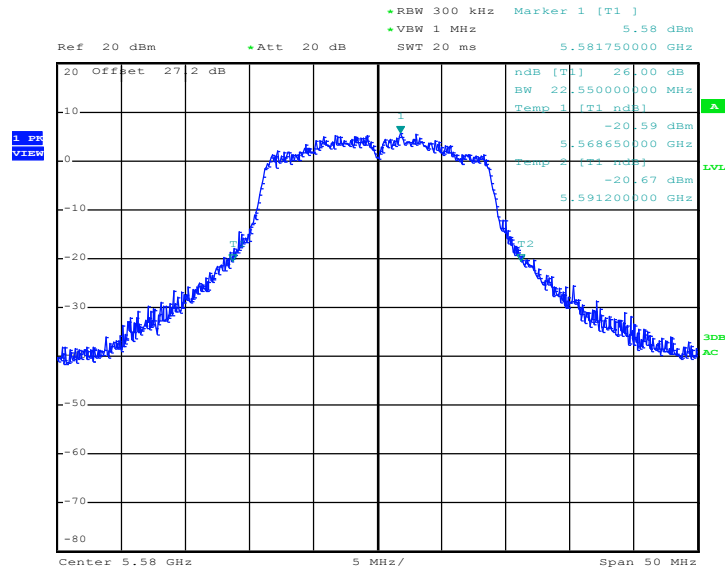
26 dB Bandwidth Plot on 802.11n HT20 Channel 100



Date: 5.FEB.2013 21:46:52

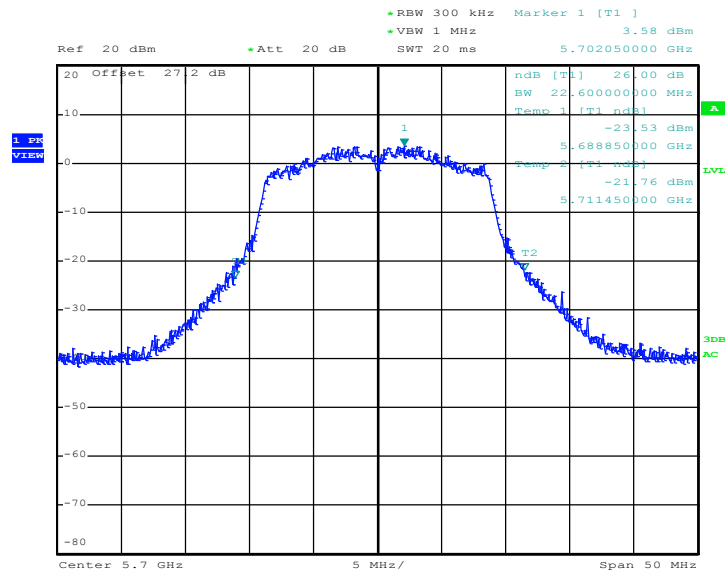


26 dB Bandwidth Plot on 802.11n HT20 Channel 116



Date: 5.FEB.2013 21:43:49

26 dB Bandwidth Plot on 802.11n HT20 Channel 140



Date: 5.FEB.2013 21:40:53

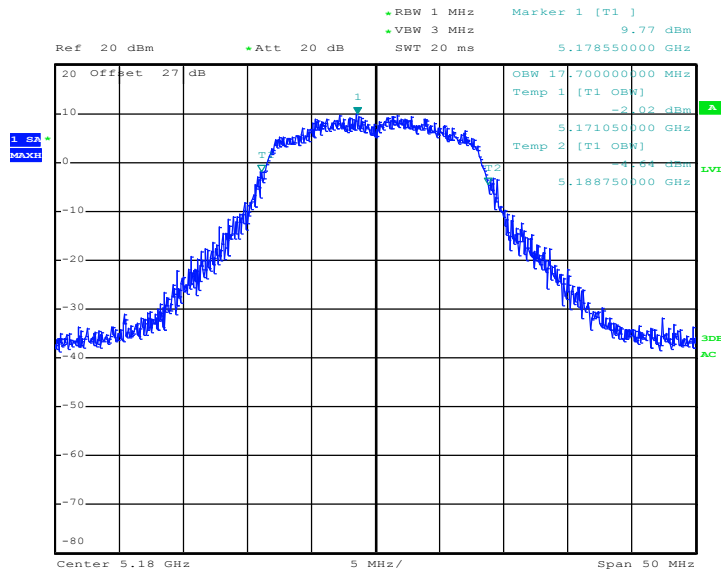


3.1.6 Test Result of 99% Occupied Bandwidth Plots

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

Band	Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
NII Band 1	36	5180	17.70	N/A
	44	5220	17.50	N/A
	48	5240	17.65	N/A
NII Band 2	52	5260	17.40	N/A
	60	5300	17.55	N/A
	64	5320	17.65	N/A
NII Band 3	100	5500	17.45	N/A
	116	5580	17.50	N/A
	140	5700	17.50	N/A

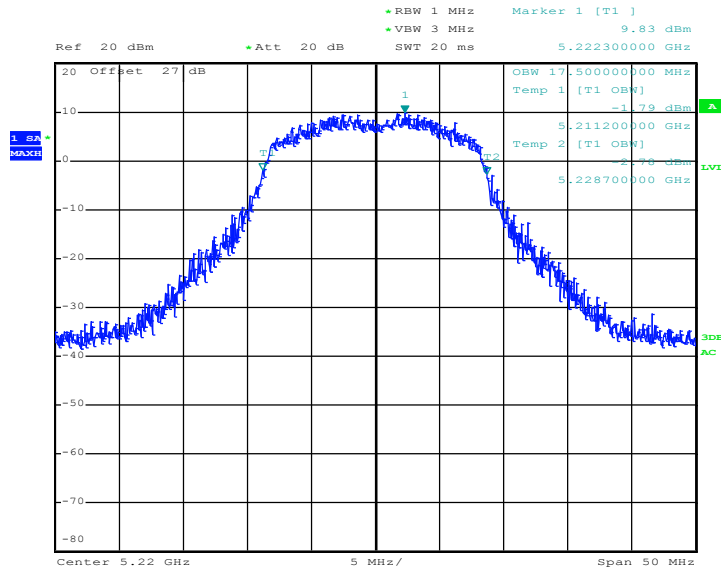
99% Occupied Bandwidth Plot on 802.11a Channel 36



Date: 5.FEB.2013 21:16:37

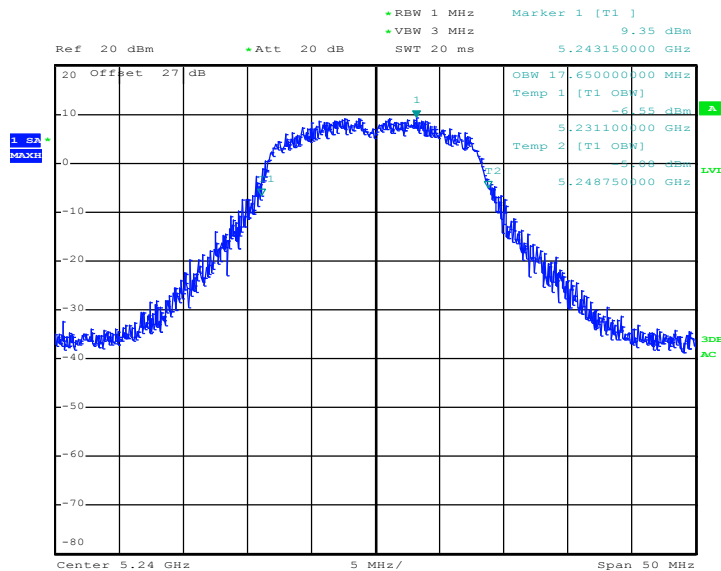


99% Occupied Bandwidth Plot on 802.11a Channel 44



Date: 5.FEB.2013 21:20:09

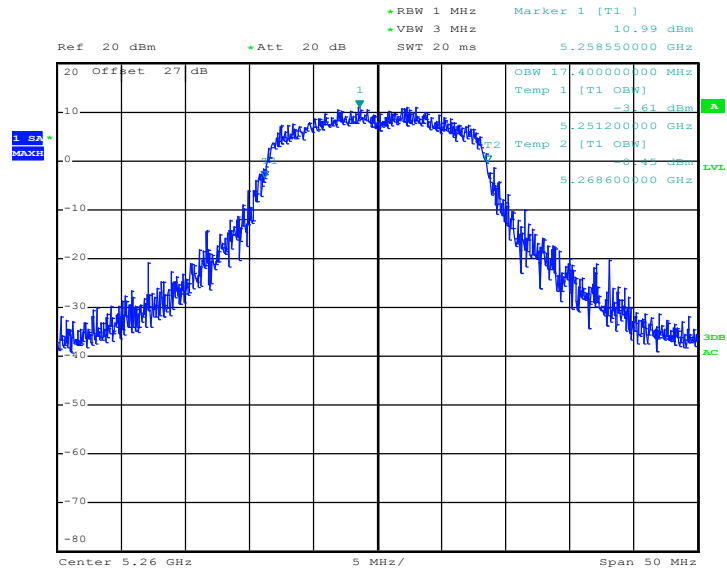
99% Occupied Bandwidth Plot on 802.11a Channel 48



Date: 5.FEB.2013 21:21:41

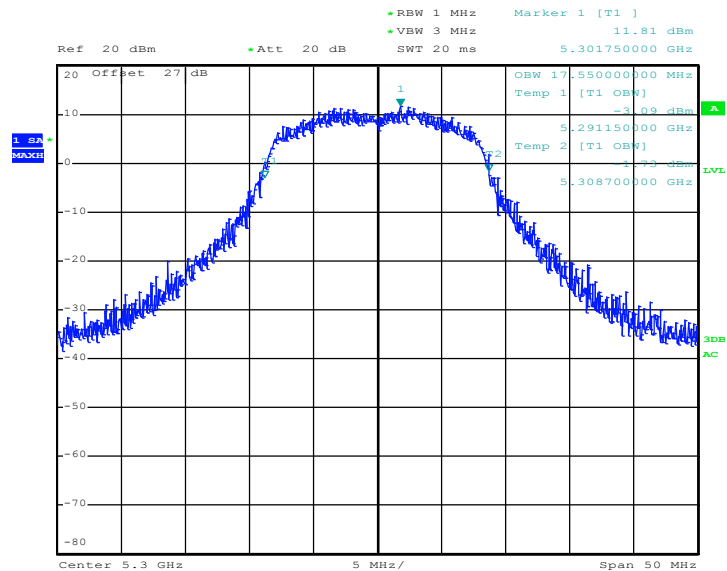


99% Occupied Bandwidth Plot on 802.11a Channel 52



Date: 5.FEB.2013 21:25:48

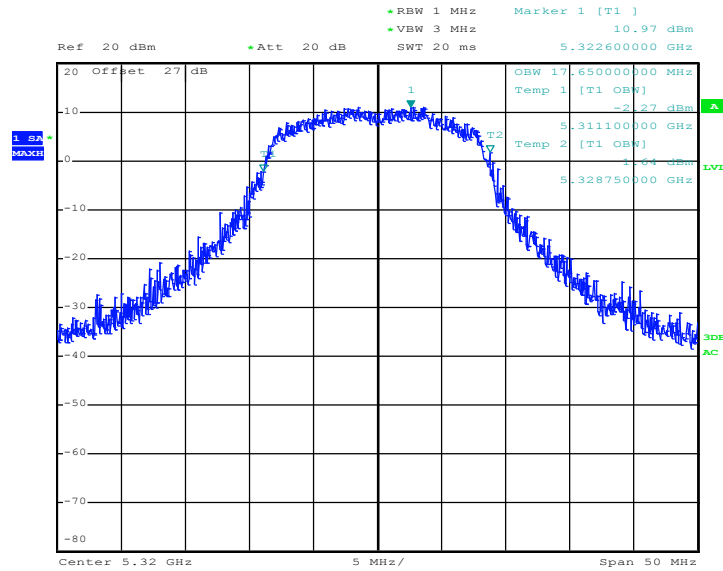
99% Occupied Bandwidth Plot on 802.11a Channel 60



Date: 5.FEB.2013 21:28:48

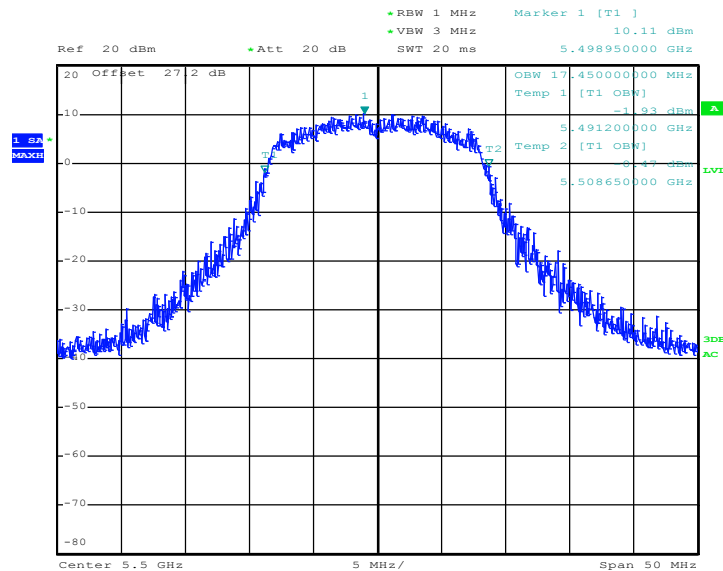


99% Occupied Bandwidth Plot on 802.11a Channel 64



Date: 5.FEB.2013 21:31:55

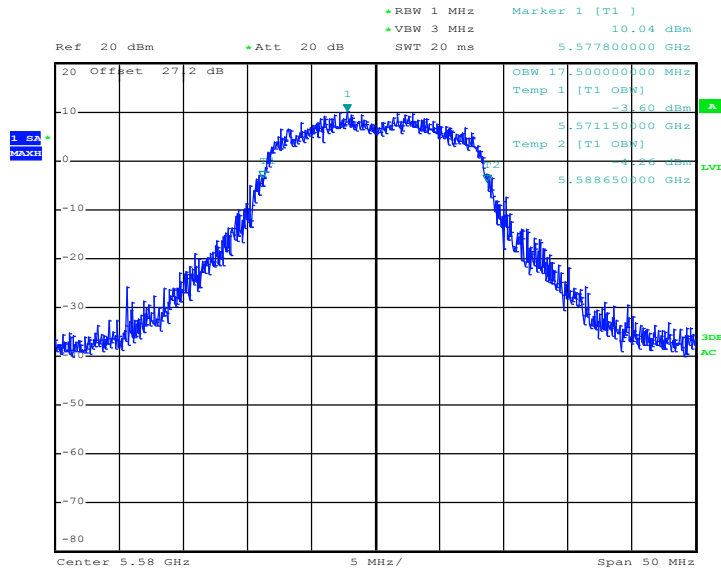
99% Occupied Bandwidth Plot on 802.11a Channel 100



Date: 5.FEB.2013 21:34:33

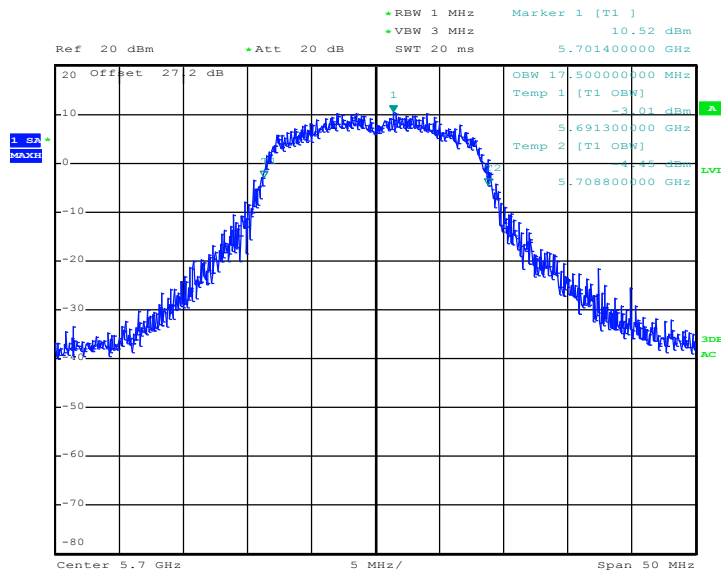


99% Occupied Bandwidth Plot on 802.11a Channel 116



Date: 5.FEB.2013 21:37:15

99% Occupied Bandwidth Plot on 802.11a Channel 140



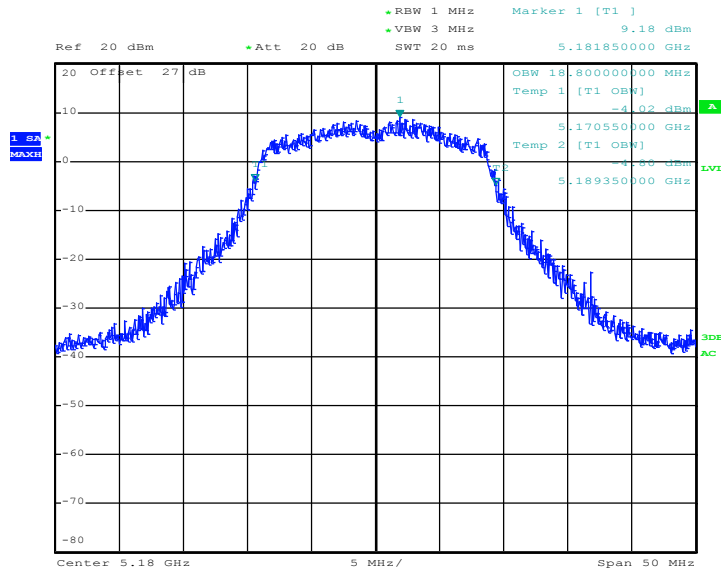
Date: 5.FEB.2013 21:40:05



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Band	Channel	Frequency (MHz)	802.11n HT20 99% Occupied Bandwidth (MHz)	Pass/Fail
NII Band 1	36	5180	18.80	N/A
	44	5220	18.75	N/A
	48	5240	18.80	N/A
NII Band 2	52	5260	18.65	N/A
	60	5300	18.70	N/A
	64	5320	18.80	N/A
NII Band 3	100	5500	18.55	N/A
	116	5580	18.55	N/A
	140	5700	18.55	N/A

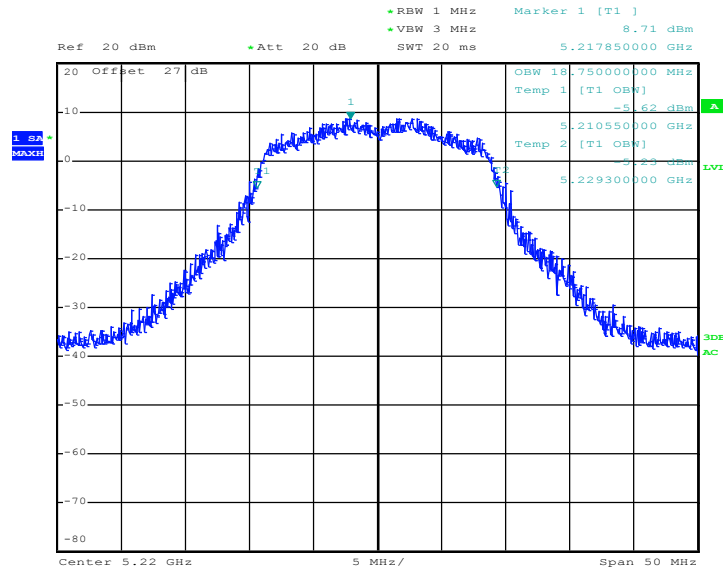
99% Occupied Bandwidth Plot on 802.11n HT20 Channel 36



Date: 5.FEB.2013 22:07:22

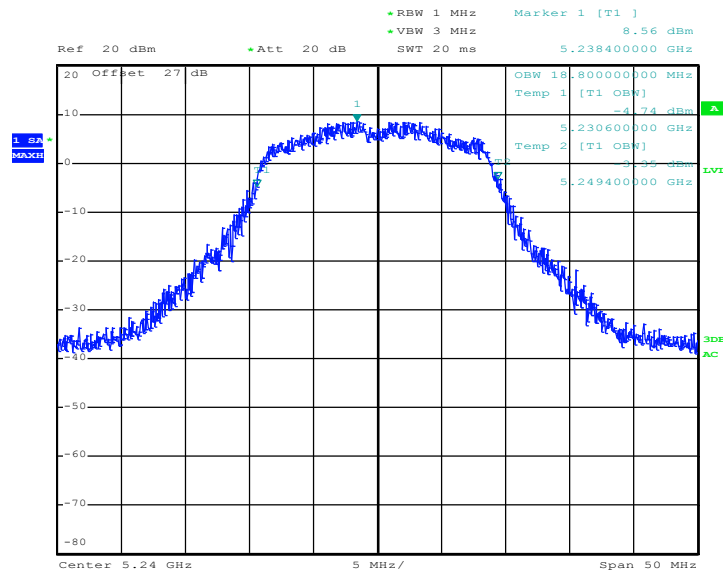


99% Occupied Bandwidth Plot on 802.11n HT20 Channel 44



Date: 5.FEB.2013 22:04:56

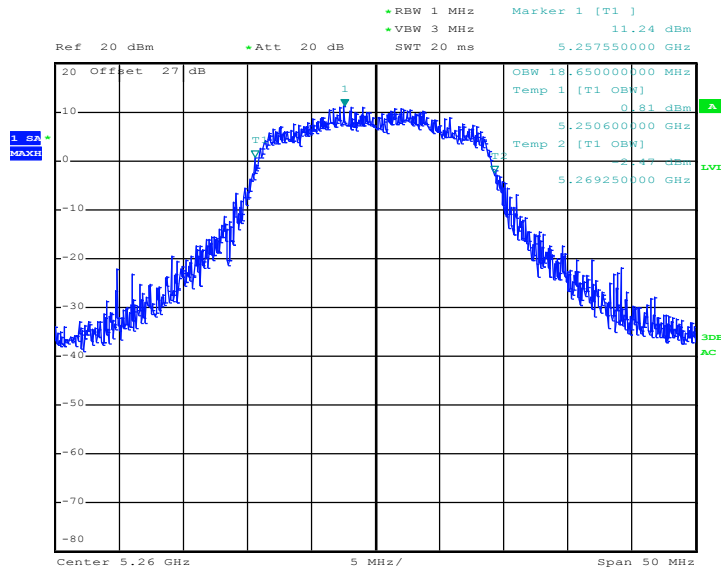
99% Occupied Bandwidth Plot on 802.11n HT20 Channel 48



Date: 5.FEB.2013 22:02:02

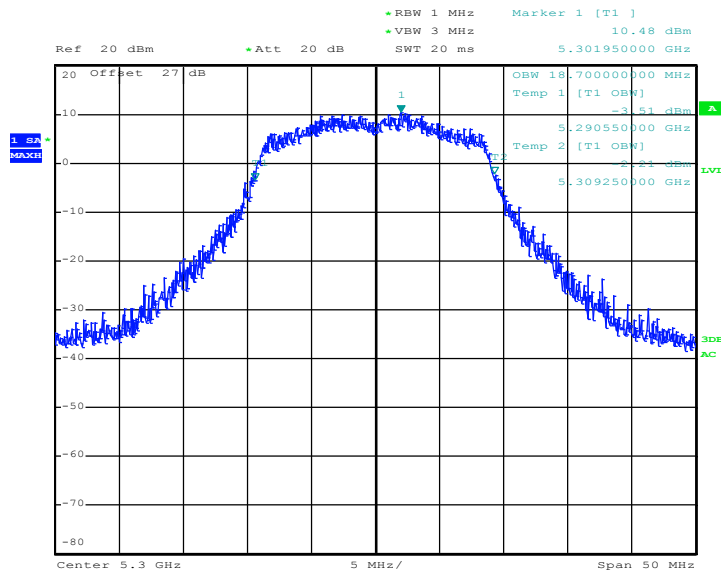


99% Occupied Bandwidth Plot on 802.11n HT20 Channel 52



Date: 5.FEB.2013 21:58:55

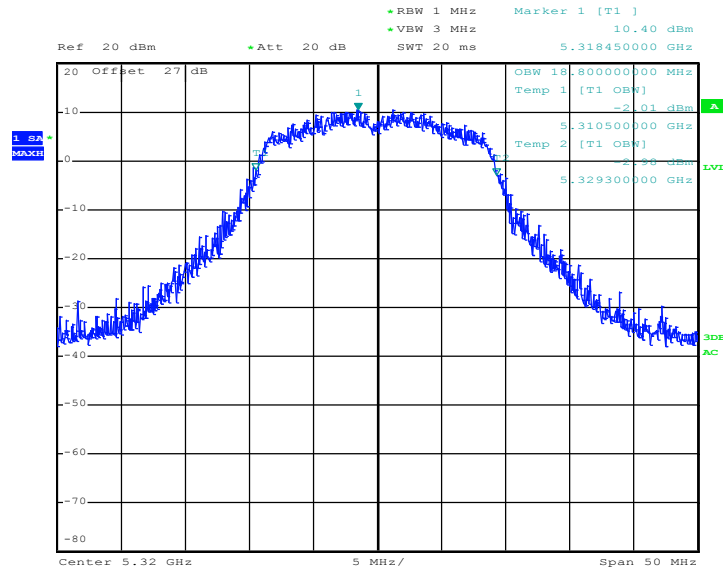
99% Occupied Bandwidth Plot on 802.11n HT20 Channel 60



Date: 5.FEB.2013 21:56:15

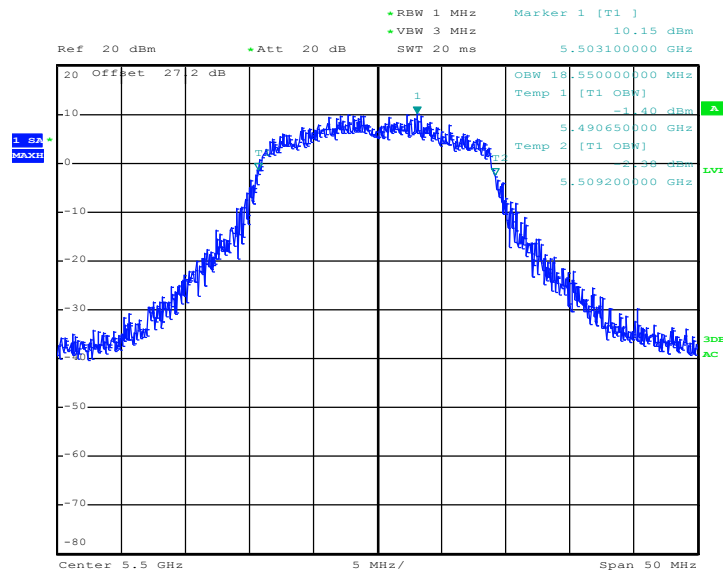


99% Occupied Bandwidth Plot on 802.11n HT20 Channel 64



Date: 5.FEB.2013 21:53:02

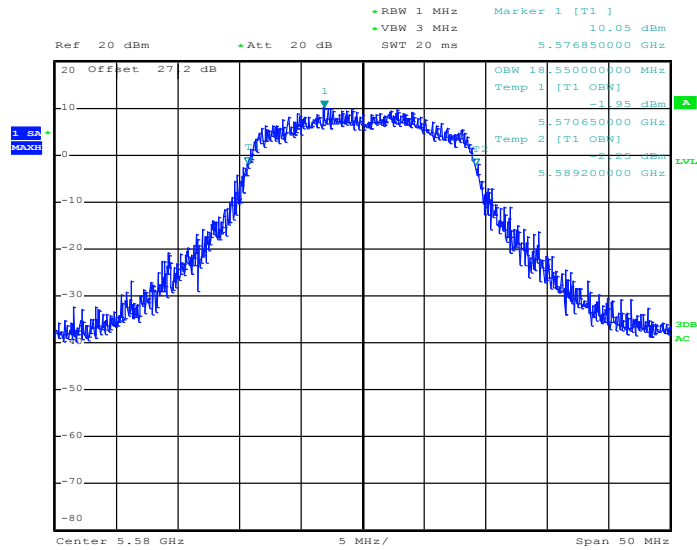
99% Occupied Bandwidth Plot on 802.11n HT20 Channel 100



Date: 5.FEB.2013 21:49:09

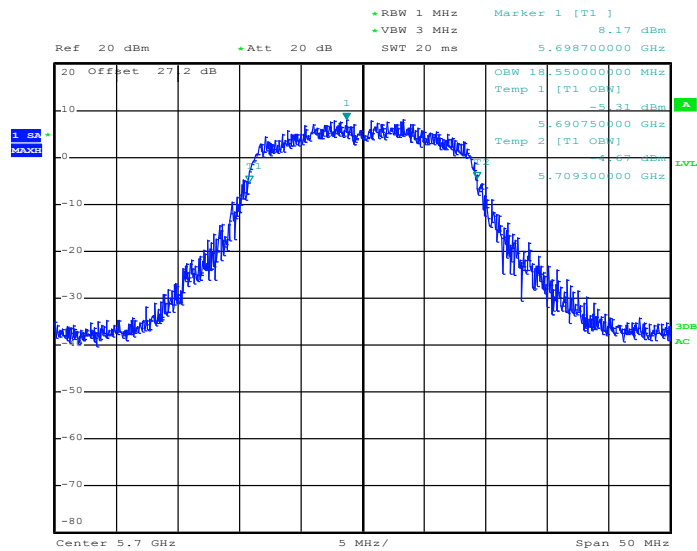


99% Occupied Bandwidth Plot on 802.11n HT20 Channel 116



Date: 5.FEB.2013 21:46:06

99% Occupied Bandwidth Plot on 802.11n HT20 Channel 140



Date: 5.FEB.2013 21:43:09

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5150-5250 MHz, 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 bands 5250-5350 MHz and 5470-5725 MHz, 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.

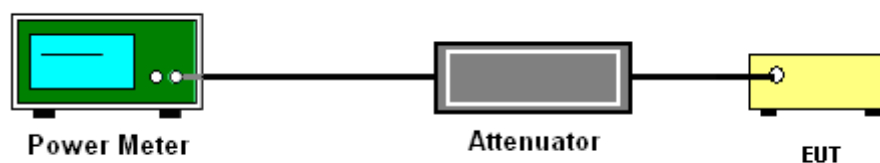
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, $10 \log(1/x)$, where x is the duty cycle.

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 :	Reece Li	Relative Humidity :	45~49%
Duty Cycle	98.62%	Duty Factor	0.06dB

Band	Channel	Frequency (MHz)	Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
			Measured	Final		
NII Band 1	36	5180	12.02	12.08	17	Pass
	44	5220	11.85	11.91	17	Pass
	48	5240	11.91	11.97	17	Pass
NII Band 2	52	5260	13.35	13.41	24	Pass
	60	5300	13.26	13.32	24	Pass
	64	5320	13.21	13.27	24	Pass
NII Band 3	100	5500	12.94	13.00	24	Pass
	116	5580	12.58	12.64	24	Pass
	140	5700	13.14	13.20	24	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5150-5250 MHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).
3. For the 5250-5350 MHz and 5470-5725MHz 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 HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle	98.37%	Duty Factor	0.07dB

Band	Channel	Frequency (MHz)	Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
			Measured	Final		
NII Band 1	36	5180	11.15	11.22	17	Pass
	44	5220	11.65	11.72	17	Pass
	48	5240	11.64	11.71	17	Pass
NII Band 2	52	5260	13.51	13.58	24	Pass
	60	5300	12.74	12.81	24	Pass
	64	5320	12.85	12.92	24	Pass
NII Band 3	100	5500	12.85	12.92	24	Pass
	116	5580	13.08	13.15	24	Pass
	140	5700	11.14	11.21	24	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5150-5250 MHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).
3. For the 5250-5350 MHz and 547-5725MHz 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 5150-5250 MHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. For the bands 5250-5350 MHz and 5470-5725 MHz, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antenna directional gain is greater than 6 dBi, 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

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Section E) Peak power spectral density (PPSD).

Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

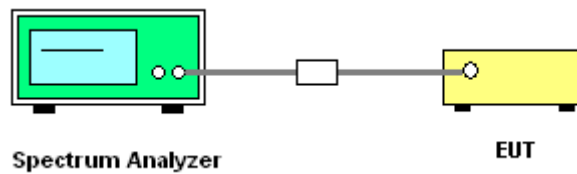
Method SA-2

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r02.
 - 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
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

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

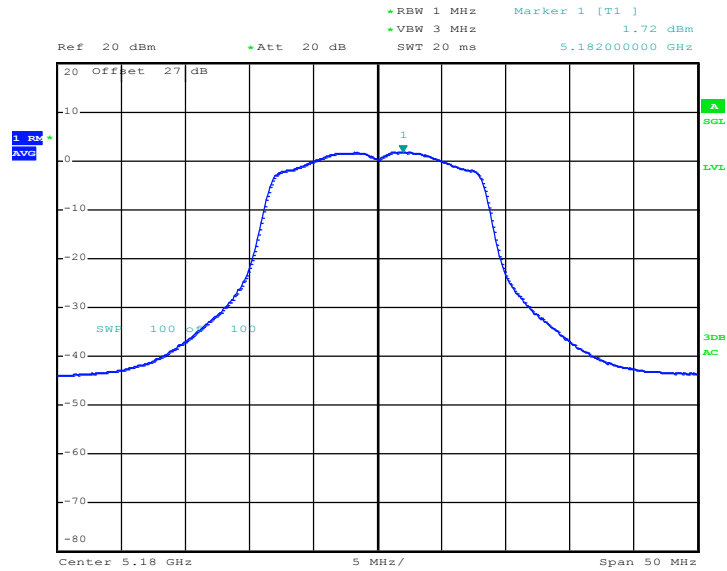
Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle:	98.62%	Duty Factor:	0.06dB

Band	Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm)	Pass/Fail
			Measured	Final		
NII Band 1	36	5180	1.72	1.78	4	Pass
	44	5220	1.56	1.62	4	Pass
	48	5240	1.34	1.40	4	Pass
NII Band 2	52	5260	3.20	3.26	11	Pass
	60	5300	3.21	3.27	11	Pass
	64	5320	3.24	3.30	11	Pass
NII Band 3	100	5500	2.22	2.28	11	Pass
	116	5580	2.05	2.11	11	Pass
	140	5700	2.67	2.73	11	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

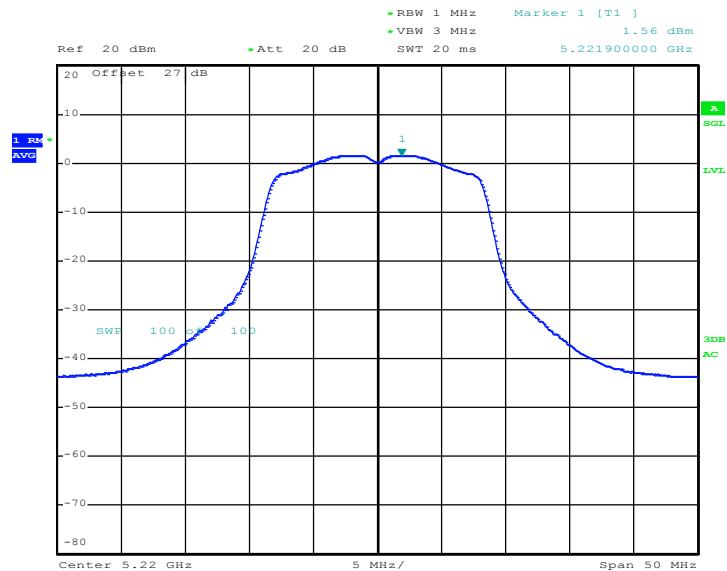


PSD Plot on 802.11a Channel 36



Date: 5.FEB.2013 21:13:58

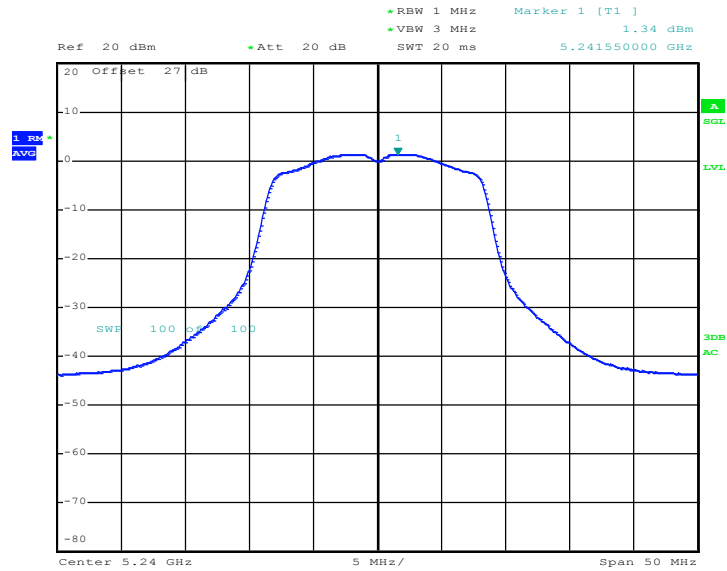
PSD Plot on 802.11a Channel 44



Date: 5.FEB.2013 21:17:38

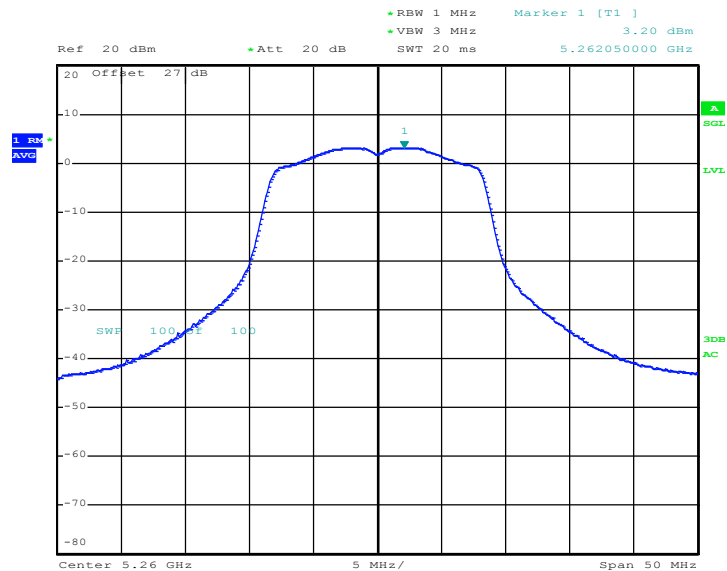


PSD Plot on 802.11a Channel 48



Date: 5.FEB.2013 21:21:05

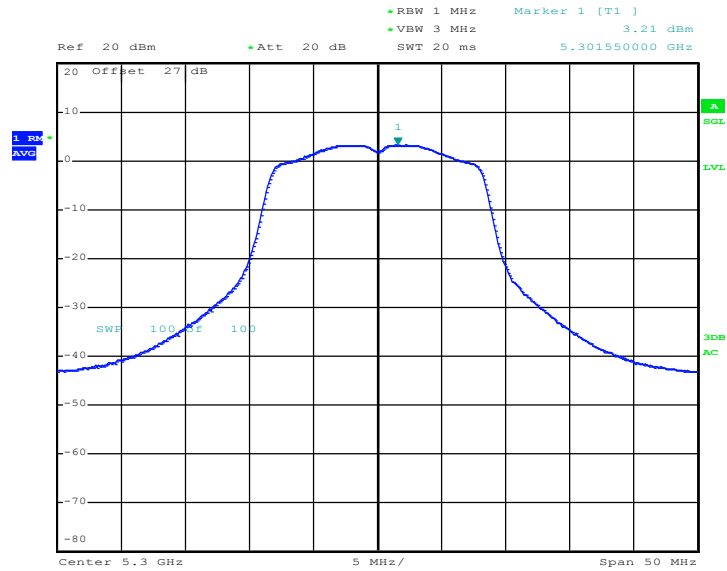
PSD Plot on 802.11a Channel 52



Date: 5.FEB.2013 21:23:48

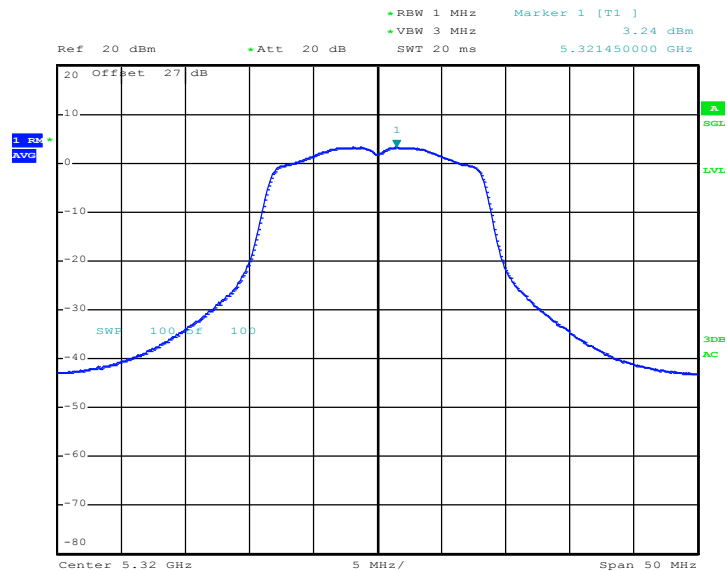


PSD Plot on 802.11a Channel 60



Date: 5.FEB.2013 21:27:19

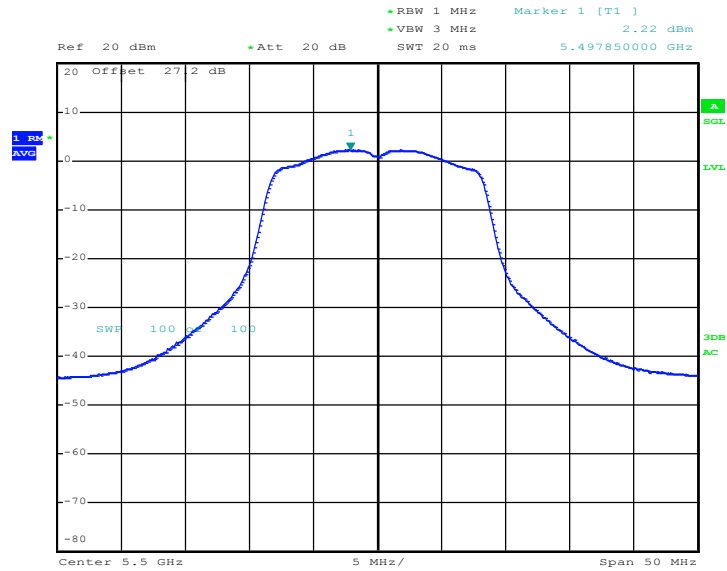
PSD Plot on 802.11a Channel 64



Date: 5.FEB.2013 21:29:33

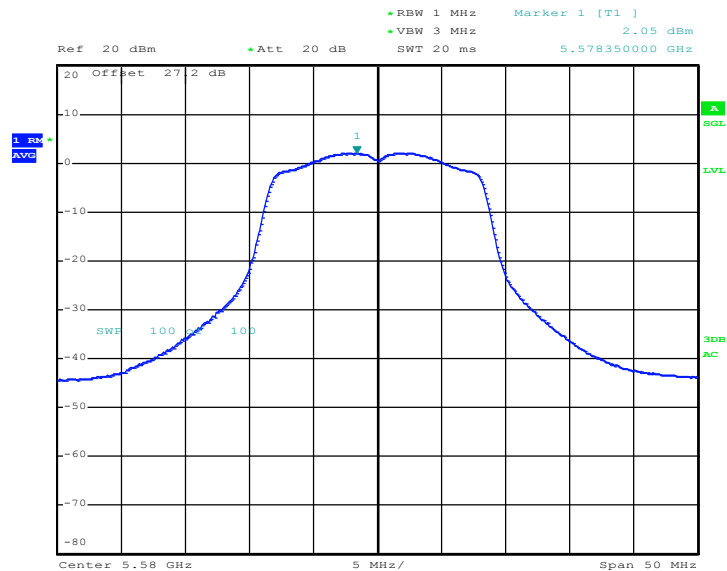


PSD Plot on 802.11a Channel 100



Date: 5.FEB.2013 21:32:58

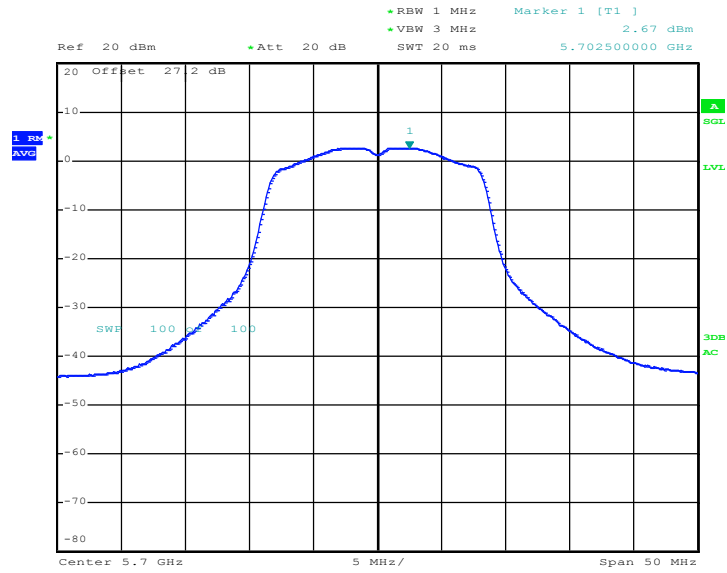
PSD Plot on 802.11a Channel 116



Date: 5.FEB.2013 21:35:30



PSD Plot on 802.11a Channel 140



Date: 5.FEB.2013 21:38:15



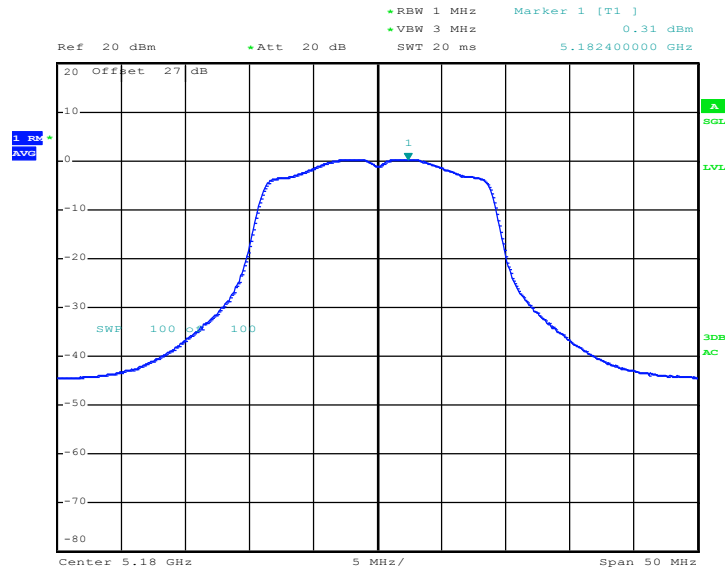
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle:	98.37%	Duty Factor:	0.07dB

Band	Channel	Frequency (MHz)	802.11n HT20 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
			Measured	Final		
NII Band 1	36	5180	0.31	0.38	4	Pass
	44	5220	0.34	0.41	4	Pass
	48	5240	0.37	0.44	4	Pass
NII Band 2	52	5260	2.67	2.74	11	Pass
	60	5300	1.97	2.04	11	Pass
	64	5320	1.94	2.01	11	Pass
NII Band 3	100	5500	1.67	1.74	11	Pass
	116	5580	1.90	1.97	11	Pass
	140	5700	-0.02	0.05	11	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

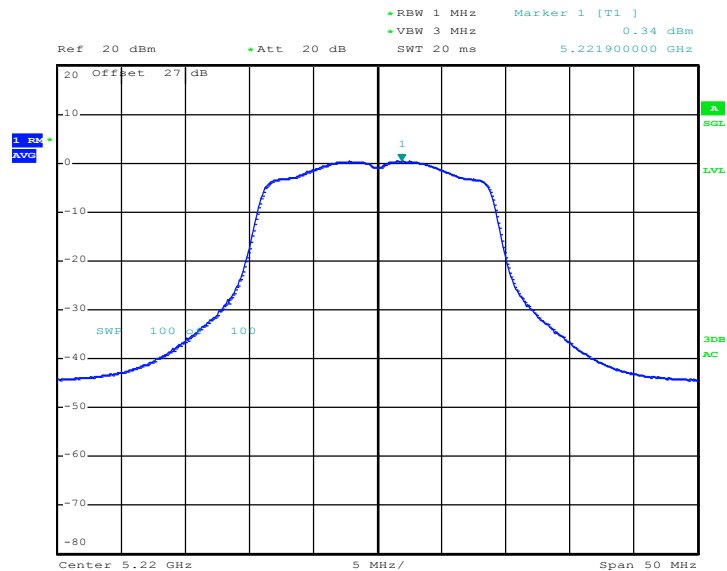


PSD Plot on 802.11n HT20 Channel 36



Date: 5.FEB.2013 22:05:45

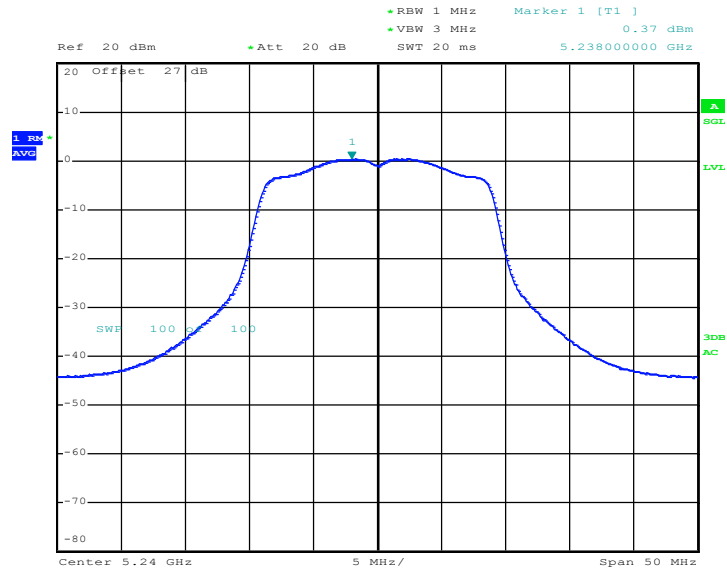
PSD Plot on 802.11n HT20 Channel 44



Date: 5.FEB.2013 22:02:55

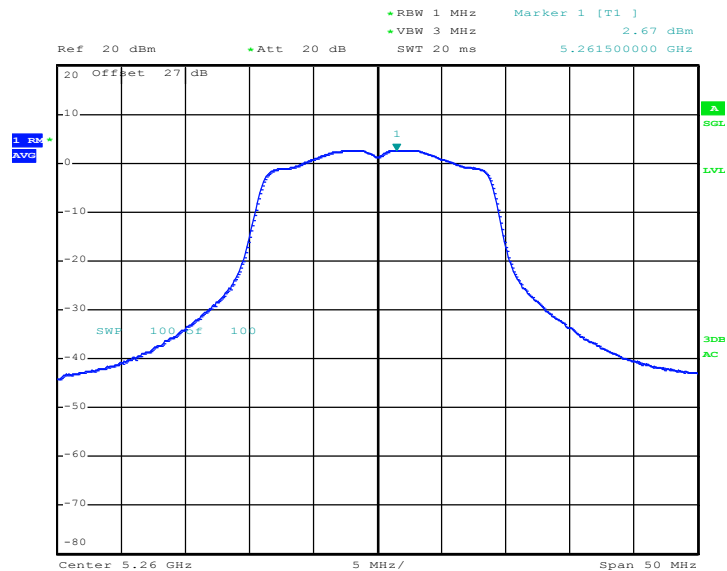


PSD Plot on 802.11n HT20 Channel 48



Date: 5.FEB.2013 22:00:03

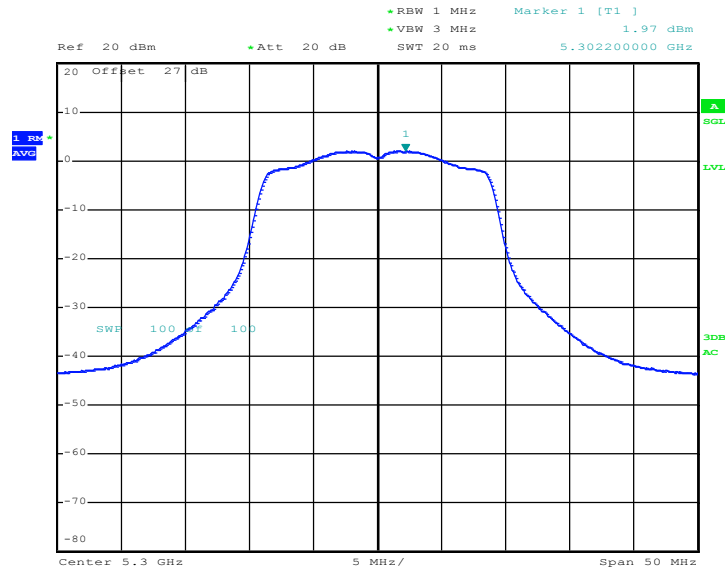
PSD Plot on 802.11n HT20 Channel 52



Date: 5.FEB.2013 21:57:22

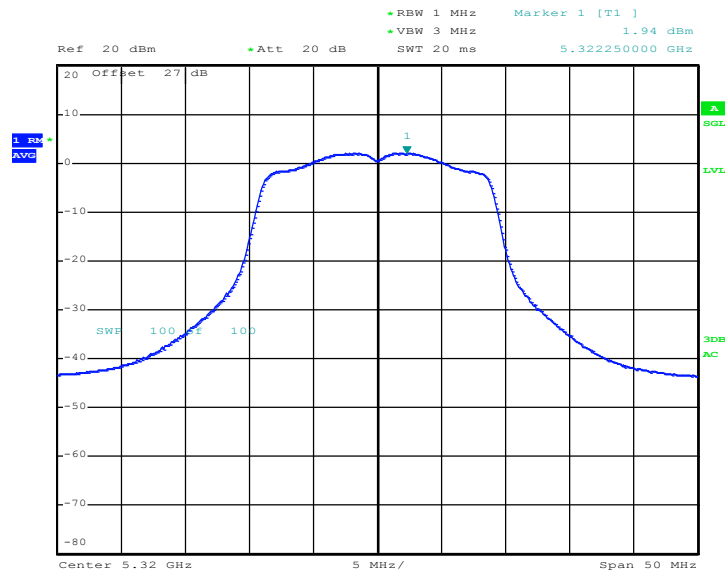


PSD Plot on 802.11n HT20 Channel 60



Date: 5.FEB.2013 21:54:26

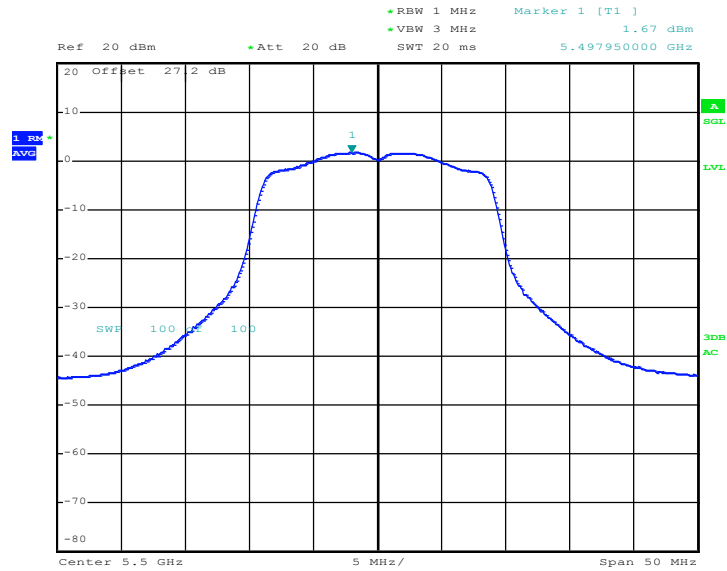
PSD Plot on 802.11n HT20 Channel 64



Date: 5.FEB.2013 21:49:59

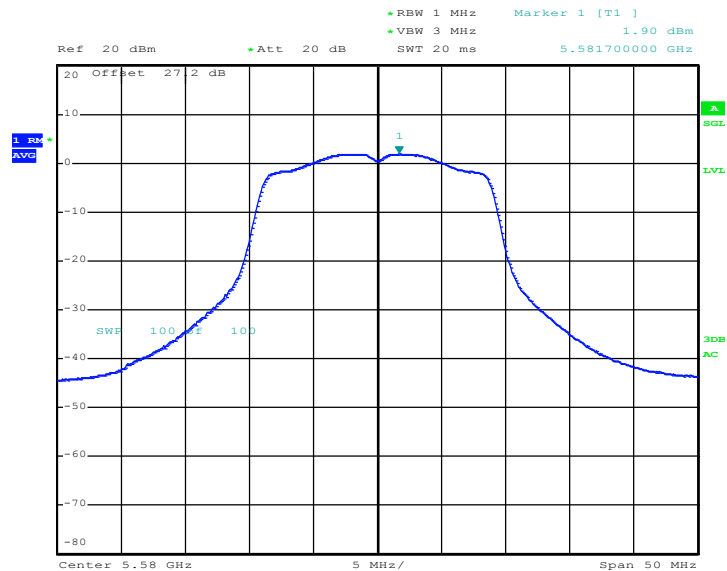


PSD Plot on 802.11n HT20 Channel 100



Date: 5.FEB.2013 21:47:09

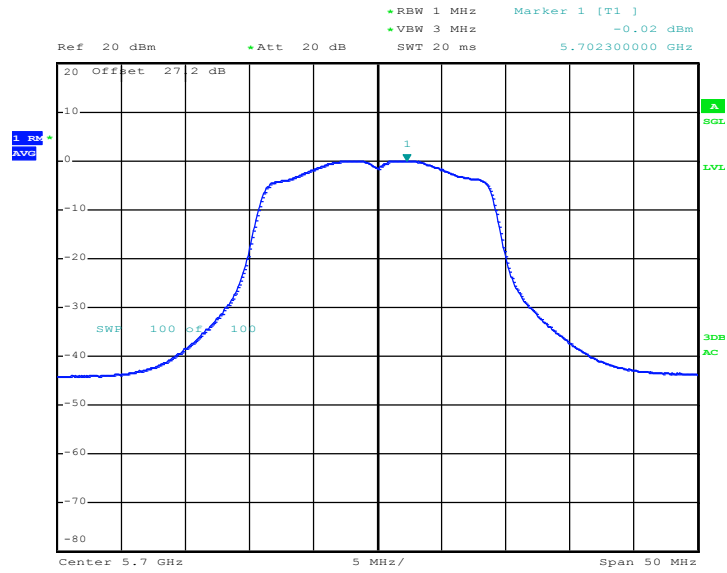
PSD Plot on 802.11n HT20 Channel 116



Date: 5.FEB.2013 21:44:05



PSD Plot on 802.11n HT20 Channel 140



Date: 5.FEB.2013 21:41:09

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.

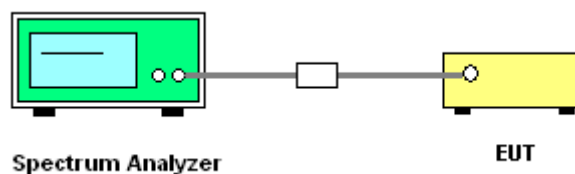
3.4.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Section F) Peak excursion measurement

1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
 - *Set RBW = 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.
4. Use the procedure found under section 3.3 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

3.4.4 Test Setup

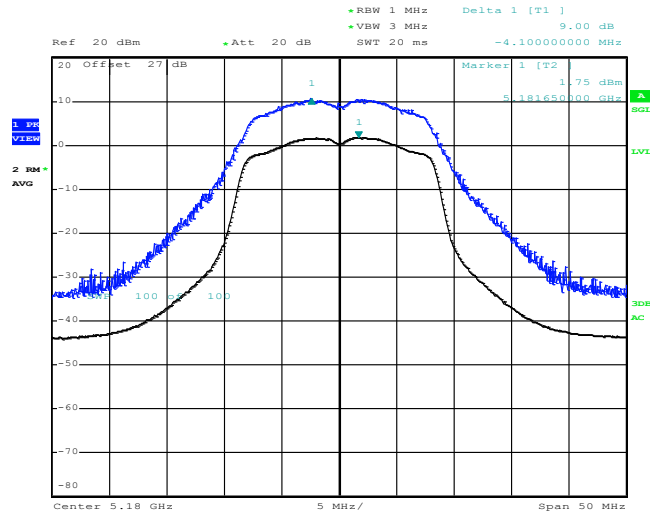




3.4.5 Test Result of Peak Excursion Ratio

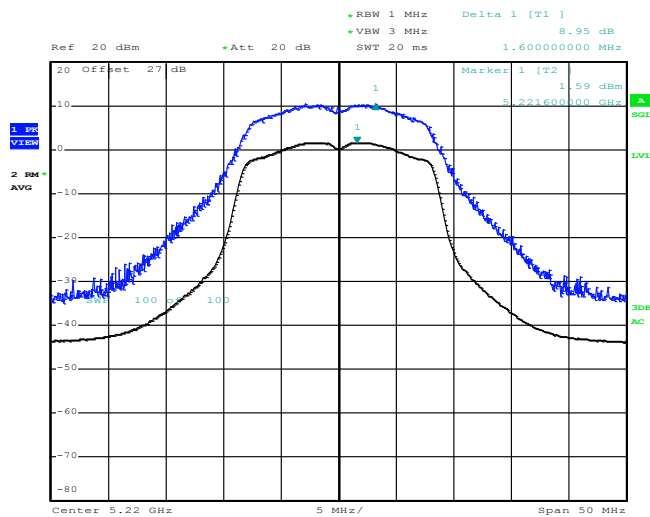
Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11a Channel 36



Date: 5.FEB.2013 21:15:15

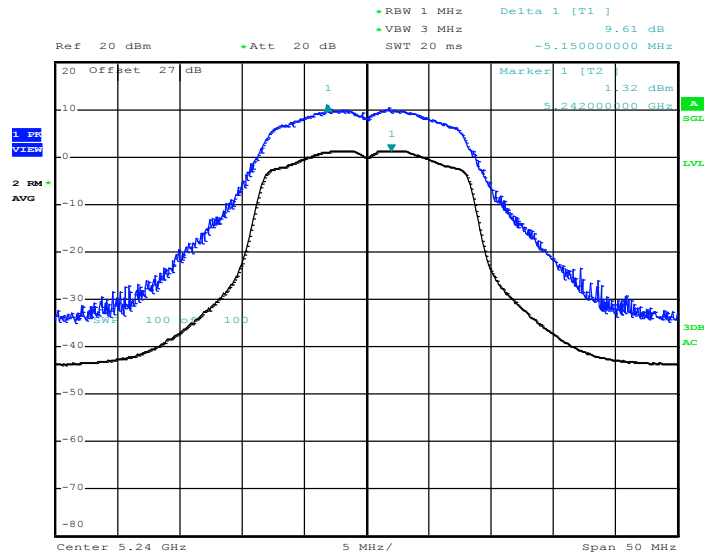
Peak Excursion Ratio Plot on 802.11a Channel 44



Date: 5.FEB.2013 21:17:56

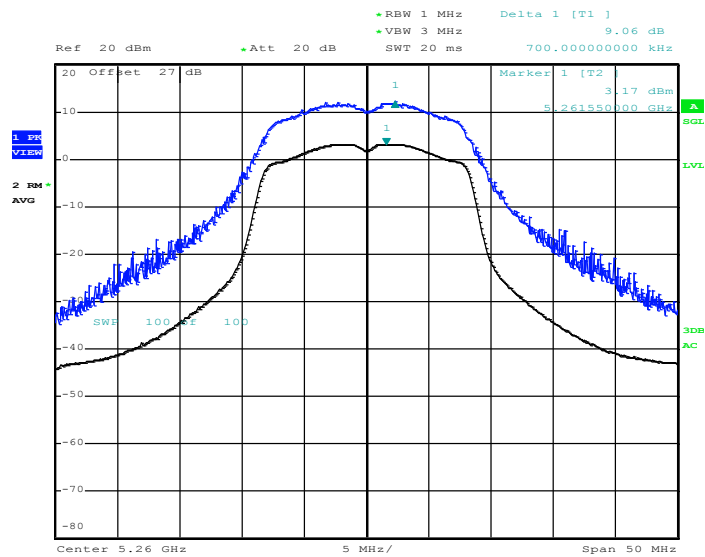


Peak Excursion Ratio Plot on 802.11a Channel 48



Date: 5.FEB.2013 21:21:29

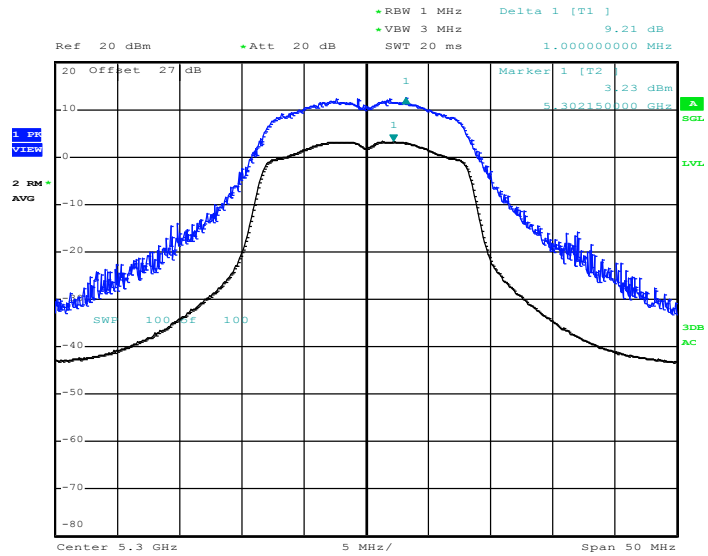
Peak Excursion Ratio Plot on 802.11a Channel 52



Date: 5.FEB.2013 21:24:07

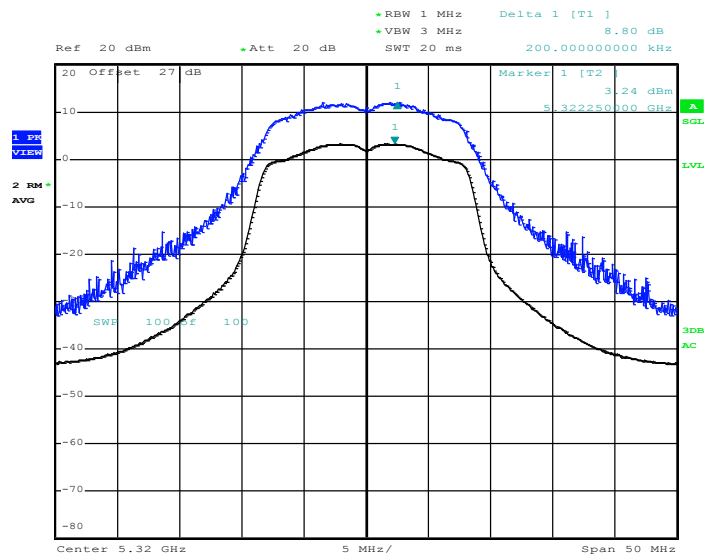


Peak Excursion Ratio Plot on 802.11a Channel 60



Date: 5.FEB.2013 21:27:37

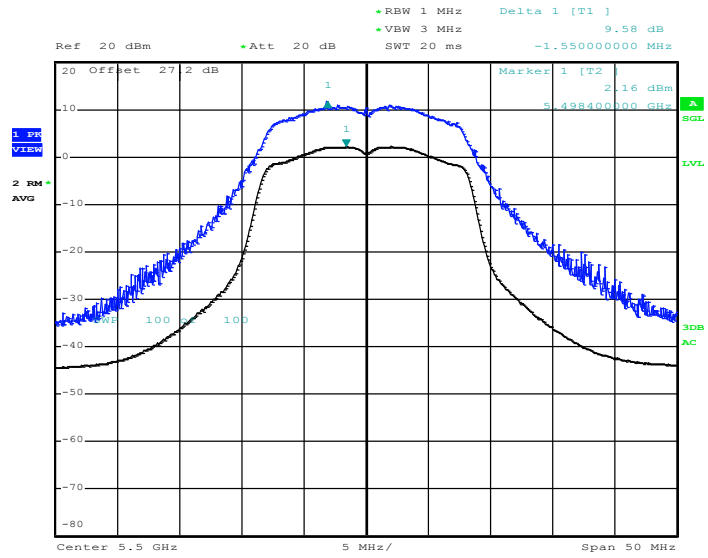
Peak Excursion Ratio Plot on 802.11a Channel 64



Date: 5.FEB.2013 21:29:51

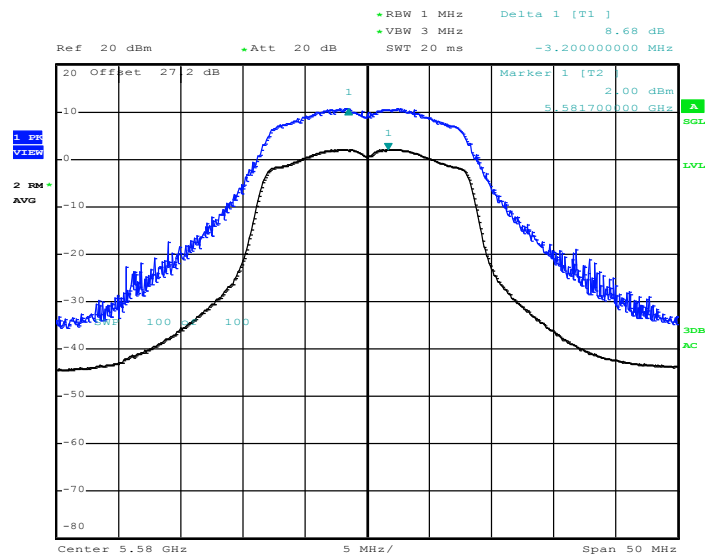


Peak Excursion Ratio Plot on 802.11a Channel 100



Date: 5.FEB.2013 21:33:17

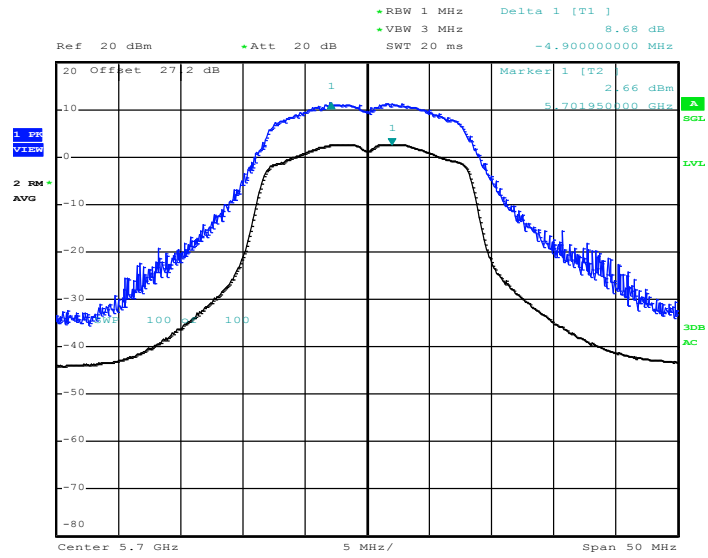
Peak Excursion Ratio Plot on 802.11a Channel 116



Date: 5.FEB.2013 21:35:48



Peak Excursion Ratio Plot on 802.11a Channel 140

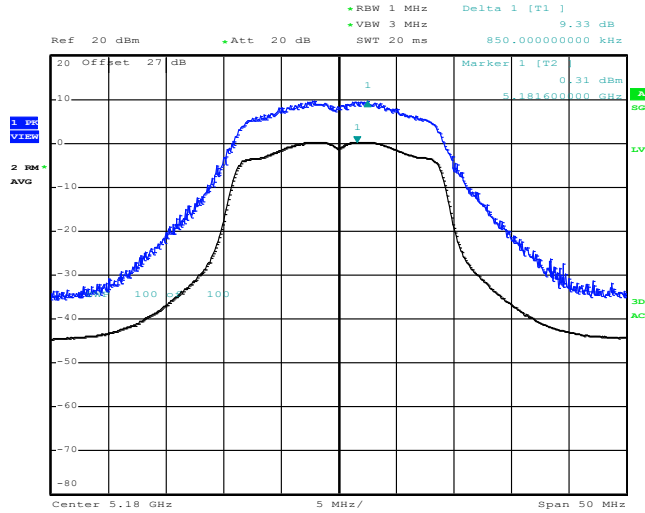


Date: 5.FEB.2013 21:38:34



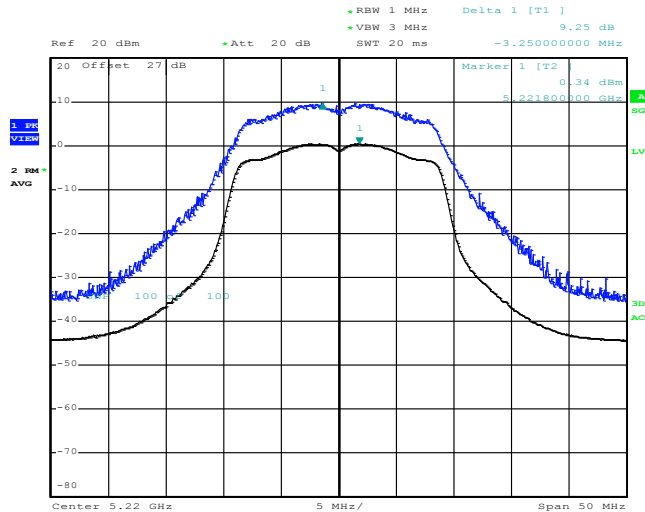
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11n HT20 Channel 36



Date: 5.FEB.2013 22:06:04

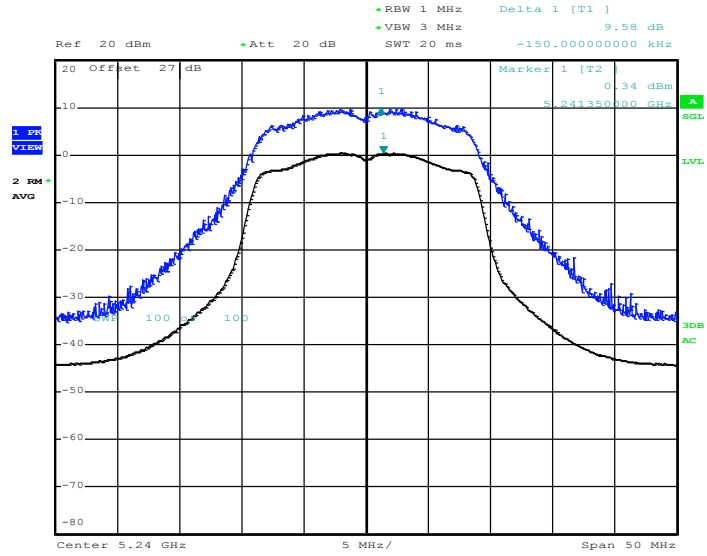
Peak Excursion Ratio Plot on 802.11n HT20 Channel 44



Date: 5.FEB.2013 22:03:13

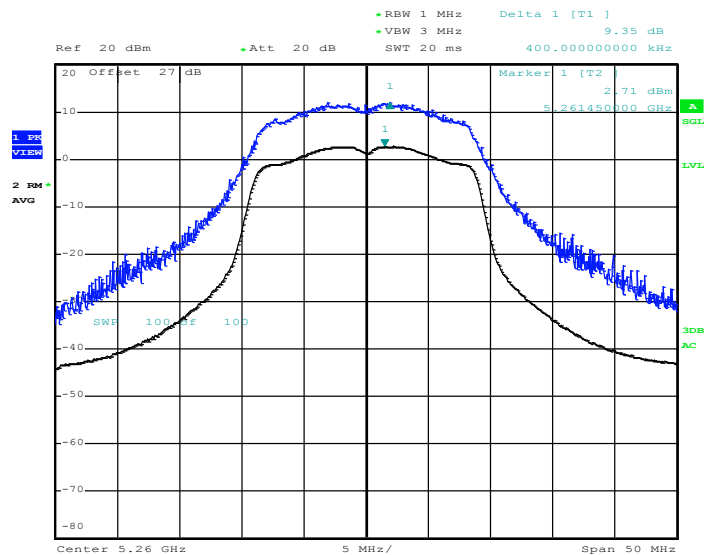


Peak Excursion Ratio Plot on 802.11n HT20 Channel 48



Date: 5.FEB.2013 22:00:21

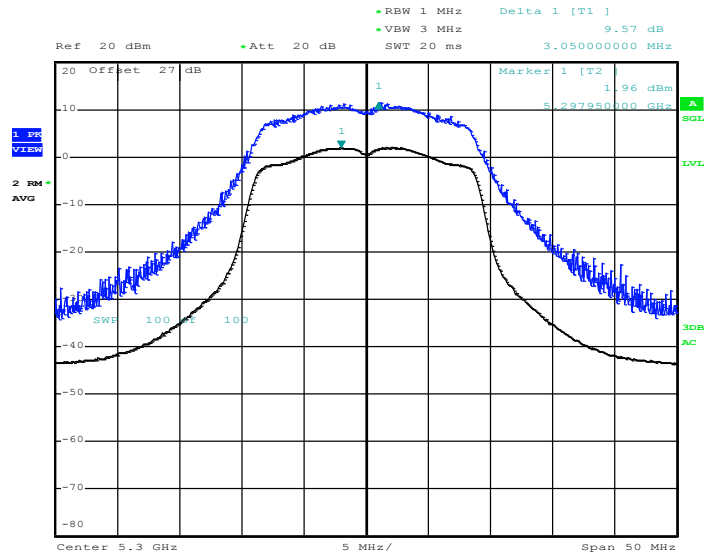
Peak Excursion Ratio Plot on 802.11n HT20 Channel 52



Date: 5.FEB.2013 21:57:40

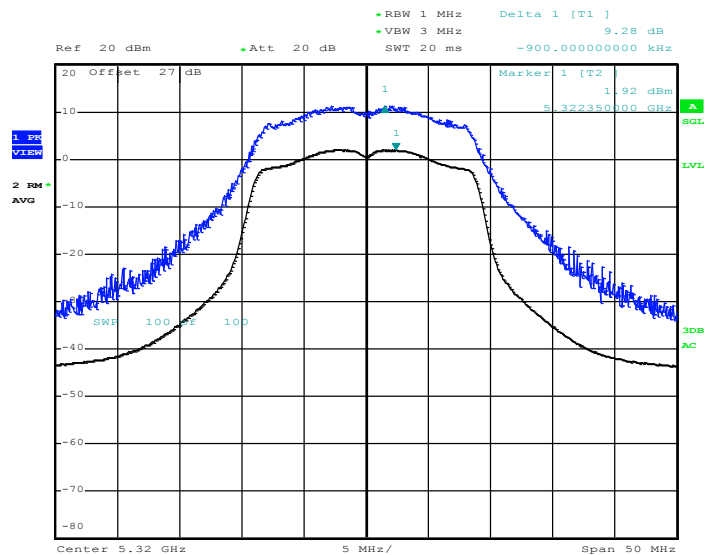


Peak Excursion Ratio Plot on 802.11n HT20 Channel 60



Date: 5.FEB.2013 21:54:44

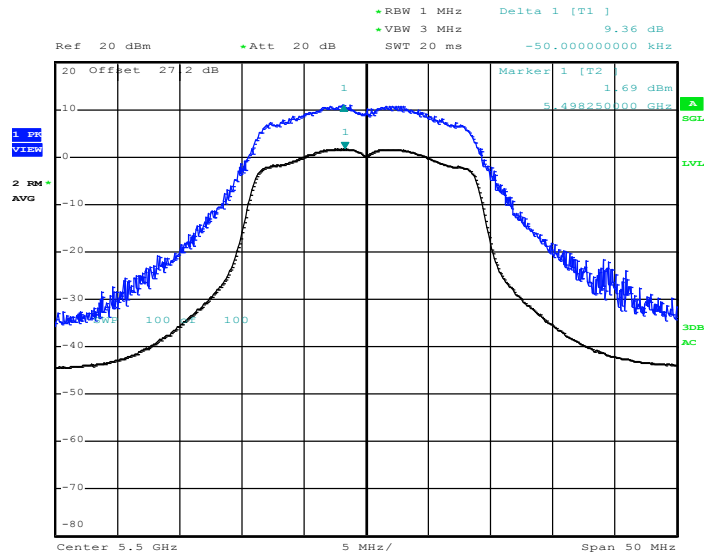
Peak Excursion Ratio Plot on 802.11n HT20 Channel 64



Date: 5.FEB.2013 21:50:17

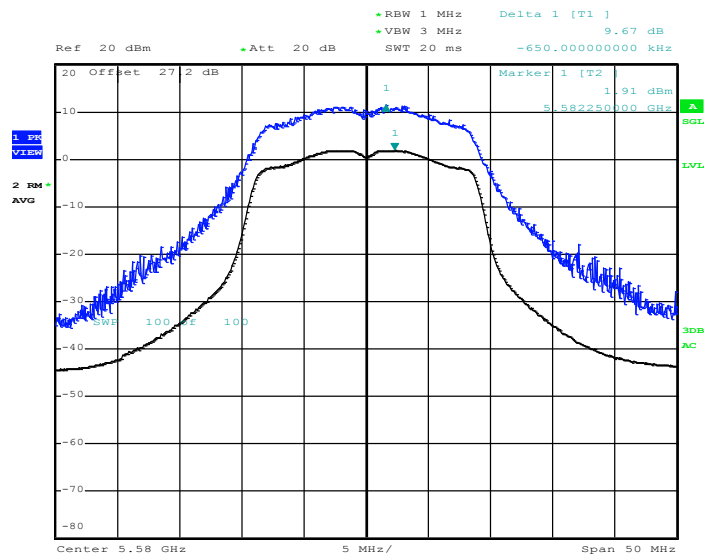


Peak Excursion Ratio Plot on 802.11n HT20 Channel 100



Date: 5.FEB.2013 21:47:27

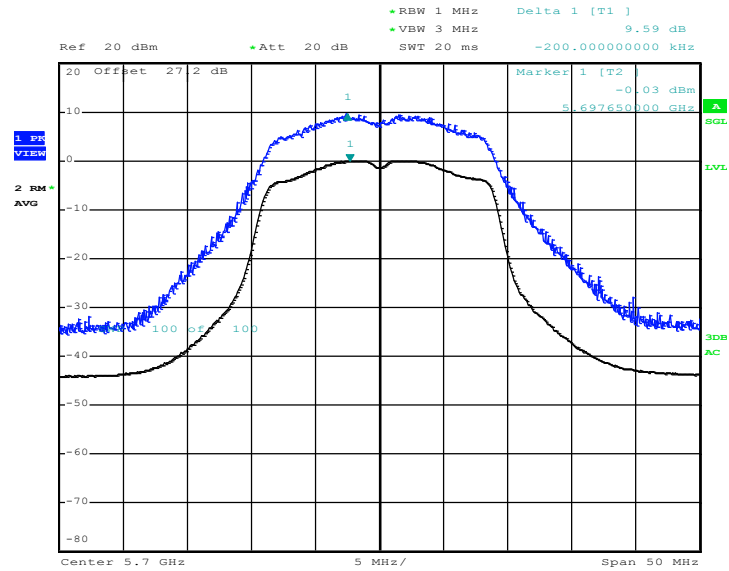
Peak Excursion Ratio Plot on 802.11n HT20 Channel 116



Date: 5.FEB.2013 21:44:24



Peak Excursion Ratio Plot on 802.11n HT20 Channel 140



Date: 5.FEB.2013 21:41:28

3.5 Unwanted Radiated Emission Measurement

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

3.5.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5725MHz band: all emissions outside of the 5470-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

(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 (dBμV/m)
-17	78.3
- 27	68.3



- (3) KDB789033 v01r02 G)2)c(i) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

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 ANSI C63.10-2009 and FCC KDB 789033 D01 General UNII Test Procedures v01r02.

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

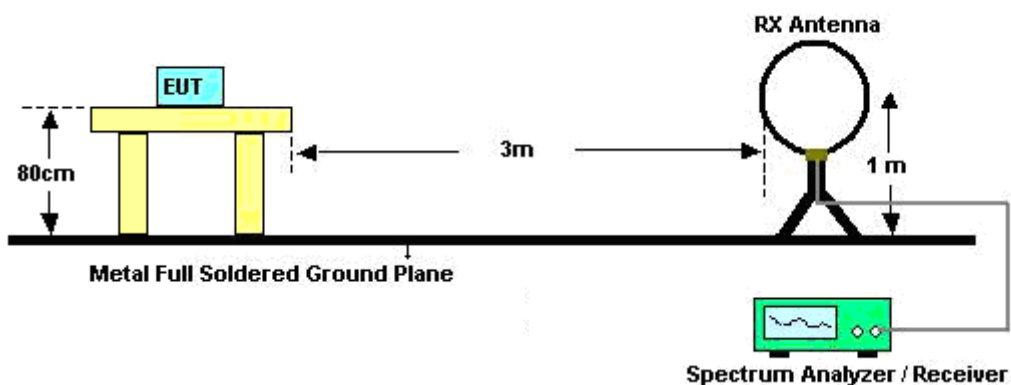
- The setting follows G) 6) of FCC KDB 789033.
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(μ s)	1/T(kHz)	VBW Setting
802.11a	98.62	-	-	10Hz
802.11n HT20	98.37	-	-	10Hz

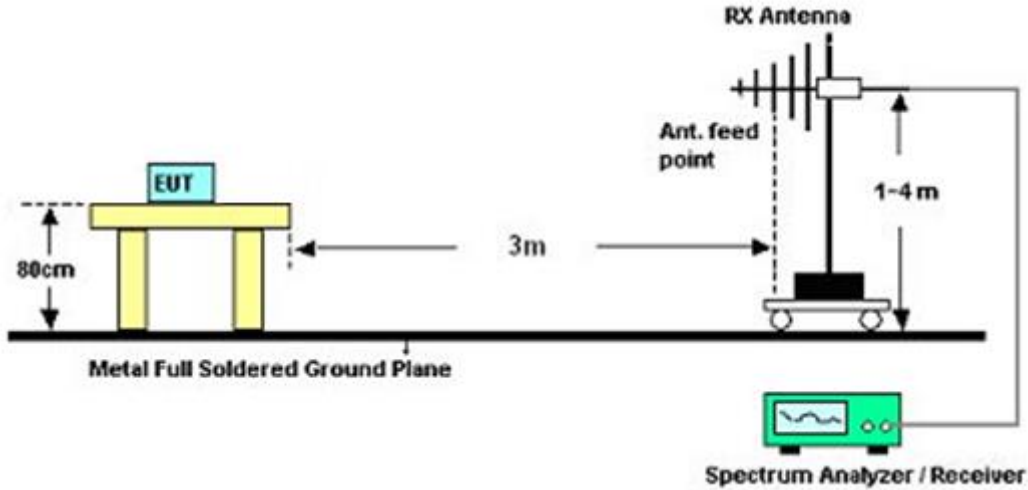
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters 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.

3.5.4 Test Setup

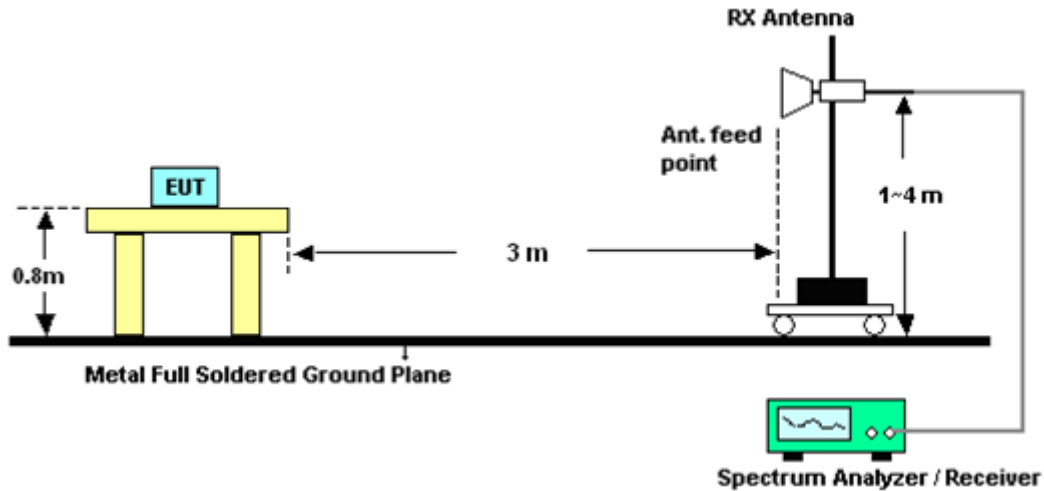
For radiated emissions below 30MHz



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

3.5.6.1 Test Result of Radiated Band Edges

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5148.05	58.45	-15.55	74	47.43	34.29	9.22	32.49	112	61	Peak
5150	45.42	-8.58	54	34.4	34.29	9.22	32.49	112	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
5149.25	61.43	-12.57	74	50.41	34.29	9.22	32.49	105	295	Peak
5150	44.57	-9.43	54	33.55	34.29	9.22	32.49	105	295	Average



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5142.35	54.65	-19.35	74	43.59	34.29	9.22	32.45	100	67	Peak
5147.15	41.29	-12.71	54	30.27	34.29	9.22	32.49	100	67	Average
5389.82	56.04	-17.96	74	44.77	34.9	9.65	33.28	100	67	Peak
5356.6	42.32	-11.68	54	31.08	34.81	9.61	33.18	100	67	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
5141.3	55.02	-18.98	74	43.96	34.29	9.22	32.45	103	234	Peak
5150	41.26	-12.74	54	30.24	34.29	9.22	32.49	103	234	Average
5421.39	54.26	-19.74	74	42.98	34.98	9.69	33.39	103	234	Peak
5350.88	41.63	-12.37	54	30.44	34.81	9.56	33.18	103	234	Average



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5139.05	54.01	-19.99	74	43.03	34.25	9.18	32.45	100	62	Peak
5149.4	41.06	-12.94	54	30.04	34.29	9.22	32.49	100	62	Average
5410.61	56.15	-17.85	74	44.91	34.94	9.69	33.39	100	62	Peak
5356.6	42.55	-11.45	54	31.31	34.81	9.61	33.18	100	62	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
5146.4	54.51	-19.49	74	43.49	34.29	9.22	32.49	101	236	Peak
5030.15	40.83	-13.17	54	30.15	33.99	9.01	32.32	101	236	Average
5351.54	54.77	-19.23	74	43.58	34.81	9.56	33.18	101	236	Peak
5352.86	41.68	-12.32	54	30.49	34.81	9.56	33.18	101	236	Average

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5350.44	65.43	-8.57	74	54.24	34.81	9.56	33.18	100	61	Peak
5350	46.5	-7.5	54	35.31	34.81	9.56	33.18	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
5350.88	61.5	-12.5	74	50.31	34.81	9.56	33.18	168	223	Peak
5350	45.18	-8.82	54	33.99	34.81	9.56	33.18	168	223	Average



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5465.2	60.43	-13.57	74	49.11	35.11	9.78	33.57	148	76	Peak
5469.84	45.02	-8.98	54	33.7	35.11	9.78	33.57	148	76	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
5470	56.98	-17.02	74	45.66	35.11	9.78	33.57	100	306	Peak
5468.56	43.17	-10.83	54	31.85	35.11	9.78	33.57	100	306	Average

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5725.56	67.4	-6.6	74	56.18	35.33	10.04	34.15	101	76	Peak
5725	47.58	-6.42	54	36.36	35.33	10.04	34.15	101	76	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
5726.28	64.76	-9.24	74	53.54	35.33	10.04	34.15	132	209	Peak
5725	46.39	-7.61	54	35.17	35.33	10.04	34.15	132	209	Average



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5148.95	57	-17	74	45.98	34.29	9.22	32.49	134	64	Peak
5150	44.82	-9.18	54	33.8	34.29	9.22	32.49	134	64	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
5149.7	56.53	-17.47	74	45.51	34.29	9.22	32.49	103	228	Peak
5150	44.42	-9.58	54	33.4	34.29	9.22	32.49	103	228	Average

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5121.5	54.68	-19.32	74	43.75	34.2	9.18	32.45	100	65	Peak
5147.9	41.5	-12.5	54	30.48	34.29	9.22	32.49	100	65	Average
5422.38	55.66	-18.34	74	44.38	34.98	9.69	33.39	100	65	Peak
5354.29	42.37	-11.63	54	31.18	34.81	9.56	33.18	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
5123.45	54.03	-19.97	74	43.05	34.25	9.18	32.45	103	224	Peak
5149.85	41.35	-12.65	54	30.33	34.29	9.22	32.49	103	224	Average
5430.74	54.55	-19.45	74	43.27	35.03	9.73	33.48	103	224	Peak
5352.75	41.67	-12.33	54	30.48	34.81	9.56	33.18	103	224	Average



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5073.35	54.3	-19.7	74	43.47	34.12	9.1	32.39	100	67	Peak
5144.45	41.31	-12.69	54	30.29	34.29	9.22	32.49	100	67	Average
5356.71	56.53	-17.47	74	45.29	34.81	9.61	33.18	100	67	Peak
5358.47	42.58	-11.42	54	31.34	34.81	9.61	33.18	100	67	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
5063	53.81	-20.19	74	43.04	34.07	9.05	32.35	102	219	Peak
5150	40.98	-13.02	54	29.96	34.29	9.22	32.49	102	219	Average
5372.44	54.62	-19.38	74	43.34	34.85	9.61	33.18	102	219	Peak
5352.53	41.92	-12.08	54	30.73	34.81	9.56	33.18	102	219	Average

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5352.2	63.38	-10.62	74	52.19	34.81	9.56	33.18	109	66	Peak
5350	46.72	-7.28	54	35.53	34.81	9.56	33.18	109	66	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
5352.86	60.84	-13.16	74	49.65	34.81	9.56	33.18	169	222	Peak
5350	44.6	-9.4	54	33.41	34.81	9.56	33.18	169	222	Average



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5467.44	60.63	-13.37	74	49.31	35.11	9.78	33.57	105	66	Peak
5470	45.9	-8.1	54	34.58	35.11	9.78	33.57	105	66	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
5467.92	58.13	-15.87	74	46.81	35.11	9.78	33.57	128	210	Peak
5470	44.09	-9.91	54	32.77	35.11	9.78	33.57	128	210	Average

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu		

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
5730.12	62.78	-11.22	74	51.56	35.33	10.04	34.15	100	312	Peak
5725	45.06	-8.94	54	33.84	35.33	10.04	34.15	100	312	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
5725	61.11	-12.89	74	49.89	35.33	10.04	34.15	192	209	Peak
5725	44.07	-9.93	54	32.85	35.33	10.04	34.15	192	209	Average



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

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5182 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
49.17	25.58	-14.42	40	48.02	8.5	0.69	31.63	100	140	Peak
118.29	27.92	-15.58	43.5	46.96	11.52	1.09	31.65	-	-	Peak
241.95	21.2	-24.8	46	38.8	12.06	1.53	31.19	-	-	Peak
430.2	18.01	-27.99	46	30.3	16.65	2.25	31.19	-	-	Peak
602.4	21.2	-24.8	46	29.21	19.82	2.7	30.53	-	-	Peak
813.8	24.81	-21.19	46	29.66	22.24	3.18	30.27	-	-	Peak
5182	99.06	-	-	87.93	34.38	9.27	32.52	112	61	Average
5182	110.63	-	-	99.5	34.38	9.27	32.52	112	61	Peak
10359	44.4	-29.6	74	51.96	37.29	13.71	58.56	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5182 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
87.24	24.62	-15.38	40	47.06	8.33	0.92	31.69	100	349	Peak
159.06	23.69	-19.81	43.5	43.29	10.57	1.22	31.39	-	-	Peak
201.45	15.12	-28.38	43.5	35.88	9.23	1.33	31.32	-	-	Peak
412.7	17.37	-28.63	46	30.24	16.28	2.19	31.34	-	-	Peak
584.9	20.77	-25.23	46	29.34	19.54	2.65	30.76	-	-	Peak
850.9	24.04	-21.96	46	28.72	22.6	3.27	30.55	-	-	Peak
5182	98.44	-	-	87.31	34.38	9.27	32.52	105	295	Average
5182	109.9	-	-	98.77	34.38	9.27	32.52	105	295	Peak
10359	44.61	-29.39	74	52.17	37.29	13.71	58.56	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5218 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
84.27	17.38	-22.62	40	40.13	8.06	0.9	31.71	-	-	Peak
134.22	19.97	-23.53	43.5	38.81	11.52	1.17	31.53	-	-	Peak
239.25	19.9	-26.1	46	37.71	11.86	1.53	31.2	-	-	Peak
430.2	18.01	-27.99	46	30.3	16.65	2.25	31.19	-	-	Peak
602.4	21.2	-24.8	46	29.21	19.82	2.7	30.53	-	-	Peak
813.8	24.81	-21.19	46	29.66	22.24	3.18	30.27	100	27	Peak
5218	100.13	-	-	88.87	34.46	9.35	32.55	100	67	Average
5218	111.3	-	-	100.04	34.46	9.35	32.55	100	67	Peak
10440	44.84	-29.16	74	52.4	37.35	13.71	58.62	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5218 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
63.48	28.43	-11.57	40	53.23	6.18	0.79	31.77	100	79	Peak
133.41	21.4	-22.1	43.5	40.25	11.52	1.17	31.54	-	-	Peak
231.96	15.31	-30.69	46	33.71	11.32	1.49	31.21	-	-	Peak
378.4	16.63	-29.37	46	30.42	15.42	2.1	31.31	-	-	Peak
647.2	22.16	-23.84	46	29.52	20.17	2.83	30.36	-	-	Peak
865.6	24.05	-21.95	46	28.64	22.75	3.29	30.63	-	-	Peak
5218	97.67	-	-	86.41	34.46	9.35	32.55	186	228	Average
5218	109.14	-	-	97.88	34.46	9.35	32.55	186	228	Peak
10440	45.76	-28.24	74	53.32	37.35	13.71	58.62	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5242 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
59.97	16.56	-23.44	40	41.48	6.1	0.76	31.78	-	-	Peak
181.74	18.8	-24.7	43.5	39.85	8.91	1.25	31.21	-	-	Peak
241.95	21.2	-24.8	46	38.8	12.06	1.53	31.19	-	-	Peak
379.8	17.76	-28.24	46	31.48	15.48	2.1	31.3	-	-	Peak
658.4	21.85	-24.15	46	29.09	20.27	2.86	30.37	-	-	Peak
857.2	24.17	-21.83	46	28.8	22.67	3.28	30.58	100	46	Peak
5242	99.68	-	-	88.39	34.55	9.39	32.65	100	67	Average
5242	110.64	-	-	99.35	34.55	9.39	32.65	100	67	Peak
10479	43.91	-30.09	74	51.46	37.39	13.72	58.66	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5238 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
44.04	20.5	-19.5	40	40.49	11.1	0.64	31.73	-	-	Peak
87.24	24.62	-15.38	40	47.06	8.33	0.92	31.69	100	76	Peak
214.14	14.11	-29.39	43.5	33.96	10.11	1.38	31.34	-	-	Peak
378.4	16.63	-29.37	46	30.42	15.42	2.1	31.31	-	-	Peak
599.6	21.33	-24.67	46	29.4	19.78	2.69	30.54	-	-	Peak
850.9	24.04	-21.96	46	28.72	22.6	3.27	30.55	-	-	Peak
5238	97.39	-	-	86.14	34.51	9.39	32.65	103	234	Average
5238	108.89	-	-	97.64	34.51	9.39	32.65	103	234	Peak
10479	43.52	-30.48	74	51.07	37.39	13.72	58.66	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5262 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
63.48	16.71	-23.29	40	41.51	6.18	0.79	31.77	-	-	Peak
165	22.46	-21.04	43.5	42.53	10.03	1.23	31.33	100	78	Peak
236.28	19.64	-26.36	46	37.67	11.66	1.51	31.2	-	-	Peak
424.6	17.13	-28.87	46	29.6	16.52	2.23	31.22	-	-	Peak
658.4	21.65	-24.35	46	28.89	20.27	2.86	30.37	-	-	Peak
806.8	24.54	-21.46	46	29.42	22.17	3.16	30.21	-	-	Peak
5262	99.83	-	-	88.56	34.59	9.44	32.76	100	62	Average
5262	111.43	-	-	100.16	34.59	9.44	32.76	100	62	Peak
10521	43.57	-30.43	74	51.1	37.42	13.72	58.67	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5262 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
85.89	24.68	-15.32	40	47.22	8.24	0.92	31.7	100	84	Peak
177.42	19.93	-23.57	43.5	40.9	9	1.24	31.21	-	-	Peak
213.33	14.42	-29.08	43.5	34.36	10.04	1.38	31.36	-	-	Peak
423.9	17.1	-28.9	46	29.61	16.5	2.22	31.23	-	-	Peak
589.8	20.82	-25.18	46	29.22	19.62	2.66	30.68	-	-	Peak
799.8	24.59	-21.41	46	29.51	22.1	3.14	30.16	-	-	Peak
5262	96.99	-	-	85.72	34.59	9.44	32.76	101	236	Average
5262	108.2	-	-	96.93	34.59	9.44	32.76	101	236	Peak
10521	43.65	-30.35	74	51.18	37.42	13.72	58.67	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5298 MHz is fundamental signal which can be ignored. 2. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
42.96	20.22	-19.78	40	39.63	11.7	0.64	31.75	-	-	Peak
120.72	24.38	-19.12	43.5	43.19	11.7	1.11	31.62	100	73	Peak
221.43	17.96	-28.04	46	37.17	10.58	1.43	31.22	-	-	Peak
424.6	17.13	-28.87	46	29.6	16.52	2.23	31.22	-	-	Peak
699	22.69	-23.31	46	29.65	20.59	2.94	30.49	-	-	Peak
853	24.33	-21.67	46	29	22.62	3.27	30.56	-	-	Peak
5298	100.47	-	-	89.28	34.68	9.48	32.97	100	68	Average
5298	112.1	-	-	100.91	34.68	9.48	32.97	100	68	Peak
10599	42.6	-31.4	74	50.01	37.5	13.73	58.64	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5298 MHz is fundamental signal which can be ignored. 2. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
76.71	23.99	-16.01	40	47.68	7.19	0.86	31.74	100	46	Peak
154.2	20.04	-23.46	43.5	39.3	10.92	1.21	31.39	-	-	Peak
219	14.51	-31.49	46	33.89	10.45	1.41	31.24	-	-	Peak
428.1	17.41	-28.59	46	29.78	16.59	2.24	31.2	-	-	Peak
633.2	21.8	-24.2	46	29.36	20.06	2.79	30.41	-	-	Peak
799.8	24.59	-21.41	46	29.51	22.1	3.14	30.16	-	-	Peak
5298	96.67	-	-	85.48	34.68	9.48	32.97	113	300	Average
5298	107.96	-	-	96.77	34.68	9.48	32.97	113	300	Peak
10599	42.43	-31.57	74	49.84	37.5	13.73	58.64	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5322 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
79.95	17.28	-22.72	40	40.55	7.57	0.88	31.72	-	-	Peak
159.33	19.67	-23.83	43.5	39.27	10.57	1.22	31.39	-	-	Peak
220.08	17.43	-28.57	46	36.72	10.51	1.42	31.22	-	-	Peak
424.6	17.13	-28.87	46	29.6	16.52	2.23	31.22	-	-	Peak
581.4	21.29	-24.71	46	29.99	19.47	2.64	30.81	-	-	Peak
766.9	23.71	-22.29	46	29.42	21.6	3.09	30.4	100	73	Peak
5322	100.3	-	-	89.03	34.72	9.52	32.97	100	61	Average
5322	111.28	-	-	100.01	34.72	9.52	32.97	100	61	Peak
10641	43.24	-30.76	74	50.6	37.54	13.73	58.63	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5322 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
58.08	19.36	-20.64	40	43.86	6.5	0.75	31.75	-	-	Peak
118.29	25.01	-18.49	43.5	44.05	11.52	1.09	31.65	100	26	Peak
224.94	19.42	-26.58	46	38.34	10.85	1.45	31.22	-	-	Peak
439.3	17.99	-28.01	46	30.02	16.83	2.28	31.14	-	-	Peak
603.8	21.68	-24.32	46	29.67	19.83	2.7	30.52	-	-	Peak
752.2	22.87	-23.13	46	28.94	21.39	3.06	30.52	-	-	Peak
5322	97.67	-	-	86.4	34.72	9.52	32.97	168	223	Average
5322	108.98	-	-	97.71	34.72	9.52	32.97	168	223	Peak
10641	43.14	-30.86	74	50.5	37.54	13.73	58.63	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5502 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
60.24	16.25	-23.75	40	41.17	6.1	0.76	31.78	-	-	Peak
173.91	23.23	-20.27	43.5	44.04	9.19	1.24	31.24	100	69	Peak
238.71	19.72	-26.28	46	37.61	11.79	1.52	31.2	-	-	Peak
393.1	17.04	-28.96	46	30.53	15.82	2.13	31.44	-	-	Peak
662.6	22.43	-23.57	46	29.65	20.3	2.87	30.39	-	-	Peak
759.2	23.83	-22.17	46	29.72	21.49	3.08	30.46	-	-	Peak
5502	97.44	-	-	86.12	35.2	9.86	33.74	148	76	Average
5502	108.72	-	-	97.4	35.2	9.86	33.74	148	76	Peak
11001	44.26	-29.74	74	51.14	37.9	13.76	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5498 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
86.97	24.37	-15.63	40	46.81	8.33	0.92	31.69	100	29	Peak
129.36	22.96	-20.54	43.5	41.78	11.62	1.14	31.58	-	-	Peak
182.01	17.42	-26.08	43.5	38.45	8.92	1.26	31.21	-	-	Peak
334.3	19.66	-26.34	46	34.87	14.24	1.87	31.32	-	-	Peak
524.7	19.2	-26.8	46	29.27	18.51	2.5	31.08	-	-	Peak
743.1	23.26	-22.74	46	29.5	21.24	3.04	30.52	-	-	Peak
5498	94.37	-	-	83.01	35.2	9.82	33.66	100	306	Average
5498	105.89	-	-	94.53	35.2	9.82	33.66	100	306	Peak
11001	44.66	-29.34	74	51.54	37.9	13.76	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5578 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
97.23	19.95	-23.55	43.5	41.2	9.44	0.98	31.67	-	-	Peak
173.91	23.23	-20.27	43.5	44.04	9.19	1.24	31.24	100	69	Peak
204.42	16.36	-27.14	43.5	36.93	9.44	1.34	31.35	-	-	Peak
474.3	18.12	-27.88	46	29.23	17.55	2.36	31.02	-	-	Peak
707.4	22.81	-23.19	46	29.65	20.7	2.96	30.5	-	-	Peak
792.1	23.78	-22.22	46	28.89	21.98	3.13	30.22	-	-	Peak
5578	97.09	-	-	85.94	35.24	9.92	34.01	102	65	Average
5578	108.63	-	-	97.48	35.24	9.92	34.01	102	65	Peak
11160	44.67	-29.33	74	51.21	38.07	13.93	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5578 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
64.83	26.59	-13.41	40	51.36	6.2	0.8	31.77	100	99	Peak
160.68	23.33	-20.17	43.5	43.08	10.41	1.22	31.38	-	-	Peak
213.87	14.02	-29.48	43.5	33.87	10.11	1.38	31.34	-	-	Peak
452.6	18.2	-27.8	46	29.94	17.11	2.31	31.16	-	-	Peak
711.6	22.68	-23.32	46	29.44	20.77	2.97	30.5	-	-	Peak
828.5	24.84	-21.16	46	29.62	22.38	3.21	30.37	-	-	Peak
5578	95.38	-	-	84.23	35.24	9.92	34.01	148	212	Average
5578	106.79	-	-	95.64	35.24	9.92	34.01	148	212	Peak
11160	44.38	-29.62	74	50.92	38.07	13.93	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5698 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
86.97	18.17	-21.83	40	40.61	8.33	0.92	31.69	-	-	Peak
173.91	23.23	-20.27	43.5	44.04	9.19	1.24	31.24	100	11	Peak
223.59	19.18	-26.82	46	38.18	10.78	1.44	31.22	-	-	Peak
438.6	18.11	-27.89	46	30.17	16.81	2.27	31.14	-	-	Peak
707.4	22.81	-23.19	46	29.65	20.7	2.96	30.5	-	-	Peak
759.2	23.83	-22.17	46	29.72	21.49	3.08	30.46	-	-	Peak
5698	97.98	-	-	86.77	35.31	10.02	34.12	101	76	Average
5698	109.39	-	-	98.18	35.31	10.02	34.12	101	76	Peak
11400	45.27	-28.73	74	51.3	38.3	14.21	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5698 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
86.97	24.37	-15.63	40	46.81	8.33	0.92	31.69	100	145	Peak
119.1	24.87	-18.63	43.5	43.79	11.61	1.1	31.63	-	-	Peak
158.25	21.73	-21.77	43.5	41.26	10.64	1.22	31.39	-	-	Peak
410.6	16.86	-29.14	46	29.83	16.22	2.18	31.37	-	-	Peak
503	19.36	-26.64	46	29.66	18.15	2.46	30.91	-	-	Peak
588.4	20.7	-25.3	46	29.15	19.6	2.66	30.71	-	-	Peak
5698	96.97	-	-	85.76	35.31	10.02	34.12	132	209	Average
5698	108.13	-	-	96.92	35.31	10.02	34.12	132	209	Peak
11400	44.49	-29.51	74	50.52	38.3	14.21	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5182 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
97.23	19.96	-23.54	43.5	41.21	9.44	0.98	31.67	-	-	Peak
172.29	23.22	-20.28	43.5	43.95	9.29	1.24	31.26	100	141	Peak
204.96	16.71	-26.79	43.5	37.29	9.44	1.34	31.36	-	-	Peak
465.2	18.28	-27.72	46	29.68	17.37	2.34	31.11	-	-	Peak
790	24.07	-21.93	46	29.23	21.95	3.12	30.23	-	-	Peak
866.3	25.17	-20.83	46	29.75	22.76	3.29	30.63	-	-	Peak
5182	97.68	-	-	86.55	34.38	9.27	32.52	134	64	Average
5182	109.23	-	-	98.1	34.38	9.27	32.52	134	64	Peak
10359	44.62	-29.38	74	52.18	37.29	13.71	58.56	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5178 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
95.61	23.19	-20.31	43.5	44.56	9.32	0.98	31.67	100	213	Peak
176.34	19.93	-23.57	43.5	40.88	9.03	1.24	31.22	-	-	Peak
255.45	15.65	-30.35	46	32.63	12.67	1.56	31.21	-	-	Peak
416.2	17.52	-28.48	46	30.28	16.34	2.2	31.3	-	-	Peak
482.7	19.59	-26.41	46	30.4	17.74	2.39	30.94	-	-	Peak
660.5	22.81	-23.19	46	30.05	20.28	2.86	30.38	-	-	Peak
5178	96.62	-	-	85.49	34.38	9.27	32.52	103	228	Average
5178	108.3	-	-	97.17	34.38	9.27	32.52	103	228	Peak
10359	44.97	-29.03	74	52.53	37.29	13.71	58.56	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5218 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
96.15	19.06	-24.44	43.5	40.43	9.32	0.98	31.67	-	-	Peak
172.29	23.22	-20.28	43.5	43.95	9.29	1.24	31.26	100	70	Peak
224.4	18.57	-27.43	46	37.57	10.78	1.44	31.22	-	-	Peak
379.1	17.51	-28.49	46	31.27	15.45	2.1	31.31	-	-	Peak
619.2	21.77	-24.23	46	29.54	19.95	2.75	30.47	-	-	Peak
790	24.07	-21.93	46	29.23	21.95	3.12	30.23	-	-	Peak
5218	98.36	-	-	87.1	34.46	9.35	32.55	100	57	Average
5218	110.02	-	-	98.76	34.46	9.35	32.55	100	57	Peak
10440	45.12	-28.88	74	52.68	37.35	13.71	58.62	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5222 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
58.08	20.84	-19.16	40	45.34	6.5	0.75	31.75	-	-	Peak
118.83	25.24	-18.26	43.5	44.16	11.61	1.1	31.63	100	176	Peak
175.8	20.72	-22.78	43.5	41.63	9.07	1.24	31.22	-	-	Peak
446.3	17.38	-28.62	46	29.26	16.97	2.29	31.14	-	-	Peak
605.2	21.5	-24.5	46	29.48	19.84	2.7	30.52	-	-	Peak
660.5	22.81	-23.19	46	30.05	20.28	2.86	30.38	-	-	Peak
5222	95.73	-	-	84.57	34.46	9.35	32.65	114	233	Average
5222	107.62	-	-	96.46	34.46	9.35	32.65	114	233	Peak
10440	44.91	-29.09	74	52.47	37.35	13.71	58.62	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5238 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
87.51	18.31	-21.69	40	40.73	8.33	0.92	31.67	100	219	Peak
149.61	17.76	-25.74	43.5	36.72	11.22	1.21	31.39	-	-	Peak
179.85	18.75	-24.75	43.5	39.75	8.93	1.25	31.18	-	-	Peak
423.9	17.6	-28.4	46	30.11	16.5	2.22	31.23	-	-	Peak
619.2	21.77	-24.23	46	29.54	19.95	2.75	30.47	-	-	Peak
757.1	22.87	-23.13	46	28.82	21.46	3.07	30.48	-	-	Peak
5238	98.82	-	-	87.57	34.51	9.39	32.65	100	65	Average
5238	110.74	-	-	99.49	34.51	9.39	32.65	100	65	Peak
10479	44.77	-29.23	74	52.32	37.39	13.72	58.66	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	48	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5238 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
80.49	23.85	-16.15	40	46.99	7.7	0.88	31.72	100	313	Peak
177.15	19.53	-23.97	43.5	40.5	9	1.24	31.21	-	-	Peak
234.93	14.75	-31.25	46	32.93	11.52	1.5	31.2	-	-	Peak
416.2	17.52	-28.48	46	30.28	16.34	2.2	31.3	-	-	Peak
605.2	21.5	-24.5	46	29.48	19.84	2.7	30.52	-	-	Peak
660.5	22.81	-23.19	46	30.05	20.28	2.86	30.38	-	-	Peak
5238	96.33	-	-	85.08	34.51	9.39	32.65	103	224	Average
5238	107.96	-	-	96.71	34.51	9.39	32.65	103	224	Peak
10479	44.33	-29.67	74	51.88	37.39	13.72	58.66	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5262 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
73.2	10.27	-29.73	40	34.38	6.81	0.85	31.77	-	-	Peak
149.34	17.13	-26.37	43.5	36.1	11.22	1.21	31.4	-	-	Peak
191.73	16.65	-26.85	43.5	37.66	9.02	1.29	31.32	-	-	Peak
426.7	16.63	-29.37	46	29.04	16.57	2.23	31.21	-	-	Peak
614.3	20.59	-25.41	46	28.44	19.91	2.73	30.49	-	-	Peak
727.7	21.47	-24.53	46	27.96	21.01	3.01	30.51	100	39	Peak
5262	99.54	-	-	88.27	34.59	9.44	32.76	100	67	Average
5262	111.82	-	-	100.55	34.59	9.44	32.76	100	67	Peak
10521	43.11	-30.89	74	50.64	37.42	13.72	58.67	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	52	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5262 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
71.58	21.6	-18.4	40	45.98	6.55	0.84	31.77	100	232	Peak
161.49	22.2	-21.3	43.5	42.05	10.31	1.22	31.38	-	-	Peak
203.07	11.44	-32.06	43.5	32.15	9.3	1.33	31.34	-	-	Peak
524.7	18.42	-27.58	46	28.49	18.51	2.5	31.08	-	-	Peak
693.4	20.19	-25.81	46	27.18	20.55	2.93	30.47	-	-	Peak
828.5	23.17	-22.83	46	27.95	22.38	3.21	30.37	-	-	Peak
5262	96.93	-	-	85.66	34.59	9.44	32.76	102	219	Average
5262	108.25	-	-	96.98	34.59	9.44	32.76	102	219	Peak
10521	44.54	-29.46	74	52.07	37.42	13.72	58.67	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5302 MHz is fundamental signal which can be ignored. 2. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
118.29	28.16	-15.34	43.5	47.2	11.52	1.09	31.65	100	319	Peak
172.83	22.55	-20.95	43.5	43.27	9.29	1.24	31.25	-	-	Peak
213.6	17.02	-26.48	43.5	36.94	10.04	1.38	31.34	-	-	Peak
409.9	17.13	-28.87	46	30.12	16.22	2.18	31.39	-	-	Peak
577.2	20.87	-25.13	46	29.71	19.4	2.63	30.87	-	-	Peak
757.8	22.93	-23.07	46	28.87	21.46	3.07	30.47	-	-	Peak
5302	99.6	-	-	88.41	34.68	9.48	32.97	100	67	Average
5302	111.14	-	-	99.95	34.68	9.48	32.97	100	67	Peak
10599	42.1	-31.9	74	49.51	37.5	13.73	58.64	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	60	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5296 MHz is fundamental signal which can be ignored. 2. 10599 MHz is not within a restricted band and satisfies both the average and peak limits of 15.209.		

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
74.01	22.63	-17.37	40	46.73	6.81	0.85	31.76	100	145	Peak
129.9	22.65	-20.85	43.5	41.47	11.6	1.15	31.57	-	-	Peak
177.15	19.17	-24.33	43.5	40.14	9	1.24	31.21	-	-	Peak
402.2	17.08	-28.92	46	30.36	16.06	2.15	31.49	-	-	Peak
704.6	22.02	-23.98	46	28.9	20.66	2.95	30.49	-	-	Peak
768.3	22.62	-23.38	46	28.31	21.62	3.09	30.4	-	-	Peak
5296	95.79	-	-	84.49	34.68	9.48	32.86	195	229	Average
5296	107.48	-	-	96.18	34.68	9.48	32.86	195	229	Peak
10599	42.32	-31.68	74	49.73	37.5	13.73	58.64	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5318 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
47.01	24.05	-15.95	40	45.76	9.3	0.67	31.68	100	94	Peak
125.58	22.67	-20.83	43.5	41.45	11.68	1.13	31.59	-	-	Peak
191.19	17.73	-25.77	43.5	38.76	9.01	1.28	31.32	-	-	Peak
446.3	16.47	-29.53	46	28.35	16.97	2.29	31.14	-	-	Peak
625.5	20.36	-25.64	46	28.03	20	2.77	30.44	-	-	Peak
763.4	22.33	-23.67	46	28.13	21.55	3.08	30.43	-	-	Peak
5318	99.53	-	-	88.26	34.72	9.52	32.97	109	66	Average
5318	111.45	-	-	100.18	34.72	9.52	32.97	109	66	Peak
10641	42.78	-31.22	74	50.14	37.54	13.73	58.63	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	64	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5322 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
68.34	18.57	-21.43	40	43.24	6.28	0.83	31.78	100	196	Peak
126.66	21.22	-22.28	43.5	40.01	11.66	1.13	31.58	-	-	Peak
179.31	17.94	-25.56	43.5	38.95	8.93	1.25	31.19	-	-	Peak
469.4	18.17	-27.83	46	29.44	17.45	2.35	31.07	-	-	Peak
614.3	20.4	-25.6	46	28.25	19.91	2.73	30.49	-	-	Peak
717.9	21.14	-24.86	46	27.8	20.86	2.98	30.5	-	-	Peak
5322	96.17	-	-	84.9	34.72	9.52	32.97	169	222	Average
5322	107.86	-	-	96.59	34.72	9.52	32.97	169	222	Peak
10641	42.99	-31.01	74	50.35	37.54	13.73	58.63	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
96.96	20.26	-23.24	43.5	41.51	9.44	0.98	31.67	-	-	Peak
172.29	23.3	-20.2	43.5	44.03	9.29	1.24	31.26	-	-	Peak
232.77	19.35	-26.65	46	37.67	11.39	1.5	31.21	-	-	Peak
499.5	19.02	-26.98	46	29.38	18.08	2.45	30.89	-	-	Peak
778.1	23.69	-22.31	46	29.14	21.77	3.1	30.32	-	-	Peak
854.4	26.05	-19.95	46	30.69	22.64	3.28	30.56	100	181	Peak
5500	97.95	-	-	86.55	35.2	9.86	33.66	105	66	Average
5500	110.01	-	-	98.61	35.2	9.86	33.66	105	66	Peak
11001	45.6	-28.4	74	52.48	37.9	13.76	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	100	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5498 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
75.9	24.12	-15.88	40	47.94	7.06	0.86	31.74	100	176	Peak
172.29	22.69	-20.81	43.5	43.42	9.29	1.24	31.26	-	-	Peak
217.11	14.4	-31.6	46	33.97	10.31	1.4	31.28	-	-	Peak
394.5	17.57	-28.43	46	31.02	15.87	2.13	31.45	-	-	Peak
495.3	20.29	-25.71	46	30.76	18	2.43	30.9	-	-	Peak
583.5	21.05	-24.95	46	29.67	19.52	2.64	30.78	-	-	Peak
5498	96.09	-	-	84.73	35.2	9.82	33.66	128	210	Average
5498	108.54	-	-	97.18	35.2	9.82	33.66	128	210	Peak
11001	43.77	-30.23	74	50.65	37.9	13.76	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
79.41	15.47	-24.53	40	38.75	7.57	0.88	31.73	-	-	Peak
152.04	17.98	-25.52	43.5	37.1	11.06	1.21	31.39	-	-	Peak
194.97	17.13	-26.37	43.5	38.09	9.05	1.3	31.31	-	-	Peak
422.5	16.89	-29.11	46	29.43	16.48	2.22	31.24	-	-	Peak
588.4	21.23	-24.77	46	29.68	19.6	2.66	30.71	-	-	Peak
708.1	21.7	-24.3	46	28.52	20.72	2.96	30.5	100	303	Peak
5580	97.88	-	-	86.73	35.24	9.92	34.01	102	75	Average
5580	109.82	-	-	98.67	35.24	9.92	34.01	102	75	Peak
11160	44.26	-29.74	74	50.8	38.07	13.93	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	116	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5582 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
71.58	22.68	-17.32	40	47.06	6.55	0.84	31.77	100	134	Peak
160.14	23.32	-20.18	43.5	42.99	10.5	1.22	31.39	-	-	Peak
190.65	14.75	-28.75	43.5	35.78	9.01	1.28	31.32	-	-	Peak
419.7	17.02	-28.98	46	29.64	16.42	2.21	31.25	-	-	Peak
587.7	20.62	-25.38	46	29.09	19.59	2.65	30.71	-	-	Peak
766.9	22.76	-23.24	46	28.47	21.6	3.09	30.4	-	-	Peak
5582	96.16	-	-	85	35.25	9.92	34.01	127	212	Average
5582	107.4	-	-	96.24	35.25	9.92	34.01	127	212	Peak
11160	44.62	-29.38	74	51.16	38.07	13.93	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5698 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
79.41	15.47	-24.53	40	38.75	7.57	0.88	31.73	-	-	Peak
168.24	21.74	-21.76	43.5	42.15	9.66	1.23	31.3	100	301	Peak
197.67	16.33	-27.17	43.5	37.25	9.08	1.31	31.31	-	-	Peak
354.6	17.45	-28.55	46	32.05	14.79	2.02	31.41	-	-	Peak
571.6	19.96	-26.04	46	28.99	19.3	2.61	30.94	-	-	Peak
698.3	22.97	-23.03	46	29.93	20.58	2.94	30.48	-	-	Peak
5698	94.69	-	-	83.48	35.31	10.02	34.12	100	312	Average
5698	106.13	-	-	94.92	35.31	10.02	34.12	100	312	Peak
11400	45.27	-28.73	74	51.3	38.3	14.21	58.54	100	0	Peak



Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Channel :	140	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5698 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
80.22	23.79	-16.21	40	46.93	7.7	0.88	31.72	100	175	Peak
147.18	17.15	-26.35	43.5	36.1	11.25	1.21	31.41	-	-	Peak
196.59	12.23	-31.27	43.5	33.16	9.07	1.31	31.31	-	-	Peak
409.2	16.84	-29.16	46	29.87	16.2	2.17	31.4	-	-	Peak
612.2	20.85	-25.15	46	28.72	19.89	2.73	30.49	-	-	Peak
692	21.56	-24.44	46	28.58	20.53	2.92	30.47	-	-	Peak
5698	93.86	-	-	82.65	35.31	10.02	34.12	192	209	Average
5698	105.47	-	-	94.26	35.31	10.02	34.12	192	209	Peak
11400	44.49	-29.51	74	50.52	38.3	14.21	58.54	100	0	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 (dB μ V)	
	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.

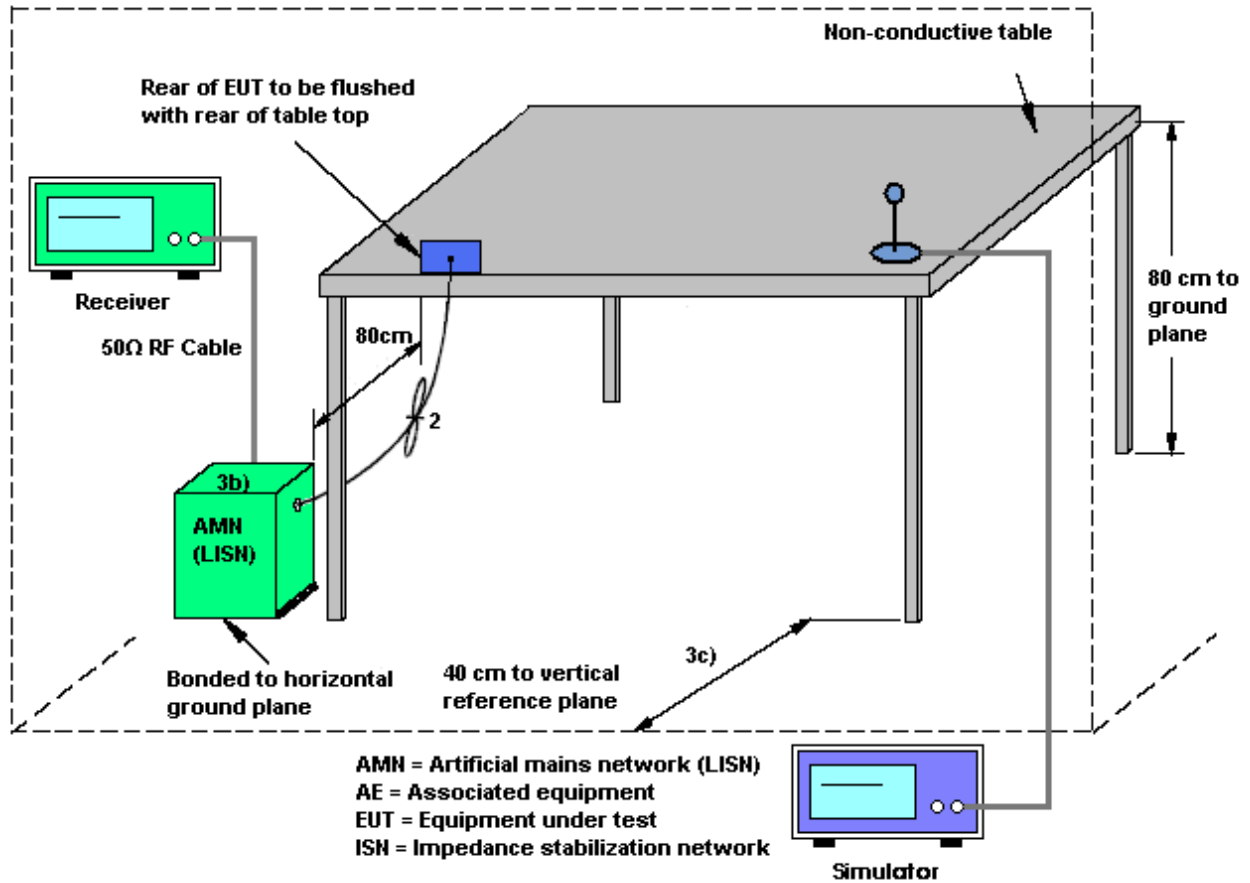
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

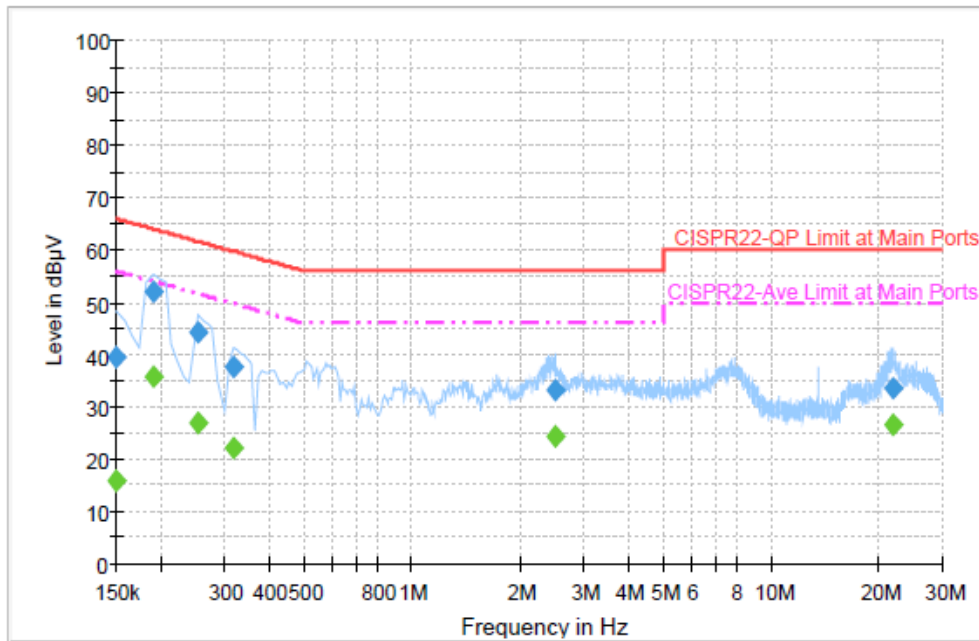
1. The testing follows the guidelines in ANSI C63.10-2009 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization 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 :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



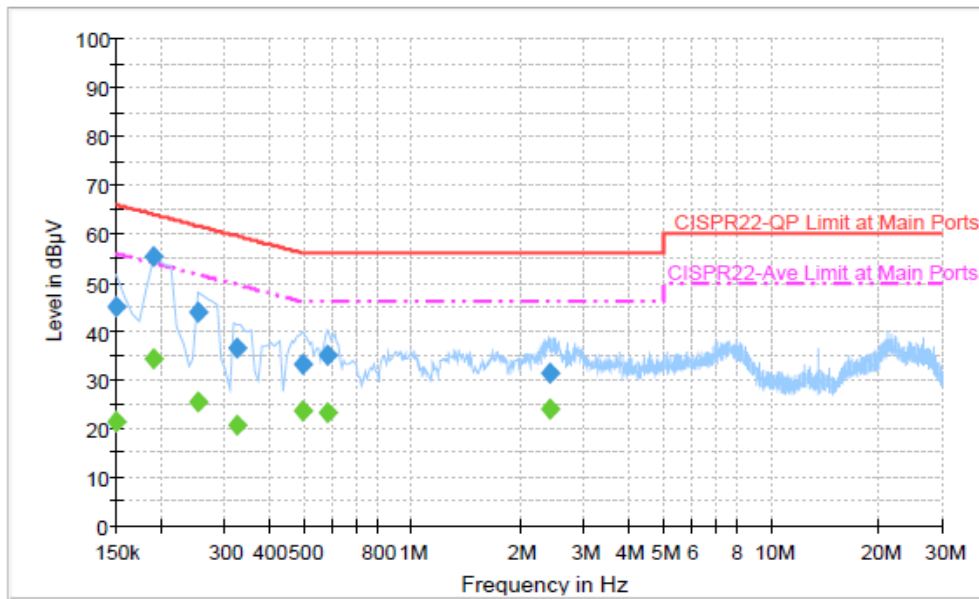
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.5	Off	L1	19.4	26.5	66.0
0.190000	52.1	Off	L1	19.4	11.9	64.0
0.254000	44.2	Off	L1	19.4	17.4	61.6
0.318000	37.6	Off	L1	19.3	22.2	59.8
2.502000	33.1	Off	L1	19.6	22.9	56.0
21.790000	33.4	Off	L1	19.8	26.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	15.8	Off	L1	19.4	40.2	56.0
0.190000	35.7	Off	L1	19.4	18.3	54.0
0.254000	26.8	Off	L1	19.4	24.8	51.6
0.318000	22.0	Off	L1	19.3	27.8	49.8
2.502000	24.4	Off	L1	19.6	21.6	46.0
21.790000	26.6	Off	L1	19.8	23.4	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with 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	45.2	Off	N	19.4	20.8	66.0
0.190000	55.2	Off	N	19.4	8.8	64.0
0.254000	43.9	Off	N	19.4	17.7	61.6
0.326000	36.6	Off	N	19.3	23.0	59.6
0.494000	33.2	Off	N	19.3	22.9	56.1
0.582000	34.9	Off	N	19.4	21.1	56.0
2.414000	31.2	Off	N	19.7	24.8	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.5	Off	N	19.4	34.5	56.0
0.190000	34.3	Off	N	19.4	19.7	54.0
0.254000	25.5	Off	N	19.4	26.1	51.6
0.326000	20.5	Off	N	19.3	29.1	49.6
0.494000	23.7	Off	N	19.3	22.4	46.1
0.582000	23.2	Off	N	19.4	22.8	46.0
2.414000	24.1	Off	N	19.7	21.9	46.0

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.

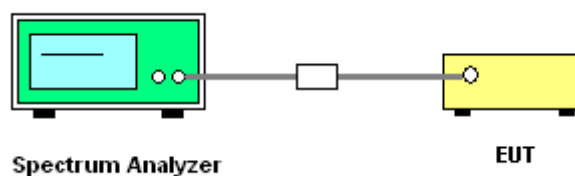
3.7.2 Measuring Instruments

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 :	Reece Li	Relative Humidity :	45~49%

Band	Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
NII Band 1	36	5180	5171.80	5188.20	0.00
	44	5220	5211.80	5228.20	0.00
	48	5240	5231.85	5248.20	4.77
NII Band 2	52	5260	5251.80	5268.20	0.00
	60	5300	5291.80	5308.20	0.00
	64	5320	5311.80	5328.20	0.00
NII Band 3	100	5500	5491.75	5508.20	-4.55
	116	5580	5571.85	5588.20	4.48
	140	5700	5691.80	5708.15	-4.39

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Band	Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
NII Band 1	36	5180	5171.20	5188.90	9.65
	44	5220	5211.20	5228.90	9.58
	48	5240	5231.20	5248.80	0.00
NII Band 2	52	5260	5251.25	5268.80	4.75
	60	5300	5291.20	5308.80	0.00
	64	5320	5311.20	5328.80	0.00
NII Band 3	100	5500	5508.80	5491.10	-9.09
	116	5580	5571.20	5588.80	0.00
	140	5700	5691.25	5708.90	13.16



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. 06, 2012	Feb. 05, 2013	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Feb. 05, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Feb. 05, 2013	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9KHz – 2.75GHz	Nov. 13, 2012	Feb. 20, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100081	9KHz ~ 30MHz	Dec. 12, 2012	Feb. 20, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9KHz ~ 30MHz	Dec. 06, 2012	Feb. 20, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Feb. 20, 2013	N/A	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	Feb. 20, 2013	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Feb. 20, 2013	Jul. 27, 2013	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Nov. 30, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Aug. 21, 2013	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 01, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Mar. 09, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Feb. 27, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Feb. 26, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz ~ 40GHz	Sep. 28, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Sep. 27, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Jul. 02, 2013	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 EP320416 as below.