

FCC RF Test Report

APPLICANT : Sony Corporation
EQUIPMENT : Tablet Device
BRAND NAME : SONY
MODEL NAME : SGPT1311
FCC ID : AK8SGPT1311
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Jun. 13, 2012 and completely tested on Jul. 11, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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FCC ID : AK8SGPT1311

Page Number : 1 of 133

Report Issued Date : Jul. 13, 2012

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR261317C	Rev. 01	Initial issue of report	Jul. 13, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	$\leq 17, 24, 30$ dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	$\leq 4, 11, 17$ dBm (depend on band)	Pass	-
3.4	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.5	15.407(b)	A9.3	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 4.91 dB at 5350.330 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 7.90 dB at 0.198 MHz
3.7	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Sony Corporation

1-7-1 Konan, Minato-ku Tokyo, 108-0075 Japan

1.2 Manufacturer

HON HAI PRECISION IND.CO., LTD.

3F., No. 2, Ziyou St., Tucheng Dist., New Taipei City 236, Taiwan, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet Device
Brand Name	SONY
Model Name	SGPT1311
Integrated Module	Brand Name: SAMSUNG Model Name: SWB-A51H
FCC ID	AK8SGPT1311
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11abgn / Bluetooth
HW Version	1
SW Version	1
EUT Stage	Identical Prototype

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

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz (without 5600MHz ~ 5650MHz)
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 7.91 dBm / 0.0062 W 802.11n HT-20 : 8.19 dBm / 0.0066 W 802.11n HT-40 : 8.92 dBm / 0.0078 W <5260 MHz ~ 5320 MHz> 802.11a : 9.53 dBm / 0.0090 W 802.11n HT-20 : 9.54 dBm / 0.0090 W 802.11n HT-40 : 10.21 dBm / 0.0105 W <5500 MHz ~ 5700 MHz> 802.11a : 9.43 dBm / 0.0088 W 802.11n HT-20 : 9.83 dBm / 0.0096 W 802.11n HT-40 : 10.18 dBm / 0.0104 W
99% Occupied Bandwidth	802.11a : 16.45 MHz 802.11n HT-20 : 17.65 MHz 802.11n HT-40 : 36.18 MHz
Antenna Type	<5180 MHz ~ 5240 MHz> Inverted-F Antenna with gain 1.76 dBi <5260 MHz ~ 5320 MHz> Inverted-F Antenna with gain 1.59 dBi <5500 MHz ~ 5700 MHz> Inverted-F Antenna with gain 1.90 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 789033 D01 General UNII Test Procedures v01r01
- ♦ ANSI C63.4-2003 and ANSI C63.10-2009
- ♦ IC RSS-210 Issued 8
- ♦ IC RSS-Gen Issue 3

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
5.	iPod Earphone	Apple	N/A	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

WLAN 802.11a / 802.11n HT-20:

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

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3	100	5500	124	5620
	104	5520	128	5640
	108	5540	132	5660
	112	5560	136	5680
	116	5580	140	5700
	120	5600		

WLAN 802.11n HT-40:

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1	38	5190	46	5230

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2	54	5270	62	5310

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3	102	5510	126	5630
	110	5550	134	5670
	118	5590		

2.2 Pre-Scanned RF Power

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

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	9.53	9.17	9.23	9.48	9.36	9.38	9.43	9.43

5GHz 802.11n HT-20 mode								
Data Rate (MHz)	6.5M bps	13M bps	19.5M bps	26M bps	39M bps	52M bps	58.5M bps	65M bps
Peak Power (dBm)	9.83	9.60	9.40	9.67	9.69	9.60	9.72	9.76

5GHz 802.11n HT-40 mode								
Data Rate (MHz)	13.5M bps	27M bps	40.5M bps	54M bps	81M bps	108M bps	121.5M bps	135M bps
Peak Power (dBm)	10.21	10.04	10.09	10.16	10.14	10.09	10.09	9.30

2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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

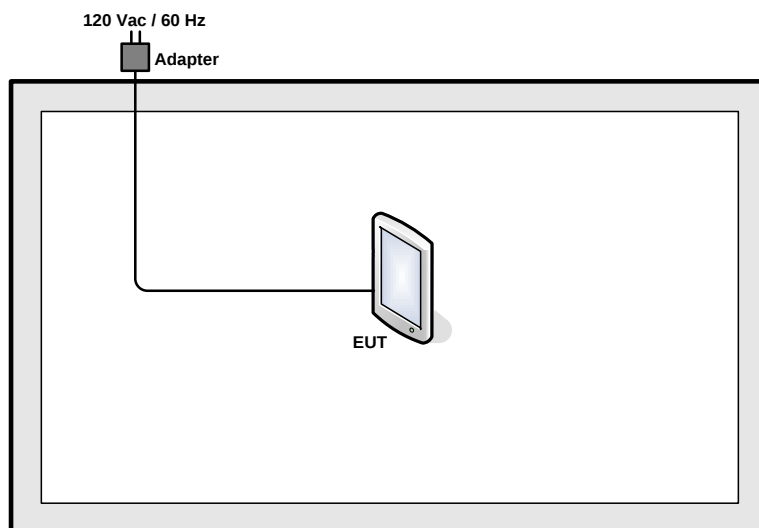
The following tables are showing the test modes as the worst cases (Z plane) and recorded in this report.

Test Cases			
Test Item	802.11a (Modulation : OFDM)		
Conducted TCs	Test Mode	802.11a	802.11n HT-20
	CH36	1	10
	CH44	2	11
	CH48	3	12
	CH52	4	13
	CH60	5	14
	CH64	6	15
	CH100	7	16
	CH116	8	17
	CH140	9	18
	Test Mode	802.11n HT-40	
	CH38	19	
	CH46	20	
	CH54	21	
	CH62	22	
	CH102	23	
	CH110	24	
	CH134	25	

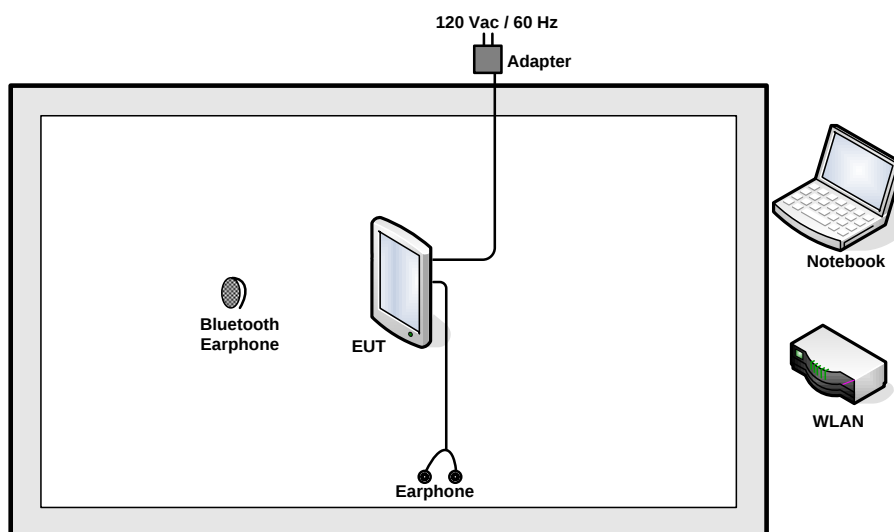
Radiated TCs	Test Mode	802.11a	802.11n HT-20
	CH36	1	10
	CH44	2	11
	CH48	3	12
	CH52	4	13
	CH60	5	14
	CH64	6	15
	CH100	7	16
	CH116	8	17
	CH140	9	18
	Test Mode	802.11n HT-40	
	CH38	19	
	CH46	20	
	CH54	21	
	CH62	22	
	CH102	23	
	CH110	24	
	CH134	25	
	AC Conducted Emission	Mode 1 : WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + H Pattern	
Mode 2 : WLAN (5G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + Camera			
Mode 3 : WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + MPEG4			
Mode 4 : WLAN (5G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + GPS Rx			
Remark: The worst case of conducted emission is mode 3; only the test data of it was reported.			

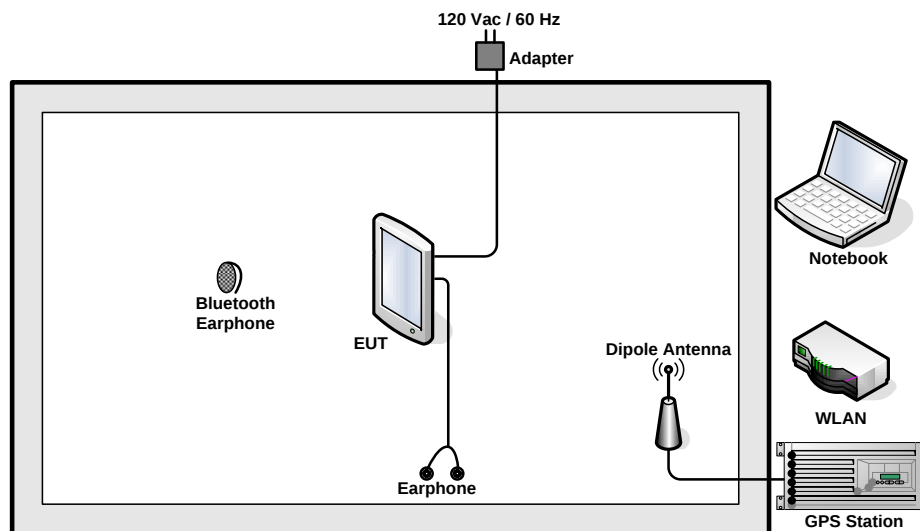
2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



<AC Conducted Emission with GPS Rx Mode>


2.5 RF Utility

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

3 Test Result

3.1 26dB & 99% Bandwidth Measurement

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

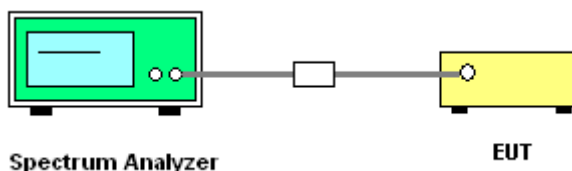
3.1.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.2 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r01.
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%.

3.1.3 Test Setup

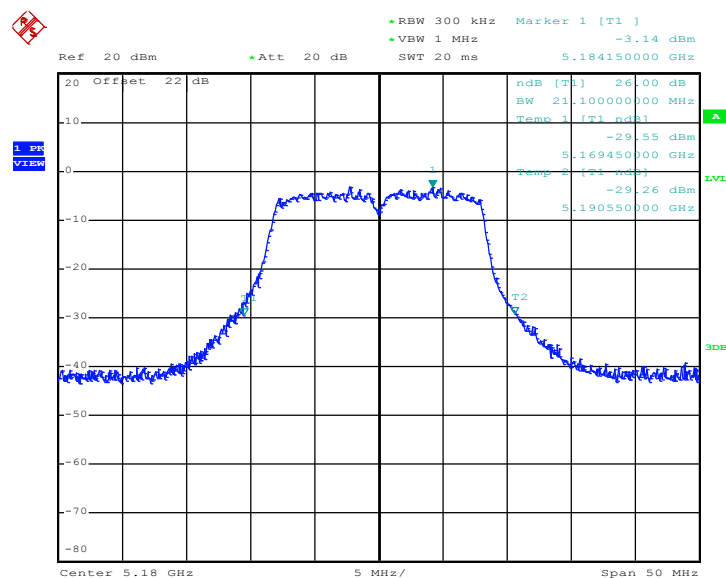


3.1.4 Test Result of 26dB Bandwidth Plots

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

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	21.10	N/A
44	5220	21.20	N/A
48	5240	21.00	N/A
52	5260	21.60	N/A
60	5300	21.50	N/A
64	5320	21.35	N/A
100	5500	21.65	N/A
116	5580	21.45	N/A
140	5700	21.55	N/A

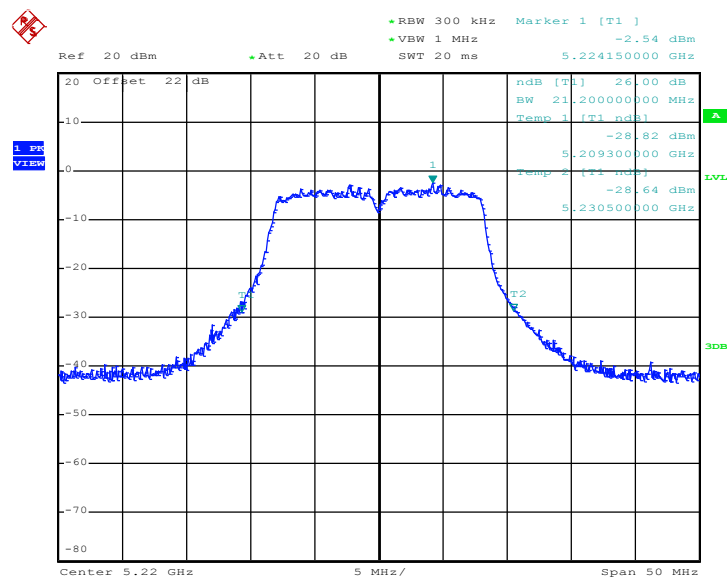
26 dB Bandwidth Plot on 802.11a Channel 36



Date: 25.JUN.2012 11:02:04

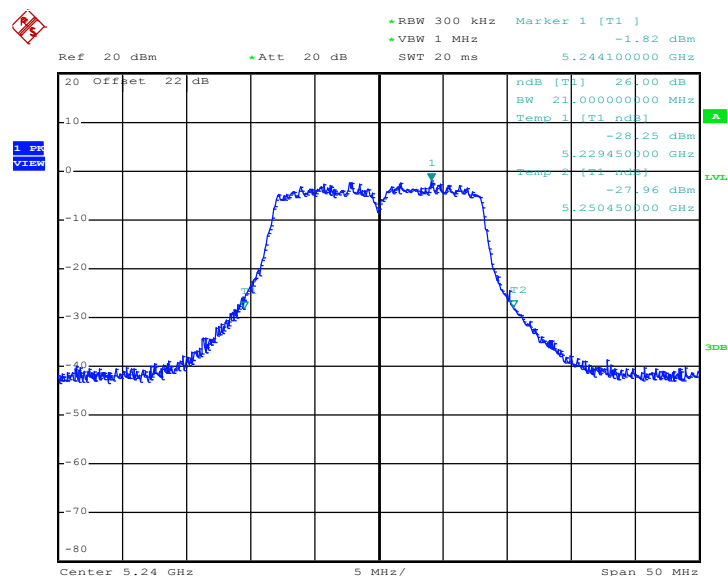


26 dB Bandwidth Plot on 802.11a Channel 44



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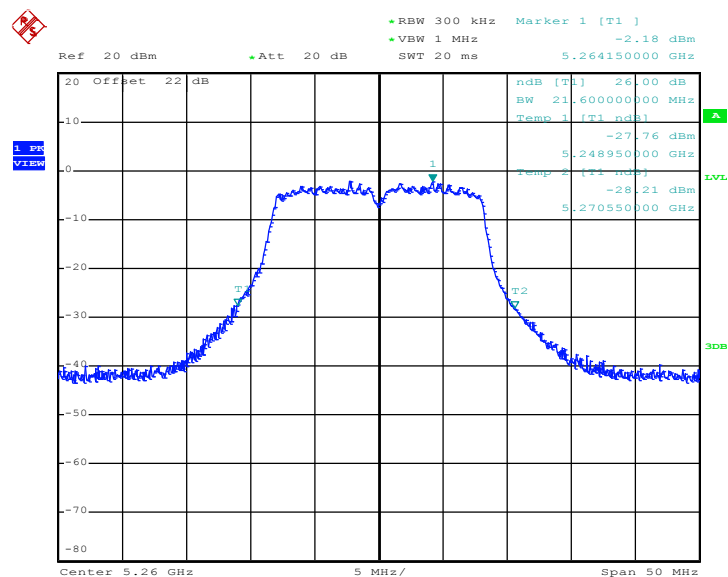
26 dB Bandwidth Plot on 802.11a Channel 48



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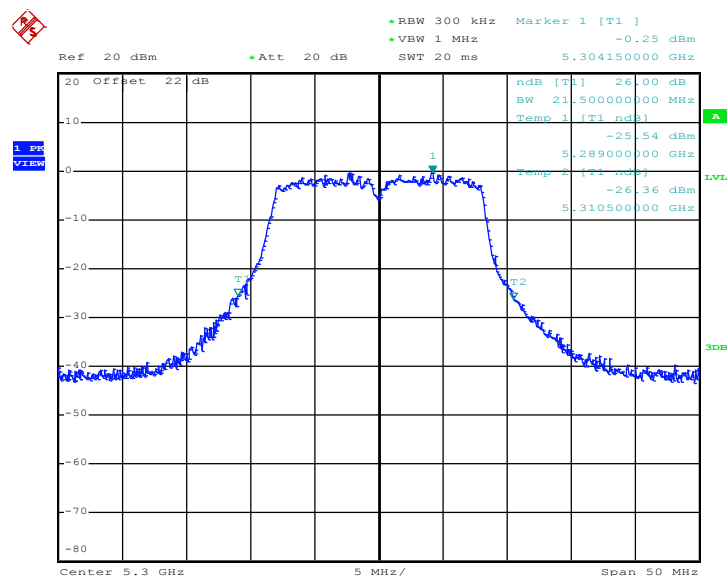


26 dB Bandwidth Plot on 802.11a Channel 52



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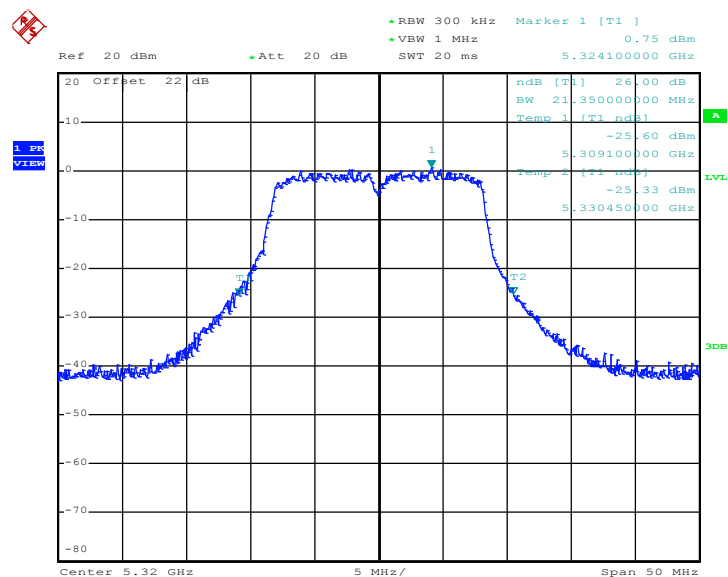
26 dB Bandwidth Plot on 802.11a Channel 60



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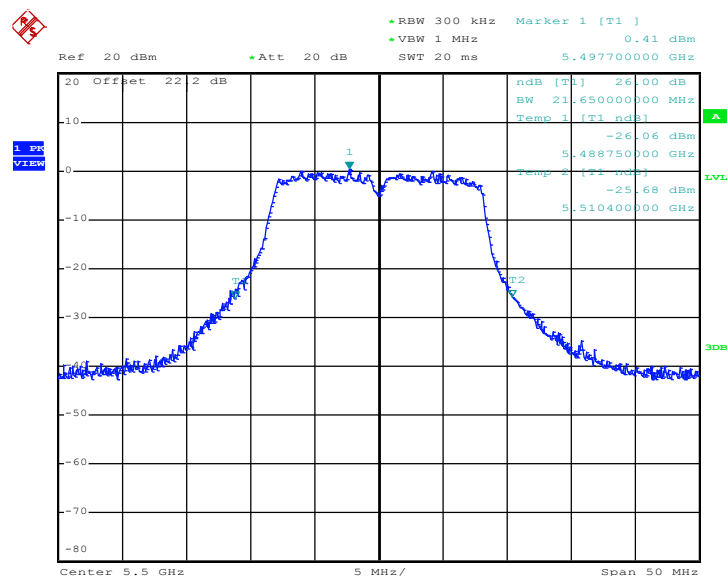


26 dB Bandwidth Plot on 802.11a Channel 64

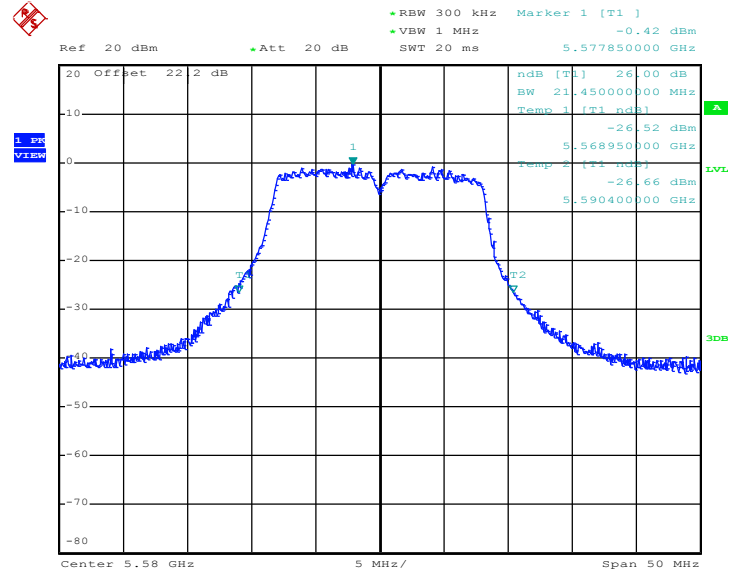


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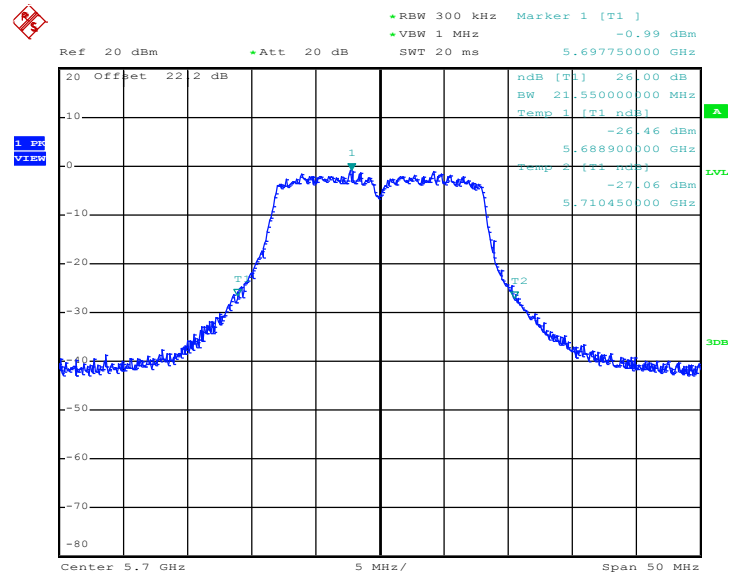
26 dB Bandwidth Plot on 802.11a Channel 100



Date: 25.JUN.2012 11:37:20

26 dB Bandwidth Plot on 802.11a Channel 116


Date: 25.JUN.2012 11:45:32

26 dB Bandwidth Plot on 802.11a Channel 140


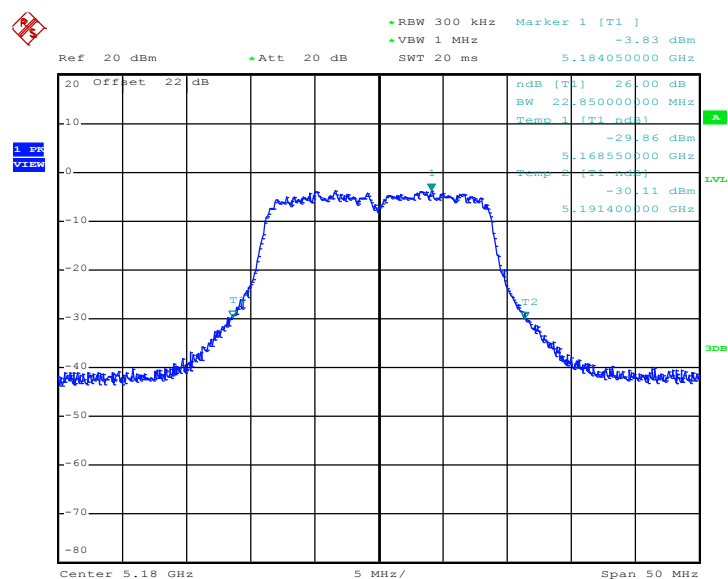
Date: 25.JUN.2012 11:49:31



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n HT-20 26dB Bandwidth (MHz)	Pass/Fail
36	5180	22.85	N/A
44	5220	22.65	N/A
48	5240	22.80	N/A
52	5260	22.65	N/A
60	5300	22.75	N/A
64	5320	22.85	N/A
100	5500	23.05	N/A
116	5580	22.95	N/A
140	5700	22.75	N/A

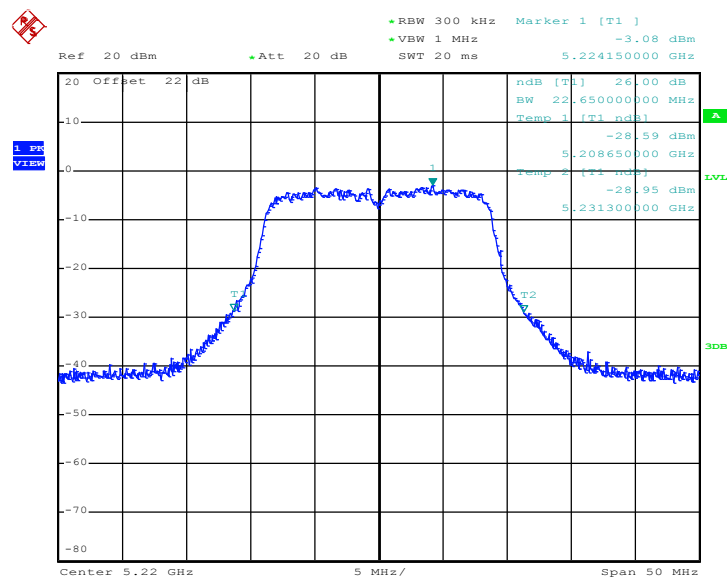
26 dB Bandwidth Plot on 802.11n HT-20 Channel 36



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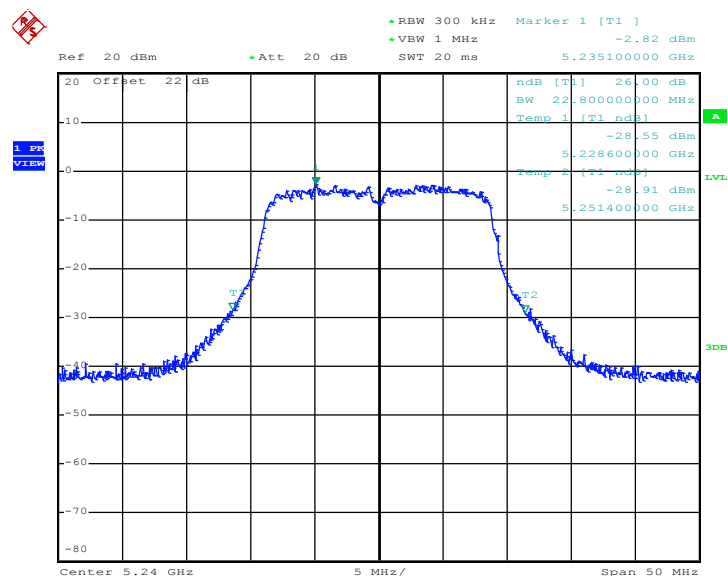


26 dB Bandwidth Plot on 802.11n HT-20 Channel 44



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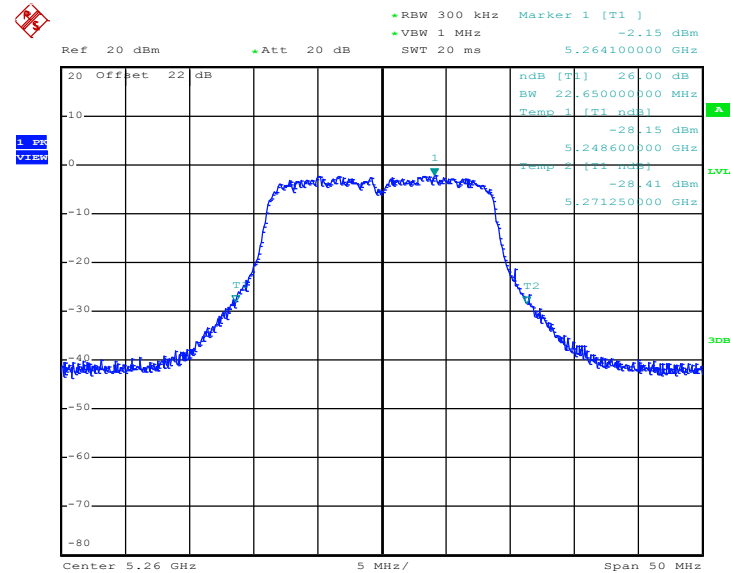
26 dB Bandwidth Plot on 802.11n HT-20 Channel 48



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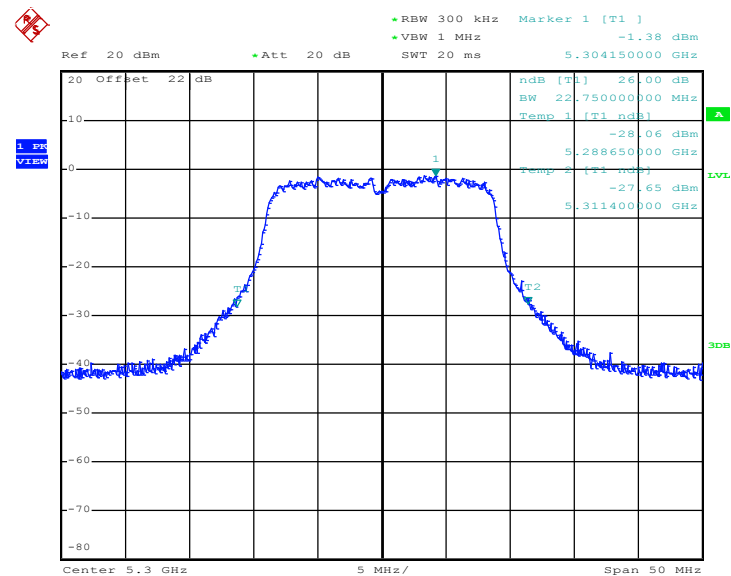


26 dB Bandwidth Plot on 802.11n HT-20 Channel 52



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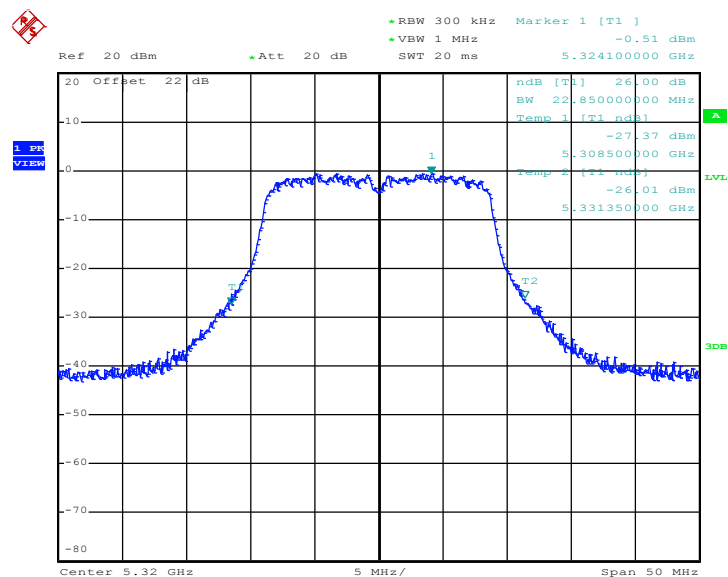
26 dB Bandwidth Plot on 802.11n HT-20 Channel 60



Date: 25.JUN.2012 14:02:49

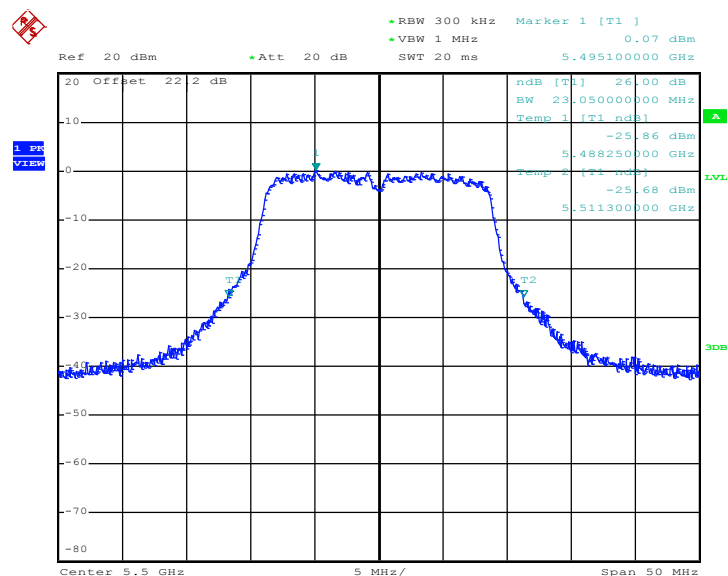


26 dB Bandwidth Plot on 802.11n HT-20 Channel 64



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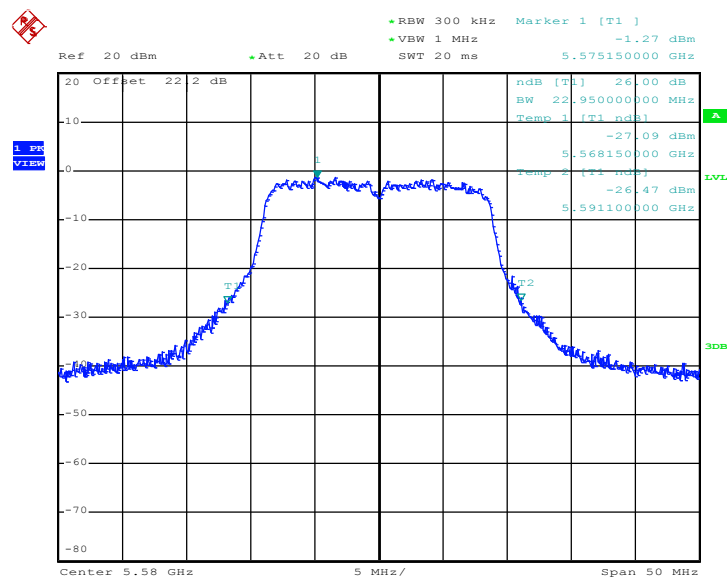
26 dB Bandwidth Plot on 802.11n HT-20 Channel 100



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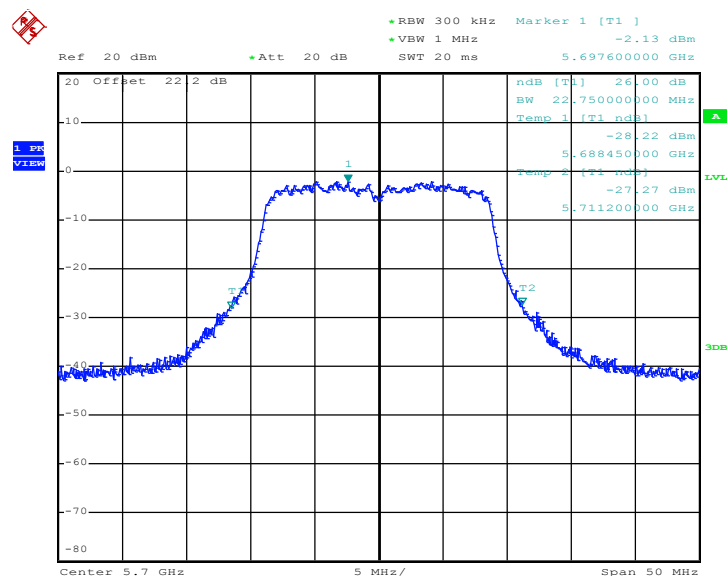


26 dB Bandwidth Plot on 802.11n HT-20 Channel 116



Date: 25.JUN.2012 14:30:10

26 dB Bandwidth Plot on 802.11n HT-20 Channel 140



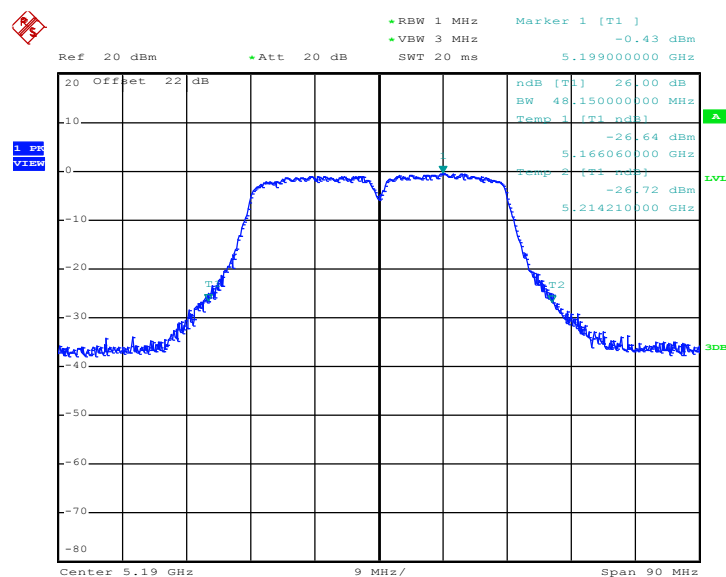
Date: 25.JUN.2012 14:35:57



Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

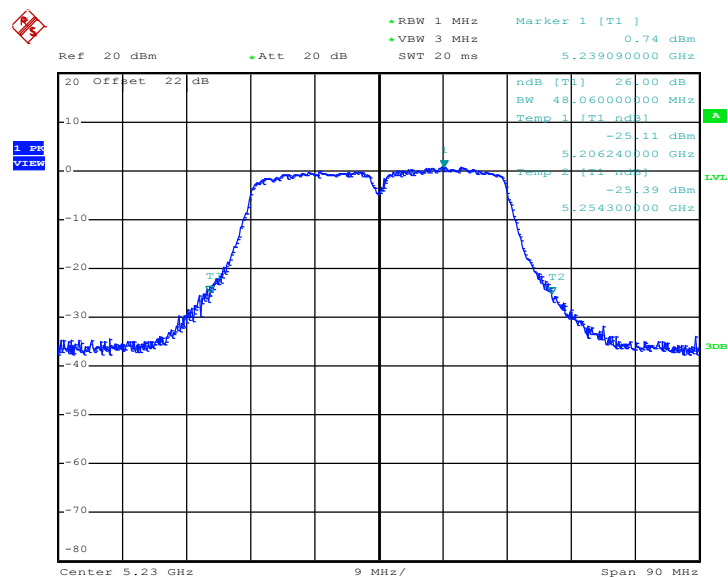
Channel	Frequency (MHz)	802.11n HT-40 26dB Bandwidth (MHz)	Pass/Fail
38	5190	48.15	N/A
46	5230	48.06	N/A
54	5270	48.51	N/A
62	5310	47.52	N/A
102	5510	49.50	N/A
110	5550	46.80	N/A
134	5670	48.87	N/A

26 dB Bandwidth Plot on 802.11n HT-40 Channel 38



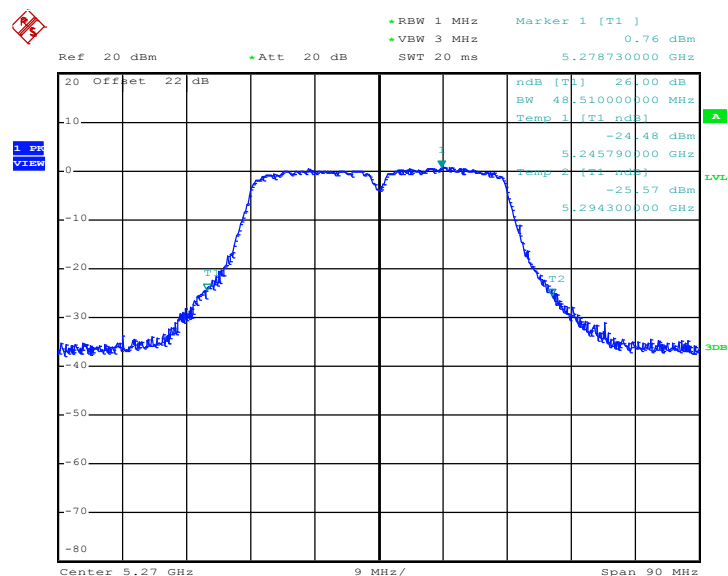
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26 dB Bandwidth Plot on 802.11n HT-40 Channel 46



Date: 25.JUN.2012 15:34:46

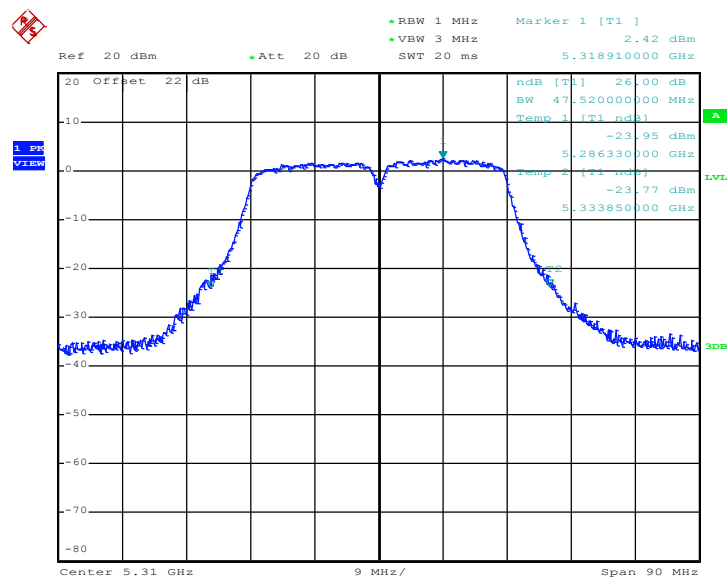
26 dB Bandwidth Plot on 802.11n HT-40 Channel 54



Date: 25.JUN.2012 15:39:06

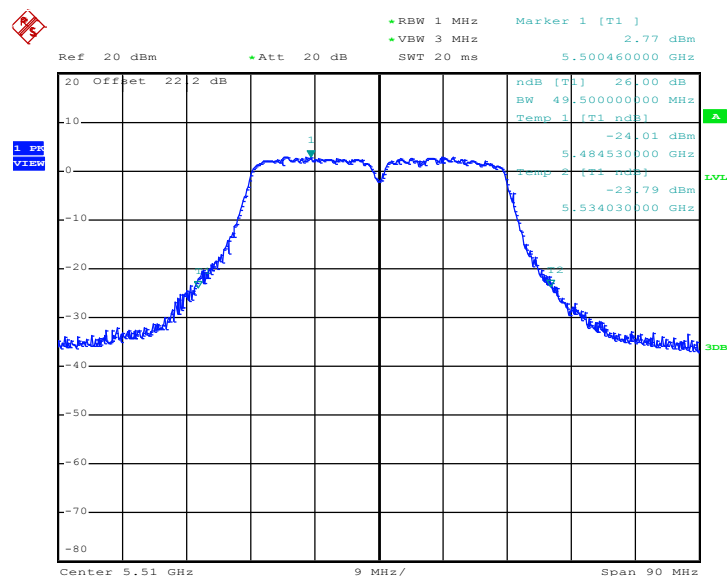


26 dB Bandwidth Plot on 802.11n HT-40 Channel 62



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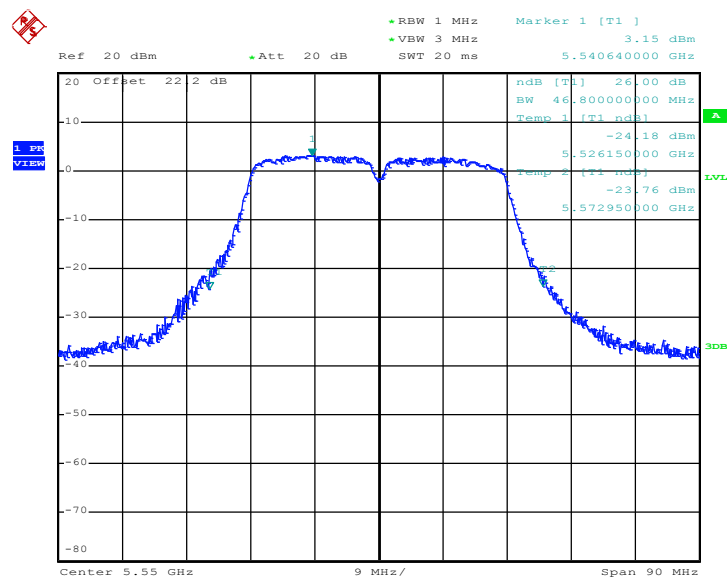
26 dB Bandwidth Plot on 802.11n HT-40 Channel 102



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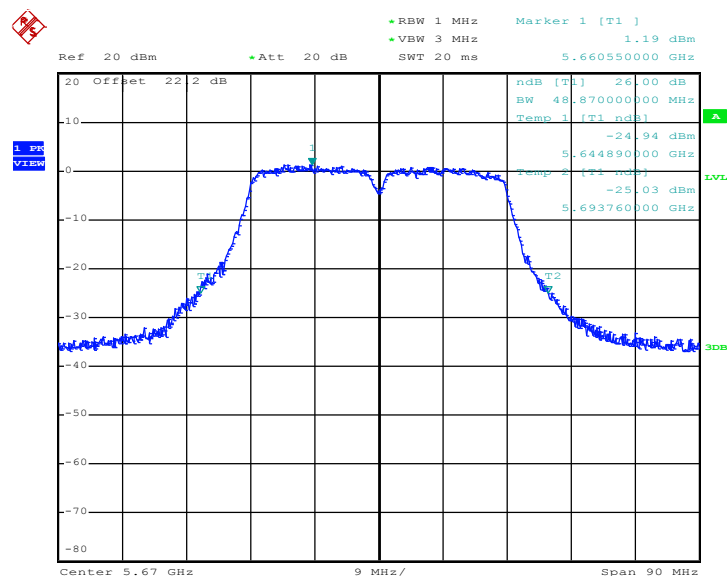


26 dB Bandwidth Plot on 802.11n HT-40 Channel 110



Date: 11.JUL.2012 11:37:44

26 dB Bandwidth Plot on 802.11n HT-40 Channel 134



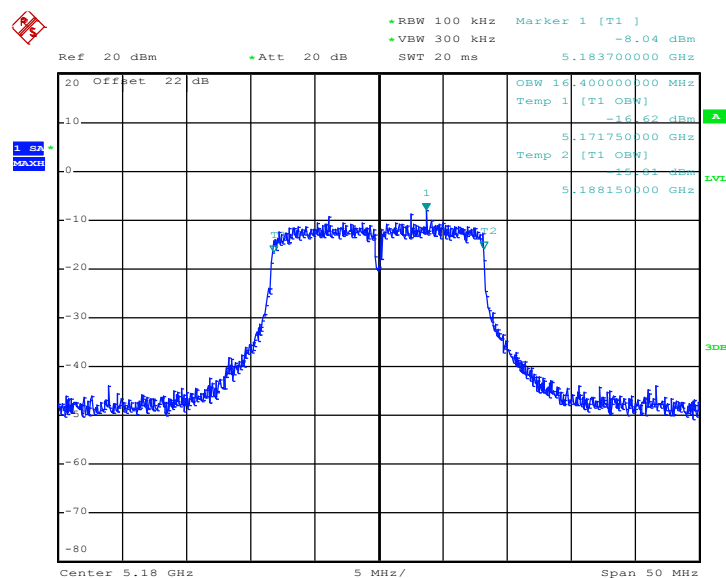
Date: 25.JUN.2012 16:06:28

3.1.5 Test Result of 99% Occupied Bandwidth Plots

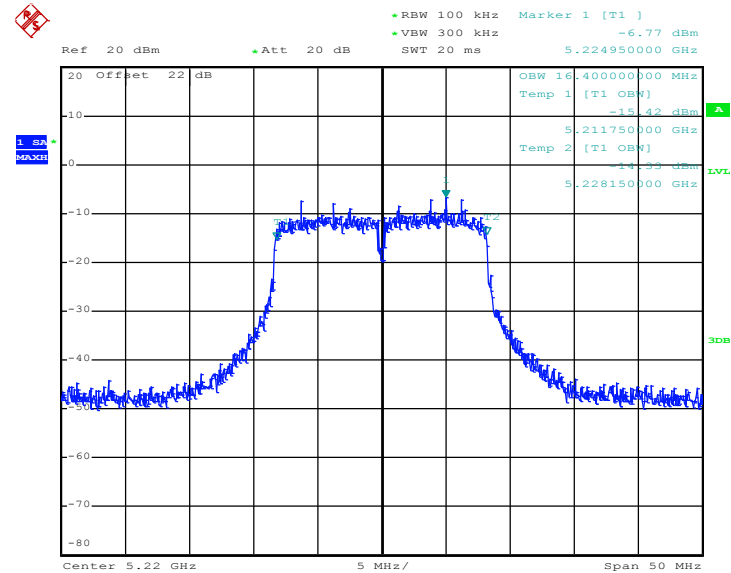
Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	16.40	N/A
44	5220	16.40	N/A
48	5240	16.40	N/A
52	5260	16.40	N/A
60	5300	16.40	N/A
64	5320	16.40	N/A
100	5500	16.45	N/A
116	5580	16.40	N/A
140	5700	16.40	N/A

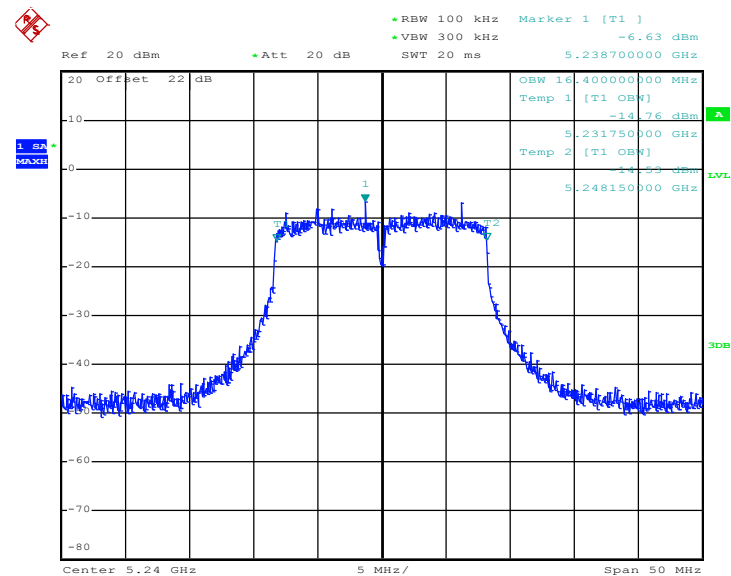
99% Occupied Bandwidth Plot on 802.11a Channel 36



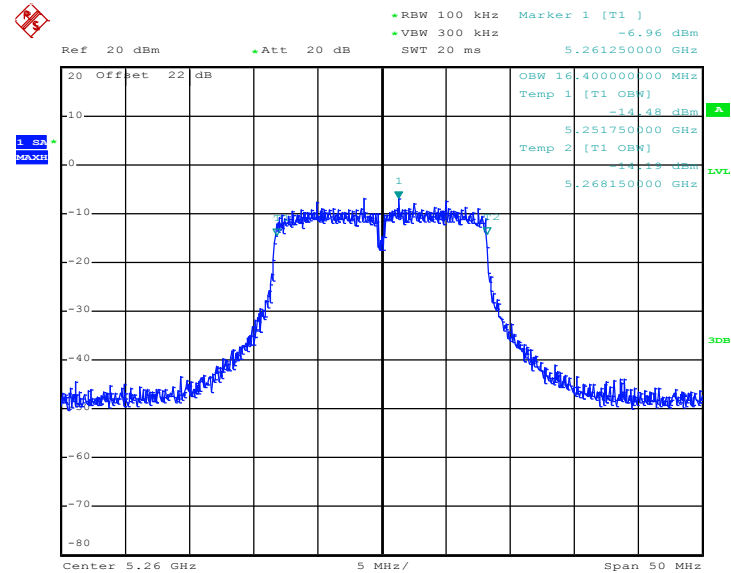
Date: 25.JUN.2012 11:05:37

99% Occupied Bandwidth Plot on 802.11a Channel 44


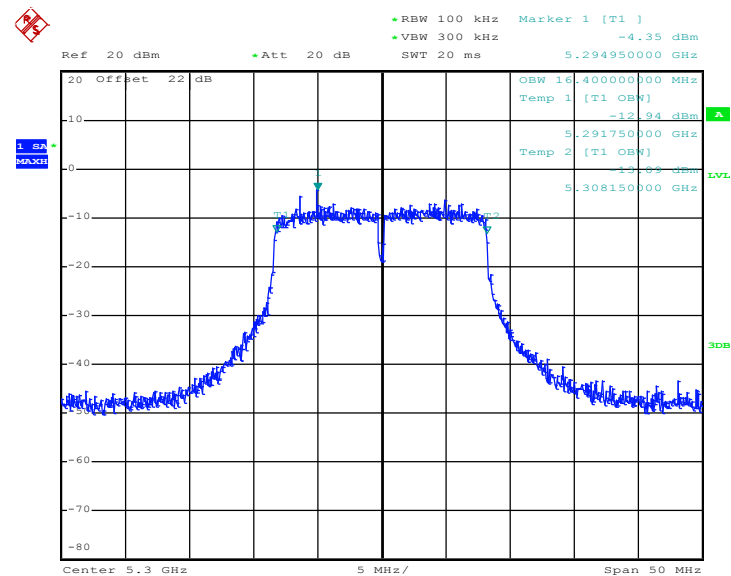
Date: 25.JUN.2012 11:15:50

99% Occupied Bandwidth Plot on 802.11a Channel 48


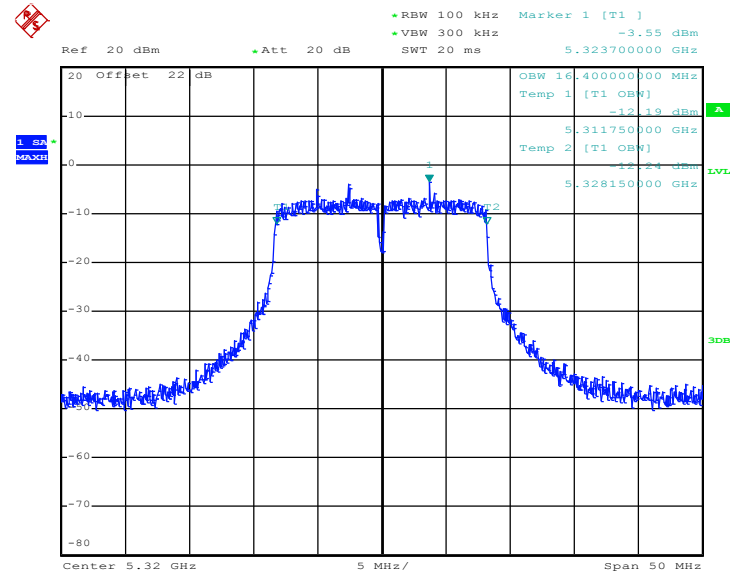
Date: 25.JUN.2012 11:17:25

99% Occupied Bandwidth Plot on 802.11a Channel 52


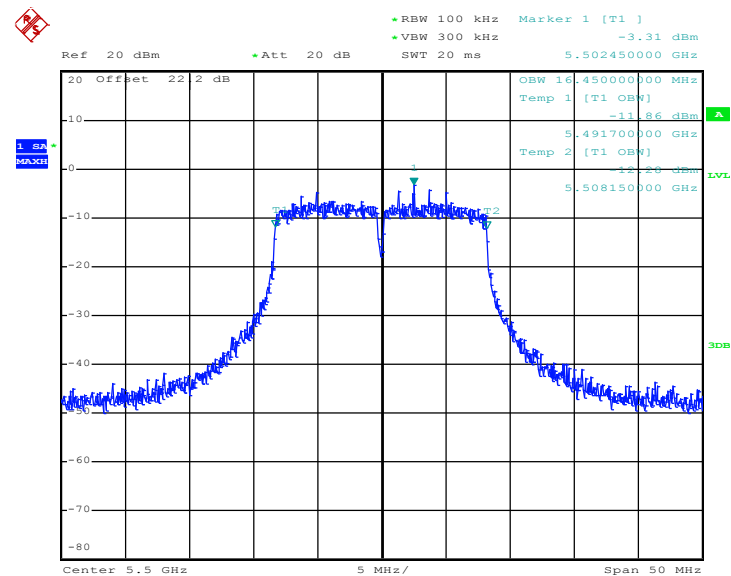
Date: 25.JUN.2012 14:05:34

99% Occupied Bandwidth Plot on 802.11a Channel 60


Date: 25.JUN.2012 11:28:10

99% Occupied Bandwidth Plot on 802.11a Channel 64


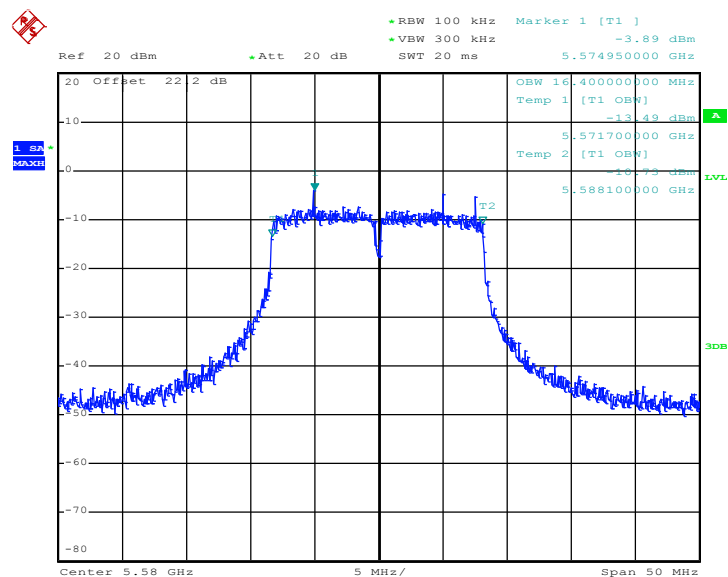
Date: 25.JUN.2012 11:43:03

99% Occupied Bandwidth Plot on 802.11a Channel 100


Date: 25.JUN.2012 11:40:09

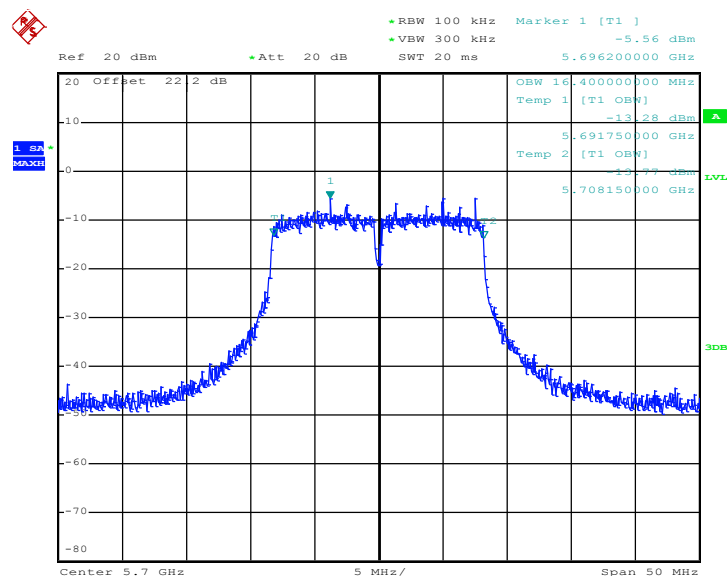


99% Occupied Bandwidth Plot on 802.11a Channel 116



Date: 25.JUN.2012 11:48:11

99% Occupied Bandwidth Plot on 802.11a Channel 140



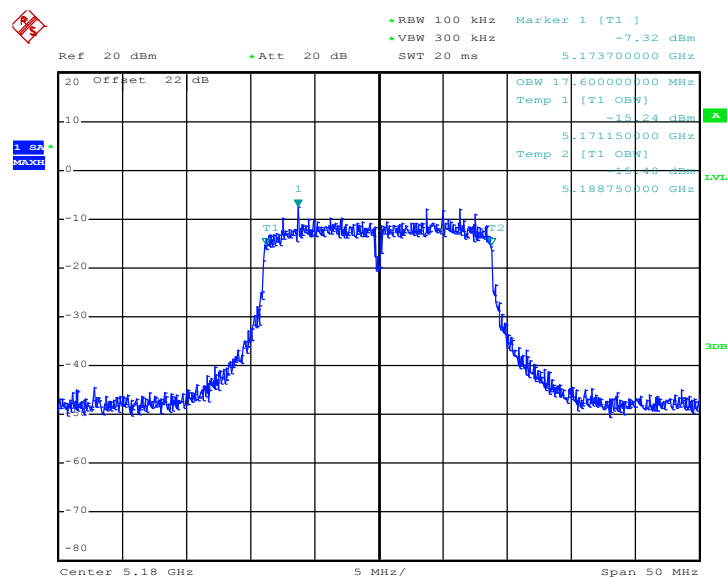
Date: 25.JUN.2012 11:51:49



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

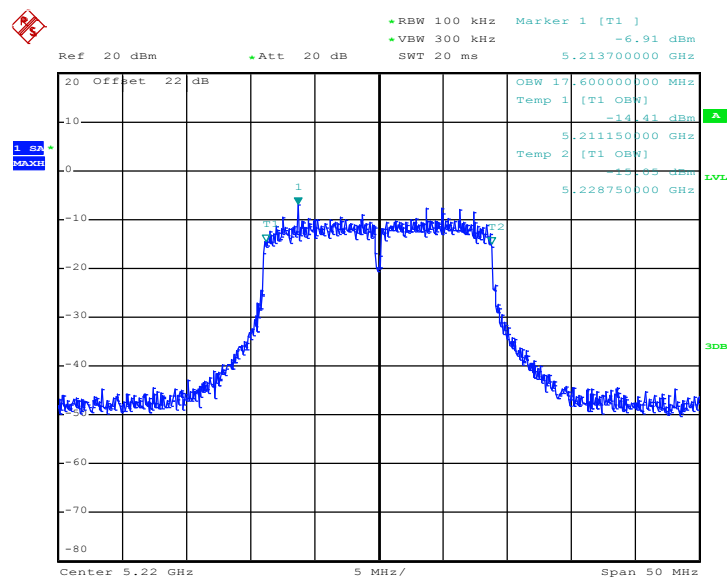
Channel	Frequency (MHz)	802.11n HT-20 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	17.60	N/A
44	5220	17.60	N/A
48	5240	17.60	N/A
52	5260	17.60	N/A
60	5300	17.60	N/A
64	5320	17.60	N/A
100	5500	17.60	N/A
116	5580	17.65	N/A
140	5700	17.60	N/A

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 36



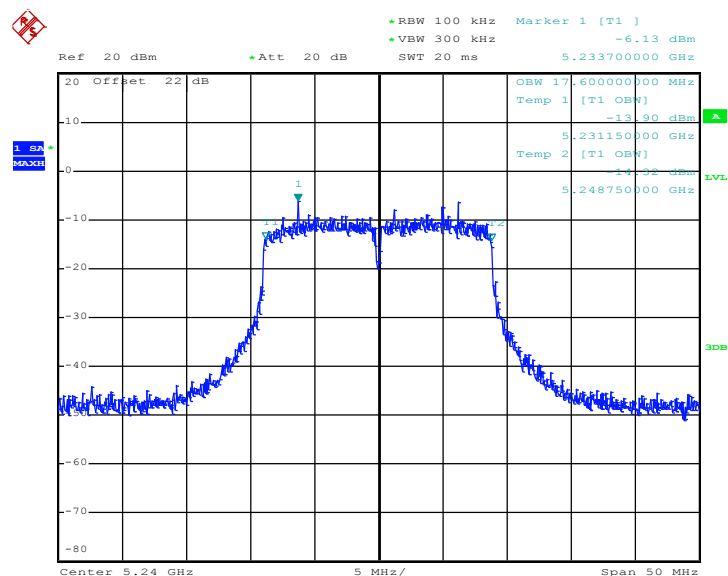
Date: 25.JUN.2012 14:13:35

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 44

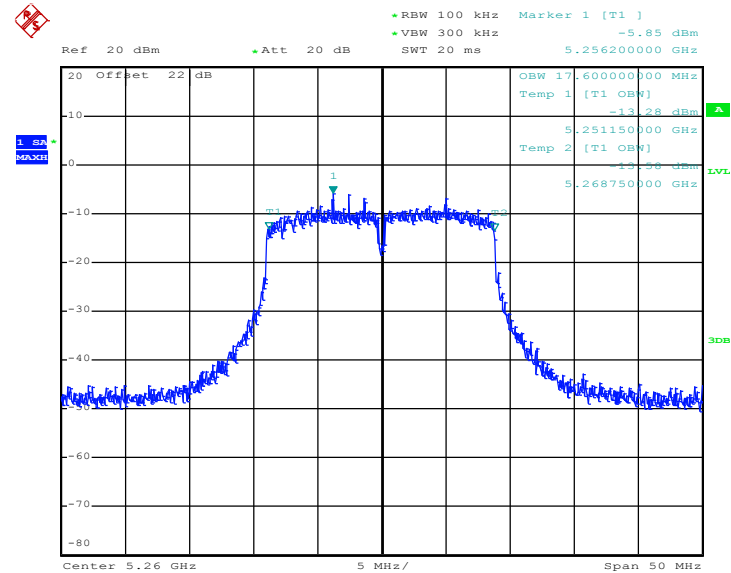


Date: 25.JUN.2012 14:17:32

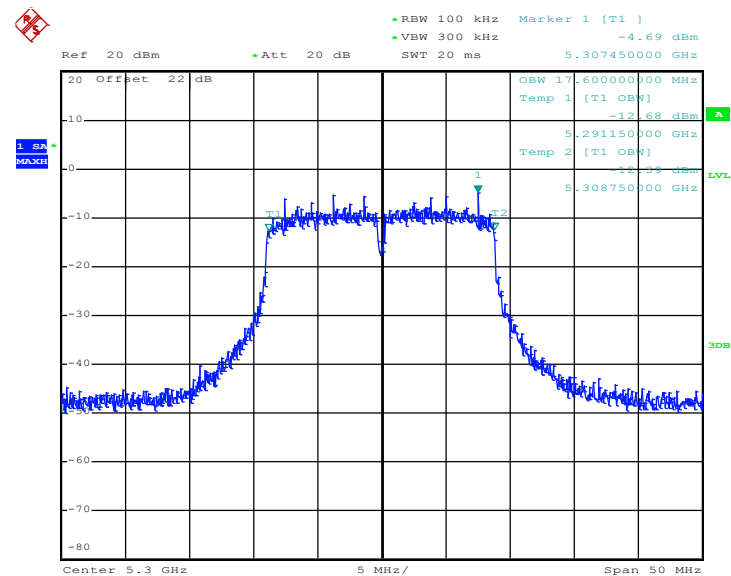
99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 48



Date: 25.JUN.2012 14:19:55

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 52


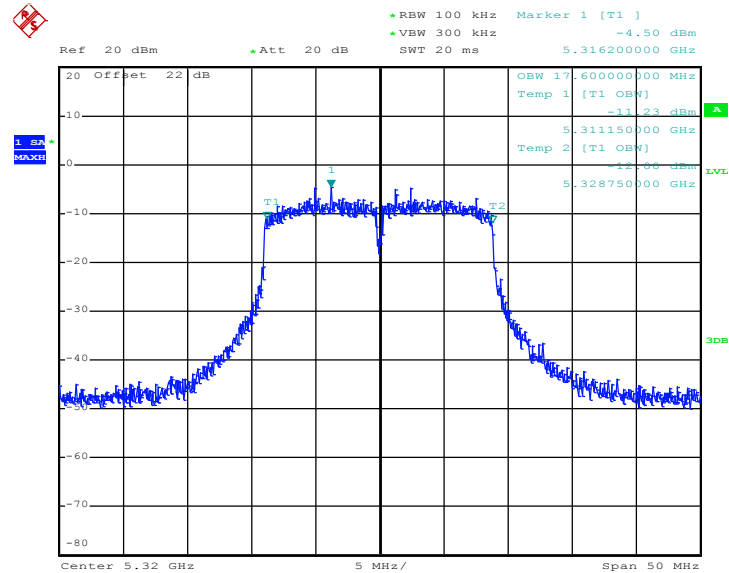
Date: 25.JUN.2012 14:22:23

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 60


Date: 25.JUN.2012 14:04:58

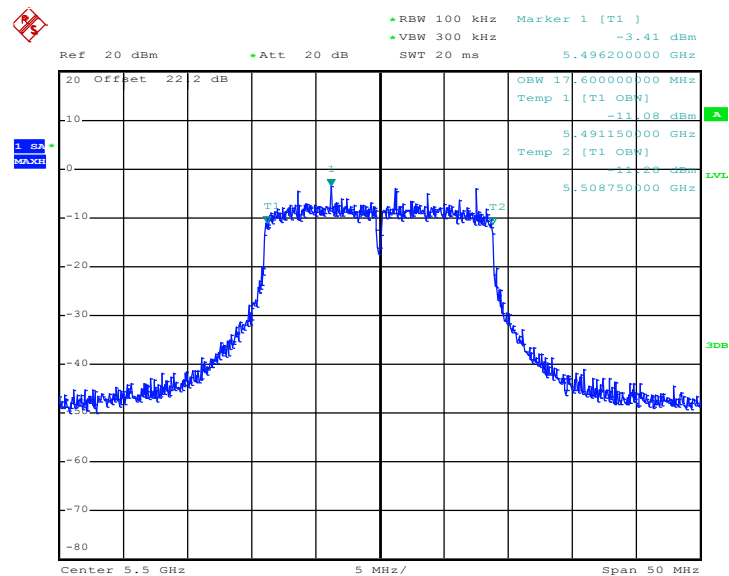


99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 64



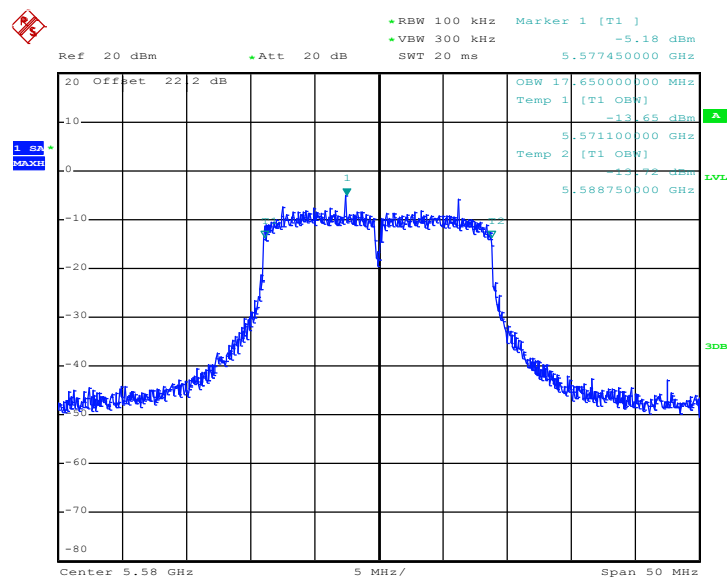
Date: 25.JUN.2012 14:24:20

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 100



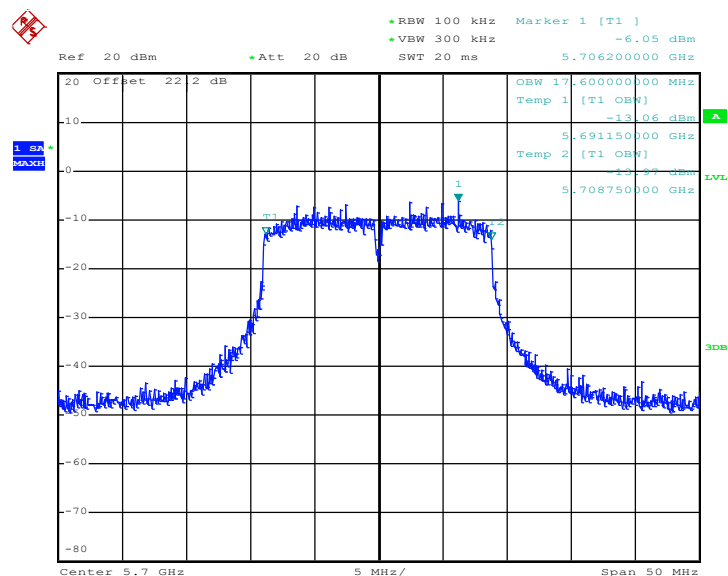
Date: 25.JUN.2012 14:29:45

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 116



Date: 25.JUN.2012 14:31:47

99% Occupied Bandwidth Plot on 802.11n HT-20 Channel 140



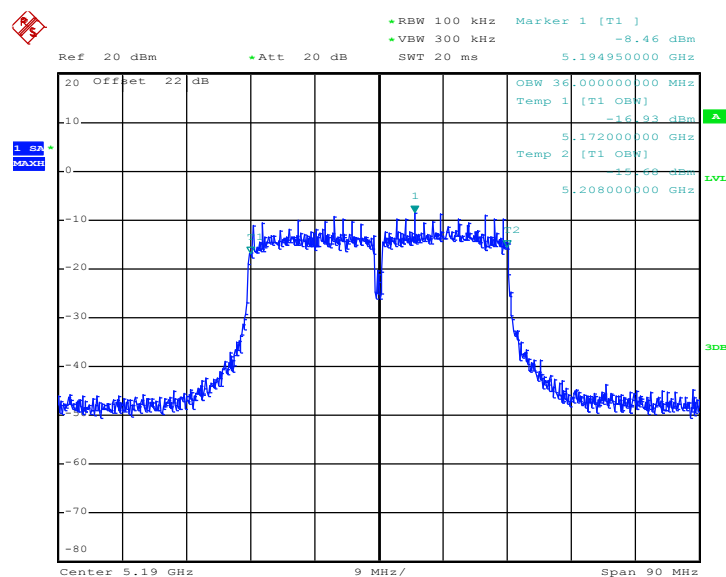
Date: 25.JUN.2012 14:39:00



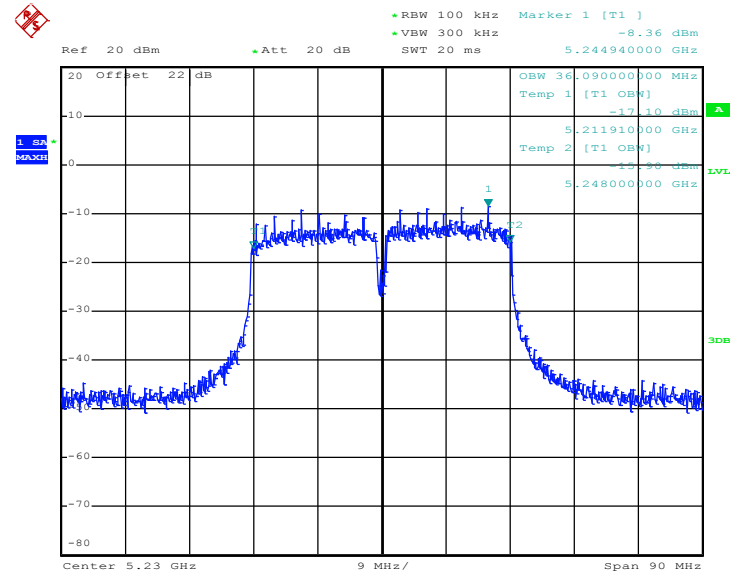
Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n HT-40 99% Occupied Bandwidth (MHz)	Pass/Fail
38	5190	36.00	N/A
46	5230	36.09	N/A
54	5270	36.09	N/A
62	5310	36.09	N/A
102	5510	36.18	N/A
110	5550	36.09	N/A
134	5670	36.00	N/A

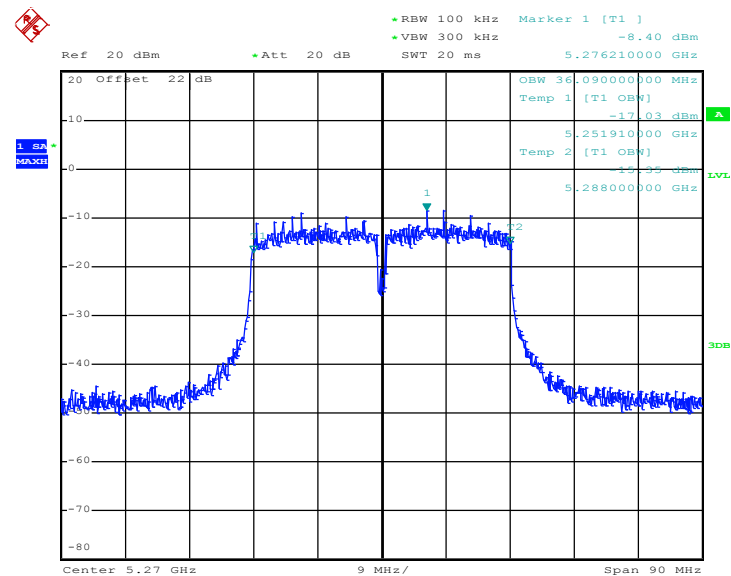
99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 38



Date: 25.JUN.2012 15:33:21

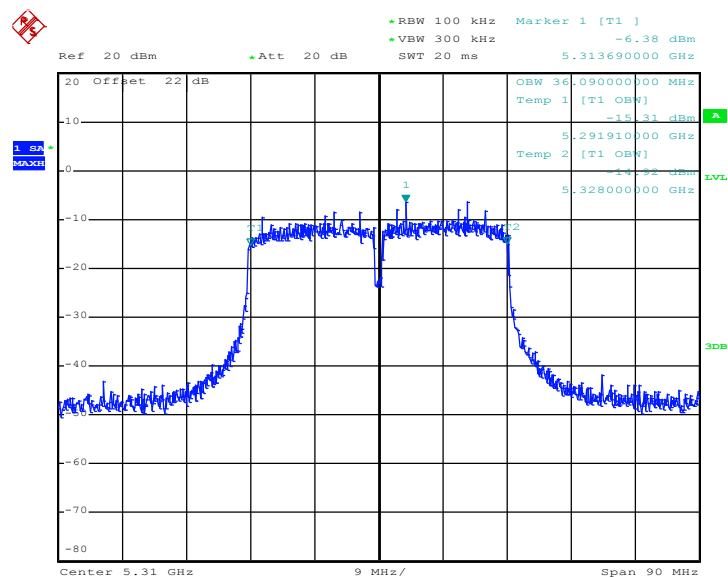
99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 46


Date: 25.JUN.2012 15:38:06

99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 54


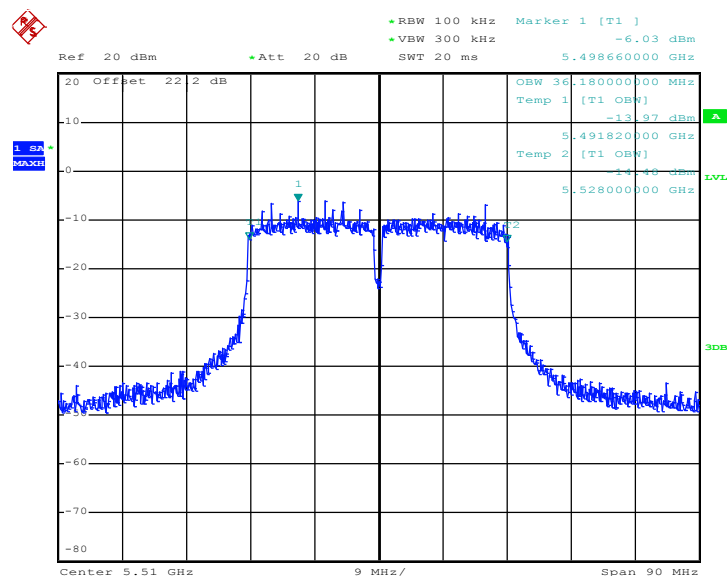
Date: 25.JUN.2012 15:41:47

99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 62



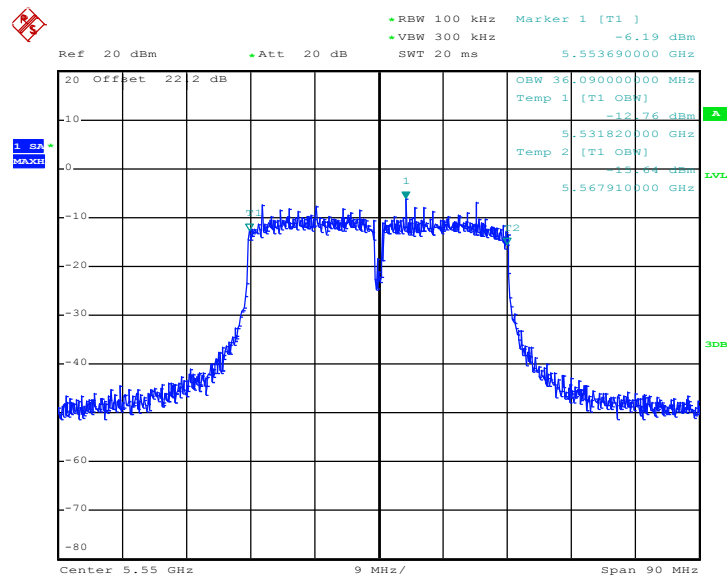
Date: 25.JUN.2012 15:50:22

99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 102



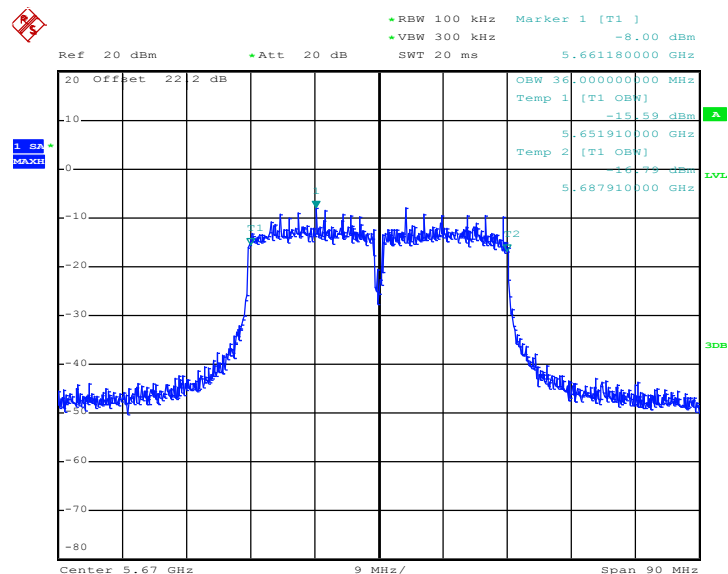
Date: 25.JUN.2012 15:59:31

99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 110



Date: 11.JUL.2012 11:42:41

99% Occupied Bandwidth Plot on 802.11n HT-40 Channel 134



Date: 25.JUN.2012 16:08:50

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or $4 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

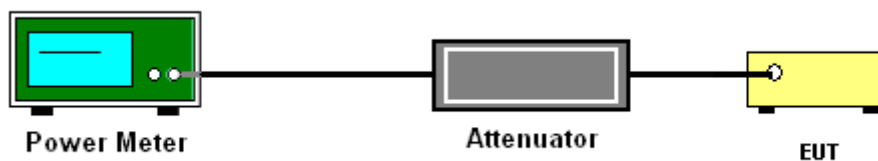
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r01.

Section C) 4) Method PM (Measurement using an RF average power meter):

- a) As an alternative to spectrum analyzer measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
 - (i) The EUT is configured to transmit continuously or to transmit with a consistent duty factor.
 - (ii) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - (iii) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- b) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).
- c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- d) Adjust the measurement in dBm by adding $10 \log(1/x)$ where x is the duty cycle (e.g., $10 \log(1/0.25)$)

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	98.57%	Duty Factor	0.06dB

Channel	Frequency (MHz)	802.11a Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	6.84	6.90	17	Pass
44	5220	6.97	7.03	17	Pass
48	5240	7.85	7.91	17	Pass
52	5260	7.98	8.04	24	Pass
60	5300	8.84	8.90	24	Pass
64	5320	9.47	9.53	24	Pass
100	5500	9.37	9.43	24	Pass
116	5580	8.70	8.76	24	Pass
140	5700	6.92	6.98	24	Pass

Note:

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

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	97.44%	Duty Factor	0.11dB

Channel	Frequency (MHz)	802.11n HT-20 Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	6.96	7.07	17	Pass
44	5220	6.92	7.03	17	Pass
48	5240	8.08	8.19	17	Pass
52	5260	8.42	8.53	24	Pass
60	5300	8.83	8.94	24	Pass
64	5320	9.43	9.54	24	Pass
100	5500	9.72	9.83	24	Pass
116	5580	8.73	8.84	24	Pass
140	5700	6.89	7.00	24	Pass

Note:

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

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	96.93%	Duty Factor	0.14dB

Channel	Frequency (MHz)	802.11n HT-40 Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
38	5190	7.33	7.47	17	Pass
46	5230	8.78	8.92	17	Pass
54	5270	8.74	8.88	24	Pass
62	5310	10.07	10.21	24	Pass
102	5510	10.04	10.18	24	Pass
110	5550	8.42	8.56	24	Pass
134	5670	7.04	7.18	24	Pass

Note:

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

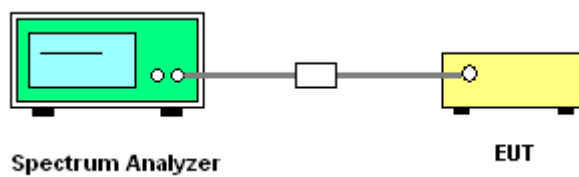
The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r01.

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.

1. The testing follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01r01.
 - 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.
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

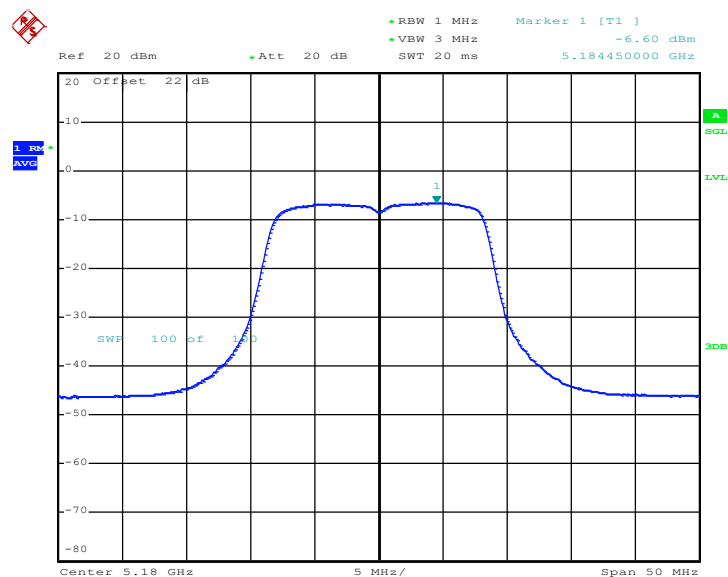


3.3.5 Test Result of Power Spectral Density

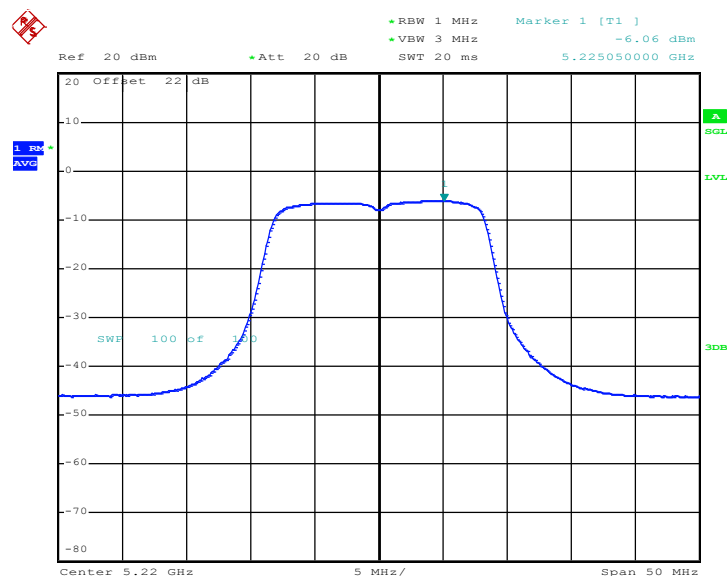
Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle:	98.57%	Duty Factor:	0.06dB

Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	-6.60	-6.54	4	Pass
44	5220	-6.06	-6.00	4	Pass
48	5240	-5.44	-5.38	4	Pass
52	5260	-5.21	-5.15	11	Pass
60	5300	-3.71	-3.65	11	Pass
64	5320	-2.81	-2.75	11	Pass
100	5500	-2.76	-2.70	11	Pass
116	5580	-3.91	-3.85	11	Pass
140	5700	-4.70	-4.64	11	Pass

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

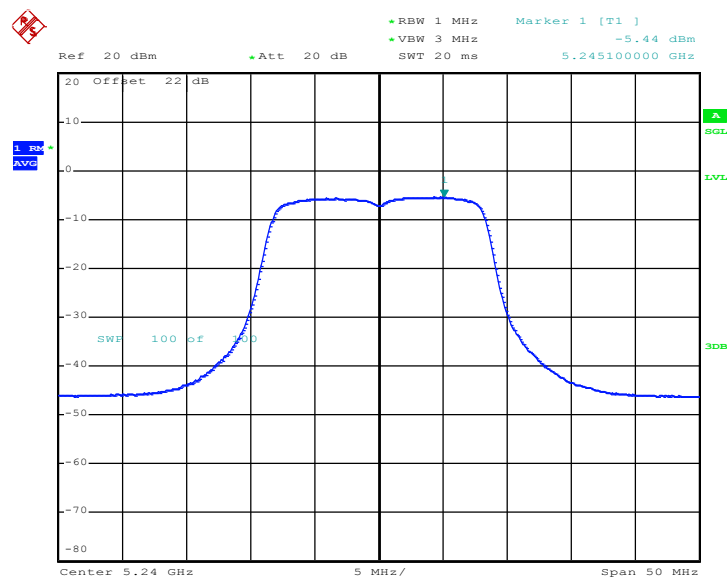
PSD Plot on 802.11a Channel 36


Date: 25.JUN.2012 11:02:51

PSD Plot on 802.11a Channel 44


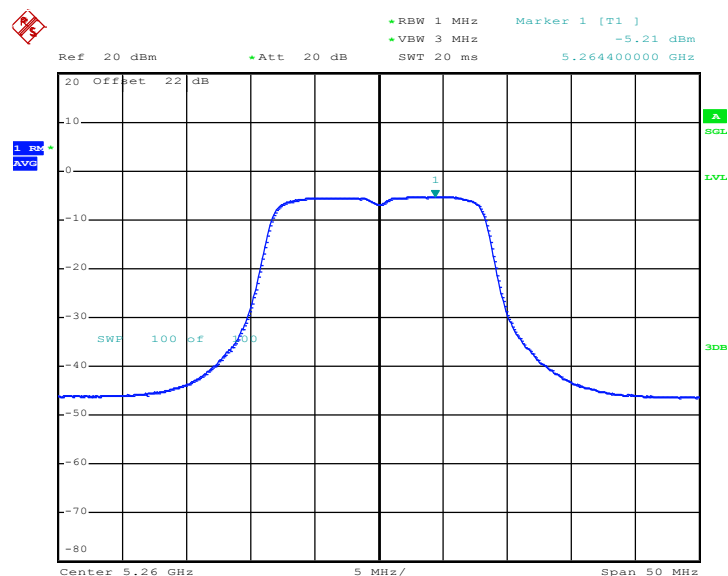
Date: 25.JUN.2012 11:15:12

PSD Plot on 802.11a Channel 48

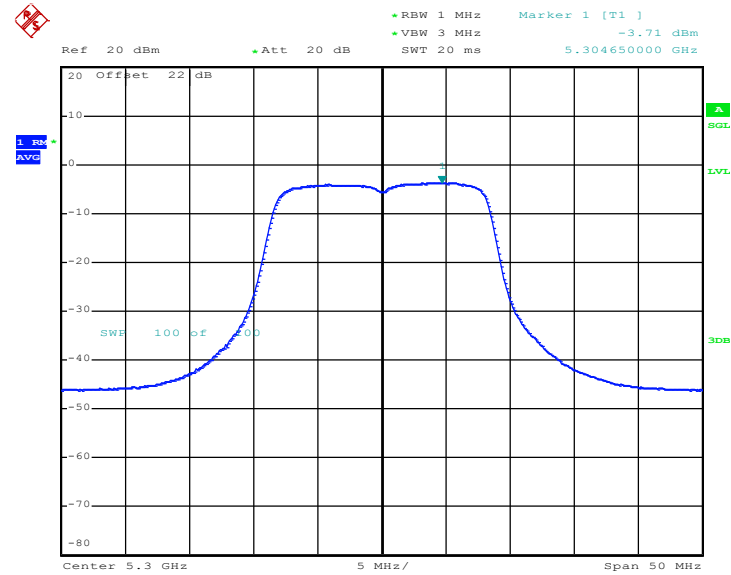


Date: 25.JUN.2012 11:18:06

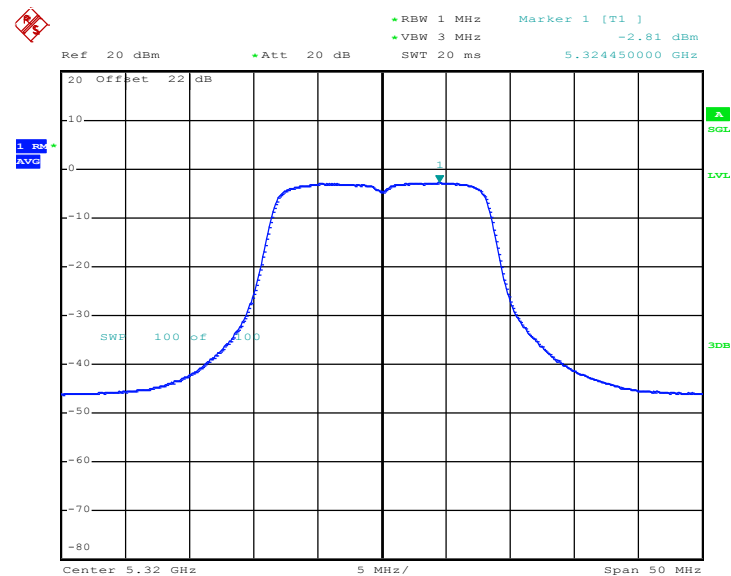
PSD Plot on 802.11a Channel 52



Date: 25.JUN.2012 11:21:41

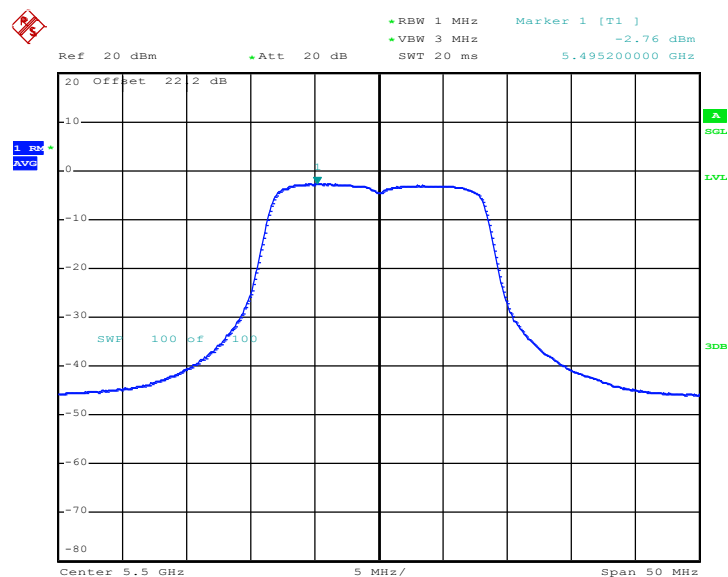
PSD Plot on 802.11a Channel 60


Date: 25.JUN.2012 11:26:50

PSD Plot on 802.11a Channel 64


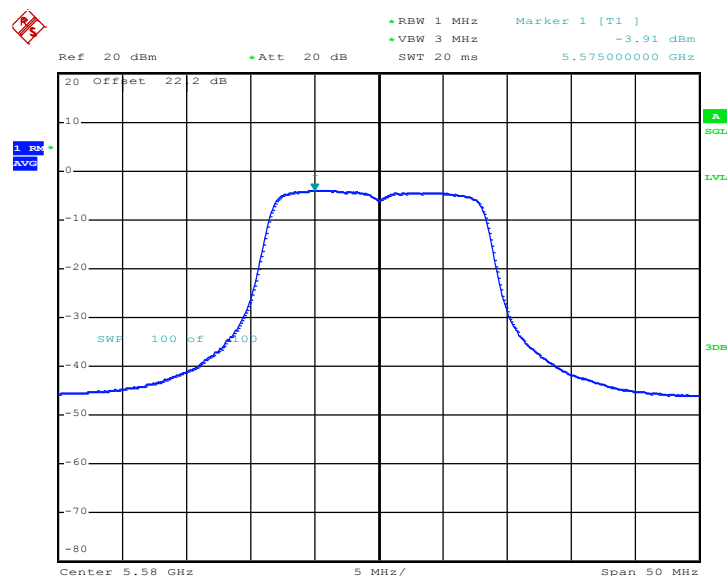
Date: 25.JUN.2012 11:41:29

PSD Plot on 802.11a Channel 100



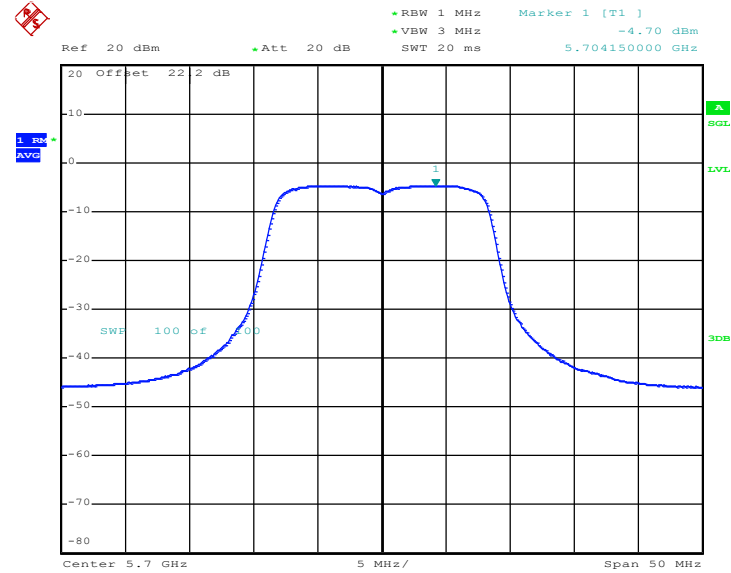
Date: 25.JUN.2012 11:37:59

PSD Plot on 802.11a Channel 116



Date: 25.JUN.2012 11:45:59

PSD Plot on 802.11a Channel 140



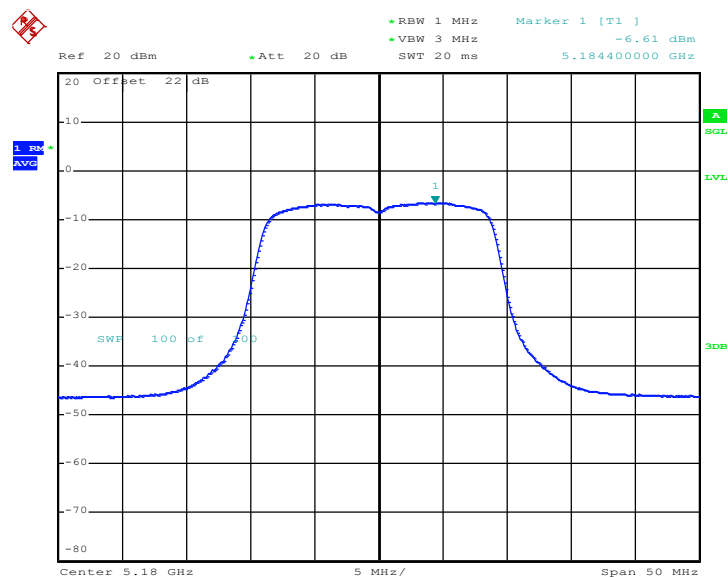
Date: 25.JUN.2012 11:49:57



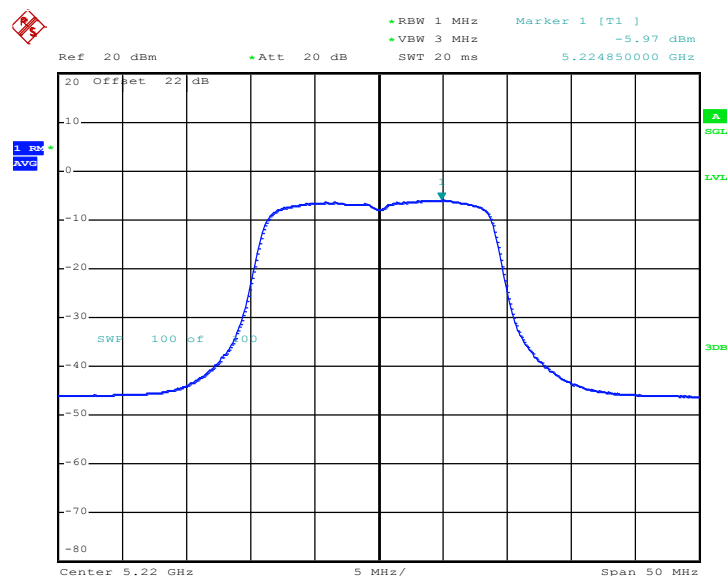
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle:	97.44%	Duty Factor:	0.11dB

Channel	Frequency (MHz)	802.11n HT-20 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	-6.61	-6.50	4	Pass
44	5220	-5.97	-5.86	4	Pass
48	5240	-5.62	-5.51	4	Pass
52	5260	-5.07	-4.96	11	Pass
60	5300	-4.14	-4.03	11	Pass
64	5320	-3.22	-3.11	11	Pass
100	5500	-2.89	-2.78	11	Pass
116	5580	-4.29	-4.18	11	Pass
140	5700	-5.06	-4.95	11	Pass

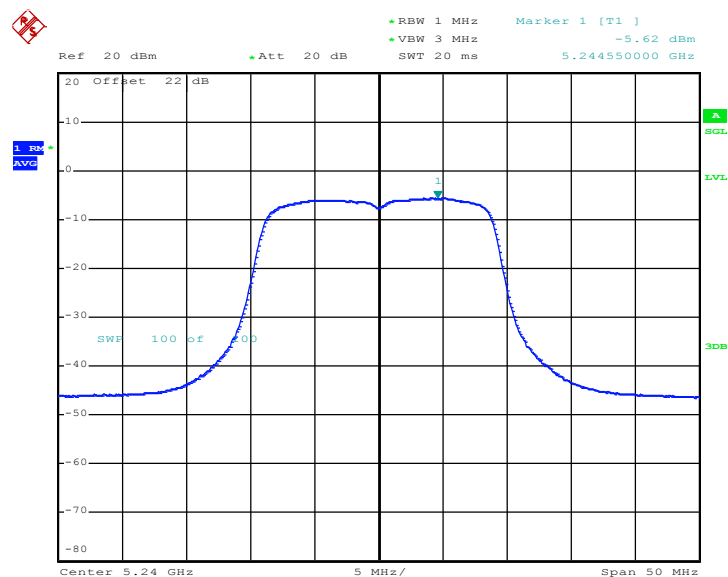
Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11n HT-20 channel 36


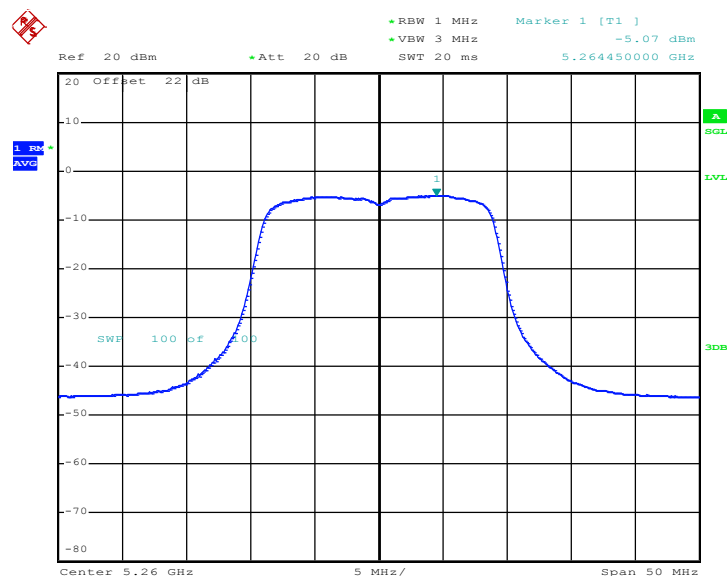
Date: 25.JUN.2012 14:10:31

PSD Plot on 802.11n HT-20 Channel 44


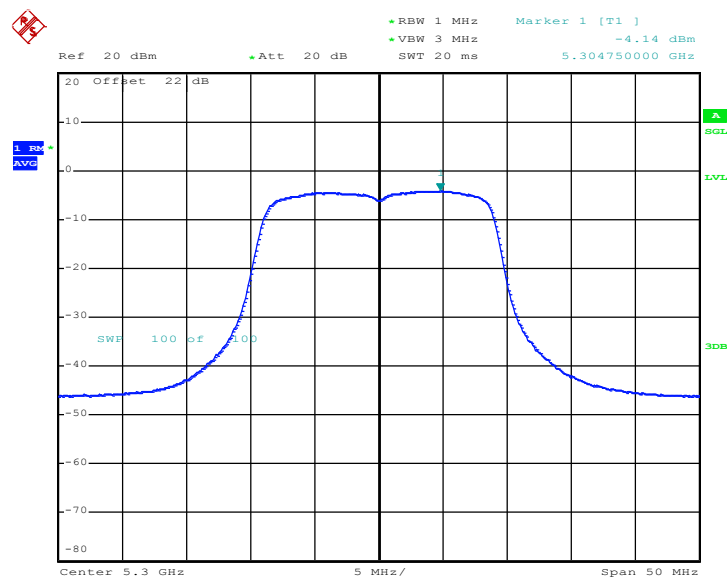
Date: 25.JUN.2012 14:14:34

PSD Plot on 802.11n HT-20 Channel 48


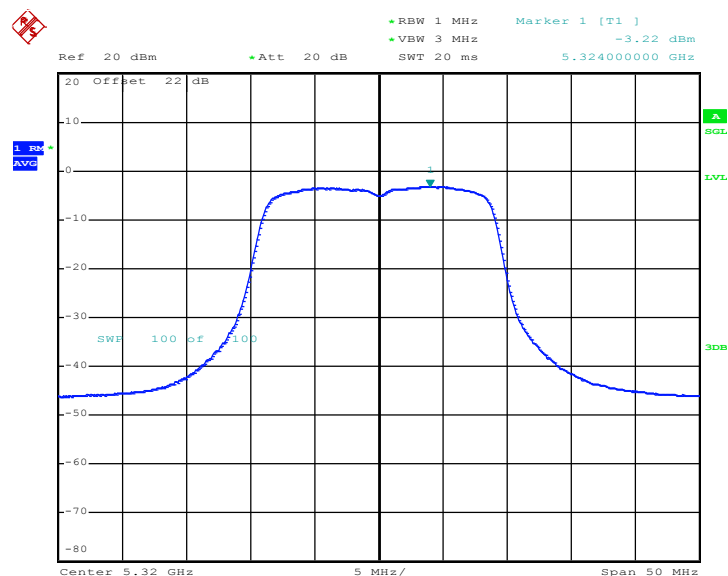
Date: 25.JUN.2012 14:18:30

PSD Plot on 802.11n HT-20 Channel 52


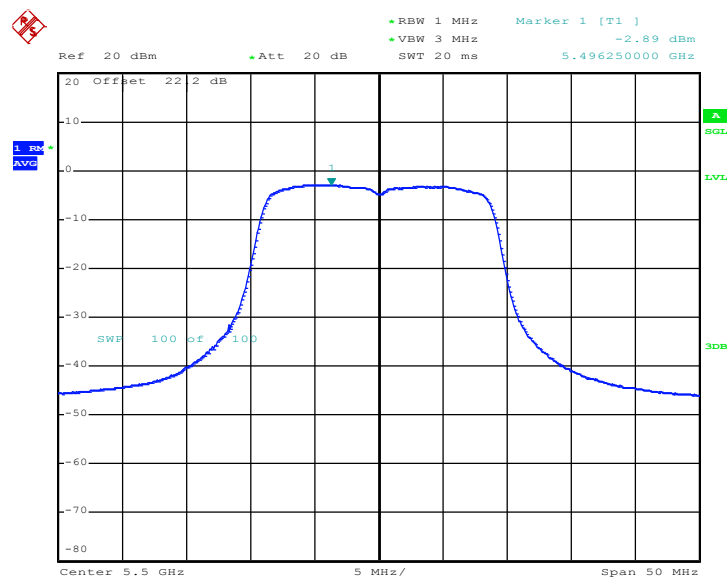
Date: 25.JUN.2012 14:20:58

PSD Plot on 802.11n HT-20 Channel 60


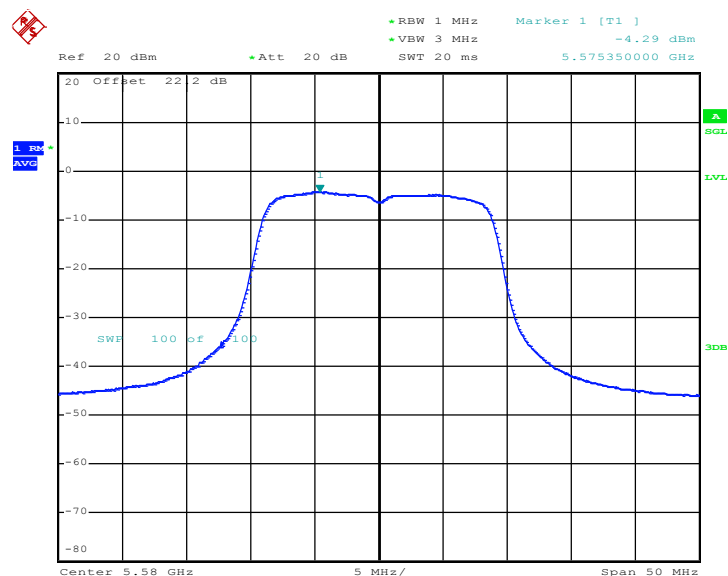
Date: 25.JUN.2012 14:03:49

PSD Plot on 802.11n HT-20 Channel 64


Date: 25.JUN.2012 14:23:08

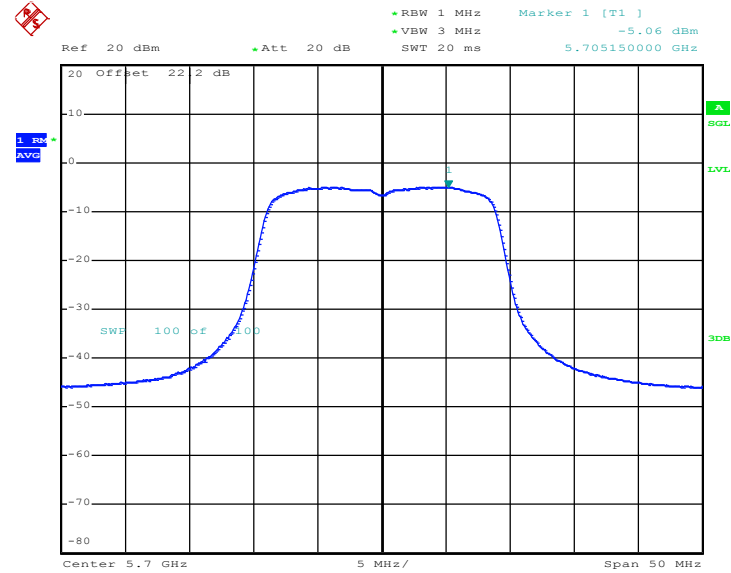
PSD Plot on 802.11n HT-20 Channel 100


Date: 25.JUN.2012 14:28:19

PSD Plot on 802.11n HT-20 Channel 116


Date: 25.JUN.2012 14:30:30

PSD Plot on 802.11n HT-20 Channel 140



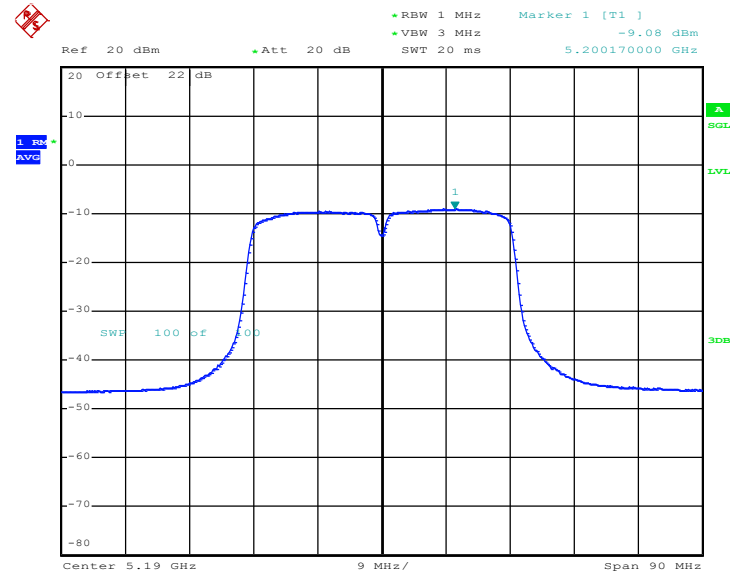
Date: 25.JUN.2012 14:36:57



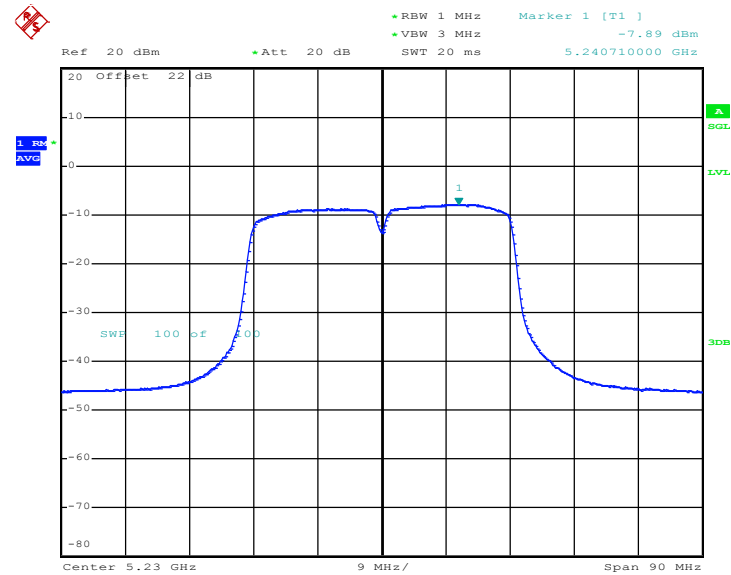
Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle:	96.93%	Duty Factor:	0.14dB

Channel	Frequency (MHz)	802.11n HT-40 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
38	5190	-9.08	-8.94	4	Pass
46	5230	-7.89	-7.75	4	Pass
54	5270	-7.91	-7.77	11	Pass
62	5310	-6.25	-6.11	11	Pass
102	5510	-5.73	-5.59	11	Pass
110	5550	-5.40	-5.26	11	Pass
134	5670	-7.88	-7.74	11	Pass

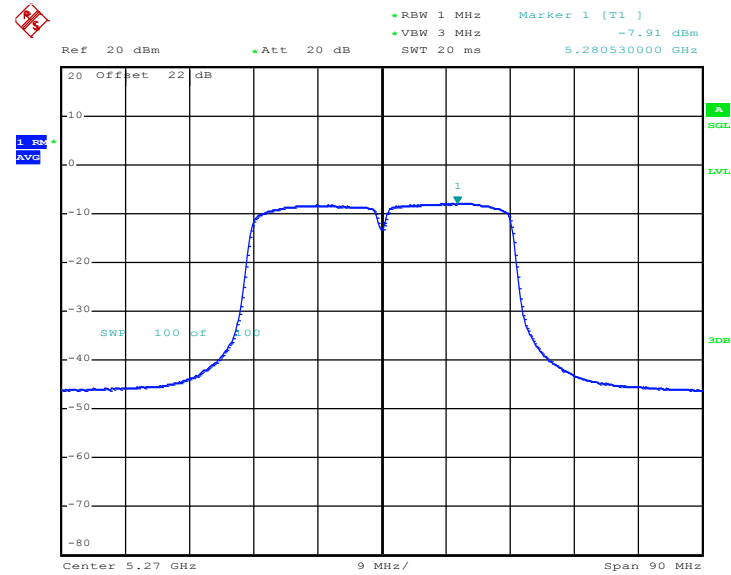
Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11n HT-40 Channel 38


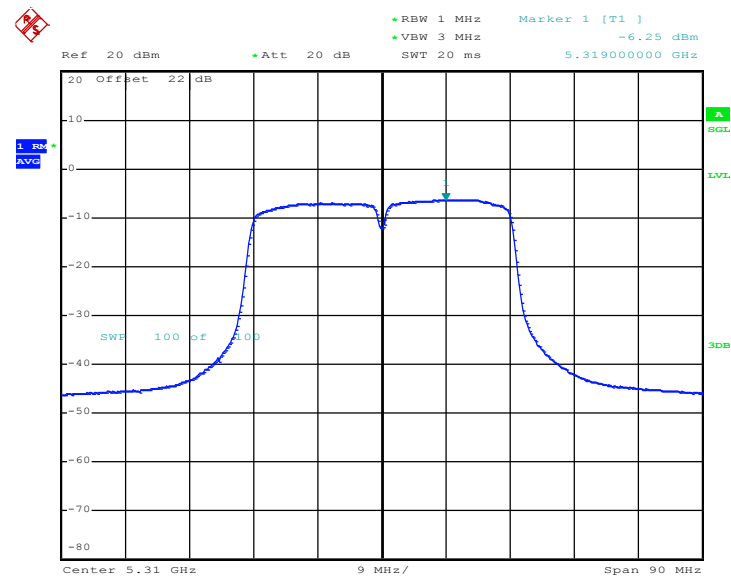
Date: 25.JUN.2012 15:30:21

PSD Plot on 802.11n HT-40 Channel 46


Date: 25.JUN.2012 15:35:10

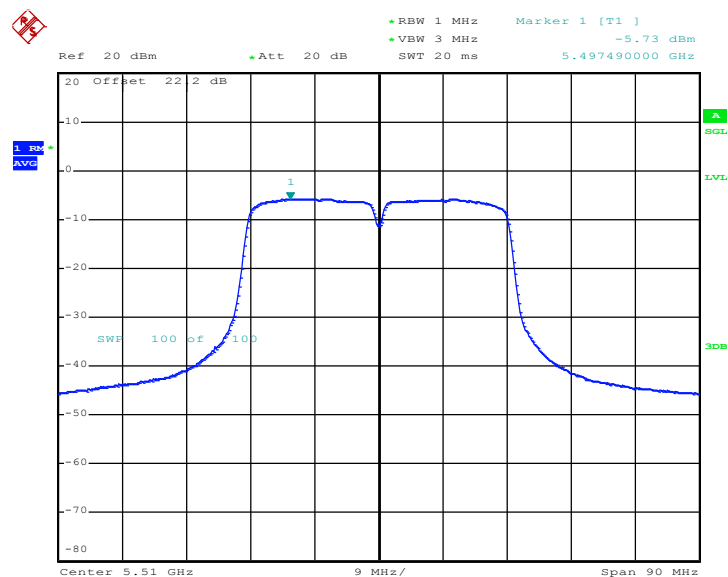
PSD Plot on 802.11n HT-40 Channel 54


Date: 25.JUN.2012 15:39:32

PSD Plot on 802.11n HT-40 Channel 62


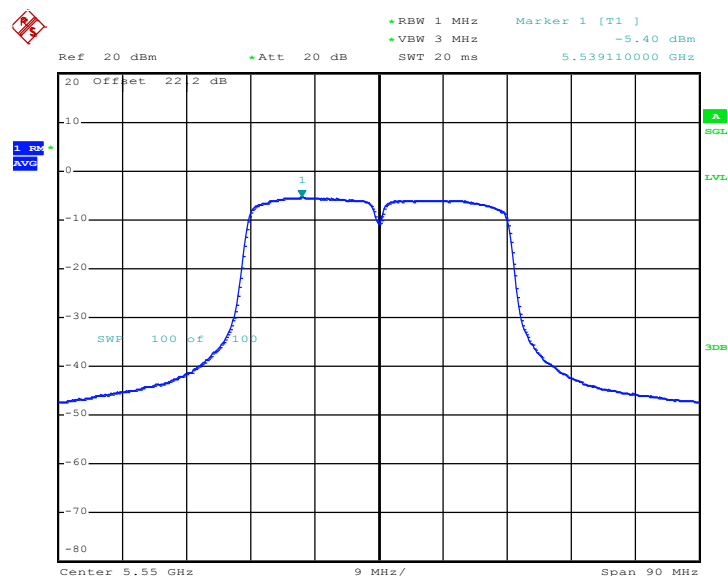
Date: 25.JUN.2012 15:48:05

PSD Plot on 802.11n HT-40 Channel 102

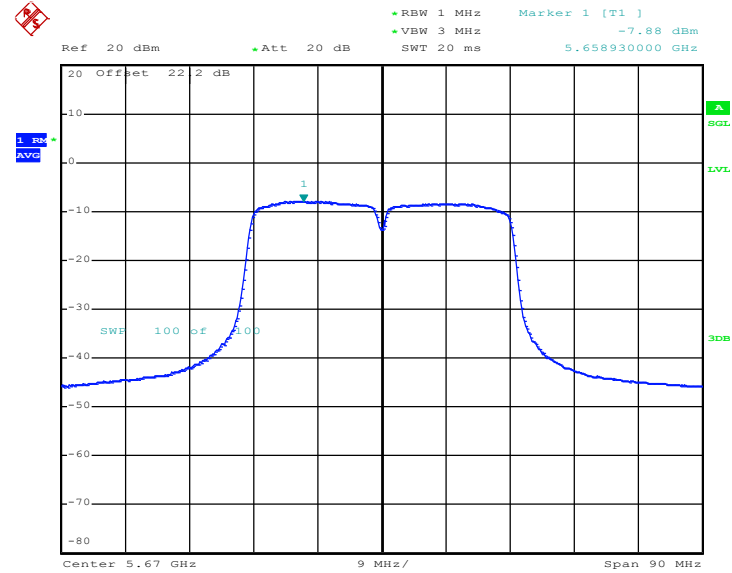


Date: 25.JUN.2012 15:56:02

PSD Plot on 802.11n HT-40 Channel 110



Date: 11.JUL.2012 11:38:07

PSD Plot on 802.11n HT-40 Channel 134


Date: 25.JUN.2012 16:06:46

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.

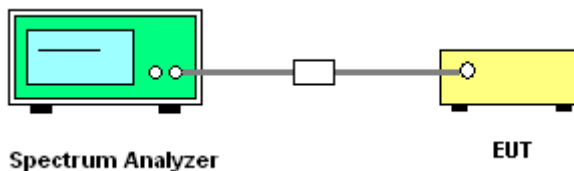
3.4.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r01.

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.

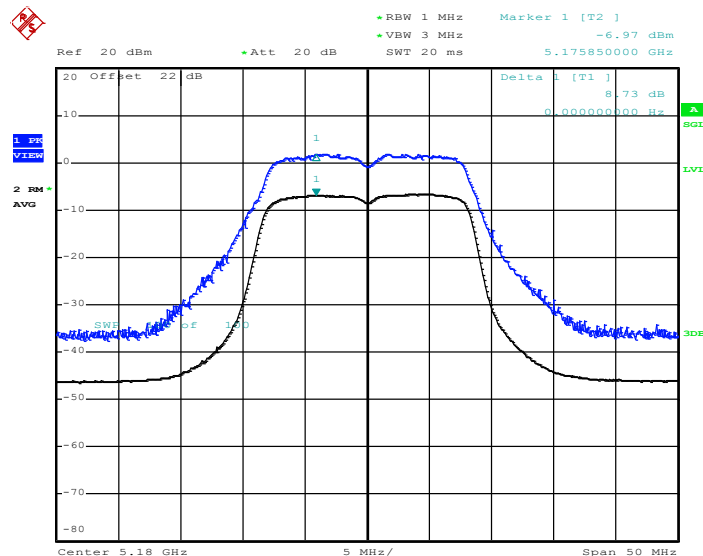
3.4.4 Test Setup



3.4.5 Test Result of Peak Excursion Ratio

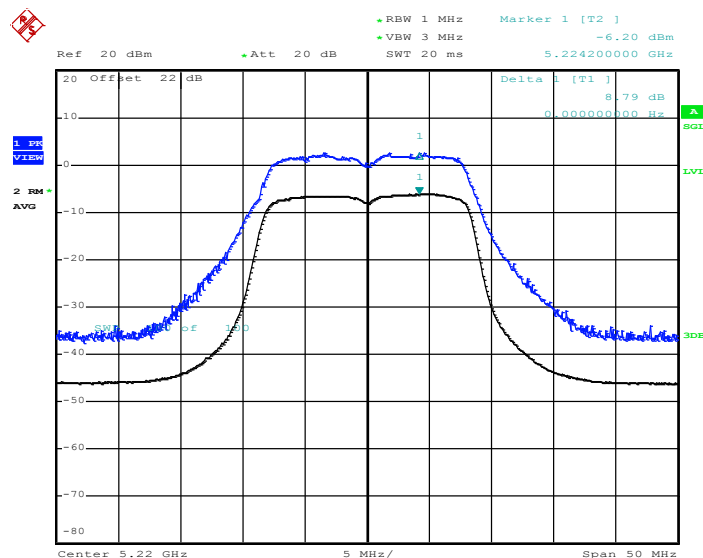
Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11a Channel 36

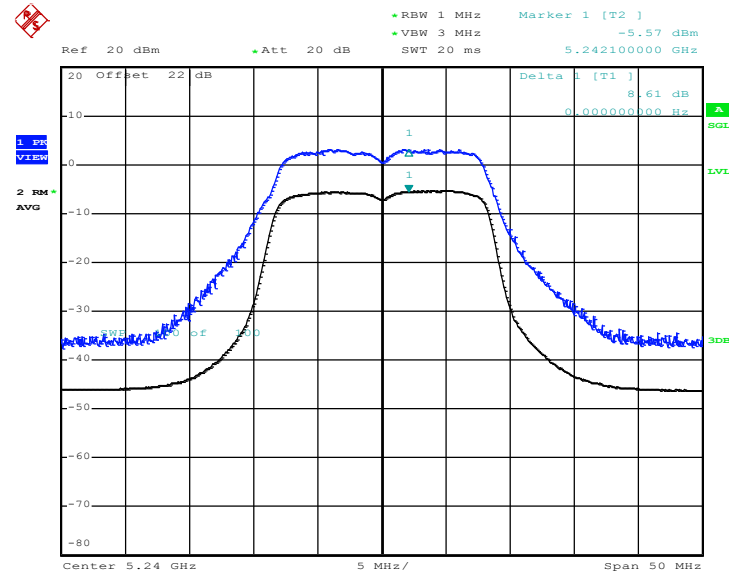


Date: 25.JUN.2012 11:02:24

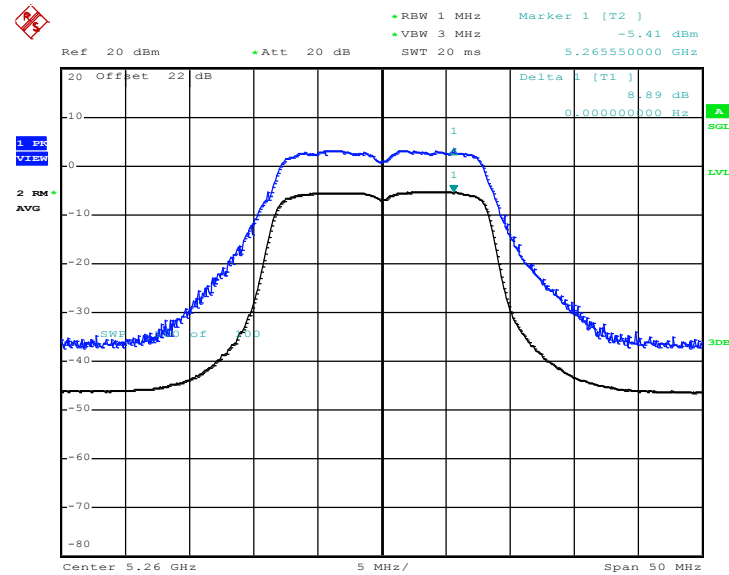
Peak Excursion Ratio Plot on 802.11a Channel 44



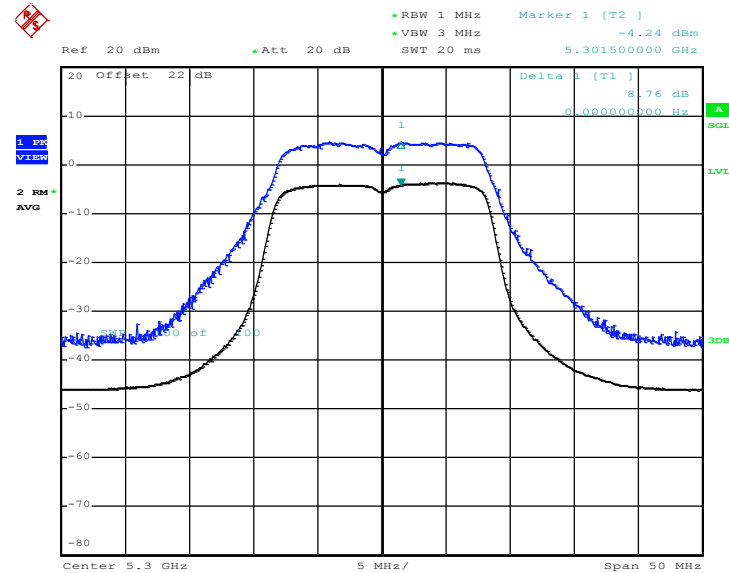
Date: 25.JUN.2012 11:15:31

Peak Excursion Ratio Plot on 802.11a Channel 48


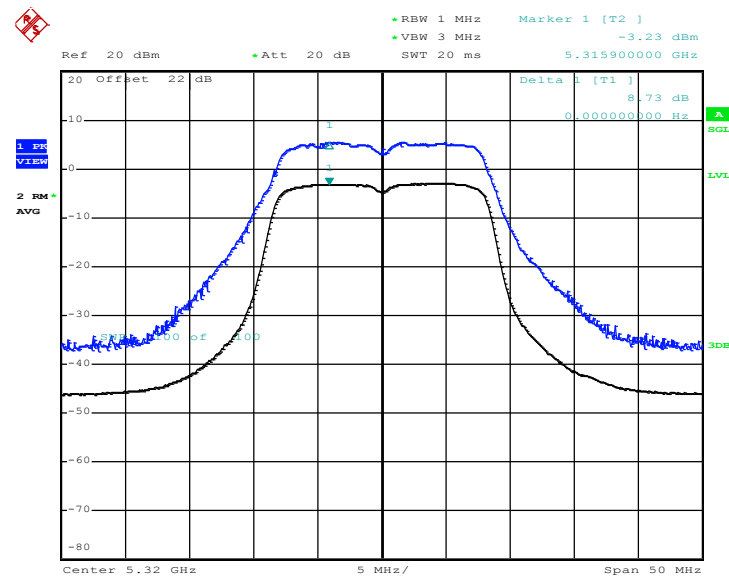
Date: 25.JUN.2012 11:18:29

Peak Excursion Ratio Plot on 802.11a Channel 52


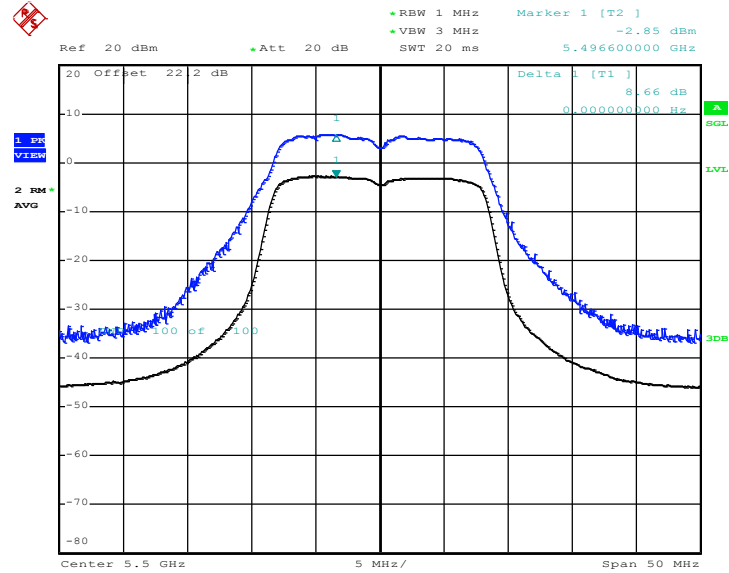
Date: 25.JUN.2012 11:22:00

Peak Excursion Ratio Plot on 802.11a Channel 60


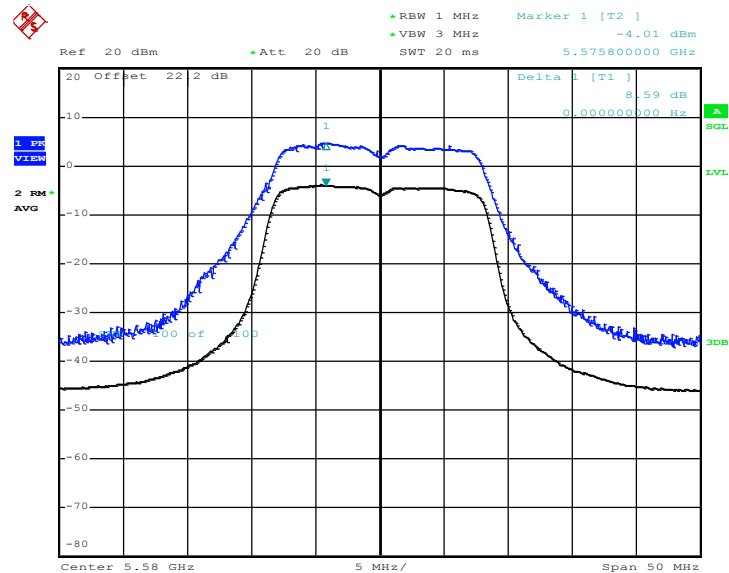
Date: 25.JUN.2012 11:27:12

Peak Excursion Ratio Plot on 802.11a Channel 64


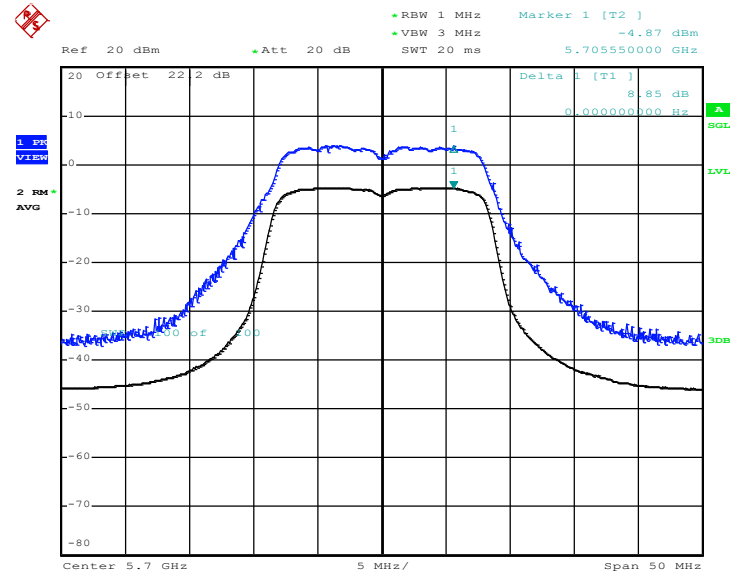
Date: 25.JUN.2012 11:41:47

Peak Excursion Ratio Plot on 802.11a Channel 100


Date: 25.JUN.2012 11:38:23

Peak Excursion Ratio Plot on 802.11a Channel 116


Date: 25.JUN.2012 11:46:17

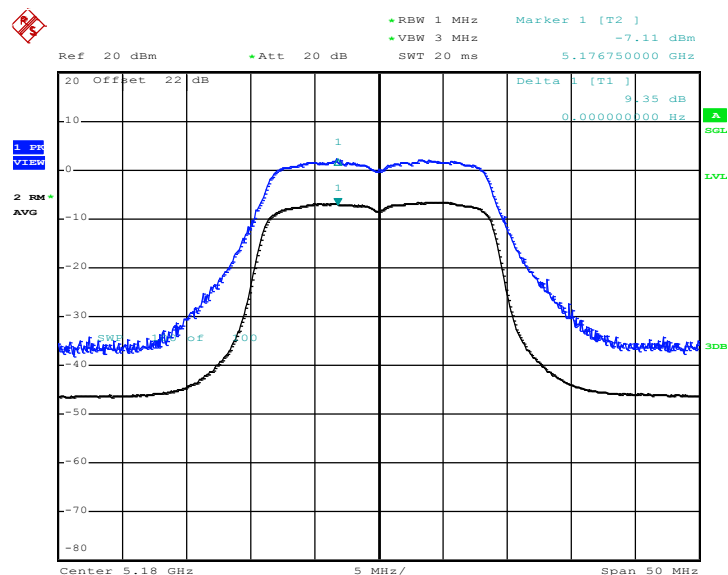
Peak Excursion Ratio Plot on 802.11a Channel 140


Date: 25.JUN.2012 11:50:24



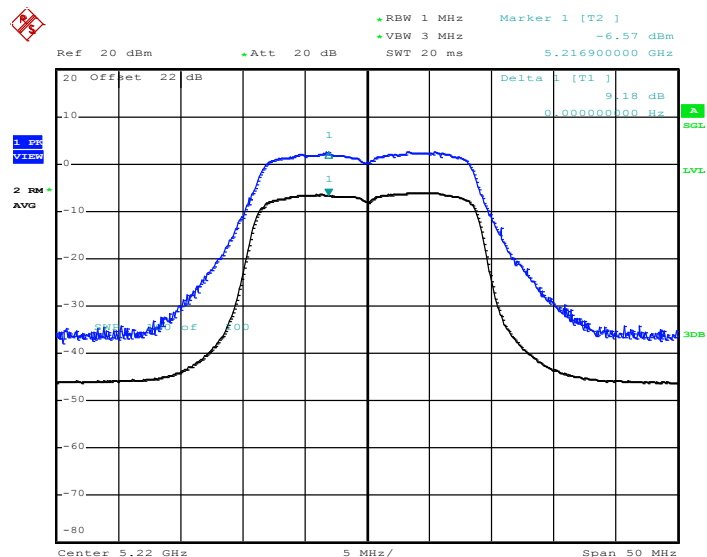
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11n HT-20 Channel 36

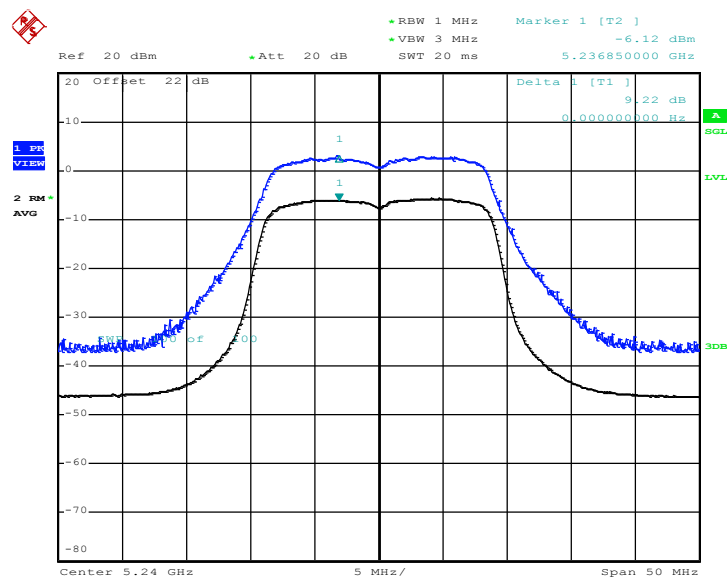


Date: 25.JUN.2012 14:10:48

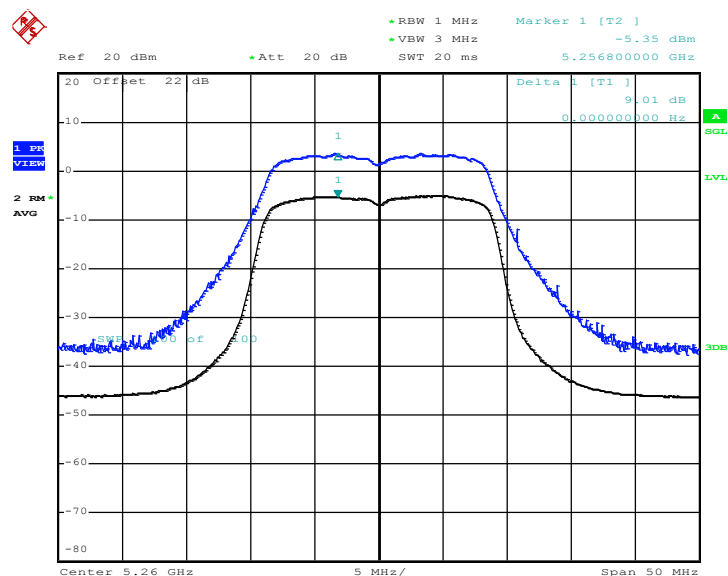
Peak Excursion Ratio Plot on 802.11n HT-20 Channel 44



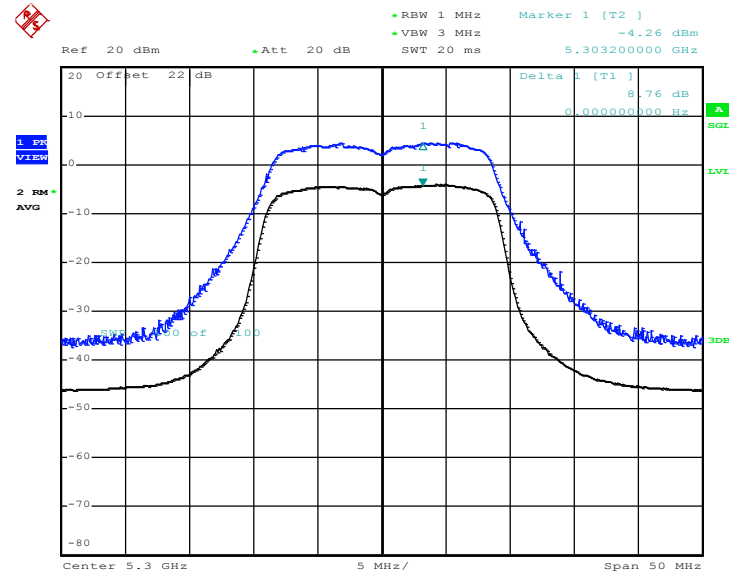
Date: 25.JUN.2012 14:15:02

Peak Excursion Ratio Plot on 802.11n HT-20 Channel 48


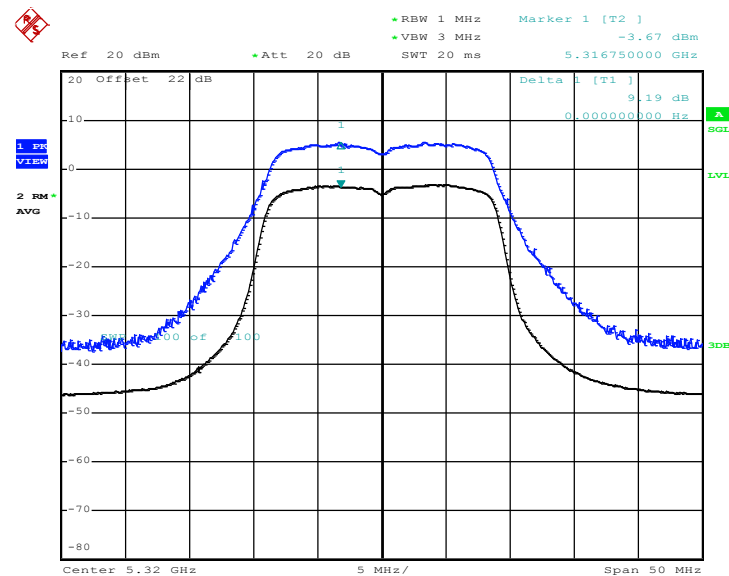
Date: 25.JUN.2012 14:18:49

Peak Excursion Ratio Plot on 802.11n HT-20 Channel 52


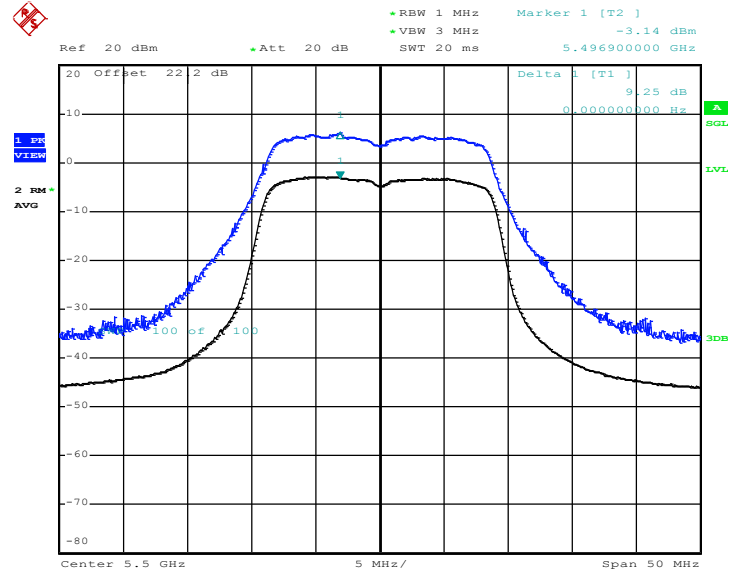
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Peak Excursion Ratio Plot on 802.11n HT-20 Channel 60


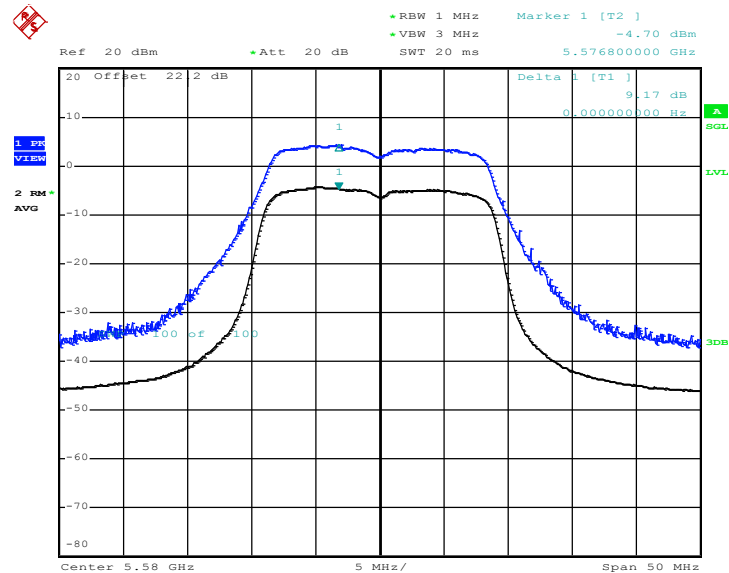
Date: 25.JUN.2012 14:04:07

Peak Excursion Ratio Plot on 802.11n HT-20 Channel 64


Date: 25.JUN.2012 14:23:27

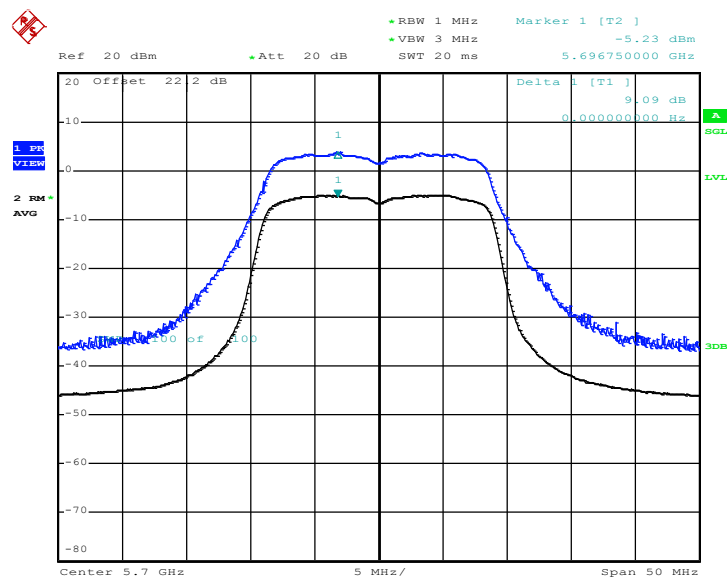
Peak Excursion Ratio Plot on 802.11n HT-20 Channel 100


Date: 25.JUN.2012 14:28:38

Peak Excursion Ratio Plot on 802.11n HT-20 Channel 116


Date: 25.JUN.2012 14:30:49

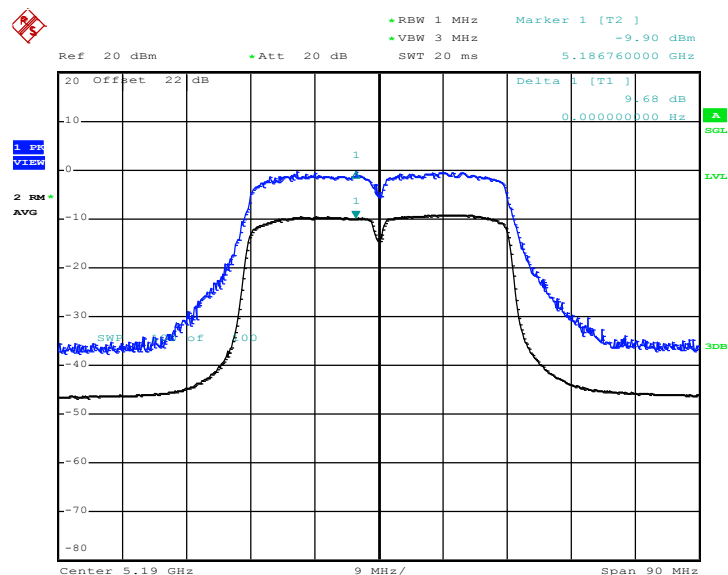
Peak Excursion Ratio Plot on 802.11n HT-20 Channel 140



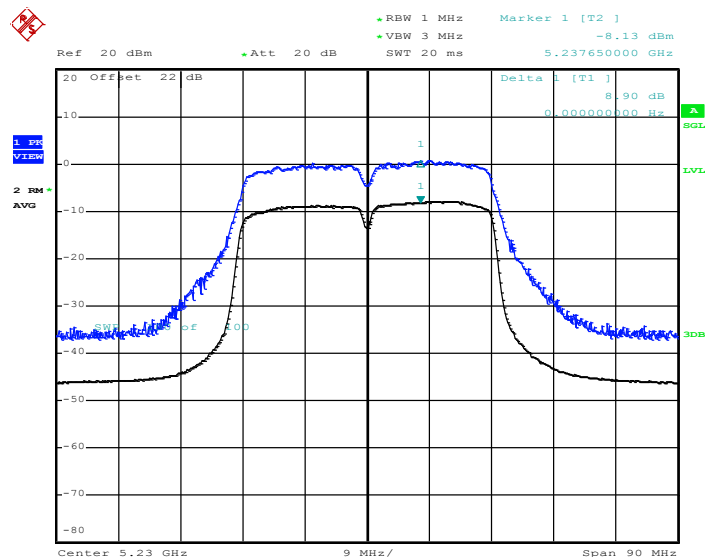
Date: 25.JUN.2012 14:37:27



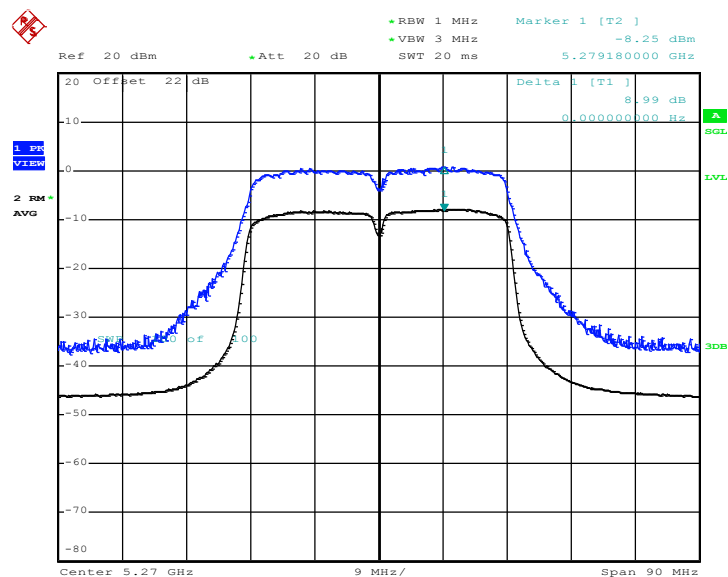
Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 38

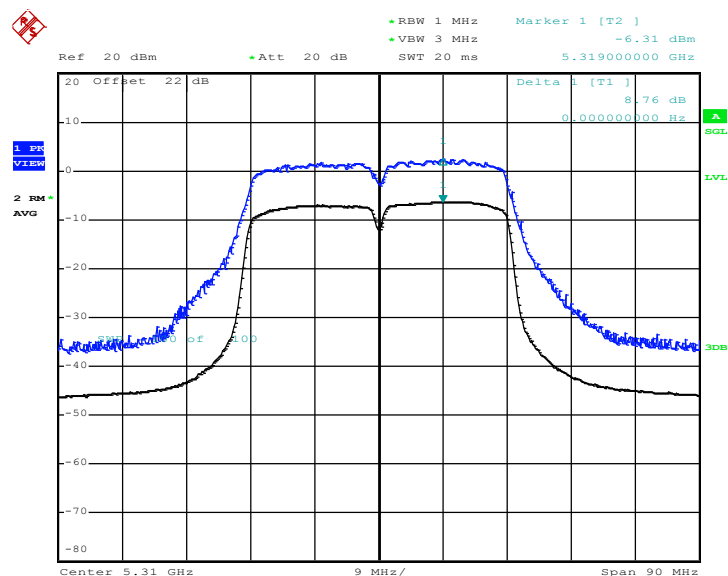
Date: 25.JUN.2012 15:30:49

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 46

Date: 25.JUN.2012 15:35:31

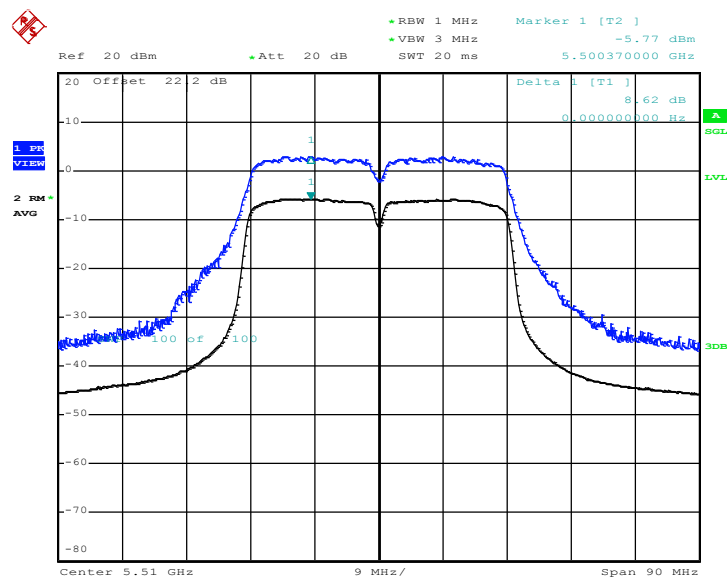
Peak Excursion Ratio Plot on 802.11n HT-40 Channel 54


Date: 25.JUN.2012 15:40:00

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 62


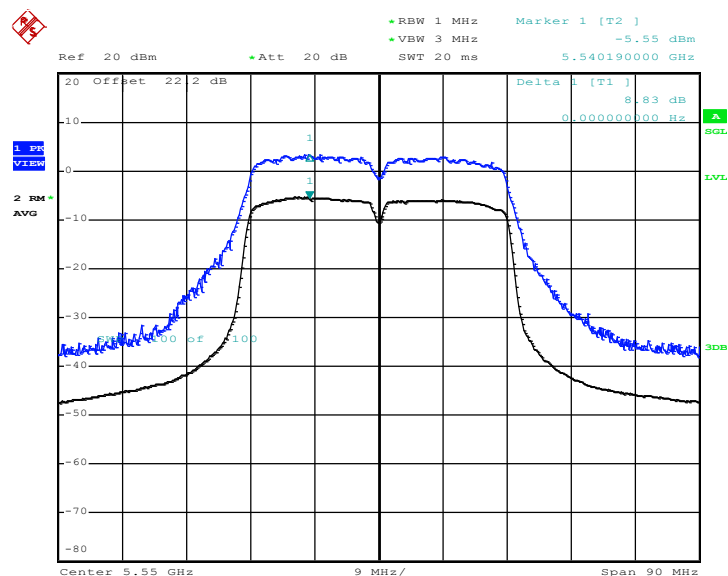
Date: 25.JUN.2012 15:48:28

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 102

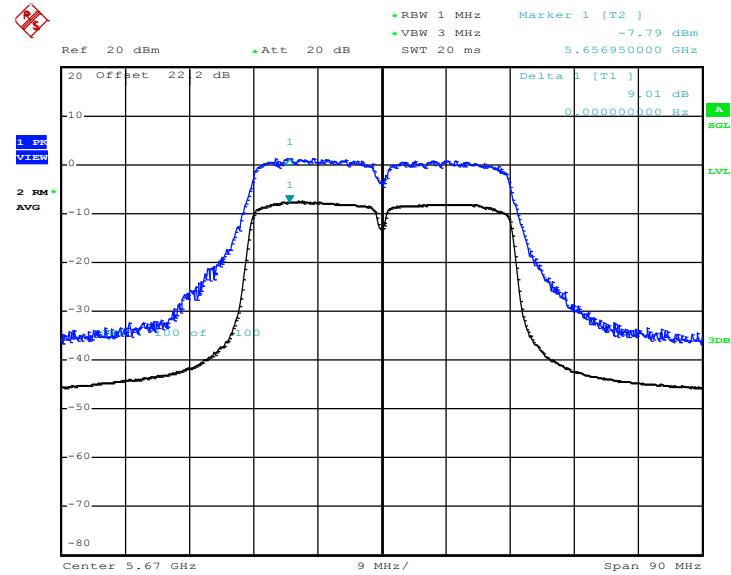


Date: 25.JUN.2012 15:56:24

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 110



Date: 11.JUL.2012 11:38:27

Peak Excursion Ratio Plot on 802.11n HT-40 Channel 134


Date: 25.JUN.2012 16:07:06

3.5 Unwanted Radiated Emission Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

3.5.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz.

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

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

EIRP (dBm)	Field Strength at 3m (dBuV/m)
-17	78.3
- 27	68.3

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows the guidelines in fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement and FCC KDB 789033 D01 General UNII Test Procedures v01r01.

Section G) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

- RBW = 120 KHz
- VBW = 300 KHz
- Detector = Peak
- Trace mode = max hold

(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

- The setting follows the G) 5) of FCC KDB 789033.
- RBW = 1 MHz
- VBW $\geq$ 3 MHz
- Detector = Peak
- Sweep time = auto
- Trace mode = max hold

(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

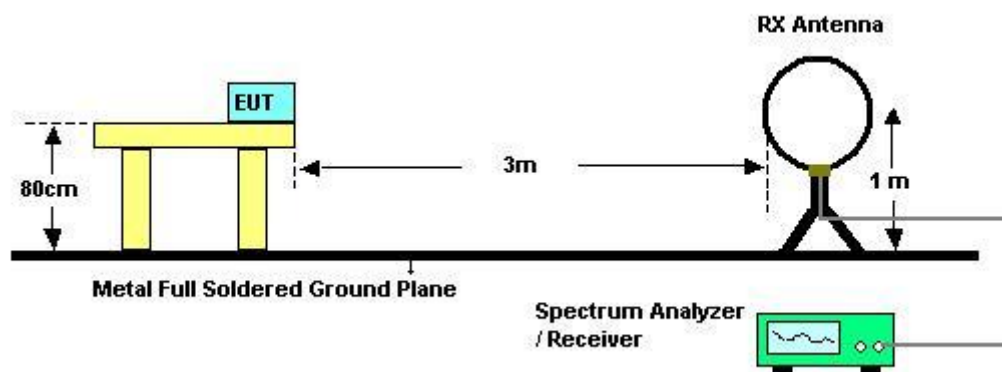
- The setting follows G) 6) of FCC KDB 789033.
- RBW = 1 MHz
- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control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

2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.

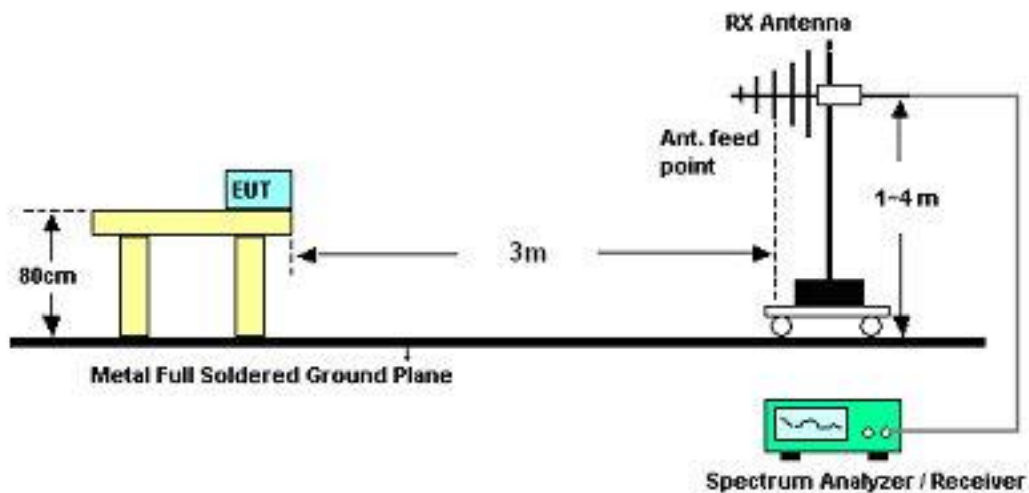
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

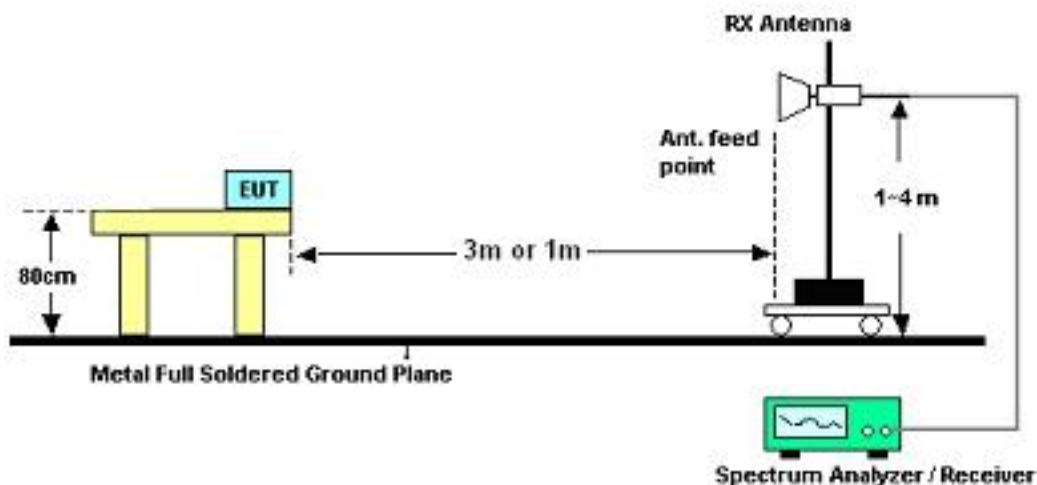
For radiated emissions below 30MHz



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 of Radiated Band Edges

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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5147.2	56.58	-17.42	74	45.92	34.22	9.41	32.97	101	108	Peak
5147.2	43.55	-10.45	54	32.89	34.22	9.41	32.97	101	108	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
5143.7	55.65	-18.35	74	44.99	34.22	9.41	32.97	197	351	Peak
5143.7	42.67	-11.33	54	32.01	34.22	9.41	32.97	197	351	Average

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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5357.25	56.07	-17.93	74	44.84	34.38	9.78	32.93	124	129	Peak
5357.25	42.44	-11.56	54	31.21	34.38	9.78	32.93	124	129	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
5355.5	56.02	-17.98	74	44.83	34.38	9.74	32.93	174	359	Peak
5355.5	42.47	-11.53	54	31.28	34.38	9.74	32.93	174	359	Average



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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148.65	54.54	-19.46	74	43.88	34.22	9.41	32.97	122	126	Peak
5148.65	40.86	-13.14	54	30.2	34.22	9.41	32.97	122	126	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
5147.5	53.77	-20.23	74	43.11	34.22	9.41	32.97	176	352	Peak
5147.5	40.17	-13.83	54	29.51	34.22	9.41	32.97	176	352	Average

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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5387.65	59.01	-14.99	74	47.7	34.41	9.82	32.92	133	125	Peak
5387.65	44.77	-9.23	54	33.46	34.41	9.82	32.92	133	125	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
5361.1	57.68	-16.32	74	46.44	34.39	9.78	32.93	200	348	Peak
5361.1	44.19	-9.81	54	32.95	34.39	9.78	32.93	200	348	Average



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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	56.13	-12.17	68.3	44.63	34.47	9.94	32.91	131	69	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	57.29	-11.01	68.3	45.79	34.47	9.94	32.91	194	360	Peak

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

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	56.22	-12.08	68.3	44.75	34.81	9.92	33.26	103	66	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	54.04	-14.26	68.3	42.57	34.81	9.92	33.26	187	0	Peak

Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148.45	56.6	-17.4	74	45.94	34.22	9.41	32.97	100	198	Peak
5148.45	44.74	-9.26	54	34.08	34.22	9.41	32.97	100	198	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
5149.85	54.74	-19.26	74	44.08	34.22	9.41	32.97	176	220	Peak
5149.85	42.49	-11.51	54	31.83	34.22	9.41	32.97	176	220	Average

Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	48	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5384	55.67	-18.33	74	44.36	34.41	9.82	32.92	100	215	Peak
5384	44.57	-9.43	54	33.26	34.41	9.82	32.92	100	215	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
5372	55.44	-18.56	74	44.2	34.39	9.78	32.93	177	80	Peak
5372	43.41	-10.59	54	32.17	34.39	9.78	32.93	177	80	Average



Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5144	53.98	-20.02	74	43.32	34.22	9.41	32.97	148	217	Peak
5144	42.13	-11.87	54	31.47	34.22	9.41	32.97	148	217	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
5148	54.11	-19.89	74	43.45	34.22	9.41	32.97	188	79	Peak
5148	41.84	-12.16	54	31.18	34.22	9.41	32.97	188	79	Average

Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.55	58.58	-15.42	74	47.39	34.38	9.74	32.93	121	214	Peak
5350.55	45.62	-8.38	54	34.43	34.38	9.74	32.93	121	214	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
5389.05	57.8	-16.2	74	46.49	34.41	9.82	32.92	184	86	Peak
5389.05	45.26	-8.74	54	33.95	34.41	9.82	32.92	184	86	Average



Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	55	-13.3	68.3	43.5	34.47	9.94	32.91	193	88	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	56.15	-12.15	68.3	44.65	34.47	9.94	32.91	135	120	Peak

Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	54.44	-13.86	68.3	42.97	34.81	9.92	33.26	103	158	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	54.74	-13.56	68.3	43.27	34.81	9.92	33.26	172	82	Peak



Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	38	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5127.25	56.36	-17.64	74	45.76	34.21	9.37	32.98	114	198	Peak
5127.25	43.52	-10.48	54	32.92	34.21	9.37	32.98	114	198	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
5119.95	53.78	-20.22	74	43.2	34.19	9.37	32.98	178	221	Peak
5119.95	41.41	-12.59	54	30.83	34.19	9.37	32.98	178	221	Average

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	46	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	55.8	-18.2	74	44.61	34.38	9.74	32.93	125	198	Peak
5350	43.19	-10.81	54	32	34.38	9.74	32.93	125	198	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
5458	53.84	-20.16	74	42.35	34.46	9.94	32.91	192	222	Peak
5458	42.18	-11.82	54	30.69	34.46	9.94	32.91	192	222	Average



Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	54	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5146	53.03	-20.97	74	42.37	34.22	9.41	32.97	125	215	Peak
5146	41.71	-12.29	54	31.05	34.22	9.41	32.97	125	215	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	52.36	-21.64	74	41.7	34.22	9.41	32.97	178	286	Peak
5150	40.95	-13.05	54	30.29	34.22	9.41	32.97	178	286	Average

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	62	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350.33	65.43	-8.57	74	54.24	34.38	9.74	32.93	112	215	Peak
5350.33	49.09	-4.91	54	37.9	34.38	9.74	32.93	112	215	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
5350.44	60.85	-13.15	74	49.66	34.38	9.74	32.93	161	292	Peak
5350.44	45.53	-8.47	54	34.34	34.38	9.74	32.93	161	292	Average



Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	102	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	55.23	-13.07	68.3	43.73	34.47	9.94	32.91	109	159	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.55	-14.75	68.3	42.05	34.47	9.94	32.91	161	88	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	134	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	54.97	-13.33	68.3	43.5	34.81	9.92	33.26	119	136	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	52.17	-16.13	68.3	40.7	34.81	9.92	33.26	163	287	Peak

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

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5147.2	43.55	-10.45	54	32.89	34.22	9.41	32.97	101	108	Average
5147.2	56.58	-17.42	74	45.92	34.22	9.41	32.97	101	108	Peak
5180	92.94	-	-	82.21	34.25	9.45	32.97	101	108	Average
5180	104.26	-	-	93.53	34.25	9.45	32.97	101	108	Peak
5354	42.37	-11.63	54	31.18	34.38	9.74	32.93	101	108	Average
5354	53.01	-20.99	74	41.82	34.38	9.74	32.93	101	108	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5143.7	42.67	-11.33	54	32.01	34.22	9.41	32.97	197	351	Average
5143.7	55.65	-18.35	74	44.99	34.22	9.41	32.97	197	351	Peak
5180	91.77	-	-	81.04	34.25	9.45	32.97	197	351	Average
5180	103.09	-	-	92.36	34.25	9.45	32.97	197	351	Peak
5406	45.33	-8.67	54	33.97	34.42	9.86	32.92	197	351	Average
5406	58.52	-15.48	74	47.16	34.42	9.86	32.92	197	351	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5138	40.73	-13.27	54	30.13	34.21	9.37	32.98	135	126	Average
5138	54.59	-19.41	74	43.99	34.21	9.37	32.98	135	126	Peak
5220	93.13	-	-	82.29	34.27	9.53	32.96	135	126	Average
5220	103.98	-	-	93.14	34.27	9.53	32.96	135	126	Peak
5352	43.43	-10.57	54	32.24	34.38	9.74	32.93	135	126	Average
5352	56.42	-17.58	74	45.23	34.38	9.74	32.93	135	126	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5144	40.9	-13.1	54	30.24	34.22	9.41	32.97	195	353	Average
5144	55.14	-18.86	74	44.48	34.22	9.41	32.97	195	353	Peak
5220	91.56	-	-	80.72	34.27	9.53	32.96	195	353	Average
5220	102.09	-	-	91.25	34.27	9.53	32.96	195	353	Peak
5384	42.8	-11.2	54	31.49	34.41	9.82	32.92	195	353	Average
5384	55.86	-18.14	74	44.55	34.41	9.82	32.92	195	353	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5118	40.98	-13.02	54	30.4	34.19	9.37	32.98	124	129	Average
5118	54.78	-19.22	74	44.2	34.19	9.37	32.98	124	129	Peak
5240	92.56	-	-	81.65	34.29	9.57	32.95	124	129	Average
5240	103.5	-	-	92.59	34.29	9.57	32.95	124	129	Peak
5357.25	42.44	-11.56	54	31.21	34.38	9.78	32.93	124	129	Average
5357.25	56.07	-17.93	74	44.84	34.38	9.78	32.93	124	129	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5134	40.49	-13.51	54	29.89	34.21	9.37	32.98	174	359	Average
5134	54.26	-19.74	74	43.66	34.21	9.37	32.98	174	359	Peak
5240	92.08	-	-	81.17	34.29	9.57	32.95	174	359	Average
5240	103.17	-	-	92.26	34.29	9.57	32.95	174	359	Peak
5355.5	42.47	-11.53	54	31.28	34.38	9.74	32.93	174	359	Average
5355.5	56.02	-17.98	74	44.83	34.38	9.74	32.93	174	359	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148.65	40.86	-13.14	54	30.2	34.22	9.41	32.97	122	126	Average
5148.65	54.54	-19.46	74	43.88	34.22	9.41	32.97	122	126	Peak
5260	93.18	-	-	82.2	34.31	9.62	32.95	122	126	Average
5260	104.64	-	-	93.66	34.31	9.62	32.95	122	126	Peak
5366	43.42	-10.58	54	32.18	34.39	9.78	32.93	122	126	Average
5366	57.05	-16.95	74	45.81	34.39	9.78	32.93	122	126	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5147.5	40.17	-13.83	54	29.51	34.22	9.41	32.97	176	352	Average
5147.5	53.77	-20.23	74	43.11	34.22	9.41	32.97	176	352	Peak
5260	92.54	-	-	81.56	34.31	9.62	32.95	176	352	Average
5260	103.87	-	-	92.89	34.31	9.62	32.95	176	352	Peak
5356	42.79	-11.21	54	31.56	34.38	9.78	32.93	176	352	Average
5356	56.92	-17.08	74	45.69	34.38	9.78	32.93	176	352	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5106	40.4	-13.6	54	29.86	34.19	9.33	32.98	147	124	Average
5106	53.85	-20.15	74	43.31	34.19	9.33	32.98	147	124	Peak
5300	93.66	-	-	82.6	34.34	9.66	32.94	147	124	Average
5300	104.62	-	-	93.56	34.34	9.66	32.94	147	124	Peak
5368	43.44	-10.56	54	32.2	34.39	9.78	32.93	147	124	Average
5368	56.29	-17.71	74	45.05	34.39	9.78	32.93	147	124	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5064	40.4	-13.6	54	29.99	34.15	9.25	32.99	190	352	Average
5064	55.01	-18.99	74	44.6	34.15	9.25	32.99	190	352	Peak
5300	91.91	-	-	80.85	34.34	9.66	32.94	190	352	Average
5300	103.82	-	-	92.76	34.34	9.66	32.94	190	352	Peak
5362	43.37	-10.63	54	32.13	34.39	9.78	32.93	190	352	Average
5362	56.42	-17.58	74	45.18	34.39	9.78	32.93	190	352	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5124	41	-13	54	30.4	34.21	9.37	32.98	133	125	Average
5124	54.52	-19.48	74	43.92	34.21	9.37	32.98	133	125	Peak
5320	93.76	-	-	82.65	34.35	9.7	32.94	133	125	Average
5320	105.26	-	-	94.15	34.35	9.7	32.94	133	125	Peak
5387.65	44.77	-9.23	54	33.46	34.41	9.82	32.92	133	125	Average
5387.65	59.01	-14.99	74	47.7	34.41	9.82	32.92	133	125	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5120	41.06	-12.94	54	30.48	34.19	9.37	32.98	200	348	Average
5120	54.86	-19.14	74	44.28	34.19	9.37	32.98	200	348	Peak
5320	92.13	-	-	81.02	34.35	9.7	32.94	200	348	Average
5320	103.53	-	-	92.42	34.35	9.7	32.94	200	348	Peak
5361.1	44.19	-9.81	54	32.95	34.39	9.78	32.93	200	348	Average
5361.1	57.68	-16.32	74	46.44	34.39	9.78	32.93	200	348	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	56.13	-12.17	68.3	44.63	34.47	9.94	32.91	131	69	Peak
5500	93.04	-	-	81.42	34.5	10.02	32.9	131	69	Average
5500	104.48	-	-	92.86	34.5	10.02	32.9	131	69	Peak
5725	53.35	-14.95	68.3	41.88	34.81	9.92	33.26	131	69	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	57.29	-11.01	68.3	45.79	34.47	9.94	32.91	194	360	Peak
5500	92.75	-	-	81.18	34.49	9.98	32.9	194	360	Average
5500	104.4	-	-	92.83	34.49	9.98	32.9	194	360	Peak
5725	53.05	-15.25	68.3	41.58	34.81	9.92	33.26	194	360	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	54.02	-14.28	68.3	42.52	34.47	9.94	32.91	129	67	Peak
5580	92.75	-	-	81.18	34.6	9.99	33.02	129	67	Average
5580	104.3	-	-	92.73	34.6	9.99	33.02	129	67	Peak
5725	52.6	-15.7	68.3	41.13	34.81	9.92	33.26	129	67	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	54.26	-14.04	68.3	42.76	34.47	9.94	32.91	174	360	Peak
5580	91.34	-	-	79.77	34.6	9.99	33.02	174	360	Average
5580	102.78	-	-	91.21	34.6	9.99	33.02	174	360	Peak
5725	53.07	-15.23	68.3	41.6	34.81	9.92	33.26	174	360	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	52.91	-15.39	68.3	41.41	34.47	9.94	32.91	103	66	Peak
5700	91.17	-	-	79.67	34.79	9.93	33.22	103	66	Average
5700	102.39	-	-	90.89	34.79	9.93	33.22	103	66	Peak
5725	56.22	-12.08	68.3	44.75	34.81	9.92	33.26	103	66	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	52.85	-15.45	68.3	41.35	34.47	9.94	32.91	187	0	Peak
5700	90.88	-	-	79.4	34.77	9.93	33.22	187	0	Average
5700	101.98	-	-	90.5	34.77	9.93	33.22	187	0	Peak
5725	54.04	-14.26	68.3	42.57	34.81	9.92	33.26	187	0	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148.45	44.74	-9.26	54	34.08	34.22	9.41	32.97	100	198	Average
5148.45	56.6	-17.4	74	45.94	34.22	9.41	32.97	100	198	Peak
5180	94.77	-	-	84.04	34.25	9.45	32.97	100	198	Average
5180	104.91	-	-	94.18	34.25	9.45	32.97	100	198	Peak
5388	45.12	-8.88	54	33.81	34.41	9.82	32.92	100	198	Average
5388	56.28	-17.72	74	44.97	34.41	9.82	32.92	100	198	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5149.85	42.49	-11.51	54	31.83	34.22	9.41	32.97	176	220	Average
5149.85	54.74	-19.26	74	44.08	34.22	9.41	32.97	176	220	Peak
5180	89.86	-	-	79.13	34.25	9.45	32.97	176	220	Average
5180	100.49	-	-	89.76	34.25	9.45	32.97	176	220	Peak
5458	42.86	-11.14	54	31.37	34.46	9.94	32.91	176	220	Average
5458	54.98	-19.02	74	43.49	34.46	9.94	32.91	176	220	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5082	42.01	-11.99	54	31.54	34.17	9.29	32.99	100	216	Average
5082	55.04	-18.96	74	44.57	34.17	9.29	32.99	100	216	Peak
5220	94.26	-	-	83.42	34.27	9.53	32.96	100	216	Average
5220	104.12	-	-	93.28	34.27	9.53	32.96	100	216	Peak
5406	44.47	-9.53	54	33.11	34.42	9.86	32.92	100	216	Average
5406	55.98	-18.02	74	44.62	34.42	9.86	32.92	100	216	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5140	41.29	-12.71	54	30.68	34.22	9.37	32.98	192	222	Average
5140	53.83	-20.17	74	43.22	34.22	9.37	32.98	192	222	Peak
5220	90.1	-	-	79.26	34.27	9.53	32.96	192	222	Average
5220	100.22	-	-	89.38	34.27	9.53	32.96	192	222	Peak
5374	42.19	-11.81	54	30.95	34.39	9.78	32.93	192	222	Average
5374	54.83	-19.17	74	43.59	34.39	9.78	32.93	192	222	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	42.31	-11.69	54	31.65	34.22	9.41	32.97	100	215	Average
5150	55.43	-18.57	74	44.77	34.22	9.41	32.97	100	215	Peak
5240	94.38	-	-	83.47	34.29	9.57	32.95	100	215	Average
5240	104.22	-	-	93.31	34.29	9.57	32.95	100	215	Peak
5384	44.57	-9.43	54	33.26	34.41	9.82	32.92	100	215	Average
5384	55.67	-18.33	74	44.36	34.41	9.82	32.92	100	215	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5134	41.68	-12.32	54	31.08	34.21	9.37	32.98	177	80	Average
5134	54.64	-19.36	74	44.04	34.21	9.37	32.98	177	80	Peak
5240	92.4	-	-	81.49	34.29	9.57	32.95	177	80	Average
5240	102.72	-	-	91.81	34.29	9.57	32.95	177	80	Peak
5372	43.41	-10.59	54	32.17	34.39	9.78	32.93	177	80	Average
5372	55.44	-18.56	74	44.2	34.39	9.78	32.93	177	80	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5144	42.13	-11.87	54	31.47	34.22	9.41	32.97	148	217	Average
5144	53.98	-20.02	74	43.32	34.22	9.41	32.97	148	217	Peak
5260	93.76	-	-	82.78	34.31	9.62	32.95	148	217	Average
5260	103.83	-	-	92.85	34.31	9.62	32.95	148	217	Peak
5356	43.76	-10.24	54	32.53	34.38	9.78	32.93	148	217	Average
5356	55.33	-18.67	74	44.1	34.38	9.78	32.93	148	217	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148	41.84	-12.16	54	31.18	34.22	9.41	32.97	188	79	Average
5148	54.11	-19.89	74	43.45	34.22	9.41	32.97	188	79	Peak
5260	93.54	-	-	82.56	34.31	9.62	32.95	188	79	Average
5260	103.58	-	-	92.6	34.31	9.62	32.95	188	79	Peak
5368	44.16	-9.84	54	32.92	34.39	9.78	32.93	188	79	Average
5368	56.59	-17.41	74	45.35	34.39	9.78	32.93	188	79	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5144	42.15	-11.85	54	31.49	34.22	9.41	32.97	100	218	Average
5144	54.81	-19.19	74	44.15	34.22	9.41	32.97	100	218	Peak
5300	94.6	-	-	83.54	34.34	9.66	32.94	100	218	Average
5300	104.69	-	-	93.63	34.34	9.66	32.94	100	218	Peak
5394	44.16	-9.84	54	32.85	34.41	9.82	32.92	100	218	Average
5394	55.51	-18.49	74	44.2	34.41	9.82	32.92	100	218	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5120	41.53	-12.47	54	30.95	34.19	9.37	32.98	200	97	Average
5120	54.23	-19.77	74	43.65	34.19	9.37	32.98	200	97	Peak
5300	94.53	-	-	83.47	34.34	9.66	32.94	200	97	Average
5300	104.04	-	-	92.98	34.34	9.66	32.94	200	97	Peak
5364	44.51	-9.49	54	33.27	34.39	9.78	32.93	200	97	Average
5364	56.46	-17.54	74	45.22	34.39	9.78	32.93	200	97	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5092	41.53	-12.47	54	31.05	34.18	9.29	32.99	121	214	Average
5092	54.46	-19.54	74	43.98	34.18	9.29	32.99	121	214	Peak
5320	94.87	-	-	83.76	34.35	9.7	32.94	121	214	Average
5320	105.17	-	-	94.06	34.35	9.7	32.94	121	214	Peak
5350.55	45.62	-8.38	54	34.43	34.38	9.74	32.93	121	214	Average
5350.55	58.58	-15.42	74	47.39	34.38	9.74	32.93	121	214	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5130	41.78	-12.22	54	31.18	34.21	9.37	32.98	184	86	Average
5130	54.08	-19.92	74	43.48	34.21	9.37	32.98	184	86	Peak
5320	95.13	-	-	84.02	34.35	9.7	32.94	184	86	Average
5320	104.48	-	-	93.37	34.35	9.7	32.94	184	86	Peak
5389.05	45.26	-8.74	54	33.95	34.41	9.82	32.92	184	86	Average
5389.05	57.8	-16.2	74	46.49	34.41	9.82	32.92	184	86	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	55	-13.3	68.3	43.5	34.47	9.94	32.91	193	88	Peak
5500	95.27	-	-	83.65	34.5	10.02	32.9	193	88	Average
5500	105.53	-	-	93.91	34.5	10.02	32.9	193	88	Peak
5725	53.35	-14.95	68.3	41.88	34.81	9.92	33.26	193	88	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	56.15	-12.15	68.3	44.65	34.47	9.94	32.91	135	120	Peak
5500	93.67	-	-	82.05	34.5	10.02	32.9	135	120	Average
5500	103.76	-	-	92.14	34.5	10.02	32.9	135	120	Peak
5725	52.54	-15.76	68.3	41.07	34.81	9.92	33.26	135	120	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	55.7	-12.6	68.3	44.2	34.47	9.94	32.91	106	156	Peak
5580	94.01	-	-	82.44	34.6	9.99	33.02	106	156	Average
5580	104.25	-	-	92.68	34.6	9.99	33.02	106	156	Peak
5725	52.91	-15.39	68.3	41.44	34.81	9.92	33.26	106	156	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	54.6	-13.7	68.3	43.1	34.47	9.94	32.91	160	87	Peak
5580	93.94	-	-	82.37	34.6	9.99	33.02	160	87	Average
5580	103.29	-	-	91.72	34.6	9.99	33.02	160	87	Peak
5725	53.66	-14.64	68.3	42.19	34.81	9.92	33.26	160	87	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.02	-15.28	68.3	41.52	34.47	9.94	32.91	103	158	Peak
5700	92.03	-	-	80.55	34.77	9.93	33.22	103	158	Average
5700	102.08	-	-	90.6	34.77	9.93	33.22	103	158	Peak
5725	54.44	-13.86	68.3	42.97	34.81	9.92	33.26	103	158	Peak

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

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	52.4	-15.9	68.3	40.9	34.47	9.94	32.91	172	82	Peak
5700	91.4	-	-	79.92	34.77	9.93	33.22	172	82	Average
5700	100.76	-	-	89.28	34.77	9.93	33.22	172	82	Peak
5725	54.74	-13.56	68.3	43.27	34.81	9.92	33.26	172	82	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	38	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5190 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5127.25	43.52	-10.48	54	32.92	34.21	9.37	32.98	114	198	Average
5127.25	56.36	-17.64	74	45.76	34.21	9.37	32.98	114	198	Peak
5190	91.52	-	-	80.74	34.25	9.49	32.96	114	198	Average
5190	102	-	-	91.22	34.25	9.49	32.96	114	198	Peak
5352	43.88	-10.12	54	32.69	34.38	9.74	32.93	114	198	Average
5352	56.41	-17.59	74	45.22	34.38	9.74	32.93	114	198	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	38	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5190 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5119.95	41.41	-12.59	54	30.83	34.19	9.37	32.98	178	221	Average
5119.95	53.78	-20.22	74	43.2	34.19	9.37	32.98	178	221	Peak
5190	87.88	-	-	77.1	34.25	9.49	32.96	178	221	Average
5190	98.06	-	-	87.28	34.25	9.49	32.96	178	221	Peak
5350	42.09	-11.91	54	30.9	34.38	9.74	32.93	178	221	Average
5350	53.37	-20.63	74	42.18	34.38	9.74	32.93	178	221	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	46	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5230 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5148	41.87	-12.13	54	31.21	34.22	9.41	32.97	125	198	Average
5148	55.23	-18.77	74	44.57	34.22	9.41	32.97	125	198	Peak
5230	90.59	-	-	79.73	34.29	9.53	32.96	125	198	Average
5230	101.08	-	-	90.22	34.29	9.53	32.96	125	198	Peak
5350	43.19	-10.81	54	32	34.38	9.74	32.93	125	198	Average
5350	55.8	-18.2	74	44.61	34.38	9.74	32.93	125	198	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	46	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5230 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5024	40.56	-13.44	54	30.22	34.13	9.21	33	192	222	Average
5024	53.15	-20.85	74	42.81	34.13	9.21	33	192	222	Peak
5230	86.35	-	-	75.49	34.29	9.53	32.96	192	222	Average
5230	96.7	-	-	85.84	34.29	9.53	32.96	192	222	Peak
5458	42.18	-11.82	54	30.69	34.46	9.94	32.91	192	222	Average
5458	53.84	-20.16	74	42.35	34.46	9.94	32.91	192	222	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	54	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5270 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5146	41.71	-12.29	54	31.05	34.22	9.41	32.97	125	215	Average
5146	53.03	-20.97	74	42.37	34.22	9.41	32.97	125	215	Peak
5270	90.13	-	-	79.15	34.31	9.62	32.95	125	215	Average
5270	100.04	-	-	89.06	34.31	9.62	32.95	125	215	Peak
5362	44.09	-9.91	54	32.85	34.39	9.78	32.93	125	215	Average
5362	55.43	-18.57	74	44.19	34.39	9.78	32.93	125	215	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	54	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5270 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	40.95	-13.05	54	30.29	34.22	9.41	32.97	178	286	Average
5150	52.36	-21.64	74	41.7	34.22	9.41	32.97	178	286	Peak
5270	85.86	-	-	74.88	34.31	9.62	32.95	178	286	Average
5270	95.68	-	-	84.7	34.31	9.62	32.95	178	286	Peak
5414	42.22	-11.78	54	30.85	34.43	9.86	32.92	178	286	Average
5414	53.62	-20.38	74	42.25	34.43	9.86	32.92	178	286	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	62	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	5310 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.98	-17.02	40	34.32	20	0.53	31.87	-	-	Peak
207.12	27.92	-15.58	43.5	48.32	9.64	1.35	31.39	100	29	Peak
227.1	25.99	-20.01	46	44.76	10.98	1.46	31.21	-	-	Peak
321	25.85	-20.15	46	41.29	13.88	1.81	31.13	-	-	Peak
547.1	20.7	-25.3	46	30.51	18.89	2.54	31.24	-	-	Peak
783	23.87	-22.13	46	29.21	21.84	3.11	30.29	-	-	Peak
5130	48.73	-5.27	54	38.13	34.21	9.37	32.98	112	215	Average
5130	53.68	-20.32	74	43.08	34.21	9.37	32.98	112	215	Peak
5310	90.93	-	-	79.82	34.35	9.7	32.94	112	215	Average
5310	101.18	-	-	90.07	34.35	9.7	32.94	112	215	Peak
5350.33	49.09	-4.91	54	37.9	34.38	9.74	32.93	112	215	Average
5350.33	65.43	-8.57	74	54.24	34.38	9.74	32.93	112	215	Peak



Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	62	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	5310 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	30.17	-9.83	40	41.51	20	0.53	31.87	100	55	Peak
81.3	27.44	-12.56	40	50.48	7.79	0.89	31.72	-	-	Peak
170.94	24.92	-18.58	43.5	45.49	9.47	1.23	31.27	-	-	Peak
322.4	18.13	-27.87	46	33.56	13.9	1.82	31.15	-	-	Peak
616.4	22.67	-23.33	46	30.48	19.93	2.74	30.48	-	-	Peak
771.1	23.54	-22.46	46	29.16	21.66	3.09	30.37	-	-	Peak
5134	40.97	-13.03	54	30.37	34.21	9.37	32.98	161	292	Average
5134	54	-20	74	43.4	34.21	9.37	32.98	161	292	Peak
5310	86.55	-	-	75.44	34.35	9.7	32.94	161	292	Average
5310	96.66	-	-	85.55	34.35	9.7	32.94	161	292	Peak
5350.44	45.53	-8.47	54	34.34	34.38	9.74	32.93	161	292	Average
5350.44	60.85	-13.15	74	49.66	34.38	9.74	32.93	161	292	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	102	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5510 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	55.23	-13.07	68.3	43.73	34.47	9.94	32.91	109	159	Peak
5510	91.82	-	-	80.2	34.5	10.02	32.9	109	159	Average
5510	102.14	-	-	90.52	34.5	10.02	32.9	109	159	Peak
5725	52.26	-16.04	68.3	40.79	34.81	9.92	33.26	109	159	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	102	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5510 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.55	-14.75	68.3	42.05	34.47	9.94	32.91	161	88	Peak
5510	90.43	-	-	78.81	34.5	10.02	32.9	161	88	Average
5510	100.41	-	-	88.79	34.5	10.02	32.9	161	88	Peak
5725	51.54	-16.76	68.3	40.07	34.81	9.92	33.26	161	88	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	110	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5550 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.8	-14.5	68.3	42.3	34.47	9.94	32.91	125	245	Peak
5550	91.56	-	-	79.97	34.57	10	32.98	125	245	Average
5550	103.02	-	-	91.43	34.57	10	32.98	125	245	Peak
5725	53.97	-14.33	68.3	42.5	34.81	9.92	33.26	125	245	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	110	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5550 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.03	-15.27	68.3	41.53	34.47	9.94	32.91	161	153	Peak
5550	87.34	-	-	75.75	34.57	10	32.98	161	153	Average
5550	99.13	-	-	87.54	34.57	10	32.98	161	153	Peak
5725	52.22	-16.08	68.3	40.75	34.81	9.92	33.26	161	153	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	134	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5670 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	53.66	-14.64	68.3	42.16	34.47	9.94	32.91	119	136	Peak
5670	88.02	-	-	76.52	34.74	9.94	33.18	119	136	Average
5670	98.26	-	-	86.76	34.74	9.94	33.18	119	136	Peak
5725	54.97	-13.33	68.3	43.5	34.81	9.92	33.26	119	136	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Channel :	134	Relative Humidity :	42~43%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5670 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	51.94	-16.36	68.3	40.44	34.47	9.94	32.91	163	287	Peak
5670	85.28	-	-	73.78	34.74	9.94	33.18	163	287	Average
5670	95.32	-	-	83.82	34.74	9.94	33.18	163	287	Peak
5725	52.17	-16.13	68.3	40.7	34.81	9.92	33.26	163	287	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

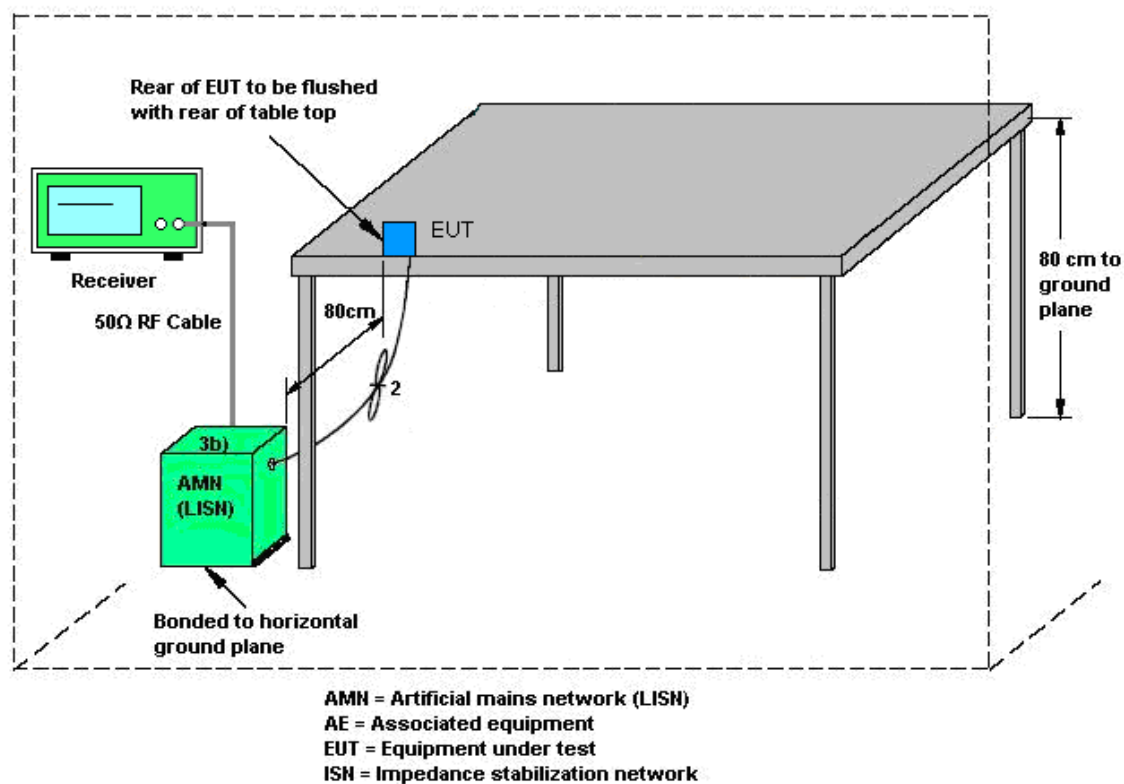
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

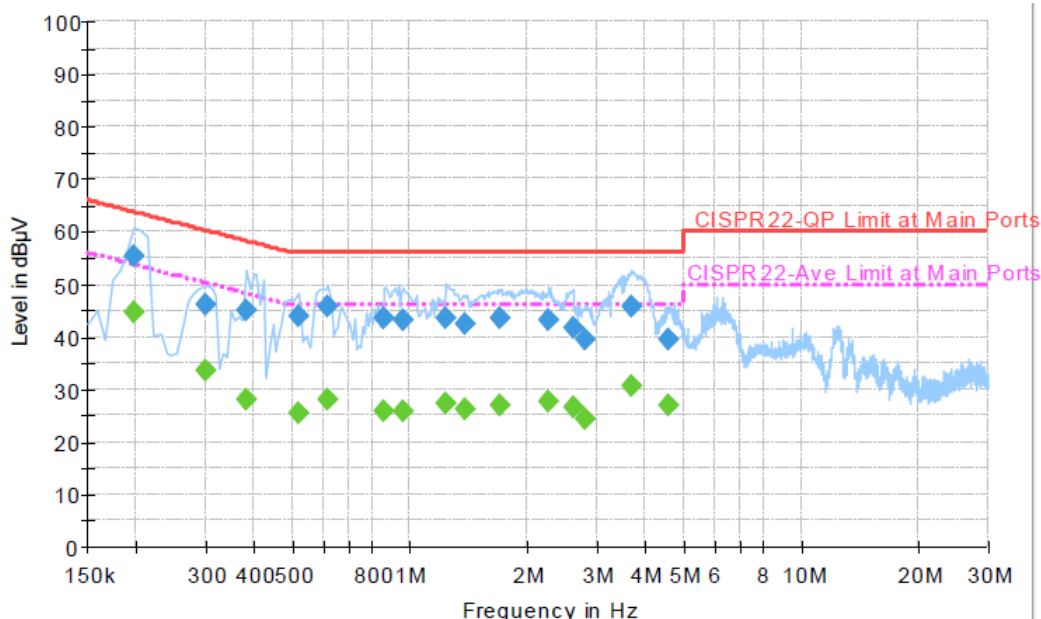
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a 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

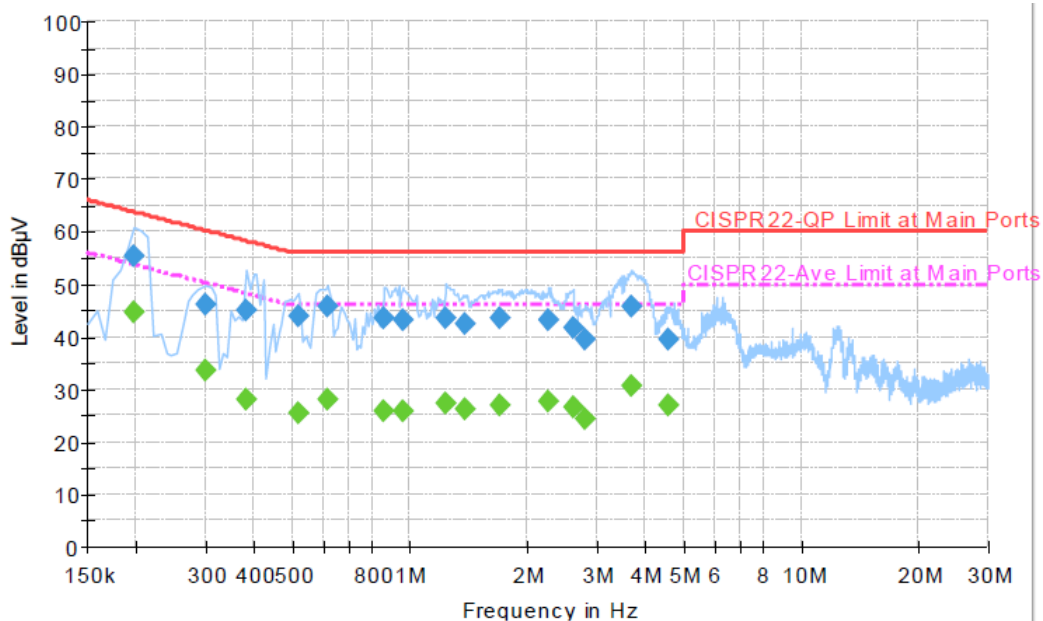
Test Mode :	Mode 3	Temperature :	21~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

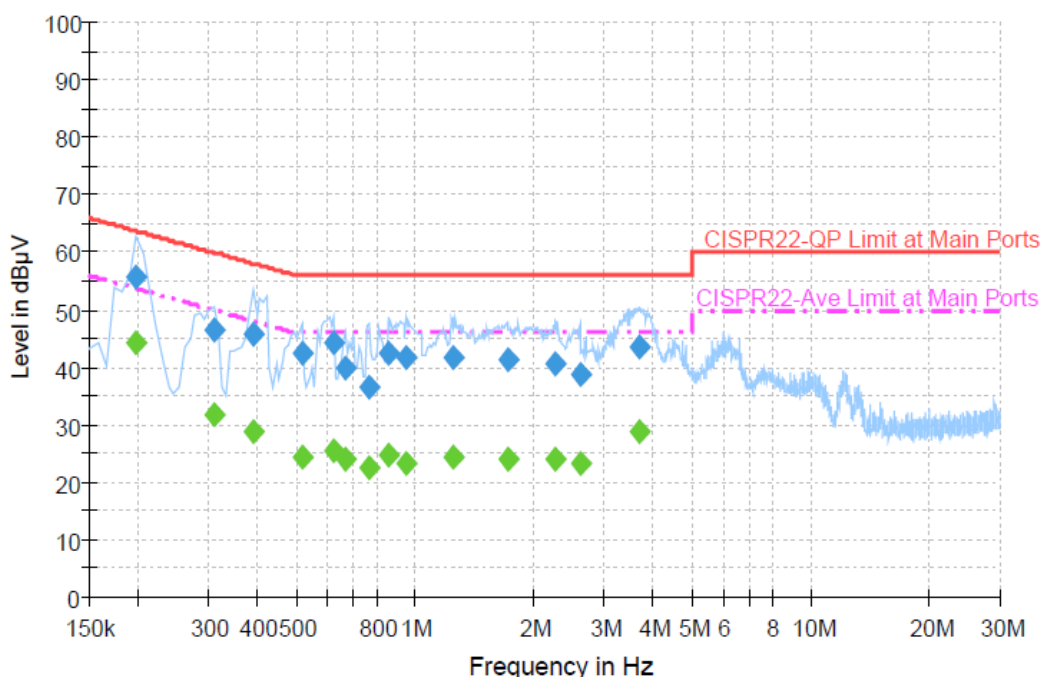
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	55.2	Off	L1	19.3	8.5	63.7
0.302000	46.2	Off	L1	19.3	14.0	60.2
0.382000	44.8	Off	L1	19.4	13.4	58.2
0.518000	44.0	Off	L1	19.4	12.0	56.0
0.614000	45.9	Off	L1	19.4	10.1	56.0
0.862000	43.7	Off	L1	19.5	12.3	56.0
0.958000	43.0	Off	L1	19.4	13.0	56.0
1.238000	43.5	Off	L1	19.5	12.5	56.0
1.382000	42.3	Off	L1	19.5	13.7	56.0
1.694000	43.6	Off	L1	19.5	12.4	56.0
2.270000	43.2	Off	L1	19.6	12.8	56.0
2.606000	41.8	Off	L1	19.6	14.2	56.0
2.806000	39.4	Off	L1	19.6	16.6	56.0
3.670000	45.8	Off	L1	19.6	10.2	56.0
4.582000	39.5	Off	L1	19.7	16.5	56.0

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

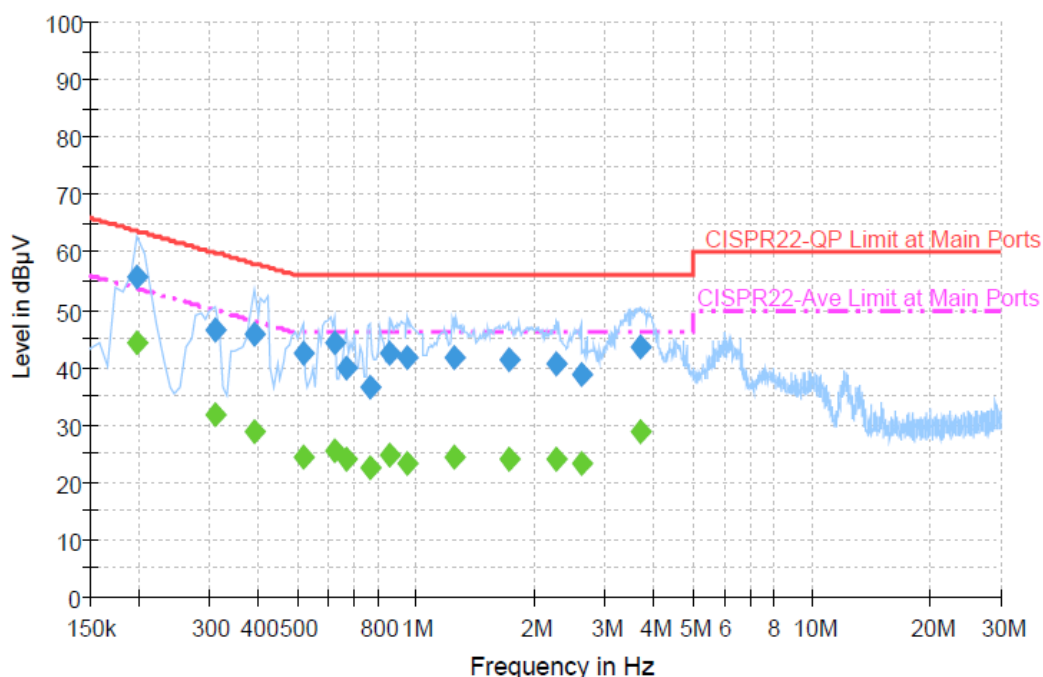
Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	44.7	Off	L1	19.3	9.0	53.7
0.302000	33.5	Off	L1	19.3	16.7	50.2
0.382000	28.2	Off	L1	19.4	20.0	48.2
0.518000	25.5	Off	L1	19.4	20.5	46.0
0.614000	28.0	Off	L1	19.4	18.0	46.0
0.862000	26.0	Off	L1	19.5	20.0	46.0
0.958000	25.9	Off	L1	19.4	20.1	46.0
1.238000	27.4	Off	L1	19.5	18.6	46.0
1.382000	26.3	Off	L1	19.5	19.7	46.0
1.694000	27.1	Off	L1	19.5	18.9	46.0
2.270000	27.7	Off	L1	19.6	18.3	46.0
2.606000	26.5	Off	L1	19.6	19.5	46.0
2.806000	24.2	Off	L1	19.6	21.8	46.0
3.670000	30.7	Off	L1	19.6	15.3	46.0
4.582000	26.9	Off	L1	19.7	19.1	46.0

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + MPEG4		
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)
0.198000	55.8	Off	N	19.3	7.9	63.7
0.310000	46.5	Off	N	19.4	13.5	60.0
0.390000	45.7	Off	N	19.4	12.4	58.1
0.518000	42.4	Off	N	19.4	13.6	56.0
0.622000	44.5	Off	N	19.4	11.5	56.0
0.670000	39.8	Off	N	19.5	16.2	56.0
0.766000	36.7	Off	N	19.5	19.3	56.0
0.854000	42.6	Off	N	19.6	13.4	56.0
0.950000	41.5	Off	N	19.4	14.5	56.0
1.254000	41.6	Off	N	19.5	14.4	56.0
1.718000	41.5	Off	N	19.5	14.5	56.0
2.262000	40.7	Off	N	19.6	15.3	56.0
2.606000	38.8	Off	N	19.6	17.2	56.0
3.686000	43.5	Off	N	19.6	12.5	56.0

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + USB Cable (Charging from Adapter) + MPEG4		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		


Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	44.2	Off	N	19.3	9.5	53.7
0.310000	31.9	Off	N	19.4	18.1	50.0
0.390000	28.8	Off	N	19.4	19.3	48.1
0.518000	24.2	Off	N	19.4	21.8	46.0
0.622000	25.5	Off	N	19.4	20.5	46.0
0.670000	23.9	Off	N	19.5	22.1	46.0
0.766000	22.5	Off	N	19.5	23.5	46.0
0.854000	24.6	Off	N	19.6	21.4	46.0
0.950000	23.4	Off	N	19.4	22.6	46.0
1.254000	24.4	Off	N	19.5	21.6	46.0
1.718000	23.9	Off	N	19.5	22.1	46.0
2.262000	24.2	Off	N	19.6	21.8	46.0
2.606000	23.1	Off	N	19.6	22.9	46.0
3.686000	28.8	Off	N	19.6	17.2	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.

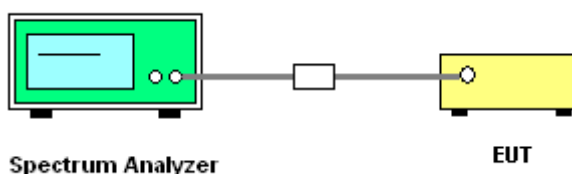
3.7.2 Measuring Instruments

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℃
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.75	5188.25	0.00
44	5220	5211.75	5228.25	0.00
48	5240	5231.75	5248.25	0.00
52	5260	5251.70	5268.25	-4.75
60	5300	5291.75	5308.25	0.00
64	5320	5311.75	5328.25	0.00
100	5500	5491.70	5508.20	-9.09
116	5580	5571.70	5588.25	-4.48
140	5700	5691.70	5708.25	-4.39

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.15	5188.85	0.00
44	5220	5211.15	5228.85	0.00
48	5240	5231.15	5248.85	0.00
52	5260	5251.15	5268.85	0.00
60	5300	5291.15	5308.85	0.00
64	5320	5311.15	5328.85	0.00
100	5500	5491.10	5508.80	-9.09
116	5580	5571.15	5588.75	-8.96
140	5700	5691.05	5708.85	-8.77



Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
38	5190	5171.91	5208.27	17.34
46	5230	5211.73	5248.27	0.00
54	5270	5251.73	5288.27	0.00
62	5310	5291.73	5328.27	0.00
102	5510	5491.73	5528.27	0.00
110	5550	5531.73	5568.09	-16.22
134	5670	5651.73	5688.18	-7.94

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	Jun. 15, 2012 ~ Jul. 11, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Jun. 15, 2012 ~ Jul. 11, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Jun. 15, 2012 ~ Jul. 11, 2012	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Jun. 18, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Jun. 18, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Jun. 18, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jun. 18, 2012	N/A	Conduction (CO05-HY)
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	Jun. 18, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jun. 20, 2012~ Jul. 11, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jun. 20, 2012~ Jul. 11, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jun. 20, 2012~ Jul. 11, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Jun. 20, 2012~ Jul. 11, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Jun. 20, 2012~ Jul. 11, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 21, 2011	Jun. 20, 2012~ Jul. 11, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Jun. 20, 2012~ Jul. 11, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Jun. 20, 2012~ Jul. 11, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jun. 20, 2012~ Jul. 11, 2012	Jul. 28, 2012	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

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

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

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

Please refer to Sporton report number EP261317 as below.