

FCC RF Test Report

APPLICANT : Intel Corporation
EQUIPMENT : Tablet PC
BRAND NAME : Intel
MODEL NAME : Red Ridge
MARKETING NAME : Red Ridge
FCC ID : PSZ-VS14109
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Aug. 30, 2012 and completely tested on Sep. 28, 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 : PSZ-VS14109

Page Number : 1 of 98

Report Issued Date : Dec. 04, 2012

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR283001C	Rev. 01	Initial issue of report	Dec. 04, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB 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(a)(6)	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 4.04 dB at 5350.150 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 16.50 dB at 0.190 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

Intel Corporation

2111 25th Avenue, Hillsboro, Oregon, 97124, Mailstop: JF3-302

1.2 Manufacturer

Chi Mei Communication Systems, Inc.

No. 4, Mingsheng Street, Tucheng City, New Taipei City 23678, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Tablet PC
Brand Name	Intel
Model Name	Red Ridge
Marketing Name	Red Ridge
FCC ID	PSZ-VS14109
EUT supports Radios application	WLAN 11abgn / Bluetooth / NFC
HW Version	DV2.2
SW Version	Android ICS 4.0
EUT Stage	Production Unit

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

Product Specification subjective to this standard	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 14.47 dBm / 0.0280 W 802.11n HT20 : 13.77 dBm / 0.0238 W <5260 MHz ~ 5320 MHz> 802.11a : 14.22 dBm / 0.0264 W 802.11n HT20 : 14.16 dBm / 0.0261 W <5500 MHz ~ 5700 MHz> 802.11a : 13.93 dBm / 0.0247 W 802.11n HT20 : 14.05 dBm / 0.0254 W
Antenna Type	PIFA Antenna with gain 1.32 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:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
5.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

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

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

2.1 Carrier Frequency Channel

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

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3	100	5500	116	5580
	140	5700		

2.2 Pre-Scanned RF Power

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

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)	14.47	14.45	14.11	14.10	13.15	13.15	11.79	11.91

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	14.16	13.96	14.02	13.10	13.04	11.60	11.59	10.66

2.3 Test Mode

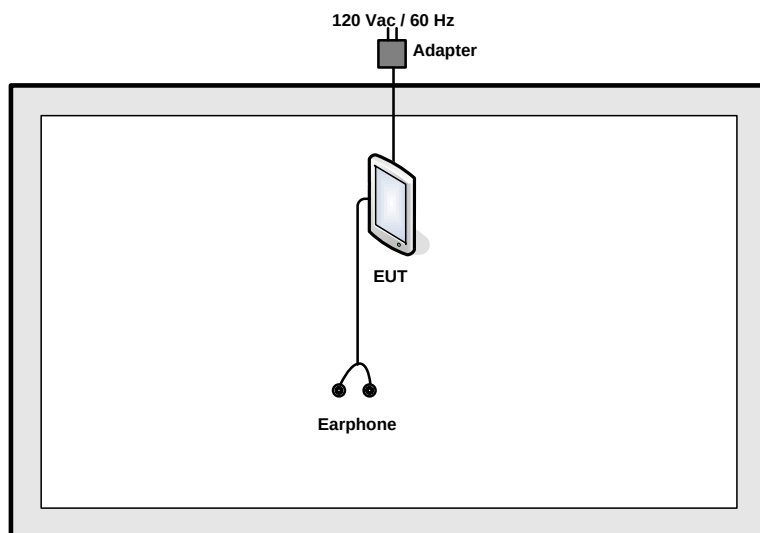
Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
Conducted TCs	Test Items	Mode	Data rate	Test Channel
	26dB and 99% BW Power Spectral Density	802.11a	6 Mbps	L/M/H
		802.11n HT20	6.5 Mbps	L/M/H
	Output Power	802.11a	6 Mbps	L/M/H
		802.11n HT20	6.5 Mbps	L/M/H
	Peak Excursion	802.11a	6 Mbps	L/M/H
		802.11n HT20	6.5 Mbps	L/M/H
	Frequency Stability	802.11a	6 Mbps	L/M/H
		802.11n HT20	6.5 Mbps	L/M/H
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	L/H
		802.11n HT20	6.5 Mbps	L/H
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H
		802.11n HT20	6.5 Mbps	L/M/H
AC Conducted Emission	Mode 1 : WLAN Idle + Bluetooth Idle + H Pattern + TC			
Remark: TC stands for Test Configuration, and consists of SD Card, HDMI Cable, USB Cable (Data Link with Notebook), Earphone, Adapter, and NFC On.				

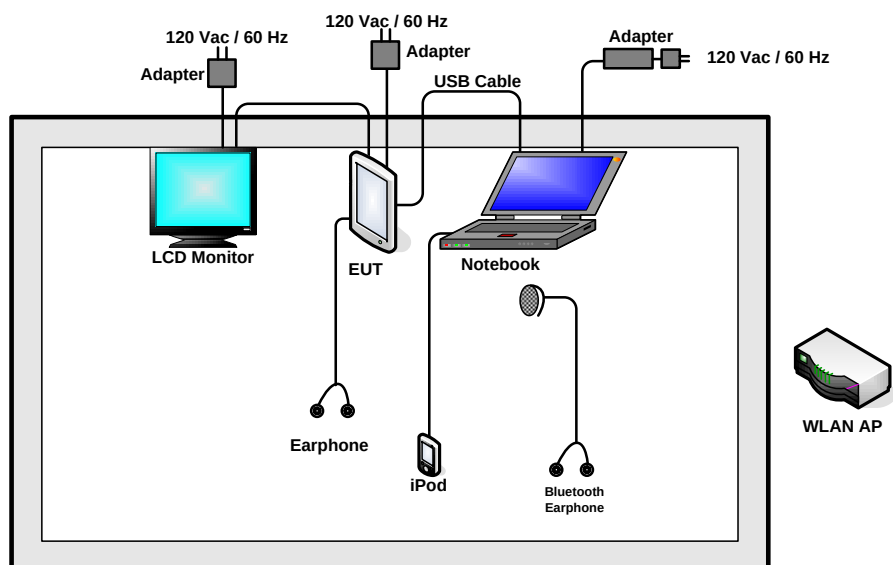
Ch. #		Band I : 5150-5250 MHz	Band II : 5250-5350 MHz	Band III : 5470-5725 MHz
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF utility "Intel-BB2wifi" 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 Bandwidth Measurement

3.1.1 Description of Bandwidth Measurement

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

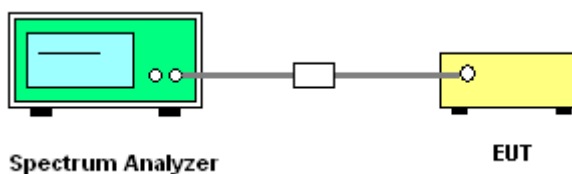
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

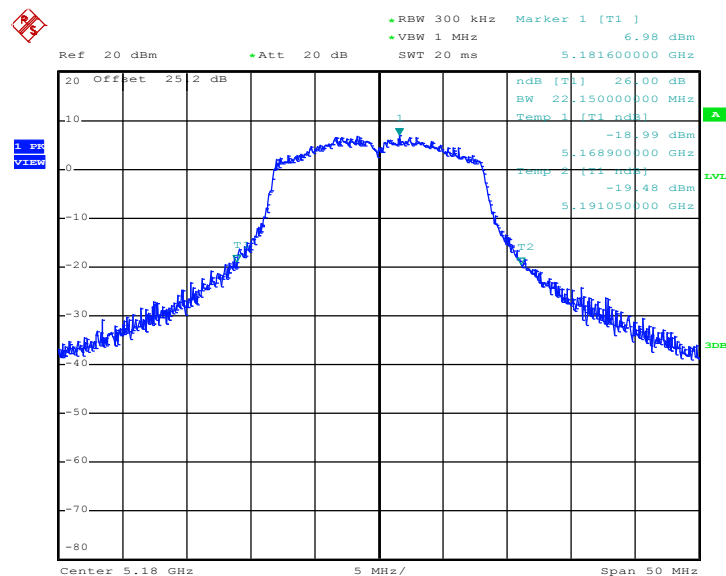


3.1.5 Test Result of 26dB Bandwidth Plots

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

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	22.150	N/A
44	5220	21.650	N/A
48	5240	22.000	N/A
52	5260	21.650	N/A
60	5300	21.500	N/A
64	5320	22.000	N/A
100	5500	21.350	N/A
116	5580	22.050	N/A
140	5700	21.300	N/A

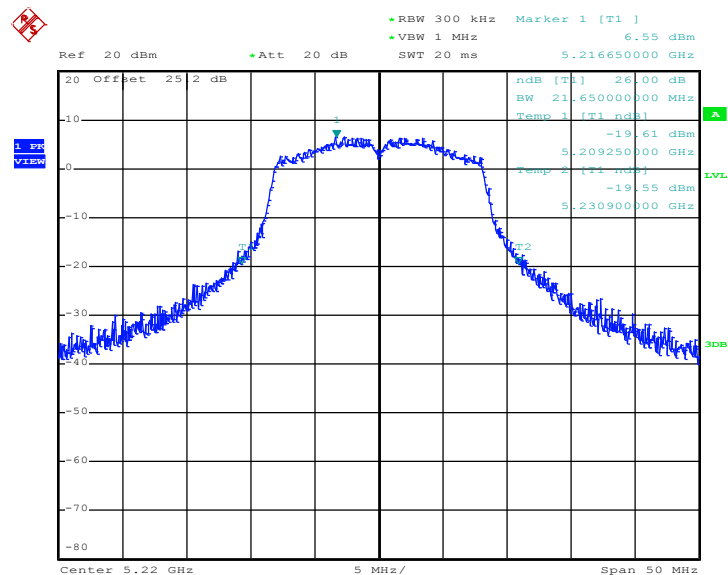
26 dB Bandwidth Plot on 802.11a Channel 36



Date: 13.SEP.2012 14:45:49

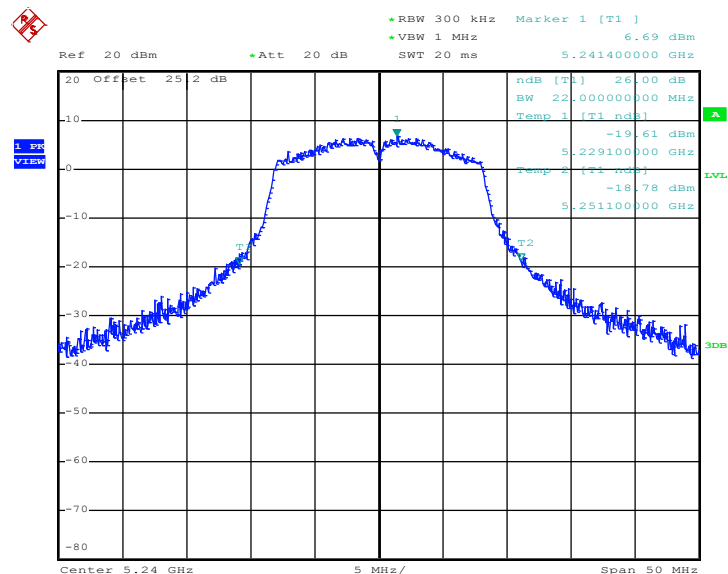


26 dB Bandwidth Plot on 802.11a Channel 44



Date: 13.SEP.2012 14:47:37

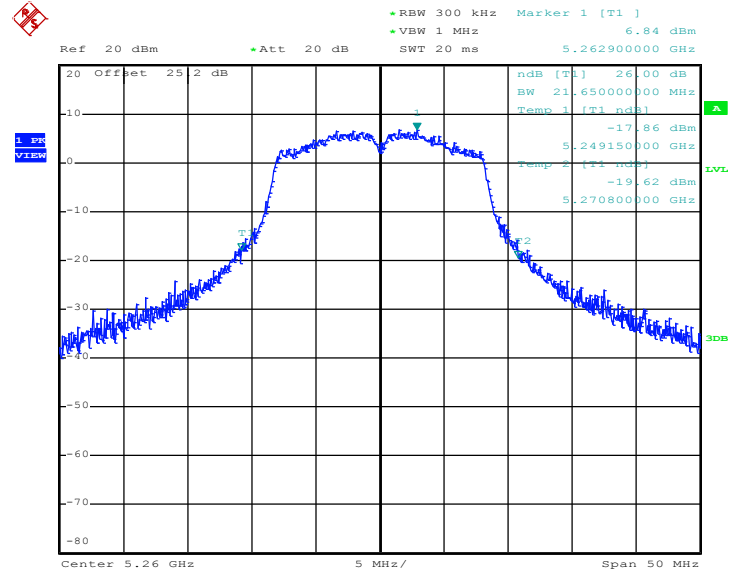
26 dB Bandwidth Plot on 802.11a Channel 48



Date: 13.SEP.2012 14:51:39

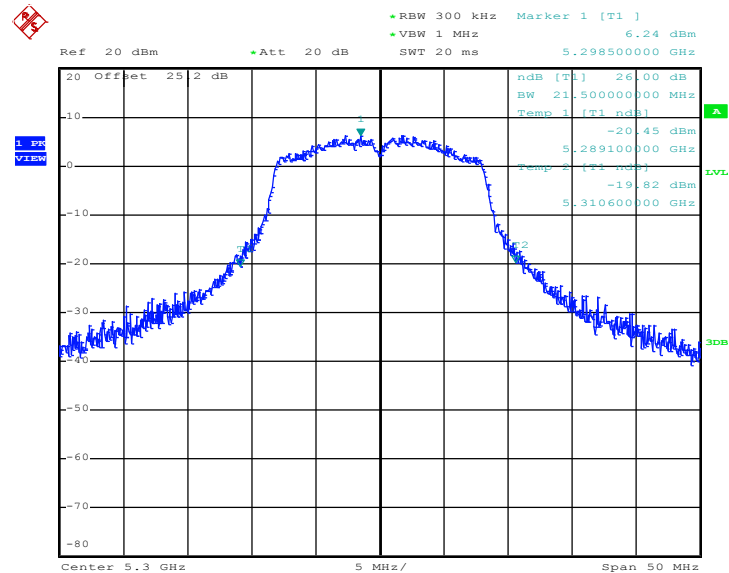


26 dB Bandwidth Plot on 802.11a Channel 52



Date: 13.SEP.2012 14:53:33

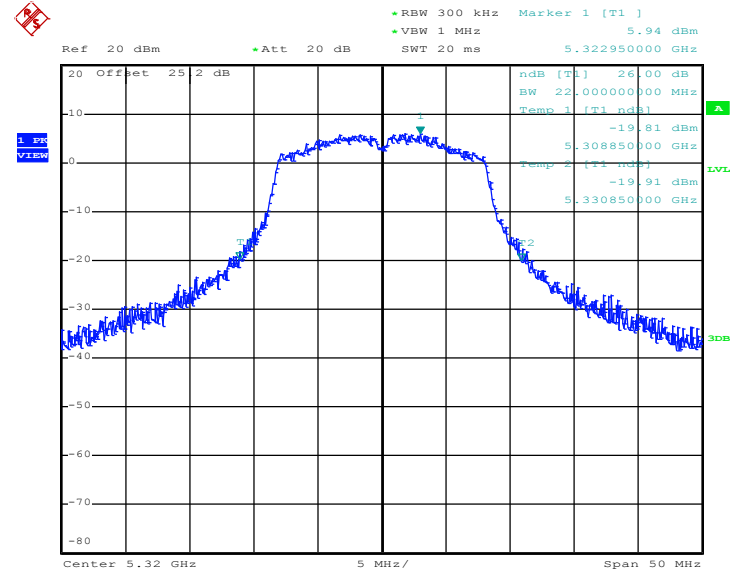
26 dB Bandwidth Plot on 802.11a Channel 60



Date: 13.SEP.2012 14:56:38

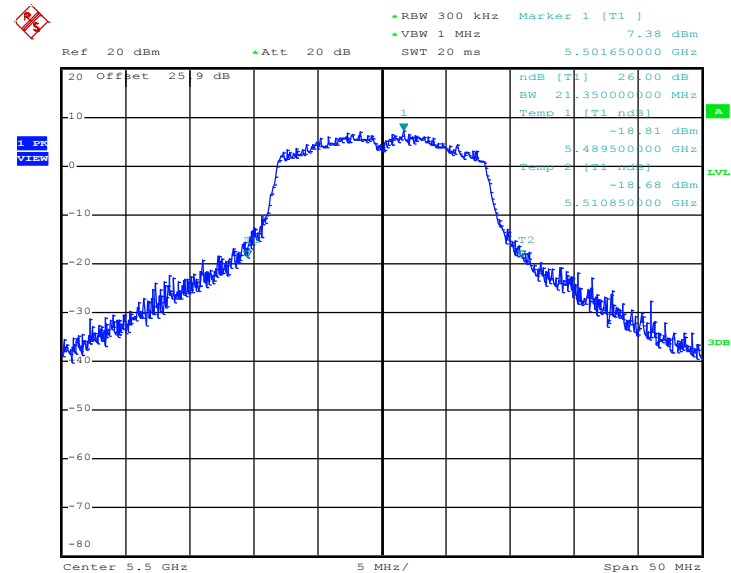


26 dB Bandwidth Plot on 802.11a Channel 64



Date: 13.SEP.2012 14:58:21

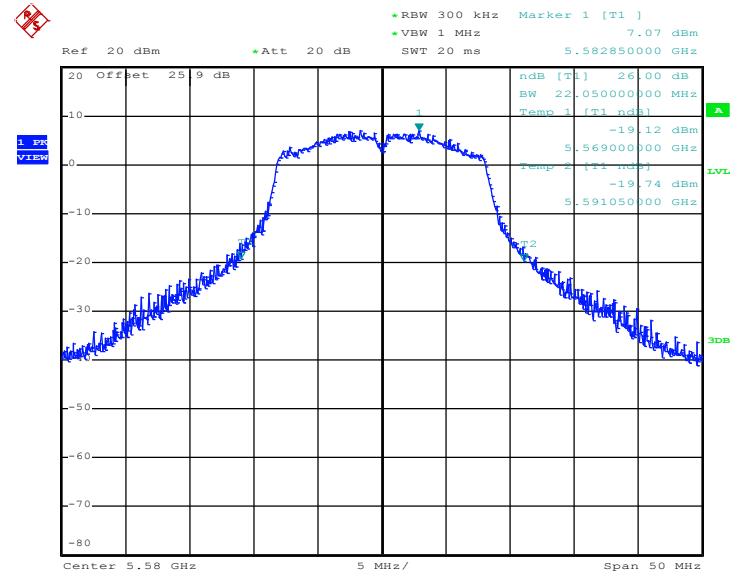
26 dB Bandwidth Plot on 802.11a Channel 100



Date: 13.SEP.2012 15:00:15

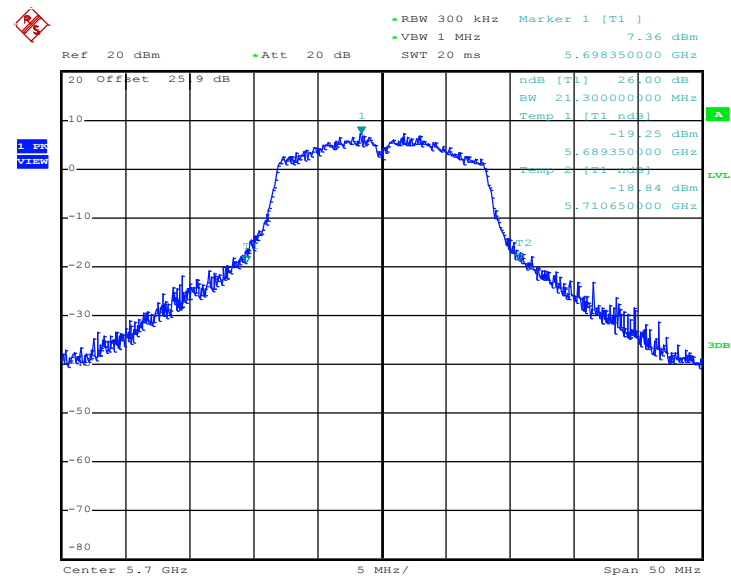


26 dB Bandwidth Plot on 802.11a Channel 116



Date: 13.SEP.2012 15:08:25

26 dB Bandwidth Plot on 802.11a Channel 140

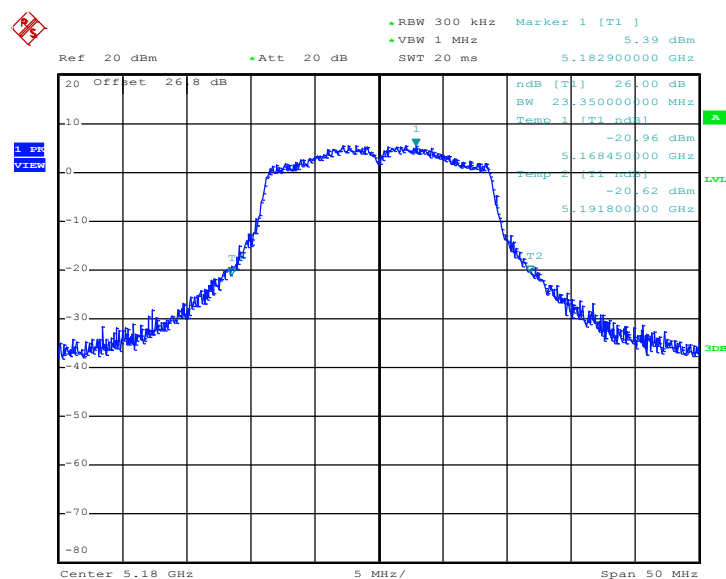


Date: 13.SEP.2012 15:10:37



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

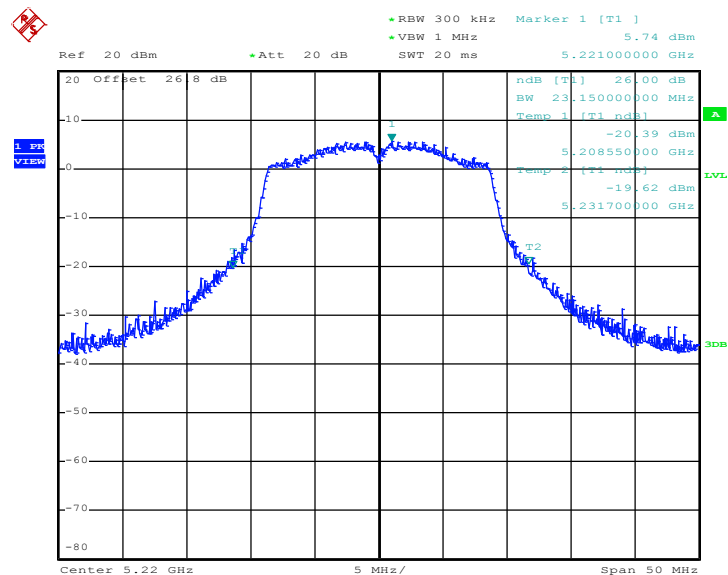
Channel	Frequency (MHz)	802.11n HT20 26dB Bandwidth (MHz)	Pass/Fail
36	5180	23.350	N/A
44	5220	23.150	N/A
48	5240	22.750	N/A
52	5260	23.450	N/A
60	5300	22.950	N/A
64	5320	23.300	N/A
100	5500	23.250	N/A
116	5580	23.450	N/A
140	5700	23.850	N/A

26 dB Bandwidth Plot on 802.11n HT20 Channel 36

Date: 15.SEP.2012 15:44:06

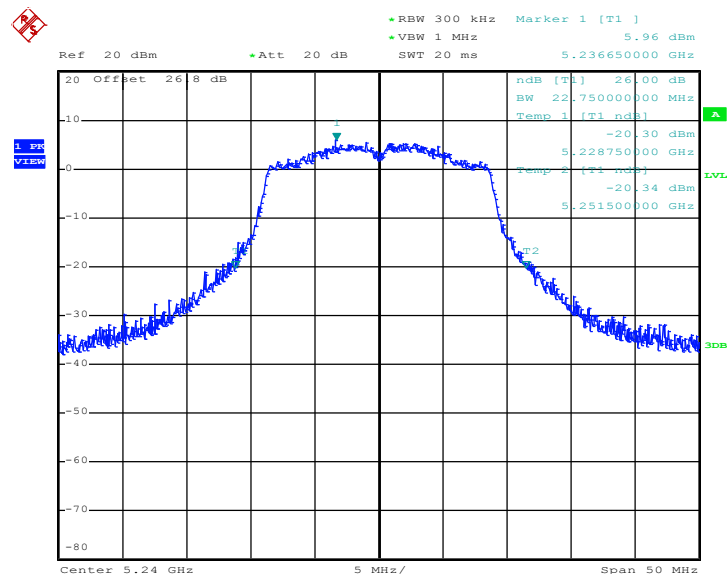


26 dB Bandwidth Plot on 802.11n HT20 Channel 44



Date: 15.SEP.2012 15:41:43

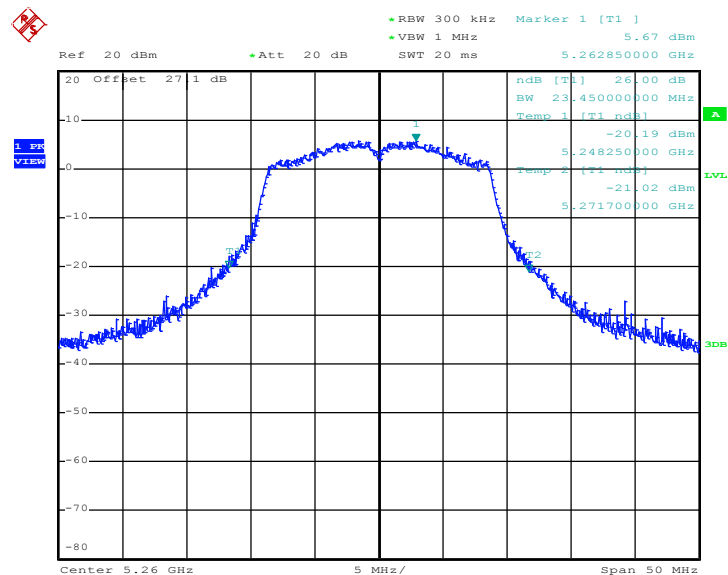
26 dB Bandwidth Plot on 802.11n HT20 Channel 48



Date: 15.SEP.2012 15:39:39

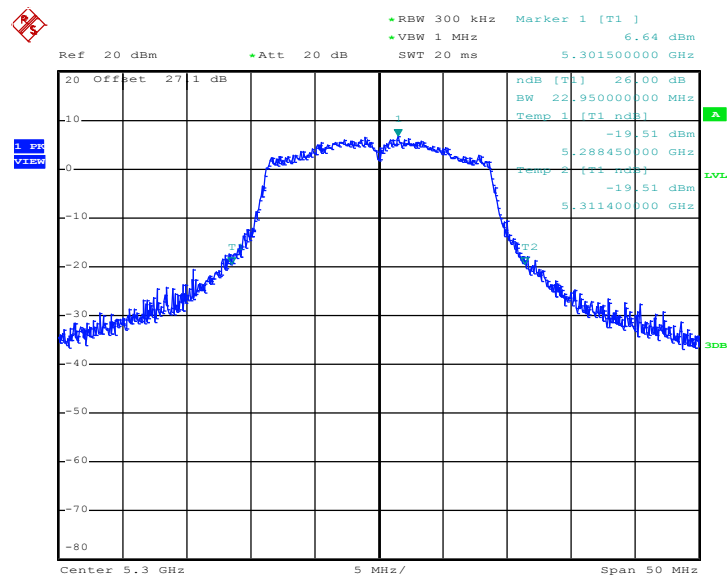


26 dB Bandwidth Plot on 802.11n HT20 Channel 52



Date: 15.SEP.2012 15:37:58

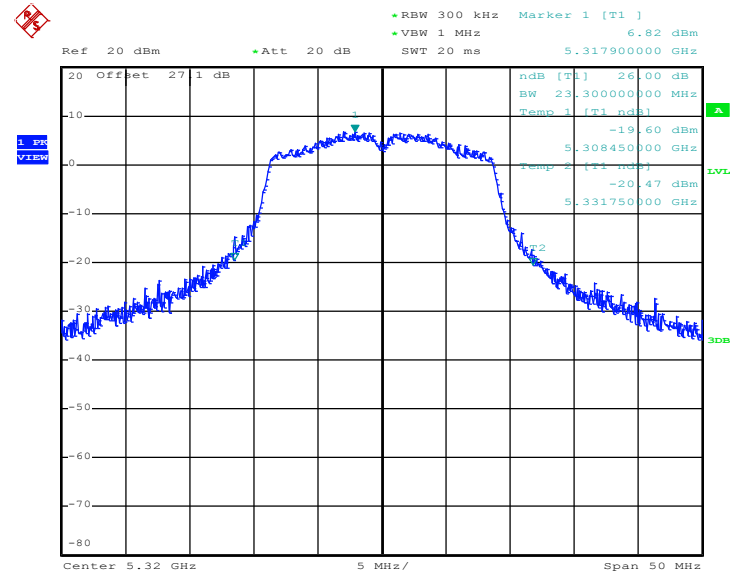
26 dB Bandwidth Plot on 802.11n HT20 Channel 60



Date: 15.SEP.2012 15:35:07

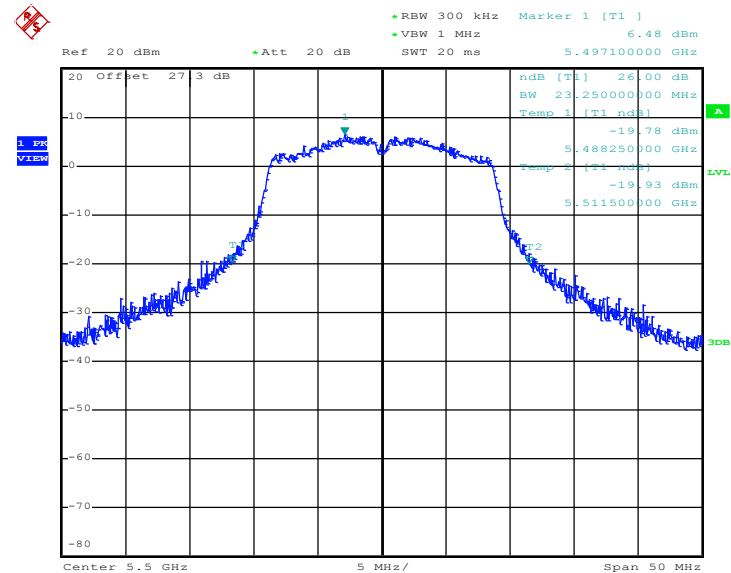


26 dB Bandwidth Plot on 802.11n HT20 Channel 64



Date: 15.SEP.2012 15:33:35

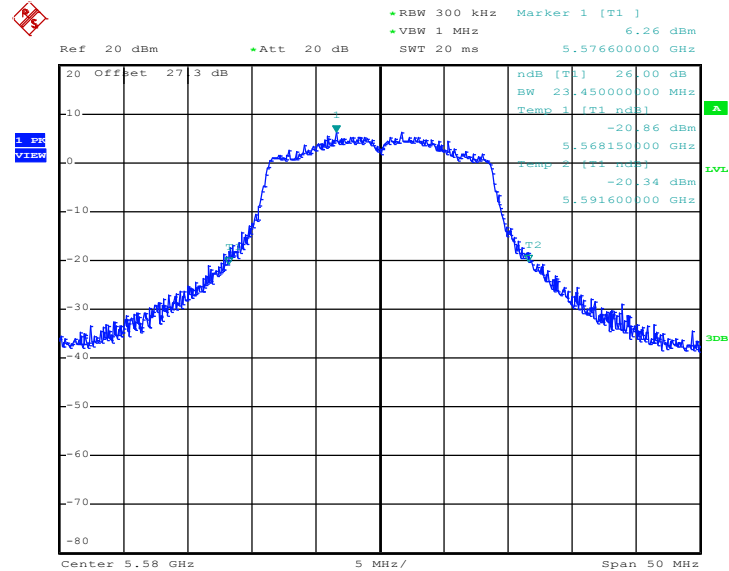
26 dB Bandwidth Plot on 802.11n HT20 Channel 100



Date: 15.SEP.2012 15:30:52

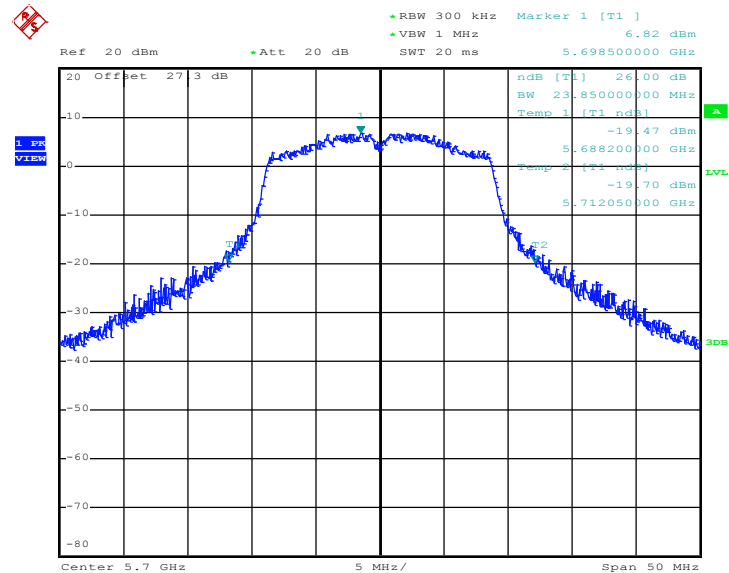


26 dB Bandwidth Plot on 802.11n HT20 Channel 116



Date: 15.SEP.2012 15:29:20

26 dB Bandwidth Plot on 802.11n HT20 Channel 140



Date: 15.SEP.2012 15:27:43

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.

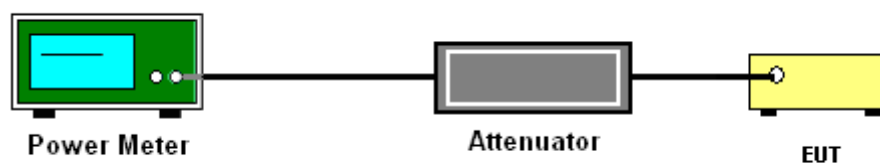
3.2.3 Test Procedures

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

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

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

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle	97.65%	Duty Factor	0.10dB

Channel	Frequency (MHz)	802.11a Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	14.37	14.47	17	Pass
44	5220	14.01	14.11	17	Pass
48	5240	14.02	14.12	17	Pass
52	5260	14.12	14.22	24	Pass
60	5300	13.73	13.83	24	Pass
64	5320	13.82	13.92	24	Pass
100	5500	14.89	14.99	24	Pass
116	5580	13.83	13.93	24	Pass
140	5700	13.82	13.92	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 HT20	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle	97.64%	Duty Factor	0.10dB

Channel	Frequency (MHz)	802.11n HT20 Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	13.67	13.77	17	Pass
44	5220	13.43	13.53	17	Pass
48	5240	13.23	13.33	17	Pass
52	5260	13.41	13.51	24	Pass
60	5300	13.94	14.04	24	Pass
64	5320	14.06	14.16	24	Pass
100	5500	13.83	13.93	24	Pass
116	5580	13.41	13.51	24	Pass
140	5700	13.95	14.05	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.

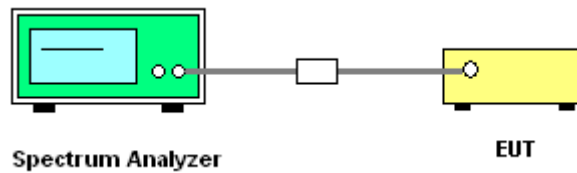
Method SA-2

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

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r01.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = sample
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.

3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup

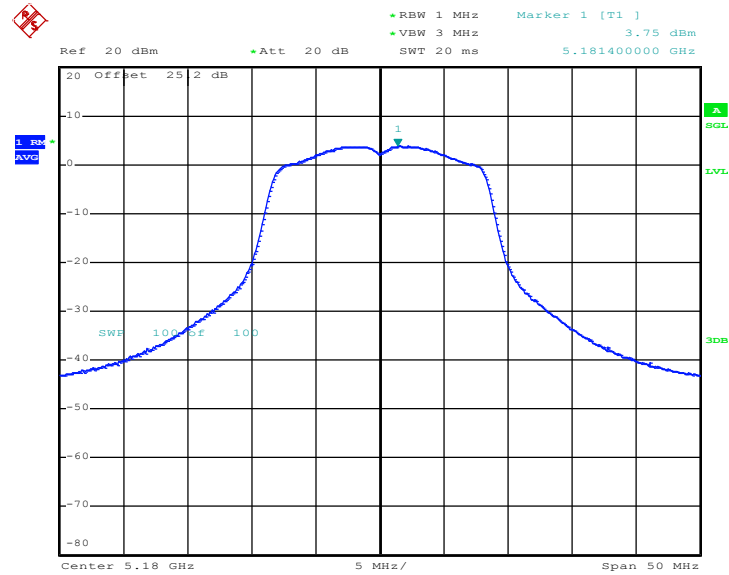


3.3.5 Test Result of Power Spectral Density

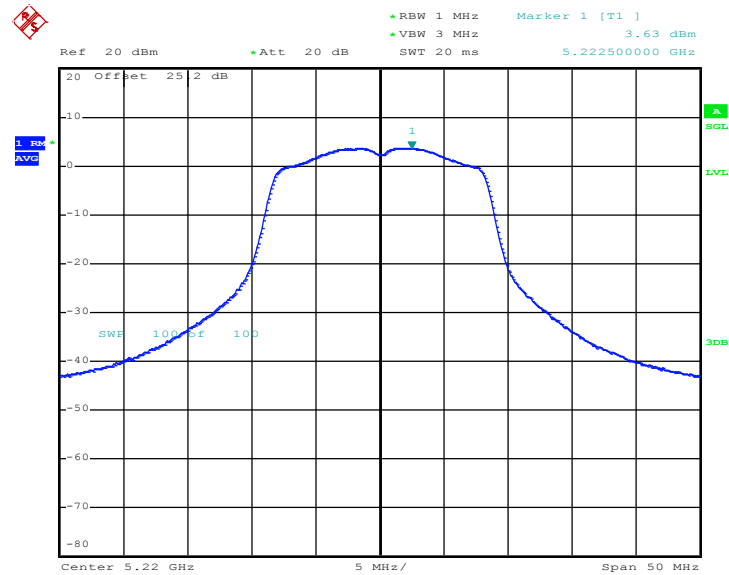
Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle:	97.65%	Duty Factor:	0.10dB

Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	3.750	3.853	4	Pass
44	5220	3.630	3.733	4	Pass
48	5240	3.530	3.633	4	Pass
52	5260	3.840	3.943	11	Pass
60	5300	3.300	3.403	11	Pass
64	5320	3.390	3.493	11	Pass
100	5500	4.070	4.173	11	Pass
116	5580	3.930	4.033	11	Pass
140	5700	3.840	3.943	11	Pass

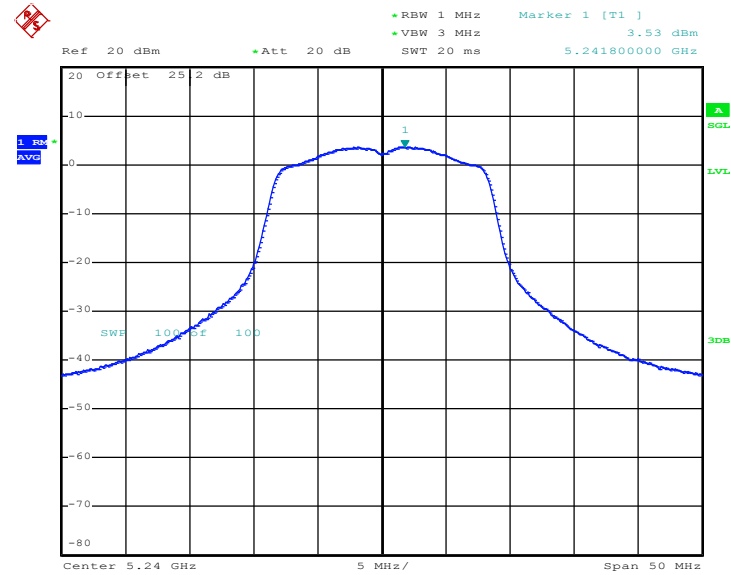
Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11a Channel 36


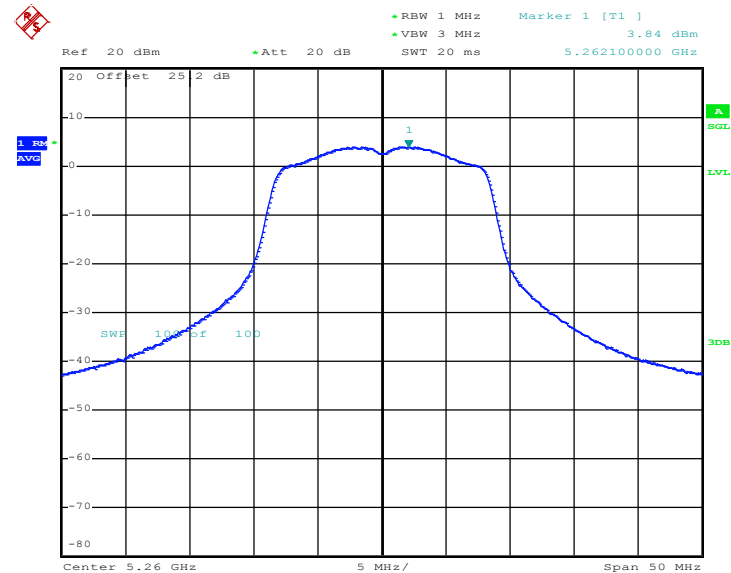
Date: 13.SEP.2012 14:46:08

PSD Plot on 802.11a Channel 44


Date: 13.SEP.2012 14:47:56

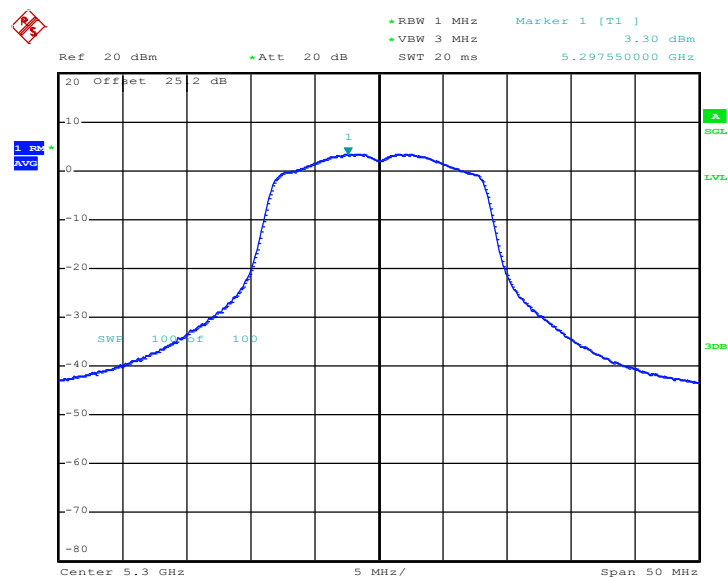
PSD Plot on 802.11a Channel 48


Date: 13.SEP.2012 14:51:56

PSD Plot on 802.11a Channel 52


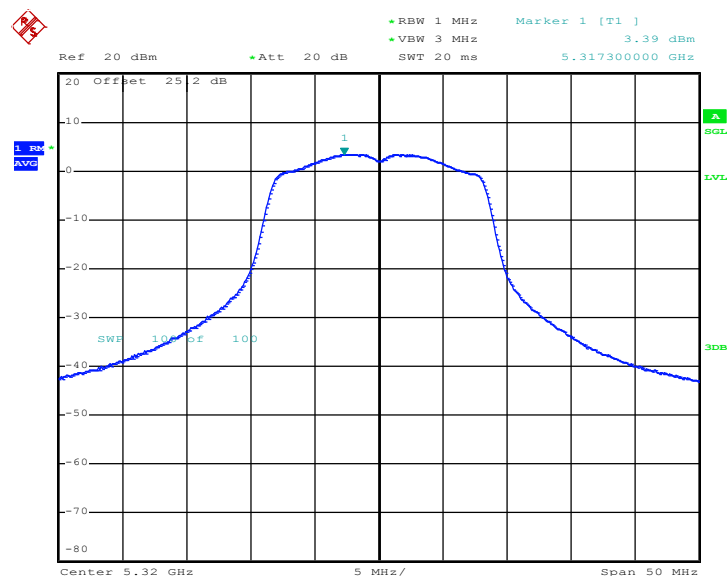
Date: 13.SEP.2012 14:53:55

PSD Plot on 802.11a Channel 60

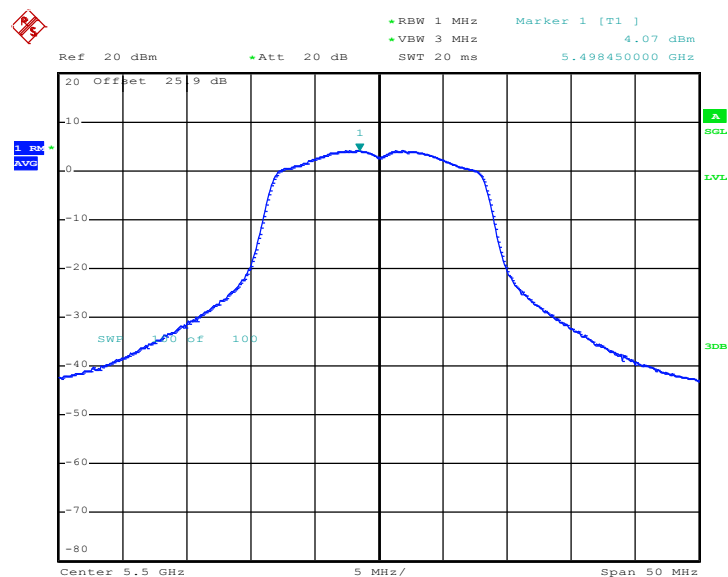


Date: 13.SEP.2012 14:57:02

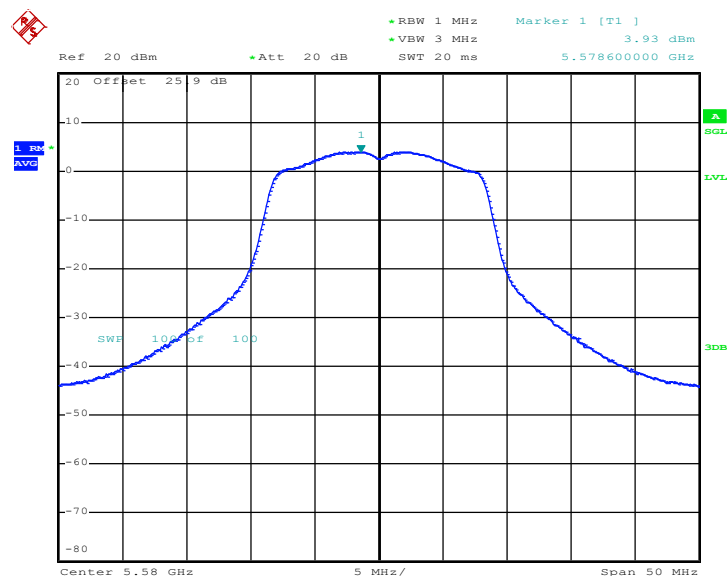
PSD Plot on 802.11a Channel 64



Date: 13.SEP.2012 14:58:50

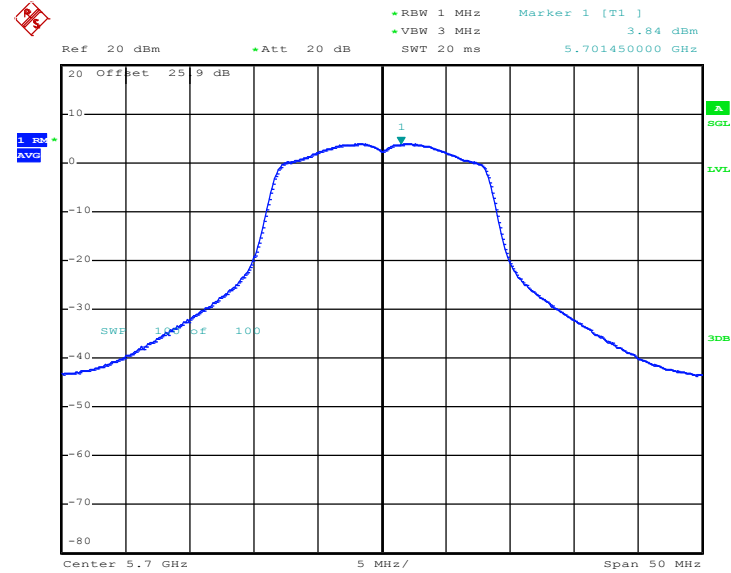
PSD Plot on 802.11a Channel 100


Date: 13.SEP.2012 15:00:33

PSD Plot on 802.11a Channel 116


Date: 13.SEP.2012 15:08:46

PSD Plot on 802.11a Channel 140



Date: 13.SEP.2012 15:11:00

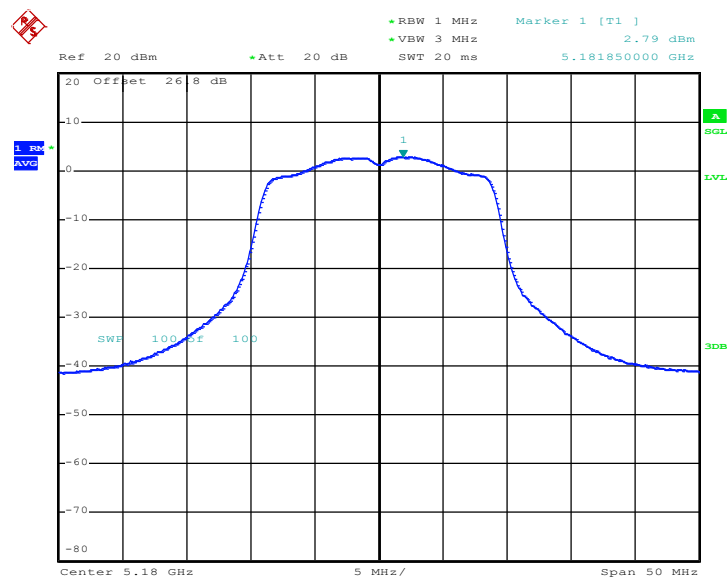


Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	45~49%
Duty Cycle:	97.64%	Duty Factor:	0.10dB

Channel	Frequency (MHz)	802.11n HT20 PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	2.790	2.894	4	Pass
44	5220	2.480	2.584	4	Pass
48	5240	2.400	2.504	4	Pass
52	5260	2.740	2.844	11	Pass
60	5300	3.400	3.504	11	Pass
64	5320	3.730	3.834	11	Pass
100	5500	3.190	3.294	11	Pass
116	5580	2.670	2.774	11	Pass
140	5700	3.980	4.084	11	Pass

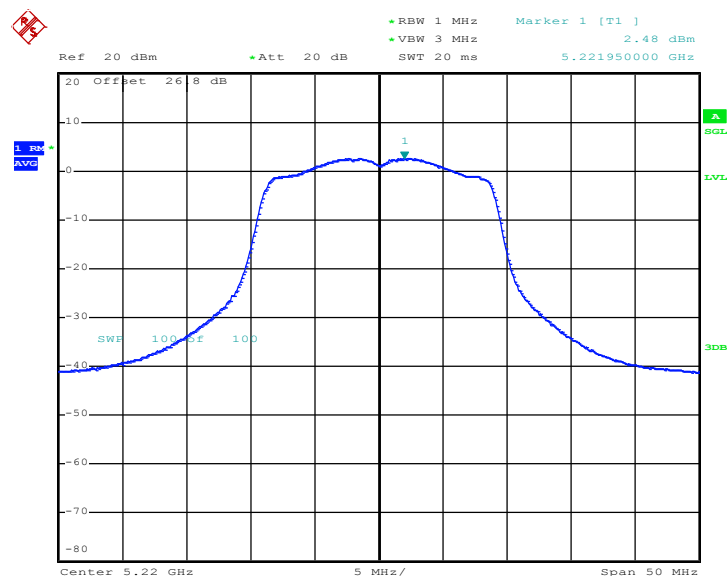
Note: Result of Final PSD equals to Measured PSD adds the duty factor.

PSD Plot on 802.11n HT20 channel 36

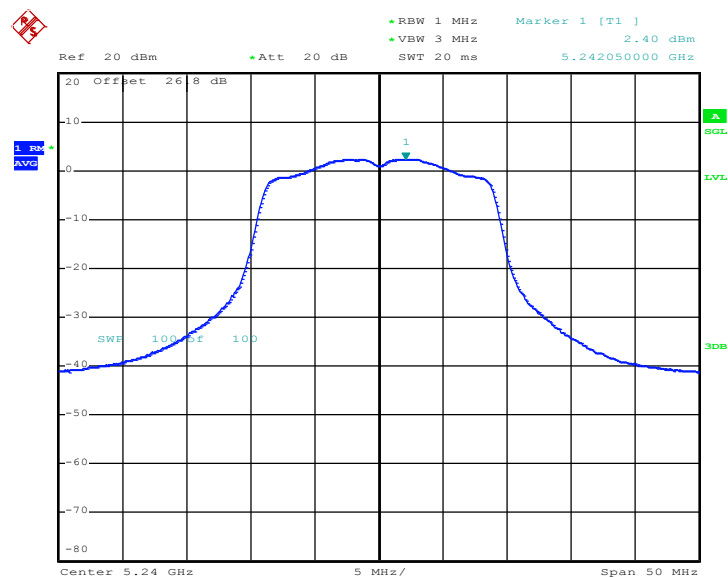


Date: 15.SEP.2012 15:44:38

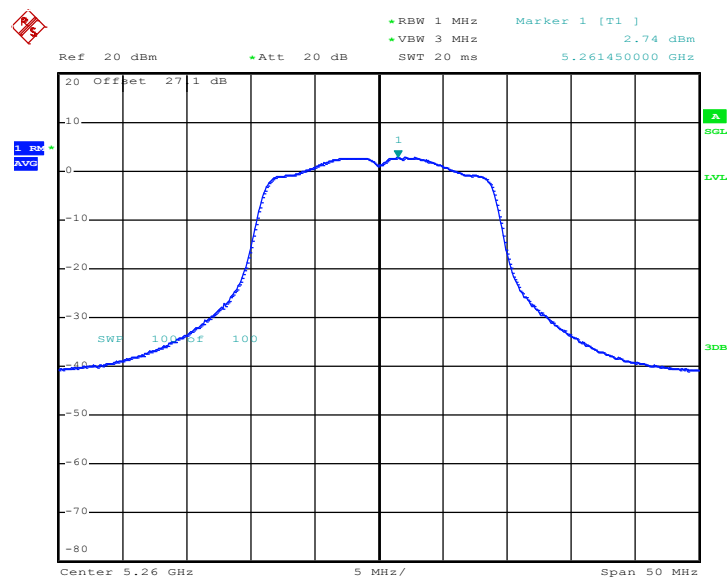
PSD Plot on 802.11n HT20 Channel 44



Date: 15.SEP.2012 15:42:07

PSD Plot on 802.11n HT20 Channel 48


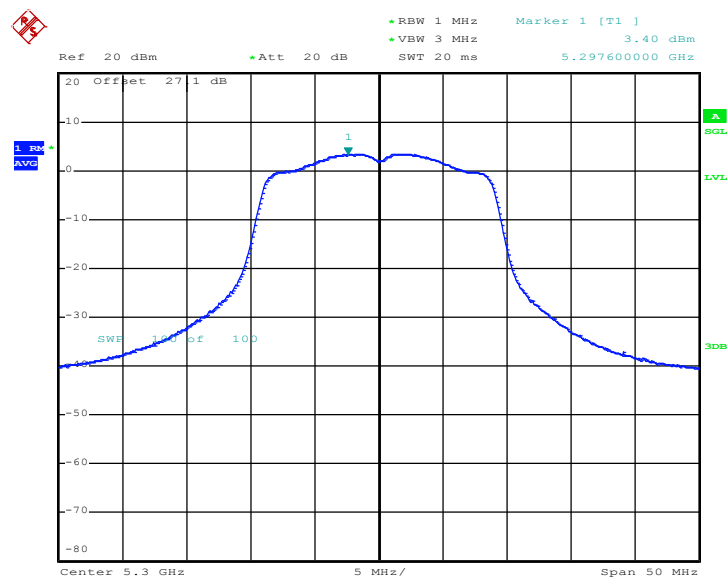
Date: 15.SEP.2012 15:40:06

PSD Plot on 802.11n HT20 Channel 52


Date: 15.SEP.2012 15:38:17

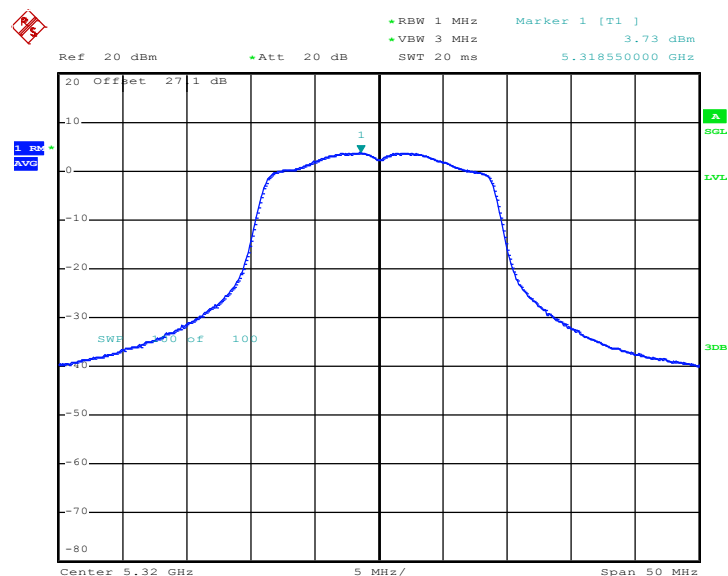


PSD Plot on 802.11n HT20 Channel 60



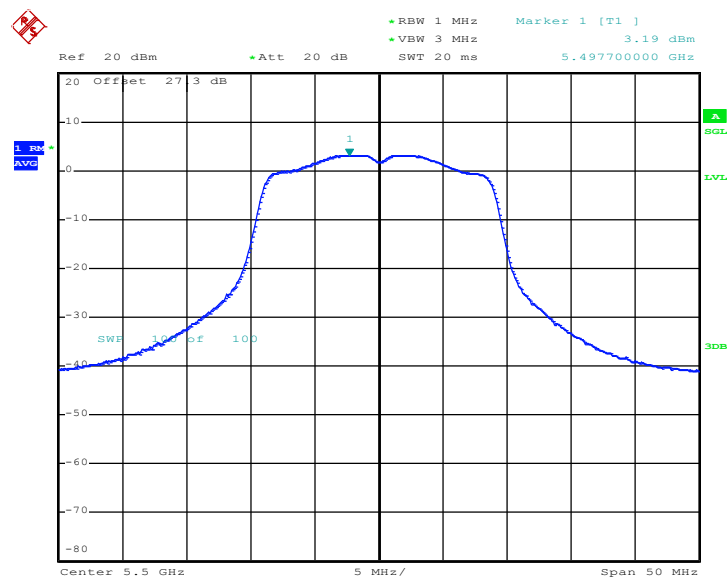
Date: 15.SEP.2012 15:35:26

PSD Plot on 802.11n HT20 Channel 64



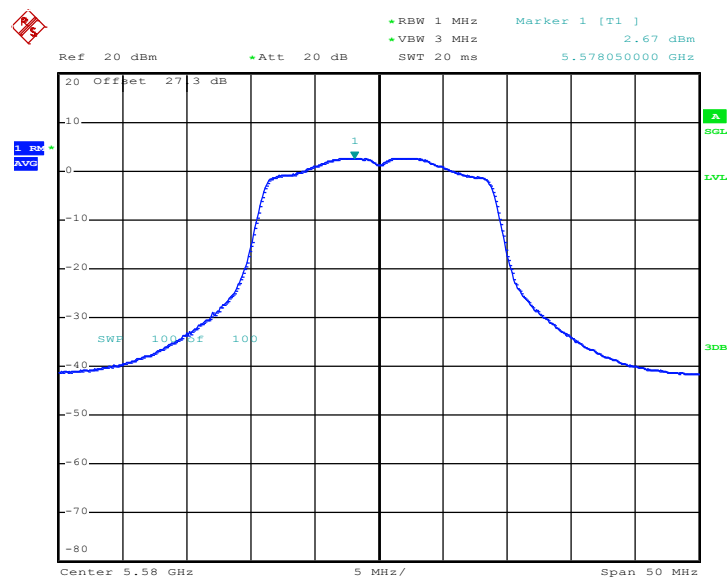
Date: 15.SEP.2012 15:33:57

PSD Plot on 802.11n HT20 Channel 100



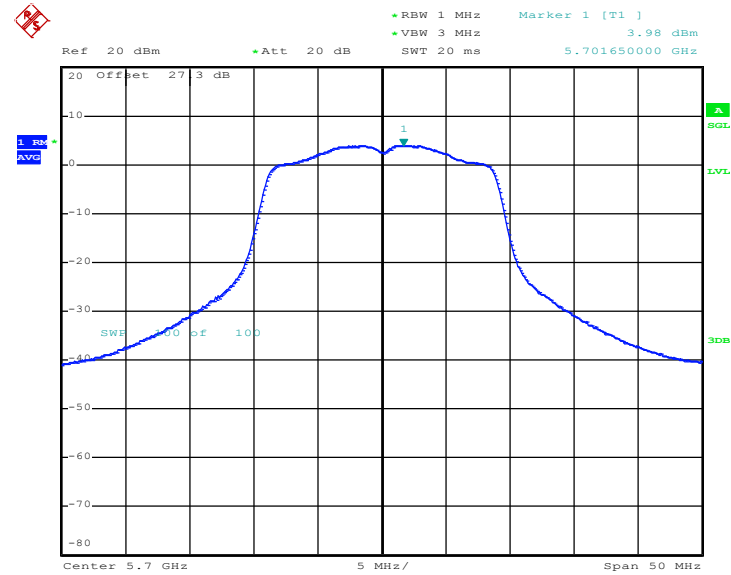
Date: 15.SEP.2012 15:31:11

PSD Plot on 802.11n HT20 Channel 116



Date: 15.SEP.2012 15:29:40

PSD Plot on 802.11n HT20 Channel 140



Date: 15.SEP.2012 15:28:03

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.

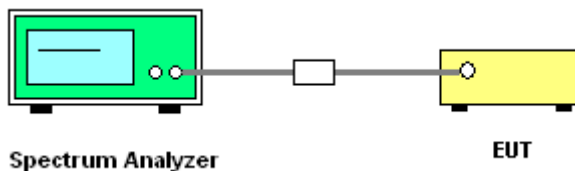
3.4.3 Test Procedures

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

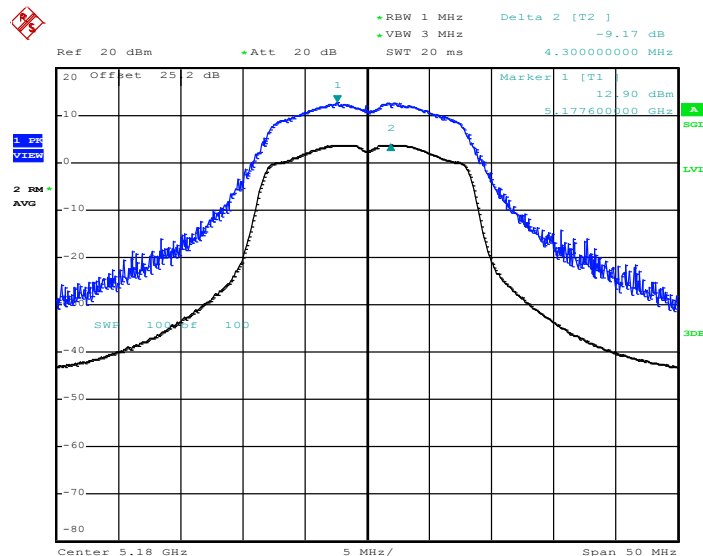




3.4.5 Test Result of Peak Excursion Ratio

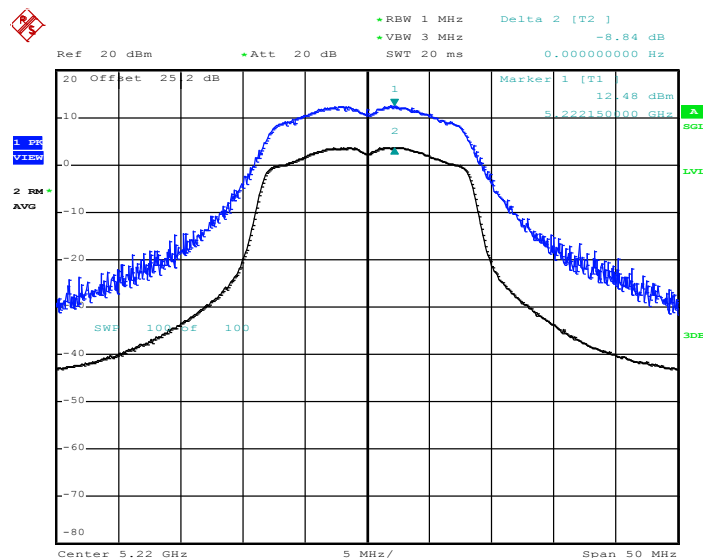
Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11a Channel 36

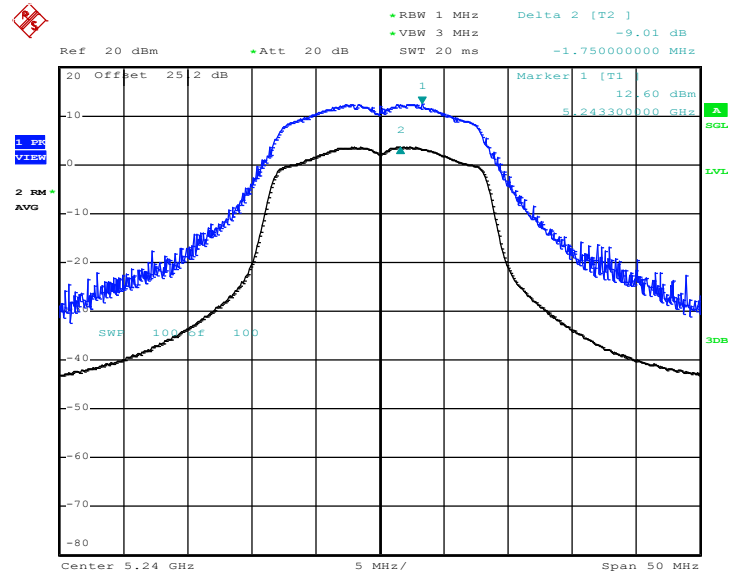


Date: 13.SEP.2012 14:45:22

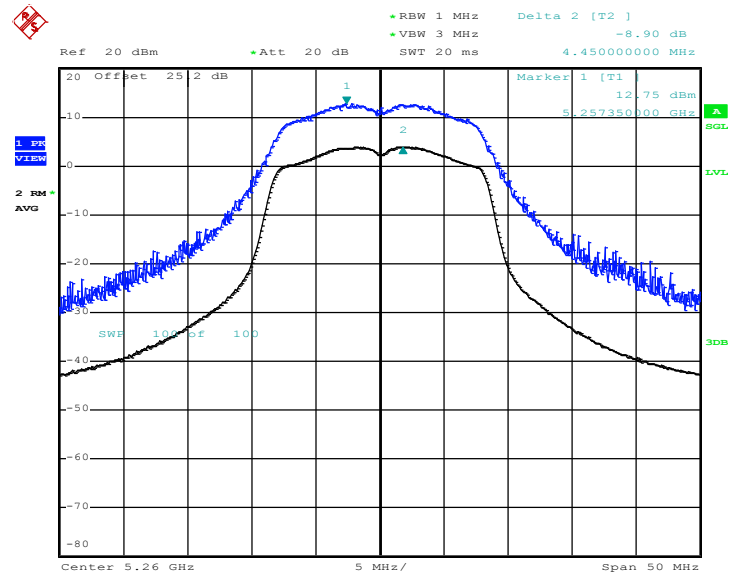
Peak Excursion Ratio Plot on 802.11a Channel 44



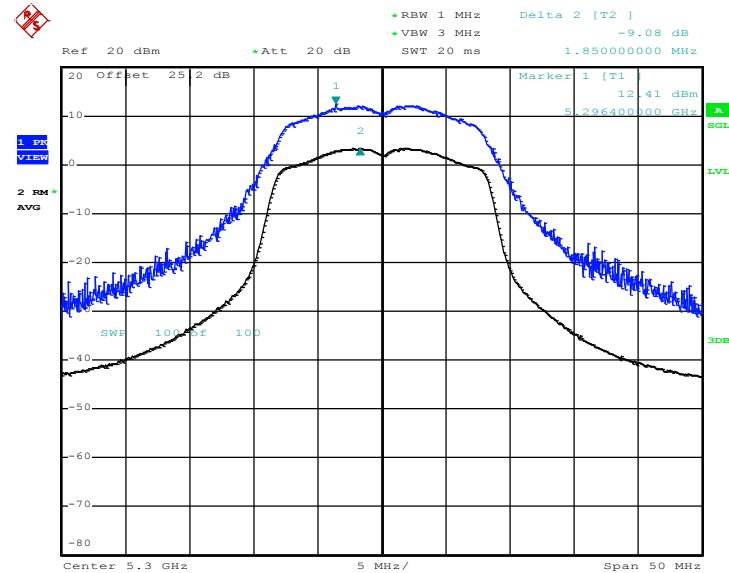
Date: 13.SEP.2012 14:48:19

Peak Excursion Ratio Plot on 802.11a Channel 48


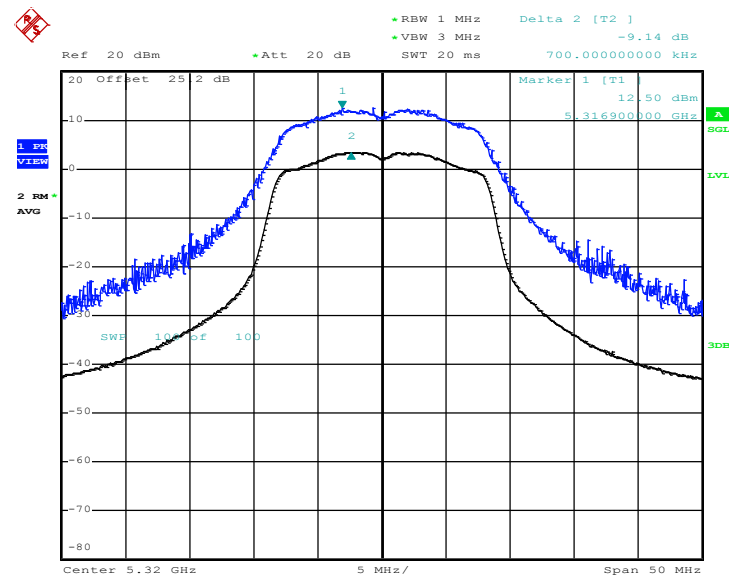
Date: 13.SEP.2012 14:52:16

Peak Excursion Ratio Plot on 802.11a Channel 52


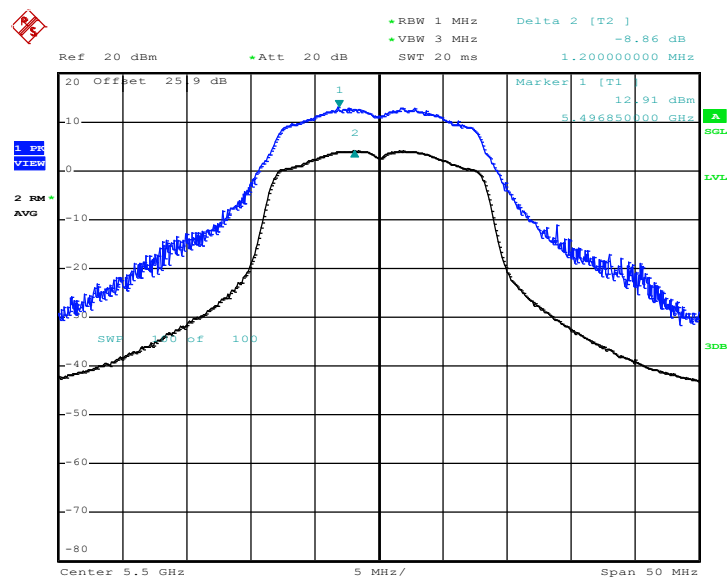
Date: 13.SEP.2012 14:54:39

Peak Excursion Ratio Plot on 802.11a Channel 60


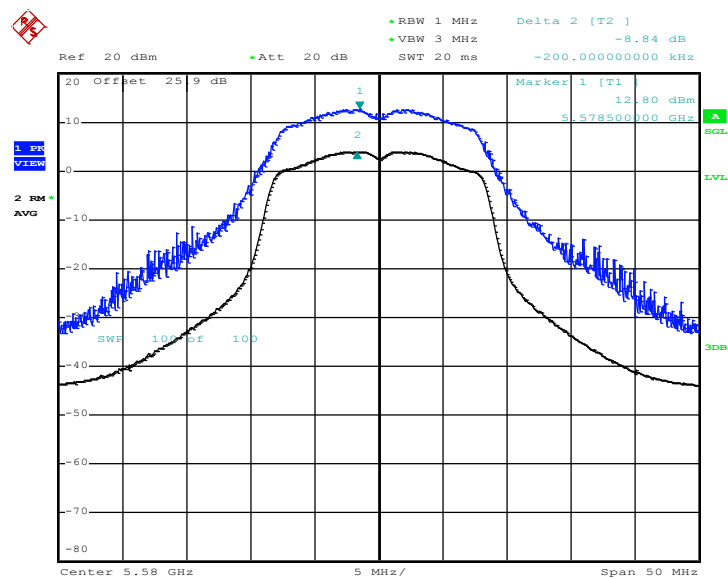
Date: 13.SEP.2012 14:57:25

Peak Excursion Ratio Plot on 802.11a Channel 64


Date: 13.SEP.2012 14:59:30

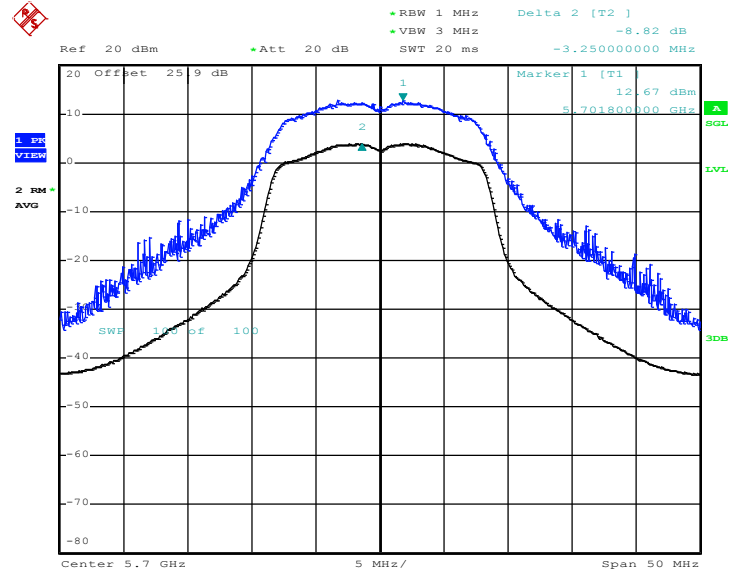
Peak Excursion Ratio Plot on 802.11a Channel 100


Date: 13.SEP.2012 15:01:13

Peak Excursion Ratio Plot on 802.11a Channel 116


Date: 13.SEP.2012 15:08:01

Peak Excursion Ratio Plot on 802.11a Channel 140

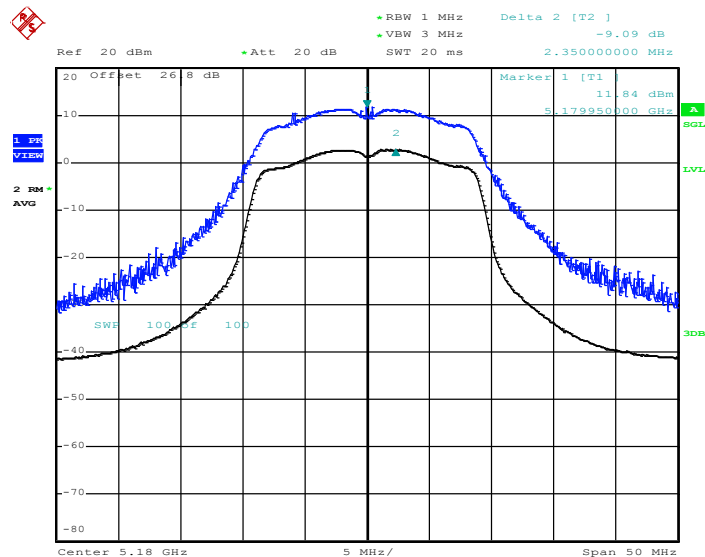


Date: 13.SEP.2012 15:10:07



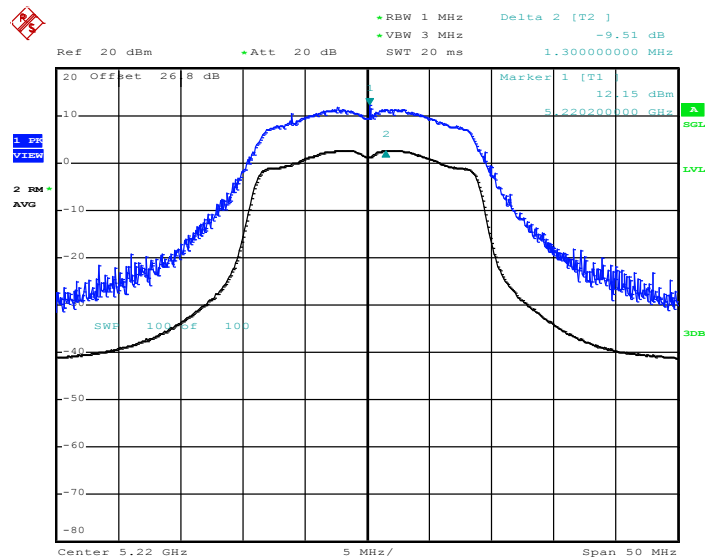
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11n HT20 Channel 36

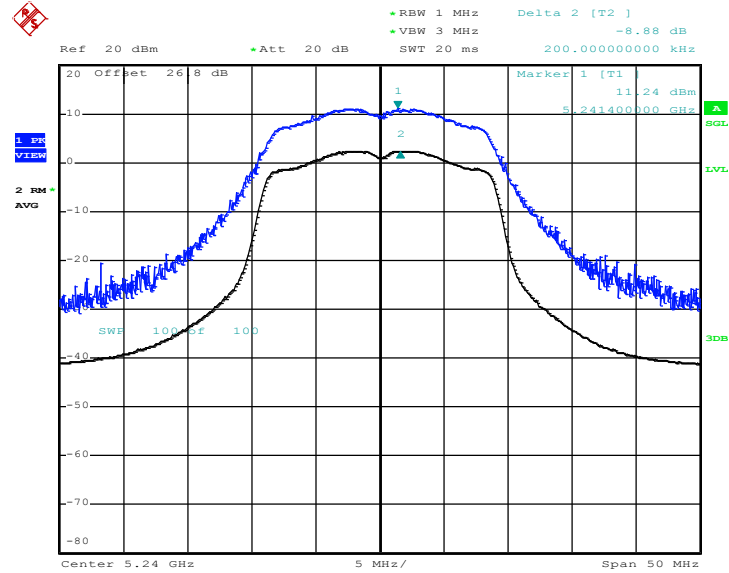


Date: 15.SEP.2012 15:45:00

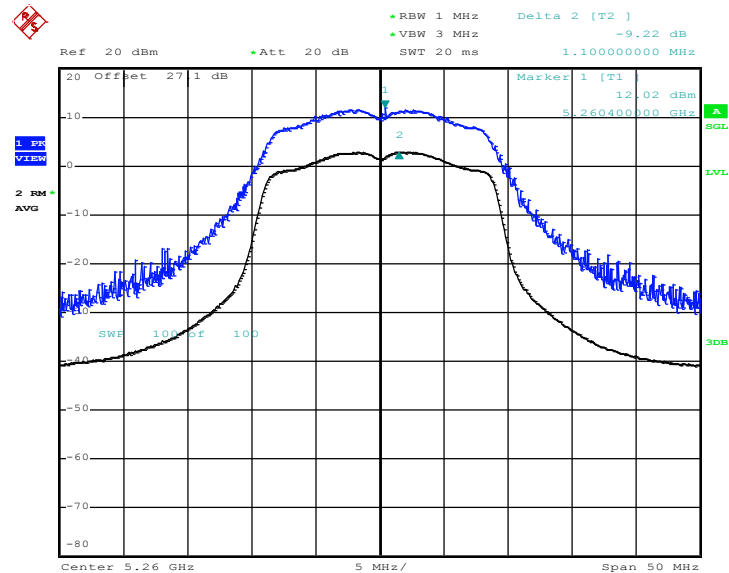
Peak Excursion Ratio Plot on 802.11n HT20 Channel 44



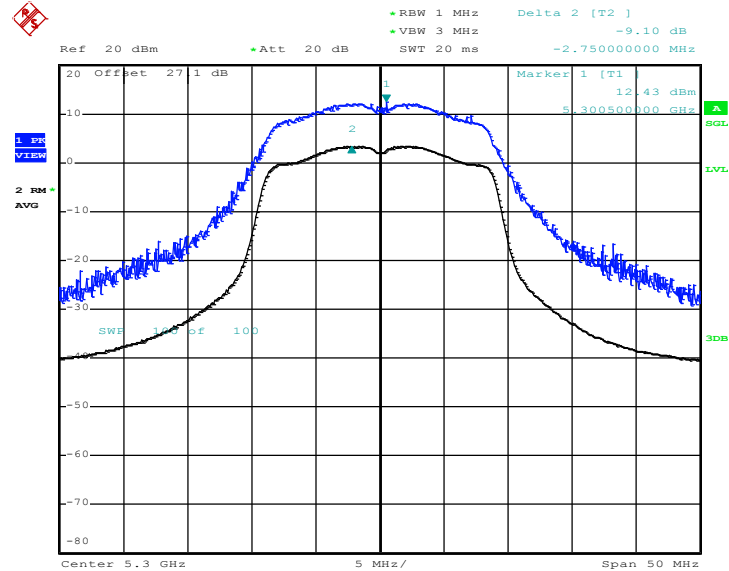
Date: 15.SEP.2012 15:42:29

Peak Excursion Ratio Plot on 802.11n HT20 Channel 48


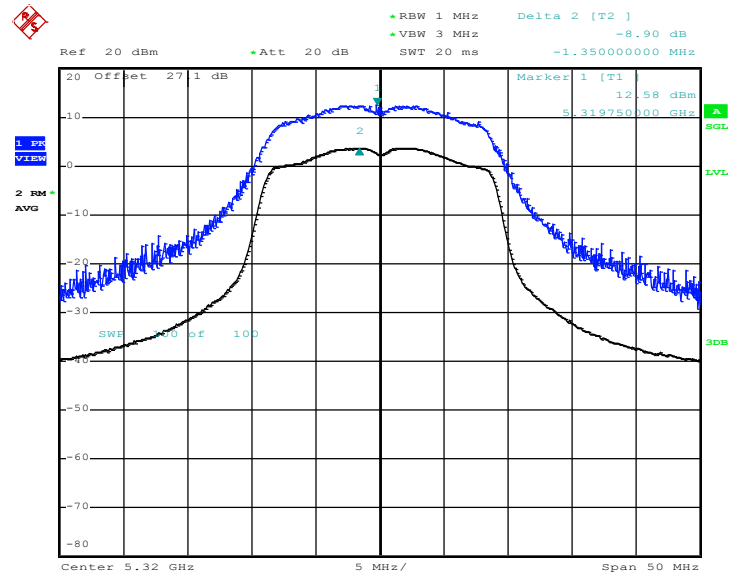
Date: 15.SEP.2012 15:40:36

Peak Excursion Ratio Plot on 802.11n HT20 Channel 52


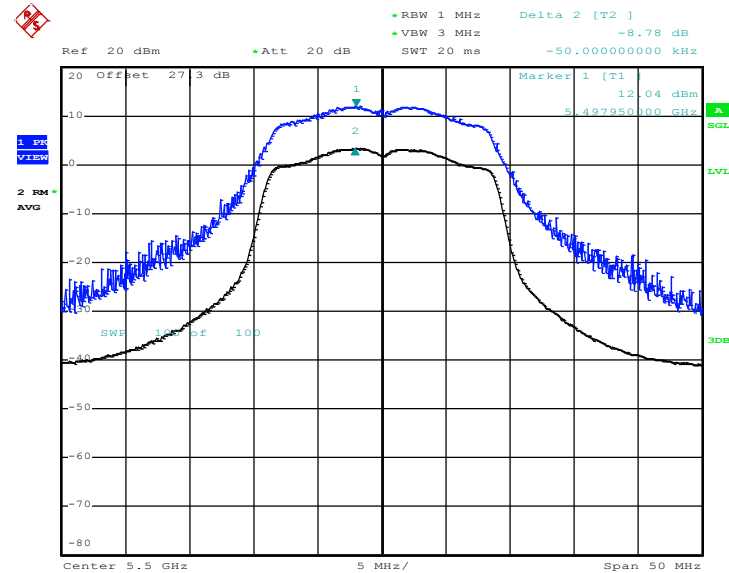
Date: 15.SEP.2012 15:38:39

Peak Excursion Ratio Plot on 802.11n HT20 Channel 60


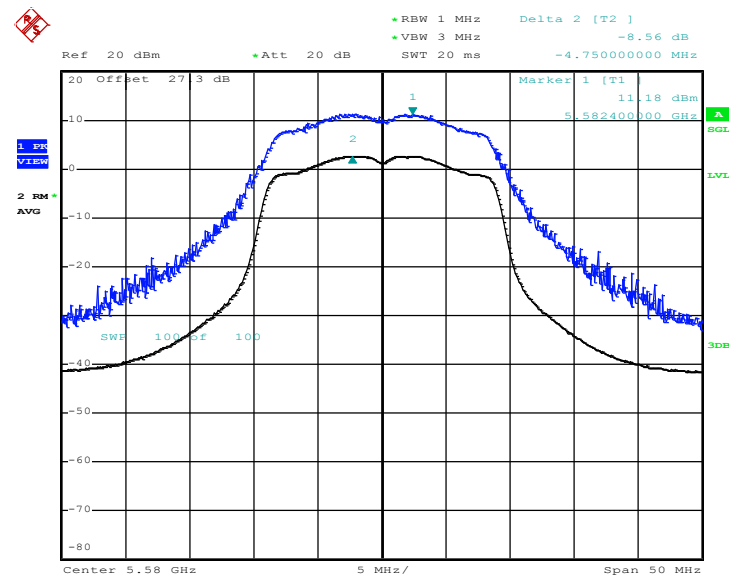
Date: 15.SEP.2012 15:36:24

Peak Excursion Ratio Plot on 802.11n HT20 Channel 64


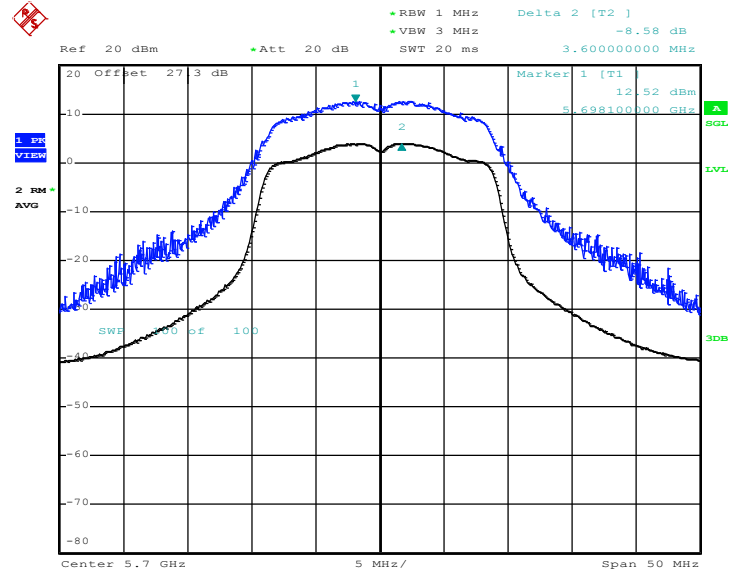
Date: 15.SEP.2012 15:34:19

Peak Excursion Ratio Plot on 802.11n HT20 Channel 100


Date: 15.SEP.2012 15:31:33

Peak Excursion Ratio Plot on 802.11n HT20 Channel 116


Date: 15.SEP.2012 15:30:01

Peak Excursion Ratio Plot on 802.11n HT20 Channel 140


Date: 15.SEP.2012 15:28:24

3.5 Unwanted Radiated Emission Measurement

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

3.5.1 Limit of Unwanted Emissions

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

For transmitters operating in the 5.25-5.35 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 Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

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.

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
802.11a	97.65	1397.115	0.716	1kHz
802.11n (BW 20MHz)	97.64	1315.385	0.760	1kHz

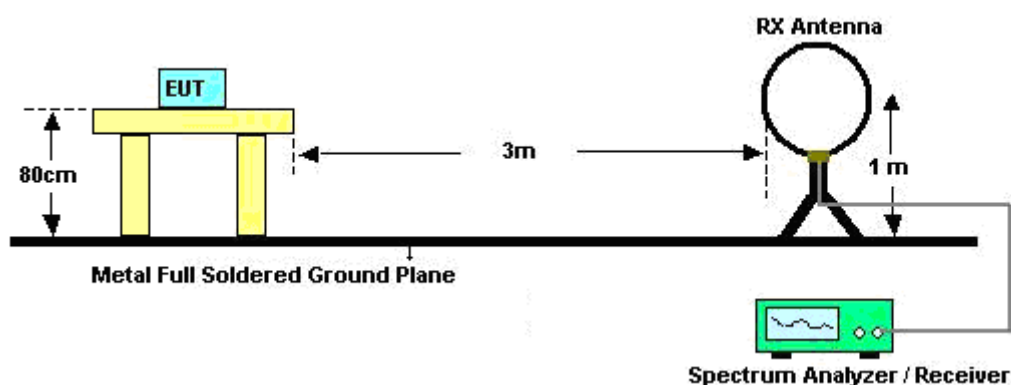
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the

antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.

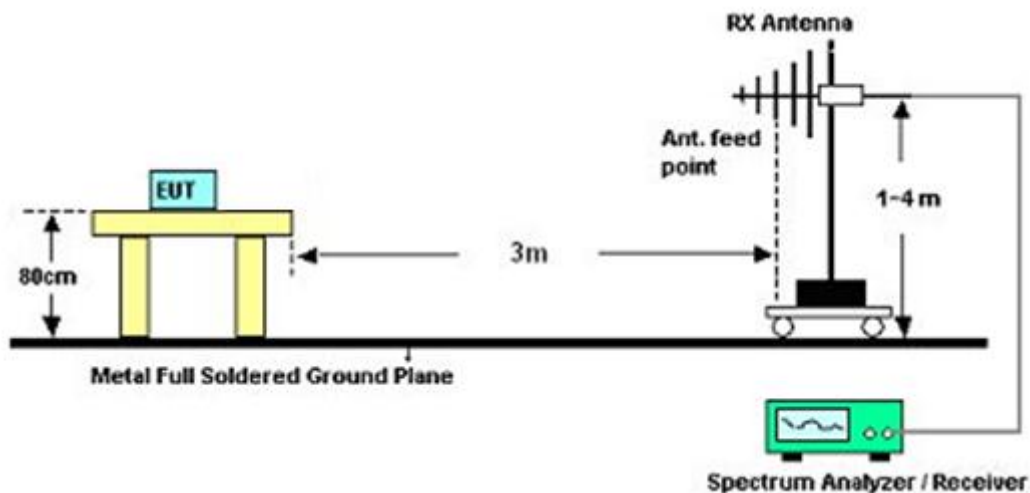
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

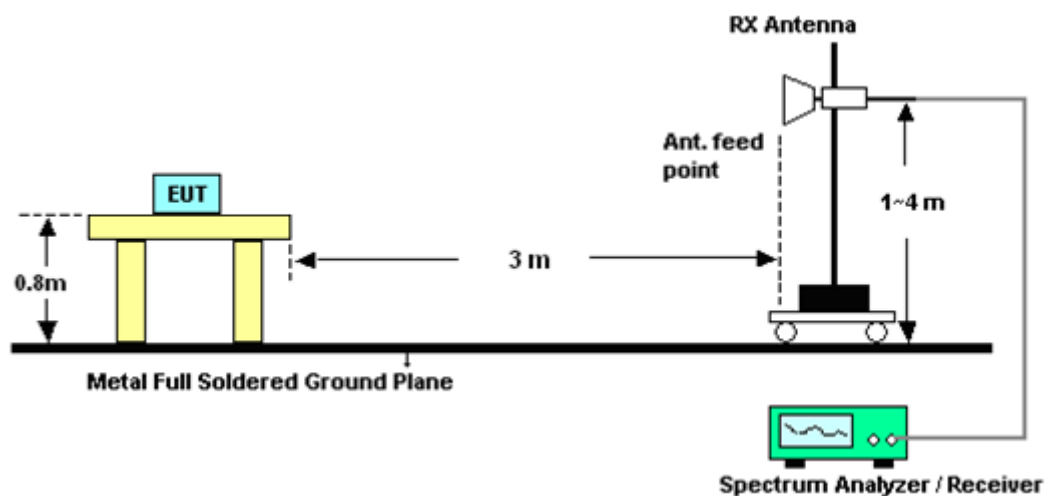
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result

3.5.6.1 Test Result of Radiated Band Edges

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5147.25	66.64	-7.36	74	55.91	34.29	9.41	32.97	100	173	Peak
5149.8	45.46	-8.54	54	34.73	34.29	9.41	32.97	100	173	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
5149.55	61.91	-12.09	74	51.18	34.29	9.41	32.97	137	328	Peak
5149.95	42.16	-11.84	54	31.43	34.29	9.41	32.97	137	328	Average

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5125.15	54.29	-19.71	74	43.65	34.25	9.37	32.98	100	179	Peak
5148.55	41.65	-12.35	54	30.92	34.29	9.41	32.97	100	179	Average

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
5380.55	56.45	-17.55	74	44.65	34.9	9.82	32.92	100	179	Peak
5355.9	43	-11	54	31.38	34.81	9.74	32.93	100	179	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	54.71	-19.29	74	43.98	34.29	9.41	32.97	127	320	Peak
5142.85	41.01	-12.99	54	30.28	34.29	9.41	32.97	127	320	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
5388.05	56.12	-17.88	74	44.32	34.9	9.82	32.92	127	320	Peak
5390.95	42.62	-11.38	54	30.82	34.9	9.82	32.92	127	320	Average



Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5102.9	54.19	-19.81	74	43.68	34.16	9.33	32.98	124	177	Peak
5133.85	41.43	-12.57	54	30.79	34.25	9.37	32.98	124	177	Average

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5352.75	56.21	-17.79	74	44.59	34.81	9.74	32.93	124	177	Peak
5356.05	43.16	-10.84	54	31.5	34.81	9.78	32.93	124	177	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
5133.2	53.85	-20.15	74	43.21	34.25	9.37	32.98	104	198	Peak
5149.25	40.96	-13.04	54	30.23	34.29	9.41	32.97	104	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
5371.7	56.24	-17.76	74	44.54	34.85	9.78	32.93	104	198	Peak
5354.35	42.75	-11.25	54	31.13	34.81	9.74	32.93	104	198	Average



Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5350.15	69.96	-4.04	74	58.34	34.81	9.74	32.93	122	178	Peak
5350	47.16	-6.84	54	35.54	34.81	9.74	32.93	122	178	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
5351.35	65.91	-8.09	74	54.29	34.81	9.74	32.93	102	199	Peak
5351.15	44.9	-9.1	54	33.28	34.81	9.74	32.93	102	199	Average



Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5457.12	60.65	-13.35	74	48.55	35.07	9.94	32.91	100	335	Peak
5470	64.22	-4.08	68.3	52.08	35.11	9.94	32.91	100	335	Peak
5459.36	45.99	-8.01	54	33.89	35.07	9.94	32.91	100	335	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
5450.88	56.86	-17.14	74	44.8	35.07	9.9	32.91	178	172	Peak
5470	61.73	-6.57	68.3	49.59	35.11	9.94	32.91	178	172	Peak
5457.6	43.71	-10.29	54	31.61	35.07	9.94	32.91	178	172	Average

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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	60.45	-7.85	68.3	48.46	35.33	9.92	33.26	167	10	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	57.92	-10.38	68.3	45.93	35.33	9.92	33.26	188	173	Peak



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5148.1	62.09	-11.91	74	51.36	34.29	9.41	32.97	100	21	Peak
5149.85	45.37	-8.63	54	34.64	34.29	9.41	32.97	100	21	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
5149.65	56.28	-17.72	74	45.55	34.29	9.41	32.97	122	303	Peak
5147.45	41.95	-12.05	54	31.22	34.29	9.41	32.97	122	303	Average



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5125.5	54.41	-19.59	74	43.77	34.25	9.37	32.98	100	19	Peak
5128.65	41.48	-12.52	54	30.84	34.25	9.37	32.98	100	19	Average

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
5381.4	55.67	-18.33	74	43.87	34.9	9.82	32.92	100	19	Peak
5350	42.63	-11.37	54	31.01	34.81	9.74	32.93	100	19	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
5128.45	54.09	-19.91	74	43.45	34.25	9.37	32.98	142	357	Peak
5138.65	41.01	-12.99	54	30.37	34.25	9.37	32.98	142	357	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
5356.75	55.74	-18.26	74	44.08	34.81	9.78	32.93	142	357	Peak
5351.85	42.5	-11.5	54	30.88	34.81	9.74	32.93	142	357	Average



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5118.45	54.37	-19.63	74	43.78	34.2	9.37	32.98	110	174	Peak
5149.35	41.19	-12.81	54	30.46	34.29	9.41	32.97	110	174	Average

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
5399.45	62.19	-11.81	74	50.35	34.94	9.82	32.92	110	174	Peak
5350.3	43.02	-10.98	54	31.4	34.81	9.74	32.93	110	174	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
5117.25	54.03	-19.97	74	43.44	34.2	9.37	32.98	187	360	Peak
5142.95	40.9	-13.1	54	30.17	34.29	9.41	32.97	187	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5397.2	55.81	-18.19	74	43.97	34.94	9.82	32.92	187	360	Peak
5351.2	42.75	-11.25	54	31.13	34.81	9.74	32.93	187	360	Average



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5148.5	54.47	-19.53	74	43.74	34.29	9.41	32.97	112	193	Peak
5146.7	41.25	-12.75	54	30.52	34.29	9.41	32.97	112	193	Average

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
5350.15	68.82	-5.18	74	57.2	34.81	9.74	32.93	112	193	Peak
5350.05	46.59	-7.41	54	34.97	34.81	9.74	32.93	112	193	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
5118.9	54.09	-19.91	74	43.5	34.2	9.37	32.98	185	0	Peak
5141.95	40.97	-13.03	54	30.24	34.29	9.41	32.97	185	0	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
5350.65	67.46	-6.54	74	55.84	34.81	9.74	32.93	185	0	Peak
5350.55	45.48	-8.52	54	33.86	34.81	9.74	32.93	185	0	Average



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5458.88	59.59	-14.41	74	47.49	35.07	9.94	32.91	140	288	Peak
5470	59.63	-8.67	68.3	47.49	35.11	9.94	32.91	140	288	Peak
5457.12	43.51	-10.49	54	31.41	35.07	9.94	32.91	140	288	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
5431.28	56.73	-17.27	74	44.71	35.03	9.9	32.91	196	349	Peak
5470	61.22	-7.08	68.3	49.08	35.11	9.94	32.91	196	349	Peak
5454.16	43.24	-10.76	54	31.14	35.07	9.94	32.91	196	349	Average

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang		

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
5430.64	55.02	-18.98	74	43	35.03	9.9	32.91	100	48	Peak
5470	52.88	-15.42	68.3	40.74	35.11	9.94	32.91	100	48	Peak
5430	43.06	-10.94	54	31.04	35.03	9.9	32.91	100	48	Average
5725	60.72	-7.58	68.3	48.73	35.33	9.92	33.26	100	48	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
5432.72	55.73	-18.27	74	43.71	35.03	9.9	32.91	200	349	Peak
5470	54.54	-13.76	68.3	42.4	35.11	9.94	32.91	200	349	Peak
5443.68	43.5	-10.5	54	31.48	35.03	9.9	32.91	200	349	Average
5725	58.89	-9.41	68.3	46.9	35.33	9.92	33.26	200	349	Peak

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

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
46.47	27.91	-12.09	40	49.24	9.7	0.67	31.7	101	186	Peak
51.6	26.26	-13.74	40	49.3	7.9	0.71	31.65	-	-	Peak
261.12	28.62	-17.38	46	45.53	12.75	1.6	31.26	-	-	Peak
445.6	31.24	-14.76	46	43.14	16.95	2.29	31.14	-	-	Peak
500.2	31.18	-14.82	46	41.52	18.1	2.45	30.89	-	-	Peak
531.7	30.78	-15.22	46	40.77	18.63	2.51	31.13	-	-	Peak
5180	100.07	-	-	89.21	34.38	9.45	32.97	100	173	Average
5180	110.58	-	-	99.72	34.38	9.45	32.97	100	173	Peak
10360	43.55	-24.75	68.3	53.51	37.28	11.31	58.55	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.69	24.99	-15.01	40	44.4	11.7	0.64	31.75	-	-	Peak
48.63	24.22	-15.78	40	46.27	8.9	0.68	31.63	-	-	Peak
56.73	22.48	-17.52	40	46.78	6.7	0.74	31.74	-	-	Peak
449.1	33.42	-12.58	46	45.24	17.03	2.3	31.15	102	226	Peak
497.4	33.1	-12.9	46	43.52	18.04	2.44	30.9	-	-	Peak
510	32.18	-13.82	46	42.4	18.27	2.47	30.96	-	-	Peak
5180	94.7	-	-	83.84	34.38	9.45	32.97	137	328	Average
5180	105.29	-	-	94.43	34.38	9.45	32.97	137	328	Peak
10360	42.82	-25.48	68.3	52.78	37.29	11.31	58.56	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5220	99.78	-	-	88.75	34.46	9.53	32.96	112	176	Average
5220	110.26	-	-	99.23	34.46	9.53	32.96	112	176	Peak
10440	41.66	-26.64	68.3	51.72	37.35	11.21	58.62	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5220	94.2	-	-	83.17	34.46	9.53	32.96	108	314	Average
5220	104.78	-	-	93.75	34.46	9.53	32.96	108	314	Peak
10440	42.28	-26.02	68.3	52.34	37.35	11.21	58.62	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5240	98.52	-	-	87.39	34.51	9.57	32.95	100	179	Average
5240	109.23	-	-	98.1	34.51	9.57	32.95	100	179	Peak
10480	41.28	-27.02	68.3	51.41	37.39	11.14	58.66	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5240	92.78	-	-	81.65	34.51	9.57	32.95	127	320	Average
5240	103.2	-	-	92.07	34.51	9.57	32.95	127	320	Peak
10480	42.43	-25.87	68.3	52.56	37.39	11.14	58.66	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5260	99.26	-	-	88	34.59	9.62	32.95	124	177	Average
5260	109.45	-	-	98.28	34.55	9.57	32.95	124	177	Peak
10521	41.84	-26.46	68.3	51.88	37.42	11.21	58.67	-	-	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5260	93.64	-	-	82.38	34.59	9.62	32.95	104	198	Average
5260	104.12	-	-	92.86	34.59	9.62	32.95	104	198	Peak
10521	41.73	-26.57	68.3	51.77	37.42	11.21	58.67	-	-	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	99.53	-	-	88.13	34.68	9.66	32.94	110	175	Average
5300	110.11	-	-	98.71	34.68	9.66	32.94	110	175	Peak
10601	42.23	-31.77	74	51.86	37.5	11.51	58.64	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	93.41	-	-	82.01	34.68	9.66	32.94	100	128	Average
5300	104.4	-	-	93	34.68	9.66	32.94	100	128	Peak
10600	41.26	-32.74	74	50.89	37.5	11.51	58.64	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.36	23.24	-16.76	40	45.31	8.9	0.68	31.65	-	-	Peak
242.76	25.45	-20.55	46	43.05	12.06	1.53	31.19	-	-	Peak
258.96	27.41	-18.59	46	44.36	12.72	1.58	31.25	-	-	Peak
444.2	33.82	-12.18	46	45.74	16.93	2.29	31.14	105	214	Peak
447.7	32.78	-13.22	46	44.62	17.01	2.3	31.15	-	-	Peak
503.7	30.61	-15.39	46	40.92	18.15	2.46	30.92	-	-	Peak
5320	99.19	-	-	87.71	34.72	9.7	32.94	122	178	Average
5320	109.51	-	-	98.03	34.72	9.7	32.94	122	178	Peak
10641	43.27	-30.73	74	52.65	37.54	11.71	58.63	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.42	25.13	-14.87	40	44.55	11.7	0.64	31.76	-	-	Peak
48.9	24.09	-15.91	40	46.14	8.9	0.68	31.63	-	-	Peak
110.73	27.72	-15.78	43.5	47.61	10.8	1.05	31.74	-	-	Peak
462.4	32.61	-13.39	46	44.12	17.31	2.33	31.15	-	-	Peak
502.3	32.73	-13.27	46	43.05	18.13	2.45	30.9	102	197	Peak
542.2	29.35	-16.65	46	39.21	18.81	2.53	31.2	-	-	Peak
5320	95.35	-	-	83.87	34.72	9.7	32.94	102	199	Average
5320	105.82	-	-	94.34	34.72	9.7	32.94	102	199	Peak
10641	42.28	-31.72	74	51.66	37.54	11.71	58.63	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	21.04	-18.96	40	33.09	19.28	0.54	31.87	-	-	Peak
48.09	19.45	-20.55	40	41.52	8.9	0.68	31.65	-	-	Peak
260.58	27.64	-18.36	46	44.55	12.75	1.6	31.26	-	-	Peak
451.2	31.24	-14.76	46	43.02	17.07	2.3	31.15	102	208	Peak
503.7	30.85	-15.15	46	41.16	18.15	2.46	30.92	-	-	Peak
680.1	30.5	-15.5	46	37.59	20.44	2.9	30.43	-	-	Peak
5500	99.86	-	-	87.54	35.2	10.02	32.9	100	335	Average
5500	110.64	-	-	98.32	35.2	10.02	32.9	100	335	Peak
11001	42.75	-31.25	74	50.17	37.9	13.22	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.5	25	-15	40	45.01	11.1	0.64	31.75	-	-	Peak
48.63	23.47	-16.53	40	45.52	8.9	0.68	31.63	-	-	Peak
101.01	16.52	-26.98	43.5	37.3	9.89	1	31.67	-	-	Peak
459.6	32.06	-13.94	46	43.66	17.25	2.32	31.17	-	-	Peak
501.6	33.09	-12.91	46	43.42	18.12	2.45	30.9	104	156	Peak
545.7	29.94	-16.06	46	39.75	18.88	2.54	31.23	-	-	Peak
5500	95.57	-	-	83.25	35.2	10.02	32.9	178	172	Average
5500	106.26	-	-	93.94	35.2	10.02	32.9	178	172	Peak
11000	43.12	-30.88	74	50.54	37.9	13.22	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5580	97.23	-	-	85.02	35.24	9.99	33.02	146	15	Average
5580	107.44	-	-	95.23	35.24	9.99	33.02	146	15	Peak
11160	40.06	-33.94	74	47.33	38.07	13.2	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5580	94.14	-	-	81.93	35.24	9.99	33.02	176	165	Average
5580	104.76	-	-	92.55	35.24	9.99	33.02	176	165	Peak
11160	39.51	-34.49	74	46.78	38.07	13.2	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5700	97.18	-	-	85.16	35.31	9.93	33.22	167	10	Average
5700	107.99	-	-	95.97	35.31	9.93	33.22	167	10	Peak
11400	41.92	-32.08	74	49	38.3	13.16	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5700	93.16	-	-	81.14	35.31	9.93	33.22	188	173	Average
5700	103.73	-	-	91.71	35.31	9.93	33.22	188	173	Peak
11400	42.43	-31.57	74	49.51	38.3	13.16	58.54	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10360 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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	21.36	-18.64	40	32.7	20	0.53	31.87	-	-	Peak
48.36	23.24	-16.76	40	45.31	8.9	0.68	31.65	-	-	Peak
101.28	16.45	-27.05	43.5	37.23	9.89	1	31.67	-	-	Peak
444.2	33.82	-12.18	46	45.74	16.93	2.29	31.14	102	154	Peak
450.5	31.28	-14.72	46	43.06	17.07	2.3	31.15	-	-	Peak
503.7	30.61	-15.39	46	40.92	18.15	2.46	30.92	-	-	Peak
5180	98.45	-	-	87.59	34.38	9.45	32.97	100	21	Average
5180	109.21	-	-	98.35	34.38	9.45	32.97	100	21	Peak
10360	42.19	-26.11	68.3	52.15	37.29	11.31	58.56	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	36	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 10359 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.42	25.13	-14.87	40	44.55	11.7	0.64	31.76	-	-	Peak
47.55	24.2	-15.8	40	45.88	9.3	0.67	31.65	-	-	Peak
110.73	27.72	-15.78	43.5	47.61	10.8	1.05	31.74	-	-	Peak
444.9	29.47	-16.53	46	41.37	16.95	2.29	31.14	-	-	Peak
462.4	32.61	-13.39	46	44.12	17.31	2.33	31.15	-	-	Peak
502.3	32.73	-13.27	46	43.05	18.13	2.45	30.9	106	205	Peak
5180	94.5	-	-	83.64	34.38	9.45	32.97	122	303	Average
5180	105.49	-	-	94.63	34.38	9.45	32.97	122	303	Peak
10359	41.74	-26.56	68.3	51.7	37.29	11.31	58.56	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5220	97.45	-	-	86.42	34.46	9.53	32.96	100	21	Average
5220	108.26	-	-	97.23	34.46	9.53	32.96	100	21	Peak
10440	41.88	-26.42	68.3	51.94	37.35	11.21	58.62	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	44	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5220	91.74	-	-	80.71	34.46	9.53	32.96	103	116	Average
5220	102.56	-	-	91.53	34.46	9.53	32.96	103	116	Peak
10440	42.38	-25.92	68.3	52.44	37.35	11.21	58.62	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5240	97.38	-	-	86.25	34.51	9.57	32.95	100	19	Average
5240	107.58	-	-	96.45	34.51	9.57	32.95	100	19	Peak
10479	41.39	-26.91	68.3	51.52	37.39	11.14	58.66	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	48	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10479 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5240	91.61	-	-	80.48	34.51	9.57	32.95	142	357	Average
5240	102.59	-	-	91.46	34.51	9.57	32.95	142	357	Peak
10479	42.6	-25.7	68.3	52.73	37.39	11.14	58.66	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5260	97.28	-	-	86.02	34.59	9.62	32.95	110	174	Average
5260	108.1	-	-	96.84	34.59	9.62	32.95	110	174	Peak
10521	42.2	-26.1	68.3	52.24	37.42	11.21	58.67	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	52	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10521 MHz is not within a restricted band, and its limit line is 68.3dBuV/m.		

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
5260	92.44	-	-	81.18	34.59	9.62	32.95	187	360	Average
5260	103.26	-	-	92	34.59	9.62	32.95	187	360	Peak
10521	42.95	-25.35	68.3	52.99	37.42	11.21	58.67	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	96.62	-	-	85.22	34.68	9.66	32.94	100	192	Average
5300	107.25	-	-	95.85	34.68	9.66	32.94	100	192	Peak
10602	42.55	-31.45	74	52.18	37.5	11.51	58.64	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	60	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5300 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5300	95.19	-	-	83.79	34.68	9.66	32.94	187	0	Average
5300	105.88	-	-	94.48	34.68	9.66	32.94	187	0	Peak
10602	41.5	-32.5	74	51.13	37.5	11.51	58.64	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.43	-18.57	40	32.77	20	0.53	31.87	-	-	Peak
46.2	28.48	-11.52	40	49.81	9.7	0.67	31.7	106	207	Peak
51.6	26.23	-13.77	40	49.27	7.9	0.71	31.65	-	-	Peak
445.6	31.11	-14.89	46	43.01	16.95	2.29	31.14	-	-	Peak
468	28.79	-17.21	46	40.09	17.43	2.35	31.08	-	-	Peak
661.2	29.63	-16.37	46	36.86	20.29	2.86	30.38	-	-	Peak
5320	97.75	-	-	86.27	34.72	9.7	32.94	112	193	Average
5320	107.68	-	-	96.2	34.72	9.7	32.94	112	193	Peak
10641	41.8	-32.2	74	51.18	37.54	11.71	58.63	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	64	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	23.81	-16.19	40	35.15	20	0.53	31.87	-	-	Peak
46.2	27.59	-12.41	40	48.92	9.7	0.67	31.7	102	155	Peak
51.33	27.33	-12.67	40	50.35	7.9	0.71	31.63	-	-	Peak
458.9	29.4	-16.6	46	41.02	17.23	2.32	31.17	-	-	Peak
496	29.02	-16.98	46	39.49	18	2.43	30.9	-	-	Peak
514.9	27.82	-18.18	46	37.99	18.35	2.48	31	-	-	Peak
5320	95.74	-	-	84.26	34.72	9.7	32.94	185	0	Average
5320	106.23	-	-	94.75	34.72	9.7	32.94	185	0	Peak
10641	42.04	-31.96	74	51.42	37.54	11.71	58.63	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	22.42	-17.58	40	34.47	19.28	0.54	31.87	-	-	Peak
48.36	21.99	-18.01	40	44.06	8.9	0.68	31.65	-	-	Peak
260.85	27.94	-18.06	46	44.85	12.75	1.6	31.26	-	-	Peak
435.1	29.8	-16.2	46	41.95	16.75	2.26	31.16	104	222	Peak
500.2	29.23	-16.77	46	39.57	18.1	2.45	30.89	-	-	Peak
729.8	29.31	-16.69	46	35.77	21.04	3.01	30.51	-	-	Peak
5500	96.1	-	-	83.78	35.2	10.02	32.9	140	288	Average
5500	105.99	-	-	93.75	35.16	9.98	32.9	140	288	Peak
11001	42.66	-31.34	74	50.08	37.9	13.22	58.54	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	100	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	23.31	-16.69	40	35.36	19.28	0.54	31.87	-	-	Peak
44.31	28.6	-11.4	40	49.18	10.5	0.65	31.73	102	168	Peak
49.17	23.48	-16.52	40	45.92	8.5	0.69	31.63	-	-	Peak
444.2	27.62	-18.38	46	39.54	16.93	2.29	31.14	-	-	Peak
460.3	27.02	-18.98	46	38.6	17.27	2.32	31.17	-	-	Peak
502.3	30.55	-15.45	46	40.87	18.13	2.45	30.9	-	-	Peak
5500	95.26	-	-	82.94	35.2	10.02	32.9	196	349	Average
5500	106.26	-	-	93.98	35.2	9.98	32.9	196	349	Peak
11001	42.84	-31.16	74	50.26	37.9	13.22	58.54			Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5580	91.41	-	-	79.2	35.24	9.99	33.02	100	55	Average
5580	102.07	-	-	89.86	35.24	9.99	33.02	100	55	Peak
11160	40.08	-33.92	74	47.35	38.07	13.2	58.54	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	116	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5580	94.01	-	-	81.8	35.24	9.99	33.02	111	353	Average
5580	103.65	-	-	91.44	35.24	9.99	33.02	111	353	Peak
11160	39.45	-34.55	74	46.72	38.07	13.2	58.54	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5700	93.47	-	-	81.45	35.31	9.93	33.22	100	48	Average
5700	103.91	-	-	91.88	35.32	9.93	33.22	100	48	Peak
11400	41.93	-32.07	74	49.01	38.3	13.16	58.54	100	0	Peak

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Channel :	140	Relative Humidity :	50~52%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5700	94.59	-	-	82.57	35.31	9.93	33.22	200	349	Average
5700	104.46	-	-	92.43	35.32	9.93	33.22	200	349	Peak
11400	42.39	-31.61	74	49.47	38.3	13.16	58.54	100	0	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of emission (MHz)	Conducted limit (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.

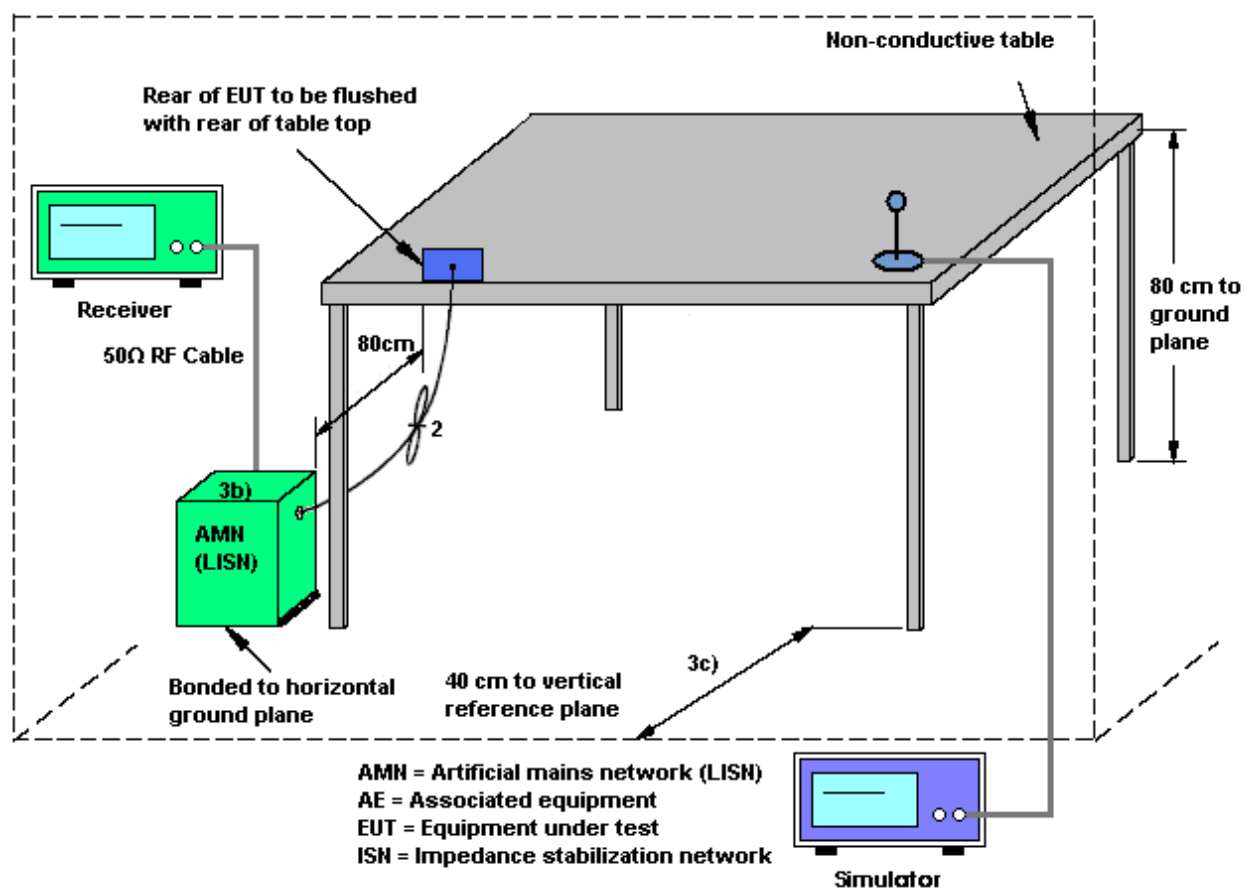
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

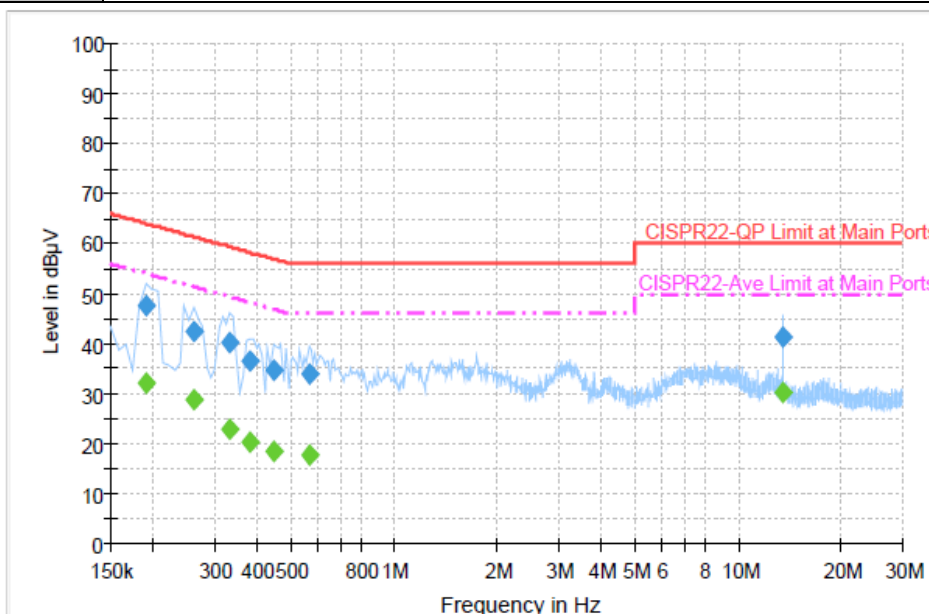
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a 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 1	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Idle + Bluetooth Idle + H Pattern + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit. 13.56 MHz is fundamental signal of NFC which can be ignored.		



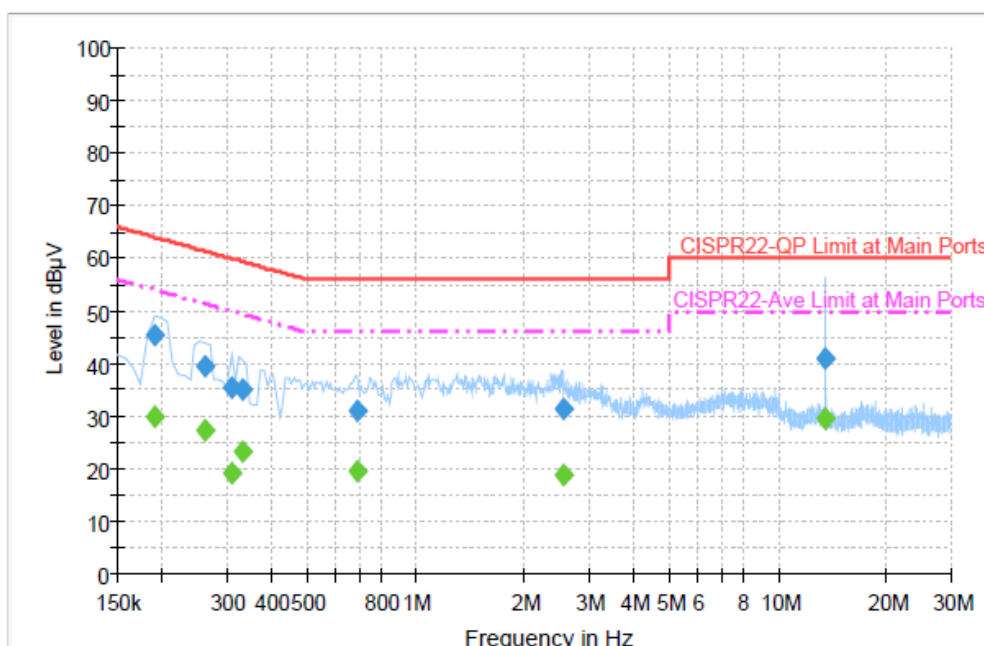
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	47.5	Off	L1	19.4	16.5	64.0
0.262000	42.6	Off	L1	19.4	18.8	61.4
0.334000	40.4	Off	L1	19.4	19.0	59.4
0.382000	36.5	Off	L1	19.4	21.7	58.2
0.446000	34.6	Off	L1	19.3	22.3	56.9
0.566000	33.8	Off	L1	19.4	22.2	56.0
13.558000	41.2	Off	L1	19.8	18.8	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	32.2	Off	L1	19.4	21.8	54.0
0.262000	28.7	Off	L1	19.4	22.7	51.4
0.334000	23.0	Off	L1	19.4	26.4	49.4
0.382000	20.2	Off	L1	19.4	28.0	48.2
0.446000	18.5	Off	L1	19.3	28.4	46.9
0.566000	17.5	Off	L1	19.4	28.5	46.0
13.558000	30.2	Off	L1	19.8	19.8	50.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Idle + Bluetooth Idle + H Pattern + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit. 13.56 MHz is fundamental signal of NFC which can be ignored.		


Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	45.3	Off	N	19.4	18.7	64.0
0.262000	39.6	Off	N	19.4	21.8	61.4
0.310000	35.4	Off	N	19.4	24.6	60.0
0.334000	35.0	Off	N	19.4	24.4	59.4
0.694000	31.2	Off	N	19.5	24.8	56.0
2.566000	31.5	Off	N	19.6	24.5	56.0
13.558000	41.1	Off	N	19.9	18.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.190000	30.1	Off	N	19.4	23.9	54.0
0.262000	27.4	Off	N	19.4	24.0	51.4
0.310000	19.3	Off	N	19.4	30.7	50.0
0.334000	23.3	Off	N	19.4	26.1	49.4
0.694000	19.6	Off	N	19.5	26.4	46.0
2.566000	18.8	Off	N	19.6	27.2	46.0
13.558000	29.4	Off	N	19.9	20.6	50.0

3.7 Frequency Stability Measurement

3.7.1 Limit of Frequency Stability

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

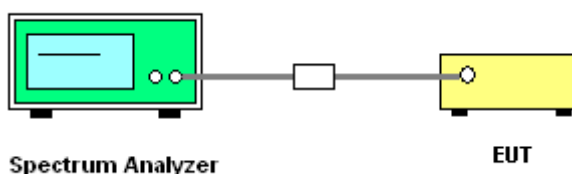
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedures

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

3.7.4 Test Setup



3.7.5 Test Result of Frequency Stability

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

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.80	5188.20	0.00
44	5220	5211.80	5228.20	0.00
48	5240	5231.85	5248.15	0.00
52	5260	5251.85	5268.20	4.75
60	5300	5291.80	5308.20	0.00
64	5320	5311.80	5328.20	0.00
100	5500	5491.80	5508.20	0.00
116	5580	5571.80	5588.20	0.00
140	5700	5691.85	5708.20	4.39

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

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.20	5188.80	0.00
44	5220	5211.20	5228.80	0.00
48	5240	5231.20	5248.80	0.00
52	5260	5251.20	5268.80	0.00
60	5300	5291.20	5308.80	0.00
64	5320	5311.20	5328.80	0.00
100	5500	5491.20	5508.80	0.00
116	5580	5571.15	5588.80	-4.48
140	5700	5691.25	5708.75	0.00

3.8 Automatically Discontinue Transmission

3.8.1 Limit of Automatically Discontinue Transmission

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

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Result of Automatically Discontinue Transmission

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



3.9 Antenna Requirements

3.9.1 Standard Applicable

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

3.9.2 Antenna Connected Construction

Non-standard connector used.

3.9.3 Antenna Gain

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

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Sep. 11, 2012 ~ Sep. 28, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1132003	300MHz~40GHz	Aug. 14, 2012	Sep. 11, 2012 ~ Sep. 28, 2012	Aug. 13, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 14, 2012	Sep. 11, 2012 ~ Sep. 28, 2012	Aug. 13, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9kHz ~ 2.75GHz	Oct. 27, 2011	Sep. 10, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz ~ 30MHz	Dec. 09, 2011	Sep. 10, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz ~ 30MHz	Dec. 06, 2011	Sep. 10, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Sep. 10, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Sep. 17, 2012 ~ Sep. 22, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9kHz ~ 30GHz	Dec. 06, 2011	Sep. 17, 2012 ~ Sep. 22, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Sep. 17, 2012 ~ Sep. 22, 2012	Jul. 31, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Sep. 17, 2012 ~ Sep. 22, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Sep. 17, 2012 ~ Sep. 22, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
Signal Analyzer	Rohde & Schwarz	FSQ	200578/026	20Hz~26.5GHz	Feb. 06, 2012	Sep. 17, 2012 ~ Sep. 22, 2012	Feb. 05, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Sep. 17, 2012 ~ Sep. 22, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz ~ 40GHz	Oct. 21, 2011	Sep. 17, 2012 ~ Sep. 22, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	Jul. 03, 2012	Sep. 17, 2012 ~ Sep. 22, 2012	Jul. 02, 2014	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

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

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

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

Please refer to Sporton report number EP283001 as below.