FCC RADIO TEST REPORT

According to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment	:	**N600 Wireless Dual Band Gigabit ADSL MODEM ROUTER**
Brand Name	:	**Netgear**
Model No.	:	**DGND3700v2**
Filing Type	:	**New Application**
Applicant	:	**Netgear Inc.**
Manufacturer		350 East Plumeria Drive San Jose, CA 95134 U.S.A.
FCC ID	:	**PY311400180**
Received Date	:	Mar. 16, 2012
Final Test Date	:	Apr. 07, 2012

Statement

Test result included is only for the 802.11a/n (5150~5250MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart E**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

SPORTON International Inc.

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

Table of Contents

History of This Test Report

Original Issue Date: Apr. 17, 2012
Report No.: FR230847AN
■ No additional attachment.
□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

According to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment	:	N600 Wireless Dual Band Gigabit ADSL MODEM ROUTER
Brand Name	:	Netgear
Model No.	:	DGND3700v2
Applicant	:	Netgear Inc. 350 East Plumeria Drive San Jose, CA 95134 U.S.A.

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Mar. 16, 2012 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

SPORTON International Inc.

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

1 SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	AC Power Line Conducted Emissions	Complies	13.05 dB
3.2	15.407(a)	26dB Spectrum Bandwidth Measurement	Complies	-
3.3	15.407(a)	Maximum Conducted Output Power	Complies	2.45 dB
3.4	15.407(a)	Power Spectral Density	Complies	0.48 dB
3.5	15.407(a)	Peak Excursion	Complies	5.88 dB
3.6	15.407(b)	Radiated Emissions	Complies	0.80 dB
3.7	15.407(b)	Band Edge Emissions	Complies	1.24 dB
3.8	15.407(g)	Frequency Stability	Complies	-
3.9	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.5dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
Peak Excursion	±0.5dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2 GENERAL INFORMATION

2.1 Product Details

Only the radio detail of IEEE 802.11a/n is shown in this report. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Power Type	From 12V adapter
Data Modulation Data Rate (Mbps)	OFDM for IEEE 802.11a (BPSK / QPSK / 16QAM / 64QAM) (6/9/12/18/24/36/48/54) See the below table for IEEE 802.11n
Frequency Range	5150~5250MHz
Channel Band Width (99%)	802.11a : 17.20 MHz
	802.11n : MCS 0 (20MHz) : 18.20 MHz ; MCS 0 (40MHz) : 36.80 MHz MCS 8 (20MHz) : 18.00 MHz ; MCS 8 (40MHz) : 36.60 MHz
Conducted Output Power	802.11a : 13.15 dBm
	802.11n : MCS 0 (20MHz) : 12.39 dBm ; MCS 0 (40MHz) : 12.90 dBm MCS 8 (20MHz) : 12.28 dBm ; MCS 8 (40MHz) : 14.55 dBm

IEEE 802.11n Modulation Scheme

MCS	Spatial	Modulation	Coding Rate	Data rate(Mbps)	
Index	Streams	Type	Type	20 MHz channel	40 MHz channel
				800nsGI	800nsGI
0	1	BPSK	1/2	6.5	13.5
1	1	QPSK	1/2	13	27
2	1	QPSK	3/4	19.5	40.5
3	1	16-QAM	1/2	26	54
4	1	16-QAM	3/4	39	81
5	1	64-QAM	2/3	52	108
6	1	64-QAM	3/4	58.5	121.5
7	1	64-QAM	5/6	65	135
8	2	BPSK	1/2	13	27
9	2	QPSK	1/2	26	54
10	2	QPSK	3/4	39	81
11	2	16-QAM	1/2	52	108
12	2	16-QAM	3/4	78	162
13	2	64-QAM	2/3	104	216
14	2	64-QAM	3/4	117	243
15	2	64-QAM	5/6	130	270

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

2.2 Accessories

Accessories Information				
AC Adapter 1	Brand Name	PIE	Model Name	P030WF120B 11200-6LF
	Power Rating	I/P: 100-240V~50/60Hz 1.0A; O/P: 12.0V 2.5A		

Note: Regarding to more detail and other information, please refer to user manual.

2.3 Table for Filed Antenna

Antenna Category (Ant. Cat.)	
☒	Integral antenna (antenna permanently attached)
	☒ Temporary RF connector provided ; ☐ No temporary RF connector provided

Transmitter Outputs & Receiver Inputs Information				
Modulation	**Transmitter Outputs**	**Receiver Inputs**	**Transmitter Output Signals**	**Co-location**
802.11b/g	1	1	-	Yes
802.11n HT20 / HT40	1	1	-	Yes
802.11n HT20 / HT40	2	2	-	Yes
Note : Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other.				

Antenna General Information									
Antenna Port (Total 2 Port)			1(TX/RX), 2(TX/RX)						
Maximum RF Output Power Level (PL)			1						
Transmit Chains Power Distribution			☒ symmetrical distribution ☐ asymmetrical distribution						
Ant. No.	**PL**	**Ant. Port [Ant No. *X* connect to Ant. Port *Y*]**	**Ant. Cat.**	**Ant. Type**	**Brand**	**Model**	**G_{ANT} (dBi)**	**DG (dBi) [correlated] N_{TX} = 1**	**DG (dBi) [uncorrelated] N_{TX} = 2**
1	1	1	Integral	PCB	--	--	5.05	N/A	5.40
2	1	2	Integral	PCB	--	--	5.79		
☒	The equipment is normally installed and point-to-point or point-to-multipoint systems: Ant. No. 1, 2								

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) = G_{ANT} + 10 log(N) dBi
All transmit signals are completely uncorrelated, Directional Gain (DG)= G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) =
$10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N]$ dBi
All transmit signals are completely uncorrelated, Directional Gain (DG) =
$10 \log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10)/N}]$ dBi

2.4 Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency (20MHz)	Channel No.	Frequency (40MHz)
5150~5250 MHz Band 1	36	5180 MHz	38	5190 MHz
	40	5200 MHz	46	5230 MHz
	44	5220 MHz	-	-
	48	5240 MHz	-	-

2.5 Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on the entire possible Configuration for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
AC Power Conducted Emission	Transmitting mode	-	-
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Peak Excursion	11a Band 1/BPSK	6Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (20MHz)	6.5 Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (40MHz)	13.5 Mbps	38/46
	11n Band 1/BPSK MCS 8 (20MHz)	13Mbps	36/40/48
	11n Band 1/BPSK MCS 8 (40MHz)	27Mbps	38/46
Max. Conducted Output Power Measurement Power Spectral Density	11a Band 1/BPSK	6Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (20MHz)	6.5 Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (40MHz)	13.5 Mbps	38/46
	11n Band 1/BPSK MCS 8 (20MHz)	13Mbps	36/40/48
	11n Band 1/BPSK MCS 8 (40MHz)	27Mbps	38/46
Radiated Emission Below 1GHz	11a Band 1/BPSK	6Mbps	48
	11n Band 1/BPSK MCS 0 (20MHz)	6.5 Mbps	48
	11n Band 1/BPSK MCS 0 (40MHz)	13.5 Mbps	46
	11n Band 1/BPSK MCS 8 (20MHz)	13Mbps	48
	11n Band 1/BPSK MCS 8 (40MHz)	27Mbps	46
Radiated Emission Above 1GHz Fundamental Emissions	11a Band 1/BPSK	6Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (20MHz)	6.5 Mbps	36/40/48
	11n Band 1/BPSK MCS 0 (40MHz)	13.5 Mbps	38/46
	11n Band 1/BPSK MCS 8 (20MHz)	13Mbps	36/40/48
	11n Band 1/BPSK MCS 8 (40MHz)	27Mbps	38/46
Band Edge Emission	11a Band 1/BPSK	6Mbps	36/48
	11n Band 1/BPSK MCS 0 (20MHz)	6.5 Mbps	36/48
	11n Band 1/BPSK MCS 0 (40MHz)	13.5 Mbps	38/46
	11n Band 1/BPSK MCS 8 (20MHz)	13Mbps	36/48
	11n Band 1/BPSK MCS 8 (40MHz)	27Mbps	38/46

2.6 Table for Testing Locations

Test Site No.	Site Category	Location
CO04-HY	Conduction	Hwa Ya
TH01-HY	OVEN Room	Hwa Ya
03CH02-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.7 Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E5520	DoC

2.8 Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. 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.

For Single Chain:

Power Parameters of IEEE 802.11a Port 1

Test Software Version	DOS		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	13	13	13

Power Parameters of IEEE 802.11n Port 1

Test Software Version	DOS		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11n(20MHz)	13	13	13
Frequency	5190 MHz	5230 MHz	-
IEEE 802.11n(40MHz)	11	14	-

For Two Chains:

Power Parameters of IEEE 802.11n Port 1+ Port 2

Test Software Version	DOS		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11n (20MHz)	10 ; 10	10 ; 10	11 ; 11
Frequency	5190 MHz	5230 MHz	-
IEEE 802.11n (40MHz)	11 ; 11	13 ; 13	-

2.9 EUT Operation during Test

An executive program, “EMCTEST.EXE” under Win XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.

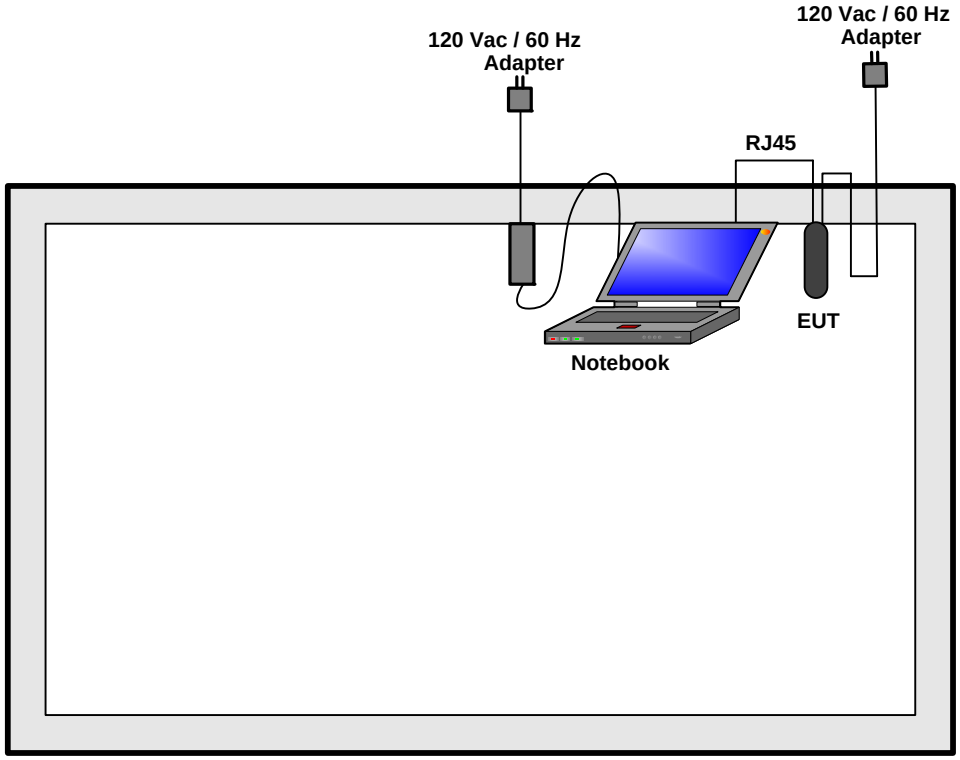
b. The NB reads the test program from the hard disk drive and runs it.

c. The NB sends “H” messages to the panel and displays “H” patterns on the screen.

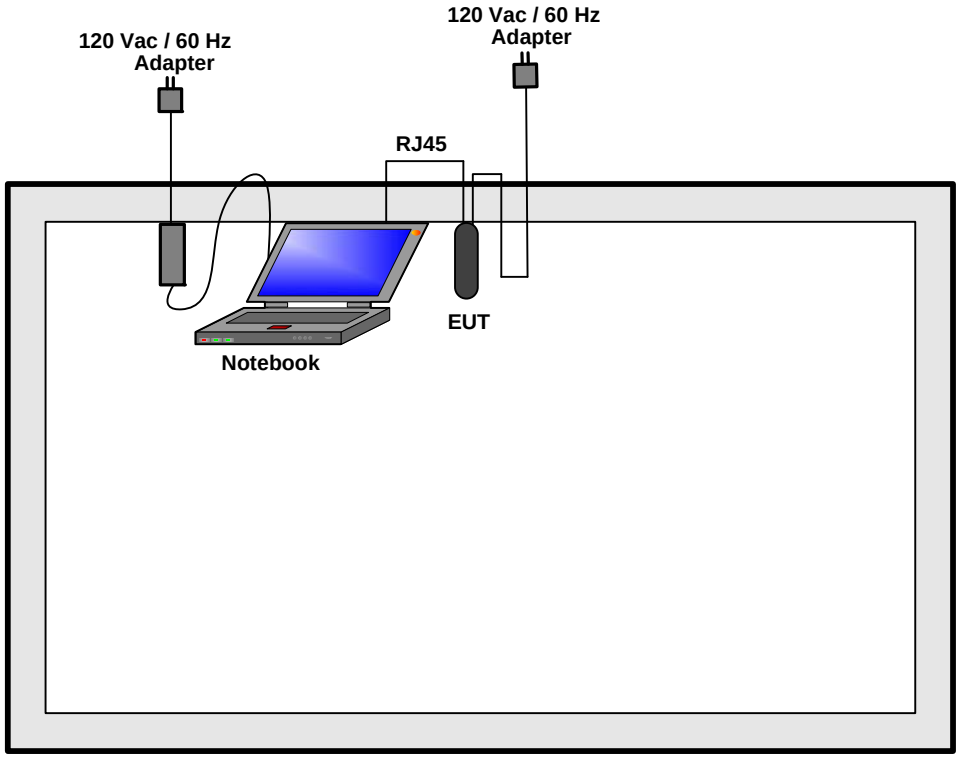
At the same time, the following programs were executed:
The Notebook executed “DOS command” to EUT keep transmitting signals at fixed frequency via RJ45.

2.10 Test Configuration

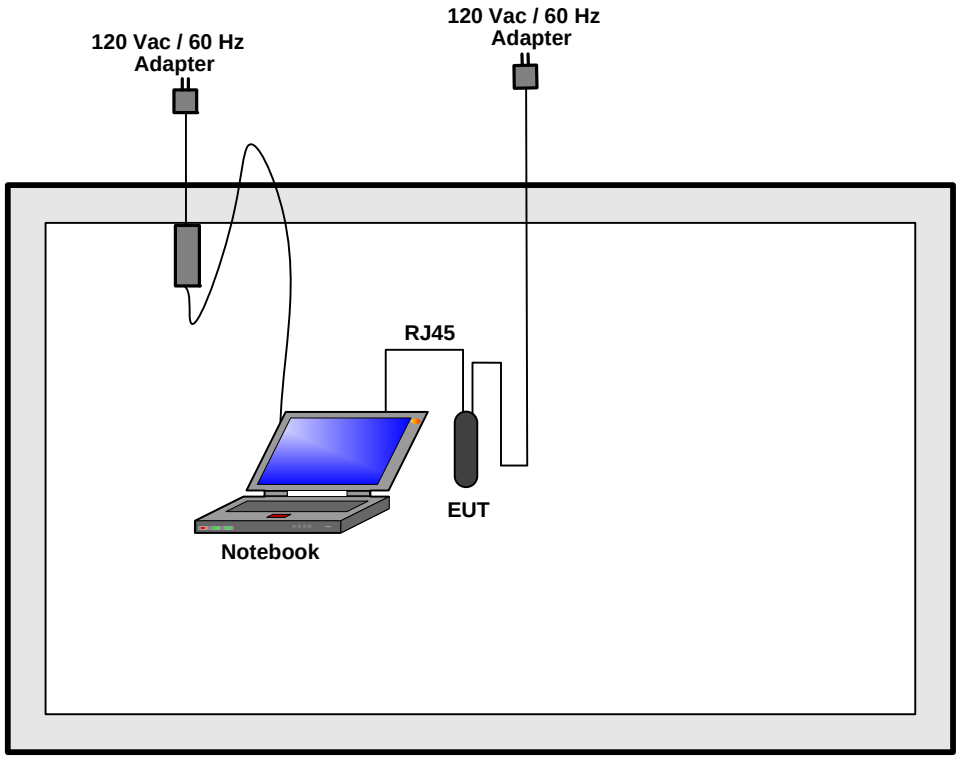
For conducted emissions



For radiated emissions 9kHz~1GHz



For radiated emissions above 1GHz



3 TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For this product which is designed to be connected to the 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 below limits table.

Class B

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2 Measuring Instruments and Setting

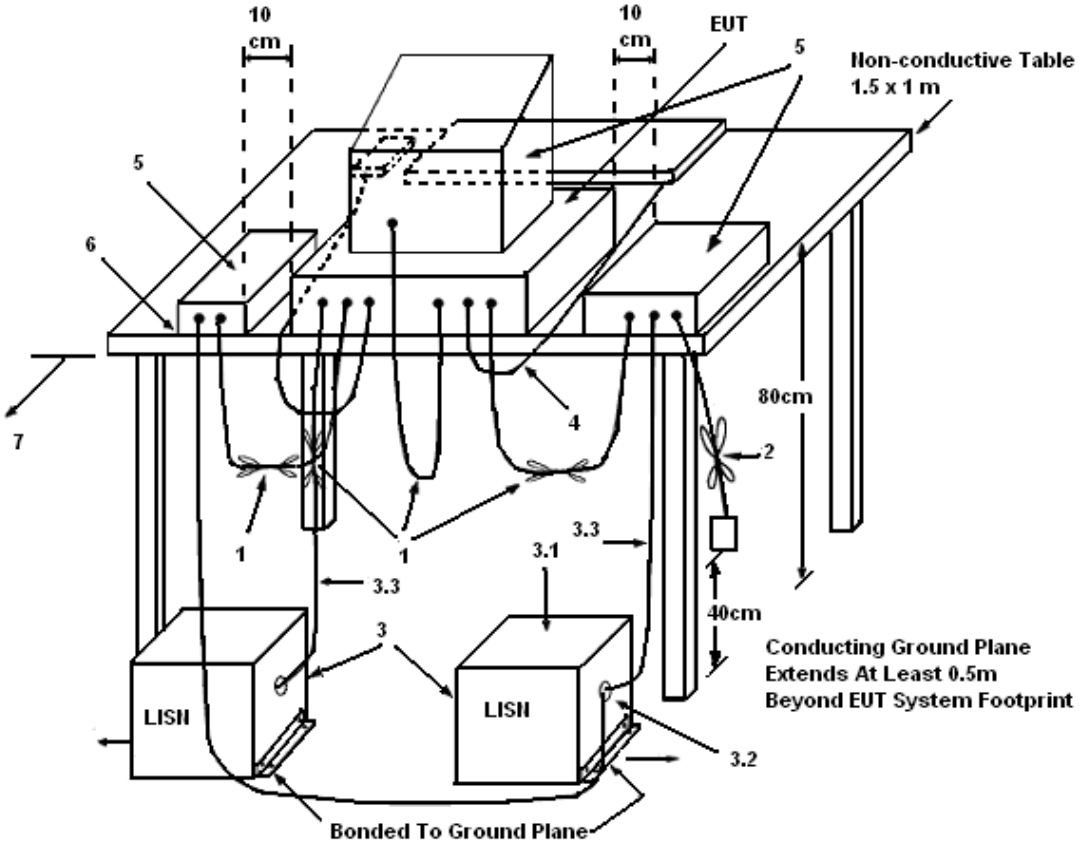
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.3 Test Procedures

1. The EUT warm up about 15 minutes then start test.
2. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
5. The frequency range from 150 kHz to 30 MHz was searched.
6. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
7. The measurement has to be done between each power line and ground at the power terminal.

3.1.4 Test Setup Layout



LEGEND:
(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.
(3.1) All other equipment powered from additional LISN(s).
(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
(3.3) LISN at least 80 cm from nearest part of EUT chassis.
(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
(5) Non-EUT components of EUT system being tested.
(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

There is no deviation with the original standard.

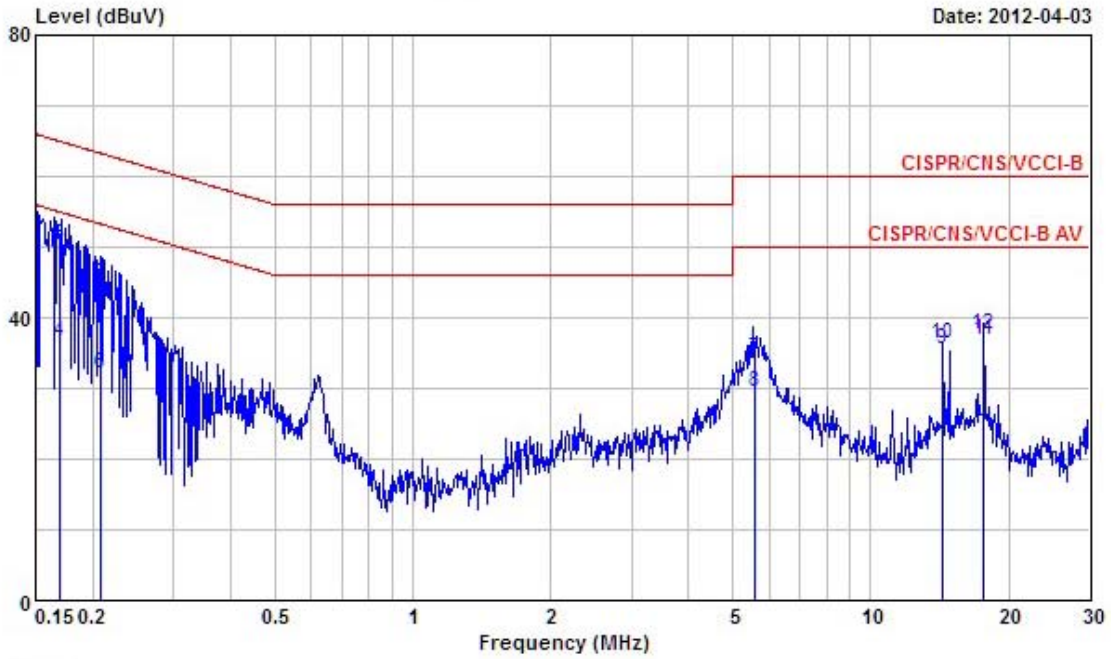
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in transmitting function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

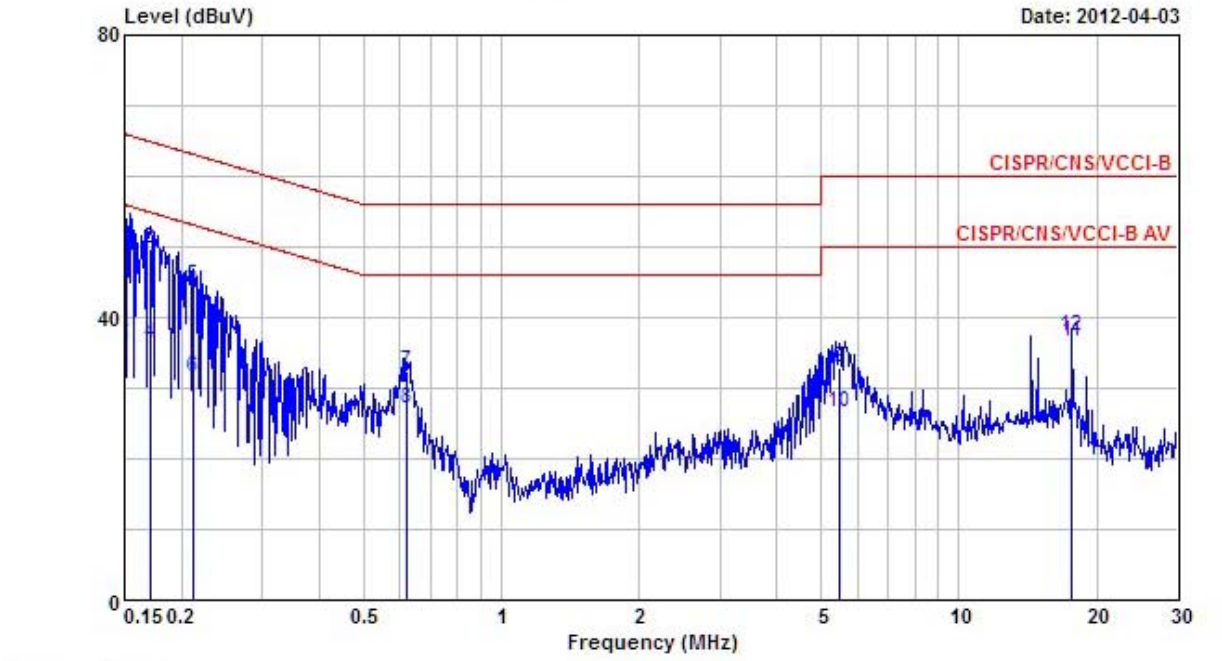
Final Test Date	Apr. 03, 2012	**Test Site No.**	CO04-HY
Temperature	23℃	**Humidity**	46%
Test Engineer	Alan	**Configuration**	Transmitting mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	52.84	-13.16	66.00	52.46	0.30	0.08	QP
2	0.1500000	37.73	-18.27	56.00	37.35	0.30	0.08	Average
3	0.1698400	50.21	-14.76	64.97	49.86	0.30	0.05	QP
4	0.1698400	36.48	-18.49	54.97	36.13	0.30	0.05	Average
5	0.2083320	44.72	-18.55	63.27	44.41	0.30	0.01	QP
6	0.2083320	32.11	-21.16	53.27	31.80	0.30	0.01	Average
7	5.590	34.20	-25.80	60.00	33.68	0.38	0.14	QP
8	5.590	29.47	-20.53	50.00	28.95	0.38	0.14	Average
9	14.380	35.50	-14.50	50.00	34.52	0.52	0.46	Average
10	14.380	36.24	-23.76	60.00	35.26	0.52	0.46	QP
11	17.627	36.95	-13.05	50.00	36.05	0.56	0.34	Average
12	17.627	37.73	-22.27	60.00	36.83	0.56	0.34	QP

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1500000	52.14	-13.86	66.00	51.79	0.27	0.08	QP
2	0.1500000	36.60	-19.40	56.00	36.25	0.27	0.08	Average
3	0.1711630	49.71	-15.19	64.90	49.41	0.26	0.04	QP
4	0.1711630	36.44	-18.46	54.90	36.14	0.26	0.04	Average
5	0.2127940	44.43	-18.67	63.10	44.16	0.25	0.02	QP
6	0.2127940	31.59	-21.51	53.10	31.32	0.25	0.02	Average
7	0.6207510	32.33	-23.67	56.00	31.99	0.24	0.10	QP
8	0.6207510	27.10	-18.90	46.00	26.76	0.24	0.10	Average
9	5.485	32.98	-27.02	60.00	32.53	0.32	0.13	QP
10	5.485	26.67	-23.33	50.00	26.22	0.32	0.13	Average
11	17.622	36.57	-13.43	50.00	35.77	0.46	0.34	Average
12	17.622	37.30	-22.70	60.00	36.50	0.46	0.34	QP

Note:
Level = Read Level + LISN Factor + Cable Loss.

3.2 99% Occupied Bandwidth Measurement

3.2.1 Limit

No restriction limits. But resolution bandwidth within band edge measurement is 1% of the 99% occupied bandwidth.

3.2.2 Measuring Instruments and Setting

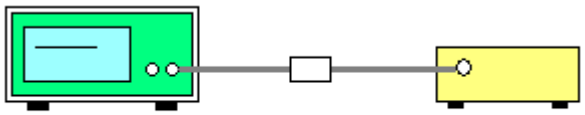
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RB	300 kHz
VB	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.2.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 300 kHz and the video bandwidth of 1000 kHz were used.
3. Measured the spectrum width with power higher than 26dB below carrier.
4. Measuring multiple antennas, the connectors are required to link with Spectrum Analyzer through a combiner. (Only for IEEE 802.11n test)

3.2.4 Test Setup Layout



3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Result of 99% Occupied Bandwidth

Final Test Date	Apr. 07, 2012	**Test Site No.**	TH01-HY
Temperature	23℃	**Humidity**	33%
Test Engineer	Shiming	**Configurations**	802.11a/n

For Single Chain:
Configuration of IEEE 802.11a Port 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	26.80	17.20
40	5200 MHz	26.00	17.20
48	5240 MHz	26.70	17.00

Configuration of IEEE 802.11n (20MHz) Port 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	26.50	18.20
40	5200 MHz	25.40	18.00
48	5240 MHz	24.30	18.00

Configuration of IEEE 802.11n (40MHz) Port 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	39.80	36.40
46	5230 MHz	71.80	36.80

For Two Chains:

Configuration of IEEE 802.11n (20MHz) Port 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	21.40	18.00
40	5200 MHz	21.20	18.00
48	5240 MHz	21.20	17.90

Configuration of IEEE 802.11n (20MHz) Port 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	19.80	17.60
40	5200 MHz	19.80	17.60
48	5240 MHz	19.80	17.70

Configuration of IEEE 802.11n (40MHz) Port 1

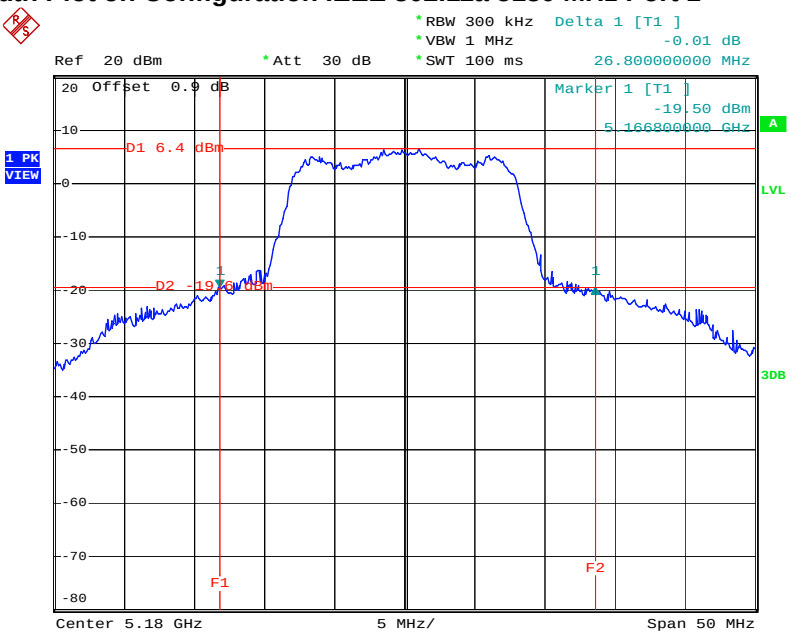
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	39.60	36.40
46	5230 MHz	57.60	36.60

Configuration of IEEE 802.11n (40MHz) Port 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	39.20	36.40
46	5230 MHz	39.20	36.40

For Single Chain:

26 dB Bandwidth Plot on Configuration IEEE 802.11a 5180 MHz Port 1



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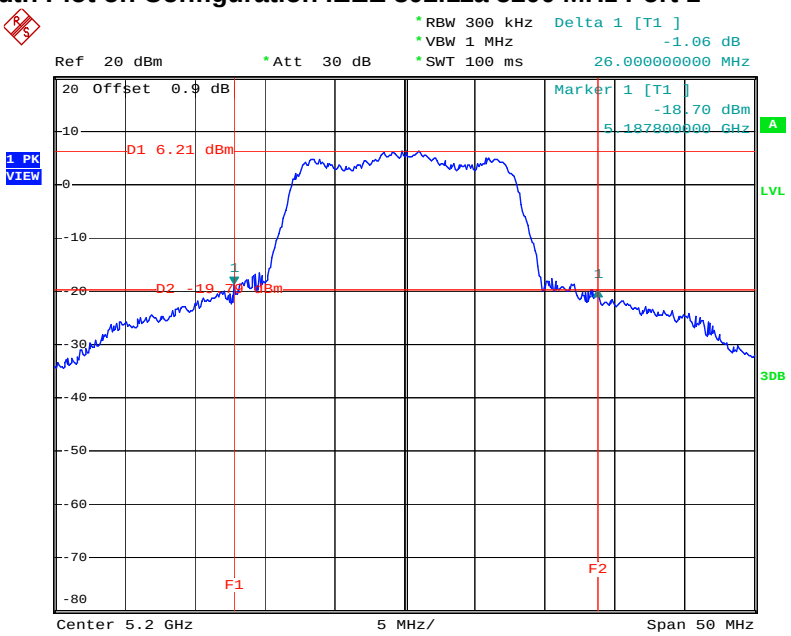
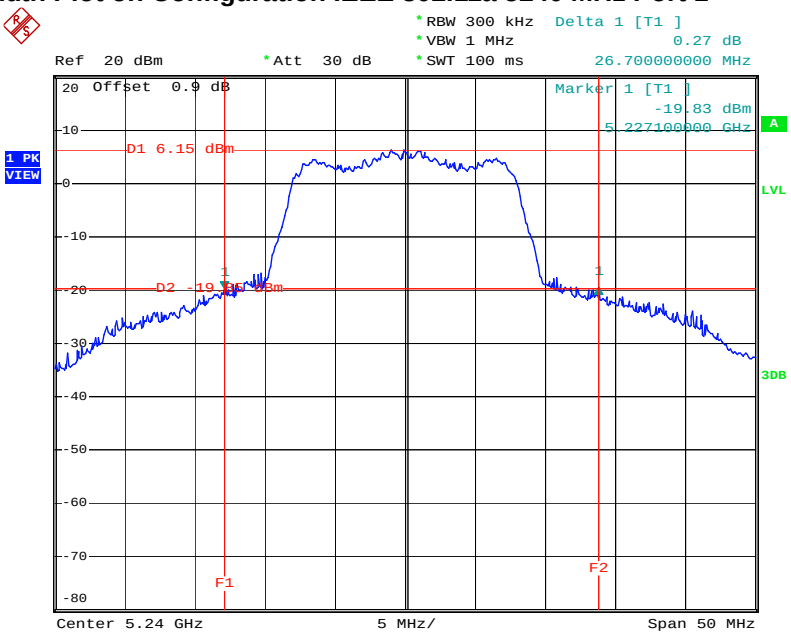
26 dB Bandwidth Plot on Configuration IEEE 802.11a 5200 MHz Port 1



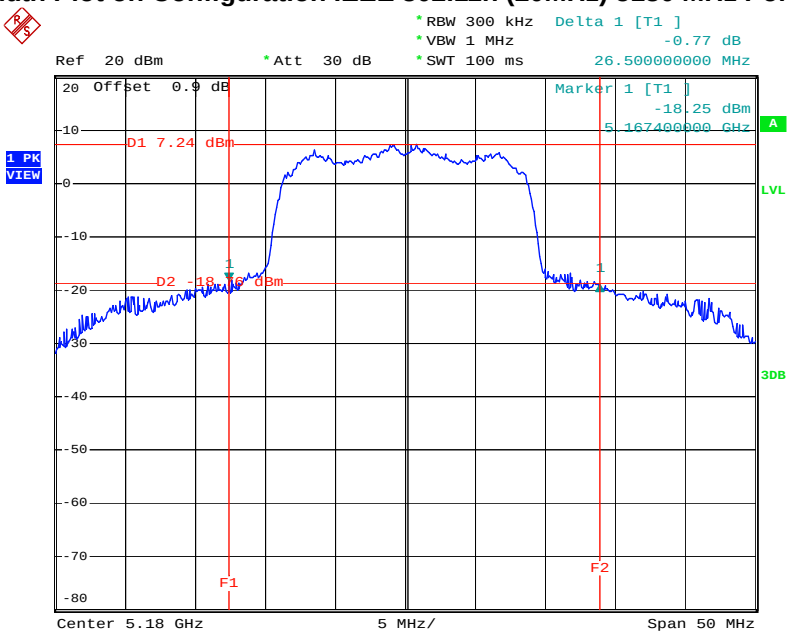
Date: 7.APR.2012 21:49:27

26 dB Bandwidth Plot on Configuration IEEE 802.11a 5240 MHz Port 1



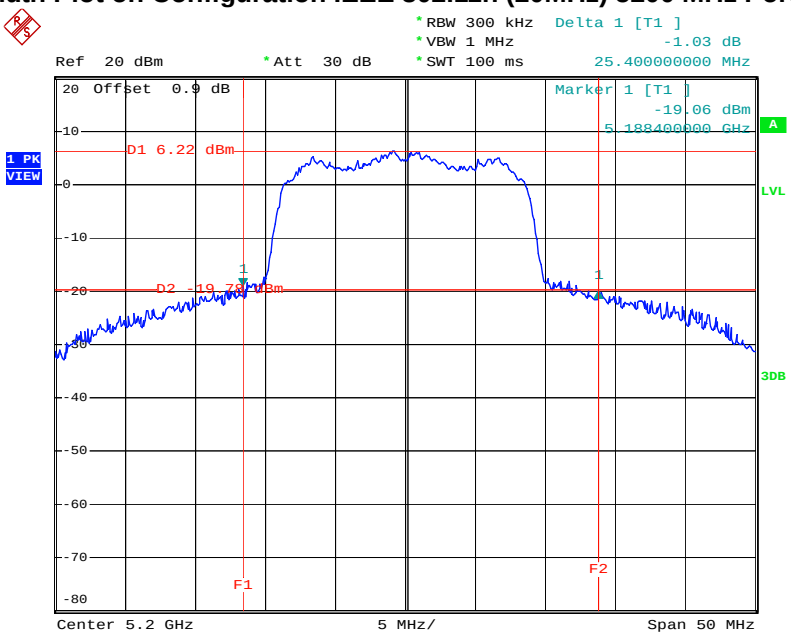
Date: 7.APR.2012 21:54:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



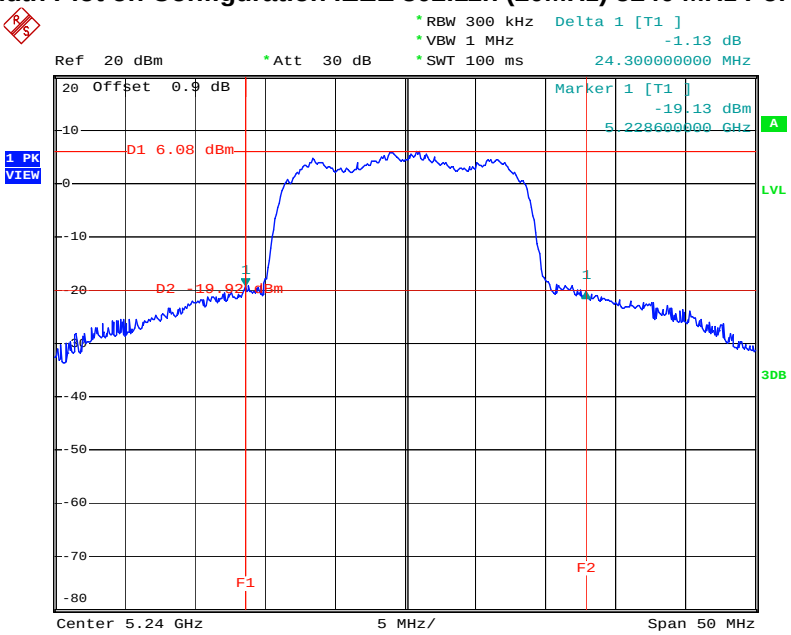
Date: 7.APR.2012 22:06:58

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



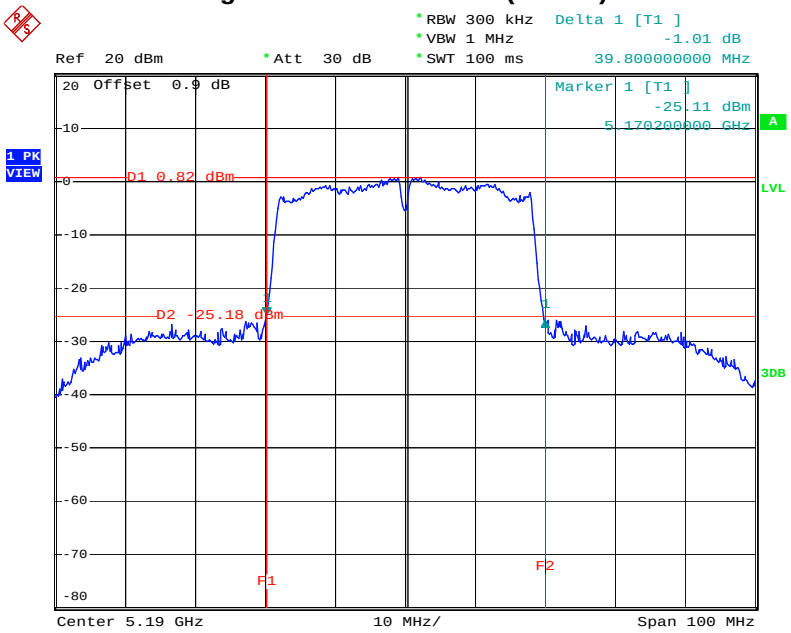
Date: 7.APR.2012 22:12:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



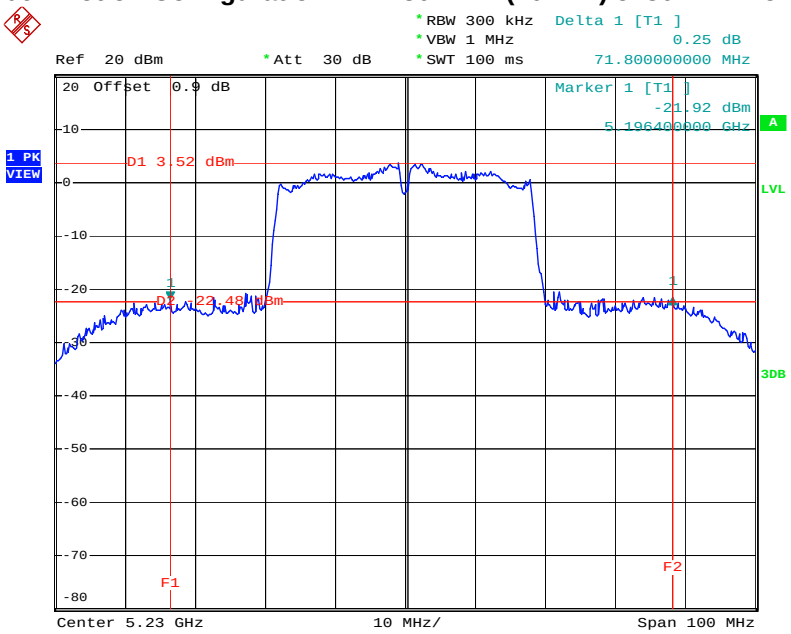
Date: 7.APR.2012 22:16:48

26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



Date: 7.APR.2012 22:26:25

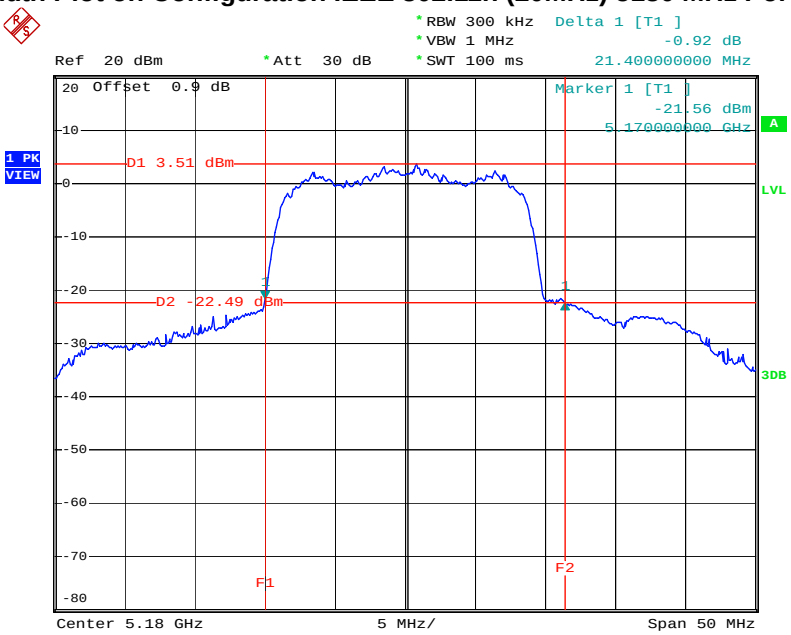
26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



Date: 7.APR.2012 22:31:56

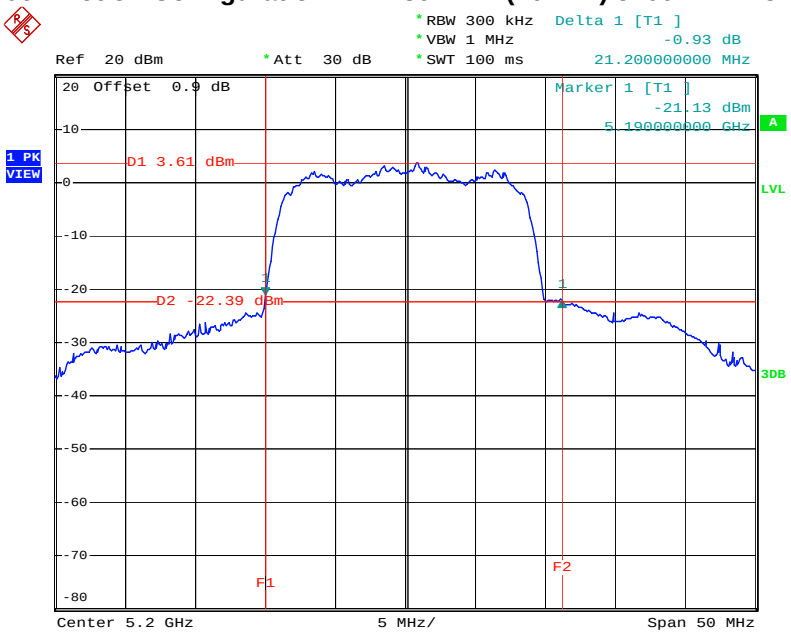
For Two Chains:

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



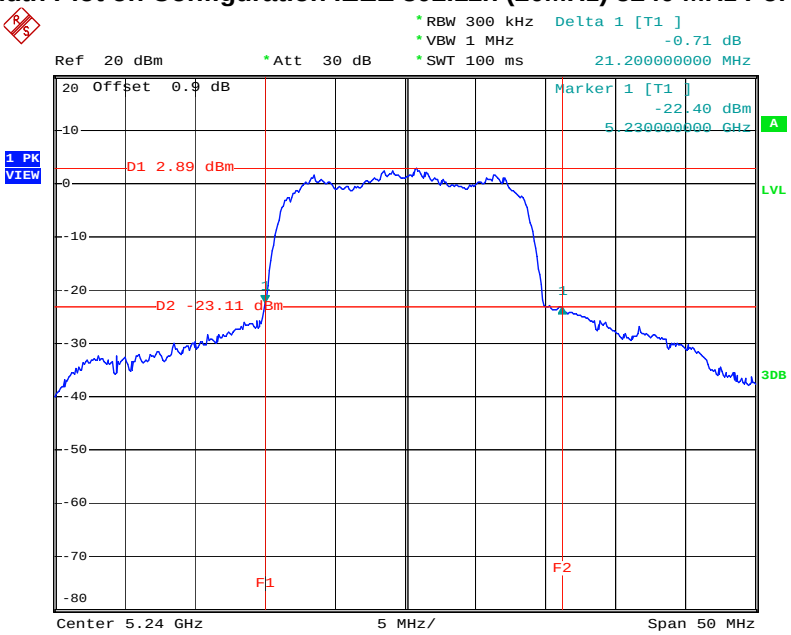
Date: 7.APR.2012 22:54:57

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



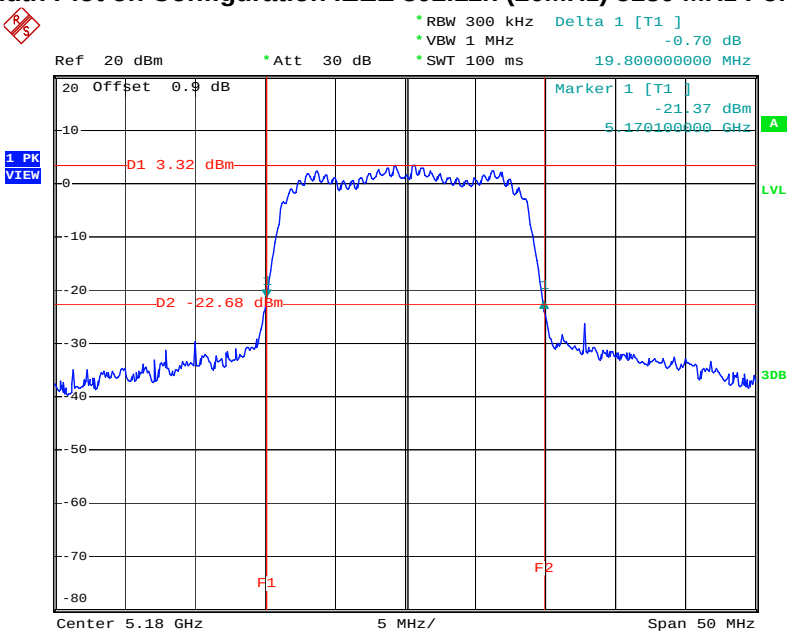
Date: 7.APR.2012 23:04:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



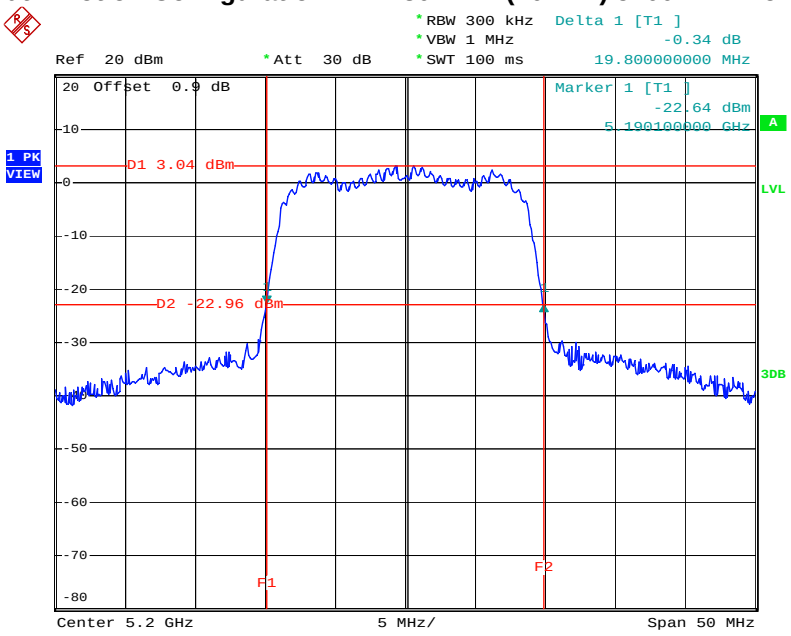
Date: 7.APR.2012 23:10:41

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 2



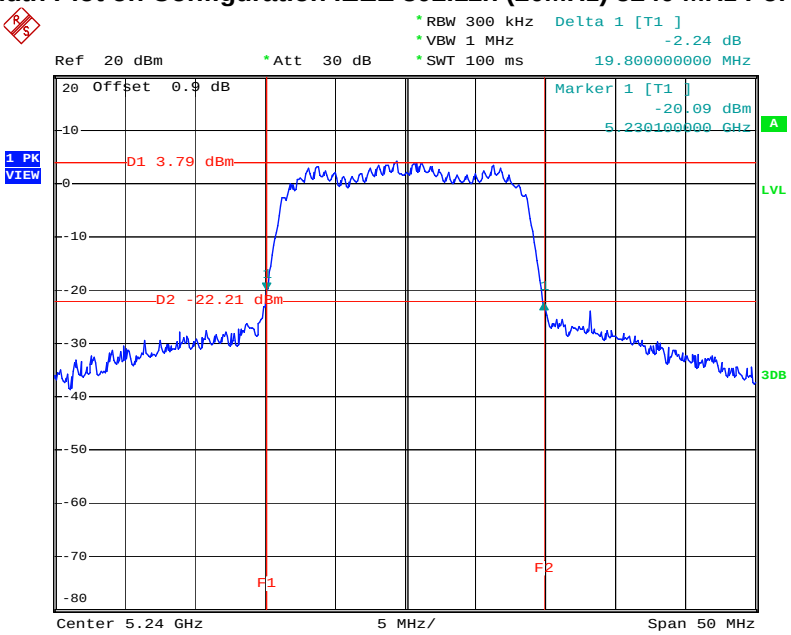
Date: 7.APR.2012 23:20:25

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 2



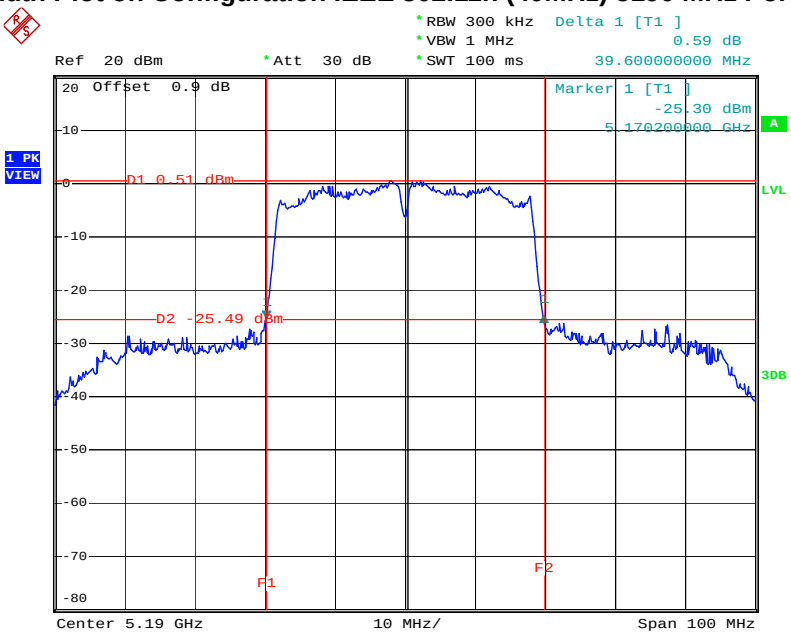
Date: 7.APR.2012 23:25:14

26 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 2



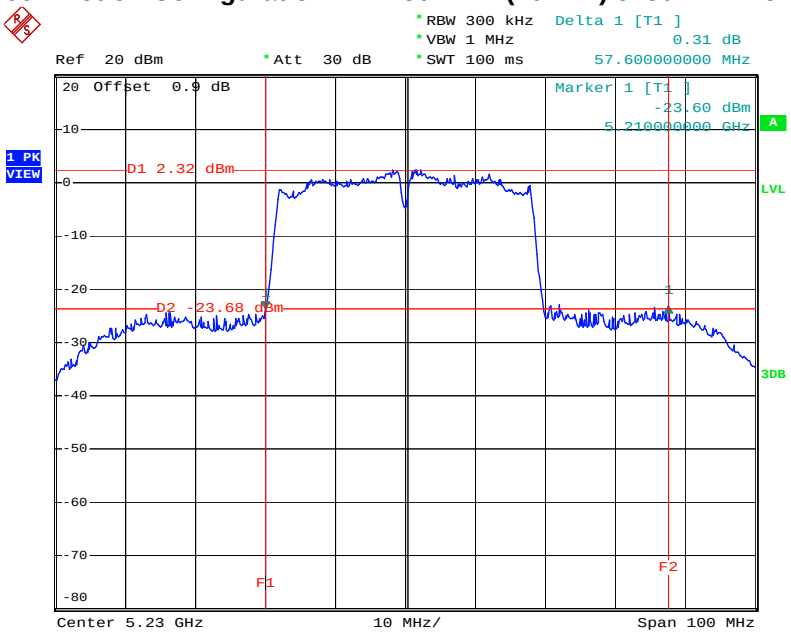
Date: 7.APR.2012 23:30:55

26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



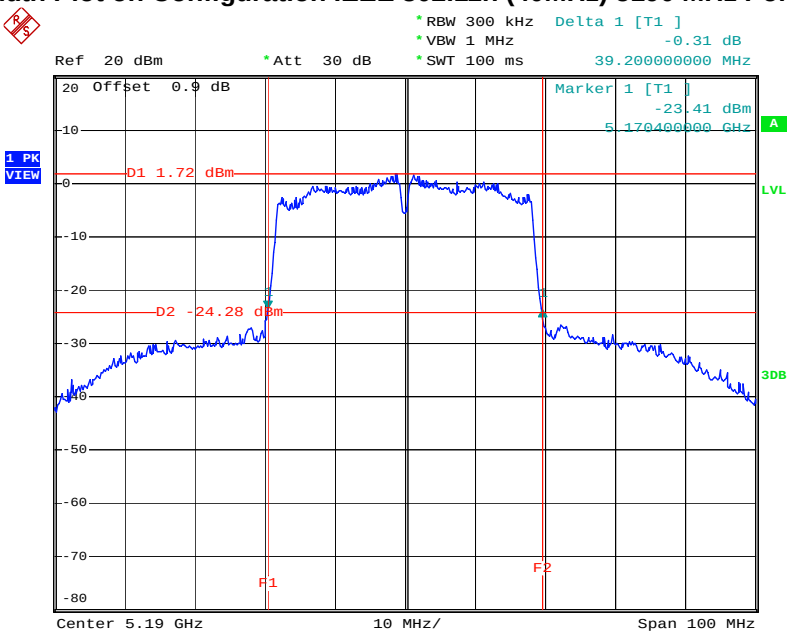
Date: 7.APR.2012 23:50:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



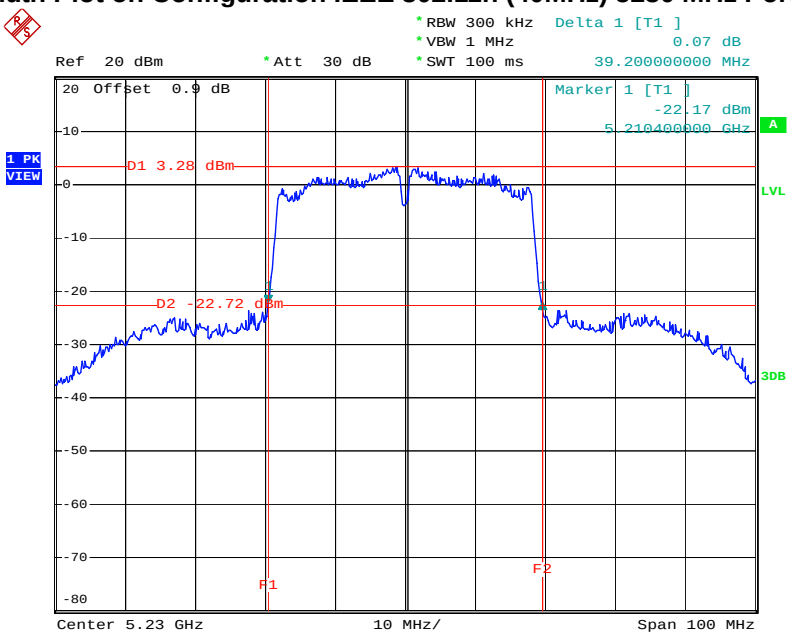
Date: 7.APR.2012 23:52:53

26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 2



Date: 7.APR.2012 23:40:30

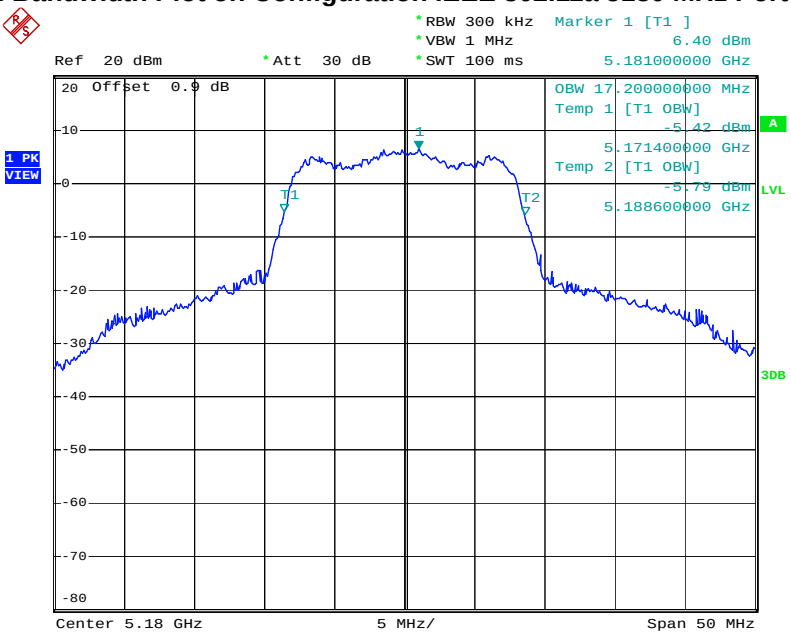
26 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 2



Date: 7.APR.2012 23:44:53

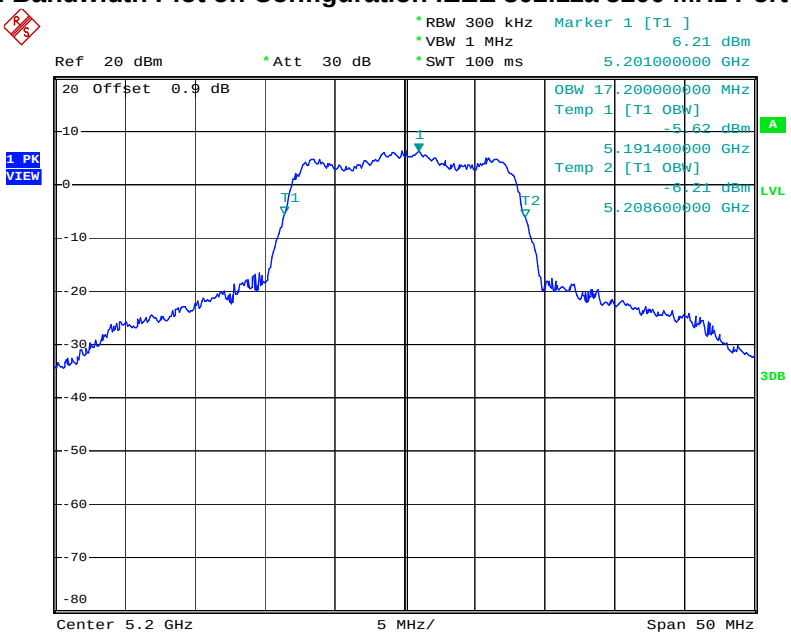
For Single Chain:

99% Occupied Bandwidth Plot on Configuration IEEE 802.11a 5180 MHz Port 1



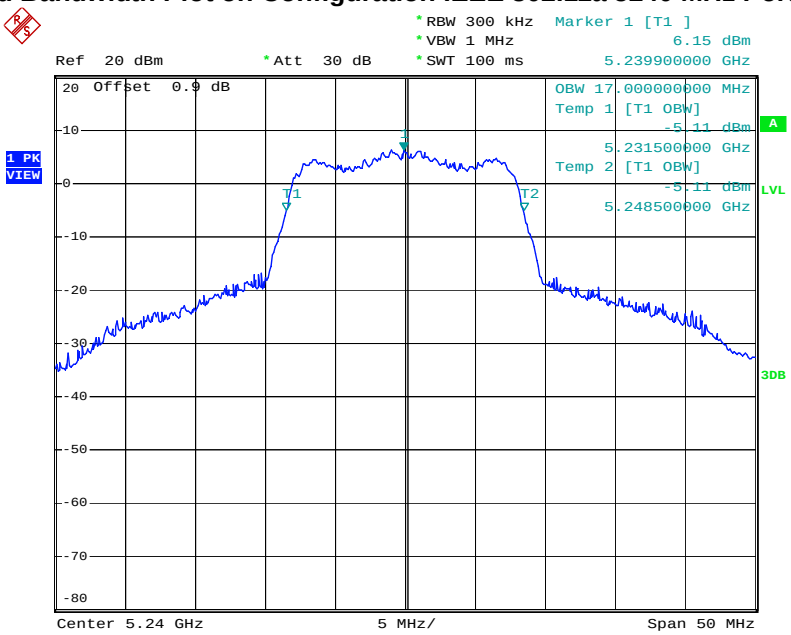
Date: 7.APR.2012 21:44:21

99% Occupied Bandwidth Plot on Configuration IEEE 802.11a 5200 MHz Port 1



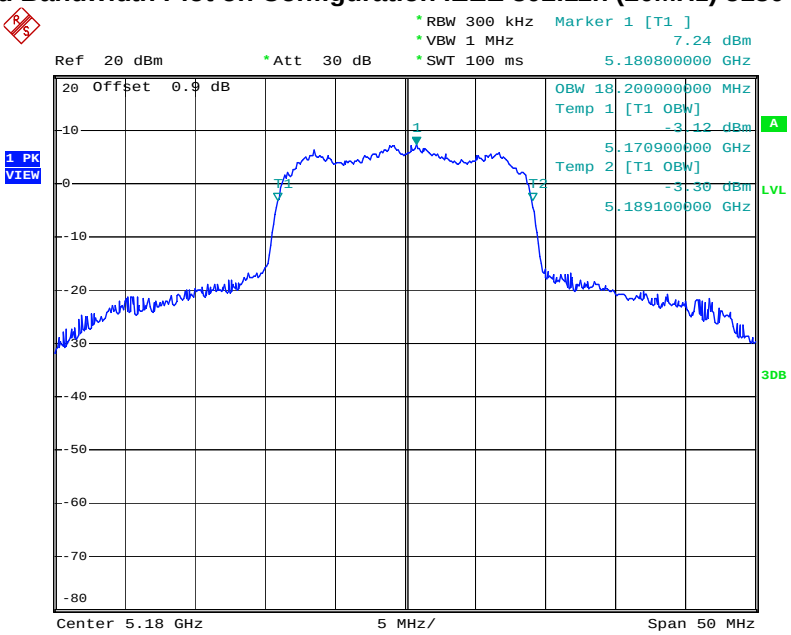
Date: 7.APR.2012 21:49:40

99% Occupied Bandwidth Plot on Configuration IEEE 802.11a 5240 MHz Port 1



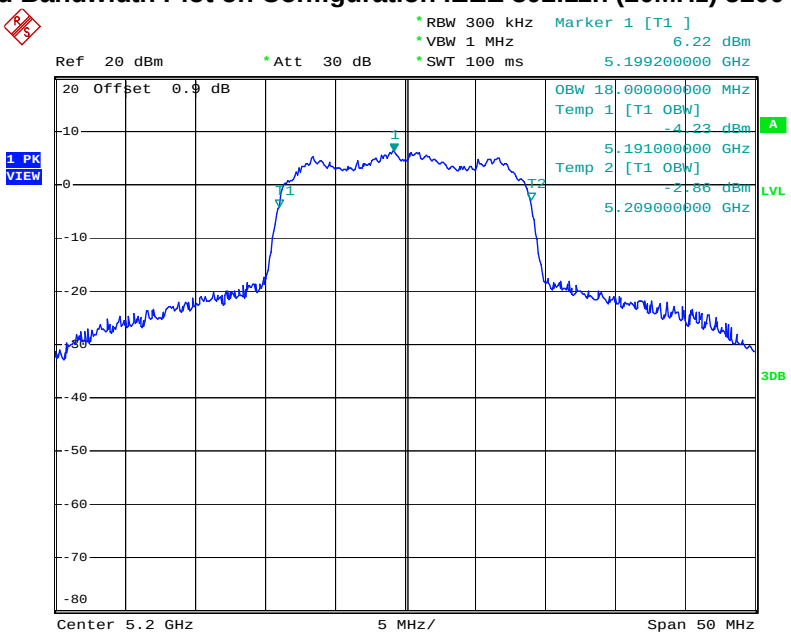
Date: 7.APR.2012 21:54:34

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



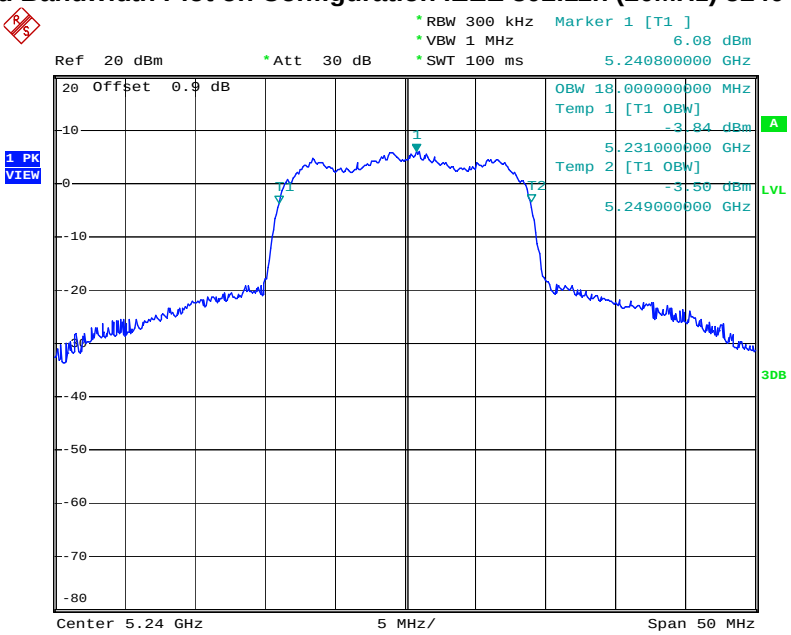
Date: 7.APR.2012 22:07:05

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



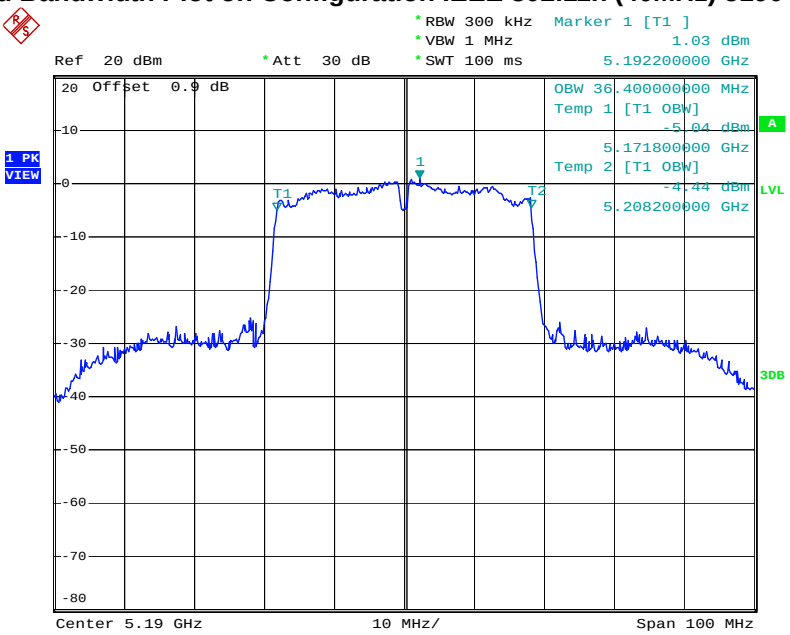
Date: 7.APR.2012 22:12:58

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



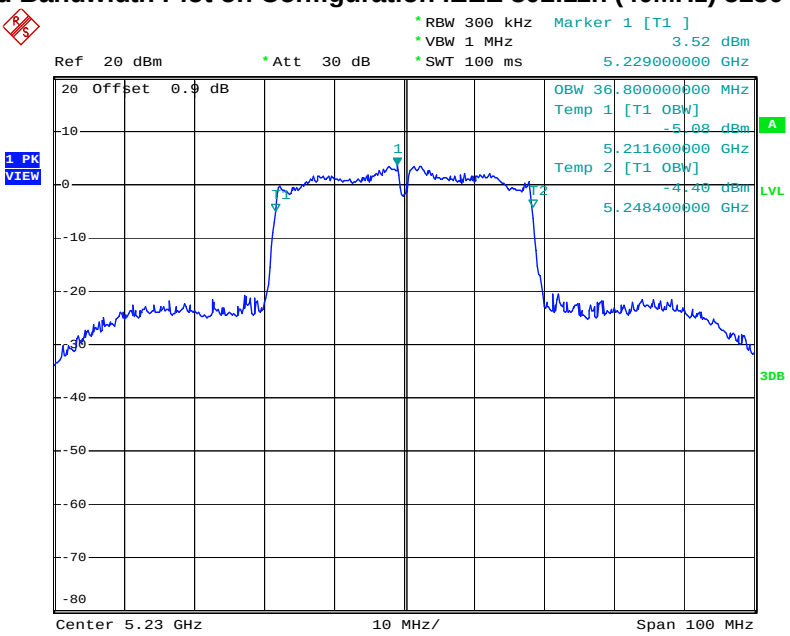
Date: 7.APR.2012 22:16:54

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



Date: 7.APR.2012 22:28:54

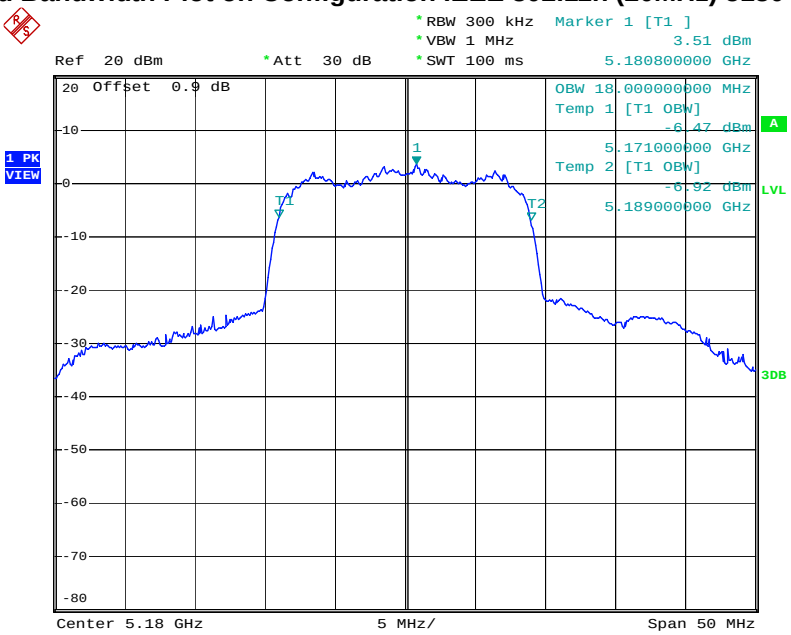
99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



Date: 7.APR.2012 22:32:04

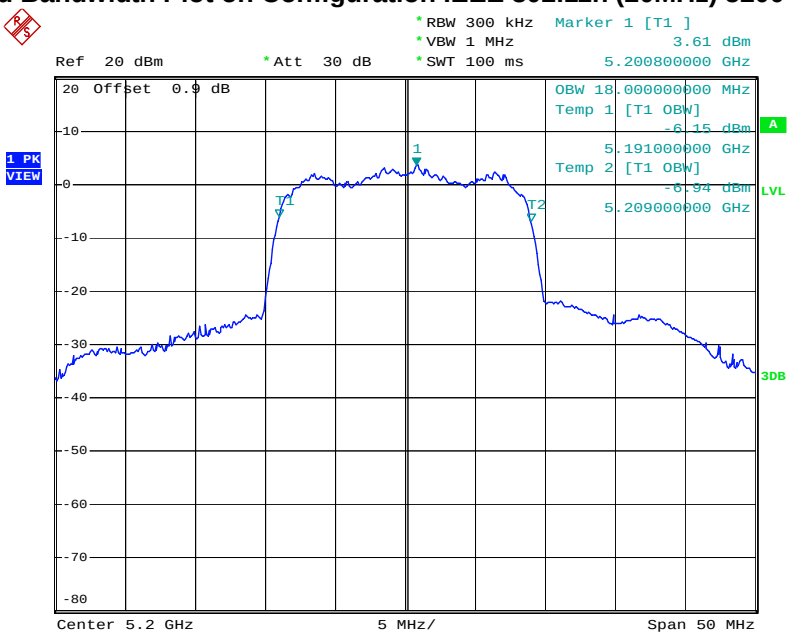
For Two Chains:

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



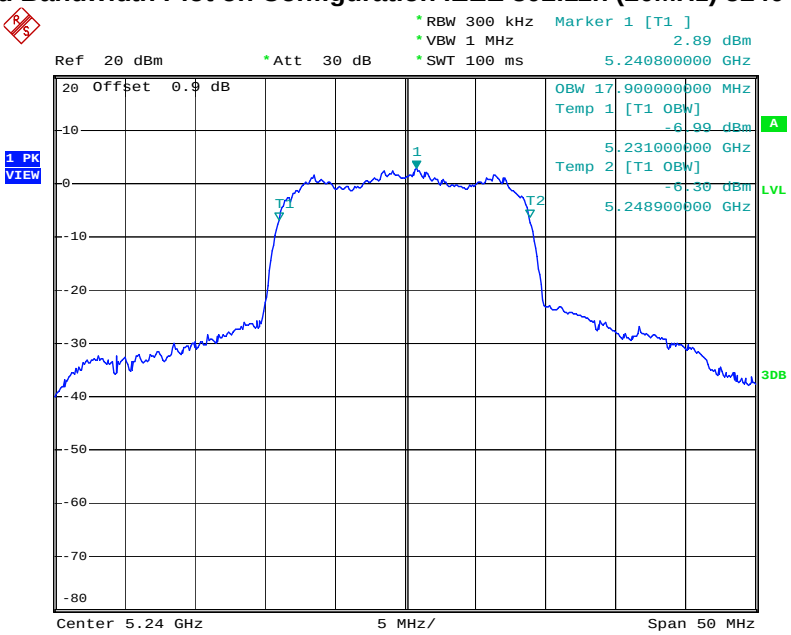
Date: 7.APR.2012 22:55:07

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



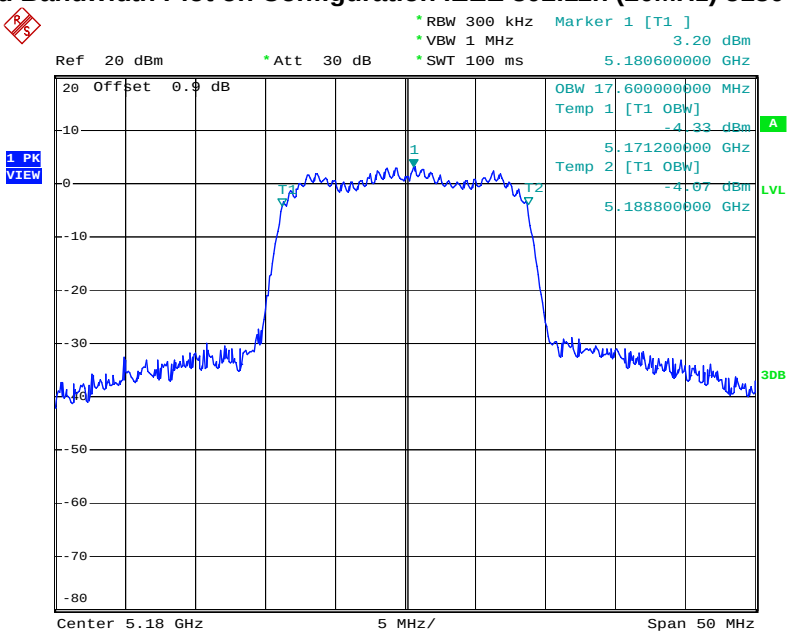
Date: 7.APR.2012 23:05:01

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



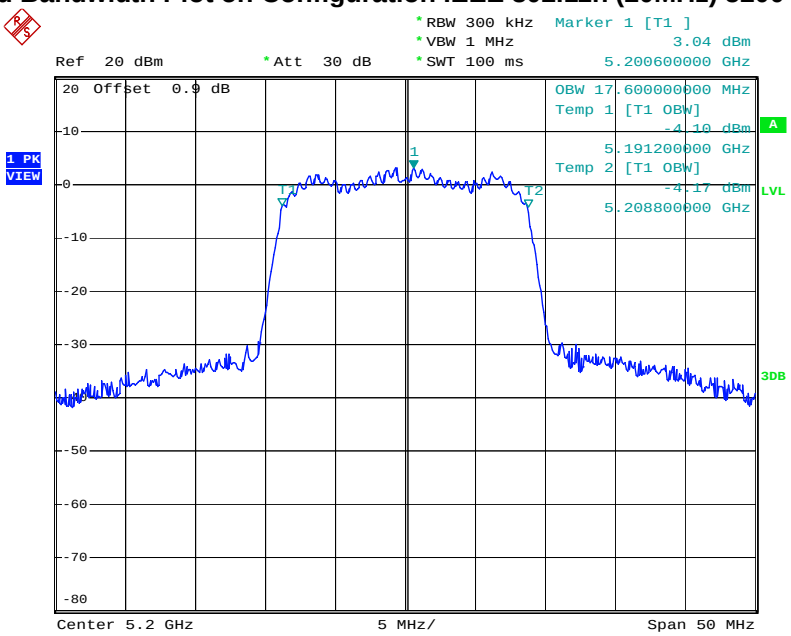
Date: 7.APR.2012 23:10:50

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 2



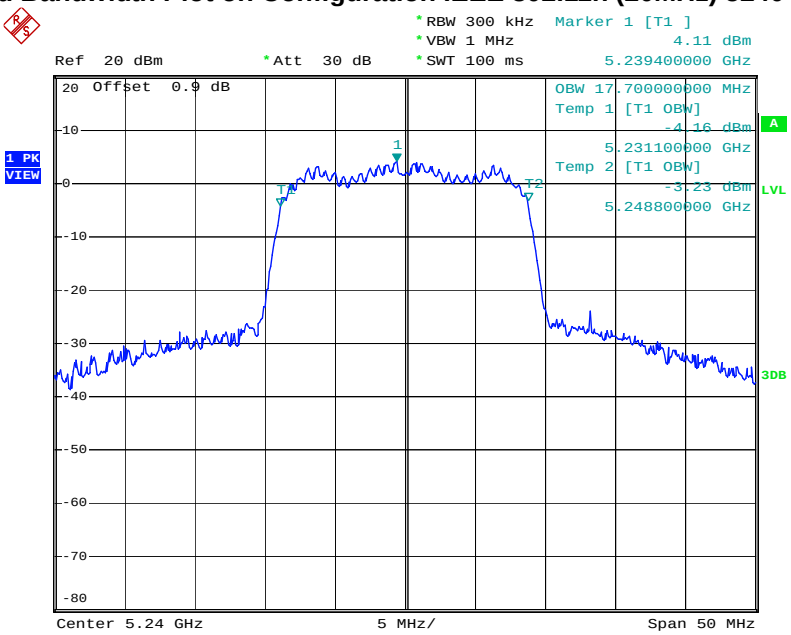
Date: 7.APR.2012 23:21:07

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 2

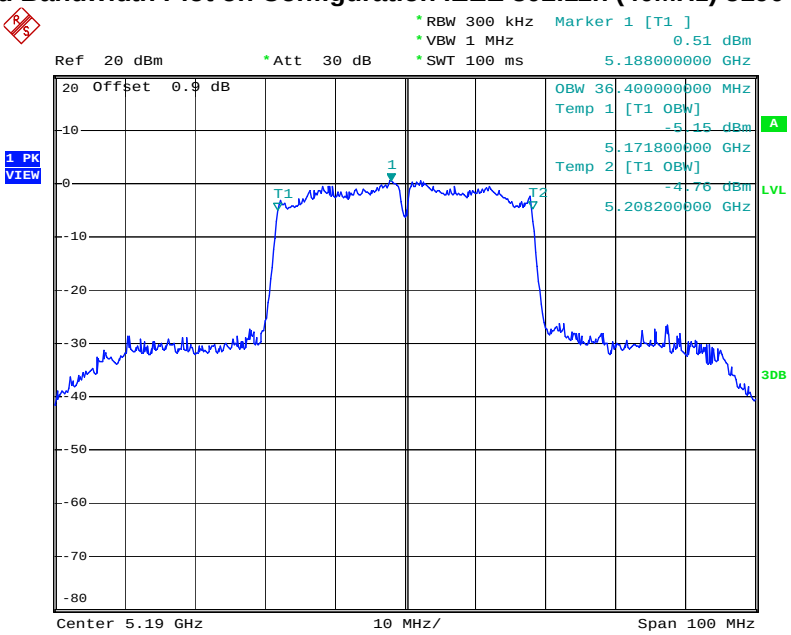


Date: 7.APR.2012 23:25:22

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 2

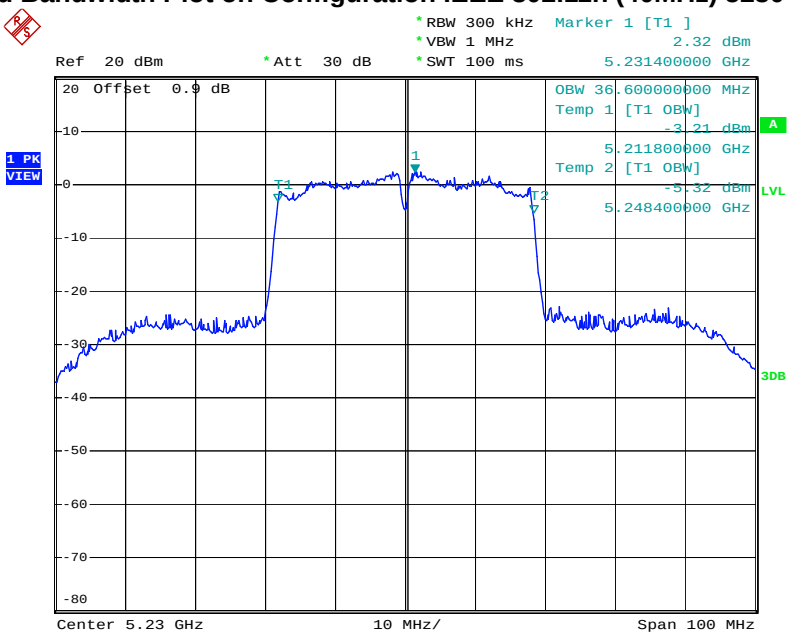


99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



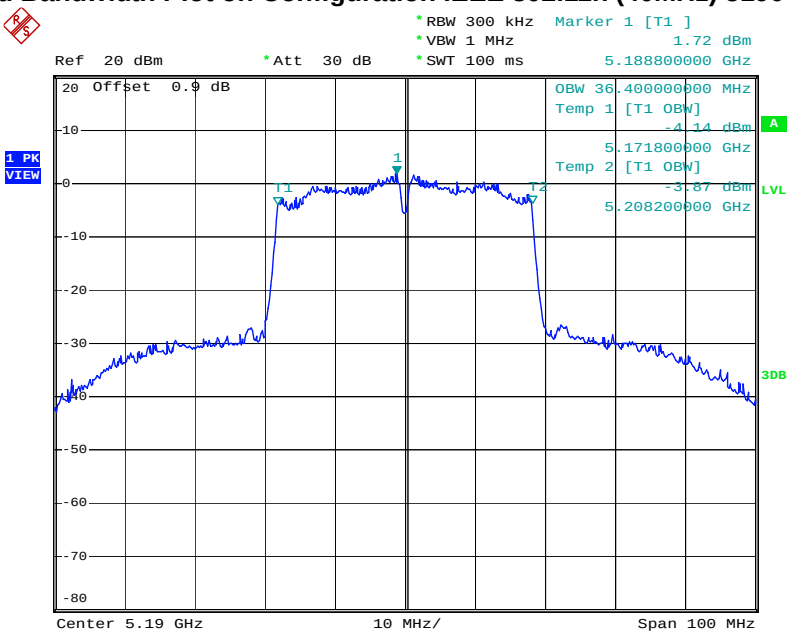
Date: 7.APR.2012 23:50:16

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



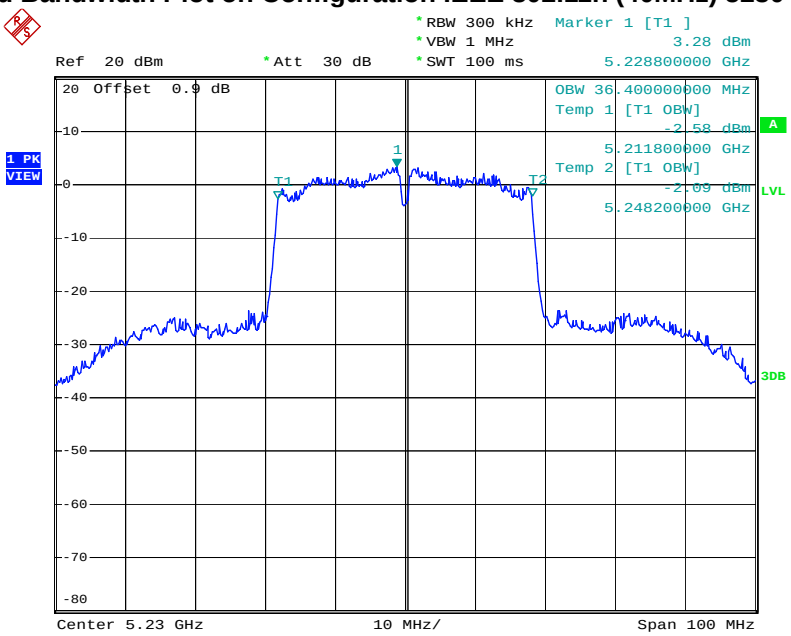
Date: 7.APR.2012 23:53:06

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 2



Date: 7.APR.2012 23:40:41

99% Occupied Bandwidth Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 2



Date: 7.APR.2012 23:45:04

3.3 Maximum Conducted Output Power Measurement

3.3.1 Limit

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, where B is the 26 dB emissions bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power and power density from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Maximum Conducted Output Power mean that the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level.

3.3.2 Measuring Instruments and Setting

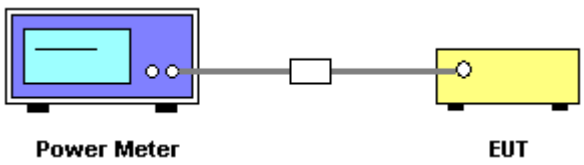
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Used Sensor	MA2411B

3.3.3 Test Procedures

1. The transmitter output (antenna port) was connected to the wideband power meter.
2. Turn on the EUT and power meter and then record the power value.
3. Repeat above procedures on all channels needed to be tested.
4. When measuring maximum conducted output power within multiple antenna systems, add every result of the values by mathematic formula. (Only for IEEE 802.11n test)

3.3.4 Test Setup Layout



3.3.5 Test Deviation

There is no deviation with the original standard.

3.3.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.3.7 Test Result of Maximum Conducted Output Power

Final Test Date	Apr. 07, 2012	**Test Site No.**	TH01-HY
Temperature	23℃	**Humidity**	33%
Test Engineer	Shiming	**Configurations**	802.11a/n

For Single Chain:
Configuration of IEEE 802.11a Port 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	13.15	17	**Complies**
40	5200 MHz	12.62	17	**Complies**
48	5240 MHz	12.51	17	**Complies**

Configuration IEEE 802.11n (20MHz) Port 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	12.34	17	**Complies**
40	5200 MHz	12.39	17	**Complies**
48	5240 MHz	12.32	17	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	9.96	17	**Complies**
46	5230 MHz	12.90	17	**Complies**

For Two Chains:

Configuration IEEE 802.11n (20MHz) Port 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	9.13	17	**Complies**
40	5200 MHz	9.49	17	**Complies**
48	5240 MHz	9.96	17	**Complies**

Configuration IEEE 802.11n (20MHz) Port 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	8.31	17	**Complies**
40	5200 MHz	8.41	17	**Complies**
48	5240 MHz	8.45	17	**Complies**

Configuration IEEE 802.11n (20MHz) Port 1 + Port 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	11.75	17	**Complies**
40	5200 MHz	11.99	17	**Complies**
48	5240 MHz	12.28	17	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	9.37	17	**Complies**
46	5230 MHz	11.78	17	**Complies**

Configuration IEEE 802.11n (40MHz) Port 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	9.35	17	**Complies**
46	5230 MHz	11.28	17	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1 + Port 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	12.37	17	**Complies**
46	5230 MHz	14.55	17	**Complies**

3.4 Power Spectral Density Measurement

3.4.1 Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 3.3.1.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	4

3.4.2 Measuring Instruments and Setting

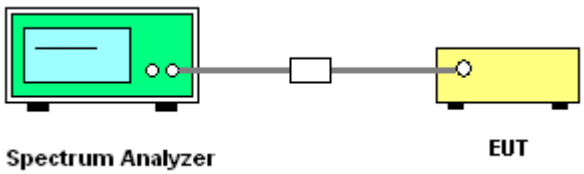
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

3.4.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 1000kHz and VBW to 3000kHz. Set Detector to RMS, Trace to Max Hold. Mark the frequency with maximum peak power as the center of the display of the spectrum.
3. When measuring maximum conducted output power within multiple antenna systems, add every result of the values by mathematic formula. (Only for IEEE 802.11n test)

3.4.4 Test Setup Layout



3.4.5 Test Deviation

There is no deviation with the original standard.

3.4.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.4.7 Test Result of Power Spectral Density

Final Test Date	Apr. 07, 2012	**Test Site No.**	TH01-HY
Temperature	23℃	**Humidity**	33%
Test Engineer	Shiming	**Configurations**	802.11a/n

For Single Chain:
Configuration of IEEE 802.11a Port 1

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	3.52	4	**Complies**
5200 MHz	3.32	4	**Complies**
5240 MHz	3.28	4	**Complies**

Configuration IEEE 802.11n (20MHz) Port 1

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	3.21	4	**Complies**
5200 MHz	3.29	4	**Complies**
5240 MHz	2.84	4	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5190 MHz	-2.05	4	**Complies**
5230 MHz	0.50	4	**Complies**

For Two Chain:

Configuration IEEE 802.11n (20MHz) Port 1

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-0.05	4	**Complies**
5200 MHz	0.15	4	**Complies**
5240 MHz	0.42	4	**Complies**

Configuration IEEE 802.11n (20MHz) Port 2

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	-0.55	4	**Complies**
5200 MHz	-0.49	4	**Complies**
5240 MHz	0.56	4	**Complies**

Configuration IEEE 802.11n (20MHz) Port 1 + Port 2

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5180 MHz	2.72	4	**Complies**
5200 MHz	2.85	4	**Complies**
5240 MHz	3.50	4	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5190 MHz	-2.22	4	**Complies**
5230 MHz	-0.35	4	**Complies**

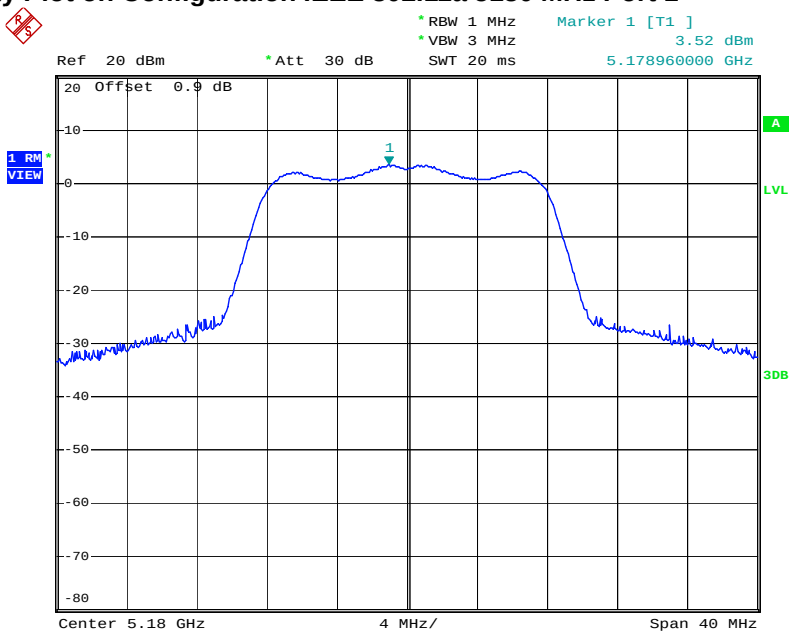
Configuration IEEE 802.11n (40MHz) Port 2

Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5190 MHz	-2.27	4	**Complies**
5230 MHz	-0.07	4	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1 + Port 2

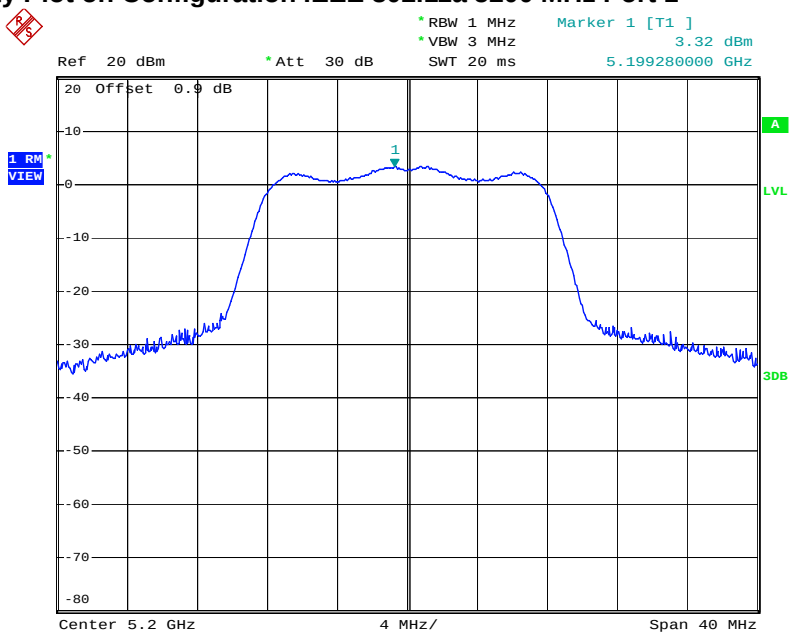
Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
5190 MHz	0.77	4	**Complies**
5230 MHz	2.80	4	**Complies**

For Single Chain:
Power Density Plot on Configuration IEEE 802.11a 5180 MHz Port 1



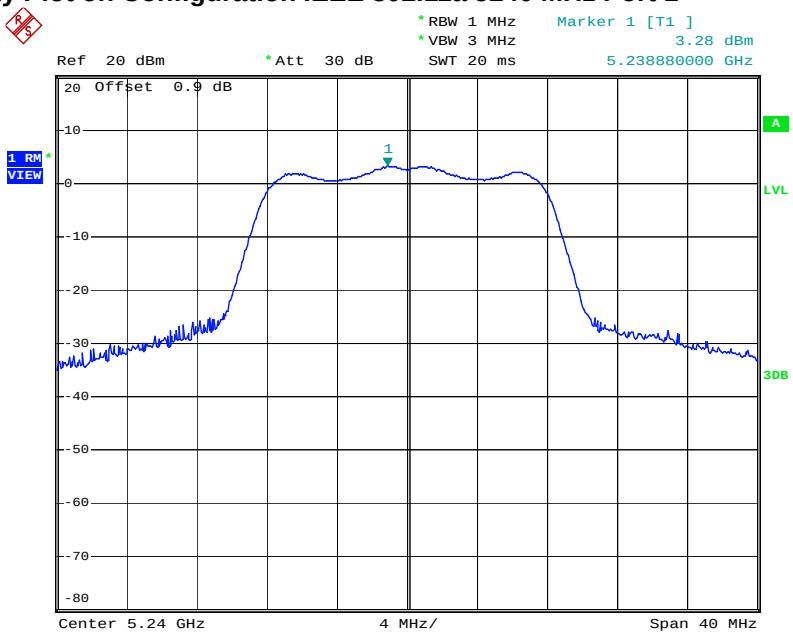
Date: 7.APR.2012 21:46:47

Power Density Plot on Configuration IEEE 802.11a 5200 MHz Port 1



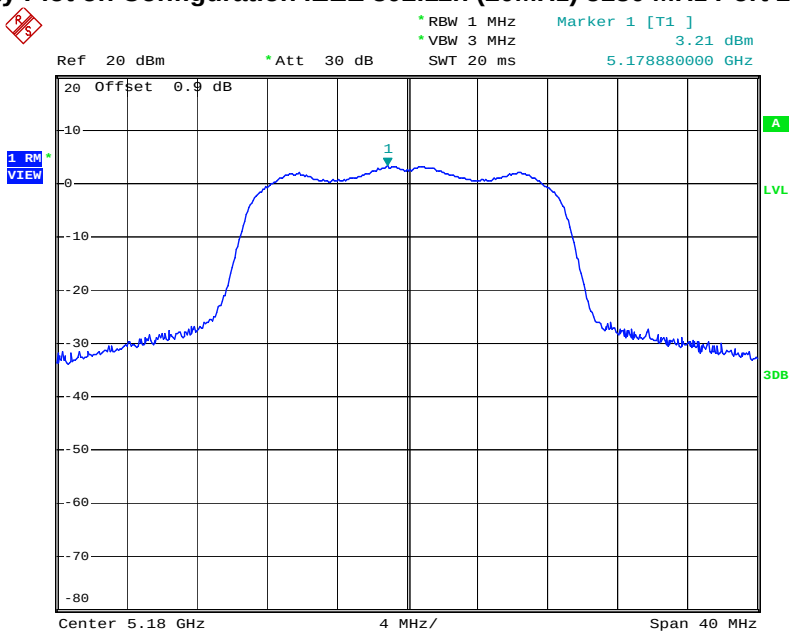
Date: 7.APR.2012 21:52:24

Power Density Plot on Configuration IEEE 802.11a 5240 MHz Port 1



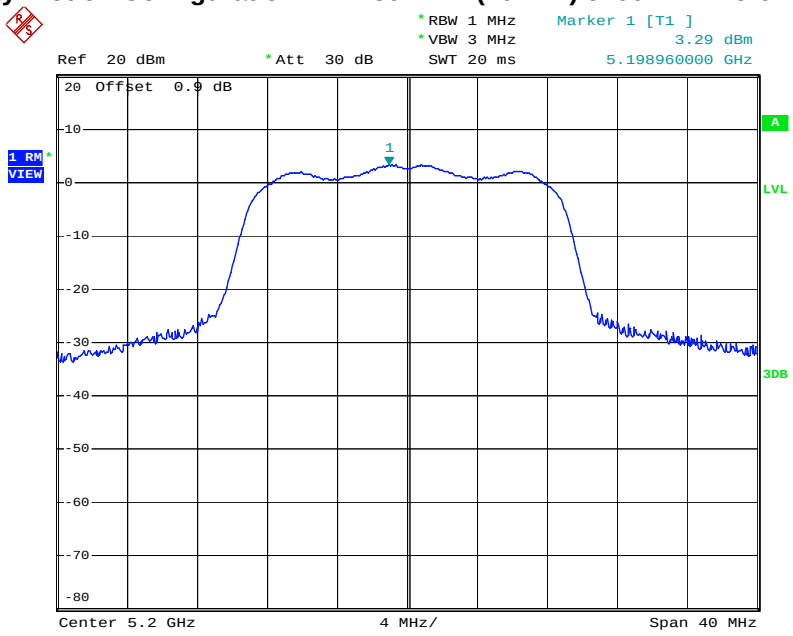
Date: 7.APR.2012 21:57:39

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



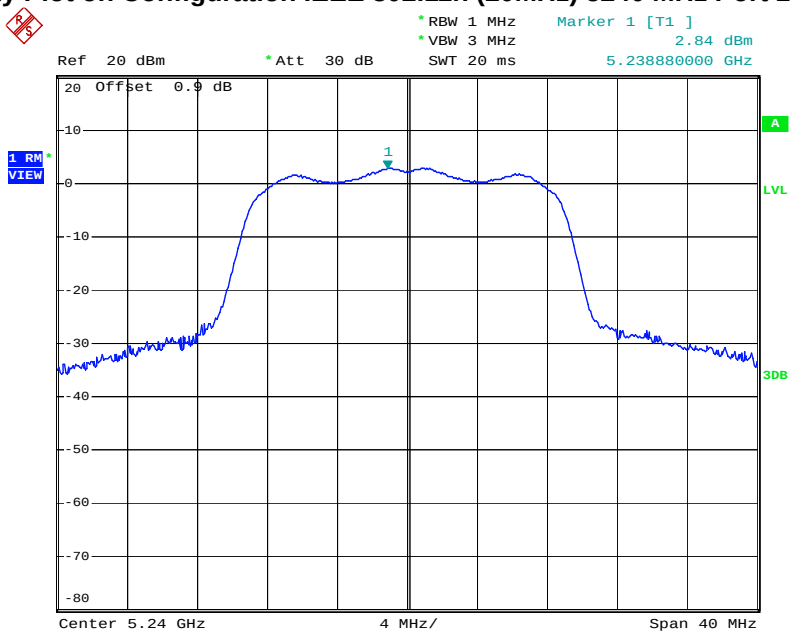
Date: 7.APR.2012 22:09:47

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



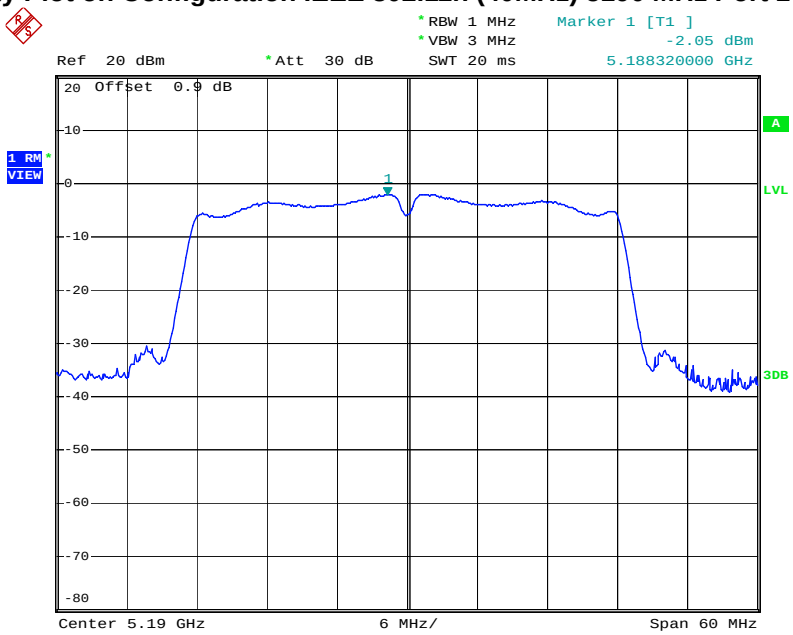
Date: 7.APR.2012 22:14:41

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



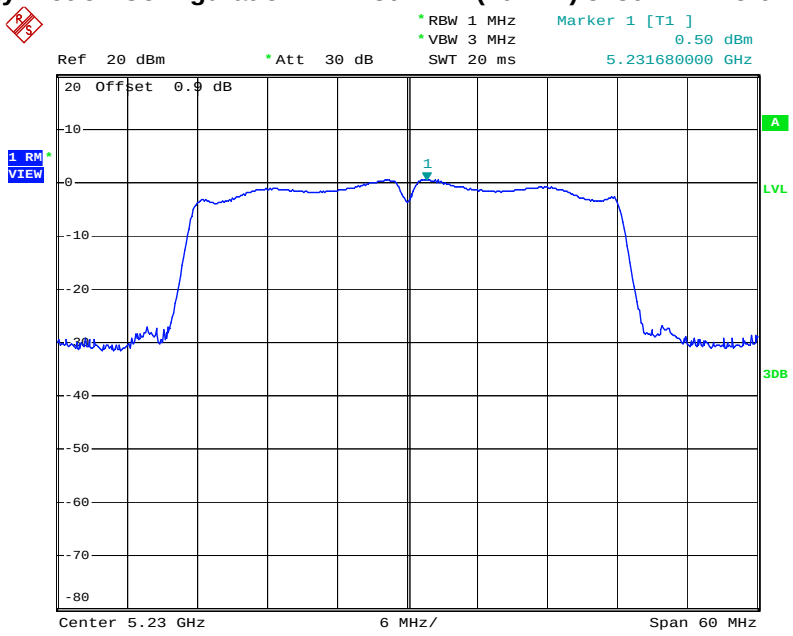
Date: 7.APR.2012 22:18:50

Power Density Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



Date: 7.APR.2012 22:29:48

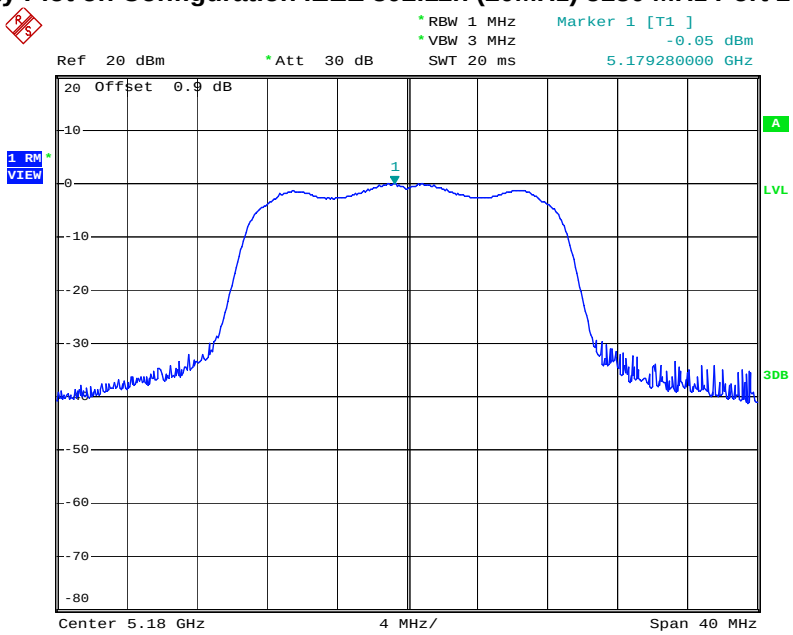
Power Density Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



Date: 7.APR.2012 22:33:31

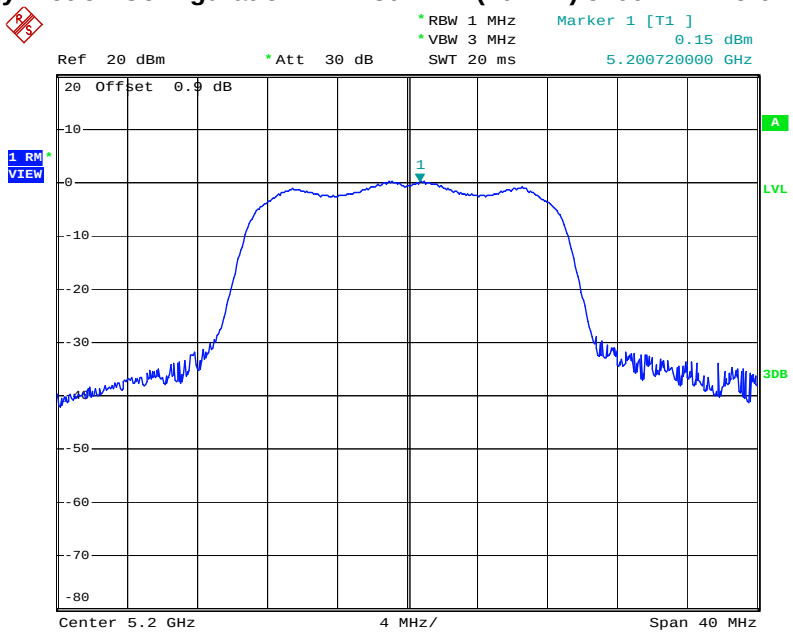
For Two Chains:

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



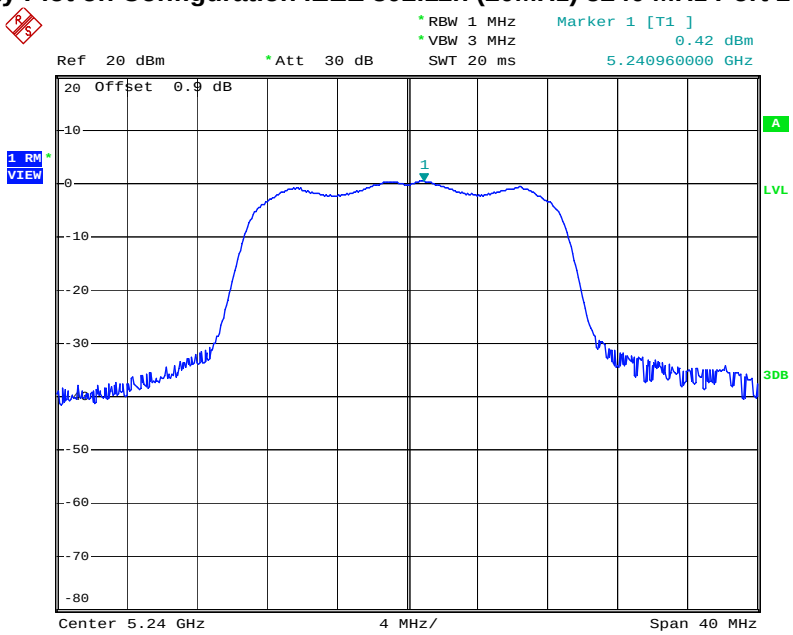
Date: 7.APR.2012 22:59:02

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



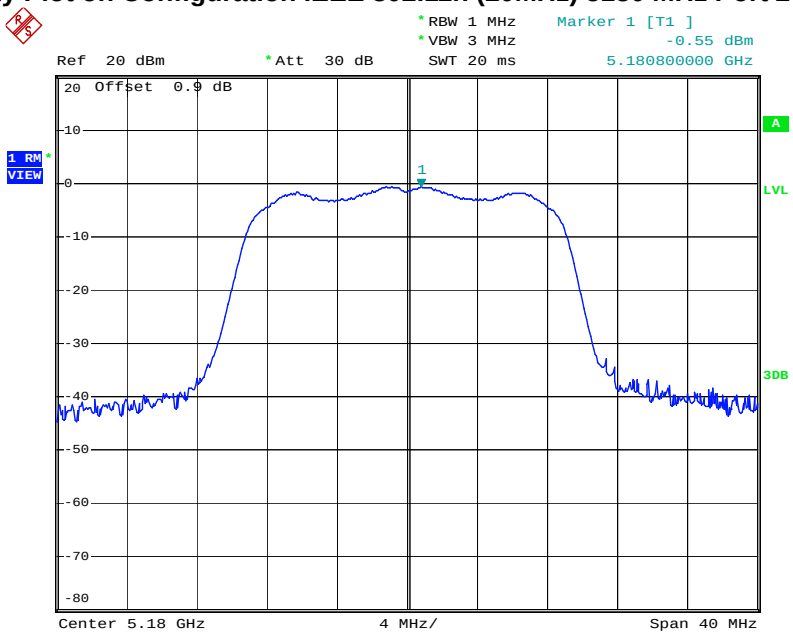
Date: 7.APR.2012 23:06:54

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



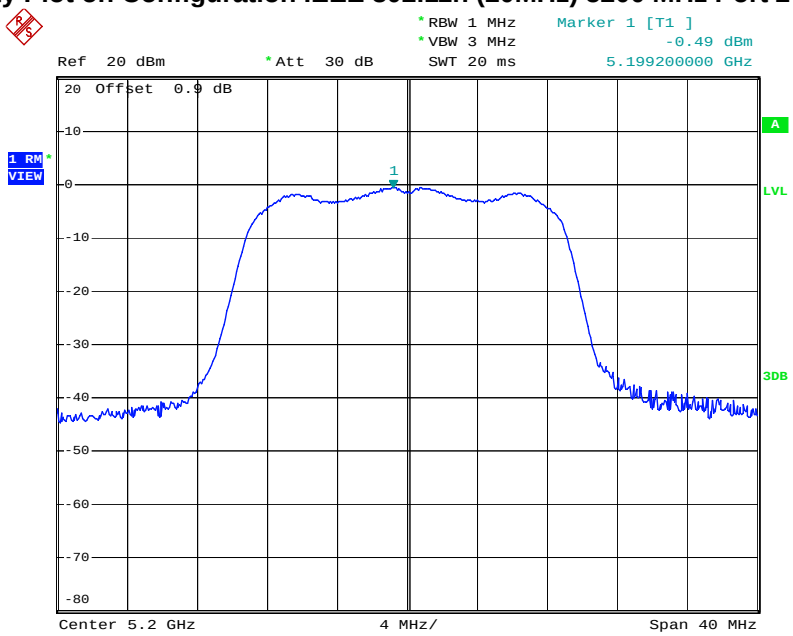
Date: 7.APR.2012 23:15:06

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 2



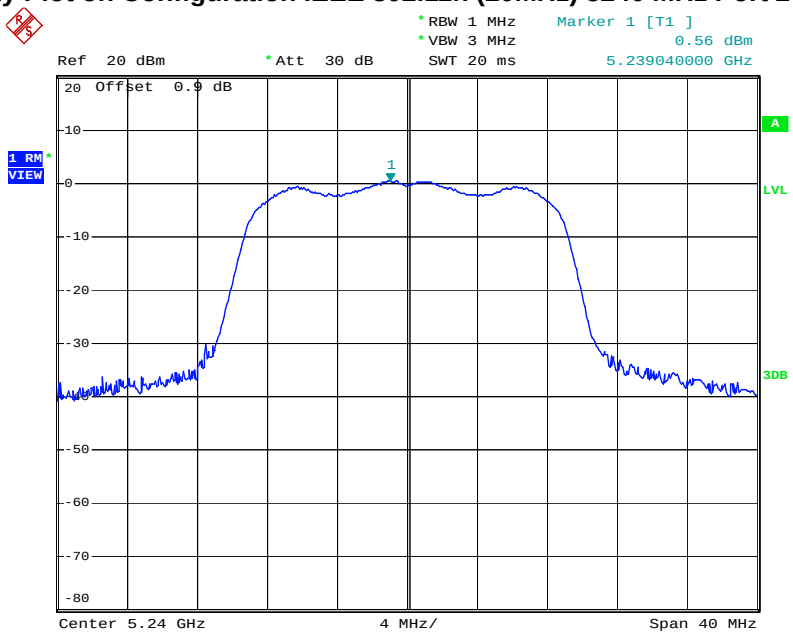
Date: 7.APR.2012 23:23:18

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 2



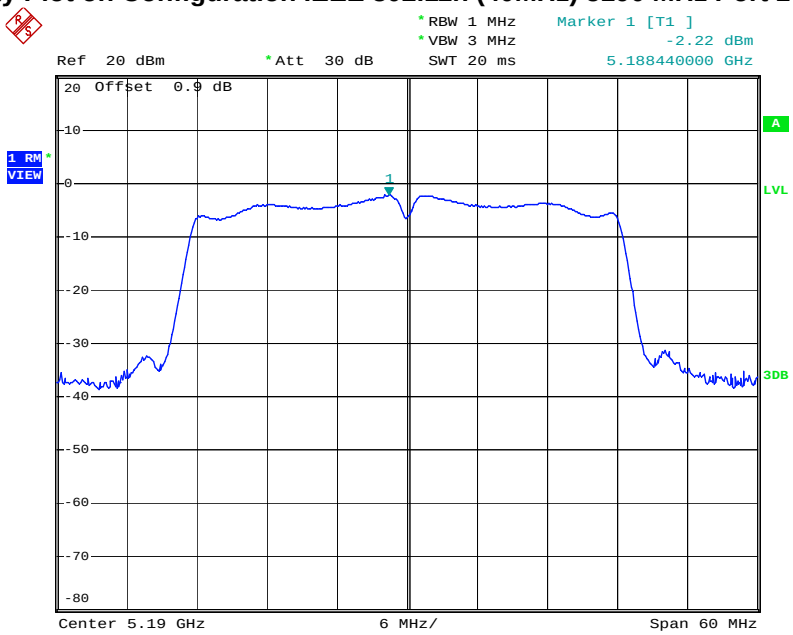
Date: 7.APR.2012 23:28:12

Power Density Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 2



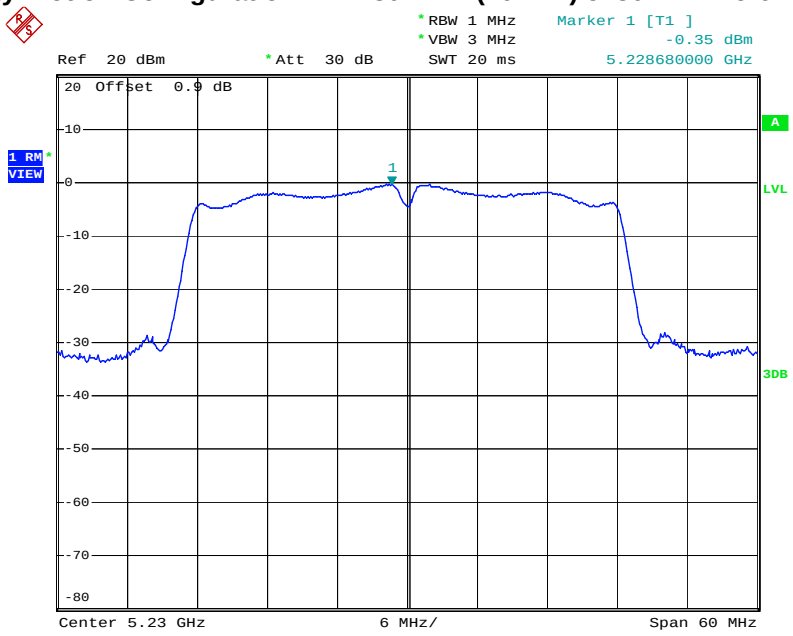
Date: 7.APR.2012 23:33:51

Power Density Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



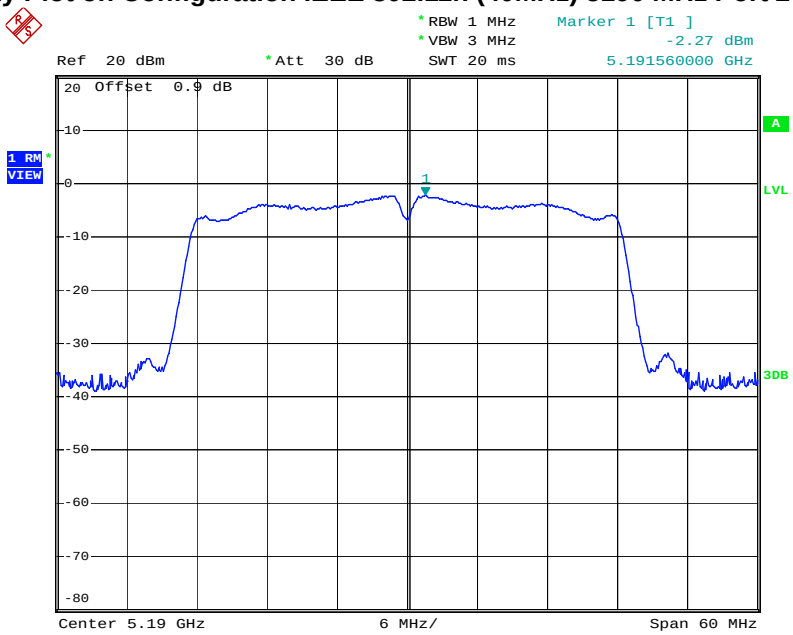
Date: 7.APR.2012 23:51:24

Power Density Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



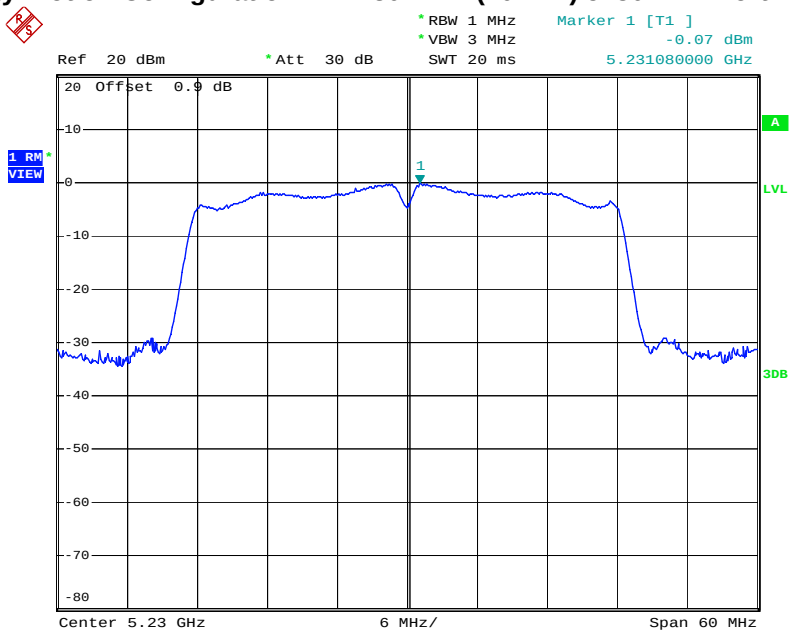
Date: 7.APR.2012 23:55:05

Power Density Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 2



Date: 7.APR.2012 23:43:08

Power Density Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 2



Date: 7.APR.2012 23:47:11

3.5 Peak Excursion Measurement

3.5.1 Limit

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 emissions bandwidth whichever is less.

3.5.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz (Peak Trace) / 1000 kHz (Average Trace)
VB	3000 kHz (Peak Trace) / 300 kHz (Average Trace)
Detector	Peak (Peak Trace) / Sample (Average Trace)
Trace	Max Hold
Sweep Time	60s

3.5.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emissions bandwidth. The largest difference between the following two traces (Peak Trace and Average Trace) must be ≤ 13 dB for all frequencies across the emissions bandwidth. Submit a plot.
3. Peak Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and max-hold settings.
4. Average Trace: Method #3—video averaging with max hold--and sum power across the band. Set span to encompass the entire emissions bandwidth (EBW) of the signal. Set sweep trigger to “free run”. Set RBW = 1 MHz. Set VBW ≥ 1/T (IEEE 802.11a VBW = 300kHz ≥ 1/4μs). Use sample detector mode if bin width (i.e., span/number of points in spectrum) < 0.5 RBW. Otherwise use peak detector mode. Set max hold. Allow max hold to run for 60 seconds.
5. Measuring multiple antennas, the connectors are required to link with Spectrum Analyzer through a combiner. (Only for IEEE 802.11n test)

3.5.4 Test Setup Layout

3.5.5 Test Deviation

There is no deviation with the original standard.

3.5.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.5.7 Test Result of Peak Excursion

Final Test Date	Mar. 28, 2012	**Test Site No.**	TH01-HY
Temperature	24.8℃	**Humidity**	20%
Test Engineer	Bear	**Configurations**	802.11a/n

For Single Chain:
Configuration of IEEE 802.11a Port 1

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	6.12	13	**Complies**
5200 MHz	6.04	13	**Complies**
5240 MHz	5.82	13	**Complies**

Configuration IEEE 802.11n (20MHz) Port 1

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	5.92	13	**Complies**
5200 MHz	5.75	13	**Complies**
5240 MHz	5.99	13	**Complies**

Configuration IEEE 802.11n (40MHz) Port 1

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5190 MHz	5.73	13	**Complies**
5230 MHz	5.64	13	**Complies**

For Two Chains:

Configuration IEEE 802.11n (20MHz) Port 1

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	5.54	13	**Complies**
5200 MHz	5.44	13	**Complies**
5240 MHz	5.58	13	**Complies**

Configuration IEEE 802.11n (20MHz) Port 2

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5180 MHz	6.94	13	**Complies**
5200 MHz	6.77	13	**Complies**
5240 MHz	6.86	13	**Complies**

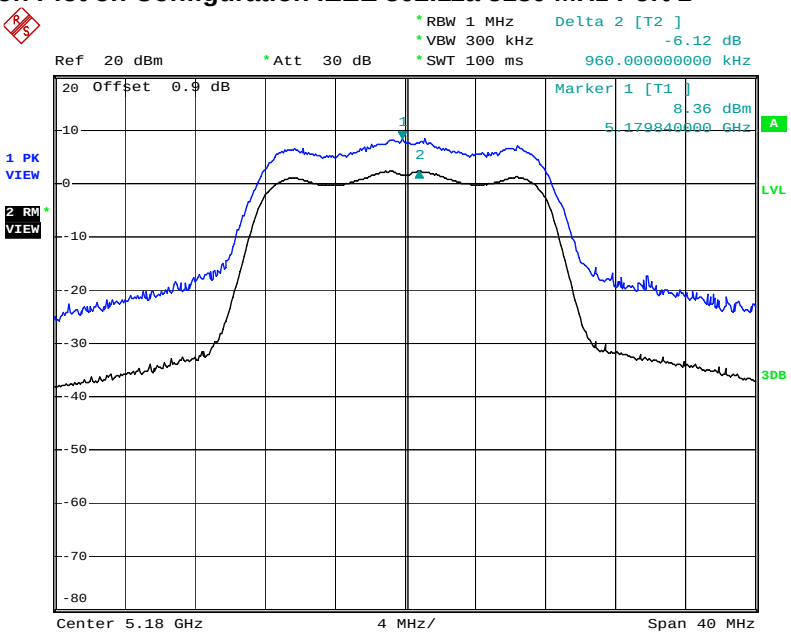
Configuration IEEE 802.11n (40MHz) Port 1

Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5190 MHz	6.07	13	**Complies**
5230 MHz	6.13	13	**Complies**

Configuration IEEE 802.11n (40MHz) Port 2

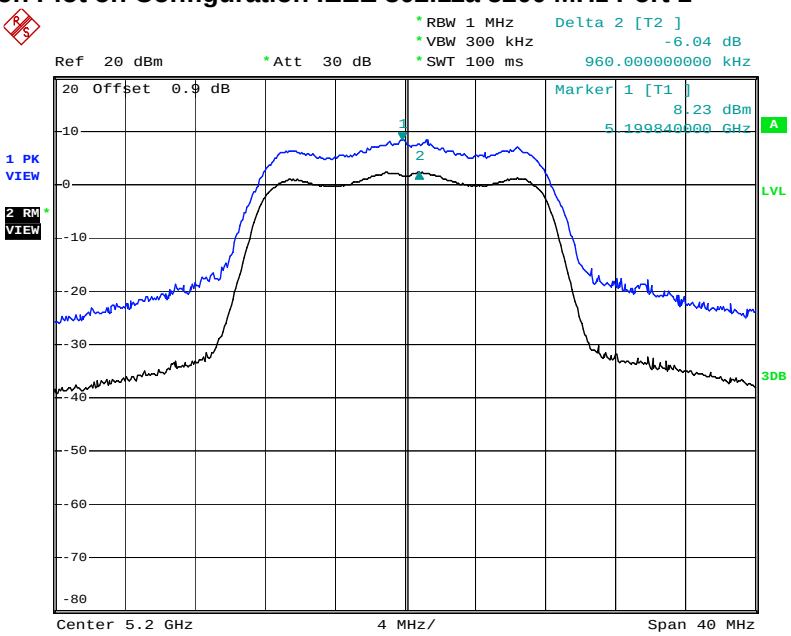
Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
5190 MHz	7.12	13	**Complies**
5230 MHz	7.08	13	**Complies**

For Single Chain:
Peak Excursion Plot on Configuration IEEE 802.11a 5180 MHz Port 1



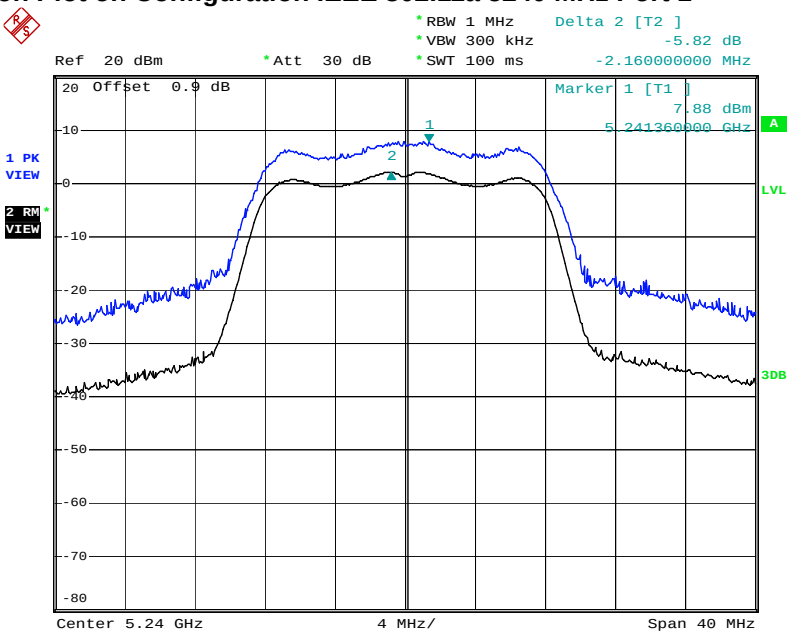
Date: 7.APR.2012 21:45:49

Peak Excursion Plot on Configuration IEEE 802.11a 5200 MHz Port 1



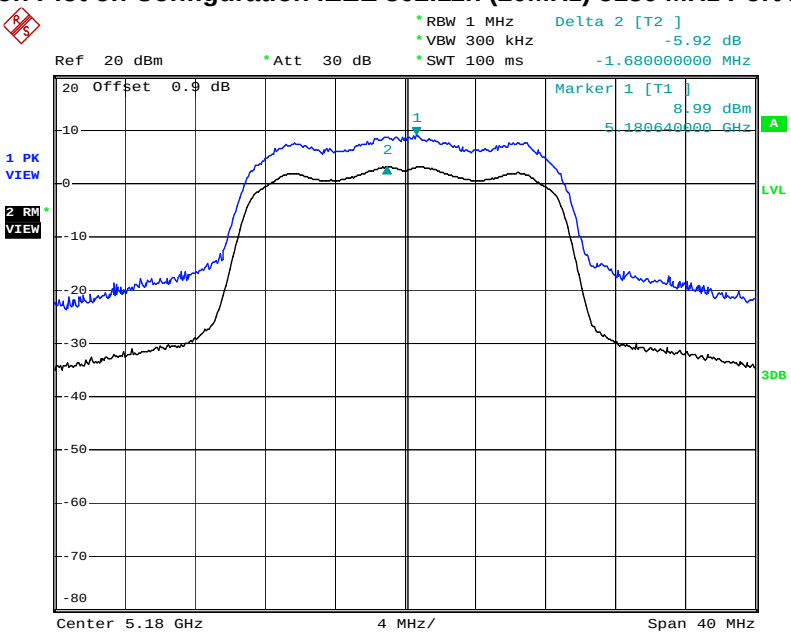
Date: 7.APR.2012 21:51:12

Peak Excursion Plot on Configuration IEEE 802.11a 5240 MHz Port 1



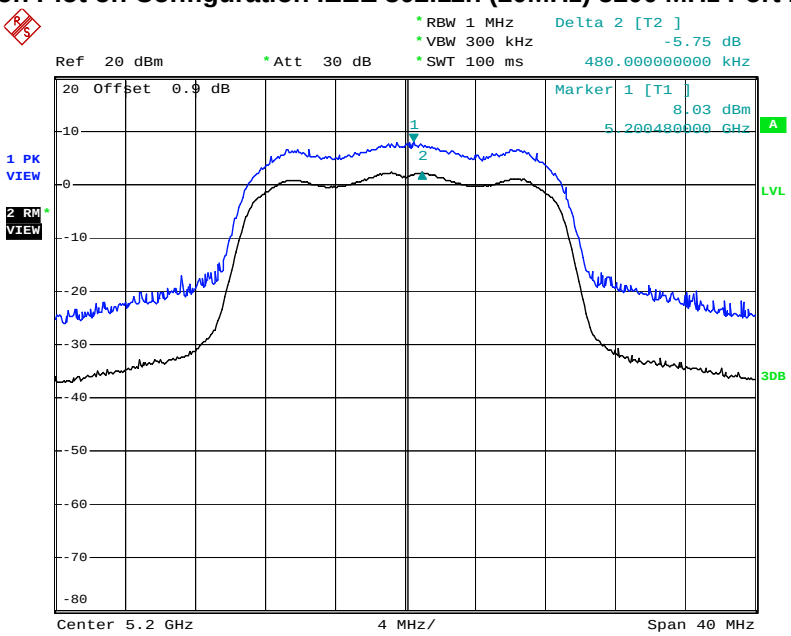
Date: 7.APR.2012 21:55:34

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



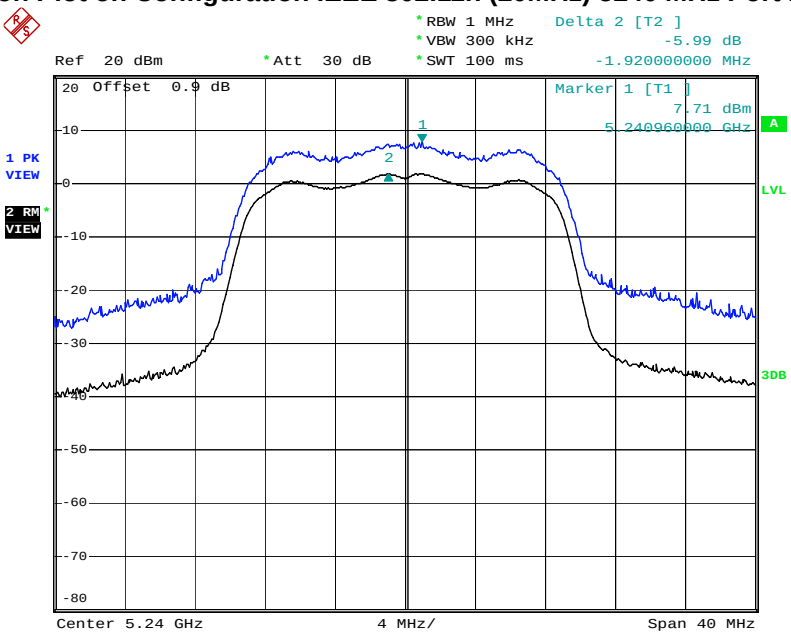
Date: 7.APR.2012 22:08:39

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



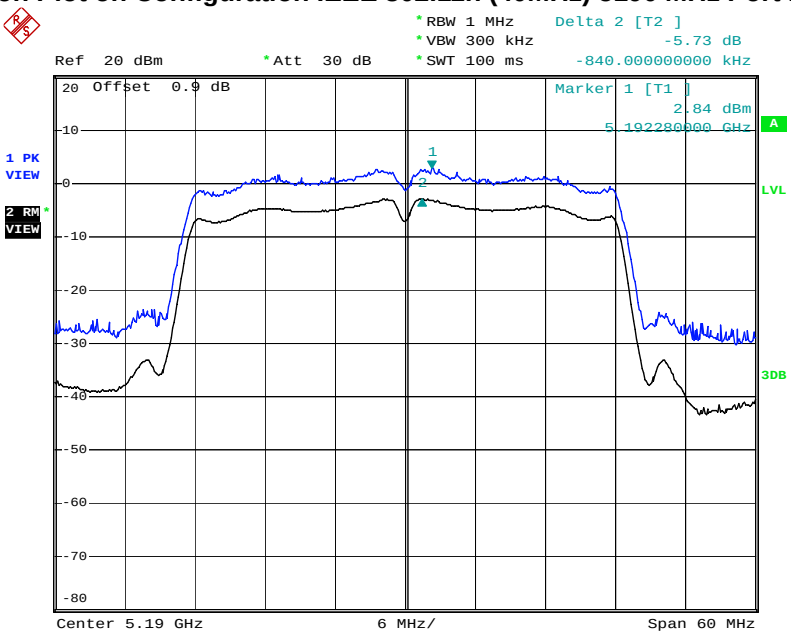
Date: 7.APR.2012 22:13:51

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



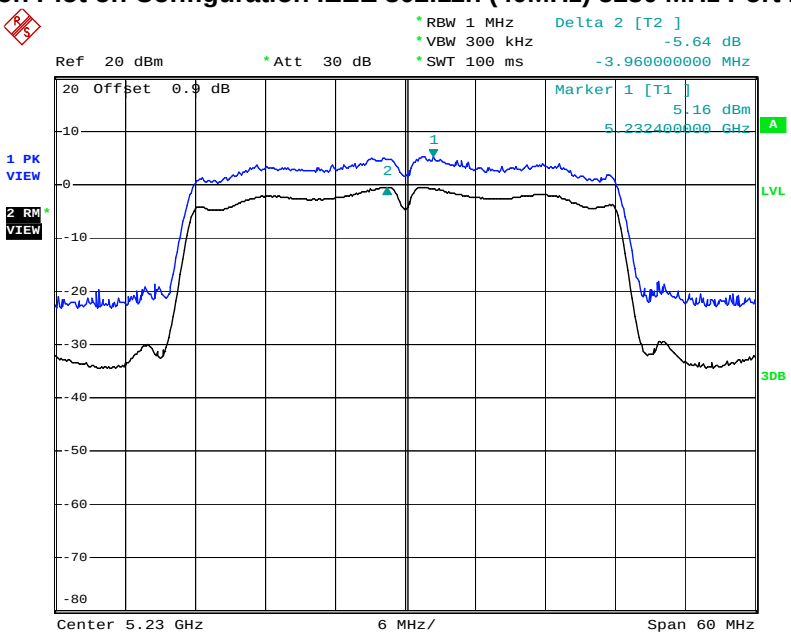
Date: 7.APR.2012 22:17:49

Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



Date: 7.APR.2012 22:27:51

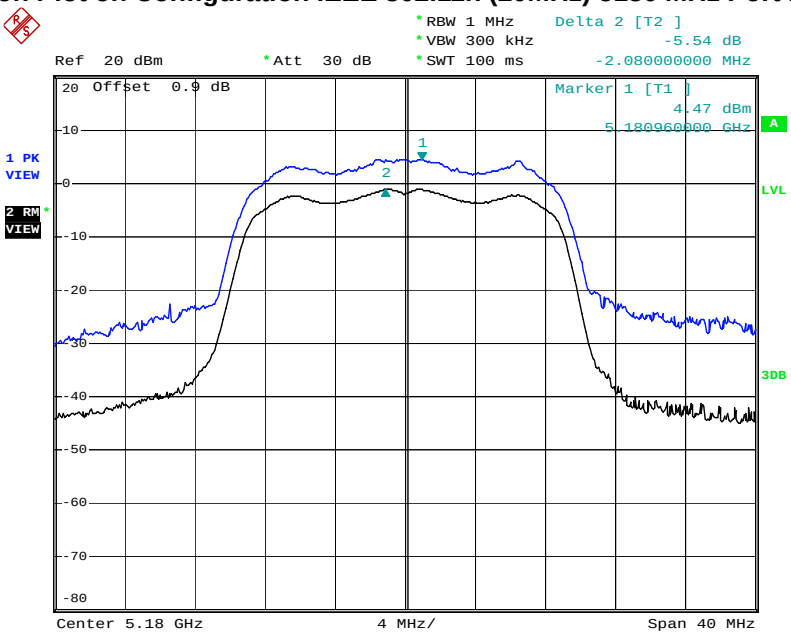
Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



Date: 7.APR.2012 22:32:56

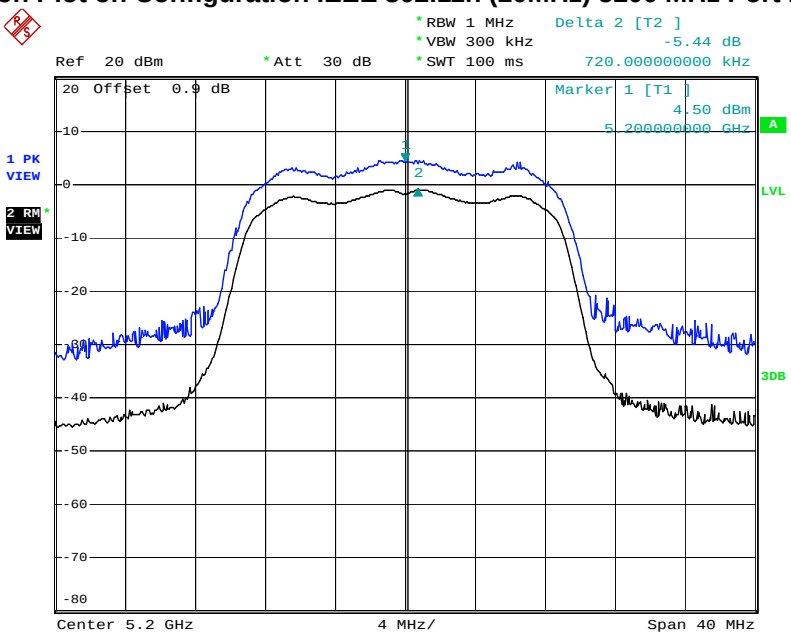
For Two Chains:

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 1



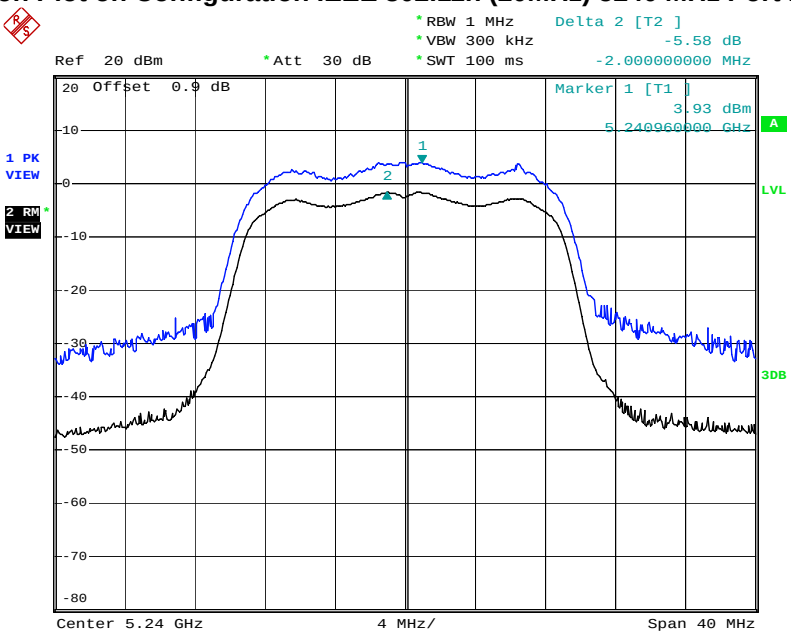
Date: 7.APR.2012 22:58:31

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 1



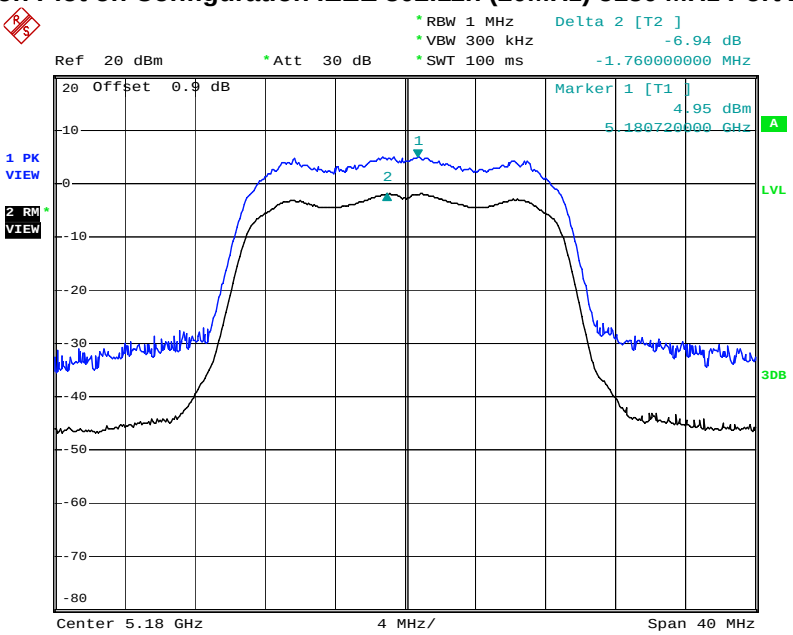
Date: 7.APR.2012 23:05:56

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 1



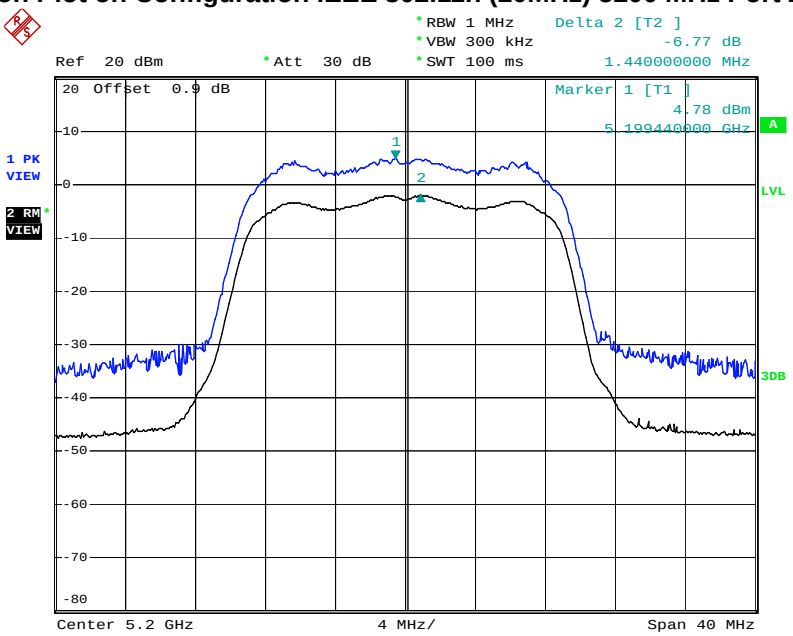
Date: 7.APR.2012 23:12:18

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5180 MHz Port 2



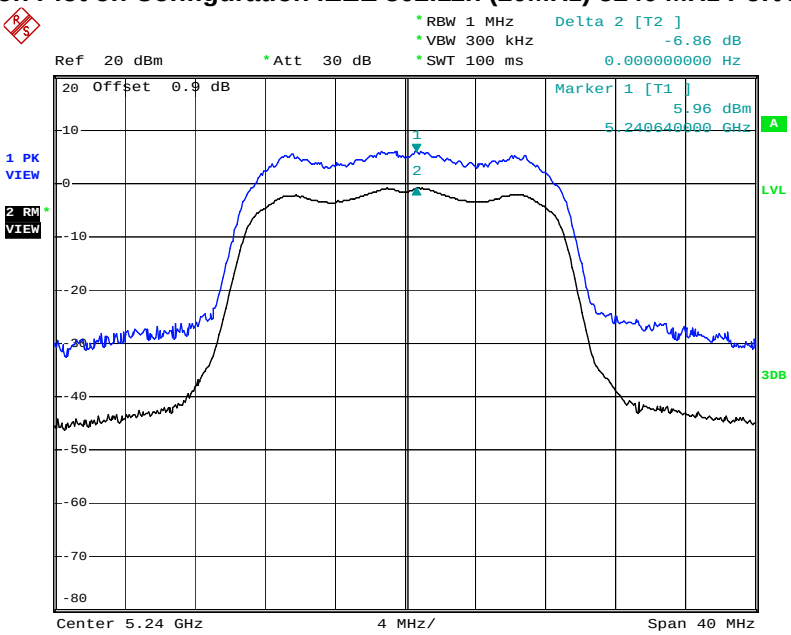
Date: 7.APR.2012 23:22:28

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5200 MHz Port 2



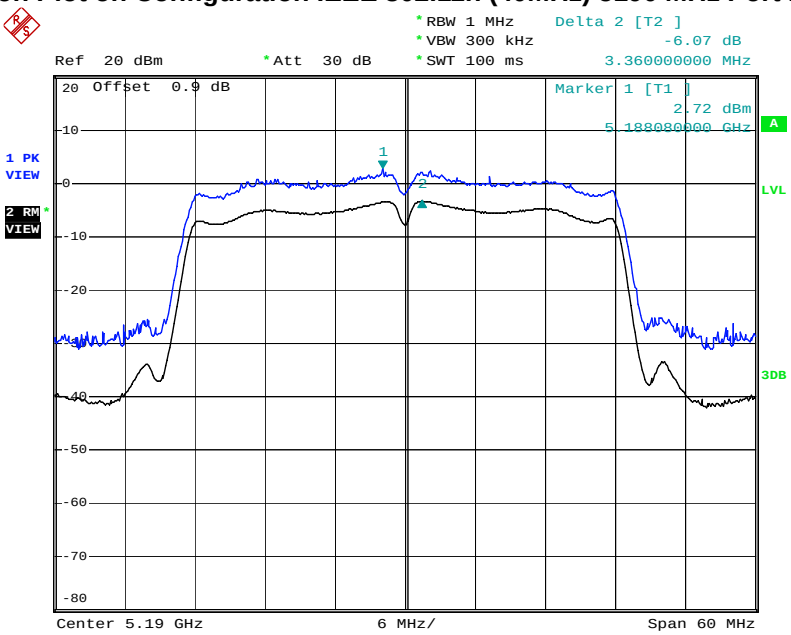
Date: 7.APR.2012 23:26:35

Peak Excursion Plot on Configuration IEEE 802.11n (20MHz) 5240 MHz Port 2



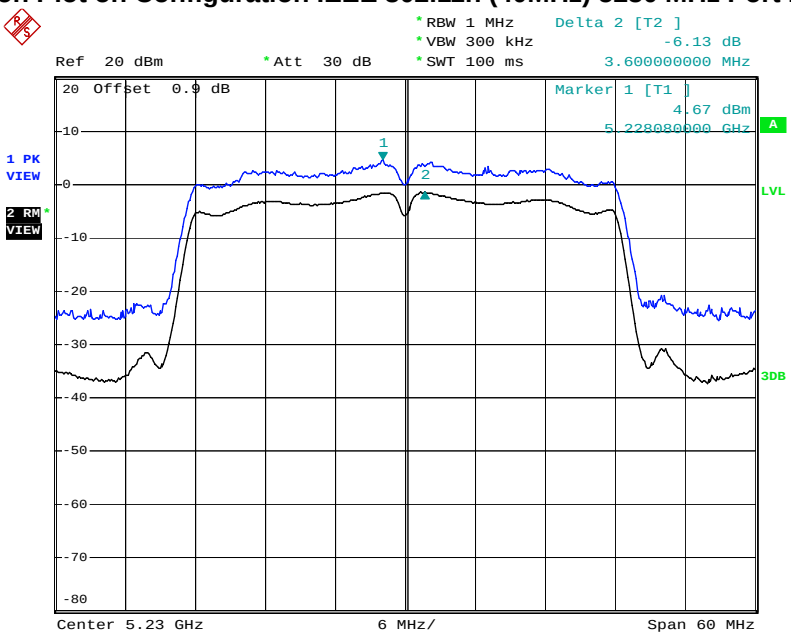
Date: 7.APR.2012 23:32:39

Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 1



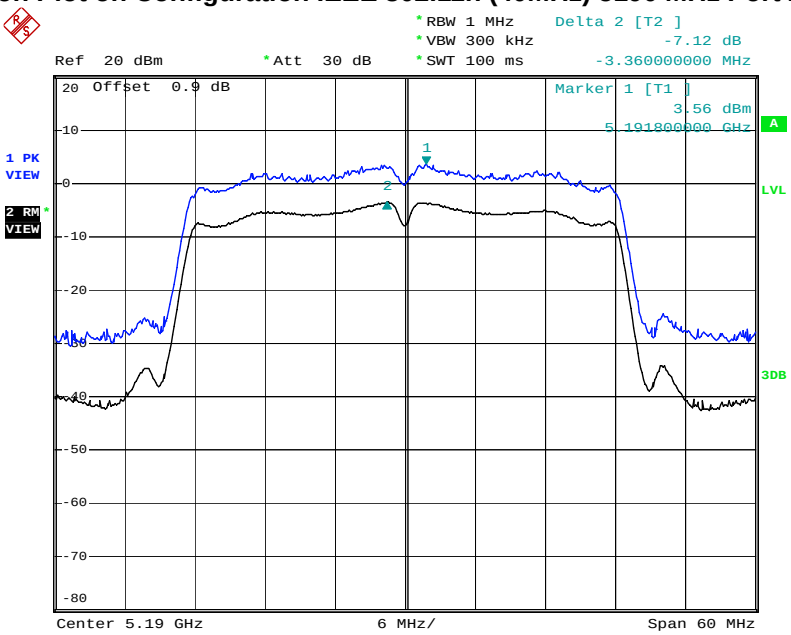
Date: 7.APR.2012 23:50:45

Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 1



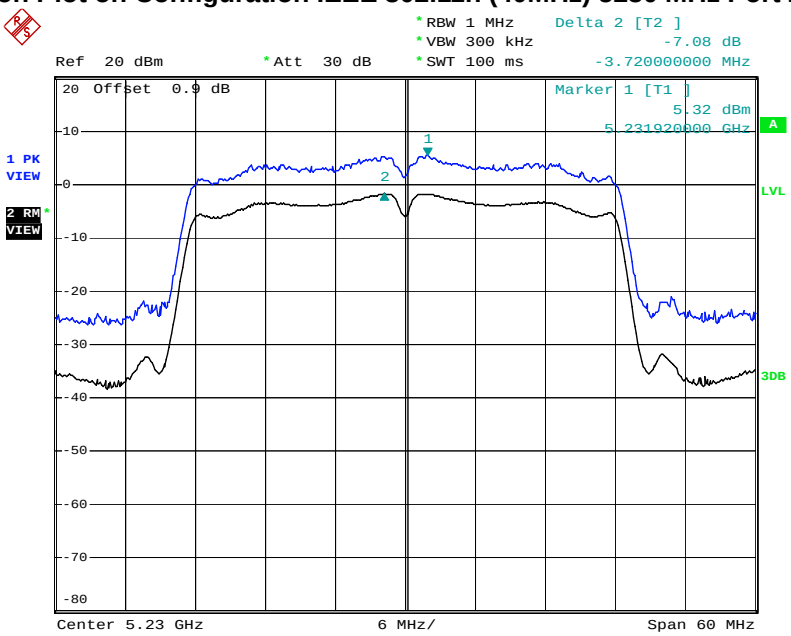
Date: 7.APR.2012 23:54:19

Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5190 MHz Port 2



Date: 7.APR.2012 23:42:06

Peak Excursion Plot on Configuration IEEE 802.11n (40MHz) 5230 MHz Port 2



Date: 7.APR.2012 23:46:06

3.6 Radiated Emissions Measurement

3.6.1 Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). 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 (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

3.6.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz z for peak

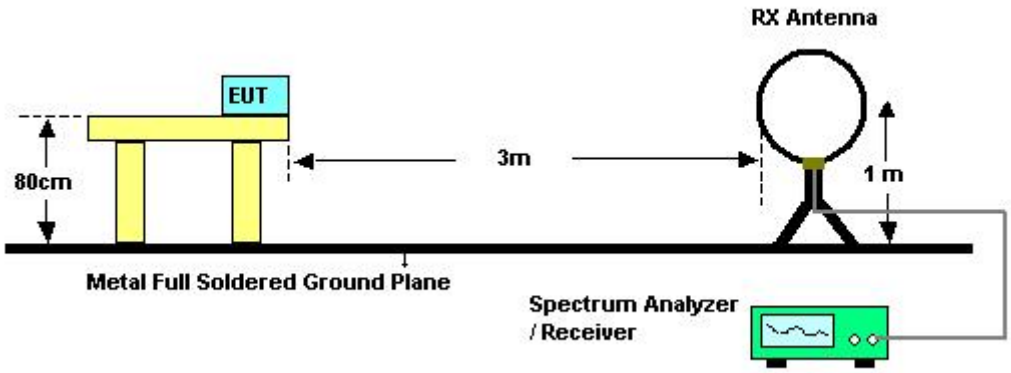
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.6.3 Test Procedures

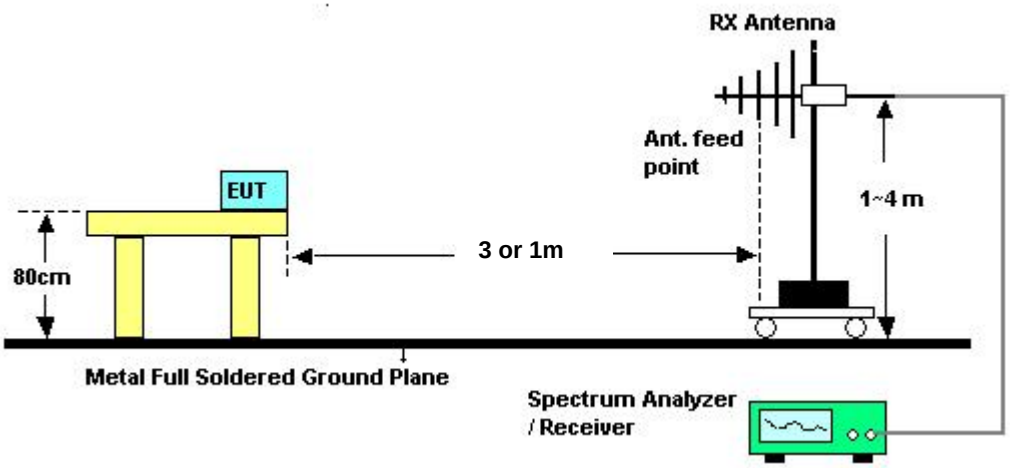
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.6.4 Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.6.5 Test Deviation

There is no deviation with the original standard.

3.6.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.6.7 Results of Radiated Emissions (9kHz~30MHz)

Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak		

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

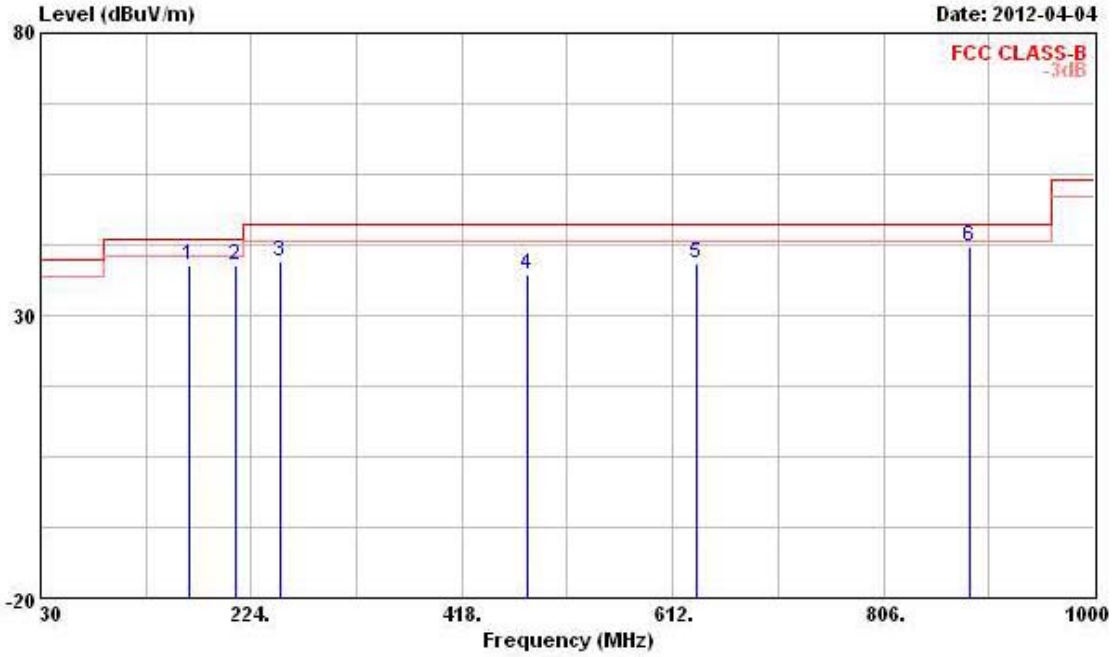
Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

3.6.8 Results of Radiated Emissions (30MHz~1GHz)

For Single Chain:

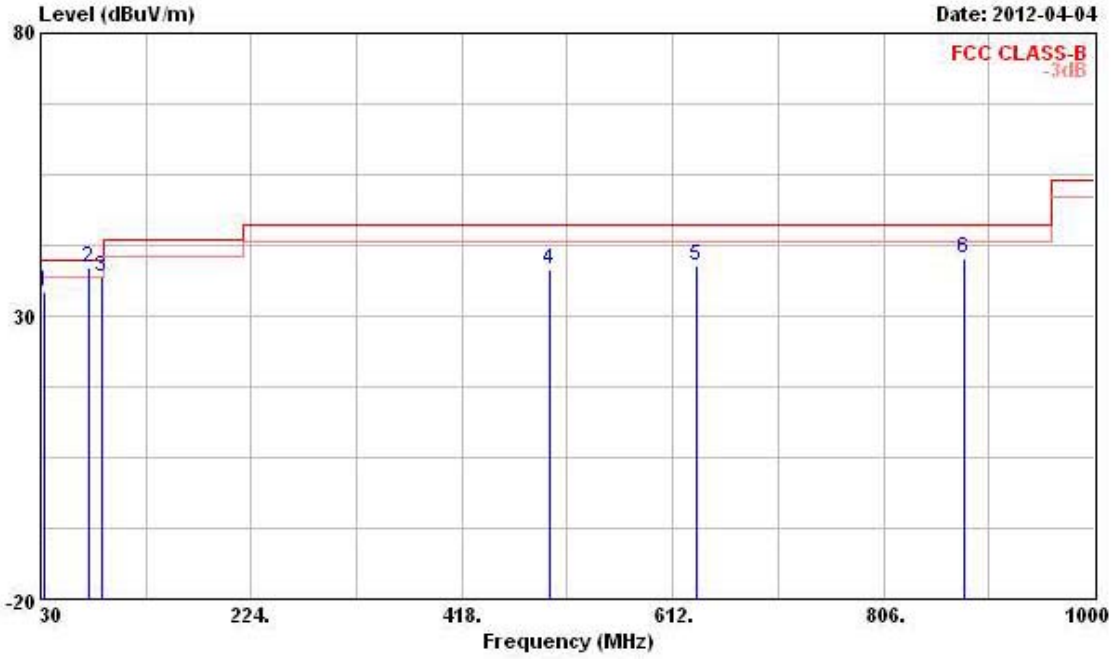
Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11a Ch. 48

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	166.490	38.97	-4.53	43.50	54.10	10.26	2.17	27.56	Peak	---	---
2	209.130	38.80	-4.70	43.50	52.03	11.67	2.49	27.39	Peak	---	---
3	250.620	39.48	-6.52	46.00	50.98	13.00	2.78	27.28	Peak	---	---
4	478.460	37.38	-8.62	46.00	45.07	16.85	3.72	28.26	Peak	---	---
5	633.220	39.22	-6.78	46.00	43.54	19.74	4.34	28.40	Peak	---	---
6	884.770	42.26	-3.74	46.00	44.65	20.07	5.19	27.65	Peak	---	---

Vertical

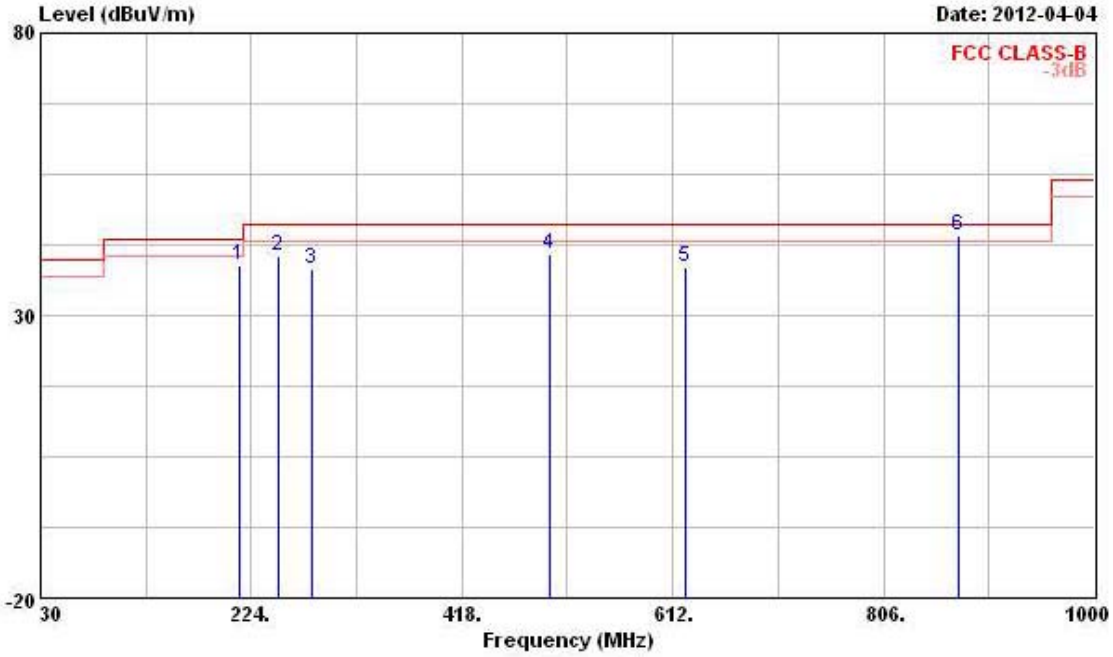


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	32.930	34.34	-5.66	40.00	46.24	15.11	0.93	27.94	QP	---	---
2 @	74.580	38.61	-1.39	40.00	57.95	7.05	1.46	27.85	QP	---	---
3	87.160	36.98	-3.02	40.00	54.34	8.92	1.57	27.85	QP	---	---
4	499.320	38.34	-7.66	46.00	45.61	17.26	3.83	28.36	Peak	---	---
5	633.250	38.94	-7.06	46.00	43.26	19.74	4.34	28.40	Peak	---	---
6	879.630	40.22	-5.78	46.00	42.64	20.08	5.17	27.67	Peak	---	---

Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

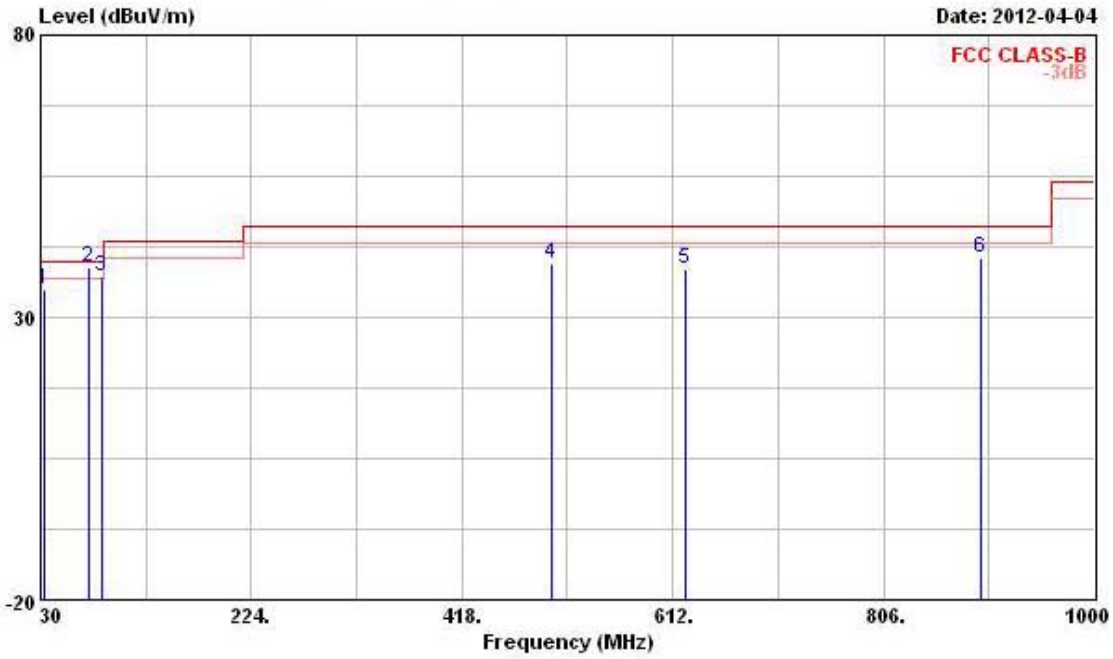
Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 48 (20MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	213.330	38.97	-4.53	43.50	52.03	11.79	2.52	27.37	Peak	---	---
2	249.110	40.48	-5.52	46.00	52.03	12.97	2.77	27.29	Peak	---	---
3	280.190	38.09	-7.91	46.00	48.98	13.43	2.89	27.21	Peak	---	---
4	499.290	40.76	-5.24	46.00	48.03	17.26	3.83	28.36	Peak	---	---
5	623.440	38.55	-7.45	46.00	42.79	19.87	4.31	28.42	Peak	---	---
6 @	875.770	44.15	-1.85	46.00	46.59	20.09	5.15	27.68	QP	---	---

Vertical

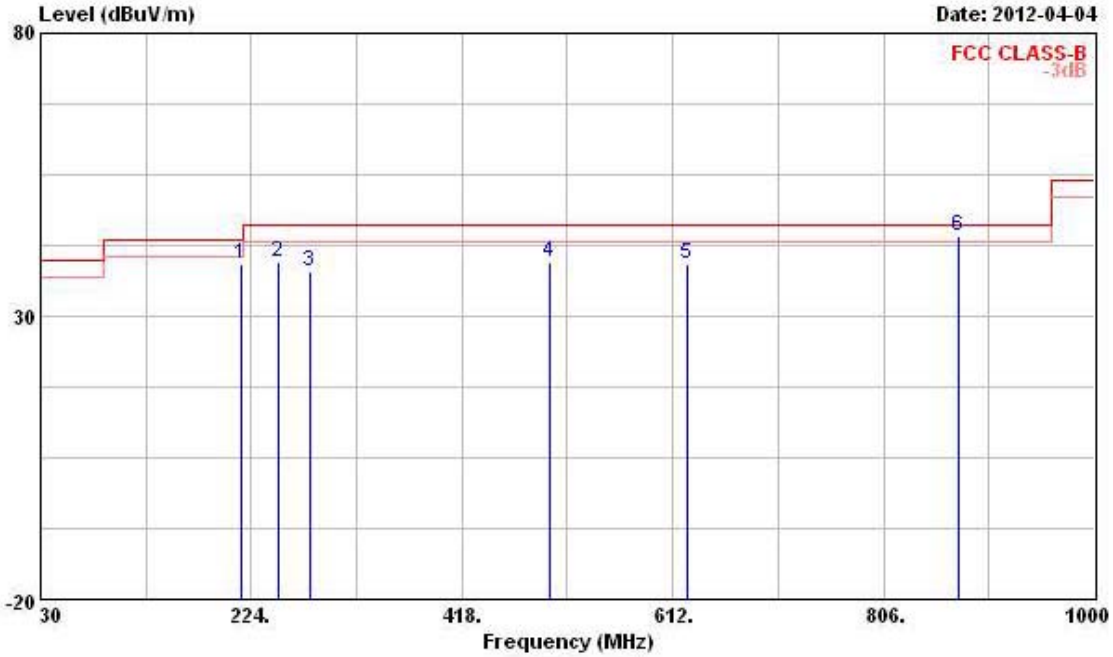


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	32.930	34.99	-5.01	40.00	46.89	15.11	0.93	27.94	QP	---	---
2 @	74.640	39.01	-0.99	40.00	58.35	7.05	1.46	27.85	QP	---	---
3 !	87.270	37.09	-2.91	40.00	54.45	8.92	1.57	27.85	QP	---	---
4	501.100	39.59	-6.41	46.00	46.82	17.31	3.83	28.37	Peak	---	---
5	623.540	38.70	-7.30	46.00	42.94	19.87	4.31	28.42	Peak	---	---
6	894.880	40.64	-5.36	46.00	42.99	20.04	5.23	27.62	Peak	---	---

Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

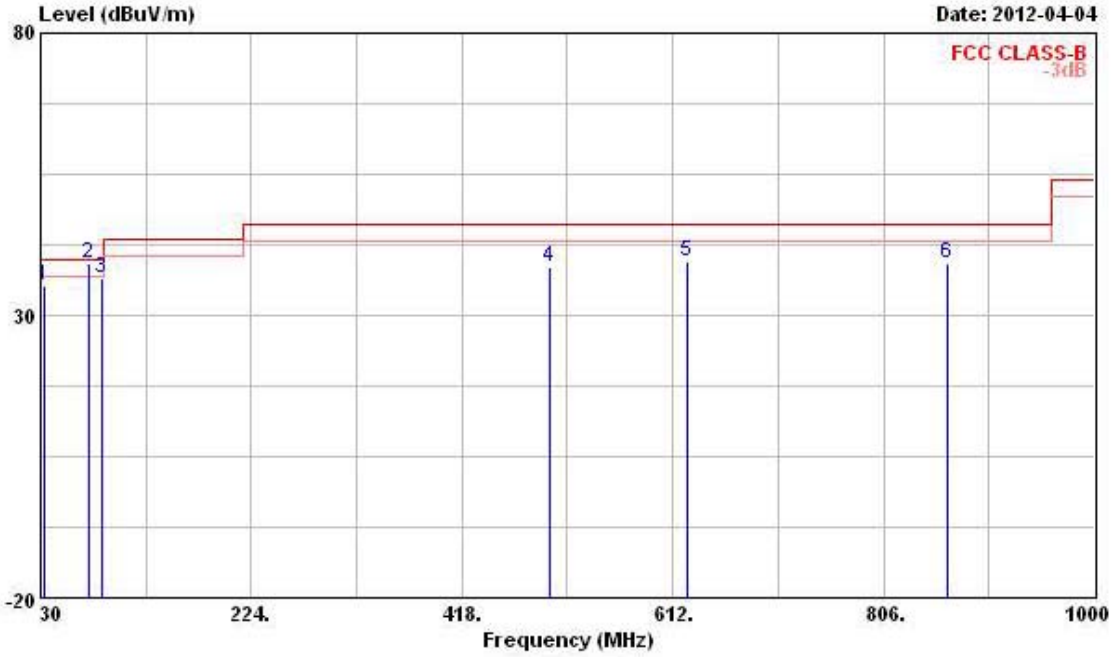
Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 46 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	214.330	39.23	-4.27	43.50	52.24	11.83	2.53	27.37	Peak	---	---
2	249.280	39.70	-6.30	46.00	51.25	12.97	2.77	27.29	Peak	---	---
3	277.220	38.00	-8.00	46.00	48.96	13.38	2.88	27.22	Peak	---	---
4	498.460	39.47	-6.53	46.00	46.75	17.26	3.82	28.36	Peak	---	---
5	625.510	39.18	-6.82	46.00	43.43	19.84	4.32	28.41	Peak	---	---
6 @	874.770	44.04	-1.96	46.00	46.49	20.09	5.15	27.69	QP	---	---

Vertical



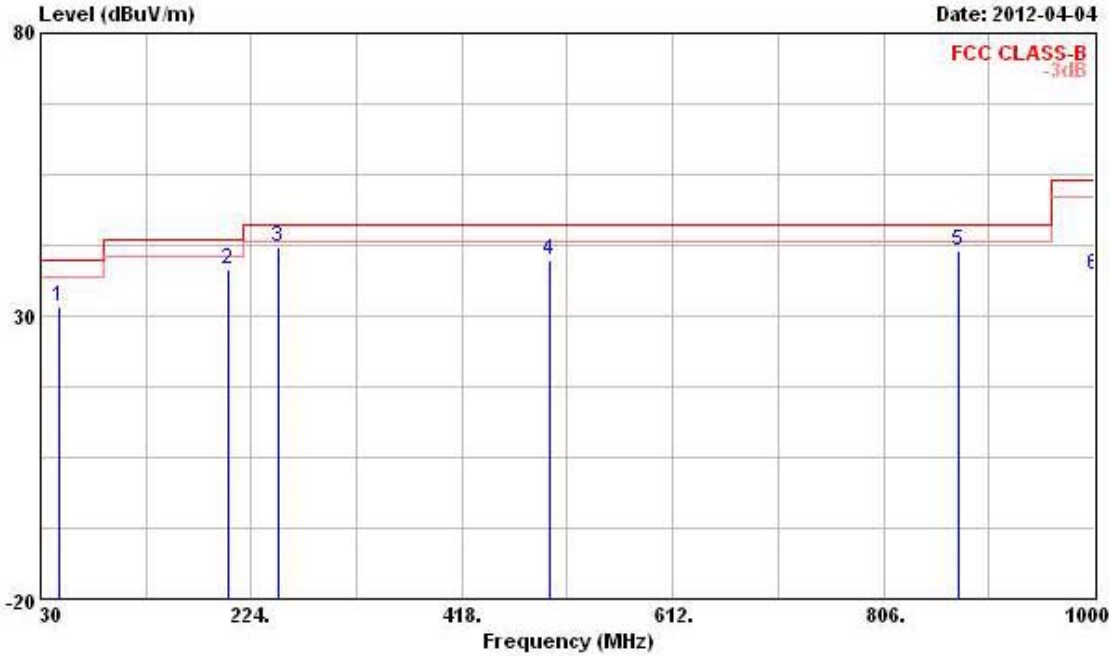
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	32.890	35.28	-4.72	40.00	47.18	15.11	0.93	27.94	QP	---	---
2 @	74.640	39.20	-0.80	40.00	58.54	7.05	1.46	27.85	QP	---	---
3	87.220	36.62	-3.38	40.00	53.98	8.92	1.57	27.85	QP	---	---
4	499.060	38.58	-7.42	46.00	45.86	17.26	3.82	28.36	Peak	---	---
5	625.510	39.48	-6.52	46.00	43.73	19.84	4.32	28.41	Peak	---	---
6	864.790	39.16	-6.84	46.00	41.66	20.11	5.11	27.72	Peak	---	---

Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

For Two Chains:

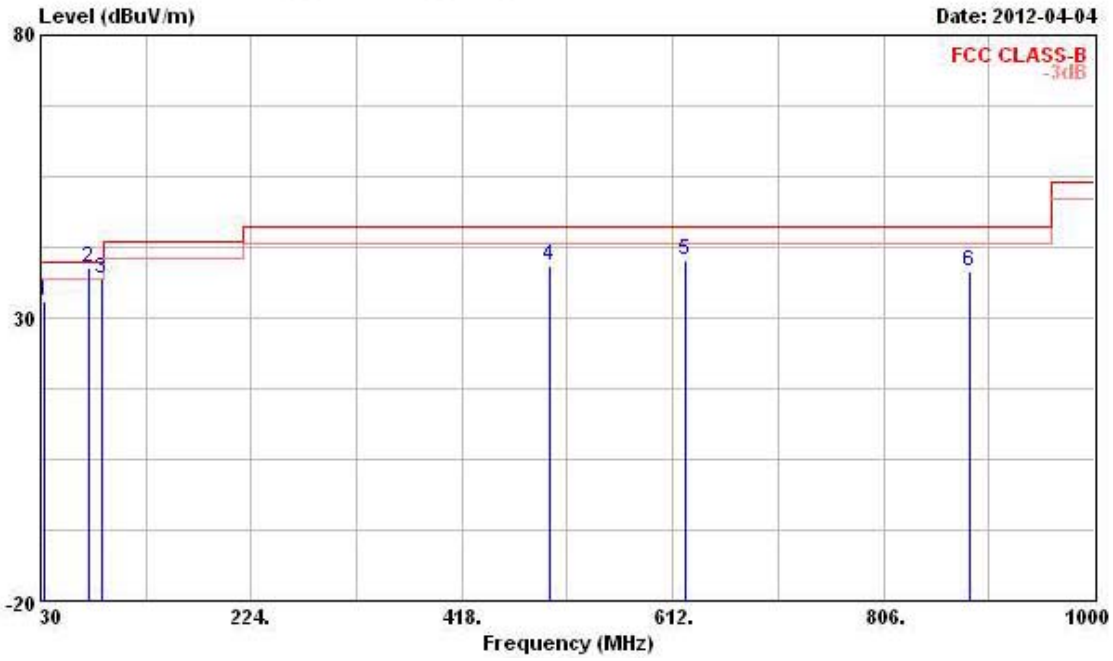
Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 48 (20MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	47.750	31.71	-8.29	40.00	47.60	10.82	1.15	27.86	Peak	---	---
2	203.230	38.18	-5.32	43.50	51.65	11.48	2.45	27.40	Peak	---	---
3	249.330	42.06	-3.94	46.00	53.60	12.97	2.77	27.28	Peak	---	---
4	498.010	39.89	-6.11	46.00	47.19	17.24	3.82	28.36	Peak	---	---
5	875.890	41.43	-4.57	46.00	43.87	20.09	5.15	27.68	Peak	---	---
6	999.560	37.14	-16.86	54.00	36.20	22.50	5.67	27.23	Peak	---	---

Vertical

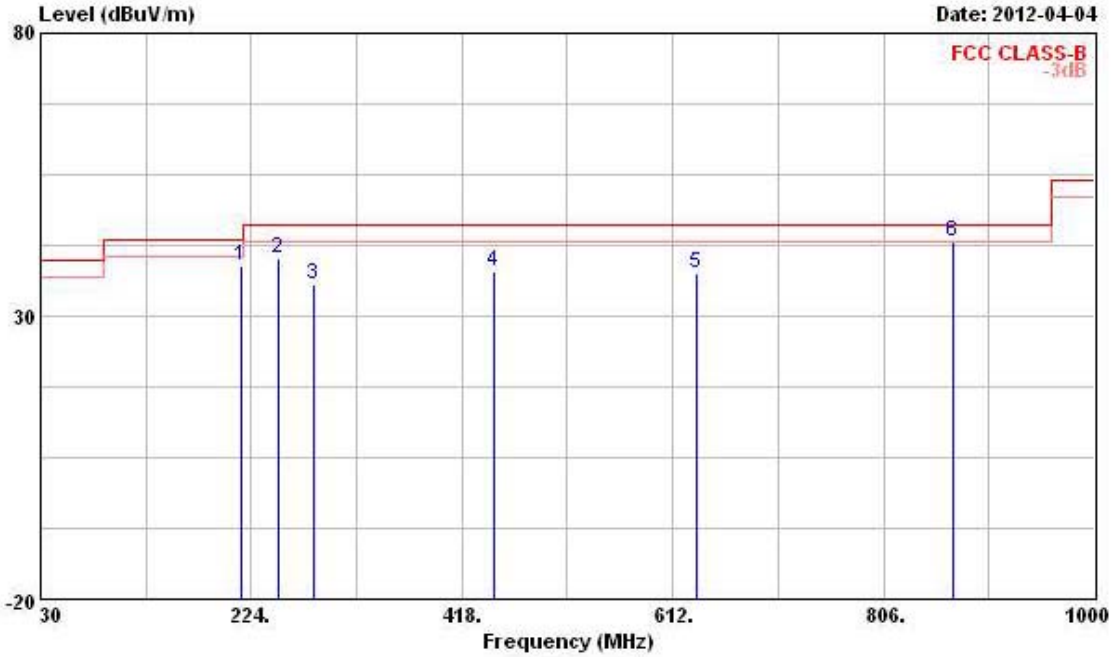


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	33.990	32.98	-7.02	40.00	45.22	14.74	0.95	27.93	QP	---	---
2 @	74.600	38.87	-1.13	40.00	58.21	7.05	1.46	27.85	QP	---	---
3	86.230	36.90	-3.10	40.00	54.46	8.73	1.56	27.85	QP	---	---
4	498.550	39.18	-6.82	46.00	46.46	17.26	3.82	28.36	Peak	---	---
5	623.850	40.18	-5.82	46.00	44.42	19.87	4.31	28.42	Peak	---	---
6	884.790	38.06	-7.94	46.00	40.45	20.07	5.19	27.65	Peak	---	---

Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

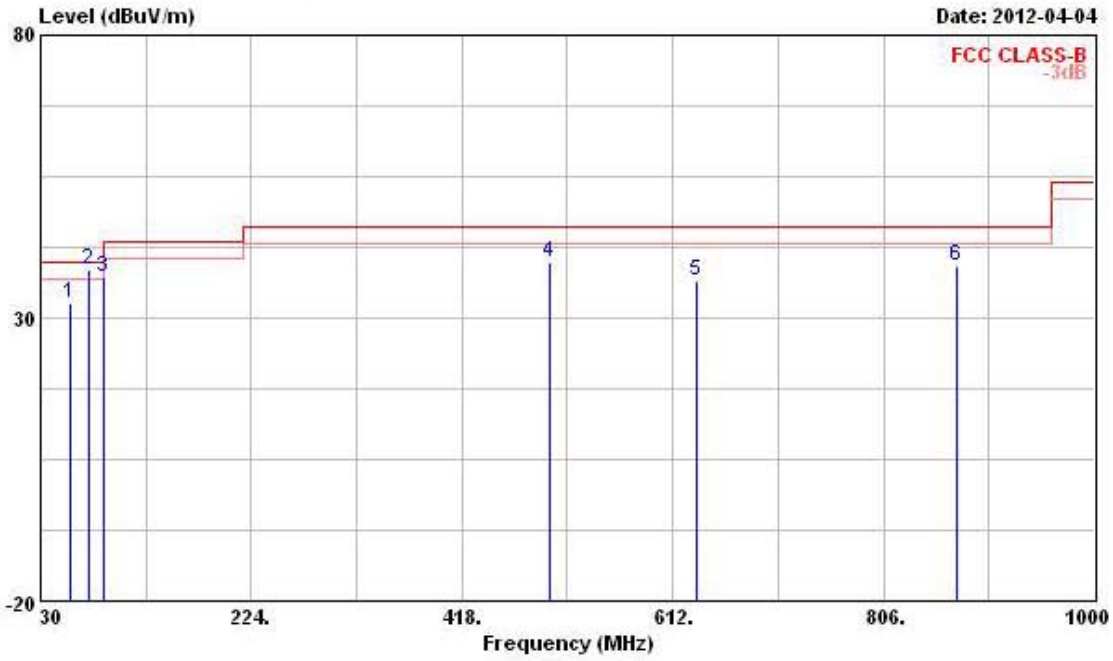
Final Test Date	Apr. 04, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 46 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	214.560	38.83	-4.67	43.50	51.84	11.83	2.53	27.37	Peak	---	---
2	248.460	40.26	-5.74	46.00	51.84	12.94	2.77	27.29	Peak	---	---
3	281.360	35.64	-10.36	46.00	46.52	13.44	2.89	27.21	Peak	---	---
4	446.890	38.05	-7.95	46.00	46.38	16.22	3.56	28.11	Peak	---	---
5	633.590	37.56	-8.44	46.00	41.88	19.74	4.34	28.40	Peak	---	---
6 !	870.190	43.29	-2.71	46.00	45.76	20.10	5.13	27.70	QP	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	57.110	32.48	-7.52	40.00	51.23	7.83	1.27	27.85	QP	---	---
2 @	74.580	38.51	-1.49	40.00	57.85	7.05	1.46	27.85	QP	---	---
3 !	87.320	37.29	-2.71	40.00	54.65	8.92	1.57	27.85	QP	---	---
4	499.590	39.96	-6.04	46.00	47.22	17.28	3.83	28.37	Peak	---	---
5	633.550	36.67	-9.33	46.00	40.99	19.74	4.34	28.40	Peak	---	---
6	873.250	39.37	-6.63	46.00	41.83	20.09	5.14	27.69	Peak	---	---

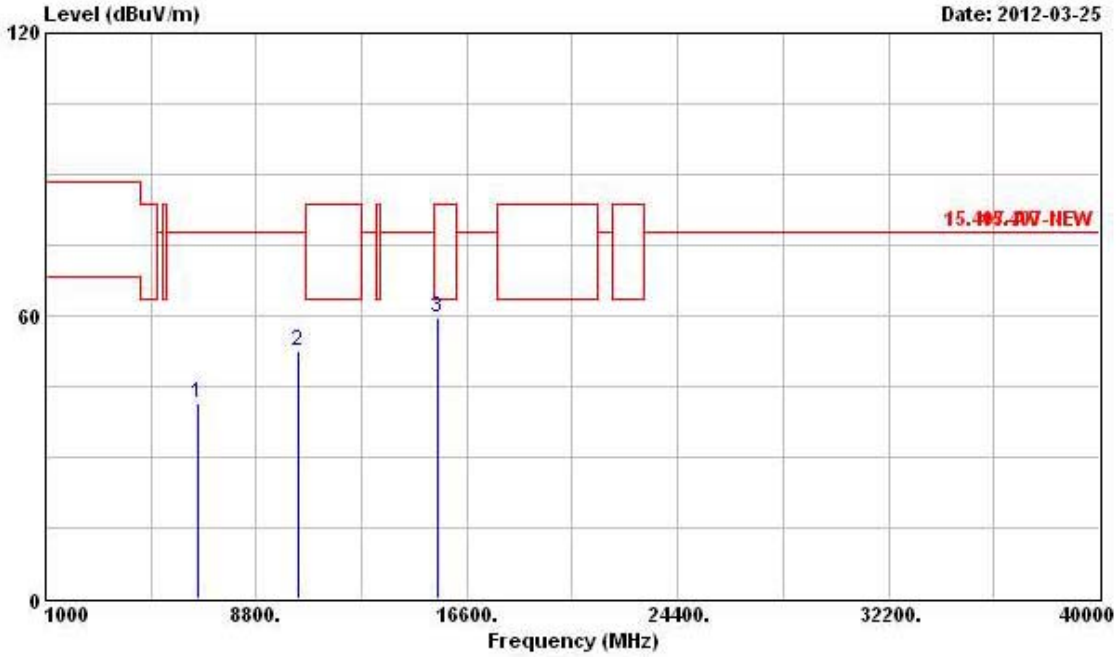
Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6.9 Results for Radiated Emissions (1GHz~40GHz)

For Single Chain:

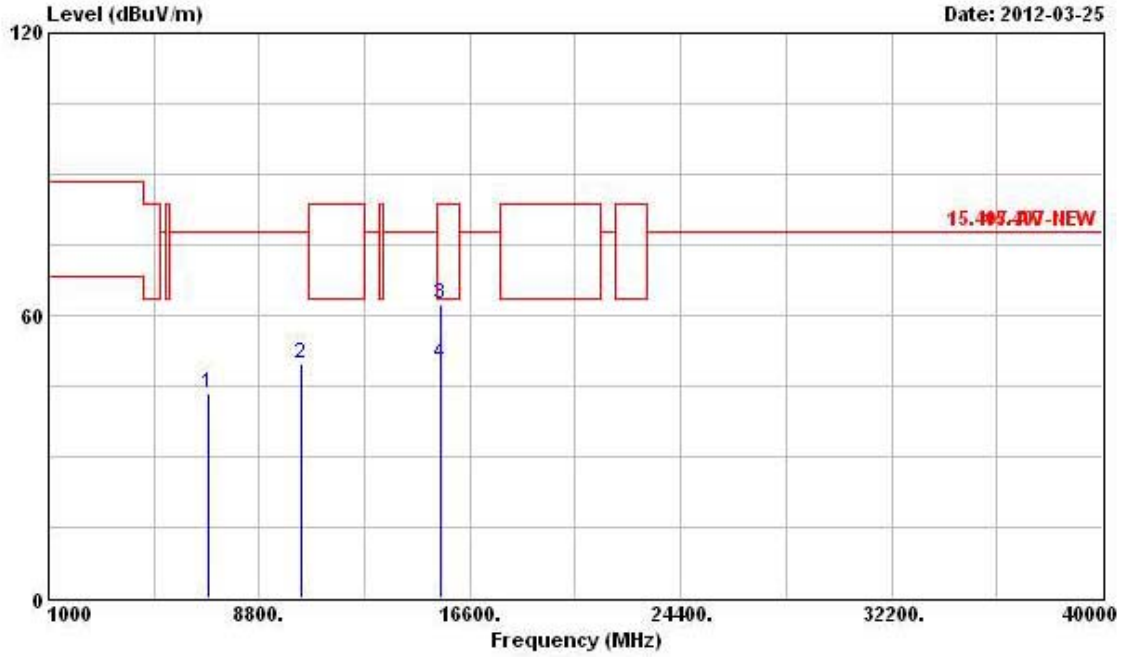
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11a Ch. 36

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6651.000	41.51	-36.33	77.84	35.15	35.76	5.52	34.92	Peak	---	---
2	10360.000	52.44	-25.40	77.84	42.73	38.22	6.71	35.22	Peak	---	---
3	15540.000	59.68	-3.86	63.54	45.45	40.81	8.45	35.03	PK	---	---

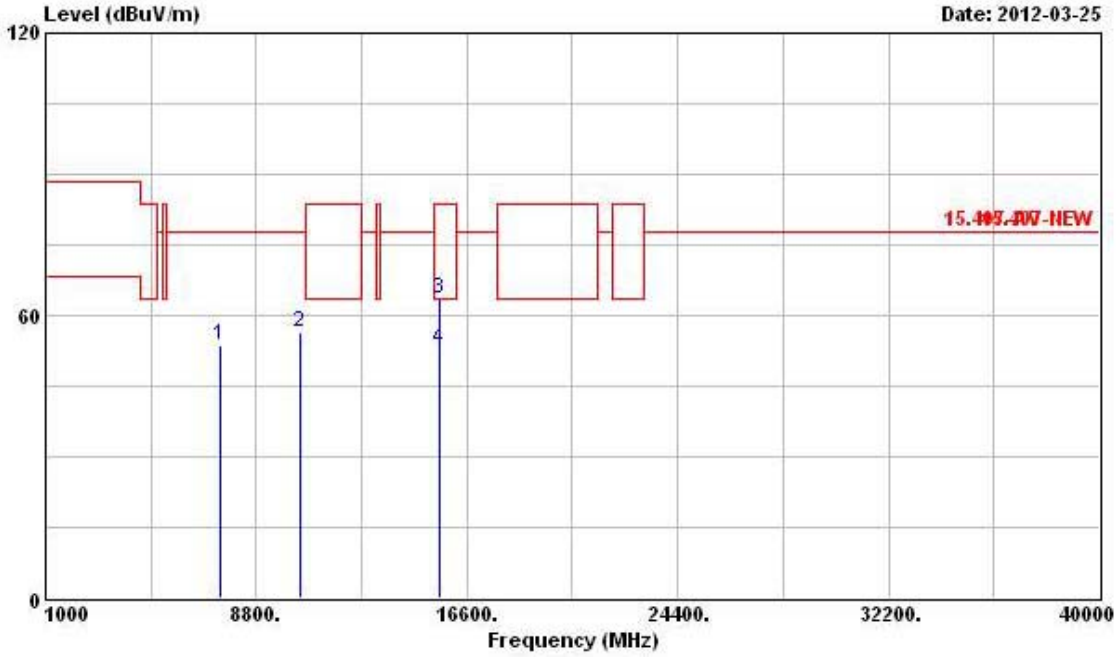
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6898.000	43.51	-34.33	77.84	37.07	35.86	5.57	34.99	Peak	---	---
2	10360.000	49.70	-28.14	77.84	39.99	38.22	6.71	35.22	Peak	---	---
3	15540.000	62.44	-21.10	83.54	48.21	40.81	8.45	35.03	Peak	---	---
4	15540.000	49.93	-13.61	63.54	35.70	40.81	8.45	35.03	Average	---	---

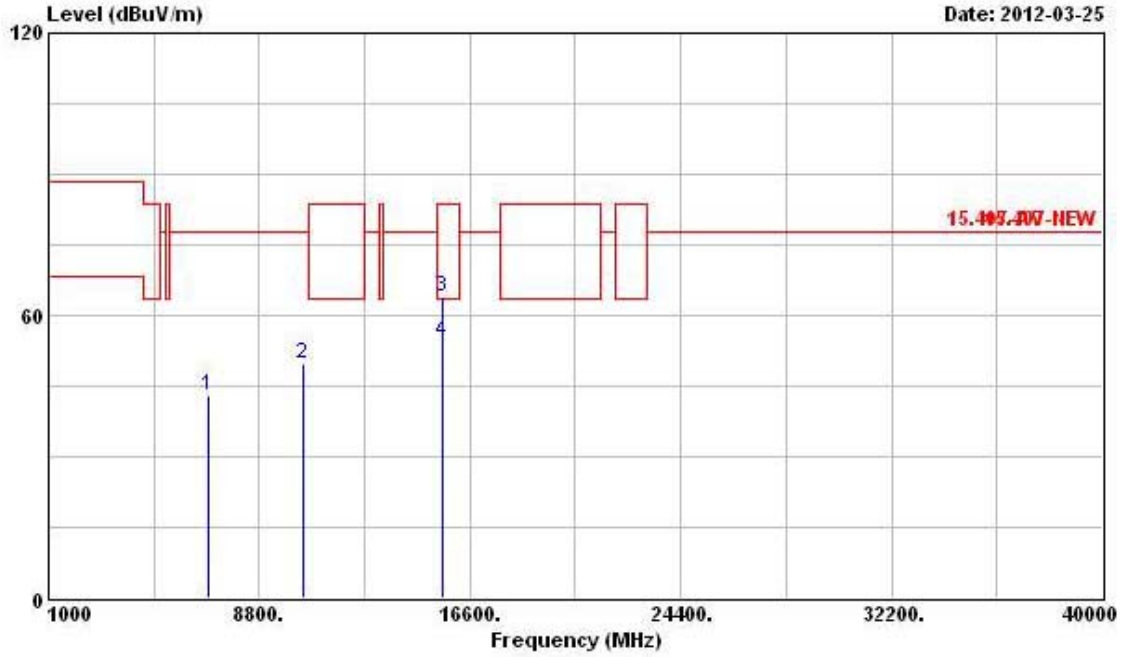
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11a Ch. 40

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7483.000	53.81	-24.03	77.84	47.49	35.80	5.66	35.14	PK	---	---
2	10400.000	56.55	-21.29	77.84	46.74	38.24	6.75	35.18	Peak	---	---
3	15600.000	63.68	-19.86	83.54	49.49	40.84	8.45	35.10	Peak	---	---
4	15600.000	53.09	-10.45	63.54	38.90	40.84	8.45	35.10	Average	---	---

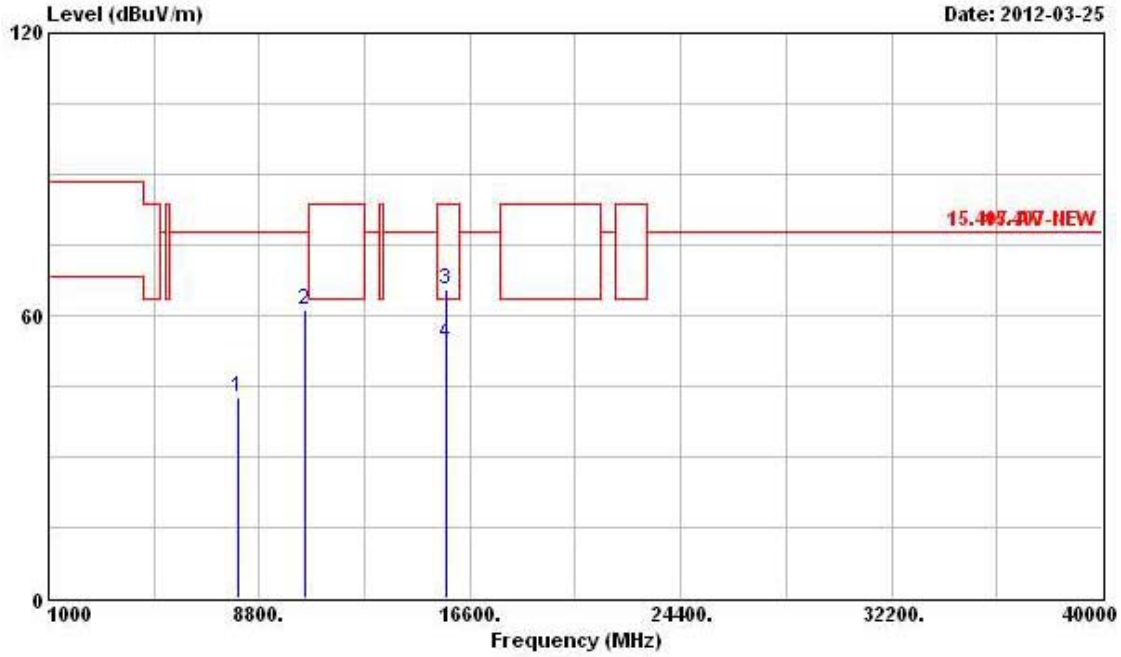
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	43.04	-34.80	77.84	36.59	35.87	5.58	35.00	Peak	---	---
2	10400.000	49.90	-27.94	77.84	40.09	38.24	6.75	35.18	Peak	---	---
3	15600.000	63.96	-19.58	83.54	49.77	40.84	8.45	35.10	Peak	---	---
4	15600.000	54.65	-8.89	63.54	40.46	40.84	8.45	35.10	Average	---	---

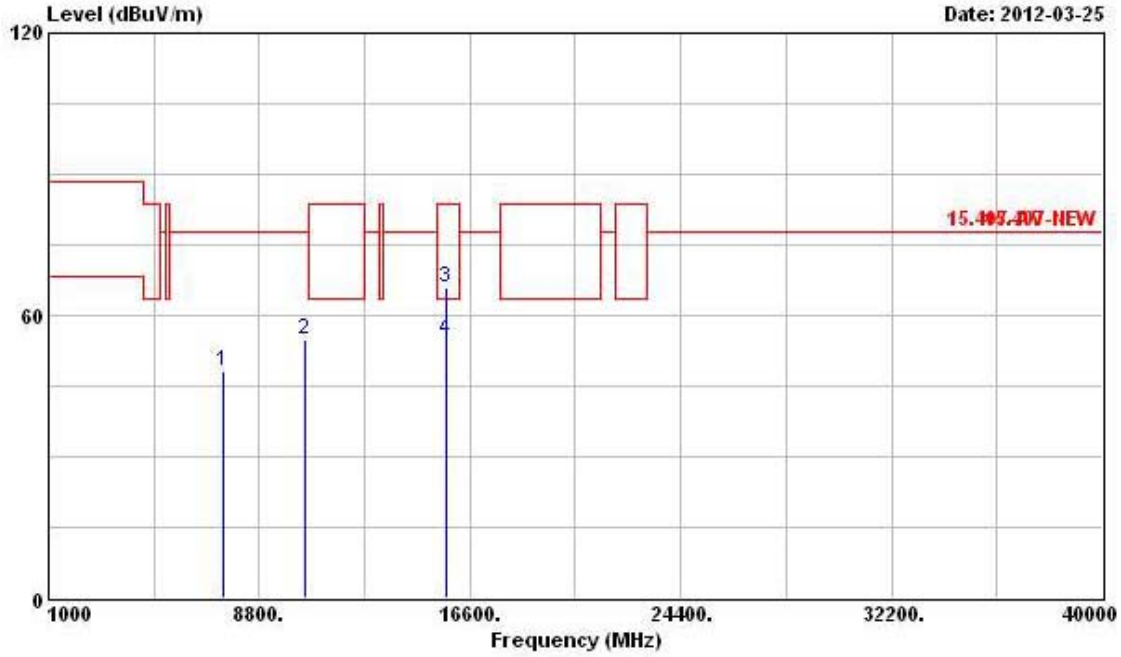
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11a Ch. 48

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7990.000	42.46	-35.38	77.84	36.02	35.90	5.80	35.26	Peak	---	---
2	10480.000	61.10	-16.74	77.84	51.11	38.29	6.82	35.12	Peak	---	---
3	15720.000	65.62	-17.92	83.54	51.47	40.89	8.46	35.20	Peak	---	---
4	15720.000	54.05	-9.49	63.54	39.90	40.89	8.46	35.20	Average	---	---

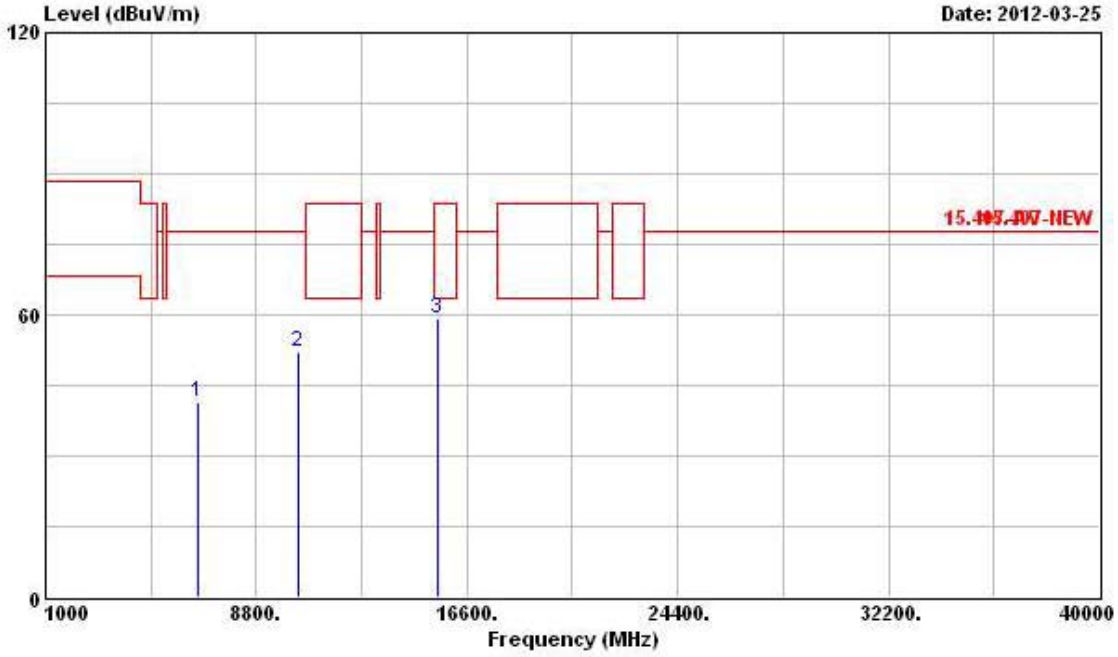
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7483.000	48.28	-29.56	77.84	41.96	35.80	5.66	35.14	PK	---	---
2	10480.000	54.74	-23.10	77.84	44.75	38.29	6.82	35.12	Peak	---	---
3	15720.000	65.98	-17.56	83.54	51.83	40.89	8.46	35.20	Peak	---	---
4	15720.000	54.99	-8.55	63.54	40.84	40.89	8.46	35.20	Average	---	---

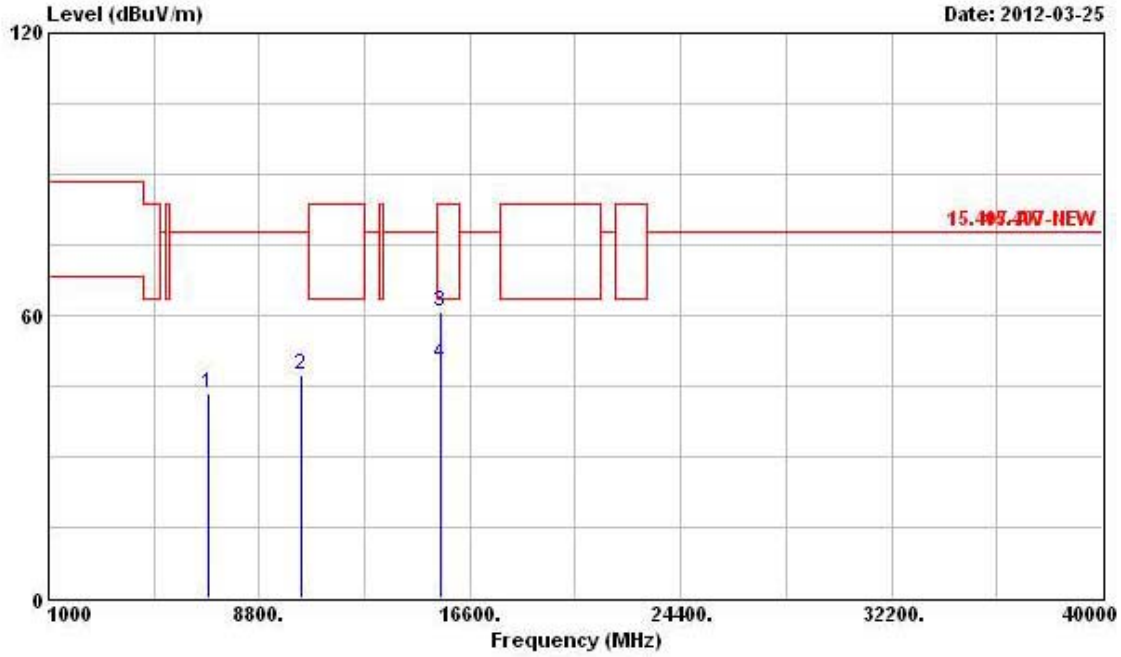
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 36 (20MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6651.000	41.46	-36.38	77.84	35.10	35.76	5.52	34.92	Peak	---	---
2	10360.000	52.16	-25.68	77.84	42.45	38.22	6.71	35.22	Peak	---	---
3	15540.000	59.18	-4.36	63.54	44.95	40.81	8.45	35.03	PK	---	---

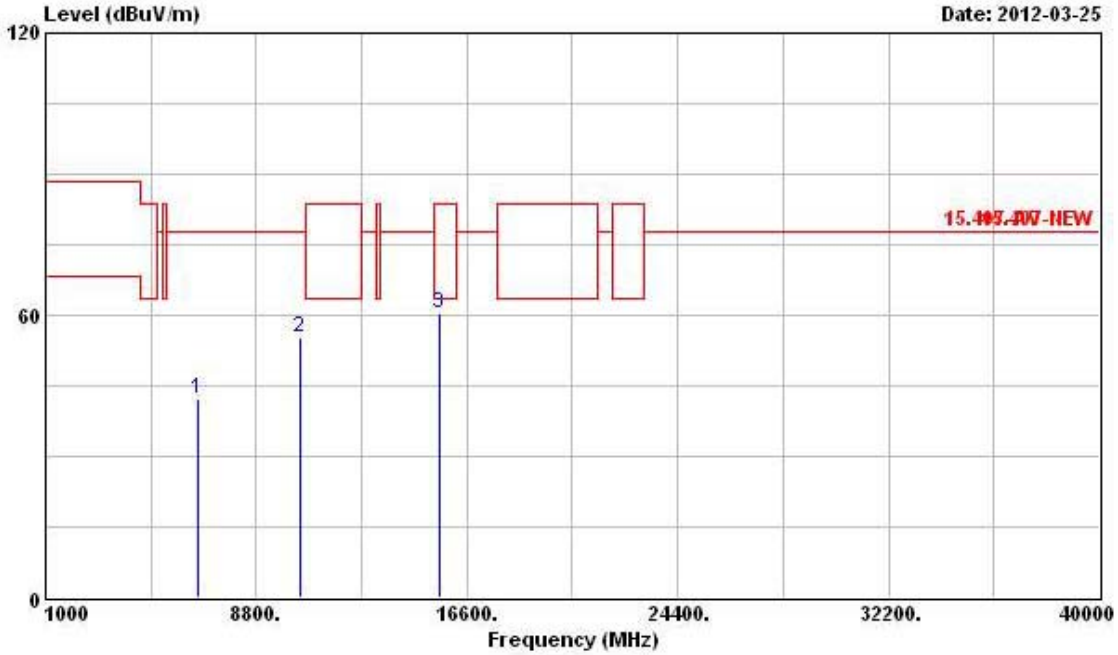
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6898.000	43.30	-34.54	77.84	36.86	35.86	5.57	34.99	Peak	---	---
2	10360.000	47.39	-30.45	77.84	37.68	38.22	6.71	35.22	Peak	---	---
3	15540.000	60.80	-22.74	83.54	46.57	40.81	8.45	35.03	Peak	---	---
4	15540.000	49.80	-13.74	63.54	35.57	40.81	8.45	35.03	Average	---	---

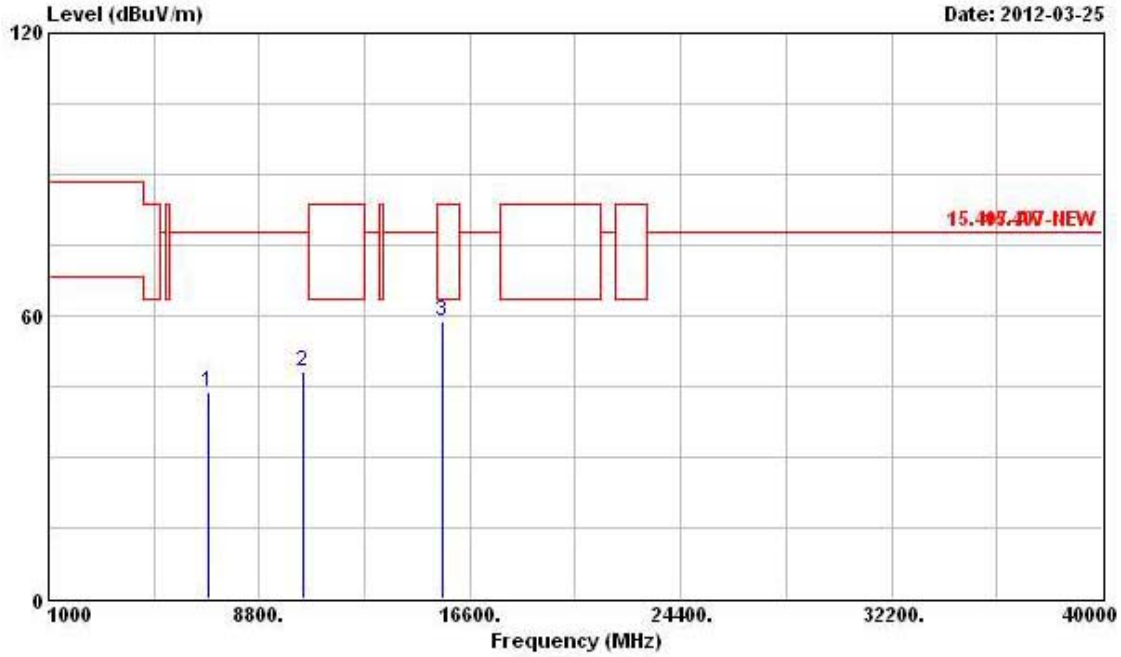
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 40 (20 MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6651.000	42.14	-35.70	77.84	35.78	35.76	5.52	34.92	Peak	---	---
2	10400.000	55.28	-22.56	77.84	45.47	38.24	6.75	35.18	Peak	---	---
3	@15600.000	60.54	-3.00	63.54	46.35	40.84	8.45	35.10	PK	---	---

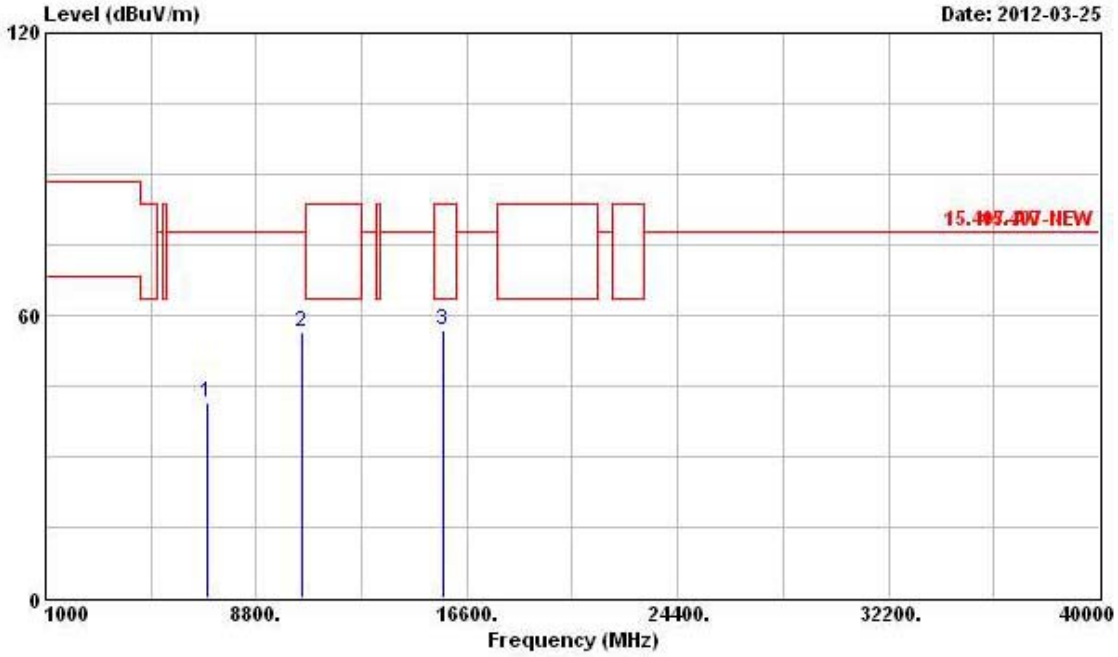
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	43.77	-34.07	77.84	37.32	35.87	5.58	35.00	Peak	---	---
2	10400.000	48.04	-29.80	77.84	38.23	38.24	6.75	35.18	Peak	---	---
3	15600.000	58.94	-4.60	63.54	44.75	40.84	8.45	35.10	PK	---	---

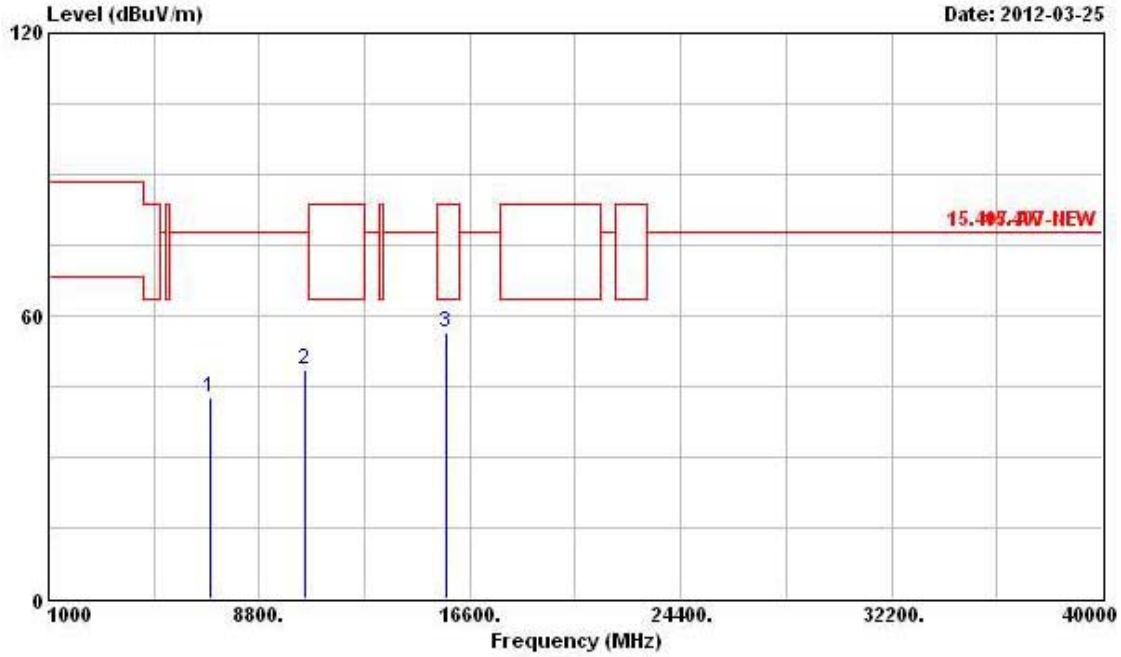
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 48 (20 MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6963.000	41.44	-36.40	77.84	34.97	35.89	5.59	35.01	Peak	---	---
2	10480.000	56.28	-21.56	77.84	46.29	38.29	6.82	35.12	Peak	---	---
3	15720.000	57.01	-6.53	63.54	42.86	40.89	8.46	35.20	PK	---	---

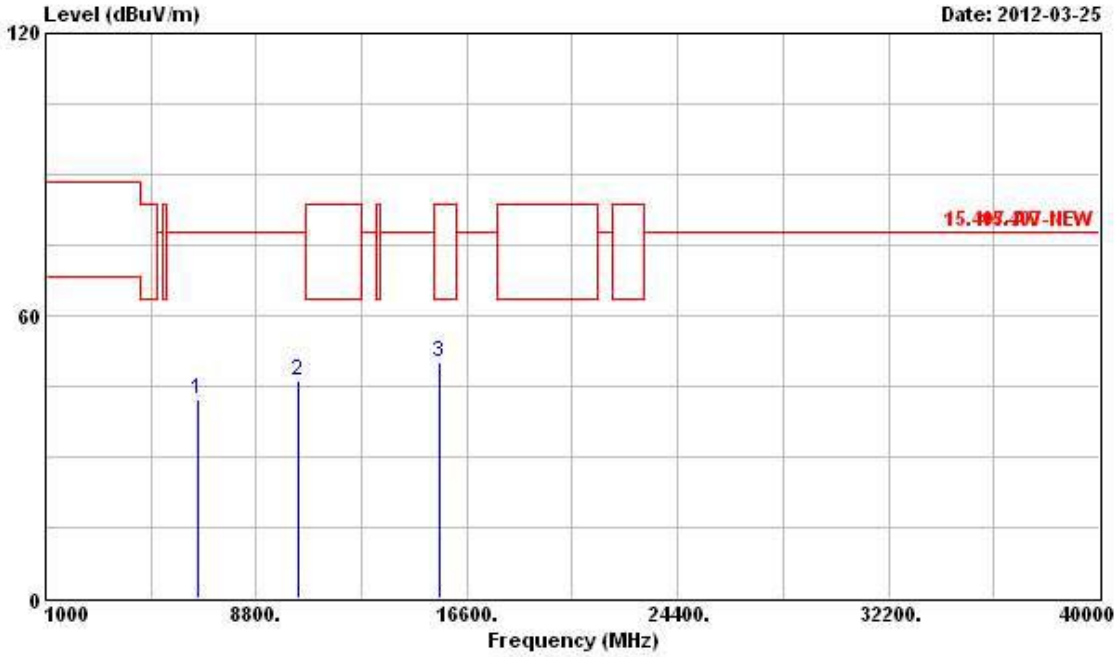
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6963.000	42.48	-35.36	77.84	36.01	35.89	5.59	35.01	Peak	---	---
2	10480.000	48.51	-29.33	77.84	38.52	38.29	6.82	35.12	Peak	---	---
3	15720.000	56.48	-7.06	63.54	42.33	40.89	8.46	35.20	PK	---	---

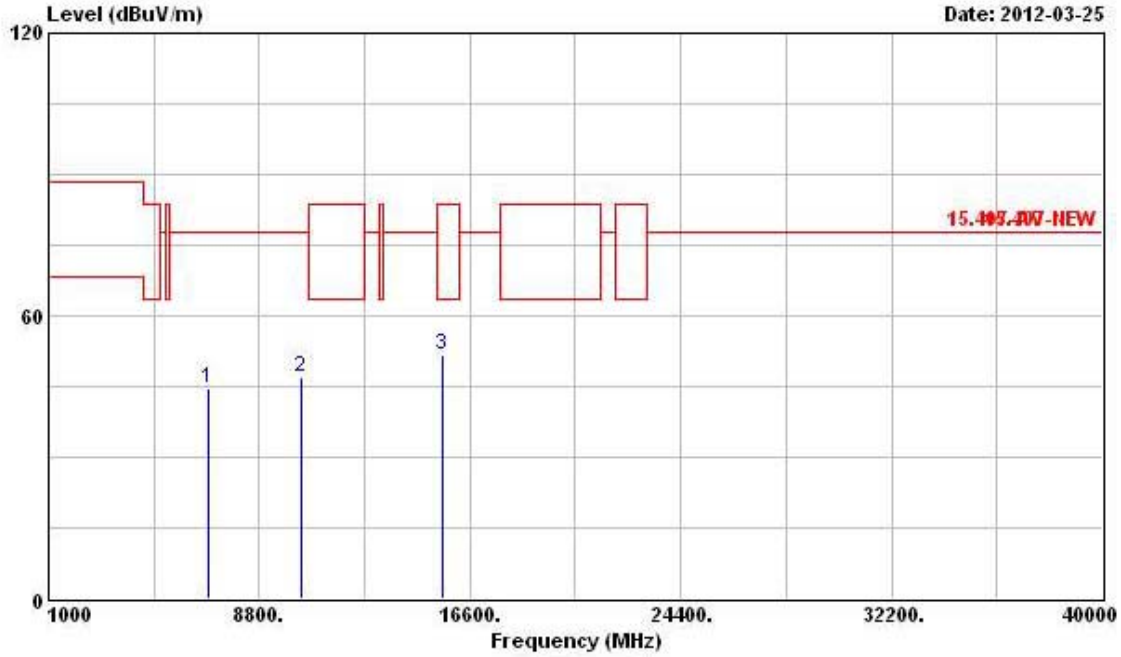
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 38 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6651.000	42.32	-35.52	77.84	35.96	35.76	5.52	34.92	Peak	---	---
2	10380.000	46.14	-31.70	77.84	36.36	38.23	6.75	35.20	Peak	---	---
3	15570.000	50.04	-13.50	63.54	35.81	40.83	8.45	35.05	PK	---	---

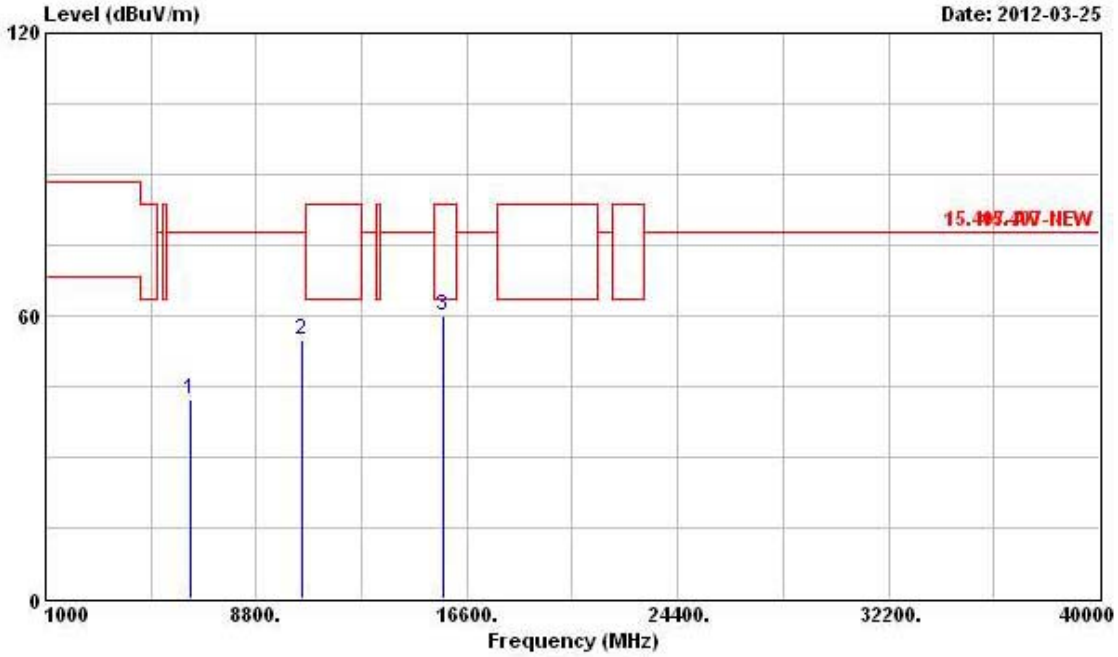
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	44.50	-33.34	77.84	38.05	35.87	5.58	35.00	Peak	---	---
2	10380.000	47.03	-30.81	77.84	37.25	38.23	6.75	35.20	Peak	---	---
3	15570.000	51.61	-11.93	63.54	37.38	40.83	8.45	35.05	PK	---	---

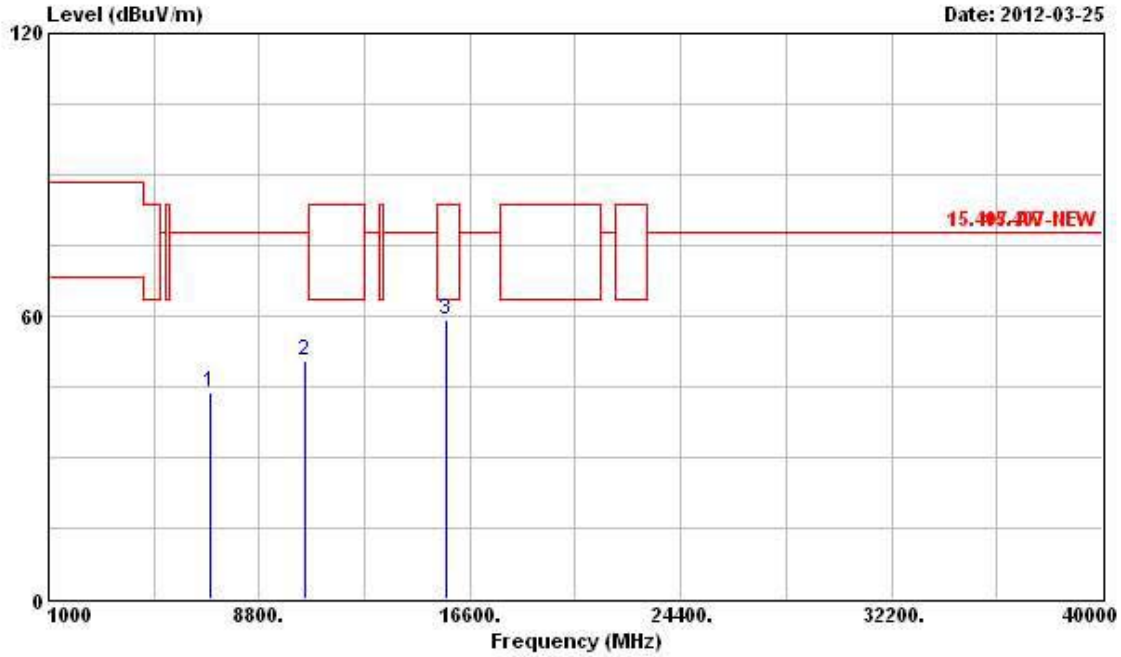
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 46 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6378.000	42.04	-35.80	77.84	35.85	35.65	5.42	34.88	Peak	---	---
2	10460.000	54.90	-22.94	77.84	44.95	38.27	6.82	35.14	Peak	---	---
3	15690.000	60.00	-3.54	63.54	45.84	40.88	8.46	35.18	PK	---	---

Vertical

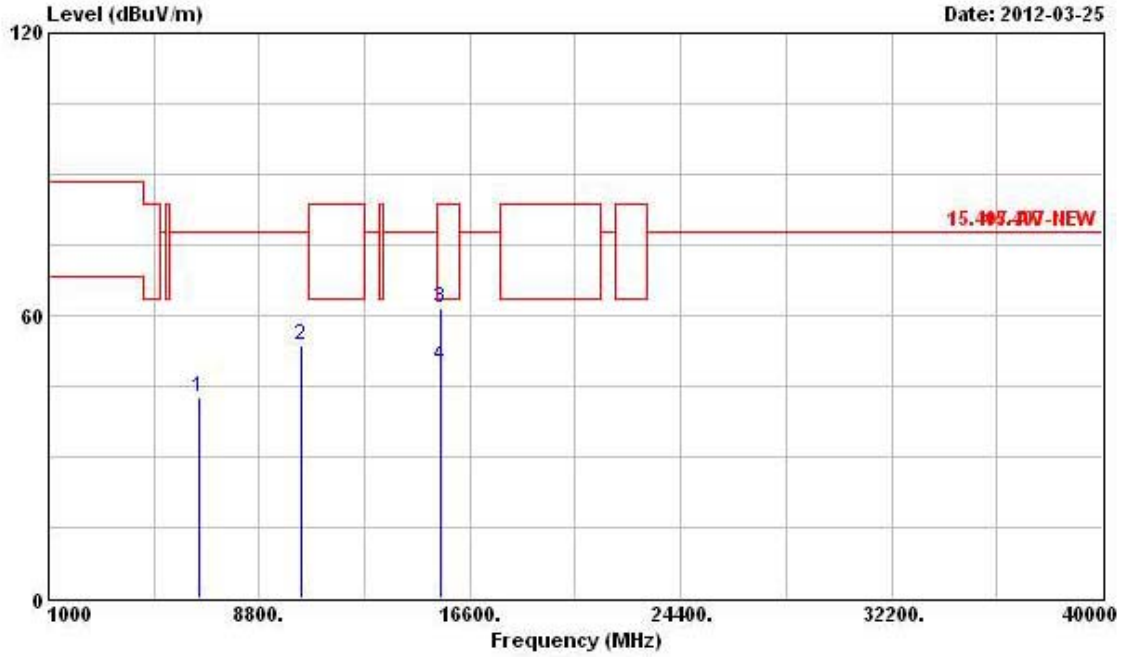


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6963.000	43.77	-34.07	77.84	37.30	35.89	5.59	35.01	Peak	---	---
2	10460.000	50.59	-27.25	77.84	40.64	38.27	6.82	35.14	Peak	---	---
3	15690.000	59.34	-4.20	63.54	45.18	40.88	8.46	35.18	PK	---	---

For Two Chains:

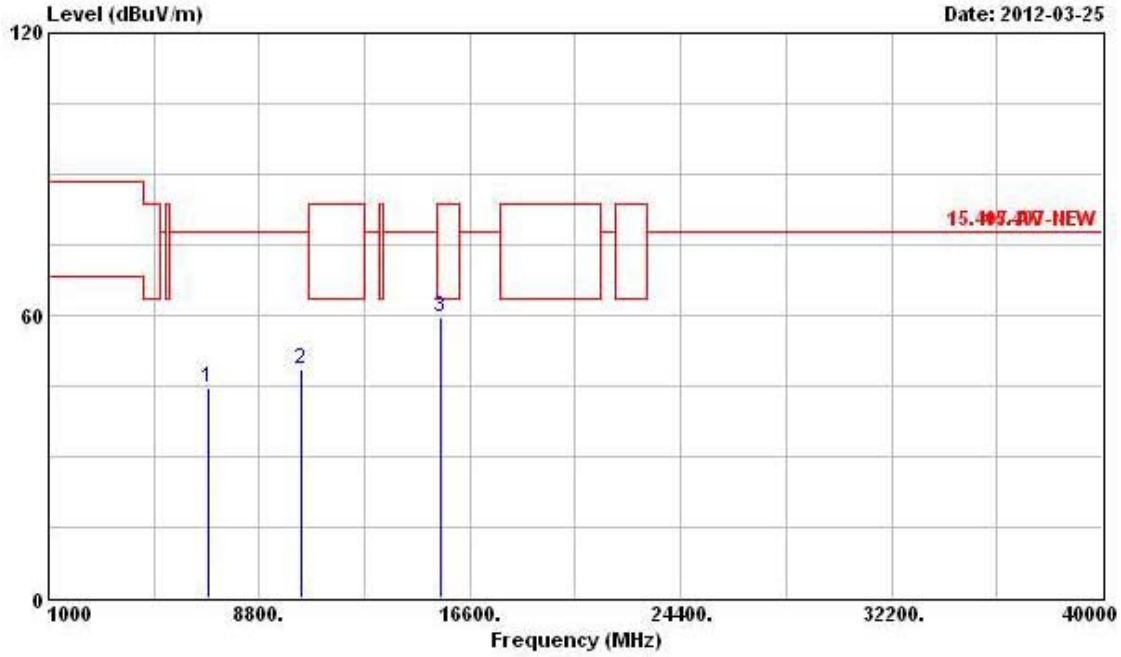
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 36 (20MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6547.000	42.45	-35.39	77.84	36.13	35.71	5.50	34.89	Peak	---	---
2	10360.000	53.65	-24.19	77.84	43.94	38.22	6.71	35.22	Peak	---	---
3	15540.000	61.59	-21.95	83.54	47.36	40.81	8.45	35.03	Peak	---	---
4	15540.000	49.41	-14.13	63.54	35.18	40.81	8.45	35.03	Average	---	---

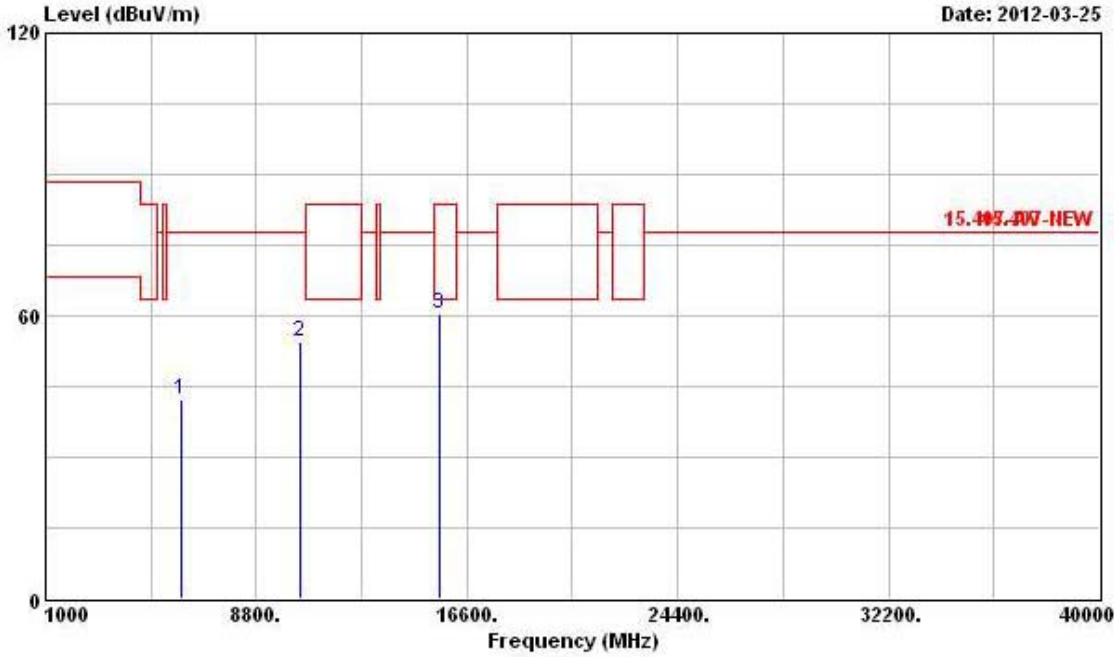
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6898.000	44.73	-33.11	77.84	38.29	35.86	5.57	34.99	Peak	---	---
2	10360.000	48.61	-29.23	77.84	38.90	38.22	6.71	35.22	Peak	---	---
3	15540.000	59.66	-3.88	63.54	45.43	40.81	8.45	35.03	PK	---	---

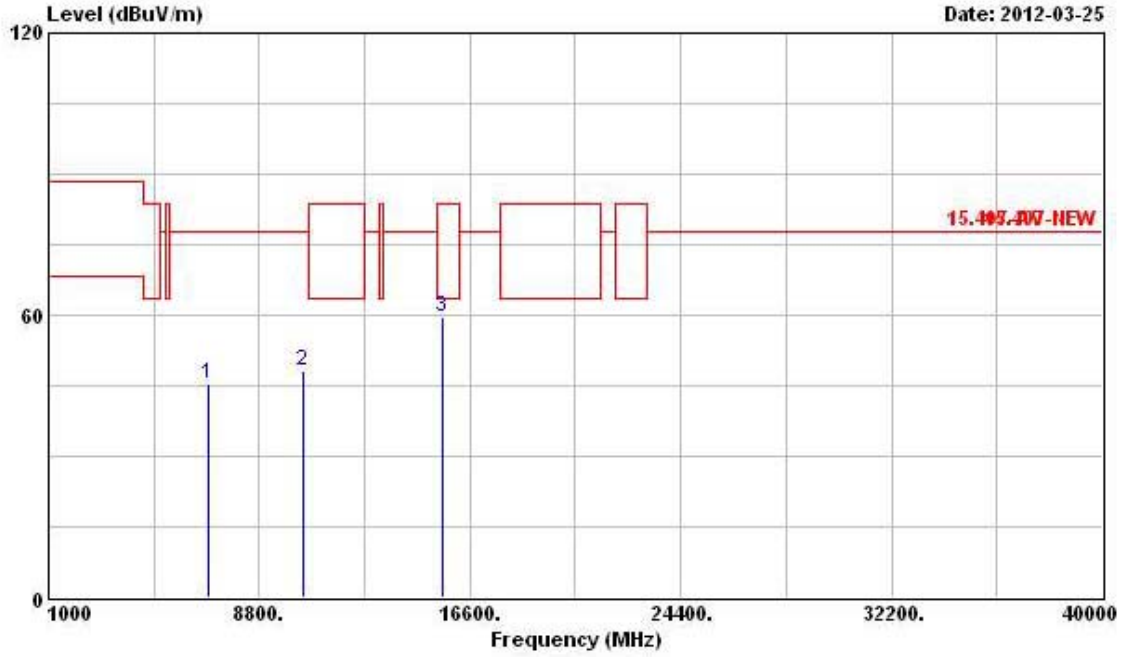
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 40 (20 MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6014.000	42.20	-35.64	77.84	36.33	35.51	5.22	34.86	Peak	---	---
2	10400.000	54.58	-23.26	77.84	44.77	38.24	6.75	35.18	Peak	---	---
3	@15600.000	60.32	-3.22	63.54	46.13	40.84	8.45	35.10	PK	---	---

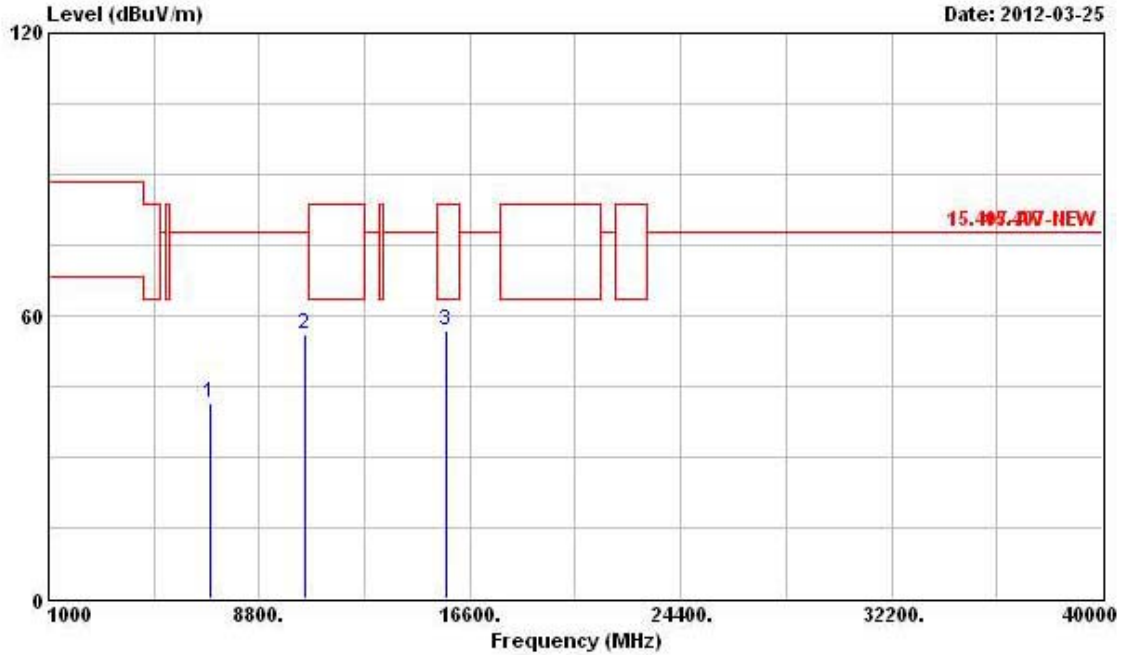
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	45.54	-32.30	77.84	39.09	35.87	5.58	35.00	Peak	---	---
2	10400.000	47.99	-29.85	77.84	38.18	38.24	6.75	35.18	Peak	---	---
3	15600.000	59.41	-4.13	63.54	45.22	40.84	8.45	35.10	PK	---	---

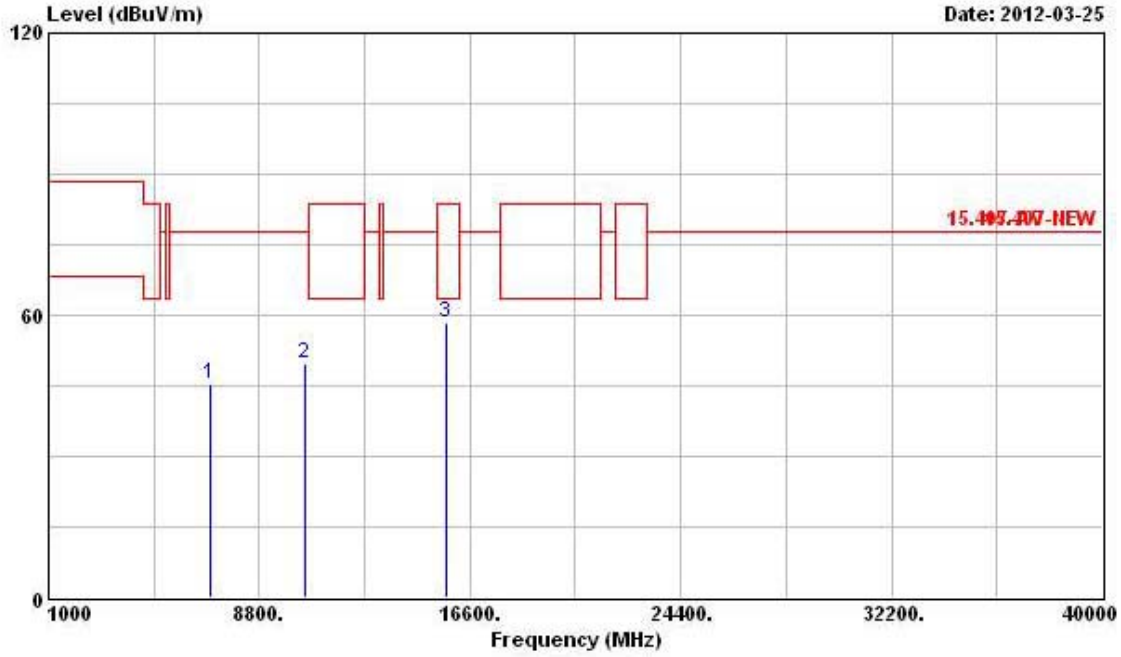
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 48 (20 MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6963.000	41.50	-36.34	77.84	35.03	35.89	5.59	35.01	Peak	---	---
2	10480.000	56.10	-21.74	77.84	46.11	38.29	6.82	35.12	Peak	---	---
3	15720.000	56.77	-6.77	63.54	42.62	40.89	8.46	35.20	PK	---	---

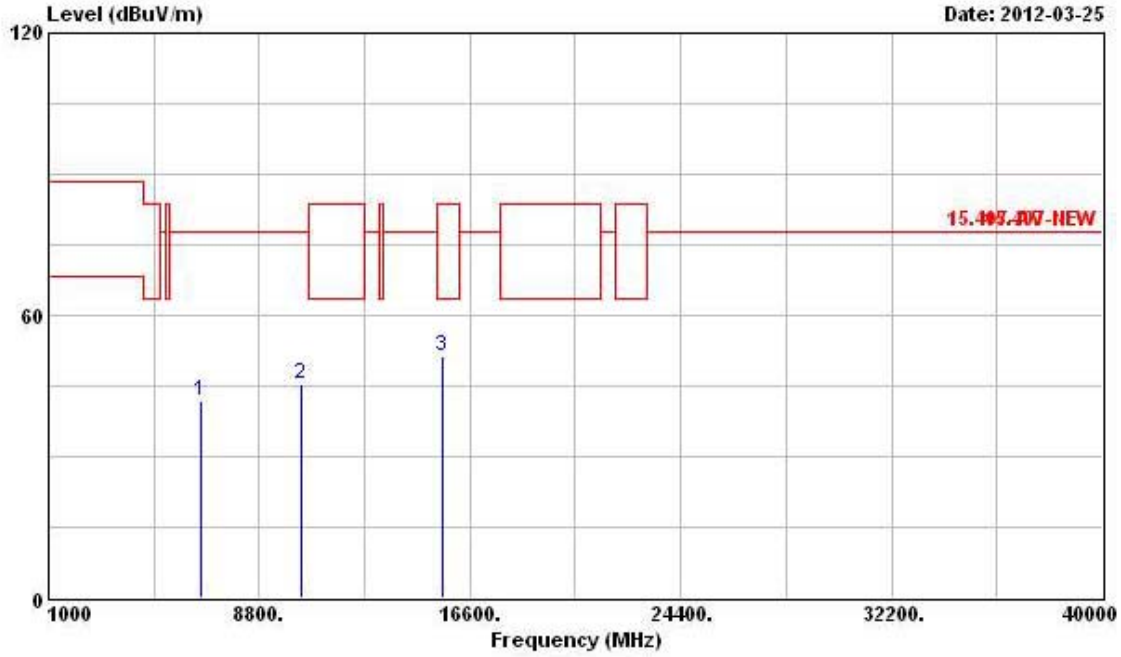
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6963.000	45.57	-32.27	77.84	39.10	35.89	5.59	35.01	Peak	---	---
2	10480.000	49.66	-28.18	77.84	39.67	38.29	6.82	35.12	Peak	---	---
3	15720.000	58.57	-4.97	63.54	44.42	40.89	8.46	35.20	PK	---	---

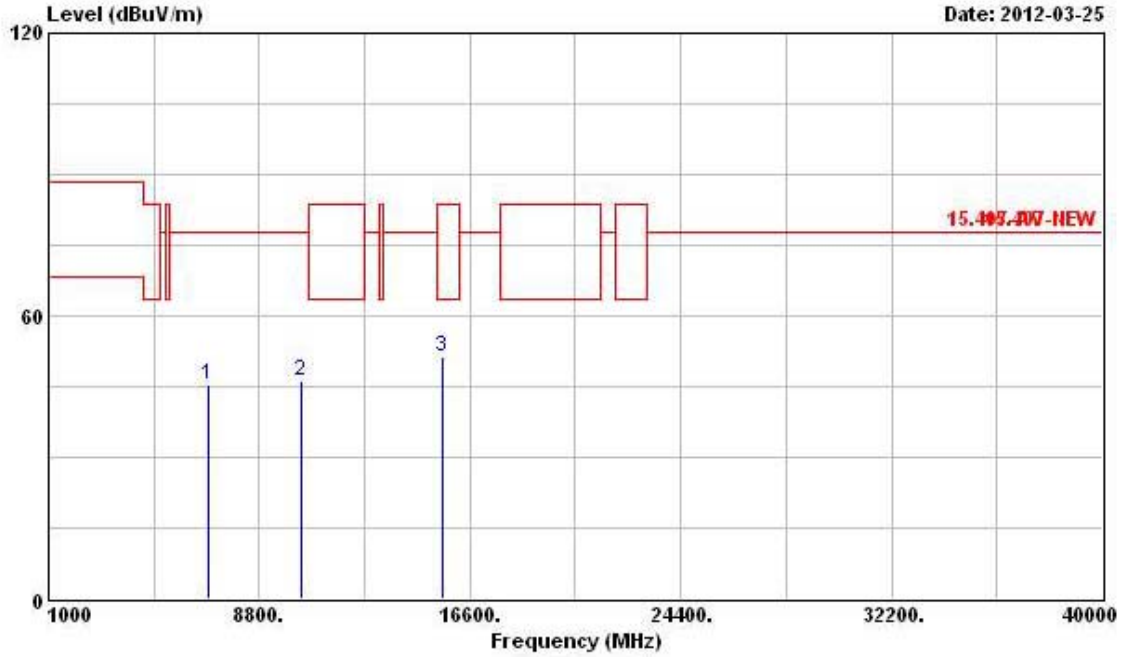
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 38 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6651.000	41.93	-35.91	77.84	35.57	35.76	5.52	34.92	Peak	---	---
2	10380.000	45.47	-32.37	77.84	35.69	38.23	6.75	35.20	Peak	---	---
3	15570.000	51.17	-12.37	63.54	36.94	40.83	8.45	35.05	PK	---	---

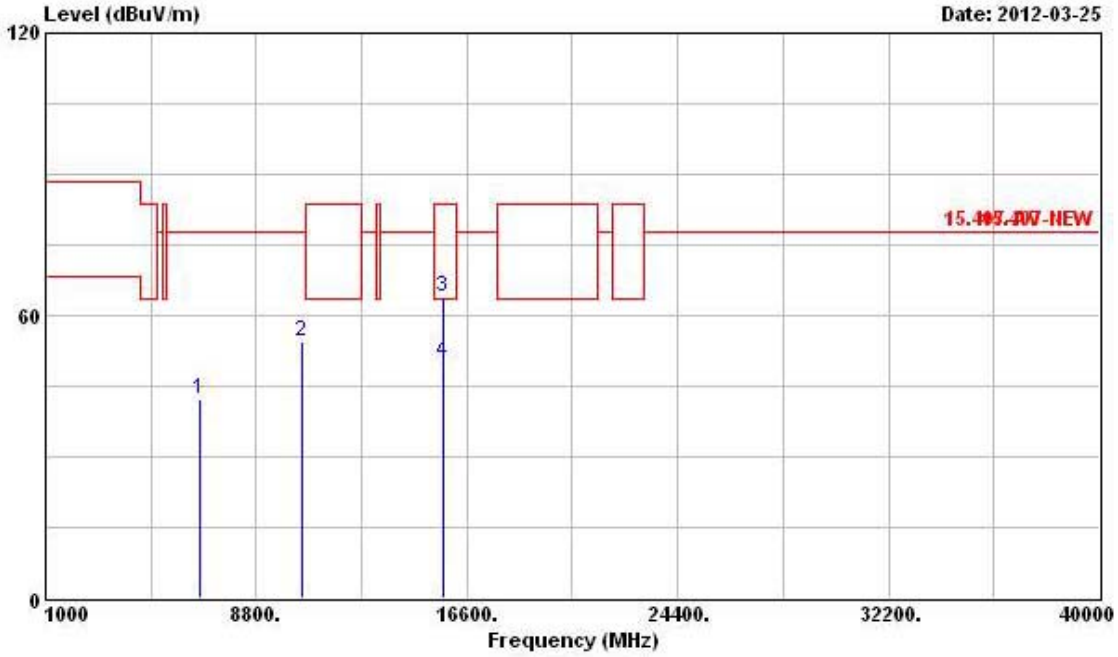
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	45.36	-32.48	77.84	38.91	35.87	5.58	35.00	Peak	---	---
2	10380.000	46.08	-31.76	77.84	36.30	38.23	6.75	35.20	Peak	---	---
3	15570.000	51.46	-12.08	63.54	37.23	40.83	8.45	35.05	PK	---	---

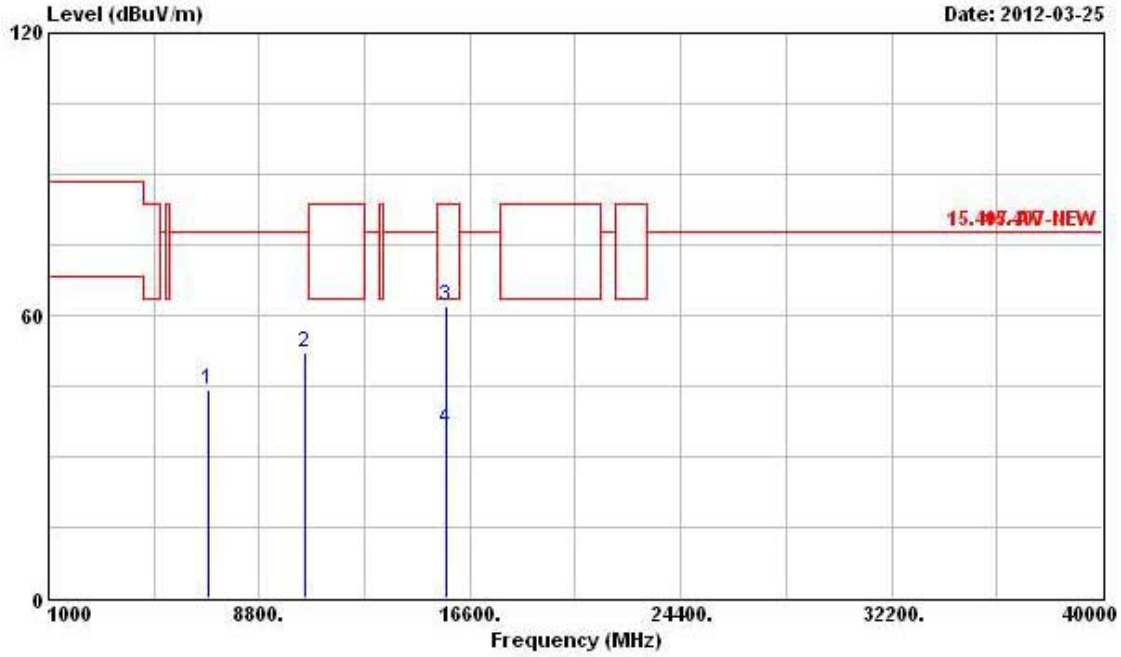
Final Test Date	Mar. 25, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n Ch. 46 (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6703.000	42.36	-35.48	77.84	35.99	35.78	5.53	34.94	Peak	---	---
2	10460.000	54.47	-23.37	77.84	44.52	38.27	6.82	35.14	Peak	---	---
3	15690.000	63.97	-19.57	83.54	49.81	40.88	8.46	35.18	Peak	---	---
4	15690.000	50.03	-13.51	63.54	35.87	40.88	8.46	35.18	Average	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6911.000	44.37	-33.47	77.84	37.92	35.87	5.58	35.00	Peak	---	---
2	10460.000	52.17	-25.67	77.84	42.22	38.27	6.82	35.14	Peak	---	---
3	15690.000	61.87	-21.67	83.54	47.71	40.88	8.46	35.18	Peak	---	---
4	15690.000	35.95	-27.59	63.54	21.79	40.88	8.46	35.18	Average	---	---

Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.7 Band Edge and Fundamental Emissions Measurement

3.7.1 Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). 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 (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

3.7.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1 MHz /1 MHz for Peak

3.7.3 Test Procedures

1. The test procedure is the same as section 3.6.3; only the frequency range investigated is limited to 100MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

3.7.4 Test Setup Layout

This test setup layout is the same as that shown in section 3.6.4.

3.7.5 Test Deviation

There is no deviation with the original standard.

3.7.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.7.7 Test Result of Band Edge and Fundamental Emissions

For Single Chain:

Final Test Date	Mar. 24, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11a Ch. 36, 40, 48

Channel 36

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5149.800	61.40	-2.14	63.54	21.73	34.89	4.78	0.00	Average	---	---
2 @	5180.700	108.67			68.96	34.91	4.80	0.00	Average	---	---
1	5149.900	80.13	-3.41	83.54	40.46	34.89	4.78	0.00	Peak	---	---
2 @	5179.900	120.96			81.25	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	56.90	-6.64	63.54	17.23	34.89	4.78	0.00	Average	---	---
2 @	5199.000	111.32			71.59	34.92	4.81	0.00	Average	---	---
3	5356.200	52.37	-11.17	63.54	12.49	35.01	4.87	0.00	Average	---	---
1	5149.800	76.14	-7.40	83.54	36.47	34.89	4.78	0.00	Peak	---	---
2 @	5199.300	122.61			82.88	34.92	4.81	0.00	Peak	---	---
3	5352.900	65.48	-18.06	83.54	25.60	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	55.88	-7.66	63.54	16.21	34.89	4.78	0.00	Average	---	---
2 @	5238.900	115.06			75.30	34.94	4.82	0.00	Average	---	---
3	5351.700	54.22	-9.32	63.54	14.34	35.01	4.87	0.00	Average	---	---
1	5147.700	78.87	-4.67	83.54	39.20	34.89	4.78	0.00	Peak	---	---
2 @	5239.800	126.80			87.04	34.94	4.82	0.00	Peak	---	---
3	5350.200	74.40	-9.14	83.54	34.52	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Mar. 24, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n (20MHz)Ch. 36, 40, 48

Channel 36

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5150.000	61.49	-2.05	63.54	21.82	34.89	4.78	0.00	Average	---	---
2 @	5180.600	108.81			69.10	34.91	4.80	0.00	Average	---	---
1 @	5149.500	82.23	-1.31	83.54	42.56	34.89	4.78	0.00	Peak	---	---
2 @	5180.600	120.56			80.85	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	54.21	-9.33	63.54	14.54	34.89	4.78	0.00	Average	---	---
2 @	5200.500	108.47			68.74	34.92	4.81	0.00	Average	---	---
3	5351.400	52.08	-11.46	63.54	12.20	35.01	4.87	0.00	Average	---	---
1	5150.000	70.90	-6.94	77.84	31.23	34.89	4.78	0.00	Peak	---	---
2 @	5199.300	120.29			80.56	34.92	4.81	0.00	Peak	---	---
3	5355.000	65.49	-18.05	83.54	25.61	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	52.85	-10.69	63.54	13.18	34.89	4.78	0.00	Average	---	---
2 @	5238.900	108.26			68.50	34.94	4.82	0.00	Average	---	---
3	5350.200	52.79	-10.75	63.54	12.91	35.01	4.87	0.00	Average	---	---
1	5139.000	66.51	-17.03	83.54	26.85	34.88	4.78	0.00	Peak	---	---
2 @	5241.000	120.07			80.31	34.94	4.82	0.00	Peak	---	---
3	5359.800	65.70	-17.84	83.54	25.82	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Mar. 24, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n (40MHz) Ch. 38, 46

Channel 38

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5150.000	62.20	-1.34	63.54	22.53	34.89	4.78	0.00	Average	---	---
2 @	5188.300	99.36			59.65	34.91	4.80	0.00	Average	---	---
1 @	5149.900	82.30	-1.24	83.54	42.63	34.89	4.78	0.00	Peak	---	---
2 @	5187.500	111.94			72.23	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 46

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	57.62	-5.92	63.54	17.95	34.89	4.78	0.00	Average	---	---
2 @	5231.750	105.37			65.61	34.94	4.82	0.00	Average	---	---
3	5350.000	52.95	-10.59	63.54	13.07	35.01	4.87	0.00	Average	---	---
1	5148.500	80.12	-3.42	83.54	40.45	34.89	4.78	0.00	Peak	---	---
2 @	5232.750	117.91			78.15	34.94	4.82	0.00	Peak	---	---
3	5351.500	69.21	-14.33	83.54	29.33	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

For Two Chains:

Final Test Date	Mar. 24, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n (20MHz)Ch. 36, 40, 48

Channel 36

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5150.000	61.23	-2.31	63.54	21.56	34.89	4.78	0.00	Average	---	---
2 @	5180.700	107.03			67.32	34.91	4.80	0.00	Average	---	---
1 @	5149.500	82.23	-1.31	83.54	42.56	34.89	4.78	0.00	Peak	---	---
2 @	5179.900	120.04			80.33	34.91	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5119.800	53.96	-9.58	63.54	14.31	34.87	4.78	0.00	Average	---	---
2 @	5199.000	106.51			66.78	34.92	4.81	0.00	Average	---	---
3	5360.100	51.12	-12.42	63.54	11.24	35.01	4.87	0.00	Average	---	---
1	5148.900	67.38	-16.16	83.54	27.71	34.89	4.78	0.00	Peak	---	---
2 @	5201.400	119.49			79.76	34.92	4.81	0.00	Peak	---	---
3	5379.300	63.80	-19.74	83.54	23.90	35.03	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5140.200	52.47	-11.07	63.54	12.80	34.89	4.78	0.00	Average	---	---
2 @	5241.000	106.83			67.07	34.94	4.82	0.00	Average	---	---
3	5350.500	51.92	-11.62	63.54	12.04	35.01	4.87	0.00	Average	---	---
1	5142.900	66.44	-17.10	83.54	26.77	34.89	4.78	0.00	Peak	---	---
2 @	5238.900	120.20			80.44	34.94	4.82	0.00	Peak	---	---
3	5368.200	64.78	-18.76	83.54	24.89	35.02	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Mar. 24, 2012	**Test Site No.**	03CH02-HY
Temperature	24.9℃	**Humidity**	53%
Test Engineer	Streak	**Configuration**	802.11n (40MHz) Ch. 38, 46

Channel 38

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5150.000	62.29	-1.25	63.54	22.62	34.89	4.78	0.00	Average	---	---
2 @	5191.900	97.70			57.98	34.92	4.80	0.00	Average	---	---
1 @	5148.600	81.84	-1.70	83.54	42.17	34.89	4.78	0.00	Peak	---	---
2 @	5192.200	113.56			73.84	34.92	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 46

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5150.000	58.00	-5.54	63.54	18.33	34.89	4.78	0.00	Average	---	---
2 @	5231.750	103.41			63.65	34.94	4.82	0.00	Average	---	---
3	5350.750	53.27	-10.27	63.54	13.39	35.01	4.87	0.00	Average	---	---
1	5149.750	79.14	-4.40	83.54	39.47	34.89	4.78	0.00	Peak	---	---
2 @	5227.500	119.31			79.56	34.94	4.81	0.00	Peak	---	---
3	5350.500	68.27	-15.27	83.54	28.39	35.01	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

3.8 Frequency Stability Measurement

3.8.1 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or ±20ppm (IEEE 802.11a specification).

3.8.2 Measuring Instruments and Setting

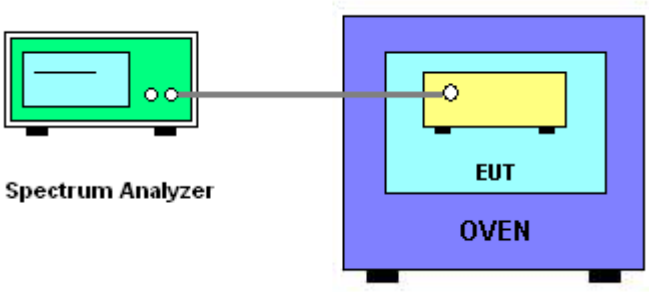
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	10 kHz
VB	10 kHz
Sweep Time	Auto

3.8.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11a specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is -20°C~50°C.
8. Measuring multiple antennas, the connectors are required to link with Spectrum Analyzer through a combiner.

3.8.4 Test Setup Layout



3.8.5 Test Deviation

There is no deviation with the original standard.

3.8.6 EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

3.8.7 Test Result of Frequency Stability

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	**5180 MHz**
110.00	5180.0000
93.50	5179.9994
126.50	5179.9994
Max. Deviation (MHz)	**0.0006**
Max. Deviation (ppm)	**0.12**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(℃)	**5180 MHz**
50	5179.9526
40	5179.9640
30	5179.9796
20	5180.0006
10	5180.0198
0	5180.0408
-10	5180.0492
-20	5180.0534
Max. Deviation (MHz)	**0.0534**
Max. Deviation (ppm)	**10.31**

3.9 Antenna Requirements

3.9.1 Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.9.2 Antenna Connector Construction

Please refer to section 2.3 in this test report; antenna connector complied with the requirements.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9 kHz ~ 2.75 GHz	Mar. 23, 2012	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz – 30MHz	Feb. 08, 2012	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9 kHz ~ 30 MHz	May 04, 2011	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9 kHz ~ 30 MHz	Apr. 21, 2011	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9 kHz ~30 MHz	Jun. 04, 2011	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 40	100305	9 KHz ~ 40 GHz	Feb. 21, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 03, 2011	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20~100℃	Dec. 07, 2011	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10 MHz ~ 40 GHz	Jun. 07, 2011	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1027452	300 MHz ~ 40 GHz	Jun. 16, 2011	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1124009	300 MHz ~ 40 GHz	Jun. 20, 2011	Conducted (TH01-HY)
RF Cable-1m	Jye Bao	RG142	CB034-1m	20 MHz ~ 7 GHz	Dec. 03, 2011	Conducted (TH01-HY)
RF Cable-2m	Jye Bao	RG142	CB035-2m	20 MHz ~ 1 GHz	Dec. 03, 2011	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	Jun. 09, 2011*	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is two year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9 kHz ~ 40 GHz	Aug. 08, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30 MHz ~ 1 GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100 kHz ~ 1.3 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 GHz ~ 26.5 GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1 GHz ~ 18 GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz ~ 1 GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz ~ 40 GHz	Jan. 18, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30 MHz ~ 2 GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0 - 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 m - 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul. 29, 2010*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5 TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

6 TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-111208

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2010 to January 09, 2013
Accredited Scope	:	Testing Field, see described in the Appendix
Specific Accreditation Program	:	Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangment with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 08, 2011

P1, total 24 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix