FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment	:	**Digital video recorder, computer for law enforcement**
Model No.	:	**M700 series-VMDC,MDC**
Brand Name	:	**COBAN**
Filing Type	:	**New Application**
Applicant	:	**Coban Technologies, Inc.** COBAN Technologies,12503 Exchange Drive, Suite 536,Stafford, Texas 77477
Manufacturer	:	**PEGATRON CORPORATION Taoyuan Mfg.** No.5,Shing Yeh St,Kwei Shan Hsiang,Taoyuan Hsien 333 TAIWAN
FCC ID	:	**ZPJM700SERIESVMDC**
Received Date	:	Apr. 29, 2011
Final Test Date	:	May 19, 2011

Statement

Test result included is only for the 802.11n (5725~5850 MHz / 2400~2483.5MHz) 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 C**.

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

SPORTON International Inc.

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

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History of This Test Report

Original Issue Date: Jun. 27, 2011
Report No.: FR110801AI
■ 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 C § 15.247

Equipment	:	Digital video recorder, computer for law enforcement
Model No.	:	M700 series-VMDC,MDC
Brand Name	:	COBAN
Applicant	:	Coban Technologies, Inc**.** COBAN Technologies,12503 Exchange Drive, Suite 536,Stafford, Texas 77477

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 29, 2011 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.

Wayne Hsu / Assistant Manager

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 C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	AC Power Line Conducted Emissions	-	-
3.2	15.247(b)(3)	Maximum Peak Output Power	Complies	10.28 dB
3.3	15.247(e)	Power Spectral Density	Complies	21.85 dB
3.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
3.5	15.247(d)	Radiated Emissions	Complies	3.08 dB
3.6	15.247(d)	Band Edge Emissions	Complies	1.54 dB
3.7	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Output Power	±0.8dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
6dB Spectrum Bandwidth	$\pm 8.5\times10^{-8}$	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 802.11n is shown in this report. For more detailed features description, please refer to the specifications or user's manual.

Items	Description
Power Type	12V DC source
Modulation Data Rate (Mbps)	See the item 2.3 table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Frequency Range	5725 ~ 5850MHz / 2400 ~ 2483.5MHz
Channel Number	5G- 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth 2.4G- 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	5G- 1TX- MCS 0 (20MHz) : 17.60 MHz ; MCS 0 (40MHz) : 35.20MHz 5G- 2TX- MCS 8 (20MHz) : 17.64 MHz ; MCS 8 (40MHz) : 35.28 MHz 2.4G- 1TX- MCS 0 (20MHz) : 17.40 MHz ; MCS 0 (40MHz) : 35.20 MHz 2.4G- 2TX- MCS 8 (20MHz) : 17.52 MHz ; MCS 8 (40MHz) : 35.20 MHz
Peak Output Power	5G- 1TX- MCS 0 (20MHz) :17.04 dBm ; MCS 0 (40MHz) : 17.23 dBm 5G- 2TX- MCS 8 (20MHz) : 18.58 dBm ; MCS 8 (40MHz) : 18.88 dBm 2.4G- 1TX- MCS 0 (20MHz) : 16.23 dBm ; MCS 0 (40MHz) : 16.05 dBm 2.4G- 2TX- MCS 8 (20MHz) : 19.07 dBm ; MCS 8 (40MHz) : 19.72 dBm

2.2 Accessories

Please refer to the specifications or user's manual.

2.3 Table for Filed Antenna

Antenna & Bandwidth

Antenna Mode	Single Chain		Two Chain	
Bandwidth Mode	20 MHz	40 MHz	20 MHz	40 MHz
802.11n (5725~5850 MHz)	V	V	V	V
802.11n (2400~2483.5MHz)	V	V	V	V

Ant.	Antenna Type	Connector	Gain (dBi)	Remark
A	Monopole Antenna	Reversed-SMA	0	TX / RX
B	Monopole Antenna	Reversed-SMA	0	TX / RX

Note:

1. IEEE 802.11n used two antennas are for signal transmitting and receiving.
   (2T2R Spatial Multiplexing MIMO configuration)
   Directional gain = GANT + 10 log(N) dBi = 0 + 10 log(2) = 3 dBi

IEEE 802.11n Modulation Scheme

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Data rate(Mbps) 800nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0

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

2.4 Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency (20MHz)	Channel No.	Frequency (40MHz)
5725~5850 MHz	149	5745 MHz	151	5755 MHz
	153	5765 MHz	159	5795 MHz
	157	5785 MHz	-	-
	161	5805 MHz	-	-
	165	5825 MHz	-	-

Frequency Band	Channel No.	Frequency (20MHz)	Channel No.	Frequency (20MHz)
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

Frequency Band	Channel No.	Frequency (40MHz)
2400~2483.5MHz	3	2422 MHz
	4	2427 MHz
	5	2432 MHz
	6	2437 MHz
	7	2442 MHz
	8	2447 MHz
	9	2452 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	Antenna
AC Power Line Conducted Emissions	-	-	-	-
Maximum Peak Output Power Power Spectral Density	MCS 0 (20MHz)	6.5 Mbps	5G-149/157/165 2.4G-1/6/11	A
	MCS 0 (40MHz)	13.5 Mbps	5G-151/159	
	MCS 0 (40MHz)	13.5 Mbps	2.4G-3/6/9	B
	MCS 8 (20MHz)	13 Mbps	5G-149/157/165 2.4G-1/6/11	A/B; A+B
	MCS 8 (40MHz)	27 Mbps	5G-151/159 2.4G-3/6/9	
6dB Spectrum Bandwidth	MCS 0 (20MHz)	6.5 Mbps	5G-149/157/165 2.4G-1/6/11	A
	MCS 0 (40MHz)	13.5 Mbps	5G-151/159	
	MCS 0 (40MHz)	13.5 Mbps	2.4G-3/6/9	B
	MCS 8 (20MHz)	13 Mbps	5G-149/157/165 2.4G-1/6/11	A/B
	MCS 8 (40MHz)	27 Mbps	5G-151/159 2.4G-3/6/9	
Radiated Emissions Below 1GHz	MCS 0 (20MHz)	6.5 Mbps	5G-165 2.4G-6	A
	MCS 0 (40MHz)	13.5 Mbps	5G-159	
	MCS 0 (40MHz)	13.5 Mbps	2.4G-6	B
	MCS 8 (20MHz)	13 Mbps	5G-165 2.4G-6	A+B
	MCS 8 (40MHz)	27 Mbps	5G-159 2.4G-6	
Radiated Emissions Above 1GHz Fundamental Emissions	MCS 0 (20MHz)	6.5 Mbps	5G-149/157/165 2.4G-1/6/11	A
	MCS 0 (40MHz)	13.5 Mbps	5G-151/159	
	MCS 0 (40MHz)	13.5 Mbps	2.4G-3/6/9	B
	MCS 8 (20MHz)	13 Mbps	5G-149/157/165 2.4G-1/6/11	A+B
	MCS 8 (40MHz)	27 Mbps	5G-151/159 2.4G-3/6/9	
Band Edge Emissions	MCS 0 (20MHz)	6.5 Mbps	5G-149/165 2.4G-1/11	A
	MCS 0 (40MHz)	13.5 Mbps	5G-151/159	
	MCS 0 (40MHz)	13.5 Mbps	2.4G-3/9	B
	MCS 8 (20MHz)	13 Mbps	5G-149/165 2.4G-1/11	A+B
	MCS 8 (40MHz)	27 Mbps	5G-151/159 2.4G-3/9	

2.6 Table for Testing Locations

Test Site No.	Site Category	Location
TH01-HY	OVEN Room	Hwa Ya
03CH03-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.7 Table for Supporting Units

Support Unit	Brand	Model	FCC ID	Remark
LCD Monitor	DELL	1703FPt	DoC	Radiated
Mouse	Logitech	M-BE58	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 802.11n-5G

Test Software Version	CRTU		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11n (Ant. A) (20MHz)	8.5	9	10
Frequency	5755 MHz	5795 MHz	-
IEEE 802.11n (Ant. A) (40MHz)	10	10	-

Power Parameters of IEEE 802.11n-2.4G

Test Software Version	CRTU		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11n (Ant. A) (20MHz)	5	7	5
Frequency	2422 MHz	2437 MHz	2452 MHz
IEEE 802.11n (Ant. B) (40MHz)	4	7	4.5

For Two Chain:
Power Parameters of IEEE 802.11n-5G Ant. A + Ant. B

Test Software Version	CRTU		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11n(20MHz)	9	9.5	10
Frequency	5755 MHz	5795 MHz	-
IEEE 802.11n(40MHz)	10	10	-

Power Parameters of IEEE 802.11n-2.4G Ant. A + Ant. B

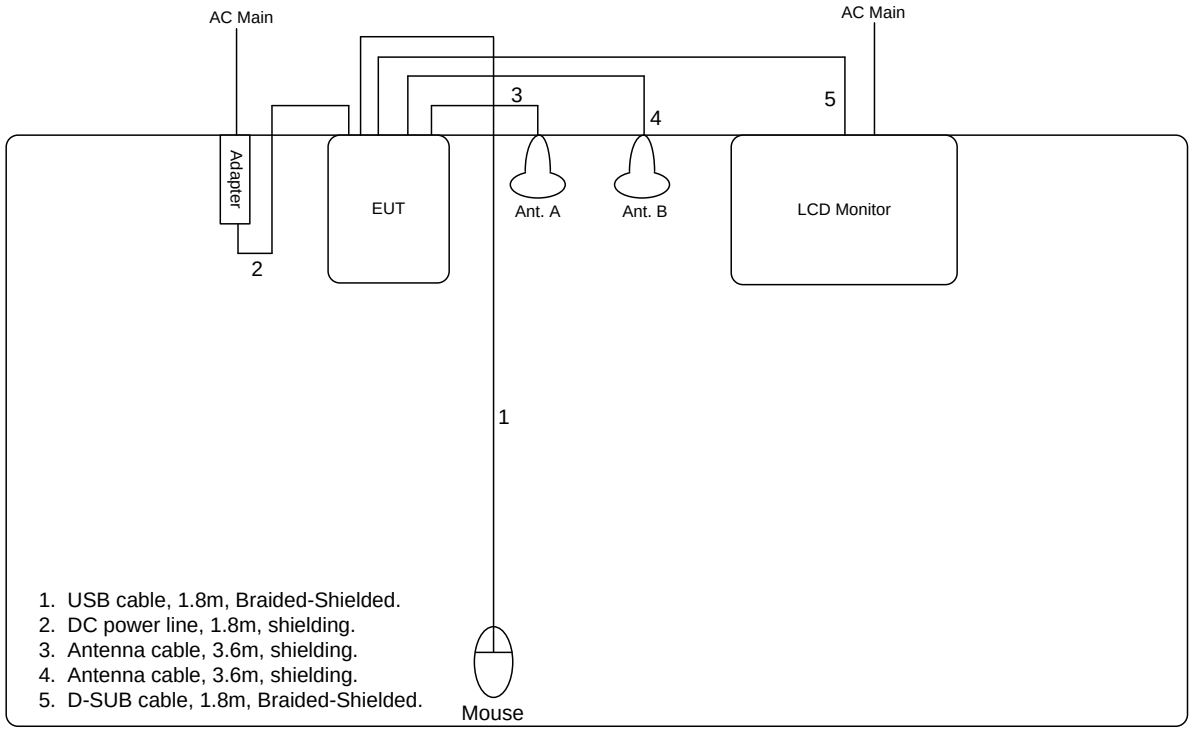
Test Software Version	CRTU		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11n(20MHz)	6	8	6
Frequency	2422 MHz	2437 MHz	2452 MHz
IEEE 802.11n(40MHz)	3.5	7.5	4

2.9 EUT Operation during Test

Only Radiated used:
- Executed "**CRTU**" to keep transmitting signals at fixed frequency.

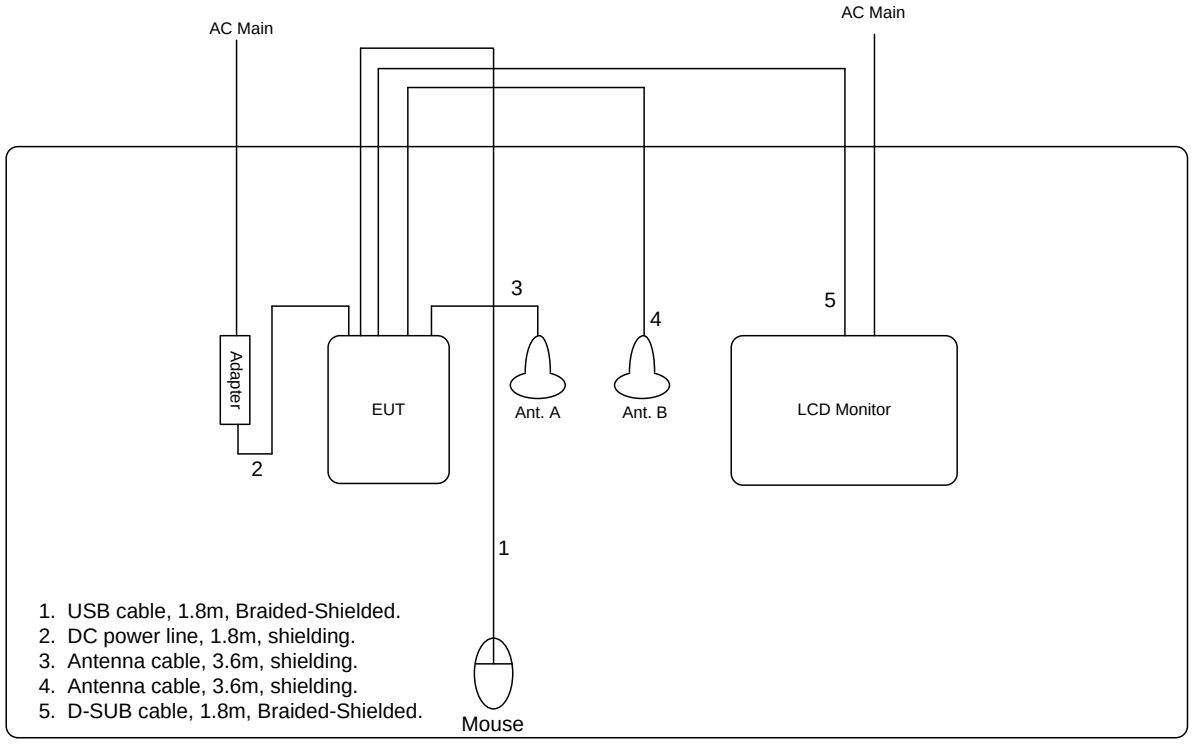
2.10 Test Configuration

Radiation Emissions Test Configuration
For radiated emissions 9kHz~1GHz



1. USB cable, 1.8m, Braided-Shielded.
2. DC power line, 1.8m, shielding.
3. Antenna cable, 3.6m, shielding.
4. Antenna cable, 3.6m, shielding.
5. D-SUB cable, 1.8m, Braided-Shielded.

For radiated emissions above 1GHz



1. USB cable, 1.8m, Braided-Shielded.
2. DC power line, 1.8m, shielding.
3. Antenna cable, 3.6m, shielding.
4. Antenna cable, 3.6m, shielding.
5. D-SUB cable, 1.8m, Braided-Shielded.

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

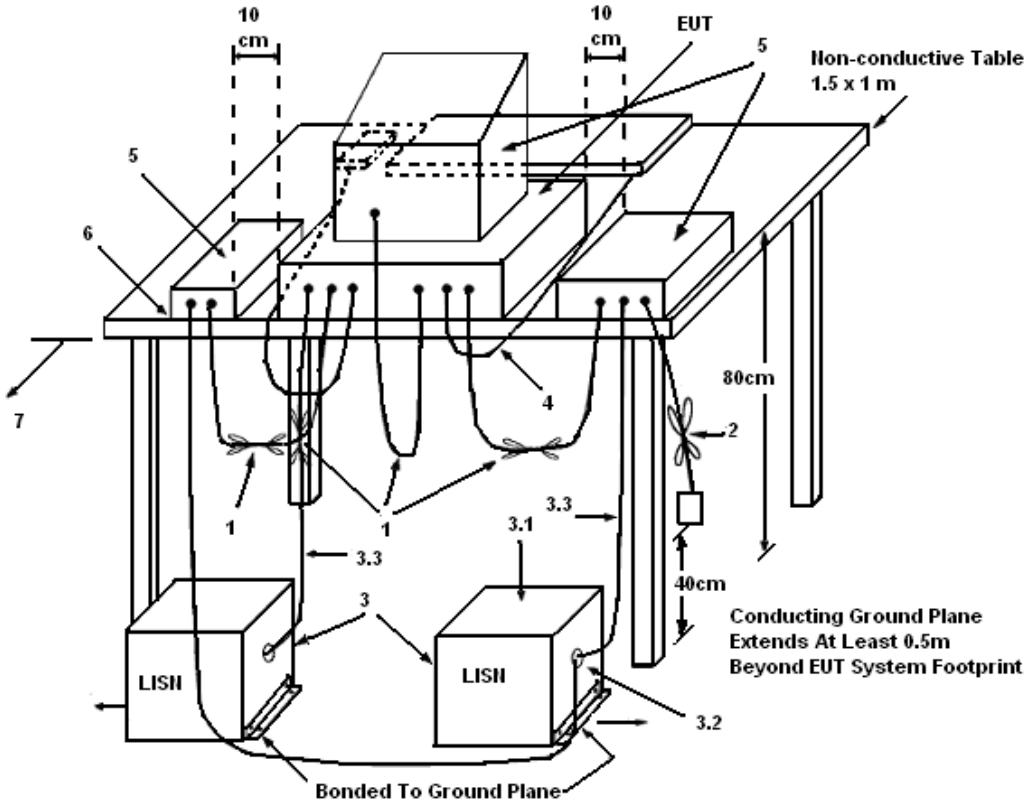
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

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 normal function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

The EUT is power by DC source so there is no need to do this test.

3.2 Maximum Peak Output Power Measurement

3.2.1 Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-multipoint antenna reduction operation, the limit has to be reduced by 1dB for every dB that the directional gain of the antenna exceeds 6dBi. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

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 power meter.

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

3.2.3 Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Turn on the EUT and power meter and then record the peak 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.

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 Maximum Peak Output Power

Final Test Date	May 02, 2011	**Test Site No.**	TH01-HY
Temperature	27℃	**Humidity**	62%
Test Engineer	Ian	**Configurations**	802.11n

For Single Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	15.96	30.00	**Complies**
157	5785 MHz	16.02	30.00	**Complies**
165	5825 MHz	17.04	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	17.17	30.00	**Complies**
159	5795 MHz	17.23	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.32	30.00	**Complies**
6	2437 MHz	16.23	30.00	**Complies**
11	2462 MHz	14.12	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	12.14	30.00	**Complies**
6	2437 MHz	16.05	30.00	**Complies**
9	2452 MHz	12.54	30.00	**Complies**

For Two Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	16.08	30.00	**Complies**
157	5785 MHz	16.25	30.00	**Complies**
165	5825 MHz	16.61	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. B (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	13.31	30.00	**Complies**
157	5785 MHz	14.76	30.00	**Complies**
165	5825 MHz	13.68	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A+Ant. B (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	17.92	30.00	**Complies**
157	5785 MHz	18.58	30.00	**Complies**
165	5825 MHz	18.40	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	16.42	30.00	**Complies**
159	5795 MHz	17.23	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. B (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	15.23	30.00	**Complies**
159	5795 MHz	12.89	30.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A+Ant. B (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	18.88	30.00	**Complies**
159	5795 MHz	18.59	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.28	30.00	**Complies**
6	2437 MHz	16.32	30.00	**Complies**
11	2462 MHz	14.16	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	14.49	30.00	**Complies**
6	2437 MHz	15.78	30.00	**Complies**
11	2462 MHz	13.76	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A+Ant. B (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	17.40	30.00	**Complies**
6	2437 MHz	19.07	30.00	**Complies**
11	2462 MHz	16.97	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	12.34	30.00	**Complies**
6	2437 MHz	16.45	30.00	**Complies**
9	2452 MHz	12.23	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	12.63	30.00	**Complies**
6	2437 MHz	16.95	30.00	**Complies**
9	2452 MHz	12.61	30.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A+Ant. B (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	15.50	30.00	**Complies**
6	2437 MHz	19.72	30.00	**Complies**
9	2452 MHz	15.43	30.00	**Complies**

3.3 Power Spectral Density Measurement

3.3.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

3.3.2 Measuring Instruments and Setting

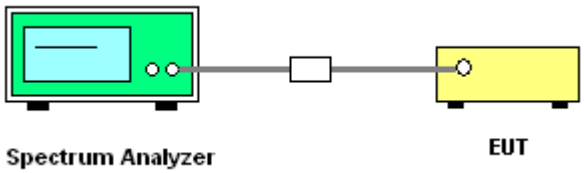
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	1.5MHz
RB	3 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	500s

3.3.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 3 kHz and VBW to 30 kHz. Set Detector to Peak, Trace to Max Hold.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum.
4. Set the span to 1.5MHz and the sweep time to 500s and record the maximum peak value.
5. When measuring maximum conducted output power within multiple antenna systems, add every result of the values by mathematic formula.

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 Power Spectral Density

Final Test Date	May 02, 2011	**Test Site No.**	TH01-HY
Temperature	27℃	**Humidity**	62%
Test Engineer	Ian	**Configuration**	802.11n

For Single Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-20.77	8.00	**Complies**
157	5785 MHz	-20.34	8.00	**Complies**
165	5825 MHz	-15.54	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	-19.61	8.00	**Complies**
159	5795 MHz	-18.54	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-20.30	8.00	**Complies**
6	2437 MHz	-18.52	8.00	**Complies**
11	2462 MHz	-21.08	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-24.65	8.00	**Complies**
6	2437 MHz	-19.89	8.00	**Complies**
9	2452 MHz	-26.16	8.00	**Complies**

For Two Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-19.82	8.00	**Complies**
157	5785 MHz	-19.51	8.00	**Complies**
165	5825 MHz	-16.06	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. B (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-21.38	8.00	**Complies**
157	5785 MHz	-17.59	8.00	**Complies**
165	5825 MHz	-17.83	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A + Ant. B (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-17.52	8.00	**Complies**
157	5785 MHz	-15.43	8.00	**Complies**
165	5825 MHz	-13.85	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	-18.69	8.00	**Complies**
159	5795 MHz	-17.06	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. B (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	-20.86	8.00	**Complies**
159	5795 MHz	-19.93	8.00	**Complies**

Configuration of IEEE 802.11n-5G Ant. A + Ant. B (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	-16.63	8.00	**Complies**
159	5795 MHz	-15.25	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-19.96	8.00	**Complies**
6	2437 MHz	-18.28	8.00	**Complies**
11	2462 MHz	-21.03	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-20.25	8.00	**Complies**
6	2437 MHz	-18.03	8.00	**Complies**
11	2462 MHz	-20.79	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A + Ant. B (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-17.09	8.00	**Complies**
6	2437 MHz	-15.14	8.00	**Complies**
11	2462 MHz	-17.90	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (40MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-23.09	8.00	**Complies**
6	2437 MHz	-20.14	8.00	**Complies**
9	2452 MHz	-23.16	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

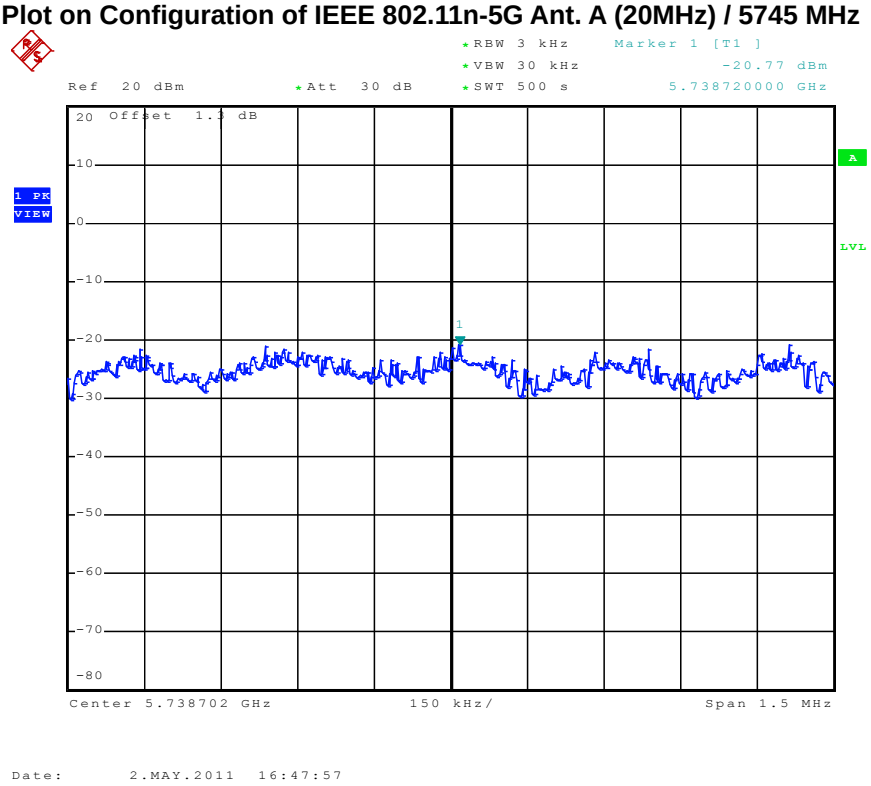
Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-24.49	8.00	**Complies**
6	2437 MHz	-21.30	8.00	**Complies**
9	2452 MHz	-25.47	8.00	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A + Ant. B (40MHz)

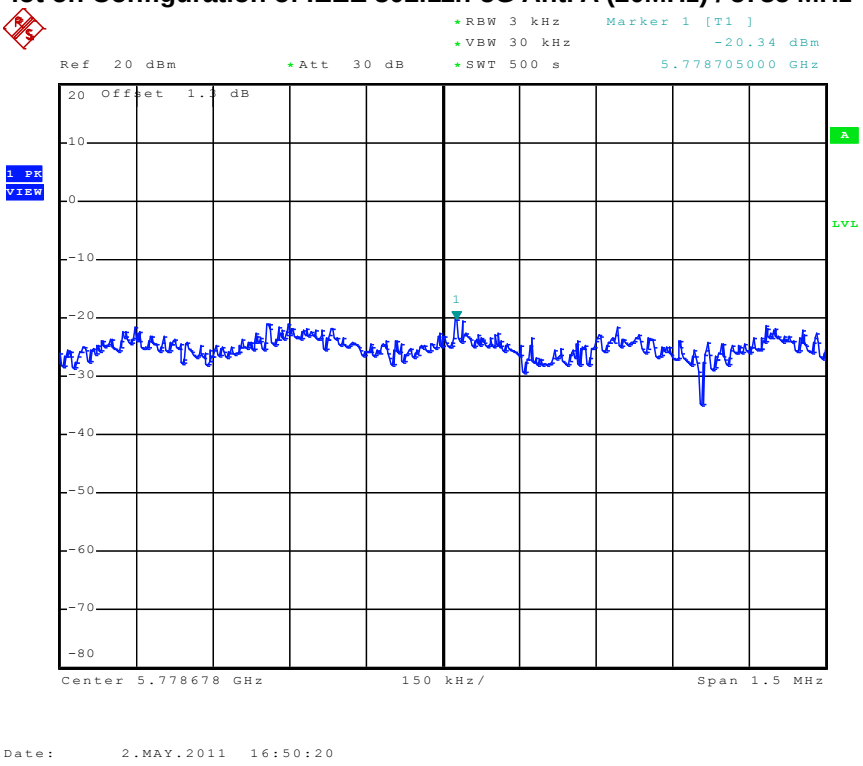
Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-20.72	8.00	**Complies**
6	2437 MHz	-17.67	8.00	**Complies**
9	2452 MHz	-21.15	8.00	**Complies**

For Single Chain:

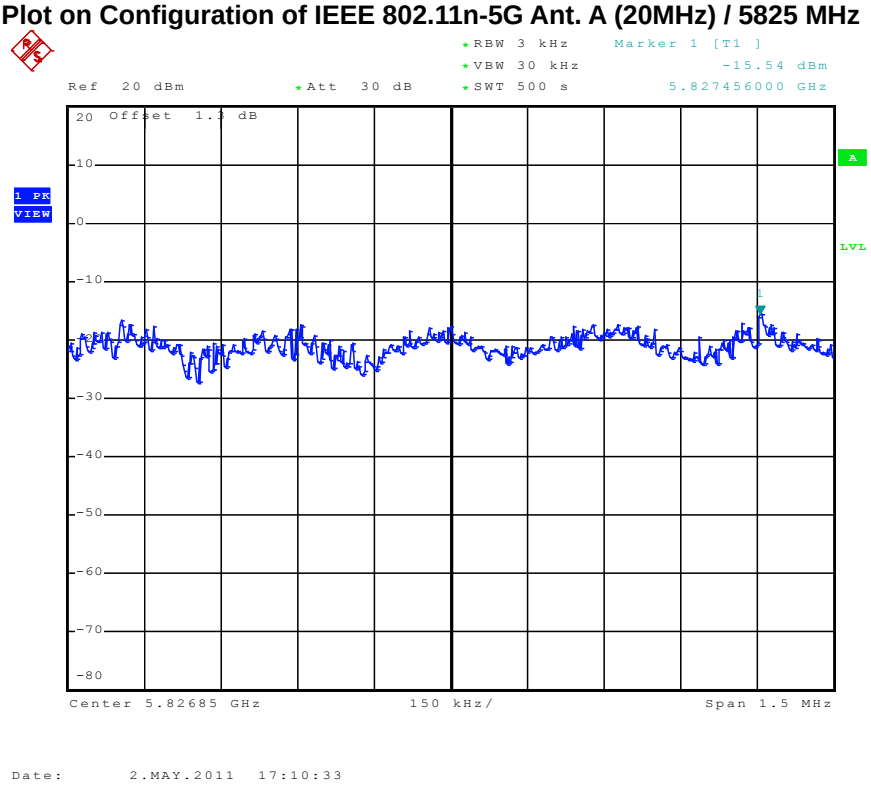
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5745 MHz



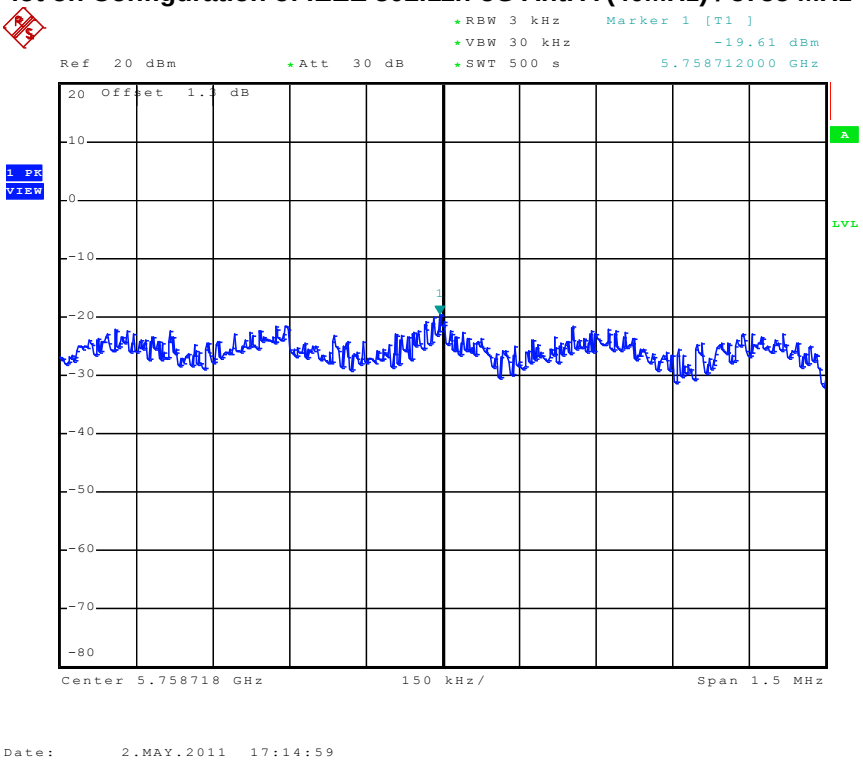
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5785 MHz



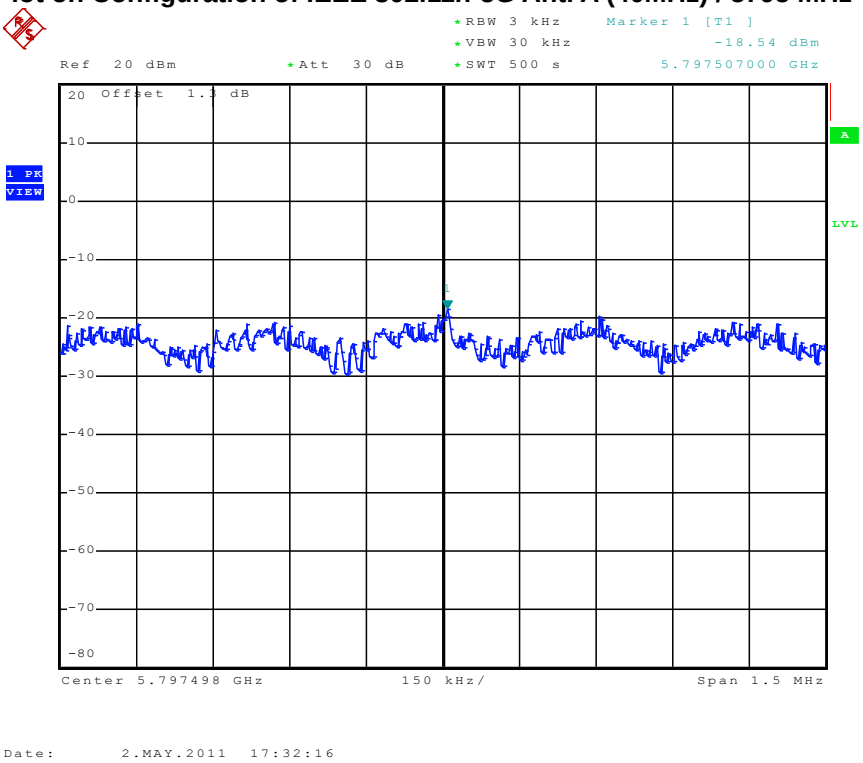
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5825 MHz



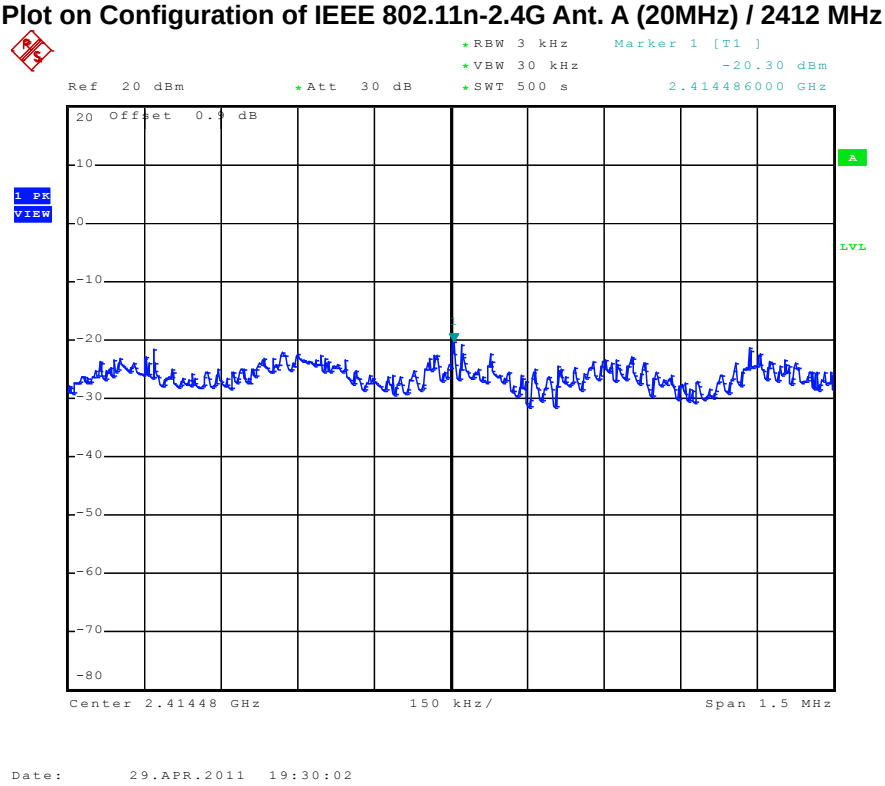
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5755 MHz



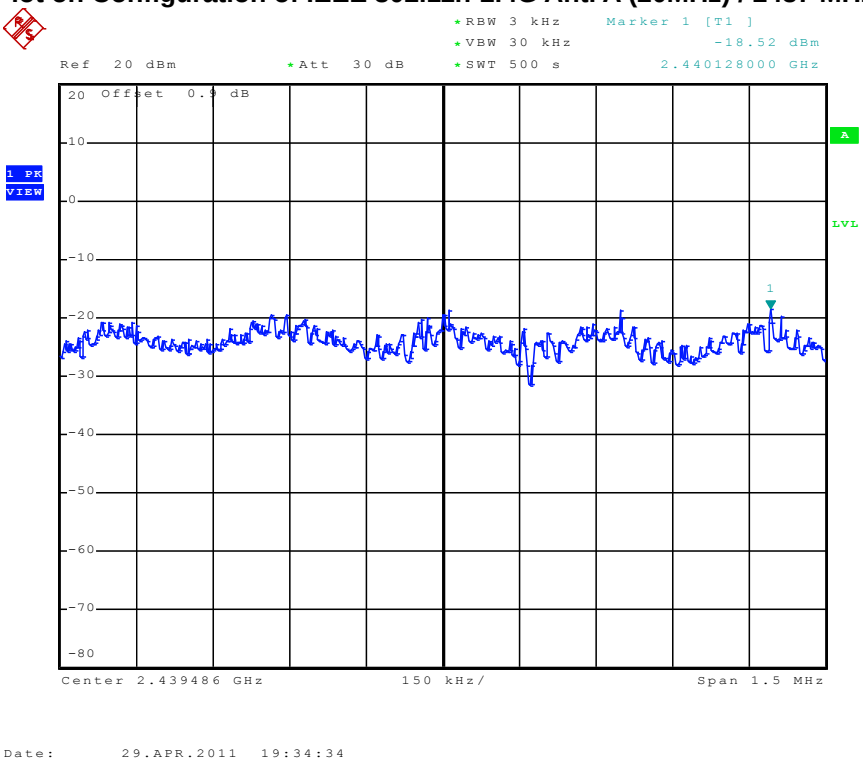
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5795 MHz



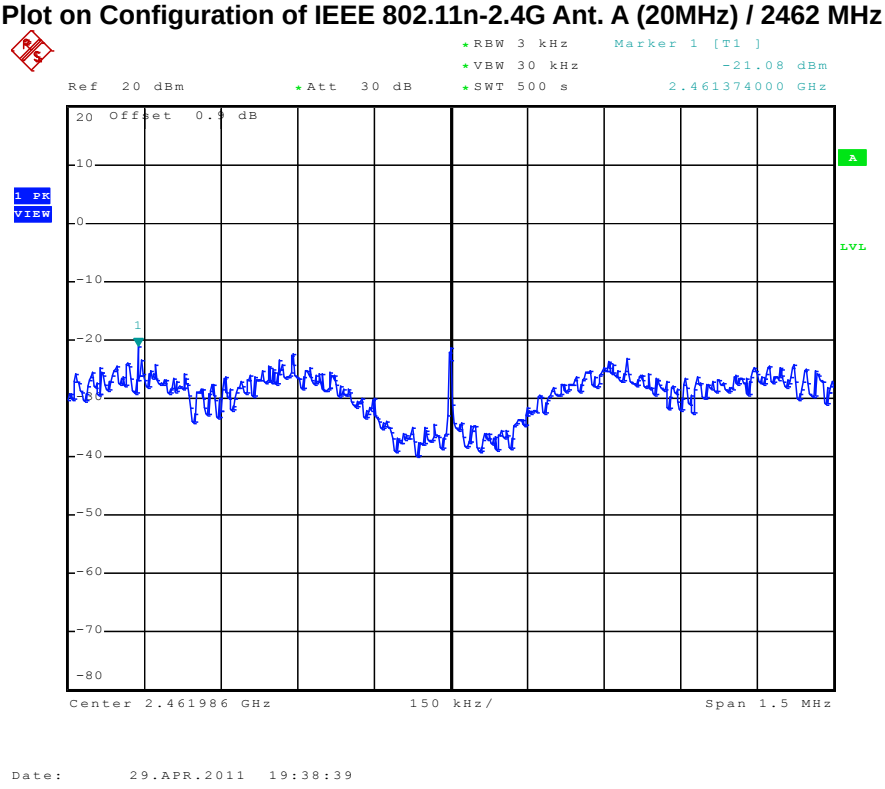
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2412 MHz



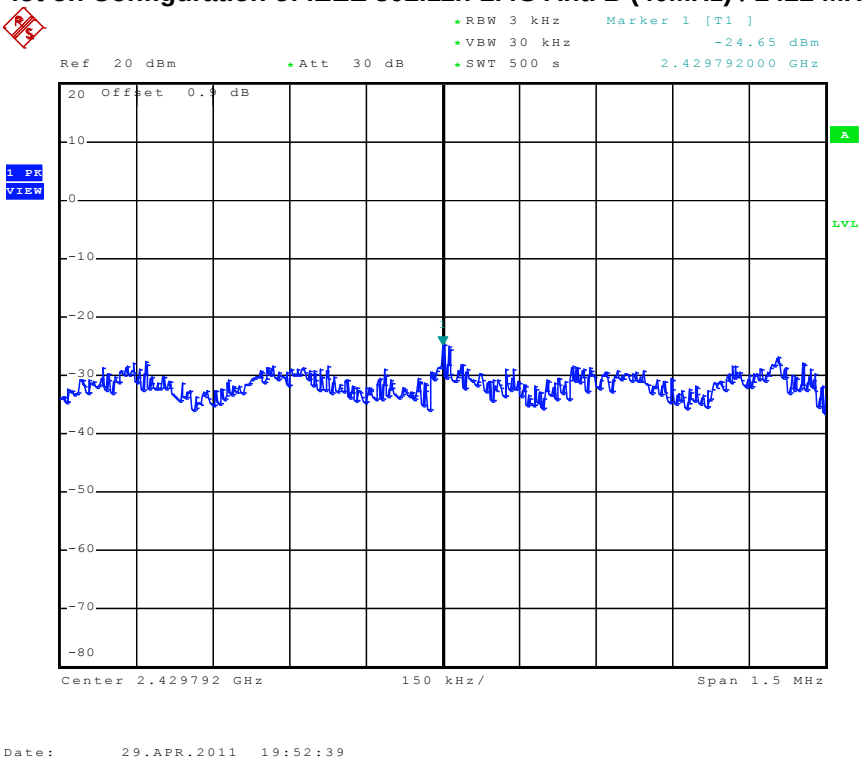
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2437 MHz



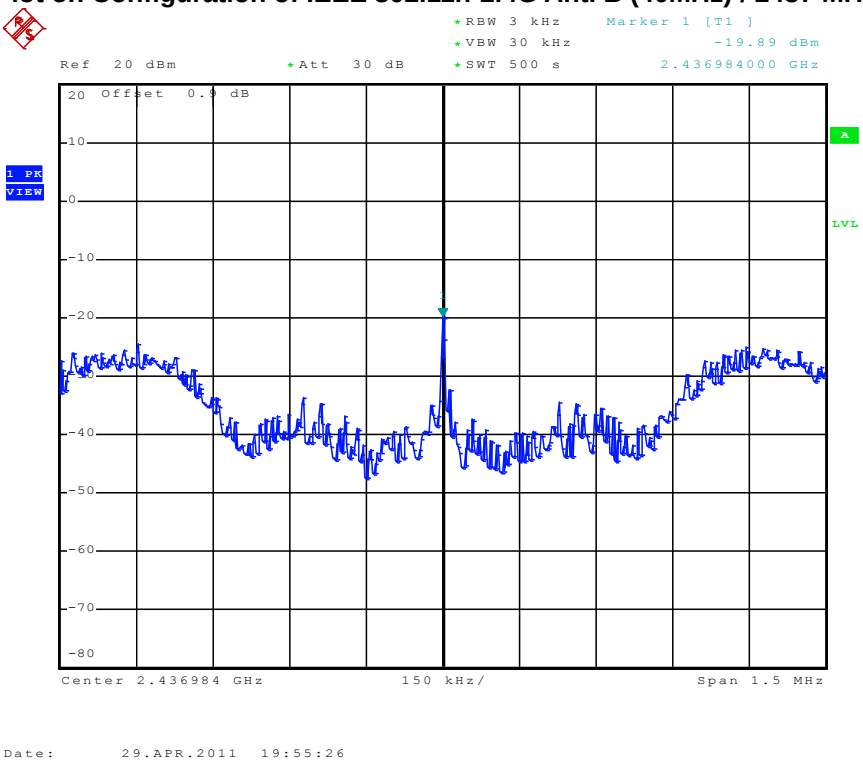
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2462 MHz



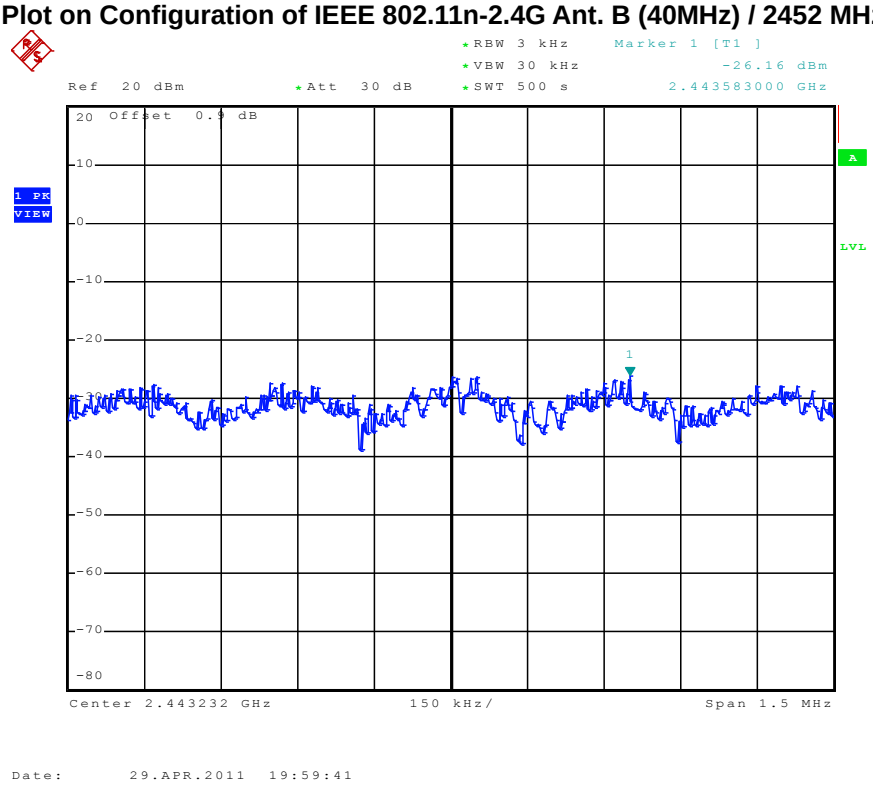
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2422 MHz



Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2437 MHz

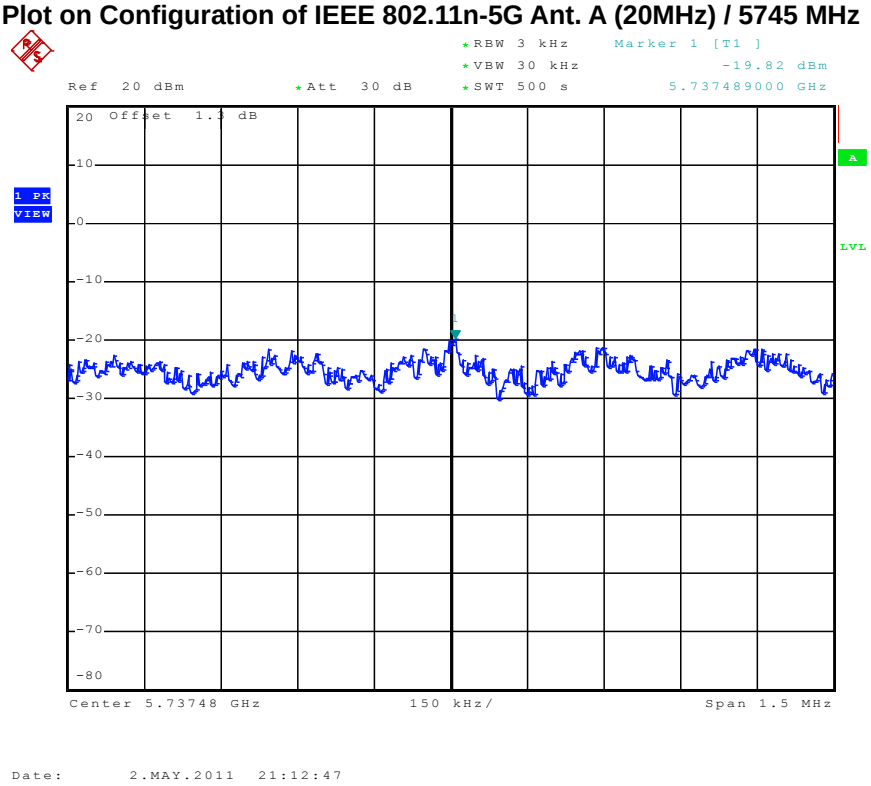


Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2452 MHz

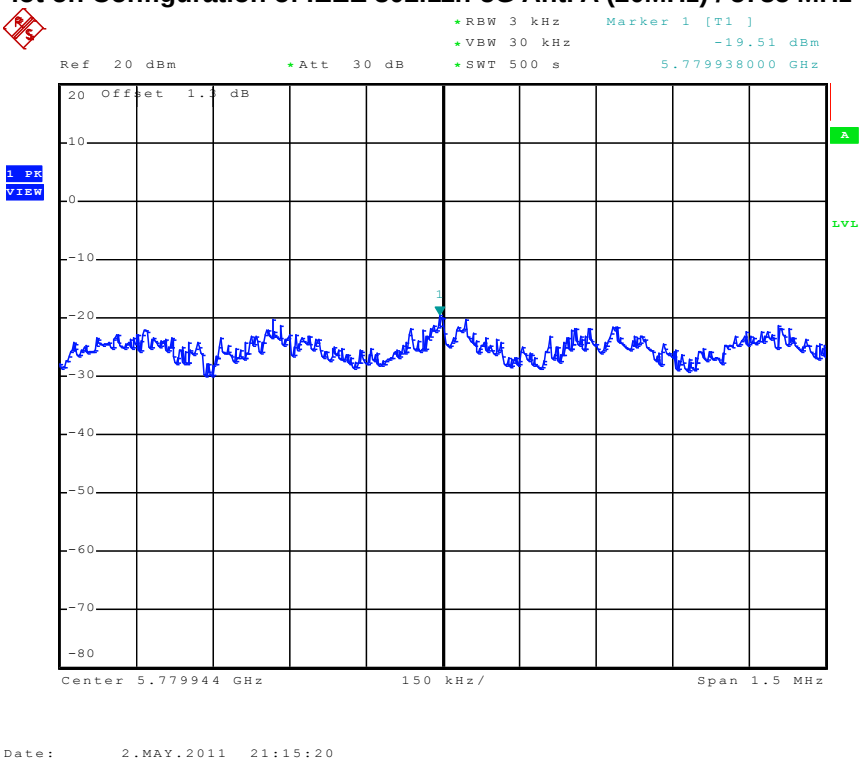


For Two Chain:

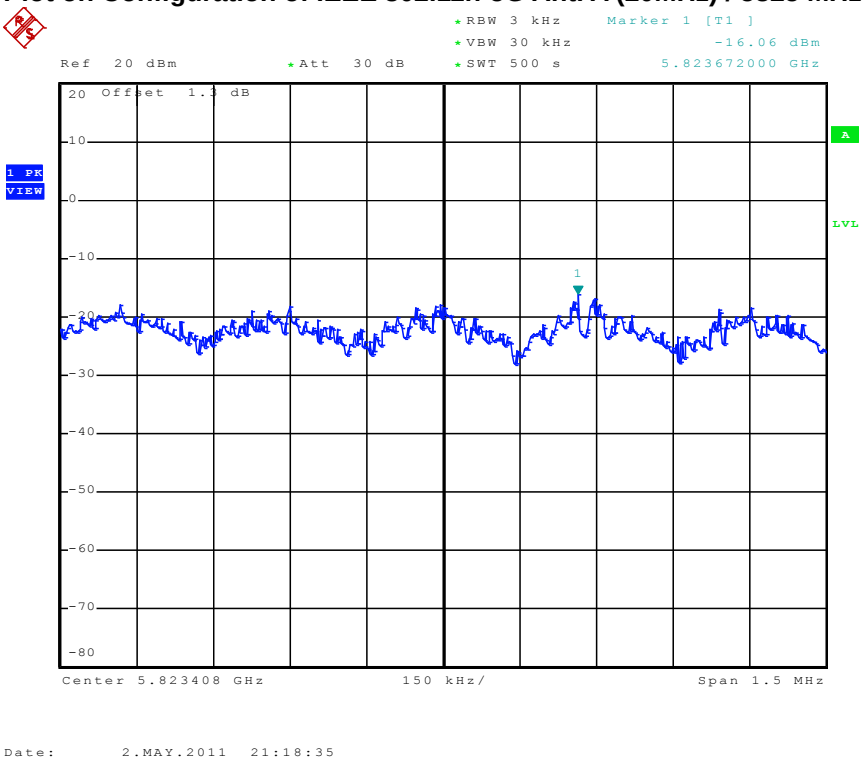
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5745 MHz



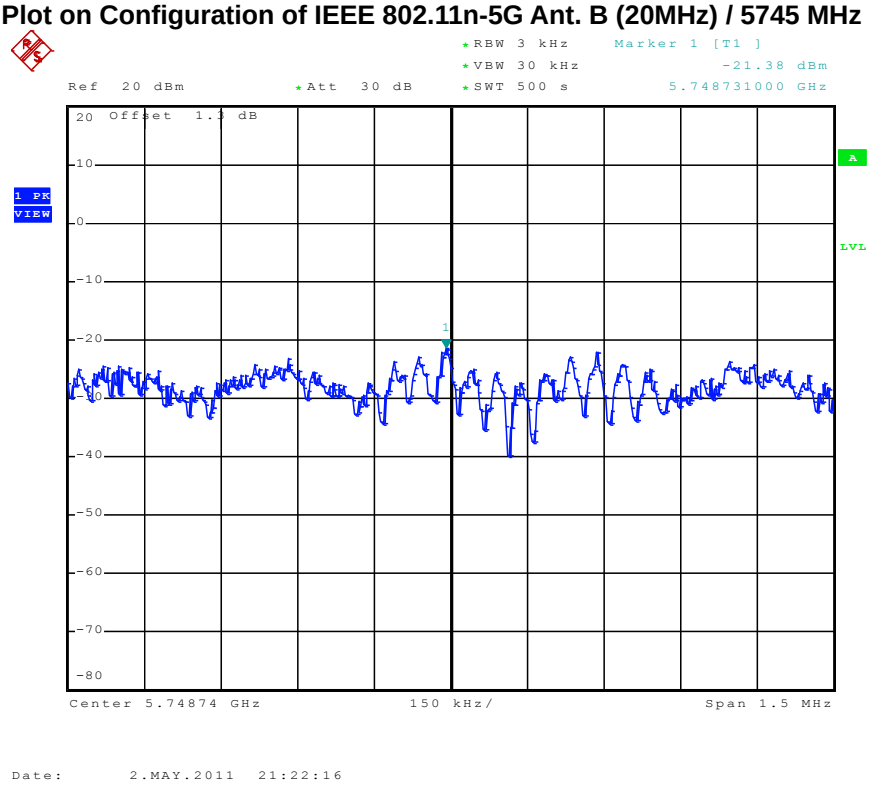
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5785 MHz



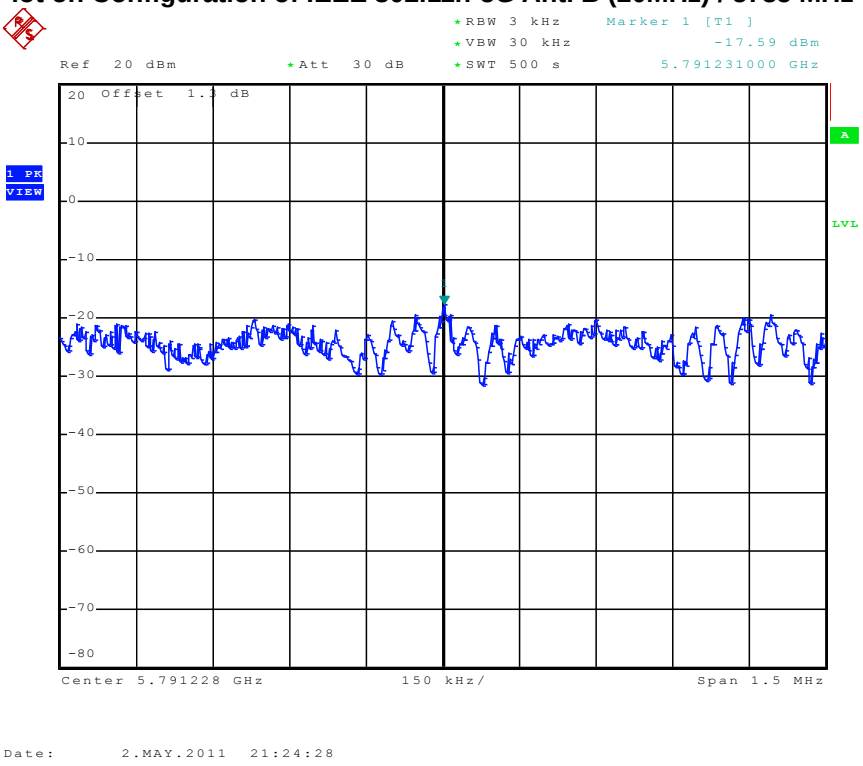
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5825 MHz



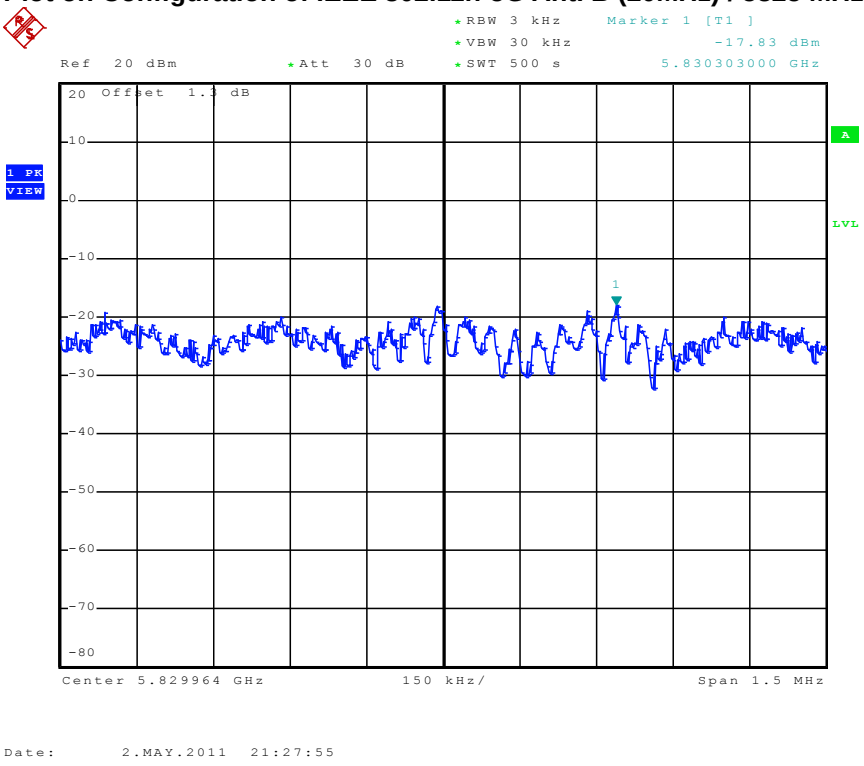
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5745 MHz



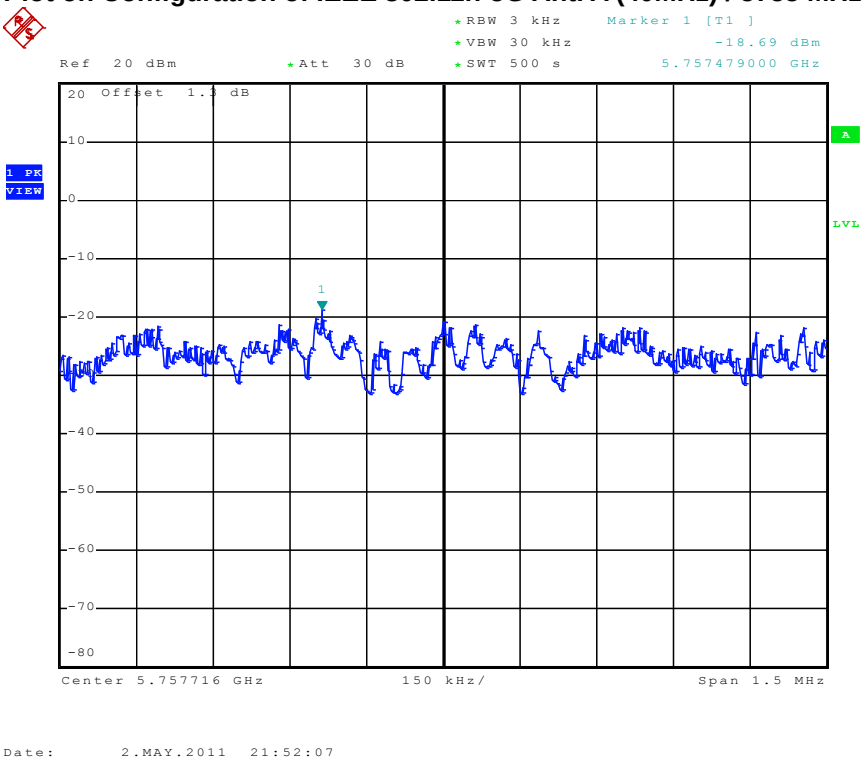
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5785 MHz



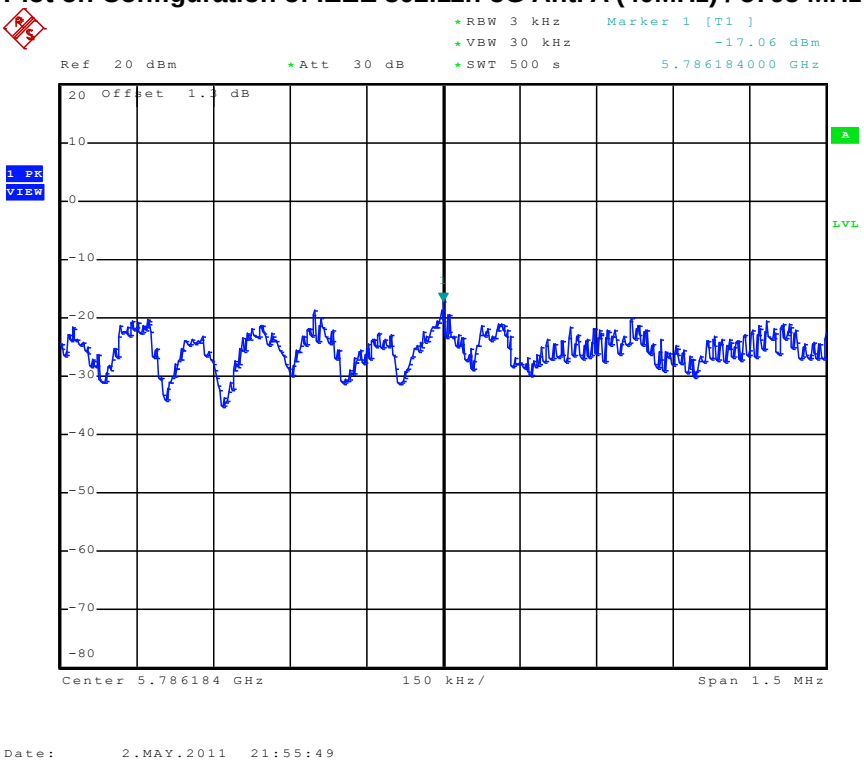
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5825 MHz



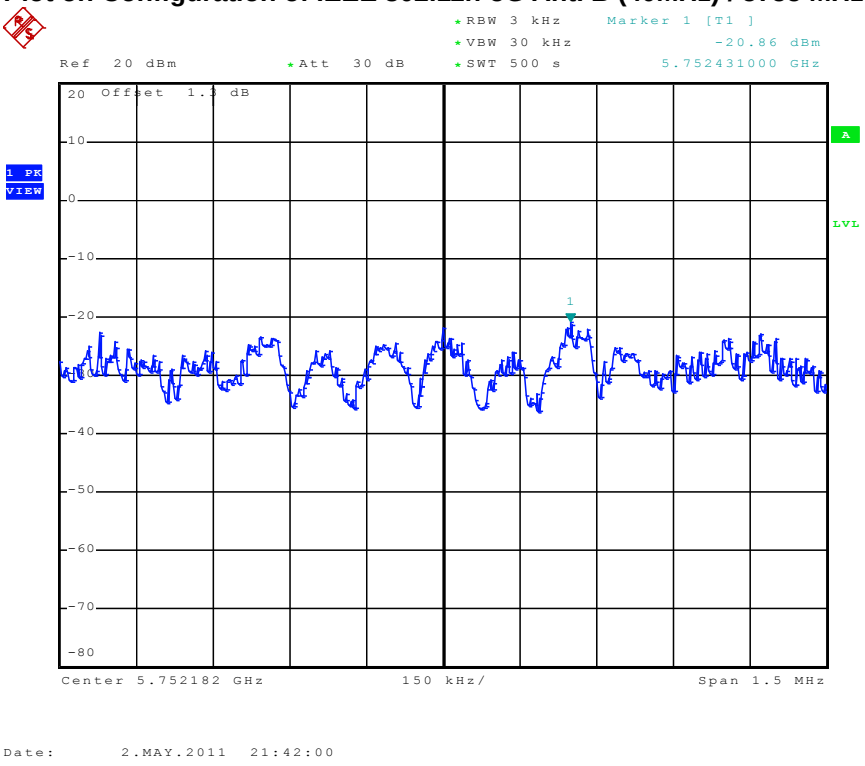
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5755 MHz



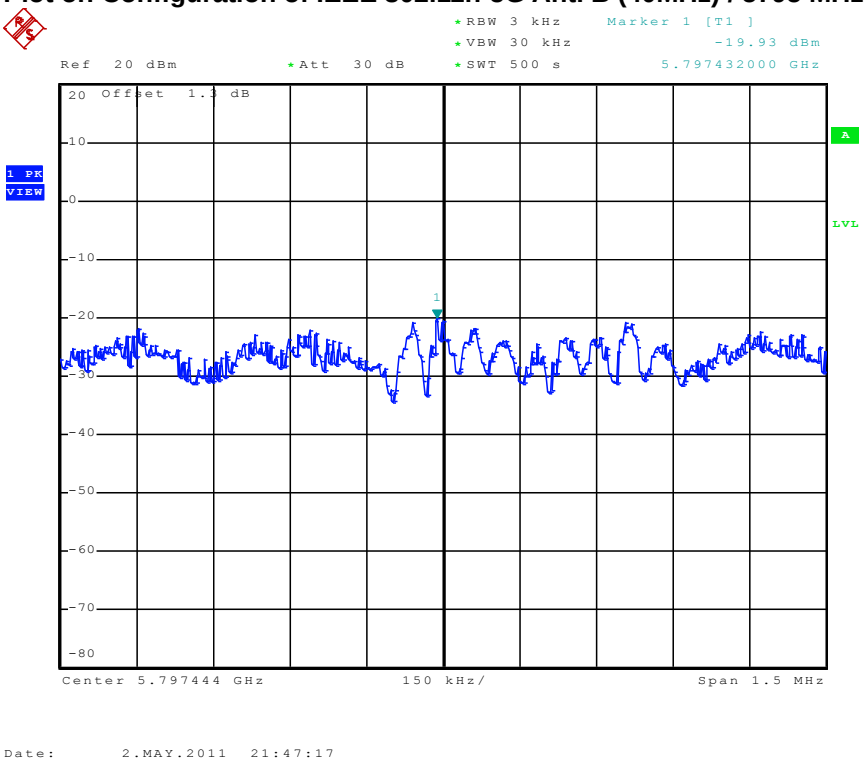
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5795 MHz



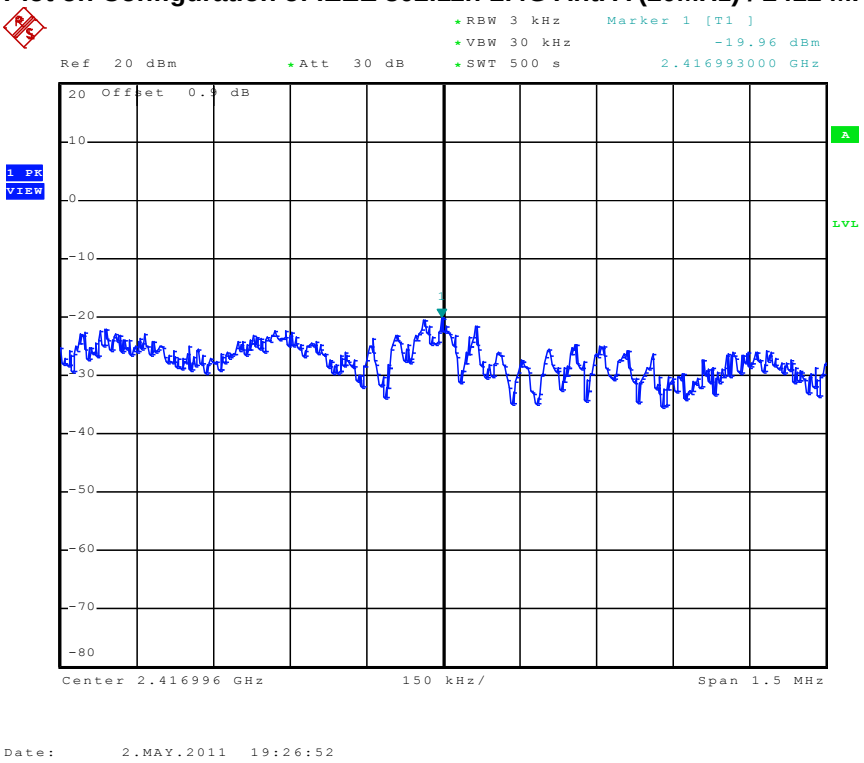
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. B (40MHz) / 5755 MHz



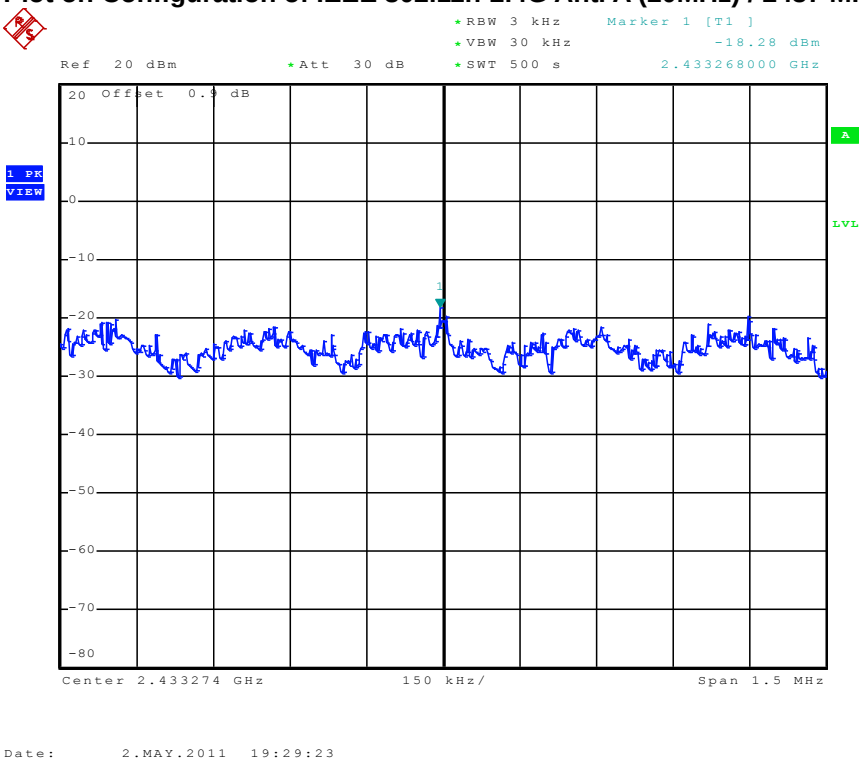
Power Density Plot on Configuration of IEEE 802.11n-5G Ant. B (40MHz) / 5795 MHz



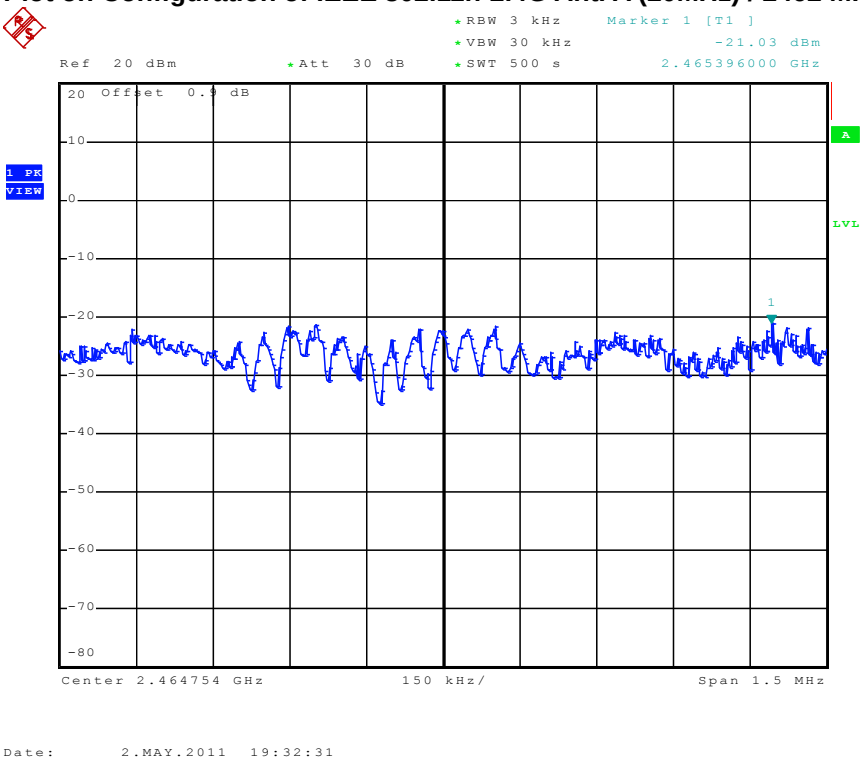
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2412 MHz



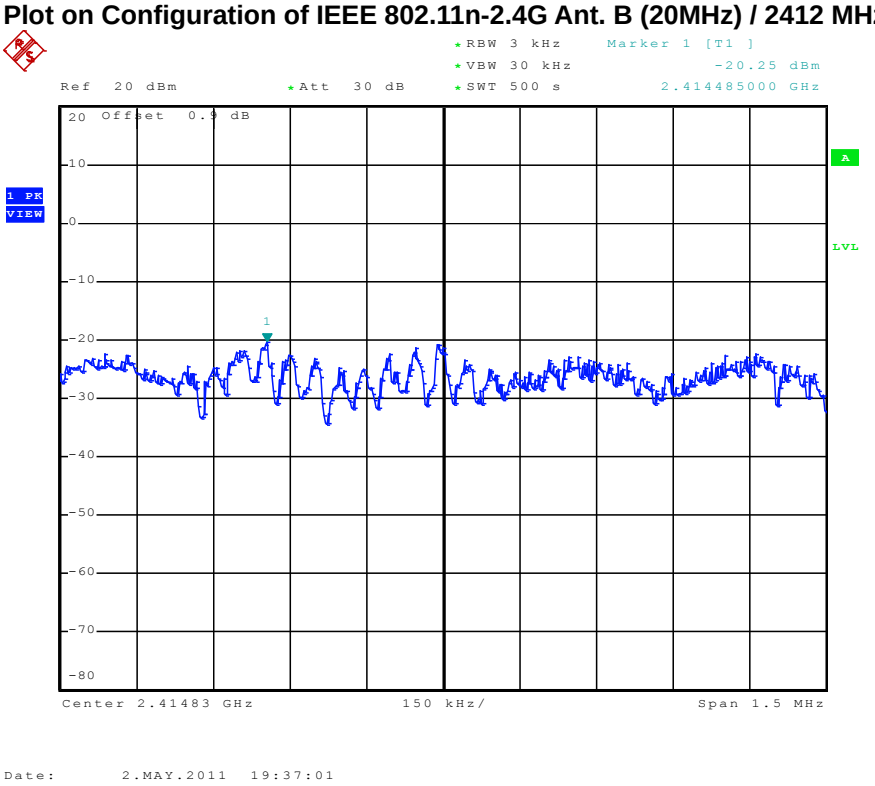
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2437 MHz



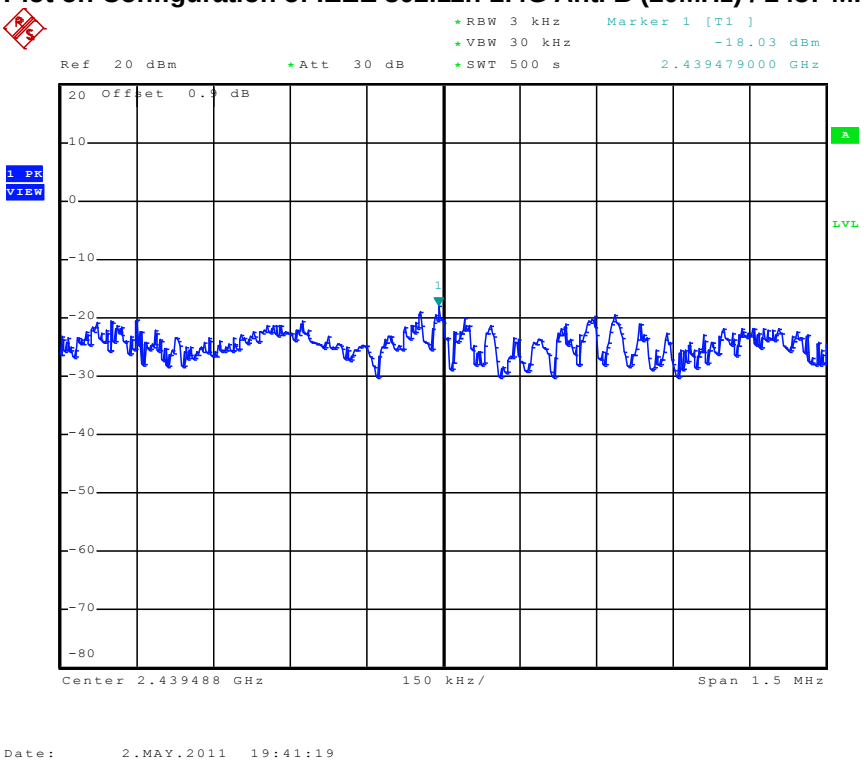
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2462 MHz



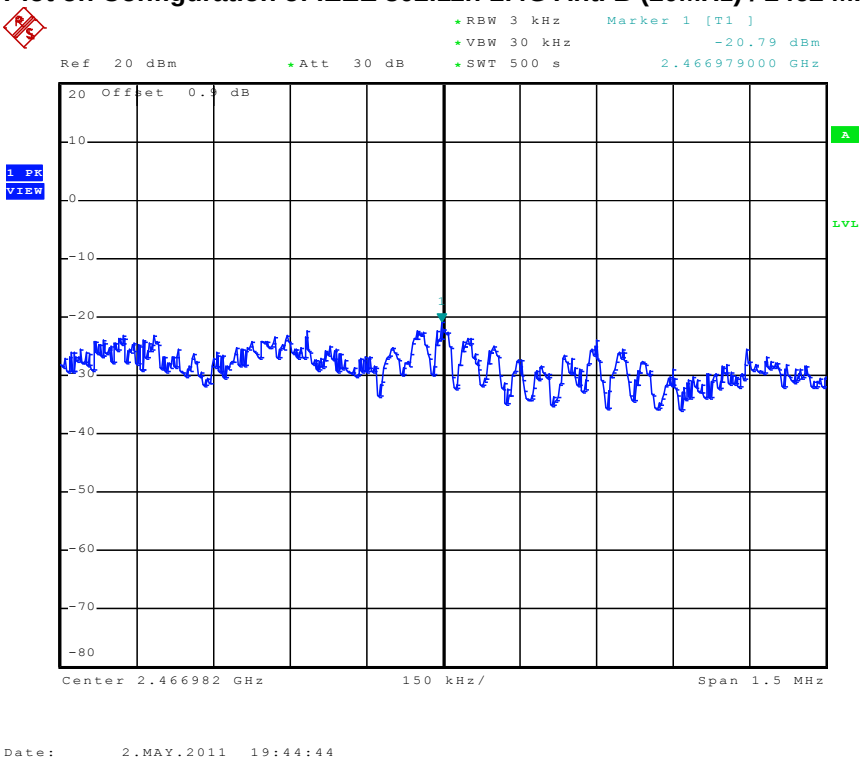
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2412 MHz



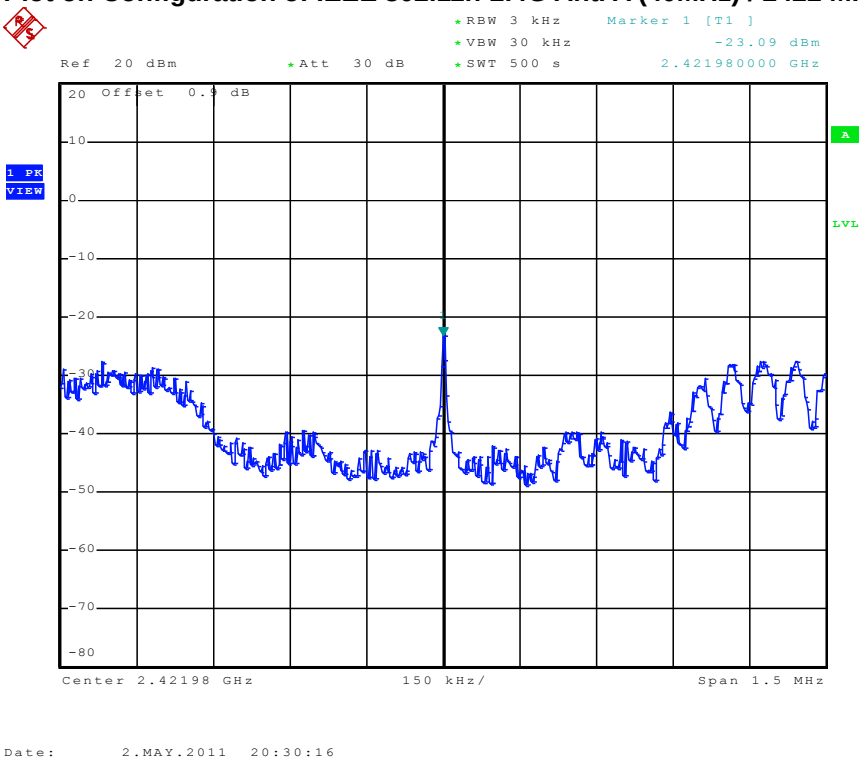
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2437 MHz



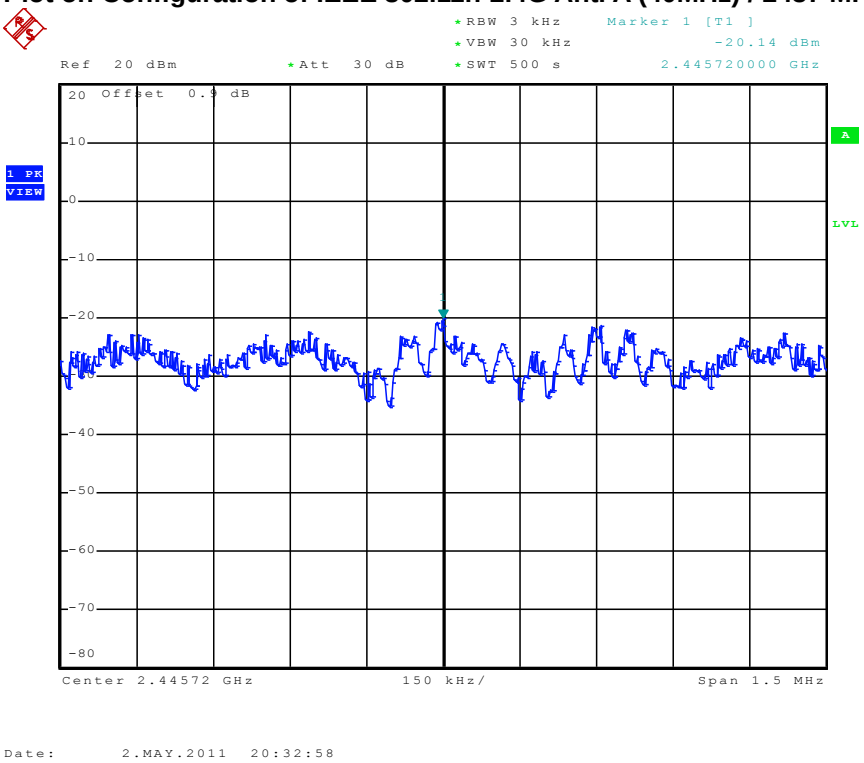
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2462 MHz



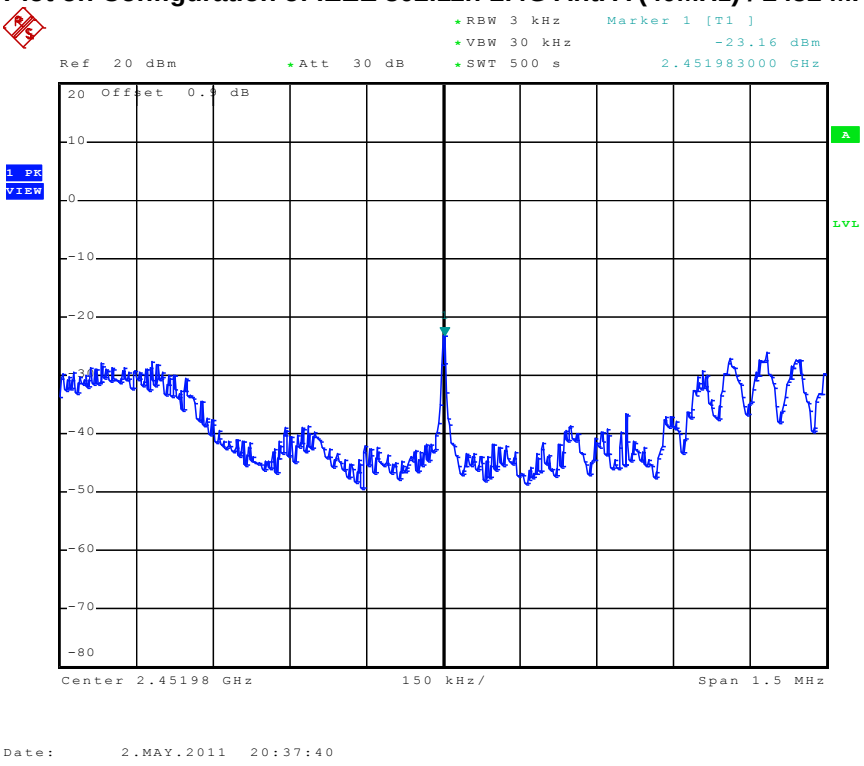
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2422 MHz



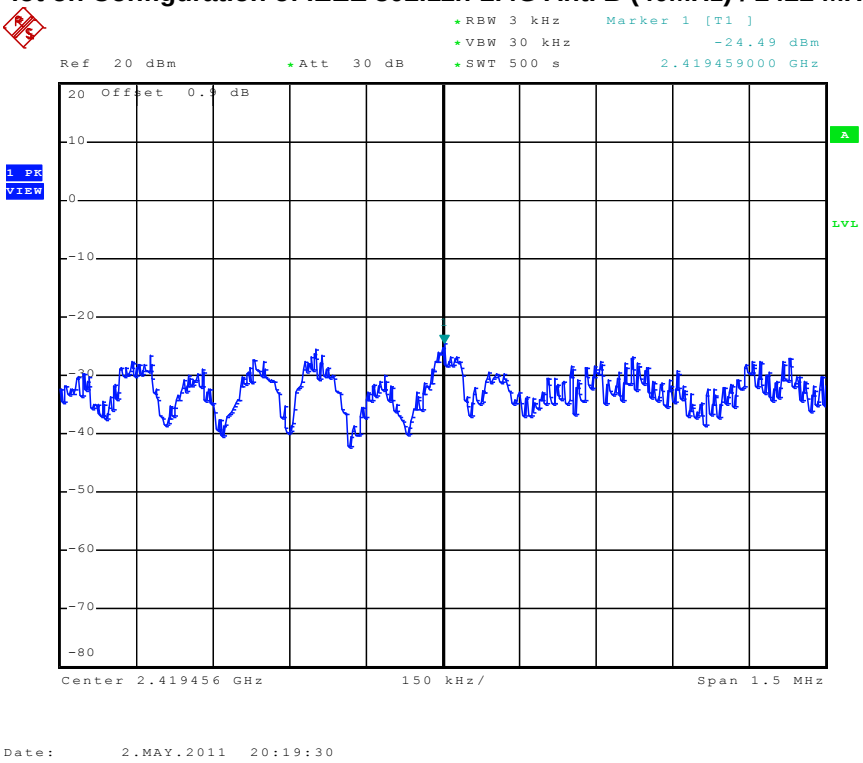
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2437 MHz



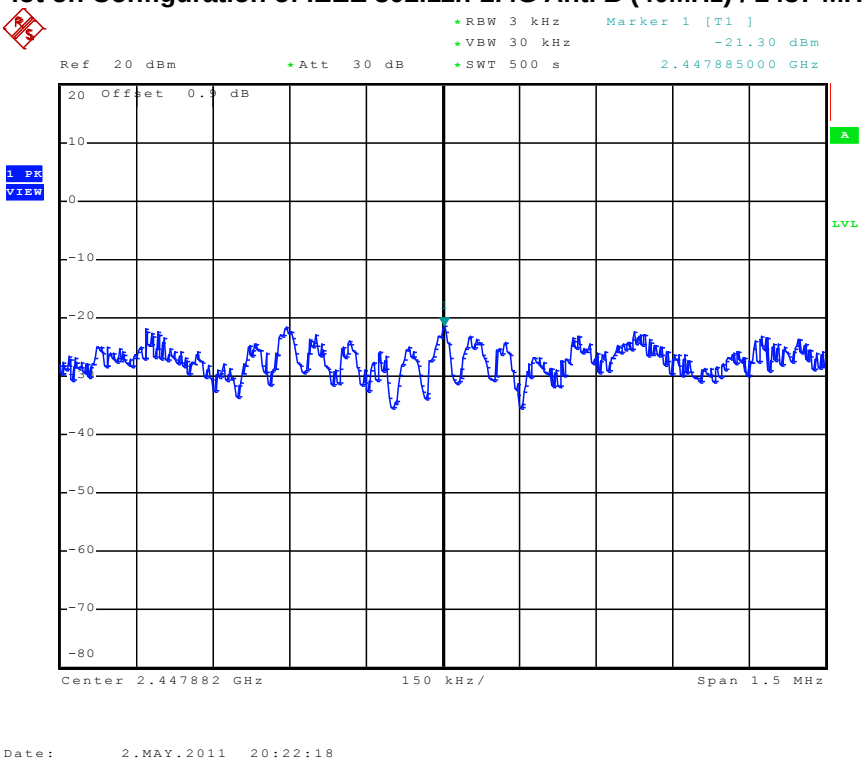
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2452 MHz



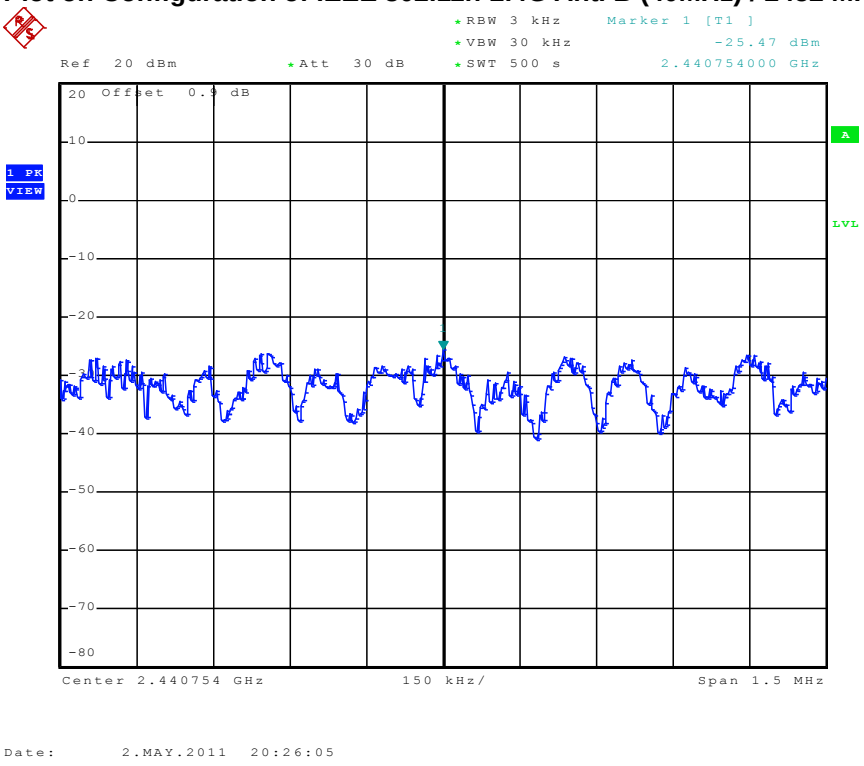
Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2422 MHz



Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2437 MHz



Power Density Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2452 MHz



3.4 6dB Spectrum Bandwidth Measurement

3.4.1 Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

3.4.2 Measuring Instruments and Setting

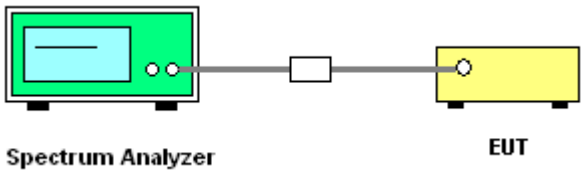
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.

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 6dB Spectrum Bandwidth

Final Test Date	May 02, 2011	**Test Site No.**	TH01-HY
Temperature	27℃	**Humidity**	62%
Test Engineer	Ian	**Configuration**	802.11n

For Single Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.56	17.60	500	Complies
157	5785 MHz	17.36	17.60	500	Complies
165	5825 MHz	17.60	17.60	500	Complies

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	33.92	35.20	500	**Complies**
159	5795 MHz	33.84	35.20	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.16	17.40	500	**Complies**
6	2437 MHz	15.16	17.40	500	**Complies**
11	2462 MHz	15.16	17.40	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	32.64	35.20	500	**Complies**
6	2437 MHz	32.72	35.12	500	**Complies**
9	2452 MHz	32.72	35.12	500	**Complies**

For Two Chain:

Configuration of IEEE 802.11n-5G Ant. A (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.60	17.64	500	Complies
157	5785 MHz	17.60	17.60	500	Complies
165	5825 MHz	17.60	17.60	500	Complies

Configuration of IEEE 802.11n-5G Ant. B (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.64	17.60	500	Complies
157	5785 MHz	17.60	17.64	500	Complies
165	5825 MHz	17.64	17.64	500	Complies

Configuration of IEEE 802.11n-5G Ant. A (40MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	32.00	35.28	500	**Complies**
159	5795 MHz	34.48	35.28	500	**Complies**

Configuration of IEEE 802.11n-5G Ant. B (40MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	33.92	35.28	500	**Complies**
159	5795 MHz	33.84	35.20	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.16	17.48	500	**Complies**
6	2437 MHz	15.48	17.48	500	**Complies**
11	2462 MHz	15.48	17.52	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.16	17.48	500	**Complies**
6	2437 MHz	15.12	17.48	500	**Complies**
11	2462 MHz	15.16	17.48	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. A (40MHz)

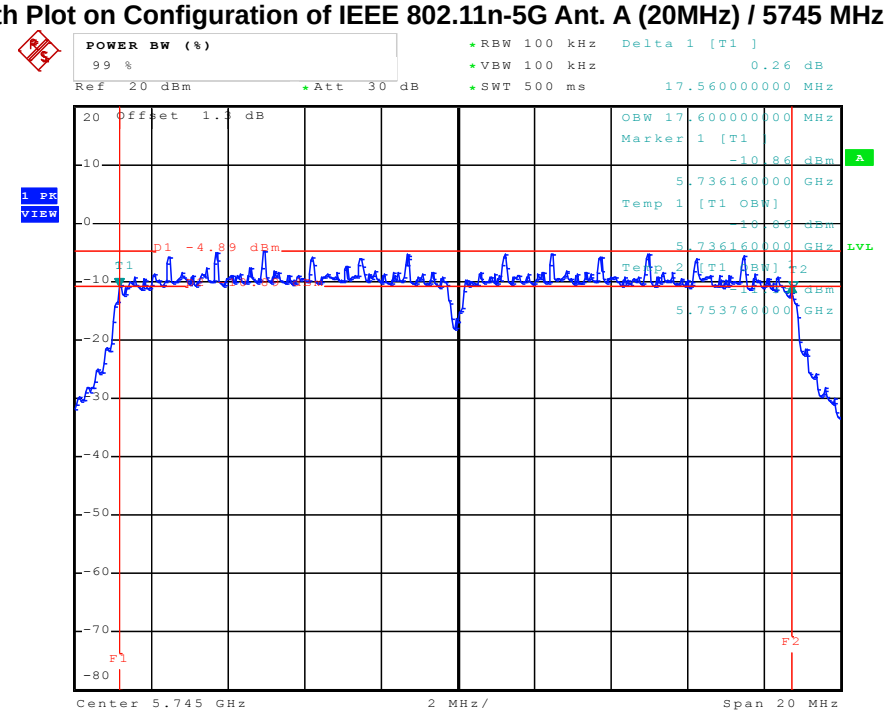
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	32.64	35.20	500	**Complies**
6	2437 MHz	32.64	35.12	500	**Complies**
9	2452 MHz	33.28	35.12	500	**Complies**

Configuration of IEEE 802.11n-2.4G Ant. B (40MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	33.28	35.20	500	**Complies**
6	2437 MHz	32.72	35.20	500	**Complies**
9	2452 MHz	32.72	35.12	500	**Complies**

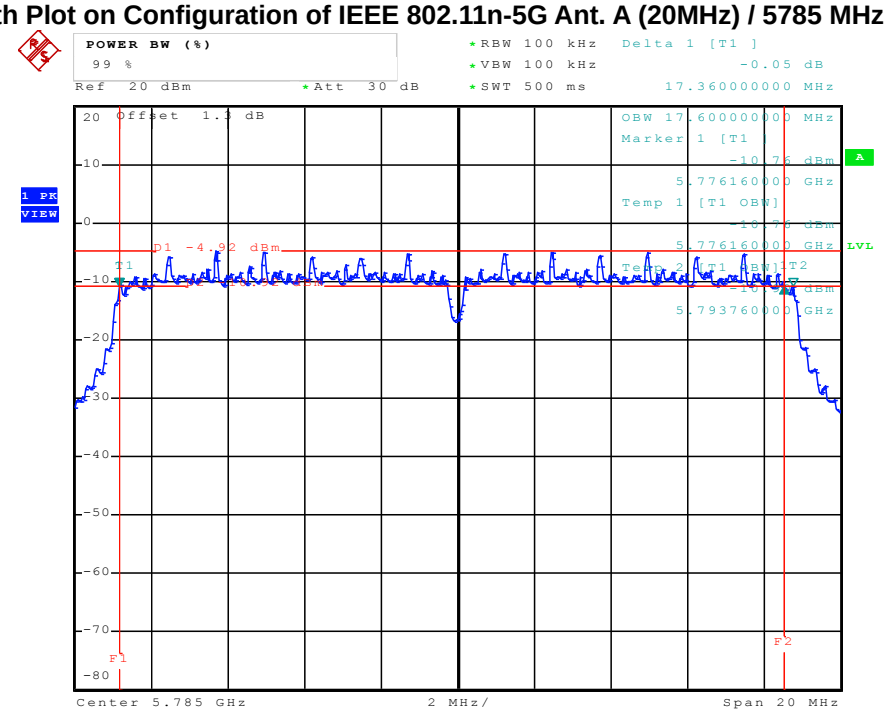
For Single Chain:

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5745 MHz



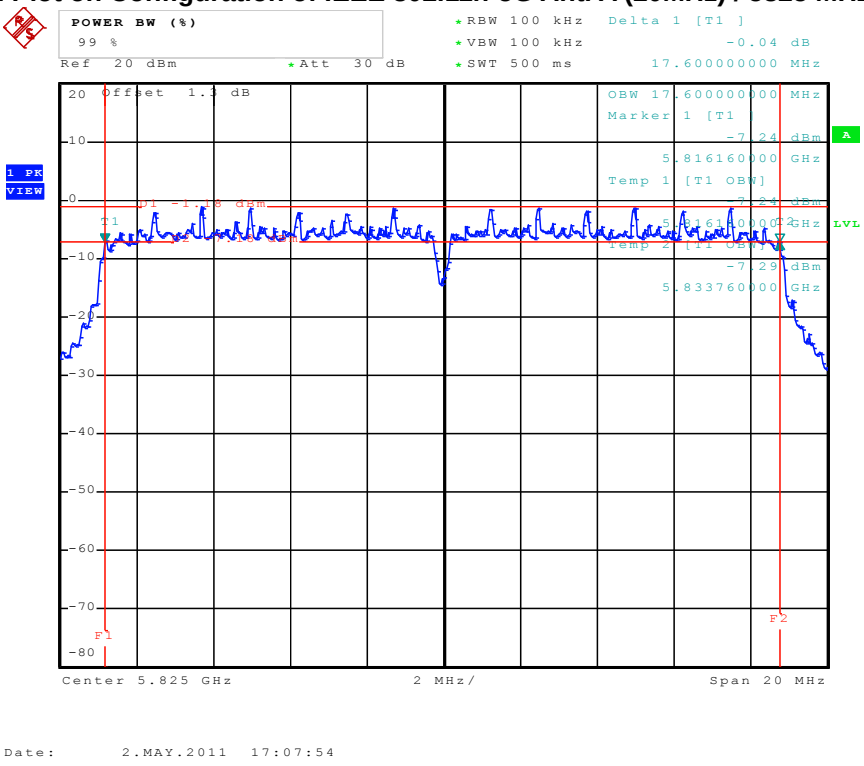
Date: 2.MAY.2011 16:45:35

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5785 MHz

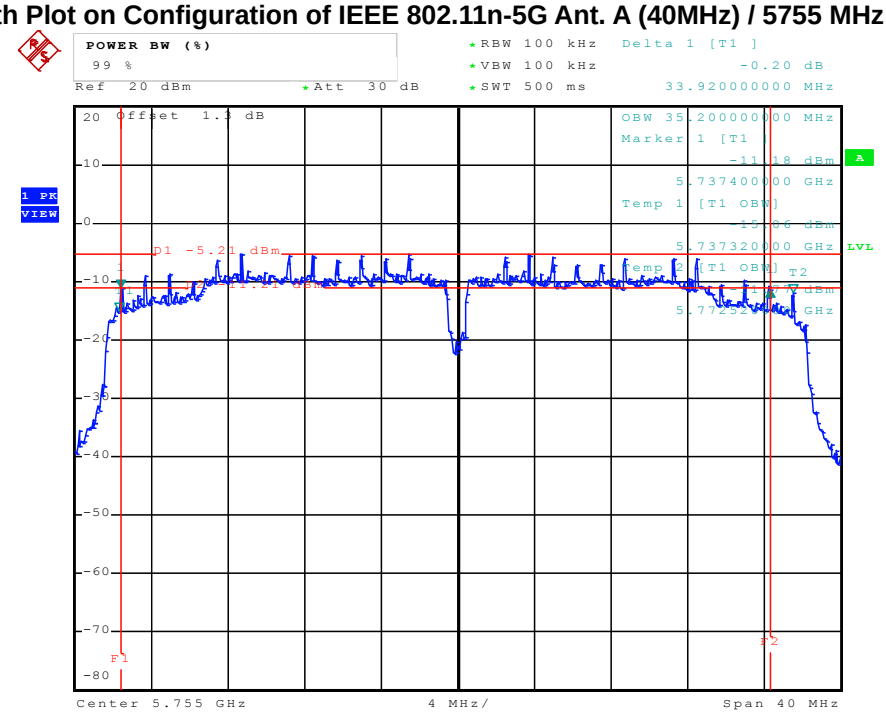


Date: 2.MAY.2011 16:49:27

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5825 MHz

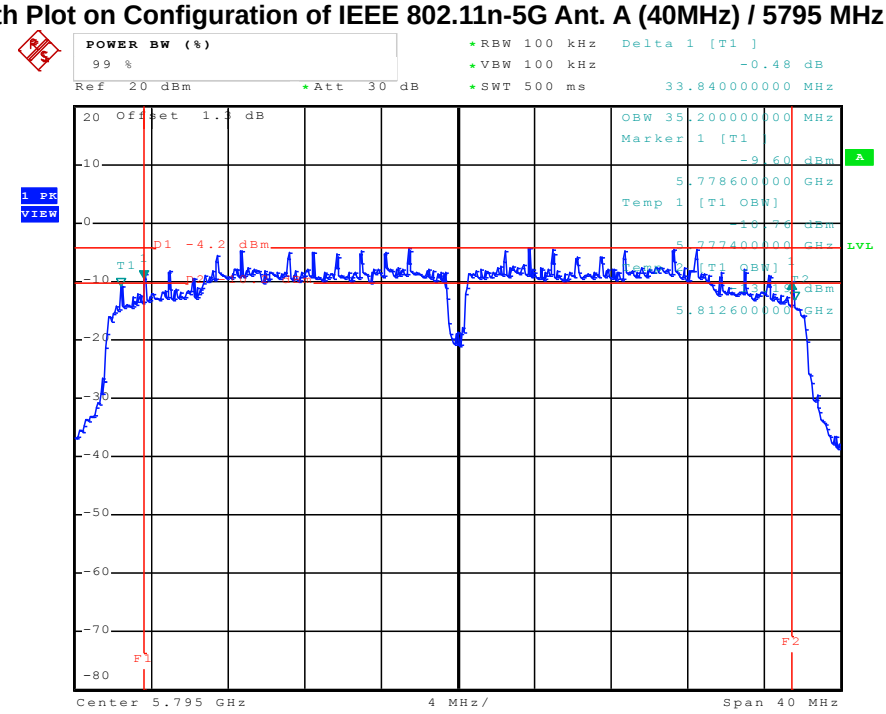


6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5755 MHz



Date: 2.MAY.2011 17:12:51

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5795 MHz



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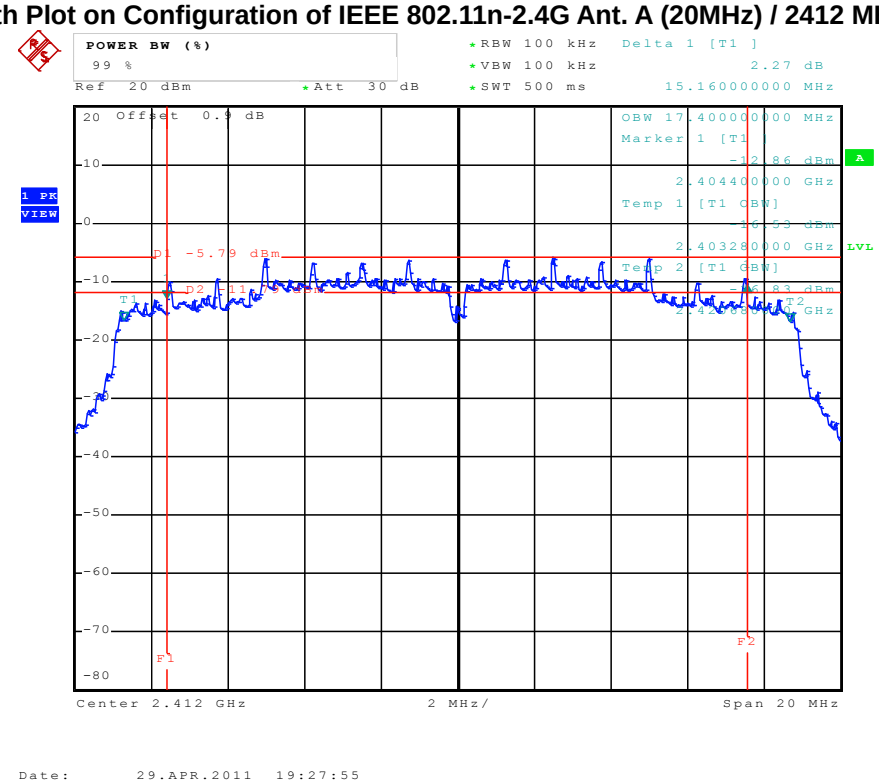
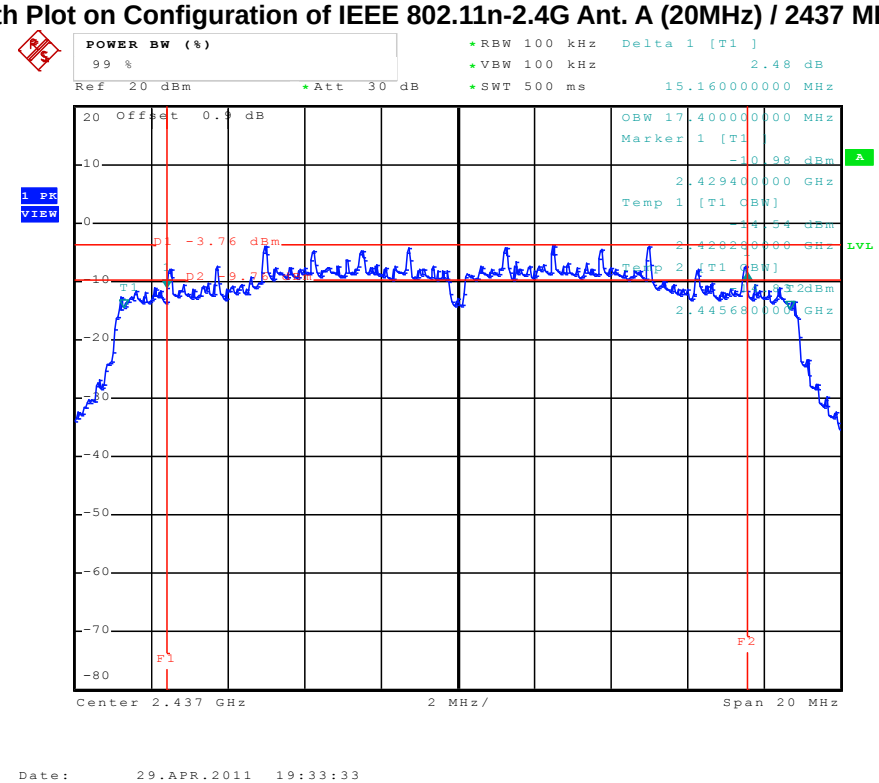
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2412 MHz



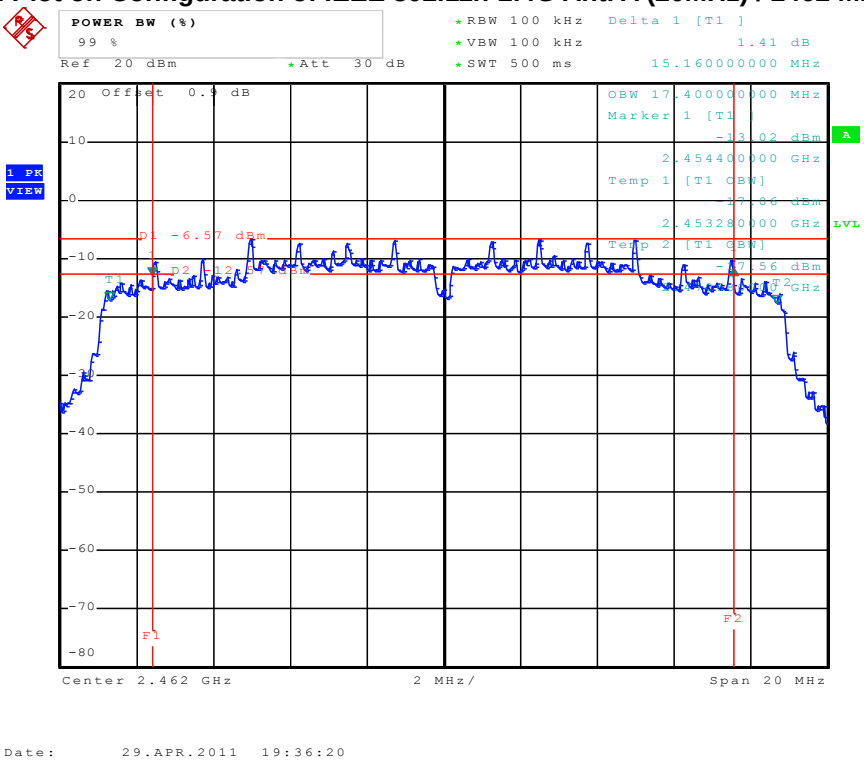
Date: 29.APR.2011 19:27:55

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2437 MHz

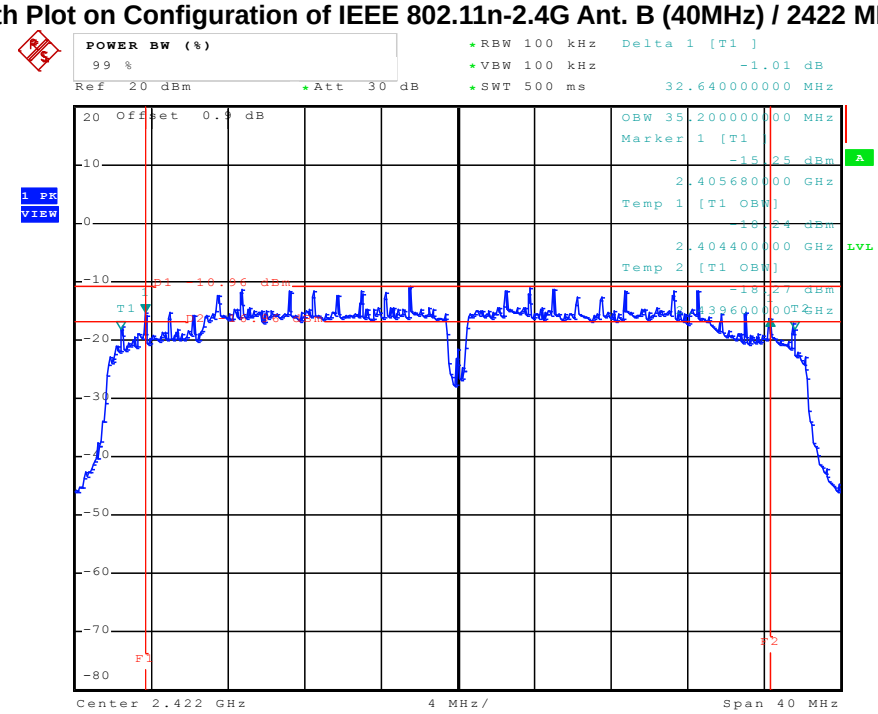


Date: 29.APR.2011 19:33:33

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2462 MHz



6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2422 MHz



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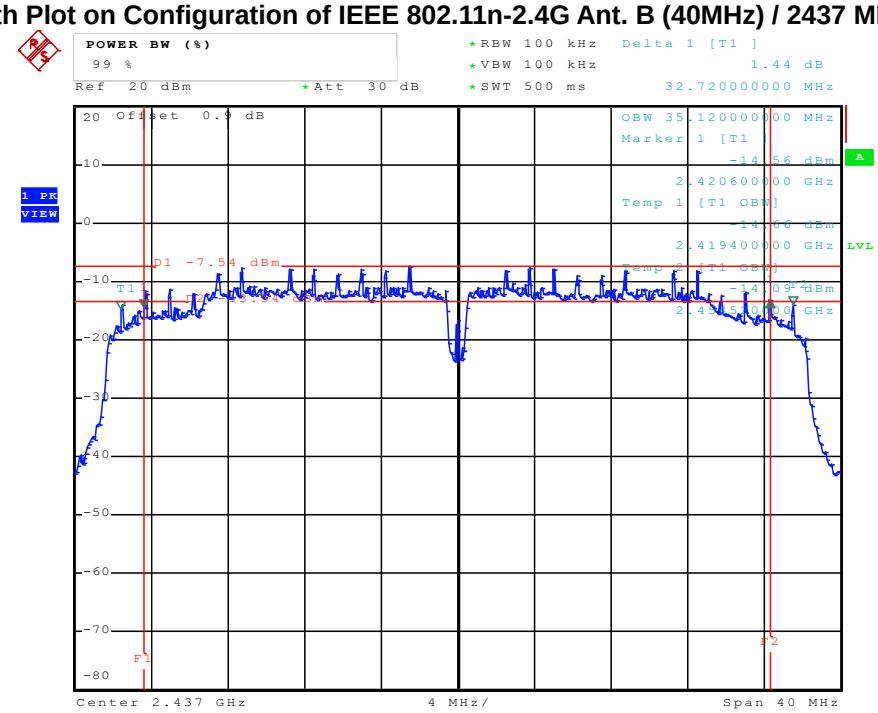
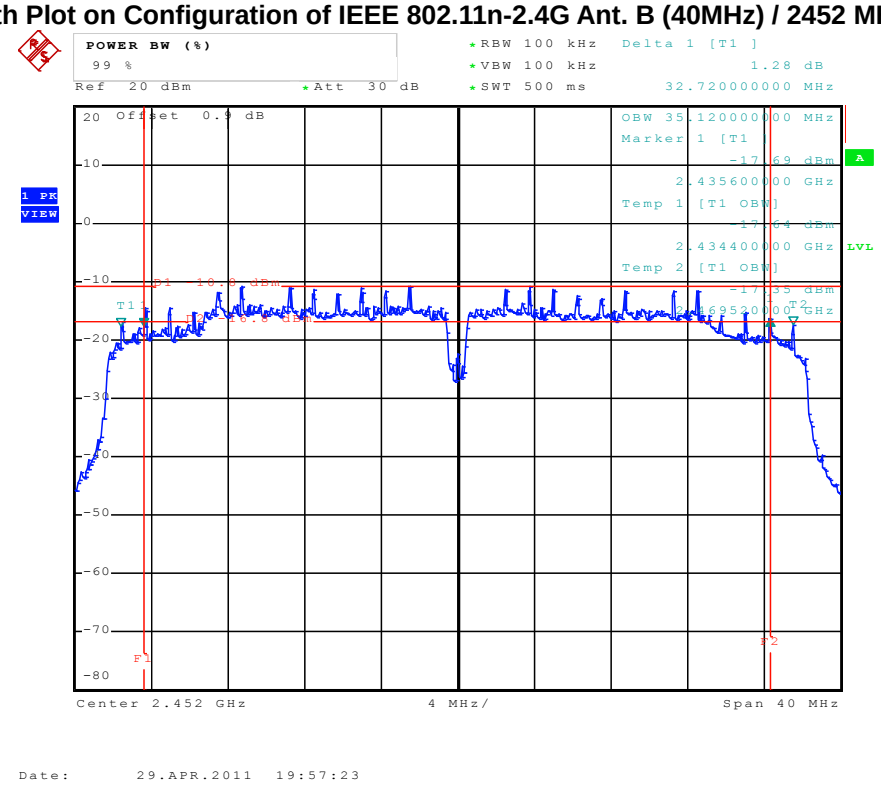
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2437 MHz



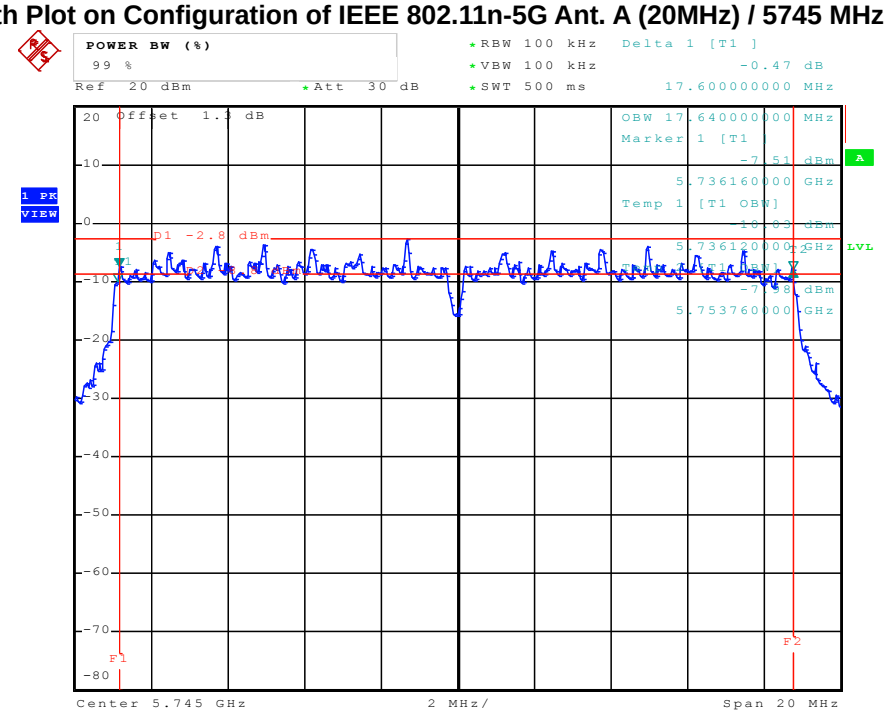
Date: 29.APR.2011 19:54:17

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2452 MHz



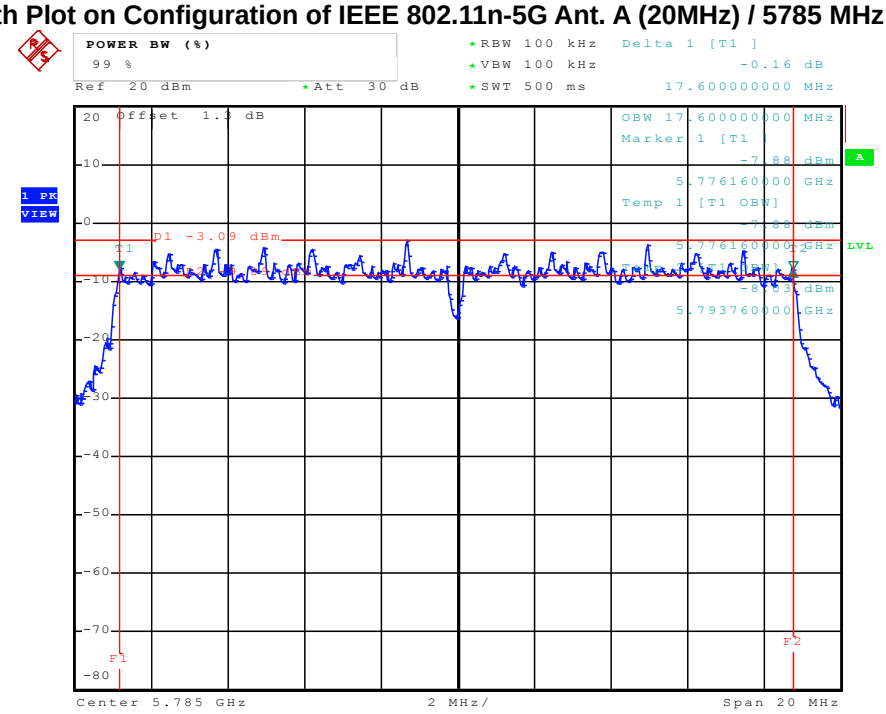
For Two Chain:

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5745 MHz



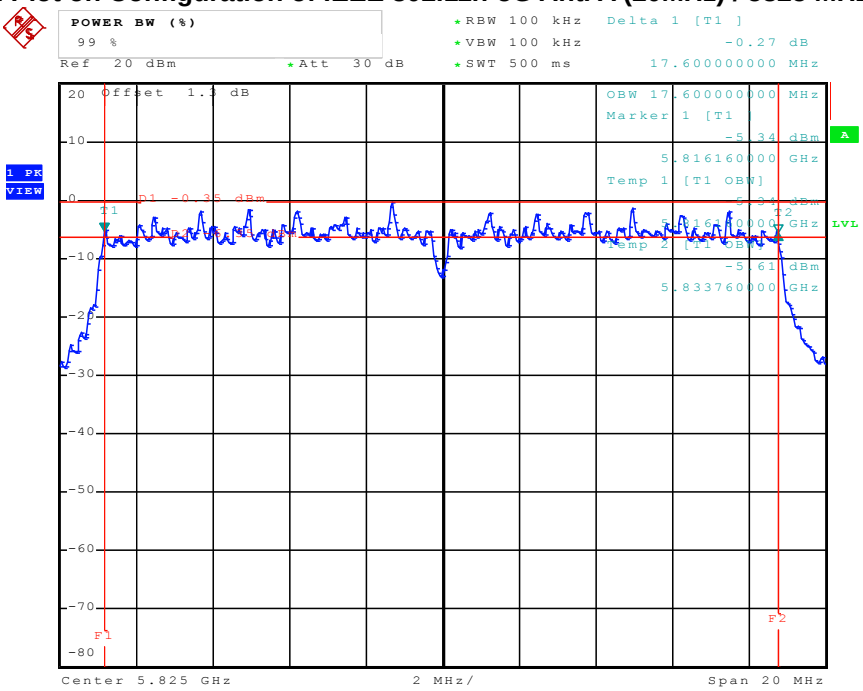
Date: 2.MAY.2011 21:10:36

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5785 MHz

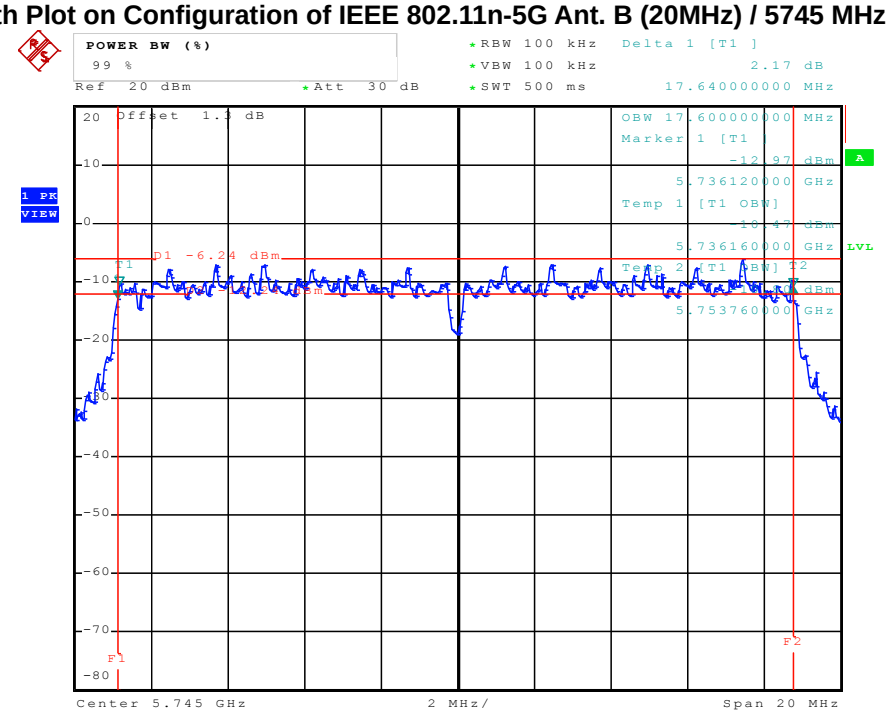


Date: 2.MAY.2011 21:14:29

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (20MHz) / 5825 MHz

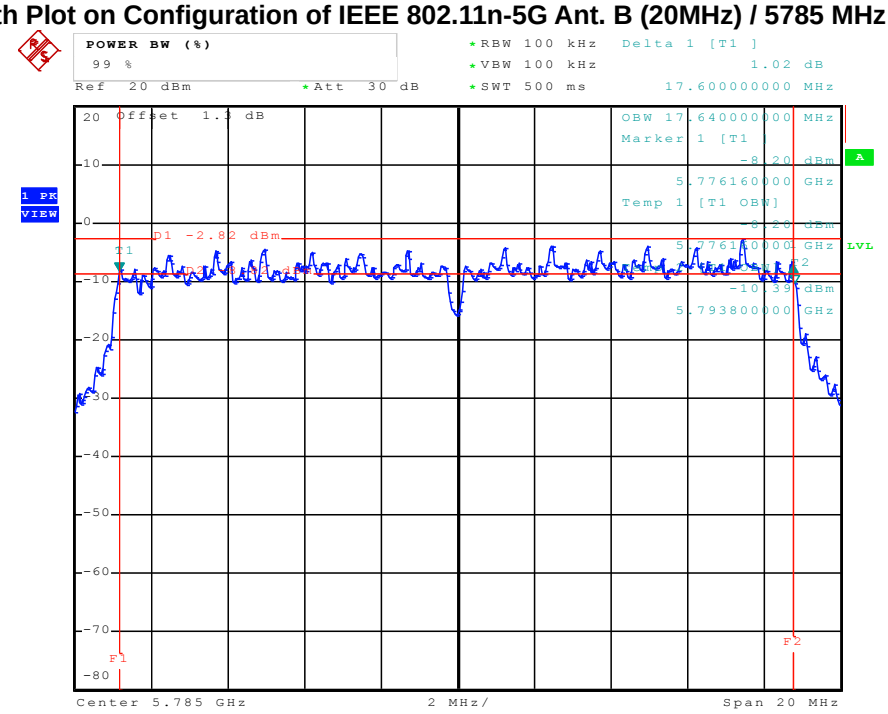


6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5745 MHz



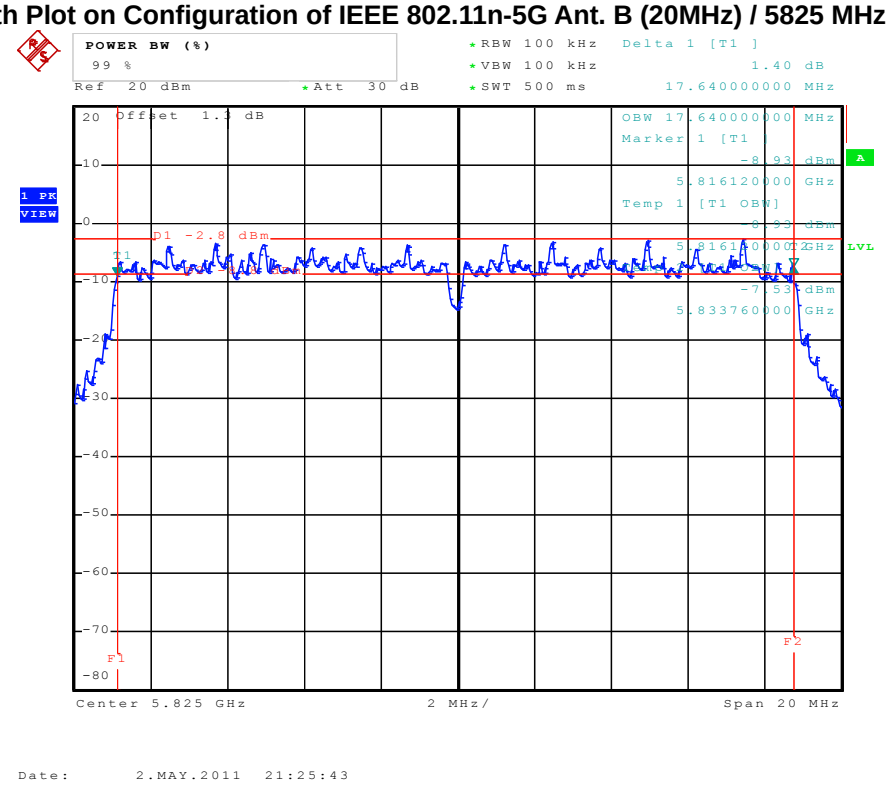
Date: 2.MAY.2011 21:20:32

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5785 MHz

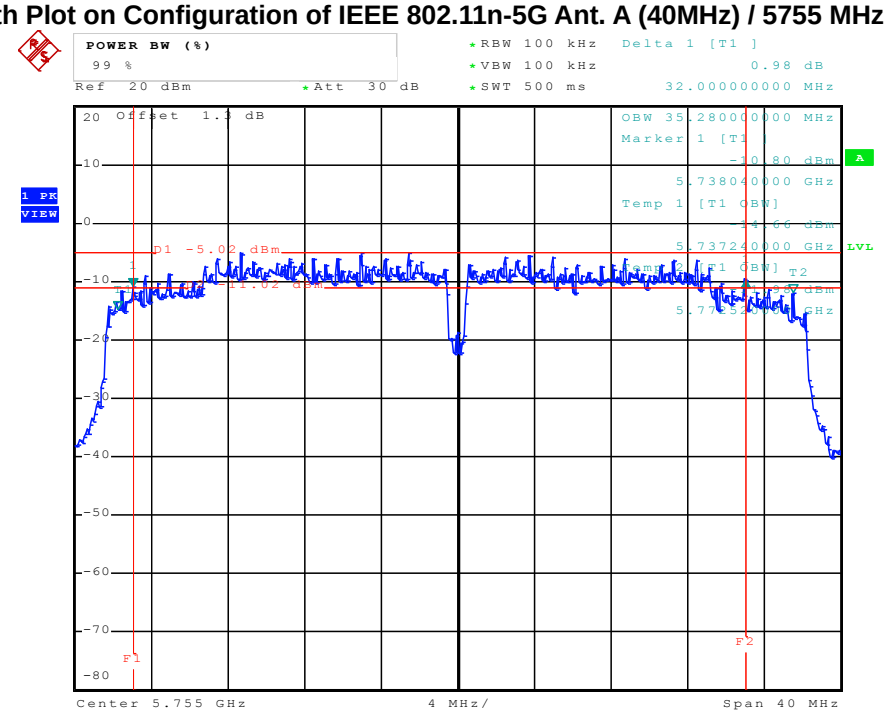


Date: 2.MAY.2011 21:23:33

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. B (20MHz) / 5825 MHz

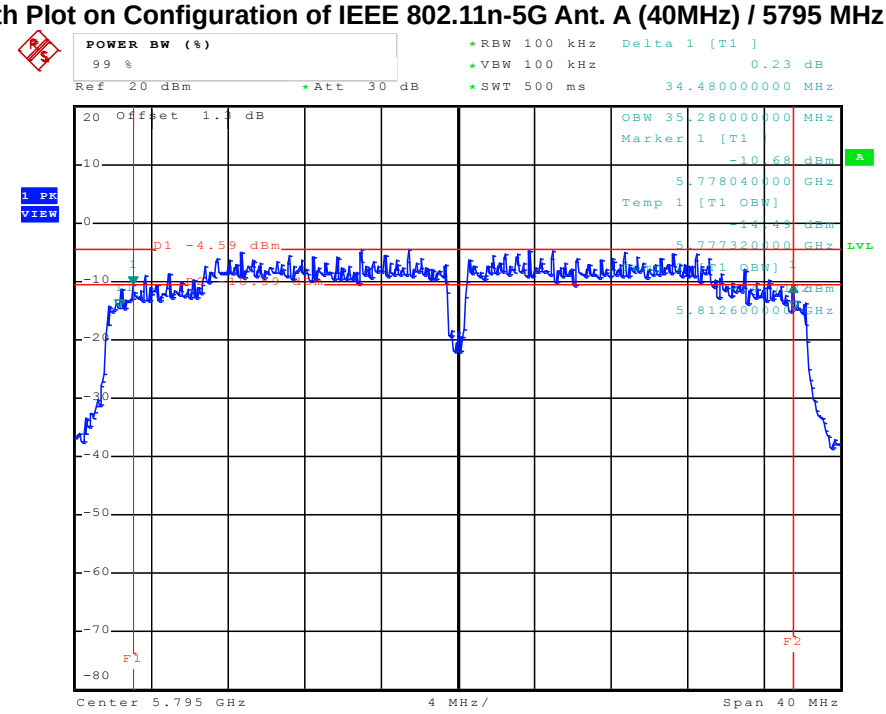


6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5755 MHz



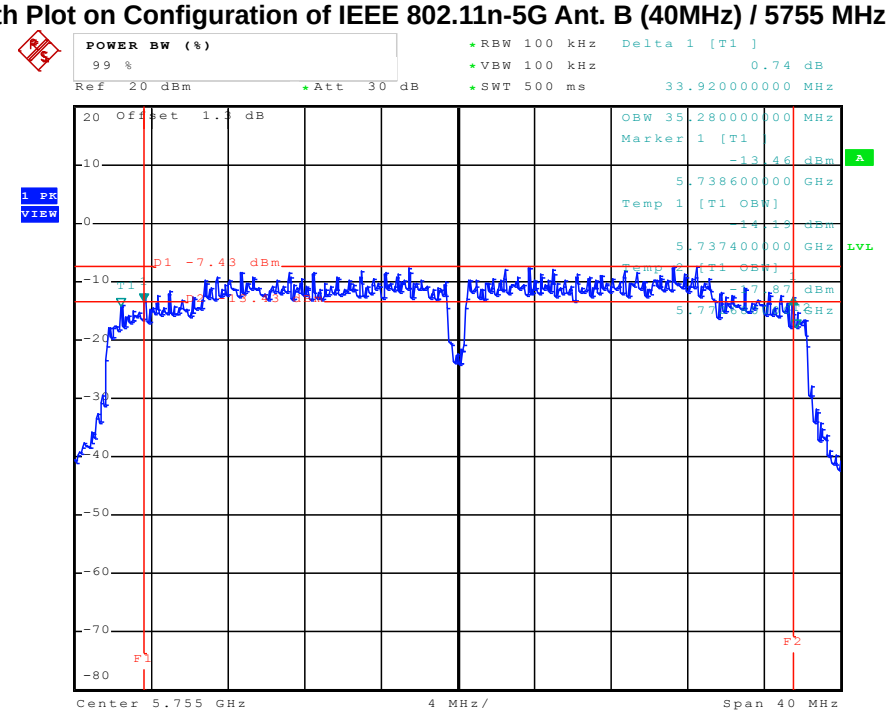
Date: 2.MAY.2011 21:49:43

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. A (40MHz) / 5795 MHz



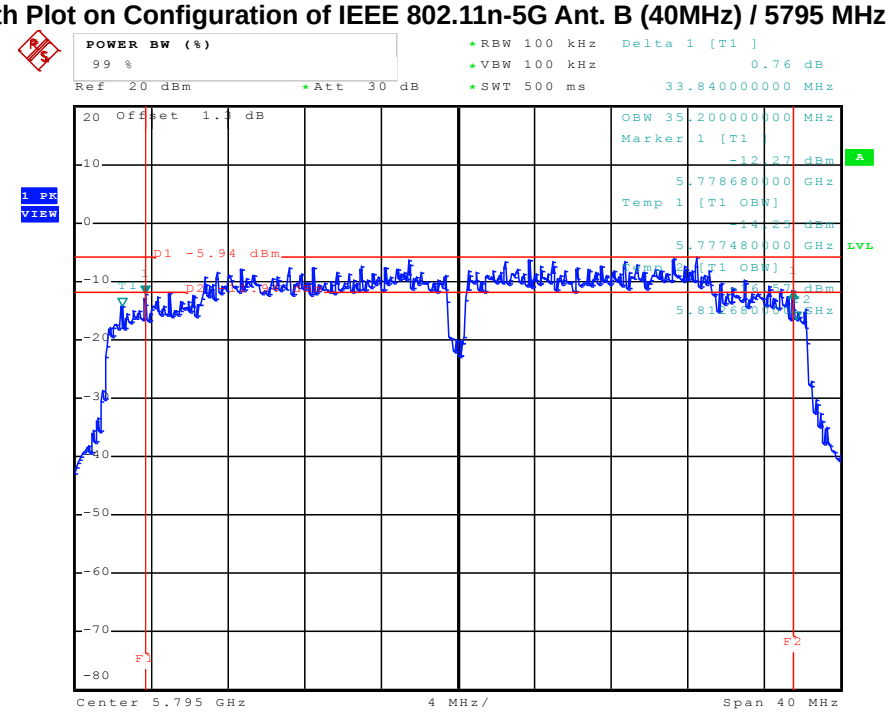
Date: 2.MAY.2011 21:53:41

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. B (40MHz) / 5755 MHz



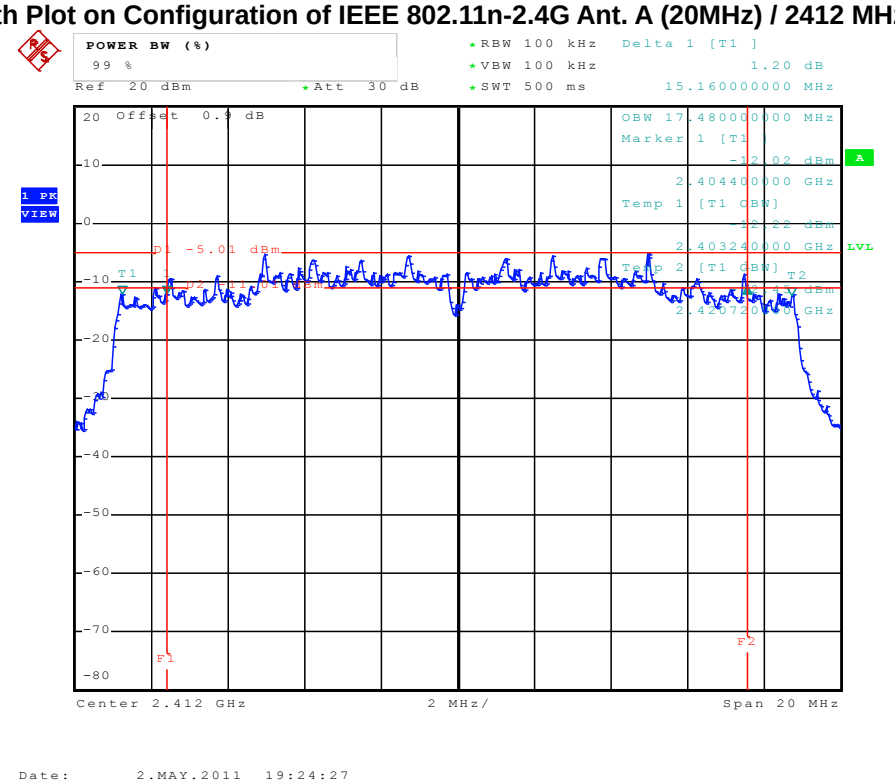
Date: 2.MAY.2011 21:39:56

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-5G Ant. B (40MHz) / 5795 MHz

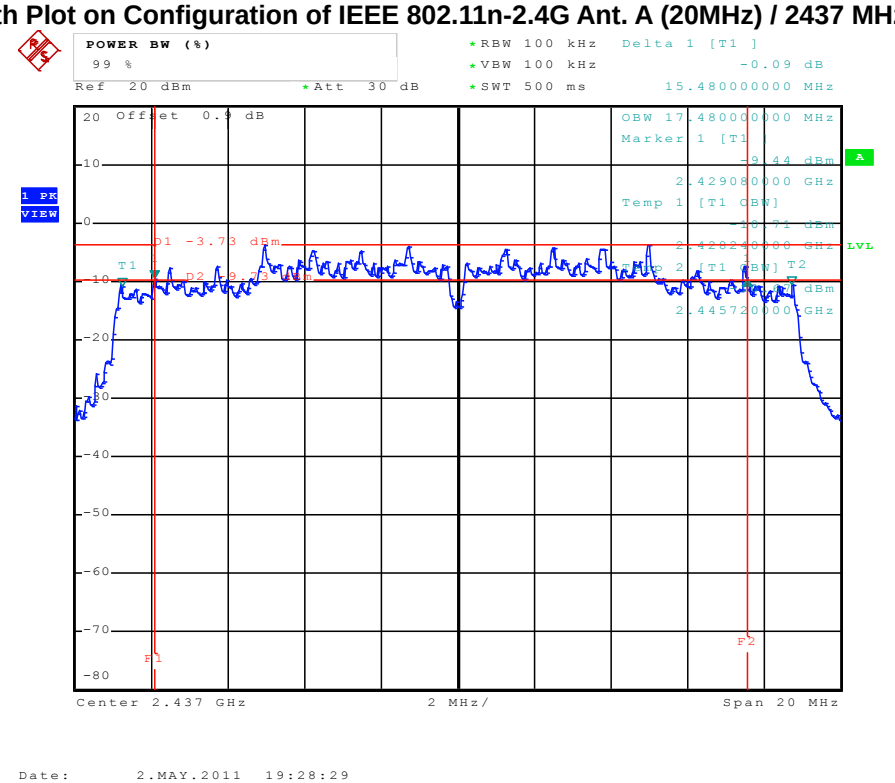


Date: 2.MAY.2011 21:43:38

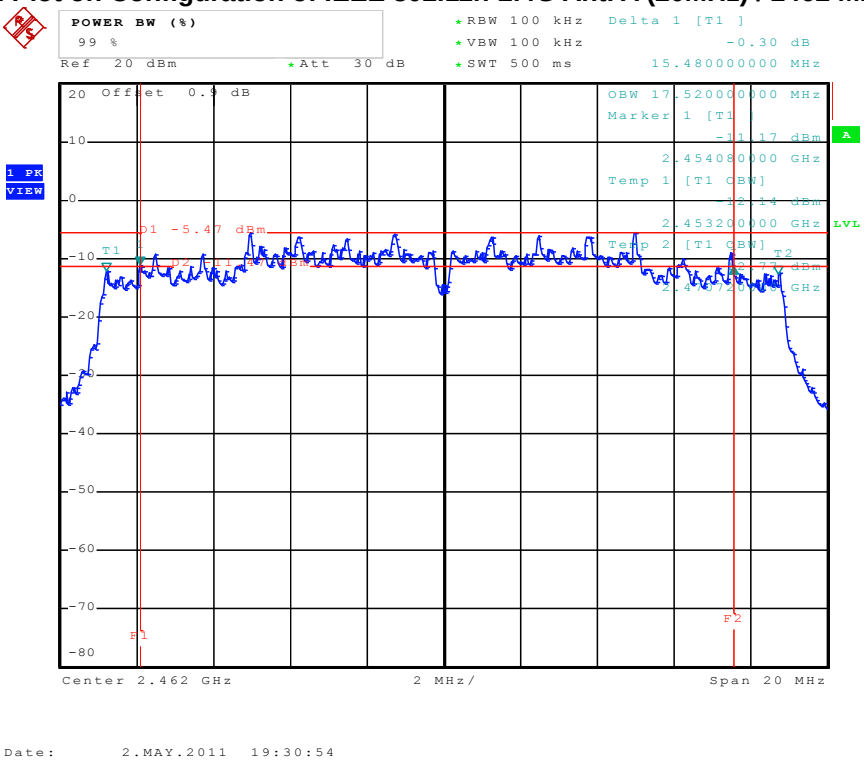
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2412 MHz



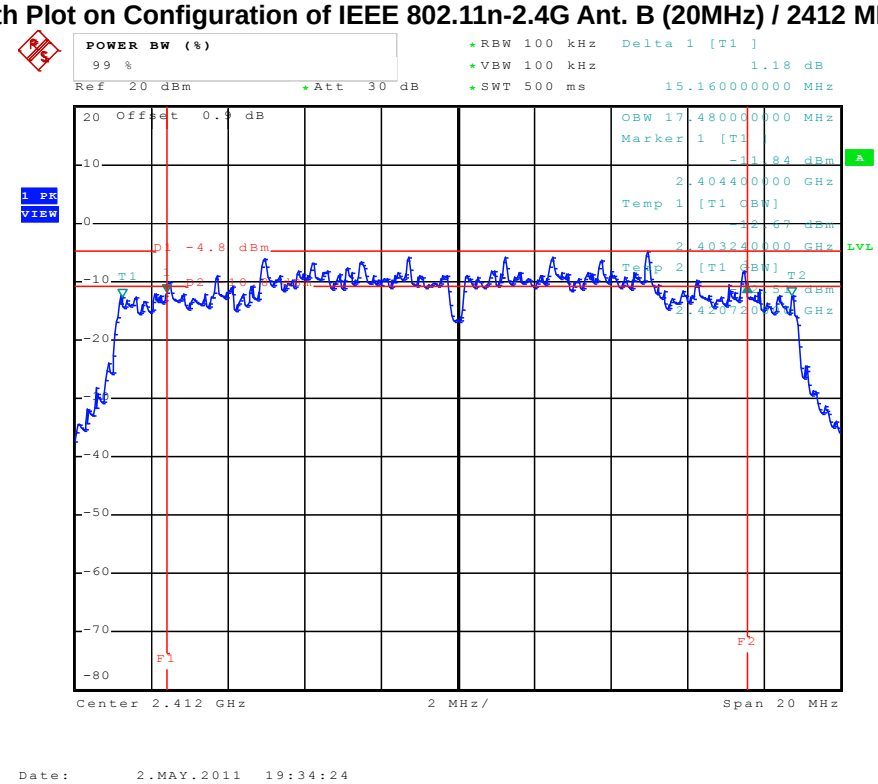
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2437 MHz



6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (20MHz) / 2462 MHz

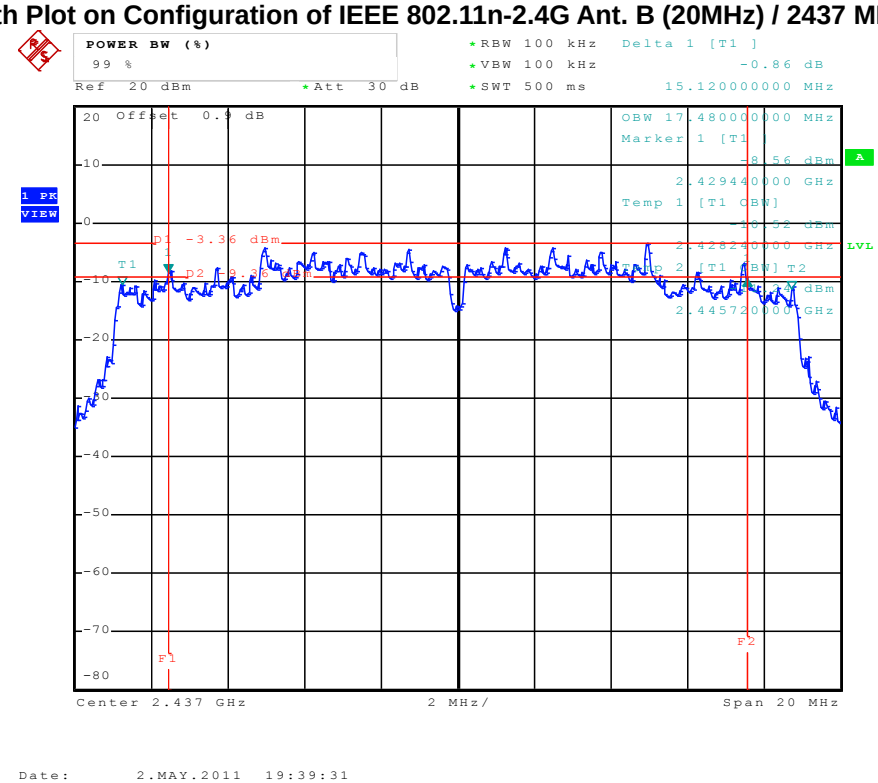


6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2412 MHz



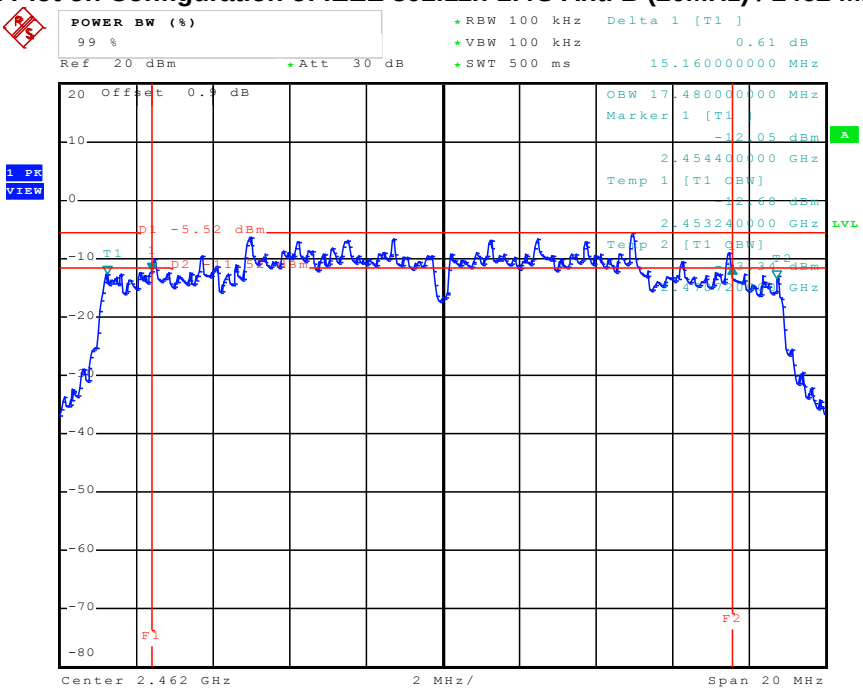
Date: 2.MAY.2011 19:34:24

6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2437 MHz

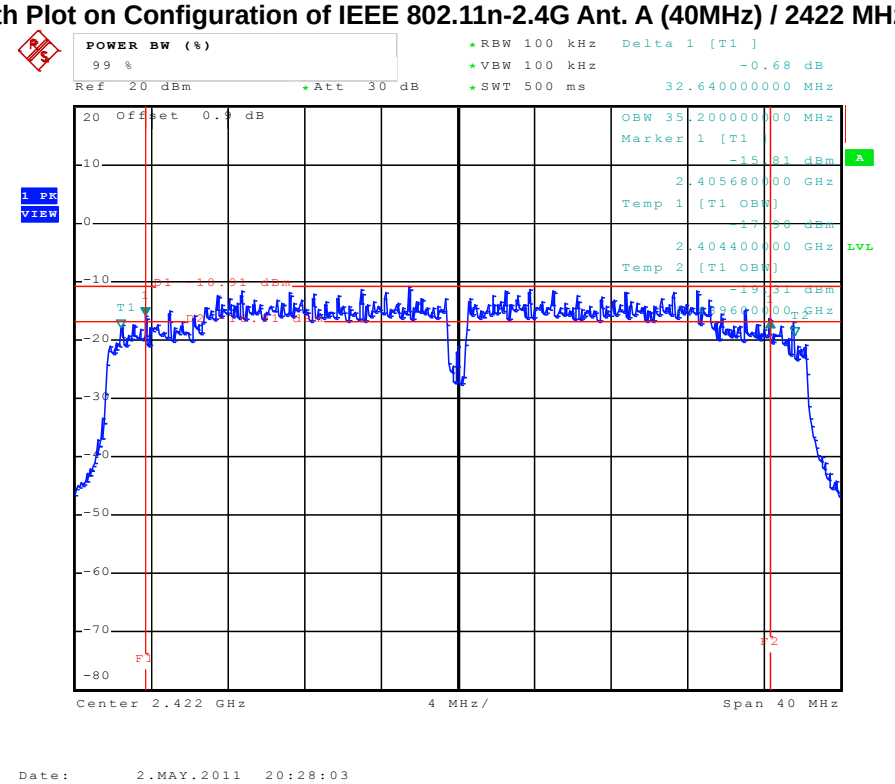


Date: 2.MAY.2011 19:39:31

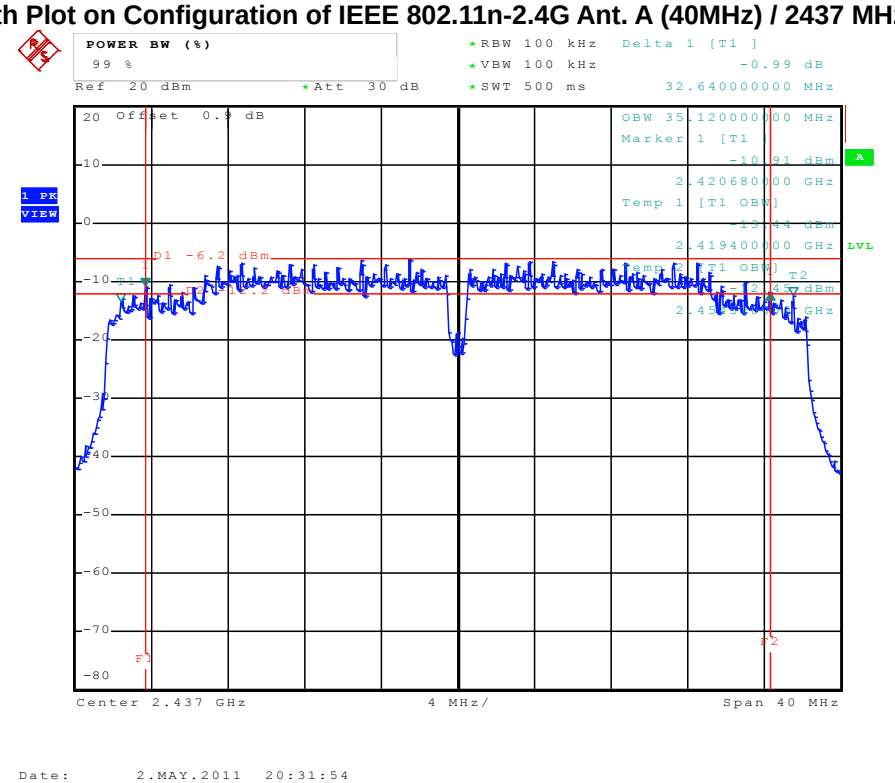
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (20MHz) / 2462 MHz



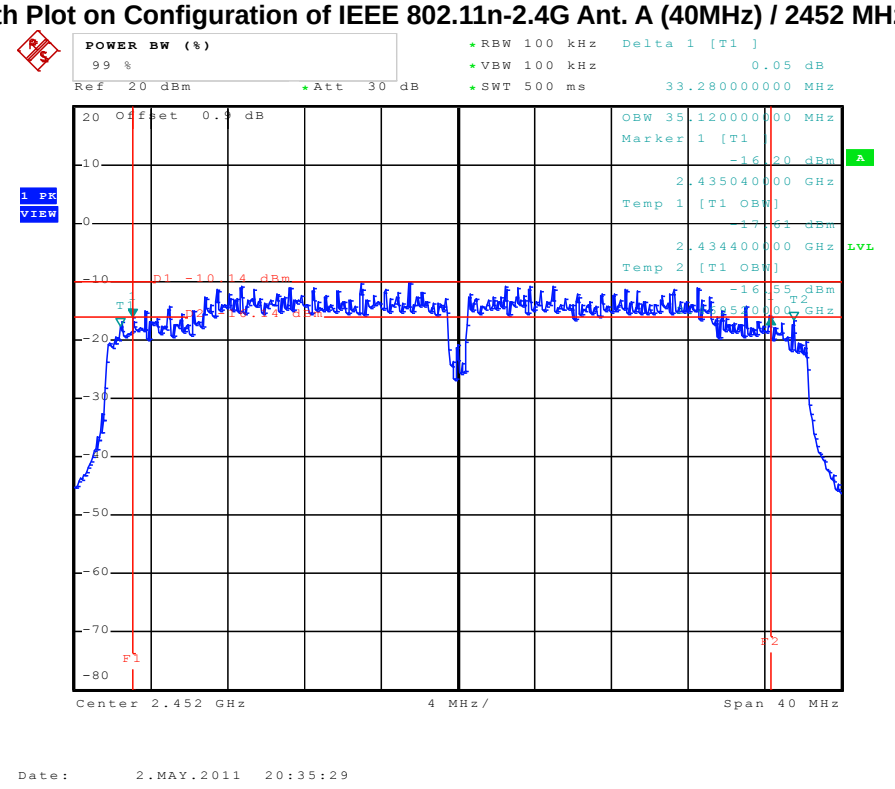
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2422 MHz



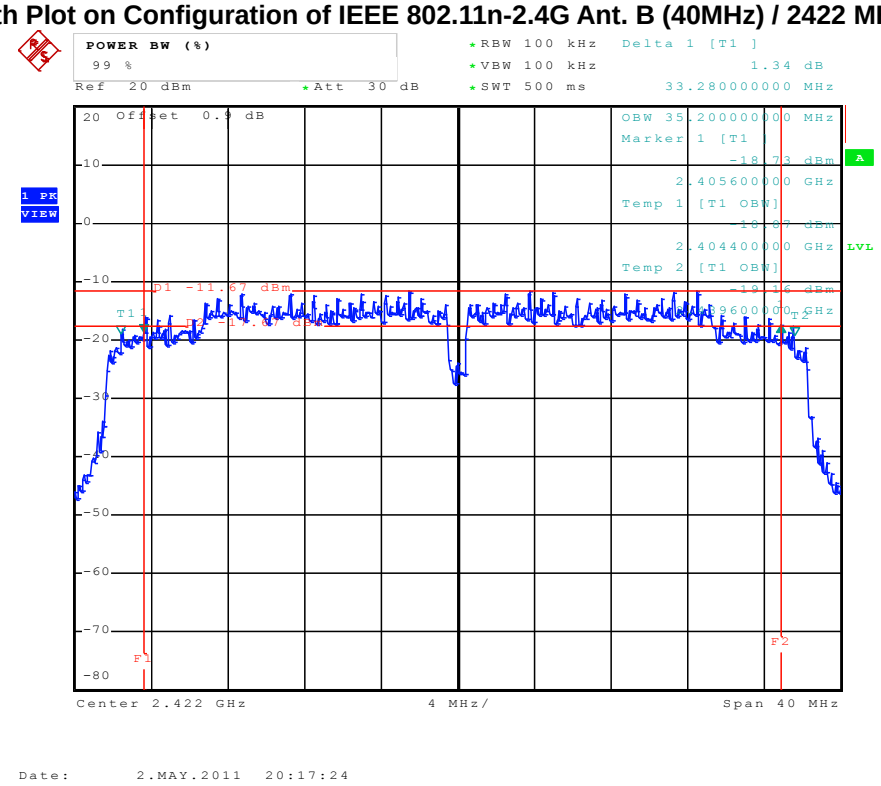
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2437 MHz



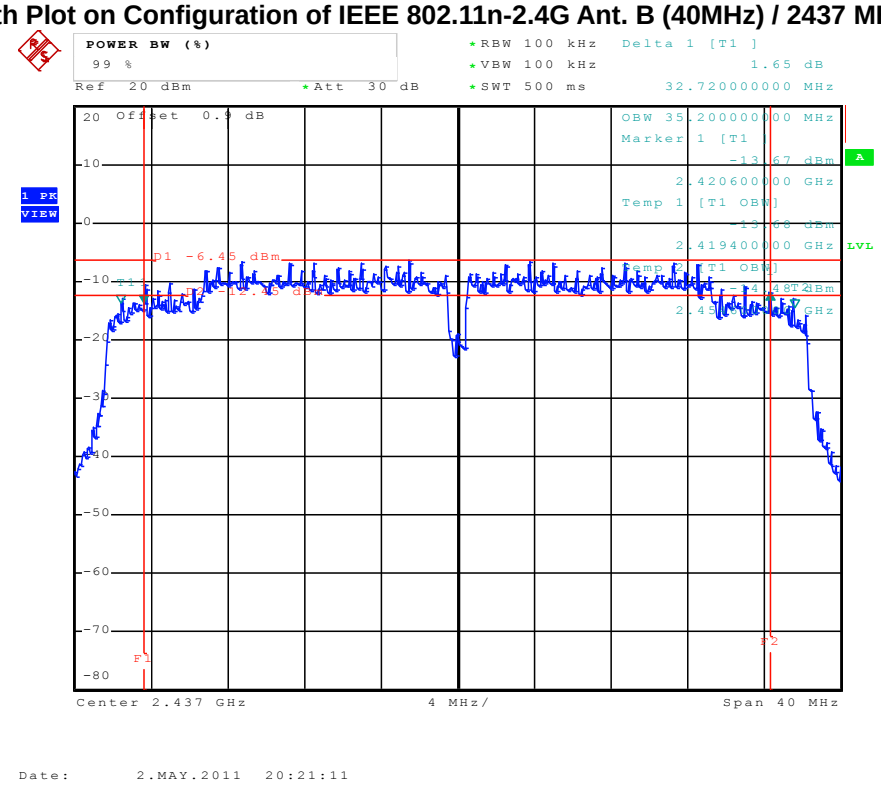
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. A (40MHz) / 2452 MHz



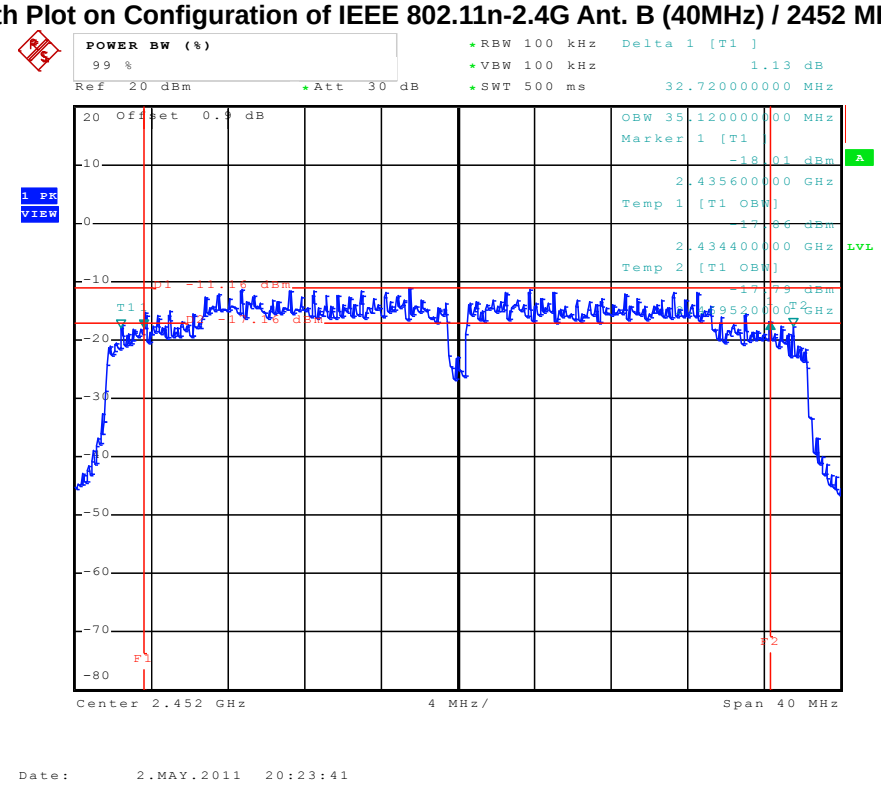
6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2422 MHz



6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2437 MHz



6 dB Bandwidth Plot on Configuration of IEEE 802.11n-2.4G Ant. B (40MHz) / 2452 MHz



3.5 Radiated Emissions Measurement

3.5.1 Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequencies (MHz)	Field Strength (microvolt/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

3.5.2 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	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak

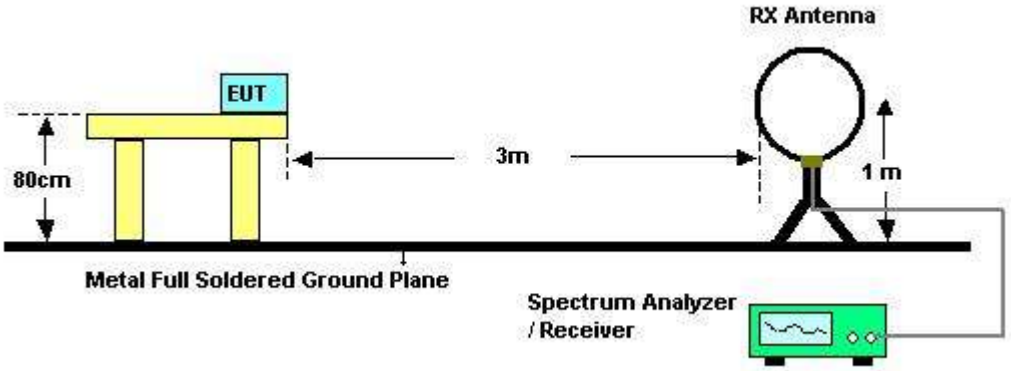
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.5.3 Test Procedures

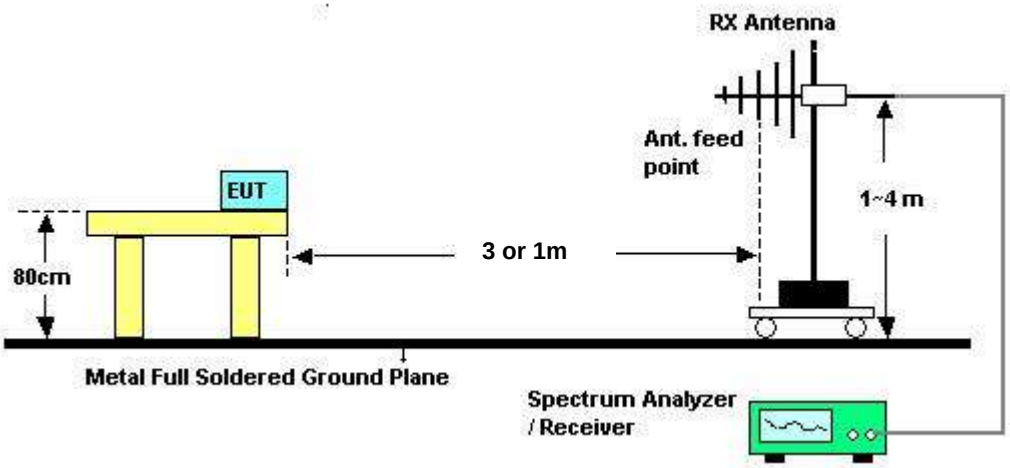
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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.

3.5.4 Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 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].

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

Final Test Date	May 19, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak		

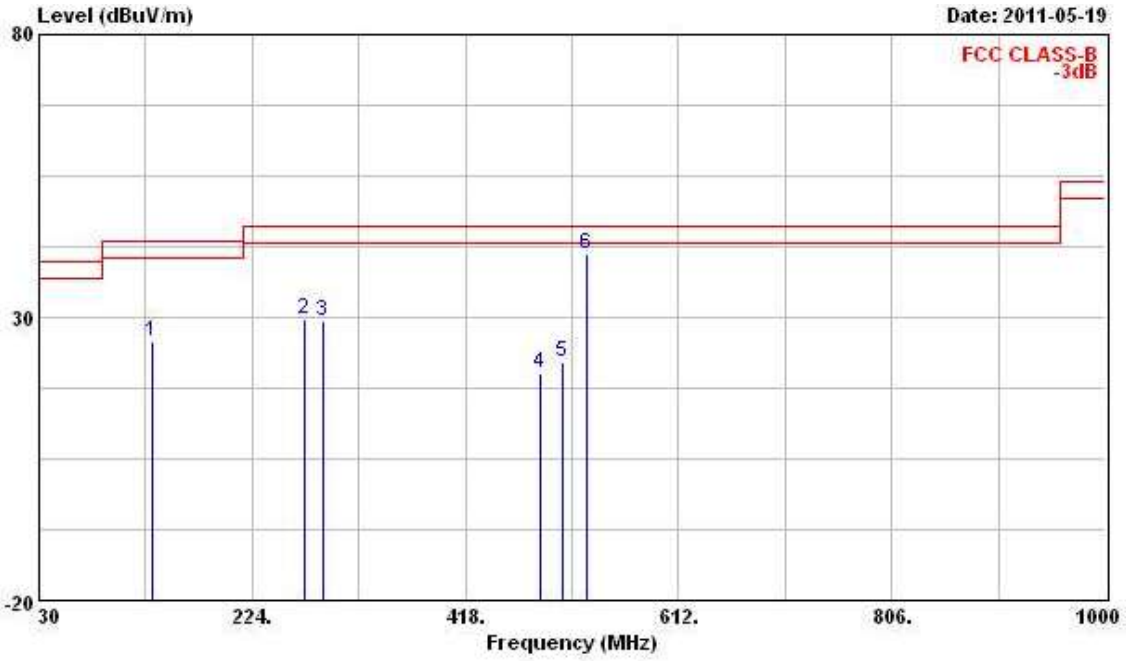
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:
The amplitude of spurious emissions that are attenuated by more than 20 dB 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.

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

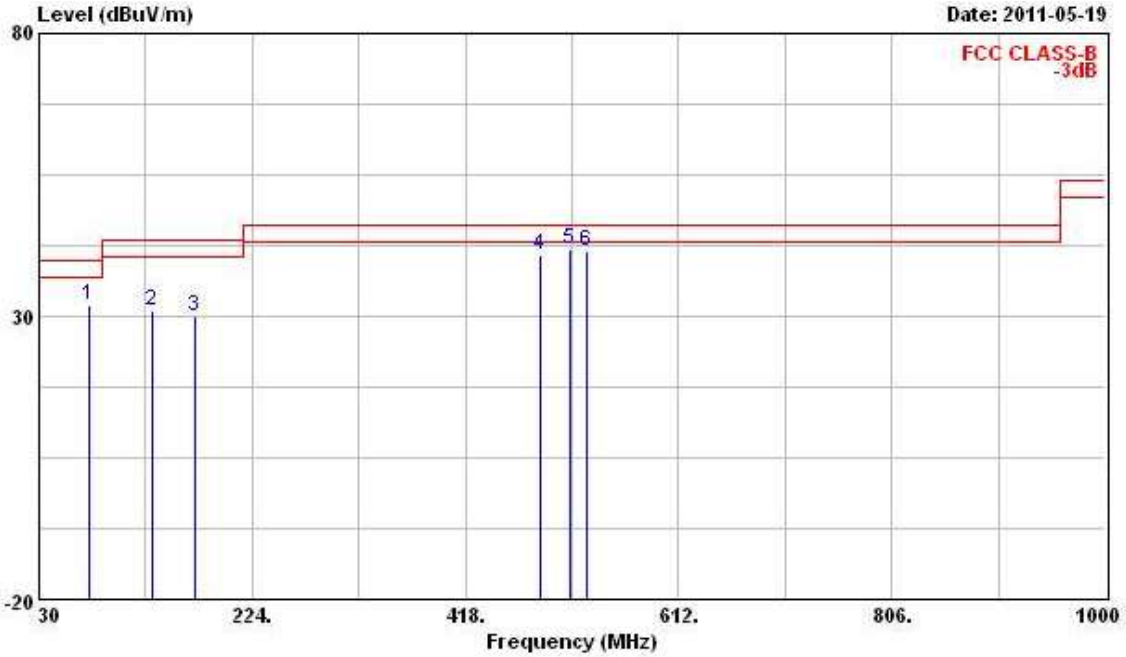
Final Test Date	May 19, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 165 (20MHz) MCS0 (Ant. A)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	132.820	25.88	-17.62	43.50	40.38	12.10	1.03	27.64	Peak
2	272.500	29.59	-16.41	46.00	42.59	13.40	1.72	28.13	Peak
3	288.020	29.36	-16.64	46.00	42.39	13.37	1.82	28.22	Peak
4	486.870	20.28	-25.72	46.00	28.54	17.99	2.68	28.93	QP
5	506.270	22.16	-23.84	46.00	30.16	18.26	2.71	28.97	QP
6 @	528.580	41.18	-4.82	46.00	48.74	18.78	2.83	29.17	Peak

Vertical

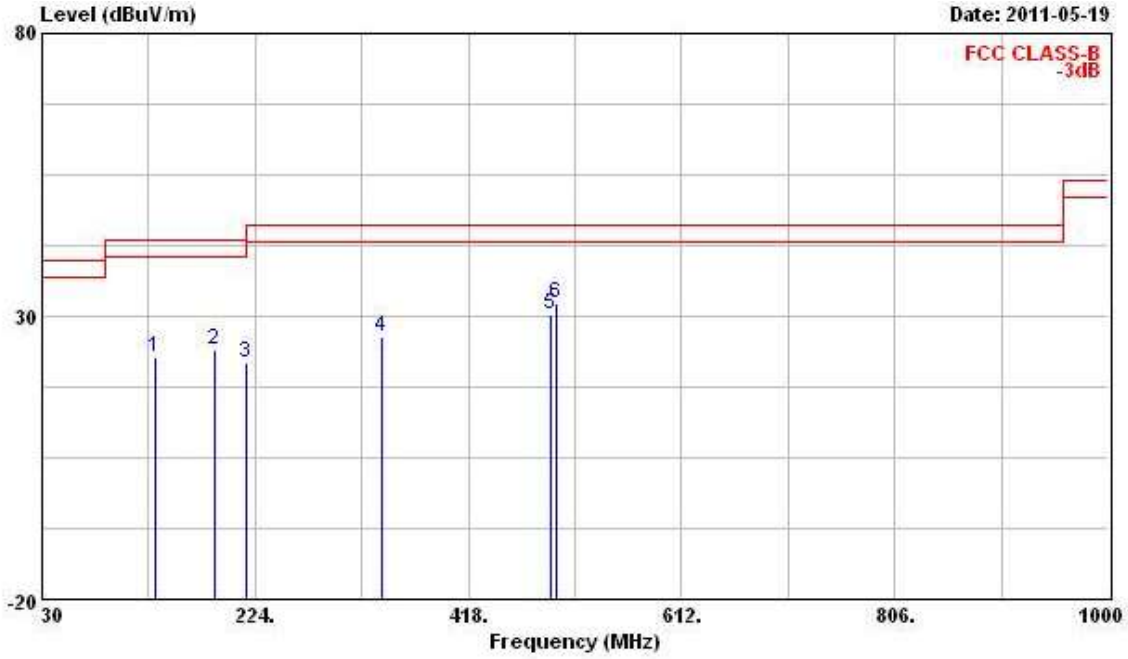


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	75.590	32.00	-8.00	40.00	52.56	6.68	0.12	27.36	Peak
2	132.820	31.00	-12.50	43.50	45.50	12.10	1.03	27.64	Peak
3	171.620	29.90	-13.60	43.50	46.79	9.66	1.31	27.86	Peak
4 @	486.870	41.01	-4.99	46.00	49.27	17.99	2.68	28.93	Peak
5 @	513.060	41.71	-4.29	46.00	49.57	18.43	2.74	29.03	Peak
6 @	528.580	41.52	-4.48	46.00	49.08	18.78	2.83	29.17	QP

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.

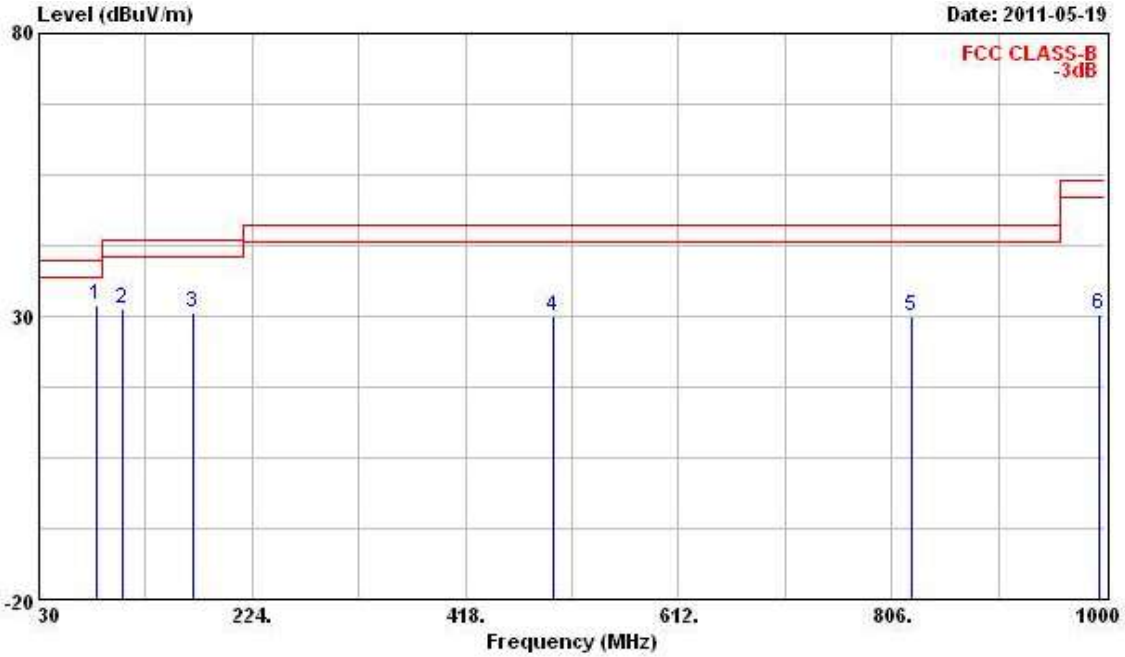
Final Test Date	May 19, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 159 (40MHz) MCS0 (Ant. A)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	132.820	22.72	-20.78	43.50	37.22	12.10	1.03	27.64	Peak
2	187.140	24.17	-19.33	43.50	41.71	9.15	1.24	27.93	Peak
3	215.270	21.92	-21.58	43.50	39.28	9.27	1.36	27.99	Peak
4	338.460	26.53	-19.47	46.00	38.08	14.71	2.16	28.42	Peak
5	493.660	30.49	-15.51	46.00	38.68	18.05	2.67	28.92	Peak
6	497.540	32.23	-13.77	46.00	40.39	18.08	2.67	28.91	Peak

Vertical

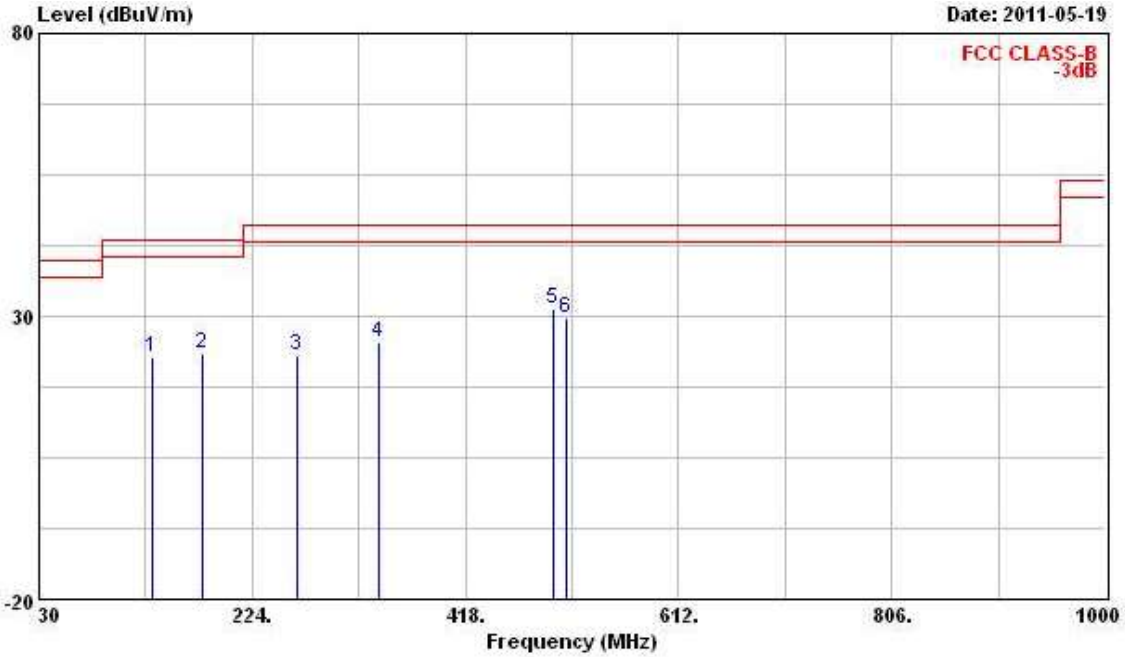


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	82.380	31.91	-8.09	40.00	50.81	7.79	0.75	27.44	Peak
2	105.660	31.45	-12.05	43.50	46.06	11.92	0.91	27.44	Peak
3	170.650	30.61	-12.89	43.50	47.43	9.73	1.30	27.86	Peak
4	497.540	30.09	-15.91	46.00	38.25	18.08	2.67	28.91	Peak
5	824.430	30.00	-16.00	46.00	34.15	20.79	4.51	29.45	Peak
6	995.150	30.27	-23.73	54.00	33.06	20.92	5.40	29.12	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.

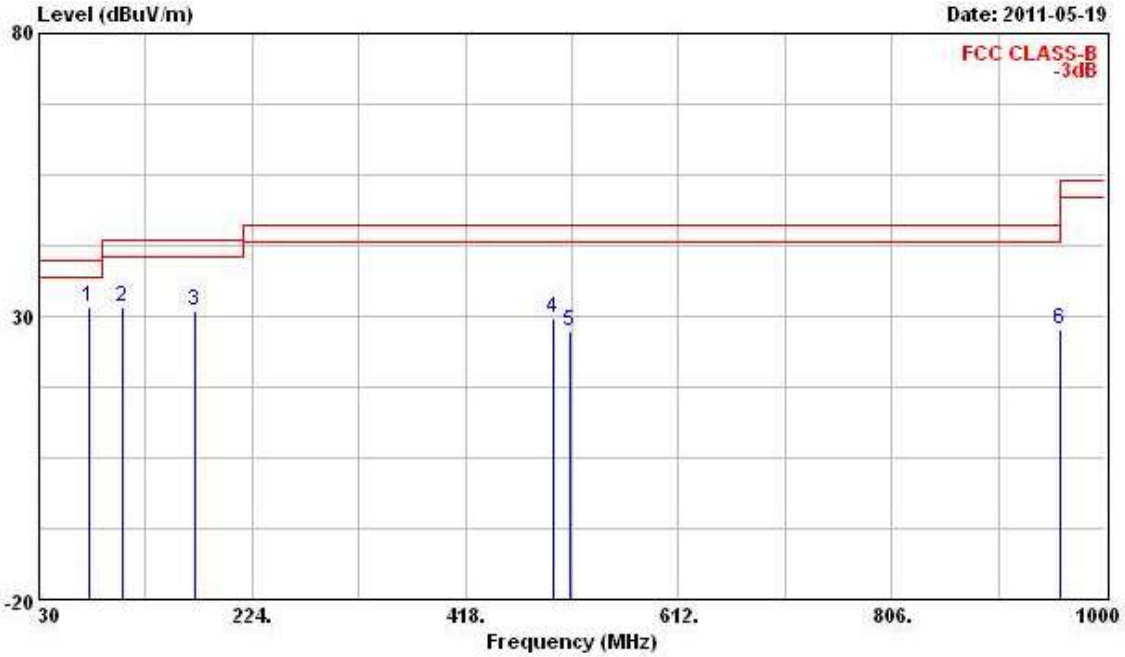
Final Test Date	May 19, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 165 (20MHz) MCS8 (Ant. A+ Ant. B)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	132.820	22.61	-20.89	43.50	37.11	12.10	1.03	27.64	Peak
2	179.380	23.27	-20.23	43.50	40.72	9.10	1.34	27.90	Peak
3	265.710	23.01	-22.99	46.00	35.86	13.55	1.69	28.09	Peak
4	338.460	25.24	-20.76	46.00	36.79	14.71	2.16	28.42	Peak
5	498.510	31.39	-14.61	46.00	39.54	18.09	2.67	28.91	Peak
6	510.150	29.60	-16.40	46.00	37.52	18.36	2.72	29.00	Peak

Vertical

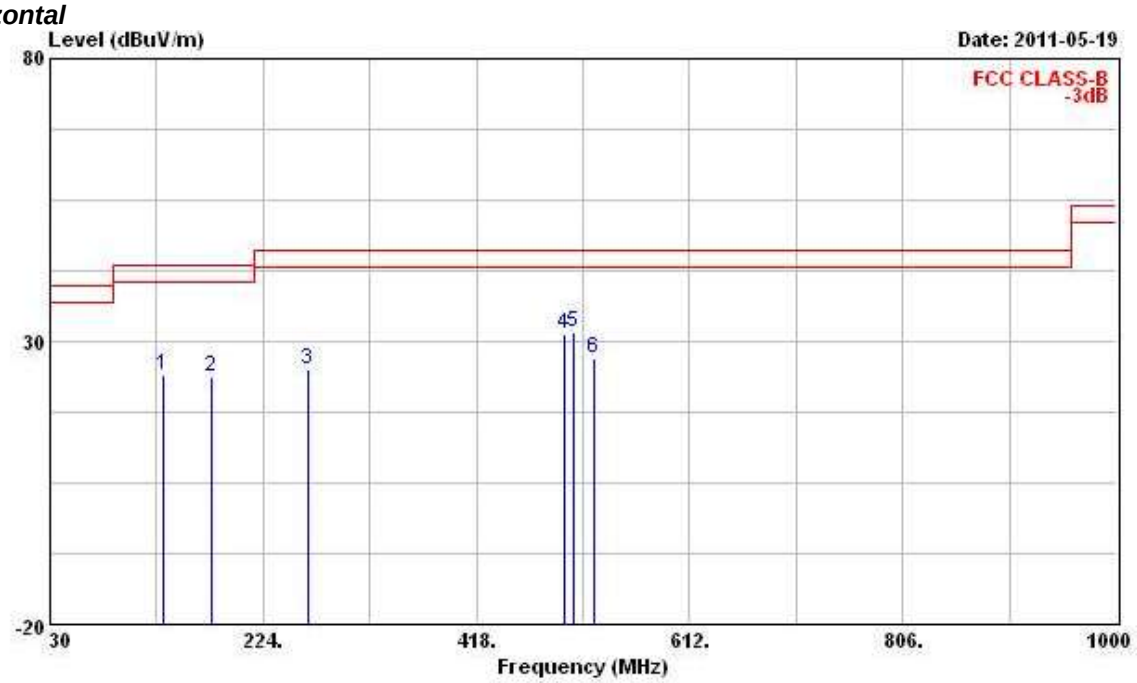


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	75.590	31.64	-8.36	40.00	52.20	6.68	0.12	27.36	Peak
2	105.660	31.72	-11.78	43.50	46.33	11.92	0.91	27.44	Peak
3	171.620	30.93	-12.57	43.50	47.82	9.66	1.31	27.86	Peak
4	498.510	29.57	-16.43	46.00	37.72	18.09	2.67	28.91	Peak
5	513.060	27.51	-18.49	46.00	35.37	18.43	2.74	29.03	Peak
6	959.260	27.62	-18.38	46.00	30.18	21.25	5.36	29.17	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.

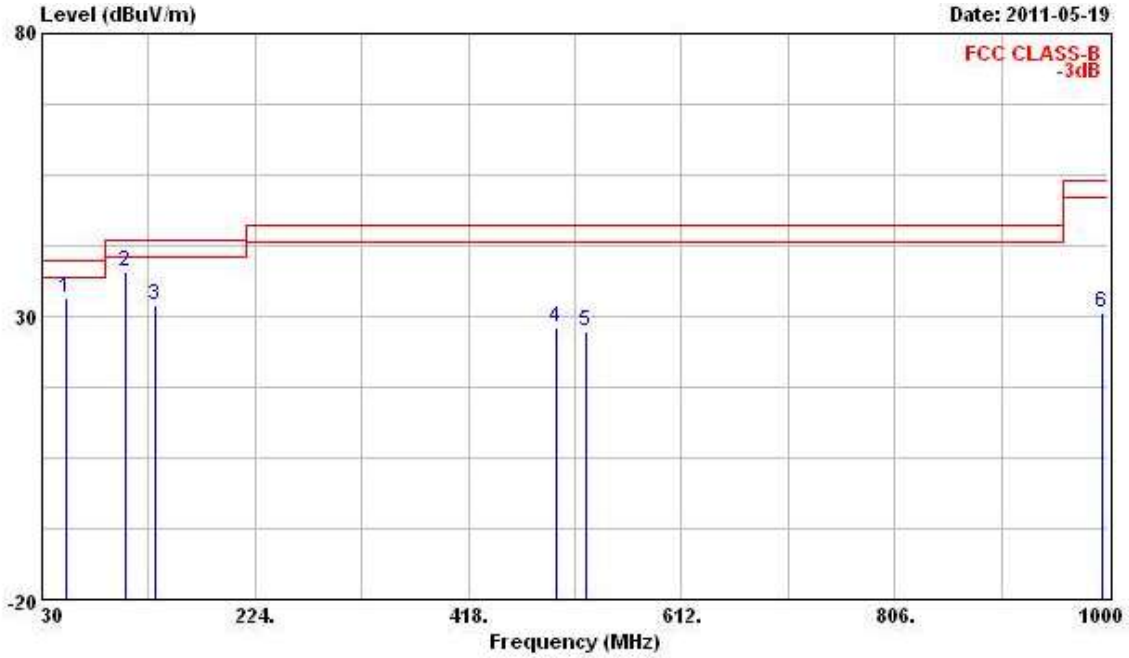
Final Test Date	May 19, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 159 (40MHz) MCS8 (Ant. A+ Ant. B)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	132.820	24.04	-19.46	43.50	38.54	12.10	1.03	27.64	Peak
2	176.470	23.69	-19.81	43.50	40.93	9.31	1.33	27.88	Peak
3	265.710	24.97	-21.03	46.00	37.82	13.55	1.69	28.09	Peak
4	497.540	31.30	-14.70	46.00	39.46	18.08	2.67	28.91	Peak
5	506.270	31.74	-14.26	46.00	39.74	18.26	2.71	28.97	Peak
6	525.670	26.89	-19.11	46.00	34.48	18.74	2.81	29.14	Peak

Vertical

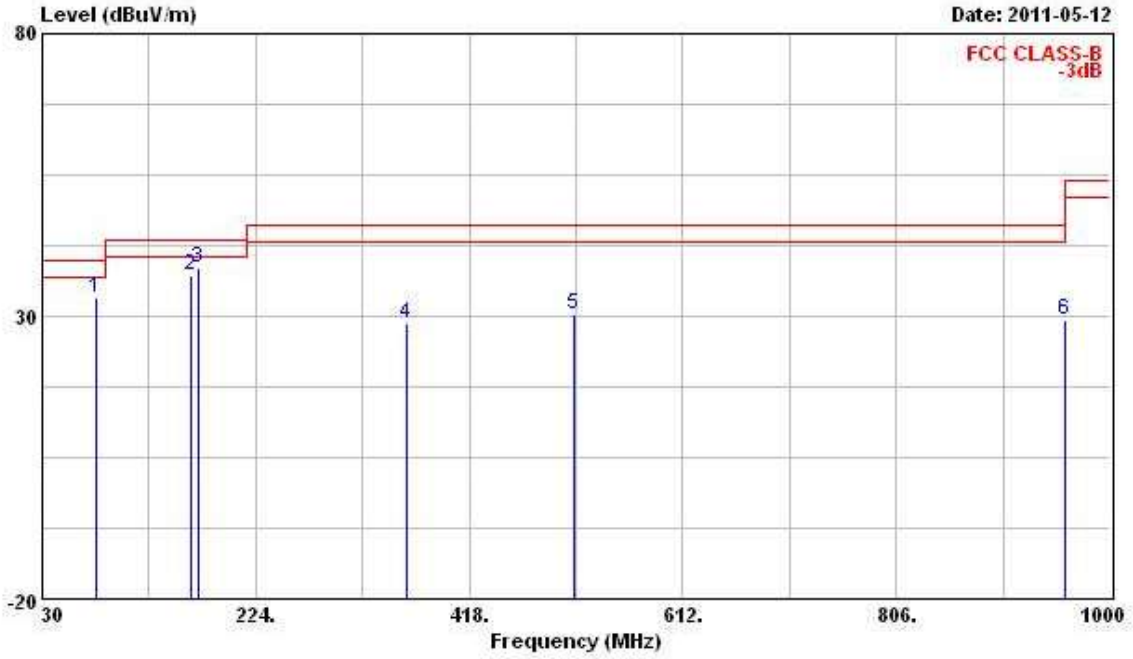


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	52.310	33.44	-6.56	40.00	53.74	7.69	-0.46	27.53	QP
2 @	105.660	37.91	-5.59	43.50	52.52	11.92	0.91	27.44	Peak
3	132.820	32.07	-11.43	43.50	46.57	12.10	1.03	27.64	Peak
4	497.540	27.96	-18.04	46.00	36.12	18.08	2.67	28.91	Peak
5	525.670	27.51	-18.49	46.00	35.10	18.74	2.81	29.14	Peak
6	995.150	30.73	-23.27	54.00	33.52	20.92	5.40	29.12	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.

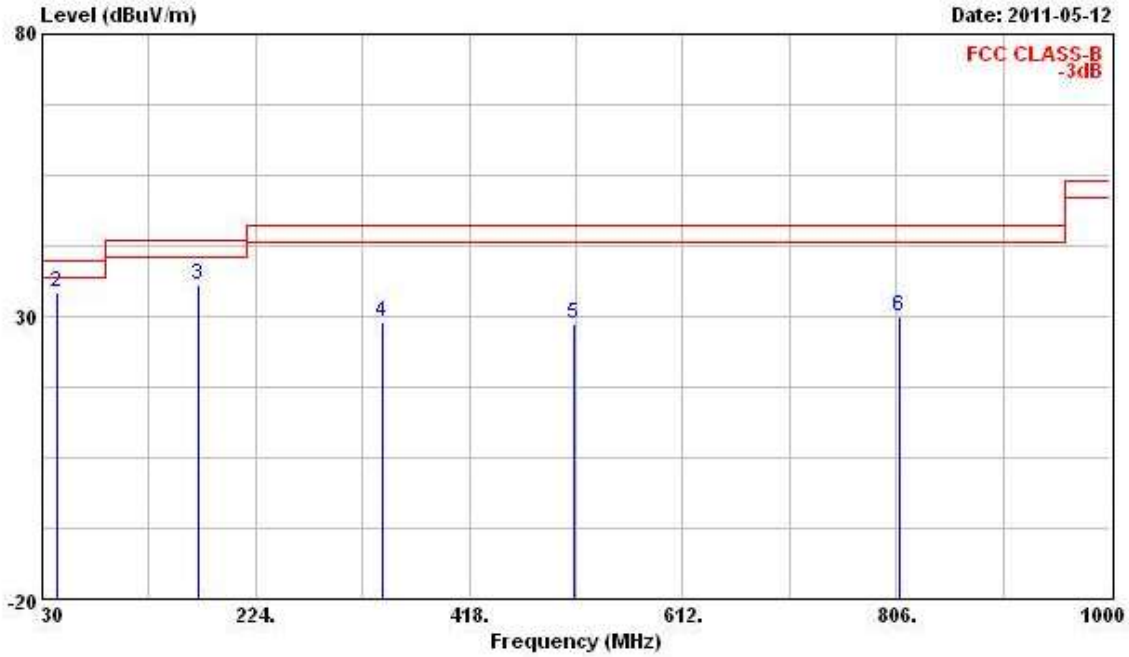
Final Test Date	May 12, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 6 (20MHz) MCS0 (Ant. A)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	78.500	33.45	-6.55	40.00	53.34	7.03	0.48	27.40	Peak
2	164.830	37.29	-6.21	43.50	53.98	9.89	1.24	27.83	Peak
3 @	171.620	38.53	-4.97	43.50	55.42	9.66	1.31	27.86	Peak
4	361.740	28.70	-17.30	46.00	39.63	15.28	2.29	28.50	Peak
5	513.060	30.19	-15.81	46.00	38.05	18.43	2.74	29.03	Peak
6	959.260	29.50	-16.50	46.00	32.06	21.25	5.36	29.17	Peak

Vertical

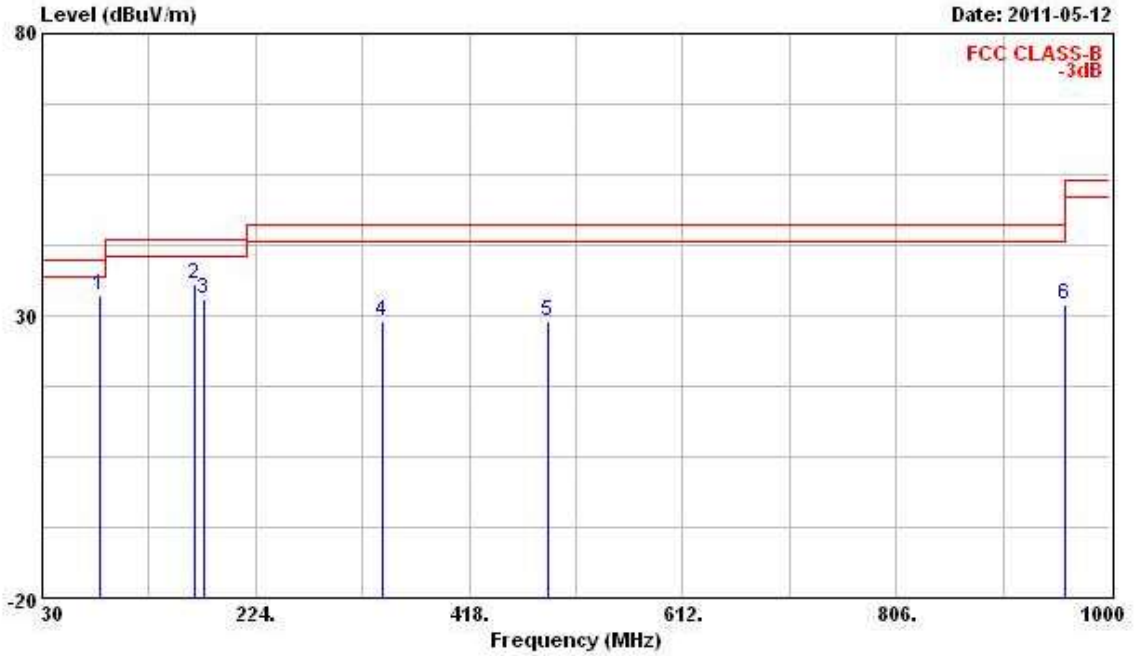


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1 @	30.000	36.90	-3.10	40.00	46.79	18.48	-0.91	27.46	QP
2	43.580	34.37	-5.63	40.00	51.66	10.93	-0.63	27.59	Peak
3	172.590	35.58	-7.92	43.50	52.54	9.59	1.31	27.86	Peak
4	339.430	29.17	-16.83	46.00	40.70	14.73	2.16	28.42	Peak
5	513.060	28.55	-17.45	46.00	36.41	18.43	2.74	29.03	Peak
6	808.910	29.92	-16.08	46.00	34.17	20.77	4.45	29.46	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.

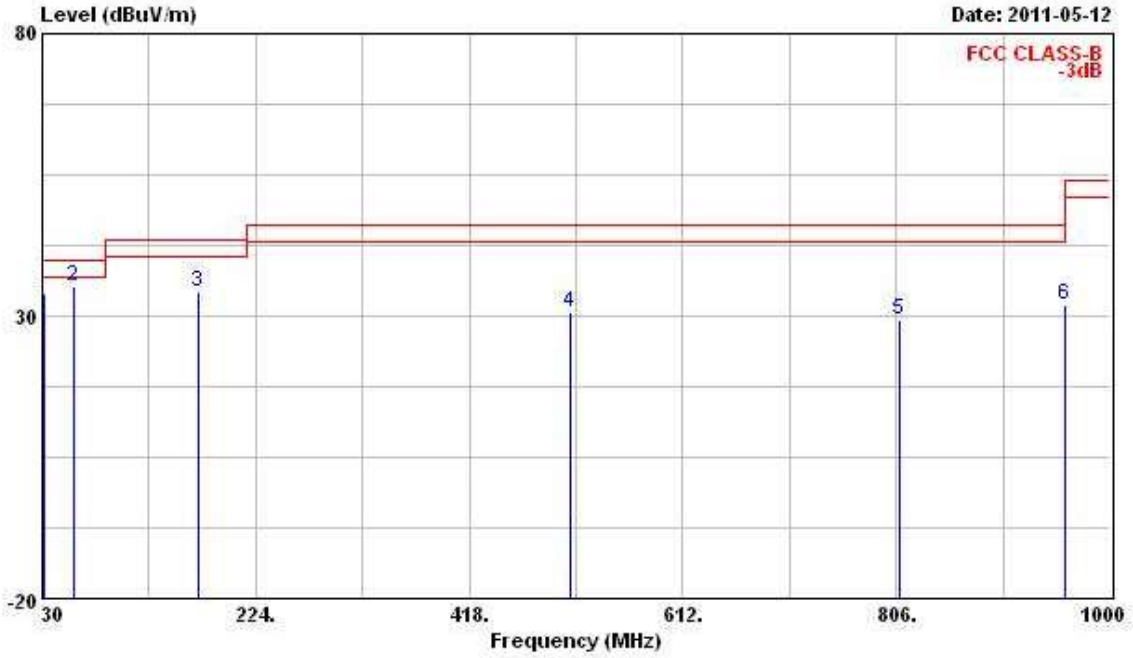
Final Test Date	May 12, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 6 (40MHz) MCS0 (Ant. B)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	82.380	33.59	-6.41	40.00	52.49	7.79	0.75	27.44	Peak
2	168.710	35.45	-8.05	43.50	52.22	9.78	1.29	27.85	Peak
3	177.440	33.01	-10.49	43.50	50.32	9.24	1.34	27.89	Peak
4	338.460	29.13	-16.87	46.00	40.68	14.71	2.16	28.42	Peak
5	489.780	28.90	-17.10	46.00	37.13	18.02	2.68	28.93	Peak
6	960.230	32.10	-21.90	54.00	34.67	21.24	5.36	29.17	Peak

Vertical

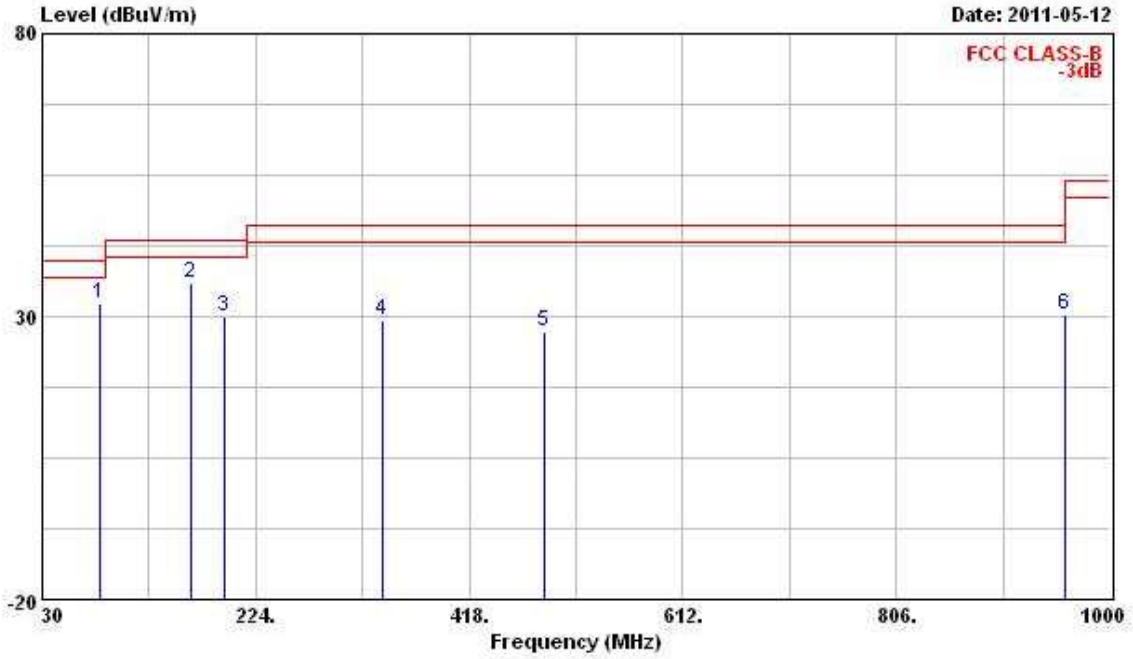


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	31.940	34.05	-5.95	40.00	45.05	17.30	-0.85	27.45	QP
2 @	59.100	35.25	-4.75	40.00	56.55	6.52	-0.35	27.46	Peak
3	172.590	34.25	-9.25	43.50	51.21	9.59	1.31	27.86	Peak
4	510.150	30.66	-15.34	46.00	38.58	18.36	2.72	29.00	Peak
5	808.910	29.35	-16.65	46.00	33.60	20.77	4.45	29.46	Peak
6	959.260	32.12	-13.88	46.00	34.68	21.25	5.36	29.17	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.

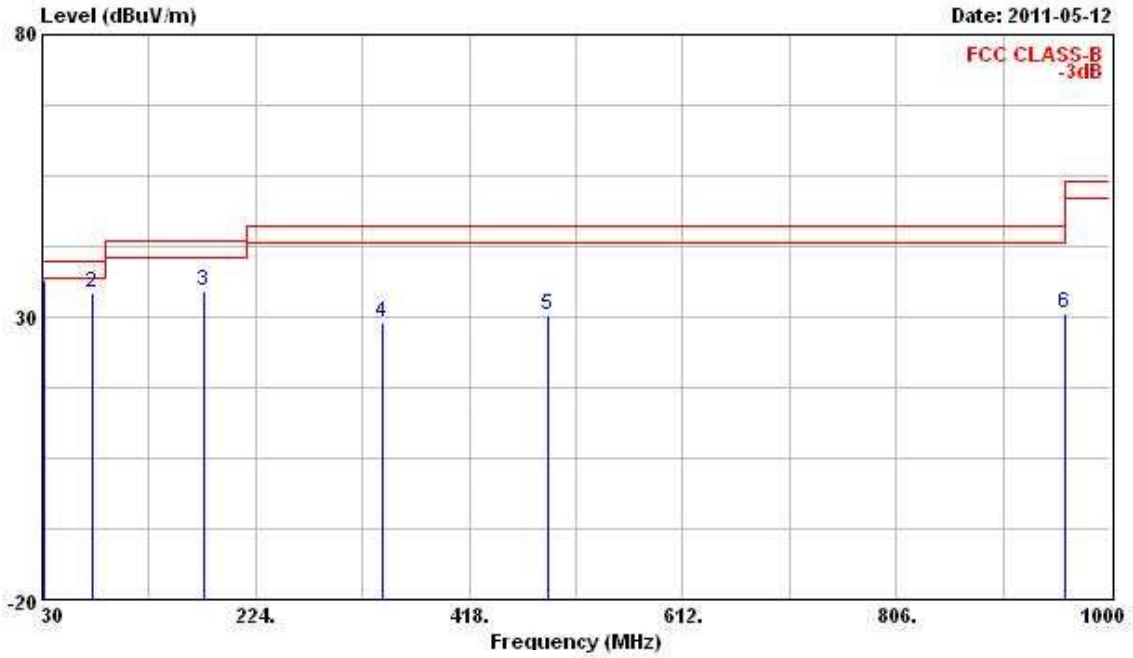
Final Test Date	May 12, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 6 (20MHz) MCS8 (Ant. A+Ant. B)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	82.380	32.17	-7.83	40.00	51.07	7.79	0.75	27.44	Peak
2	164.830	35.95	-7.55	43.50	52.64	9.89	1.24	27.83	Peak
3	195.870	30.16	-13.34	43.50	47.43	9.47	1.23	27.97	Peak
4	338.460	29.46	-16.54	46.00	41.01	14.71	2.16	28.42	Peak
5	485.900	27.24	-18.76	46.00	35.51	17.98	2.68	28.93	Peak
6	959.260	30.44	-15.56	46.00	33.00	21.25	5.36	29.17	Peak

Vertical

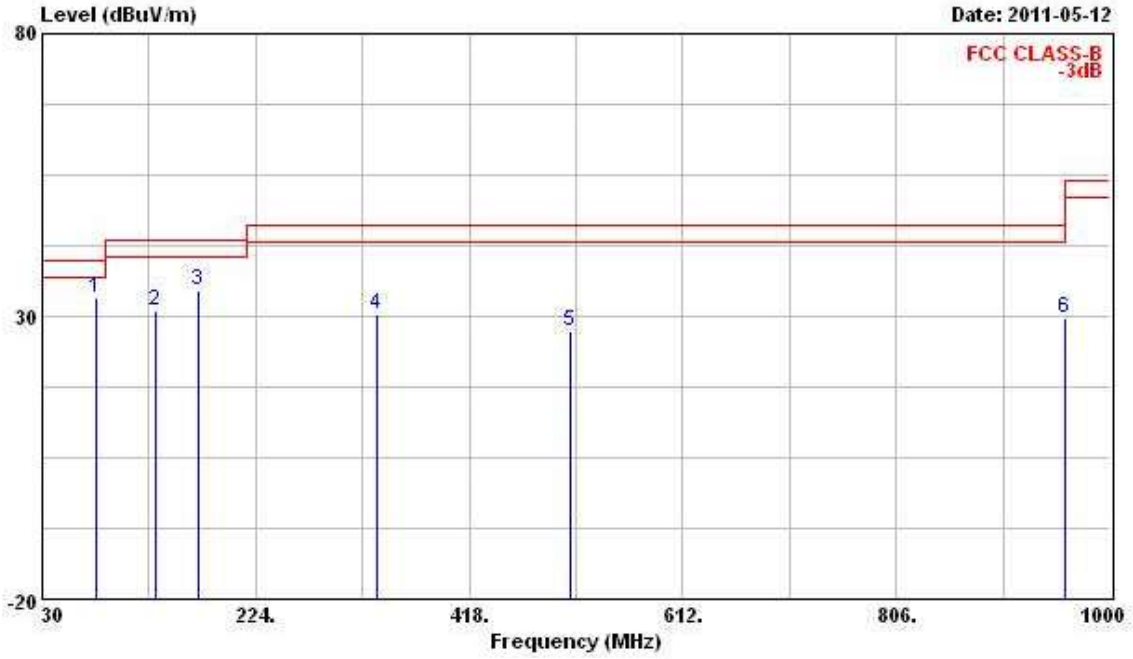


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1 @	31.940	36.53	-3.47	40.00	47.53	17.30	-0.85	27.45	Peak
2 @	75.590	34.43	-5.57	40.00	54.99	6.68	0.12	27.36	Peak
3	176.470	34.75	-8.75	43.50	51.99	9.31	1.33	27.88	Peak
4	338.460	29.17	-16.83	46.00	40.72	14.71	2.16	28.42	Peak
5	489.780	30.23	-15.77	46.00	38.46	18.02	2.68	28.93	Peak
6	959.260	30.70	-15.30	46.00	33.26	21.25	5.36	29.17	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.

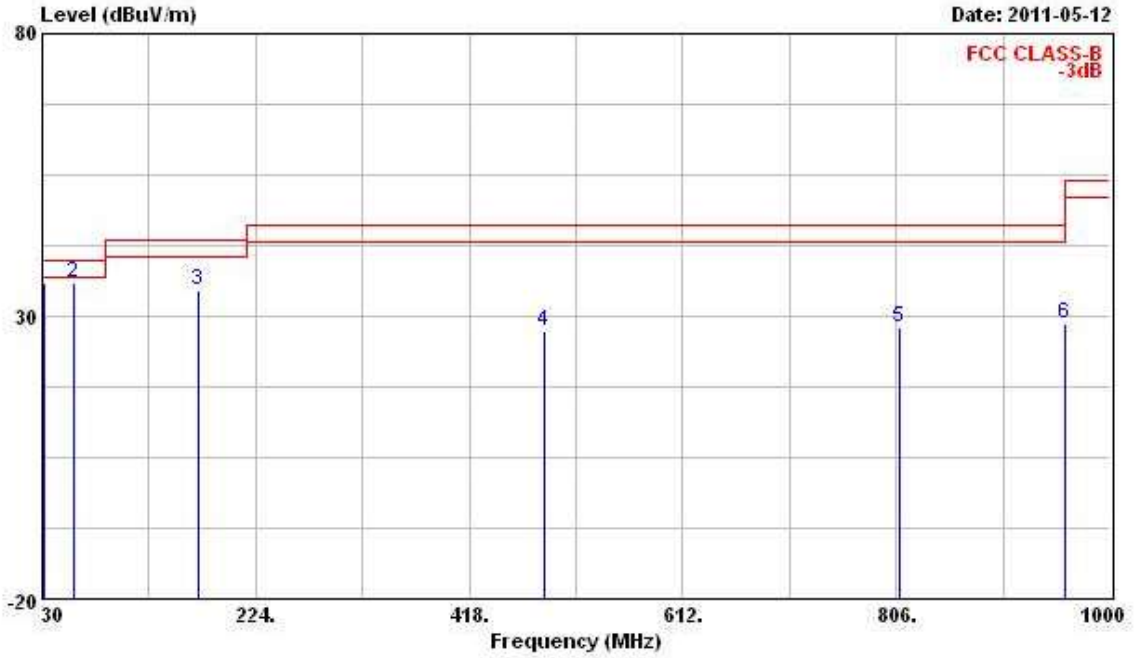
Final Test Date	May 12, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configurations**	802.11n Ch. 6 (40MHz) MCS8 (Ant. A+Ant. B)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	78.500	33.18	-6.82	40.00	53.07	7.03	0.48	27.40	Peak
2	132.820	31.03	-12.47	43.50	45.53	12.10	1.03	27.64	Peak
3	172.590	34.70	-8.80	43.50	51.66	9.59	1.31	27.86	Peak
4	334.580	30.19	-15.81	46.00	41.82	14.65	2.13	28.40	Peak
5	509.180	27.32	-18.68	46.00	35.26	18.34	2.72	28.99	Peak
6	959.260	29.82	-16.18	46.00	32.38	21.25	5.36	29.17	Peak

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1 @	31.940	35.98	-4.02	40.00	46.98	17.30	-0.85	27.45	Peak
2 @	59.100	35.85	-4.15	40.00	57.15	6.52	-0.35	27.46	Peak
3	172.590	34.47	-9.03	43.50	51.43	9.59	1.31	27.86	Peak
4	485.900	27.42	-18.58	46.00	35.69	17.98	2.68	28.93	Peak
5	808.910	27.88	-18.12	46.00	32.13	20.77	4.45	29.46	Peak
6	959.260	28.56	-17.44	46.00	31.12	21.25	5.36	29.17	Peak

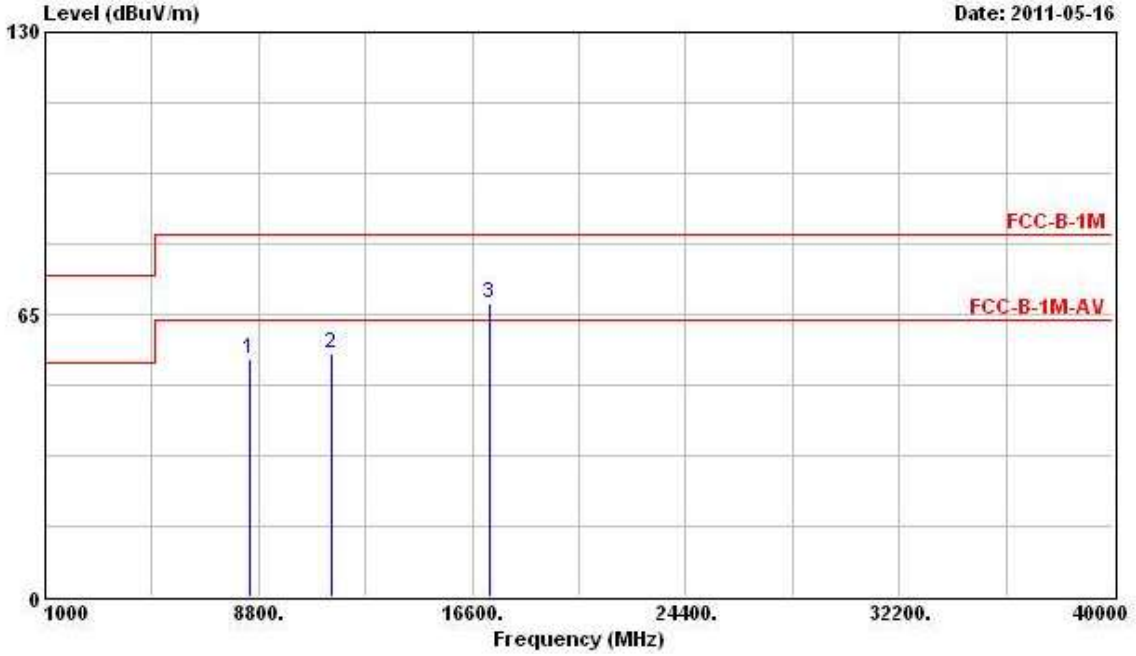
Note:
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.5.9 Results for Radiated Emissions (1GHz~10th Harmonic)

For Single Chain:

Final Test Date	May 16, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	5G 802.11n Ch. 149 (20MHz) MCS0 (Ant. A)

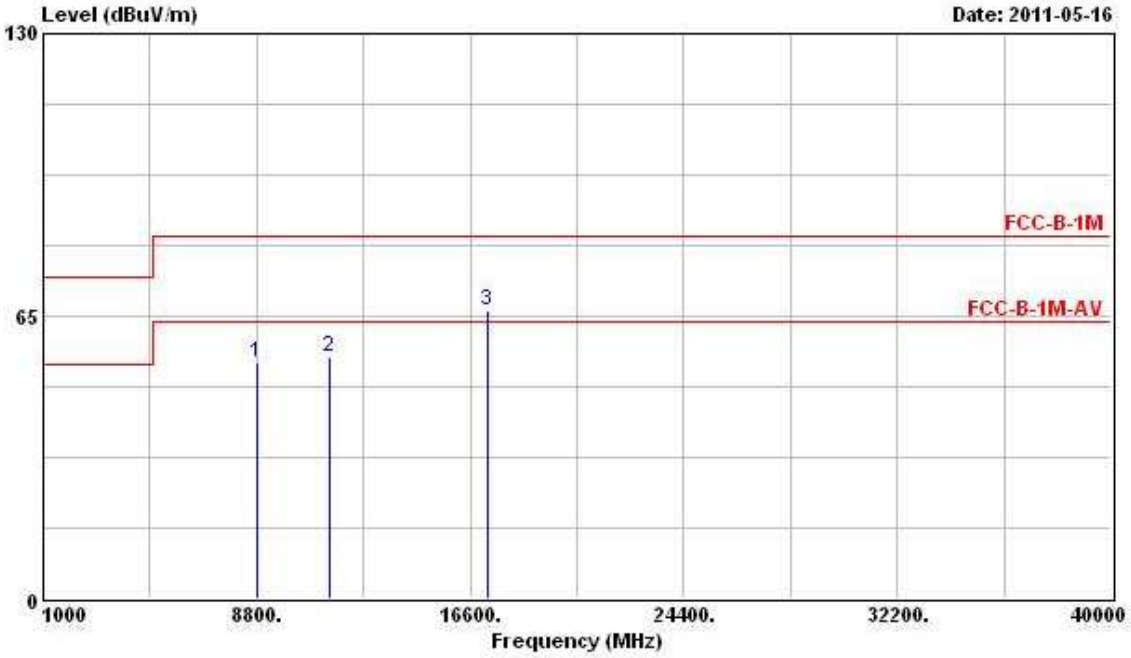
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8474.000	54.95	-8.59	63.54	43.40	38.18	6.42	33.05	PK
2	11490.000	55.83	-7.71	63.54	41.21	39.88	7.33	32.58	PK
3	17235.000	67.45			47.18	43.49	8.48	31.70	Peak

Note: The items 3 is on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

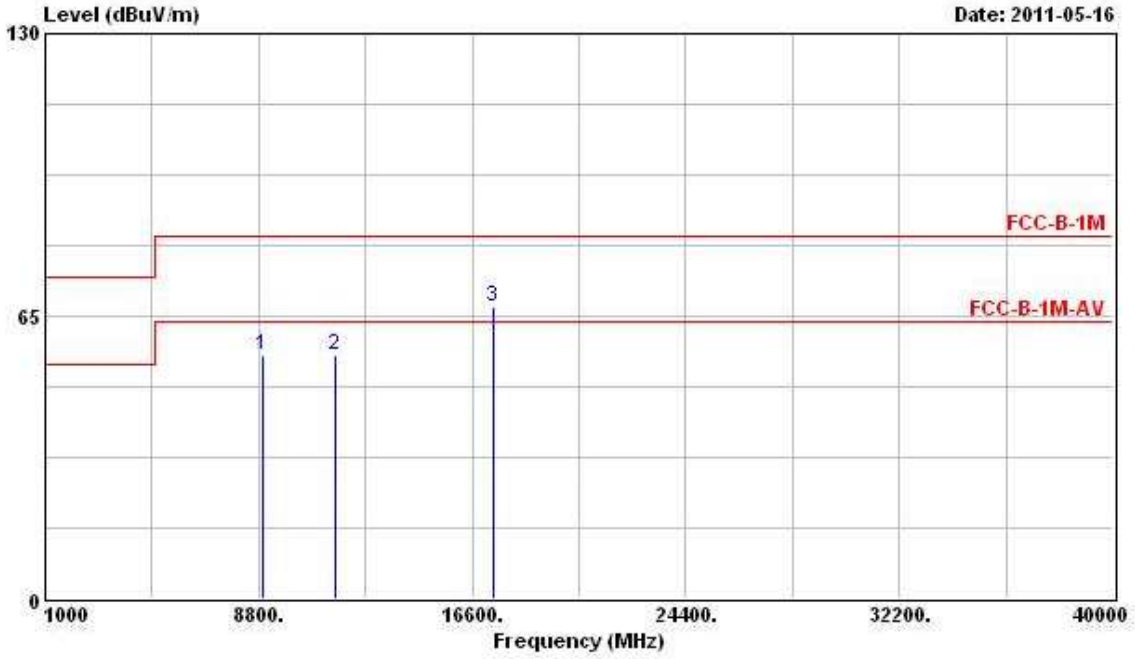


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8782.000	54.48			42.79	38.43	6.41	33.14	Peak
2	11490.000	55.56	-7.98	63.54	40.94	39.88	7.33	32.58	PK
3	17235.000	66.30			46.03	43.49	8.48	31.70	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 16, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	5G 802.11n Ch. 157 (20MHz) MCS0 (Ant. A)

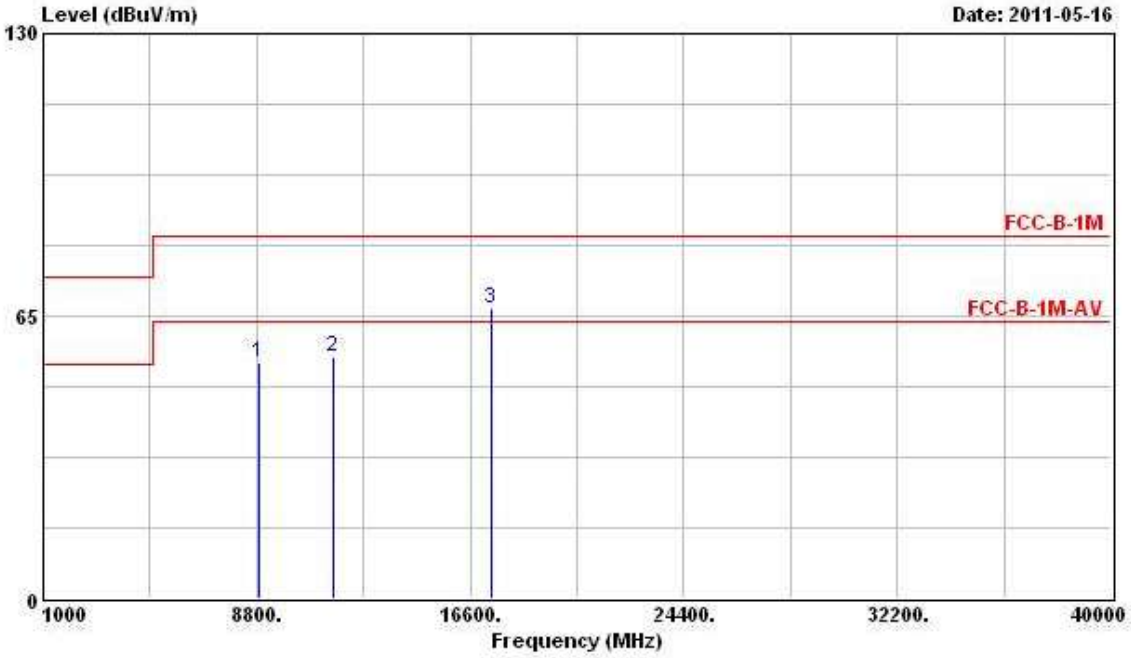
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8969.000	56.00			44.23	38.57	6.40	33.21	Peak
2	11570.000	56.09	-7.45	63.54	41.49	39.83	7.36	32.59	PK
3	17355.000	67.15			45.77	44.59	8.52	31.73	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

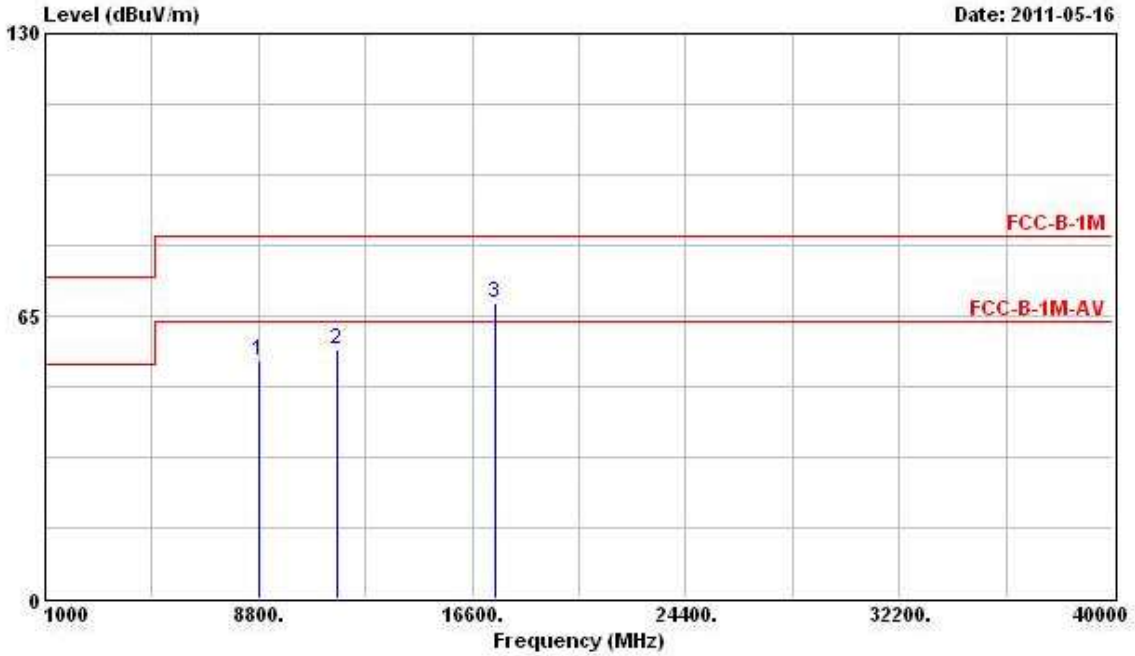


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8870.000	54.43			42.71	38.49	6.41	33.18	Peak
2	11570.000	55.70	-7.84	63.54	41.10	39.83	7.36	32.59	PK
3	17355.000	66.77			45.39	44.59	8.52	31.73	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 16, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	5G 802.11n Ch. 165 (20MHz) MCS0 (Ant. A)

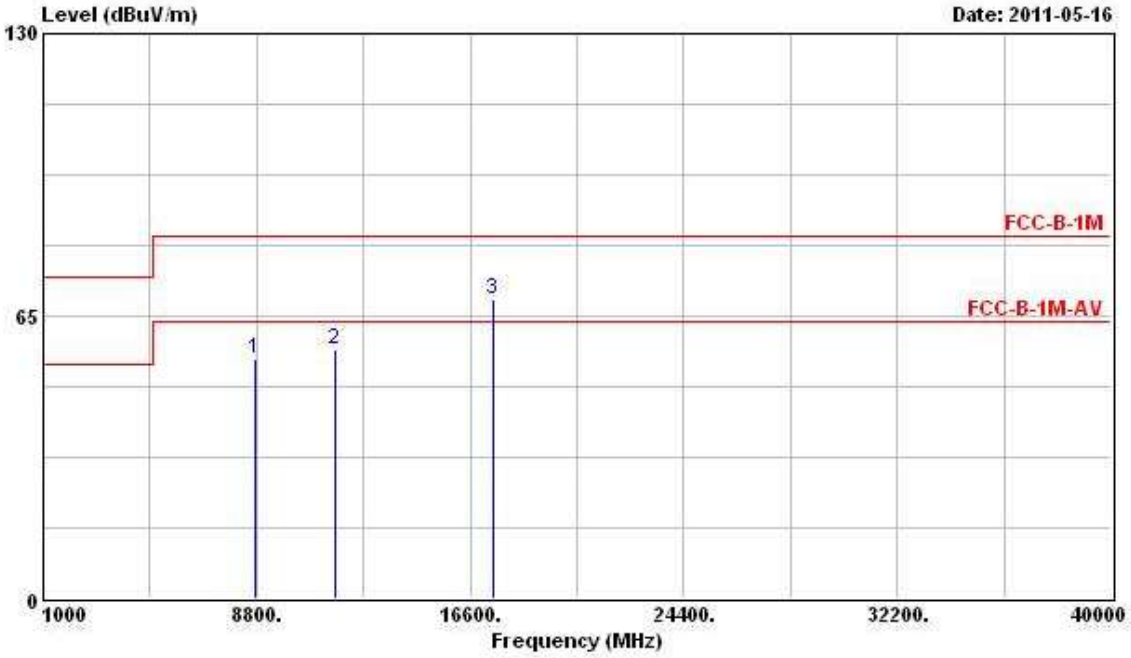
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8793.000	54.79			43.11	38.43	6.41	33.15	Peak
2	11650.000	57.28	-6.26	63.54	42.73	39.76	7.39	32.60	PK
3	17475.000	67.98			45.50	45.69	8.55	31.76	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

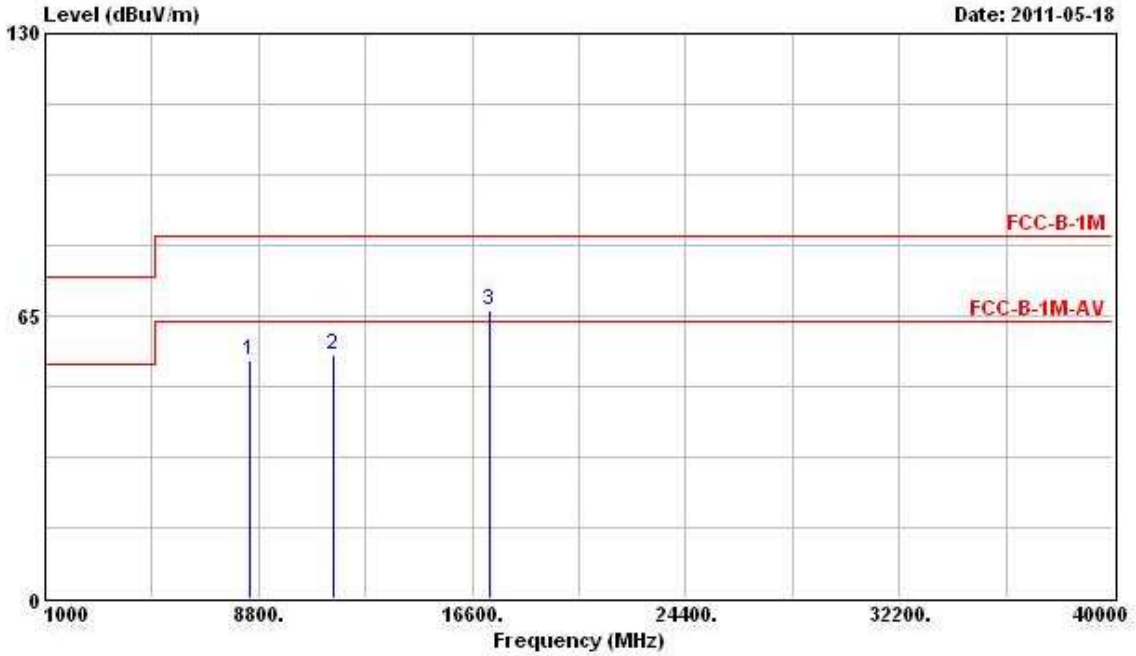


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8749.000	55.36			43.68	38.40	6.41	33.14	Peak
2	11650.000	57.43	-6.11	63.54	42.88	39.76	7.39	32.60	PK
3	17475.000	68.67			46.19	45.69	8.55	31.76	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 18, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	5G 802.11n Ch. 151 (40MHz) MCS0 (Ant. A)

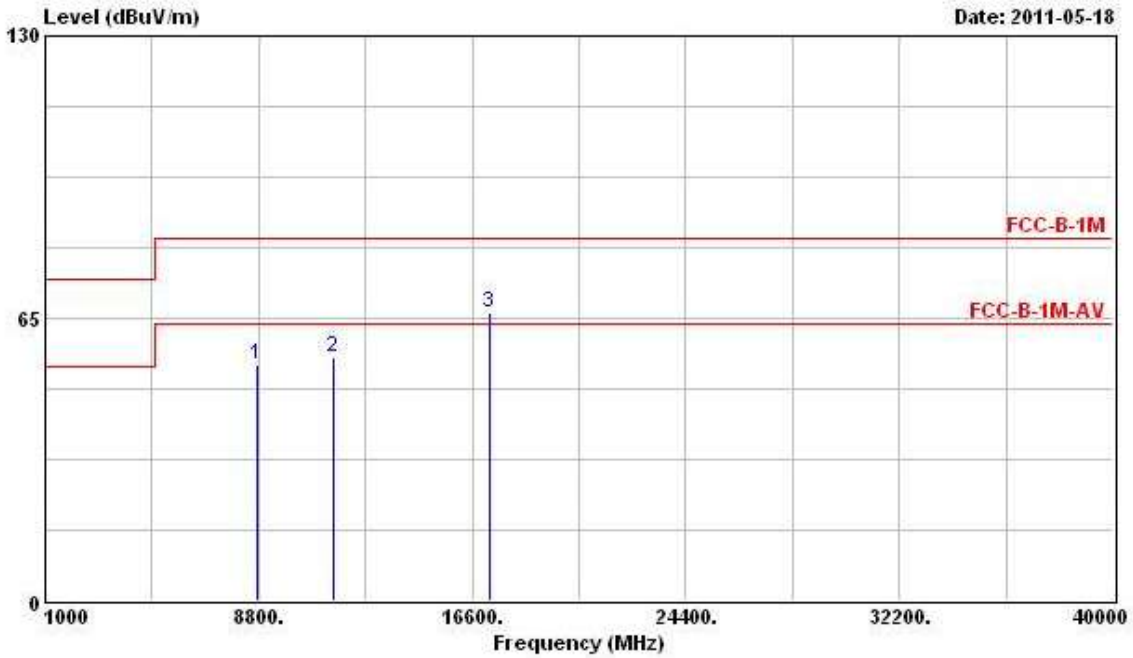
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8441.000	54.69	-8.85	63.54	43.19	38.14	6.42	33.05	PK
2	11510.000	56.23	-7.31	63.54	41.58	39.90	7.33	32.58	PK
3	17265.000	66.29			45.70	43.81	8.49	31.71	Peak

Note: The items 3 is on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

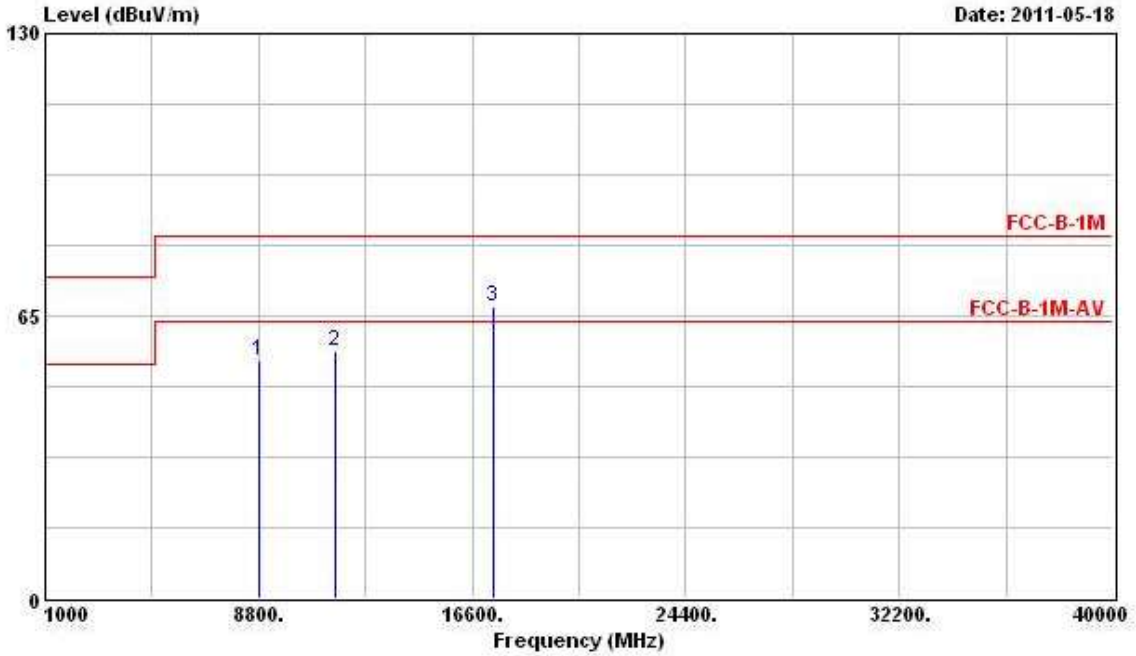


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8749.000	54.18			42.50	38.40	6.41	33.14	Peak
2	11510.000	56.12	-7.42	63.54	41.47	39.90	7.33	32.58	PK
3	17265.000	66.24			45.65	43.81	8.49	31.71	Peak

Note: The items 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 18, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	5G 802.11n Ch. 159 (40MHz) MCS0 (Ant. A)

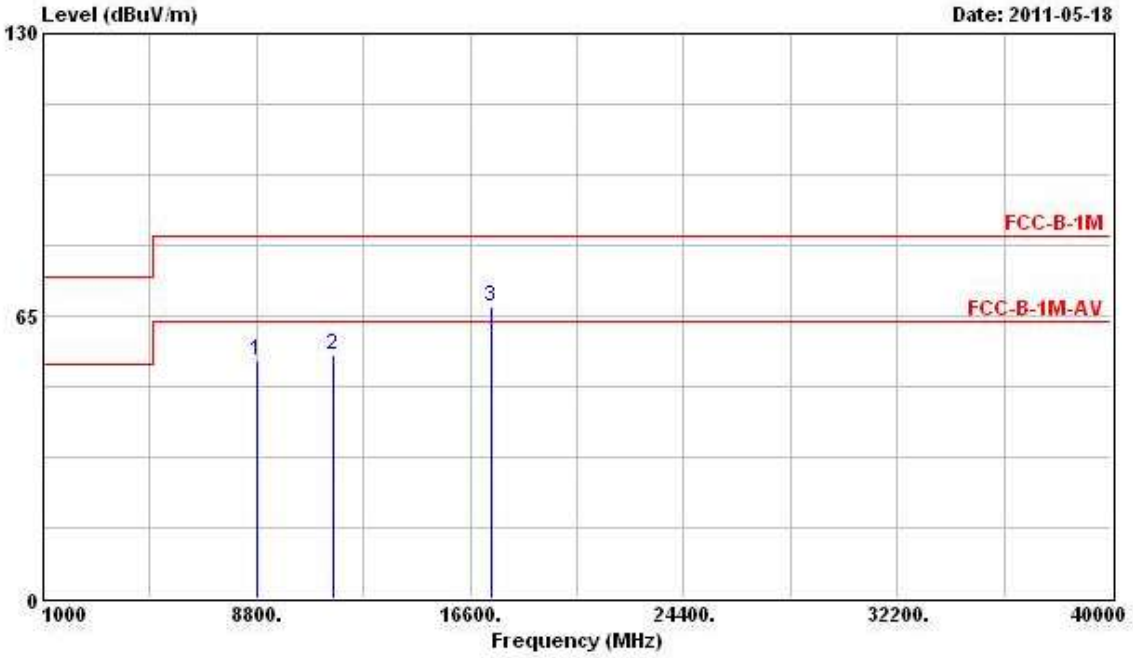
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8793.000	54.59			42.91	38.43	6.41	33.15	Peak
2	11590.000	56.83	-6.71	63.54	42.23	39.81	7.37	32.59	PK
3	17385.000	67.16			45.47	44.90	8.53	31.74	Peak

Note: The item 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

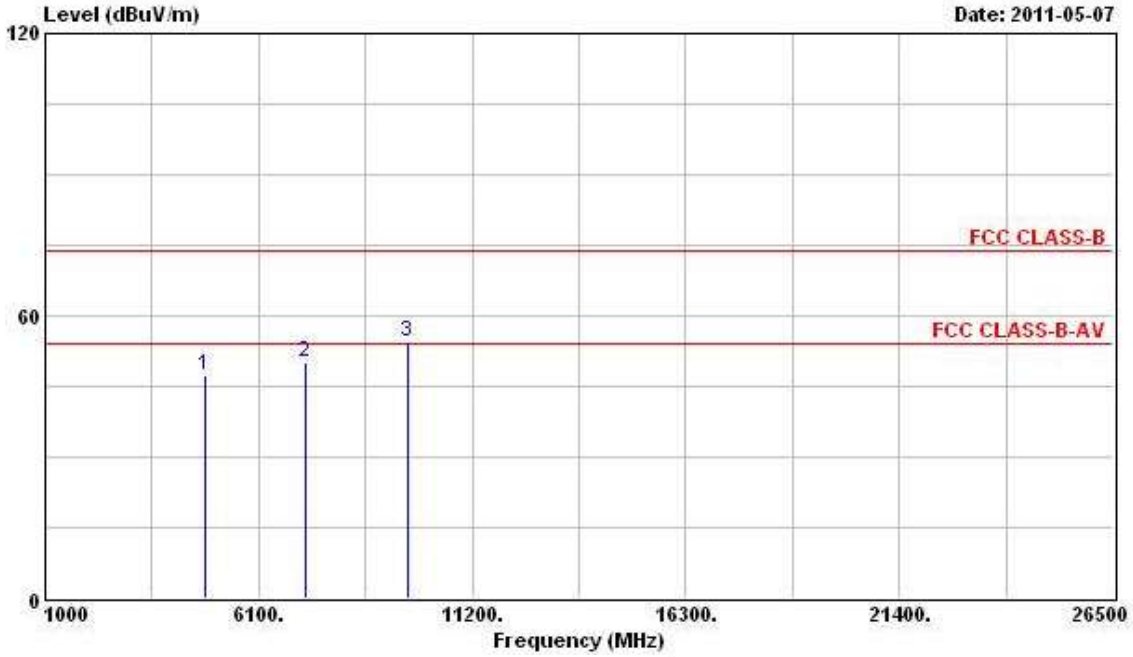


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	8782.000	54.60			42.91	38.43	6.41	33.14	Peak
2	11590.000	56.23	-7.31	63.54	41.63	39.81	7.37	32.59	PK
3	17385.000	67.06			45.37	44.90	8.53	31.74	Peak

Note: The item 1 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 07, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	2.4G 802.11n Ch. 1 (20MHz) MCS0 (Ant. A)

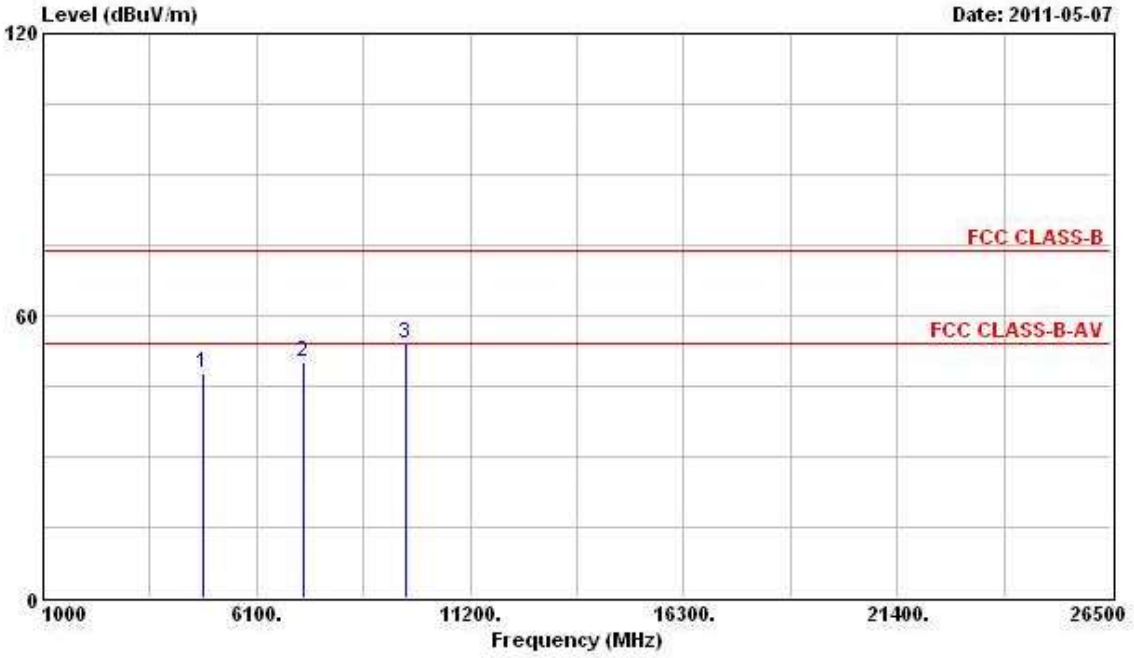
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	4824.000	47.38	-6.62	54.00	41.52	33.06	5.43	32.63	PK
2	7236.000	50.10			42.31	35.53	5.14	32.89	Peak
3	9648.000	54.29			42.52	38.41	6.70	33.34	Peak

Note: The items 2 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Vertical

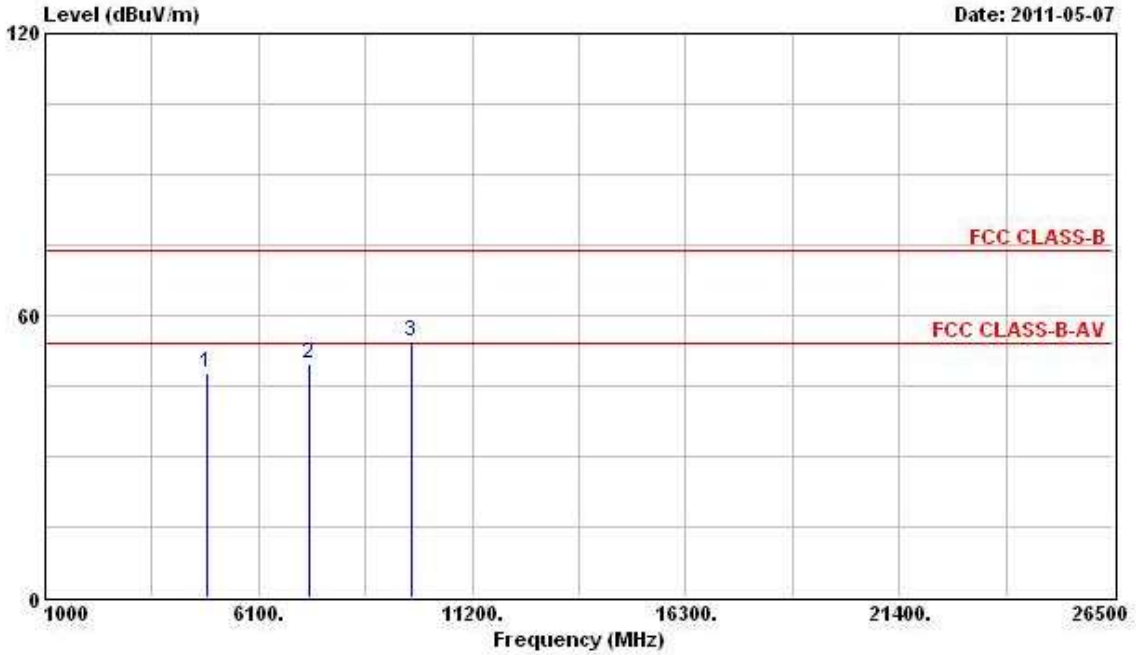


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	4824.000	47.82	-6.18	54.00	41.96	33.06	5.43	32.63	PK
2	7236.000	50.00			42.21	35.53	5.14	32.89	Peak
3	9648.000	54.15			42.38	38.41	6.70	33.34	Peak

Note: The items 2 and 3 are on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).

Final Test Date	May 07, 2011	**Test Site No.**	03CH03-HY
Temperature	23℃	**Humidity**	55%
Test Engineer	Streak	**Configuration**	2.4G 802.11n Ch. 6 (20MHz) MCS0 (Ant. A)

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	
1	4874.000	47.86	-6.14	54.00	41.90	33.16	5.43	32.62	PK
2 @	7311.000	49.79	-4.21	54.00	41.65	35.68	5.36	32.90	PK
3	9748.000	54.40			42.38	38.62	6.74	33.34	Peak

Note: The item 3 is on un-restricted band, so the limit is -20dB for the field strength of the fundamental emissions (see section 3.6.7).