FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment	:	**150N Wireless LAN USB Adapter**
Brand Name	:	**EDIMAX**
Model No.	:	**EW-7711ULn, GWU-H7111ULn**
Filing Type	:	**New Application**
Applicant **Manufacturer**	:	**EDIMAX TECHNOLOGY CO., LTD.** No.3, Wu Chuan 3rd Road, Wu-Ku Industrial Park. Taipei Hsien, Taiwan
FCC ID	:	**NDD9577111007**
Received Date	:	Mar. 11, 2010
Final Test Date	:	Mar. 23, 2010
Multiple Listing	:	Please refer to section 2.2

Statement

Test result included is only for the 802.11b/g/n part 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.

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.

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History of This Test Report

Original Issue Date: Oct. 24, 2011
Report No.: FR030517
■ 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

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Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Mar. 11, 2010 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 C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
3.1	15.207	AC Power Line Conducted Emissions	Complies	8.84 dB
3.2	15.247(b)(3)	Maximum Peak Output Power	Complies	7.73 dB
3.3	15.247(e)	Power Spectral Density	Complies	17.95 dB
3.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
3.5	15.247(d)	Radiated Emissions	Complies	3.01 dB
3.6	15.247(d)	Band Edge Emissions	Complies	3.48 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 802.11b/g/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	Power from host
Data Modulation Data Rate (Mbps)	DSSS for IEEE 802.11b (DBPSK / DQPSK / CCK) (1/2/ 5.5/11) OFDM for IEEE 802.11g (BPSK / QPSK / 16QAM / 64QAM) (6/9/12/18/24/36/48/54) See the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11b/g/n (20MHz): 11 ; 11/n (40MHz): 9
Channel Band Width (99%)	802.11b/g : 11b: 14.24 MHz ; 11g: 16.44 MHz 802.11n : MCS 0 (20MHz) : 17.60 MHz ; MCS 0 (40MHz) : 36.08 MHz
Conducted Output Power	802.11b/g : 11b: 18.49 dBm ; 11g: 22.27 dBm 802.11n : MCS 0 (20MHz) : 21.84 dBm ; MCS 0 (40MHz) : 21.97 dBm

2.2 Table for Multiple Listing

The models are exactly same in both physical and electrical. The different in model number for marketing purpose.

No.	Brand Name	Model Name
1	Edimax	EW-7711ULn,GWU-H711ULn
2	Logitec	LAN-W150N/U2WH,LAN-W150N/U2BK, LAN-W150N/U2KT,LAN-GMW/DS,LAN-GMW/PSP
3	Jensen	ALNANO
4	2L	C150NANO
5	BEWAN	BWIFI-USB150N
6	KAGA ELECTRONICS CO., LTD	EW-7711ULn

2.3 Table for Filed Antenna

Antenna Category Information (2.4GHz Band)	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
☐	Temporary RF connector provided
☐	No temporary RF connector provided
☐	External antenna (dedicated antennas)
☐	Single power level with corresponding antenna(s)
☐	Multiple power settings and corresponding antenna(s)
☐	Professional Install
☐	Unique antenna connector
☐	BIOS lock.

Antenna General Information (2.4GHz Band)			
Ant. No.	**Category**	**Type**	**Gain (dBi)**
1	Internal	Printed	3

☐ EUT is consist of single model antenna assembly for spatial multiplexing MIMO configuration.
☐ EUT is consist of multiple model antennas assembly (secondary source multiple model antennas regardless of spatial multiplexing MIMO configuration), the test (except DFS test) should be performed with highest antenna gain of each antenna type. Then Ant. No. 1 shall be performed the test.
☐ EUT is consist of multiple model antennas assembly for spatial multiplexing MIMO configuration (e.g. model A shall be installed in port 1 and model B shall be installed in port 2…).

Transmitter Outputs & Receiver Inputs Information				
Modulation	**Transmitter Outputs**	**Receiver Inputs**	**Transmitter Output Signals**	**Co-location**
802.11b/g	1	1	Correlated	No
802.11n HT20	1	1	Uncorrelated	No
802.11n HT40	1	1	Uncorrelated	No

Note 1: CDD - Cyclic Delay Diversity (CDD) modes (e.g., legacy modes in 802.11n devices). In CDD modes, the same digital data is carried by each transmit antenna, but with different cyclic delays.
Note 2: STBC - Space Time Block Codes (STBC) for which different digital data is carried by each transmit antenna during any symbol period.
Note 3: SM - Spatial Multiplexing MIMO (SM-MIMO), for which independent data streams are sent to each transmit antenna.
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other.

Antenna Directional Gain (2.4GHz Band)					
Ant. No.	**Modulaton**	**Transmitter Outputs Signals Correlated**	**Transmitter Outputs (N)**	**Antenna Gain Combination (dBi)**	**Directional Gain (dBi)**
1	802.11b/g	Correlated	1	3	3
1	802.11n HT20	Uncorrelated	1	3	3
1	802.11n HT40	Uncorrelated	1	3	3

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

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

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

2.4 Table for Carrier Frequencies

There are two bandwidth systems for IEEE 802.11b/g/n.
For IEEE 802.11 b/g/n (20MHz) bandwidth systems use channel 1 ~ 11.
For IEEE 802.11 n (40MHz) bandwidth systems use channel 3 ~ 9.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
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	-	-

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 Line Conducted Emissions Radiated Emissions Below 1GHz	Normal Mode	Auto	-
Maximum Peak Output Power Power Spectral Density	11b/CCK	1 Mbps	1/6/11
	11g/BPSK	6 Mbps	1/6/11
	MCS 0 (20MHz)	6.5 Mbps	1/6/11
	MCS 0 (40MHz)	13.5 Mbps	3/6/9
6dB Spectrum Bandwidth	11b/CCK	1 Mbps	1/6/11
	11g/BPSK	6 Mbps	1/6/11
	MCS 0 (20MHz)	6.5 Mbps	1/6/11
	MCS 0 (40MHz)	13.5 Mbps	3/6/9
Radiated Emissions Above 1GHz	11b/CCK	1 Mbps	1/6/11
	11g/BPSK	6 Mbps	1/6/11
	MCS 0 (20MHz)	6.5 Mbps	1/6/11
	MCS 0 (40MHz)	13.5 Mbps	3/6/9
Band Edge Emissions	11b/CCK	1 Mbps	1/11
	11g/BPSK	6 Mbps	1/11
	MCS 0 (20MHz)	6.5 Mbps	1/11
	MCS 0 (40MHz)	13.5 Mbps	3/9

2.6 Table for Testing Locations

Test Site No.	Site Category	Location
CO01-HY	Conduction	Hwa Ya
TH01-HY	OVEN Room	Hwa Ya
03CH01-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.7 Table for Supporting Units

Support Unit	Brand	Model	FCC ID	Remark
Notebook	DELL	E5500	DoC	Conducted Emissions
USB Mouse	Microsoft	1004	DoC	
Modem	ACEEX	DM1414	IFAXDM1414	
Notebook	DELL	E5500	DoC	Radiated Emissions

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.

Power Parameters of IEEE 802.11b/g

Test Software Version	QA3x7x		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	1F	1F	1F
IEEE 802.11g	1F	1F	1F

Power Parameters of IEEE 802.11n

Test Software Version	QA3x7x		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11n	1F	1F	1F
Frequency	2422 MHz	2437 MHz	2452 MHz
IEEE 802.11n	1F	1F	1F

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 :

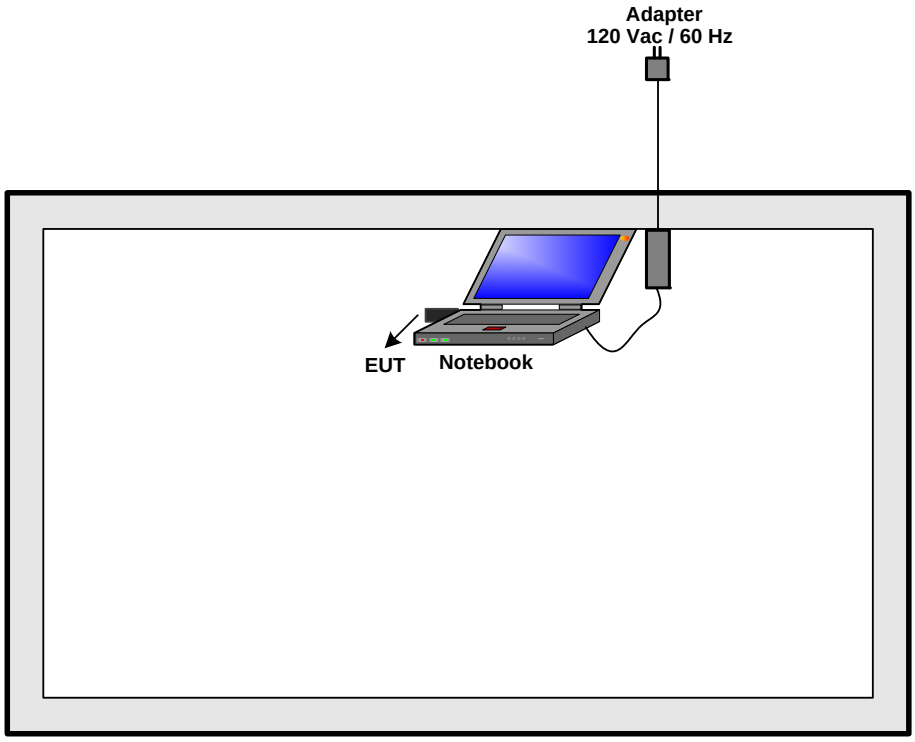
a. Turn on the power of all equipment.
b. The NB reads the test program from the hard disk drive and runs it.
c. The NB sends "H" messages to the pane and displays "H" patterns on the screen.
d. The NB sends messages to the modem.
e. Repeat the steps from c to d.

For Radiated Emissions :
- Executed “QA3x7x” to keep transmitting signals at fixed frequency.

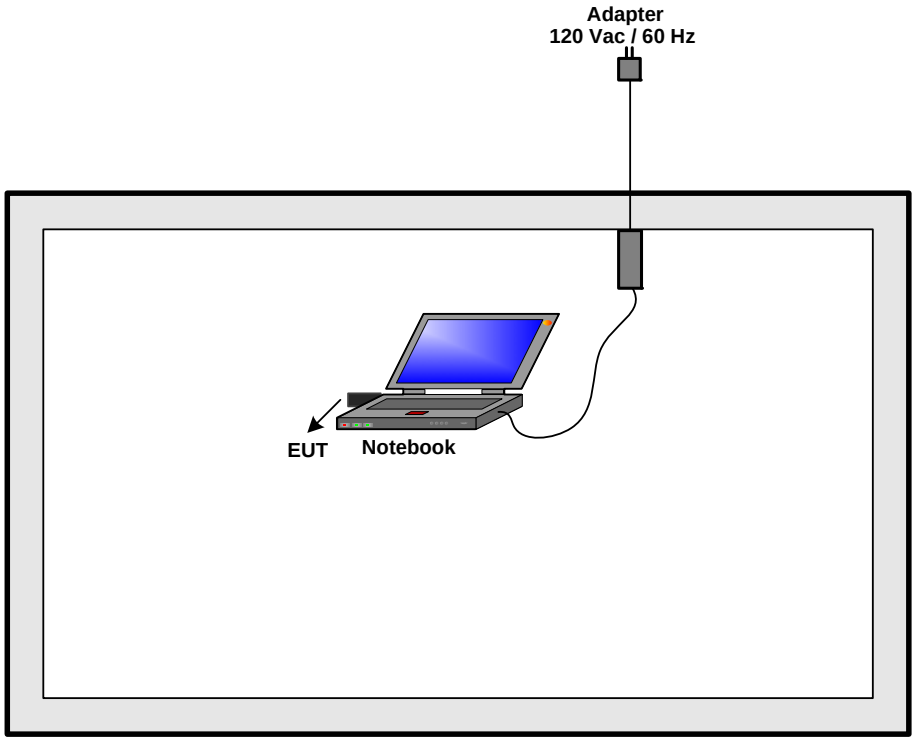
2.10 Test Configuration

2.10.1 Radiation Emissions Test Configuration

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

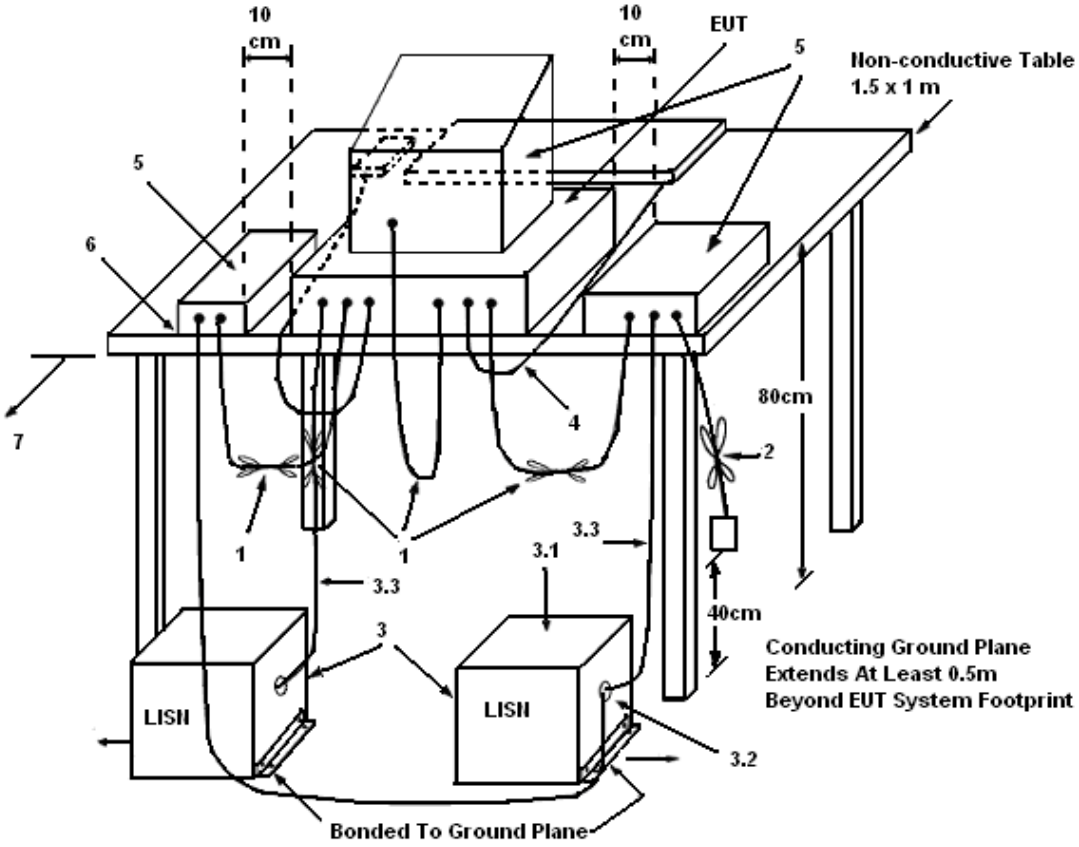
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

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. 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.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.

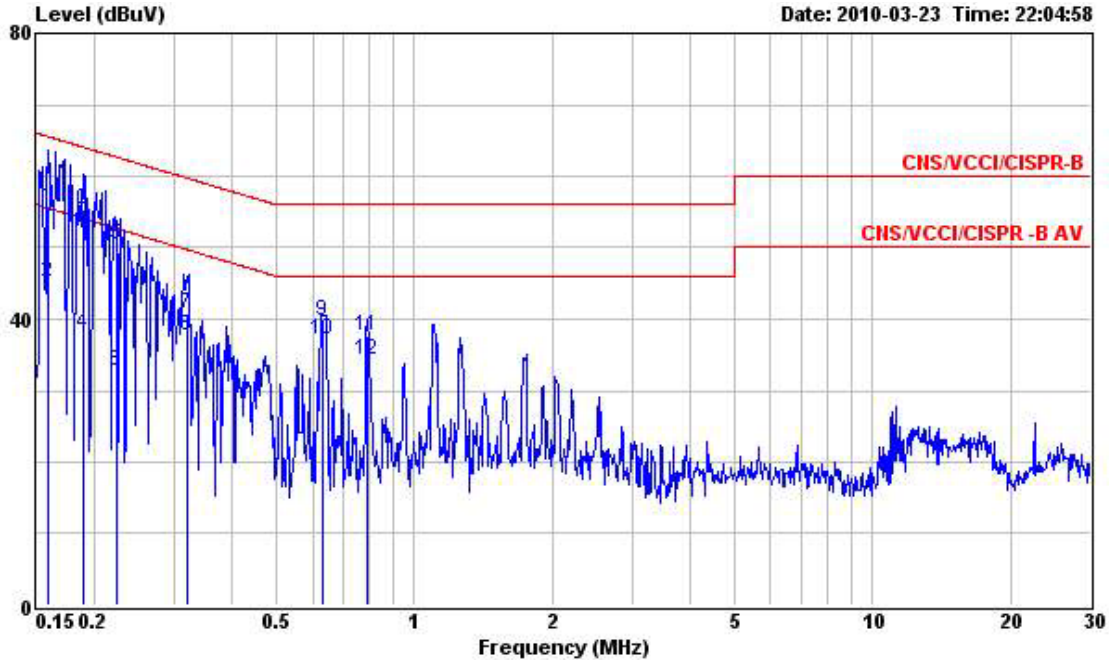
3.1.5 Test Deviation

There is no deviation with the original standard.

3.1.6 Results of AC Power Line Conducted Emissions Measurement

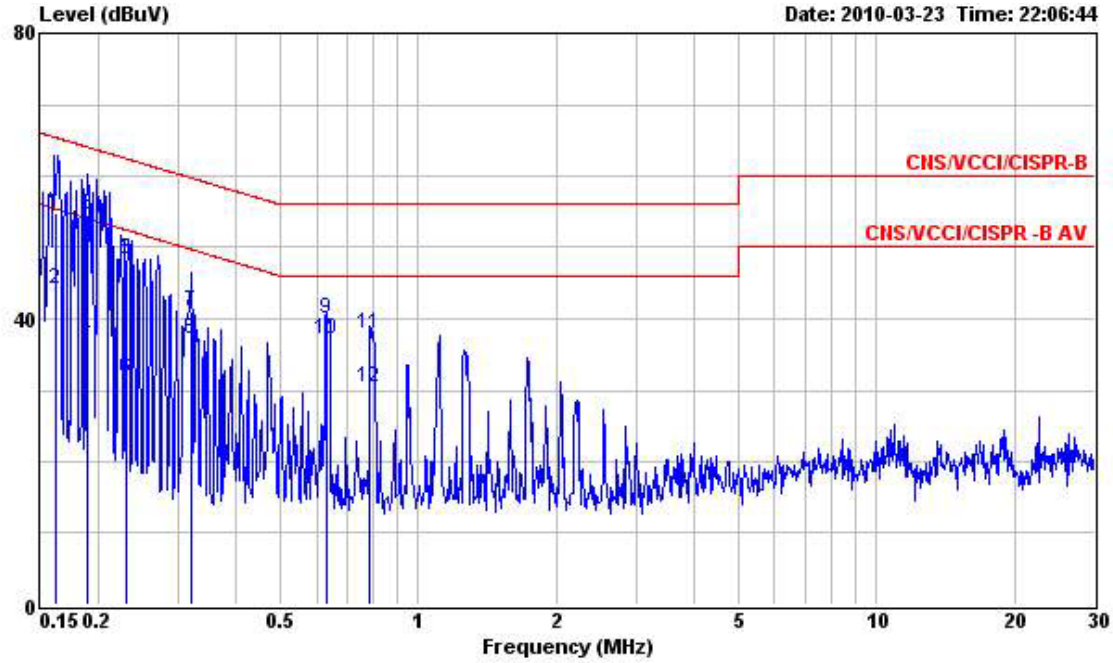
Final Test Date	Mar. 23, 2010	**Test Site No.**	CO01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	Normal Mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.159	55.60	-9.92	65.52	55.45	0.08	0.07	QP
2	0.159	45.07	-10.45	55.52	44.92	0.08	0.07	Average
3	0.189	55.22	-8.86	64.08	55.08	0.08	0.06	QP
4	0.189	37.87	-16.21	54.08	37.73	0.08	0.06	Average
5	0.224	50.37	-12.30	62.67	50.23	0.08	0.06	QP
6	0.224	32.83	-19.84	52.67	32.69	0.08	0.06	Average
7	0.320	40.70	-19.01	59.71	40.54	0.09	0.07	QP
8	0.320	37.53	-12.18	49.71	37.37	0.09	0.07	Average
9	0.630	39.82	-16.18	56.00	39.62	0.10	0.10	QP
10	0.630	37.16	-8.84	46.00	36.96	0.10	0.10	Average
11	0.792	37.73	-18.27	56.00	37.51	0.10	0.12	QP
12	0.792	34.20	-11.80	46.00	33.98	0.10	0.12	Average

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.162	54.80	-10.56	65.36	54.66	0.07	0.07	QP
2	0.162	44.16	-11.20	55.36	44.02	0.07	0.07	Average
3	0.189	54.47	-9.61	64.08	54.35	0.06	0.06	QP
4	0.189	37.40	-16.68	54.08	37.28	0.06	0.06	Average
5	0.230	48.38	-14.07	62.45	48.26	0.06	0.06	QP
6	0.230	31.62	-20.83	52.45	31.50	0.06	0.06	Average
7	0.320	40.92	-18.79	59.71	40.78	0.07	0.07	QP
8	0.320	37.23	-12.48	49.71	37.09	0.07	0.07	Average
9	0.630	39.92	-16.08	56.00	39.74	0.08	0.10	QP
10	0.630	37.02	-8.98	46.00	36.84	0.08	0.10	Average
11	0.783	37.85	-18.15	56.00	37.65	0.08	0.12	QP
12	0.783	30.49	-15.51	46.00	30.29	0.08	0.12	Average

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

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-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

3.2.2 Measuring Instruments and Setting

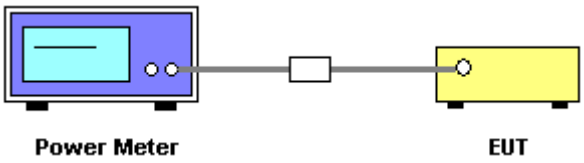
Please refer to section 4 of equipments list in this report. The following table is the setting of the power meter.

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.

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	Mar. 19, 2010	**Test Site No.**	TH01-HY
Temperature	25℃	**Humidity**	61%
Test Engineer	Duncan	**Configurations**	802.11b/g/n

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.36	30.00	**Complies**
6	2437 MHz	18.49	30.00	**Complies**
11	2462 MHz	18.39	30.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	22.13	30.00	**Complies**
6	2437 MHz	22.27	30.00	**Complies**
11	2462 MHz	22.13	30.00	**Complies**

Configuration of IEEE 802.11n (20MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	21.81	30.00	**Complies**
6	2437 MHz	21.75	30.00	**Complies**
11	2462 MHz	21.84	30.00	**Complies**

Configuration of IEEE 802.11n (40MHz)

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	21.97	30.00	**Complies**
6	2437 MHz	21.87	30.00	**Complies**
9	2452 MHz	21.78	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

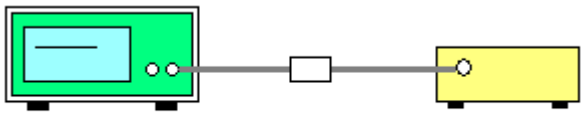
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 3kHz and VBW to 30kHz. 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.

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	Mar. 19, 2010	**Test Site No.**	TH01-HY
Temperature	25℃	**Humidity**	61%
Test Engineer	Duncan	**Configurations**	802.11b/g/n

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-10.17	8.00	**Complies**
6	2437 MHz	-9.95	8.00	**Complies**
11	2462 MHz	-10.34	8.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-14.14	8.00	**Complies**
6	2437 MHz	-14.24	8.00	**Complies**
11	2462 MHz	-14.21	8.00	**Complies**

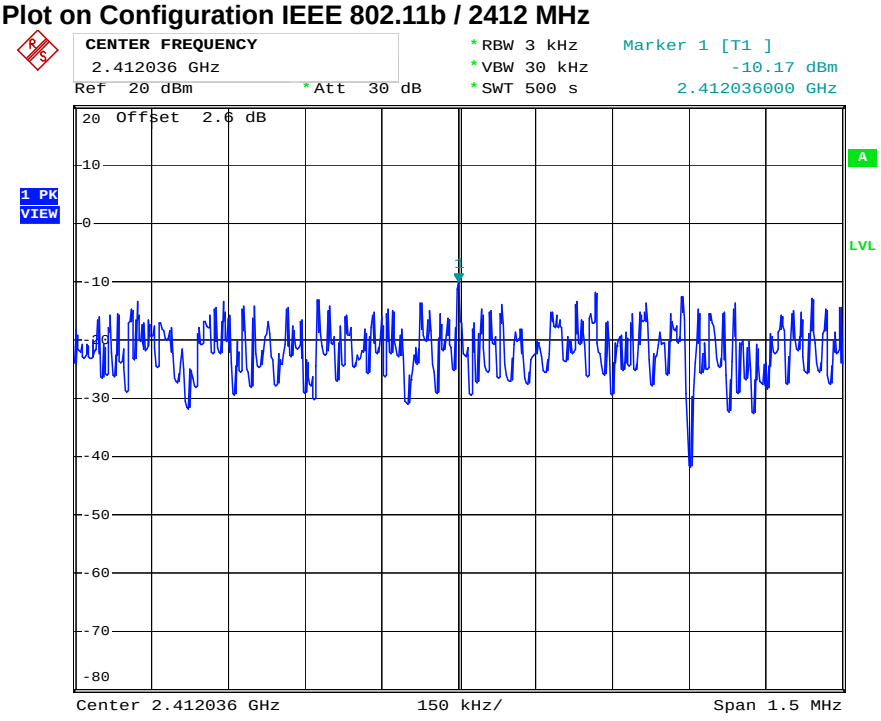
Configuration of IEEE 802.11n (20MHz)

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-14.34	8.00	**Complies**
6	2437 MHz	-14.62	8.00	**Complies**
11	2462 MHz	-14.40	8.00	**Complies**

Configuration of IEEE 802.11n (40MHz)

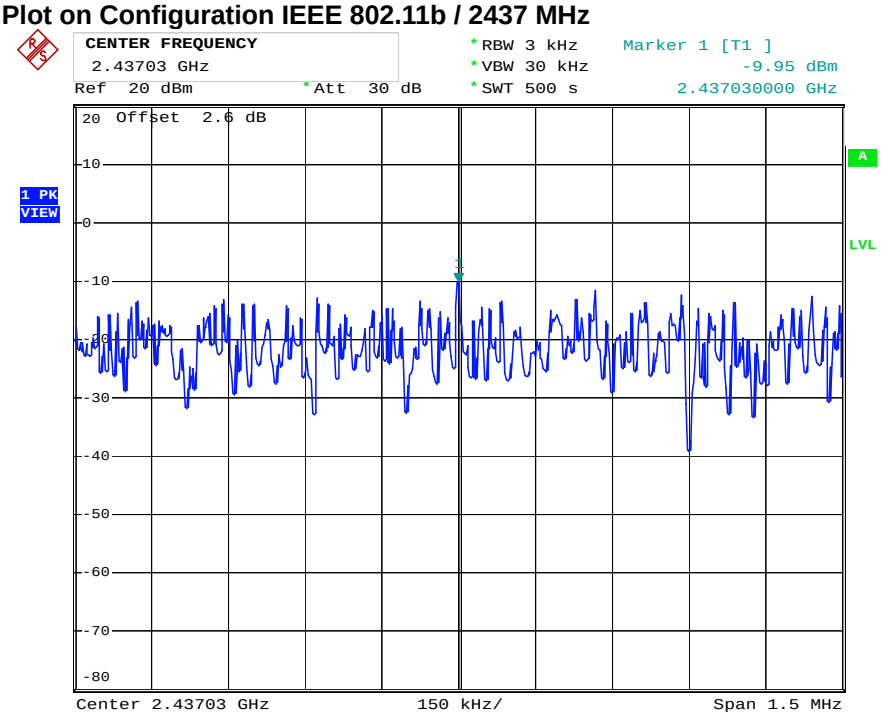
Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-14.86	8.00	**Complies**
6	2437 MHz	-15.34	8.00	**Complies**
9	2452 MHz	-15.37	8.00	**Complies**

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz



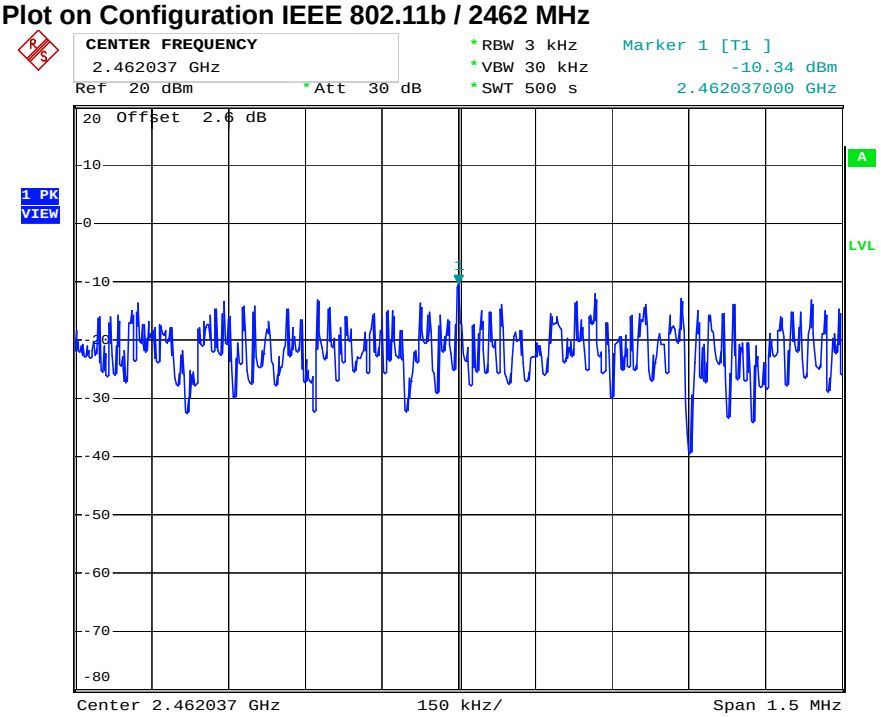
Date: 19.MAR.2010 15:30:18

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz

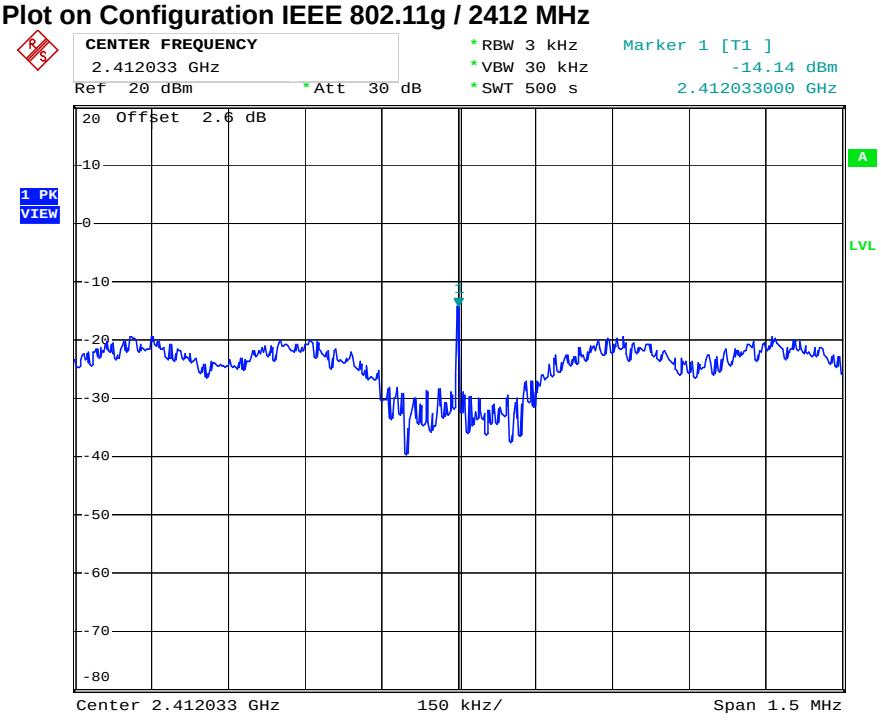


Date: 19.MAR.2010 15:33:35

Power Density Plot on Configuration IEEE 802.11b / 2462 MHz

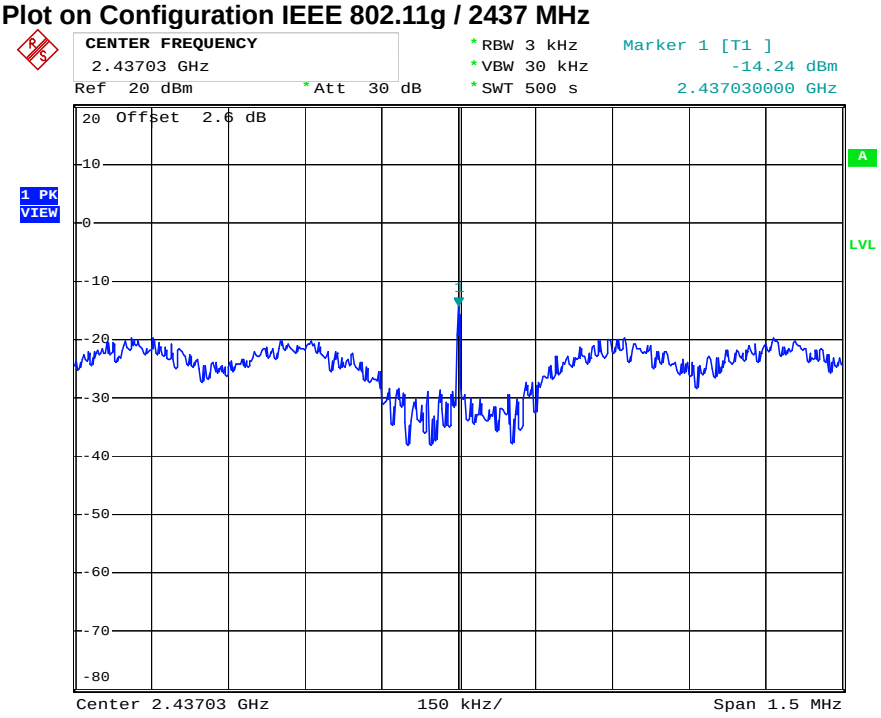


Power Density Plot on Configuration IEEE 802.11g / 2412 MHz



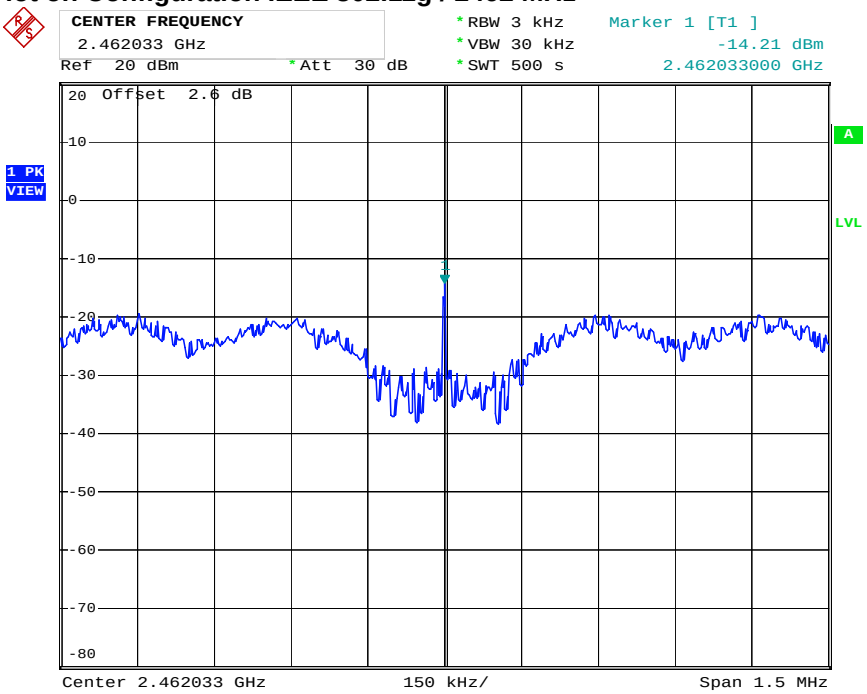
Date: 19.MAR.2010 15:40:52

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz

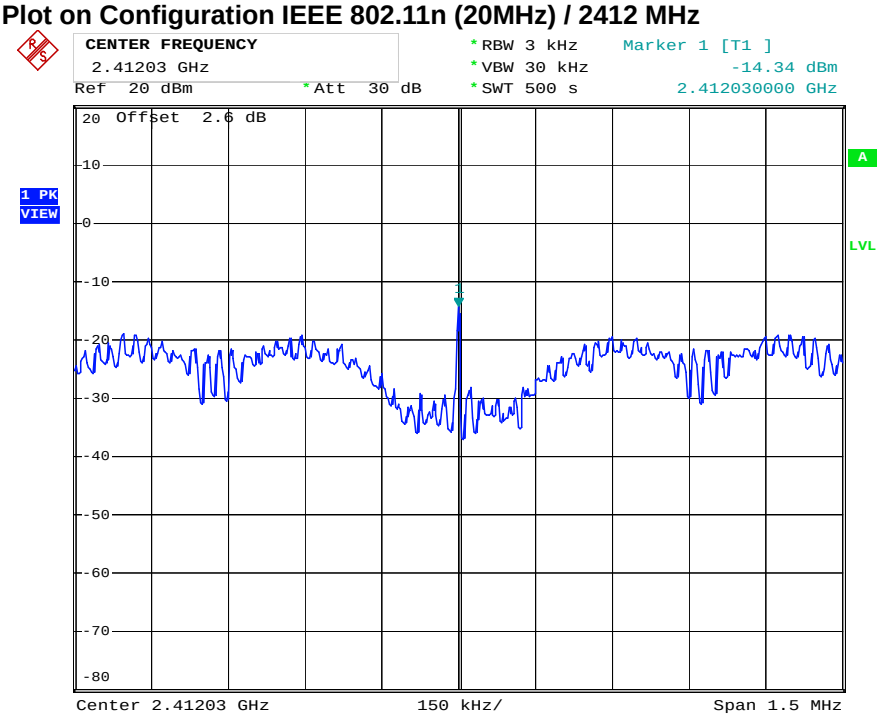


Date: 19.MAR.2010 15:41:39

Power Density Plot on Configuration IEEE 802.11g / 2462 MHz

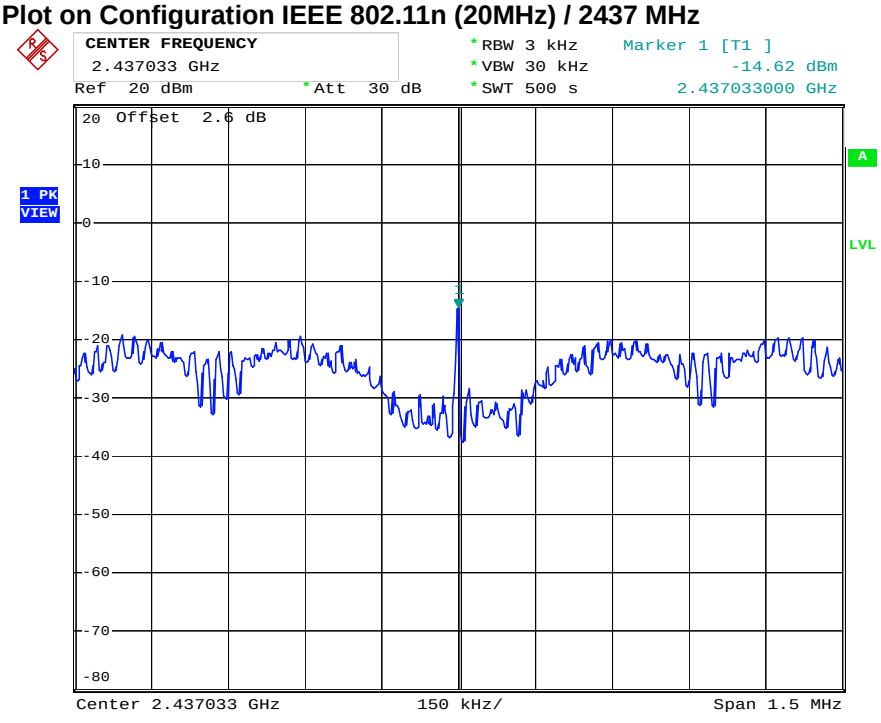


Power Density Plot on Configuration IEEE 802.11n (20MHz) / 2412 MHz



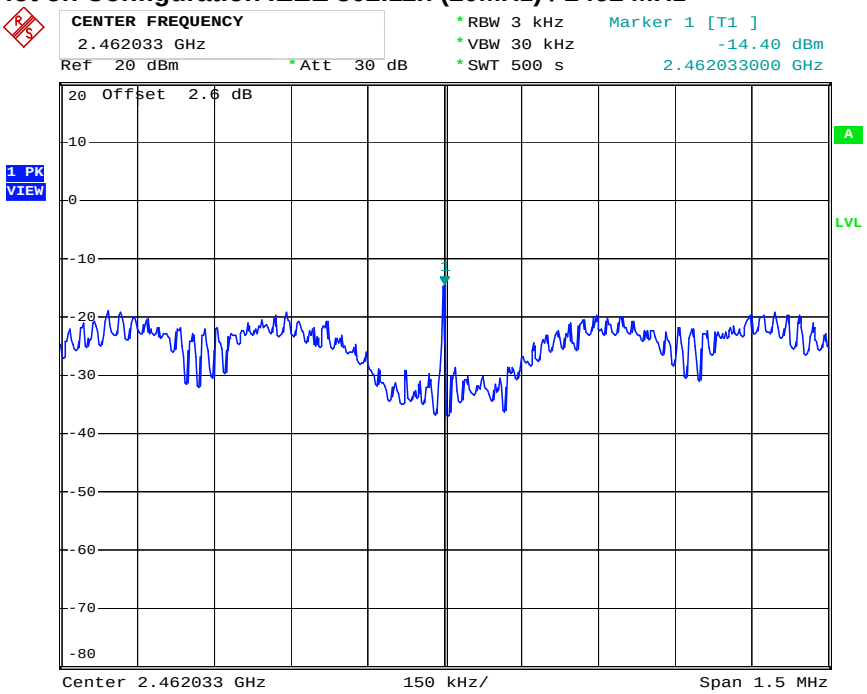
Date: 19.MAR.2010 15:47:10

Power Density Plot on Configuration IEEE 802.11n (20MHz) / 2437 MHz

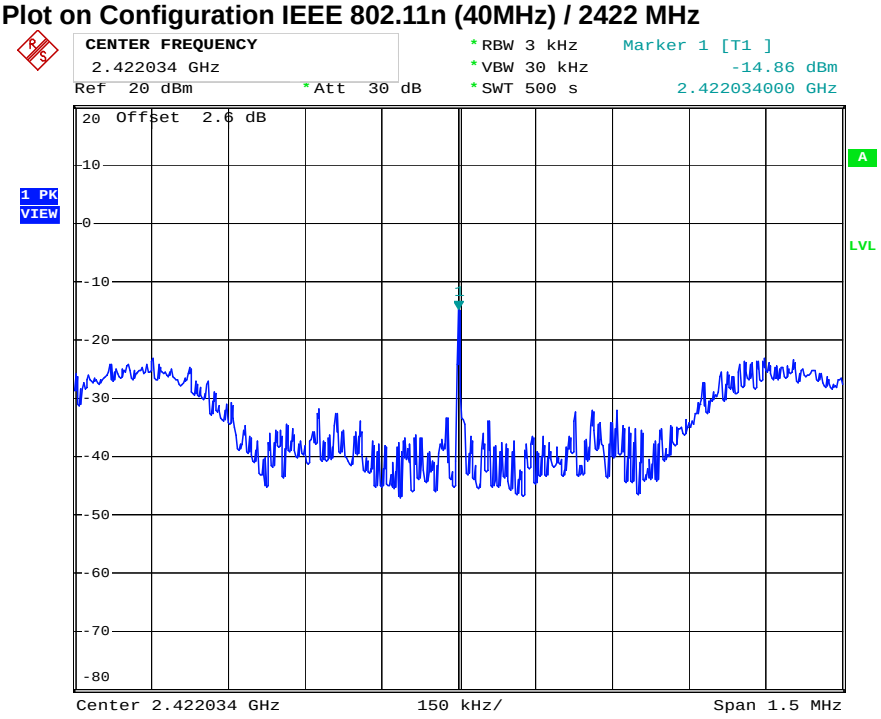


Date: 19.MAR.2010 15:48:32

Power Density Plot on Configuration IEEE 802.11n (20MHz) / 2462 MHz

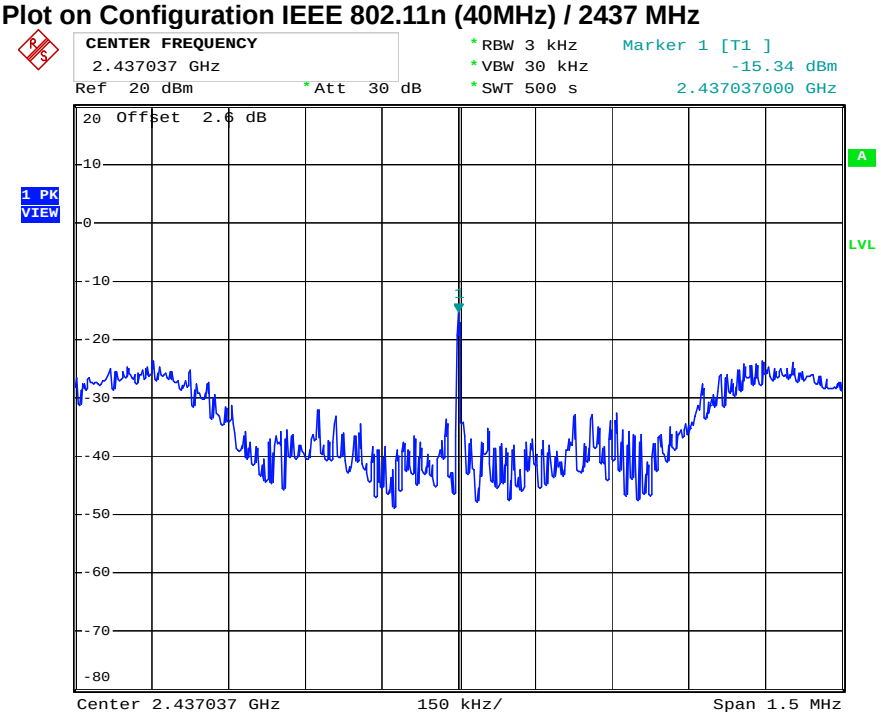


Power Density Plot on Configuration IEEE 802.11n (40MHz) / 2422 MHz



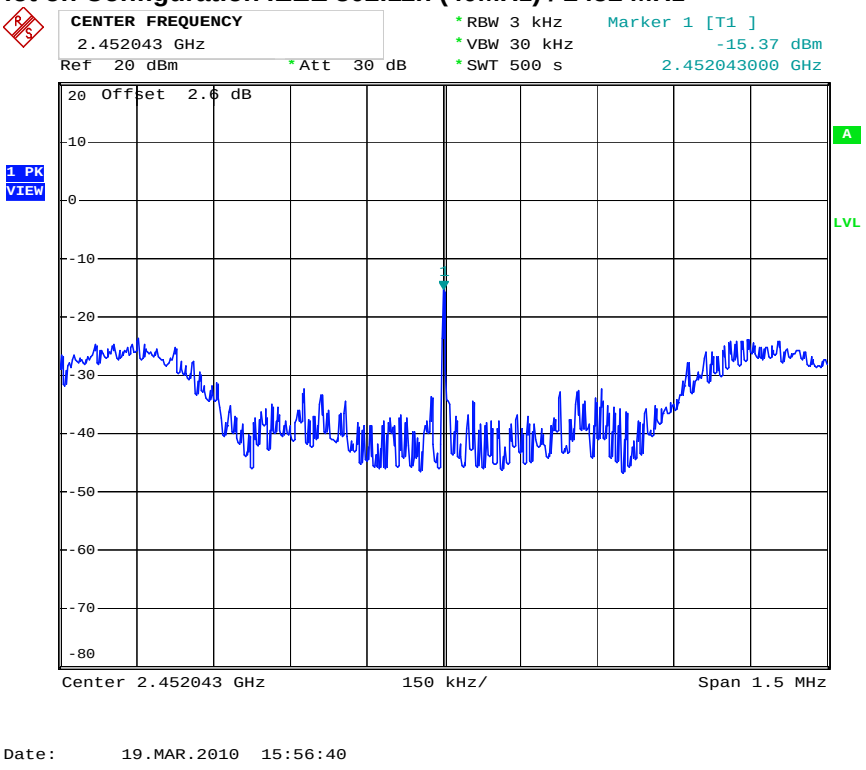
Date: 19.MAR.2010 15:53:04

Power Density Plot on Configuration IEEE 802.11n (40MHz) / 2437 MHz



Date: 19.MAR.2010 15:54:26

Power Density Plot on Configuration IEEE 802.11n (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

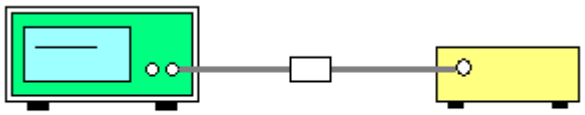
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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	Mar. 19, 2010	**Test Site No.**	TH01-HY
Temperature	25℃	**Humidity**	61%
Test Engineer	Duncan	**Configurations**	802.11b/g/n

Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	11.28	14.20	500	**Complies**
6	2437 MHz	11.28	14.24	500	**Complies**
11	2462 MHz	11.20	14.16	500	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.56	16.44	500	**Complies**
6	2437 MHz	16.56	16.44	500	**Complies**
11	2462 MHz	16.52	16.44	500	**Complies**

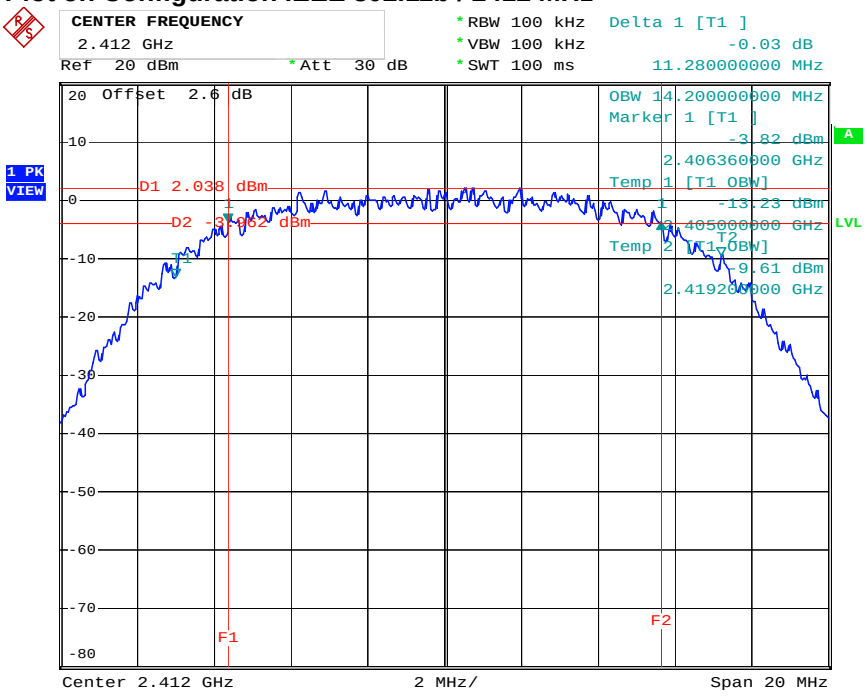
Configuration of IEEE 802.11n (20MHz)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.60	500	**Complies**
6	2437 MHz	17.60	17.60	500	**Complies**
11	2462 MHz	17.60	17.60	500	**Complies**

Configuration of IEEE 802.11n (40MHz)

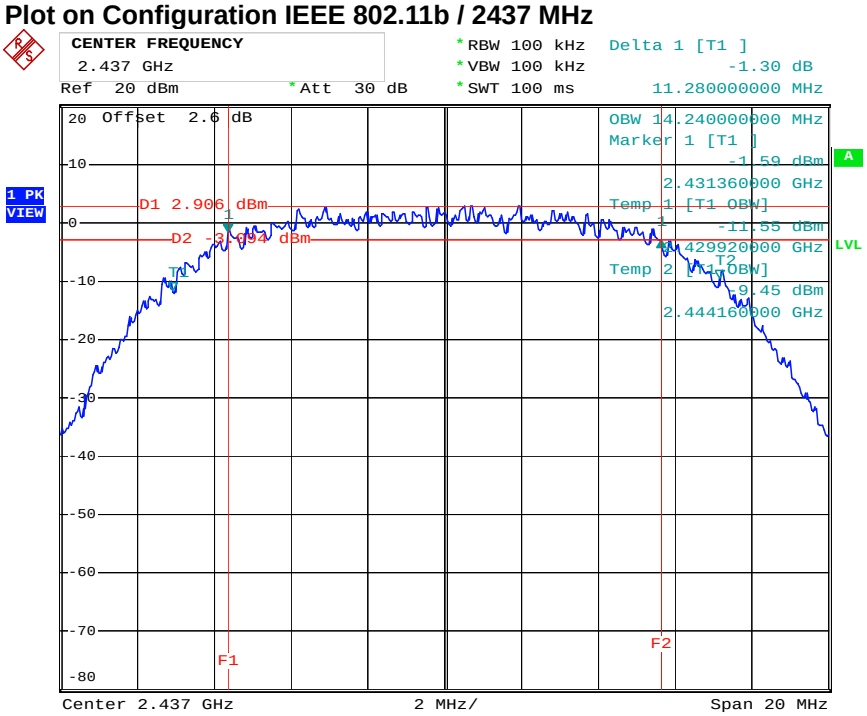
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.40	36.08	500	**Complies**
6	2437 MHz	36.40	36.08	500	**Complies**
9	2452 MHz	36.32	36.00	500	**Complies**

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz



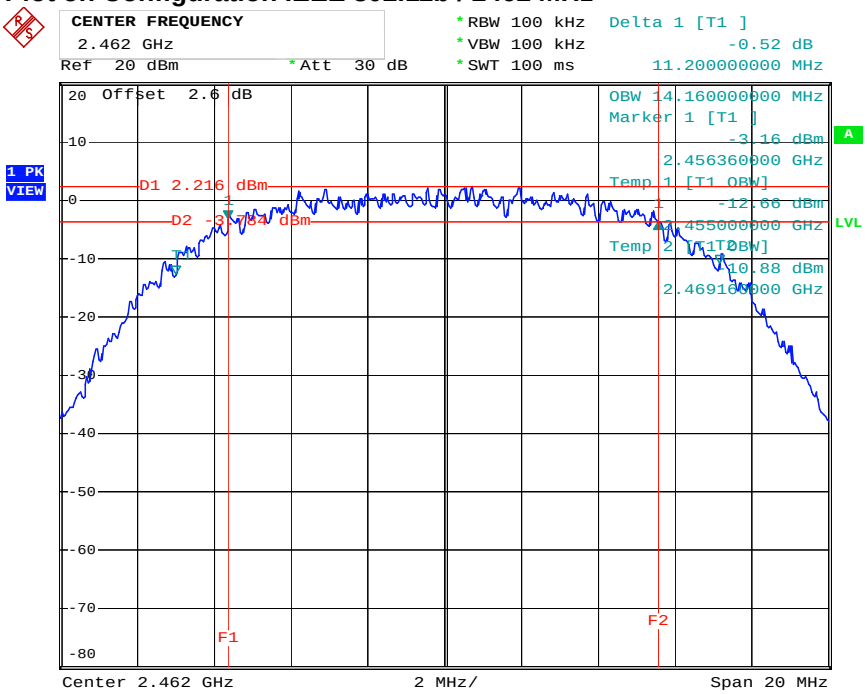
Date: 19.MAR.2010 15:29:29

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz

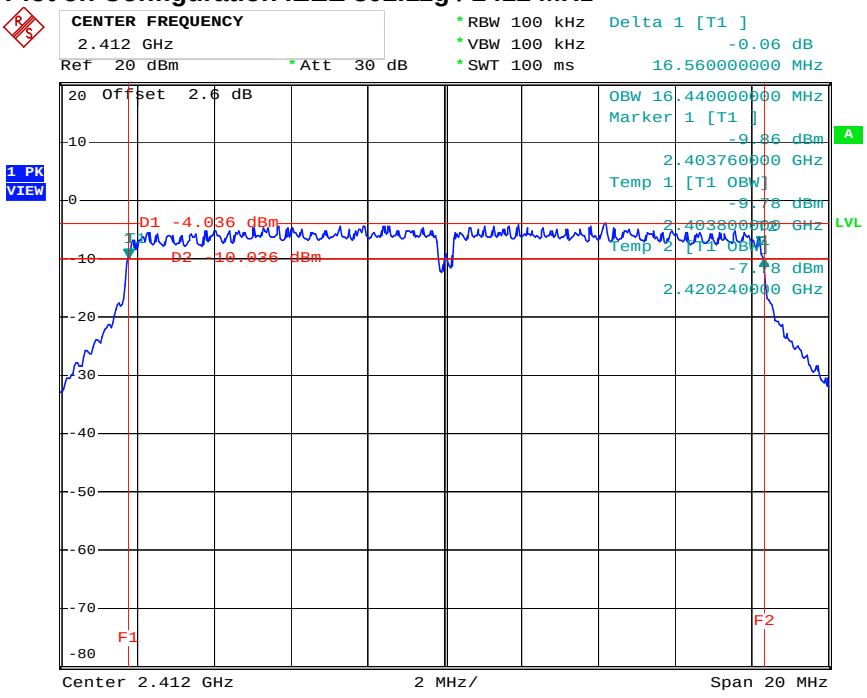


Date: 19.MAR.2010 15:32:53

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2462 MHz

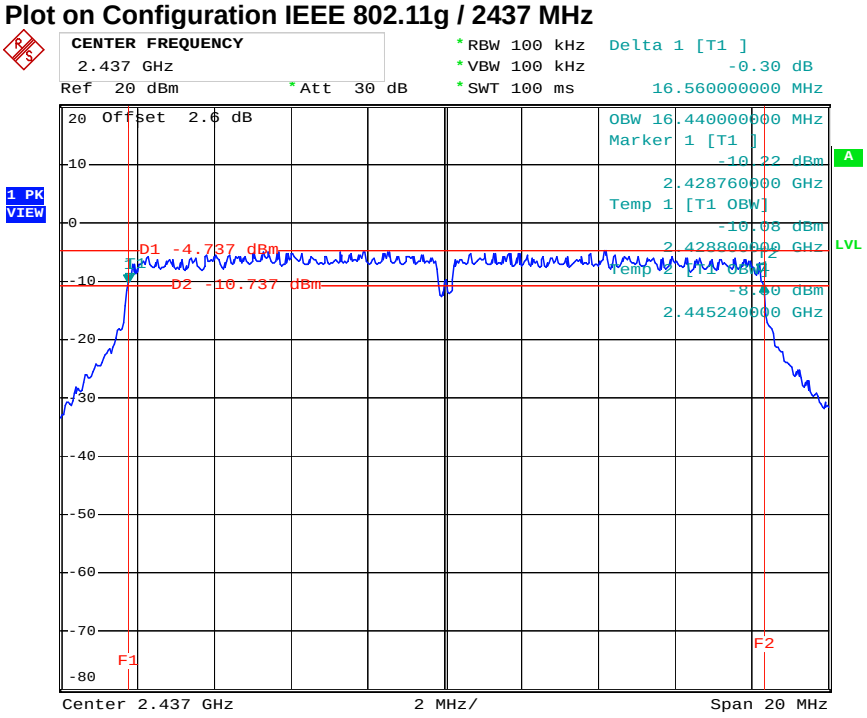


6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412 MHz



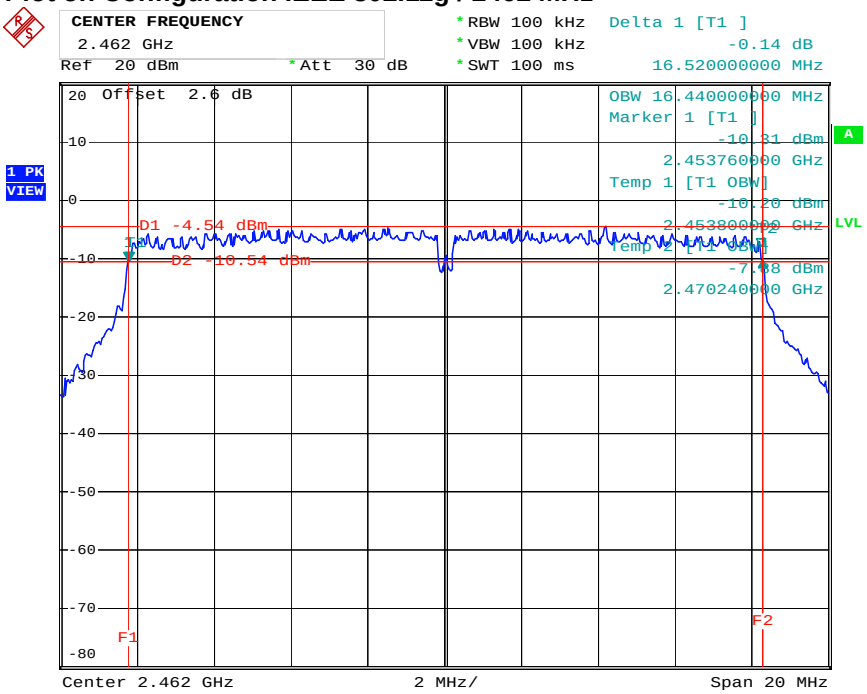
Date: 19.MAR.2010 15:39:33

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz

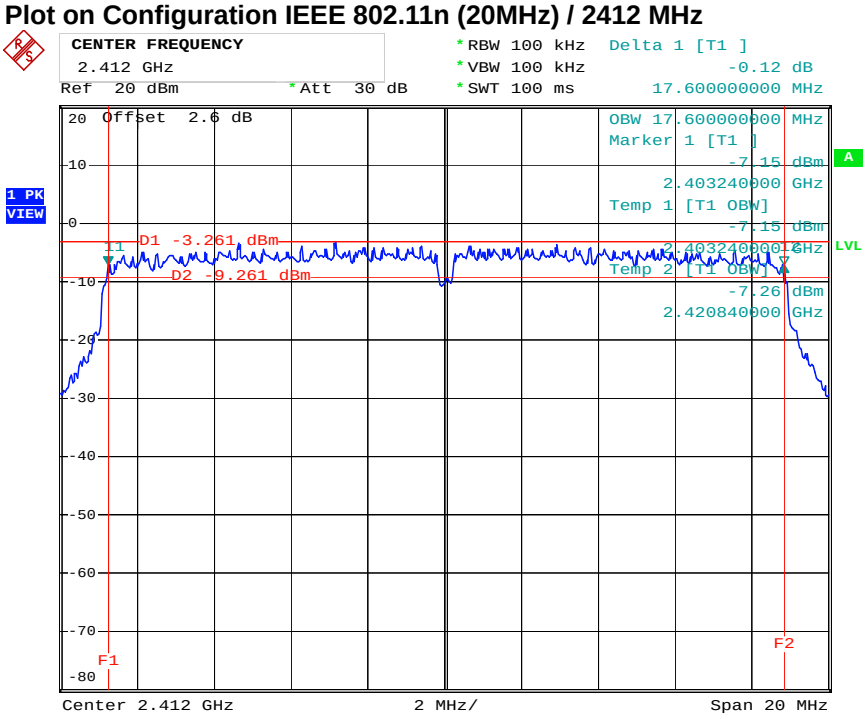


Date: 19.MAR.2010 15:42:08

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2462 MHz

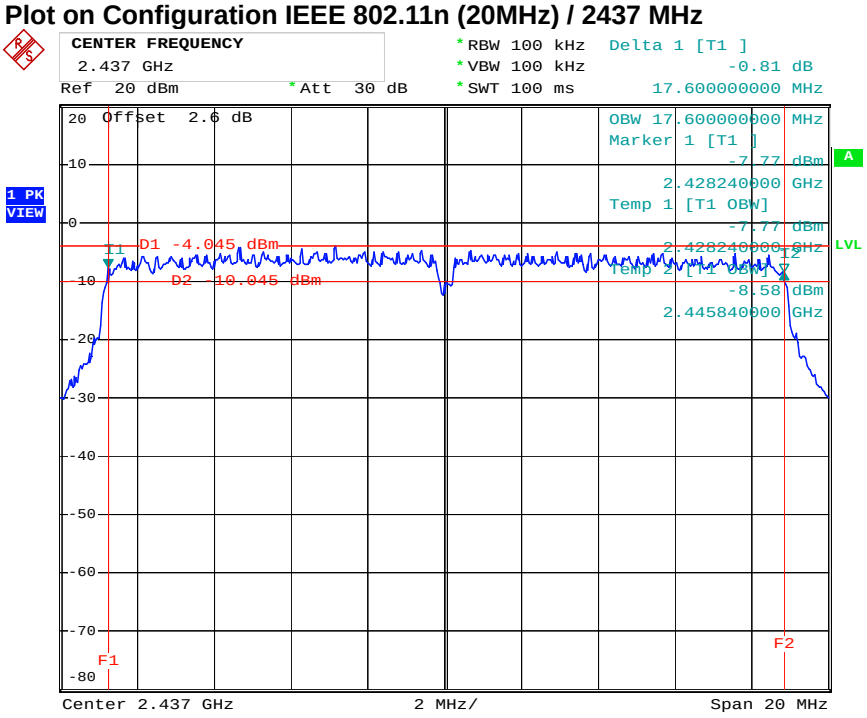


6 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) / 2412 MHz



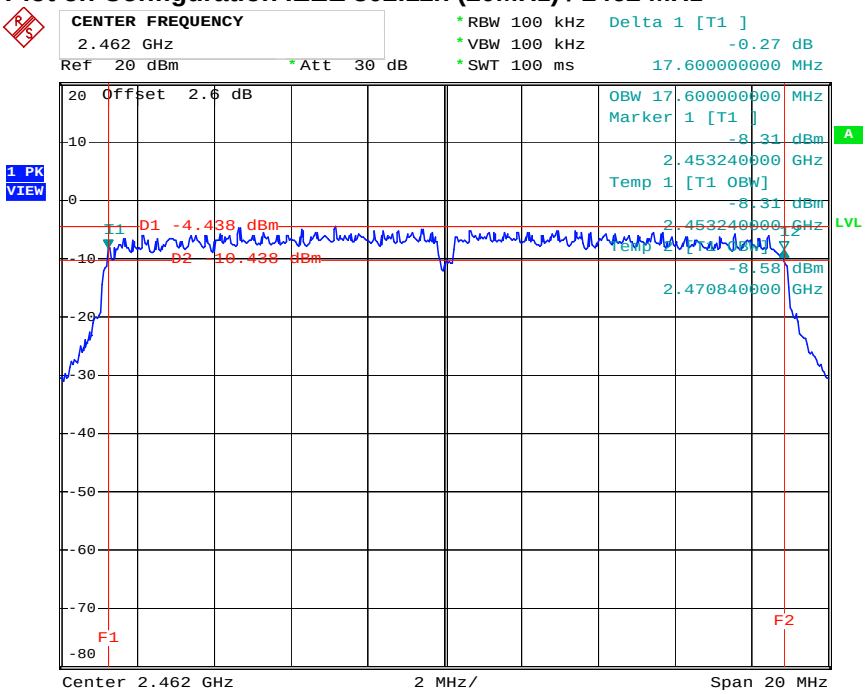
Date: 19.MAR.2010 15:45:29

6 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) / 2437 MHz

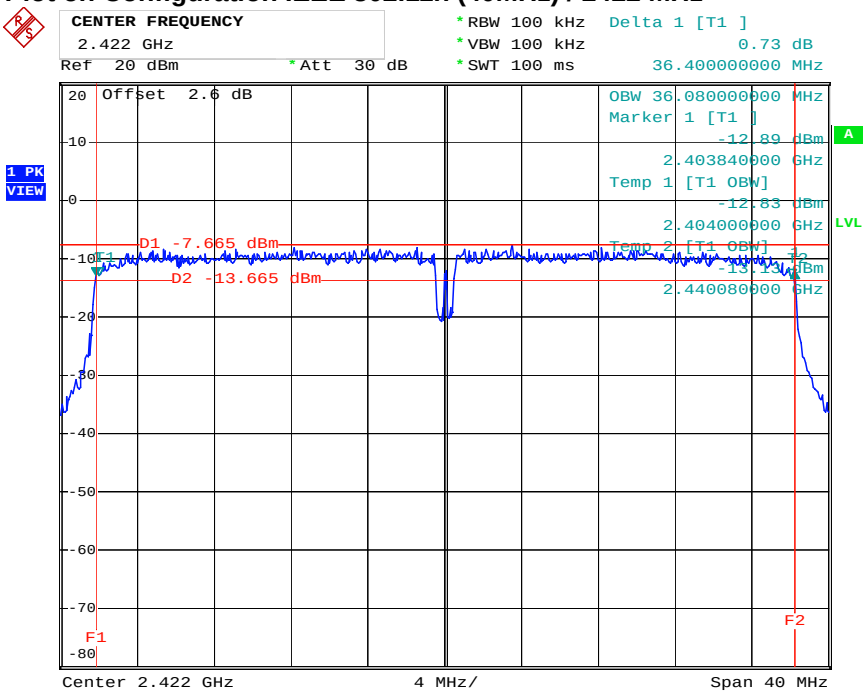


Date: 19.MAR.2010 15:47:52

6 dB Bandwidth Plot on Configuration IEEE 802.11n (20MHz) / 2462 MHz

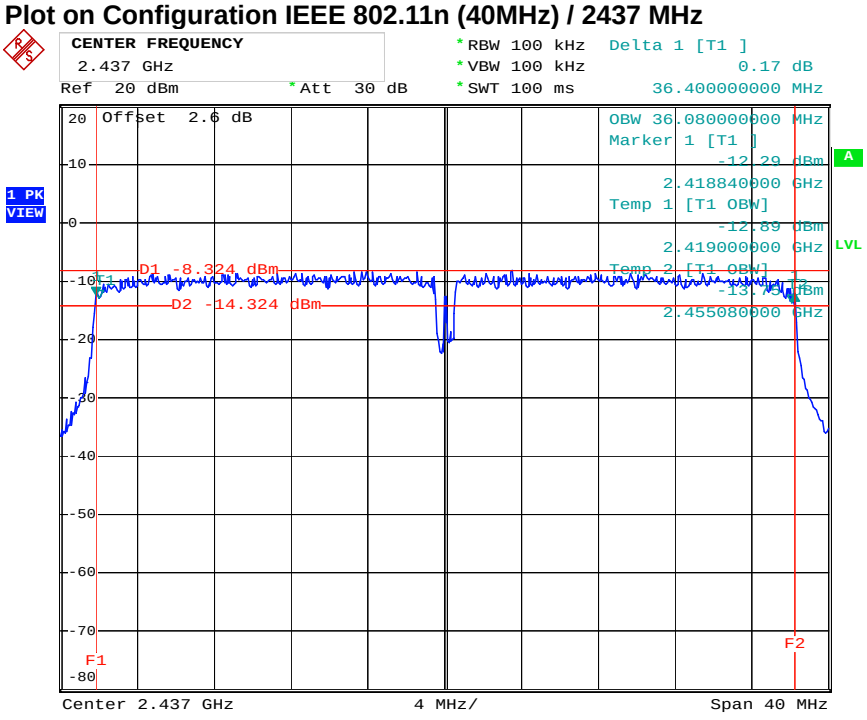


6 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) / 2422 MHz



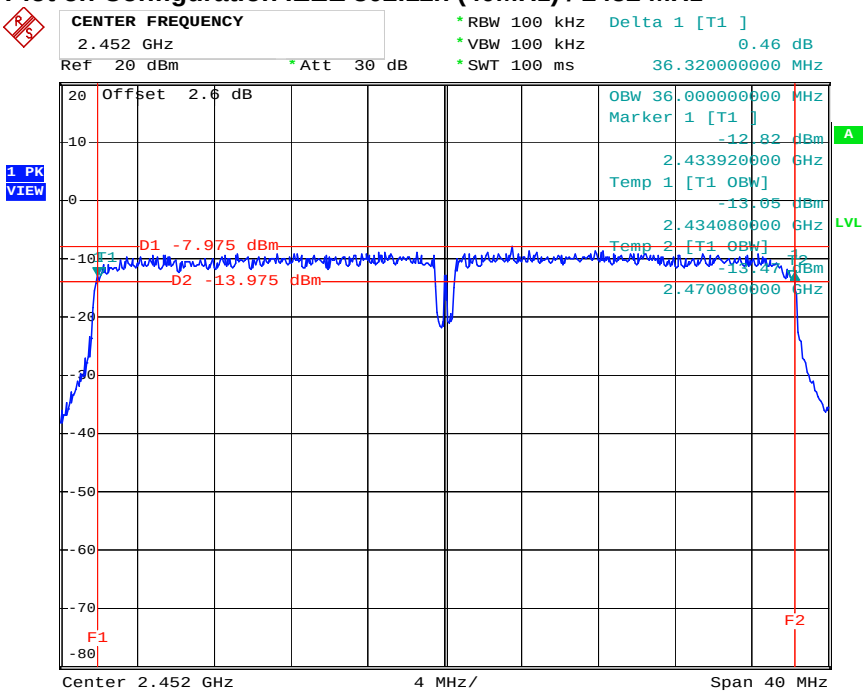
Date: 19.MAR.2010 15:52:29

6 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) / 2437 MHz



Date: 19.MAR.2010 15:53:45

6 dB Bandwidth Plot on Configuration IEEE 802.11n (40MHz) / 2452 MHz



Date: 19.MAR.2010 15:55:58

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

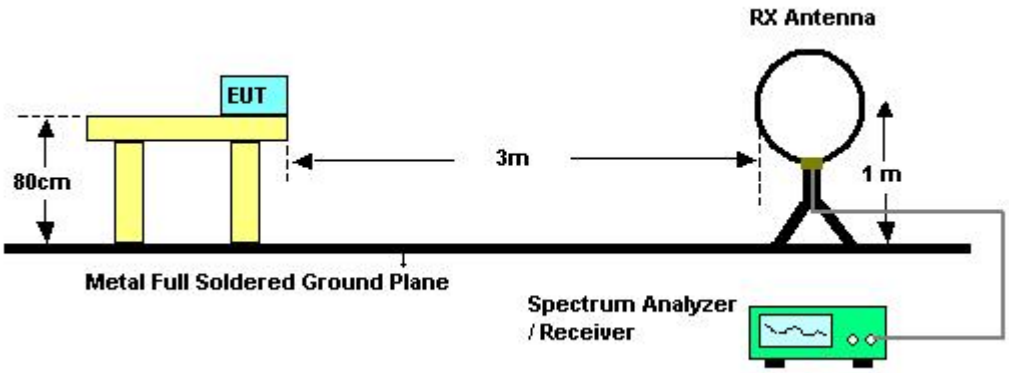
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.5.3 Test Procedures

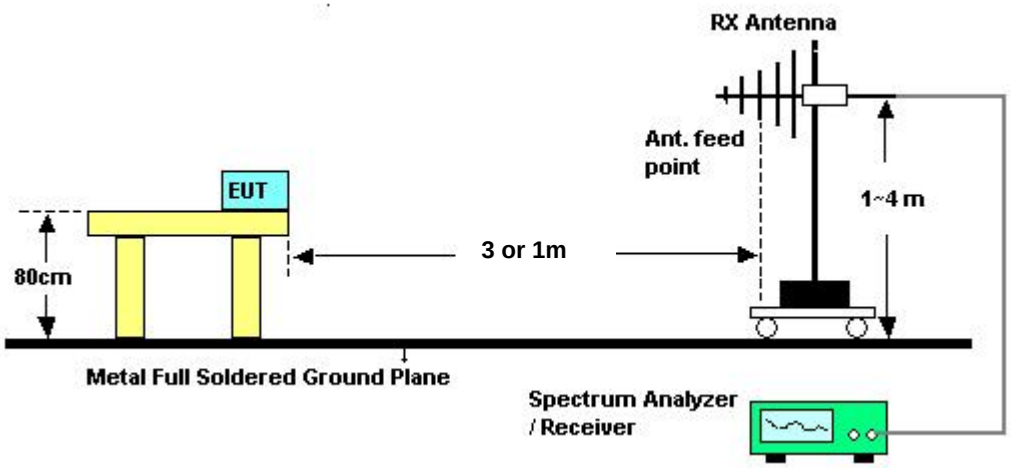
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

3.5.5 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	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven		

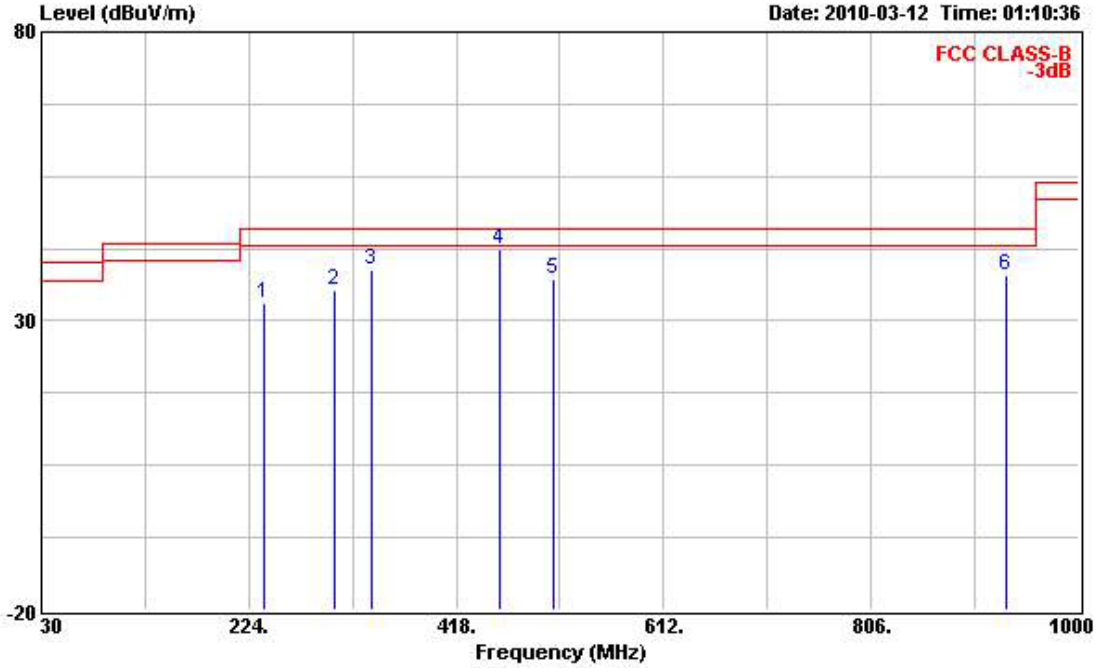
Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

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)

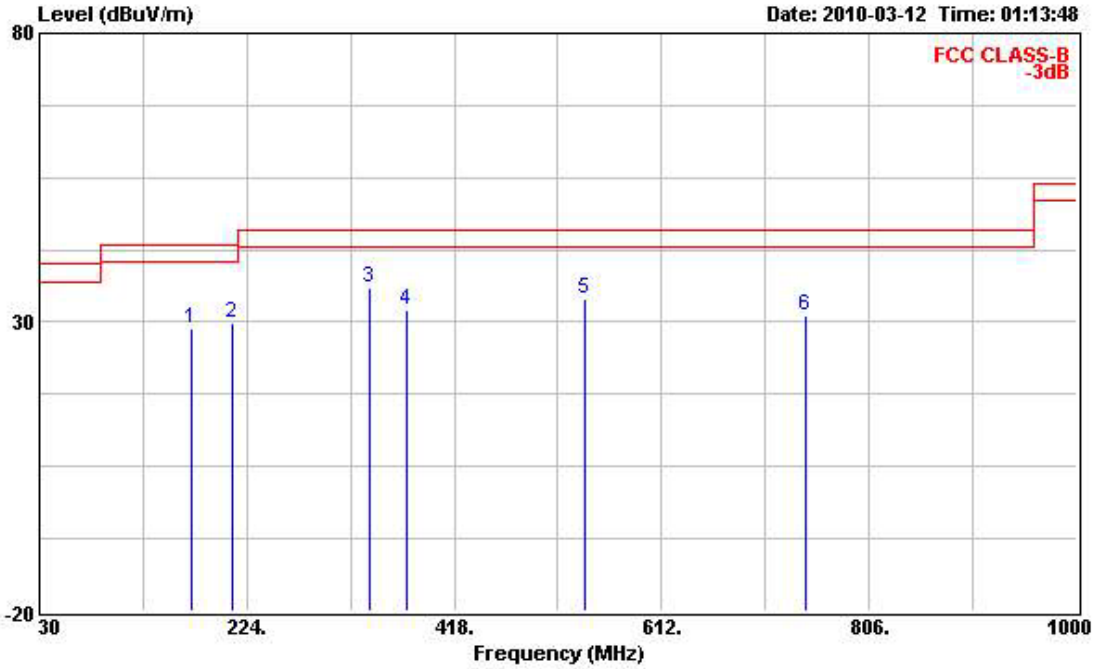
Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	Normal Mode

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	238.550	32.94	-13.06	46.00	51.77	1.75	32.41	Peak	---	---
2	304.510	35.32	-10.68	46.00	52.08	2.07	32.32	Peak	---	---
3	338.460	38.93	-7.07	46.00	54.45	2.32	32.21	Peak	---	---
4	458.740	42.49	-3.51	46.00	54.65	2.90	32.06	Peak	---	---
5	509.180	37.35	-8.65	46.00	48.72	2.79	31.99	Peak	---	---
6	933.070	37.85	-8.15	46.00	44.30	4.39	31.59	Peak	---	---

Vertical



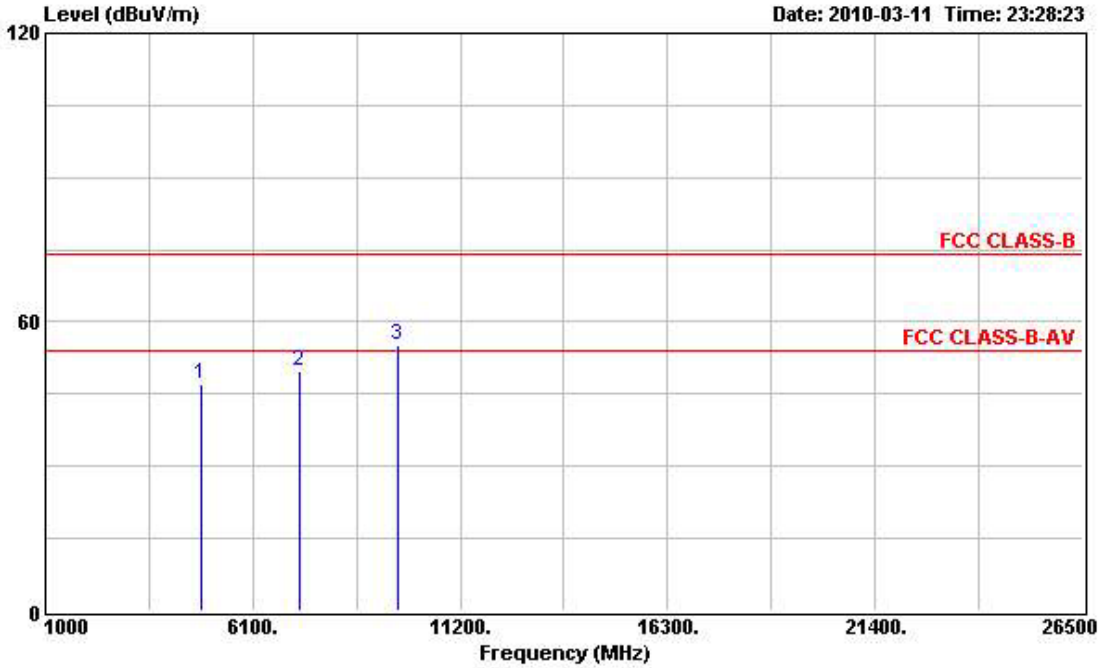
	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	171.620	28.92	-14.58	43.50	50.48	1.45	32.52	Peak	---	---
2	210.420	29.76	-13.74	43.50	50.68	1.63	32.47	Peak	---	---
3	338.460	36.04	-9.96	46.00	51.56	2.32	32.21	Peak	---	---
4	373.380	32.23	-13.77	46.00	46.73	2.38	32.16	Peak	---	---
5	540.220	34.05	-11.95	46.00	44.66	3.14	31.95	Peak	---	---
6	746.830	31.28	-14.72	46.00	39.70	3.97	31.82	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)

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11b Ch. 1

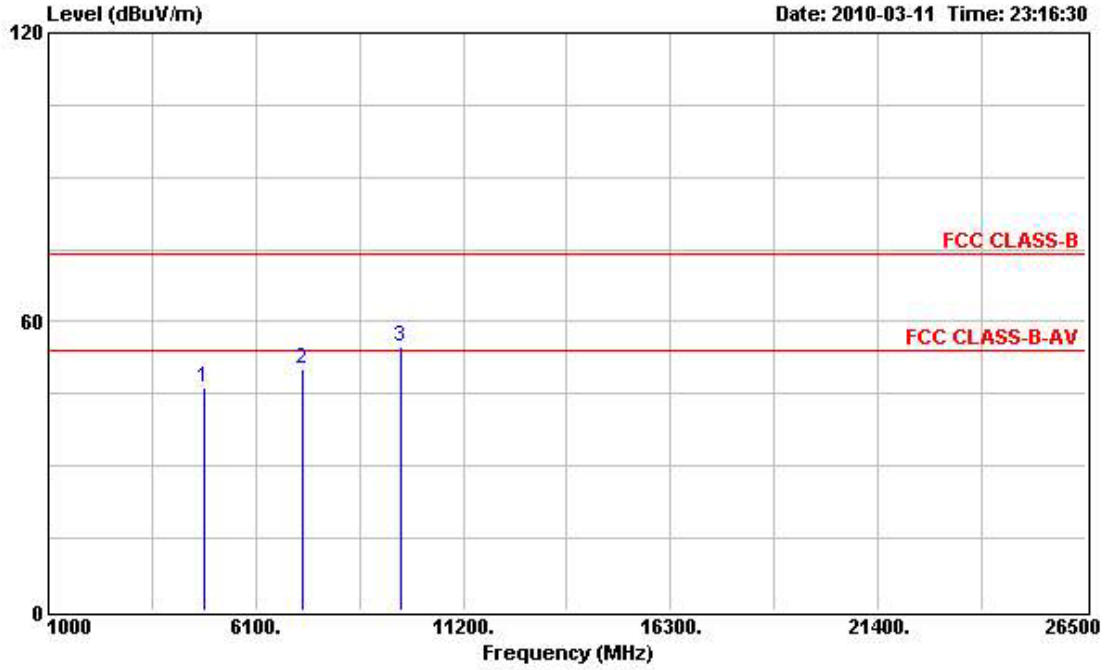
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	47.09	-6.91	54.00	41.27	5.04	32.28	pk	---	---
2	7236.000	49.67			40.37	6.13	32.61	Peak	---	---
3	9648.000	55.31			42.12	7.06	32.28	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

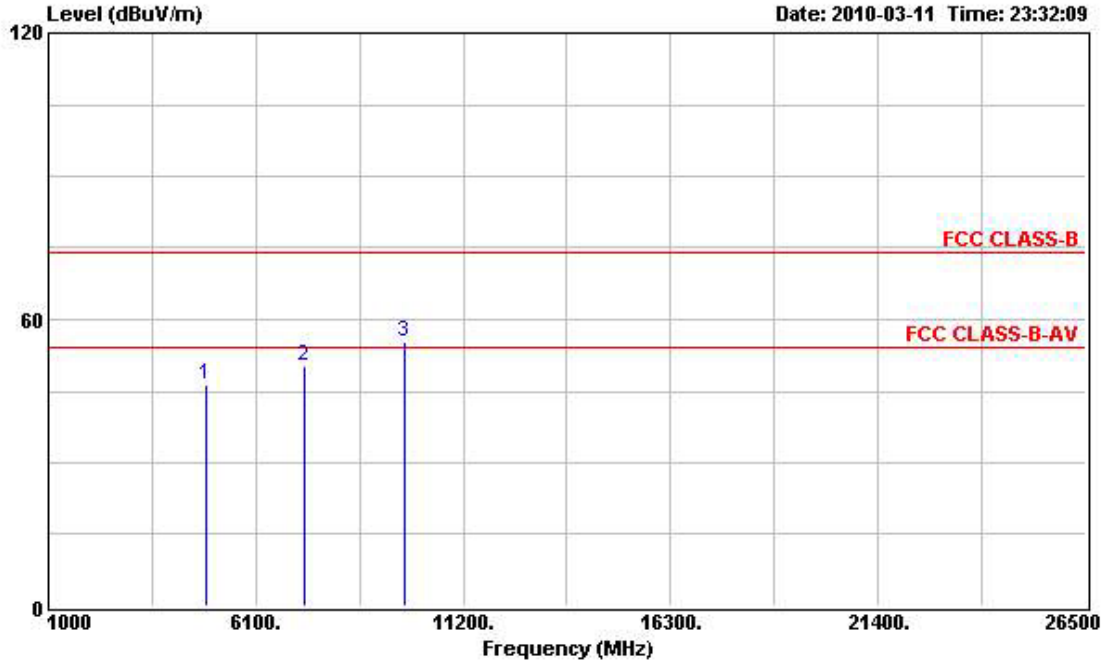


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	46.45	-7.55	54.00	40.63	5.04	32.28	pk	---	---
2	7236.000	50.16			40.86	6.13	32.61	Peak	---	---
3	9648.000	54.82			41.63	7.06	32.28	Peak	---	---

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	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11b Ch. 6

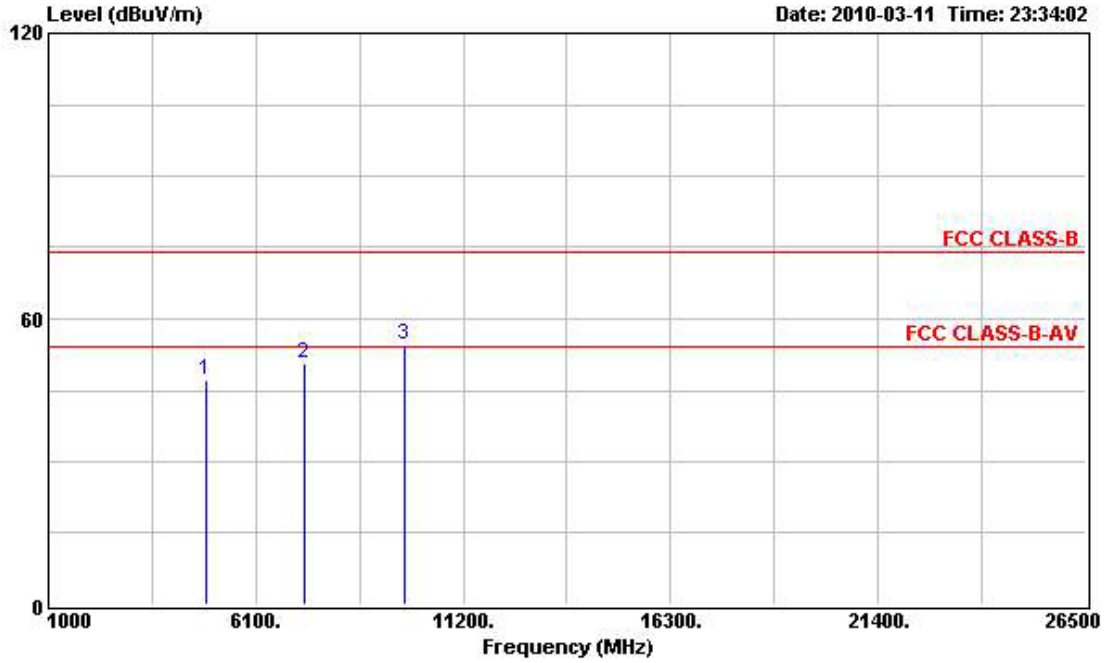
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	46.25	-7.75	54.00	40.35	5.07	32.33	pk	---	---
2	7311.000	50.36	-3.64	54.00	40.71	6.19	32.48	pk	---	---
3	9748.000	55.15			41.52	7.34	32.33	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).

Vertical

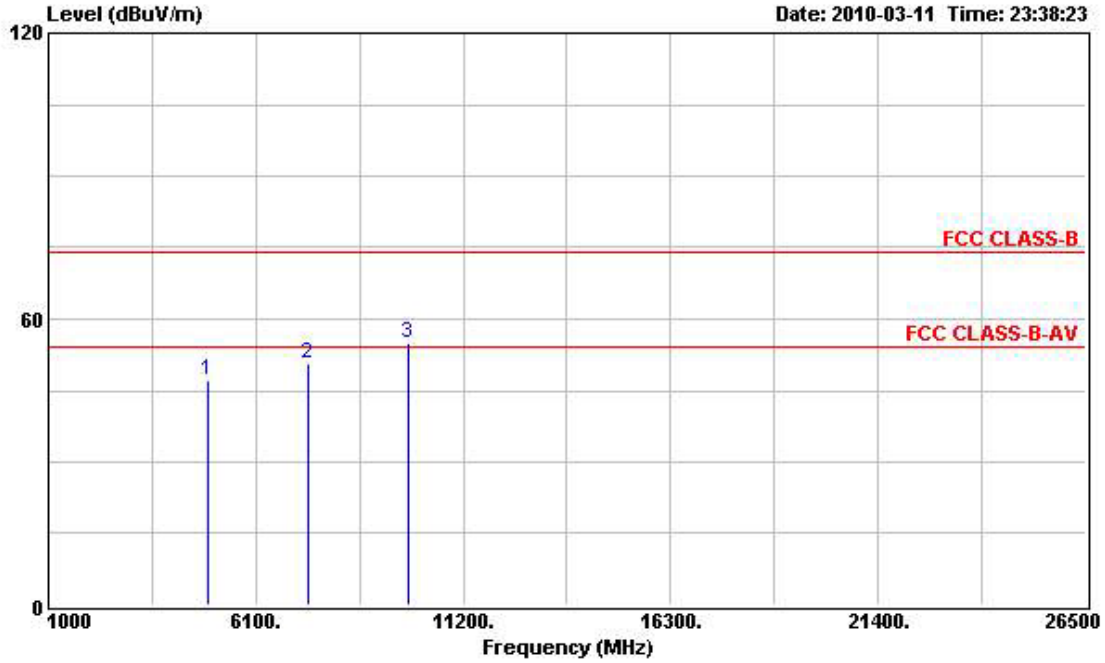


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	46.99	-7.01	54.00	41.09	5.07	32.33	pk	---	---
2	7311.000	50.54	-3.46	54.00	40.89	6.19	32.48	pk	---	---
3	9748.000	54.45			40.82	7.34	32.33	Peak	---	---

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).

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11b Ch. 11

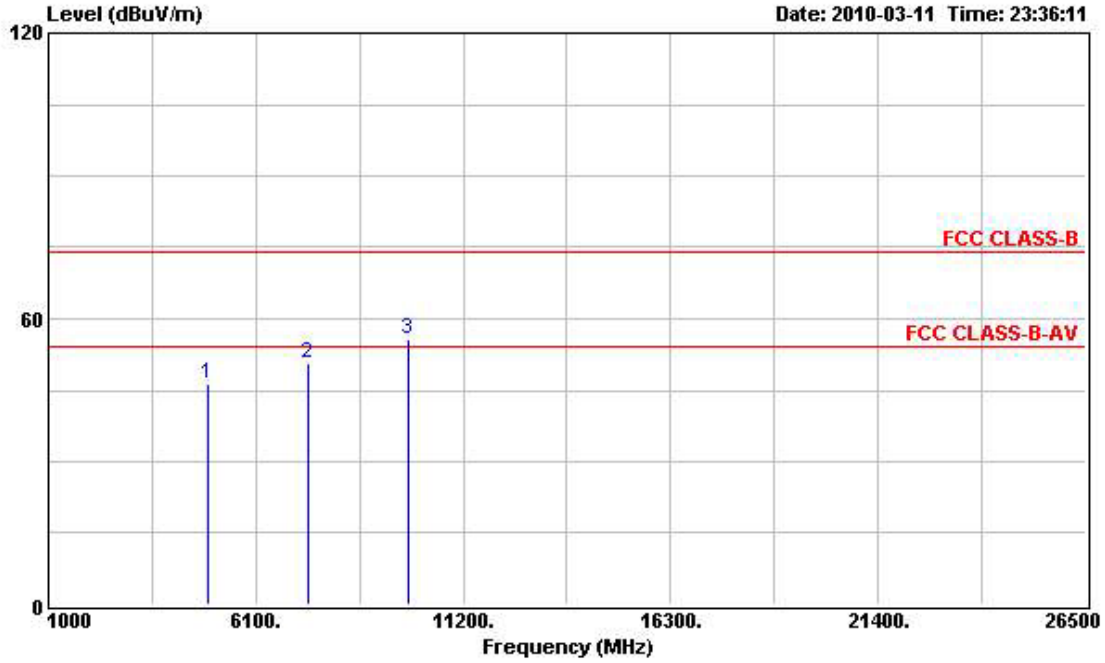
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	47.07	-6.93	54.00	41.10	5.09	32.38	pk	---	---
2	7386.000	50.56	-3.44	54.00	40.46	6.25	32.30	pk	---	---
3	9848.000	54.87			40.93	7.53	32.38	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).

Vertical

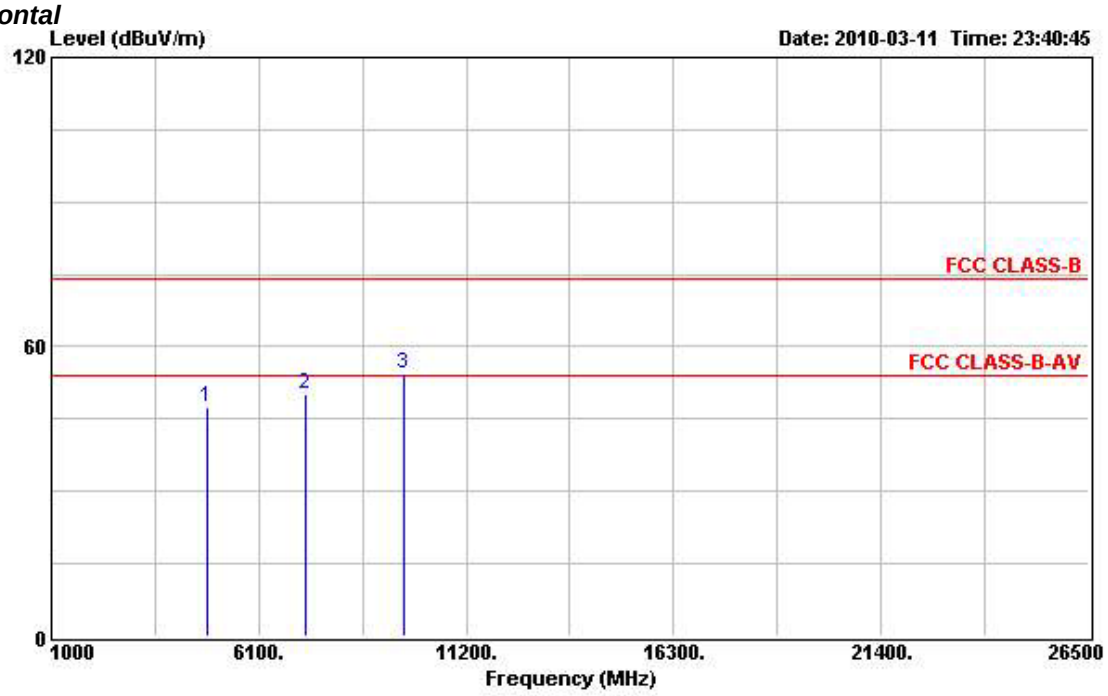


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	46.52	-7.48	54.00	40.55	5.09	32.38	pk	---	---
2	7386.000	50.58	-3.42	54.00	40.48	6.25	32.30	pk	---	---
3	9848.000	55.85			41.91	7.53	32.38	Peak	---	---

N 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).

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11g Ch. 1

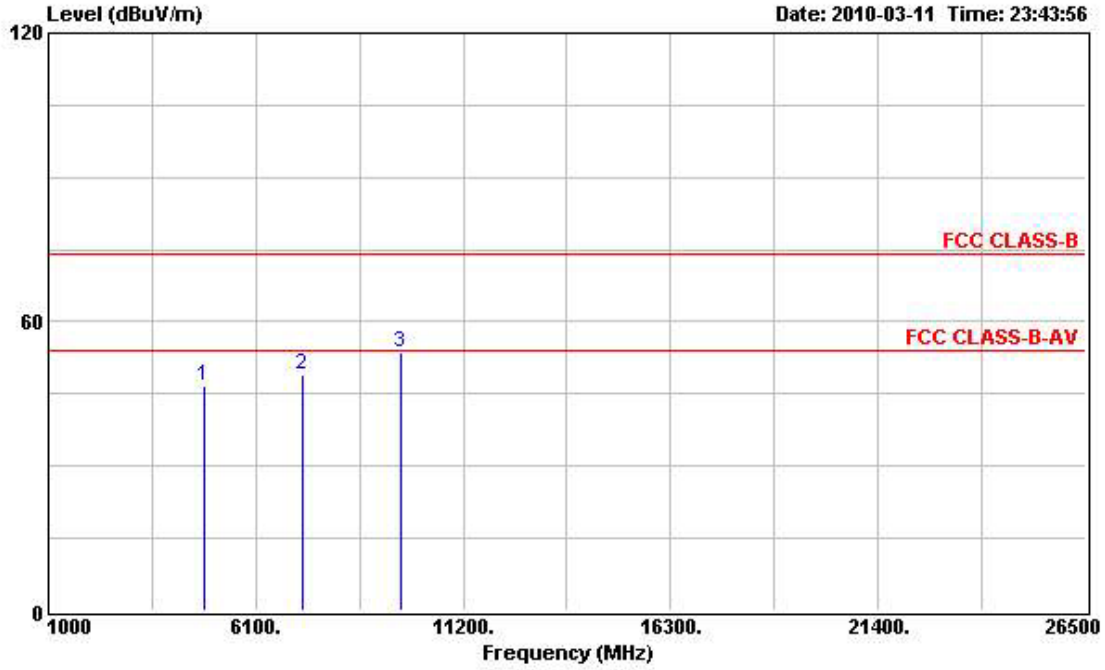
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	47.52	-6.48	54.00	41.70	5.04	32.28	pk	---	---
2	7236.000	50.23			40.93	6.13	32.61	Peak	---	---
3	9648.000	54.24			41.05	7.06	32.28	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

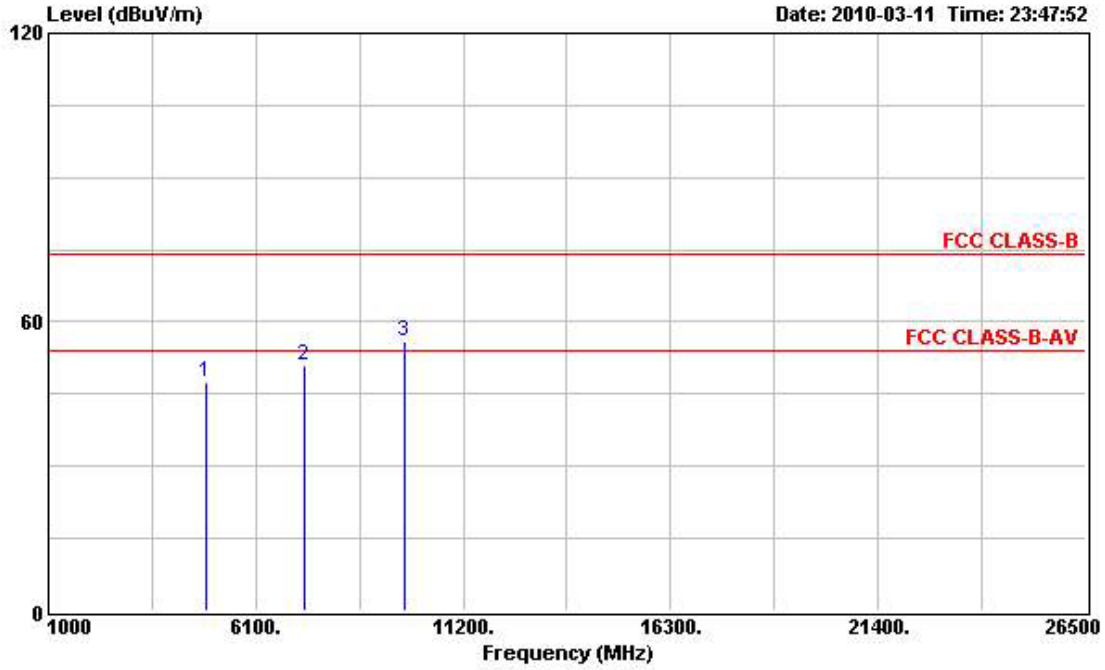


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	46.52	-7.48	54.00	40.70	5.04	32.28	pk	---	---
2	7236.000	49.11			39.81	6.13	32.61	Peak	---	---
3	9648.000	53.55			40.36	7.06	32.28	Peak	---	---

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	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11g Ch. 6

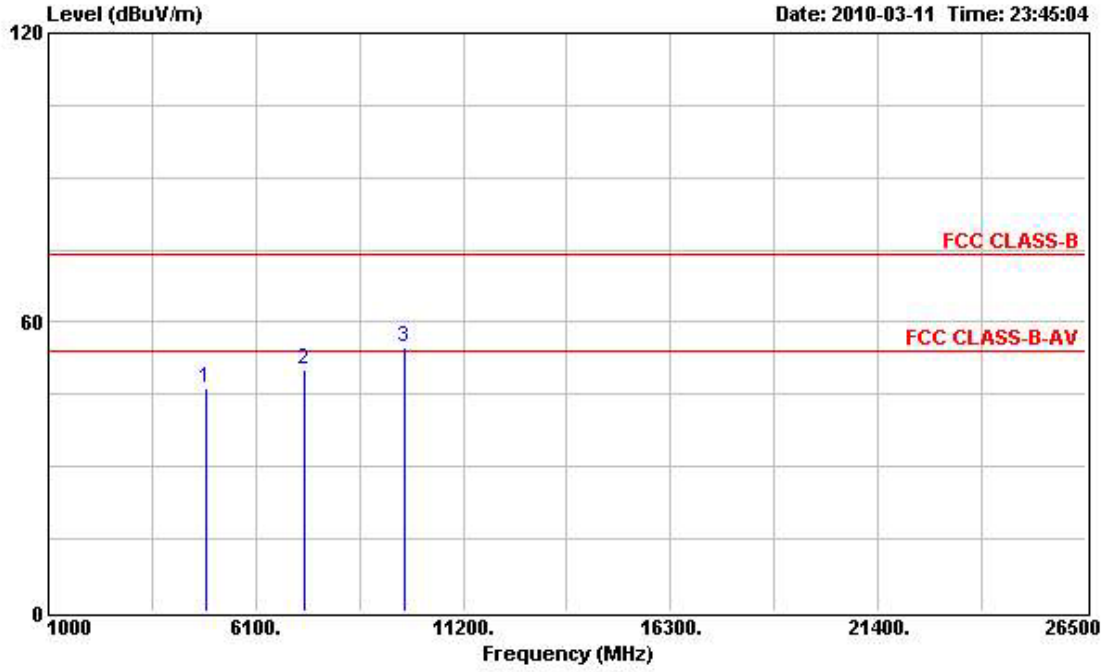
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	47.52	-6.48	54.00	41.62	5.07	32.33	pk	---	---
2	7311.000	50.99	-3.01	54.00	41.34	6.19	32.48	pk	---	---
3	9748.000	55.87			42.24	7.34	32.33	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).

Vertical

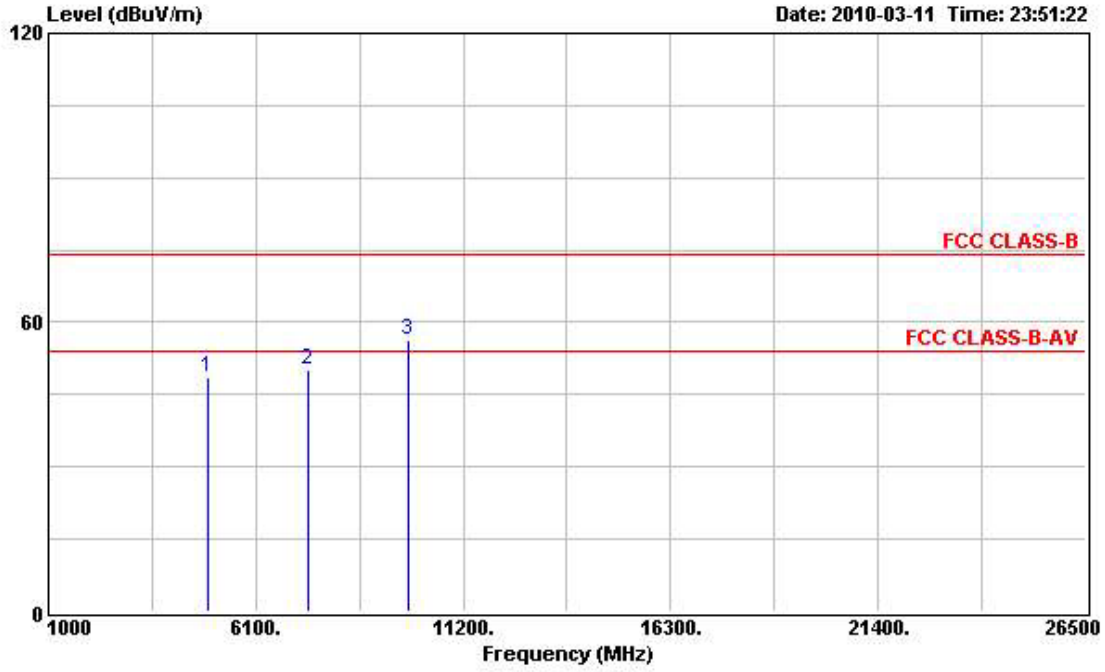


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	46.11	-7.89	54.00	40.21	5.07	32.33	pk	---	---
2	7311.000	50.23	-3.77	54.00	40.58	6.19	32.48	pk	---	---
3	9748.000	54.88			41.25	7.34	32.33	Peak	---	---

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).

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11g Ch. 11

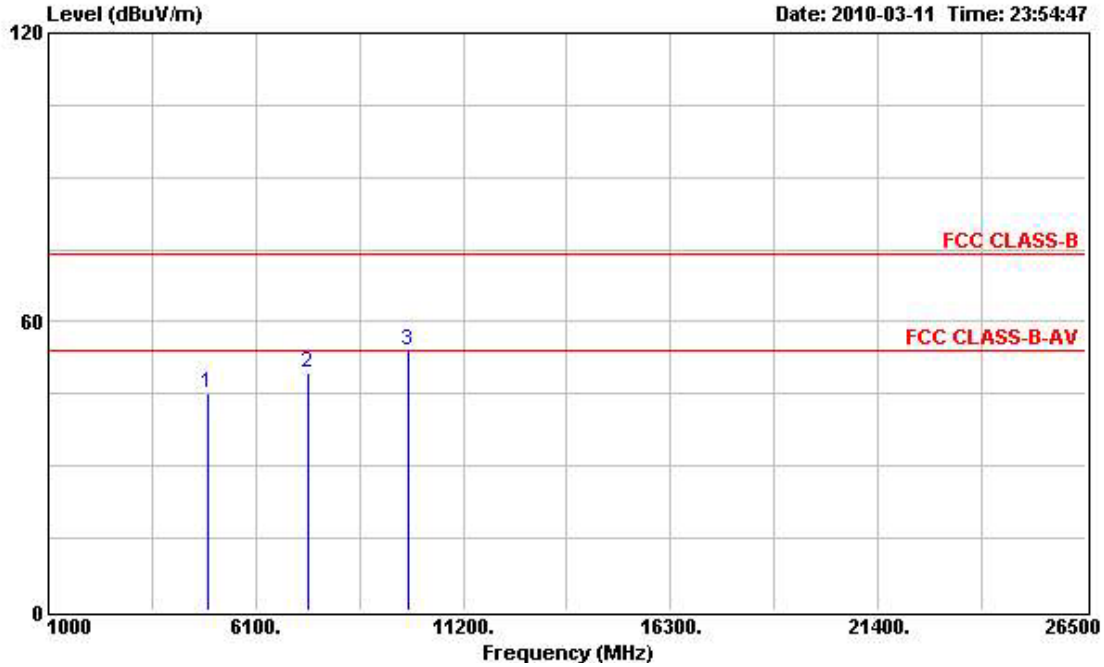
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	48.52	-5.48	54.00	42.55	5.09	32.38	pk	---	---
2	7386.000	50.24	-3.76	54.00	40.14	6.25	32.30	pk	---	---
3	9848.000	56.22			42.28	7.53	32.38	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).

Vertical

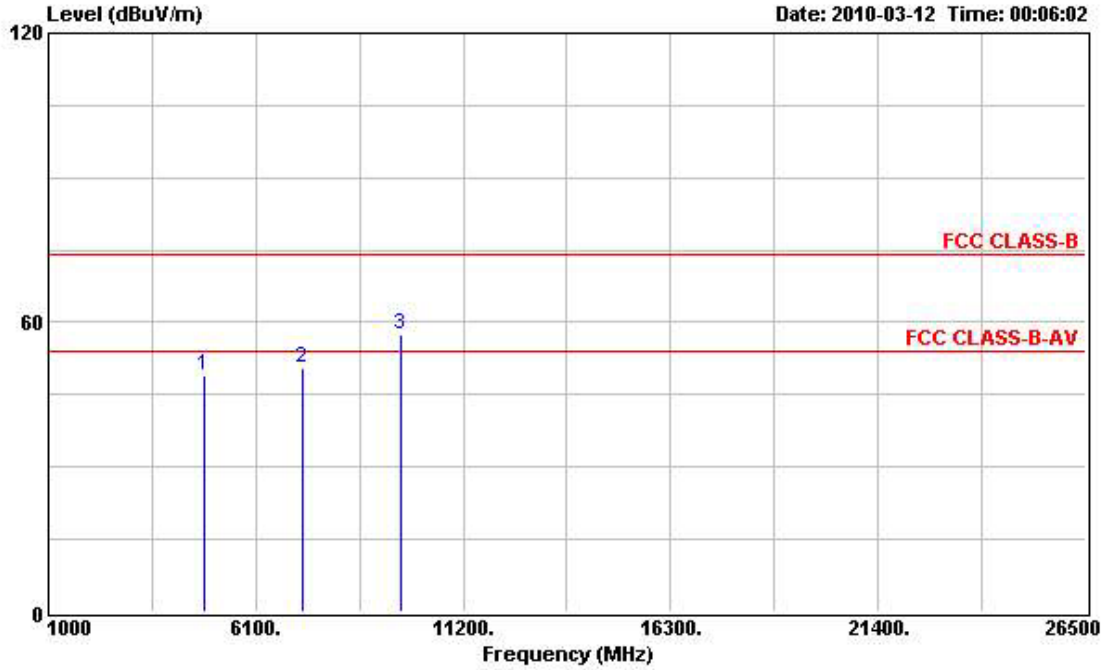


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	45.01	-8.99	54.00	39.04	5.09	32.38	pk	---	---
2	7386.000	49.36	-4.64	54.00	39.26	6.25	32.30	pk	---	---
3	9848.000	54.01			40.07	7.53	32.38	Peak	---	---

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).

Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (20MHz) Ch. 1

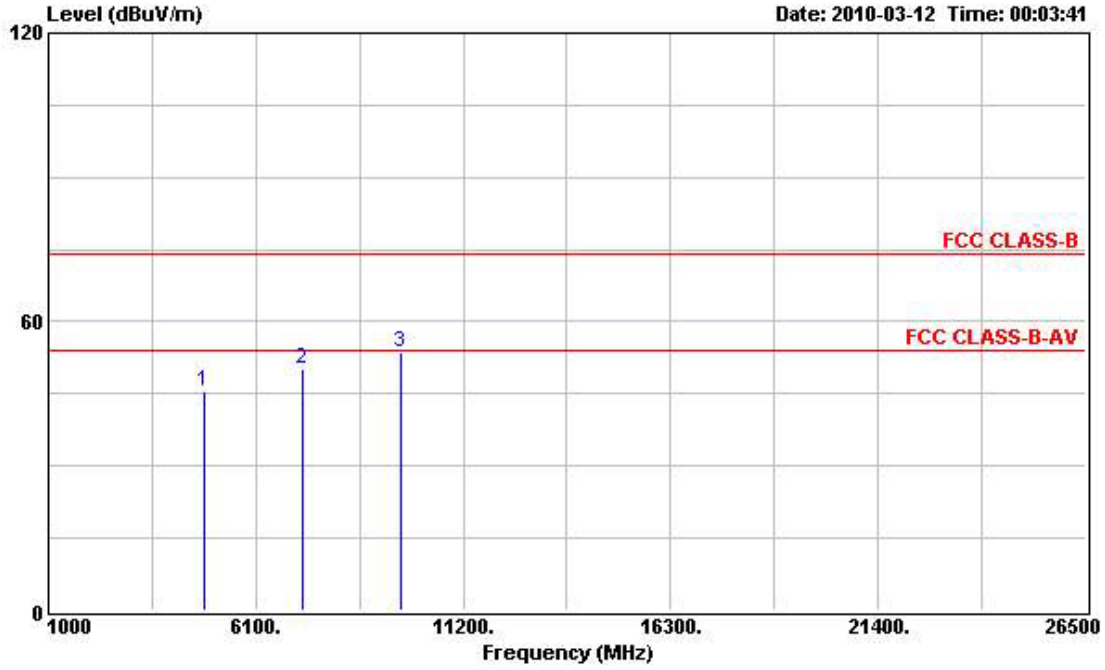
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	48.98	-5.02	54.00	43.16	5.04	32.28	pk	---	---
2	7236.000	50.55			41.25	6.13	32.61	Peak	---	---
3	9648.000	57.39			44.20	7.06	32.28	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

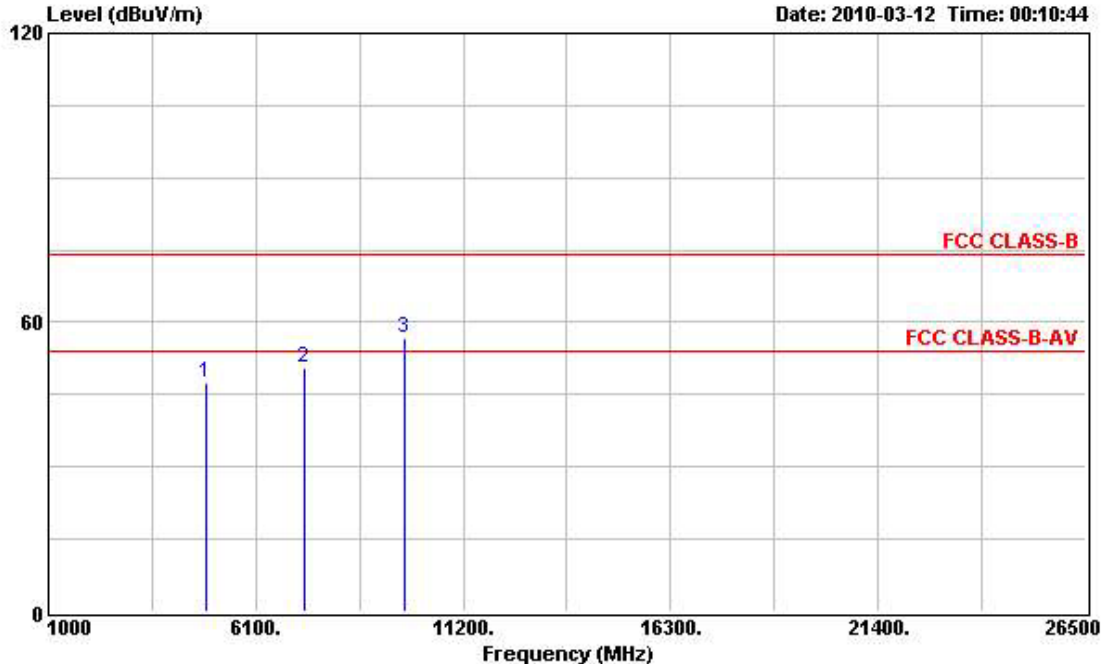


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4824.000	45.35	-8.65	54.00	39.53	5.04	32.28	pk	---	---
2	7236.000	50.22			40.92	6.13	32.61	Peak	---	---
3	9648.000	53.69			40.50	7.06	32.28	Peak	---	---

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	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (20MHz) Ch. 6

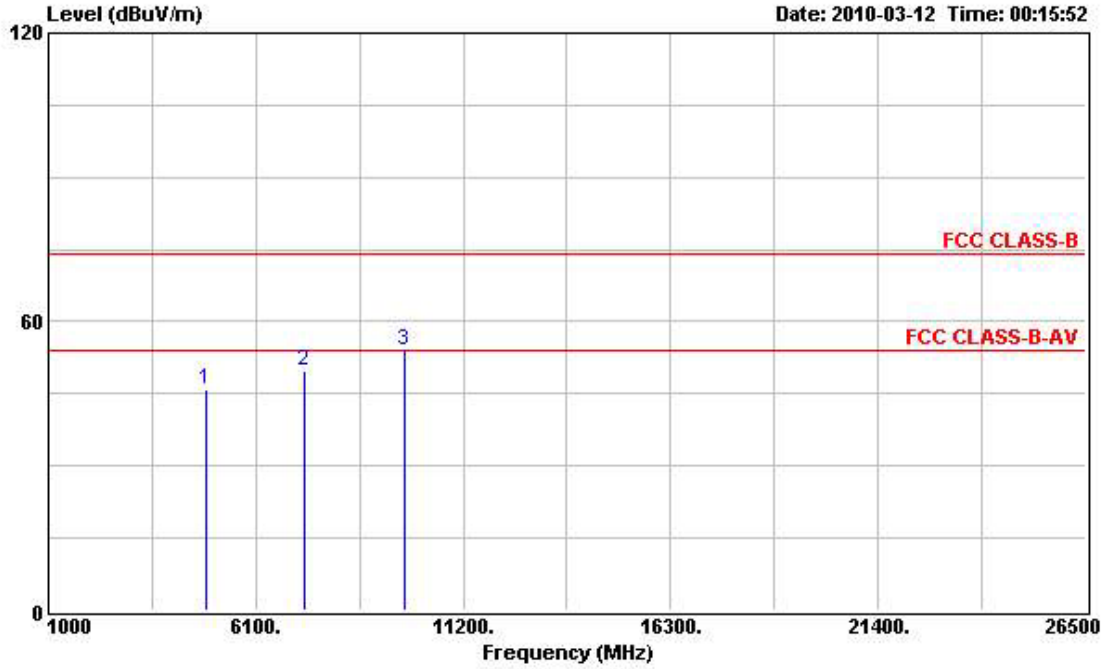
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	47.52	-6.48	54.00	41.62	5.07	32.33	pk	---	---
2	7311.000	50.43	-3.57	54.00	40.78	6.19	32.48	pk	---	---
3	9748.000	56.81			43.18	7.34	32.33	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).

Vertical

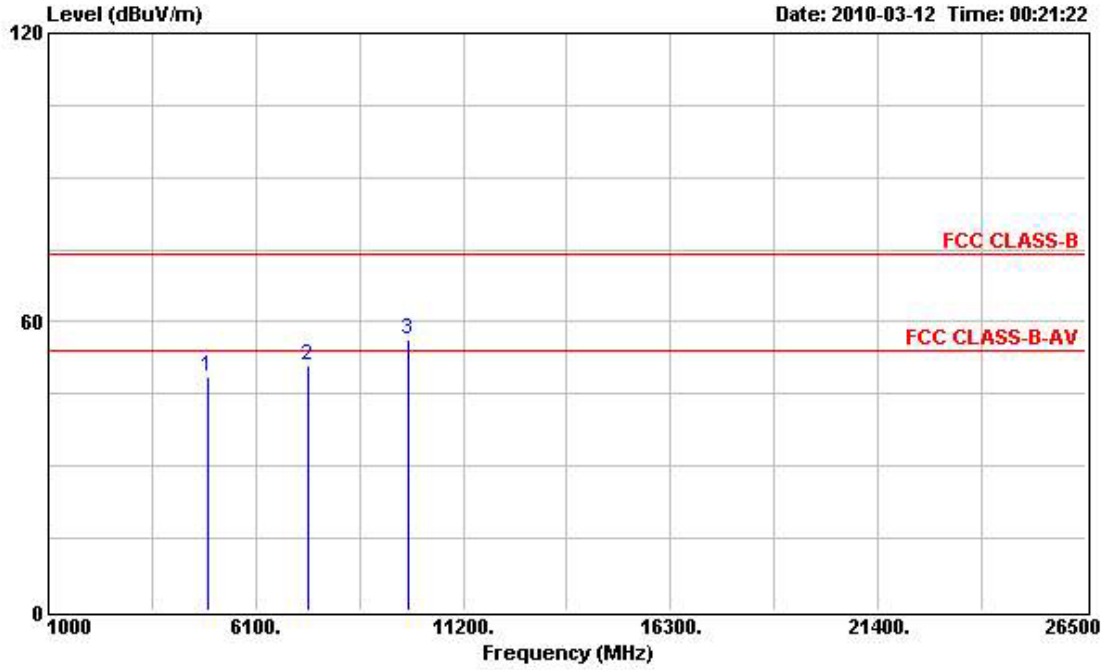


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	45.88	-8.12	54.00	39.98	5.07	32.33	pk	---	---
2	7311.000	49.73	-4.27	54.00	40.08	6.19	32.48	pk	---	---
3	9748.000	53.97			40.34	7.34	32.33	Peak	---	---

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).

Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (20MHz) Ch. 11

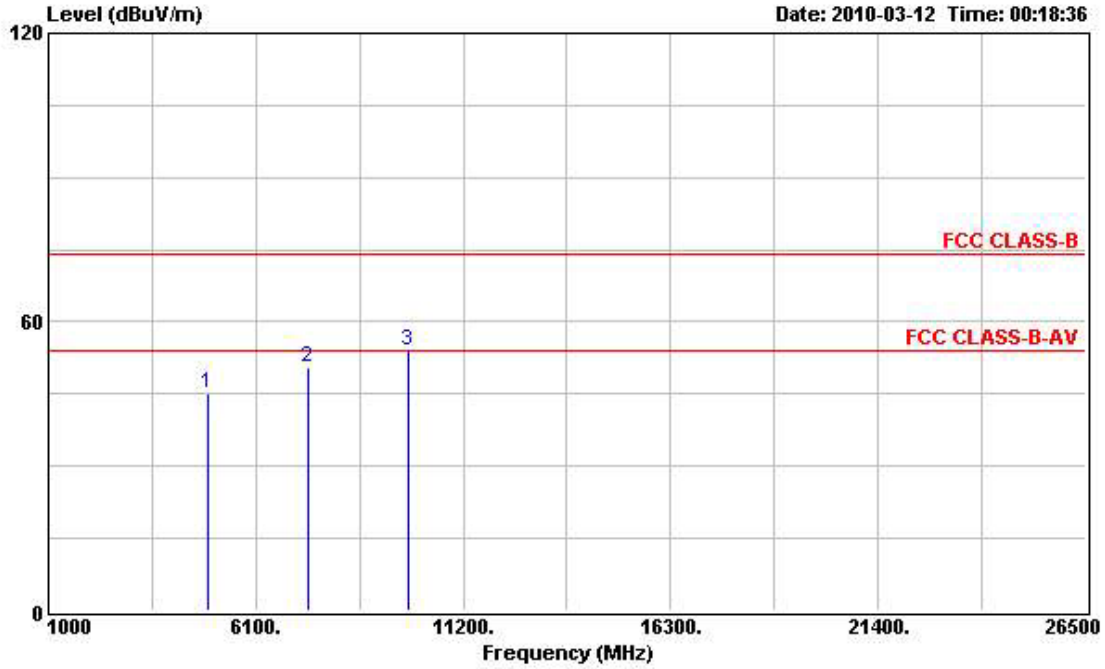
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	48.55	-5.45	54.00	42.58	5.09	32.38	pk	---	---
2	7386.000	50.84	-3.16	54.00	40.74	6.25	32.30	pk	---	---
3	9848.000	56.24			42.30	7.53	32.38	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).

Vertical

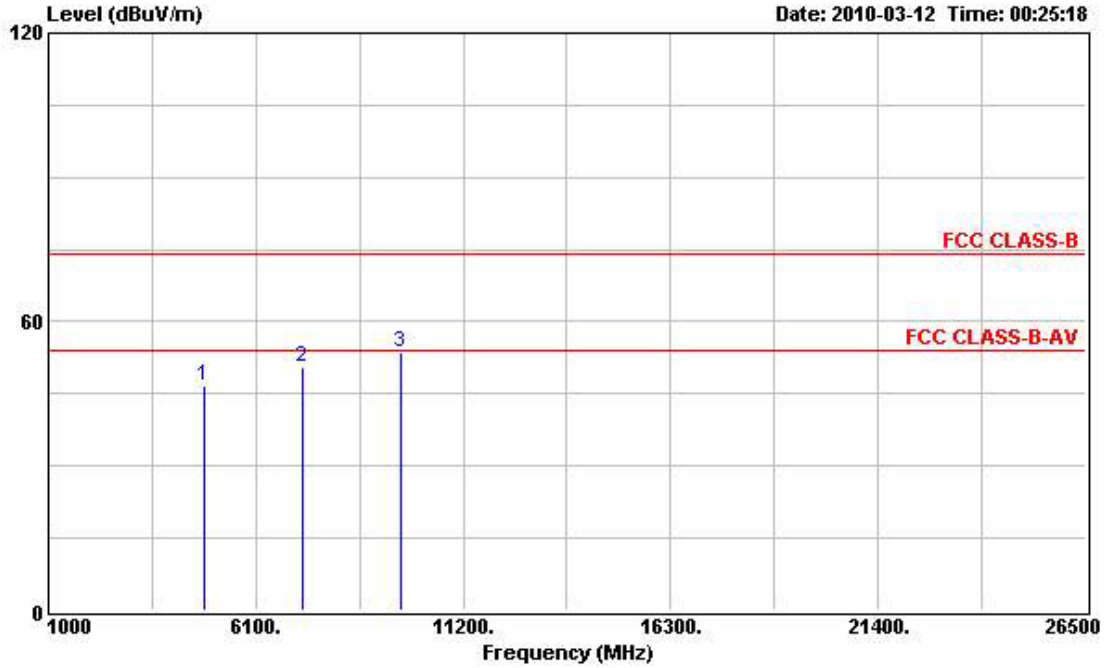


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4924.000	45.06	-8.94	54.00	39.09	5.09	32.38	pk	---	---
2	7386.000	50.66	-3.34	54.00	40.56	6.25	32.30	pk	---	---
3	9848.000	54.21			40.27	7.53	32.38	Peak	---	---

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).

Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (40MHz) Ch. 3

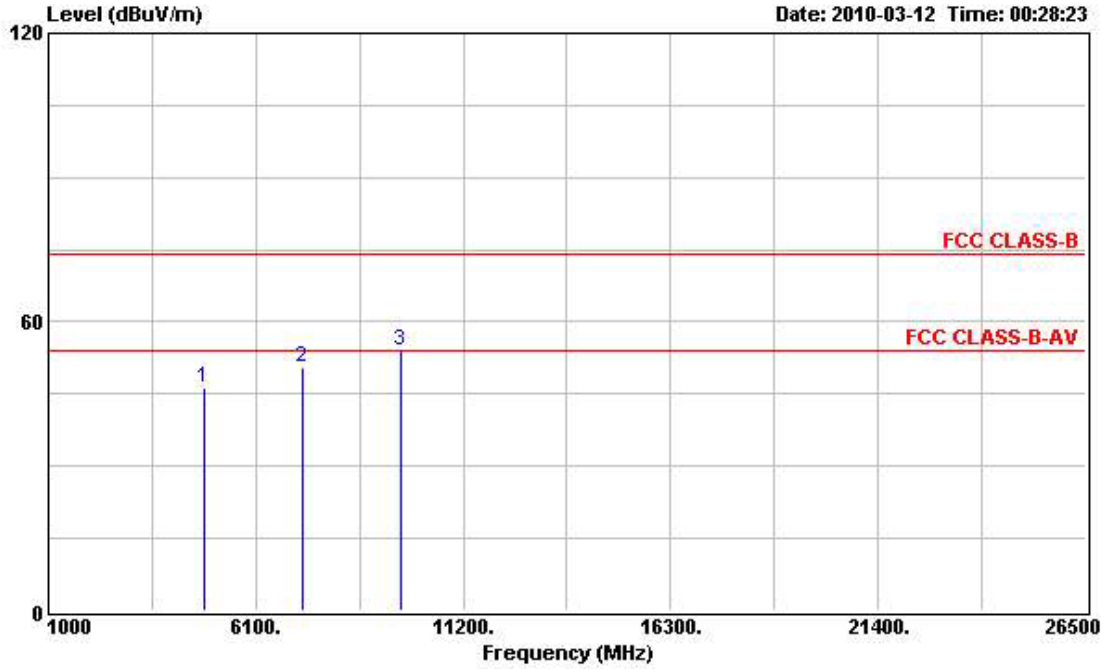
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4844.000	46.80	-7.20	54.00	40.95	5.06	32.30	pk	---	---
2	7266.000	50.52	-3.48	54.00	41.05	6.16	32.55	pk	---	---
3	9688.000	53.69			40.37	7.15	32.31	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).

Vertical

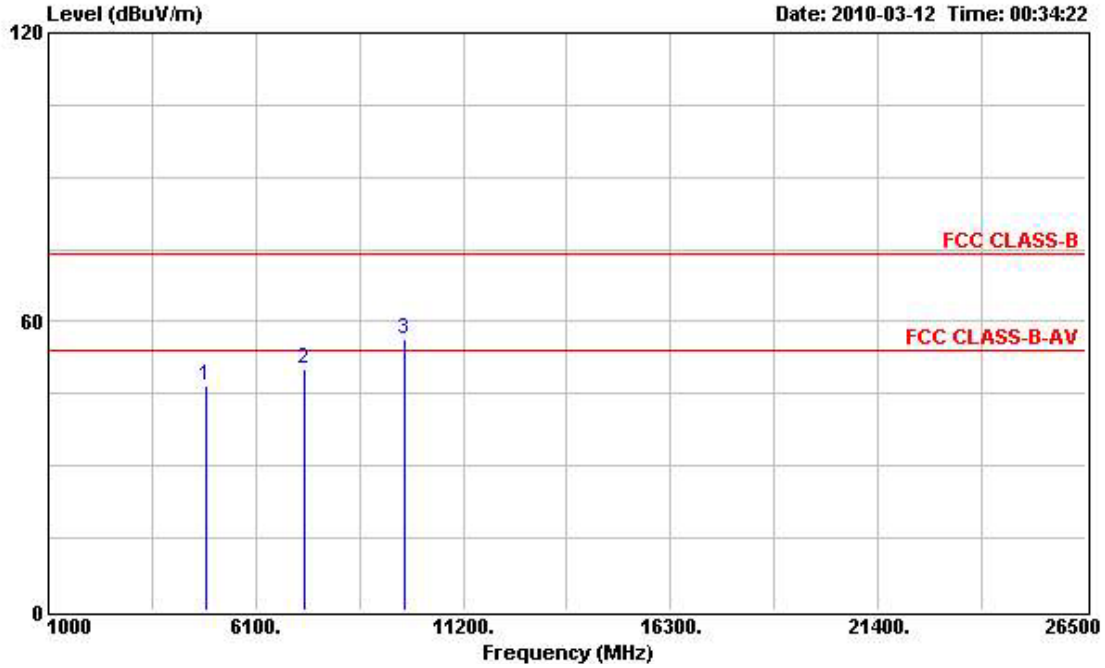


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4844.000	46.19	-7.81	54.00	40.34	5.06	32.30	pk	---	---
2	7266.000	50.41	-3.59	54.00	40.94	6.16	32.55	pk	---	---
3	9688.000	53.95			40.63	7.15	32.31	Peak	---	---

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).

Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (40MHz) Ch. 6

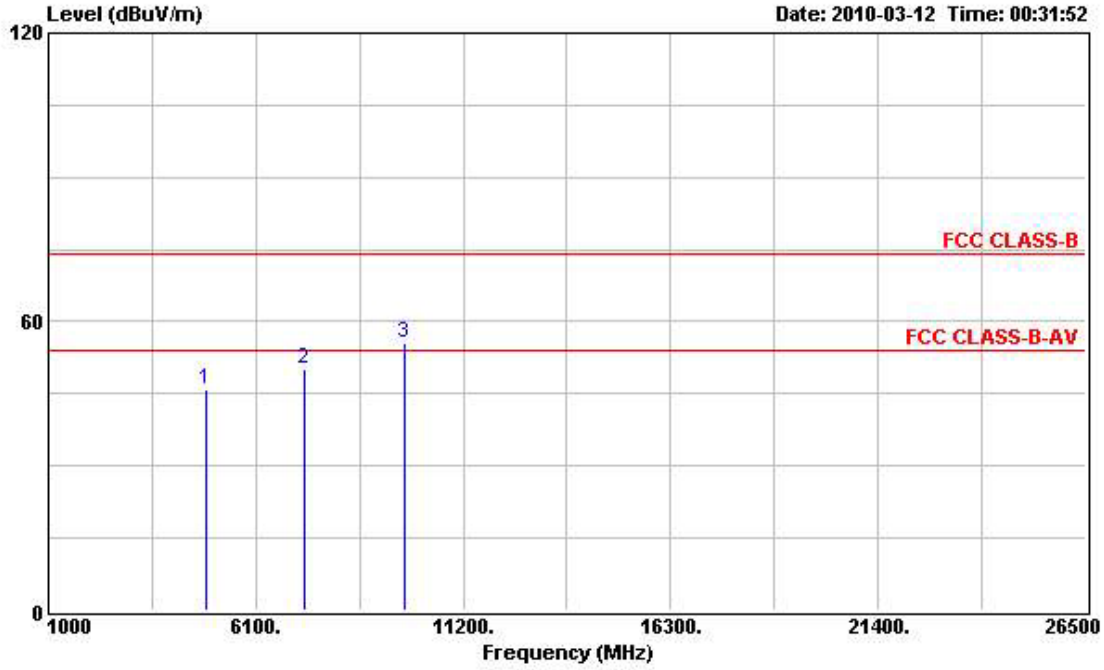
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	46.83	-7.17	54.00	40.93	5.07	32.33	pk	---	---
2	7311.000	50.13	-3.87	54.00	40.48	6.19	32.48	pk	---	---
3	9748.000	56.44			42.81	7.34	32.33	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).

Vertical

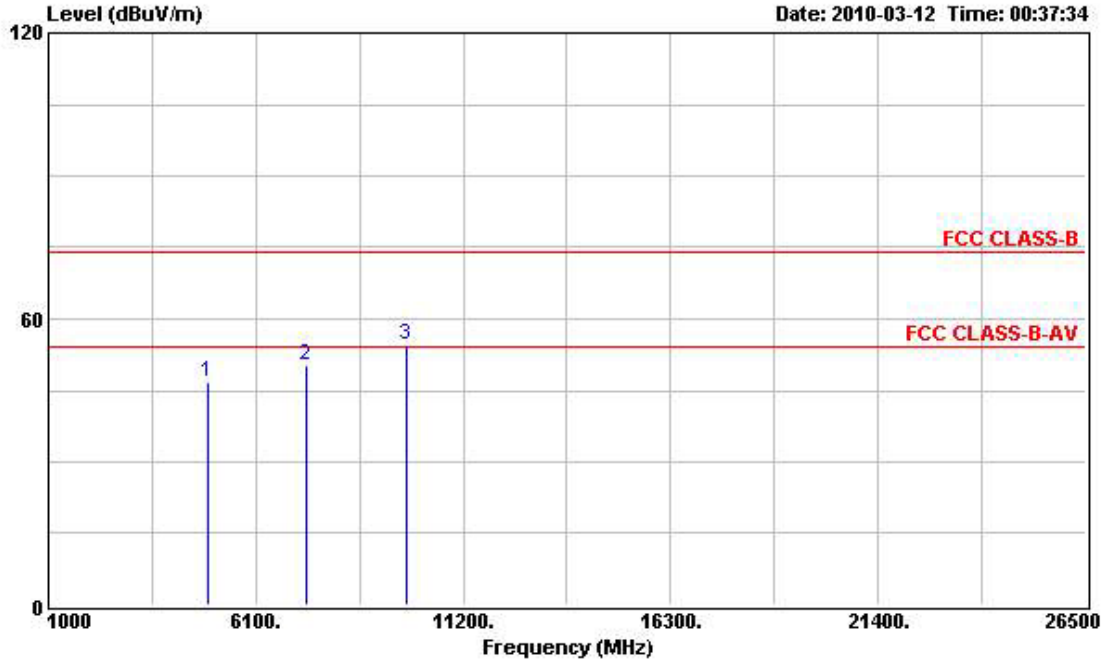


	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4874.000	45.81	-8.19	54.00	39.91	5.07	32.33	pk	---	---
2	7311.000	50.01	-3.99	54.00	40.36	6.19	32.48	pk	---	---
3	9748.000	55.69			42.06	7.34	32.33	Peak	---	---

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).

Final Test Date	Mar. 12, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (40MHz) Ch. 9

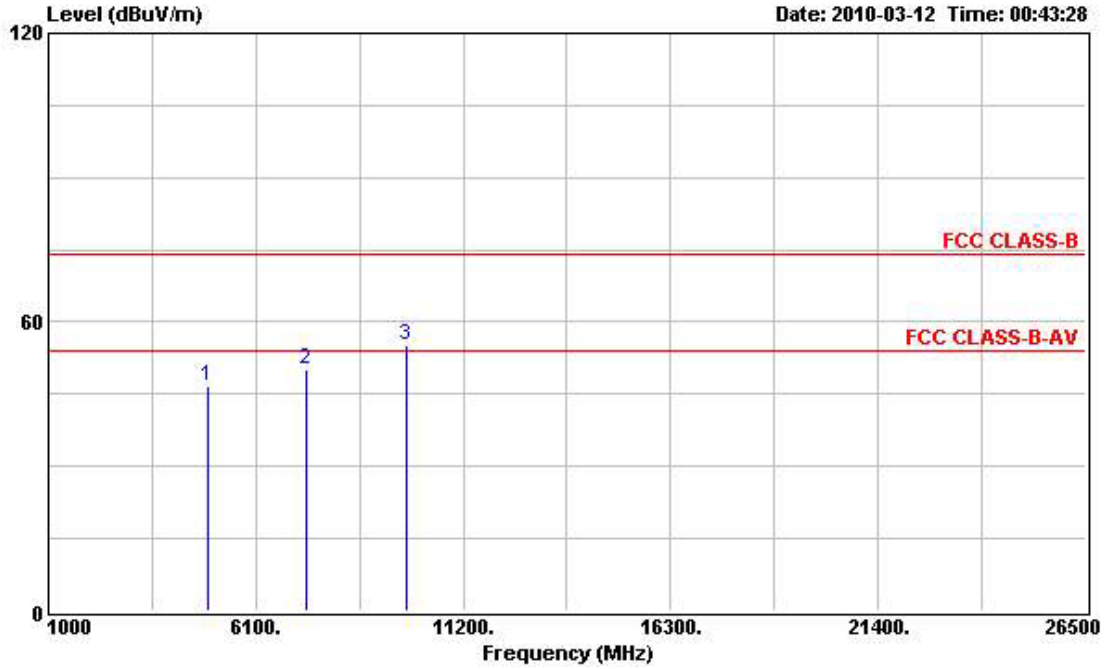
Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4904.000	46.58	-7.42	54.00	40.63	5.07	32.35	pk	---	---
2	7356.000	50.28	-3.72	54.00	40.35	6.22	32.36	pk	---	---
3	9808.000	54.60			40.81	7.43	32.36	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).

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	4904.000	46.71	-7.29	54.00	40.76	5.07	32.35	pk	---	---
2	7356.000	50.25	-3.75	54.00	40.32	6.22	32.36	pk	---	---
3	9808.000	55.01			41.22	7.43	32.36	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).

Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6 Band Edge and Fundamental Emissions Measurement

3.6.1 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 (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 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)	1MHz / 1MHz for Peak

3.6.3 Test Procedures

1. The test procedure is the same as section 3.5.3; 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.

3.6.4 Test Setup Layout

This test setup layout is the same as that shown in section 3.5.4.

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 Test Result of Band Edge and Fundamental Emissions

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11b Ch. 1, 6, 11

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	2390.000	47.62	-6.38	54.00	15.75	3.58	0.00	Average	---	---
2 X	2409.940	103.77			71.86	3.58	0.00	Average	---	---
1	2390.000	59.03	-14.97	74.00	27.16	3.58	0.00	Peak	---	---
2 X	2410.700	111.29			79.38	3.58	0.00	Peak	---	---

The item 2 is Fundamental Emissions.

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2438.060	110.58			78.55	3.63	0.00	Peak	---	---
1 X	2439.010	102.39			70.36	3.63	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2463.140	111.06			78.94	3.69	0.00	Peak	---	---
2	2483.500	58.43	-15.57	74.00	26.27	3.69	0.00	Peak	---	---
1 X	2461.620	103.00			70.88	3.69	0.00	Average	---	---
2	2483.500	47.63	-6.37	54.00	15.47	3.69	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11g Ch.1, 6, 11

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	2390.000	61.95	-12.05	74.00	30.08	3.58	0.00	Peak	---	---
2 X	2408.420	108.46			76.55	3.58	0.00	Peak	---	---
1	2359.780	48.13	-5.87	54.00	16.39	3.52	0.00	Average	---	---
2 X	2410.130	98.29			66.38	3.58	0.00	Average	---	---

The item 2 is Fundamental Emissions.

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2438.820	107.34			75.31	3.63	0.00	Peak	---	---
1 X	2440.340	96.97			64.94	3.63	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2463.330	107.34			75.22	3.69	0.00	Peak	---	---
2	2483.500	61.55	-12.45	74.00	29.39	3.69	0.00	Peak	---	---
1 X	2460.290	97.04			64.92	3.69	0.00	Average	---	---
2	2483.500	47.73	-6.27	54.00	15.57	3.69	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (20MHz) Ch.1, 6, 11

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	2390.000	63.33	-10.67	74.00	31.46	3.58	0.00	Peak	---	---
2 X	2409.940	108.60			76.69	3.58	0.00	Peak	---	---
1	2359.970	48.45	-5.55	54.00	16.71	3.52	0.00	Average	---	---
2 X	2409.180	98.10			66.19	3.58	0.00	Average	---	---

The item 2 is Fundamental Emissions.

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2440.340	107.45			75.42	3.63	0.00	Peak	---	---
1 X	2438.820	97.13			65.10	3.63	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2458.580	107.25			75.19	3.63	0.00	Peak	---	---
2	2483.500	63.63	-10.37	74.00	31.47	3.69	0.00	Peak	---	---
1 X	2459.340	96.87			64.75	3.69	0.00	Average	---	---
2	2483.500	48.05	-5.95	54.00	15.89	3.69	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Mar. 11, 2010	**Test Site No.**	03CH01-HY
Temperature	20℃	**Humidity**	50%
Test Engineer	Steven	**Configuration**	802.11n (40MHz) Ch.3, 6, 9

Channel 3

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1	2390.000	64.38	-9.62	74.00	32.51	3.58	0.00	Peak	---	---
2 X	2408.610	104.38			72.47	3.58	0.00	Peak	---	---
1	2390.000	49.39	-4.61	54.00	17.52	3.58	0.00	Average	---	---
2 X	2410.700	94.04			62.13	3.58	0.00	Average	---	---

The item 2 is Fundamental Emissions.

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2445.850	104.18			72.15	3.63	0.00	Peak	---	---
1 X	2447.940	93.75			61.72	3.63	0.00	Average	---	---

The item 1 is Fundamental Emissions.

Channel 9

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB		cm	deg
1 X	2454.970	104.62			72.56	3.63	0.00	Peak	---	---
2	2485.180	65.79	-8.21	74.00	33.63	3.69	0.00	Peak	---	---
1 X	2454.970	94.27			62.21	3.63	0.00	Average	---	---
2	2483.850	50.52	-3.48	54.00	18.36	3.69	0.00	Average	---	---

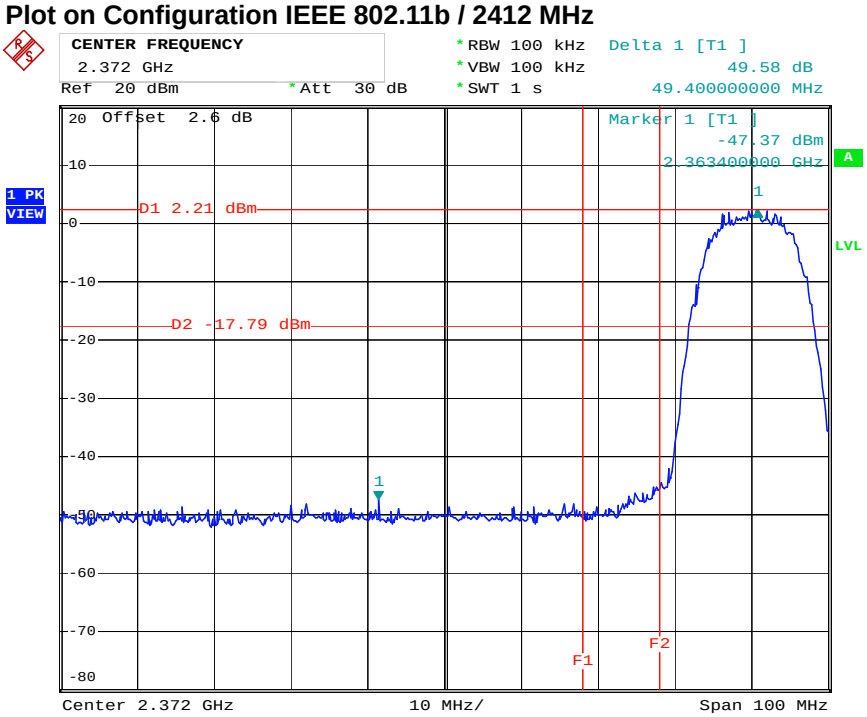
The item 1 is Fundamental Emissions.

Note:
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

For Emission not in Restricted Band

Final Test Date	Mar. 19, 2010	**Test Site No.**	TH01-HY
Temperature	25℃	**Humidity**	61%
Test Engineer	Duncan	**Configurations**	802.11b/g/n

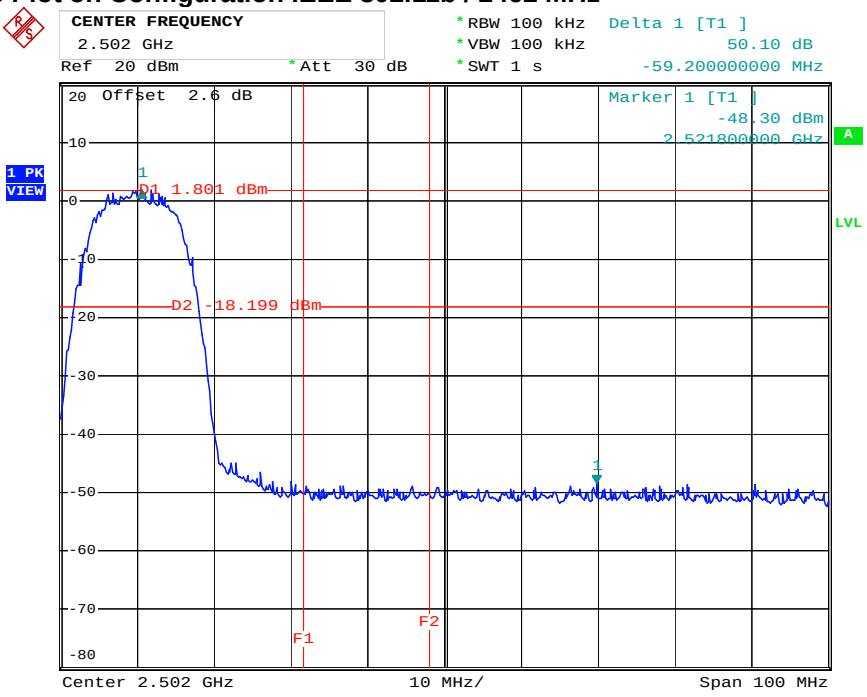
Low Band Edge Plot on Configuration IEEE 802.11b / 2412 MHz



Date: 1.AUG.2011 18:18:53

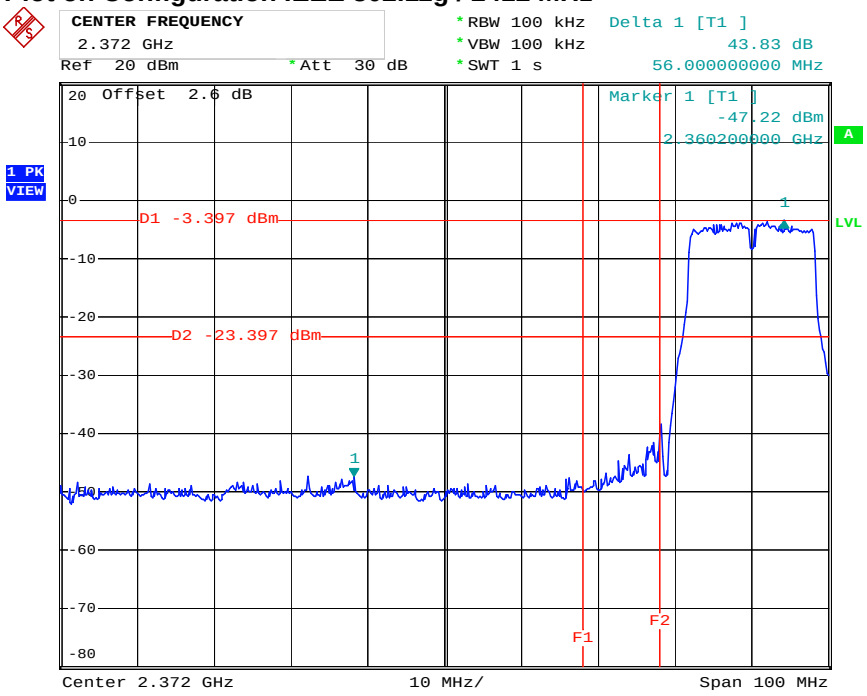
Date: 19.MAR.2010 15:28:00

High Band Edge Plot on Configuration IEEE 802.11b / 2462 MHz



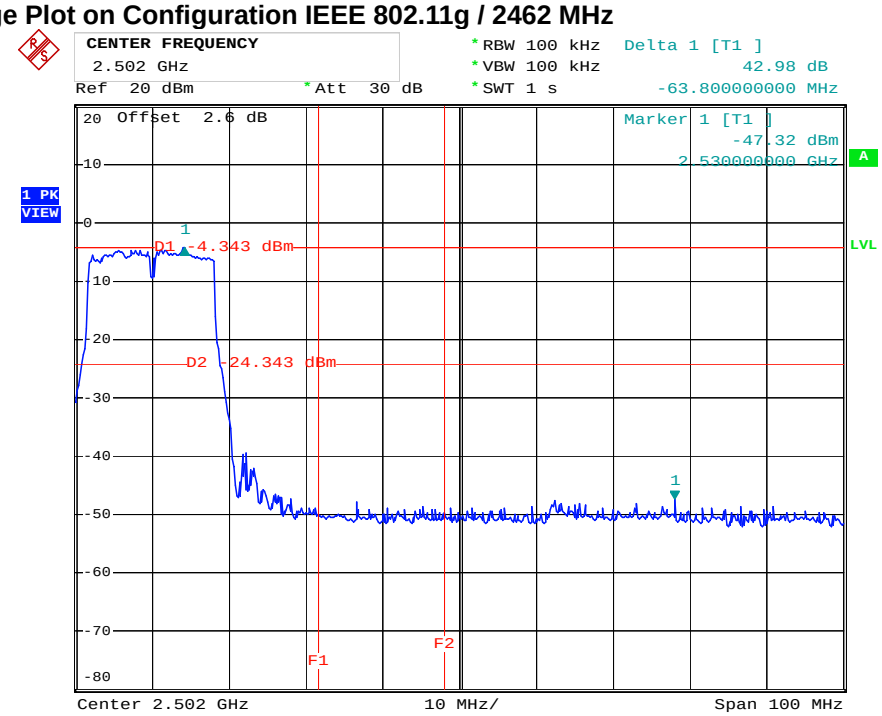
Date: 19.MAR.2010 15:36:34

Low Band Edge Plot on Configuration IEEE 802.11g / 2412 MHz



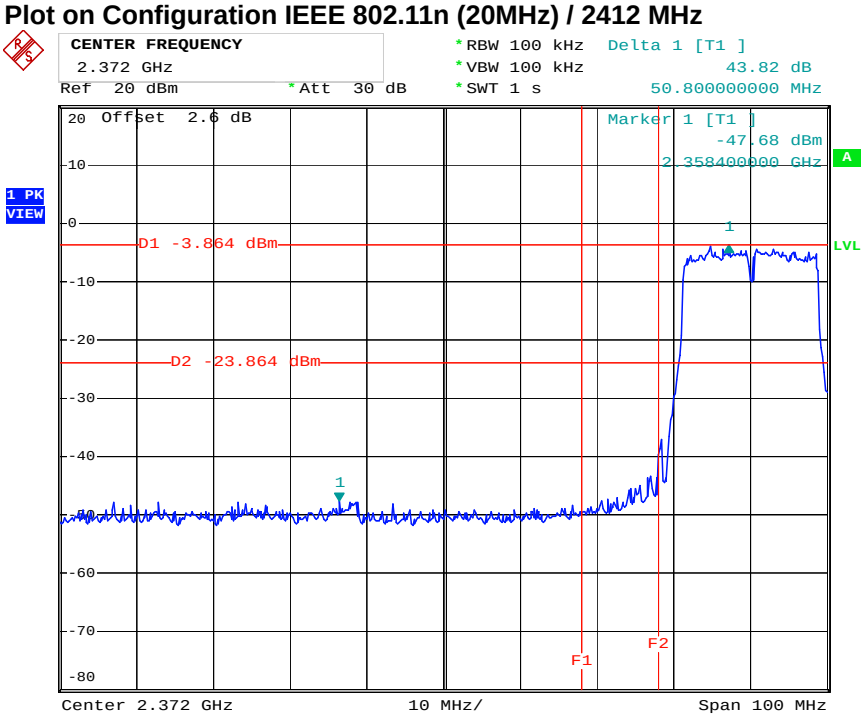
Date: 19.MAR.2010 15:38:56

High Band Edge Plot on Configuration IEEE 802.11g / 2462 MHz



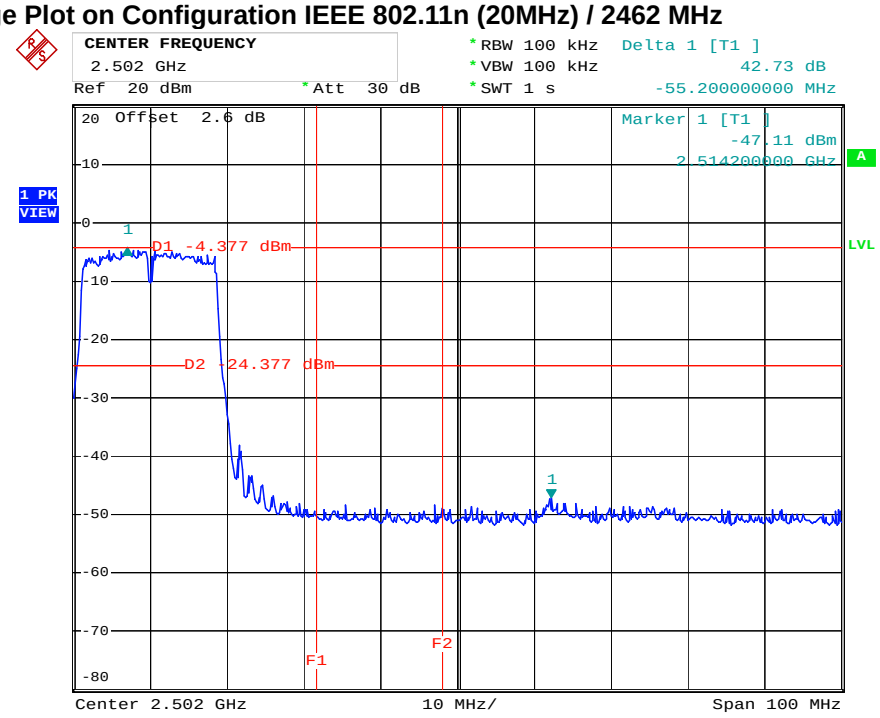
Date: 19.MAR.2010 15:42:55

Low Band Edge Plot on Configuration IEEE 802.11n (20MHz) / 2412 MHz



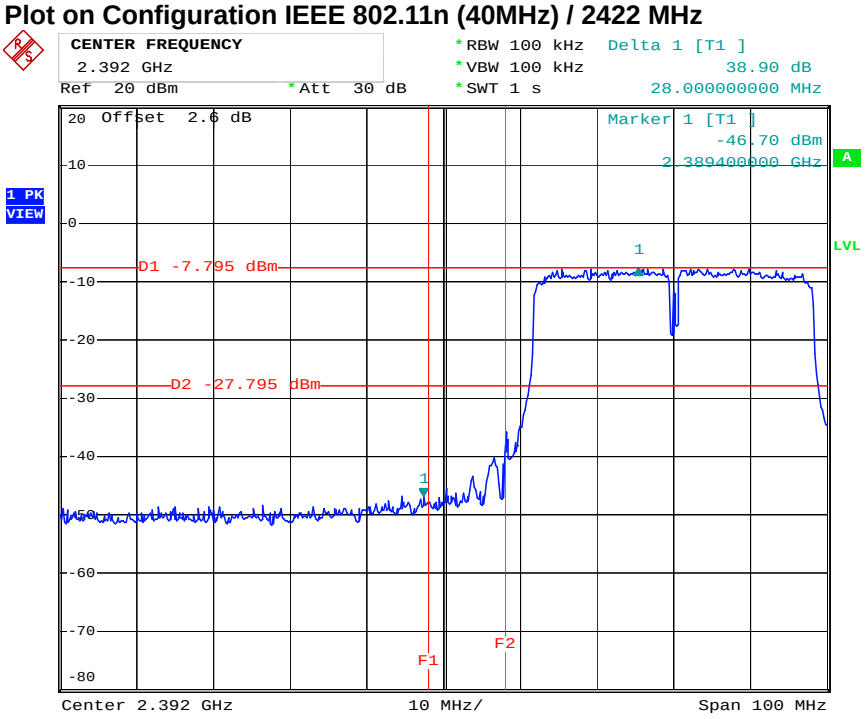
Date: 19.MAR.2010 15:46:21

High Band Edge Plot on Configuration IEEE 802.11n (20MHz) / 2462 MHz



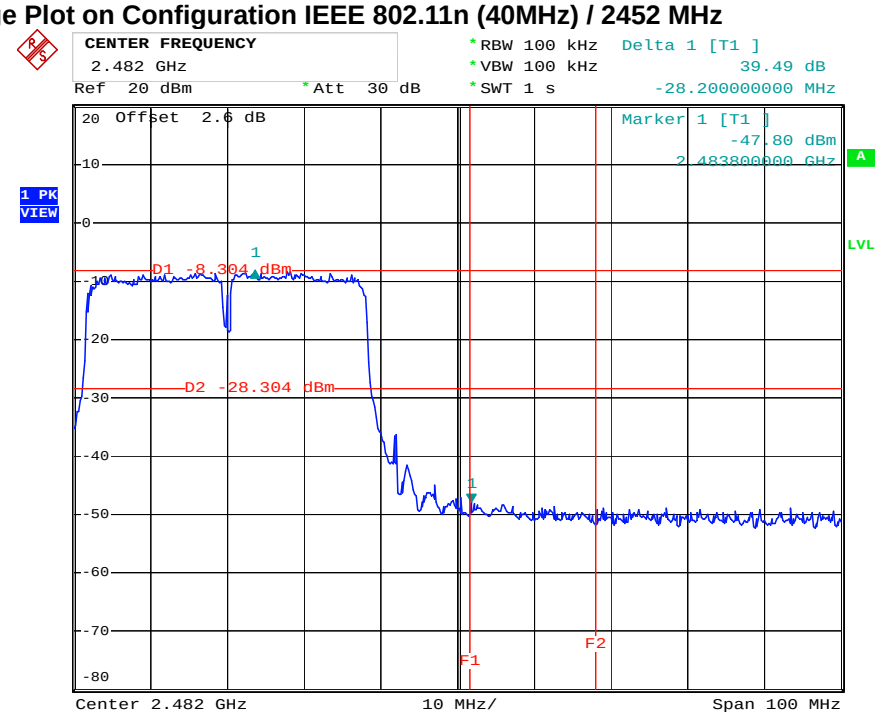
Date: 19.MAR.2010 15:49:21

Low Band Edge Plot on Configuration IEEE 802.11n (40MHz) / 2422 MHz



Date: 19.MAR.2010 15:51:56

High Band Edge Plot on Configuration IEEE 802.11n (40MHz) / 2452 MHz



Date: 19.MAR.2010 15:55:22

3.7 Antenna Requirements

3.7.1 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.

3.7.2 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	100132	9kHz – 2.75GHz	Sep. 01, 2009	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz – 30MHz	Jan. 19, 2010	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz – 30MHz	Mar. 01, 2010	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz – 30MHz	May 05, 2009	Conduction (CO01-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	FSU26.5	100015	20Hz ~ 26.5GHz	Oct. 29, 2009	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	0917017	300MHz~40GHz	Dec. 03, 2009	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	0949003	300MHz~40GHz	Dec. 03, 2009	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jul. 31, 2009	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 12, 2010	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Aug. 06, 2009	Conducted (TH01-HY)
RF Cable-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2009	Conducted (TH01-HY)
RF Cable-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2009	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	Jul. 12, 2009*	Conducted (TH01-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH01-HY	30 MHz - 1 GHz 3m	May 04, 2009	Radiation (03CH01-HY)
Amplifier	COM-POWER	PA-103	161050	1 MHz - 1 GHz	Oct. 26, 2009	Radiation (03CH01-HY)
Spectrum Analyzer	R&S	FSP 7	100644/007	9 kHz – 40hjn GHz	Aug. 17, 2009	Radiation (03CH01-HY)
Receiver	SCHAFFNER	SCR 3501	415	9 kHz - 1 GHz	Feb. 08, 2010	Radiation (03CH01-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2678	30 MHz - 2 GHz	Oct. 17, 2009	Radiation (03CH01-HY)
Turn Table	HD	DS 420	420/648/00	0 - 360 degree	N/A	Radiation (03CH01-HY)
Antenna Mast	HD	MA 240	240/558/00	1 m - 4 m	N/A	Radiation (03CH01-HY)
RF Cable-R03m	Jye Bao	RG142	CB019	30 MHz - 1 GHz	Dec. 07, 2009	Radiation (03CH01-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX106	33135/2	1GHz~40GHz	May 10, 2009	Radiation (03CH01-HY)
Horn Antenna	EMCO	3115	6741	1GHz~18GHz	Apr. 28, 2009	Radiation (03CH01-HY)
Amplifier	Agilent	8449B	3008A02120	1GHz – 26.5 GHz	Jul. 06, 2009	Radiation (03CH01-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. 28, 2008*	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, Taiwan 221, 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 Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, 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. : L1190-110111

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 : January 11, 2011

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