FCC RADIO TEST REPORT

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment	:	**BAC2000T**
Model No.	:	**C2000T**
Filing Type	:	**New Application**
FCC ID	:	**RSE-C2000T**
Trade Name	:	**technicolor**
Applicant	:	**Technicolor Delivery Technologies Belgium** Prins Boudewijnlaan 47 B-2650 Edegem Belgium

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 C63.10-2009** 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.

6F, No. 106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of This Test Report

Original Issue Date: Nov. 09, 2012

Report No.: FR272018

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No.: CB10109075

CERTIFICATE OF COMPLIANCE

according to

47 CFR FCC Part 15 Subpart C § 15.247

Equipment : BAC2000T
Model No. : C2000T
Trade Name : technicolor
Applicant : Technicolor Delivery Technologies Belgium
Prins Boudewijnlaan 47 B-2650 Edegem Belgium

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jul. 20, 2012 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Jordan Hsiao

Jordan Hsiao

SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei 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	8.03 dB
3.3	15.247(b)(3)	Conducted Output Power	Complies	7.09 dB
3.4	15.247(e)	Power Spectral Density	Complies	17.09 dB
3.5	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
3.6	15.247(d)	Radiated Emissions	Complies	1.63 dB
3.8	15.247(d)	Band Edge Emissions	Complies	0.82 dB
3.9	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.8dB	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%

1.1 Information provided by the manufacturer

Equipment: BAC2000T

Model Number: C2000T

Trade Name: technicolor

Power Supply: Switching-Type, 12Vdc, 2.25A, Manufacturer: AcBel, Model: WAB014

DSL37005860

AC Power Cord: Wall-mount, 2pin

Hardware Version: PEM1

Interface Availability

Interface / Model	DC 12Vdc 2.25A	ADSL: (ADSL/2/2+ Annex A, ADSL 2 L1) VDSL2 17a + VDSL2 bonding up to 12a on 2nd AFE: (B7-6, B7-8 B7-13, B8-6 B8-13)	Ethernet 10/100/1000 Mbps	USB 2. 0	PSTN	Line	WLAN IEEE 802.11b/g/n (2.4GHz)	HPNA
C2000T	●	●	●(5 port)	●(1 port)	●(1 port)	●(2 port)	●	●

● : Equipped

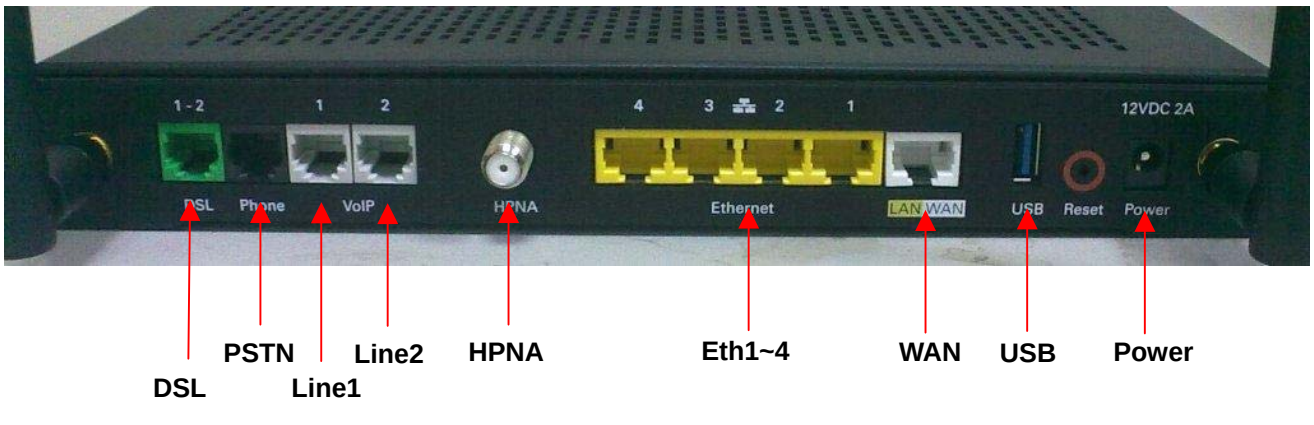
○ : Not Equipped

1.2 Cabling attached to the equipment

Table 1- Cable and Interconnection

Interface	Cable type	Cable length delivered with the modem	"Real life" Cable length that can be attached to this type of interface	Cable length to be used for testing	Internal/ external connection
DSL	UTP Cat 3	2 meter flat cable	> 10 meter	10 meter	External
Eth1, WAN	UTP Cat 5	2 meter	> 10 meter	Two 10 meter cables;	Internal
Line1/2	UTP Cat 3	2 meter	> 10 meter	1 meter flat cable	Internal
PSTN	UTP Cat 3	2 meter flat cable	> 10 meter	10 meter	External
USB1	STP	1 meter	< 3 meter	1 meter	Internal
HPNA	coaxial	2 meter	> 10 meter	10 meter	Internal
AC power					External

1.3 Panel Drawing



2 GENERAL INFORMATION

2.1 Product Details

The radio detail of IEEE 802.11b/g/n is shown in the table below. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description		
Product Type	IEEE 802.11b/g: WLAN (1TX, 2RX) IEEE 802.11n (MCS0): WLAN (1TX, 2RX) IEEE 802.11n (MCS8): WLAN (2TX, 2RX)		
Power Type	From Power Adapter		
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g and IEEE 802.11n		
Data Modulation	DSSS (DBPSK / DQPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM) See the below table for 802.11n		
Data Rate (Mbps)	11b mode :DSSS (1/2/5.5/11) 11g mode :OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode(MCS0~MCS15); 11n(40MHz) mode(MCS0~MCS15)		
Frequency Range	2400 ~ 2483.5MHz		
Channel Spacing	2400~2483.5MHz	■	IEEE 802.11b: 5MHz
		■	IEEE 802.11g: 5MHz
		■	IEEE 802.11n (20MHz): 5MHz
		■	IEEE 802.11n (40MHz): 5MHz
Operating Band	2400~2483.5MHz		
I/O Ports	LAN Port x 4 WAN Port x 1 USB Host Port x 1 Phone Port x 2 DSL Port x 1 PSTN Port x 1 HPNA Port x 1(Coaxial type)		
Channel Number	11b/g: 11 11n: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth		
Channel Band Width (99%)	11b: 10.40 MHz ; 11g: 17.20 MHz 11n (20MHz): 18.08 MHz ; 11n (40MHz): 36.48 MHz		
Conducted Output Power	11b: 22.91 dBm ; 11g: 21 dBm MCS0 (20MHz): 20.90 dBm ; MCS0 (40MHz): 20.25 dBm MCS8 (20MHz): 21.86 dBm ; MCS8 (40MHz): 21.99 dBm		

2.2 Accessories

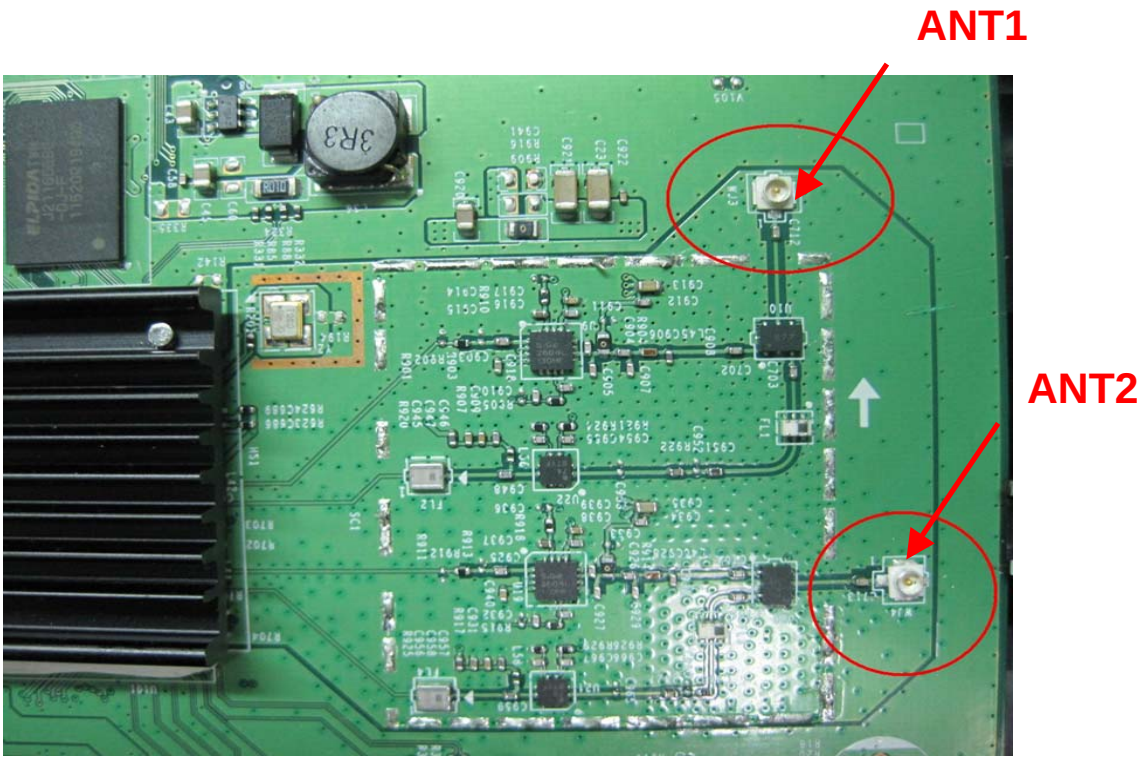
Power	Brand	Model	Rating
Switching-Type Power Adapter	AcBel	WAB014	Input:100-240V~0.7A 50/60Hz Output: 12V, 2.25A

2.3 Table for Filed Antenna

Antenna & Bandwidth

Antenna	Single (TX)		Two (TX)	
Bandwidth Mode	20 MHz	40 MHz	20 MHz	40 MHz
802.11b	V	X	X	X
802.11g	V	X	X	X
802.11n	V	V	V	V

Frequency	Antenna Gain (dBi)			
	Ant. 1 (WJ1)		Ant. 2 (WJ2)	
	20MHz	40MHz	20MHz	40MHz
2412MHz	4.64	-	5.04	-
2422MHz	-	4.78	-	5.13
2437MHz	4.76	4.76	5.07	5.07
2452MHz	-	4.78	-	4.98
2462MHz	4.63	-	4.72	-



IEEE 802.11n Modulation Scheme

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11n 20MHz 1 stream	MCS0	6.5	7.2	11n 40MHz 1 stream	MCS0	13.5	15
	MCS1	13	14.4		MCS1	27	30
	MCS2	19.5	21.7		MCS2	40.5	45
	MCS3	26	28.9		MCS3	54	60
	MCS4	39	43.3		MCS4	81	90
	MCS5	52	57.8		MCS5	108	120
	MCS6	58.5	65		MCS6	121.5	135
	MCS7	65	72.2		MCS7	135	150
11n 20MHz 2 stream	MCS8	13	14.4	11n 40MHz 2 stream	MCS8	27	30
	MCS9	26	28.9		MCS9	54	60
	MCS10	39	43.3		MCS10	81	90
	MCS11	52	57.8		MCS11	108	120
	MCS12	78	86.7		MCS12	162	180
	MCS13	104	115.6		MCS13	216	240
	MCS14	117	130		MCS14	243	270
	MCS15	130	144.4		MCS15	270	300

2.4 Transmit Operating Modes

Transmit Operating Mode						Transmit Muitiple Antennas					
☐	Operating mode 1 (single antenna)					■	1TX				
☐	Operating mode 2 (muitiple antenna, no beam forming)					■	2TX	☐	3TX	☐	4TX
☐	Operating mode 3 (muitiple antenna, with beam forming)					☐	2TX	☐	3TX	☐	4TX
☐	802.11b	Operating mode	■	1TX	☐ 2TX	☐	3TX	☐	Cyclic shift		
☐	802.11g	Operating mode	■	1TX	☐ 2TX	☐	3TX	☐	Cyclic shift		
☐	802.11n(HT20)	Operating mode	■	1TX	■ 2TX	☐	3TX	☐	Cyclic shift		
☐	802.11n(HT40)	Operating mode	■	1TX	■ 2TX	☐	3TX	☐	Cyclic shift		

Note1: For IEEE802.11n, MCS0~MCS7: 1TX; MCS8~MCS15:2TX

2.5 Table for Carrier Frequencies

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

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

Seven channels are provided for 802.11n (40MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400MHz ~ 2483.5 MHz	3	2422 MHz	7	2442MHz
	4	2427MHz	8	2447MHz
	5	2432MHz	9	2452MHz
	6	2437MHz	-	-

2.6 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	Note	Channel	Data Rate	Antenna
AC Power Line Conducted Emissions	Normal	-	-	-	-
Maximum Conducted (Average) Output Power (Conducted)	11b	DSSS/DBPSK	1/6/11	1Mbps	1
				1Mbps	2
	11g	OFDM/BPSK	1/6/11	6Mbps	1
				6Mbps	2
	11n(20MHz)		1/6/11	MCS0	1
				MCS0	2
				MCS8	1+2
	11n(40MHz)		3/6/9	MCS0	1
				MCS0	2
				MCS8	1+2
Power Spectral Density (Conducted)	11b	DSSS/DBPSK	1/6/11	1Mbps	1
				1Mbps	2
	11g	OFDM/BPSK	1/6/11	6Mbps	1
				6Mbps	2
	11n(20MHz)		1/6/11	MCS0	1
				MCS0	2
				MCS8	1+2
	11n(40MHz)		3/6/9	MCS0	1
				MCS0	2
				MCS8	1+2
6dB Spectrum Bandwidth (Conducted)	11b	DSSS/DBPSK	1/6/11	1Mbps	1
				1Mbps	2
	11g	OFDM/BPSK	1/6/11	6Mbps	1
				6Mbps	2
	11n(20MHz)		1/6/11	MCS0	1
				MCS0	2
				MCS8	1+2
	11n(40MHz)		3/6/9	MCS0	1
				MCS0	2
				MCS8	1+2

Band Edge Emissions (Radiated)	11b	DSSS/DBPSK	1/6/11	1Mbps	1
				1Mbps	2
	11g	OFDM/BPSK	1/6/11	6Mbps	1
				6Mbps	2
	11n(20MHz)		1/6/11	MCS0	1
				MCS0	2
				MCS8	1+2
	11n(40MHz)		3/6/9	MCS0	1
				MCS0	2
				MCS8	1+2
Radiated Emissions Above 1GHz (Radiated)	11b	DSSS/DBPSK	1/6/11	1Mbps	1
				1Mbps	2
	11g	OFDM/BPSK	1/6/11	6Mbps	1
				6Mbps	2
	11n(20MHz)		1/6/11	MCS0	1
				MCS0	2
				MCS8	1+2
	11n(40MHz)		3/6/9	MCS0	1
				MCS0	2
				MCS8	1+2
Radiated Emissions Below 1GHz (Radiated)	Normal	-	-	-	-

2.7 Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

2.8 Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	M1330	E2KWM3945ABG

2.9 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.

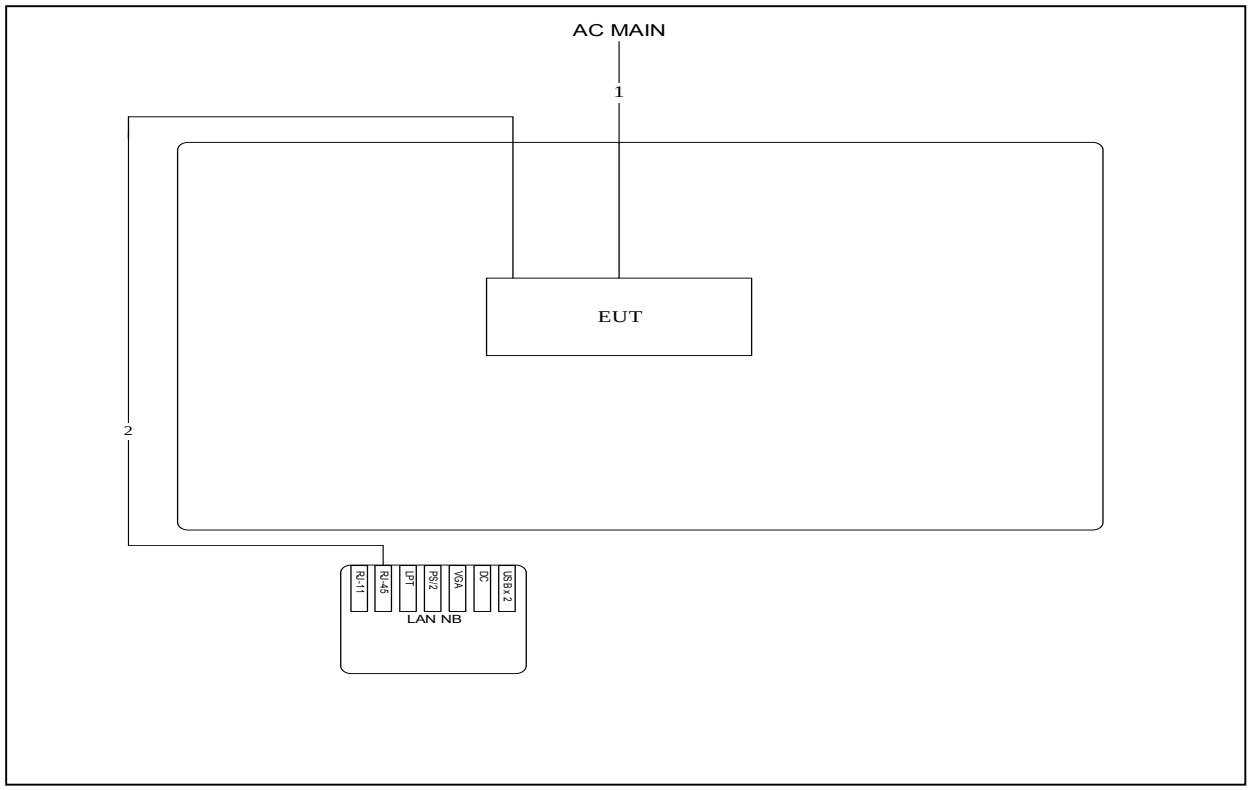
The Power Setting Parameter					
Power Level		1			
Test Software Version		DOS			
Worst Modulation Mode		**Number of Transmit Chains (NTX)**	**Frequency (MHz)**	**Power Setting**	**Data Rate / MCS**
Ant. 1	802.11b	1	2412	21.00	1Mbps
Ant. 1	802.11b	1	2437	21.00	1Mbps
Ant. 1	802.11b	1	2462	22.00	1Mbps
Ant. 2	802.11b	1	2412	21.00	1Mbps
Ant. 2	802.11b	1	2437	21.00	1Mbps
Ant. 2	802.11b	1	2462	22.00	1Mbps
Ant. 1	802.11g	1	2412	18.50	6Mbps
Ant. 1	802.11g	1	2437	21.00	6Mbps
Ant. 1	802.11g	1	2462	18.50	6Mbps
Ant. 2	802.11g	1	2412	18.50	6Mbps
Ant. 2	802.11g	1	2437	21.00	6Mbps
Ant. 2	802.11g	1	2462	18.50	6Mbps
Ant. 1	802.11n 20MHz	1	2412	18.50	MCS0
Ant. 1	802.11n 20MHz	1	2437	21.00	MCS0
Ant. 1	802.11n 20MHz	1	2462	18.50	MCS0
Ant. 2	802.11n 20MHz	1	2412	18.50	MCS0
Ant. 2	802.11n 20MHz	1	2437	21.00	MCS0
Ant. 2	802.11n 20MHz	1	2462	18.50	MCS0
Ant. 1+2	802.11n 20MHz	2	2412	18.00	MCS8
Ant. 1+2	802.11n 20MHz	2	2437	19.00	MCS8
Ant. 1+2	802.11n 20MHz	2	2462	18.00	MCS8
Ant. 1	802.11n 40MHz	1	2422	18.00	MCS0
Ant. 1	802.11n 40MHz	1	2437	20.00	MCS0
Ant. 1	802.11n 40MHz	1	2452	17.00	MCS0
Ant. 2	802.11n 40MHz	1	2422	18.00	MCS0
Ant. 2	802.11n 40MHz	1	2437	20.00	MCS0
Ant. 2	802.11n 40MHz	1	2452	17.00	MCS0
Ant. 1+2	802.11n 40MHz	2	2422	18.00	MCS8
Ant. 1+2	802.11n 40MHz	2	2437	19.00	MCS8
Ant. 1+2	802.11n 40MHz	2	2452	18.00	MCS8

2.10 EUT Operation during Test

During the test, “Telnet 192.168.0.1 (DOS)” under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

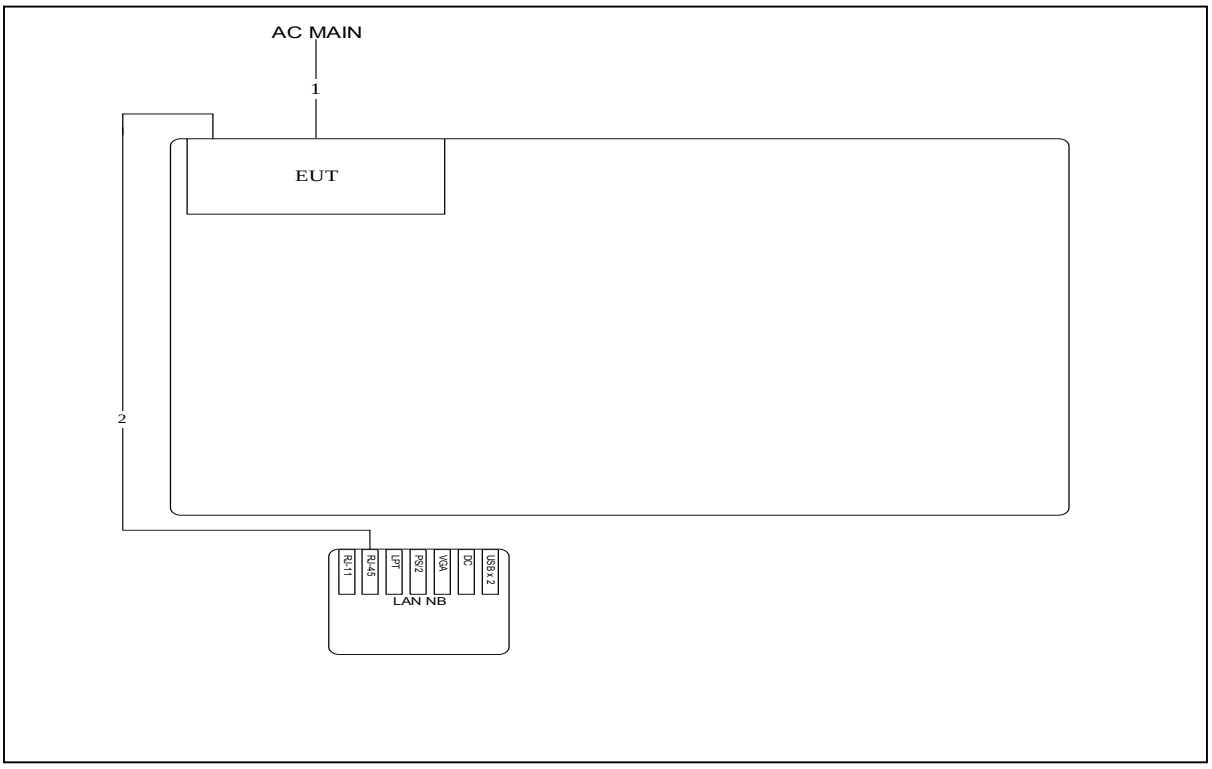
2.11 Test Configuration

2.11.1 Radiation Emissions Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.5M
2	RJ-45 cable	No	10M

2.11.2 AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.5M
2	RJ-45 cable	No	10M

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.

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

Configure the EUT according to ANSI C63.10. 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.

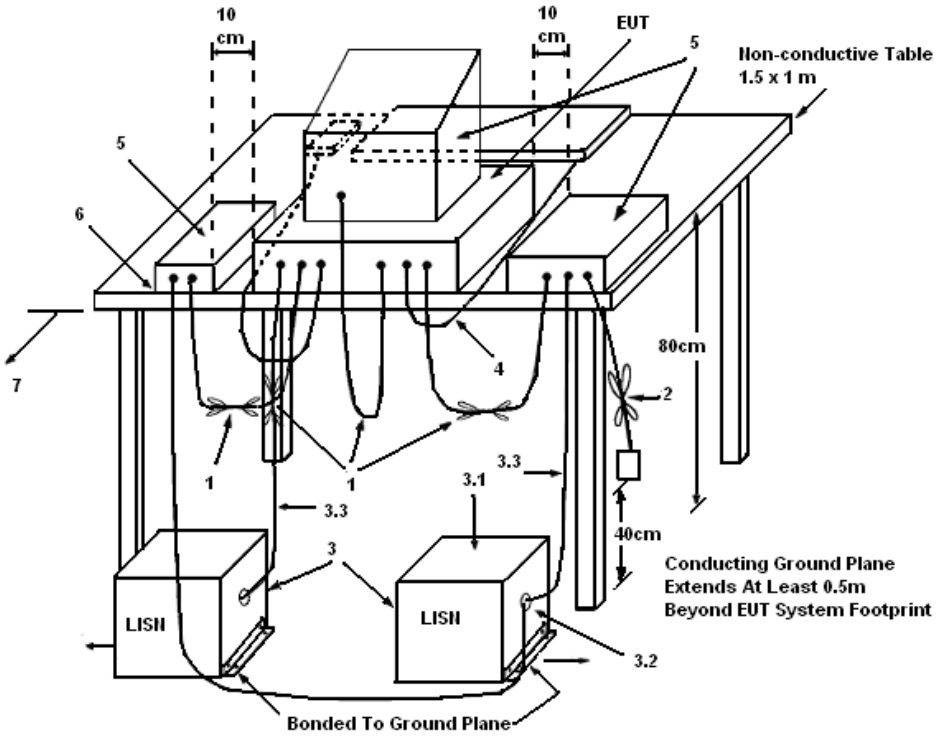
Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN). All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.

The frequency range from 150 KHz to 30 MHz was searched.

Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

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

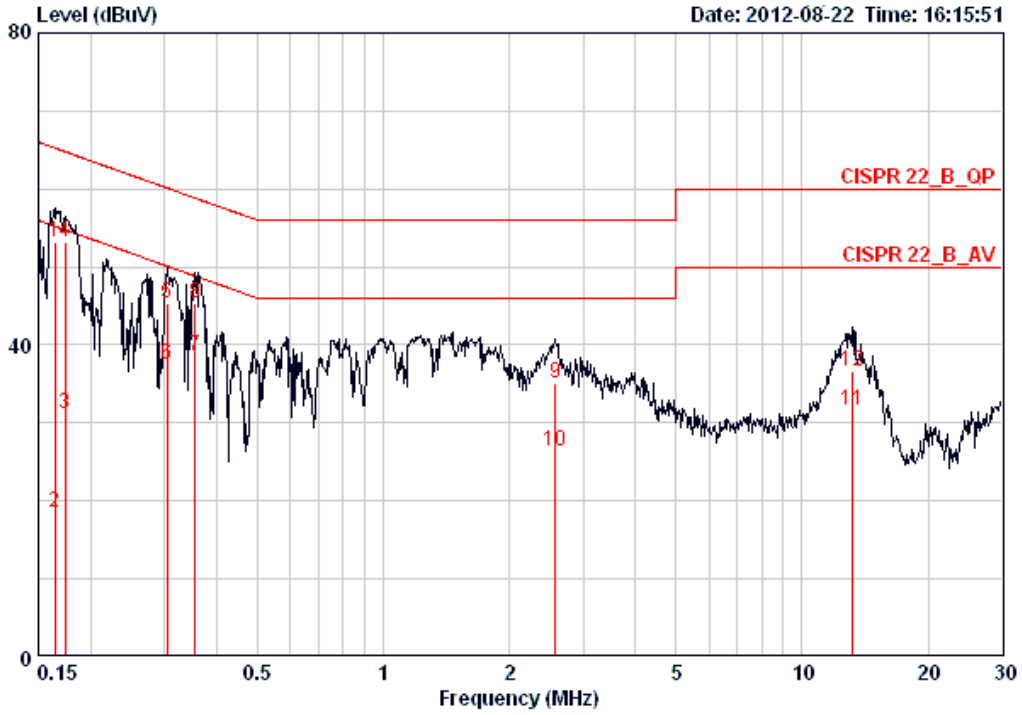
There is no deviation with the original standard.

3.1.6 EUT Operation during Test

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

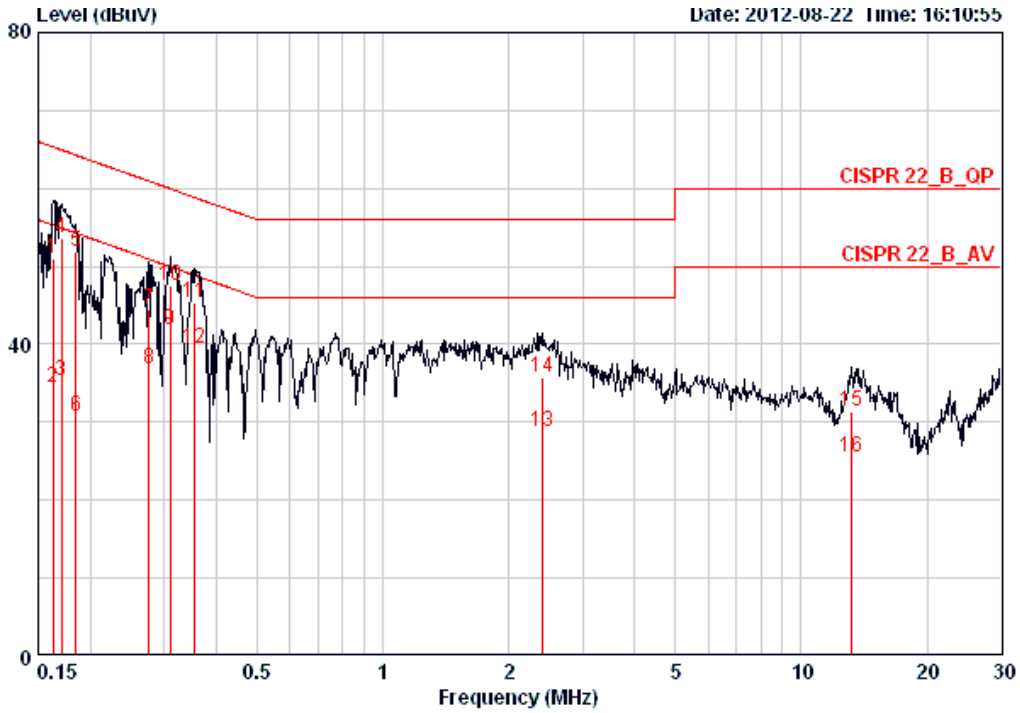
3.1.7 Results of AC Power Line Conducted Emissions Measurement

Temperature	26℃	**Humidity**	61%
Test Engineer	Kane Liu	**Phase**	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.16414	53.21	-12.04	65.25	52.85	0.16	0.20	LINE	QP
2	0.16414	18.51	-36.74	55.25	18.15	0.16	0.20	LINE	AVERAGE
3	0.17399	31.24	-23.53	54.77	30.89	0.15	0.20	LINE	AVERAGE
4	0.17399	53.14	-11.63	64.77	52.79	0.15	0.20	LINE	QP
5	0.30509	45.24	-14.86	60.10	44.89	0.15	0.20	LINE	QP
6	0.30509	37.39	-12.71	50.10	37.04	0.15	0.20	LINE	AVERAGE
7 @	0.35576	38.60	-10.23	48.83	38.25	0.15	0.20	LINE	AVERAGE
8	0.35576	45.34	-13.49	58.83	44.99	0.15	0.20	LINE	QP
9	2.581	35.04	-20.96	56.00	34.64	0.20	0.20	LINE	QP
10	2.581	26.46	-19.54	46.00	26.06	0.20	0.20	LINE	AVERAGE
11	13.127	31.64	-18.36	50.00	30.86	0.38	0.40	LINE	AVERAGE
12	13.127	36.57	-23.43	60.00	35.79	0.38	0.40	LINE	QP

Temperature	24℃	**Humidity**	56%
Test Engineer	Kane Liu	**Phase**	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.16241	50.98	-14.36	65.34	50.70	0.08	0.20	LINE	QP
2	0.16241	34.43	-20.91	55.34	34.15	0.08	0.20	LINE	AVERAGE
3	0.17034	35.40	-19.54	54.94	35.12	0.08	0.20	LINE	AVERAGE
4	0.17034	53.60	-11.34	64.94	53.32	0.08	0.20	LINE	QP
5	0.18443	51.97	-12.31	64.28	51.69	0.08	0.20	LINE	QP
6	0.18443	30.74	-23.54	54.28	30.46	0.08	0.20	LINE	AVERAGE
7	0.27587	44.53	-16.41	60.94	44.25	0.08	0.20	LINE	QP
8	0.27587	36.89	-14.05	50.94	36.61	0.08	0.20	LINE	AVERAGE
9 @	0.30998	41.94	-8.03	49.97	41.66	0.08	0.20	LINE	AVERAGE
10	0.30998	47.43	-12.54	59.97	47.15	0.08	0.20	LINE	QP
11	0.35388	45.37	-13.50	58.87	45.09	0.08	0.20	LINE	QP
12 @	0.35388	39.47	-9.40	48.87	39.19	0.08	0.20	LINE	AVERAGE
13	2.396	28.73	-17.27	46.00	28.42	0.11	0.20	LINE	AVERAGE
14	2.396	35.79	-20.21	56.00	35.48	0.11	0.20	LINE	QP
15	13.127	31.36	-28.64	60.00	30.67	0.29	0.40	LINE	QP
16	13.127	25.54	-24.46	50.00	24.85	0.29	0.40	LINE	AVERAGE

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

3.2 Conducted 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

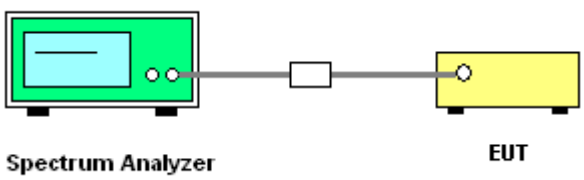
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1MHz
VB	3MHz
Detector	RMS
Trace	Average 100
Sweep Time	Auto

3.2.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with KDB 558074 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 5.2.2.2. Multiple antenna system was performed in accordance with KDB 662911 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously (duty cycle ≥ 98%) at full power over the measurement duration.
4. When measuring maximum conducted output power with 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 Conducted Output Power

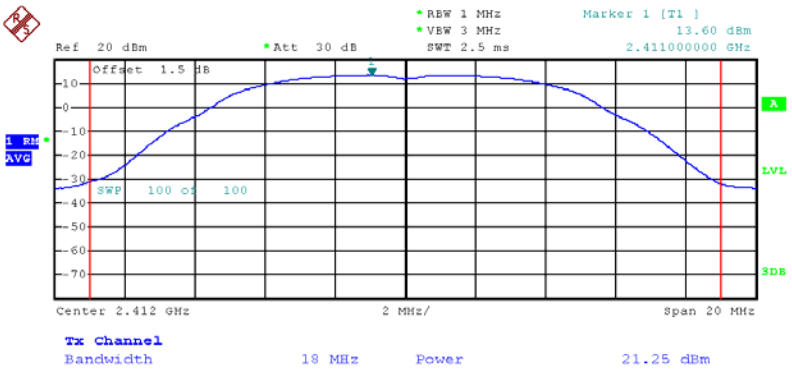
Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11b
Duty Cycle	100%	**Duty Factor**	0 dB

<Ant. 1>

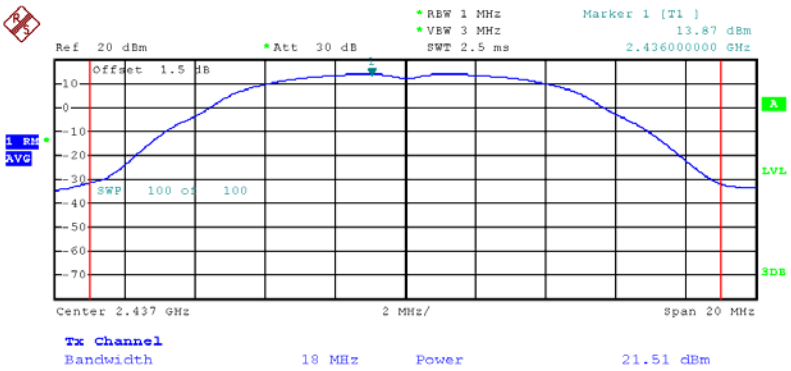
Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	21.25	30.00	Complies
6	2437 MHz	21.51	30.00	Complies
11	2462 MHz	22.05	30.00	Complies

Conducted Output Power Plot on Configuration IEEE 802.11b /Ant. 1/ 2412 MHz

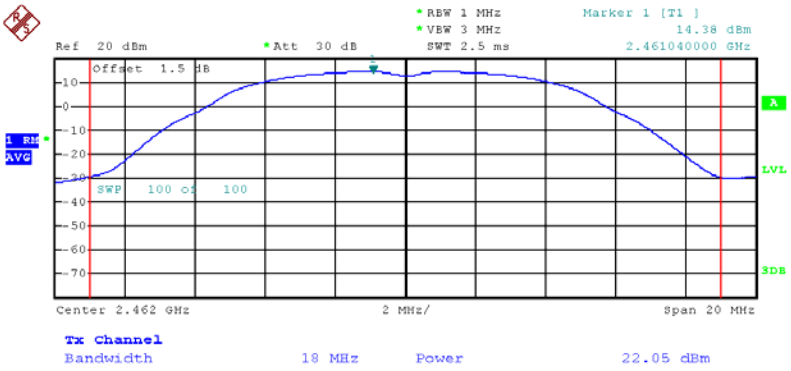


Conducted Output Power Plot on Configuration IEEE 802.11b / Ant. 1/ 2437 MHz



Date: 21.AUG.2012 13:11:12

Conducted Output Power Plot on Configuration IEEE 802.11b / Ant. 1/ 2462 MHz



Date: 21.AUG.2012 13:10:41

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11g
Duty Cycle	98.56%	Duty Factor	0.06 dB

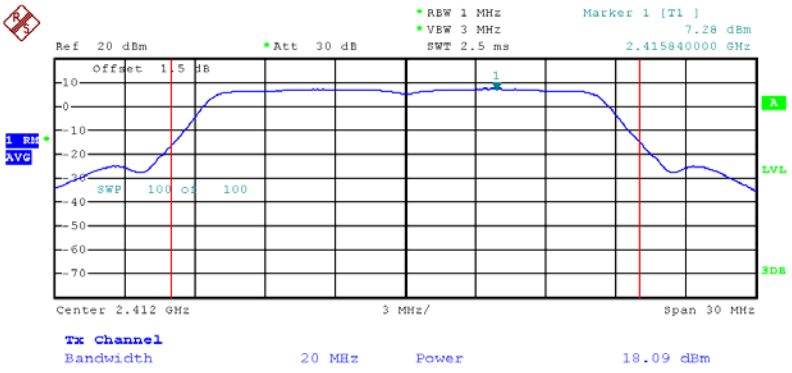
<Ant. 1>

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.15	30.00	Complies
6	2437 MHz	20.63	30.00	Complies
11	2462 MHz	18.06	30.00	Complies

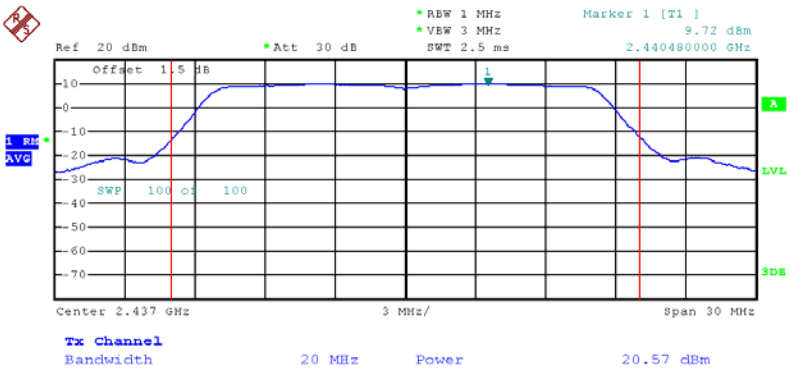
Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 1/ 2412 MHz



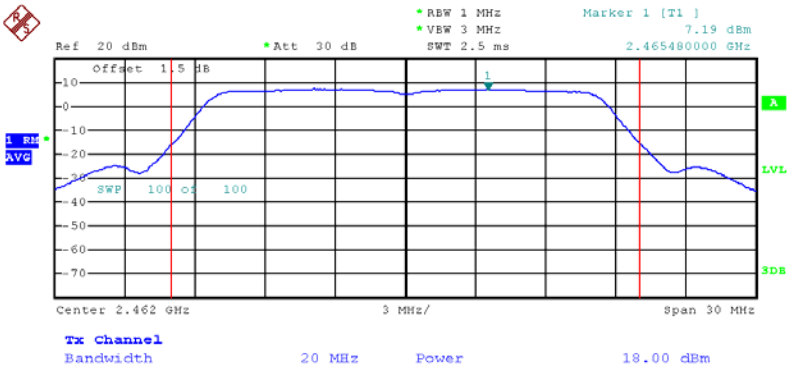
Date: 21.AUG.2012 12:51:21

Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 1/ 2437 MHz



Date: 21.AUG.2012 12:53:15

Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 1/ 2462 MHz



Date: 21.AUG.2012 12:53:46

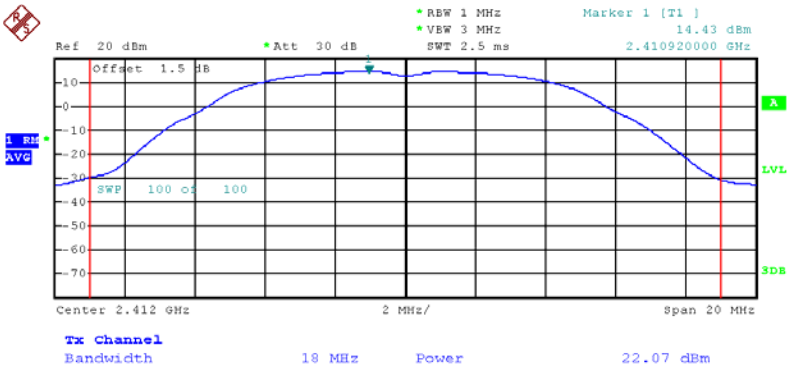
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11b
Duty Cycle	100%	Duty Factor	0 dB

<Ant. 2>

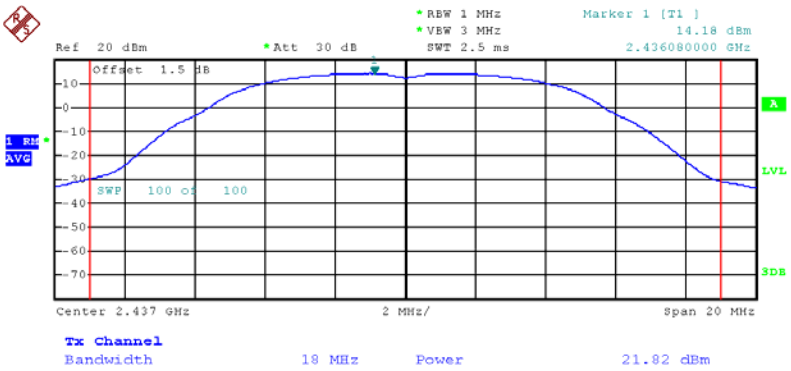
Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	22.07	30.00	Complies
6	2437 MHz	21.82	30.00	Complies
11	2462 MHz	22.91	30.00	Complies

Conducted Output Power Plot on Configuration IEEE 802.11b / Ant. 2/ 2412 MHz

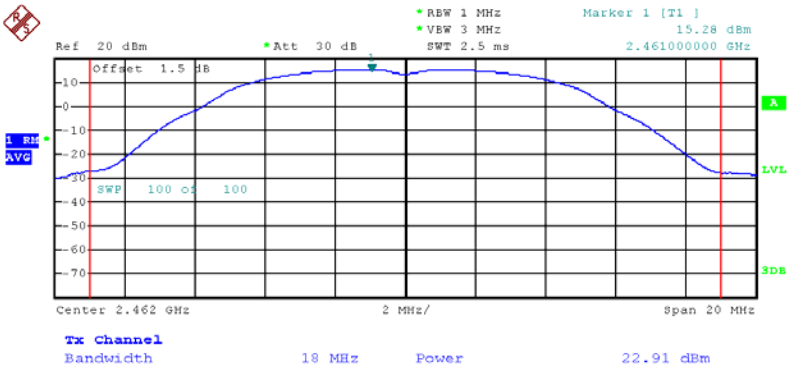


Conducted Output Power Plot on Configuration IEEE 802.11b / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 13:08:49

Conducted Output Power Plot on Configuration IEEE 802.11b / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 13:09:22

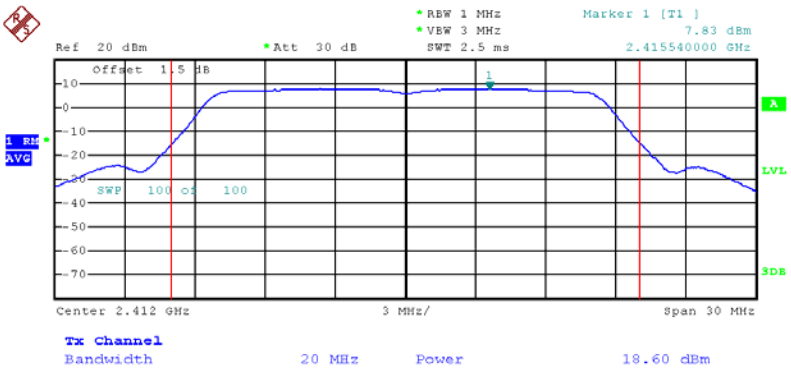
Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11g
Duty Cycle	98.56%	**Duty Factor**	0.06 dB

Configuration IEEE 802.11g

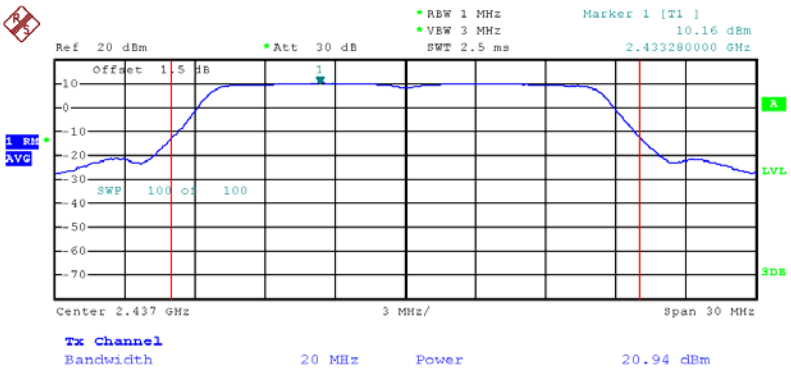
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.66	30.00	Complies
6	2437 MHz	21.00	30.00	Complies
11	2462 MHz	18.52	30.00	Complies

Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 2/ 2412 MHz

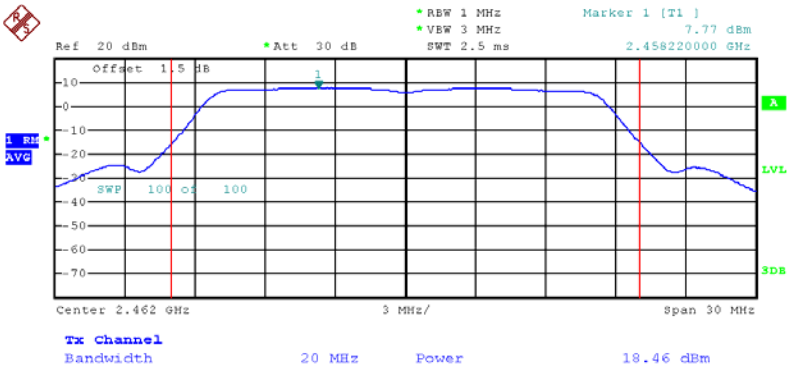


Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 12:45:30

Conducted Output Power Plot on Configuration IEEE 802.11g / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 12:44:58

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Cycle	98.4%	Duty Factor	0.07 dB

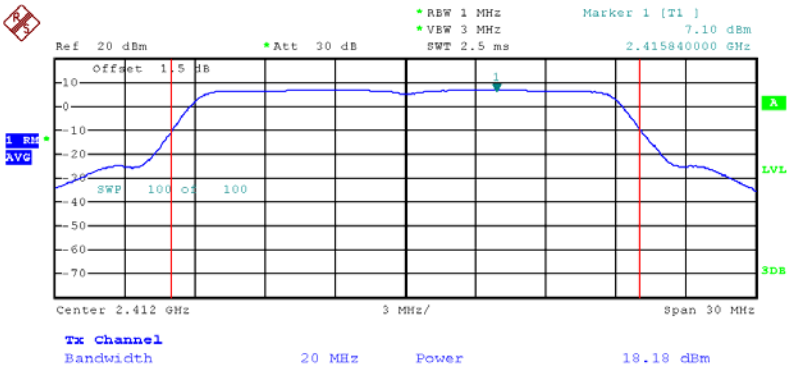
<Ant. 1>

Configuration of IEEE 802.11n MCS0 20MHz

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.25	30.00	Complies
6	2437 MHz	20.66	30.00	Complies
11	2462 MHz	18.27	30.00	Complies

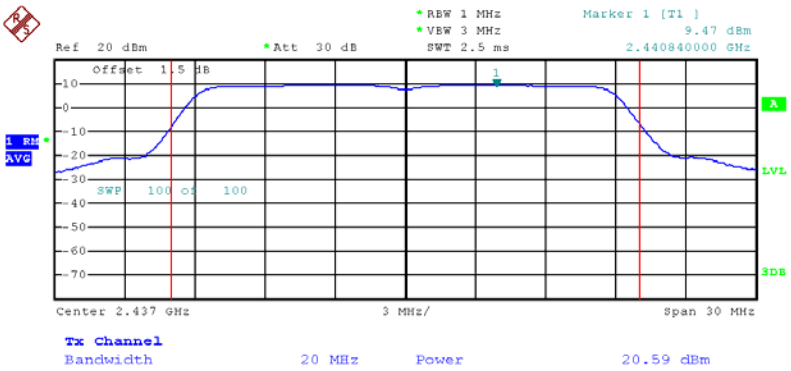
Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 1/ 2412 MHz



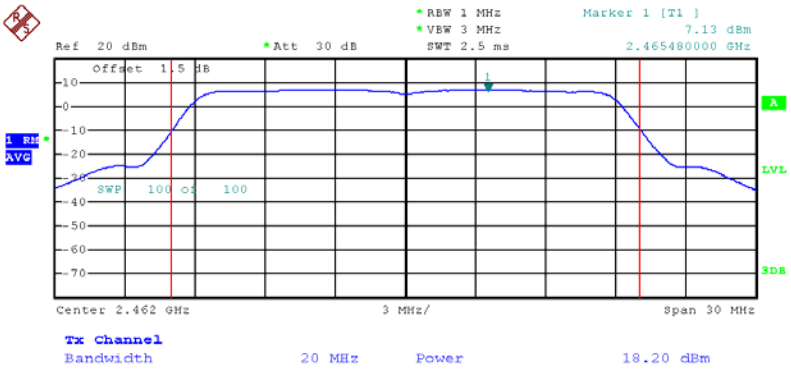
Date: 21.AUG.2012 12:54:37

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 1/ 2437 MHz



Date: 21.AUG.2012 12:55:01

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 1/ 2462 MHz



Date: 21.AUG.2012 12:55:53

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Cycle	98.4%	Duty Factor	0.07 dB

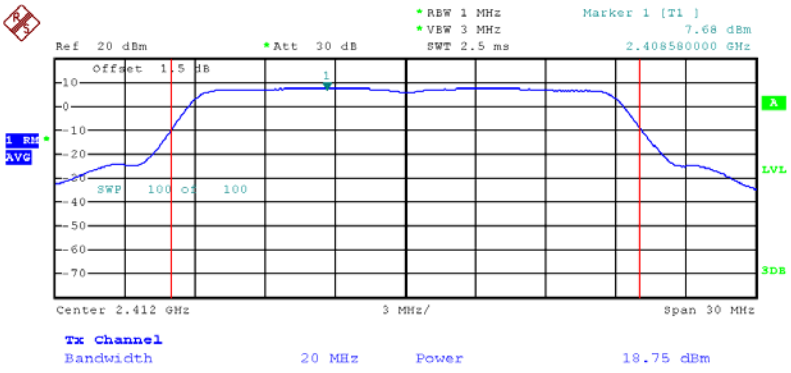
<Ant. 2>

Configuration of IEEE 802.11n MCS0 20MHz

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.82	30.00	Complies
6	2437 MHz	20.90	30.00	Complies
11	2462 MHz	18.80	30.00	Complies

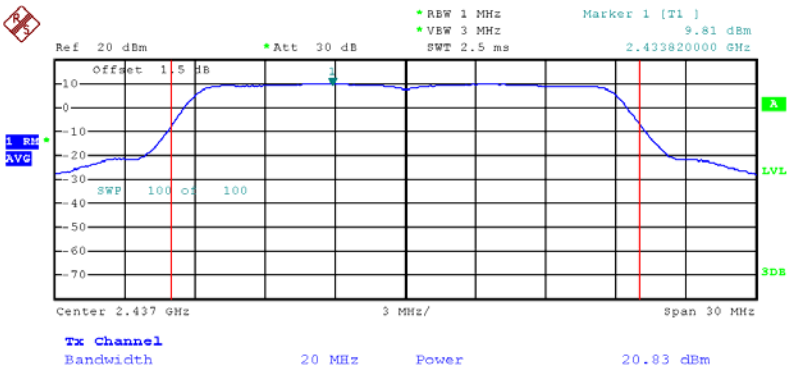
Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2412 MHz



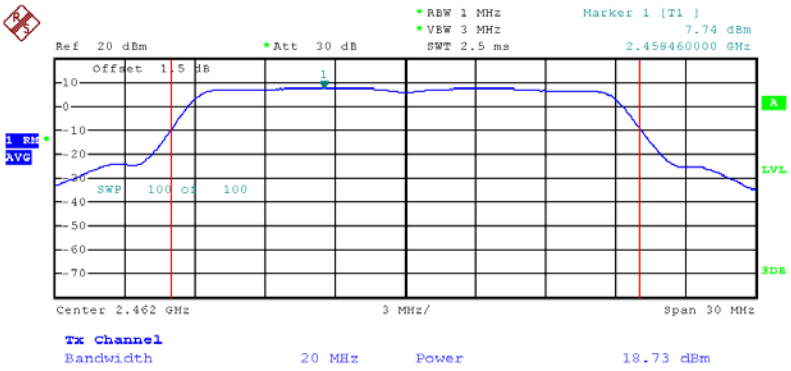
Date: 21.AUG.2012 12:40:03

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 12:38:54

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 12:38:19

Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11n
Duty Cycle	97%	**Duty Factor**	0.13 dB

<Ant. 1 + Ant. 2>

Configuration of IEEE 802.11n MCS8 20MHz

Channel	**Frequency**	**Conducted Power (dBm)**		**Total Conducted Power (dBm)**	**Max. Limit (dBm)**	**Result**
		Ant. 2	**Ant. 2**			
1	2412 MHz	17.95	17.79	21.01	30.00	Complies
6	2437 MHz	18.70	18.73	21.86	30.00	Complies
11	2462 MHz	18.03	17.84	21.08	30.00	Complies

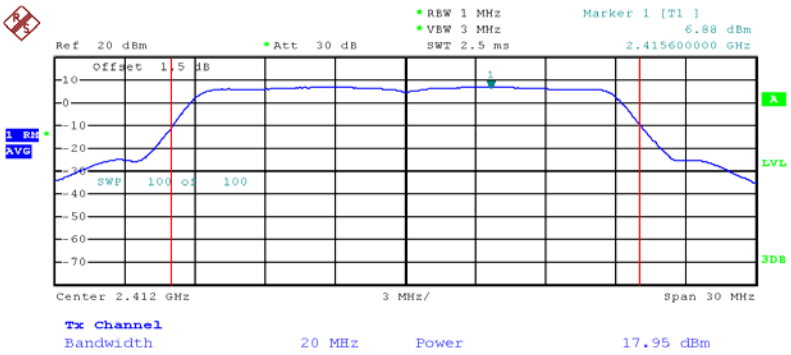
For 802.11n MCS8 20MHz:

CH1: Total power = Ant. 1 + Ant. 2 + Duty Factor = (17.95 dBm + 17.79 dBm) + 0.13 dB = (62.37 mW + 60.11 mW) + 1.03 dB = 21.01 dBm

CH6: Total power = Ant. 1 + Ant. 2+ Duty Factor = (18.70 dBm + 18.73 dBm) + 0.13 dB = (74.13 mW + 74.64 mW) + 0.13 dB = 21.86 dBm

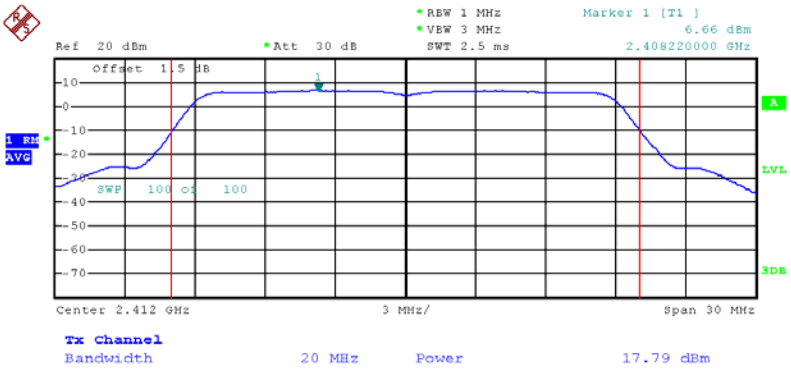
CH11: Total power = Ant. 1 + Ant. 2 + Duty Factor = (18.03 dBm + 17.84 dBm) +0.13 dB = (63.53 mW + 60.81 mW) +1.03 dB = = 21.08 dBm

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2412 MHz



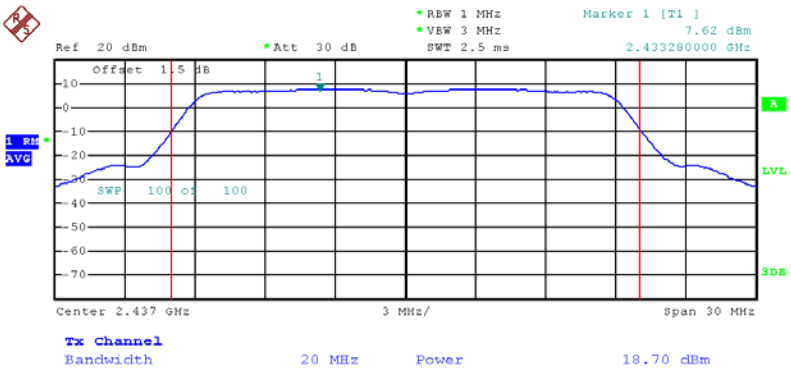
Date: 21.AUG.2012 12:30:28

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2412 MHz



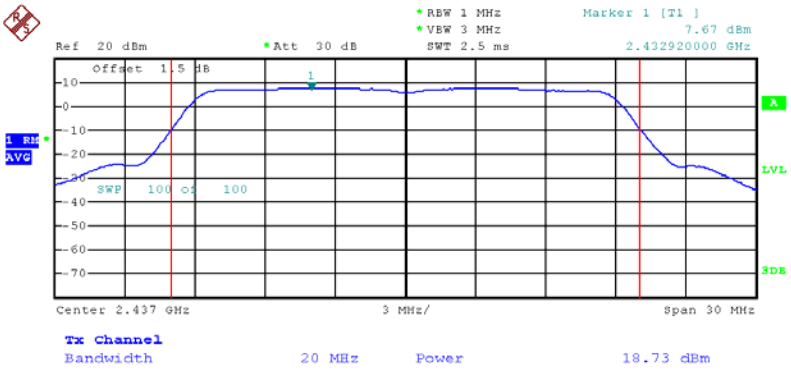
Date: 21.AUG.2012 12:31:05

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2437 MHz



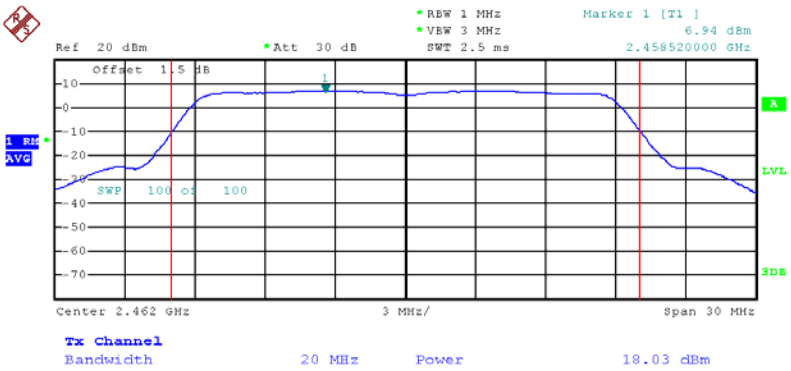
Date: 21.AUG.2012 12:32:54

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2437 MHz



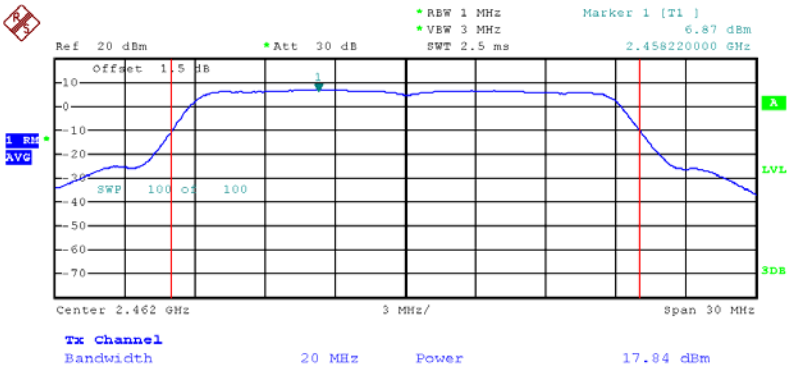
Date: 21.AUG.2012 12:32:13

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2462 MHz



Date: 21.AUG.2012 12:35:12

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 12:36:56

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Cycle	96.87%	Duty Factor	0.14 dB

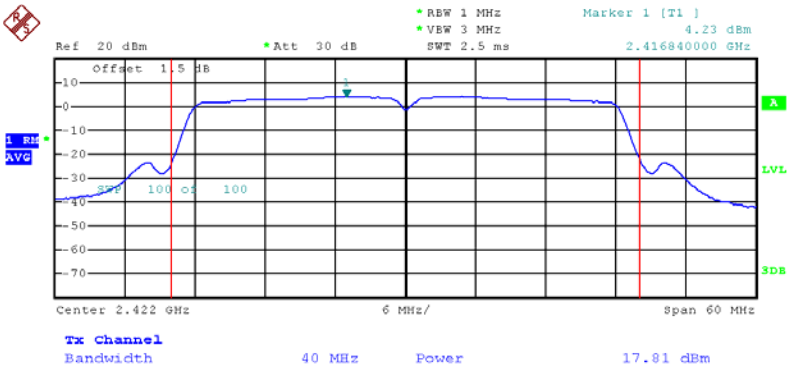
<Ant. 1>

Configuration of IEEE 802.11n MCS0 40MHz

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	17.95	30.00	Complies
6	2437 MHz	19.28	30.00	Complies
9	2452 MHz	17.22	30.00	Complies

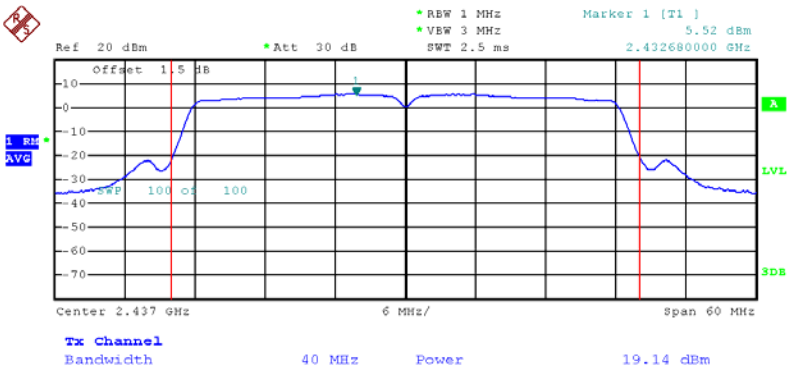
Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 1/ 2422 MHz



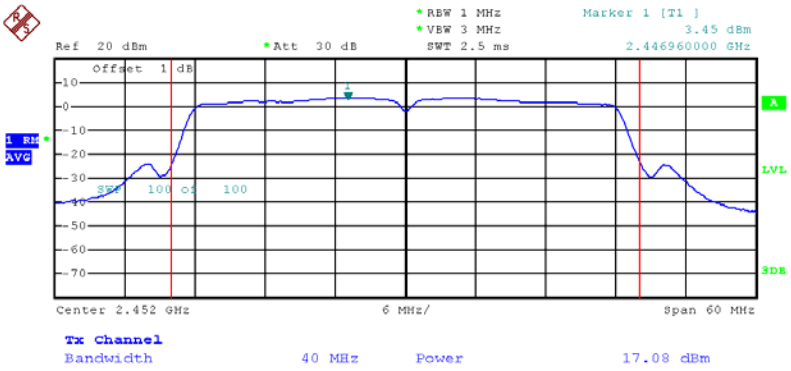
Date: 21.AUG.2012 12:58:49

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz /Ant. 1/ 2437 MHz



Date: 21.AUG.2012 12:58:21

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz /Ant. 1/ 2452 MHz



Date: 22.AUG.2012 14:39:06

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Cycle	96.87%	Duty Factor	0.14 dB

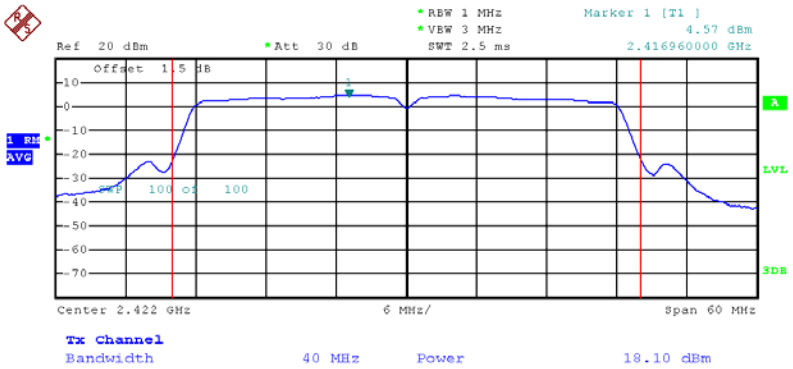
<Ant. 2>

Configuration of IEEE 802.11n MCS0 40MHz

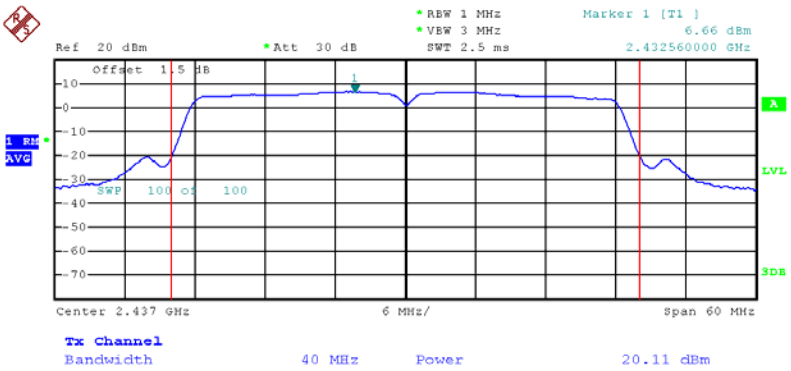
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	18.24	30.00	Complies
6	2437 MHz	20.25	30.00	Complies
9	2452 MHz	17.30	30.00	Complies

Conducted Output Power + duty factor=Total Conducted Output Power

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2/ 2422 MHz

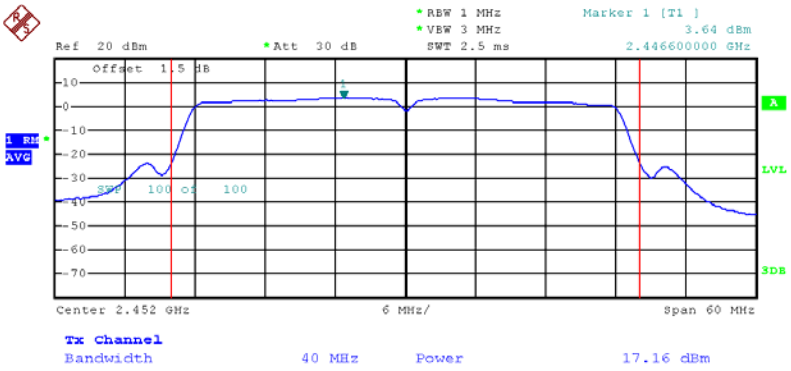


Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 13:06:20

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS0 40MHz/ Ant. 2/ 2452 MHz



Date: 21.AUG.2012 13:06:44

Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11n
Duty Cycle	95.32%	**Duty Factor**	0.21 dB

<Ant. 1 + Ant. 2>

Configuration of IEEE 802.11n MCS8 40MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 2	Ant. 2			
3	2422 MHz	17.71	18.62	21.41	30.00	Complies
6	2437 MHz	18.34	19.16	21.99	30.00	Complies
9	2452 MHz	17.61	18.60	21.35	30.00	Complies

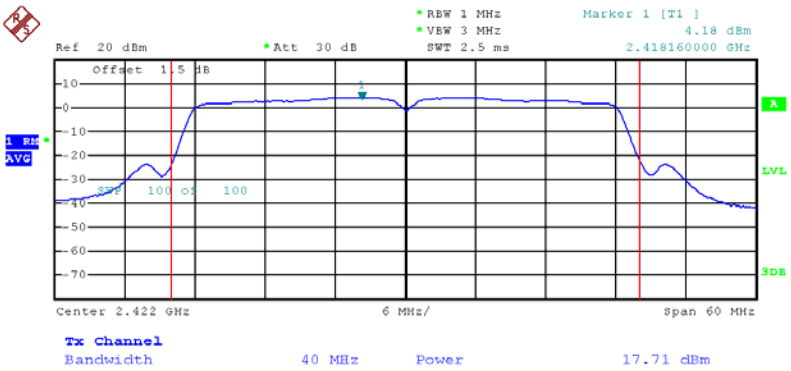
For 802.11n MCS8 40MHz:

CH1: Total power = Ant. 1 + Ant. 2 + Duty Factor = (17.71 dBm + 18.62 dBm) + 0.21 dB = (59.02 mW + 72.77 mW) + 0.21 dB = 21.41 dBm

CH6: Total power = Ant. 1 + Ant. 2 + Duty Factor = (18.34 dBm +19.16 dBm) + 0.21 dB = (68.23 mW + 82.41 mW) + 0.21 dB = 21.99 dBm

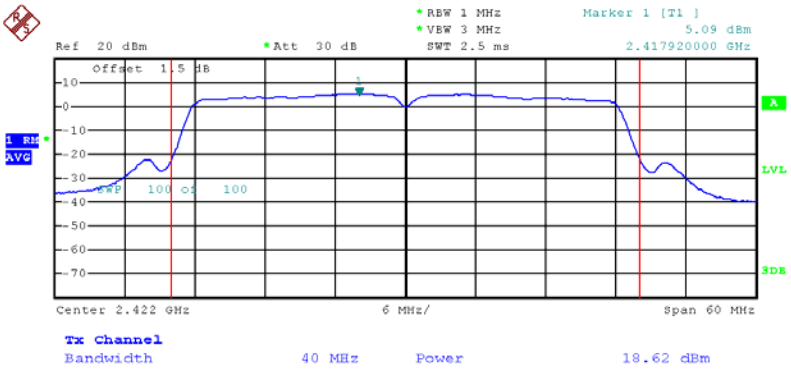
CH11: Total power = Ant. 1 + Ant. 2 + Duty Factor = (17.61 dBm + 18.60 dBm) + 0.21 dB = (57.67 mW + 72.44 mW) + 0.21 dB = 21.35 dBm

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2422 MHz



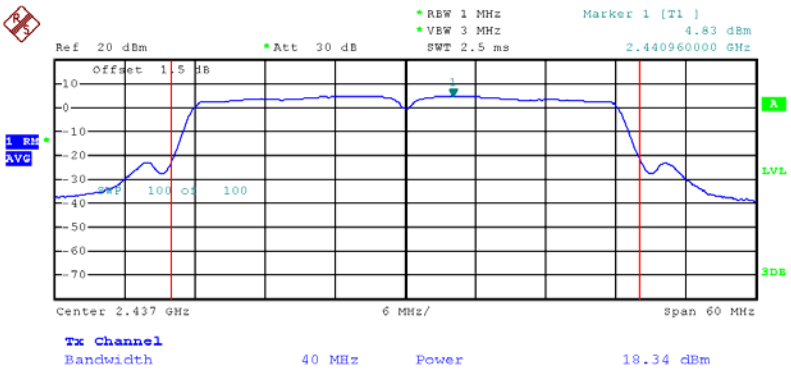
Date: 21.AUG.2012 12:02:35

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2/ 2422 MHz



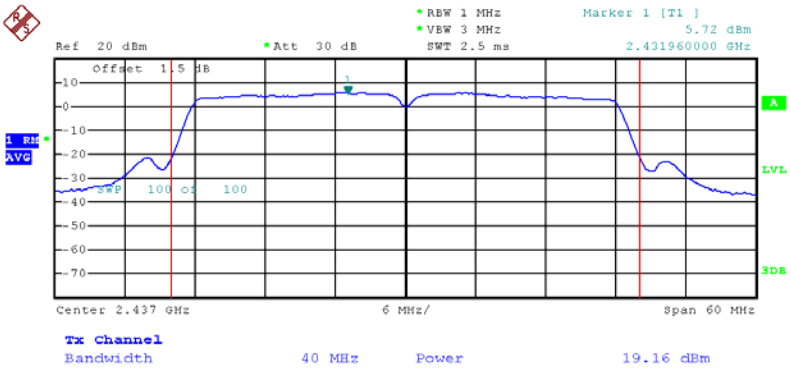
Date: 21.AUG.2012 12:01:32

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz /Ant. 1 / 2437 MHz



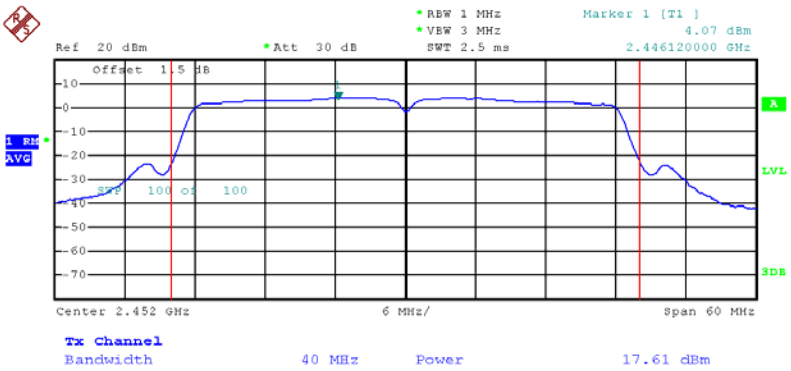
Date: 21.AUG.2012 12:03:12

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz /Ant.2/ 2437 MHz



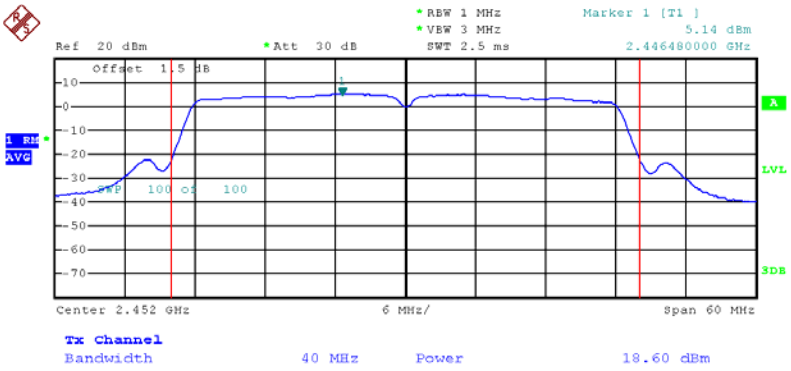
Date: 21.AUG.2012 12:04:49

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2452 MHz



Date: 21.AUG.2012 12:09:49

Conducted Output Power Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2/ 2452 MHz



Date: 21.AUG.2012 12:11:00

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

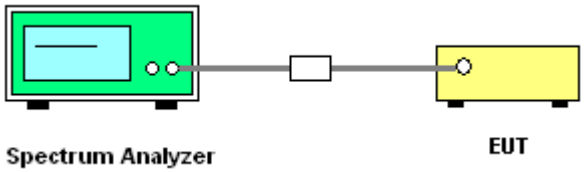
Please refer to section 4 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the analyzer span to 5-30% greater than the EBW.
RB	100 kHz
VB	300 kHz
Detector	RMS
Trace	Single Sweep
Sweep Time	≥ 10 x (number of measurement points in sweep) x (transmission symbol period).

3.3.3 Test Procedures

1. Test was performed in accordance with KDB 558074 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 5.3.2 Multiple antenna systems was performed in accordance with KDB 662911 in-Band Power Spectral Density (PSD) Measurements(2) Measure and add 10 log(N) dB (as described in the preceding section).
2. This measurement requires that the EUTbe configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. Time intervals during which the transmitter is off or transmitting at reduced power levels shall not be included.
3. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 100 kHz band segment within the fundamental EBW.
5. Scale the observed power level to an equivalent level in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where: BWCF = 10log (3 kHz/100 kHz = -15.2 dB).
6. The resulting PSD level must be ≤ 8 dBm.

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

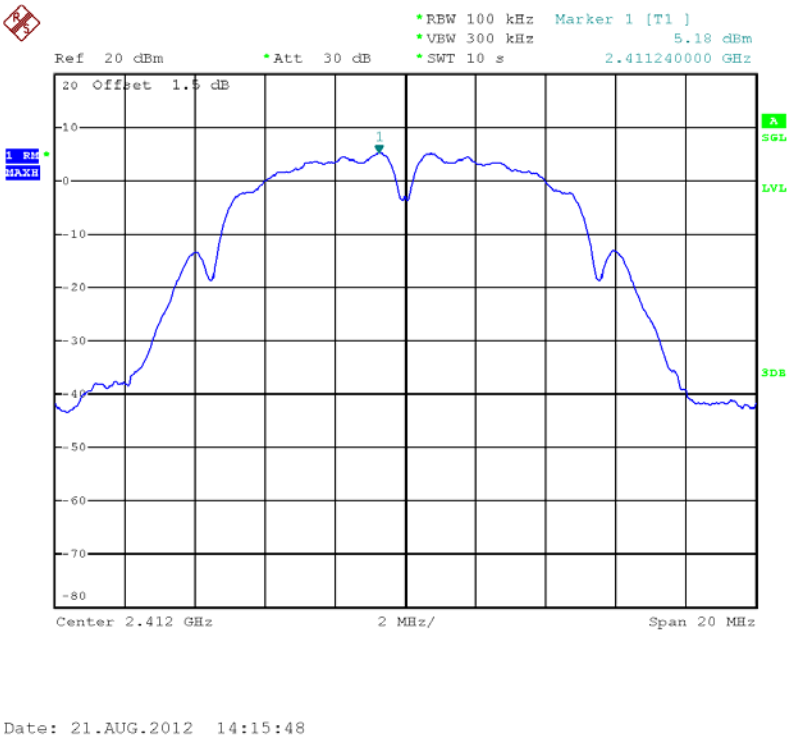
Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11b
Duty Factor	0 dB		

<Ant. 2>

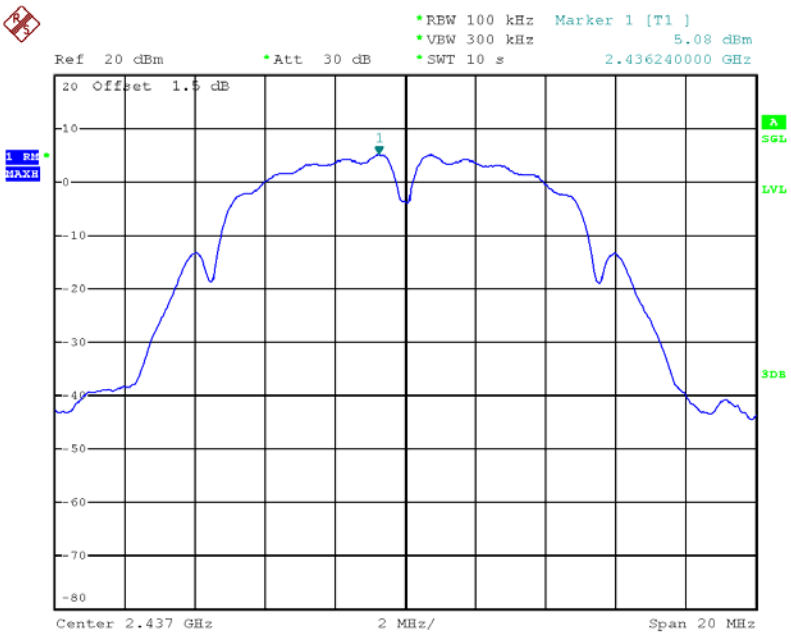
Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/100kHz)	Total Power Density	BWCF factor (100KHz to	Total Power Density	Max. Limit	Result
		ANT-1	(dBm/100kHz)	3KHz)	(dBm/3kHz)	(dBm/3kHz)	
1	2412 MHz	5.18	5.18	-15.23	-10.05	8.00	Complies
6	2437 MHz	5.08	5.08	-15.23	-10.15	8.00	Complies
11	2462 MHz	6.14	6.14	-15.23	-9.09	8.00	Complies

Power Density Plot on Configuration IEEE 802.11b / Ant. 2 / 2412 MHz

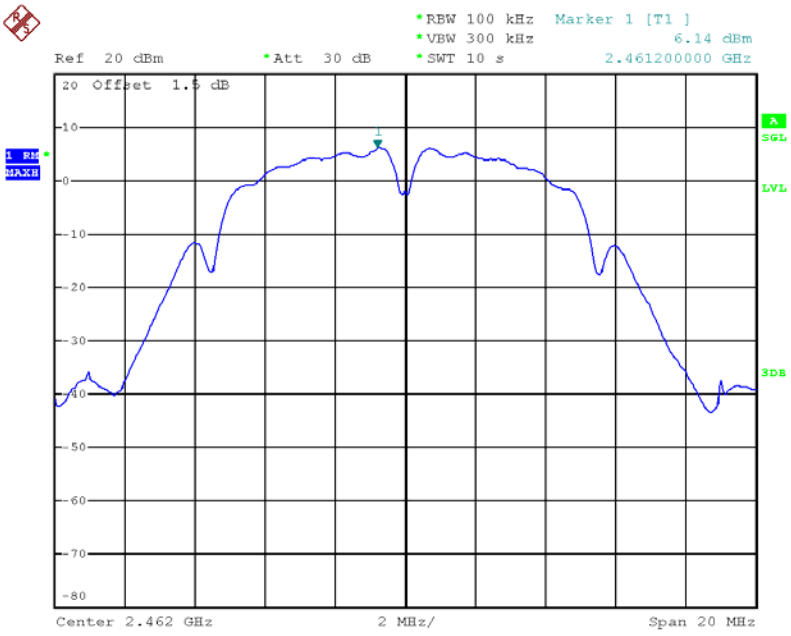


Power Density Plot on Configuration IEEE 802.11b / Ant. 2 / 2437 MHz



Date: 21.AUG.2012 14:15:03

Power Density Plot on Configuration IEEE 802.11b / Ant. 2 / 2462 MHz



Date: 21.AUG.2012 14:14:01

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11g
Duty Factor	0.06 dB		

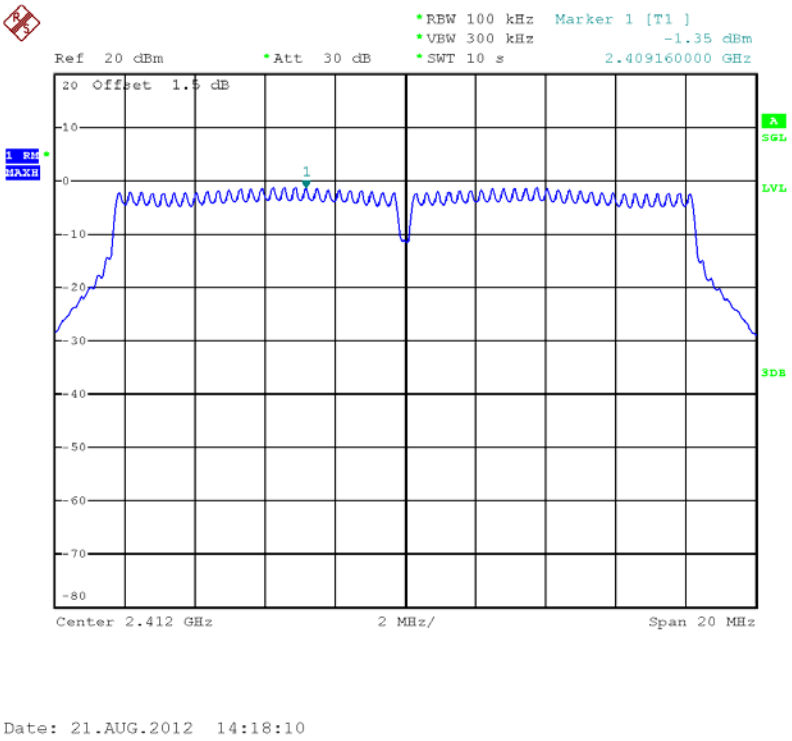
<Ant. 2>

Configuration IEEE 802.11g

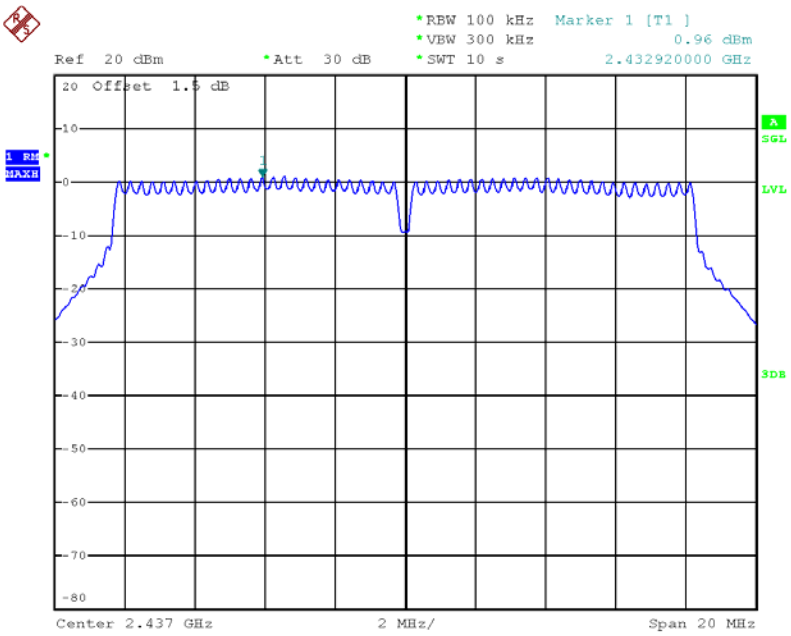
Channel	Frequency	Power Density (dBm/100kHz)	Total Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Total Power Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
		ANT-1					
1	2412 MHz	-1.35	-1.29	-15.23	-16.52	8.00	Complies
6	2437 MHz	0.96	1.02	-15.23	-14.21	8.00	Complies
11	2462 MHz	-1.57	-1.51	-15.23	-16.74	8.00	Complies

Power Density + duty factor=Total Power Density

Power Density Plot on Configuration IEEE 802.11g / Ant. 2/ 2412 MHz

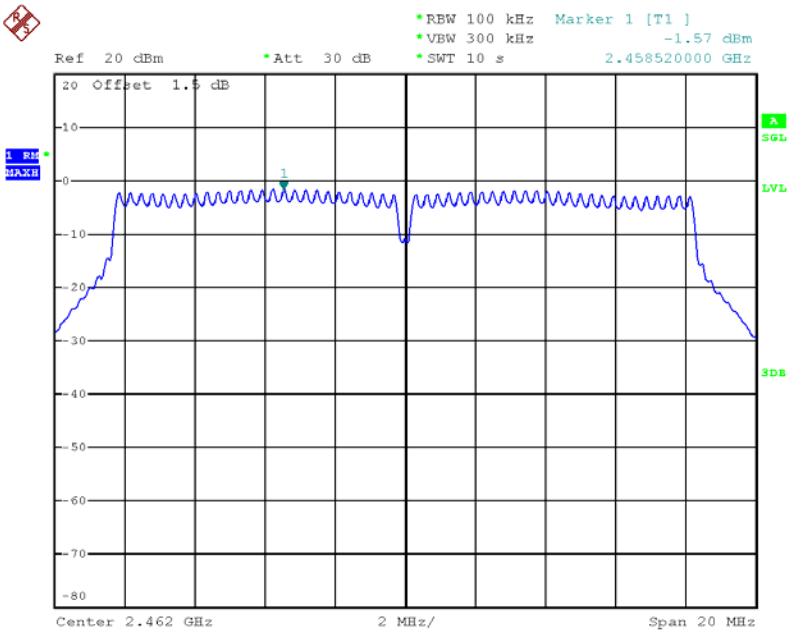


Power Density Plot on Configuration IEEE 802.11g / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 14:17:45

Power Density Plot on Configuration IEEE 802.11g / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 14:19:13

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Factor	0.07 dB		

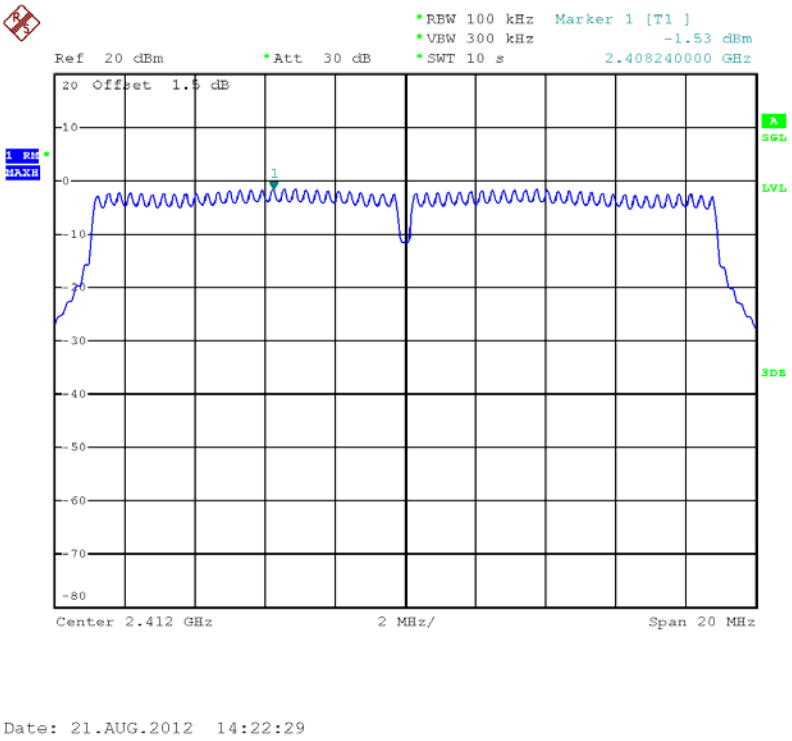
<Ant. 2>

Configuration of IEEE 802.11n MCS0 20MHz

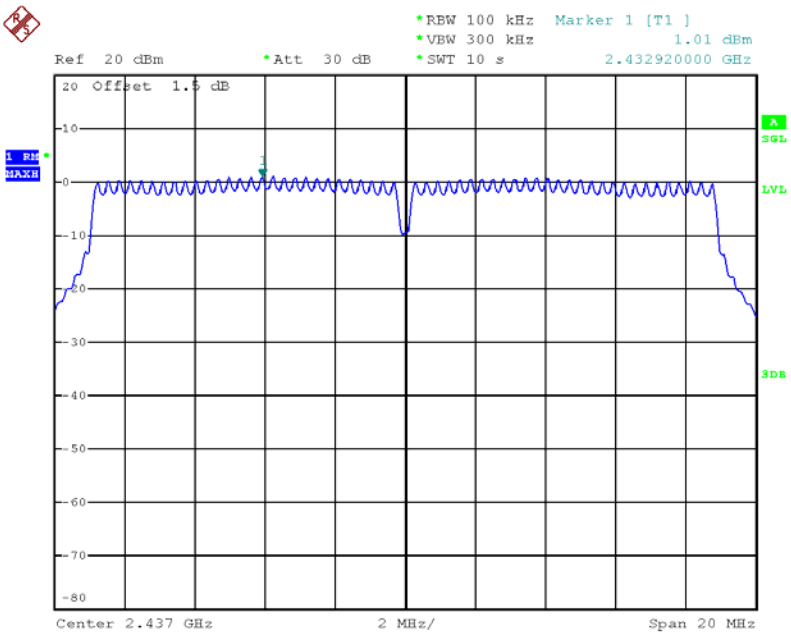
Channel	Frequency	Power Density (dBm/100kHz)	Total Power Density	BWCF factor (100KHz to 3KHz)	Total Power Density	Max. Limit (dBm/3kHz)	Result
		ANT-1	(dBm/100kHz)		(dBm/3kHz)		
1	2412 MHz	-1.53	-1.46	-15.23	-16.69	8.00	Complies
6	2437 MHz	1.01	1.08	-15.23	-14.15	8.00	Complies
11	2462 MHz	-1.74	-1.67	-15.23	-16.90	8.00	Complies

Power Density+duty factor=Total Power Density

Power Density Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2412 MHz

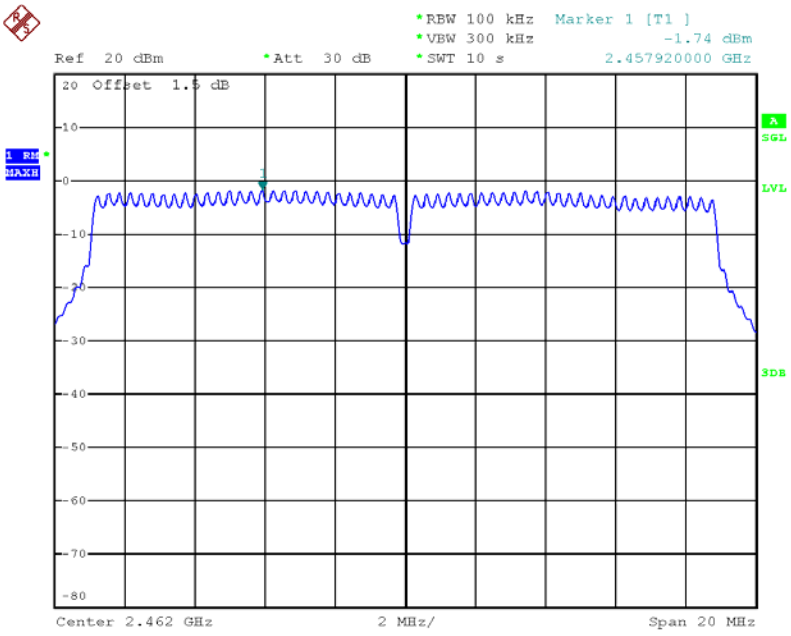


Power Density Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 14:25:18

Power Density Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 14:25:56

Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11n
Duty Factor	0.13 dB		

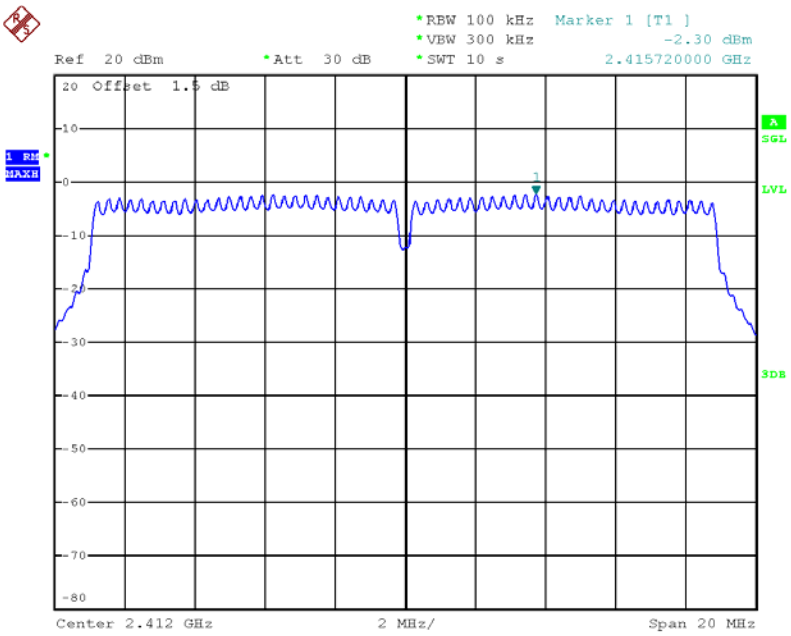
<Ant. 1 + Ant. 2>

Configuration of IEEE 802.11n MCS8 20MHz

Channel	Frequency	Power Density (dBm/100kHz)	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Power Density (dBm/3kHz)	Single Port. Limit (dBm/3kHz)	Result
		ANT-0	ANT-1		ANT-0	ANT-1		
1	2412 MHz	-2.30	-2.10	-15.23	-17.40	-17.20	4.99	Complies
6	2437 MHz	-1.82	-1.64	-15.23	-16.92	-16.74	4.99	Complies
11	2462 MHz	-2.85	-2.85	-15.23	-17.95	-17.55	4.99	Complies

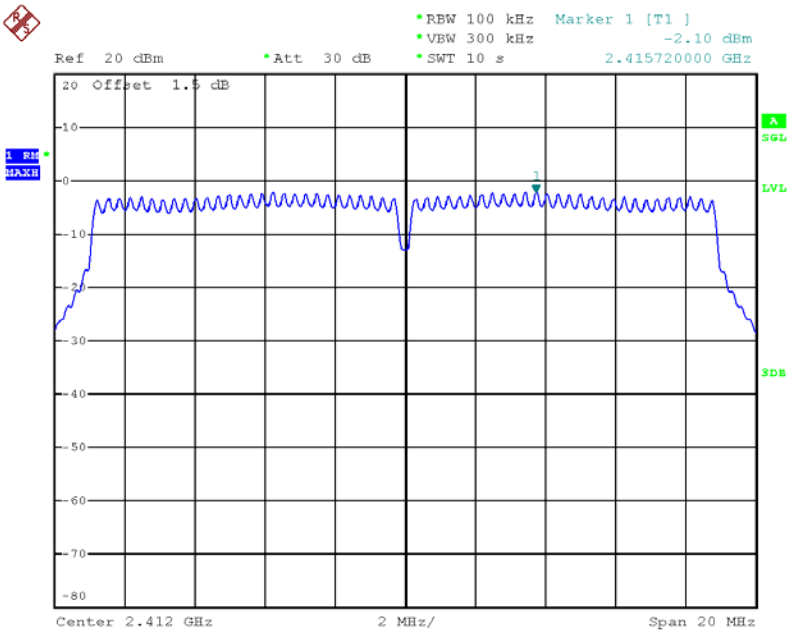
Power Density+duty factor=Total Power Density

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2412 MHz



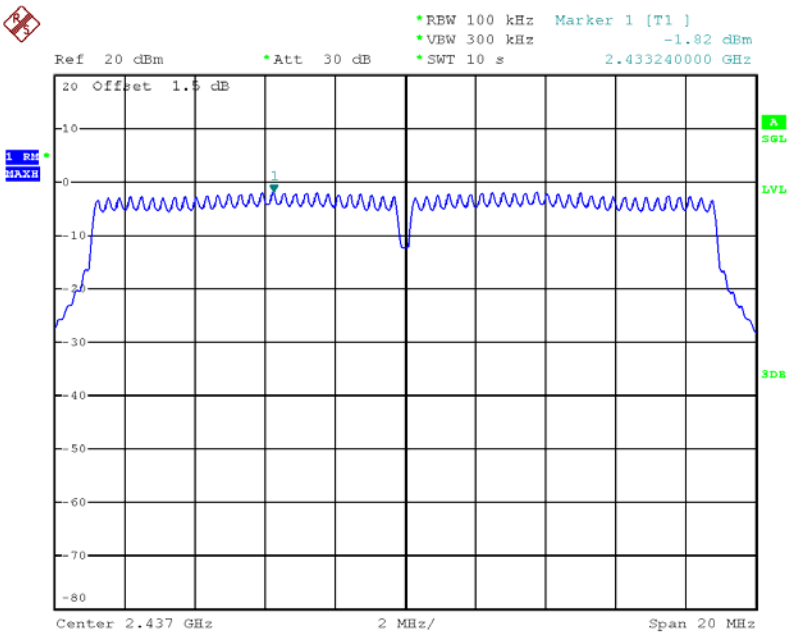
Date: 21.AUG.2012 14:52:04

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2412 MHz



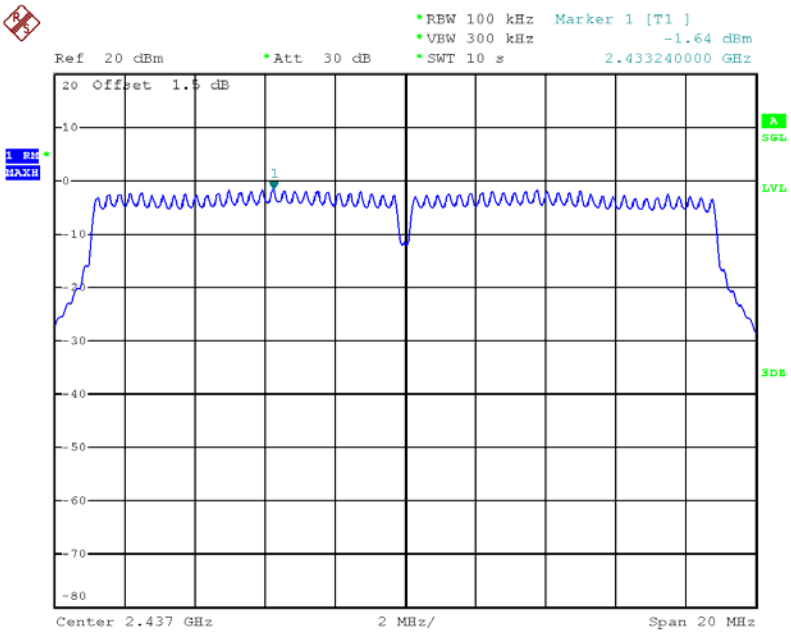
Date: 21.AUG.2012 14:50:46

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2437 MHz



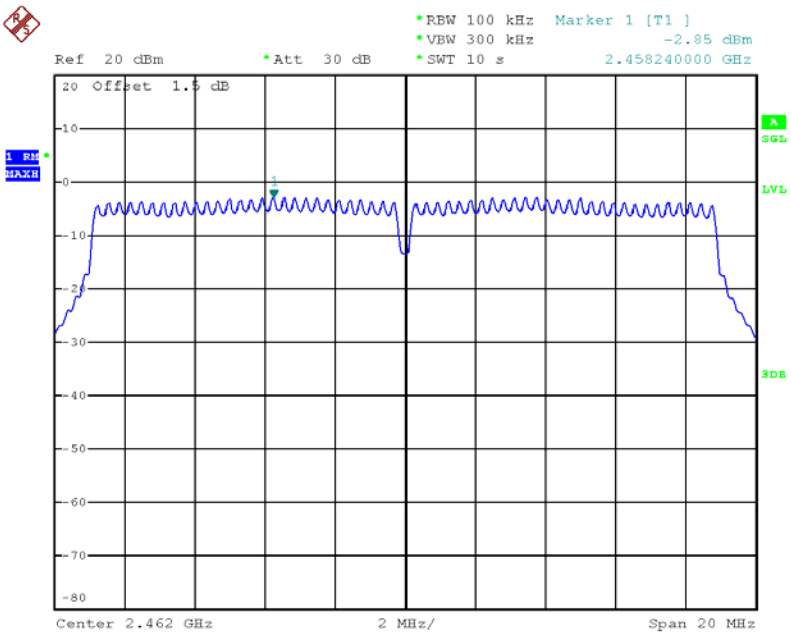
Date: 21.AUG.2012 14:46:38

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2437 MHz



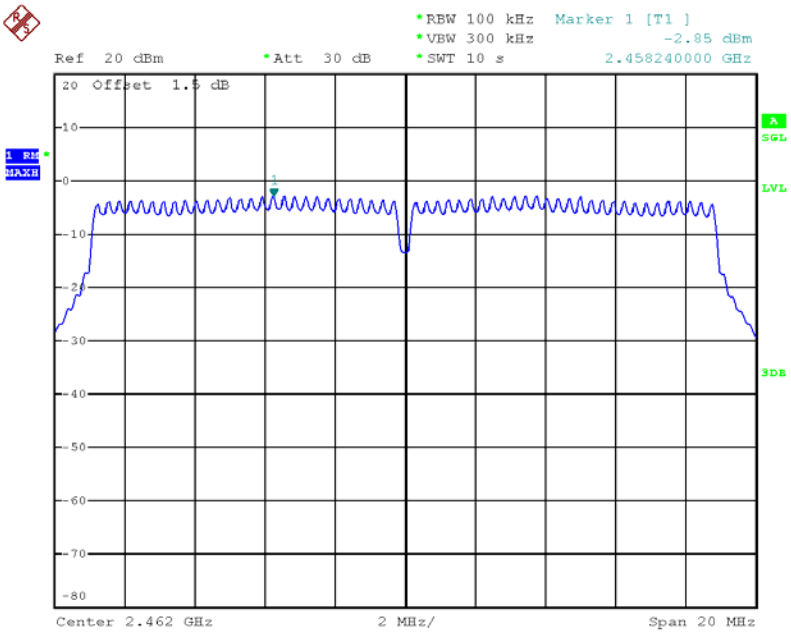
Date: 21.AUG.2012 14:46:03

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1/ 2462 MHz



Date: 21.AUG.2012 14:44:16

Power Density Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2/ 2462 MHz



Date: 21.AUG.2012 14:44:47

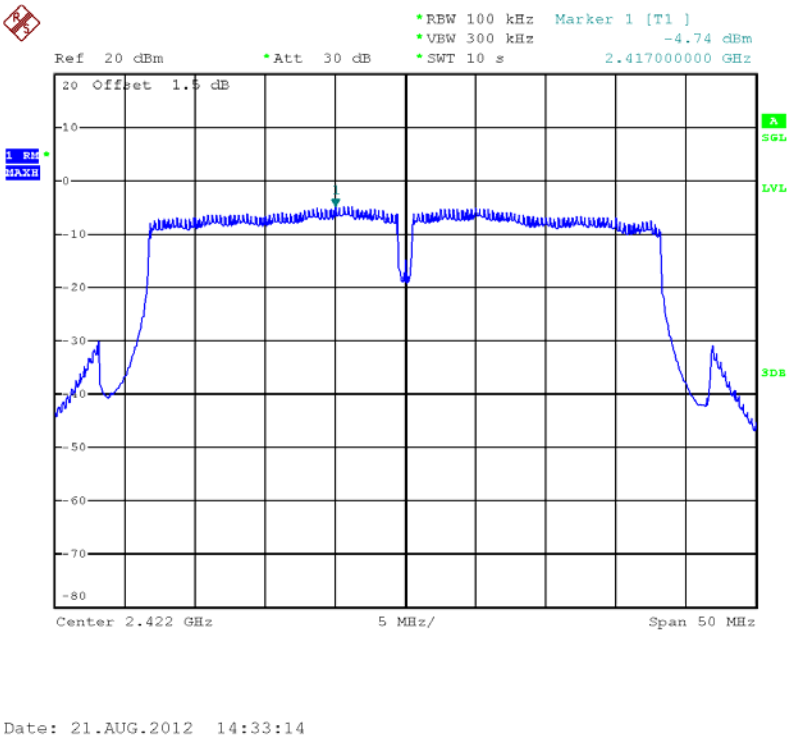
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n
Duty Factor	0.14 dB		

<Ant. 2>

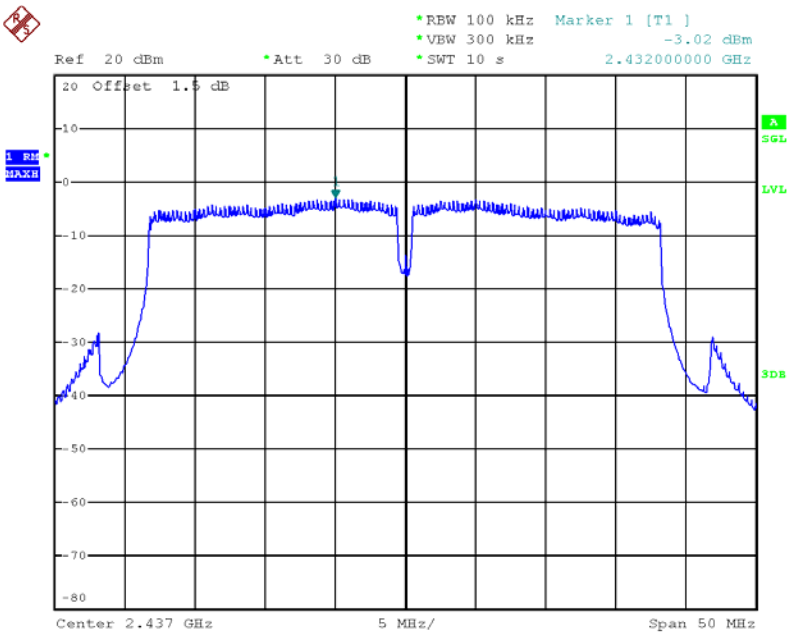
Configuration of IEEE 802.11n MCS0 40MHz

Channel	Frequency	Power Density (dBm/100kHz)	Total Power Density	BWCF factor (100KHz to 3KHz)	Total Power Density	Max. Limit (dBm/3kHz)	Result
		ANT-1	(dBm/100kHz)		(dBm/3kHz)		
3	2422 MHz	-4.74	-4.60	-15.23	-19.83	8.00	Complies
6	2437 MHz	-3.02	-2.88	-15.23	-18.11	8.00	Complies
9	2452 MHz	-5.60	-5.46	-15.23	-20.69	8.00	Complies

Power Density Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2/ 2422 MHz

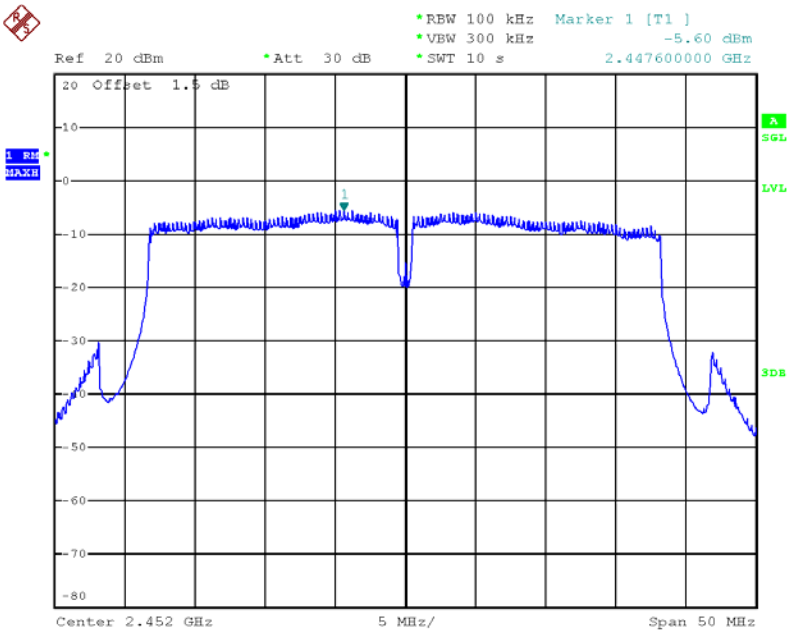


Power Density Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2/ 2437 MHz



Date: 21.AUG.2012 14:34:20

Power Density Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2/ 2452 MHz



Date: 21.AUG.2012 14:35:16

Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11n
Duty Factor	0.21 dB		

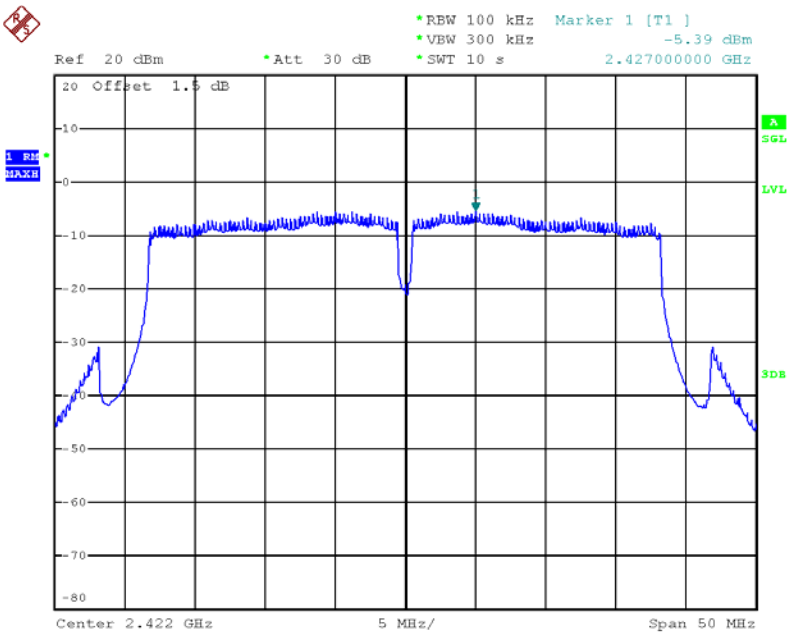
<Ant. 1 + Ant. 2>

Configuration of IEEE 802.11n MCS8 40MHz

Channel	Frequency	Power Density (dBm/100kHz)	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Power Density (dBm/3kHz)	Single Port. Limit (dBm/3kHz)	Result
		ANT-0	ANT-1		ANT-0	ANT-1		
3	2422 MHz	-5.39	-3.82	-15.23	-20.41	-18.54	4.99	Complies
6	2437 MHz	-4.17	-3.55	-15.23	-19.19	-18.57	4.99	Complies
9	2452 MHz	-5.09	-3.91	-15.23	-20.11	-18.93	4.99	Complies

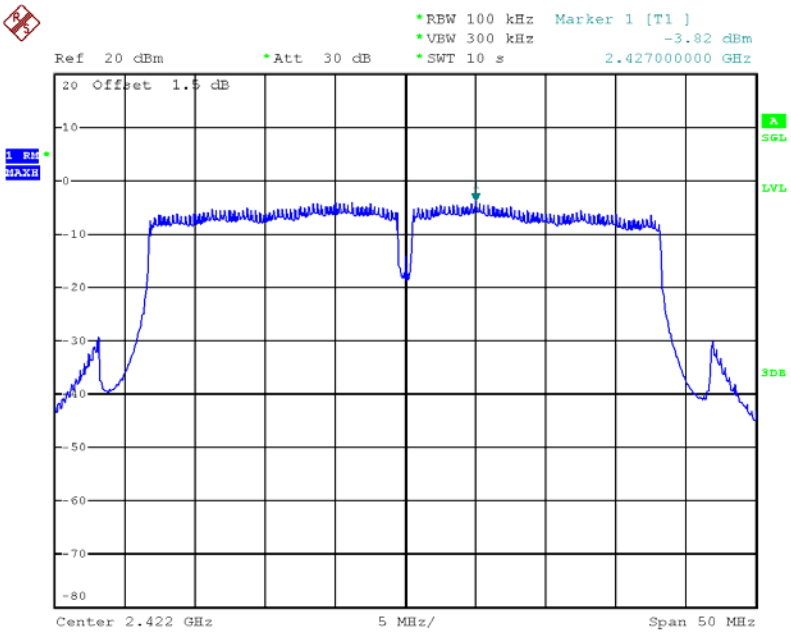
Power Density+duty factor=Total Power Density

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2422 MHz



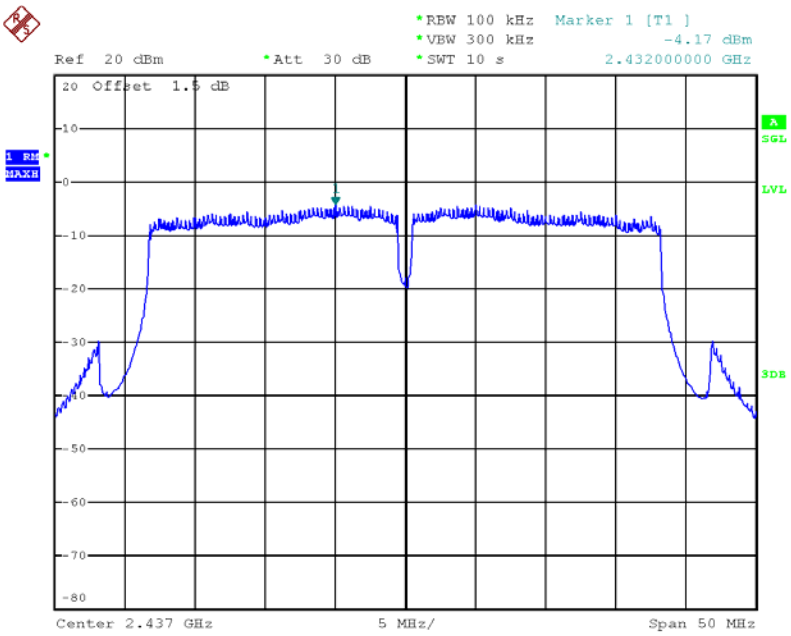
Date: 21.AUG.2012 14:41:36

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2422 MHz



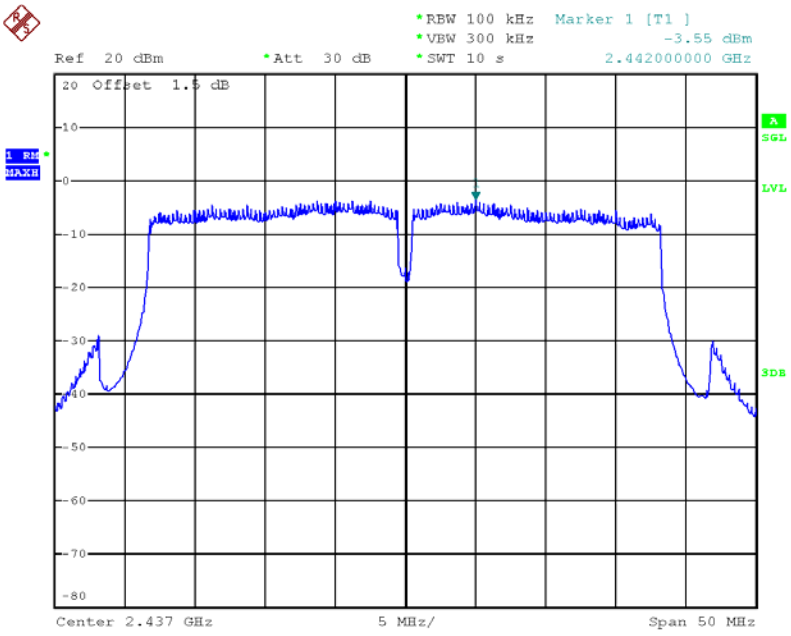
Date: 21.AUG.2012 14:40:59

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2437 MHz



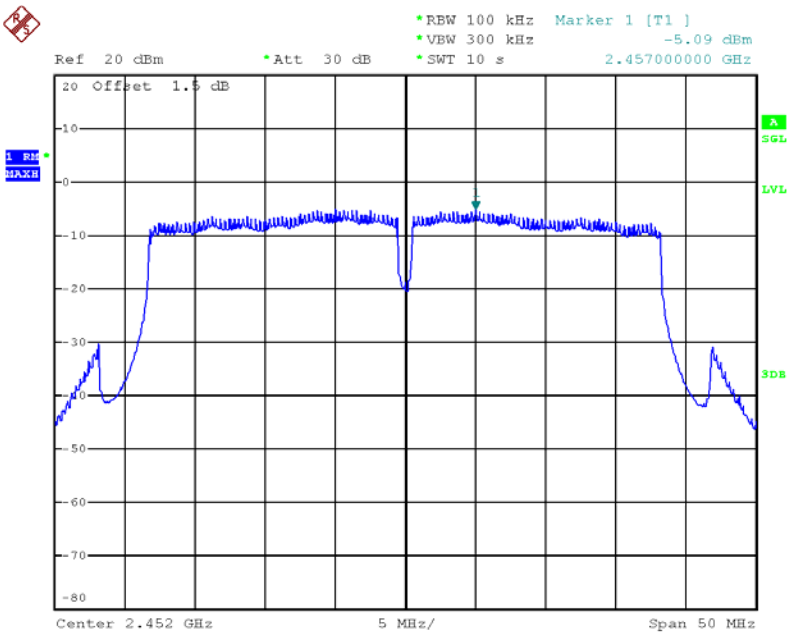
Date: 21.AUG.2012 14:37:50

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2437 MHz



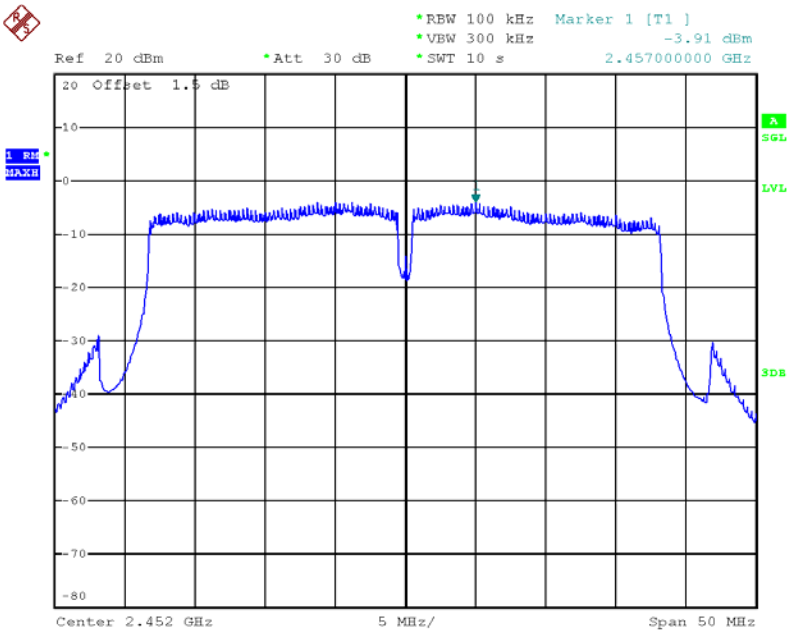
Date: 21.AUG.2012 14:39:59

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 /2452 MHz



Date: 21.AUG.2012 14:37:11

Power Density Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2452 MHz



Date: 21.AUG.2012 14:36:36

3.4 6dB Spectrum Bandwidth Measurement

3.4.1 Limit

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

3.4.2 Measuring Instruments and Setting

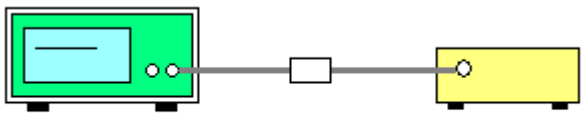
Please refer to section 4 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	1-5 % of the emission bandwidth (EBW)
VB	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4.3 Test Procedures

5. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
6. Test was performed in accordance with KDB 558074 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 5.1.1 EBW Measurement Procedure
7. Multiple antenna system was performed in accordance with KDB 662911 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
8. 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

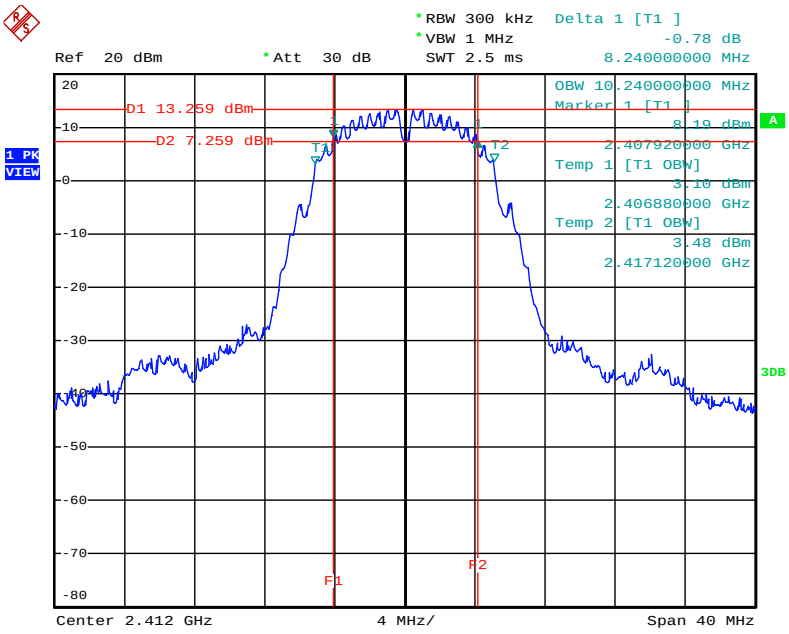
Test date	Aug. 21, 2012	**Test Site No.**	TH01-CB
Temperature	23℃	**Humidity**	63%
Test Engineer	Denis Su	**Configuration**	802.11b

<Ant. 2>

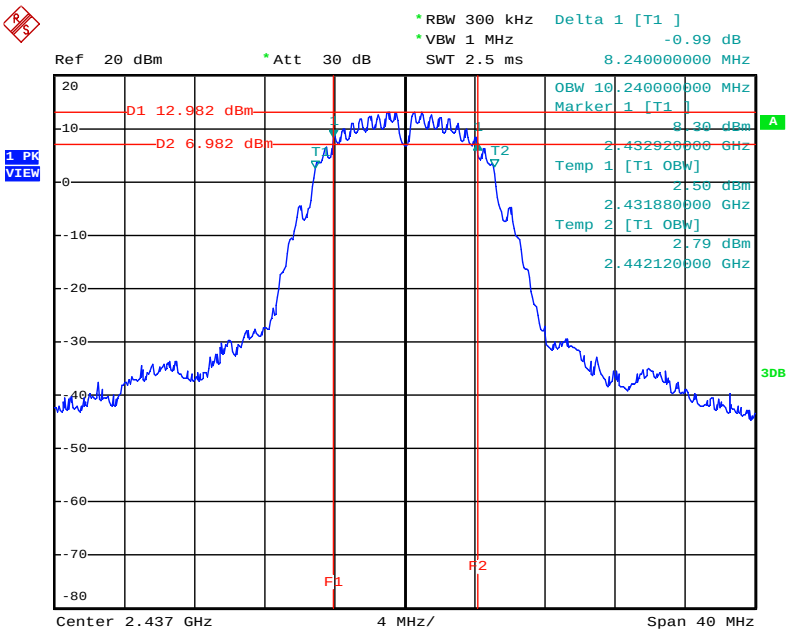
Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.24	10.24	500	Complies
6	2437 MHz	8.24	10.24	500	Complies
11	2462 MHz	8.16	10.40	500	Complies

6 dB Bandwidth Plot on Configuration IEEE 802.11b / Ant. 2/ 2412 MHz

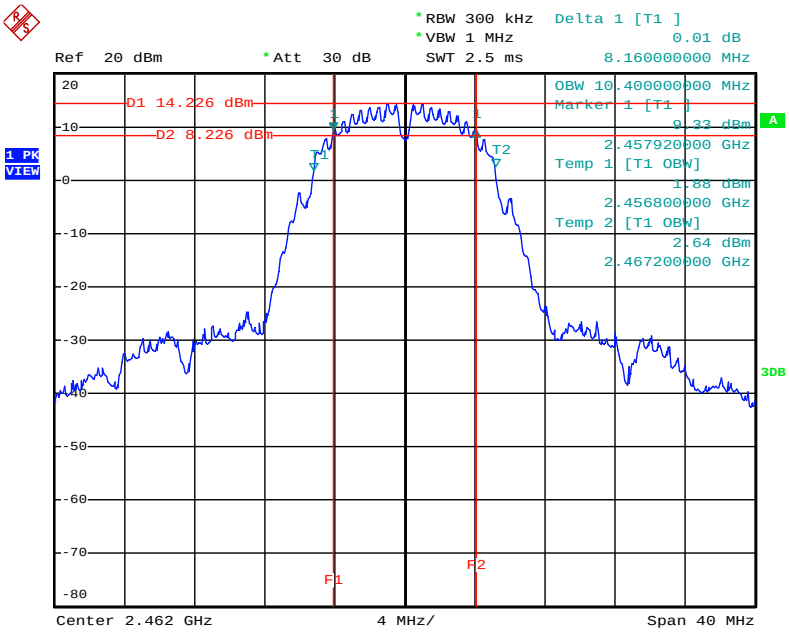


6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz



Date: 21.AUG.2012 13:53:31

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



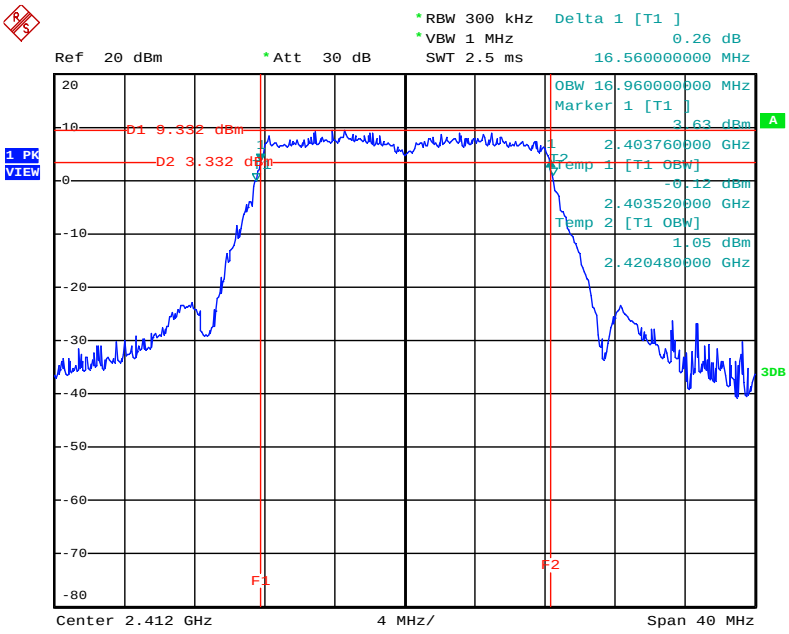
Date: 21.AUG.2012 13:54:03

Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11g

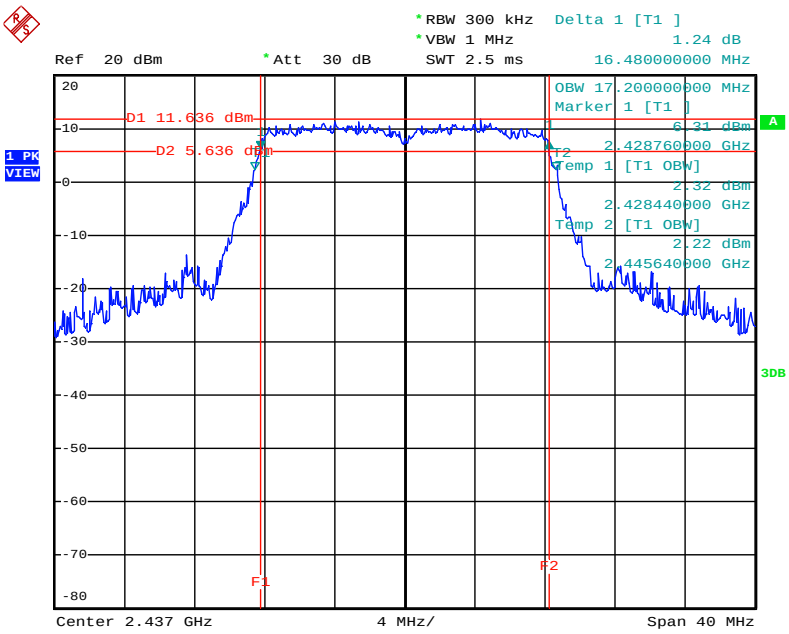
Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.56	16.96	500	Complies
6	2437 MHz	16.48	17.20	500	Complies
11	2462 MHz	16.48	17.04	500	Complies

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

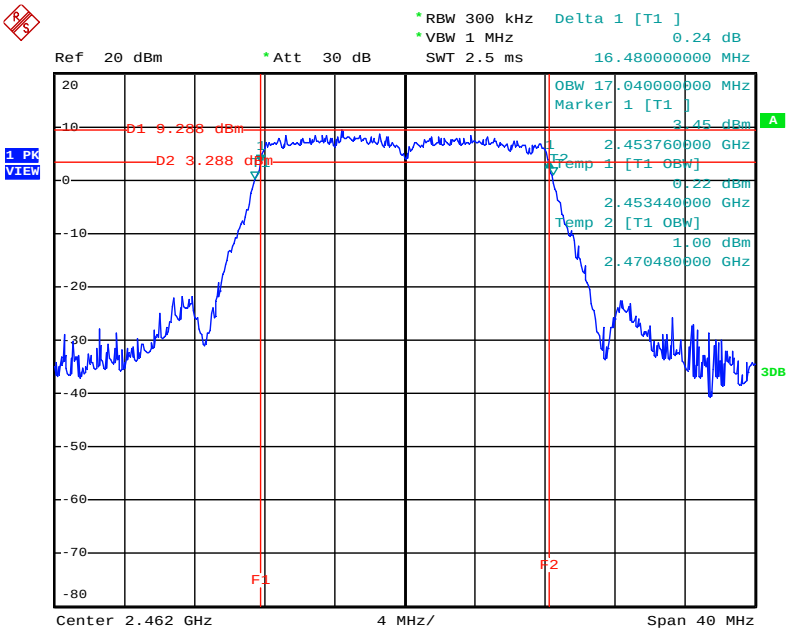


6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz



Date: 21.AUG.2012 13:55:04

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



Date: 21.AUG.2012 13:54:36

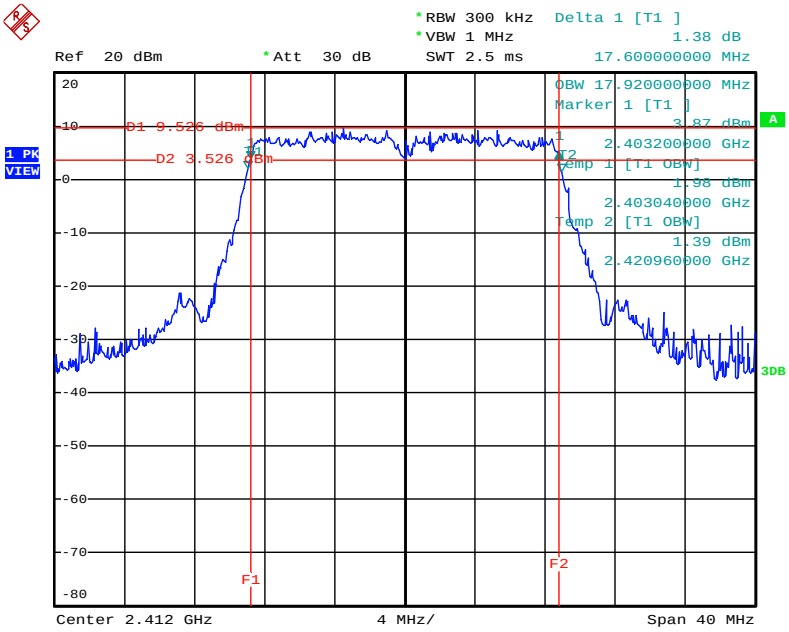
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n

<Ant. 2>

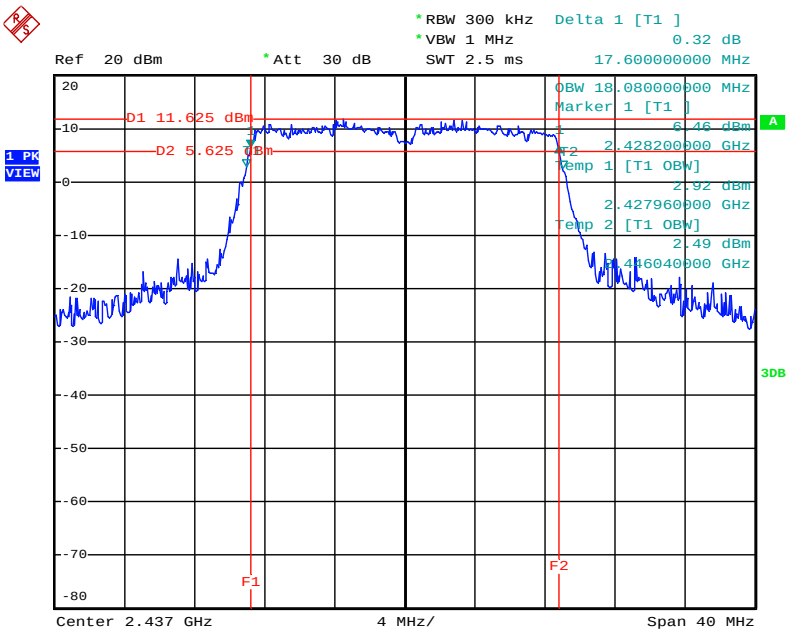
Configuration of IEEE 802.11n MCS0 20MHz

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.92	500	Complies
6	2437 MHz	17.60	18.08	500	Complies
11	2462 MHz	17.76	18.00	500	Complies

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 20MHz / 2412 MHz

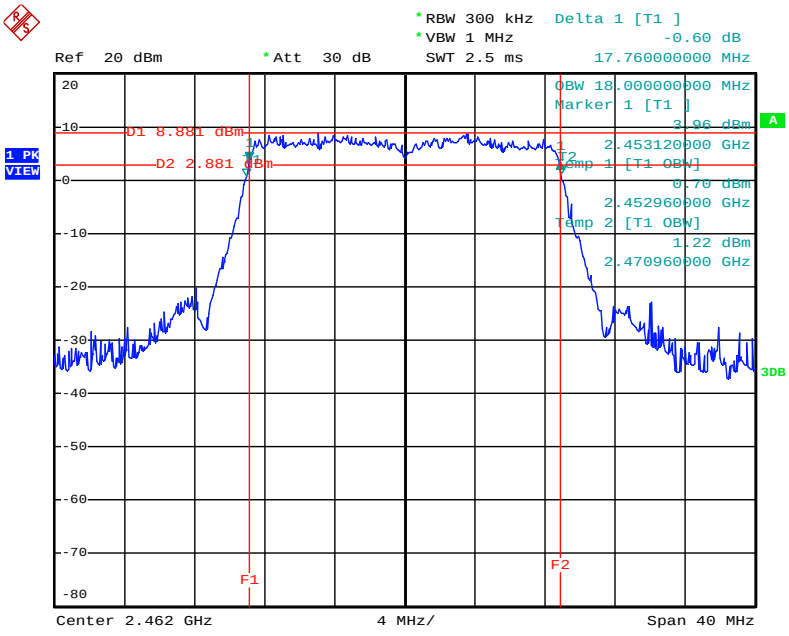


6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 20MHz / 2437 MHz



Date: 21.AUG.2012 13:57:03

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 20MHz / 2462 MHz



Date: 21.AUG.2012 13:57:39

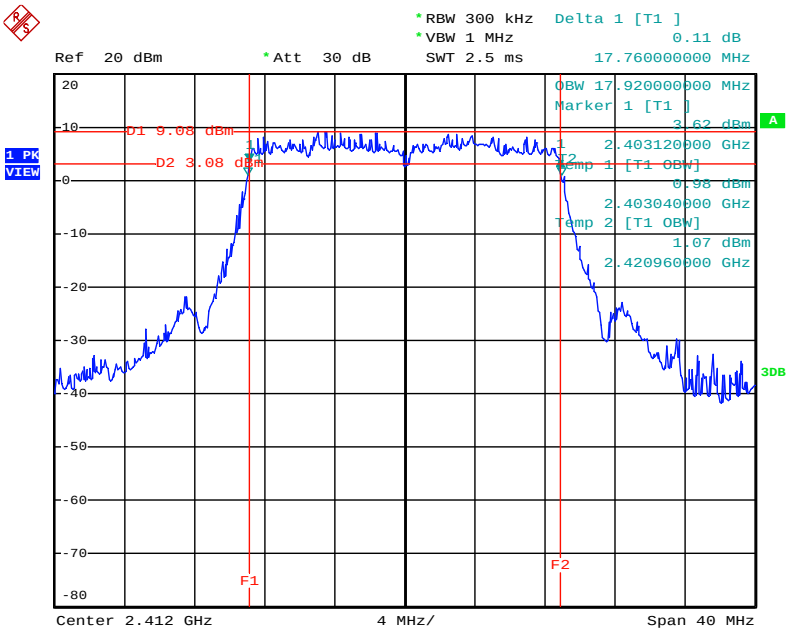
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n

<Ant. 1 + Ant. 2>

Configuration of IEEE 802.11n MCS8 20MHz

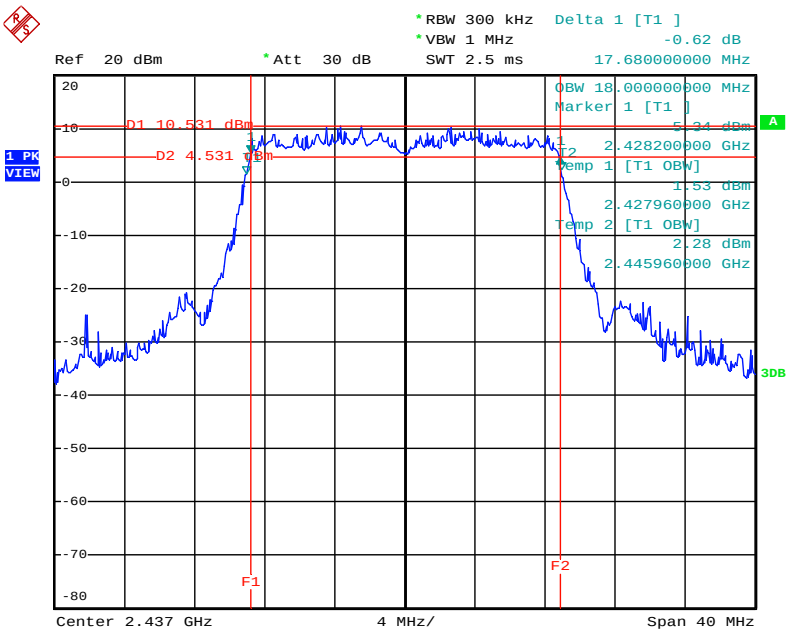
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.76	17.92	500	Complies
6	2437 MHz	17.68	18.00	500	Complies
11	2462 MHz	17.68	17.92	500	Complies

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1 + Ant. 2/ 2412 MHz



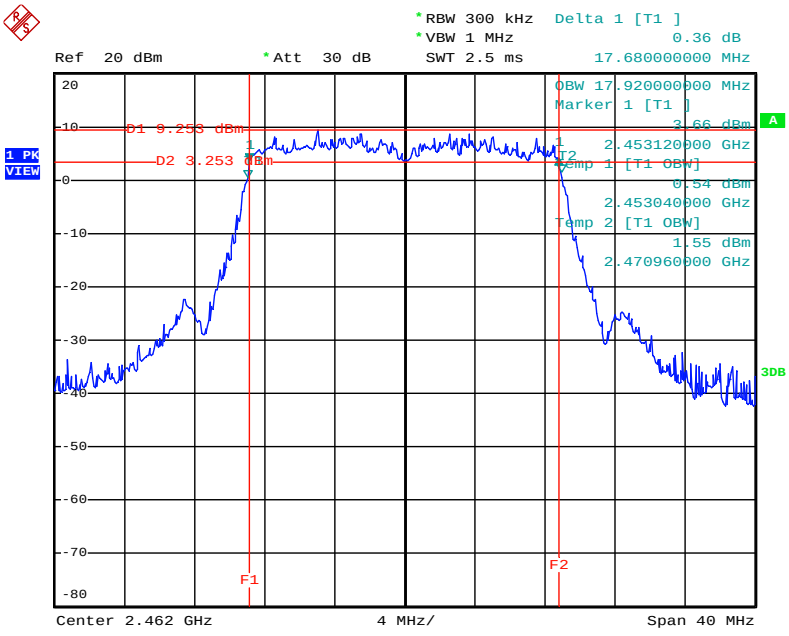
Date: 21.AUG.2012 14:06:32

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1 + Ant. 2/ 2437 MHz



Date: 21.AUG.2012 14:06:04

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 1 + Ant. 2/ 2462 MHz



Date: 21.AUG.2012 14:05:34

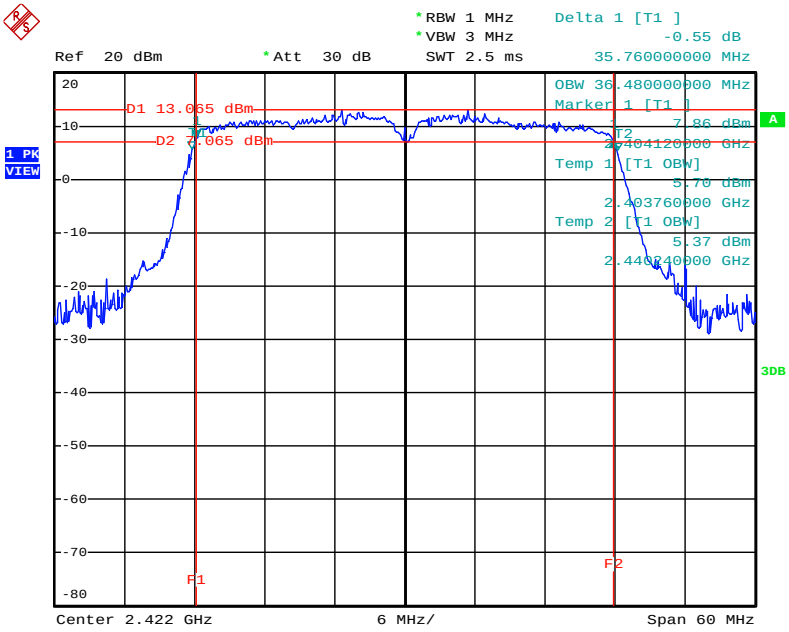
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n

<Ant. 2>

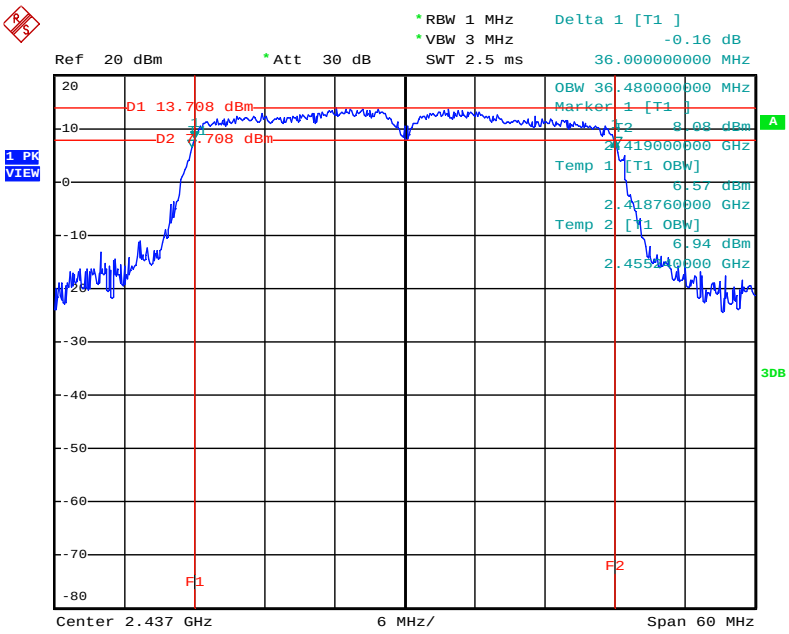
Configuration of IEEE 802.11n MCS0 40MHz

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.76	36.48	500	**Complies**
6	2437 MHz	36.00	36.48	500	**Complies**
9	2452 MHz	35.88	36.36	500	**Complies**

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2422 MHz

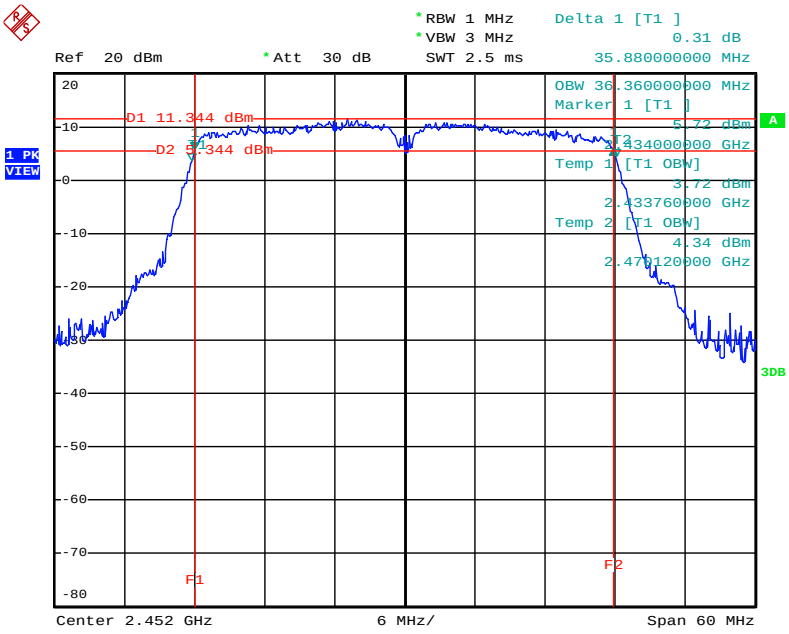


6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2437 MHz



Date: 21.AUG.2012 13:59:25

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2452 MHz



Date: 21.AUG.2012 13:58:54

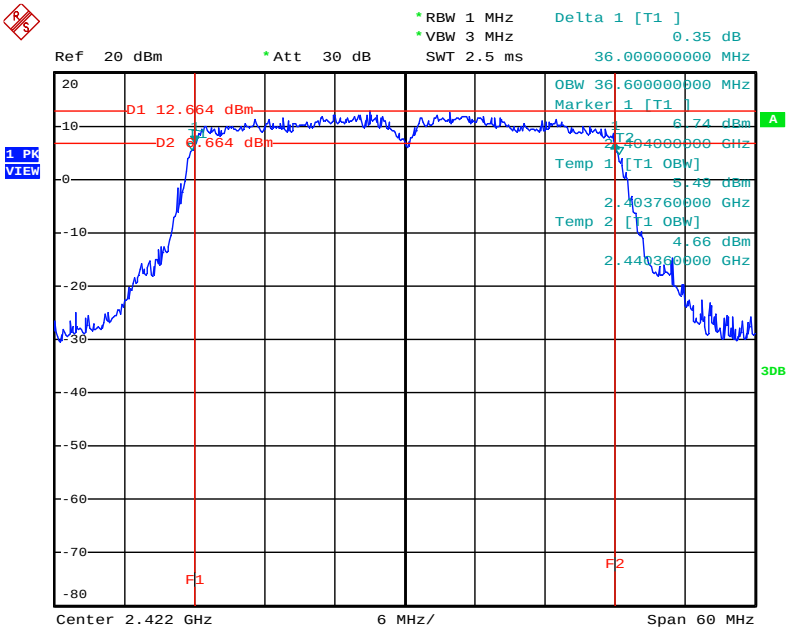
Test date	Aug. 21, 2012	Test Site No.	TH01-CB
Temperature	23℃	Humidity	63%
Test Engineer	Denis Su	Configuration	802.11n

<Ant. 1 + Ant. 2>

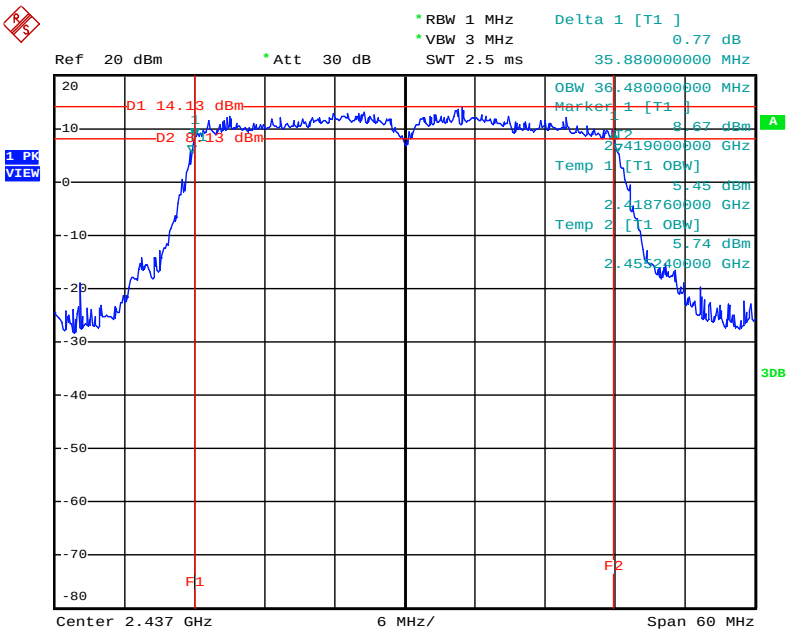
Configuration of IEEE 802.11n MCS8 40MHz

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.00	36.60	500	**Complies**
6	2437 MHz	35.88	36.48	500	**Complies**
9	2452 MHz	35.88	36.60	500	**Complies**

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 + Ant. 2/ 2422 MHz

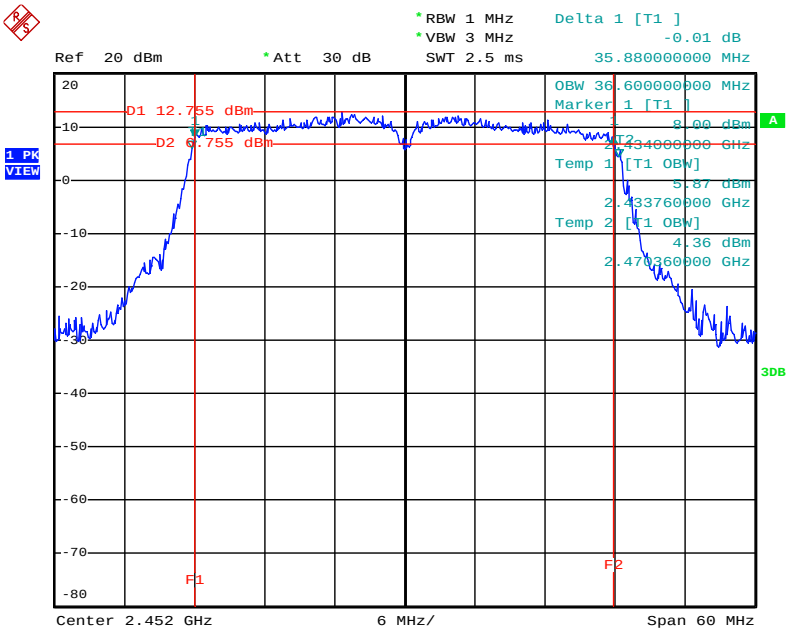


6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 + Ant. 2/ 2437 MHz



Date: 21.AUG.2012 14:04:14

6 dB Bandwidth Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 + Ant. 2/ 2452 MHz



Date: 21.AUG.2012 14:04:46

3.5 Radiated Emissions Measurement

3.5.1 Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (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 / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 3MHz 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

Configure the EUT according to ANSI C63.10. 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.

Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

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.

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.

Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

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.

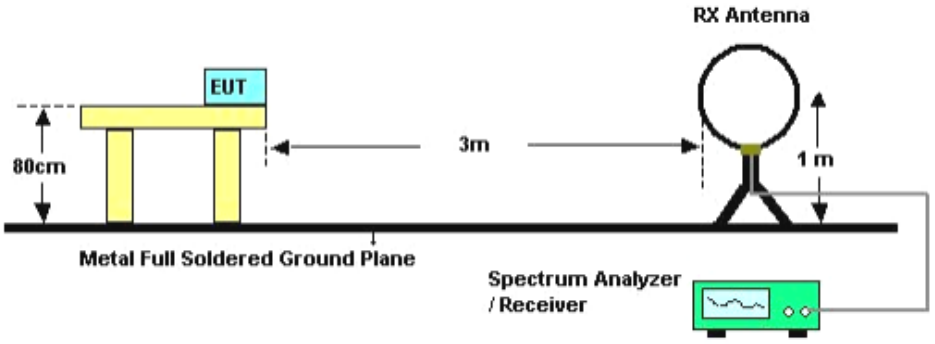
If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.

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.

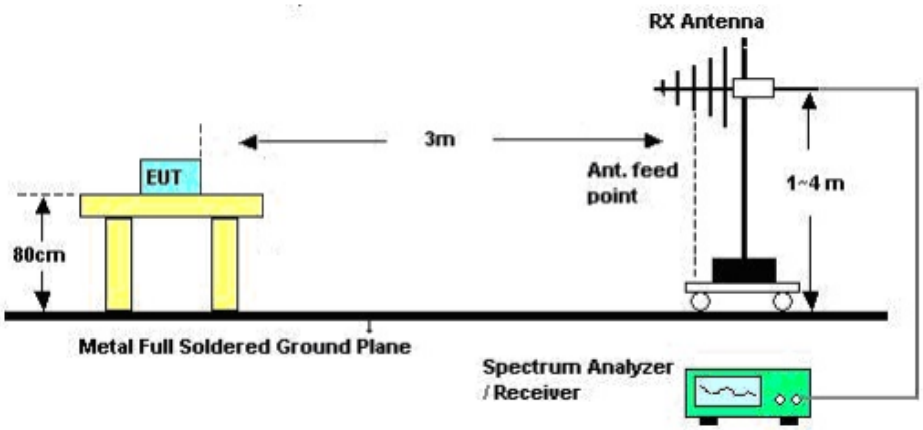
In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.5.4 Test Setup Layout

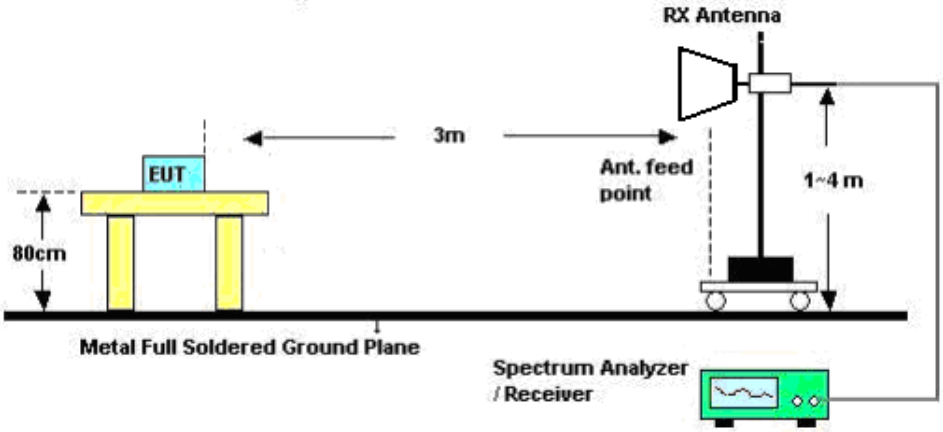
For Radiated Emissions below 1GHz (9kHz~30MHz)



For Radiated Emissions below 1GHz (30MHz~1GHz)



For Radiated Emissions above 1GHz



3.5.5 Test Deviation

There are no deviations 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)

Frequency Range	9kHz~30MHz	**Test Site No.**	03CH01-CB
Temperature	26℃	**Humidity**	53%
Test Engineer	Serway Li	**Configurations**	CTX
Test Date	Sep. 05, 2012		

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.

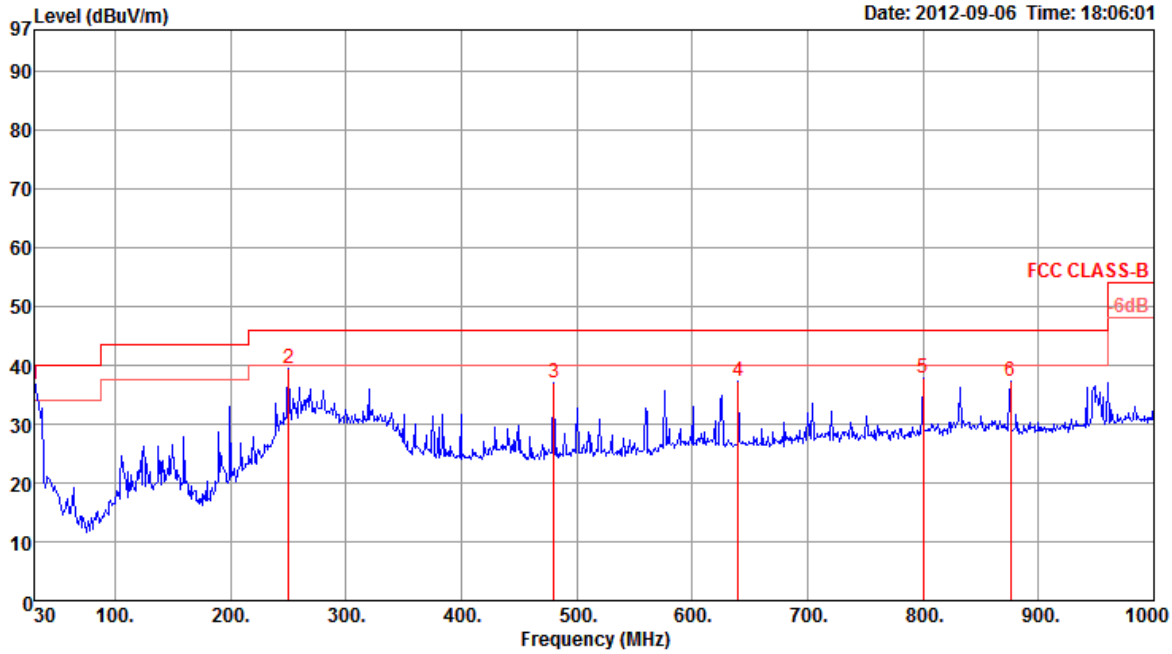
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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

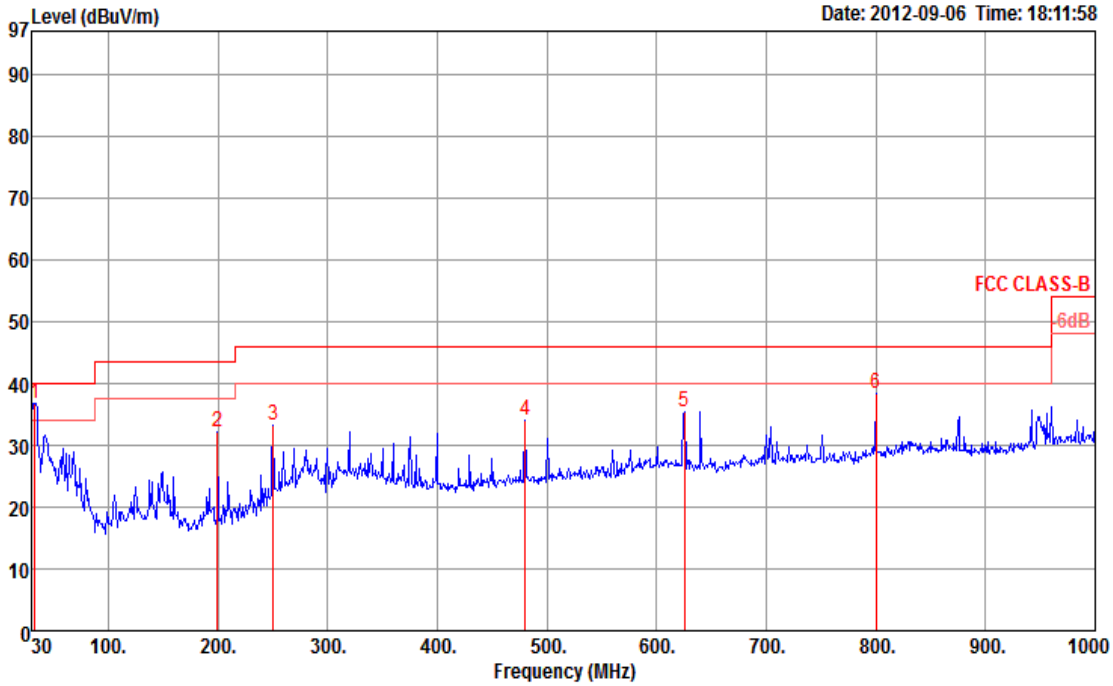
Temperature	23℃	**Humidity**	63%
Test Engineer	Serway Li	**Test Site No.**	03CH01-CB
Configurations	CTX		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	Pol/Phase	T/Pos	A/Pos
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m			deg	cm
1 p	30.00	36.84	40.00	-3.16	44.08	0.83	27.97	19.90	Peak	HORIZONTAL	0	400
2	250.19	39.58	46.00	-6.42	51.25	2.38	26.95	12.90	Peak	HORIZONTAL	0	400
3	480.08	36.91	46.00	-9.09	44.00	3.33	27.90	17.48	Peak	HORIZONTAL	0	400
4	640.13	37.16	46.00	-8.84	41.32	3.87	27.57	19.54	Peak	HORIZONTAL	0	400
5	800.18	37.95	46.00	-8.05	39.68	4.36	26.89	20.80	Peak	HORIZONTAL	0	400
6	875.84	37.27	46.00	-8.73	38.26	4.51	26.86	21.36	Peak	HORIZONTAL	0	400

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	Pol/Phase	T/Pos	A/Pos
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m			deg	cm
1 p	32.91	36.88	40.00	-3.12	45.89	0.88	27.99	18.10	Peak	VERTICAL	0	100
2	199.75	32.06	43.50	-11.44	46.82	2.09	27.25	10.40	Peak	VERTICAL	0	100
3	250.19	33.25	46.00	-12.75	44.92	2.38	26.95	12.90	Peak	VERTICAL	0	100
4	480.08	34.15	46.00	-11.85	41.24	3.33	27.90	17.48	Peak	VERTICAL	0	100
5	625.58	35.47	46.00	-10.53	39.78	3.82	27.58	19.45	Peak	VERTICAL	0	100
6	800.18	38.37	46.00	-7.63	40.10	4.36	26.89	20.80	Peak	VERTICAL	0	100

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

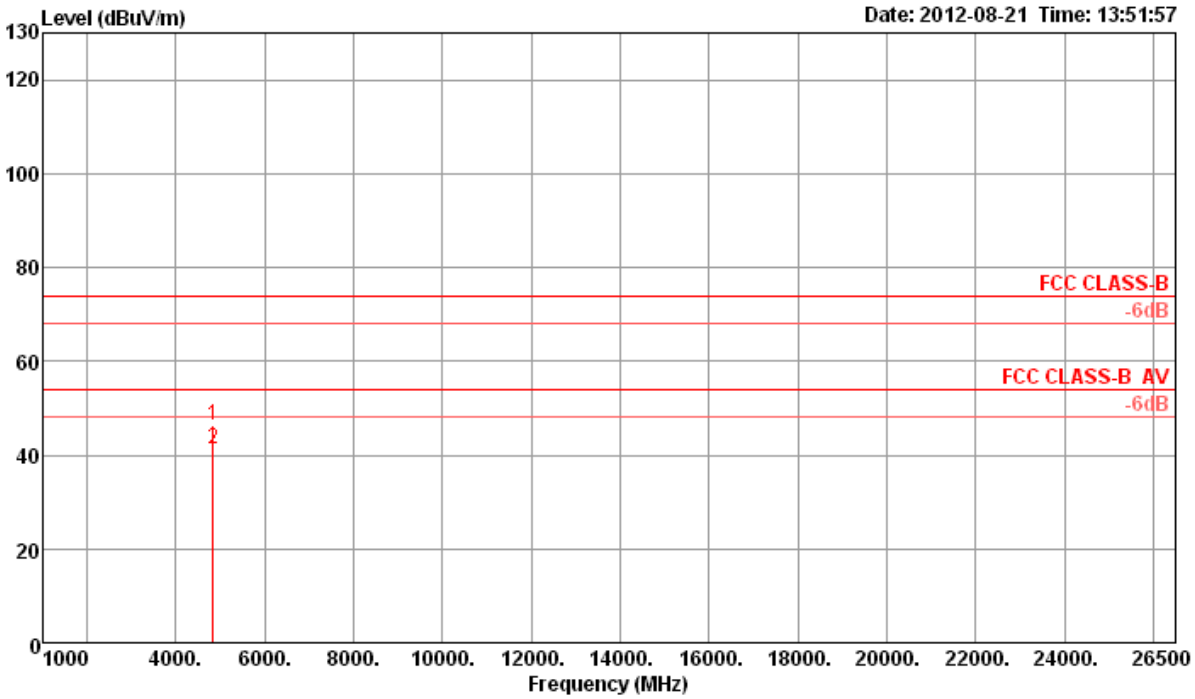
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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

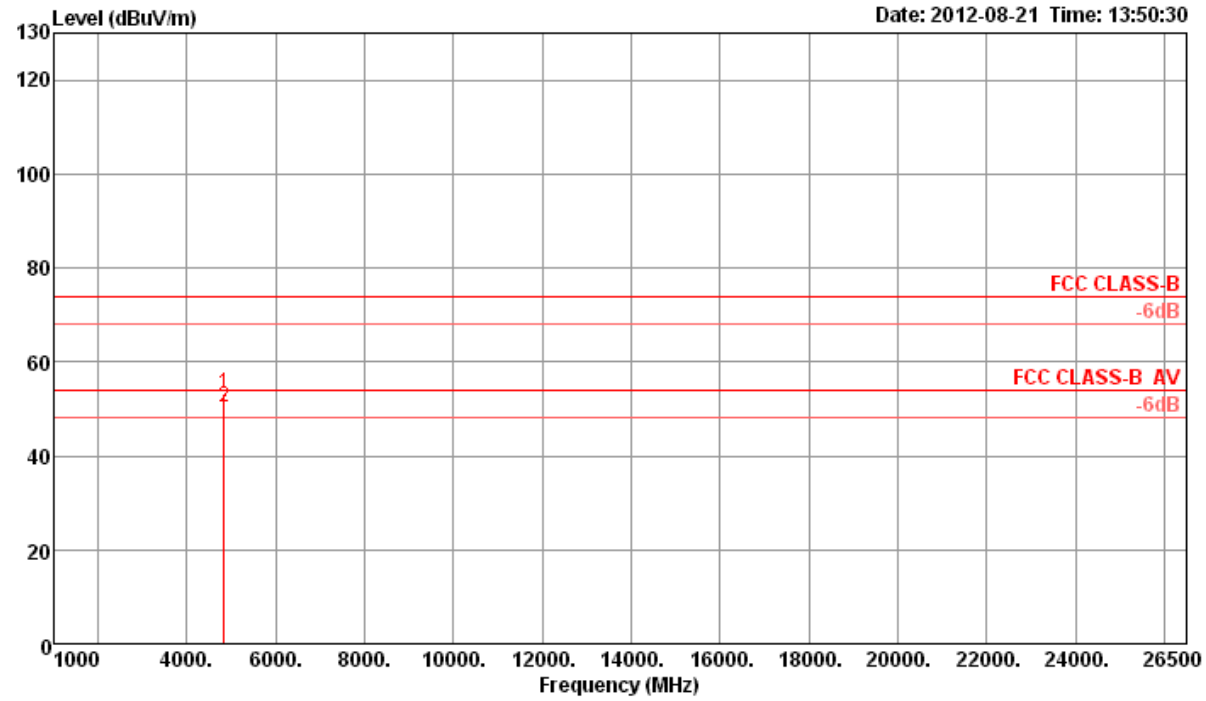
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11b CH 1 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.87	46.53	74.00	-27.47	45.19	3.31	33.06	35.03	Peak	162	25	HORIZONTAL
2	4823.88	41.18	54.00	-12.82	39.84	3.31	33.06	35.03	Average	162	25	HORIZONTAL

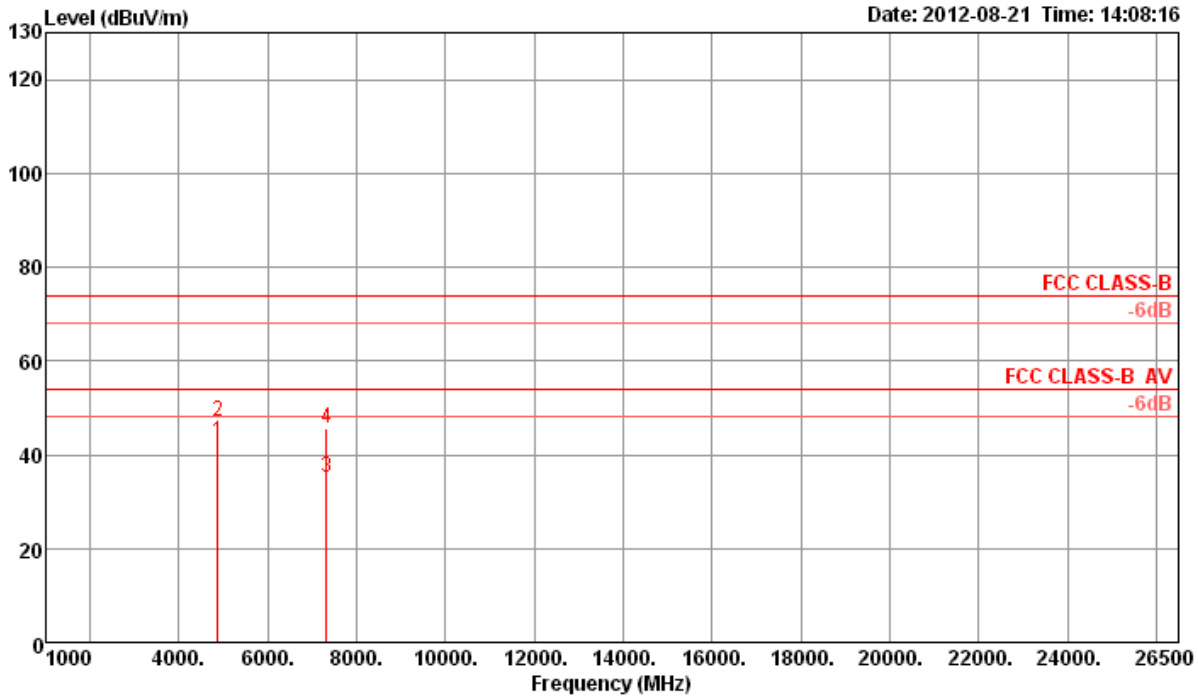
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.85	53.41	74.00	-20.59	52.07	3.31	33.06	35.03	Peak	100	258	VERTICAL
2	4823.96	50.28	54.00	-3.72	48.94	3.31	33.06	35.03	Average	100	258	VERTICAL

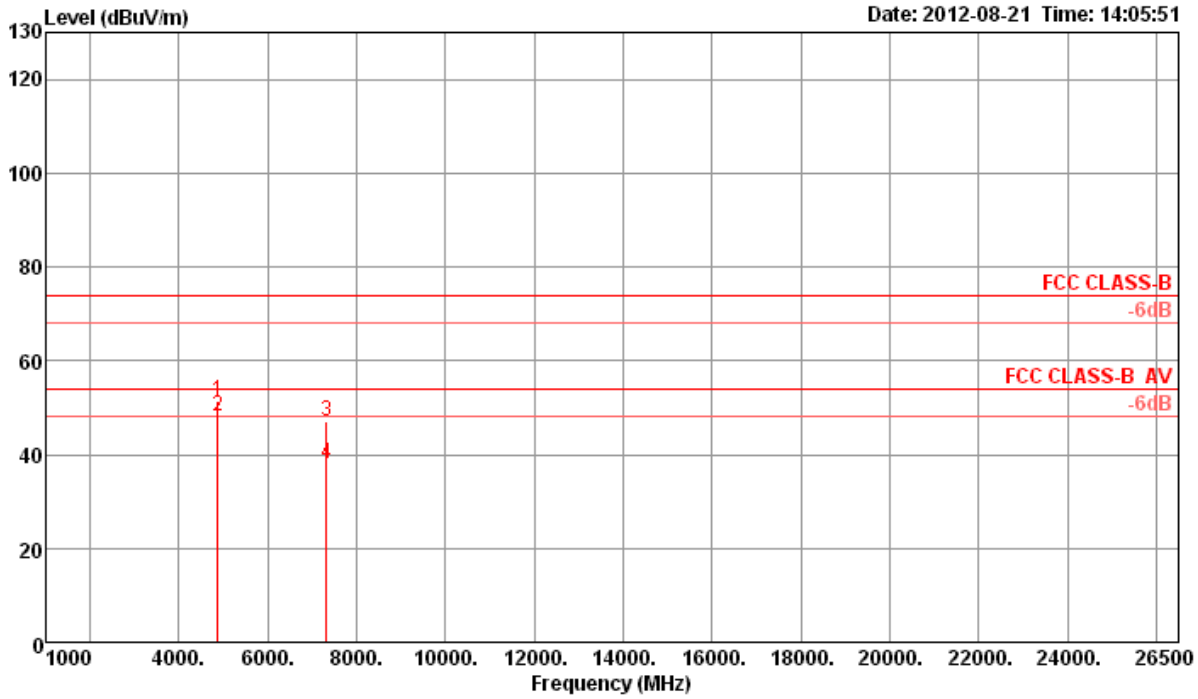
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11b CH 6 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.95	42.91	54.00	-11.09	41.45	3.33	33.16	35.03	Average	132	189	HORIZONTAL
2	4874.06	47.12	74.00	-26.88	45.66	3.33	33.16	35.03	Peak	132	189	HORIZONTAL
3	7309.64	35.05	54.00	-18.95	30.43	4.06	35.96	35.40	Average	146	308	HORIZONTAL
4	7309.65	45.79	74.00	-28.21	41.17	4.06	35.96	35.40	Peak	146	308	HORIZONTAL

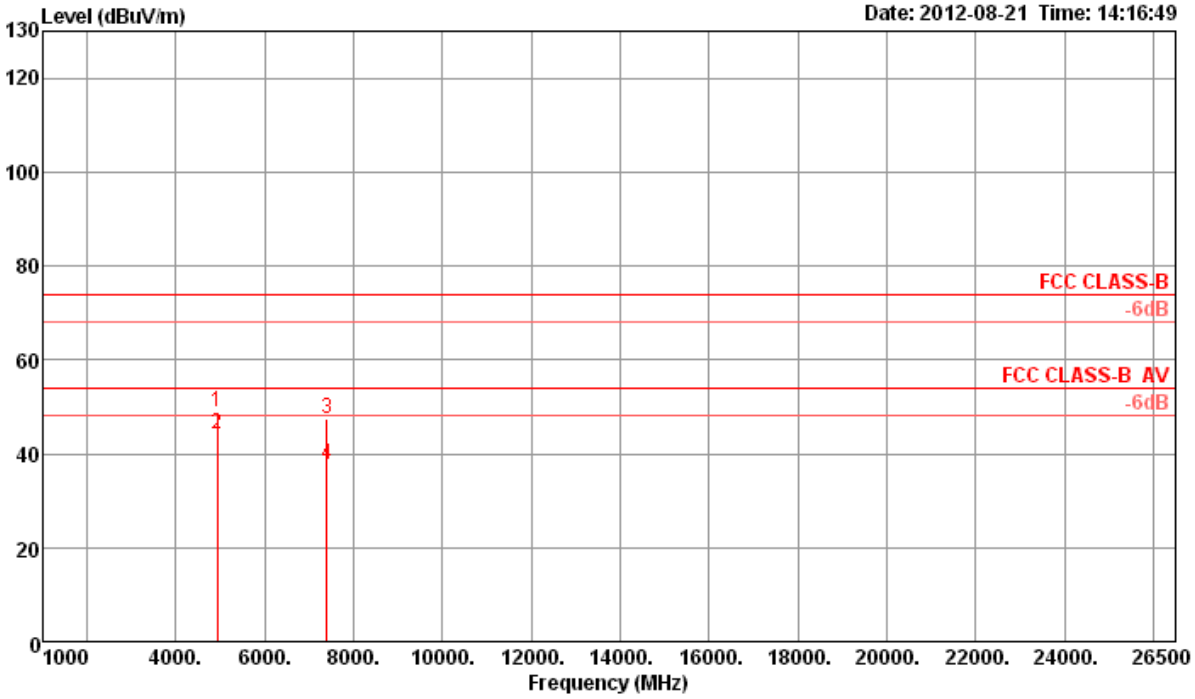
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.86	51.52	74.00	-22.48	50.06	3.33	33.16	35.03	Peak	100	146	VERTICAL
2	4873.96	48.24	54.00	-5.76	46.78	3.33	33.16	35.03	Average	100	146	VERTICAL
3	7310.46	47.20	74.00	-26.80	42.58	4.06	35.96	35.40	Peak	100	86	VERTICAL
4	7311.64	38.17	54.00	-15.83	33.55	4.06	35.96	35.40	Average	100	86	VERTICAL

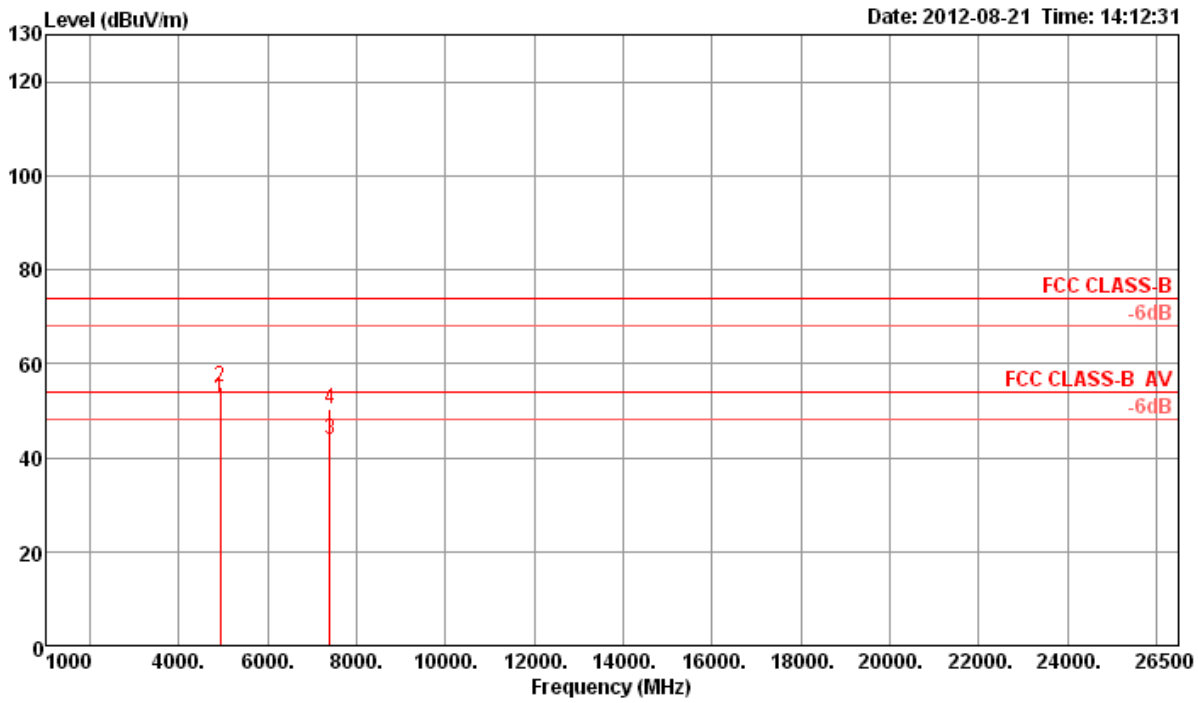
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11b Ch 11 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.92	48.79	74.00	-25.21	47.19	3.35	33.26	35.01	Peak	112	8	HORIZONTAL
2	4923.93	44.32	54.00	-9.68	42.72	3.35	33.26	35.01	Average	112	8	HORIZONTAL
3	7384.77	47.56	74.00	-26.44	42.81	4.06	36.09	35.40	Peak	157	1	HORIZONTAL
4	7385.21	37.54	54.00	-16.46	32.79	4.06	36.09	35.40	Average	157	1	HORIZONTAL

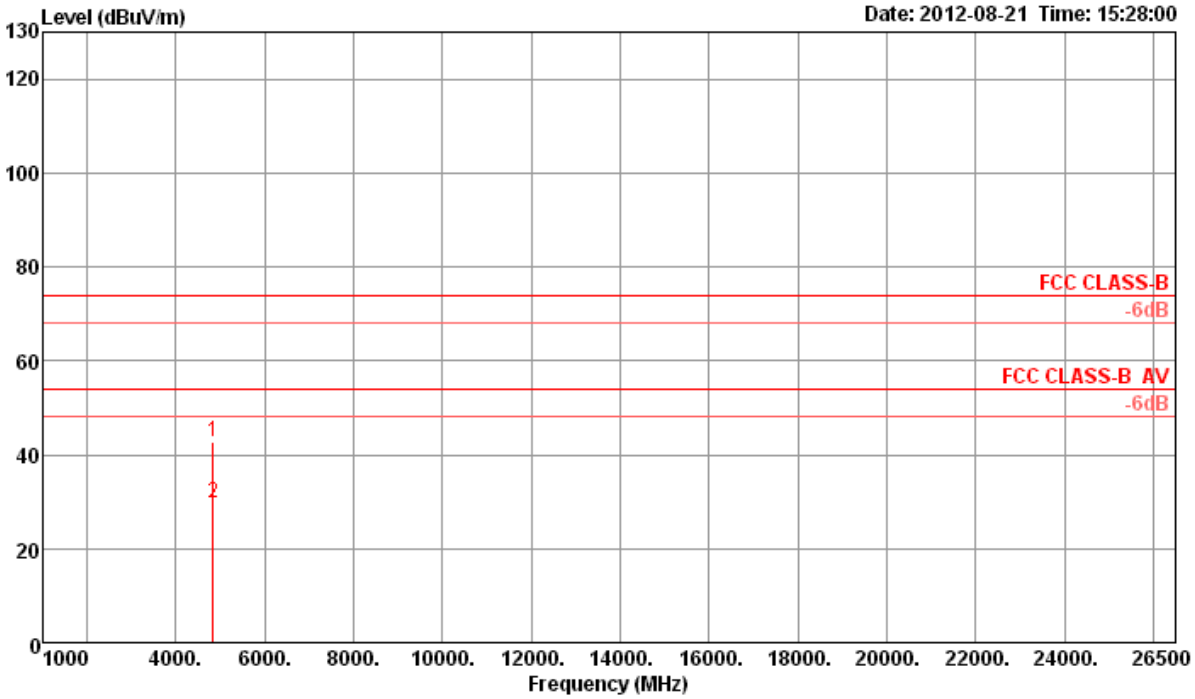
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.96	52.37	54.00	-1.63	50.77	3.35	33.26	35.01	Average	100	241	VERTICAL
2	4924.00	54.93	74.00	-19.07	53.33	3.35	33.26	35.01	Peak	100	241	VERTICAL
3	7385.21	43.80	54.00	-10.20	39.05	4.06	36.09	35.40	Average	154	231	VERTICAL
4	7386.75	50.30	74.00	-23.70	45.55	4.06	36.09	35.40	Peak	154	231	VERTICAL

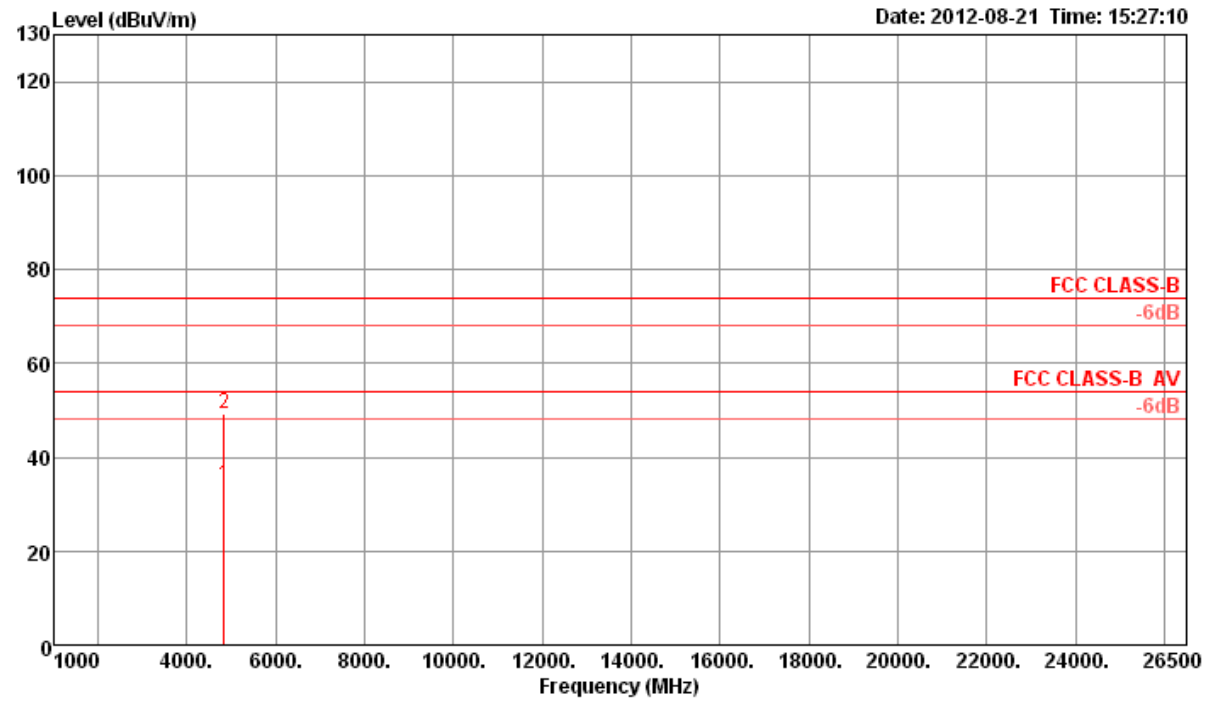
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11g CH 1 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.58	42.70	74.00	-31.30	41.36	3.31	33.06	35.03	Peak	100	80	HORIZONTAL
2	4824.94	29.65	54.00	-24.35	28.31	3.31	33.06	35.03	Average	100	80	HORIZONTAL

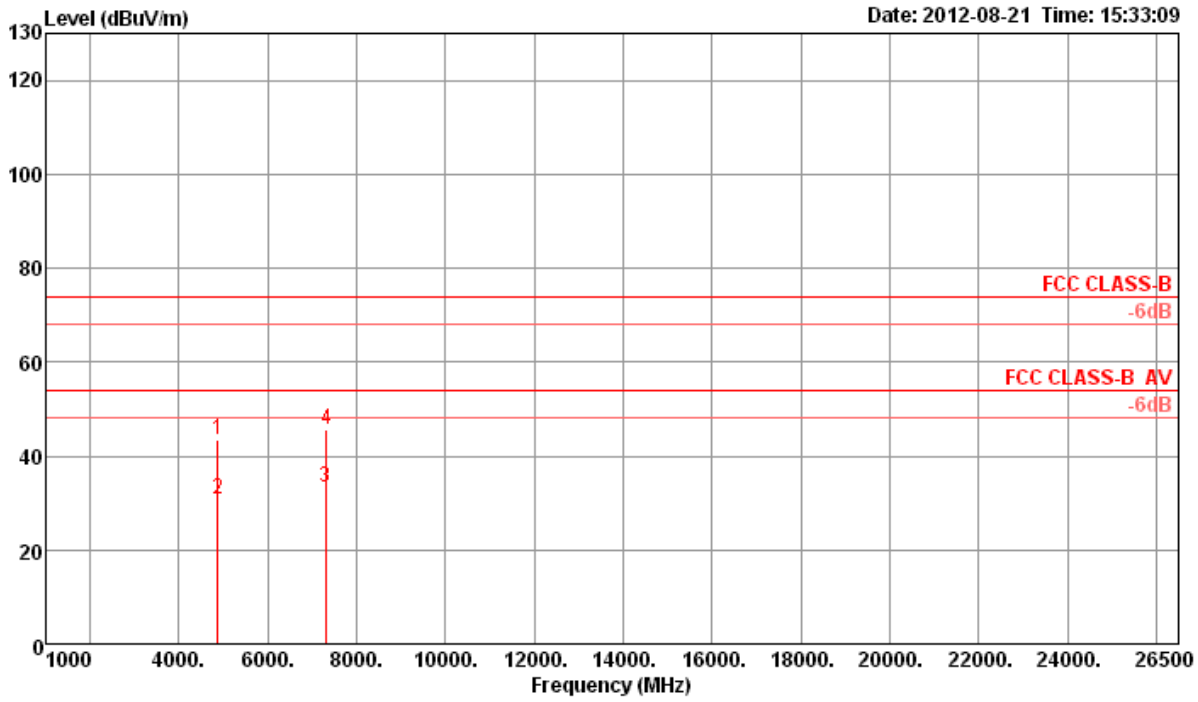
Vertical



	Freq	Level	Line	Limit	Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.75	34.00	54.00	-20.00	32.66	3.31	33.06	35.03	Average	100	252	VERTICAL
2	4824.21	49.08	74.00	-24.92	47.74	3.31	33.06	35.03	Peak	100	252	VERTICAL

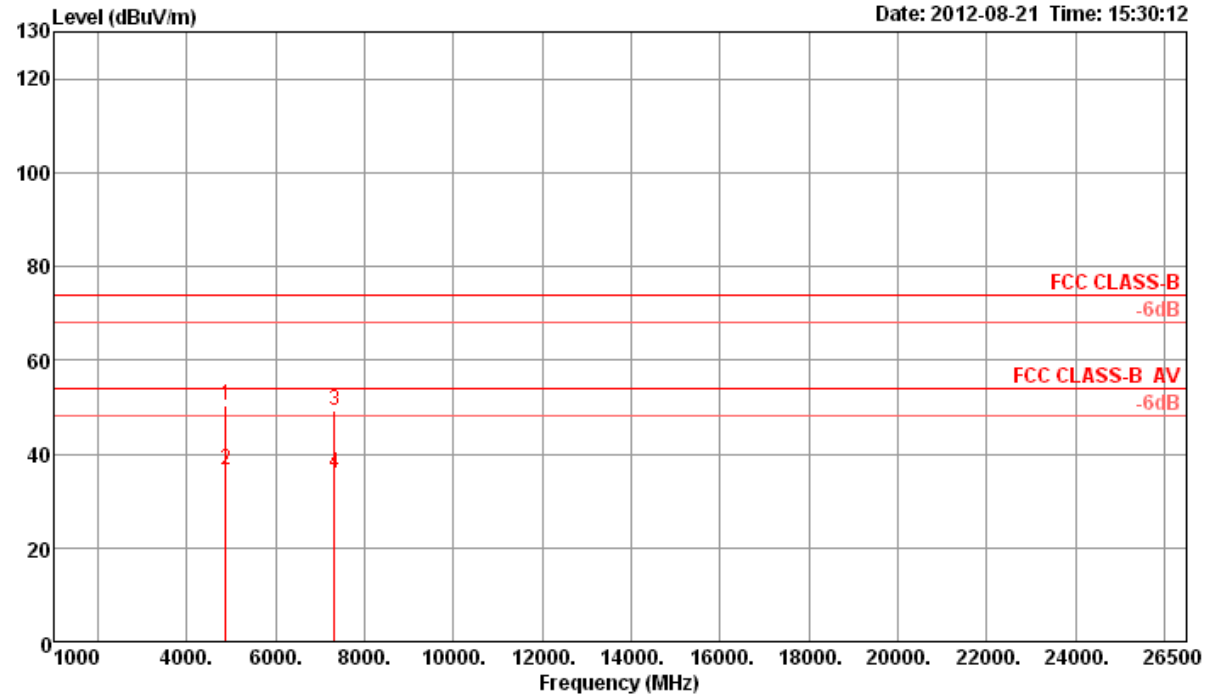
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11g CH 6 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.76	43.28	74.00	-30.72	41.82	3.33	33.16	35.03	Peak	100	272	HORIZONTAL
2	4874.63	30.80	54.00	-23.20	29.34	3.33	33.16	35.03	Average	100	272	HORIZONTAL
3	7306.99	33.41	54.00	-20.59	28.83	4.06	35.92	35.40	Average	100	131	HORIZONTAL
4	7320.30	45.78	74.00	-28.22	41.16	4.06	35.96	35.40	Peak	100	131	HORIZONTAL

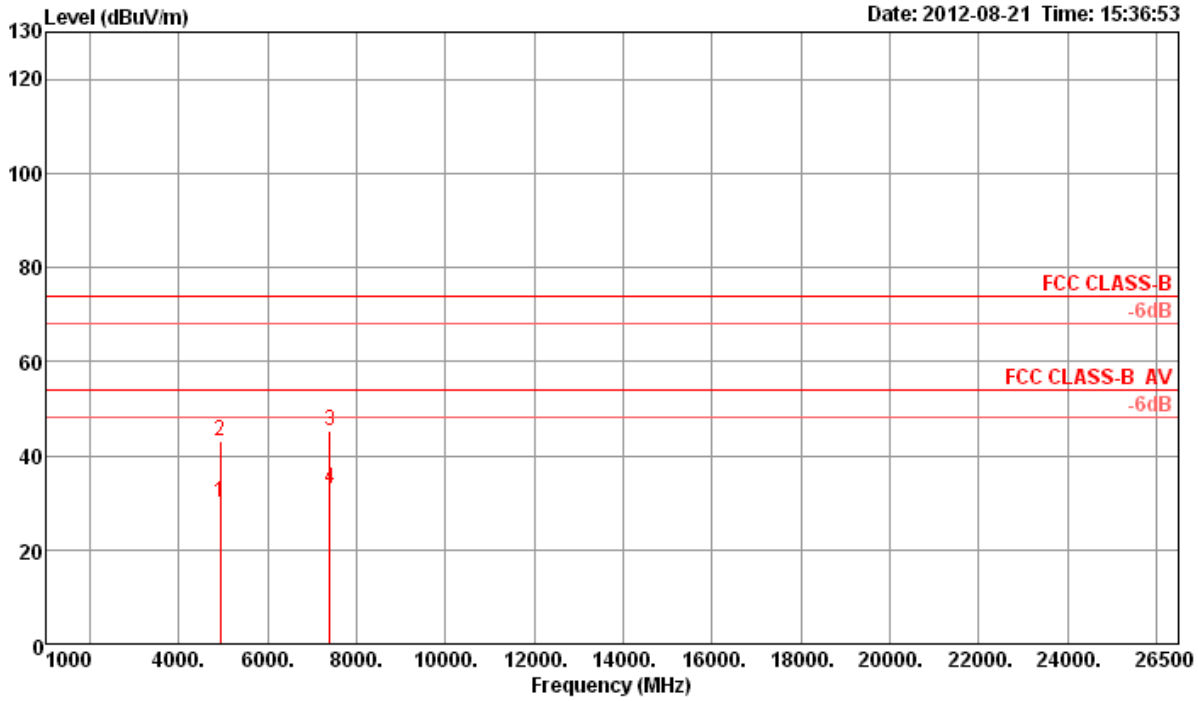
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.39	50.31	74.00	-23.69	48.85	3.33	33.16	35.03	Peak	100	187	VERTICAL
2	4874.74	36.45	54.00	-17.55	34.99	3.33	33.16	35.03	Average	100	187	VERTICAL
3	7309.72	49.28	74.00	-24.72	44.66	4.06	35.96	35.40	Peak	147	102	VERTICAL
4	7310.52	35.72	54.00	-18.28	31.10	4.06	35.96	35.40	Average	147	102	VERTICAL

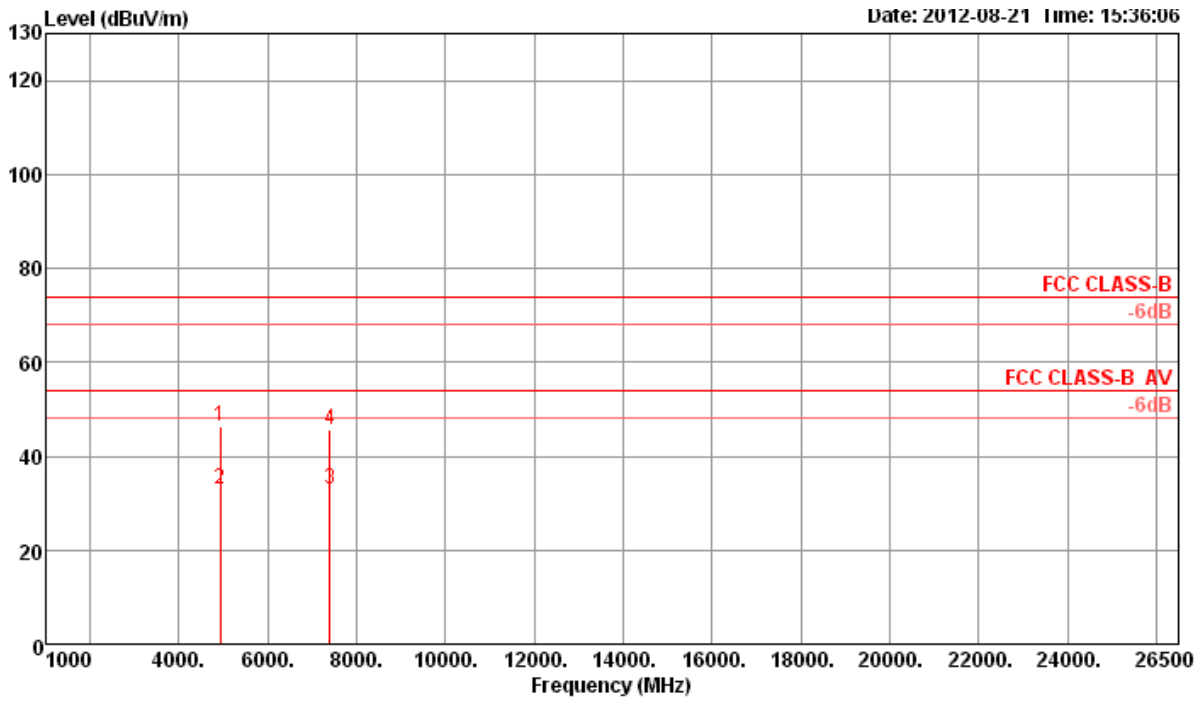
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11g Ch 11 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.24	30.09	54.00	-23.91	28.49	3.35	33.26	35.01	Average	100	341	HORIZONTAL
2	4923.42	43.14	74.00	-30.86	41.54	3.35	33.26	35.01	Peak	100	341	HORIZONTAL
3	7393.76	45.37	74.00	-28.63	40.58	4.06	36.13	35.40	Peak	100	183	HORIZONTAL
4	7394.78	32.99	54.00	-21.01	28.20	4.06	36.13	35.40	Average	100	183	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.94	46.19	74.00	-27.81	44.59	3.35	33.26	35.01	Peak	100	138	VERTICAL
2	4924.98	33.01	54.00	-20.99	31.41	3.35	33.26	35.01	Average	100	138	VERTICAL
3	7384.78	32.98	54.00	-21.02	28.23	4.06	36.09	35.40	Average	100	20	VERTICAL
4	7385.01	45.80	74.00	-28.20	41.05	4.06	36.09	35.40	Peak	100	20	VERTICAL

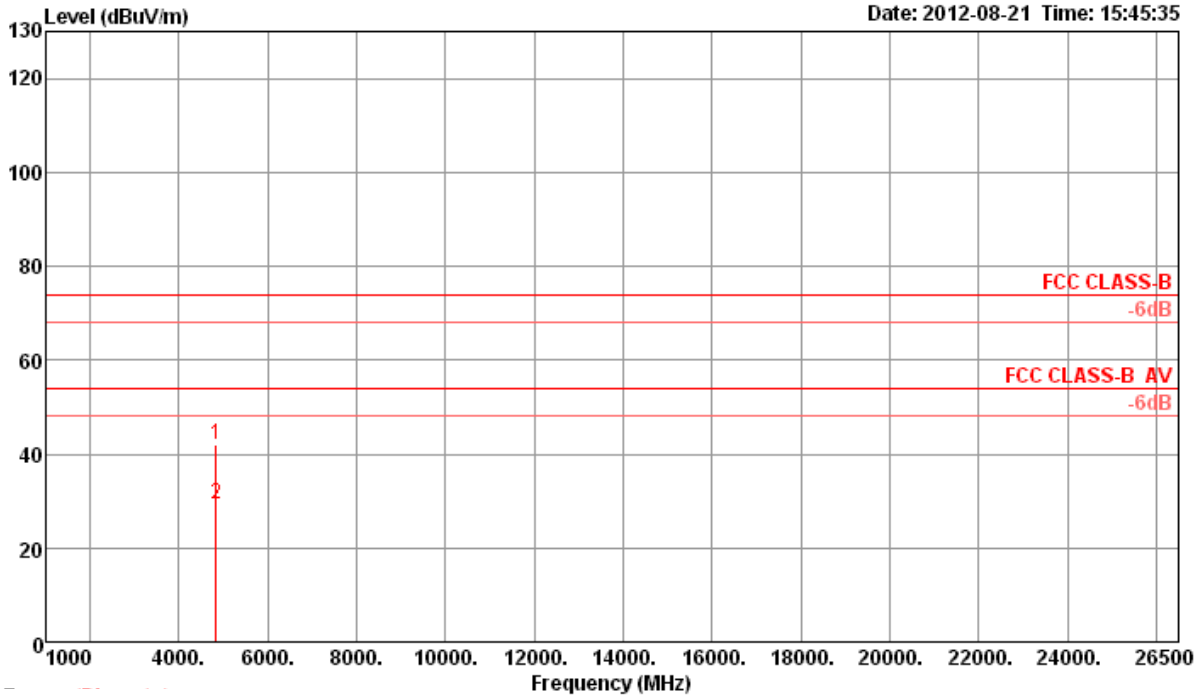
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

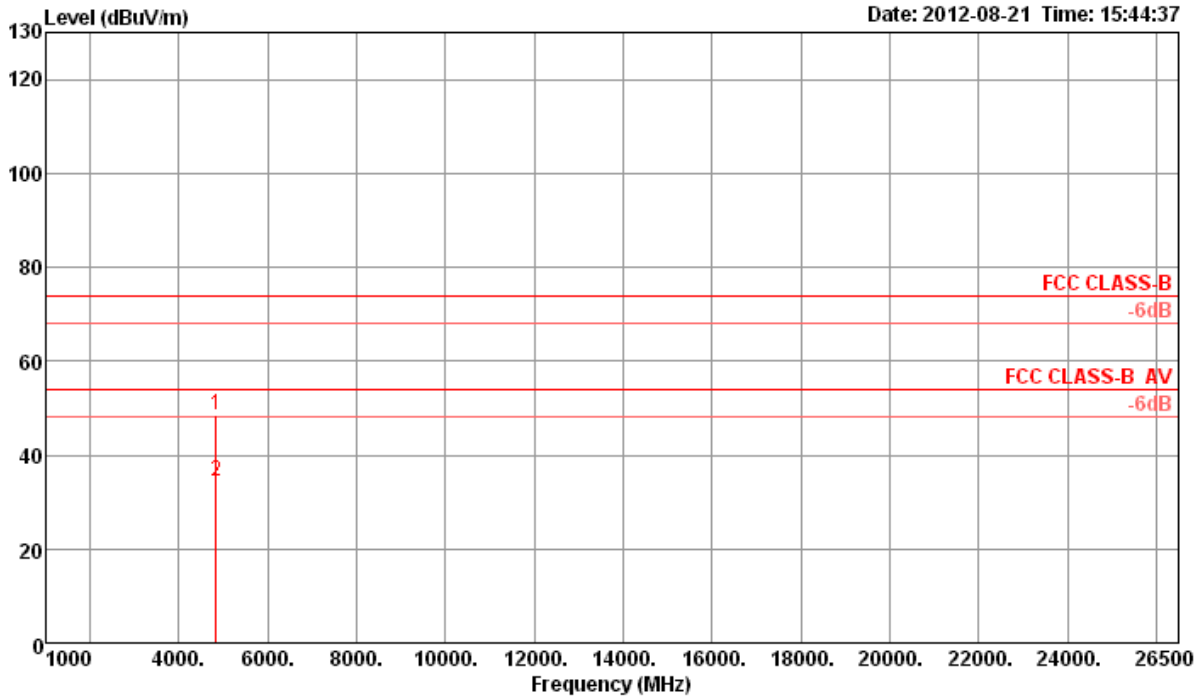
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 20MHz CH 1 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.12	42.08	74.00	-31.92	40.74	3.31	33.06	35.03	Peak	100	91	HORIZONTAL
2	4823.71	29.48	54.00	-24.52	28.14	3.31	33.06	35.03	Average	100	91	HORIZONTAL

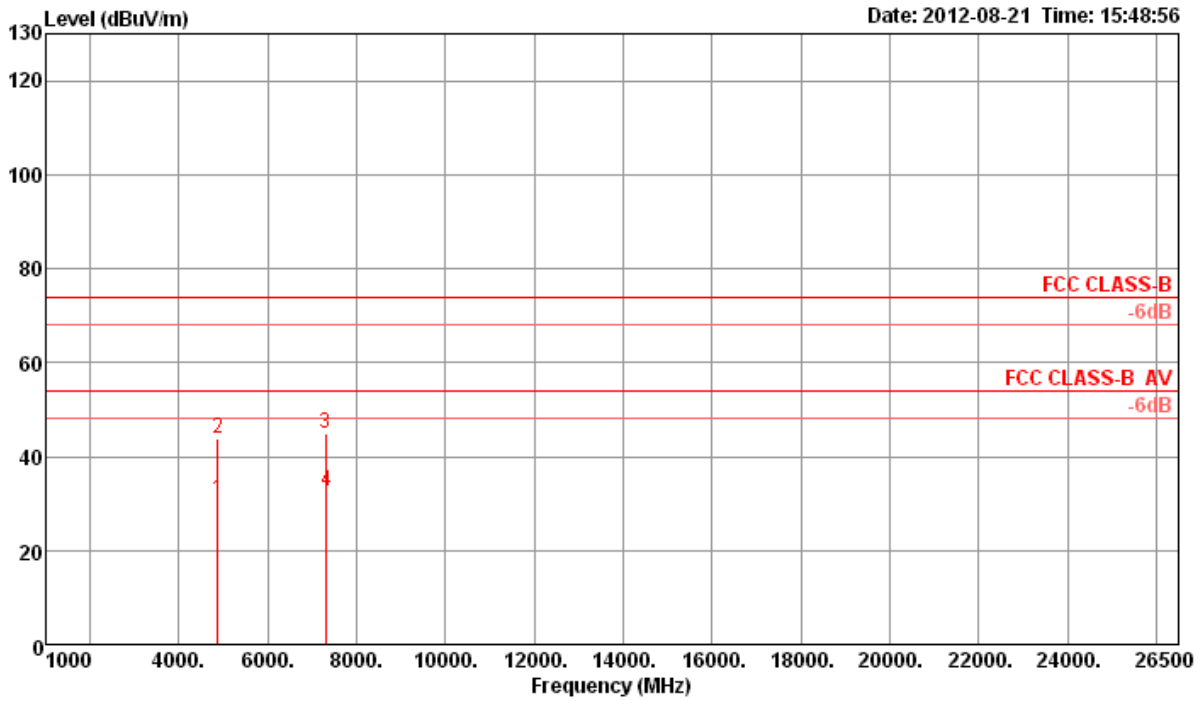
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.57	48.38	74.00	-25.62	47.04	3.31	33.06	35.03	Peak	100	246	VERTICAL
2	4823.94	34.47	54.00	-19.53	33.13	3.31	33.06	35.03	Average	100	246	VERTICAL

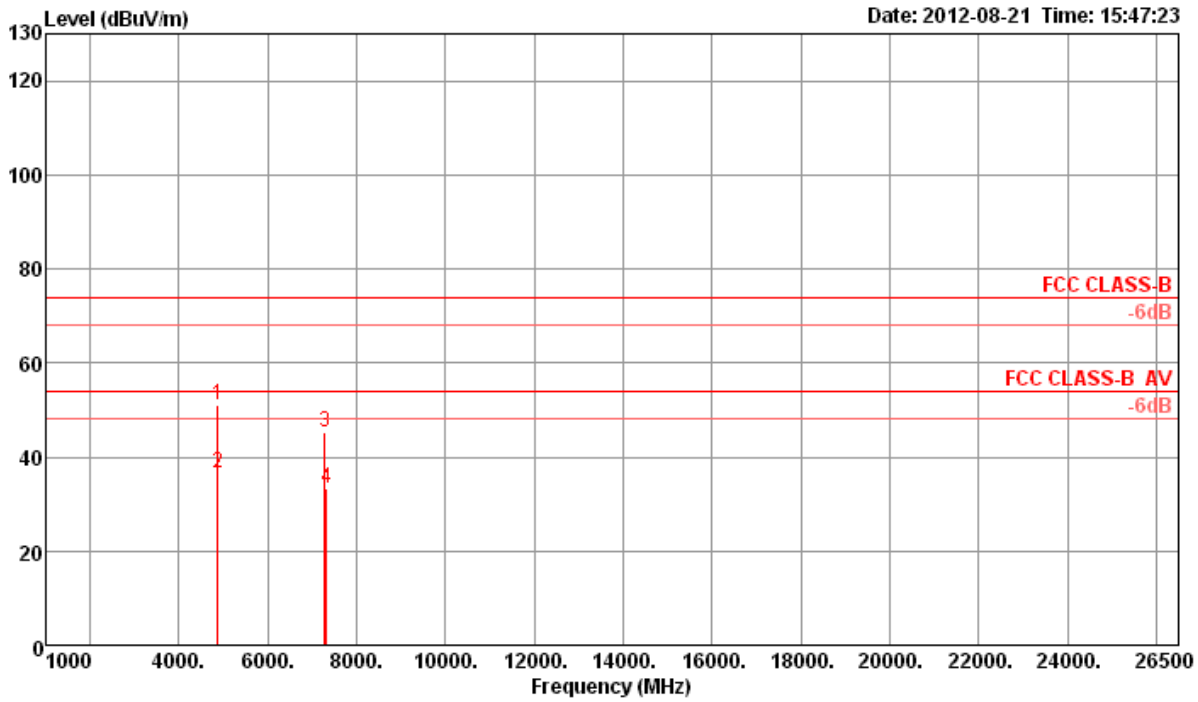
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 20MHz CH 6 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.22	30.74	54.00	-23.26	29.28	3.33	33.16	35.03	Average	100	175	HORIZONTAL
2	4874.21	43.78	74.00	-30.22	42.32	3.33	33.16	35.03	Peak	100	175	HORIZONTAL
3	7293.53	44.95	74.00	-29.05	40.37	4.06	35.92	35.40	Peak	100	337	HORIZONTAL
4	7311.80	32.74	54.00	-21.26	28.12	4.06	35.96	35.40	Average	100	337	HORIZONTAL

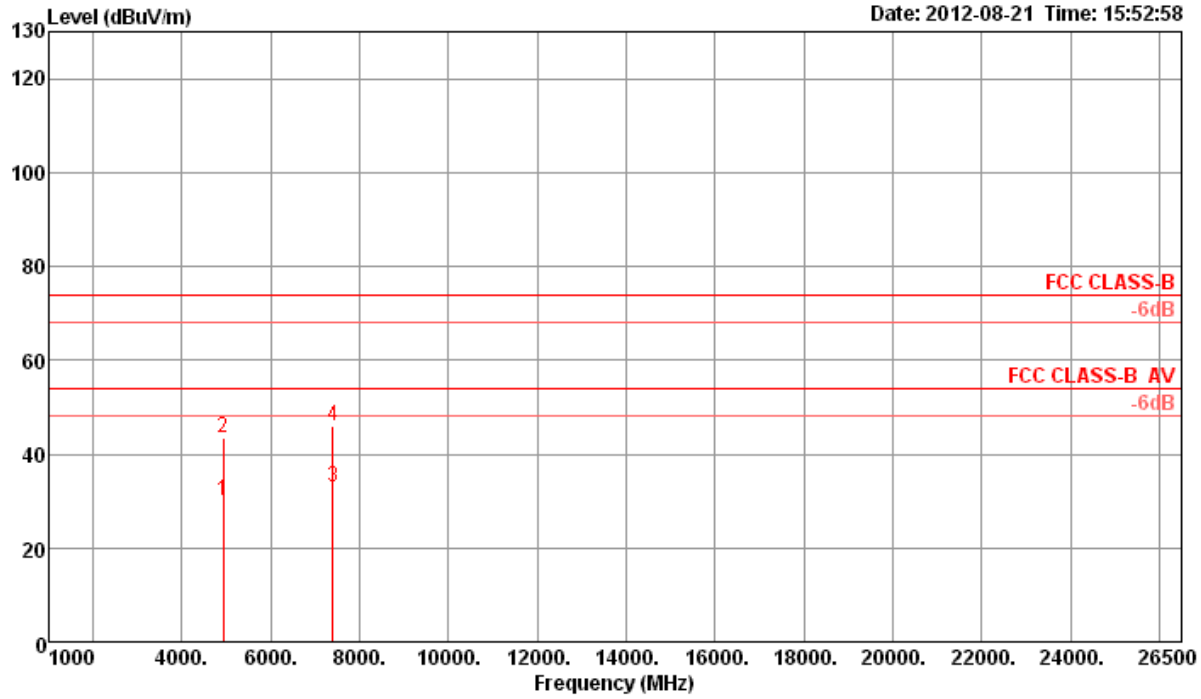
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.65	50.93	74.00	-23.07	49.47	3.33	33.16	35.03	Peak	100	185	VERTICAL
2	4874.41	36.74	54.00	-17.26	35.28	3.33	33.16	35.03	Average	100	185	VERTICAL
3	7287.68	45.26	74.00	-28.74	40.71	4.06	35.89	35.40	Peak	100	15	VERTICAL
4	7312.76	33.21	54.00	-20.79	28.59	4.06	35.96	35.40	Average	100	15	VERTICAL

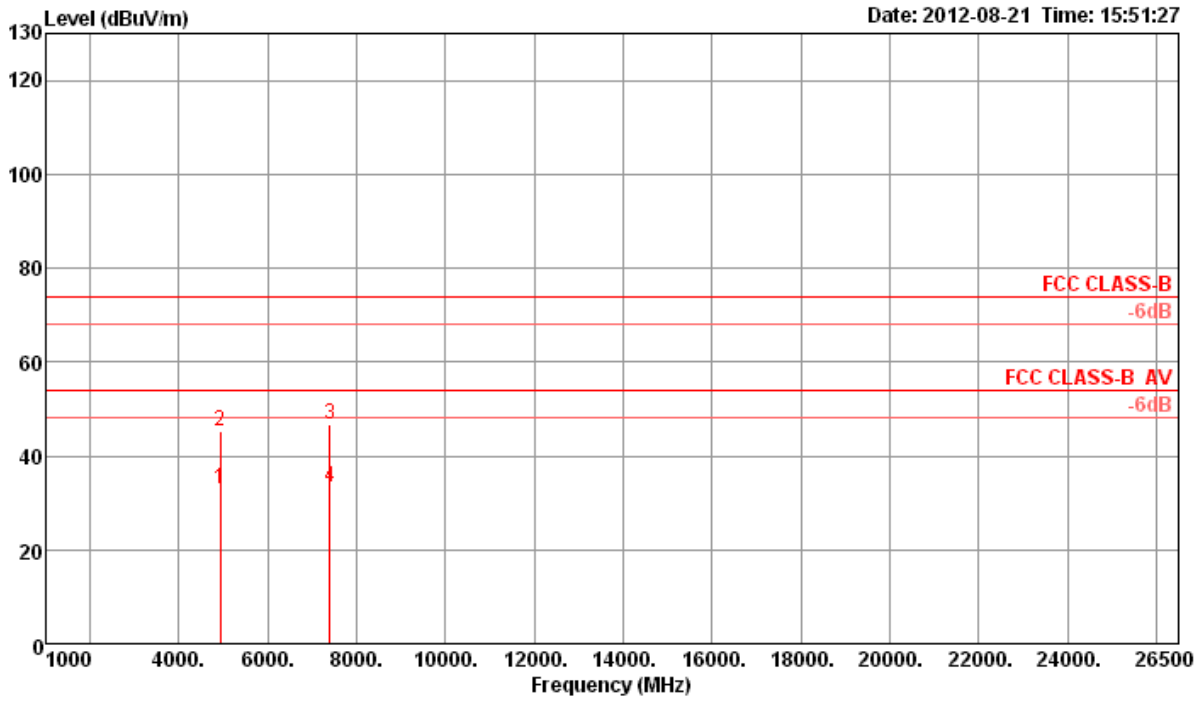
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 20MHz CH 11 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4924.01	29.91	54.00	-24.09	28.31	3.35	33.26	35.01	Average	100	351	HORIZONTAL
2	4924.98	43.58	74.00	-30.42	41.98	3.35	33.26	35.01	Peak	100	351	HORIZONTAL
3	7385.00	32.85	54.00	-21.15	28.10	4.06	36.09	35.40	Average	100	105	HORIZONTAL
4	7385.70	45.86	74.00	-28.14	41.11	4.06	36.09	35.40	Peak	100	105	HORIZONTAL

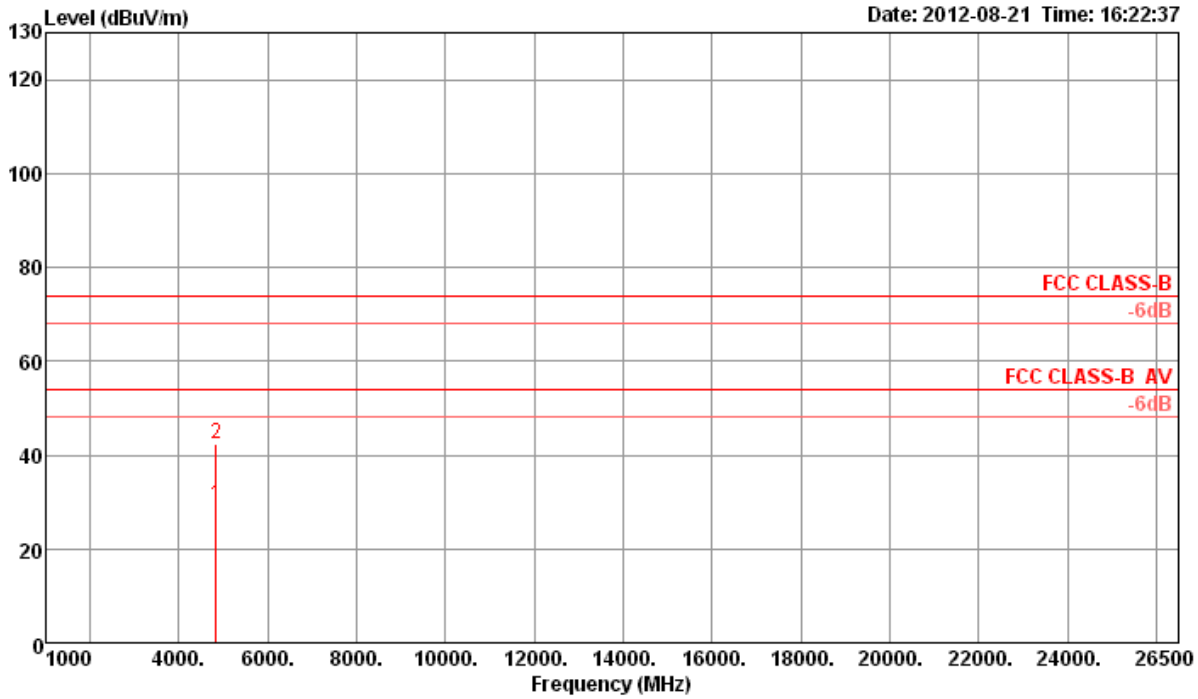
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.58	33.05	54.00	-20.95	31.45	3.35	33.26	35.01	Average	100	245	VERTICAL
2	4924.41	45.22	74.00	-28.78	43.62	3.35	33.26	35.01	Peak	100	245	VERTICAL
3	7386.03	46.67	74.00	-27.33	41.92	4.06	36.09	35.40	Peak	100	302	VERTICAL
4	7386.14	33.19	54.00	-20.81	28.44	4.06	36.09	35.40	Average	100	302	VERTICAL

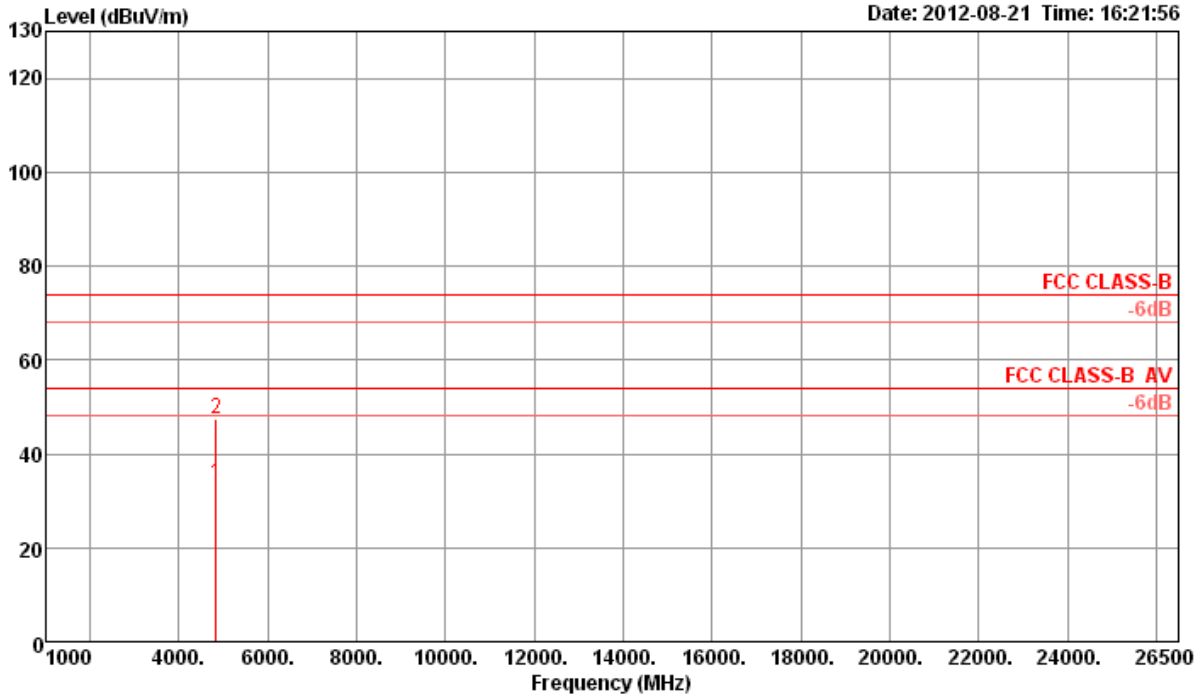
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 20MHz CH 1 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.83	29.24	54.00	-24.76	27.90	3.31	33.06	35.03	Average	100	353	HORIZONTAL
2	4824.78	42.20	74.00	-31.80	40.86	3.31	33.06	35.03	Peak	100	353	HORIZONTAL

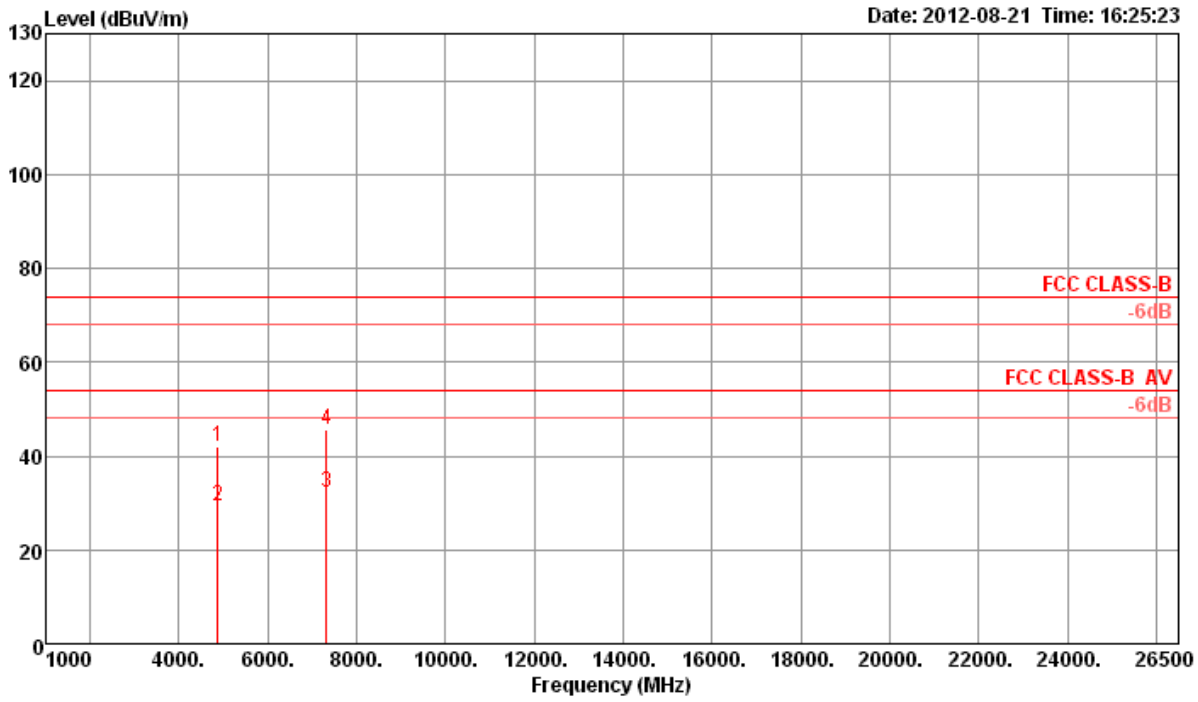
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.46	33.81	54.00	-20.19	32.47	3.31	33.06	35.03	Average	100	241	VERTICAL
2	4823.74	47.37	74.00	-26.63	46.03	3.31	33.06	35.03	Peak	100	241	VERTICAL

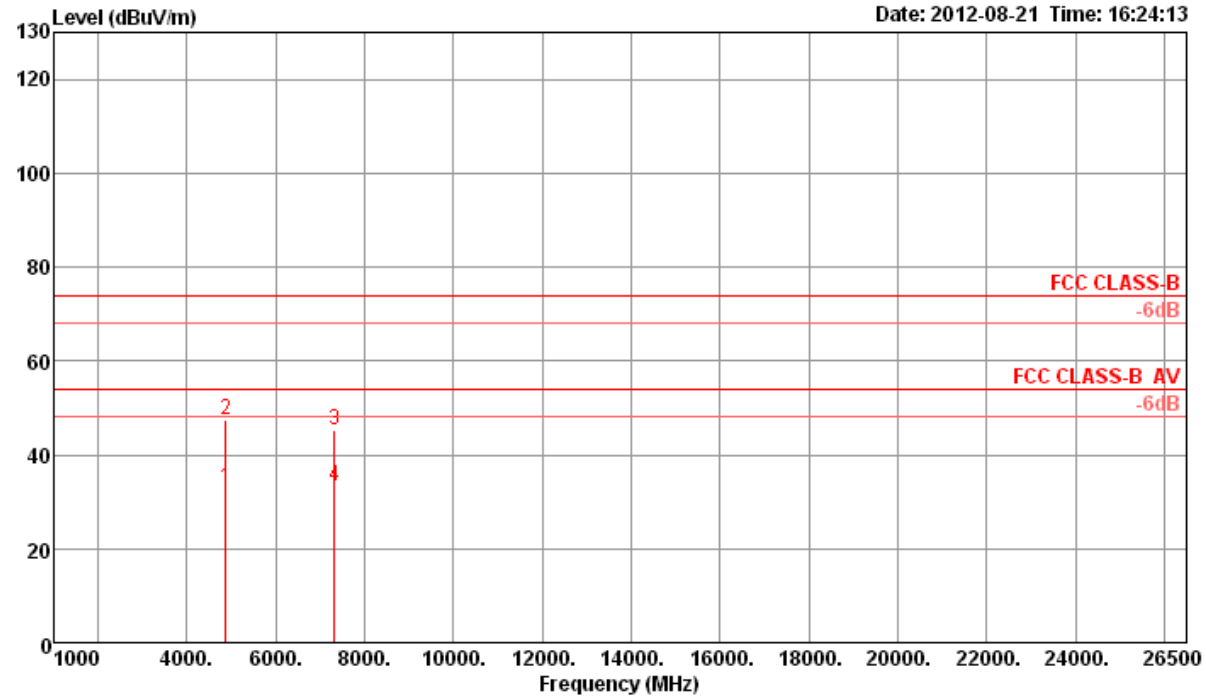
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 20MHz CH 6 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.60	41.90	74.00	-32.10	40.44	3.33	33.16	35.03	Peak	100	204	HORIZONTAL
2	4874.89	29.35	54.00	-24.65	27.89	3.33	33.16	35.03	Average	100	204	HORIZONTAL
3	7310.62	32.33	54.00	-21.67	27.71	4.06	35.96	35.40	Average	100	39	HORIZONTAL
4	7311.00	45.80	74.00	-28.20	41.18	4.06	35.96	35.40	Peak	100	39	HORIZONTAL

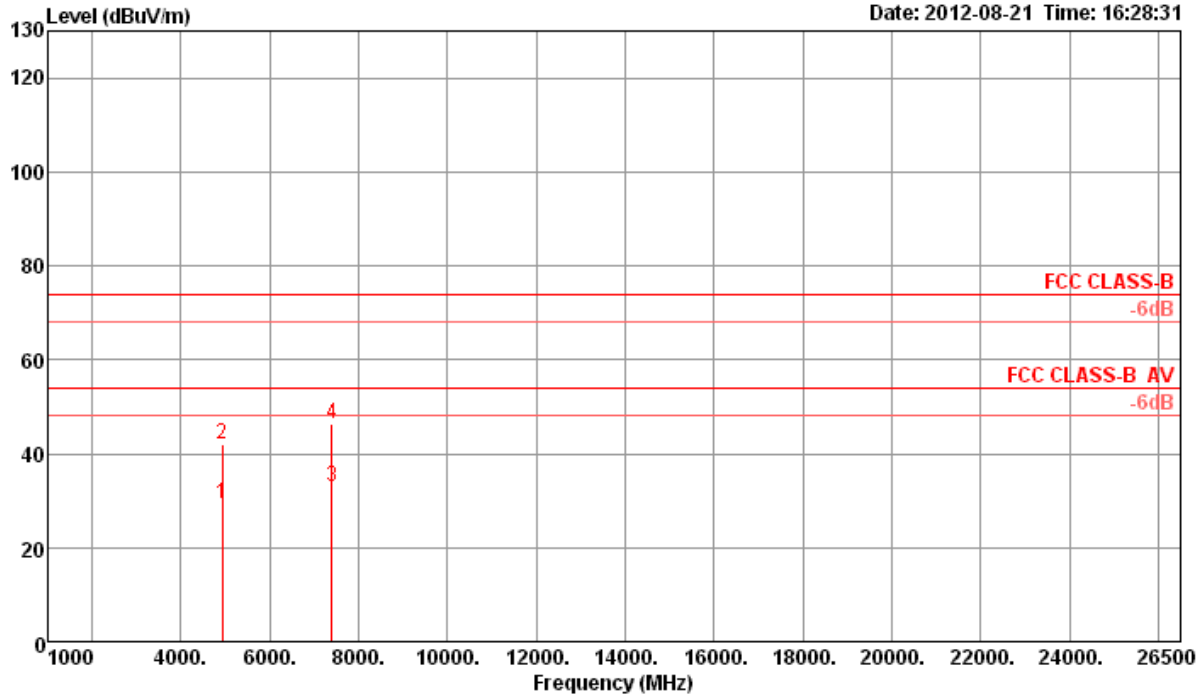
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.54	32.86	54.00	-21.14	31.40	3.33	33.16	35.03	Average	100	226	VERTICAL
2	4874.74	47.61	74.00	-26.39	46.15	3.33	33.16	35.03	Peak	100	226	VERTICAL
3	7311.23	45.22	74.00	-28.78	40.60	4.06	35.96	35.40	Peak	100	129	VERTICAL
4	7311.29	33.33	54.00	-20.67	28.71	4.06	35.96	35.40	Average	100	129	VERTICAL

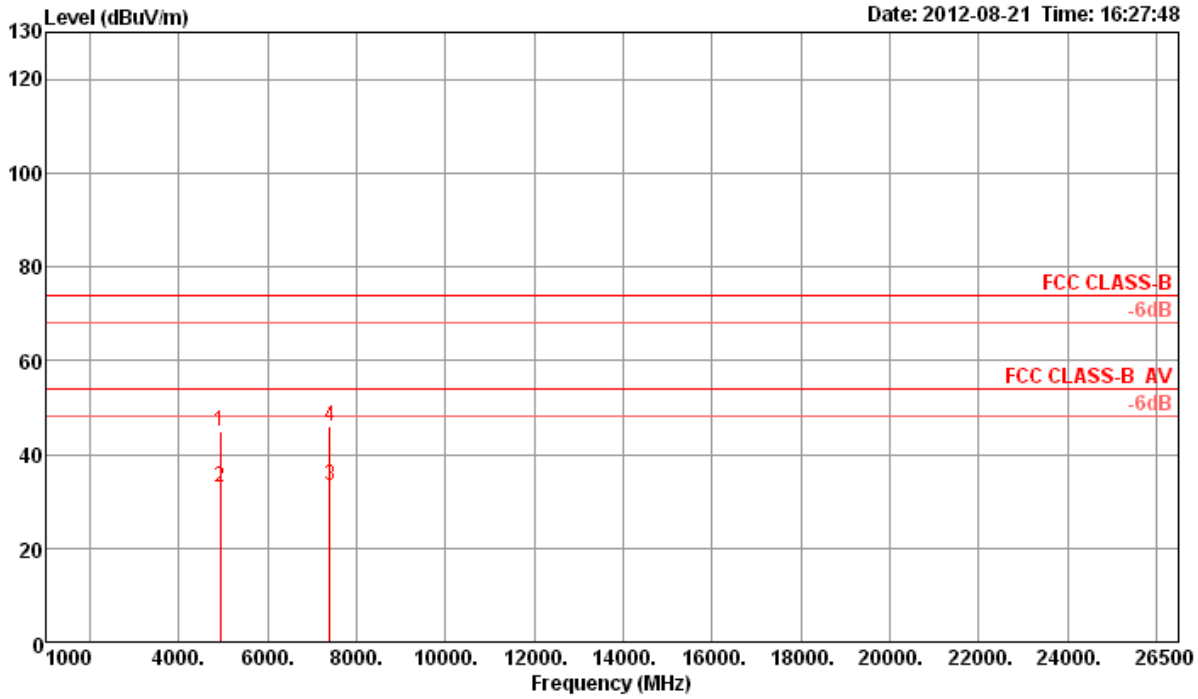
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 20MHz CH 11 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.97	29.39	54.00	-24.61	27.79	3.35	33.26	35.01	Average	100	143	HORIZONTAL
2	4924.17	42.16	74.00	-31.84	40.56	3.35	33.26	35.01	Peak	100	143	HORIZONTAL
3	7385.15	32.80	54.00	-21.20	28.05	4.06	36.09	35.40	Average	100	308	HORIZONTAL
4	7385.24	46.30	74.00	-27.70	41.55	4.06	36.09	35.40	Peak	100	308	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.28	44.92	74.00	-29.08	43.32	3.35	33.26	35.01	Peak	100	228	VERTICAL
2	4924.13	32.90	54.00	-21.10	31.30	3.35	33.26	35.01	Average	100	228	VERTICAL
3	7385.83	33.38	54.00	-20.62	28.63	4.06	36.09	35.40	Average	100	306	VERTICAL
4	7386.73	46.01	74.00	-27.99	41.26	4.06	36.09	35.40	Peak	100	306	VERTICAL

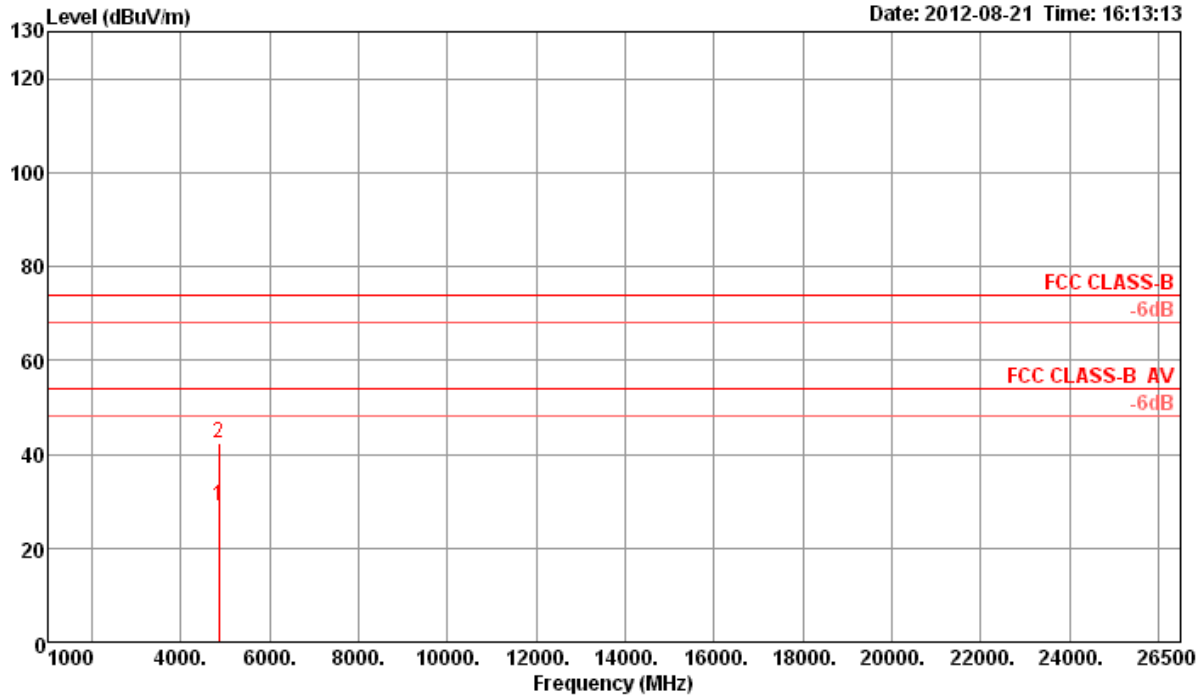
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

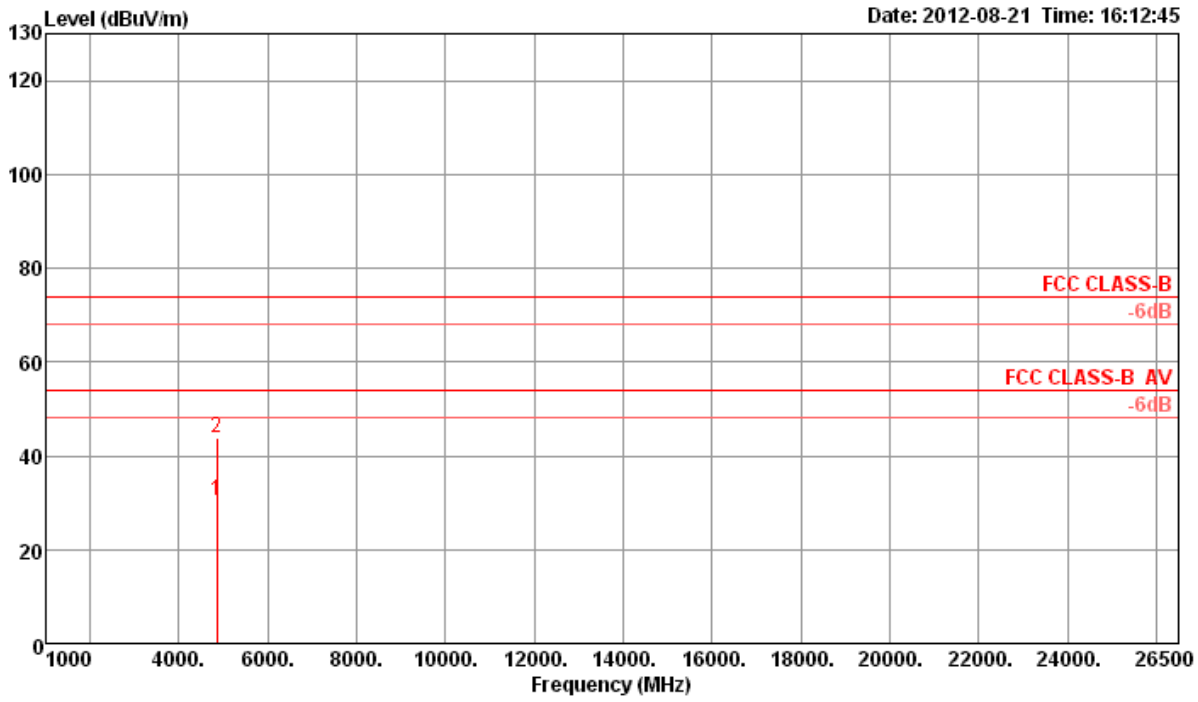
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 40MHz CH 3 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4843.79	29.12	54.00	-24.88	27.74	3.32	33.09	35.03	Average	100	354	HORIZONTAL
2	4844.14	42.52	74.00	-31.48	41.14	3.32	33.09	35.03	Peak	100	354	HORIZONTAL

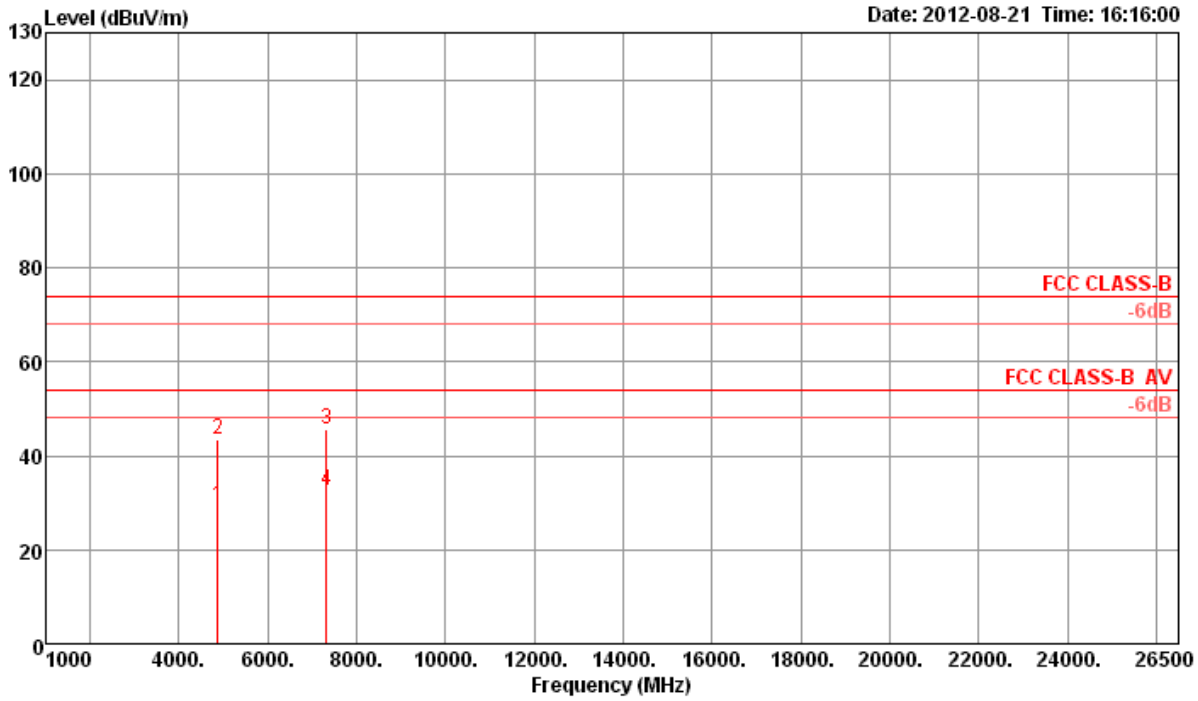
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4844.47	30.53	54.00	-23.47	29.15	3.32	33.09	35.03	Average	100	246	VERTICAL
2	4844.90	43.87	74.00	-30.13	42.49	3.32	33.09	35.03	Peak	100	246	VERTICAL

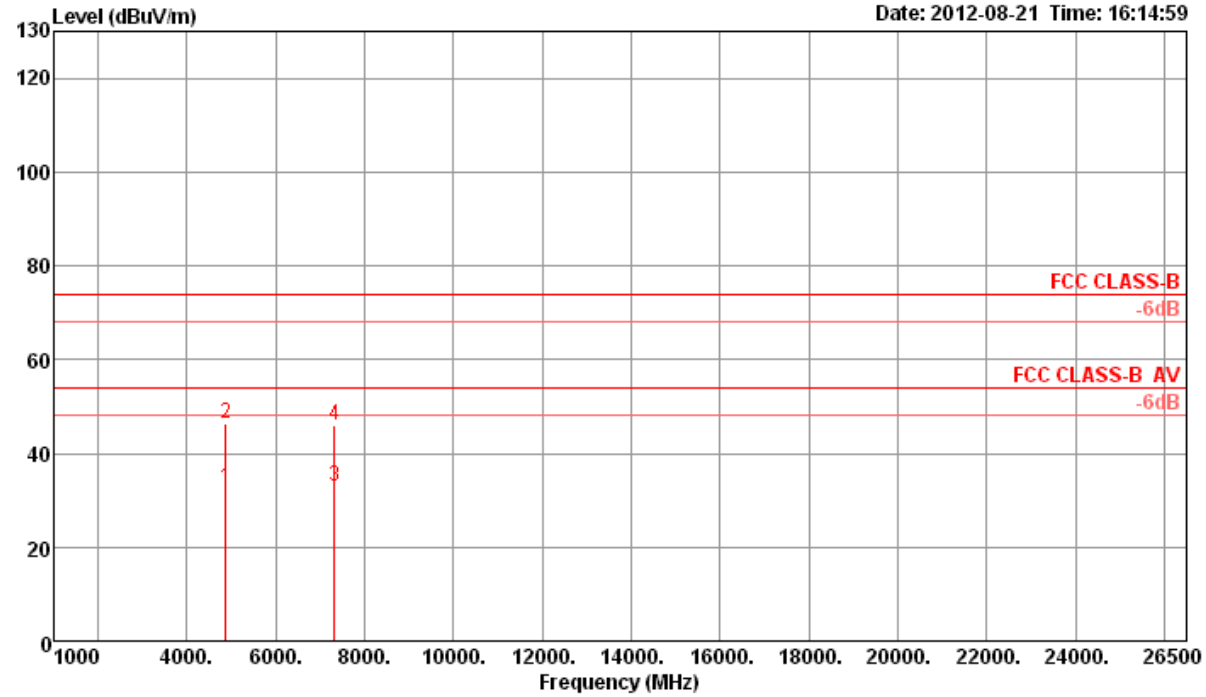
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 40MHz CH 6 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.60	29.22	54.00	-24.78	27.76	3.33	33.16	35.03	Average	100	45	HORIZONTAL
2	4874.64	43.35	74.00	-30.65	41.89	3.33	33.16	35.03	Peak	100	45	HORIZONTAL
3	7310.58	45.51	74.00	-28.49	40.89	4.06	35.96	35.40	Peak	100	171	HORIZONTAL
4	7311.76	32.54	54.00	-21.46	27.92	4.06	35.96	35.40	Average	100	171	HORIZONTAL

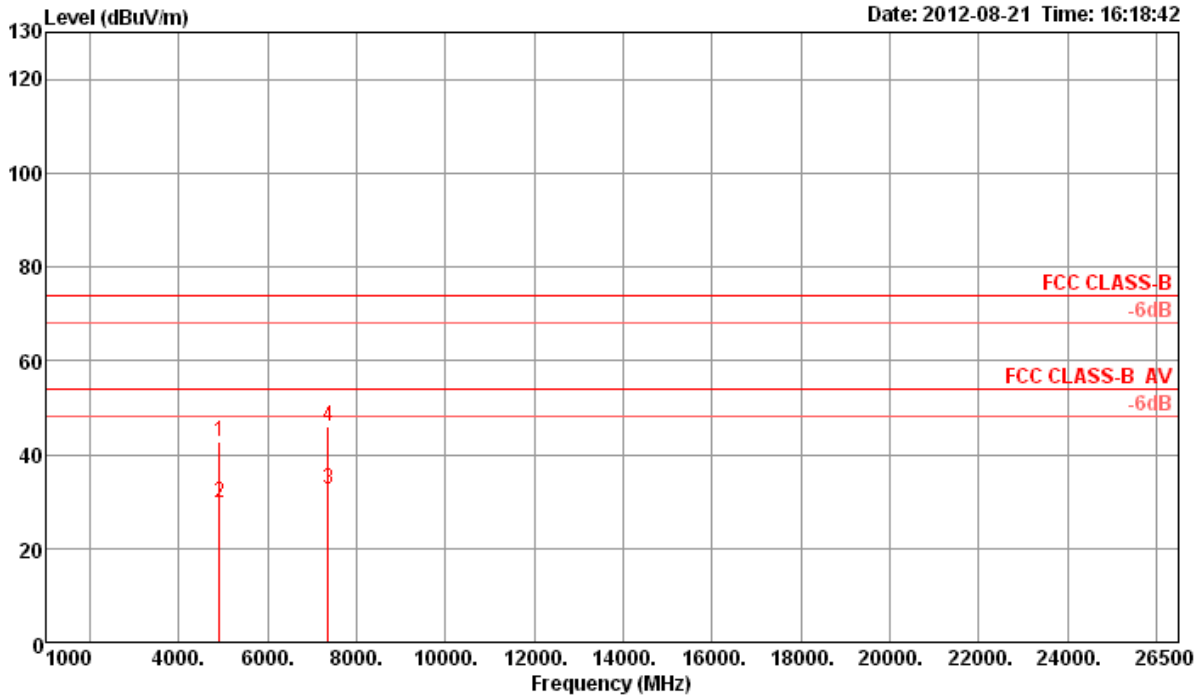
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.98	32.75	54.00	-21.25	31.29	3.33	33.16	35.03	Average	100	183	VERTICAL
2	4874.72	46.50	74.00	-27.50	45.04	3.33	33.16	35.03	Peak	100	183	VERTICAL
3	7310.67	33.06	54.00	-20.94	28.44	4.06	35.96	35.40	Average	100	275	VERTICAL
4	7311.31	45.93	74.00	-28.07	41.31	4.06	35.96	35.40	Peak	100	275	VERTICAL

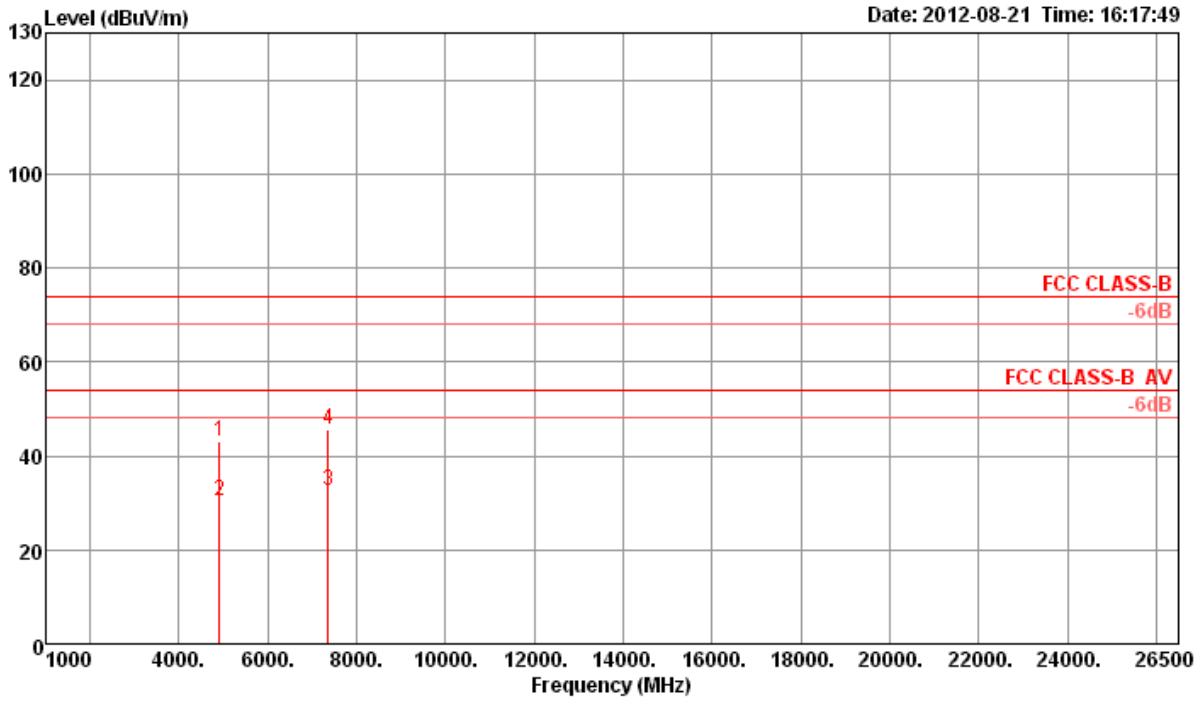
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS0 40MHz CH 9 / Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.69	42.73	74.00	-31.27	41.22	3.34	33.19	35.02	Peak	100	277	HORIZONTAL
2	4904.76	29.61	54.00	-24.39	28.10	3.34	33.19	35.02	Average	100	277	HORIZONTAL
3	7356.35	32.47	54.00	-21.53	27.79	4.06	36.02	35.40	Average	100	201	HORIZONTAL
4	7356.47	45.88	74.00	-28.12	41.20	4.06	36.02	35.40	Peak	100	201	HORIZONTAL

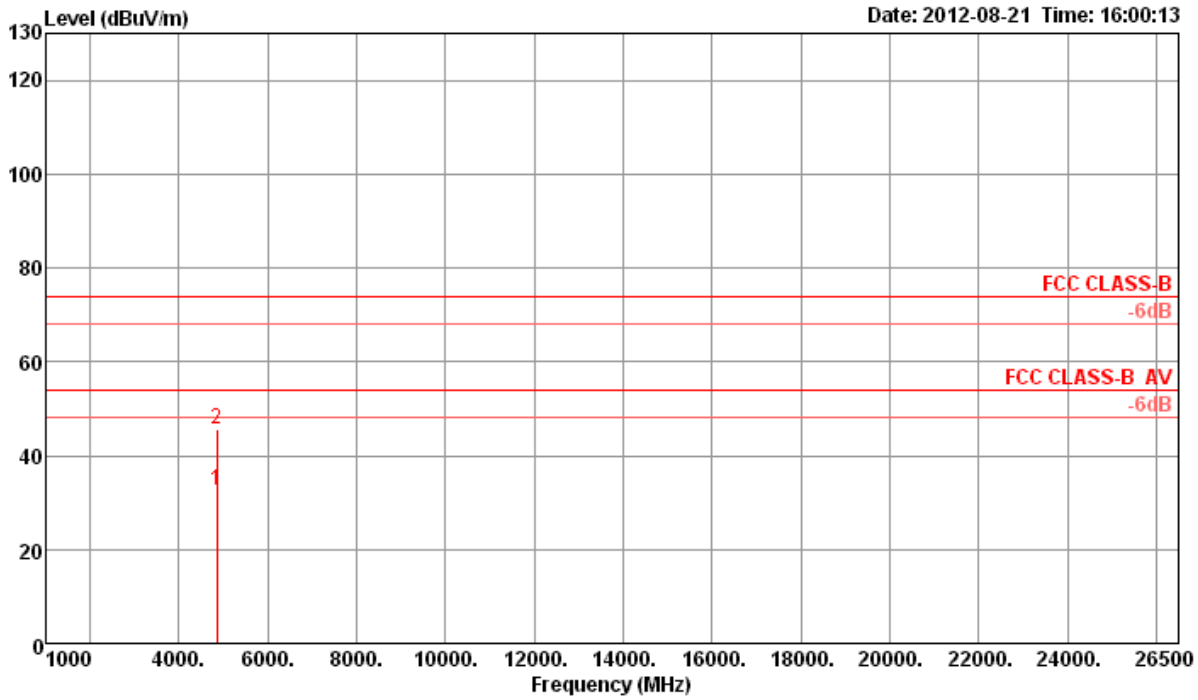
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.51	43.19	74.00	-30.81	41.68	3.34	33.19	35.02	Peak	100	244	VERTICAL
2	4904.73	30.35	54.00	-23.65	28.84	3.34	33.19	35.02	Average	100	244	VERTICAL
3	7355.74	32.54	54.00	-21.46	27.86	4.06	36.02	35.40	Average	100	84	VERTICAL
4	7355.93	45.53	74.00	-28.47	40.85	4.06	36.02	35.40	Peak	100	84	VERTICAL

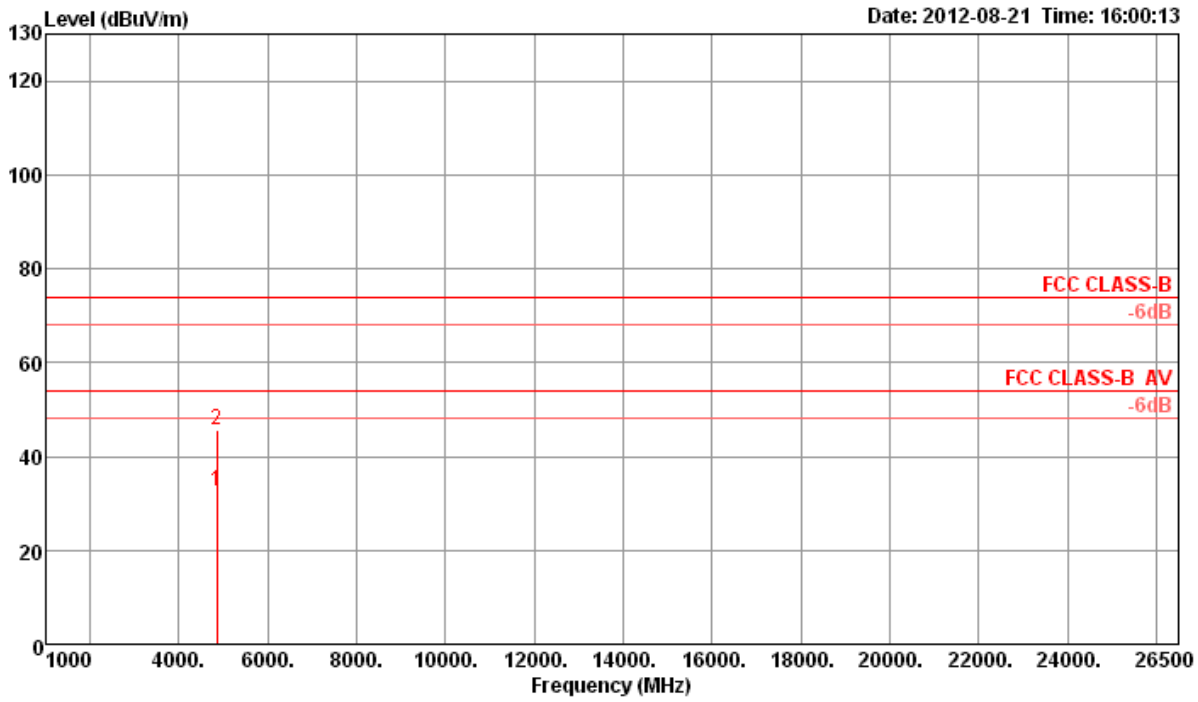
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 40MHz CH 3 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4844.06	32.58	54.00	-21.42	31.20	3.32	33.09	35.03	Average	100	246	VERTICAL
2	4844.28	45.62	74.00	-28.38	44.24	3.32	33.09	35.03	Peak	100	246	VERTICAL

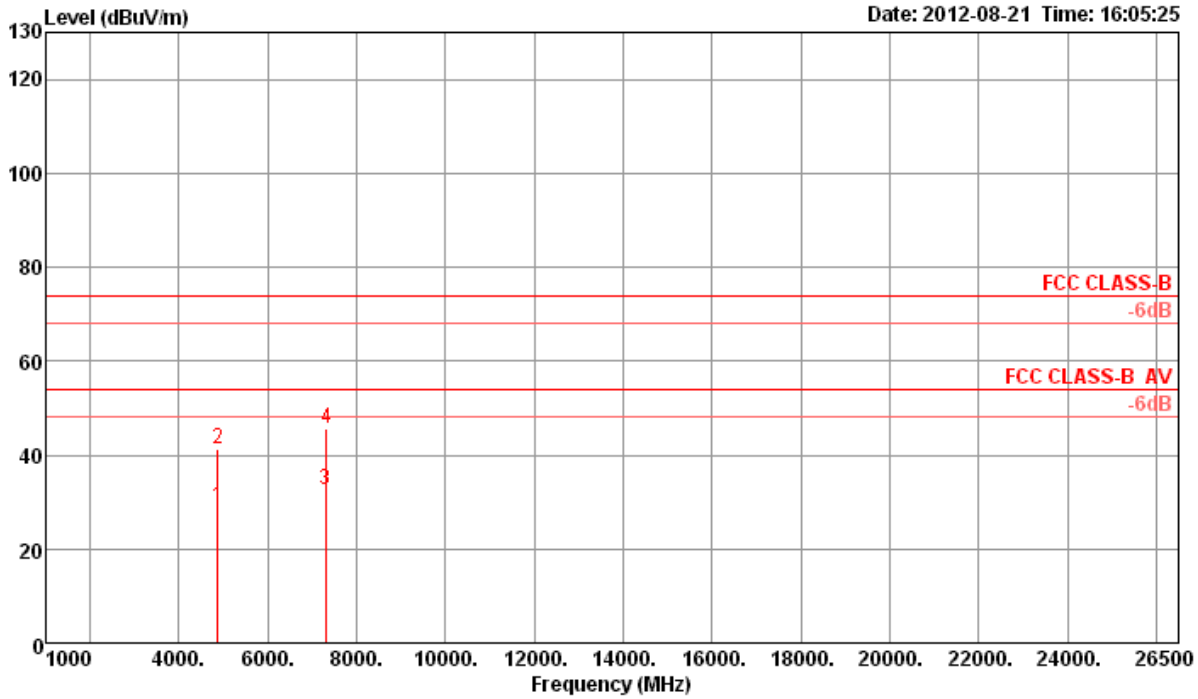
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4844.06	32.58	54.00	-21.42	31.20	3.32	33.09	35.03	Average	100	246	VERTICAL
2	4844.28	45.62	74.00	-28.38	44.24	3.32	33.09	35.03	Peak	100	246	VERTICAL

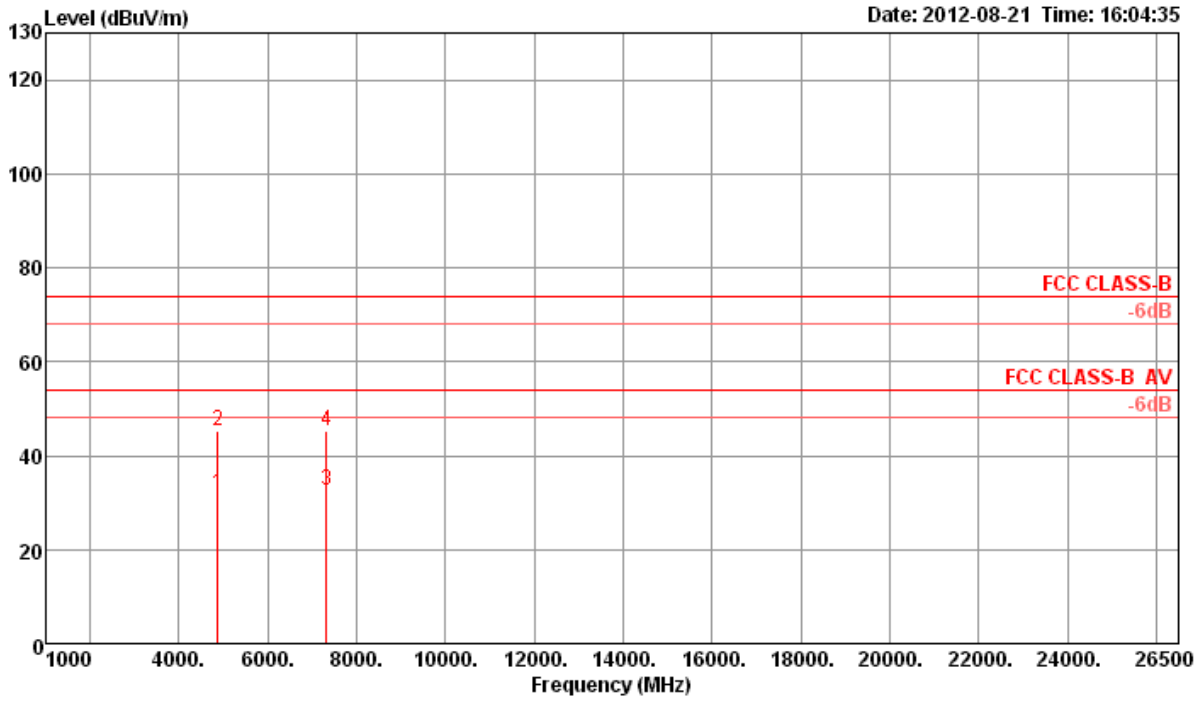
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 40MHz CH 6 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.00	29.01	54.00	-24.99	27.55	3.33	33.16	35.03	Average	100	123	HORIZONTAL
2	4874.77	41.28	74.00	-32.72	39.82	3.33	33.16	35.03	Peak	100	123	HORIZONTAL
3	7304.17	32.44	54.00	-21.56	27.86	4.06	35.92	35.40	Average	100	265	HORIZONTAL
4	7308.15	45.68	74.00	-28.32	41.06	4.06	35.96	35.40	Peak	100	265	HORIZONTAL

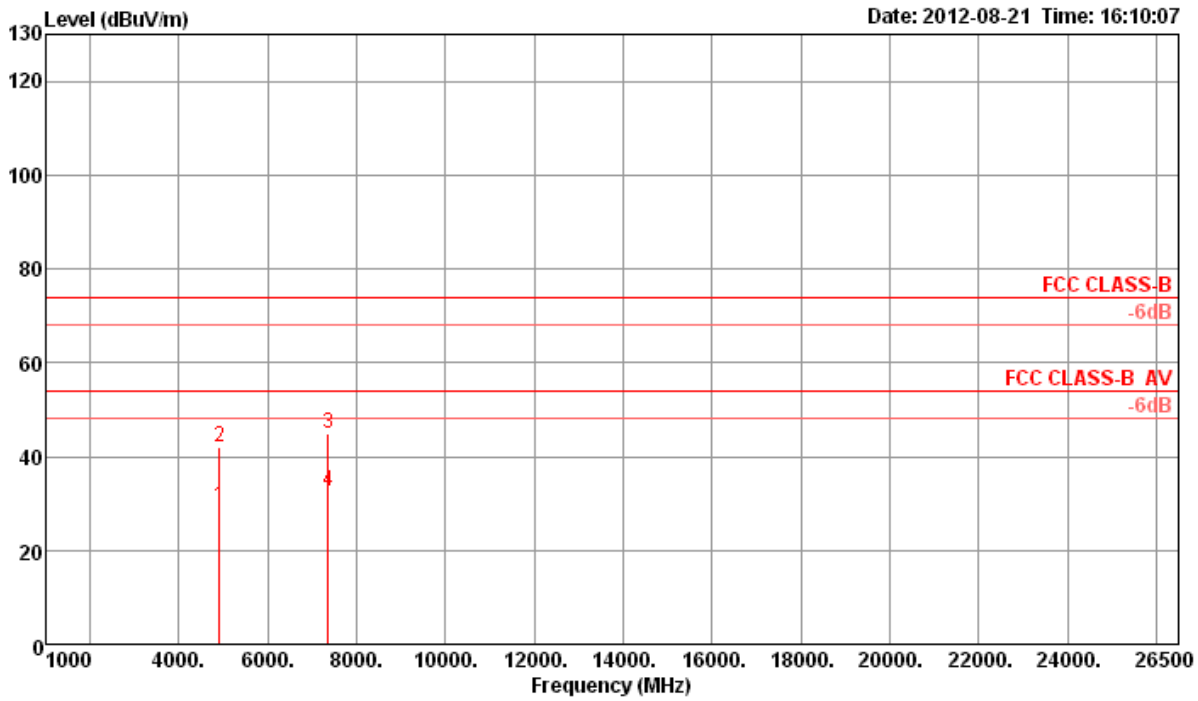
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.03	31.97	54.00	-22.03	30.51	3.33	33.16	35.03	Average	100	248	VERTICAL
2	4874.15	45.19	74.00	-28.81	43.73	3.33	33.16	35.03	Peak	100	248	VERTICAL
3	7310.46	32.76	54.00	-21.24	28.14	4.06	35.96	35.40	Average	100	346	VERTICAL
4	7319.30	45.20	74.00	-28.80	40.58	4.06	35.96	35.40	Peak	100	346	VERTICAL

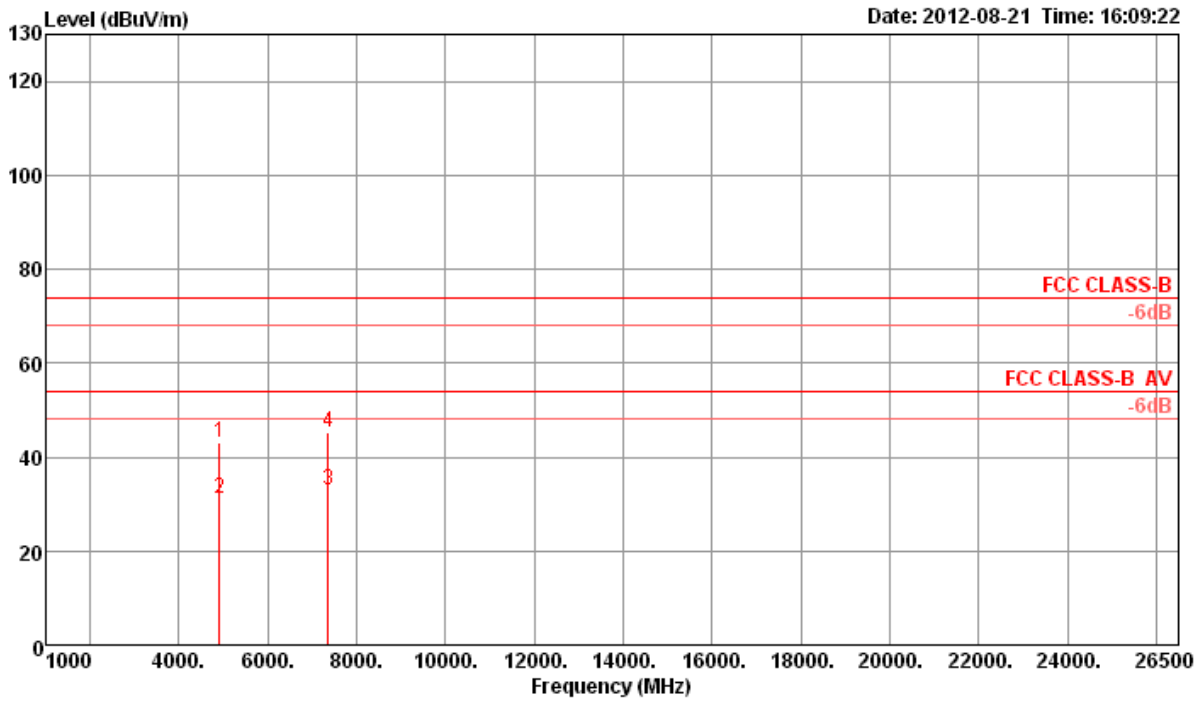
Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configurations**	IEEE 802.11n MCS8 40MHz CH 9 / Ant. 1 + Ant. 2

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.66	29.50	54.00	-24.50	27.99	3.34	33.19	35.02	Average	100	100	HORIZONTAL
2	4904.11	41.94	74.00	-32.06	40.43	3.34	33.19	35.02	Peak	100	100	HORIZONTAL
3	7356.77	45.02	74.00	-28.98	40.34	4.06	36.02	35.40	Peak	100	20	HORIZONTAL
4	7364.33	32.62	54.00	-21.38	27.90	4.06	36.06	35.40	Average	100	20	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4902.62	43.09	74.00	-30.91	41.58	3.34	33.19	35.02	Peak	100	241	VERTICAL
2	4913.78	31.13	54.00	-22.87	29.58	3.34	33.23	35.02	Average	100	241	VERTICAL
3	7356.87	33.00	54.00	-21.00	28.32	4.06	36.02	35.40	Average	100	154	VERTICAL
4	7361.26	45.25	74.00	-28.75	40.53	4.06	36.06	35.40	Peak	100	154	VERTICAL

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.6 Band Edge and Fundamental Emissions Measurement

3.6.1 Limit

If maximum conducted output power was used to demonstrate compliance to 15.247(b)(3) requirements, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band average PSD level in 100 kHz. And In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (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

3.6.2 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
Preamp	ON
Filter type	6dB
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100kHz / 300kHz for Peak

3.6.3 Test Procedures

1. The test procedure is the same as section 4.5.3, only the freqeuncy range investigated is limited to 100MHz around bandedges.
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.

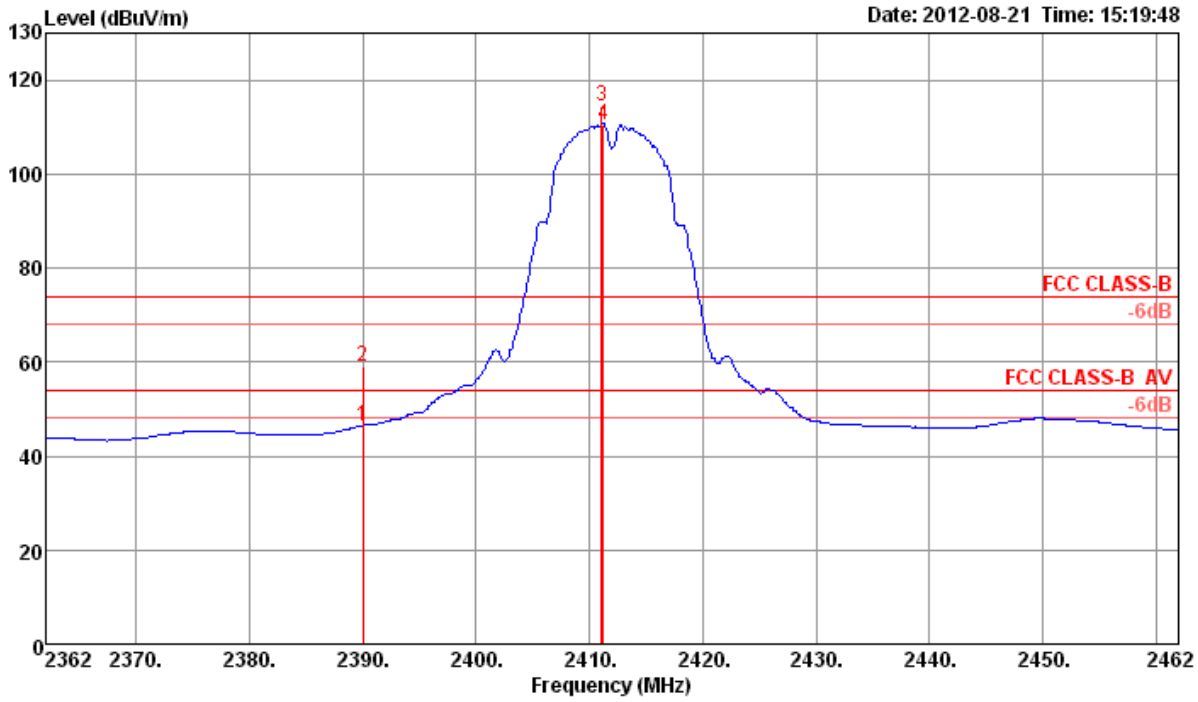
3.6.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.6.7 Test Result of Band Edge and Fundamental Emissions

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11b CH 1 / Ant. 2

Channel 1

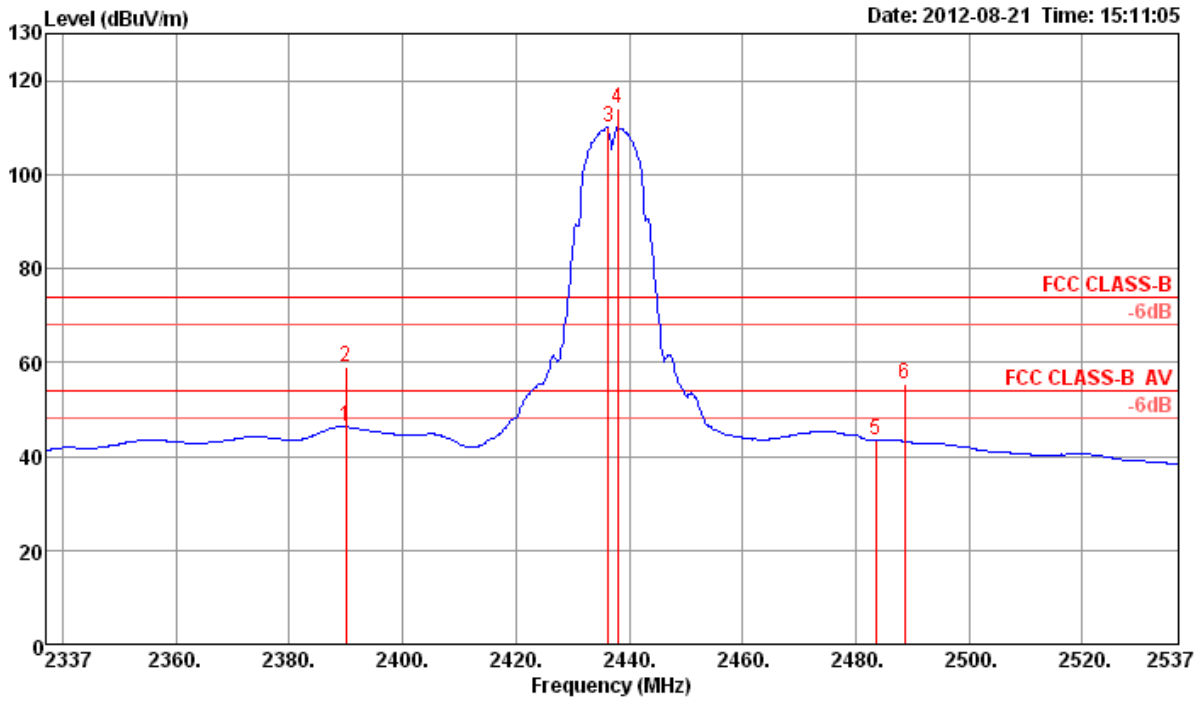


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	46.51	54.00	-7.49	16.12	2.22	28.17	0.00	Average	100	114	VERTICAL
2	2390.00	58.93	74.00	-15.07	28.54	2.22	28.17	0.00	Peak	100	114	VERTICAL
3	2411.04				84.03	2.22	28.21	0.00	Peak	100	114	VERTICAL
4	2411.20				80.16	2.22	28.21	0.00	Average	100	114	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Temperature	23℃	**Humidity**	63%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11b CH 6 / Ant. 2

Channel 6

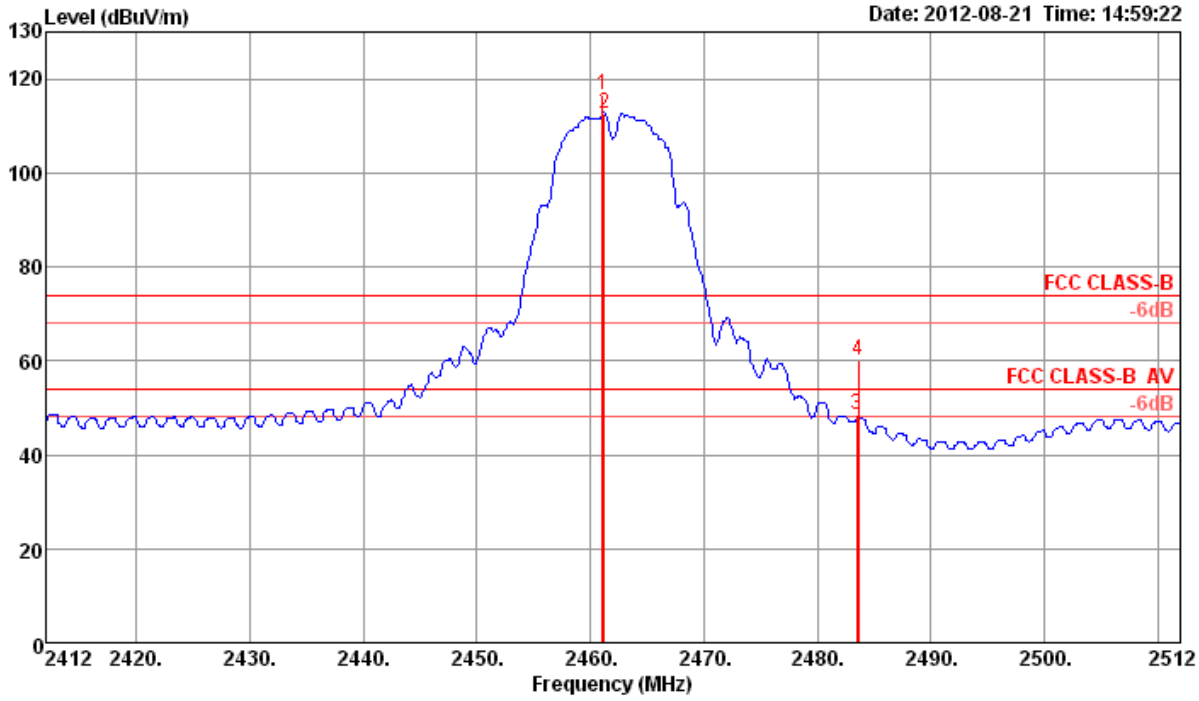


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	46.22	54.00	-7.78	15.83	2.22	28.17	0.00	Average	100	360	VERTICAL
2	2390.00	59.03	74.00	-14.97	28.64	2.22	28.17	0.00	Peak	100	360	VERTICAL
3	2436.36				79.48	2.23	28.29	0.00	Average	100	360	VERTICAL
4	2437.96				83.47	2.23	28.29	0.00	Peak	100	360	VERTICAL
5	2483.50	43.40	54.00	-10.60	12.77	2.26	28.37	0.00	Average	100	360	VERTICAL
6	2488.63	55.33	74.00	-18.67	24.66	2.26	28.41	0.00	Peak	100	360	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11b CH 11 / Ant. 2

Channel 11



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2461.04				86.05	2.24	28.33	0.00	Peak	120	114	VERTICAL
2	2461.20				82.22	2.24	28.33	0.00	Average	120	114	VERTICAL
3	2483.50	48.34	54.00	-5.66	17.71	2.26	28.37	0.00	Average	120	114	VERTICAL
4	2483.66	60.02	74.00	-13.98	29.39	2.26	28.37	0.00	Peak	120	114	VERTICAL

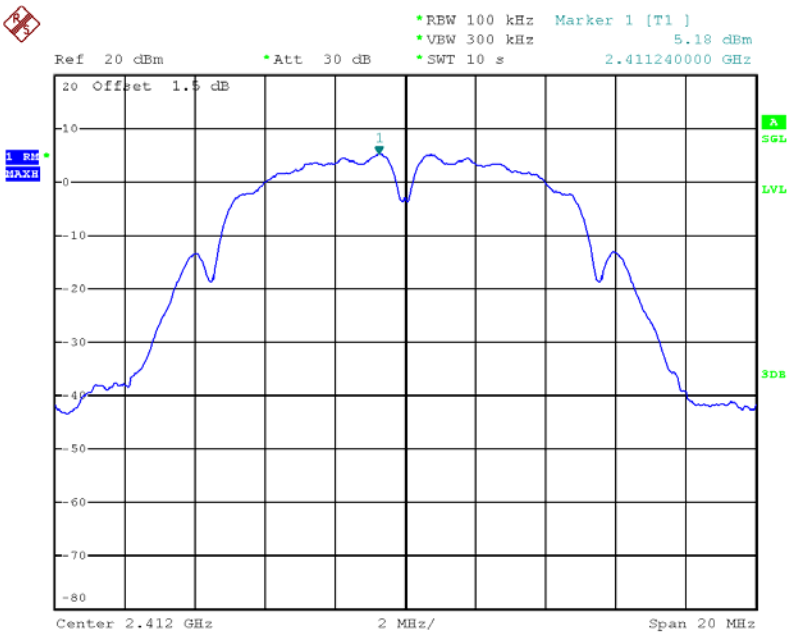
Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

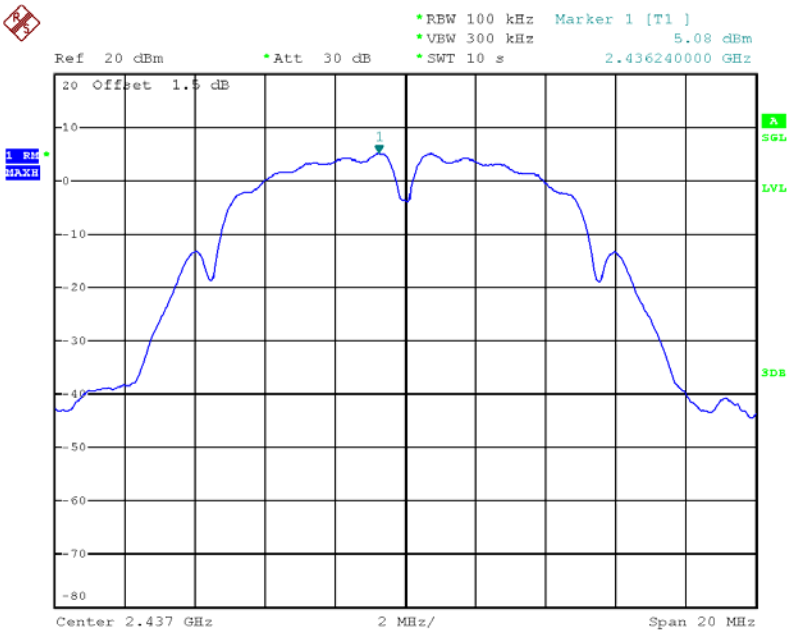
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration IEEE 802.11b / Ant. 2 / 2412 MHz (Reference Level)



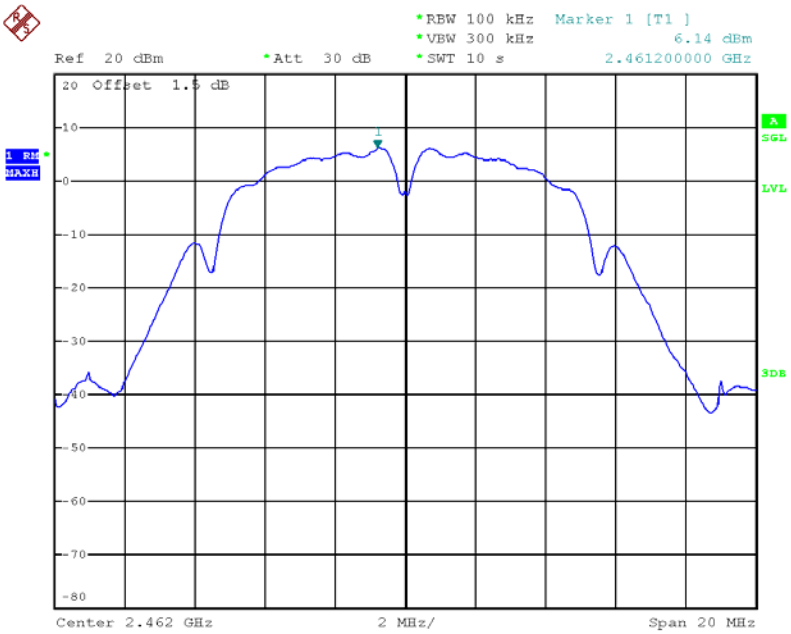
Date: 21.AUG.2012 14:15:48

Plot on Configuration IEEE 802.11b / Ant. 2 / 2437 MHz (Reference Level)

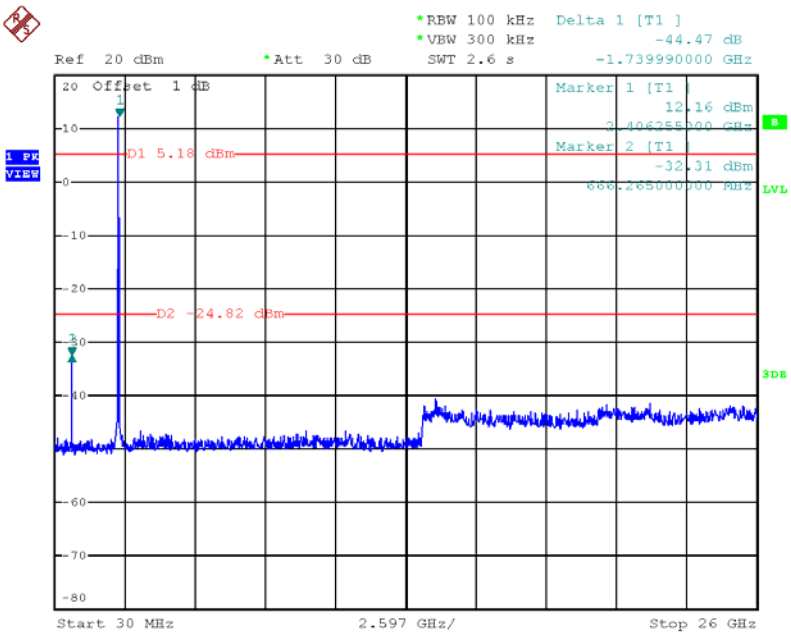


Date: 21.AUG.2012 14:15:03

Plot on Configuration IEEE 802.11b / Ant. 2 / 2462 MHz (Reference Level)

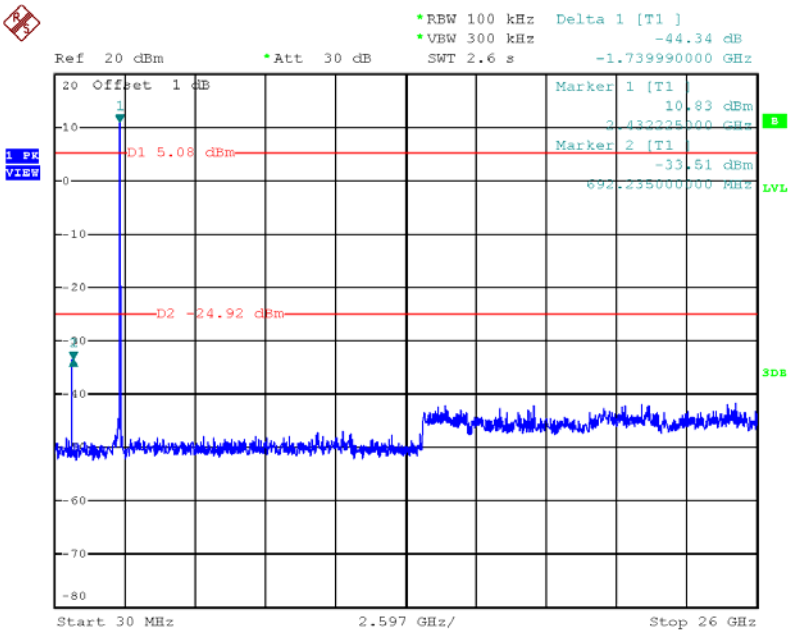


Plot on Configuration IEEE 802.11b / Ant. 2 / 2412 MHz (down 30dBc)



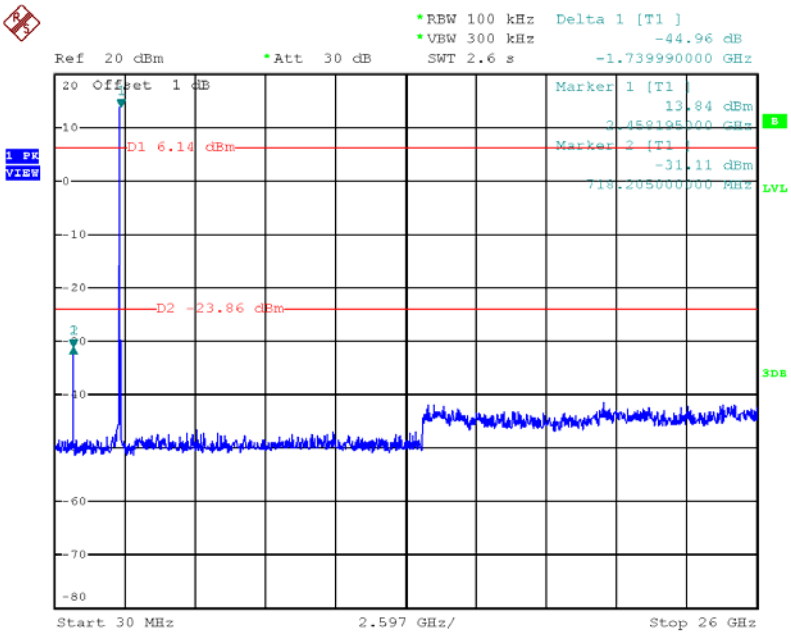
Date: 22.AUG.2012 08:42:25

Plot on Configuration IEEE 802.11b / Ant. 2 / 2437 MHz (down 30dBc)



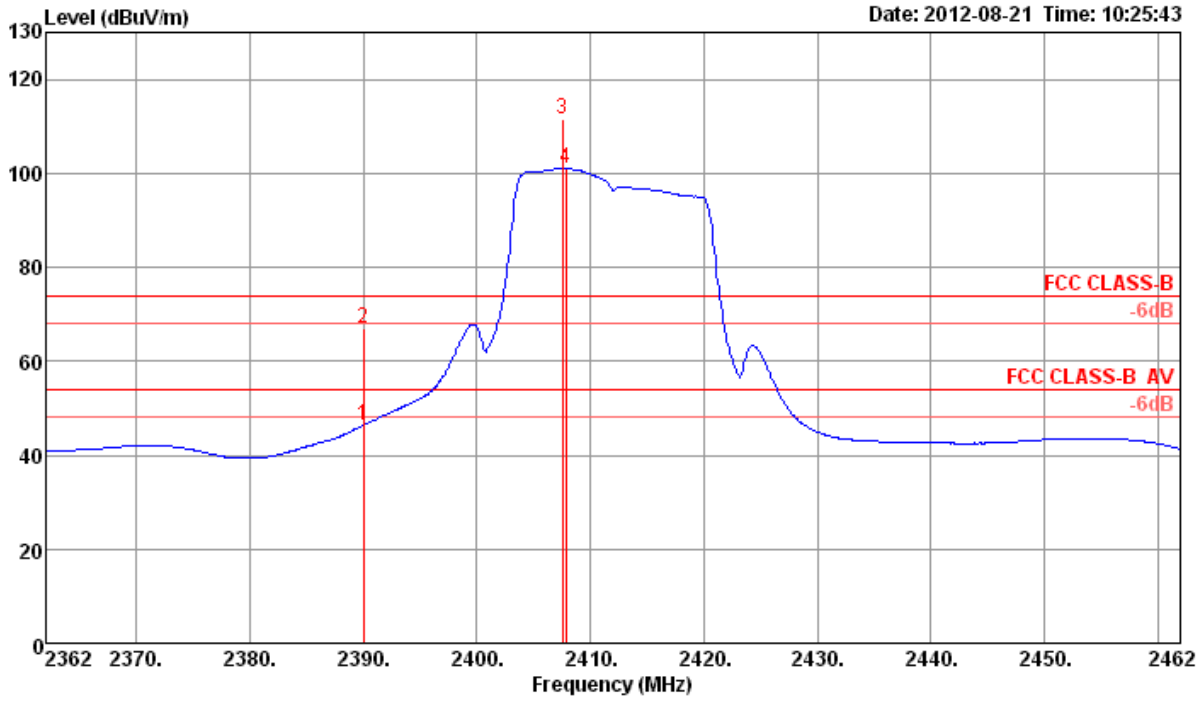
Date: 22.AUG.2012 08:44:02

Plot on Configuration IEEE 802.11b / Ant. 2 / 2462 MHz (down 30dBc)



Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11g CH 1 / Ant. 2

Channel 1

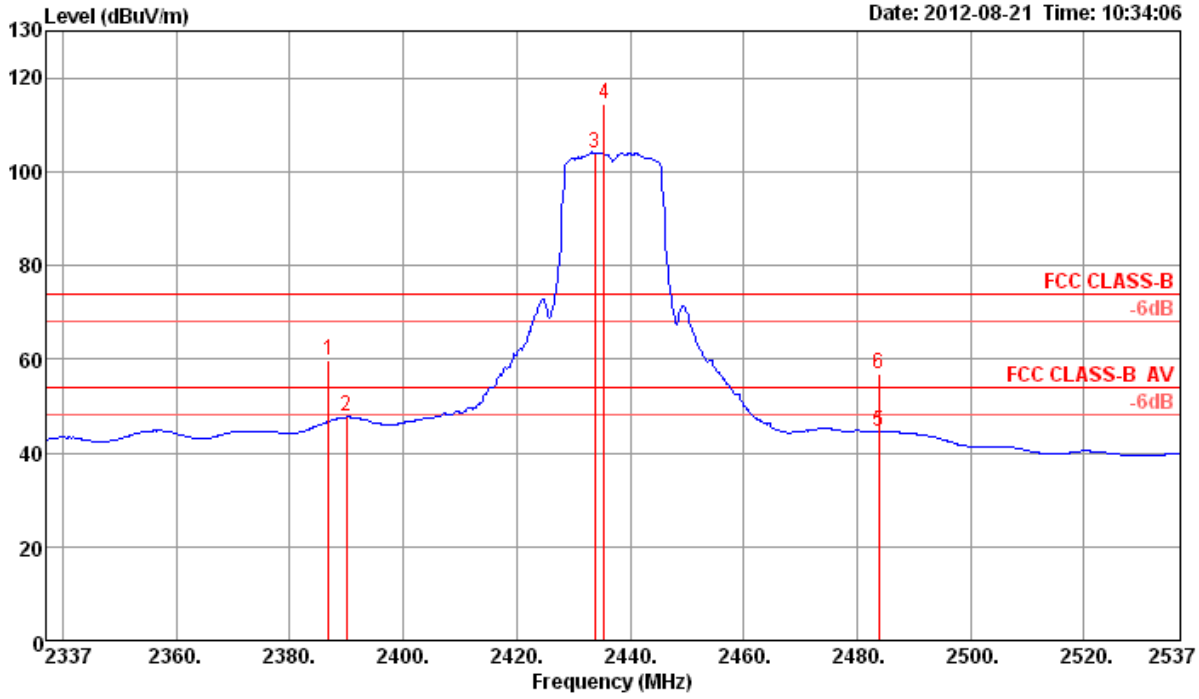


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	46.30	54.00	-7.70	15.91	2.22	28.17	0.00	Average	100	341	VERTICAL
2	2390.00	67.04	74.00	-6.96	36.65	2.22	28.17	0.00	Peak	100	341	VERTICAL
3	2407.51				81.16	2.22	28.21	0.00	Peak	100	341	VERTICAL
4	2407.83				70.61	2.22	28.21	0.00	Average	100	341	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11g CH 6 / Ant. 2

Channel 6

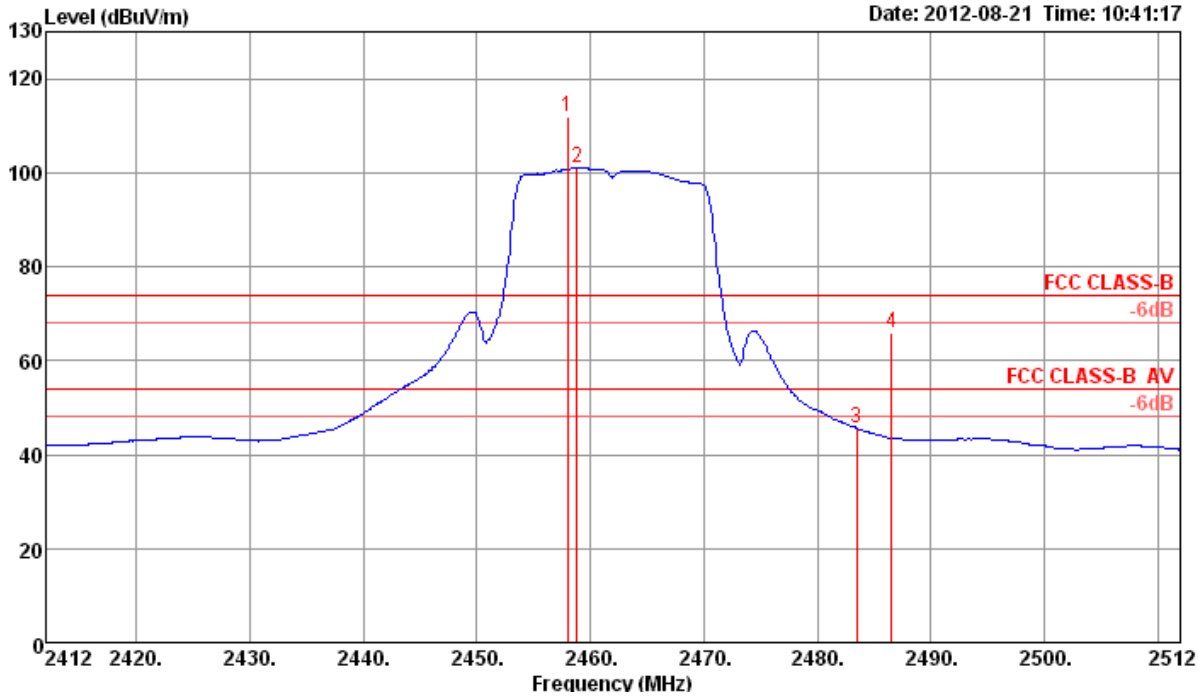


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2386.80	59.75	74.00	-14.25	29.37	2.21	28.17	0.00	Peak	100	328	VERTICAL
2	2390.00	47.67	54.00	-6.33	17.28	2.22	28.17	0.00	Average	100	328	VERTICAL
3	2433.80				73.45	2.23	28.25	0.00	Average	100	328	VERTICAL
4	2435.40				83.87	2.23	28.29	0.00	Peak	100	328	VERTICAL
5	2483.82	44.60	54.00	-9.40	13.97	2.26	28.37	0.00	Average	100	328	VERTICAL
6	2483.82	57.02	74.00	-16.98	26.39	2.26	28.37	0.00	Peak	100	328	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11g CH 11 / Ant. 2

Channel 11



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2457.99				81.43	2.24	28.33	0.00	Peak	100	283	VERTICAL
2	2458.80				70.38	2.24	28.33	0.00	Average	100	283	VERTICAL
3	2483.50	45.56	54.00	-8.44	14.93	2.26	28.37	0.00	Average	100	283	VERTICAL
4	2486.55	65.92	74.00	-8.08	35.25	2.26	28.41	0.00	Peak	100	283	VERTICAL

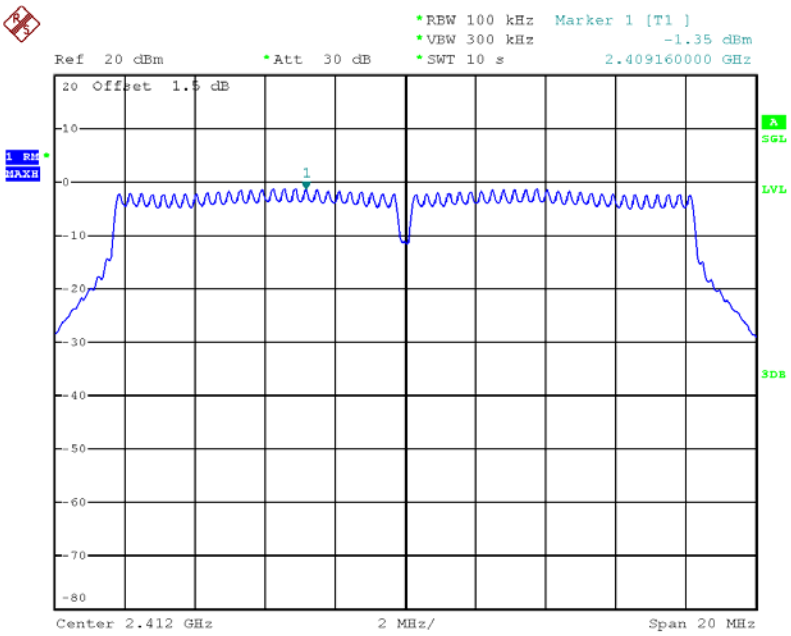
Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

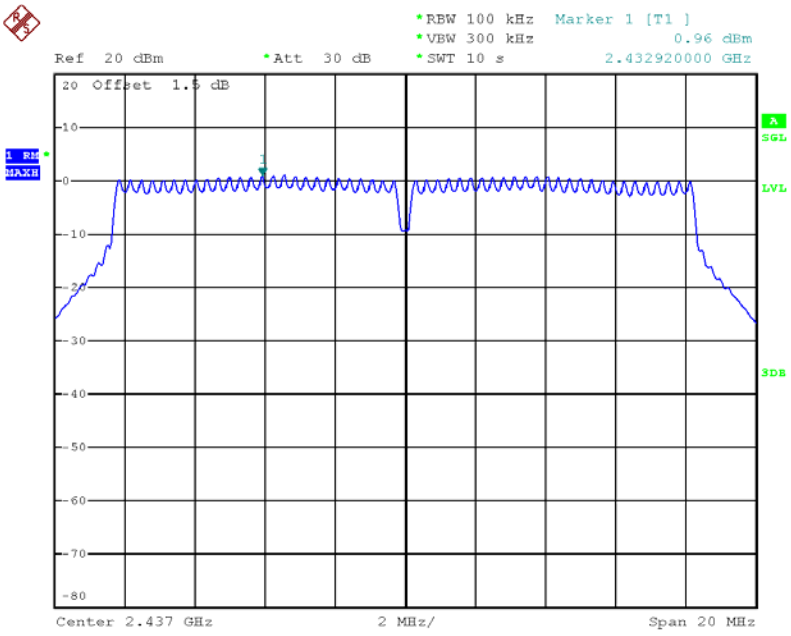
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration IEEE 802.11g / Ant. 2 / 2412 MHz (Reference Level)



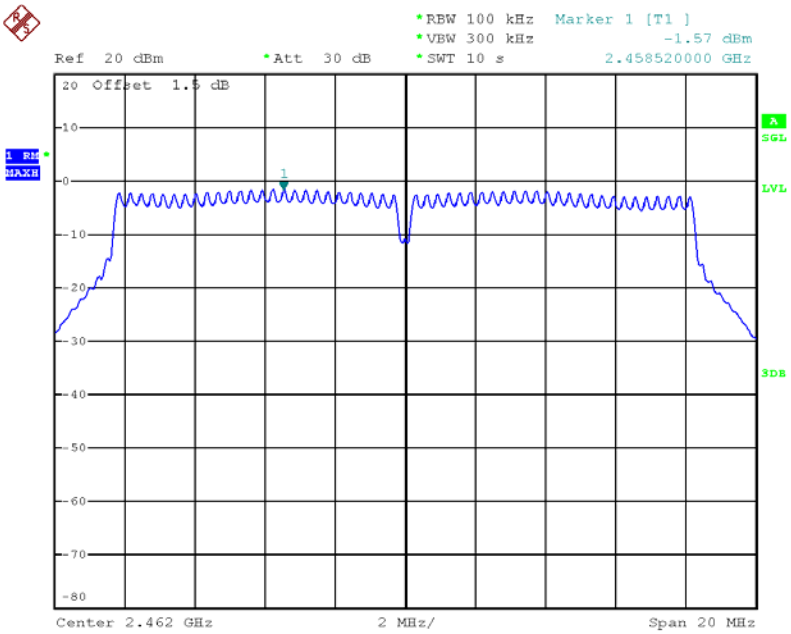
Date: 21.AUG.2012 14:18:10

Plot on Configuration IEEE 802.11g / Ant. 2 / 2437 MHz (Reference Level)



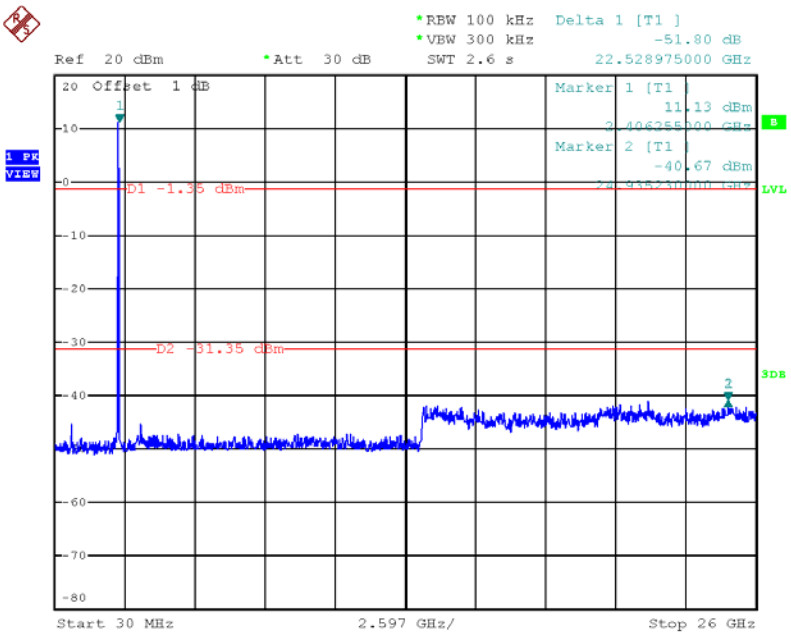
Date: 21.AUG.2012 14:17:45

Plot on Configuration IEEE 802.11g / Ant. 2 / 2462 MHz (Reference Level)



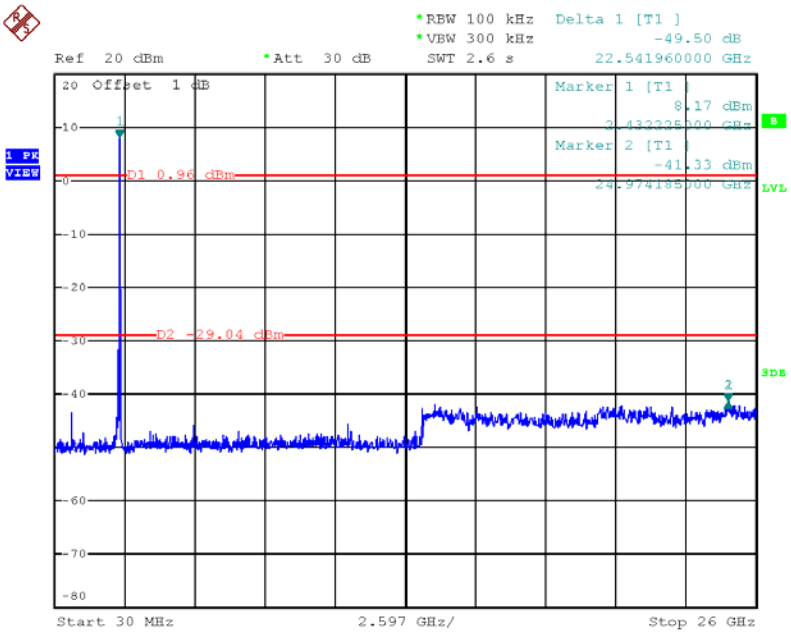
Date: 21.AUG.2012 14:19:13

Plot on Configuration IEEE 802.11g / Ant. 2 / 2412 MHz (down 30dBc)



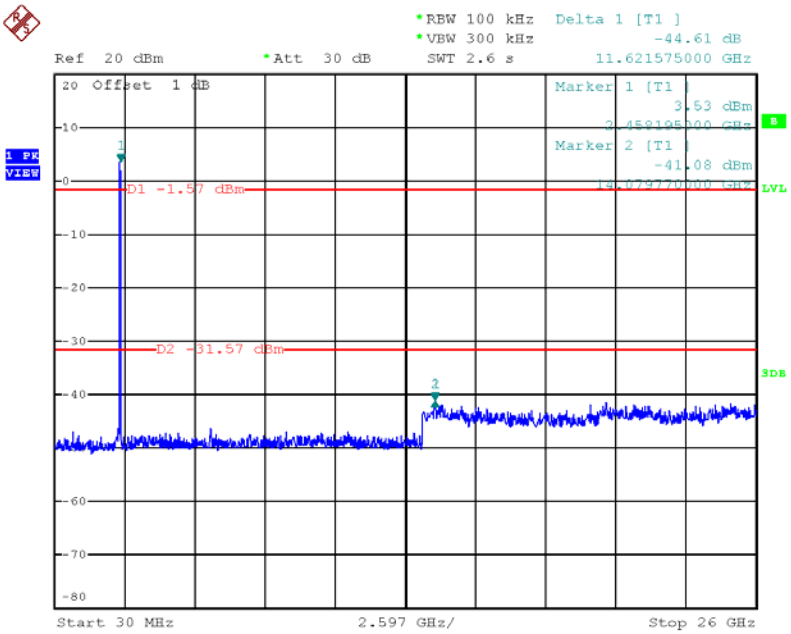
Date: 22.AUG.2012 08:47:28

Plot on Configuration IEEE 802.11g / Ant. 2 / 2437 MHz (down 30dBc)



Date: 22.AUG.2012 08:48:33

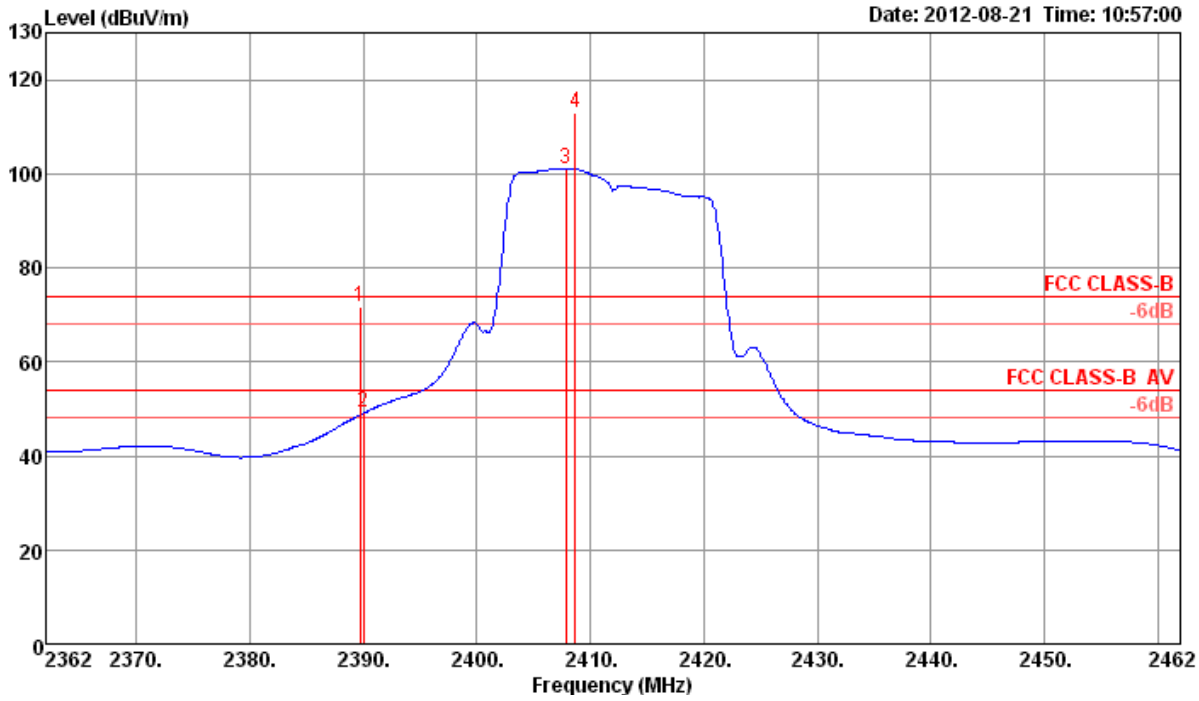
Plot on Configuration IEEE 802.11g / Ant. 2 / 2462 MHz (down 30dBc)



Date: 22.AUG.2012 08:50:19

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 20MHz CH 1 / Ant. 2

Channel 1

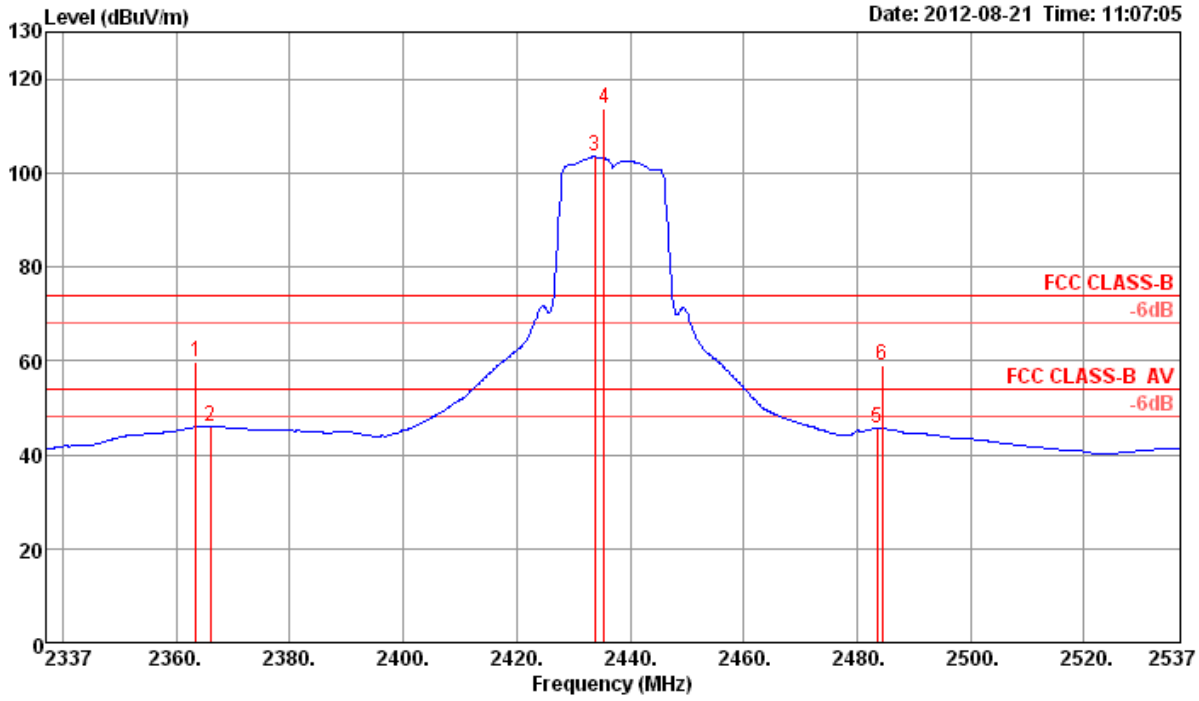


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.68	71.77	74.00	-2.23	41.39	2.21	28.17	0.00	Peak	100	336	VERTICAL
2	2390.00	49.15	54.00	-4.85	18.76	2.22	28.17	0.00	Average	100	336	VERTICAL
3	2407.83				70.76	2.22	28.21	0.00	Average	100	336	VERTICAL
4	2408.64				82.43	2.22	28.21	0.00	Peak	100	336	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 20MHz CH 6 / Ant. 2

Channel 6

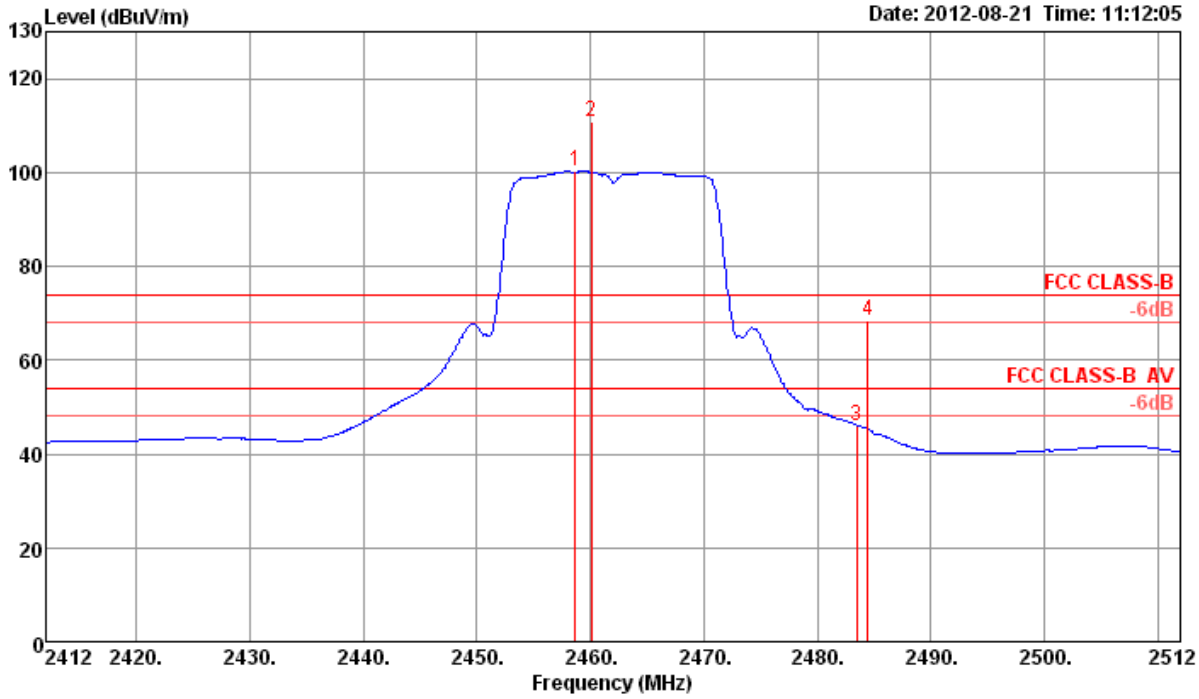


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2363.40	59.64	74.00	-14.36	29.35	2.19	28.10	0.00	Peak	100	194	VERTICAL
2	2365.96	45.95	54.00	-8.05	15.61	2.21	28.13	0.00	Average	100	194	VERTICAL
3	2433.80				72.96	2.23	28.25	0.00	Average	100	194	VERTICAL
4	2435.40				83.10	2.23	28.29	0.00	Peak	100	194	VERTICAL
5	2483.50	45.59	54.00	-8.41	14.96	2.26	28.37	0.00	Average	100	194	VERTICAL
6	2484.46	58.86	74.00	-15.14	28.23	2.26	28.37	0.00	Peak	100	194	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 20MHz CH 11 / Ant. 2

Channel 11



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2458.64				69.70	2.24	28.33	0.00	Average	100	125	VERTICAL
2	2460.08				80.36	2.24	28.33	0.00	Peak	100	125	VERTICAL
3	2483.50	45.97	54.00	-8.03	15.34	2.26	28.37	0.00	Average	100	125	VERTICAL
4	2484.46	68.54	74.00	-5.46	37.91	2.26	28.37	0.00	Peak	100	125	VERTICAL

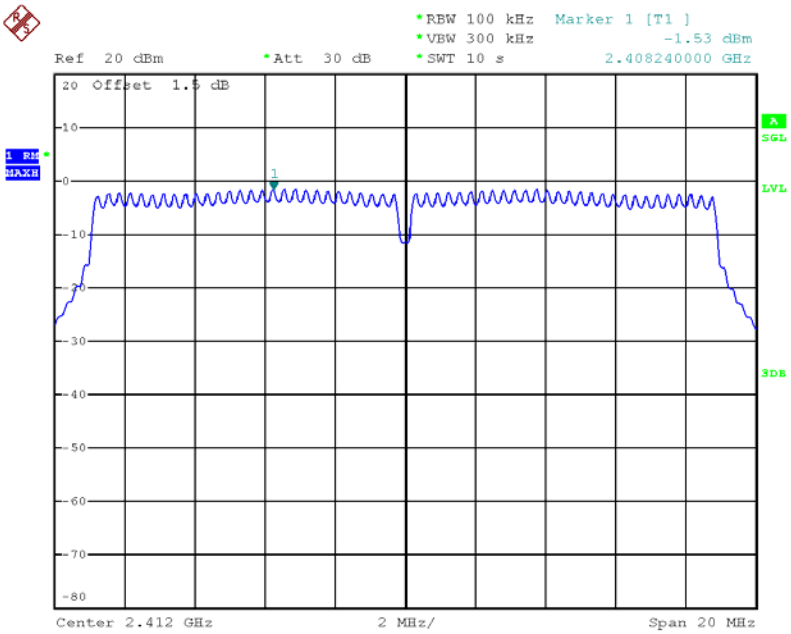
Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

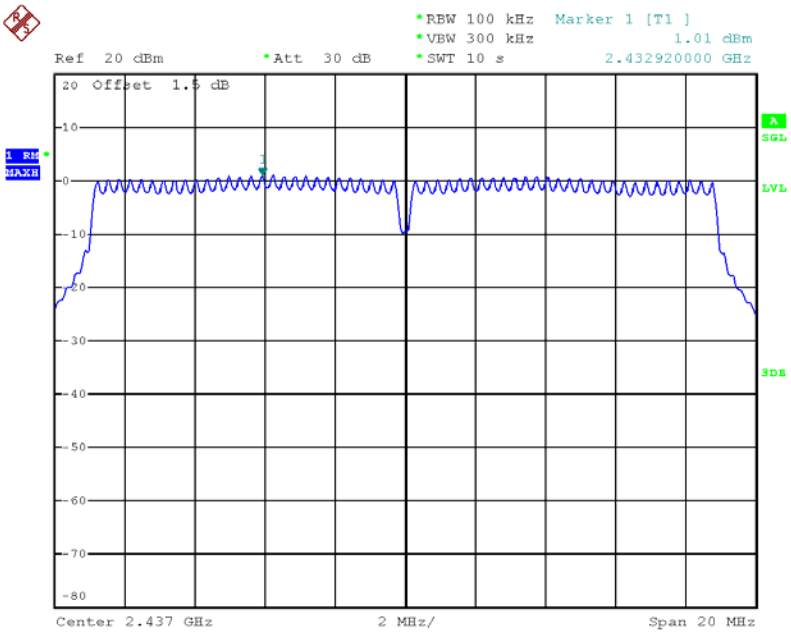
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2 / 2412 MHz (Reference Level)



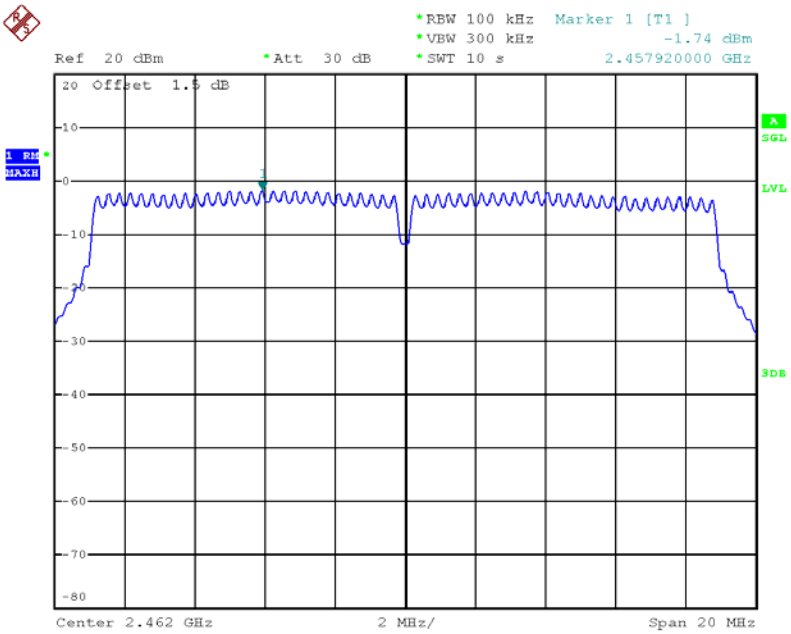
Date: 21.AUG.2012 14:22:29

Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2 / 2437 MHz (Reference Level)

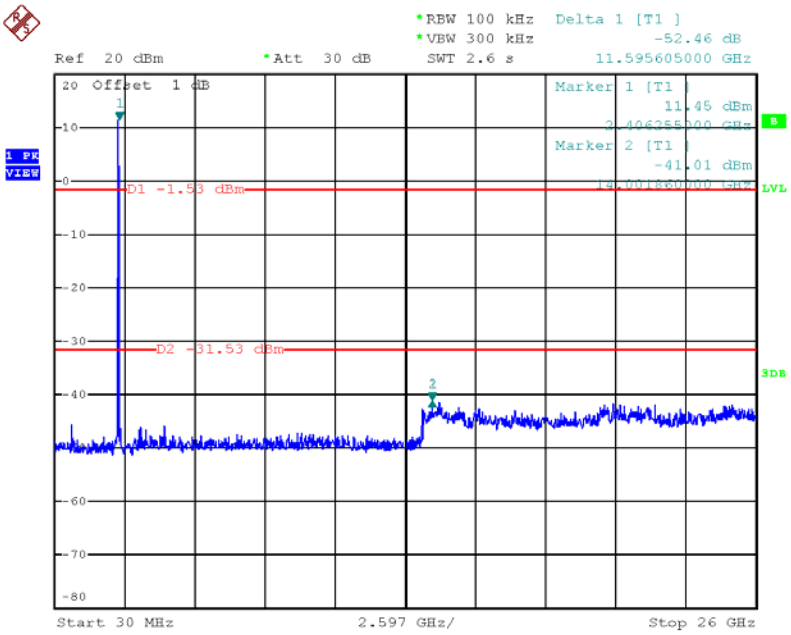


Date: 21.AUG.2012 14:25:18

Plot on Configuration of IEEE 802.11n MCS0 20MHz / Ant. 2 / 2462 MHz (Reference Level)

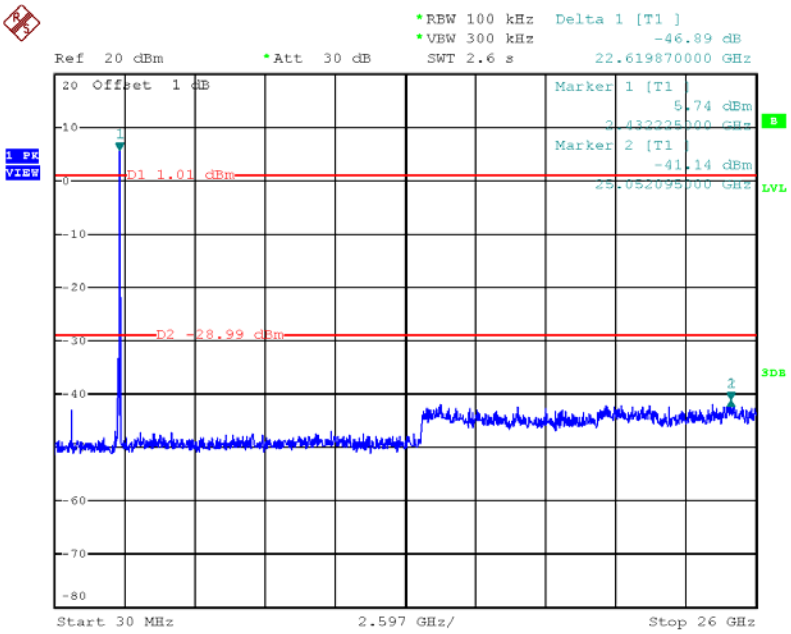


Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 2 / 2412 MHz (down 30dBc)



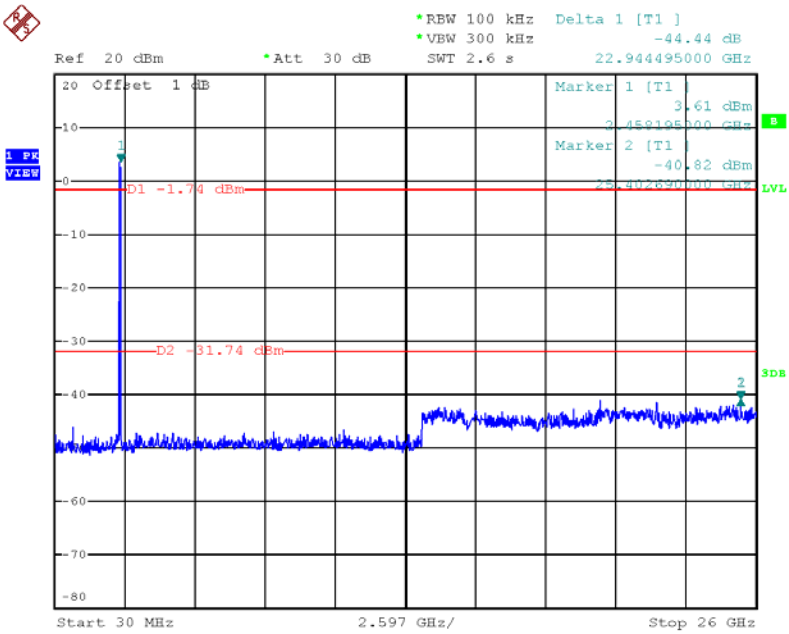
Date: 22.AUG.2012 08:55:12

Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 2 / 2437 MHz (down 30dBc)



Date: 22.AUG.2012 08:56:23

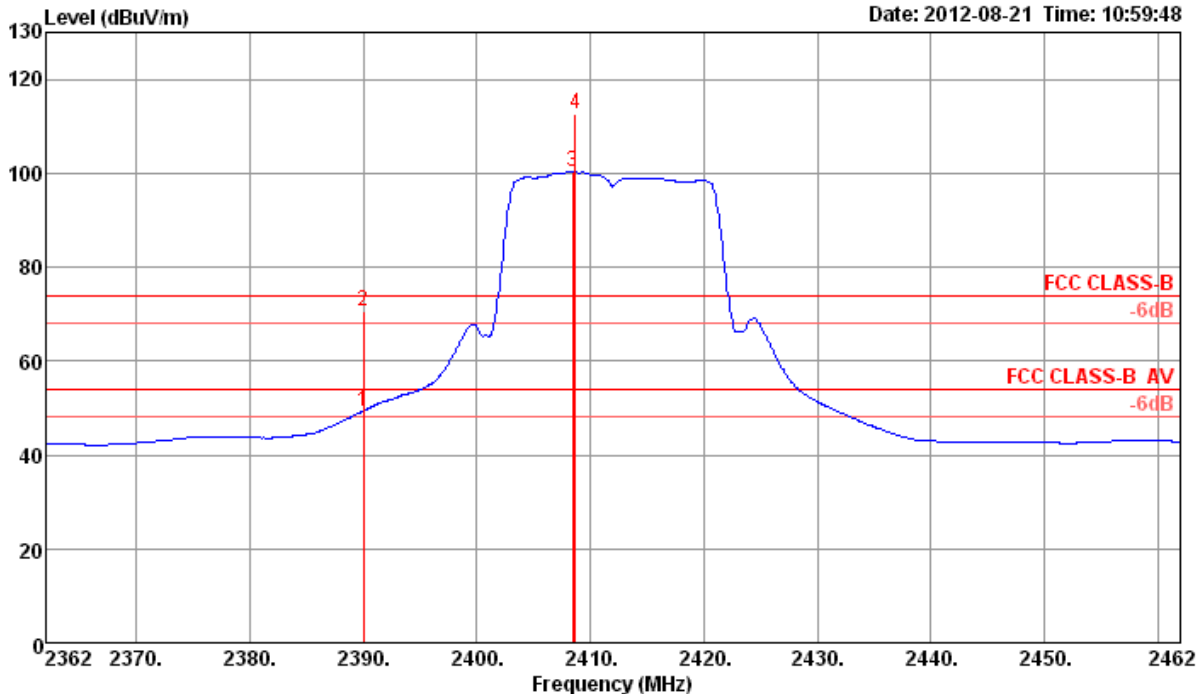
Plot on Configuration IEEE 802.11n MCS0 20MHz / Ant. 2 / 2462 MHz (down 30dBc)



Date: 22.AUG.2012 08:58:00

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 20MHz CH 1 / Ant.0 + Ant. 1

Channel 1

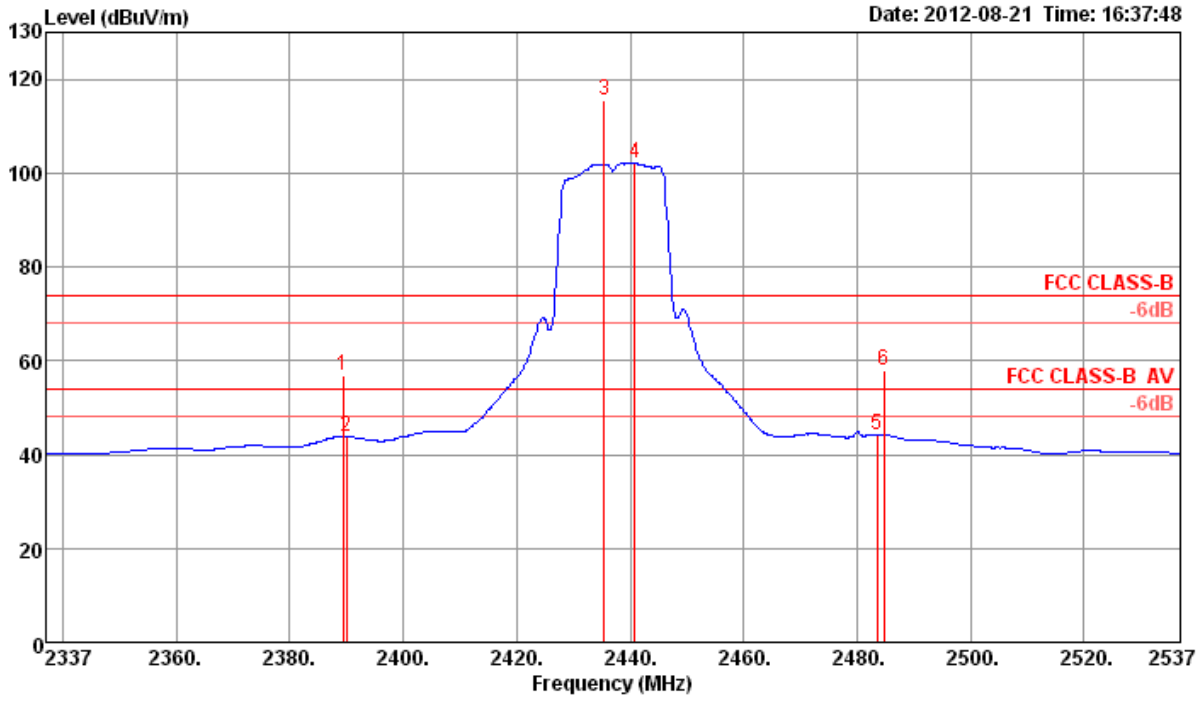


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	49.34	54.00	-4.66	18.95	2.22	28.17	0.00	Average	100	133	VERTICAL
2	2390.00	70.63	74.00	-3.37	40.24	2.22	28.17	0.00	Peak	100	133	VERTICAL
3	2408.47				69.85	2.22	28.21	0.00	Average	100	133	VERTICAL
4	2408.64				82.35	2.22	28.21	0.00	Peak	100	133	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 20MHz CH 6 / Ant.0 + Ant. 1

Channel 6

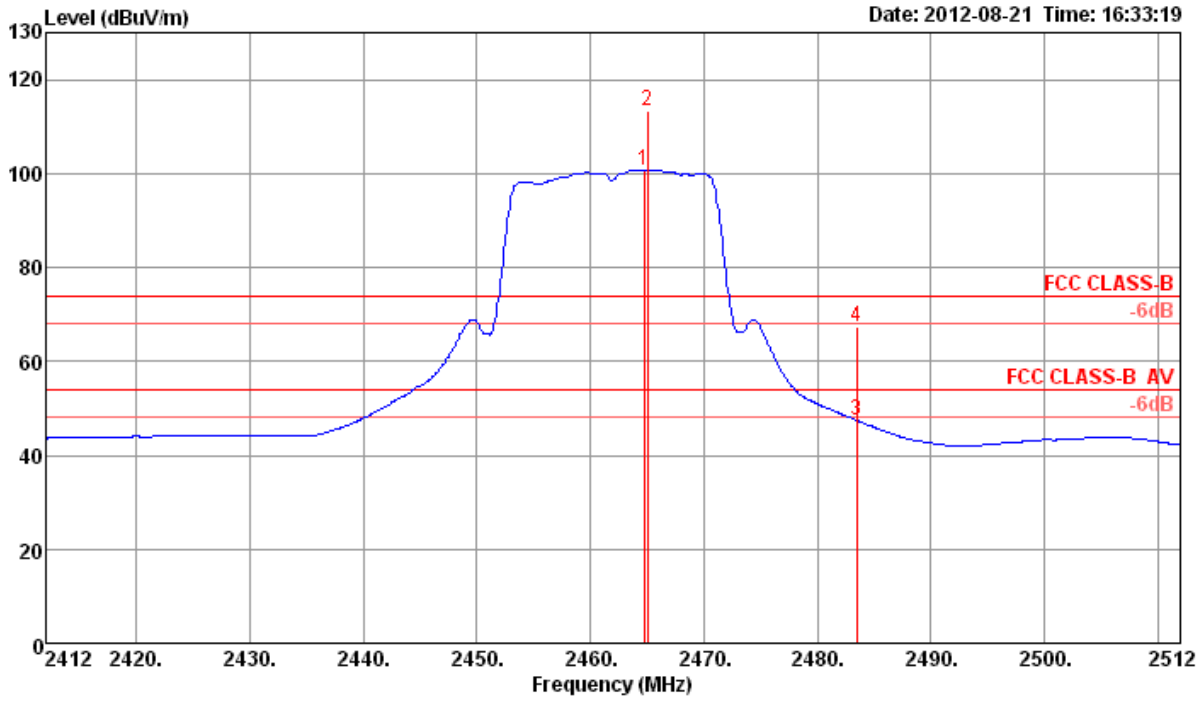


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.36	56.84	74.00	-17.16	26.46	2.21	28.17	0.00	Peak	100	351	VERTICAL
2	2390.00	43.86	54.00	-10.14	13.47	2.22	28.17	0.00	Average	100	351	VERTICAL
3	2435.40				85.07	2.23	28.29	0.00	Peak	100	351	VERTICAL
4	2440.85				71.73	2.24	28.29	0.00	Average	100	351	VERTICAL
5	2483.50	44.11	54.00	-9.89	13.48	2.26	28.37	0.00	Average	100	351	VERTICAL
6	2484.78	57.85	74.00	-16.15	27.22	2.26	28.37	0.00	Peak	100	351	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 20MHz CH 11 / Ant.0 + Ant. 1

Channel 11



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2464.72				70.18	2.24	28.33	0.00	Average	100	212	VERTICAL
2	2465.05				82.75	2.24	28.33	0.00	Peak	100	212	VERTICAL
3	2483.50	47.41	54.00	-6.59	16.78	2.26	28.37	0.00	Average	100	212	VERTICAL
4	2483.50	67.48	74.00	-6.52	36.85	2.26	28.37	0.00	Peak	100	212	VERTICAL

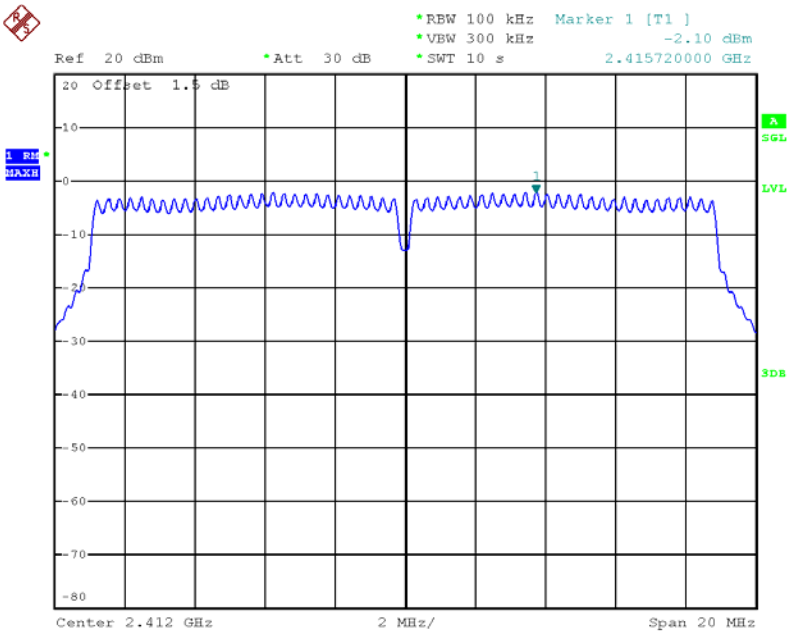
Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

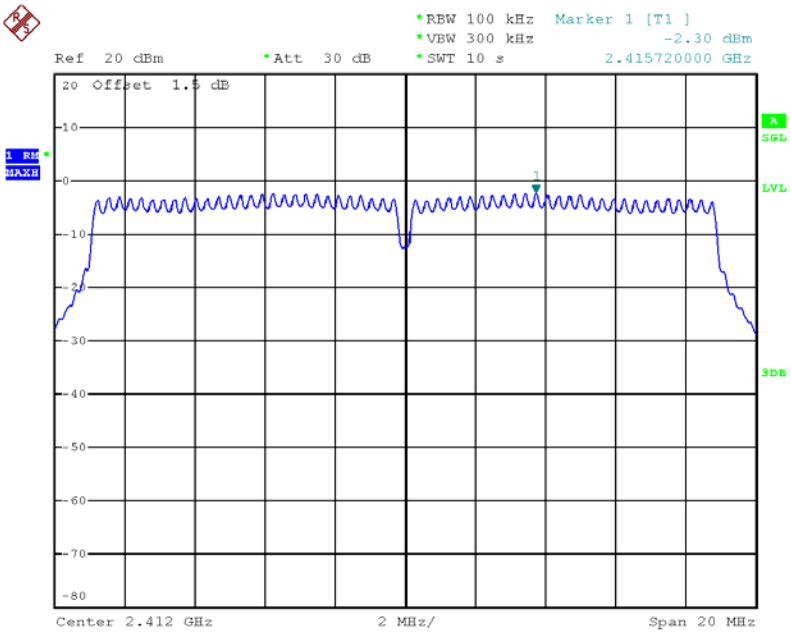
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant 1 / 2412 MHz (Reference Level)



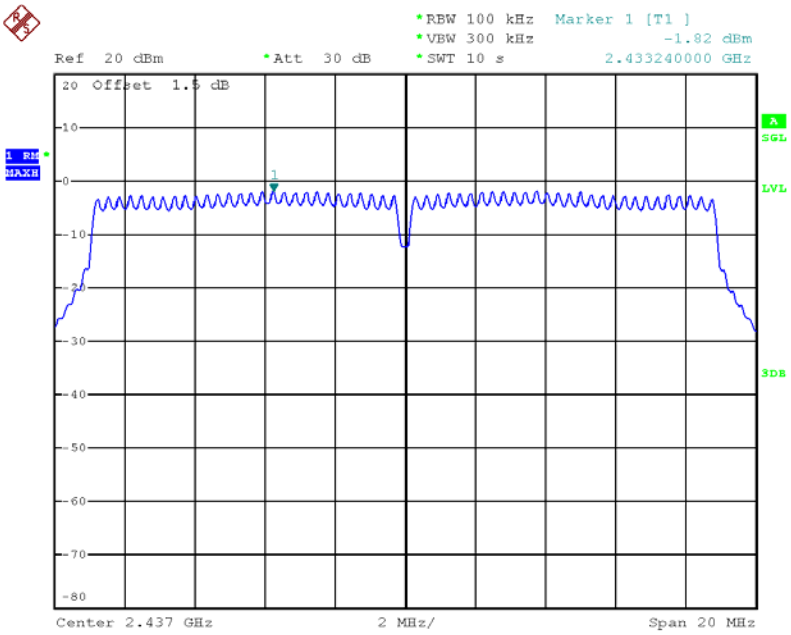
Date: 21.AUG.2012 14:50:46

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2 / 2412 MHz (Reference Level)



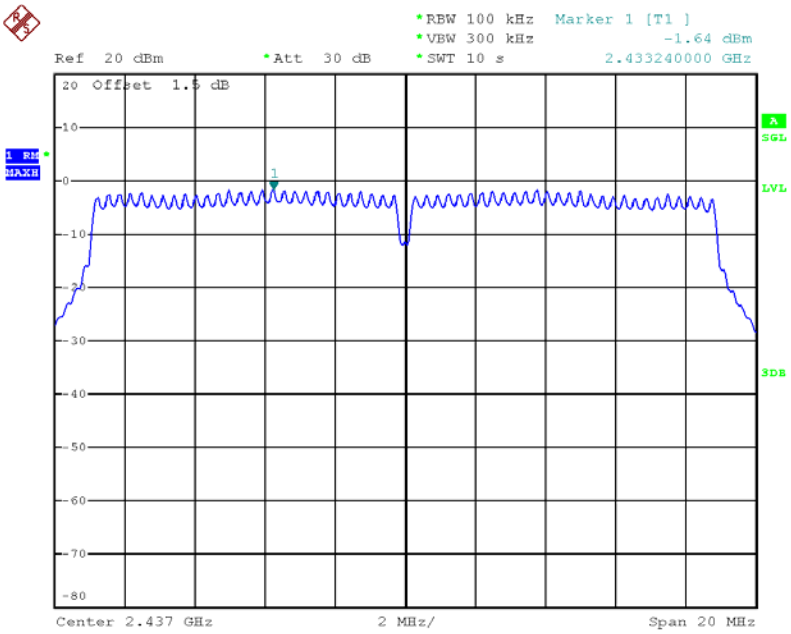
Date: 21.AUG.2012 14:52:04

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant 1 / 2437 MHz (Reference Level)



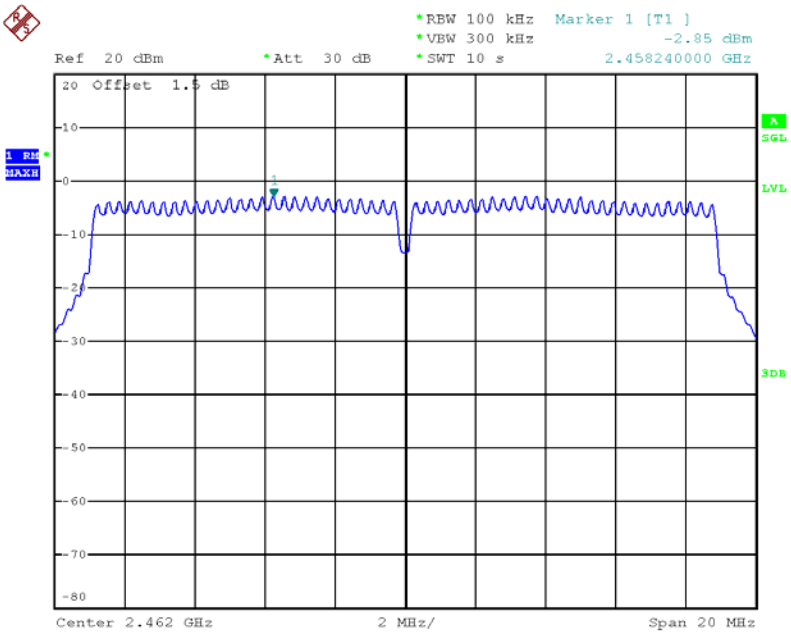
Date: 21.AUG.2012 14:46:38

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2 / 2437 MHz (Reference Level)



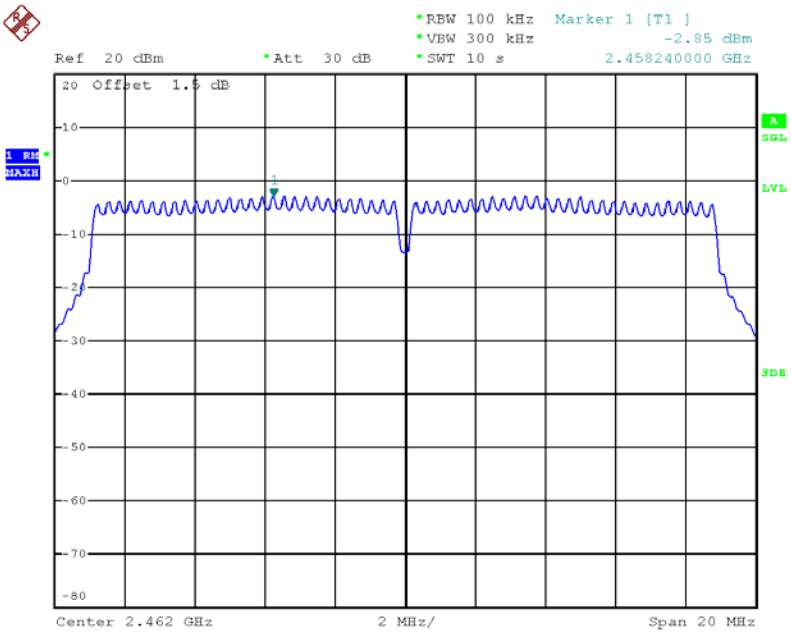
Date: 21.AUG.2012 14:46:03

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant 1 / 2462 MHz (Reference Level)



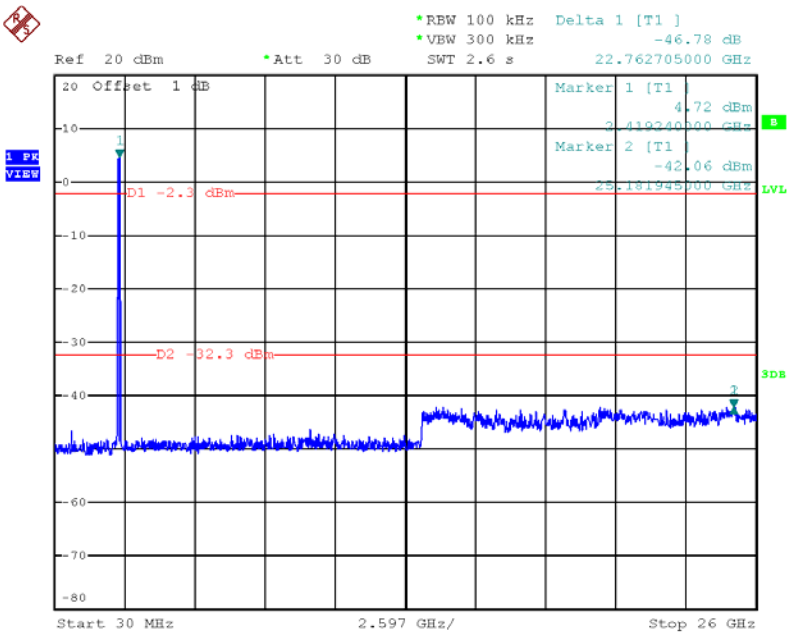
Date: 21.AUG.2012 14:44:16

Plot on Configuration of IEEE 802.11n MCS8 20MHz / Ant. 2 / 2462 MHz (Reference Level)



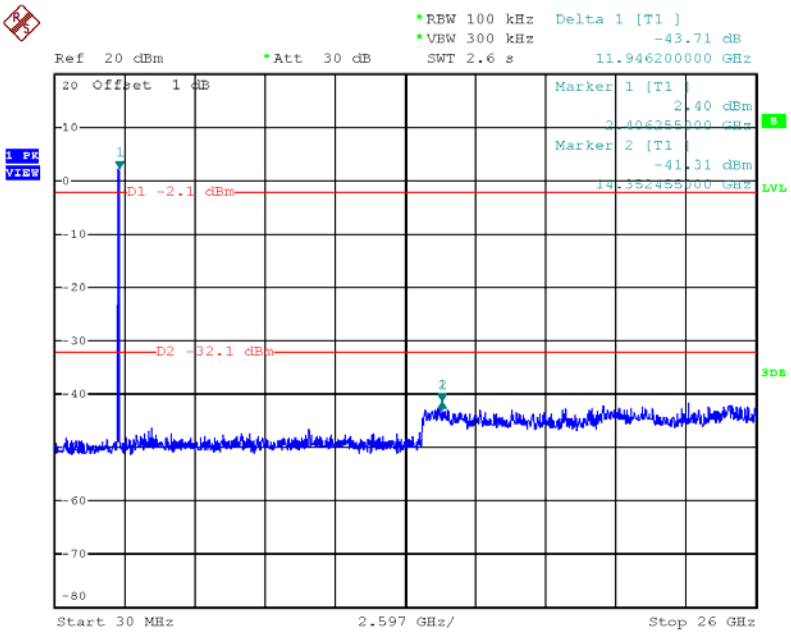
Date: 21.AUG.2012 14:44:47

Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant 1 / 2412 MHz (down 30dBc)



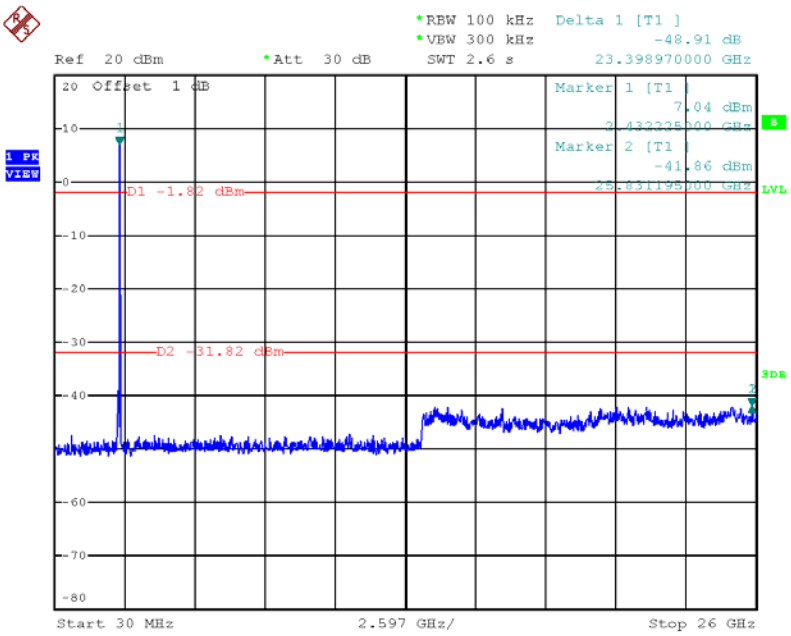
Date: 22.AUG.2012 09:25:14

Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 2 / 2412 MHz (down 30dBc)



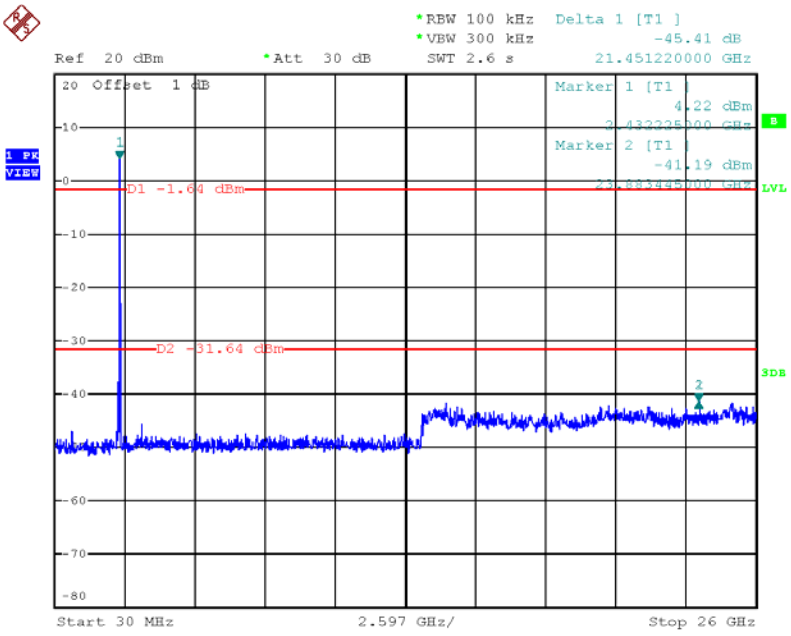
Date: 22.AUG.2012 09:26:20

Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant 1 / 2437 MHz (down 30dBc)



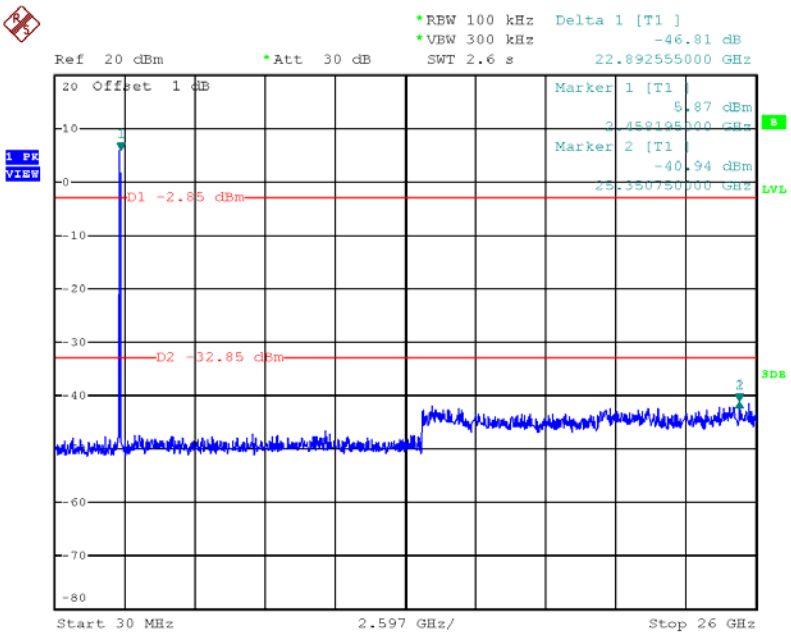
Date: 22.AUG.2012 09:24:11

Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 2 / 2437 MHz (down 30dBc)



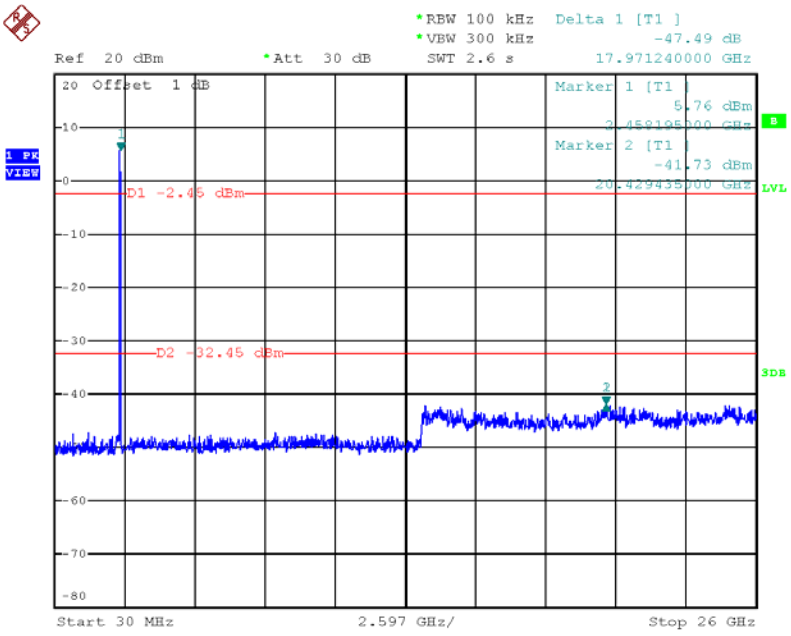
Date: 22.AUG.2012 09:23:08

Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant 1 / 2462 MHz (down 30dBc)



Date: 22.AUG.2012 09:20:48

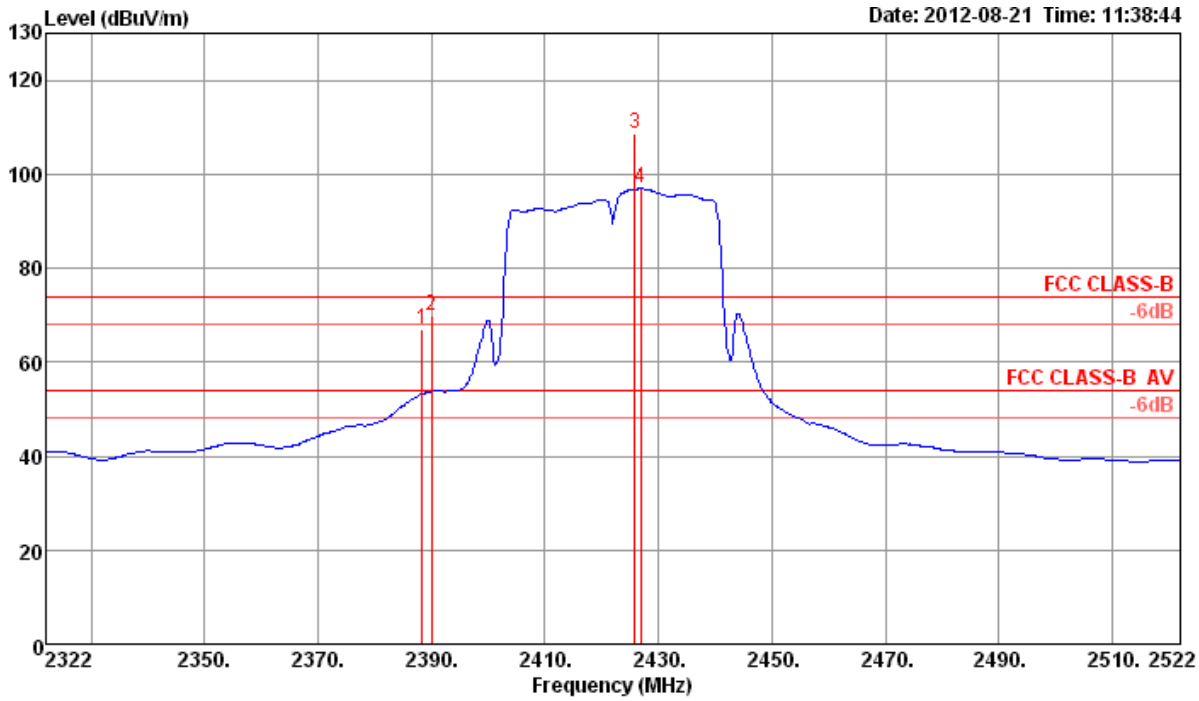
Plot on Configuration IEEE 802.11n MCS8 20MHz / Ant. 2 / 2462 MHz (down 30dBc)



Date: 22.AUG.2012 09:21:59

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 40MHz CH 3 / Ant. 2

Channel 3

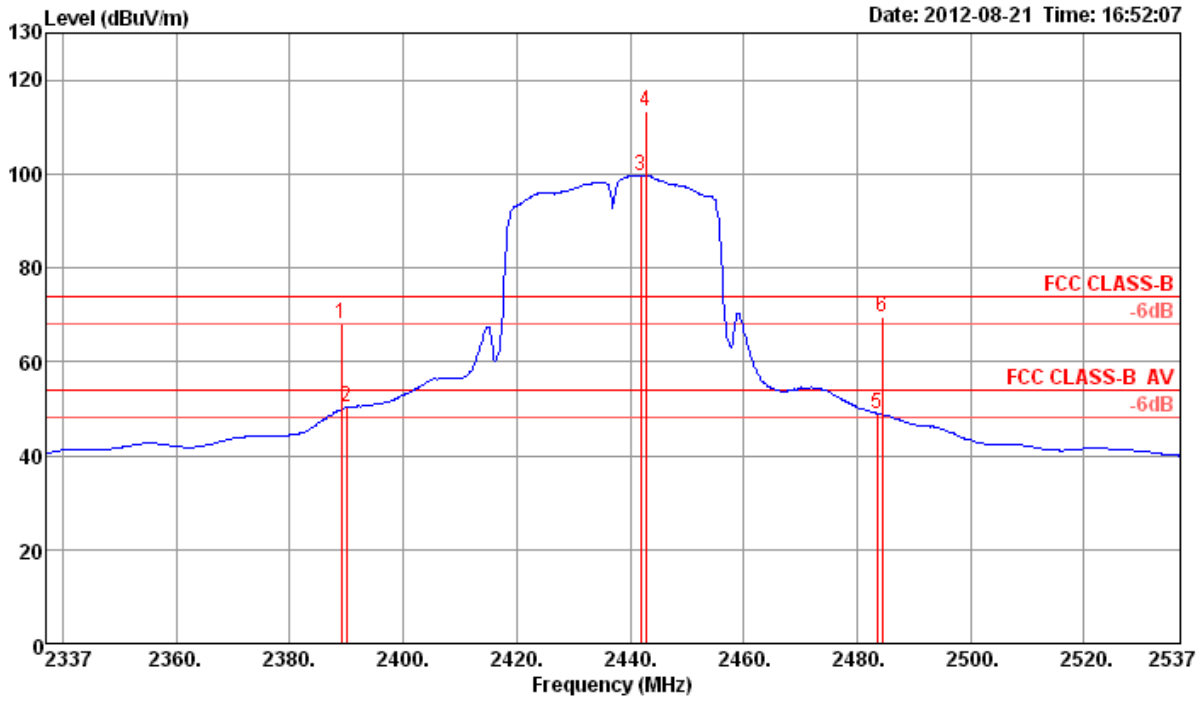


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2388.40	66.85	74.00	-7.15	36.47	2.21	28.17	0.00	Peak	100	305	VERTICAL
2	2390.00	69.90	74.00	-4.10	39.51	2.22	28.17	0.00	Peak	100	318	VERTICAL
3	2425.85				78.33	2.23	28.25	0.00	Peak	100	318	VERTICAL
4	2426.81				66.39	2.23	28.25	0.00	Average	100	318	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 40MHz CH 6 / Ant. 2

Channel 6

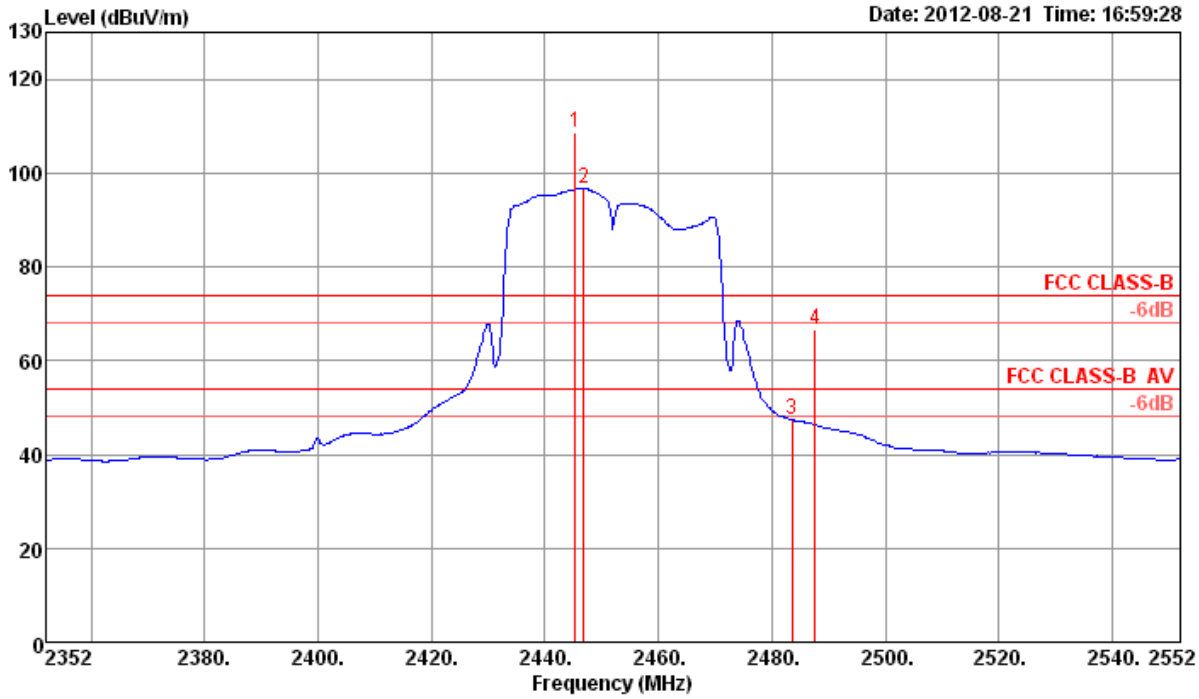


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.04	68.03	74.00	-5.97	37.65	2.21	28.17	0.00	Peak	100	349	VERTICAL
2	2390.00	50.18	54.00	-3.82	19.79	2.22	28.17	0.00	Average	100	349	VERTICAL
3	2441.81				69.20	2.24	28.29	0.00	Average	100	349	VERTICAL
4	2442.77				82.64	2.24	28.29	0.00	Peak	100	349	VERTICAL
5	2483.50	49.01	54.00	-4.99	18.38	2.26	28.37	0.00	Average	100	349	VERTICAL
6	2484.46	69.69	74.00	-4.31	39.06	2.26	28.37	0.00	Peak	100	349	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS0 40MHz CH 9 / Ant. 2

Channel 9



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2445.27				78.24	2.24	28.29	0.00	Peak	100	349	VERTICAL
2	2446.87				66.19	2.24	28.29	0.00	Average	100	349	VERTICAL
3	2483.50	47.47	54.00	-6.53	16.84	2.26	28.37	0.00	Average	100	349	VERTICAL
4	2487.67	66.45	74.00	-7.55	35.78	2.26	28.41	0.00	Peak	100	349	VERTICAL

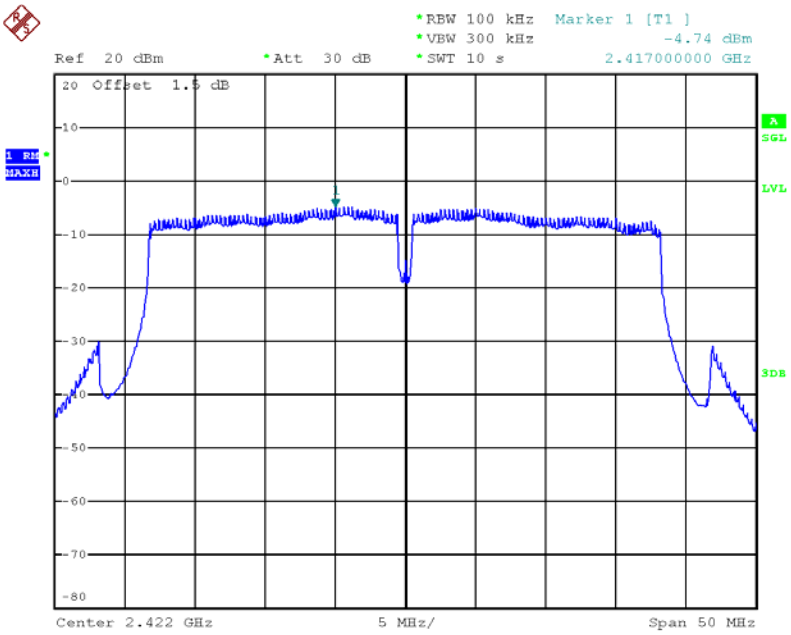
Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

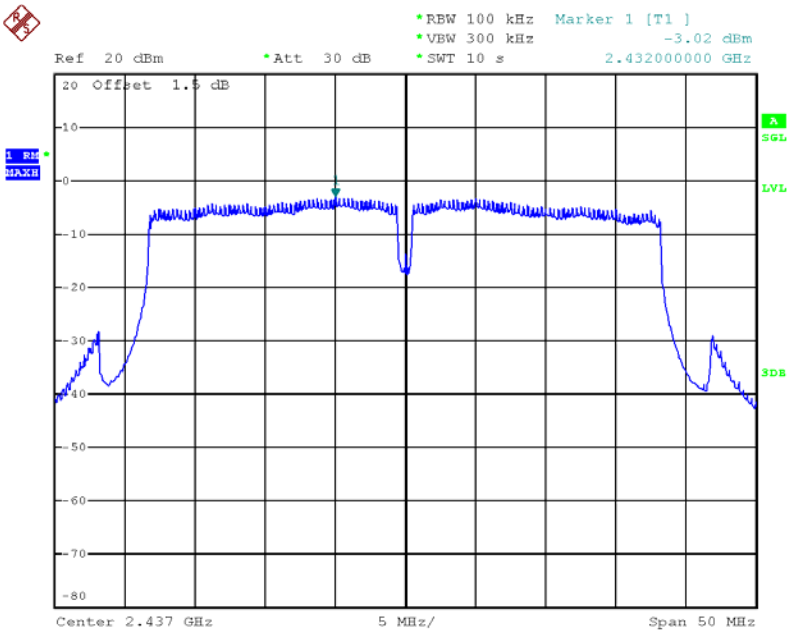
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2422 MHz (Reference Level)



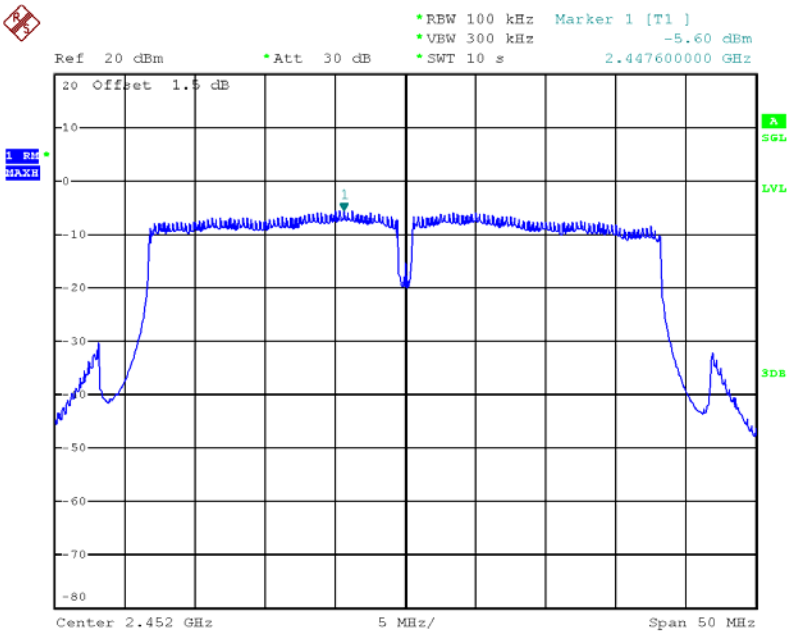
Date: 21.AUG.2012 14:33:14

Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2437 MHz (Reference Level)

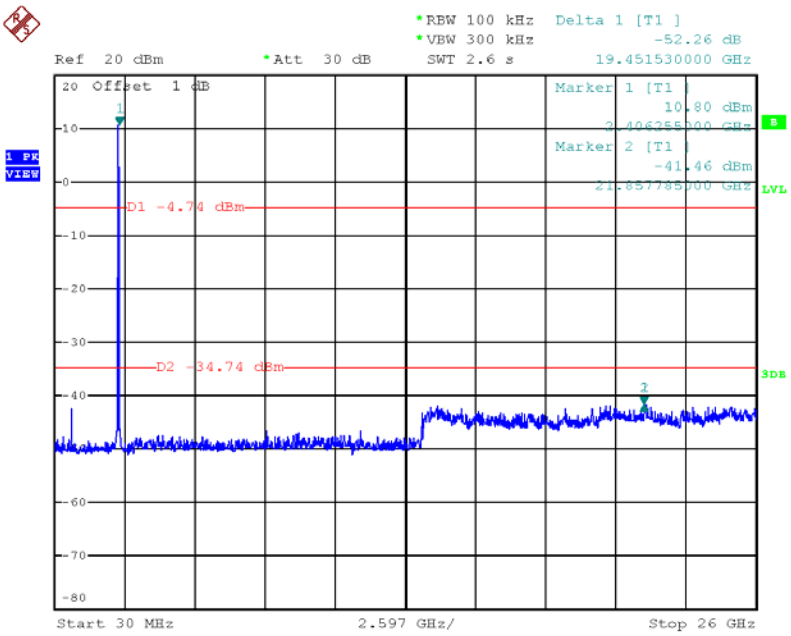


Date: 21.AUG.2012 14:34:20

Plot on Configuration of IEEE 802.11n MCS0 40MHz / Ant. 2 / 2452 MHz (Reference Level)

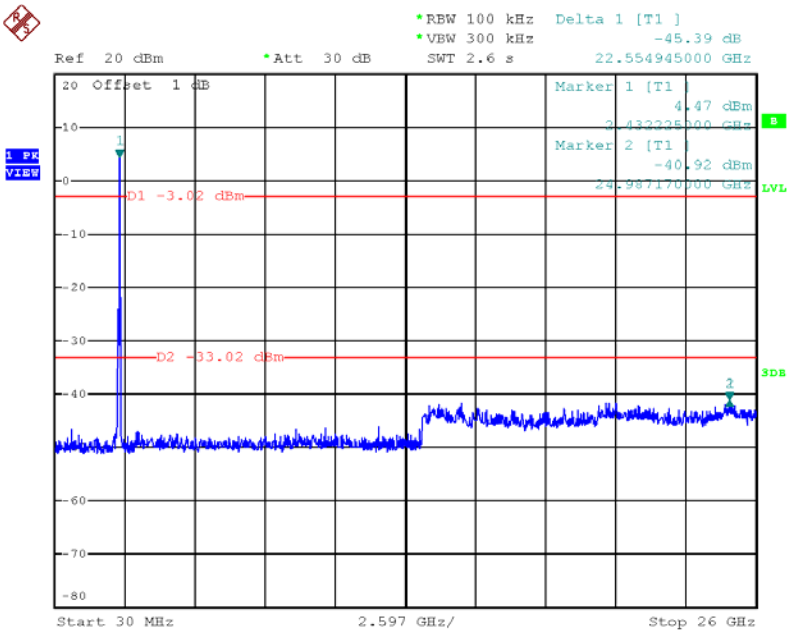


Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 2 / 2422 MHz (down 30dBc)



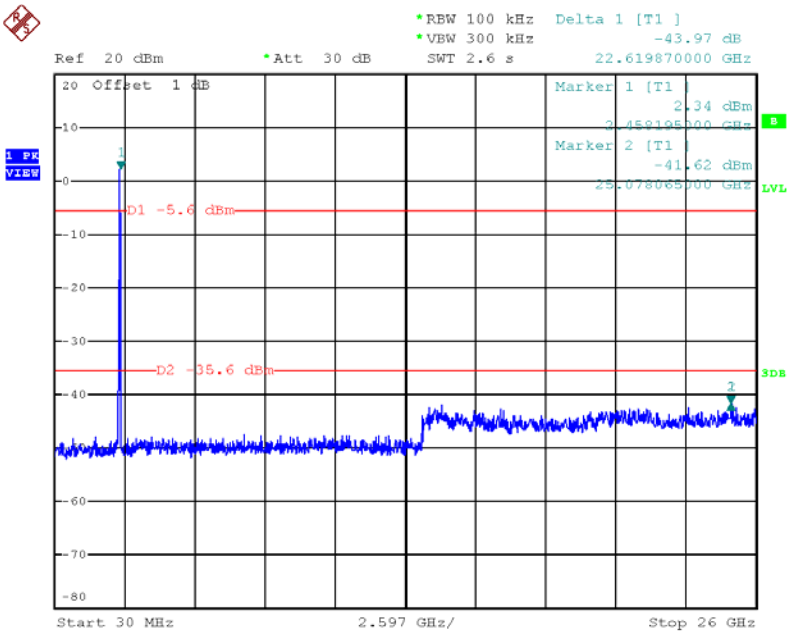
Date: 22.AUG.2012 09:00:04

Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 2 / 2437 MHz (down 30dBc)



Date: 22.AUG.2012 09:01:26

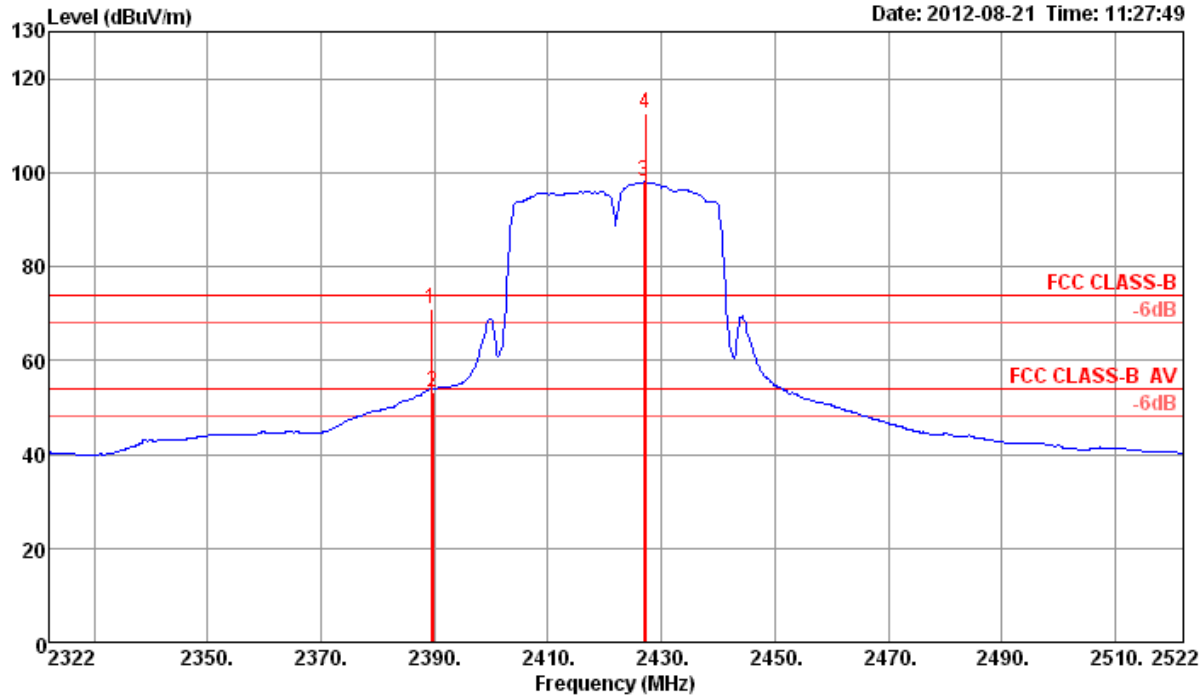
Plot on Configuration IEEE 802.11n MCS0 40MHz / Ant. 2 / 2452 MHz (down 30dBc)



Date: 22.AUG.2012 09:02:17

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 40MHz CH 3 / Ant.0 + Ant. 1

Channel 3

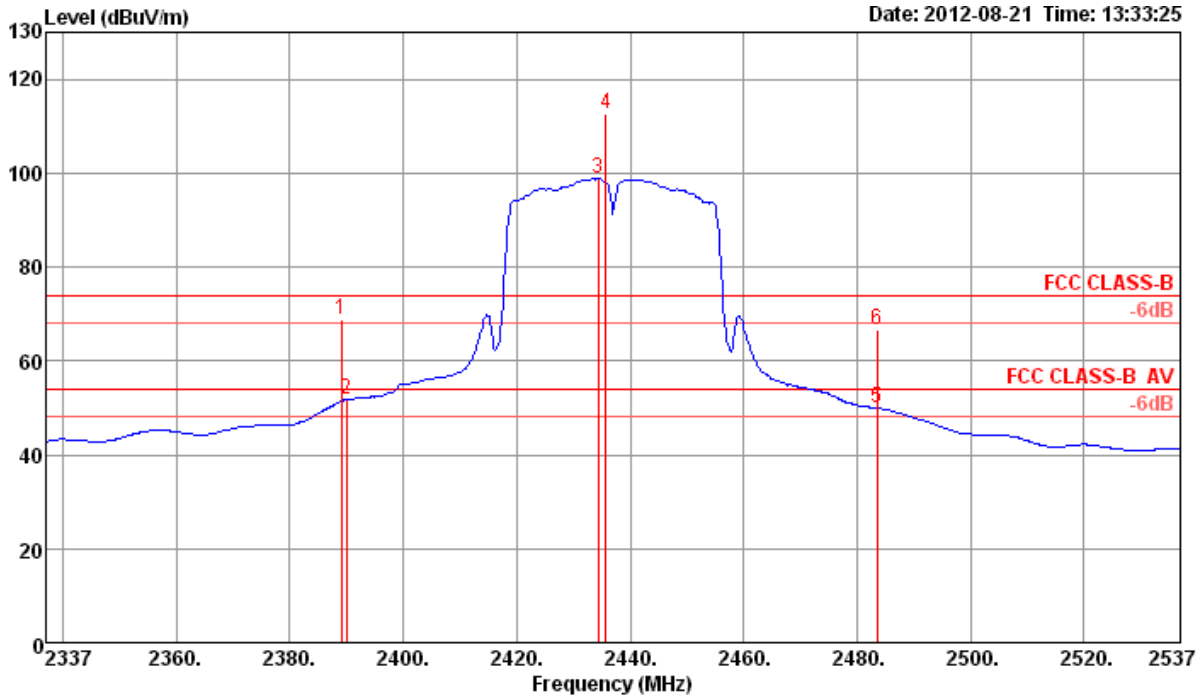


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.36	70.98	74.00	-3.02	40.60	2.21	28.17	0.00	Peak	100	186	VERTICAL
2	2389.68	53.18	54.00	-0.82	22.80	2.21	28.17	0.00	Average	100	168	VERTICAL
3	2426.81				67.48	2.23	28.25	0.00	Average	100	186	VERTICAL
4	2427.13				82.29	2.23	28.25	0.00	Peak	100	186	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 40MHz CH 6 / Ant.0 + Ant. 1

Channel 6

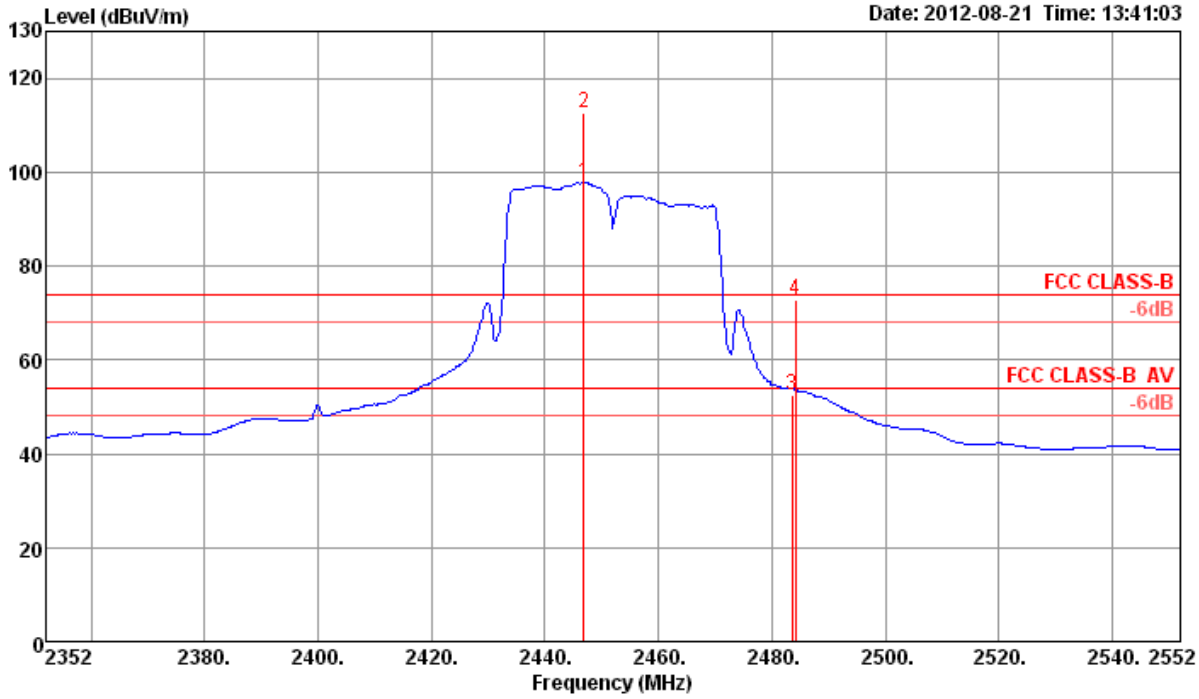


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.04	68.64	74.00	-5.36	38.26	2.21	28.17	0.00	Peak	100	317	VERTICAL
2	2390.00	51.61	54.00	-2.39	21.22	2.22	28.17	0.00	Average	100	317	VERTICAL
3	2434.44				68.29	2.23	28.29	0.00	Average	100	317	VERTICAL
4	2435.72				82.24	2.23	28.29	0.00	Peak	100	317	VERTICAL
5	2483.50	49.88	54.00	-4.12	19.25	2.26	28.37	0.00	Average	100	317	VERTICAL
6	2483.50	66.45	74.00	-7.55	35.82	2.26	28.37	0.00	Peak	100	317	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Temperature	25.6℃	**Humidity**	56%
Test Engineer	Will Tung	**Test Site No.**	03CH01-CB
Test Date	Aug. 21, 2012	**Configuration**	802.11n MCS8 40MHz CH 9 / Ant.0 + Ant. 1

Channel 9



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2446.87				67.16	2.24	28.29	0.00	Average	100	318	VERTICAL
2	2446.87				82.26	2.24	28.29	0.00	Peak	100	318	VERTICAL
3	2483.50	52.54	54.00	-1.46	21.91	2.26	28.37	0.00	Average	100	346	VERTICAL
4	2484.14	72.63	74.00	-1.37	42.00	2.26	28.37	0.00	Peak	100	346	VERTICAL

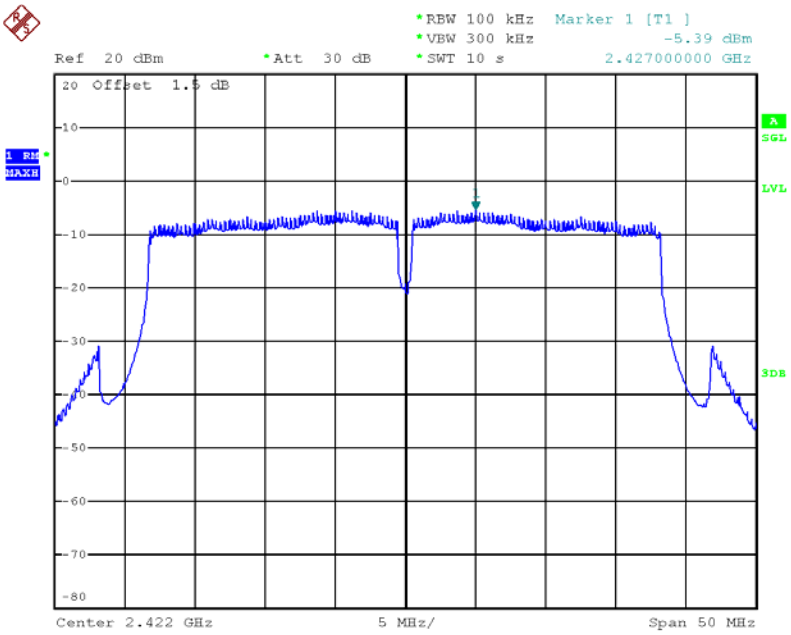
Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

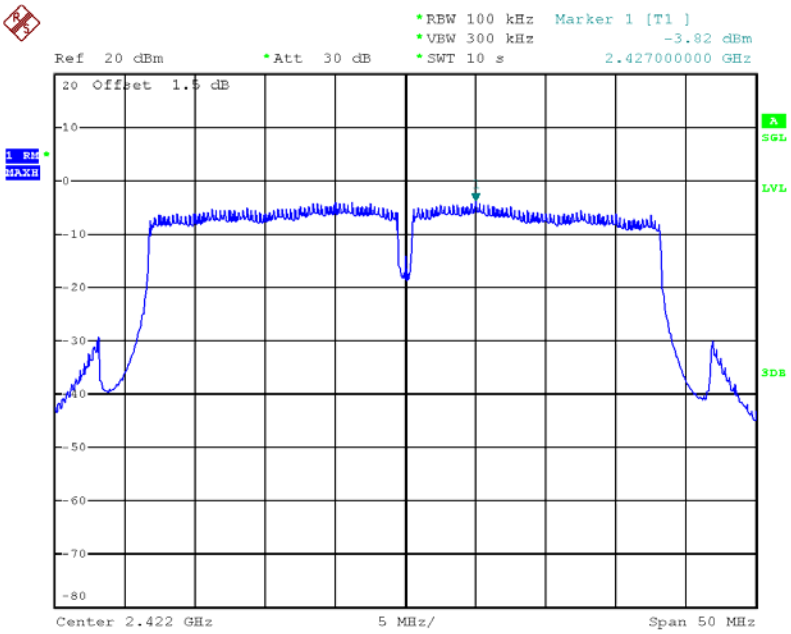
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2422 MHz (Reference Level)



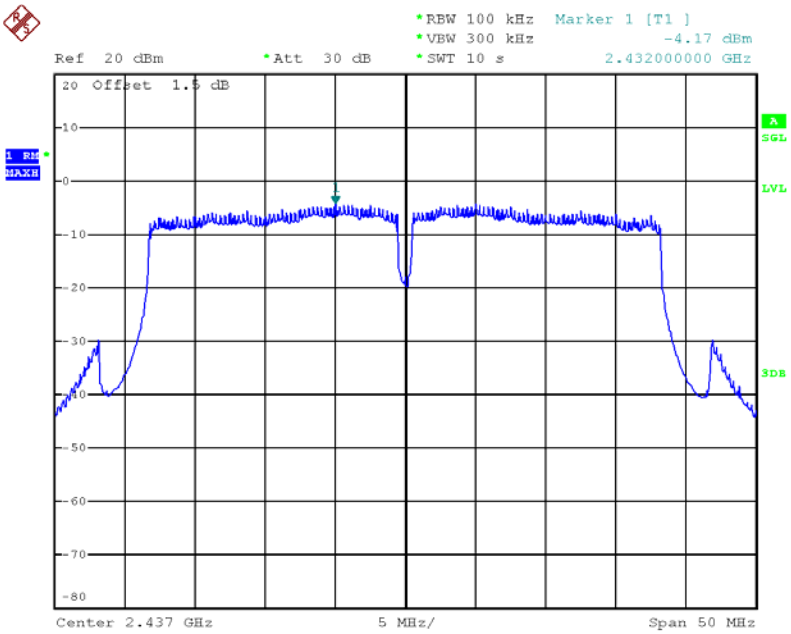
Date: 21.AUG.2012 14:41:36

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2422 MHz (Reference Level)



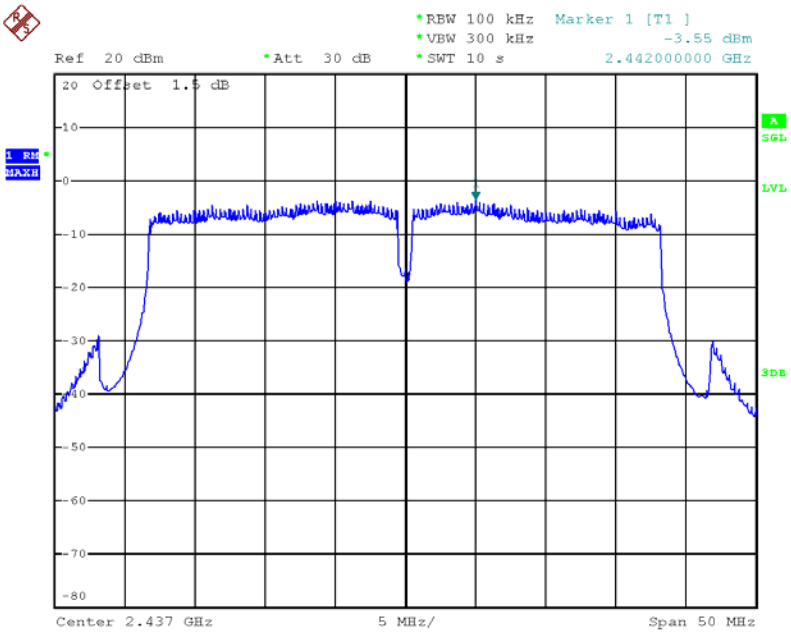
Date: 21.AUG.2012 14:40:59

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2437 MHz (Reference Level)



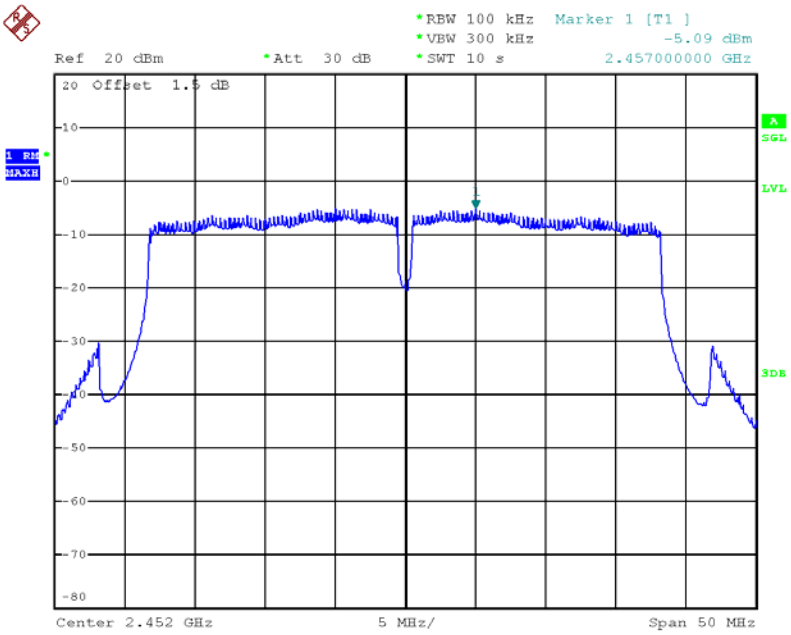
Date: 21.AUG.2012 14:37:50

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2437 MHz (Reference Level)



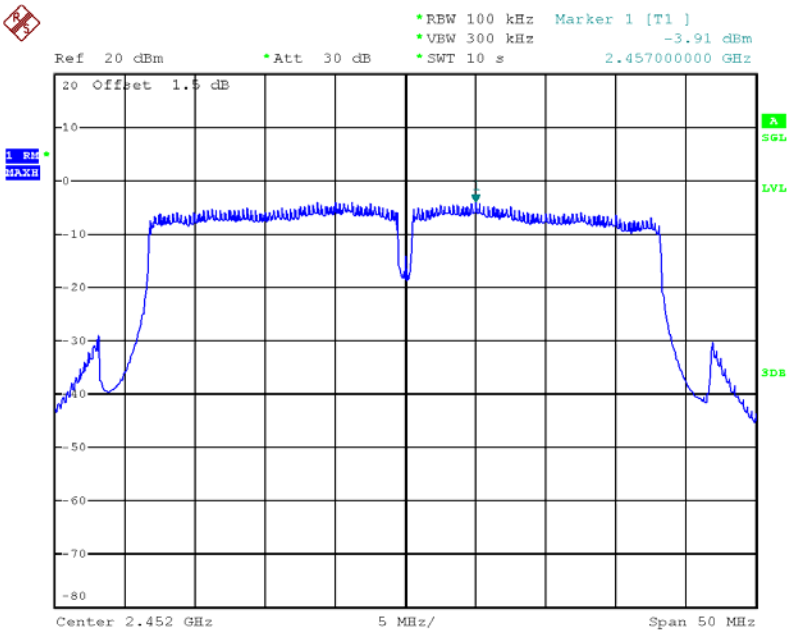
Date: 21.AUG.2012 14:39:59

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 1 / 2452 MHz (Reference Level)



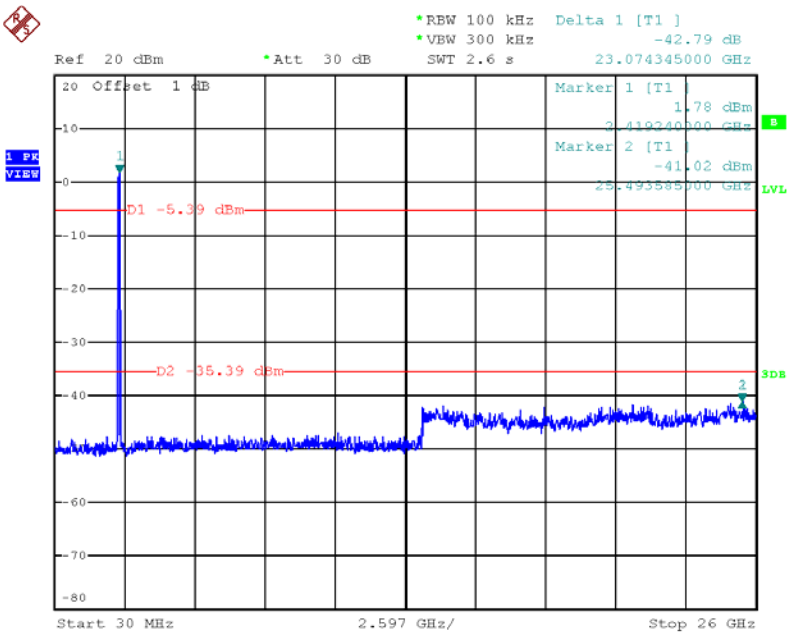
Date: 21.AUG.2012 14:37:11

Plot on Configuration of IEEE 802.11n MCS8 40MHz / Ant. 2 / 2452 MHz (Reference Level)



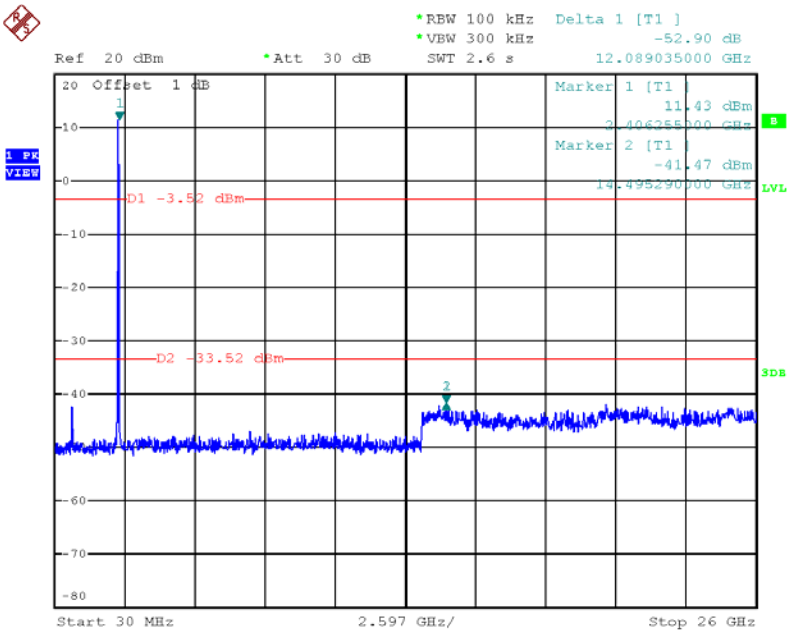
Date: 21.AUG.2012 14:36:36

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / 2422 MHz (down 30dBc)



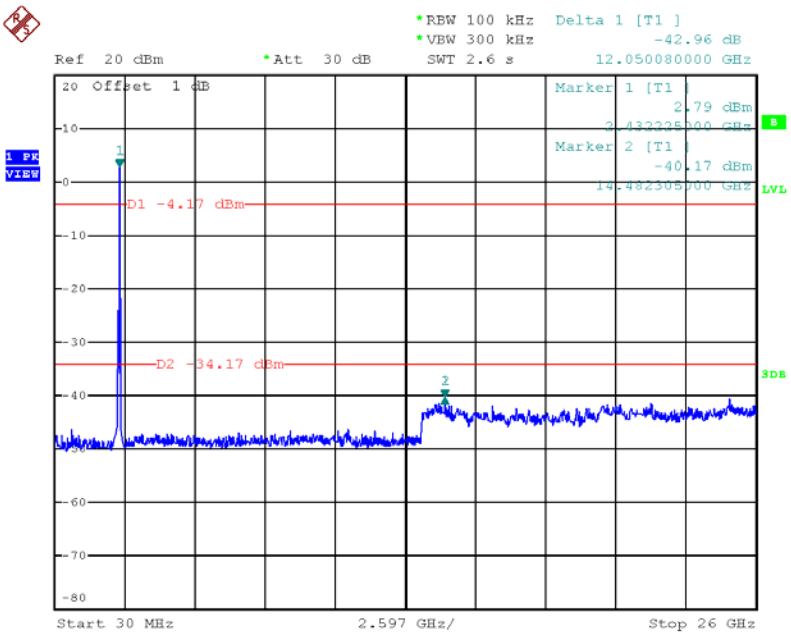
Date: 22.AUG.2012 09:19:23

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 2 / 2422 MHz (down 30dBc)



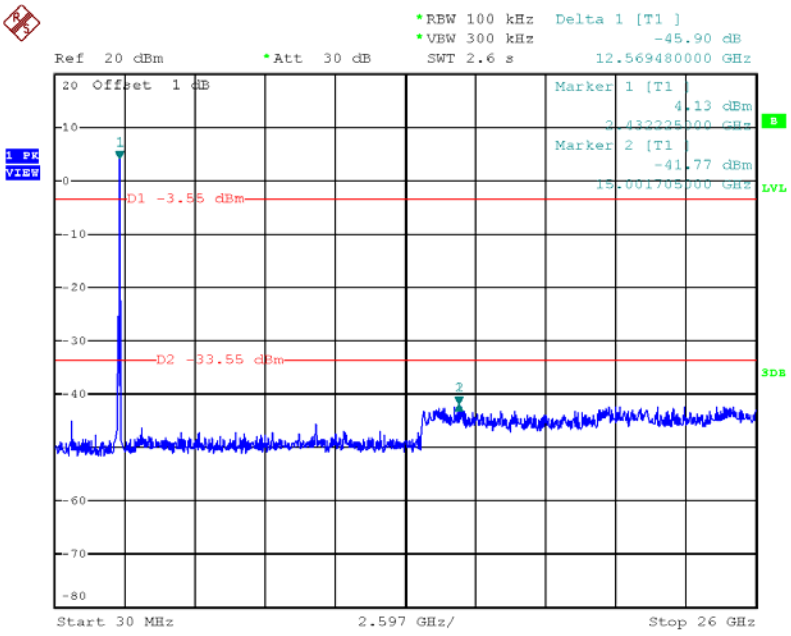
Date: 22.AUG.2012 09:18:07

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / 2437 MHz (down 30dBc)



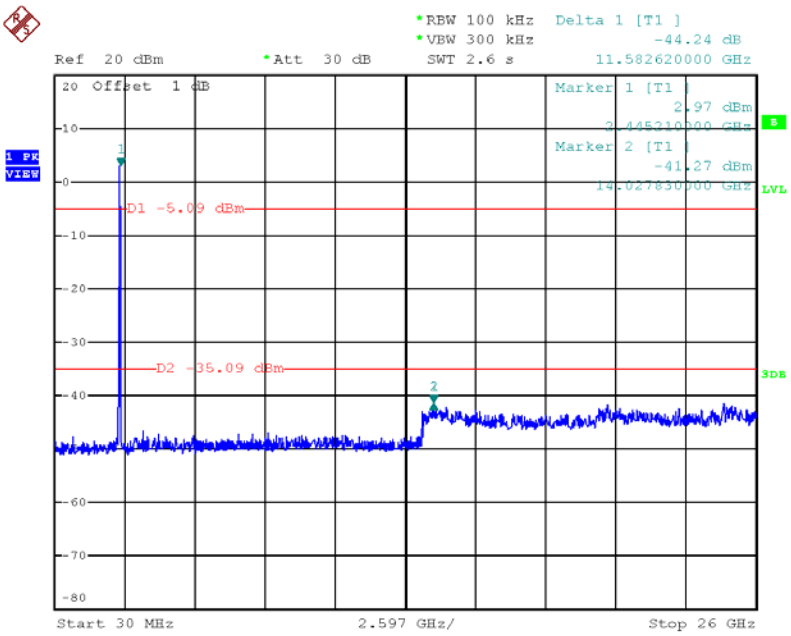
Date: 22.AUG.2012 09:09:32

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 2 / 2437 MHz (down 30dBc)



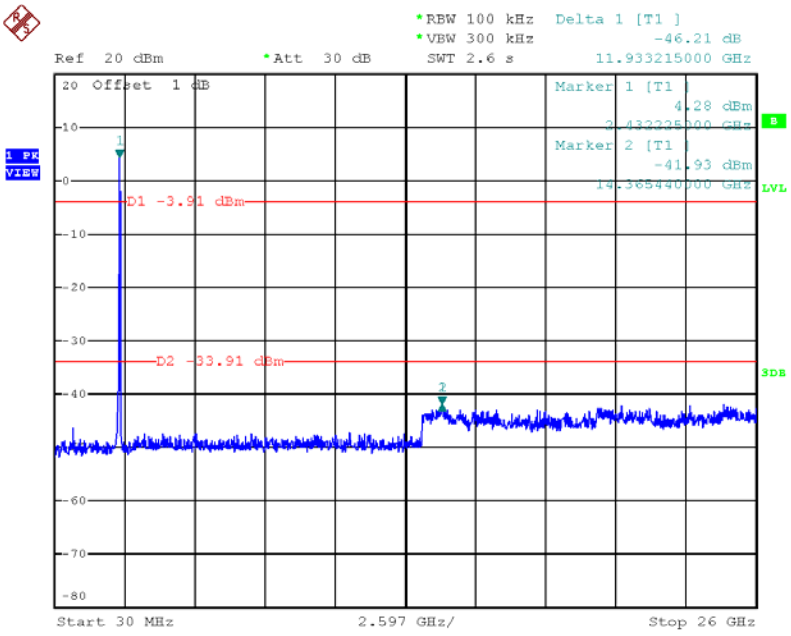
Date: 22.AUG.2012 09:17:01

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 1 / 2452 MHz (down 30dBc)



Date: 22.AUG.2012 09:05:55

Plot on Configuration IEEE 802.11n MCS8 40MHz / Ant. 2 / 2452 MHz (down 30dBc)



Date: 22.AUG.2012 09:04:10

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. Further, this requirement does not apply to intentional radiators that must be professionally installed.

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
EMI Test Receiver	R&S	ESCS 30	100377	9kHz ~ 2.75GHz	Sep. 14, 2012	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 14, 2011	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127-478	9K ~ 30MHz	Jun. 22, 2012	Conduction (CO01-CB)
PULSE LIMITER	R&S	ESH3-Z2	100430	9K~30MHz	Feb. 03, 2012	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	Dec. 04, 2011	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 11, 2012	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 25, 2011	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 22, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 17, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 29, 2011	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 03, 2011	Radiation (05CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Sep. 09, 2011	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N/A	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N/A	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2011	Radiation (03CH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 05, 2012	Conducted (TH01-CB)
Thermo-Hygro Meter	N/A	HC 520	#1	15~70 degree	Nov. 02, 2011	Conducted (TH01-CB)
Signal Generator	R&S	SMR40	100302	10MHz-40GHz	Nov. 22, 2011	Conducted (TH01-CB)
RF Power Divider	HP	11636A	00306	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)
RF Power Splitter	Anaren	44100	1839	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)
RF Power Splitter	Anaren	42100	17930	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)
Signal generator	R&S	SMU200A	102782	10MHz-40GHz	Jun. 07, 2012	Conducted (TH01-CB)
Horn Antenna	COM-POWER	AH-118	071187	1GHz – 18GHz	May 09, 2012	Conducted (TH01-CB)
Horn Antenna	COM-POWER	AH-118	071042	1GHz – 18GHz	Nov. 01, 2011	Radiation (05CH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-12	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-13	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Nov. 01, 2011	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Nov. 01, 2011	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one 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.：L1190-110702

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 Road, 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：July 02, 2011

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