SPORTON International Inc.
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FCC RADIO TEST REPORT

Applicant's company	**Thomson Telecom Belgium**
Applicant Address	Prins Boudewijnlaan 47 2650 Edegem, Belgium
FCC ID	**RSE-TG185N**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	No.10-1,Li-hsin Road I,Hsinchu Science Park,Hsinchu 300,Taiwan, R.O.C.

Product Name	TG185n Ethernet to Wi-Fi Converter
Brand Name	THOMSON
Model Name	TG185n
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	May. 17, 2008
Final Test Date	Mar. 09, 2009
Submission Type	Original Equipment

Statement

Test result included is only for the 802.11 b/g , 802.11a and Draft n (5725~5850MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.
Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart C**.
The test equipment used to perform the test is calibrated and traceable to NML/ROC.

Testing Laboratory
1190

Table of Contents

History of This Test Report

Original Issue Date: Mar. 10, 2009

Report No.: FR851703-07AB

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

1. CERTIFICATE OF COMPLIANCE

Product Name	:	TG185n Ethernet to Wi-Fi Converter
Brand Name	:	THOMSON
Model Name	:	TG185n
Applicant	:	Thomson Telecom Belgium
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on May. 17, 2008 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Wayne Hsu

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	14.43 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	5.19 dB
4.3	15.247(e)	Power Spectral Density	Complies	8.23 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	7.77 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.55 dB
4.7	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%

3. GENERAL INFORMATION

3.1. Product Details

Draft n

Items	Description
Product Type	802.11 abgn Router(2Tx,2Rx)
Radio Type	Intentional Transceiver
Power Type	From Adapter
Modulation	see the below table for draft n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for Draft n
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: MCS8 (20MHz): 17.59 MHz ; MCS8 (40MHz): 36.28 MHz For 5GHz Band: MCS8 (20MHz): 17.59 MHz ; MCS8 (40MHz): 36.28 MHz
Conducted Output Power	For 2.4GHz Band: MCS8 (20MHz): 24.81 dBm ; MCS8 (40MHz): 21.14 dBm For 5GHz Band: MCS8 (20MHz): 20.61 dBm ; MCS8 (40MHz): 18.04 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	802.11 abgn Router(2Tx,2Rx)
Radio Type	Intentional Transceiver
Power Type	From Adapter
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	11b: 15.41 MHz ; 11g: 16.41 MHz ; 11a: 16.41 MHz
Conducted Output Power	11b: 22.95 dBm ; 11g: 23.02 dBm ; 11a: 20.22 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

Antenna	Single (TX)		Two (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz
802.11a	X	X	V	X
802.11b	X	X	V	X
802.11g	X	X	V	X
Draft n	X	X	V	V

Draft n spec

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

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

3.2. Accessories

Power	Brand	Model	Rating
Adapter	OEM	ADS0128-B050200 Version 3Compliant with CoC V3	Input: 100-240V, 0.5A, 50-60Hz Output: 5V, 2.0A

3.3. Table for Filed Antenna

For 2.4GHz Band

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
A	WNC	XSL-DD	External antenna with PCB type inside	I-PEX	1.93	TX/RX
B	WNC	XSL-DD	External antenna with PCB type inside	I-PEX	1.93	TX/RX

For 5GHz Band

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
A	WNC	XSL-DD	External antenna with PCB type inside	I-PEX	2.83	TX/RX
B	WNC	XSL-DD	External antenna with PCB type inside	I-PEX	2.83	TX/RX

Note: The EUT has two antennas. Ant. A & Ant. B could transmit/receive simultaneously.

3.4. Table for Carrier Frequencies

For 2.4GHz Band

Frequency Allocation for 802.11b/g

There are two bandwidth systems for draft n.

For both 20MHz bandwidth systems, use Channel 1~Channel 11.

For both 40MHz bandwidth systems, use Channel 3~Channel 9.

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

For 5GHz Band

Frequency Allocation for 802.11a

There are two bandwidth systems for draft n.

For 20MHz bandwidth systems, use Channel 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 151, 159.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz (USA/Canada/Taiwan)	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz		

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report. The difference between MCS0 & MCS 8 in 11n spec is streaming. The modulation type and waveform are the same so the both test result in RF are the same. It is chosen MCS8 as the representative and recorded in the report.

For 2.4GHz Band

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	Auto	-	-
Max. Peak Conducted Output Power	MCS8/20MHz	13 Mbps	1/6/11	A/B/A+B
	MCS8/40MHz	27 Mbps	3/6/9	A/B/A+B
	11b/CCK	1 Mbps	1/6/11	A/B/A+B
	11g/BPSK	6 Mbps	1/6/11	A/B/A+B
Power Spectral Density 6dB Spectrum Bandwidth	MCS8/20MHz	13 Mbps	1/6/11	A+B
	MCS8/40MHz	27 Mbps	3/6/9	A+B
	11b/CCK	1 Mbps	1/6/11	A+B
	11g/BPSK	6 Mbps	1/6/11	A+B
Radiated Emissions Below 1GHz	Normal Link	Auto	-	-
Radiated Emissions Above 1GHz	MCS8/20MHz	13 Mbps	1/6/11	A+B
	MCS8/40MHz	27 Mbps	3/6/9	A+B
	11b/CCK	1 Mbps	1/6/11	A+B
	11g/BPSK	6 Mbps	1/6/11	A+B
Band Edge Emissions	MCS8/20MHz	13 Mbps	1/11	A+B
	MCS8/40MHz	27 Mbps	3/9	A+B
	11b/CCK	1 Mbps	1/11	A+B
	11g/BPSK	6 Mbps	1/11	A+B

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	Auto	-	-
Max. Peak Conducted Output Power	MCS8/20MHz	13 Mbps	149/157/165	A/B/A+B
	MCS8/40MHz	27 Mbps	151/159	A/B/A+B
	11a/BPSK	6 Mbps	149/157/165	A/B/A+B
Power Spectral Density 6dB Spectrum Bandwidth	MCS8/20MHz	13 Mbps	149/157/165	A+B
	MCS8/40MHz	27 Mbps	151/159	A+B
	11a/BPSK	6 Mbps	149/157/165	A+B
Radiated Emissions Below 1GHz	Normal Link	Auto	-	-
Radiated Emissions Above 1GHz	MCS8/20MHz	13 Mbps	149/157/165	A+B
	MCS8/40MHz	27 Mbps	151/159	A+B
	11a/BPSK	6 Mbps	149/157/165	A+B
Band Edge Emissions	MCS8/20MHz	13 Mbps	149/157/165	A+B
	MCS8/40MHz	27 Mbps	151/159	A+B
	11a/BPSK	6 Mbps	149/157/165	A+B

3.6. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH03-HY	SAC	Hwa Ya	101377	IC 4088	-
CO04-HY	Conduction	Hwa Ya	-	-	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

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

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	1200	E2K4965AGNM
Notebook	DELL	D400	E2K24GBRL
Notebook	DELL	M1330	E2KWM3945ABG

3.8. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

For 2.4GHz Band

Power Parameters of Draft n MCS8 20MHz

Test Software Version	ART_v0_5_b25ALL		
Frequency	2412 MHz	2437 MHz	2462 MHz
Ant. A + Ant. B	14.5	19	13

Power Parameters of Draft n MCS8 40MHz

Test Software Version	ART_v0_5_b25ALL		
Frequency	2422 MHz	2437 MHz	2452 MHz
Ant. A + Ant. B	11.5	16.5	11

Power Parameters of IEEE 802.11b/g

Test Software Version	ART_v0_5_b25ALL		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b Ant. A + Ant. B	19	19	17.5
IEEE 802.11g Ant. A + Ant. B	14.5	18	13

For 5GHz Band

Power Parameters of Draft n MCS8 20MHz

Test Software Version	ART_v0_5_b25ALL		
Frequency	5745 MHz	5785 MHz	5825 MHz
Ant. A + Ant. B	18	18	18

Power Parameters of Draft n MCS8 40MHz

Test Software Version	ART_v0_5_b25ALL	
Frequency	5755 MHz	5795 MHz
Ant. A + Ant. B	17	17

Power Parameters of IEEE 802.11a

Test Software Version	ART_v0_5_b25ALL		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	18	18	18

During the test, the following programs under WIN XP were executed:

Executed "ART" to control the EUT continuously transmit RF signal.

In all EMC test item, during the test, the following programs under WIN XP were executed:

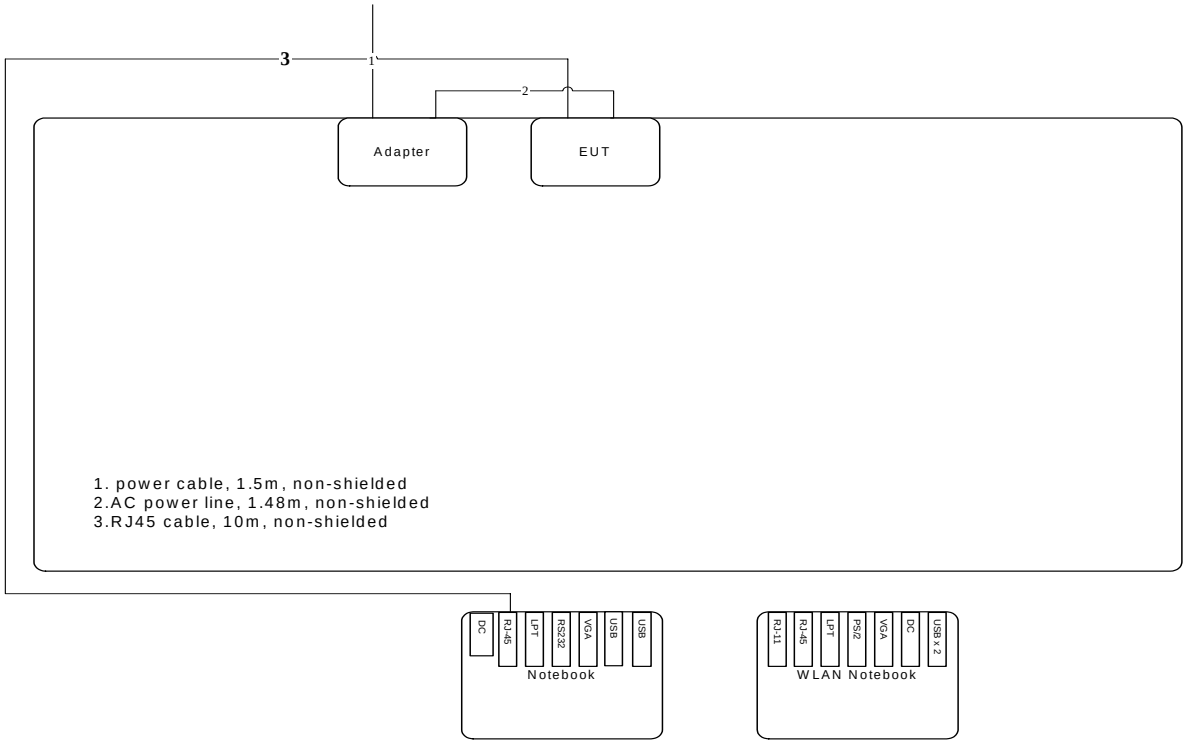
"Normal link" =

Executed "Ixchariot" to link with the remote workstation to receive and transmit data by LAN and WLAN with traffic loading 1451Kbps.

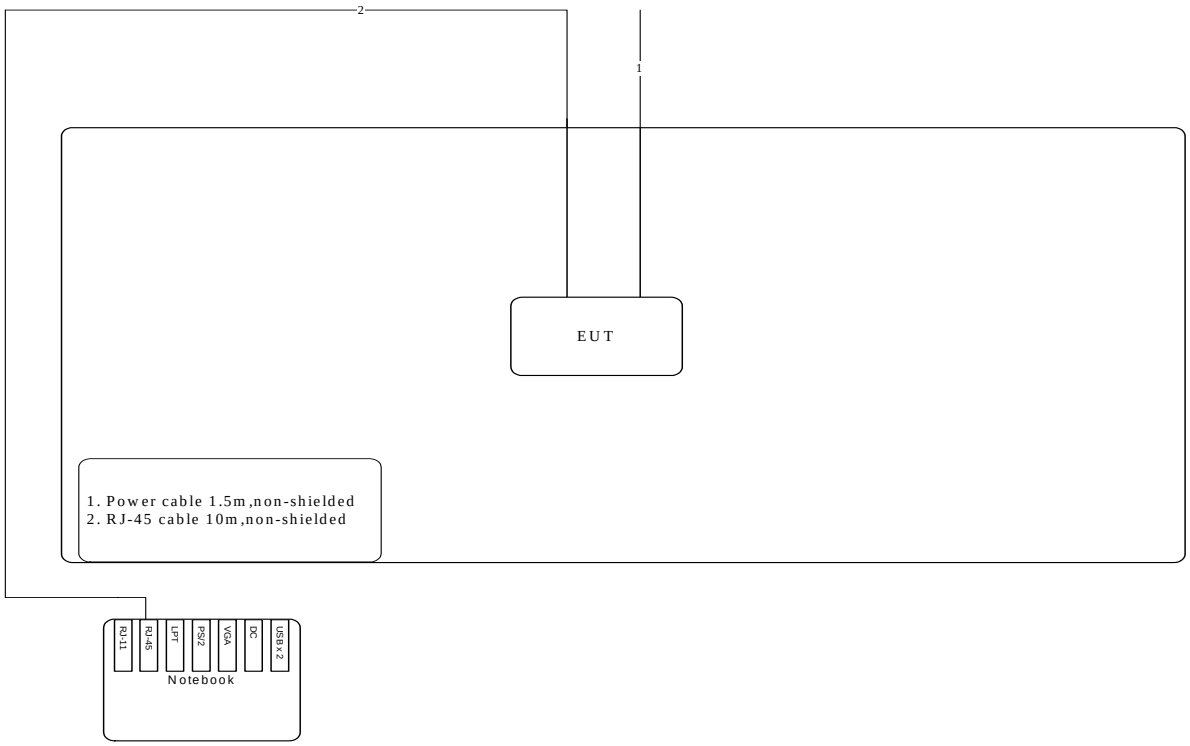
3.9. Test Configurations

3.9.1. Radiation Emissions Test Configuration

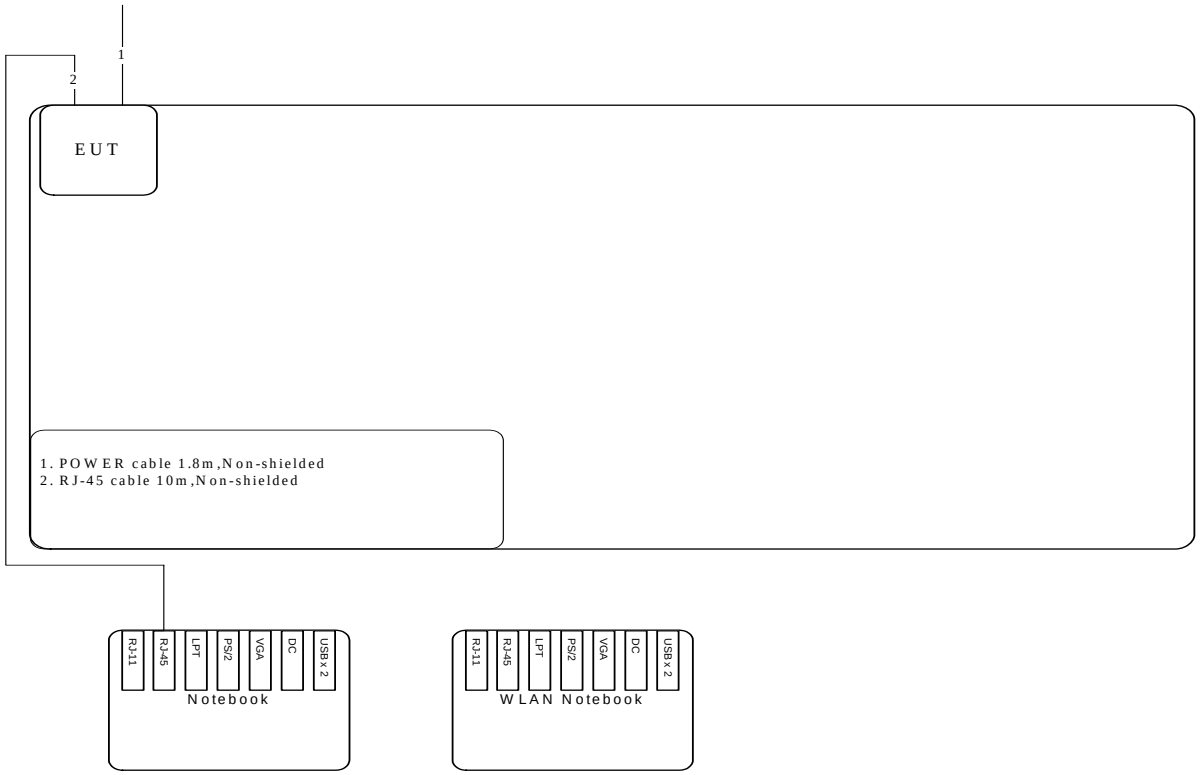
Test Configuration: 9kHz~1GHz



Test Configuration: above 1GHz



3.9.2. AC Power Line Conduction Emissions Test Configuration



4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. 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

4.1.2. Measuring Instruments and Setting

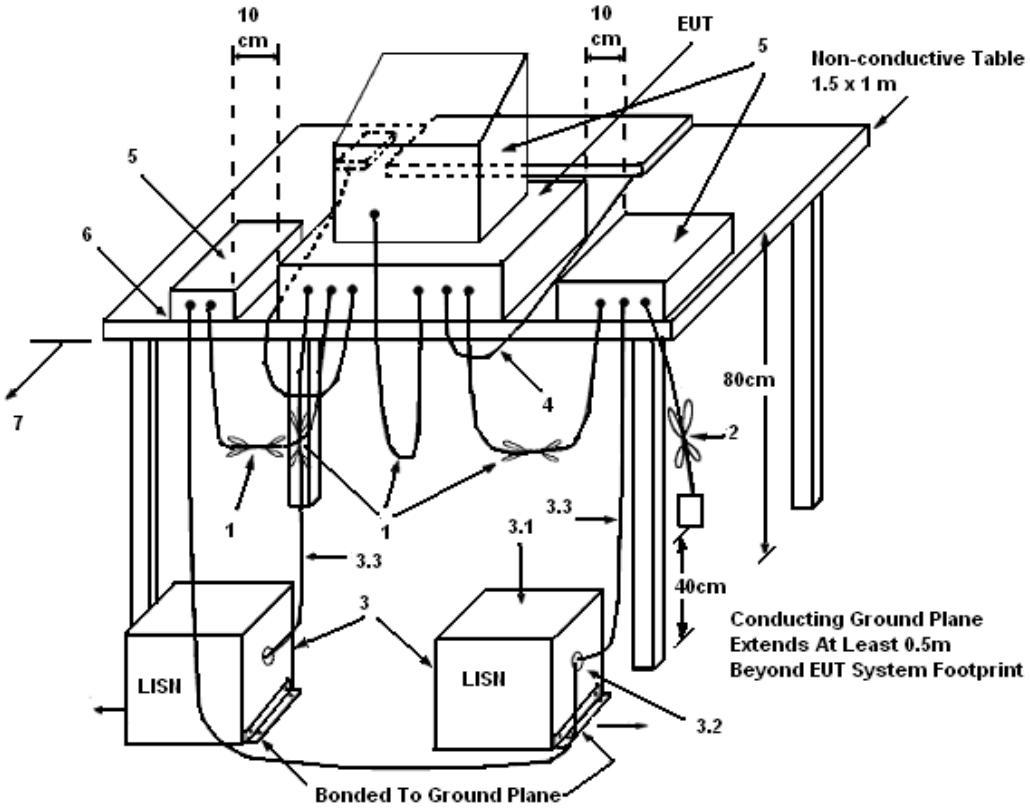
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. 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.

4.1.5. Test Deviation

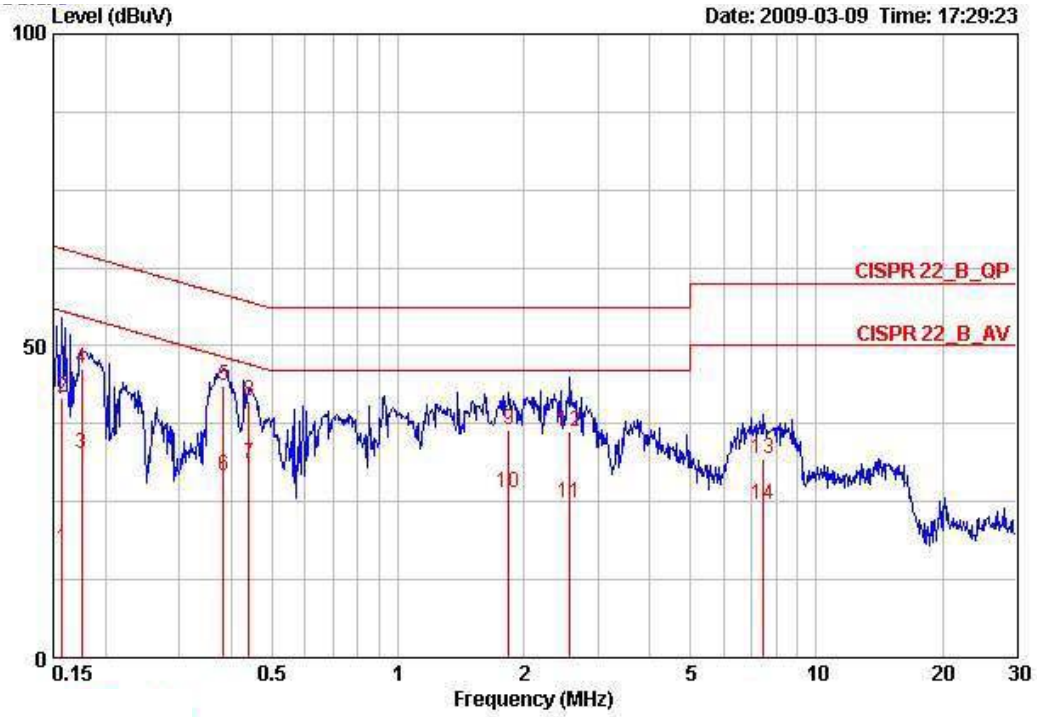
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

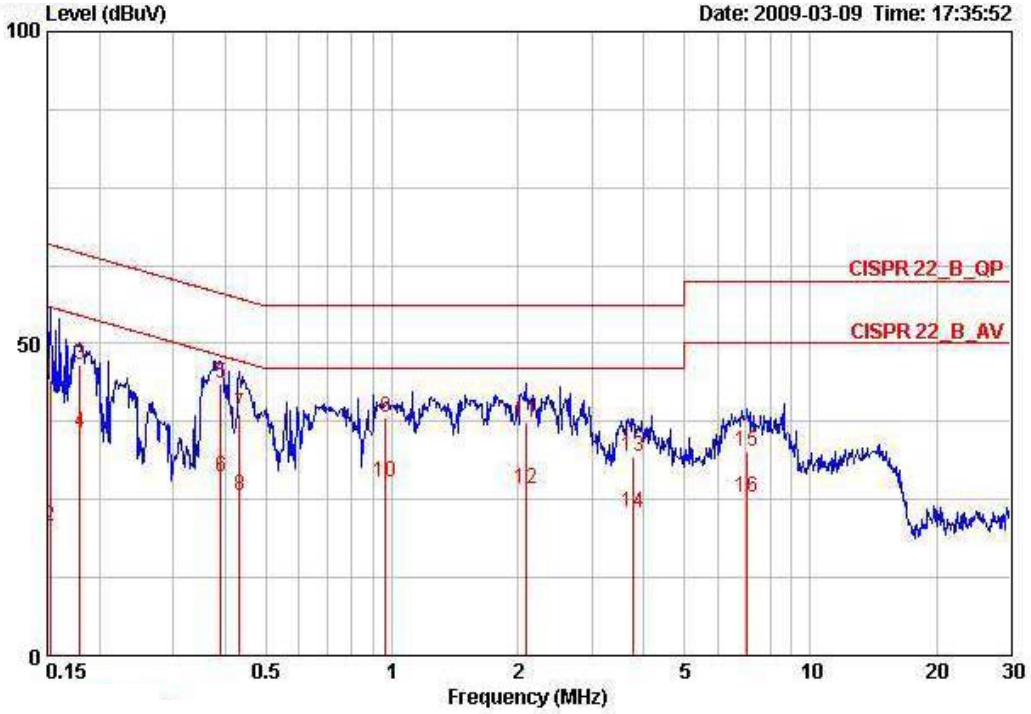
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25℃	Humidity	62%
Test Engineer	Howar Sung	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15733	17.52	-38.08	55.60	17.25	0.07	0.20	AVERAGE
2	0.15733	41.60	-24.00	65.60	41.33	0.07	0.20	QP
3	0.17533	32.72	-21.98	54.70	32.46	0.06	0.20	AVERAGE
4	0.17533	46.32	-18.38	64.70	46.06	0.06	0.20	QP
5	0.38315	43.67	-14.54	58.21	43.44	0.03	0.20	QP
6	0.38315	29.06	-19.15	48.21	28.83	0.03	0.20	AVERAGE
7	0.43974	31.07	-16.00	47.07	30.84	0.03	0.20	AVERAGE
8	0.43974	41.14	-15.93	57.07	40.91	0.03	0.20	QP
9	1.839	36.65	-19.35	56.00	36.43	0.05	0.17	QP
10	1.839	26.34	-19.66	46.00	26.12	0.05	0.17	AVERAGE
11	2.581	24.79	-21.21	46.00	24.52	0.07	0.20	AVERAGE
12	2.581	36.15	-19.85	56.00	35.88	0.07	0.20	QP
13	7.446	31.98	-28.02	60.00	31.32	0.27	0.39	QP
14	7.446	24.46	-25.54	50.00	23.80	0.27	0.39	AVERAGE

Temperature	25°C	Humidity	62%
Test Engineer	Howar Sung	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15240	44.17	-21.69	65.87	43.87	0.10	0.20	QP
2	0.15240	20.60	-35.26	55.87	20.30	0.10	0.20	AVERAGE
3	0.17961	46.67	-17.83	64.50	46.38	0.09	0.20	QP
4	0.17961	35.70	-18.80	54.50	35.41	0.09	0.20	AVERAGE
5 @	0.38929	43.65	-14.43	58.08	43.38	0.07	0.20	QP
6	0.38929	28.67	-19.41	48.08	28.40	0.07	0.20	AVERAGE
7	0.43281	38.74	-18.46	57.20	38.47	0.07	0.20	QP
8	0.43281	25.61	-21.59	47.20	25.34	0.07	0.20	AVERAGE
9	0.96328	38.16	-17.84	56.00	37.89	0.07	0.20	QP
10	0.96328	27.81	-18.19	46.00	27.54	0.07	0.20	AVERAGE
11	2.088	37.32	-18.68	56.00	37.03	0.09	0.20	QP
12	2.088	26.65	-19.35	46.00	26.36	0.09	0.20	AVERAGE
13	3.779	31.84	-24.16	56.00	31.40	0.14	0.30	QP
14	3.779	22.77	-23.23	46.00	22.33	0.14	0.30	AVERAGE
15	7.062	32.57	-27.43	60.00	31.96	0.29	0.32	QP
16	7.062	25.33	-24.67	50.00	24.72	0.29	0.32	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. Maximum Conducted Output Power Measurement

4.2.1. 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. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

4.2.2. Measuring Instruments and Setting

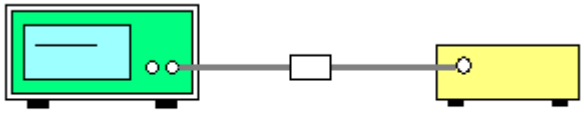
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	Max Hold
Sweep Time	500ms

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under Section 15.247 March 23, 2005.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Maximum Conducted Output Power

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	Draft n

For 2.4GHz Band

Configuration Draft n MCS8 20MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	17.27	30.00	Complies
6	2437 MHz	21.68	30.00	Complies
11	2462 MHz	16.04	30.00	Complies

Configuration Draft n MCS8 20MHz Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	17.20	30.00	Complies
6	2437 MHz	21.91	30.00	Complies
11	2462 MHz	15.62	30.00	Complies

Configuration Draft n MCS8 20MHz Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	20.25	30.00	Complies
6	2437 MHz	24.81	30.00	Complies
11	2462 MHz	18.85	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	13.77	30.00	Complies
6	2437 MHz	18.10	30.00	Complies
9	2452 MHz	13.27	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	13.67	30.00	Complies
6	2437 MHz	18.15	30.00	Complies
9	2452 MHz	13.36	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	16.73	30.00	Complies
6	2437 MHz	21.14	30.00	Complies
9	2452 MHz	16.33	30.00	Complies

For 5GHz Band

Configuration Draft n MCS8 20MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	17.17	30.00	Complies
157	5785 MHz	17.02	30.00	Complies
165	5825 MHz	17.31	30.00	Complies

Configuration Draft n MCS8 20MHz Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	16.20	30.00	Complies
157	5785 MHz	16.98	30.00	Complies
165	5825 MHz	17.87	30.00	Complies

Configuration Draft n MCS8 20MHz Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	19.72	30.00	Complies
157	5785 MHz	20.01	30.00	Complies
165	5825 MHz	20.61	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	14.67	30.00	Complies
159	5795 MHz	15.01	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	14.75	30.00	Complies
159	5795 MHz	15.05	30.00	Complies

Configuration Draft n MCS8 40MHz Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	17.72	30.00	Complies
159	5795 MHz	18.04	30.00	Complies

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	802.11a/b/g

Configuration IEEE 802.11b Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.39	30.00	Complies
6	2437 MHz	19.46	30.00	Complies
11	2462 MHz	17.79	30.00	Complies

Configuration IEEE 802.11b Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	20.43	30.00	Complies
6	2437 MHz	19.86	30.00	Complies
11	2462 MHz	17.82	30.00	Complies

Configuration IEEE 802.11b Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	22.95	30.00	Complies
6	2437 MHz	22.67	30.00	Complies
11	2462 MHz	20.82	30.00	Complies

Configuration IEEE 802.11g Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.35	30.00	Complies
6	2437 MHz	19.74	30.00	Complies
11	2462 MHz	15.05	30.00	Complies

Configuration IEEE 802.11g Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.77	30.00	Complies
6	2437 MHz	20.26	30.00	Complies
11	2462 MHz	14.85	30.00	Complies

Configuration IEEE 802.11g Ant. A + Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	19.58	30.00	Complies
6	2437 MHz	23.02	30.00	Complies
11	2462 MHz	17.96	30.00	Complies

Configuration IEEE 802.11a Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	15.85	30.00	Complies
157	5785 MHz	15.49	30.00	Complies
165	5825 MHz	16.90	30.00	Complies

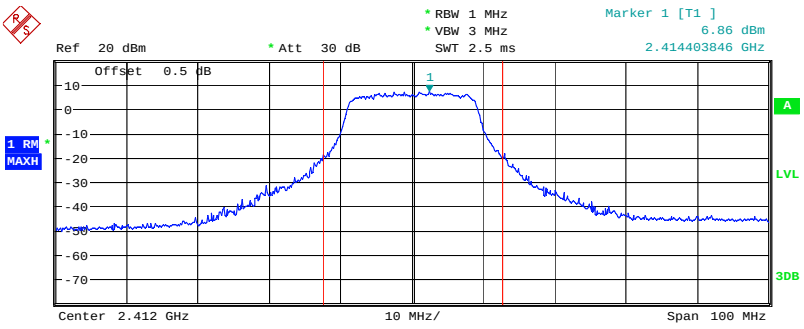
Configuration IEEE 802.11a Ant. B

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	16.30	30.00	Complies
157	5785 MHz	16.84	30.00	Complies
165	5825 MHz	17.49	30.00	Complies

Configuration IEEE 802.11a Ant. A + Ant. B

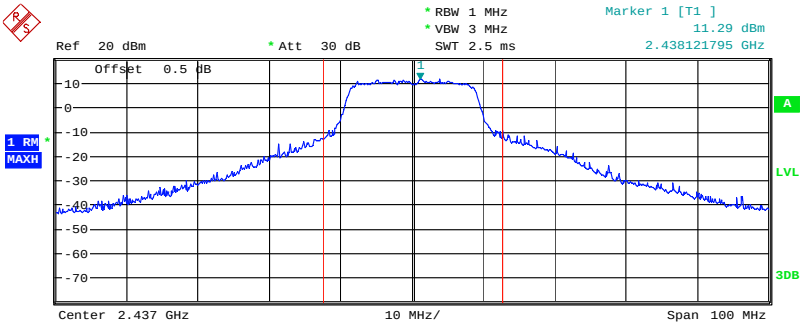
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	19.09	30.00	Complies
157	5785 MHz	19.23	30.00	Complies
165	5825 MHz	20.22	30.00	Complies

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A / 2412 MHz



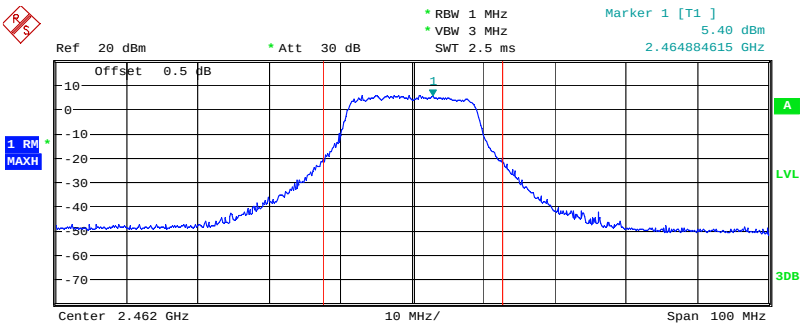
Date: 23.SEP.2008 15:00:14

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A / 2437 MHz



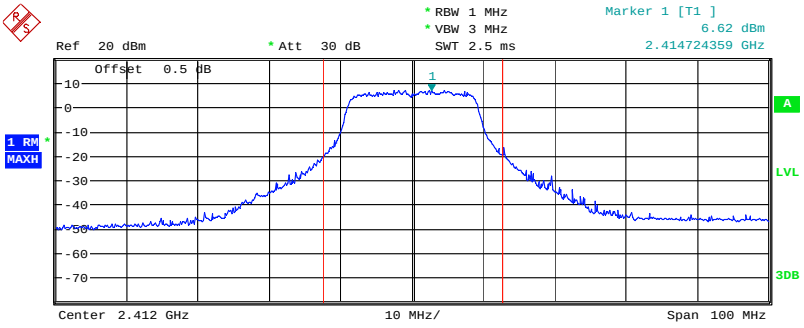
Date: 23.SEP.2008 15:01:47

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. A / 2462 MHz



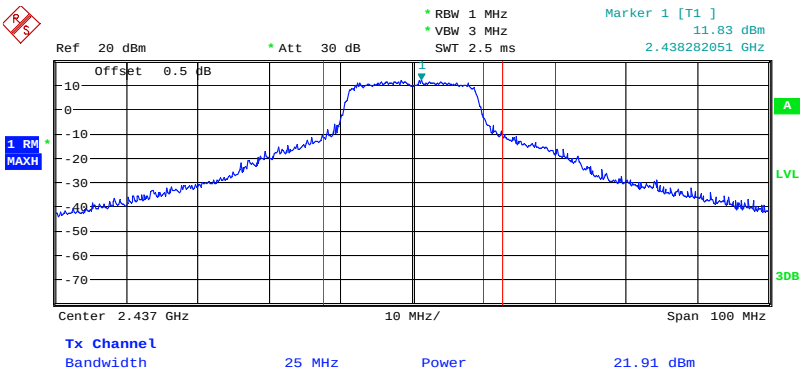
Date: 23.SEP.2008 15:02:17

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. B / 2412 MHz



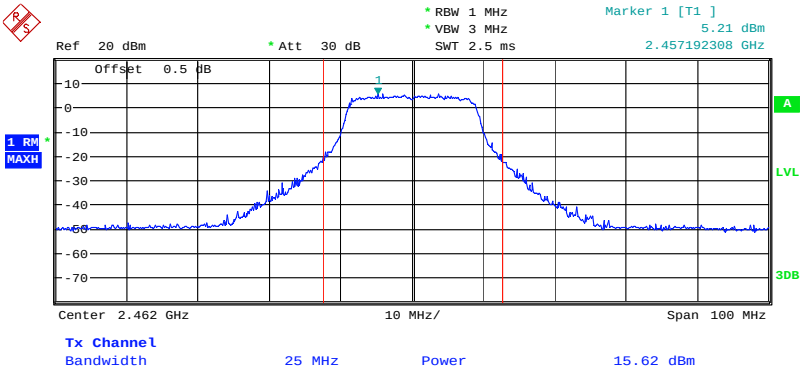
Date: 23.SEP.2008 15:00:48

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. B / 2437 MHz



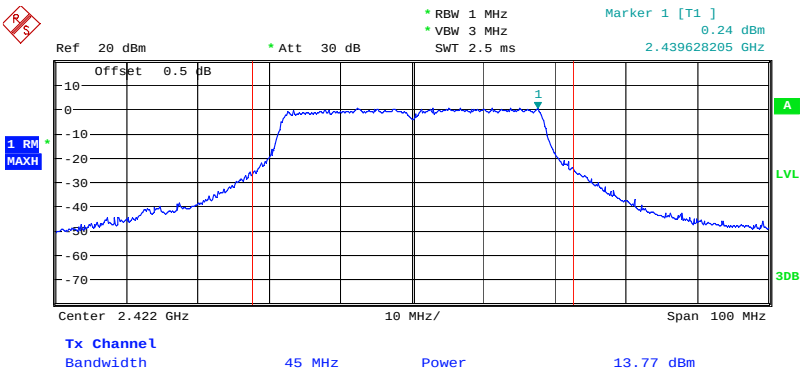
Date: 23.SEP.2008 15:01:19

Channel Output Power Plot on Configuration Draft n MCS8 20MHz Ant. B / 2462 MHz



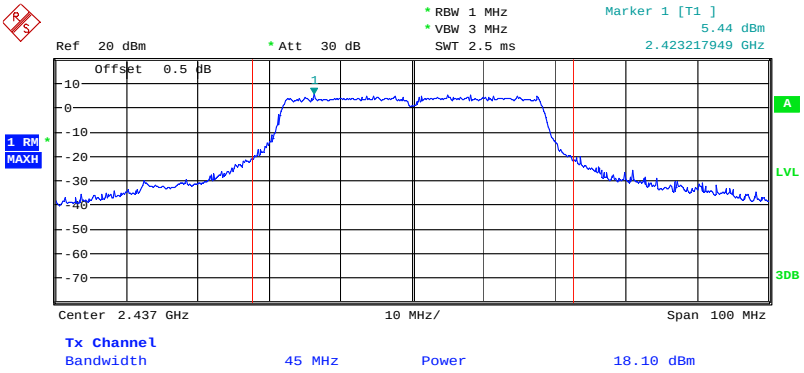
Date: 23.SEP.2008 15:02:48

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A / 2422 MHz



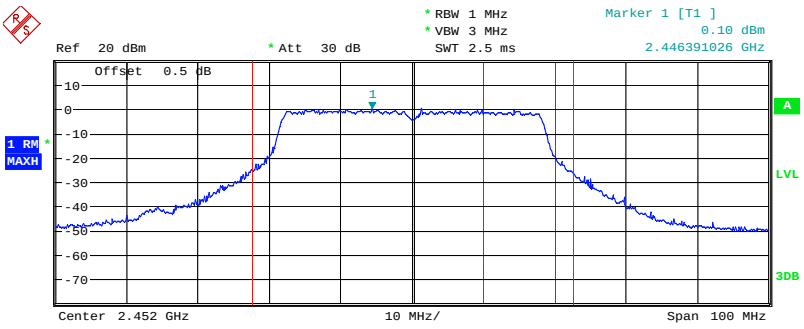
Date: 23.SEP.2008 15:04:18

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A / 2437 MHz



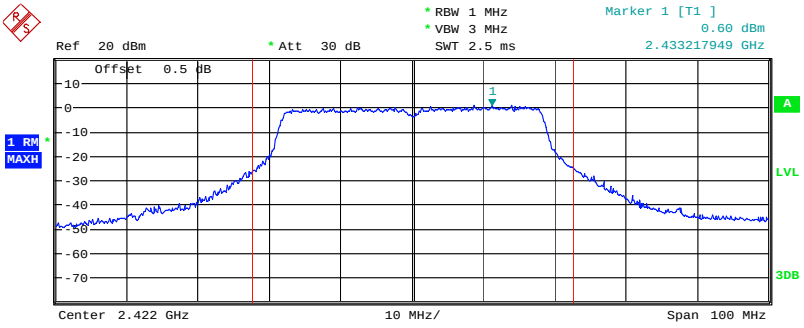
Date: 23.SEP.2008 15:04:48

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. A / 2452 MHz



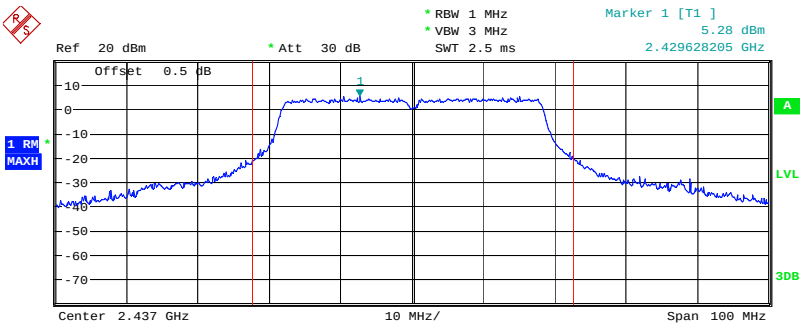
Date: 23.SEP.2008 15:06:59

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. B / 2422 MHz



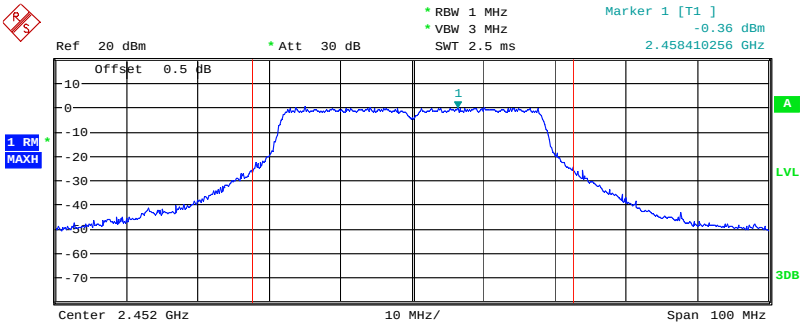
Date: 23.SEP.2008 15:03:44

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. B / 2437 MHz



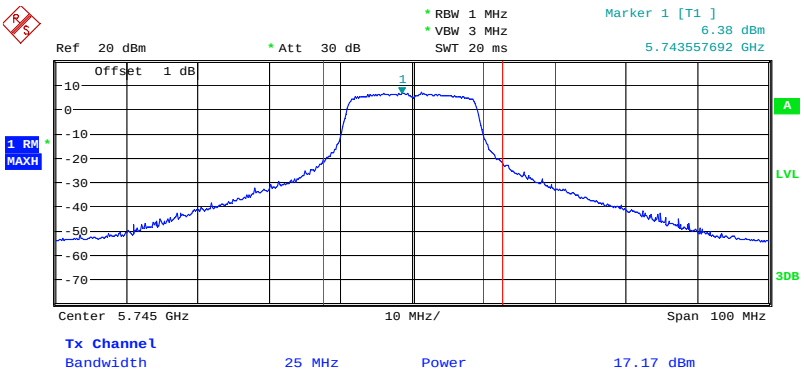
Date: 23.SEP.2008 15:05:34

Channel Output Power Plot on Configuration Draft n MCS8 40MHz Ant. B / 2452 MHz



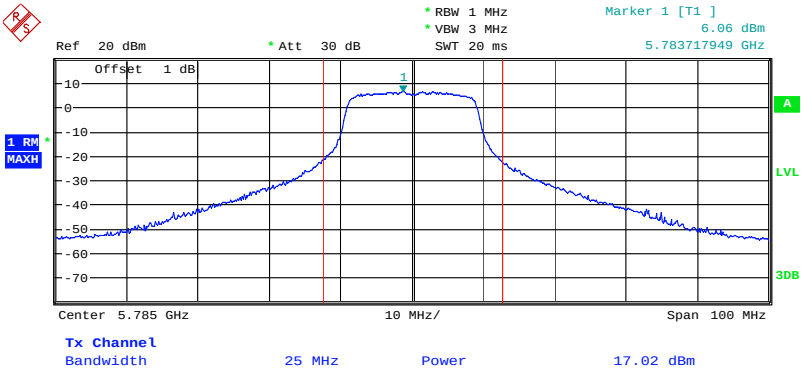
Date: 23.SEP.2008 15:06:06

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. A / 5745 MHz



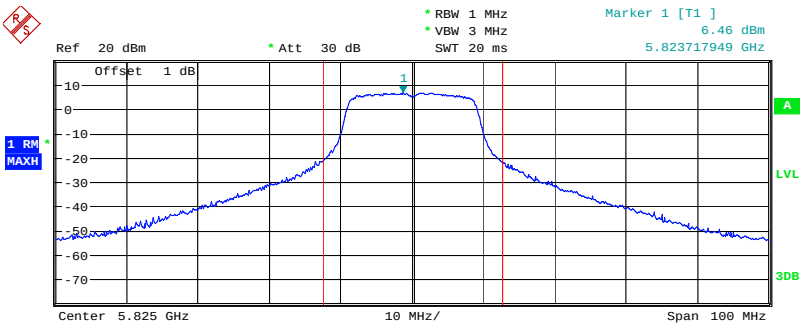
Date: 20.SEP.2008 12:25:00

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. A / 5785MHz



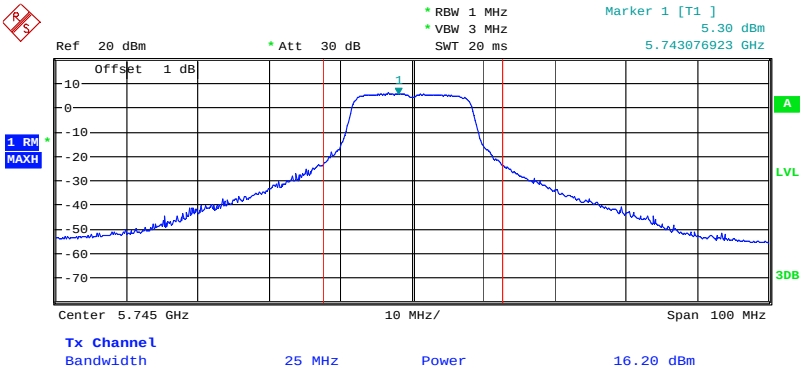
Date: 20.SEP.2008 12:23:55

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. A / 5825 MHz



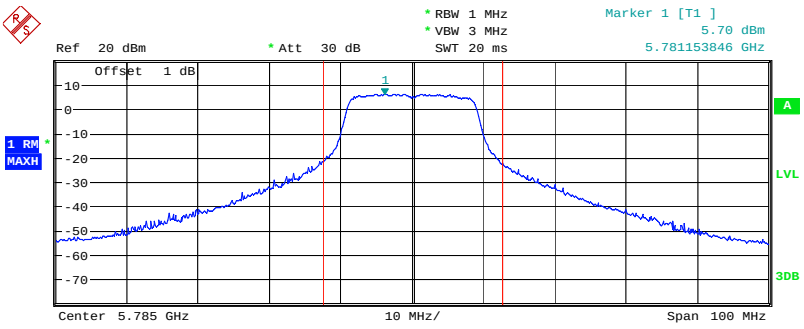
Date: 20.SEP.2008 12:21:28

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. B / 5745 MHz



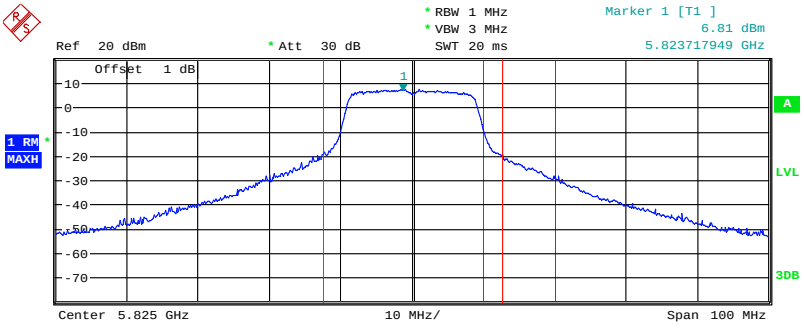
Date: 20.SEP.2008 12:27:59

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. B / 5785MHz



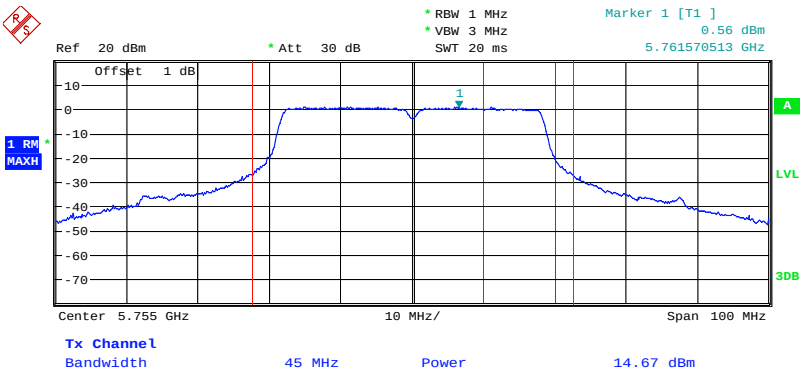
Date: 20.SEP.2008 12:23:07

Channel Output Power Plot on Configuration 11a Draft n MCS8 20MHz Ant. B / 5825 MHz



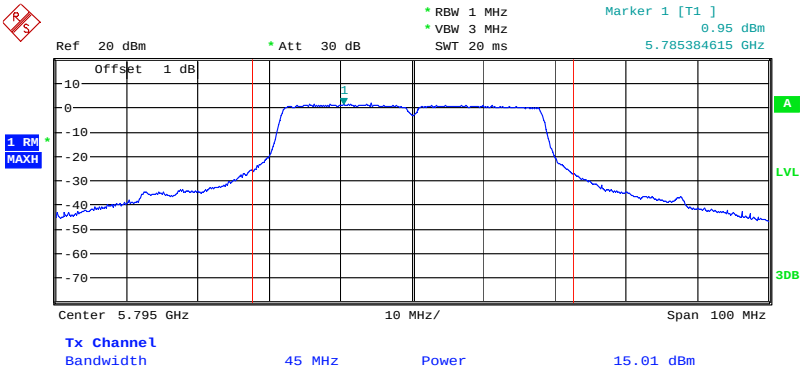
Date: 20.SEP.2008 12:22:13

Channel Output Power Plot on Configuration 11a Draft n MCS8 40MHz Ant. A / 5755 MHz



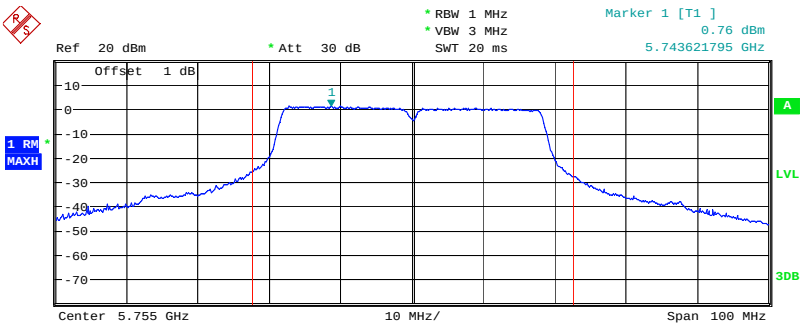
Date: 20.SEP.2008 13:21:50

Channel Output Power Plot on Configuration 11a Draft n MCS8 40MHz Ant. A / 5795 MHz



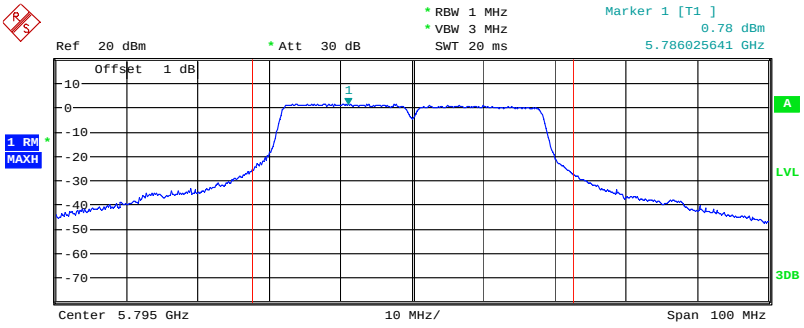
Date: 20.SEP.2008 13:22:43

Channel Output Power Plot on Configuration 11a Draft n MCS8 40MHz Ant. B / 5755 MHz



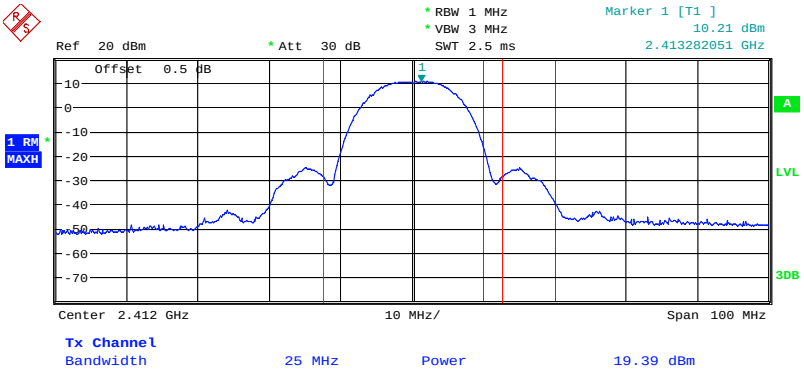
Date: 20.SEP.2008 13:21:03

Channel Output Power Plot on Configuration 11a Draft n MCS8 40MHz Ant. B / 5795 MHz



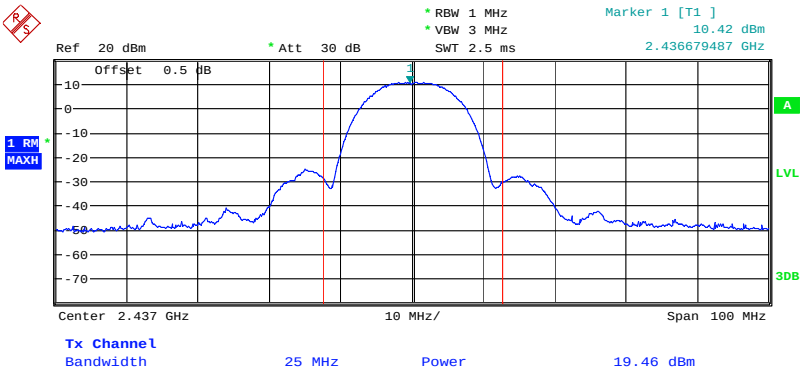
Date: 20.SEP.2008 13:23:38

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



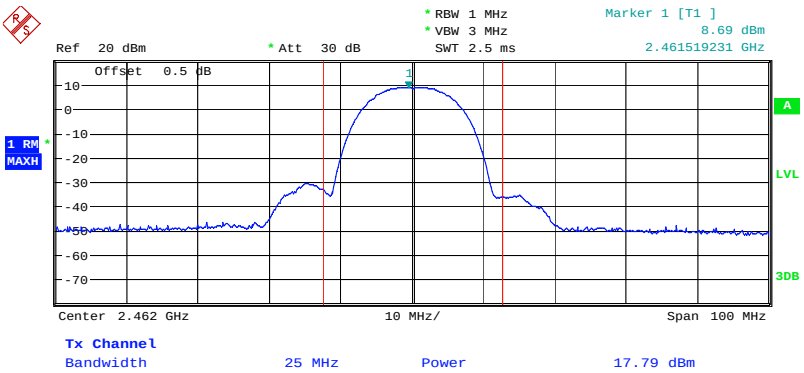
Date: 23.SEP.2008 14:54:09

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



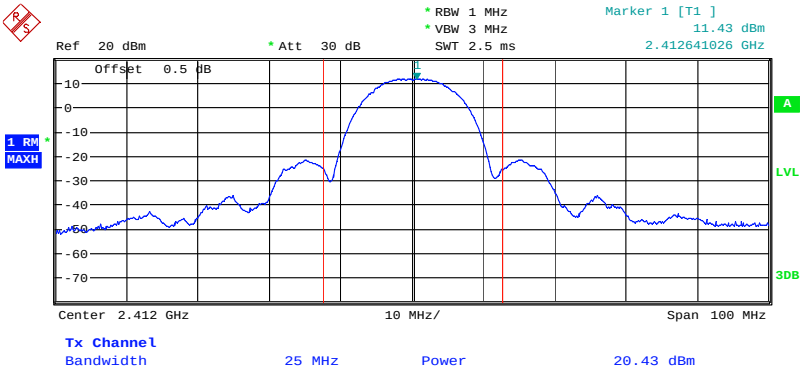
Date: 23.SEP.2008 14:56:07

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



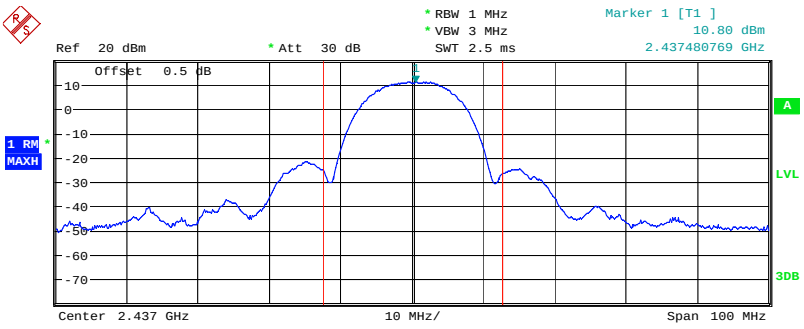
Date: 23.SEP.2008 14:56:26

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



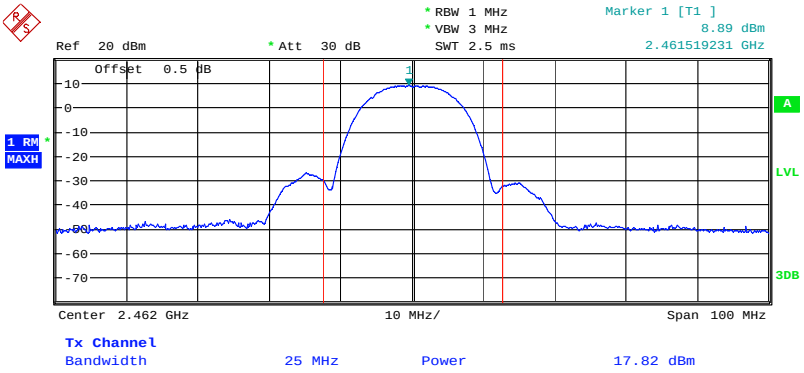
Date: 23.SEP.2008 14:55:09

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



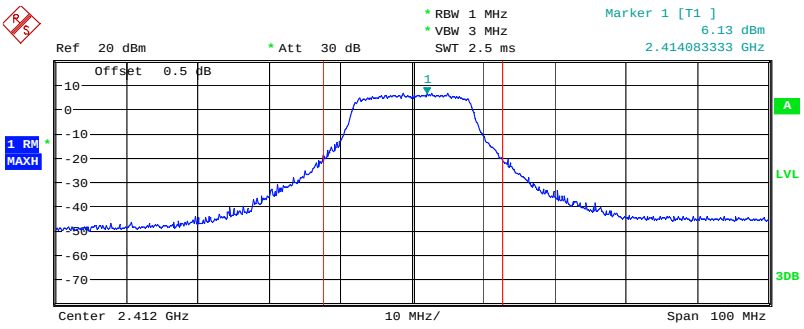
Date: 23.SEP.2008 14:55:36

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



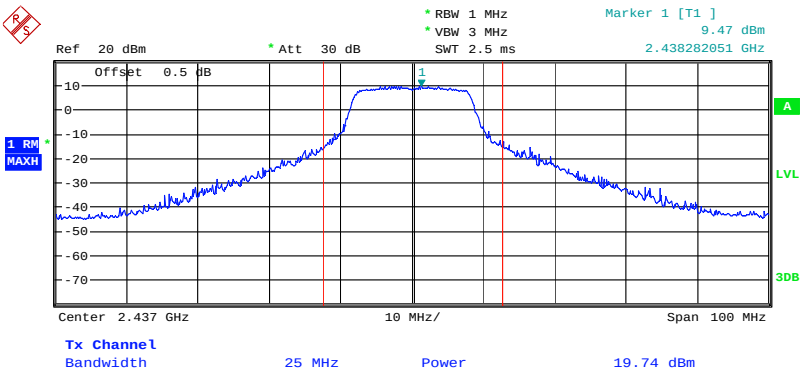
Date: 23.SEP.2008 14:56:46

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



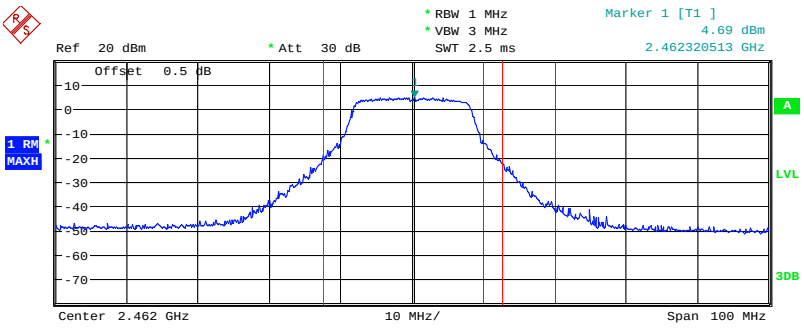
Date: 23.SEP.2008 14:59:48

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



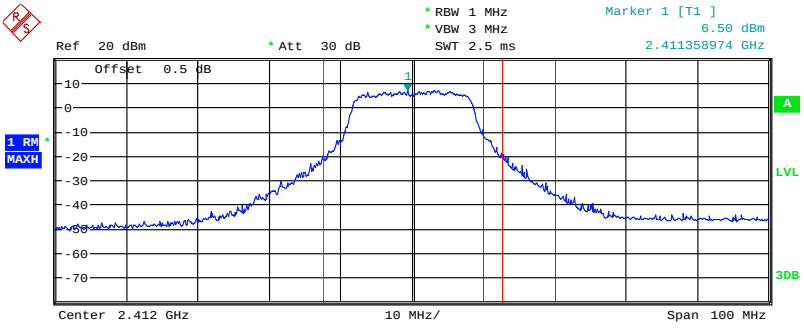
Date: 23.SEP.2008 14:58:12

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



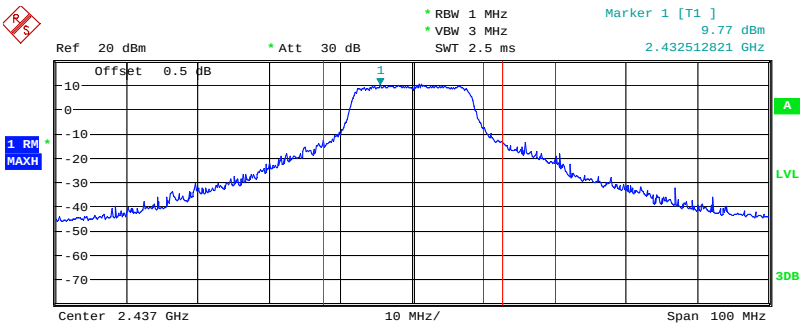
Date: 23.SEP.2008 14:57:46

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



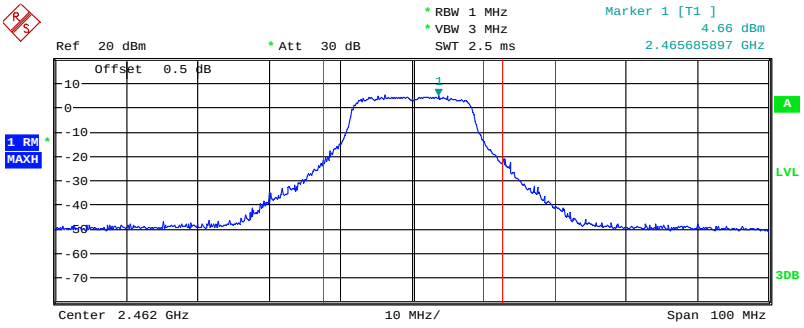
Date: 23.SEP.2008 14:59:17

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



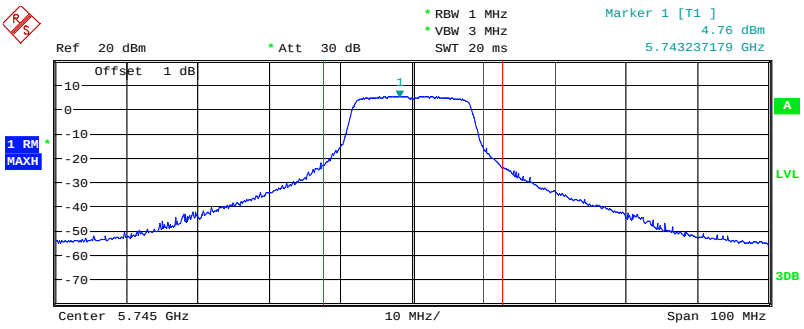
Date: 23.SEP.2008 14:58:39

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



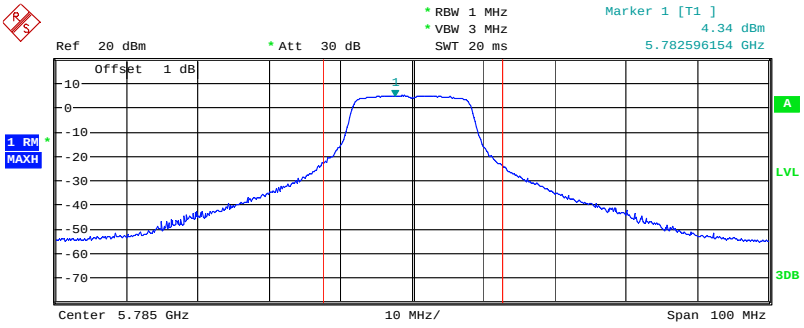
Date: 23.SEP.2008 14:57:19

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A / 5745 MHz



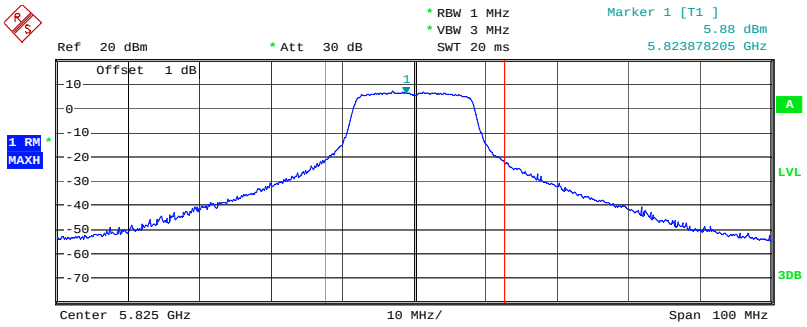
Date: 20.SEP.2008 12:12:31

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A / 5785 MHz



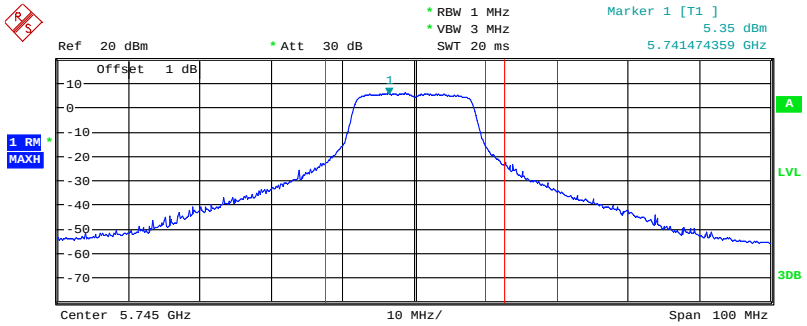
Date: 20.SEP.2008 12:10:00

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. A / 5825 MHz



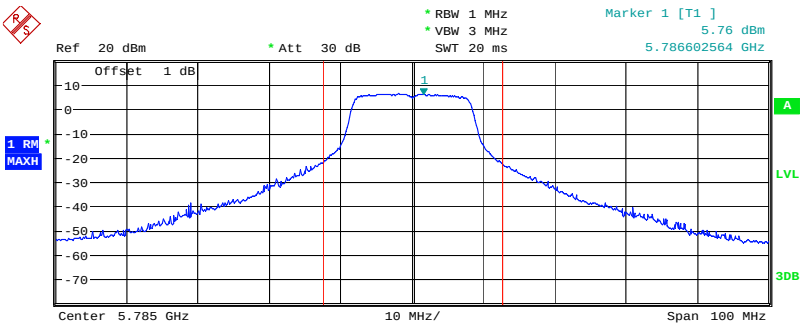
Date: 20.SEP.2008 12:16:00

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. B / 5745 MHz



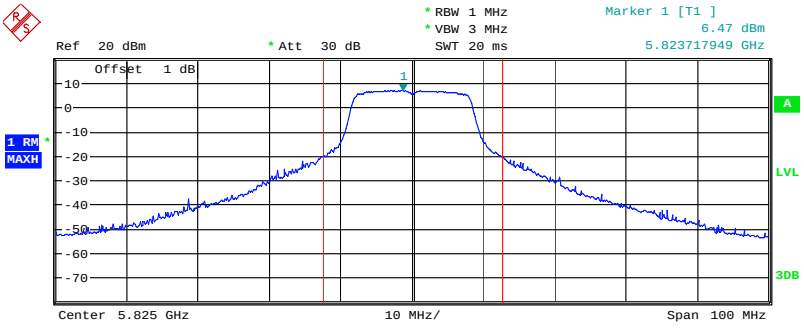
Date: 20.SEP.2008 12:14:11

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. B / 5785 MHz



Date: 20.SEP.2008 12:07:32

Conducted Output Power Plot on Configuration IEEE 802.11a Ant. B / 5825 MHz



Date: 20.SEP.2008 12:15:24

4.3. Power Spectral Density Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	30kHz
RB	3 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	10s

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser.
2. Set RBW of spectrum analyzer to 3kHz and VBW to 30kHz. Set Detector to Peak, Trace to Max Hold.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum.
4. Set the span to 1.5MHz and the sweep time to 500s and record the maximum peak value.
5. Measuring multiple antennas, the connector is required to link with spectrum analyser through a combiner.

4.3.4. Test Setup Layout

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Power Spectral Density

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	Draft n

For 2.4GHz Band

Configuration Draft n MCS8 20MHz Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-3.43	8.00	Complies
6	2437 MHz	-2.86	8.00	Complies
11	2462 MHz	-4.97	8.00	Complies

Configuration Draft n MCS8 40MHz Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	-5.65	8.00	Complies
6	2437 MHz	-0.23	8.00	Complies
9	2452 MHz	-5.44	8.00	Complies

For 5GHz Band

Configuration 11a Draft n MCS8 20MHz Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-5.97	8.00	Complies
157	5785 MHz	-5.66	8.00	Complies
165	5827 MHz	-5.79	8.00	Complies

Configuration 11a Draft n MCS8 40MHz Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	-6.65	8.00	Complies
159	5795 MHz	-7.36	8.00	Complies

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	802.11a/b/g

Configuration IEEE 802.11b Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-3.19	8.00	Complies
6	2437 MHz	-1.85	8.00	Complies
11	2462 MHz	-5.24	8.00	Complies

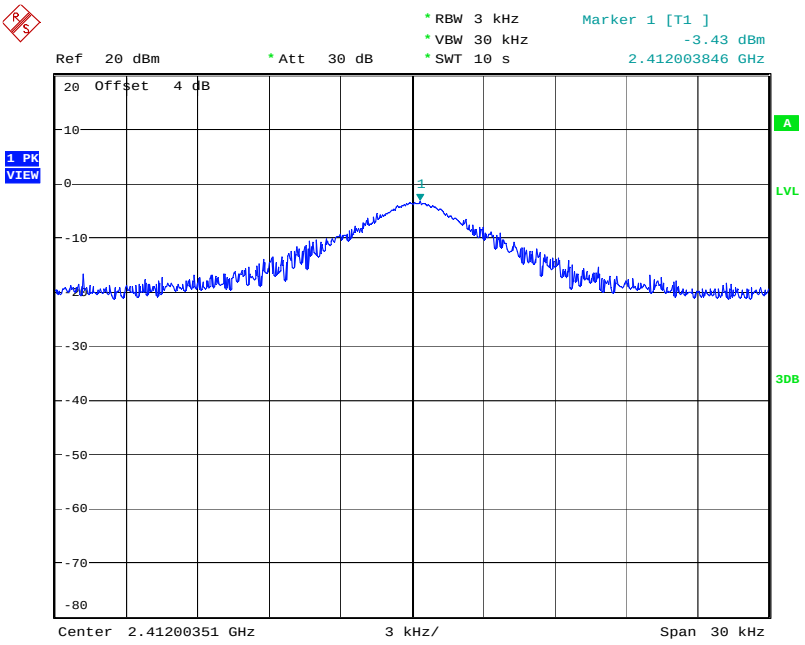
Configuration IEEE 802.11g Ant. A + Ant. B

Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	-3.56	8.00	Complies
6	2437 MHz	-2.05	8.00	Complies
11	2462 MHz	-4.69	8.00	Complies

Configuration IEEE 802.11a Ant. A + Ant. B

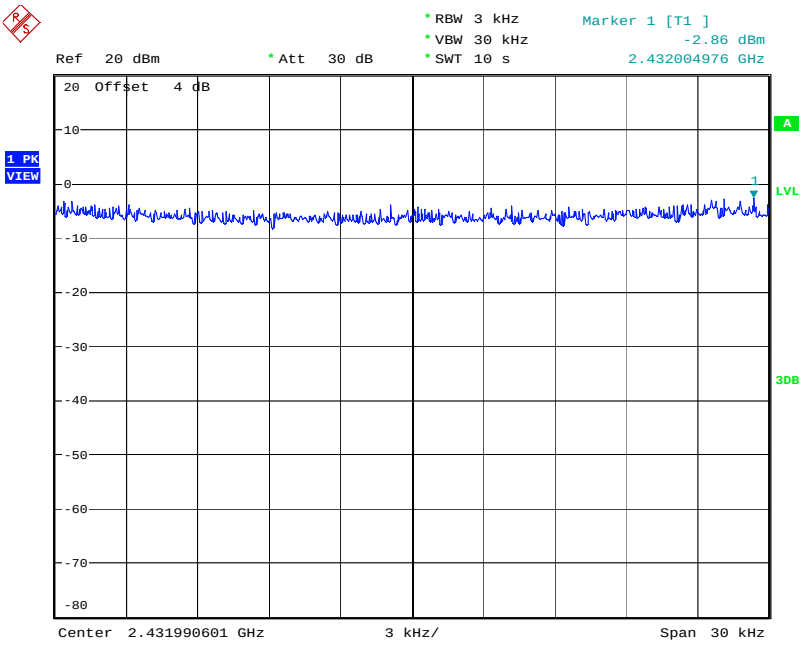
Channel	Frequency	Power Density (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	-5.25	8.00	Complies
157	5785 MHz	-5.36	8.00	Complies
165	5825 MHz	-5.34	8.00	Complies

Power Density Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2412 MHz



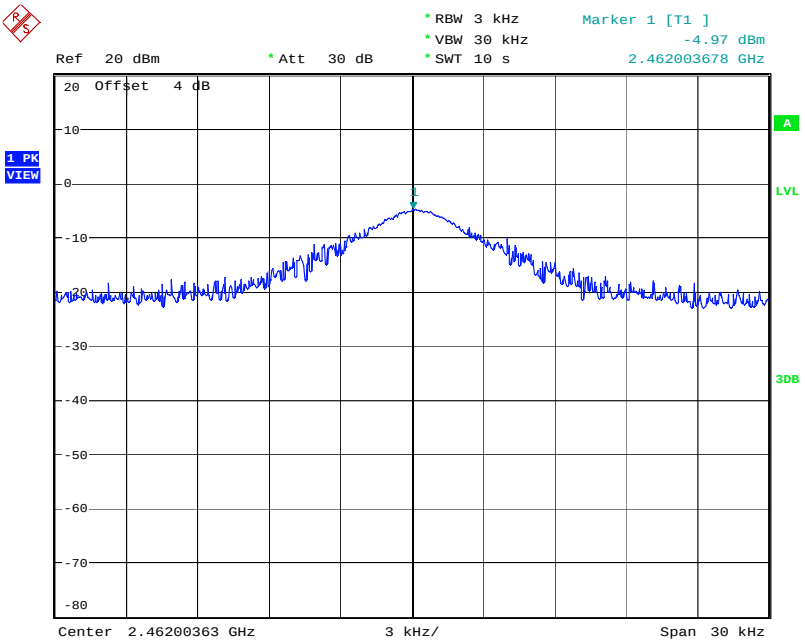
Date: 23.SEP.2008 15:25:50

Power Density Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2437 MHz



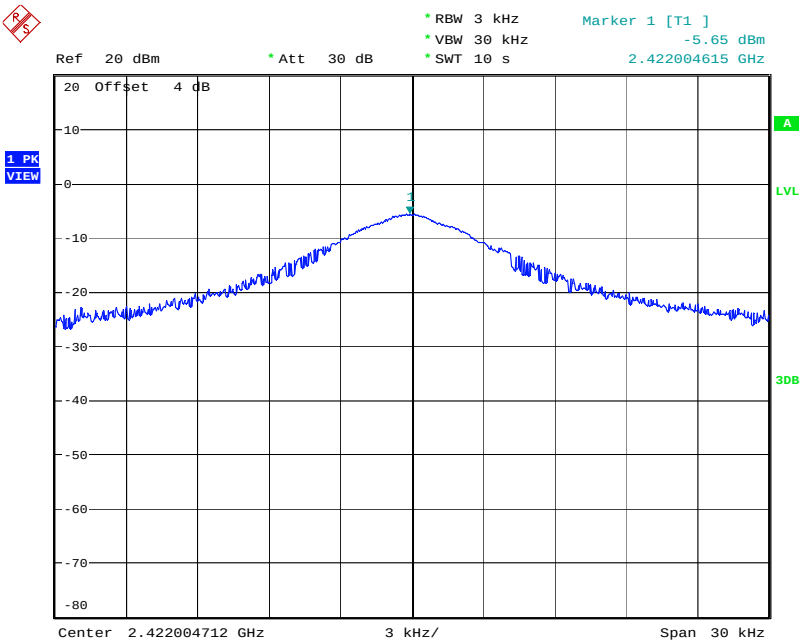
Date: 23.SEP.2008 15:27:55

Power Density Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2462 MHz



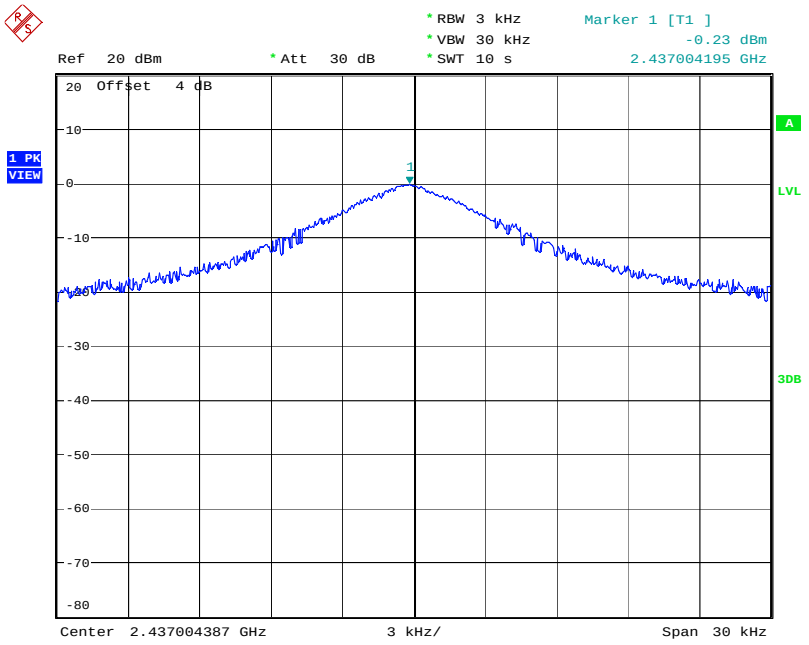
Date: 23.SEP.2008 15:29:53

Power Density Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2422 MHz



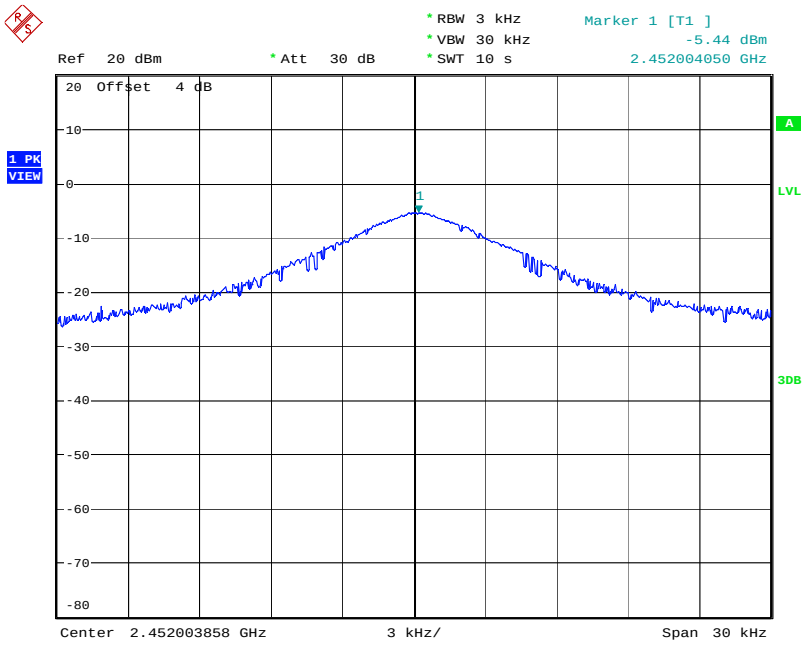
Date: 23.SEP.2008 15:37:03

Power Density Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2437 MHz



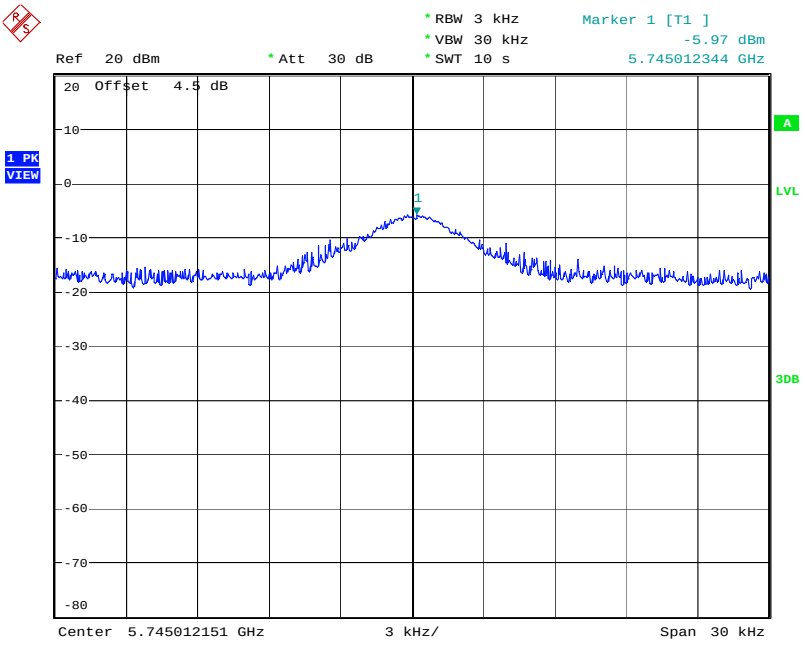
Date: 23.SEP.2008 15:39:30

Power Density Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2452 MHz



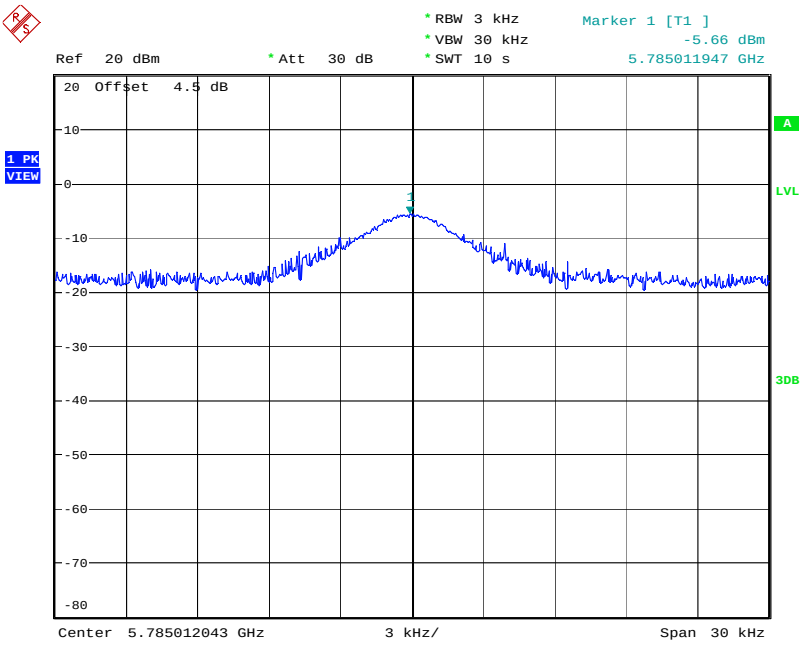
Date: 23.SEP.2008 15:42:12

Power Density Plot on Configuration 11a Draft n MCS8 20MHz Ant. A + Ant. B / 5745 MHz



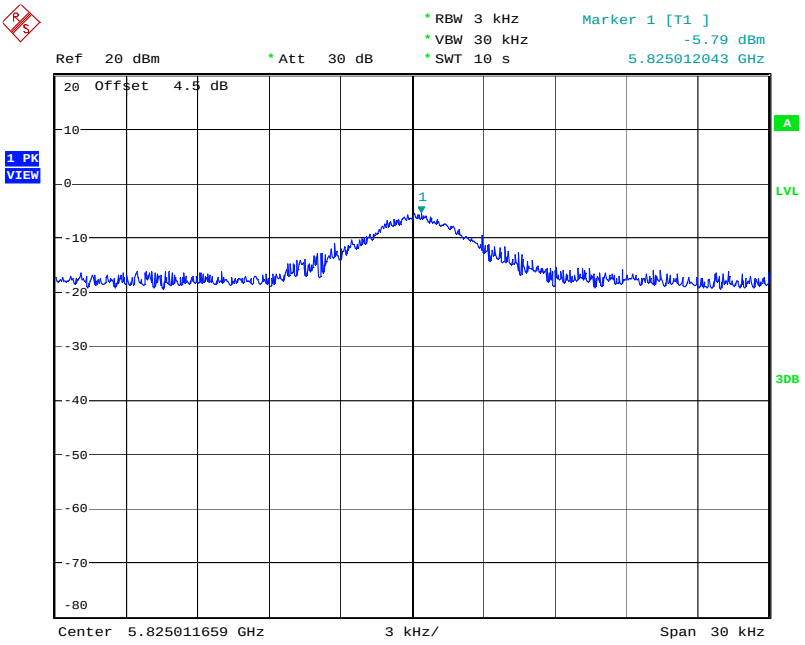
Date: 20.SEP.2008 14:08:16

Power Density Plot on Configuration 11a Draft n MCS8 20MHz Ant. A + Ant. B / 5785 MHz



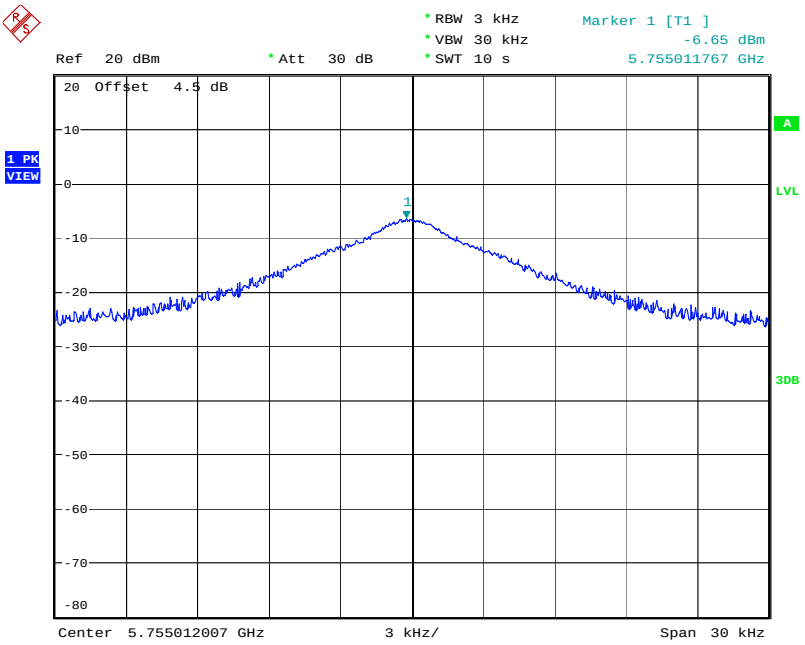
Date: 20.SEP.2008 14:12:13

Power Density Plot on Configuration 11a Draft n MCS8 20MHz Ant. A + Ant. B / 5825 MHz



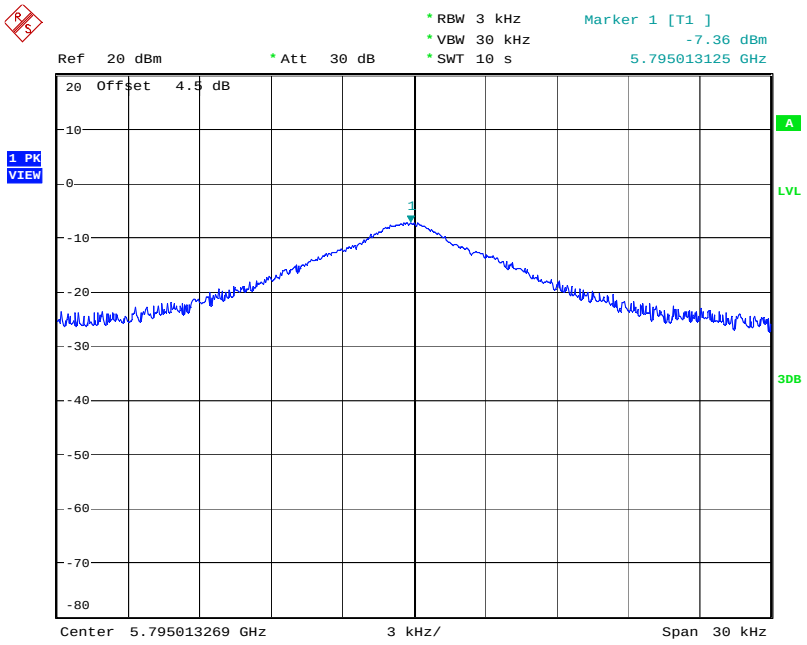
Date: 20.SEP.2008 14:16:11

Power Density Plot on Configuration 11a Draft n MCS8 40MHz Ant. A + Ant. B / 5755 MHz



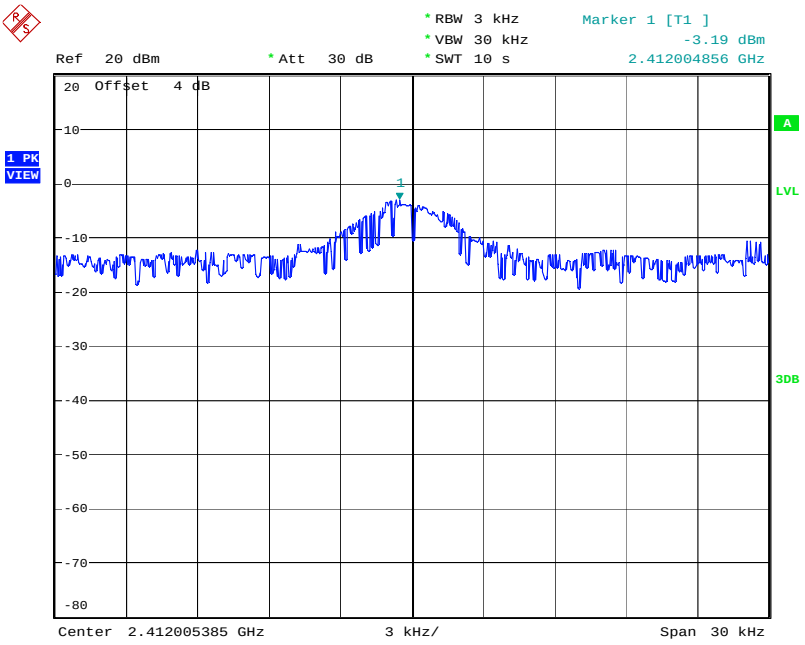
Date: 20.SEP.2008 13:52:11

Power Density Plot on Configuration 11a Draft n MCS8 40MHz Ant. A + Ant. B / 5795 MHz



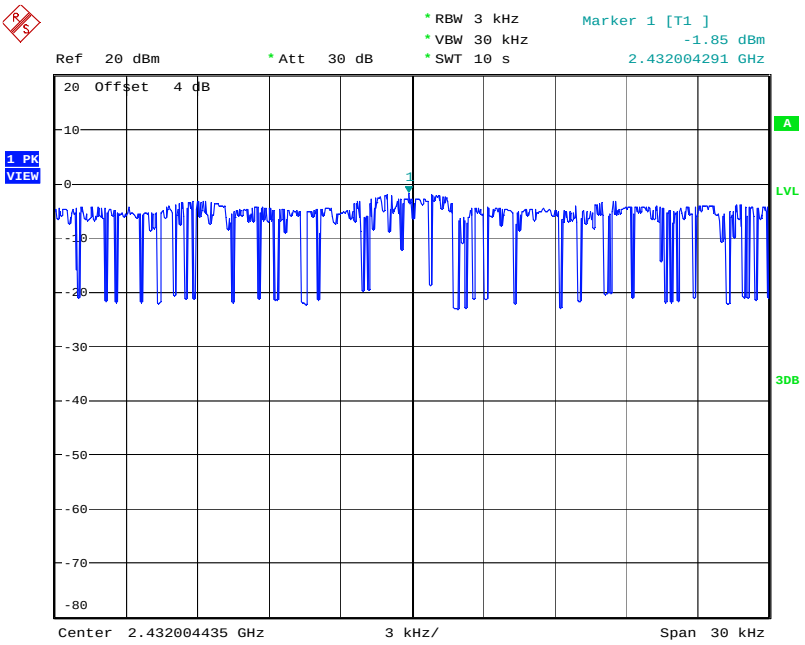
Date: 20.SEP.2008 14:03:34

Power Density Plot on Configuration IEEE 802.11b Ant. A + Ant. B / 2412 MHz



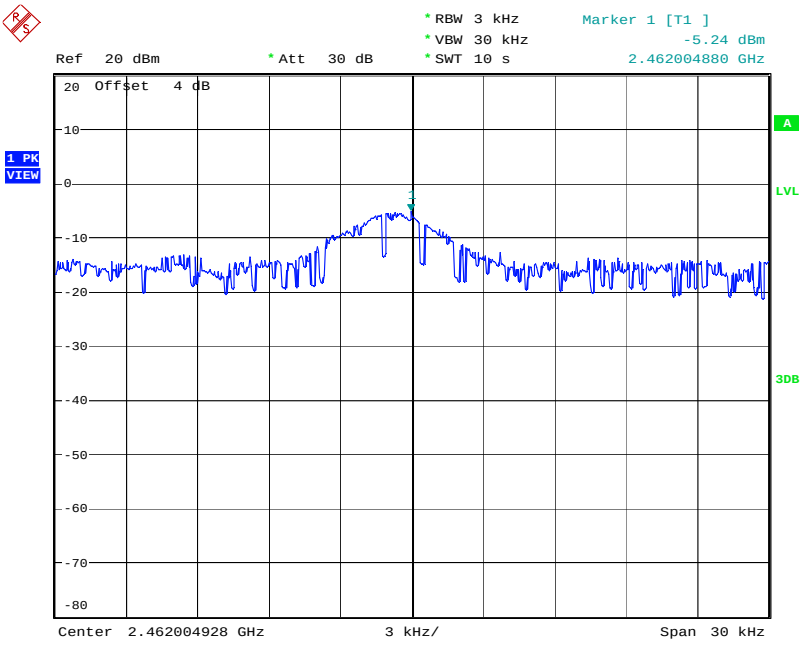
Date: 23.SEP.2008 15:12:54

Power Density Plot on Configuration IEEE 802.11b Ant. A + Ant. B / 2437 MHz



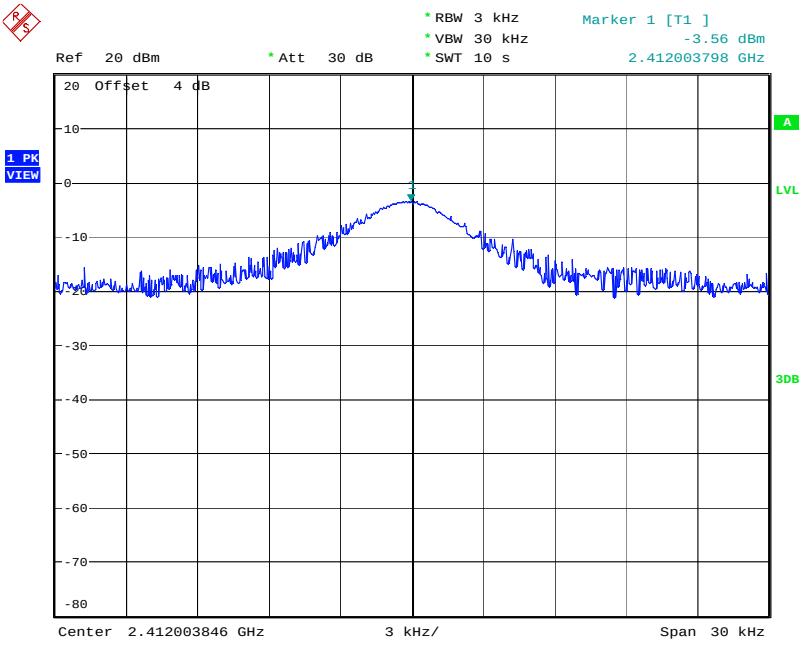
Date: 23.SEP.2008 15:15:04

Power Density Plot on Configuration IEEE 802.11b Ant. A + Ant. B / 2462 MHz



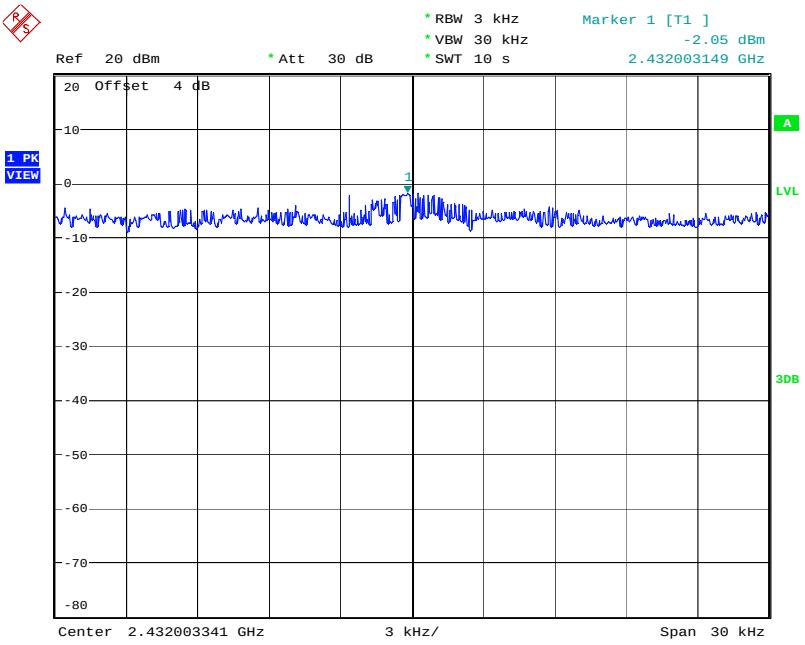
Date: 23.SEP.2008 15:17:05

Power Density Plot on Configuration IEEE 802.11g Ant. A + Ant. B / 2412 MHz



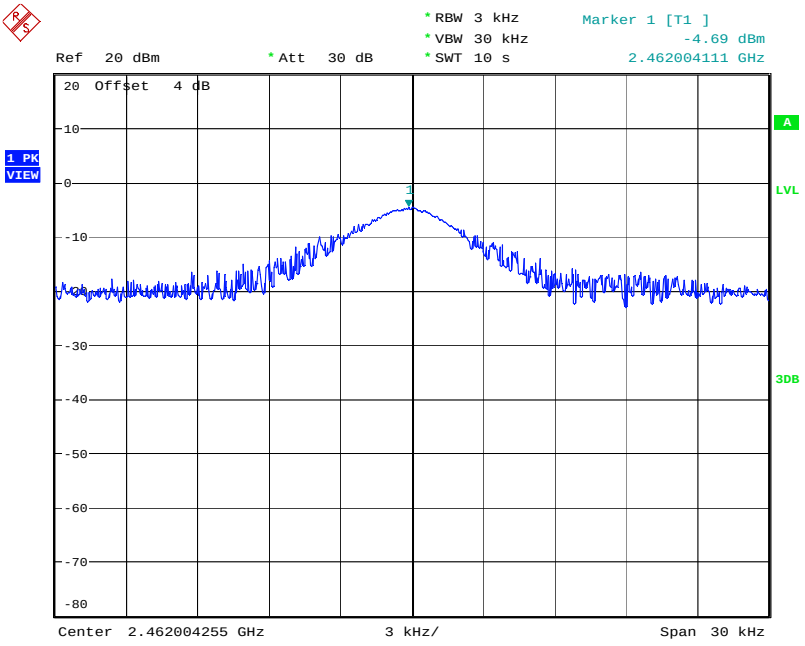
Date: 23.SEP.2008 15:23:48

Power Density Plot on Configuration IEEE 802.11g Ant. A + Ant. B / 2437 MHz



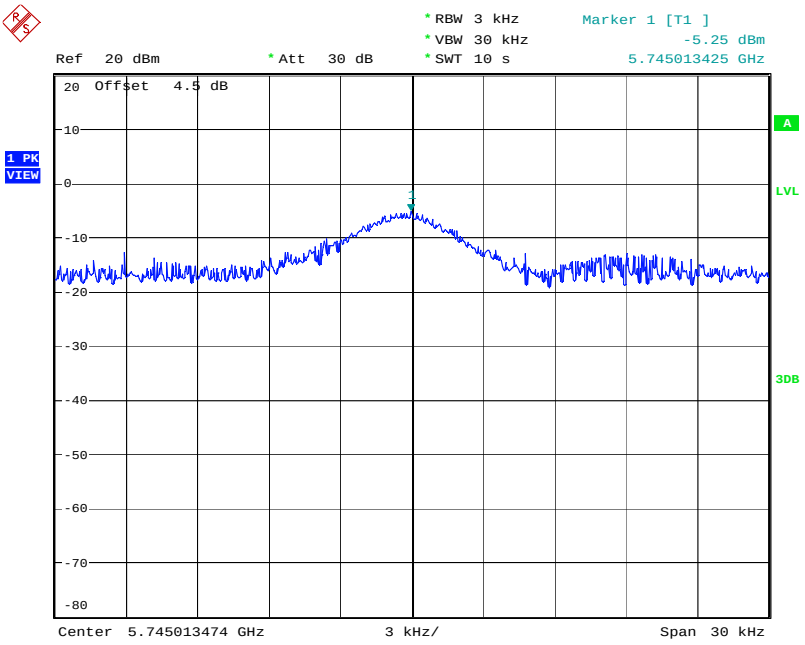
Date: 23.SEP.2008 15:21:44

Power Density Plot on Configuration IEEE 802.11g Ant. A + Ant. B / 2462 MHz



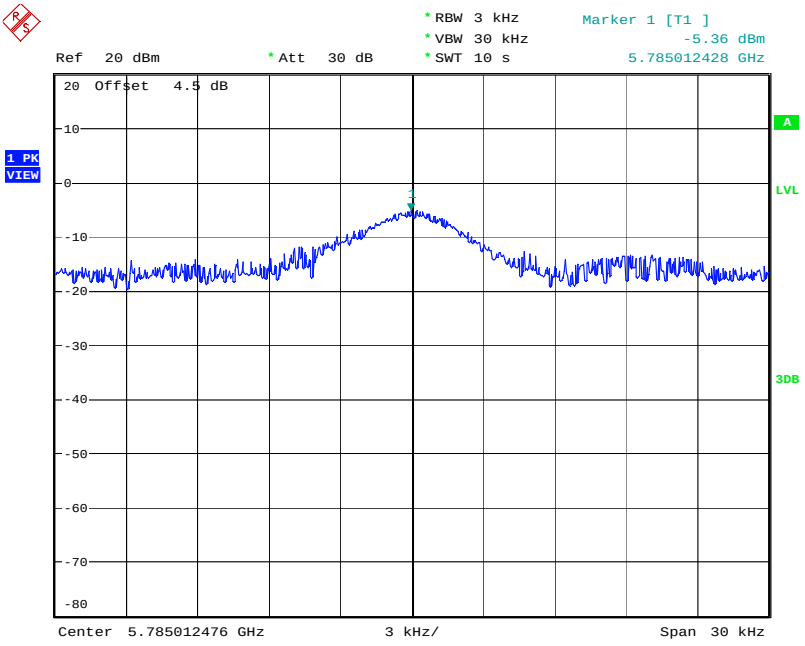
Date: 23.SEP.2008 15:19:21

Power Density Plot on Configuration IEEE 802.11a Ant. A + Ant. B / 5745 MHz



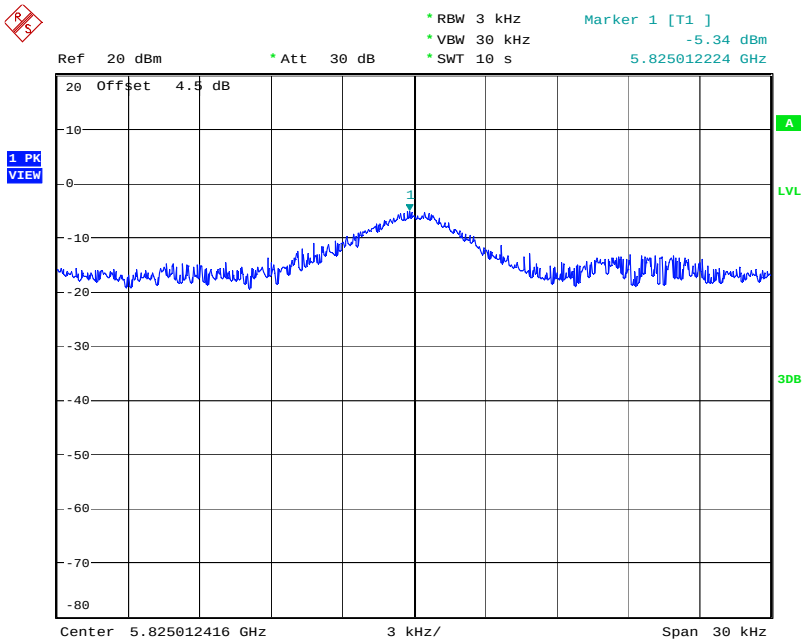
Date: 20.SEP.2008 14:25:09

Power Density Plot on Configuration IEEE 802.11a Ant. A + Ant. B / 5785 MHz



Date: 20.SEP.2008 14:29:24

Power Density Plot on Configuration IEEE 802.11a Ant. A + Ant. B / 5825 MHz



Date: 20.SEP.2008 14:33:26

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

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

4.4.2. Measuring Instruments and Setting

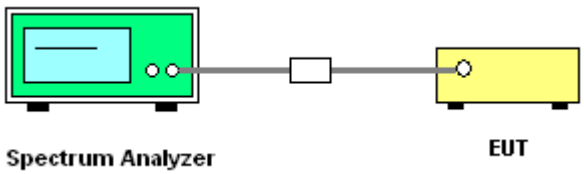
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. The resolution bandwidth of 100 kHz and the video bandwidth of 100 kHz were used.
3. Measured the spectrum width with power higher than 6dB below carrier.
4. Measuring multiple antennas, the connector is required to link with spectrum analyzer through a combiner.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of 6dB Spectrum Bandwidth

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	Draft n

For 2.4GHz Band

Configuration Draft n MCS8 20MHz Ant. A + Ant. B

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.70	17.59	500	Complies
6	2437 MHz	15.70	17.59	500	Complies
11	2462 MHz	16.31	17.56	500	Complies

Configuration Draft n MCS8 40MHz Ant. A + Ant. B

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.70	36.21	500	Complies
6	2437 MHz	35.96	36.21	500	Complies
9	2452 MHz	36.34	36.28	500	Complies

For 5GHz Band

Configuration 11a Draft n MCS8 20MHz Ant. A+ Ant. B

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.66	17.59	500	Complies
157	5785 MHz	16.66	17.59	500	Complies
165	5825 MHz	16.31	17.59	500	Complies

Configuration 11a Draft n MCS8 40MHz Ant. A+ Ant. B

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.28	36.28	500	Complies
159	5795 MHz	36.34	36.28	500	Complies

Temperature	26°C	Humidity	56%
Test Engineer	Sam Chen	Configurations	802.11a/b/g

Configuration IEEE 802.11b

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	12.01	15.41	500	Complies
6	2437 MHz	11.05	15.41	500	Complies
11	2462 MHz	12.05	15.32	500	Complies

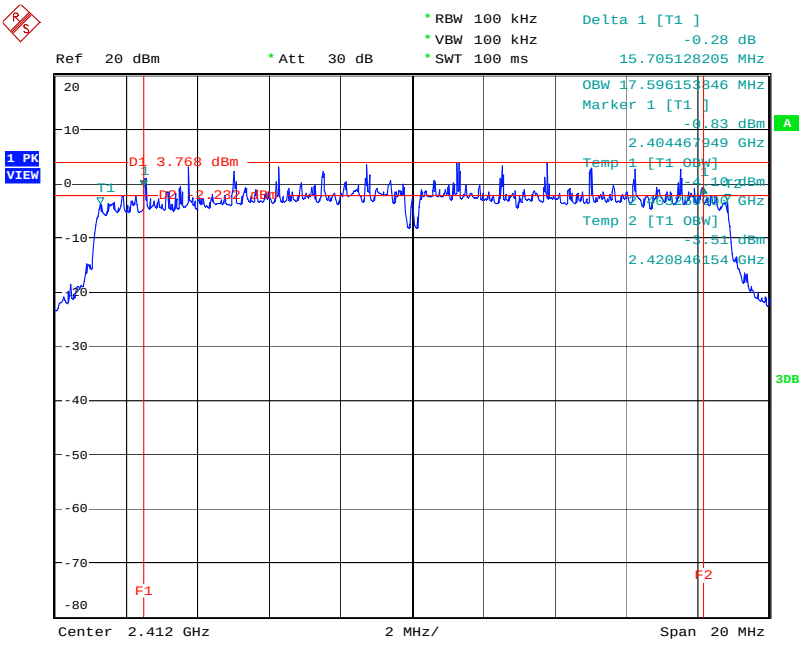
Configuration IEEE 802.11g

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.67	16.37	500	Complies
6	2437 MHz	15.70	16.41	500	Complies
11	2462 MHz	15.73	16.41	500	Complies

Configuration IEEE 802.11a

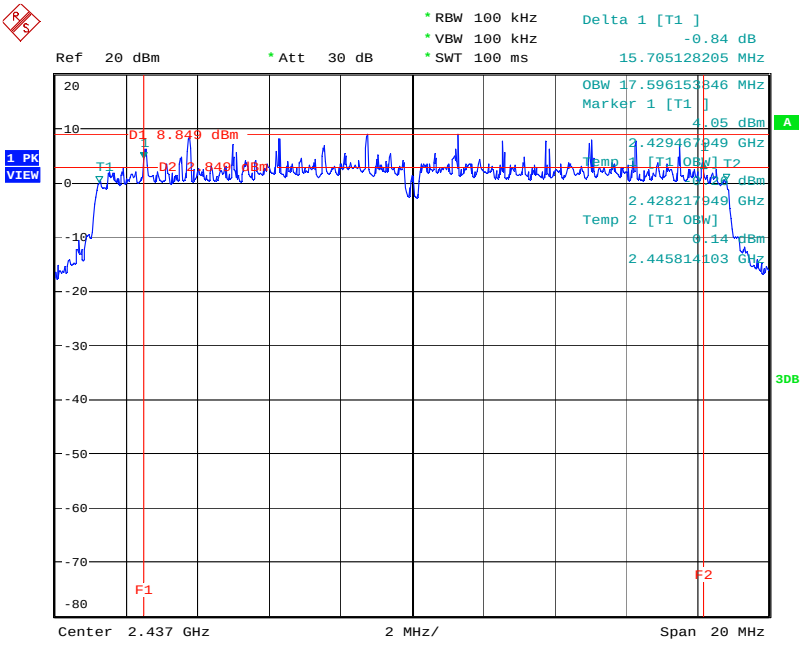
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.31	16.41	500	Complies
157	5785 MHz	16.31	16.41	500	Complies
165	5825 MHz	15.70	16.41	500	Complies

6 dB Bandwidth Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2412 MHz



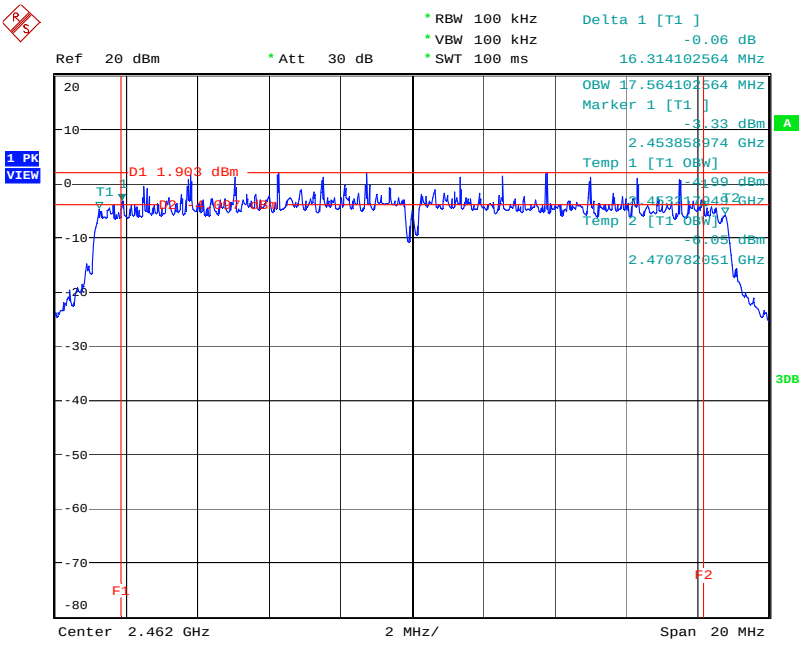
Date: 23.SEP.2008 15:24:23

6 dB Bandwidth Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2437 MHz



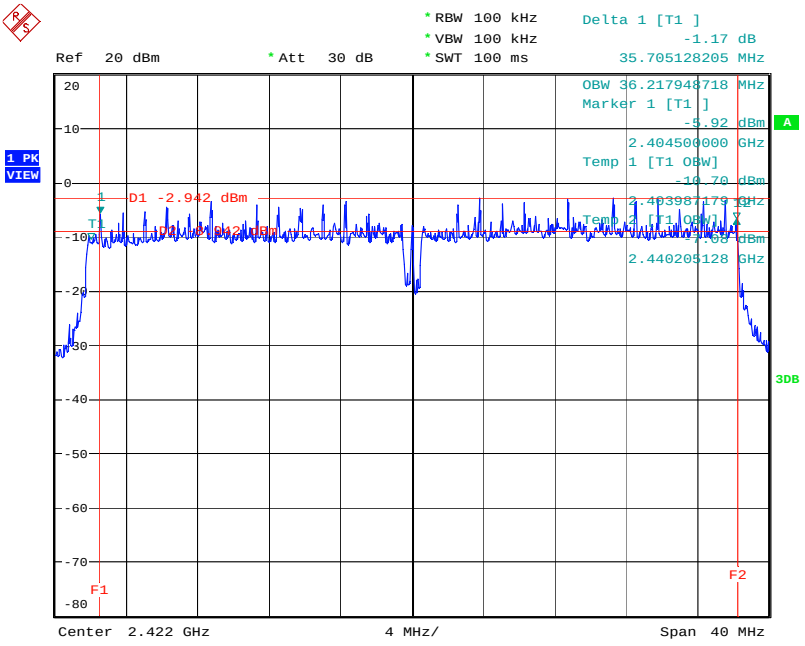
Date: 23.SEP.2008 15:26:26

6 dB Bandwidth Plot on Configuration Draft n MCS8 20MHz Ant. A + Ant. B / 2462 MHz



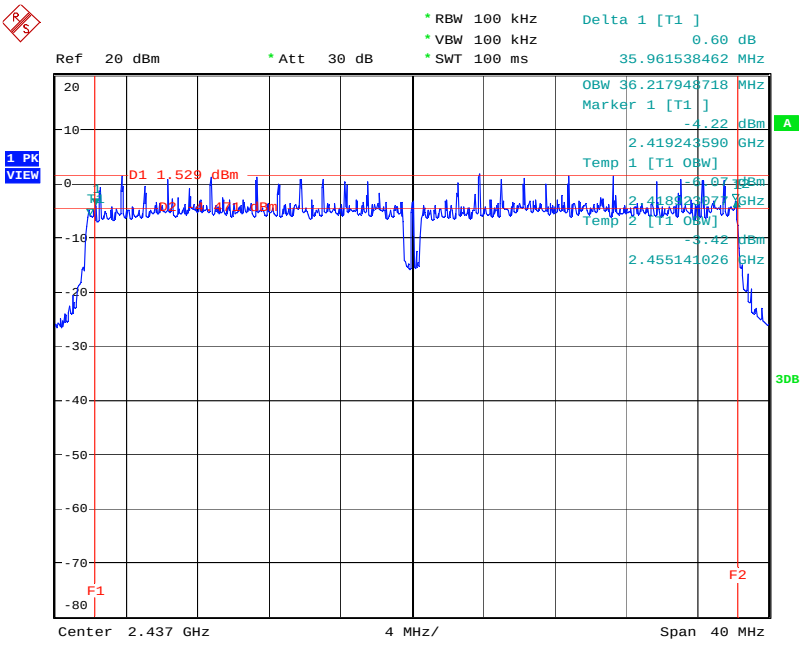
Date: 23.SEP.2008 15:28:26

6 dB Bandwidth Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2422 MHz



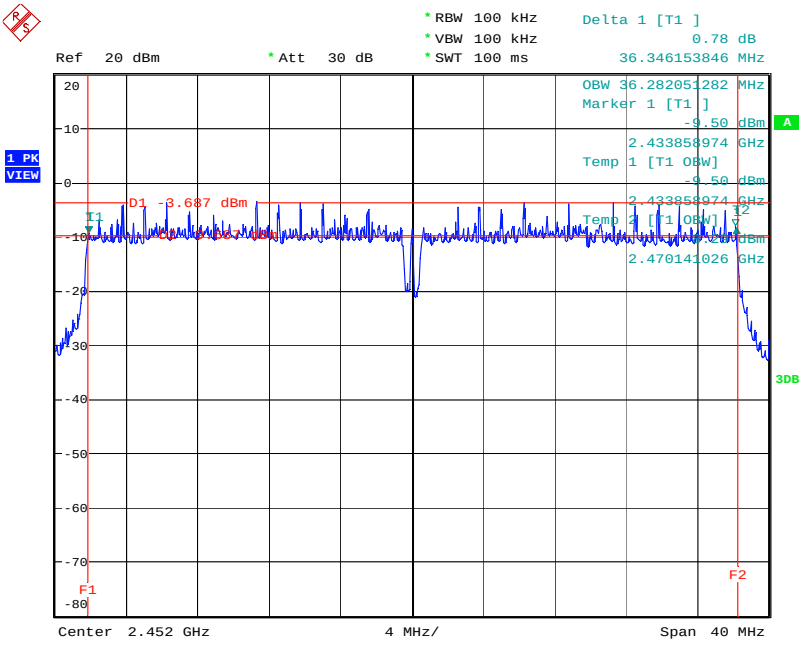
Date: 23.SEP.2008 15:35:36

6 dB Bandwidth Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2437 MHz



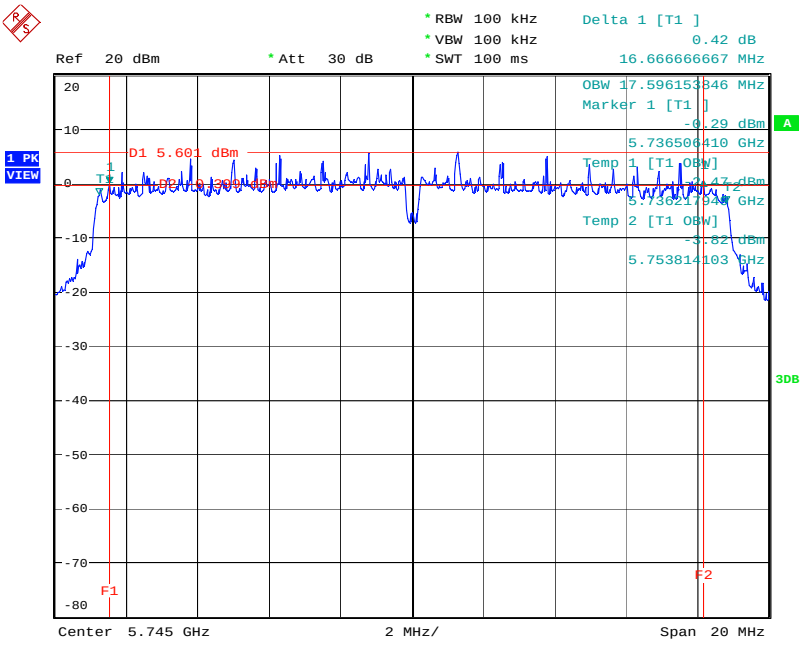
Date: 23.SEP.2008 15:38:02

6 dB Bandwidth Plot on Configuration Draft n MCS8 40MHz Ant. A + Ant. B / 2452 MHz



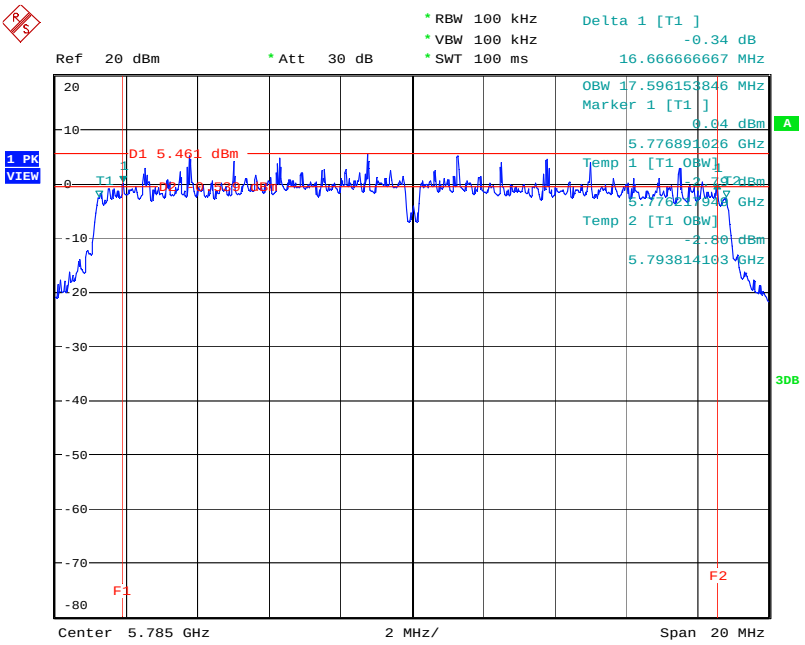
Date: 23.SEP.2008 15:40:45

6 dB Bandwidth Plot on Configuration 11a Draft n MCS8 20MHz Ant. A+ Ant. B / 5745 MHz



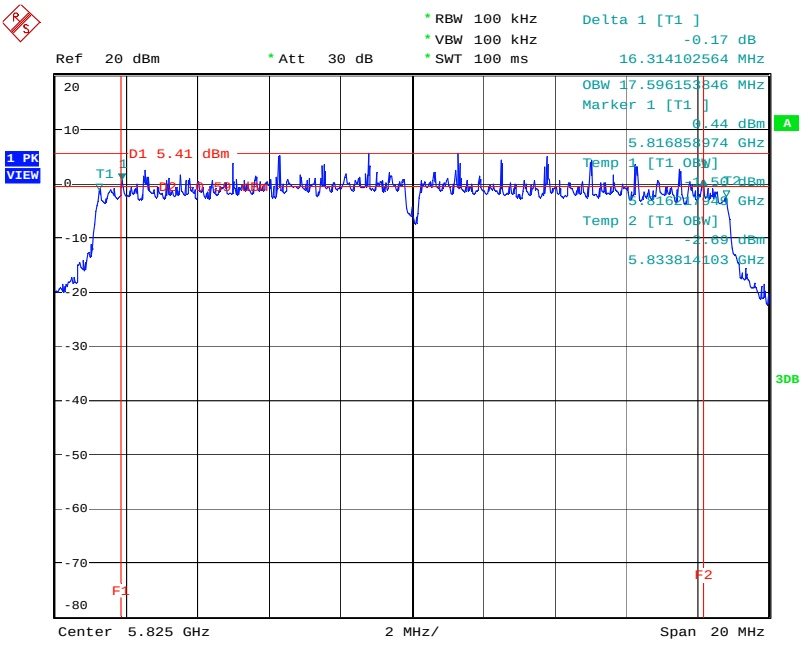
Date: 20.SEP.2008 14:04:44

6 dB Bandwidth Plot on Configuration 11a Draft n MCS8 20MHz Ant. A+ Ant. B / 5785MHz



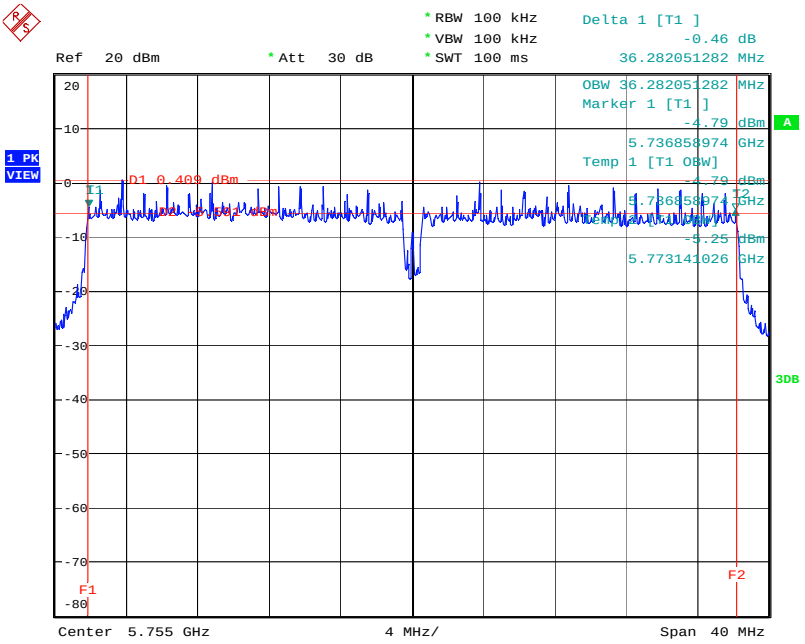
Date: 20.SEP.2008 14:08:43

6 dB Bandwidth Plot on Configuration 11a Draft n MCS8 20MHz Ant. A+ Ant. B / 5825 MHz



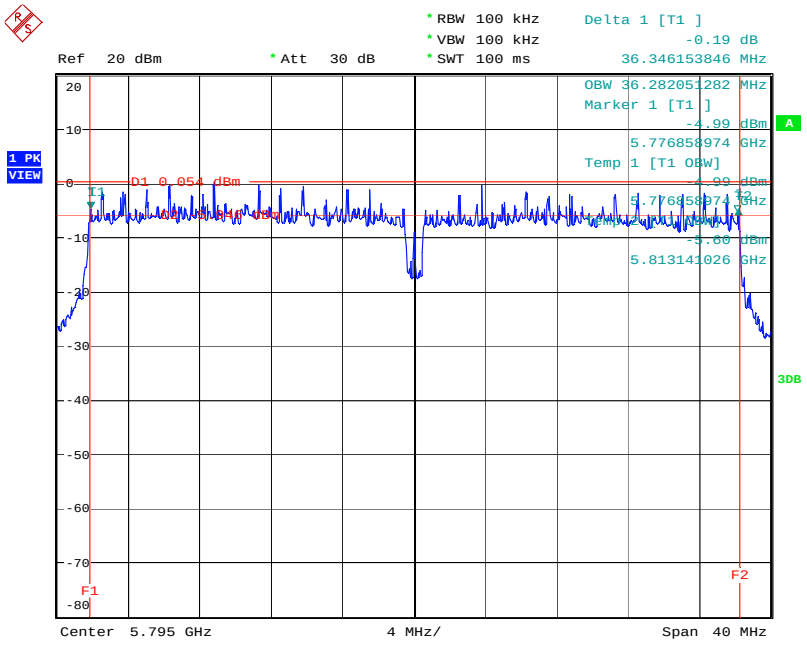
Date: 20.SEP.2008 14:12:46

6 dB Bandwidth Plot on Configuration 11a Draft n MCS8 40MHz Ant. A+ Ant. B / 5755MHz

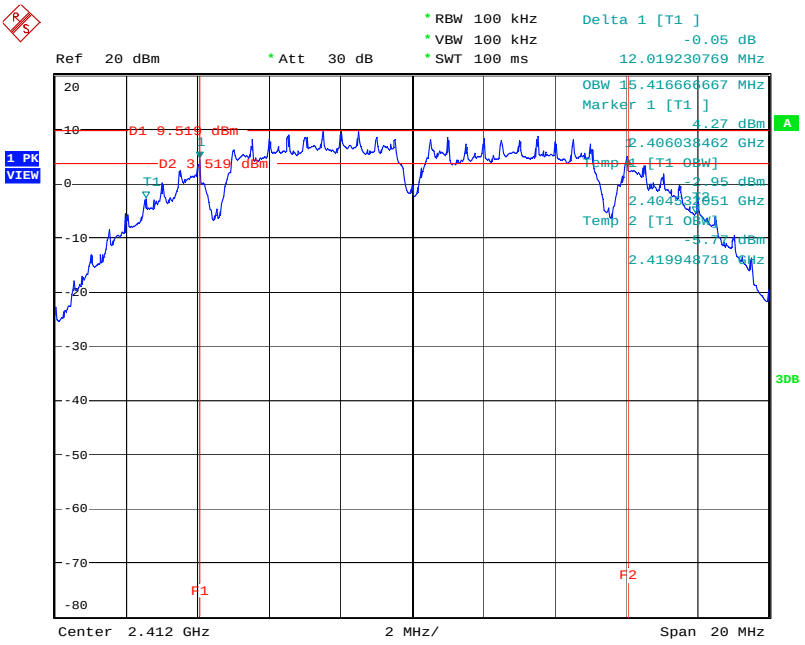


Date: 20.SEP.2008 13:45:24

6 dB Bandwidth Plot on Configuration 11a Draft n MCS8 40MHz Ant. A+ Ant. B / 5795 MHz

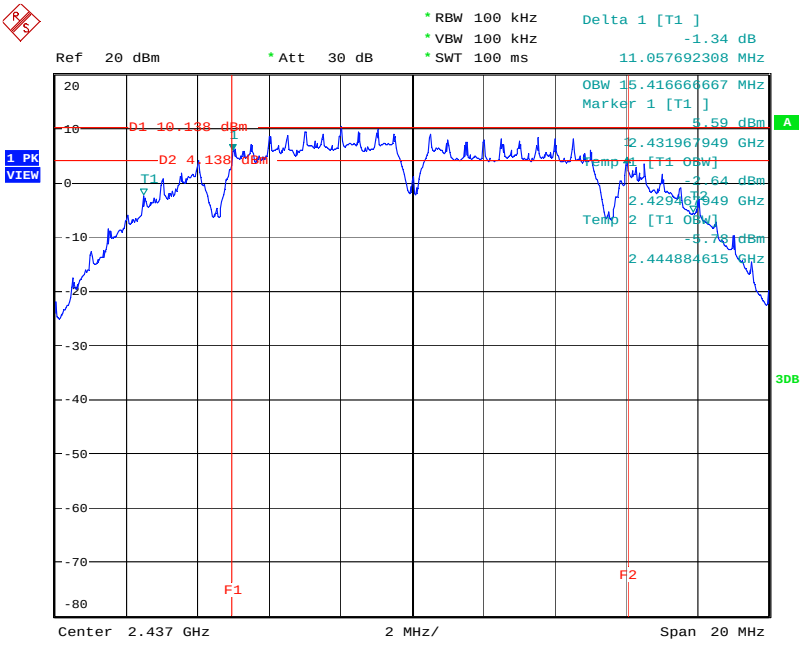


6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A+ Ant. B / 2412 MHz



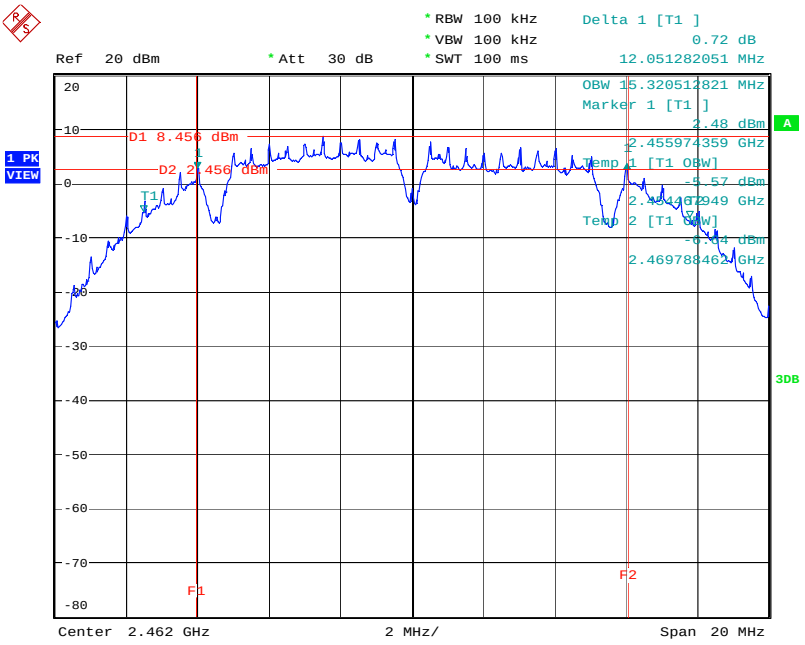
Date: 23.SEP.2008 15:11:26

6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A+ Ant. B / 2437 MHz



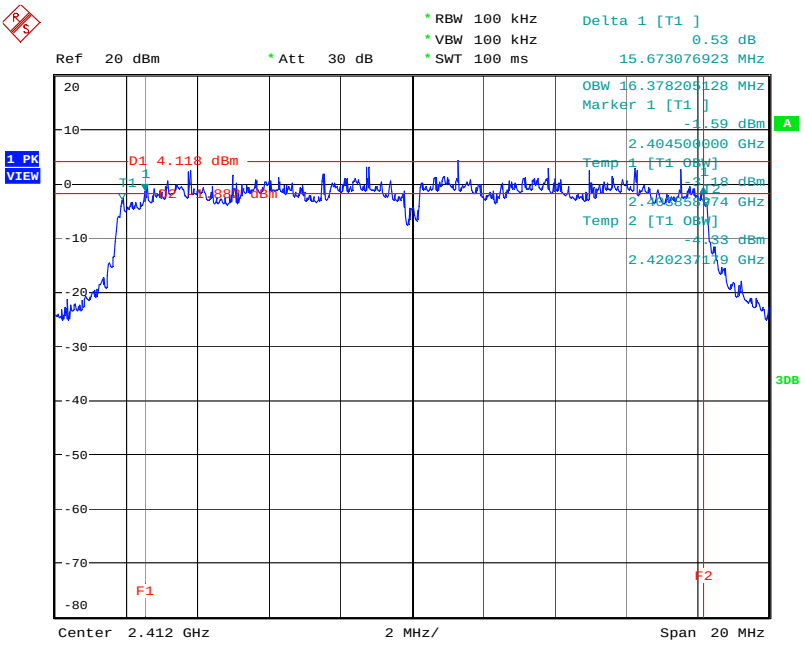
Date: 23.SEP.2008 15:13:35

6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A+ Ant. B / 2462 MHz



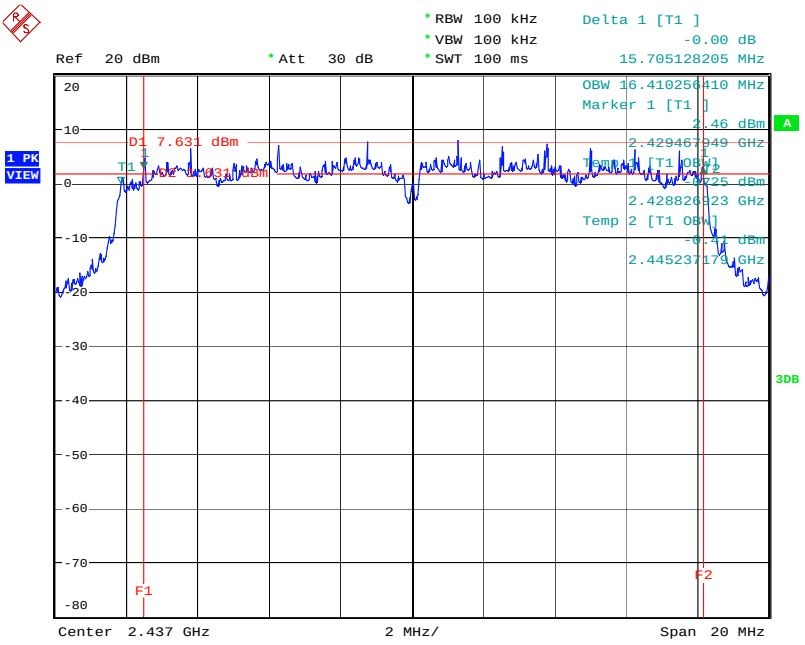
Date: 23.SEP.2008 15:15:38

6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A+ Ant. B / 2412 MHz



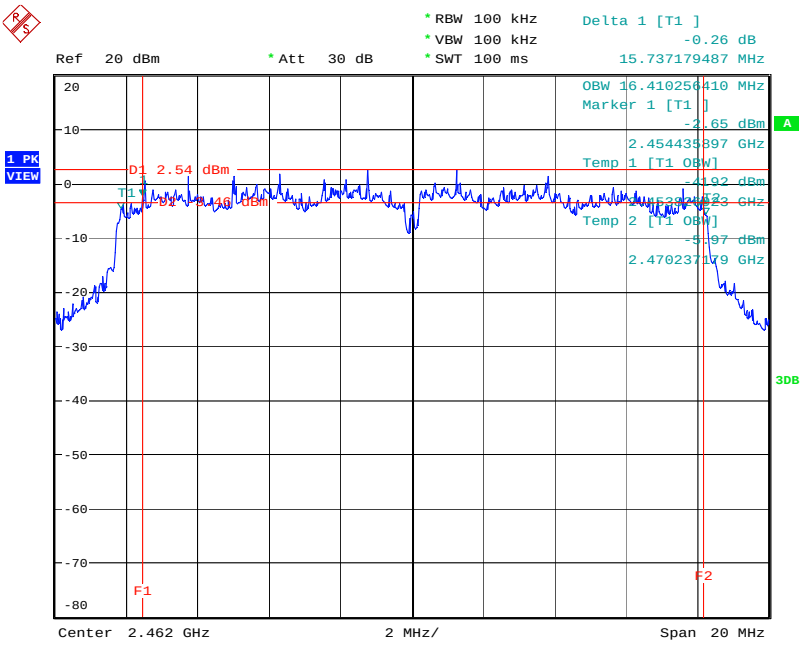
Date: 23.SEP.2008 15:22:21

6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A+ Ant. B / 2437 MHz



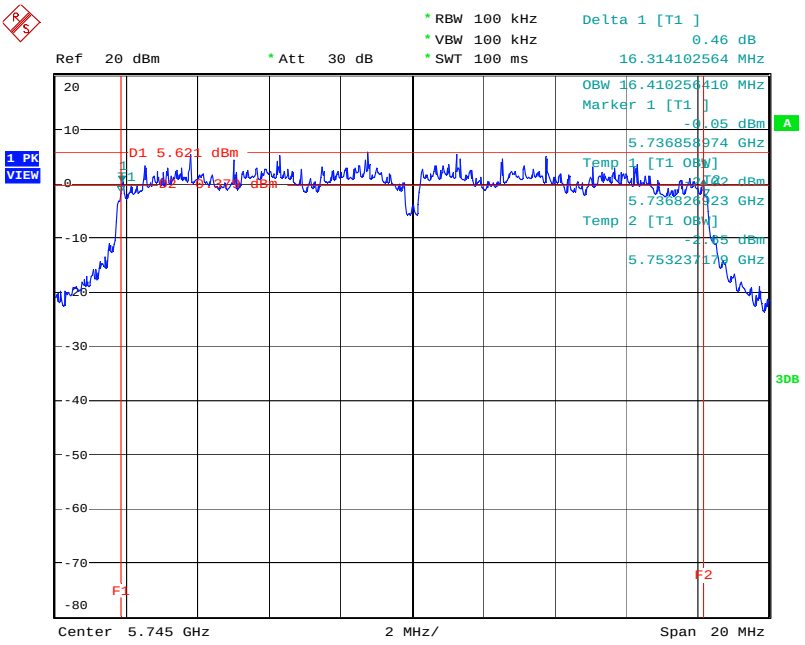
Date: 23.SEP.2008 15:20:15

6 dB Bandwidth Plot on Configuration IEEE 802.11g Ant. A+ Ant. B / 2462 MHz



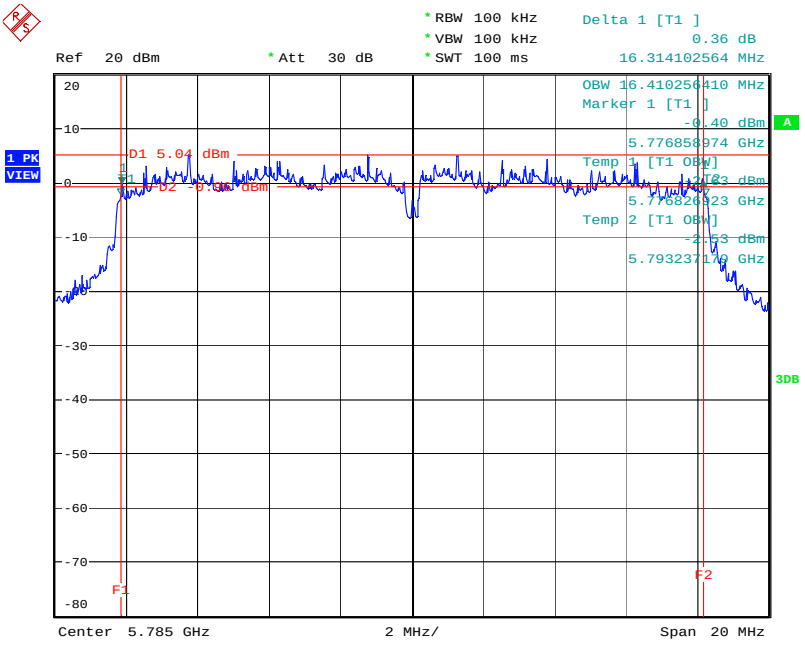
Date: 23.SEP.2008 15:17:53

6 dB Bandwidth Plot on Configuration IEEE 802.11a Ant. A+ Ant. B / 5745 MHz



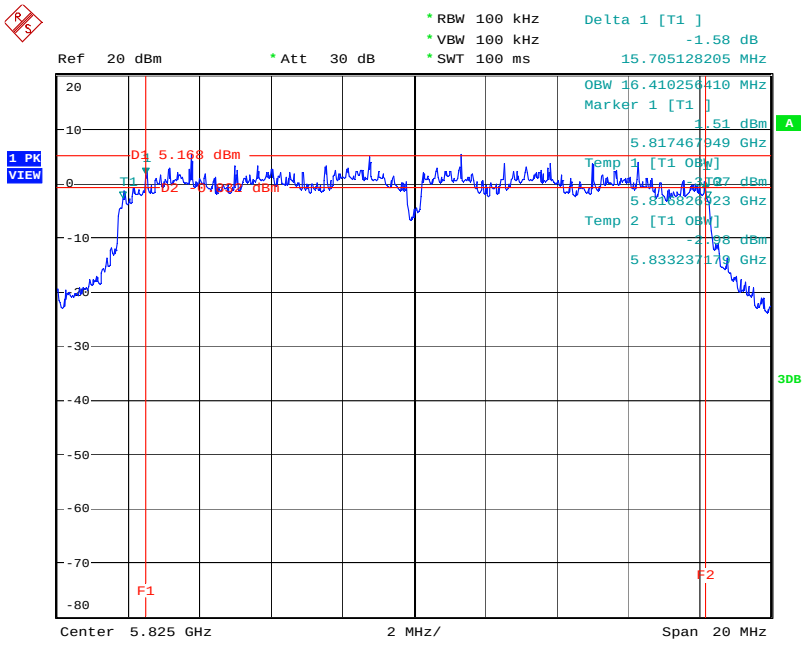
Date: 20.SEP.2008 14:21:41

6 dB Bandwidth Plot on Configuration IEEE 802.11a Ant. A+ Ant. B / 5785 MHz



Date: 20.SEP.2008 14:26:12

6 dB Bandwidth Plot on Configuration IEEE 802.11a Ant. A+ Ant. B / 5825 MHz



Date: 20.SEP.2008 14:30:13

4.5. Radiated Emissions Measurement

4.5.1. 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 (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.5.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100KHz / 100KHz for peak

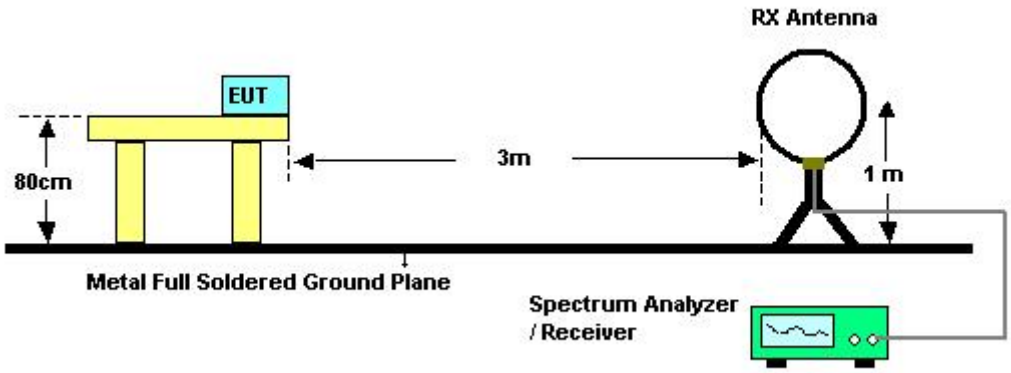
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.5.3. Test Procedures

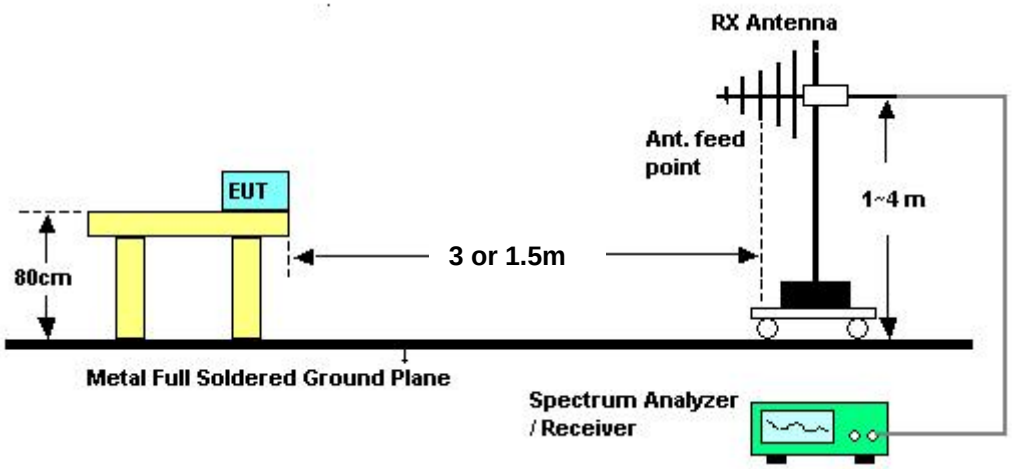
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

4.5.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25°C	Humidity	54%
Test Engineer	Allen Liu		

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.

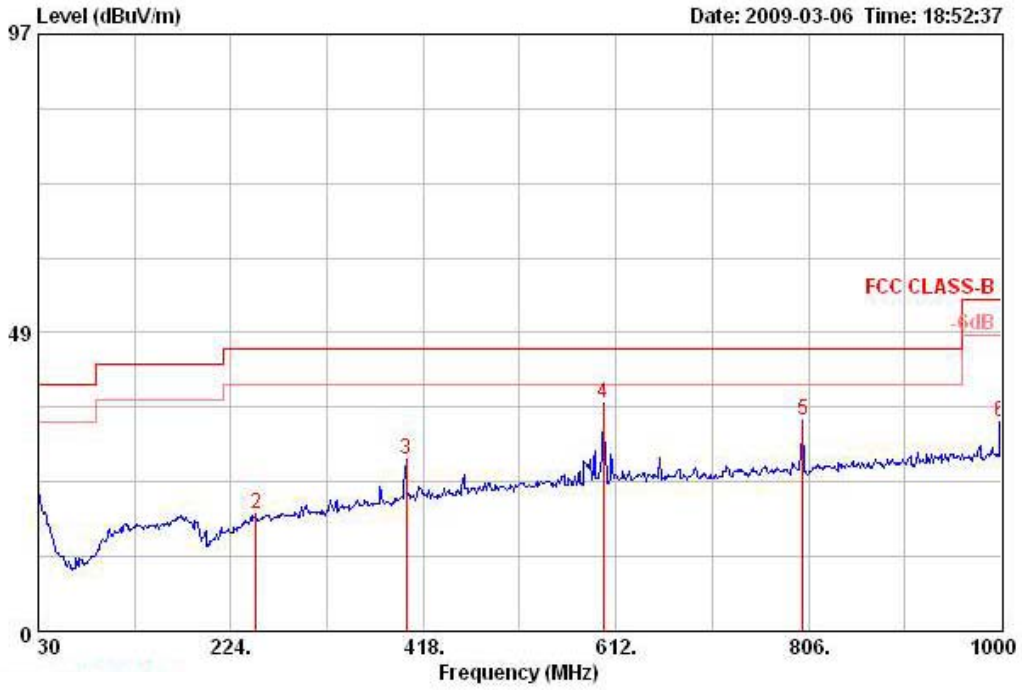
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

4.5.8. Results of Radiated Emissions (30MHz~1GHz)

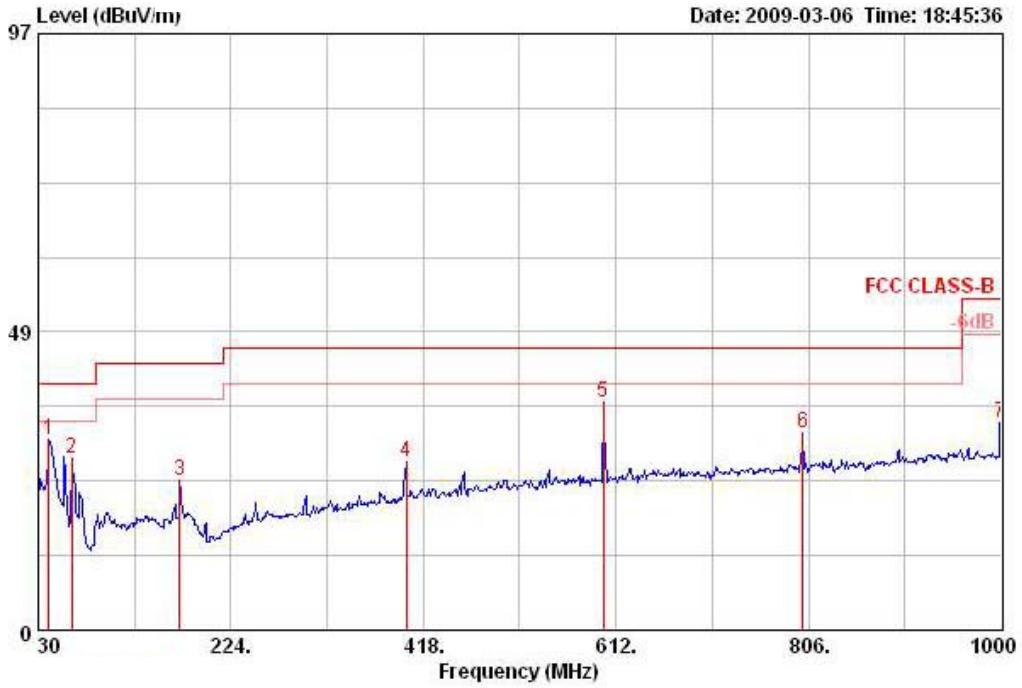
Temperature	25°C	Humidity	54%
Test Engineer	Allen Liu	Configurations	Normal Link

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	30.000	22.64	-17.36	40.00	31.18	18.76	27.80	0.50	Peak	HORIZONTAL	0	400
2	249.220	19.14	-26.86	46.00	31.55	12.70	27.00	1.90	Peak	HORIZONTAL	0	400
3	400.540	27.92	-18.08	46.00	37.14	16.08	27.61	2.31	Peak	HORIZONTAL	0	400
4	599.390	36.94	-9.06	46.00	43.38	18.76	28.10	2.90	Peak	HORIZONTAL	0	400
5	800.180	34.32	-11.68	46.00	38.85	19.77	27.60	3.30	Peak	HORIZONTAL	0	400
6	1000.000	34.01	-19.99	54.00	36.02	21.29	27.00	3.70	Peak	HORIZONTAL	0	400

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	40.670	30.93	-9.07	40.00	45.48	12.55	27.80	0.70	Peak	VERTICAL	0	400
2	63.950	28.00	-12.00	40.00	48.15	6.72	27.74	0.88	Peak	VERTICAL	0	400
3	172.590	24.31	-19.19	43.50	37.00	12.97	27.23	1.56	Peak	VERTICAL	0	400
4	400.540	27.47	-18.53	46.00	36.69	16.08	27.61	2.31	Peak	VERTICAL	0	400
5 @	599.390	37.13	-8.87	46.00	43.57	18.76	28.10	2.90	Peak	VERTICAL	0	400
6	800.180	32.00	-14.00	46.00	36.53	19.77	27.60	3.30	Peak	VERTICAL	0	400
7	1000.000	33.85	-20.15	54.00	35.86	21.29	27.00	3.70	Peak	VERTICAL	0	400

Note:

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

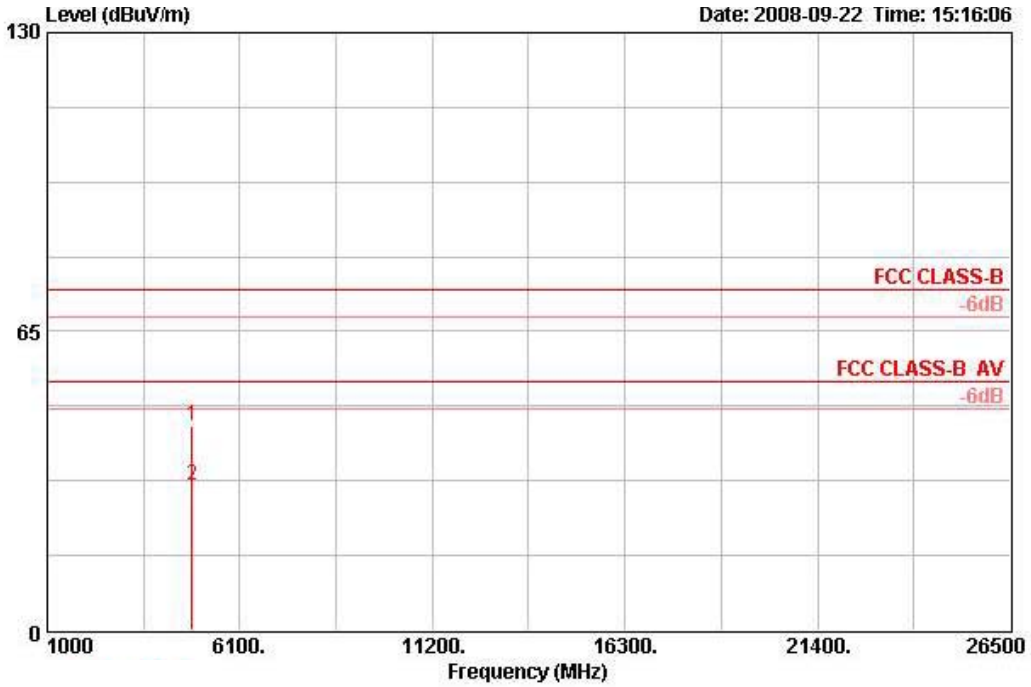
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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

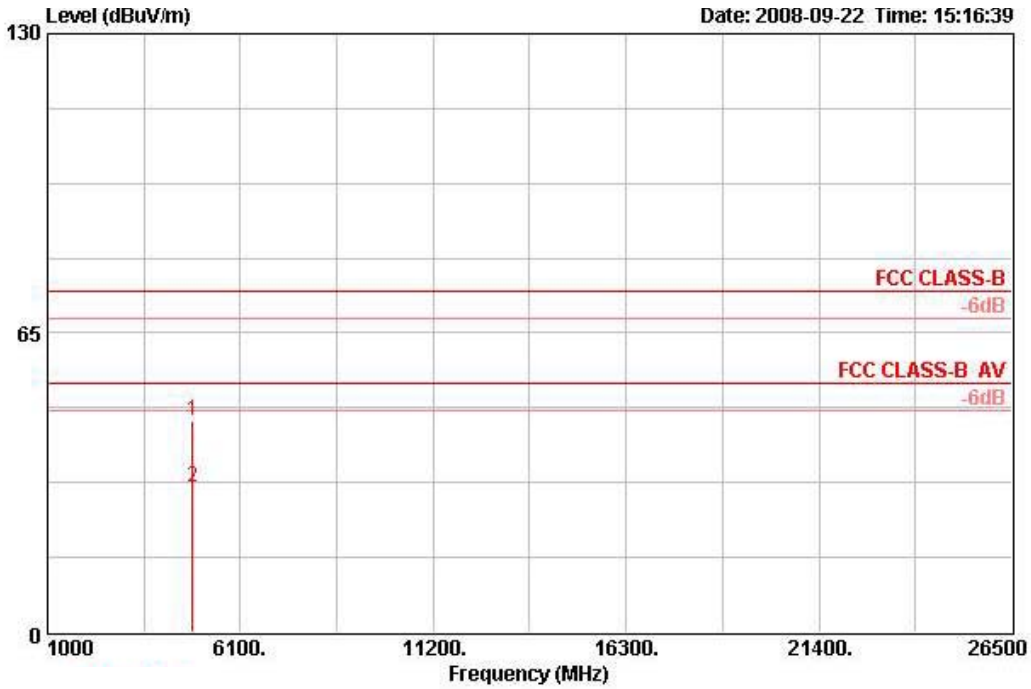
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch 1 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4825.750	44.59	-29.41	74.00	42.77	33.06	3.94	35.16	PEAK	100	146	HORIZONTAL
2 @	4825.860	31.45	-22.55	54.00	29.62	33.06	3.94	35.16	AVERAGE	100	146	HORIZONTAL

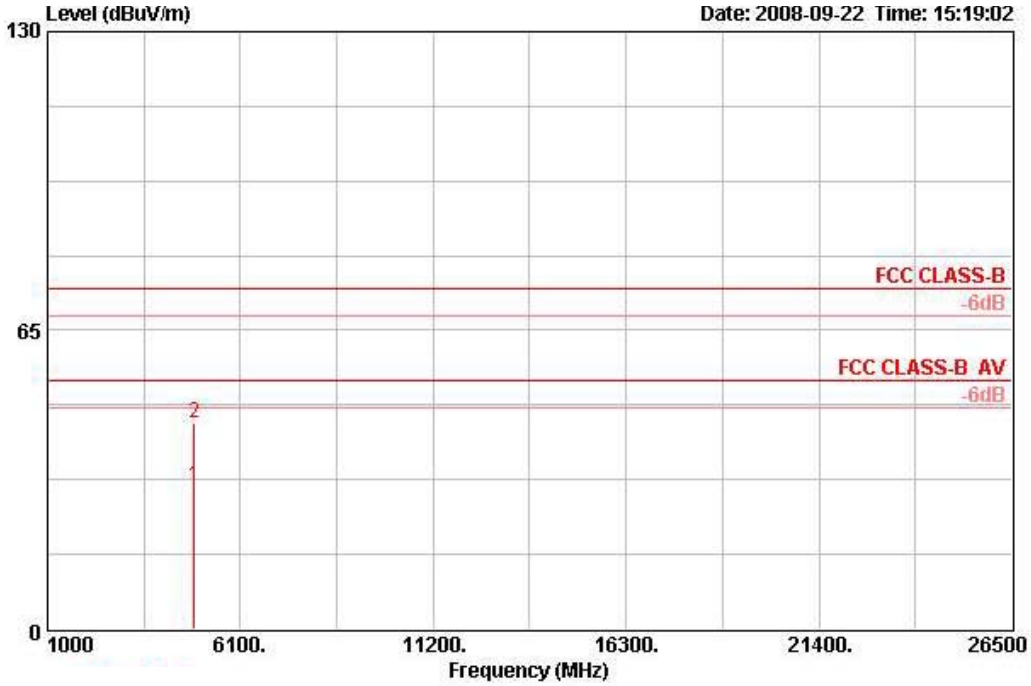
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4823.620	45.76	-28.24	74.00	43.93	33.06	3.94	35.16	PEAK	100	292	VERTICAL
2 @	4824.020	31.64	-22.36	54.00	29.81	33.06	3.94	35.16	AVERAGE	100	292	VERTICAL

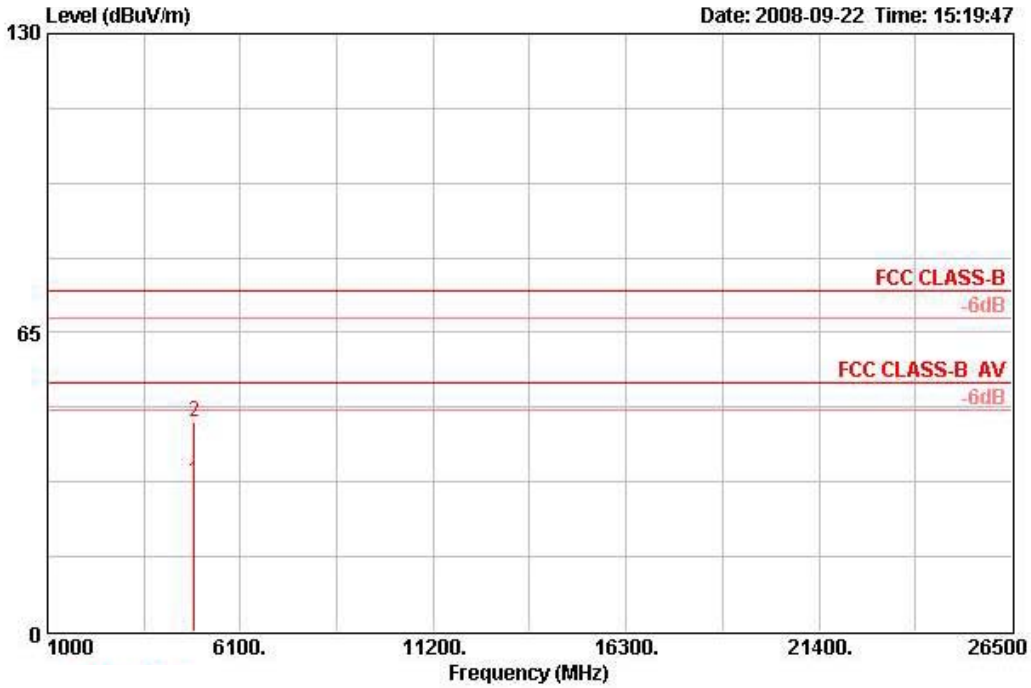
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch 6 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4872.240	31.21	-22.79	54.00	29.25	33.16	3.96	35.15	AVERAGE	100	360	HORIZONTAL
2	4872.300	44.64	-29.36	74.00	42.67	33.16	3.96	35.15	PEAK	100	360	HORIZONTAL

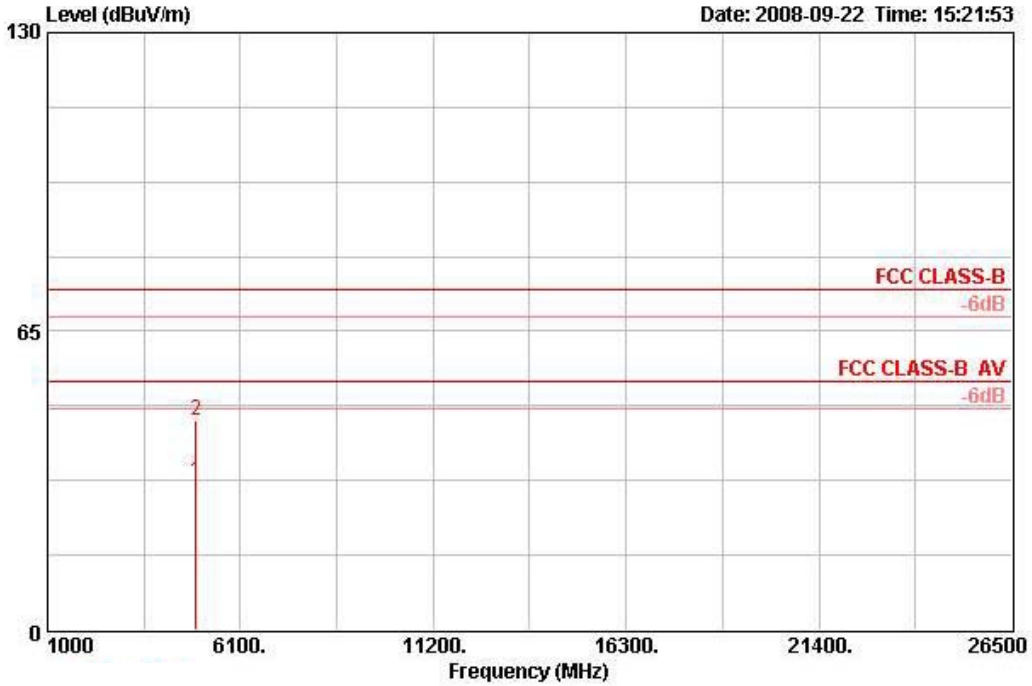
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4871.900	32.51	-21.49	54.00	30.55	33.16	3.96	35.15	AVERAGE	100	291	VERTICAL
2	4875.260	45.61	-28.39	74.00	43.64	33.16	3.96	35.15	PEAK	100	291	VERTICAL

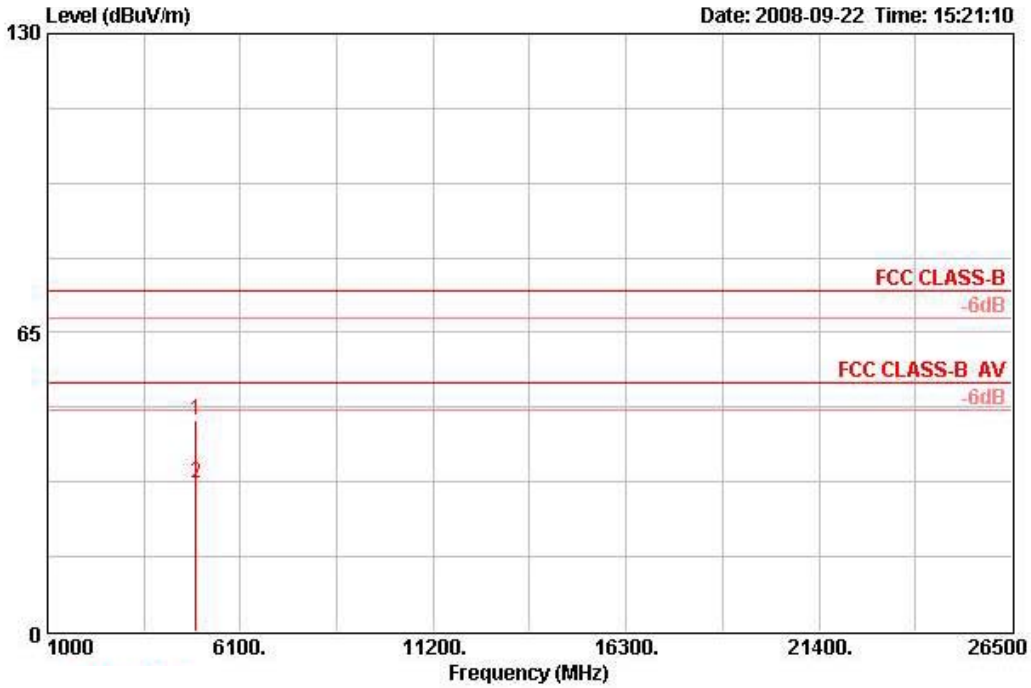
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch11 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4923.830	32.37	-21.63	54.00	30.27	33.26	3.98	35.14	AVERAGE	100	360	HORIZONTAL
2	4926.080	45.57	-28.43	74.00	43.47	33.26	3.98	35.14	PEAK	100	360	HORIZONTAL

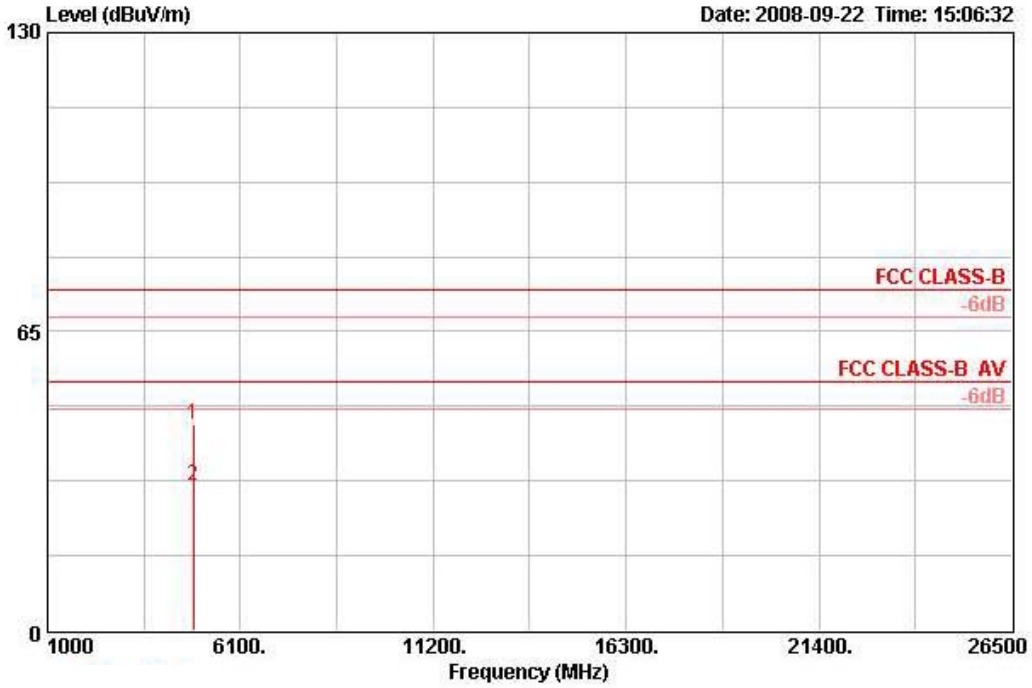
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4924.810	45.81	-28.19	74.00	43.71	33.26	3.98	35.14	PEAK	100	109	VERTICAL
2 @	4925.550	32.13	-21.87	54.00	30.03	33.26	3.98	35.14	AVERAGE	100	109	VERTICAL

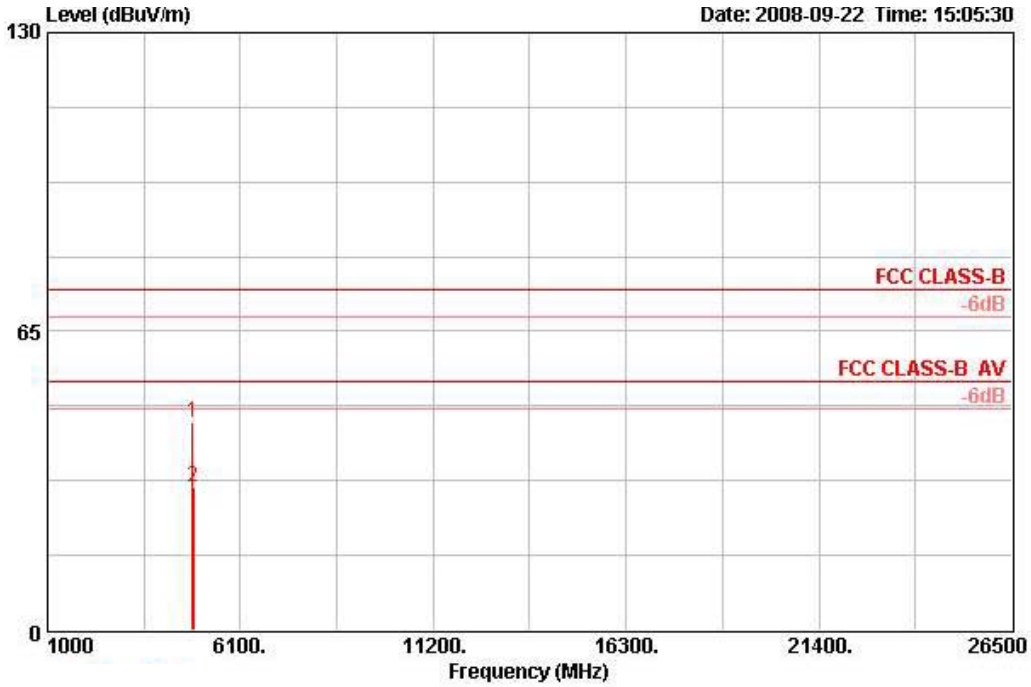
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 3 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4845.340	44.78	-29.22	74.00	42.91	33.09	3.95	35.16	PEAK	100	360	HORIZONTAL
2 @	4846.440	31.43	-22.57	54.00	29.55	33.09	3.95	35.16	AVERAGE	100	360	HORIZONTAL

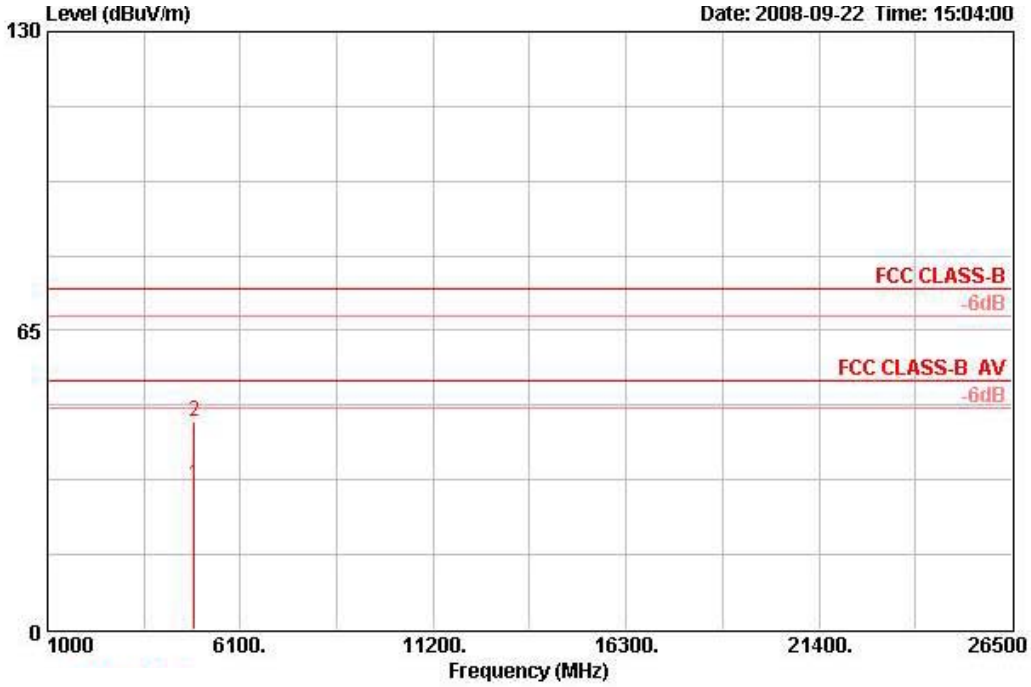
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4843.540	45.32	-28.68	74.00	43.44	33.09	3.95	35.16	PEAK	100	0	VERTICAL
2 @	4846.500	31.13	-22.87	54.00	29.25	33.09	3.95	35.16	AVERAGE	100	0	VERTICAL

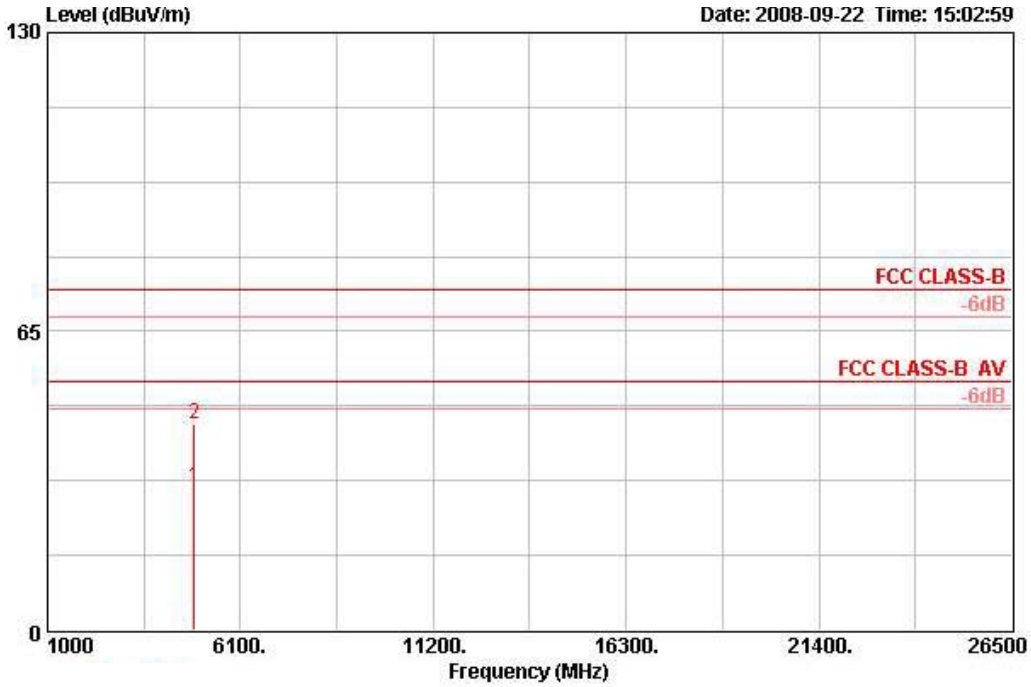
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 6 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4871.710	31.30	-22.70	54.00	29.34	33.16	3.96	35.15	AVERAGE	100	360	HORIZONTAL
2	4873.320	45.30	-28.70	74.00	43.33	33.16	3.96	35.15	PEAK	100	360	HORIZONTAL

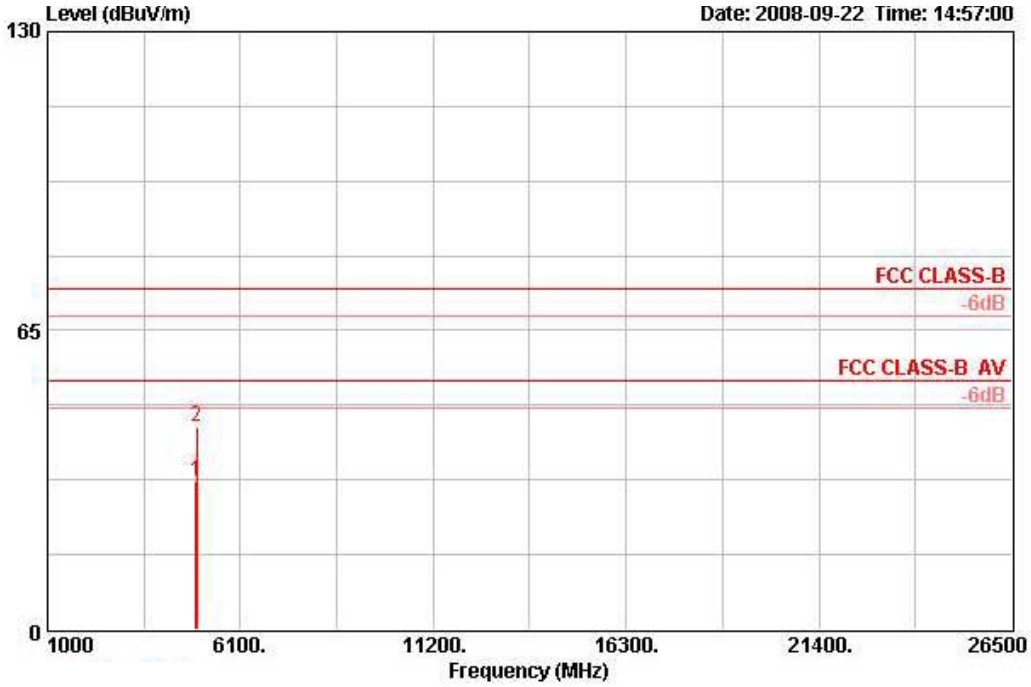
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4871.630	31.19	-22.81	54.00	29.22	33.16	3.96	35.15	AVERAGE	100	0	VERTICAL
2	4873.520	44.77	-29.23	74.00	42.80	33.16	3.96	35.15	PEAK	100	0	VERTICAL

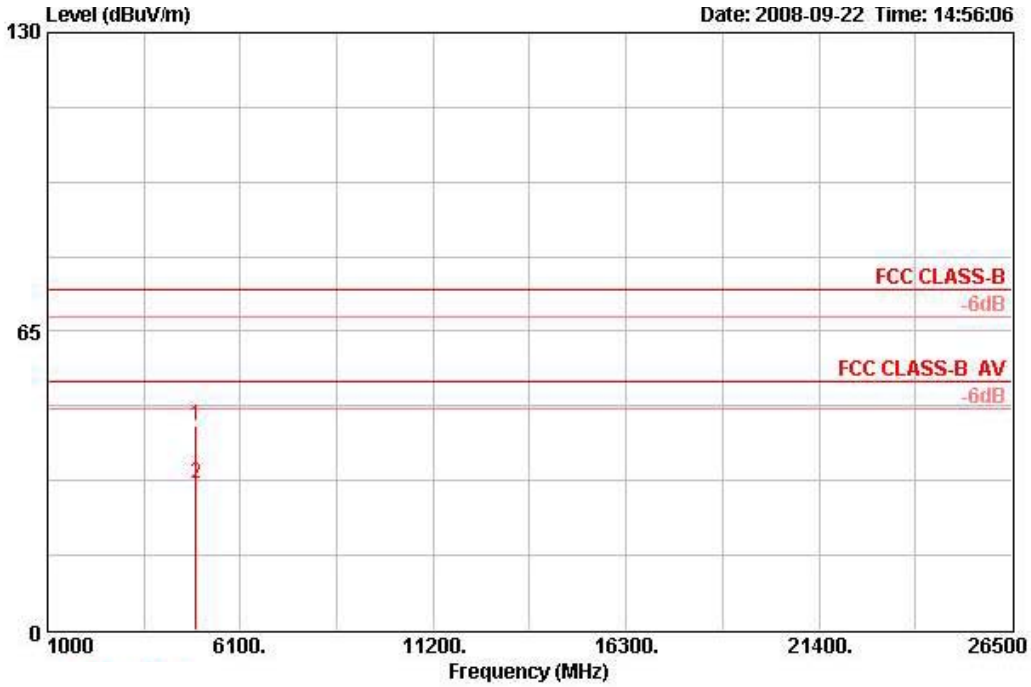
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 9 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4923.600	32.12	-21.88	54.00	30.01	33.26	3.98	35.14	AVERAGE	100	0	HORIZONTAL
2	4946.400	44.16	-29.84	74.00	42.00	33.30	4.00	35.14	PEAK	100	0	HORIZONTAL

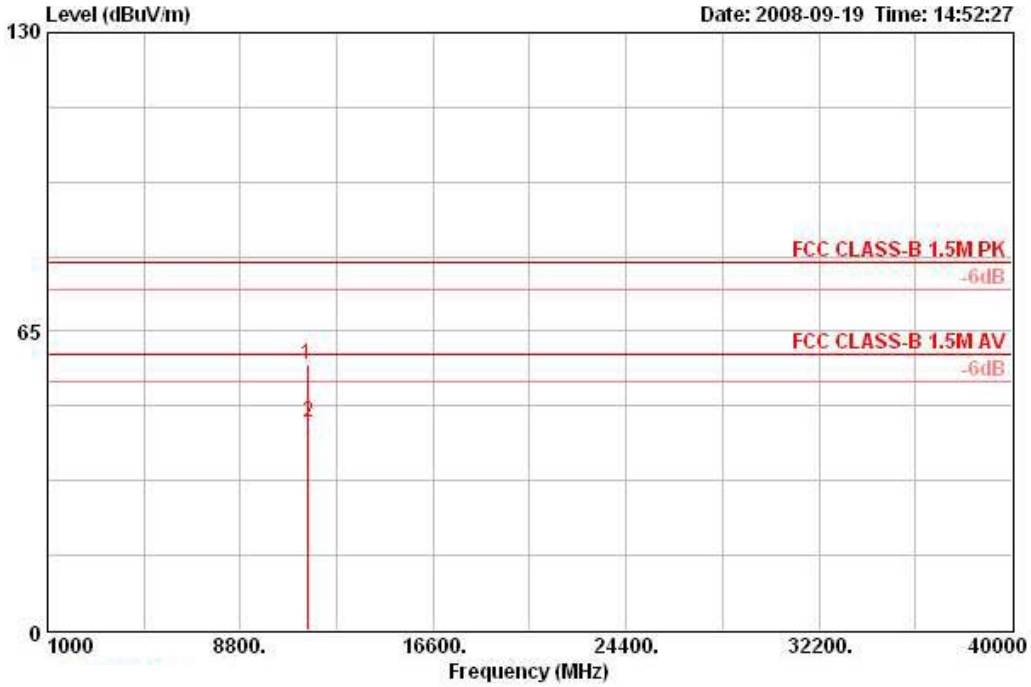
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4917.600	44.56	-29.44	74.00	42.49	33.23	3.98	35.14	PEAK	100	360	VERTICAL
2 @	4924.400	32.00	-22.00	54.00	29.89	33.26	3.98	35.14	AVERAGE	100	360	VERTICAL

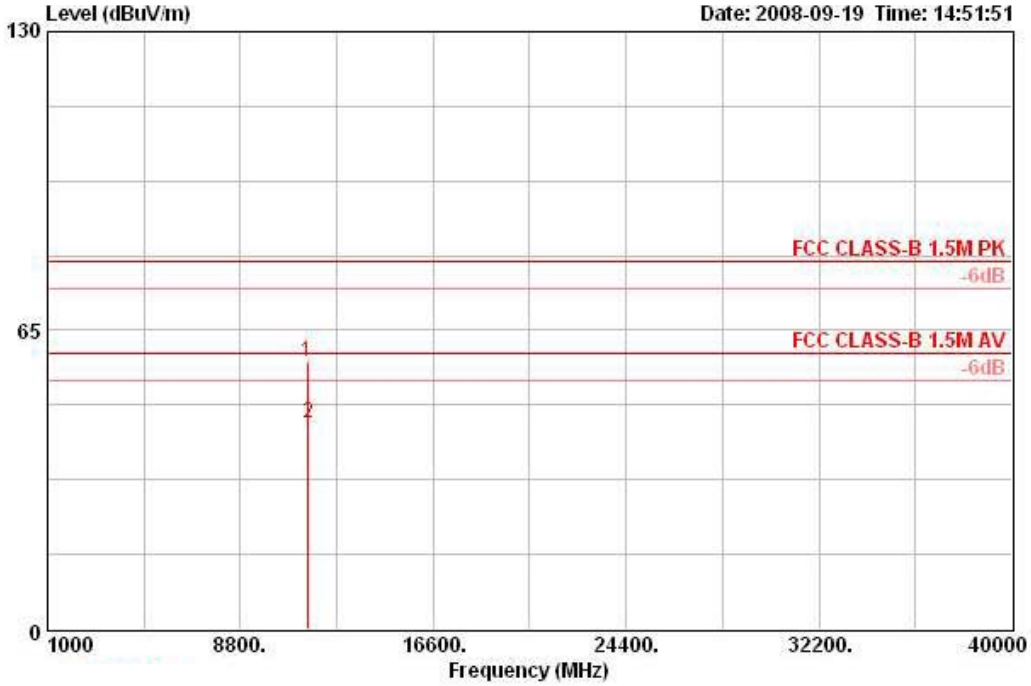
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	11a Draft n MCS8 20MHz CH 149 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11522.600	57.89	-22.11	80.00	42.46	39.49	34.96	10.90	PEAK	HORIZONTAL	0	100
2	11532.400	45.24	-14.76	60.00	29.82	39.49	34.96	10.90	AVERAGE	HORIZONTAL	0	100

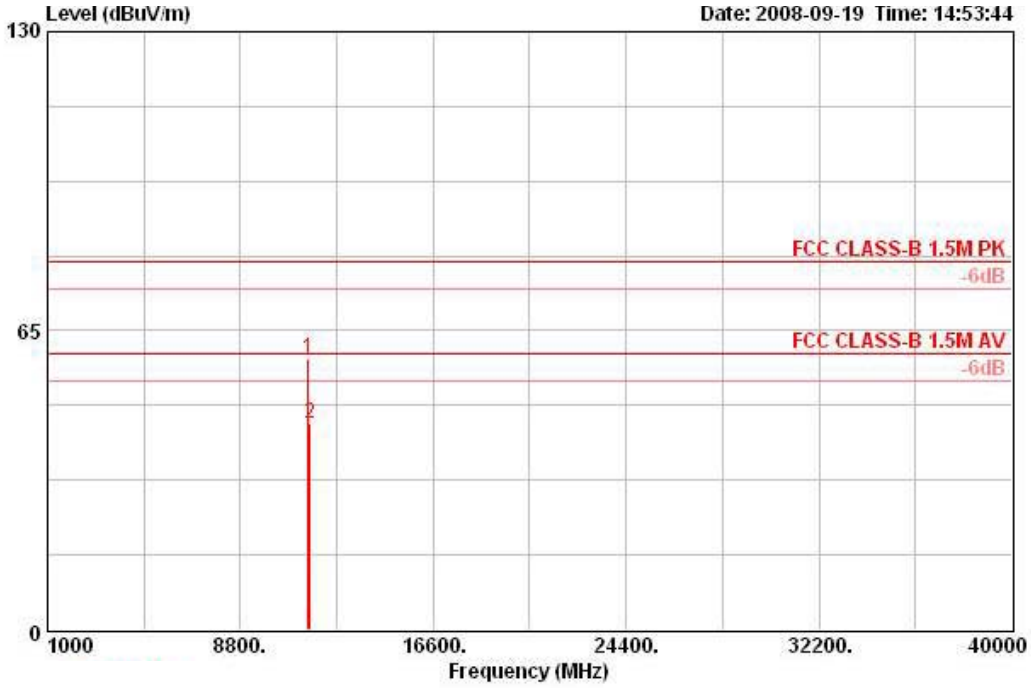
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11492.200	58.21	-21.79	80.00	42.77	39.50	34.95	10.90	PEAK	VERTICAL	131	100
2	11535.800	44.71	-15.29	60.00	29.29	39.49	34.96	10.90	AVERAGE	VERTICAL	131	100

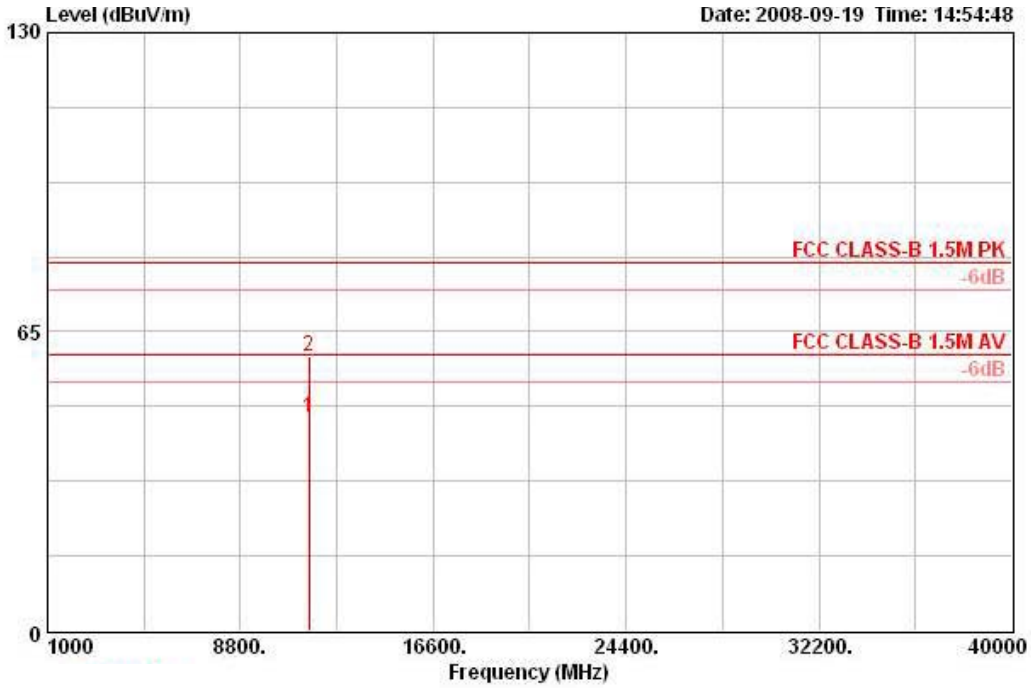
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	11a Draft n MCS8 20MHz CH 157 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11535.200	58.75	-21.25	80.00	43.33	39.49	34.96	10.90	PEAK	HORIZONTAL	212	100
2	11613.600	44.74	-15.26	60.00	29.45	39.46	34.96	10.79	AVERAGE	HORIZONTAL	212	100

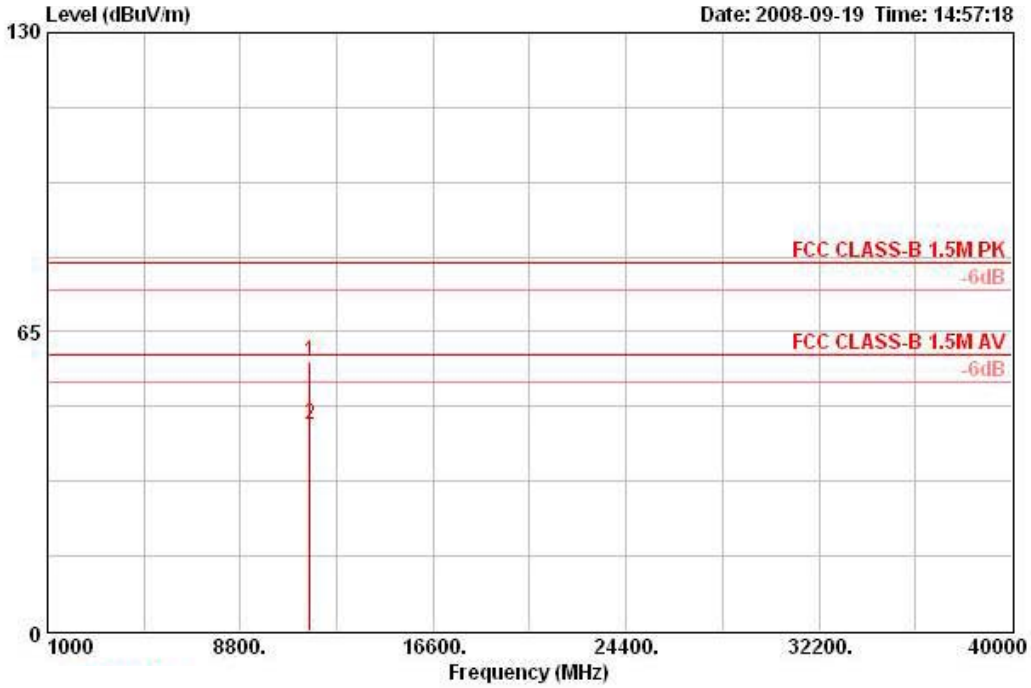
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 @	11572.800	46.45	-13.55	60.00	31.12	39.47	34.96	10.83	AVERAGE	VERTICAL	115	100
2	11573.600	59.64	-20.36	80.00	44.30	39.47	34.96	10.83	PEAK	VERTICAL	115	100

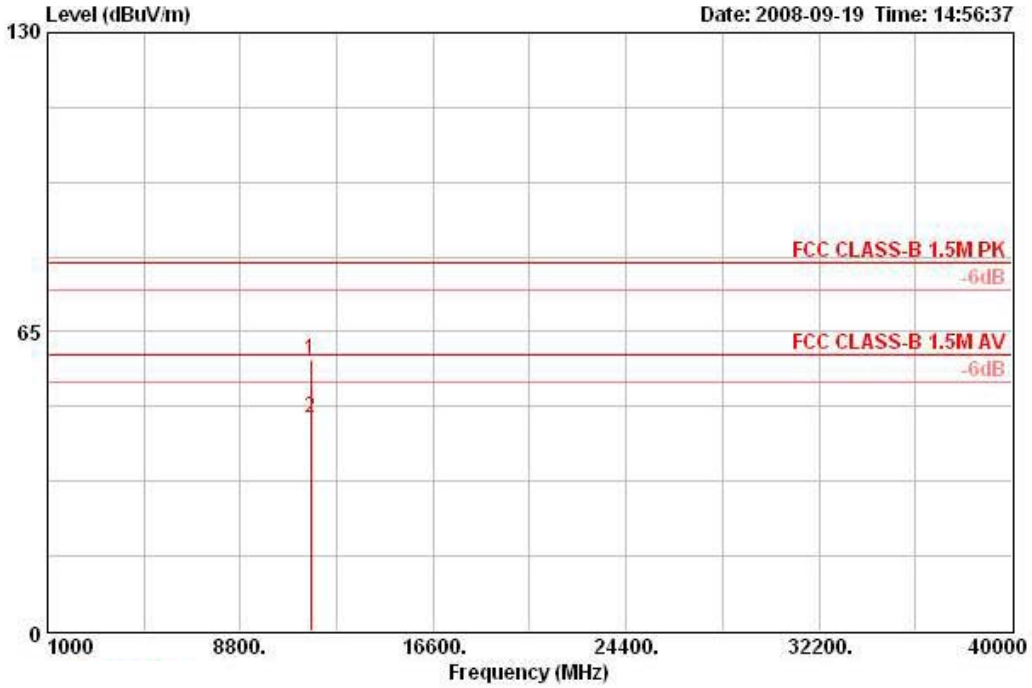
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	11a Draft n MCS8 20MHz CH 165 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11613.400	58.55	-21.45	80.00	43.27	39.46	34.96	10.79	PEAK	HORIZONTAL	295	100
2	11624.400	44.78	-15.22	60.00	29.53	39.45	34.97	10.76	AVERAGE	HORIZONTAL	295	100

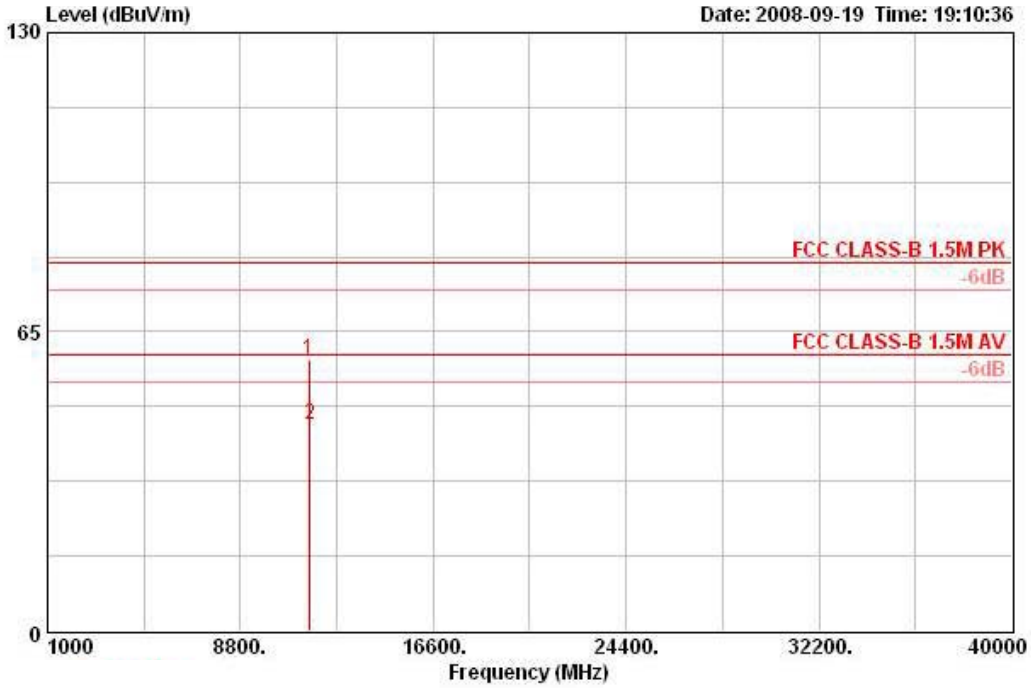
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11645.200	58.88	-21.12	80.00	43.65	39.44	34.97	10.76	PEAK	VERTICAL	137	100
2 @	11653.600	46.12	-13.88	60.00	30.92	39.44	34.97	10.72	AVERAGE	VERTICAL	137	100

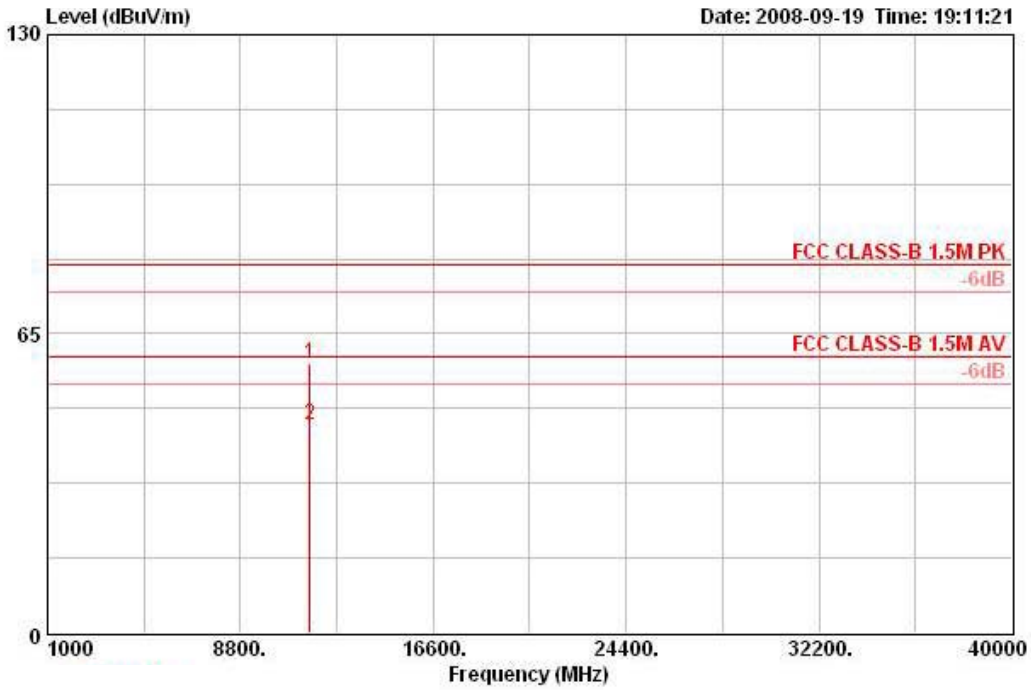
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	11a Draft n MCS8 40MHz CH 151 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11564.400	59.06	-20.94	80.00	43.68	39.48	34.96	10.86	PEAK	HORIZONTAL	0	100
2	11607.200	44.85	-15.15	60.00	29.57	39.46	34.96	10.79	AVERAGE	HORIZONTAL	0	100

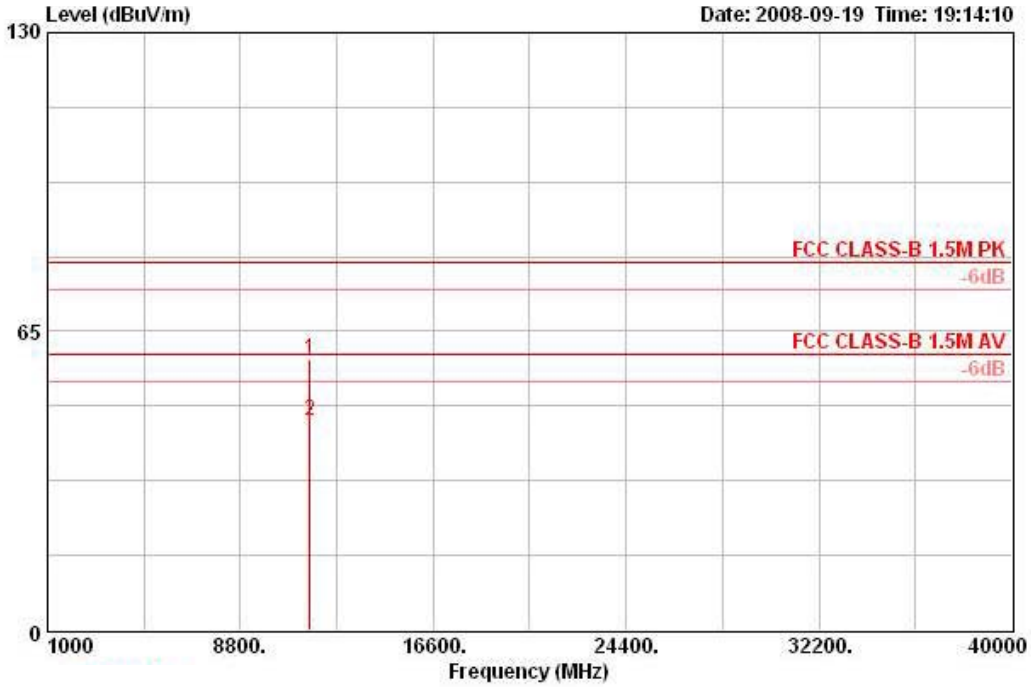
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11594.000	58.50	-21.50	80.00	43.17	39.47	34.96	10.83	PEAK	VERTICAL	67	100
2	11604.400	45.27	-14.73	60.00	29.98	39.46	34.96	10.79	AVERAGE	VERTICAL	67	100

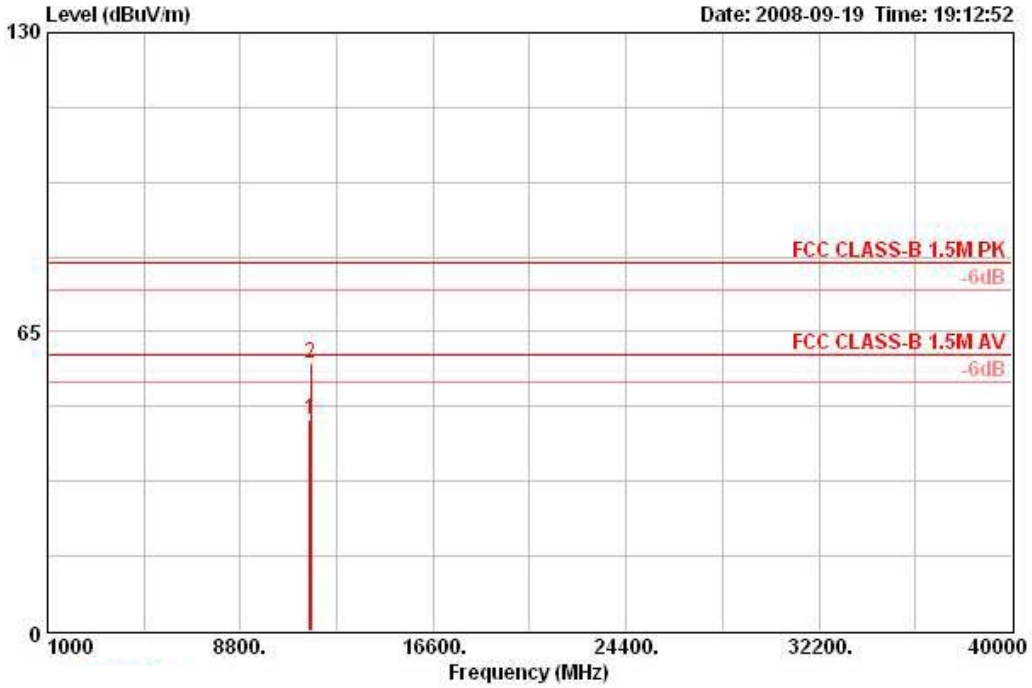
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	11a Draft n MCS8 40MHz CH 159 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11610.000	58.87	-21.13	80.00	43.58	39.46	34.96	10.79	PEAK	HORIZONTAL	0	100
2 @	11625.600	45.53	-14.47	60.00	30.29	39.45	34.97	10.76	AVERAGE	HORIZONTAL	0	100

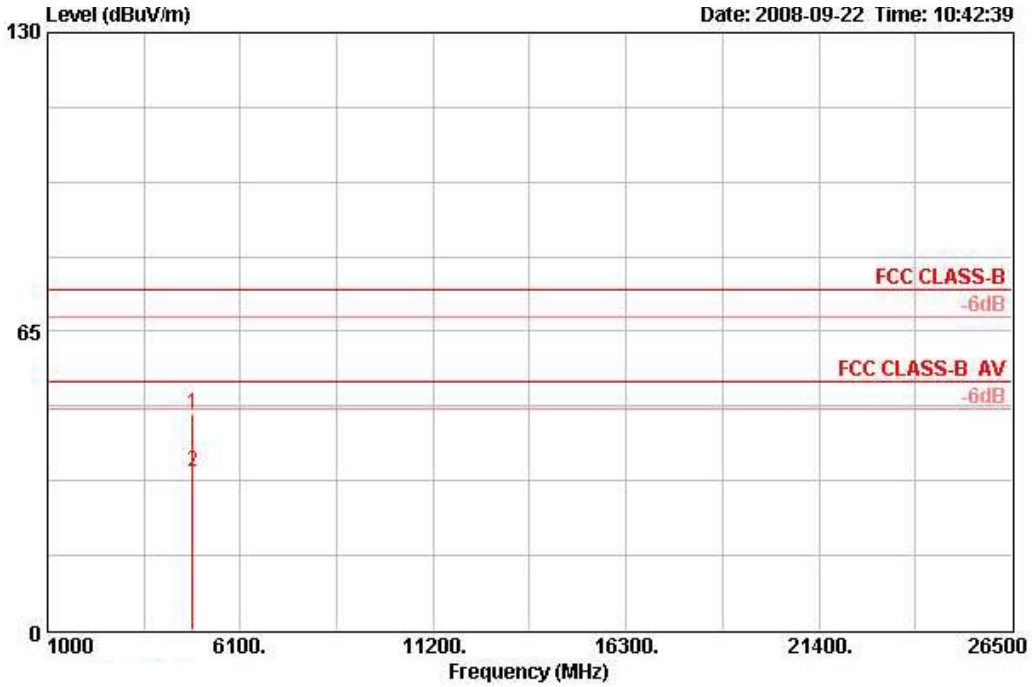
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 @	11602.800	45.98	-14.02	60.00	30.69	39.46	34.96	10.79	AVERAGE	VERTICAL	360	100
2	11631.200	58.22	-21.78	80.00	42.97	39.45	34.97	10.76	PEAK	VERTICAL	360	100

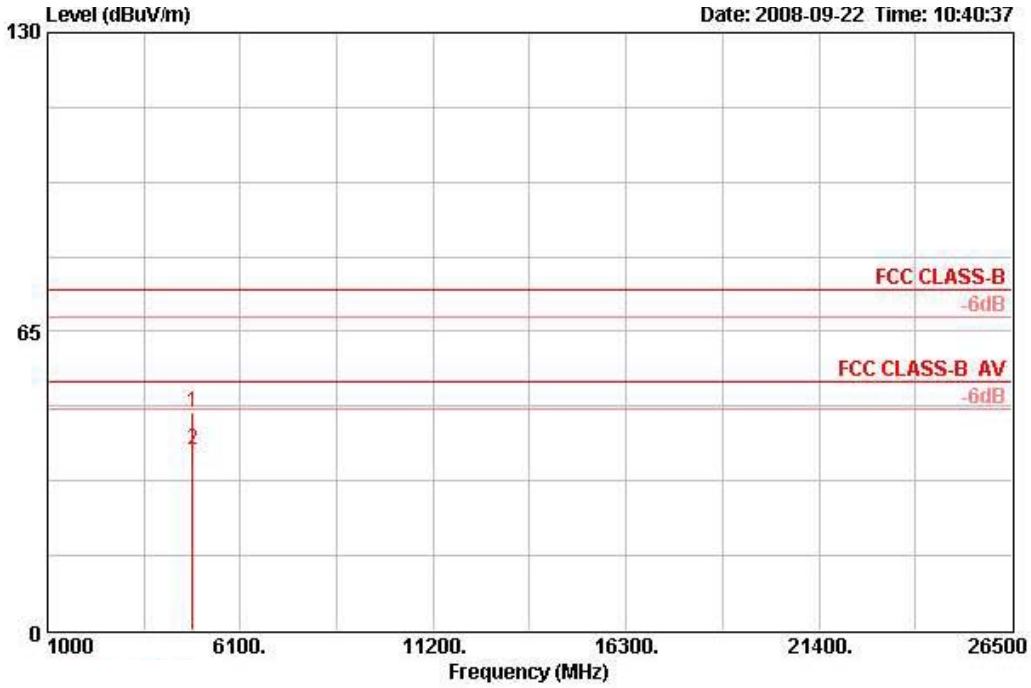
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 1 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4823.640	46.90	-27.10	74.00	45.08	33.06	3.94	35.16	PEAK	100	274	HORIZONTAL
2	4824.110	34.44	-19.56	54.00	32.61	33.06	3.94	35.16	AVERAGE	100	274	HORIZONTAL

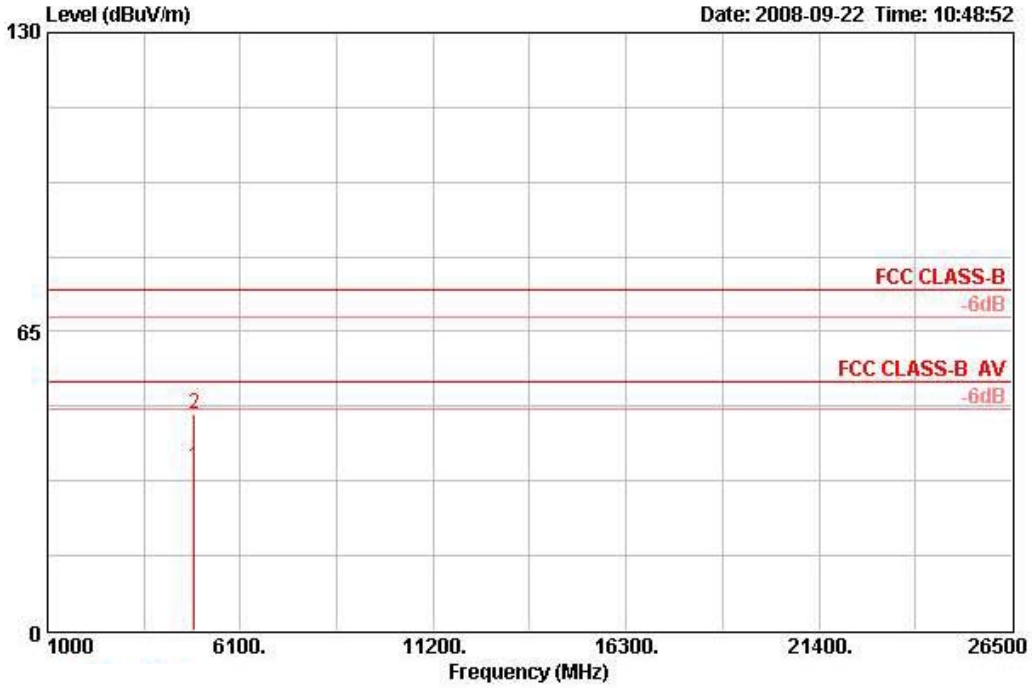
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4823.800	47.24	-26.76	74.00	45.42	33.06	3.94	35.16	PEAK	100	10	VERTICAL
2 @	4823.960	39.19	-14.81	54.00	37.36	33.06	3.94	35.16	AVERAGE	100	10	VERTICAL

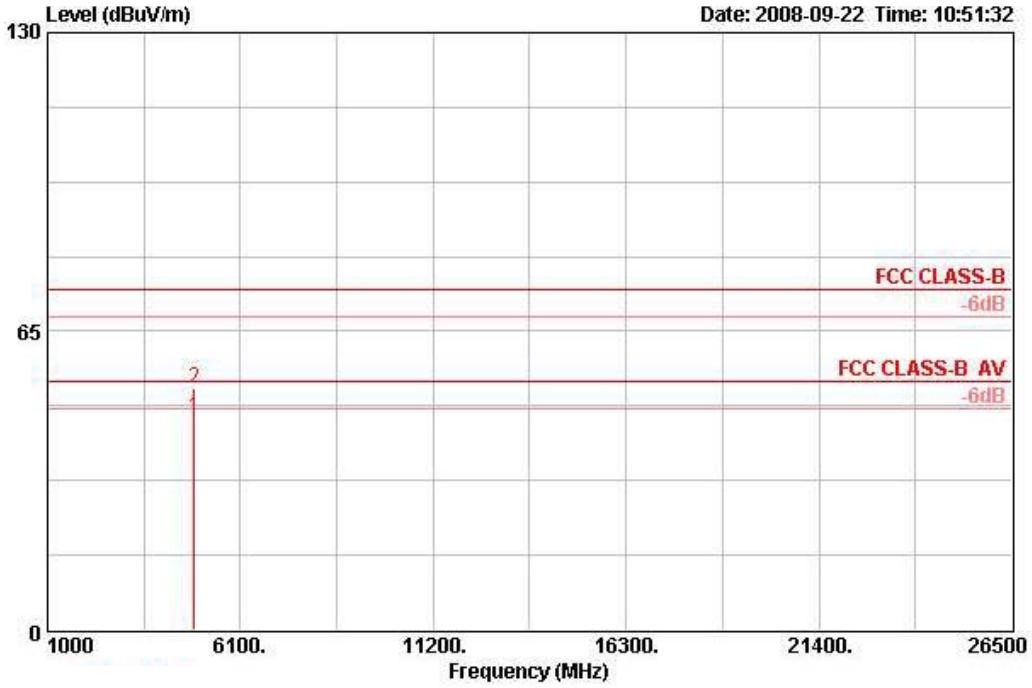
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 6 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4874.050	35.64	-18.36	54.00	33.67	33.16	3.96	35.15	AVERAGE	100	93	HORIZONTAL
2	4874.520	46.90	-27.10	74.00	44.94	33.16	3.96	35.15	PEAK	100	93	HORIZONTAL

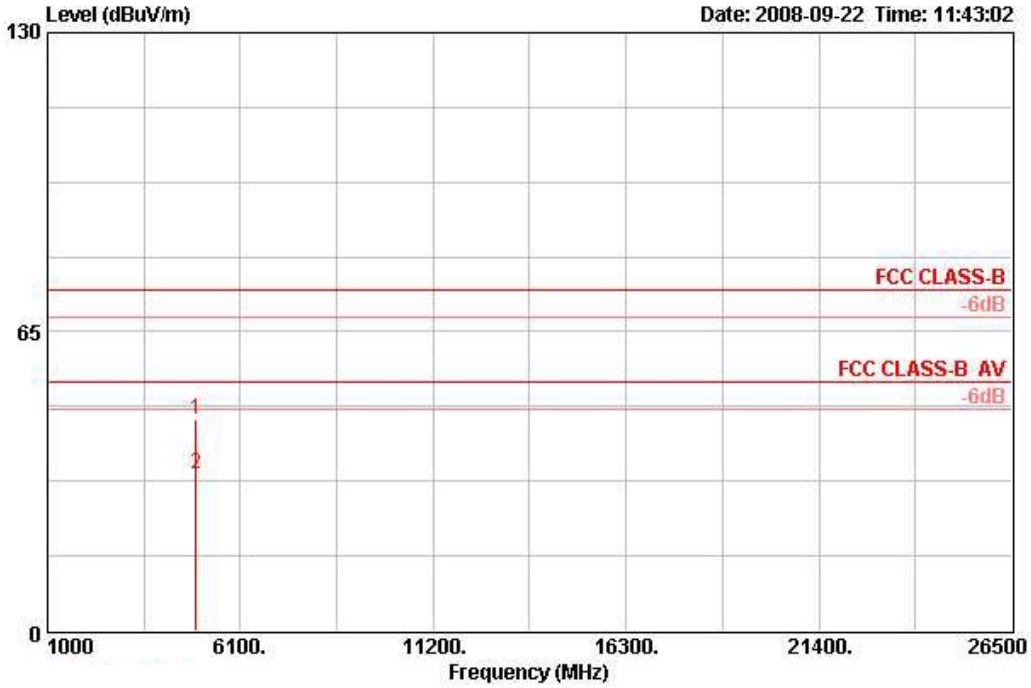
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4874.020	46.23	-7.77	54.00	44.26	33.16	3.96	35.15	AVERAGE	177	217	VERTICAL
2 @	4874.130	52.68	-21.32	74.00	50.71	33.16	3.96	35.15	PEAK	177	217	VERTICAL

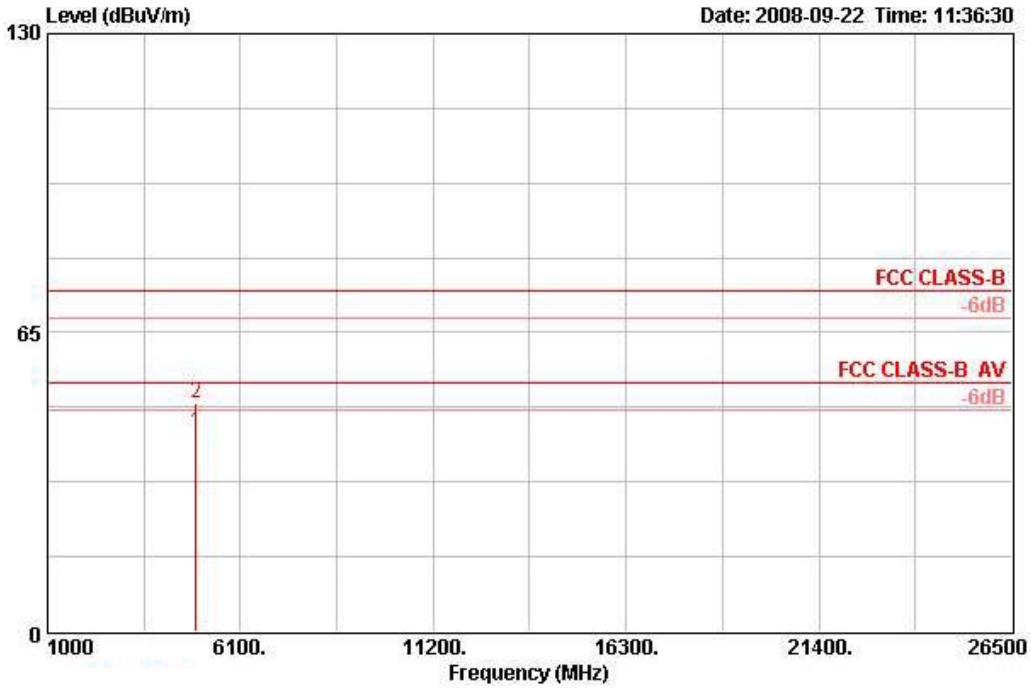
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 11 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4923.810	45.88	-28.12	74.00	43.78	33.26	3.98	35.14	PEAK	100	303	HORIZONTAL
2 @	4924.090	34.17	-19.83	54.00	32.06	33.26	3.98	35.14	AVERAGE	100	303	HORIZONTAL

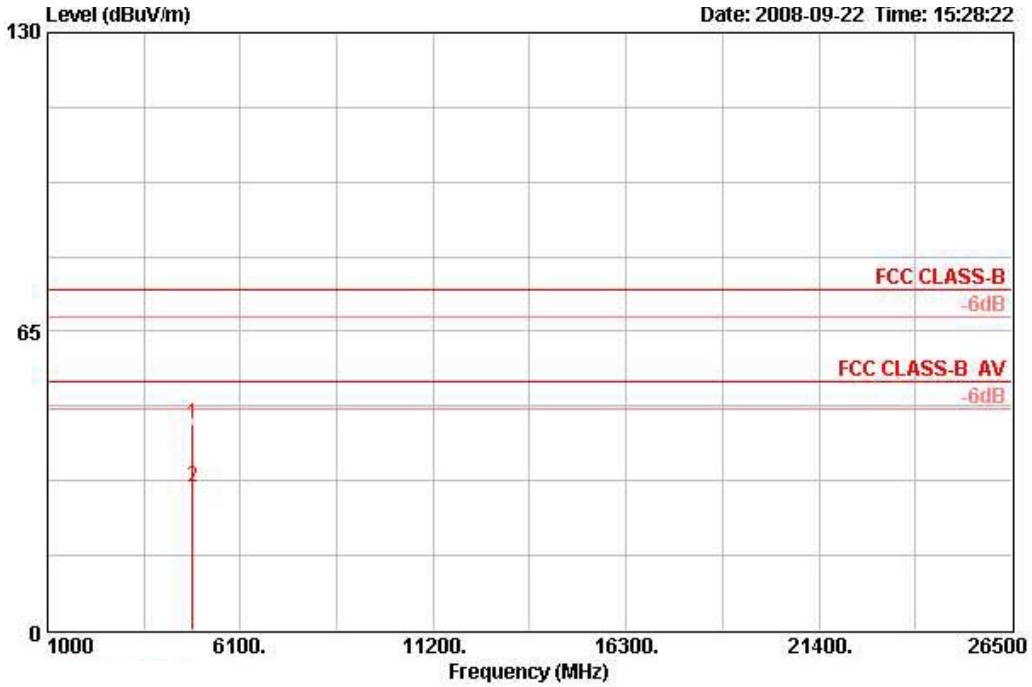
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4924.070	43.50	-10.50	54.00	41.39	33.26	3.98	35.14	AVERAGE	100	131	VERTICAL
2	4924.080	49.68	-24.32	74.00	47.57	33.26	3.98	35.14	PEAK	100	131	VERTICAL

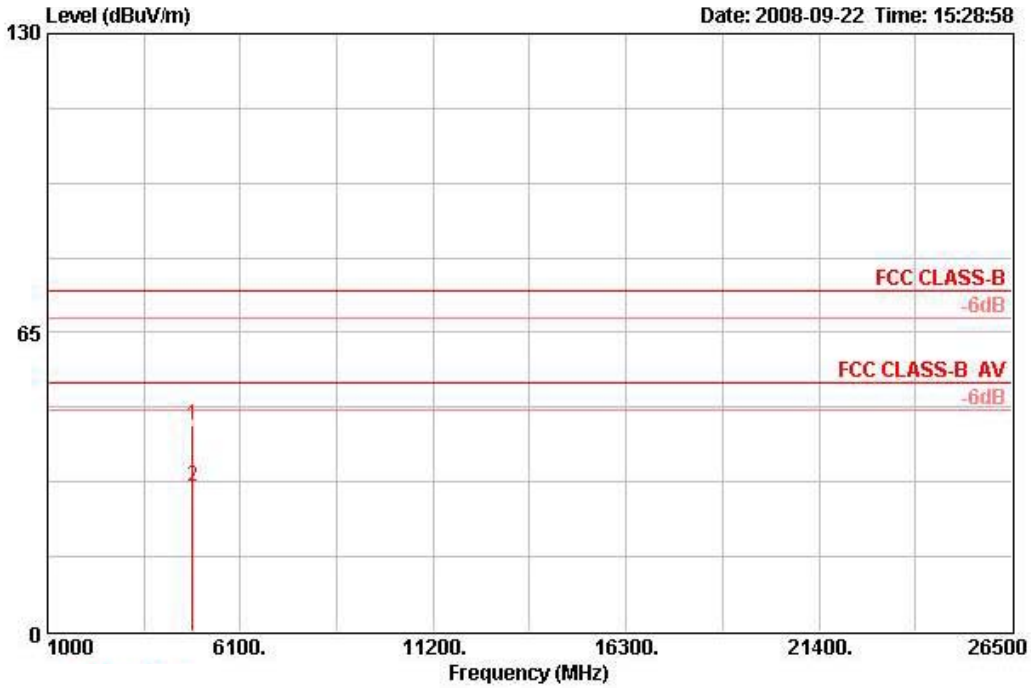
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 1 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4823.450	44.72	-29.28	74.00	42.89	33.06	3.94	35.16	PEAK	100	0	HORIZONTAL
2	4823.510	31.16	-22.84	54.00	29.33	33.06	3.94	35.16	AVERAGE	100	0	HORIZONTAL

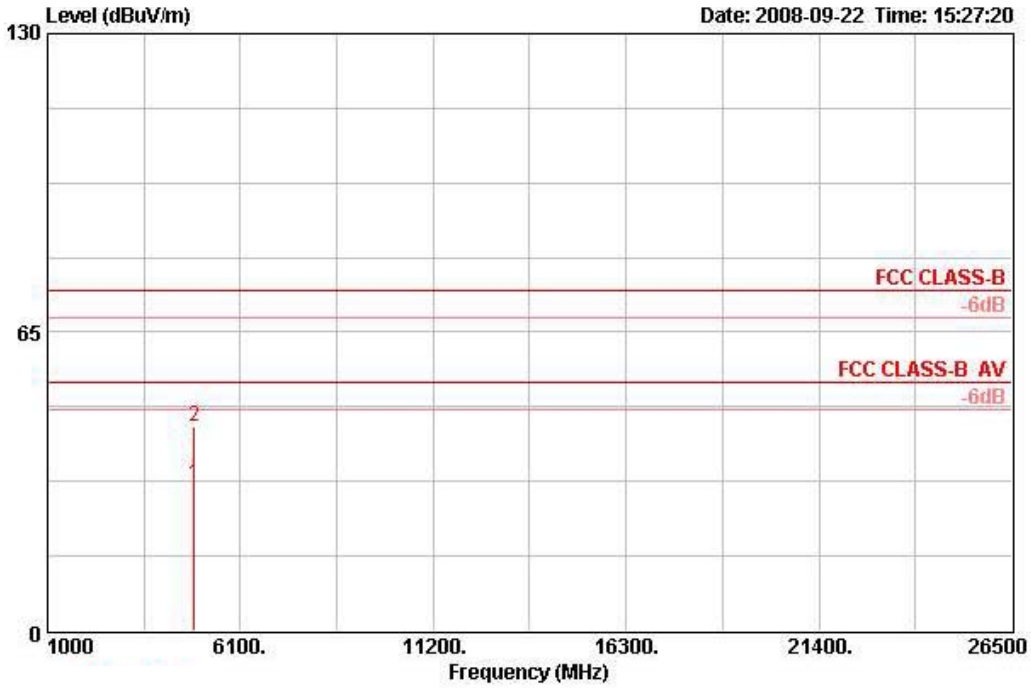
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4824.610	44.63	-29.37	74.00	42.81	33.06	3.94	35.16	PEAK	100	166	VERTICAL
2 @	4825.540	31.33	-22.67	54.00	29.50	33.06	3.94	35.16	AVERAGE	100	166	VERTICAL

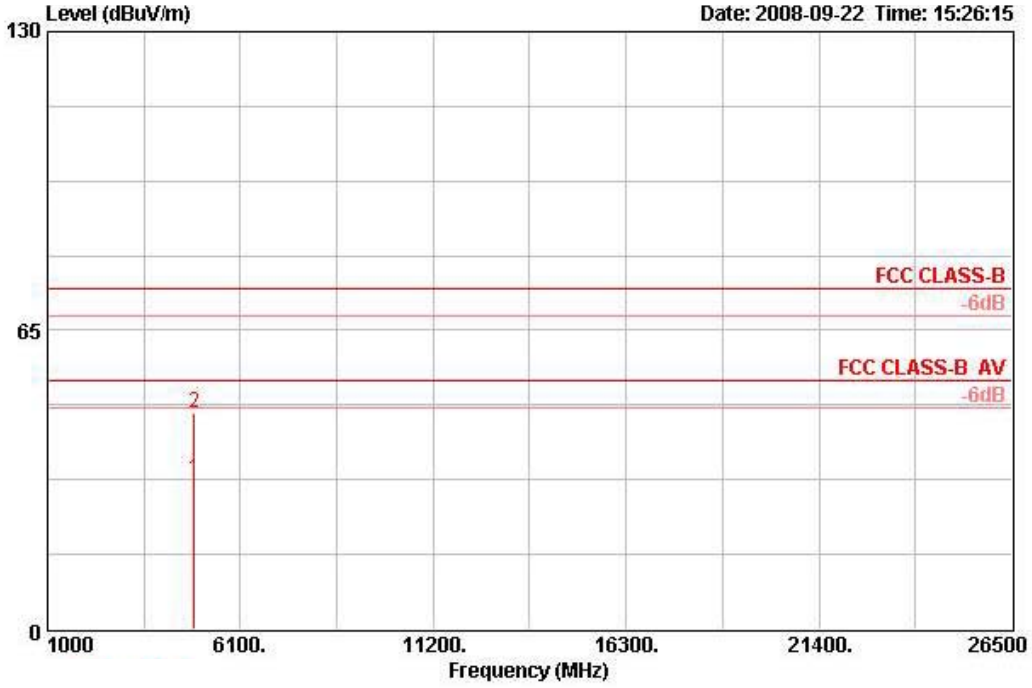
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 6 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4871.610	31.97	-22.03	54.00	30.00	33.16	3.96	35.15	AVERAGE	100	360	HORIZONTAL
2	4871.860	44.54	-29.46	74.00	42.58	33.16	3.96	35.15	PEAK	100	360	HORIZONTAL

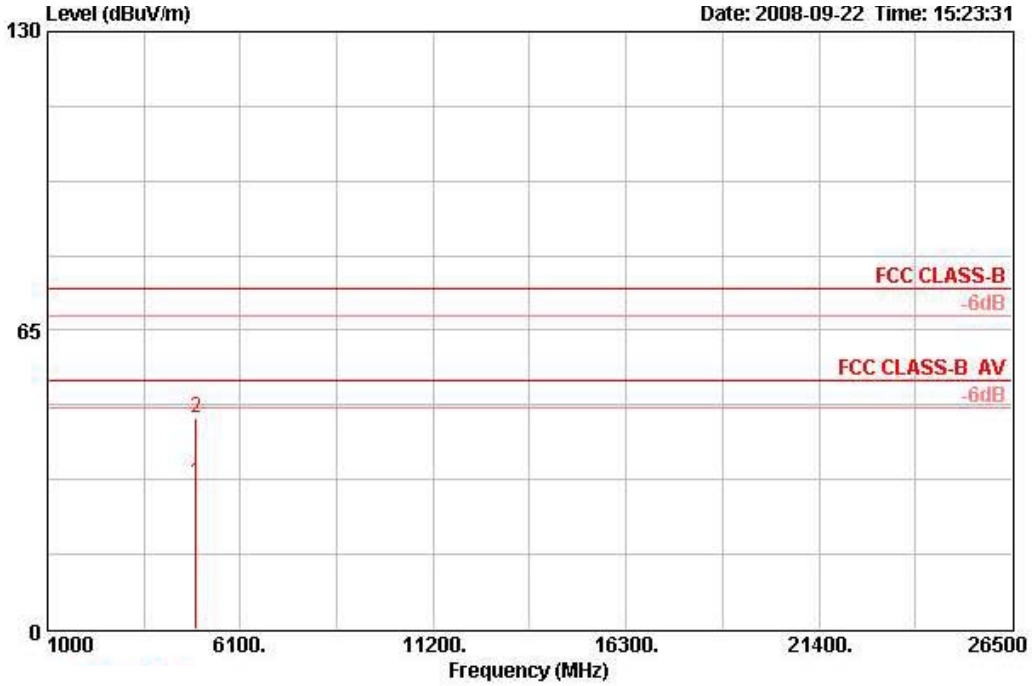
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4875.000	32.75	-21.25	54.00	30.78	33.16	3.96	35.15	AVERAGE	100	127	VERTICAL
2	4875.040	47.05	-26.95	74.00	45.09	33.16	3.96	35.15	PEAK	100	127	VERTICAL

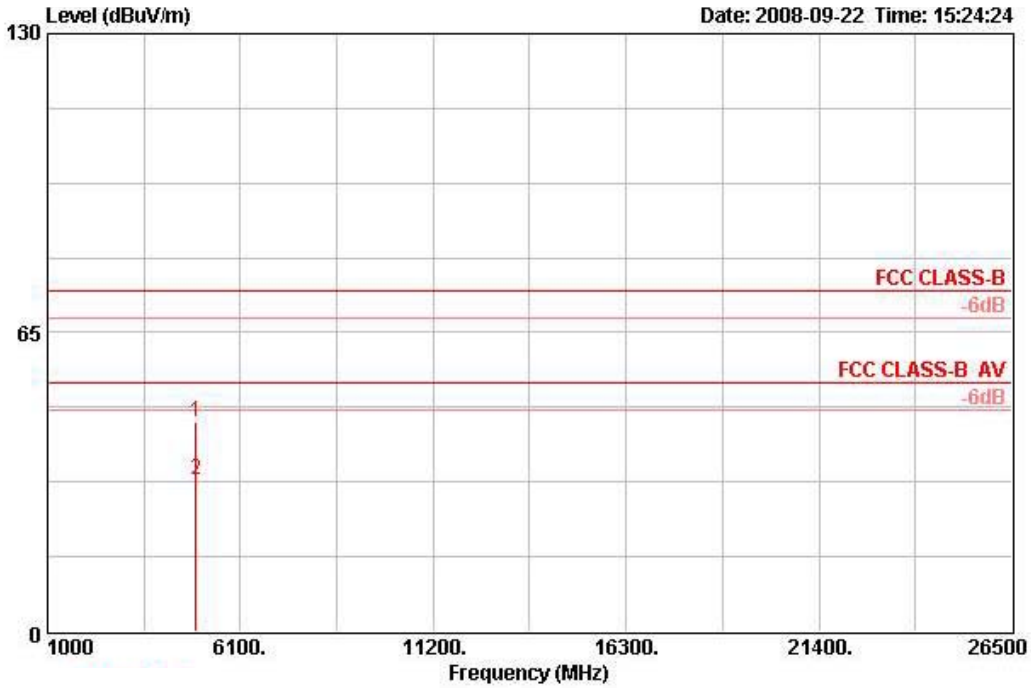
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 11 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	4922.980	31.94	-22.06	54.00	29.83	33.26	3.98	35.14	AVERAGE	100	0	HORIZONTAL
2	4923.030	45.92	-28.08	74.00	43.81	33.26	3.98	35.14	PEAK	100	0	HORIZONTAL

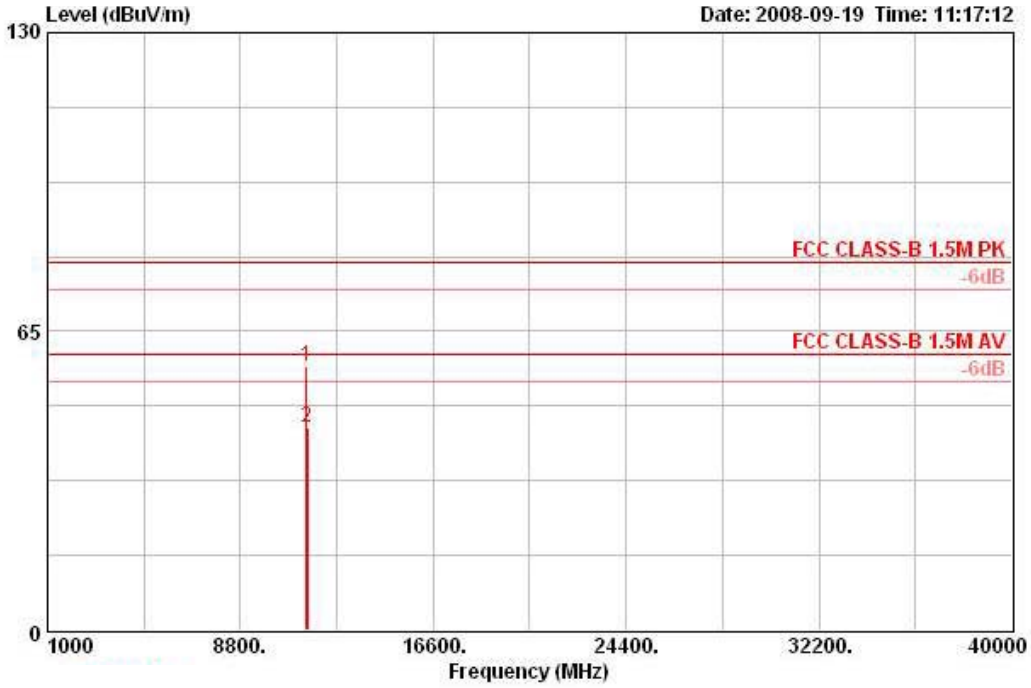
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1	4924.560	45.45	-28.55	74.00	43.35	33.26	3.98	35.14	PEAK	100	360	VERTICAL
2 @	4926.300	32.80	-21.20	54.00	30.70	33.26	3.98	35.14	AVERAGE	100	360	VERTICAL

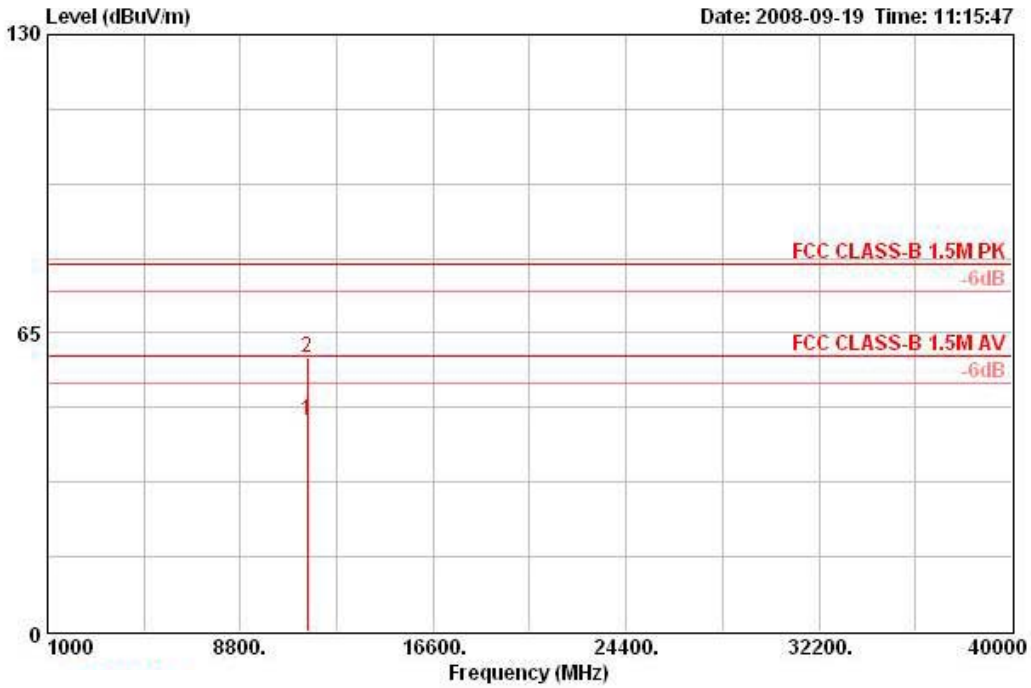
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11a CH 149 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11483.800	57.35	-22.65	80.00	41.90	39.50	34.95	10.90	PEAK	HORIZONTAL	360	100
2	11499.240	44.25	-15.75	60.00	28.78	39.50	34.96	10.93	AVERAGE	HORIZONTAL	360	100

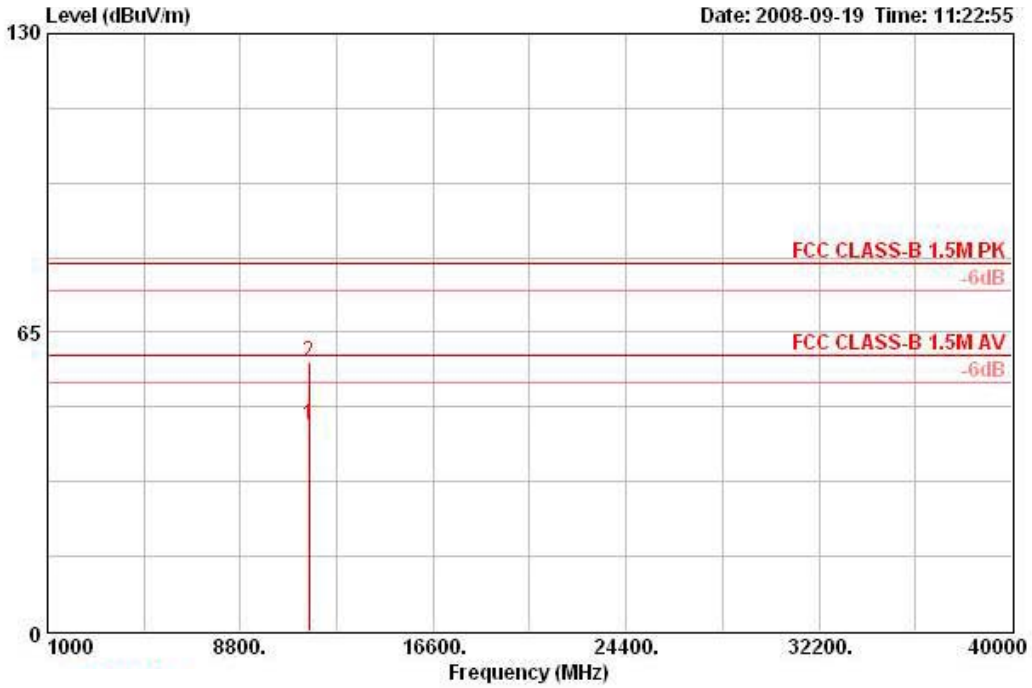
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 @	11492.640	45.92	-14.08	60.00	30.47	39.50	34.95	10.90	AVERAGE	VERTICAL	103	100
2	11498.440	59.62	-20.38	80.00	44.15	39.50	34.96	10.93	PEAK	VERTICAL	103	100

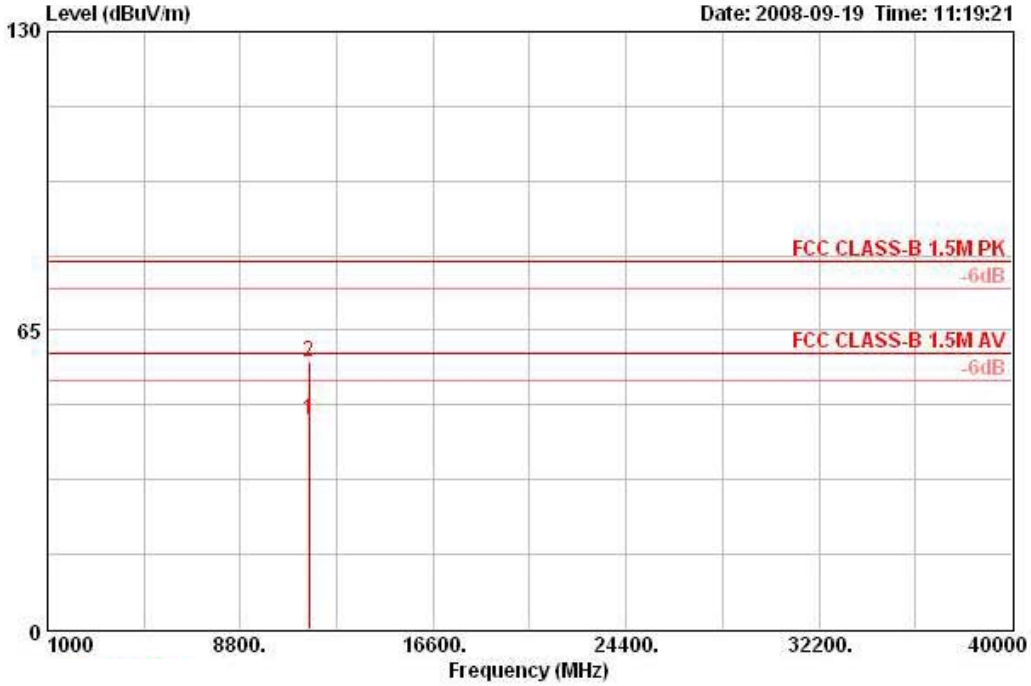
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11a CH 157 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11570.600	44.89	-15.11	60.00	29.55	39.47	34.96	10.83	AVERAGE	HORIZONTAL	0	100
2	11579.720	58.35	-21.65	80.00	43.01	39.47	34.96	10.83	PEAK	HORIZONTAL	0	100

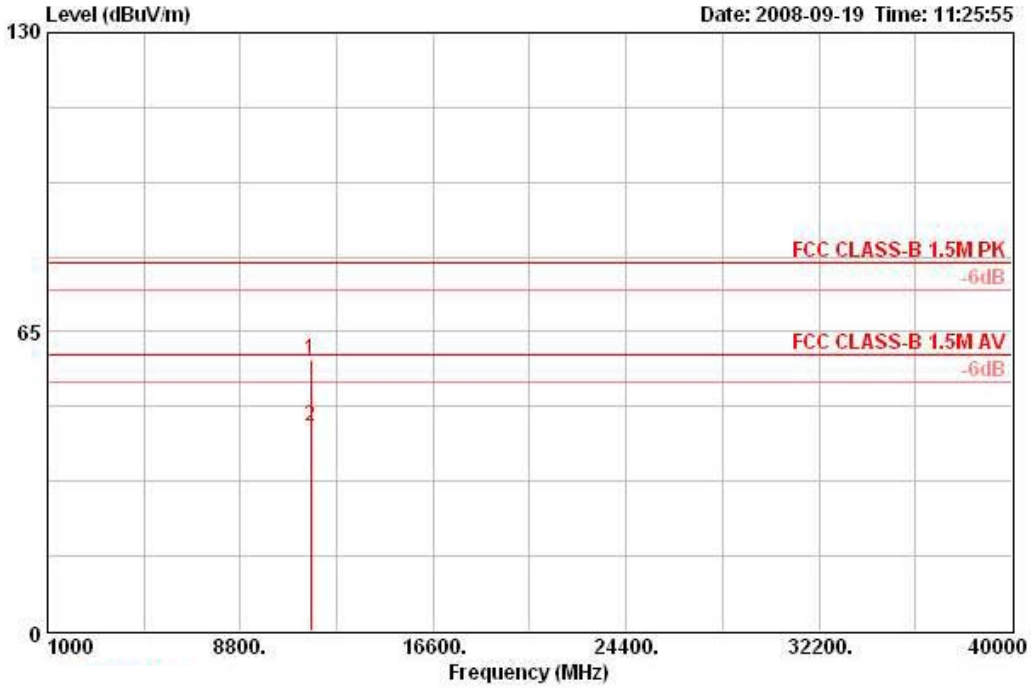
Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1 @	11570.200	45.73	-14.27	60.00	30.39	39.47	34.96	10.83	AVERAGE	VERTICAL	236	100
2	11572.200	58.12	-21.88	80.00	42.78	39.47	34.96	10.83	PEAK	VERTICAL	236	100

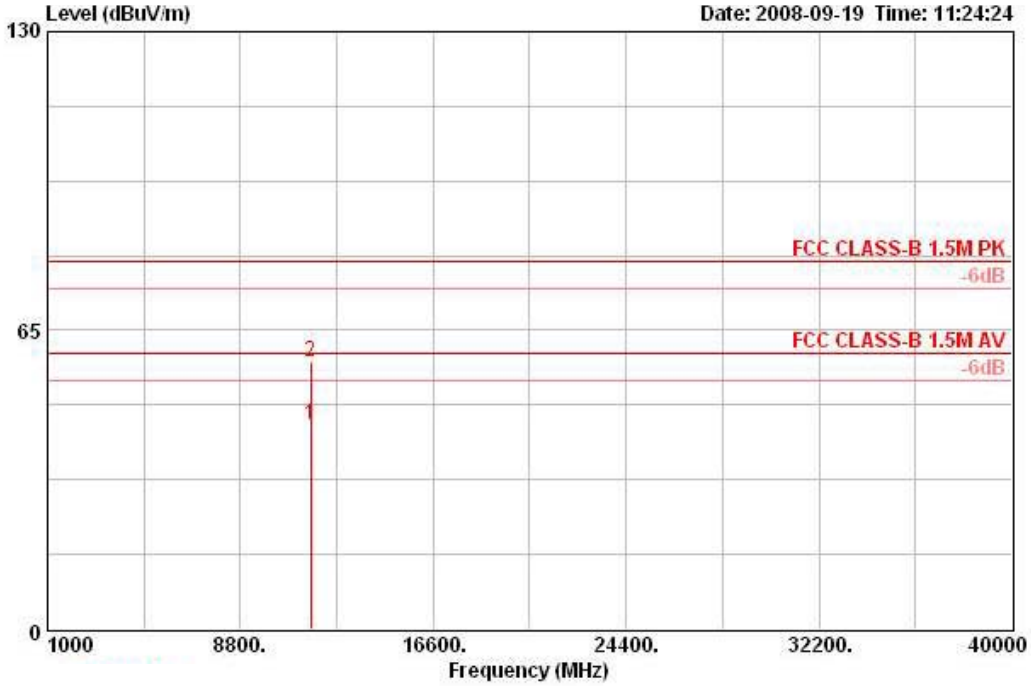
Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11a CH 165 / Ant. A + Ant. B

Horizontal



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11641.680	58.88	-21.12	80.00	43.64	39.44	34.97	10.76	PEAK	HORIZONTAL	0	100
2	11643.560	44.35	-15.65	60.00	29.11	39.44	34.97	10.76	AVERAGE	HORIZONTAL	0	100

Vertical



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Remark	Pol/Phase	Table Pos	Ant Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB			deg	cm
1	11640.680	44.33	-15.67	60.00	29.09	39.44	34.97	10.76	AVERAGE	VERTICAL	360	100
2	11644.640	58.00	-22.00	80.00	42.76	39.44	34.97	10.76	PEAK	VERTICAL	360	100

Note:

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

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

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

4.6. Band Edge Emissions Measurement

4.6.1. 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 (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

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

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

4.6.3. Test Procedures

1. The test procedure is the same as section 4.5.3, only the frequency 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.

4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch 1 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2389.400	66.74	-7.26	74.00	35.85	28.17	2.71	0.00	PEAK	100	140	VERTICAL
2 @	2390.000	51.40	-2.60	54.00	20.51	28.17	2.71	0.00	AVERAGE	100	140	VERTICAL
3 @	2416.600	99.52			68.58	28.21	2.73	0.00	AVERAGE	100	140	VERTICAL
4 @	2418.600	111.78			80.80	28.25	2.73	0.00	PEAK	100	140	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch 6 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2389.600	61.52	-12.48	74.00	30.64	28.17	2.71	0.00	PEAK	100	303	VERTICAL
2 @	2390.000	48.79	-5.21	54.00	17.90	28.17	2.71	0.00	AVERAGE	100	303	VERTICAL
3 @	2435.600	103.98			72.95	28.29	2.74	0.00	AVERAGE	100	303	VERTICAL
4 @	2438.600	116.79			85.76	28.29	2.74	0.00	PEAK	100	303	VERTICAL
5 @	2483.500	51.89	-2.11	54.00	20.74	28.37	2.77	0.00	AVERAGE	100	303	VERTICAL
6 @	2485.300	66.01	-7.99	74.00	34.82	28.41	2.77	0.00	PEAK	100	303	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 20MHz Ch 11 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2464.600	96.13			65.04	28.33	2.76	0.00	AVERAGE	100	304	VERTICAL
2 @	2465.600	107.62			76.54	28.33	2.76	0.00	PEAK	100	304	VERTICAL
3 @	2483.500	51.59	-2.41	54.00	20.44	28.37	2.77	0.00	AVERAGE	100	304	VERTICAL
4 @	2483.700	67.03	-6.97	74.00	35.89	28.37	2.77	0.00	PEAK	100	304	VERTICAL

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

Temperature	18℃	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 3 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2390.000	48.70	-5.30	54.00	17.81	28.17	2.71	0.00	AVERAGE	100	140	VERTICAL
2 @	2390.000	65.36	-8.64	74.00	34.47	28.17	2.71	0.00	PEAK	100	140	VERTICAL
3 @	2415.200	92.19			61.25	28.21	2.73	0.00	AVERAGE	100	140	VERTICAL
4 @	2419.200	104.75			73.77	28.25	2.73	0.00	PEAK	100	140	VERTICAL

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

Temperature	18℃	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 6 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2389.200	68.34	-5.66	74.00	37.46	28.17	2.71	0.00	PEAK	100	127	VERTICAL
2 @	2390.000	53.45	-0.55	54.00	22.57	28.17	2.71	0.00	AVERAGE	100	127	VERTICAL
3 @	2423.000	107.28			76.30	28.25	2.73	0.00	PEAK	100	127	VERTICAL
4 @	2452.600	94.62			63.55	28.33	2.74	0.00	AVERAGE	100	127	VERTICAL
5 @	2483.500	49.30	-4.70	54.00	18.15	28.37	2.77	0.00	AVERAGE	100	127	VERTICAL
6 @	2485.100	66.70	-7.30	74.00	35.52	28.41	2.77	0.00	PEAK	100	127	VERTICAL

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

Temperature	18℃	Humidity	63%
Test Engineer	Allen Liu	Configurations	Draft n MCS8 40MHz Ch 9 / Ant. A + Ant. B
Test date	Sep. 22, 2008		

Channel 9

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2469.200	104.78			73.65	28.37	2.76	0.00	PEAK	108	259	VERTICAL
2 @	2469.200	92.80			61.67	28.37	2.76	0.00	AVERAGE	108	259	VERTICAL
3 @	2483.500	51.71	-2.29	54.00	20.56	28.37	2.77	0.00	AVERAGE	108	259	VERTICAL
4 @	2483.500	69.68	-4.32	74.00	38.53	28.37	2.77	0.00	PEAK	108	259	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.

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 1 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2385.800	52.10	-1.90	54.00	21.21	28.17	2.71	0.00	AVERAGE	100	63	VERTICAL
2 @	2386.400	60.83	-13.17	74.00	29.95	28.17	2.71	0.00	PEAK	100	63	VERTICAL
3 @	2410.600	111.12			80.18	28.21	2.73	0.00	PEAK	100	63	VERTICAL
4 @	2411.400	105.35			74.42	28.21	2.73	0.00	AVERAGE	100	63	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 6 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2388.200	57.13	-16.87	74.00	26.25	28.17	2.71	0.00	PEAK	105	284	VERTICAL
2 @	2390.000	45.21	-8.79	54.00	14.33	28.17	2.71	0.00	AVERAGE	105	284	VERTICAL
3 @	2434.800	113.78			82.75	28.29	2.74	0.00	AVERAGE	105	284	VERTICAL
4 @	2435.400	119.41			88.38	28.29	2.74	0.00	PEAK	105	284	VERTICAL
5 @	2483.500	46.27	-7.73	54.00	15.13	28.37	2.77	0.00	AVERAGE	105	284	VERTICAL
6 @	2485.900	57.79	-16.21	74.00	26.61	28.41	2.77	0.00	PEAK	105	284	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11b CH 11 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2465.200	110.33			79.24	28.33	2.76	0.00	AVERAGE	112	326	VERTICAL
2 @	2466.000	114.89			83.80	28.33	2.76	0.00	PEAK	112	326	VERTICAL
3 @	2483.500	48.28	-5.72	54.00	17.14	28.37	2.77	0.00	AVERAGE	112	326	VERTICAL
4 @	2483.500	60.79	-13.21	74.00	29.65	28.37	2.77	0.00	PEAK	112	326	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 1 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 1

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2389.000	66.54	-7.46	74.00	35.66	28.17	2.71	0.00	PEAK	100	139	VERTICAL
2 @	2390.000	50.37	-3.63	54.00	19.49	28.17	2.71	0.00	AVERAGE	100	139	VERTICAL
3 @	2414.600	112.59			81.65	28.21	2.73	0.00	PEAK	100	139	VERTICAL
4 @	2417.400	101.37			70.40	28.25	2.73	0.00	AVERAGE	100	139	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 6 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 6

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2389.800	62.86	-11.14	74.00	31.97	28.17	2.71	0.00	PEAK	100	329	VERTICAL
2 @	2390.000	49.46	-4.54	54.00	18.57	28.17	2.71	0.00	AVERAGE	100	329	VERTICAL
3 @	2435.200	115.76			84.73	28.29	2.74	0.00	PEAK	100	329	VERTICAL
4 @	2435.400	103.56			72.53	28.29	2.74	0.00	AVERAGE	100	329	VERTICAL
5 @	2483.500	48.11	-5.89	54.00	16.96	28.37	2.77	0.00	AVERAGE	100	329	VERTICAL
6 @	2485.500	60.00	-14.00	74.00	28.81	28.41	2.77	0.00	PEAK	100	329	VERTICAL

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

Temperature	18°C	Humidity	63%
Test Engineer	Allen Liu	Configurations	802.11g CH 11 / Ant. A + Ant. B
Test Date	Sep. 22, 2008		

Channel 11

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos	Pol/Phase
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg	
1 @	2463.800	112.73			81.64	28.33	2.76	0.00	PEAK	105	145	VERTICAL
2 @	2465.600	100.90			69.82	28.33	2.76	0.00	AVERAGE	105	145	VERTICAL
3 @	2483.500	50.49	-3.51	54.00	19.35	28.37	2.77	0.00	AVERAGE	105	145	VERTICAL
4 @	2483.500	66.63	-7.37	74.00	35.49	28.37	2.77	0.00	PEAK	105	145	VERTICAL

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

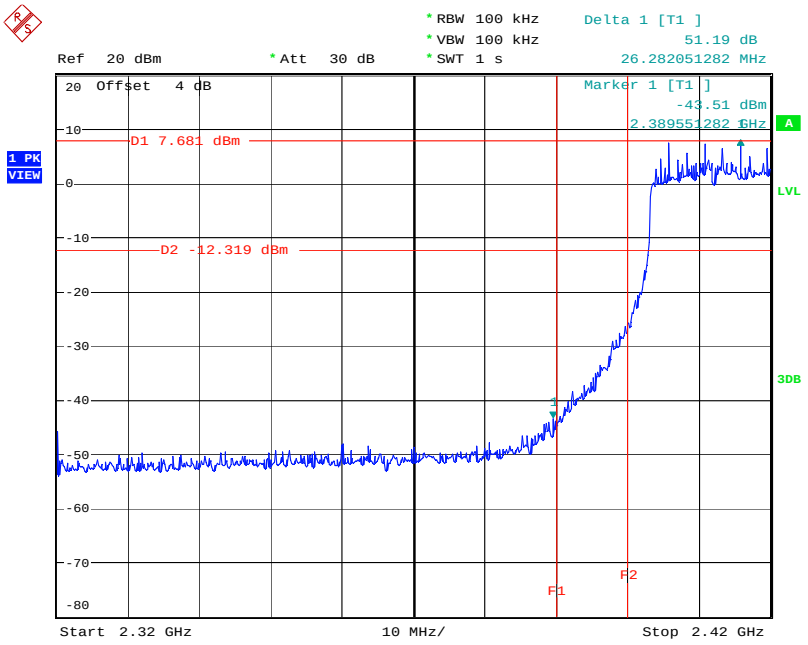
Note:

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

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

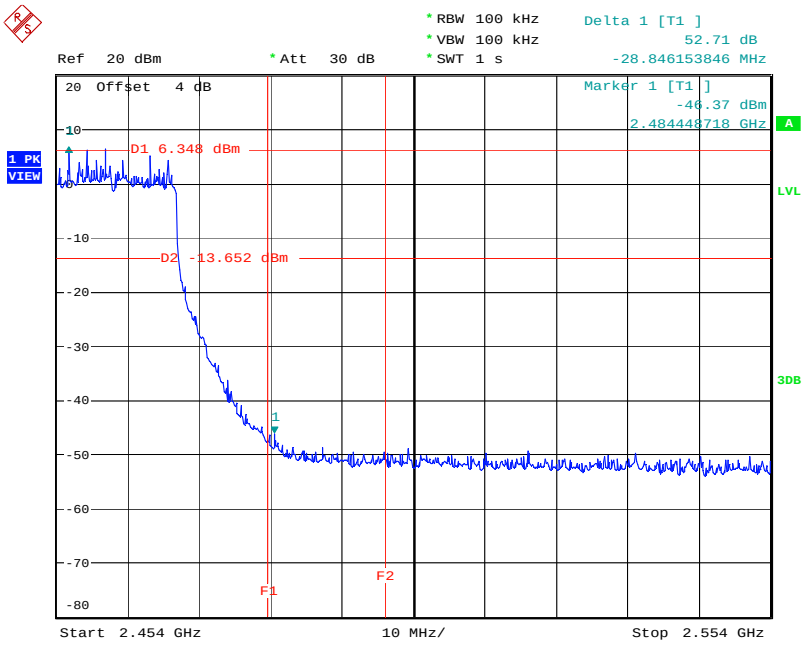
For Emission not in Restricted Band

Low Band Edge Plot on Configuration Draft n MCS8 20MHz / 2412 MHz



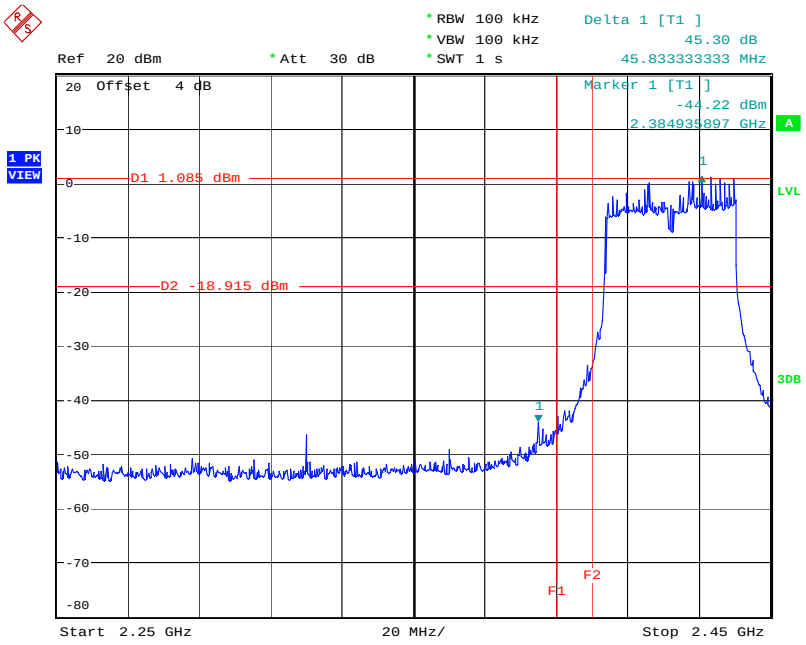
Date: 23.SEP.2008 15:25:59

High Band Edge Plot on Configuration Draft n MCS8 20MHz / 2462 MHz



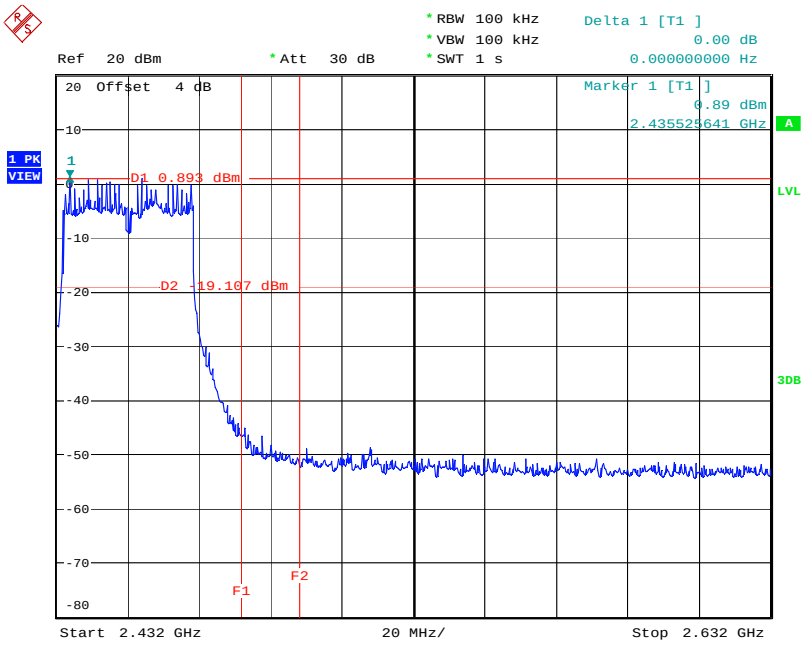
Date: 23.SEP.2008 15:30:02

Low Band Edge Plot on Configuration Draft n MCS8 40MHz / 2422 MHz



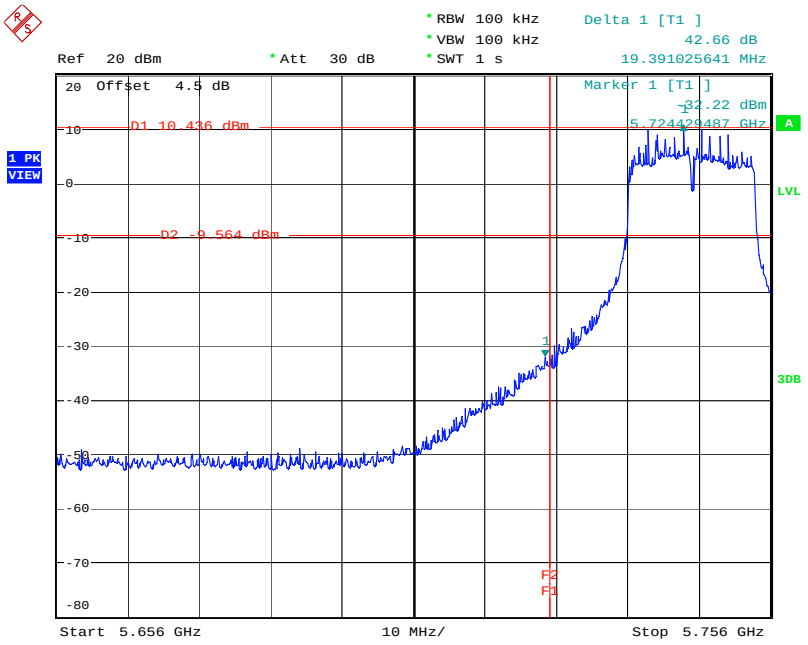
Date: 23.SEP.2008 15:37:12

High Band Edge Plot on Configuration Draft n MCS8 40MHz / 2452 MHz



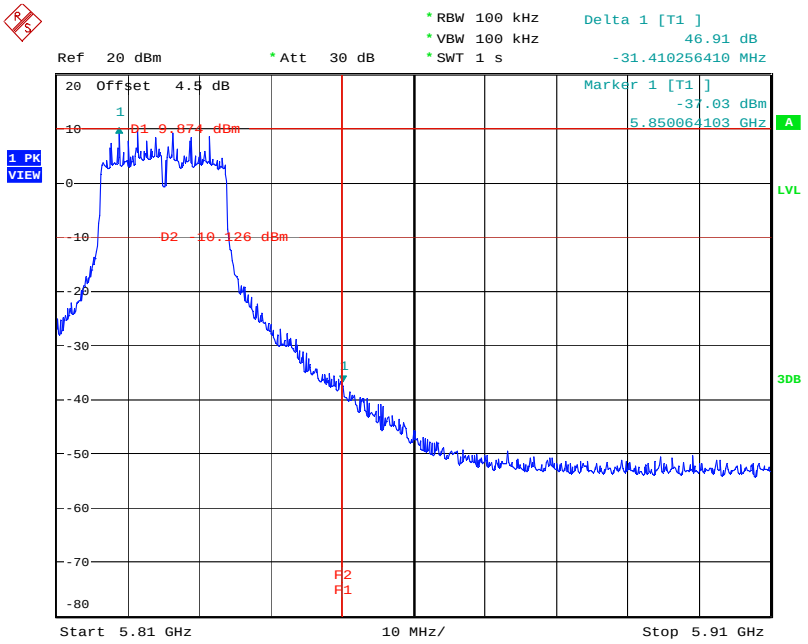
Date: 23.SEP.2008 15:42:21

Low Band Edge Plot on Configuration 11a Draft n MCS8 20MHz / 5745 MHz



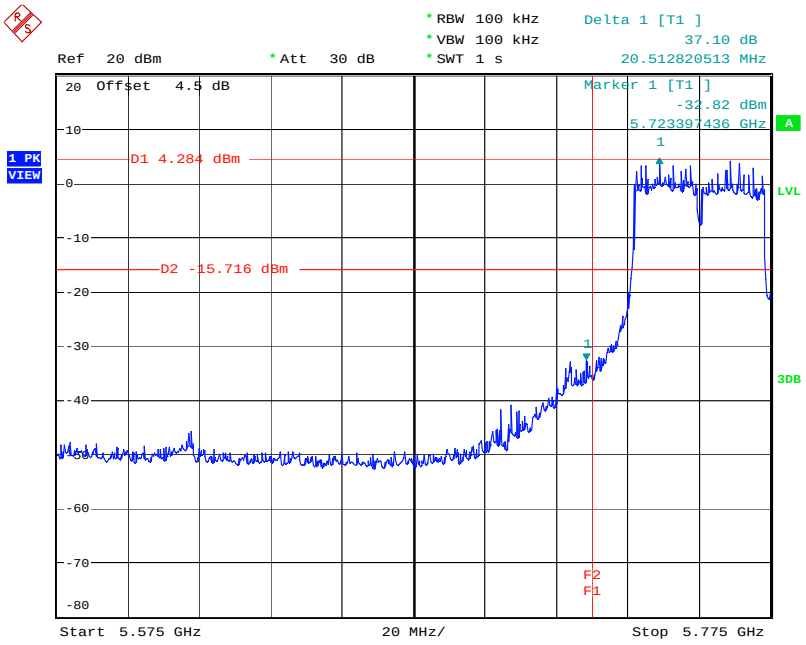
Date: 20.SEP.2008 14:06:20

High Band Edge Plot on Configuration 11a Draft n MCS8 20MHz / 5825 MHz



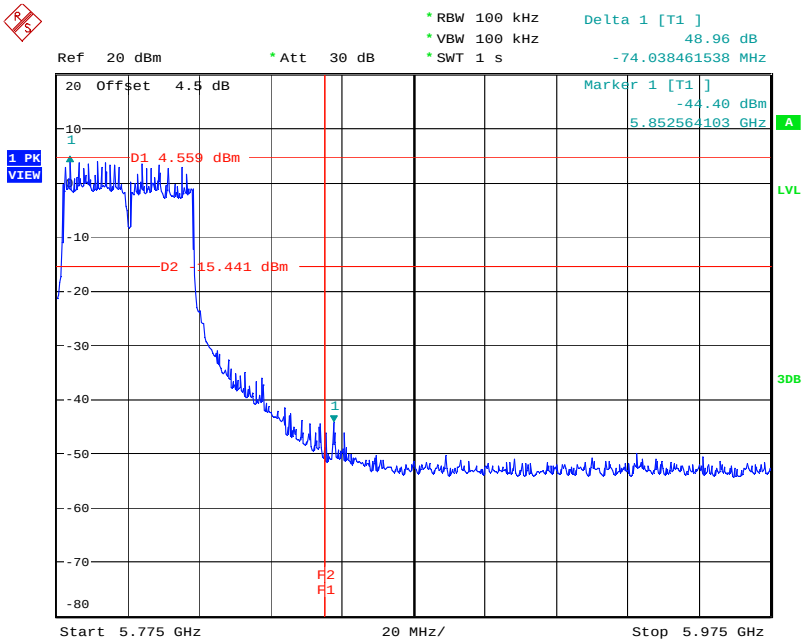
Date: 20.SEP.2008 14:14:23

Low Band Edge Plot on Configuration 11a Draft n MCS8 40MHz / 5755 MHz



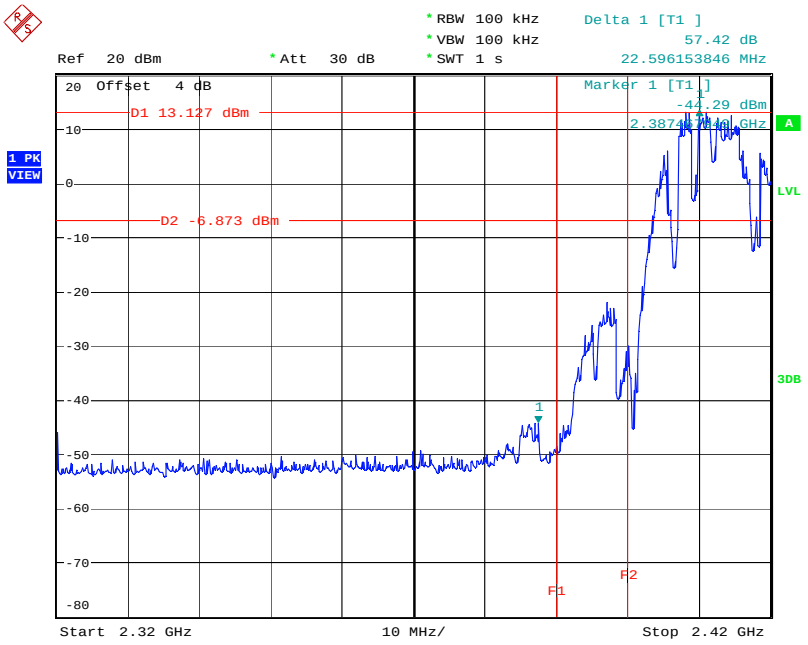
Date: 20.SEP.2008 13:47:00

High Band Edge Plot on Configuration 11a Draft n MCS8 40MHz / 5795 MHz



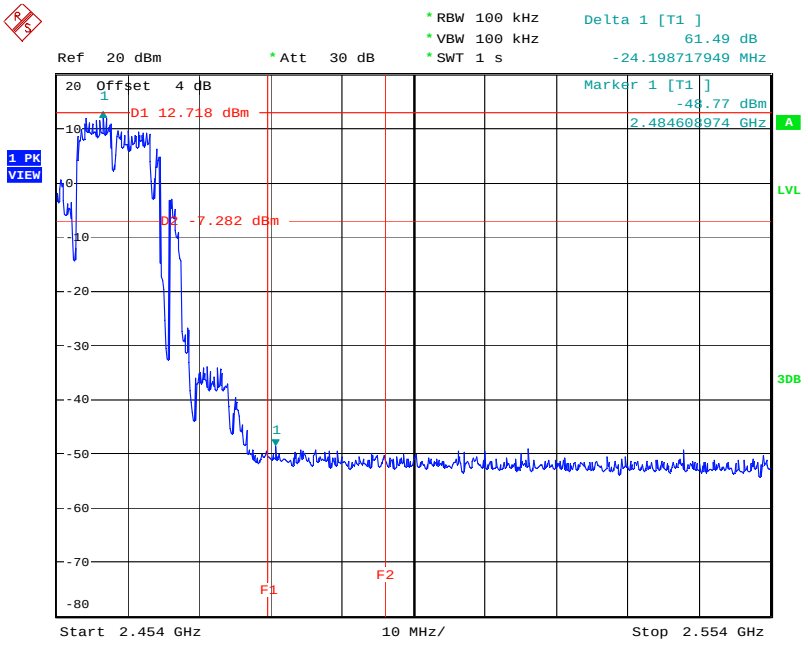
Date: 20.SEP.2008 14:01:27

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



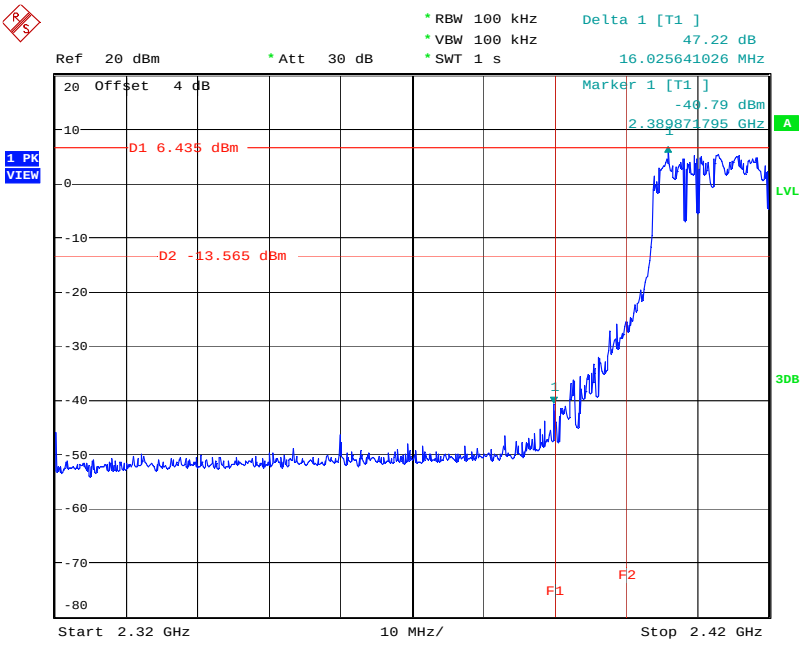
Date: 23.SEP.2008 15:13:02

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



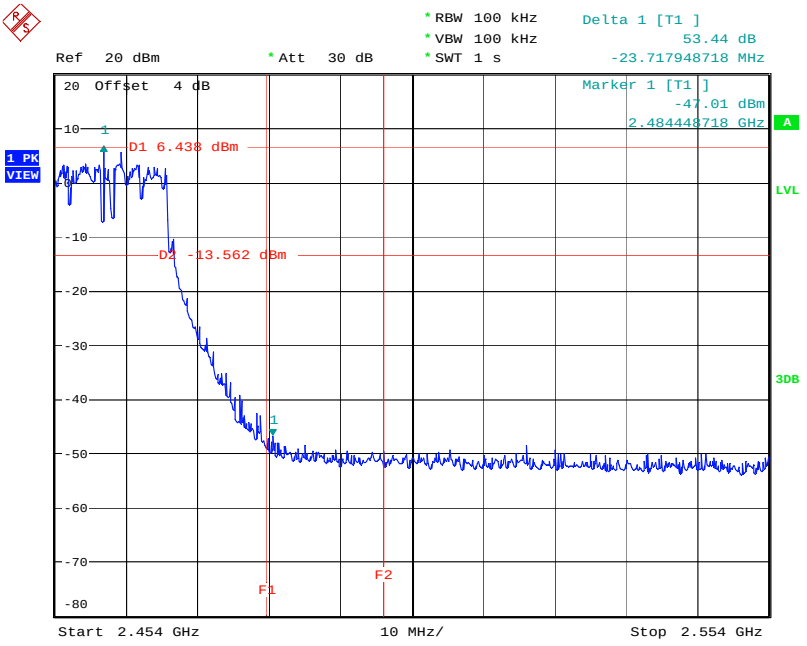
Date: 23.SEP.2008 15:17:14

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



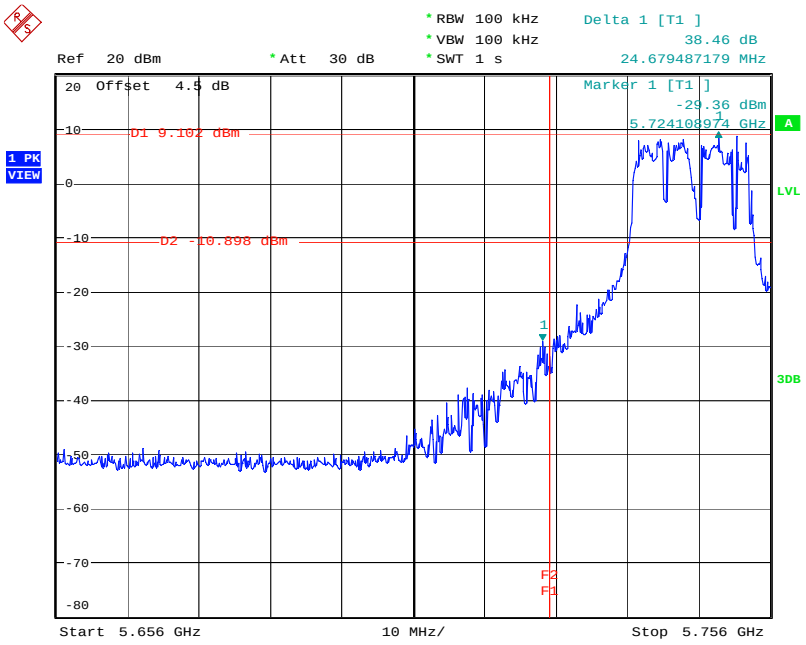
Date: 23.SEP.2008 15:23:57

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



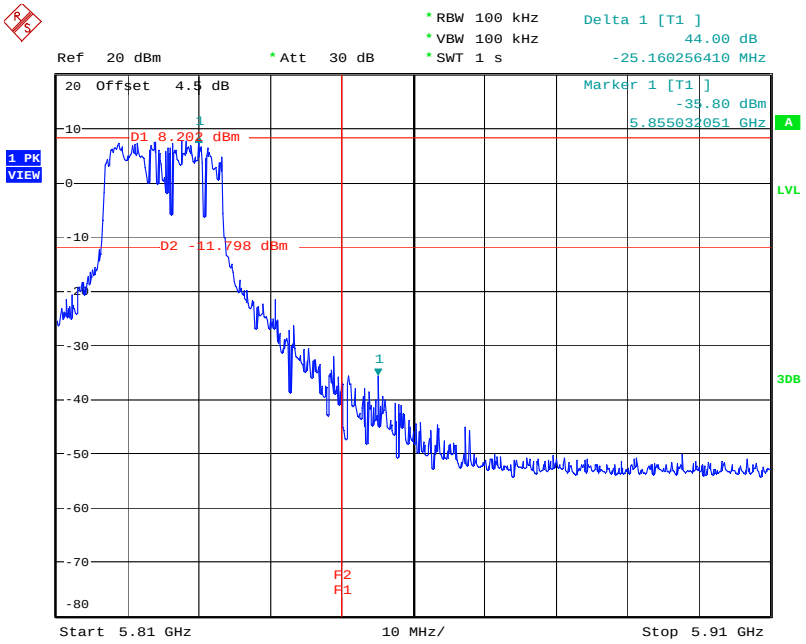
Date: 23.SEP.2008 15:19:29

Low Band Edge Plot on Configuration IEEE 802.11a / 5745 MHz



Date: 20.SEP.2008 14:23:17

High Band Edge Plot on Configuration IEEE 802.11a / 5825 MHz



Date: 20.SEP.2008 14:31:49

4.7. Antenna Requirements

4.7.1. 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.

4.7.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	Mar. 03, 2009	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 31, 2008	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2008	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2008	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN ST08	21653	9kHz –30MHz	Mar. 27, 2008	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz - 1 GHz 3m	Jun. 14, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 14, 2008	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz - 2 GHz	Jan. 23, 2009	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2008	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1 GHz - 26.5 GHz	Jul. 21, 2008	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2008*	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Jan. 22, 2008*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9 kHz - 30 GHz	Oct. 08, 2008	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100004	9 kHz - 30 GHz	Oct. 06, 2008	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	May 23, 2006*	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Jul 28, 2008*	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 12, 2008	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz – 1 GHz	Jul. 12, 2008	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 04, 2008	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 04, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.18, 2008	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15 GHz - 40 GHz	Jan.16, 2009	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz - 1 GHz	Jan. 05, 2009	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Dec. 03, 2007	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz - 40 GHz	Jan. 05, 2009	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0 – 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m - 4 m	N/A	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9kHz ~ 30GHz	Jan. 10, 2008	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jul. 11, 2008	Conducted (TH01-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Power Sensor	R&S	NRV-Z51	100458	DC ~ 30GHz	Jul. 11, 2008	Conducted (TH01-HY)
Power Sensor	R&S	NRV-Z32	100057	30MHz ~ 6GHz	Jul. 11, 2008	Conducted (TH01-HY)
AC Power Source	HPC	HPA-500W	HPA-9100024	AC 0 ~ 300V	May 30, 2008*	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2008	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-S	MAB0103-001	N/A	Jul. 18, 2008	Conducted (TH01-HY)
RF CABLE-1m	Jye Bao	RG142	CB034-1m	20MHz ~ 7GHz	Dec. 01, 2007	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2007	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Nov. 14, 2007	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 10, 2008	Conducted (TH01-HY)

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

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

6. 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 728, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

7. TAF CERTIFICATE OF ACCREDITATION

Certificate No. : L1190-070110

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

Certificate of Accreditation

This is to certify that

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

is accredited in respect of laboratory

Accreditation Criteria	:	ISO/IEC 17025:2005
Accreditation Number	:	1190
Originally Accredited	:	December 15, 2003
Effective Period	:	January 10, 2007 to January 09, 2010
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

Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

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