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FCC RADIO TEST REPORT

Applicant's company	**Belkin International, Inc.**
Applicant Address	501 West Walnut Street, Compton, CA 90220-5221, U.S.A.
FCC ID	**K7SF6D4230V3**

Product Name	Enhanced Wireless Router
Brand Name	Belkin
Model Name	F6D4230-4 V3
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Jun. 05, 2009
Final Test Date	Jun. 18, 2009
Submission Type	Original Equipment

Statement

Test result included in this report is for the Draft n and 802.11b/g part of the product.

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

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

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

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

TAF
Testing Laboratory
1190

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History of This Test Report

Original Issue Date: Jul. 01, 2009

Report No.: FR960504

■ No additional attachment.

□ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No.: CB9806106

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Enhanced Wireless Router
Brand Name	:	Belkin
Model Name	:	F6D4230-4 V3
Applicant	:	Belkin International, Inc.
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 Jun. 05, 2009 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Jordan Hsiao 2009.7.2

Jordan Hsiao
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	10.43 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	11.59 dB
4.3	15.247(e)	Power Spectral Density	Complies	13.04 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.08 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.10 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	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Power 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
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	MCS0 (20MHz) : 17.64 MHz ; MCS0 (40MHz) : 36.08 MHz
Conducted Output Power	MCS0 (20MHz) : 18.40 dBm ; MCS0 (40MHz) : 14.26 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11b/g

Items	Description
Product Type	WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Power Adapter
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
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
Channel Number	11
Channel Band Width (99%)	11b: 13.60 MHz ; 11g: 16.56 MHz
Conducted Output Power	11b: 17.12 dBm ; 11g: 18.41 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

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

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 1	Foxlink	FA-1201000SUC	Input: 100-240VAC, 50/60Hz, 0.5A Output: 12VDC, 1A
Adapter 2	LEI	MT12-Y120100-A1	Input: 120VAC, 60Hz, 0.3A Output: 12VDC, 1A

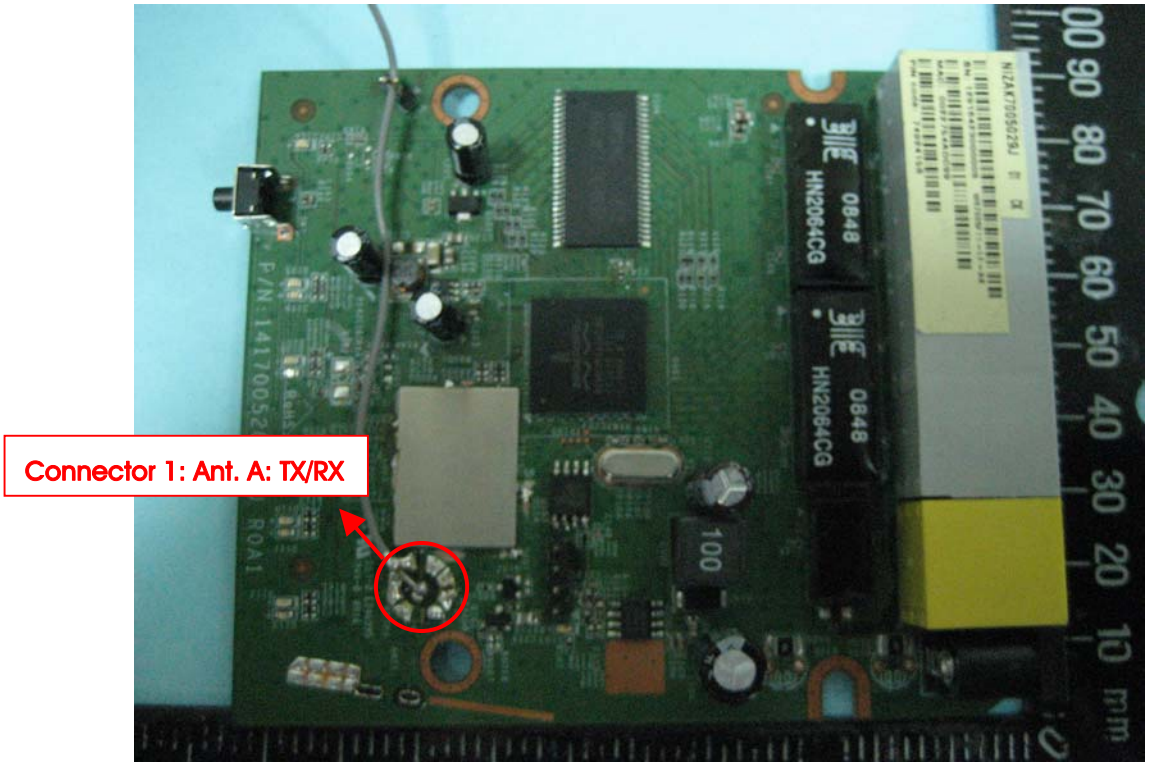
3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Remark
1	Arcadyan	120300029200J	Dipole Antenna	N/A	2	TX/RX

Note: The EUT has one antenna (1TX, 1RX).

For 802.11b/g mode and Draft n mode:

Ant. A can be used as transmitting and receiving antenna.



3.4. Table for Carrier Frequencies

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		

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.

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Peak Conducted Output Power	MCS0/20MHz	6.5 Mbps	1/6/11	A
	MCS0/40MHz	13.5 Mbps	3/6/9	A
	11b/BPSK	1 Mbps	1/6/11	A
	11g/BPSK	6 Mbps	1/6/11	A
Power Spectral Density 6dB Spectrum Bandwidth	MCS0/20MHz	6.5 Mbps	1/6/11	A
	MCS0/40MHz	13.5 Mbps	3/6/9	A
	11b/BPSK	1 Mbps	1/6/11	A
	11g/BPSK	6 Mbps	1/6/11	A
Radiated Emissions 9kHz~1GHz	Normal Link	-	-	-
Radiated Emissions 1GHz~10th Harmonic	MCS0/20MHz	6.5 Mbps	1/6/11	A
	MCS0/40MHz	13.5 Mbps	3/6/9	A
	11b/BPSK	1 Mbps	1/6/11	A
	11g/BPSK	6 Mbps	1/6/11	A
Band Edge Emissions	MCS0/20MHz	6.5 Mbps	1/11	A
	MCS0/40MHz	13.5 Mbps	3/9	A
	11b/BPSK	1 Mbps	1/11	A
	11g/BPSK	6 Mbps	1/11	A

Note:

The following test modes were performed for all tests:

Mode 1: EUT + Adapter 1

Mode 2: EUT + Adapter 2

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	480872	IC 4088	-
CO04-HY	Conduction	Hwa Ya	480872	IC 4088	-
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
HUB	Laneed	LD-LSW16C/AT	N/A
Notebook	DELL	M1330	E2KWM3945ABG
Notebook	DELL	1200	E2K4965AGNM
Notebook	DELL	PP25L	E2K4965AGNM

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.

Power Parameters of Draft n Ant. A

Test Software Version	HyperTerminal		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	12	15	15
MCS0 40MHz	13	15	15

Power Parameters of IEEE 802.11b/g Ant. A

Test Software Version	HyperTerminal		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	15	15	15
IEEE 802.11g	13	15	15

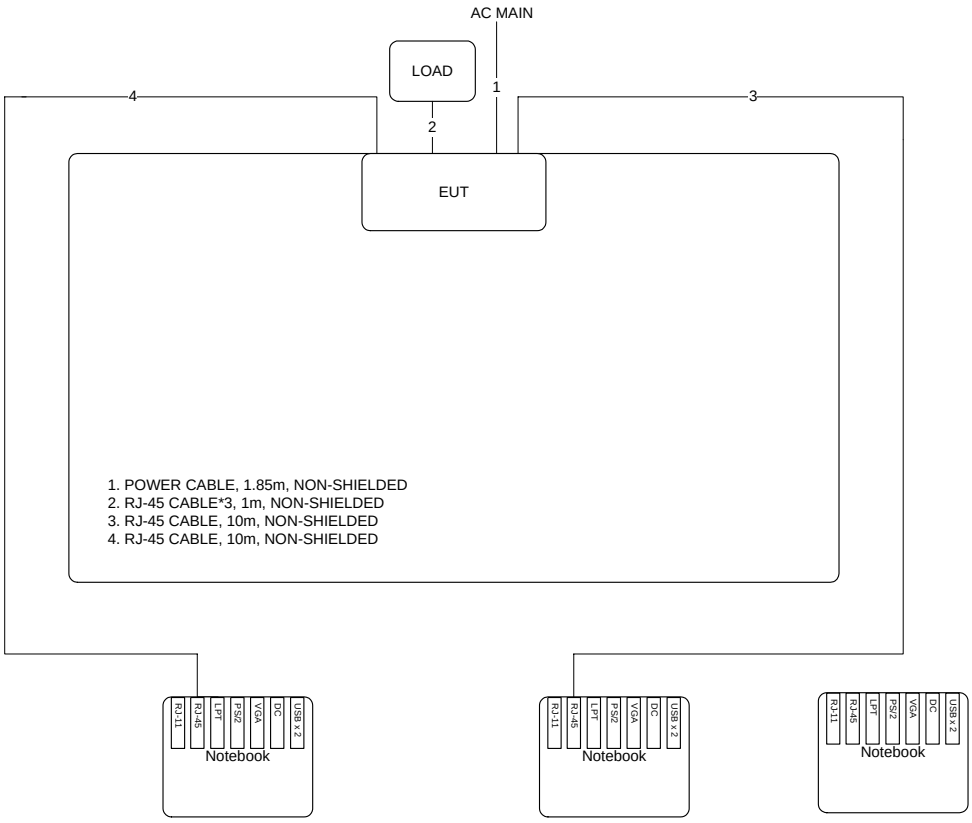
Executed “HyperTerminal” to control the EUT continuously transmit RF signal.

3.9. Test Configurations

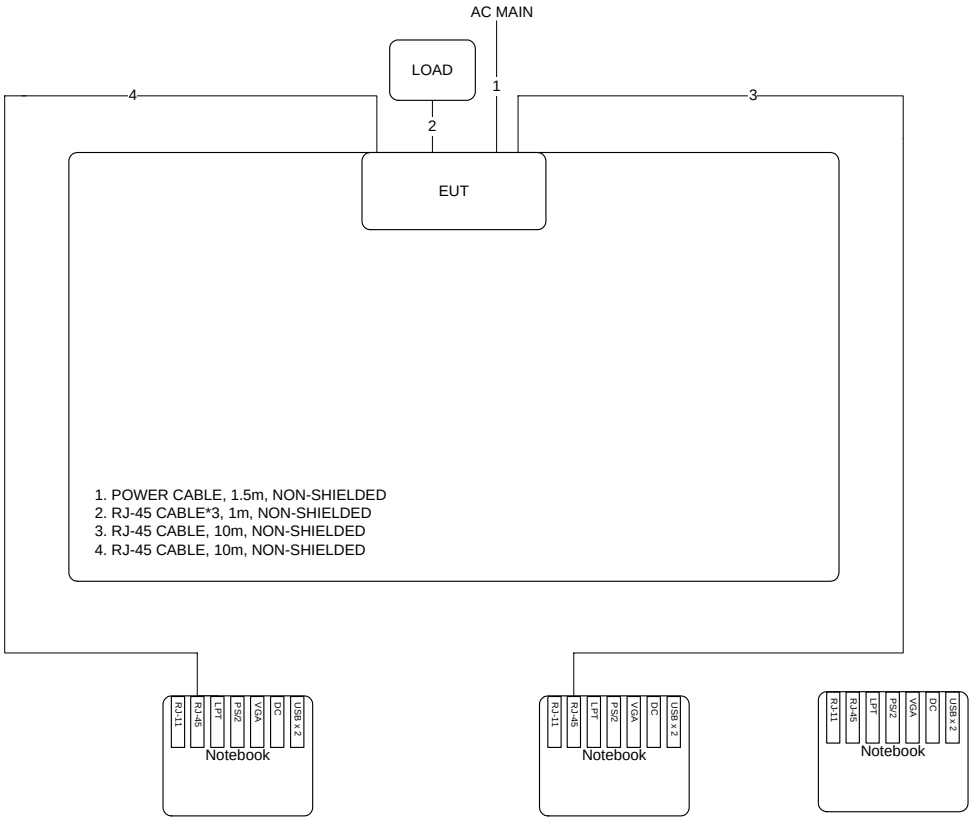
3.9.1. Radiation Emissions Test Configuration

Test Configuration: 30KHz~1GHz

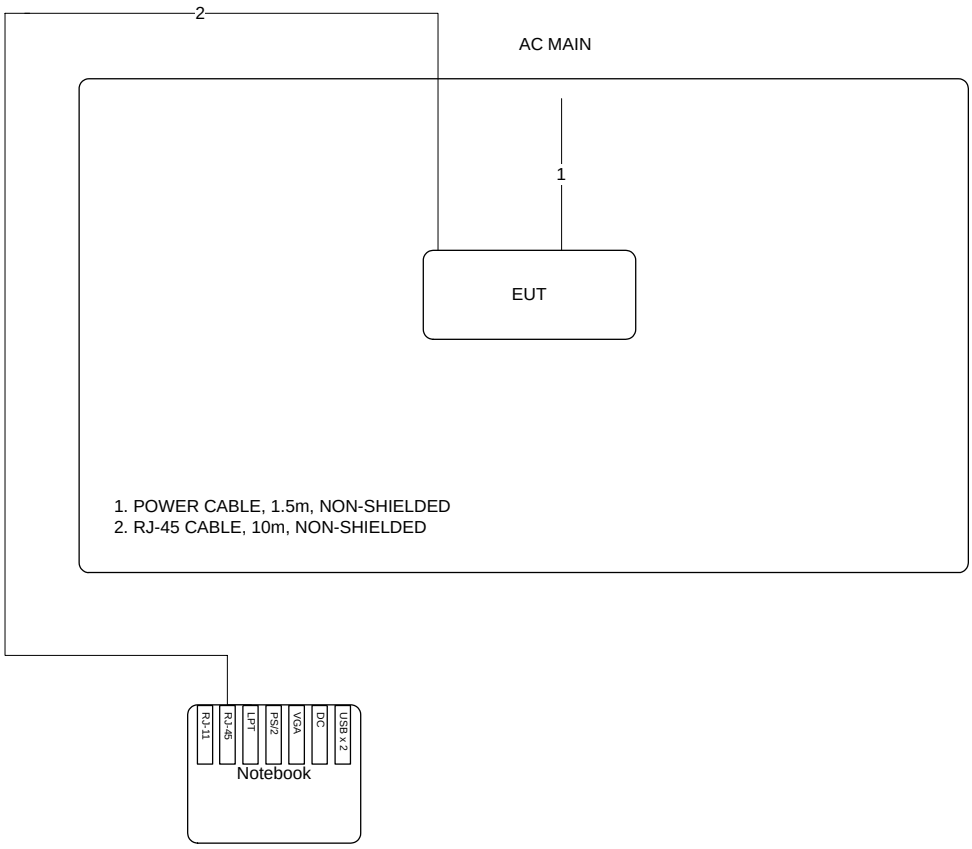
Test Mode: Mode 1



Test Mode: Mode 2

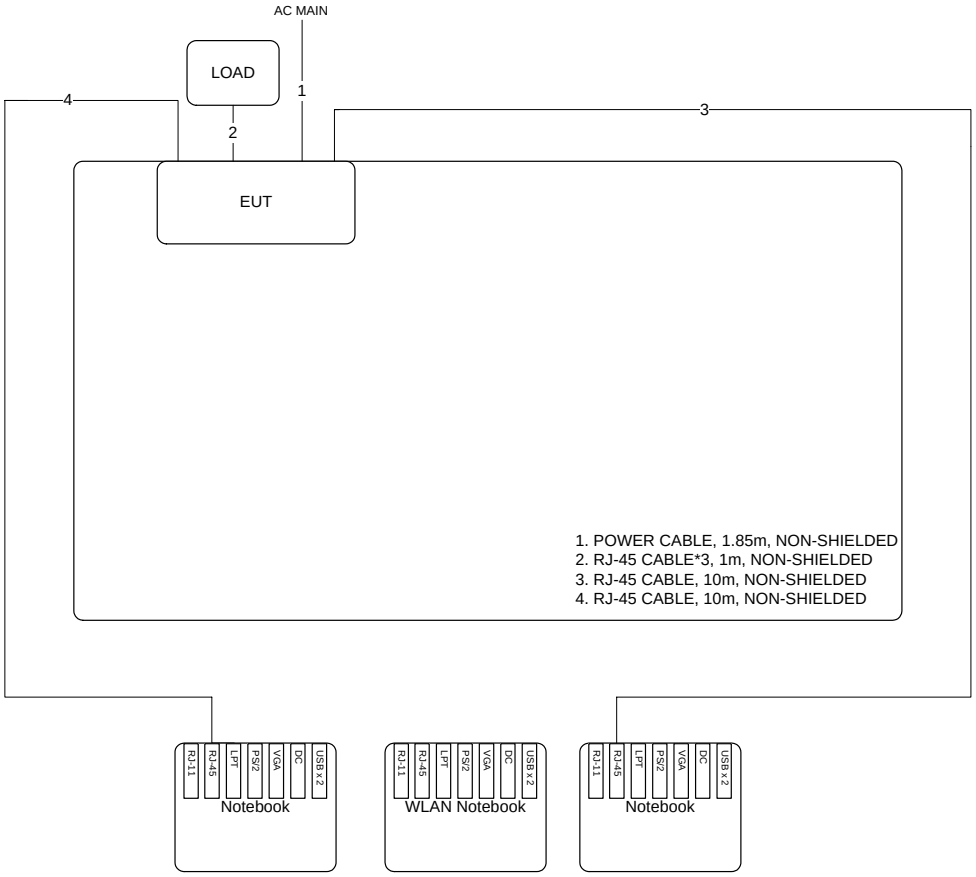


Test Configuration: above 1GHz

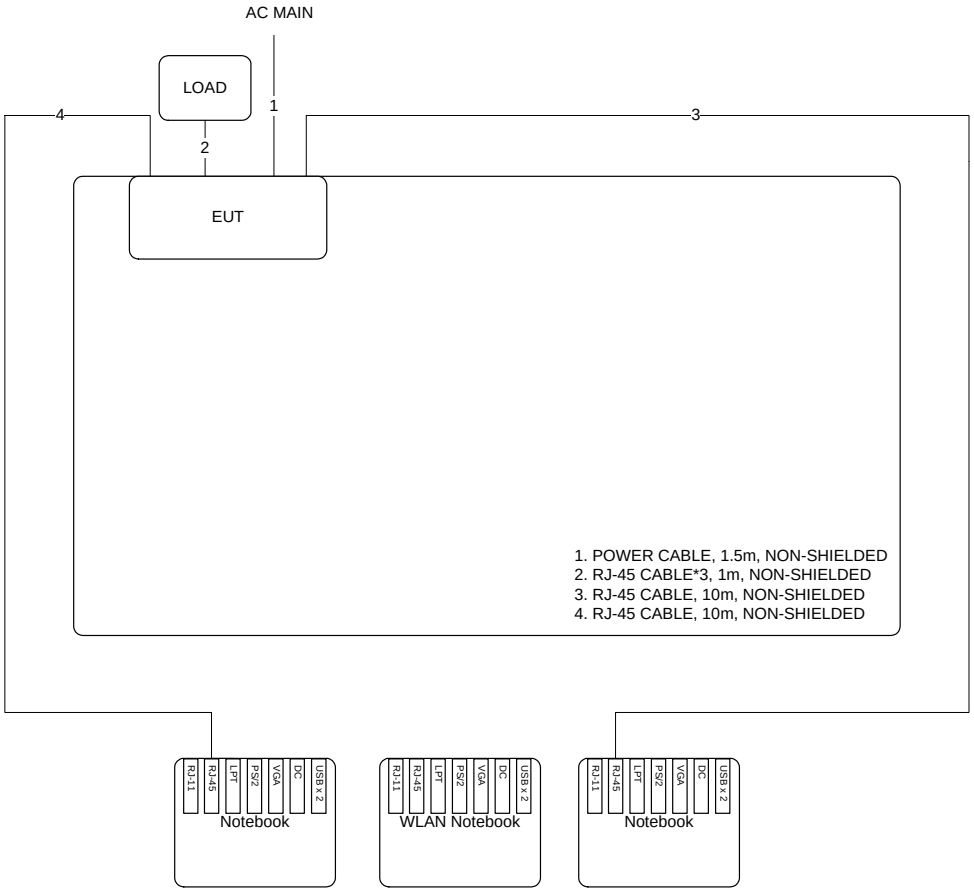


3.9.2. AC Power Line Conduction Emissions Test Configuration

Test Mode: Mode 1



Test Mode: Mode 2



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

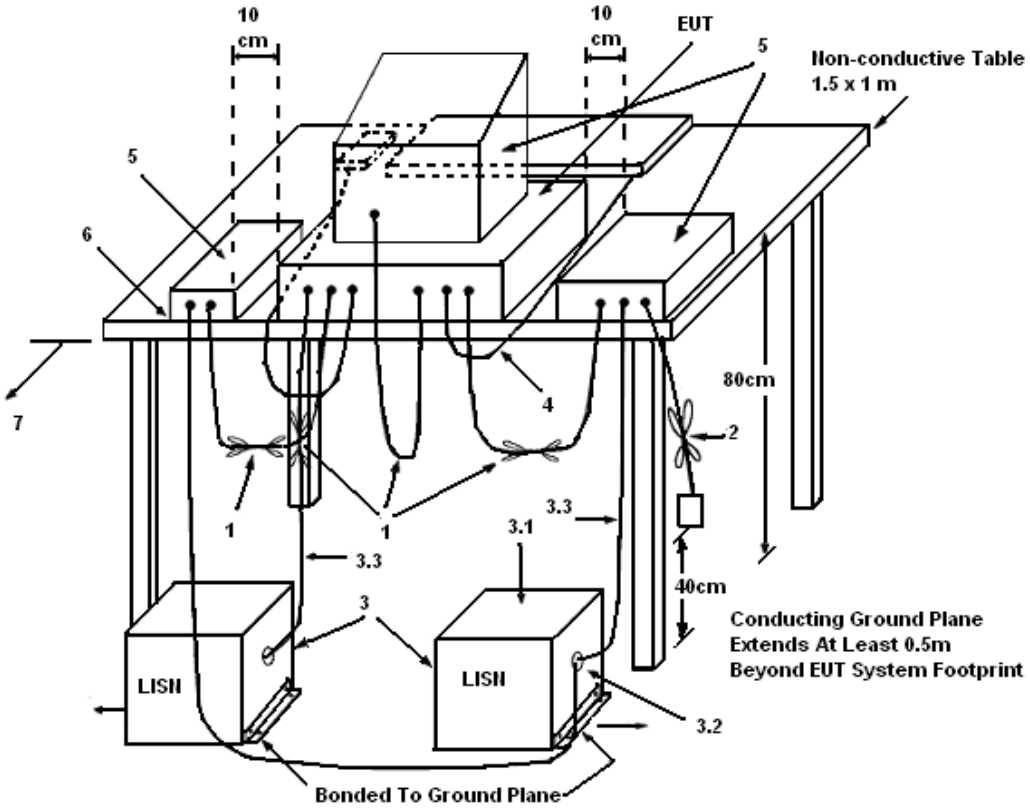
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

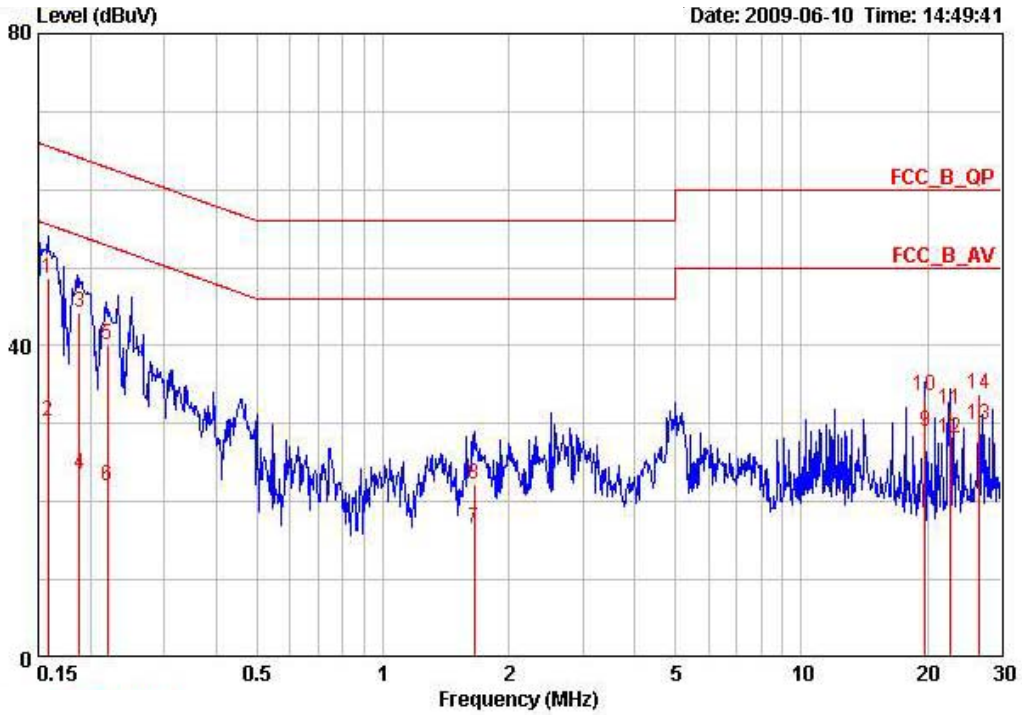
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

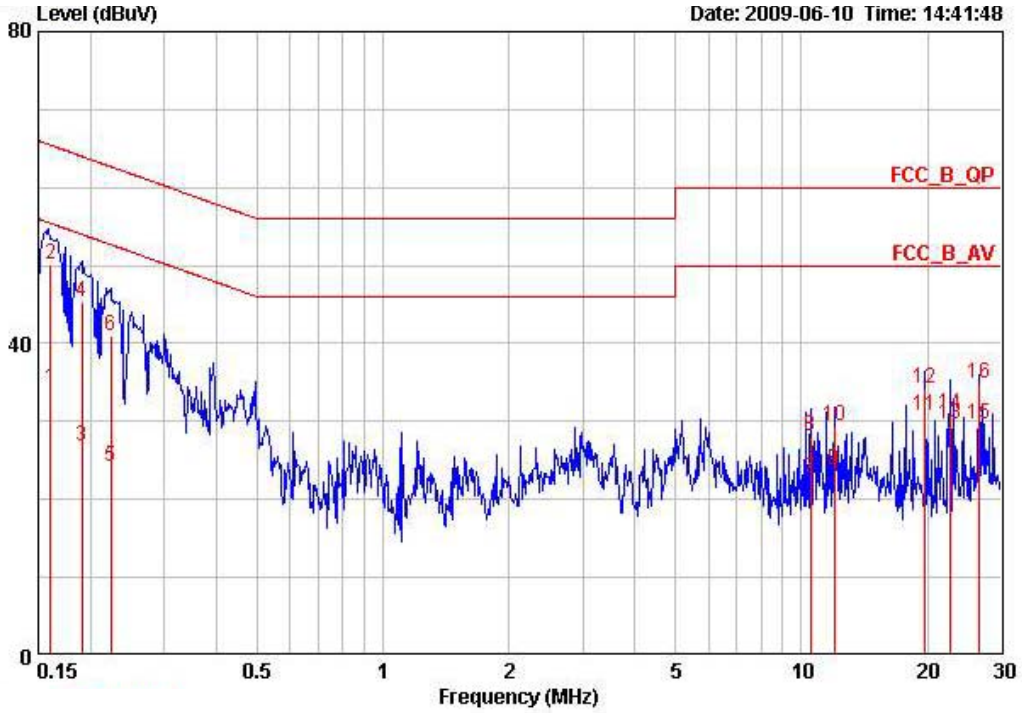
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	22℃	Humidity	54%
Test Engineer	Howar Sung	Phase	Line
Configuration	Normal Link / Mode 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15816	48.57	-16.99	65.56	48.30	0.07	0.20	QP
2	0.15816	30.32	-25.24	55.56	30.05	0.07	0.20	AVERAGE
3	0.18838	44.19	-19.91	64.11	43.94	0.05	0.20	QP
4	0.18838	23.63	-30.47	54.11	23.38	0.05	0.20	AVERAGE
5	0.21971	40.17	-22.66	62.83	39.92	0.05	0.20	QP
6	0.21971	21.97	-30.86	52.83	21.72	0.05	0.20	AVERAGE
7	1.654	16.52	-29.48	46.00	16.34	0.04	0.13	AVERAGE
8	1.654	22.22	-33.78	56.00	22.04	0.04	0.13	QP
9	19.707	28.95	-21.05	50.00	27.64	0.81	0.50	AVERAGE
10	19.707	33.53	-26.47	60.00	32.22	0.81	0.50	QP
11	22.577	31.91	-28.09	60.00	30.42	0.99	0.50	QP
12	22.577	28.02	-21.98	50.00	26.53	0.99	0.50	AVERAGE
13	26.548	29.77	-20.23	50.00	28.03	1.24	0.50	AVERAGE
14	26.548	33.75	-26.25	60.00	32.01	1.24	0.50	QP

Temperature	22°C	Humidity	54%
Test Engineer	Howar Sung	Phase	Neutral
Configuration	Normal Link / Mode 1		

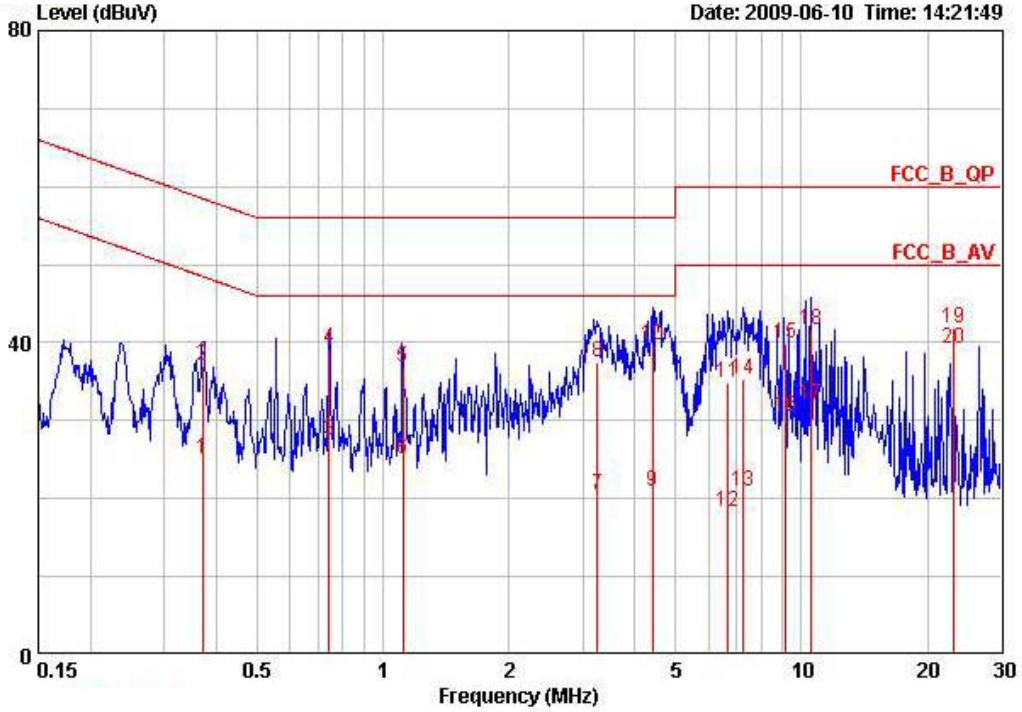


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16060	34.21	-21.22	55.43	33.91	0.10	0.20	AVERAGE
2	0.16060	50.19	-15.24	65.43	49.89	0.10	0.20	QP
3	0.19039	26.85	-27.17	54.02	26.57	0.08	0.20	AVERAGE
4	0.19039	45.27	-18.75	64.02	44.99	0.08	0.20	QP
5	0.22319	24.11	-28.59	52.70	23.83	0.08	0.20	AVERAGE
6	0.22319	41.03	-21.67	62.70	40.75	0.08	0.20	QP
7	10.493	22.77	-27.23	50.00	21.96	0.41	0.40	AVERAGE
8	10.493	28.11	-31.89	60.00	27.30	0.41	0.40	QP
9	11.963	23.71	-26.29	50.00	22.84	0.47	0.40	AVERAGE
10	11.963	29.52	-30.48	60.00	28.65	0.47	0.40	QP
11	19.708	30.76	-19.24	50.00	29.47	0.79	0.50	AVERAGE
12	19.708	34.26	-25.74	60.00	32.97	0.79	0.50	QP
13	22.578	29.69	-20.31	50.00	28.19	1.00	0.50	AVERAGE
14	22.578	31.04	-28.96	60.00	29.54	1.00	0.50	QP
15	26.609	29.68	-20.32	50.00	27.90	1.28	0.50	AVERAGE
16	26.609	34.98	-25.02	60.00	33.20	1.28	0.50	QP

Note:

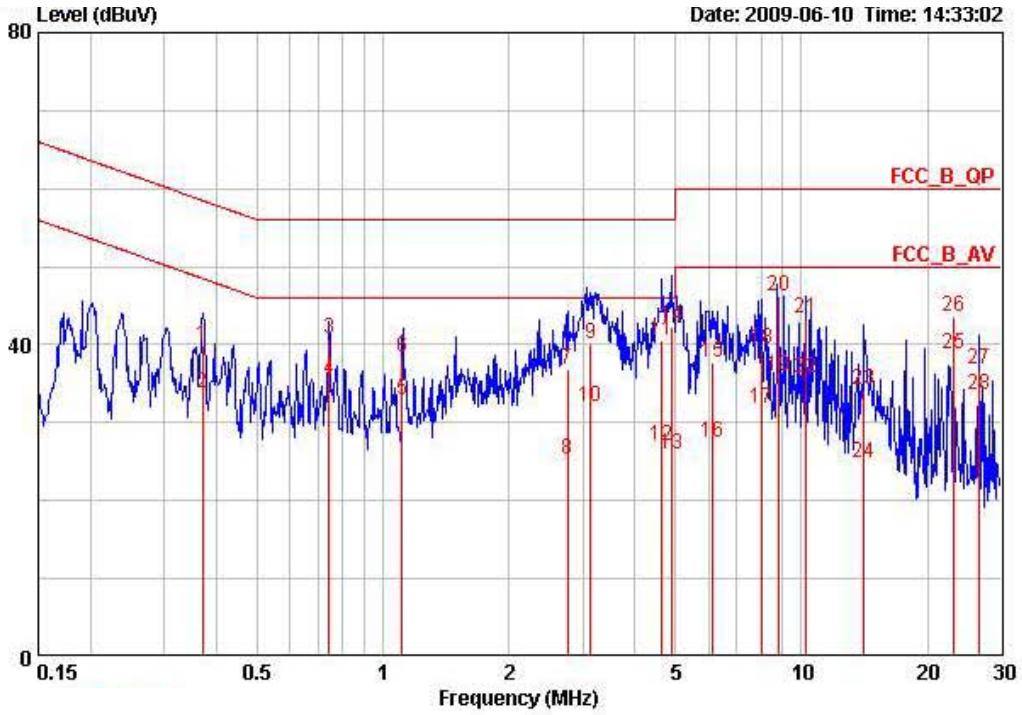
Level = Read Level + LISN Factor + Cable Loss.

Temperature	22°C	Humidity	54%
Test Engineer	Howar Sung	Phase	Line
Configuration	Normal Link / Mode 2		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.37117	25.10	-23.37	48.47	24.87	0.03	0.20	AVERAGE
2	0.37117	37.08	-21.39	58.47	36.85	0.03	0.20	QP
3	0.74302	27.46	-18.54	46.00	27.23	0.03	0.20	AVERAGE
4	0.74302	39.25	-16.75	56.00	39.02	0.03	0.20	QP
5	1.114	36.77	-19.23	56.00	36.56	0.03	0.17	QP
6	1.114	25.17	-20.83	46.00	24.96	0.03	0.17	AVERAGE
7	3.258	20.39	-25.61	46.00	20.05	0.09	0.25	AVERAGE
8	3.258	37.48	-18.52	56.00	37.14	0.09	0.25	QP
9	4.408	21.03	-24.97	46.00	20.60	0.13	0.30	AVERAGE
10	4.408	39.72	-16.28	56.00	39.29	0.13	0.30	QP
11	6.662	34.90	-25.10	60.00	34.30	0.24	0.36	QP
12	6.662	18.40	-31.60	50.00	17.80	0.24	0.36	AVERAGE
13	7.252	20.91	-29.09	50.00	20.29	0.26	0.35	AVERAGE
14	7.252	35.36	-24.64	60.00	34.74	0.26	0.35	QP
15	9.148	39.94	-20.06	60.00	39.31	0.33	0.30	QP
16	9.148	30.47	-19.53	50.00	29.84	0.33	0.30	AVERAGE
17	10.492	32.00	-18.00	50.00	31.23	0.37	0.40	AVERAGE
18	10.492	41.59	-18.41	60.00	40.82	0.37	0.40	QP
19	23.127	41.92	-18.08	60.00	40.39	1.03	0.50	QP
20	23.127	39.24	-10.76	50.00	37.71	1.03	0.50	AVERAGE

Temperature	22°C	Humidity	54%
Test Engineer	Howar Sung	Phase	Neutral
Configuration	Normal Link / Mode 2		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.37117	39.98	-18.49	58.47	39.71	0.07	0.20	QP
2	0.37117	33.75	-14.72	48.47	33.48	0.07	0.20	AVERAGE
3	0.74302	40.68	-15.32	56.00	40.41	0.07	0.20	QP
4	0.74302	35.57	-10.43	46.00	35.30	0.07	0.20	AVERAGE
5	1.113	33.01	-12.99	46.00	32.76	0.07	0.17	AVERAGE
6	1.113	38.37	-17.63	56.00	38.12	0.07	0.17	QP
7	2.765	36.83	-19.17	56.00	36.52	0.11	0.20	QP
8	2.765	25.30	-20.70	46.00	24.99	0.11	0.20	AVERAGE
9	3.139	40.03	-15.97	56.00	39.68	0.12	0.23	QP
10	3.139	32.08	-13.92	46.00	31.73	0.12	0.23	AVERAGE
11	4.647	40.62	-15.38	56.00	40.14	0.18	0.30	QP
12	4.647	27.04	-18.96	46.00	26.56	0.18	0.30	AVERAGE
13	4.874	25.92	-20.08	46.00	25.43	0.19	0.30	AVERAGE
14	4.874	42.35	-13.65	56.00	41.86	0.19	0.30	QP
15	6.121	37.67	-22.33	60.00	37.09	0.26	0.33	QP
16	6.121	27.38	-22.62	50.00	26.80	0.26	0.33	AVERAGE
17	8.061	31.73	-18.27	50.00	31.01	0.33	0.39	AVERAGE
18	8.061	39.47	-20.53	60.00	38.75	0.33	0.39	QP
19	8.830	35.90	-14.10	50.00	35.24	0.36	0.30	AVERAGE
20	8.830	46.23	-13.77	60.00	45.57	0.36	0.30	QP
21	10.242	43.38	-16.62	60.00	42.63	0.40	0.34	QP
22	10.242	35.77	-14.23	50.00	35.02	0.40	0.34	AVERAGE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
23	14.138	34.26	-25.74	60.00	33.32	0.54	0.40	QP
24	14.138	24.94	-25.06	50.00	24.00	0.54	0.40	AVERAGE
25	23.127	38.80	-11.20	50.00	37.25	1.05	0.50	AVERAGE
26	23.127	43.52	-16.48	60.00	41.97	1.05	0.50	QP
27	26.608	36.93	-23.07	60.00	35.15	1.28	0.50	QP
28	26.608	33.50	-16.50	50.00	31.72	1.28	0.50	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.

4.2.2. Measuring Instruments and Setting

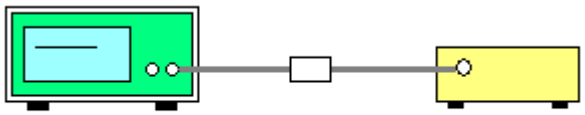
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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	Auto

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.

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	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	Draft n
Test Date	Jun. 17, 2009		

Configuration Draft n MCS0 20MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	15.64	30.00	Complies
6	2437 MHz	18.40	30.00	Complies
11	2462 MHz	18.33	30.00	Complies

Configuration Draft n MCS0 40MHz Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	12.29	30.00	Complies
6	2437 MHz	14.21	30.00	Complies
9	2452 MHz	14.26	30.00	Complies

Temperature	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	802.11b/g
Test Date	Jun. 17, 2009		

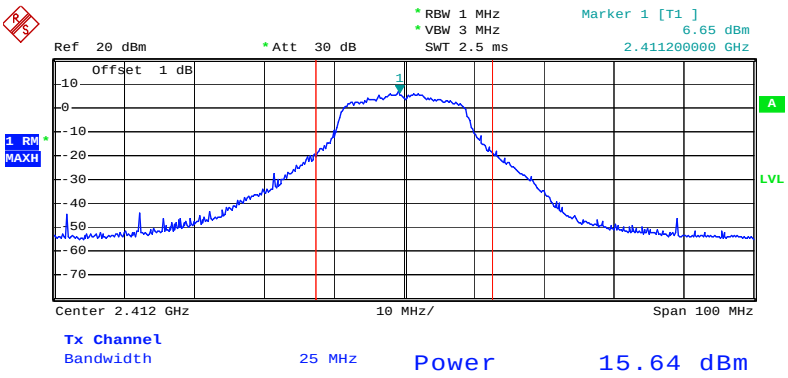
Configuration IEEE 802.11b Ant. A

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	17.12	30.00	Complies
6	2437 MHz	17.04	30.00	Complies
11	2462 MHz	17.00	30.00	Complies

Configuration IEEE 802.11g Ant. A

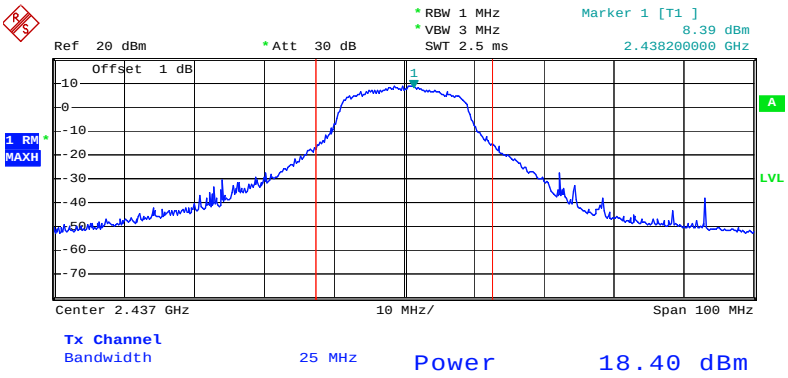
Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.81	30.00	Complies
6	2437 MHz	18.36	30.00	Complies
11	2462 MHz	18.41	30.00	Complies

Conducted Output Power Plot on Configuration Draft n MCS0 20MHz Ant. A / 2412 MHz



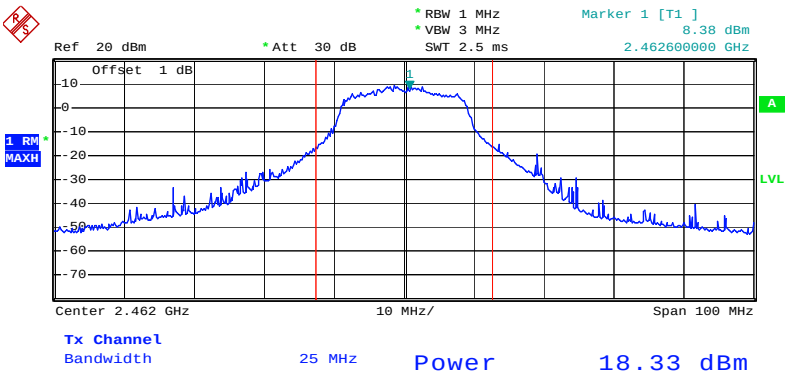
Date: 17.JUN.2009 22:08:44

Conducted Output Power Plot on Configuration Draft n MCS0 20MHz Ant. A / 2437 MHz



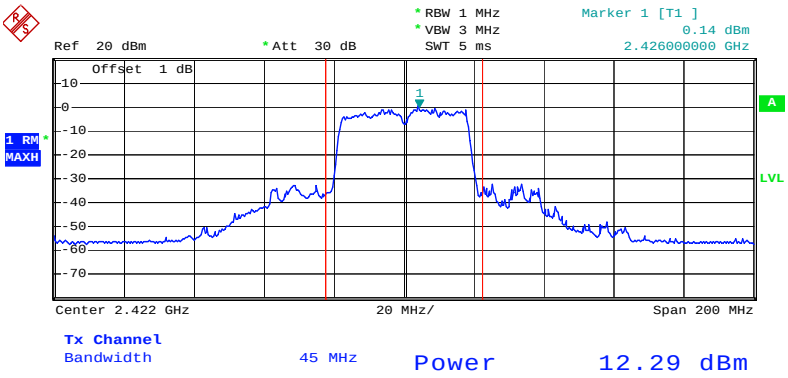
Date: 17.JUN.2009 22:10:20

Conducted Output Power Plot on Configuration Draft n MCS0 20MHz Ant. A / 2462 MHz



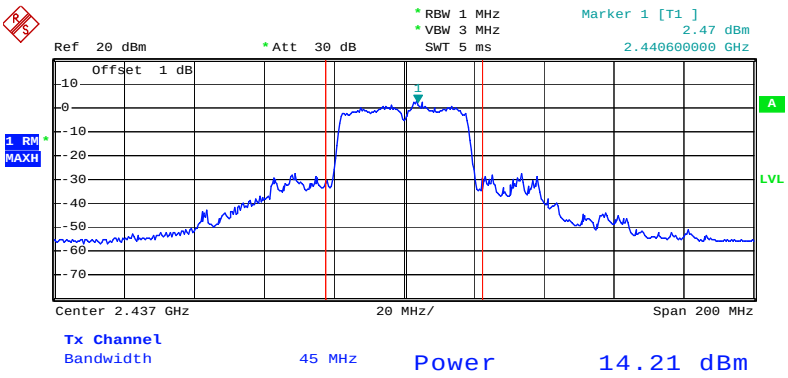
Date: 17.JUN.2009 22:11:58

Conducted Output Power Plot on Configuration Draft n MCS0 40MHz Ant. A / 2422 MHz



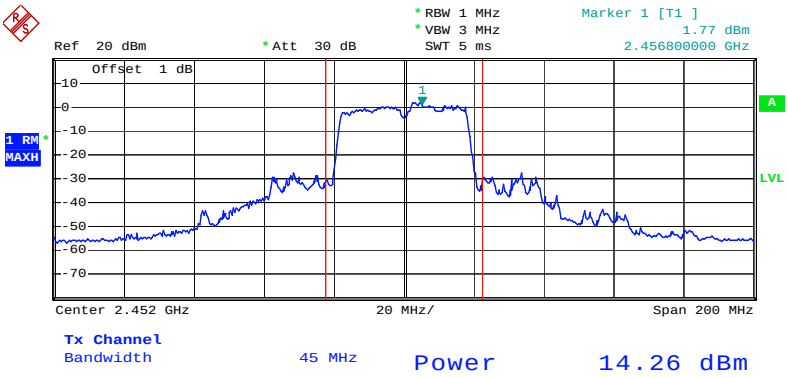
Date: 17.JUN.2009 22:23:51

Conducted Output Power Plot on Configuration Draft n MCS0 40MHz Ant. A / 2437 MHz



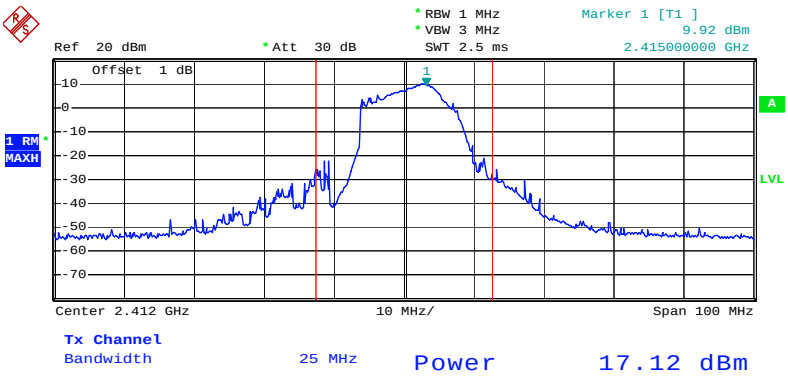
Date: 17.JUN.2009 22:17:19

Conducted Output Power Plot on Configuration Draft n MCS0 40MHz Ant. A / 2452 MHz



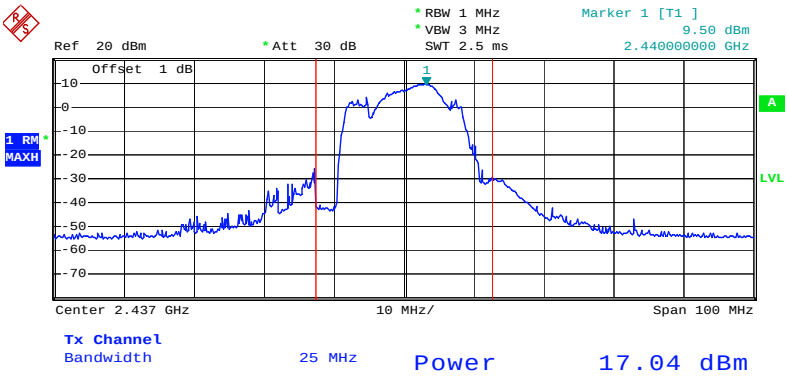
Date: 17.JUN.2009 22:19:47

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



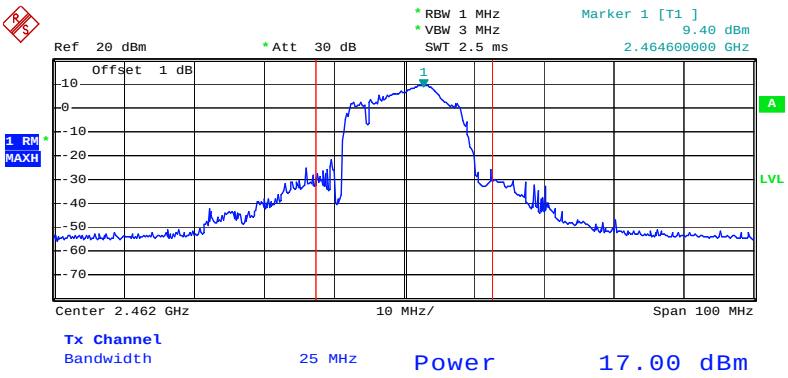
Date: 17.JUN.2009 21:55:34

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



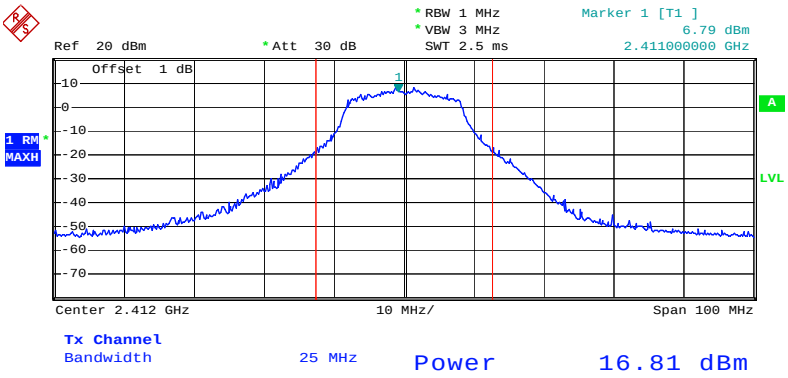
Date: 17.JUN.2009 21:54:08

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



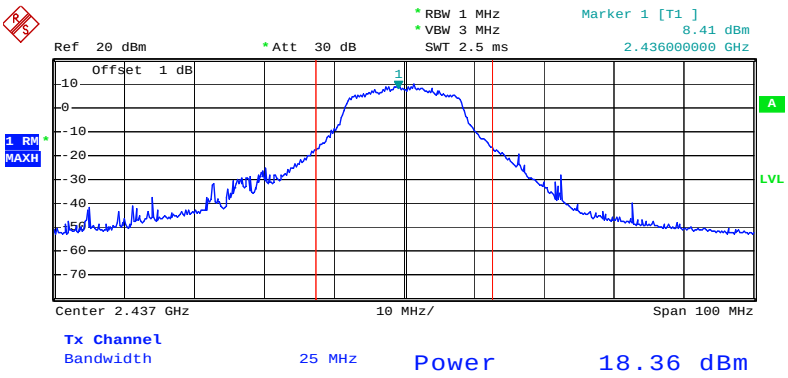
Date: 17.JUN.2009 21:58:54

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



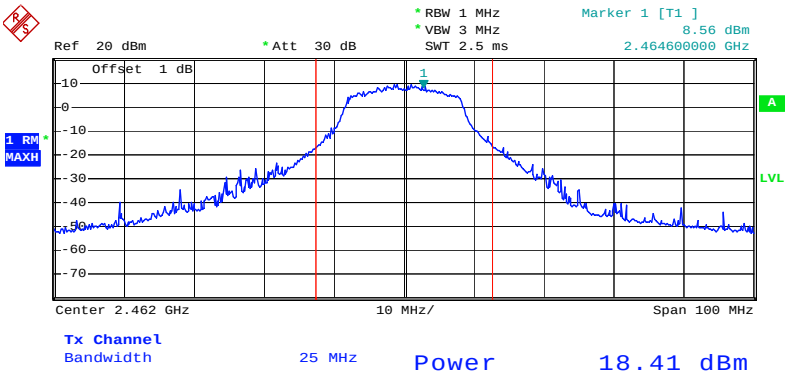
Date: 17.JUN.2009 22:00:33

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



Date: 17.JUN.2009 22:01:44

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



Date: 17.JUN.2009 22:05:18

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 8 dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2. Measuring Instruments and Setting

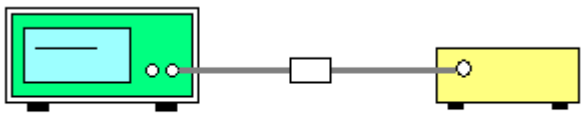
Please refer to section 5 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

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 30kHz and the sweep time to 10s and record the maximum peak value.

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	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	Draft n
Test Date	Jun. 17, 2009		

Configuration Draft n MCS0 20MHz Ant. A

Channel	Frequency	Power Density (dBm / 3kHz)	Max. Limit (dBm / 3kHz)	Result
1	2412 MHz	-10.40	8.00	Complies
6	2437 MHz	-8.16	8.00	Complies
11	2462 MHz	-8.83	8.00	Complies

Configuration Draft n MCS0 40MHz Ant. A

Channel	Frequency	Power Density (dBm / 3kHz)	Max. Limit (dBm / 3kHz)	Result
3	2422 MHz	-17.55	8.00	Complies
6	2437 MHz	-14.11	8.00	Complies
9	2452 MHz	-14.22	8.00	Complies

Temperature	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	802.11b/g
Test Date	Jun. 17, 2009		

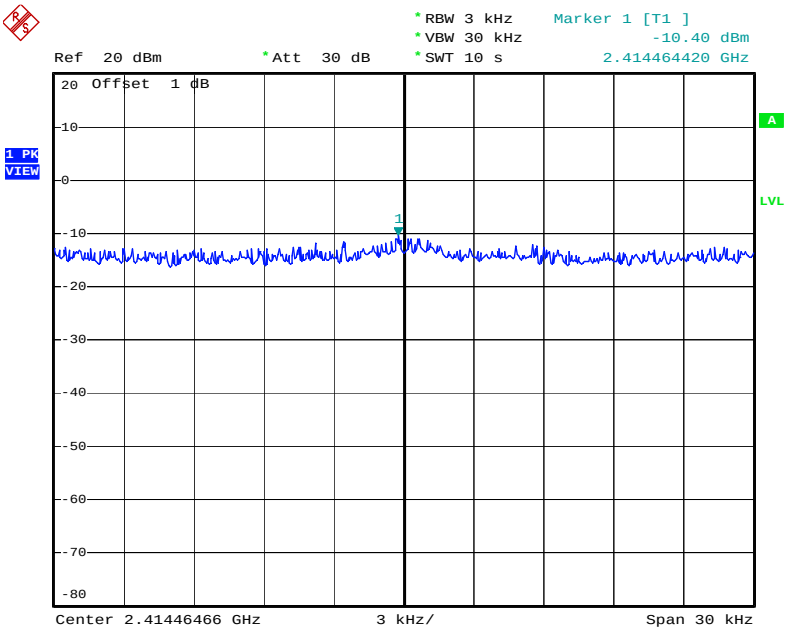
Configuration IEEE 802.11b Ant. A

Channel	Frequency	Power Density (dBm / 3kHz)	Max. Limit (dBm / 3kHz)	Result
1	2412 MHz	-5.04	8.00	Complies
6	2437 MHz	-5.30	8.00	Complies
11	2462 MHz	-5.19	8.00	Complies

Configuration IEEE 802.11g Ant. A

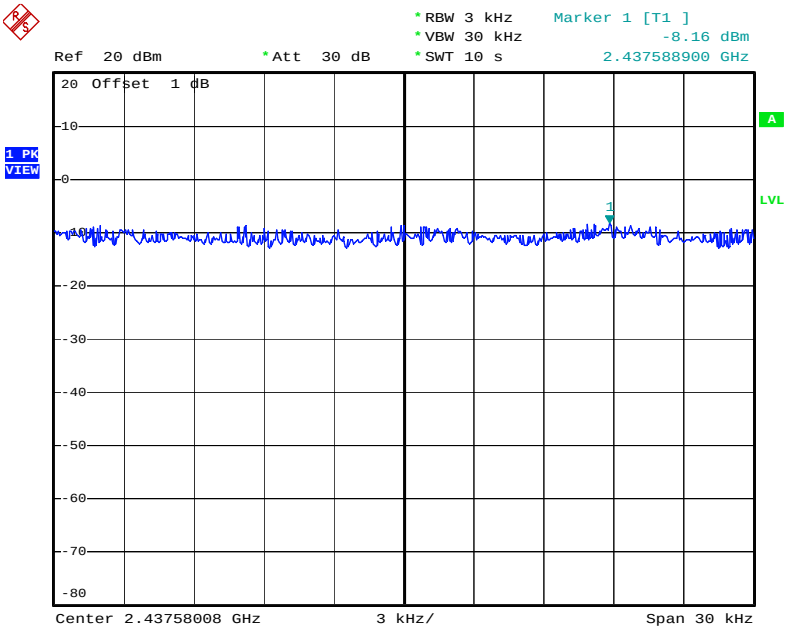
Channel	Frequency	Power Density (dBm / 3kHz)	Max. Limit (dBm / 3kHz)	Result
1	2412 MHz	-8.38	8.00	Complies
6	2437 MHz	-8.12	8.00	Complies
11	2462 MHz	-8.47	8.00	Complies

Power Density Plot on Configuration Draft n MCS0 20MHz Ant. A / 2412 MHz



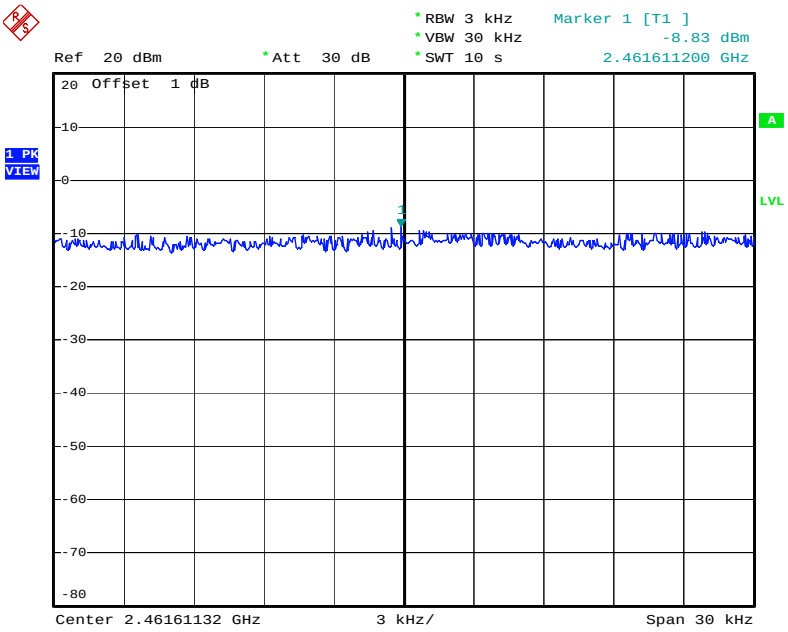
Date: 17.JUN.2009 22:43:10

Power Density Plot on Configuration Draft n MCS0 20MHz Ant. A / 2437 MHz



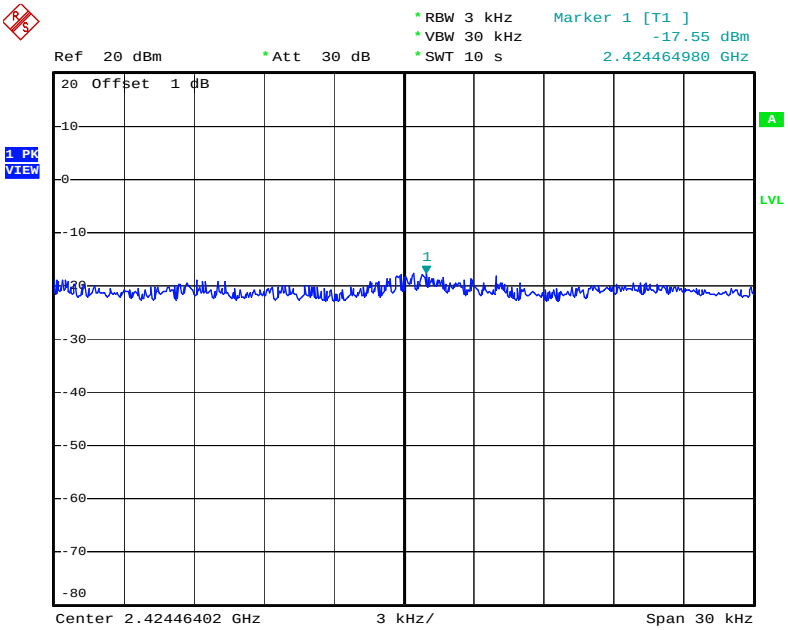
Date: 17.JUN.2009 22:40:37

Power Density Plot on Configuration Draft n MCS0 20MHz Ant. A / 2462 MHz



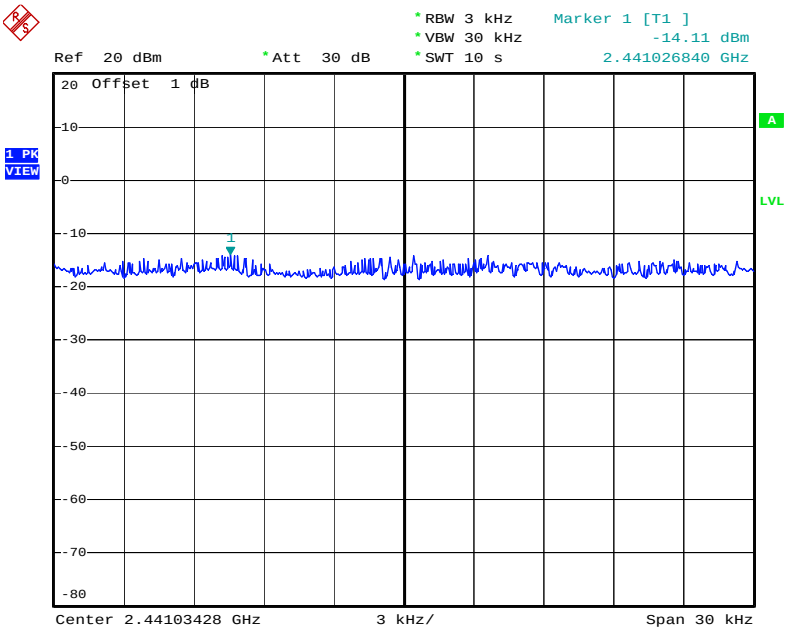
Date: 17.JUN.2009 22:37:15

Power Density Plot on Configuration Draft n MCS0 40MHz Ant. A / 2422 MHz



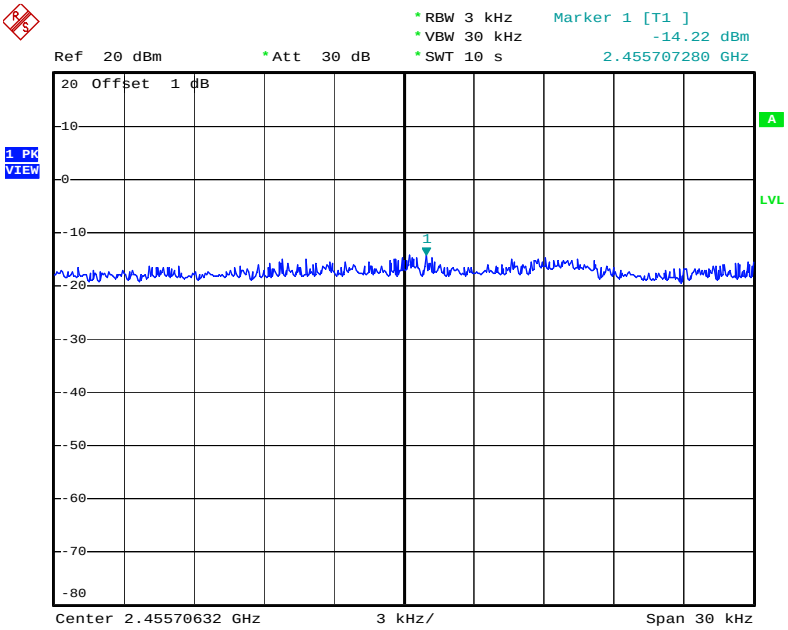
Date: 17.JUN.2009 22:26:42

Power Density Plot on Configuration Draft n MCS0 40MHz Ant. A / 2437 MHz



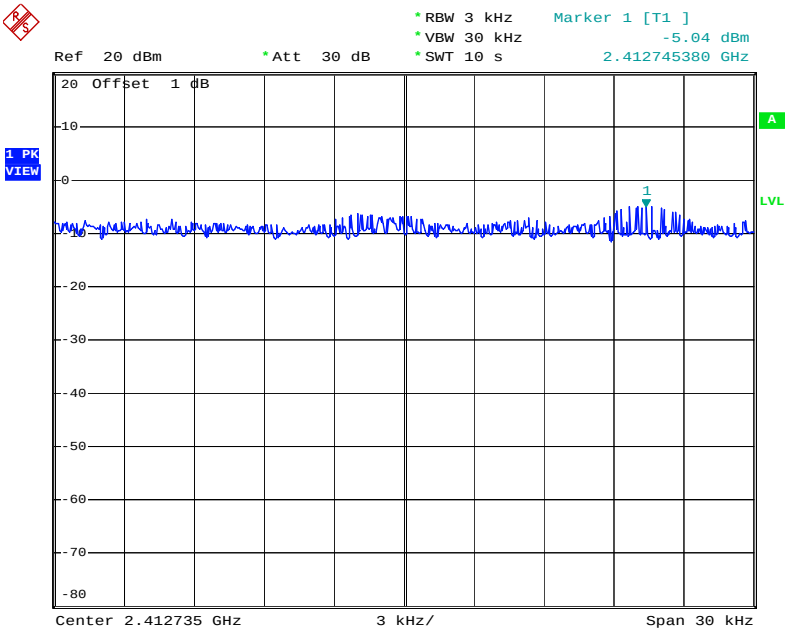
Date: 17.JUN.2009 22:29:43

Power Density Plot on Configuration Draft n MCS0 40MHz Ant. A / 2452 MHz



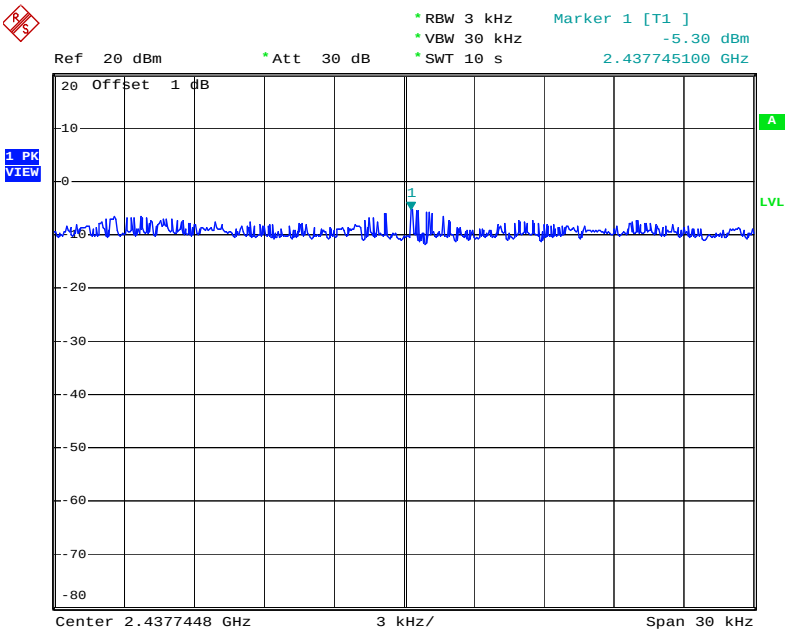
Date: 17.JUN.2009 22:32:03

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



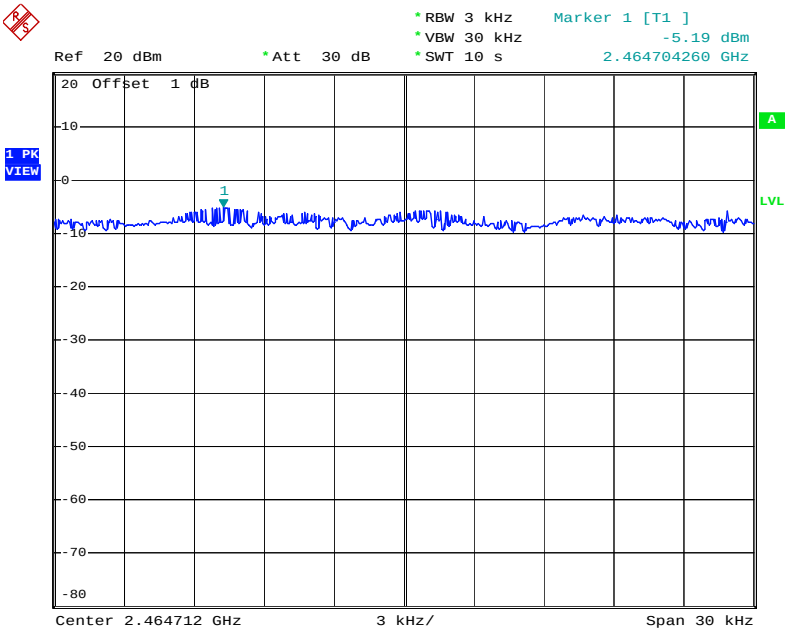
Date: 17.JUN.2009 23:07:17

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



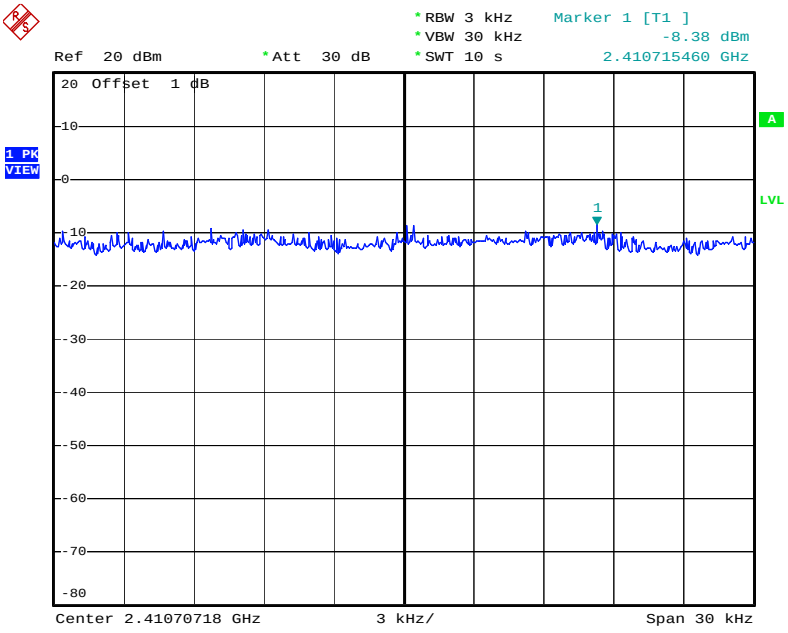
Date: 17.JUN.2009 23:04:33

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



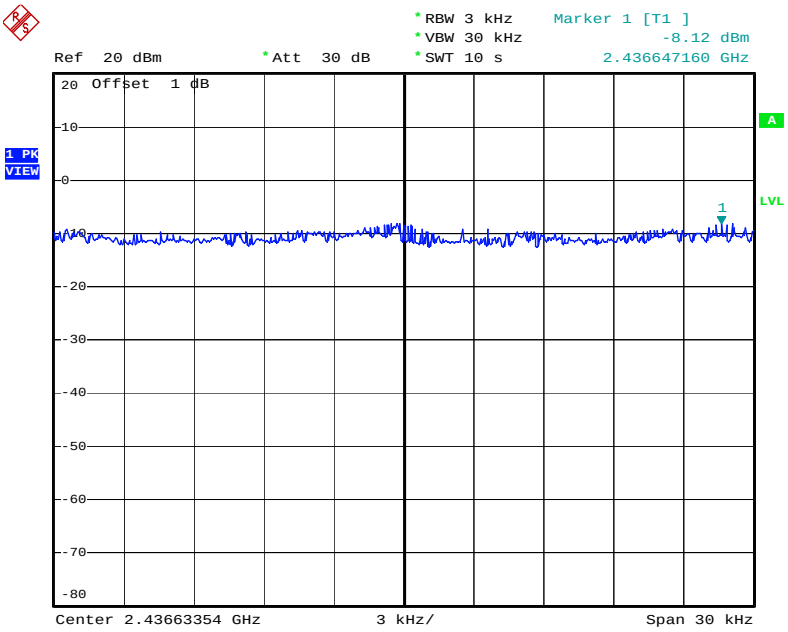
Date: 17.JUN.2009 23:02:18

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



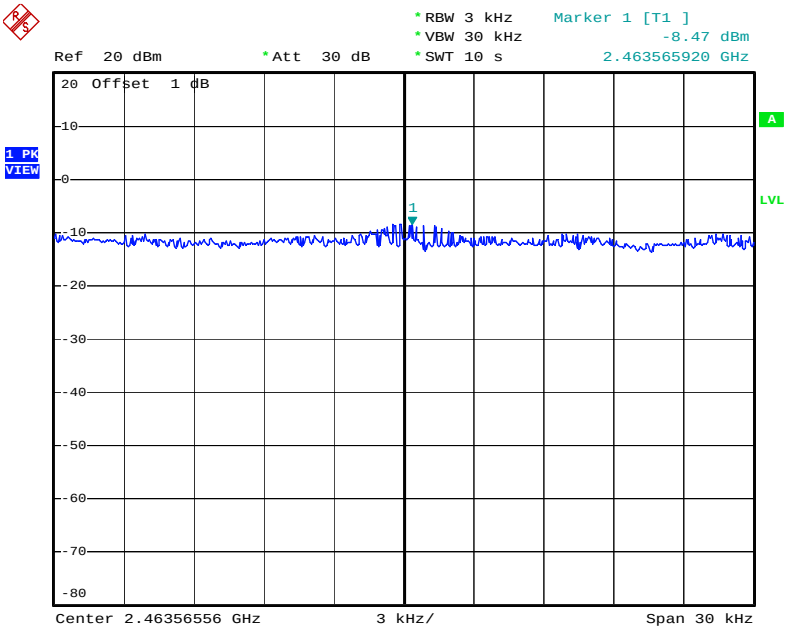
Date: 17.JUN.2009 22:54:52

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



Date: 17.JUN.2009 22:57:11

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



Date: 17.JUN.2009 22:59:33

4.4. 6dB Spectrum Bandwidth Measurement

4.4.1. Limit

For digital modulation systems, the minimum 6 dB 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.

4.4.4. 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	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	Draft n
Test Date	Jun. 17, 2009		

Configuration Draft n MCS0 20MHz Ant. A

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	13.80	17.64	500	Complies
6	2437 MHz	15.28	17.64	500	Complies
11	2462 MHz	13.84	17.60	500	Complies

Configuration Draft n MCS0 40MHz Ant. A

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.12	36.08	500	Complies
6	2437 MHz	35.12	36.00	500	Complies
9	2452 MHz	35.04	36.00	500	Complies

Temperature	23°C	Humidity	62%
Test Engineer	Jacky Ho	Configurations	802.11b/g
Test Date	Jun. 17, 2009		

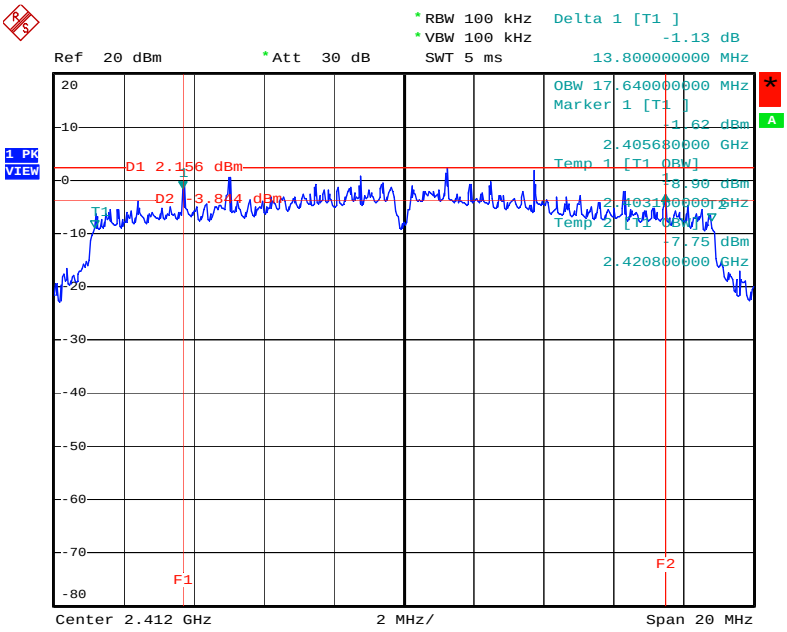
Configuration IEEE 802.11b Ant. A

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	7.08	12.08	500	Complies
6	2437 MHz	6.56	13.60	500	Complies
11	2462 MHz	7.60	12.04	500	Complies

Configuration IEEE 802.11g Ant. A

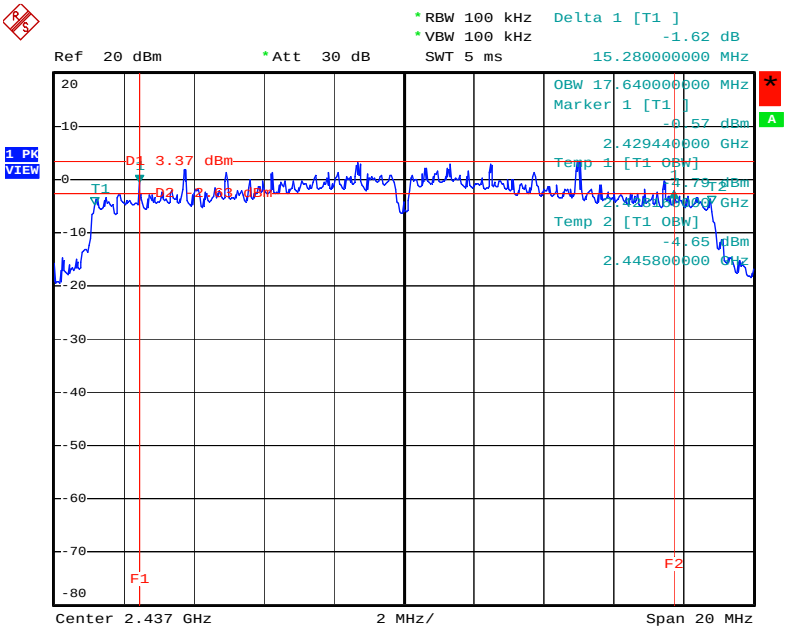
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	12.64	16.56	500	Complies
6	2437 MHz	13.84	16.56	500	Complies
11	2462 MHz	13.80	16.56	500	Complies

6 dB Bandwidth Plot on Configuration Draft n MCS0 20MHz Ant. A / 2412 MHz



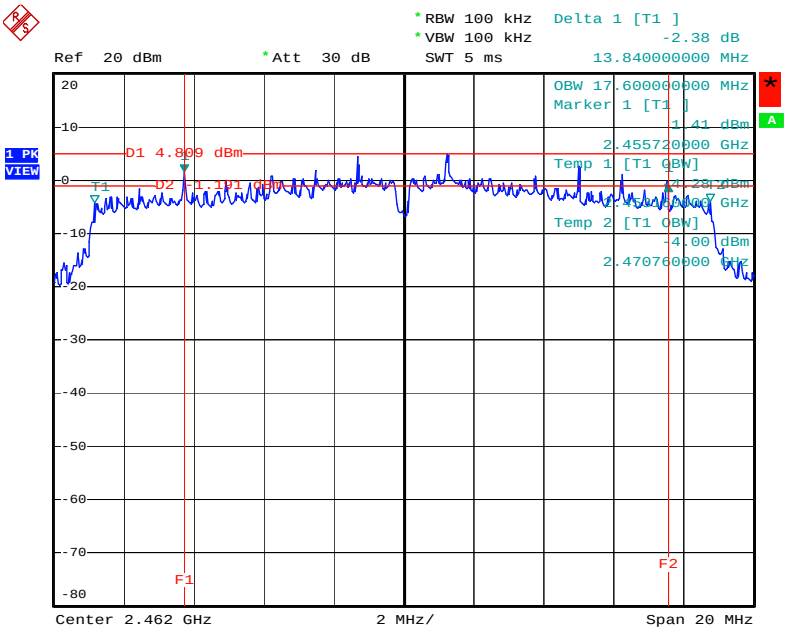
Date: 17.JUN.2009 22:45:24

6 dB Bandwidth Plot on Configuration Draft n MCS0 20MHz Ant. A / 2437 MHz



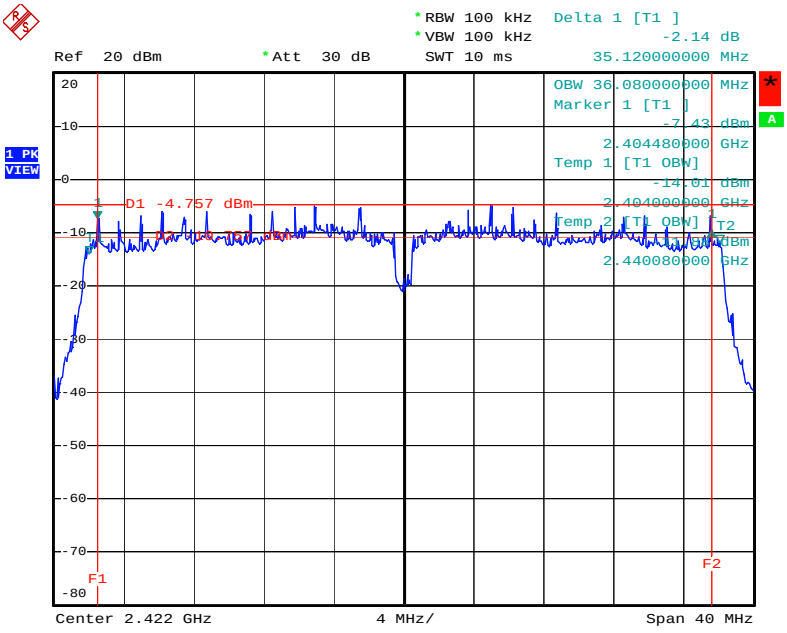
Date: 17.JUN.2009 22:39:09

6 dB Bandwidth Plot on Configuration Draft n MCS0 20MHz Ant. A / 2462 MHz



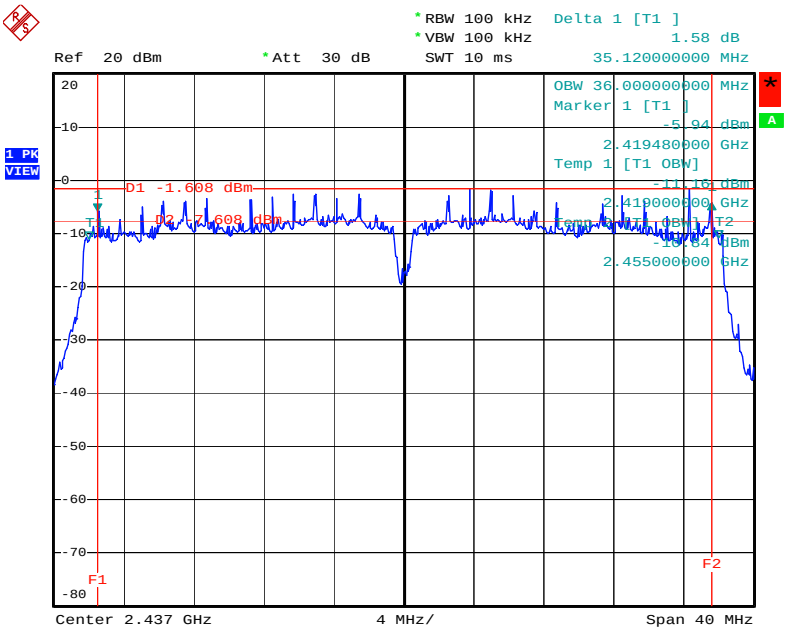
Date: 17.JUN.2009 22:35:48

6 dB Bandwidth Plot on Configuration Draft n MCS0 40MHz Ant. A / 2422 MHz



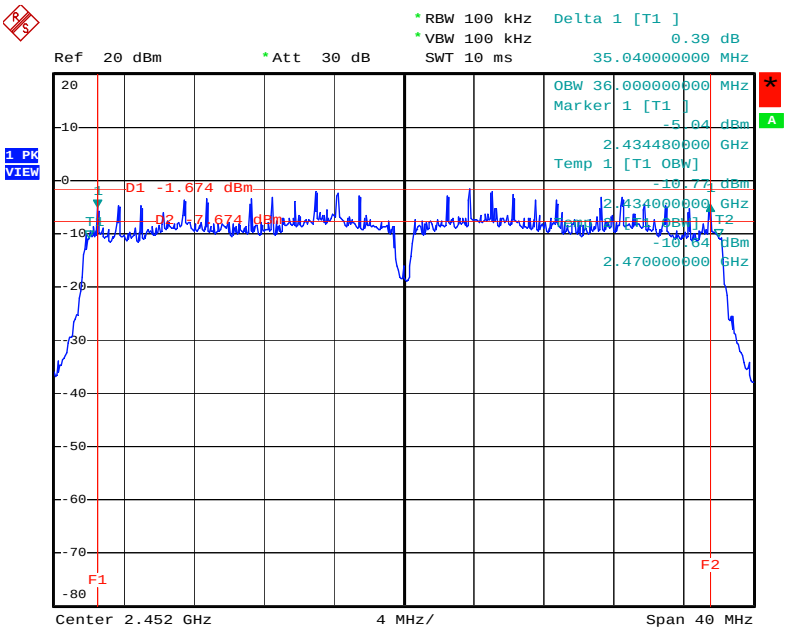
Date: 17.JUN.2009 22:25:15

6 dB Bandwidth Plot on Configuration Draft n MCS0 40MHz Ant. A / 2437 MHz



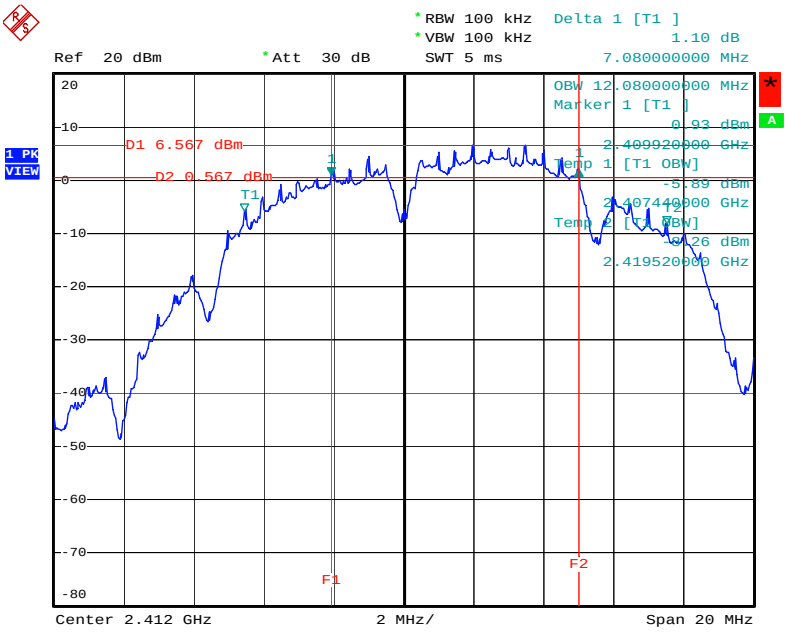
Date: 17.JUN.2009 22:28:16

6 dB Bandwidth Plot on Configuration Draft n MCS0 40MHz Ant. A / 2452 MHz

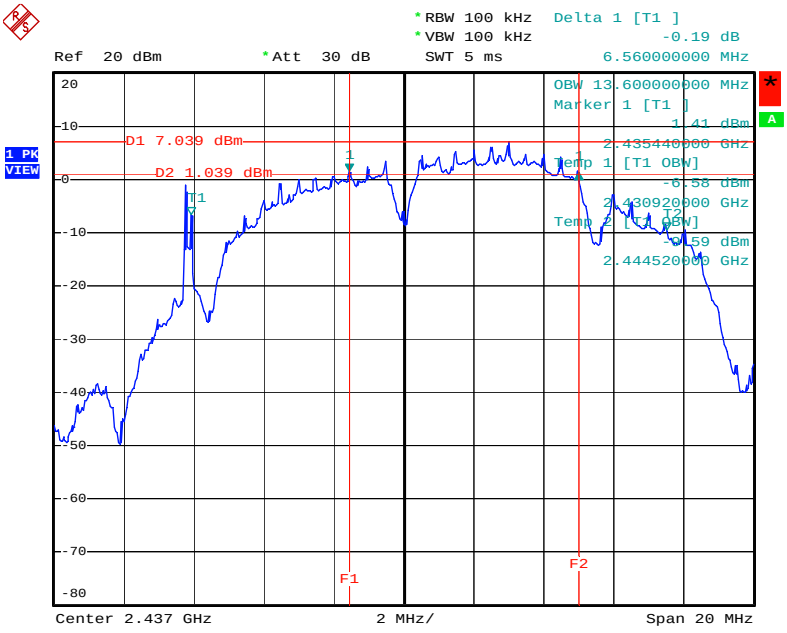


Date: 17.JUN.2009 22:30:35

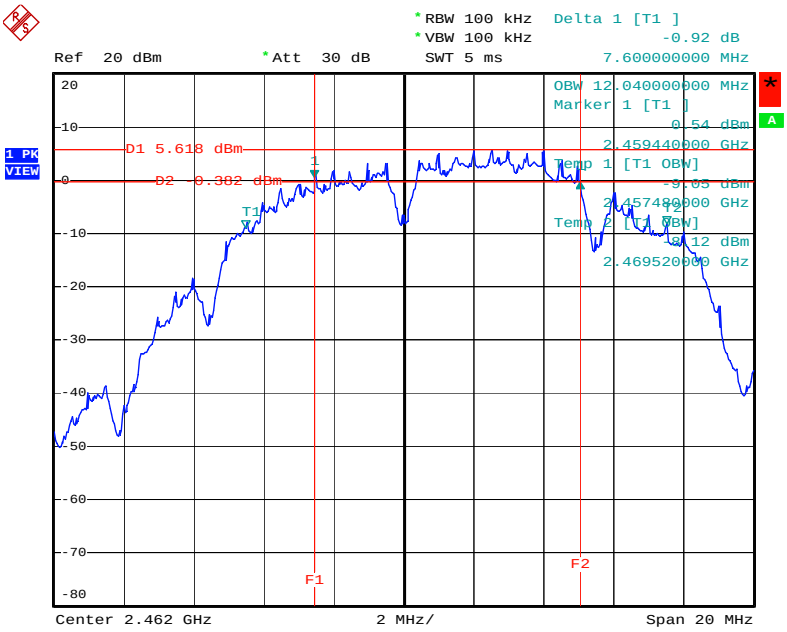
6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



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

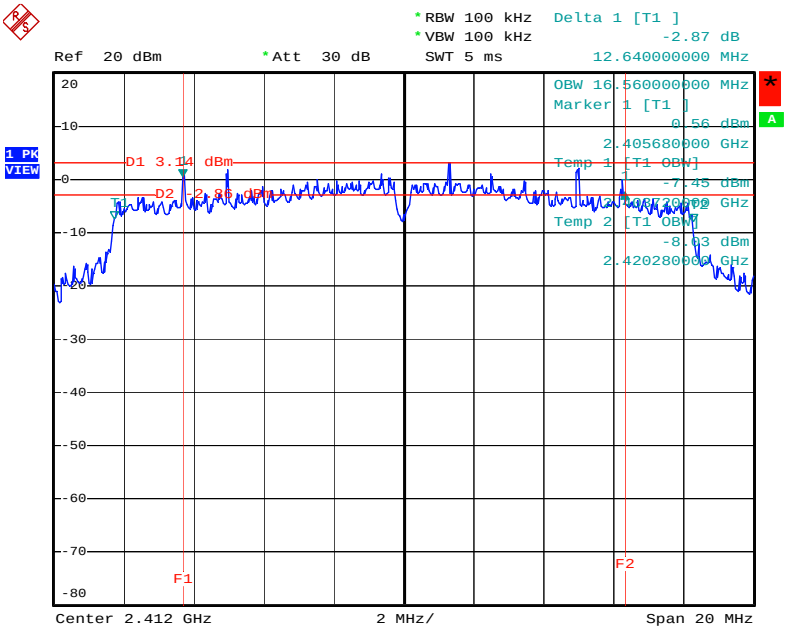


6 dB Bandwidth Plot on Configuration IEEE 802.11b Ant. A / 2462 MHz



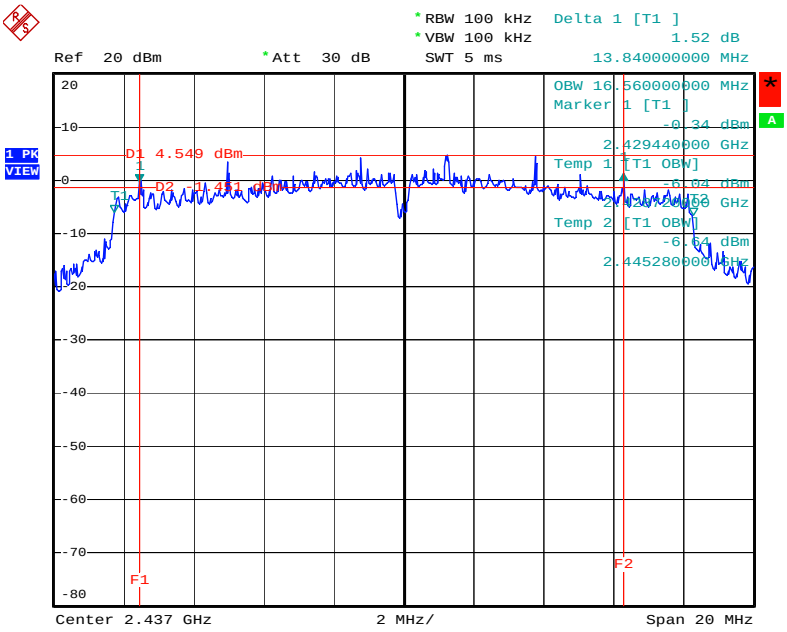
Date: 17.JUN.2009 23:00:28

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



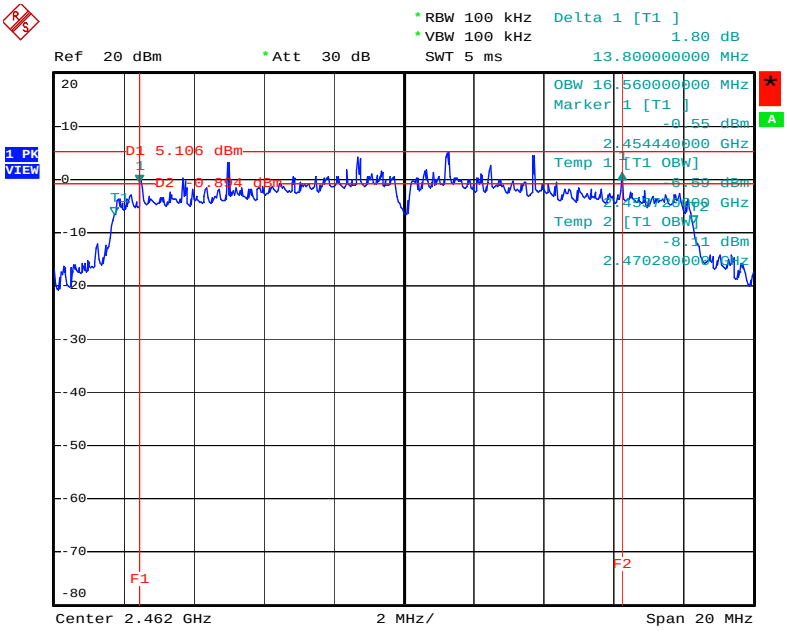
Date: 17.JUN.2009 22:53:25

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



Date: 17.JUN.2009 22:55:42

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



Date: 17.JUN.2009 22:58:06

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)	1000KHz / 1000KHz for peak

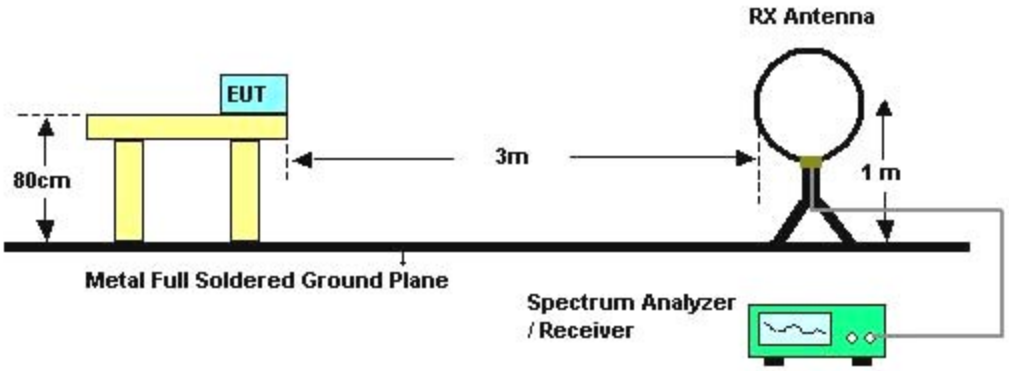
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.5.3. Test Procedures

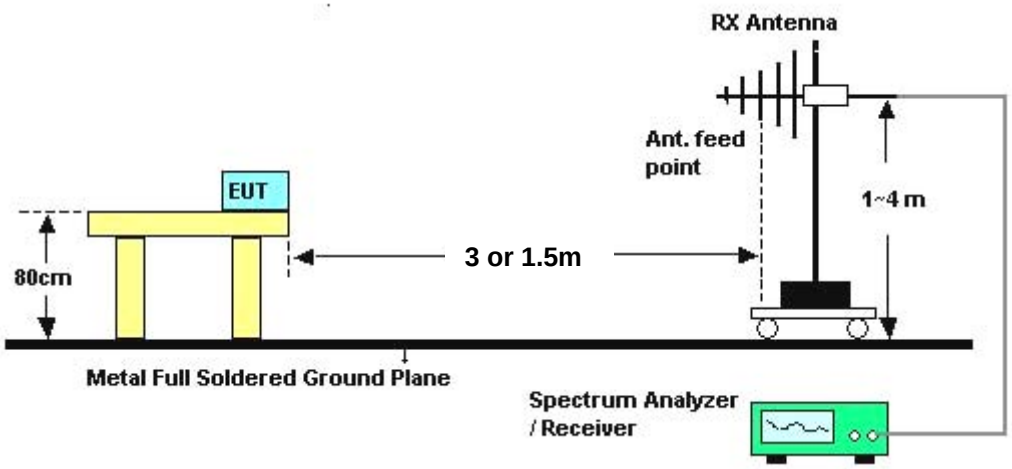
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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 distanc [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	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Normal Link

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

Note:

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

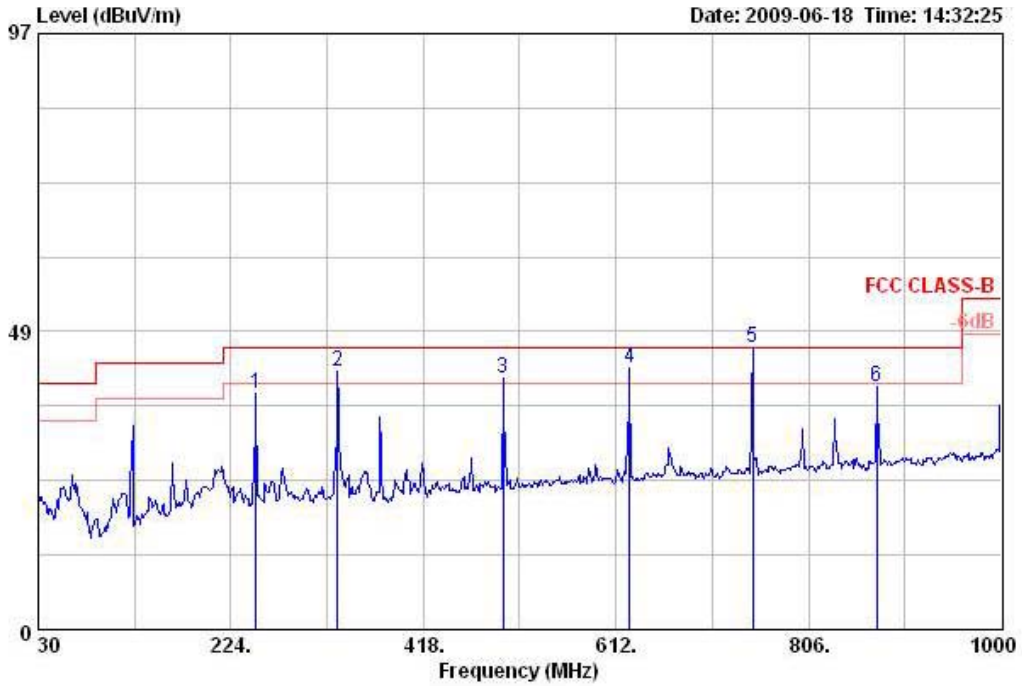
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

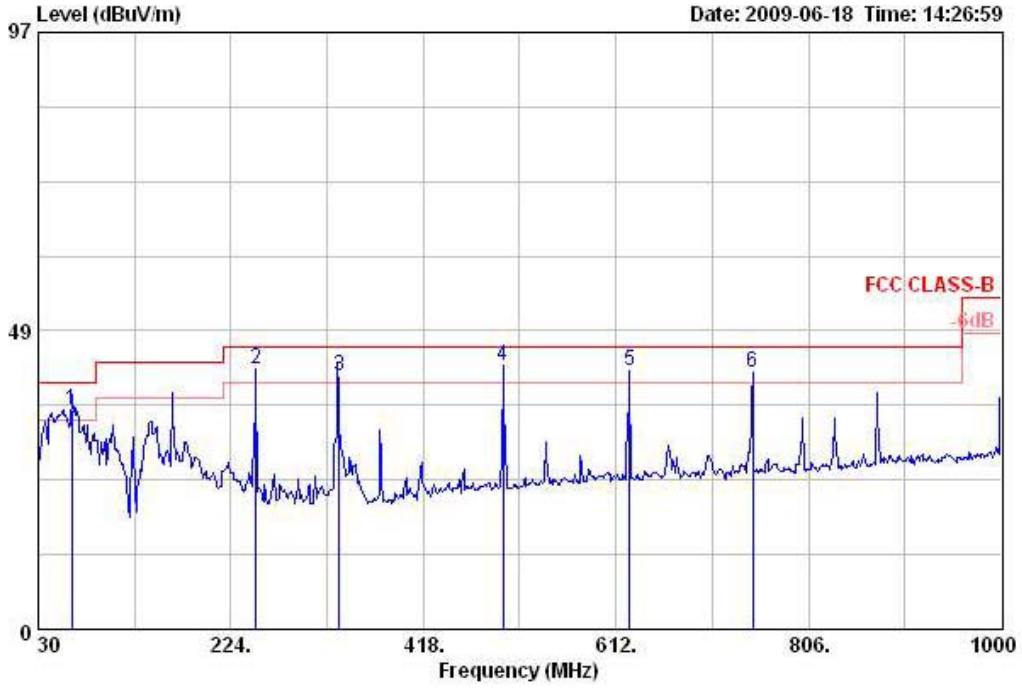
Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Normal Link / Mode 1

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	249.220	38.47	-7.53	46.00	50.88	12.70	27.00	1.90	Peak	HORIZONTAL	0	100
2 !	331.670	42.07	-3.93	46.00	52.81	14.23	27.12	2.16	Peak	HORIZONTAL	0	100
3 !	498.510	40.96	-5.04	46.00	48.76	17.60	28.09	2.70	Peak	HORIZONTAL	0	100
4 !	625.580	42.49	-3.51	46.00	48.66	18.85	28.07	3.05	Peak	HORIZONTAL	0	100
5 @	749.740	45.82	-0.18	46.00	50.70	19.43	27.80	3.50	QP	HORIZONTAL	75	116
6	874.870	39.58	-6.42	46.00	43.19	20.34	27.45	3.50	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 !	63.950	35.75	-4.25	40.00	55.90	6.72	27.74	0.88	QP	VERTICAL	326	172
2 !	249.220	42.32	-3.68	46.00	54.73	12.70	27.00	1.90	Peak	VERTICAL	0	400
3 !	333.320	41.06	-4.94	46.00	51.80	14.23	27.12	2.16	QP	VERTICAL	52	119
4 !	498.510	42.75	-3.25	46.00	50.55	17.60	28.09	2.70	Peak	VERTICAL	0	400
5 !	625.580	41.89	-4.11	46.00	48.06	18.85	28.07	3.05	Peak	VERTICAL	0	400
6 !	749.740	41.65	-4.35	46.00	46.52	19.43	27.80	3.50	Peak	VERTICAL	0	400

Note:

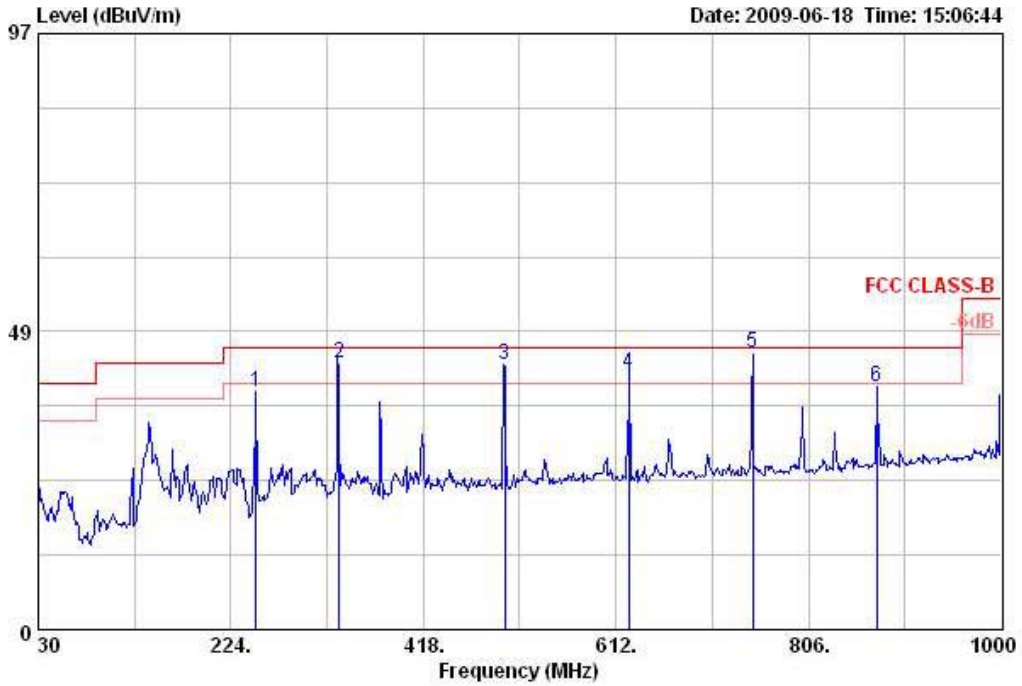
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

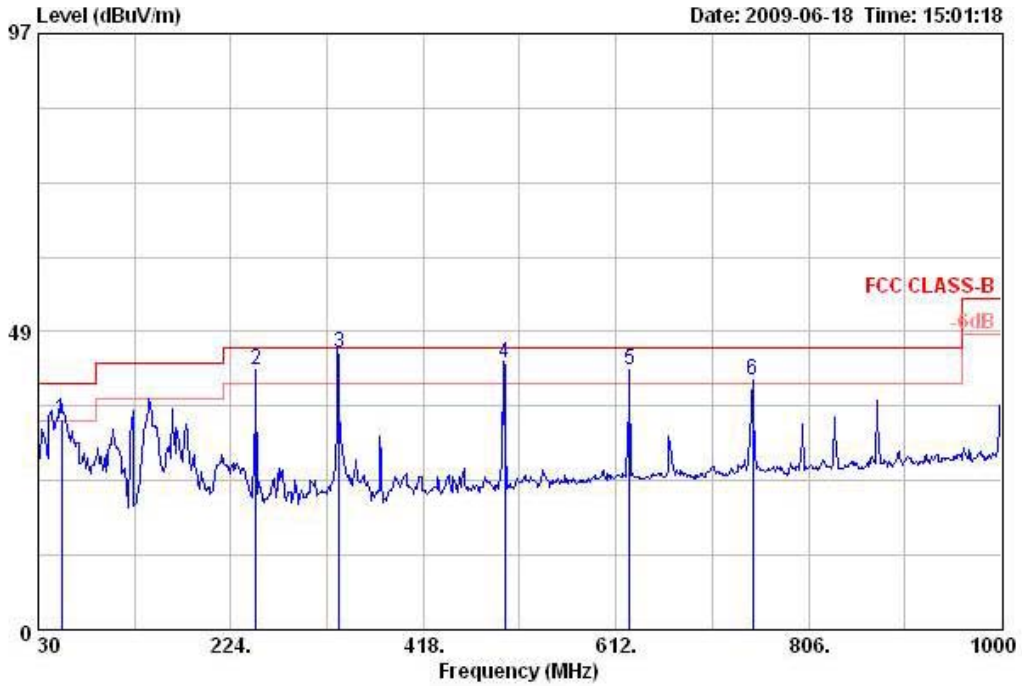
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Normal Link / Mode 2

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	249.220	38.80	-7.20	46.00	51.21	12.70	27.00	1.90	Peak	HORIZONTAL	0	100
2 !	333.330	43.26	-2.74	46.00	54.00	14.23	27.12	2.16	QP	HORIZONTAL	92	100
3 !	500.000	43.21	-2.79	46.00	51.00	17.60	28.09	2.70	QP	HORIZONTAL	86	162
4 !	625.000	41.63	-4.37	46.00	47.80	18.85	28.07	3.05	QP	HORIZONTAL	307	100
5 @	750.000	45.13	-0.87	46.00	50.01	19.43	27.80	3.50	QP	HORIZONTAL	73	117
6	874.870	39.40	-6.60	46.00	43.01	20.34	27.45	3.50	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 !	53.600	34.33	-5.67	40.00	53.21	8.18	27.79	0.74	QP	VERTICAL	254	183
2 !	249.220	42.38	-3.62	46.00	54.79	12.70	27.00	1.90	Peak	VERTICAL	0	400
3 !	333.330	45.06	-0.94	46.00	55.80	14.23	27.12	2.16	QP	VERTICAL	178	186
4 !	500.000	43.41	-2.59	46.00	51.20	17.60	28.09	2.70	QP	VERTICAL	169	100
5 !	625.580	42.25	-3.75	46.00	48.42	18.85	28.07	3.05	Peak	VERTICAL	0	400
6 !	749.740	40.51	-5.49	46.00	45.39	19.43	27.80	3.50	Peak	VERTICAL	0	400

Note:

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

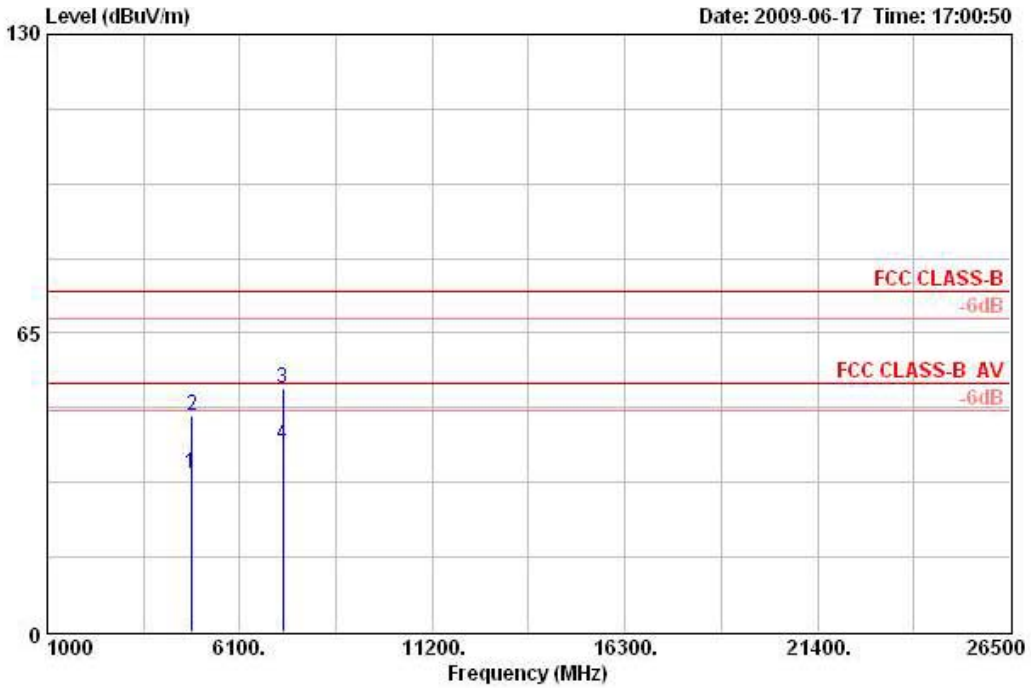
Emission level (dBuV/m) = 20 log Emission level (uV/m).

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

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

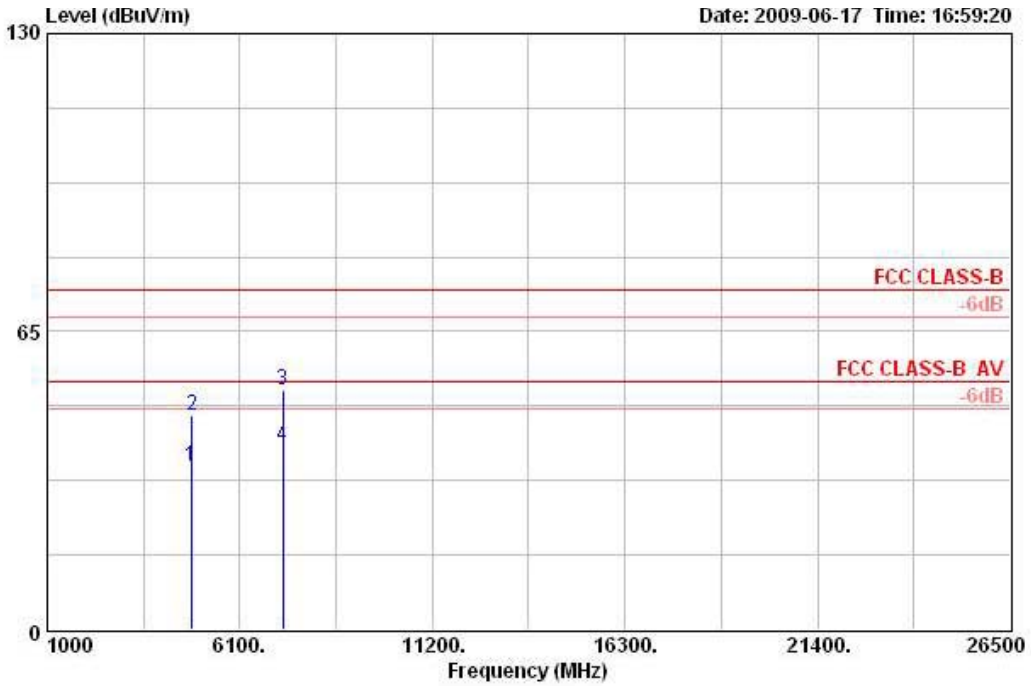
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 20MHz Ch 1 Ant. A

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	4821.900	34.47	-19.53	54.00	29.89	33.39	35.20	6.39	AVERAGE	HORIZONTAL	90	100
2	4822.820	47.21	-26.79	74.00	42.64	33.39	35.20	6.39	PEAK	HORIZONTAL	90	100
3	7235.240	53.03	-20.97	74.00	44.08	36.39	35.40	7.96	PEAK	HORIZONTAL	90	100
4	7238.230	40.85	-13.15	54.00	31.90	36.39	35.40	7.96	AVERAGE	HORIZONTAL	90	100

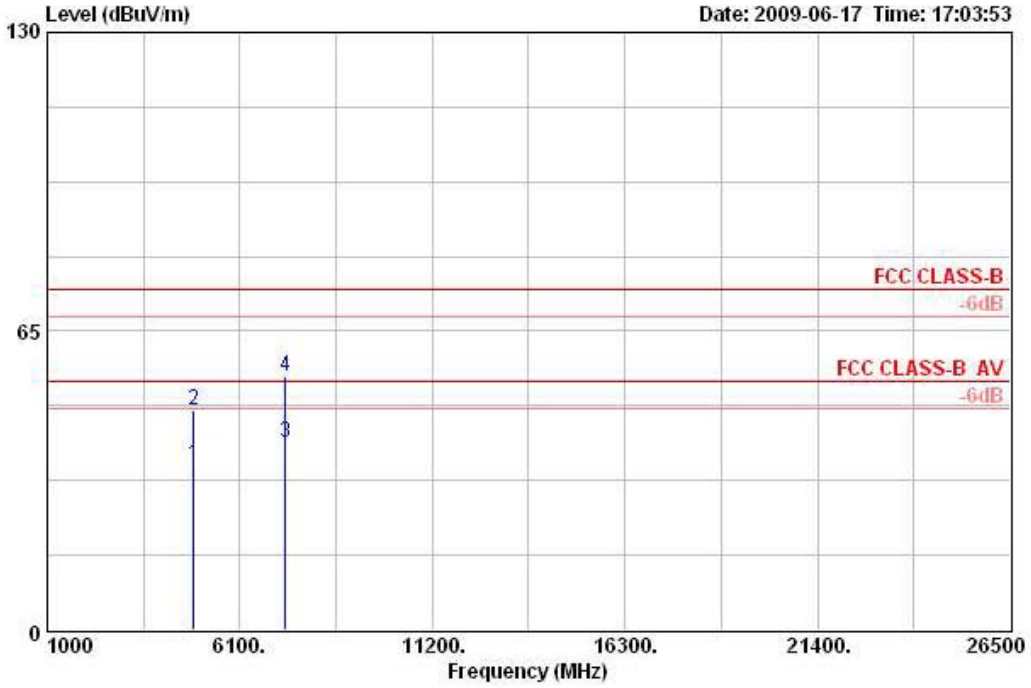
Vertical



	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	4821.750	35.38	-18.62	54.00	30.80	33.39	35.20	6.39	AVERAGE	VERTICAL	0	146
2	4825.670	46.55	-27.45	74.00	41.97	33.39	35.20	6.39	PEAK	VERTICAL	0	146
3	7234.620	52.20	-21.80	74.00	43.27	36.39	35.40	7.94	PEAK	VERTICAL	0	146
4	7237.140	39.95	-14.05	54.00	31.00	36.39	35.40	7.96	AVERAGE	VERTICAL	0	146

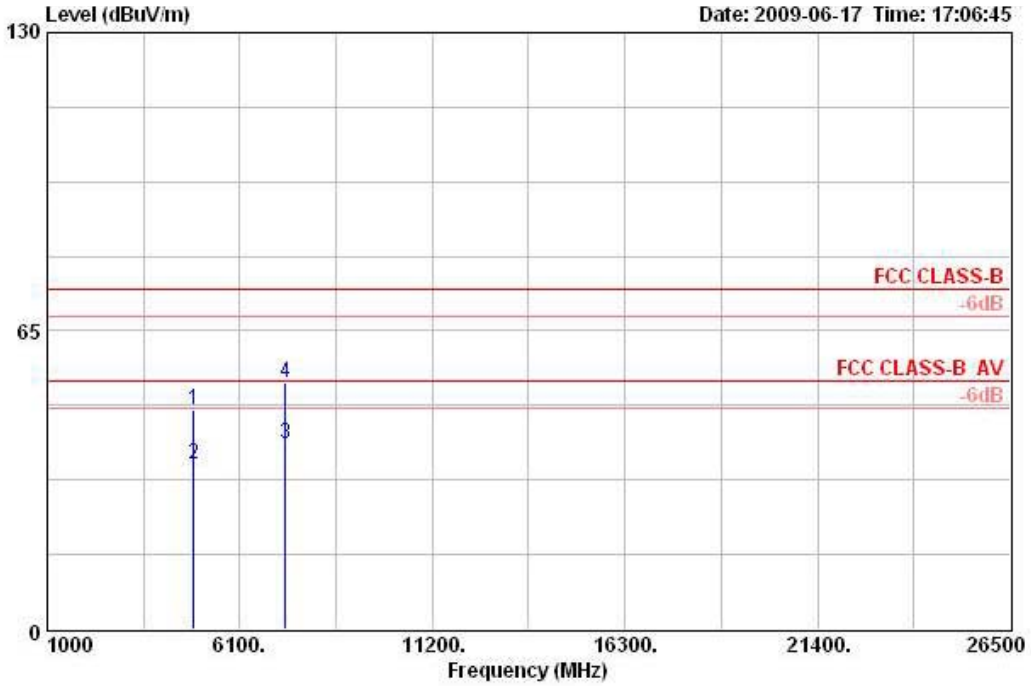
Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 20MHz Ch 6 Ant. A

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	4873.820	35.89	-18.11	54.00	31.04	33.48	35.20	6.56	AVERAGE	HORIZONTAL	0	100
2	4874.040	47.62	-26.38	74.00	42.77	33.48	35.20	6.56	PEAK	HORIZONTAL	0	100
3	7310.830	40.87	-13.13	54.00	31.80	36.50	35.42	7.99	AVERAGE	HORIZONTAL	0	100
4	7311.340	55.32	-18.68	74.00	46.23	36.50	35.42	8.01	PEAK	HORIZONTAL	0	100

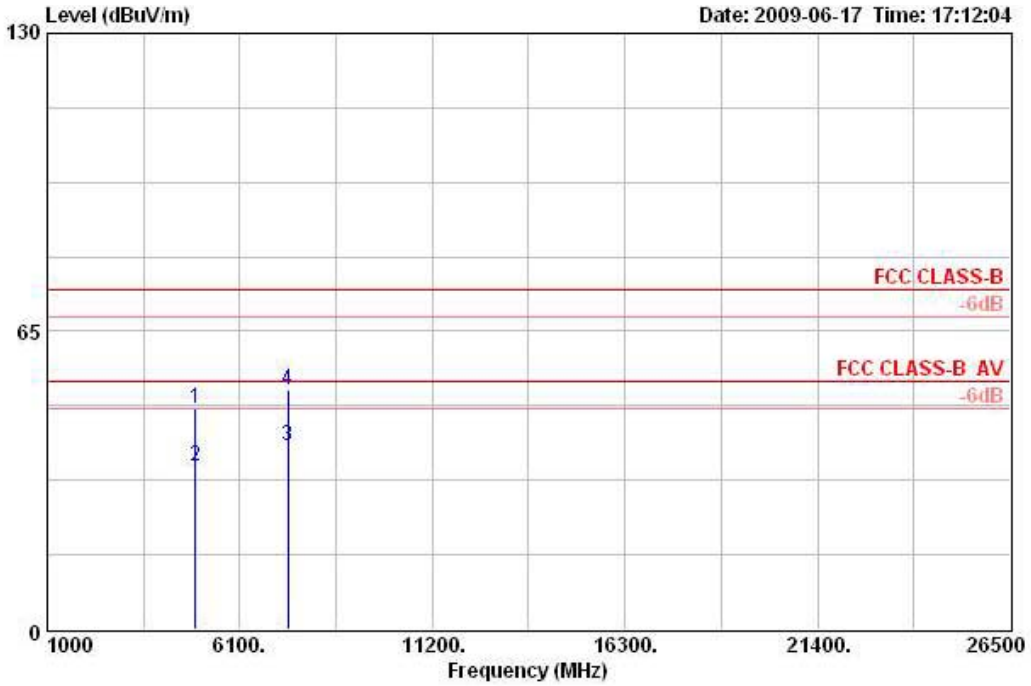
Vertical



	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	4874.040	47.62	-26.38	74.00	42.77	33.48	35.20	6.56	PEAK	VERTICAL	0	100
2	4874.920	36.03	-17.97	54.00	31.19	33.48	35.20	6.56	AVERAGE	VERTICAL	0	100
3	7311.430	40.48	-13.52	54.00	31.40	36.50	35.42	8.01	AVERAGE	VERTICAL	0	100
4	7311.430	53.70	-20.30	74.00	44.62	36.50	35.42	8.01	PEAK	VERTICAL	0	100

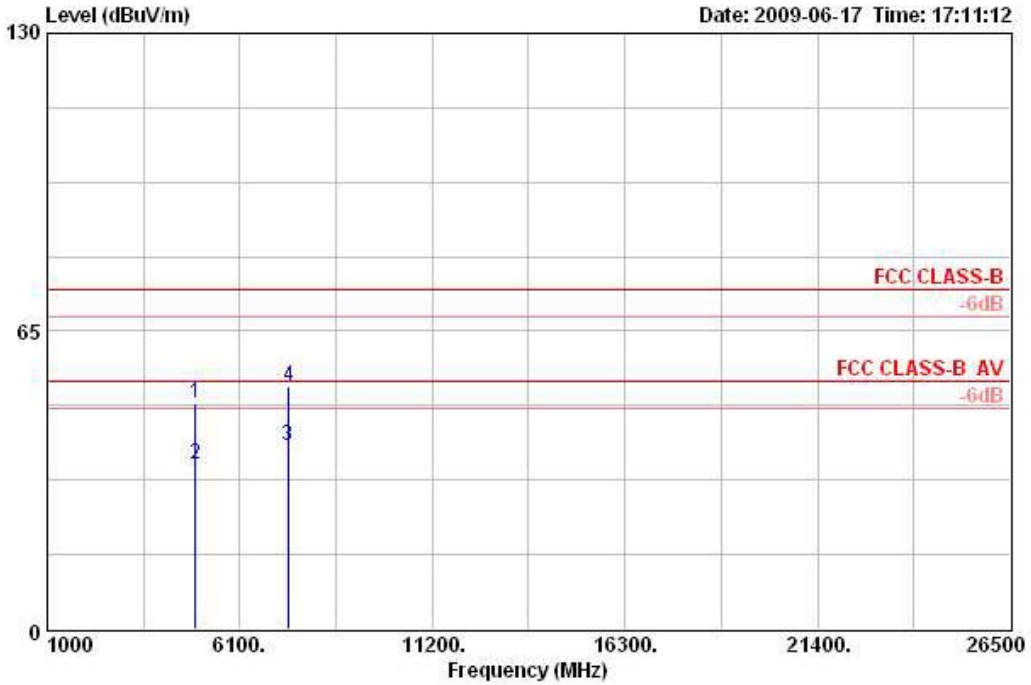
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 20MHz Ch11 Ant. A

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	4925.670	48.21	-25.79	74.00	43.10	33.58	35.20	6.73	PEAK	HORIZONTAL	0	100
2	4925.670	35.60	-18.40	54.00	30.50	33.58	35.20	6.73	AVERAGE	HORIZONTAL	0	100
3	7385.270	40.10	-13.90	54.00	30.88	36.63	35.46	8.05	AVERAGE	HORIZONTAL	0	100
4	7386.040	52.14	-21.86	74.00	42.92	36.63	35.46	8.05	PEAK	HORIZONTAL	0	100

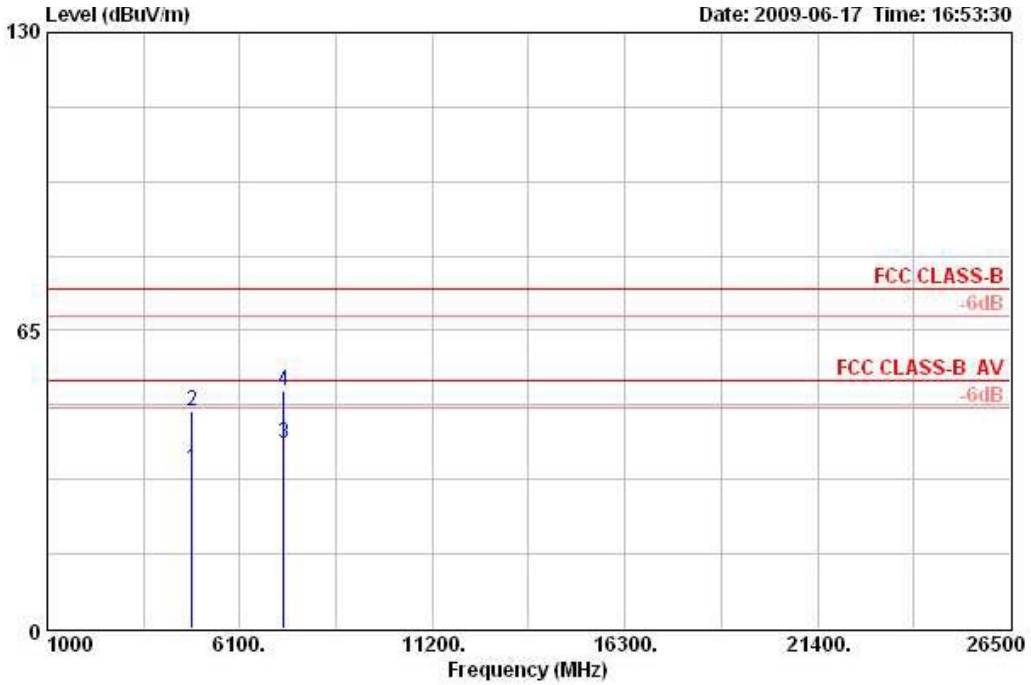
Vertical



	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	4922.020	49.33	-24.67	74.00	44.22	33.58	35.20	6.73	PEAK	VERTICAL	0	100
2	4922.240	35.75	-18.25	54.00	30.64	33.58	35.20	6.73	AVERAGE	VERTICAL	0	100
3	7386.030	40.04	-13.96	54.00	30.82	36.63	35.46	8.05	AVERAGE	VERTICAL	0	100
4	7388.170	53.12	-20.88	74.00	43.88	36.63	35.46	8.06	PEAK	VERTICAL	0	100

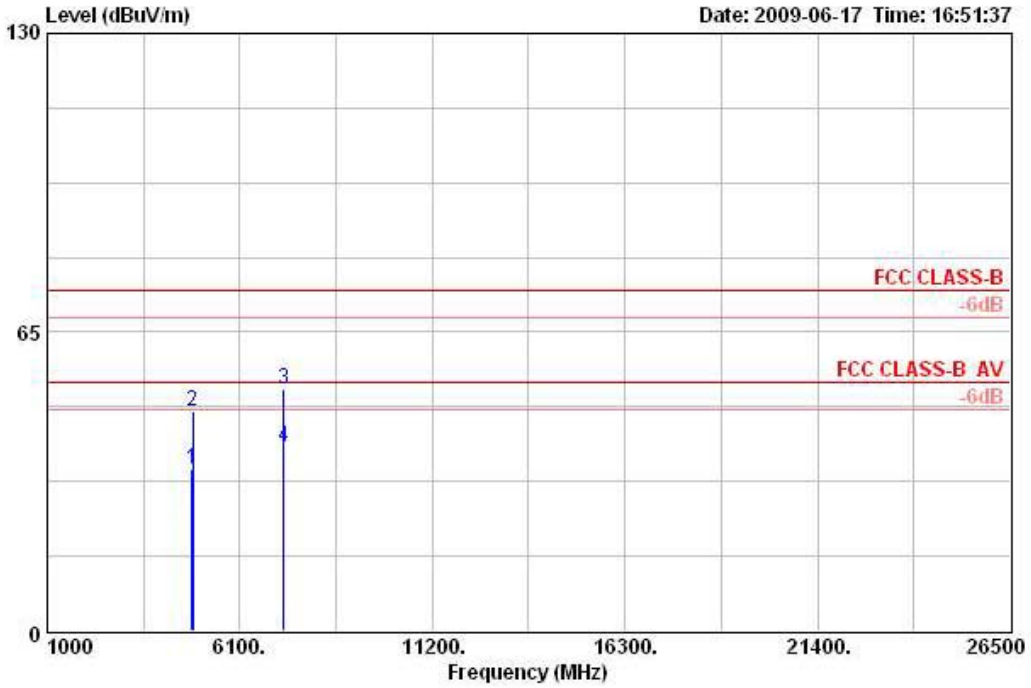
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 40MHz Ch 3 Ant. A

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	4844.570	34.67	-19.33	54.00	29.97	33.42	35.20	6.47	AVERAGE	HORIZONTAL	342	146
2	4844.940	47.58	-26.42	74.00	42.89	33.42	35.20	6.47	PEAK	HORIZONTAL	342	146
3	7265.480	40.36	-13.64	54.00	31.35	36.44	35.41	7.98	AVERAGE	HORIZONTAL	205	146
4	7265.480	51.68	-22.32	74.00	42.67	36.44	35.41	7.98	PEAK	HORIZONTAL	205	146

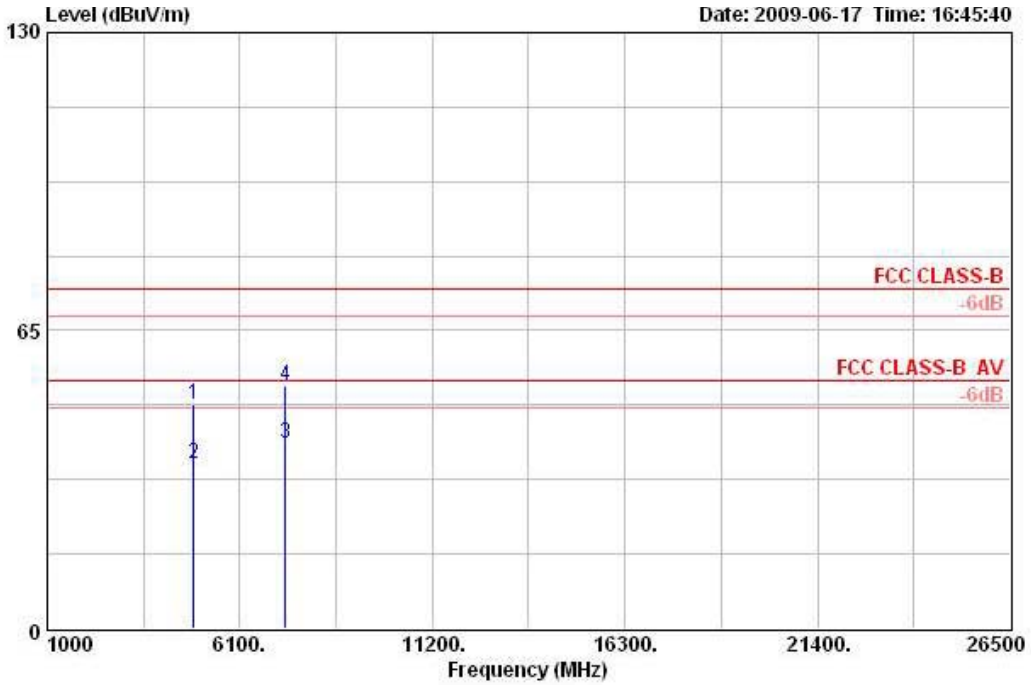
Vertical



	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	4845.210	35.16	-18.84	54.00	30.47	33.42	35.20	6.47	AVERAGE	VERTICAL	0	100
2	4845.580	47.65	-26.35	74.00	42.95	33.42	35.20	6.47	PEAK	VERTICAL	0	100
3	7264.720	52.75	-21.25	74.00	43.74	36.44	35.41	7.98	PEAK	VERTICAL	0	100
4	7265.630	40.11	-13.89	54.00	31.10	36.44	35.41	7.98	AVERAGE	VERTICAL	0	100

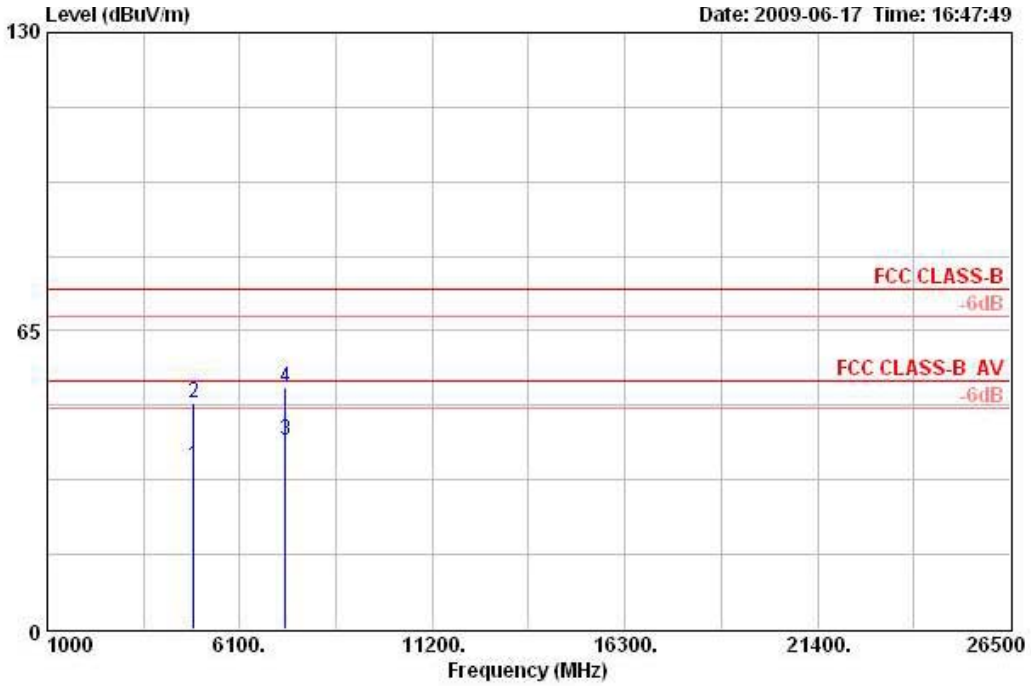
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 40MHz Ch 6 Ant. A

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	4872.870	48.86	-25.14	74.00	44.02	33.48	35.20	6.56	PEAK	HORIZONTAL	182	136
2	4873.370	36.09	-17.91	54.00	31.25	33.48	35.20	6.56	AVERAGE	HORIZONTAL	183	136
3	7309.360	40.48	-13.52	54.00	31.42	36.50	35.42	7.99	AVERAGE	HORIZONTAL	106	138
4	7311.940	53.06	-20.94	74.00	43.98	36.50	35.42	8.01	PEAK	HORIZONTAL	106	138

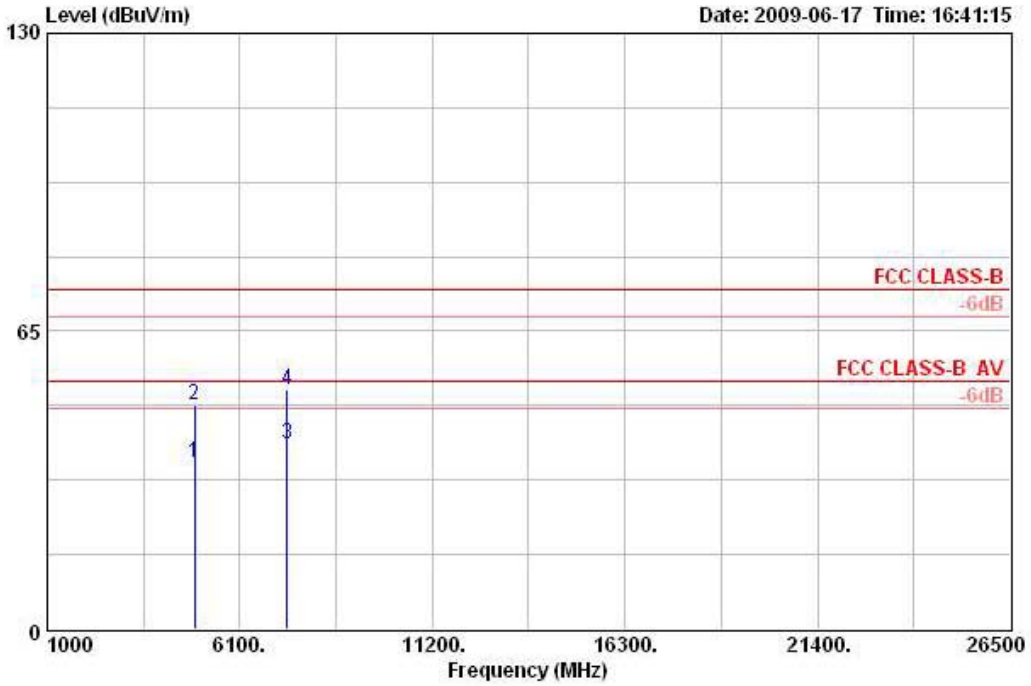
Vertical



	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	4875.100	35.67	-18.33	54.00	30.83	33.48	35.20	6.56	AVERAGE	VERTICAL	360	138
2	4876.560	49.13	-24.87	74.00	44.29	33.48	35.20	6.56	PEAK	VERTICAL	360	138
3	7309.360	41.28	-12.72	54.00	32.21	36.50	35.42	7.99	AVERAGE	VERTICAL	91	138
4	7312.280	52.49	-21.51	74.00	43.41	36.50	35.42	8.01	PEAK	VERTICAL	91	138

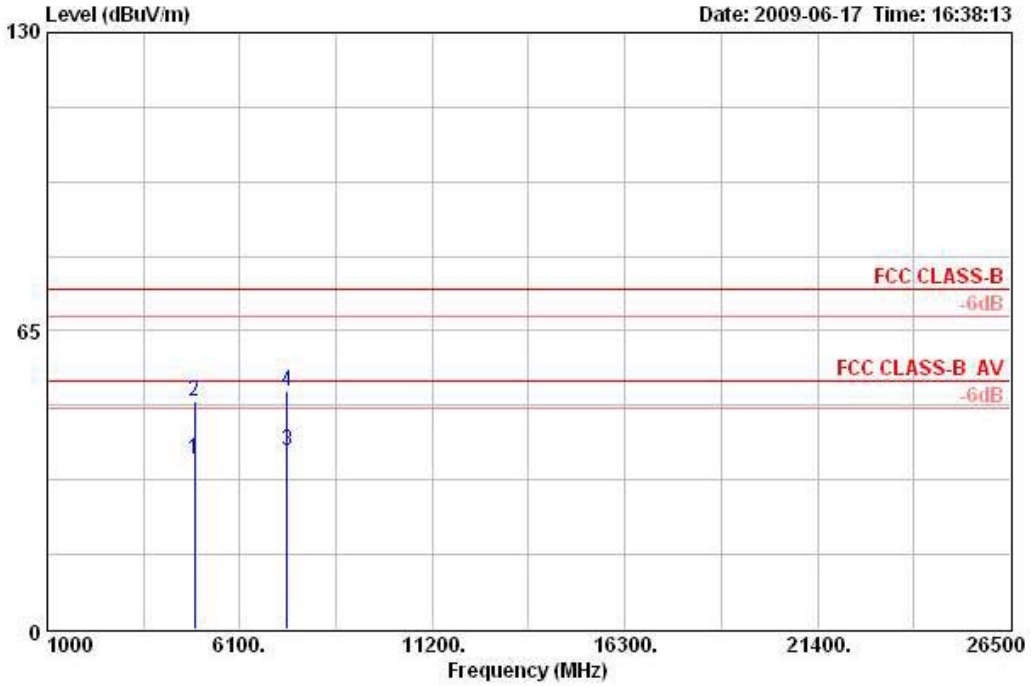
Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 40MHz Ch 9 Ant. A

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	4905.600	36.33	-17.67	54.00	31.34	33.54	35.20	6.65	AVERAGE	HORIZONTAL	346	100
2	4906.230	48.83	-25.17	74.00	43.84	33.54	35.20	6.65	PEAK	HORIZONTAL	346	100
3	7354.490	40.53	-13.47	54.00	31.37	36.58	35.44	8.03	AVERAGE	HORIZONTAL	2	100
4	7357.190	52.17	-21.83	74.00	43.01	36.58	35.44	8.03	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	4904.400	36.90	-17.10	54.00	31.91	33.54	35.20	6.65	AVERAGE	VERTICAL	72	120
2	4904.450	49.54	-24.46	74.00	44.55	33.54	35.20	6.65	PEAK	VERTICAL	72	120
3	7354.300	38.76	-15.24	54.00	29.59	36.58	35.44	8.03	AVERAGE	VERTICAL	360	100
4	7354.540	51.92	-22.08	74.00	42.76	36.58	35.44	8.03	PEAK	VERTICAL	360	100

Note:

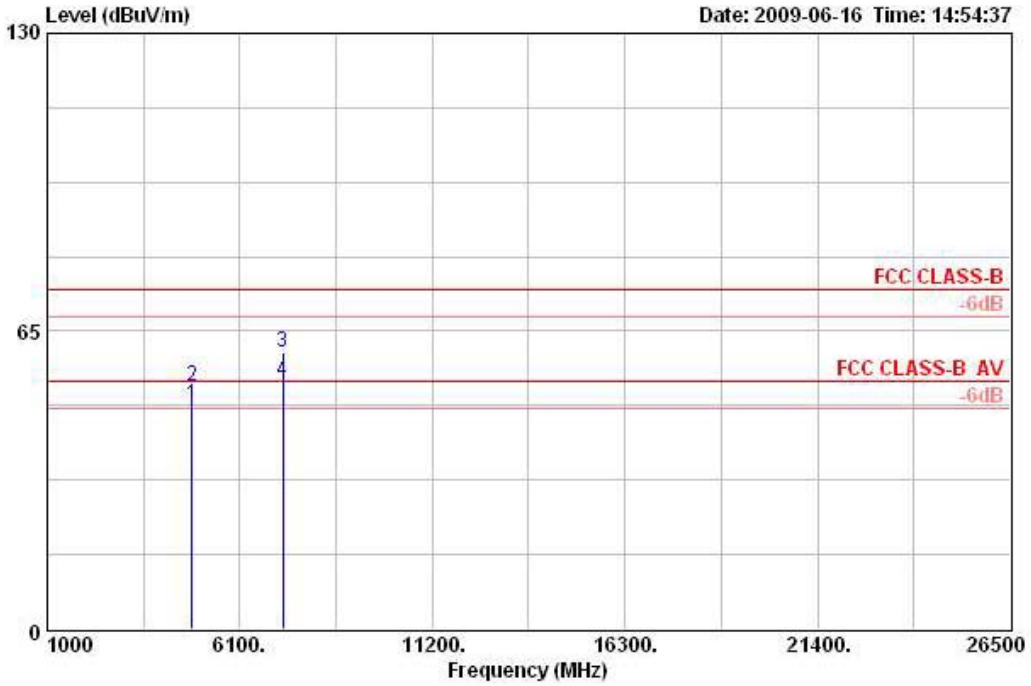
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

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

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

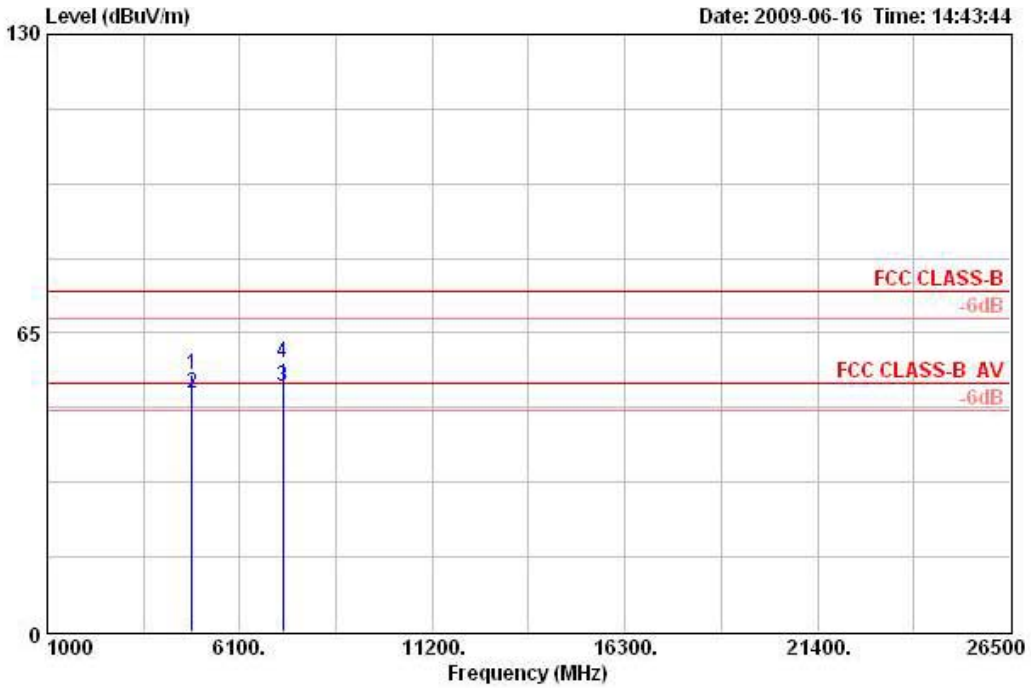
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11b CH 1 Ant. A

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 !	4823.920	48.77	-5.24	54.00	44.19	33.39	35.20	6.39	AVERAGE	HORIZONTAL	25	163
2	4823.920	52.78	-21.22	74.00	48.20	33.39	35.20	6.39	PEAK	HORIZONTAL	25	163
3	7238.400	60.34	-13.66	74.00	51.39	36.39	35.40	7.96	PEAK	HORIZONTAL	100	128
4 @	7238.660	53.92	-0.08	54.00	44.97	36.39	35.40	7.96	AVERAGE	HORIZONTAL	100	128

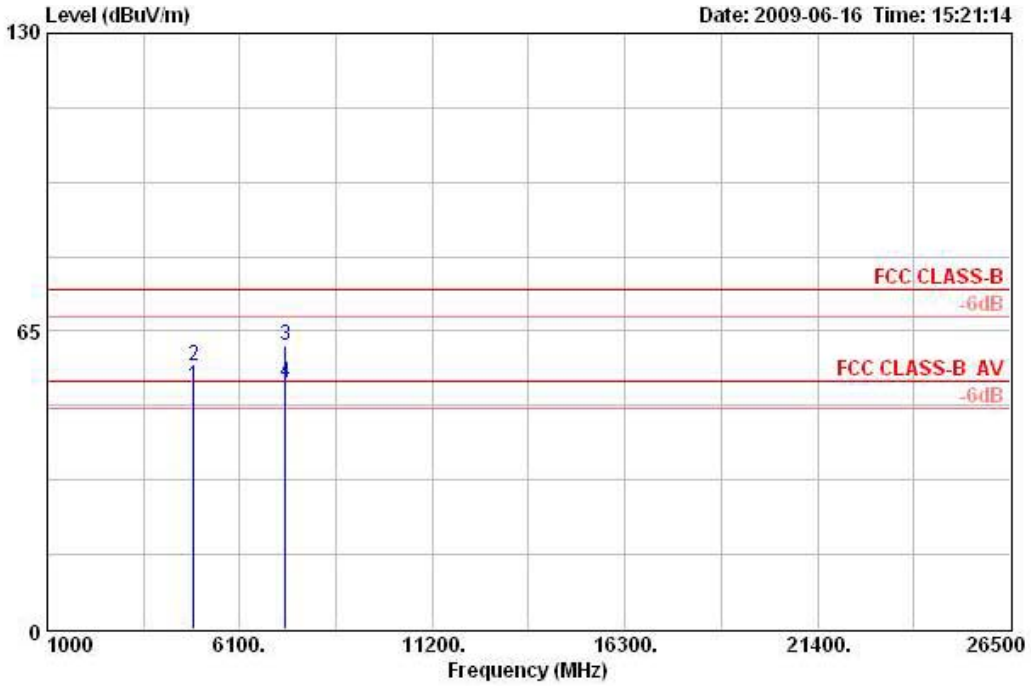
Vertical



	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	4823.790	55.99	-18.01	74.00	51.42	33.39	35.20	6.39	PEAK	VERTICAL	88	123
2 !	4823.930	51.79	-2.21	54.00	47.21	33.39	35.20	6.39	AVERAGE	VERTICAL	88	123
3 @	7238.700	53.40	-0.60	54.00	44.45	36.39	35.40	7.96	AVERAGE	VERTICAL	69	143
4	7238.700	58.68	-15.32	74.00	49.73	36.39	35.40	7.96	PEAK	VERTICAL	69	143

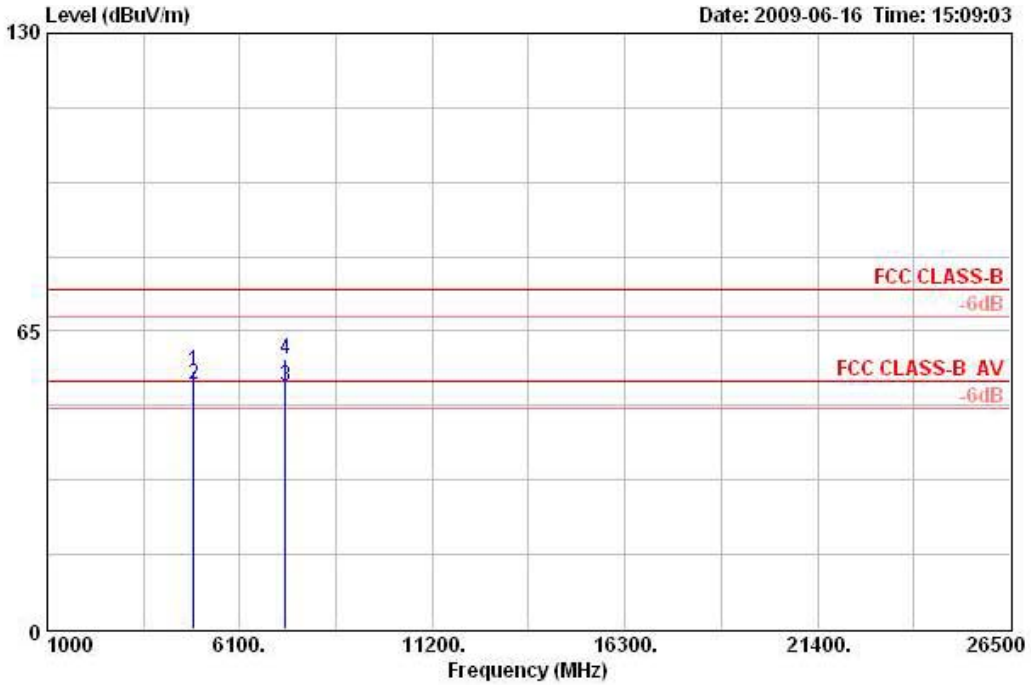
Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11b CH 6 Ant. A

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 !	4873.920	52.87	-1.13	54.00	48.02	33.48	35.20	6.56	AVERAGE	HORIZONTAL	304	139
2	4873.948	57.26	-16.74	74.00	52.42	33.48	35.20	6.56	PEAK	HORIZONTAL	304	139
3	7313.452	61.77	-12.23	74.00	52.69	36.50	35.42	8.01	PEAK	HORIZONTAL	106	137
4 @	7313.612	53.62	-0.38	54.00	44.54	36.50	35.42	8.01	AVERAGE	HORIZONTAL	93	40

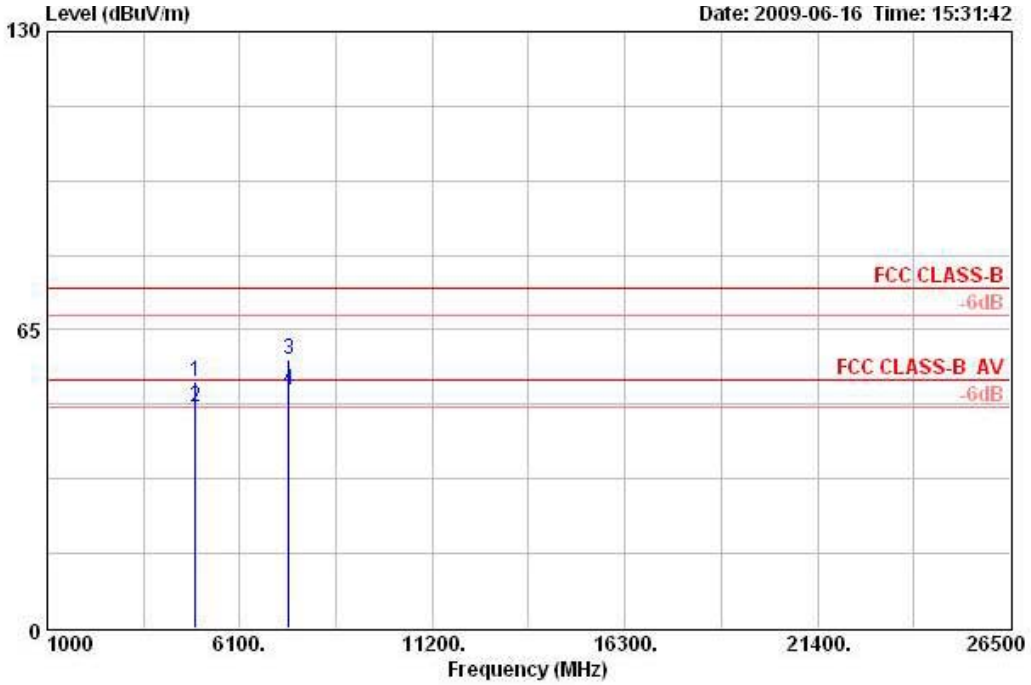
Vertical



	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	4873.812	56.39	-17.61	74.00	51.55	33.48	35.20	6.56	PEAK	VERTICAL	87	120
2 !	4873.960	53.27	-0.73	54.00	48.43	33.48	35.20	6.56	AVERAGE	VERTICAL	87	120
3 !	7313.560	52.79	-1.21	54.00	43.71	36.50	35.42	8.01	AVERAGE	VERTICAL	62	121
4	7313.560	58.81	-15.19	74.00	49.73	36.50	35.42	8.01	PEAK	VERTICAL	62	121

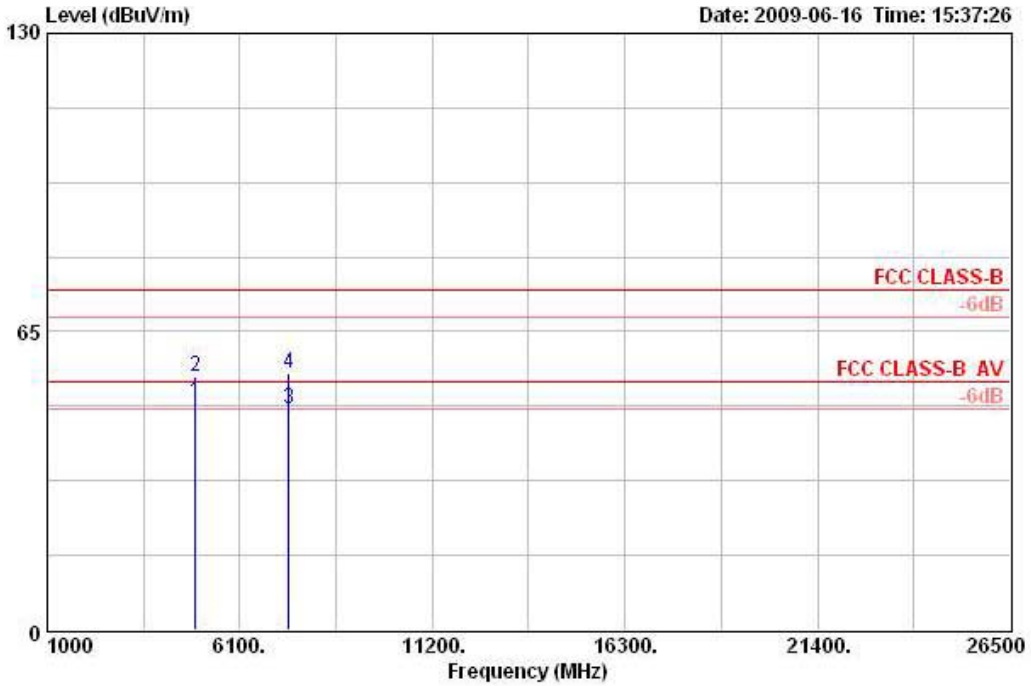
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11b CH 11 Ant. A

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	4923.816	53.75	-20.25	74.00	48.64	33.58	35.20	6.73	PEAK	HORIZONTAL	38	134
2 !	4923.960	48.13	-5.87	54.00	43.02	33.58	35.20	6.73	AVERAGE	HORIZONTAL	38	134
3	7387.800	58.63	-15.37	74.00	49.39	36.63	35.46	8.06	PEAK	HORIZONTAL	91	137
4 !	7388.600	51.81	-2.19	54.00	42.57	36.63	35.46	8.06	AVERAGE	HORIZONTAL	91	137

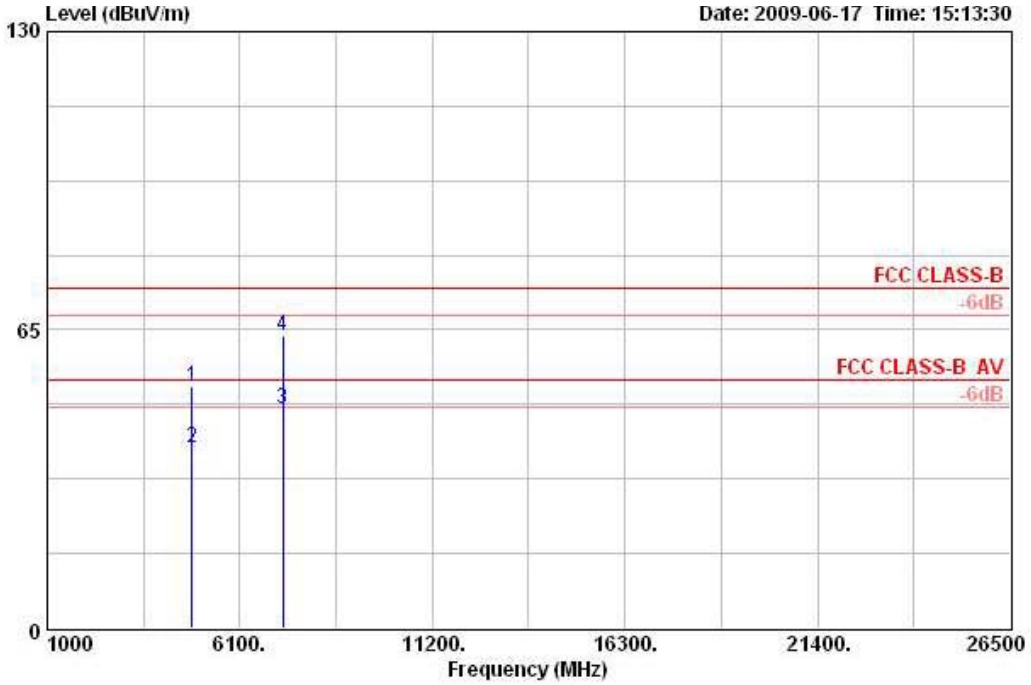
Vertical



	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 !	4923.908	49.79	-4.21	54.00	44.69	33.58	35.20	6.73	AVERAGE	VERTICAL	78	116
2	4924.116	55.12	-18.88	74.00	50.01	33.58	35.20	6.73	PEAK	VERTICAL	78	116
3	7388.576	47.98	-6.02	54.00	38.74	36.63	35.46	8.06	AVERAGE	VERTICAL	39	114
4	7389.256	56.02	-17.98	74.00	46.78	36.63	35.46	8.06	PEAK	VERTICAL	39	114

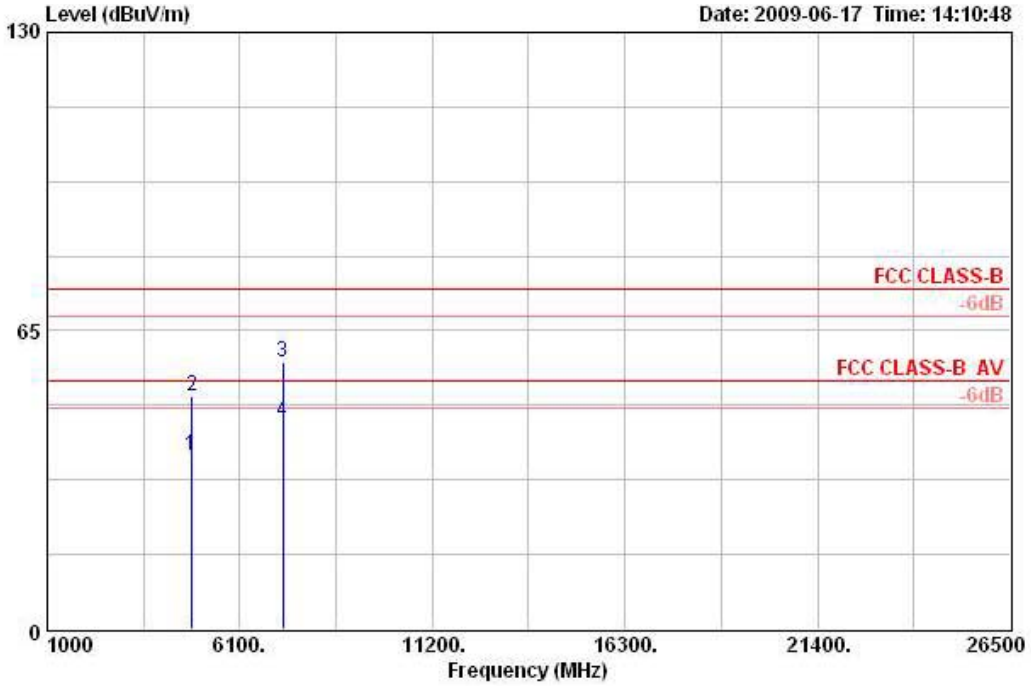
Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11g CH 1 Ant. A

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	4824.800	52.50	-21.50	74.00	47.92	33.39	35.20	6.39	PEAK	HORIZONTAL	283	139
2	4826.120	39.28	-14.72	54.00	34.70	33.39	35.20	6.39	AVERAGE	HORIZONTAL	221	139
3	7236.440	47.90	-6.10	54.00	38.95	36.39	35.40	7.96	AVERAGE	HORIZONTAL	95	139
4	7240.280	63.79	-10.21	74.00	54.84	36.39	35.40	7.96	PEAK	HORIZONTAL	95	139

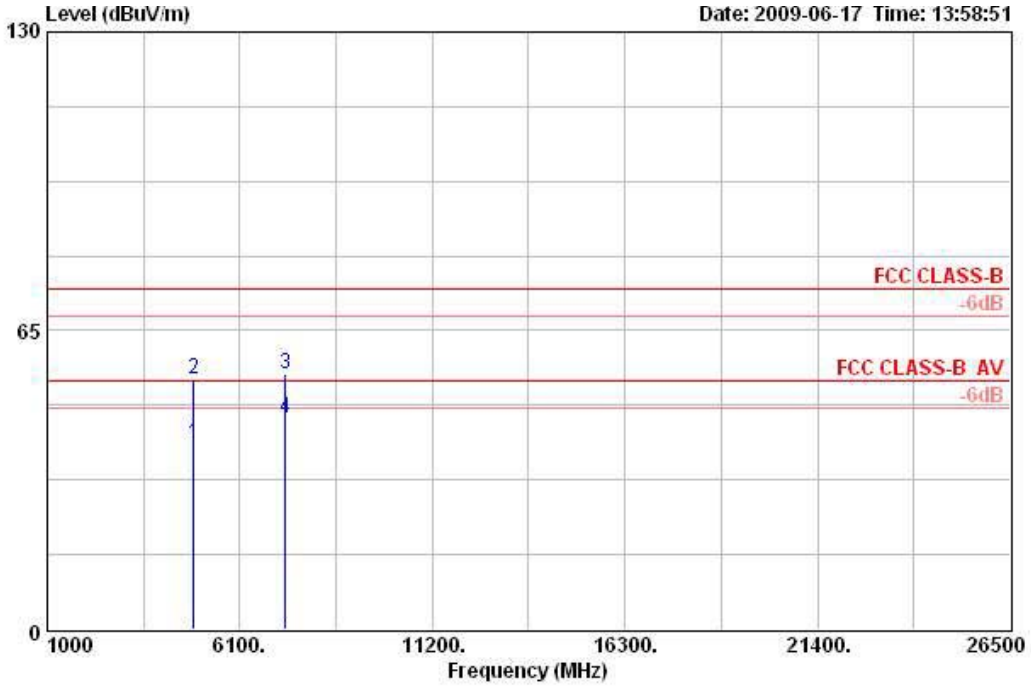
Vertical



	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	4821.840	37.67	-16.33	54.00	33.09	33.39	35.20	6.39	AVERAGE	VERTICAL	95	119
2	4824.480	50.74	-23.26	74.00	46.16	33.39	35.20	6.39	PEAK	VERTICAL	95	119
3	7239.000	58.11	-15.89	74.00	49.16	36.39	35.40	7.96	PEAK	VERTICAL	62	119
4	7240.720	45.10	-8.90	54.00	36.15	36.39	35.40	7.96	AVERAGE	VERTICAL	62	119

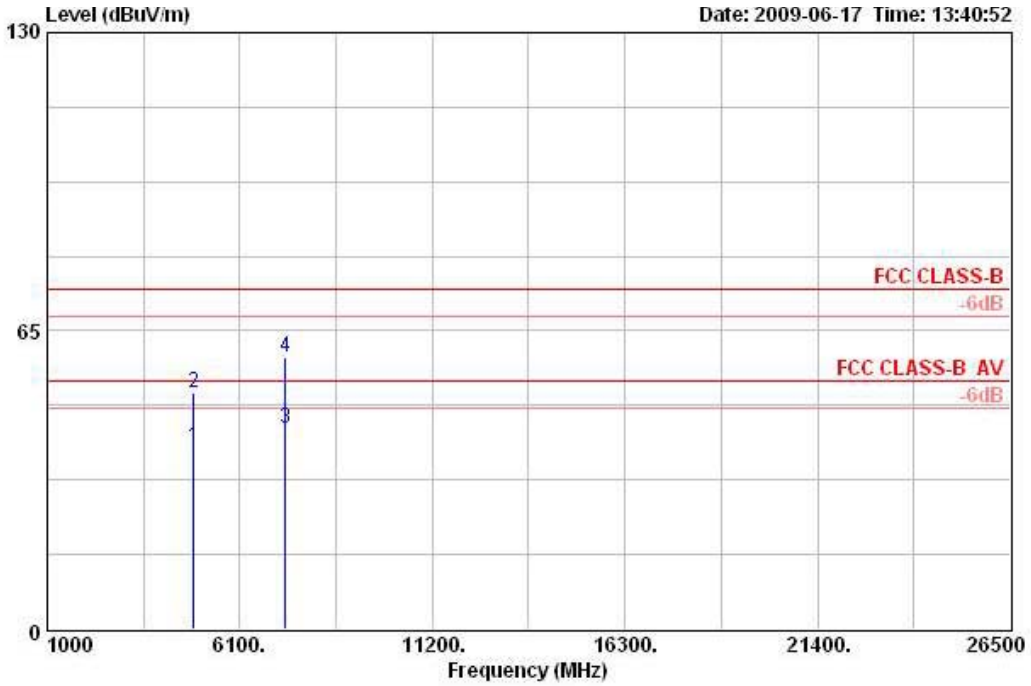
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11g CH 6 Ant. A

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	4875.000	40.36	-13.64	54.00	35.51	33.48	35.20	6.56	AVERAGE	HORIZONTAL	283	139
2	4878.480	54.54	-19.46	74.00	49.70	33.48	35.20	6.56	PEAK	HORIZONTAL	283	139
3	7308.120	55.53	-18.47	74.00	46.46	36.50	35.42	7.99	PEAK	HORIZONTAL	99	139
4	7308.400	45.86	-8.14	54.00	36.79	36.50	35.42	7.99	AVERAGE	HORIZONTAL	99	139

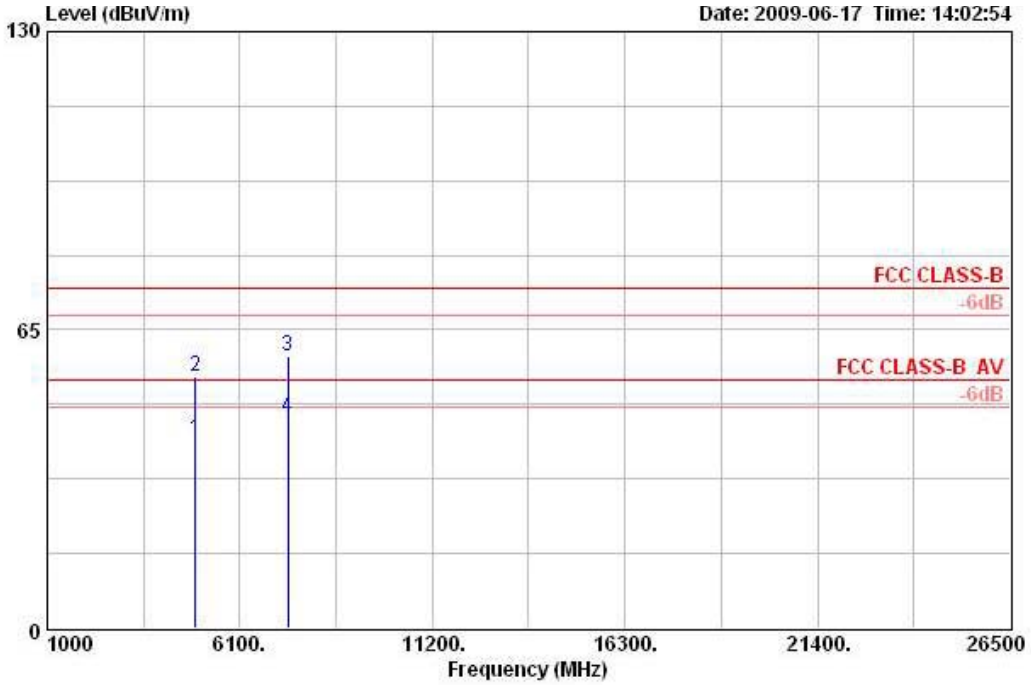
Vertical



	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	4873.330	39.67	-14.33	54.00	34.82	33.48	35.20	6.56	AVERAGE	VERTICAL	85	119
2	4873.330	51.65	-22.35	74.00	46.81	33.48	35.20	6.56	PEAK	VERTICAL	85	119
3	7310.370	43.76	-10.24	54.00	34.69	36.50	35.42	7.99	AVERAGE	VERTICAL	54	118
4	7312.230	59.22	-14.78	74.00	50.13	36.50	35.42	8.01	PEAK	VERTICAL	54	118

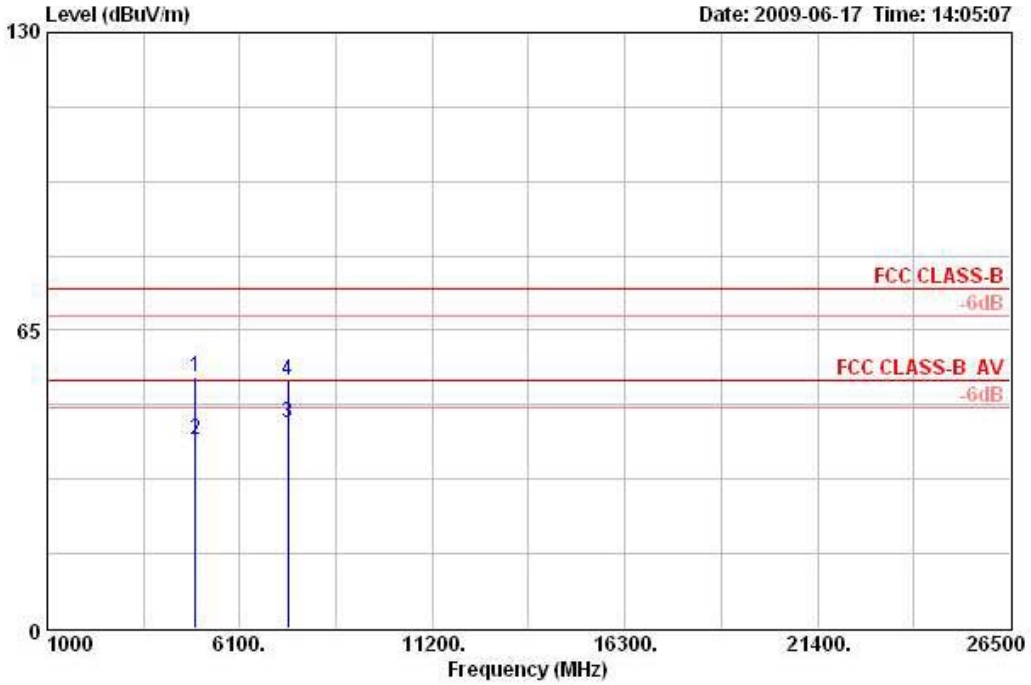
Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11g CH 11 Ant. A

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	4925.240	41.18	-12.82	54.00	36.07	33.58	35.20	6.73	AVERAGE	HORIZONTAL	283	139
2	4925.600	54.87	-19.13	74.00	49.76	33.58	35.20	6.73	PEAK	HORIZONTAL	283	139
3	7383.480	59.18	-14.82	74.00	49.98	36.61	35.45	8.05	PEAK	HORIZONTAL	99	139
4	7385.120	46.00	-8.00	54.00	36.78	36.63	35.46	8.05	AVERAGE	HORIZONTAL	99	139

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	4920.400	54.79	-19.21	74.00	49.68	33.58	35.20	6.73	PEAK	VERTICAL	92	119
2	4924.920	41.22	-12.78	54.00	36.11	33.58	35.20	6.73	AVERAGE	VERTICAL	92	119
3	7383.320	44.79	-9.21	54.00	35.59	36.61	35.45	8.05	AVERAGE	VERTICAL	62	119
4	7385.520	54.25	-19.75	74.00	45.03	36.63	35.46	8.05	PEAK	VERTICAL	62	119

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 freqeuncy range investigated is limited to 100MHz around bandedges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

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	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 20MHz Ch 1, 6, 11 Ant. A
Test Date	Jun. 17, 2009		

Channel 1

	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 !	2390.000	52.79	-1.21	54.00	21.86	28.05	0.00	2.88	AVERAGE	VERTICAL	122	135
2	2390.000	64.91	-9.09	74.00	33.98	28.05	0.00	2.88	PEAK	VERTICAL	122	135
3 @	2410.200	105.93			74.96	28.09	0.00	2.88	PEAK	VERTICAL	122	135
4 @	2410.600	96.70			65.73	28.09	0.00	2.88	AVERAGE	VERTICAL	122	135

Item 3, 4 are the fundamental frequency at 2412 MHz

Channel 6

	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	2390.000	45.15	-8.85	54.00	14.21	28.05	0.00	2.88	AVERAGE	VERTICAL	0	129
2	2390.000	54.88	-19.12	74.00	23.95	28.05	0.00	2.88	PEAK	VERTICAL	0	129
3 @	2435.800	100.71			69.68	28.13	0.00	2.90	AVERAGE	VERTICAL	0	129
4 @	2437.000	111.22			80.15	28.18	0.00	2.90	PEAK	VERTICAL	0	129
5	2483.500	45.23	-8.77	54.00	14.05	28.26	0.00	2.93	AVERAGE	VERTICAL	0	129
6	2483.500	55.63	-18.37	74.00	24.45	28.26	0.00	2.93	PEAK	VERTICAL	0	129

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

Channel 11

	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 @	2463.800	98.03			66.91	28.22	0.00	2.91	AVERAGE	VERTICAL	256	134
2 @	2465.200	108.36			77.23	28.22	0.00	2.91	PEAK	VERTICAL	256	134
3 @	2483.500	53.46	-0.54	54.00	22.28	28.26	0.00	2.93	AVERAGE	VERTICAL	256	134
4 !	2483.500	73.26	-0.74	74.00	42.08	28.26	0.00	2.93	PEAK	VERTICAL	256	134

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

Temperature	24.5℃	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	Draft n MCS0 40MHz Ch 3, 6, 9 Ant. A
Test Date	Jun. 17, 2009		

Channel 3

	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 @	2390.000	53.80	-0.20	54.00	22.87	28.05	0.00	2.88	AVERAGE	VERTICAL	89	127
2 !	2390.000	73.15	-0.85	74.00	42.22	28.05	0.00	2.88	PEAK	VERTICAL	89	127
3 @	2427.200	91.18			60.15	28.13	0.00	2.90	AVERAGE	VERTICAL	89	127
4 @	2427.600	101.91			70.88	28.13	0.00	2.90	PEAK	VERTICAL	89	127

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

Channel 6

	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 !	2390.000	50.16	-3.84	54.00	19.23	28.05	0.00	2.88	AVERAGE	VERTICAL	360	129
2	2390.000	65.48	-8.52	74.00	34.55	28.05	0.00	2.88	PEAK	VERTICAL	360	129
3 @	2432.600	94.57			63.54	28.13	0.00	2.90	AVERAGE	VERTICAL	360	129
4 @	2433.000	103.80			72.77	28.13	0.00	2.90	PEAK	VERTICAL	360	129
5	2483.500	47.16	-6.84	54.00	15.97	28.26	0.00	2.93	AVERAGE	VERTICAL	360	129
6	2493.500	64.25	-9.75	74.00	33.01	28.30	0.00	2.94	PEAK	VERTICAL	360	129

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

Channel 9

	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 @	2456.800	102.78			71.66	28.22	0.00	2.91	PEAK	VERTICAL	150	154
2 @	2457.200	92.14			61.02	28.22	0.00	2.91	AVERAGE	VERTICAL	150	154
3 !	2483.500	51.39	-2.61	54.00	20.21	28.26	0.00	2.93	AVERAGE	VERTICAL	150	154
4 !	2483.500	73.13	-0.87	74.00	41.95	28.26	0.00	2.93	PEAK	VERTICAL	150	154

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	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11b CH 1, 6, 11 Ant. A
Test Date	Jun. 17, 2009		

Channel 1

	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	2390.000	55.95	-18.05	74.00	25.02	28.05	0.00	2.88	PEAK	VERTICAL	25	128
2	2390.000	46.39	-7.61	54.00	15.46	28.05	0.00	2.88	AVERAGE	VERTICAL	25	128
3 @	2414.400	110.43			79.45	28.09	0.00	2.88	PEAK	VERTICAL	25	128
4 @	2414.800	106.49			75.52	28.09	0.00	2.88	AVERAGE	VERTICAL	25	128

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

Channel 6

	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	2390.000	44.36	-9.64	54.00	13.43	28.05	0.00	2.88	AVERAGE	VERTICAL	25	128
2	2390.000	53.96	-20.04	74.00	23.02	28.05	0.00	2.88	PEAK	VERTICAL	25	128
3 @	2439.600	105.33			74.26	28.18	0.00	2.90	AVERAGE	VERTICAL	25	128
4 @	2439.600	108.95			77.88	28.18	0.00	2.90	PEAK	VERTICAL	25	128
5	2483.500	44.68	-9.32	54.00	13.49	28.26	0.00	2.93	AVERAGE	VERTICAL	25	128
6	2483.500	55.88	-18.12	74.00	24.70	28.26	0.00	2.93	PEAK	VERTICAL	25	128

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

Channel 11

	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 @	2464.600	109.59			78.46	28.22	0.00	2.91	PEAK	VERTICAL	28	128
2 @	2464.600	105.93			74.80	28.22	0.00	2.91	AVERAGE	VERTICAL	28	128
3	2483.500	47.23	-6.77	54.00	16.05	28.26	0.00	2.93	AVERAGE	VERTICAL	28	128
4	2484.900	61.42	-12.58	74.00	30.24	28.26	0.00	2.93	PEAK	VERTICAL	28	128

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

Temperature	24.5°C	Humidity	54.8%
Test Engineer	Beck Wu	Configurations	802.11g CH 1, 6, 11 Ant. A
Test Date	Jun. 17, 2009		

Channel 1

	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 @	2390.000	53.90	-0.10	54.00	22.97	28.05	0.00	2.88	AVERAGE	VERTICAL	88	128
2	2390.000	67.61	-6.39	74.00	36.68	28.05	0.00	2.88	PEAK	VERTICAL	88	128
3 @	2410.800	98.46			67.49	28.09	0.00	2.88	AVERAGE	VERTICAL	88	128
4 @	2411.200	109.15			78.18	28.09	0.00	2.88	PEAK	VERTICAL	88	128

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

Channel 6

	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	2389.400	56.61	-17.39	74.00	25.69	28.05	0.00	2.86	PEAK	VERTICAL	89	124
2	2390.000	44.95	-9.05	54.00	14.01	28.05	0.00	2.88	AVERAGE	VERTICAL	89	124
3 @	2436.000	101.58			70.55	28.13	0.00	2.90	AVERAGE	VERTICAL	89	124
4 @	2436.200	110.31			79.28	28.13	0.00	2.90	PEAK	VERTICAL	89	124
5	2483.500	45.17	-8.83	54.00	13.99	28.26	0.00	2.93	AVERAGE	VERTICAL	89	124
6	2483.500	56.14	-17.86	74.00	24.96	28.26	0.00	2.93	PEAK	VERTICAL	89	124

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

Channel 11

	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 @	2463.400	100.24			69.12	28.22	0.00	2.91	AVERAGE	VERTICAL	151	124
2 @	2463.600	110.92			79.79	28.22	0.00	2.91	PEAK	VERTICAL	151	124
3	2483.500	52.77	-1.23	54.00	21.59	28.26	0.00	2.93	AVERAGE	VERTICAL	151	124
4	2483.500	68.20	-5.80	74.00	37.02	28.26	0.00	2.93	PEAK	VERTICAL	151	124

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

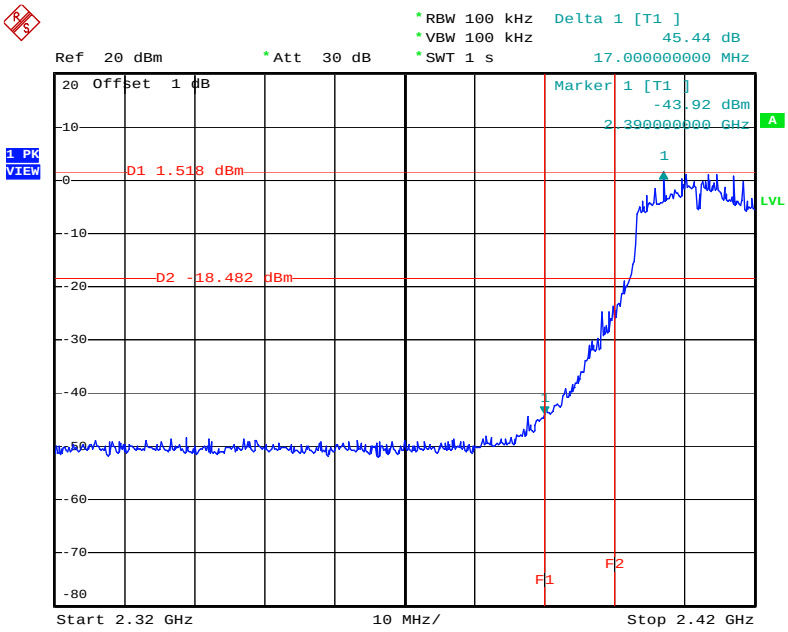
Note:

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 MCS0 20MHz Ant. A / 2412 MHz



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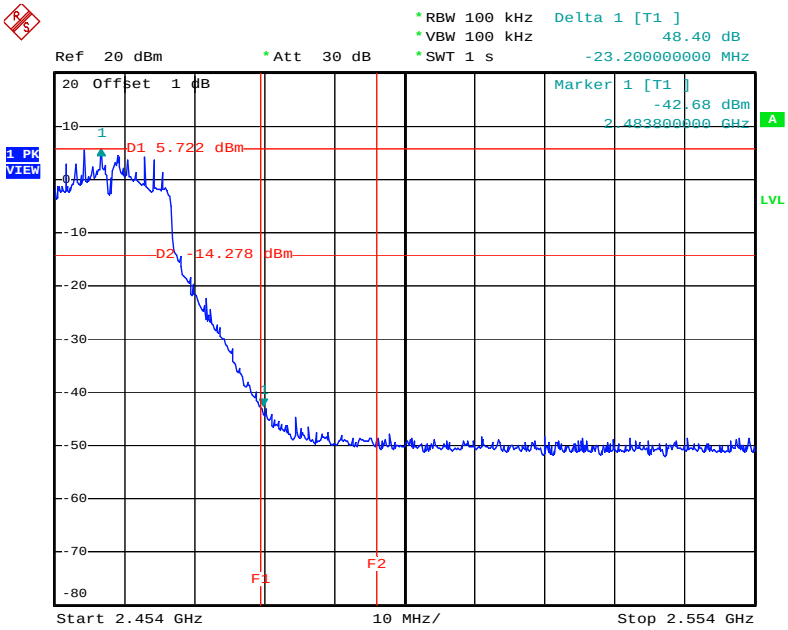
High Band Edge Plot on Configuration Draft n MCS0 20MHz Ant. A / 2462 MHz



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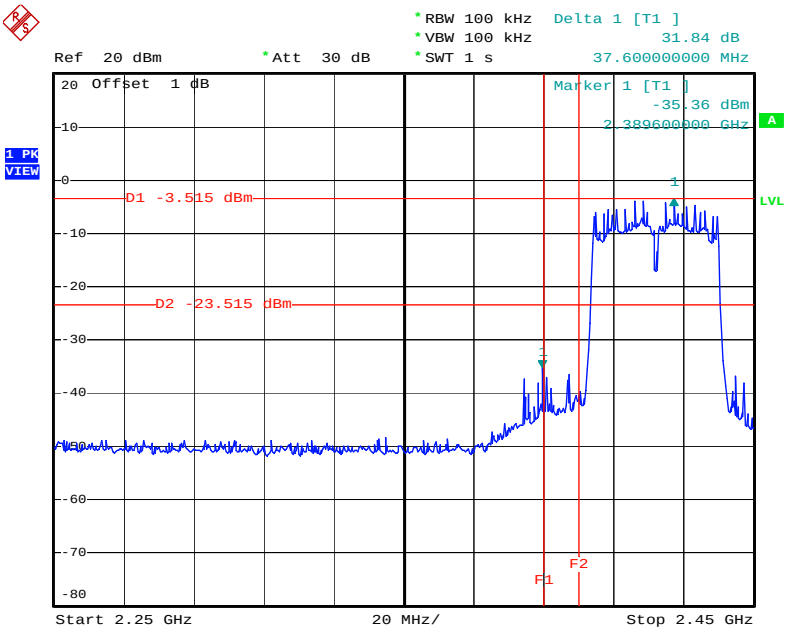
For Emission not in Restricted Band

Low Band Edge Plot on Configuration Draft n MCS0 40MHz Ant. A / 2422 MHz



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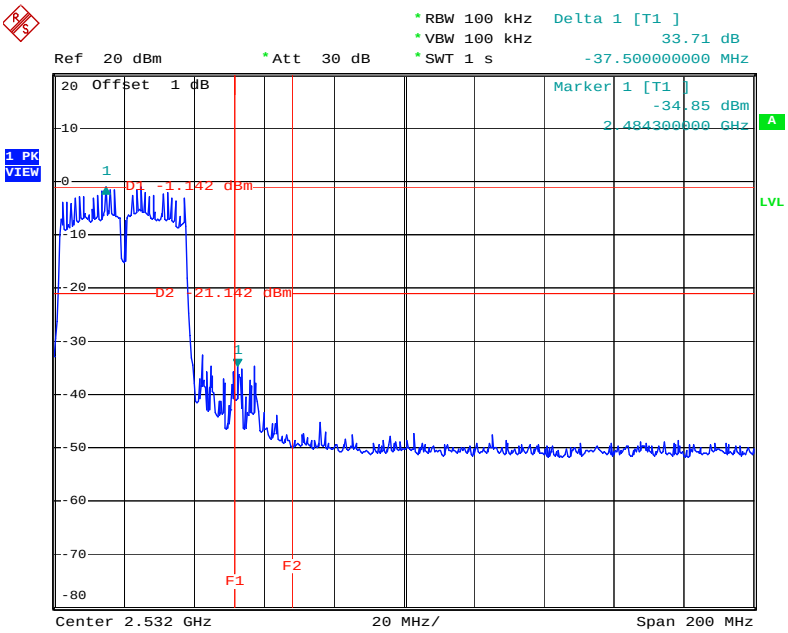
High Band Edge Plot on Configuration Draft n MCS0 40MHz Ant. A / 2452 MHz



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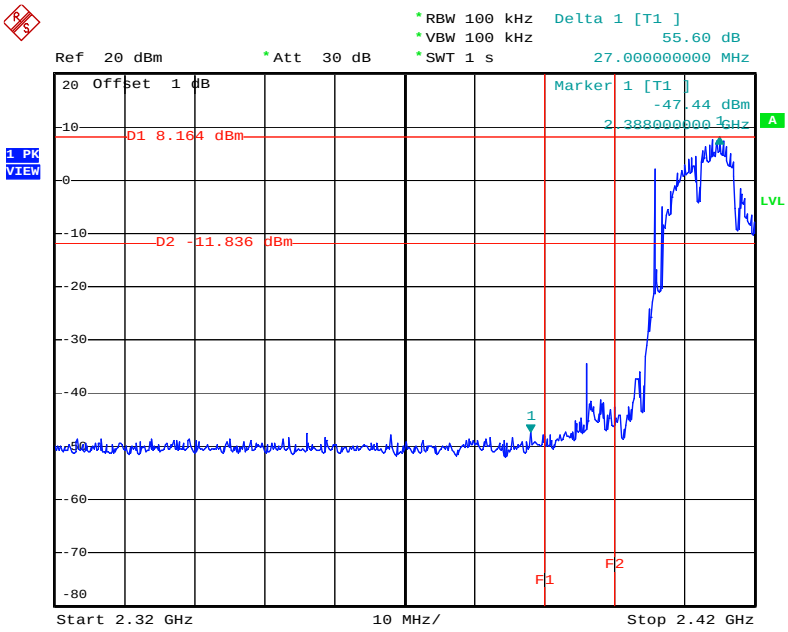
Low Band Edge Plot on Configuration IEEE 802.11b Ant. A / 2412 MHz



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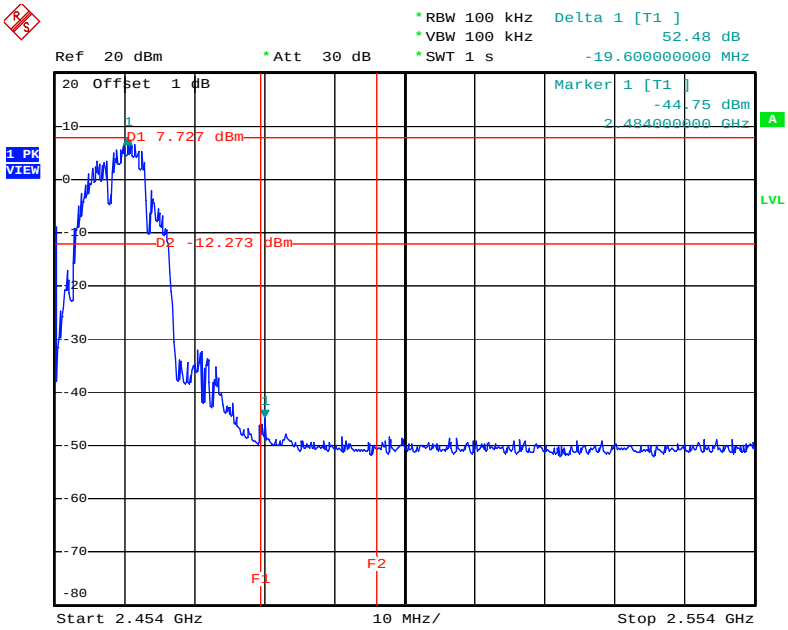

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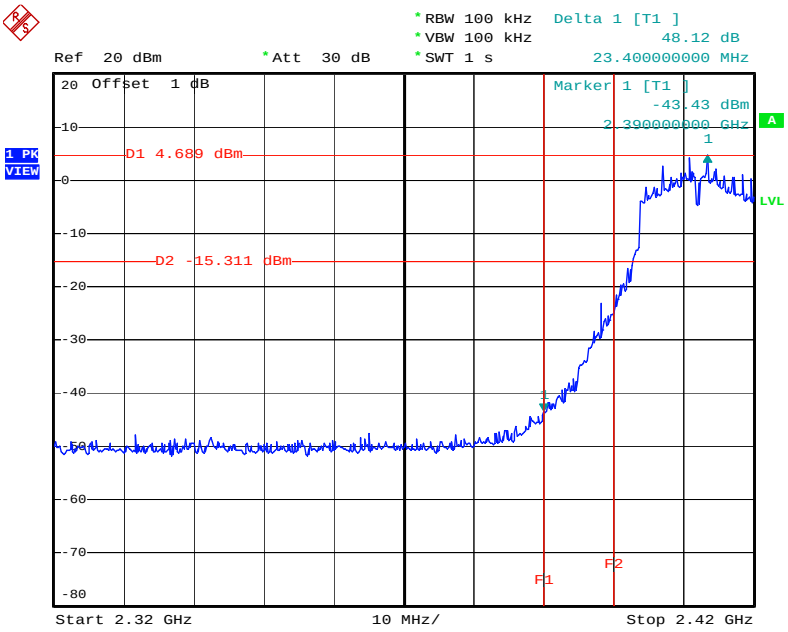
Low Band Edge Plot on Configuration IEEE 802.11g Ant. A / 2412 MHz



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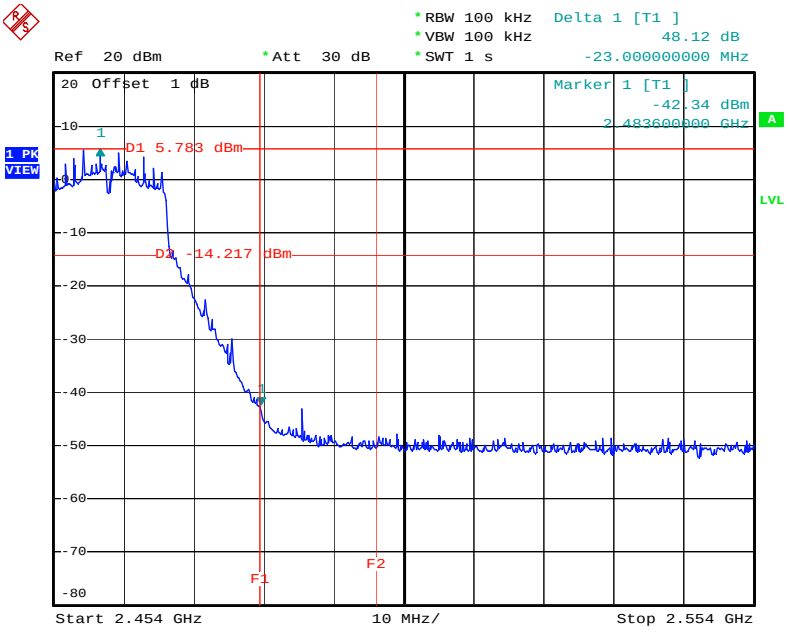
High Band Edge Plot on Configuration IEEE 802.11g Ant. A / 2462 MHz



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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	Apr. 15, 2009	Conduction (CO04-HY)
LISN	MessTec	NNB-2/16Z	99079	9kHz – 30MHz	Mar. 23, 2009	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz – 30MHz	Mar. 22, 2009	Conduction (CO04-HY)
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9kHz – 30MHz	Apr. 20, 2009	Conduction (CO04-HY)
ISN	SCHAFFNER	ISN T400	21653	9kHz –30MHz	Jun. 11, 2009	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, 2009	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	MITEQ	AMF-6F-260400	9121372	26.5 GHz - 40 GHz	Apr. 06, 2009*	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP30	100023	9 kHz - 30 GHz	Feb. 02, 2009	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)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	Apr. 29, 2009	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	Jan. 05, 2009	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	FSU26.5	100015	20Hz ~ 26.5GHz	Oct. 29, 2008	Conducted (TH01-HY)
Power Meter	R&S	NRVS	100444	DC ~ 40GHz	Jul. 11, 2008	Conducted (TH01-HY)
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, 2009*	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Mar. 13, 2009	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, 2008	Conducted (TH01-HY)
RF CABLE-2m	Jye Bao	RG142	CB035-2m	20MHz ~ 1GHz	Dec. 01, 2008	Conducted (TH01-HY)
Vector Signal Generator	R&S	SMU200A	102098	100kHz ~ 6GHz	Dec. 14, 2008	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Mar. 25, 2009	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 724, 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

P1, total 9 pages

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