

CFR 47 FCC Part 15.247

TEST REPORT

Product : **NoteBook PC**
Trade Name : MTC; Getac
Model Number : 9213XY (X=0~9, Y=A~Z)
FCC ID : MAU9213L

Prepared for

MiTAC Technology Corp.

4F, No.1, R&D Road 2, Hsinchu Science-Based Industrial Park,
Hsinchu, Taiwan, R.O.C.

TEL. : +886 2 2501 8231

FAX. : +886 2 2509 5887

Prepared by

Interocean EMC Technology Corp.

244 No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang,
Taipei County, Taiwan, R.O.C.

TEL.: +886 2 2600 6861

FAX.: +886 2 2600 6859

Remark :

The test report consists of **68** pages in total. It shall not be reproduced except in full, without the written approval of IETC. This document may be altered or revised by IETC only, and shall be noted in the revision section of the document.
The test results in the report only to the tested sample.

Table of Contents

1	General Information	5
1.1	Description of Equipment Under Test	5
1.2	Technical Specifications	6
1.3	Table for Carrier Frequencies	7
1.4	Test Facility	8
1.5	Test Equipment	9
1.6	Summary of Measurement	10
1.7	Justification	11
2	RF Radiated spurious emission test	12
2.1	Limit	12
2.2	Configuration of Measurement	12
2.3	Test Procedure	13
2.4	Test Result	13
3	RF Conducted spurious emission	16
3.1	Limit	16
3.2	Configuration of Measurement	16
3.3	Test Procedure	16
3.4	Test Result	16
4	Maximum Peak output power test	23
4.1	Limit	23
4.2	Configuration of Measurement	23
4.3	Test Procedure	23
4.4	Test Result	23
5	Power test of Data Rate	25
6	6dB Bandwidth	26
6.1	Limit	26
6.2	Configuration of Measurement	26
6.3	Test Procedure	26
6.4	Test Result	26
7	Power spectral density	41
7.1	Limit	41
7.2	Configuration of Measurement	41
7.3	Test Procedure	41
7.4	Test Result	41
8	Emission on the Band Edge test	49
8.1	Limit	49
8.2	Configuration of Measurement	49
8.3	Test Procedure	49
8.4	Test Result	49

9 AC Power Line Conducted Emission test	59
9.1 Limit	59
9.2 Configuration of Measurement	59
9.3 Test Procedures	59
9.4 Test Result	59
10 Photographs of Test	62
10.1 Power Line Conducted Emission Measurement	62
10.2 Radiated Emission Measurement	63
11 Photographs of EUT	64

Statement of Compliance

Applicant: MITAC Technology Corp.
Manufacturer: Getac Technology (Kunshan) Co., Ltd.
Product: NoteBook PC
Model No.: 9213XY (X=0~9, Y=A~Z)
Tested Power Supply: 120Vac, 60Hz
Date of Final Test: Sep. 19, 2008

Configuration of Measurements and Standards Used :
FCC Rules and Regulations Part 15 Subpart C

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

- Note:** 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of IETC

Report Issued: 2008/09/25

Project Engineer: *Anya Lee*
Anya Lee

Approved: *Jerry Liu*
Jerry Liu

1 General Information

1.1 Description of Equipment Under Test

- Product** : Notebook PC
- Model Number** : 9213XY (X=0~9, Y=A~Z)
- Applicant** : **MiTAC Technology Corp.**
4F, No.1, R&D Road 2, Hsinchu Science-Based Industrial Park,
Hsinchu, Taiwan, R.O.C.
- Manufacturer** : **Getac Technology (Kunshan) Co., Ltd.**
Kunshan Export Processing Zone, 215300 Jiangsu, P.R.China
- Power Supply** : Manufacturer: Delta, M/N: SADP-65KB BBVF
Input: 100-240Vac, 50-60Hz, 1.5A
Power cord: Non-shielded Detachable, 1.8 m w/o core
Output: 19Vdc, 3.42A
Power cable: Non-shielded Un-detachable, 1.8m with core
- Operating Frequency** : 2412MHz ~ 2462MHz
- Channel Number** : Refer to section 1.3
- Type of Modulation** : DSSS; OFDM
- Antenna description** : This device uses PIFA antenna.
- | | |
|----------------|---------|
| Antenna Gain | 1.79dBi |
| Connector type | U.FL |
- Sample Receive date** : Aug. 28, 2008
- Date of Test** : Aug. 28 ~ Sep. 19, 2008
- Additional Description** : 1) The EUT is **NoteBook PC**.
2) All model included in this report, the difference is for different market; the rest parts are identical.
3) The Model Number "**9213XY**" is representative selected in the test and included in this report.

1.2 Technical Specifications

Key parts	SKU B
CPU	Intel, U9300, 1.2G
Memory	Hynix, HYMP112S64CP6-S6, 1GB
DDR2 on Board	Sumsung, K4T1G0084QQ-HCF7*8, 1G
LCD Monitor	Toshiba, PI-LTD133EWDA (LED)-V02
HDD	SATA, Fujitsu, MHZ2120BH, 120GB
ODD	HLDS U20N
Bluetooth	AW-BT252, 2.1VERSION
Wireless LAN	AW-NE766
Webcam	Azurewave w/z Mic Arry
AC/DC Adapter	Delta, SADP-65KB BBVF
Battery	3 cell

WIRELESS Module Information (AW-NE766)

Host Interface	PCIE Mini-Card
Chipset	Ralink RT2790 (MAC/Baseband) + RT2720 (Radio)
Network Standard	IEEE 802.11b/g/n
Modulation Technology	OFDM; CCK; QPSK; BPSK
Media Access Technology	CSMA/CA
Supported Data Rates	IEEE802.11b/g/n Stand Mode: up to 300Mbps

1.3 Table for Carrier Frequencies

802.11b / 802.11g / 802.11n (HT20)

CH No.	1	2	3	4	5	6	7	8	9	10	11
CF (MHz)	2412	2417	2422	2427	2432	2437	2442	2447	2452	2457	2462

802.11n (HT40)

CH No.	3	4	5	6	7	8	9
CF (MHz)	2422	2427	2432	2437	2442	2447	2452

1.4 Test Facility

- Site Description** : RF Test Room OATS 2
- Name of Firm** : Interocean EMC Technology Corp.
- Company web** : <http://www.ietc.com.tw>
- Site 1, 2 Location** : No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang,
Taipei County, Taiwan, R.O.C.
- Site 3, 4 Location** : No. 12, Ruei-Shu Valley, Ruei-Ping Tsun, Lin-Kou Hsiang,
Taipei County, Taiwan, R.O.C.
- Site Filing** :
 - Federal Communication Commissions – USA
Registration No.: 96399 (OATS 1 & 2)
Registration No.: 518958 (OATS 3 & 4)
 - Voluntary Control Council for Interference by Information
Technology Equipment (VCCI) – Japan
Registration No. (Conducted Room): C-1094
Registration No. (Conducted Room): T-271
Registration No. (OATS 1): R-1040
Registration No. (OATS 2): R-1041
 - Industry Canada (IC)
Submission: 113543
 - Japan Electrical Safety & Environment Technology Laboratories (JET)
Registration No.: 04S03-01
- Site Accreditation** :
 - Bureau of Standards and Metrology and Inspection (BSMI) –
Taiwan, R.O.C.
Accreditation No.:
SL2-IN-E-0026 for CNS13438 / CISPR22
SL2-R1-E-0026 for CNS13439 / CISPR13
SL2-R2-E-0026 for CNS13439 / CISPR13
SL2-A1-E-0026 for CNS13783-1 / CISPR14-1
 - TÜV NORD
Certificate No: TNTW0801R
 - Taiwan Accreditation Foundation (TAF)
Accrditation No.: 1113



1.5 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSP30	100002	2008/12/14
Spectrum Analyzer	Agilent	8564EC	4046A00331	2009/04/11
Preamplifier	Agilent	8449B	3008A01434	2009/03/31
Preamplifier	SCHAFFNER	CA30100	2	2008/10/21
Horn Antenna	COM-POWER	AH-118	10081	2010/05/12
Horn Antenna	Schwarzbeck	BBHA 9120	9120D-583	2008/12/17
Horn Antenna	Schwarzbeck	BBHA 9170	213	2010/06/08
Wide Bandwidth Sensor	Anritsu	MA2491A	728133	2008/10/18
Power Meter	Anritsu	ML2495A	736010	2008/10/28
Temp & Humidity chamber	GIAN FORCE	GTH-150-40-2P-U	MAA0305-012	2009/05/14
Signal Generator	Agilent	E8254A	US41140164	2009/05/21

Note: The above equipments are within the valid calibration period.

1.6 Summary of Measurement

Report Clause	Test Parameter	Reference Document CFR47 Part15	Results
2	RF Radiated spurious emission test	§15.205, 15.209	Pass
3	RF Conducted spurious emission	§15.247	Pass
4	Maximum Peak output power test	§15.247(b)	Pass
5	Power test of Data Rate	§15.247(b)	Pass
6	6dB Bandwidth	§15.247(a)(2)	Pass
7	Power spectral density	§15.247(e)	Pass
8	Emission on the Band Edge	§15.247(d)	Pass
9	AC Power Line Conducted Emission test	§15.247(b)	Pass

1.7 Justification

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of the frequency band were all arrive limit requirement, thus we evaluate the EUT pass the specified test.

2 RF Radiated spurious emission test

2.1 Limit

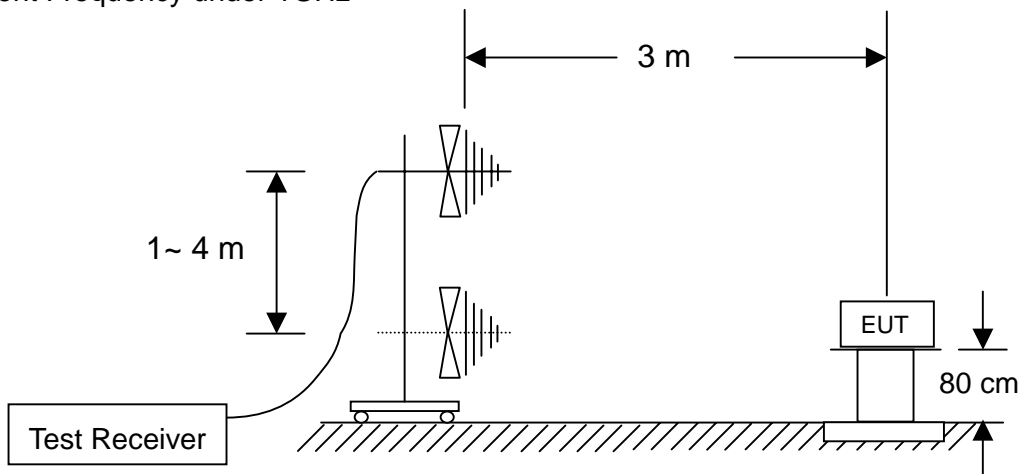
For intentional radiator, the radiated emission shall comply with §15.209(a).

For intentional radiators, according to §15.247 (a), operation under this provision is limited to frequency hopping and direct sequence spread spectrum, and the out band emission shall be comply with §15.247 (c)

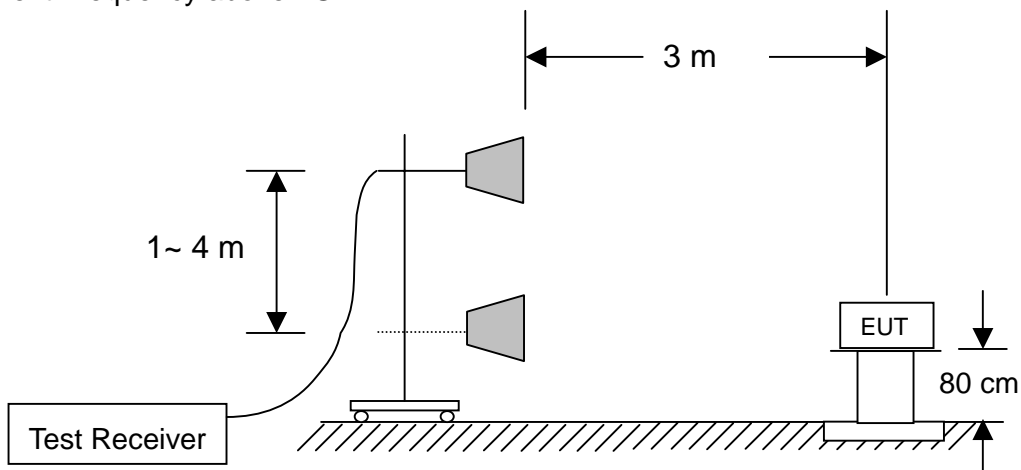
Frequency (MHz)	Field strength dB(μ V/m)	Measurement distance (meters)
1.705~30.0	29.5	30
30 ~ 88	40	3
88~216	43.5	3
216~960	46	3
Above 960	54	3

2.2 Configuration of Measurement

Measurement Frequency under 1GHz



Measurement Frequency above 1GHz



2.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Radiated emission measurements were performed from 30MHz to 40GHz. Spectrum Analyzer Resolution Bandwidth is 100kHz or greater for frequencies 30MHz to 1GHz, 1MHz for frequencies above 1GHz.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meter and down to 1 meter.

2.4 Test Result

PASS.

The final test data is shown on as following pages.

Radiated spurious emission

Test Environment

Ambient temperature : 25.0°C

Relative humidity : 54%

Radiated Emission below 1GHz

After verifying 802.11b / g and 802.11n (HT20) / (HT40), the worse case determine by 802.11b CH1), the data will present on report.

802.11b CH1								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
257.950	H	38.36	31.28	12.17	19.25	46.00	-26.75	QP
434.975	H	42.94	31.21	24.62	36.35	46.00	-9.65	QP
544.100	H	45.07	31.16	23.78	37.69	46.00	-8.31	QP
604.725	H	42.35	31.13	27.55	38.77	46.00	-7.23	QP
650.800	H	42.32	31.08	30.93	42.17	46.00	-3.83	QP
110.250	V	52.42	31.30	19.94	41.06	43.50	-2.44	QP
335.550	V	52.36	31.26	19.37	40.47	46.00	-5.53	QP
650.800	V	45.64	31.08	22.27	36.83	46.00	-9.17	QP
781.750	V	42.80	31.03	26.90	38.67	46.00	-7.33	QP
798.325	V	44.86	31.03	25.70	39.53	46.00	-6.47	QP

Remark : Corrected Level = Reading + Correction Factor – Preamp
 Correction Factor = Antenna Factor + Cable Loss

Radiated spurious emission

Radiated Emission above 1GHz

After verifying 802.11b / g and 802.11n (HT20) / (HT40), the worse case determine by 802.11b, the data will present on report.

802.11b CH1								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
4824.00	H	46.37	36.50	36.98	46.85	54	-7.15	PK
4824.00	V	46.89	36.50	36.98	47.37	54	-6.63	PK

802.11b CH6								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
4874.00	H	45.37	36.50	37.10	45.97	54	-8.03	PK
4874.00	V	47.69	36.50	37.10	48.29	54	-5.71	PK

802.11b CH11								
Frequency (MHz)	Antenna Polarization	Reading (dB μ V)	Preamp (dB)	Correction Factor (dB/m)	Corrected Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Det. Mode
4924.07	H	45.06	36.50	37.21	45.77	54	-8.23	PK
4924.00	V	45.53	36.50	37.21	46.24	54	-7.76	PK

Remark : Corrected Level = Reading + Correction Factor – Preamp
 Correction Factor = Antenna Factor + Cable Loss

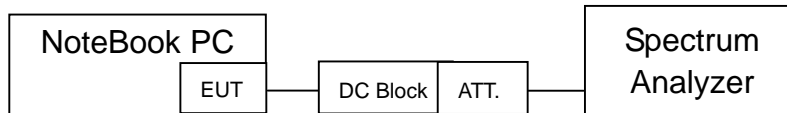
3 RF Conducted spurious emission

3.1 Limit

According to 15.247(d) requirement :

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

3.2 Configuration of Measurement



3.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The measurements were performed from 30MHz to 40GHz RF antenna conducted per FCC 15.247 (c) was measured from the EUT antenna port using a 50ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 100 kHz.

Harmonics and spurious noise must be at least 20dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The table below is the results from the highest emission for each channel within the authorized band. This table was used to determine the spurious limit for each channel.

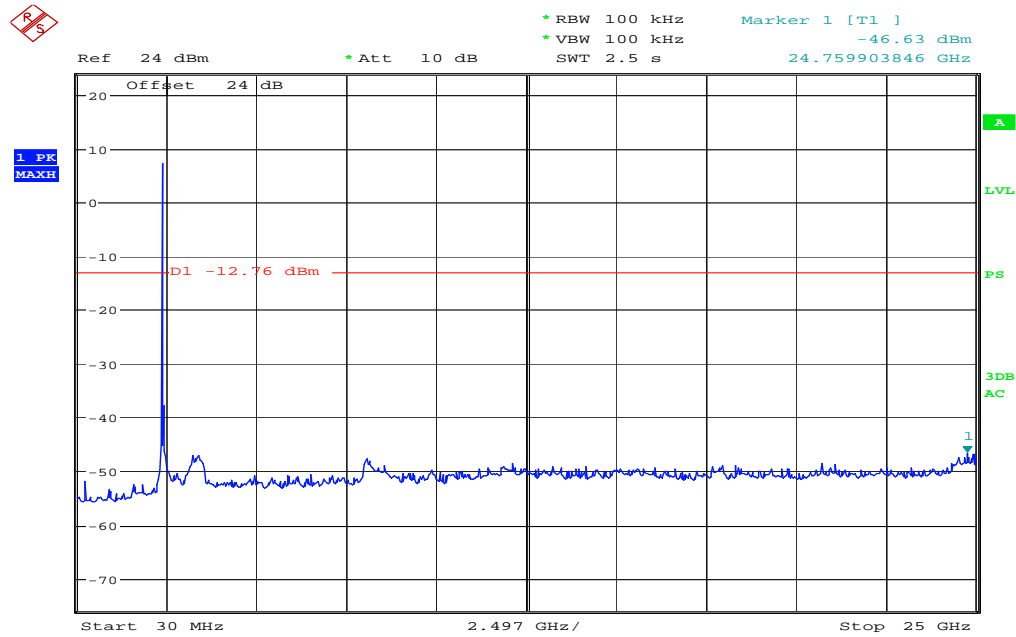
3.4 Test Result

PASS.

The final test data is shown on as following pages.

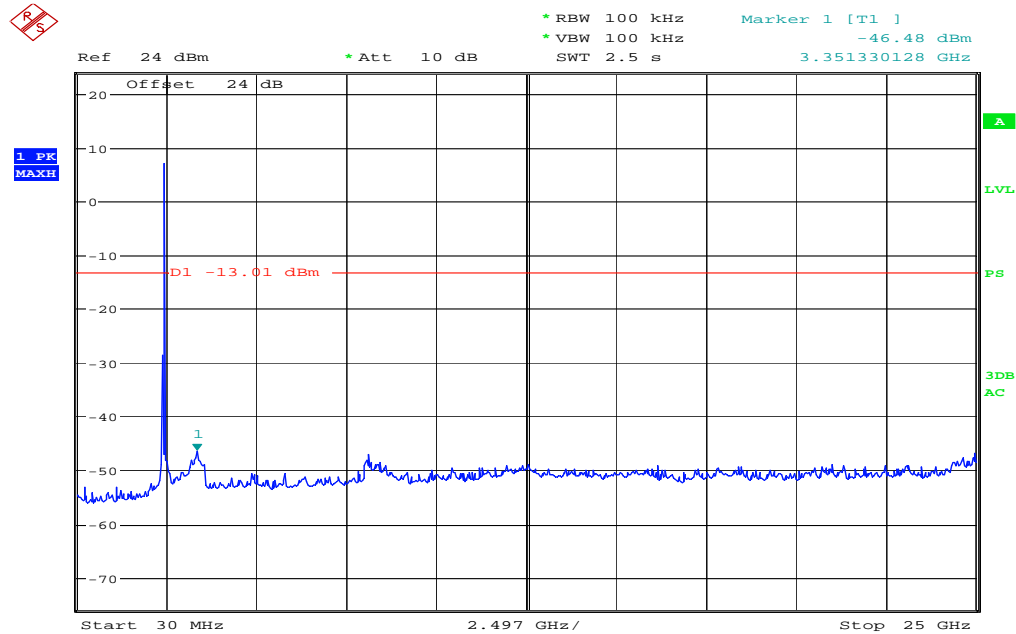
Conducted spurious emission

802.11b CH1 2412MHz



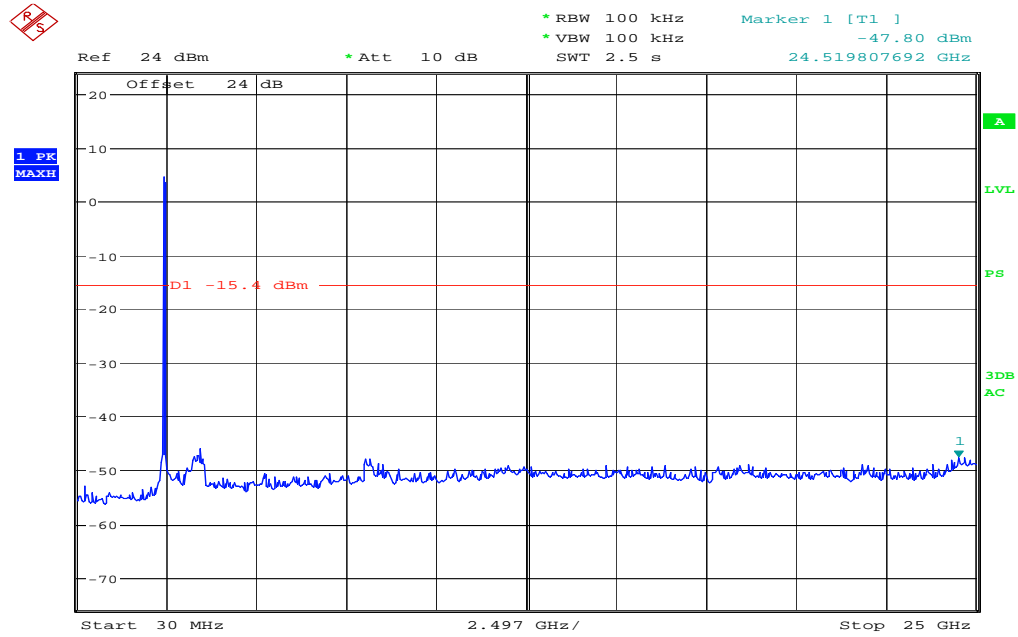
802.11b 2412MHz
Date: 18.SEP.2008 11:31:24

802.11b CH6 2437MHz



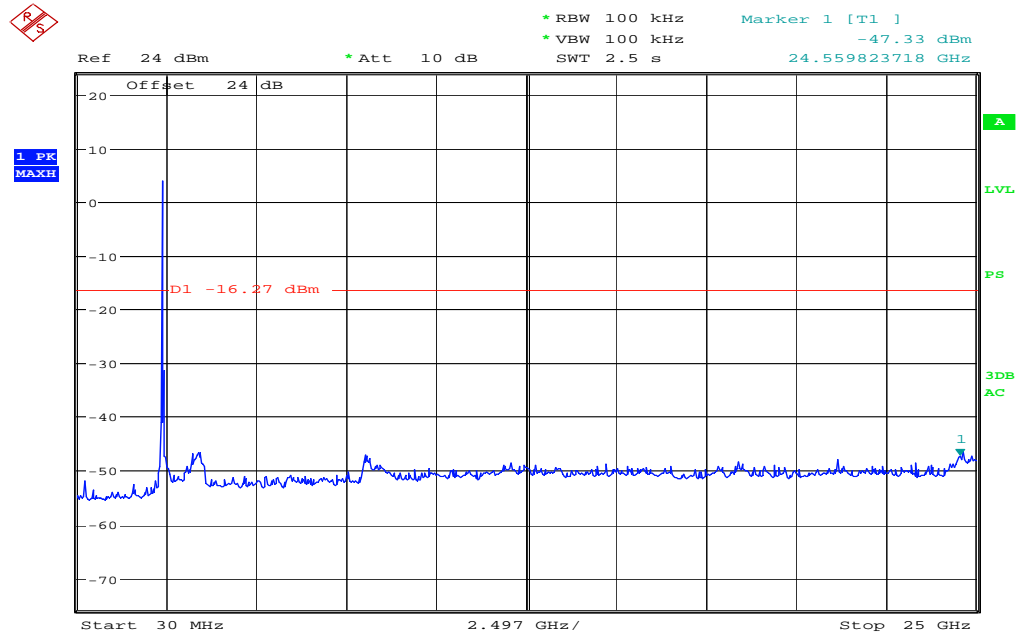
802.11b 2437MHz
Date: 18.SEP.2008 11:27:34

802.11b CH11 2462MHz



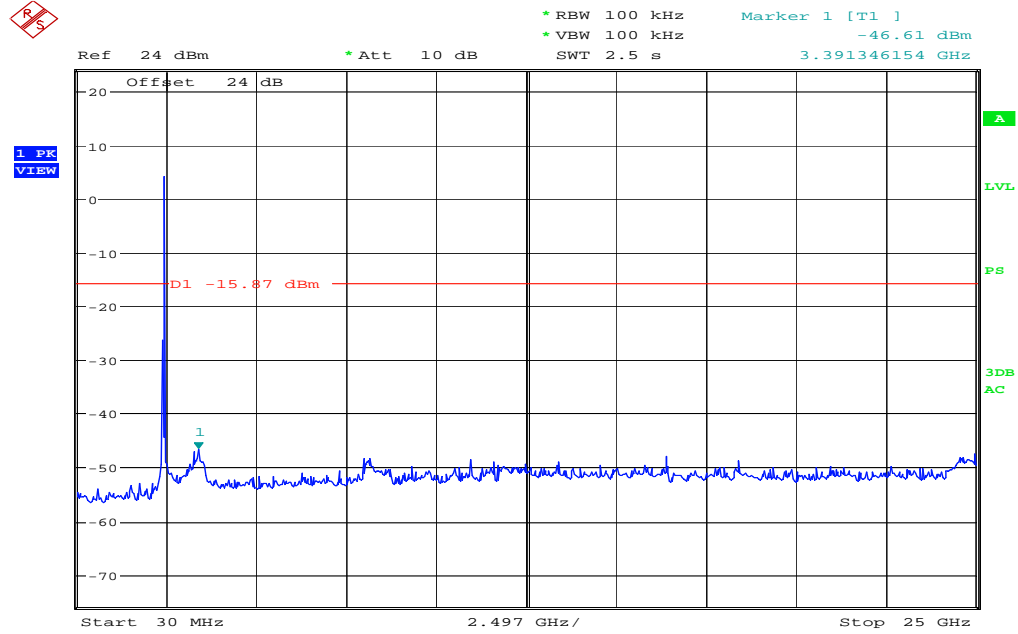
802.11g 2462MHz
Date: 18.SEP.2008 11:25:11

802.11g CH1 2412MHz



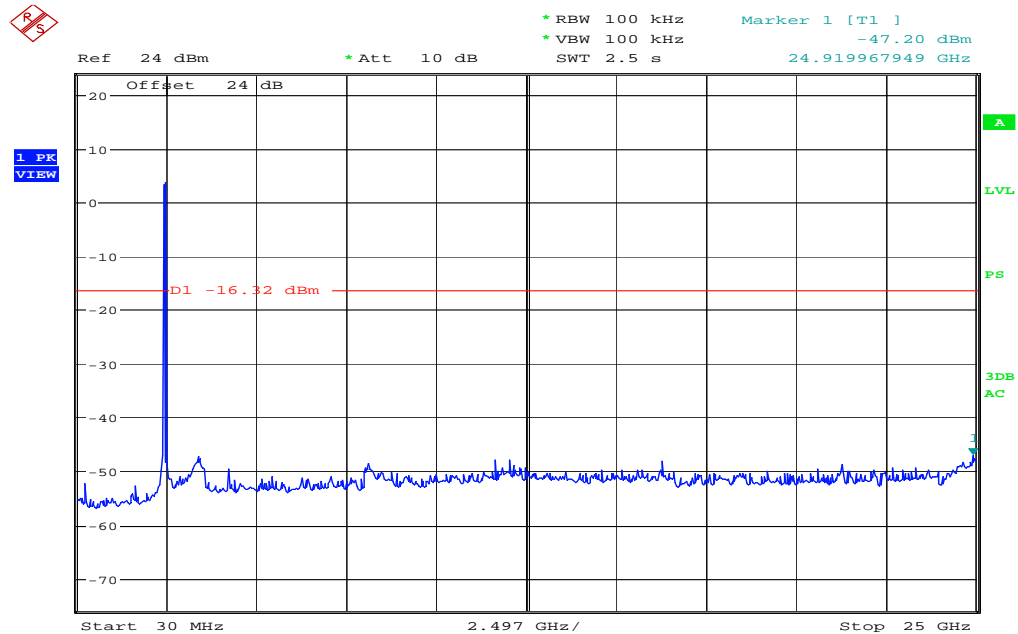
802.11g 2412MHz
Date: 18.SEP.2008 11:23:17

802.11g CH6 2437MHz



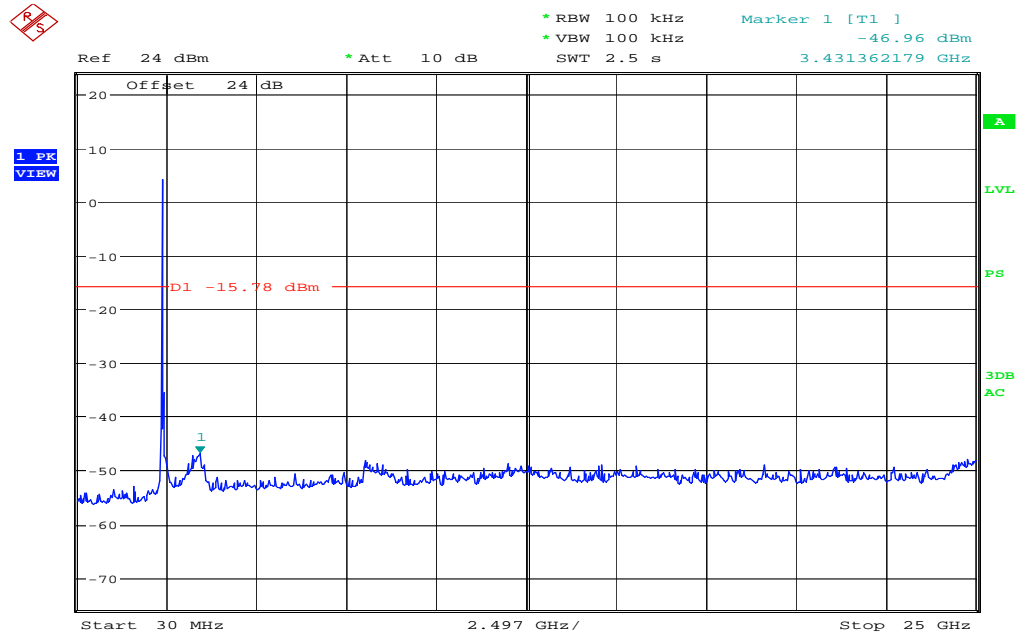
802.11g 2437MHz
Date: 18.SEP.2008 11:35:07

802.11g CH11 2462MHz



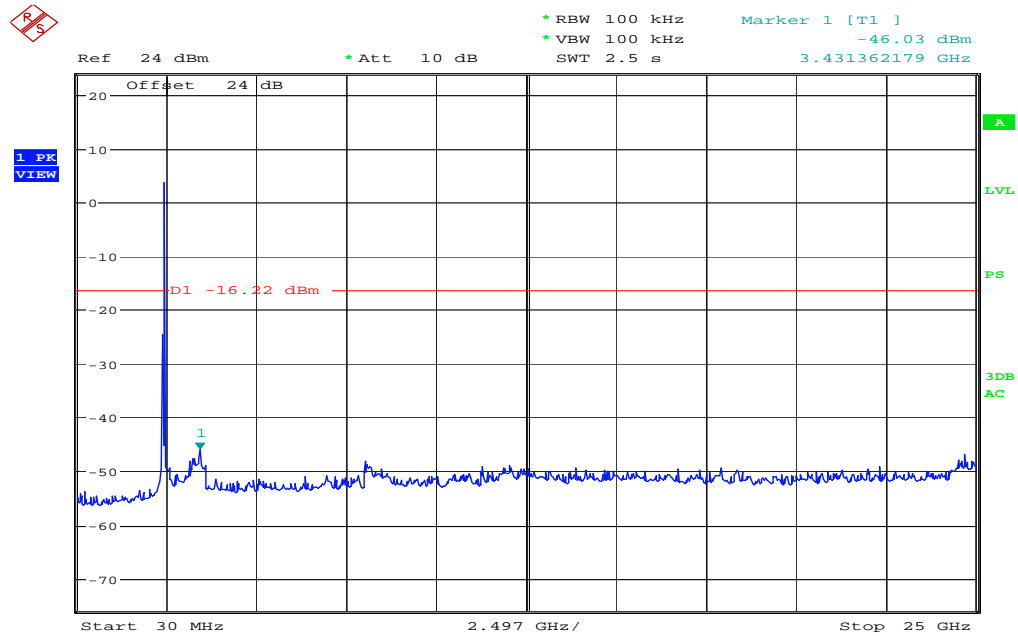
802.11g 2462MHz
Date: 18.SEP.2008 11:33:57

802.11n (HT20) CH1 2412MHz



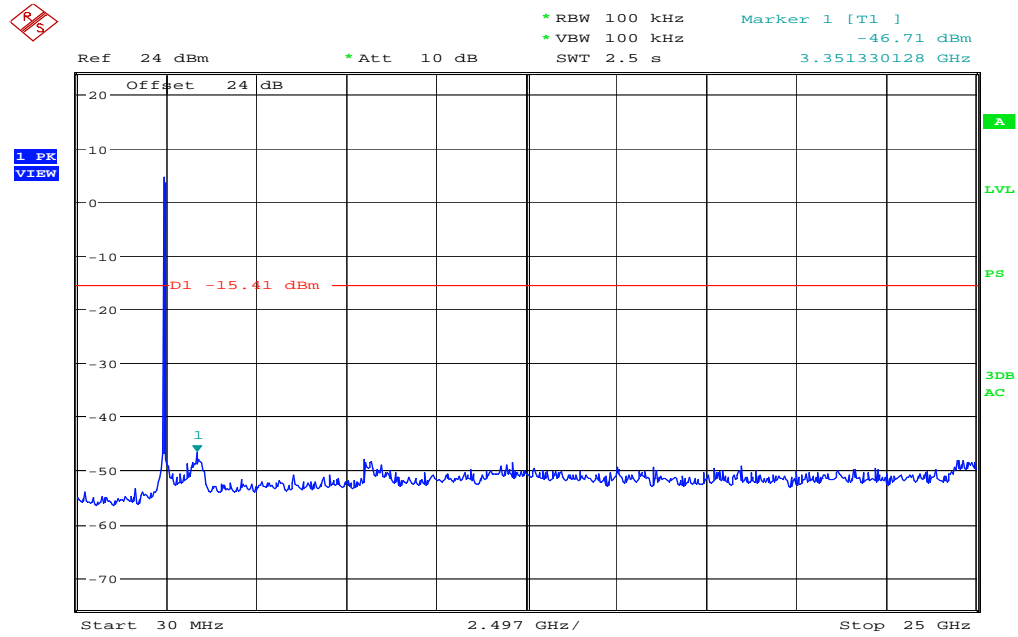
802.11n(HT20) 2412MHz
Date: 18.SEP.2008 11:37:11

802.11n (HT20) CH6 2437MHz



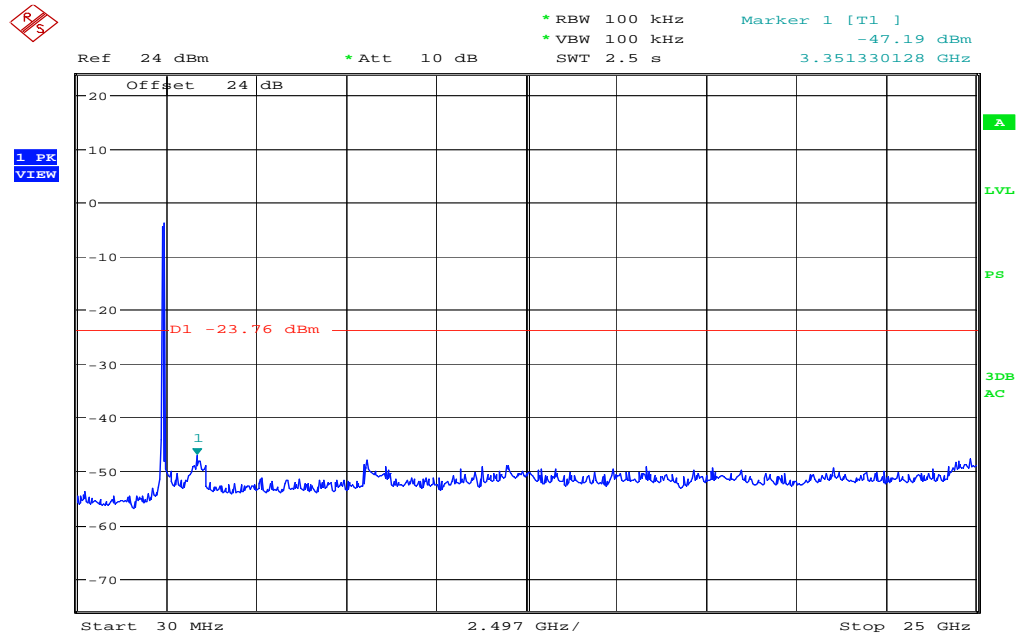
802.11n(HT20) 2437MHz
Date: 18.SEP.2008 11:38:31

802.11n (HT20) CH11 2462MHz



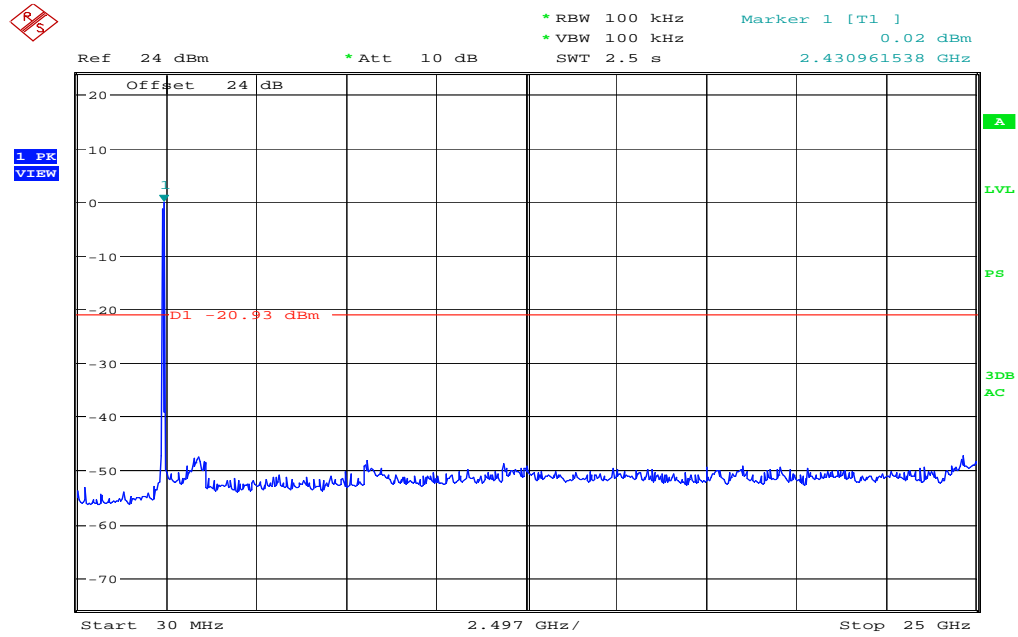
802.11n(HT20) 2462MHz
Date: 18.SEP.2008 11:39:36

802.11n (HT40) CH3 2422MHz



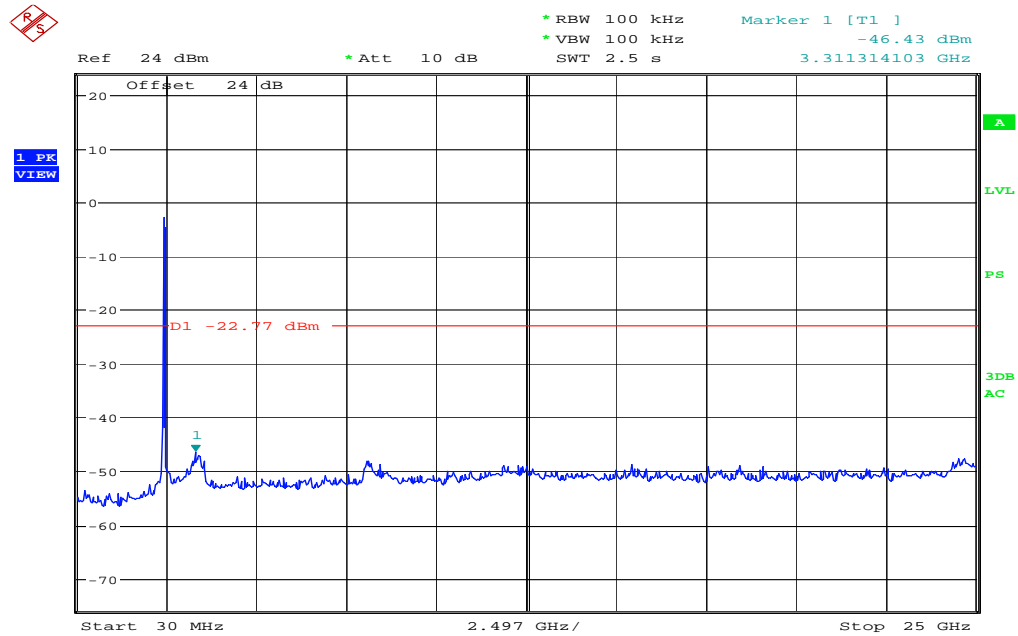
802.11n(HT40) 2422MHz
Date: 18.SEP.2008 11:45:38

802.11n (HT40) CH6 2437MHz



802.11n(HT40) 2437MHz
Date: 18.SEP.2008 11:42:51

802.11n (HT40) CH9 2452MHz



802.11n(HT40) 2452MHz
Date: 18.SEP.2008 11:47:26

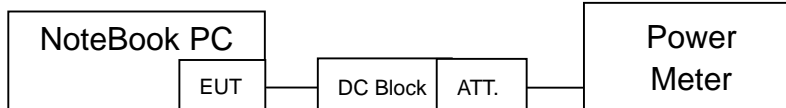
4 Maximum Peak output power test

4.1 Limit

According to FCC Part15.247 (b)(3) requirement :

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: The maximum conducted output power shall be less than 1Watt.

4.2 Configuration of Measurement



4.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

For FCC §15.247(b) the power output was measured on the EUT using a 50 ohm SMA cable connected to peak power meter via power sensor. Peak output power was read directly from power meter. The test was performed at 3 channels (lowest, middle and highest).

4.4 Test Result

PASS.

The final test data is shown on as following pages.

Maximum output power

Mode : 802.11b				
CH	Temp. (°C)	Maximum transmit power (dBm)	Limit (dBm)	Margin (dB)
1	26	15.67	30	-14.33
6	26	15.78	30	-14.22
11	26	15.71	30	-14.29

Mode : 802.11g				
CH	Temp. (°C)	Maximum transmit power (dBm)	Limit (dBm)	Margin (dB)
1	26	15.54	30	-14.46
6	26	15.95	30	-14.05
11	26	15.72	30	-14.28

Mode : 802.11n (HT20)				
CH	Temp. (°C)	Maximum transmit power (dBm)	Limit (dBm)	Margin (dB)
1	26	15.46	30	-14.54
6	26	15.64	30	-14.36
11	26	15.57	30	-14.43

Mode : 802.11n (HT40)				
CH	Temp. (°C)	Maximum transmit power (dBm)	Limit (dBm)	Margin (dB)
3	26	15.07	30	-14.93
6	26	15.22	30	-14.78
9	26	15.17	30	-14.83

5 Power test of Data Rate

Mode: 802.11 b

CH	Date Rate (Mbps)				Limit (dBm)
	1	2	5.5	11	
6	15.51	15.33	15.48	15.78	30

Mode: 802.11 g

CH	Date Rate (Mbps)								Limit (dBm)
	6	9	12	18	24	36	48	54	
6	15.95	15.78	15.88	15.73	15.82	15.60	15.51	15.72	30

Mode: 802.11 n HT20

CH	Date Rate (Mbps)								Limit (dBm)
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
	6.5	13	19.5	26	39	52	58.5	65	
6	15.64	15.52	15.48	15.59	12.53	12.65	12.48	12.45	30

CH	Date Rate (Mbps)								Limit (dBm)
	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	
	13	26	39	52	78	104	117	130	
6	12.48	12.36	12.27	12.30	12.30	12.35	12.52	12.33	30

Mode: 802.11 n HT40

CH	Date Rate (Mbps)								Limit (dBm)
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	
	6.5	13	19.5	26	39	52	58.5	65	
6	15.22	14.08	14.50	14.53	11.35	11.41	11.59	11.52	30

CH	Date Rate (Mbps)								Limit (dBm)
	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15	
	13	26	39	52	78	104	117	130	
6	11.33	11.29	11.32	11.36	11.53	11.44	11.53	11.54	30

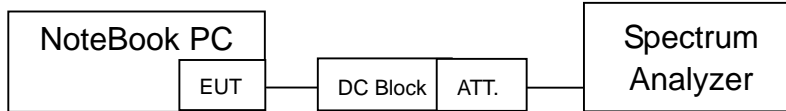
6 6dB Bandwidth

6.1 Limit

According to FCC Part15.247 (a)(2) requirement :

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

6.2 Configuration of Measurement



6.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The minimum 6dB bandwidth was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set \geq RBW, and the SPAN>>RBW. The test was performed at 3 channels (lowest, middle and highest).

6.4 Test Result

PASS.

The final test data is shown on as following pages.

6dB bandwidth

Test Mode: 802.11b			
Test CH		6dB Bandwidth (MHz)	Limit (kHz)
CH No.	Freq. (MHz)		
1	2412	12.21	>500
6	2437	12.24	>500
11	2462	12.24	>500

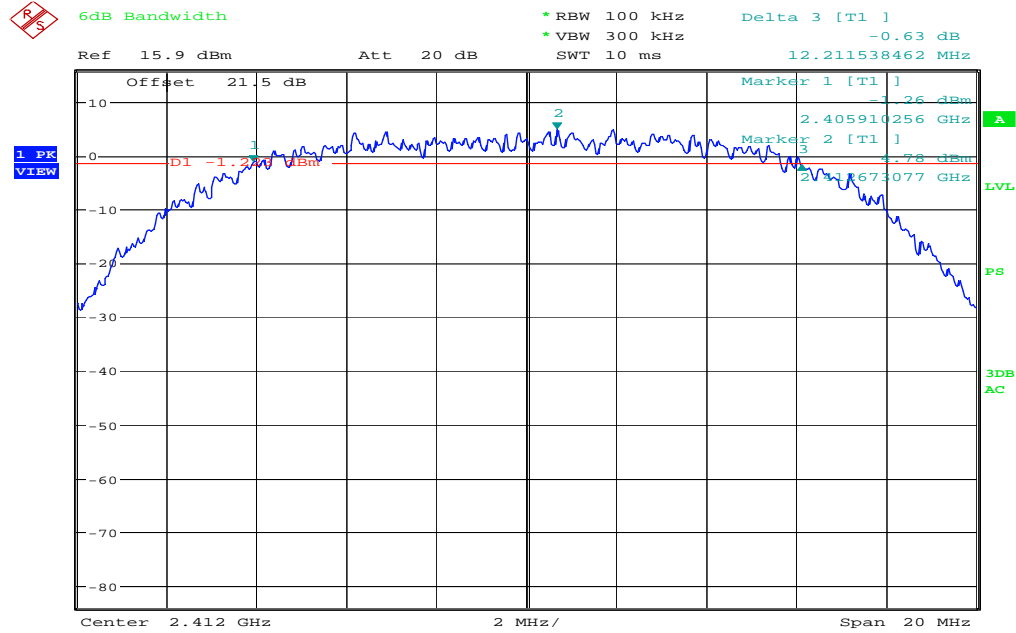
Test Mode: 802.11g			
Test CH		6dB Bandwidth (MHz)	Limit (kHz)
CH No.	Freq. (MHz)		
1	2412	16.51	>500
6	2437	16.54	>500
11	2462	16.54	>500

Test Mode: 802.11n (HT20)			
Test CH		6dB Bandwidth (MHz)	Limit (kHz)
CH No.	Freq. (MHz)		
1	2412	17.66	>500
6	2437	17.69	>500
11	2462	17.66	>500

Test Mode: 802.1n (HT40)			
Test CH		6dB Bandwidth (MHz)	Limit (kHz)
CH No.	Freq. (MHz)		
3	2422	36.03	>500
6	2437	36.54	>500
9	2452	36.41	>500

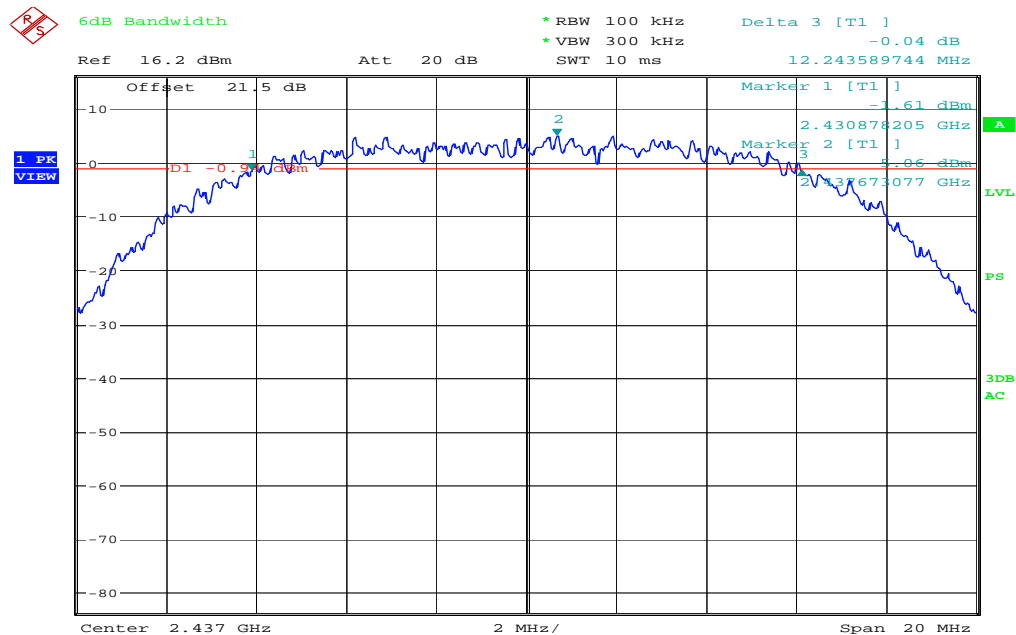
6dB Bandwidth

802.11b CH1 2412MHz



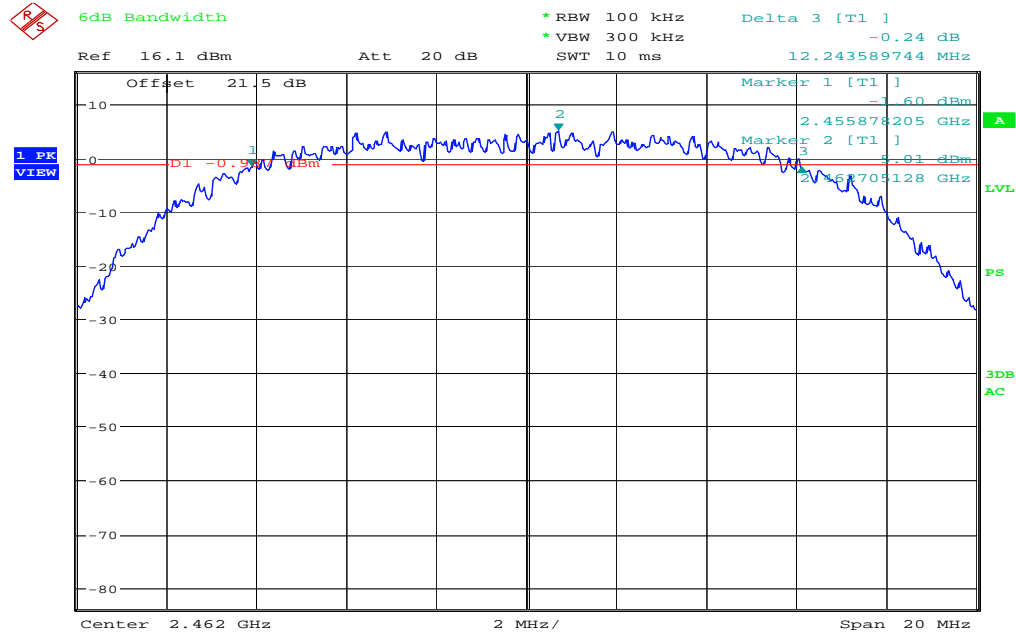
802.11b 2412MHz
Date: 17.SEP.2008 18:19:51

802.11b CH6 2437MHz



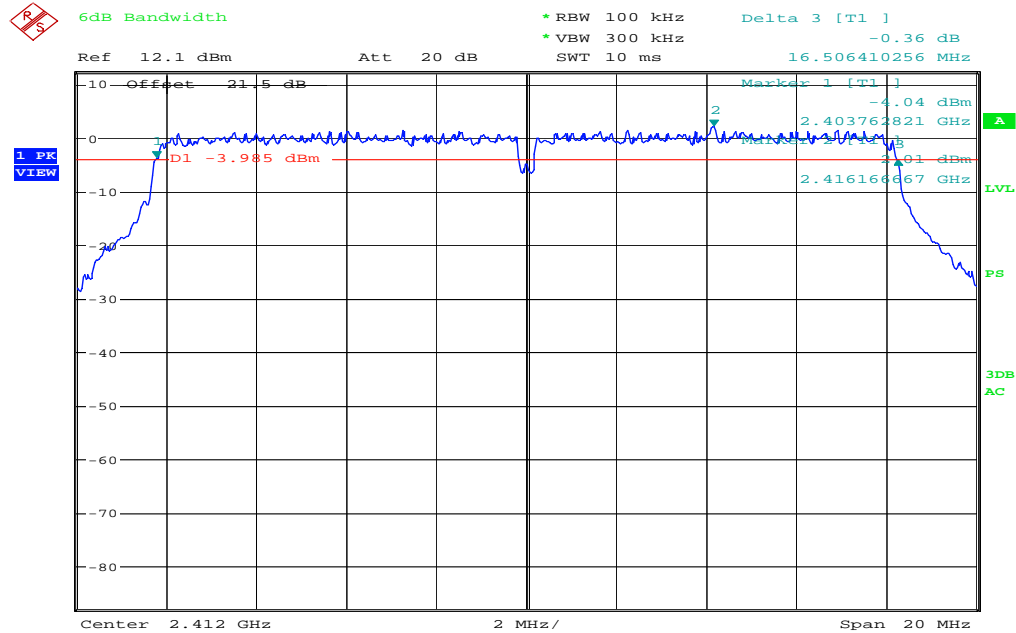
802.11b 2437MHz
Date: 17.SEP.2008 18:18:19

802.11b CH11 2462MHz



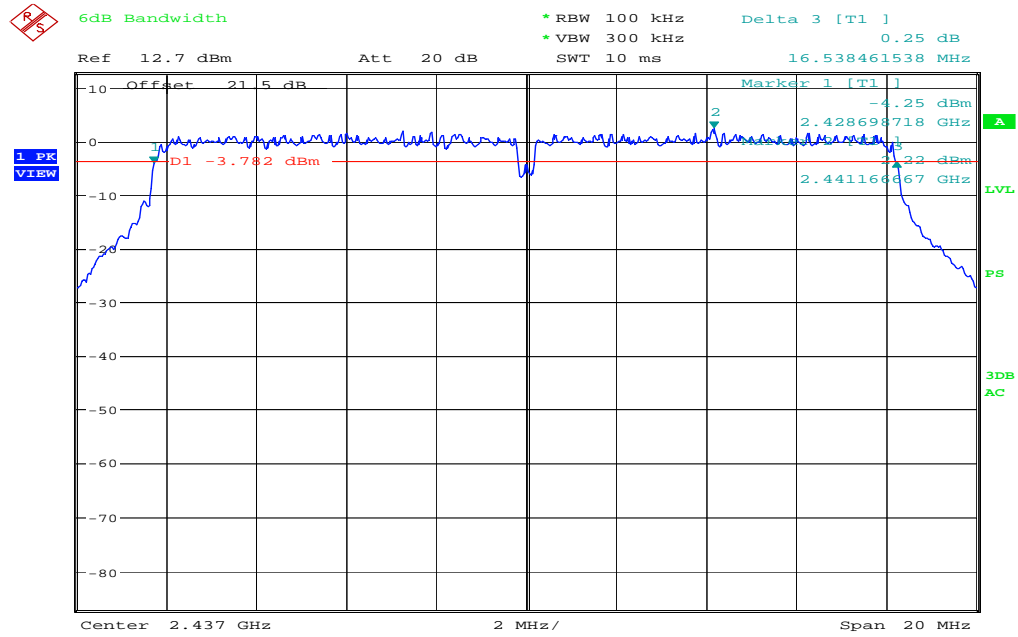
802.11b 2462MHz
Date: 17.SEP.2008 18:17:18

802.11g CH1 2412MHz



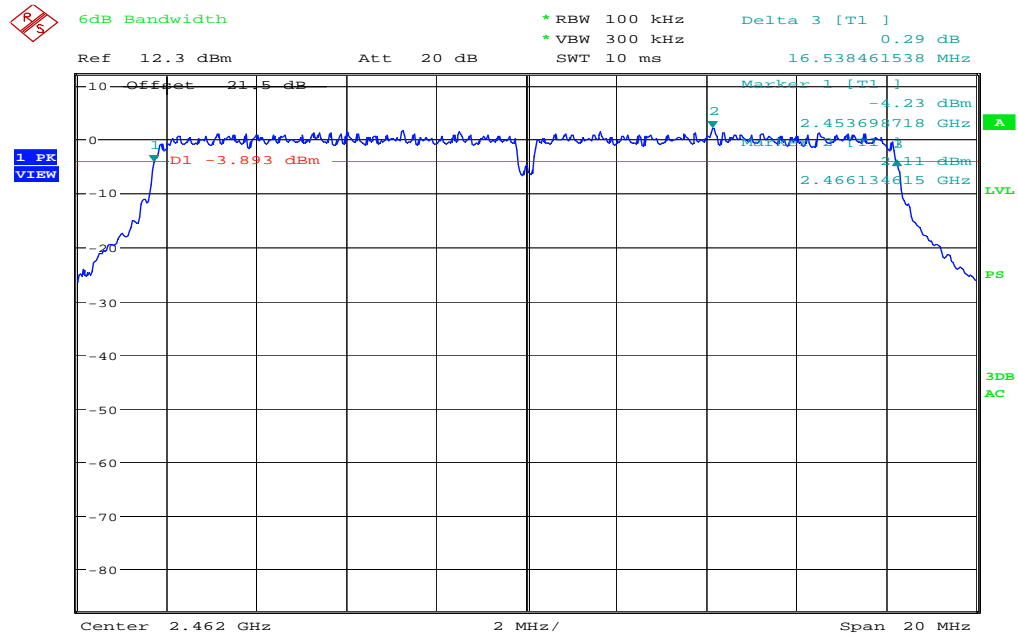
802.11g 2412MHz
Date: 17.SEP.2008 18:14:01

802.11g CH6 2437MHz



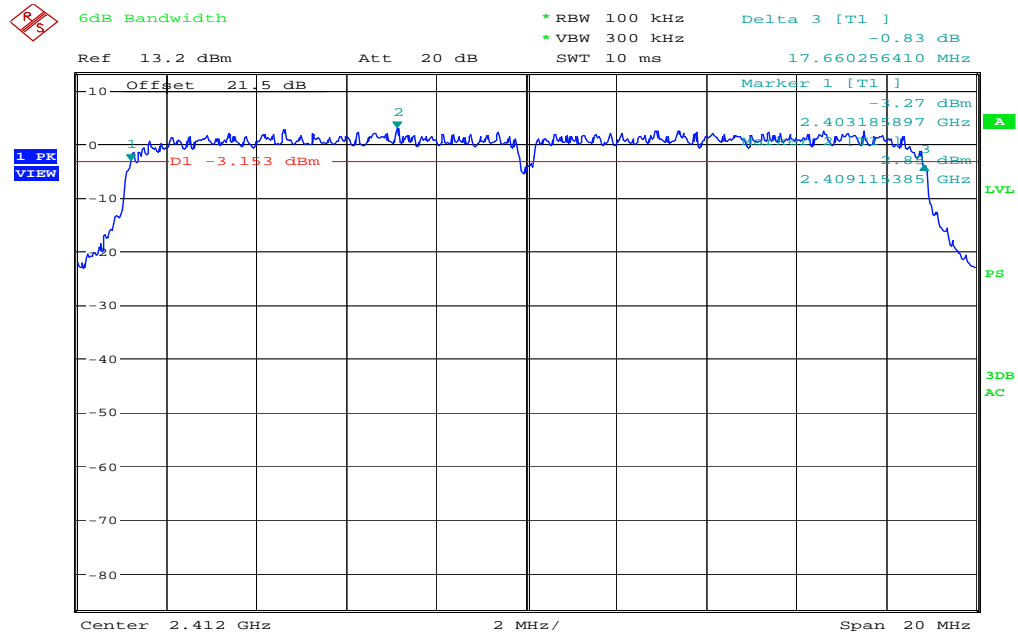
802.11g 2437MHz
Date: 17.SEP.2008 18:15:07

802.11g CH11 2462MHz



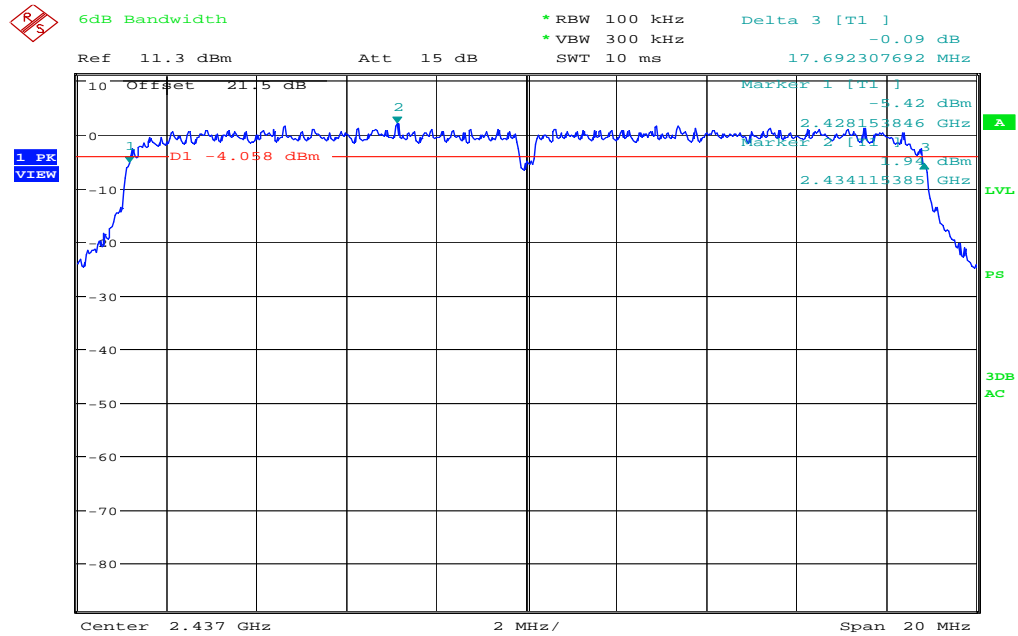
802.11g 2462MHz
Date: 17.SEP.2008 18:16:15

802.11n (HT20) CH1 2412MHz



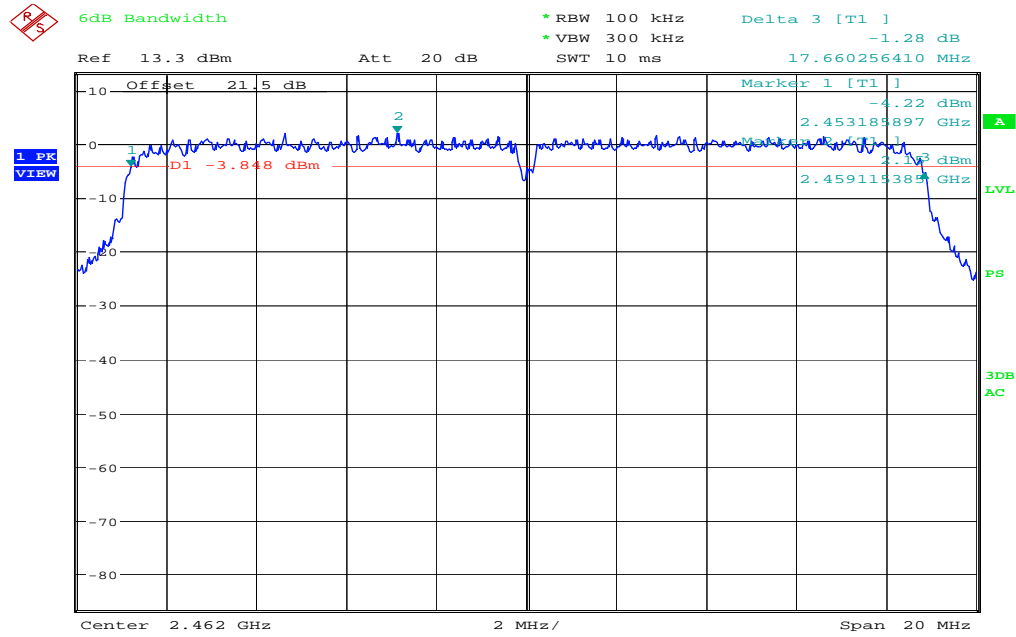
802.11n(20) 2412MHz
Date: 18.SEP.2008 18:53:35

802.11n (HT20) CH6 2437MHz



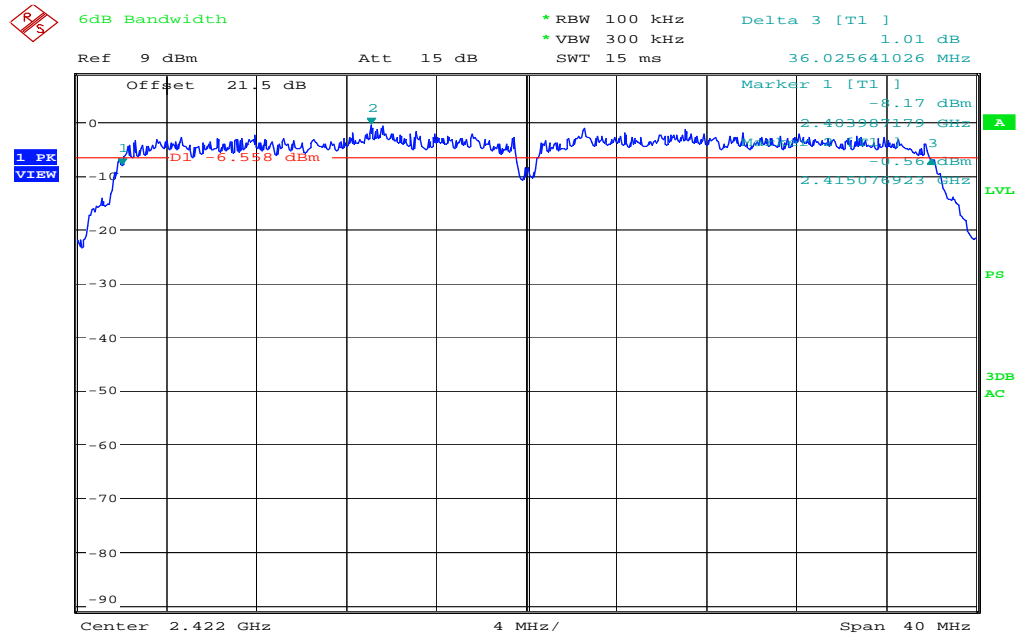
802.11n(20) 2437MHz
Date: 17.SEP.2008 18:04:31

802.11n (HT20) CH11 2462MHz



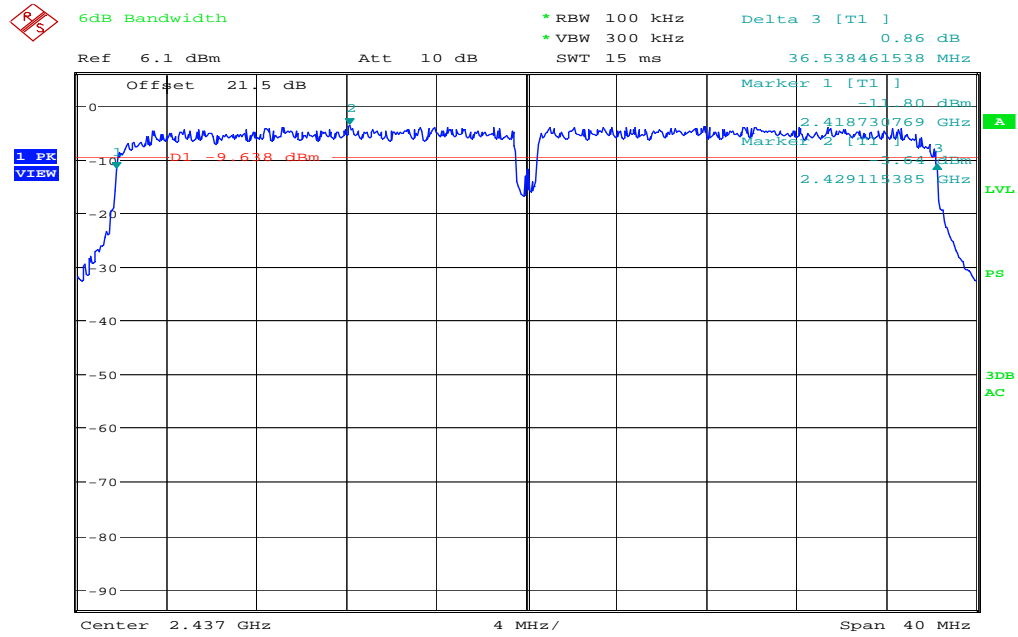
802.11n(20) 2462MHz
Date: 17.SEP.2008 18:07:57

802.11n (HT40) CH3 2422MHz



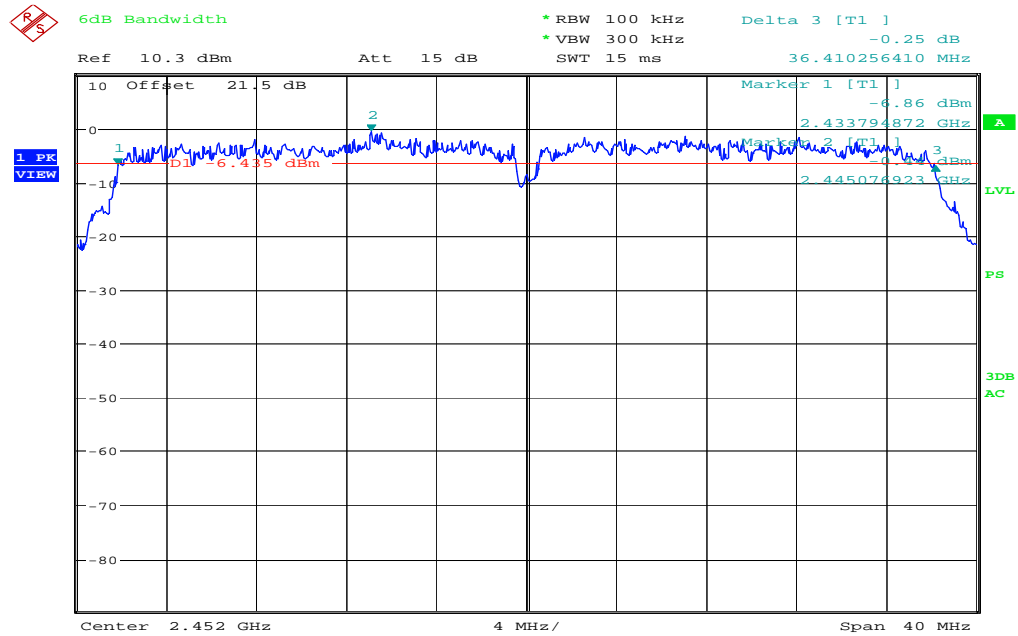
802.11n(40) 2422MHz
Date: 17.SEP.2008 18:11:25

802.11n (HT40) CH6 2437MHz



802.11n(40) 2437MHz
Date: 17.SEP.2008 18:10:32

802.11n (HT40) CH9 2452MHz



802.11n(40) 2452MHz
Date: 17.SEP.2008 18:09:25

99%Occupied bandwidth

Test Mode: 802.11b		
Test CH		Occupied Bandwidth (MHz)
CH No.	Freq. (MHz)	
1	2412	15.19
6	2437	15.19
11	2462	15.16

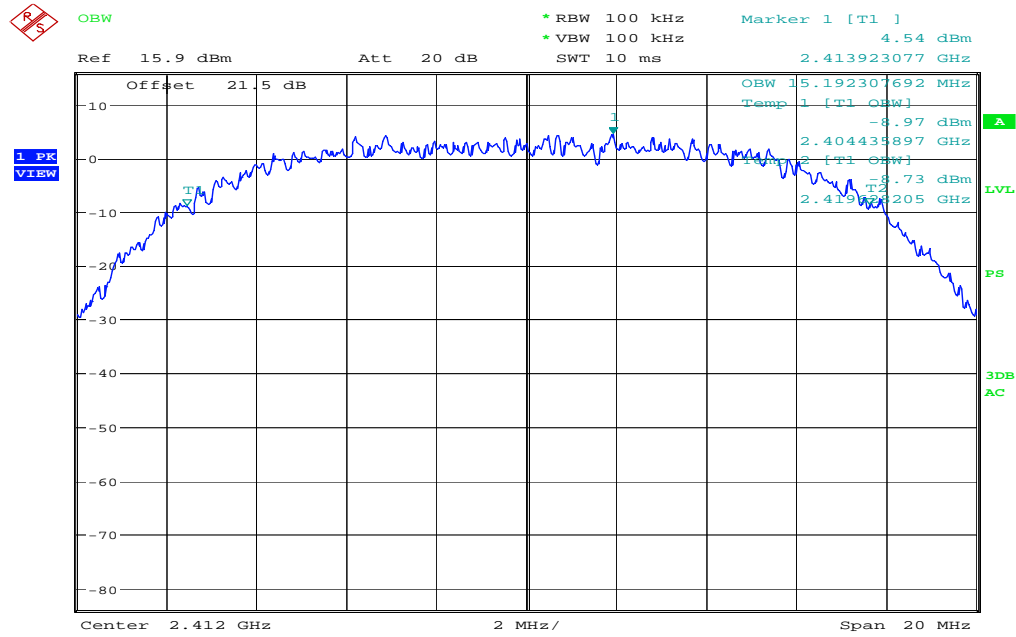
Test Mode: 802.11g		
Test CH		Occupied Bandwidth (MHz)
CH No.	Freq. (MHz)	
1	2412	16.44
6	2437	16.44
11	2462	16.44

Test Mode: 802.11n (HT20)		
Test CH		Occupied Bandwidth (MHz)
CH No.	Freq. (MHz)	
1	2412	17.56
6	2437	17.53
11	2462	17.50

Test Mode: 802.11n (HT40)		
Test CH		Occupied Bandwidth (MHz)
CH No.	Freq. (MHz)	
3	2422	35.89
6	2437	35.83
9	2452	35.89

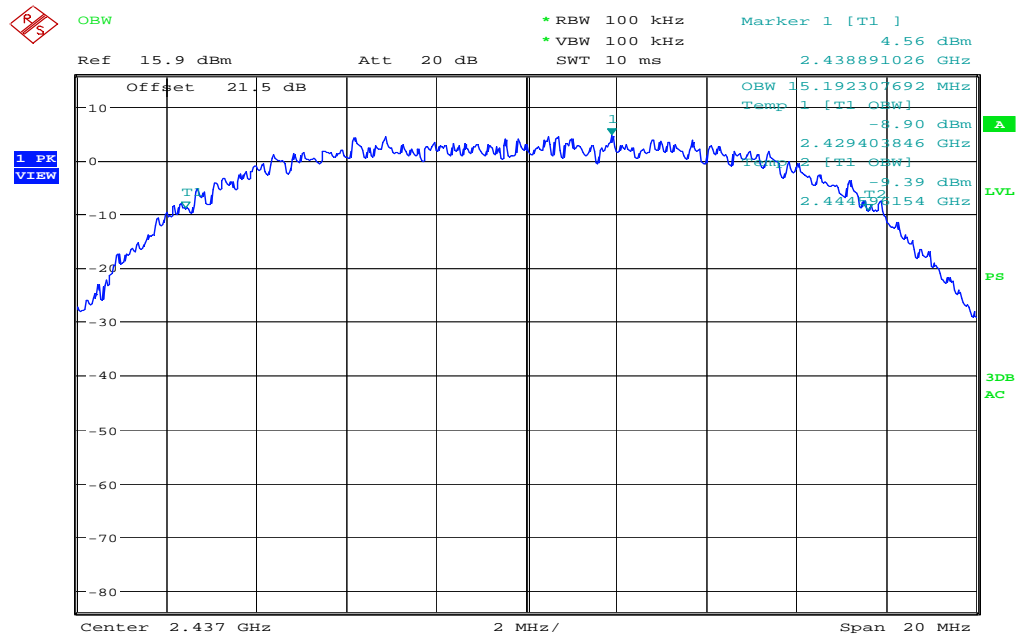
99% Occupied bandwidth

802.11b CH1 2412MHz



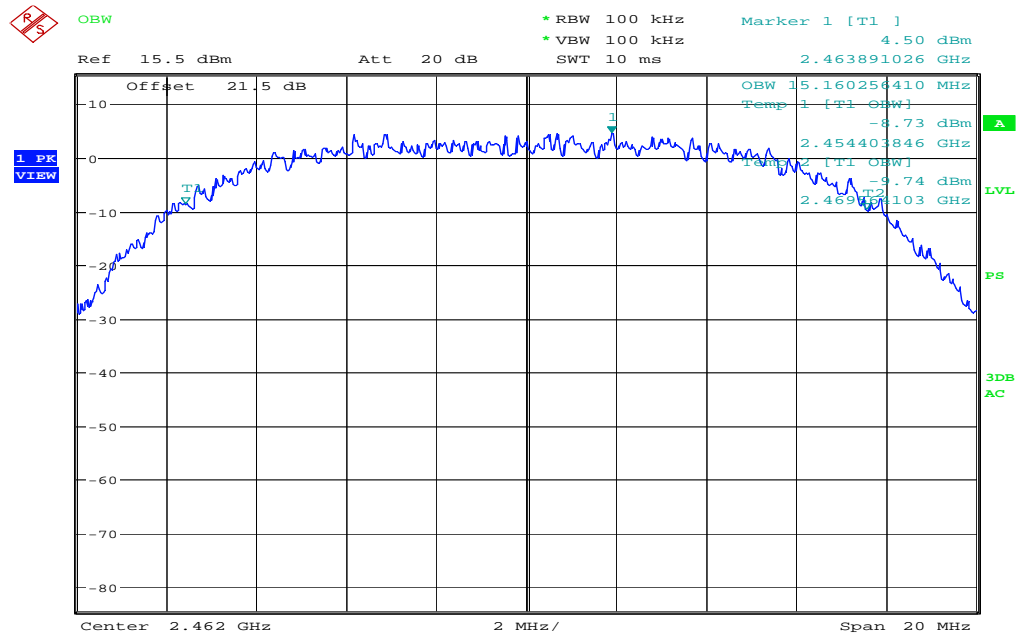
802.11b 2412MHz
Date: 18.SEP.2008 12:00:01

802.11b CH6 2437MHz



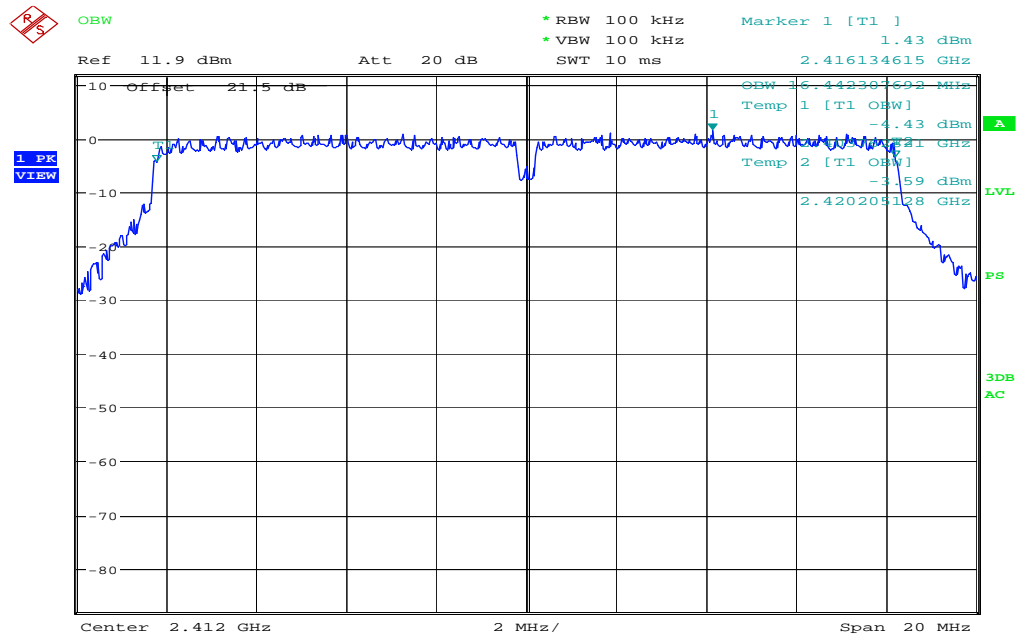
802.11b 2437MHz
Date: 18.SEP.2008 12:05:07

802.11b CH11 2462MHz



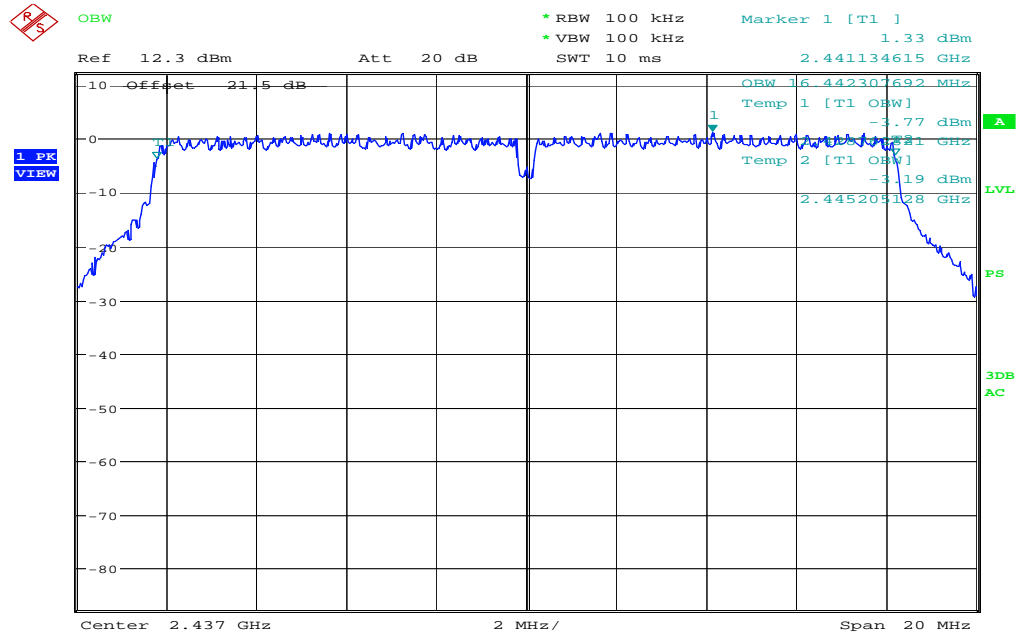
802.11b 2462MHz
Date: 18.SEP.2008 12:18:00

802.11g CH1 2412MHz



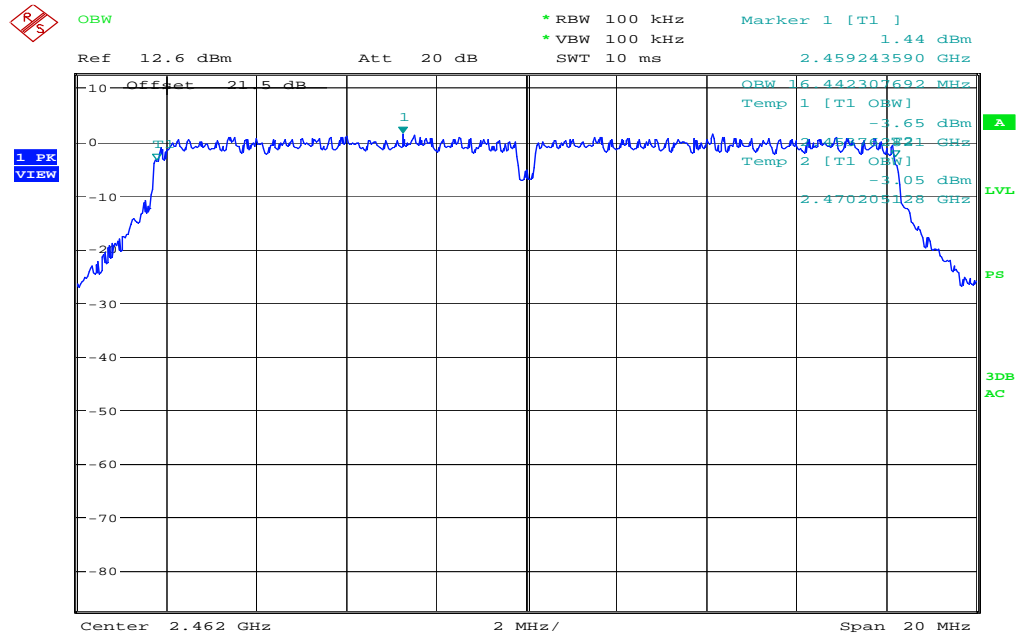
802.11g 2412MHz
Date: 18.SEP.2008 12:09:30

802.11g CH6 2437MHz



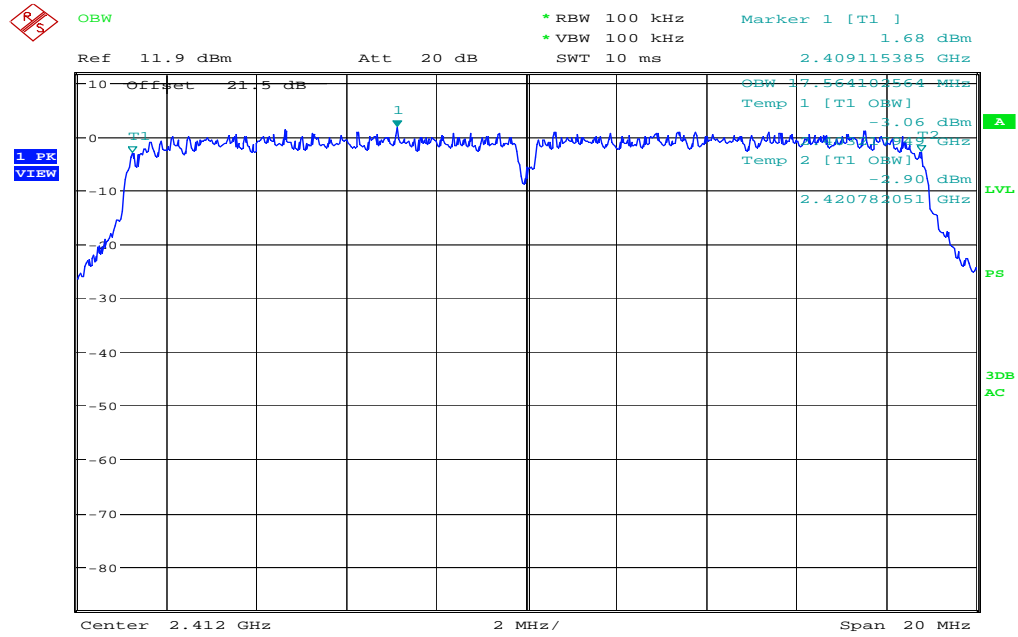
802.11g 2437MHz
Date: 18.SEP.2008 12:10:12

802.11g CH11 2462MHz



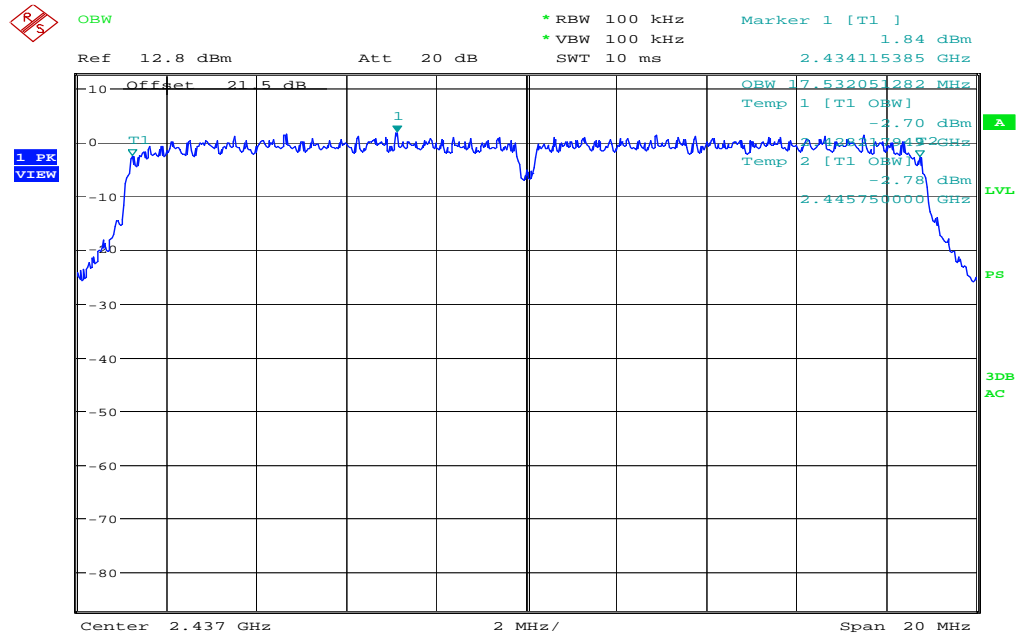
802.11g 2462MHz
Date: 18.SEP.2008 12:10:52

802.11n (HT20) CH1 2412MHz



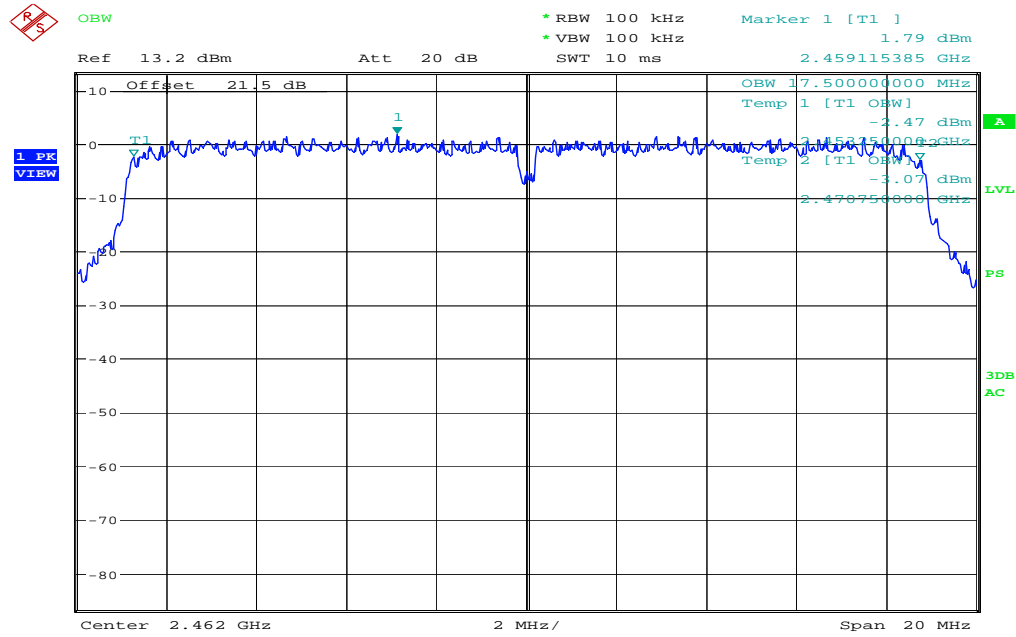
802.11n(20) 2412MHz
Date: 18.SEP.2008 12:12:02

802.11n (HT20) CH6 2437MHz



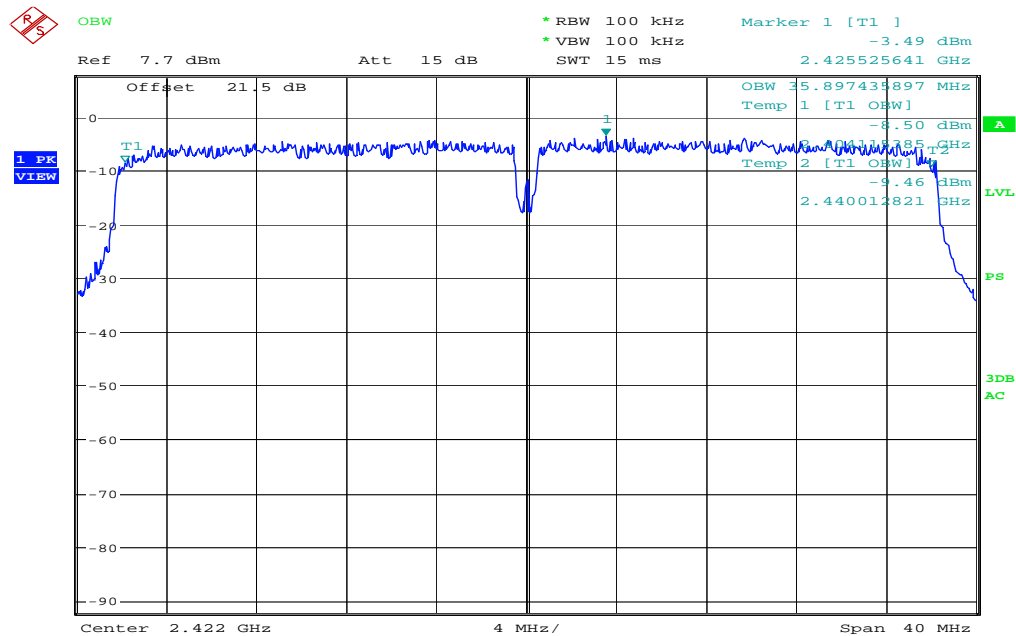
802.11n(20) 2437MHz
Date: 18.SEP.2008 12:12:47

802.11n (HT20) CH11 2462MHz



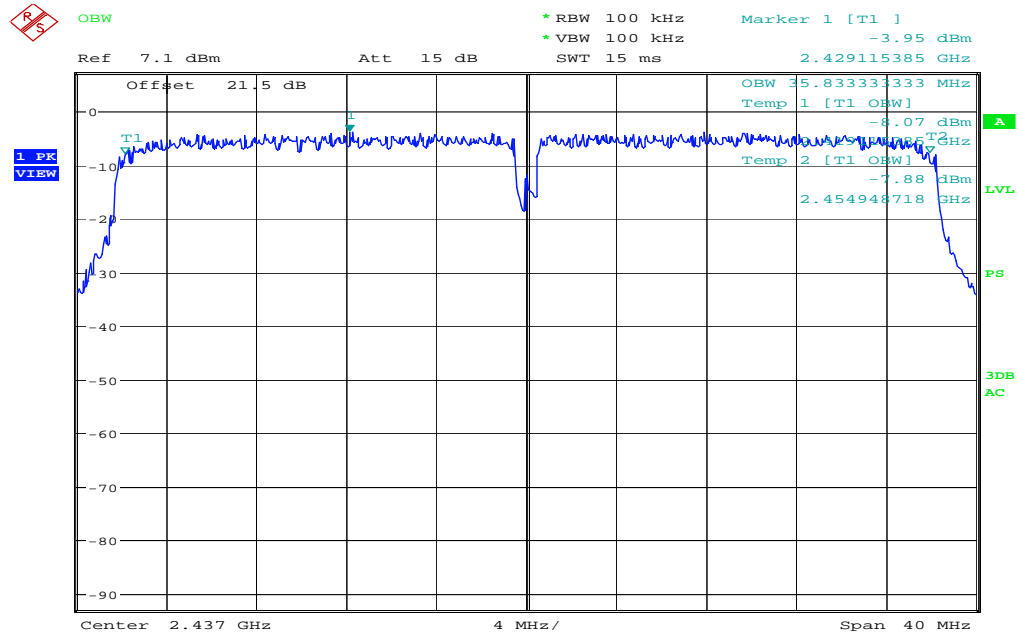
802.11n(20) 2462MHz
 Date: 18.SEP.2008 12:13:29

802.11n (HT40) CH3 2422MHz



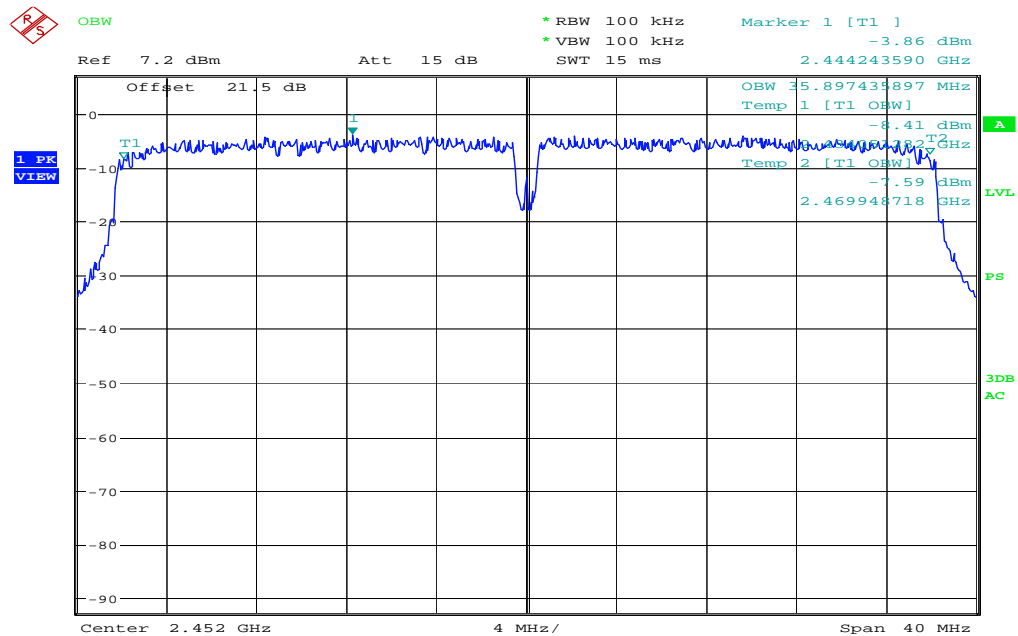
802.11n(40) 2422MHz
 Date: 18.SEP.2008 12:15:32

802.11n (HT40) CH6 2437MHz



802.11n(40) 2437MHz
 Date: 18.SEP.2008 12:16:10

802.11n (HT40) CH9 2452MHz



802.11n(40) 2452MHz
 Date: 18.SEP.2008 12:16:57

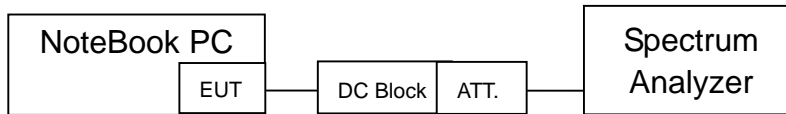
7 Power spectral density

7.1 Limit

According to FCC Part15.247 (e) requirement :

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.

7.2 Configuration of Measurement



7.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The power spectrum density was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 3kHz, video bandwidth set at 10kHz, span of 1.5MHz, and sweep time set at 500 seconds. Power Density was read directly correction was added to the reading to obtain power at the EUT antenna terminals. The test was performed at 3 channels (lowest, middle and highest).

7.4 Test Result

PASS.

The final test data is shown on as following pages.

Power spectral density

802.11b				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	28	-8.39	8	-16.39
6	28	-8.16	8	-16.16
11	28	-8.18	8	-16.18

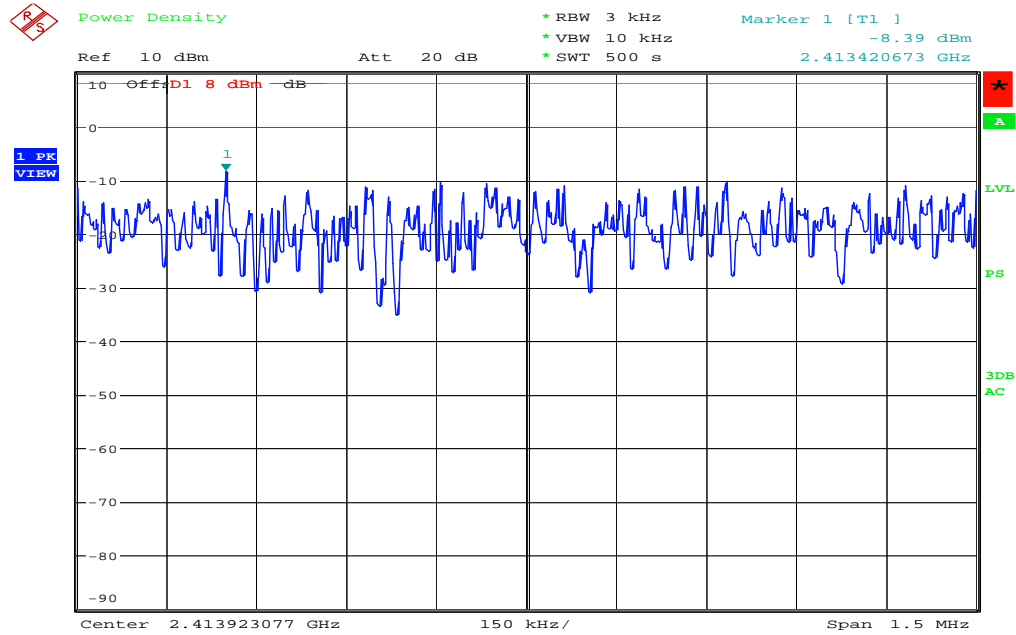
802.11g				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	28	-12.82	8	-20.82
6	28	-12.62	8	-20.62
11	28	-12.56	8	-20.56

802.11n (HT20)				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	28	-12.35	8	-20.35
6	28	-11.20	8	-19.20
11	28	-11.76	8	-19.76

802.11n (HT40)				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
3	28	-15.72	8	-23.72
6	28	-15.65	8	-23.65
9	28	-15.68	8	-23.68

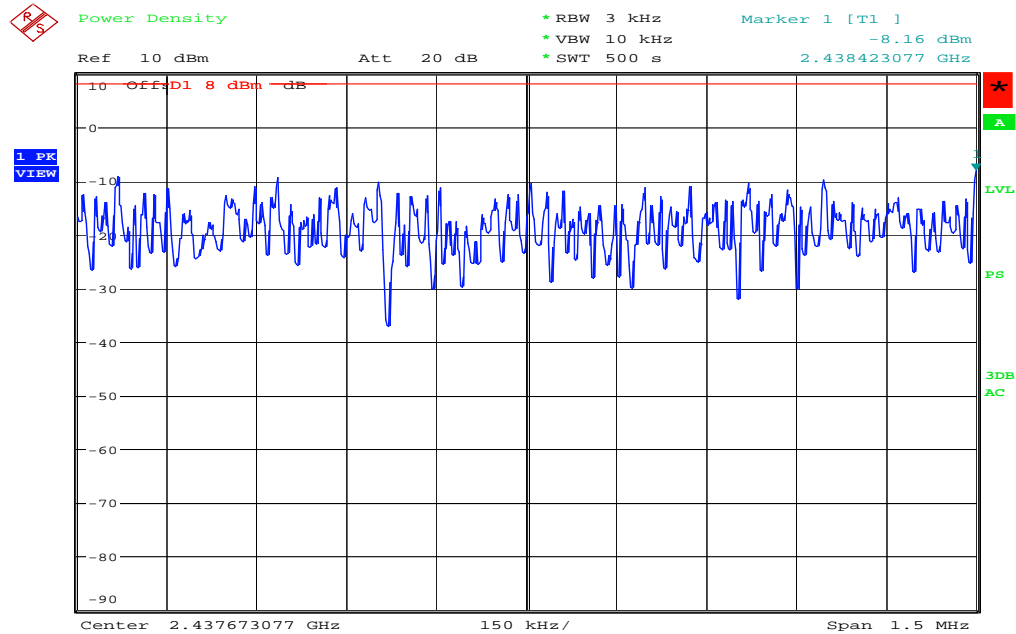
Power spectral density

802.11b CH1 2412MHz



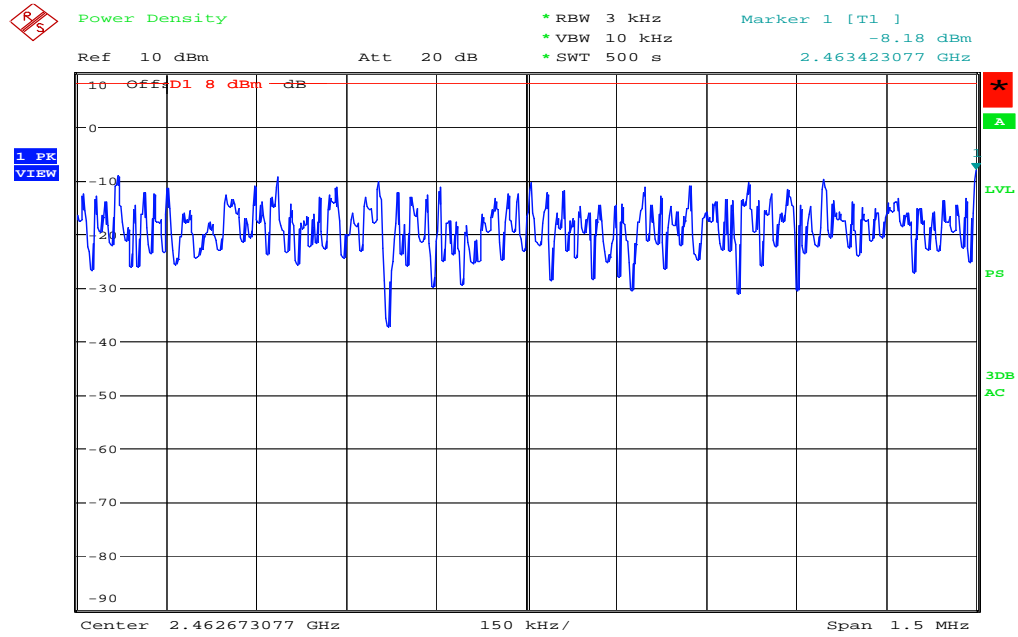
802.11b 2412MHz
Date: 17.SEP.2008 18:23:47

802.11b CH6 2437MHz



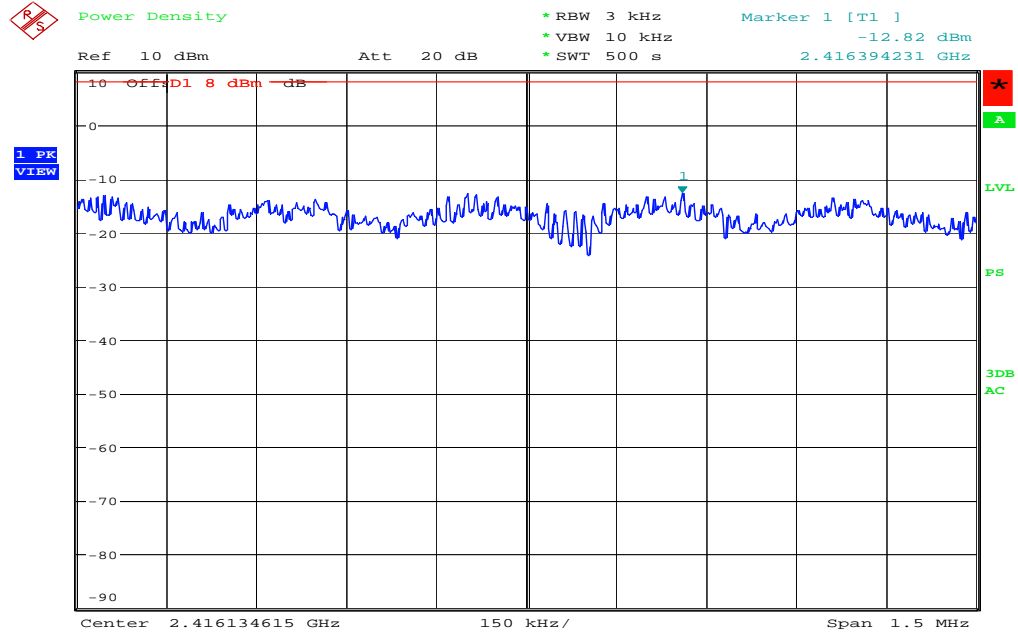
802.11b 2437MHz
Date: 17.SEP.2008 18:25:20

802.11b CH11 2462MHz



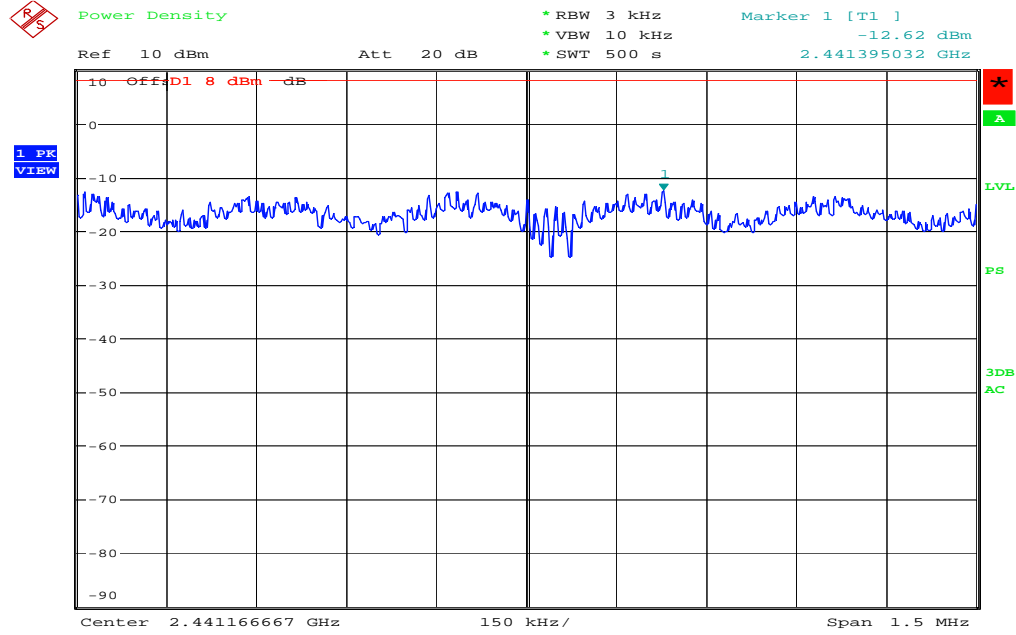
802.11b 2462MHz
Date: 17.SEP.2008 18:26:45

802.11g CH1 2412MHz



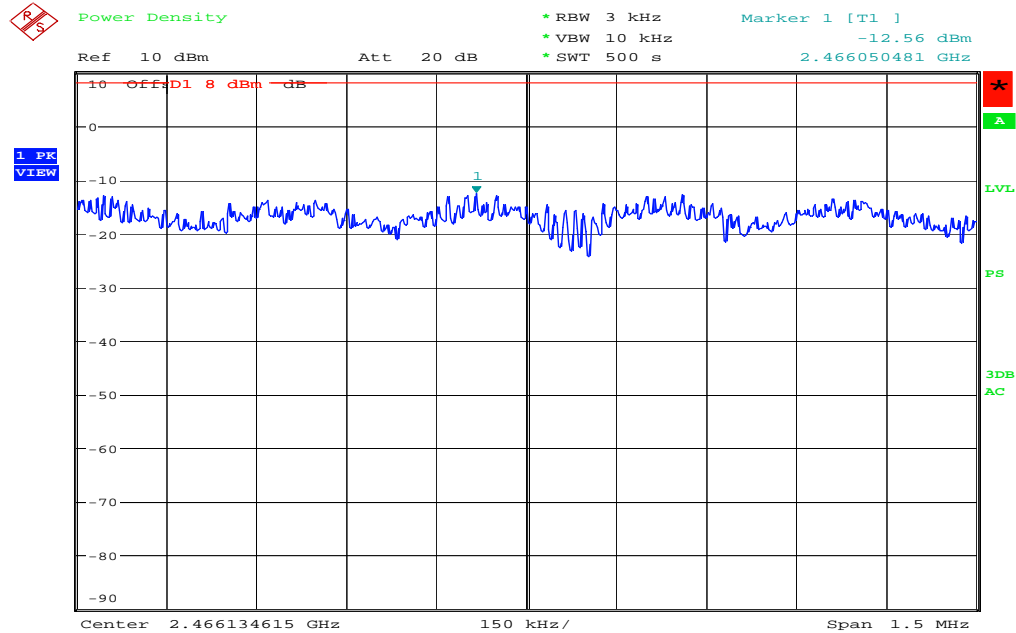
802.11g 2412MHz
Date: 17.SEP.2008 18:31:24

802.11g CH6 2437MHz



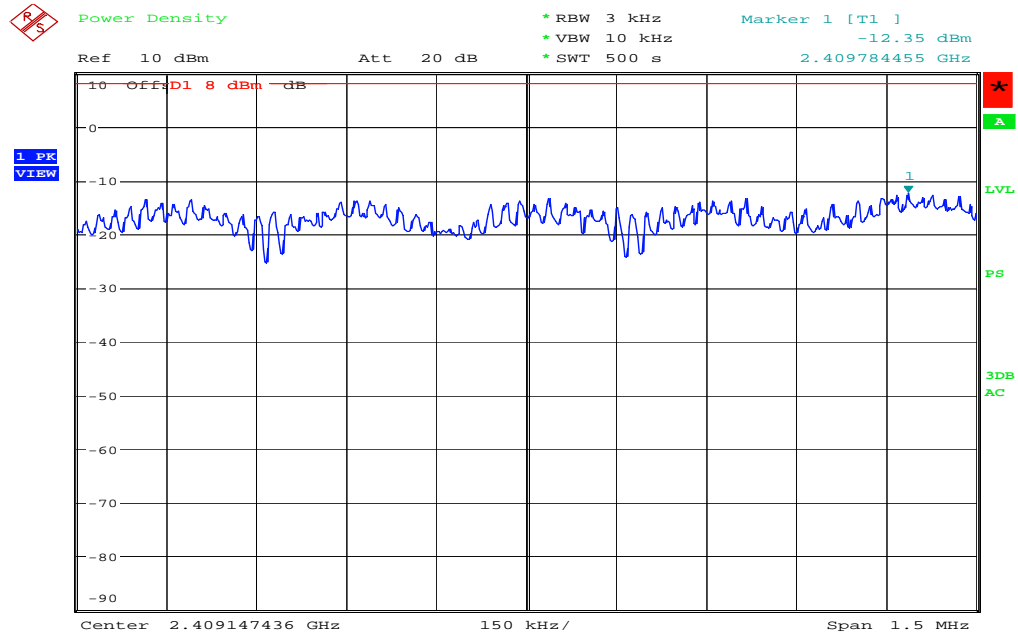
802.11g 2437MHz
Date: 17.SEP.2008 18:29:57

802.11g CH11 2462MHz



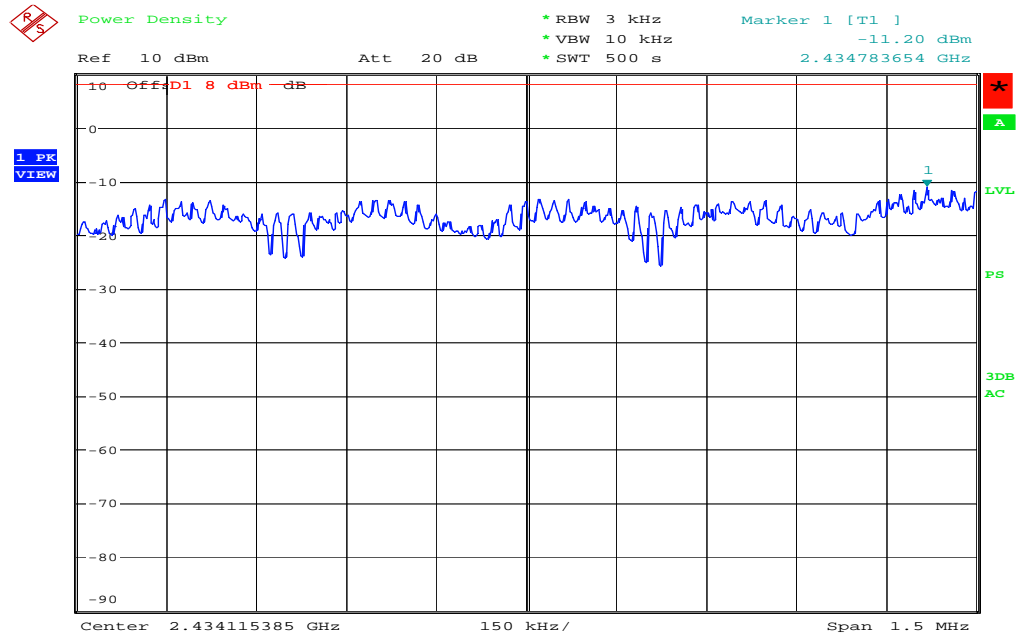
802.11g 2462MHz
Date: 17.SEP.2008 18:28:00

802.11n (HT20) CH1 2412MHz



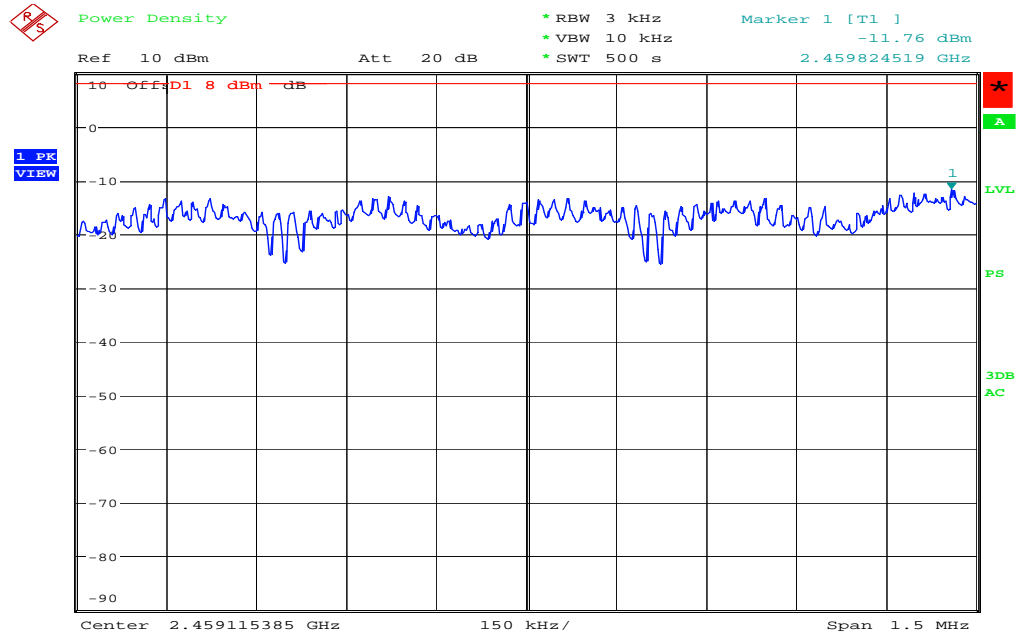
802.11n(20) 2412MHz
Date: 17.SEP.2008 18:39:28

802.11n (HT20) CH6 2437MHz



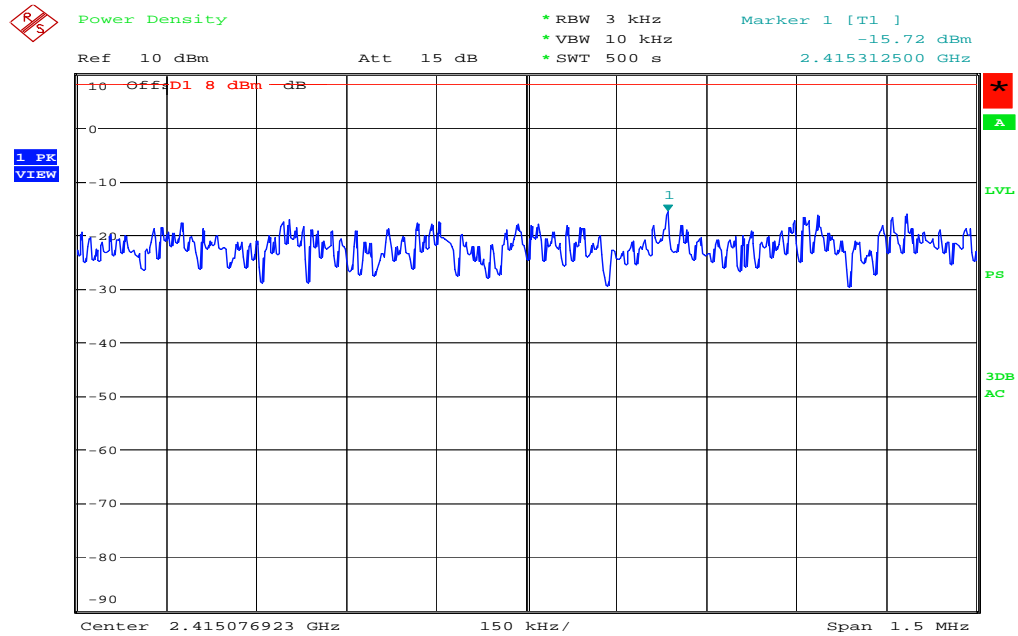
802.11n(20) 2437MHz
Date: 17.SEP.2008 18:37:50

802.11n (HT20) CH11 2462MHz



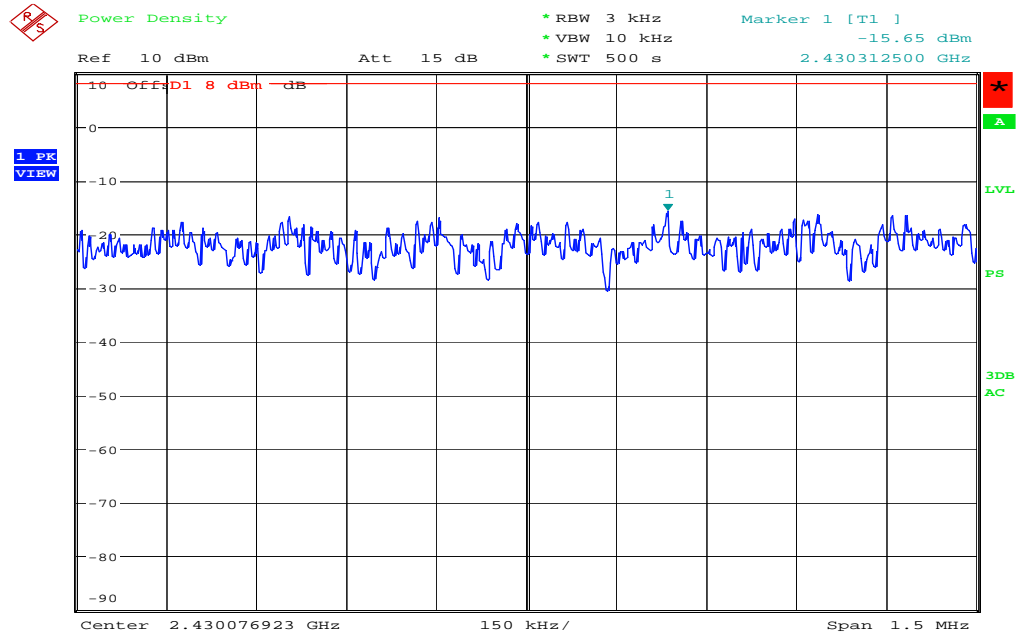
802.11n(20) 2462MHz
Date: 17.SEP.2008 18:41:20

802.11n (HT40) CH3 2422MHz



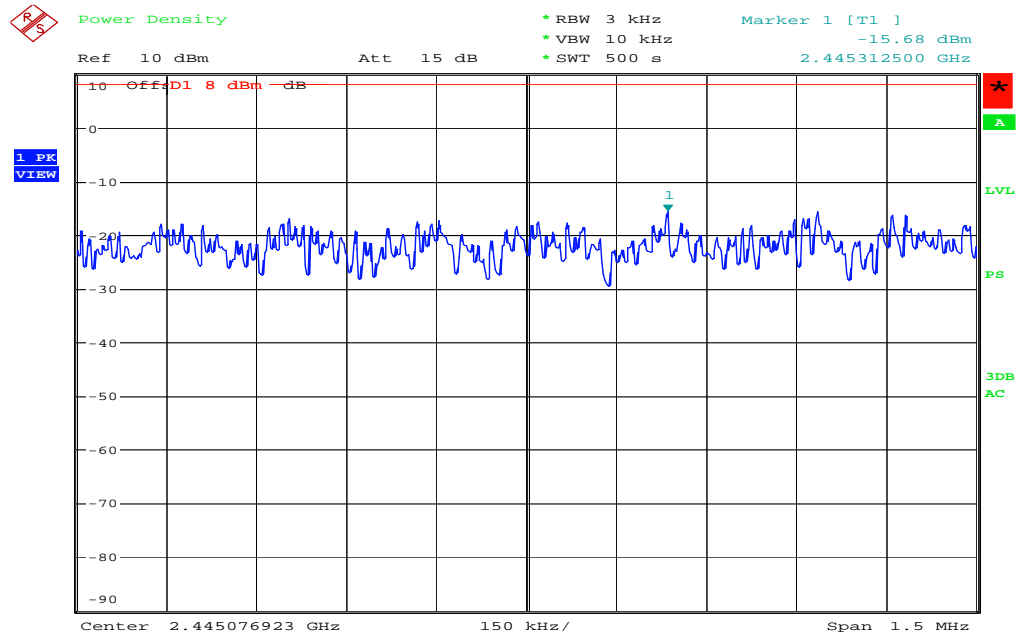
802.11n(40) 2422MHz
Date: 17.SEP.2008 18:49:08

802.11n (HT40) CH6 2437MHz



802.11n(40) 2437MHz
Date: 17.SEP.2008 18:47:26

802.11n (HT40) CH9 2452MHz



802.11n(40) 2452MHz
Date: 17.SEP.2008 18:45:58

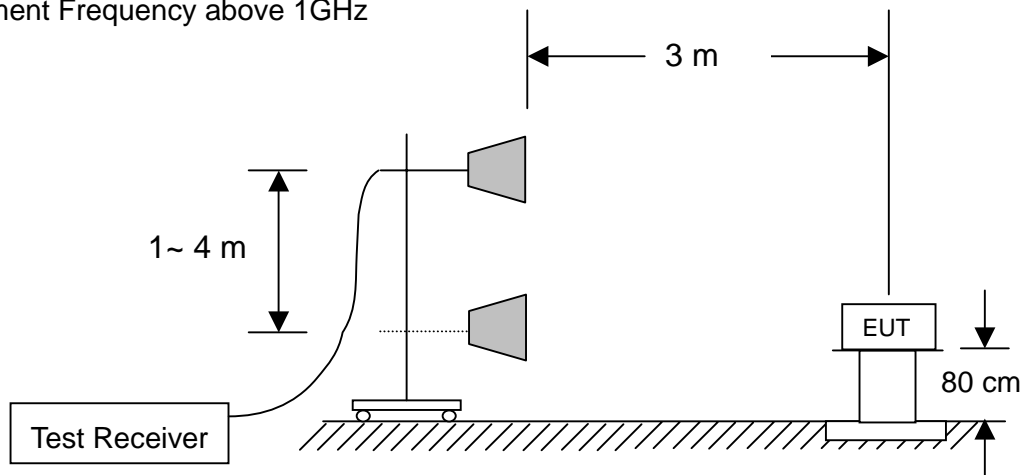
8 Emission on the Band Edge test

8.1 Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 KHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

8.2 Configuration of Measurement

Measurement Frequency above 1GHz



8.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW =1M, VBW= RBW for peak, and VBW=10Hz for average.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meter and down to 1 meter.

8.4 Test Result

PASS.

The final test data is shown on as following pages.

Band edge

802.11b					
CH	Restrict Freq. Band (MHz)	Detector Mode	Maximum level (dBμV/m)	Limit (dBm)	Margin (dB)
1	2310~2390	PK	60.34	74	-13.66
		AV	49.67	54	-4.33
11	2483.5~2500	PK	61.17	74	-12.83
		AV	50.34	54	-3.66

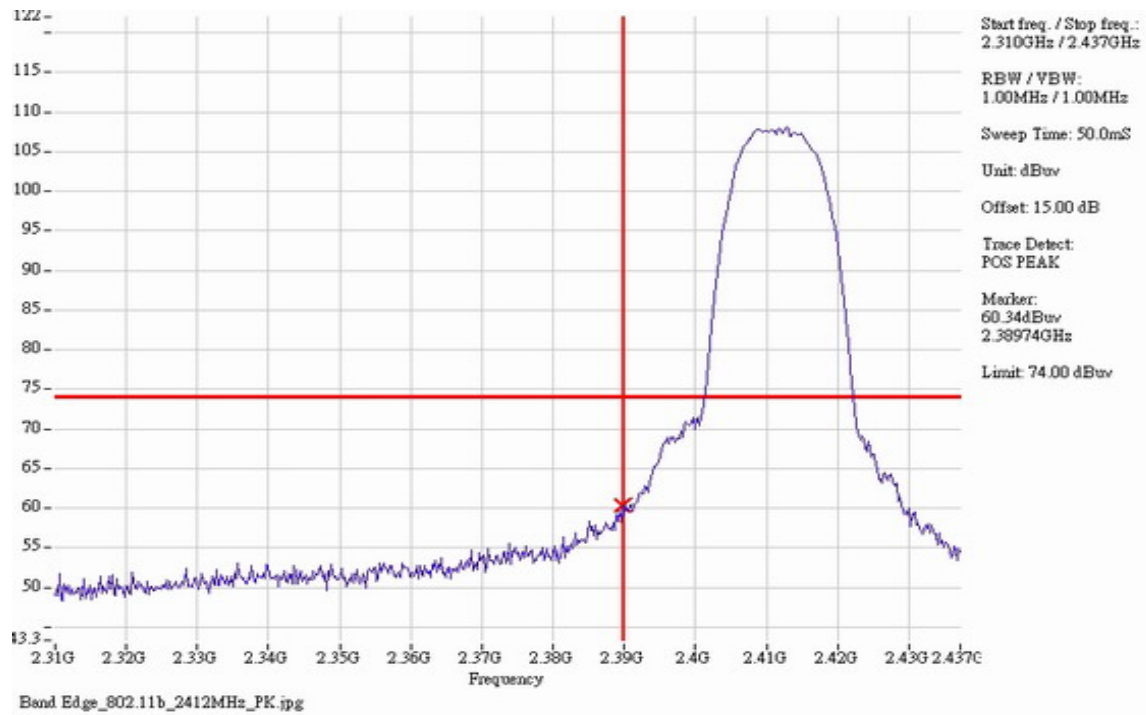
802.11g					
CH	Restrict Freq. Band (MHz)	Detector Mode	Maximum level (dBμV/m)	Limit (dBm)	Margin (dB)
1	2310~2390	PK	63.50	74	-10.5
		AV	48.84	54	-5.16
11	2483.5~2500	PK	72.67	74	-1.33
		AV	51.84	54	-2.16

802.11n (HT20)					
CH	Restrict Freq. Band (MHz)	Detector Mode	Maximum level (dBμV/m)	Limit (dBm)	Margin (dB)
1	2310~2390	PK	67.50	74	-6.50
		AV	51.67	54	-2.33
11	2483.5~2500	PK	68.67	74	-5.33
		AV	53.34	54	-0.66

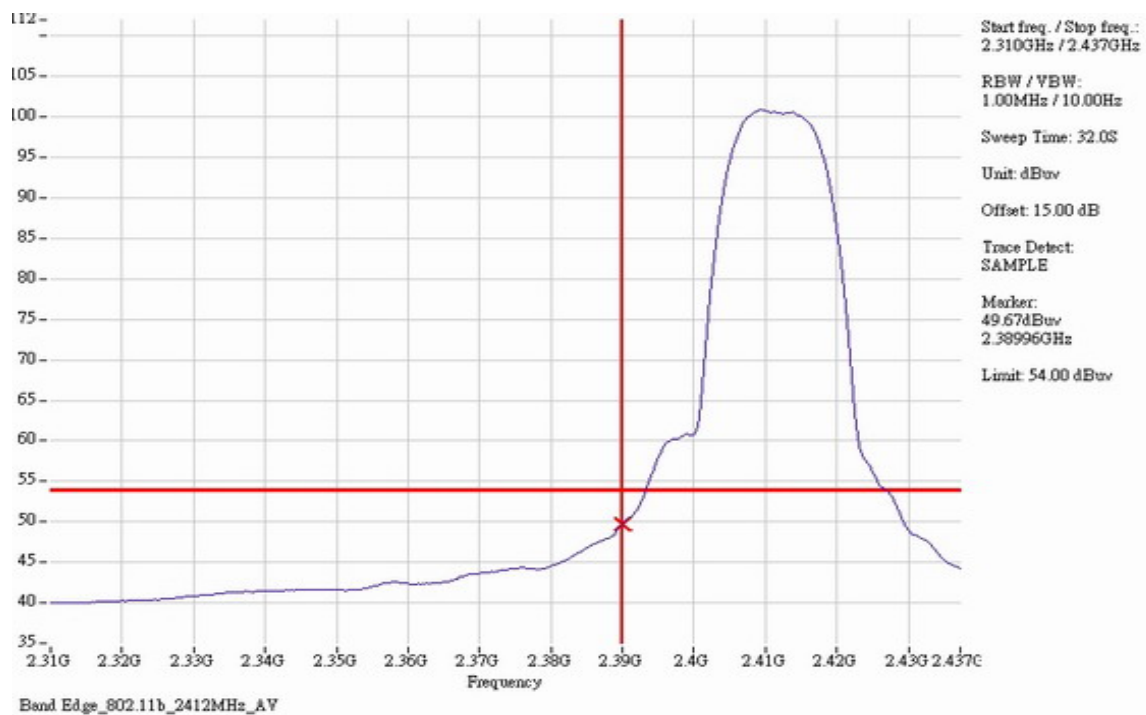
802.11n (HT40)					
CH	Restrict Freq. Band (MHz)	Detector Mode	Maximum level (dBμV/m)	Limit (dBm)	Margin (dB)
3	2310~2390	PK	65.34	74	-8.66
		AV	52.67	54	-1.33
9	2483.5~2500	PK	63.17	74	-10.83
		AV	47.50	54	-6.50

Band edge

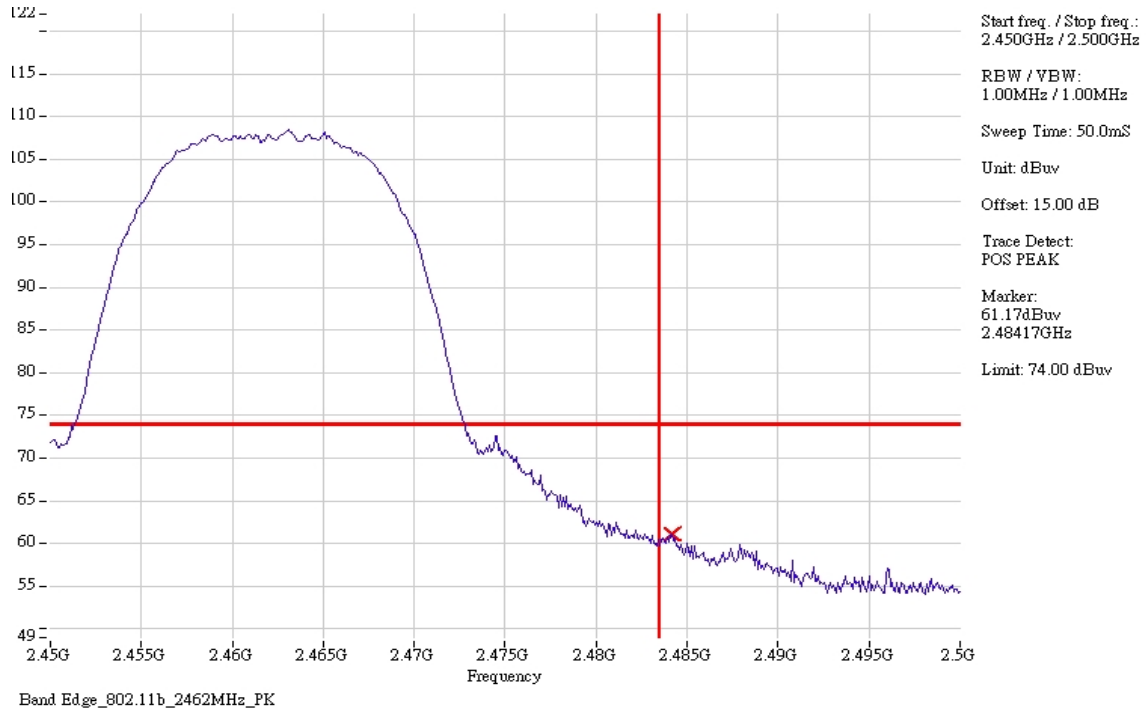
802.11b CH1 PK



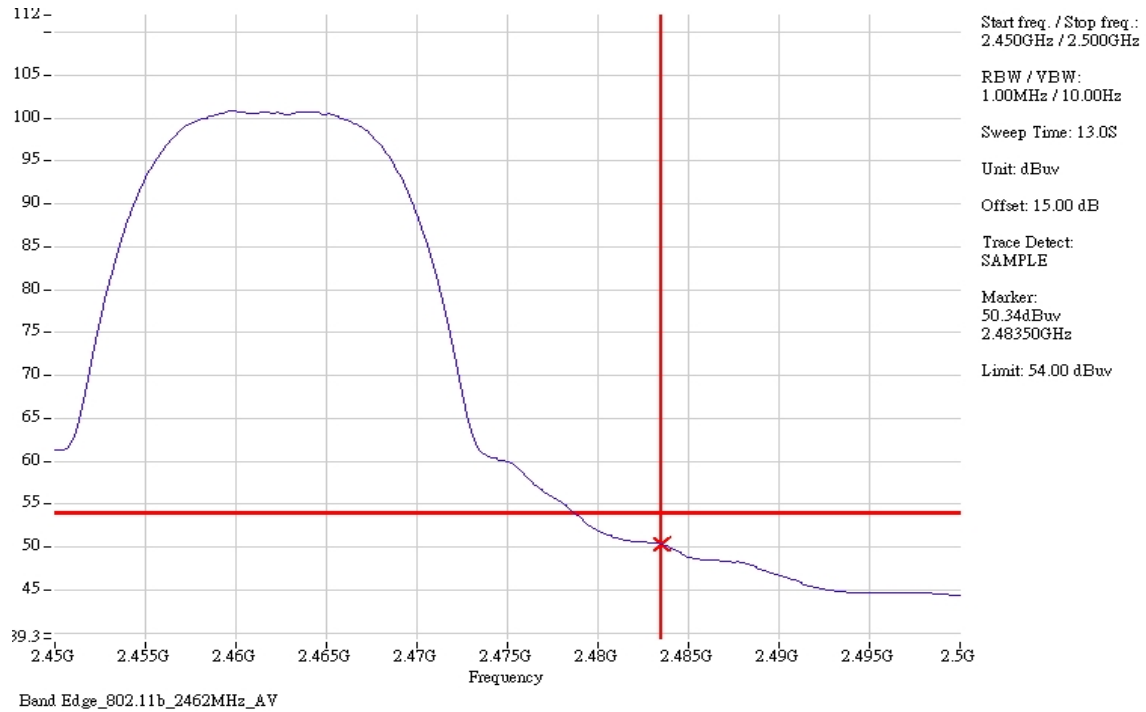
802.11b CH1 AV



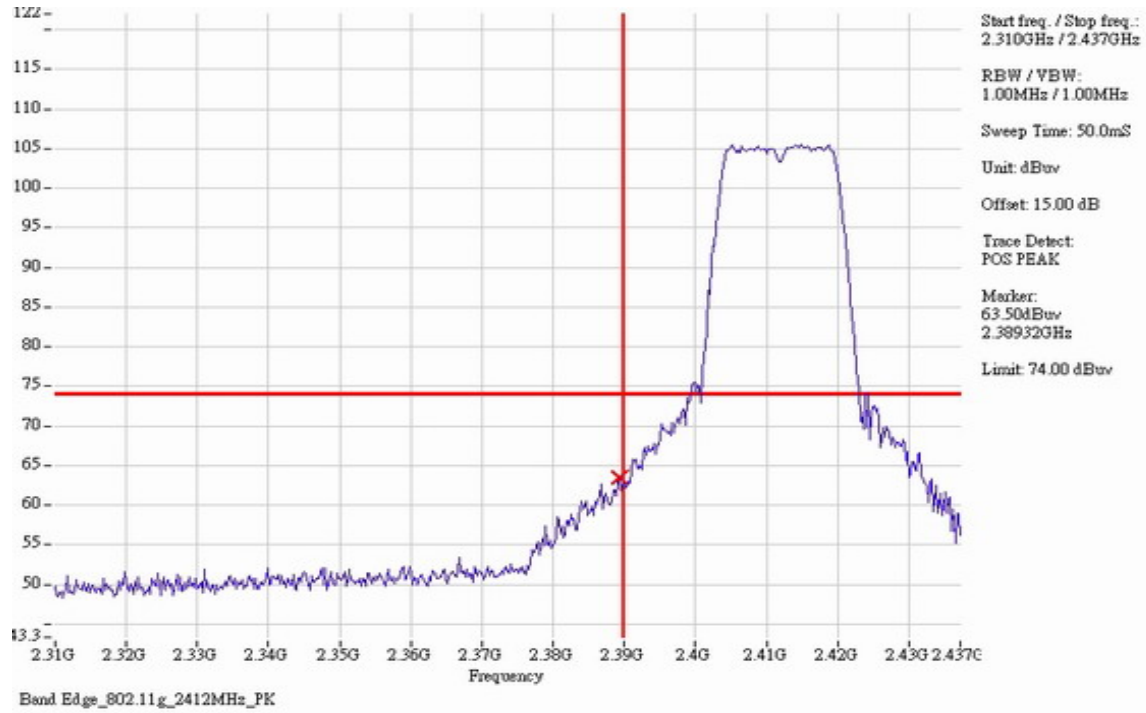
802.11b CH11 PK



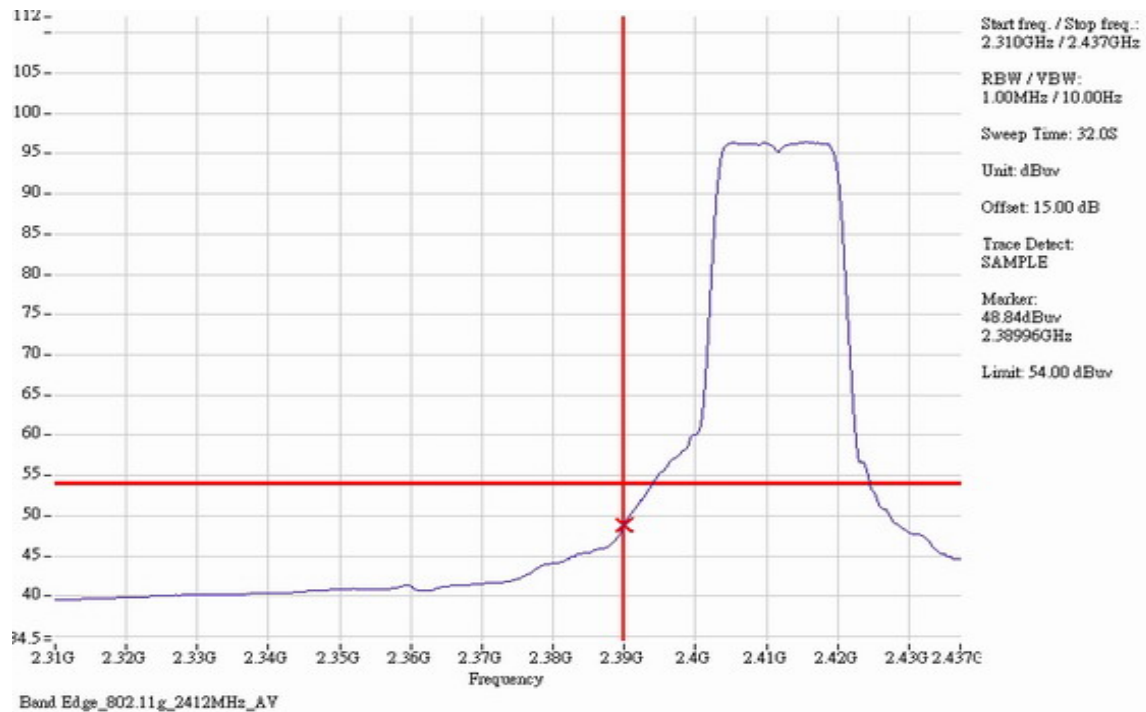
802.11b CH11 AV



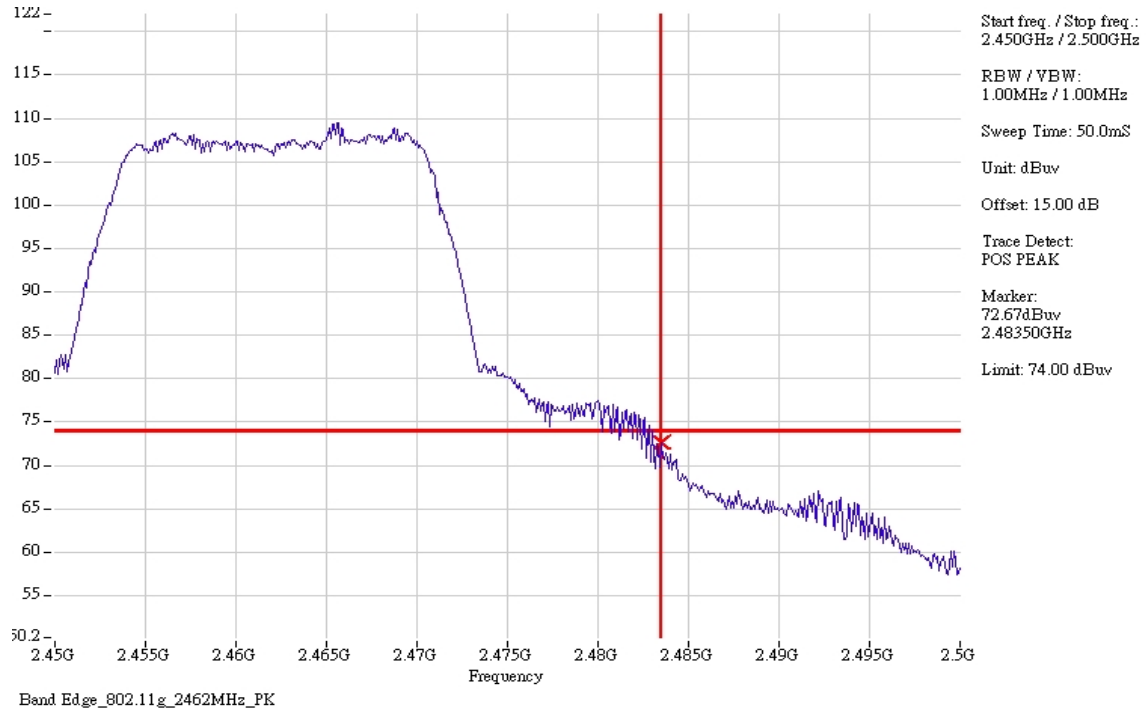
802.11g CH1 PK



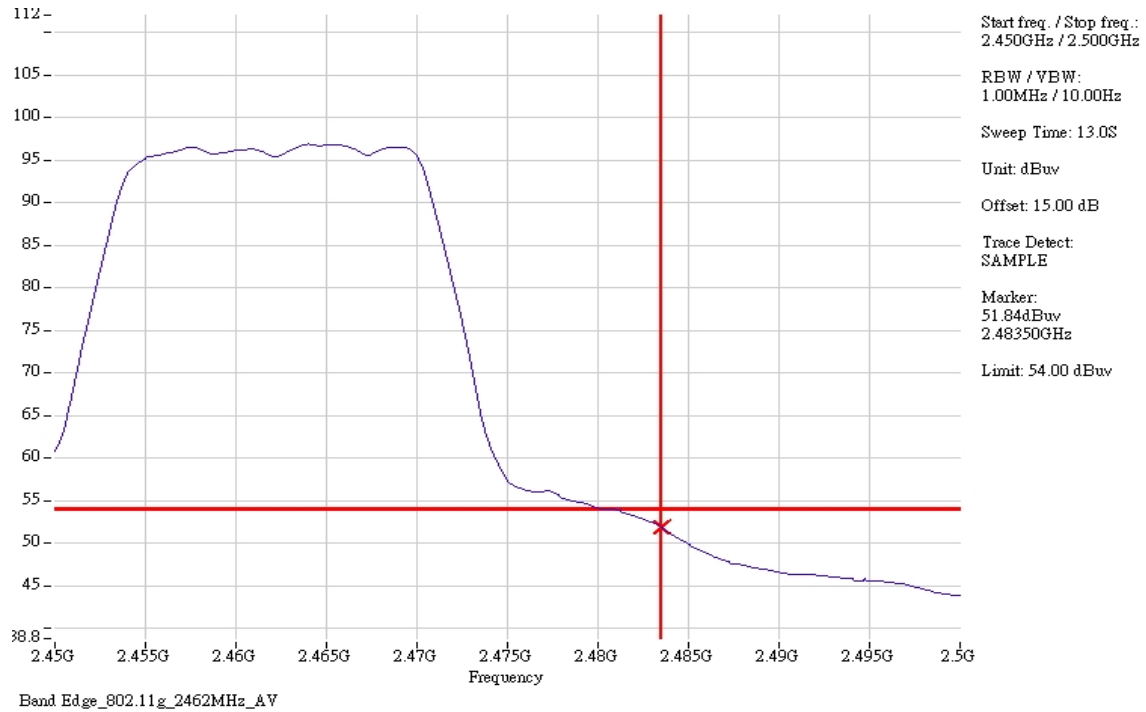
802.11g CH1 AV



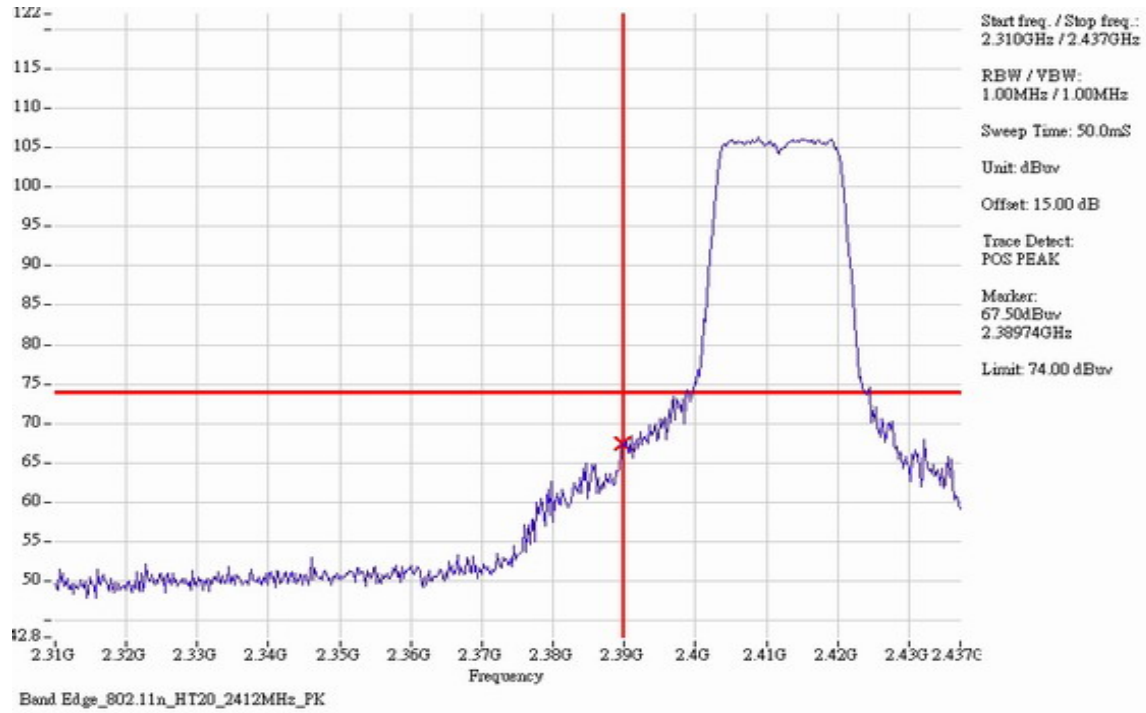
802.11g CH11 PK



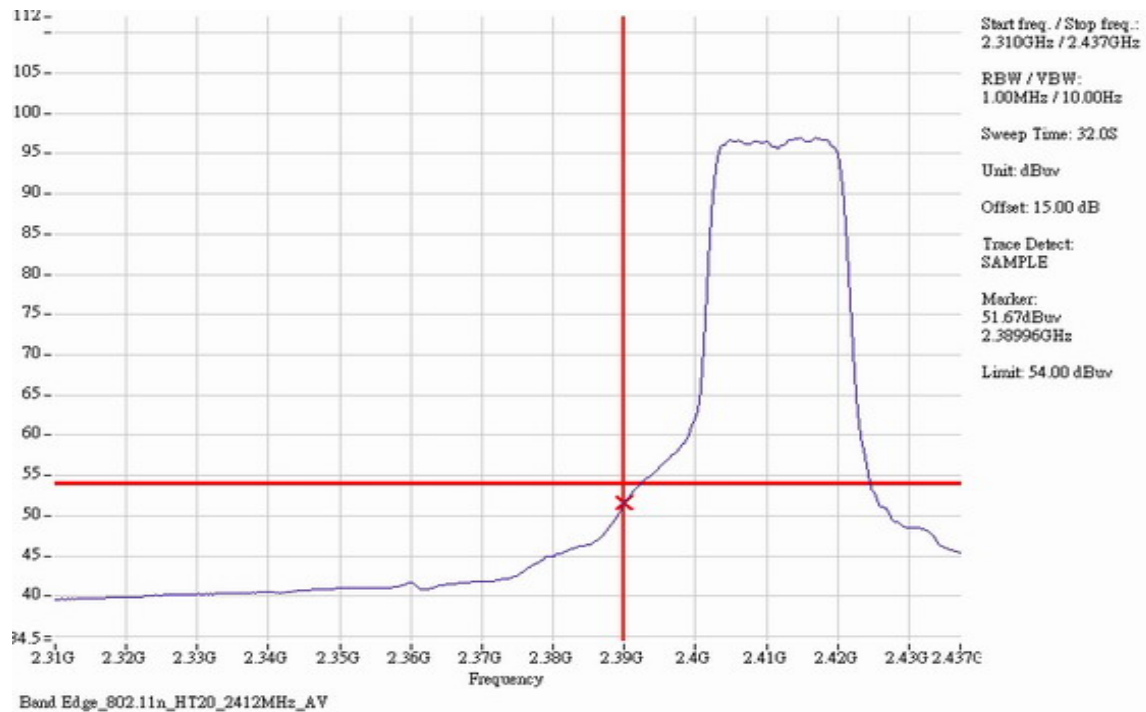
802.11g CH11 AV



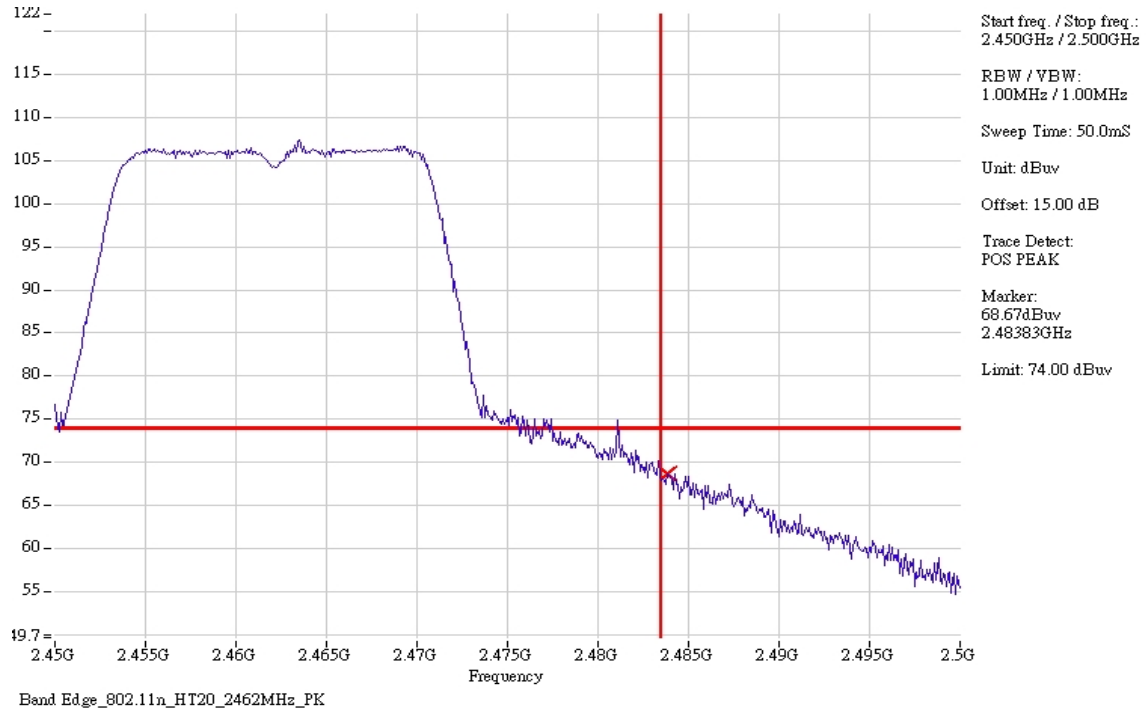
802.11n (HT20) CH1 PK



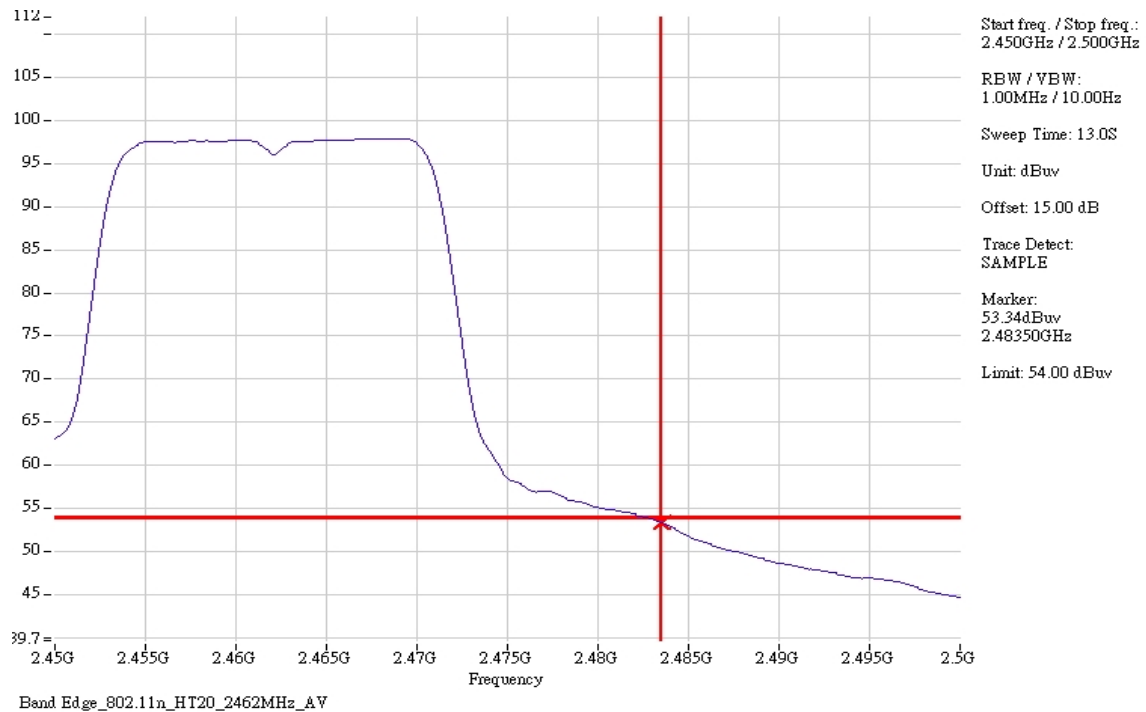
802.11n (HT20) CH1 AV



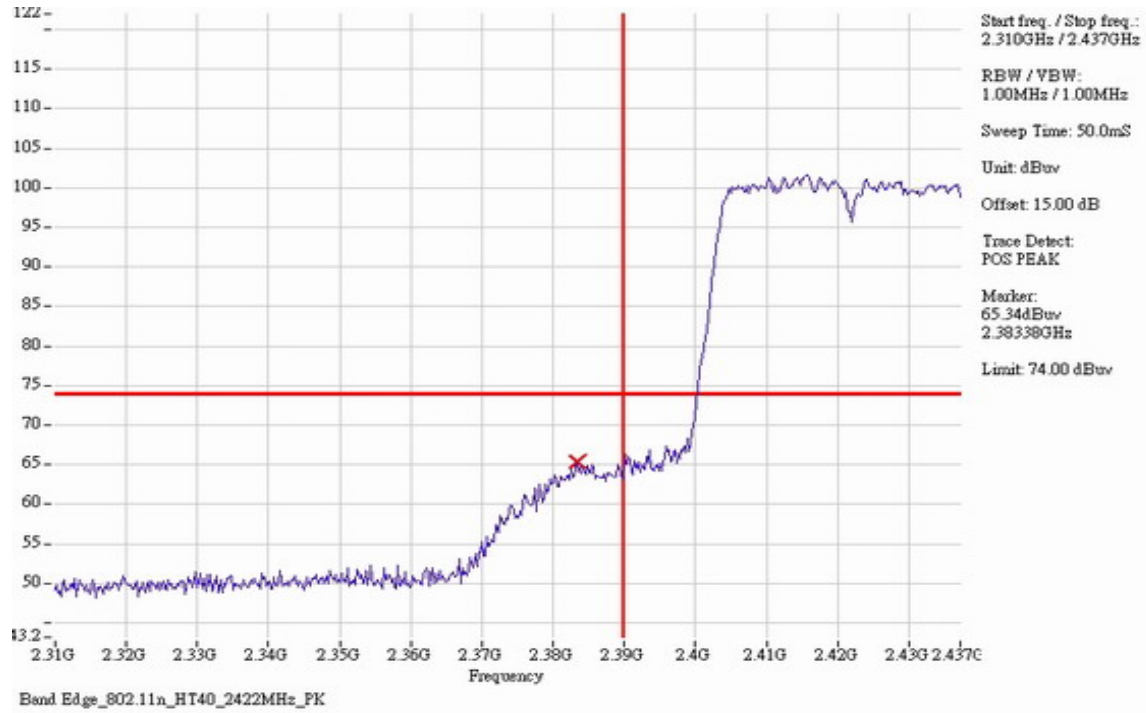
802.11n (HT20) CH11 PK



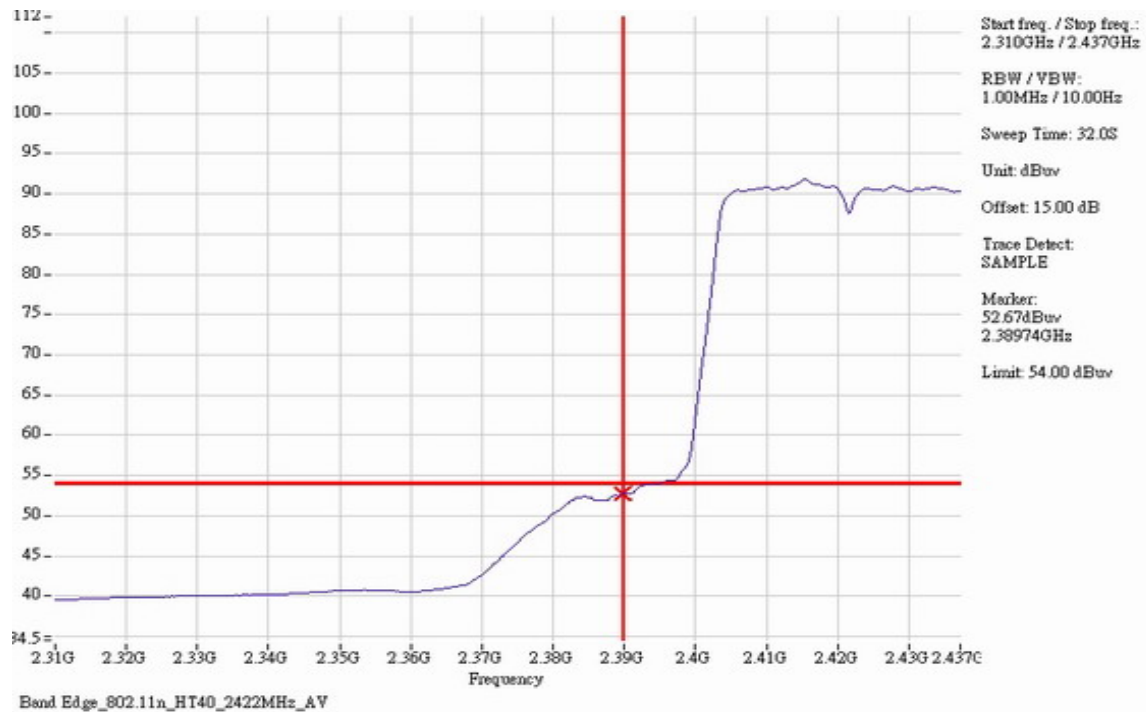
802.11n (HT20) CH11 AV



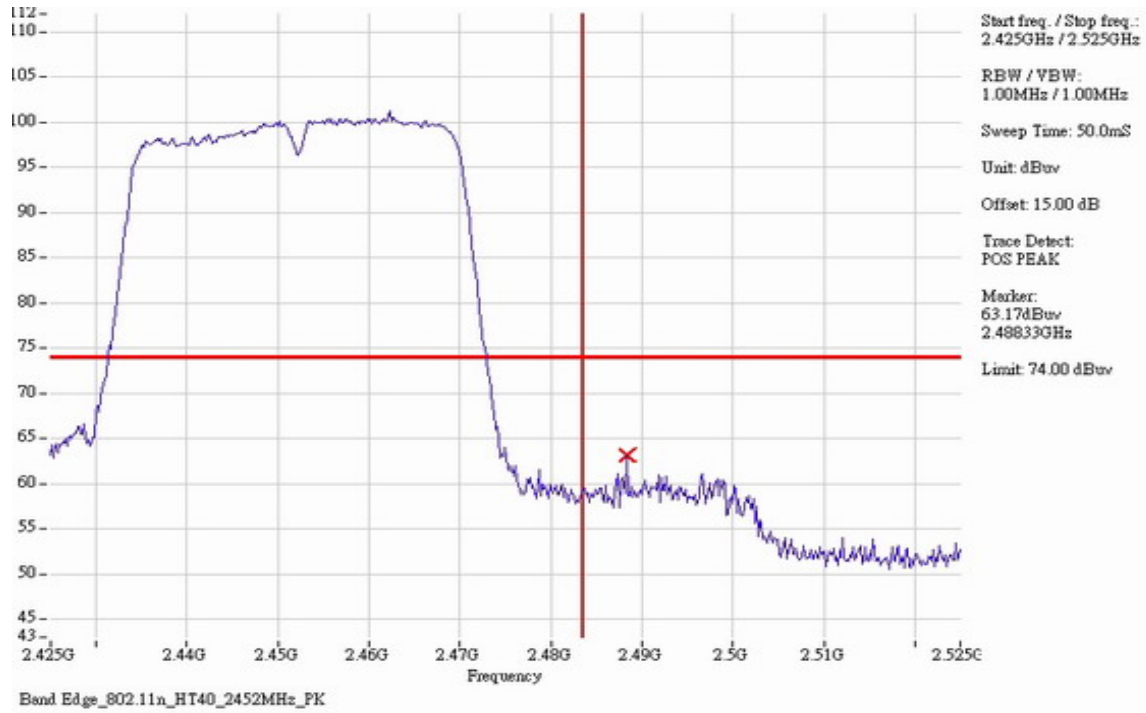
802.11n (HT40) CH3 PK



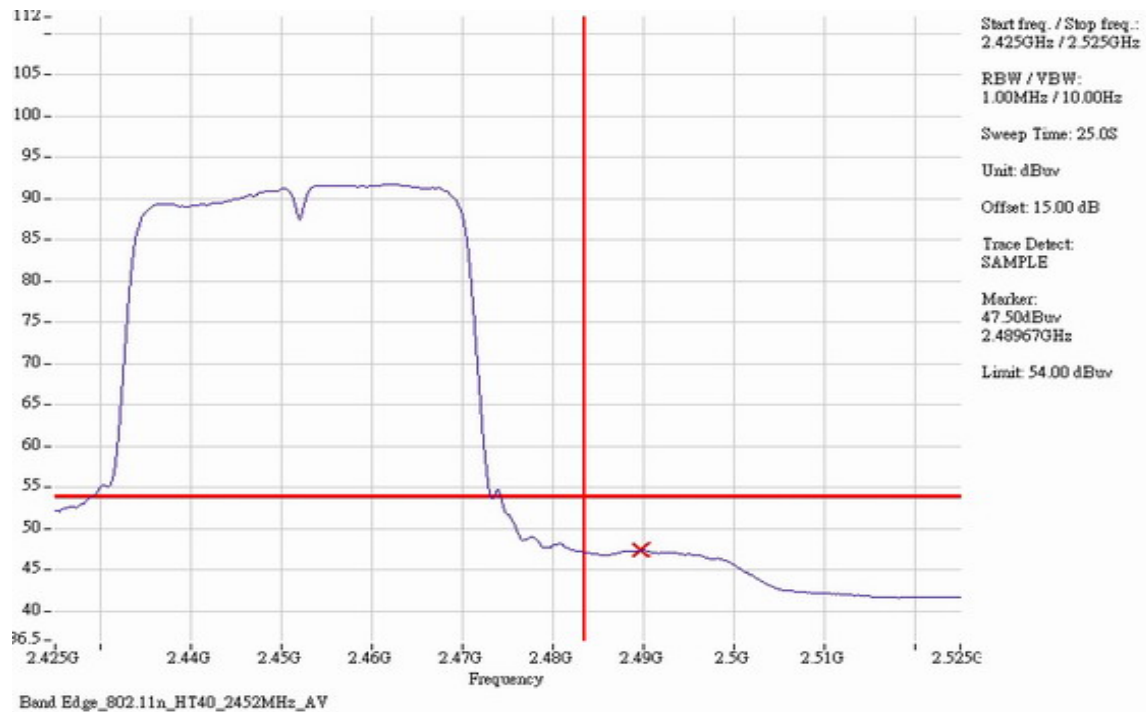
802.11n (HT40) CH3 AV



802.11n (HT40) CH9 PK



802.11n (HT40) CH9 AV



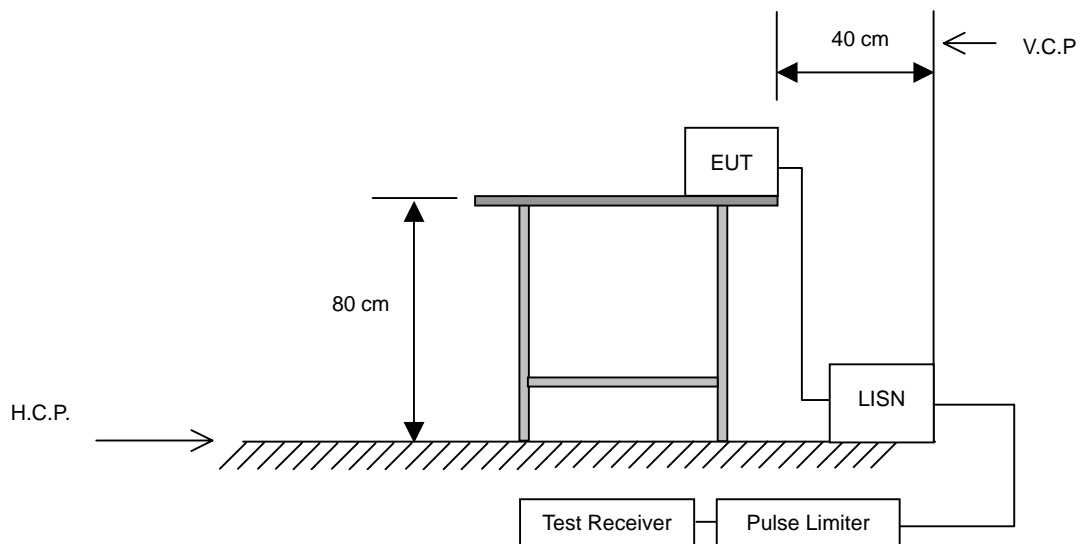
9 AC Power Line Conducted Emission test

9.1 Limit

Frequency (MHz)	Quasi-Peak (dB μ V)	Average (dB μ V)
0.15 to 0.5	66 to 56	56 to 46
> 0.5 to 5	56	46
> 5 to 30	60	50

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

9.2 Configuration of Measurement



9.3 Test Procedures

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

- 1) The EUT was placed 80cm height above ground on a non-conductive table and vertical conducting plane located 40cm to the rear of the EUT.
- 2) The EUT was connected to the main power through Line Impedance Stabilization Networks (LISN). This setup provided a 50ohm/50mH coupling impedance for the measuring equipment. The auxiliary equipment will place in secondary LISN.
- 3) Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2003 on conducted measurement.

9.4 Test Result

PASS.

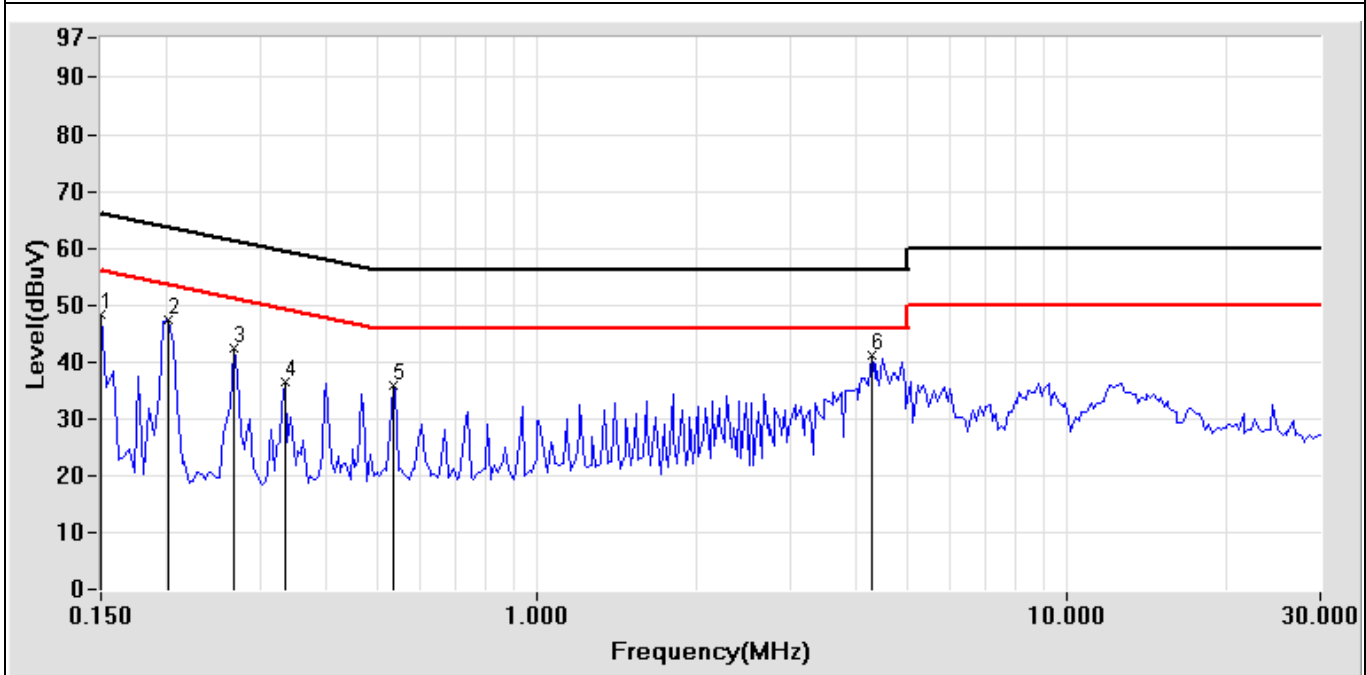
The final test data is shown on as following pages.

Power Line Conducted Test Data

EUT: NoteBook PC CLIENT: MiTAC MODEL: 9213XY RATING: 120V/60Hz Temperature: 25.0 °C Humidity: 64 %	POLARITY: Line DISTANCE: Serial No.: FILE/DATA#: MiTAC.emi/326 OPERATOR: VICTOR TEST SITE: Conduction1
---	---

Frequency (MHz)	Factor (dB)	Meter Reading (dBμV)		Emission Level (dBμV)		Limits (dBμV)		Margin (dB)	
		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
0.150	0.10	39.98	18.12	40.08	18.22	66.00	56.00	-25.92	-37.78
0.201	0.13	48.33	37.65	48.46	37.78	63.57	53.57	-15.11	-15.79
0.267	0.13	40.77	33.26	40.90	33.39	61.21	51.21	-20.31	-17.82
0.334	0.13	34.97	27.56	35.10	27.69	59.35	49.35	-24.25	-21.66
0.533	0.14	35.32	33.85	35.46	33.99	56.00	46.00	-20.54	-12.01
4.275	0.31	36.71	32.23	37.02	32.54	56.00	46.00	-18.98	-13.46

Remark:
 1. All readings are Quasi-Peak and Average values.
 2. Factor = Insertion Loss + Cable Loss.



Test Mode: LCD (1280*800, 60Hz) + DVI (1280*800, 60Hz) (SKU B)

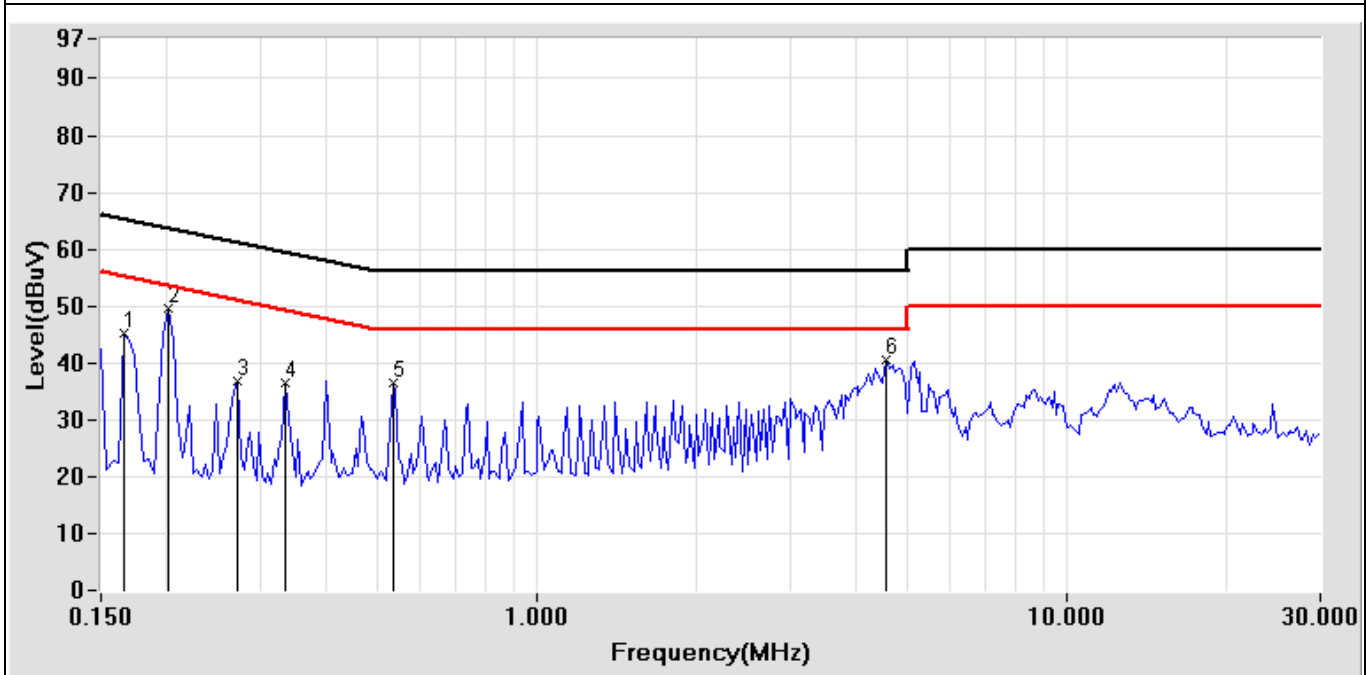
Power Line Conducted Test Data

EUT: Notebook PC CLIENT: MITAC MODEL: 9213XY RATING: 120V/60Hz Temperature: 25.0 °C Humidity: 64 %	POLARITY: Neutral DISTANCE: Serial No.: FILE/DATA#: MiTAC.emi/325 OPERATOR: VICTOR TEST SITE: Conduction1
---	--

Frequency (MHz)	Factor (dB)	Meter Reading (dBμV)		Emission Level (dBμV)		Limits (dBμV)		Margin (dB)	
		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
0.166	0.13	39.65	17.23	39.78	17.36	65.16	55.16	-25.38	-37.80
0.201	0.13	48.09	27.57	48.22	27.70	63.57	53.57	-15.35	-25.87
0.271	0.13	35.62	0.73	35.75	0.86	61.09	51.09	-25.34	-50.23
0.334	0.13	35.27	12.77	35.40	12.90	59.35	49.35	-23.95	-36.45
0.533	0.14	35.64	7.34	35.78	7.48	56.00	46.00	-20.22	-38.52
4.541	0.22	39.41	33.25	39.63	33.47	56.00	46.00	-16.37	-12.53

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



Test Mode: LCD (1280*800, 60Hz) + DVI (1280*800, 60Hz) (SKU B)