FCC PART 15.247 & 15.407

EMI MEASUREMENT AND TEST REPORT

For

Meru Networks

1309 S. Mary Avenue
Sunnvyale, CA 94087, USA

FCC ID: RE7-AP150

This Report Concerns: ☒ Original Report	**Equipment Type:** Dual Radio 802.11a and b/g Wireless LAN Access Point AP150

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Report No.:	R0512192
Report Date:	2006-01-04
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TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Meru Networks's* product, *FCC ID: RE7-AP150,* or the "EUT" as referred to in this report is a Dual Radio 802.11a and b/g Wireless LAN Access Point, model no. AP 150. The radios utilized in the EUT are capable of transmitting and receiving simultaneously. The EUT is a composite device of DTS and UNII. For the DTS part (802.11a/b/g), the frequency range is 2412.00 – 2462.00 MHz (for 802.11b/g), maximum output power is 63.10 mW & 5725.00 – 5850.00 MHz (for 802.11a), maximum output power is 85.11mW. For the UNII part (802.11a), the frequency range is 5150.00 – 5250.00 MHz, maximum output power is 26.92 mW& 5250.00 – 5350.00 MHz, maximum output power is 61.66 mW.

** The test data gathered are from production sample, serial number: Unit #1, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *Meru Networks* in accordance with Part 2, Subpart J, Part 15, Subparts A, C, and E of the Federal Communication Commissions rules.

The objective of the manufacturer is to demonstrate compliance with FCC rules for Output Power, Antenna Requirements, 6 dB Bandwidth and 26 dB Bandwidth, power spectral density, 100 kHz Bandwidth of Band Edges Measurement, Out of Band Emission, Spurious Emission, Conducted and Spurious Radiated Emission, Discontinue Transmitting with Absence of Data or Operational Failure, Peak Excursion to Average Ratio and Frequency Stability.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp.

Test Facility

The Open Area Test site used by BACL to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA with registration number: 90464.

Test site at BACL has been fully described in reports submitted to the Federal Communication Commission (FCC), Industry Canada (IC), and Voluntary Control Council for Interference (VCCI).

The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997, and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2, IC registration number: 3062A, and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC, IC, and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2003.

The EUT was tested in the Continuous Transmitting operating mode to represent *worst*-case results during the final qualification test.

EUT Exercise Software

The EUT operates in Continuous Transmitting operation mode during radiated and conducted testing. The following DAC setting is used.

802.11a (low band)
DATA RATE = 54Mbs
100% DUTY CYCLE
TX POWER setting = 16 dBm, CH36 ~ CH 48

802.11a (mid band)
DATA RATE = 54Mbs
100% DUTY CYCLE
TX POWER setting = 20 dBm, CH52
TX POWER setting = 20 dBm. CH 54 ~64

802.11a (high band)
DATA RATE = 54Mbs
100% DUTY CYCLE
TX POWER = 21 dBm, CH149
TX POWER = 20 dBm, CH 151 ~CH165

802.11g
DATA RATE = 54Mbs
100% DUTY CYCLE
TX POWER SETTING = 19 dBm, CH1 ~ CH 11

802.11b
DATA RATE = 11Mbs
100% DUTY CYCLE
TX POWER SETTING = 17 dBm, CH1
TX POWER SETTING = 19 dBm, CH7
TX POWER SETTING = 18 dBm, CH11

Special Accessories

As shown in following test setup block diagram, all interface cables used for compliance testing are unshielded.

Schematics / Block Diagram

Please refer to Appendix A.

Equipment Modifications

No modifications were made to the EUT.

Power Supply Information

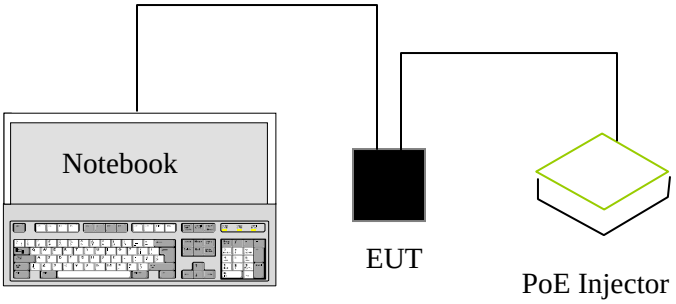
Manufacturer	Description	Model	Serial Number	FCC ID
powerDsine	AC/DC Adapter	PowerDsine 3001	B05086050002207701	None
Hipro	AC/DC Adapter 5V,3A	HP-OJ015L6A	None	None

External I/O Cabling List and Details

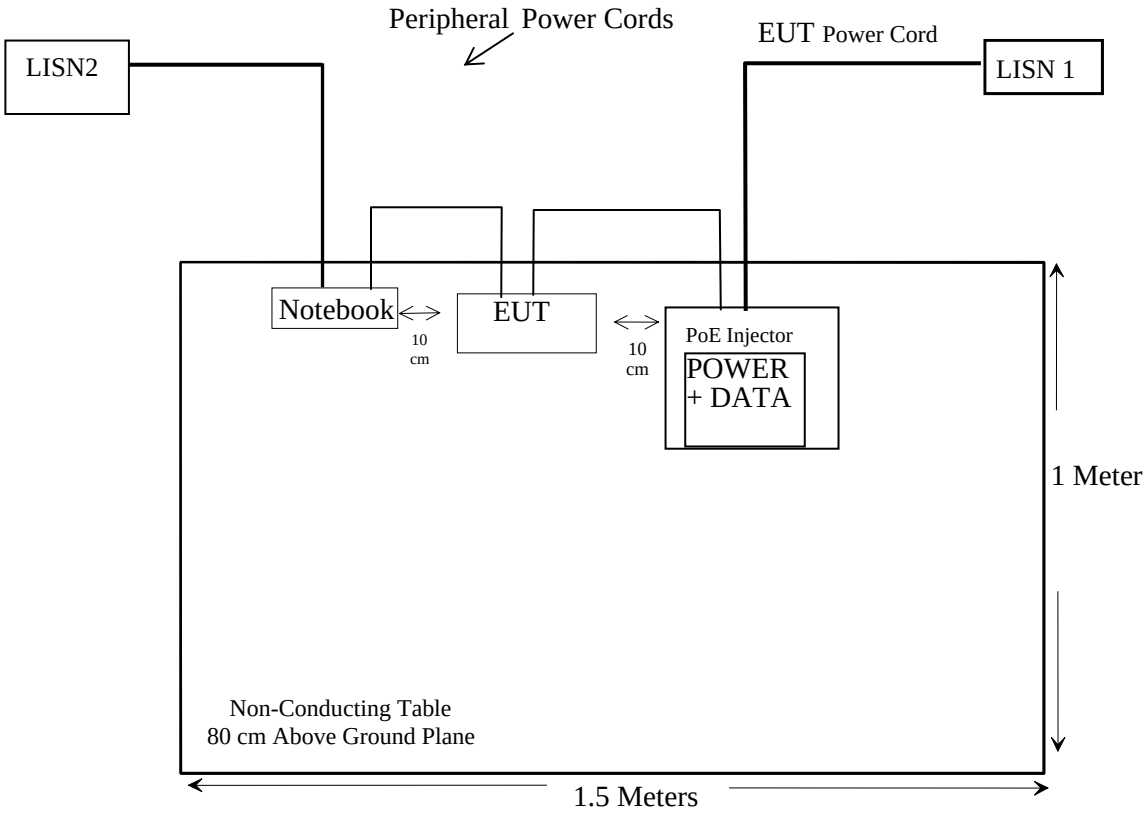
Cable Description	Length (M)	Port/From	To
Ethernet Cable	2.0	Ethernet port 1 / EUT	PowerDsine Power Supply 1 (data & power out port)
Ethernet Cable	2	Ethernet port / Laptop	Switch

For Power Injector

Configuration of Test System

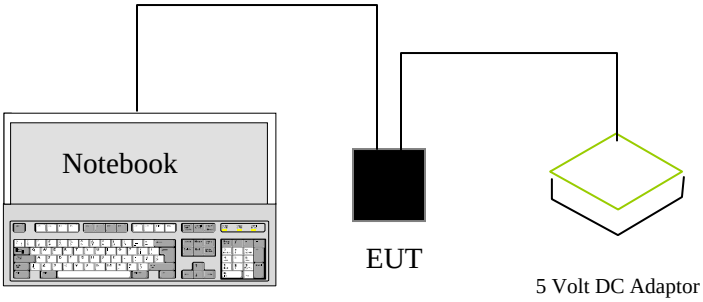


Test Setup Block Diagram

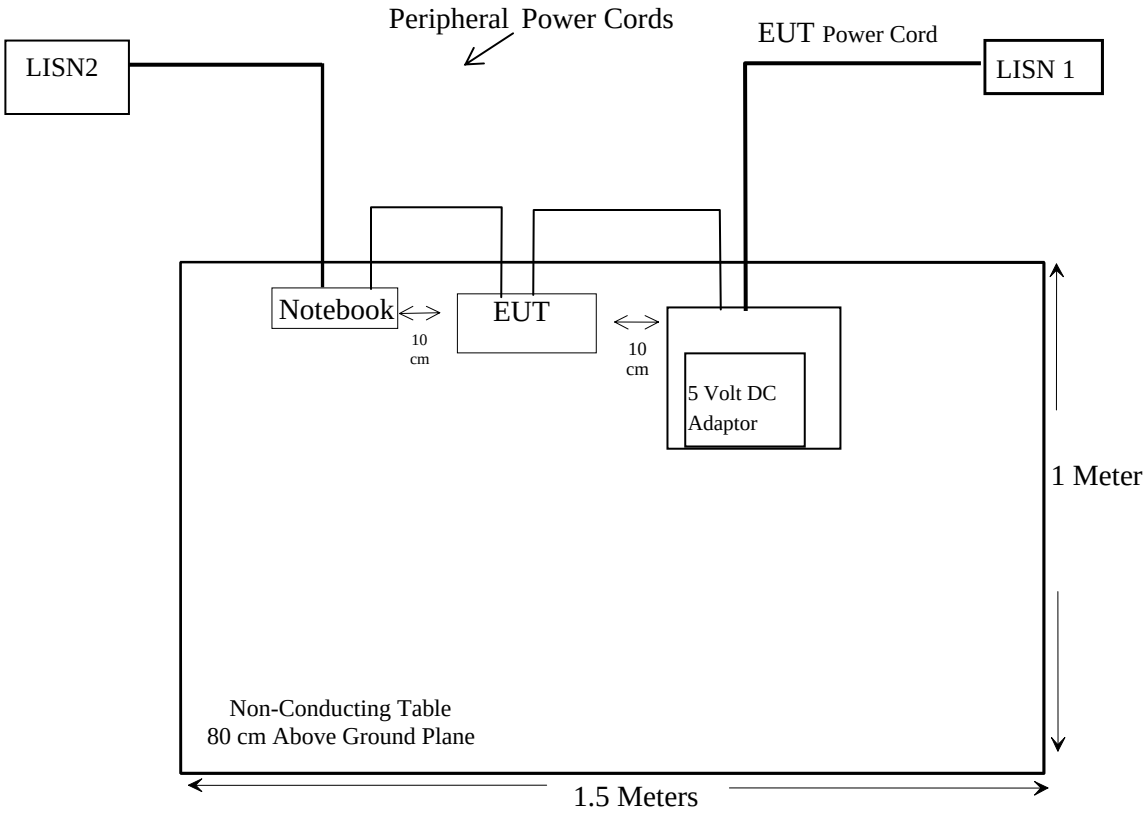


For 5Volt Adaptor

Configuration of Test System



Test Setup Block Diagram



SUMMARY OF TEST RESULTS

Results reported relate only to the product tested.

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1091, §15.247(e)(1), §15.407 (f)	RF Exposure Requirement	Compliant
§15.203	Antenna Requirement	Compliant
§ 15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6)	Restricted Bands, Radiated Emission	Compliant*
§ 15.207(a)	AC Line Conduction	Compliant*
§15.247(a)(2), §15.407	6 dB Bandwidth & 26 dB Bandwidth	Compliant
§15.247(b)(3), §15.407(a)(2)	RF Output Power	Compliant
§ 15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e), §15.407(a)(2)	Peak Power Spectral Density	Compliant
§15.407(a)(6)	Peak Excursion	Compliant
§15.407(b)	Out of Band Emission	Compliant
§15.407(c)	Discontinue Transmitting with Absence of Data or Operational Failure	Compliant
§ 15.407(g)	Frequency Stability	Compliant

*: Within Measurement Uncertainty

§15.203 - ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to § 15.203, 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.

And according to § 15.247 (1), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The antenna used with the EUT is an external antenna,

Model #1 - MMO224580608 is a dual band, 360 degree, Omni-directional antenna with peak gain 0f +6dBi for the 2.4GHz ISM band, and +8dBi on the UNII-1, UNII-2, and UNII-3 bands. Antenna polarization is linear

Model #2 - SAA04-050280 is a single band, 360 degree, Omni-directional antenna with peak gain 0f +8dBi for the 2.4GHz ISM band . Antenna polarization is linear.

Model # 3 – MP24013 XFPTNF MaxRad Panel Antenna with peak gain of +13dBi for the 2.4GHz ISM band . Antenna polarization is linear.

Model #4 - SAA04-220050 is a dual band, 360 degree, Omni-directional antenna with peak gain 0f +2dBi for the 2.4GHz ISM band, and +3dBi on the UNII-1, UNII-2, and UNII-3 bands. Antenna polarization is linear

§15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6) - SPURIOUS RADIATED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ±4.0 dB.

According to §15.205, except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
[1]0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2655 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.57725	240 – 285	3345.8 – 3358	36.43 – 36.5
13.36 – 13.41	322 – 335.4	3600 – 4400	([2])

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510MHz
[2] Above 38.6

Except as provided in paragraph (d) and (e), the filed strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

According to §15.209, the device shall meet radiated emission general requirements.

Except for Class A device, the filed strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (Microvolts/meter)	dB (dBμV/meter)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle as required.

The EUT was connected with 120Vac/60Hz power source.

Receiver Setup

According to FCC CFR 47, Section 15.31, the EUT was tested to 25GHz for 15.247 and 40GHz for 15.407.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Range	***RBW***	***Video B/W***
Below 30MHz	10kHz	10kHz
30 – 1000MHz	100kHz	100kHz
Above 1000MHz	1MHz	1MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
HP	Amplifier, Pre	8447D	2944A10187	2005-8-25
R&S	Receiver, EMI Test	ESCI 1166.5950K03	100044	2005-9-29
Sunol Science	30Mhz ~ 2 GHz Antenna	JB1	A03105-3	2005-2-11
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2005-4-20
Agilent	Analyzer, Spectrum	E4446A	US44300386	2005-11-10
HP	Pre, Amplifier (1 ~ 26.5 GHz)	8449B	3147A00400	5-Oct-05

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the PC system power cord was connected to the AC floor outlet since the power supply used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dBμV of specification limits), and are distinguished with a "**Qp**" in the data table.

For average measurement, the spectrum analyzer was set as RBW = 1MHz, VBW = 10Hz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Subpart C. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Subpart C Limit

Summary of Test Results

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-12.

According to the data in following tables, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.207 and 15.247, and had the worst margin of:

802.11a, 15.247

For Regular Antenna 3dBi

-9.1 dB at **11490.00 MHz** in the **Vertical** polarization, for Low Channel

-8.2 dB at **11570.0 MHz** in the **Vertical** polarization, for Middle Channel

-6.2 dB at **1165**0.0 MHz in the Vertical polarization, for High Channel

For MAXRAD Dual band Antenna 8 dBi

-8.1 dB at **11490.00 MHz** in the **Vertical** polarization, for Low Channel

-8.2 dB at **11570.0 MHz** in the **Vertical** polarization, for Middle Channel

-8.2 dB at **1165**0.0 MHz in the Vertical polarization, for High Channel

802.11b, 15.247

For Regular Antenna 2dBi

-5.9 dB at **3287.00MHz** in the **Vertical** polarization, for Low Channel

-0.3 dB at **3317.0 MHz** in the **Vertical** polarization, for Middle Channel*

-0.2 dB at **3340.0MHz** in the **Vertical** polarization, for High Channel*

For MAXRAD Dual band Antenna 6dBi

-0.8 dB at **3287.0MHz** in the **Vertical** polarization, for Low Channel*

-0.6 dB at **3315.0 MHz** in the **Vertical** polarization, for Middle Channel*

-0.3 dB at **3339.0MHz** in the **Vertical** polarization, for High Channel*

For Smart Antenna 8dBi

-0.2 dB at **3289.0MHz** in the **Vertical** polarization, for Low Channel*

-0.6 dB at **3313.0 MHz** in the **Vertical** polarization, for Middle Channel*

-5.0 dB at **3340.0MHz** in the **Vertical** polarization, for High Channel

For MAXRAD Antenna 13dBi

-0.3 dB at **3280.0 MHz** in the **Vertical** polarization, for Low Channel*

-0.8 dB at **3315.0 MHz** in the **Vertical** polarization, for Middle Channel*

-0.3 dB at **3338.0MHz** in the **Vertical** polarization, for High Channel*

802.11g, 15.247

For Regular Antenna 2dBi

-6.3 dB at **3291.0 MHz** in the **Vertical** polarization, for Low Channel

-13.8 dB at **3315.0 MHz** in the **Vertical** polarization, for Middle Channel

-2.8 dB at **3343.00MHz** in the **Vertical** polarization, for High Channel*

For MAXRAD Dualband Antenna 6dBi

-0.8 dB at **3287.00MHz** in the **Vertical** polarization, for Low Channel*

-2.5 dB at **3313.00 MHz** in the **Vertical** polarization, for Middle Channel*

-0.5 dB at **3342.00MHz** in the **Vertical** polarization, for High Channel*

For Smart Antenna 8dBi

-0.4 dB at **3293.0MHz** in the **Vertical** polarization, for Low Channel*

-0.2 dB at **3313.00 MHz** in the **Vertical** polarization, for Middle Channel*

-0.3 dB at **3342.00MHz** in the **Vertical** polarization, for High Channel*

For MAX Rad Antenna 13dBi

-0.6 dB at **3280.00MHz** in the **Vertical** polarization, for Low Channel*

-1.9 dB at **3313.00 MHz** in the **Vertical** polarization, for Middle Channel*

-0.2 dB at **3367.00MHz** in the **Vertical** polarization, for High Channel*

802.11a, 15.407

For Regular Antenna 3dBi

UNII band I
-11.2 dB at **10360.00 MHz** in the **Vertical** polarization, for Low Channel

-11.4 dB at **10400.00 MHz** in the **Vertical** polarization, for Middle Channel

-7.4dB at **10480.00 MHz** in the **Vertical** polarization, for High Channel

UNII Band II
-3.4 dB at **10520.00 MHz** in the **Vertical** polarization, for Low Channel*

-2.0 dB at **10600.00 MHz** in the **Vertical** polarization, for Middle Channel*

-4.0 dB at **10640.00 MHz** in the **Vertical** polarization, for High Channel*

For MAXRAD Dual band Antenna 8dBi

UNII Band I
-5.2 dB at **10360.00 MHz** in the **Vertical** polarization, for Low Channel

-5.4 dB at **10400.00 MHz** in the **Vertical** polarization, for Middle Channel

-5.0dB at **10480.00 MHz** in the **Vertical** polarization, for High Channel

UNII Band II
-6.2 dB at **10520.00 MHz** in the **Vertical** polarization, for Low Channel

-2.9 dB at **10600.00 MHz** in the **Vertical** polarization, for Middle Channel*

-5.6 dB at **10640.00 MHz** in the **Vertical** polarization, for High Channel

Unwanted Emission:

For Regular Antenna 2dBi

-15.6 dB at **329.34 MHz** in the **Horizontal** polarization

For MAXRAD Dualband Antenna 6dBi

-13.7 dB at **329.34 MHz** in the **Vertical** polarization

For Smart Antenna 8dBi

-15.0 dB at **329.34 MHz** in the **Vertical** polarization

For MAX Rad 13dBi

-13.9 dB at **329.34 MHz** in the **Vertical** polarization

**: Test data are within the measurement uncertainty ±4.0dB*

802.11a, 5725-5850MHZ (15.247)

For Run # 1 Radiated Harmonic and Spur Emission 802.11a (Regular Antenna 3 dBi)

Run # 3- 1 :Final scan 1GHz -40GHz , (Lowest channel. : 149, 5745MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11490.0000	33.0	0	1.0	v	39.3	5.6	33.0	44.9	54	-9.1	Ave
11490.0000	32.0	330	1.2	h	39.3	5.6	33.0	43.9	54	-10.1	Ave
11490.0000	42.0	0	1.0	v	39.3	5.6	33.0	53.9	74	-20.1	Peak
11490.0000	41.0	330	1.2	h	39.3	5.6	33.0	52.9	74	-21.1	Peak

Run # 3- 2 :Final scan 1GHz -40GHz , (Middle channel. : 157, 5785 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11570.0000	33.0	0	3.0	v	39.5	5.4	32.2	45.8	54	-8.2	Ave
11570.0000	32.0	330	3.0	h	39.5	5.4	32.2	44.8	54	-9.2	Ave
11570.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11570.0000	41.0	330	3.0	h	39.5	5.4	32.2	53.8	74	-20.2	Peak

Run # 3- 3 :Final scan 1GHz -40GHz , (Middle channel. : 165, 5825 MHz

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11650.0000	35.0	0	3.0	v	39.5	5.4	32.2	47.8	54	-6.2	Ave
11650.0000	33.0	330	3.0	h	39.5	5.4	32.2	45.8	54	-8.2	Ave
11650.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11650.0000	40.0	330	3.0	h	39.5	5.4	32.2	52.8	74	-21.2	Peak

For Run # 1 Radiated Harmonic and Spur Emission 802.11a (MAXRAD Dual band Antenna - 8 dBi)

Run # 2- 1 :Final scan 1GHz -40GHz , (Lowest channel. : 149, 5745 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11490.0000	34.0	0	1.0	v	39.3	5.6	33.0	45.9	54	-8.1	Ave
11490.0000	33.0	330	1.2	h	39.3	5.6	33.0	44.9	54	-9.1	Ave
11490.0000	42.0	0	1.0	v	39.3	5.6	33.0	53.9	74	-20.1	Peak
11490.0000	41.0	330	1.2	h	39.3	5.6	33.0	52.9	74	-21.1	Peak

Run # 2- 2 :Final scan 1GHz -40GHz , (Middle channel. : 157, 5785 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11570.0000	33.0	0	3.0	v	39.5	5.4	32.2	45.8	54	-8.2	Ave
11570.0000	32.0	330	3.0	h	39.5	5.4	32.2	44.8	54	-9.2	Ave
11570.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11570.0000	41.0	330	3.0	h	39.5	5.4	32.2	53.8	74	-20.2	Peak

Run # 2- 3 :Final scan 1GHz -40GHz , (Highest channel. : 165, 5825 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11650.0000	33.0	0	3.0	v	39.5	5.4	32.2	45.8	54	-8.2	Ave
11650.0000	32.0	330	3.0	h	39.5	5.4	32.2	44.8	54	-9.2	Ave
11650.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11650.0000	41.0	330	3.0	h	39.5	5.4	32.2	53.8	74	-20.2	Peak

802.11b

Run # 1 Radiated Harmonic and Spur Emission 802.11b (Regular Antenna - 2 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3287.0000	50.9	0	3.0	v	29.8	2.5	35.2	48.1	54	-5.9	Ave
3287.0000	49.5	330	1.2	h	29.8	2.5	35.2	46.7	54	-7.3	Ave
4824.0000	42.8	0	1.2	v	32.5	3.1	34.8	43.6	54	-10.4	Ave
4824.0000	40.0	330	1.2	h	32.5	3.1	34.8	40.8	54	-13.2	Ave
3287.0000	61.0	0	3.0	v	29.8	2.5	35.2	58.2	74	-15.8	Peak
3287.0000	56.2	330	1.2	h	29.8	2.5	35.2	53.4	74	-20.6	Peak
4824.0000	47.0	0	1.0	v	32.5	3.1	34.8	47.8	74	-26.2	Peak
4824.0000	44.0	330	1.2	h	32.5	3.1	34.8	44.8	74	-29.2	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3317.0000	56.5	0	1.2	v	29.8	2.5	35.2	53.7	54	-0.3*	Ave
4874.0000	45.5	0	1.2	v	32.5	3.1	34.8	46.3	54	-7.7	Ave
3317.0000	44.5	330	1.2	h	29.8	2.5	35.2	41.7	54	-12.3	Ave
3317.0000	62.0	0	1.0	v	29.8	2.5	35.2	59.2	74	-14.8	Peak
4874.0000	38.0	330	1.2	h	32.5	3.1	34.8	38.8	54	-15.2	Ave
4874.0000	50.0	0	1.0	v	32.5	3.1	34.8	50.8	74	-23.2	Peak
3317.0000	50.0	330	1.2	h	29.8	2.5	35.2	47.2	74	-26.8	Peak
4874.0000	42.0	330	1.2	h	32.5	3.1	34.8	42.8	74	-31.2	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3340.0000	56.6	0	2.0	v	29.8	2.5	35.2	53.8	54	-0.2*	Ave
4924.0000	46.3	0	1.2	v	32.5	3.1	34.8	47.1	54	-6.9	Ave
3340.0000	49.7	330	1.2	h	29.8	2.5	35.2	46.9	54	-7.1	Ave
4924.0000	38.7	330	1.2	h	32.5	3.1	34.8	39.5	54	-14.5	Ave
3340.0000	62.0	0	2.0	v	29.8	2.5	35.2	59.2	74	-14.8	Peak
3340.0000	55.0	330	1.2	h	29.8	2.5	35.2	52.2	74	-21.8	Peak
4924.0000	50.2	0	1.0	v	32.5	3.1	34.8	51.0	74	-23.0	Peak
4924.0000	44.0	330	1.2	h	32.5	3.1	34.8	44.8	74	-29.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11b (MAXRAD Dualband Antenna - 6 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3287.0000	56.0	0	3.0	v	29.8	2.5	35.2	53.2	54	-0.8*	Ave
4824.0000	42.0	0	1.2	v	32.5	3.1	34.8	42.8	54	-11.2	Ave
3287.0000	64.3	0	3.0	v	29.8	2.5	35.2	61.5	74	-12.5	Peak
3287.0000	43.7	330	1.2	h	29.8	2.5	35.2	40.9	54	-13.1	Ave
4824.0000	38.7	330	1.2	h	32.5	3.1	34.8	39.5	54	-14.5	Ave
3287.0000	52.0	330	1.2	h	29.8	2.5	35.2	49.2	74	-24.8	Peak
4824.0000	47.6	0	1.0	v	32.5	3.1	34.8	48.4	74	-25.6	Peak
4824.0000	44.0	330	1.2	h	32.5	3.1	34.8	44.8	74	-29.2	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3315.0000	56.2	0	1.2	v	29.8	2.5	35.2	53.4	54	-0.6*	Ave
4874.0000	43.5	0	1.2	v	32.5	3.1	34.8	44.3	54	-9.7	Ave
3315.0000	64.5	0	1.0	v	29.8	2.5	35.2	61.7	74	-12.3	Peak
4874.0000	38.7	330	1.2	h	32.5	3.1	34.8	39.5	54	-14.5	Ave
3315.0000	39.8	330	1.2	h	29.8	2.5	35.2	37.0	54	-17.0	Ave
4874.0000	49.0	0	1.0	v	32.5	3.1	34.8	49.8	74	-24.2	Peak
3315.0000	47.0	330	1.2	h	29.8	2.5	35.2	44.2	74	-29.8	Peak
4874.0000	43.0	330	1.2	h	32.5	3.1	34.8	43.8	74	-30.2	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3339.0000	56.5	0	1.2	v	29.8	2.5	35.2	53.7	54	-0.3*	Ave
4924.0000	43.9	0	1.2	v	32.5	3.1	34.8	44.7	54	-9.3	Ave
3339.0000	65.4	0	1.0	v	29.8	2.5	35.2	62.6	74	-11.4	Peak
3339.0000	44.2	330	1.2	h	29.8	2.5	35.2	41.4	54	-12.6	Ave
4924.0000	38.3	330	1.2	h	32.5	3.1	34.8	39.1	54	-14.9	Ave
4924.0000	50.0	0	1.0	v	32.5	3.1	34.8	50.8	74	-23.2	Peak
3339.0000	50.0	330	1.2	h	29.8	2.5	35.2	47.2	74	-26.8	Peak
4924.0000	42.0	330	1.2	h	32.5	3.1	34.8	42.8	74	-31.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11b (SmartAnt - 8 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3289.0000	56.6	0	3.0	v	29.8	2.5	35.2	53.8	54	-0.2*	Ave
3289.0000	64.8	0	3.0	v	29.8	2.5	35.2	62.0	74	-12.0	Peak
3289.0000	44.0	330	1.2	h	29.8	2.5	35.2	41.2	54	-12.8	Ave
4824.0000	38.8	0	1.2	v	32.5	3.1	34.8	39.6	54	-14.4	Ave
4824.0000	36.7	330	1.2	h	32.5	3.1	34.8	37.5	54	-16.5	Ave
3289.0000	51.0	330	1.2	h	29.8	2.5	35.2	48.2	74	-25.8	Peak
4824.0000	45.0	0	1.0	v	32.5	3.1	34.8	45.8	74	-28.2	Peak
4824.0000	42.0	330	1.2	h	32.5	3.1	34.8	42.8	74	-31.2	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3313.0000	56.2	0	1.2	v	29.8	2.5	35.2	53.4	54	-0.6*	Ave
4874.0000	38.5	0	1.2	v	32.5	3.1	34.8	39.3	54	-14.7	Ave
3313.0000	62.0	0	1.0	v	29.8	2.5	35.2	59.2	74	-14.8	Peak
4874.0000	37.8	330	1.2	h	32.5	3.1	34.8	38.6	54	-15.4	Ave
3313.0000	40.3	330	1.2	h	29.8	2.5	35.2	37.5	54	-16.5	Ave
4874.0000	44.0	0	1.0	v	32.5	3.1	34.8	44.8	74	-29.2	Peak
3313.0000	46.0	330	1.2	h	29.8	2.5	35.2	43.2	74	-30.8	Peak
4874.0000	42.0	330	1.2	h	32.5	3.1	34.8	42.8	74	-31.2	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3340.0000	51.8	0	1.2	v	29.8	2.5	35.2	49.0	54	-5.0	Ave
4924.0000	38.0	0	1.2	v	32.5	3.1	34.8	38.8	54	-15.2	Ave
4924.0000	37.4	330	1.2	h	32.5	3.1	34.8	38.2	54	-15.8	Ave
3340.0000	40.2	330	1.2	h	29.8	2.5	35.2	37.4	54	-16.6	Ave
3340.0000	59.4	0	1.0	v	29.8	2.5	35.2	56.6	74	-17.4	Peak
4924.0000	44.0	0	1.0	v	32.5	3.1	34.8	44.8	74	-29.2	Peak
3340.0000	46.5	330	1.2	h	29.8	2.5	35.2	43.7	74	-30.3	Peak
4924.0000	42.0	330	1.2	h	32.5	3.1	34.8	42.8	74	-31.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11b (MaxRad Antenna -13 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3280.0000	56.5	0	3.0	v	29.8	2.5	35.2	53.7	54	-0.3	Ave
3280.0000	64.5	0	3.0	v	29.8	2.5	35.2	61.7	74	-12.3	Peak
3280.0000	43.0	330	1.2	h	29.8	2.5	35.2	40.2	54	-13.8	Ave
4824.0000	38.6	0	1.2	v	32.5	3.1	34.8	39.4	54	-14.6	Ave
4824.0000	37.8	330	1.2	h	32.5	3.1	34.8	38.6	54	-15.4	Ave
3280.0000	51.0	330	1.2	h	29.8	2.5	35.2	48.2	74	-25.8	Peak
4824.0000	44.3	0	1.0	v	32.5	3.1	34.8	45.1	74	-28.9	Peak
4824.0000	42.1	330	1.2	h	32.5	3.1	34.8	42.9	74	-31.1	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3315.0000	56.0	0	1.2	v	29.8	2.5	35.2	53.2	54	-0.8	Ave
3315.0000	64.0	0	1.0	v	29.8	2.5	35.2	61.2	74	-12.8	Peak
3315.0000	43.4	330	1.2	h	29.8	2.5	35.2	40.6	54	-13.4	Ave
4874.0000	38.7	0	1.2	v	32.5	3.1	34.8	39.5	54	-14.5	Ave
4874.0000	37.6	330	1.2	h	32.5	3.1	34.8	38.4	54	-15.6	Ave
3315.0000	50.2	330	1.2	h	29.8	2.5	35.2	47.4	74	-26.6	Peak
4874.0000	44.4	0	1.0	v	32.5	3.1	34.8	45.2	74	-28.8	Peak
4874.0000	41.4	330	1.2	h	32.5	3.1	34.8	42.2	74	-31.8	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3338.0000	56.5	0	1.2	v	29.8	2.5	35.2	53.7	54	-0.3	Ave
3338.0000	64.5	0	1.0	v	29.8	2.5	35.2	61.7	74	-12.3	Peak
3338.0000	43.7	330	1.2	h	29.8	2.5	35.2	40.9	54	-13.1	Ave
4924.0000	38.5	0	1.2	v	32.5	3.1	34.8	39.3	54	-14.7	Ave
4924.0000	37.9	330	1.2	h	32.5	3.1	34.8	38.7	54	-15.3	Ave
3338.0000	50.6	330	1.2	h	29.8	2.5	35.2	47.8	74	-26.2	Peak
4924.0000	44.1	0	1.0	v	32.5	3.1	34.8	44.9	74	-29.1	Peak
4924.0000	43.1	330	1.2	h	32.5	3.1	34.8	43.9	74	-30.1	Peak

802.11g (15.247)

Run # 1 Radiated Harmonic and Spur Emission 802.11G (Regular Antenna - 2 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3291.0000	50.5	0	1.4	v	29.8	2.5	35.2	47.7	54	-6.3	Ave
3291.0000	46.2	330	1.3	h	29.8	2.5	35.2	43.4	54	-10.6	Ave
4824.0000	38.3	0	1.4	v	32.5	3.1	34.8	39.1	54	-14.9	Ave
4824.0000	37.6	330	1.3	h	32.5	3.1	34.8	38.4	54	-15.6	Ave
3291.0000	55.0	0	1.4	v	29.8	2.5	35.2	52.2	74	-21.8	Peak
3291.0000	50.0	330	1.3	h	29.8	2.5	35.2	47.2	74	-26.8	Peak
4824.0000	44.0	0	1.4	v	32.5	3.1	34.8	44.8	74	-29.2	Peak
4824.0000	43.0	330	1.3	h	32.5	3.1	34.8	43.8	74	-30.2	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3315.0000	43.0	0	1.4	v	29.8	2.5	35.2	40.2	54	-13.8	Ave
4874.0000	39.2	0	2.5	v	32.5	3.1	34.8	40.0	54	-14.0	Ave
4874.0000	38.3	330	1.3	h	32.5	3.1	34.8	39.1	54	-14.9	Ave
3315.0000	39.7	330	1.3	h	29.8	2.5	35.2	36.9	54	-17.1	Ave
3315.0000	50.2	0	1.4	v	29.8	2.5	35.2	47.4	74	-26.6	Peak
4874.0000	46.0	0	2.5	v	32.5	3.1	34.8	46.8	74	-27.2	Peak
4874.0000	44.0	330	2.0	h	32.5	3.1	34.8	44.8	74	-29.2	Peak
3315.0000	46.2	330	1.3	h	29.8	2.5	35.2	43.4	74	-30.6	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3343.0000	54.0	0	1.4	v	29.8	2.5	35.2	51.2	54	-2.8*	Ave
3343.0000	47.3	330	1.3	h	29.8	2.5	35.2	44.5	54	-9.5	Ave
4924.0000	39.4	0	1.4	v	32.5	3.1	34.8	40.2	54	-13.8	Ave
3343.0000	62.0	0	1.4	v	29.8	2.5	35.2	59.2	74	-14.8	Peak
4924.0000	38.0	330	1.3	h	32.5	3.1	34.8	38.8	54	-15.2	Ave
3343.0000	54.0	330	1.3	h	29.8	2.5	35.2	51.2	74	-22.8	Peak
4924.0000	44.2	0	1.4	v	32.5	3.1	34.8	45.0	74	-29.0	Peak
4924.0000	43.0	330	1.3	h	32.5	3.1	34.8	43.8	74	-30.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11G (MAXRAD Dualband Antenna - 6 dBi)

Run # 1- 3 :Final scan 1GHz -25GHz , (Lowest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3287.0000	56.0	0	1.4	v	29.8	2.5	35.2	53.2	54	-0.8*	Ave
3287.0000	64.2	0	1.4	v	29.8	2.5	35.2	61.4	74	-12.6	Peak
4824.0000	40.0	0	1.4	v	32.5	3.1	34.8	40.8	54	-13.2	Ave
4824.0000	35.4	330	3.0	h	32.5	3.1	34.8	36.2	54	-17.8	Ave
3287.0000	38.3	330	3.0	h	29.8	2.5	35.2	35.5	54	-18.5	Ave
4824.0000	46.0	0	1.4	v	32.5	3.1	34.8	46.8	74	-27.2	Peak
4824.0000	41.0	330	3.0	h	32.5	3.1	34.8	41.8	74	-32.2	Peak
3287.0000	44.0	330	3.0	h	29.8	2.5	35.2	41.2	74	-32.8	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3313.0000	54.3	0	1.4	v	29.8	2.5	35.2	51.5	54	-2.5*	Ave
3313.0000	62.3	0	1.4	v	29.8	2.5	35.2	59.5	74	-14.5	Peak
4874.0000	38.3	0	2.5	v	32.5	3.1	34.8	39.1	54	-14.9	Ave
4874.0000	37.5	330	1.3	h	32.5	3.1	34.8	38.3	54	-15.7	Ave
3313.0000	37.4	330	1.3	h	29.8	2.5	35.2	34.6	54	-19.4	Ave
4874.0000	44.0	0	2.5	v	32.5	3.1	34.8	44.8	74	-29.2	Peak
4874.0000	42.0	330	2.0	h	32.5	3.1	34.8	42.8	74	-31.2	Peak
3313.0000	43.0	330	1.3	h	29.8	2.5	35.2	40.2	74	-33.8	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3342.0000	56.3	0	1.4	v	29.8	2.5	35.2	53.5	54	-0.5*	Ave
3342.0000	64.5	0	1.4	v	29.8	2.5	35.2	61.7	74	-12.3	Peak
3342.0000	43.0	330	1.3	h	29.8	2.5	35.2	40.2	54	-13.8	Ave
4924.0000	38.6	0	1.4	v	32.5	3.1	34.8	39.4	54	-14.6	Ave
4924.0000	37.2	330	1.3	h	32.5	3.1	34.8	38.0	54	-16.0	Ave
3342.0000	51.0	330	1.3	h	29.8	2.5	35.2	48.2	74	-25.8	Peak
4924.0000	44.4	0	1.4	v	32.5	3.1	34.8	45.2	74	-28.8	Peak
4924.0000	40.2	330	1.3	h	32.5	3.1	34.8	41.0	74	-33.0	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11G (SmartAnt - 8 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3293.0000	56.4	0	2.8	v	29.8	2.5	35.2	53.6	54	-0.4*	Ave
3293.0000	64.0	0	2.8	v	29.8	2.5	35.2	61.2	74	-12.8	Peak
4824.0000	38.6	0	2.8	v	32.5	3.1	34.8	39.4	54	-14.6	Ave
4824.0000	37.8	330	3.0	h	32.5	3.1	34.8	38.6	54	-15.4	Ave
3293.0000	41.3	330	3.0	h	29.8	2.5	35.2	38.5	54	-15.5	Ave
3293.0000	48.0	330	3.0	h	29.8	2.5	35.2	45.2	74	-28.8	Peak
4824.0000	44.0	0	2.8	v	32.5	3.1	34.8	44.8	74	-29.2	Peak
4824.0000	41.4	330	3.0	h	32.5	3.1	34.8	42.2	74	-31.8	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3313.0000	56.6	0	1.4	v	29.8	2.5	35.2	53.8	54	-0.2*	Ave
3313.0000	46.0	330	1.3	h	29.8	2.5	35.2	43.2	54	-10.8	Ave
3313.0000	64.2	0	1.4	v	29.8	2.5	35.2	61.4	74	-12.6	Peak
4874.0000	38.7	0	2.5	v	32.5	3.1	34.8	39.5	54	-14.5	Ave
4874.0000	37.5	330	1.3	h	32.5	3.1	34.8	38.3	54	-15.7	Ave
3313.0000	52.0	330	1.3	h	29.8	2.5	35.2	49.2	74	-24.8	Peak
4874.0000	44.5	0	2.5	v	32.5	3.1	34.8	45.3	74	-28.7	Peak
4874.0000	42.2	330	2.0	h	32.5	3.1	34.8	43.0	74	-31.0	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3342.0000	56.5	0	1.4	v	29.8	2.5	35.2	53.7	54	-0.3*	Ave
3342.0000	48.2	330	1.3	h	29.8	2.5	35.2	45.4	54	-8.6	Ave
3342.0000	64.2	0	1.4	v	29.8	2.5	35.2	61.4	74	-12.6	Peak
4924.0000	38.7	0	1.4	v	32.5	3.1	34.8	39.5	54	-14.5	Ave
4924.0000	36.8	330	1.3	h	32.5	3.1	34.8	37.6	54	-16.4	Ave
3342.0000	54.8	330	1.3	h	29.8	2.5	35.2	52.0	74	-22.0	Peak
4924.0000	44.2	0	1.4	v	32.5	3.1	34.8	45.0	74	-29.0	Peak
4924.0000	42.1	330	1.3	h	32.5	3.1	34.8	42.9	74	-31.1	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11G (MaxRad Antenna - 13 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 1, 2412 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3280.0000	56.2	0	2.8	v	29.8	2.5	35.2	53.4	54	-0.6*	Ave
3280.0000	63.5	0	2.8	v	29.8	2.5	35.2	60.7	74	-13.3	Peak
3280.0000	42.4	330	3.0	h	29.8	2.5	35.2	39.6	54	-14.4	Ave
4824.0000	38.7	0	2.8	v	32.5	3.1	34.8	39.5	54	-14.5	Ave
4824.0000	36.9	330	3.0	h	32.5	3.1	34.8	37.7	54	-16.3	Ave
3280.0000	50.0	330	3.0	h	29.8	2.5	35.2	47.2	74	-26.8	Peak
4824.0000	44.5	0	2.8	v	32.5	3.1	34.8	45.3	74	-28.7	Peak
4824.0000	43.6	330	3.0	h	32.5	3.1	34.8	44.4	74	-29.6	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 6, 2437 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3313.0000	54.9	0	1.4	v	29.8	2.5	35.2	52.1	54	-1.9*	Ave
4874.0000	48.2	0	2.5	v	32.5	3.1	34.8	49.0	54	-5.0	Ave
3313.0000	43.8	330	1.3	h	29.8	2.5	35.2	41.0	54	-13.0	Ave
3313.0000	63.2	0	1.4	v	29.8	2.5	35.2	60.4	74	-13.6	Peak
4874.0000	38.3	330	1.3	h	32.5	3.1	34.8	39.1	54	-14.9	Ave
4874.0000	54.0	0	2.5	v	32.5	3.1	34.8	54.8	74	-19.2	Peak
3313.0000	53.0	330	1.3	h	29.8	2.5	35.2	50.2	74	-23.8	Peak
4874.0000	44.0	330	2.0	h	32.5	3.1	34.8	44.8	74	-29.2	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 11, 2462 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3367.0000	56.6	0	1.4	v	29.8	2.5	35.2	53.8	54	-0.2*	Ave
4924.0000	42.3	0	1.4	v	32.5	3.1	34.8	43.1	54	-10.9	Ave
3367.0000	64.5	0	1.4	v	29.8	2.5	35.2	61.7	74	-12.3	Peak
3367.0000	44.0	330	1.3	h	29.8	2.5	35.2	41.2	54	-12.8	Ave
4924.0000	38.3	330	1.3	h	32.5	3.1	34.8	39.1	54	-14.9	Ave
4924.0000	50.0	0	1.4	v	32.5	3.1	34.8	50.8	74	-23.2	Peak
3367.0000	52.0	330	1.3	h	29.8	2.5	35.2	49.2	74	-24.8	Peak
4924.0000	45.0	330	1.3	h	32.5	3.1	34.8	45.8	74	-28.2	Peak

802.11a (15.407)

Run # 1 Radiated Harmonic and Spur Emission 802.11a (Regular Antenna 3 dBi)

Run # 1- 1: Final scan 1GHz -40GHz, (Lowest channel. : 36, 5180 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10360.0000	33.2	0	1.0	v	38.0	5.4	33.8	42.8	54	-11.2	Ave
10360.0000	32.5	330	1.2	h	38.0	5.4	33.8	42.1	54	-11.9	Ave
10360.0000	43.0	0	1.0	v	38.0	5.4	33.8	52.6	74	-21.4	Peak
10360.0000	42.0	330	1.2	h	38.0	5.4	33.8	51.6	74	-22.4	Peak

Run # 1- 2 :Final scan 1GHz -40GHz , (Middle channel. : 40, 5200 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10400.0000	33.0	0	1.0	v	38.0	5.4	33.8	42.6	54	-11.4	Ave
10400.0000	32.2	330	1.2	h	38.0	5.4	33.8	41.8	54	-12.2	Ave
10400.0000	42.0	0	1.0	v	38.0	5.4	33.8	51.6	74	-22.4	Peak
10400.0000	41.0	330	1.2	h	38.0	5.4	33.8	50.6	74	-23.4	Peak

Run # 1- 3 :Final scan 1GHz -40GHz , (Highest channel. : 48, 5240)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10480.0000	37.0	0	1.5	v	38.0	5.4	33.8	46.6	54	-7.4	Ave
10480.0000	32.0	330	1.2	h	38.0	5.4	33.8	41.6	54	-12.4	Ave
10480.0000	45.0	0	1.5	v	38.0	5.4	33.8	54.6	74	-19.4	Peak
10480.0000	39.0	330	1.2	h	38.0	5.4	33.8	48.6	74	-25.4	Peak

Run # 2 Radiated Harmonic and Spur Emission 802.11a

Run # 2- 1 :Final scan 1GHz -40GHz , (Lowest channel. : 52, 5260 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10520.0000	39.6	0	1.0	v	38.7	5.4	33.2	50.6	54	-3.4*	Ave
10520.0000	35.0	330	1.2	h	38.7	5.4	33.2	46.0	54	-8.0	Ave
10520.0000	47.0	0	1.0	v	38.7	5.4	33.2	58.0	74	-16.0	Peak
10520.0000	43.0	330	1.2	h	38.7	5.4	33.2	54.0	74	-20.0	Peak

Run # 2- 2 :Final scan 1GHz -40GHz , (Middle channel. : 60, 5300 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10600.0000	41.0	0	1.5	v	38.7	5.4	33.2	52.0	54	-2.0*	Ave
10600.0000	35.0	330	1.2	h	38.7	5.4	33.2	46.0	54	-8.0	Ave
10600.0000	49.5	0	1.5	v	38.7	5.4	33.2	60.5	74	-13.5	Peak
10600.0000	43.0	330	1.2	h	38.7	5.4	33.2	54.0	74	-20.0	Peak

Run # 2- 3 :Final scan 1GHz -40GHz , (Highest channel. : 64, 5320 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10640.0000	39.0	0	2.0	v	38.7	5.4	33.2	50.0	54	-4.0*	Ave
10640.0000	33.6	330	1.2	h	38.7	5.4	33.2	44.6	54	-9.4	Ave
10640.0000	47.0	0	2.0	v	38.7	5.4	33.2	58.0	74	-16.0	Peak
10640.0000	42.0	330	1.2	h	38.7	5.4	33.2	53.0	74	-21.0	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11a (MAXRAD Dualband Antenna - 8 dBi)

Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 36, 5180)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10360.0000	39.2	0	1.0	v	38.0	5.4	33.8	48.8	54	-5.2	Ave
10360.0000	37.8	330	1.2	h	38.0	5.4	33.8	47.4	54	-6.6	Ave
10360.0000	45.3	0	1.0	v	38.0	5.4	33.8	54.9	74	-19.1	Peak
10360.0000	43.0	330	1.2	h	38.0	5.4	33.8	52.6	74	-21.4	Peak

Run # 1- 2 :Final scan 1GHz -25GHz , (Middle channel. : 40, 5200 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10400.0000	39.0	0	1.0	v	38.0	5.4	33.8	48.6	54	-5.4	Ave
10400.0000	38.3	330	1.2	h	38.0	5.4	33.8	47.9	54	-6.1	Ave
10400.0000	45.0	0	1.0	v	38.0	5.4	33.8	54.6	74	-19.4	Peak
10400.0000	42.0	330	1.2	h	38.0	5.4	33.8	51.6	74	-22.4	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Highest channel. : 48, 5240 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10480.0000	39.4	0	1.5	v	38.0	5.4	33.8	49.0	54	-5.0	Ave
10480.0000	37.8	330	1.2	h	38.0	5.4	33.8	47.4	54	-6.6	Ave
10480.0000	45.5	0	1.5	v	38.0	5.4	33.8	55.1	74	-18.9	Peak
10480.0000	43.2	330	1.2	h	38.0	5.4	33.8	52.8	74	-21.2	Peak

Run # 2 Radiated Harmonic and Spur Emission 802.11a

Run # 2- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 52, 5260 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10520.0000	36.8	0	1.0	v	38.7	5.4	33.2	47.8	54	-6.2	Ave
10520.0000	36.2	330	1.2	h	38.7	5.4	33.2	47.2	54	-6.8	Ave
10520.0000	46.0	0	1.0	v	38.7	5.4	33.2	57.0	74	-17.0	Peak
10520.0000	44.0	330	1.2	h	38.7	5.4	33.2	55.0	74	-19.0	Peak

Run # 2- 2 :Final scan 1GHz -25GHz , (Middle channel. : 60, 5300 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10600.0000	40.1	0	1.5	v	38.7	5.4	33.2	51.1	54	-2.9*	Ave
10600.0000	36.0	330	1.2	h	38.7	5.4	33.2	47.0	54	-7.0	Ave
10600.0000	50.0	0	1.5	v	38.7	5.4	33.2	61.0	74	-13.0	Peak
10600.0000	44.1	330	1.2	h	38.7	5.4	33.2	55.1	74	-18.9	Peak

Run # 2- 3 :Final scan 1GHz -25GHz , (Highest channel. : 64, 5320 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10640.0000	37.4	0	2.0	v	38.7	5.4	33.2	48.4	54	-5.6	Ave
10640.0000	36.4	330	1.2	h	38.7	5.4	33.2	47.4	54	-6.6	Ave
10640.0000	47.8	0	2.0	v	38.7	5.4	33.2	58.8	74	-15.2	Peak
10640.0000	44.0	330	1.2	h	38.7	5.4	33.2	55.0	74	-19.0	Peak

Run # 3 Radiated Harmonic and Spur Emission 802.11a

Run # 2- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 149, 5745 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11490.0000	34.0	0	1.0	v	39.3	5.6	33.0	45.9	54	-8.1	Ave
11490.0000	33.0	330	1.2	h	39.3	5.6	33.0	44.9	54	-9.1	Ave
11490.0000	42.0	0	1.0	v	39.3	5.6	33.0	53.9	74	-20.1	Peak
11490.0000	41.0	330	1.2	h	39.3	5.6	33.0	52.9	74	-21.1	Peak

Run # 2- 2 :Final scan 1GHz -25GHz , (Middle channel. : 157, 5785 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11570.0000	33.0	0	3.0	v	39.5	5.4	32.2	45.8	54	-8.2	Ave
11570.0000	32.0	330	3.0	h	39.5	5.4	32.2	44.8	54	-9.2	Ave
11570.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11570.0000	41.0	330	3.0	h	39.5	5.4	32.2	53.8	74	-20.2	Peak

Run # 2- 3 :Final scan 1GHz -25GHz , (Highest channel. : 165, 5825 MHz)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11650.0000	33.0	0	3.0	v	39.5	5.4	32.2	45.8	54	-8.2	Ave
11650.0000	32.0	330	3.0	h	39.5	5.4	32.2	44.8	54	-9.2	Ave
11650.0000	42.0	0	3.0	v	39.5	5.4	32.2	54.8	74	-19.2	Peak
11650.0000	41.0	330	3.0	h	39.5	5.4	32.2	53.8	74	-20.2	Peak

Unwanted Emission@ 3 meter

For Run # 1 Radiated Harmonic and Spur Emission 802.11G (Regular Antenna - 2 dBi)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	FCC 15B	FCC 15B
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit(dBuV/m)	Margin (dB)
329.34	42.6	270	1.5	H	13.9	1.3	27.4	30.4	46	-15.6	Peak
329.34	42.4	330	1.2	V	13.9	1.3	27.4	30.2	46	-15.8	Peak
109.00	32.5	75	1.8	V	11.4	0.7	28.3	16.3	43.5	-27.2	Peak
470.00	29.2	250	1.0	V	16.4	1.6	28.5	18.7	46	-27.3	Peak
470.00	28.2	200	2.8	H	16.4	1.6	28.5	17.7	46	-28.3	Peak
109.00	27.2	270	3.2	H	11.4	0.7	28.3	11.0	43.5	-32.5	Peak

For Run # 1 Radiated Harmonic and Spur Emission 802.11b (MAXRAD Dualband Antenna - 6 dBi)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	FCC 15B	FCC 15B
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit(dBuV/m)	Margin (dB)
329.34	44.5	330	1.2	V	13.9	1.3	27.4	32.3	46	-13.7	Peak
329.34	41.8	270	1.5	H	13.9	1.3	27.4	29.6	46	-16.4	Peak
470.00	30.8	250	1.0	V	16.4	1.6	28.5	20.3	46	-25.7	Peak
470.00	28.2	200	2.8	H	16.4	1.6	28.5	17.7	46	-28.3	Peak
109.00	31.2	75	1.8	V	11.4	0.7	28.3	15.0	43.5	-28.5	Peak
109.00	27.5	270	3.2	H	11.4	0.7	28.3	11.3	43.5	-32.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11b (SmartAnt - 8 dBi)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	FCC 15B	FCC 15B
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit(dBuV/m)	Margin (dB)
329.34	43.2	330	1.2	V	13.9	1.3	27.4	31.0	46	-15.0	Peak
329.34	41.6	270	1.5	H	13.9	1.3	27.4	29.4	46	-16.6	Peak
109.00	33.4	75	1.8	V	11.4	0.7	28.3	17.2	43.5	-26.3	Peak
470.00	30.2	250	1.0	V	16.4	1.6	28.5	19.7	46	-26.3	Peak
470.00	28.4	200	2.8	H	16.4	1.6	28.5	17.9	46	-28.1	Peak
109.00	29.5	270	3.2	H	11.4	0.7	28.3	13.3	43.5	-30.2	Peak

Run # 1 Radiated Harmonic and Spur Emission 802.11b (MaxRad Antenna -13 dBi)

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	FCC 15B	FCC 15B
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit(dBuV/m)	Margin (dB)
329.34	44.3	330	1.2	V	13.9	1.3	27.4	32.1	46	-13.9	Peak
329.34	41.2	270	1.5	H	13.9	1.3	27.4	29.0	46	-17.0	Peak
109.00	36.2	75	1.8	V	11.4	0.7	28.3	20.0	43.5	-23.5	Peak
470.00	31.0	250	1.0	V	16.4	1.6	28.5	20.5	46	-25.5	Peak
470.00	28.5	200	2.8	H	16.4	1.6	28.5	18.0	46	-28.0	Peak
109.00	30.1	270	3.2	H	11.4	0.7	28.3	13.9	43.5	-29.6	Peak

§15.207(a) - CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at BACL is ±2.4 dB.

EUT Setup

The measurement was performed in the shield room, using the same setup per ANSI C63.4-2003 measurement procedure. The specification used was FCC 15 Subpart B limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundled when necessary.

The notebook PC was connected with 120Vac/60Hz power source.

Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30MHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
R&S	Receiver, EMI Test	ESCS30	100176	2005-9-15
R&S	LISN, Artificial Mains	ESH2-Z5	871884/039	2005-8-16

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the power cord of the host system was connected to the auxiliary outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of each modes tested to ensure EUT is compliant with all installation combination.

All data was recorded in the peak detection mode. Quasi-peak readings were only performed when an emission was found to be marginal (within -4 dB of specification limits). Quasi-peak readings are distinguished with a "**Qp**".

Summary of Test Results

According to the data in following table, the EUT complies with the FCC Conducted margin for a Class B device, with the *worst* margin reading of:

-1.4 dB at **0.280 MHz** in the **Neutral** conductor mode for Power Injector*
-1.1 dB at **0.260 MHz** in the **Line** conductor mode for 5 Volt DC Adaptor*
**The test data was within the measurement of uncertainty*

Conducted Emissions Test Data

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-22.

For Power Injector

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dBμV	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.280	49.4	Ave	Neutral	50.82	-1.4*
0.280	48.4	Ave	Line	50.82	-2.4*
0.560	43.3	Ave	Neutral	46.00	-2.7
0.560	42.9	Ave	Line	46.00	-3.1
0.980	39.5	Ave	Neutral	46.00	-6.5
1.540	38.4	Ave	Line	46.00	-7.6
0.985	38.1	Ave	Line	46.00	-7.9
0.280	50.0	QP	Neutral	60.82	-10.8
0.560	45.0	QP	Neutral	56.00	-11.0
0.280	49.7	QP	Line	60.82	-11.1
0.980	44.6	QP	Neutral	56.00	-11.4
0.560	44.5	QP	Line	56.00	-11.5
0.985	44.5	QP	Line	56.00	-11.5
1.540	44.5	QP	Line	56.00	-11.5
1.550	44.2	QP	Neutral	56.00	-11.8
1.550	25.1	Ave	Neutral	46.00	-20.9

**The test data was within the measurement of uncertainty*

For 5 Volt DC Adaptor

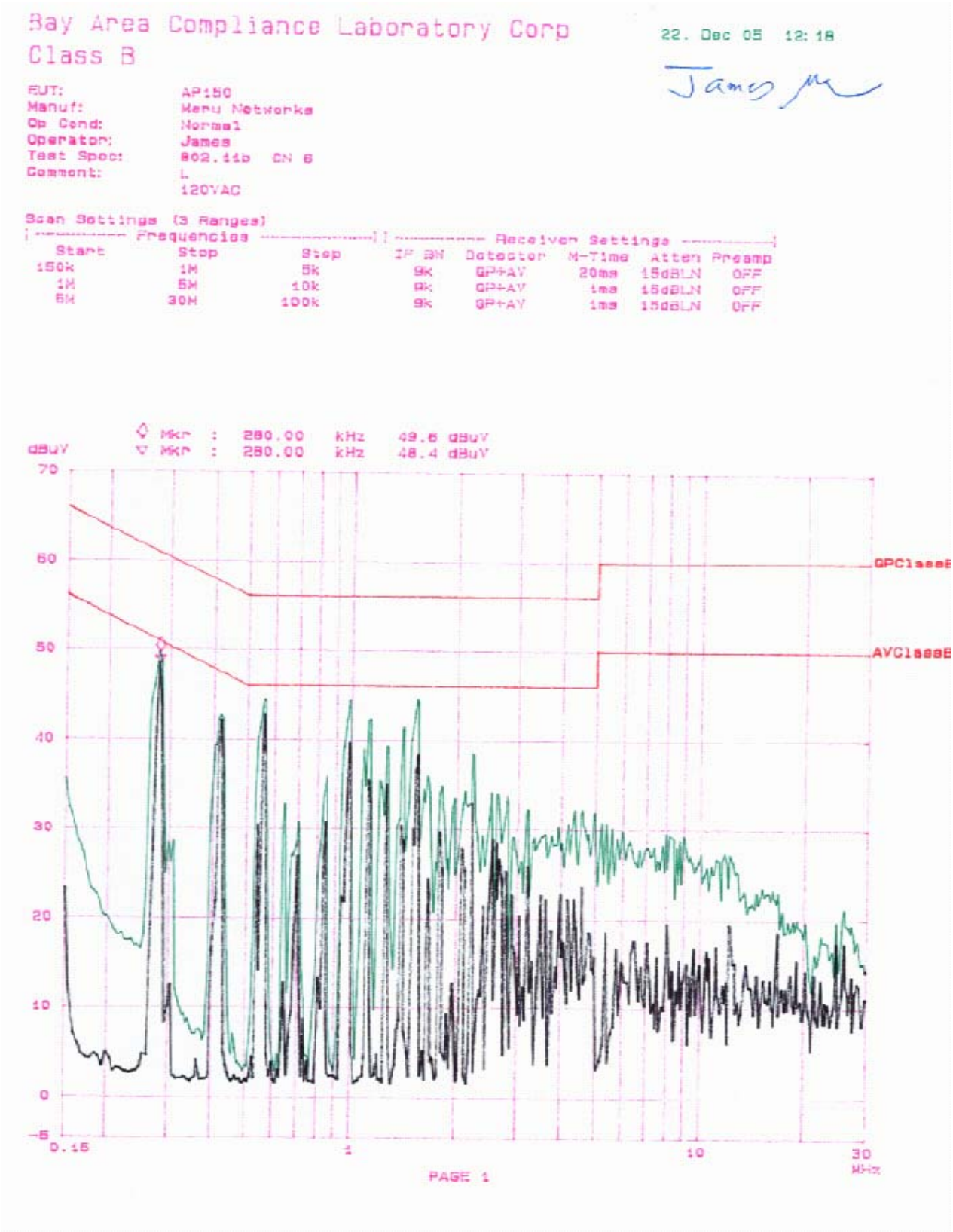
LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dBμV	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dBμV	Margin dB
0.260	50.3	Ave	Line	51.43	-1.1*
0.515	44.7	Ave	Line	46.00	-1.3*
0.260	48.4	Ave	Neutral	51.43	-3.0
0.520	43.0	Ave	Neutral	46.00	-3.0
1.440	39.6	Ave	Neutral	46.00	-6.4
0.515	47.6	QP	Line	56.00	-8.4
0.520	46.2	QP	Neutral	56.00	-9.8
0.260	51.6	QP	Line	61.43	-9.8
1.290	45.4	QP	Line	56.00	-10.6
1.440	45.2	QP	Neutral	56.00	-10.8
0.260	50.1	QP	Neutral	61.43	-11.3
1.290	34.3	Ave	Line	46.00	-11.7

**The test data was within the measurement of uncertainty*

Plot of Conducted Emissions Test Data

Plot(s) of Conducted Emissions Test Data is presented hereinafter as reference.

For Power Injector



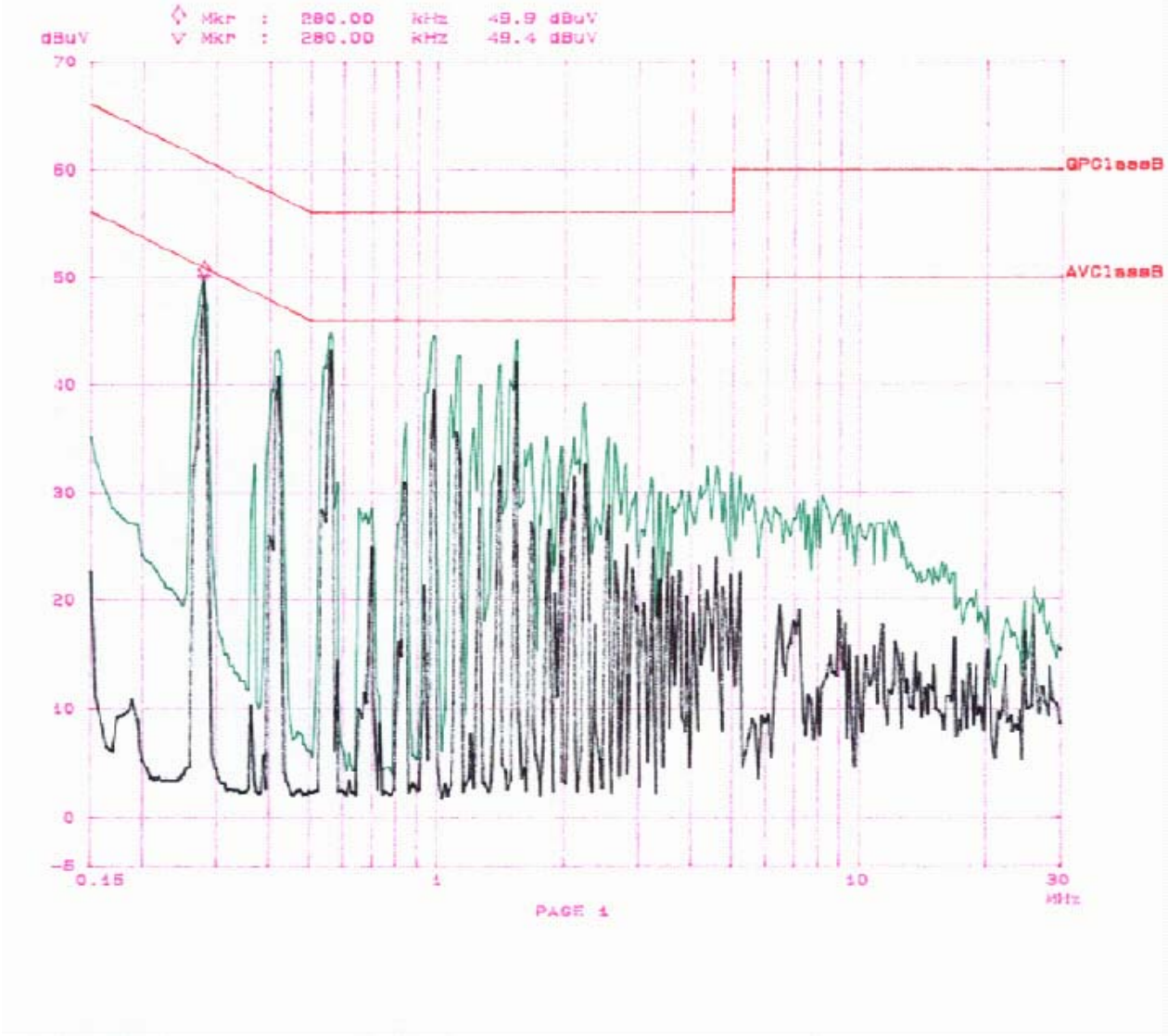
Class B

James

EUT: AP150
Manuf: Meru Networks
Op Cond: Normal
Operator: James
Test Spec: 802.11b CH 6
Comment: N
120VAC

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF



For 5 Volt DC Adaptor

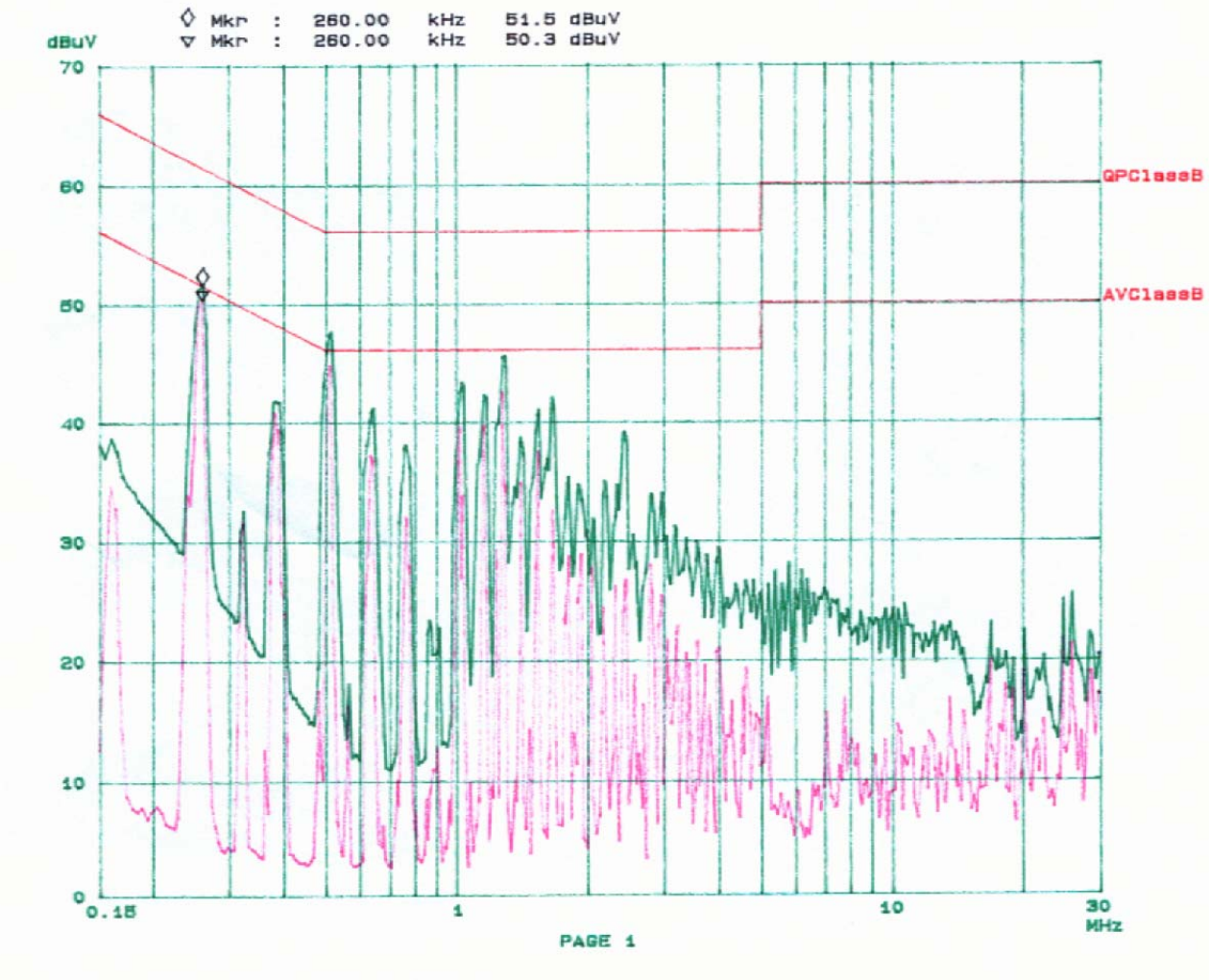
Bay Area Compliance Laboratory Corp 13. Jan 06 17:25

Class B

EUT: AP150
Manuf: Meru Networks
Op Cond: Normal
Operator: James
Test Spec: 802.11b CH 6
Comment: L
120VAC

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF



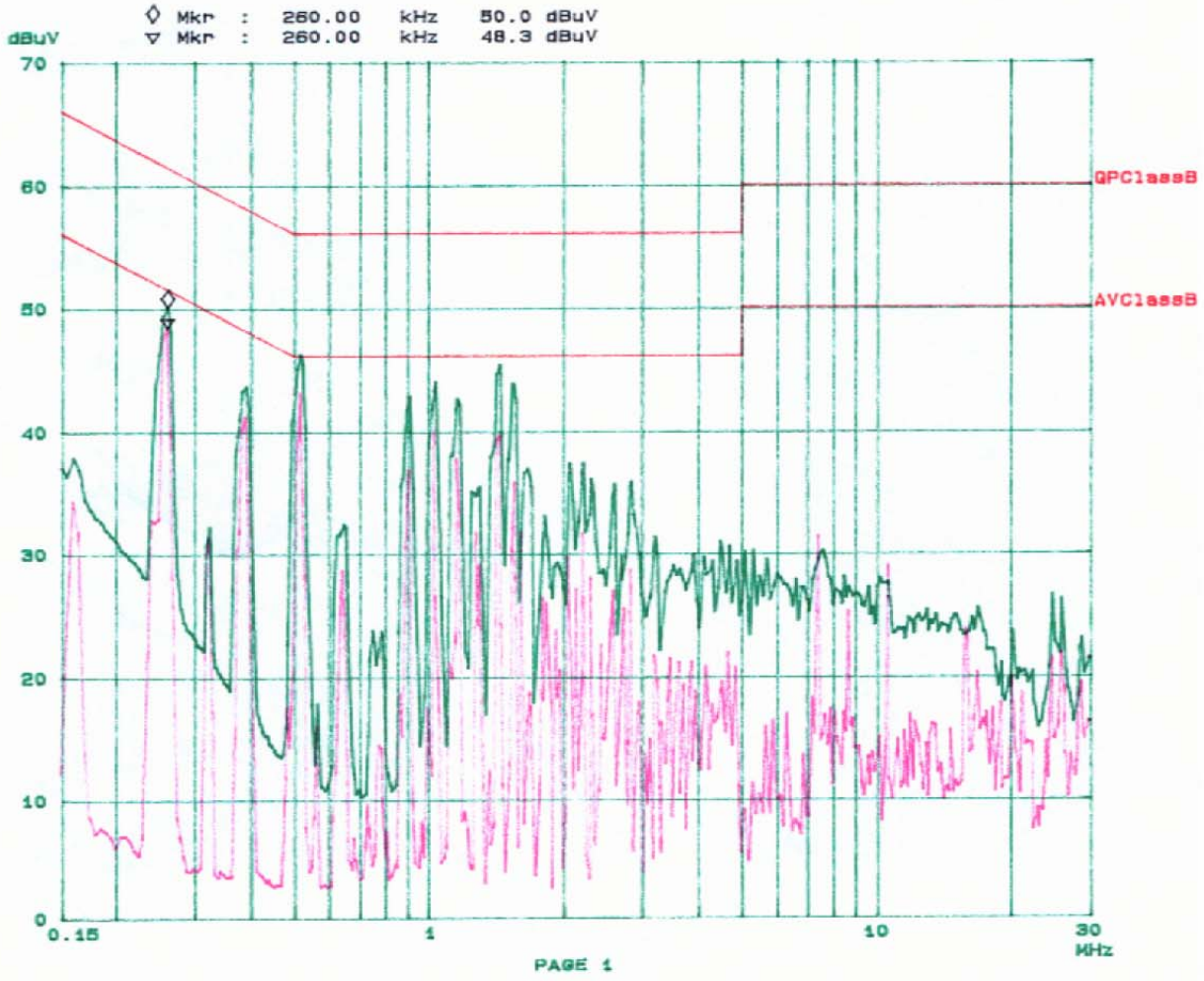
Bay Area Compliance Laboratory Corp 13. Jan 06 17:06

Class B

EUT: AP150
Manuf: Meru Networks
Op Cond: Normal
Operator: James
Test Spec: 802.11b CH 6
Comment: N
120VAC

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	1M	5k	9k	QP+AV	20ms	15dBLN	OFF
1M	5M	10k	9k	QP+AV	1ms	15dBLN	OFF
5M	30M	100k	9k	QP+AV	1ms	15dBLN	OFF



§2.1051 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Standard Applicable

Requirements: CFR 47, § 2.1051.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1057.

Measurement Procedure

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10^{th} harmonic.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

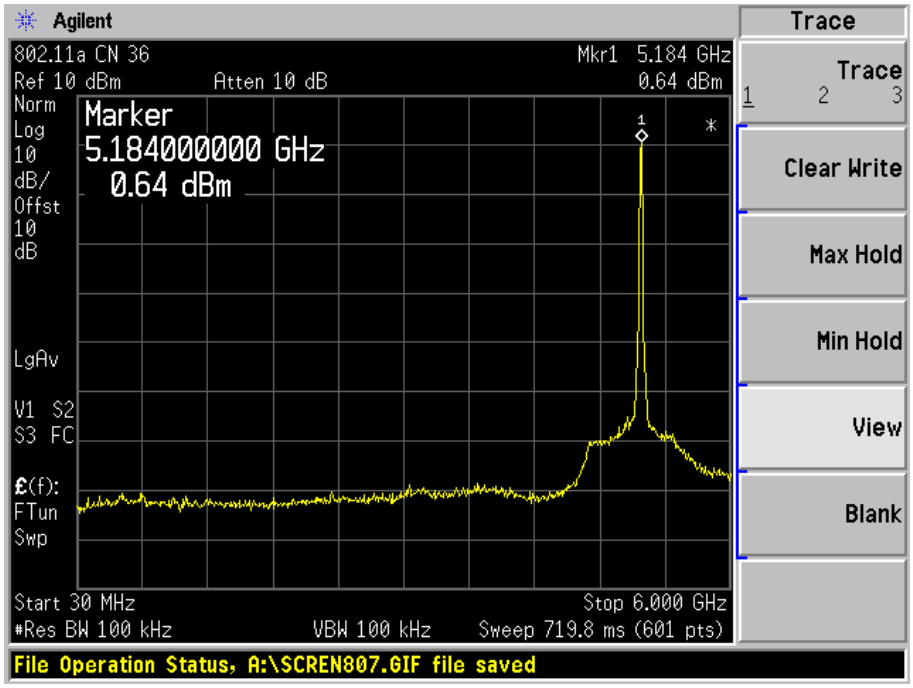
Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

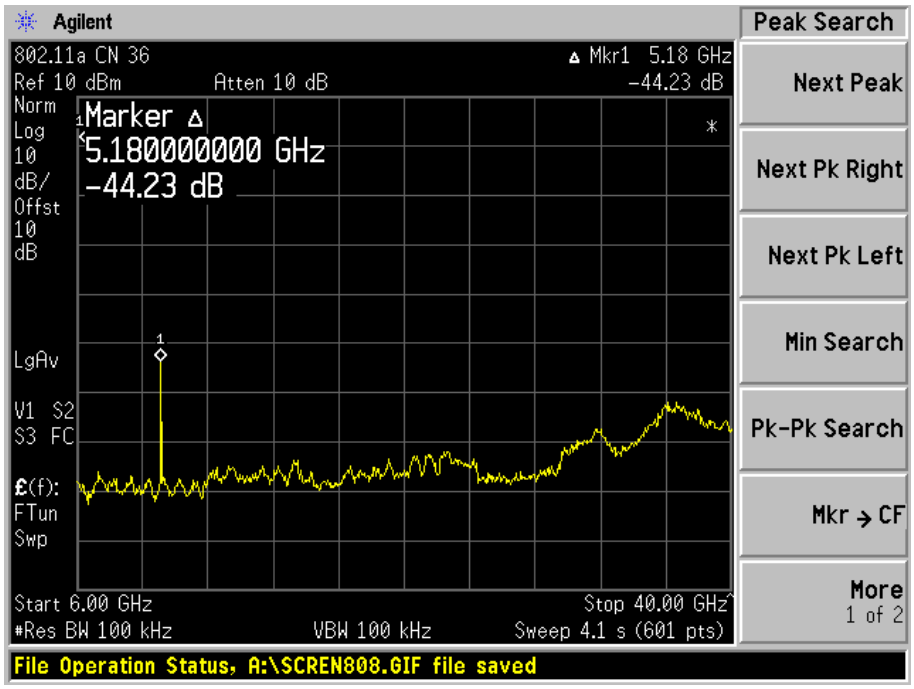
The testing was performed by James Ma on 2005-12-22.

Please refer to following pages for plots of spurious emission.

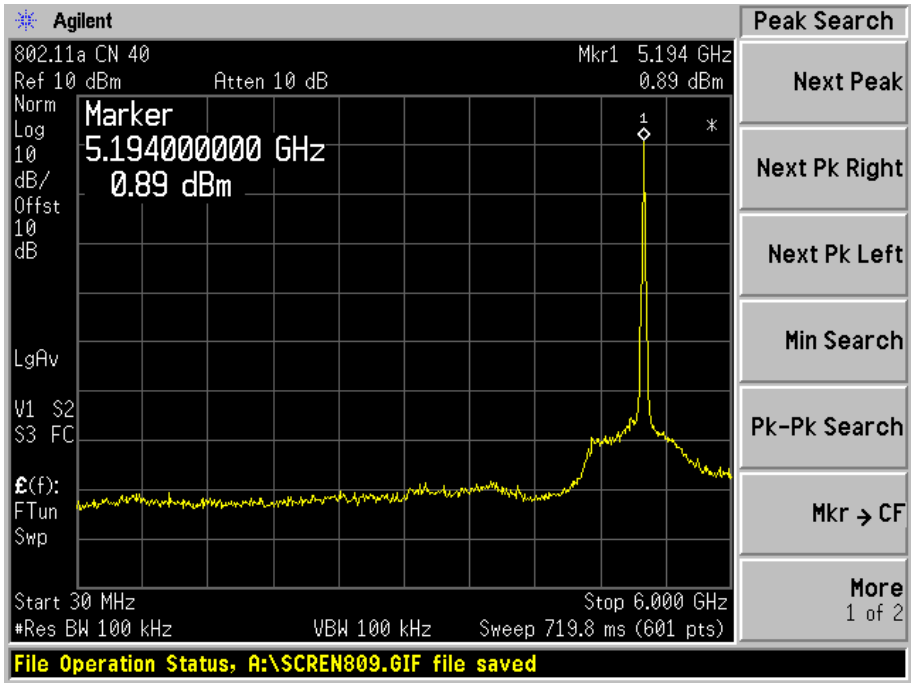
802.11a (15.407)

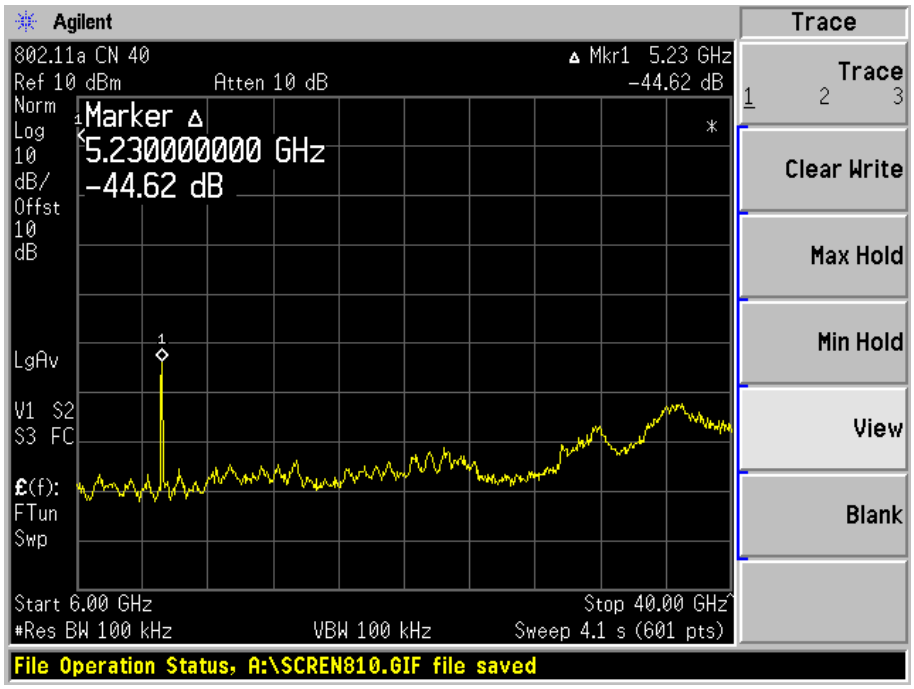
Channel 36



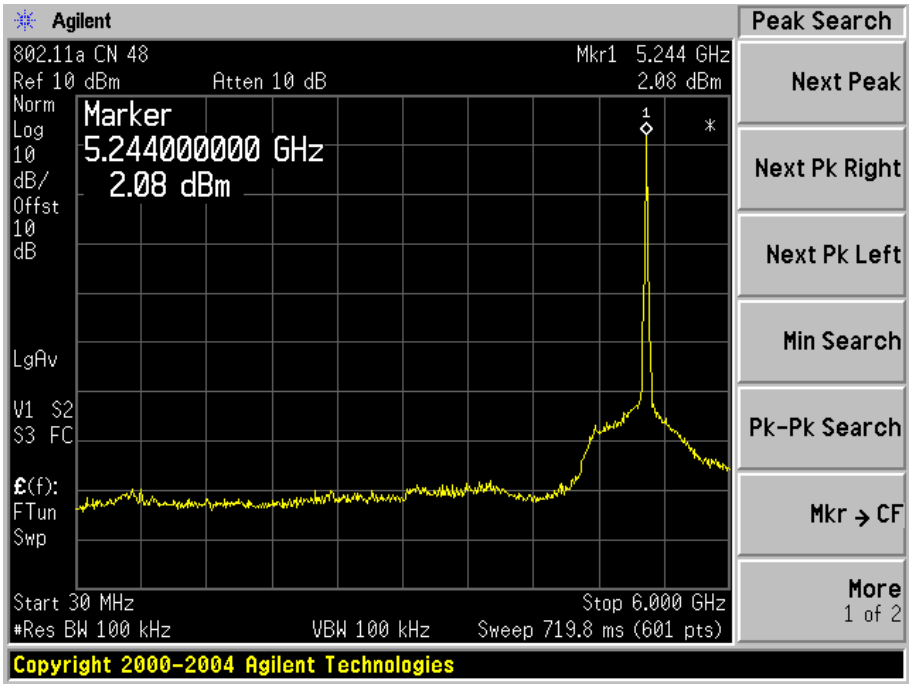


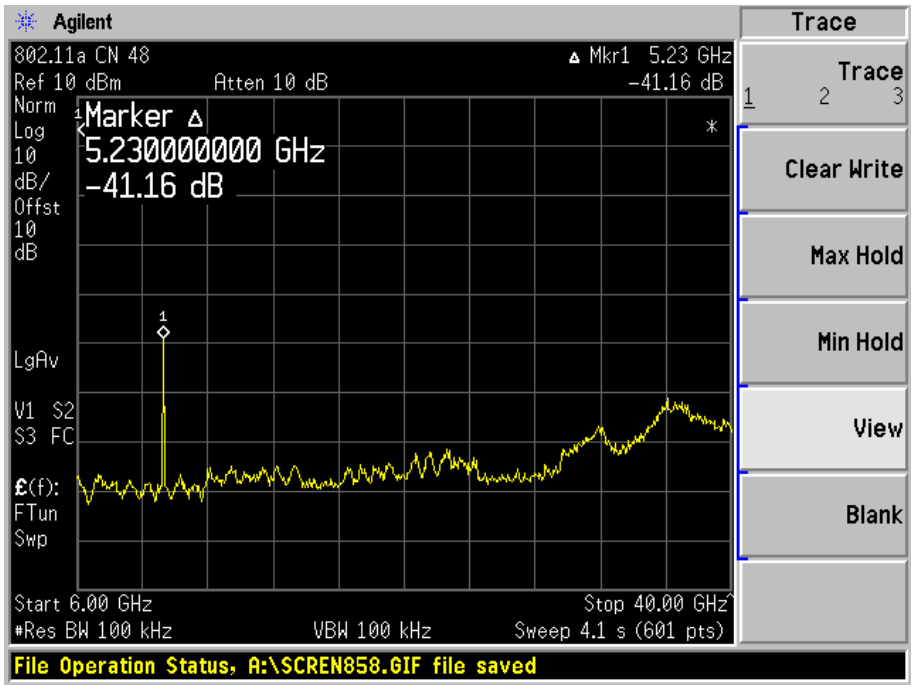
Channel 40


Agilent
Peak Search
802.11a CN 40
Ref 10 dBm
Atten 10 dB
Mkr1 5.194 GHz
0.89 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.194000000 GHz
0.89 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
File Operation Status, A:\SCREN809.GIF file saved

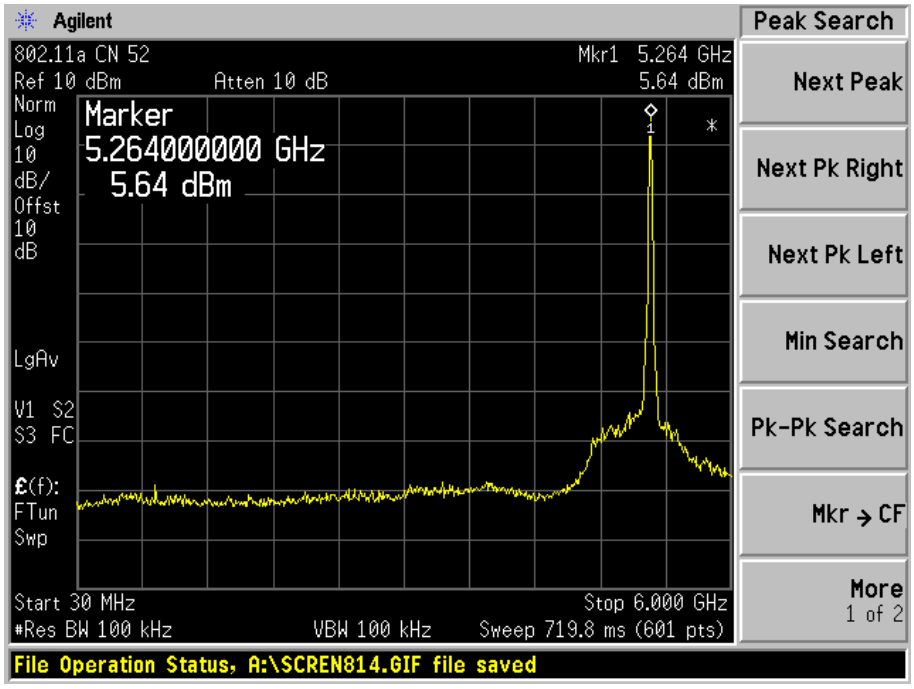

Agilent
Trace
802.11a CN 40
Ref 10 dBm
Atten 10 dB
Δ Mkr1 5.23 GHz
-44.62 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
5.230000000 GHz
-44.62 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
File Operation Status, A:\SCREN810.GIF file saved

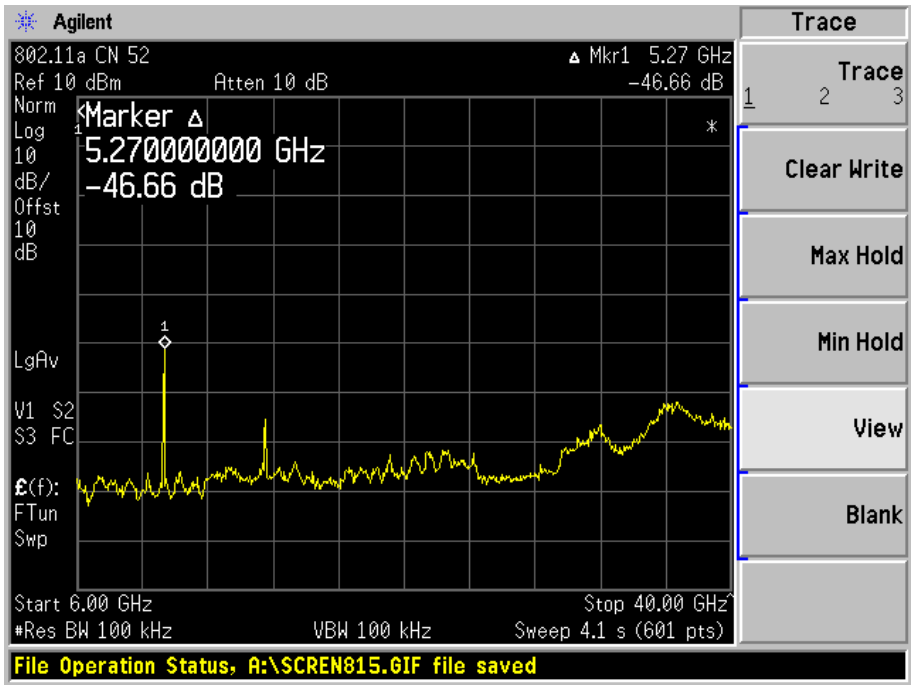
Channel 48


Agilent
802.11a CN 48
Ref 10 dBm
Atten 10 dB
Mkr1 5.244 GHz
2.08 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.244000000 GHz
2.08 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

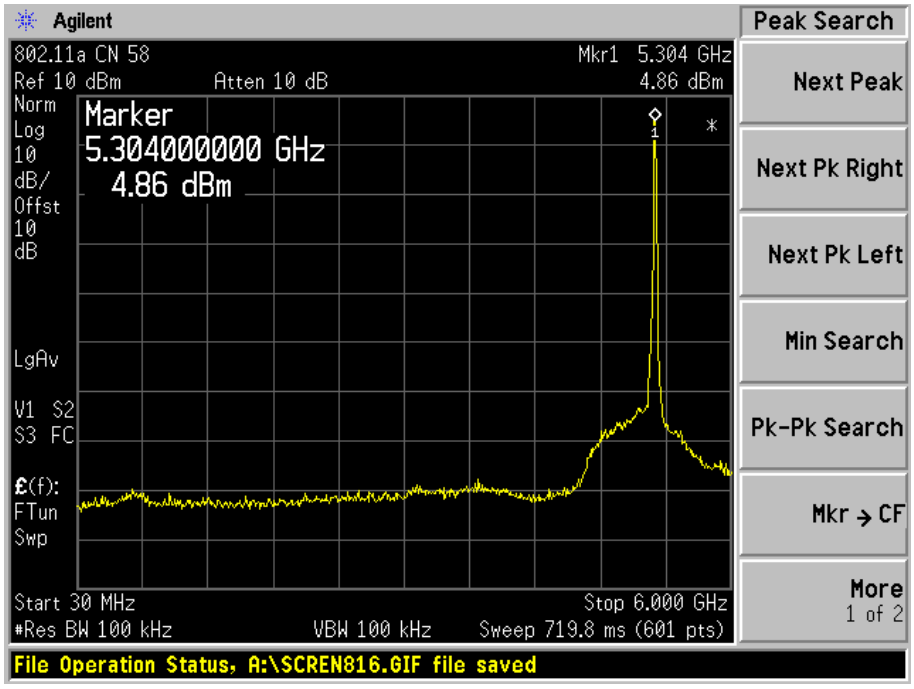

Agilent
802.11a CN 48
Ref 10 dBm
Atten 10 dB
Δ Mkr1 5.23 GHz
-41.16 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
5.230000000 GHz
-41.16 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
Trace
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
File Operation Status, A:\SCREN858.GIF file saved

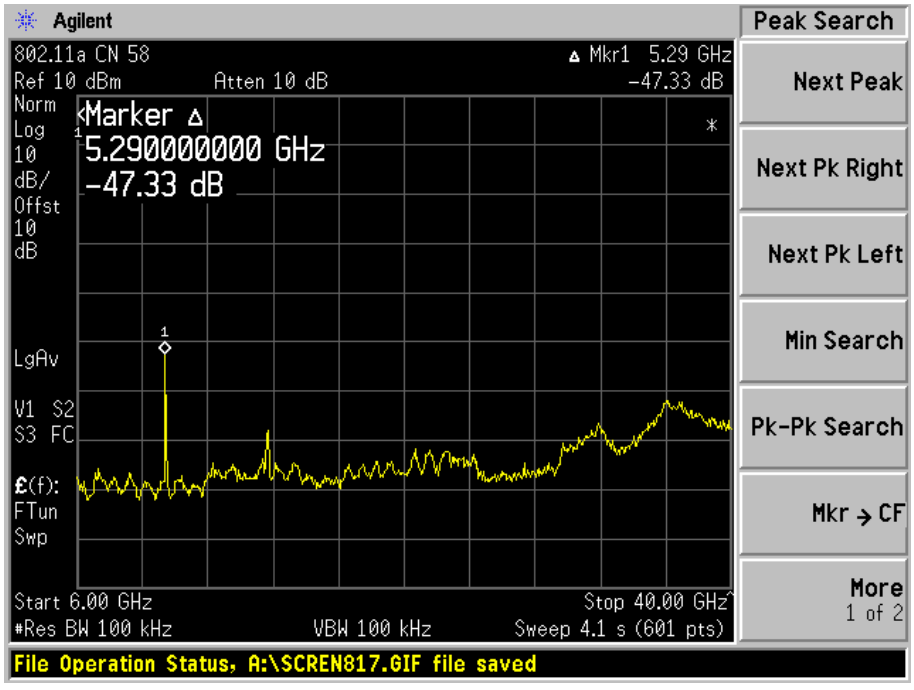
Channel 52


Agilent
802.11a CN 52
Ref 10 dBm
Atten 10 dB
Mkr1 5.264 GHz
5.64 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.264000000 GHz
5.64 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN814.GIF file saved

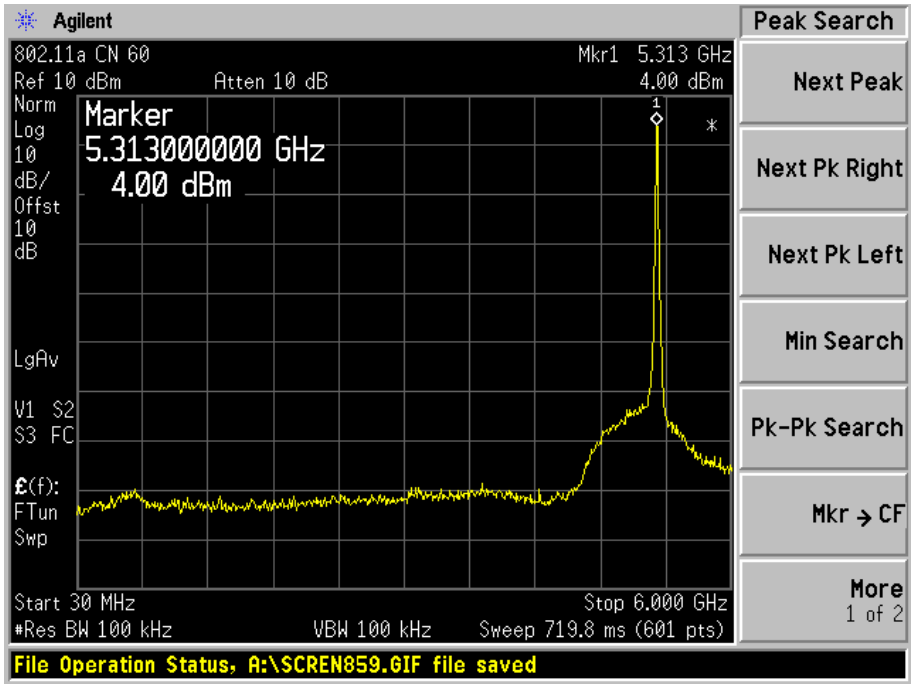

Agilent
802.11a CN 52
Ref 10 dBm
Atten 10 dB
Δ Mkr1 5.27 GHz
-46.66 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
5.270000000 GHz
-46.66 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
Trace
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
File Operation Status, A:\SCREN815.GIF file saved

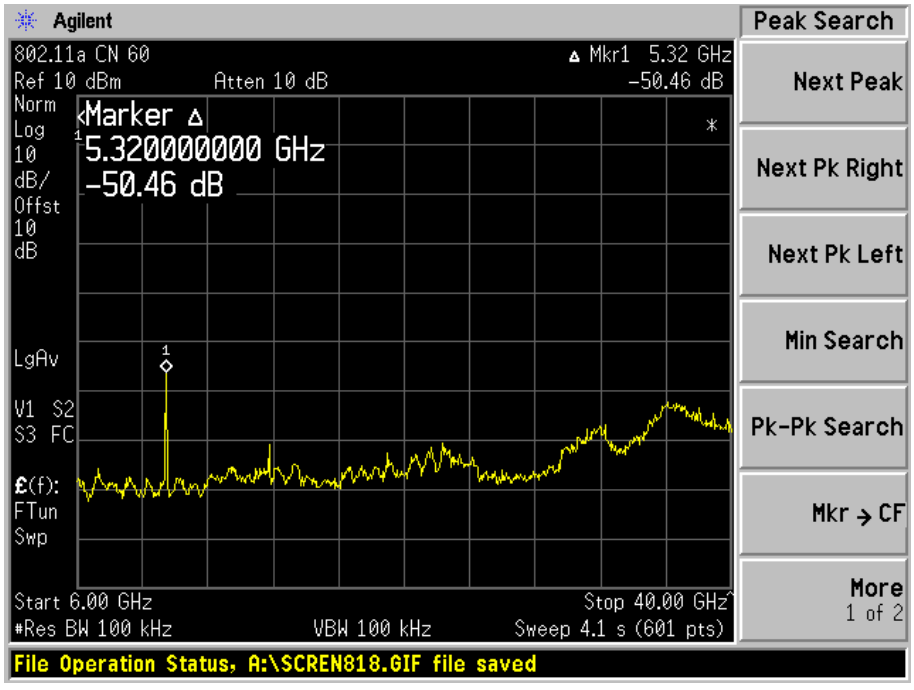
Channel 60


Agilent
802.11a CN 58
Ref 10 dBm
Atten 10 dB
Mkr1 5.304 GHz
4.86 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.304000000 GHz
4.86 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN816.GIF file saved


Agilent
802.11a CN 58
Ref 10 dBm
Atten 10 dB
Δ Mkr1 5.29 GHz
-47.33 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
5.290000000 GHz
-47.33 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN817.GIF file saved

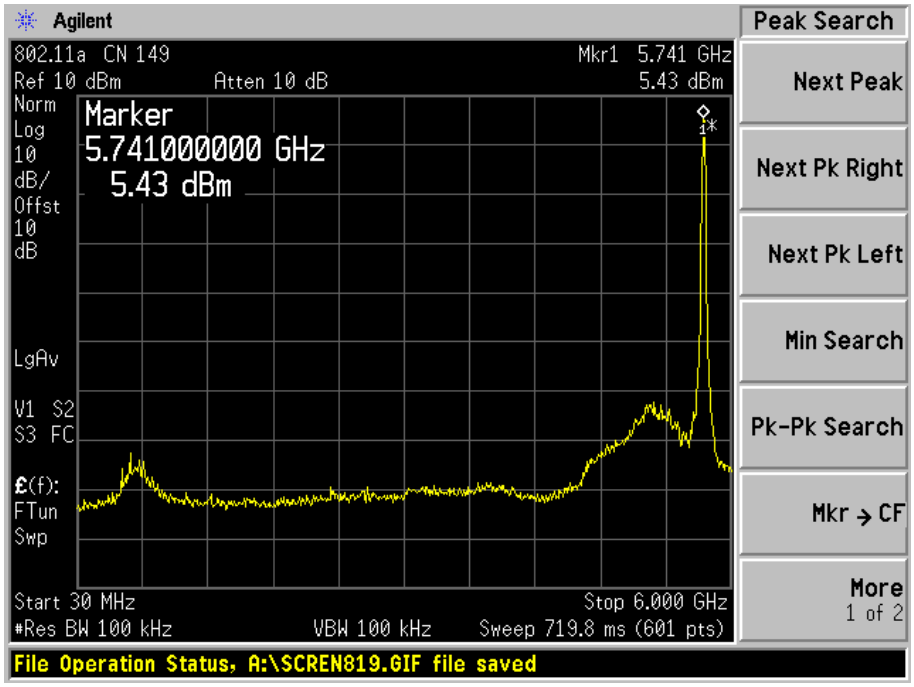
Channel 64

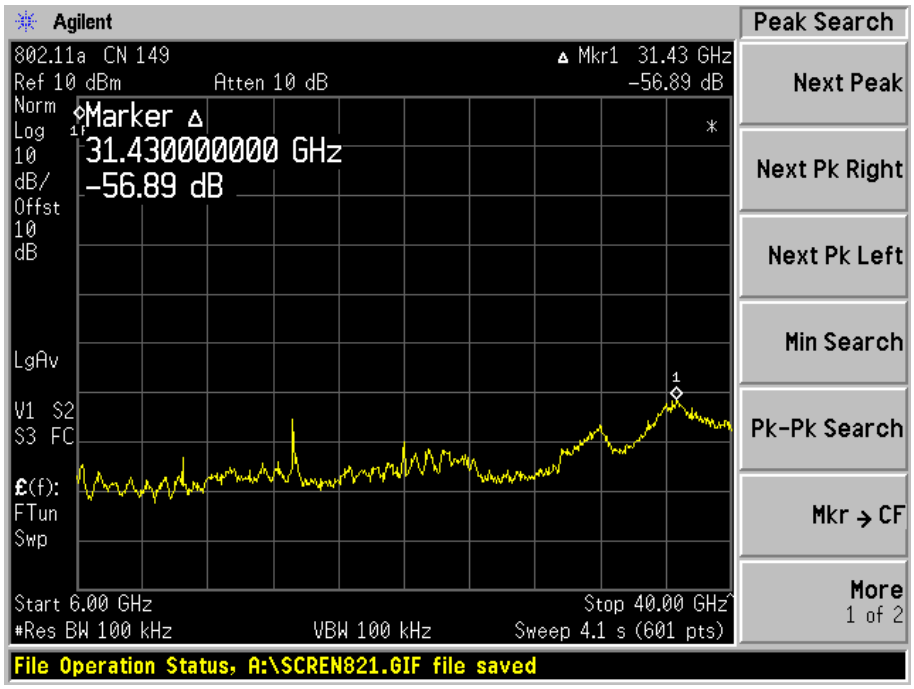

Agilent
802.11a CN 60
Ref 10 dBm
Atten 10 dB
Mkr1 5.313 GHz
4.00 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.313000000 GHz
4.00 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN859.GIF file saved


Agilent
802.11a CN 60
Ref 10 dBm
Atten 10 dB
Δ Mkr1 5.32 GHz
-50.46 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
5.320000000 GHz
-50.46 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN818.GIF file saved

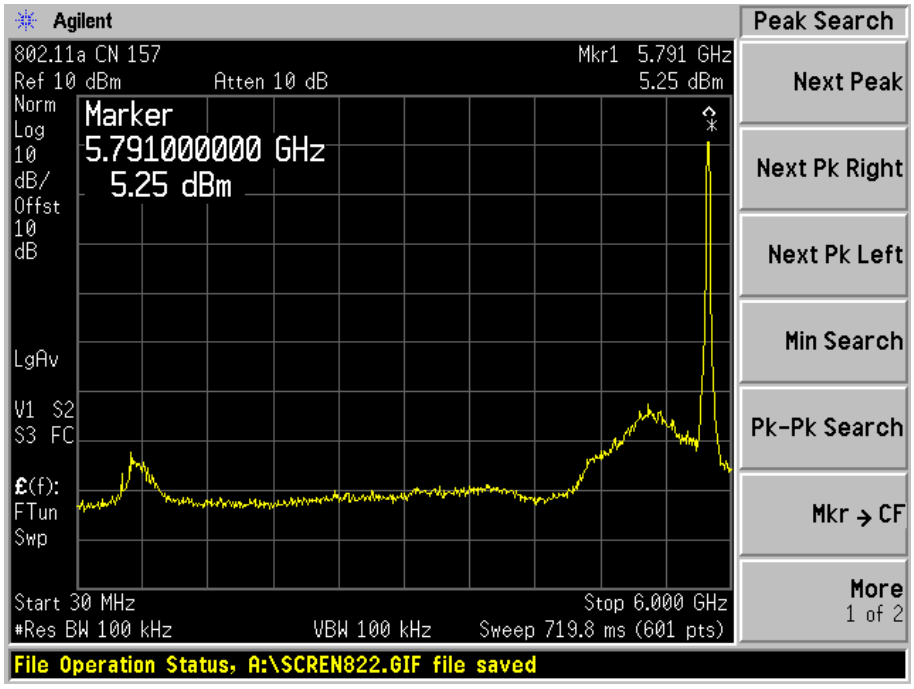
802.11a (15.247)

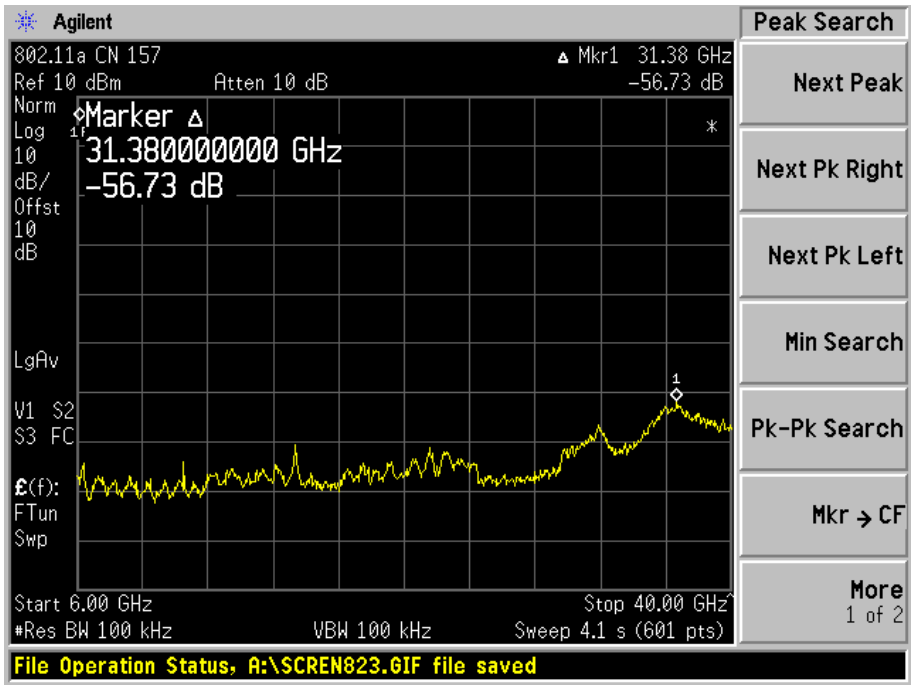
Channel 149



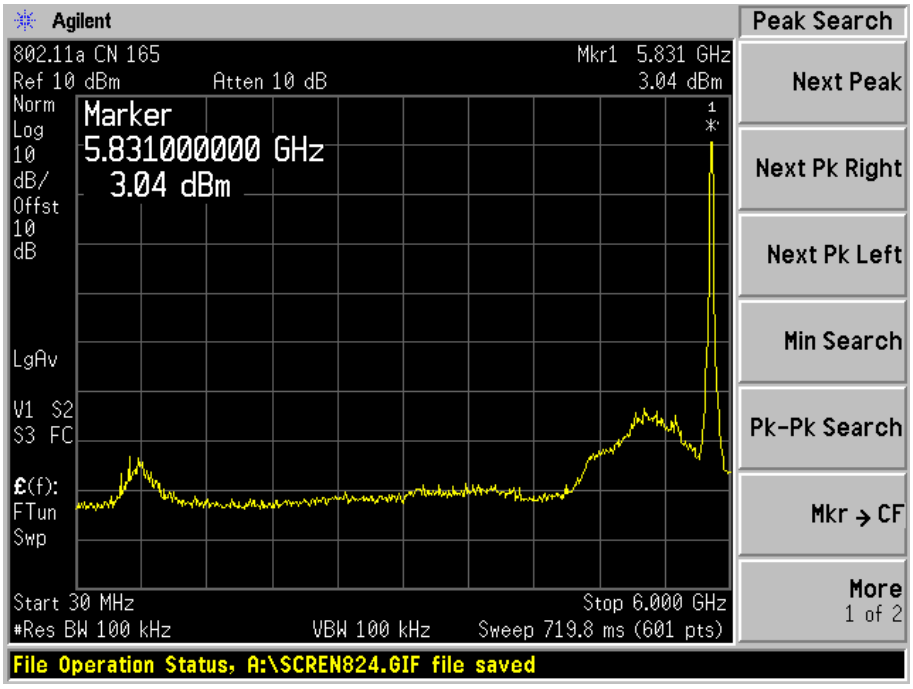


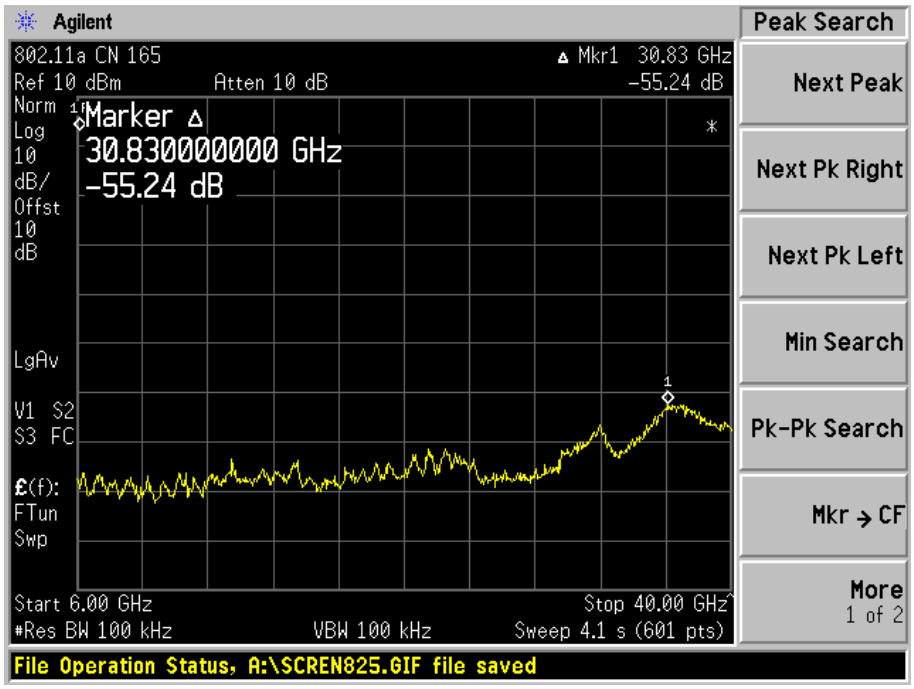
Channel 157


Agilent
Peak Search
802.11a CN 157
Mkr1 5.791 GHz
Ref 10 dBm
Atten 10 dB
5.25 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.791000000 GHz
5.25 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30 MHz
Stop 6.000 GHz
#Res BW 100 kHz
VBW 100 kHz
Sweep 719.8 ms (601 pts)
File Operation Status, A:\SCREN822.GIF file saved


Agilent
Peak Search
802.11a CN 157
Δ Mkr1 31.38 GHz
Ref 10 dBm
Atten 10 dB
-56.73 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
31.380000000 GHz
-56.73 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 6.00 GHz
Stop 40.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Sweep 4.1 s (601 pts)
File Operation Status, A:\SCREN823.GIF file saved

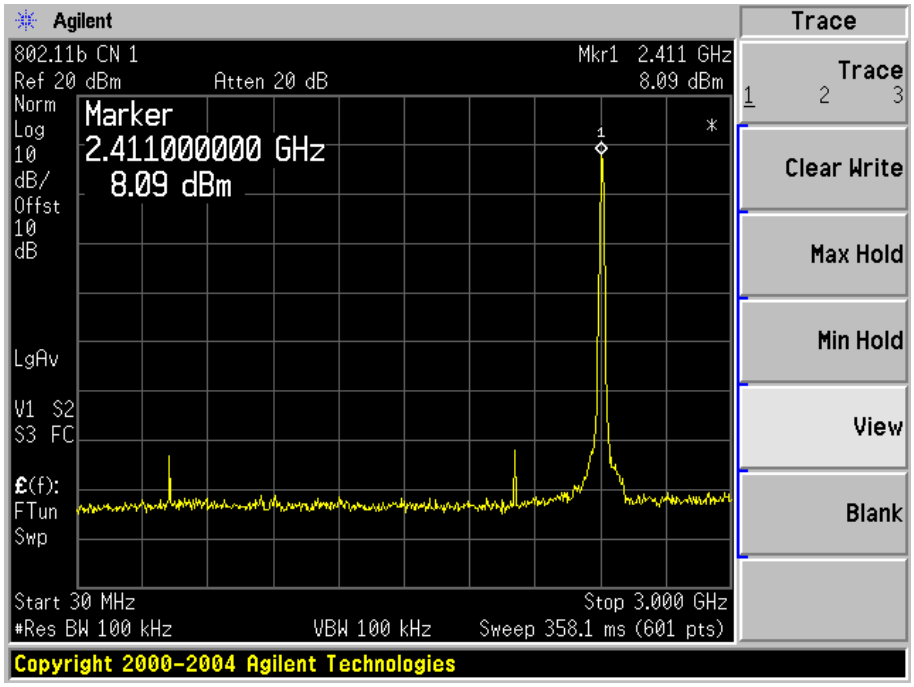
Channel 165

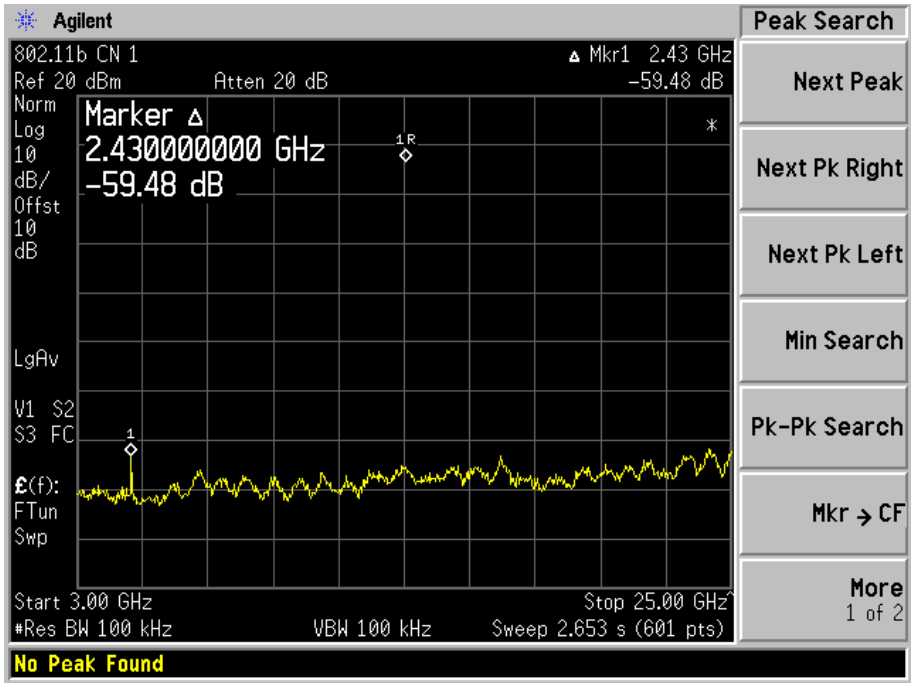

Agilent
802.11a CN 165
Ref 10 dBm
Atten 10 dB
Mkr1 5.831 GHz
3.04 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
5.831000000 GHz
3.04 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 6.000 GHz
Sweep 719.8 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN824.GIF file saved


Agilent
802.11a CN 165
Ref 10 dBm
Atten 10 dB
Δ Mkr1 30.83 GHz
-55.24 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
30.830000000 GHz
-55.24 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 6.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 40.00 GHz
Sweep 4.1 s (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN825.GIF file saved

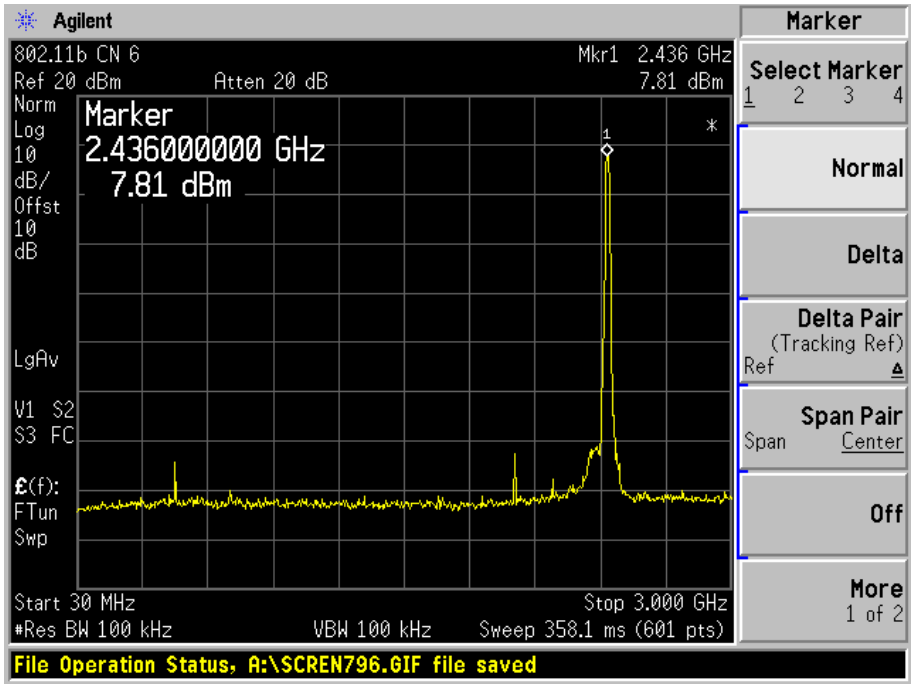
802.11b (15.247)

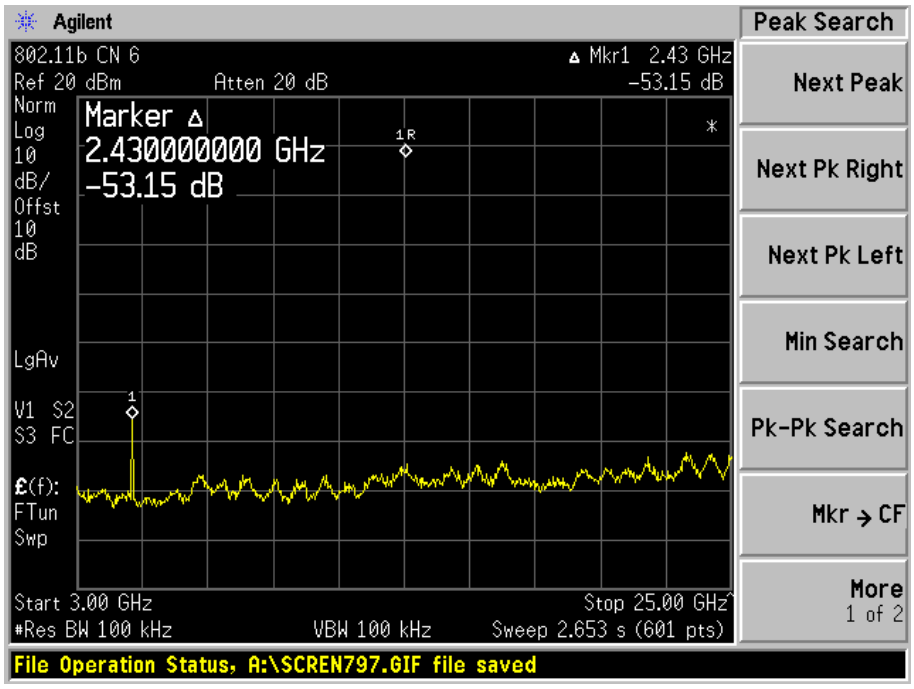
Channel 1



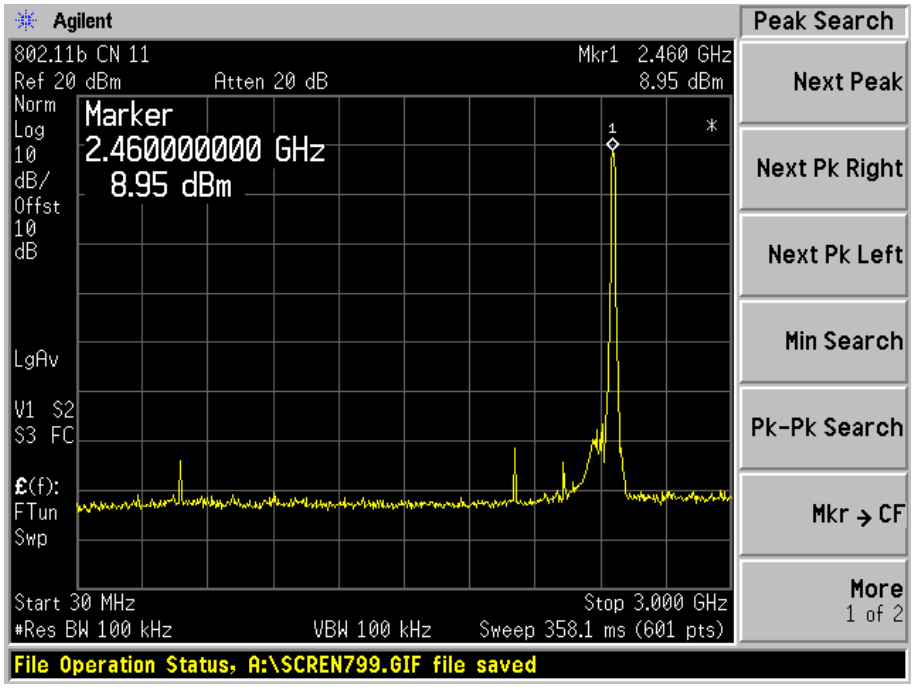


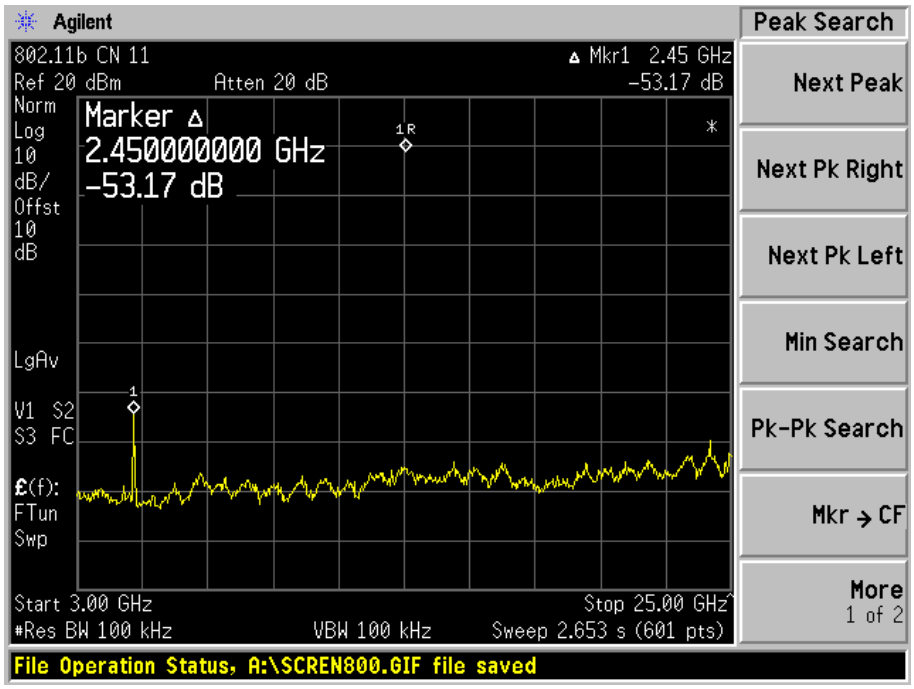
Channel 6


Agilent
802.11b CN 6
Ref 20 dBm
Atten 20 dB
Mkr1 2.436 GHz
7.81 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
2.436000000 GHz
7.81 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 3.000 GHz
Sweep 358.1 ms (601 pts)
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
File Operation Status, A:\SCREN796.GIF file saved


Agilent
802.11b CN 6
Ref 20 dBm
Atten 20 dB
Δ Mkr1 2.43 GHz
-53.15 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
2.430000000 GHz
-53.15 dB
1R
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 3.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 25.00 GHz
Sweep 2.653 s (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN797.GIF file saved

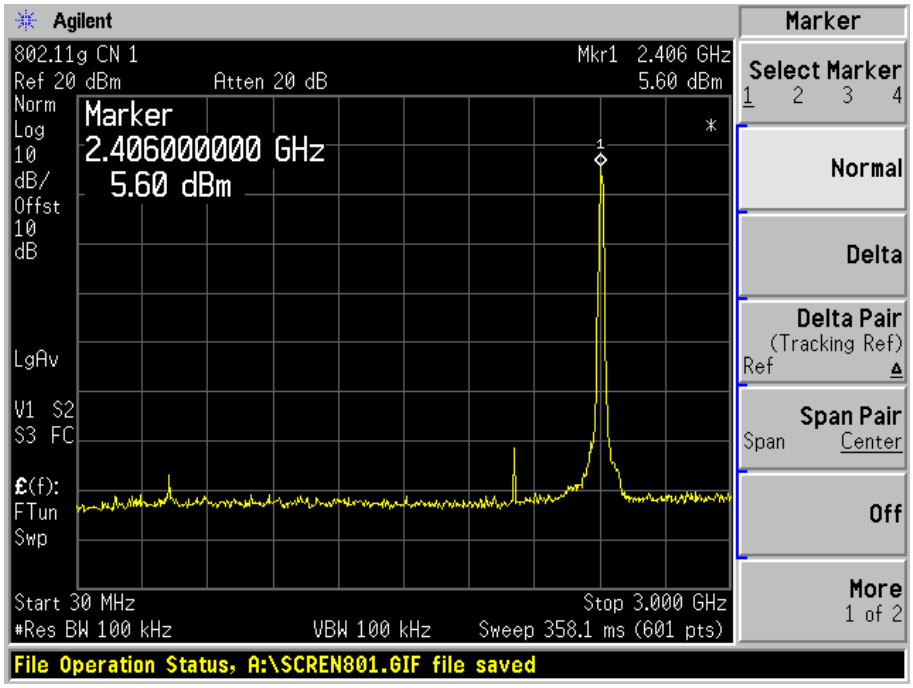
Channel 11

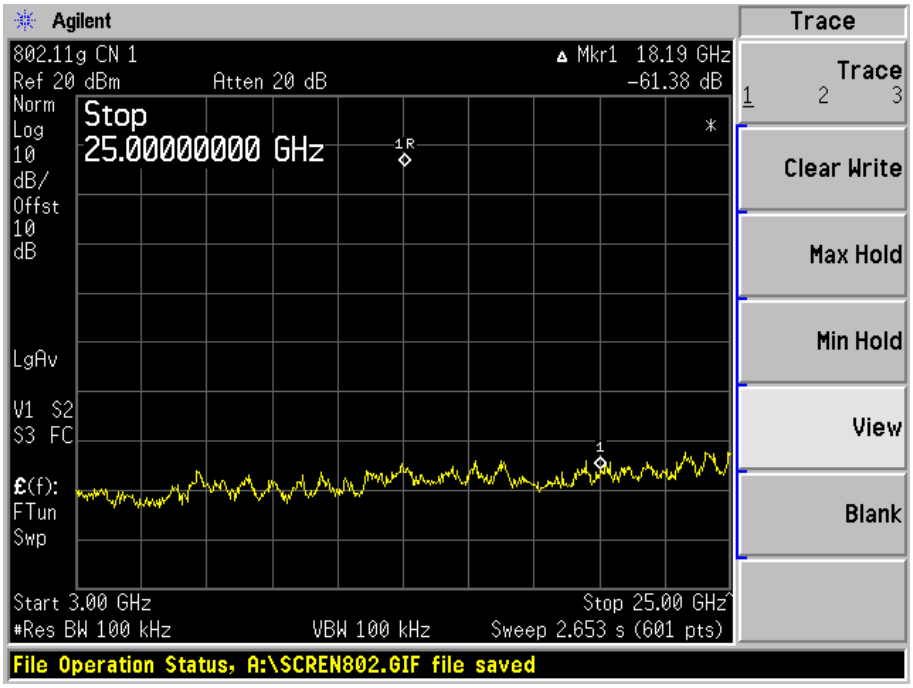

Agilent
Peak Search
802.11b CN 11
Ref 20 dBm
Atten 20 dB
Mkr1 2.460 GHz
8.95 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
2.460000000 GHz
8.95 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 3.000 GHz
Sweep 358.1 ms (601 pts)
File Operation Status, A:\SCREN799.GIF file saved


Agilent
Peak Search
802.11b CN 11
Ref 20 dBm
Atten 20 dB
Δ Mkr1 2.45 GHz
-53.17 dB
Norm
Log
10
dB/
Offst
10
dB
Marker Δ
2.450000000 GHz
-53.17 dB
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 3.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 25.00 GHz
Sweep 2.653 s (601 pts)
File Operation Status, A:\SCREN800.GIF file saved

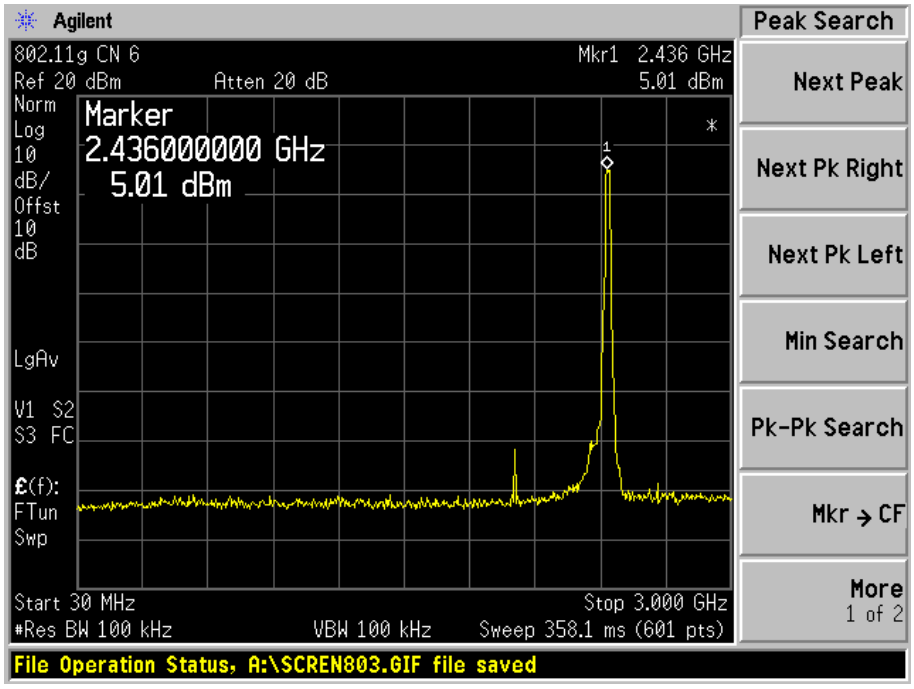
802.11g (15.247)

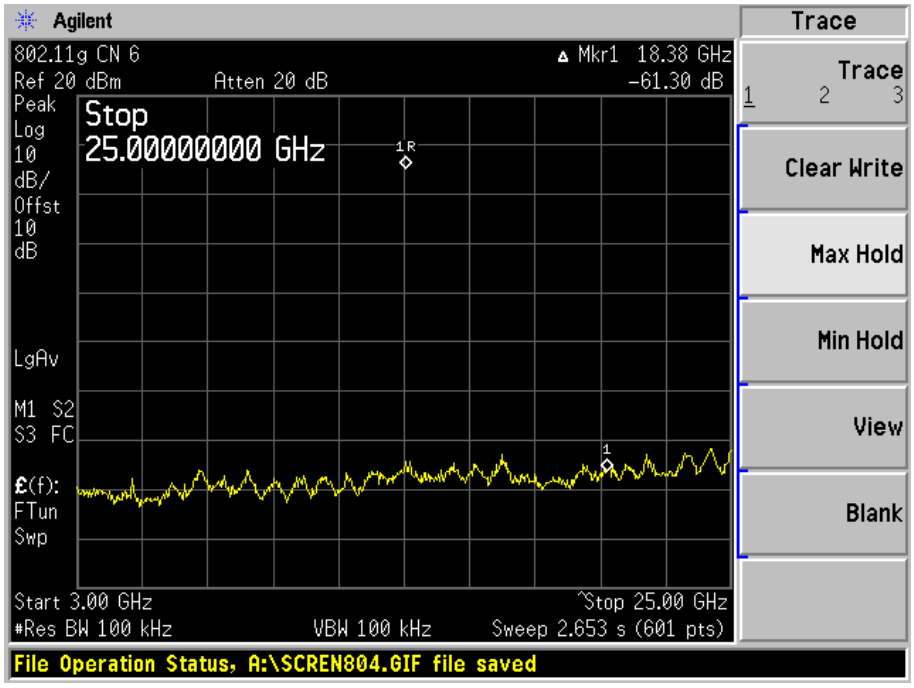
Channel 1



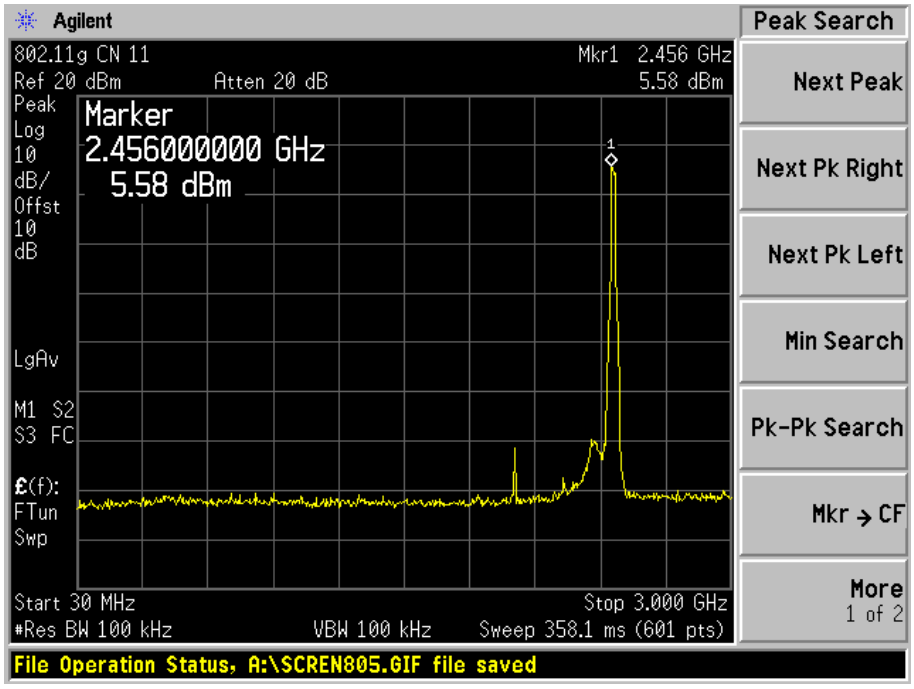


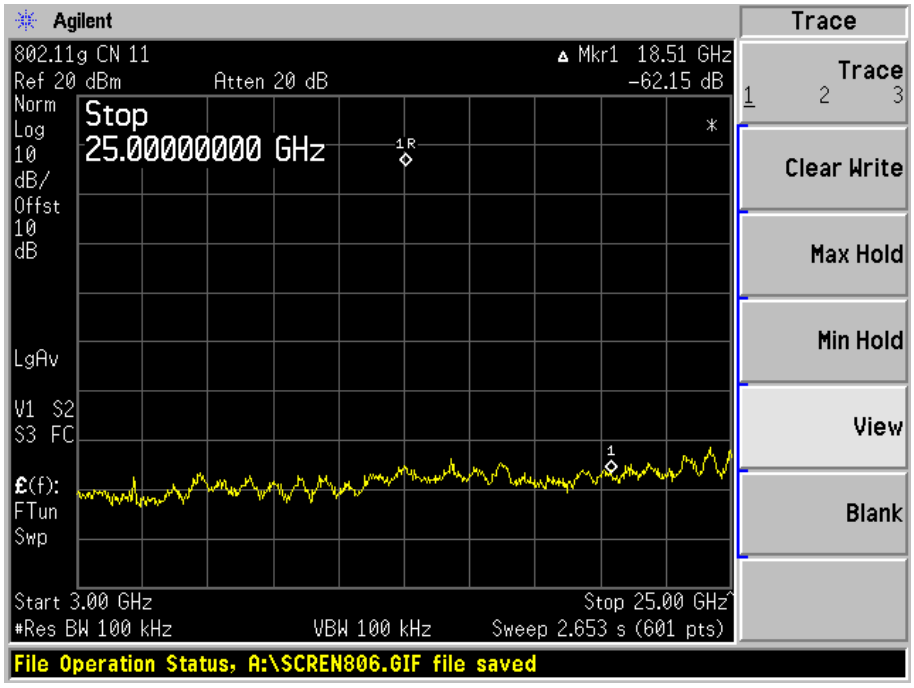
Channel 6


Agilent
802.11g CN 6
Ref 20 dBm
Atten 20 dB
Mkr1 2.436 GHz
5.01 dBm
Norm
Log
10
dB/
Offst
10
dB
Marker
2.436000000 GHz
5.01 dBm
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 3.000 GHz
Sweep 358.1 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN803.GIF file saved


Agilent
802.11g CN 6
Ref 20 dBm
Atten 20 dB
Mkr1 18.38 GHz
-61.30 dB
Peak
Log
10
dB/
Offst
10
dB
Stop
25.00000000 GHz
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 3.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 25.00 GHz
Sweep 2.653 s (601 pts)
Trace
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
File Operation Status, A:\SCREN804.GIF file saved

Channel 11


Agilent
802.11g CN 11
Ref 20 dBm
Atten 20 dB
Mkr1 2.456 GHz
5.58 dBm
Peak
Log
10
dB/
Offst
10
dB
Marker
2.456000000 GHz
5.58 dBm
LgAv
M1 S2
S3 FC
£(f):
FTun
Swp
Start 30 MHz
#Res BW 100 kHz
VBW 100 kHz
Stop 3.000 GHz
Sweep 358.1 ms (601 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
File Operation Status, A:\SCREN805.GIF file saved


Agilent
802.11g CN 11
Ref 20 dBm
Atten 20 dB
Mkr1 18.51 GHz
-62.15 dB
Norm
Log
10
dB/
Offst
10
dB
Stop
25.00000000 GHz
LgAv
V1 S2
S3 FC
£(f):
FTun
Swp
Start 3.00 GHz
#Res BW 100 kHz
VBW 100 kHz
Stop 25.00 GHz
Sweep 2.653 s (601 pts)
Trace
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
File Operation Status, A:\SCREN806.GIF file saved

§15.247(a)(2) & §15.407 – 6 dB BANDWIDTH and 26 dB BANDWIDTH

Standard Applicable

According to §15.247(a)(2), for direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz. According to §15.407, 26dB Bandwidth should be shown.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth. (6 dB bandwidth for DTS)
4. Same as (3) except 26 dB. (26dB bandwidth for UNII)
5. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-22.

Test Result for -26 dB Channel Bandwidth (15.407)

Channel 802.11a	Frequency MHz	Channel Bandwidth (KHz))
Low	5180	20730
Mid	5200	20197
High	5240	19705

Channel 802.11a	Frequency MHz	Channel Bandwidth (KHz)
Low	5260	20333
Mid	5300	20057
High	5320	20281

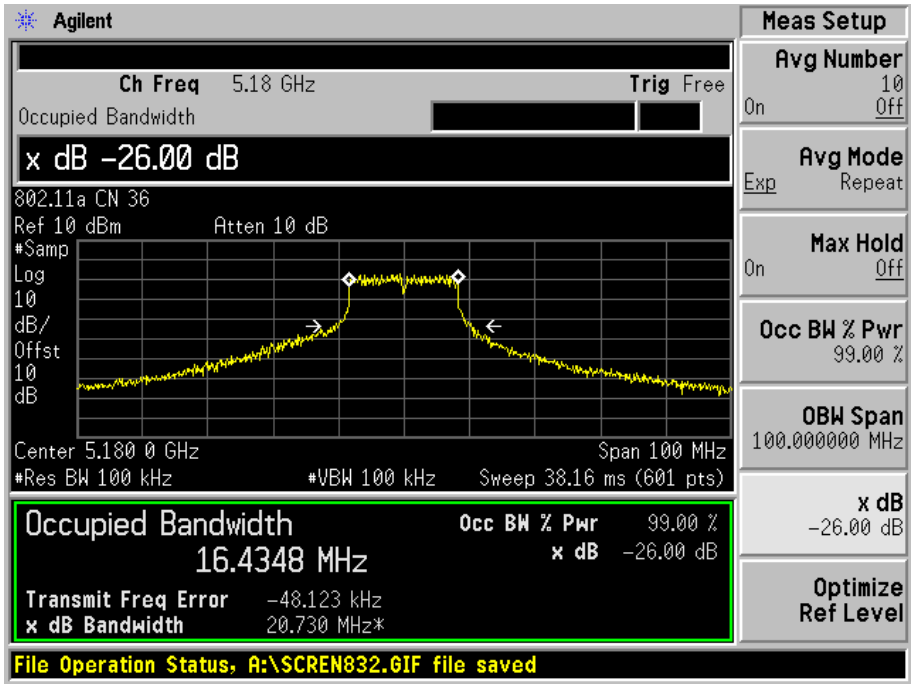
Test Result for -6 dB Channel Bandwidth (15.247)

Channel 802.11a	Frequency MHz	Channel Bandwidth (KHz)	Limit KHz
Low	5745	16394	>500
Mid	5785	16396	>500
High	5825	16411	>500

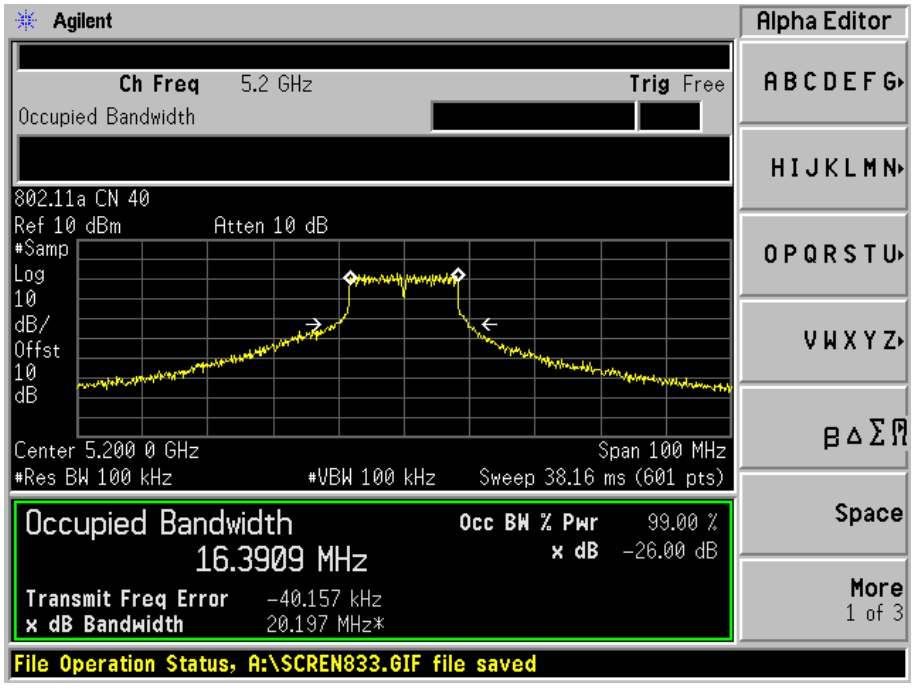
Channel 802.11b	Frequency MHz	Channel Bandwidth (KHz)	Limit KHz
Low	2412	11191	>500
Mid	2437	11466	>500
High	2462	9960	>500

Channel 802.11g	Frequency MHz	Channel Bandwidth (KHz)	Limit KHz
Low	2412	16540	>500
Mid	2437	16471	>500
High	2462	16516	>500

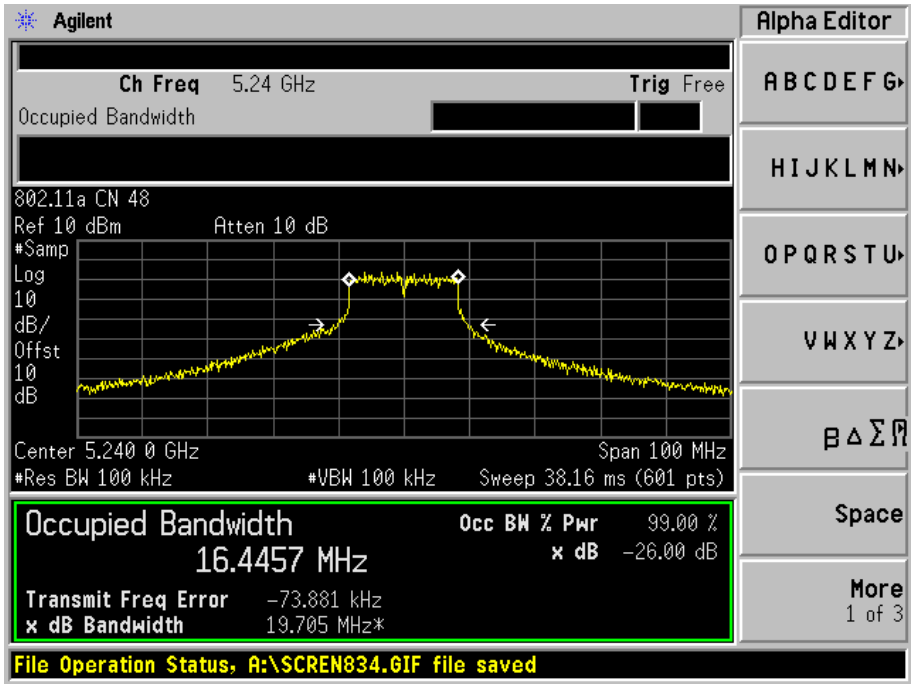
802.11a, Channel 36



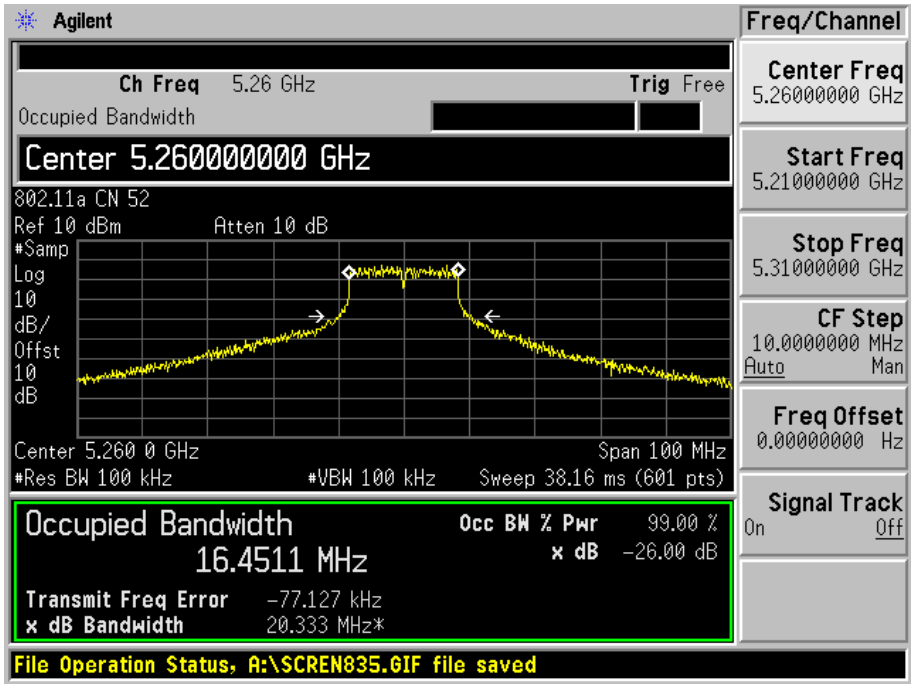
802.11a, Channel 40



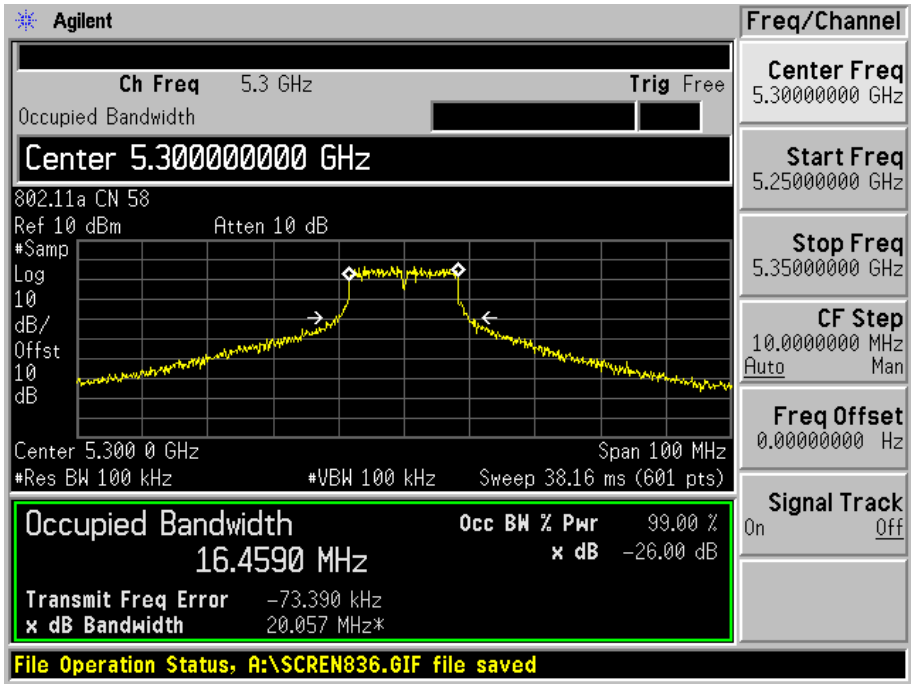
802.11a, Channel 48



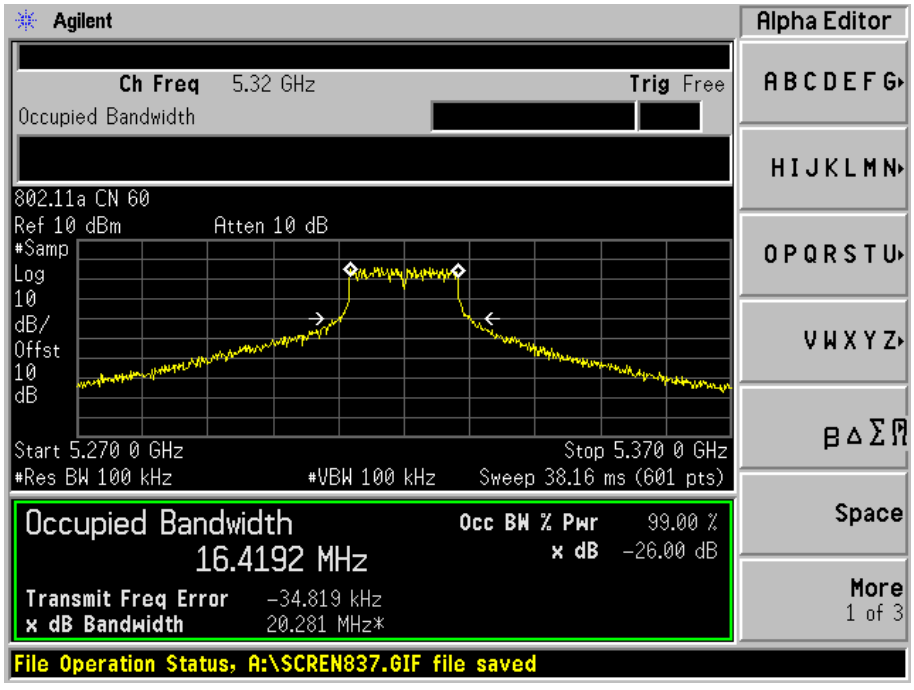
802.11a, Channel 52



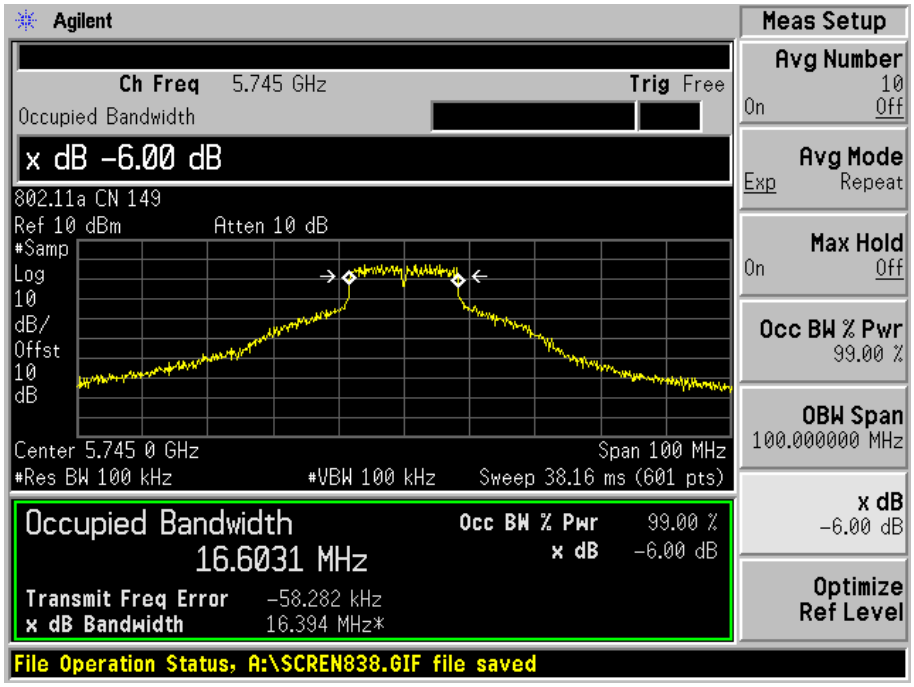
802.11a, Channel 60



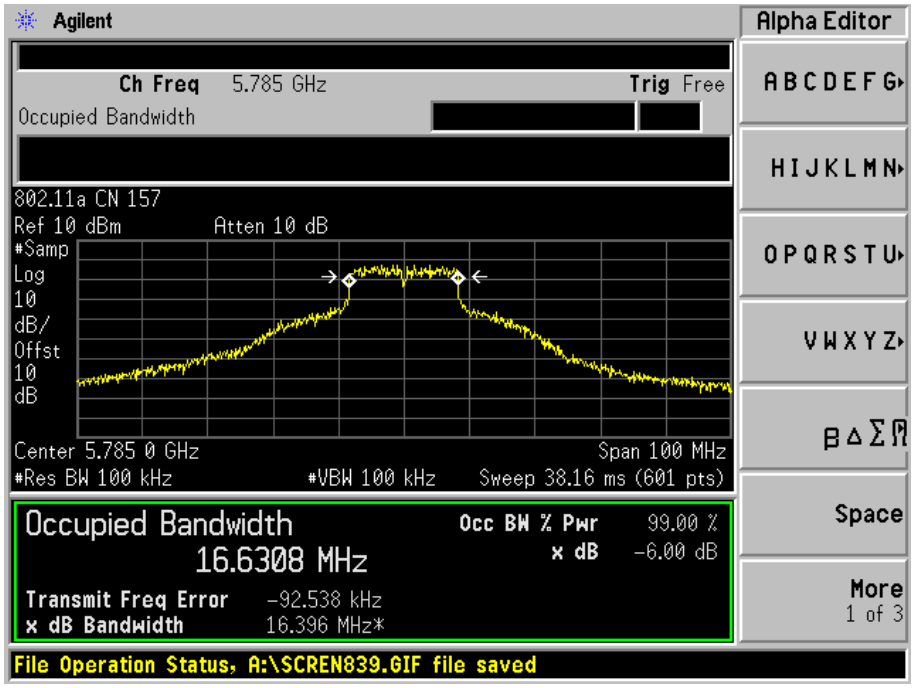
802.11a, Channel 64



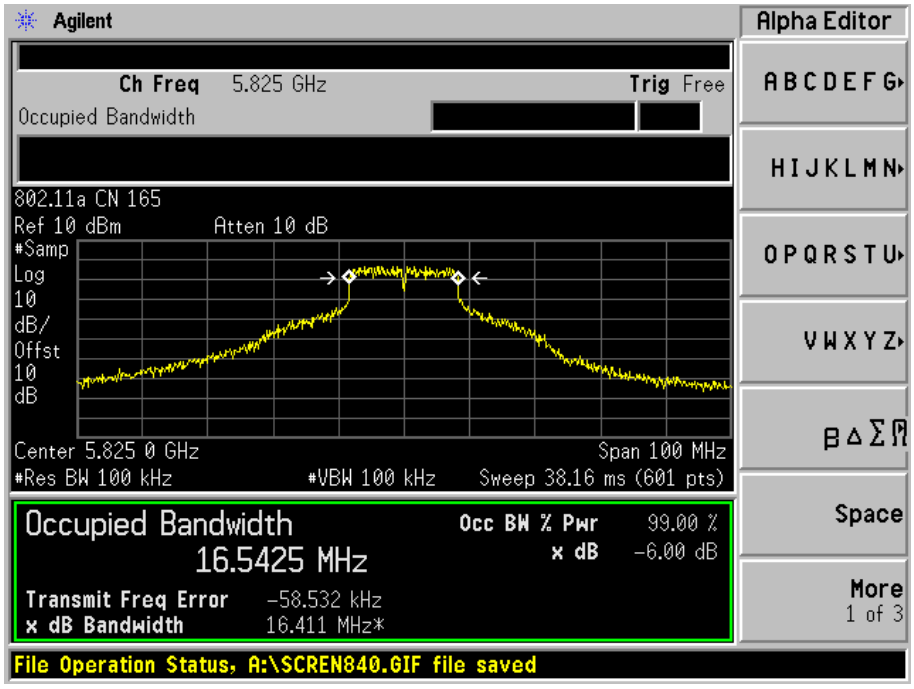
802.11a, Channel 149



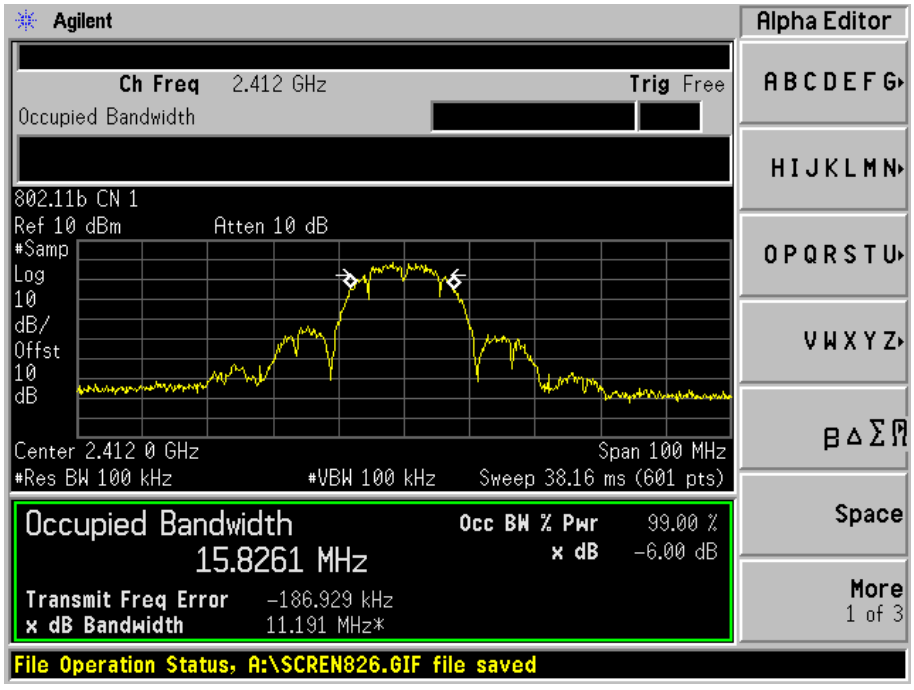
802.11a, Channel 157



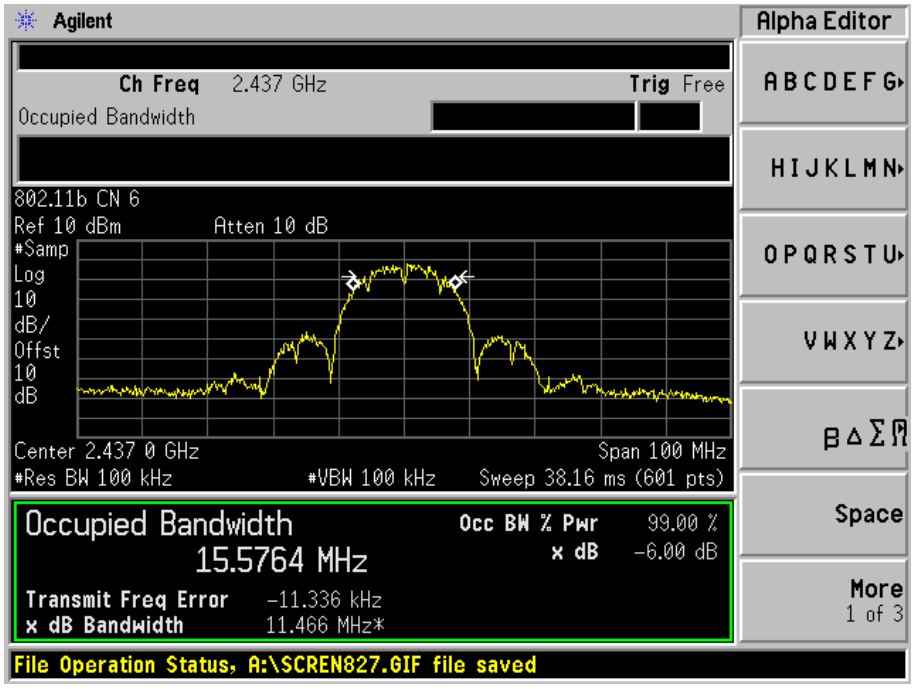
802.11a, Channel 165



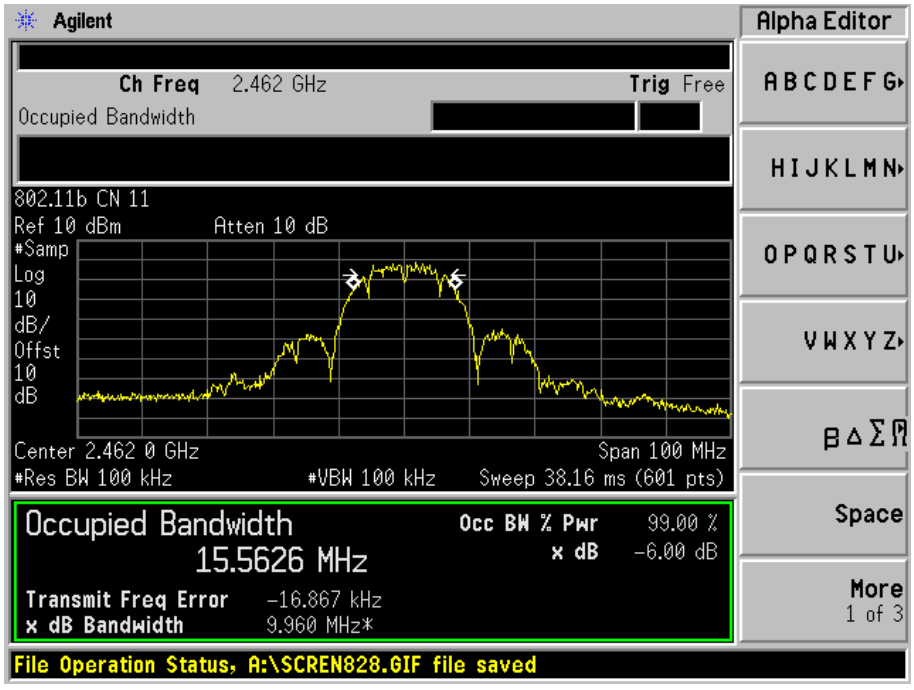
802.11b, Channel 1



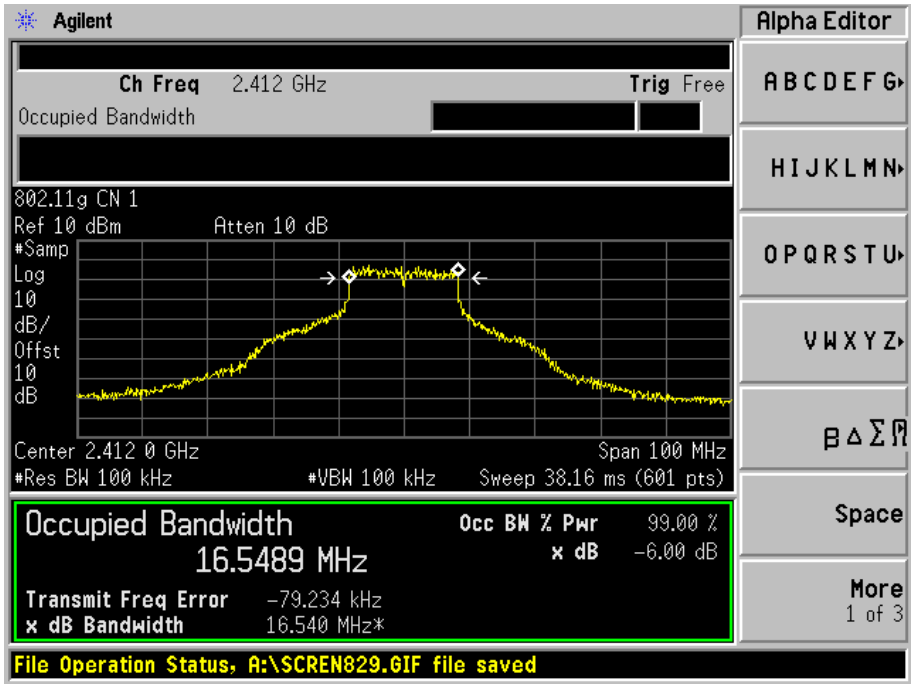
802.11b, Channel 6



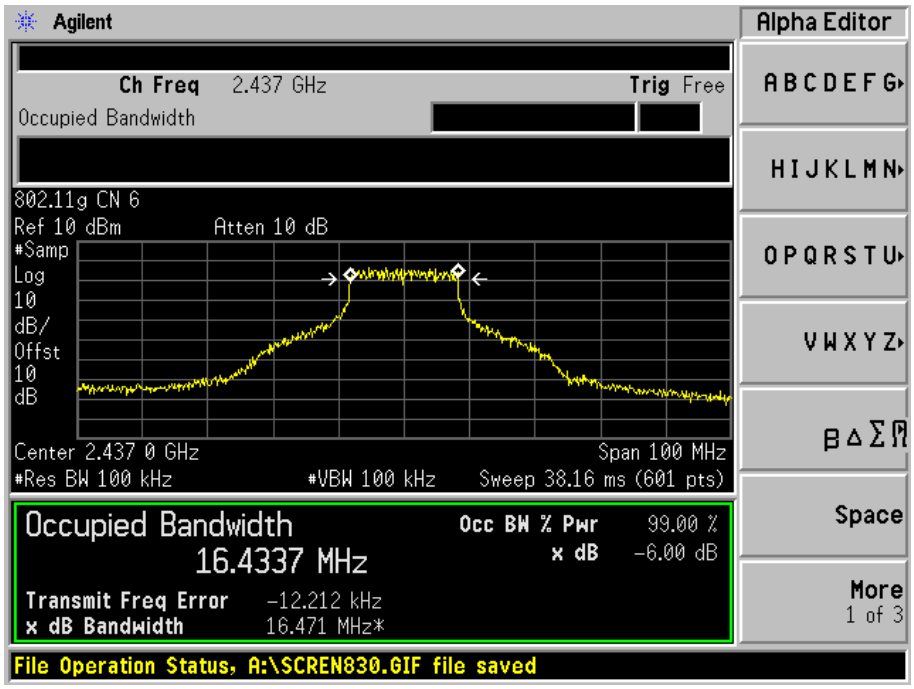
802.11b, Channel 11



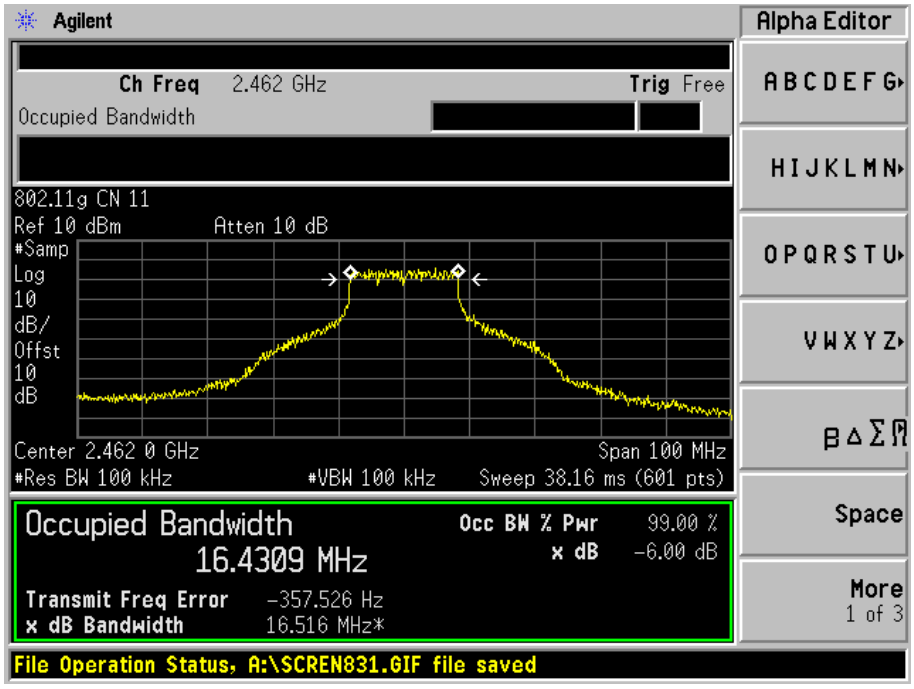
802.11g, Channel 1



802.11g, Channel 6



802.11g, Channel 11



§15.247(b)(3), §15.407(a)(2) - PEAK OUTPUT POWER MEASUREMENT

Standard Applicable

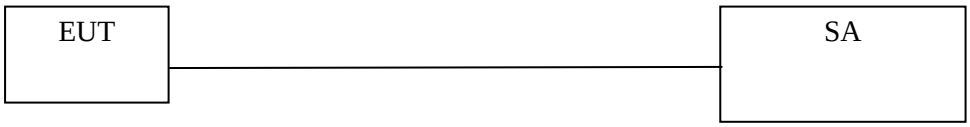
According to §15.247(b) (3), for systems using digital modulation in 2400-2483.5 MHz: 1 Watt. Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a)(1), for the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz.

According to §15.407(a)(2), For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

Measurement Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Spectrum Analyzer.



Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	11/10/2005
Agilent	Sensor, Power	E9301A	MY41497252	5/6/2005
Agilent	Meter, Power	E4419B	G13405 13421	6/24/2005

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022mbar

The testing was performed by James Ma on 2005-12-22.

802.11a

Channel	Frequency MHz	Max Peak Output Power (dBm)	(mW)	Limit (mW)	Result	TX Gain Setting
Low	5180	14.0	25.12	31.6	pass	16
Mid	5200	14.3	26.92	31.6	pass	16
High	5240	14.0	25.12	31.6	pass	16

Note: Limit is reduced from 50mW to 31.6 mW, due to 8dBi antenna gain

Channel	Frequency MHz	Max Peak Output Power (dBm)	(mW)	Limit (mW)	Result	TX Gain Setting
Low	5260	17.9	61.66	158	pass	20
Mid	5300	17.9	61.66	158	pass	19
High	5320	17.8	60.26	158	pass	19

Note: Limit is reduced from 250mW to 158.0 mW, due to 8dBi antenna gain

Channel	Frequency MHz	Max Peak Output Power (dBm)	(mW)	Limit (mW)	Result	TX Gain Setting
Low	5745	19.3	85.11	630	pass	21
Mid	5785	18.5	70.79	630	pass	20
High	5825	17.9	61.66	630	pass	20

Note: Limit is reduced from 1000 mW to 630 mW, due to 8dBi antenna gain

802.11b

Channel	Frequency MHz	Max Peak Output Power (dBm)	(mW)	Limit (mW)	Result	TX Gain Setting
Low	2412	17.9	61.66	199.5	pass	19
Mid	2437	17.0	50.12	199.5	pass	19
High	2462	17.0	50.12	199.5	pass	19

Note: Limit is reduced from 1000 mW to 199.5 mW, due to 13dBi antenna gain

802.11g

Channel	Frequency MHz	Max Peak Output Power (dBm)	(mW)	Limit (mW)	Result	TX Gain Setting
Low	2412	16.5	44.67	199.5	pass	17
Mid	2437	18.0	63.10	199.5	pass	19
High	2462	17.0	50.12	199.5	pass	18

Note: Limit is reduced from 1000 mW to 199.5 mW, due to 13dBi antenna gain

Note: 0.5 dBm cable loss is included.

§15.247(d) - 100 KHZ BANDWIDTH OF BAND EDGES

Standard Applicable

According to §15.247(d), in *any* 100 kHz bandwidth outside the frequency bands 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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) see §15.205(c)).

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

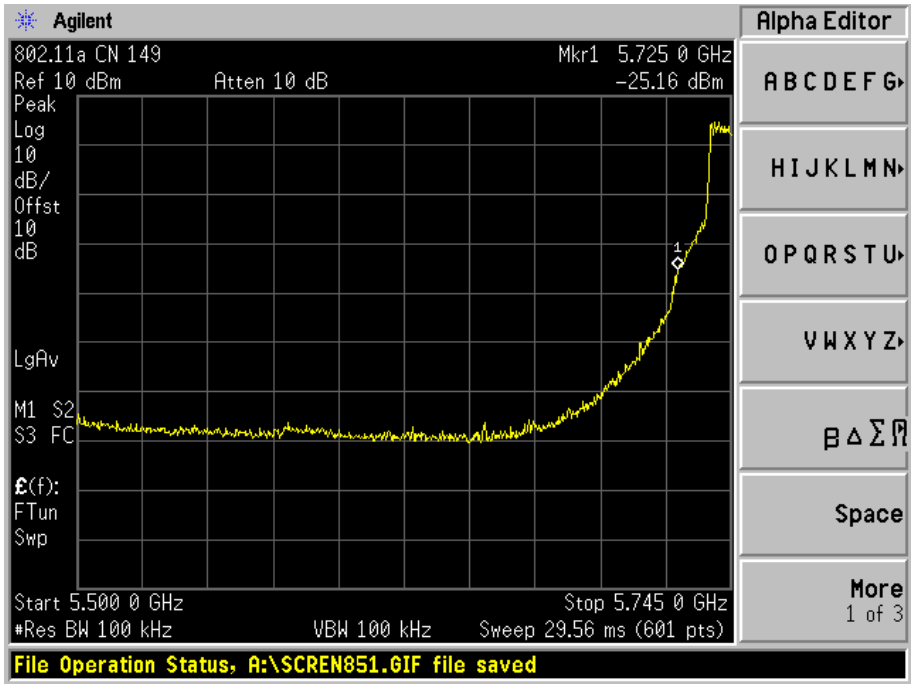
Measurement Result

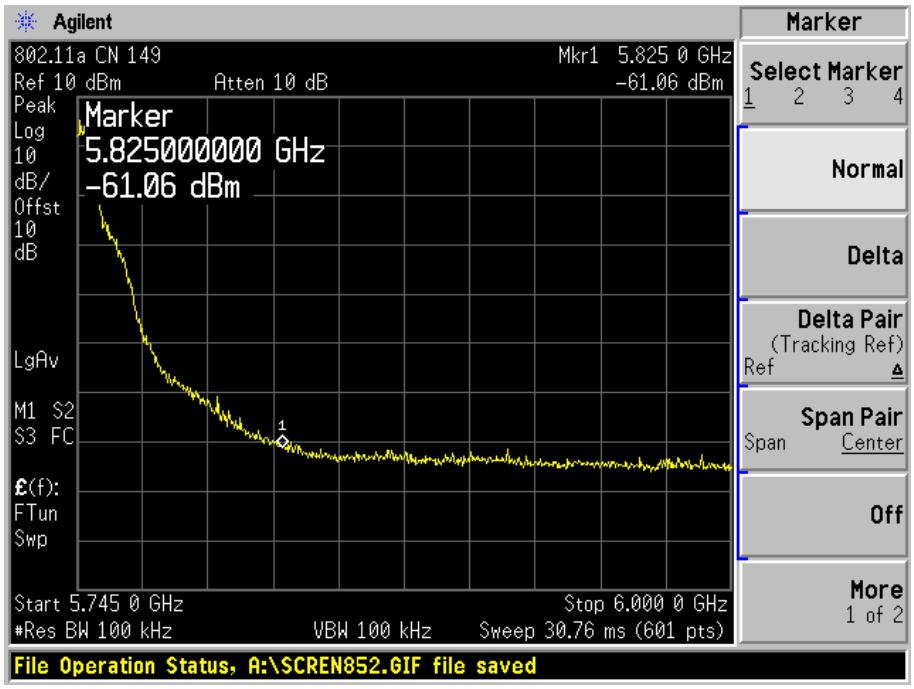
Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

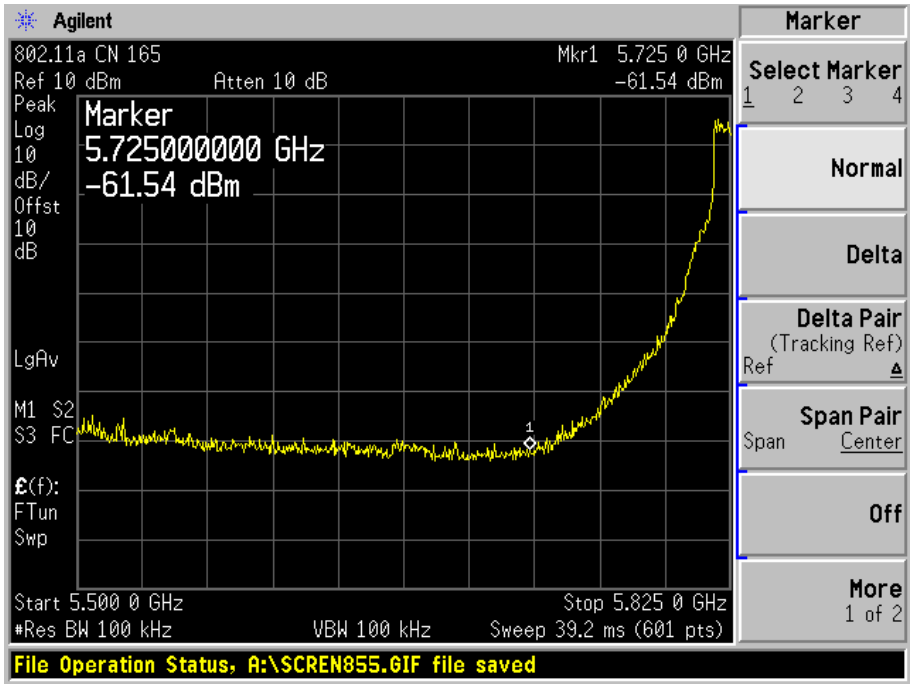
The testing was performed by James Ma on 2005-12-22.

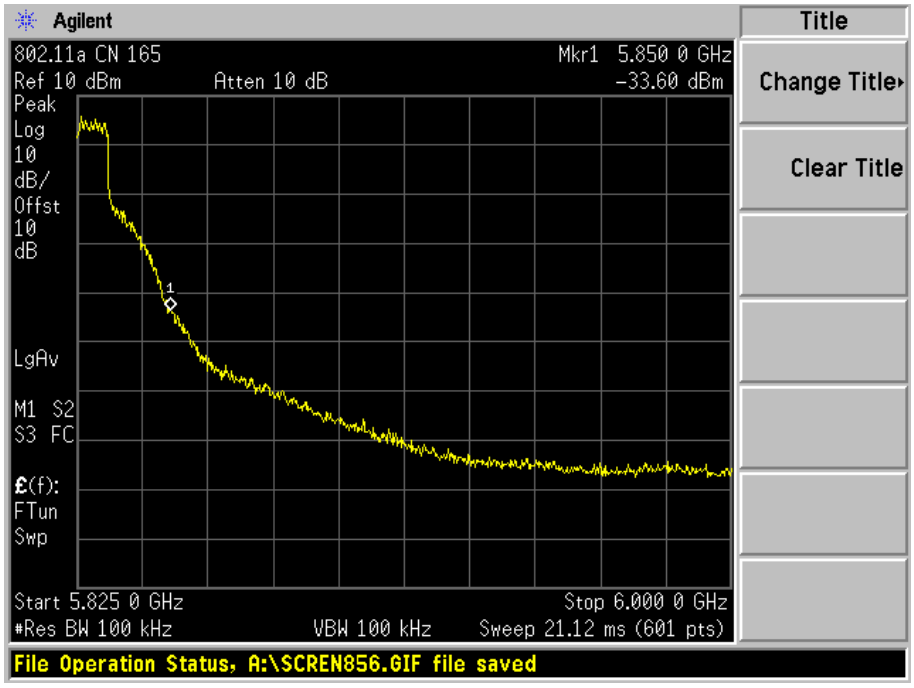
802.11a, Channel 149



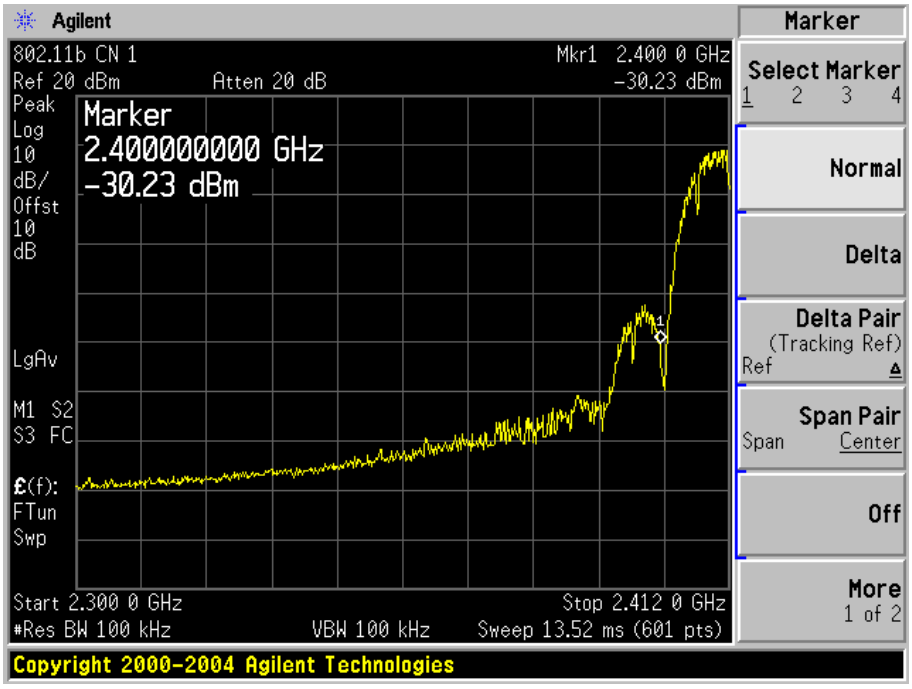


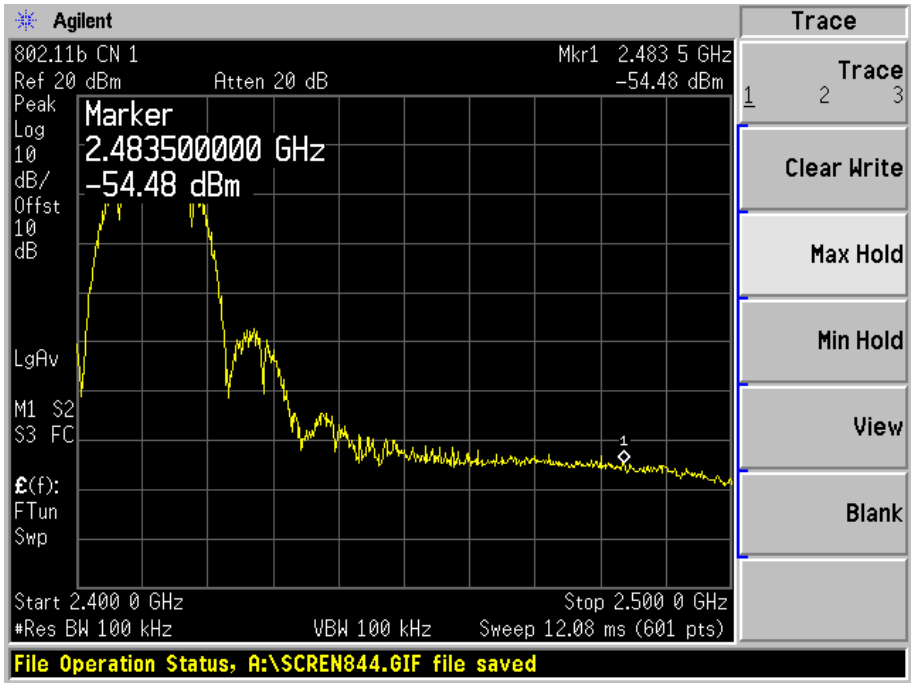
802.11a, Channel 165



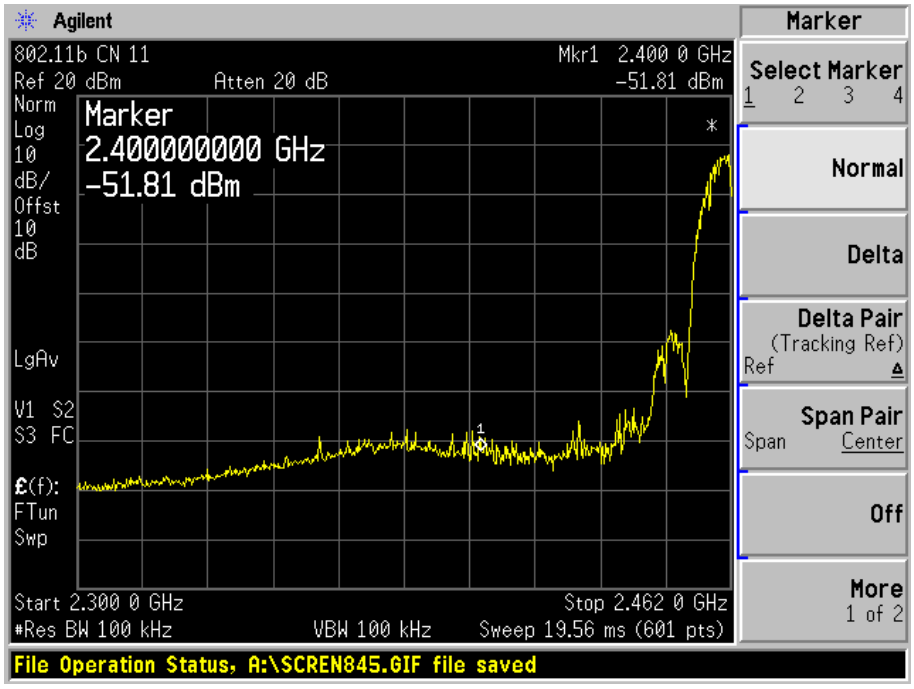


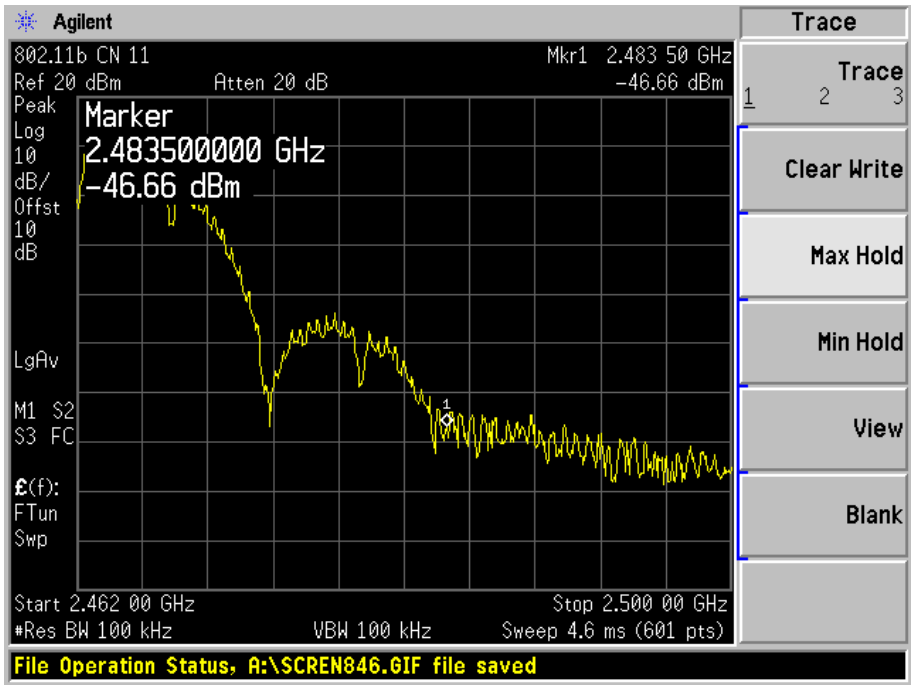
802.11b, Channel 1



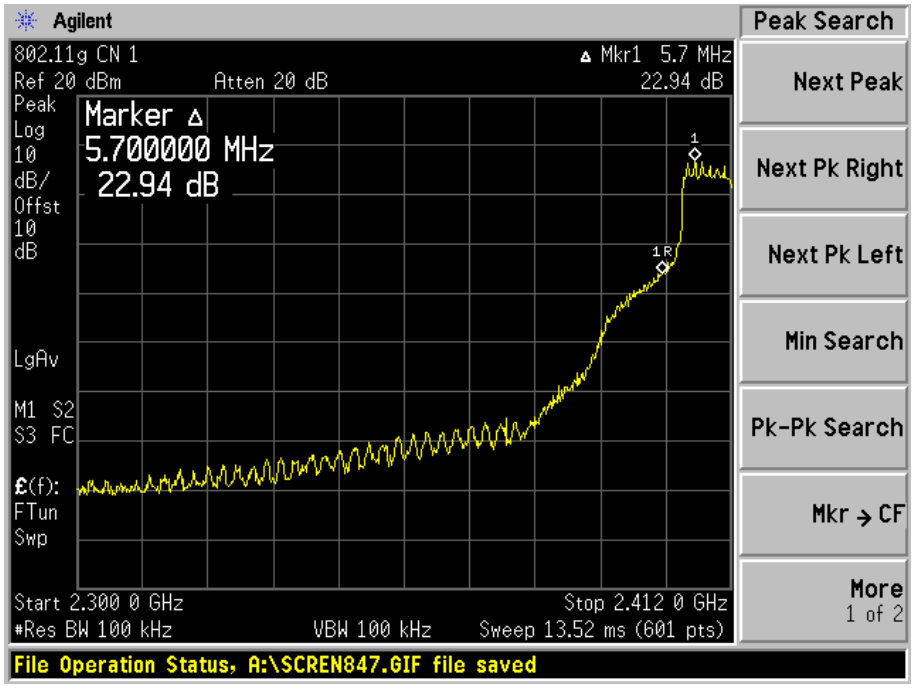


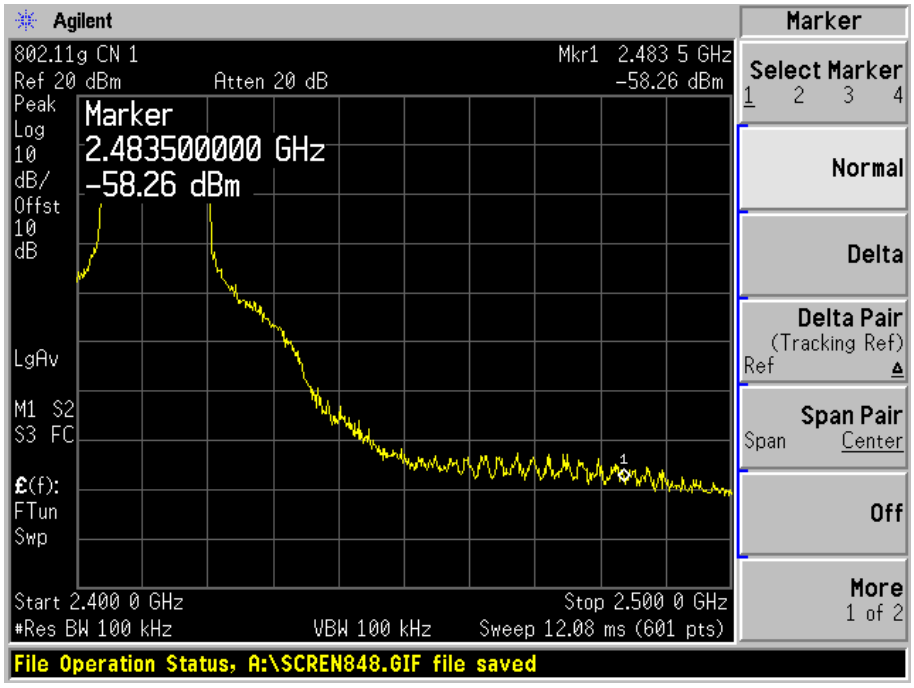
802.11b, Channel 11



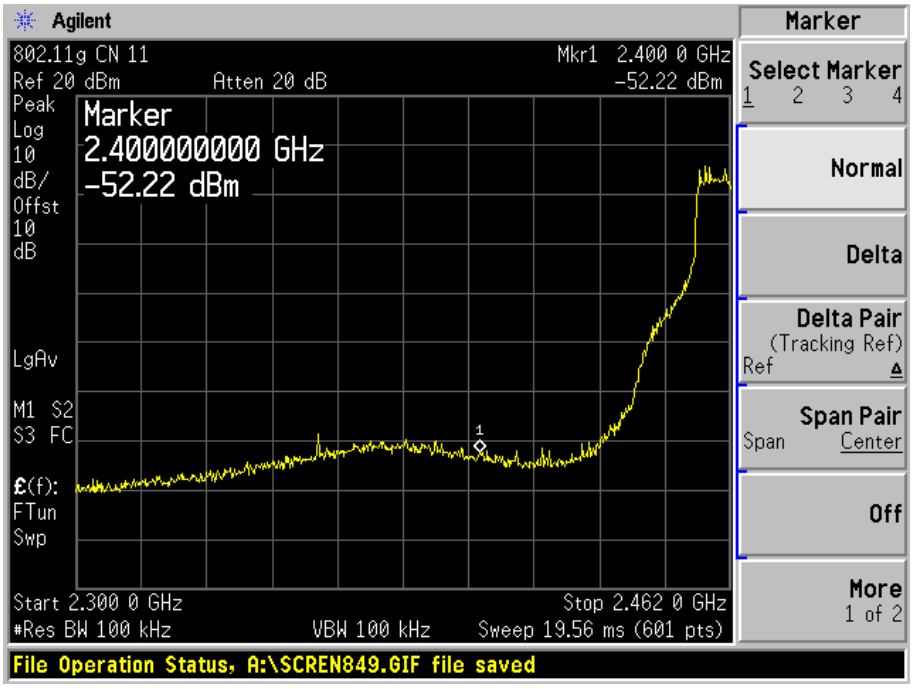


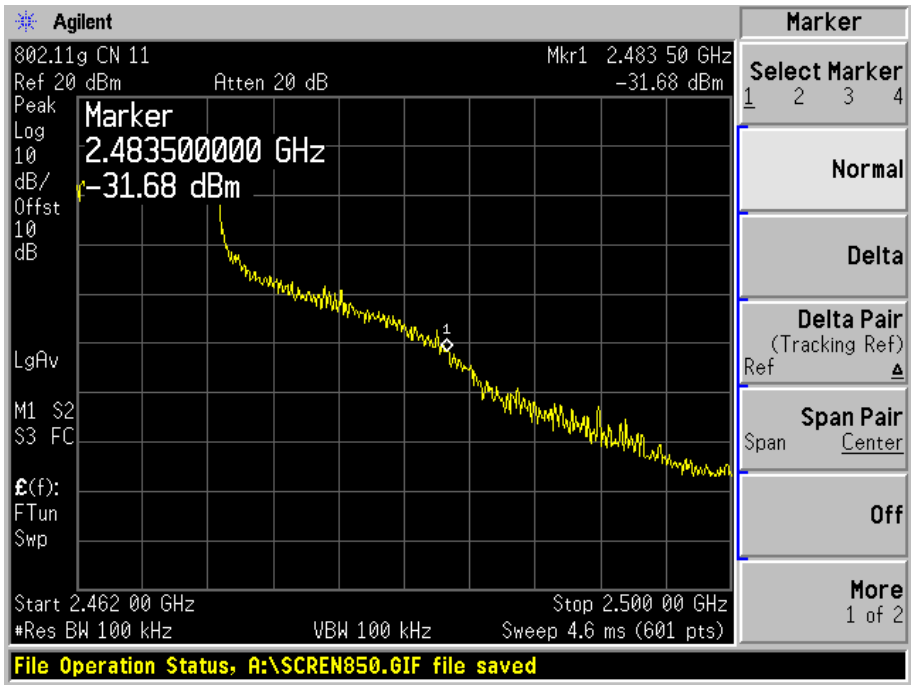
802.11g, Channel 1





802.11g, Channel 11





§15.247(e) & §15.407(a)(2) - POWER SPECTRAL DENSITY

Standard Applicable

According to §15.247 (d), for direct sequence systems, the peak 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.

According to §15.407(a) (1), For the band 5.15–5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

According to §15.407(a) (2), For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Adjust the center frequency of SA on any frequency be measured and set SA to 6MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (DTS)
4. Adjust the center frequency of SA on any frequency be measured and set SA to 50MHz span mode. And then, set RBW and VBW of spectrum analyzer to proper value. (UNII)
5. Repeat above procedures until all frequencies measured were complete.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-12

Test Result for 802.11a, (15.407)

Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	5180	0.269	2
Mid	5200	0.780	2
High	5240	0.194	2

Note: Limit is reduced from 4dBm/MHz to 2 dBm/MHz, due to 8dBi antenna gain.

Test Result for 802.11a, (15.407)

Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	5260	2.635	9
Mid	5300	4.837	9
High	5320	3.496	9

Note: Limit is reduced from 11dBm/MHz to 9 dBm/MHz, due to 8dBi antenna gain.

Test Result for 802.11a (15.247)

Channel	Frequency MHz	PSD dBm/3KHz	Limit dBm/3KHz
Low	5745	-10.552	1
Mid	5785	-11.641	1
High	5825	-12.069	1

Note: Limit is reduced from 8dBm/3KHz to 1 dBm/3KHz, due to 13dBi antenna gain.

Test Result for 802.11b (15.247)

Channel	Frequency MHz	PSD dBm/3KHz	Limit dBm/3KHz
Low	2412	-4.11	1
Mid	2437	-3.11	1
High	2462	-8.02	1

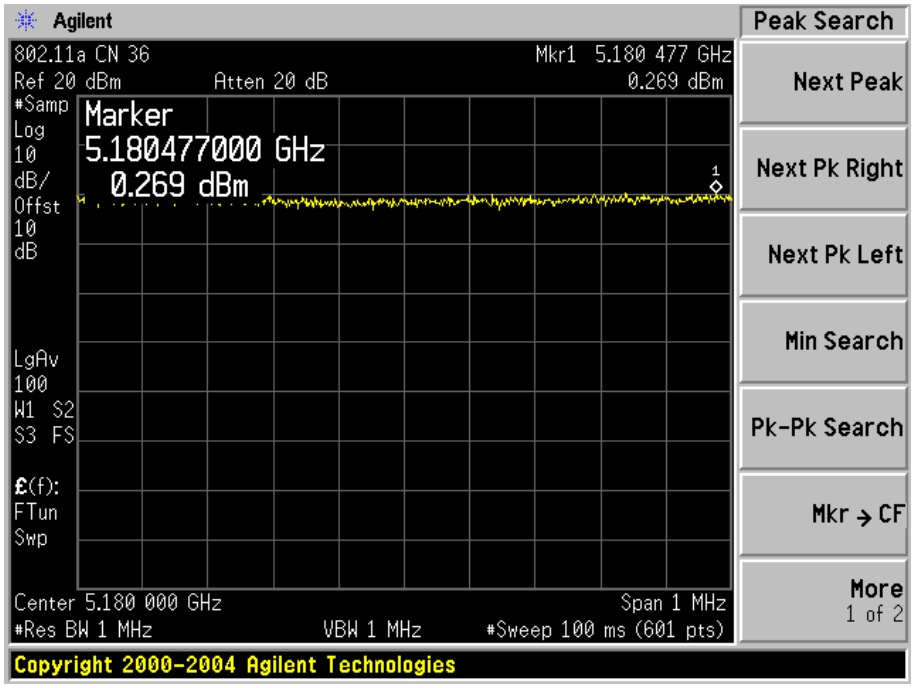
Note: Limit is reduced from 8dBm/3KHz to 1 dBm/3KHz, due to 13dBi antenna gain.

Test Result for 802.11g (15.247)

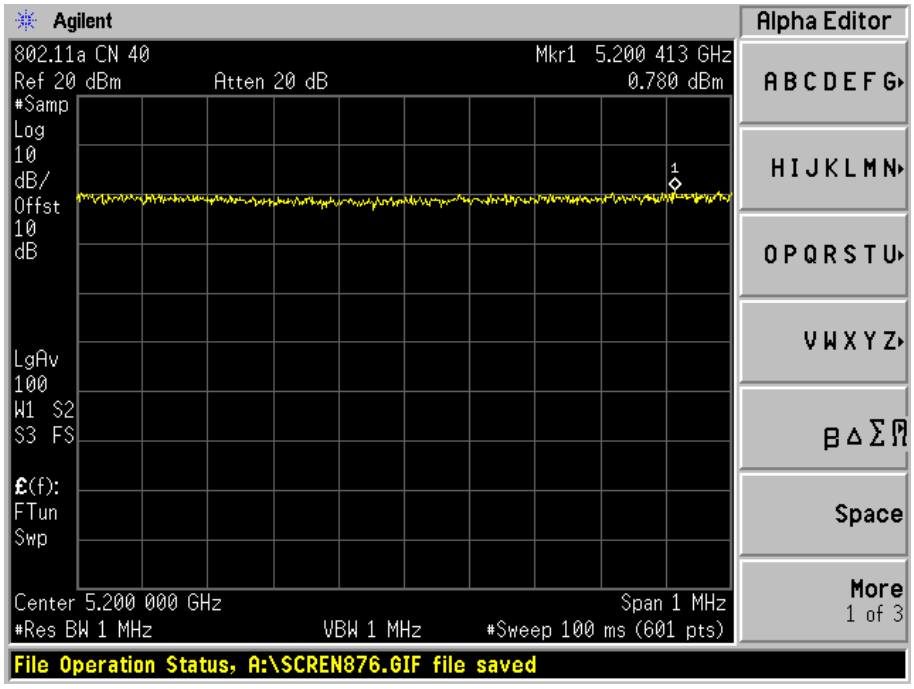
Channel	Frequency MHz	PSD dBm/3KHz	Limit dBm/3KHz
Low	2412	-2.00	1
Mid	2437	-11.97	1
High	2462	-12.01	1

Note: Limit is reduced from 8dBm/3KHz to 1 dBm/3KHz, due to 13dBi antenna gain.

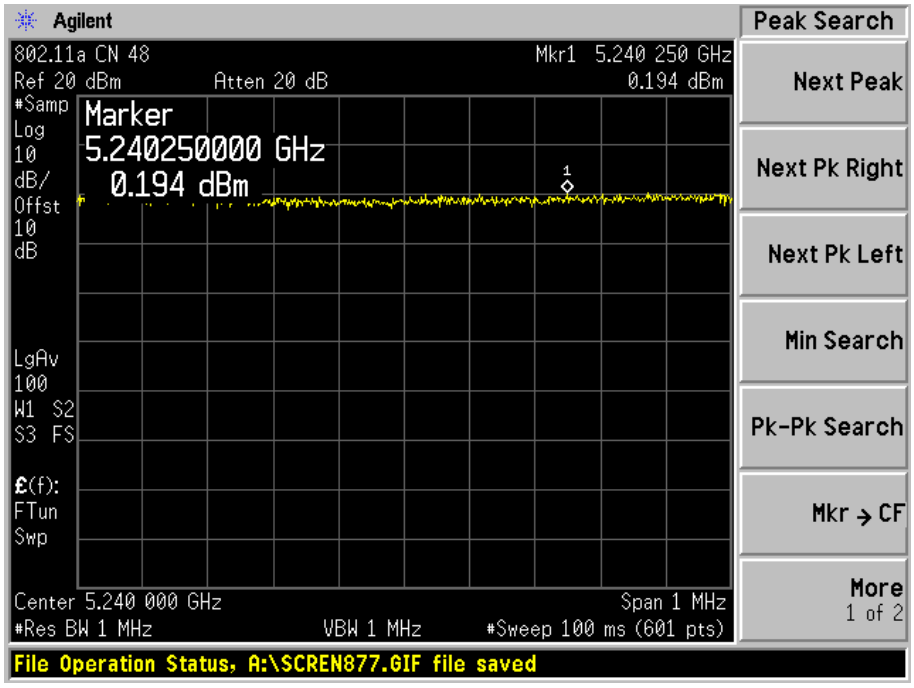
802.11a, Channel 36



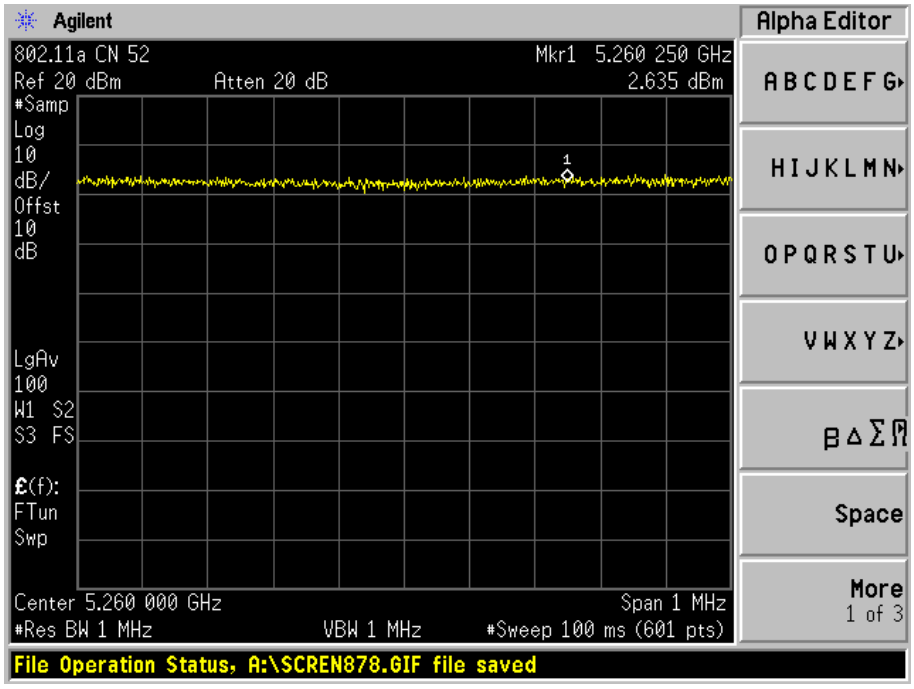
802.11a, Channel 40



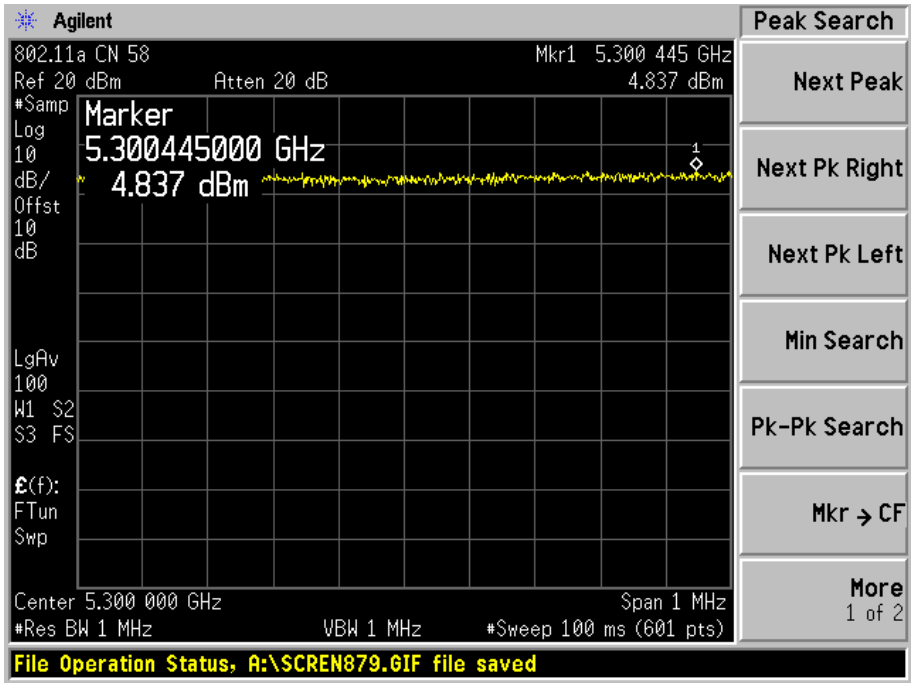
802.11a, Channel 48



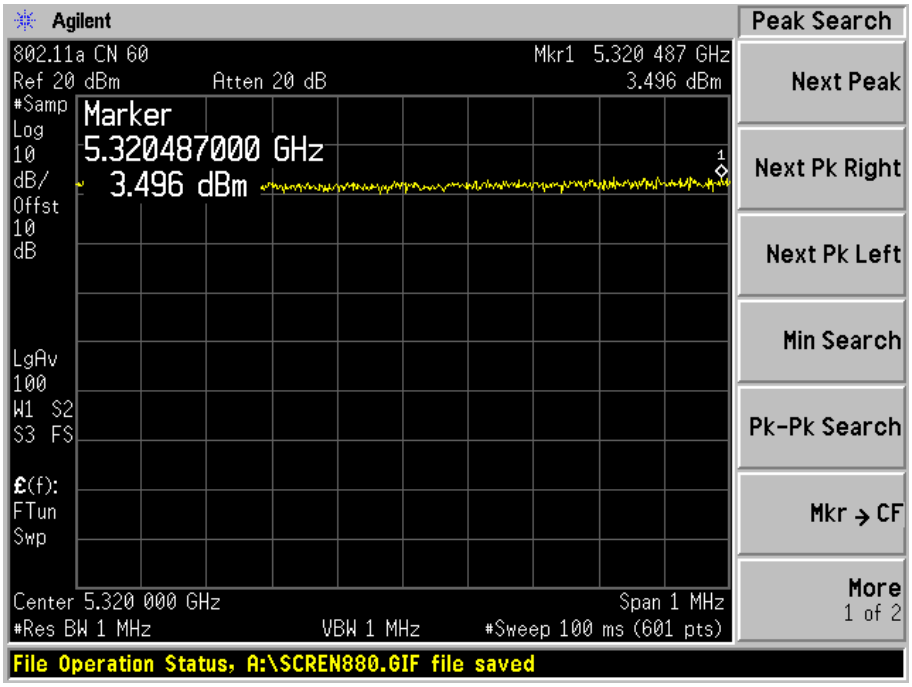
802.11a, Channel 52



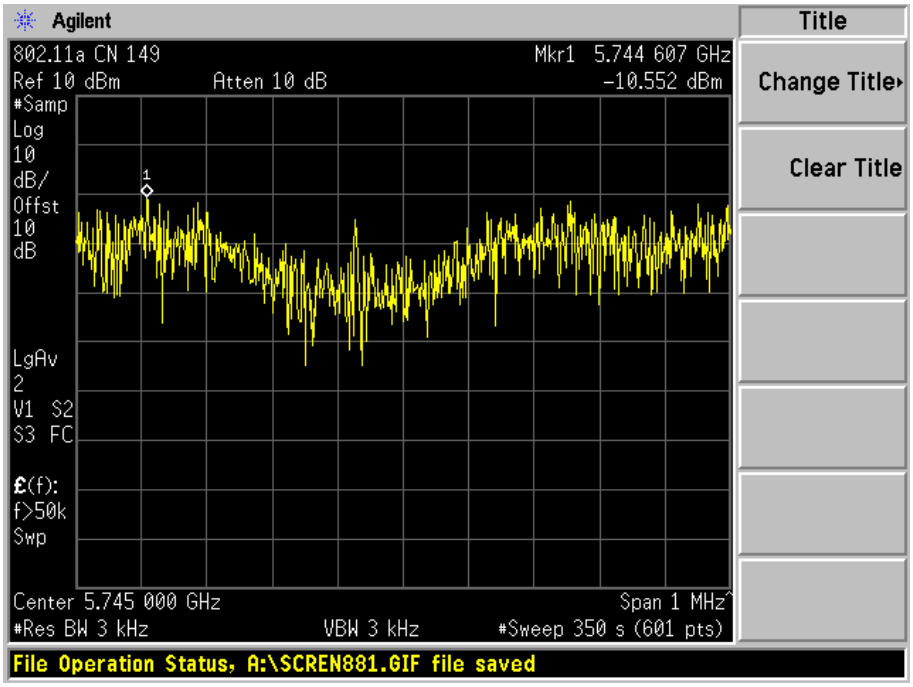
802.11a, Channel 60



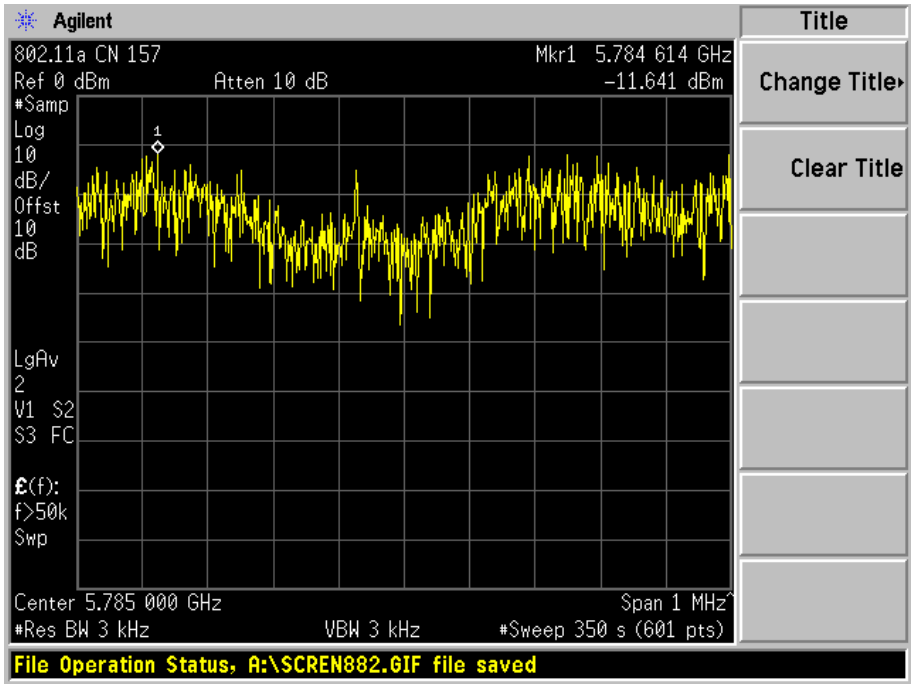
802.11a, Channel 64



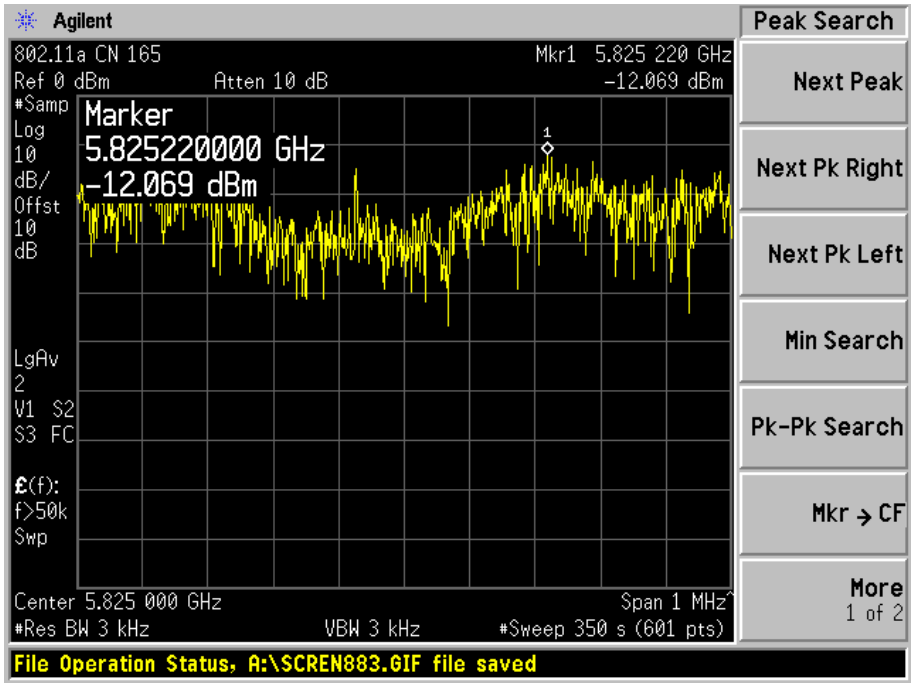
802.11a, Channel 149



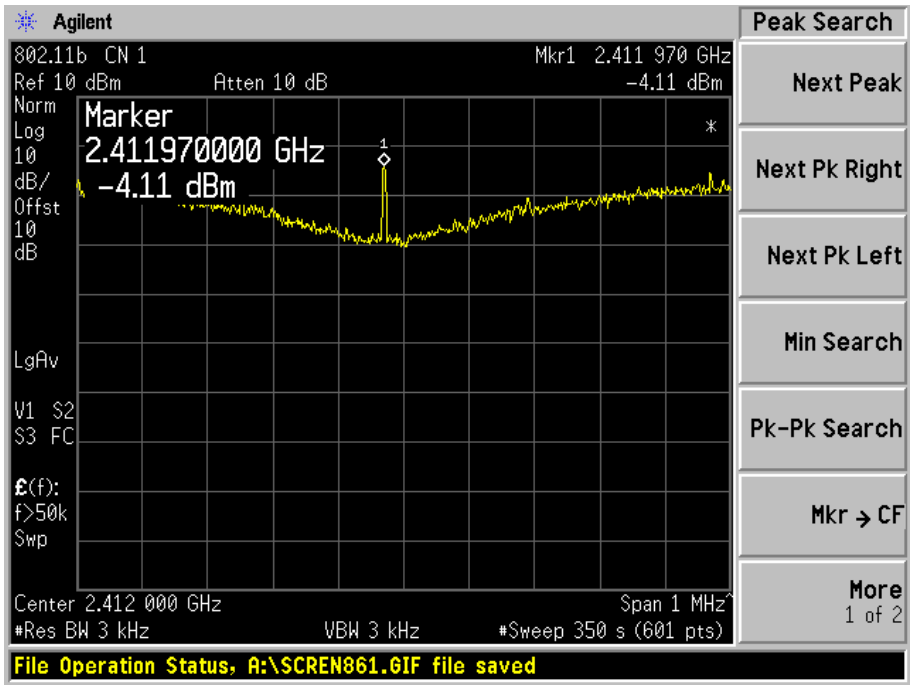
802.11a, Channel 157



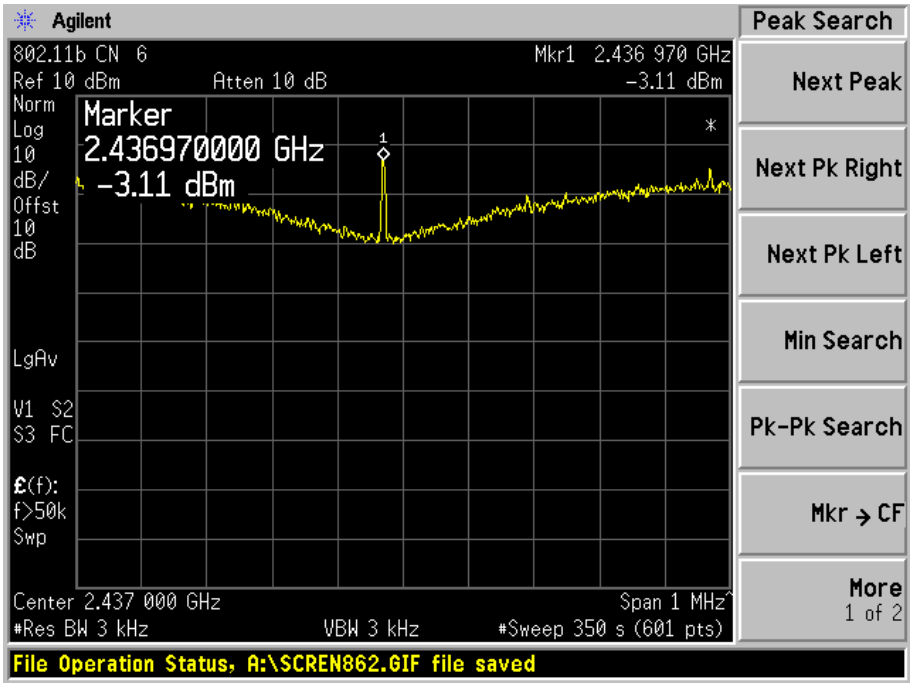
802.11a, Channel 165



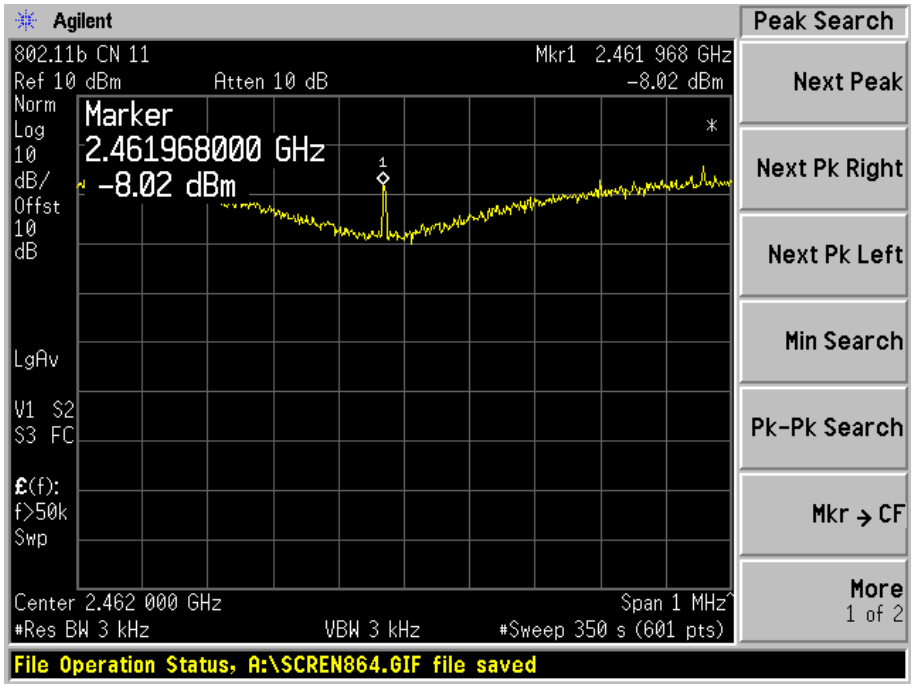
802.11b, Channel 1



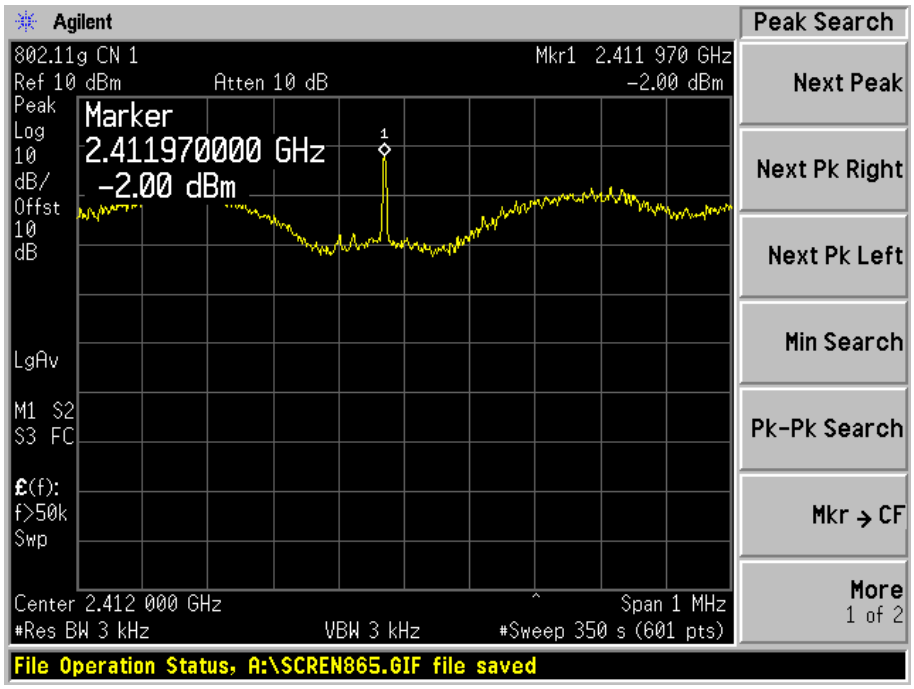
802.11b, Channel 6



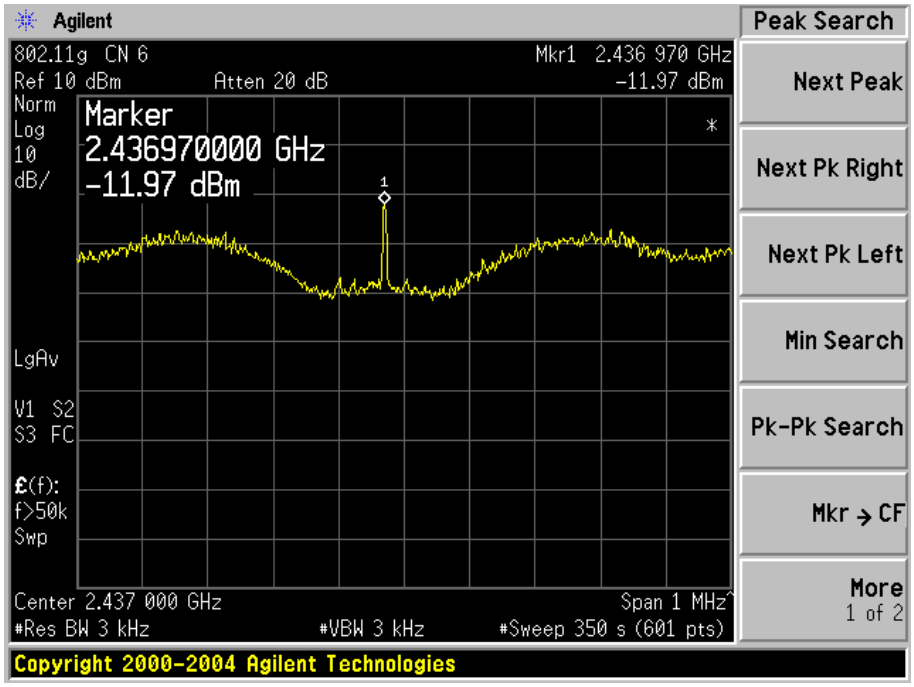
802.11b, Channel 11



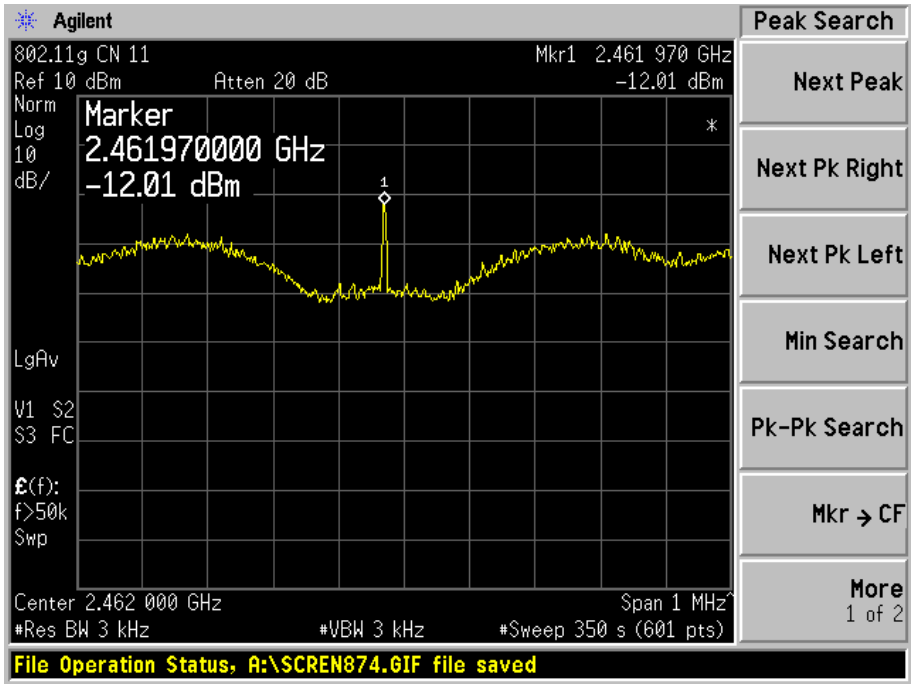
802.11g, Channel 1



802.11g, Channel 6



802.11g, Channel 11



§15.407(a)(6) - Peak Excursion To Average Ratio

Standard Applicable

According to §15.407(a)(6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less.

Test Procedure

For this test, the EUT's antenna was removed and replaced with a SMA jack to UMP2.0 plug test cable, so output power levels were calculated from conducted emission levels.

The analyzer center frequency was set to the EUT carrier frequency. For the peak value trace A, the analyzer resolution and video bandwidth were set to 1MHz. Do a MAX HOLD, then VIEW. For the average value trace B, the analyzer resolution bandwidth was set to 1MHz, set to power averaging mode.

The delta from the peak value trace and the Average should not exceed 13dBm across any 1MHz bandwidth.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

Environmental Conditions

Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-22.

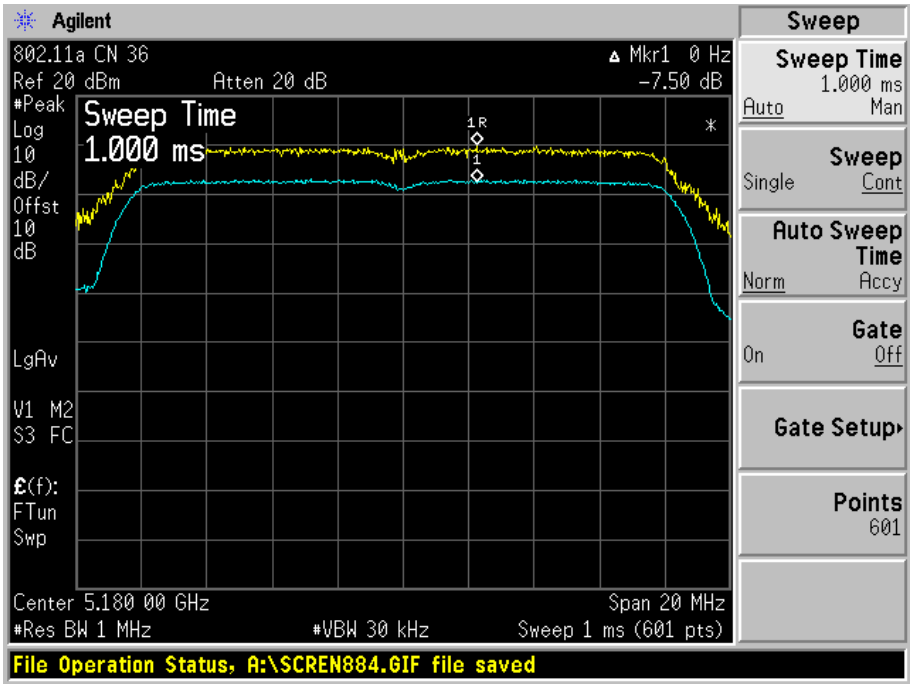
802.11a, 15.407

Channel	Frequency MHz	Measured dB	Limit
Low	5180	7.50	13
Mid	5200	6.19	13
High	5240	8.71	13

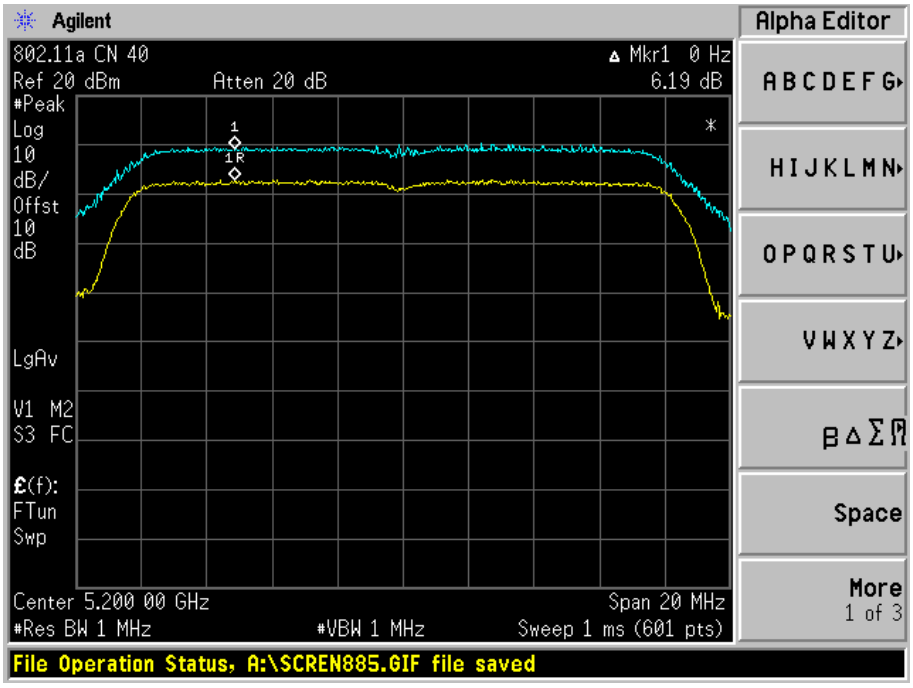
Channel	Frequency MHz	Measured dB	Limit
Low	5260	6.16	13
Mid	5300	8.32	13
High	5320	5.69	13

Please see the hereinafter plots for more detail.

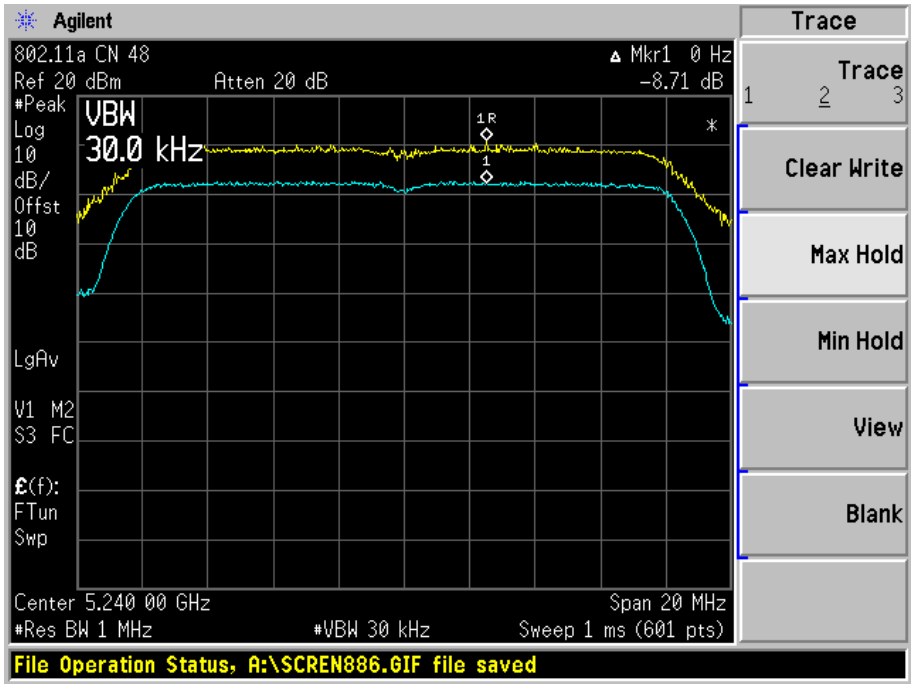
802.11a, Channel 36



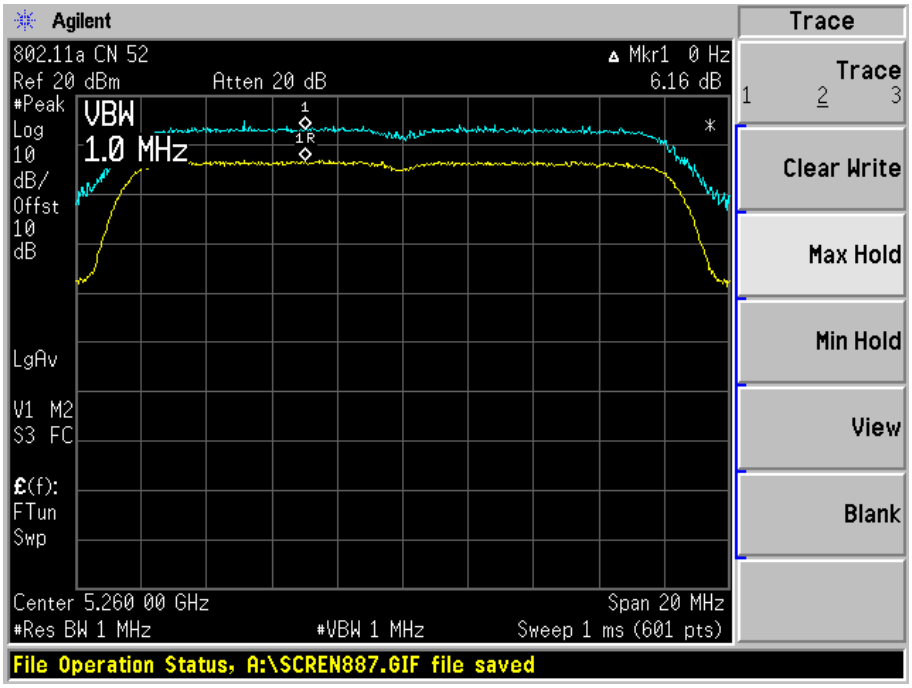
802.11a, Channel 40



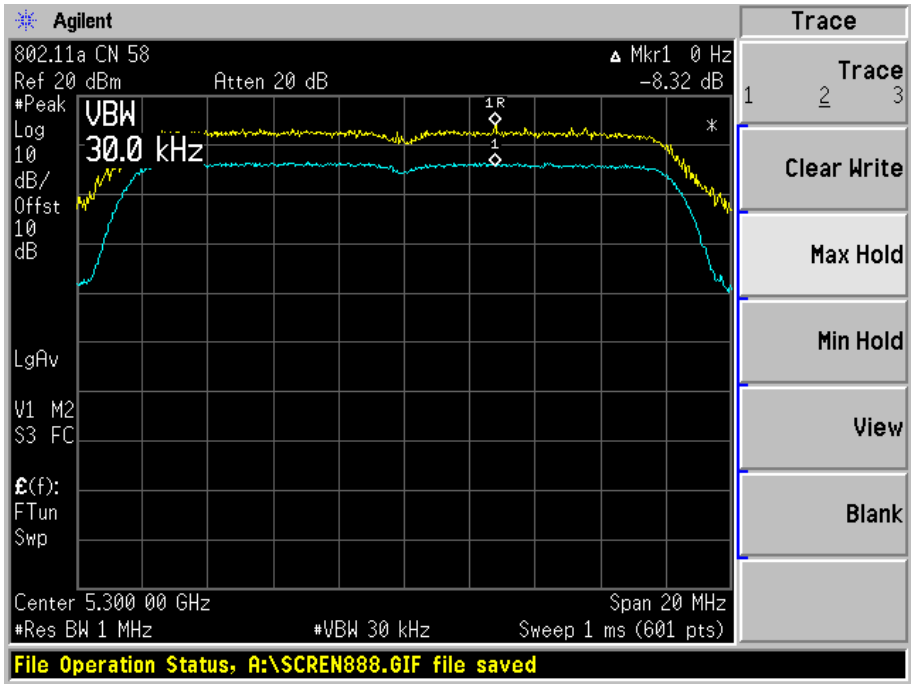
802.11a, Channel 48



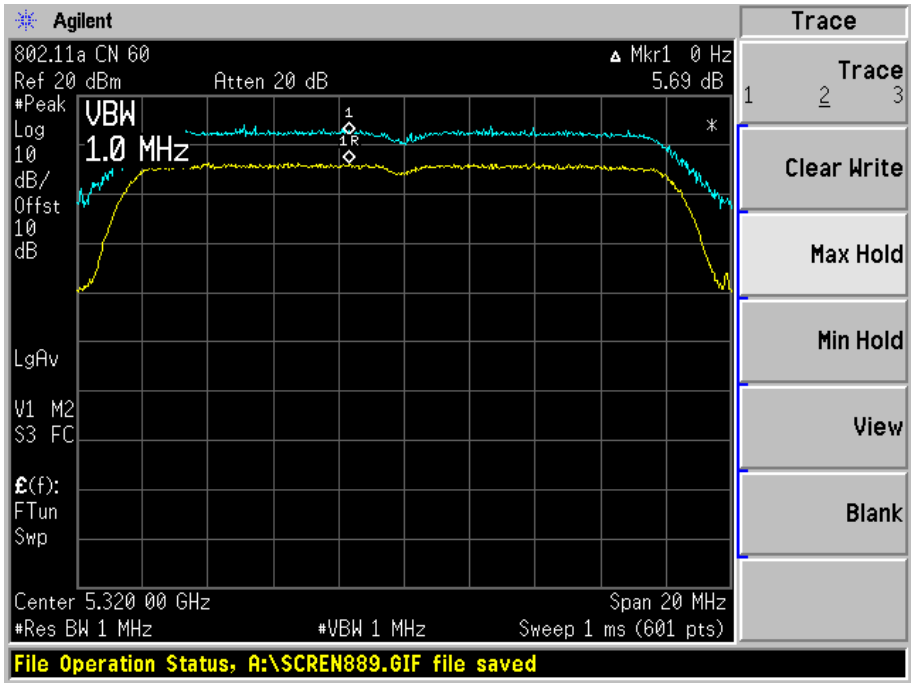
802.11a, Channel 52



802.11a, Channel 60



802.11a, Channel 64



§15.407(b) - Out Of Band Emission

Standard Applicable

§15.407 (b), undesirable emission limits: except as shown in paragraph (b)(6) of this section, the peak emission outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

§15.407 (b)(2), for transmitters operating in the 5.25 – 5.35 GHz & 5.15 – 5.25 GHz band: all emissions outside of the 5.15 – 5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25 – 5.35 GHz band that generate emissions in the 5.15 – 5.25 GHz band must meet all applicable technical requirements for operation in the 5.15 – 5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15 – 5.25 GHz band.

Test Procedure

For this test, the EUT's antenna was removed and replaced with a low loss cable, so output power levels were calculated from conducted emission levels.

The analyzer center frequency was set to the EUT carrier frequency. The analyzer resolution and video bandwidth were set to 1MHz. The entire band from 30kHz to 40GHz was investigated.

Every suspected signal was also investigated through radiated emission. Refer to section 15.205 restricted bands of operation.

Equipment Lists

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2005-11-10

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Measurement Result

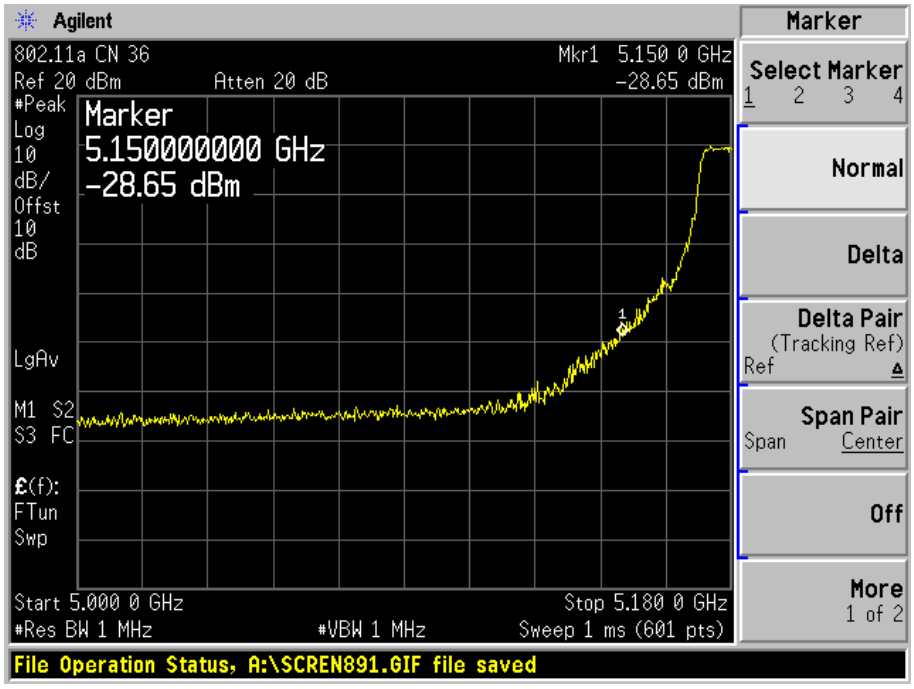
Environmental Conditions

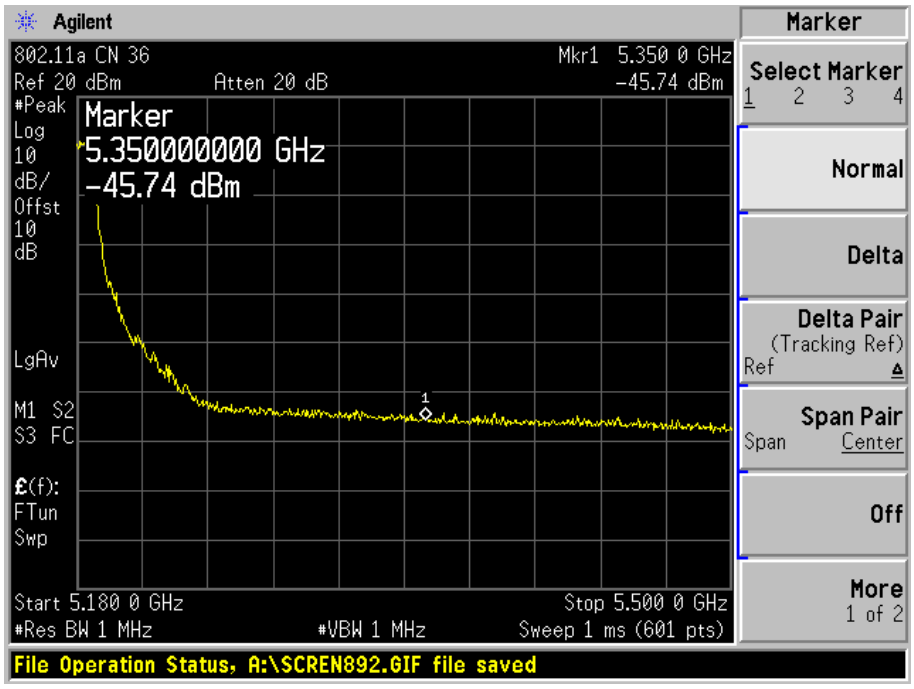
Temperature:	21° C
Relative Humidity:	78%
ATM Pressure:	1022 mbar

The testing was performed by James Ma on 2005-12-22.

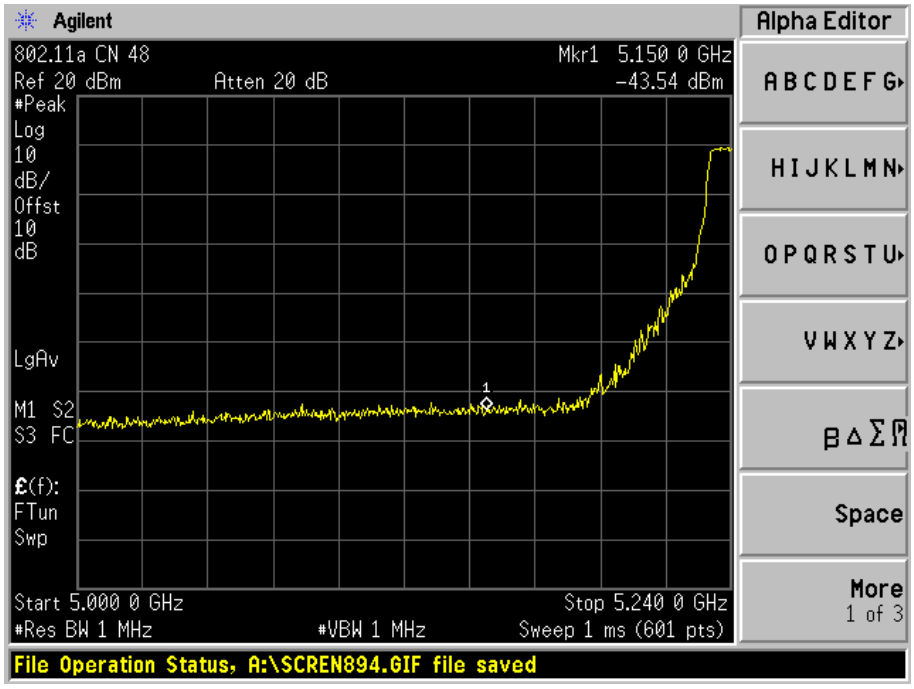
Please refer to the following plots.

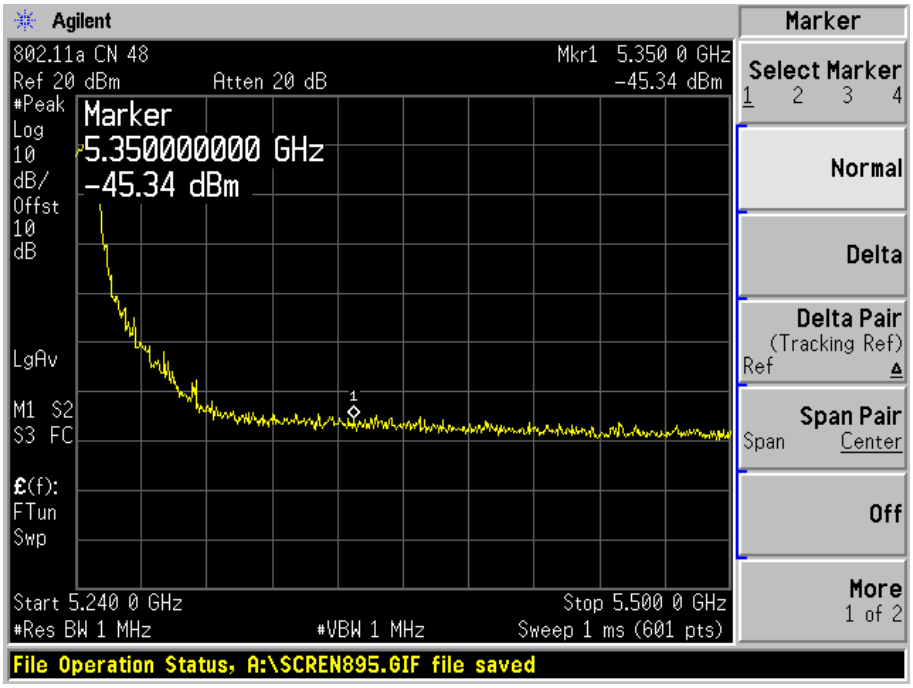
802.11a, Channel 36



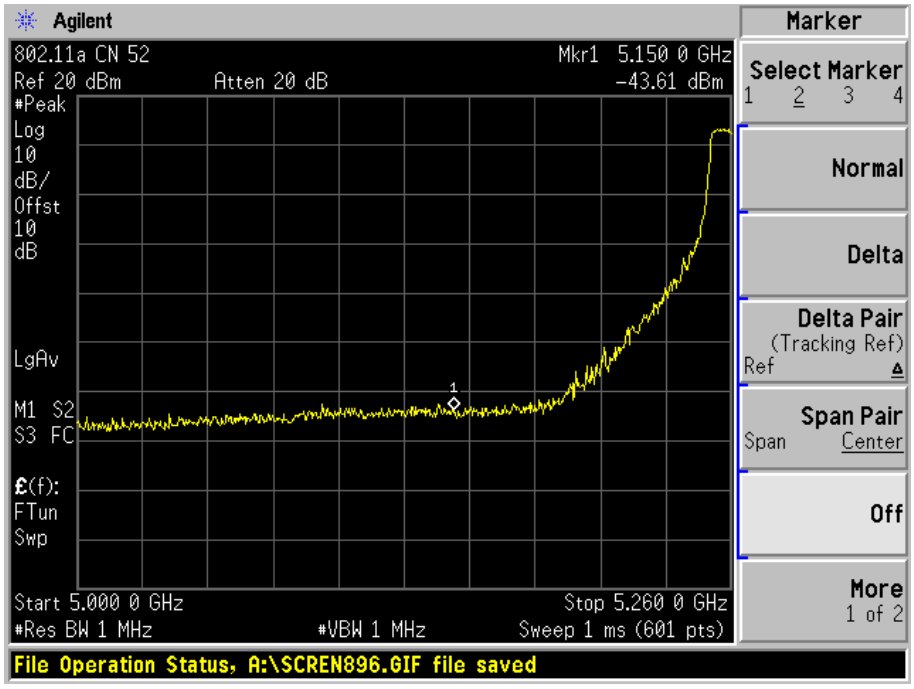


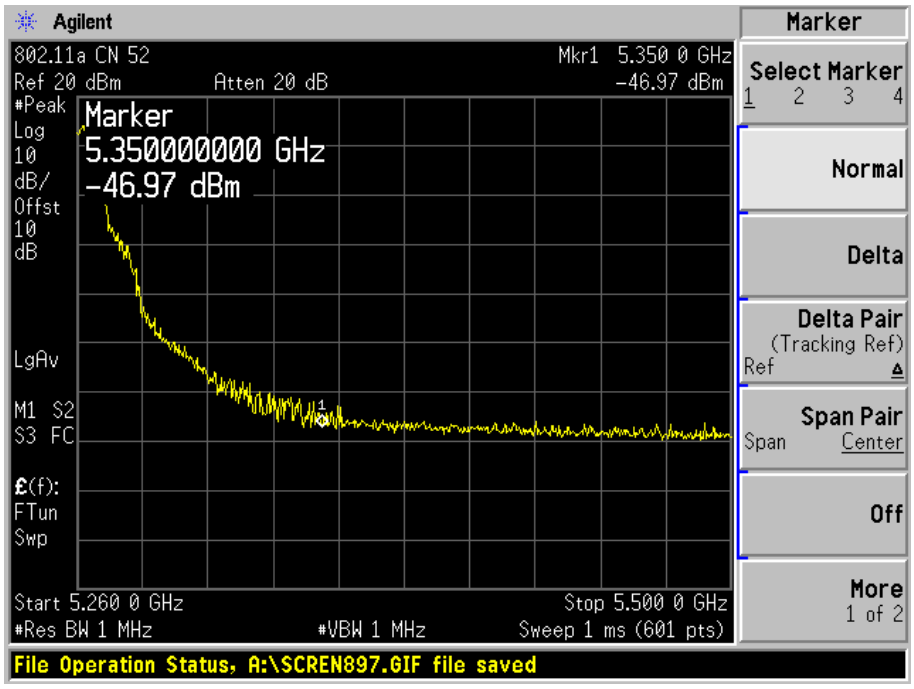
802.11a, Channel 48



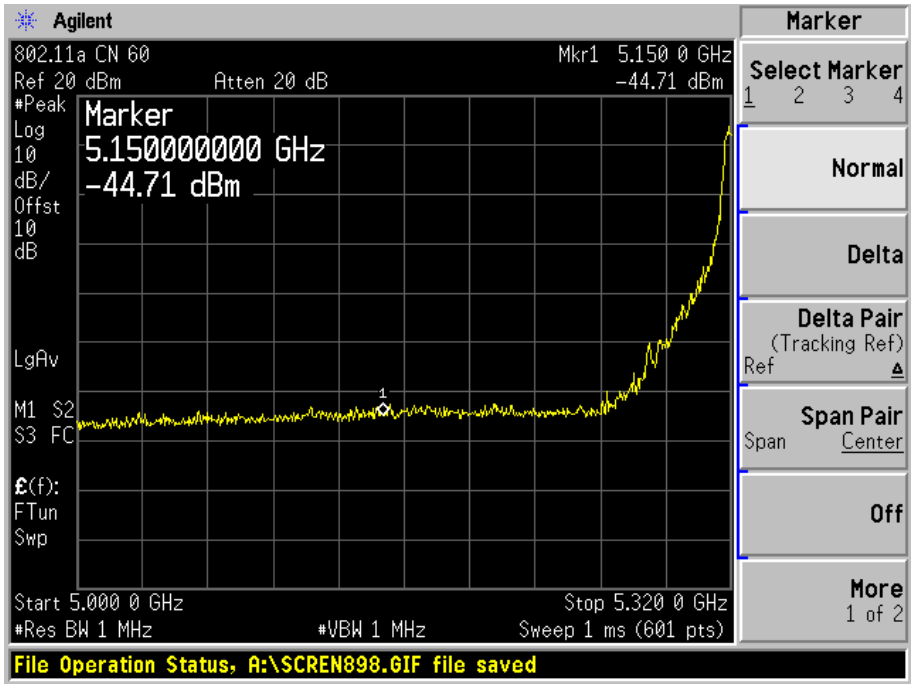


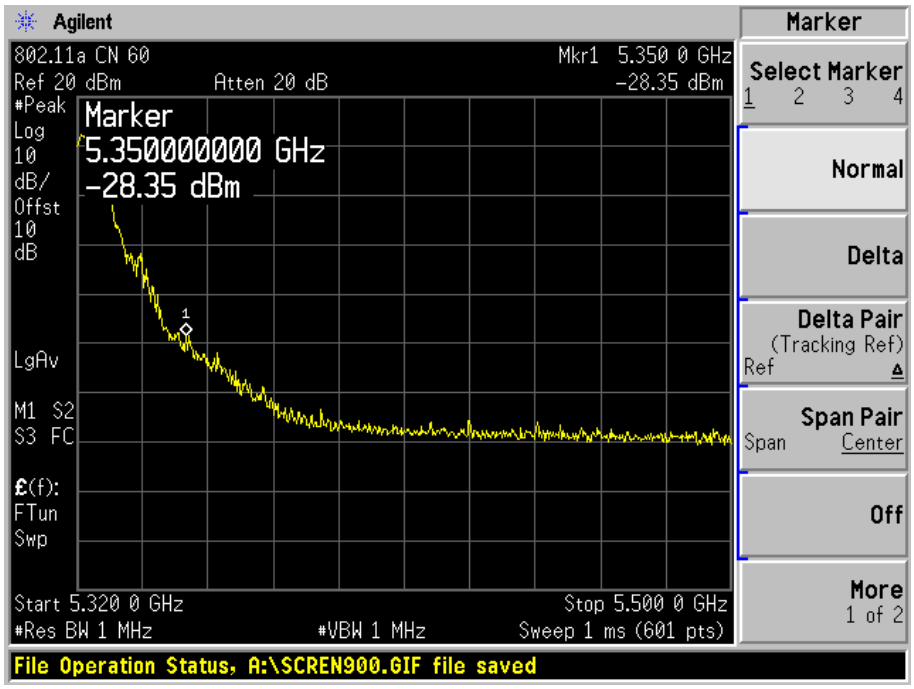
802.11a, Channel 52





802.11a, Channel 64





15.407(c) - Discontinue Transmitting With Absence Of Data Or Operational Failure

According to § 15.407 (c), the device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the user of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application a description of how this requirement is met.

§15.407(g) - Frequency Stability

Standard Applicable

According to §15.407 (g), manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation .

Please refer to use manual for all conditions.