



FCC PART 15.247 & 15.407
EMI MEASUREMENT AND TEST REPORT

For

Meru Networks

1309 S. Mary Avenue
Sunnyvale, CA 94087, USA

FCC ID: RE7-RS4000

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Multi-mode Multi-radio Wireless Radio Switch, Model RS4000
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Report No.: R0510271	
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TABLE OF CONTENTS

GENERAL INFORMATION.....4

 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)4

 OBJECTIVE4

 RELATED SUBMITTAL(S)/GRANT(S).....4

 TEST METHODOLOGY4

 TEST FACILITY4

SYSTEM TEST CONFIGURATION.....6

 JUSTIFICATION6

 EUT EXERCISE SOFTWARE6

 SPECIAL ACCESSORIES6

 SCHEMATICS / BLOCK DIAGRAM.....6

 EQUIPMENT MODIFICATIONS6

 LOCAL SUPPORT EQUIPMENT LIST AND DETAILS7

 POWER SUPPLY INFORMATION7

 EXTERNAL I/O CABLING LIST AND DETAILS.....7

 CONFIGURATION OF TEST SYSTEM8

 TEST SETUP BLOCK DIAGRAM.....8

SUMMARY OF TEST RESULTS9

§15.203 - ANTENNA REQUIREMENT.....10

 STANDARD APPLICABLE10

§15.205, §15.209(A), §15.407(B)(5), §15.407(B)(6) - SPURIOUS RADIATED EMISSION.....11

 MEASUREMENT UNCERTAINTY11

 EUT SETUP.....12

 SPECTRUM ANALYZER SETUP.....12

 TEST EQUIPMENT LIST AND DETAILS.....12

 TEST PROCEDURE13

 CORRECTED AMPLITUDE & MARGIN CALCULATION13

 SUMMARY OF TEST RESULTS13

§15.207(A) - CONDUCTED EMISSIONS.....14

 MEASUREMENT UNCERTAINTY14

 EUT SETUP.....14

 RECEIVER SETUP.....14

 TEST EQUIPMENT LIST AND DETAILS.....14

 TEST PROCEDURE14

 SUMMARY OF TEST RESULTS14

 CONDUCTED EMISSIONS TEST DATA14

 PLOT OF CONDUCTED EMISSIONS TEST DATA14

§2.1051 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS.....14

 STANDARD APPLICABLE14

 EQUIPMENT LISTS14

 MEASUREMENT RESULT14

§15.247(A)(2) & §15.407 – 6 DB BANDWIDTH AND 26 DB BANDWIDTH.....14

 STANDARD APPLICABLE14

 MEASUREMENT PROCEDURE.....14

 EQUIPMENT LISTS14

 MEASUREMENT RESULT14

§15.247(B)(3), §15.407(A)(2) - PEAK OUTPUT POWER MEASUREMENT.....14

 STANDARD APPLICABLE14

 MEASUREMENT PROCEDURE.....14

 EQUIPMENT LISTS14

 MEASUREMENT RESULT14

§15.247(D) - 100 KHZ BANDWIDTH OF BAND EDGES14
 STANDARD APPLICABLE 14
 MEASUREMENT PROCEDURE..... 14
 EQUIPMENT LISTS 14
 MEASUREMENT RESULT 14

§15.247(E) & §15.407(A)(2) - POWER SPECTRAL DENSITY14
 STANDARD APPLICABLE 14
 MEASUREMENT PROCEDURE..... 14
 EQUIPMENT LISTS 14
 MEASUREMENT RESULT 14

§15.407(A)(6) - PEAK EXCURSION TO AVERAGE RATIO14
 STANDARD APPLICABLE 14
 TEST PROCEDURE 14
 EQUIPMENT LISTS 14
 MEASUREMENT RESULT 14

§15.407(B) - OUT OF BAND EMISSION14
 STANDARD APPLICABLE 14
 TEST PROCEDURE 14
 EQUIPMENT LISTS 14
 MEASUREMENT RESULT 14

15.407(C) - DISCONTINUE TRANSMITTING WITH ABSENCE OF DATA OR OPERATIONAL FAILURE14

§15.407(G) - FREQUENCY STABILITY14
 STANDARD APPLICABLE 14

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Meru Networks's* product, FCC ID: *RE7-RS4000*, model number: *RS4000* or the "EUT" as referred to in this report is a Multi-mode Multi-radio Wireless Radio Switch. 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 62.37mW & 5725.00 – 5850.00 MHz (for 802.11a), maximum output power is 22.65mW. For the UNII part (802.11a), the frequency range is 5150.00 – 5250.00 MHz, maximum output power is 18.66mW & 5250.00 – 5350.00 MHz, maximum output power is 22.13mW.

** 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/hdocs/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 (mid band)

DAC = 20dBm , CH=52, CH 56

DAC = 18dBm, CH60

Data Rate = 54Mbps , 100% duty cycle

802.11a (low band)

DAC = 18 dBm, CH=34

DAC = 20 dBm, CH~40CH48

Data Rate = 54Mbps , 100% duty cycle

802.11a (high band)

DATA RATE = 54Mbps

100% DUTY CYCLE

DAC= 20 dBm, CH149 ~ CH 165

802.11g

DAC =17 dBm, CH11

DAC = 16 dBm, CH1

DAC= 20 dBm CH2 ~ CH 10

DATA RATE =

54Mbps

100% DUTY CYCLE

802.11b

DATA RATE = 11Mbps

100% DUTY CYCLE

DAC= 23 dBm, CH1 ~ CH 11

Special Accessories

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

Schematics / Block Diagram

Please refer to Appendix A.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
IBM	Laptop PC	G40	0043-585-135-172	DOC
netgear	Switch	Fs105	FS15B25351551	DOC

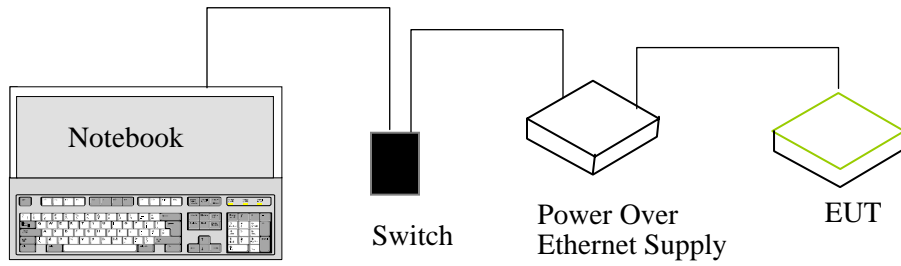
Power Supply Information

Manufacturer	Description	Model	Serial Number	FCC ID
PowerDsine	AC/DC Adapter	PowerDsine 3001	B05086050002207701	None
PowerDsine	AC/DC Adapter	PowerDsine 3001	B05086050002235301	None

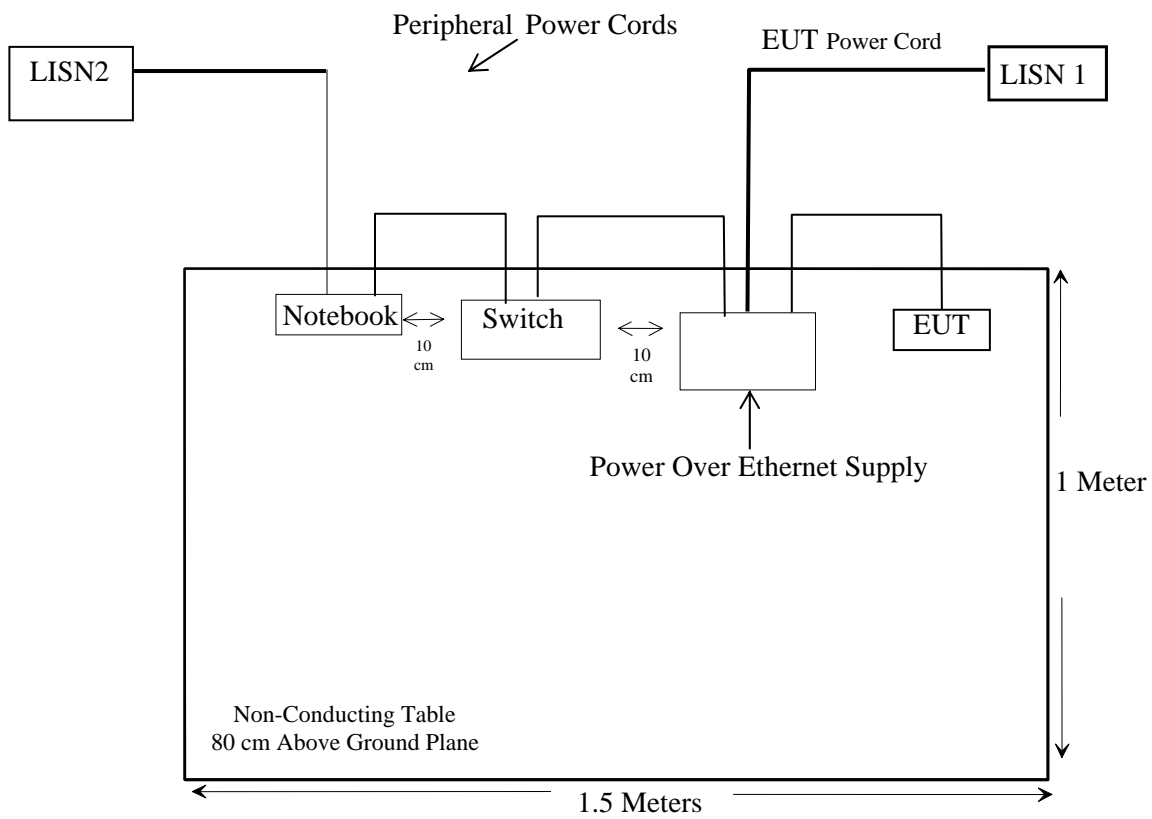
External I/O Cabling List and Details

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	2.0	Ethernet Port 2/EUT	PowerDsine Power Supply 2(data & power out port)
Ethernet Cable	2.0	PowerDsine Power Supply 1(data in port)	Switch port
Ethernet Cable	2.0	PowerDsine Power Supply 1(data in port)	Switch port
Ethernet Cable	2.0	Ethernet port/Laptop	Switch

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 - #750-00002 is a dual band, 360 degree, Omni-directional antenna with peak gain of +3dBi for the 2.4GHz ISM band, and +5dBi on the UNII-1, UNII-2, and UNII-3 bands. Antenna polarization is linear

Model #2 - #750-00003 is similar to the omni-directional version mention above, but it designed for hemi-spherical, 180 degree radiated pattern. The peak gain of this antenna is +6dBi for the 2.4GHz ISM band, and +7dBi 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 BAEL 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 (dB μ V/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.

Spectrum Analyzer 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:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>
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	2944A10198	8/20/2005
HP	Amplifier, Pre, Microwave	8449B	3147A00400	6/14/2005
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	4/20/2005
Rohde & Schwarz	Receiver, EMI Test	ESCI 1166.5950K03	100044	9/29/2005
Sunol Sciences	Antenna	JB1	A013105-3	2/11/2005

* **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 dB μ V 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Subpart C Limit}$$

Summary of Test Results

Environmental Conditions

Temperature:	23° C
Relative Humidity:	42%
ATM Pressure:	1018 mbar

The testing was performed by Snell Leong on 2005-11-1.

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, High Band 15.247

For Antenna #1 Double Side

-19.9 dB at **1149.00 MHz** in the **Vertical** polarization, for Low Channel

-16.5 dB at **4904.60 MHz** in the **Horizontal** polarization, for Middle Channel

-16.1 dB at **4952.00 MHz** in the **Horizontal** polarization, for High Channel

-6.2 dB at **5665.00 MHz** in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 149 & Channel 165

For Antenna #2 Single Side

-19.6 dB at **1149.00 MHz** in the **Vertical** polarization, for Low Channel

-16.2 dB at **4904.60 MHz** in the **Horizontal** polarization, for Middle Channel

-5.8 dB at **4952.00 MHz** in the **Horizontal** polarization, for High Channel

-6.0 dB at **5665.00 MHz** in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 149 & Channel 165

802.11b, 15.247**For Antenna #1 Double Side**

-3.7 dB at **3090.00MHz** in the **Horizontal** polarization, for Low Channel*

-2.0 dB at **3112.00 MHz** in the **Horizontal** polarization, for Middle Channel*

-2.3 dB at **3336.00MHz** in the **Vertical** polarization, for High Channel*

-1.1 dB at **2362.00 MHz** in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 1 & Channel 11*

For Antenna #2 Single Side

-2.8 dB at **3090.00MHz** in the **Horizontal** polarization, for Low Channel*

-1.0 dB at **3112.00 MHz** in the **Horizontal** polarization, for Middle Channel*

-1.3 dB at **3336.00MHz** in the **Vertical** polarization, for High Channel*

-0.9 dB at **2362.00 MHz** in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 1 & Channel 11*

802.11g, 15.247**For Antenna #1 Double Side**

-32.2 dB at **4824.00MHz** in the **Vertical** polarization, for Low Channel

-26.8 dB at **3137.00 MHz** in the **Horizontal** polarization, for Middle Channel

-17.8 dB at **3336.00MHz** in the **Horizontal** polarization, for High Channel

-1.9 dB at **2377.00MHz** in the **Horizontal** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 2 & Channel 10*

For Antenna #2 Single Side

- 31.2 dB at 4824.00MHz in the **Vertical** polarization, for Low Channel
- 25.8 dB at 3137.00 MHz in the **Horizontal** polarization, for Middle Channel
- 16.8 dB at 3336.00MHz in the **Horizontal** polarization, for High Channel
- 1.7 dB at 2377.00MHz in the **Horizontal** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 2 & Channel 10*

802.11a Mid Band (15.407)**For Antenna #1 Double Side**

- 15.3 dB at 6134.00 MHz in the **Vertical** polarization, for Low Channel
- 16.0 dB at 6172.00 MHz in the **Vertical** polarization, for Middle Channel
- 14.4 dB at 6197.00 MHz in the **Vertical** polarization, for High Channel
- 2.4 dB at 10580 MHz in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 52 & 60*

For Antenna #2 Single Side

- 15.9 dB at 6134.00 MHz in the **Vertical** polarization, for Low Channel
- 15.5 dB at 6172.00 MHz in the **Vertical** polarization, for Middle Channel
- 14.0 dB at 6197.00 MHz in the **Vertical** polarization, for High Channel
- 2.7dB at 10580 MHz in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 34 & 48*

802.11a Low Band (15.407)**For Antenna #1 Double Side**

- 15.8 dB at 6060.00 MHz in the **Horizontal** polarization, for Low Channel
- 14.8 at 6076 MHz in the **Vertical** polarization, for Middle Channel
- 11.3 dB at 6114.00 MHz in the **Vertical** polarization, for High Channel
- 1.9 dB at 10420 MHz in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 34 & 48*

For Antenna #2 Single Side

-15.3 dB at **6060.00 MHz** in the **Horizontal** polarization, for Low Channel

-14.4 at **6076 MHz** in the **Vertical** polarization, for Middle Channel

-10.9 dB at **6114.00 MHz** in the **Vertical** polarization, for High Channel

-2.0 dB at **10580 MHz** in the **Vertical** polarization, Inter modulation Radiated Harmonic and Spurious Emission Channel 34 & 60*

Unwanted Emission:

-5.6 dB at **109.94 MHz** in the **Horizontal** polarization

*: *Test data are within the measurement uncertainty $\pm 4.0dB$*

802.11a, 5725-5850MHZ (15.247)**For Antenna #1 Double Side****Run # 1- 1 :Final scan 1GHz -25GHz, (Lowest channel. : 5745 MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11490.0000	32.2	0	1.0	v	39.3	5.6	33.0	10.0	34.1	54	-19.9	Ave
11490.0000	31.8	330	1.2	h	39.3	5.6	33.0	10.0	33.7	54	-20.3	Ave
5062.3300	40.5	0	1.0	v	34.0	3.2	34.3	10.0	33.3	54	-20.7	Ave
5062.3300	39.4	330	1.2	h	34.0	3.2	34.3	10.0	32.2	54	-21.8	Ave
4865.0000	41.1	330	1.2	h	32.5	3.1	34.8	10.0	31.9	54	-22.1	Ave
4865.0000	40.5	0	1.0	v	32.5	3.1	34.8	10.0	31.3	54	-22.7	Ave
11490.0000	45.9	0	1.0	v	39.3	5.6	33.0	10.0	47.8	74	-26.2	Peak
5062.3300	53.7	0	1.0	v	34.0	3.2	34.3	10.0	46.5	74	-27.5	Peak
4865.0000	55.7	330	1.2	h	32.5	3.1	34.8	10.0	46.5	74	-27.5	Peak
5062.3300	52.8	330	1.2	h	34.0	3.2	34.3	10.0	45.6	74	-28.4	Peak
4865.0000	54.8	0	1.0	v	32.5	3.1	34.8	10.0	45.6	74	-28.4	Peak
11490.0000	43.1	330	1.2	h	39.3	5.6	33.0	10.0	45.0	74	-29.0	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4904.6000	46.7	330	1.2	h	32.5	3.1	34.8	10.0	37.5	54	-16.5	Ave
5080.2000	43.5	330	1.2	h	34.0	3.2	34.3	10.0	36.3	54	-17.7	Ave
11570.0000	33.1	0	1.0	v	39.5	5.4	32.2	10.0	35.9	54	-18.1	Ave
11570.0000	32.8	330	1.2	h	39.5	5.4	32.2	10.0	35.6	54	-18.4	Ave
5080.2000	41.3	0	1.0	v	34.0	3.2	34.3	10.0	34.1	54	-19.9	Ave
4904.6000	42.8	0	1.0	v	32.5	3.1	34.8	10.0	33.6	54	-20.4	Ave
5080.2000	57.4	330	1.2	h	34.0	3.2	34.3	10.0	50.2	74	-23.8	Peak
11570.0000	47.1	0	1.0	v	39.5	5.4	32.2	10.0	49.9	74	-24.1	Peak
4904.6000	58.9	0	1.0	v	32.5	3.1	34.8	10.0	49.7	74	-24.3	Peak
11570.0000	46.3	330	1.2	h	39.5	5.4	32.2	10.0	49.1	74	-24.9	Peak
4904.6000	58.0	330	1.2	h	32.5	3.1	34.8	10.0	48.8	74	-25.2	Peak
5080.2000	55.0	0	1.0	v	34.0	3.2	34.3	10.0	47.8	74	-26.2	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4952.0000	47.1	330	1.2	h	32.5	3.1	34.8	10.0	37.9	54	-16.1	Ave
5152.0000	44.9	330	1.2	h	34.0	3.2	34.3	10.0	37.7	54	-16.3	Ave
4952.0000	45.6	0	1.0	v	32.5	3.1	34.8	10.0	36.4	54	-17.6	Ave
11650.0000	33.3	0	1.0	v	39.5	5.4	32.2	10.0	36.1	54	-17.9	Ave
11650.0000	33.0	330	1.2	h	39.5	5.4	32.2	10.0	35.8	54	-18.2	Ave
5152.0000	41.7	0	1.0	v	34.0	3.2	34.3	10.0	34.5	54	-19.5	Ave
4952.0000	62.6	330	1.2	h	32.5	3.1	34.8	10.0	53.4	74	-20.6	Peak
5152.0000	58.6	330	1.2	h	34.0	3.2	34.3	10.0	51.4	74	-22.6	Peak
11650.0000	47.3	0	1.0	v	39.5	5.4	32.2	10.0	50.1	74	-23.9	Peak
4952.0000	58.6	0	1.0	v	32.5	3.1	34.8	10.0	49.4	74	-24.6	Peak
11650.0000	46.5	330	1.2	h	39.5	5.4	32.2	10.0	49.3	74	-24.7	Peak
5152.0000	55.2	0	1.0	v	34.0	3.2	34.3	10.0	48.0	74	-26.0	Peak

Run#1 Intermodulation Radiated Harmonic and Spurious Emission 802.11a CH149 & CH165 @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
5665.0000	25.8	270	2.4	v	34.1	3.4	0.0	15.5	47.8	54	-6.2	Ave
5585.0000	25.7	180	2.0	v	34.1	3.4	0.0	15.5	47.7	54	-6.3	Ave
5585.0000	25.7	90	2.0	h	34.1	3.4	0.0	15.5	47.7	54	-6.3	Ave
5905.0000	25.6	180	2.0	v	34.1	3.4	0.0	15.5	47.6	54	-6.4	Ave
5905.0000	25.4	90	2.0	h	34.1	3.4	0.0	15.5	47.4	54	-6.6	Ave
5665.0000	25.3	180	2.3	h	34.1	3.4	0.0	15.5	47.3	54	-6.7	Ave
5665.0000	37.7	270	2.4	v	34.1	3.4	0.0	15.5	59.7	74	-14.3	Peak
5585.0000	37.6	180	2.0	h	34.1	3.4	0.0	15.5	59.6	74	-14.4	Peak
5665.0000	37.5	180	2.3	h	34.1	3.4	0.0	15.5	59.5	74	-14.5	Peak
5585.0000	37.5	90	2.0	v	34.1	3.4	0.0	15.5	59.5	74	-14.5	Peak
5905.0000	37.2	90	2.0	v	34.1	3.4	0.0	15.5	59.2	74	-14.8	Peak
5905.0000	37.1	180	2.0	h	34.1	3.4	0.0	15.5	59.1	74	-14.9	Peak

For Antenna #2 Single Side**Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 5745 MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
11490.0000	32.5	0	1.0	v	39.3	5.6	33.0	10.0	34.4	54	-19.6	Ave
11490.0000	32.1	330	1.2	h	39.3	5.6	33.0	10.0	34.0	54	-20.0	Ave
5062.3300	40.8	0	1.0	v	34.0	3.2	34.3	10.0	33.6	54	-20.4	Ave
5062.3300	39.7	330	1.2	h	34.0	3.2	34.3	10.0	32.5	54	-21.5	Ave
4865.0000	41.4	330	1.2	h	32.5	3.1	34.8	10.0	32.2	54	-21.8	Ave
4865.0000	40.8	0	1.0	v	32.5	3.1	34.8	10.0	31.6	54	-22.4	Ave
11490.0000	46.2	0	1.0	v	39.3	5.6	33.0	10.0	48.1	74	-25.9	Peak
5062.3300	54.0	0	1.0	v	34.0	3.2	34.3	10.0	46.8	74	-27.2	Peak
4865.0000	56.0	330	1.2	h	32.5	3.1	34.8	10.0	46.8	74	-27.2	Peak
5062.3300	53.1	330	1.2	h	34.0	3.2	34.3	10.0	45.9	74	-28.1	Peak
4865.0000	55.1	0	1.0	v	32.5	3.1	34.8	10.0	45.9	74	-28.1	Peak
11490.0000	43.4	330	1.2	h	39.3	5.6	33.0	10.0	45.3	74	-28.7	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4904.6000	47.0	330	1.2	h	32.5	3.1	34.8	10.0	37.8	54	-16.2	Ave
5080.2000	43.8	330	1.2	h	34.0	3.2	34.3	10.0	36.6	54	-17.4	Ave
11570.0000	33.4	0	1.0	v	39.5	5.4	32.2	10.0	36.2	54	-17.8	Ave
11570.0000	33.1	330	1.2	h	39.5	5.4	32.2	10.0	35.9	54	-18.1	Ave
5080.2000	41.6	0	1.0	v	34.0	3.2	34.3	10.0	34.4	54	-19.6	Ave
4904.6000	43.1	0	1.0	v	32.5	3.1	34.8	10.0	33.9	54	-20.1	Ave
5080.2000	57.7	330	1.2	h	34.0	3.2	34.3	10.0	50.5	74	-23.5	Peak
11570.0000	47.4	0	1.0	v	39.5	5.4	32.2	10.0	50.2	74	-23.8	Peak
4904.6000	59.2	0	1.0	v	32.5	3.1	34.8	10.0	50.0	74	-24.0	Peak
11570.0000	46.6	330	1.2	h	39.5	5.4	32.2	10.0	49.4	74	-24.6	Peak
4904.6000	58.3	330	1.2	h	32.5	3.1	34.8	10.0	49.1	74	-24.9	Peak
5080.2000	55.3	0	1.0	v	34.0	3.2	34.3	10.0	48.1	74	-25.9	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4952.0000	57.4	330	1.2	h	32.5	3.1	34.8	10.0	48.2	54	-5.8	Ave
5152.0000	45.2	330	1.2	h	34.0	3.2	34.3	10.0	38.0	54	-16.0	Ave
4952.0000	45.9	0	1.0	v	32.5	3.1	34.8	10.0	36.7	54	-17.3	Ave
11650.0000	33.6	0	1.0	v	39.5	5.4	32.2	10.0	36.4	54	-17.6	Ave
11650.0000	33.3	330	1.2	h	39.5	5.4	32.2	10.0	36.1	54	-17.9	Ave
5152.0000	42.0	0	1.0	v	34.0	3.2	34.3	10.0	34.8	54	-19.2	Ave
4952.0000	62.9	330	1.2	h	32.5	3.1	34.8	10.0	53.7	74	-20.3	Peak
5152.0000	58.9	330	1.2	h	34.0	3.2	34.3	10.0	51.7	74	-22.3	Peak
11650.0000	47.6	0	1.0	v	39.5	5.4	32.2	10.0	50.4	74	-23.6	Peak
4952.0000	58.9	0	1.0	v	32.5	3.1	34.8	10.0	49.7	74	-24.3	Peak
11650.0000	46.8	330	1.2	h	39.5	5.4	32.2	10.0	49.6	74	-24.4	Peak
5152.0000	55.5	0	1.0	v	34.0	3.2	34.3	10.0	48.3	74	-25.7	Peak

Run#1 Intermodulation Radiated Harmonic and Spurious Emission 802.11a CH149 & CH165 @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
5665.0000	26.0	270	2.4	v	34.1	3.4	0.0	15.5	48.0	54	-6.0	Ave
5585.0000	25.9	180	2.0	v	34.1	3.4	0.0	15.5	47.9	54	-6.1	Ave
5585.0000	25.9	90	2.0	h	34.1	3.4	0.0	15.5	47.9	54	-6.1	Ave
5905.0000	25.8	180	2.0	v	34.1	3.4	0.0	15.5	47.8	54	-6.2	Ave
5905.0000	25.6	90	2.0	h	34.1	3.4	0.0	15.5	47.6	54	-6.4	Ave
5665.0000	25.5	180	2.3	h	34.1	3.4	0.0	15.5	47.5	54	-6.5	Ave
5665.0000	37.9	270	2.4	v	34.1	3.4	0.0	15.5	59.9	74	-14.1	Peak
5585.0000	37.8	180	2.0	h	34.1	3.4	0.0	15.5	59.8	74	-14.2	Peak
5665.0000	37.7	180	2.3	h	34.1	3.4	0.0	15.5	59.7	74	-14.3	Peak
5585.0000	37.7	90	2.0	v	34.1	3.4	0.0	15.5	59.7	74	-14.3	Peak
5905.0000	37.4	90	2.0	v	34.1	3.4	0.0	15.5	59.4	74	-14.6	Peak
5905.0000	37.3	180	2.0	h	34.1	3.4	0.0	15.5	59.3	74	-14.7	Peak

802.11b**For Antenna #1 Double Side****Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 2412 MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3090.0000	63.1	330	1.2	h	29.8	2.5	35.2	10.0	50.3	54	-3.7*	Ave
3287.0000	61.0	0	1.2	v	29.8	2.5	35.2	10.0	48.2	54	-5.8	Ave
3287.0000	60.5	330	1.2	h	29.8	2.5	35.2	10.0	47.7	54	-6.3	Ave
3090.0000	58.7	0	1.2	v	29.8	2.5	35.2	10.0	45.9	54	-8.1	Ave
3090.0000	74.2	330	1.2	h	29.8	2.5	35.2	10.0	61.4	74	-12.6	Peak
4824.0000	50.0	0	1.2	v	32.5	3.1	34.8	10.0	40.8	54	-13.2	Ave
4824.0000	50.0	330	1.2	h	32.5	3.1	34.8	10.0	40.8	54	-13.2	Ave
3287.0000	73.1	330	1.2	h	29.8	2.5	35.2	10.0	60.3	74	-13.7	Peak
3287.0000	72.4	0	1.0	v	29.8	2.5	35.2	10.0	59.6	74	-14.4	Peak
3090.0000	71.0	0	1.0	v	29.8	2.5	35.2	10.0	58.2	74	-15.8	Peak
4824.0000	55.1	330	1.2	h	32.5	3.1	34.8	10.0	45.9	74	-28.1	Peak
4824.0000	55.0	0	1.0	v	32.5	3.1	34.8	10.0	45.8	74	-28.2	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3112.0000	64.8	330	1.2	h	29.8	2.5	35.2	10.0	52.0	54	-2.0*	Ave
3312.0000	62.8	330	1.2	h	29.8	2.5	35.2	10.0	50.0	54	-4.0*	Ave
3312.0000	60.5	0	1.2	v	29.8	2.5	35.2	10.0	47.7	54	-6.3	Ave
3112.0000	57.3	0	1.2	v	29.8	2.5	35.2	10.0	44.5	54	-9.5	Ave
3112.0000	76.3	330	1.2	h	29.8	2.5	35.2	10.0	63.5	74	-10.5	Peak
3312.0000	74.6	330	1.2	h	29.8	2.5	35.2	10.0	61.8	74	-12.2	Peak
3312.0000	72.5	0	1.0	v	29.8	2.5	35.2	10.0	59.7	74	-14.3	Peak
3112.0000	70.6	0	1.0	v	29.8	2.5	35.2	10.0	57.8	74	-16.2	Peak
4874.0000	41.0	330	1.2	h	32.5	3.1	34.8	10.0	31.8	54	-22.2	Ave
4874.0000	40.7	0	1.2	v	32.5	3.1	34.8	10.0	31.5	54	-22.5	Ave
4874.0000	55.3	330	1.2	h	32.5	3.1	34.8	10.0	46.1	74	-27.9	Peak
4874.0000	54.8	0	1.0	v	32.5	3.1	34.8	10.0	45.6	74	-28.4	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3336.0000	64.6	0	1.2	v	29.8	2.5	35.2	10.0	51.8	54	-2.3	Ave
3138.3000	64.4	330	1.2	h	29.8	2.5	35.2	10.0	51.6	54	-2.4	Ave
3336.0000	63.6	330	1.2	h	29.8	2.5	35.2	10.0	50.8	54	-3.2	Ave
3138.3000	56.9	0	1.2	v	29.8	2.5	35.2	10.0	44.1	54	-9.9	Ave
3138.3000	76.3	330	1.2	h	29.8	2.5	35.2	10.0	63.5	74	-10.5	Peak
3336.0000	76.0	0	1.0	v	29.8	2.5	35.2	10.0	63.2	74	-10.8	Peak
3138.3000	67.2	0	1.0	v	29.8	2.5	35.2	10.0	54.4	74	-19.6	Peak
4924.0000	38.6	0	1.2	v	32.5	3.1	34.8	10.0	29.4	54	-24.6	Ave
3336.0000	60.9	330	1.2	h	29.8	2.5	35.2	10.0	48.1	74	-25.9	Peak
4924.0000	36.2	330	1.2	h	32.5	3.1	34.8	10.0	27.0	54	-27.0	Ave
4924.0000	52.2	0	1.0	v	32.5	3.1	34.8	10.0	43.0	74	-31.0	Peak
4924.0000	48.4	330	1.2	h	32.5	3.1	34.8	10.0	39.2	74	-34.8	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11b CH1 & CH11 @ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
2362.0000	32.3	270	2.4	v	28.7	2.0	0.0	10.0	53.0	54	-1.1*	Ave
2362.0000	31.6	180	2.3	h	28.7	2.0	0.0	10.0	52.3	54	-1.8*	Ave
2512.0000	28.7	90	2.0	h	28.9	2.4	0.0	10.0	50.0	54	-4.0*	Ave
2512.0000	25.6	180	2.0	v	28.9	2.4	0.0	10.0	46.9	54	-7.1	Ave
2362.0000	45.2	270	2.4	v	28.7	2.0	0.0	10.0	65.9	74	-8.2	Peak
2362.0000	43.4	180	2.3	h	28.7	2.0	0.0	10.0	64.1	74	-10.0	Peak
2512.0000	42.1	90	2.0	v	28.9	2.4	0.0	10.0	63.4	74	-10.6	Peak
2512.0000	41.0	180	2.0	h	28.9	2.4	0.0	10.0	62.3	74	-11.7	Peak
4874.0000	12.0	180	2.0	v	32.5	3.1	0.0	10.0	37.6	54	-16.4	Ave
4874.0000	11.9	90	2.0	h	32.5	3.1	0.0	10.0	37.5	54	-16.5	Ave
4874.0000	23.8	90	2.0	v	32.5	3.1	0.0	10.0	49.4	74	-24.6	Peak
4874.0000	23.6	180	2.0	h	32.5	3.1	0.0	10.0	49.2	74	-24.8	Peak

For Antenna #2 Single Side**Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 2412 MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3090.0000	64.0	330	1.3	h	29.8	2.5	35.2	10.0	51.2	54	-2.8*	Ave
3287.0000	61.9	0	1.2	v	29.8	2.5	35.2	10.0	49.1	54	-4.9	Ave
3287.0000	61.4	330	1.3	h	29.8	2.5	35.2	10.0	48.6	54	-5.4	Ave
3090.0000	59.6	0	1.2	v	29.8	2.5	35.2	10.0	46.8	54	-7.2	Ave
4824.0000	51.9	0	1.2	v	32.5	3.1	34.8	10.0	42.7	54	-11.3	Ave
3090.0000	75.1	330	1.3	h	29.8	2.5	35.2	10.0	62.3	74	-11.7	Peak
4824.0000	51.0	330	1.3	h	32.5	3.1	34.8	10.0	41.8	54	-12.3	Ave
3287.0000	74.0	330	1.3	h	29.8	2.5	35.2	10.0	61.2	74	-12.8	Peak
3287.0000	73.3	0	1.2	v	29.8	2.5	35.2	10.0	60.5	74	-13.5	Peak
3090.0000	71.9	0	1.2	v	29.8	2.5	35.2	10.0	59.1	74	-14.9	Peak
4824.0000	56.0	330	1.3	h	32.5	3.1	34.8	10.0	46.8	74	-27.2	Peak
4824.0000	55.9	0	1.2	v	32.5	3.1	34.8	10.0	46.7	74	-27.3	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3112.0000	65.8	330	1.3	h	29.8	2.5	35.2	10.0	53.0	54	-1.0*	Ave
3312.0000	63.8	330	1.3	h	29.8	2.5	35.2	10.0	51.0	54	-3.0*	Ave
3312.0000	61.5	0	1.2	v	29.8	2.5	35.2	10.0	48.7	54	-5.3	Ave
3112.0000	58.3	0	1.2	v	29.8	2.5	35.2	10.0	45.5	54	-8.5	Ave
3112.0000	77.3	330	1.3	h	29.8	2.5	35.2	10.0	64.5	74	-9.5	Peak
3312.0000	75.6	330	1.3	h	29.8	2.5	35.2	10.0	62.8	74	-11.2	Peak
3312.0000	73.5	0	1.2	v	29.8	2.5	35.2	10.0	60.7	74	-13.3	Peak
3112.0000	71.6	0	1.2	v	29.8	2.5	35.2	10.0	58.8	74	-15.2	Peak
4874.0000	42.0	330	1.3	h	32.5	3.1	34.8	10.0	32.8	54	-21.2	Ave
4874.0000	41.7	0	1.2	v	32.5	3.1	34.8	10.0	32.5	54	-21.5	Ave
4874.0000	56.3	330	1.3	h	32.5	3.1	34.8	10.0	47.1	74	-26.9	Peak
4874.0000	55.8	0	1.2	v	32.5	3.1	34.8	10.0	46.6	74	-27.4	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3336.0000	65.5	0	1.2	v	29.8	2.5	35.2	10.0	52.7	54	-1.3*	Ave
3138.3000	65.3	330	1.3	h	29.8	2.5	35.2	10.0	52.5	54	-1.5*	Ave
3336.0000	61.3	330	1.3	h	29.8	2.5	35.2	10.0	48.5	54	-5.5	Ave
3138.3000	57.8	0	1.2	v	29.8	2.5	35.2	10.0	45.0	54	-9.0	Ave
3138.3000	77.2	330	1.3	h	29.8	2.5	35.2	10.0	64.4	74	-9.6	Peak
3336.0000	76.9	0	1.2	v	29.8	2.5	35.2	10.0	64.1	74	-9.9	Peak
3336.0000	74.5	330	1.3	h	29.8	2.5	35.2	10.0	61.7	74	-12.3	Peak
3138.3000	68.1	0	1.2	v	29.8	2.5	35.2	10.0	55.3	74	-18.7	Peak
4924.0000	39.6	0	1.2	v	32.5	3.1	34.8	10.0	30.4	54	-23.6	Ave
4924.0000	37.2	330	1.3	h	32.5	3.1	34.8	10.0	28.0	54	-26.0	Ave
4924.0000	53.1	0	1.2	v	32.5	3.1	34.8	10.0	43.9	74	-30.1	Peak
4924.0000	49.4	330	1.3	h	32.5	3.1	34.8	10.0	40.2	74	-33.8	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11b CH1 & CH11@ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
2362.0000	32.5	270	2.4	v	28.7	2.0	0.0	10.0	53.2	54	-0.9*	Ave
2362.0000	31.2	180	2.3	h	28.7	2.0	0.0	10.0	51.9	54	-2.2*	Ave
2512.0000	28.9	90	2.0	h	28.9	2.4	0.0	10.0	50.2	54	-3.8*	Ave
2512.0000	25.8	180	2.0	v	28.9	2.4	0.0	10.0	47.1	54	-6.9	Ave
2362.0000	45.4	270	2.4	v	28.7	2.0	0.0	10.0	66.1	74	-8.0	Peak
2362.0000	43.6	180	2.3	h	28.7	2.0	0.0	10.0	64.3	74	-9.8	Peak
2512.0000	42.3	90	2.0	v	28.9	2.4	0.0	10.0	63.6	74	-10.4	Peak
2512.0000	41.2	180	2.0	h	28.9	2.4	0.0	10.0	62.5	74	-11.5	Peak
4874.0000	12.1	90	2.0	h	32.5	3.1	0.0	10.0	37.7	54	-16.3	Ave
4874.0000	11.9	180	2.0	v	32.5	3.1	0.0	10.0	37.5	54	-16.5	Ave
4874.0000	24.0	90	2.0	v	32.5	3.1	0.0	10.0	49.6	74	-24.4	Peak
4874.0000	23.8	180	2.0	h	32.5	3.1	0.0	10.0	49.4	74	-24.6	Peak

802.11g (15.247)**For Antenna #1 double side****Run # 1- 3 :Final scan 1GHz -25GHz , (Lowest channel. : 2412 MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4824.0000	31.0	0	1.4	v	32.5	3.1	34.8	10.0	21.8	54	-32.2	Ave
4824.0000	30.7	330	1.3	h	32.5	3.1	34.8	10.0	21.5	54	-32.5	Ave
3090.0000	33.0	0	1.4	v	29.8	2.5	35.2	10.0	20.2	54	-33.8	Ave
3287.0000	32.8	0	1.4	v	29.8	2.5	35.2	10.0	20.0	54	-34.0	Ave
3287.0000	31.9	330	1.3	h	29.8	2.5	35.2	10.0	19.1	54	-34.9	Ave
3090.0000	31.6	330	1.3	h	29.8	2.5	35.2	10.0	18.8	54	-35.2	Ave
4824.0000	44.8	0	1.4	v	32.5	3.1	34.8	10.0	35.6	74	-38.4	Peak
4824.0000	44.0	330	1.3	h	32.5	3.1	34.8	10.0	34.8	74	-39.2	Peak
3287.0000	46.2	0	1.4	v	29.8	2.5	35.2	10.0	33.4	74	-40.6	Peak
3090.0000	45.4	0	1.4	v	29.8	2.5	35.2	10.0	32.6	74	-41.4	Peak
3287.0000	44.2	330	1.3	h	29.8	2.5	35.2	10.0	31.4	74	-42.6	Peak
3090.0000	43.1	330	1.3	h	29.8	2.5	35.2	10.0	30.3	74	-43.7	Peak

Run # 1- 3 :Final scan 1GHz -25GHz , (Middle channel. : 2437 MHz) @ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3137.0000	40.0	330	1.3	h	29.8	2.5	35.2	10.0	27.2	54	-26.8	Ave
4874.0000	36.1	0	1.4	v	32.5	3.1	34.8	10.0	26.9	54	-27.1	Ave
4874.0000	35.8	330	1.3	h	32.5	3.1	34.8	10.0	26.6	54	-27.4	Ave
3137.0000	38.6	0	1.4	v	29.8	2.5	35.2	10.0	25.8	54	-28.2	Ave
3312.0000	35.8	330	1.3	h	29.8	2.5	35.2	10.0	22.9	54	-31.1	Ave
3312.0000	34.1	0	1.4	v	29.8	2.5	35.2	10.0	21.3	54	-32.7	Ave
3137.0000	52.7	330	1.3	h	29.8	2.5	35.2	10.0	39.8	74	-34.2	Peak
4874.0000	47.2	0	1.4	v	32.5	3.1	34.8	10.0	38.0	74	-36.0	Peak
4874.0000	46.8	330	1.3	h	32.5	3.1	34.8	10.0	37.6	74	-36.4	Peak
3312.0000	49.5	330	1.3	h	29.8	2.5	35.2	10.0	36.7	74	-37.3	Peak
3137.0000	48.6	0	1.4	v	29.8	2.5	35.2	10.0	35.8	74	-38.2	Peak
3312.0000	45.5	0	1.4	v	29.8	2.5	35.2	10.0	32.7	74	-41.3	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3336.0000	49.0	330	1.3	h	29.8	2.5	35.2	10.0	36.2	54	-17.8	Ave
3336.0000	48.0	0	1.4	v	29.8	2.5	35.2	10.0	35.2	54	-18.8	Ave
3162.0000	47.3	330	1.3	h	29.8	2.5	35.2	10.0	34.5	54	-19.5	Ave
3162.0000	46.4	0	1.4	v	29.8	2.5	35.2	10.0	33.6	54	-20.4	Ave
3162.0000	63.9	330	1.3	h	29.8	2.5	35.2	10.0	51.1	74	-22.9	Peak
3336.0000	62.7	0	1.4	v	29.8	2.5	35.2	10.0	49.9	74	-24.1	Peak
3162.0000	61.4	0	1.4	v	29.8	2.5	35.2	10.0	48.6	74	-25.4	Peak
3336.0000	61.4	330	1.3	h	29.8	2.5	35.2	10.0	48.6	74	-25.4	Peak
4924.0000	31.5	0	1.4	v	32.5	3.1	34.8	10.0	22.3	54	-31.7	Ave
4924.0000	31.1	330	1.3	h	32.5	3.1	34.8	10.0	21.9	54	-32.1	Ave
4924.0000	45.3	0	1.4	v	32.5	3.1	34.8	10.0	36.1	74	-37.9	Peak
4924.0000	44.5	330	1.3	h	32.5	3.1	34.8	10.0	35.3	74	-38.7	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11g CH2 & CH10 @ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
2377.0000	31.5	180	2.3	h	28.7	2.0	0.0	10.0	52.2	54	-1.9*	Ave
4874.0000	26.5	90	2.0	h	32.5	3.1	0.0	10.0	52.1	54	-1.9*	Ave
4874.0000	26.1	180	2.0	v	32.5	3.1	0.0	10.0	51.7	54	-2.3*	Ave
2377.0000	30.3	270	2.4	v	28.7	2.0	0.0	10.0	51.0	54	-3.1*	Ave
2497.0000	27.8	90	2.0	h	28.7	2.0	0.0	10.0	48.5	54	-5.6	Ave
2497.0000	27.3	180	2.0	v	28.7	2.0	0.0	10.0	48.0	54	-6.1	Ave
4874.0000	40.5	180	2.0	h	32.5	3.1	0.0	10.0	66.1	74	-7.9	Peak
4874.0000	39.5	90	2.0	v	32.5	3.1	0.0	10.0	65.1	74	-8.9	Peak
2377.0000	43.2	180	2.3	h	28.7	2.0	0.0	10.0	63.9	74	-10.2	Peak
2377.0000	42.8	270	2.4	v	28.7	2.0	0.0	10.0	63.5	74	-10.6	Peak
2497.0000	42.6	180	2.0	h	28.7	2.0	0.0	10.0	63.3	74	-10.8	Peak
2497.0000	41.0	90	2.0	v	28.7	2.0	0.0	10.0	61.7	74	-12.4	Peak

For Antenna #2 Single side**Run # 1- 3 :Final scan 1GHz -25GHz, (Lowest channel. : 2412MHz) @ 1 meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
4824.0000	32.0	0	1.4	v	32.5	3.1	34.8	10.0	22.8	54	-31.2	Ave
4824.0000	31.7	330	1.3	h	32.5	3.1	34.8	10.0	22.5	54	-31.5	Ave
3090.0000	34.0	0	1.4	v	29.8	2.5	35.2	10.0	21.2	54	-32.8	Ave
3287.0000	33.8	0	1.4	v	29.8	2.5	35.2	10.0	21.0	54	-33.0	Ave
3287.0000	32.9	330	1.3	h	29.8	2.5	35.2	10.0	20.1	54	-33.9	Ave
3090.0000	32.6	330	1.3	h	29.8	2.5	35.2	10.0	19.8	54	-34.2	Ave
4824.0000	45.8	0	1.4	v	32.5	3.1	34.8	10.0	36.6	74	-37.4	Peak
4824.0000	45.0	330	1.3	h	32.5	3.1	34.8	10.0	35.8	74	-38.2	Peak
3287.0000	47.2	0	1.4	v	29.8	2.5	35.2	10.0	34.4	74	-39.6	Peak
3090.0000	46.4	0	1.4	v	29.8	2.5	35.2	10.0	33.6	74	-40.4	Peak
3287.0000	45.2	330	1.3	h	29.8	2.5	35.2	10.0	32.4	74	-41.6	Peak
3090.0000	44.1	330	1.3	h	29.8	2.5	35.2	10.0	31.3	74	-42.7	Peak

Run # 1- 3 :Final scan 1GHz -25GHz, (Middle channel. : 2437MHz) @ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3137.0000	41.0	330	1.3	h	29.8	2.5	35.2	10.0	28.2	54	-25.8	Ave
4874.0000	37.1	0	1.4	v	32.5	3.1	34.8	10.0	27.9	54	-26.1	Ave
4874.0000	36.8	330	1.3	h	32.5	3.1	34.8	10.0	27.6	54	-26.4	Ave
3137.0000	39.6	0	1.4	v	29.8	2.5	35.2	10.0	26.8	54	-27.2	Ave
3312.0000	36.7	330	1.3	h	29.8	2.5	35.2	10.0	23.9	54	-30.1	Ave
3312.0000	35.1	0	1.4	v	29.8	2.5	35.2	10.0	22.3	54	-31.7	Ave
3137.0000	53.6	330	1.3	h	29.8	2.5	35.2	10.0	40.8	74	-33.2	Peak
4874.0000	48.2	0	1.4	v	32.5	3.1	34.8	10.0	39.0	74	-35.0	Peak
4874.0000	47.8	330	1.3	h	32.5	3.1	34.8	10.0	38.6	74	-35.4	Peak
3312.0000	50.5	330	1.3	h	29.8	2.5	35.2	10.0	37.7	74	-36.3	Peak
3137.0000	49.6	0	1.4	v	29.8	2.5	35.2	10.0	36.8	74	-37.2	Peak
3312.0000	46.5	0	1.4	v	29.8	2.5	35.2	10.0	33.7	74	-40.3	Peak

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

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
3336.0000	50.0	330	1.3	h	29.8	2.5	35.2	10.0	37.2	54	-16.8	Ave
3336.0000	49.0	0	1.4	v	29.8	2.5	35.2	10.0	36.2	54	-17.8	Ave
3162.0000	48.3	330	1.3	h	29.8	2.5	35.2	10.0	35.5	54	-18.5	Ave
3162.0000	47.4	0	1.4	v	29.8	2.5	35.2	10.0	34.6	54	-19.4	Ave
3162.0000	64.8	330	1.3	h	29.8	2.5	35.2	10.0	52.0	74	-22.0	Peak
3336.0000	63.6	0	1.4	v	29.8	2.5	35.2	10.0	50.8	74	-23.2	Peak
3162.0000	62.3	0	1.4	v	29.8	2.5	35.2	10.0	49.5	74	-24.5	Peak
3336.0000	62.3	330	1.3	h	29.8	2.5	35.2	10.0	49.5	74	-24.5	Peak
4924.0000	32.5	0	1.4	v	32.5	3.1	34.8	10.0	23.3	54	-30.7	Ave
4924.0000	32.1	330	1.3	h	32.5	3.1	34.8	10.0	22.9	54	-31.1	Ave
4924.0000	46.3	0	1.4	v	32.5	3.1	34.8	10.0	37.1	74	-36.9	Peak
4924.0000	45.5	330	1.3	h	32.5	3.1	34.8	10.0	36.3	74	-37.7	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11g CH2 & CH10 @ 1 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.247	15.247	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
2377.0000	31.7	180	2.3	h	28.7	2.0	0.0	10.0	52.4	54	-1.7*	Ave
4874.0000	26.7	90	2.0	h	32.5	3.1	0.0	10.0	52.3	54	-1.7*	Ave
4874.0000	26.3	180	2.0	v	32.5	3.1	0.0	10.0	51.9	54	-2.1*	Ave
2377.0000	30.5	270	2.4	v	28.7	2.0	0.0	10.0	51.2	54	-2.9*	Ave
2497.0000	28.0	90	2.0	h	28.7	2.0	0.0	10.0	48.7	54	-5.4	Ave
2497.0000	27.5	180	2.0	v	28.7	2.0	0.0	10.0	48.2	54	-5.9	Ave
4874.0000	40.7	180	2.0	h	32.5	3.1	0.0	10.0	66.3	74	-7.7	Peak
4874.0000	39.7	90	2.0	v	32.5	3.1	0.0	10.0	65.3	74	-8.7	Peak
2377.0000	43.4	180	2.3	h	28.7	2.0	0.0	10.0	64.1	74	-10.0	Peak
2377.0000	43.0	270	2.4	v	28.7	2.0	0.0	10.0	63.7	74	-10.4	Peak
2497.0000	42.8	180	2.0	h	28.7	2.0	0.0	10.0	63.5	74	-10.6	Peak
2497.0000	41.2	90	2.0	v	28.7	2.0	0.0	10.0	61.9	74	-12.2	Peak

802.11a Mid Band(15.407)**For Antenna #1 double side*****Run # 1- 1 :Final scan 1GHz -25GHz, (Lowest channel. : 5260 MHz) @ 0.5 meter***

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6134.0000	50.1	180	2.0	v	35.0	3.7	34.5	15.6	38.7	54	-15.3	Ave
6134.0000	48.3	90	2.0	h	35.0	3.7	34.5	15.6	36.9	54	-17.1	Ave
5939.0000	49.3	90	2.0	h	34.1	3.4	34.5	15.6	36.7	54	-17.3	Ave
4380.0000	51.2	180	2.0	v	31.8	2.9	34.7	15.6	35.6	54	-18.4	Ave
5939.0000	48.3	180	2.0	v	34.1	3.4	34.5	15.6	35.6	54	-18.4	Ave
4380.0000	70.5	90	2.0	v	31.8	2.9	34.7	15.6	54.9	74	-19.1	Peak
6134.0000	65.2	90	2.0	v	35.0	3.7	34.5	15.6	53.8	74	-20.2	Peak
4380.0000	49.1	90	2.0	h	31.8	2.9	34.7	15.6	33.5	54	-20.5	Ave
5939.0000	66.0	180	2.0	h	34.1	3.4	34.5	15.6	53.4	74	-20.6	Peak
4585.0000	47.3	90	2.0	h	32.5	3.1	34.8	15.6	32.5	54	-21.5	Ave
6134.0000	63.5	180	2.0	h	35.0	3.7	34.5	15.6	52.1	74	-21.9	Peak
4585.0000	46.8	180	2.0	v	32.5	3.1	34.8	15.6	32.0	54	-22.0	Ave
4380.0000	66.7	180	2.0	h	31.8	2.9	34.7	15.6	51.1	74	-22.9	Peak
5939.0000	63.1	90	2.0	v	34.1	3.4	34.5	15.6	50.5	74	-23.5	Peak
10520.0000	34.6	270	2.4	v	38.7	5.4	33.2	15.6	29.9	54	-24.1	Ave
4585.0000	64.5	180	2.0	h	32.5	3.1	34.8	15.6	49.7	74	-24.3	Peak
4585.0000	62.9	90	2.0	v	32.5	3.1	34.8	15.6	48.1	74	-25.9	Peak
10520.0000	31.5	180	2.3	h	38.7	5.4	33.2	15.6	26.9	54	-27.1	Ave
10520.0000	45.9	270	2.4	v	38.7	5.4	33.2	15.6	41.3	74	-32.7	Peak
10520.0000	43.1	180	2.3	h	38.7	5.4	33.2	15.6	38.5	74	-35.5	Peak

Run # 1-1 :Final scan 1GHz -25GHz, (Middle channel. : 5300 MHz) @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6172.0000	49.3	180	2.0	v	35.0	3.7	34.5	15.6	38.0	54	-16.0	Ave
6172.0000	48.6	90	2.0	h	35.0	3.7	34.5	15.6	37.2	54	-16.8	Ave
6172.0000	65.9	90	2.0	v	35.0	3.7	34.5	15.6	54.5	74	-19.5	Peak
5983.0000	46.6	180	2.0	v	34.1	3.4	34.5	15.6	34.0	54	-20.0	Ave
4420.0000	49.3	180	2.0	v	31.8	2.9	34.7	15.6	33.7	54	-20.3	Ave
4420.0000	48.6	90	2.0	h	31.8	2.9	34.7	15.6	33.0	54	-21.0	Ave
5983.0000	45.5	90	2.0	h	34.1	3.4	34.5	15.6	32.9	54	-21.1	Ave
6172.0000	64.3	180	2.0	h	35.0	3.7	34.5	15.6	52.9	74	-21.1	Peak
4625.0000	46.6	180	2.0	v	32.5	3.1	34.8	15.6	31.8	54	-22.2	Ave
4625.0000	45.2	90	2.0	h	32.5	3.1	34.8	15.6	30.4	54	-23.6	Ave
4420.0000	65.7	90	2.0	v	31.8	2.9	34.7	15.6	50.1	74	-23.9	Peak
5983.0000	62.0	90	2.0	v	34.1	3.4	34.5	15.6	49.4	74	-24.6	Peak
5983.0000	60.3	180	2.0	h	34.1	3.4	34.5	15.6	47.7	74	-26.3	Peak
4420.0000	63.2	180	2.0	h	31.8	2.9	34.7	15.6	47.6	74	-26.4	Peak
4625.0000	60.7	90	2.0	v	32.5	3.1	34.8	15.6	45.9	74	-28.1	Peak
4625.0000	58.6	180	2.0	h	32.5	3.1	34.8	15.6	43.8	74	-30.2	Peak

Run # 1-1 :Final scan 1GHz -25GHz, (Highest channel. : 5320 MHz) @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6197.0000	51.0	180	2.0	v	35.0	3.7	34.5	15.6	39.6	54	-14.4	Ave
6197.0000	50.2	90	2.0	h	35.0	3.7	34.5	15.6	38.8	54	-15.2	Ave
5996.0000	48.8	180	2.0	v	34.1	3.4	34.5	15.6	36.2	54	-17.8	Ave
6197.0000	67.6	90	2.0	v	35.0	3.7	34.5	15.6	56.2	74	-17.8	Peak
4440.0000	51.1	180	2.0	v	31.8	2.9	34.7	15.6	35.5	54	-18.5	Ave
5996.0000	47.6	90	2.0	h	34.1	3.4	34.5	15.6	35.0	54	-19.0	Ave
4440.0000	50.1	90	2.0	h	31.8	2.9	34.7	15.6	34.5	54	-19.5	Ave
6197.0000	65.9	180	2.0	h	35.0	3.7	34.5	15.6	54.5	74	-19.5	Peak
4625.0000	47.6	180	2.0	v	32.5	3.1	34.8	15.6	32.8	54	-21.2	Ave
4625.0000	46.6	90	2.0	h	32.5	3.1	34.8	15.6	31.8	54	-22.2	Ave
5996.0000	63.9	90	2.0	v	34.1	3.4	34.5	15.6	51.3	74	-22.7	Peak
4440.0000	66.4	90	2.0	v	31.8	2.9	34.7	15.6	50.8	74	-23.2	Peak
4440.0000	65.2	180	2.0	h	31.8	2.9	34.7	15.6	49.6	74	-24.4	Peak
10640.0000	34.0	270	2.4	v	38.7	5.4	33.2	15.6	29.4	54	-24.6	Ave
5996.0000	61.3	180	2.0	h	34.1	3.4	34.5	15.6	48.7	74	-25.3	Peak
4625.0000	61.8	90	2.0	v	32.5	3.1	34.8	15.6	47.0	74	-27.0	Peak
10640.0000	31.0	90	2.1	h	38.7	5.4	33.2	15.6	26.4	54	-27.6	Ave
4625.0000	60.3	180	2.0	h	32.5	3.1	34.8	15.6	45.5	74	-28.5	Peak
10640.0000	43.1	270	2.4	v	38.7	5.4	33.2	15.6	38.5	74	-35.5	Peak
10640.0000	42.0	90	2.1	h	38.7	5.4	33.2	15.6	37.4	74	-36.6	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11a CH34 & CH48) @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10420.0000	23.5	270	2.4	v	38.0	5.4	0.0	15.6	51.3	54	-2.7*	Ave
10420.0000	20.2	180	2.3	h	38.0	5.4	0.0	15.6	48.0	54	-6.0	Ave
5120.0000	26.1	180	1.2	v	34.0	3.2	0.0	15.6	47.7	54	-6.3	Ave
5060.0000	24.3	180	2.0	v	34.0	3.2	0.0	15.6	45.9	54	-8.2	Ave
5300.0000	23.5	270	2.4	v	34.0	3.2	0.0	15.6	45.1	54	-9.0	Ave
5060.0000	23.3	90	2.0	h	34.0	3.2	0.0	15.6	44.9	54	-9.2	Ave
5120.0000	21.4	0	1.2	h	34.0	3.2	0.0	15.6	43.0	54	-11.0	Ave
10420.0000	34.8	270	2.4	v	38.0	5.4	0.0	15.6	62.6	74	-11.4	Peak
5300.0000	21.0	180	2.3	h	34.0	3.2	0.0	15.6	42.6	54	-11.5	Ave
5120.0000	40.0	90	1.0	v	34.0	3.2	0.0	15.6	61.6	74	-12.5	Peak
10420.0000	31.8	180	2.3	h	38.0	5.4	0.0	15.6	59.6	74	-14.4	Peak
5120.0000	35.2	0	1.2	h	34.0	3.2	0.0	15.6	56.8	74	-17.3	Peak
5300.0000	35.0	270	2.4	v	34.0	3.2	0.0	15.6	56.6	74	-17.5	Peak
5060.0000	34.5	90	2.0	v	34.0	3.2	0.0	15.6	56.1	74	-18.0	Peak
5060.0000	32.6	180	2.0	h	34.0	3.2	0.0	15.6	54.2	74	-19.9	Peak
5300.0000	32.1	180	2.3	h	34.0	3.2	0.0	15.6	53.7	74	-20.4	Peak

For Antenna #2 Single side***Run # 1- 1 :Final scan 1GHz -25GHz , (Lowest channel. : 5260 MHz) @ 0.5 meter***

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6134.0000	49.5	180	2.0	v	35.0	3.7	34.5	15.6	38.1	54	-15.9	Ave
6134.0000	47.8	90	2.0	h	35.0	3.7	34.5	15.6	36.4	54	-17.6	Ave
5939.0000	48.8	90	2.0	h	34.1	3.4	34.5	15.6	36.2	54	-17.8	Ave
5939.0000	47.7	180	2.0	v	34.1	3.4	34.5	15.6	35.1	54	-18.9	Ave
4380.0000	50.6	180	2.0	v	31.8	2.9	34.7	15.6	35.0	54	-19.0	Ave
4380.0000	69.7	90	2.0	v	31.8	2.9	34.7	15.6	54.1	74	-19.9	Peak
6134.0000	64.5	90	2.0	v	35.0	3.7	34.5	15.6	53.1	74	-20.9	Peak
4380.0000	48.6	90	2.0	h	31.8	2.9	34.7	15.6	33.0	54	-21.0	Ave
5939.0000	65.3	180	2.0	h	34.1	3.4	34.5	15.6	52.7	74	-21.3	Peak
4585.0000	46.8	90	2.0	h	32.5	3.1	34.8	15.6	32.0	54	-22.0	Ave
4585.0000	46.3	180	2.0	v	32.5	3.1	34.8	15.6	31.5	54	-22.5	Ave
6134.0000	62.8	180	2.0	h	35.0	3.7	34.5	15.6	51.4	74	-22.6	Peak
4380.0000	66.0	180	2.0	h	31.8	2.9	34.7	15.6	50.4	74	-23.6	Peak
5939.0000	62.4	90	2.0	v	34.1	3.4	34.5	15.6	49.8	74	-24.2	Peak
10520.0000	34.2	270	2.4	v	38.7	5.4	33.2	15.6	29.6	54	-24.4	Ave
4585.0000	63.8	180	2.0	h	32.5	3.1	34.8	15.6	49.0	74	-25.0	Peak
4585.0000	62.2	90	2.0	v	32.5	3.1	34.8	15.6	47.4	74	-26.6	Peak
10520.0000	31.2	180	2.3	h	38.7	5.4	33.2	15.6	26.6	54	-27.4	Ave
10520.0000	45.4	270	2.4	v	38.7	5.4	33.2	15.6	40.8	74	-33.2	Peak
10520.0000	42.6	180	2.3	h	38.7	5.4	33.2	15.6	38.0	74	-36.0	Peak

Run # 1- 1 :Final scan 1GHz -25GHz, (Middle channel. : 5300 MHz) @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6172.0000	49.9	180	2.0	v	35.0	3.7	34.5	15.6	38.5	54	-15.5	Ave
6172.0000	49.0	90	2.0	h	35.0	3.7	34.5	15.6	37.6	54	-16.4	Ave
6172.0000	66.3	90	2.0	v	35.0	3.7	34.5	15.6	54.9	74	-19.1	Peak
5983.0000	47.1	180	2.0	v	34.1	3.4	34.5	15.6	34.5	54	-19.5	Ave
4420.0000	49.8	180	2.0	v	31.8	2.9	34.7	15.6	34.2	54	-19.8	Ave
4420.0000	49.1	90	2.0	h	31.8	2.9	34.7	15.6	33.5	54	-20.5	Ave
5983.0000	46.0	90	2.0	h	34.1	3.4	34.5	15.6	33.4	54	-20.6	Ave
6172.0000	64.7	180	2.0	h	35.0	3.7	34.5	15.6	53.3	74	-20.7	Peak
4625.0000	47.1	180	2.0	v	32.5	3.1	34.8	15.6	32.3	54	-21.7	Ave
4625.0000	45.7	90	2.0	h	32.5	3.1	34.8	15.6	30.9	54	-23.1	Ave
4420.0000	66.1	90	2.0	v	31.8	2.9	34.7	15.6	50.5	74	-23.5	Peak
5983.0000	62.4	90	2.0	v	34.1	3.4	34.5	15.6	49.8	74	-24.2	Peak
4420.0000	63.6	180	2.0	h	31.8	2.9	34.7	15.6	48.0	74	-26.0	Peak
5983.0000	60.4	180	2.0	h	34.1	3.4	34.5	15.6	47.8	74	-26.2	Peak
4625.0000	61.1	90	2.0	v	32.5	3.1	34.8	15.6	46.3	74	-27.7	Peak
4625.0000	59.0	180	2.0	h	32.5	3.1	34.8	15.6	44.2	74	-29.8	Peak

Run # 1- 1 :Final scan 1GHz -25GHz, (Highest channel. : 5320 MHz) @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6197.0000	51.4	180	2.0	v	35.0	3.7	34.5	15.6	40.0	54	-14.0	Ave
6197.0000	50.6	90	2.0	h	35.0	3.7	34.5	15.6	39.2	54	-14.8	Ave
5996.0000	49.3	180	2.0	v	34.1	3.4	34.5	15.6	36.7	54	-17.3	Ave
6197.0000	68.0	90	2.0	v	35.0	3.7	34.5	15.6	56.6	74	-17.4	Peak
4440.0000	51.5	180	2.0	v	31.8	2.9	34.7	15.6	35.9	54	-18.1	Ave
5996.0000	48.1	90	2.0	h	34.1	3.4	34.5	15.6	35.5	54	-18.5	Ave
4440.0000	50.5	90	2.0	h	31.8	2.9	34.7	15.6	34.9	54	-19.1	Ave
6197.0000	66.3	180	2.0	h	35.0	3.7	34.5	15.6	54.9	74	-19.1	Peak
4625.0000	48.1	180	2.0	v	32.5	3.1	34.8	15.6	33.3	54	-20.7	Ave
4625.0000	47.1	90	2.0	h	32.5	3.1	34.8	15.6	32.3	54	-21.7	Ave
5996.0000	64.3	90	2.0	v	34.1	3.4	34.5	15.6	51.7	74	-22.3	Peak
4440.0000	66.8	90	2.0	v	31.8	2.9	34.7	15.6	51.2	74	-22.8	Peak
4440.0000	65.6	180	2.0	h	31.8	2.9	34.7	15.6	50.0	74	-24.0	Peak
10640.0000	34.5	270	2.4	v	38.7	5.4	33.2	15.6	29.9	54	-24.1	Ave
5996.0000	61.7	180	2.0	h	34.1	3.4	34.5	15.6	49.1	74	-24.9	Peak
4625.0000	62.2	90	2.0	v	32.5	3.1	34.8	15.6	47.4	74	-26.6	Peak
10640.0000	31.5	90	2.1	h	38.7	5.4	33.2	15.6	26.9	54	-27.1	Ave
4625.0000	60.7	180	2.0	h	32.5	3.1	34.8	15.6	45.9	74	-28.1	Peak
10640.0000	43.6	270	2.4	v	38.7	5.4	33.2	15.6	39.0	74	-35.0	Peak
10640.0000	42.5	90	2.1	h	38.7	5.4	33.2	15.6	37.9	74	-36.1	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11a CH52 & CH60 @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10580.0000	23.1	180	1.2	v	38.7	5.4	0.0	15.6	51.6	54	-2.4*	Ave
10580.0000	22.5	0	1.2	h	38.7	5.4	0.0	15.6	51.0	54	-3.0*	Ave
5200.0000	28.5	270	2.4	v	34.0	3.2	0.0	15.6	50.1	54	-4.0*	Ave
5200.0000	26.1	180	2.3	h	34.0	3.2	0.0	15.6	47.7	54	-6.3	Ave
5380.0000	23.8	270	2.4	v	34.0	3.2	0.0	15.6	45.4	54	-8.7	Ave
5140.0000	22.5	180	2.0	v	34.0	3.2	0.0	15.6	44.1	54	-10.0	Ave
5140.0000	21.4	90	2.0	h	34.0	3.2	0.0	15.6	43.0	54	-11.1	Ave
5380.0000	20.8	180	2.3	h	34.0	3.2	0.0	15.6	42.4	54	-11.7	Ave
10580.0000	33.5	90	1.0	v	38.7	5.4	0.0	15.6	62.0	74	-12.0	Peak
5200.0000	39.1	270	2.4	v	34.0	3.2	0.0	15.6	60.7	74	-13.4	Peak
10580.0000	30.9	0	1.2	h	38.7	5.4	0.0	15.6	59.4	74	-14.6	Peak
5200.0000	37.4	180	2.3	h	34.0	3.2	0.0	15.6	59.0	74	-15.1	Peak
5380.0000	35.5	270	2.4	v	34.0	3.2	0.0	15.6	57.1	74	-17.0	Peak
5140.0000	34.9	90	2.0	v	34.0	3.2	0.0	15.6	56.5	74	-17.6	Peak
5140.0000	33.3	180	2.0	h	34.0	3.2	0.0	15.6	54.9	74	-19.2	Peak
5380.0000	32.2	180	2.3	h	34.0	3.2	0.0	15.6	53.8	74	-20.3	Peak

802.11a Low Band (15.407)**For Antenna #1 Double Side****Run # 1- 1 :Primary scan 1GHz -25GHz , (Lowest channel. :5180) @ 0.5 Meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6060.0000	49.6	180	2.3	h	35.0	3.7	34.5	15.6	38.2	54	-15.8	Ave
5851.0000	49.6	90	2.0	h	34.1	3.4	34.5	15.6	37.0	54	-17.0	Ave
4302.0000	50.4	90	2.0	h	31.8	2.9	34.7	15.6	34.8	54	-19.2	Ave
4488.0000	49.3	180	2.3	h	31.8	2.9	34.7	15.6	33.7	54	-20.3	Ave
6060.0000	44.2	270	2.4	v	35.0	3.7	34.5	15.6	32.8	54	-21.2	Ave
5851.0000	64.7	180	2.0	h	34.1	3.4	34.5	15.6	52.1	74	-21.9	Peak
6060.0000	62.3	180	2.3	h	35.0	3.7	34.5	15.6	50.9	74	-23.1	Peak
5851.0000	42.6	180	2.0	v	34.1	3.4	34.5	15.6	30.0	54	-24.0	Ave
4302.0000	45.0	180	2.0	v	31.8	2.9	34.7	15.6	29.4	54	-24.6	Ave
4302.0000	64.8	180	2.0	h	31.8	2.9	34.7	15.6	49.2	74	-24.8	Peak
6060.0000	60.1	270	2.4	v	35.0	3.7	34.5	15.6	48.7	74	-25.3	Peak
4488.0000	43.3	270	2.4	v	31.8	2.9	34.7	15.6	27.7	54	-26.4	Ave
10360.0000	32.8	270	2.4	v	38.0	5.4	33.8	15.6	26.8	54	-27.2	Ave
4302.0000	62.1	90	2.0	v	31.8	2.9	34.7	15.6	46.5	74	-27.5	Peak
5851.0000	59.1	90	2.0	v	34.1	3.4	34.5	15.6	46.5	74	-27.5	Peak
10360.0000	32.4	180	2.3	h	38.0	5.4	33.8	15.6	26.4	54	-27.6	Ave
4488.0000	59.8	180	2.3	h	31.8	2.9	34.7	15.6	44.2	74	-29.8	Peak
4488.0000	58.9	270	2.4	v	31.8	2.9	34.7	15.6	43.3	74	-30.7	Peak
10360.0000	45.7	270	2.4	v	38.0	5.4	33.8	15.6	39.7	74	-34.3	Peak
10360.0000	44.8	180	2.3	h	38.0	5.4	33.8	15.6	38.8	74	-35.2	Peak

Run # 1- 1 :Primary scan 1GHz -25GHz, (Middle channel. : 5200) @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6076.0000	50.6	180	2.1	h	35.0	3.7	34.5	15.6	39.2	54	-14.8	Ave
6076.0000	48.0	270	2.4	v	35.0	3.7	34.5	15.6	36.6	54	-17.4	Ave
4320.0000	51.2	180	2.1	h	31.8	2.9	34.7	15.6	35.6	54	-18.4	Ave
6076.0000	65.2	270	2.4	v	35.0	3.7	34.5	15.6	53.8	74	-20.2	Peak
5888.0000	45.7	270	2.4	v	34.1	3.4	34.5	15.6	33.1	54	-20.9	Ave
6076.0000	64.2	180	2.3	h	35.0	3.7	34.5	15.6	52.8	74	-21.2	Peak
4320.0000	48.3	270	2.4	v	31.8	2.9	34.7	15.6	32.7	54	-21.3	Ave
5888.0000	45.3	180	2.1	h	34.1	3.4	34.5	15.6	32.7	54	-21.3	Ave
4522.0000	47.3	180	2.1	h	32.5	3.1	34.8	15.6	32.5	54	-21.5	Ave
4320.0000	66.8	270	2.4	v	31.8	2.9	34.7	15.6	51.2	74	-22.8	Peak
4522.0000	45.9	270	2.4	v	32.5	3.1	34.8	15.6	31.1	54	-22.9	Ave
5888.0000	62.7	180	2.3	h	34.1	3.4	34.5	15.6	50.1	74	-23.9	Peak
5888.0000	62.4	270	2.4	v	34.1	3.4	34.5	15.6	49.8	74	-24.2	Peak
4320.0000	64.6	180	2.3	h	31.8	2.9	34.7	15.6	49.0	74	-25.0	Peak
4522.0000	63.4	180	2.3	h	32.5	3.1	34.8	15.6	48.6	74	-25.4	Peak
4522.0000	62.3	270	2.4	v	32.5	3.1	34.8	15.6	47.5	74	-26.5	Peak
10400.0000	32.7	270	2.4	v	38.0	5.4	33.8	15.6	26.7	54	-27.3	Ave
10400.0000	32.2	180	2.2	h	38.0	5.4	33.8	15.6	26.2	54	-27.8	Ave
10400.0000	45.6	270	2.4	v	38.0	5.4	33.8	15.6	39.6	74	-34.4	Peak
10400.0000	44.6	180	2.2	h	38.0	5.4	33.8	15.6	38.6	74	-35.4	Peak

Run # 1- 1 :Primary scan 1GHz -25GHz, (Highest channel. : 5240) @ 0.5 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6114.0000	54.1	90	2.1	h	35.0	3.7	34.5	15.6	42.7	54	-11.3	Ave
4360.0000	56.1	90	2.1	h	31.8	2.9	34.7	15.6	40.5	54	-13.5	Ave
5930.0000	52.3	90	2.1	h	34.1	3.4	34.5	15.6	39.7	54	-14.3	Ave
6114.0000	50.3	270	2.4	v	35.0	3.7	34.5	15.6	38.9	54	-15.1	Ave
5930.0000	50.4	270	2.4	v	34.1	3.4	34.5	15.6	37.8	54	-16.2	Ave
4563.0000	51.8	90	2.1	h	32.5	3.1	34.8	15.6	37.0	54	-17.0	Ave
6114.0000	68.1	90	2.1	h	35.0	3.7	34.5	15.6	56.7	74	-17.3	Peak
6114.0000	67.1	270	2.4	v	35.0	3.7	34.5	15.6	55.7	74	-18.3	Peak
4360.0000	50.8	270	2.4	v	31.8	2.9	34.7	15.6	35.2	54	-18.8	Ave
4563.0000	49.1	270	2.4	v	32.5	3.1	34.8	15.6	34.3	54	-19.7	Ave
5930.0000	66.6	90	2.1	h	34.1	3.4	34.5	15.6	54.0	74	-20.0	Peak
4360.0000	69.1	90	2.1	h	31.8	2.9	34.7	15.6	53.5	74	-20.5	Peak
5930.0000	66.1	270	2.4	v	34.1	3.4	34.5	15.6	53.5	74	-20.5	Peak
4360.0000	67.7	270	2.4	v	31.8	2.9	34.7	15.6	52.1	74	-21.9	Peak
4563.0000	66.4	90	2.1	h	32.5	3.1	34.8	15.6	51.6	74	-22.4	Peak
4563.0000	64.9	270	2.4	v	32.5	3.1	34.8	15.6	50.1	74	-23.9	Peak
10480.0000	32.7	270	2.4	v	38.0	5.4	33.8	15.6	26.7	54	-27.3	Ave
10480.0000	32.2	90	2.1	h	38.0	5.4	33.8	15.6	26.2	54	-27.8	Ave
10480.0000	45.6	270	2.4	v	38.0	5.4	33.8	15.6	39.6	74	-34.4	Peak
10480.0000	44.6	90	2.1	h	38.0	5.4	33.8	15.6	38.6	74	-35.4	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11a CH34 & CH48 @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10420.0000	24.3	270	2.4	v	38.0	5.4	0.0	15.6	52.1	54	-1.9*	Ave
10420.0000	21.0	180	2.3	h	38.0	5.4	0.0	15.6	48.8	54	-5.2	Ave
5120.0000	26.8	180	1.2	v	34.0	3.2	0.0	15.6	48.4	54	-5.7	Ave
5060.0000	25.1	180	2.0	v	34.0	3.2	0.0	15.6	46.7	54	-7.3	Ave
5300.0000	24.3	270	2.4	v	34.0	3.2	0.0	15.6	45.9	54	-8.2	Ave
5060.0000	24.1	90	2.0	h	34.0	3.2	0.0	15.6	45.7	54	-8.3	Ave
5120.0000	22.2	0	1.2	h	34.0	3.2	0.0	15.6	43.8	54	-10.3	Ave
5300.0000	21.8	180	2.3	h	34.0	3.2	0.0	15.6	43.4	54	-10.7	Ave
10420.0000	35.5	270	2.4	v	38.0	5.4	0.0	15.6	63.3	74	-10.7	Peak
5120.0000	40.7	90	1.0	v	34.0	3.2	0.0	15.6	62.3	74	-11.8	Peak
10420.0000	32.5	180	2.3	h	38.0	5.4	0.0	15.6	60.3	74	-13.7	Peak
5120.0000	35.9	0	1.2	h	34.0	3.2	0.0	15.6	57.5	74	-16.6	Peak
5300.0000	35.7	270	2.4	v	34.0	3.2	0.0	15.6	57.3	74	-16.8	Peak
5060.0000	35.2	90	2.0	v	34.0	3.2	0.0	15.6	56.8	74	-17.3	Peak
5060.0000	33.3	180	2.0	h	34.0	3.2	0.0	15.6	54.9	74	-19.2	Peak
5300.0000	32.8	180	2.3	h	34.0	3.2	0.0	15.6	54.4	74	-19.7	Peak

For Antenna #2 single Side**Run # 1- 1 :Primary scan 1GHz -25GHz , (Lowest channel. : 5180) @ 0.5 Meter**

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6060.0000	50.1	180	2.3	h	35.0	3.7	34.5	15.6	38.7	54	-15.3	Ave
5851.0000	50.1	90	2.0	h	34.1	3.4	34.5	15.6	37.5	54	-16.5	Ave
4302.0000	50.8	90	2.0	h	31.8	2.9	34.7	15.6	35.2	54	-18.8	Ave
4488.0000	49.8	180	2.3	h	31.8	2.9	34.7	15.6	34.2	54	-19.8	Ave
6060.0000	44.7	270	2.4	v	35.0	3.7	34.5	15.6	33.3	54	-20.7	Ave
5851.0000	65.1	180	2.0	h	34.1	3.4	34.5	15.6	52.5	74	-21.5	Peak
6060.0000	62.7	180	2.3	h	35.0	3.7	34.5	15.6	51.3	74	-22.7	Peak
5851.0000	43.1	180	2.0	v	34.1	3.4	34.5	15.6	30.5	54	-23.5	Ave
4302.0000	45.5	180	2.0	v	31.8	2.9	34.7	15.6	29.9	54	-24.1	Ave
4302.0000	65.2	180	2.0	h	31.8	2.9	34.7	15.6	49.6	74	-24.4	Peak
6060.0000	60.5	270	2.4	v	35.0	3.7	34.5	15.6	49.1	74	-24.9	Peak
4488.0000	43.7	270	2.4	v	31.8	2.9	34.7	15.6	28.1	54	-25.9	Ave
10360.0000	33.3	270	2.4	v	38.0	5.4	33.8	15.6	27.3	54	-26.7	Ave
10360.0000	32.9	180	2.3	h	38.0	5.4	33.8	15.6	26.9	54	-27.1	Ave
4302.0000	62.5	90	2.0	v	31.8	2.9	34.7	15.6	46.9	74	-27.1	Peak
5851.0000	59.5	90	2.0	v	34.1	3.4	34.5	15.6	46.9	74	-27.1	Peak
4488.0000	60.2	180	2.3	h	31.8	2.9	34.7	15.6	44.6	74	-29.4	Peak
4488.0000	59.3	270	2.4	v	31.8	2.9	34.7	15.6	43.7	74	-30.3	Peak
10360.0000	46.2	270	2.4	v	38.0	5.4	33.8	15.6	40.2	74	-33.8	Peak
10360.0000	45.3	180	2.3	h	38.0	5.4	33.8	15.6	39.3	74	-34.7	Peak

Run # 1- 1 :Primary scan 1GHz -25GHz , (Middle channel. : 5200) @ 0.5meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6076.0000	51.0	180	2.1	h	35.0	3.7	34.5	15.6	39.6	54	-14.4	Ave
6076.0000	48.5	270	2.4	v	35.0	3.7	34.5	15.6	37.1	54	-16.9	Ave
4320.0000	51.6	180	2.1	h	31.8	2.9	34.7	15.6	36.0	54	-18.0	Ave
6076.0000	65.6	270	2.4	v	35.0	3.7	34.5	15.6	54.2	74	-19.8	Peak
5888.0000	46.2	270	2.4	v	34.1	3.4	34.5	15.6	33.6	54	-20.4	Ave
4320.0000	48.8	270	2.4	v	31.8	2.9	34.7	15.6	33.2	54	-20.8	Ave
6076.0000	64.6	180	2.3	h	35.0	3.7	34.5	15.6	53.2	74	-20.8	Peak
5888.0000	45.8	180	2.1	h	34.1	3.4	34.5	15.6	33.2	54	-20.8	Ave
4522.0000	47.8	180	2.1	h	32.5	3.1	34.8	15.6	33.0	54	-21.0	Ave
4522.0000	46.4	270	2.4	v	32.5	3.1	34.8	15.6	31.6	54	-22.4	Ave
4320.0000	67.2	270	2.4	v	31.8	2.9	34.7	15.6	51.6	74	-22.4	Peak
5888.0000	63.1	180	2.3	h	34.1	3.4	34.5	15.6	50.5	74	-23.5	Peak
5888.0000	62.8	270	2.4	v	34.1	3.4	34.5	15.6	50.2	74	-23.8	Peak
4320.0000	65.0	180	2.3	h	31.8	2.9	34.7	15.6	49.4	74	-24.6	Peak
4522.0000	63.8	180	2.3	h	32.5	3.1	34.8	15.6	49.0	74	-25.0	Peak
4522.0000	62.7	270	2.4	v	32.5	3.1	34.8	15.6	47.9	74	-26.1	Peak
10400.0000	33.2	270	2.4	v	38.0	5.4	33.8	15.6	27.2	54	-26.8	Ave
10400.0000	32.7	180	2.2	h	38.0	5.4	33.8	15.6	26.7	54	-27.3	Ave
10400.0000	46.1	270	2.4	v	38.0	5.4	33.8	15.6	40.1	74	-33.9	Peak
10400.0000	45.1	180	2.2	h	38.0	5.4	33.8	15.6	39.1	74	-34.9	Peak

Run # 1- 1 :Primary scan 1GHz -25GHz, (Highest channel. : 5240) @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
6114.0000	54.5	90	2.1	h	35.0	3.7	34.5	15.6	43.1	54	-10.9	Ave
4360.0000	56.5	90	2.1	h	31.8	2.9	34.7	15.6	40.9	54	-13.1	Ave
5930.0000	52.8	90	2.1	h	34.1	3.4	34.5	15.6	40.2	54	-13.8	Ave
6114.0000	50.7	270	2.4	v	35.0	3.7	34.5	15.6	39.3	54	-14.7	Ave
5930.0000	50.8	270	2.4	v	34.1	3.4	34.5	15.6	38.2	54	-15.8	Ave
4563.0000	52.2	90	2.1	h	32.5	3.1	34.8	15.6	37.4	54	-16.6	Ave
6114.0000	68.5	90	2.1	h	35.0	3.7	34.5	15.6	57.1	74	-16.9	Peak
6114.0000	67.5	270	2.4	v	35.0	3.7	34.5	15.6	56.1	74	-17.9	Peak
4360.0000	51.2	270	2.4	v	31.8	2.9	34.7	15.6	35.6	54	-18.4	Ave
4563.0000	49.6	270	2.4	v	32.5	3.1	34.8	15.6	34.8	54	-19.2	Ave
5930.0000	67.0	90	2.1	h	34.1	3.4	34.5	15.6	54.4	74	-19.6	Peak
4360.0000	69.5	90	2.1	h	31.8	2.9	34.7	15.6	53.9	74	-20.1	Peak
5930.0000	66.5	270	2.4	v	34.1	3.4	34.5	15.6	53.9	74	-20.1	Peak
4360.0000	68.1	270	2.4	v	31.8	2.9	34.7	15.6	52.5	74	-21.5	Peak
4563.0000	66.8	90	2.1	h	32.5	3.1	34.8	15.6	52.0	74	-22.0	Peak
4563.0000	65.3	270	2.4	v	32.5	3.1	34.8	15.6	50.5	74	-23.5	Peak
10480.0000	33.2	270	2.4	v	38.0	5.4	33.8	15.6	27.2	54	-26.8	Ave
10480.0000	32.7	90	2.1	h	38.0	5.4	33.8	15.6	26.7	54	-27.3	Ave
10480.0000	46.1	270	2.4	v	38.0	5.4	33.8	15.6	40.1	74	-33.9	Peak
10480.0000	45.1	90	2.1	h	38.0	5.4	33.8	15.6	39.1	74	-34.9	Peak

Run#1 Intermodulation Radiated Harmonic and Spur Emission 802.11a CH52 & CH60 @ 0.5 Meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier	Distance Factor	Correction Factor	15.407	15.407	Comments
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit (dBuV/m)	Margin	
10580.0000	23.5	180	1.2	v	38.7	5.4	0.0	15.6	52.0	54	-2.0*	Ave
10580.0000	22.9	0	1.2	h	38.7	5.4	0.0	15.6	51.4	54	-2.6*	Ave
5200.0000	28.9	270	2.4	v	34.0	3.2	0.0	15.6	50.5	54	-3.6*	Ave
5200.0000	26.5	180	2.3	h	34.0	3.2	0.0	15.6	48.1	54	-6.0	Ave
5380.0000	24.2	270	2.4	v	34.0	3.2	0.0	15.6	45.8	54	-8.2	Ave
5140.0000	22.9	180	2.0	v	34.0	3.2	0.0	15.6	44.5	54	-9.6	Ave
5140.0000	21.8	90	2.0	h	34.0	3.2	0.0	15.6	43.4	54	-10.7	Ave
5380.0000	21.2	180	2.3	h	34.0	3.2	0.0	15.6	42.8	54	-11.3	Ave
10580.0000	33.9	90	1.0	v	38.7	5.4	0.0	15.6	62.4	74	-11.6	Peak
5200.0000	39.5	270	2.4	v	34.0	3.2	0.0	15.6	61.1	74	-13.0	Peak
10580.0000	31.3	0	1.2	h	38.7	5.4	0.0	15.6	59.8	74	-14.2	Peak
5200.0000	37.8	180	2.3	h	34.0	3.2	0.0	15.6	59.4	74	-14.7	Peak
5380.0000	35.9	270	2.4	v	34.0	3.2	0.0	15.6	57.5	74	-16.6	Peak
5140.0000	35.3	90	2.0	v	34.0	3.2	0.0	15.6	56.9	74	-17.2	Peak
5140.0000	33.7	180	2.0	h	34.0	3.2	0.0	15.6	55.3	74	-18.8	Peak
5380.0000	32.6	180	2.3	h	34.0	3.2	0.0	15.6	54.2	74	-19.9	Peak

Unwanted Emission@ 3 meter

Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifer	Distance Factor	Correction Factor	FCC B	FCC B
MHz	dBuV/m	Degree	Meter	H / V	dB	dB	dB	dB	dBuV/m	Limit(dBuV/m)	Margin(dB)
109.94	53.0	270	2.1	H	11.0	2.1	28.2	0.0	37.9	43.5	-5.6
112.40	50.0	270	3.2	H	12.1	2.2	28.2	0.0	36.1	43.5	-7.4
109.94	50.0	330	1.2	V	11.0	2.1	28.2	0.0	34.9	43.5	-8.6
112.40	47.0	75	1.8	V	12.1	2.2	28.2	0.0	33.1	43.5	-10.4
330.00	45.0	240	3.1	H	14.2	3.9	27.5	0.0	35.6	46.0	-10.4
114.46	46.5	250	1.0	V	12.1	2.2	28.2	0.0	32.6	43.5	-10.9
329.97	44.2	250	1.0	V	14.1	3.8	27.5	0.0	34.6	46.0	-11.4
330.00	43.5	270	1.0	V	14.2	3.9	27.5	0.0	34.1	46.0	-11.9
114.46	43.8	280	2.8	H	12.1	2.2	28.2	0.0	29.9	43.5	-13.6
329.97	37.0	280	2.8	H	14.1	3.8	27.5	0.0	27.4	46.0	-18.6

§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
Rohde & Schwarz	Artificial LISN	ESH2-Z5	871884/039	2005-08-16
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2005-09-15

* **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:

-0.7 dB at 9.900 MHz in the Line conductor mode*
**The test data was within the measurement of uncertainty.*

Conducted Emissions Test Data

Environmental Conditions

Temperature:	23° C
Relative Humidity:	42%
ATM Pressure:	1018 mbar

The testing was performed by Snell Leong on 2005-11-10.

LINE CONDUCTED EMISSIONS				FCC PART 15 CLASS B	
Frequency MHz	Amplitude dB μ V	Detector Qp/Ave/Peak	Phase Line/Neutral	Limit dB μ V	Margin dB
9.900	49.3	Ave	Line	50.00	-0.7*
12.000	45.7	Ave	Line	50.00	-4.3
8.000	45.4	Ave	Neutral	50.00	-4.6
9.600	41.7	Ave	Neutral	50.00	-8.3
9.900	48.4	QP	Line	60.00	-11.6
8.000	45.1	QP	Neutral	60.00	-14.9
0.165	48.2	QP	Neutral	65.21	-17.0
9.600	41.9	QP	Neutral	60.00	-18.1
0.165	36.1	Ave	Neutral	55.21	-19.1
0.170	32.4	Ave	Line	54.96	-22.6

**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.

Bay Area Compliance Laboratory Corp Class B

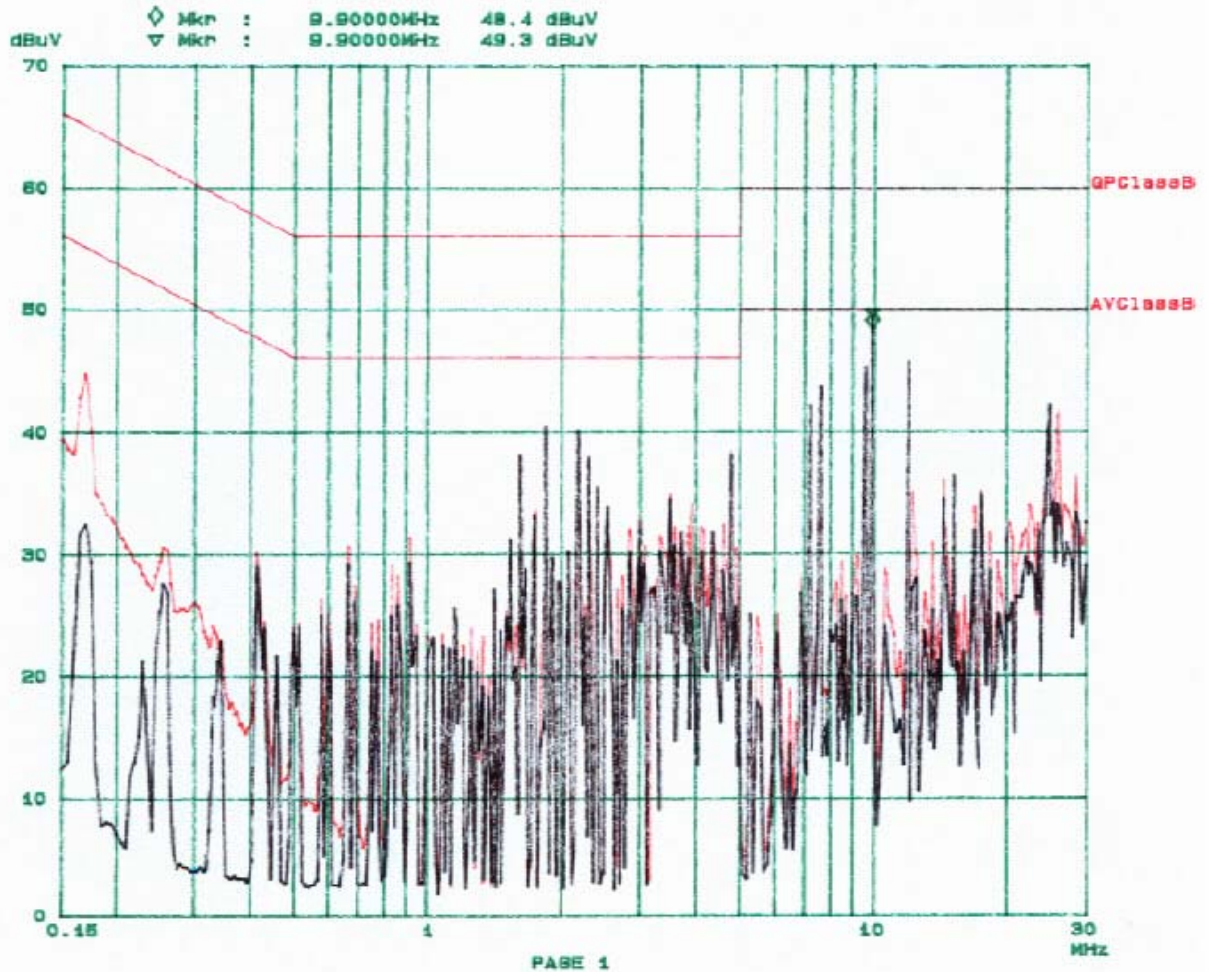
10. Nov 05 17:57

*10/11/05
Shel*

EUT: AP RS4000
Manuf: MERU
Op Cond: Normal
Operator: SNELL
Comment: L Line
120 VAC

Scan Settings (3 Ranges)

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



Bay Area Compliance Laboratory Corp Class B

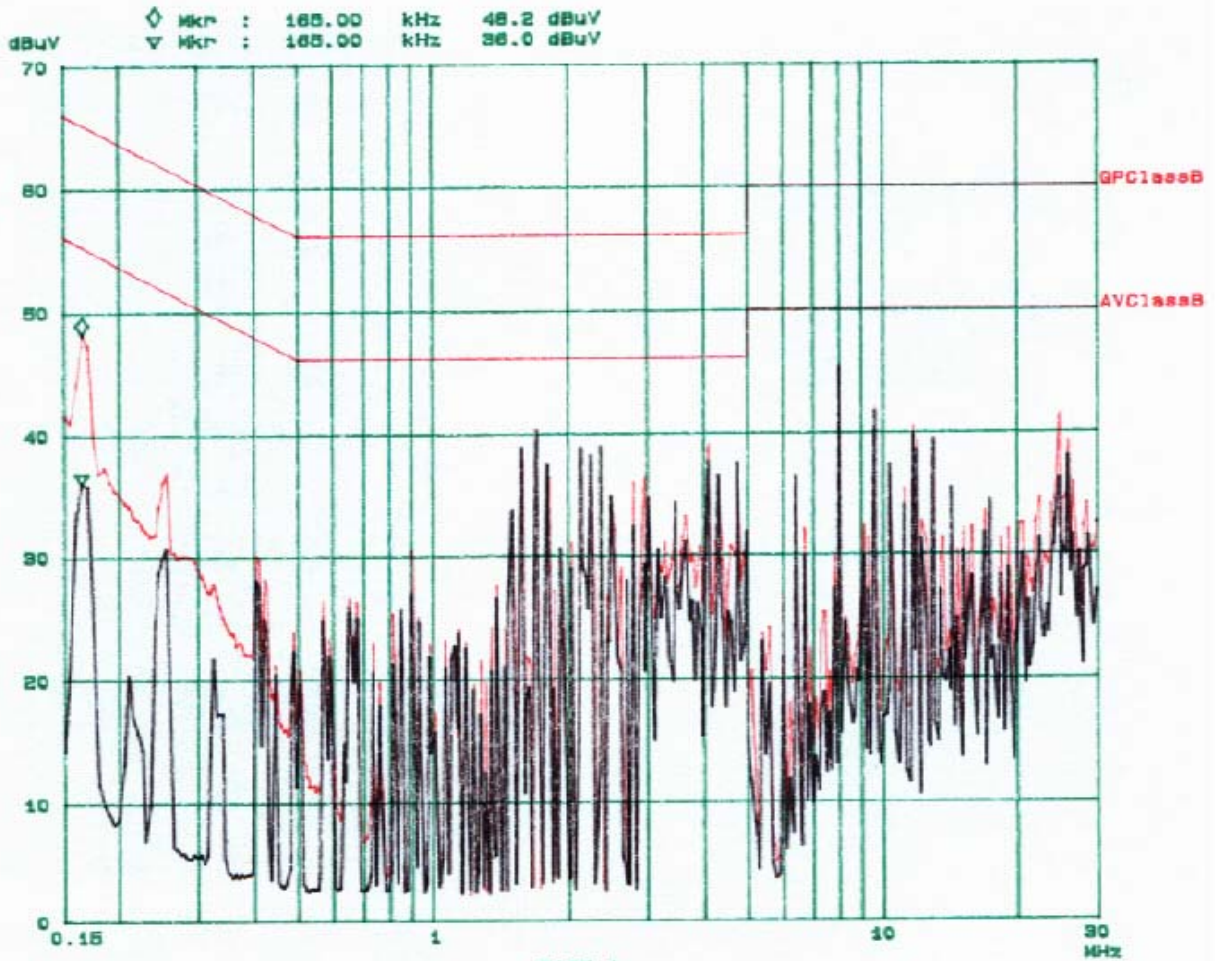
10. Nov 05 17:32

10/Nov/05
Snell

EUT: AP RS4000
Manuf: MERU
Op Cond: Normal
Operator: SNELL
Comment: N Line
120 VAC

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 10th 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

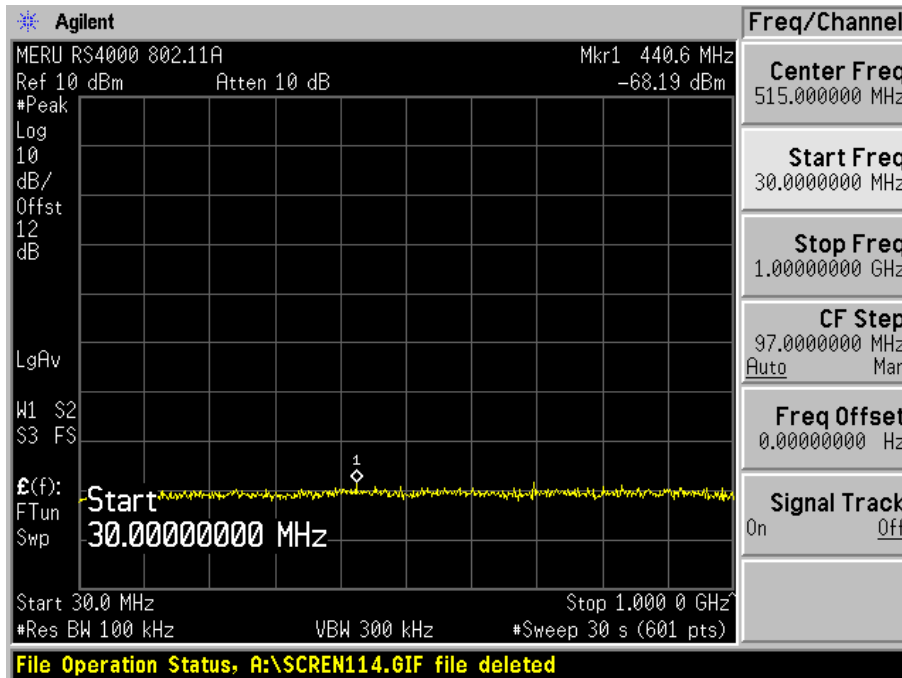
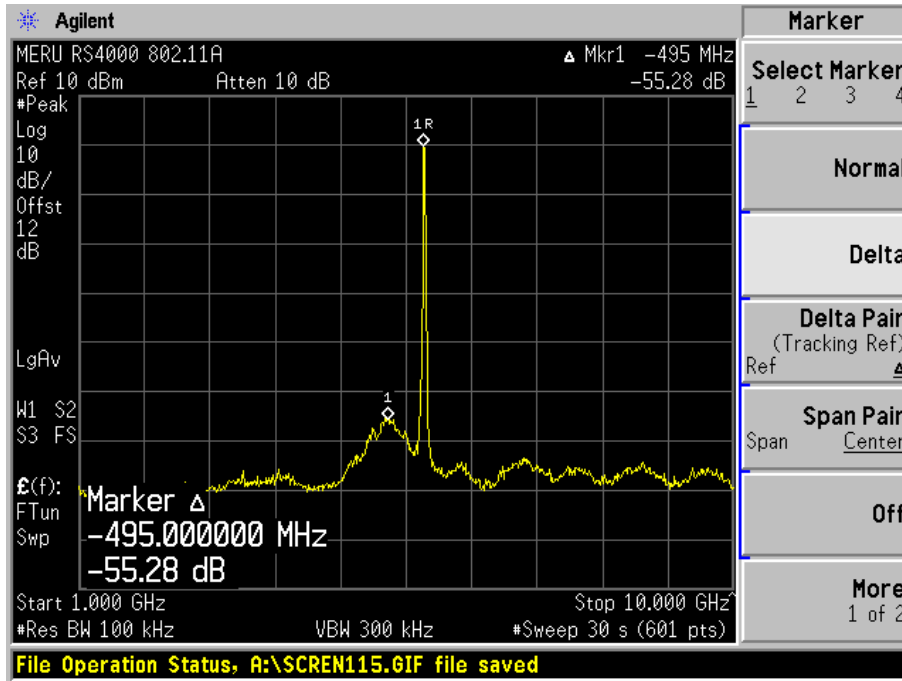
Temperature:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

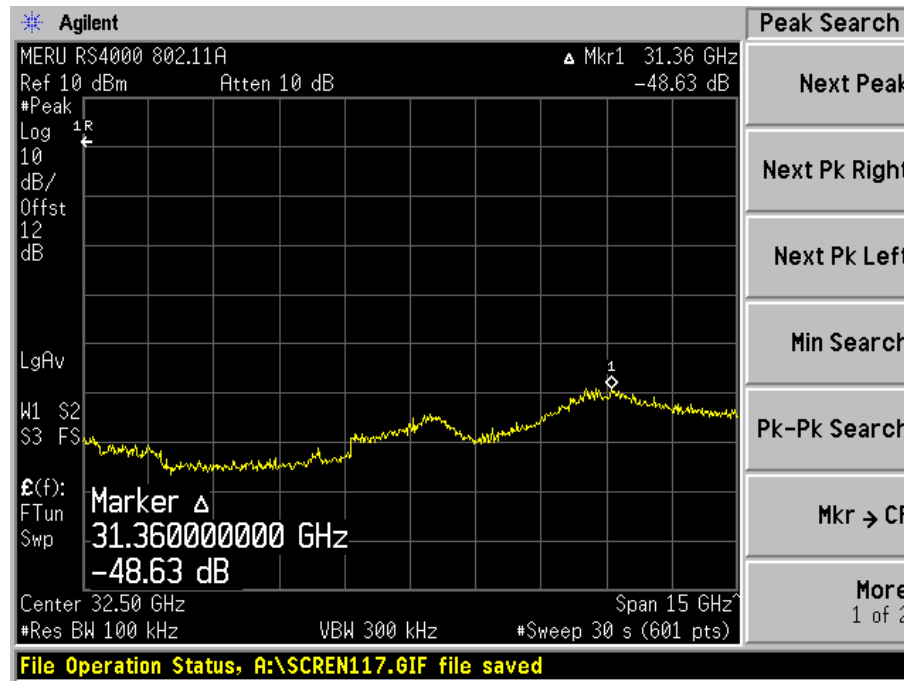
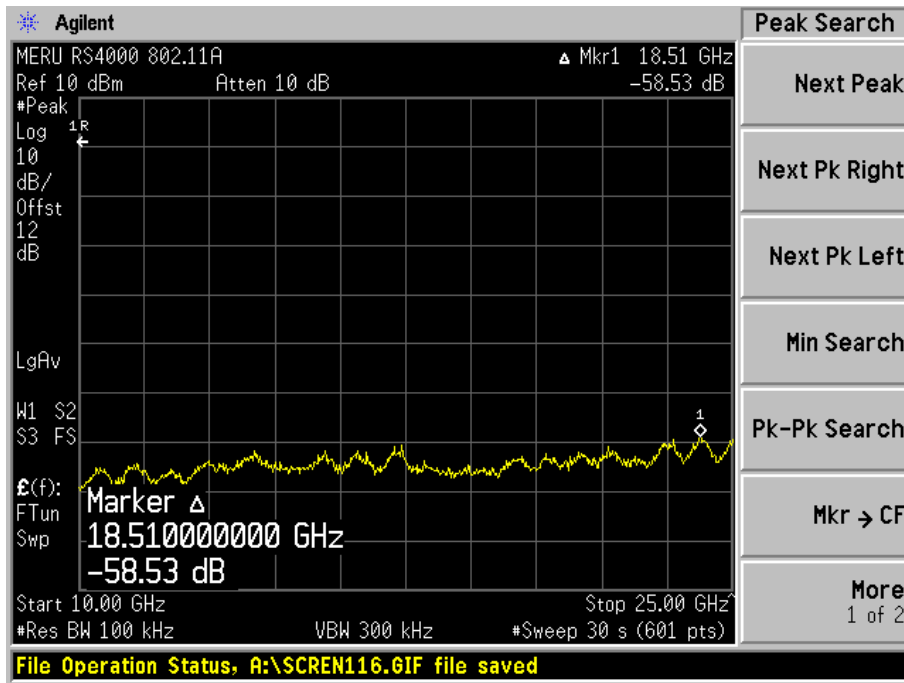
The testing was performed by Snell Leong on 2005-11-1.

Please refer to following pages for plots of spurious emission.

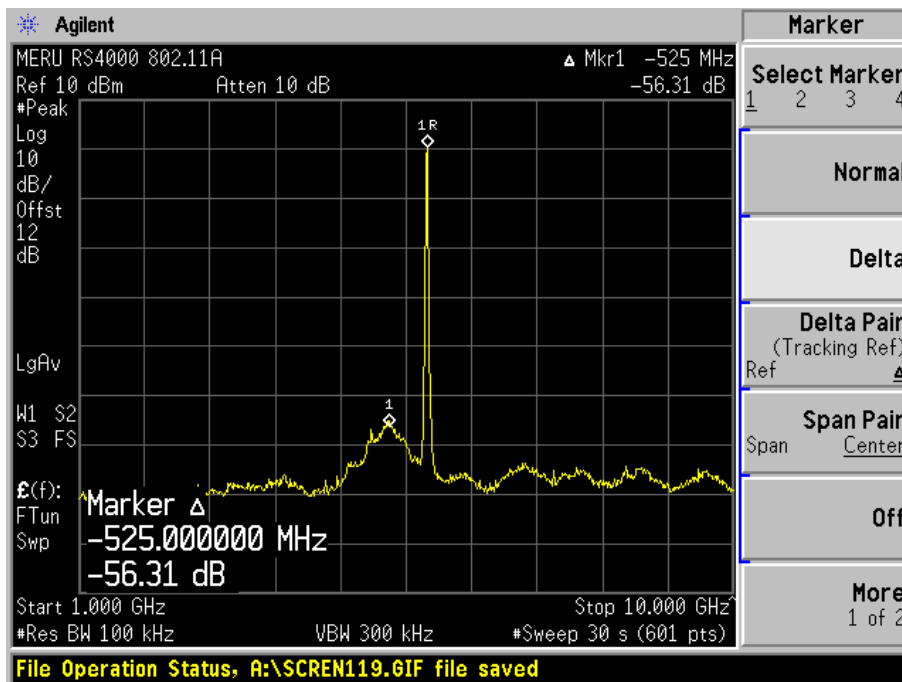
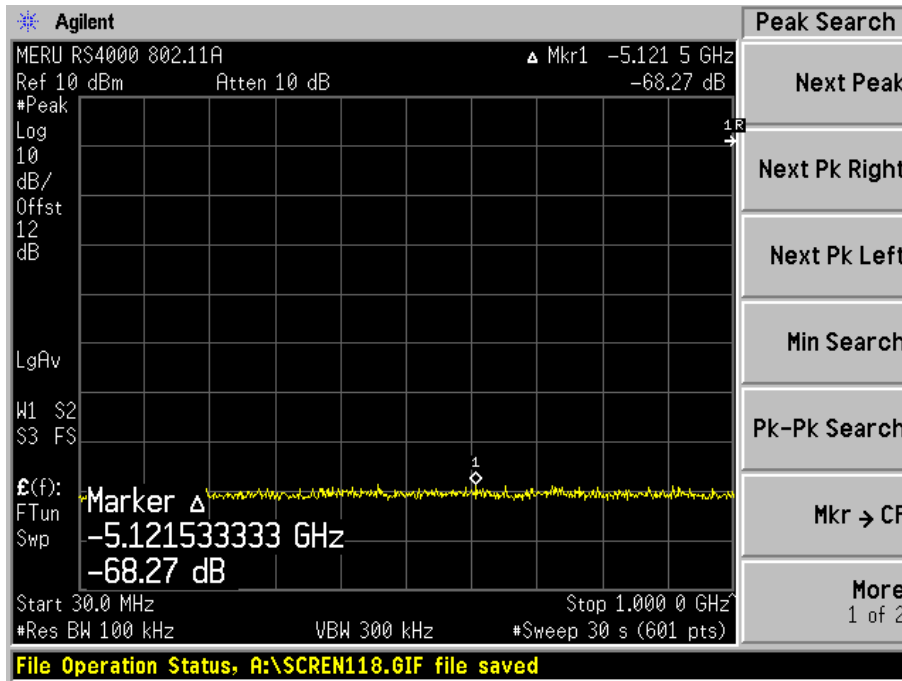
802.11a (15.247)

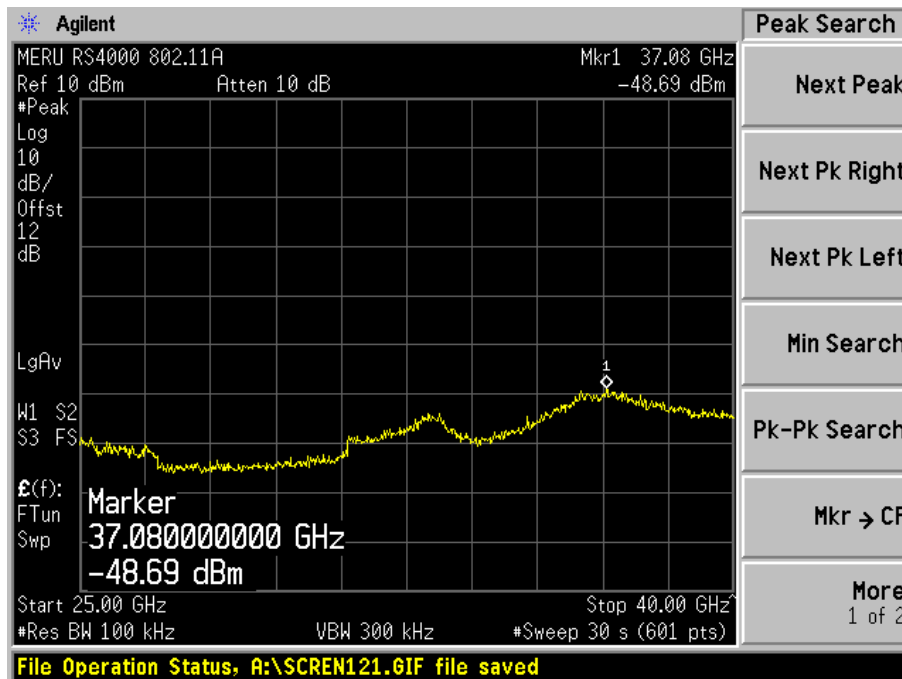
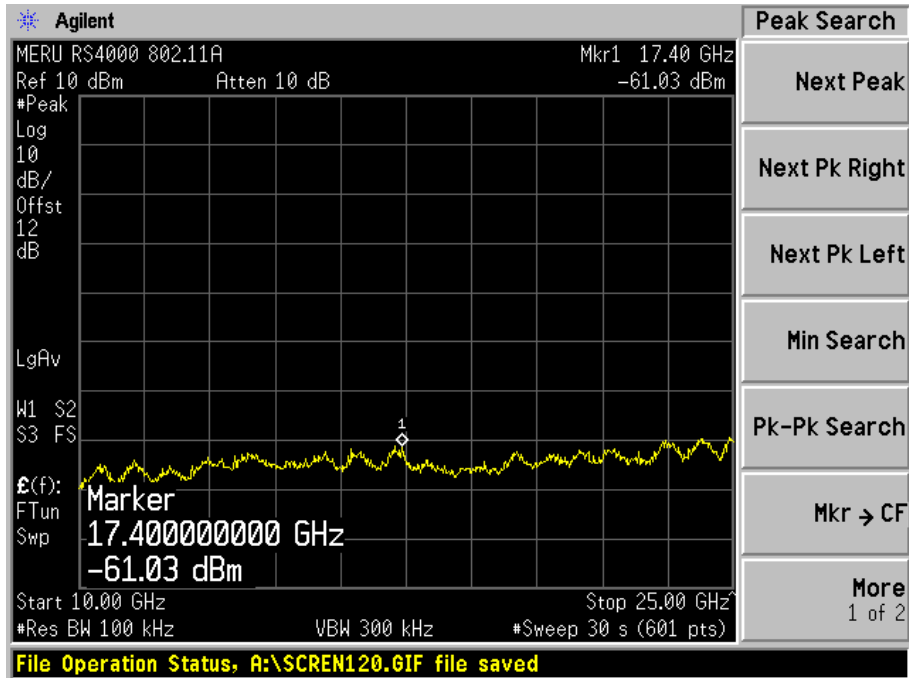
Low Channel



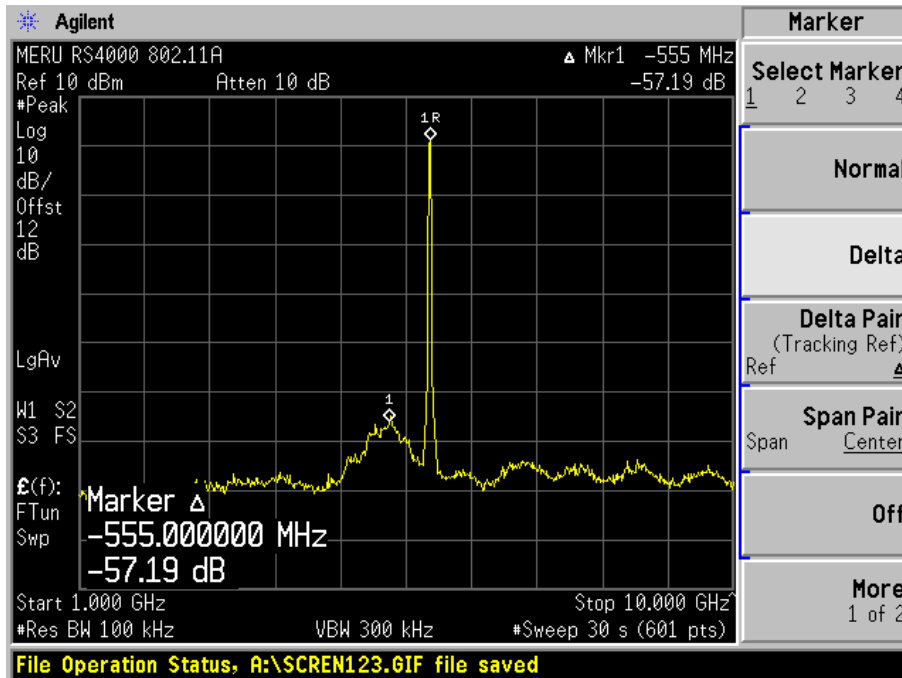
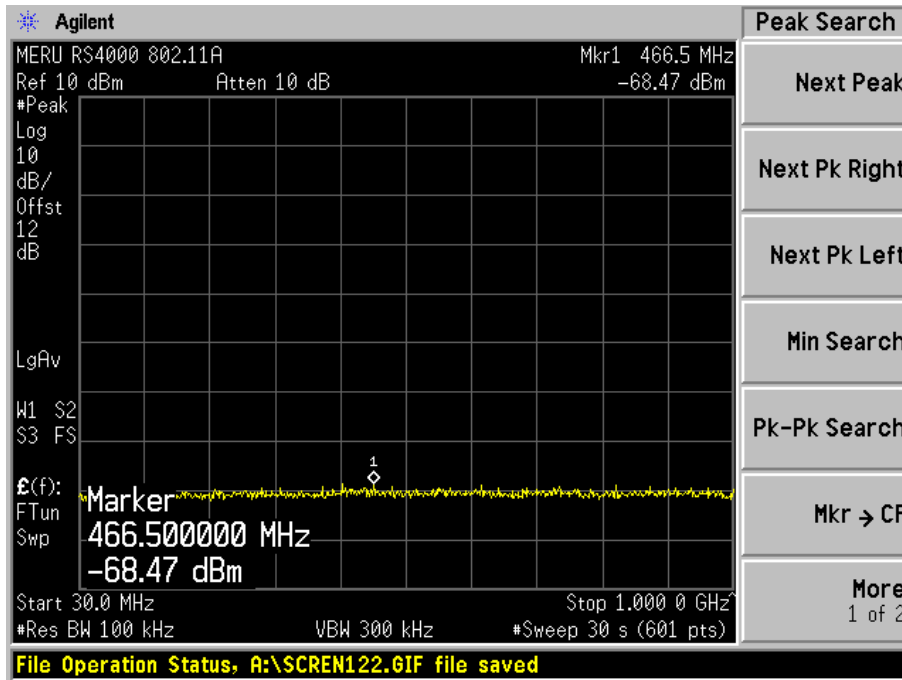


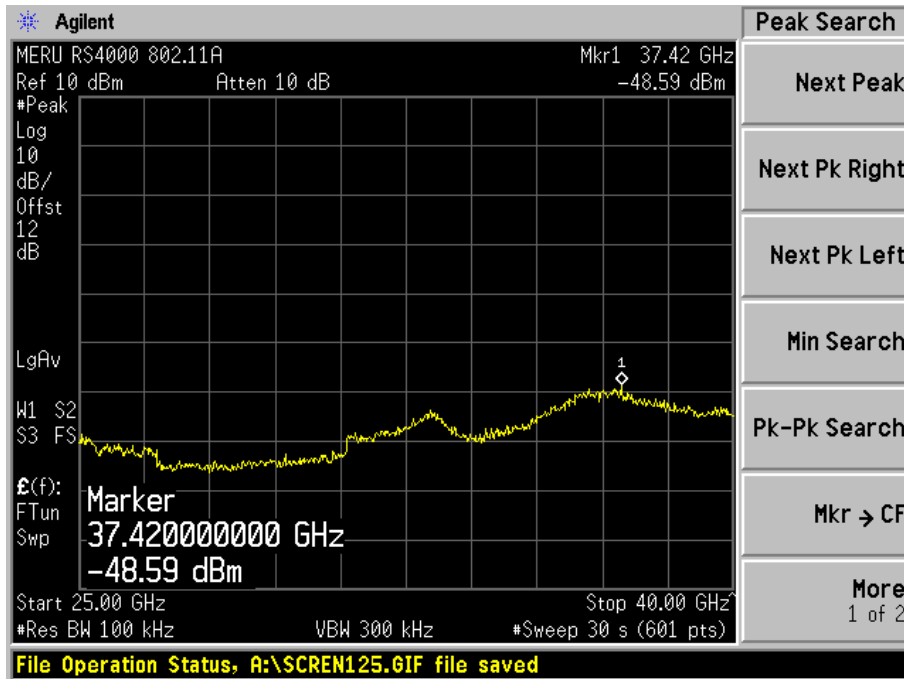
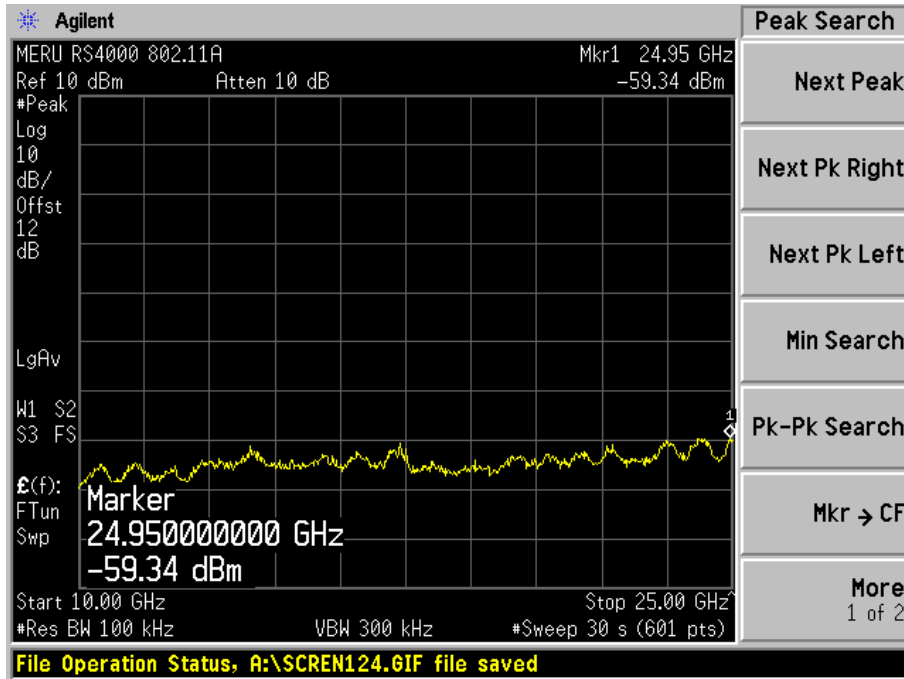
Middle Channel



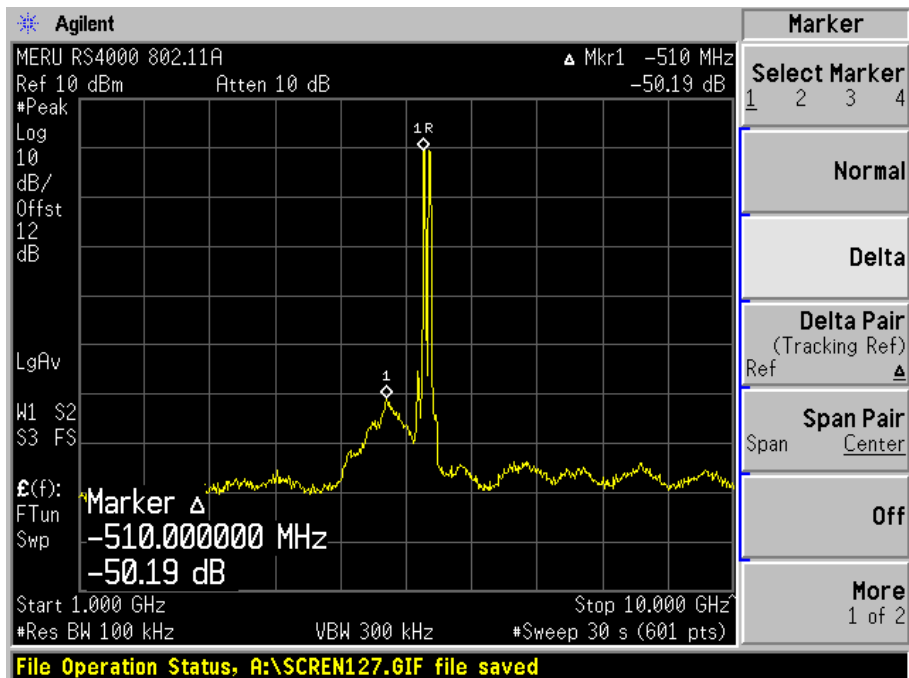
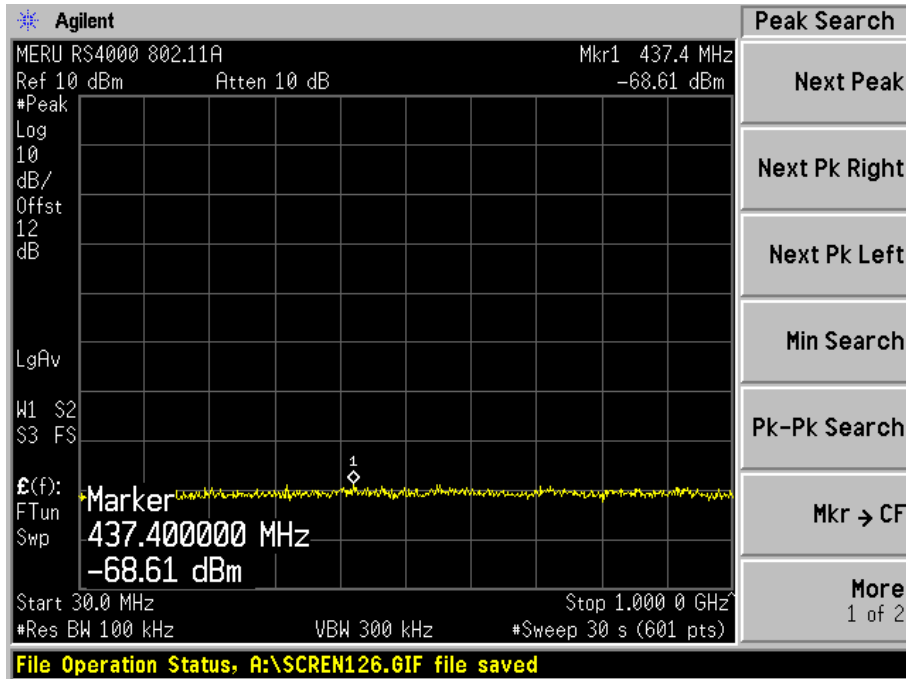


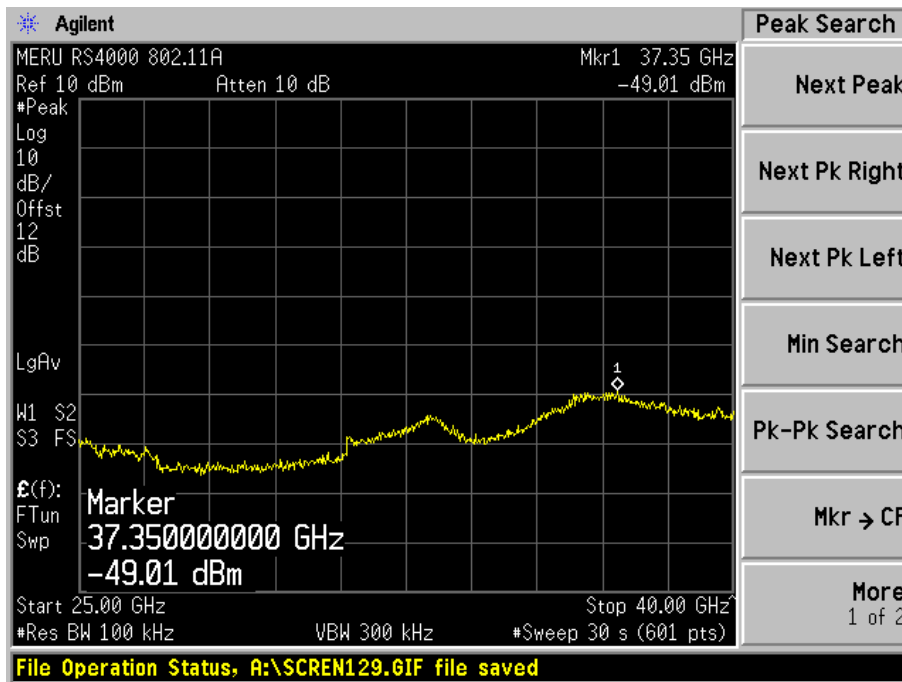
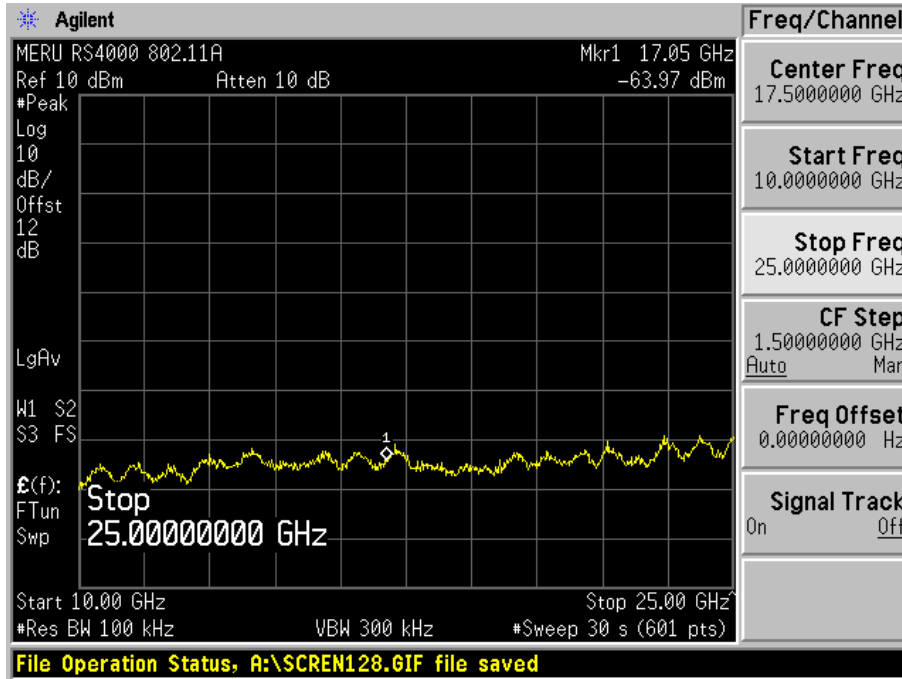
High Channel





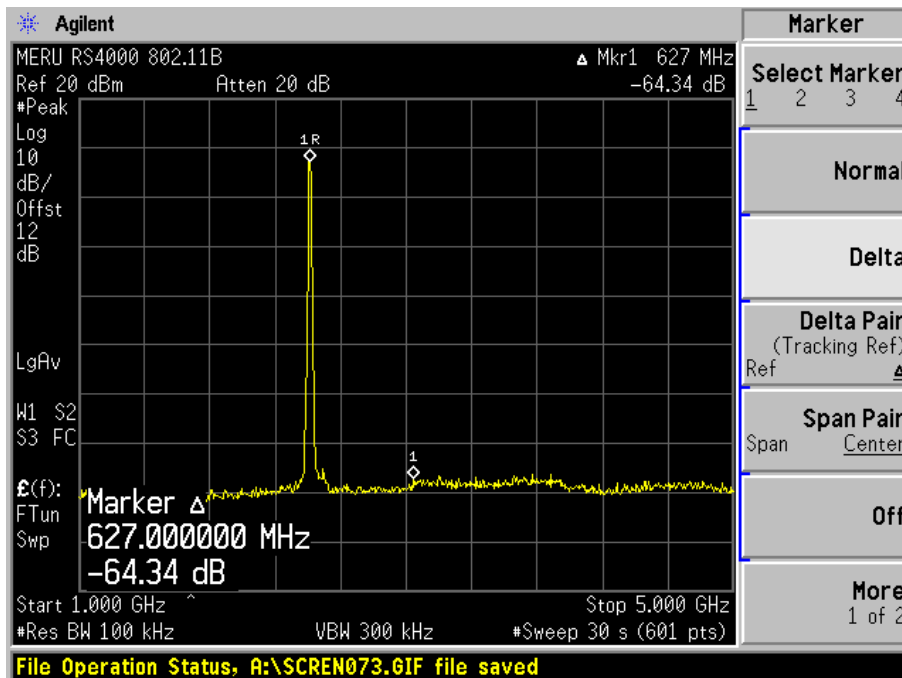
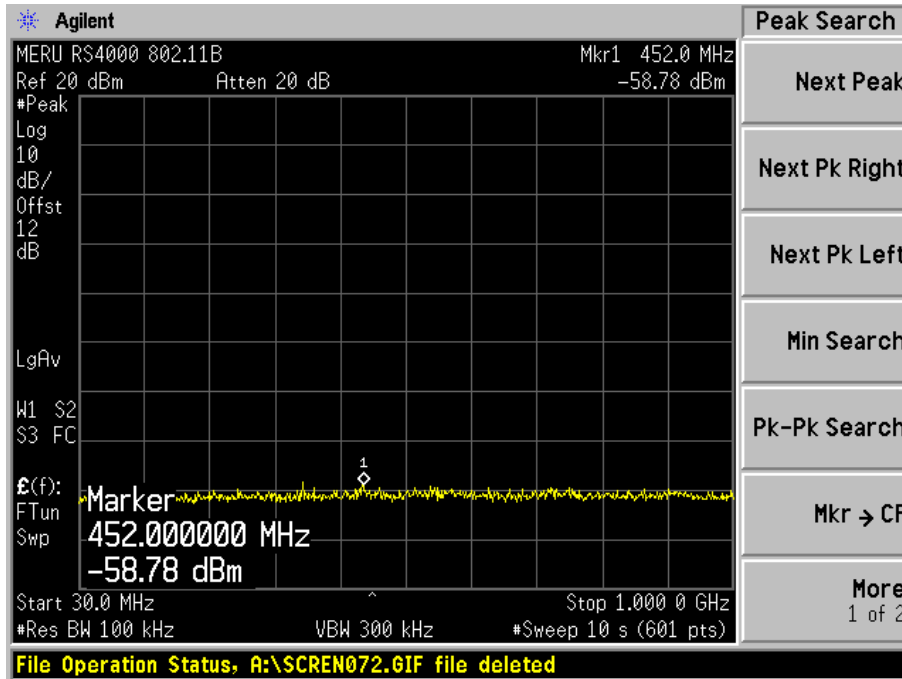
IntermodulationPort Emission Channel 49~165

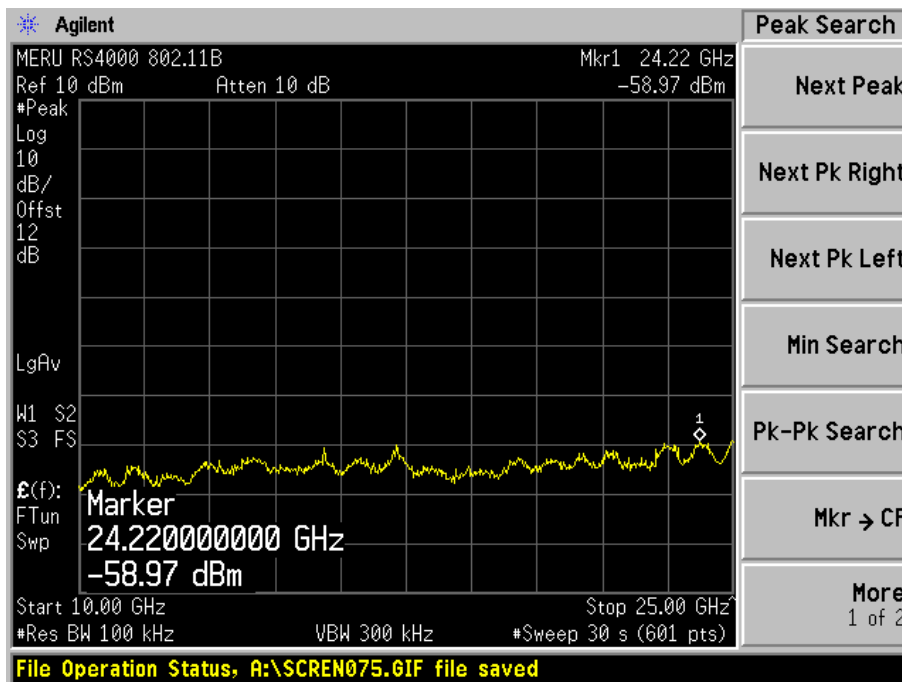
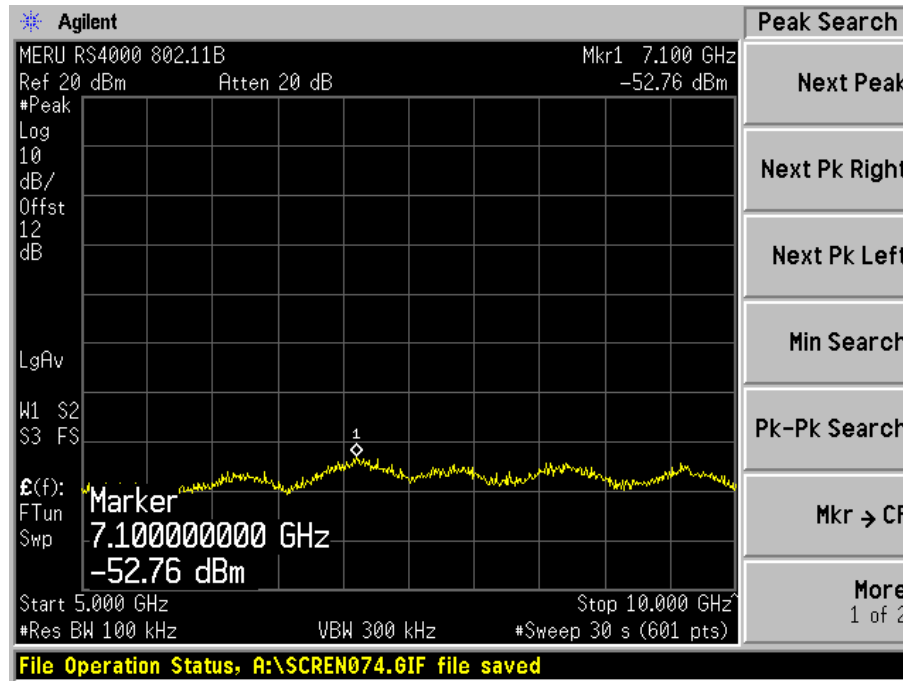




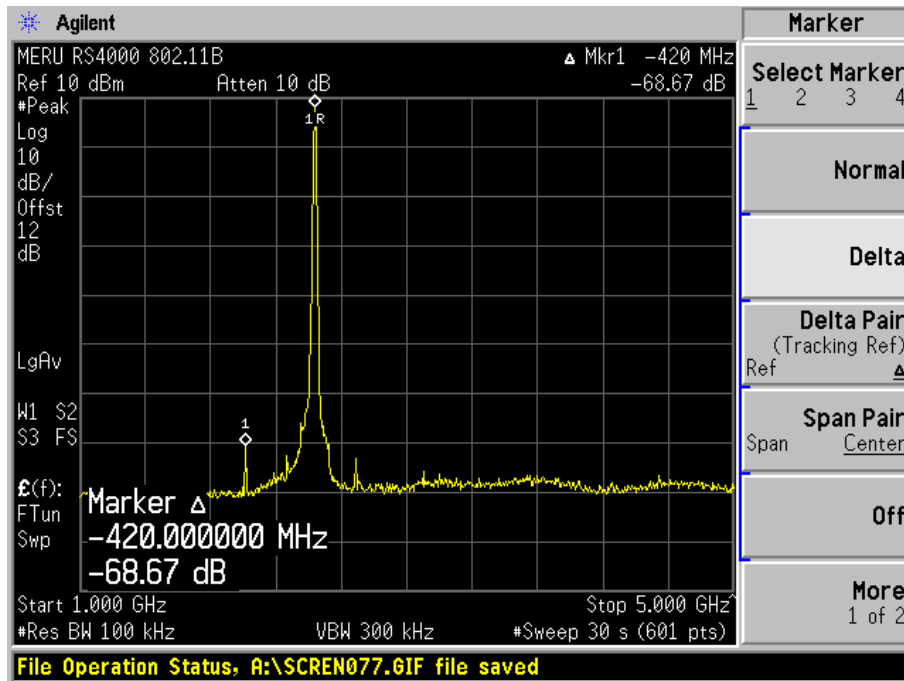
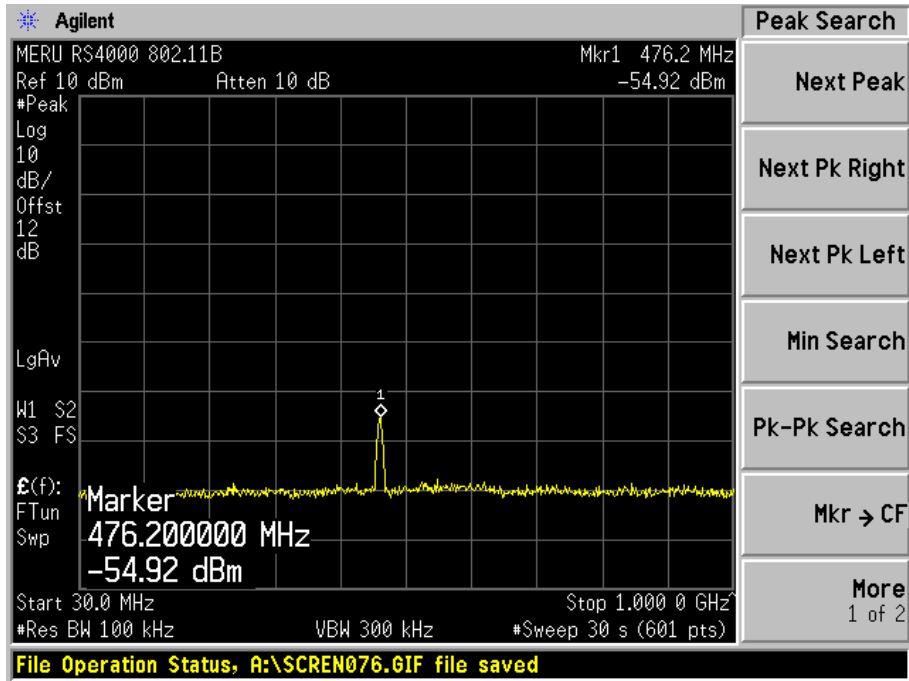
802.11b (15.247)

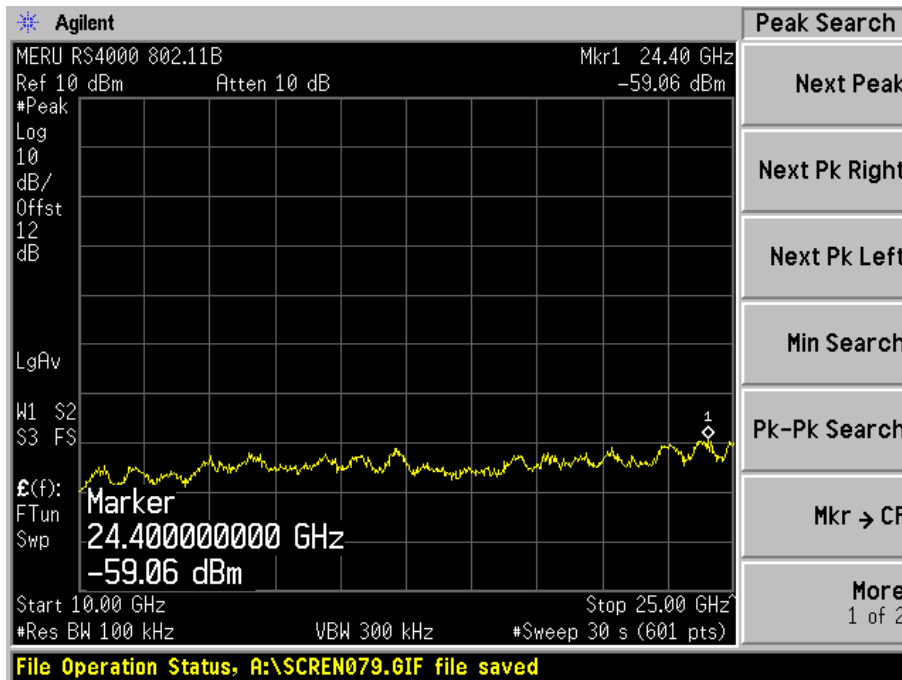
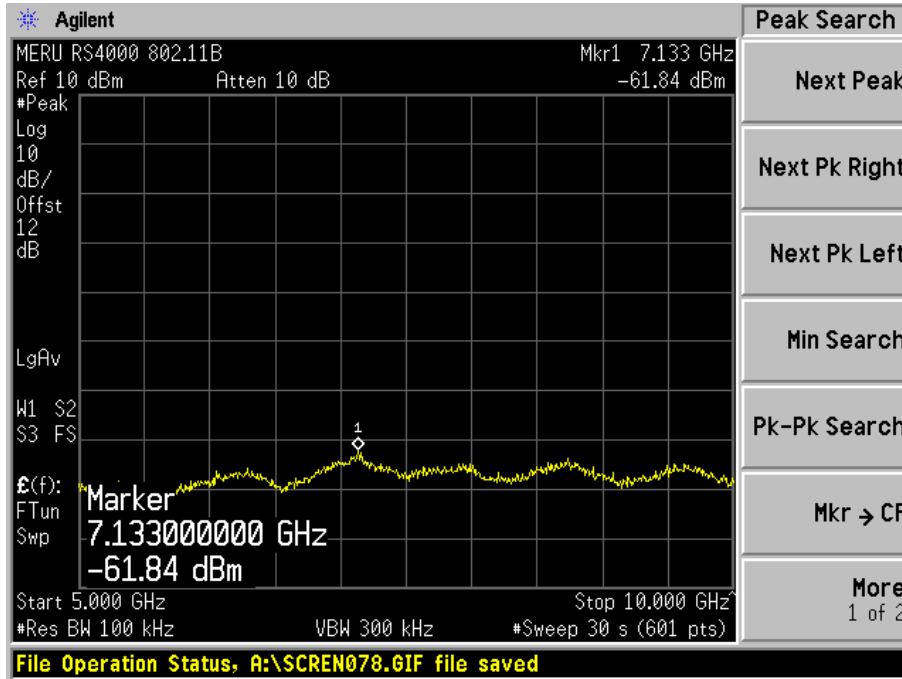
Low Channel



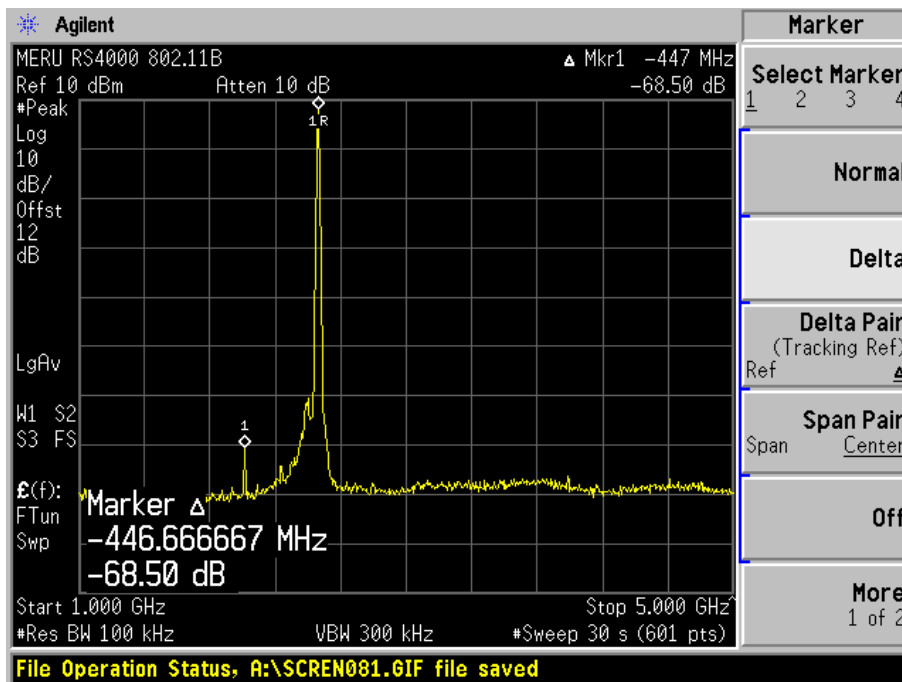
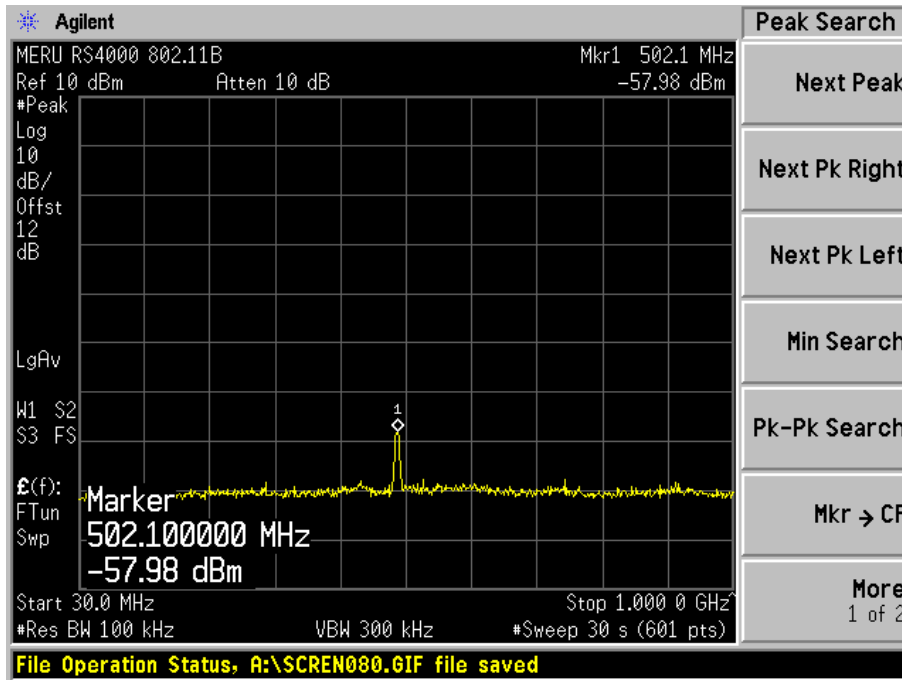


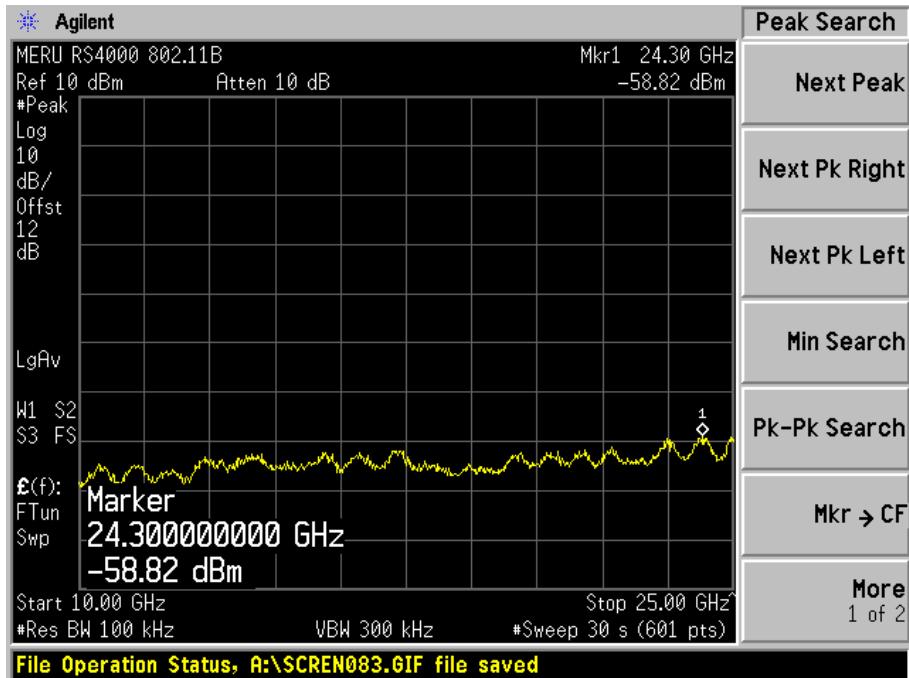
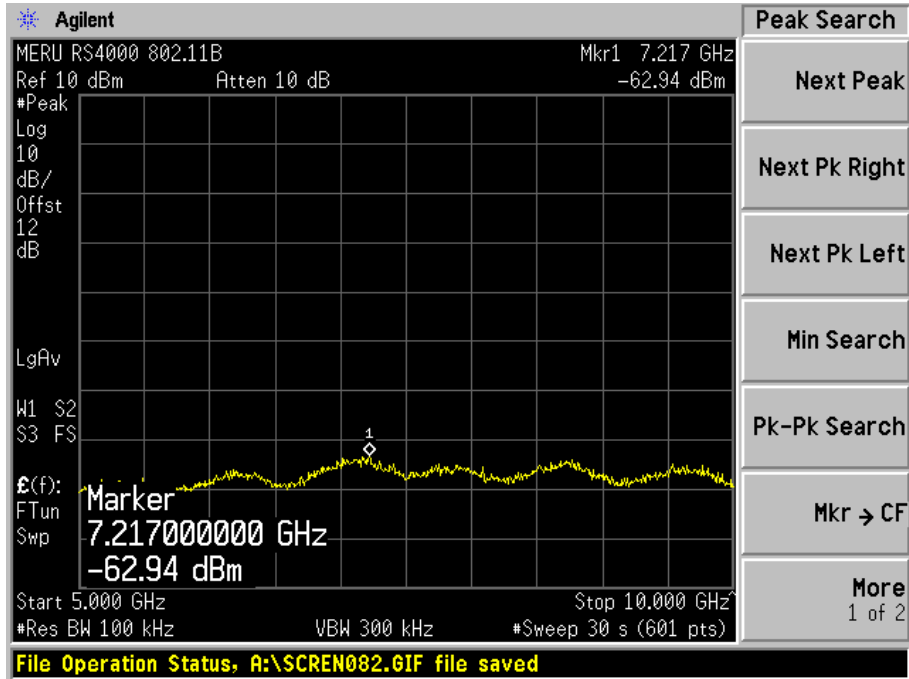
Mid Channel



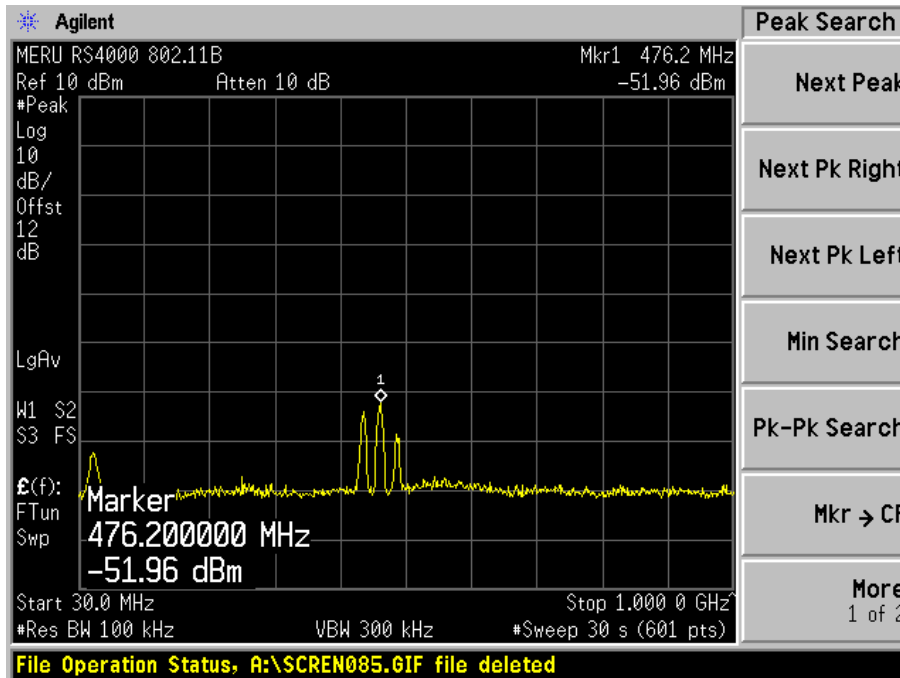
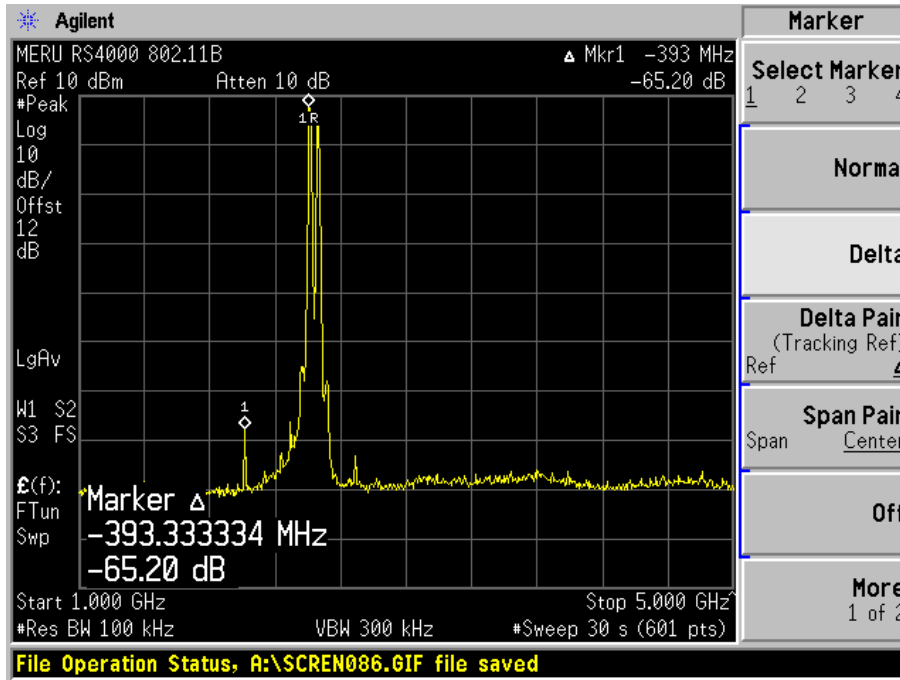


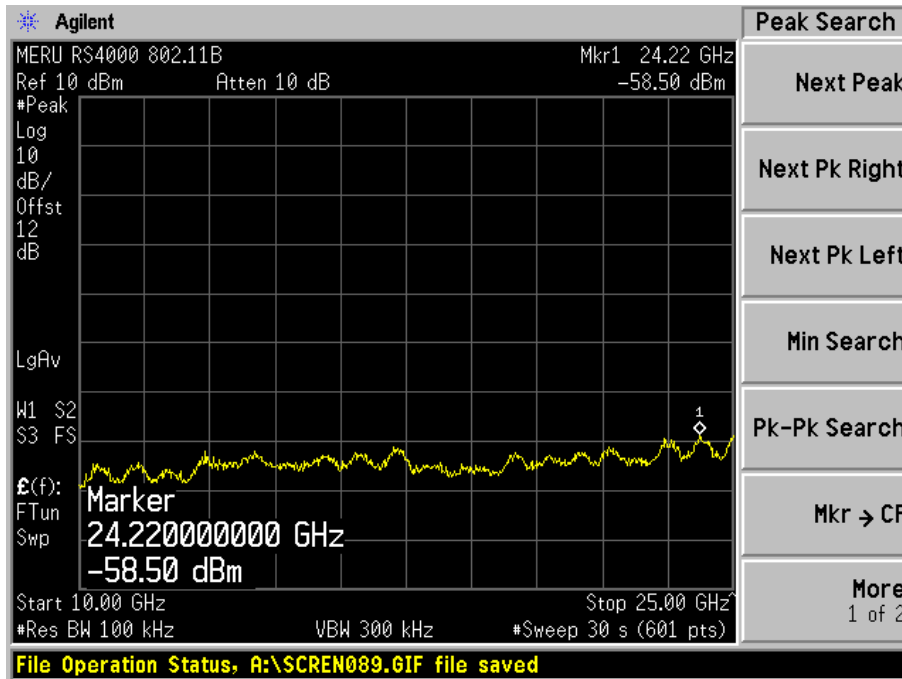
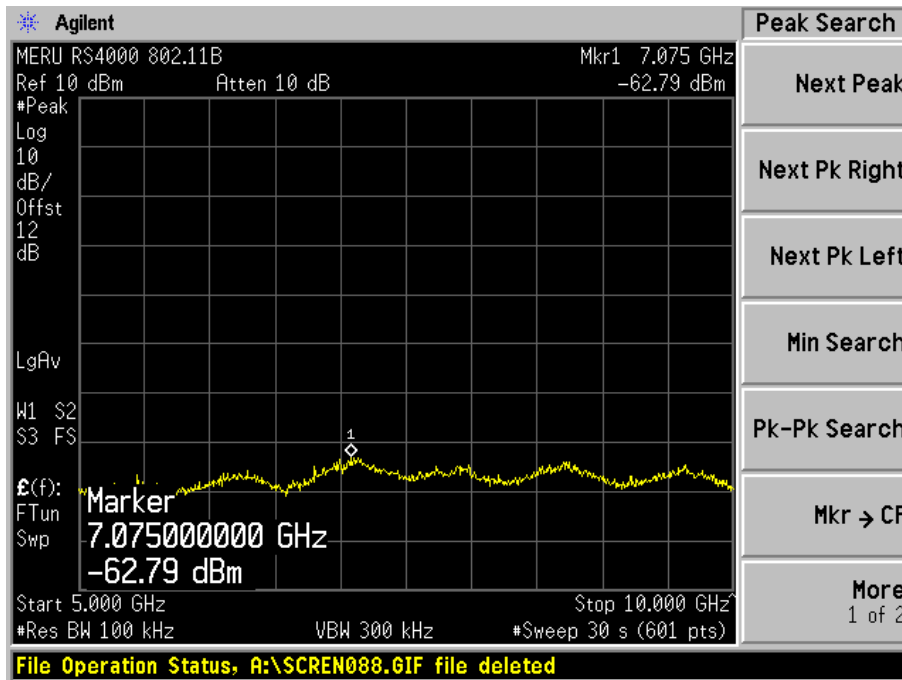
High Channel





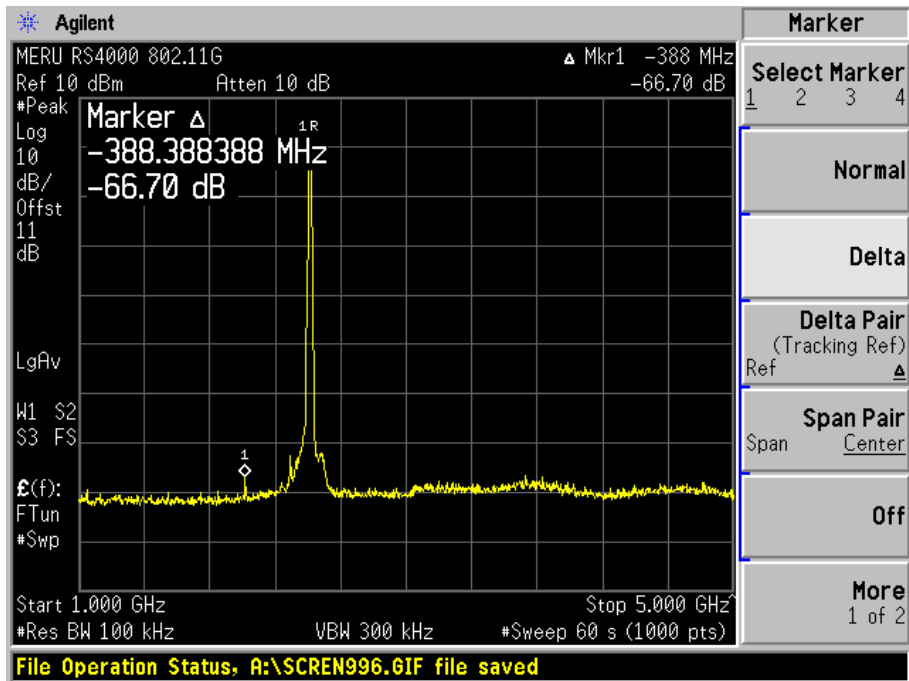
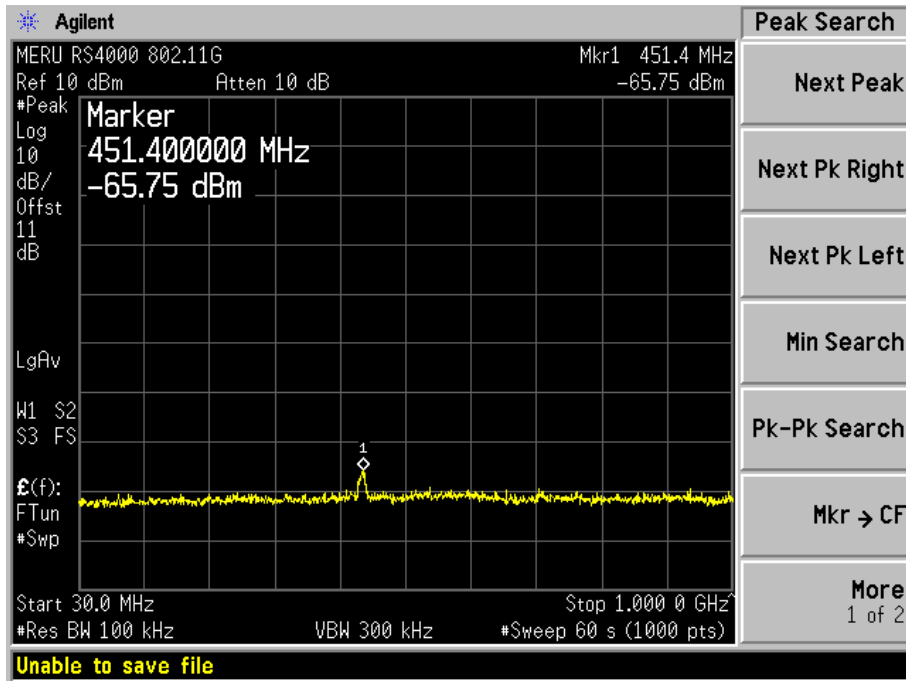
Intermodulation Port Emission Channel 1~11

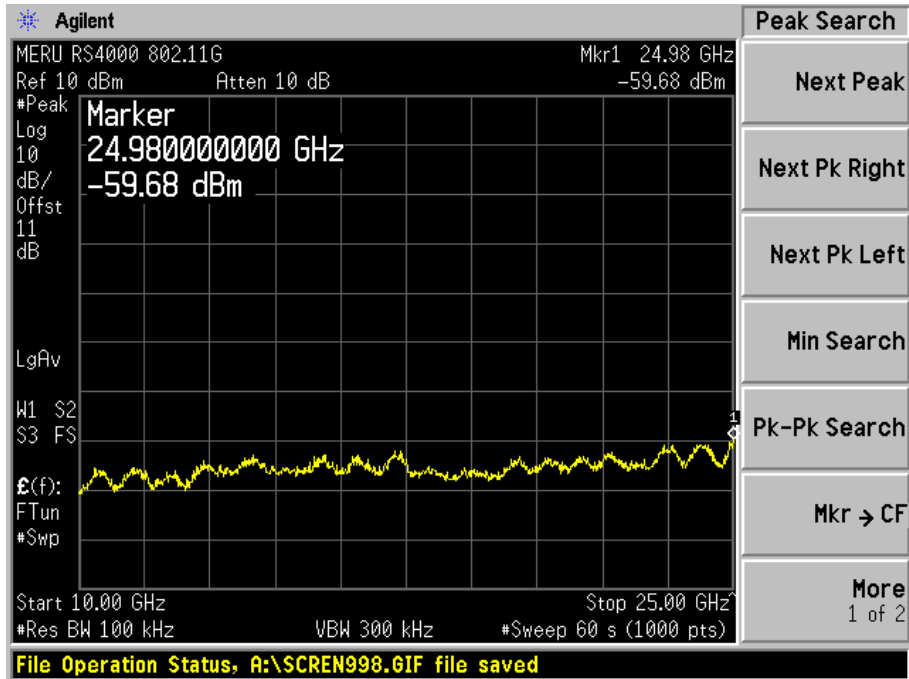
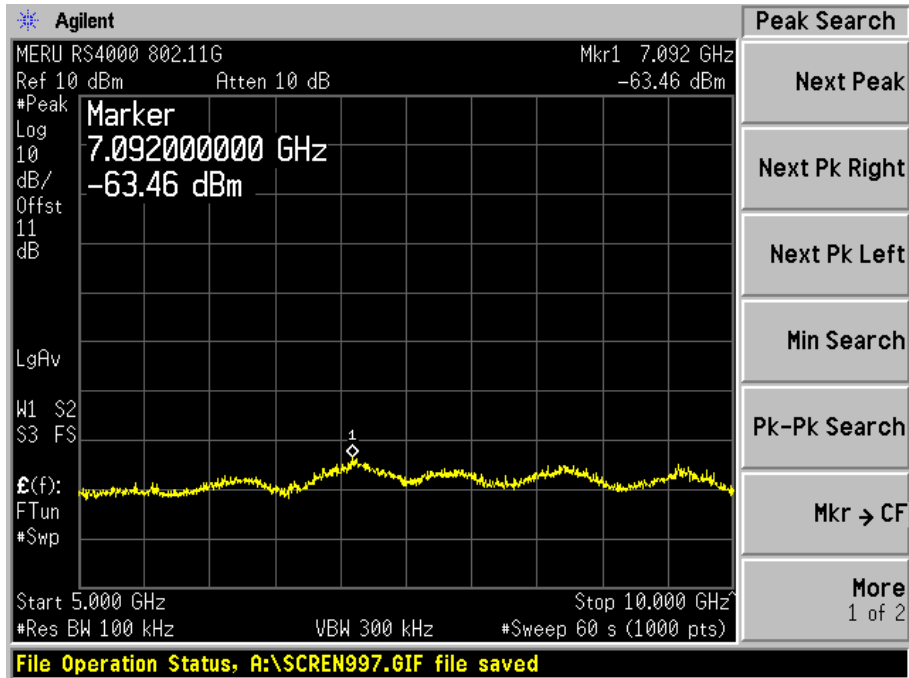




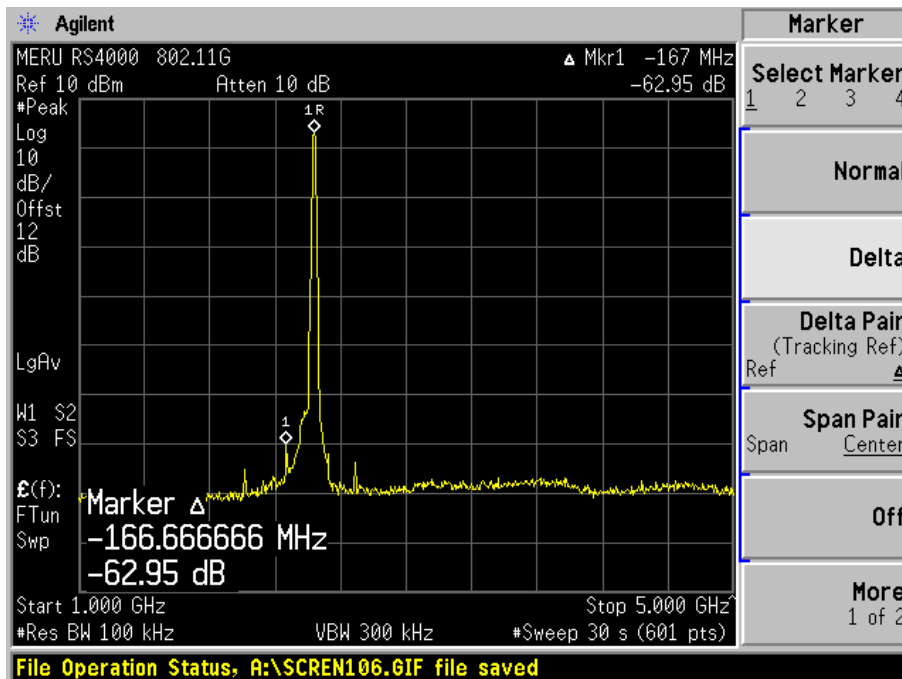
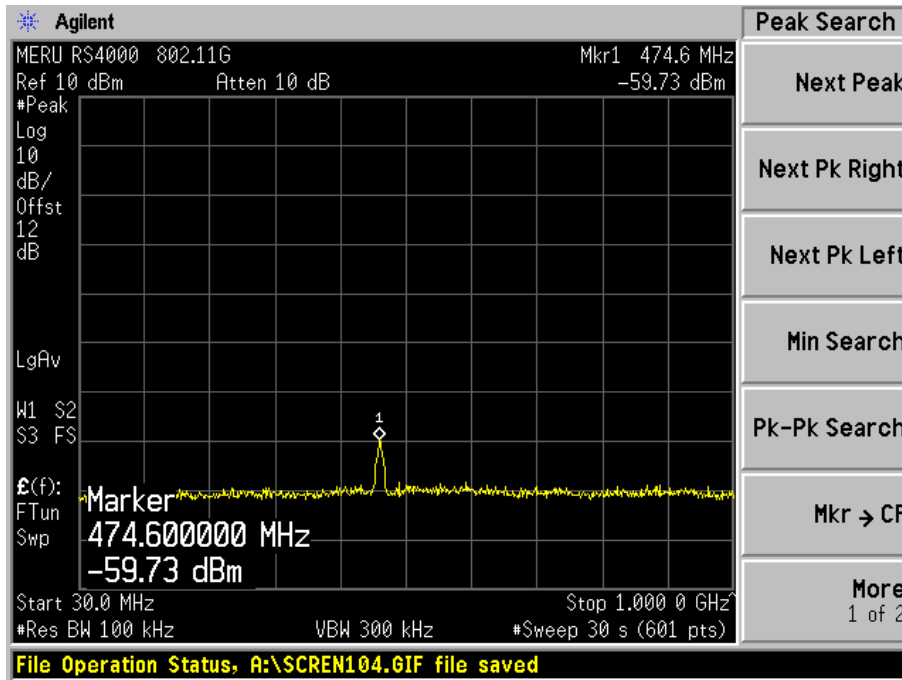
802.11g (15.247)

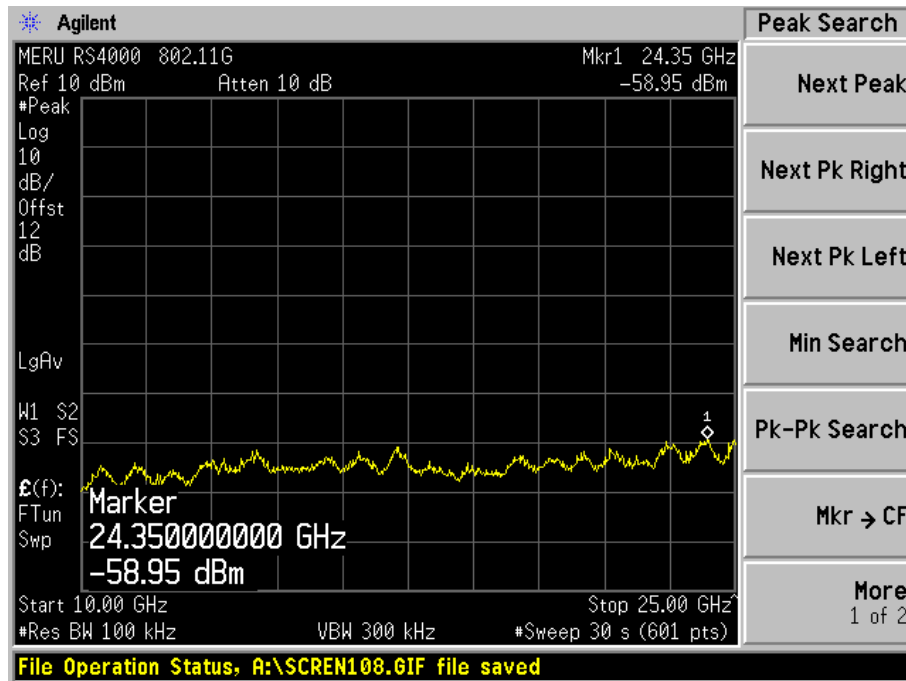
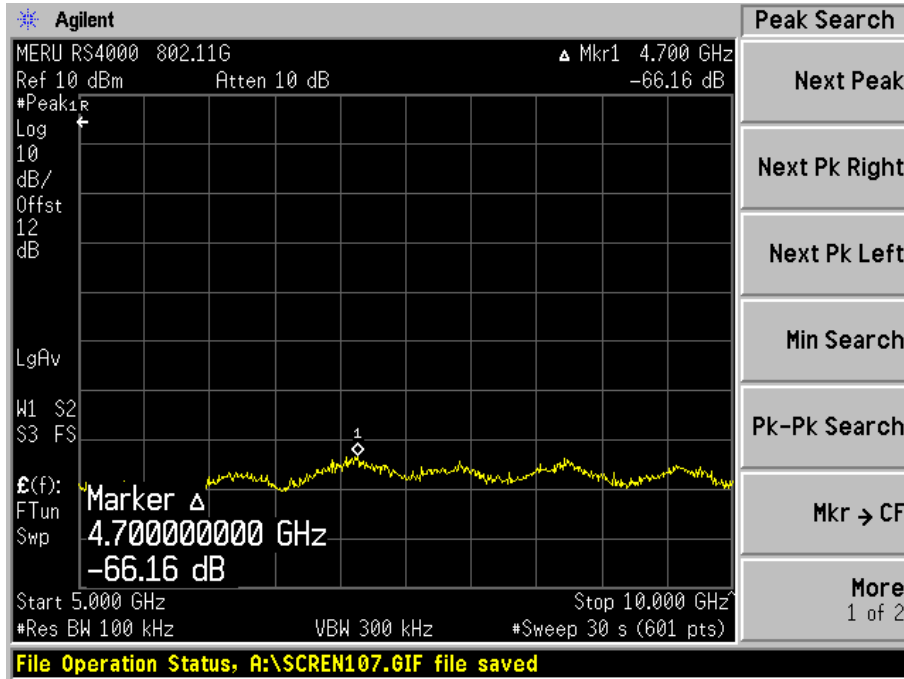
Low Channel



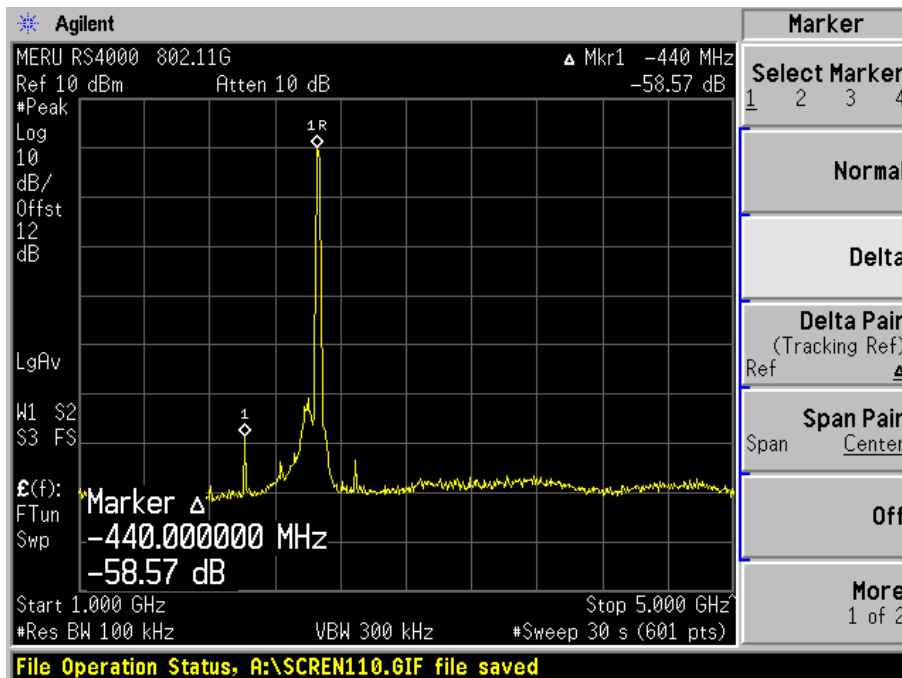
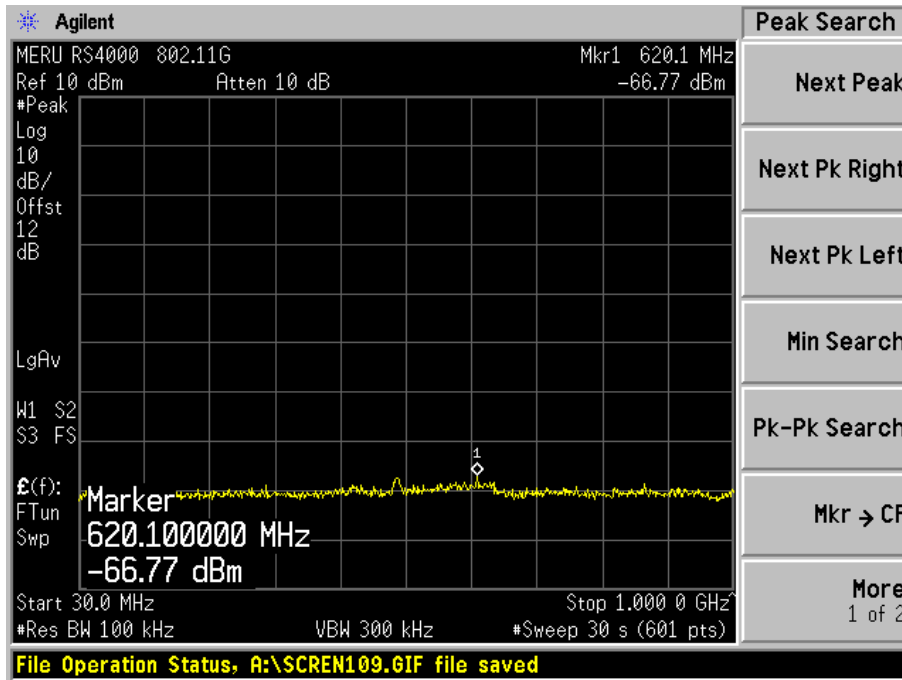


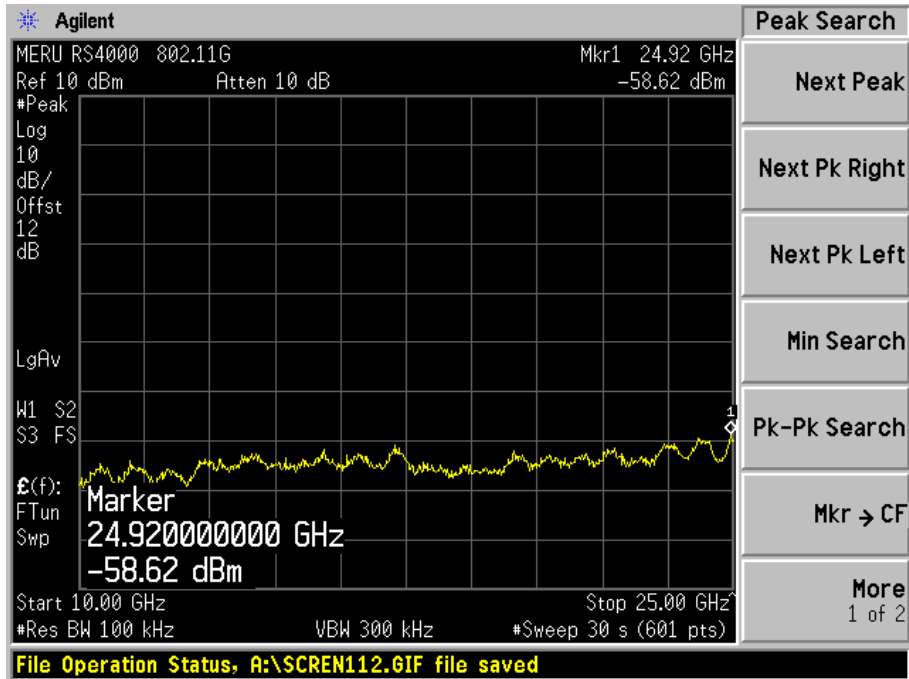
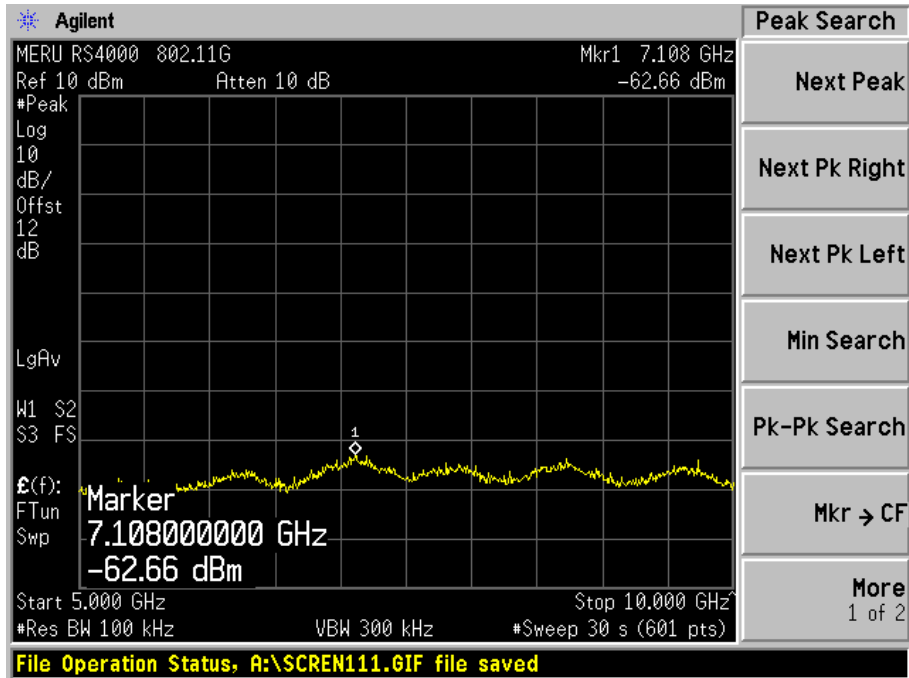
Mid Channel



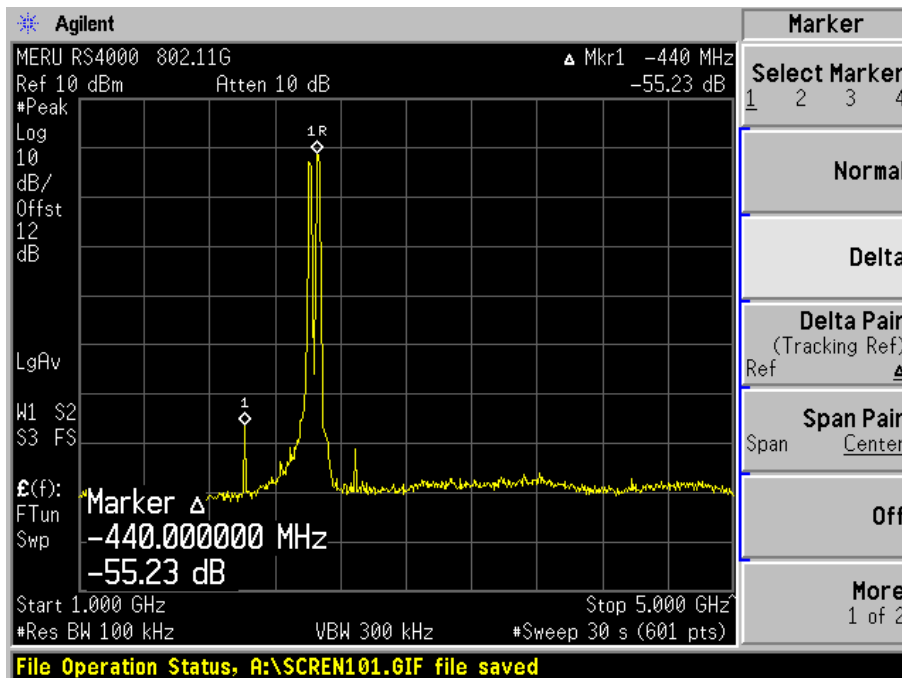
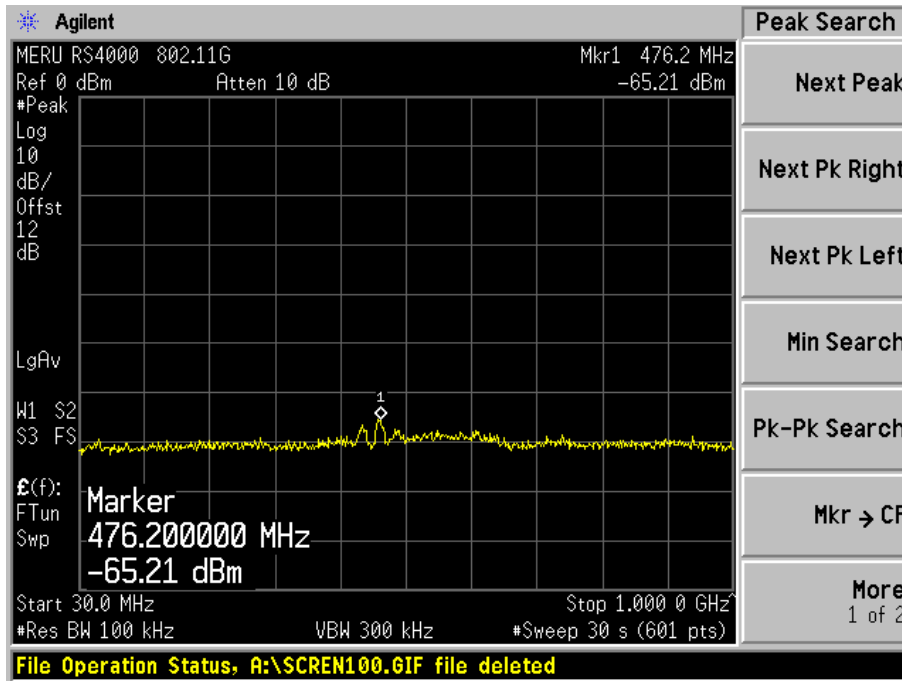


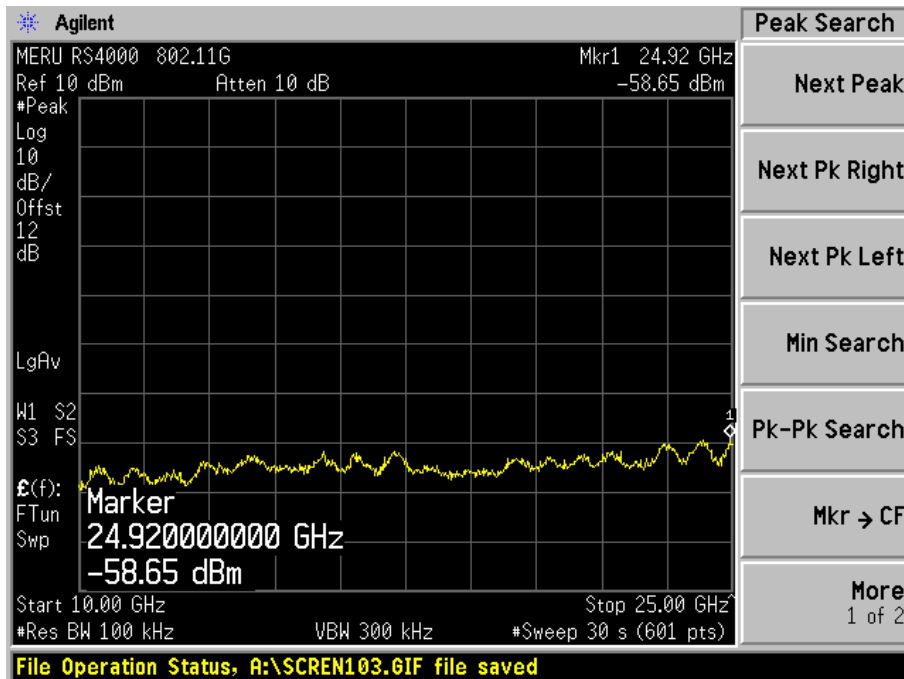
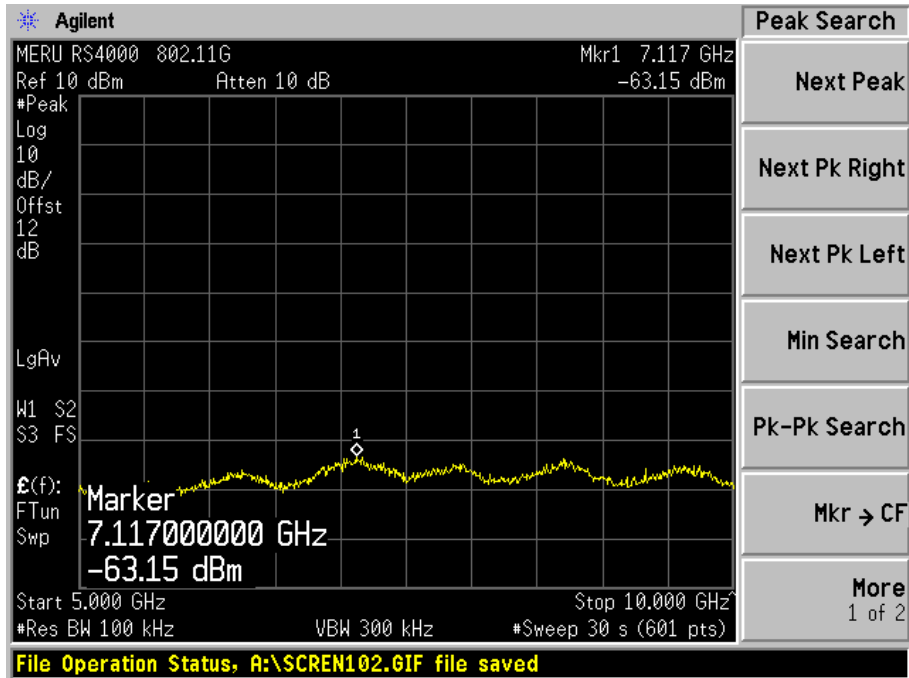
High Channel





Intermodulation Port Emission Channel 1~11





§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	2004-11-10

* **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:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

The testing was performed by Snell Leong on 2005-11-1.

Test Result for 802.11a High Band (15.247) (6dB BW)

Channel	Frequency MHz	Channel Bandwidth (MHz)	Limit KHz
Low	5745	16.48	>500
Mid	5785	16.52	>500
High	5825	16.54	>500

Test Result for 802.11b (15.247) (6dB BW)

Channel	Frequency MHz	Channel Bandwidth (MHz)	Limit KHz
Low	2412	11.110	>500
Mid	2437	11.142	>500
High	2462	10.154	>500

Test Result for 802.11g (15.247) (6dB BW)

Channel	Frequency MHz	Channel Bandwidth (MHz)	Limit KHz
Low	2412	16.456	>500
Mid	2437	16.419	>500
High	2462	16.400	>500

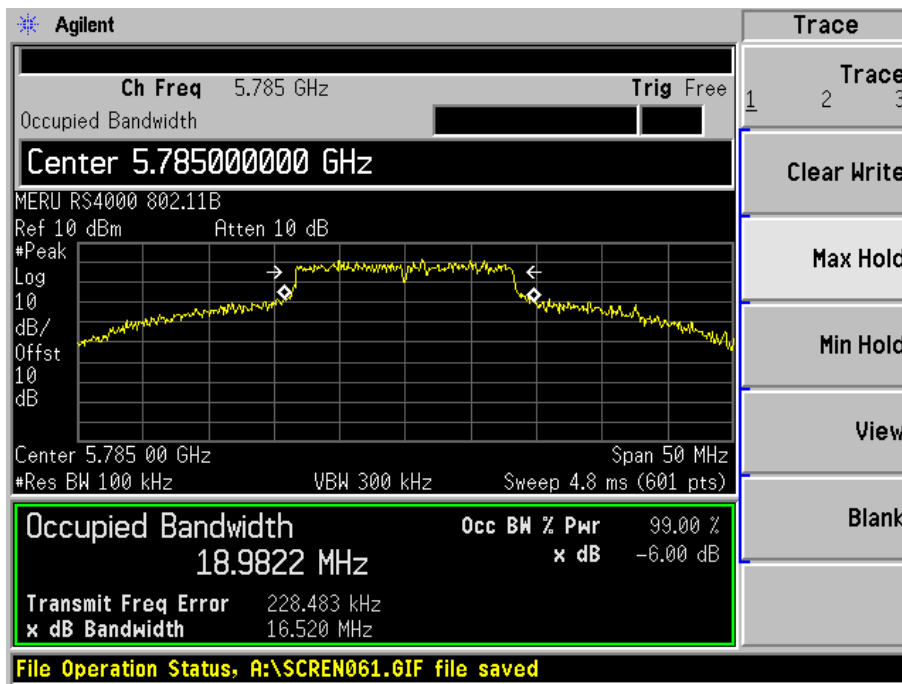
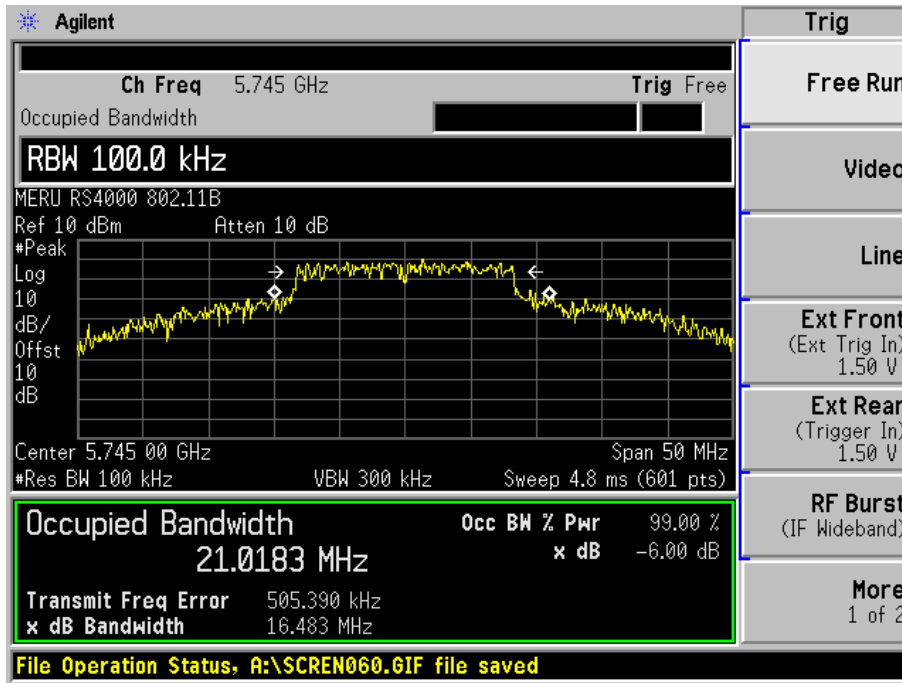
Test Result for 802.11a (26dB BW)**Mid Band**

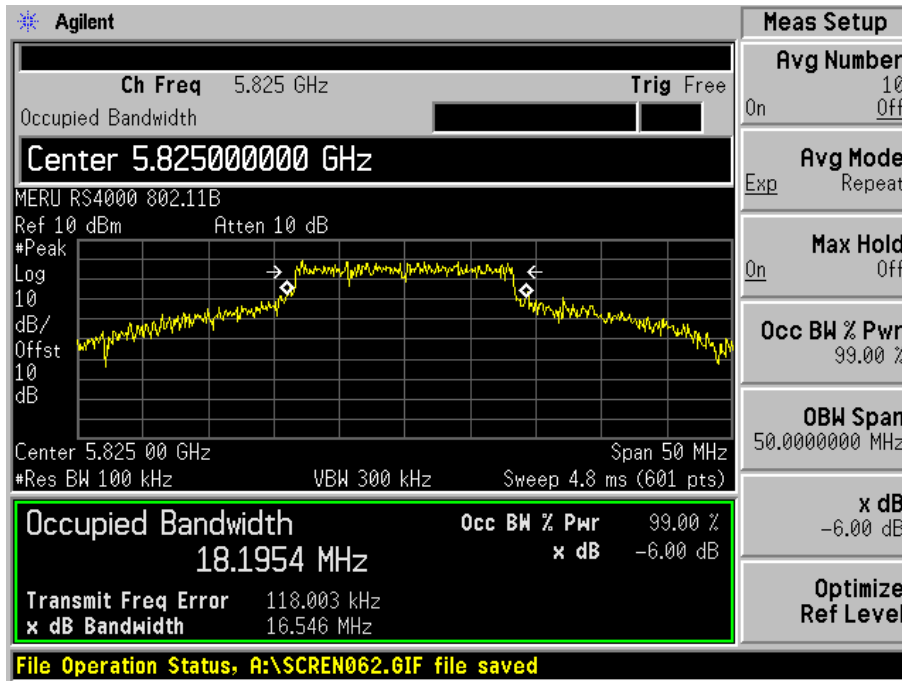
Channel	Frequency MHz	Channel 26dB Bandwidth (MHz)
Low	5260	24.347
Mid	5300	21.760
High	5320	21.192

Low Band

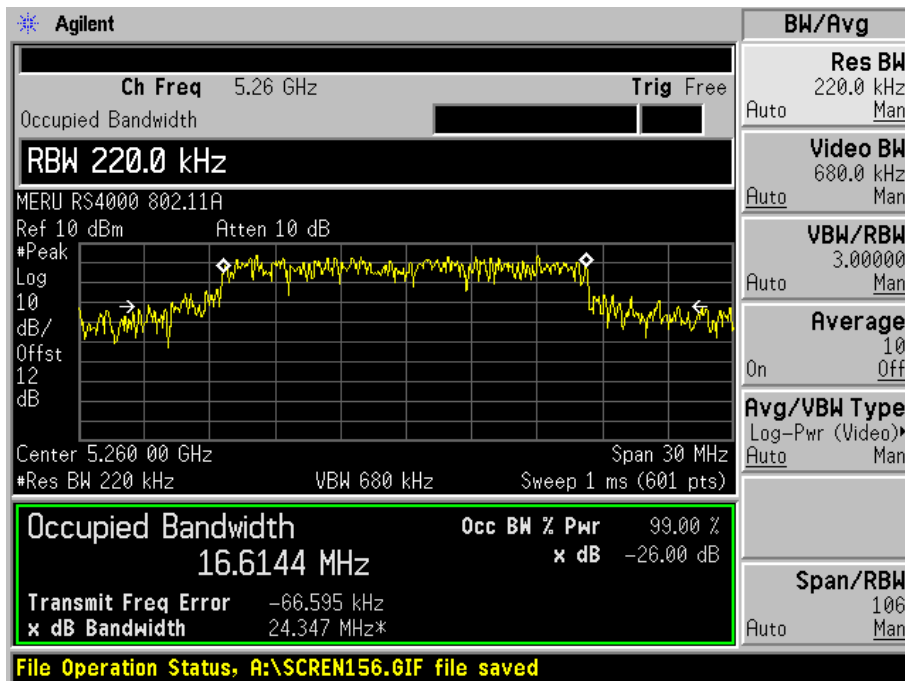
Channel	Frequency MHz	Channel 26dB Bandwidth (MHz)
Low	5180	19.227
Mid	5200	20.518
High	5240	20.504

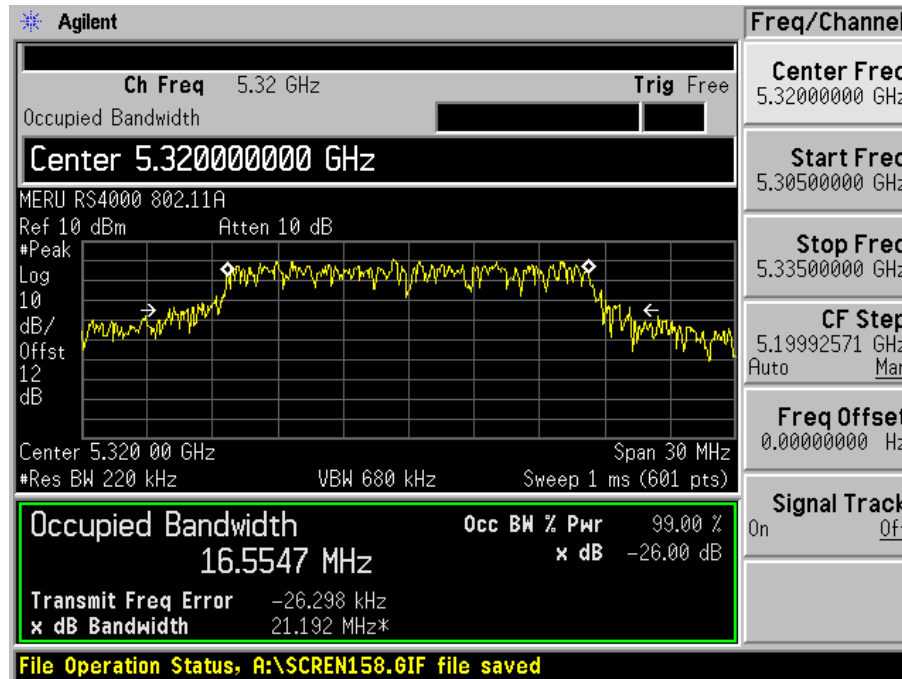
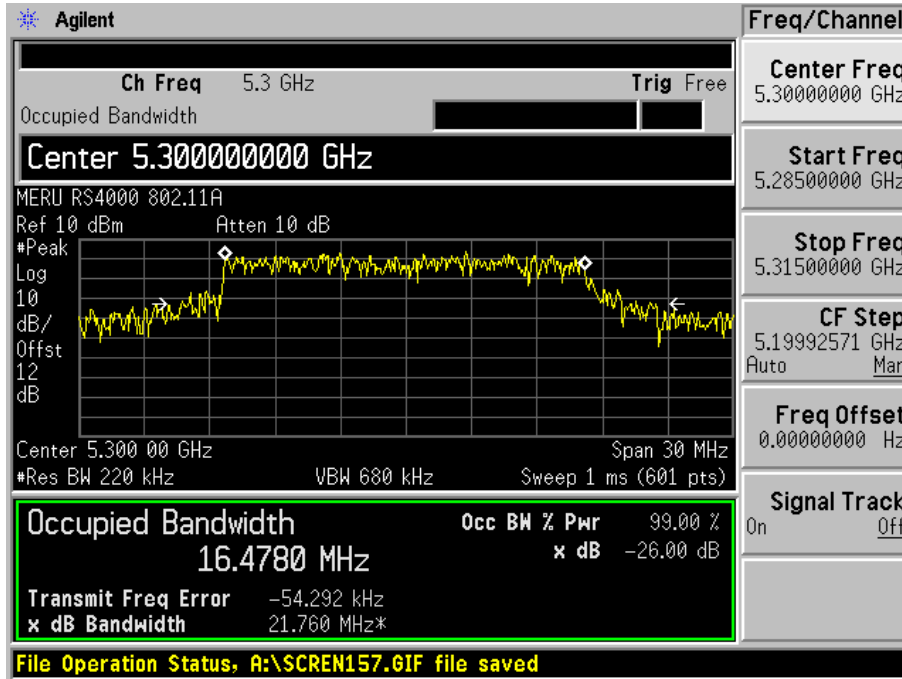
802.11a High Band



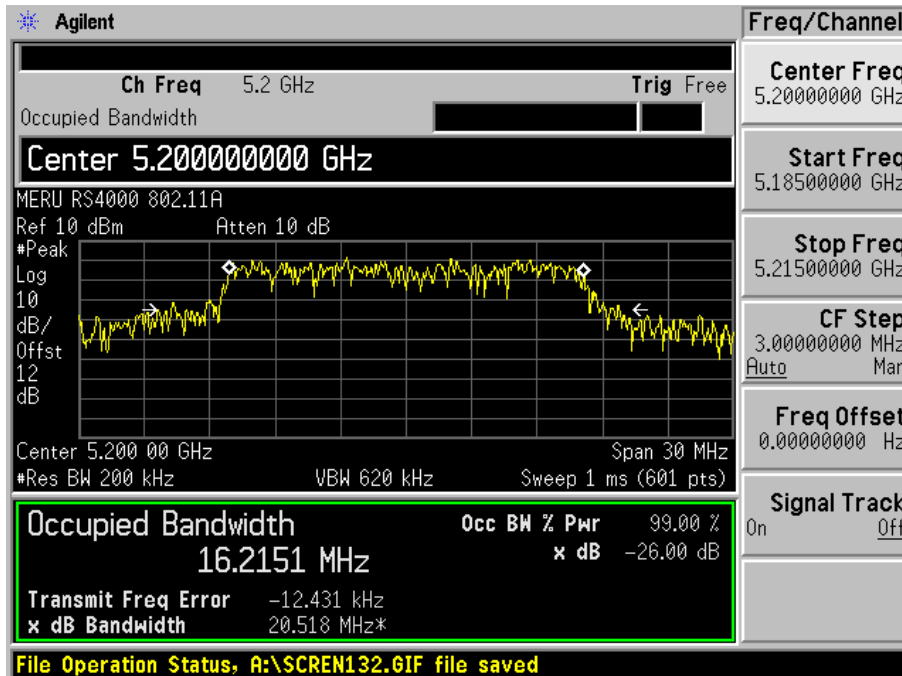
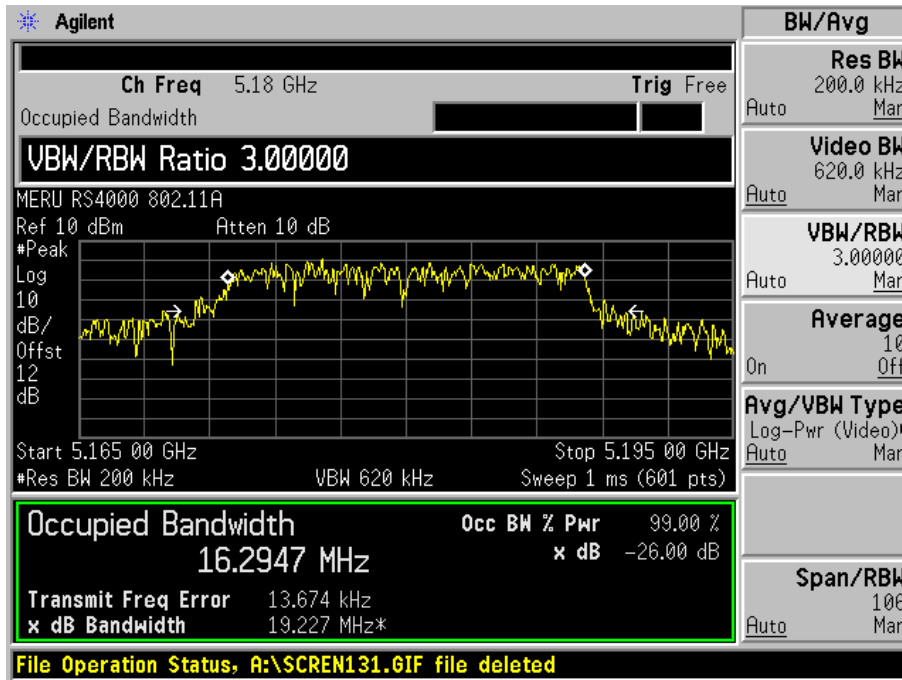


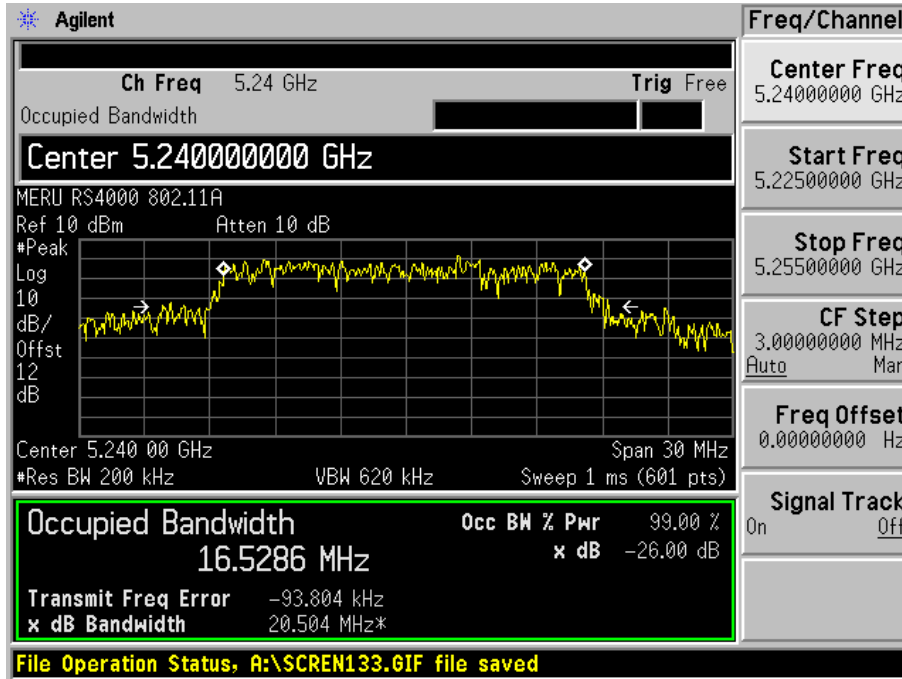
802.11a Middle Band



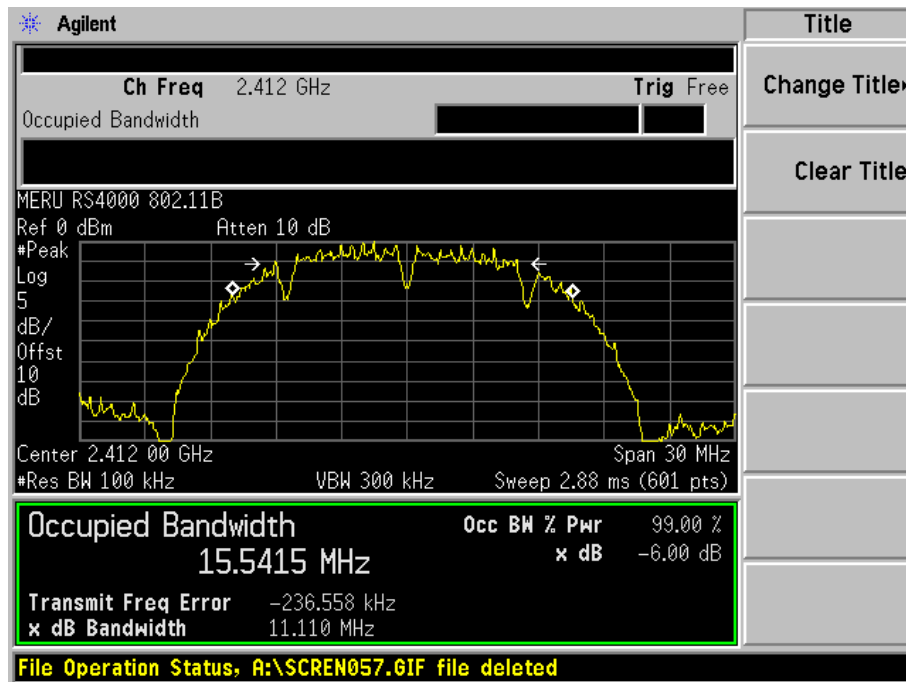


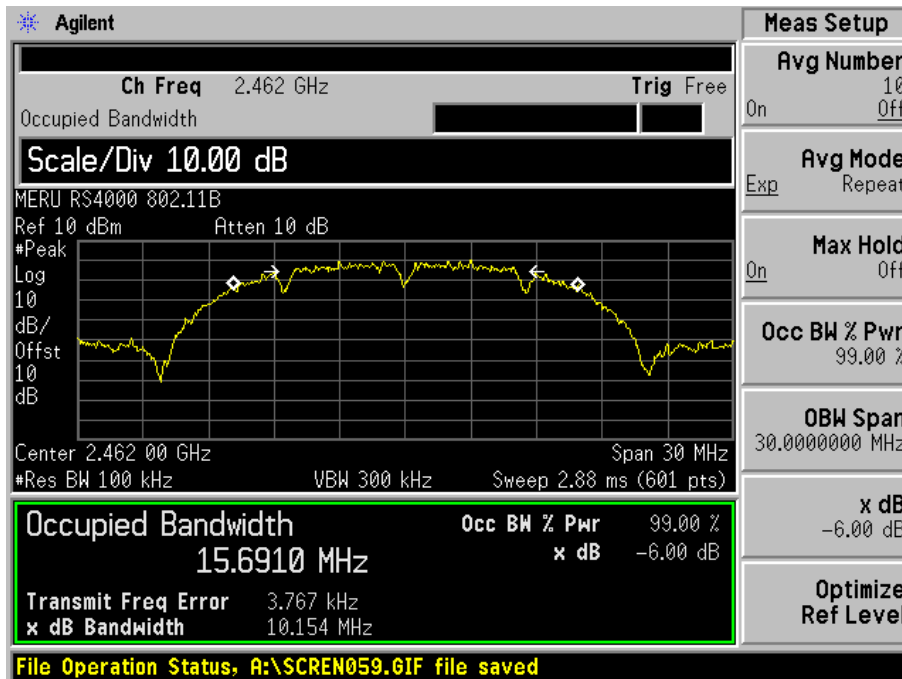
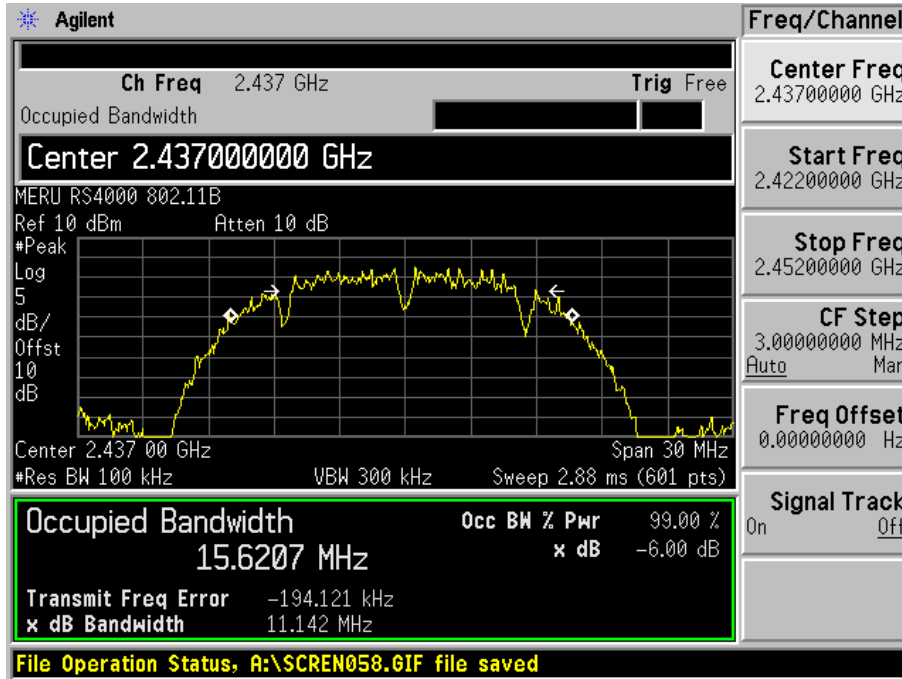
802.11a Low Band



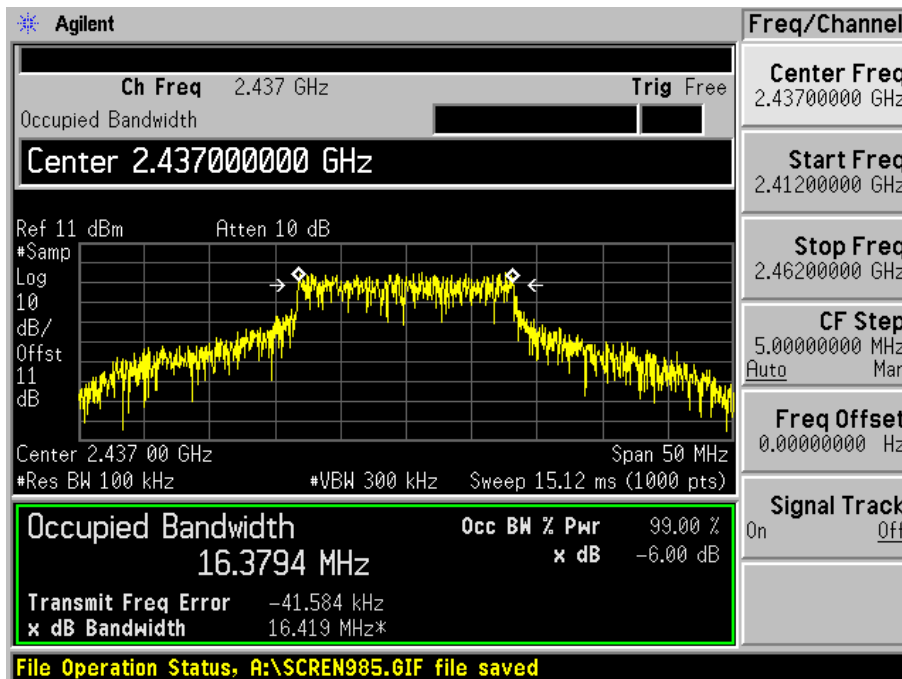
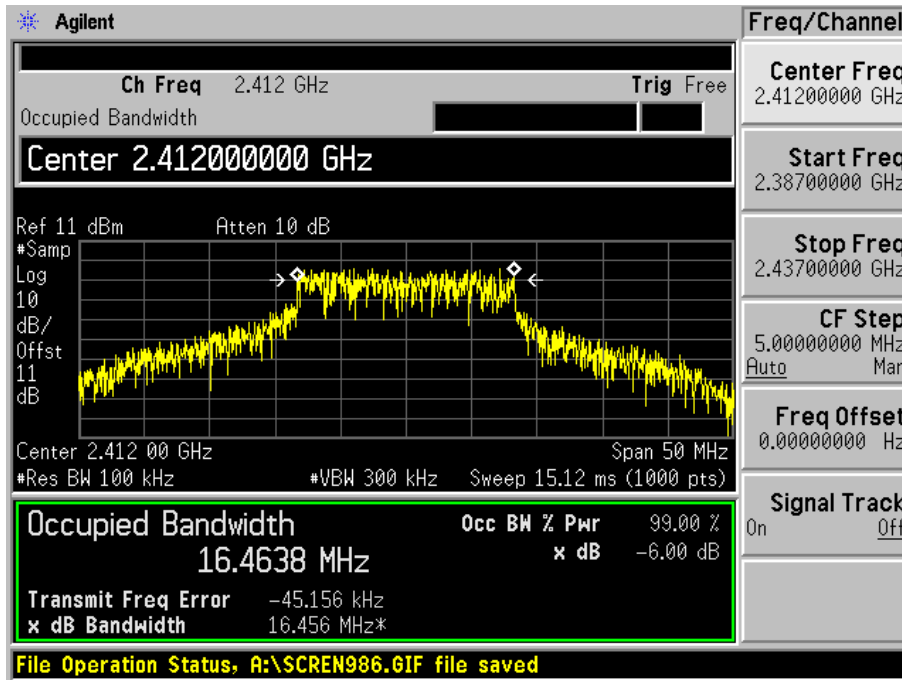


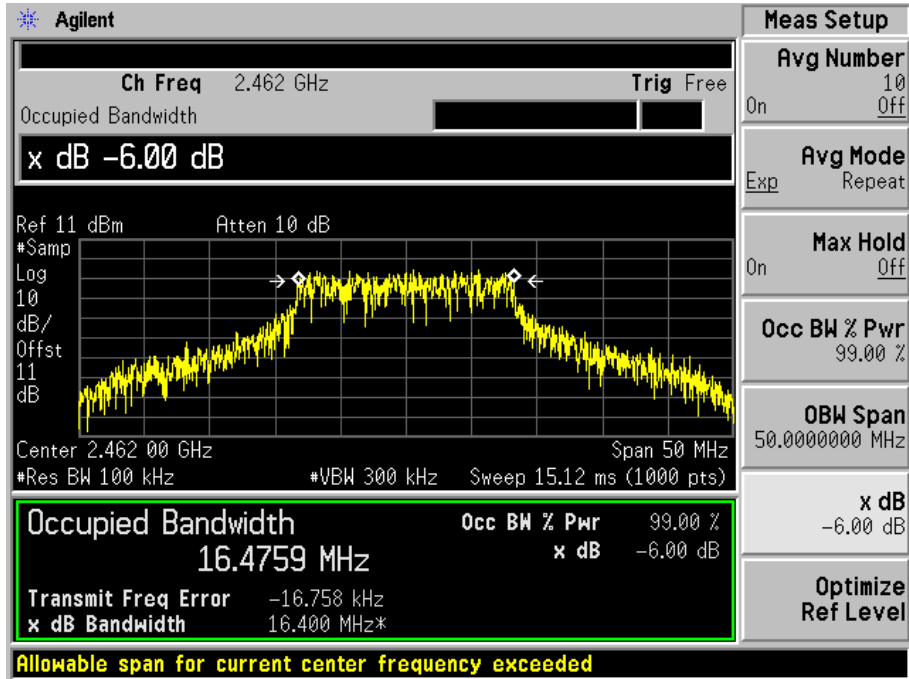
802.11b





802.11g





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

Standard Applicable

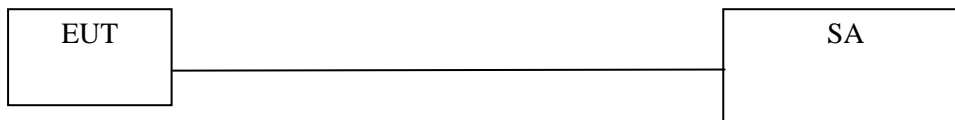
According to §15.247(b) (3), for systems using digital modulation in 2400-2483.5 MHz: 1 Watt. Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak 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 $4 \text{ dBm} + 10 \log B$, 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 $11 \text{ dBm} + 10 \log B$, 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:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

The testing was performed by Snell Leong on 2005-08-25

802.11a, High Band

Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	5745	13.21	20.94	1000	pass
Mid	5785	13.25	21.13	1000	pass
High	5825	13.55	22.65	1000	pass

802.11a, Mid Band

Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	5260	13.45	22.13	1000	pass
Mid	5300	13.49	22.34	1000	pass
High	5320	12.07	16.11	1000	pass

802.11a, Low Band

Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	5180	10.59	11.46	50	pass
Mid	5200	12.45	17.58	50	pass
High	5240	12.71	18.66	50	pass

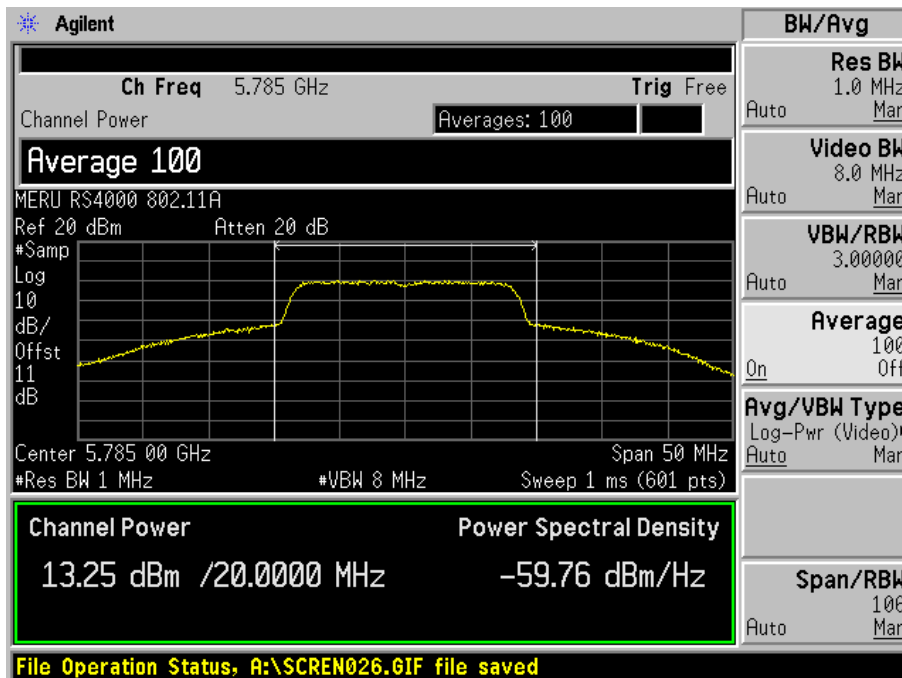
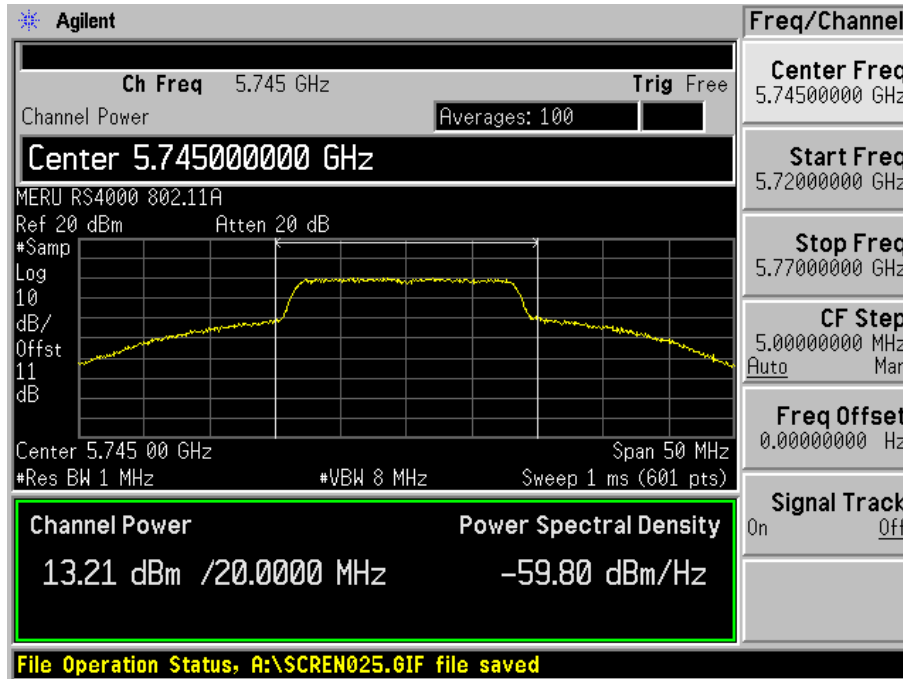
802.11b

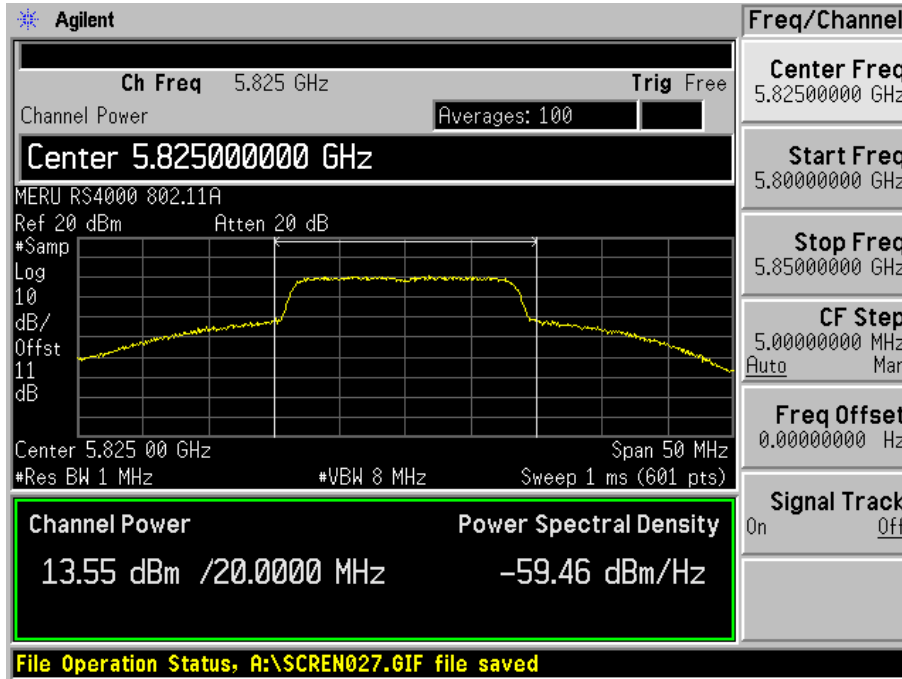
Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	2412	17.39	54.83	1000	pass
Mid	2437	17.93	62.09	1000	pass
High	2462	17.95	62.37	1000	pass

802.11g

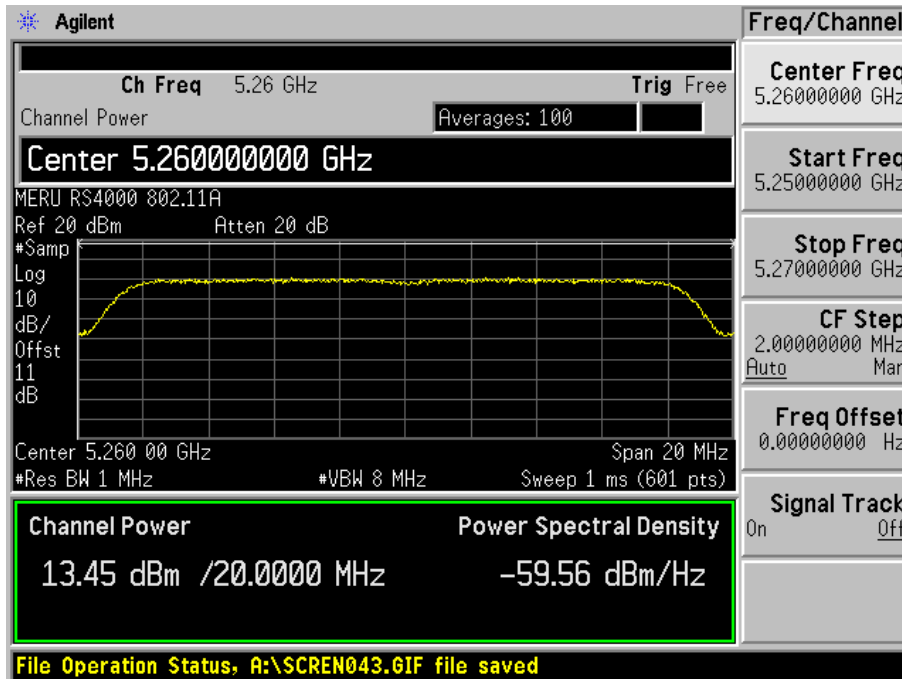
Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	2412	11.34	13.61	1000	pass
Mid	2437	15.44	34.99	1000	pass
High	2462	11.70	14.79	1000	pass

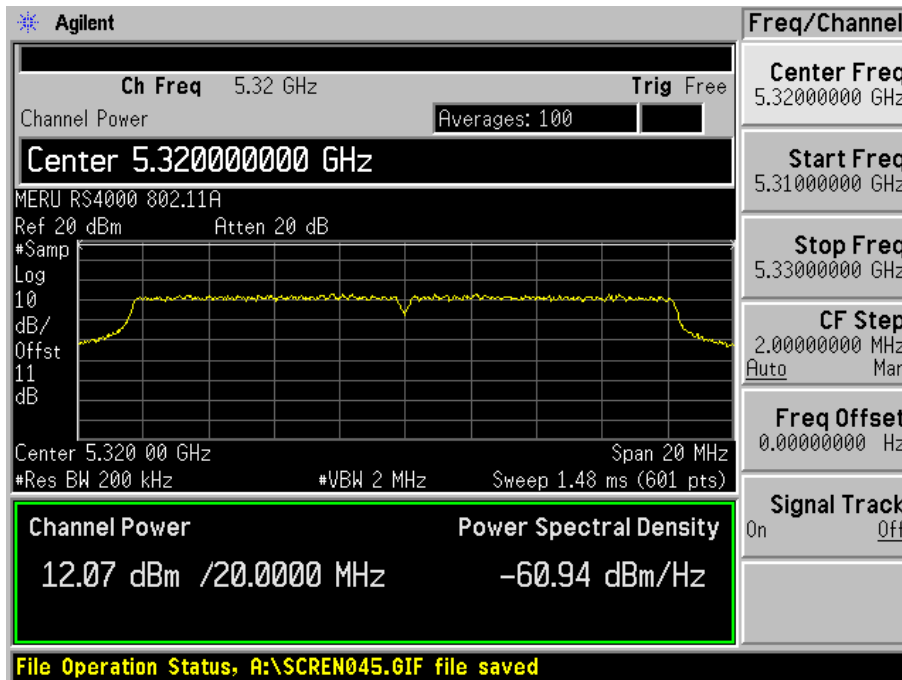
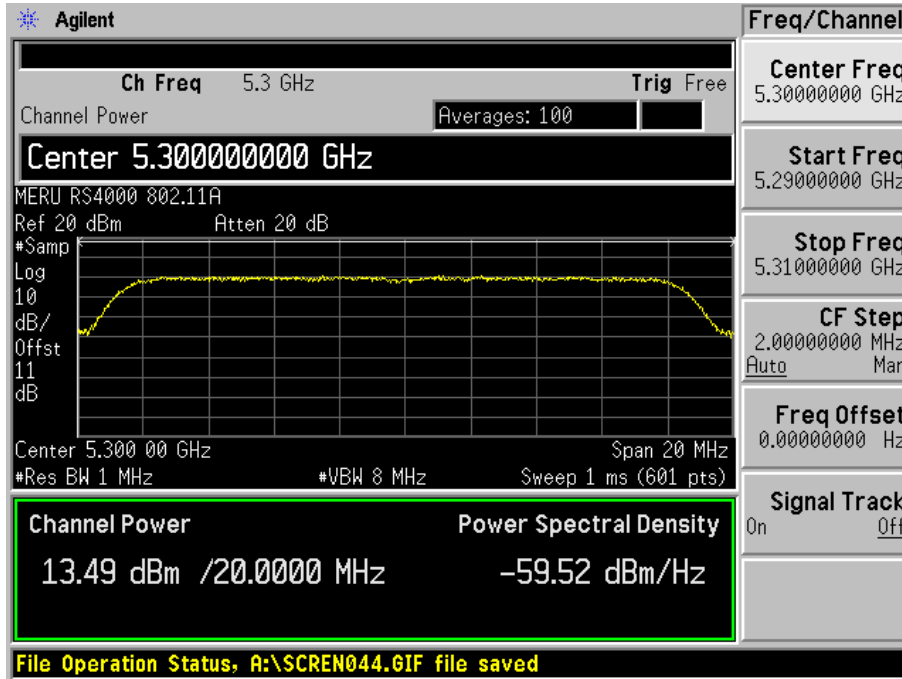
802.11a High Band



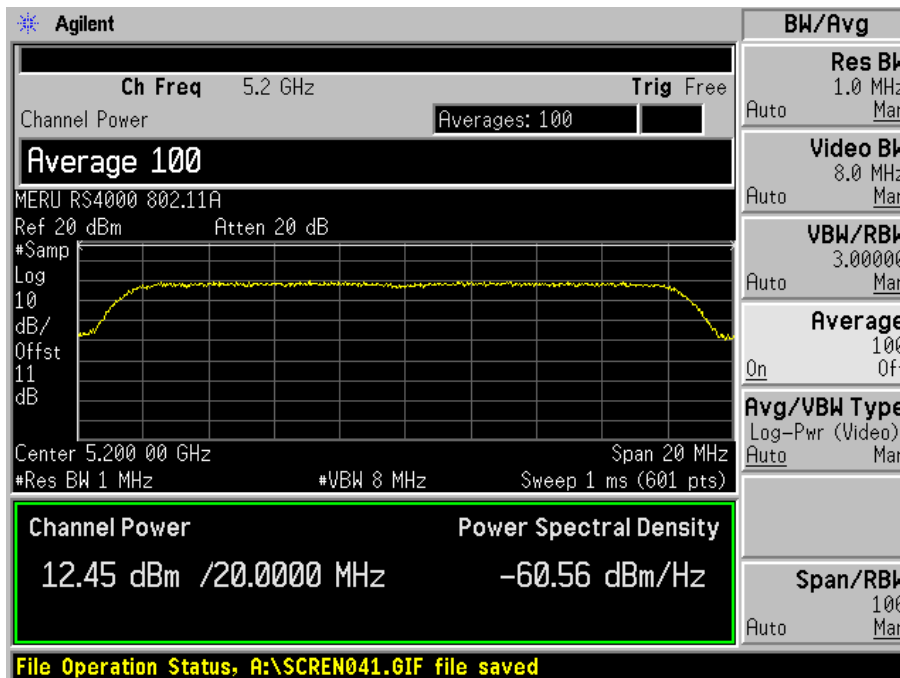
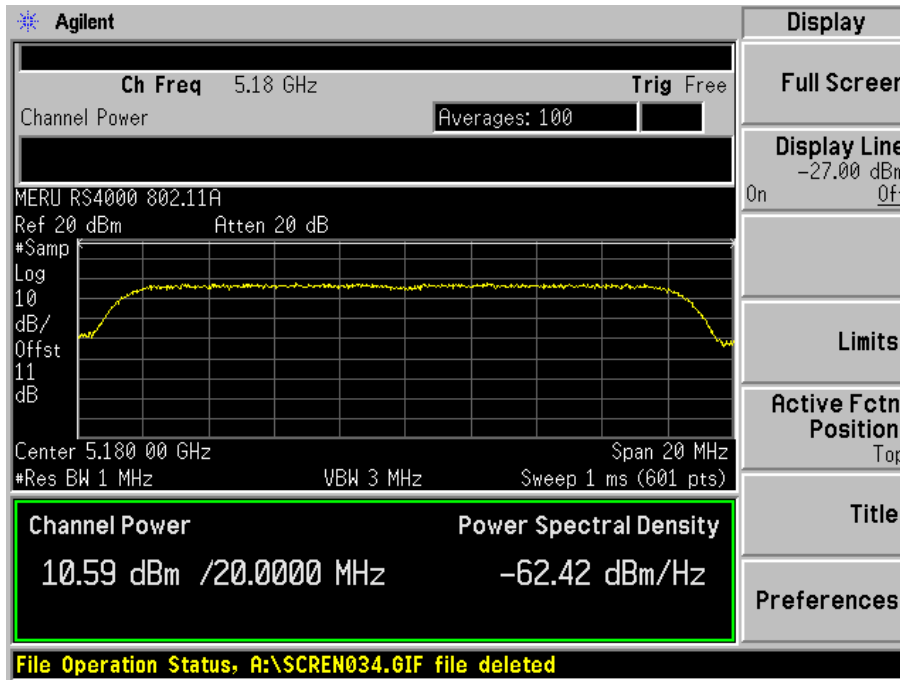


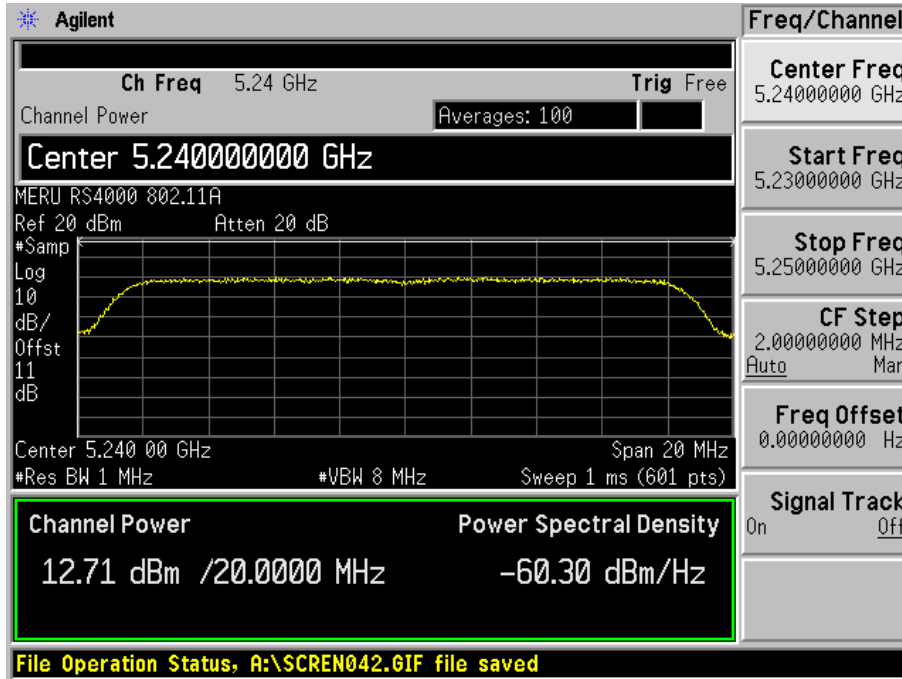
802.11a Middle Band



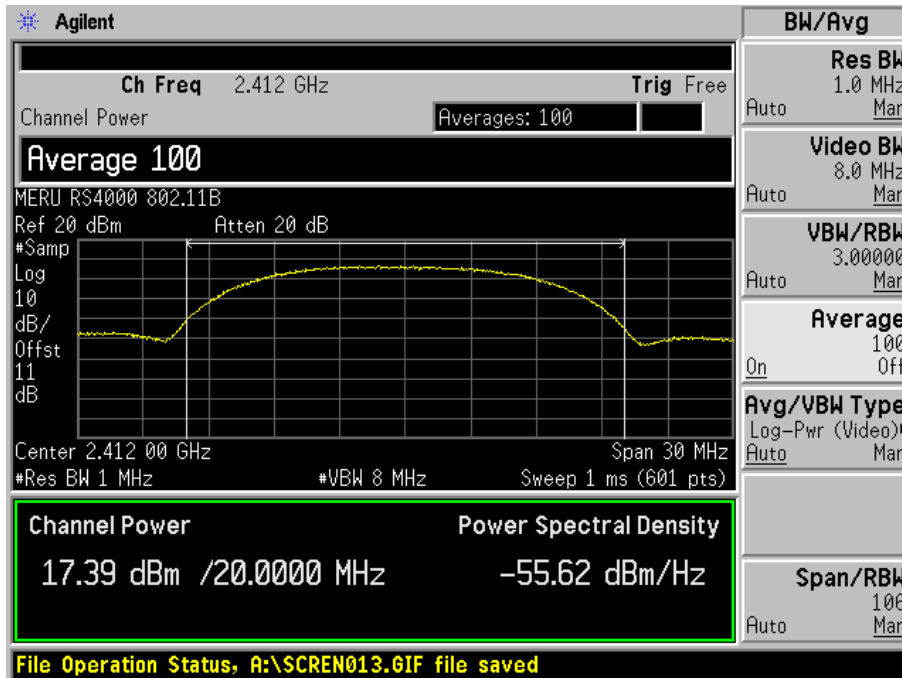


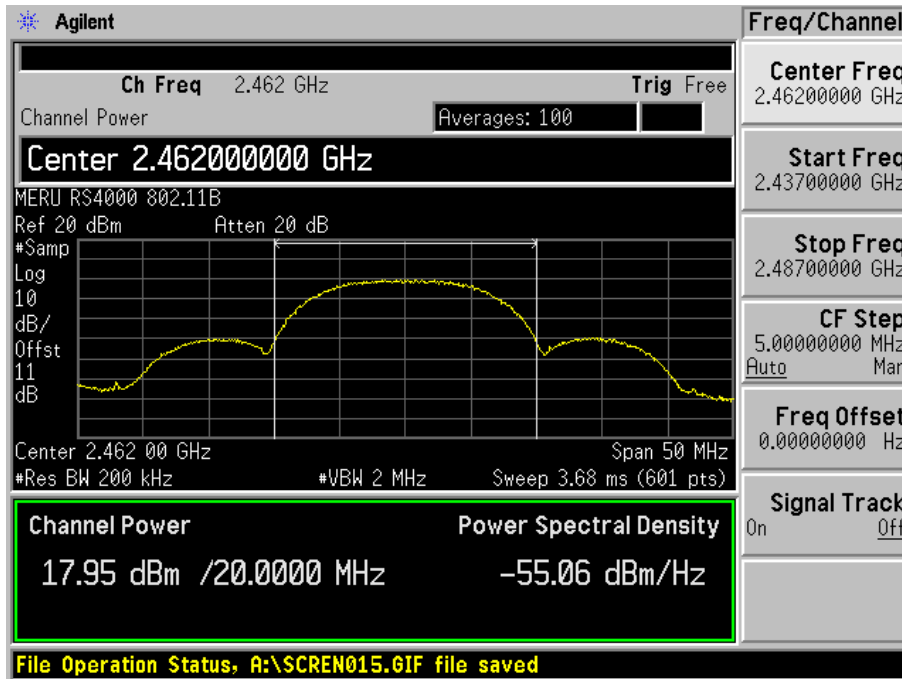
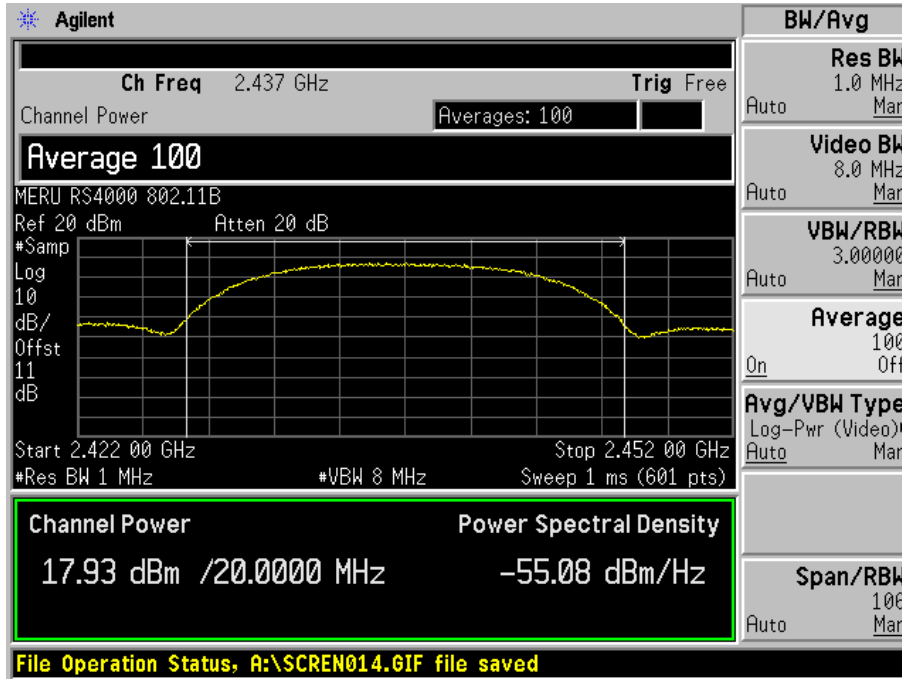
802.11a Low Band



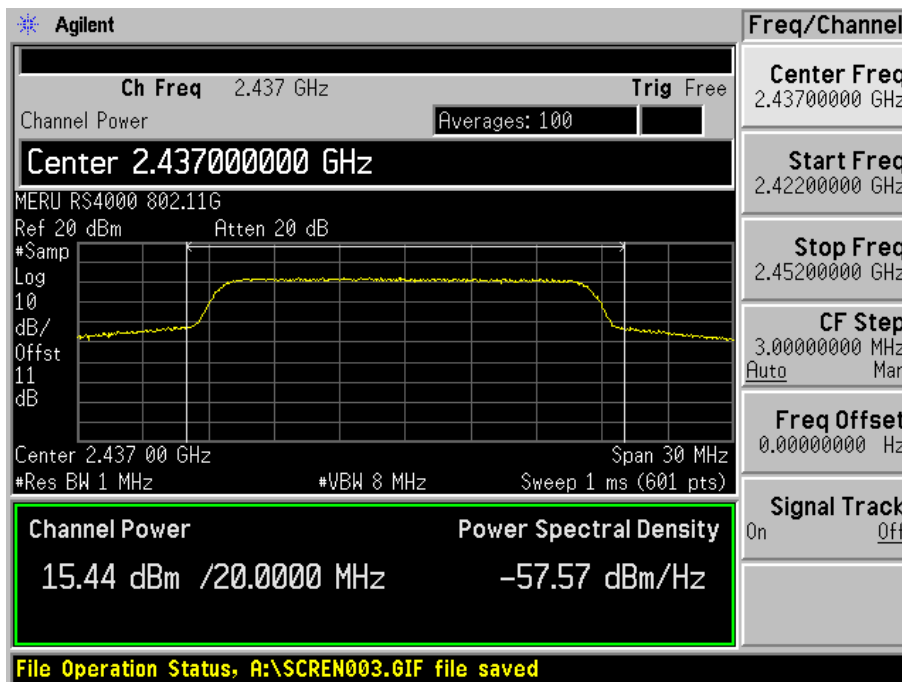
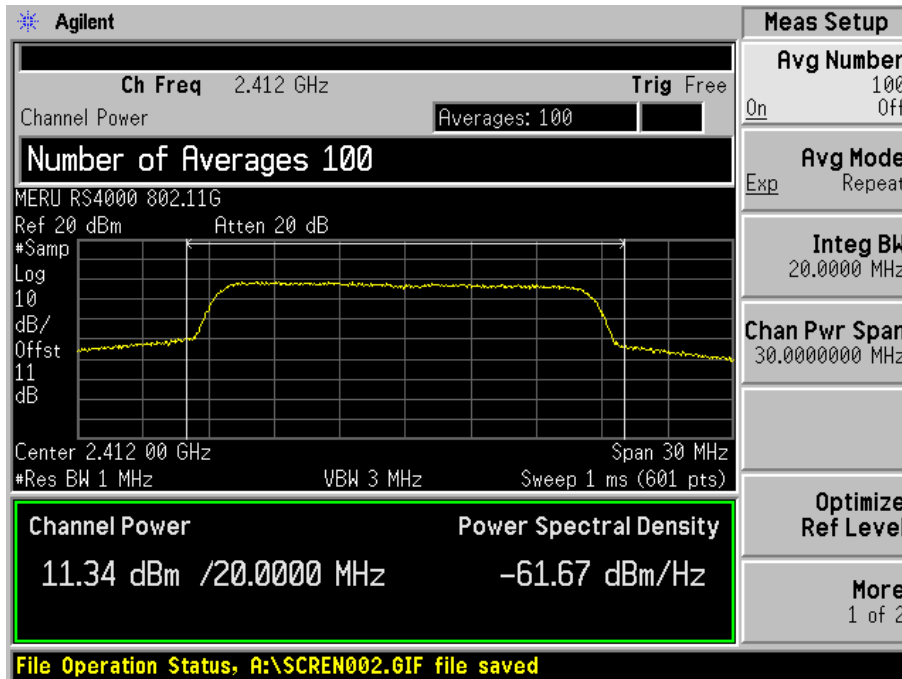


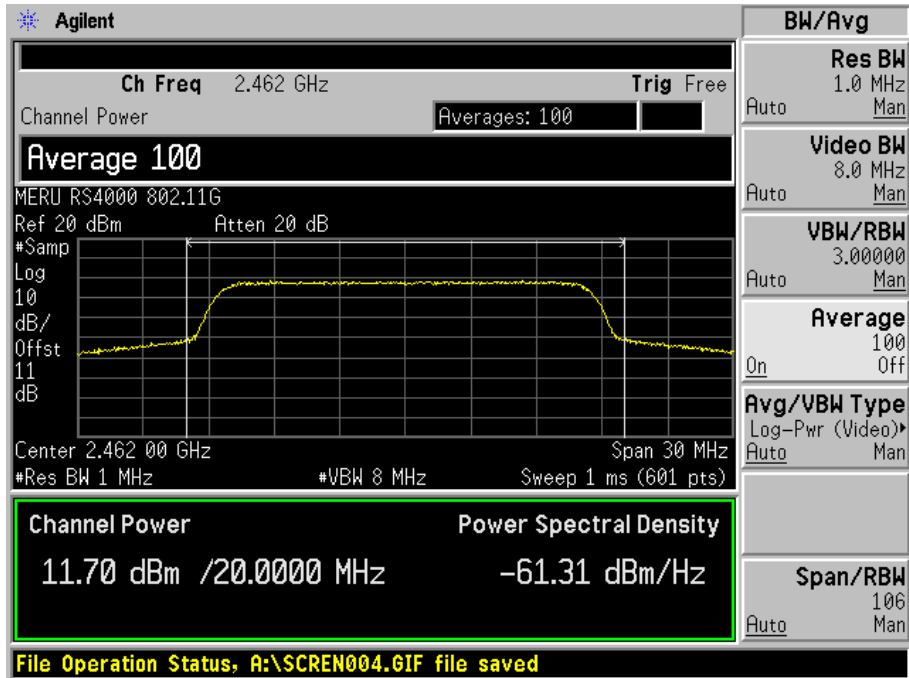
802.11b





802.11g





§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.

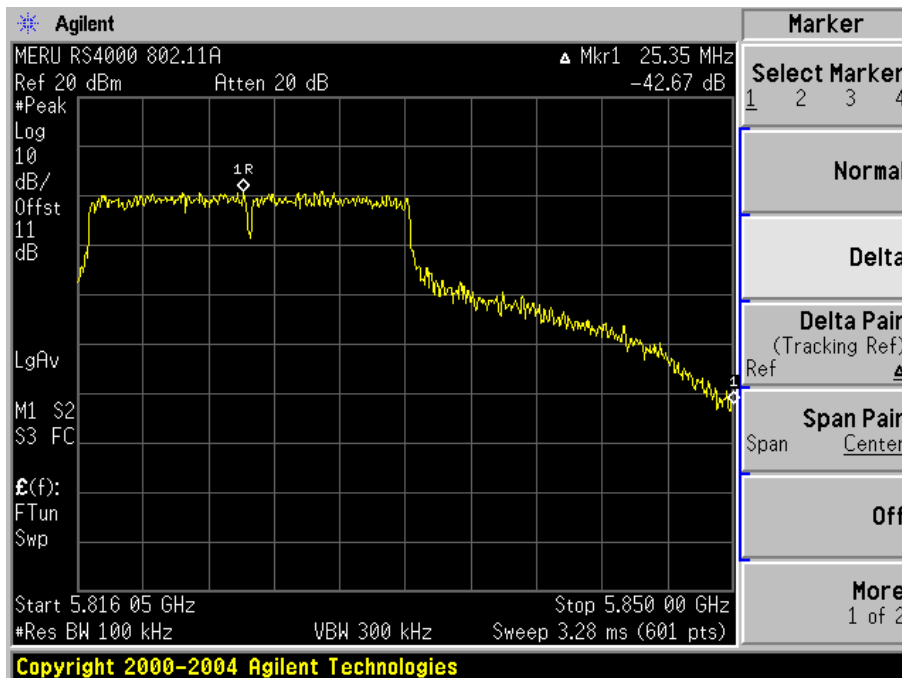
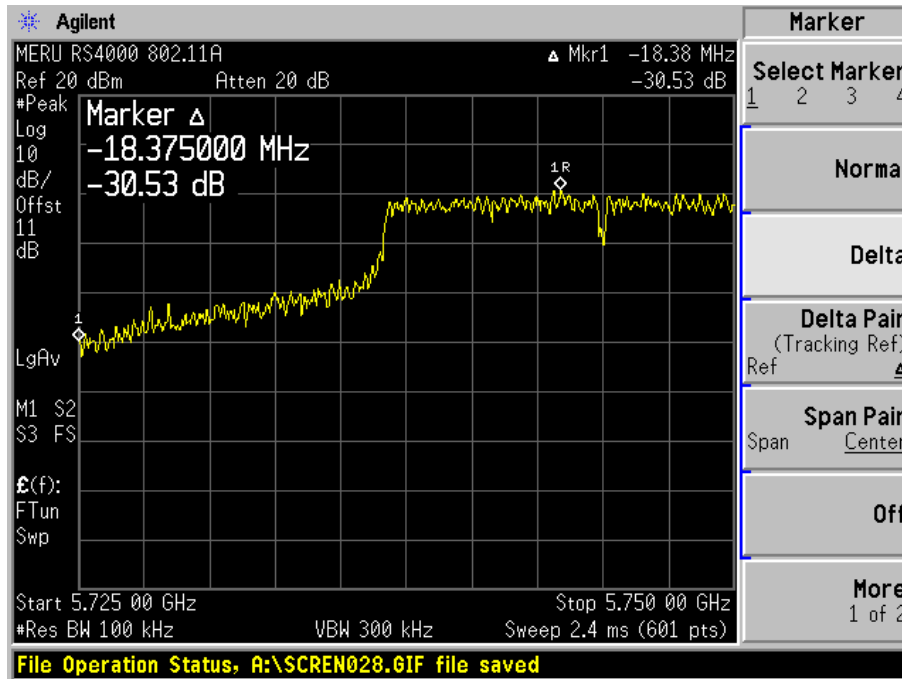
Measurement Result

Environmental Conditions

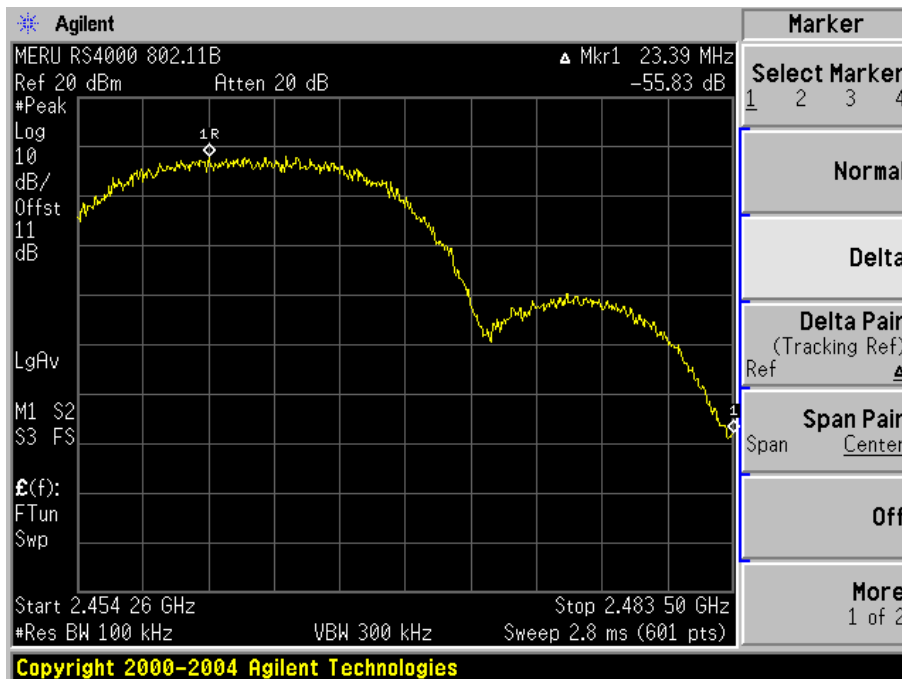
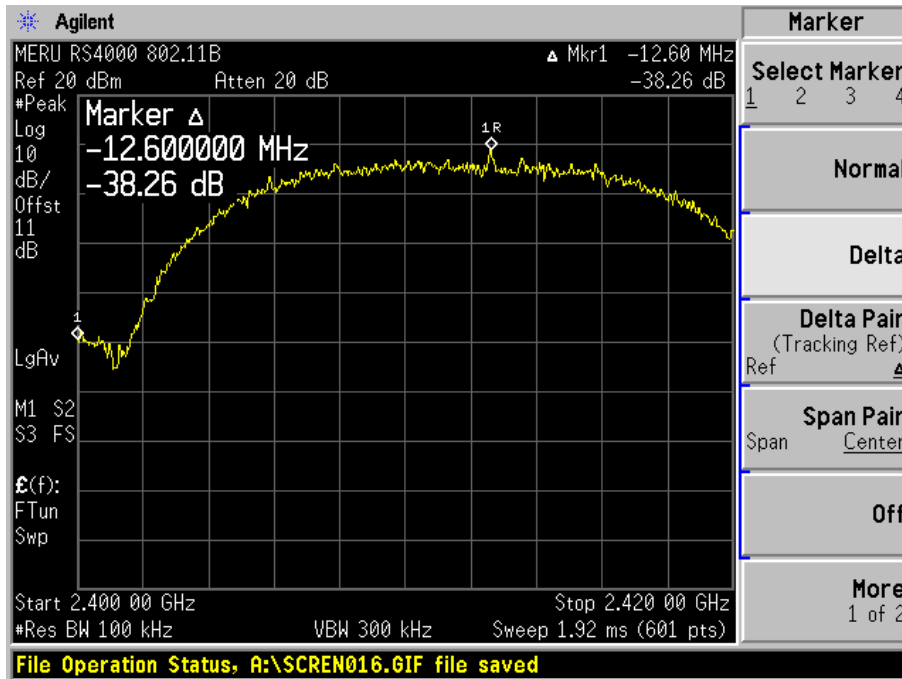
Temperature:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

The testing was performed by Snell Leong on 2005-11-1.

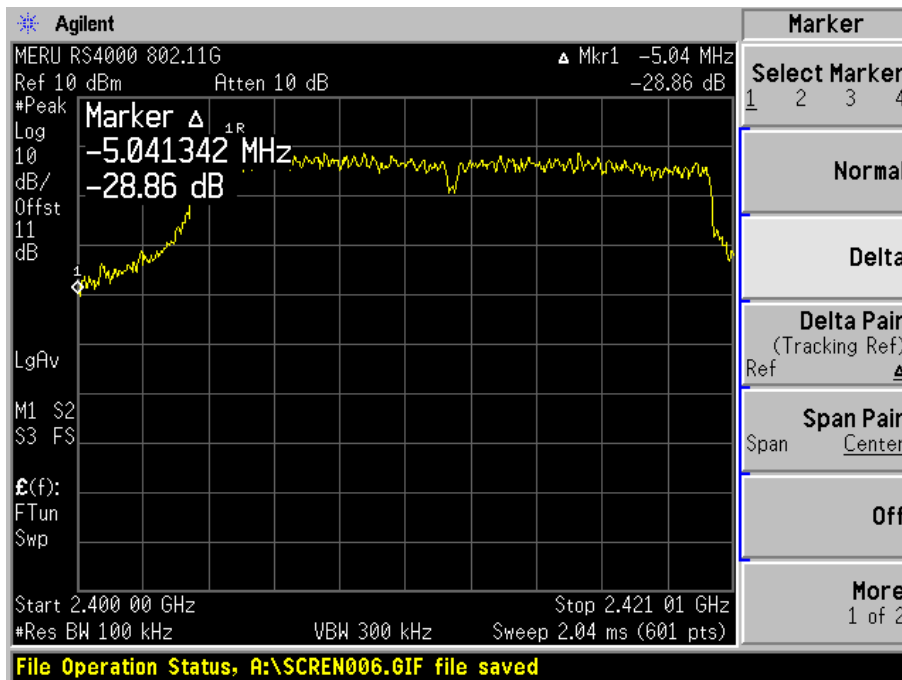
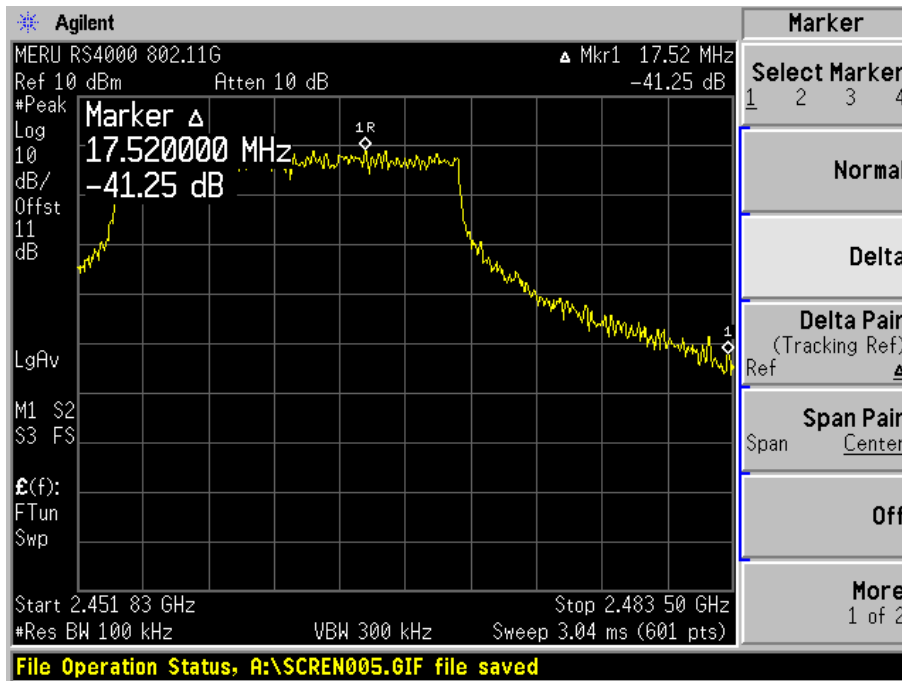
802.11a High Band



802.11b



802.11g



§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	2004-11-10

* **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:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

The testing was performed by Snell Leong on 2005-08-26

Test Result for 802.11a High band (15.247)

Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	5741	-11.87	8
Mid	5780	-11.92	8
High	5832	-11.44	8

Test Result for 802.11a, Mid Band (15.407)

Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	5255	2.739	11
Mid	5299	2.567	11
High	53123	1.248	11

Test Result for 802.11a, Low Band (15.407)

Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	5182	0.137	4
Mid	5201	2.062	4
High	5242	1.851	4

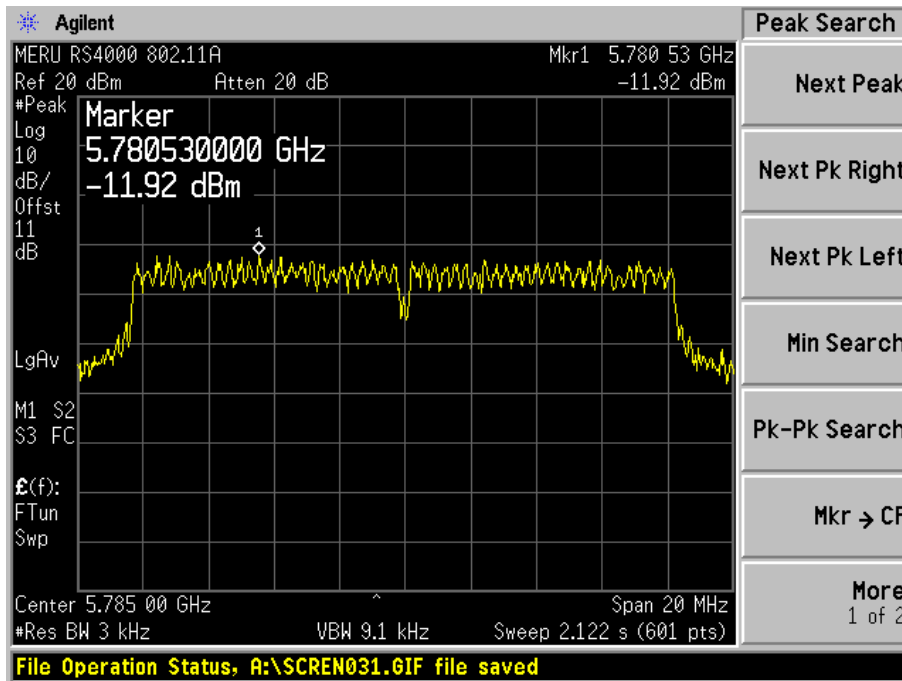
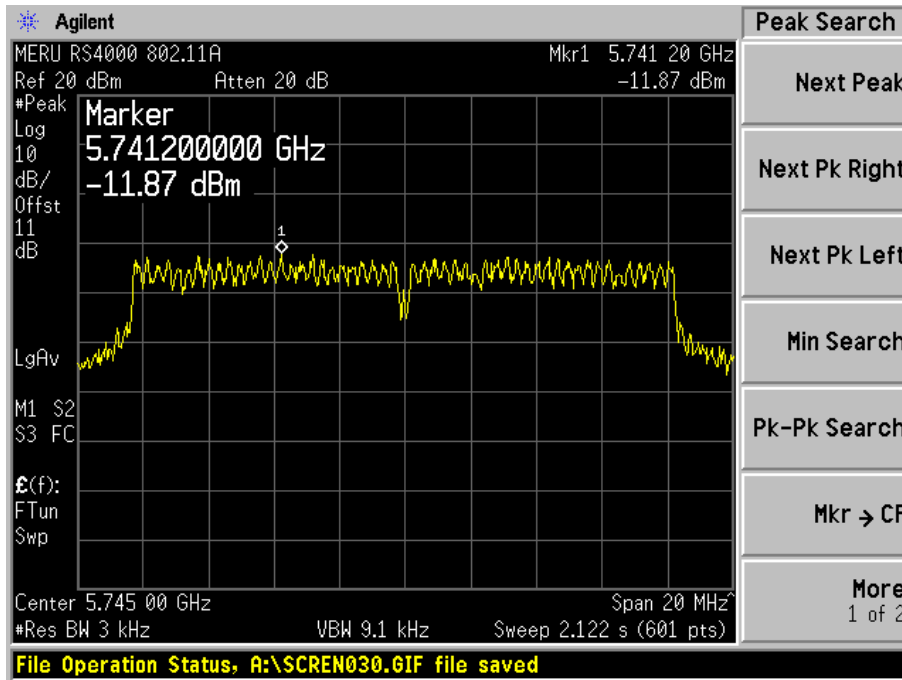
Test Result for 802.11b (15.247)

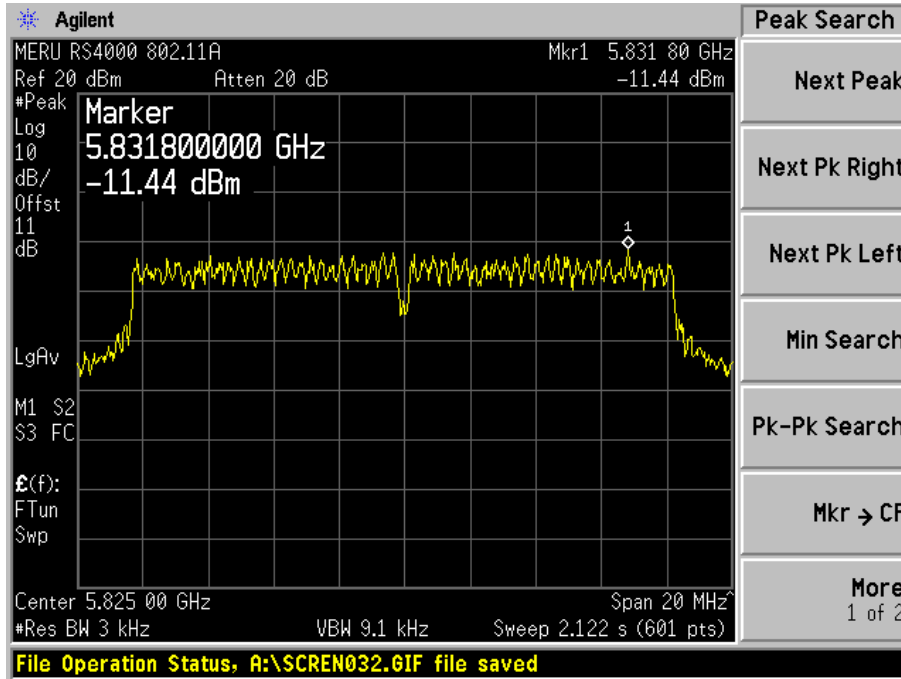
Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	2401	-7.24	8
Mid	2437	-7.36	8
High	2464	-5.90	8

Test Result for 802.11g (15.247)

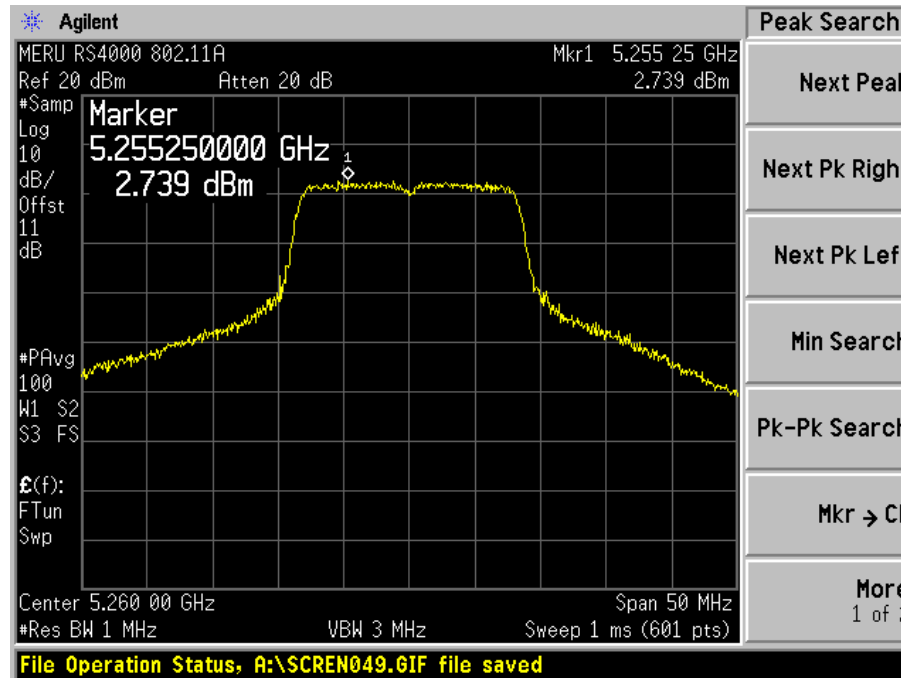
Channel	Frequency MHz	PSD dBm/MHz	Limit dBm/MHz
Low	2407	-12.39	8
Mid	2431	-9.95	8
High	2458	-12.78	8

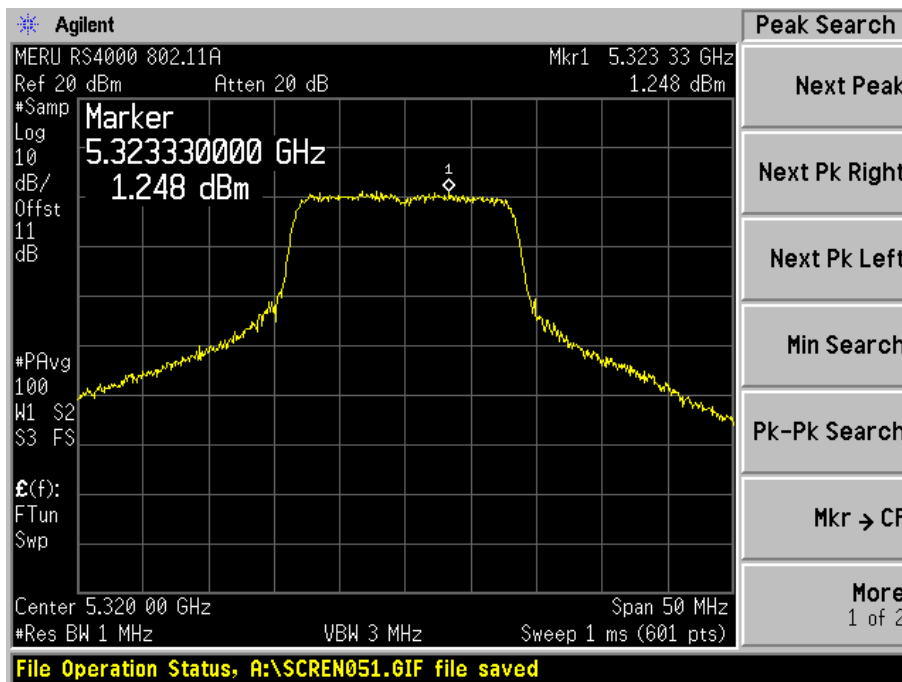
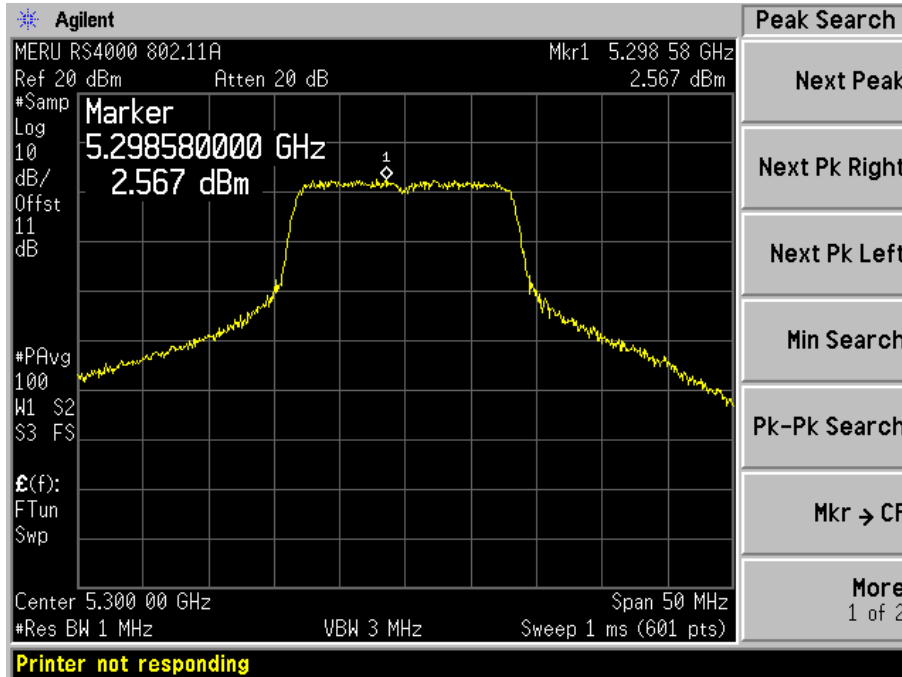
802.11a High Band



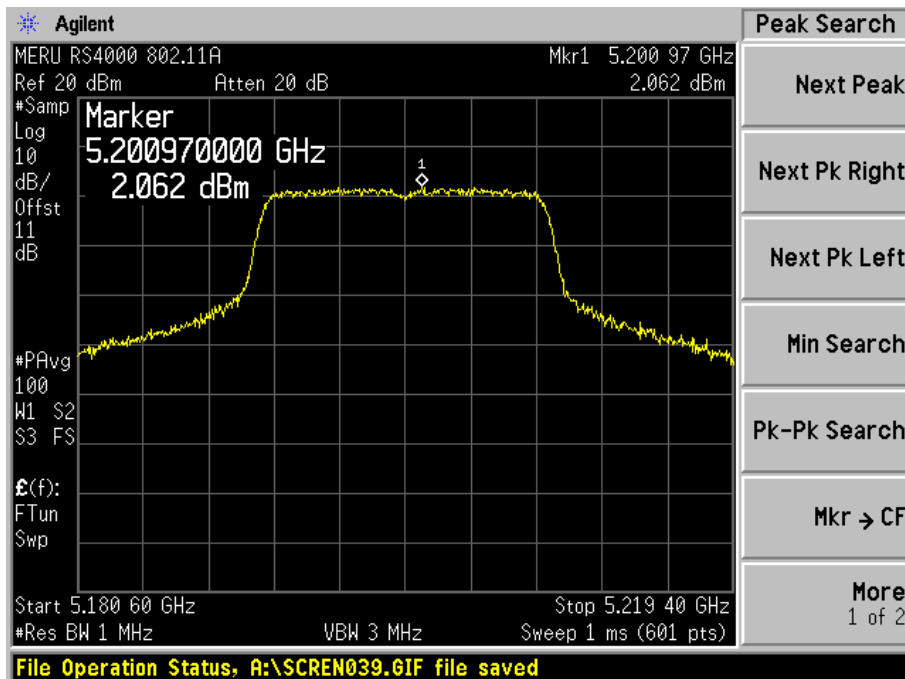
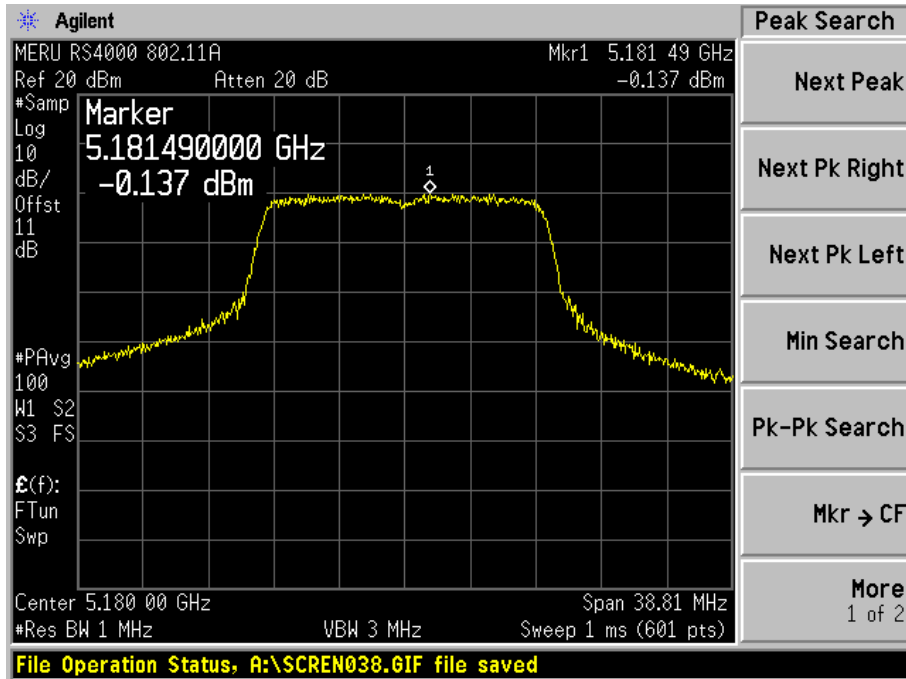


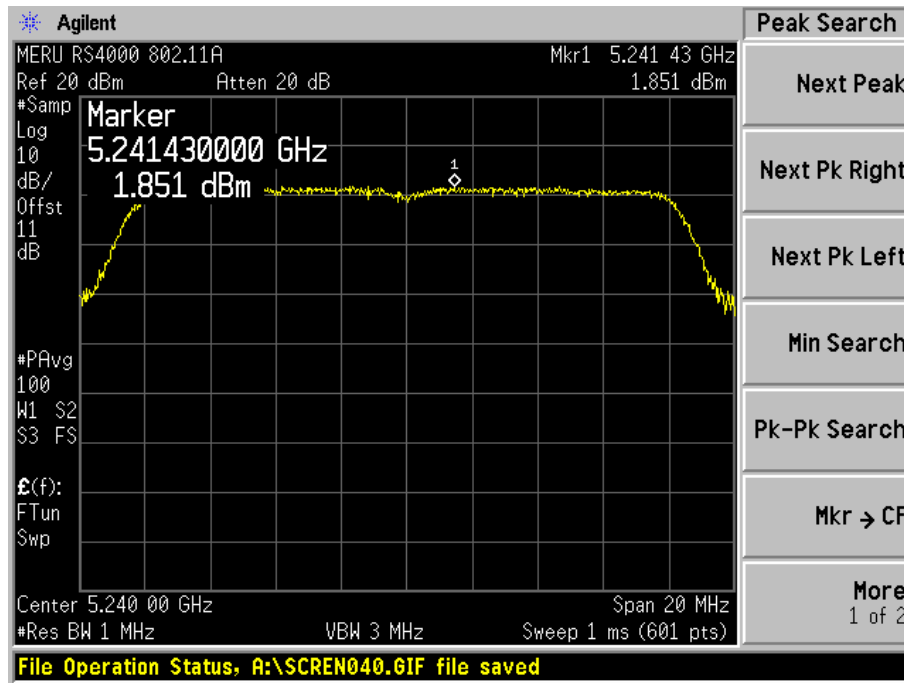
802.11a Middle Band



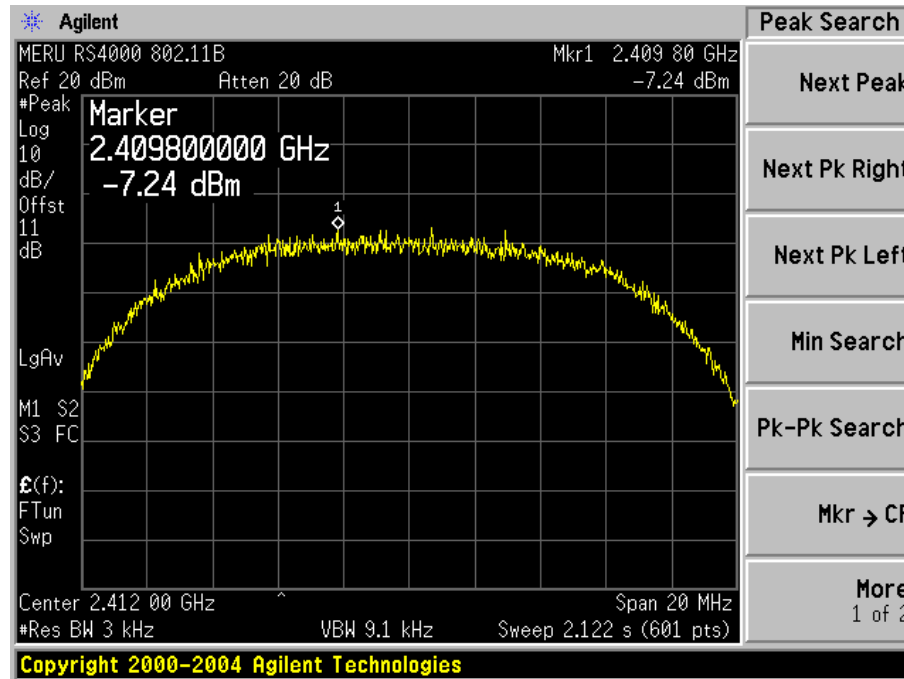


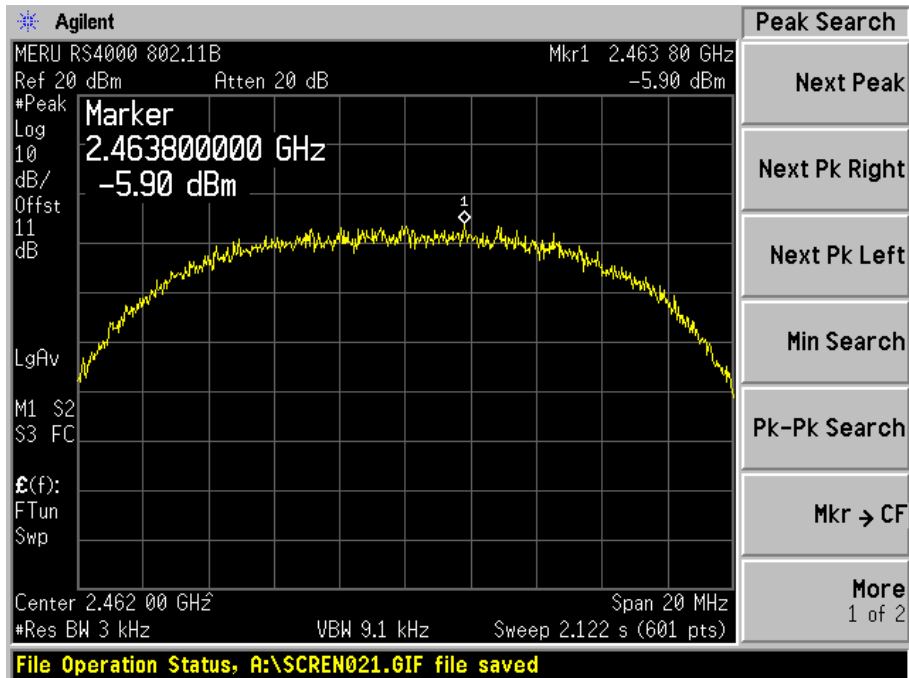
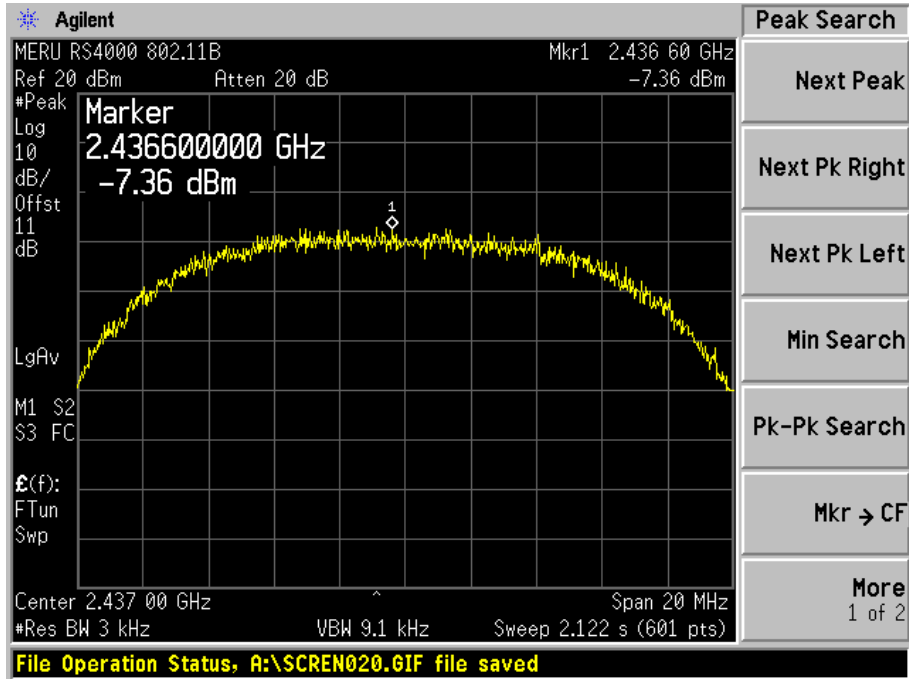
802.11a Low Band



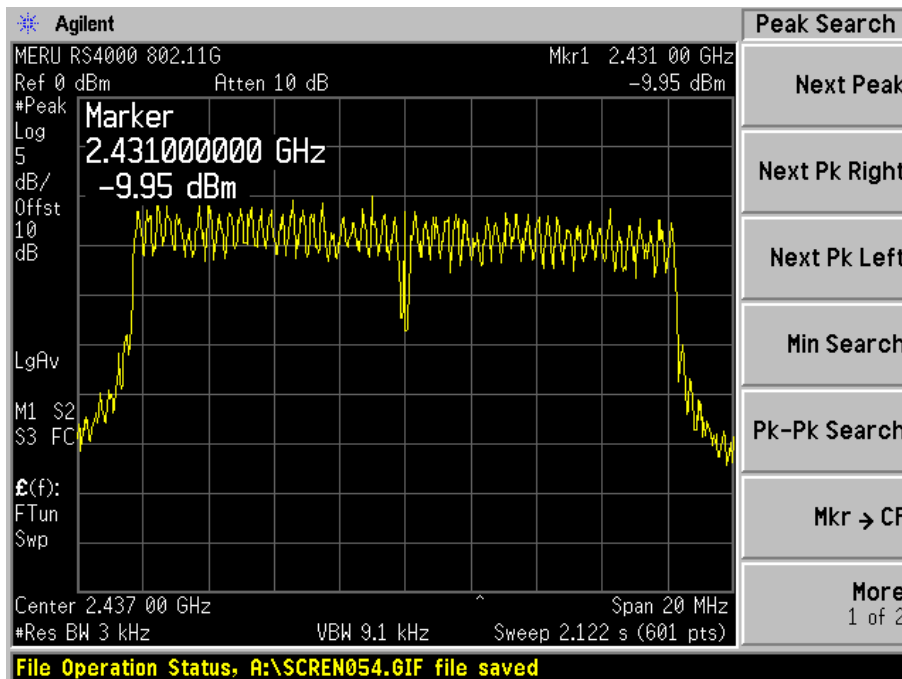
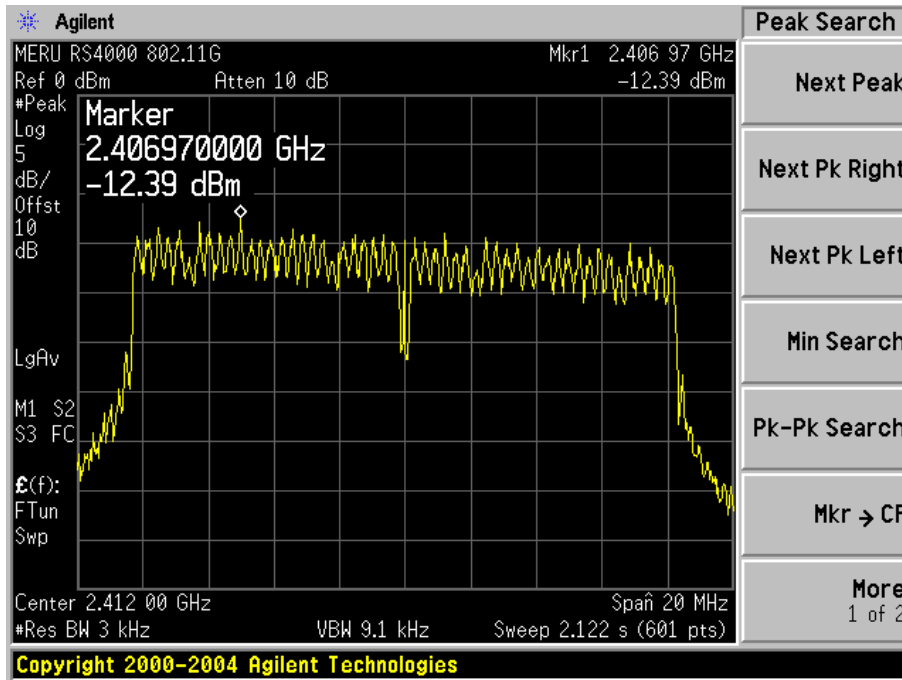


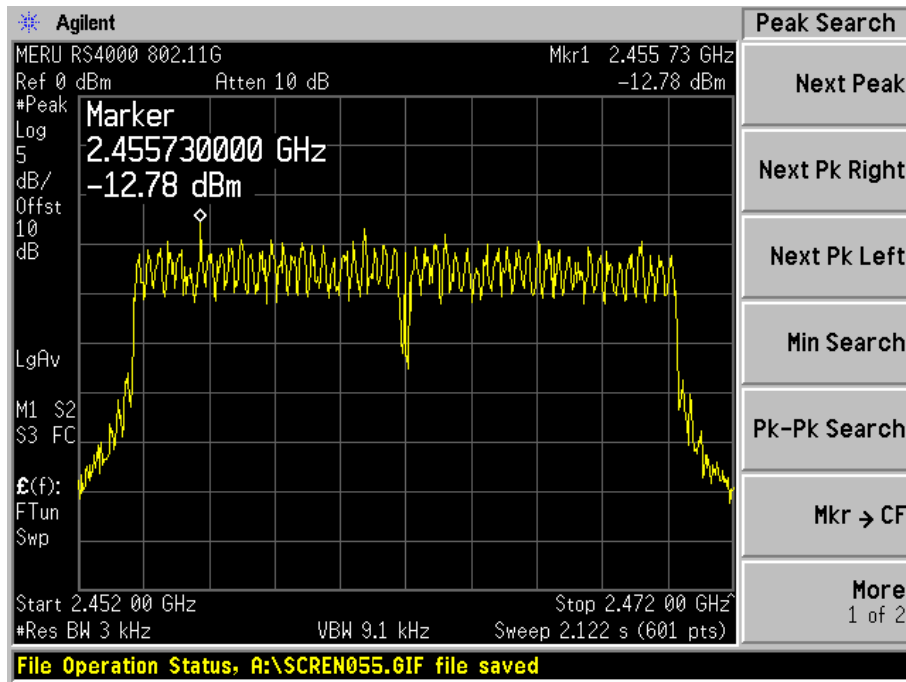
802.11b





802.11 g





§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	2004-11-10

* **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:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

The testing was performed by Snell Leong on 2005-08-26.

802.11a Low Band

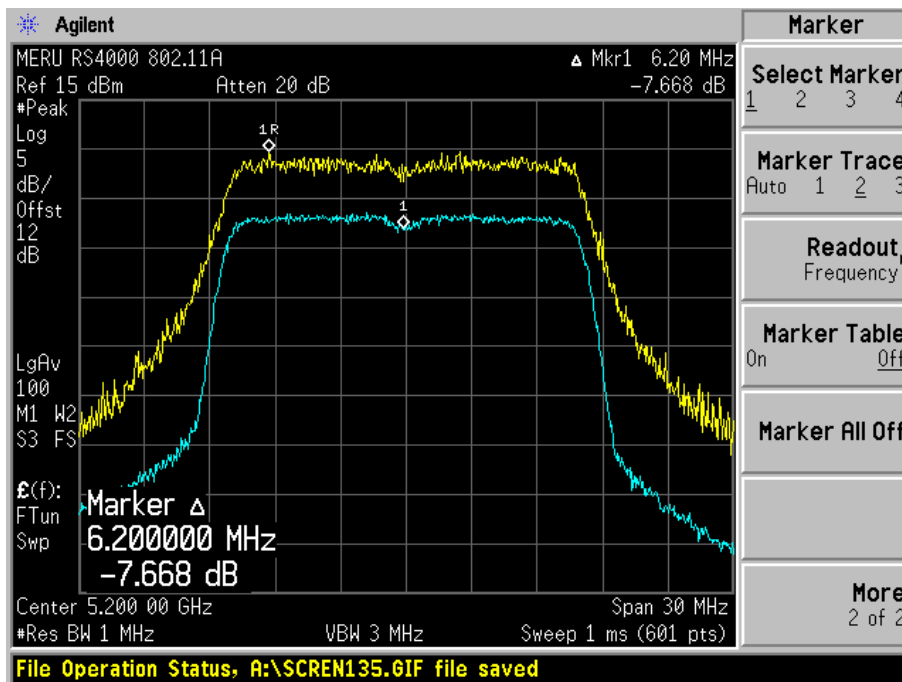
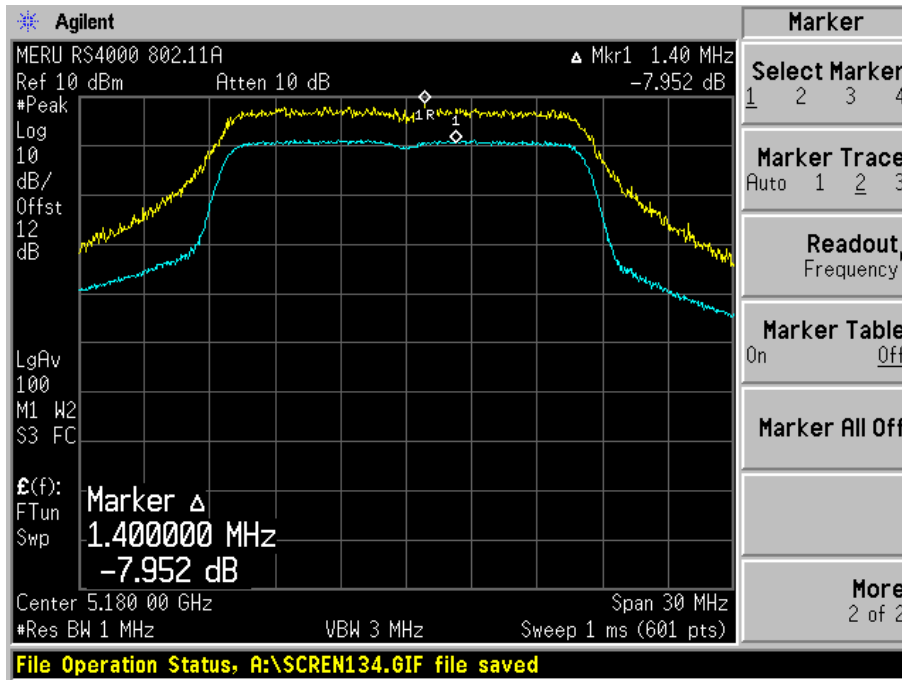
Channel	Frequency MHz	Measured dB	Limit
Low	5180	-7.952	<13dB
Mid	5200	-7.668	<13dB
High	5240	-8.865	<13dB

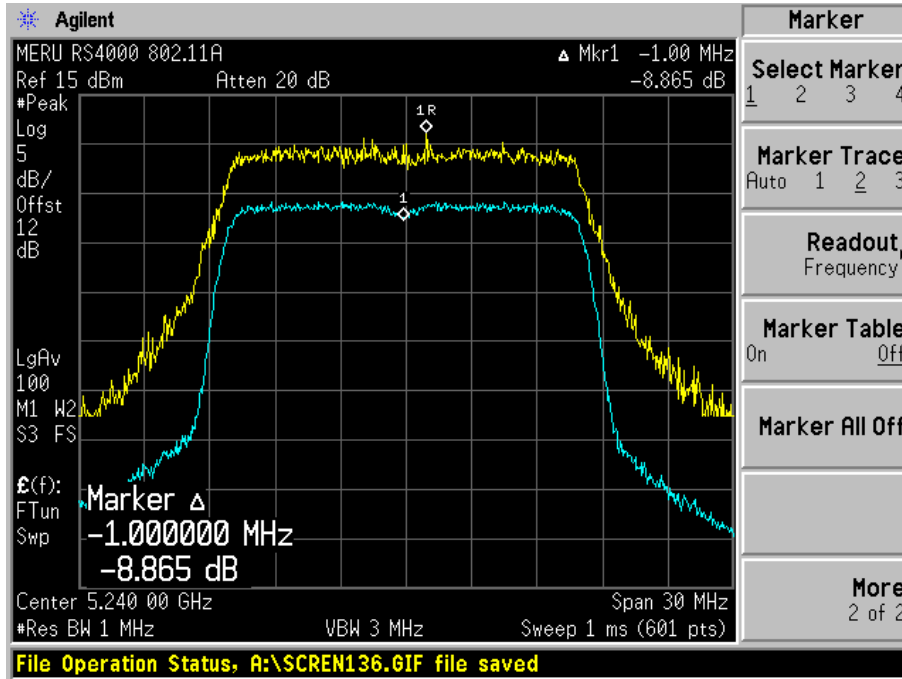
802.11a Mid Band

Channel	Frequency MHz	Measured dB	Limit
Low	5260	-7.901	<13dB
Mid	5300	-7.889	<13dB
High	5320	-7.760	<13dB

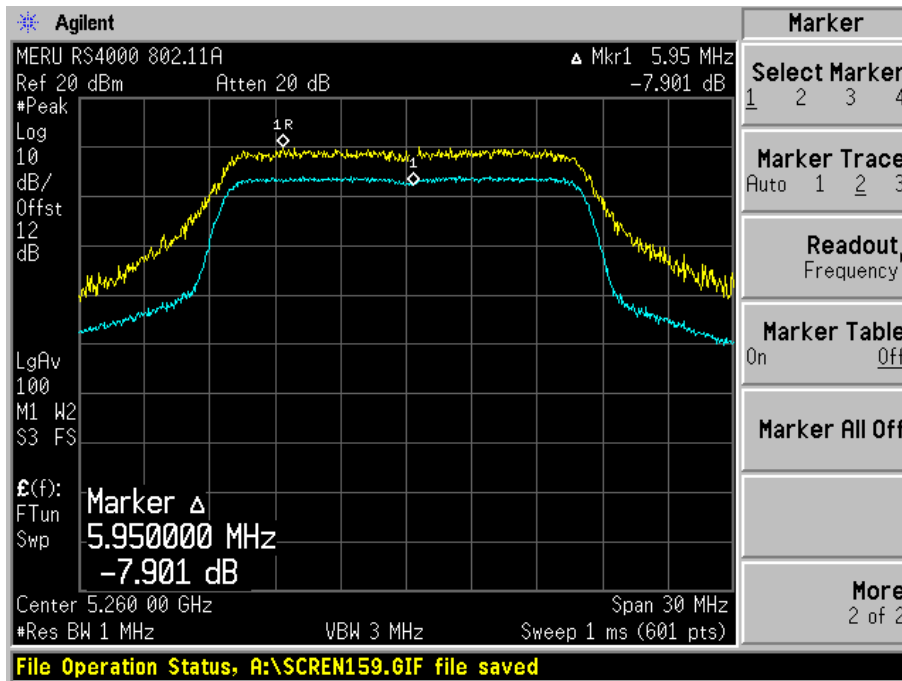
Please see the hereinafter plots for more detail.

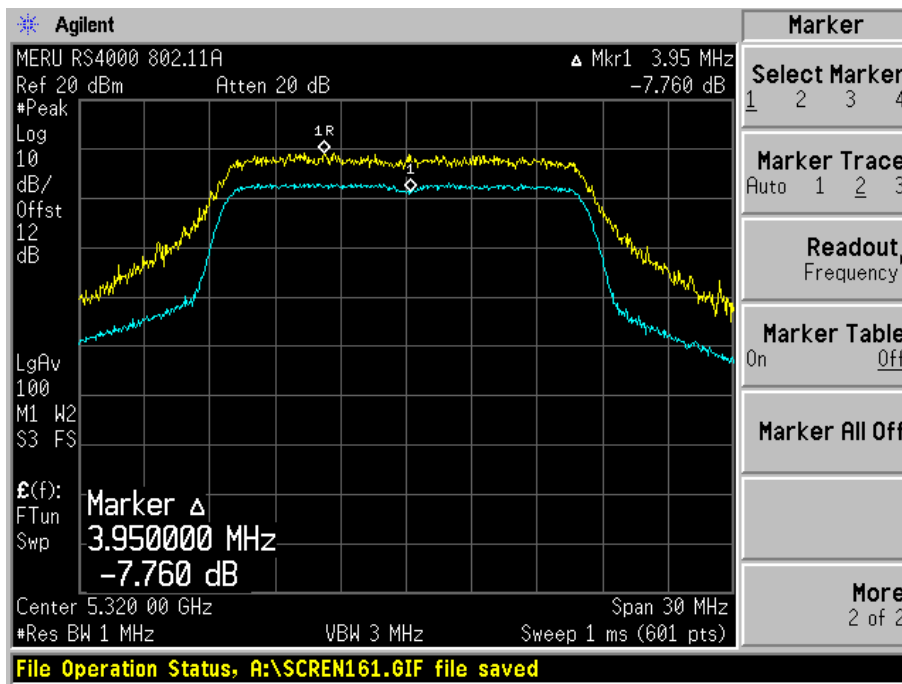
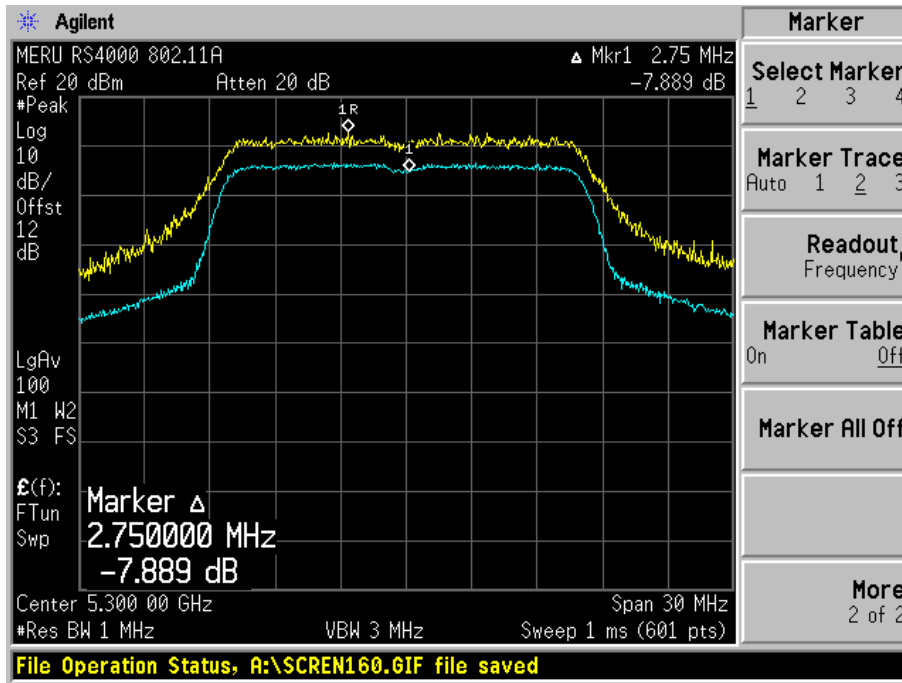
802.11a Low Band





802.11a Middle Band





§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

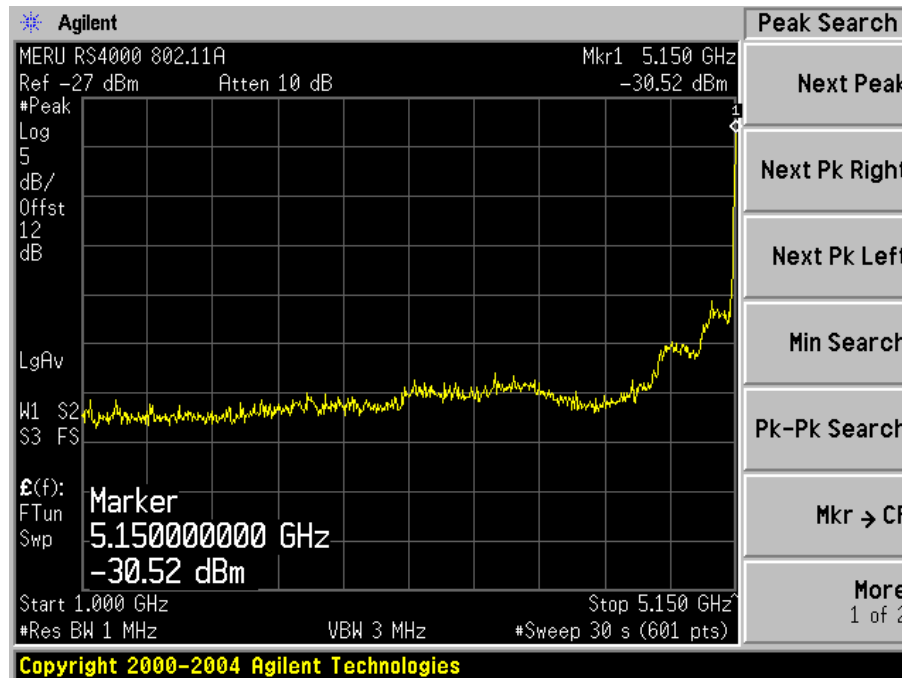
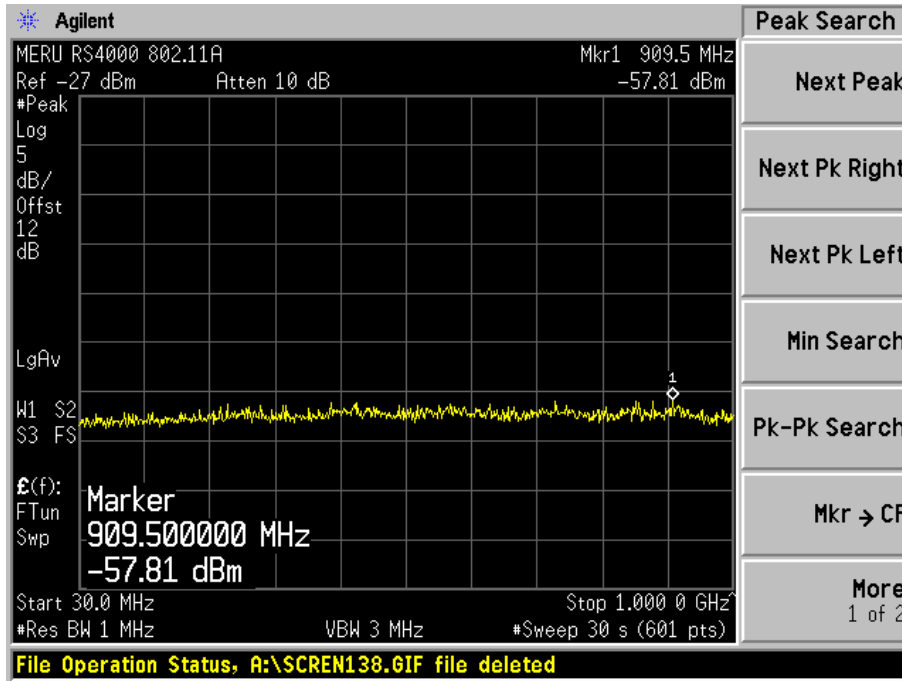
Temperature:	23° C
Relative Humidity:	45%
ATM Pressure:	1015 mbar

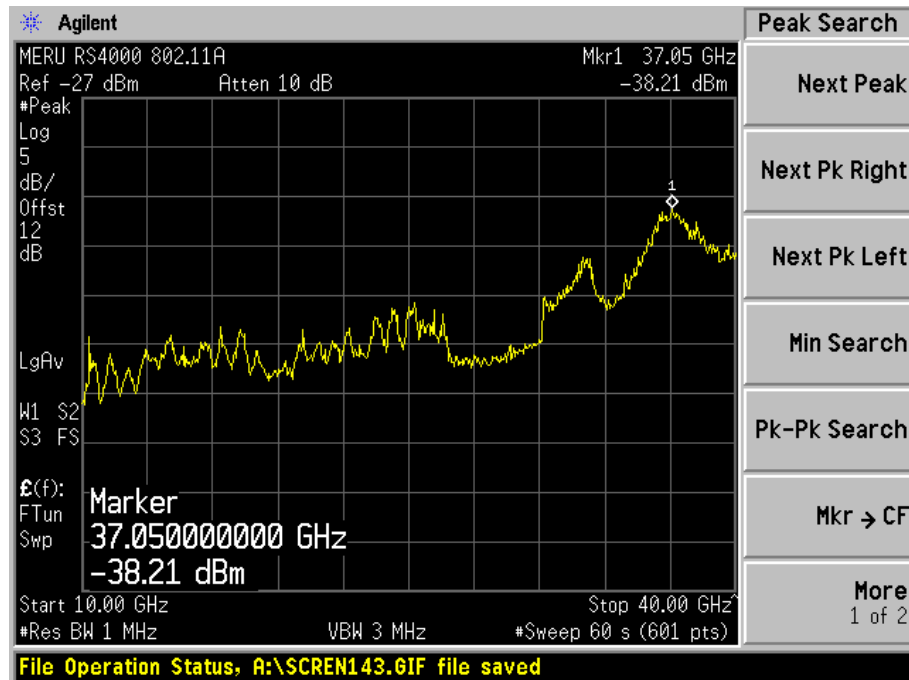
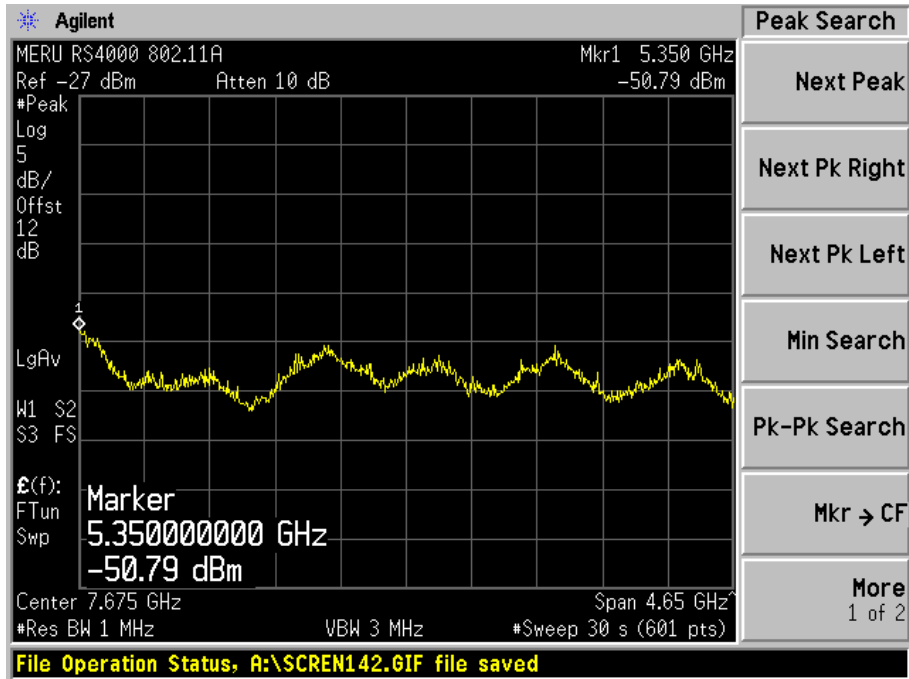
The testing was performed by Snell Leong on 2005-08-26.

Please refer to the following plots.

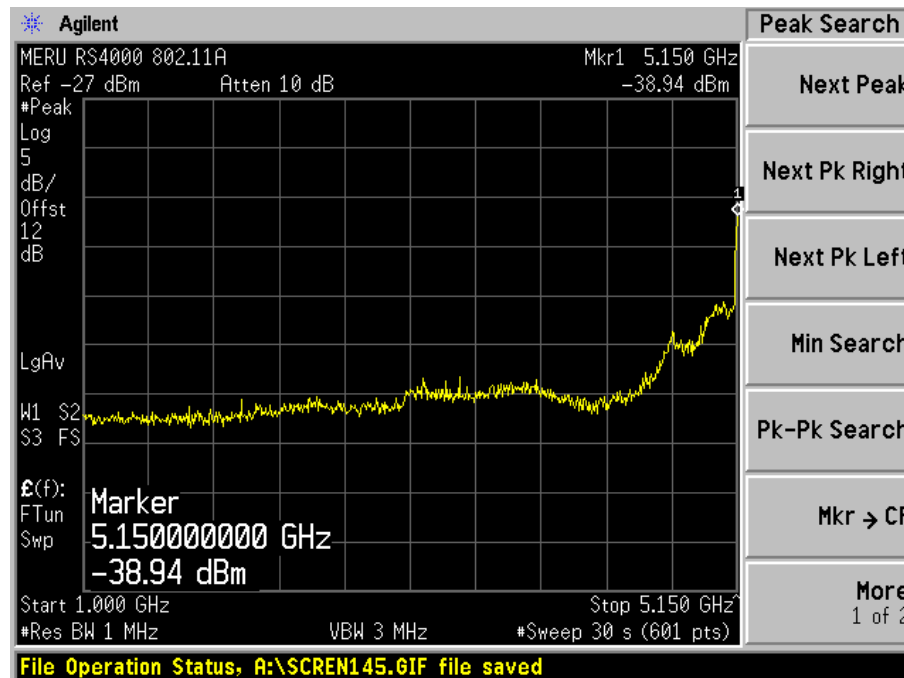
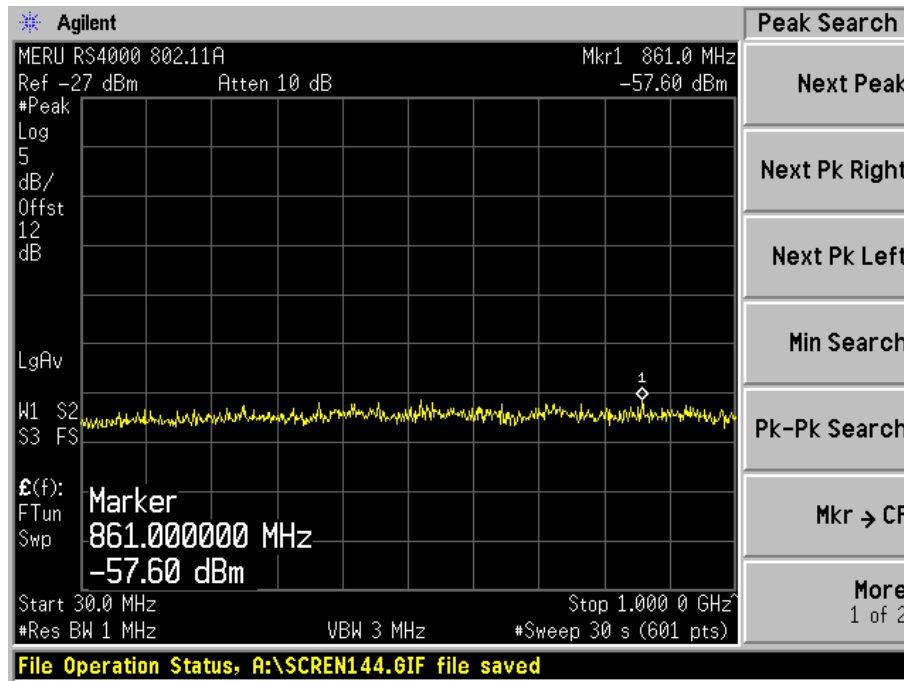
802.11a Low Band

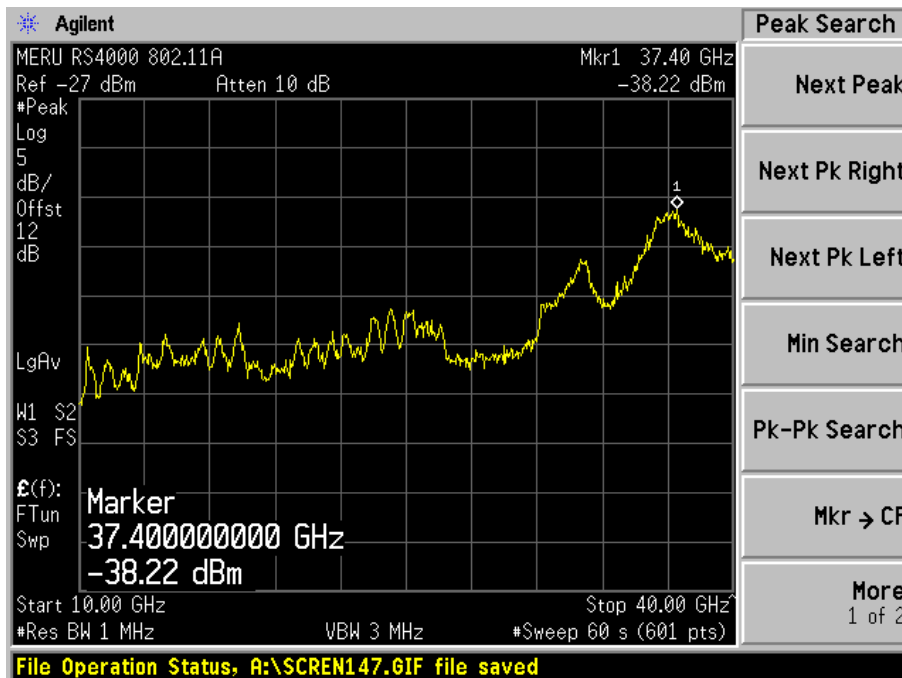
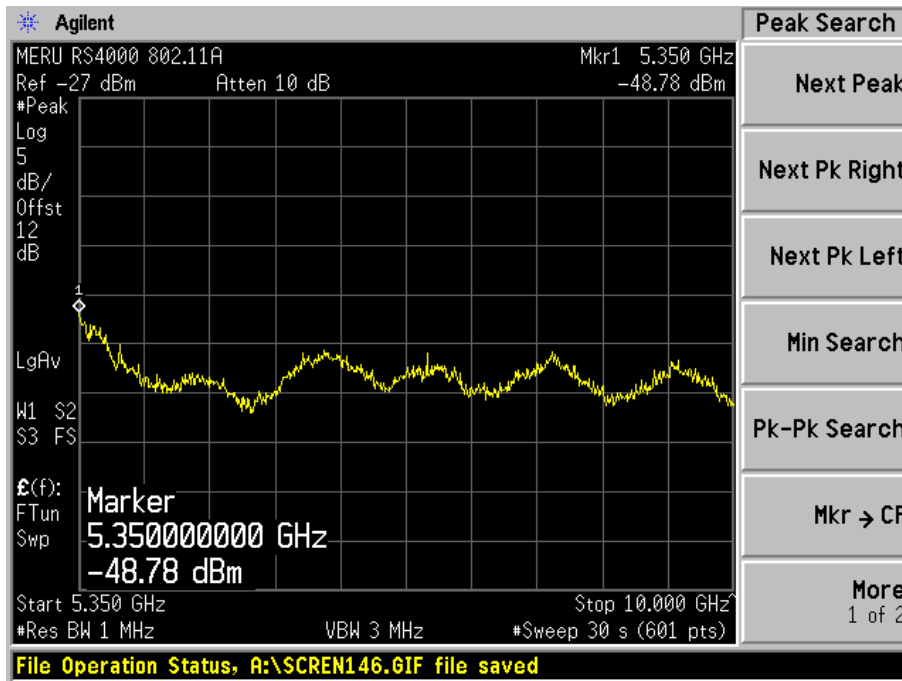
Low Channel



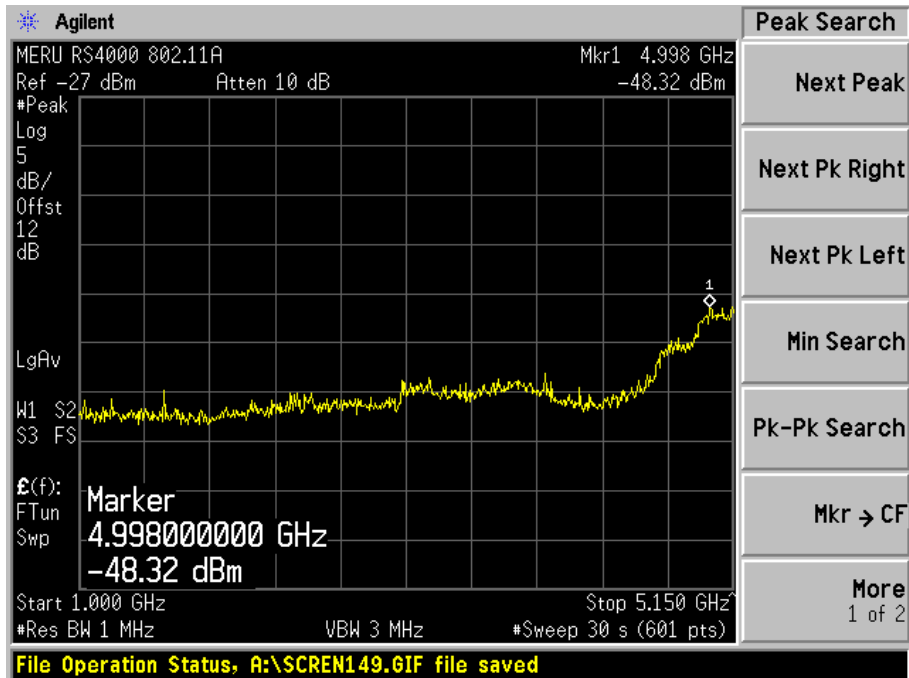
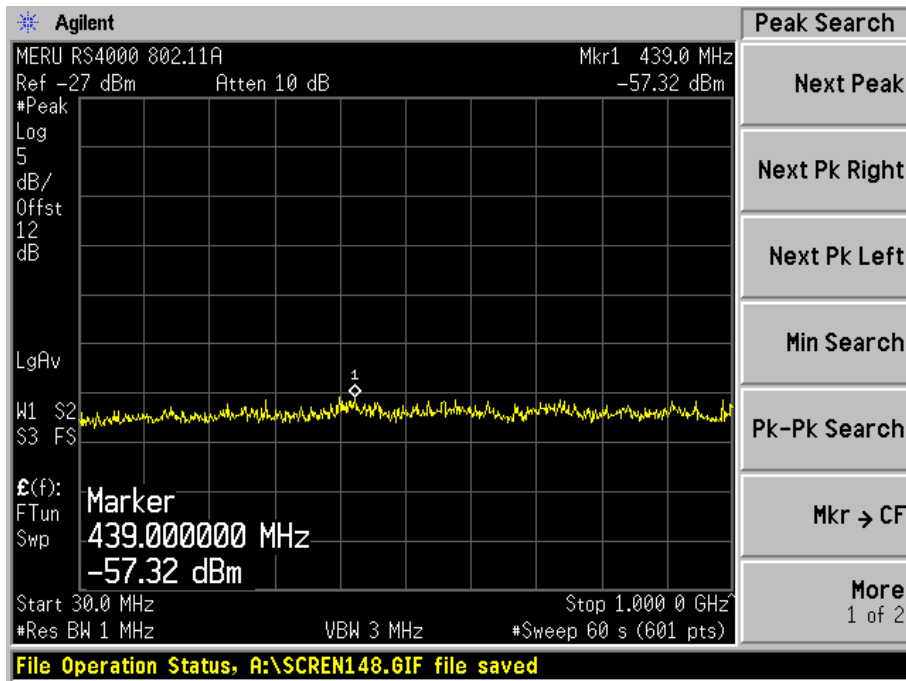


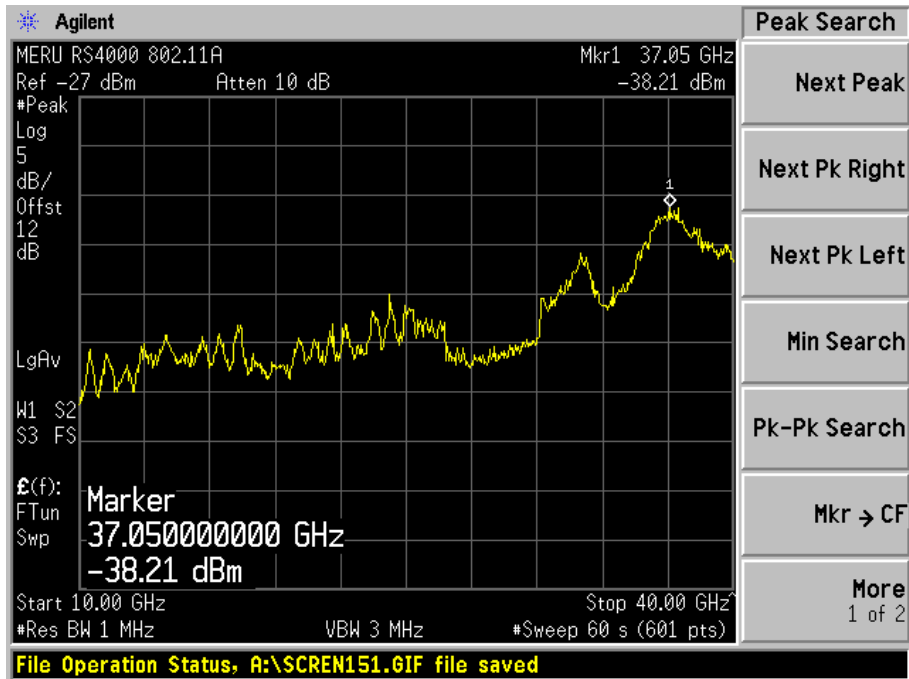
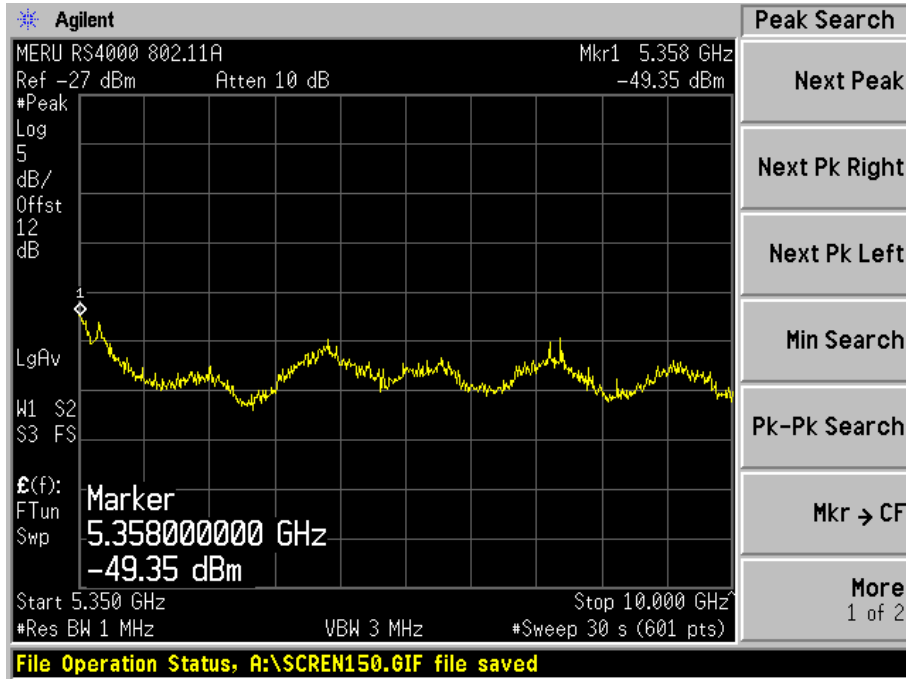
Middle Channel



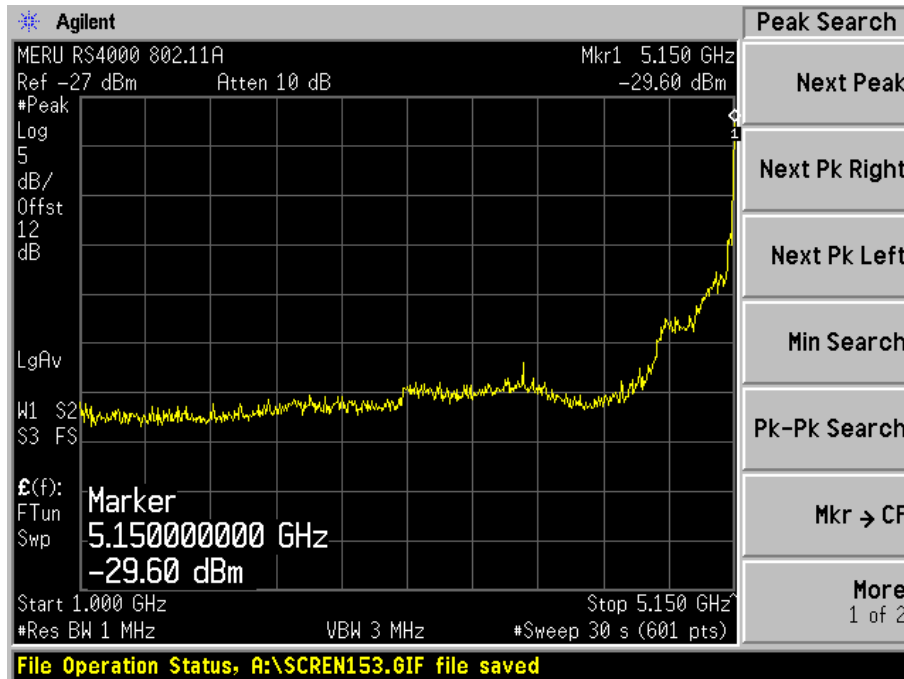
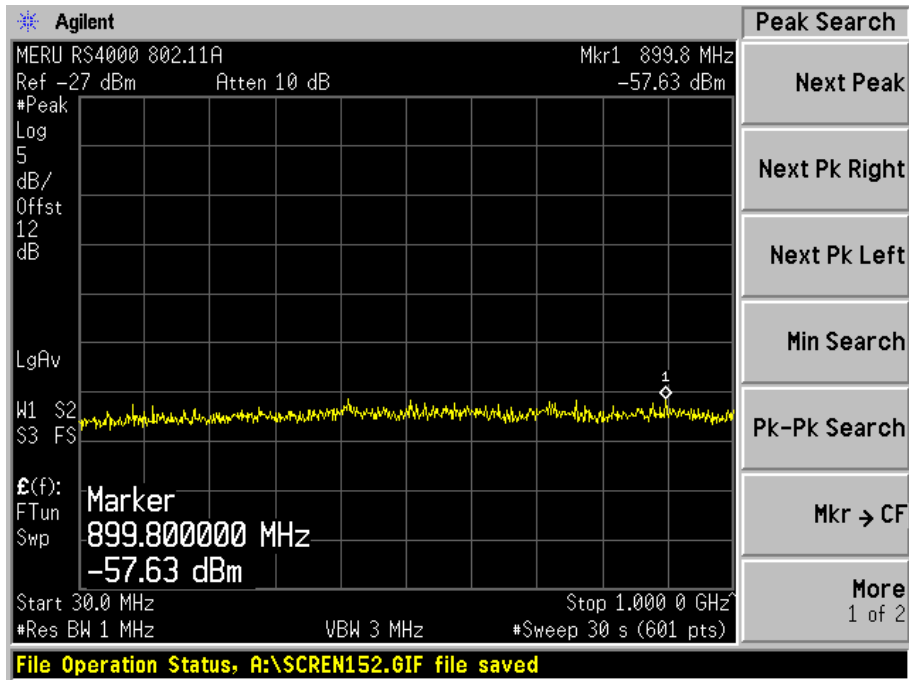


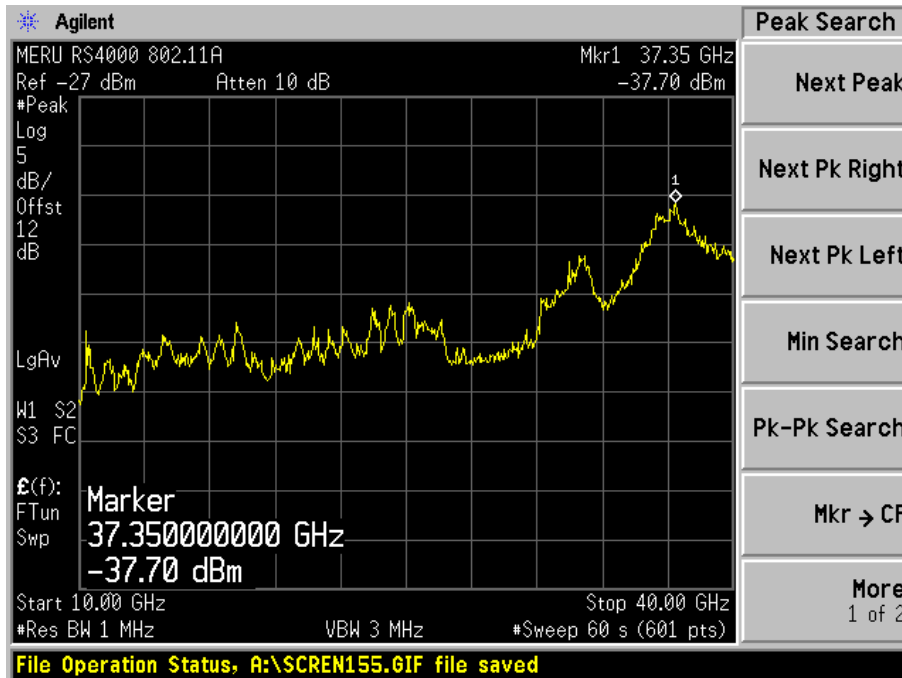
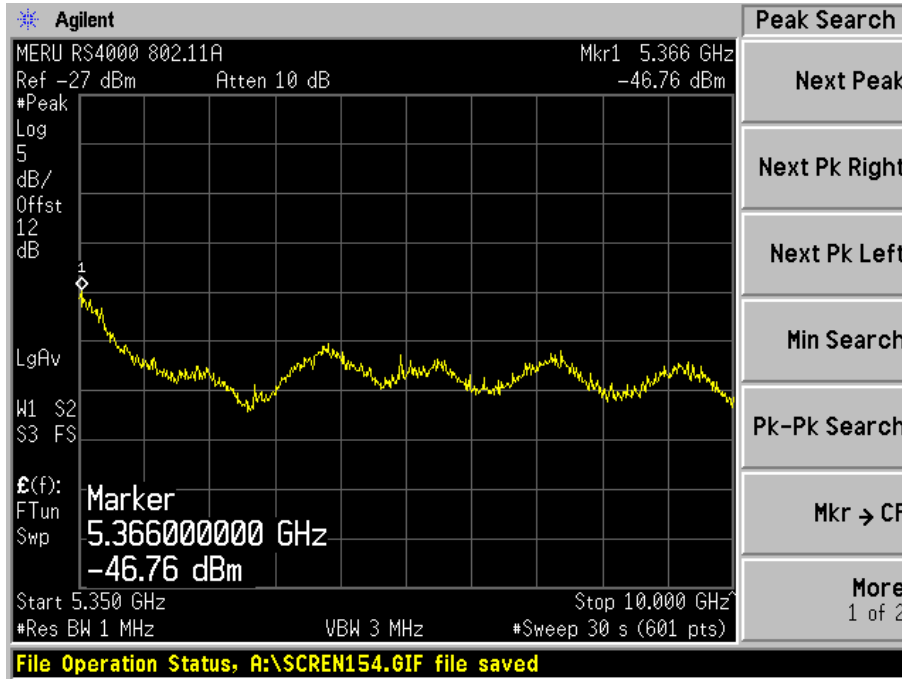
High Channel





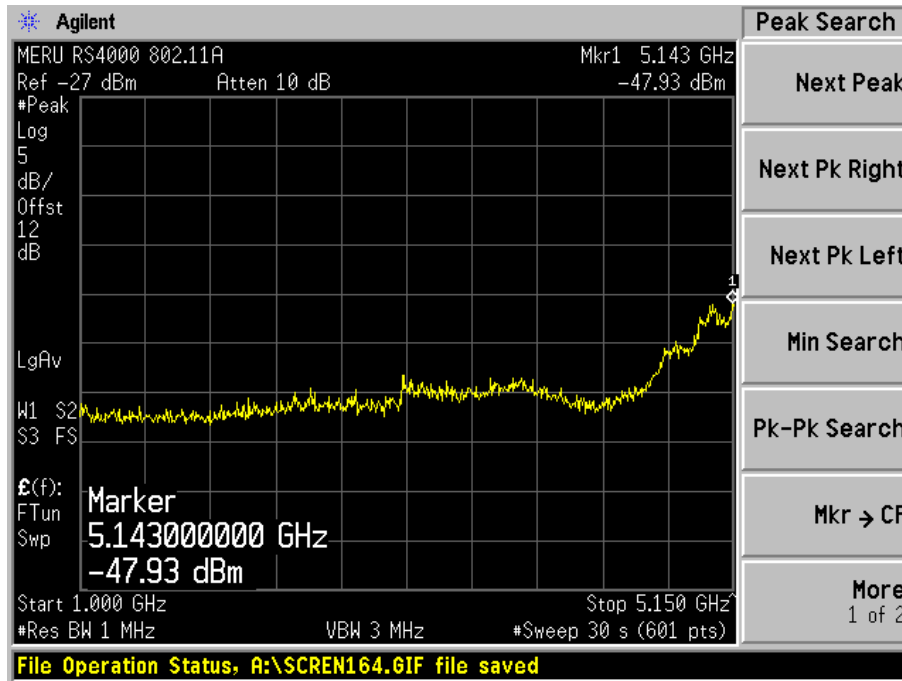
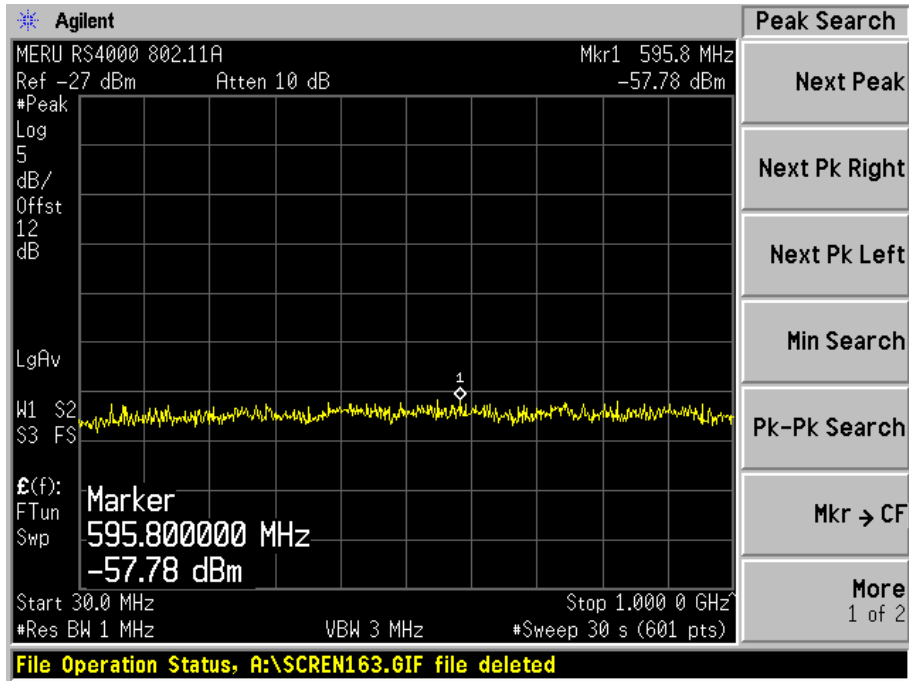
Intermodulation of Band Emission Channel 34~48

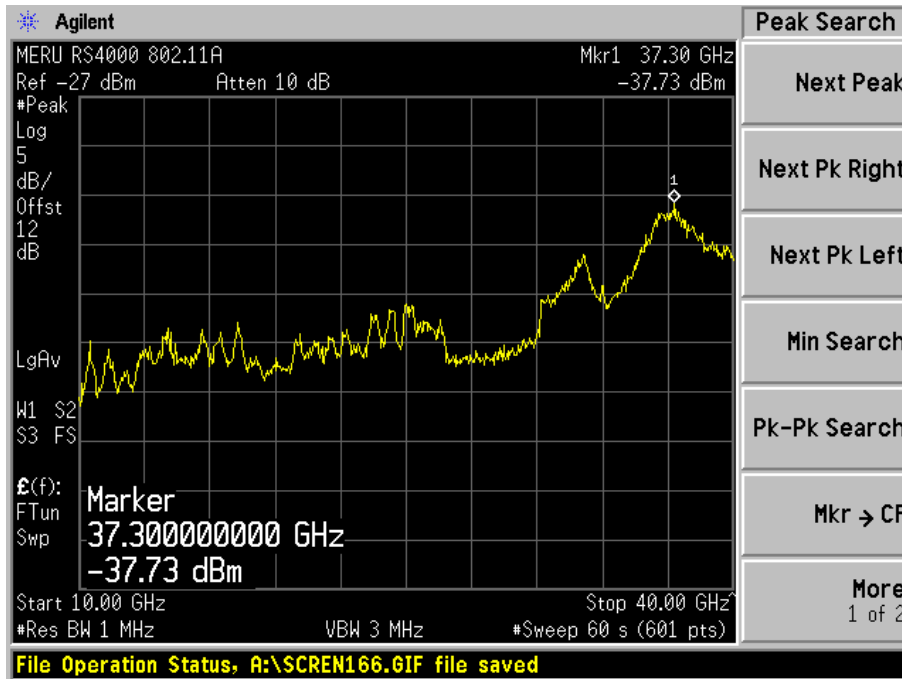
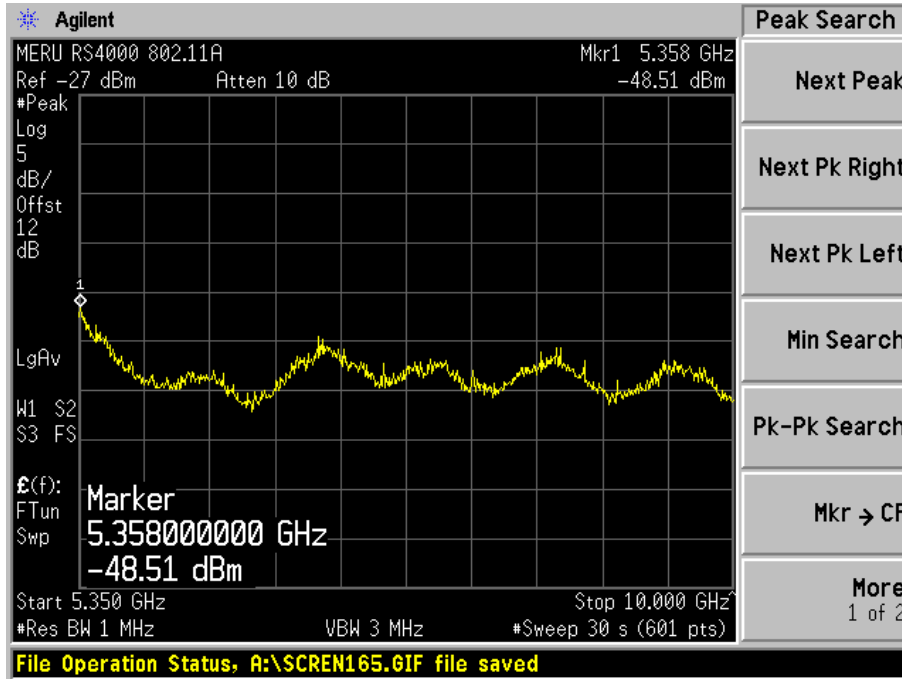




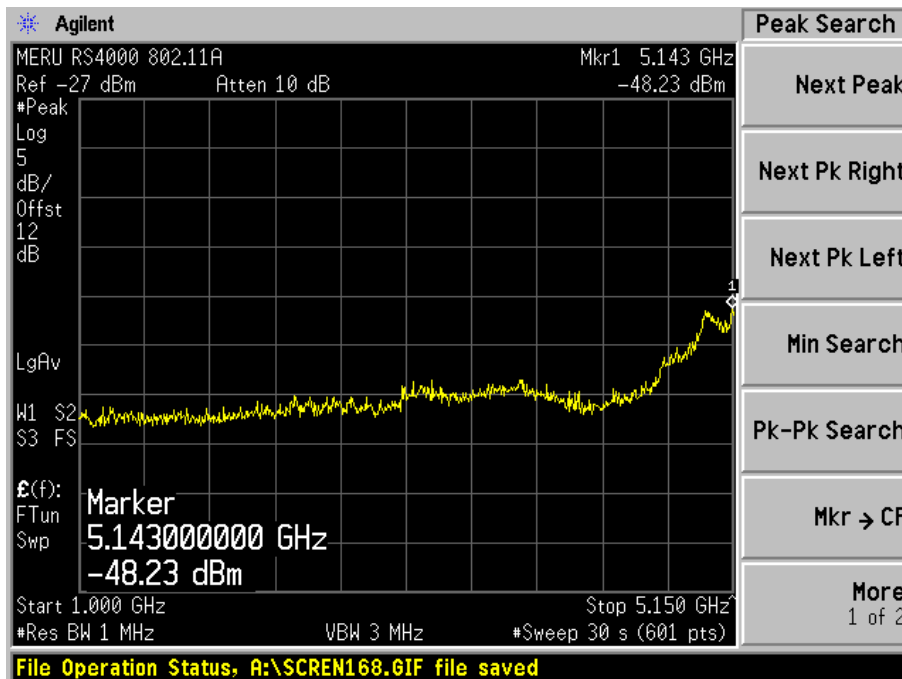
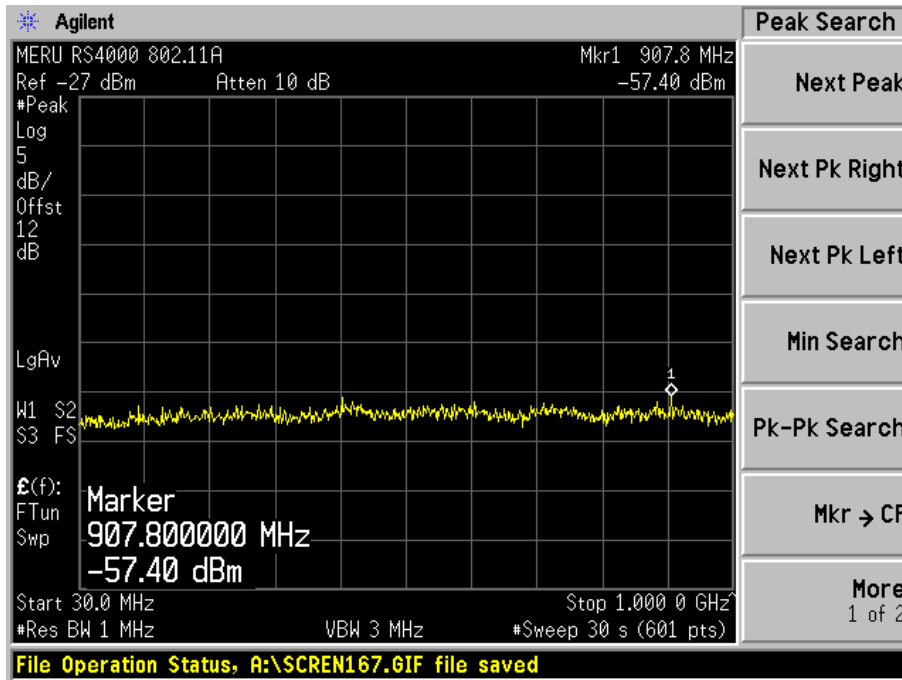
802.11a Middle Band

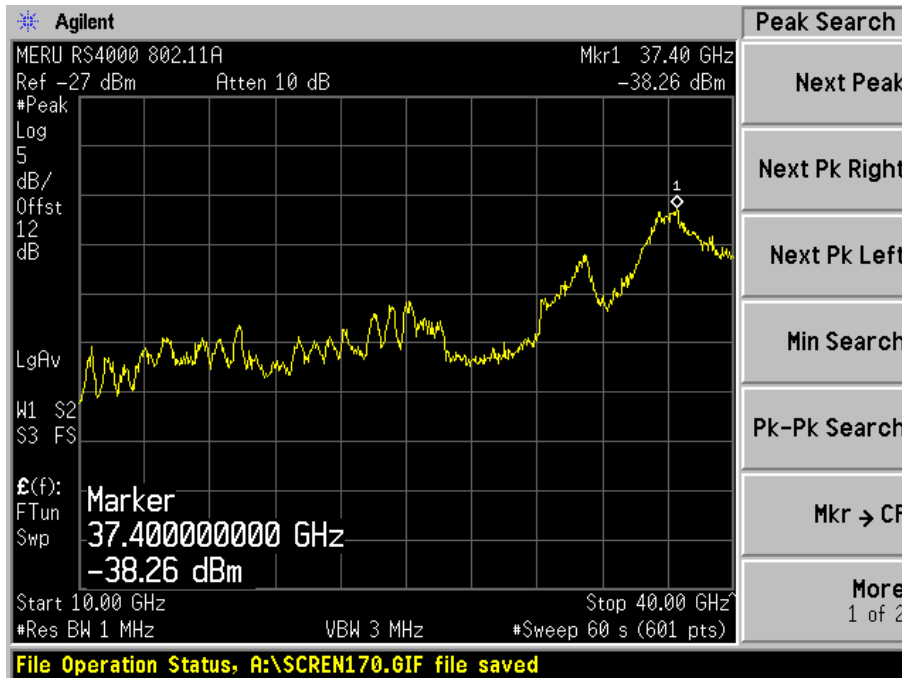
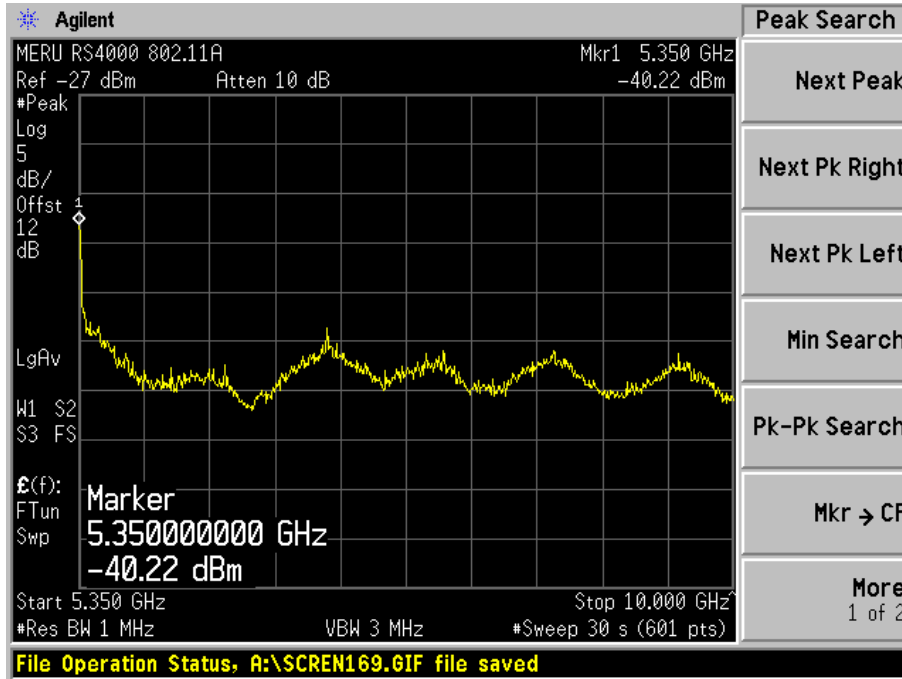
Low Channel



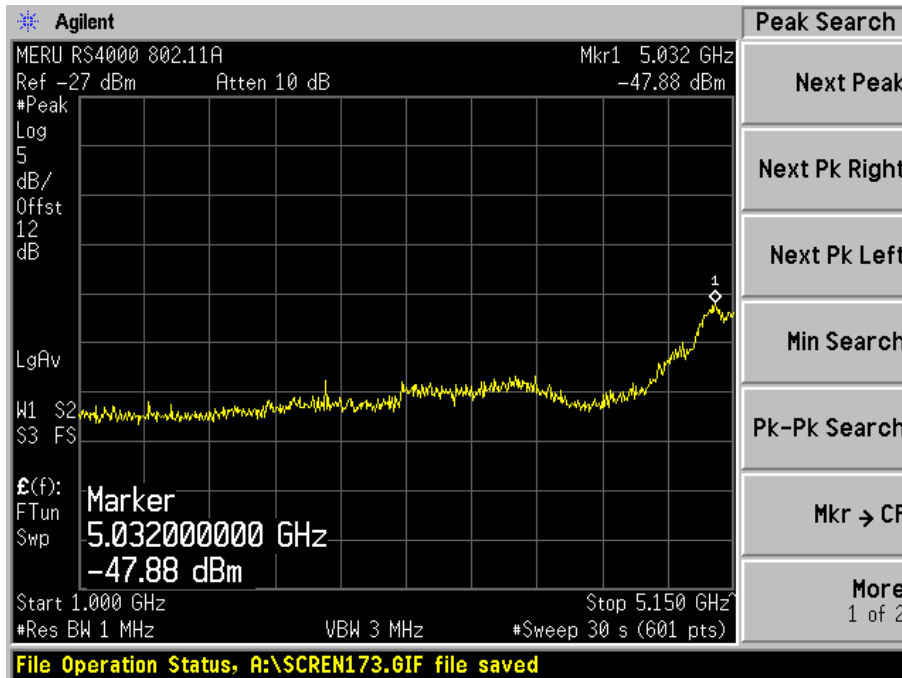
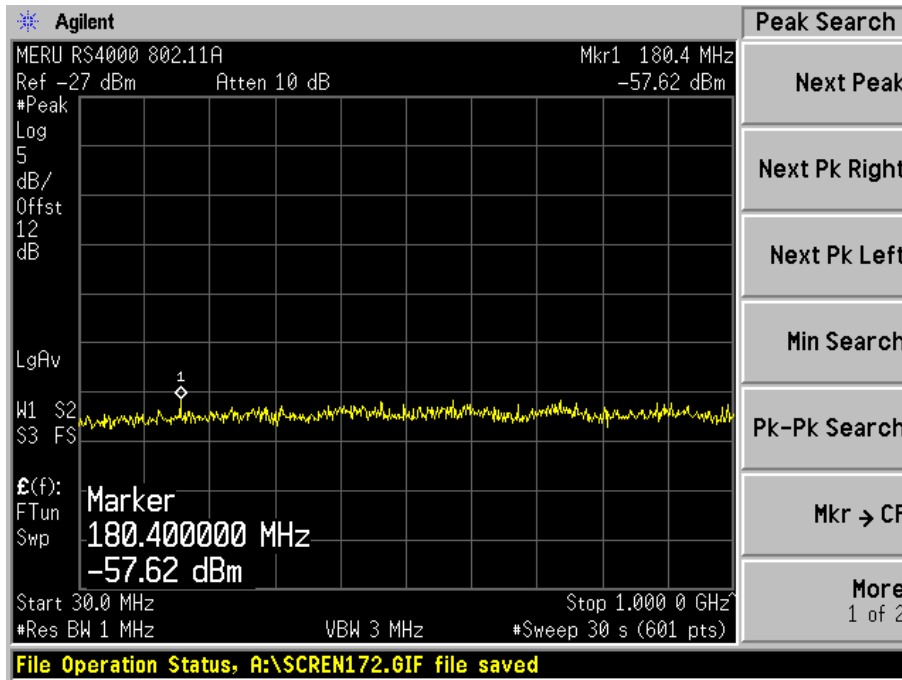


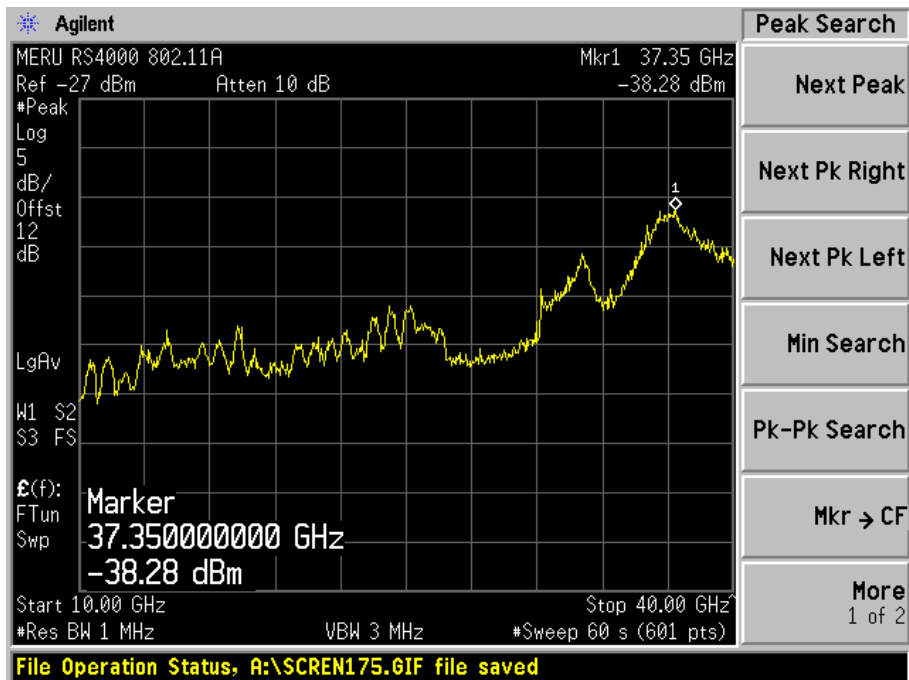
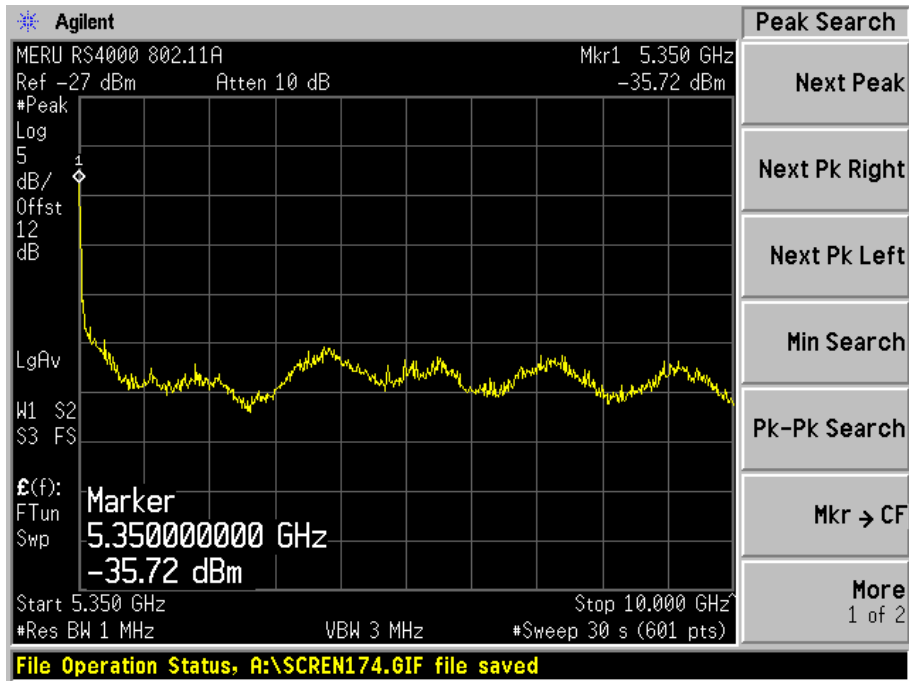
Middle Channel



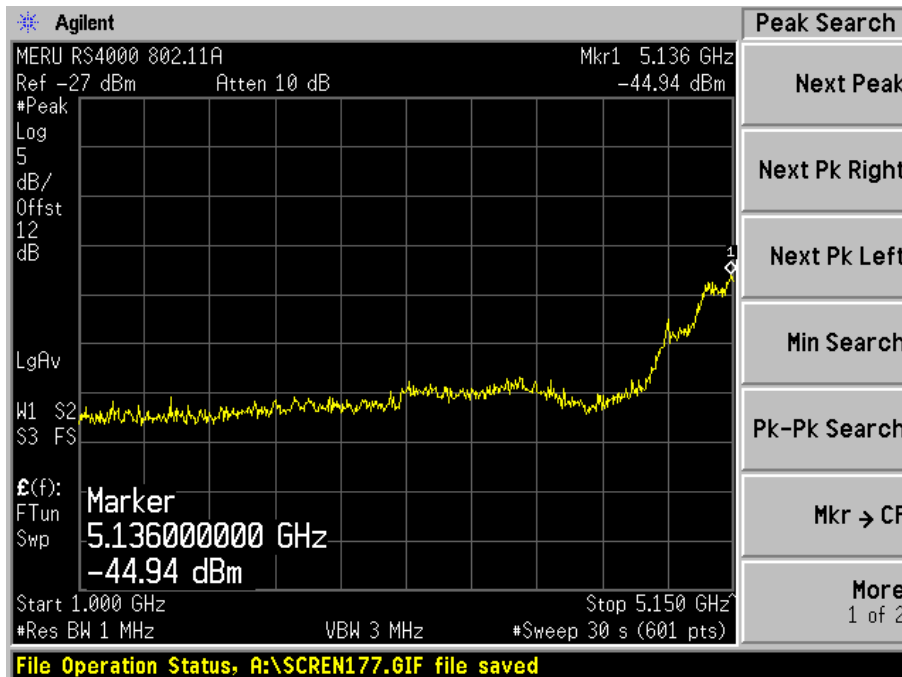
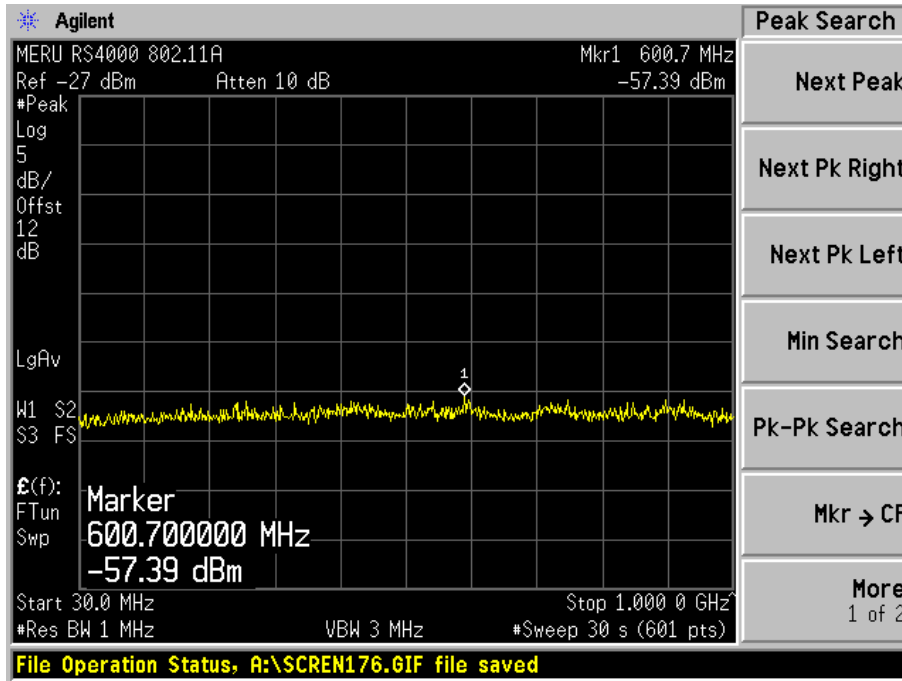


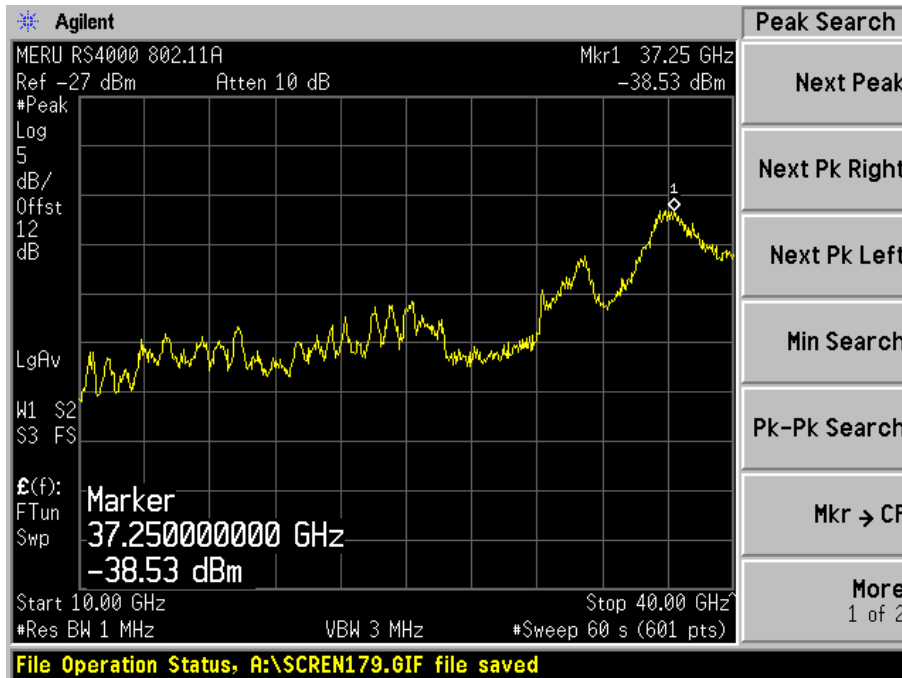
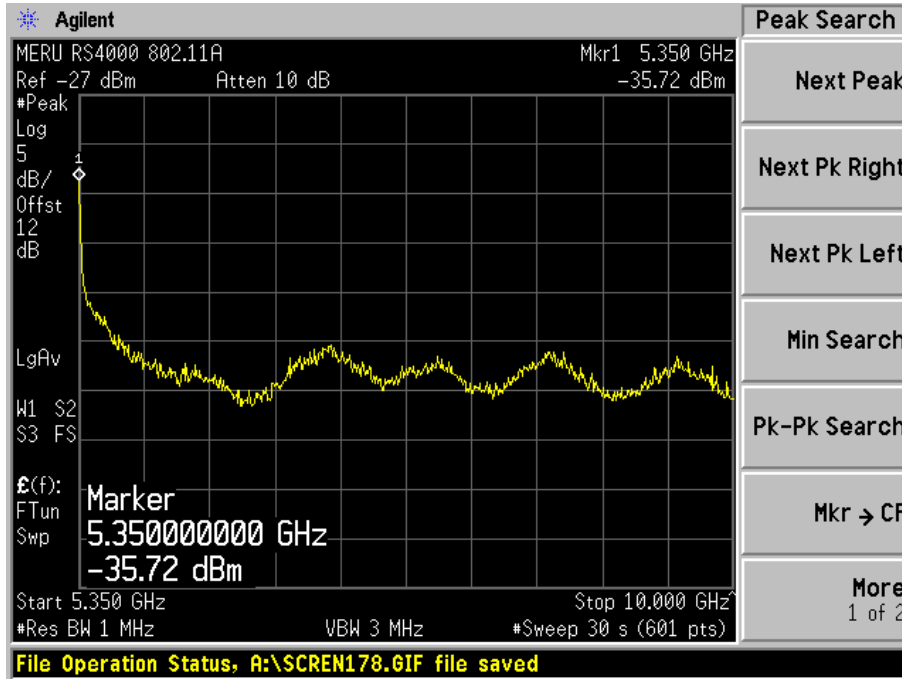
High Channel





Intermodulation of Band Emission Channel 52~60





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 use 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.

Please refer to technical documents.

§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.