FCC Part 15.247 Class II Permissive Change Application

Industrie Canada RSS210 Reassessment Application

EMI Test Report
on
IEEE 802.11 Access Point.
Model: 2330A

FCC ID: RVW2330
IC ID: 332R-2330

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Report# NOR2330_3
Rev: B

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General Information

Unit(s) Under Test:	IEEE 802.11 Access Point (AP)
Model(s):	2330A
Product Description:	IEEE 802.11 A/B/G Access point
FCC ID:	RVW2330
IC ID:	332R-2330
Tested For:	Nortel Networks 4655 Great America Parkway Santa Clara, CA 95054
Tested At:	Elliott Laboratories 684 West Maude Ave Sunnyvale, CA 94086
Tested By:	Rafeal Veralas, Test Engineer, Elliott Laboratories Juan Martinez, Test Engineer, Elliott Laboratories David Waitt, (Independent Consultant)
Test Specifications:	FCC CFR 47, Part 15.247, 2.4 GHz CISPR C63.4 (2003)
Test Date:	May 2007
Requested Certifications:	FCC Part 15 Subpart C Class II Permissive Change application IC RSS-210 Reassessment application

Detailed Product Information

The access point radio is an IEEE 802.11 A/B/G access point (AP) intended to be professionally installed and configured in corporate and industrial environments. The unit has internal antennas and is also capable of being configured to use external antennas.

The table below appeared in the original report. The yellow shading outlines the antennas previously certified for use with this product. The antennas highlighted in GREEN are the new antennas covered with this permissive change

.

FCC Policy allows use of antennas of a similar type that have lower gain than what the product was tested with. Thus, only the 12 dBi antenna was tested, however, Nortel will also be adding an 11 dBi panel antenna to the list of certified antennas for this product, both antennas are of the same type and from the same manufacturer. Only data on the 12 dBi panel antenna is provided in this report.

The last column indicates the maximum power setting that is allowed to be used with the particular type of antenna in order to ensure compliance with FCC rules. For more information on the power settings see the section of this report on RF transmit power.

BAND	CushCraft / Max Rad Antenna	Freq Band	Net Gain (dBi)	Type	Comment	Allowed Power Setting
UNII	S5153WPBN36RSM	5.15 - 5.35	6.0	Omni	Similar to S2403, Colinear omni 2 element	HIGH
	S51514WPN36RSM	5.15 - 5.35	14.0	Patch	Patch Directional	LOW
	S24493DS	5.15 - 5.35	5.9	Omni	Internal	HIGH
5 GHz DTS						
	S5153WPBN36RSM	5.725 - 5.85	6.0	Omni	Similar to S2403, Colinear omni 2 element	HIGH
	S51514WPN36RSM	5.725 - 5.85	14.0	Patch	Patch Directional	LOW
	S24493DS	5.725 - 5.85	7.5	Omni	Internal	HIGH
	S2401290PN36RSM	2.4 - 2.5	12	Panel	Panel, Outdoor	Ch1-10: 11, Ch11: 9
	S24011120DN36RSM	2.4 - 2.5	11	Panel	Panel, Outdoor	Ch1-10: 11, Ch11: 9
2.4 GHz DTS	SQ2405DDN36RSM	2.4-2.5	4.0	Panel	Panel, similar to 2402 / 2409	MED
	SL2402PN36RSM	2.4-2.5	2.0	Panel	Panel	MED
	S2406PN36RSM	2.4-2.5	5.5	Panel	Panel	MED
	S2409PN36RSM	2.4-2.5	8.5	Panel	Panel, higher gain S2402	MED
	MYP24015PRSM	2.4-2.5	15.0	Yagi	Yagi (Made by Max Rad)	LOW
	S24493DS	2.4 - 2.5	4.2	Omni	Internal	HIGH

Test Results Summary

This report presents the results of the tests that verify compliance with FCC Part 15.247 and

A brief results summary of all the in this report is below.

Part 15 Paragraph	RSS-210 Paragraph	Test	Results
15.247(b)	6.2.2(o)(a) 3	Maximum Power Output (802.11 G)	9.09 dBm Max
15.247(d)	6.2.2(o)(d1)	Power Spectral Density (2.4GHz)	-10.93 dBm/3kHz Max
15.205 15. 247(c)	6.3(c)	Radiated Emissions in Restricted bands	-4.2 dB in spec min

Test Facilities

The radiated emissions tests were performed at:

Elliott Laboratories
41039 Boyce Road
Fremont, CA 94538

The tests performed at Elliott include:

- All radiated emissions tests required in FCC Part 15.205 (15.247) for 2.4 GHz.

General:
Final 802.11 B/G radiated test measurements were taken at Elliott Laboratories, Fremont Chamber #5.

The test site contains separate areas for radiated and conducted emissions testing. Pursuant to section 2.948 of the Rules, construction, calibration, and equipment data has been filed with the Commission.

The FCC recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent FCC requirements.

OATS:
The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated emissions are performed in an open field environment. The test site is maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4 Guidelines.

Antenna, Antenna Mast and Turntable
The Horn antennas that are use to measure radiated emissions above 1000MHz are amounted on a non-conductive antenna mast equipped with a motor drive to vary the antenna height.

ANSI C63.4 specifies that the test height above the ground plane shall be 80cm unless the equipment is intended to be floor mounted. During the radiated emissions tests the equipment is positioned on a motorized turntable in conformance with the ANSI requirement.

Elliott Equipment

Instrument Calibration

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

Elliott Test Equipment

The following test equipment was used to perform the testing

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO Antenna,	Horn, 1-18 GHz	3115	786	28-Nov-07
Hewlett Packard	SpecAn 9 kHz - 40 GHz,	8564E	1393	09-Jan-08
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	08-Aug-07
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	16-Mar-08

Measurement Uncertainties

ISO Guide 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

Antenna Mast and Equipment Turn-table

The antennas used to measure the radiated electric field strength are mounted on a nonconductive antenna mast equipped with a motor-drive to vary the antenna height.
Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.
ANSI C63.4:2003 and RSS 212 specify that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor.
During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

Radiated Emissions Considerations

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003 / RSS 212.

Test Methods

The tests are performed at a low, middle and high channel of the applicable band. The typical frequencies used for the Part15.247 ISM tests are shown in the table to the right. Unless otherwise noted, all testing was performed on these channels / frequencies

ISM 802.11 B / G
2400 – 2483.5 MHz

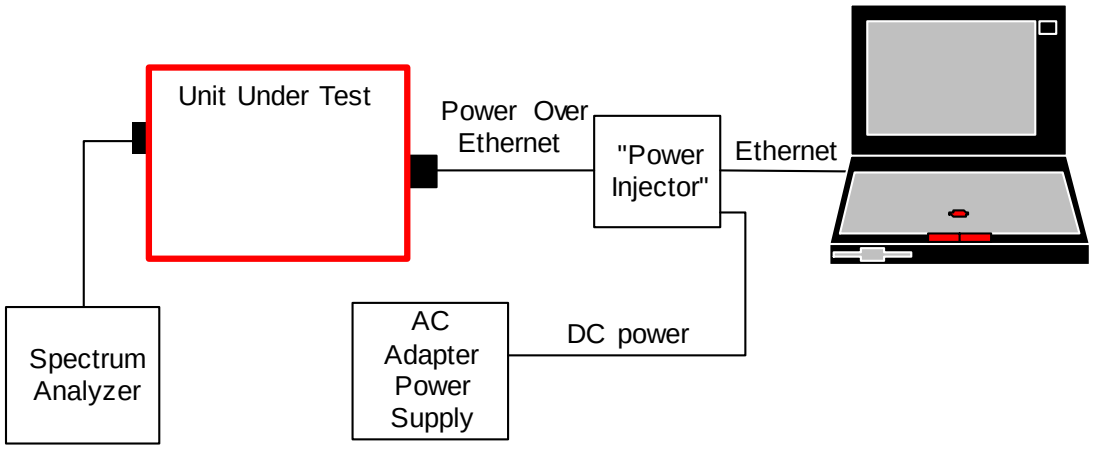
Channel		Freq(MHz)
Low	Chan 1	2412
Mid	Chan 6	2437
High	Chan 11	2462

In order to comply with the “radiated emissions in restricted bands” requirements the transmit power had to be lowered on some of the channels at the edges of the operating band. The maximum power setting that allowed compliance with the radiated emissions requirements will be programmed into the configuration firmware of the access point ensuring that maximum possible power setting will be correct for each channel.

Given that the access point will normally be operated at these power settings, these same settings were also used during the “bench top” conducted RF tests (Spectral density, bandwidth etc).

The tests listed below are performed using the basic “conducted” test setup shown below unless otherwise noted. In most cases, the EUT was running special diagnostic software to allow it to transmit random data on a particular channel indefinitely.

Part 15	Test
15.247(a)(1)(i)	Power Spectral Density
15.247(a)(1)(i)	RF Transmit Power



Basic Conducted RF Bench Test Setup

Support Equipment				
Description	Model number	FCC ID or SN	Manufacturer	Power Cable
Laptop	A20	DOC	IBM	Laptop PS
Test Software	Atheros Radio Test		Atheros	
48VDC AC adapter	Generic		Generic	CAT 5 Ethernet cable

Unless otherwise noted, the support equipment for the bench tests is listed below.

Test Results

Detailed test procedures and test results are contained in the following sections. In cases where the test setup differs from the Conducted RF test setup shown earlier, the test setup is also presented.

Test Conditions			
Temperature	Approx 22C	**Humidity:**	70%
ATM pressure	1010 mBar	**Grounding:**	None
Tested By	David Waitt	**Date of Test:**	May 2007
Test Reference	Refer to individual test results		
Tested Range	Test Dependent		
Test Voltage	48 VDC to the AP		
Modifications	No modifications were made to the unit during the tests		

802.11 B/G Maximum RF Power Output at Antenna Terminals

Specifications:

FCC Specification: Paragraph: 15.247(b)
IC Specification: RSS-210, 6.2.2.(o)(b)

Procedure:

The test was configured as shown above in the bench top test setup above. The unit was tuned to the test channels and configured to transmit random data. The (integrated channel) RF transmit power was then measured with the spectrum analyzer.

There are two power settings used for operation on 2.4 GHz with these new antennas. Channels 1 - 10 are set to a slightly higher power than channel 11. Utilization of these different power levels ensures compliance with the FCC 2.4 GHz ISM “restricted band” emission requirements and the band edges while attempting to maximize EIRP for field performance.

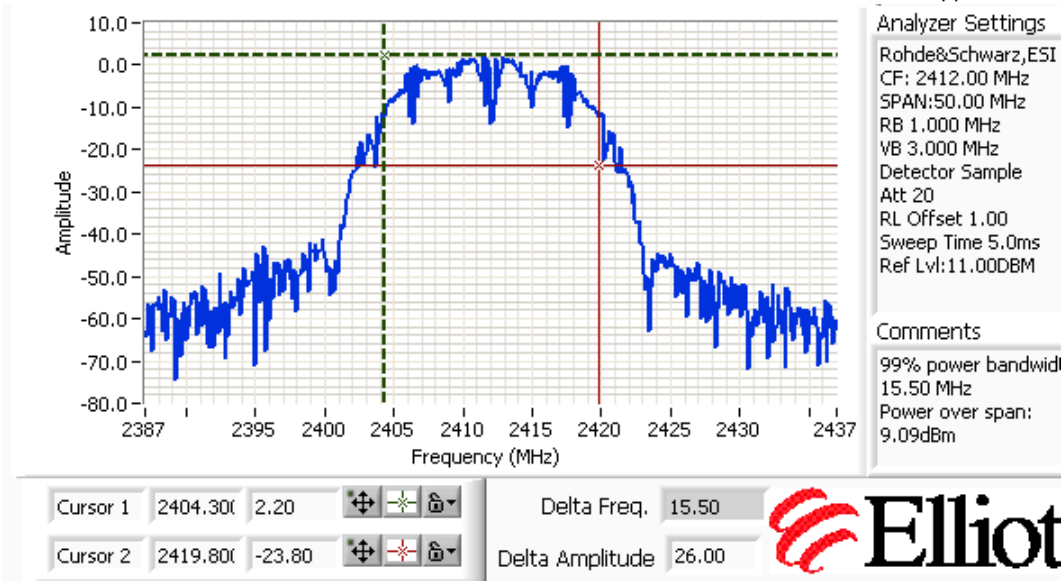
Results:

IEEE802.11 B / G integrated channel power levels were measured with a spectrum analyzer.. Measurements were made using the following settings: RBW=1 MHz, VBW=3MHz, sample detector and power averaging.

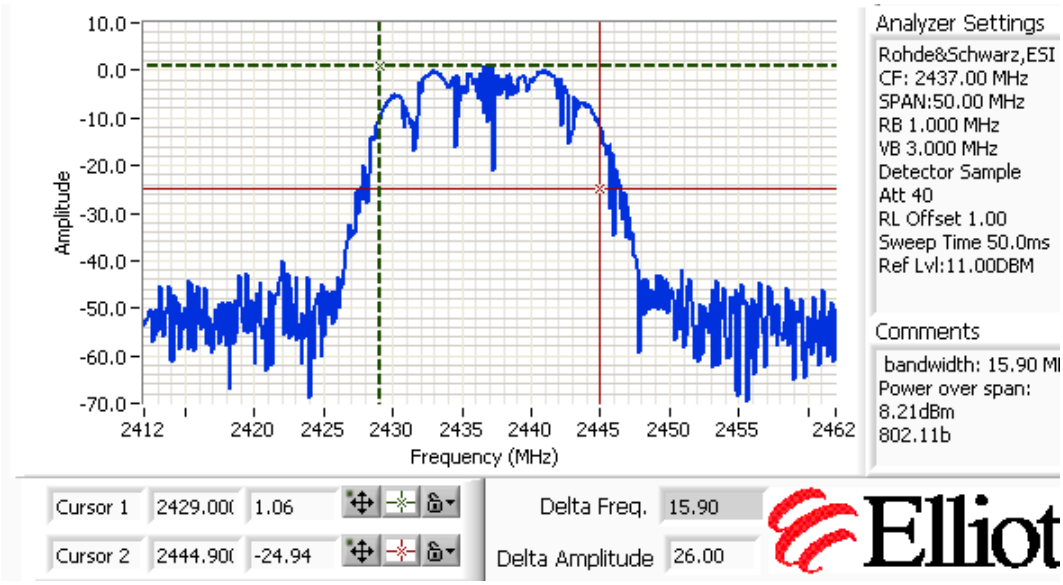
802.11 B/G (ISM) Integrated Transmit power

		Power Setting 11 Antenna gain < 12 dBi)			Powwer setting 9 (Antenna Gain < 12 dBi)		
	Freq (MHz)	Power (mW)	Power (dBm)	Power (Max EIRP)	Power (mW)	Power (dBm)	Power (Max EIRP)
802.11 B	**2412**	8.11	9.09	21.09			
	2437	6.62	8.21	20.21			
	2462				5.71	7.57	19.57
802.11 G	**2412**	7.18	8.56	20.56			
	2437	7.46	8.73	20.73			
	2462				5.97	7.76	19.76

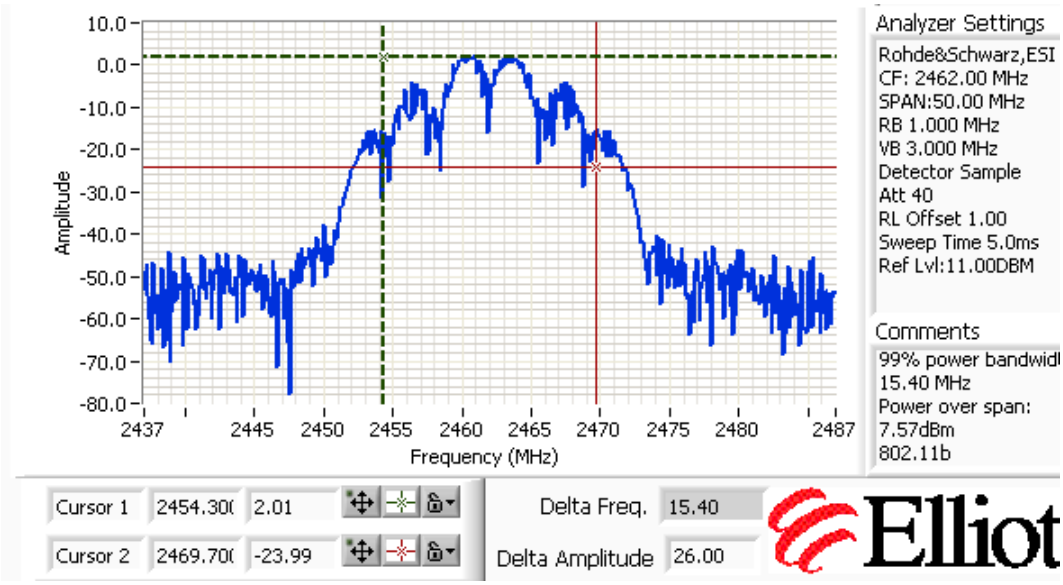
IEEE802.11 B
Integrated Channel
Power, Channel 1



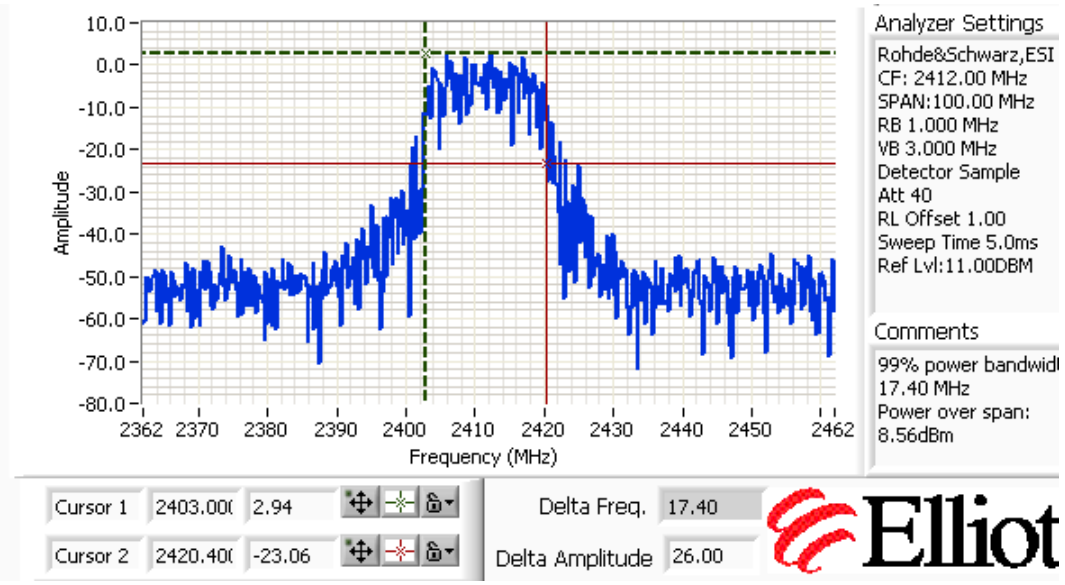
IEEE802.11 B
Integrated Channel
Power, Channel 6



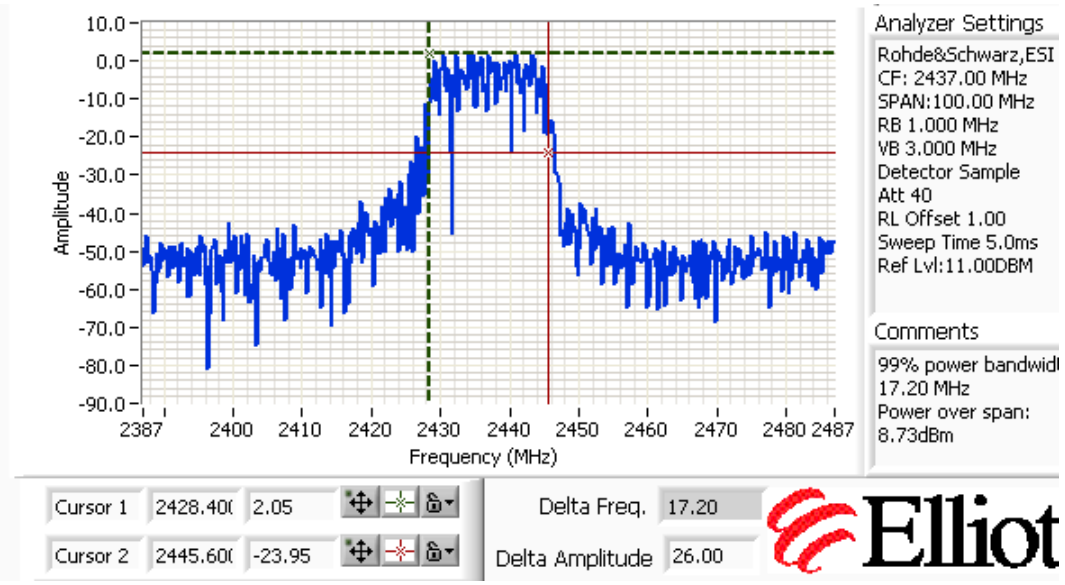
IEEE802.11 B
Integrated Channel
Power, Channel 11



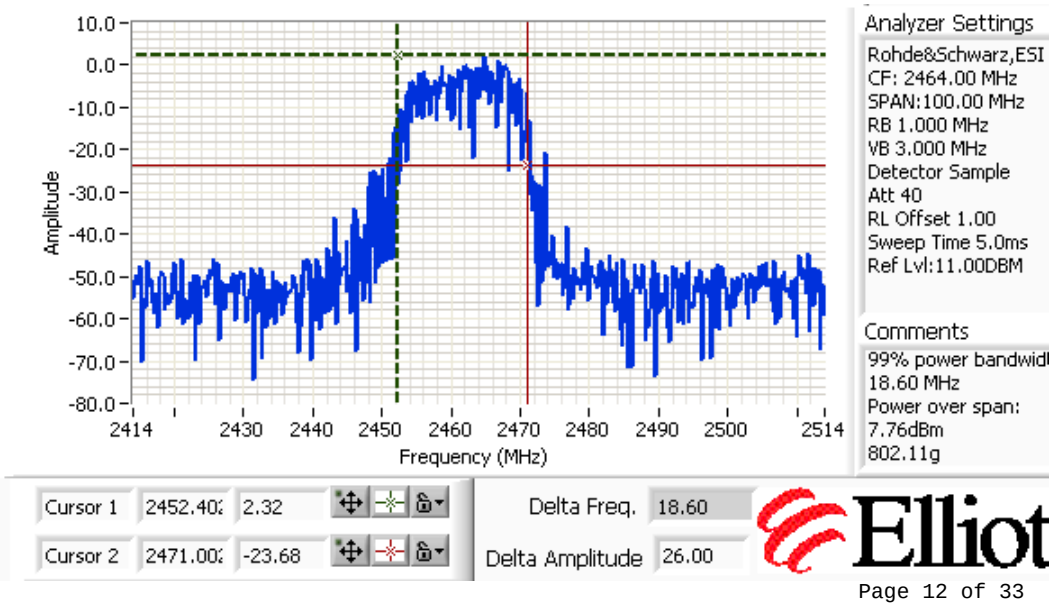
IEEE802.11 Integrated Channel Power, Channel 1



IEEE802.11 Integrated Channel Power, Channel 6



IEEE802.11 Integrated Channel Power, Channel 11



Power Spectral Density

Specifications:

FCC Specification: Paragraph 15.247(4)(d)
IC Specification: RSS-210 .6.2.2(o)(b)

Procedure:

The test setup was configured as shown in the conducted test setup. The UUT was configured to continuously transmit random packets. Initially the bandwidth of the entire channel was examined. Using MAX HOLD, the trace was allowed to stabilize. Once the trace was stable, a peak search was performed and the frequency with the maximum power was determined.

The measurement span was then narrowed to 300kHz and centered on the “MAX power” frequency, the RBW was then set to 3 kHz with a 100 second sweep. The analyzer was then set to MAX HOLD and a display line placed at +8dBm.

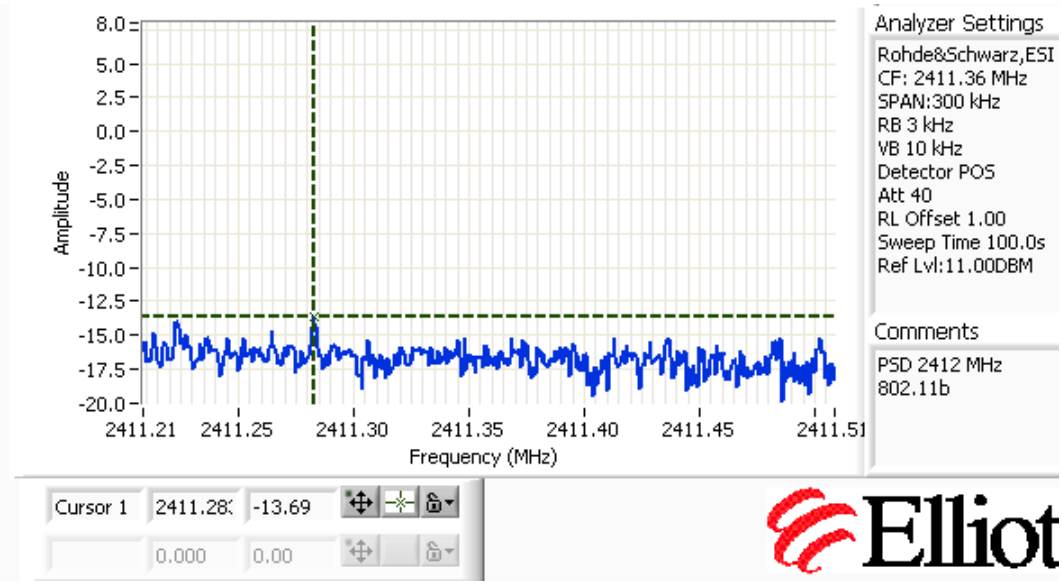
The power spectral density was measured at the low, middle and high-test channels with the appropriate power setting for the given test channel. The power spectral density data was gathered at the high power setting used with these antennas. (Power setting 11).

Results:

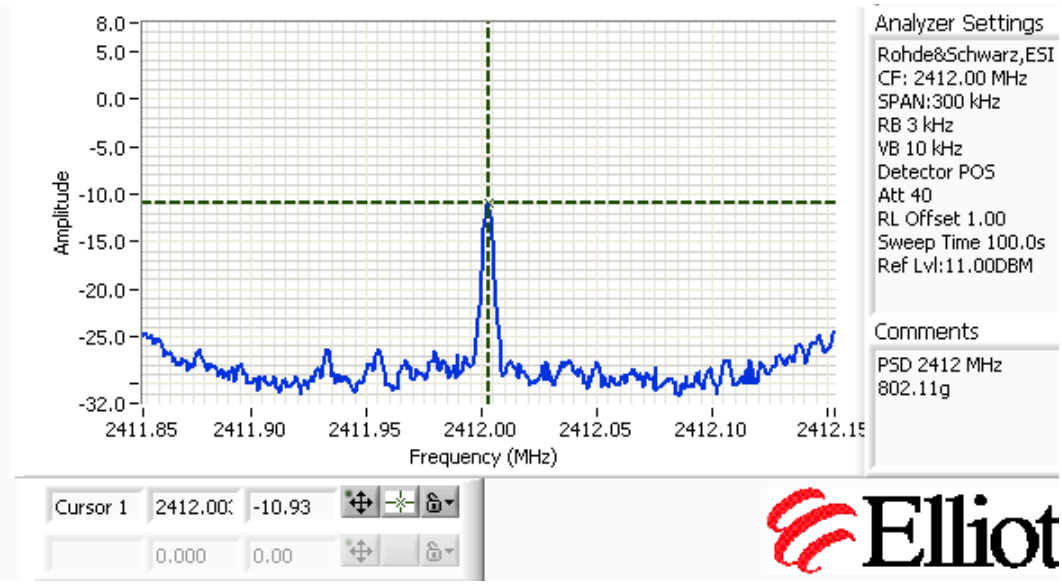
The power spectral density was measured at the highest power setting for each band / mode that will be used in the operation of the radio.

	Frequency (MHz)	Specification (8dBm / 3kHz)	Measured PSD (dBm)	Spec Delta (dB)
802.11 B	2412	8	-13.69	21.69
	2437	8	-10.93	18.93
	2462	8	-14.01	22.01
802.11 G	2412	8	-14.78	22.78
	2437	8	-16.50	24.50
	2462	8	-17.83	25.83

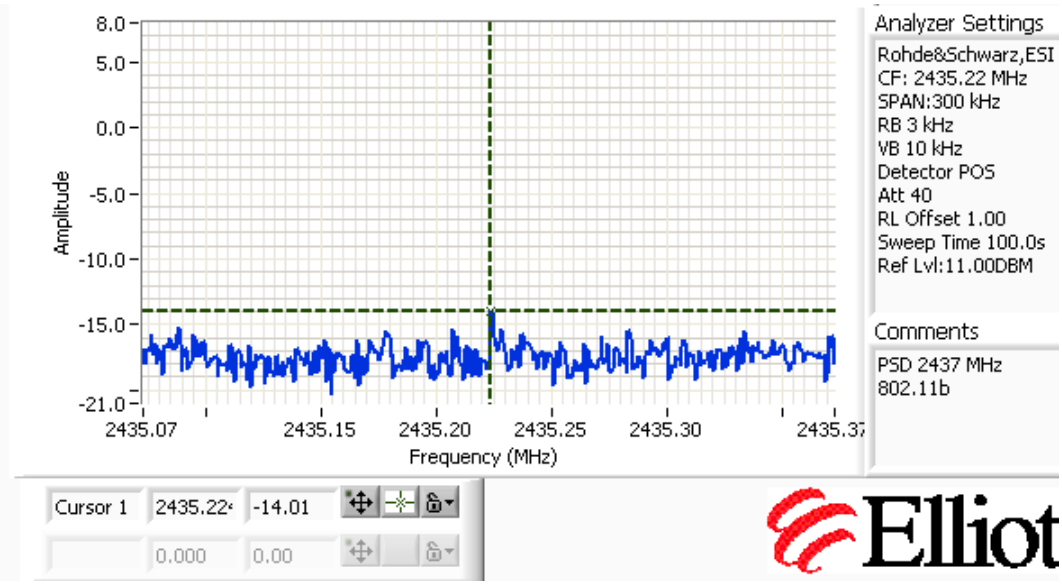
Power Spectral Density, 802.11 B, ISM 2412MHz



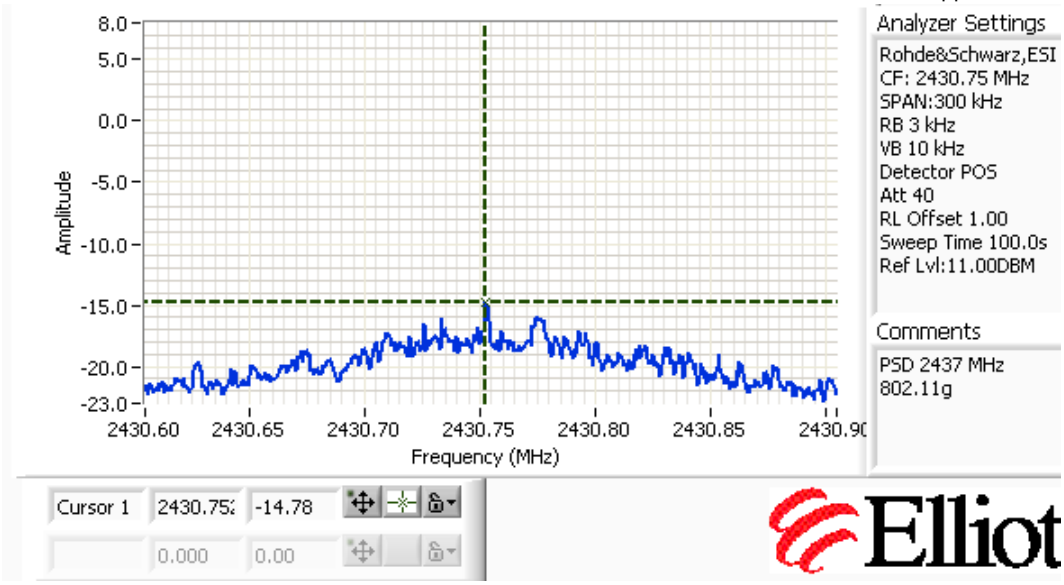
Power Spectral Density, 802.11 B, ISM 2437MHz



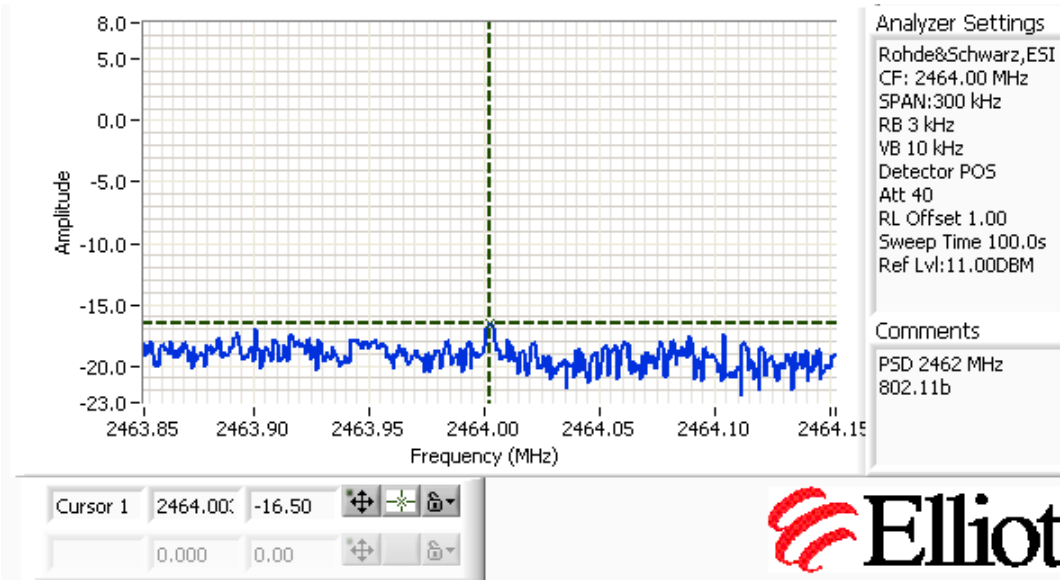
Power Spectral Density, 802.11 B, ISM 2462MHz



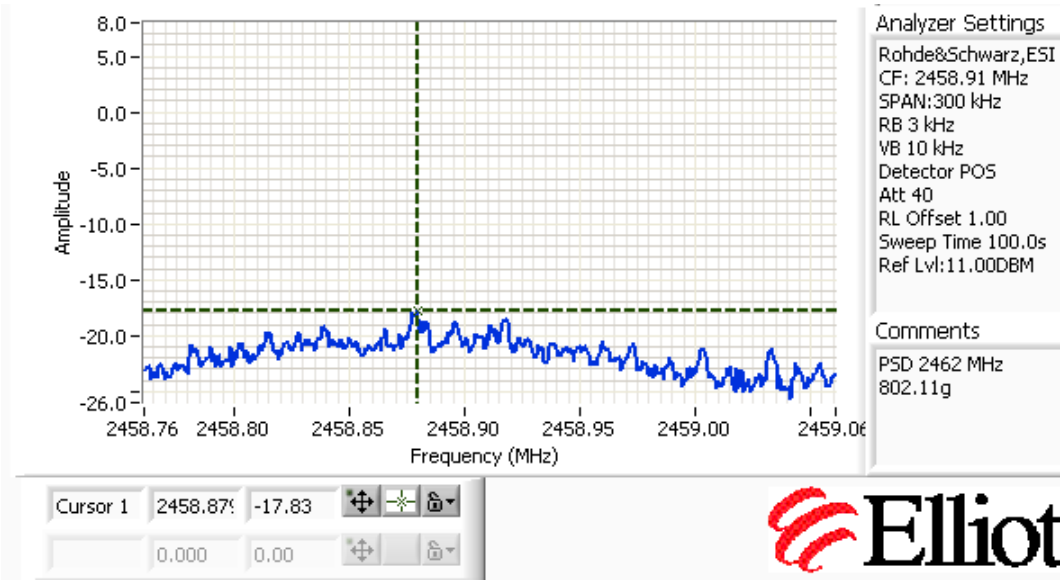
Power Spectral Density, 802.11 G, ISM 2412MHz



Power Spectral Density, 802.11 G, ISM 2437MHz



Power Spectral Density, 802.11 G, ISM 2462MHz



Radiated Emissions in Restricted Bands & Out Of Band Emissions

Specifications:

FCC Specification: Paragraph 15.247(c)
IC Specification: RSS-210 6.3(c) & RSS-210 .6.2.2(o)(e1)

Procedure:

This test was conducted inside a semi-anechoic chamber at Elliott Laboratories The unit was placed on a rotating wooden table 80cm above the ground plane. A Horn antenna was secured to a mast 3 meters away. The unit was tested at each of the Low, Mid and High channels. The UUT was running in the diagnostic mode and set to transmit at maximum power on each of the channels. The test equipment was configured as shown below.

Out or band emissions starting at 1GHz were measured. A notch or a high pass filter prior to the pre-amplifier was required to prevent the large signal level of the fundamental frequency from overloading the front end preamplifier and creating harmonics within the analyzer.

The EUT was rotated 360 degrees and the height of the antenna adjusted from 1 to 4 meters above the ground plane to determine the maximum level of the emission. The level of the harmonic emission was measured in two modes, “Peak” and “Average” .

The spectrum analyzer reading made by the test software and the appropriate correction factors (antenna factor, cable loss, pre-amplifier gain, HPF loss...) were then applied by Elliott Lab’s Software to obtain a final corrected measurement.

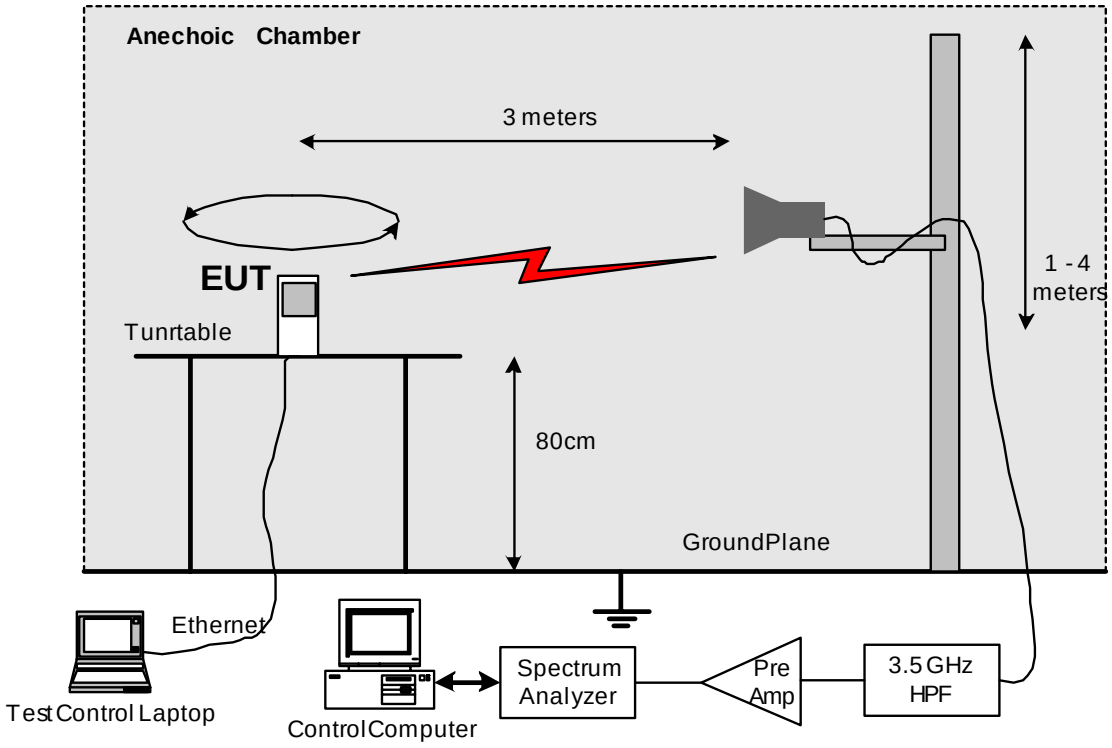
This procedure was performed for all of the channels outlined in the Test Methods section of this report.

The band up to 40 GHz was examined, however there were no spurious emissions noted above approximately 18 GHz. The table below indicates the harmonics that fall within restricted bands.c

	Harmonic								
Fund	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2412	**4824**	**7236**	9648	**12060**	**14472**	16884	**19296**	21708	24120
2437	**4874**	**7311**	9748	**12185**	14622	17059	**19496**	21933	24370
2462	**4924**	**7386**	9848	**12310**	14772	17234	**19696**	**22158**	24620

15.205 Harmonic test tables

*NOTE: **RED** indicates a harmonic that falls within a restricted band and is subject to 15.205. The harmonics in Green are NOT in restricted bands and are subject to 15.20.*



Radiated Emissions in Restricted Bands Test Setup

Support Equipment				
Description	Model number	FCC ID or SN	Manufacturer	Power Cable
Laptop, Generic	A20	DoC	IBM	Laptop PS
Test Software	Atheros Radio Test		Atheros	
48VDC AC adapter	Generic		Generic	Standard Twin lead DC wire

Test Conditions			
Temperature	25 C	Humidity:	73%
ATM pressure	1023 mBar	Grounding:	None
Tested By	Test Engineer of Elliott Labs (J Martinez)	Date of Test:	May 2007
Test Reference	FCC Part 15.205 IC Paragraph RSS210, 6.2.3 (c)		
Setup Method	ANSI C63.4		
Tested Range	1 GHz to 25GHz (Data for 1 – 18GHz presented, No describable emission above 18 GHz)		
Test Voltage	48 VDC		
Modifications	No modifications were made to the unit		

***NOTES**: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set 20dB below the level of the fundamental.*

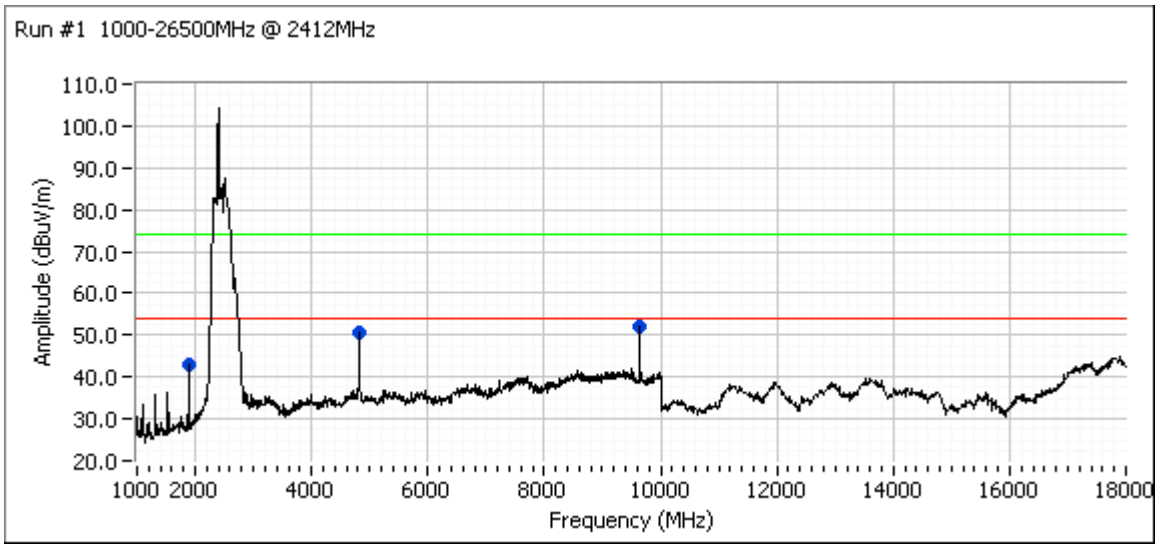
No Emissions were detected above 18 GHz

Restricted Band Peak Measurements: Resolution and Video BW: 1 MHz
Restricted Band Average Measurements: Resolution BW: 1MHz and Video BW: 10 Hz.
All other measurements, RBW = 1MHz and VBW = 3MHz, video averaging on (100 samples).

Results:

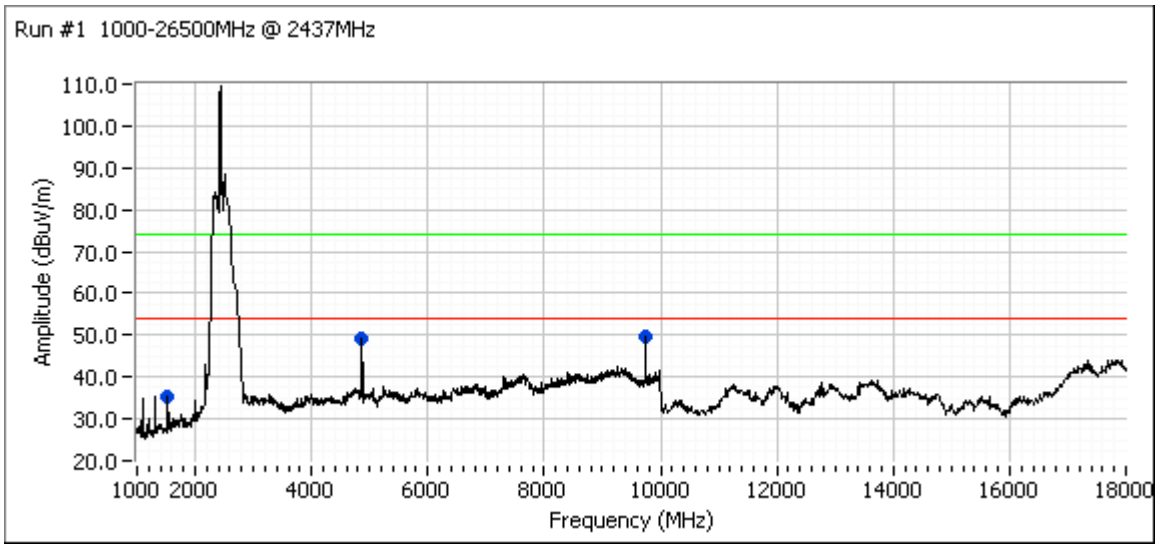
The tables below presents a summary of the radiated emission in restricted bands for the low, middle and high channels for both 802.11 B and 802.11 G modes of operation. Associated plots precede each table. In no case were there describable emissions above 18GHz

802.11 B, 2412 MHz



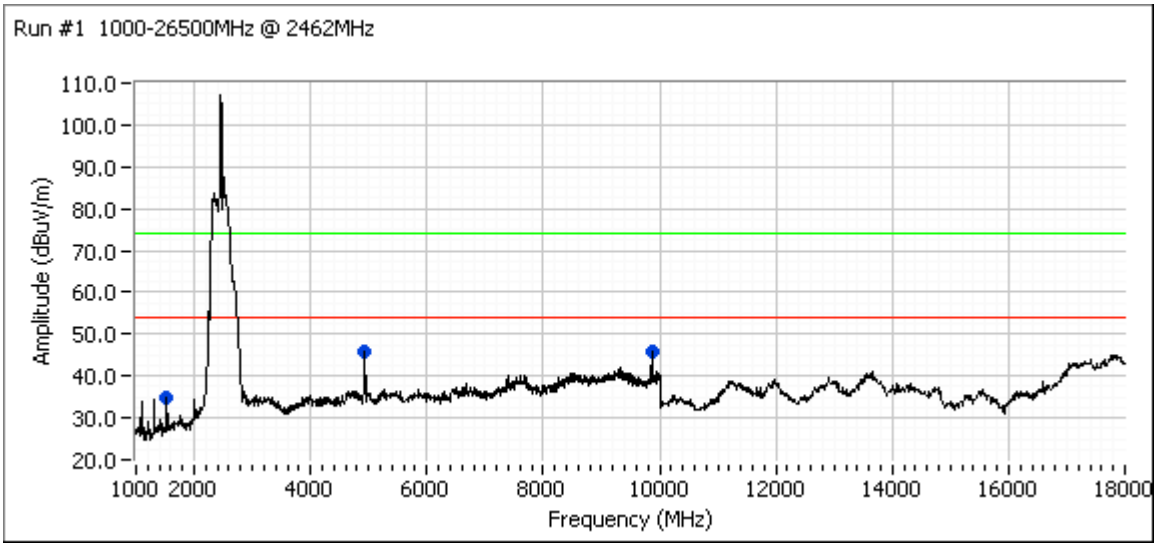
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2412.530	113.2	V	54.0	59.2	AVG	360	1.0	Fundamental
2412.530	116.4	V	74.0	42.4	PK	360	1.0	Fundamental
2410.540	95.9	H	54.0	41.9	AVG	320	1.0	Fundamental
2410.540	98.9	H	74.0	24.9	PK	320	1.0	Fundamental
9647.970	49.8	V	54.0	-4.2	AVG	121	1.0	
9647.970	52.8	V	74.0	-21.2	PK	121	1.0	
4813.020	37.0	V	54.0	-17.0	AVG	78	1.0	
4813.020	44.2	V	74.0	-29.8	PK	78	1.0	
1884.500	23.1	V	54.0	-30.9	AVG	210	1.0	
1884.500	35.3	V	74.0	-38.7	PK	210	1.0	

802.11 B, 2437 MHz



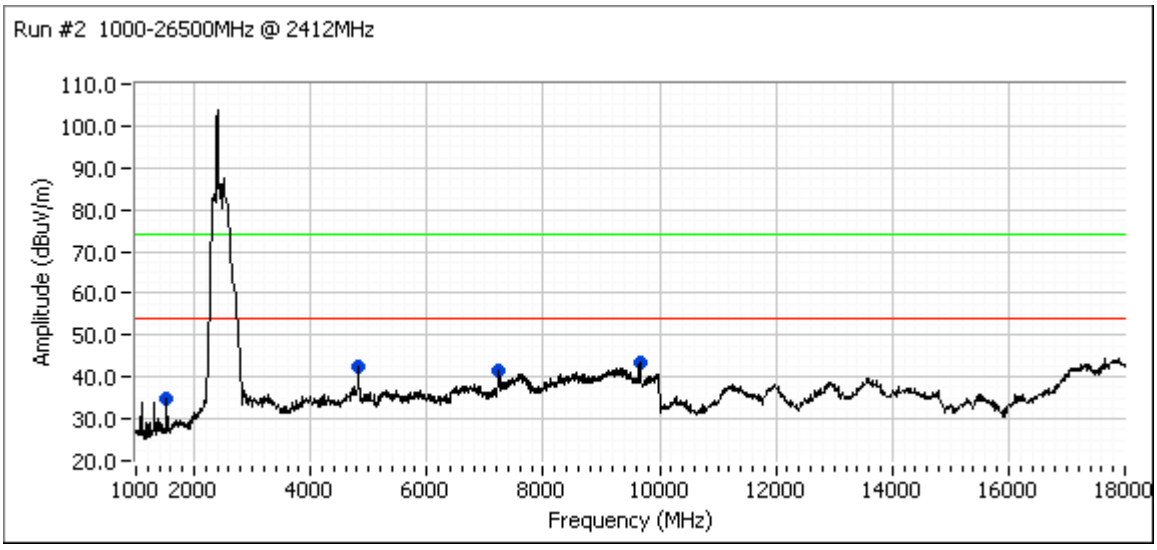
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2437.980	114.6	V	54.0	60.6	AVG	351	1.2	Fundamental
2437.980	117.7	V	74.0	43.7	PK	351	1.2	Fundamental
2438.060	96.2	H	54.0	42.2	AVG	322	1.0	Fundamental
2438.060	99.2	H	74.0	25.2	PK	322	1.0	Fundamental
4873.990	49.3	V	54.0	-4.7	AVG	0	1.3	
4873.990	51.7	V	74.0	-22.3	PK	0	1.3	
1539.990	35.1	V	54.0	-18.9	AVG	80	1.0	
1539.990	38.7	V	74.0	-35.3	PK	80	1.0	
9747.940	51.2	V	54.0	-2.8	AVG	327	1.3	
9747.940	53.4	V	74.0	-20.6	PK	327	1.3	

802.11 B, 2462 MHz



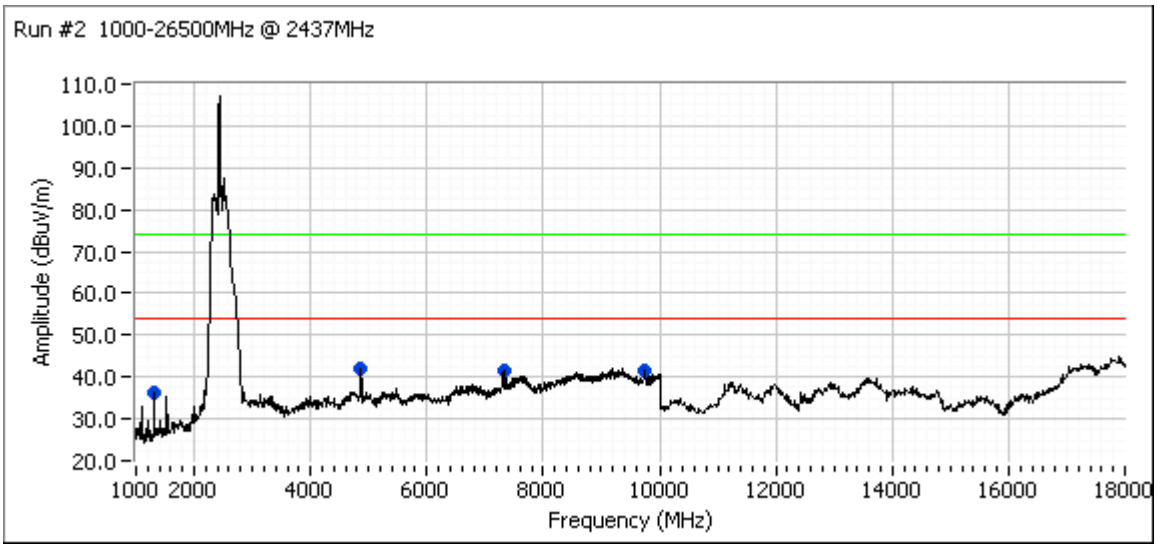
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2463.390	114.3	V	54.0	60.3	AVG	360	1.0	Fundamental
2463.390	117.3	V	74.0	43.3	PK	360	1.0	Fundamental
2463.060	96.2	H	54.0	42.2	AVG	69	1.0	Fundamental
2463.060	99.4	H	74.0	25.4	PK	69	1.0	Fundamental
9867.940	43.9	V	54.0	-10.1	AVG	4	1.0	
9867.940	49.2	V	74.0	-24.8	PK	4	1.0	
4923.050	34.4	V	54.0	-19.6	AVG	54	1.0	
4923.050	42.2	V	74.0	-31.8	PK	54	1.0	
1539.950	34.6	V	54.0	-19.4	AVG	82	1.0	
1539.950	39.2	V	74.0	-34.8	PK	82	1.0	

802.11 G, 2412 MHz



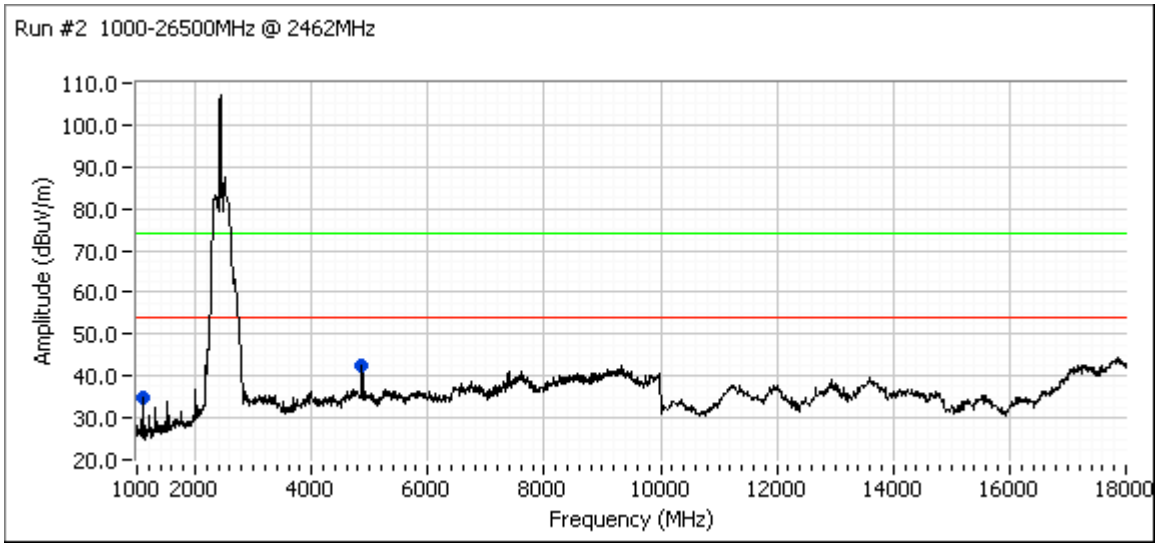
Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2410.930	111.1	V	54.0	57.1	AVG	0	1.0	Fundamental
2410.930	119.5	V	74.0	45.5	PK	0	1.0	Fundamental
2410.560	93.1	H	54.0	39.1	AVG	319	1.0	Fundamental
2410.560	101.5	H	74.0	27.5	PK	319	1.0	Fundamental
9656.870	39.4	V	54.0	-14.6	AVG	330	1.3	
9656.870	51.6	V	74.0	-22.4	PK	330	1.3	
4827.540	36.9	V	54.0	-17.1	AVG	258	1.3	
4827.540	49.5	V	74.0	-24.5	PK	258	1.3	
7234.940	33.7	V	54.0	-20.3	AVG	338	1.3	
7234.940	47.2	V	74.0	-26.8	PK	338	1.3	
1539.950	35.7	V	54.0	-18.3	AVG	85	1.0	
1539.950	39.5	V	74.0	-34.5	PK	85	1.0	

802.11 G, 2437 MHz



Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2435.780	112.0	V	54.0	58.0	AVG	0	1.0	Fundamental
2435.780	120.5	V	74.0	46.5	PK	0	1.0	Fundamental
2436.230	93.5	H	54.0	39.5	AVG	328	1.0	Fundamental
2436.230	102.2	H	74.0	28.2	PK	328	1.0	Fundamental
7315.230	35.8	V	54.0	-18.2	AVG	277	1.3	
7315.230	47.4	V	74.0	-26.6	PK	277	1.3	
9746.130	36.6	V	54.0	-17.4	AVG	123	1.0	
9746.130	48.2	V	74.0	-25.8	PK	123	1.0	
1320.170	34.6	V	54.0	-19.4	AVG	75	1.0	
1320.170	39.4	V	74.0	-34.6	PK	75	1.0	
4871.210	36.5	V	54.0	-17.5	AVG	326	1.3	
4871.210	49.2	V	74.0	-24.8	PK	326	1.3	

802.11 G, 2462 MHz

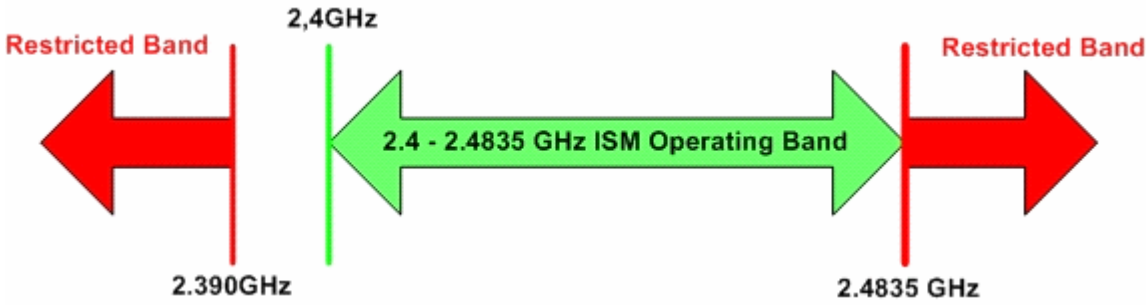


Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2461.290	112.8	V	54.0	58.8	AVG	360	1.0	Fundamental
2461.290	121.3	V	74.0	47.3	PK	360	1.0	Fundamental
2462.820	95.2	H	54.0	41.2	AVG	44	1.0	Fundamental
2462.820	104.7	H	74.0	30.7	PK	44	1.0	Fundamental
4923.000	36.6	V	54.0	-17.4	AVG	266	1.0	
4923.000	48.5	V	74.0	-25.5	PK	266	1.0	
1310.770	22.0	V	54.0	-32.0	AVG	77	1.0	
1310.770	33.5	V	74.0	-40.5	PK	77	1.0	

Radiated Emissions in Restricted bands (2.4 GHz Band Edges)

FCC Specifications: Paragraph 15.247(c)

Procedure (Direct Measurement Method)

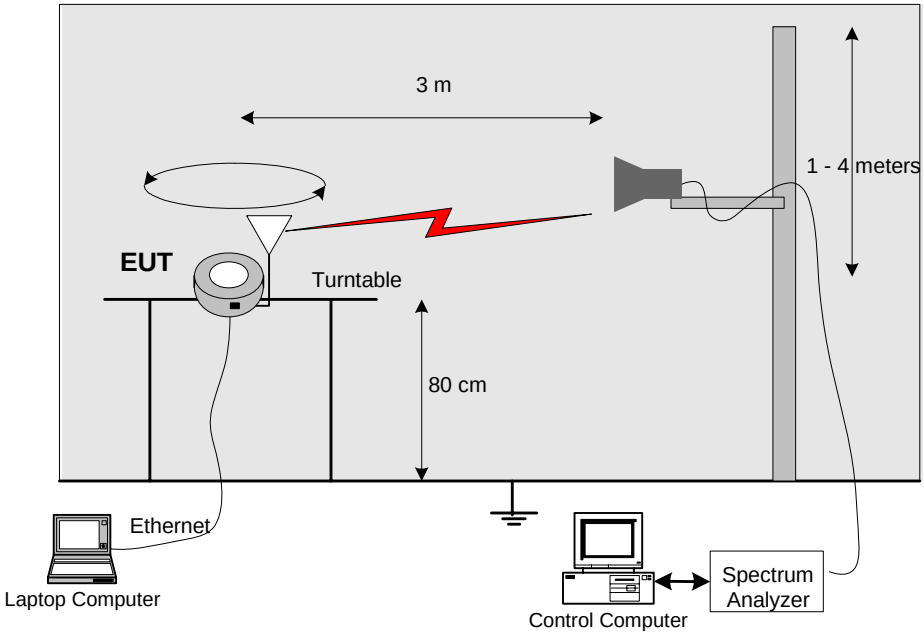


There are restricted bands that begin immediately at the high end of the operating band (2483.5MHz) and another that begins 10 MHz below the low end of the operating band (2390MHz).

The level of the radiated emissions within these bands was measured directly in a typical radiated emissions test setup as shown below.

The spectrum analyzer span was centered on the edge of the restricted band. The radiated level was measured directly using the bandwidths below.
PEAK: RBW: 1 MHz VBW: 1MHz
AVG: RBW: 1 MHz VBW: 10Hz

The turntable was rotated and the antenna height adjusted from1 - 4 meters in order to maximize the emissions level. Once the signal level was maximized, the PEAK and AVG levels was recorded.



Results Summary Table (2.4 GHz 802.11 B & G, PK & AVG, VERT & HORZ)

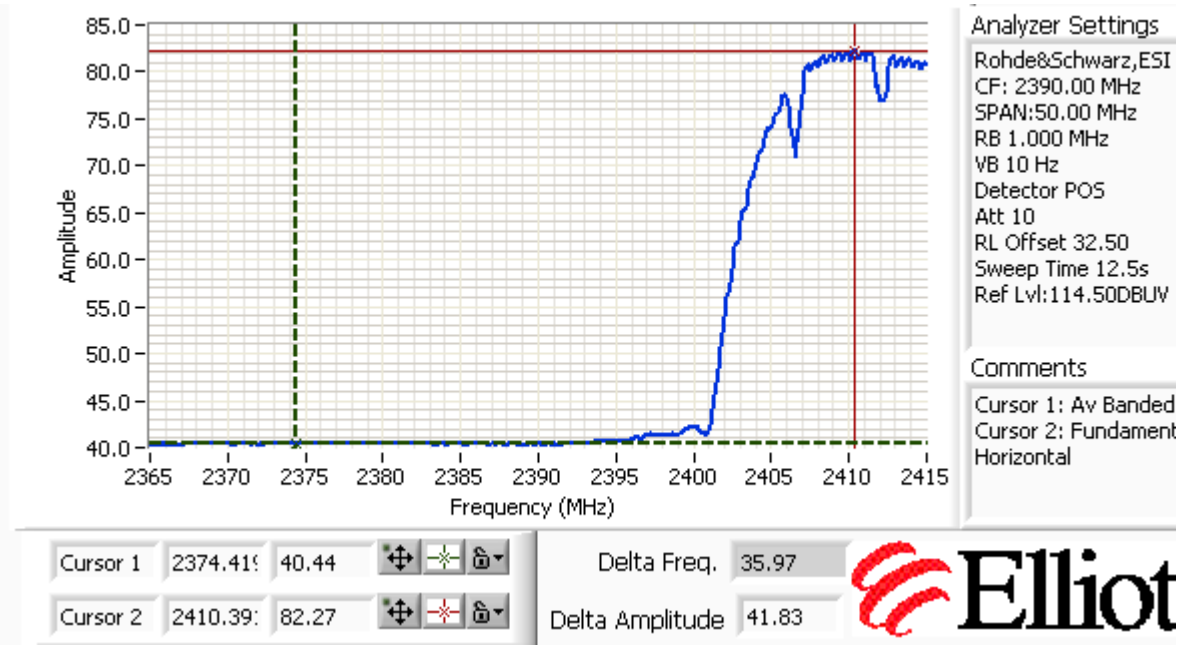
802.11 B Band Edge (Restricted band @ 2.390GHz)						
Pol	Radiated Level at Band Edge		Specification		Delta (dB below Limit)	
	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m
Vert	62.12	45.54	74	54	**11.88**	**8.46**
Horz	54	40.44			**20**	**13.56**

802.11 B Band Edge (Restricted band @ 2.4835GHz)						
Pol	Radiated Level at Band Edge		Specification		Delta (dB below Limit)	
	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m
Vert	57.29	44.11	74	54	**16.71**	**9.89**
Horz	54.05	40.32			**19.95**	**13.68**

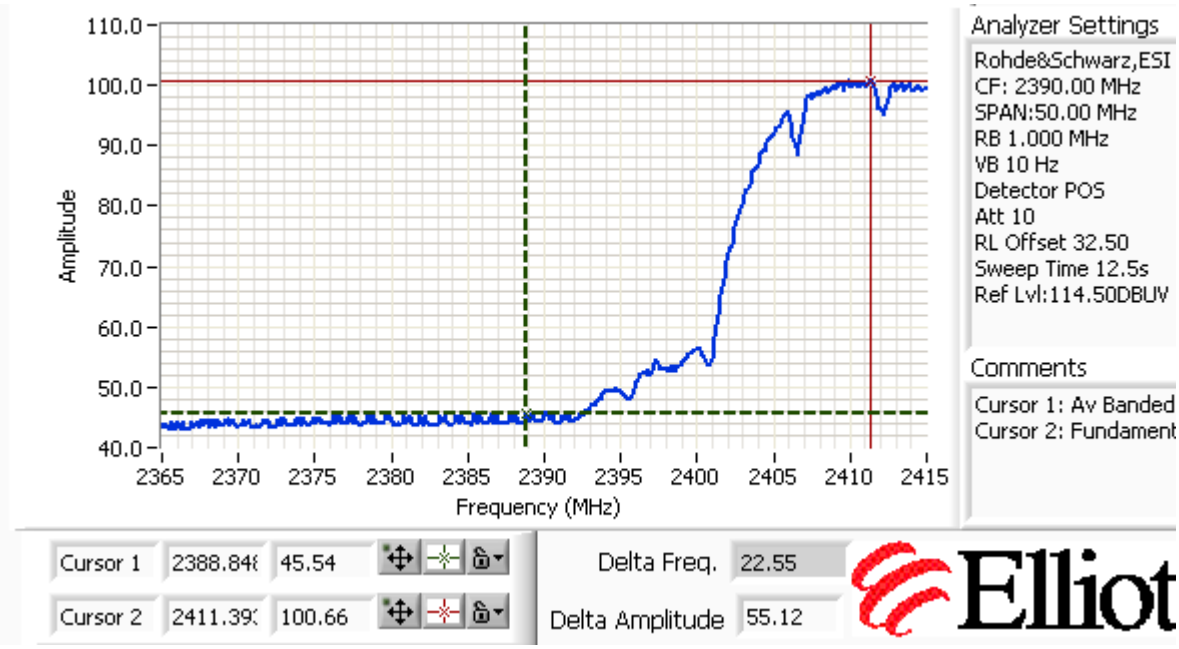
802.11 G Band Edge (Restricted band @ 2.390GHz)						
Pol	Radiated Level at Band Edge		Specification		Delta (dB below Limit)	
	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m
Vert	66.99	45.88	74	54	**7.01**	**8.12**
Horz	54.87	40.39			**19.13**	**13.61**

802.11 G Band Edge (Restricted band @ 2.4835GHz)						
Pol	Radiated Level at Band Edge		Specification		Delta (dB below Limit)	
	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m	Peak dBuv/m	Avg dBuv/m
Vert	64.04	46.88	74	54	**9.96**	**7.12**
Horz	54.31	40.69			**19.69**	**13.31**

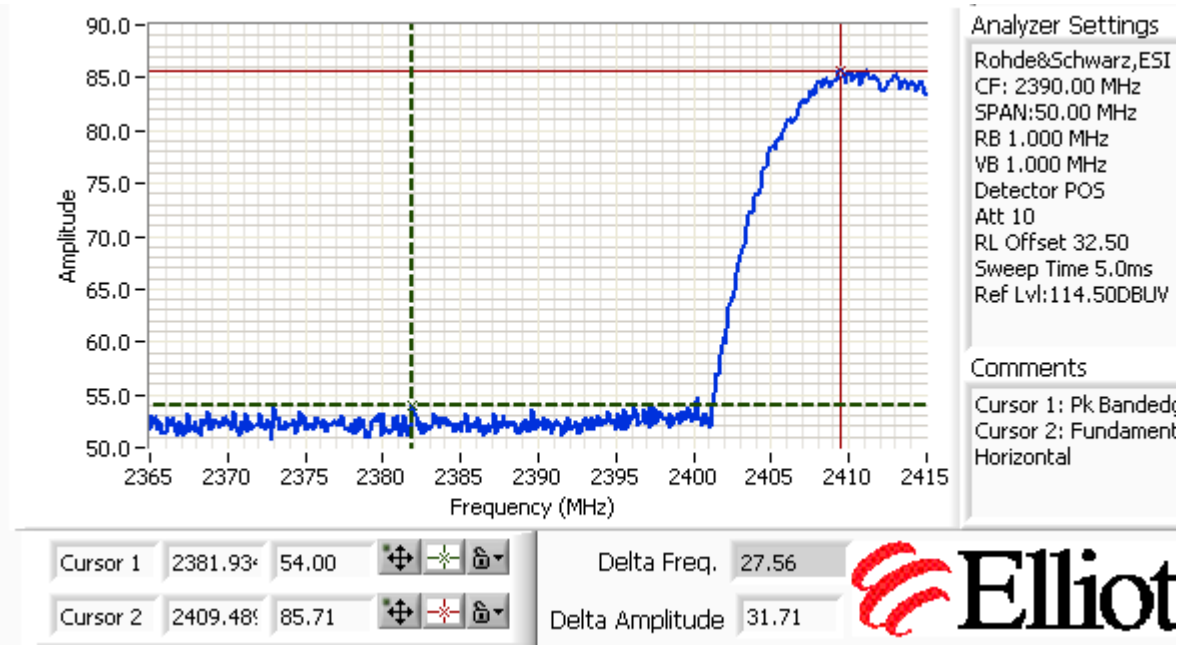
802.11 B
2390, AVG,
HORZ



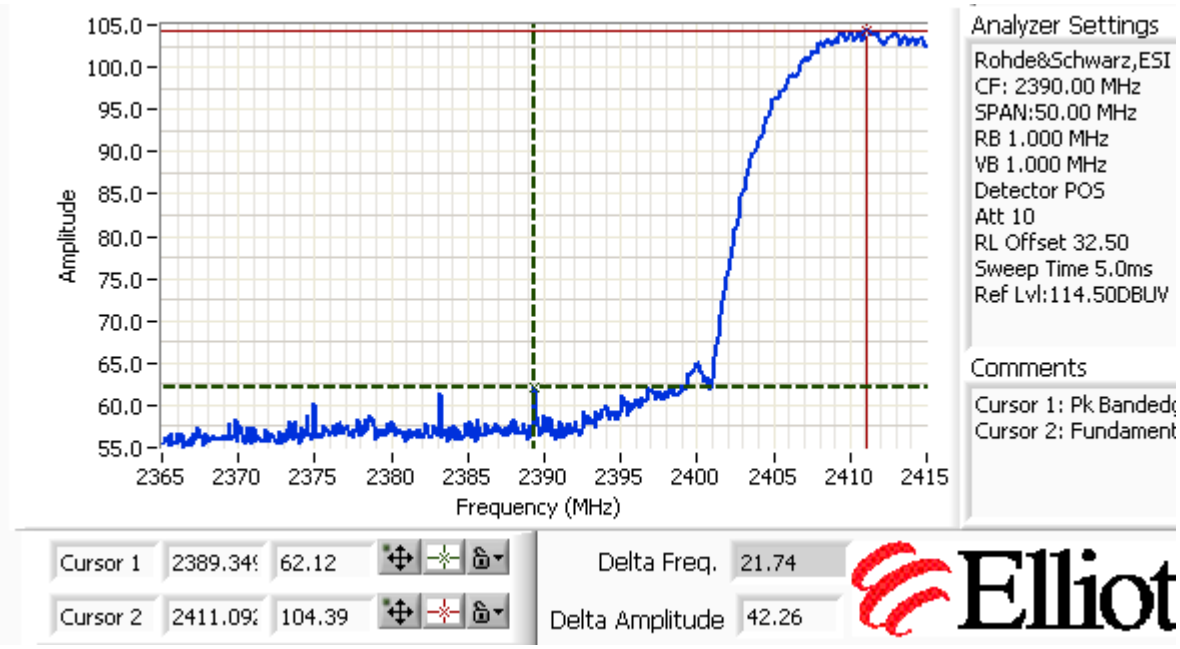
802.11 B
2390, AVG,
VERT



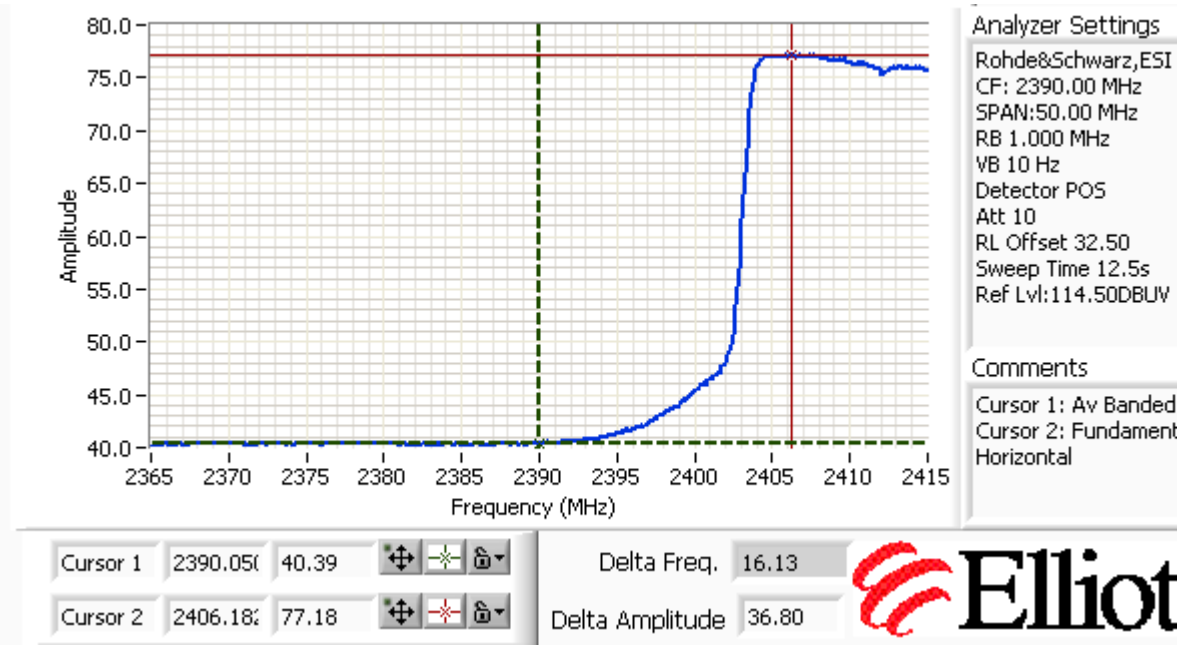
802.11 B
2390, PEAK,
HORZ



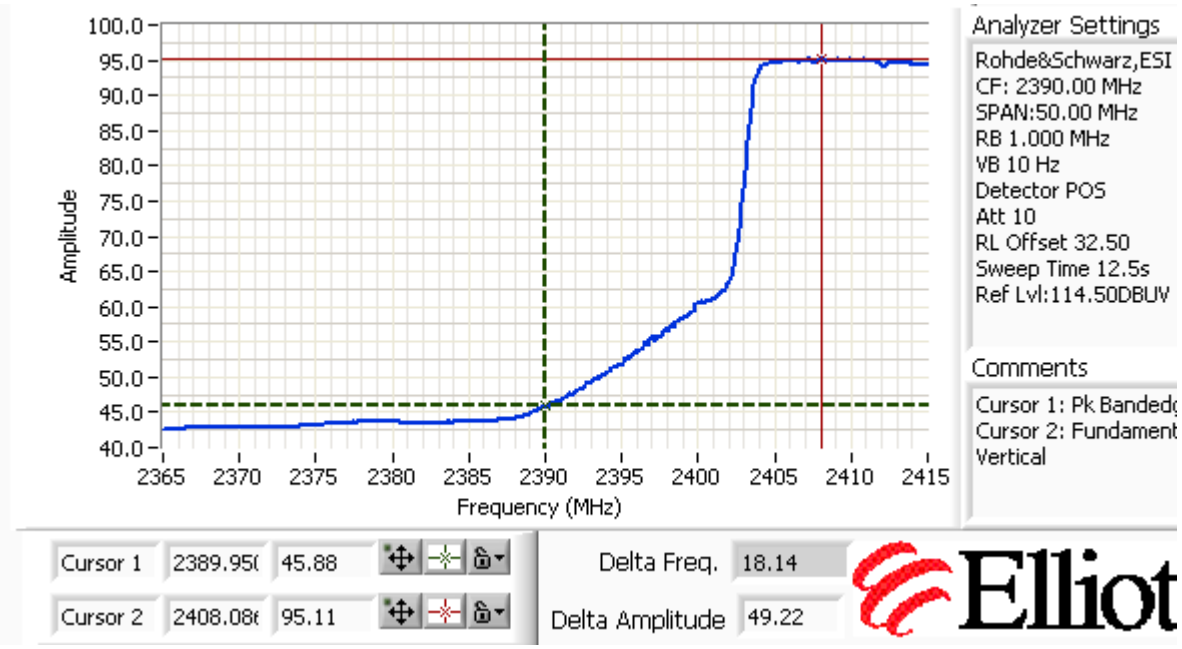
802.11 B
2390,PEAK,
VERT



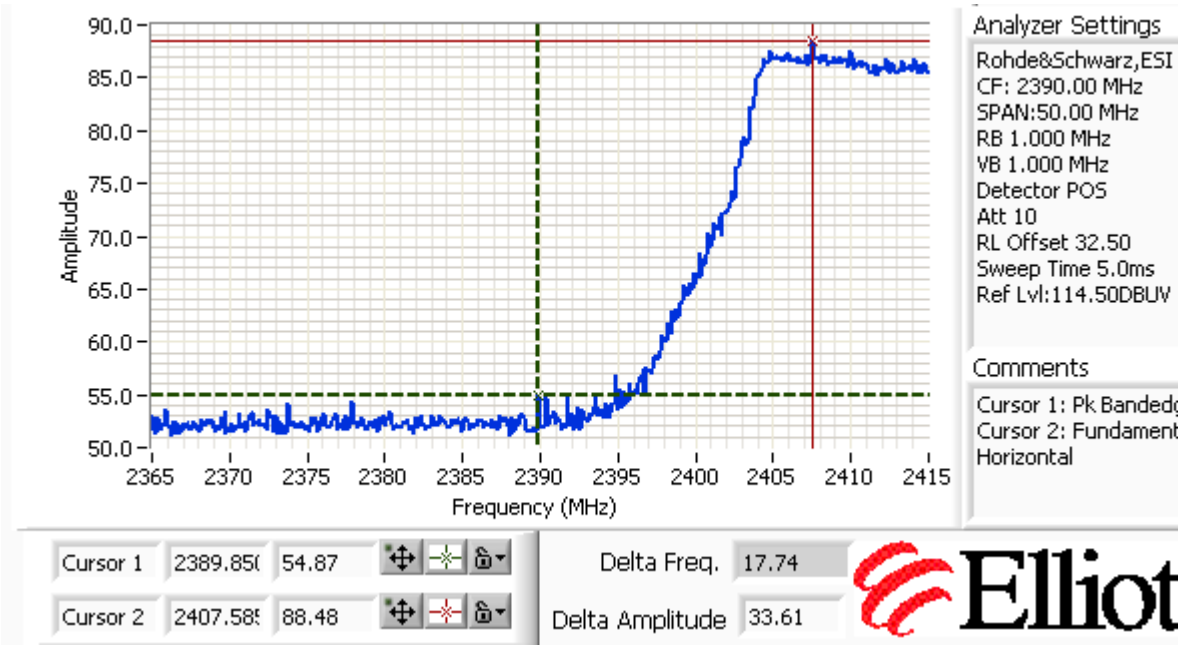
802.11 G
2390, AVG,
HORZ



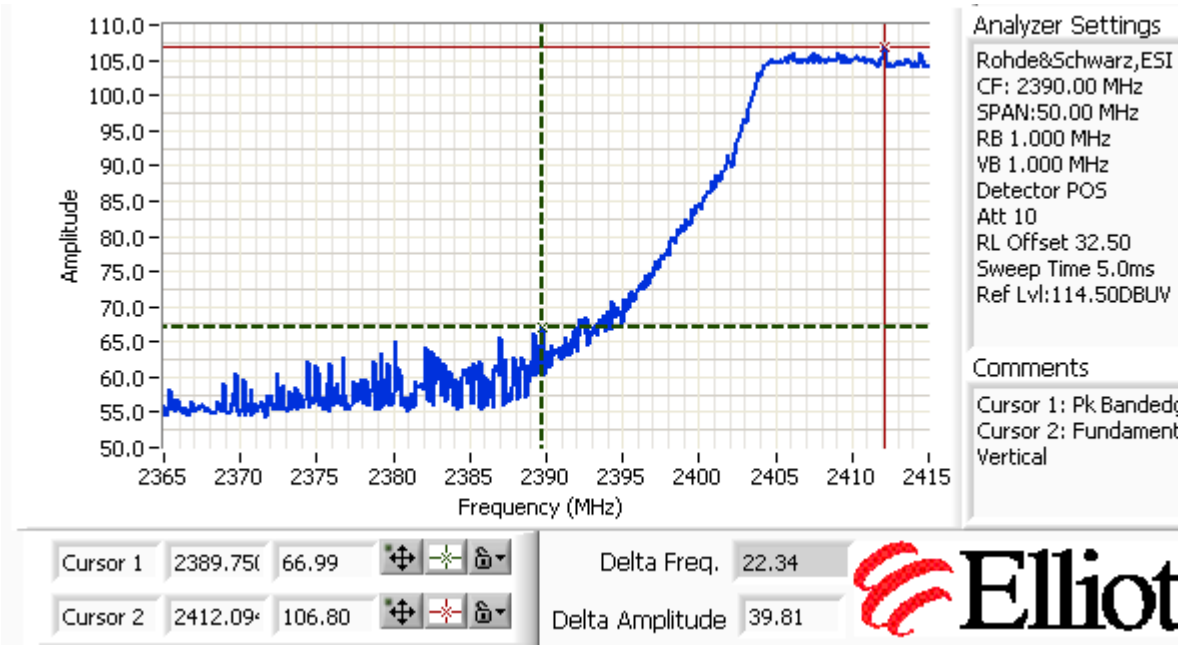
802.11 G
2390 AVG,
VERT



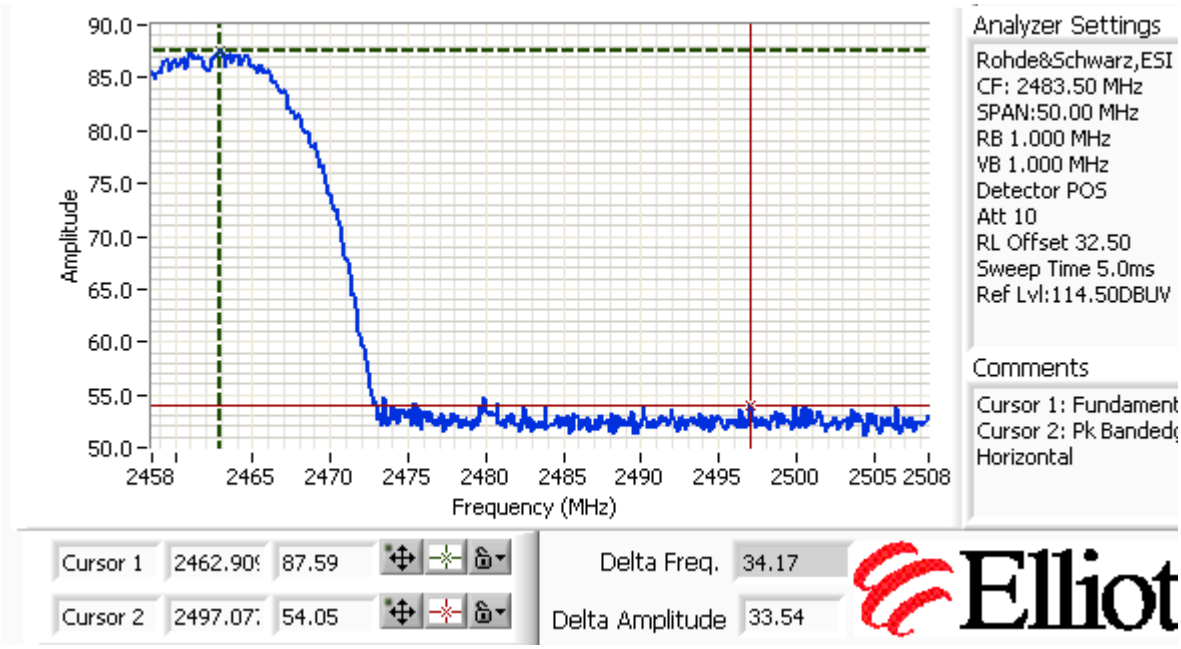
802.11 G
2390, PEAK,
HORZ



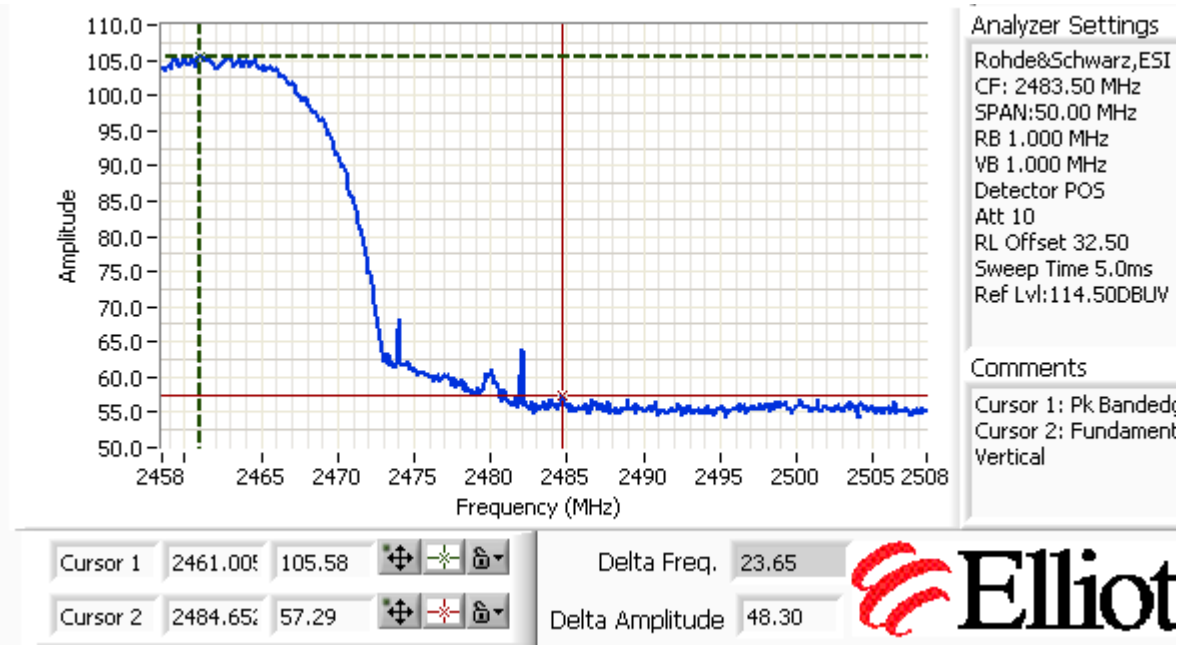
802.11 G
2390 PEAK,
VERT



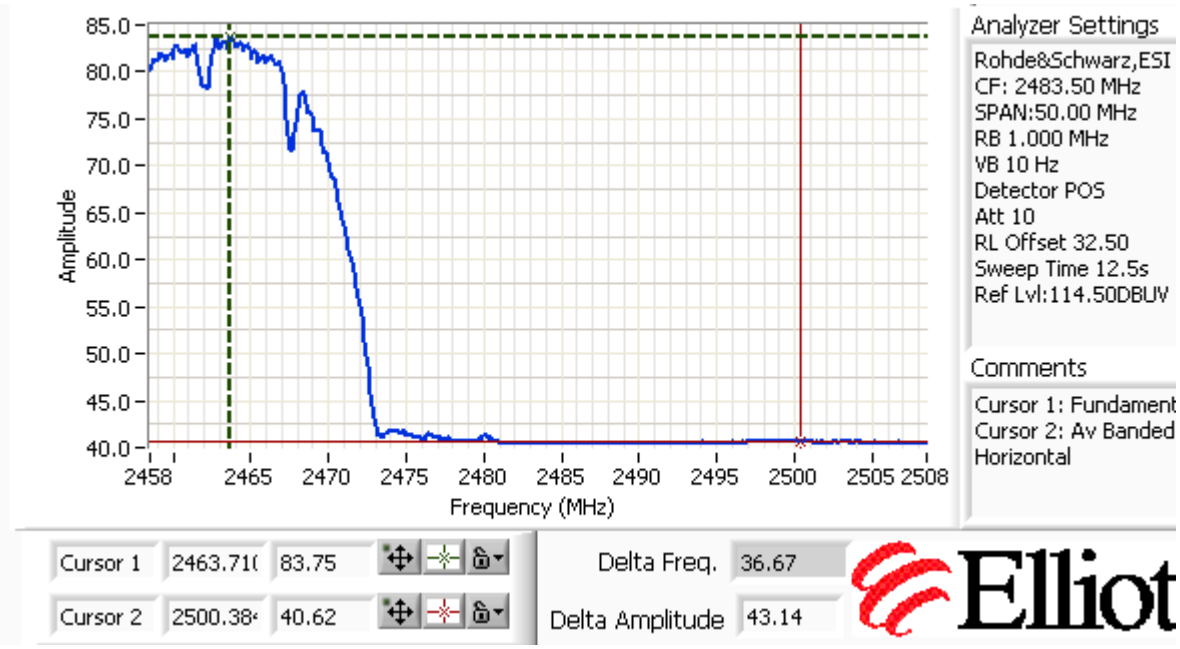
802.11 B
2483.5,
PEAK, HORZ



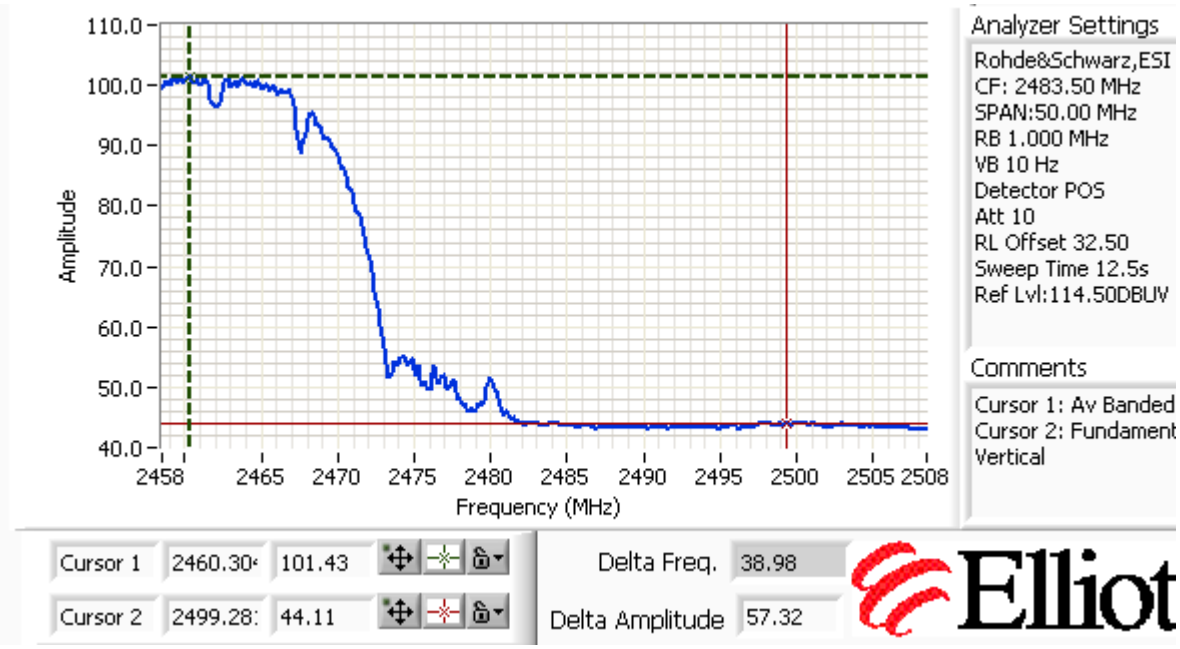
802.11 B
2483.5,
PEAK, VERT



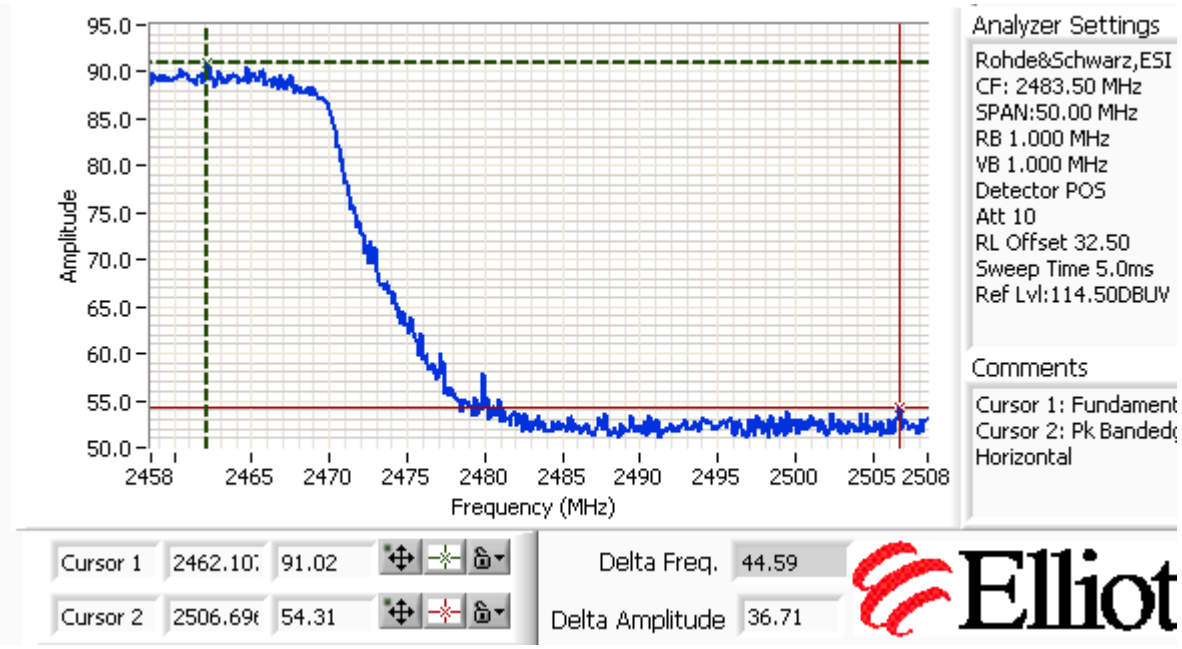
802.11 B
2483.5, AVG,
HORZ



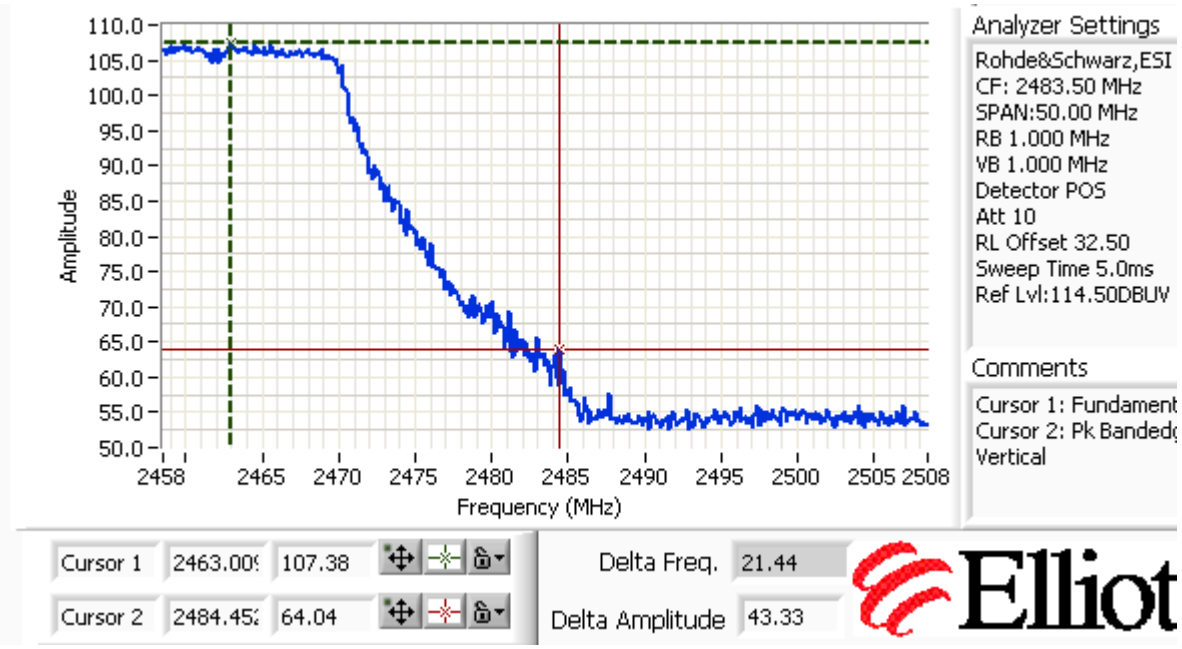
802.11 B
2483.5, AVG,
VERT



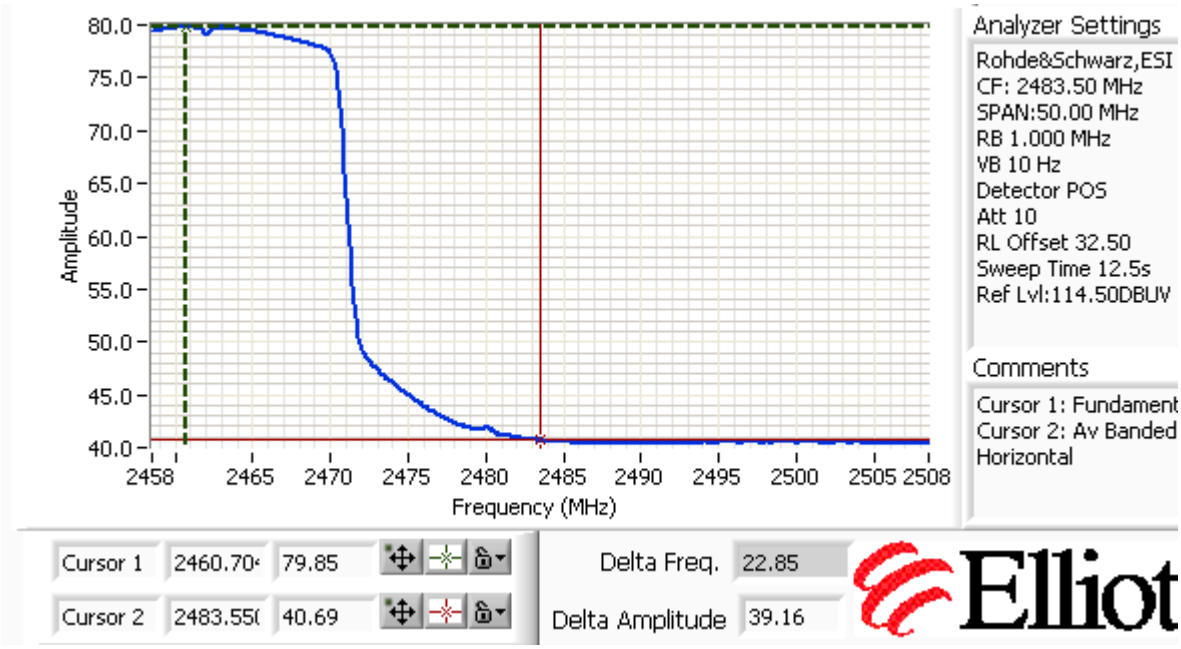
802.11 G
2483.5, PEAK,
HORZ



802.11 G
2483.5, PEAK,
VERT



802.11 G
2483.5, AVG,
HORZ



802.11 G
2483.5,
AVG, VERT