MET Laboratories, Inc. *Safety Certification - EMI - Telecom Environmental Simulation*
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February 10, 2012

Firetide, Inc.
140 Knowles Drive
Los Gatos, CA 95032

Dear Suresh Kumar,

Enclosed is the EMC Wireless test report for compliance testing of the Firetide, Inc., FT 5900 Wireless Mesh Node as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Part 15, Subpart B, ICES-003, Issue 4 February 2004 for a Class A Digital Device and FCC Part 15 Subpart C, RSS-210, Issue 8, Dec. 2010 for Intentional Radiators.

Thank you for using the services of MET Laboratories, Inc. If you have any questions regarding these results or if MET can be of further service to you, please feel free to contact me.

Sincerely yours,
MET LABORATORIES, INC.

Jennifer Warnell
Documentation Department

Reference: (\Firetide, Inc.\EMCS33266A-FCC247 Rev. 1)

Electromagnetic Compatibility Criteria
Test Report

for the

Firetide, Inc.
FT 5900 Wireless Mesh Node

Tested under
the FCC Certification Rules
contained in
Title 47 of the CFR, Parts 15 Subpart B & ICES-003
for Class A Digital Devices
&
15.247 Subpart C & RSS-210, Issue 8, Dec. 2010
for Intentional Radiators

MET Report: EMCS33266A-FCC247 Rev. 1

February 10, 2012

Prepared For:

Firetide, Inc.
140 Knowles Drive
email invoices

Los Gatos, CA 95032

Prepared By:
MET Laboratories, Inc.
3162 Belick St.
Santa Clara, CA 95054

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for Intentional Radiators

Anderson Soungpanya, Project Engineer
Electromagnetic Compatibility Lab

Jennifer Warnell
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules Parts 15B, 15.247 and Industry Canada standards ICES-003, Issue 4 February 2004, RSS-210, Issue 8, Dec. 2010 under normal use and maintenance.

Shawn McMillen,
Wireless Manager, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	January 8, 2012	Initial Issue.
1	February 10, 2012	Revised to reflect engineer corrections.

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List of Terms and Abbreviations

AC	**A**lternating **C**urrent
ACF	**A**ntenna **C**orrection **F**actor
Cal	**Cal**ibration
d	**M**easurement **D**istance
dB	**D**eci**b**els
dBµA	**D**eci**b**els above one **micro**amp
dBµV	**D**eci**b**els above one **micro**volt
dBµA/m	**D**eci**b**els above one **micro**amp **per m**eter
dBµV/m	**D**eci**b**els above one **micro**volt **per m**eter
DC	**D**irect **C**urrent
E	**E**lectric Field
DSL	**D**igital **S**ubscriber **L**ine
ESD	**E**lectro**s**tatic **D**ischarge
EUT	**E**quipment **U**nder **T**est
f	**F**requency
FCC	**F**ederal **C**ommunications **C**ommission
GRP	**G**round **R**eference **P**lane
H	Magnetic Field
HCP	**H**orizontal **C**oupling **P**lane
Hz	**H**ert**z**
IEC	**I**nternational **E**lectrotechnical **C**ommission
kHz	**k**ilo**h**ert**z**
kPa	**k**ilo**pa**scal
kV	**k**ilo**v**olt
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
MHz	**M**ega**h**ertz
µH	**microh**enry
µ	**microf**arad
µs	**micros**econds
NEBS	**N**etwork **E**quipment-**B**uilding **S**ystem
PRF	**P**ulse **R**epetition **F**requency
RF	**R**adio **F**requency
RMS	**R**oot-**M**ean-**S**quare
TWT	**T**raveling **W**ave **T**ube
V/m	**V**olts **per m**eter
VCP	**V**ertical **C**oupling **P**lane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Firetide, Inc. FT 5900 Wireless Mesh Node, with the requirements of Part 15, §15.247. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect. In accordance with §2.1033, the following data is presented in support of the Certification of the FT 5900 Wireless Mesh Node. Firetide, Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the FT 5900 Wireless Mesh Node, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, §15.247, in accordance with Firetide, Inc., purchase order number PO-3077. All tests were conducted using measurement procedure ANSI C63.4-2003.

FCC Reference 47 CFR Part 15.247:2005	IC Reference RSS-210 Issue 8: 2010; RSS-GEN Issue 3: 2010	Description	Compliance
47 CFR Part 15.107 (a)	ICES-003 Issue 4 February 2004	Conducted Emission Limits for a Class A Digital Device	Compliant
47 CFR Part 15.109 (a)	ICES-003 Issue 4 February 2004	Radiated Emission Limits for a Class A Digital Device	Compliant
Title 47 of the CFR, Part 15 §15.203	N/A	Antenna Requirement	Compliant
Title 47 of the CFR, Part 15 §15.207(a)	RSS-GEN (7.2.4)	Conducted Emission Limits	Compliant
Title 47 of the CFR, Part 15 §15.247(a)(2)	RSS-Gen(4.6)	6dB Occupied Bandwidth	Compliant
		99% Occupied Bandwidth	Compliant
Title 47 of the CFR, Part 15 §15.247(b)	RSS-210(A8.4)	Peak Power Output	Compliant
Title 47 of the CFR, Part 15 §15.247(d); §15.209; §15.205	RSS-210(A8.5)	Radiated Spurious Emissions Requirements	Compliant
Title 47 of the CFR, Part 15 §15.247(d)	RSS-210(A8.5)	RF Conducted Spurious Emissions Requirements	Compliant
Title 47 of the CFR, Part 15 §15.247(d)	RSS-210(A8.5)	RF Conducted Band Edge	Compliant
Title 47 of the CFR, Part 15; §15.247(e)	RSS-210(A8.2)	Peak Power Spectral Density	Compliant
Title 47 of the CFR, Part 15 §15.247(i)	RSS-Gen(5.6)	Maximum Permissible Exposure (MPE)	Compliant
N/A	RSS-Gen(4.10)	Receiver Spurious Emissions	Compliant

Table 1. Executive Summary of EMC Part 15.247 ComplianceTesting

II. Equipment Configuration

A. Overview

MET Laboratories, Inc. was contracted by Firetide, Inc. to perform testing on the FT 5900 Wireless Mesh Node, under Firetide, Inc.'s purchase order number PO-3077.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Firetide, Inc., FT 5900 Wireless Mesh Node.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	FT 5900 Wireless Mesh Node	
Model(s) Covered:	FT 5900 Wireless Mesh Node	
EUT Specifications:	Primary Power: 120 VAC, 60 Hz	
	FCC ID: REP-5900-1 IC: 4988A-5900	
	Type of Modulations:	OFDM
	Equipment Code:	DTS
	Peak RF Output Power:	2.4GHz: 28.58 dBm 5.8GHz: 26.773 dBm
	EUT Frequency Ranges:	2412-2462MHz 5745-5825MHz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35º C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Anderson Soungpanya	
Report Date(s):	February 10, 2012	

Table 2. EUT Summary Table

B. References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
CFR 47, Part 15, Subpart B	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
RSS-210, Issue 8, Dec. 2010	Low-power Licence-exempt Radiocommunications Devices (All Frequency Bands): Category I Equipment
RSS-GEN, Issue 3, Dec. 2010	General Requirements and Information for the Certification of Radio Apparatus
ICES-003, Issue 4 February 2004	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
ANSI C63.4:2003	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI/NCSL Z540-1-1994	Calibration Laboratories and Measuring and Test Equipment - General Requirements
ANSI/ISO/IEC 17025:2000	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2009	American National Standard for Testing Unlicensed Wireless Devices

Table 3. References

C. Test Site

All testing was performed at MET Laboratories, Inc., 3162 Belick St., Santa Clara, CA 95054. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a 5 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories.

D. Description of Test Sample

The Firetide, Inc. FT 5900 Wireless Mesh Node, Equipment Under Test (EUT), provide reliable Ethernet connectivity over a high performance, self-forming wireless mesh backbone. All nodes have an Ethernet port for connecting network devices or other networks to the wireless mesh. 5900 mesh features a dual radio solution with capability of operating in the 900 MHz spectrum on one radio while concurrently operating in the 2.4 GHz, 4.9 GHz (U.S. public safety licensed band) or 5 GHz frequency ranges on the other.

Photograph 1. Firetide, Inc. FT 5900 Wireless Mesh Node

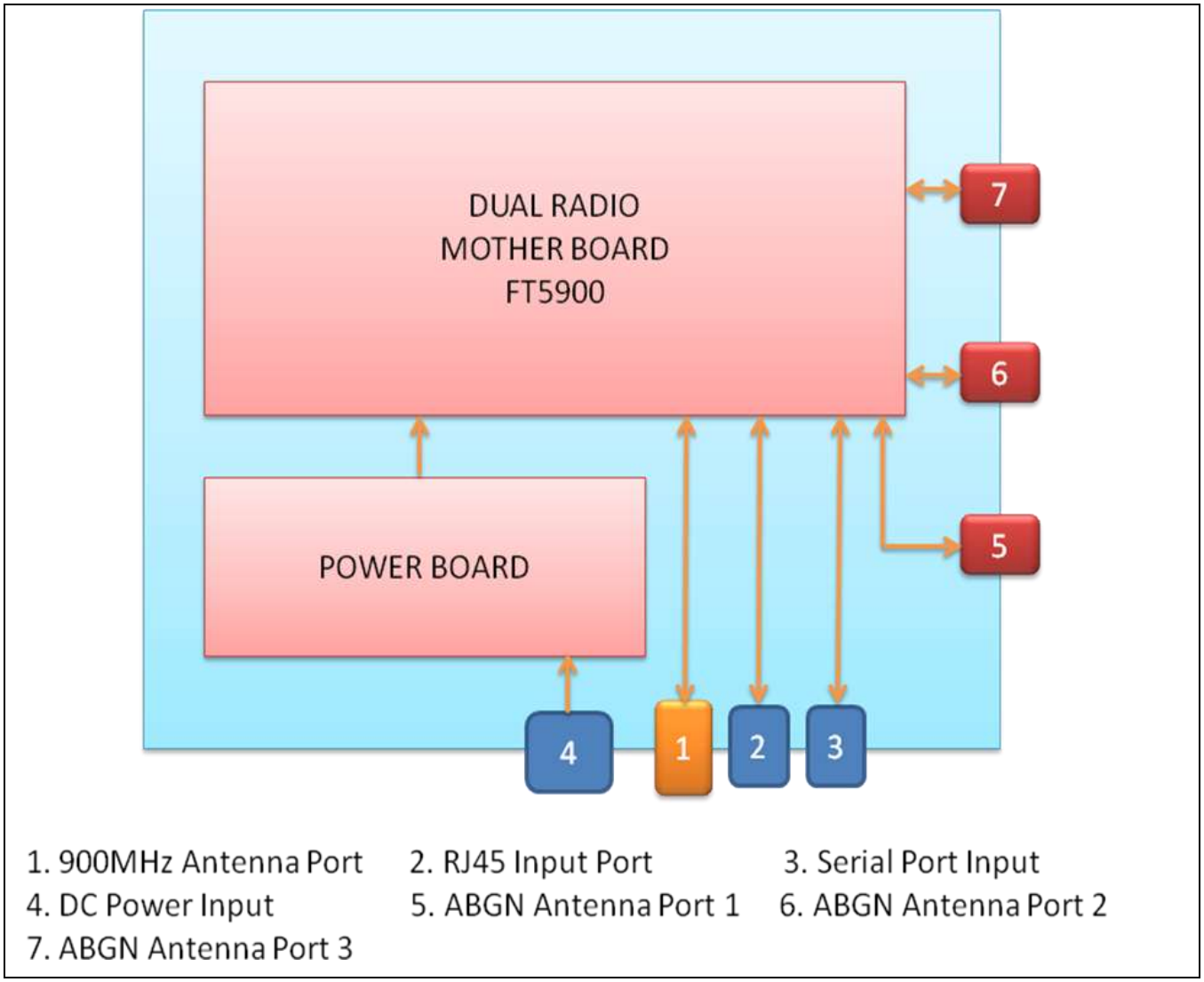


Figure 1. Block Diagram of Test Configuration

E. Equipment Configuration

The EUT was set up as outlined in Figure 1, Block Diagram of Test Setup. All cards, racks, etc., incorporated as part of the EUT is included in the following list.

Ref. ID	Name / Description	Model Number	Serial Number
1	Unit Enclosure	--	--
2	DC Power Board	GS260A12	EB14145528
3	Dual Radio Mother Board	FT5900	--
	8dBi Omni Antenna (2.4 GHz)	AO-024-MIMO-8	121
	5dBi Omni Antenna (2.4 GHz)	C812-510010-A	--
	9dBi Omni Antenna (5.8 GHz)	AO-050-MIMO-9	430
	15dBi Sector Antenna (5.8 GHz)	AS120-050-MIMO-15	327
	16dBi Panel Antenna (5.8 GHz)	AS90-050-MIMO-16-T	623

Table 4. Equipment Configuration

F. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Name / Description	Manufacturer	Model Number	Customer Supplied Calibration Data
External DC Adapter	Mean Well	GS60A12-P1J	NA
Laptop computer	Dell	vostro 1000	N/A

Table 5. Support Equipment

G. Ports and Cabling Information

Port name on EUT	Cable Description or reason for no cable	Qty.	Length (m)	Shielded? (Y/N)	Termination Box ID & Port ID
RJ45 Port	Ethernet Cable	1	--	N	Laptop
Serial Port	Serial Cable	1	--	Y	Laptop
DC Power Input Port	Power Cable	1	--	Y	DC Adapter

Table 6. Ports and Cabling Information

H. Mode of Operation

Once the DC power is applied on board LED indicates to mention that the unit is powered on properly. . Proper IP address should be set in the PC prior to the Ethernet cable connection. The Ethernet connectivity needs to be made by connecting an Ethernet cable. Once the connection is established, you can verify this in the PC's LAN connectivity status. Proper IP address should be set in the PC prior to the Ethernet cable connection.

Dual radio mode, both the radios will be enabled.

I. Method of Monitoring EUT Operation

FT5900 will be used for wireless mesh node application and all the FT5900 nodes connectivity will be monitored using a common server (PC or Laptop). The link connectivity can always be verified using the Firetide provided Software which will run on server PC or Laptop. If some connectivity is broken then we can verify this with Firetide software running on the server then we can take necessary action accordingly.

J. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

K. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Firetide, Inc. upon completion of testing.

III. Electromagnetic Compatibility Criteria for Unintentional Radiators

Electromagnetic Compatibility Criteria

§ 15.107 Conducted Emissions Limits

Test Requirement(s):

15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in Table 7. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

15.107 (b) For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in Table 7. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals. The lower limit applies at the band edges.

15.207(a), Except as shown in paragraphs (b) and (c) of this section*, charging, AC adapters or battery eliminators the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the Table 7, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency range (MHz)	Class A Conducted Limits (dBμV)		*Class B Conducted Limits (dBμV)	
	Quasi-Peak	Average	Quasi-Peak	Average
* 0.15- 0.45	79	66	66 - 56	56 - 46
0.45 - 0.5	79	66	56	46
0.5 - 30	73	60	60	50
Note 1 — The lower limit shall apply at the transition frequencies. Note 2 — The limit decreases linearly with the logarithm if the frequency in the range 0.15 MHz to 0.5 MHz. * -- Limits per Subsection 15.207(a).				

Table 7. Conducted Limits for Radio Frequency Devices calculated from FCC Part 15 Subsections 15.107(a) (b) and 15.207(a)

Test Results: The EUT was compliant with the Class A requirement(s) of this section. Measured emissions were below applicable limits.

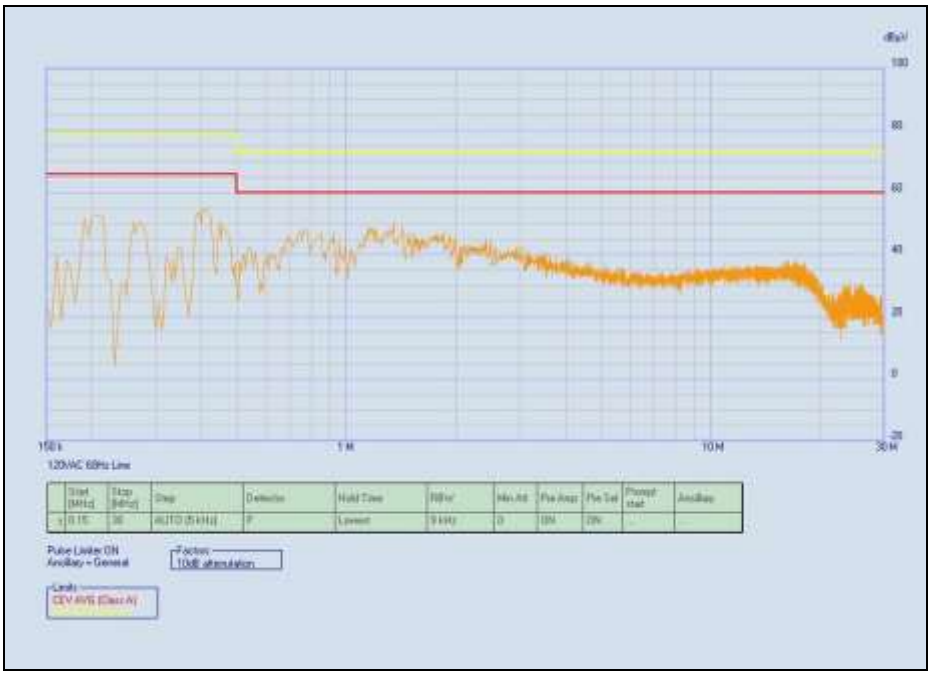
Test Engineer(s): Anderson Soungpanya

Test Date(s): 11/10/11

Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz)

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120VAC Line 60Hz	0.19	49.43	79	-29.57	Pass	32.49	66	-33.51	Pass
120VAC Line 60Hz	0.27	47.93	79	-31.07	Pass	35.37	66	-30.63	Pass
120VAC Line 60Hz	0.395	51.59	79	-27.41	Pass	35.38	66	-30.62	Pass
120VAC Line 60Hz	0.415	52.52	79	-26.48	Pass	36.21	66	-29.79	Pass
120VAC Line 60Hz	1.35	47.36	73	-25.64	Pass	34.56	60	-25.44	Pass

Table 8. Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz)

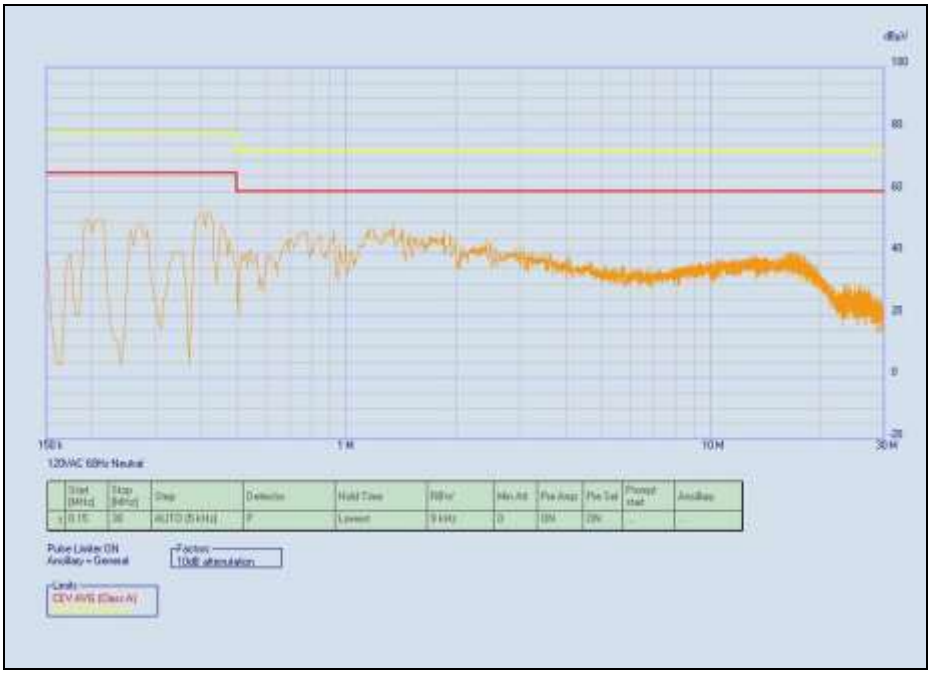


Plot 1. Conducted Emission, Phase Line Plot

Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz)

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120VAC Neutral 60Hz	0.195	39.87	79	-39.13	Pass	28.27	66	-37.73	Pass
120VAC Neutral 60Hz	0.27	46.89	79	-32.11	Pass	35.1	66	-30.9	Pass
120VAC Neutral 60Hz	0.405	51.45	79	-27.55	Pass	35.68	66	-30.32	Pass
120VAC Neutral 60Hz	0.42	51.42	79	-27.58	Pass	34.44	66	-31.56	Pass
120VAC Neutral 60Hz	0.455	46.93	79	-32.07	Pass	29.56	66	-36.44	Pass
120VAC Neutral 60Hz	1.35	44.87	73	-28.13	Pass	36.44	60	-23.56	Pass

Table 9. Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz)



Plot 2. Conducted Emission, Neutral Line Plot

Conducted Emission Limits Test Setup

Photograph 2. Conducted Emissions, Test Setup

Radiated Emission Limits

§ 15.109 Radiated Emissions Limits

Test Requirement(s): **15.109 (a)** Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the Class B limits expressed in Table 10.

15.109 (b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the Class A limits expressed in Table 10.

Frequency (MHz)	Field Strength (dBµV/m)	
	§15.109 (b), Class A Limit (dBµV) @ 10m	§15.109 (a),Class B Limit (dBµV) @ 3m
30 - 88	39.00	40.00
88 - 216	43.50	43.50
216 - 960	46.40	46.00
Above 960	49.50	54.00

Table 10. Radiated Emissions Limits calculated from FCC Part 15, §15.109 (a) (b)

Test Procedures: The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4 were used. An antenna was located 3 m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. Unless otherwise specified, measurements were made using a quasi-peak detector with a 120 kHz bandwidth.

Test Results: The EUT was compliant with the Class A requirement(s) of this section. Measured emissions were below applicable limits.

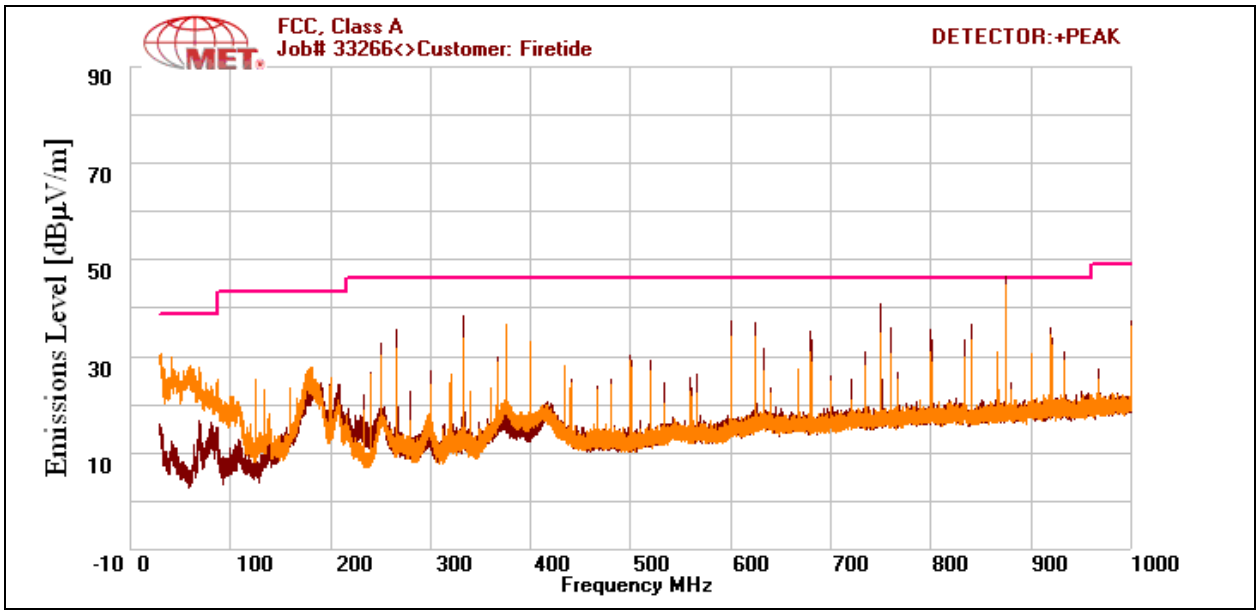
Test Engineer(s): Lionel Gabrillo

Test Date(s): 11/23/11

Radiated Emissions Limits Test Results, Class A

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBuV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
875	V	203.0	108.23	28.46	20.1	0	6.455	-10.46	44.555	46.4	-1.845
875	H	33.0	120.41	29.32	20.1	0	6.455	-10.46	45.415	46.4	-0.984
750	H	6.0	158.29	27.54	19.3	0	5.985	-10.46	42.365	46.4	-4.035
333.32	H	209.0	100.76	31.44	13.766	0	3.763	-10.46	38.509	46.4	-7.891
625	H	186.0	171.94	23.46	19.2	0	5.32	-10.46	37.52	46.4	-8.88
45.28	V	266.0	100.0	13.07	10.132	0	1.685	-10.46	14.427	39	-24.573

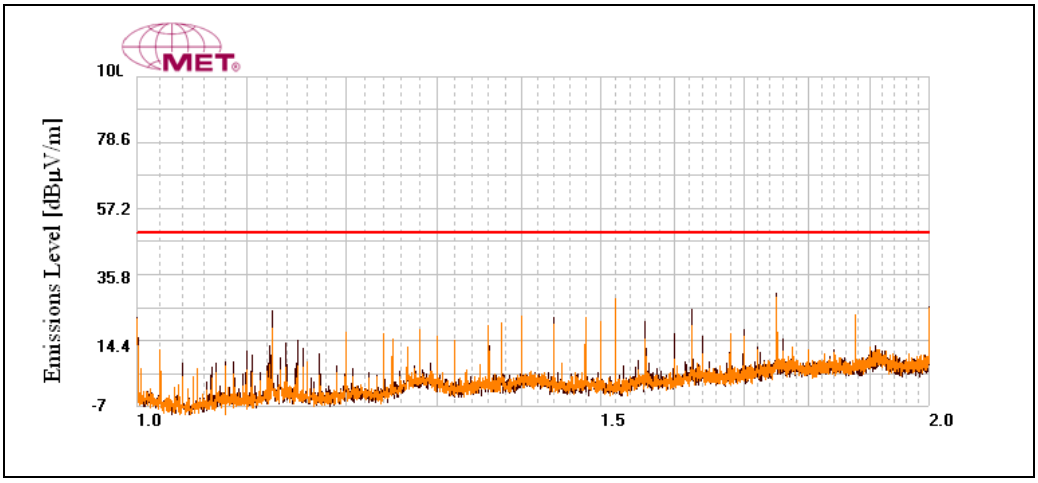
Table 11. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz, FCC Limits



Plot 3. Radiated Emissions, 30 MHz - 1 GHz, FCC Limits

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBuV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
1750	H	224.0	101.0	78.57	29.307	75.575	9.73	-10.46	31.572	49.5	-17.928
1520	V	257.0	102.94	86.14	28.396	75.856	9.086	-10.46	37.306	49.5	-12.194

Table 12. Radiated Emissions Limits, Test Results, 1 GHz – 2 GHz, FCC Limits

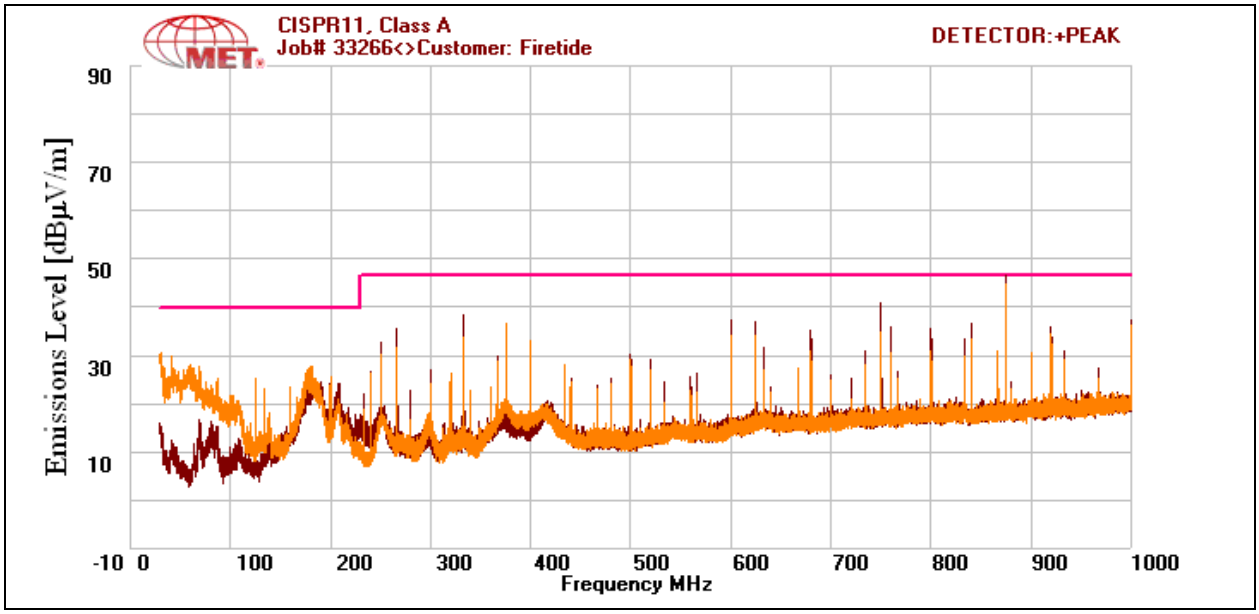


Plot 4. Radiated Emissions, 1 GHz - 2 GHz, FCC Limits

Radiated Emissions Limits Test Results, Class A

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBuV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBuV)	Limit (dBuV)	Margin (dB)
875	V	203.0	108.23	28.46	20.1	0	6.455	-10.46	44.555	47	-2.445
875	H	33.0	120.41	29.32	20.1	0	6.455	-10.46	45.415	47	-1.585
750	H	6.0	158.29	27.54	19.3	0	5.985	-10.46	42.365	47	-4.635
333.32	H	209.0	100.76	31.44	13.766	0	3.763	-10.46	38.509	47	-8.491
625	H	186.0	171.94	23.46	19.2	0	5.32	-10.46	37.52	47	-9.48
45.28	V	266.0	100.0	13.07	10.132	0	1.685	-10.46	14.427	40	-25.573

Table 13. Radiated Emissions Limits, Test Results, ICES-003 Limits



Plot 5. Radiated Emissions, ICES-003 Limits

Radiated Emission Limits Test Setup

Photograph 3. Radiated Emission, 30MHz – 1GHz, Test Setup

Photograph 4. Radiated Emission, 1GHz – 2GHz, Test Setup

IV. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.203 Antenna Requirement

Test Requirement: **§ 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The structure and application of the EUT were analyzed to determine compliance with Section 15.203 of the Rules. Section 15.203 states that the subject device must meet at least one of the following criteria:

a.) Antenna must be permanently attached to the unit.

b.) Antenna must use a unique type of connector to attach to the EUT.

c.) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

Results: The EUT as tested is compliant the criteria of §15.203. The device is professionally installed.

Test Engineer(s): Anderson Soungpanya

Test Date(s): 11/07/11

Gain	Type	Model	Manufacturer
5dBi	Omni (2.4GHz)	C812-510010-A	Mars Antennas
8dBi	Omni (2.4GHz)	AO-024-MIMO-8	Firetide
9dBi	Omni (5.8 GHz)	AO-050-MIMO-9	Firetide
15 dBi	Sector (5.8 GHz)	AO-050-MIMO-15	Firetide
16 dBi	Panel (5.8 GHz)	AO-050-MIMO-16-T	Firetide

Table 14. Antenna List

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.207(a) Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dBμV)	
	Quasi-Peak	Average
* 0.15- 0.45	66 - 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

Table 15. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Test Procedure: The EUT was placed on a 0.8 m-high wooden table inside a screen room. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω/50 μH Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.4-2003 "Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40 GHz"*. The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω/50 μH LISN as the input transducer to an EMC/field intensity meter. For the purpose of this testing, the transmitter was turned on. Scans were performed with the transmitter on.

Test Results: The EUT was compliant with this requirement. Measured emissions were below applicable limits.

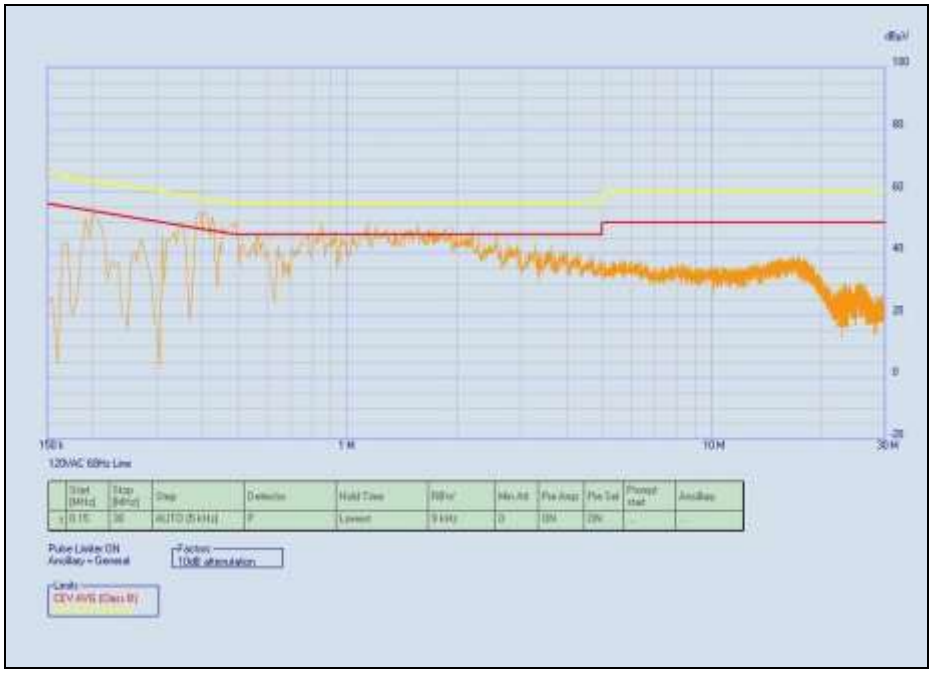
Test Engineer(s): Anderson Soungpanya

Test Date(s): 11/10/11

15.207(a) Conducted Emissions Test Results

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120VAC Line 60Hz	.200	49.89	63.617	-13.727	Pass	39.77	53.617	-13.847	Pass
120VAC Line 60Hz	.405	50.8	57.773	-6.973	Pass	35.55	47.773	-12.223	Pass
120VAC Line 60Hz	.495	47.14	56.086	-8.946	Pass	29.44	46.086	-16.646	Pass
120VAC Line 60Hz	.855	46.06	56	-9.94	Pass	29.65	46	-16.35	Pass
120VAC Line 60Hz	.925	43.88	56	-12.12	Pass	29.36	46	-16.64	Pass
120VAC Line 60Hz	1.14	46.4	56	-9.6	Pass	29.96	46	-16.04	Pass
120VAC Line 60Hz	1.20	43.73	56	-12.27	Pass	29.48	46	-16.52	Pass
120VAC Line 60Hz	1.57	46.42	56	-9.58	Pass	33.71	46	-12.29	Pass
120VAC Line 60Hz	2.21	44.22	56	-11.78	Pass	33.24	46	-12.76	Pass
120VAC Line 60Hz	2.56	42.54	56	-13.46	Pass	33.66	46	-12.34	Pass

Table 16. Conducted Emissions, 15.207(a), Phase Line, Test Results

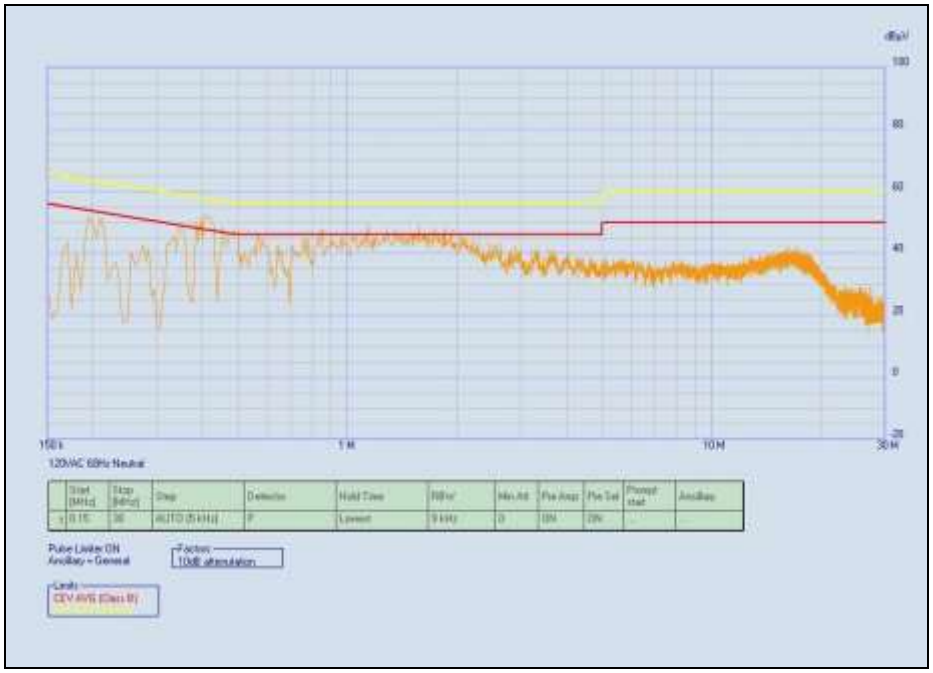


Plot 6. Conducted Emissions, 15.207(a), Phase Line

15.207(a) Conducted Emissions Test Results

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120VAC Neutral 60Hz	.195	49.23	63.827	-14.597	Pass	35.66	53.827	-18.167	Pass
120VAC Neutral 60Hz	.210	48.59	63.213	-14.623	Pass	36.21	53.213	-17.003	Pass
120VAC Neutral 60Hz	.350	46.4	58.982	-12.582	Pass	30.12	48.982	-18.862	Pass
120VAC Neutral 60Hz	.410	49.66	57.671	-8.011	Pass	34.09	47.671	-13.581	Pass
120VAC Neutral 60Hz	.570	42.55	56	-13.45	Pass	23.56	46	-22.44	Pass
120VAC Neutral 60Hz	1.14	45.3	56	-10.7	Pass	28.61	46	-17.39	Pass
120VAC Neutral 60Hz	1.57	45.56	56	-10.44	Pass	32.12	46	-13.88	Pass
120VAC Neutral 60Hz	1.85	44.99	56	-11.01	Pass	34.67	46	-11.33	Pass

Table 17. Conducted Emissions, 15.207(a), Neutral Line, Test Results



Plot 7. Conducted Emissions, 15.207(a), Neutral Line

15.207(a) Conducted Emissions Test Setup

Photograph 5. Conducted Emissions, 15.207(a), Test Setup, 2.4 GHz

Conducted Emissions, 15.207(a), Test Setup, 5 GHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(a)(2) 6 dB and 99% Bandwidth

Test Requirements: **§ 15.247(a)(2):** Operation under the provisions of this section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

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

Test Procedure: The transmitter was on and transmitting at the highest output power. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using a RBW approximately 1% of the total emission bandwidth, VBW > RBW. The 6 dB Bandwidth was measured and recorded. The measurements were performed on the low, mid and high channels.

Test Results The EUT was compliant with § 15.247 (a)(2).

The 6 dB and 99% Bandwidth was determined from the plots on the following pages.

Test Engineer(s): Anderson Soungpanya

Test Date(s): 11/07/11

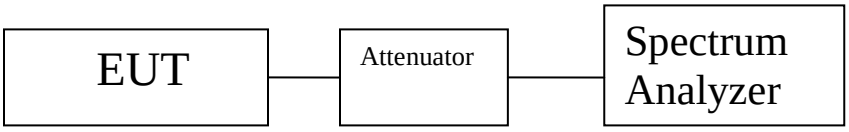


Figure 2. Block Diagram, Occupied Bandwidth Test Setup

Occupied Bandwidth Test Results, 2.4 GHz

Occupied Bandwidth			
Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured 6 dB Bandwidth (MHz)**
802.11b	Low	2412	11.086
	Mid	2437	10.141
	High	2462	10.075
802.11g	Low	2412	16.508
	Mid	2437	16.505
	High	2462	16.489
802.11n 5 MHz Port 1	Low	2412	4.092
	Mid	2437	4.126
	High	2462	4.108
802.11n 5 MHz Port 2	Low	2412	4.065
	Mid	2437	4.047
	High	2462	4.099
802.11n 5 MHz Port 3	Low	2412	4.091
	Mid	2437	4.142
	High	2462	4.016
802.11n 10 MHz Port 1	Low	2412	8.227
	Mid	2437	8.226
	High	2462	8.128
802.11n 10 MHz Port 2	Low	2412	8.083
	Mid	2437	8.153
	High	2462	8.184
802.11n 10 MHz Port 3	Low	2412	8.216
	Mid	2437	8.127
	High	2462	8.122
802.11n 20 MHz Port 1	Low	2412	17.758
	Mid	2437	17.683
	High	2462	17.699
802.11n 20 MHz Port 2	Low	2412	17.753
	Mid	2437	17.663
	High	2462	17.723
802.11n 20 MHz Port 3	Low	2412	17.732
	Mid	2437	17.752
	High	2462	17.724
802.11n 40 MHz Port 1	Low	2422	36.490
	Mid	2437	36.548
	High	2452	36.581
802.11n 40 MHz Port 2	Low	2422	36.568
	Mid	2437	36.554
	High	2452	36.603
802.11n 40 MHz Port 3	Low	2422	36.579
	Mid	2437	36.459
	High	2452	36.447

Table 18. 6 dB Occupied Bandwidth, Test Results, 2.4 GHz

Occupied Bandwidth			
Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured 99% Bandwidth (MHz)**
802.11b	Low	2412	15.2901
	Mid	2437	15.2516
	High	2462	15.1023
802.11g	Low	2412	16.3956
	Mid	2437	16.3943
	High	2462	16.4150
802.11n 5 MHz Port 1	Low	2412	4.0966
	Mid	2437	4.1285
	High	2462	4.0654
802.11n 5 MHz Port 2	Low	2412	4.0592
	Mid	2437	4.0790
	High	2462	4.1066
802.11n 5 MHz Port 3	Low	2412	4.1081
	Mid	2437	4.0989
	High	2462	4.1072
802.11n 10 MHz Port 1	Low	2412	8.1884
	Mid	2437	8.1786
	High	2462	8.0011
802.11n 10 MHz Port 2	Low	2412	8.2114
	Mid	2437	8.2077
	High	2462	8.2204
802.11n 10 MHz Port 3	Low	2412	8.2314
	Mid	2437	8.0685
	High	2462	8.1778
802.11n 20 MHz Port 1	Low	2412	17.7751
	Mid	2437	17.5877
	High	2462	17.5938
802.11n 20 MHz Port 2	Low	2412	17.6662
	Mid	2437	17.6527
	High	2462	17.7399
802.11n 20 MHz Port 3	Low	2412	17.7627
	Mid	2437	17.8687
	High	2462	17.6630
802.11n 40 MHz Port 1	Low	2422	36.5751
	Mid	2437	36.6025
	High	2452	36.0815
802.11n 40 MHz Port 2	Low	2422	36.7706
	Mid	2437	37.0454
	High	2452	36.5656
802.11n 40 MHz Port 3	Low	2422	37.0447
	Mid	2437	36.6817
	High	2452	36.7599

Table 19. 99% Occupied Bandwidth, Test Results, 2.4 GHz

Occupied Bandwidth Test Results, 5.8 GHz

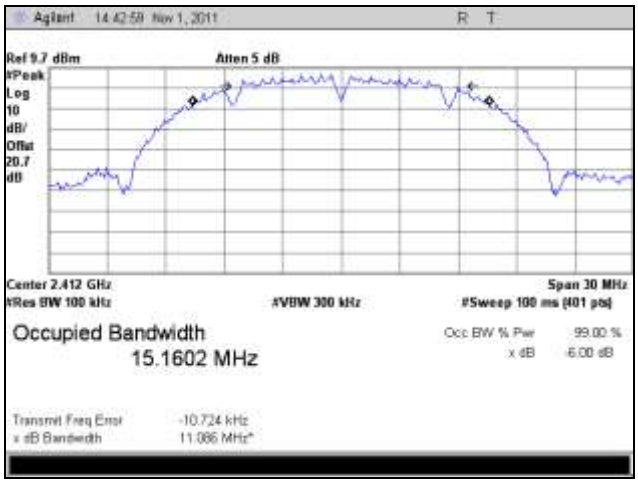
Occupied Bandwidth			
Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured 6 dB Bandwidth (MHz)**
802.11a	Low	5745	16.444
	Mid	5785	16.462
	High	5825	16.442
802.11n 5 MHz Port 1	Low	5745	4.124
	Mid	5785	4.050
	High	5825	4.098
802.11n 5 MHz Port 2	Low	5745	4.056
	Mid	5785	4.043
	High	5825	4.093
802.11n 5 MHz Port 3	Low	5745	4.065
	Mid	5785	4.127
	High	5825	4.075
802.11n 10 MHz Port 1	Low	5745	8.331
	Mid	5785	8.187
	High	5825	8.234
802.11n 10 MHz Port 2	Low	5745	8.049
	Mid	5785	8.206
	High	5825	8.101
802.11n 10 MHz Port 3	Low	5745	8.100
	Mid	5785	8.241
	High	5825	8.233
802.11n 20 MHz Port 1	Low	5745	17.714
	Mid	5785	17.678
	High	5825	17.686
802.11n 20 MHz Port 2	Low	5745	17.655
	Mid	5785	17.685
	High	5825	17.553
802.11n 20 MHz Port 3	Low	5745	17.667
	Mid	5785	17.723
	High	5825	17.731
802.11n 40 MHz Port 1	Low	5755	36.588
	High	5795	36.499
802.11n 40 MHz Port 2	Low	5755	36.461
	High	5795	36.542
802.11n 40 MHz Port 3	Low	5755	36.542
	High	5795	36.520

Table 20. 6 dB Occupied Bandwidth, Test Results, 5.8 GHz

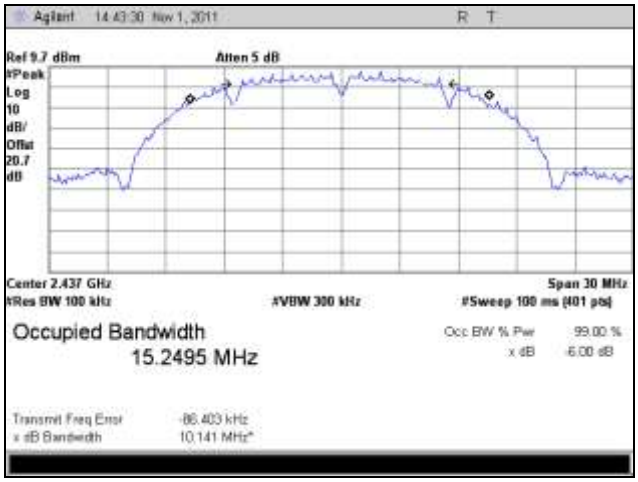
Occupied Bandwidth			
Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured 99% Bandwidth (MHz)**
802.11a	Low	5745	16.4483
	Mid	5785	16.4585
	High	5825	16.3043
802.11n 5 MHz Port 1	Low	5745	4.1175
	Mid	5785	4.1129
	High	5825	4.1486
802.11n 5 MHz Port 2	Low	5745	4.1450
	Mid	5785	4.1324
	High	5825	4.1129
802.11n 5 MHz Port 3	Low	5745	4.1278
	Mid	5785	4.1212
	High	5825	4.1123
802.11n 10 MHz Port 1	Low	5745	8.2208
	Mid	5785	8.2069
	High	5825	8.2633
802.11n 10 MHz Port 2	Low	5745	8.3162
	Mid	5785	8.2409
	High	5825	8.2599
802.11n 10 MHz Port 3	Low	5745	8.2203
	Mid	5785	8.1917
	High	5825	8.2235
802.11n 20 MHz Port 1	Low	5745	17.6485
	Mid	5785	17.6636
	High	5825	17.6004
802.11n 20 MHz Port 2	Low	5745	17.8707
	Mid	5785	17.8404
	High	5825	17.6453
802.11n 20 MHz Port 3	Low	5745	17.4822
	Mid	5785	17.5921
	High	5825	17.6603
802.11n 40 MHz Port 1	Low	5755	36.3512
	High	5795	36.7179
802.11n 40 MHz Port 2	Low	5755	37.0240
	High	5795	36.7683
802.11n 40 MHz Port 3	Low	5755	36.3732
	High	5795	36.6504

Table 21. 99% Occupied Bandwidth, Test Results, 5.8 GHz

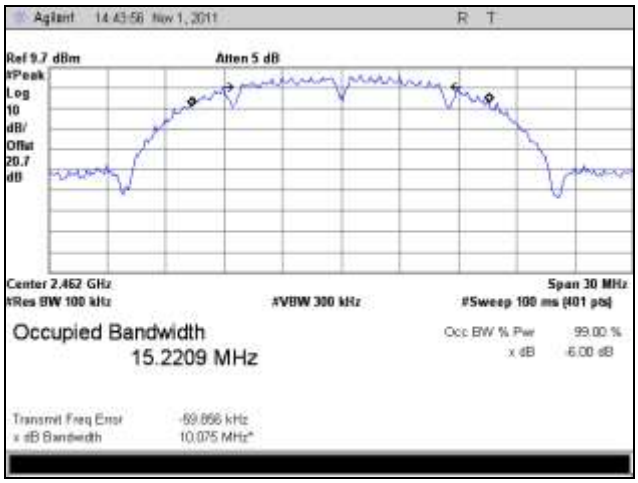
6 dB Occupied Bandwidth Test Results, 802.11b, 2.4 GHz



Plot 8. 6 dB Occupied Bandwidth, Low Channel, 802.11b, 2.4 GHz

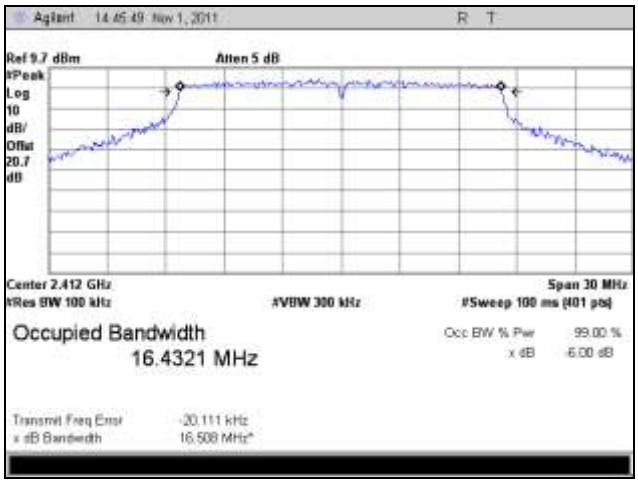


Plot 9. 6 dB Occupied Bandwidth, Mid Channel, 802.11b, 2.4 GHz

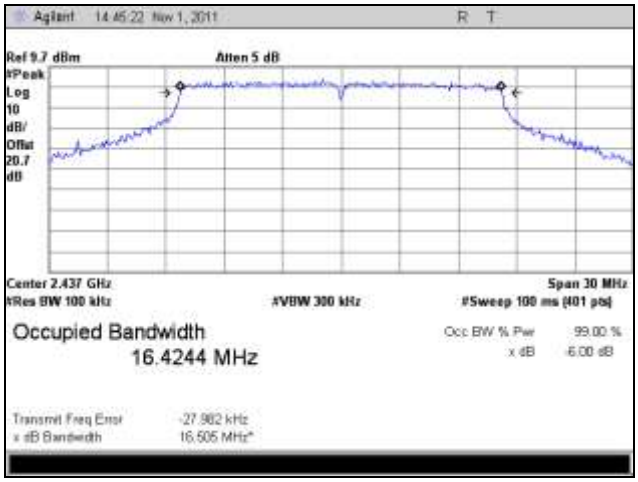


Plot 10. 6 dB Occupied Bandwidth, High Channel, 802.11b, 2.4 GHz

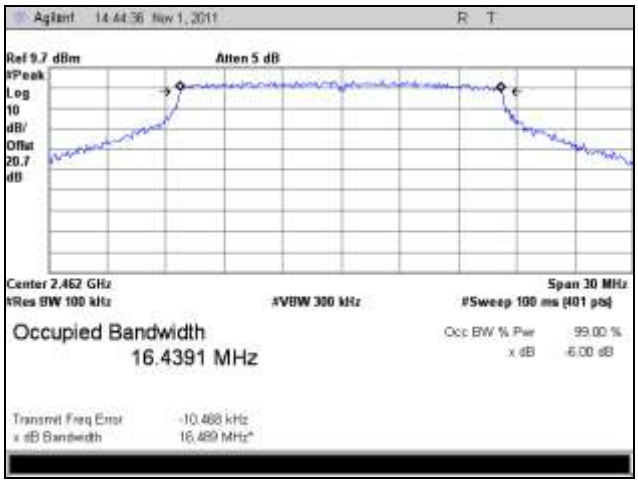
6 dB Occupied Bandwidth Test Results, 802.11g, 2.4 GHz



Plot 11. 6 dB Occupied Bandwidth, Low Channel, 802.11g, 2.4 GHz

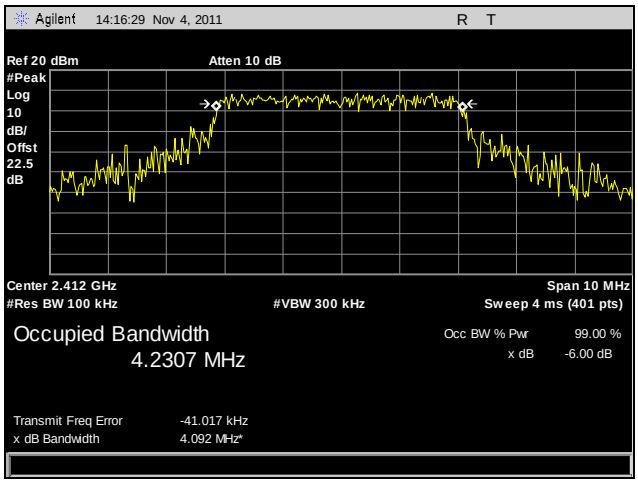


Plot 12. 6 dB Occupied Bandwidth, Mid Channel, 802.11g, 2.4 GHz

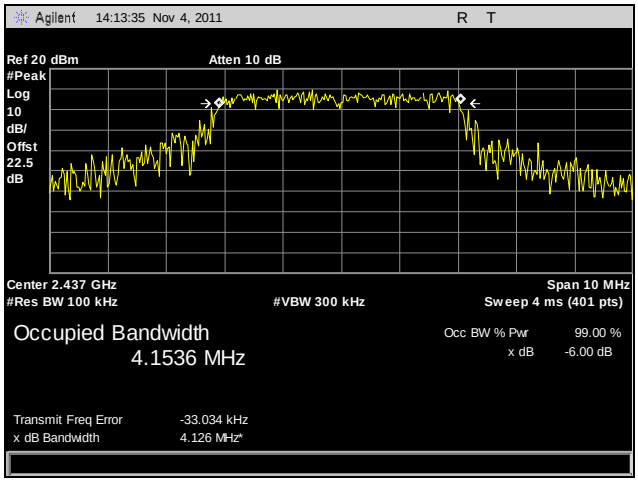


Plot 13. 6 dB Occupied Bandwidth, High Channel, 802.11g, 2.4 GHz

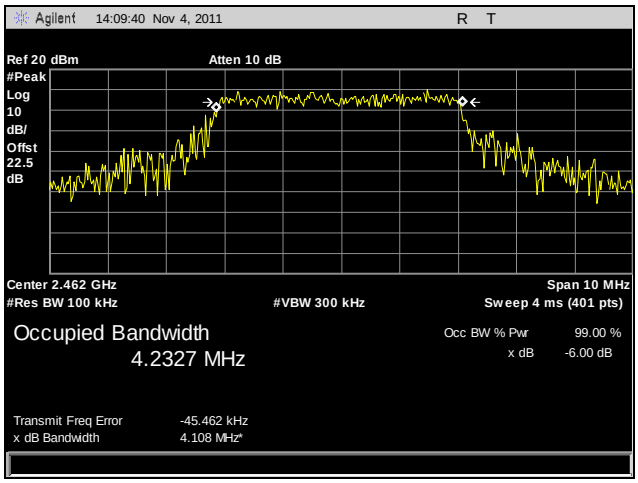
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 1, 2.4 GHz



Plot 14. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

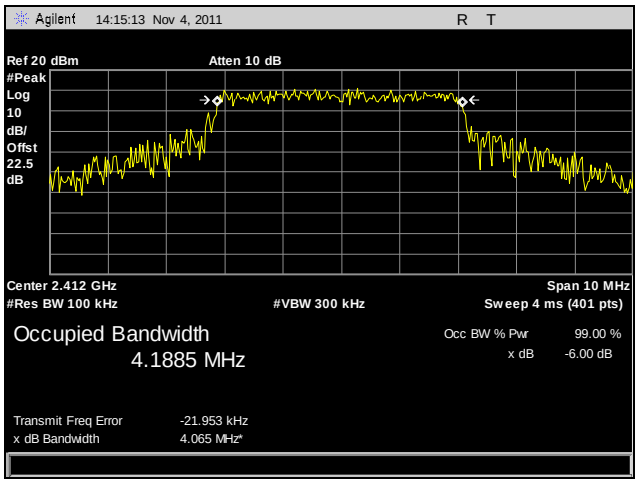


Plot 15. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

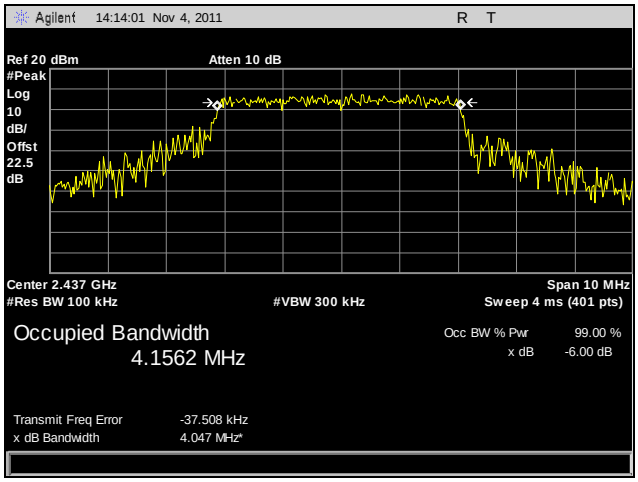


Plot 16. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

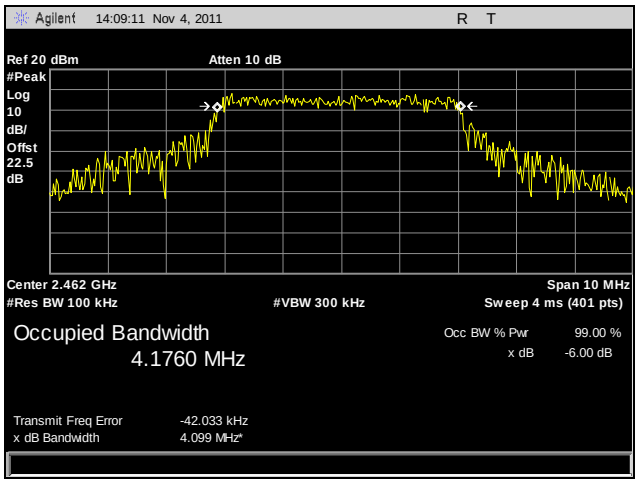
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 2, 2.4 GHz



Plot 17. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

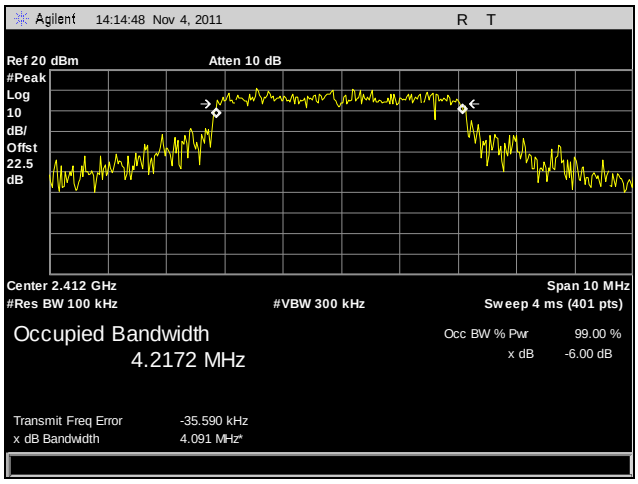


Plot 18. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

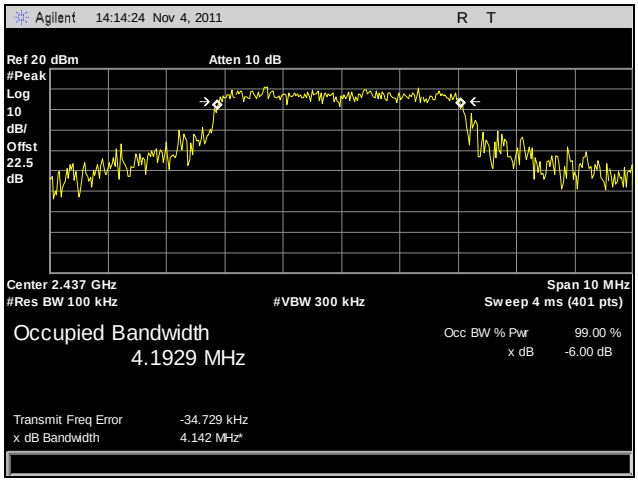


Plot 19. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

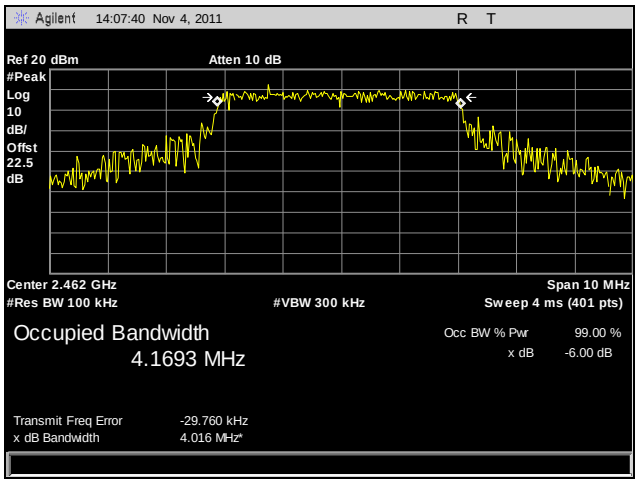
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 3, 2.4 GHz



Plot 20. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

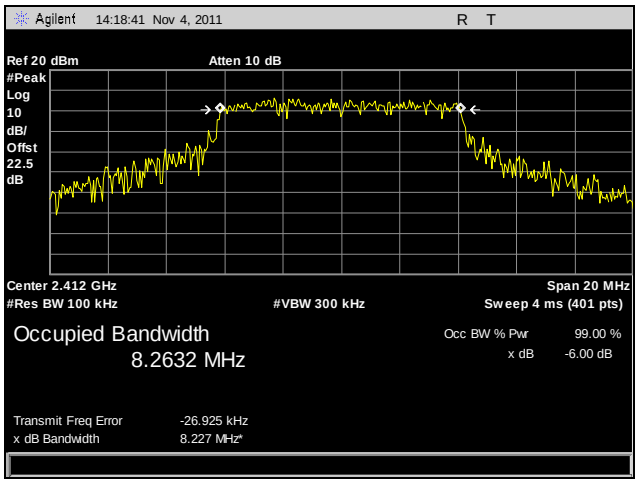


Plot 21. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

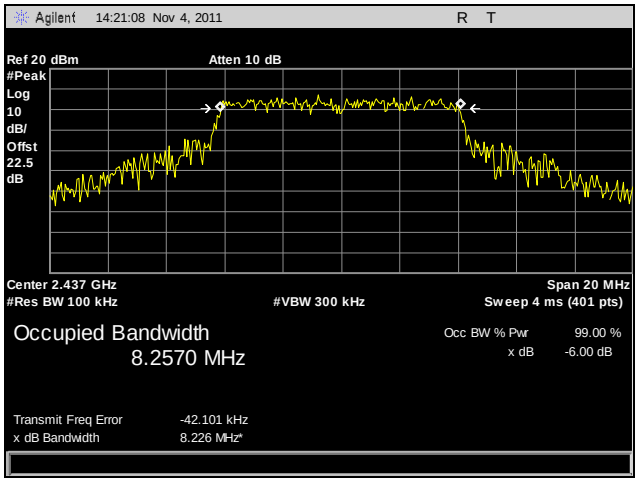


Plot 22. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

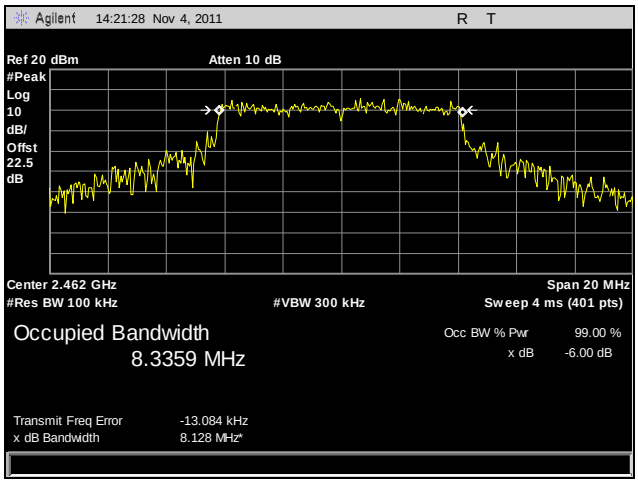
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 1, 2.4 GHz



Plot 23. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

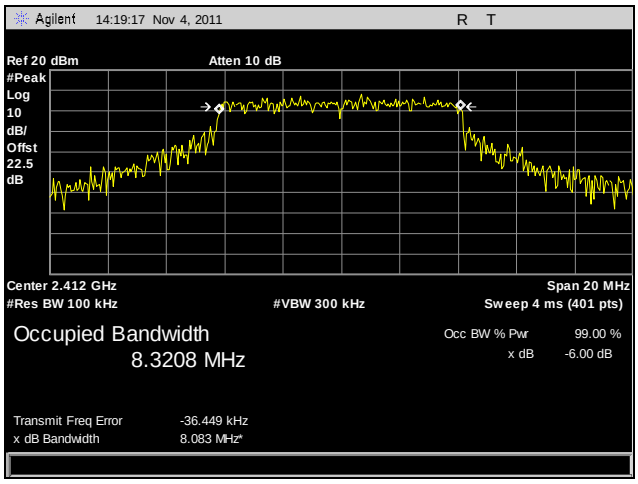


Plot 24. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

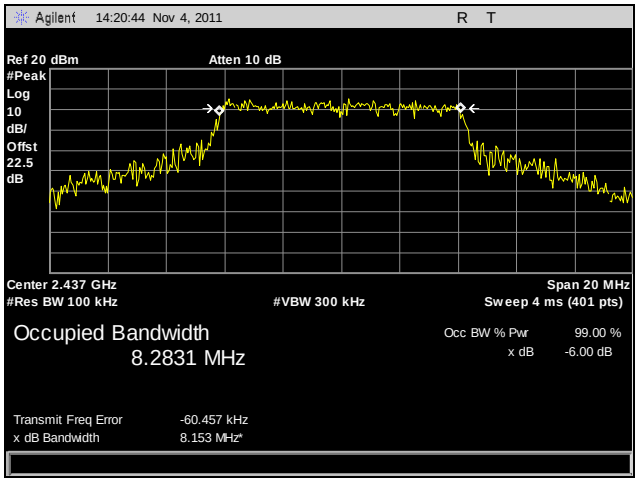


Plot 25. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

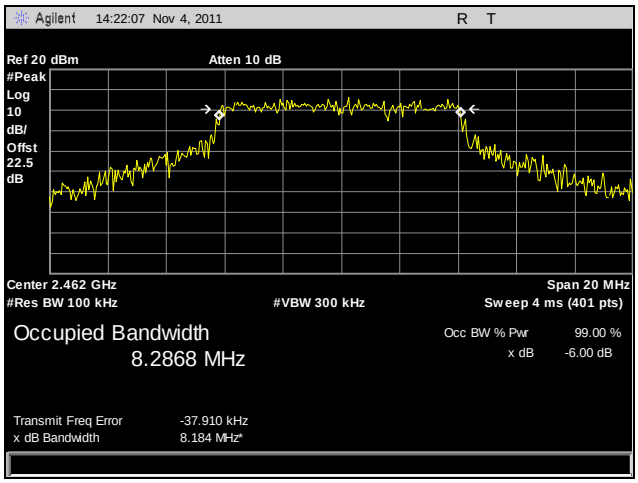
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 2, 2.4 GHz



Plot 26. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

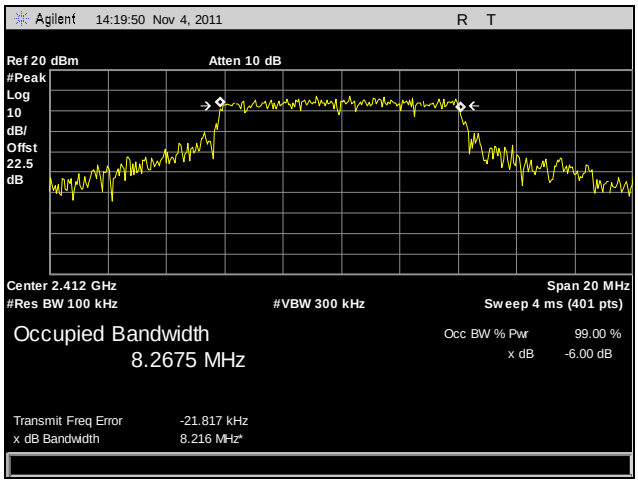


Plot 27. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

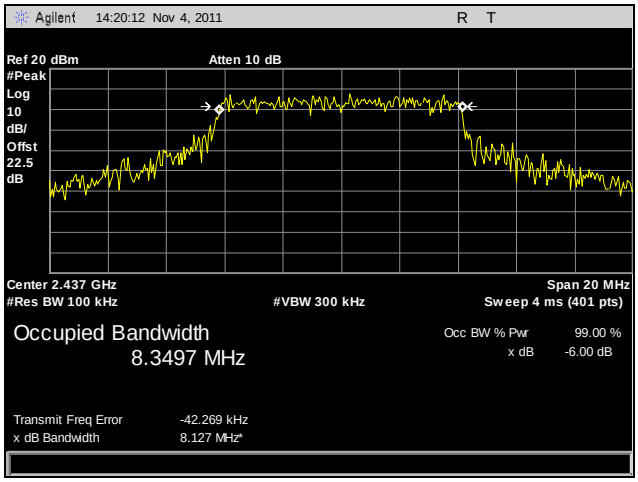


Plot 28. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

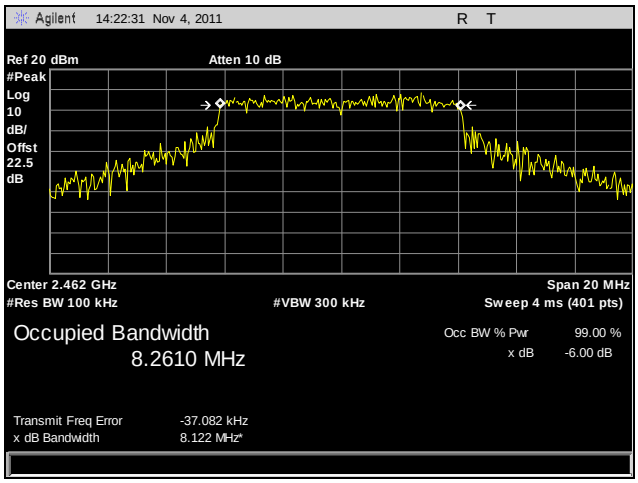
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 3, 2.4 GHz



Plot 29. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

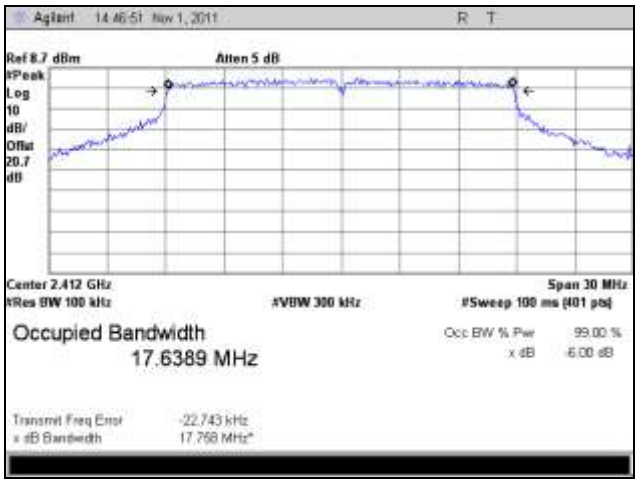


Plot 30. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

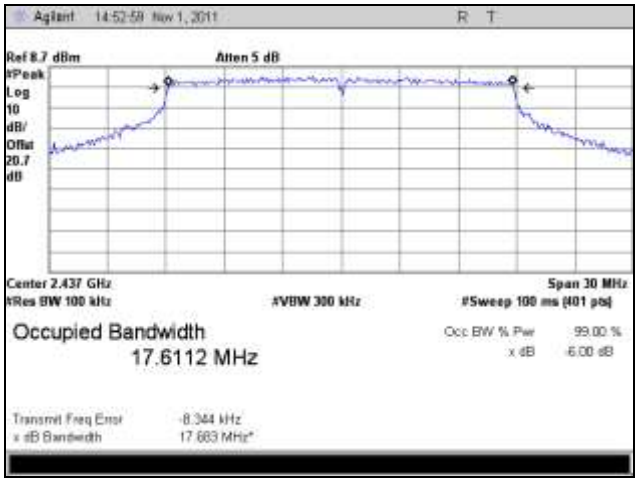


Plot 31. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

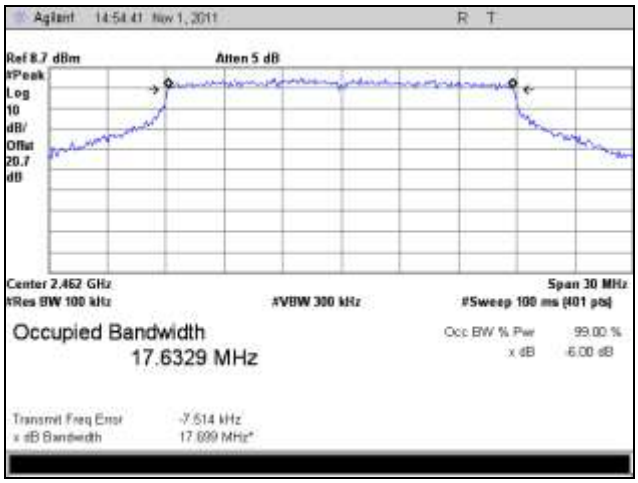
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 32. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

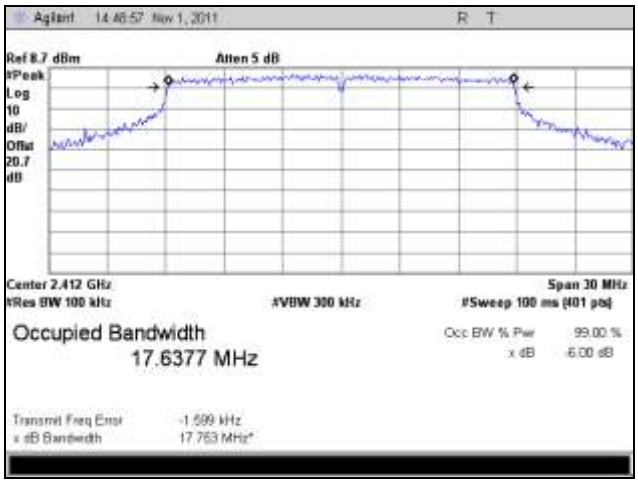


Plot 33. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

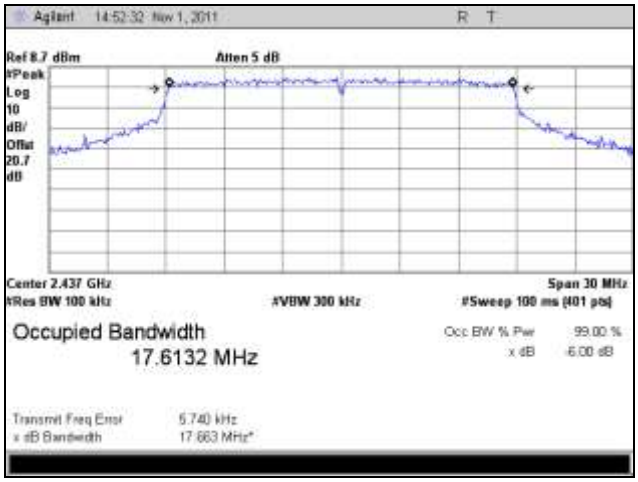


Plot 34. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

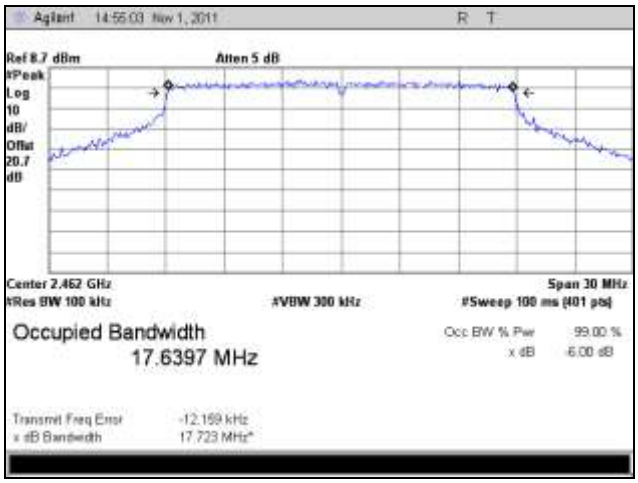
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 35. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

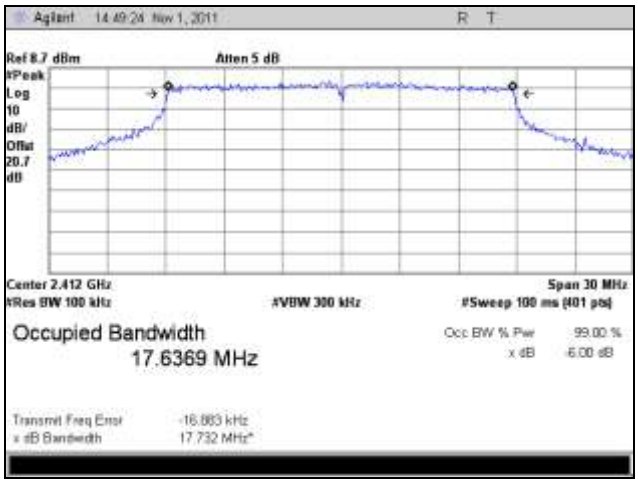


Plot 36. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

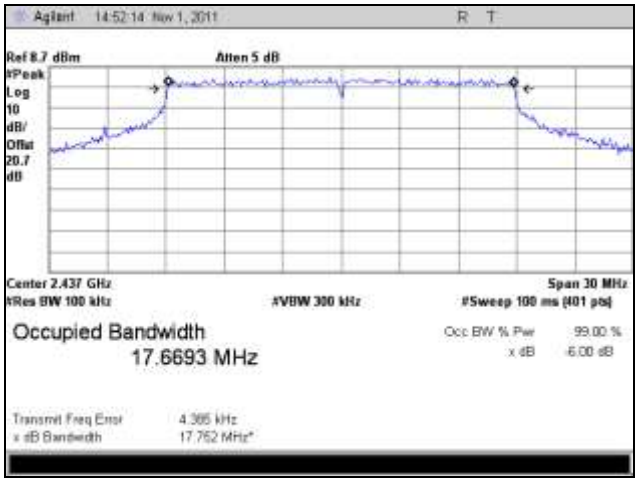


Plot 37. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

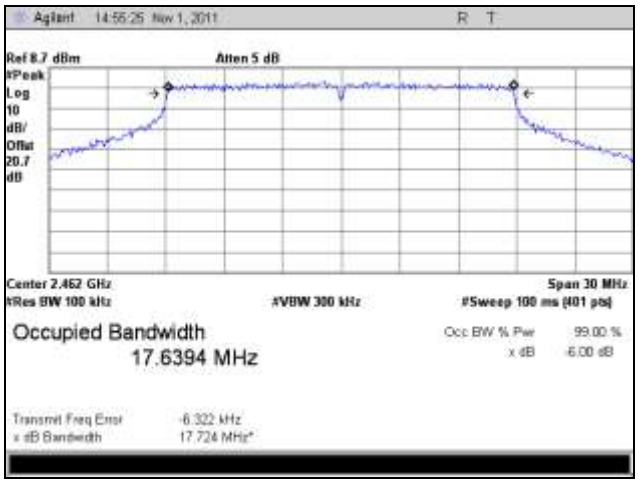
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 38. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

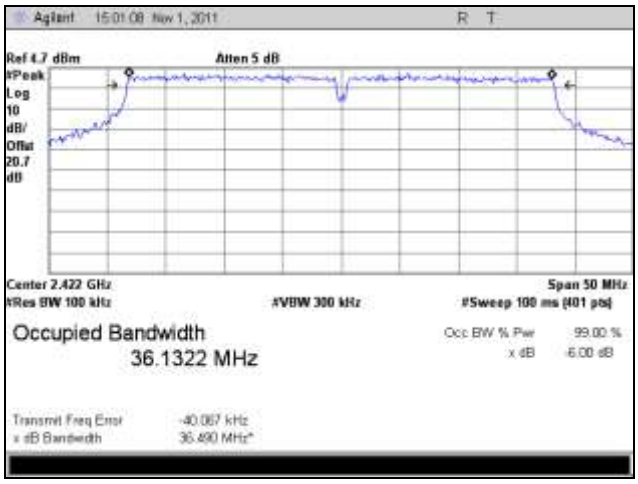


Plot 39. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

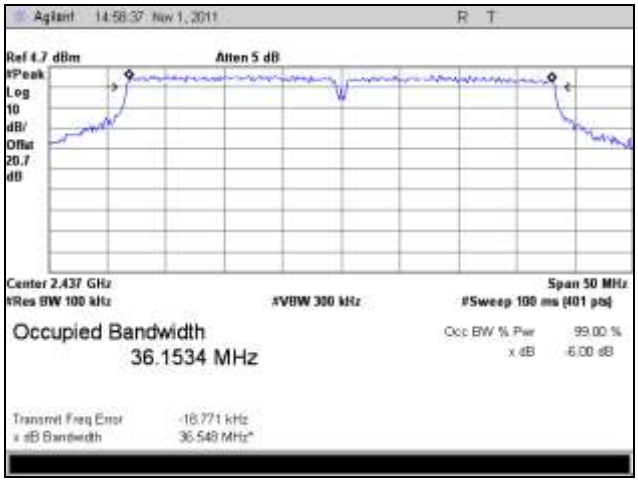


Plot 40. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

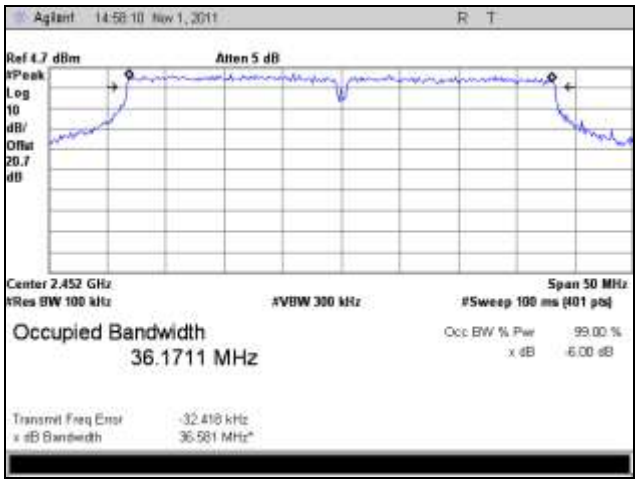
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 41. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

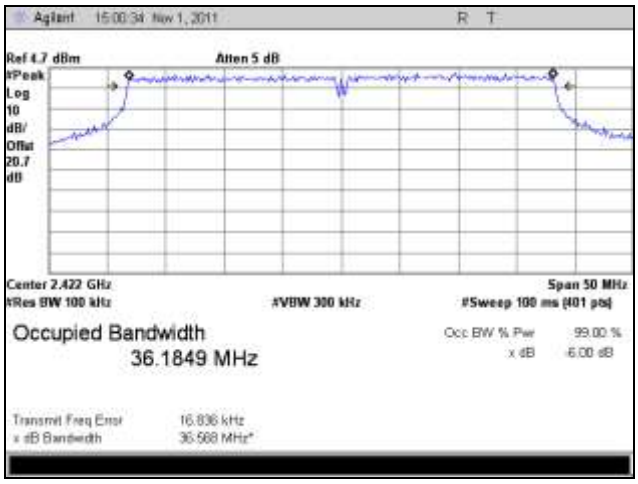


Plot 42. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

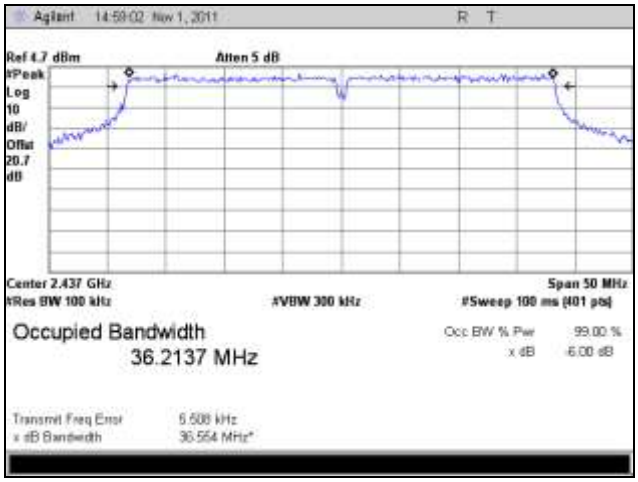


Plot 43. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

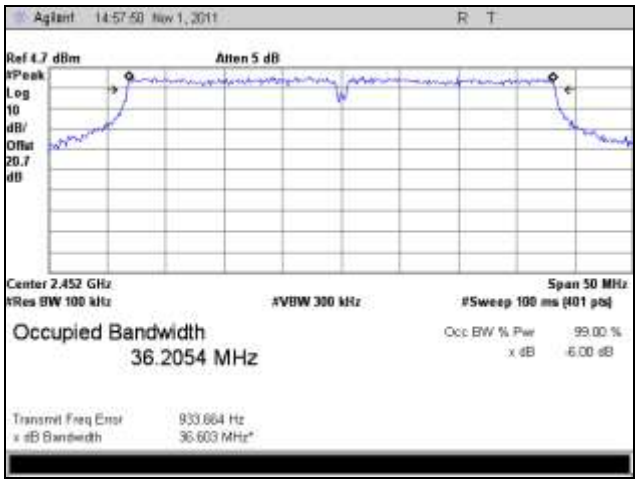
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 44. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

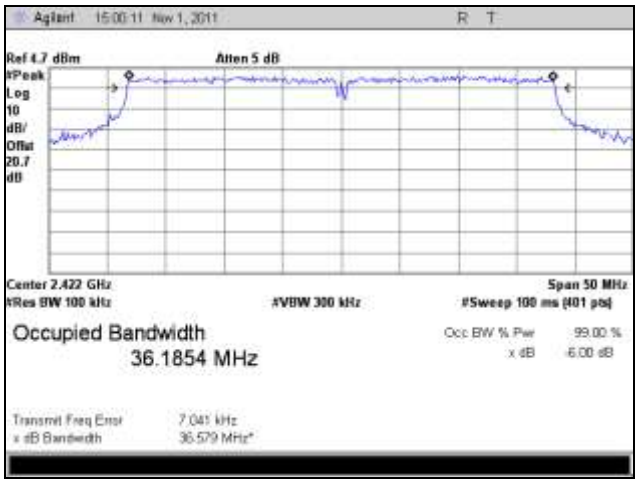


Plot 45. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

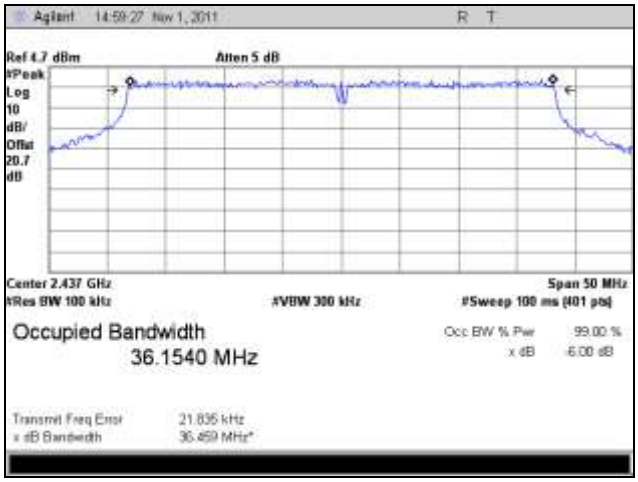


Plot 46. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

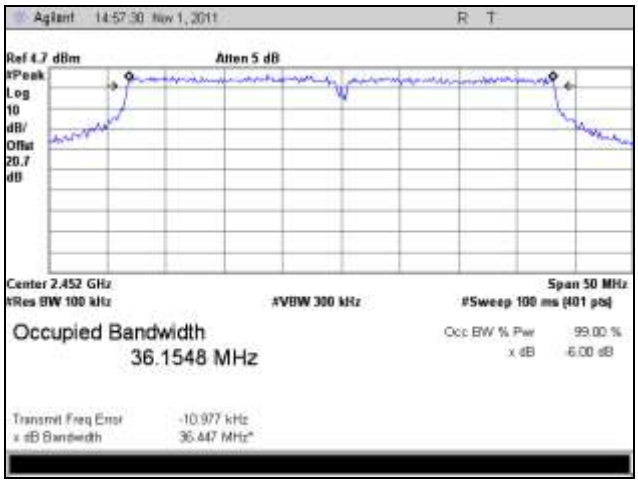
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 47. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

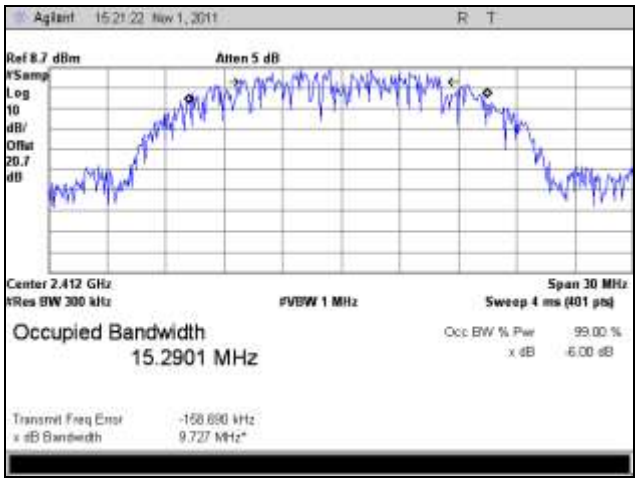


Plot 48. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

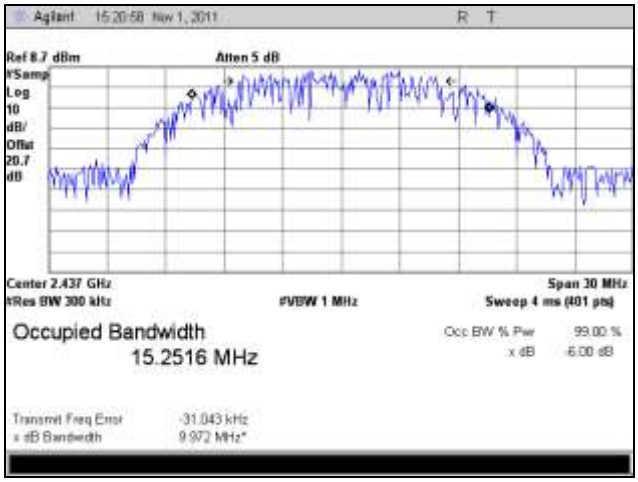


Plot 49. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

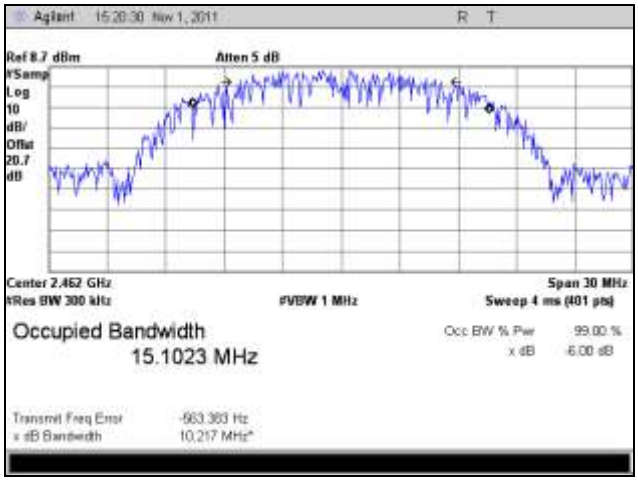
99% Occupied Bandwidth Test Results, 802.11b, 2.4 GHz



Plot 50. 99% Occupied Bandwidth, Low Channel, 802.11b, 2.4 GHz

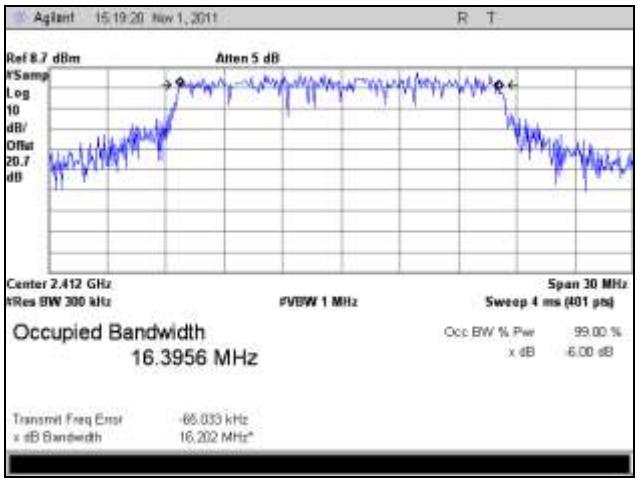


Plot 51. 99% Occupied Bandwidth, Mid Channel, 802.11b, 2.4 GHz

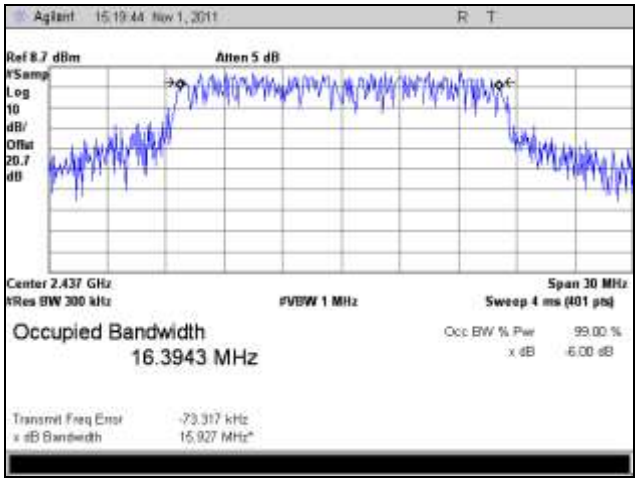


Plot 52. 99% Occupied Bandwidth, High Channel, 802.11b, 2.4 GHz

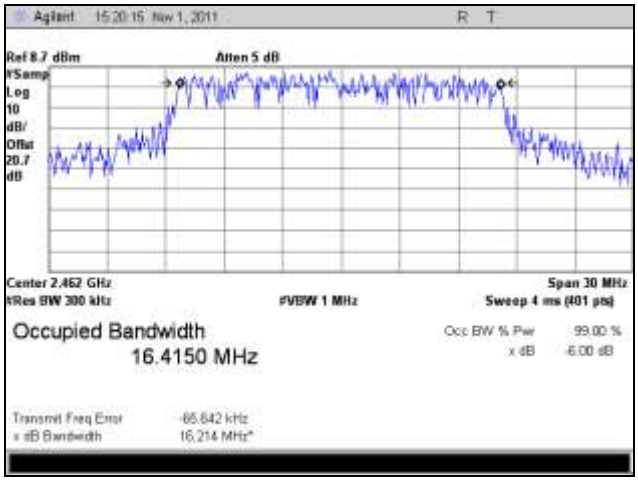
99% Occupied Bandwidth Test Results, 802.11g, 2.4 GHz



Plot 53. 99% Occupied Bandwidth, Low Channel, 802.11g, 2.4 GHz

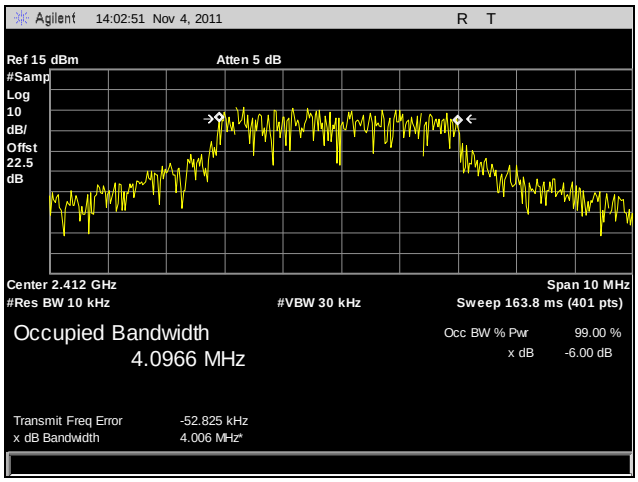


Plot 54. 99% Occupied Bandwidth, Mid Channel, 802.11g, 2.4 GHz

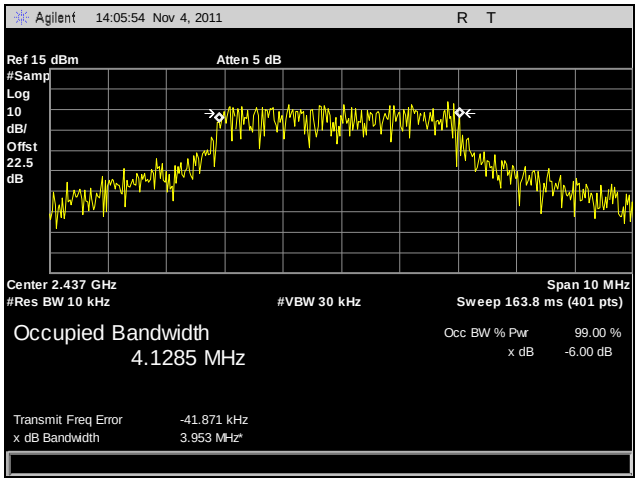


Plot 55. 99% Occupied Bandwidth, High Channel, 802.11g, 2.4 GHz

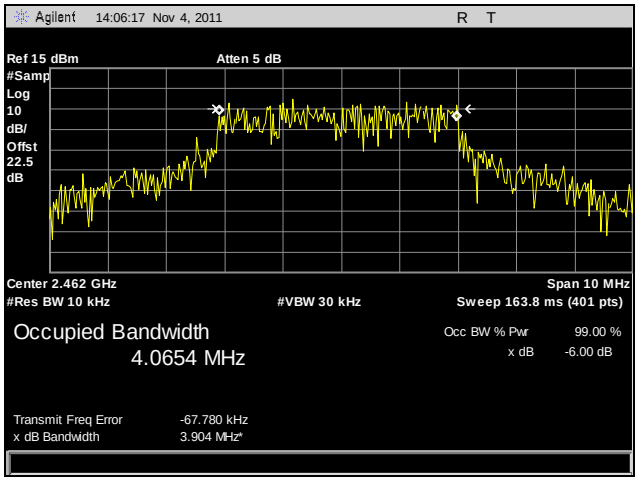
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 1, 2.4 GHz



Plot 56. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

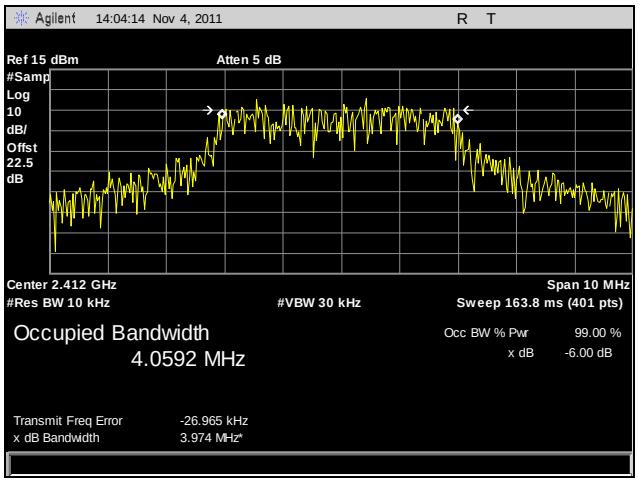


Plot 57. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

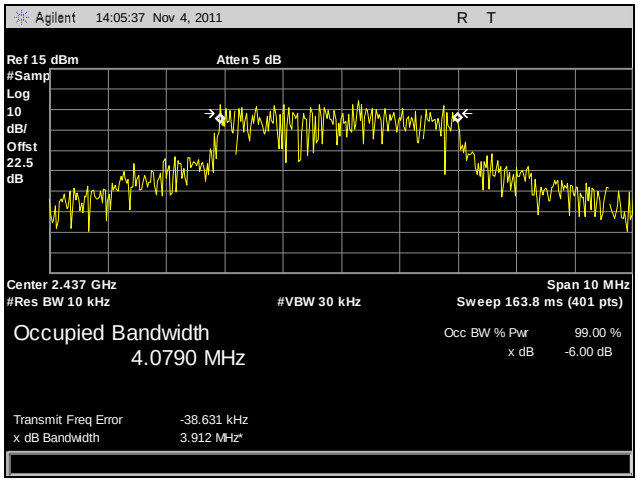


Plot 58. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

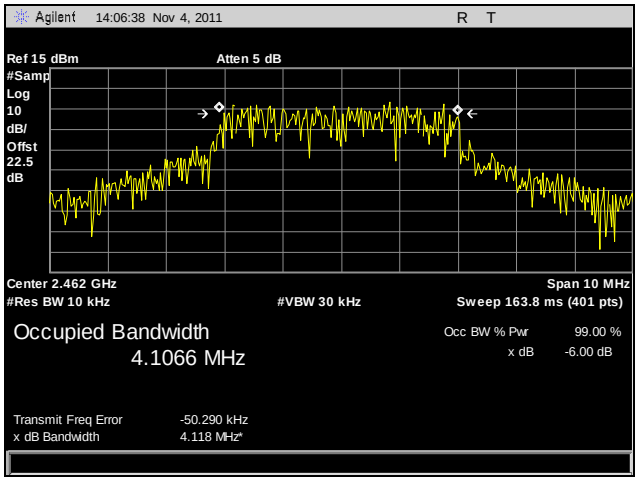
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 2, 2.4 GHz



Plot 59. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

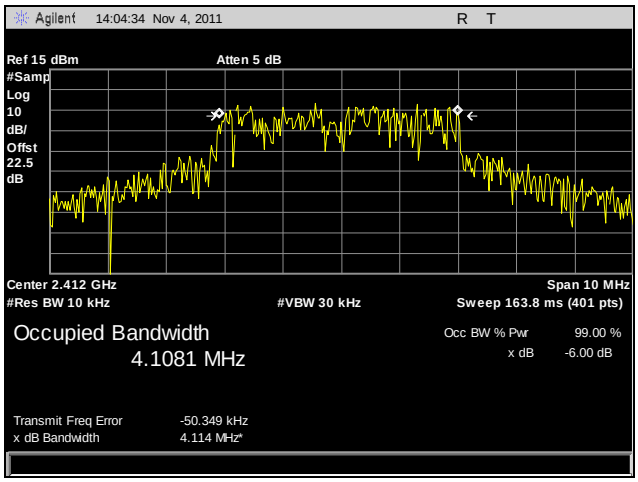


Plot 60. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

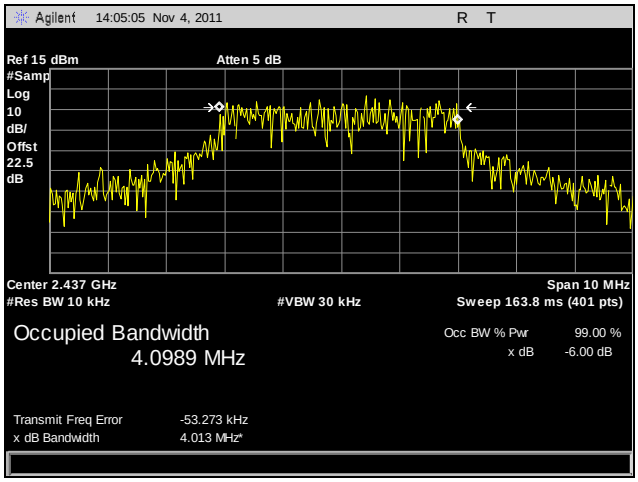


Plot 61. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

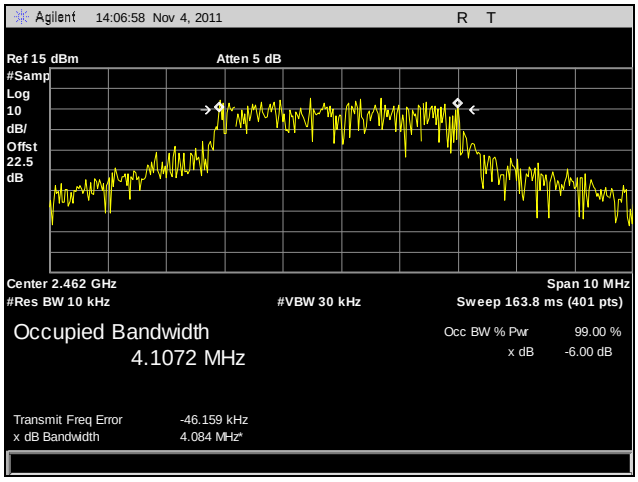
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 3, 2.4 GHz



Plot 62. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

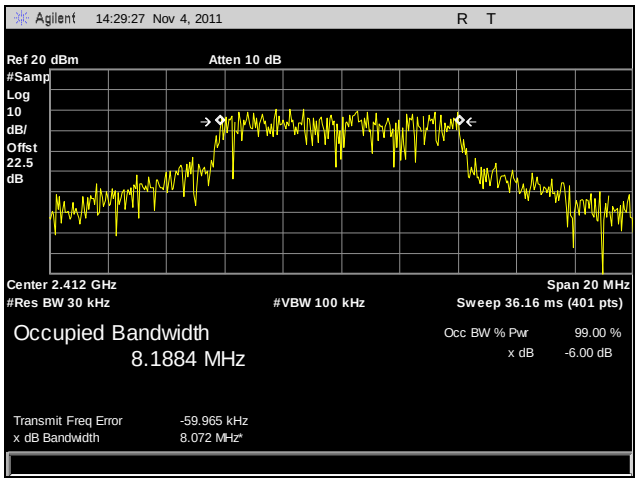


Plot 63. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

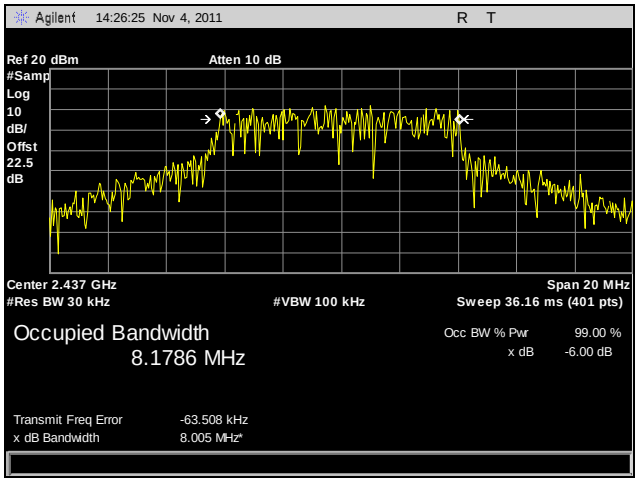


Plot 64. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

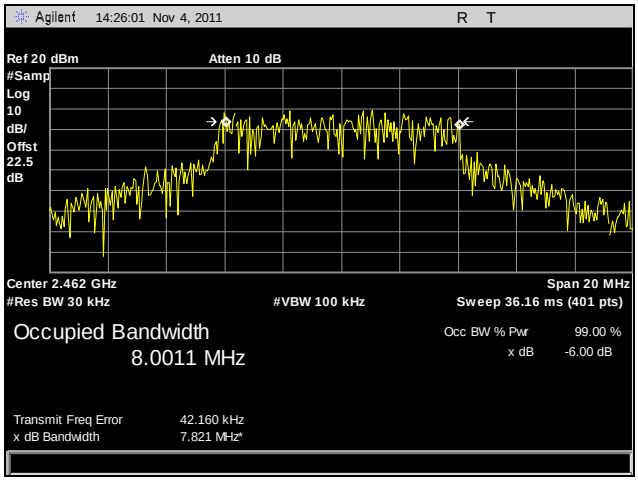
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 1, 2.4 GHz



Plot 65. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

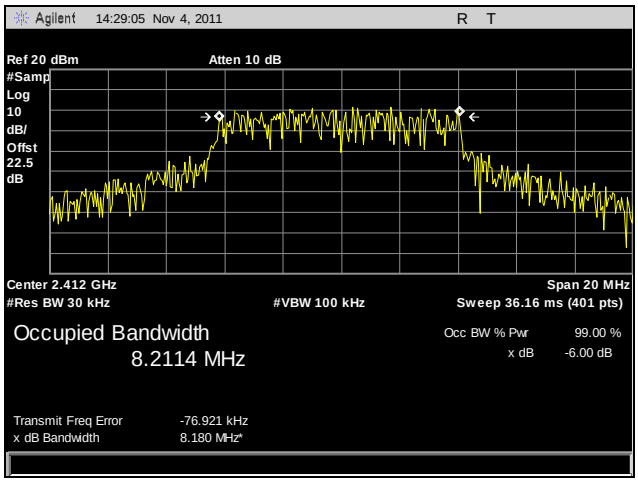


Plot 66. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

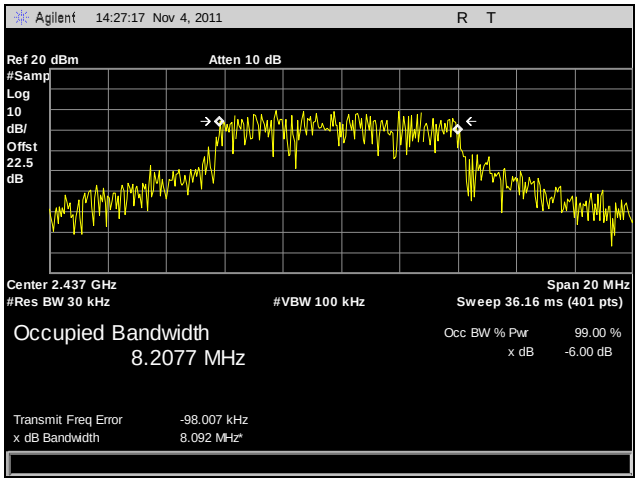


Plot 67. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

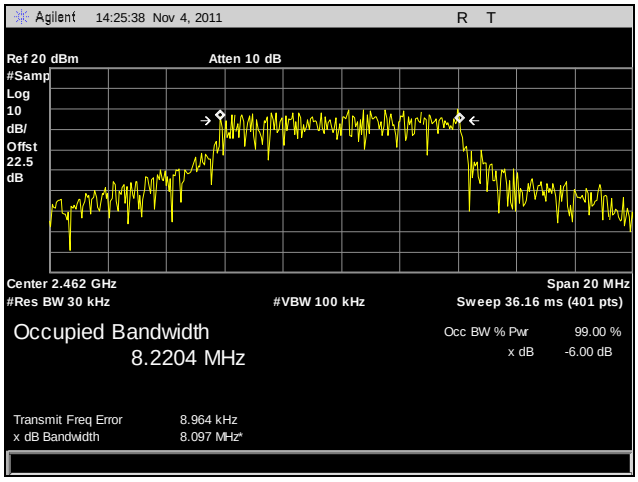
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 2, 2.4 GHz



Plot 68. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

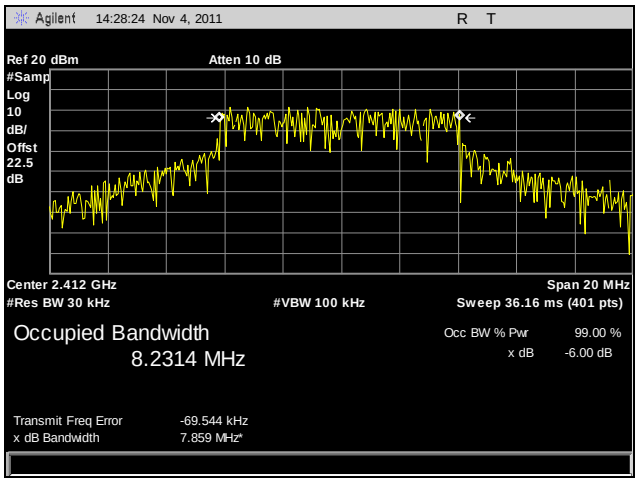


Plot 69. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

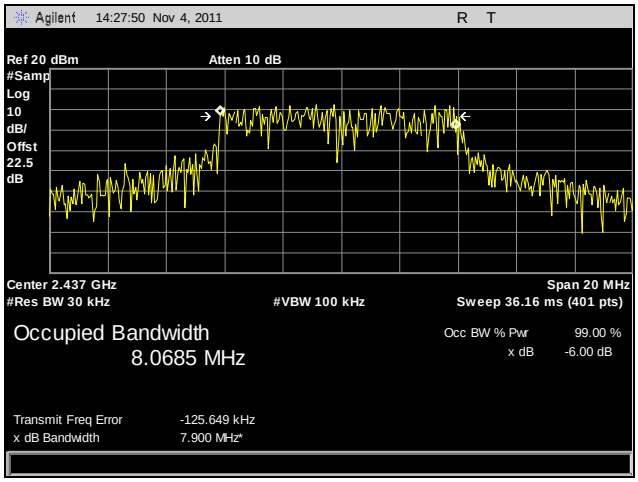


Plot 70. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

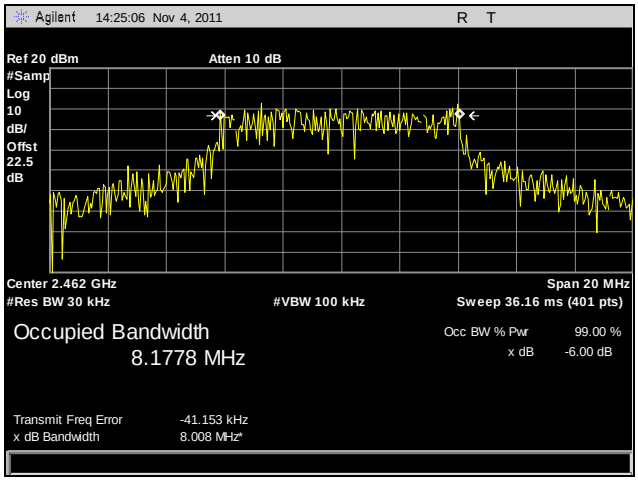
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 3, 2.4 GHz



Plot 71. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

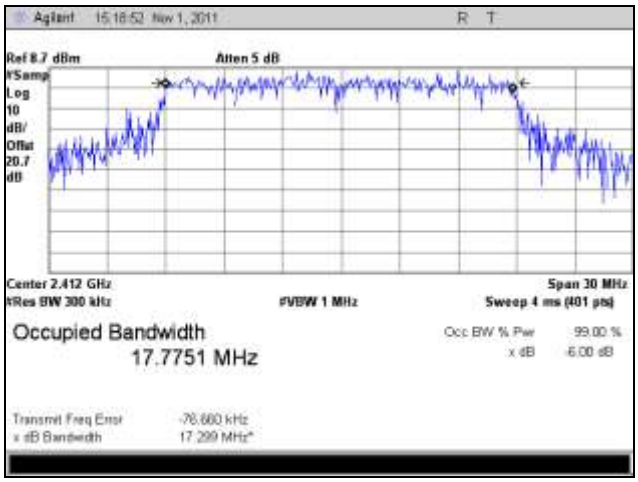


Plot 72. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

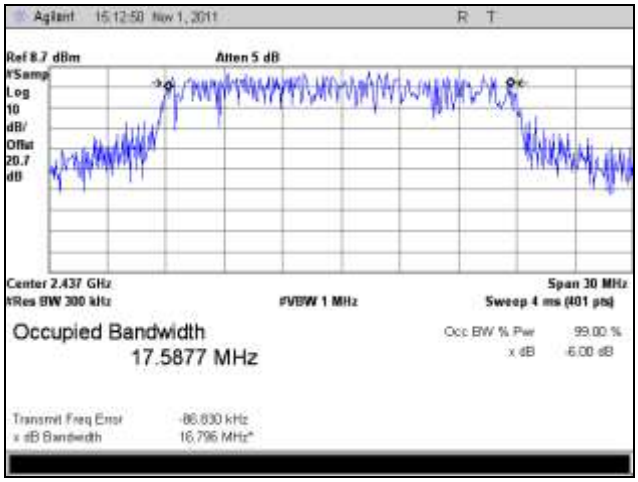


Plot 73. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

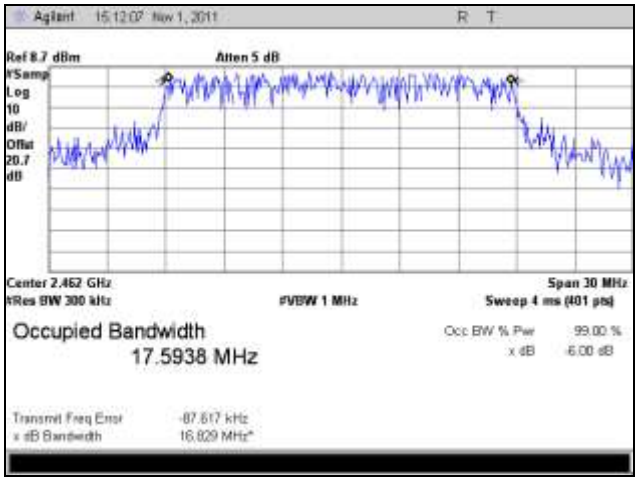
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 74. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

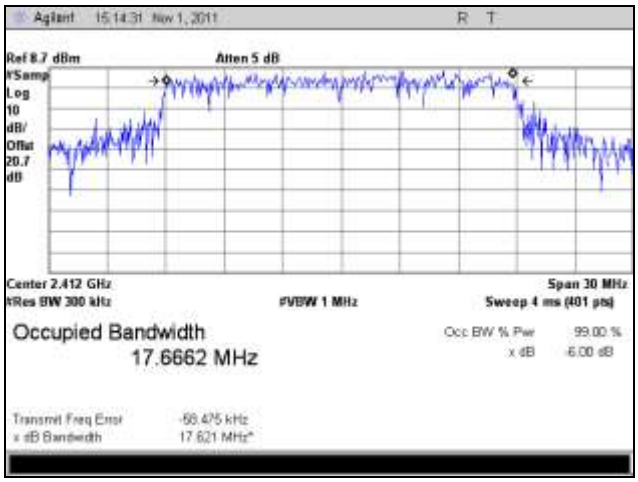


Plot 75. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

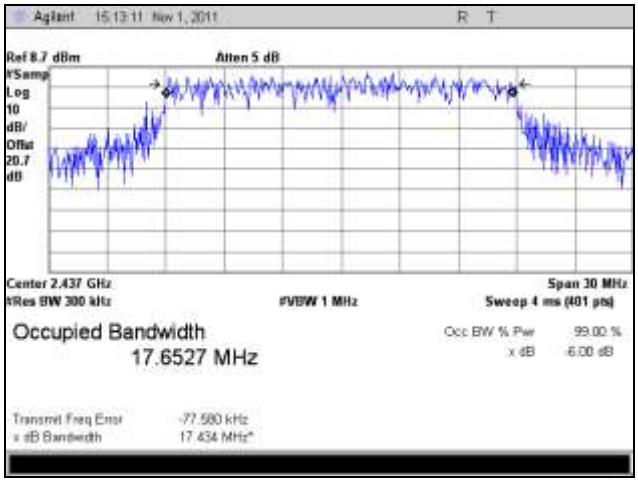


Plot 76. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

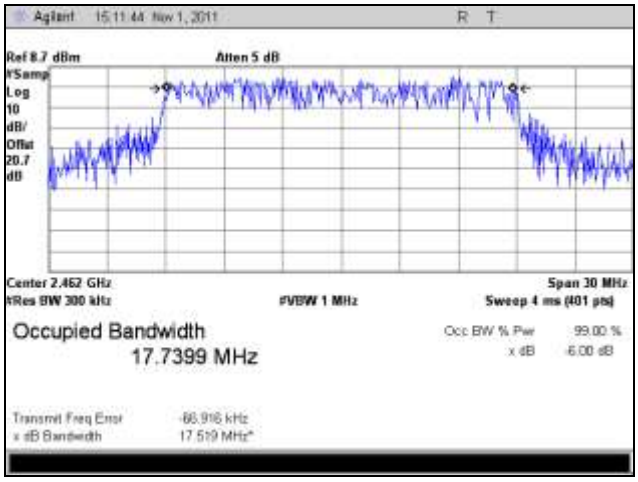
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 77. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

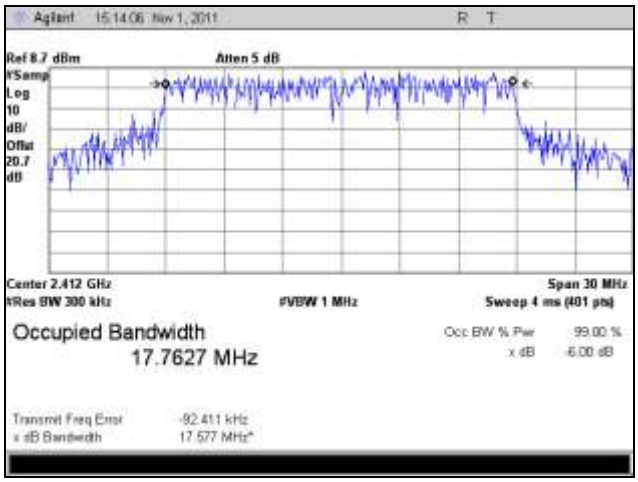


Plot 78. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

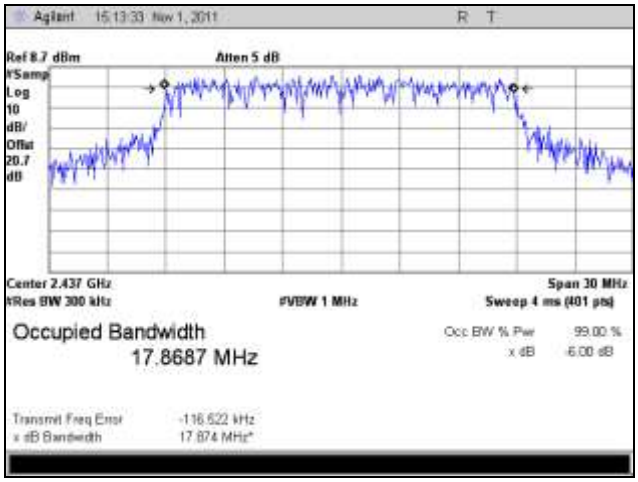


Plot 79. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

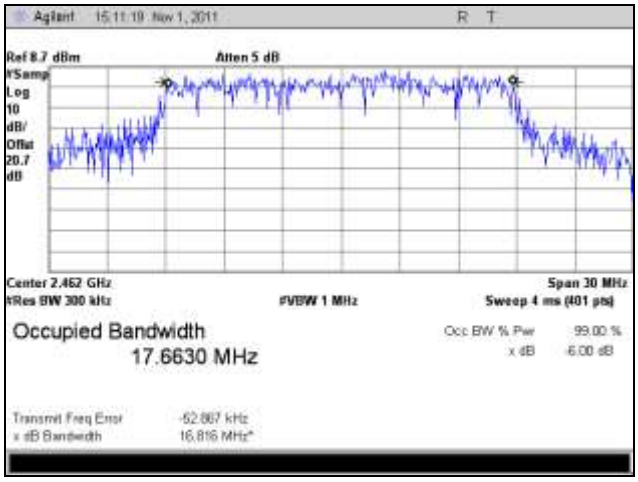
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 80. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

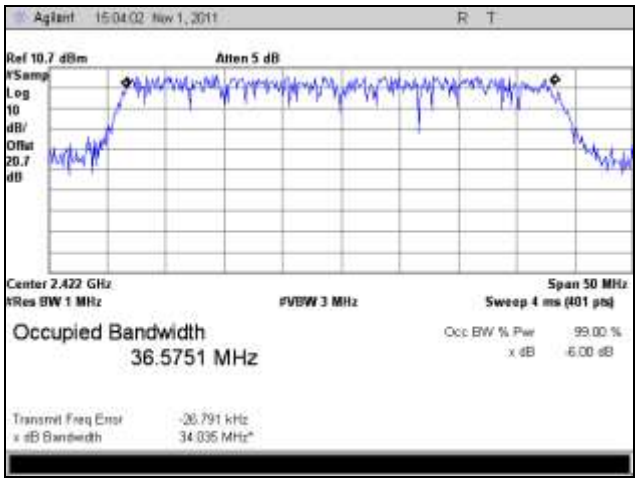


Plot 81. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

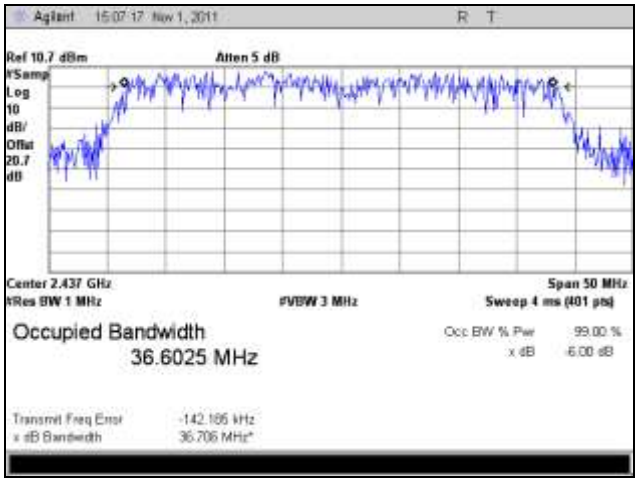


Plot 82. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

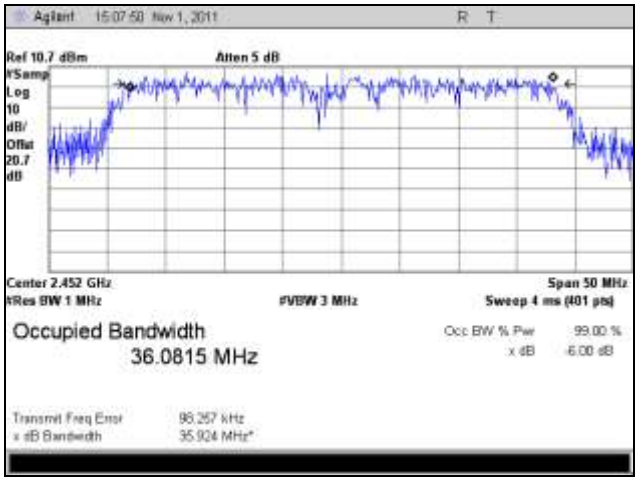
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 83. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

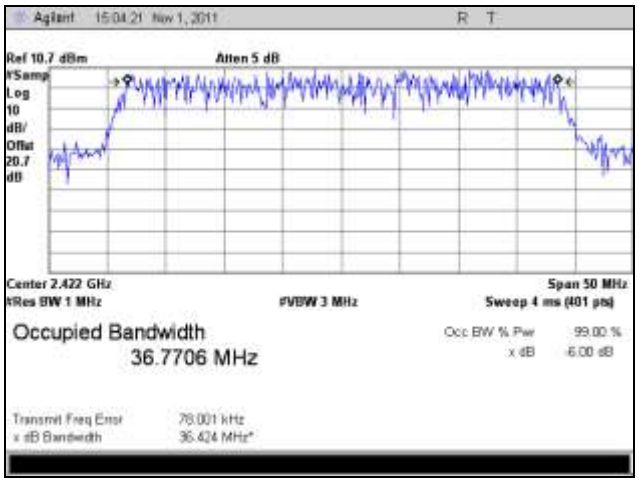


Plot 84. 99% Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

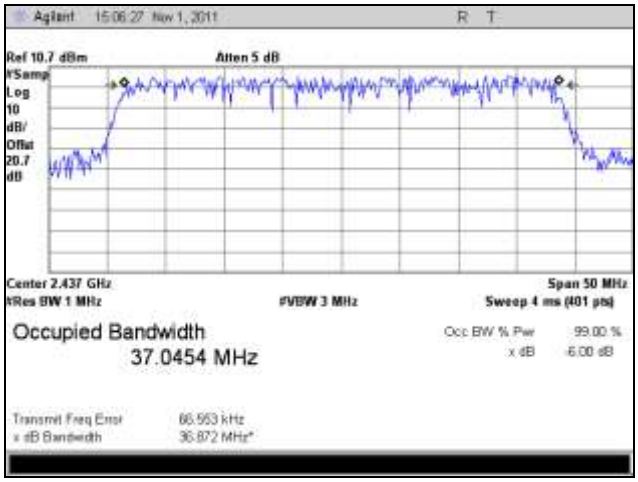


Plot 85. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 1, 2.4 GHz

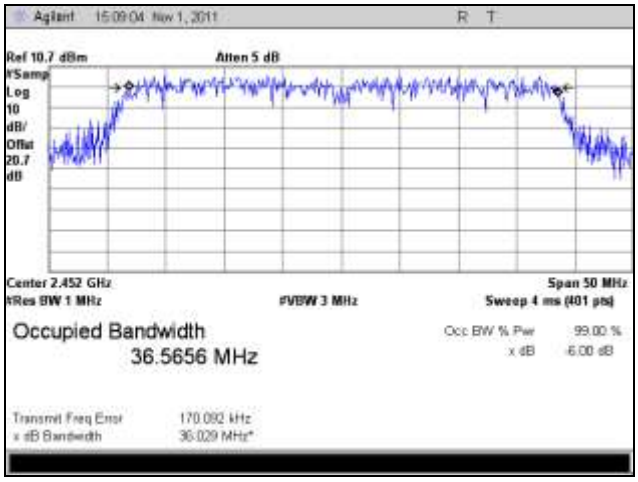
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 86. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

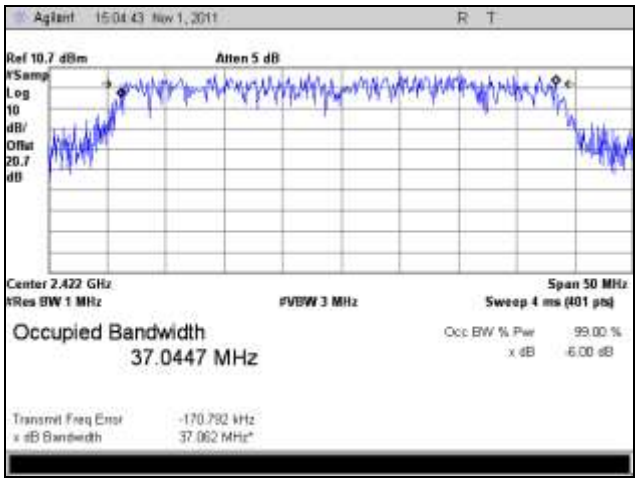


Plot 87. 99% Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

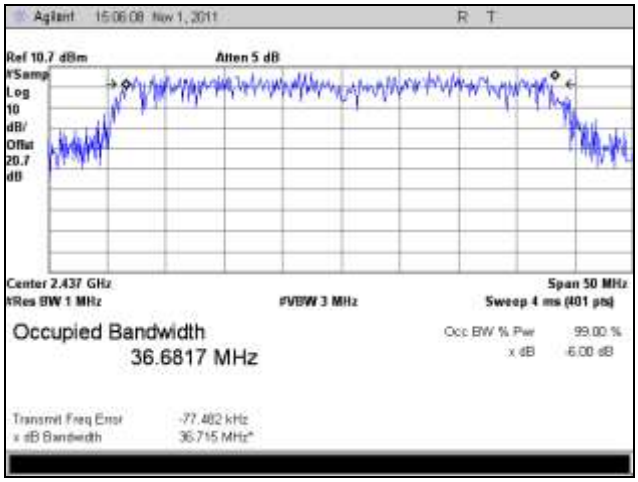


Plot 88. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 2, 2.4 GHz

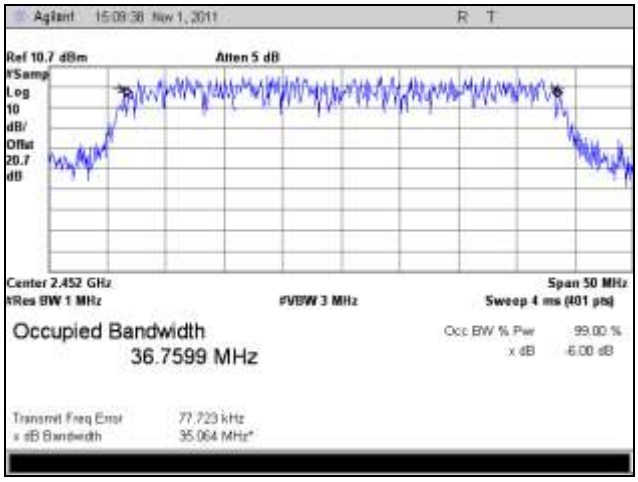
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 89. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

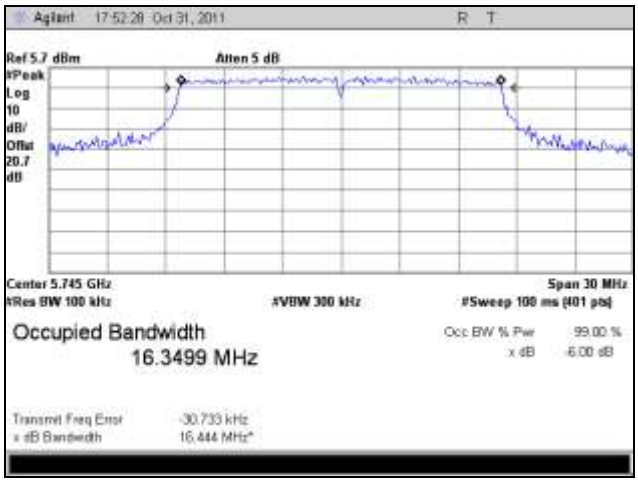


Plot 90. 99% Occupied Bandwidth, Mid Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

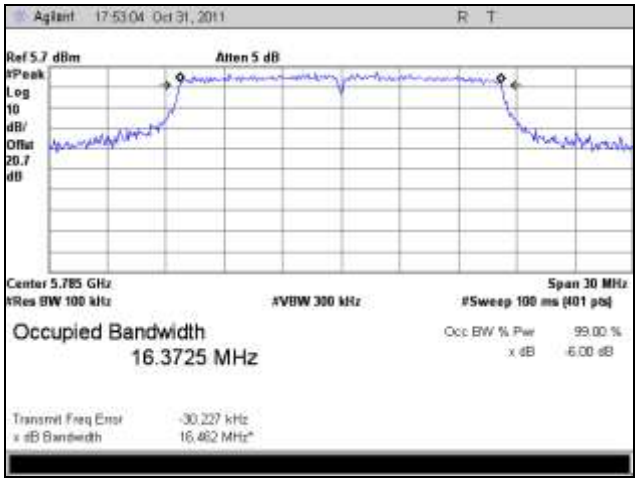


Plot 91. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 3, 2.4 GHz

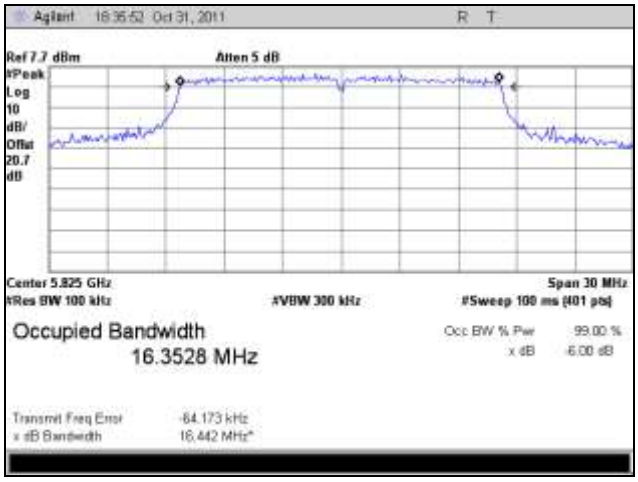
6 dB Occupied Bandwidth Test Results, 802.11a, 5.8 GHz



Plot 92. 6 dB Occupied Bandwidth, Low Channel, 802.11a, 5.8 GHz

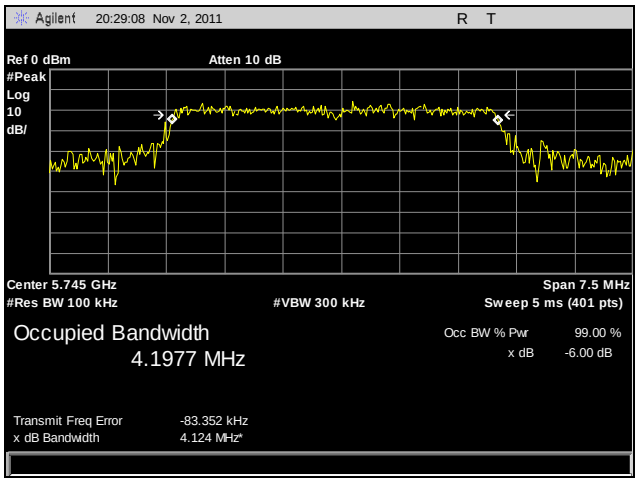


Plot 93. 6 dB Occupied Bandwidth, Mid Channel, 802.11a, 5.8 GHz

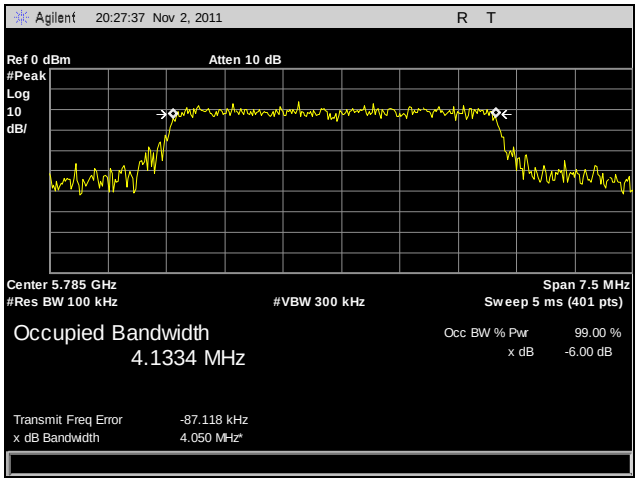


Plot 94. 6 dB Occupied Bandwidth, High Channel, 802.11a, 5.8 GHz

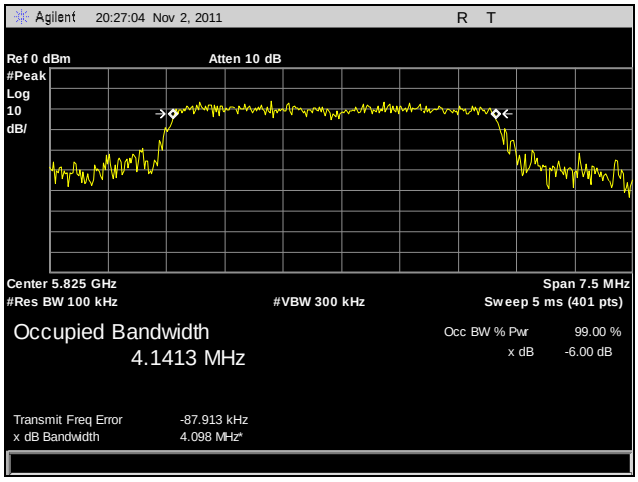
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 1, 5.8 GHz



Plot 95. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

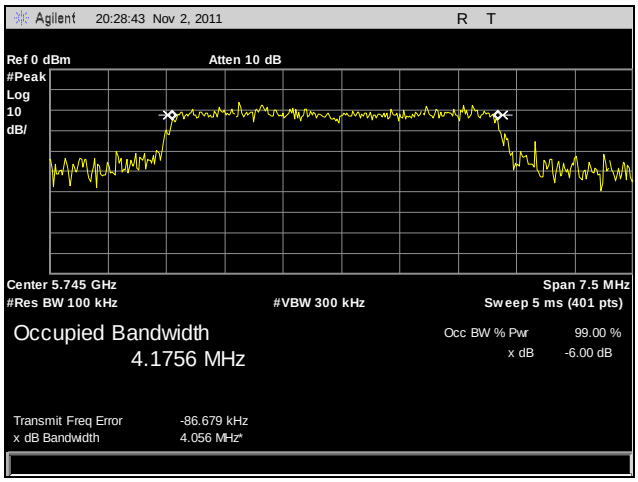


Plot 96. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

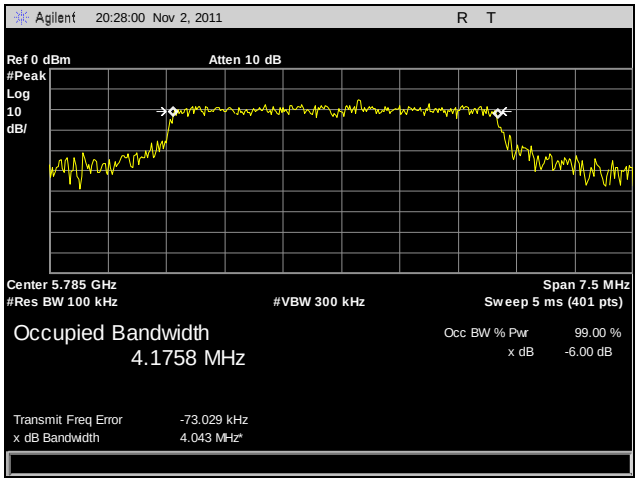


Plot 97. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

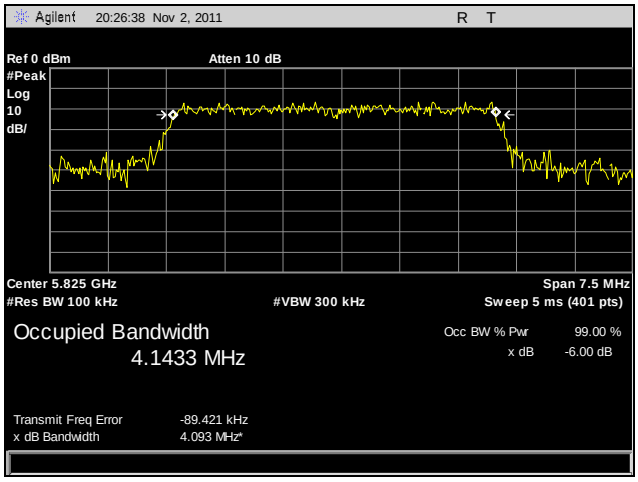
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 2, 5.8 GHz



Plot 98. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

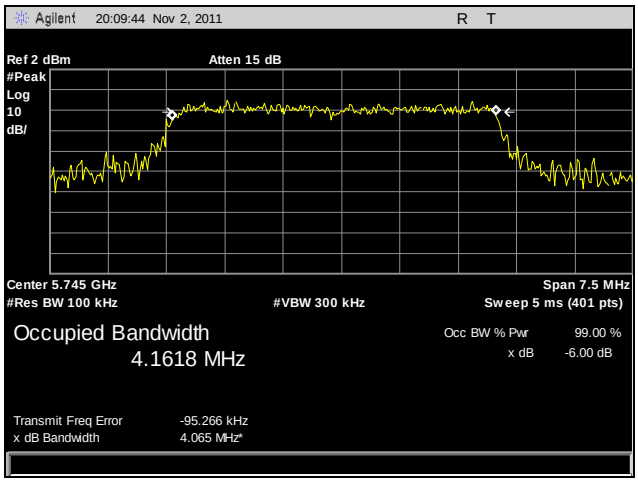


Plot 99. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

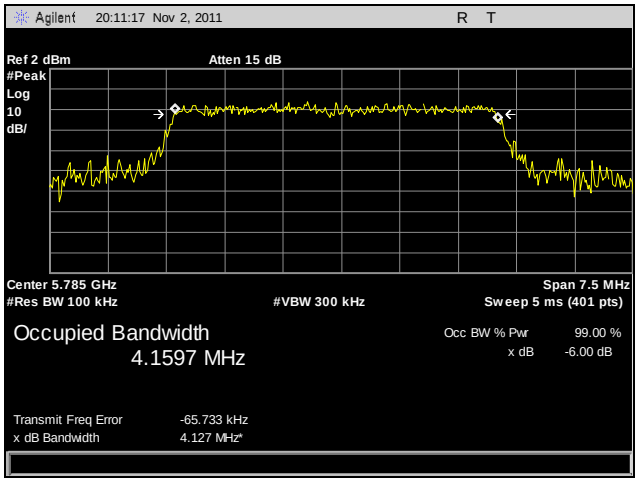


Plot 100. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

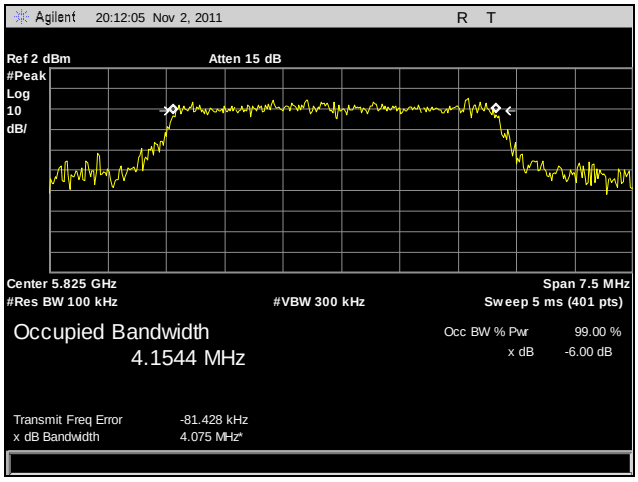
6 dB Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 3, 5.8 GHz



Plot 101. 6 dB Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

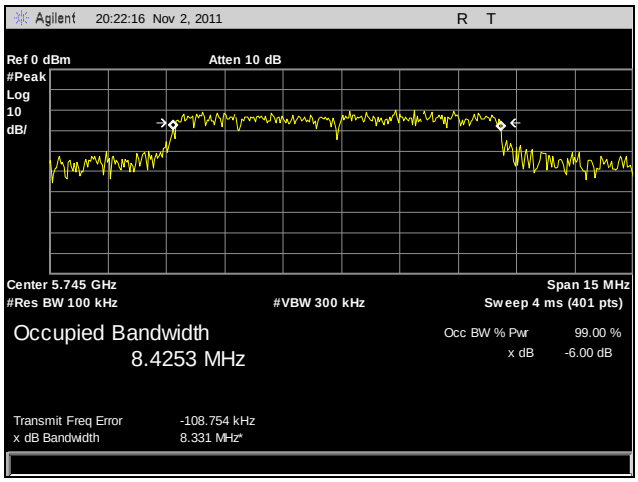


Plot 102. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

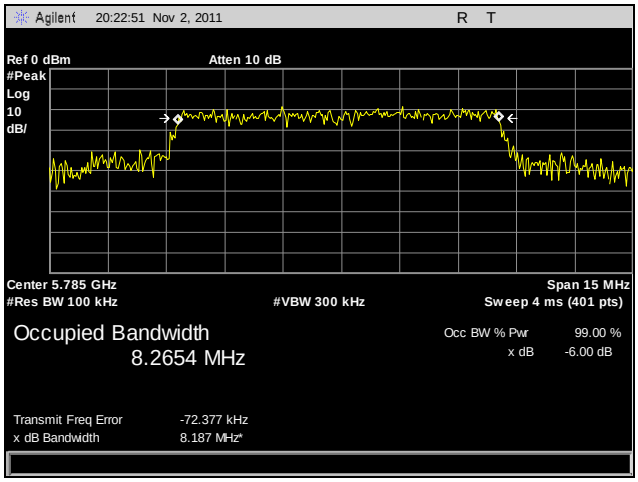


Plot 103. 6 dB Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

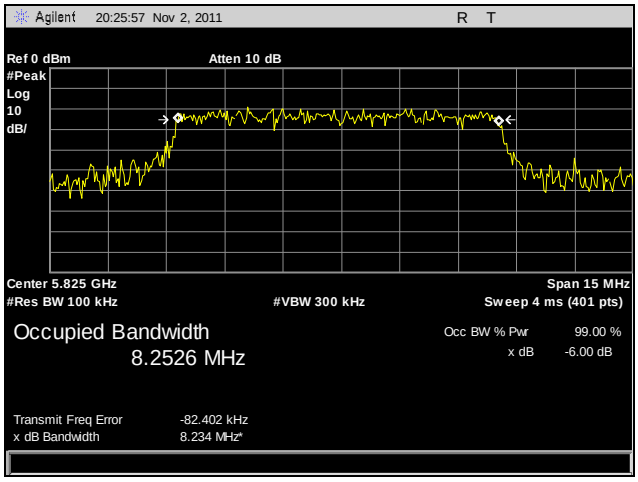
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 1, 5.8 GHz



Plot 104. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

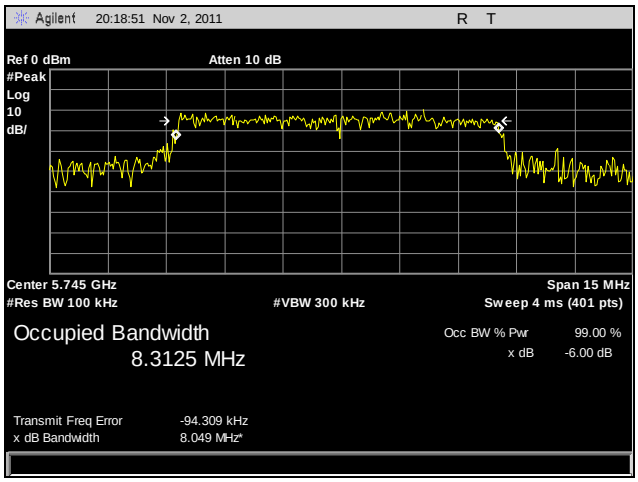


Plot 105. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

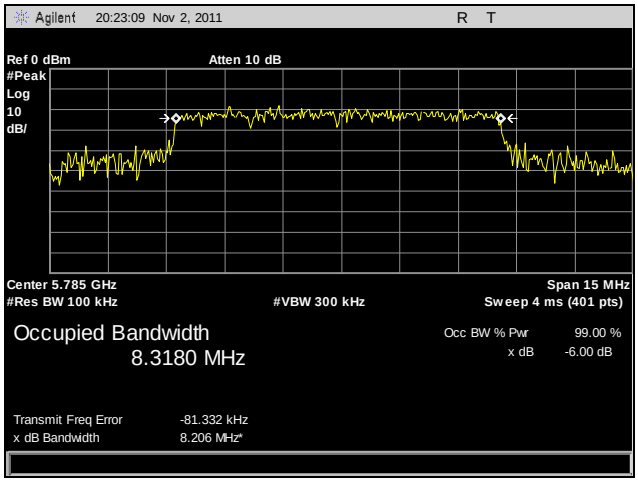


Plot 106. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

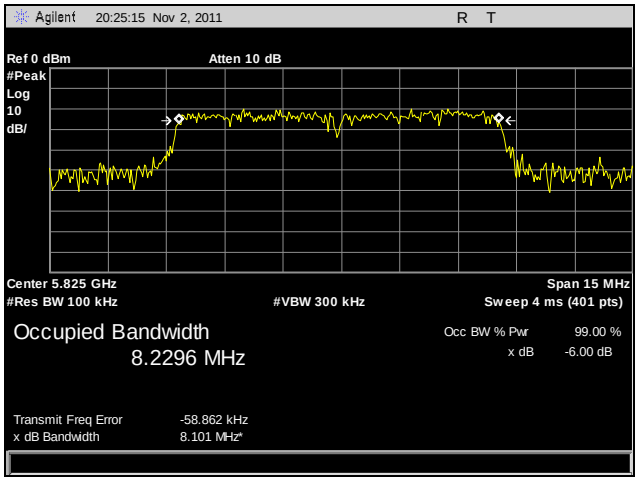
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 2, 5.8 GHz



Plot 107. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

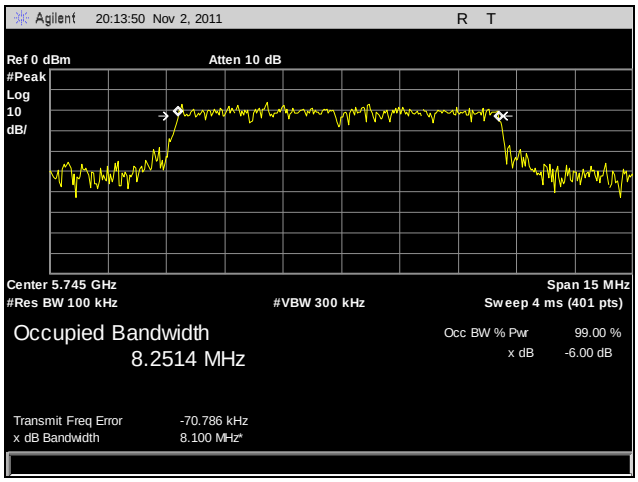


Plot 108. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

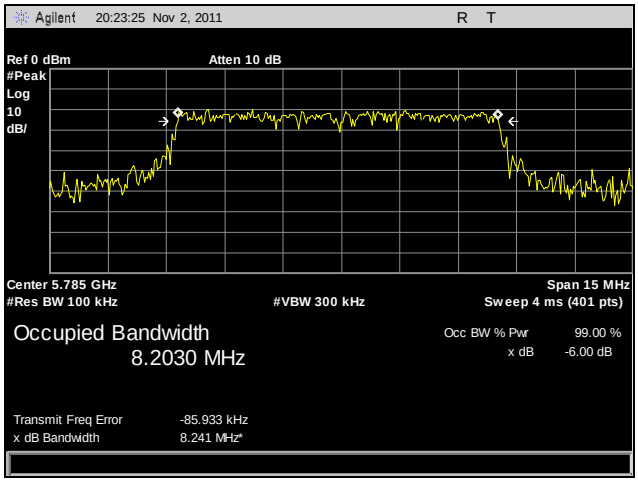


Plot 109. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

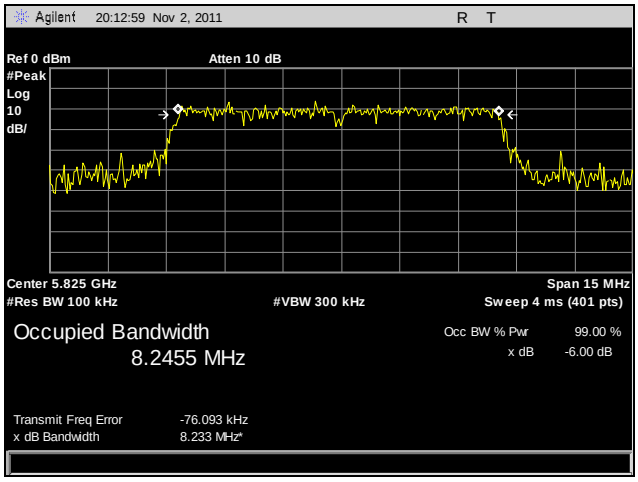
6 dB Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 3, 5.8 GHz



Plot 110. 6 dB Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

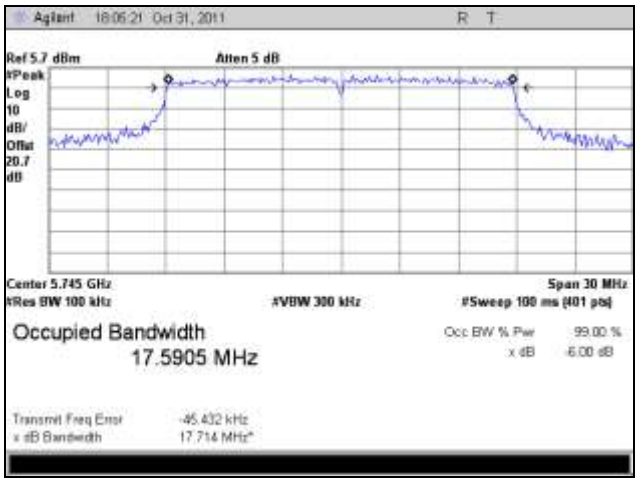


Plot 111. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

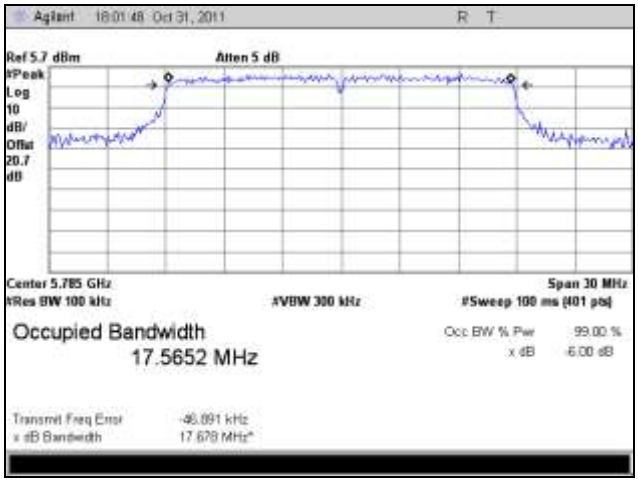


Plot 112. 6 dB Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

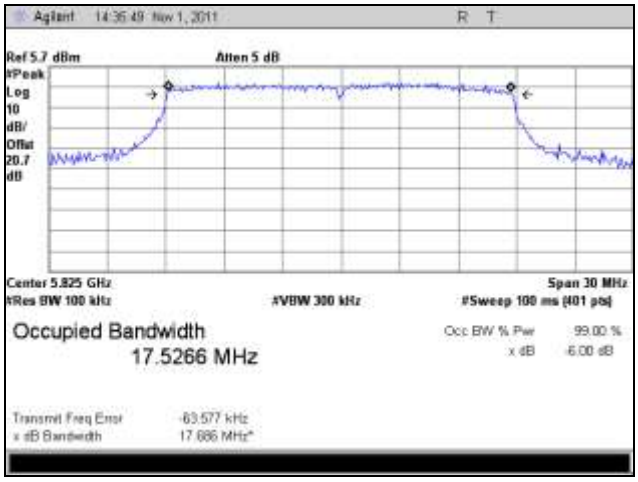
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 5.8 GHz



Plot 113. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

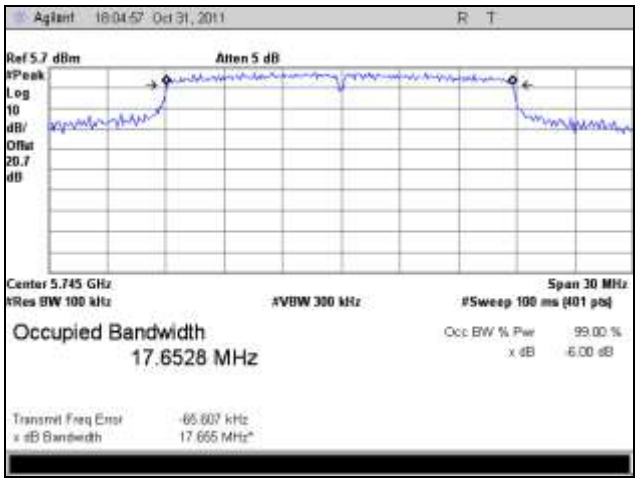


Plot 114. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

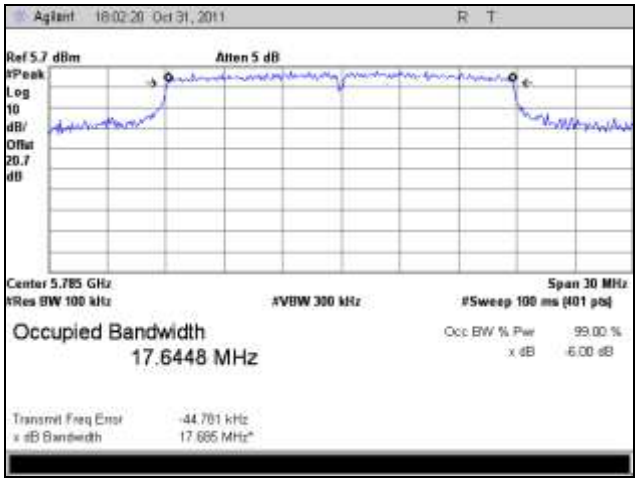


Plot 115. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

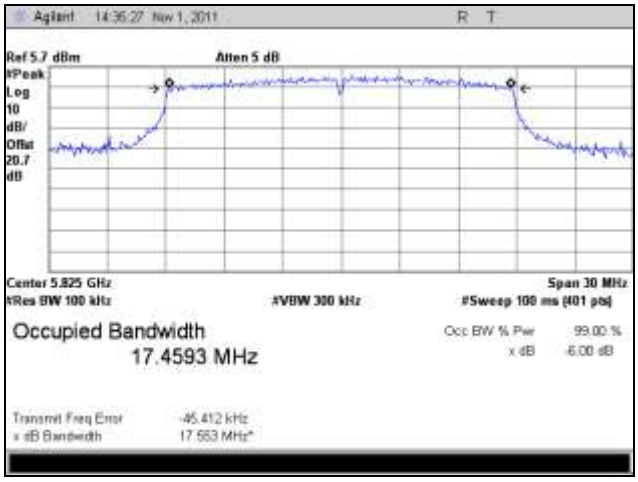
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 5.8 GHz



Plot 116. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

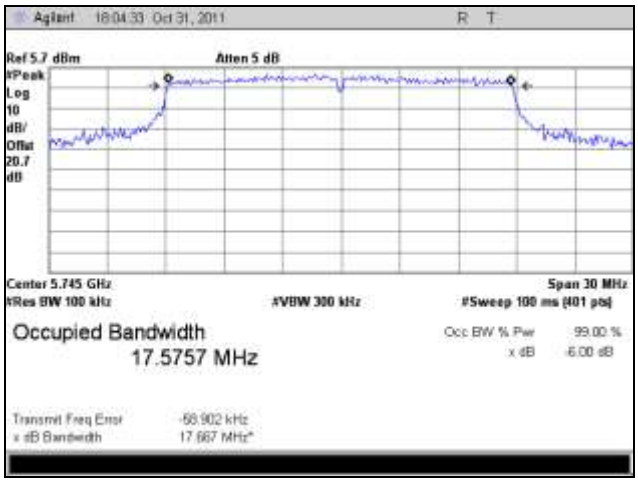


Plot 117. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

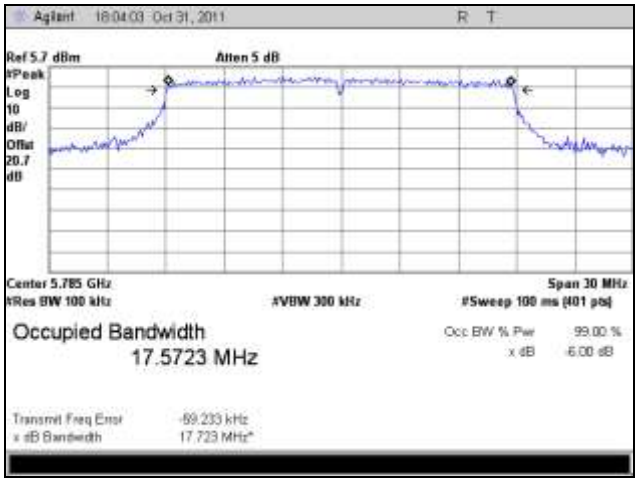


Plot 118. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

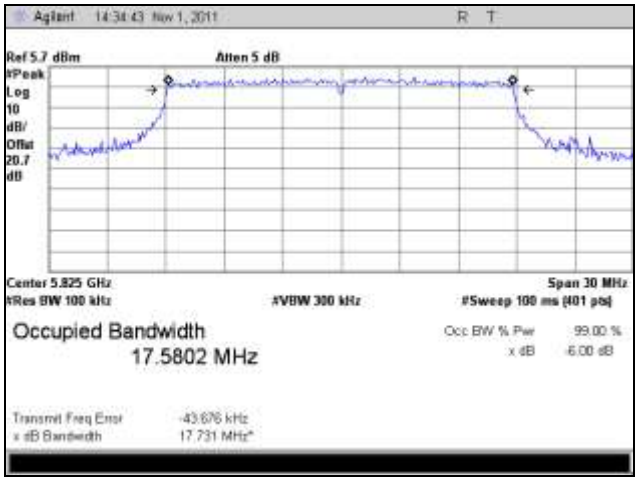
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 5.8 GHz



Plot 119. 6 dB Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

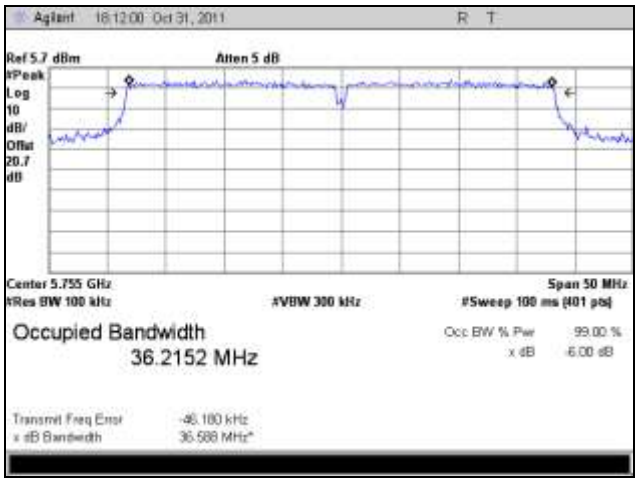


Plot 120. 6 dB Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

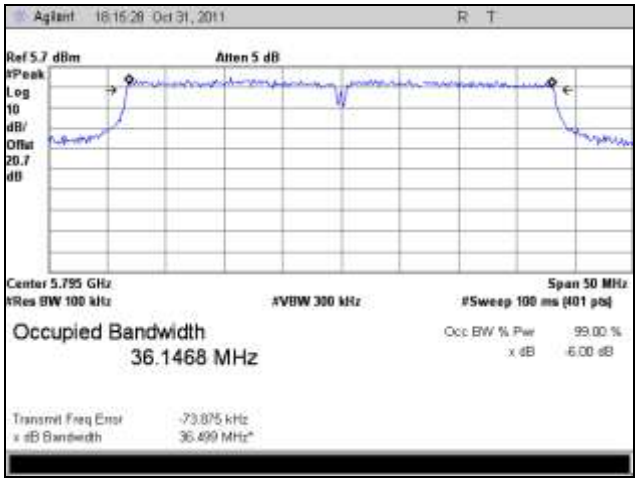


Plot 121. 6 dB Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 5.8 GHz

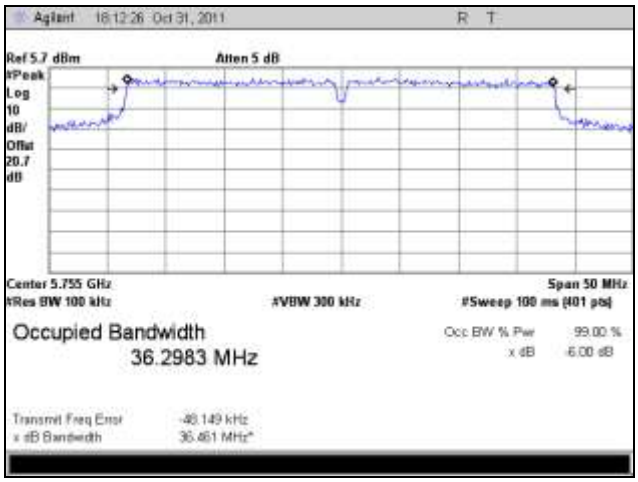


Plot 122. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

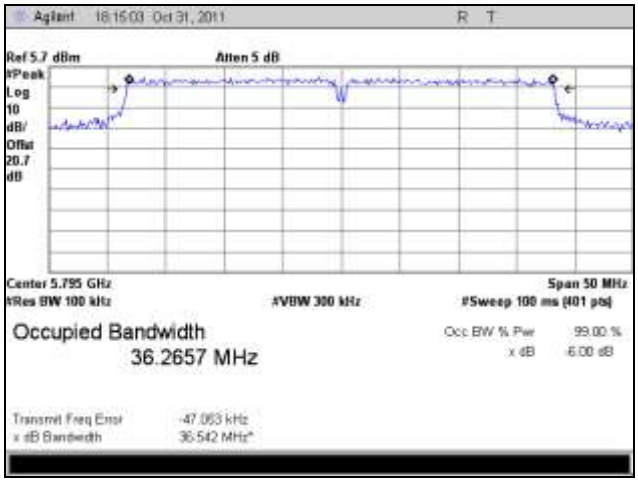


Plot 123. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 5.8 GHz

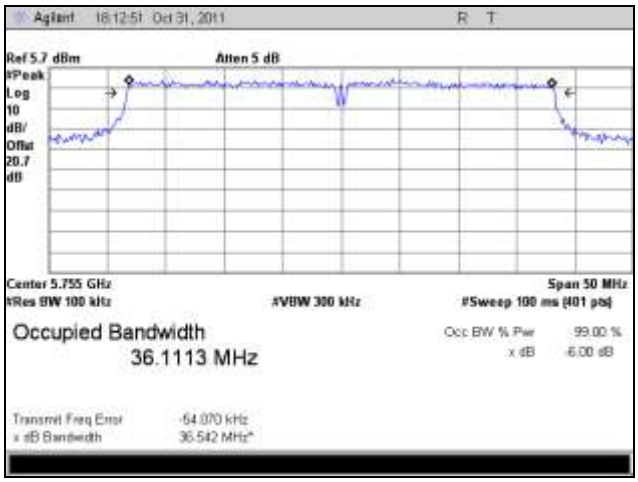


Plot 124. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

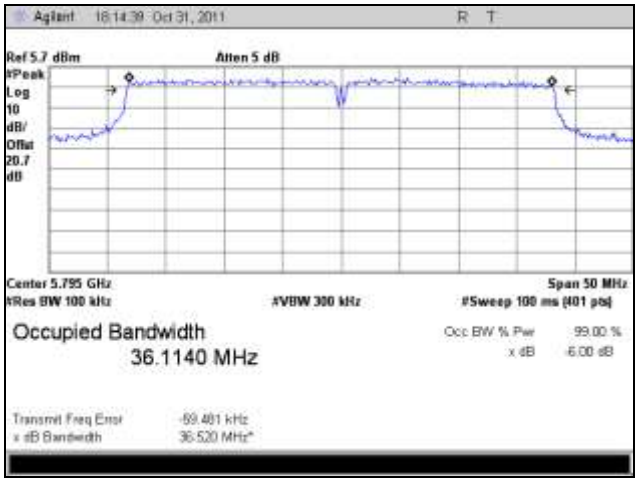


Plot 125. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 5.8 GHz

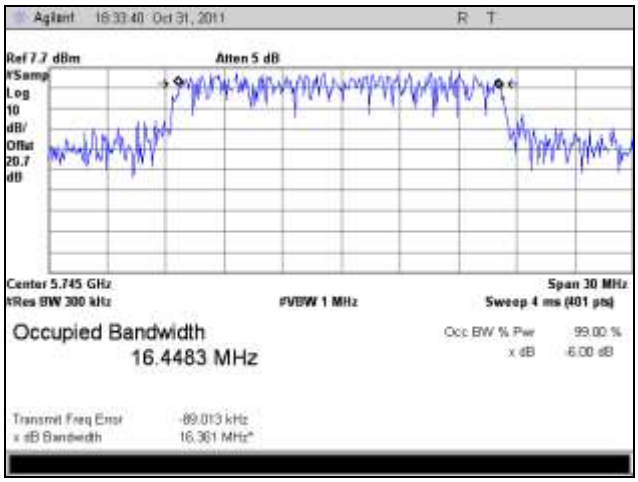


Plot 126. 6 dB Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 3, 5.8 GHz

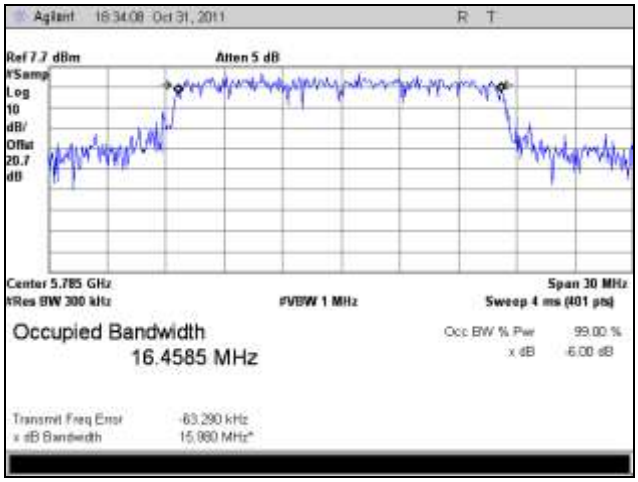


Plot 127. 6 dB Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 3, 5.8 GHz

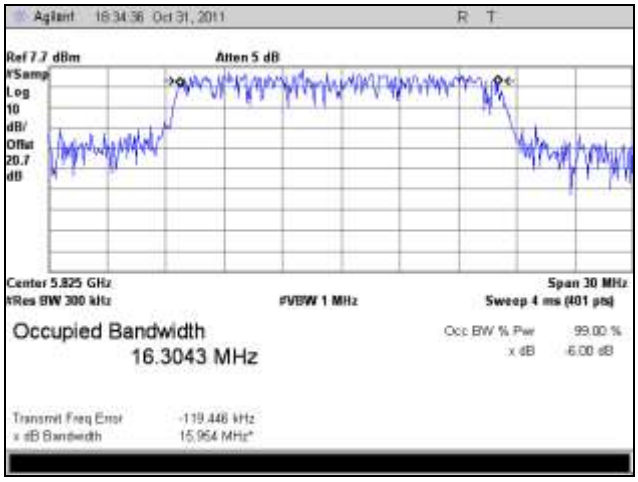
99% Occupied Bandwidth Test Results, 802.11a, 5.8 GHz



Plot 128. 99% Occupied Bandwidth, Low Channel, 802.11a, 5.8 GHz

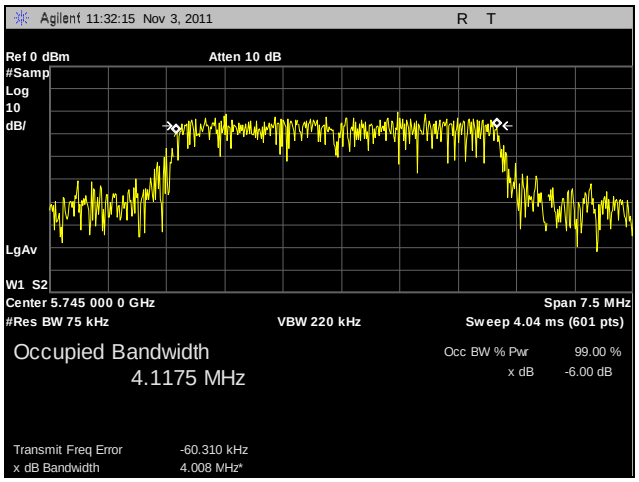


Plot 129. 99% Occupied Bandwidth, Mid Channel, 802.11a, 5.8 GHz

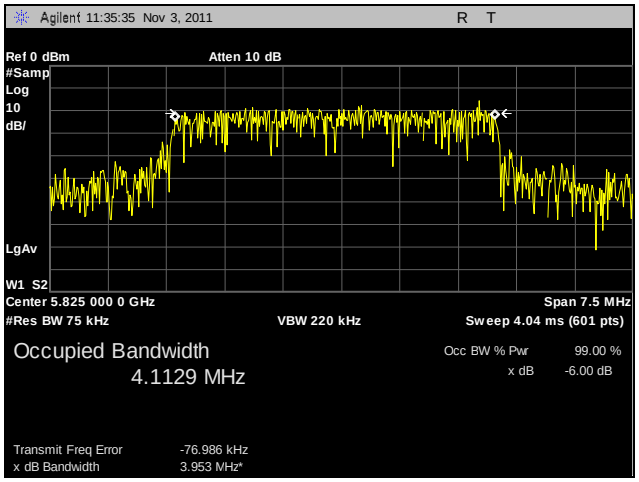


Plot 130. 99% Occupied Bandwidth, High Channel, 802.11a, 5.8 GHz

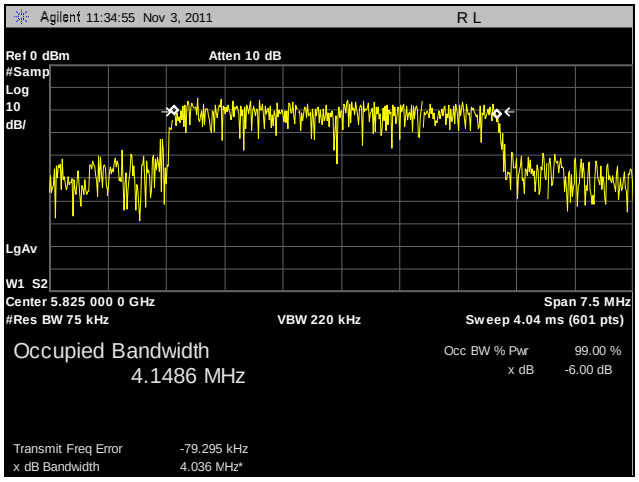
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 1, 5.8 GHz



Plot 131. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

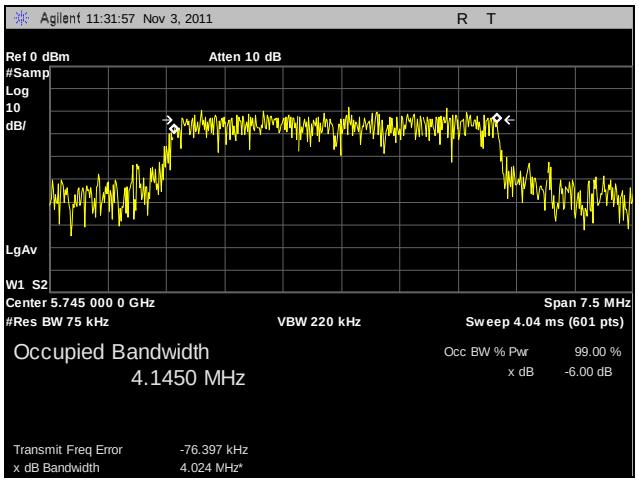


Plot 132. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

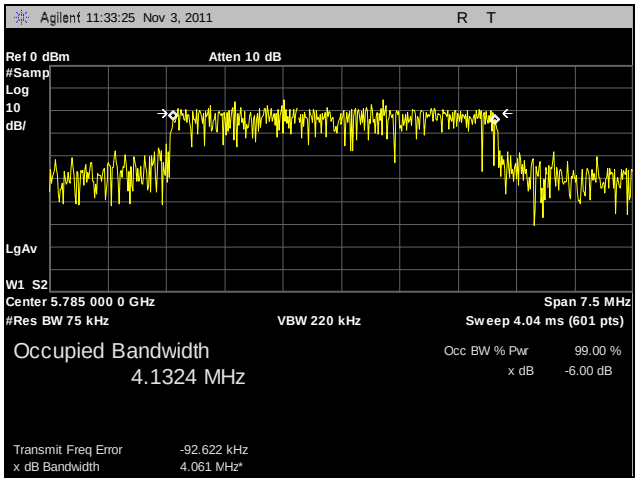


Plot 133. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

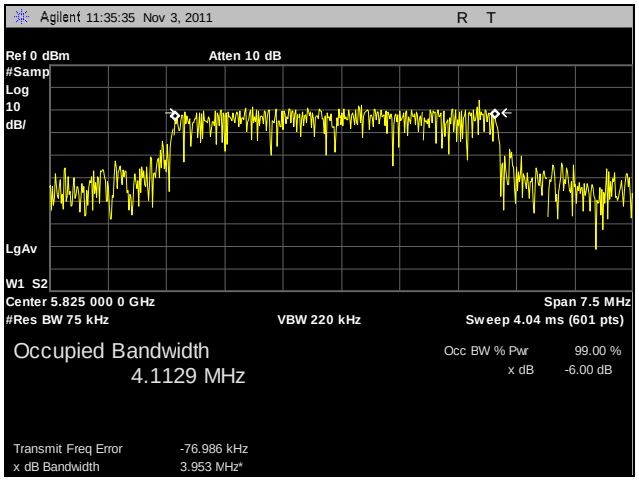
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 2, 5.8 GHz



Plot 134. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

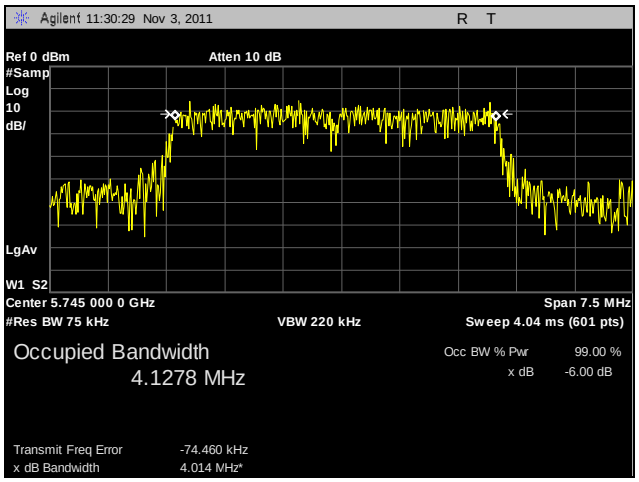


Plot 135. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

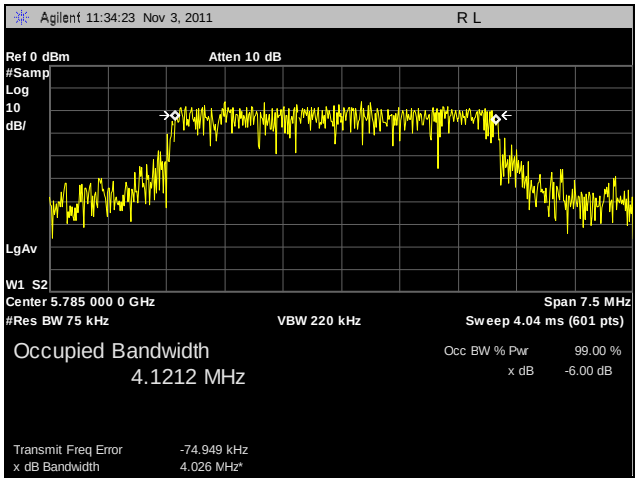


Plot 136. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

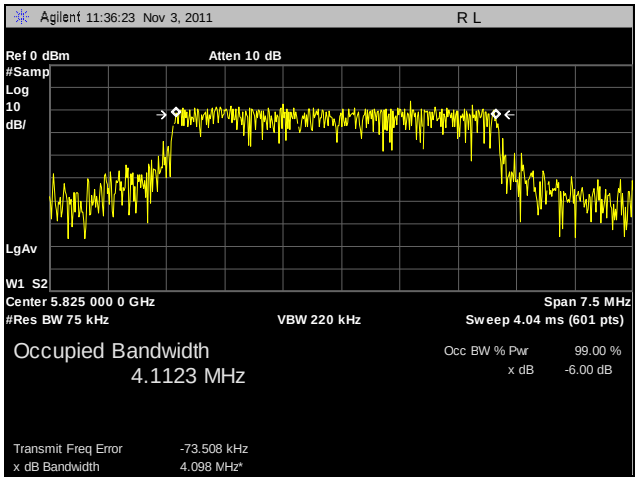
99% Occupied Bandwidth Test Results, 802.11n 5 MHz, Port 3, 5.8 GHz



Plot 137. 99% Occupied Bandwidth, Low Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

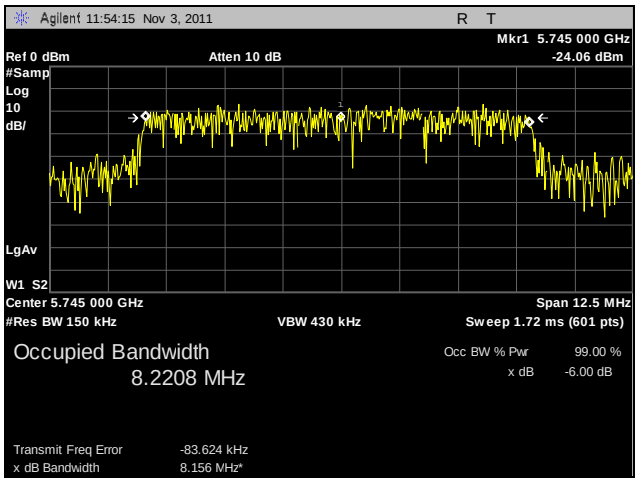


Plot 138. 99% Occupied Bandwidth, Mid Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

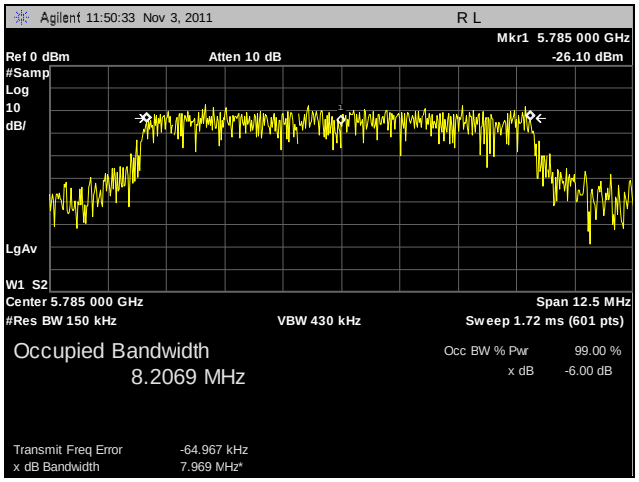


Plot 139. 99% Occupied Bandwidth, High Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

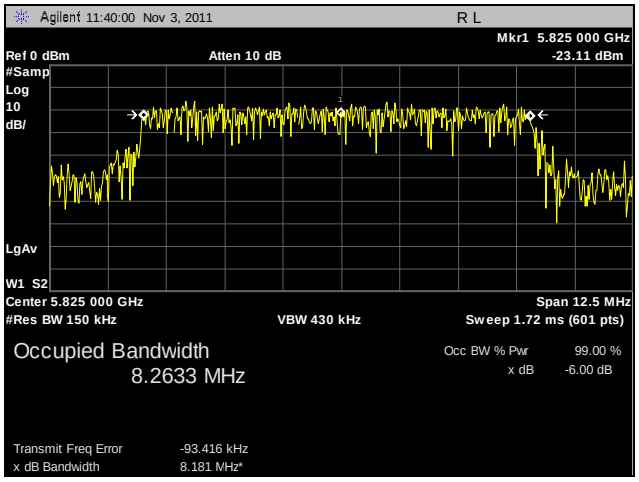
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 1, 5.8 GHz



Plot 140. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

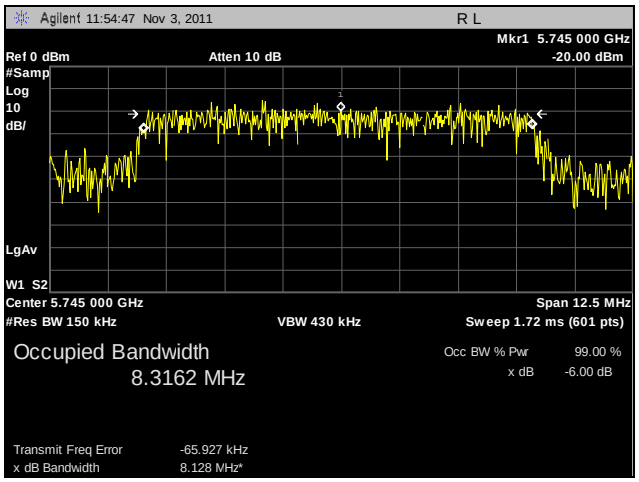


Plot 141. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

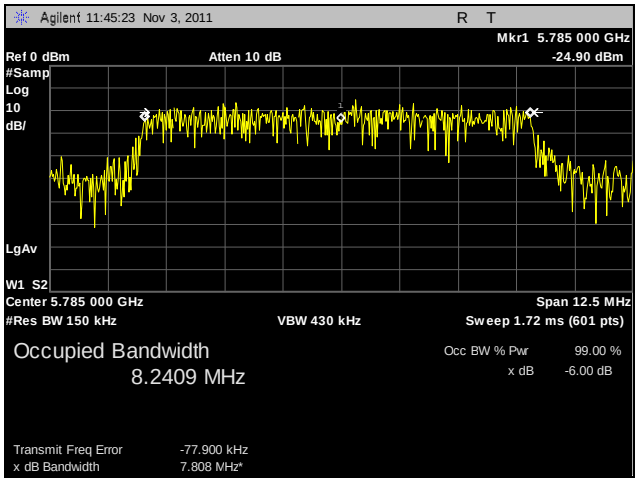


Plot 142. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

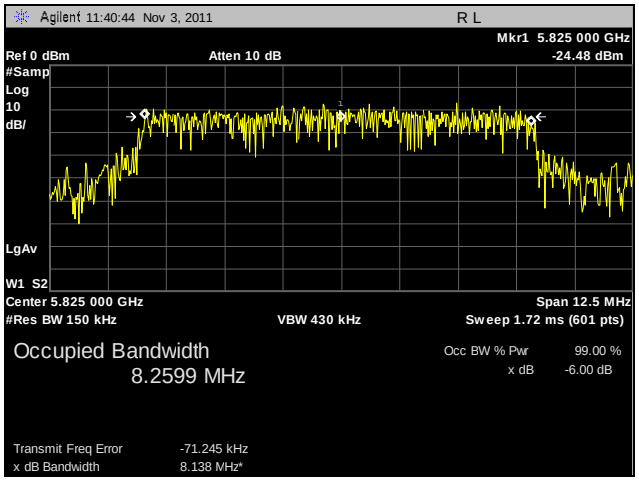
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 2, 5.8 GHz



Plot 143. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

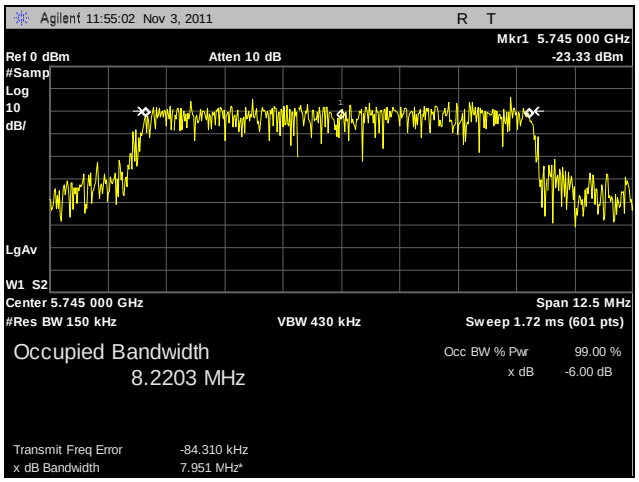


Plot 144. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

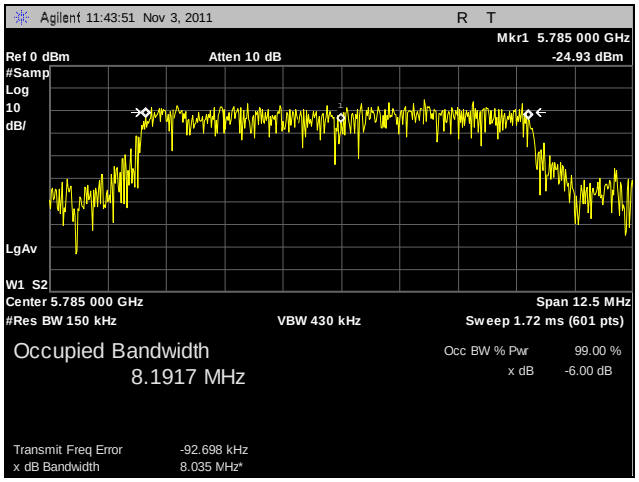


Plot 145. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

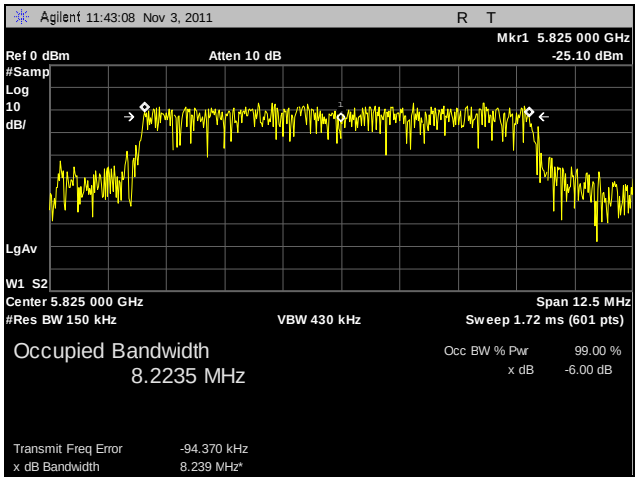
99% Occupied Bandwidth Test Results, 802.11n 10 MHz, Port 3, 5.8 GHz



Plot 146. 99% Occupied Bandwidth, Low Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

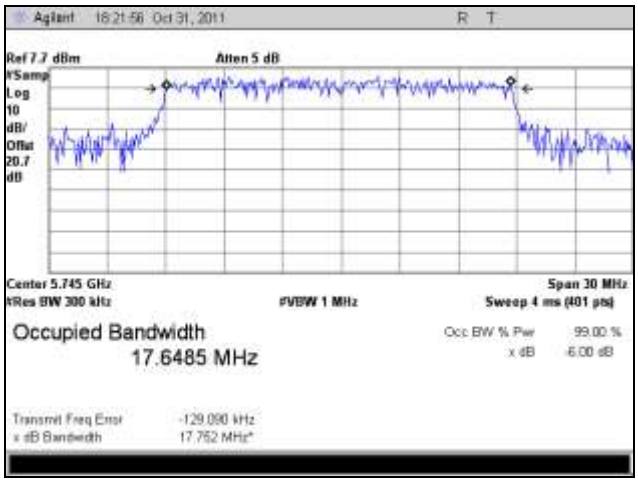


Plot 147. 99% Occupied Bandwidth, Mid Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

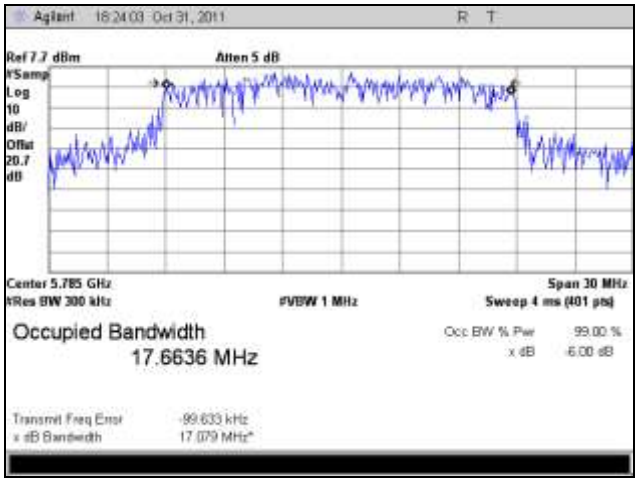


Plot 148. 99% Occupied Bandwidth, High Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

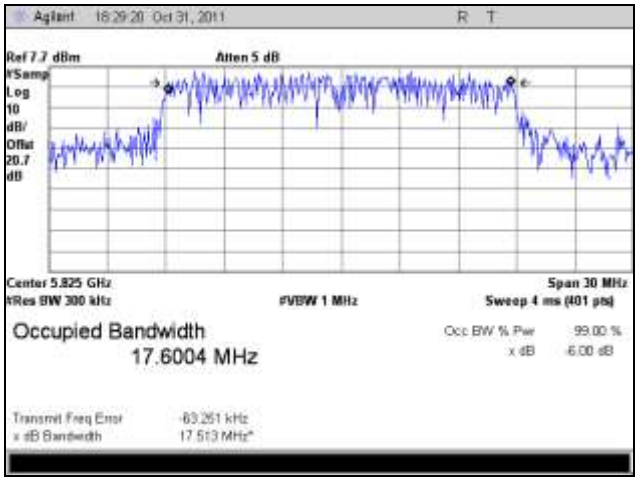
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 5.8 GHz



Plot 149. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

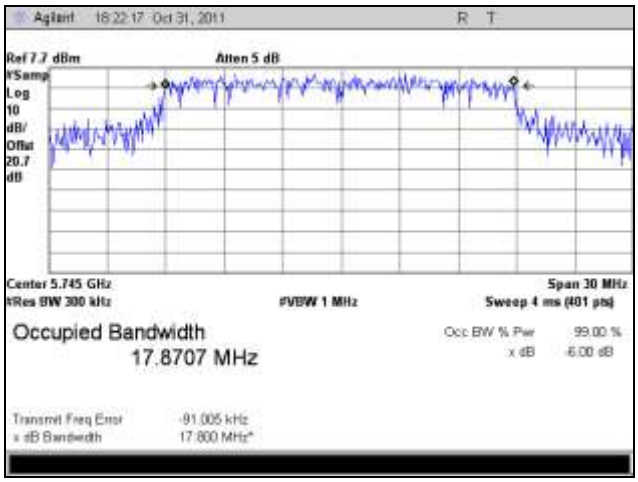


Plot 150. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

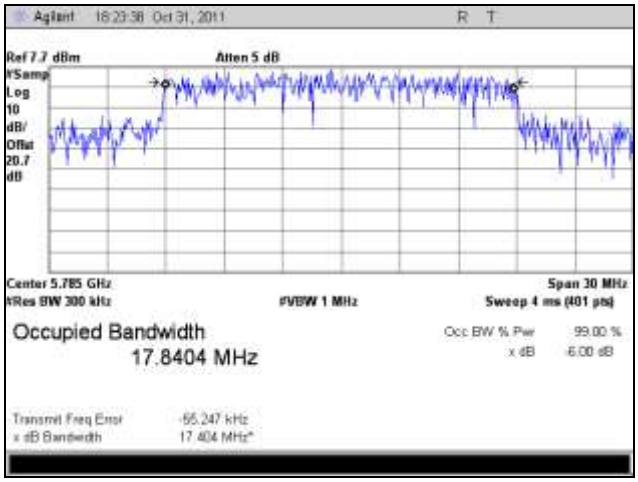


Plot 151. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

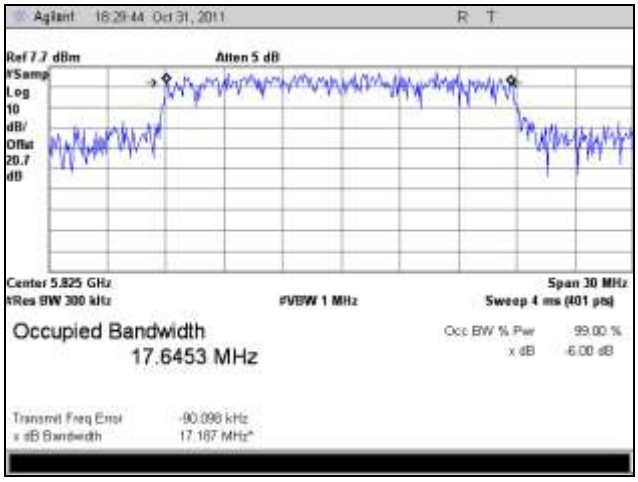
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 5.8 GHz



Plot 152. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

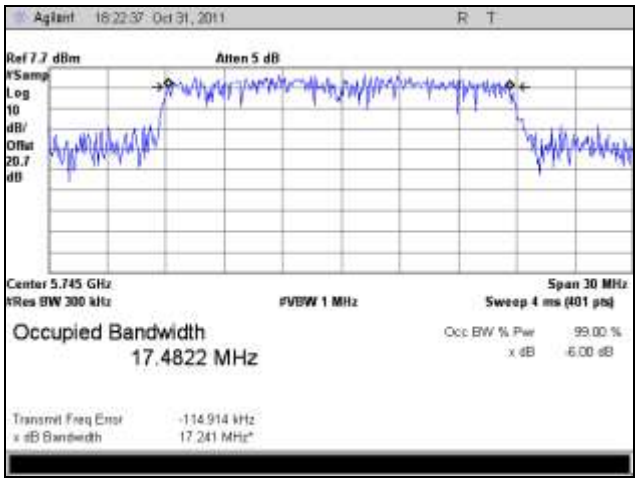


Plot 153. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

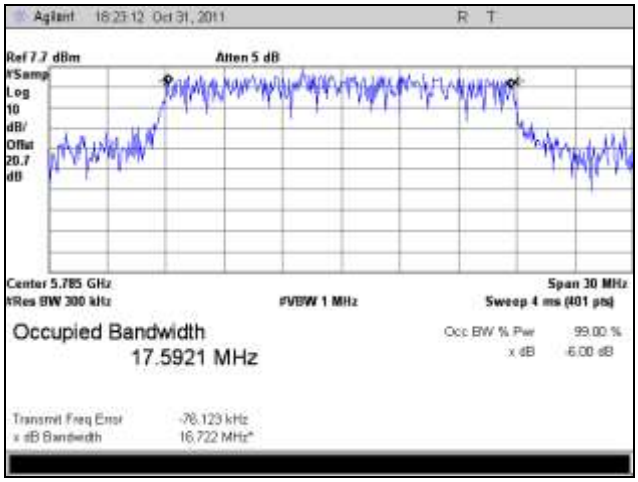


Plot 154. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

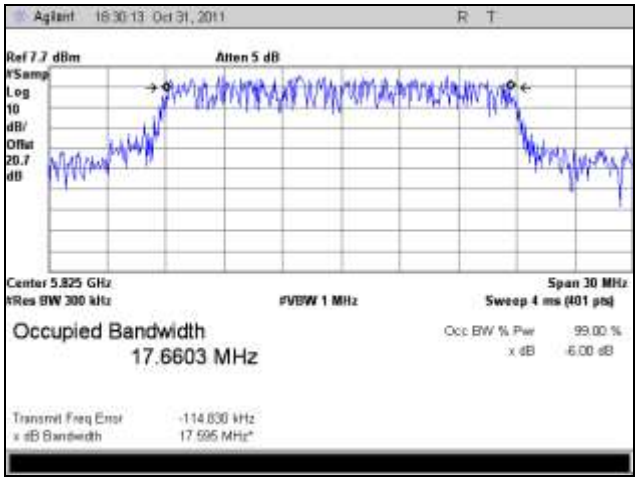
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 5.8 GHz



Plot 155. 99% Occupied Bandwidth, Low Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

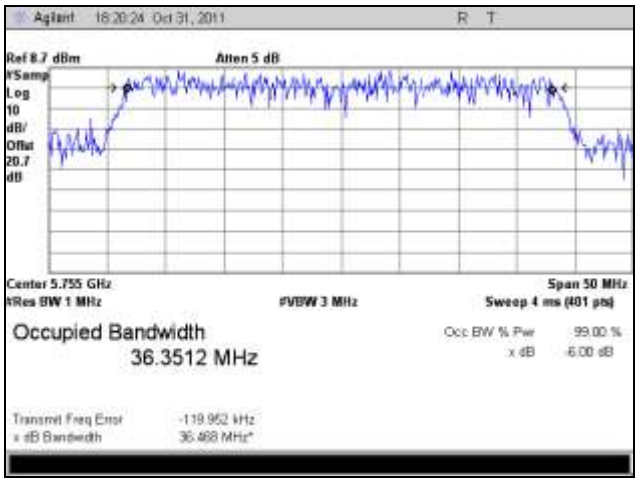


Plot 156. 99% Occupied Bandwidth, Mid Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

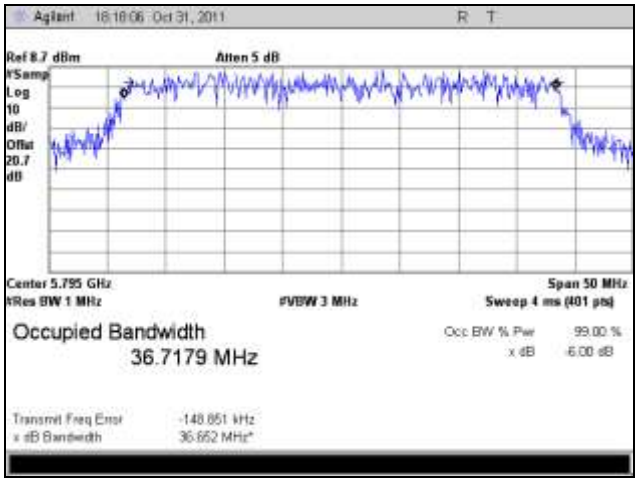


Plot 157. 99% Occupied Bandwidth, High Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 5.8 GHz

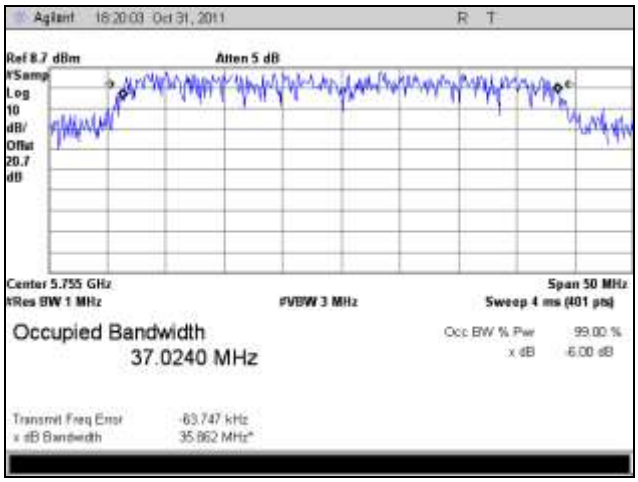


Plot 158. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

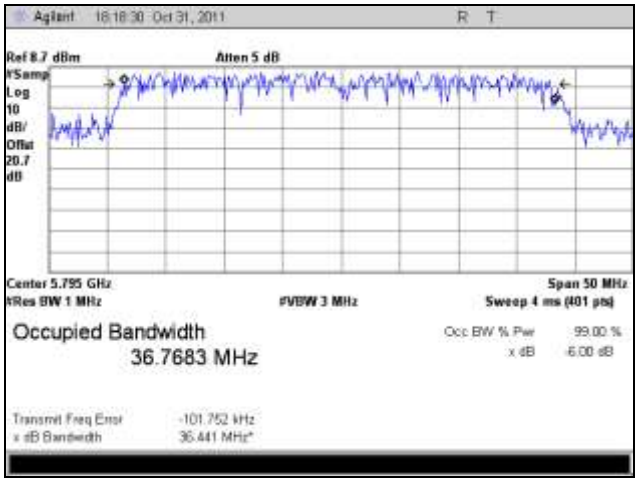


Plot 159. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 5.8 GHz

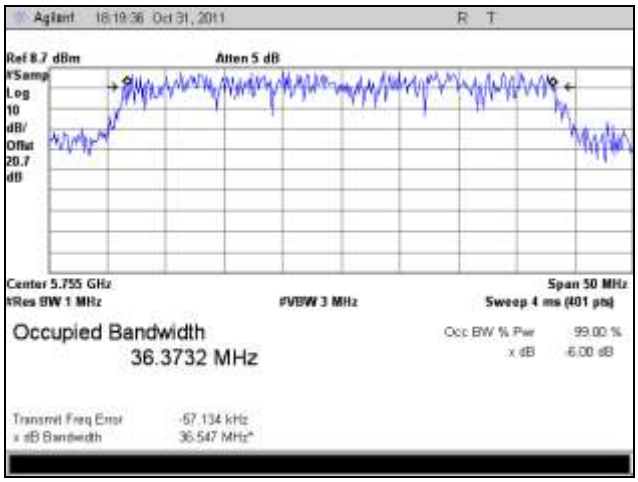


Plot 160. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

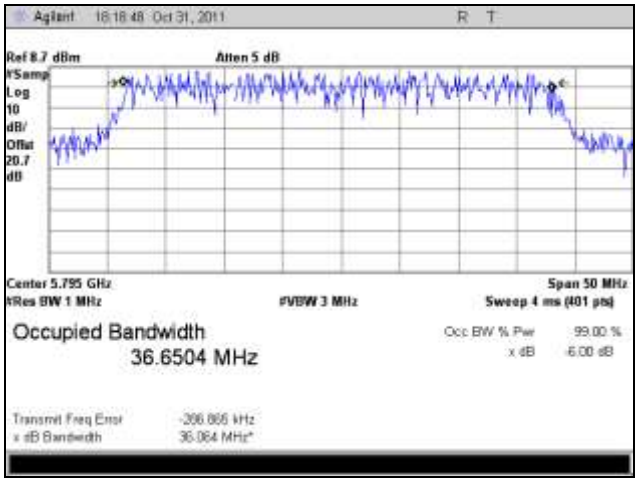


Plot 161. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 5.8 GHz



Plot 162. 99% Occupied Bandwidth, Low Channel, 802.11n 40 MHz, Port 3, 5.8 GHz



Plot 163. 99% Occupied Bandwidth, High Channel, 802.11n 40 MHz, Port 3, 5.8 GHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(b) Peak Power Output

Test Requirements: **§15.247(b):** The maximum peak output power of the intentional radiator shall not exceed the following:

Digital Transmission Systems (MHz)	Output Limit (Watts)
902-928	1.000
2400–2483.5	1.000
5725– 5850	1.000

Table 22. Output Power Requirements from §15.247(b)

§15.247(c): if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in the Table 22, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400 – 2483.5 MHz band and using a point to point application 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.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

Fixed, point-to-point operation excludes the use of point-to-multipoint systems, Omni-directional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

Test Procedure: The transmitter was connected to a calibrated spectrum analyzer. The EUT was measured at the low, mid and high channels of each band at the maximum power level.

Test Results: The EUT was compliant with the Peak Power Output limits of **§15.247(b)**.

Test Engineer(s): Anderson Soungpanya and Lionel Gabrillo

Test Date(s): 12/19/11

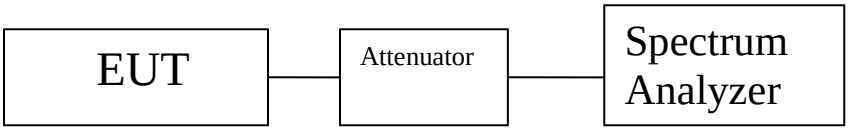


Figure 3. Peak Power Output Test Setup

Peak Power Output Test Results, 2.4 GHz

Peak Conducted Output Power							
Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured Peak Output Power (dBm) Port 1**	**Measured Peak Output Power (dBm) Port 2**	**Measured Peak Output Power (dBm) Port 3**	**Combined Peak Output Power (dBm)**	**Limit (dBm)**
802.11b	Low	2412	27.29	--	--	--	30
	Mid	2437	28.58	--	--	--	30
	High	2462	26.23	--	--	--	30
802.11g	Low	2412	23.07	--	--	--	30
		2417	26.55	--	--	--	30
	Mid	2437	26.15	--	--	--	30
	High	2457	27.05	--	--	--	30
		2462	24.78	--	--	--	30
802.11n 5 MHz	Low	2412	21.42	21.32	21.45	26.168	26.23
	Mid	2437	21.28	21.38	21.36	26.111	26.23
	High	2462	20.89	20.87	21.00	25.692	26.23
802.11n 10 MHz	Low	2412	20.12	21.40	21.33	25.760	26.23
	Mid	2437	20.10	20.71	21.02	25.398	26.23
	High	2462	20.82	20.80	21.12	25.687	26.23
802.11n 20 MHz	Low	2412	17.52	17.46	17.44	22.245	26.23
	Mid	2437	21.72	20.80	20.53	25.818	26.23
	High	2462	18.37	18.12	18.77	23.200	26.23
802.11n 40 MHz	Low	2422	12.53	12.22	12.51	17.194	26.23
		2427	16.91	16.03	16.15	21.152	26.23
		2432	18.66	18.71	18.49	23.392	26.23
	Mid	2437	20.43	20.45	20.97	25.395	26.23
	High	2442	18.74	18.65	18.19	23.304	26.23
		2447	16.75	16.54	16.48	21.363	26.23
		2452	17.70	13.09	12.69	19.905	26.23

Table 23. Peak Power Output, Test Results, 2.4 GHz (5 dBi Omni)

Mode	**Carrier Channel**	**Frequency (MHz)**	**Measured Peak Output Power (dBm) Port 1**	**Limit (dBm)**
802.11b	Low	2412	25.62	28
	Mid	2437	26.38	28
	High	2462	25.19	28
802.11g	Low	2412	22.32	28
		2417	25.89	28
	Mid	2437	25.72	28
	High	2457	25.36	28
		2462	23.72	28

Table 24. Peak Power Output, Test Results, 2.4 GHz (8 dBi Omni)

Peak Power Output Test Results, 5.8 GHz

Mode	Channel	Frequency (MHz)	Conducted power (dBm) Port 1	Conducted power (dBm) Port 2	Conducted power (dBm) Port 3	Conducted power (dBm) Combined	Limit (dBm)
802.11a	Low	5745	22.04	--	--	--	27
	Mid	5785	22.10	--	--	--	27
	High	5825	22.32	--	--	--	27
802.11n 5 MHz	Low	5745	21.54	21.71	21.34	26.304	27
	Mid	5785	21.84	21.73	21.83	26.571	27
	High	5825	21.85	21.86	22.28	26.773	27
802.11n 10 MHz	Low	5745	21.68	21.69	21.92	26.536	27
	Mid	5785	22.05	21.89	21.91	26.722	27
	High	5825	21.77	21.80	22.35	26.753	27
802.11n 20 MHz	Low	5745	22.04	21.57	21.92	26.619	27
	Mid	5785	22.16	21.76	21.85	26.698	27
	High	5825	21.74	21.98	21.80	26.612	27
802.11n 40 MHz	Low	5755	21.69	21.85	21.49	26.450	27
	High	5795	21.95	21.95	21.91	26.708	27

Table 25. Peak Power Output, Test Results, 5.8 GHz (9dBi Omni Antenna)

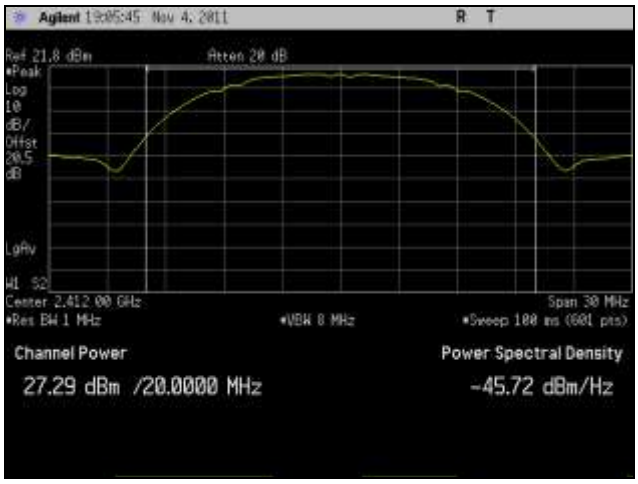
Mode	Channel	Frequency (MHz)	Conducted power (dBm) Port 1	Conducted power (dBm) Port 2	Conducted power (dBm) Port 3	Conducted power (dBm) Combined	Limit (dBm)
802.11a	Low	5745	19.63	--	--	--	21
	Mid	5785	18.34	--	--	--	21
	High	5825	18.50	--	--	--	21
802.11n 5 MHz	Low	5745	16.21	16.11	16.18	20.938	21
	Mid	5785	15.97	16.22	16.02	20.843	21
	High	5825	16.01	15.99	15.96	20.758	21
802.11n 10 MHz	Low	5745	16.12	16.23	16.10	20.922	21
	Mid	5785	15.97	16.03	16.03	20.781	21
	High	5825	15.81	15.66	15.74	20.508	21
802.11n 20 MHz	Low	5745	16.23	16.02	16.12	20.895	21
	Mid	5785	15.78	16.23	16.10	20.812	21
	High	5825	16.03	15.97	15.66	20.661	21
802.11n 40 MHz	Low	5755	14.89	14.68	14.72	19.536	21
	High	5795	14.12	14.23	14.21	18.958	21

Table 26. Peak Power Output, Test Results, 5.8 GHz (15dBi Sector Antenna)

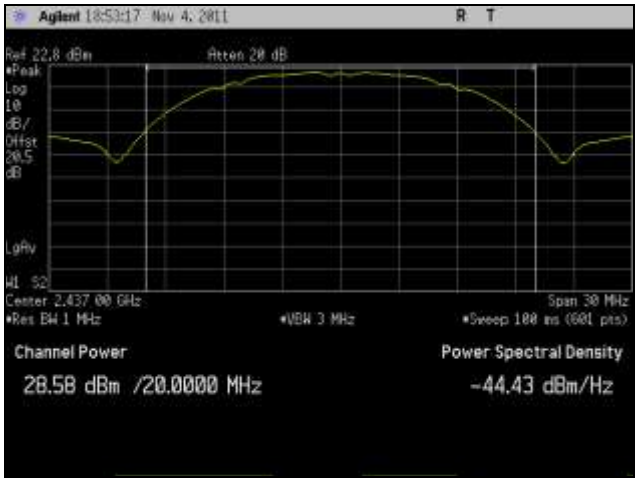
Mode	Channel	Frequency (MHz)	Conducted power (dBm) Port 1	Conducted power (dBm) Port 2	Conducted power (dBm) Port 3	Conducted power (dBm) Combined	Limit (dBm)
802.11a	Low	5745	19.63	--	--	--	20
	Mid	5785	18.34	--	--	--	20
	High	5825	18.50	--	--	--	20
802.11n 5 MHz	Low	5745	15.21	15.20	15.23	19.985	20
	Mid	5785	15.12	15.19	15.11	19.911	20
	High	5825	15.09	15.01	15.21	19.875	20
802.11n 10 MHz	Low	5745	15.01	15.05	15.20	19.859	20
	Mid	5785	15.04	15.12	15.18	19.885	20
	High	5825	15.02	14.94	15.11	19.795	20
802.11n 20 MHz	Low	5745	15.02	15.12	15.22	19.892	20
	Mid	5785	14.99	15.20	15.19	19.899	20
	High	5825	14.96	15.17	15.12	19.855	20
802.11n 40 MHz	Low	5755	14.65	14.49	14.29	19.250	20
	High	5795	14.23	14.67	14.48	19.235	20

Table 27. Peak Power Output, Test Results, 5.8 GHz (16dBi Panel Antenna)

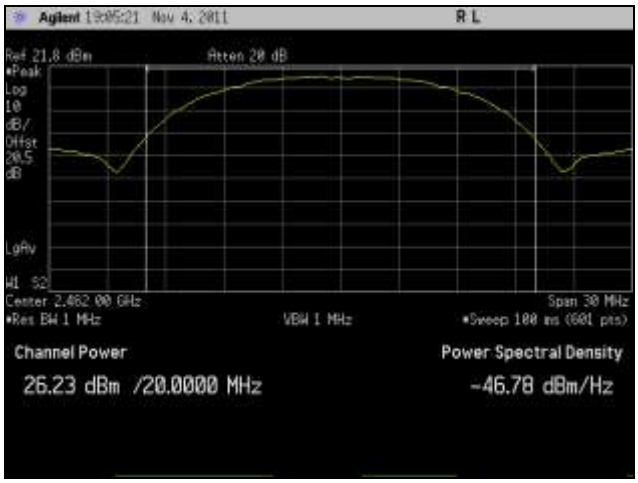
Peak Power Output Test Results, 802.11b, 2.4 GHz



Plot 164. Peak Power Output, Low Channel, 802.11b, 2.4 GHz



Plot 165. Peak Power Output, Mid Channel, 802.11b, 2.4 GHz



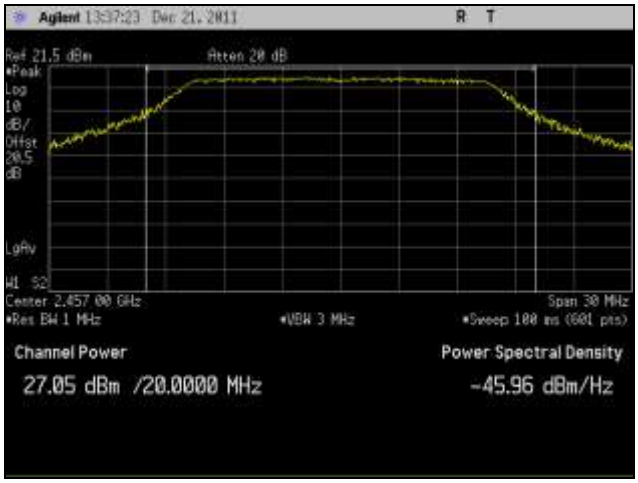
Plot 166. Peak Power Output, High Channel, 802.11b, 2.4 GHz

Peak Power Output Test Results, 802.11g, 2.4 GHz

Plot 167. Peak Power Output, Low Channel (2412 MHz), 802.11g, 2.4 GHz

Plot 168. Peak Power Output, Low Channel (2417 MHz), 802.11g, 2.4 GHz

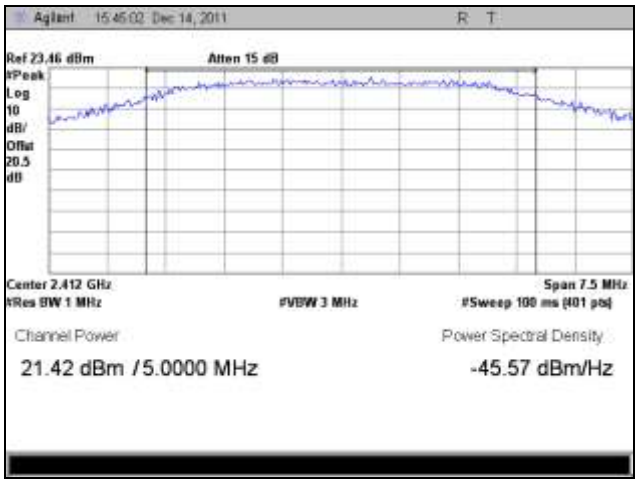
Plot 169. Peak Power Output, Mid Channel, 802.11g, 2.4 GHz



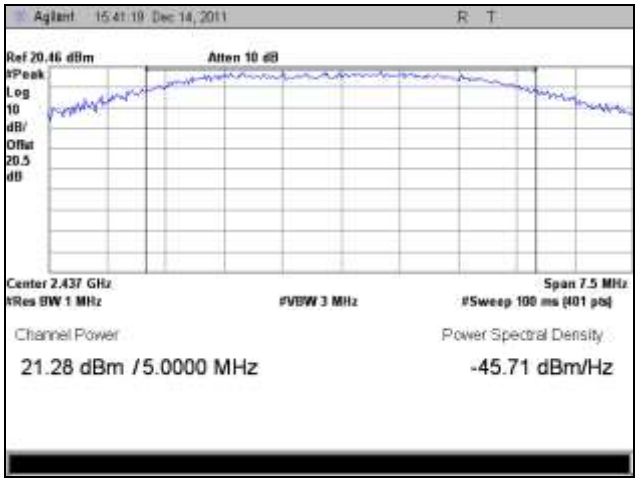
Plot 170. Peak Power Output, High Channel (2457 MHz), 802.11g, 2.4 GHz

Plot 171. Peak Power Output, High Channel (2462 MHz), 802.11g, 2.4 GHz

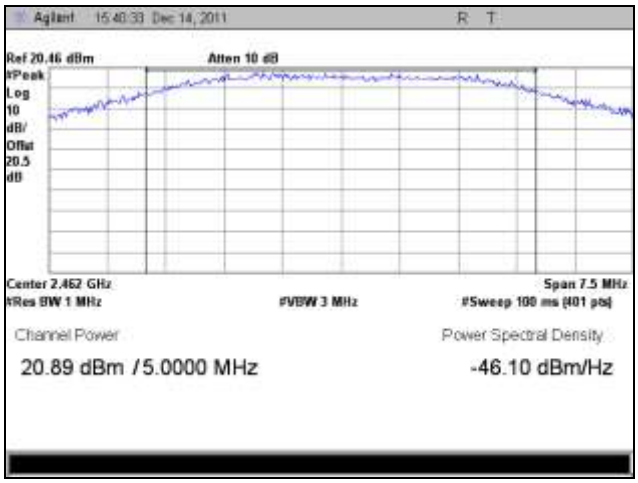
Peak Power Output Test Results, 802.11n 5 MHz, Port 1, 2.4 GHz



Plot 172. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

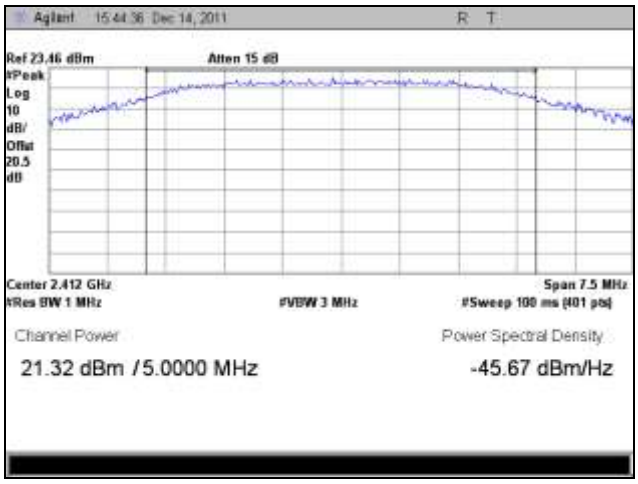


Plot 173. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

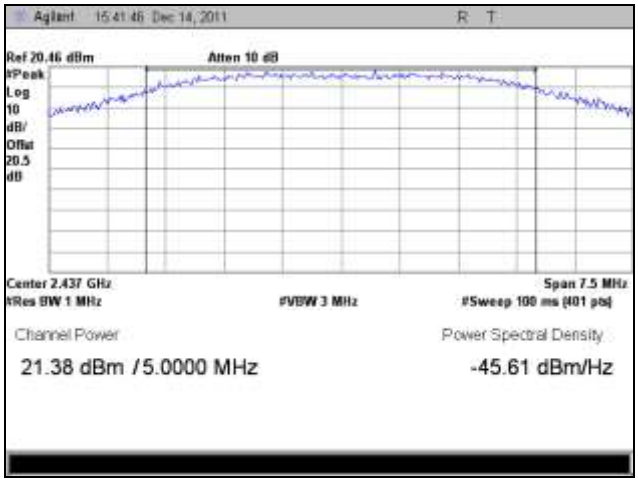


Plot 174. Peak Power Output, High Channel, 802.11n 5 MHz, Port 1, 2.4 GHz

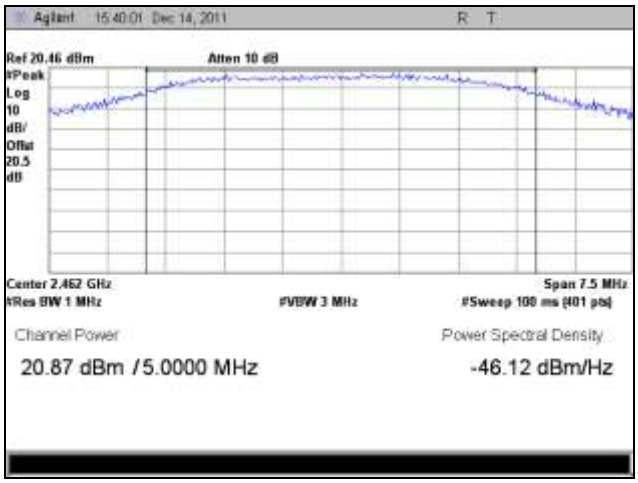
Peak Power Output Test Results, 802.11n 5 MHz, Port 2, 2.4 GHz



Plot 175. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

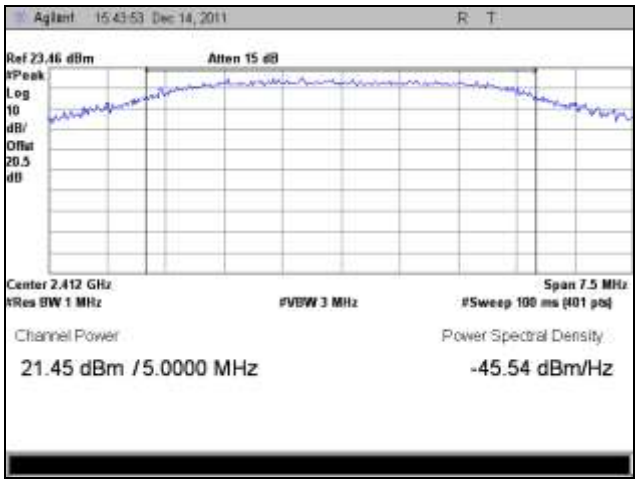


Plot 176. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

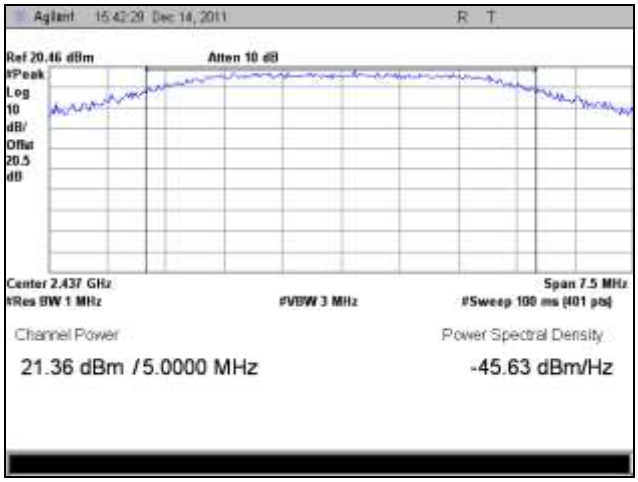


Plot 177. Peak Power Output, High Channel, 802.11n 5 MHz, Port 2, 2.4 GHz

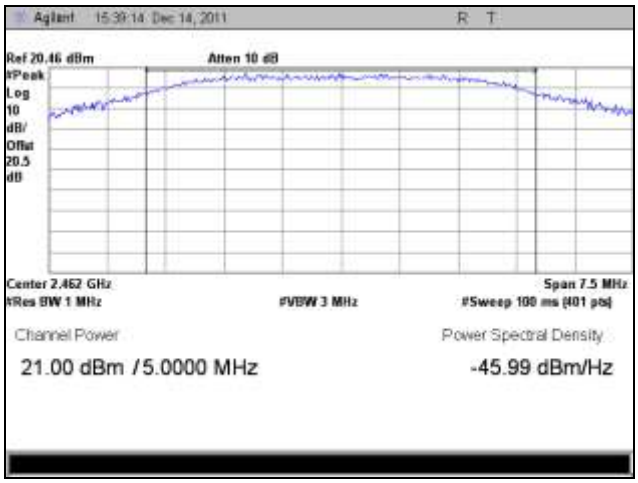
Peak Power Output Test Results, 802.11n 5 MHz, Port 3, 2.4 GHz



Plot 178. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

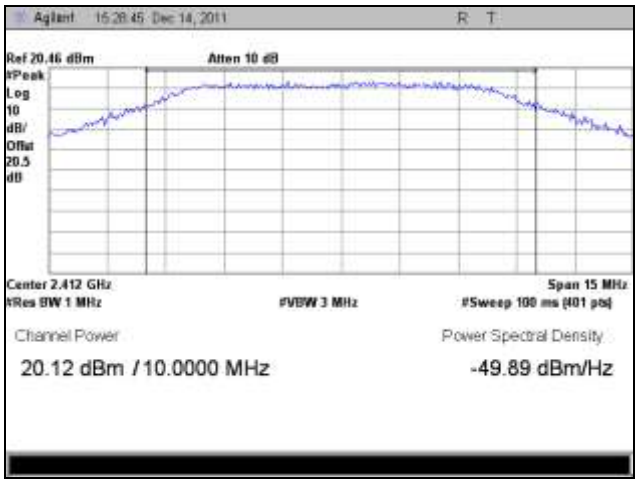


Plot 179. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

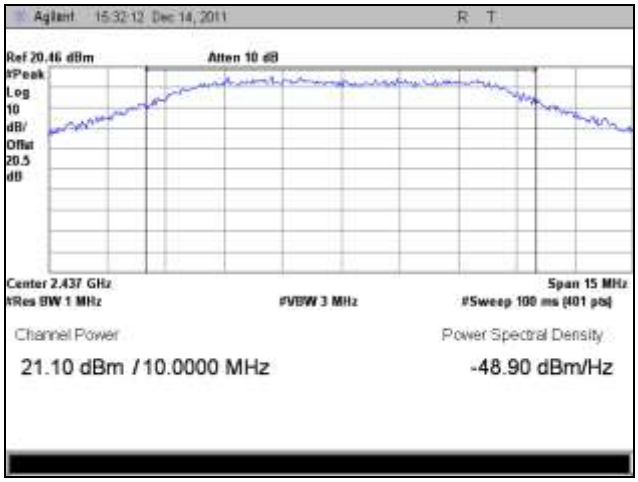


Plot 180. Peak Power Output, High Channel, 802.11n 5 MHz, Port 3, 2.4 GHz

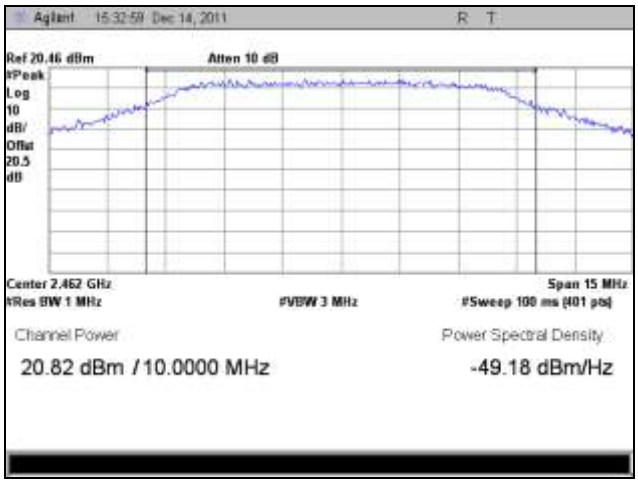
Peak Power Output Test Results, 802.11n 10 MHz, Port 1, 2.4 GHz



Plot 181. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

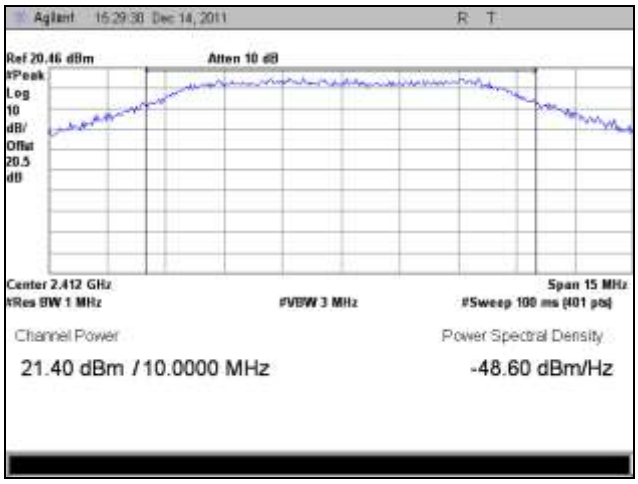


Plot 182. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

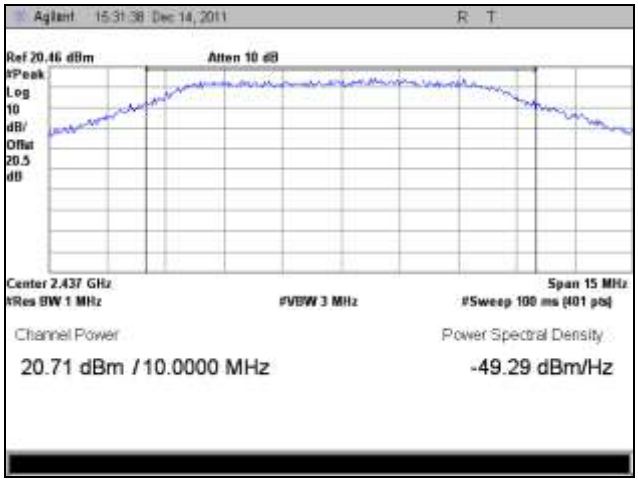


Plot 183. Peak Power Output, High Channel, 802.11n 10 MHz, Port 1, 2.4 GHz

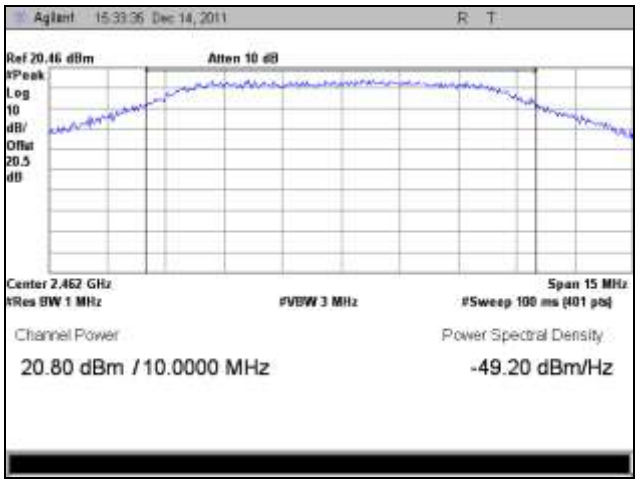
Peak Power Output Test Results, 802.11n 10 MHz, Port 2, 2.4 GHz



Plot 184. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

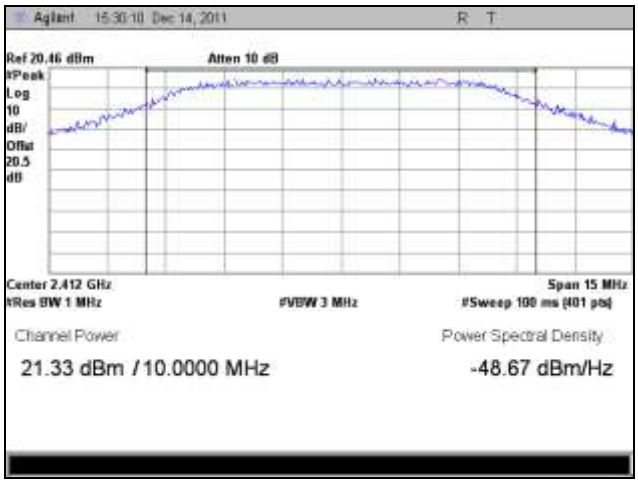


Plot 185. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

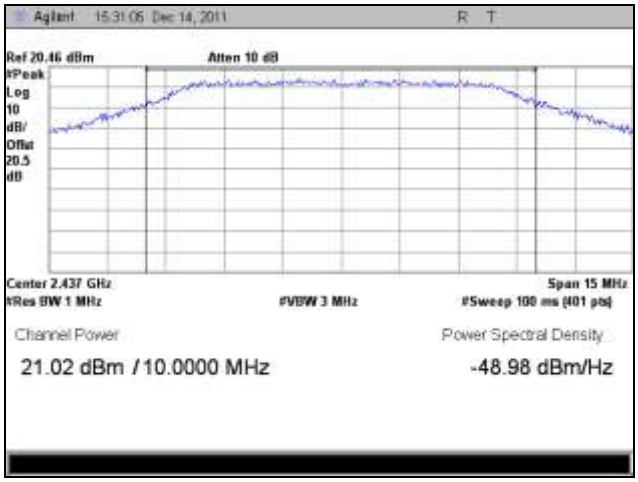


Plot 186. Peak Power Output, High Channel, 802.11n 10 MHz, Port 2, 2.4 GHz

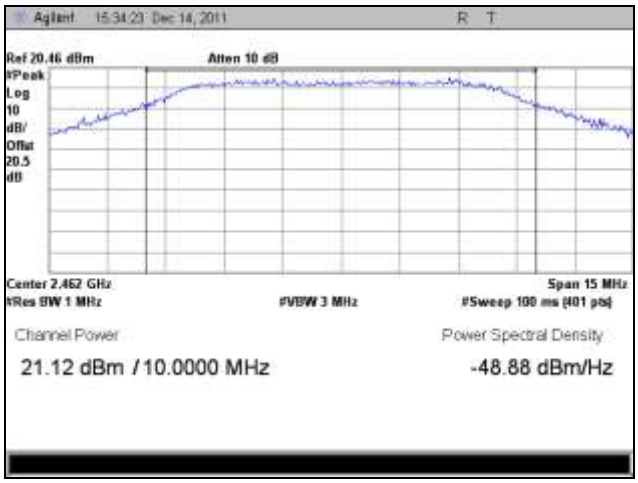
Peak Power Output Test Results, 802.11n 10 MHz, Port 3, 2.4 GHz



Plot 187. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

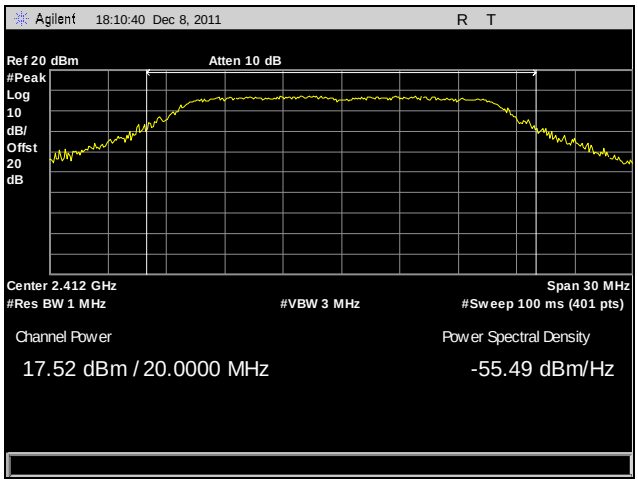


Plot 188. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

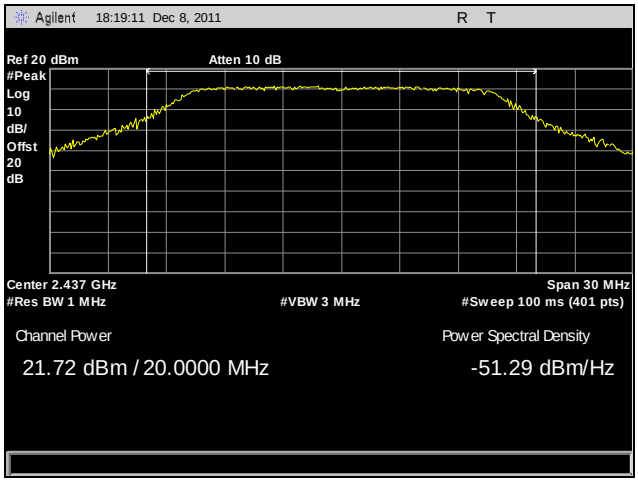


Plot 189. Peak Power Output, High Channel, 802.11n 10 MHz, Port 3, 2.4 GHz

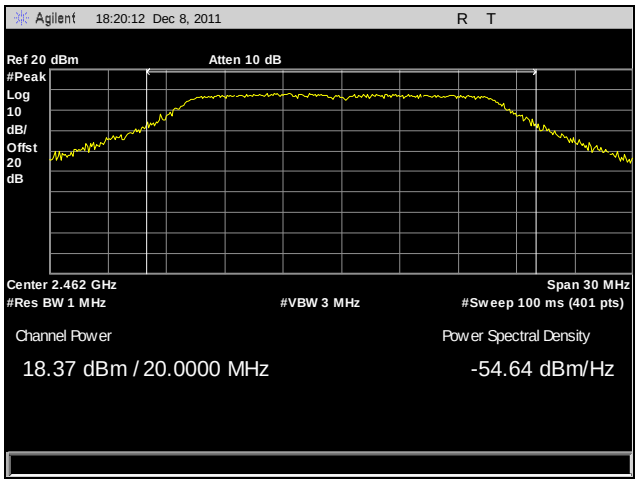
Peak Power Output Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 190. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

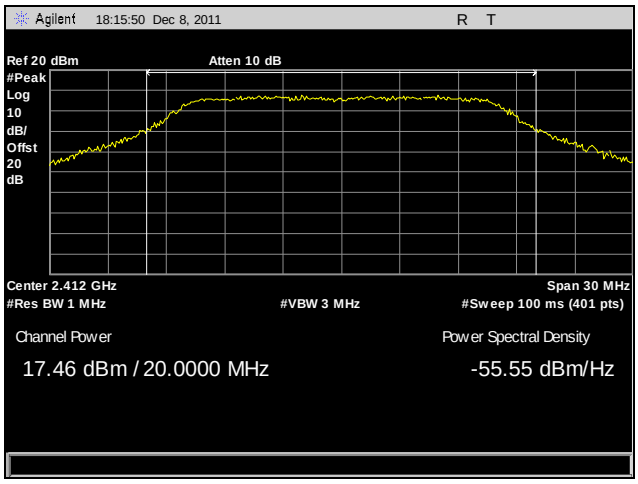


Plot 191. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

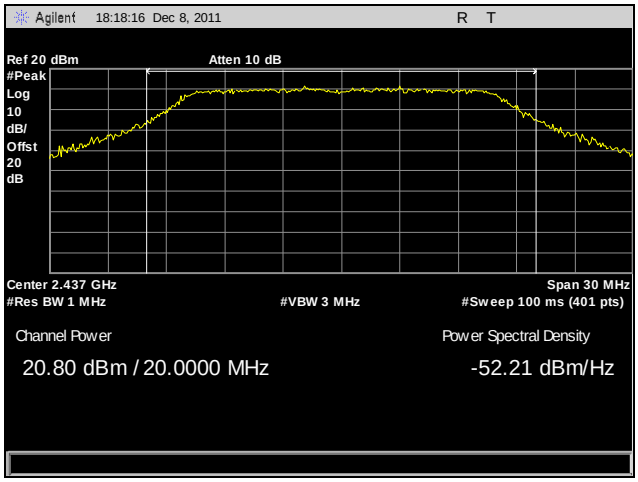


Plot 192. Peak Power Output, High Channel, 802.11n 20 MHz, Port 1, 2.4 GHz

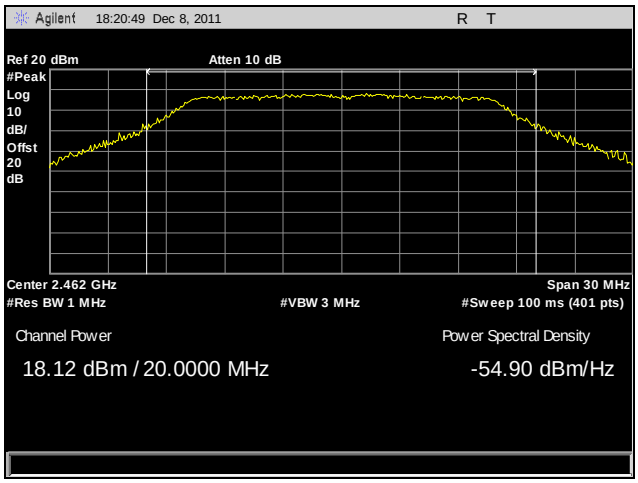
Peak Power Output Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 193. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

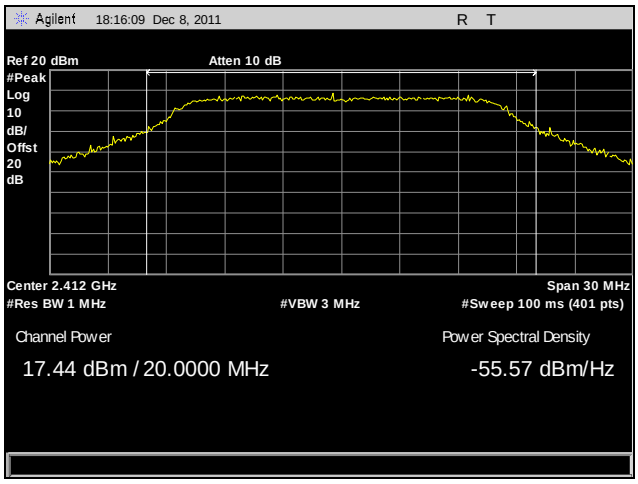


Plot 194. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

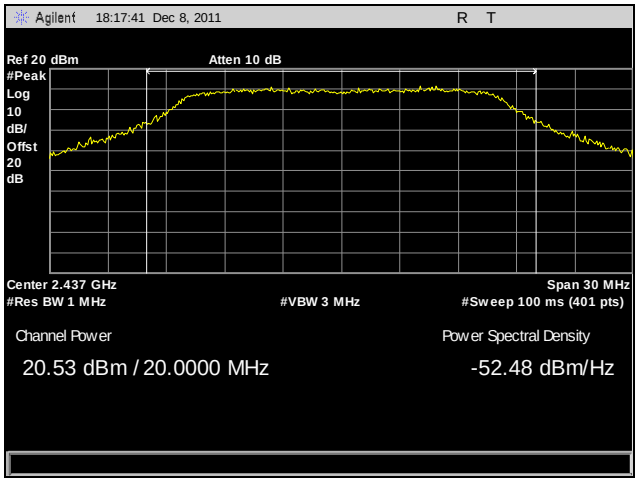


Plot 195. Peak Power Output, High Channel, 802.11n 20 MHz, Port 2, 2.4 GHz

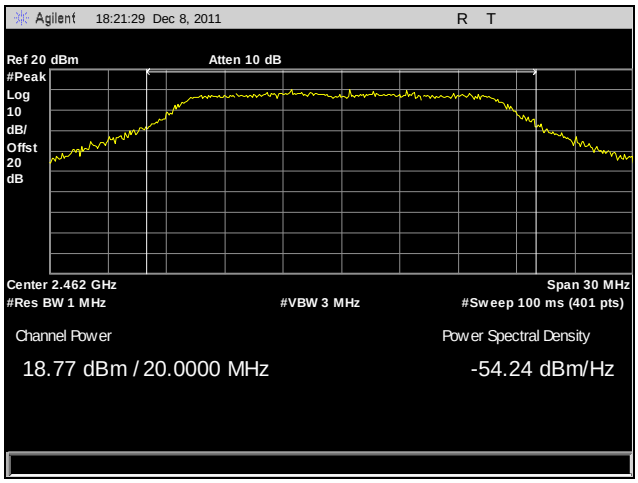
Peak Power Output Test Results, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 196. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

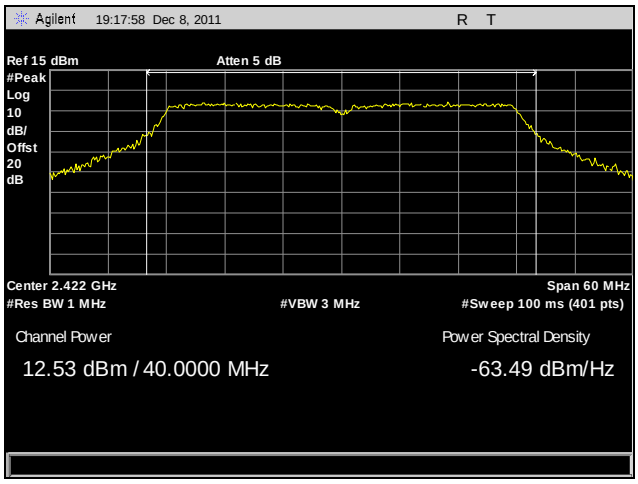


Plot 197. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

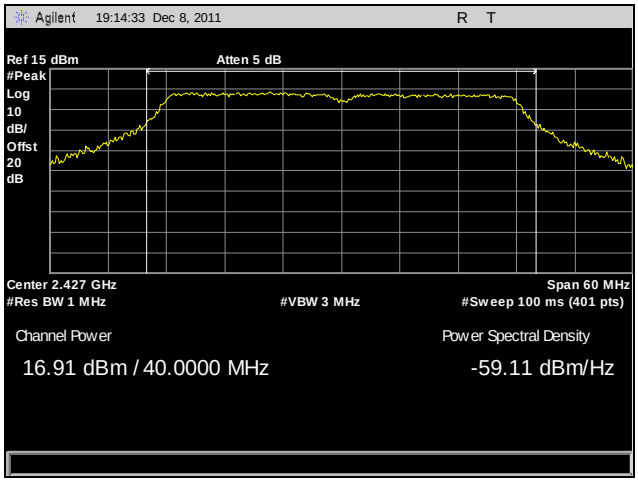


Plot 198. Peak Power Output, High Channel, 802.11n 20 MHz, Port 3, 2.4 GHz

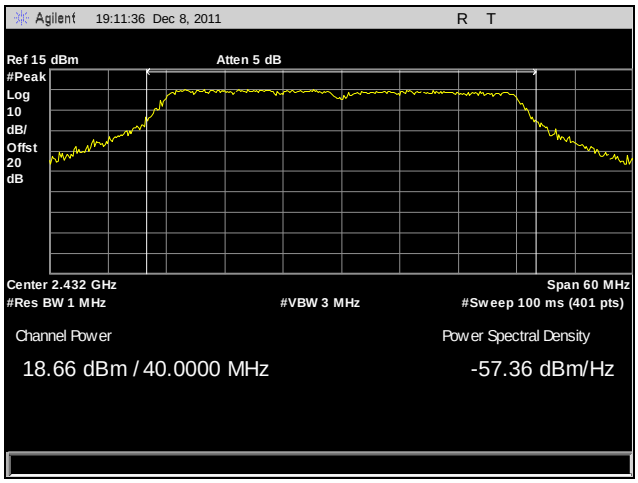
Peak Power Output Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



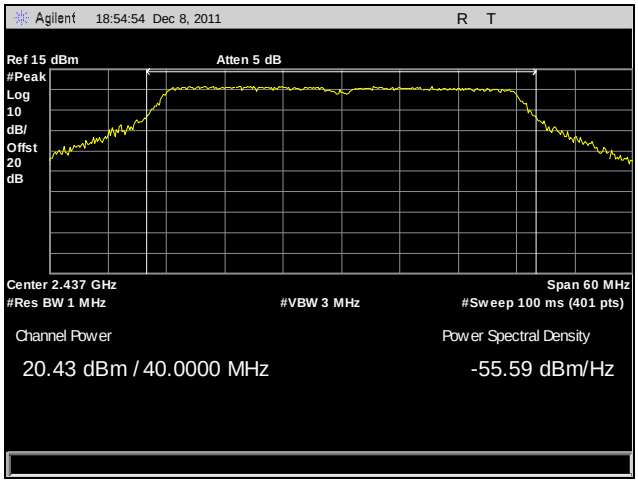
Plot 199. Peak Power Output, Low Channel (2422 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz



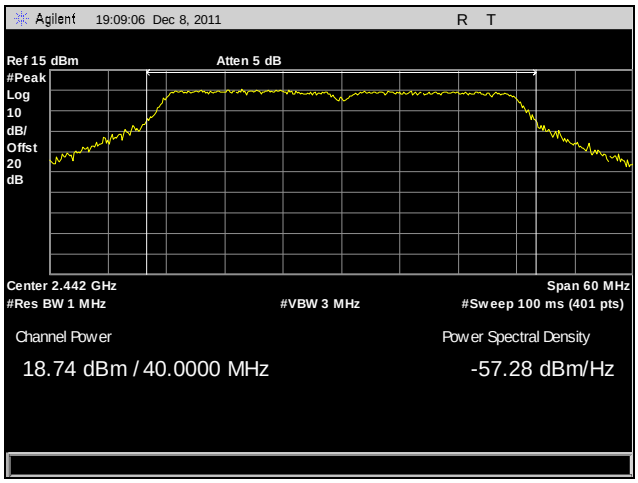
Plot 200. Peak Power Output, Low Channel (2427 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz



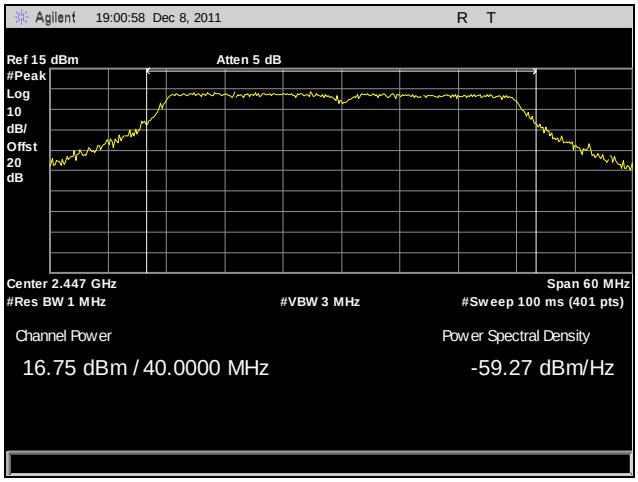
Plot 201. Peak Power Output, Low Channel (2432 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz



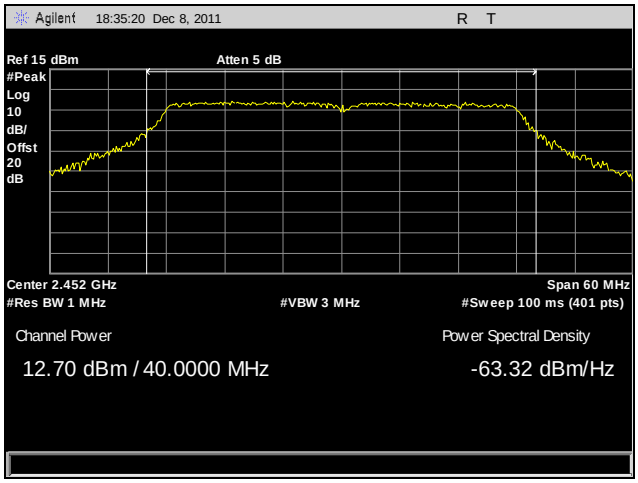
Plot 202. Peak Power Output, Mid Channel, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 203. Peak Power Output, High Channel (2442 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz

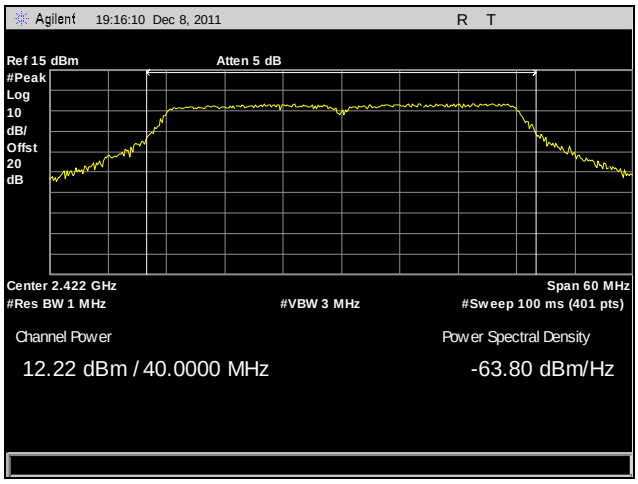


Plot 204. Peak Power Output, High Channel (2447 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz

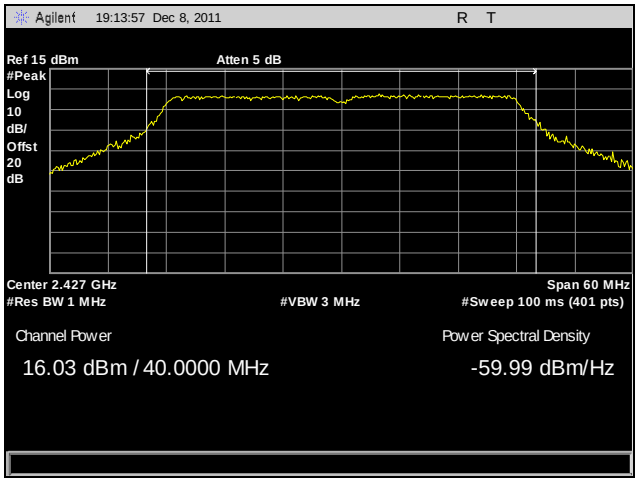


Plot 205. Peak Power Output, High Channel (2452 MHz), 802.11n 40 MHz, Port 1, 2.4 GHz

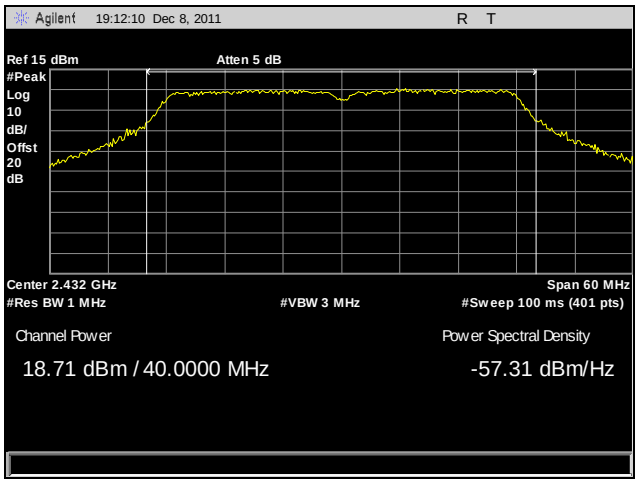
Peak Power Output Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



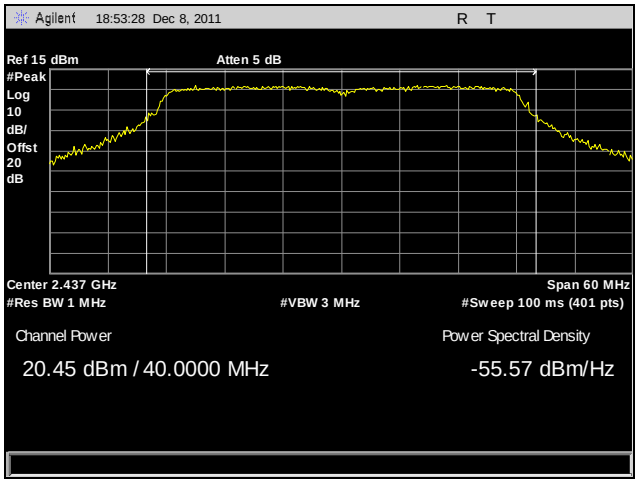
Plot 206. Peak Power Output, Low Channel (2422 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz



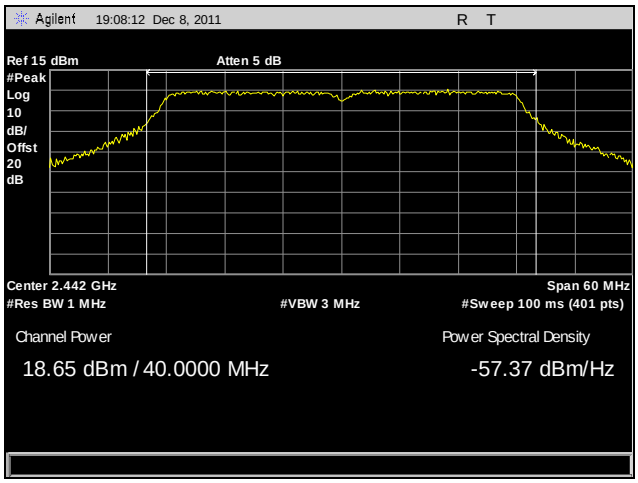
Plot 207. Peak Power Output, Low Channel (2427 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz



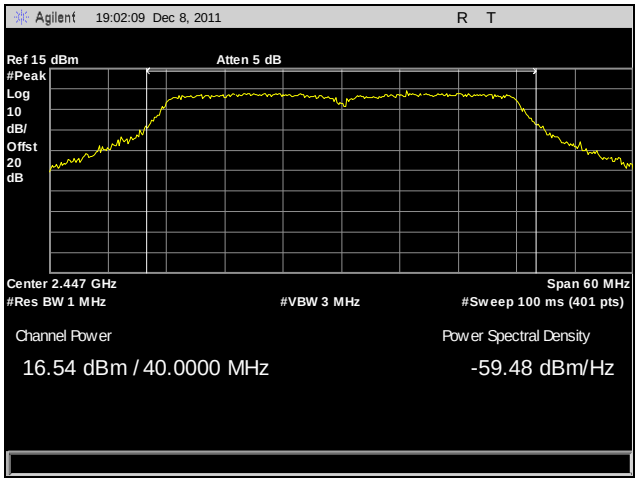
Plot 208. Peak Power Output, Low Channel (2432 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz



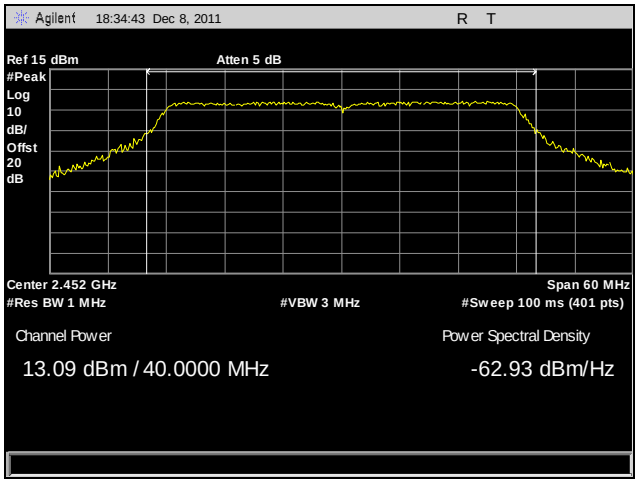
Plot 209. Peak Power Output, Mid Channel, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 210. Peak Power Output, High Channel (2442 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz

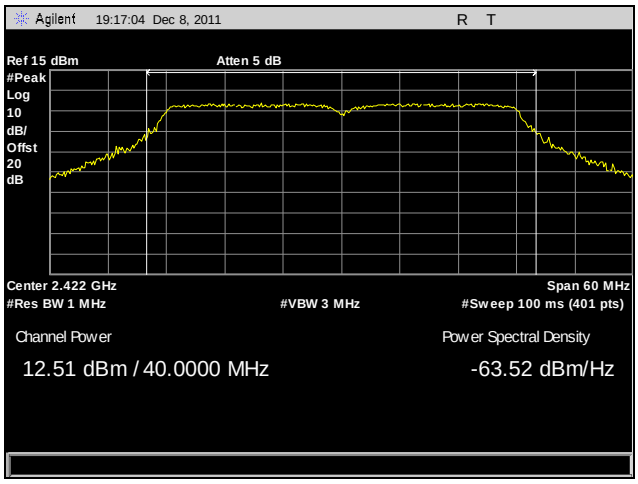


Plot 211. Peak Power Output, High Channel (2447 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz

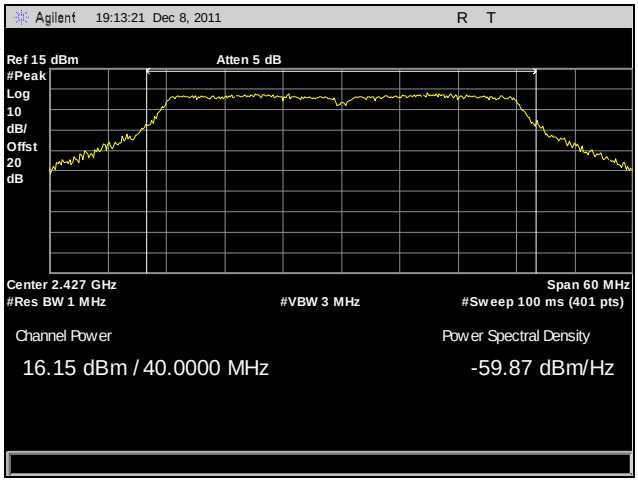


Plot 212. Peak Power Output, High Channel (2452 MHz), 802.11n 40 MHz, Port 2, 2.4 GHz

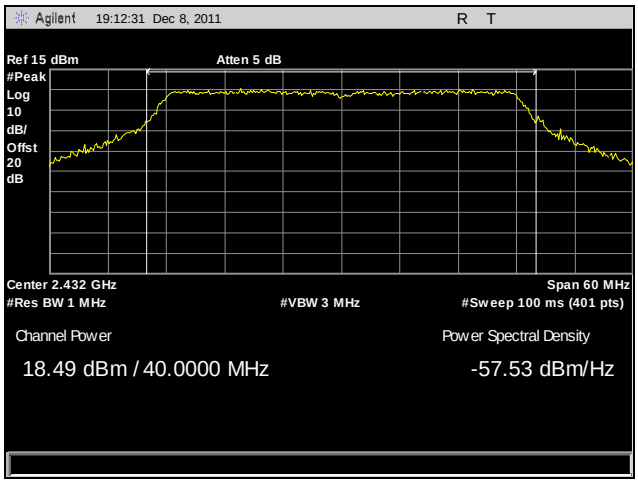
Peak Power Output Test Results, 802.11n 40 MHz, Port 3, 2.4 GHz



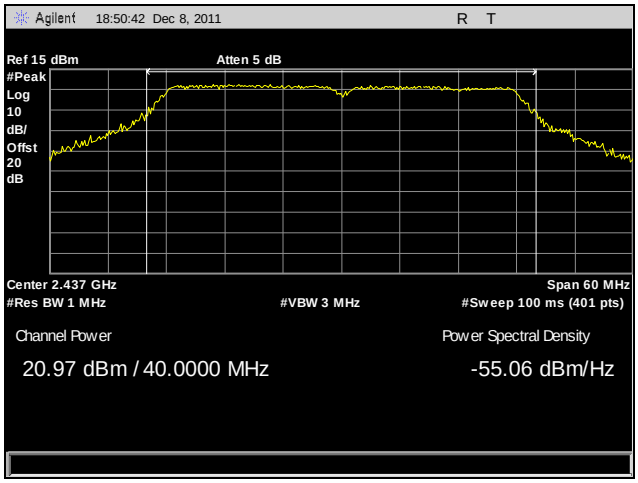
Plot 213. Peak Power Output, Low Channel (2422 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz



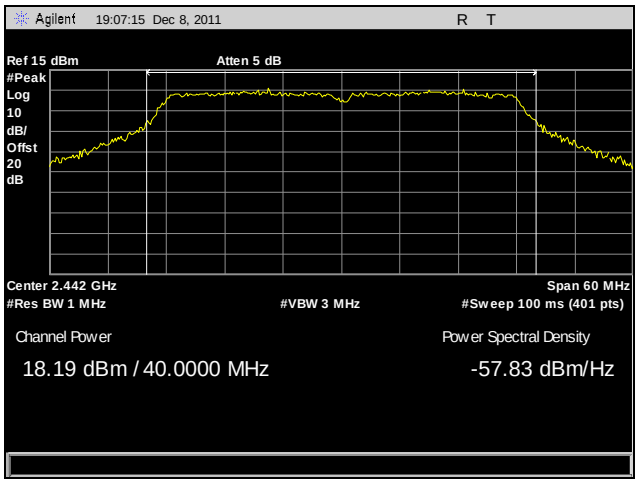
Plot 214. Peak Power Output, Low Channel (2427 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz



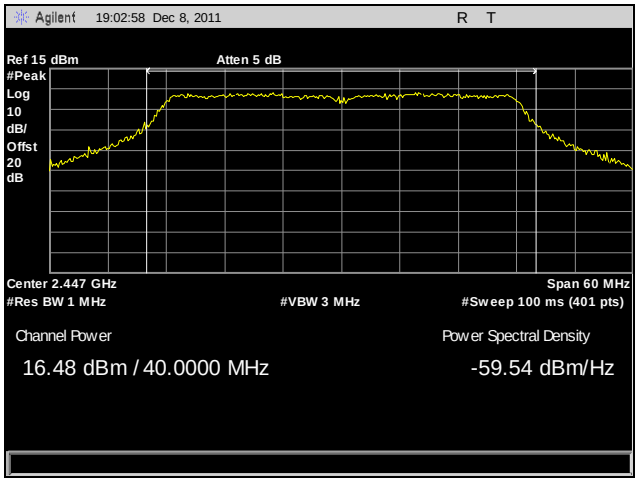
Plot 215. Peak Power Output, Low Channel (2432 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz



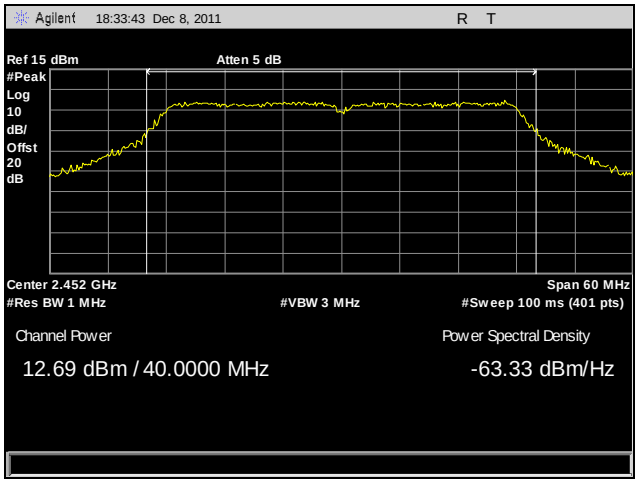
Plot 216. Peak Power Output, Mid Channel, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 217. Peak Power Output, High Channel (2442 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 218. Peak Power Output, High Channel (2447 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 219. Peak Power Output, High Channel (2452 MHz), 802.11n 40 MHz, Port 3, 2.4 GHz

Peak Power Output Test Results, 802.11a, 5.8 GHz

Plot 220. Peak Power Output, Low Channel, 802.11a, 5.8 GHz

Plot 221. Peak Power Output, Mid Channel, 802.11a, 5.8 GHz

Plot 222. Peak Power Output, High Channel, 802.11a, 5.8 GHz

Peak Power Output Test Results, 802.11n 5 MHz, Port 1, 5.8 GHz

Plot 223. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

Plot 224. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

Plot 225. Peak Power Output, High Channel, 802.11n 5 MHz, Port 1, 5.8 GHz

Peak Power Output Test Results, 802.11n 5 MHz, Port 2, 5.8 GHz

Plot 226. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

Plot 227. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

Plot 228. Peak Power Output, High Channel, 802.11n 5 MHz, Port 2, 5.8 GHz

Peak Power Output Test Results, 802.11n 5 MHz, Port 3, 5.8 GHz

Plot 229. Peak Power Output, Low Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

Plot 230. Peak Power Output, Mid Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

Plot 231. Peak Power Output, High Channel, 802.11n 5 MHz, Port 3, 5.8 GHz

Peak Power Output Test Results, 802.11n 10 MHz, Port 1, 5.8 GHz

Plot 232. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

Plot 233. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

Plot 234. Peak Power Output, High Channel, 802.11n 10 MHz, Port 1, 5.8 GHz

Peak Power Output Test Results, 802.11n 10 MHz, Port 2, 5.8 GHz

Plot 235. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

Plot 236. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

Plot 237. Peak Power Output, High Channel, 802.11n 10 MHz, Port 2, 5.8 GHz

Peak Power Output Test Results, 802.11n 10 MHz, Port 3, 5.8 GHz

Plot 238. Peak Power Output, Low Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

Plot 239. Peak Power Output, Mid Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

Plot 240. Peak Power Output, High Channel, 802.11n 10 MHz, Port 3, 5.8 GHz

Peak Power Output Test Results, 802.11n 20 MHz, Port 1, 5.8 GHz

Plot 241. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

Plot 242. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

Plot 243. Peak Power Output, High Channel, 802.11n 20 MHz, Port 1, 5.8 GHz

Peak Power Output Test Results, 802.11n 20 MHz, Port 2, 5.8 GHz

Plot 244. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

Plot 245. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

Plot 246. Peak Power Output, High Channel, 802.11n 20 MHz, Port 2, 5.8 GHz

Peak Power Output Test Results, 802.11n 20 MHz, Port 3, 5.8 GHz

Plot 247. Peak Power Output, Low Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

Plot 248. Peak Power Output, Mid Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

Plot 249. Peak Power Output, High Channel, 802.11n 20 MHz, Port 3, 5.8 GHz

Peak Power Output Test Results, 802.11n 40 MHz, Port 1, 5.8 GHz

Plot 250. Peak Power Output, Low Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

Plot 251. Peak Power Output, High Channel, 802.11n 40 MHz, Port 1, 5.8 GHz

Peak Power Output Test Results, 802.11n 40 MHz, Port 2, 5.8 GHz

Plot 252. Peak Power Output, Low Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

Plot 253. Peak Power Output, High Channel, 802.11n 40 MHz, Port 2, 5.8 GHz

Peak Power Output Test Results, 802.11n 40 MHz, Port 3, 5.8 GHz

Plot 254. Peak Power Output, Low Channel, 802.11n 40 MHz, Port 3, 5.8 GHz

Plot 255. Peak Power Output, High Channel, 802.11n 40 MHz, Port 3, 5.8 GHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(d) Radiated Spurious Emissions Requirements and Band Edge

Test Requirements: **§15.247(d); §15.205:** Emissions outside the frequency band.

§15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. 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).

§15.205(a): 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
12.51975–12.52025----------	240–285	3345.8–3358 36.	43–36.5
12.57675–12.57725----------	322–335.4	3600–4400	([2])

Table 28. Restricted Bands of Operation

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

Test Requirement(s): **§ 15.209 (a):** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 29.

Frequency (MHz)	§ 15.209(a),Radiated Emission Limits (dBµV) @ 3m
30 - 88	40.00
88 - 216	43.50
216 - 960	46.00
Above 960	54.00

Table 29. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a)

Test Procedures: The transmitter was turned on. Measurements were performed of the low, mid and high Channels. The EUT was rotated orthogonally through all three axes. Plots shown are corrected for both antenna correction factor and distance and compared to a 3 m limit line.

For the Average plots, any peaks within 6dB of the limit line were further investigated with a VBW of 10Hz to determine compliance. The Average plots shown are the worst case emissions with a 1kHz VBW.

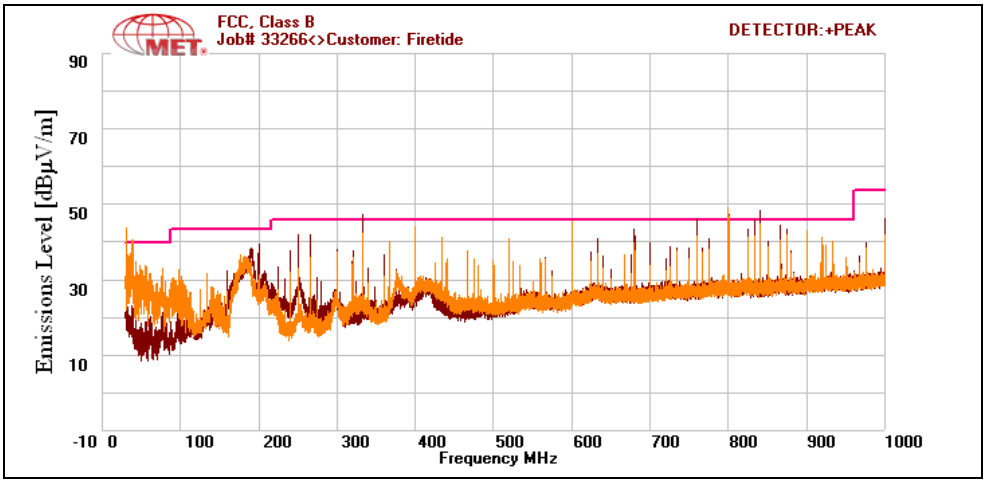
Test Results: The EUT was compliant with the Radiated Spurious Emission limits of **§ 15.247(d)**.

Note: For the 30M-1GHz Plots, peaks that are over the limit are Digital Emissions and not from the Radio. Also, ~1510 MHz peak is a digital emission.

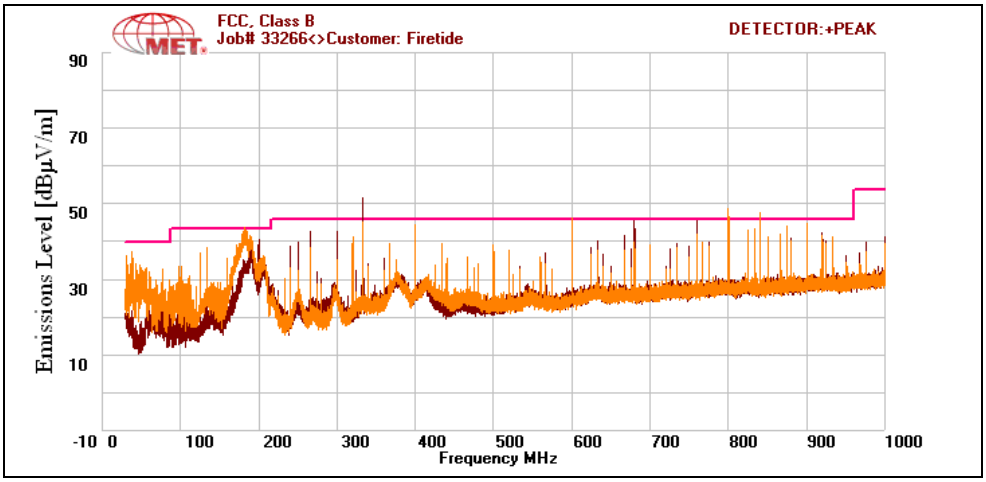
For the plots that go up to 18GHz, only Noise Floor was measured above 18GHz.

Test Engineer(s): Anderson Soungpanya and Lionel Gabrillo

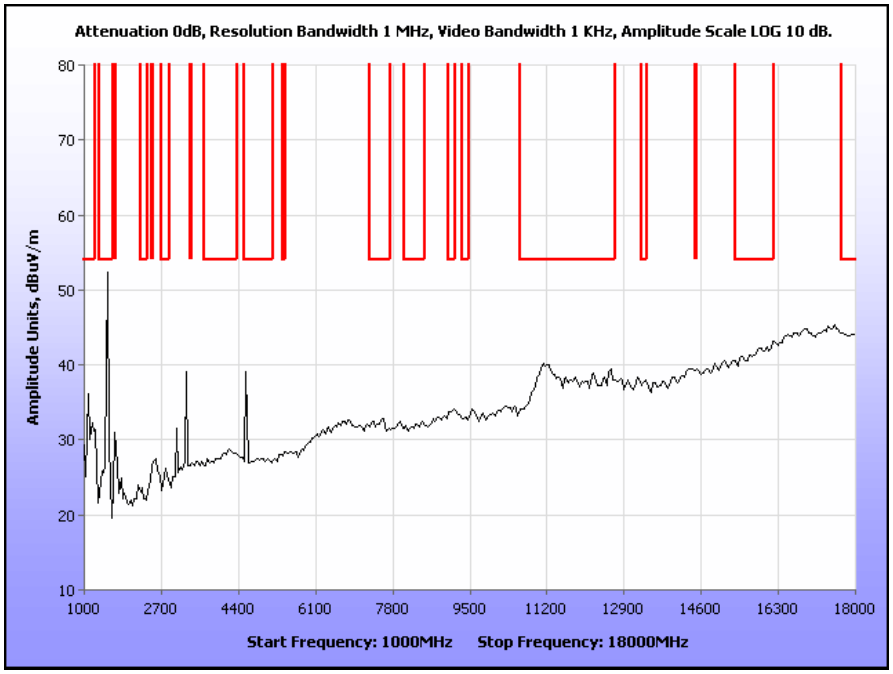
Test Date(s): 12/19/11



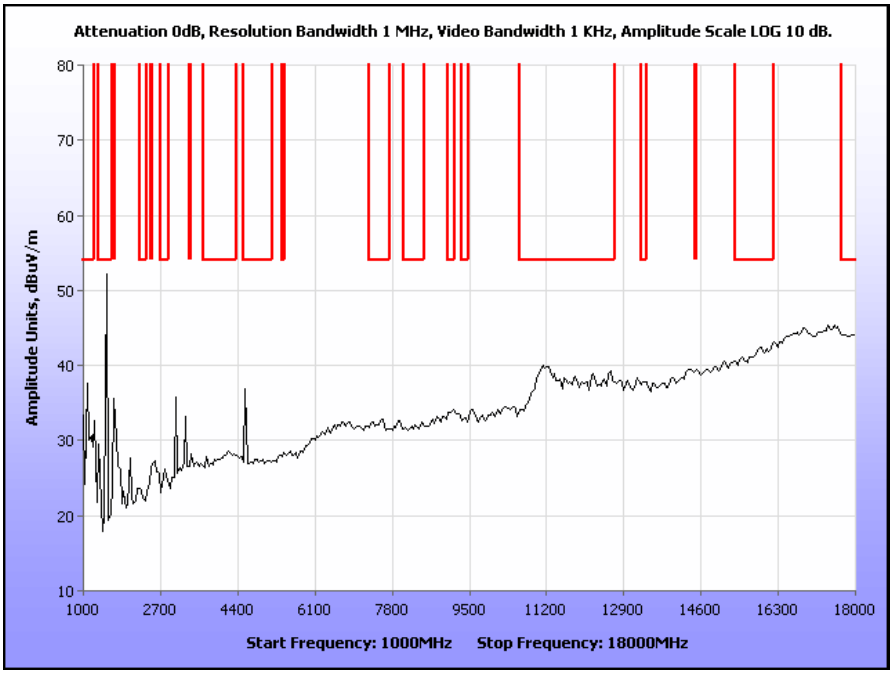
Plot 256. Radio Off, 5 dBi Omni, 2.4 GHz



Plot 257. Radio Off, 8 dBi Omni, 2.4 GHz

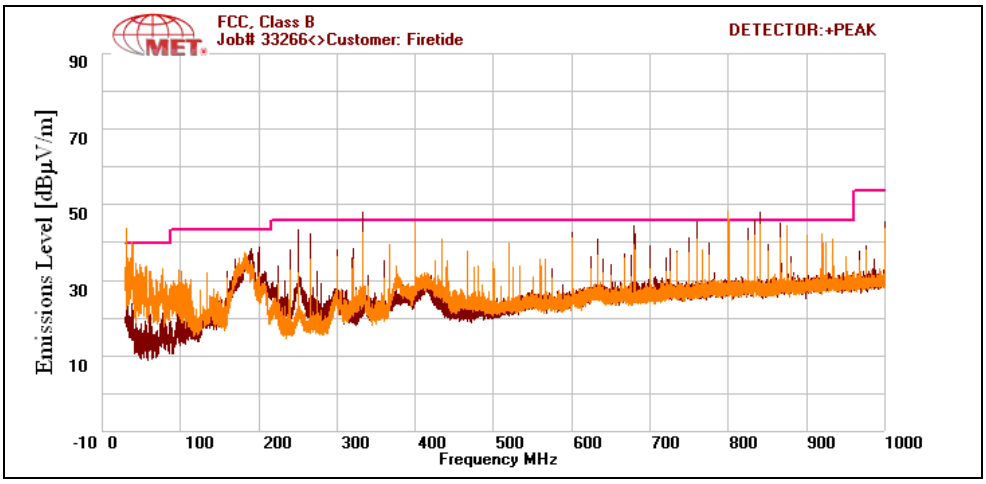


Plot 258. Radio Off, 5 dBi Omni, 2.4 GHz, 1 GHz – 18 GHz, Average

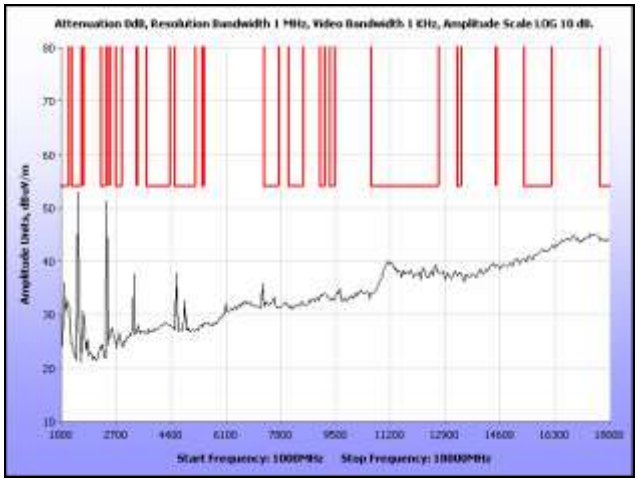


Plot 259. Radio Off, 8 dBi Omni, 2.4 GHz, 1 GHz – 18 GHz, Average

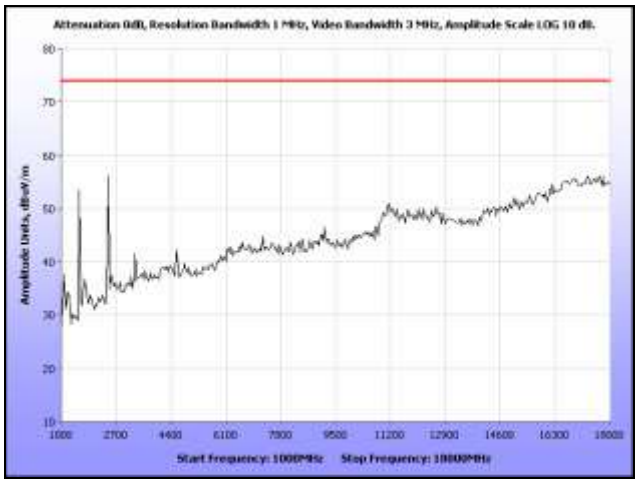
Radiated Spurious Emissions Test Results, 802.11b, 5 dBi Omni, 2.4 GHz



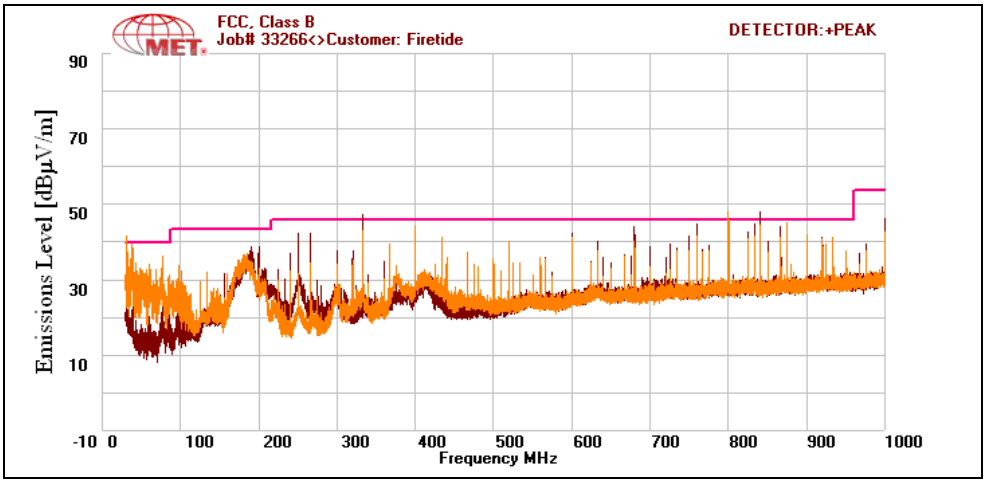
Plot 260. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11b, 5 dBi Omni, 2.4 GHz



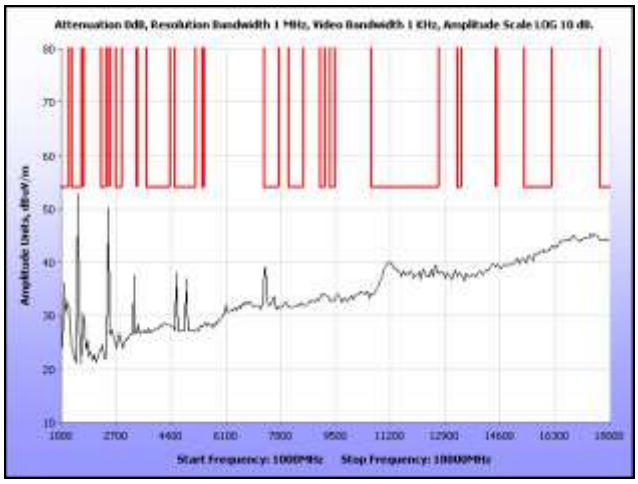
Plot 261. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11b, 5 dBi Omni, 2.4 GHz



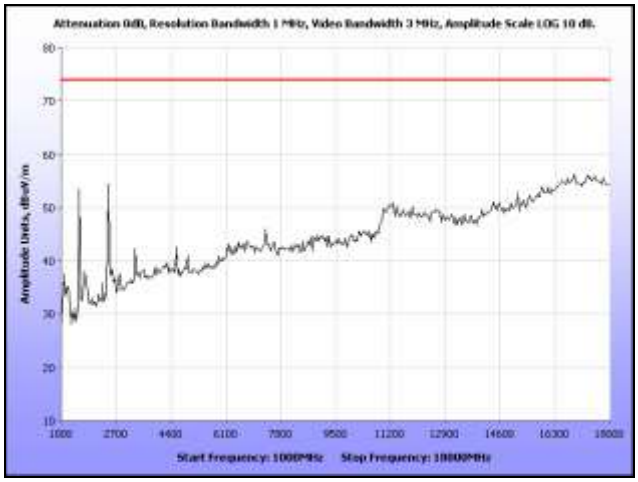
Plot 262. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11b, 5 dBi Omni, 2.4 GHz



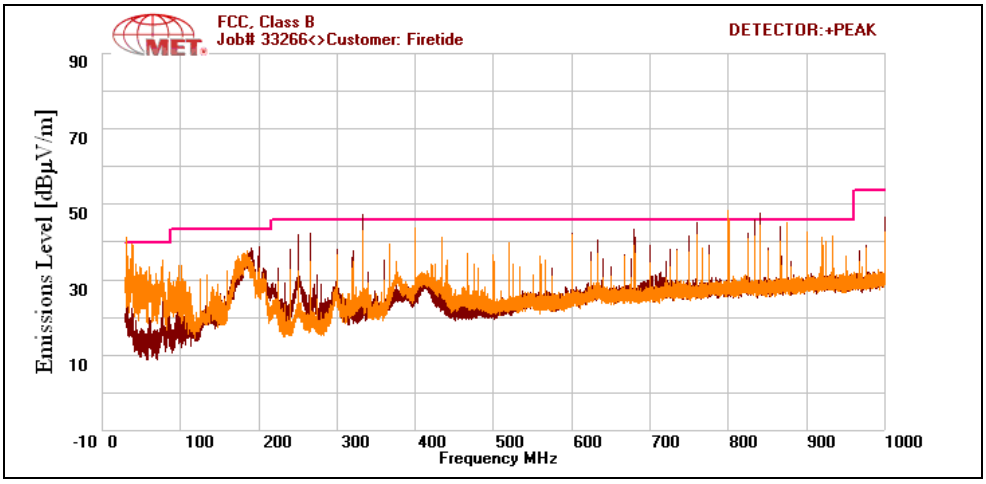
Plot 263. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11b, 5 dBi Omni, 2.4 GHz



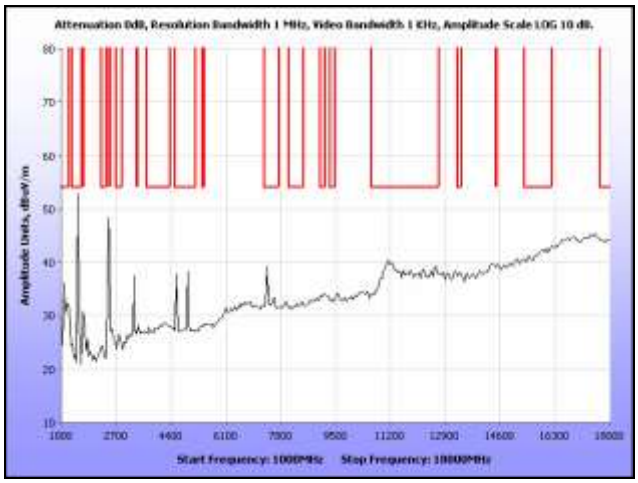
Plot 264. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11b, 5 dBi Omni, 2.4 GHz



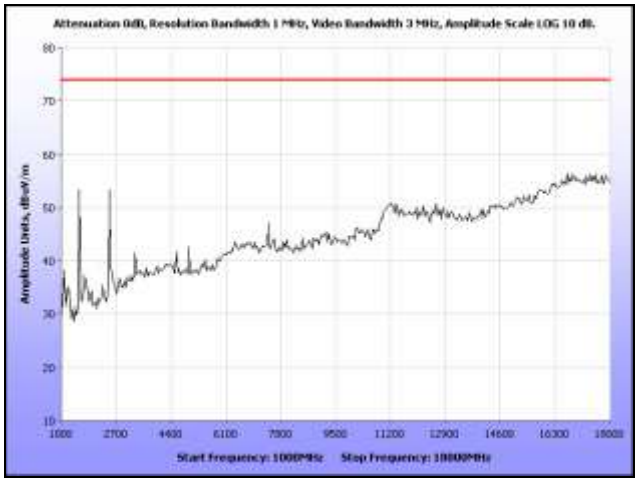
Plot 265. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11b, 5 dBi Omni, 2.4 GHz



Plot 266. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11b, 5 dBi Omni, 2.4 GHz

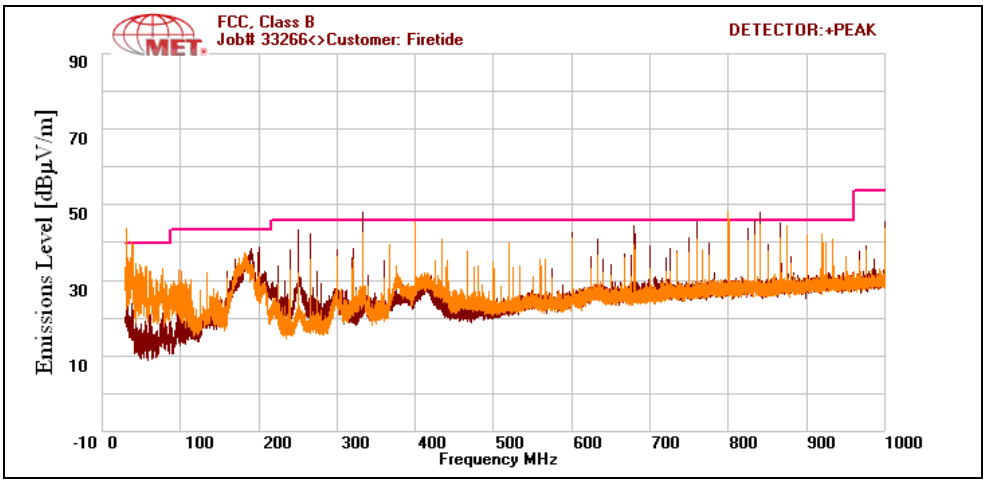


Plot 267. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11b, 5 dBi Omni, 2.4 GHz

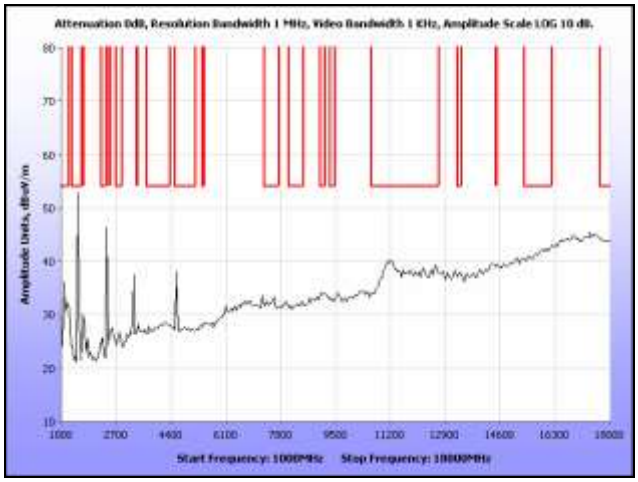


Plot 268. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11b, 5 dBi Omni, 2.4 GHz

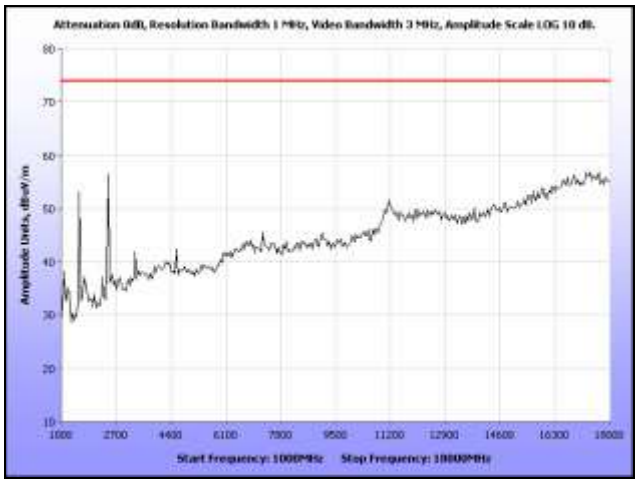
Radiated Spurious Emissions Test Results, 802.11g, 5 dBi Omni, 2.4 GHz



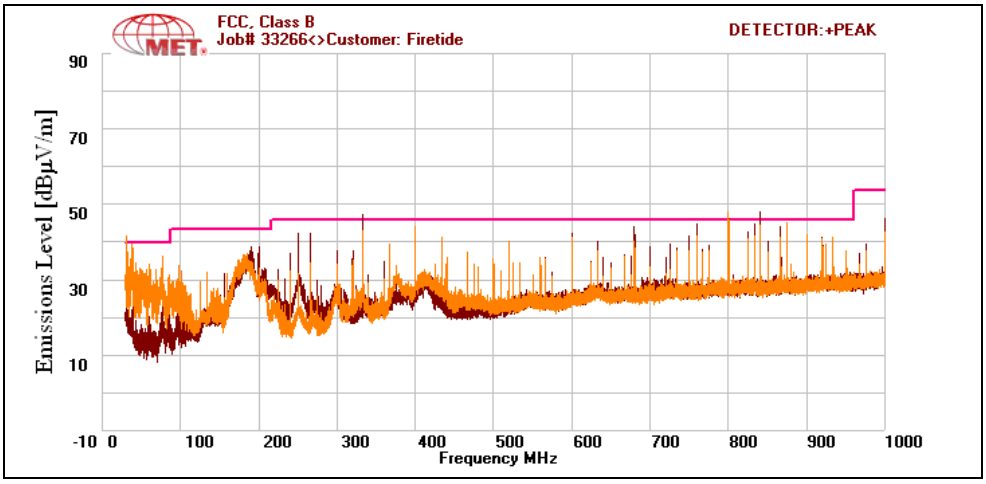
Plot 269. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11g, 5 dBi Omni, 2.4 GHz



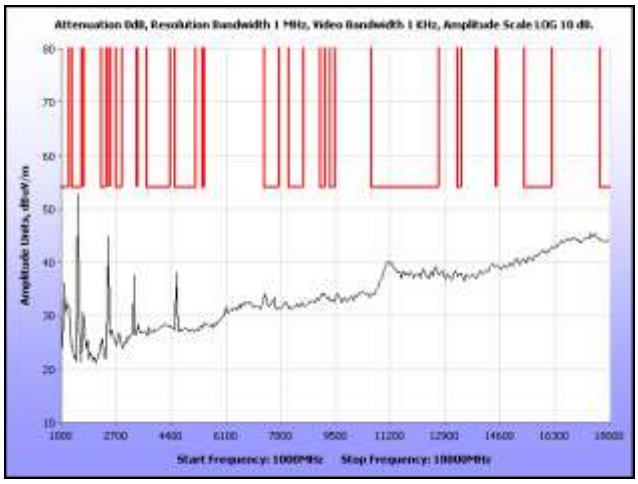
Plot 270. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11g, 5 dBi Omni, 2.4 GHz



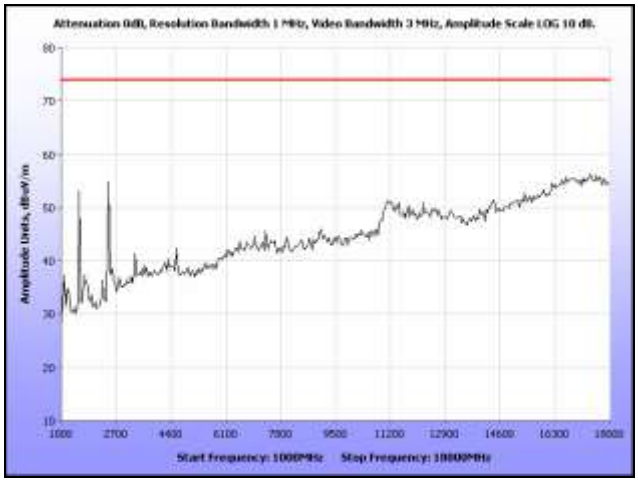
Plot 271. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11g, 5 dBi Omni, 2.4 GHz



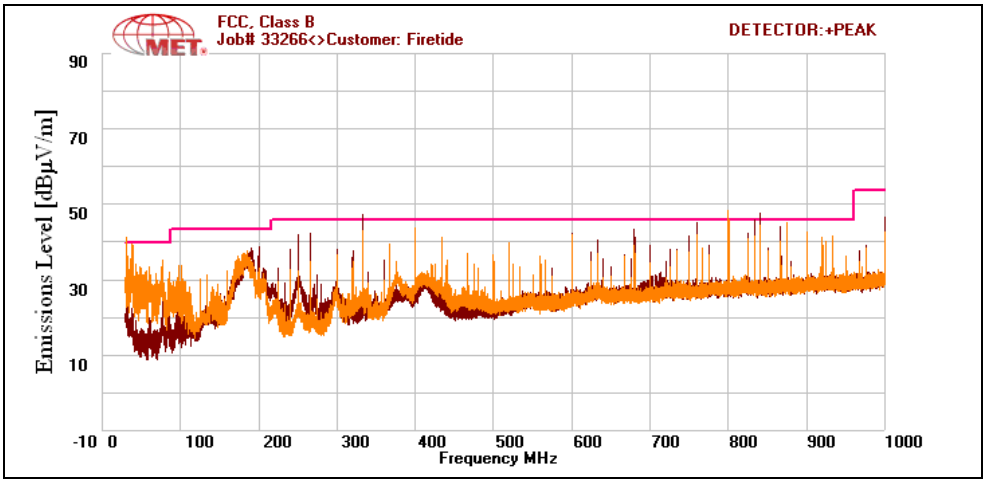
Plot 272. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11g, 5 dBi Omni, 2.4 GHz



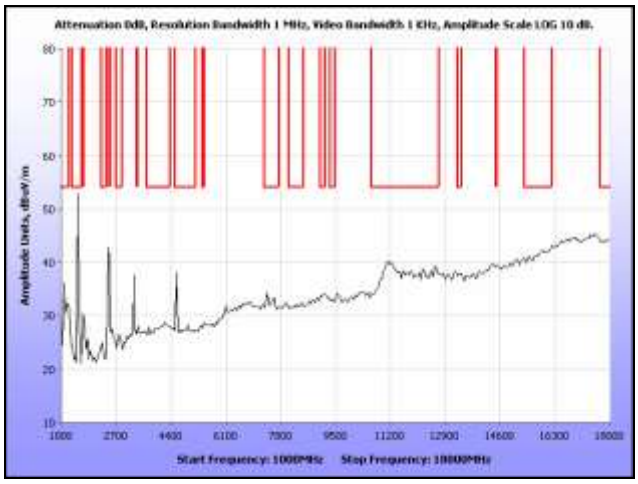
Plot 273. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11g, 5 dBi Omni, 2.4 GHz



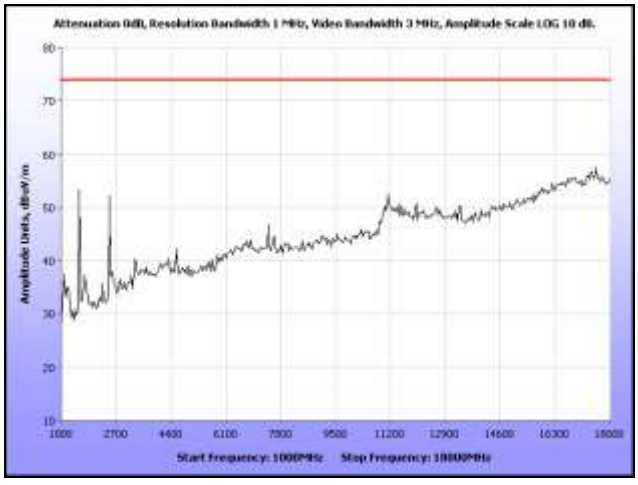
Plot 274. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11g, 5 dBi Omni, 2.4 GHz



Plot 275. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11g, 5 dBi Omni, 2.4 GHz

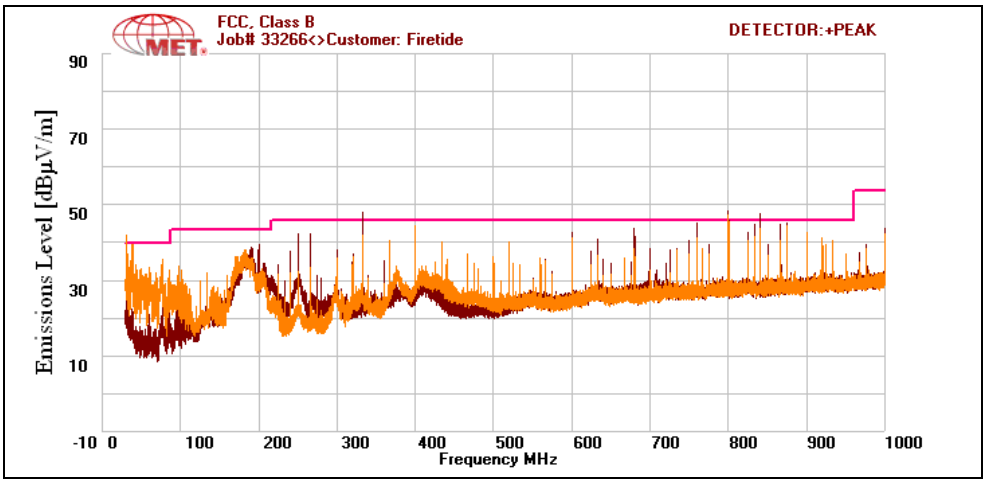


Plot 276. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11g, 5 dBi Omni, 2.4 GHz

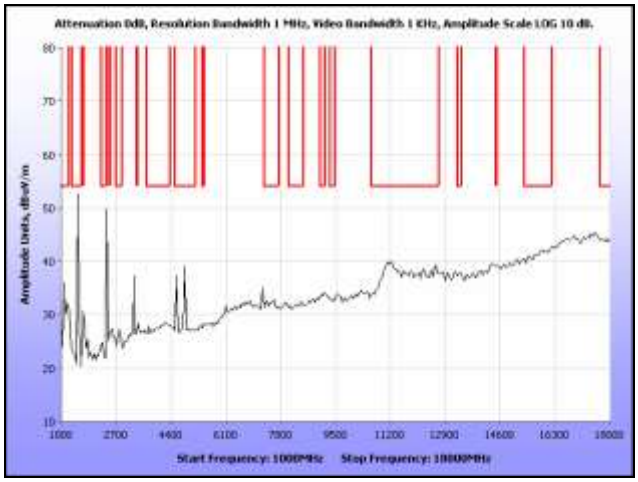


Plot 277. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11g, 5 dBi Omni, 2.4 GHz

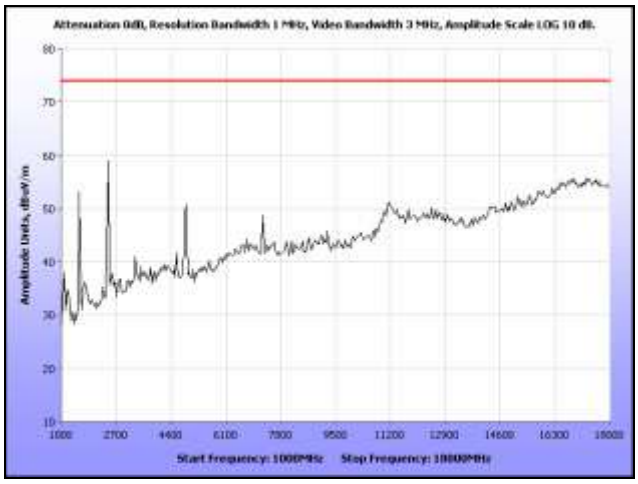
Radiated Spurious Emissions Test Results, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



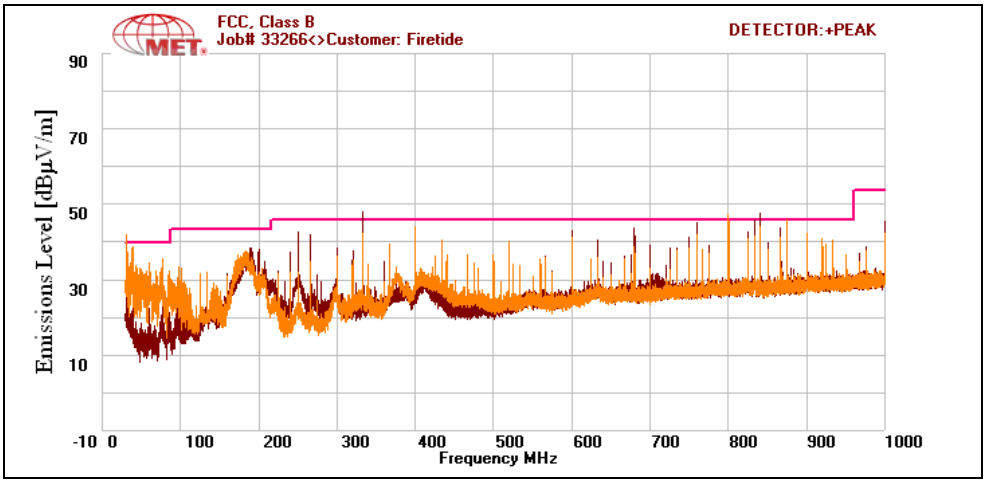
Plot 278. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



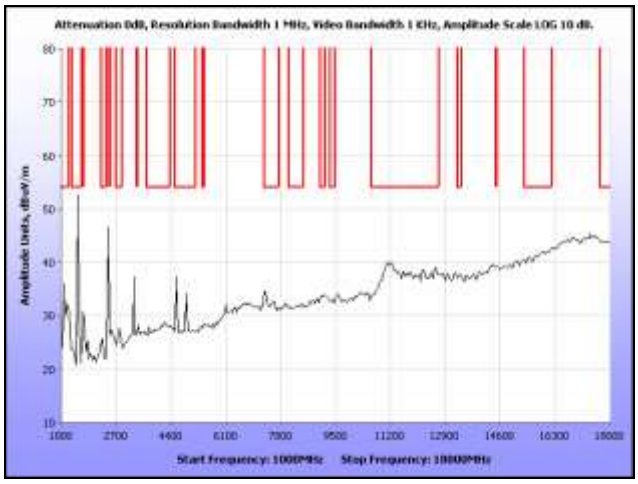
Plot 279. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



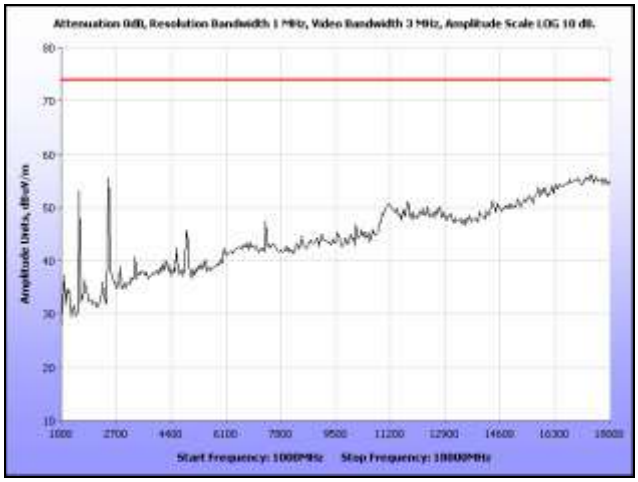
Plot 280. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



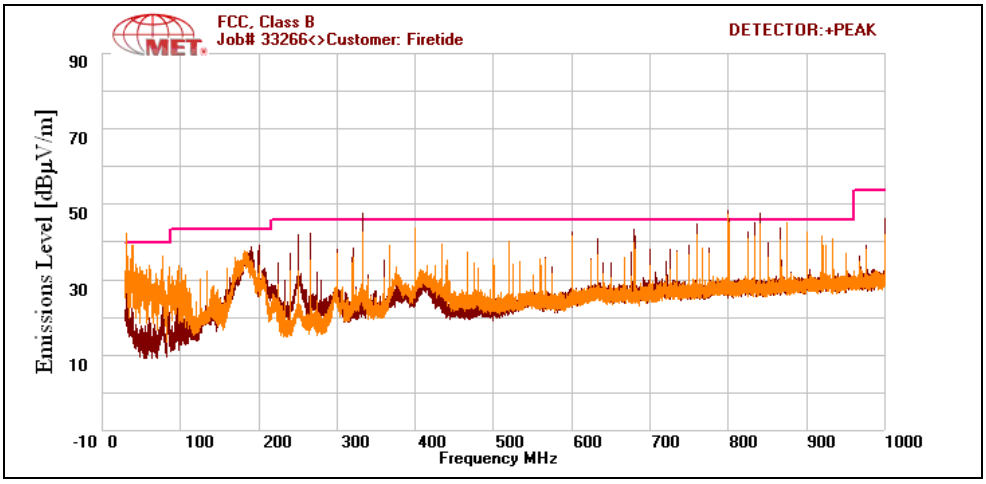
Plot 281. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



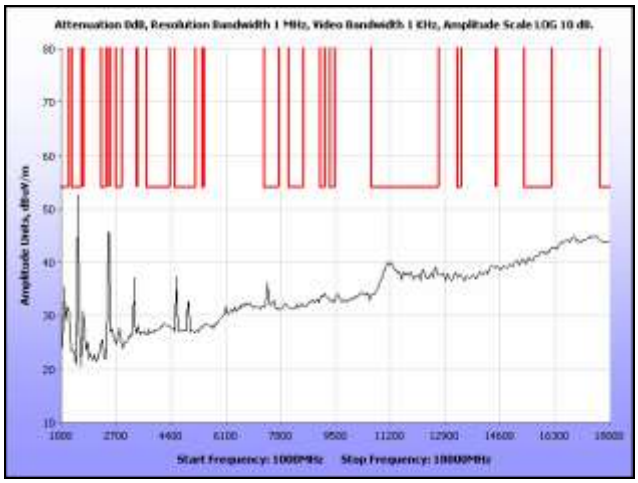
Plot 282. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



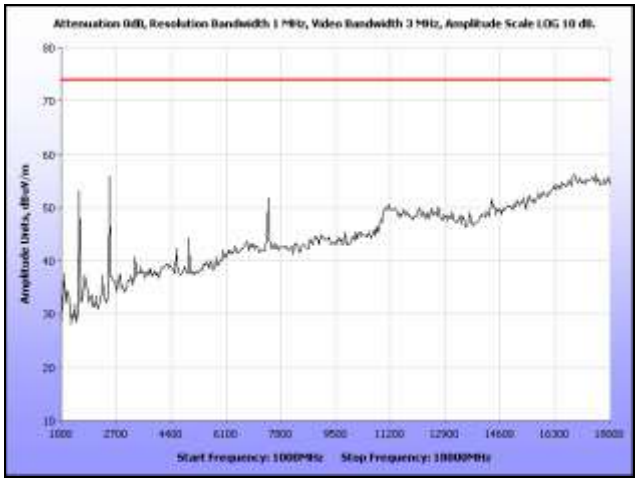
Plot 283. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz



Plot 284. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz

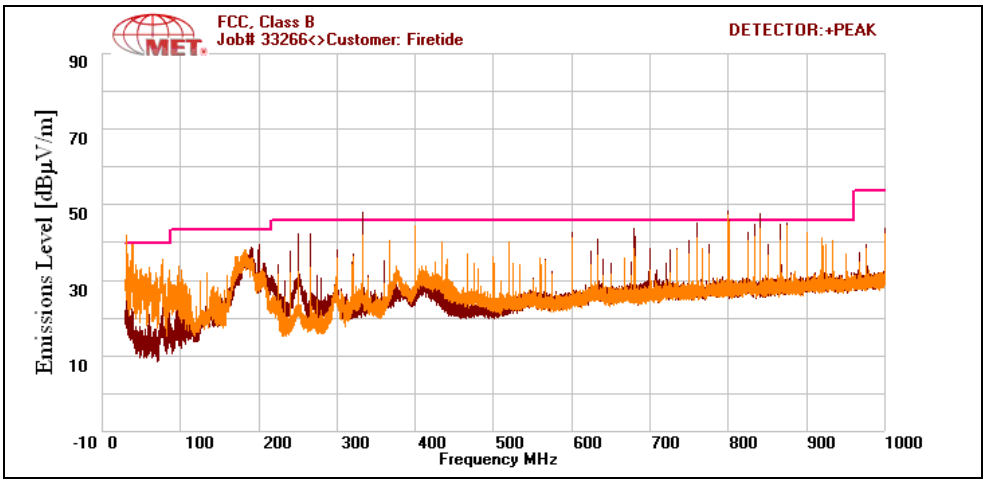


Plot 285. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz

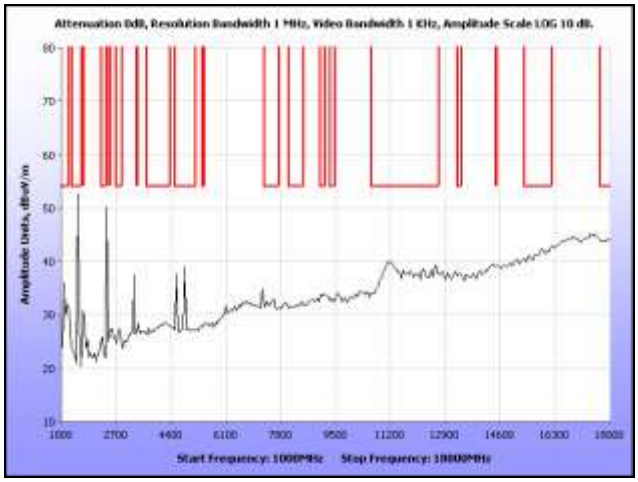


Plot 286. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 5 dBi Omni, 2.4 GHz

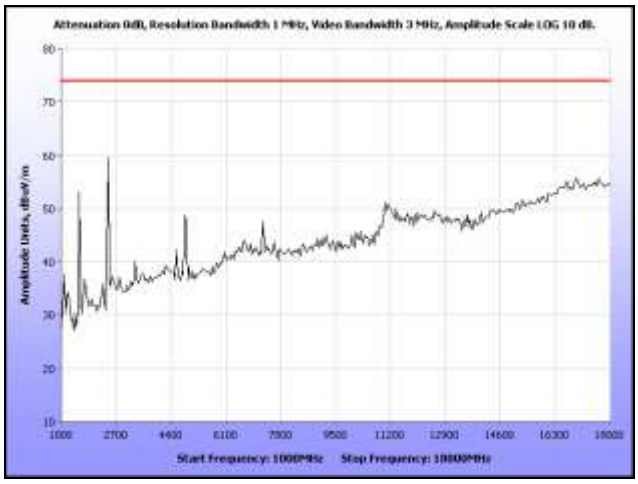
Radiated Spurious Emissions Test Results, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



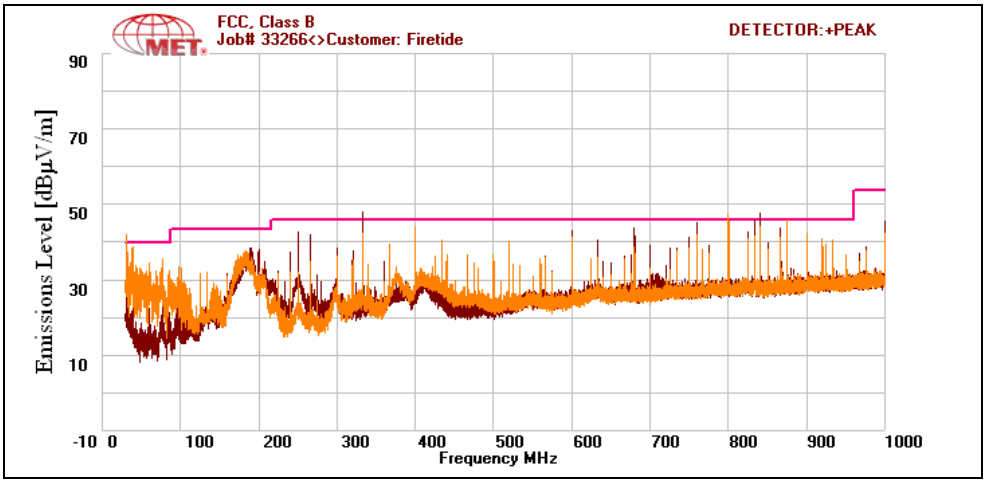
Plot 287. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



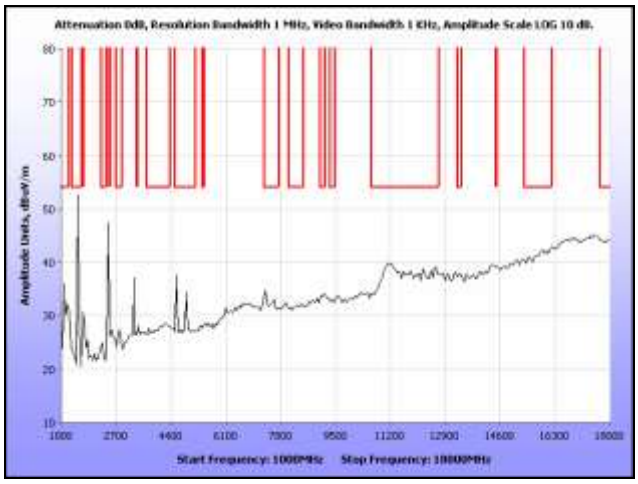
Plot 288. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



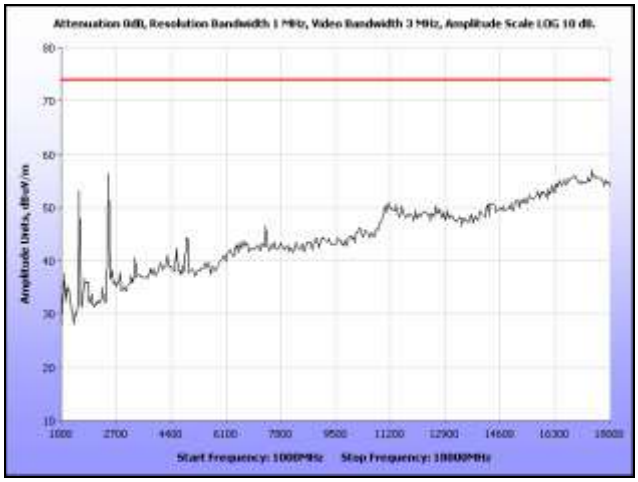
Plot 289. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



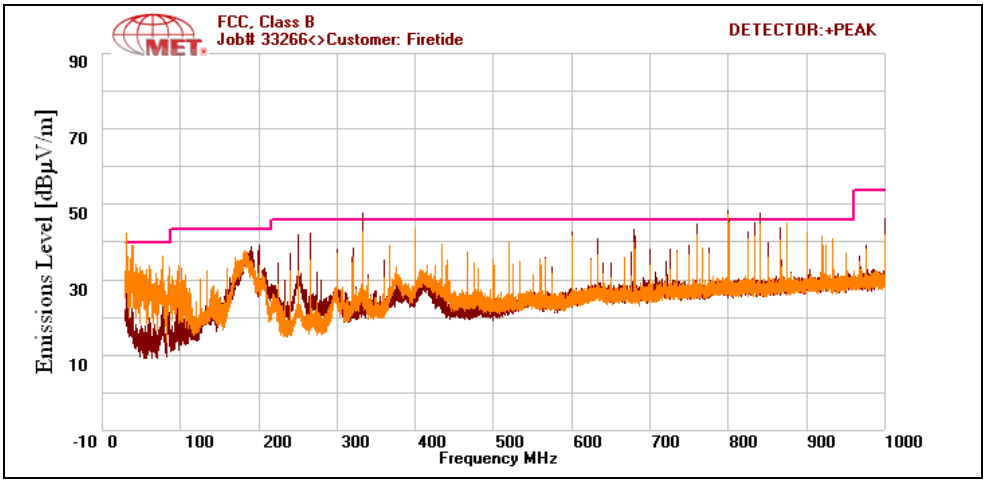
Plot 290. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



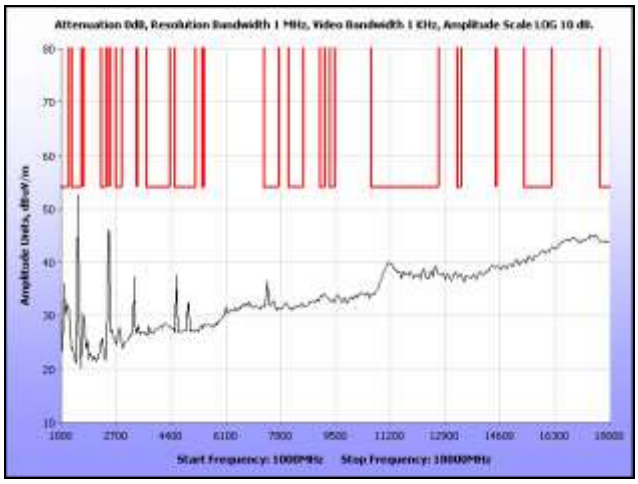
Plot 291. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



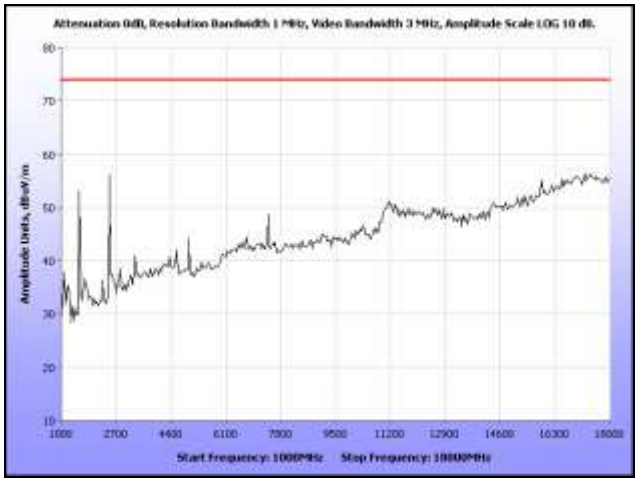
Plot 292. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz



Plot 293. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz

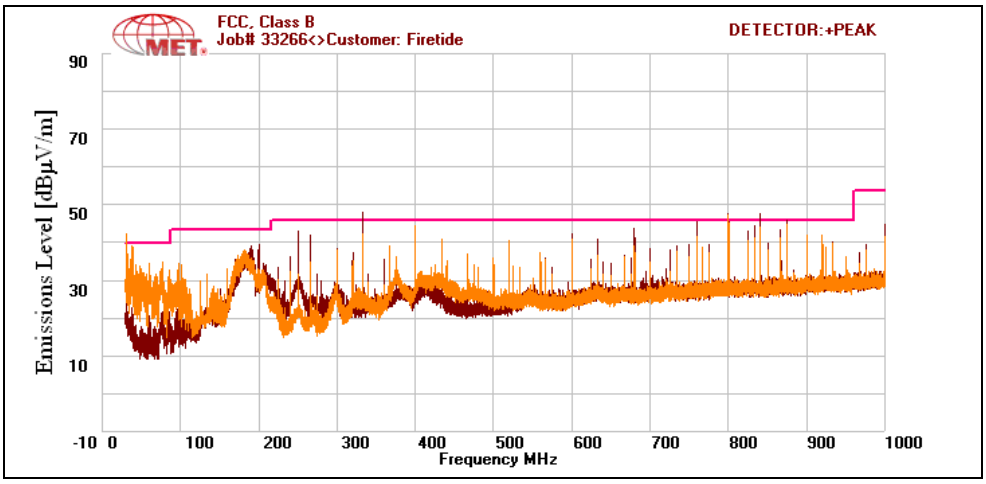


Plot 294. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz

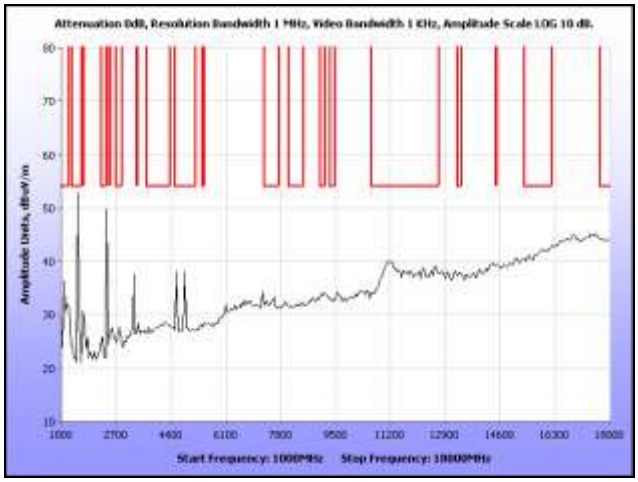


Plot 295. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 5 dBi Omni, 2.4 GHz

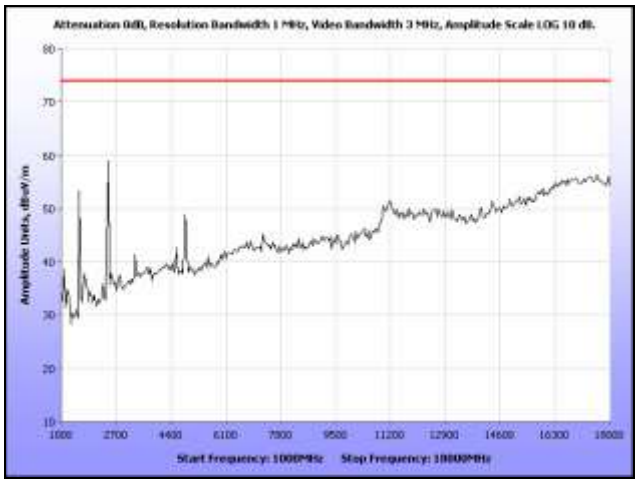
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



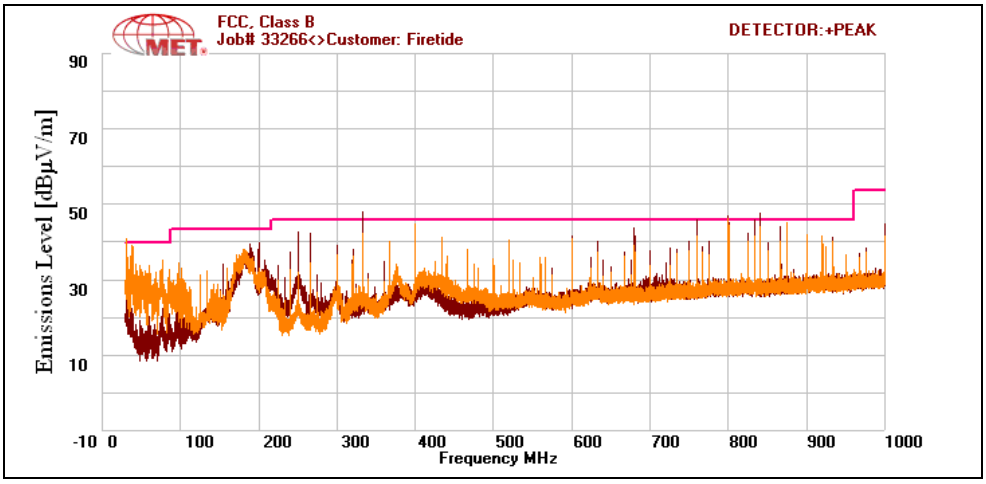
Plot 296. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



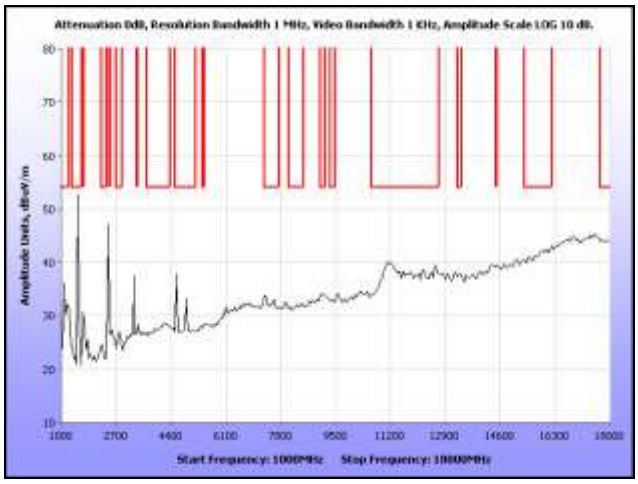
Plot 297. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



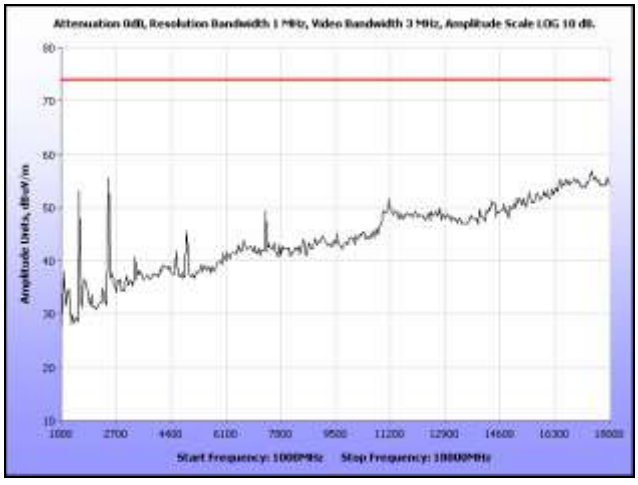
Plot 298. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



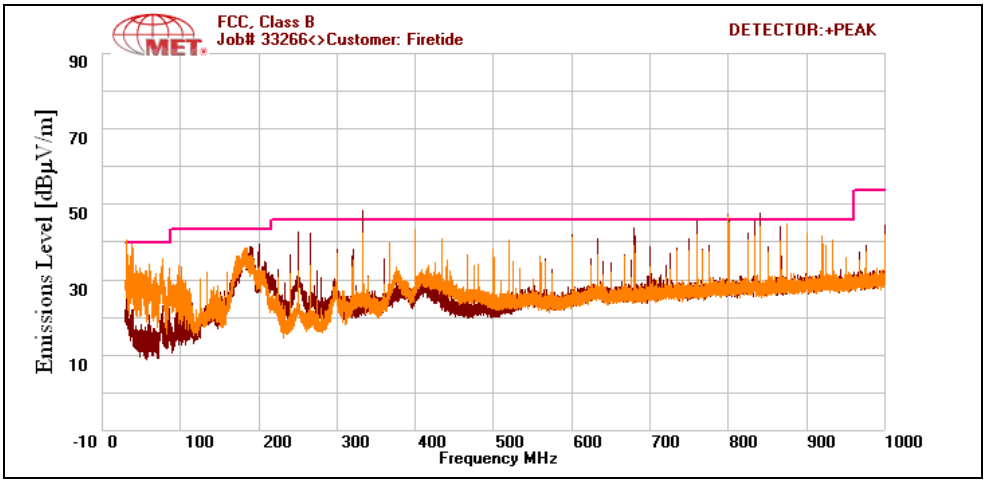
Plot 299. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



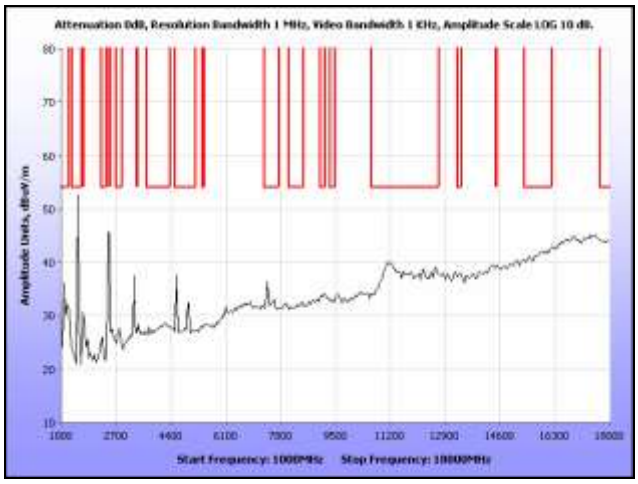
Plot 300. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



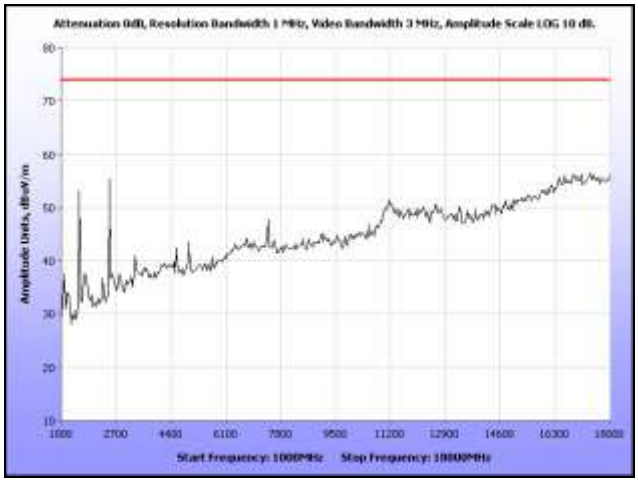
Plot 301. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz



Plot 302. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz

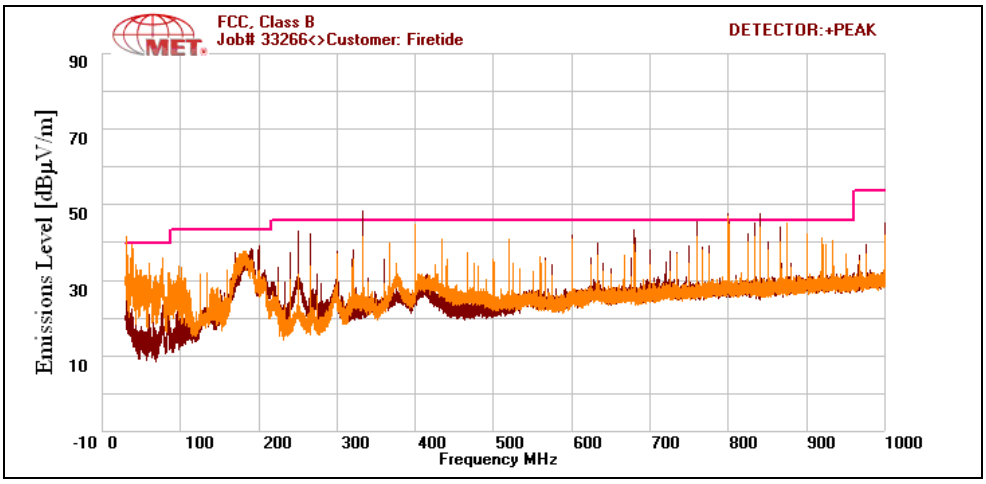


Plot 303. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz

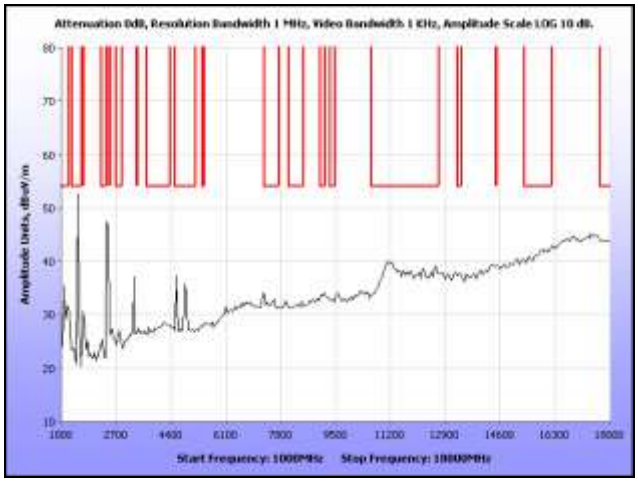


Plot 304. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 5 dBi Omni, 2.4 GHz

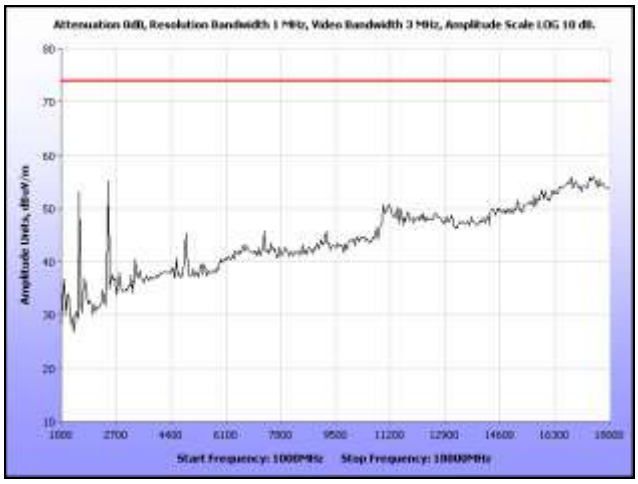
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



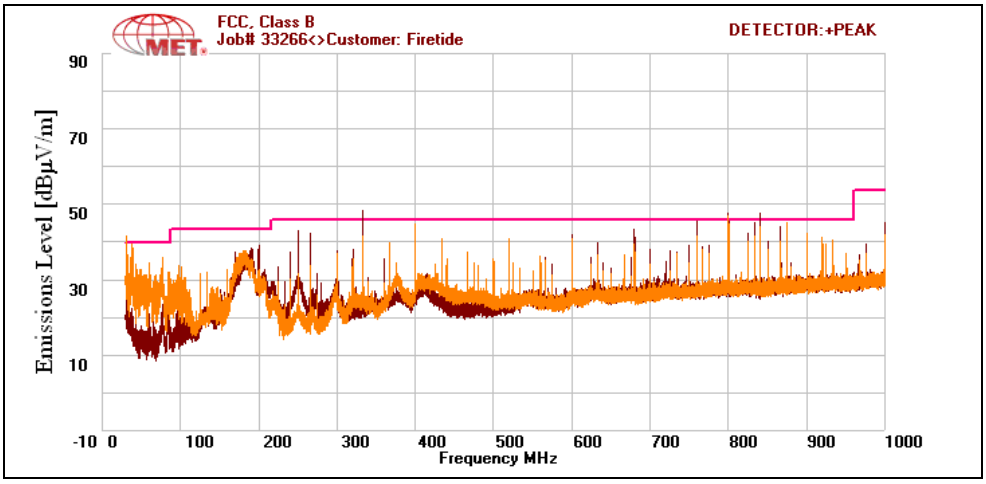
Plot 305. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



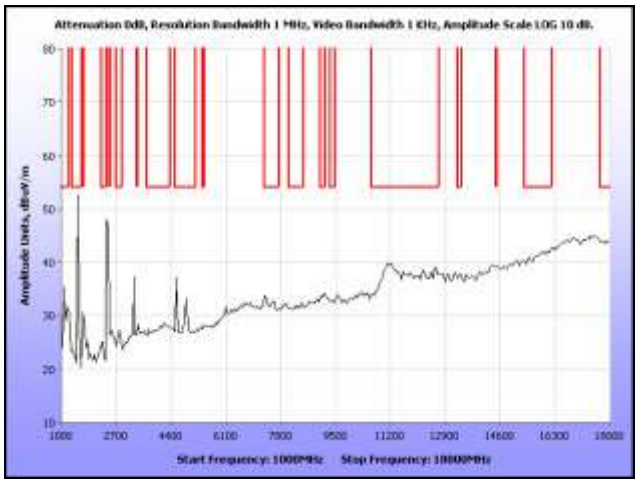
Plot 306. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



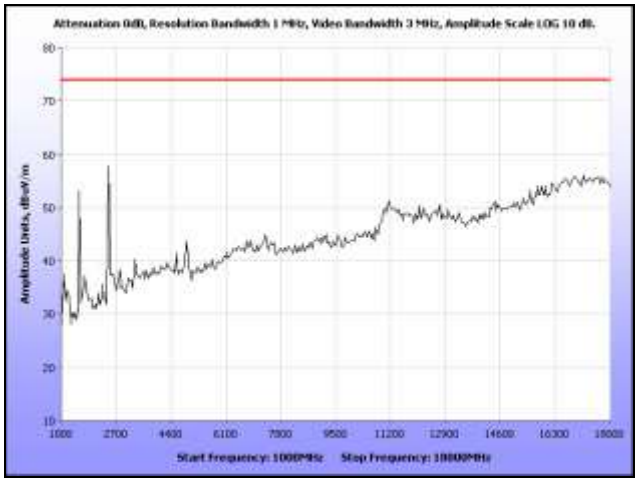
Plot 307. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



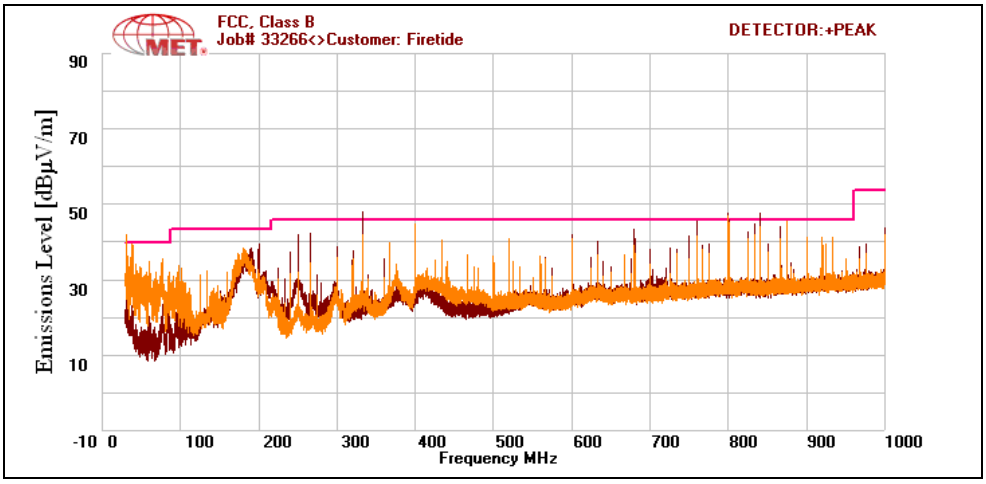
Plot 308. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



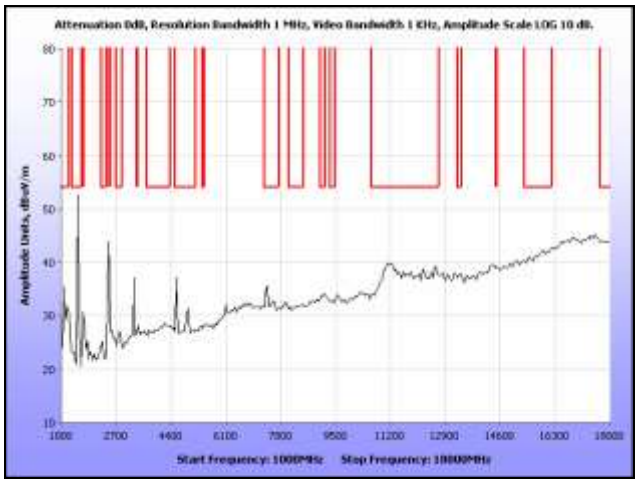
Plot 309. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



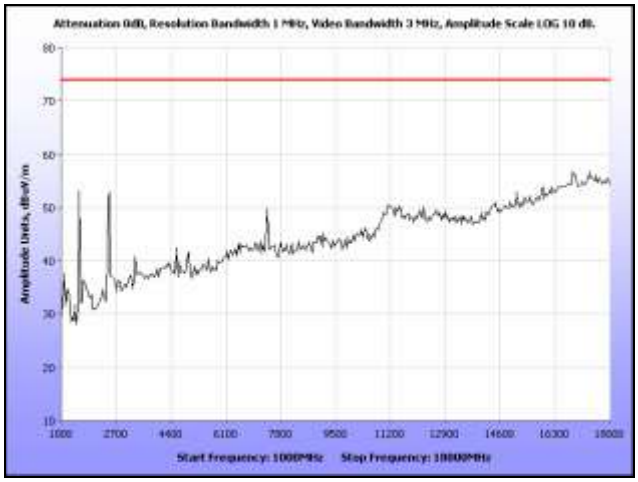
Plot 310. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz



Plot 311. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz

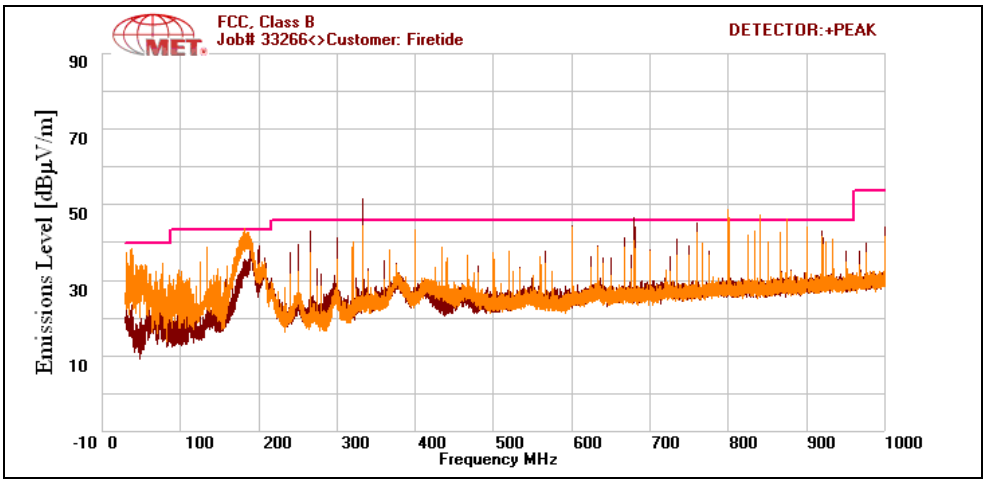


Plot 312. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz

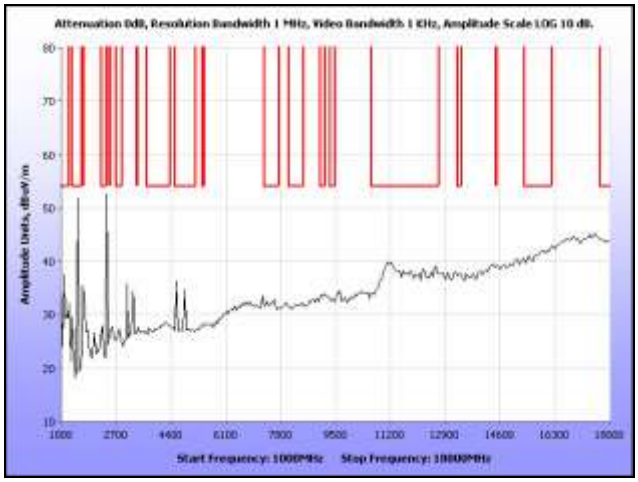


Plot 313. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 5 dBi Omni, 2.4 GHz

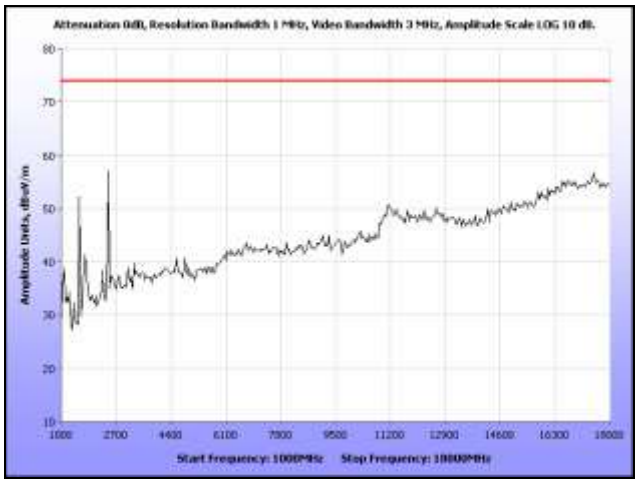
Radiated Spurious Emissions Test Results, 802.11b, 8 dBi Omni, 2.4 GHz



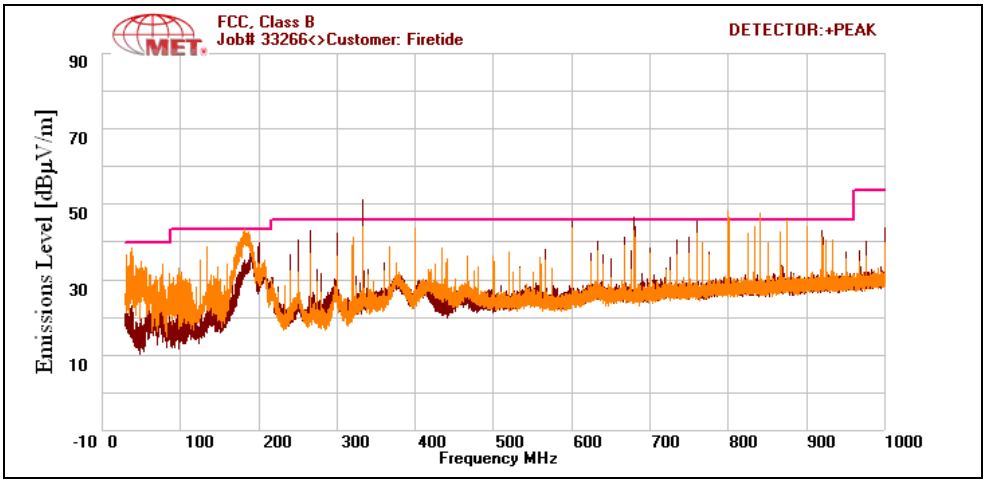
Plot 314. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11b, 8 dBi Omni, 2.4 GHz



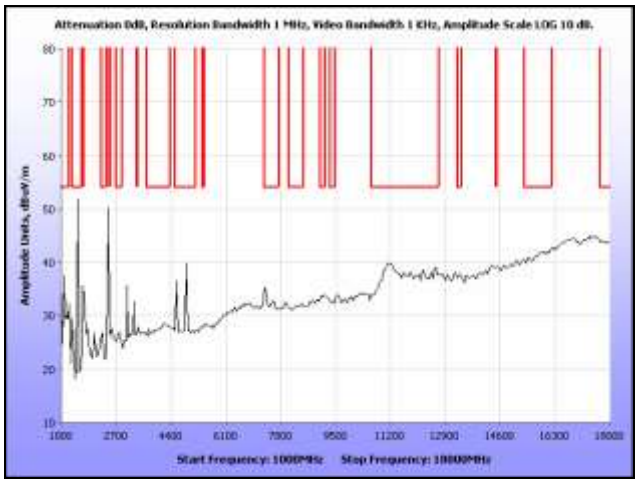
Plot 315. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11b, 8 dBi Omni, 2.4 GHz



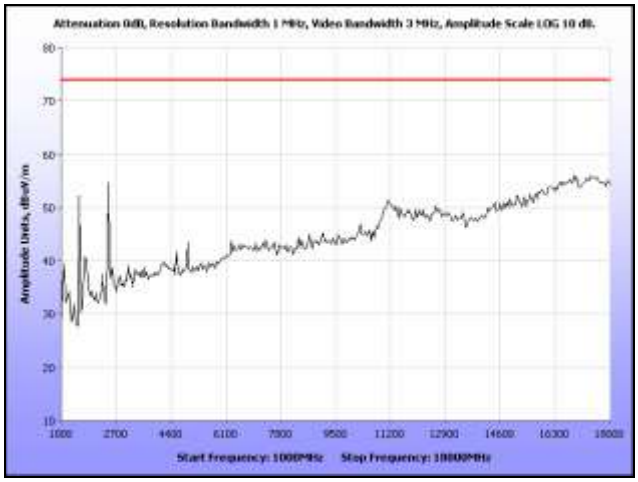
Plot 316. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11b, 8 dBi Omni, 2.4 GHz



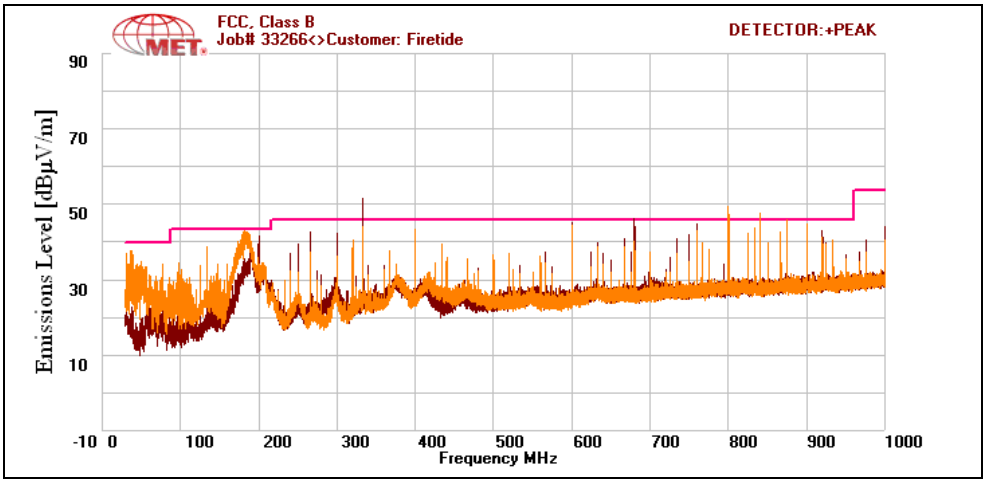
Plot 317. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11b, 8 dBi Omni, 2.4 GHz



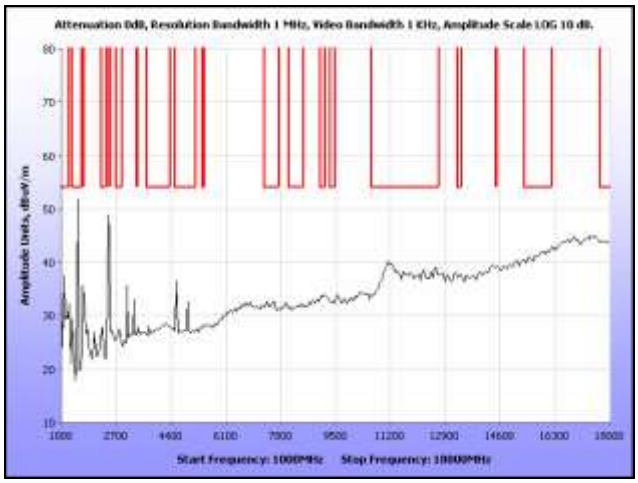
Plot 318. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11b, 8 dBi Omni, 2.4 GHz



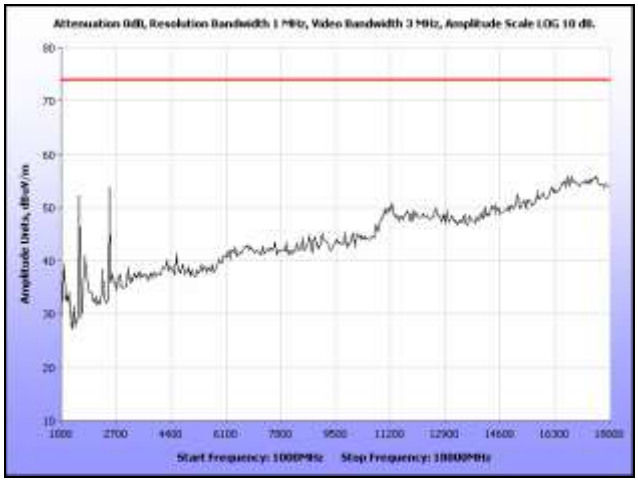
Plot 319. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11b, 8 dBi Omni, 2.4 GHz



Plot 320. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11b, 8 dBi Omni, 2.4 GHz

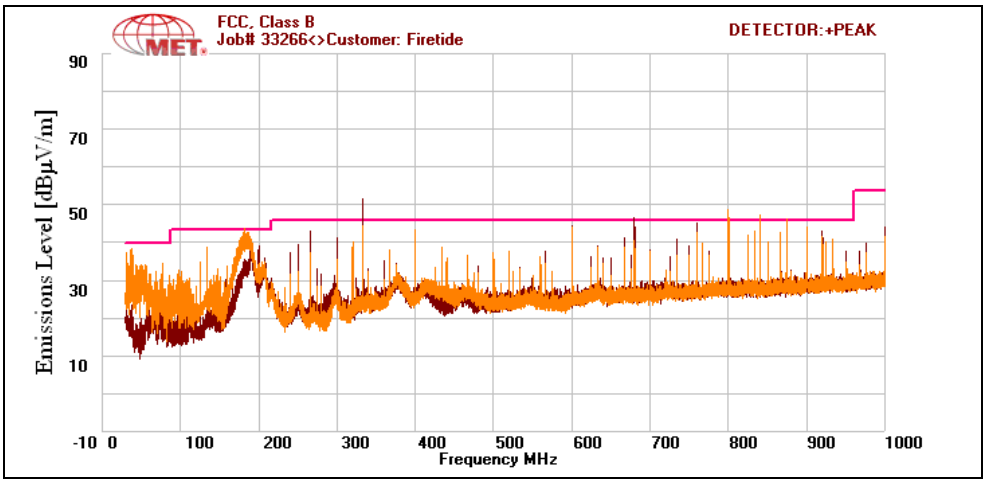


Plot 321. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11b, 8 dBi Omni, 2.4 GHz

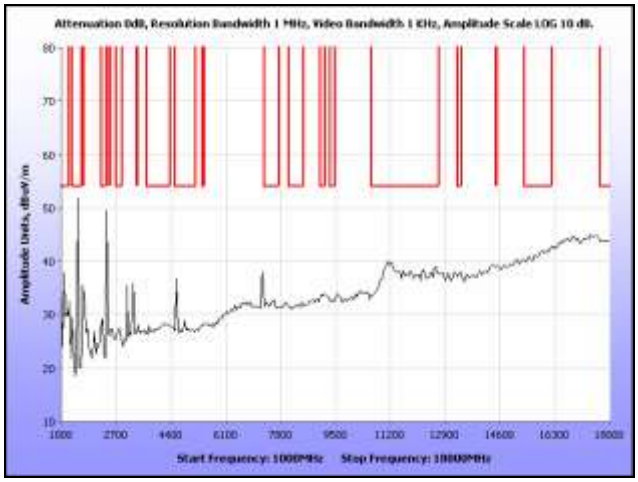


Plot 322. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11b, 8 dBi Omni, 2.4 GHz

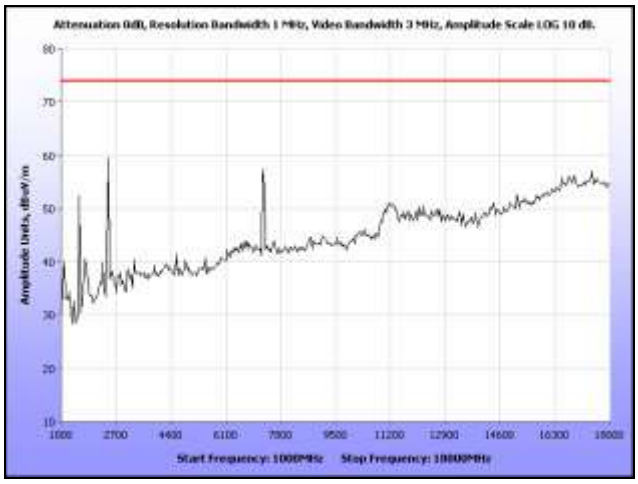
Radiated Spurious Emissions Test Results, 802.11g, 8 dBi Omni, 2.4 GHz



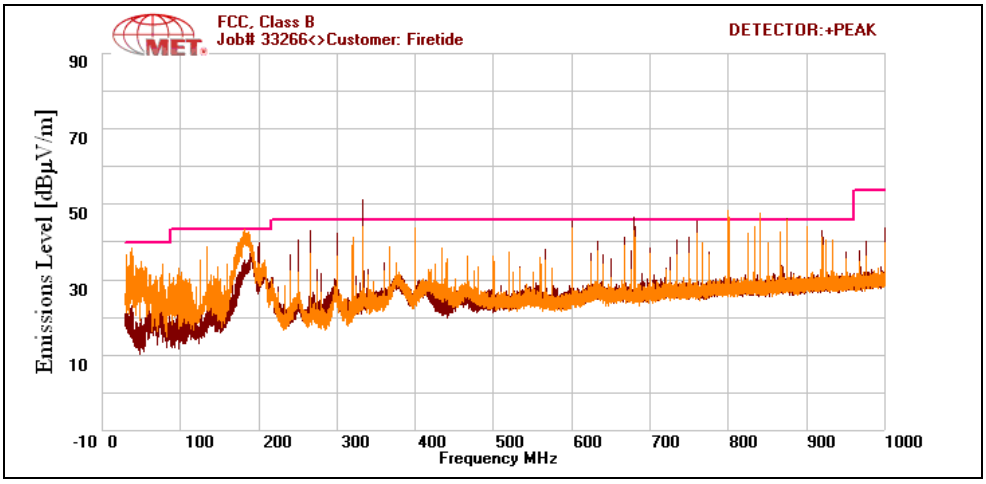
Plot 323. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11g, 8 dBi Omni, 2.4 GHz



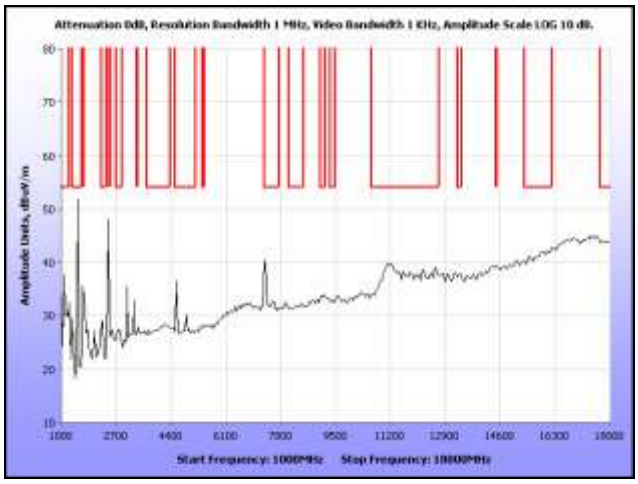
Plot 324. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11g, 8 dBi Omni, 2.4 GHz



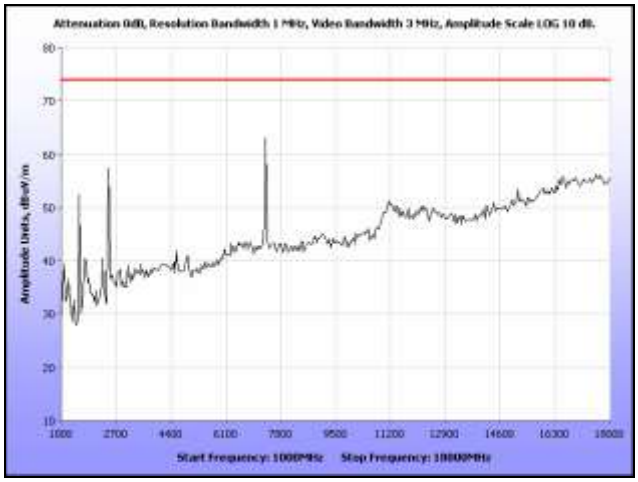
Plot 325. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11g, 8 dBi Omni, 2.4 GHz



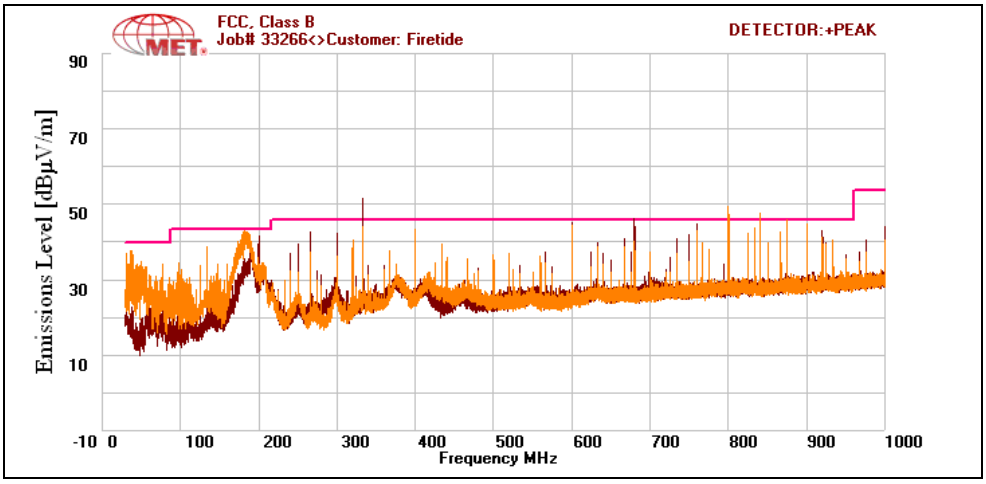
Plot 326. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11g, 8 dBi Omni, 2.4 GHz



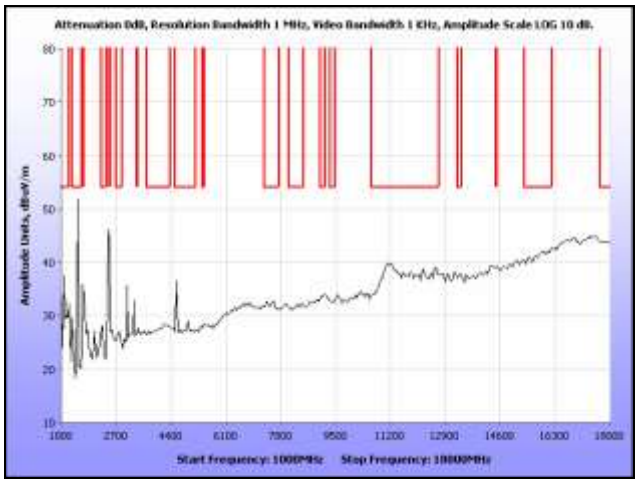
Plot 327. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11g, 8 dBi Omni, 2.4 GHz



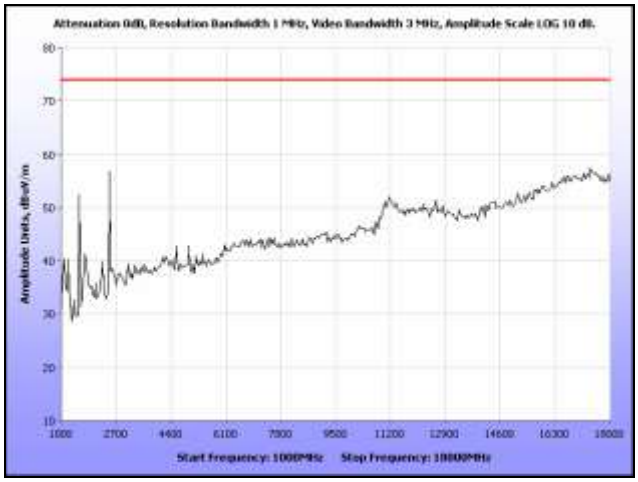
Plot 328. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11g, 8 dBi Omni, 2.4 GHz



Plot 329. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11g, 8 dBi Omni, 2.4 GHz

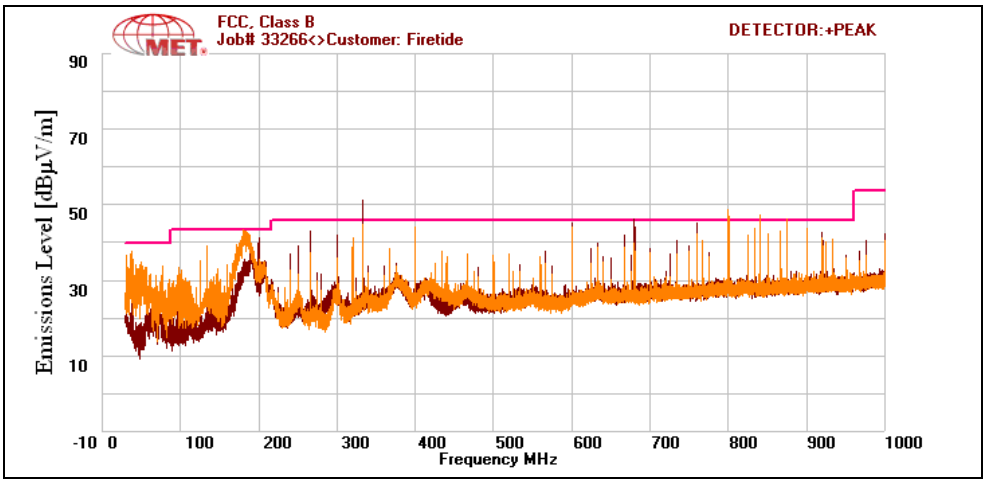


Plot 330. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11g, 8 dBi Omni, 2.4 GHz

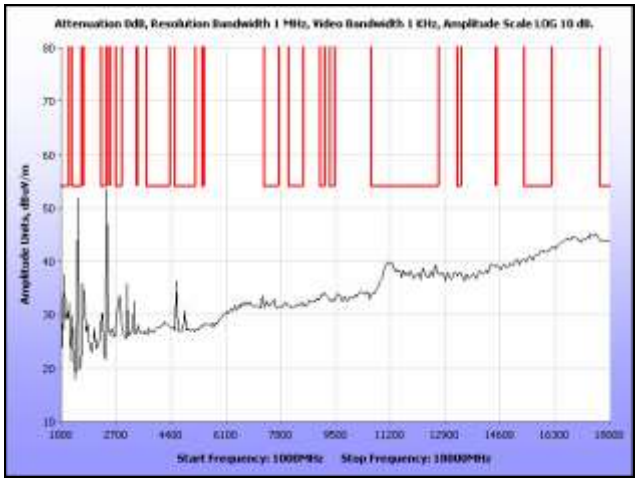


Plot 331. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11g, 8 dBi Omni, 2.4 GHz

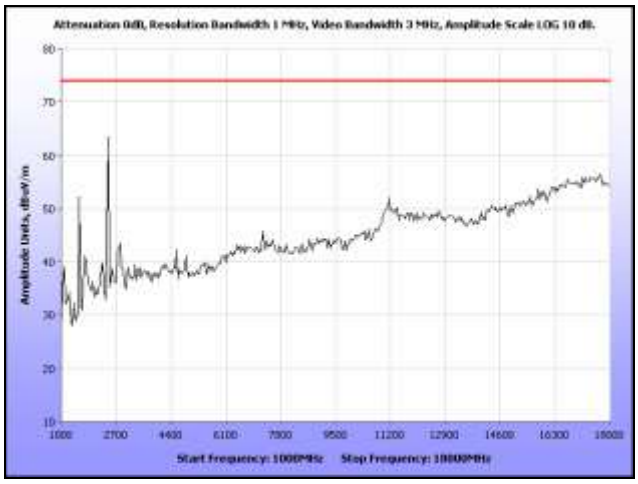
Radiated Spurious Emissions Test Results, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



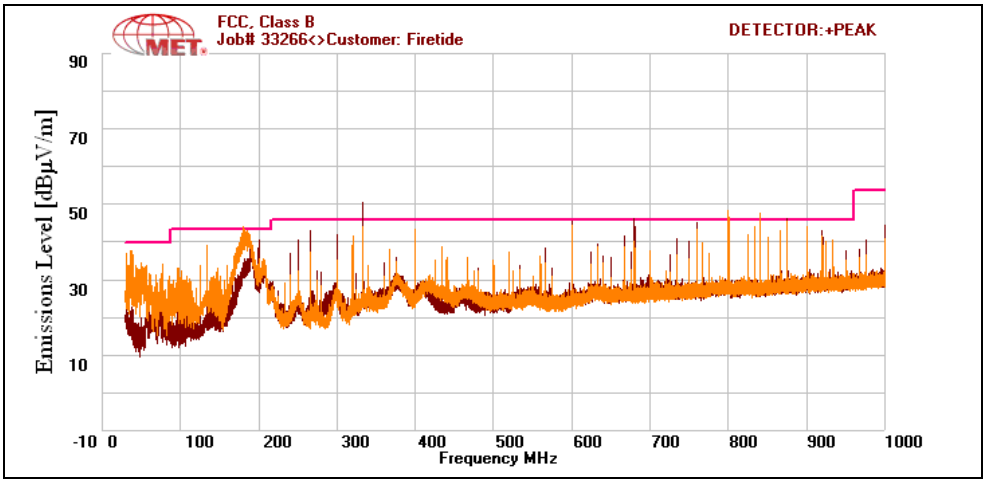
Plot 332. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



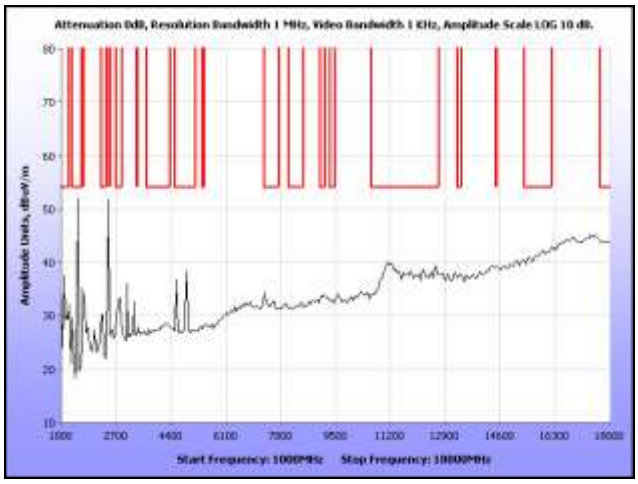
Plot 333. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



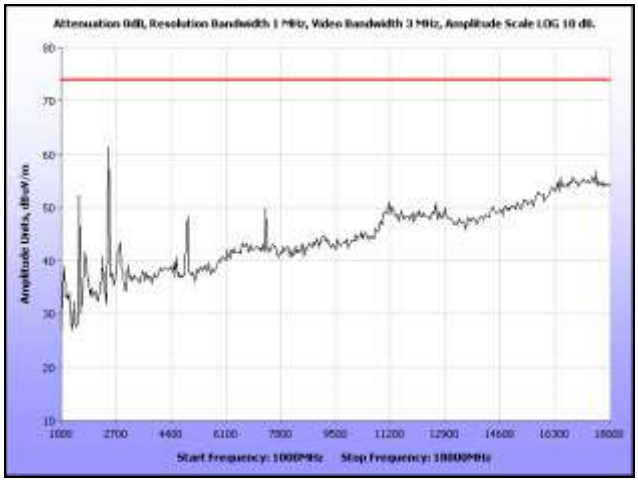
Plot 334. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



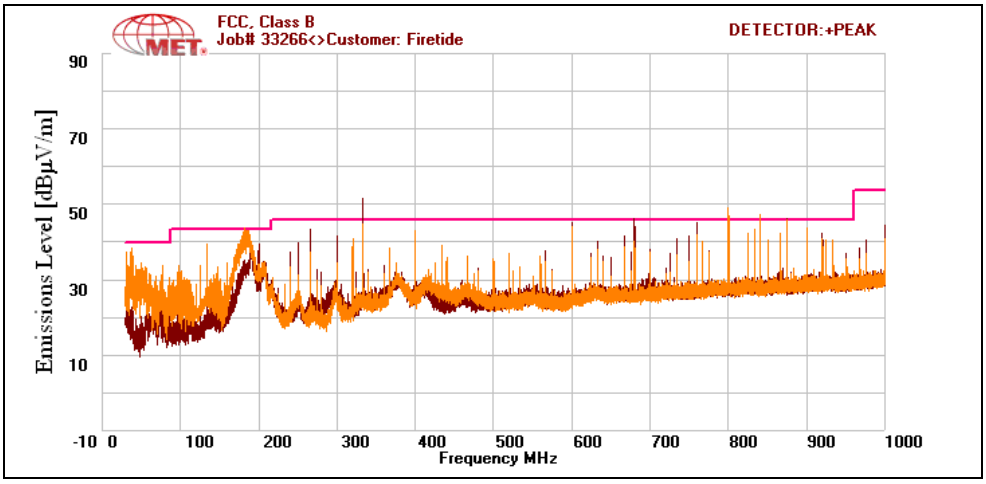
Plot 335. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



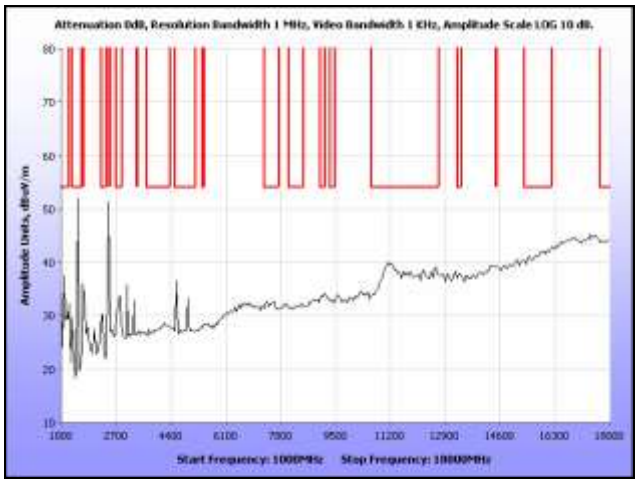
Plot 336. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



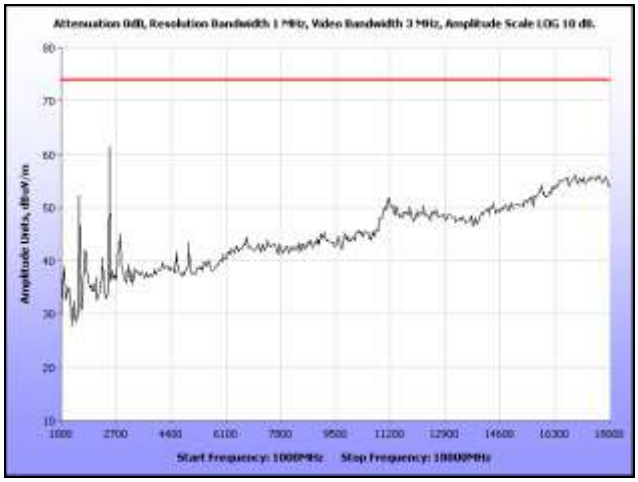
Plot 337. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz



Plot 338. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz

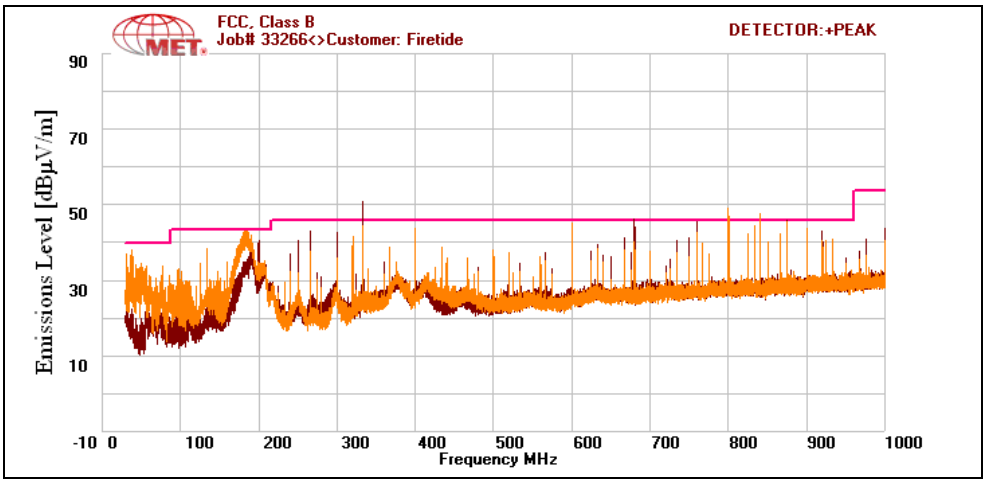


Plot 339. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz

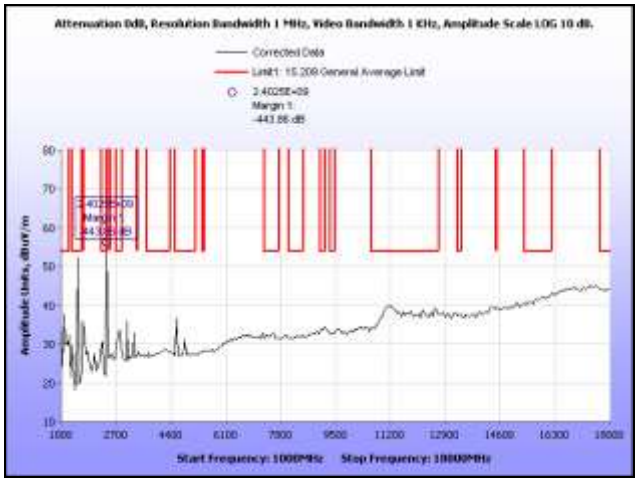


Plot 340. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 5 MHz, 8 dBi Omni, 2.4 GHz

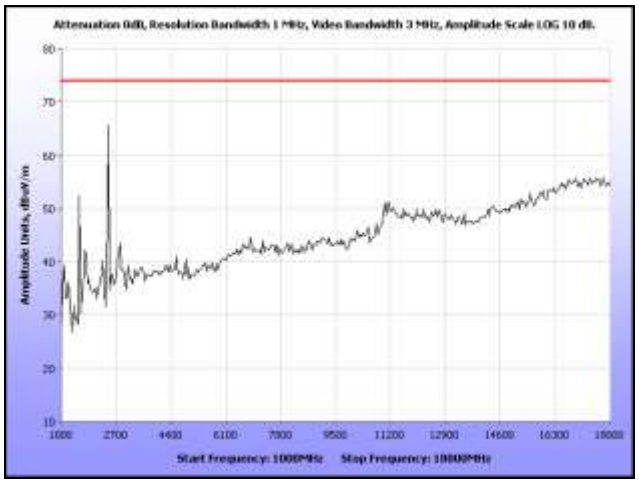
Radiated Spurious Emissions Test Results, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



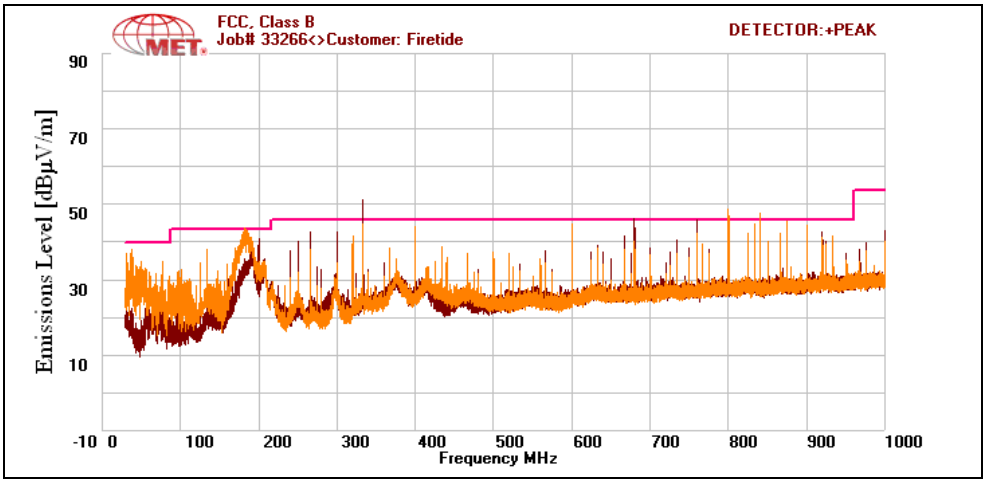
Plot 341. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



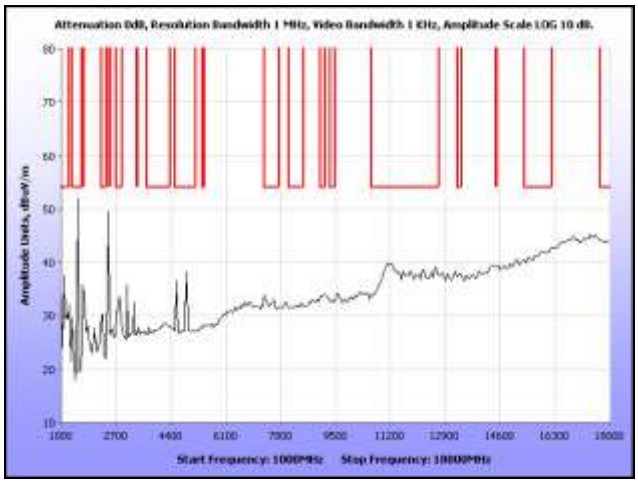
Plot 342. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



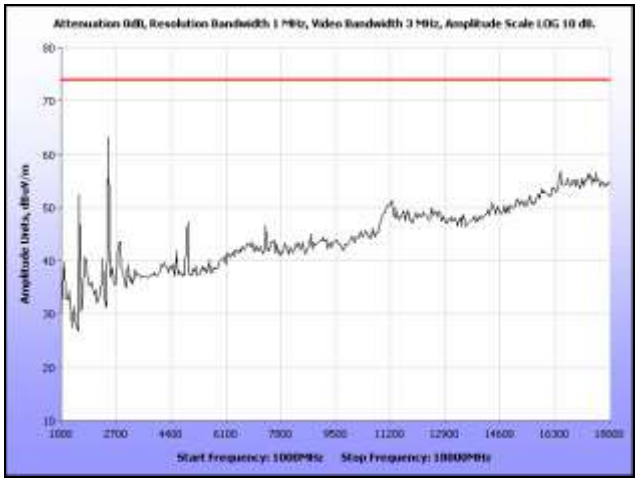
Plot 343. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



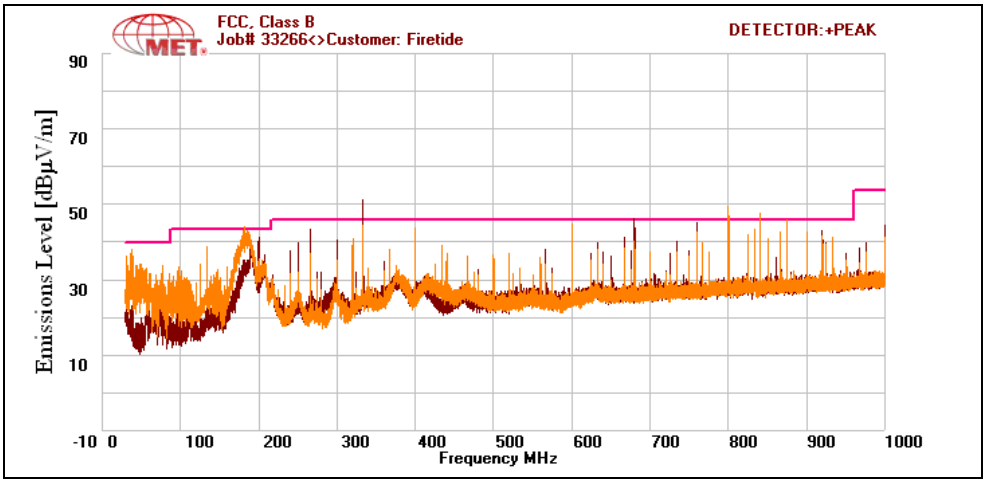
Plot 344. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



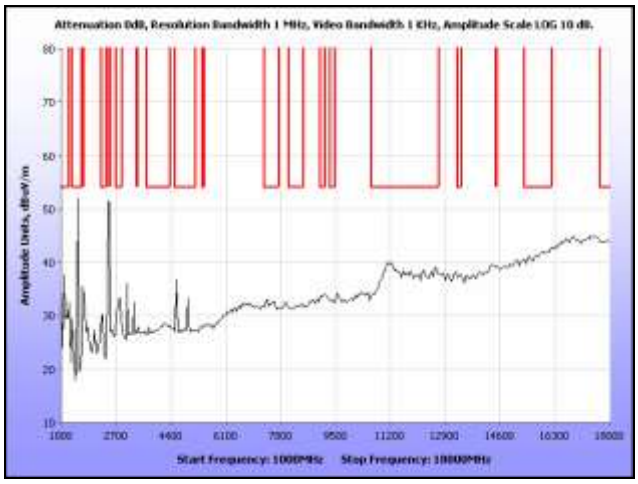
Plot 345. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



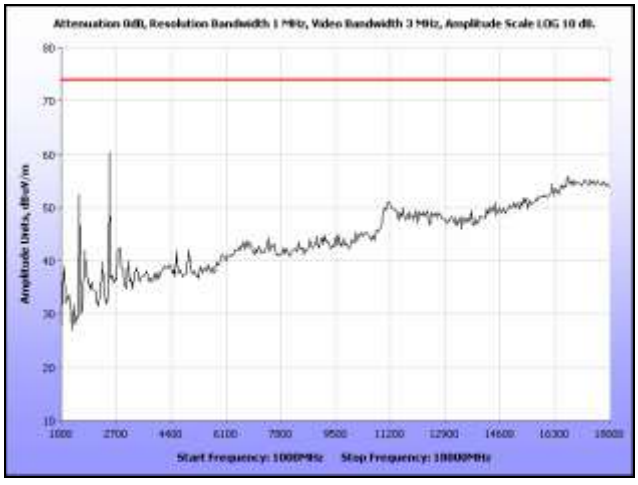
Plot 346. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz



Plot 347. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz

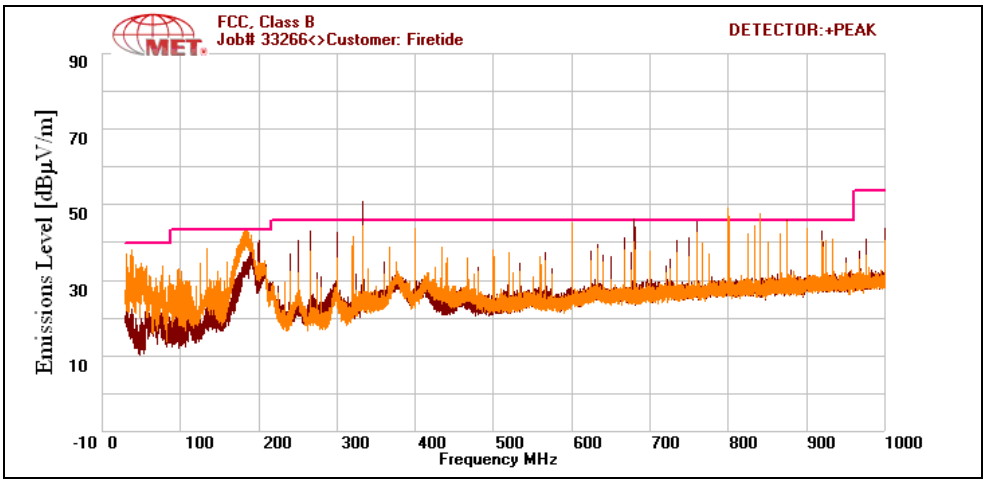


Plot 348. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz

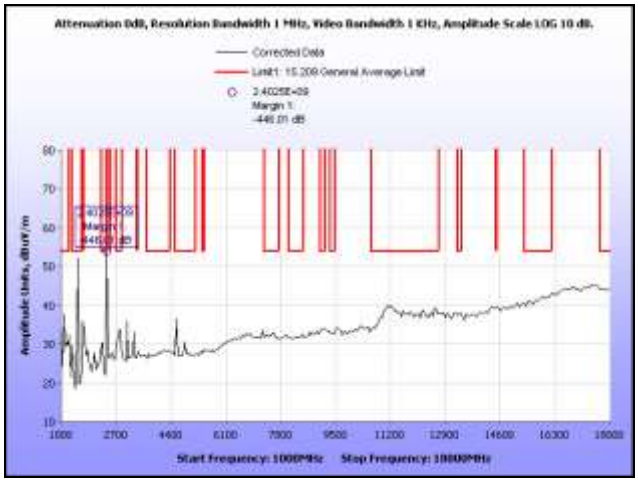


Plot 349. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 10 MHz, 8 dBi Omni, 2.4 GHz

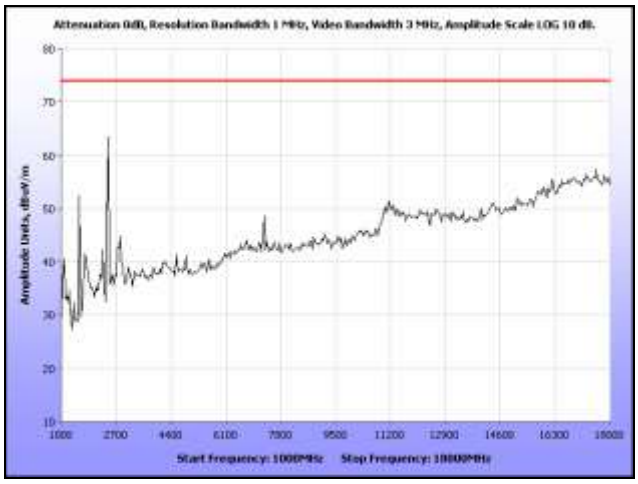
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



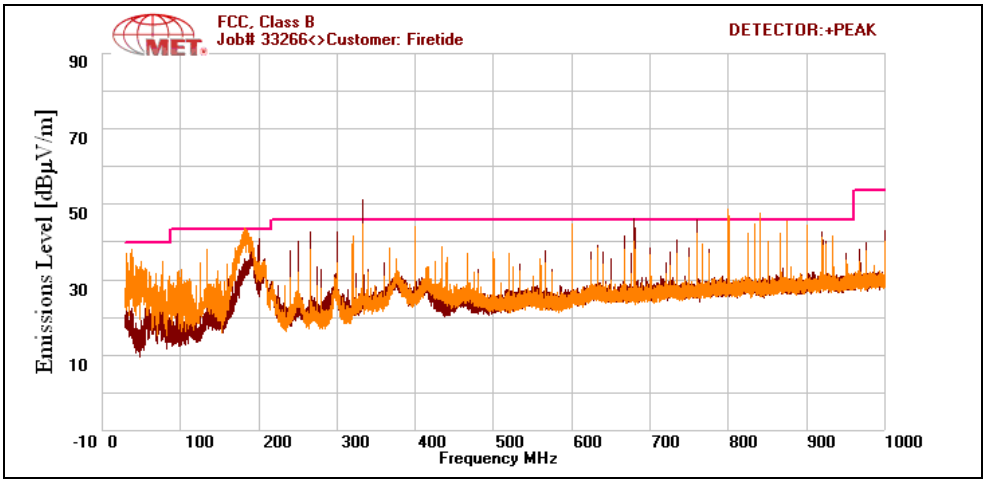
Plot 350. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



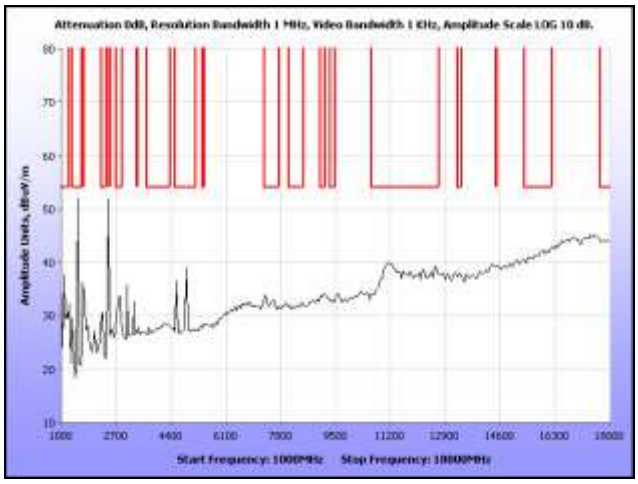
Plot 351. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



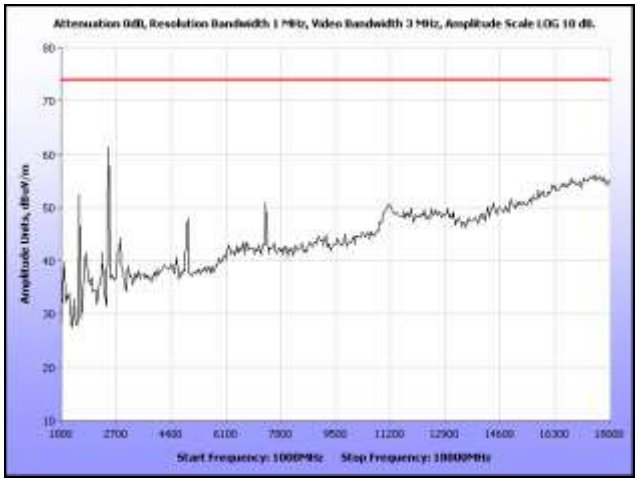
Plot 352. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



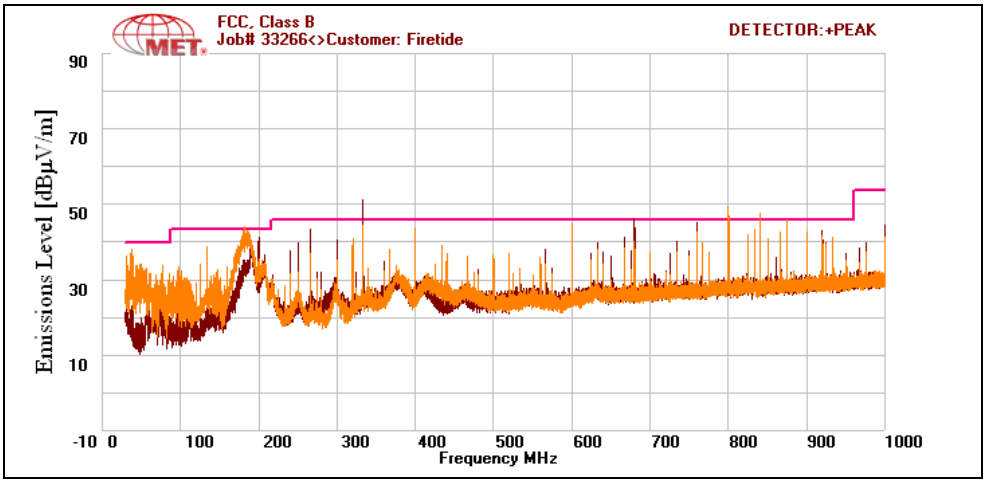
Plot 353. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



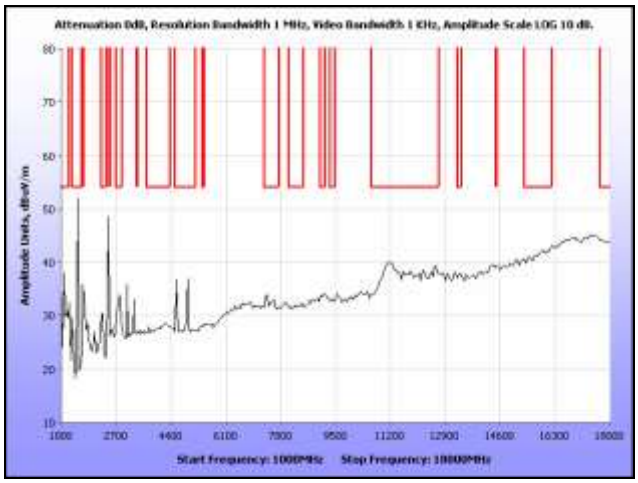
Plot 354. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



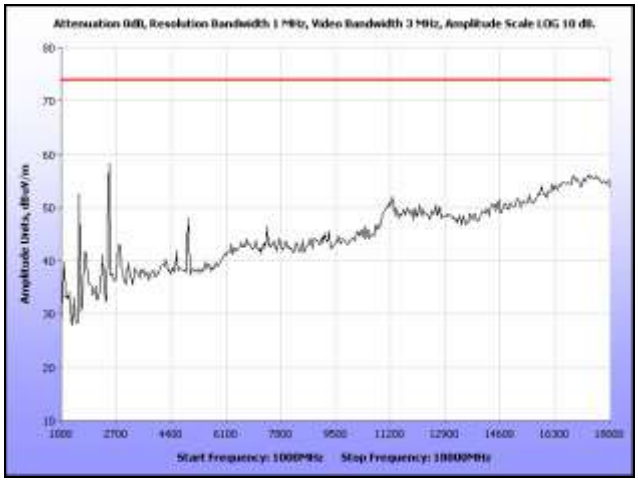
Plot 355. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz



Plot 356. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz

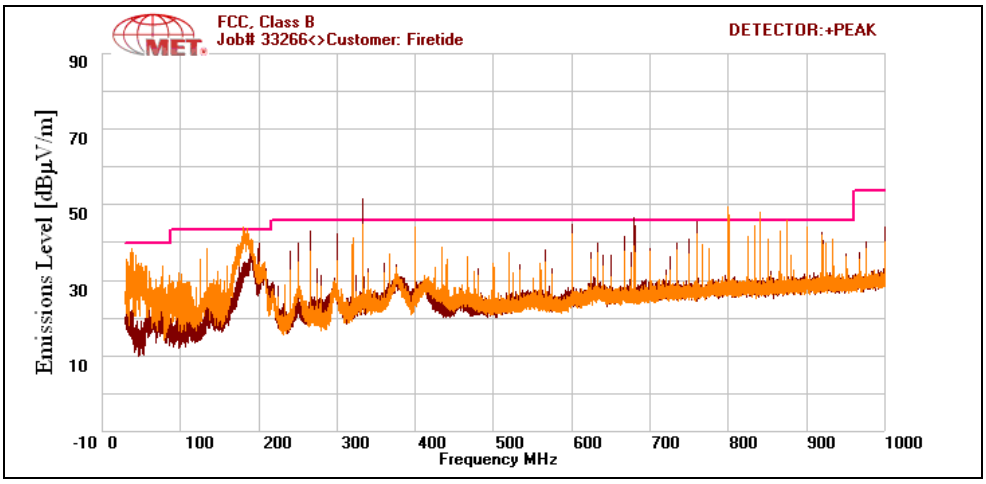


Plot 357. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz

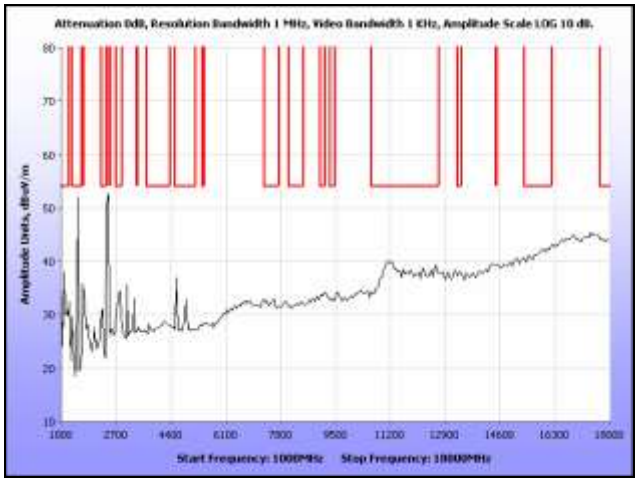


Plot 358. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 20 MHz, 8 dBi Omni, 2.4 GHz

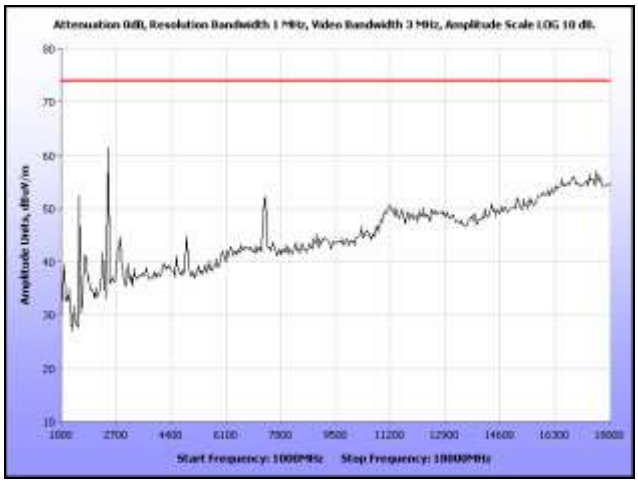
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



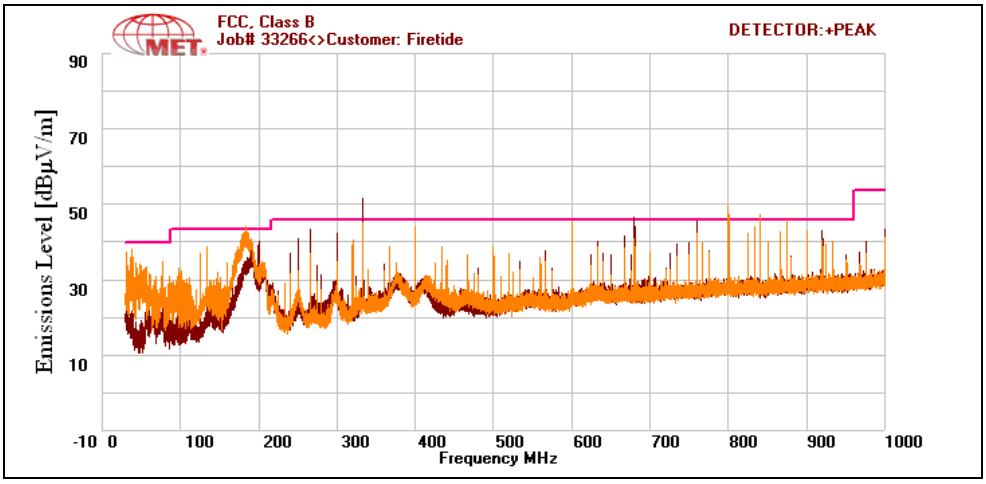
Plot 359. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



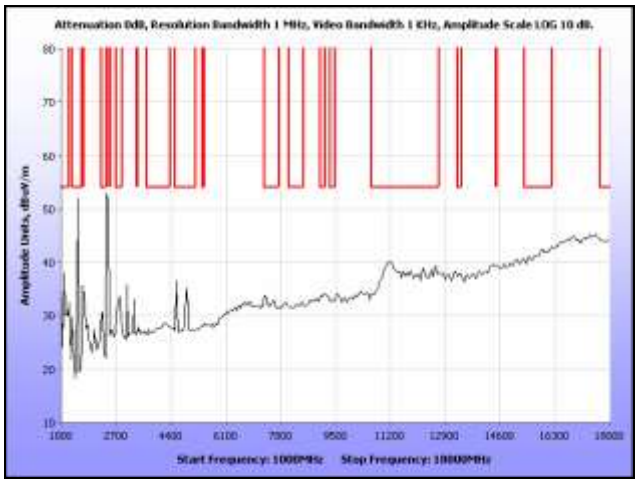
Plot 360. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



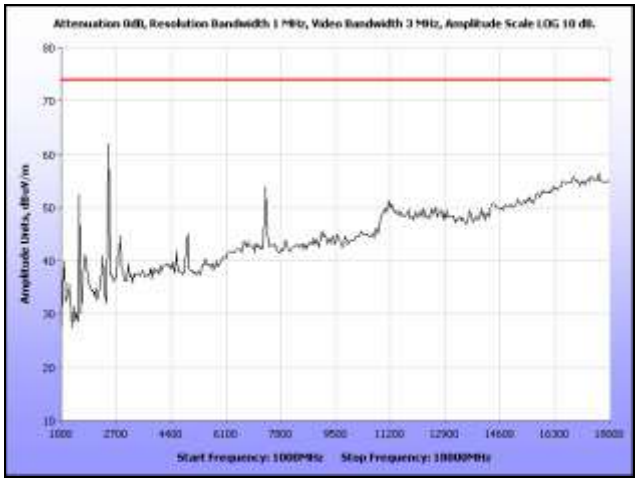
Plot 361. Radiated Spurs, Low Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



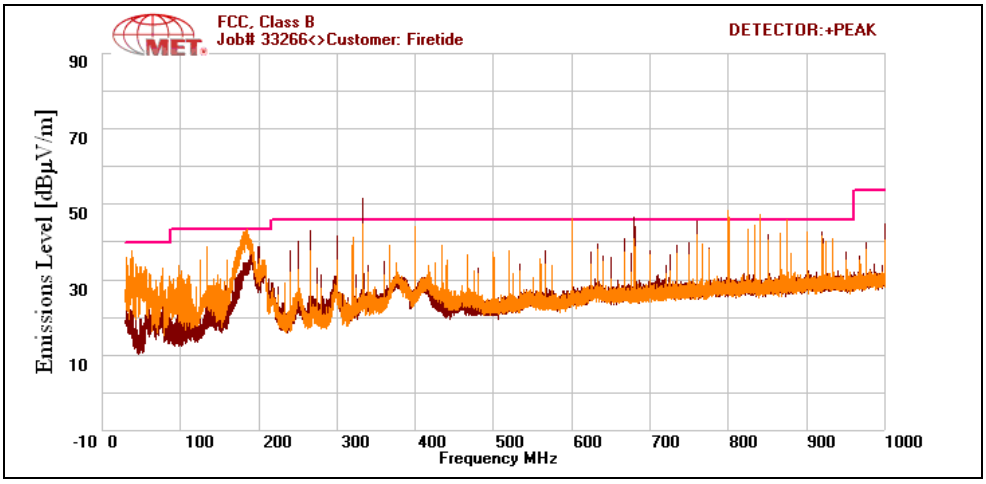
Plot 362. Radiated Spurs, Mid Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



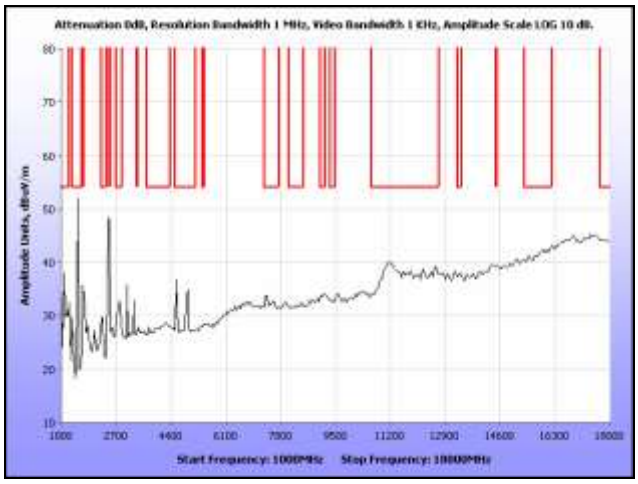
Plot 363. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



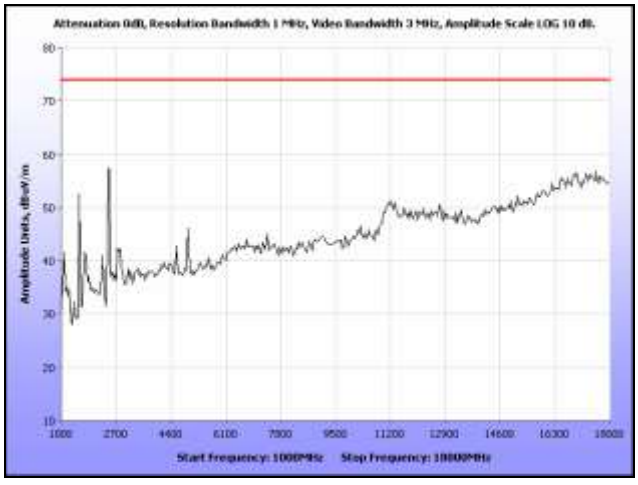
Plot 364. Radiated Spurs, Mid Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



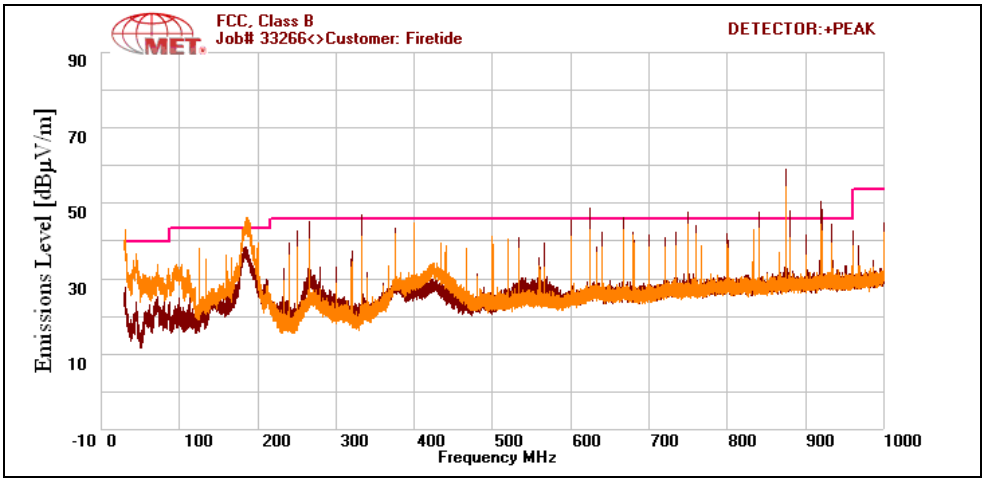
Plot 365. Radiated Spurs, High Channel, 30 MHz – 1 GHz, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



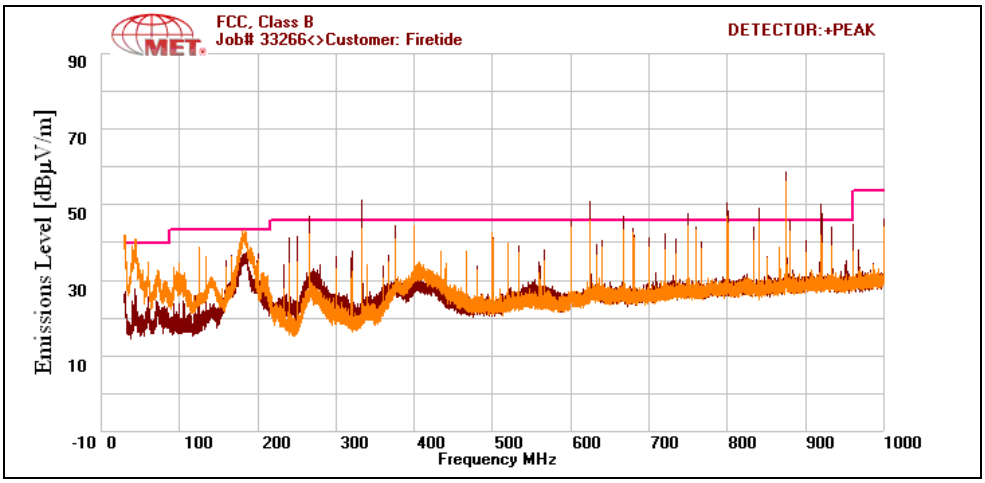
Plot 366. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Average, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



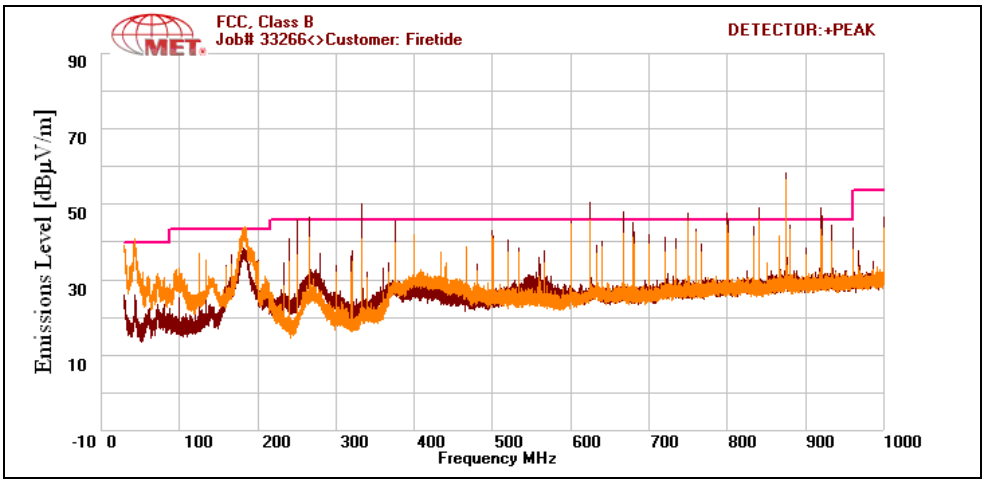
Plot 367. Radiated Spurs, High Channel, 1 GHz – 18 GHz, Peak, 802.11n 40 MHz, 8 dBi Omni, 2.4 GHz



Plot 368. Radio Off, 9 dBi Omni, 5.8 GHz

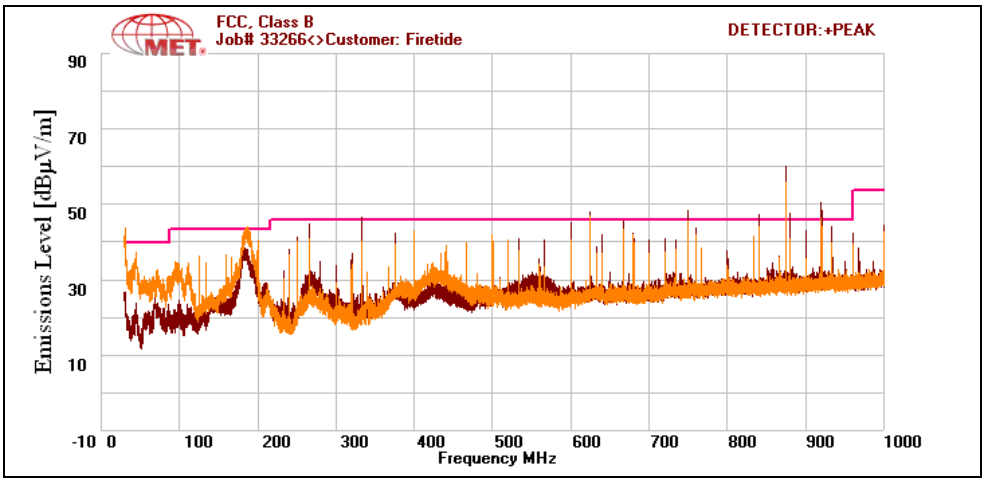


Plot 369. Radio Off, 15 dBi Sector, 5.8 GHz

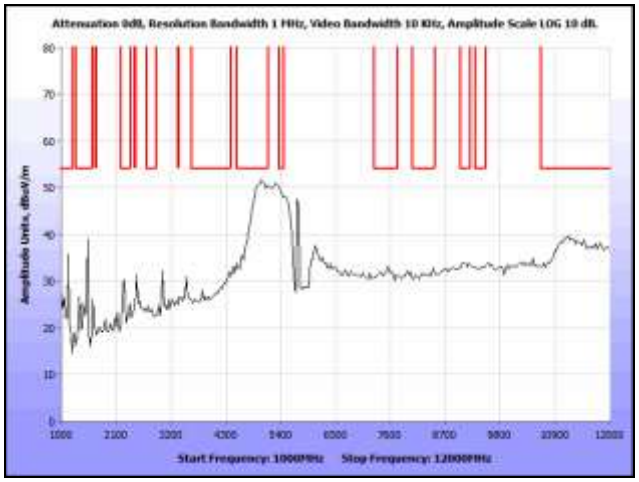


Plot 370. Radio Off, 16 dBi Panel, 5.8 GHz

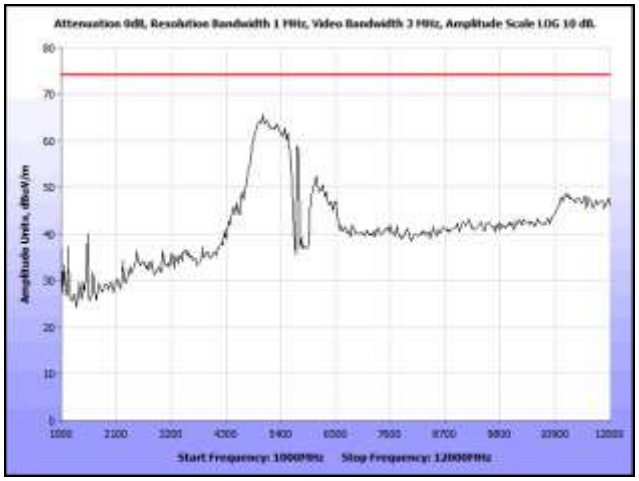
Radiated Spurious Emissions Test Results, 802.11a, 9 dBi Omni, 5.8 GHz



Plot 371. Radiated Spurs, Low Channel, 30 MHz – 1 GHz, 802.11a, 9 dBi Omni, 5.8 GHz



Plot 372. Radiated Spurs, Low Channel, 1 GHz – 12 GHz, Average, 802.11a, 9 dBi Omni, 5.8 GHz



Plot 373. Radiated Spurs, Low Channel, 1 GHz – 12 GHz, Peak, 802.11a, 9 dBi Omni, 5.8 GHz