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April 5, 2013

Meru Networks, Inc.
894 Ross Dr.
Sunnyvale, CA 94089

Dear Rajendran Chary,

Enclosed is the EMC Wireless test report for compliance testing of the Meru Networks, Inc., AP832i as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Part 15, Subpart B and ICES-003, Issue 5 August 2012 for a Class B Digital Device, and FCC Part 15 Subpart C and 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: (\Meru Networks, Inc.\EMCS37430B-FCC247 Rev. 1)

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Electromagnetic Compatibility Criteria Test Report

for the

**Meru Networks, Inc.
AP832i**

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

MET Report: EMCS37430B-FCC247 Rev. 1

April 5, 2013

Prepared For:

**Meru Networks, Inc.
894 Ross Dr.
Sunnyvale, CA 94089**

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

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for Intentional Radiators



Jonathan Chao, Project Engineer
Electromagnetic Compatibility Lab



Jennifer Warnell
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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 5 August 2012, RSS-210, Issue 8, Dec. 2010 under normal use and maintenance.



Asad Bajwa,
Director, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	March 11, 2013	Initial Issue.
1	April 5, 2013	Revised to reflect engineer corrections.

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List of Terms and Abbreviations

AC	Alternating Current
ACF	Antenna Correction Factor
Cal	Calibration
<i>d</i>	Measurement Distance
dB	Decibels
dB μ A	Decibels above one microamp
dB μ V	Decibels above one microvolt
dB μ A/m	Decibels above one microamp per meter
dB μ V/m	Decibels above one microvolt per meter
DC	Direct Current
E	Electric Field
DSL	Digital Subscriber Line
ESD	Electrostatic Discharge
EUT	Equipment Under Test
<i>f</i>	Frequency
FCC	Federal Communications Commission
GRP	Ground Reference Plane
H	Magnetic Field
HCP	Horizontal Coupling Plane
Hz	Hertz
IEC	International Electrotechnical Commission
kHz	kilohertz
kPa	kilopascal
kV	kilovolt
LISN	Line Impedance Stabilization Network
MHz	Megahertz
μ H	microhenry
μ	microfarad
μ s	microseconds
NEBS	Network Equipment-Building System
PRF	Pulse Repetition Frequency
RF	Radio Frequency
RMS	Root-Mean-Square
TWT	Traveling Wave Tube
V/m	Volts per meter
VCP	Vertical Coupling Plane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Meru Networks, Inc. AP832i, 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 AP832i. Meru Networks, Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the AP832i, 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 Meru Networks, Inc., purchase order number 104838. 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 5 August 2012	Conducted Emission Limits for a Class B Digital Device	Compliant
47 CFR Part 15.109 (a)	ICES-003 Issue 5 August 2012	Radiated Emission Limits for a Class B 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 Compliance Testing

II. Equipment Configuration

A. Overview

MET Laboratories, Inc. was contracted by Meru Networks, Inc. to perform testing on the AP832i, under Meru Networks, Inc.'s purchase order number 104838.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Meru Networks, Inc., AP832i.

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

Model(s) Tested:	AP832i	
Model(s) Covered:	AP832i	
EUT Specifications:	Primary Power: 120 VAC, 60 Hz	
	FCC ID: RE7-AP832I IC: 6749A-AP832I	
	Type of Modulations:	DSSS/OFDM
	Equipment Code:	DTS
	Peak RF Output Power:	26.00 dBm
	EUT Frequency Ranges:	20MHz BW– 2412-2462MHz, 5745-5825MHz 40MHz BW– 2422-2452MHz, 5755-5795MHz 80MHz BW– 5775MHz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35° C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Jonathan Chao	
Report Date(s):	April 5, 2013	

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 5 August 2012	Information Technology Equipment (ITE) — Limits and methods of measurement
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
ISO/IEC 17025:2005	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 10 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 Meru Networks, Inc. AP832i, Equipment Under Test (EUT), is an 802.11AC wireless access point (WAP) that allows wireless devices to connect to a wired network using Wi-Fi, standard. The WAP usually connects to a router (via a wired network), and can relay data between the wireless devices (such as computers or printers) and wired devices on the network.

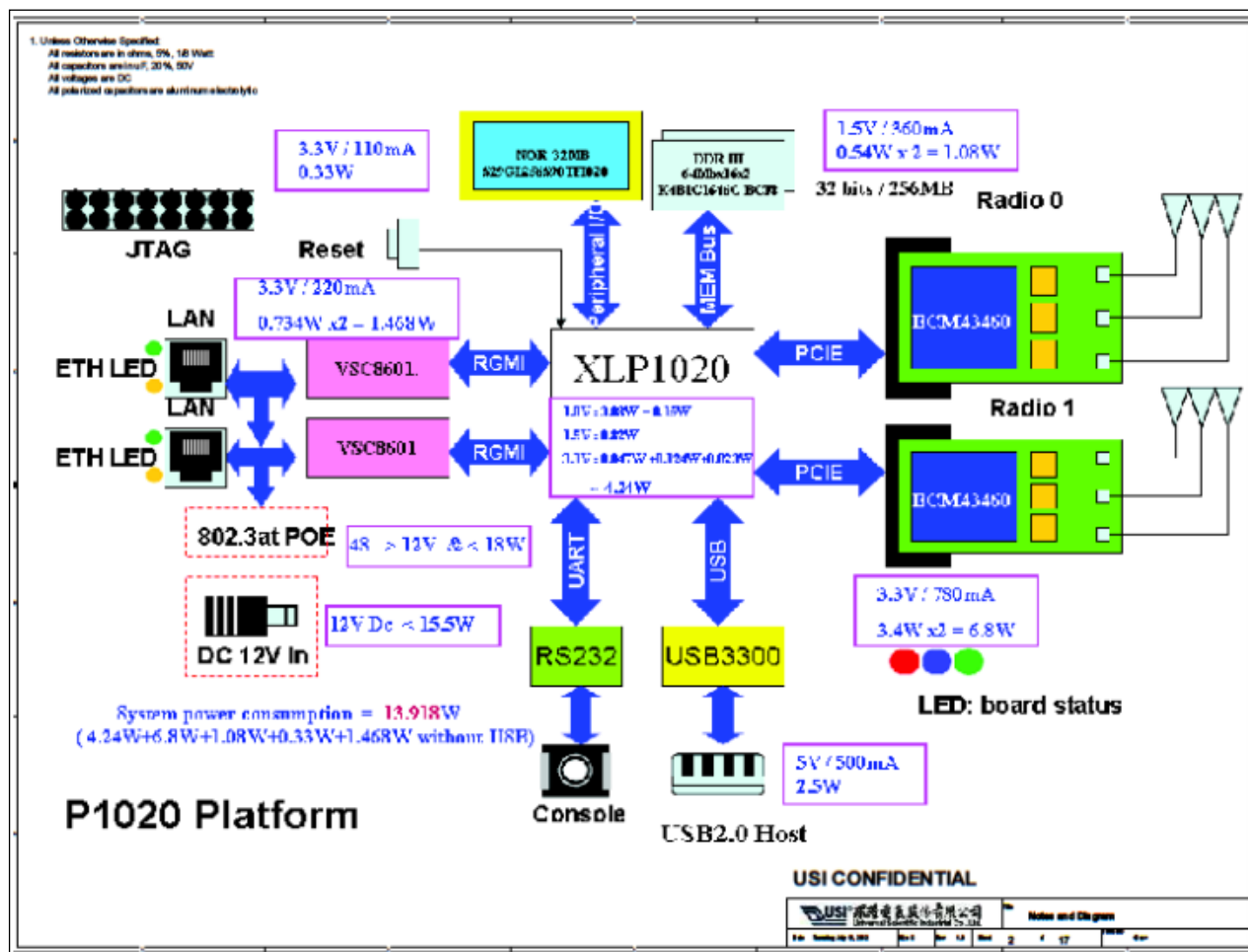


Figure 1. Block Diagram of Test Configuration

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	Dual Radio Access Point	AP832i	4812A832i112533
2	Dual Radio Access Point	AP832i	4812A832i112523

Table 4. Equipment Configuration

F. Support Equipment

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

Type	Model and Serial Number
PoE	PD-9001GR/AC
AC/DC	DC Adapter - GS18A12-P1J
Cable	Serial cable
Cable	Shielded Ethernet cable

Table 5. Support Equipment

G. Ports and Cabling Information

The EUT did not require any support equipment for operation or monitoring.

H. Mode of Operation

During the normal operation the configuration is controlled by the Meru controller which sets the country code, ESSID, Operating frequency band and Channel etc.

I. Method of Monitoring EUT Operation

During the normal operation with controller Green or Blue LED indication on the Access point indicate the normal operation of the Access point. A Red LED indicates a failure of hardware or software settings.

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 Meru Networks, 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 6. 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 6. 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.

Frequency range (MHz)	Class A Conducted Limits (dB μ V)		*Class B Conducted Limits (dB μ V)	
	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.				

Table 6. Conducted Limits for Radio Frequency Devices calculated from FCC Part 15 Subsections 15.107(a) (b)

Test Procedures: The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a screen room. The method of testing, test conditions, and test procedures of ANSI C63.4 were used. The EUT was powered through a 50 Ω /50 μ H LISN. An EMI receiver, connected to the measurement port of the LISN, scanned the frequency range from 150 kHz to 30 MHz in order to find the peak conducted emissions. All peak emissions within 6 dB of the limit were re-measured using a quasi-peak and/or average detector as appropriate.

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

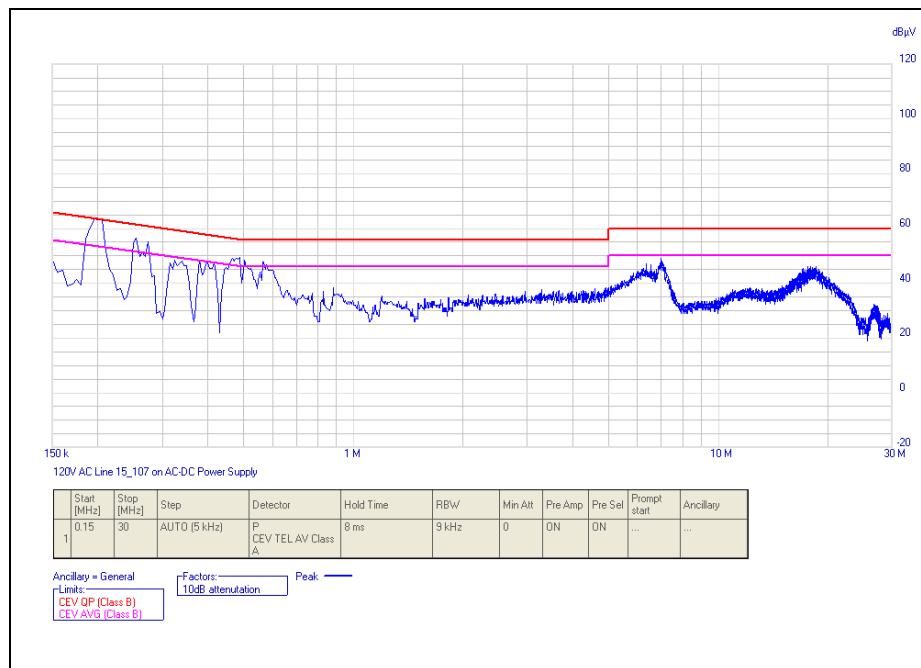
Test Engineer(s): Joseph Dizon

Test Date(s): 01/31/13 & 02/01/13

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Line 15.107	0.195	63.56	63.827	-0.267	Pass	42.56	53.827	-11.267	Pass
120V AC Line 15.107	0.255	55.66	61.605	-5.945	Pass	33.14	51.605	-18.465	Pass
120V AC Line 15.107	0.275	54.34	60.979	-6.639	Pass	32.31	50.979	-18.669	Pass

Table 7. Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz), AC-DC Power Supply

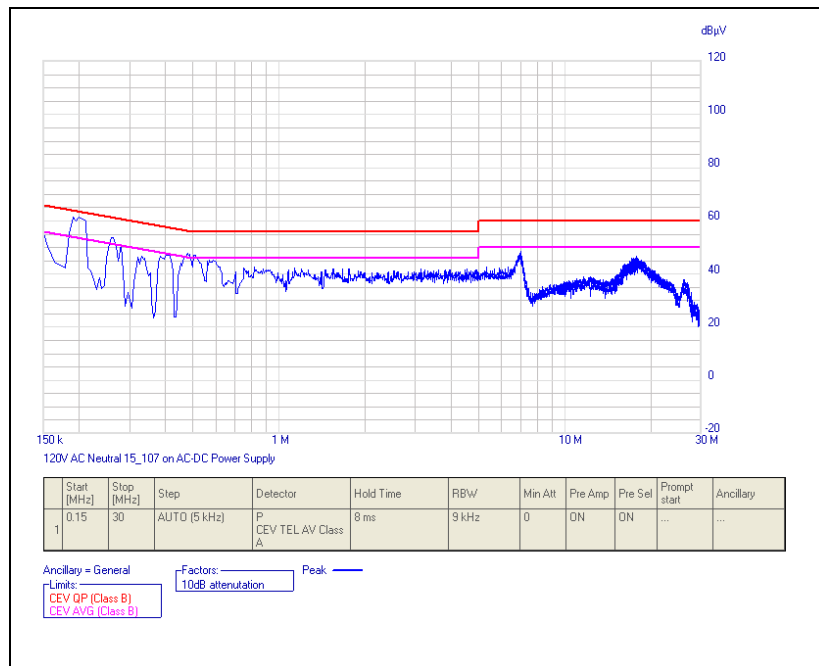


Plot 1. Conducted Emission, Phase Line Plot, AC-DC Power Supply

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Neutral 15.107	0.15	53.23	66	-12.77	Pass	23.71	56	-32.29	Pass
120V AC Neutral 15.107	0.2	57.39	63.617	-6.227	Pass	38.46	53.617	-15.157	Pass
120V AC Neutral 15.107	0.265	48.4	61.286	-12.886	Pass	33.07	51.286	-18.216	Pass

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

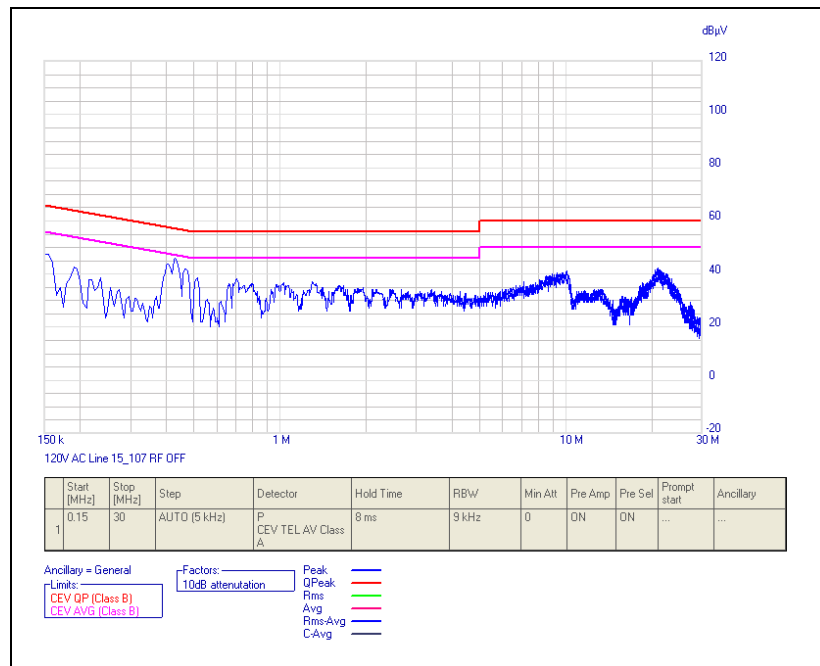


Plot 2. Conducted Emission, Neutral Line Plot, AC-DC Power Supply

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Line 15.107	0.155	51.05	65.728	-14.678	Pass	34.3	55.728	-21.428	Pass
120V AC Line 15.107	0.405	44	57.773	-13.773	Pass	34.78	47.773	-12.993	Pass
120V AC Line 15.107	0.43	46.68	57.277	-10.597	Pass	39	47.277	-8.277	Pass

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

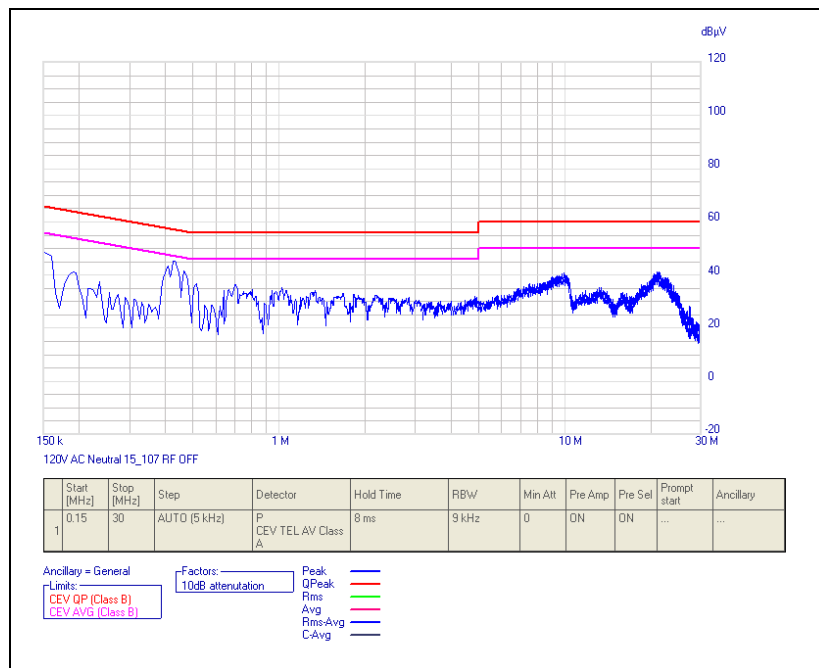


Plot 3. Conducted Emission, Phase Line Plot, PoE

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Neutral 15.107	0.15	53.73	66	-12.27	Pass	31.84	56	-24.16	Pass
120V AC Neutral 15.107	0.41	43.5	57.671	-14.171	Pass	28.96	47.671	-18.711	Pass
120V AC Neutral 15.107	0.43	46.04	57.277	-11.237	Pass	38.26	47.277	-9.017	Pass

Table 10. Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz), PoE



Plot 4. Conducted Emission, Neutral Line Plot, PoE

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 11.

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 11.

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 11. 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 10m 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 B requirement(s) of this section. Measured emissions were below applicable limits.

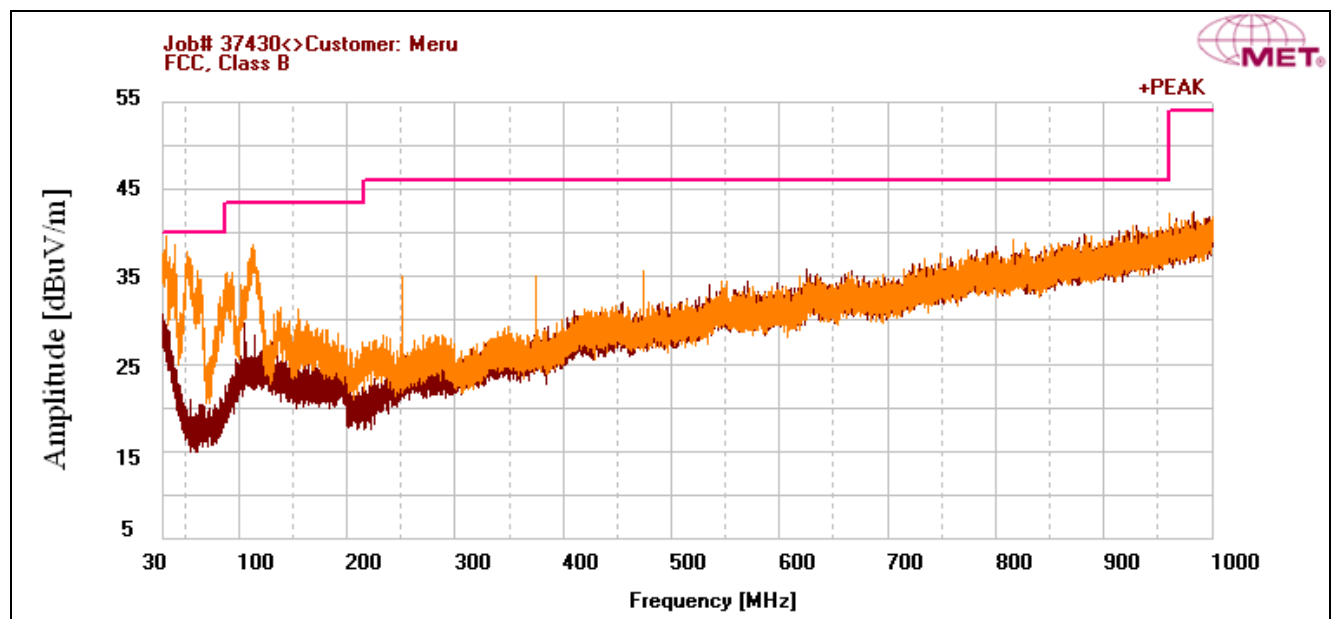
Test Engineer(s): John Frank & Joseph Dizon

Test Date(s): 01/18/13

Radiated Emissions Limits Test Results, Class B

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)
32.64	V	330	100	38.854	17.116	30.506	0	10.46	35.924	40	-4.076
53.244	V	190	100	48.646	7.051	30.299	0	10.46	35.858	40	-4.142
113.707	V	235	100	44.356	12.3	29.496	0	10.46	37.62	43.5	-5.88
249.977	V	150	100	28.837	12.098	28.335	0	10.46	23.06	46	-22.94
374.978	V	150	100	28.837	12.098	28.335	0	10.46	23.06	46	-22.94
475.008	V	172	100	34.121	16.801	27.167	0	10.46	34.215	46	-11.785

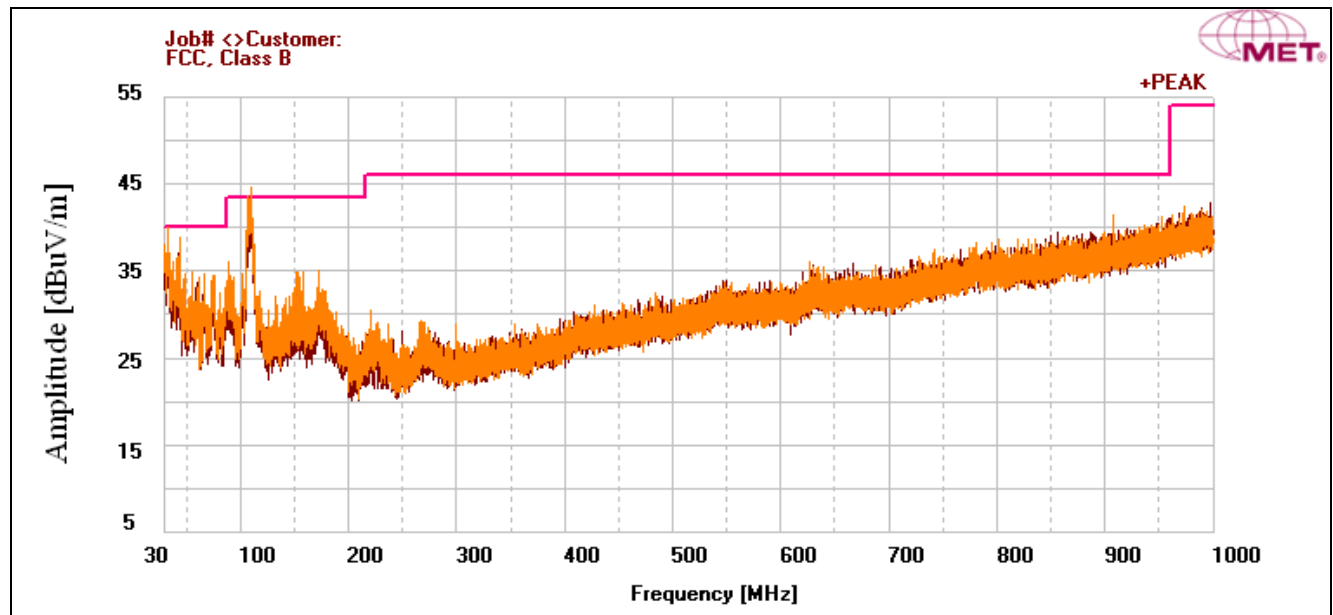
Table 12. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz, FCC Limits



Plot 5. Radiated Emissions, 30 MHz - 1 GHz, FCC Limits, AC-DC Power Supply

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)
109.416	V	227	100	47.163	12.1	29.538	0	10.46	40.185	43.5	-3.315
109.696	V	260	100	47.27	12.1	29.535	0	10.46	40.295	43.5	-3.205
32.68	V	35	100	38.483	17.092	30.505	0	10.46	35.53	40	-4.47
43.826	V	337	100	45.557	10.722	30.399	0	10.46	36.34	40	-3.66
157.394	V	296	100	37.557	10	29.068	0	10.46	28.949	43.5	-14.551
173.118	V	43	100	41.059	9.7	28.913	0	10.46	32.306	43.5	-11.194

Table 13. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz, FCC Limits

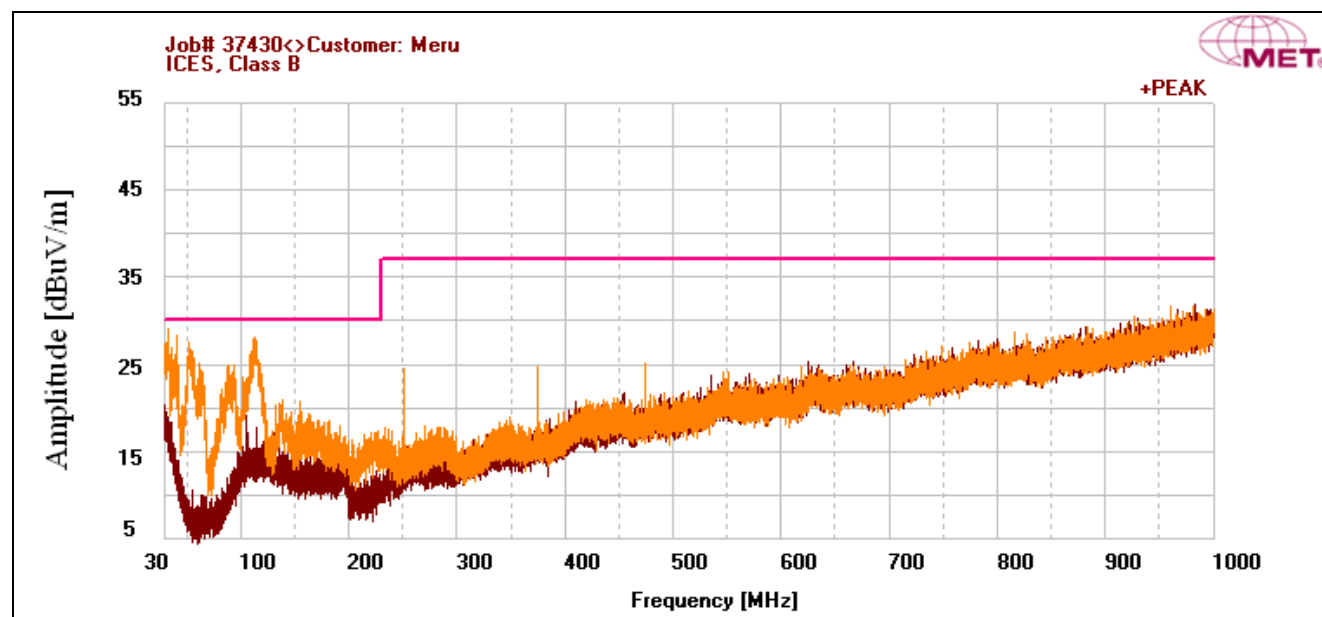


Plot 6. Radiated Emissions, 30 MHz - 1 GHz, FCC Limits, PoE

Radiated Emissions Limits Test Results, Class B

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)
32.64	V	330	100	38.854	17.116	30.506	0	0	25.464	30	-4.536
53.244	V	190	100	48.646	7.051	30.299	0	0	25.398	30	-4.602
113.707	V	235	100	44.356	12.3	29.496	0	0	27.16	30	-2.84
249.977	V	150	100	28.837	12.098	28.335	0	0	12.6	37	-24.4
374.978	V	150	100	28.837	12.098	28.335	0	0	12.6	37	-24.4
475.008	V	172	100	34.121	16.801	27.167	0	0	23.755	37	-13.245

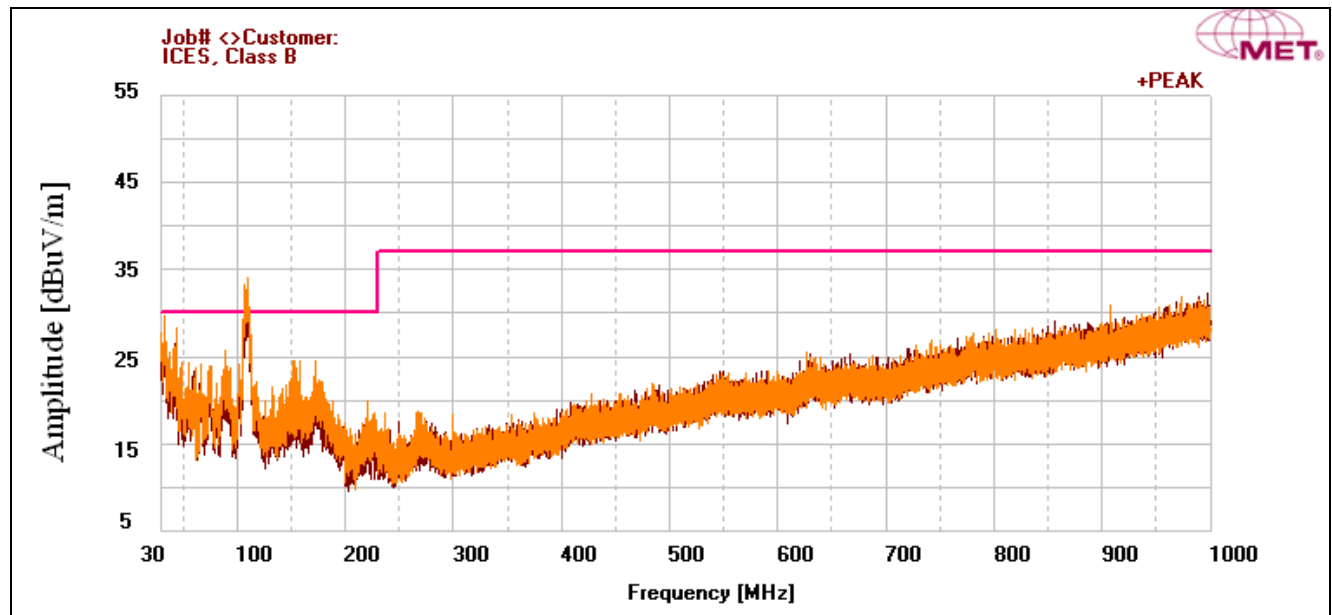
Table 14. Radiated Emissions Limits, Test Results, ICES-003 Limits



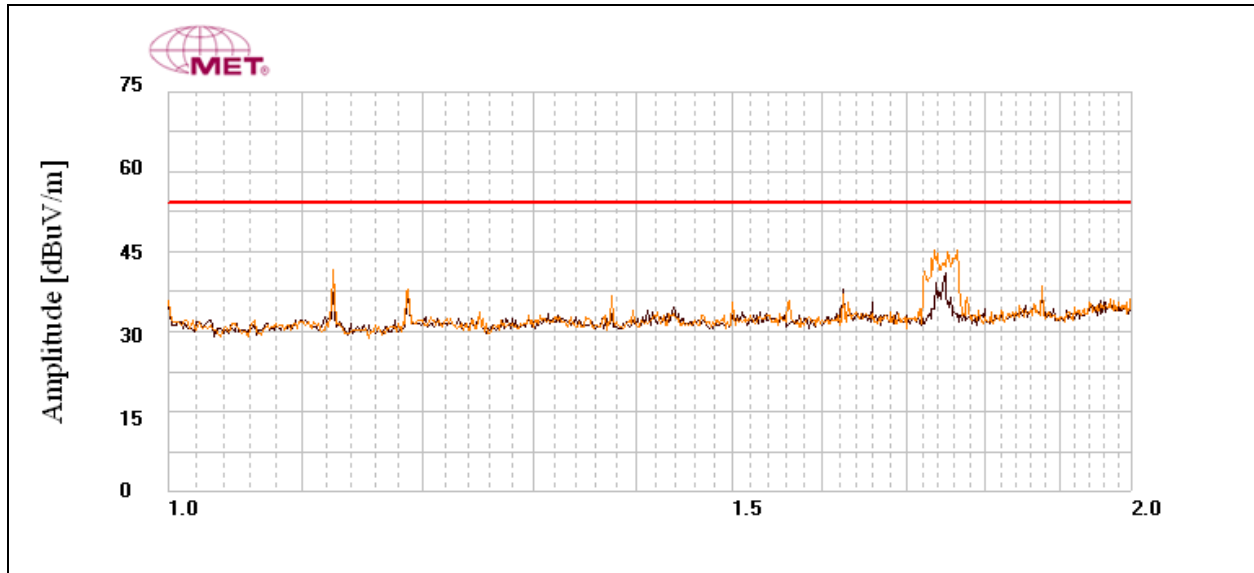
Plot 7. Radiated Emissions, ICES-003 Limits, AC-DC Power Supply

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)
109.416	V	227	100	47.163	12.1	29.538	0	0	29.725	30	-0.275
109.696	V	260	100	47.27	12.1	29.535	0	0	29.835	30	-0.165
32.68	V	35	100	38.483	17.092	30.505	0	0	25.07	30	-4.93
43.826	V	337	100	45.557	10.722	30.399	0	0	25.88	30	-4.12
157.394	V	296	100	37.557	10	29.068	0	0	18.489	30	-11.511
173.118	V	43	100	41.059	9.7	28.913	0	0	21.846	30	-8.154

Table 15. Radiated Emissions Limits, Test Results, ICES-003 Limits



Plot 8. Radiated Emissions, ICES-003 Limits, PoE



Plot 9. Radiated Emissions, Above 1 GHz

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. Antenna is permanently attached to unit and requires professional installation.

Test Engineer(s): Jonathan Chao

Test Date(s): 02/18/13

Gain (dBi)		Antenna Type	Antenna Description	Manufacturer	Model Number
2.4 GHz	5 GHz				
3	4	Dipole	Internal PIFA Dual-Band 3 x 3	Meru	MERU-PI623

Table 16. 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 μ H/50 Σ 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 (dB μ V)	
	Quasi-Peak	Average
* 0.15- 0.45	66 - 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

Table 17. 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 μ H 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 μ H 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.

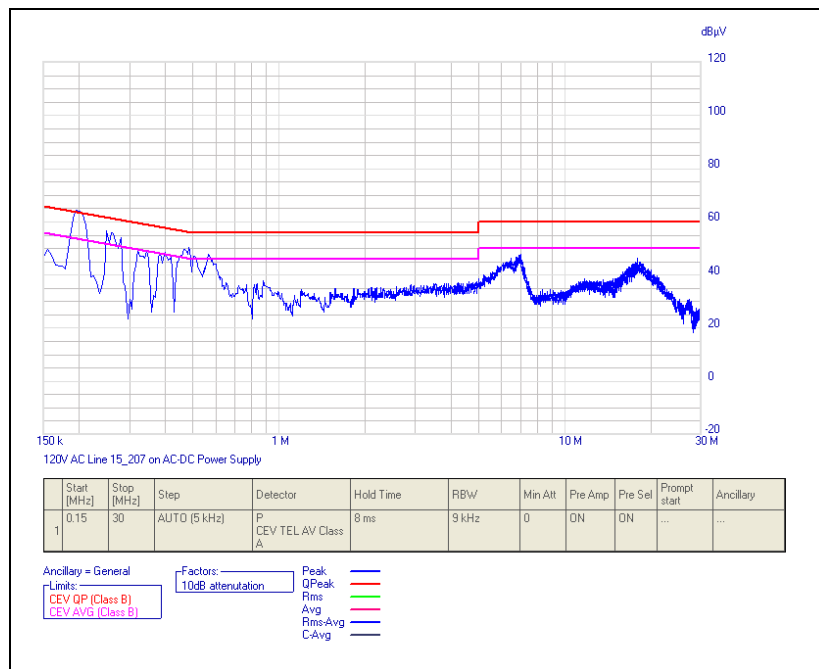
Test Engineer(s): Joseph Dizon

Test Date(s): 01/31/13 & 02/01/13

15.207(a) Conducted Emissions Test Results, AC-DC Power Supply

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Line 15.207	0.195	63.35	63.827	-0.477	Pass	43.02	53.827	-10.807	Pass
120V AC Line 15.207	0.25	55.66	61.769	-6.109	Pass	30.01	51.769	-21.759	Pass
120V AC Line 15.207	0.485	51.48	56.26	-4.78	Pass	32.42	46.26	-13.84	Pass

Table 18. Conducted Emissions, 15.207(a), Phase Line, Test Results, AC-DC Power Supply

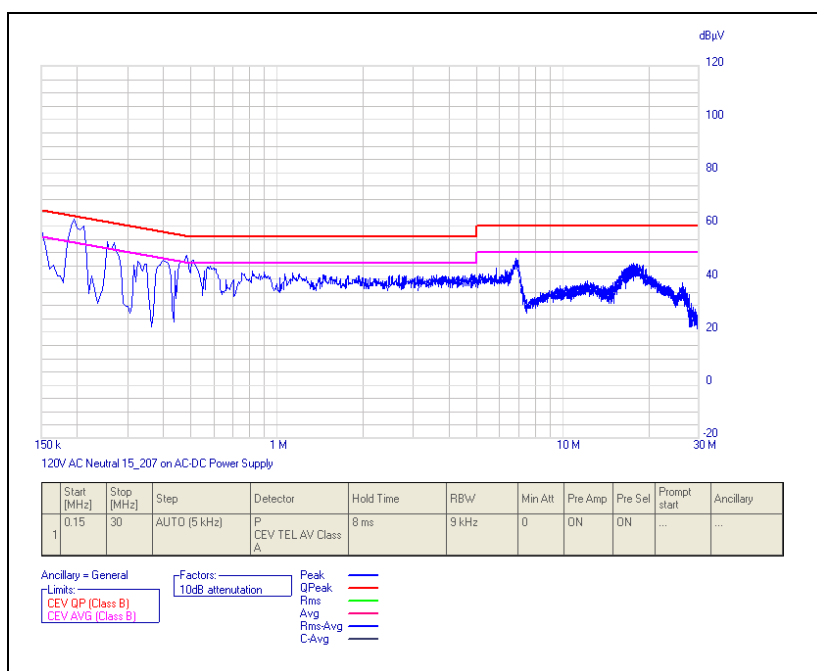


Plot 10. Conducted Emissions, 15.207(a), Phase Line, AC-DC Power Supply

15.207(a) Conducted Emissions Test Results, AC-DC Power Supply

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Neutral 15.207	0.15	53.37	66	-12.63	Pass	23.86	56	-32.14	Pass
120V AC Neutral 15.207	0.195	62.75	63.827	-1.077	Pass	39.32	53.827	-14.507	Pass
120V AC Neutral 15.207	0.255	54.71	61.605	-6.895	Pass	30.65	51.605	-20.955	Pass

Table 19. Conducted Emissions, 15.207(a), Neutral Line, Test Results, AC-DC Power Supply

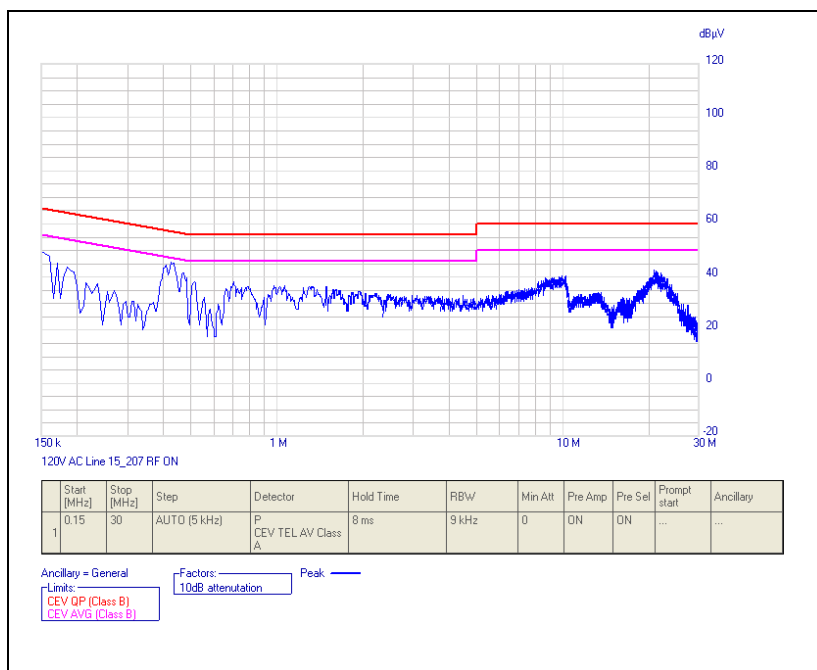


Plot 11. Conducted Emissions, 15.207(a), Neutral Line, AC-DC Power Supply

15.207(a) Conducted Emissions Test Results, PoE

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Line 15.207	0.15	62.57	66	-3.43	Pass	45.33	56	-10.67	Pass
120V AC Line 15.207	0.17	45.72	64.963	-19.243	Pass	18.68	54.963	-36.283	Pass
120V AC Line 15.207	0.425	46.58	57.373	-10.793	Pass	33.82	47.373	-13.553	Pass

Table 20. Conducted Emissions, 15.207(a), Phase Line, Test Results, PoE

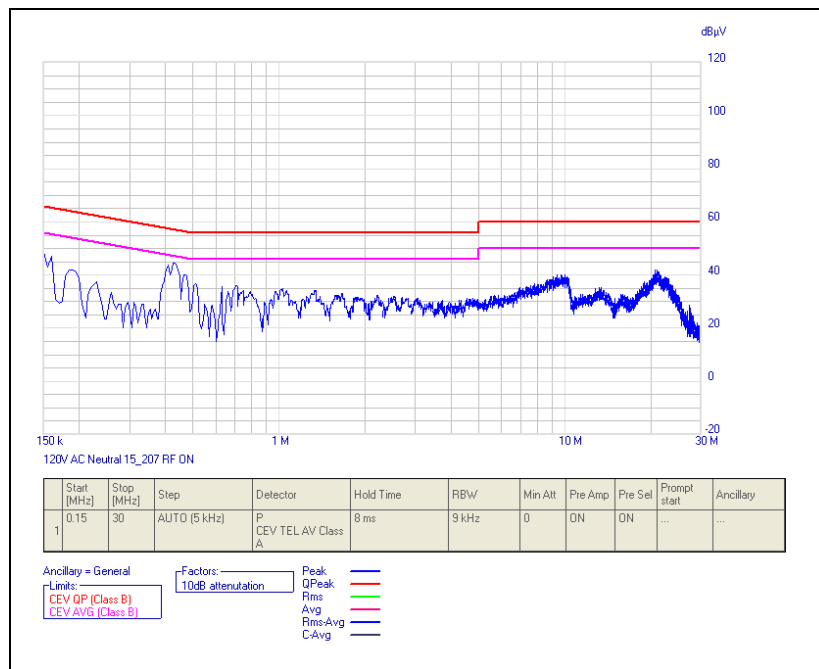


Plot 12. Conducted Emissions, 15.207(a), Phase Line, PoE

15.207(a) Conducted Emissions Test Results, PoE

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
120V AC Neutral 15.207	0.15	62.65	66	-3.35	Pass	44.02	56	-11.98	Pass
120V AC Neutral 15.207	0.43	43.2	57.277	-14.077	Pass	38.2	47.277	-9.077	Pass
120V AC Neutral 15.207	21.095	56.84	60	-3.16	Pass	48.62	50	-1.38	Pass

Table 21. Conducted Emissions, 15.207(a), Neutral Line, Test Results, PoE



Plot 13. Conducted Emissions, 15.207(a), Neutral Line, PoE

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): Jonathan Chao

Test Date(s): 02/18/13



Figure 2. Block Diagram, Occupied Bandwidth Test Setup

Occupied Bandwidth Test Results

Occupied Bandwidth			
	Carrier Channel	Frequency (MHz)	Measured 6 dB Bandwidth (MHz)
802.11b	Low	2412	10.876
	Mid	2437	11.066
	High	2462	10.802
802.11g	Low	2412	15.821
	Mid	2437	15.911
	High	2462	16.385
802.11n 20 MHz Port 1	Low	2412	17.668
	Mid	2437	17.455
	High	2462	17.733
802.11n 20 MHz Port 2	Low	2412	17.272
	Mid	2437	16.967
	High	2462	16.607
802.11n 20 MHz Port 3	Low	2412	16.402
	Mid	2437	17.063
	High	2462	15.178
802.11n 40 MHz Port 1	Low	2422	35.349
	Mid	2437	36.220
	High	2452	36.534
802.11n 40 MHz Port 2	Low	2422	35.222
	Mid	2437	35.321
	High	2452	36.524
802.11n 40 MHz Port 3	Low	2422	33.976
	Mid	2437	35.859
	High	2452	36.412

Table 22. 6 dB Occupied Bandwidth, Test Results, 2.4 GHz

Occupied Bandwidth			
	Carrier Channel	Frequency (MHz)	Measured 6 dB Bandwidth (MHz)
802.11a 20 MHz Port 1	Low	5745	16.381
	Mid	5785	16.400
	High	5825	16.417
802.11n 20 MHz Port 1	Low	5745	17.581
	Mid	5785	17.562
	High	5825	17.301
802.11n 20 MHz Port 2	Low	5745	17.532
	Mid	5785	17.630
	High	5825	17.608
802.11n 20 MHz Port 3	Low	5745	17.664
	Mid	5785	17.613
	High	5825	17.588
802.11n 40 MHz Port 1	Low	5755	36.392
	High	5795	36.334
802.11n 40 MHz Port 2	Low	5755	36.430
	High	5795	36.413
802.11n 40 MHz Port 3	Low	5755	36.458
	High	5795	36.403
802.11n 80 MHz Port 1	--	5775	75.902
802.11n 80 MHz Port 2	--	5775	75.906
802.11n 80 MHz Port 3	--	5775	75.351

Table 23. 6 dB Occupied Bandwidth, Test Results, 5 GHz

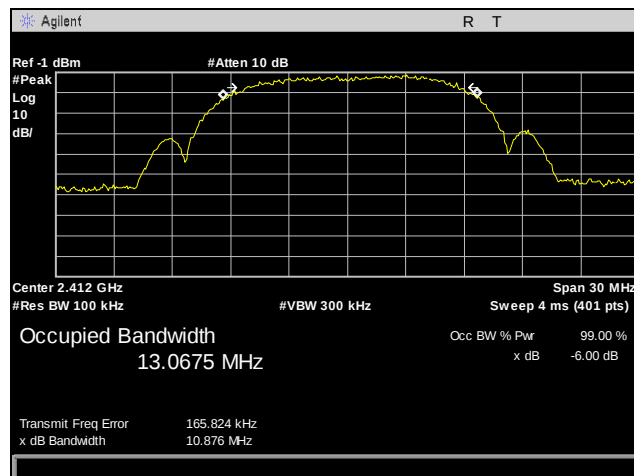
Occupied Bandwidth			
	Carrier Channel	Frequency (MHz)	Measured 99% Bandwidth (MHz)
802.11b	Low	2412	12.9191
	Mid	2437	13.2305
	High	2462	13.2037
802.11g	Low	2412	16.5514
	Mid	2437	16.5929
	High	2462	16.5990
802.11n 20 MHz Port 1	Low	2412	17.3189
	Mid	2437	17.4692
	High	2462	17.5905
802.11n 20 MHz Port 2	Low	2412	17.6307
	Mid	2437	17.5822
	High	2462	17.7461
802.11n 20 MHz Port 3	Low	2412	17.6929
	Mid	2437	17.6197
	High	2462	17.7379
802.11n 40 MHz Port 1	Low	2422	35.7562
	Mid	2437	36.2513
	High	2452	36.6387
802.11n 40 MHz Port 2	Low	2422	36.2491
	Mid	2437	36.5363
	High	2452	36.8075
802.11n 40 MHz Port 3	Low	2422	35.8107
	Mid	2437	36.5948
	High	2452	36.9918

Table 24. 99% Occupied Bandwidth, Test Results, 2.4 GHz

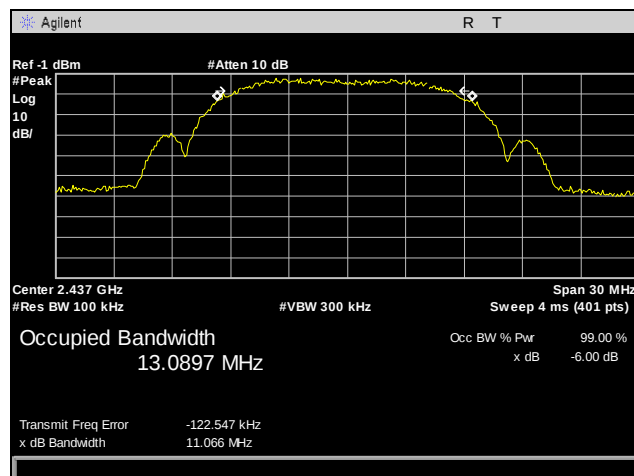
Occupied Bandwidth			
	Carrier Channel	Frequency (MHz)	Measured 99% Bandwidth (MHz)
802.11a 20 MHz Port 1	Low	5745	16.5588
	Mid	5785	16.5358
	High	5825	16.7396
802.11n 20 MHz Port 1	Low	5745	17.6860
	Mid	5785	17.6796
	High	5825	17.6917
802.11n 20 MHz Port 2	Low	5745	17.7002
	Mid	5785	17.6751
	High	5825	17.7840
802.11n 20 MHz Port 3	Low	5745	17.6622
	Mid	5785	17.5904
	High	5825	17.7076
802.11n 40 MHz Port 1	Low	5755	36.2874
	High	5795	36.2672
802.11n 40 MHz Port 2	Low	5755	36.2689
	High	5795	36.2832
802.11n 40 MHz Port 3	Low	5755	36.4097
	High	5795	36.3257
802.11n 80 MHz Port 1	--	5775	75.6760
802.11n 80 MHz Port 2	--	5775	75.8576
802.11n 80 MHz Port 3	--	5775	75.6937

Table 25. 99% Occupied Bandwidth, Test Results, 5 GHz

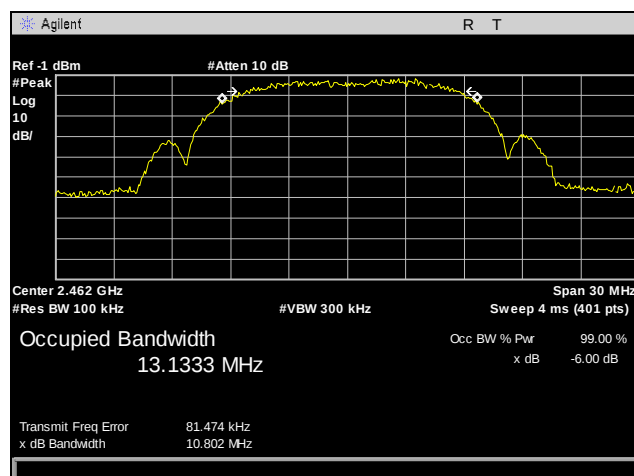
6 dB Occupied Bandwidth Test Results, 802.11b, 2.4 GHz



Plot 14. 6 dB Occupied Bandwidth, 802.11b, 2412 MHz, Low Channel

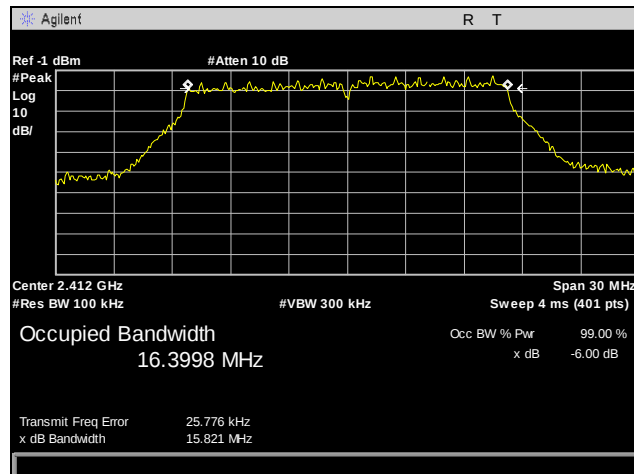


Plot 15. 6 dB Occupied Bandwidth, 802.11b, 2437 MHz, Mid Channel

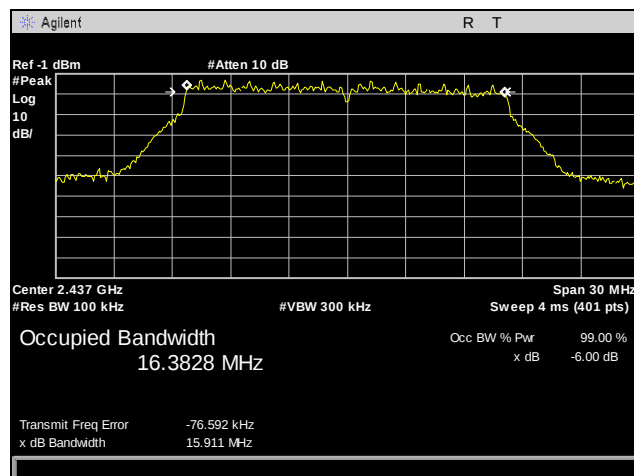


Plot 16. 6 dB Occupied Bandwidth, 802.11b, 2462 MHz, High Channel

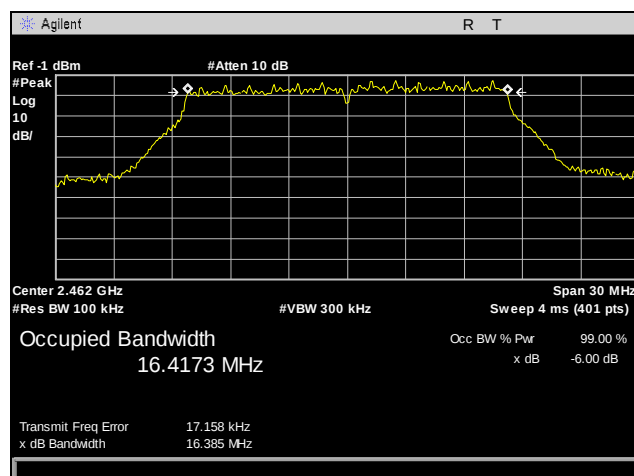
6 dB Occupied Bandwidth Test Results, 802.11g, 2.4 GHz



Plot 17. 6 dB Occupied Bandwidth, 802.11g, 2412 MHz, Low Channel

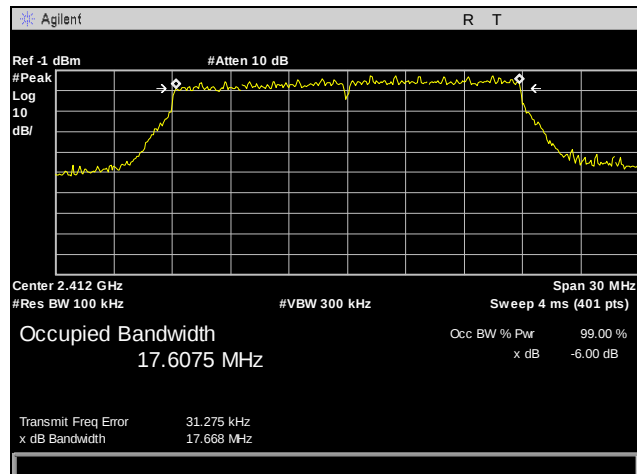


Plot 18. 6 dB Occupied Bandwidth, 802.11g, 2437 MHz, Mid Channel

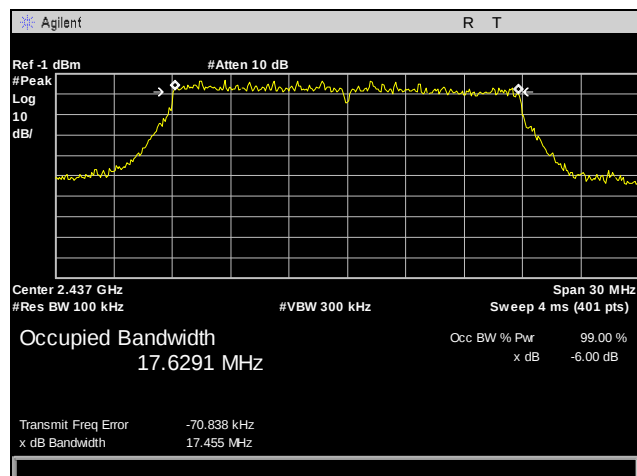


Plot 19. 6 dB Occupied Bandwidth, 802.11g, 2462 MHz, High Channel

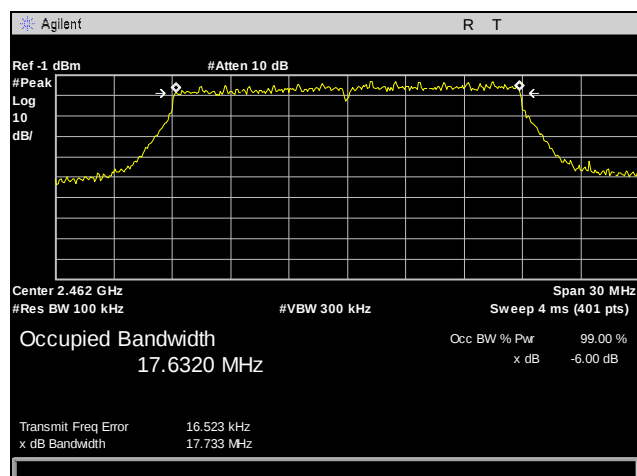
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 20. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 1

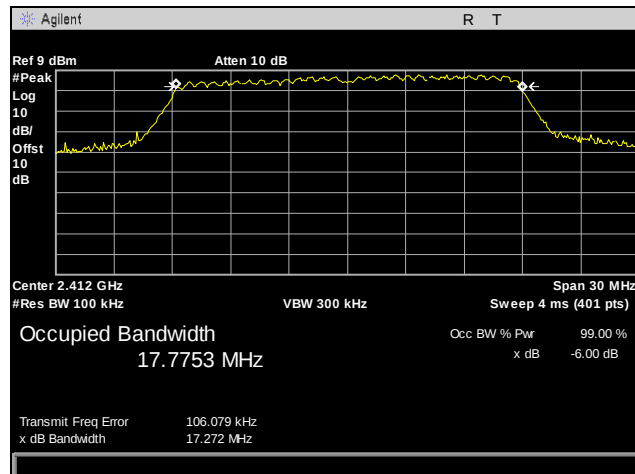


Plot 21. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 1

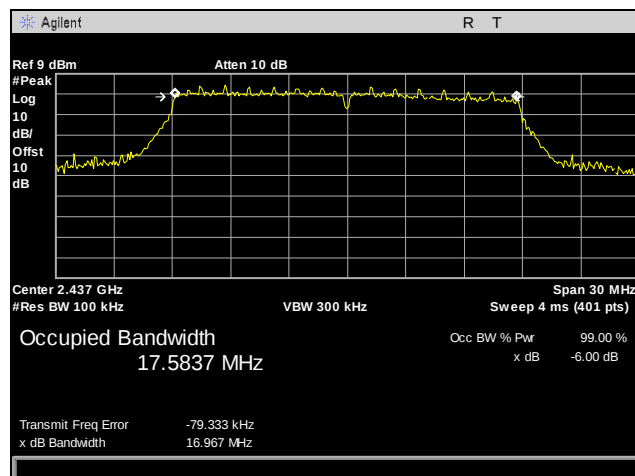


Plot 22. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 1

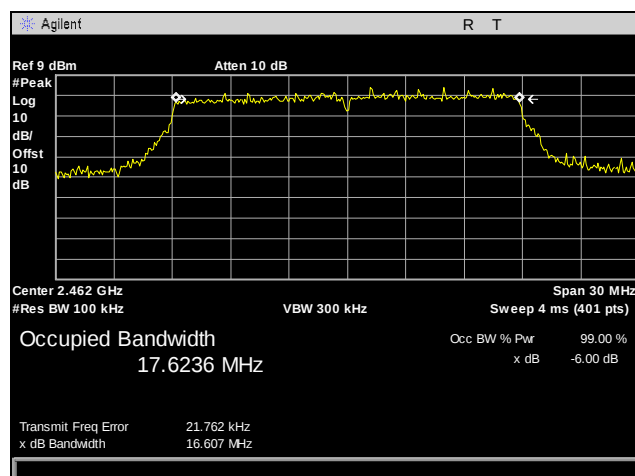
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 23. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 2

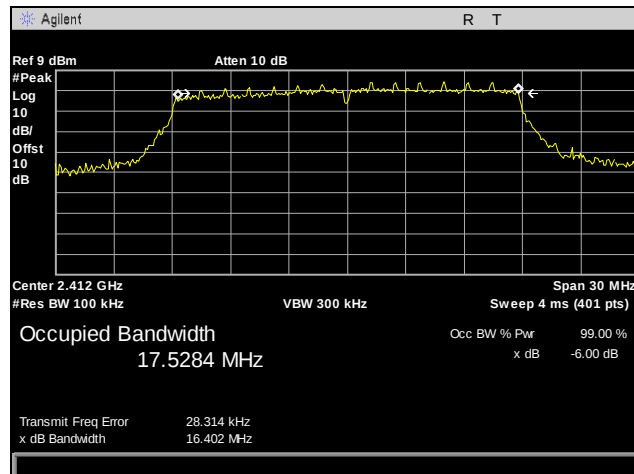


Plot 24. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 2

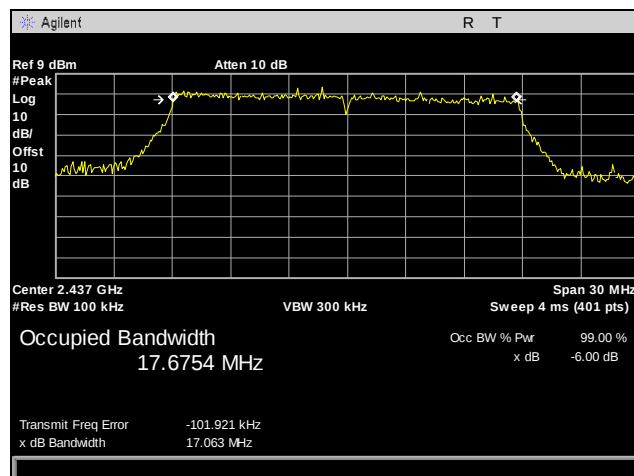


Plot 25. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 2

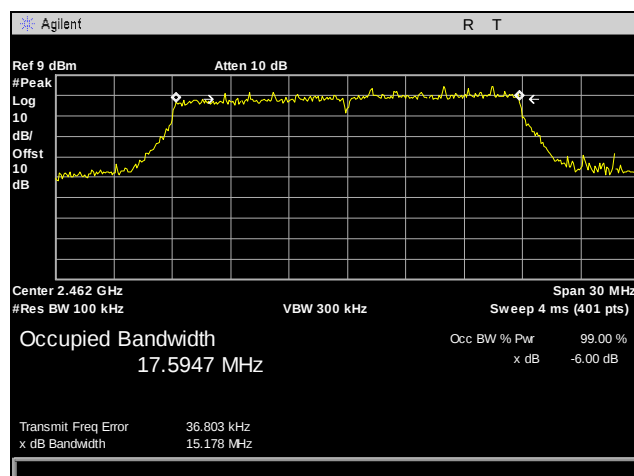
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 26. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 3

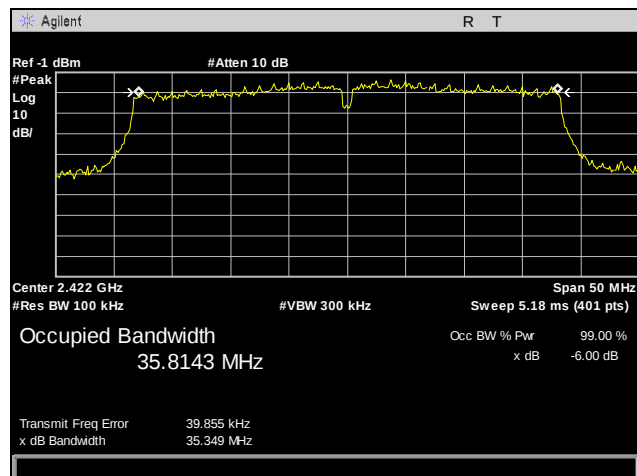


Plot 27. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 3

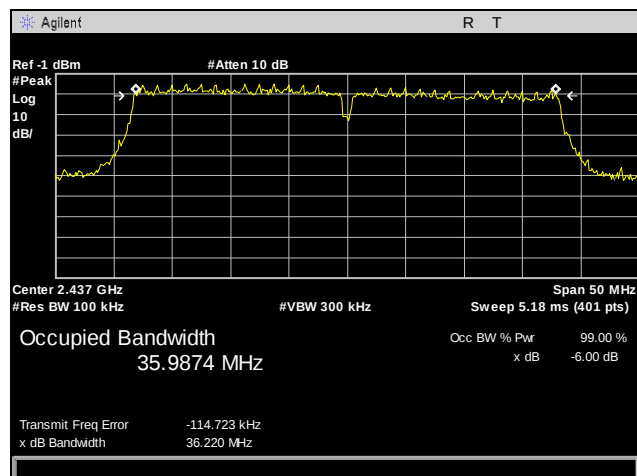


Plot 28. 6 dB Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 3

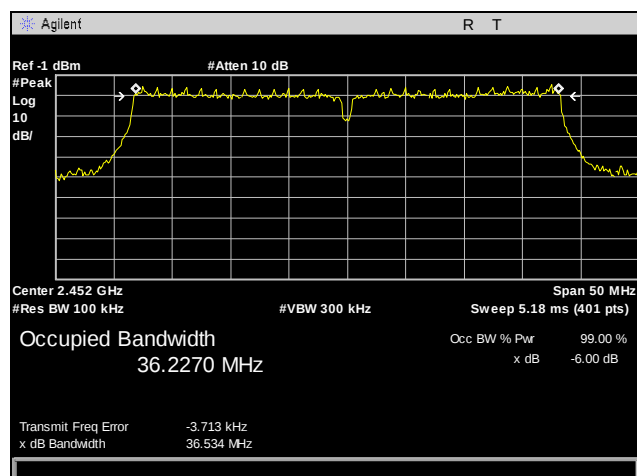
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 29. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 1

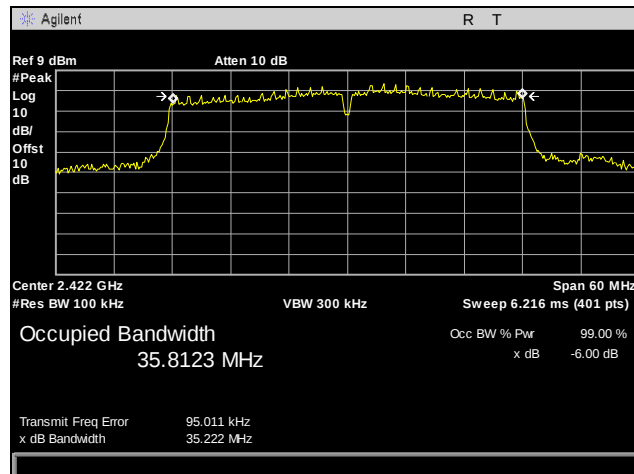


Plot 30. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 1

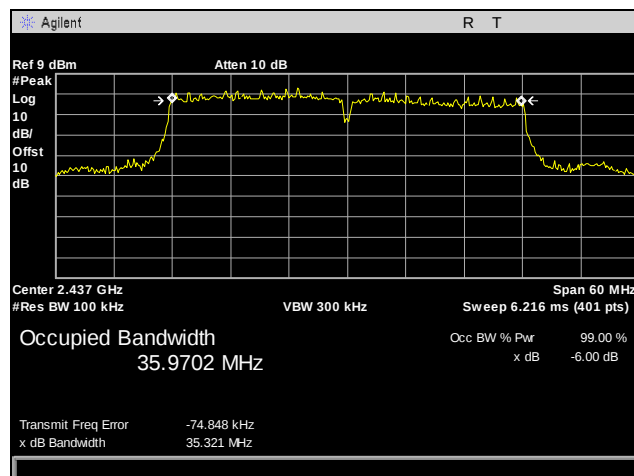


Plot 31. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 1

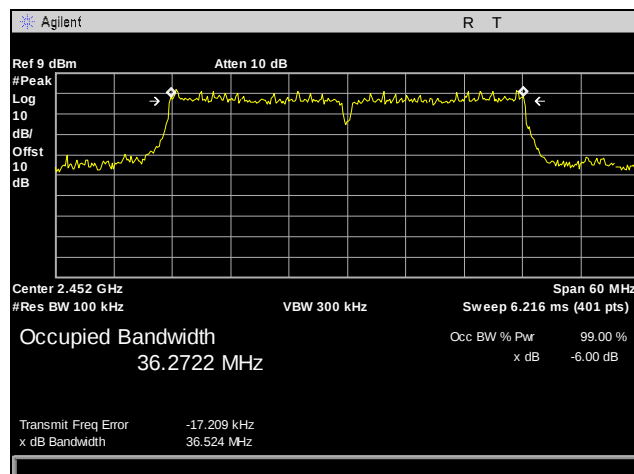
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 32. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 2

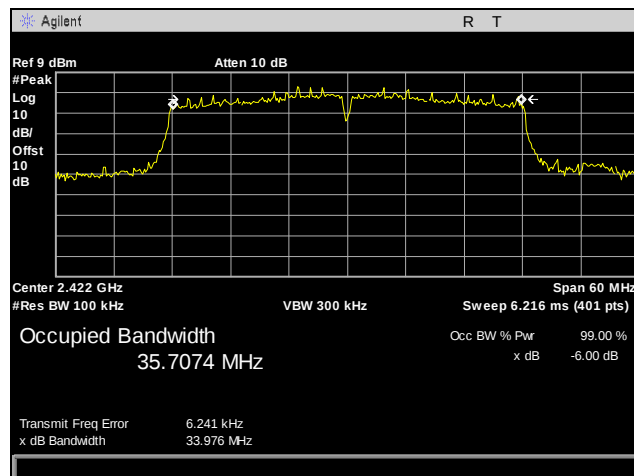


Plot 33. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 2

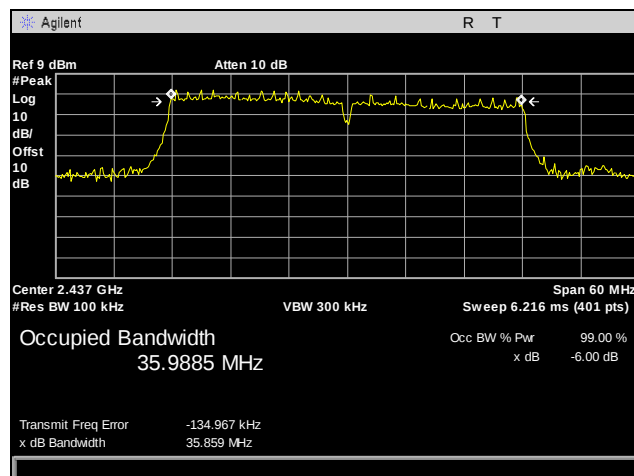


Plot 34. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 2

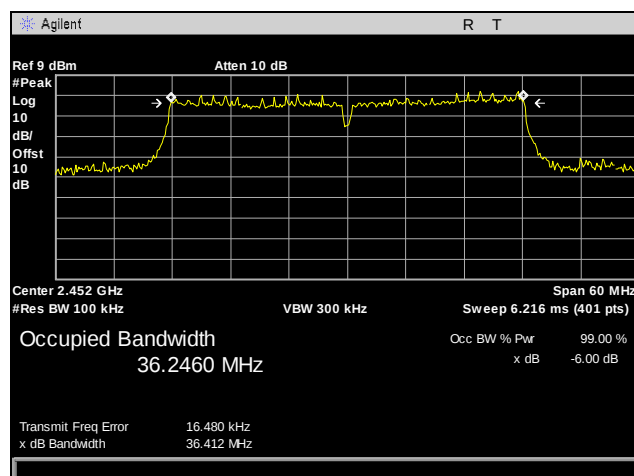
6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 35. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 3

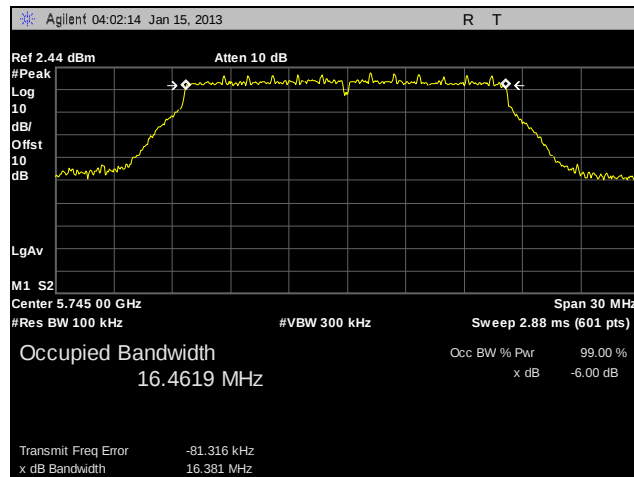


Plot 36. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 3

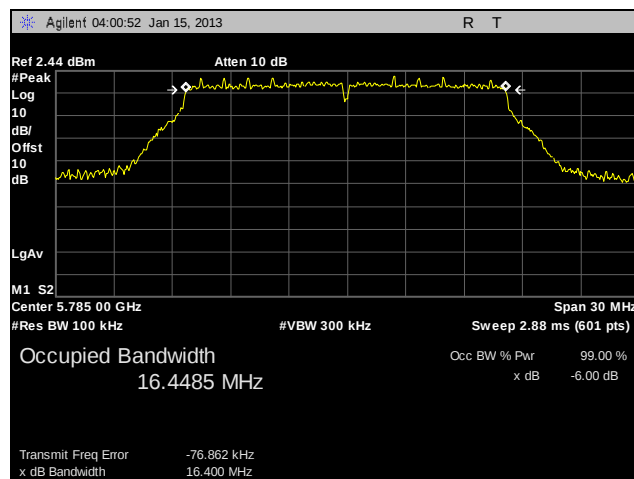


Plot 37. 6 dB Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 3

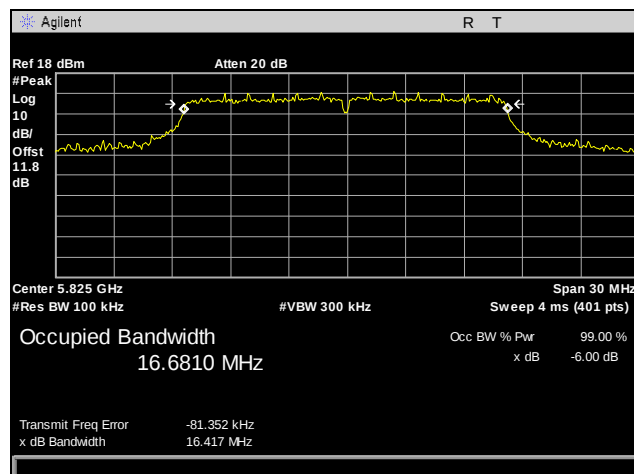
6 dB Occupied Bandwidth Test Results, 802.11a 20 MHz, Port 1, 5 GHz



Plot 38. 6 dB Occupied Bandwidth, 802.11a 20MHz, 5745 MHz, Low Channel, Port 1

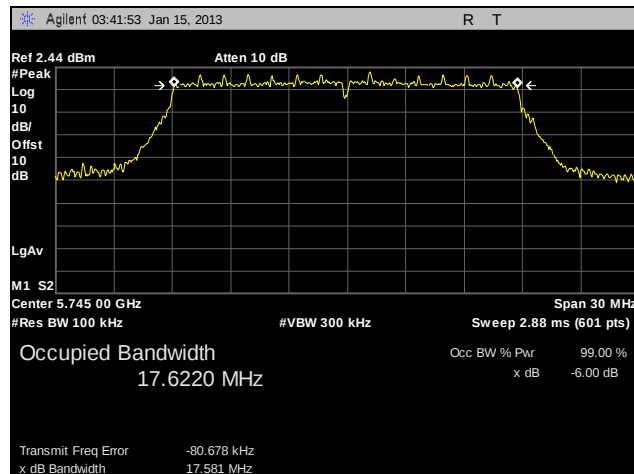


Plot 39. 6 dB Occupied Bandwidth, 802.11a 20MHz, 5785 MHz, Mid Channel, Port 1

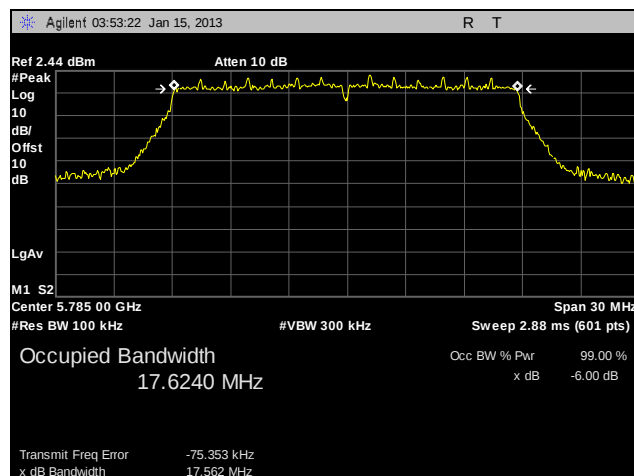


Plot 40. 6 dB Occupied Bandwidth, 802.11a 20MHz, 5825 MHz, High Channel, Port 1

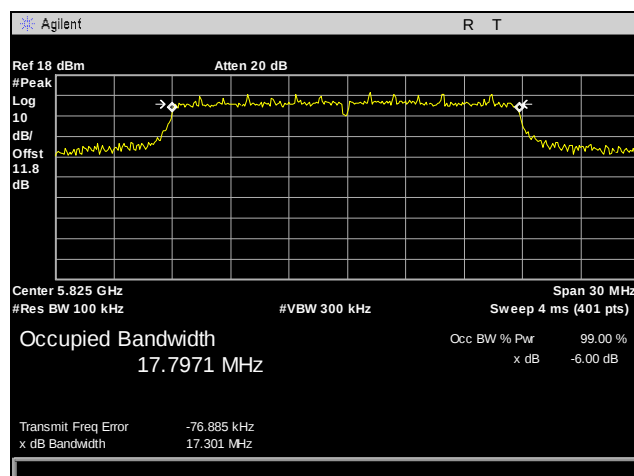
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 5 GHz



Plot 41. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 1

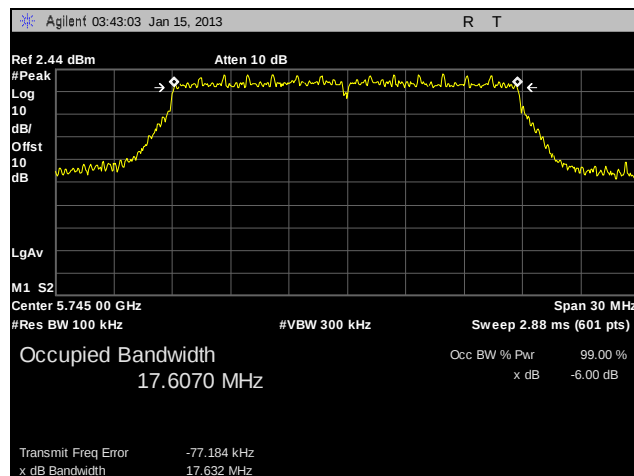


Plot 42. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 1

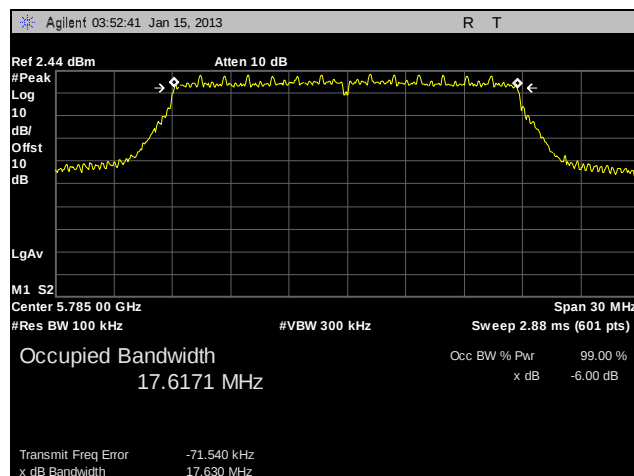


Plot 43. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 1

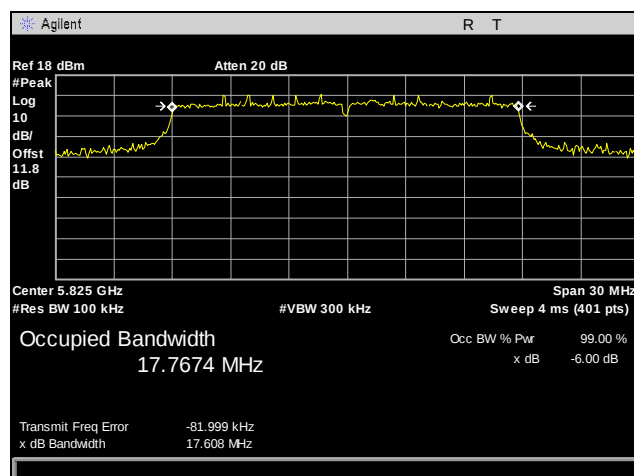
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 5 GHz



Plot 44. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 2

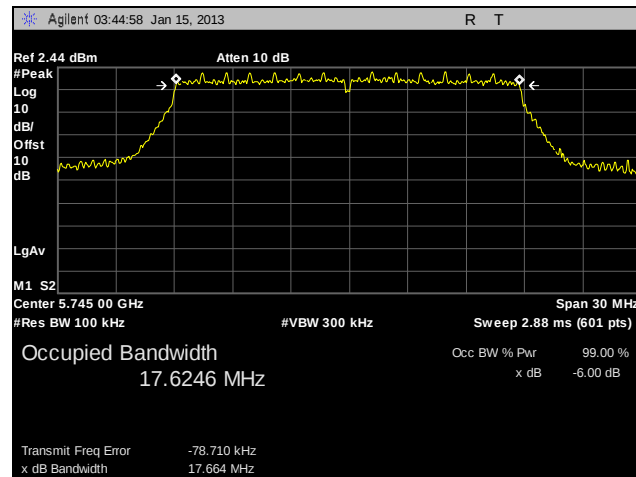


Plot 45. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 2

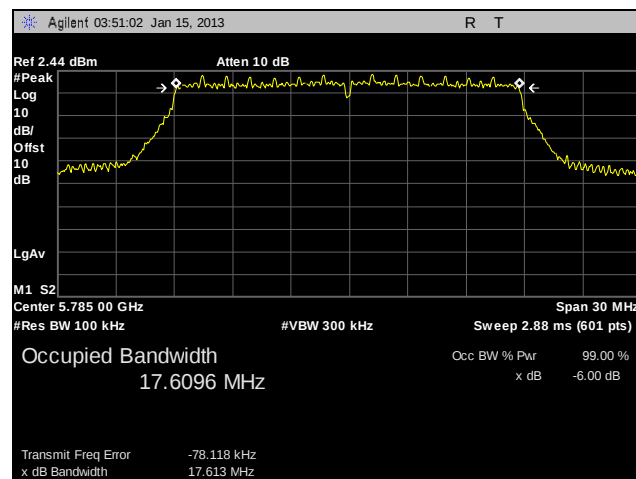


Plot 46. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 2

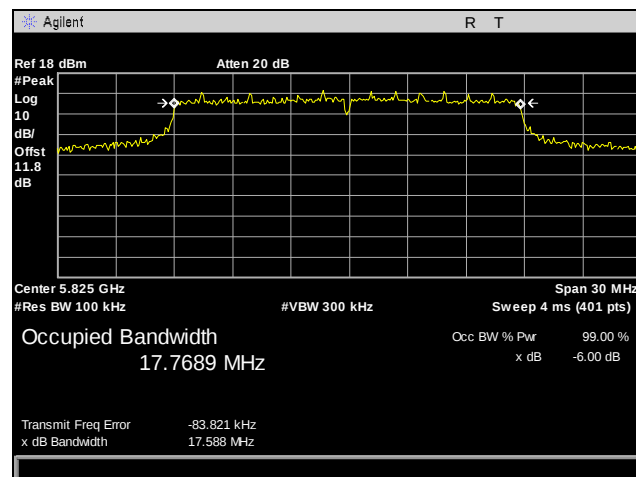
6 dB Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 5 GHz



Plot 47. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 3

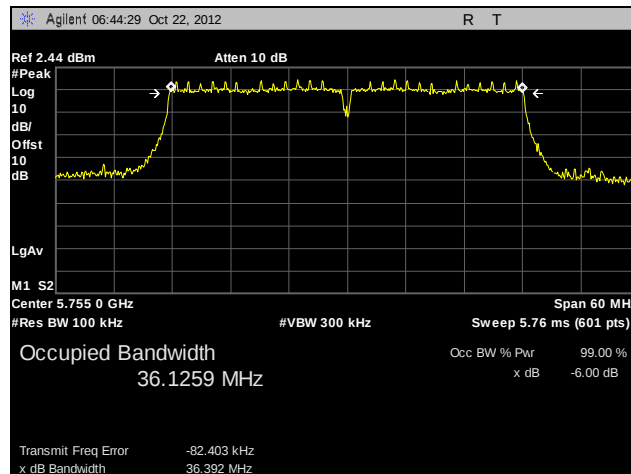


Plot 48. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 3

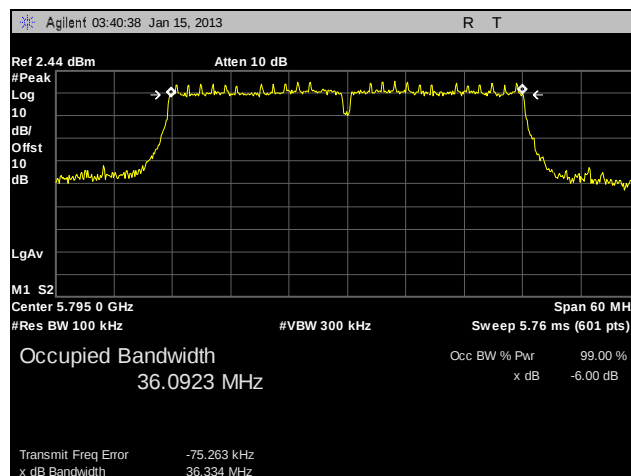


Plot 49. 6 dB Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 3

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 5 GHz

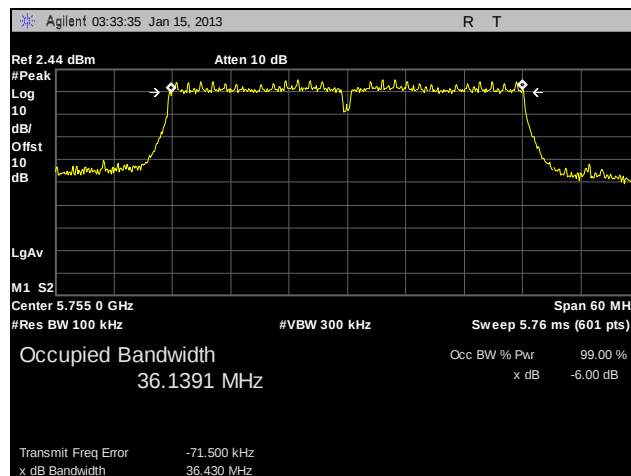


Plot 50. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 1

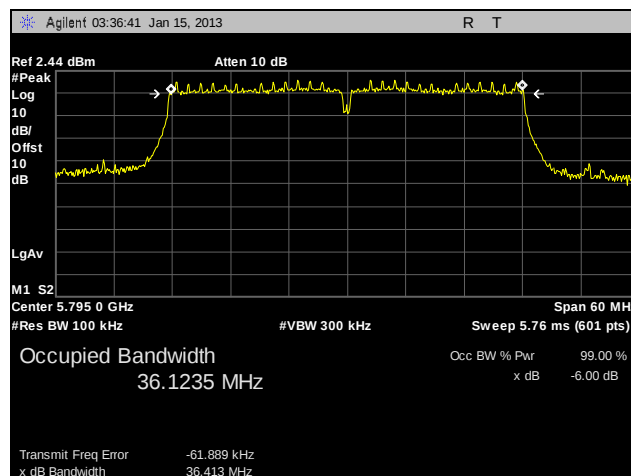


Plot 51. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 1

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 5 GHz

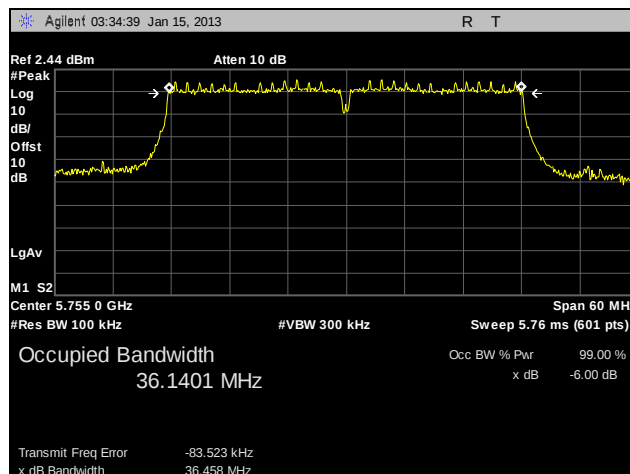


Plot 52. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 2

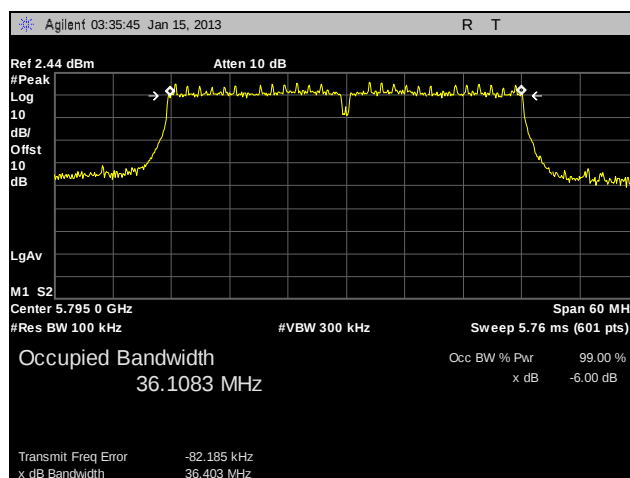


Plot 53. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 2

6 dB Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 5 GHz

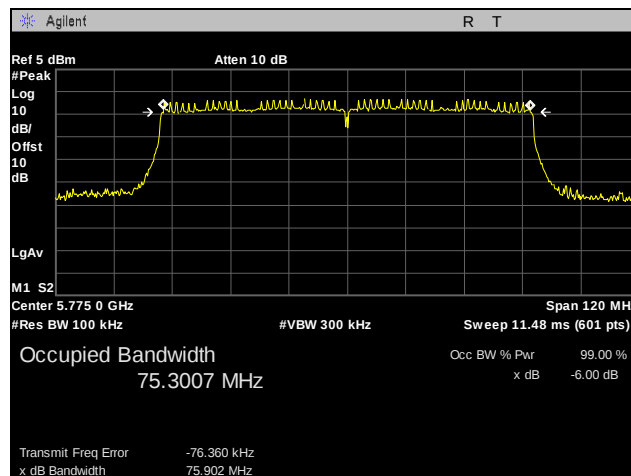


Plot 54. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 3

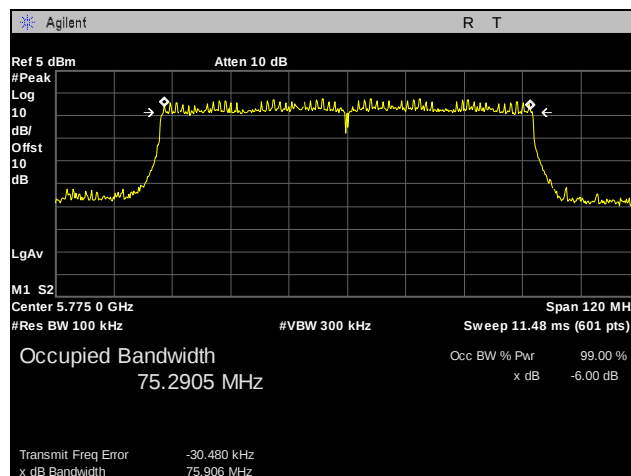


Plot 55. 6 dB Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 3

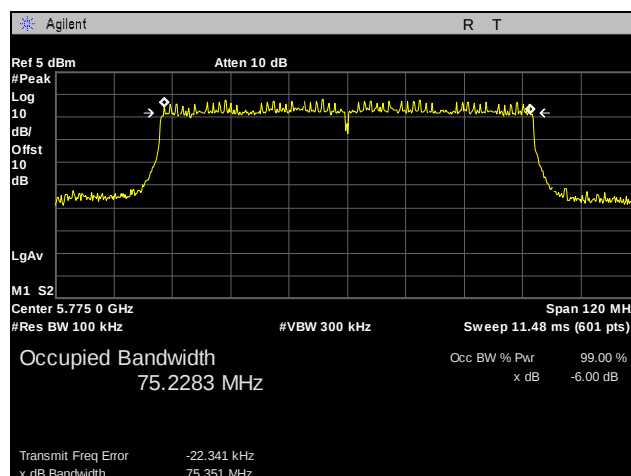
6 dB Occupied Bandwidth Test Results, 802.11n 80 MHz, 5 GHz



Plot 56. 6 dB Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 1

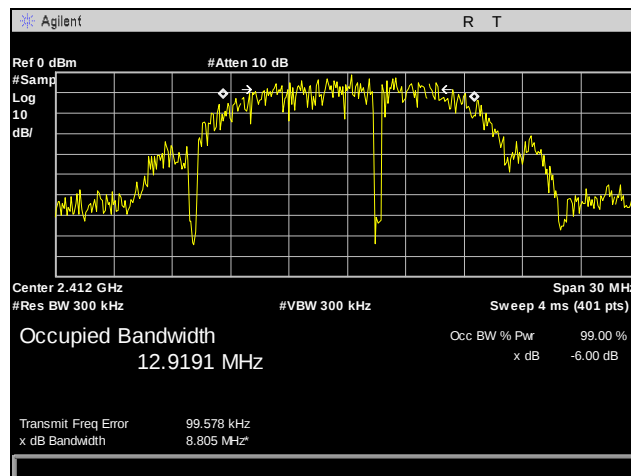


Plot 57. 6 dB Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 2

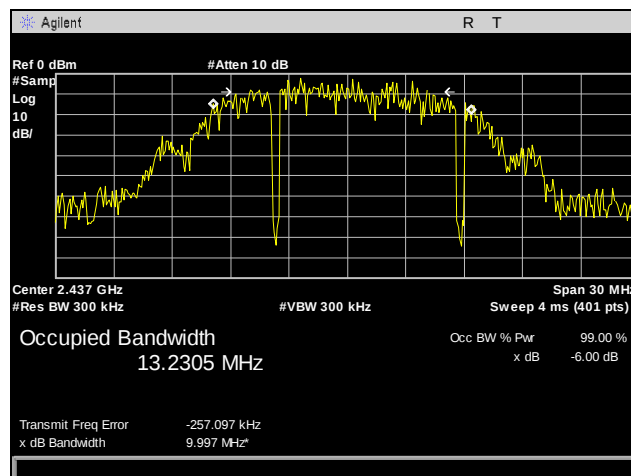


Plot 58. 6 dB Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 3

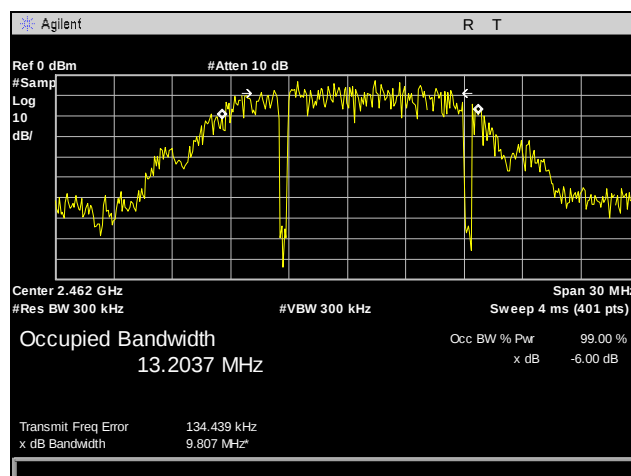
99% Occupied Bandwidth Test Results, 802.11b, 2.4 GHz



Plot 59. 99% Occupied Bandwidth, 802.11b, 2412 MHz, Low Channel

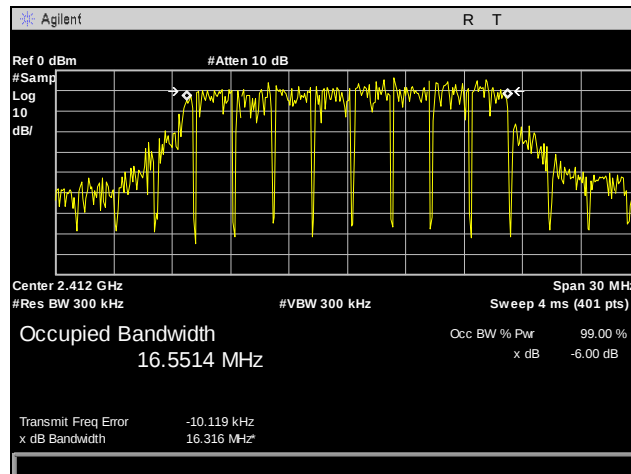


Plot 60. 99% Occupied Bandwidth, 802.11b, 2437 MHz, Mid Channel

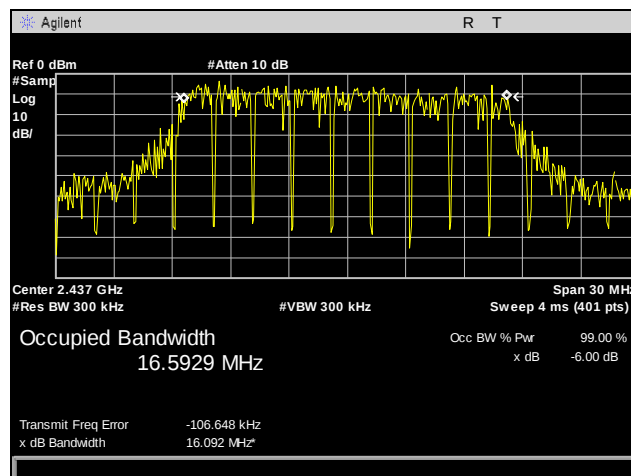


Plot 61. 99% Occupied Bandwidth, 802.11b, 2462 MHz, High Channel

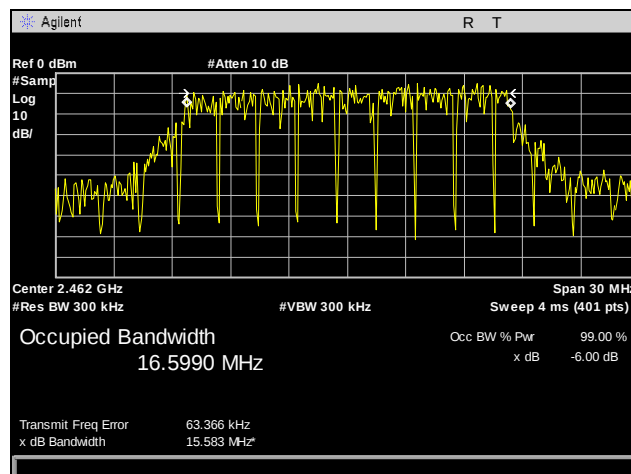
99% Occupied Bandwidth Test Results, 802.11g, 2.4 GHz



Plot 62. 99% Occupied Bandwidth, 802.11g, 2412 MHz, Low Channel

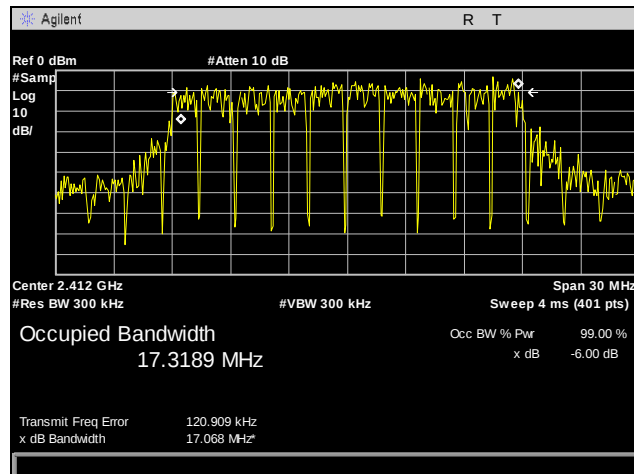


Plot 63. 99% Occupied Bandwidth, 802.11g, 2437 MHz, Mid Channel

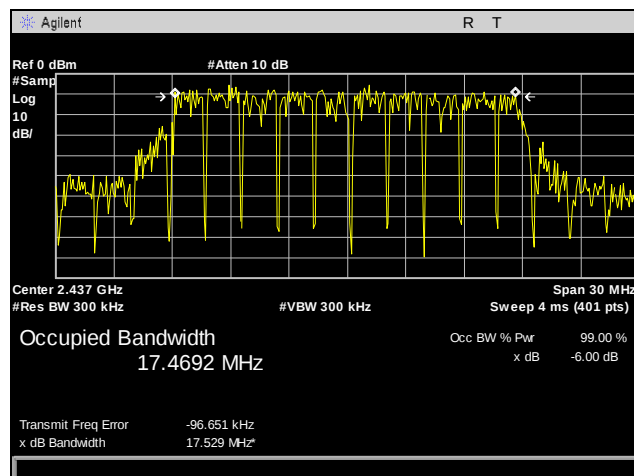


Plot 64. 99% Occupied Bandwidth, 802.11g, 2462 MHz, High Channel

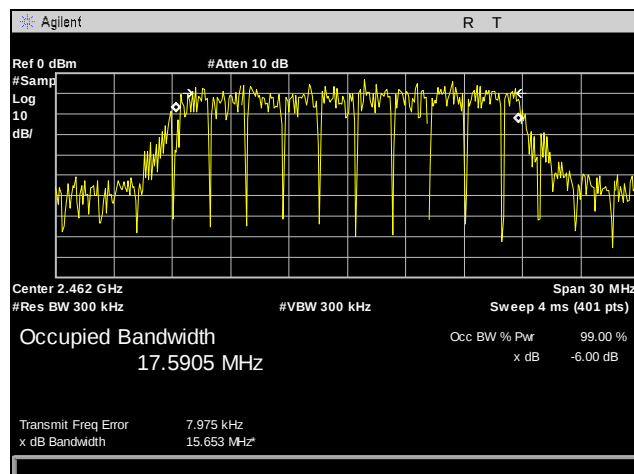
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 65. 99% Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 1

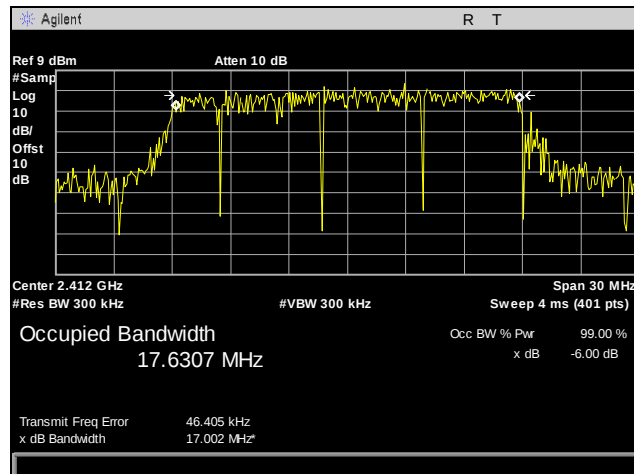


Plot 66. 99% Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 1

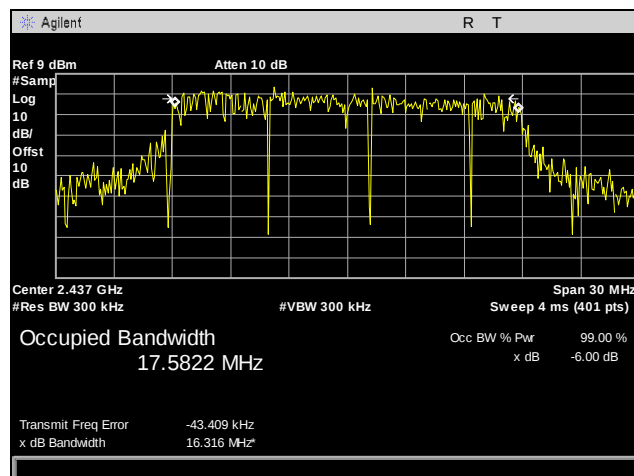


Plot 67. 99% Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 1

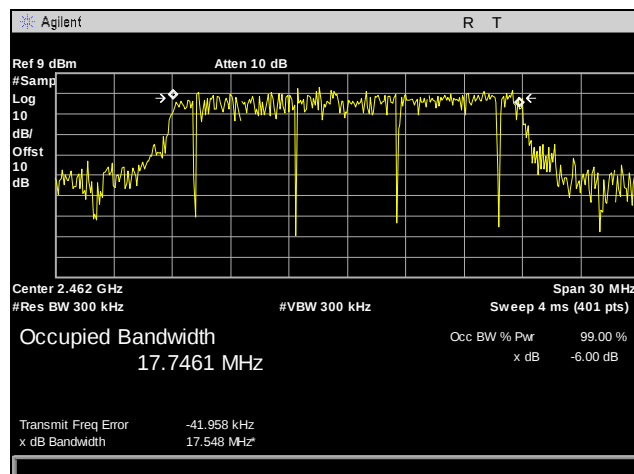
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 68. 99% Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 2

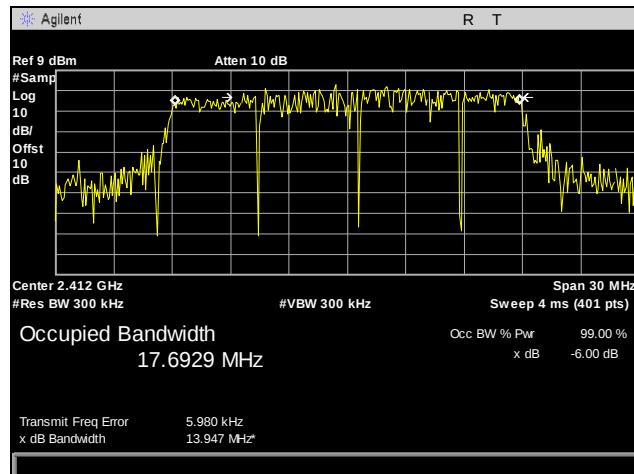


Plot 69. 99% Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 2

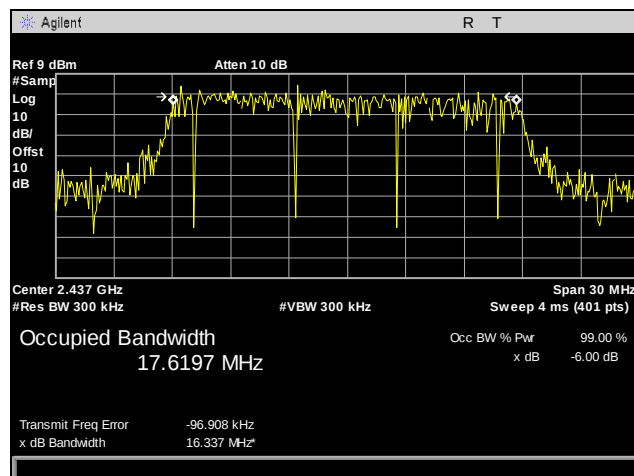


Plot 70. 99% Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 2

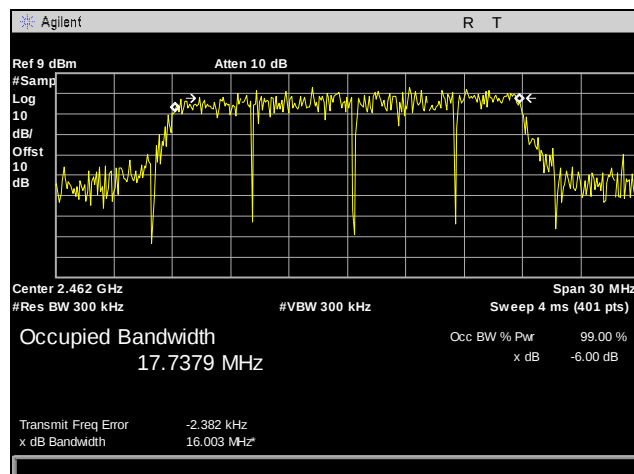
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 71. 99% Occupied Bandwidth, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 3

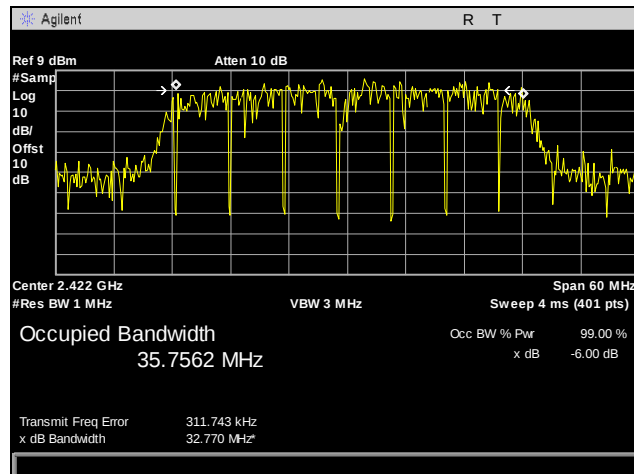


Plot 72. 99% Occupied Bandwidth, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 3

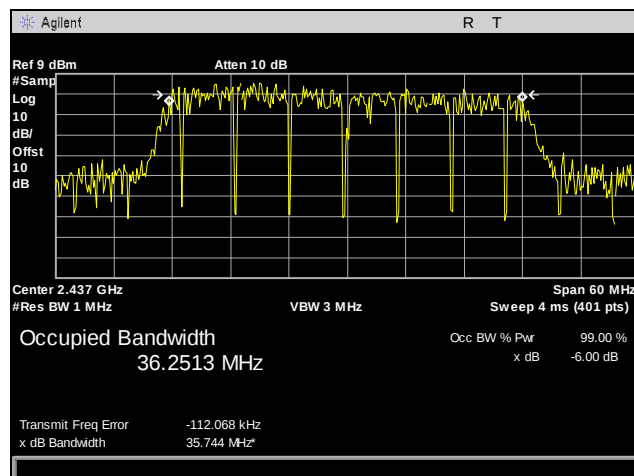


Plot 73. 99% Occupied Bandwidth, 802.11n 20 MHz, 2462 MHz, High Channel, Port 3

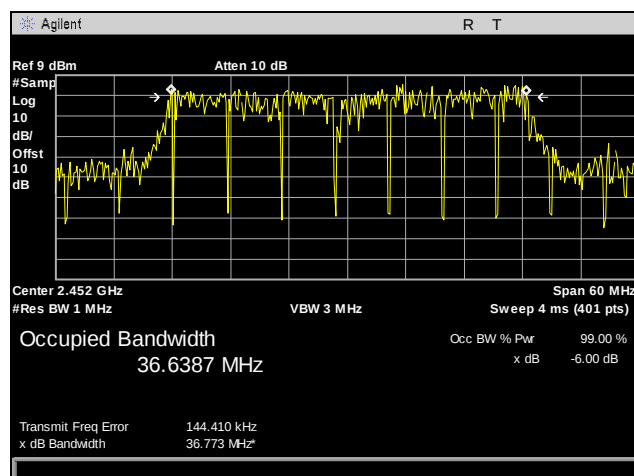
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 74. 99% Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 1

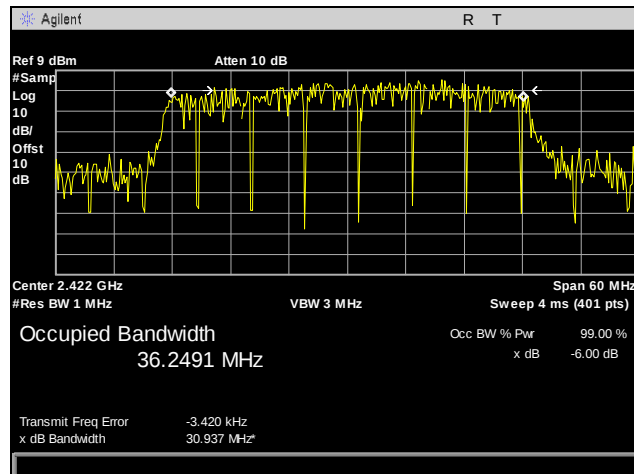


Plot 75. 99% Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 1

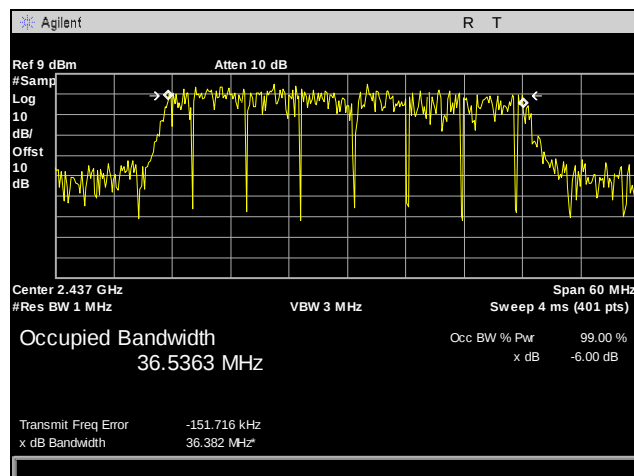


Plot 76. 99% Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 1

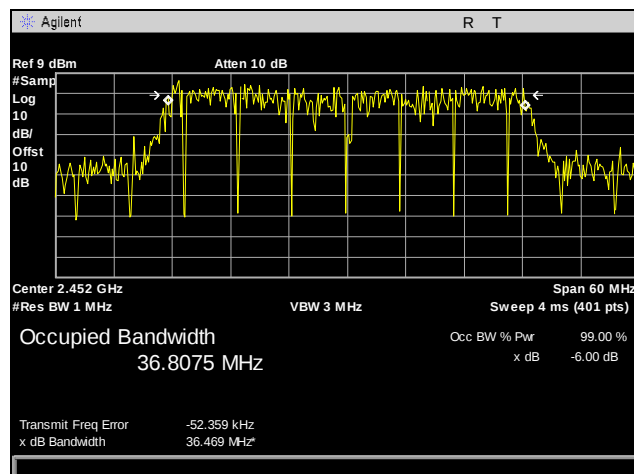
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 77. 99% Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 2

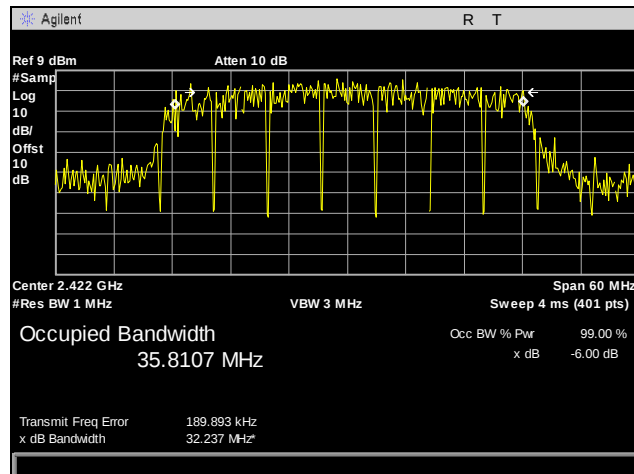


Plot 78. 99% Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 2

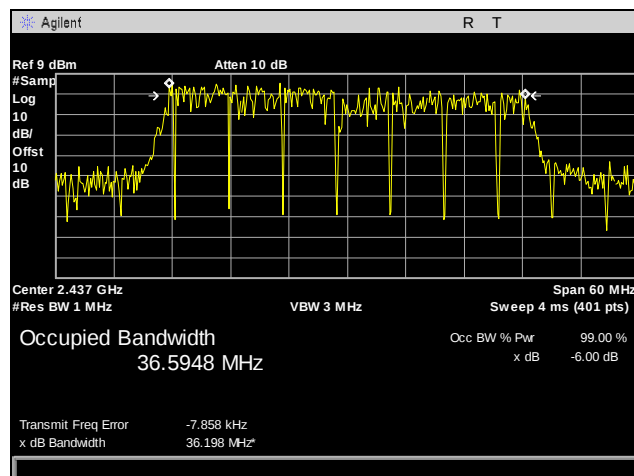


Plot 79. 99% Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 2

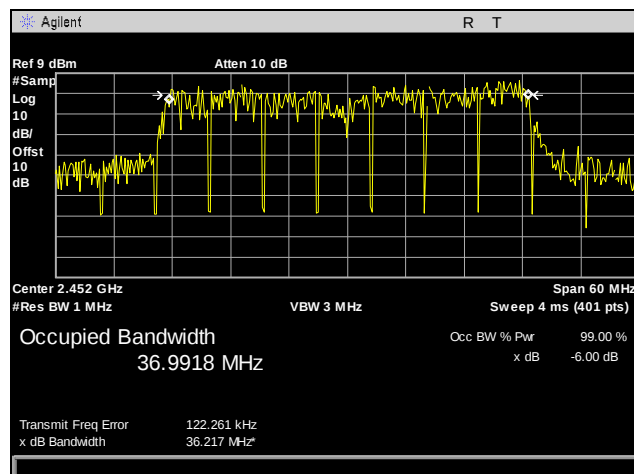
99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 80. 99% Occupied Bandwidth, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 3

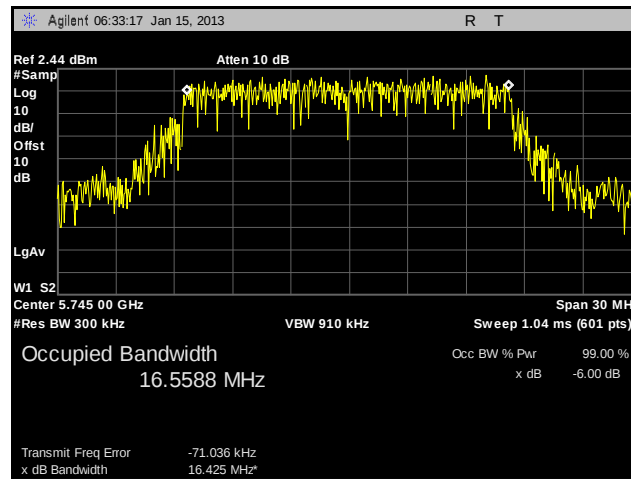


Plot 81. 99% Occupied Bandwidth, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 3

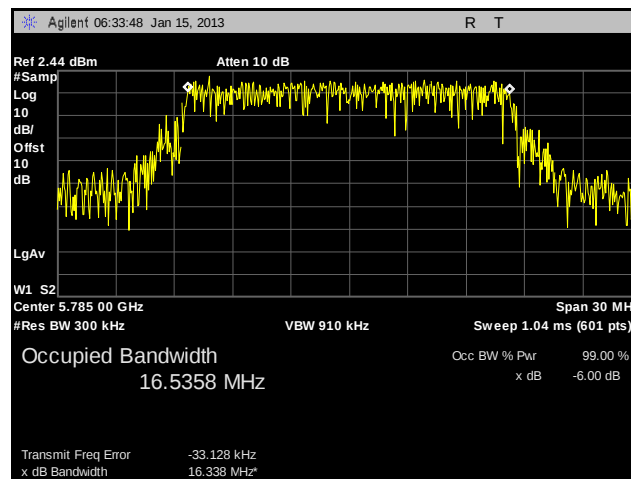


Plot 82. 99% Occupied Bandwidth, 802.11n 40 MHz, 2452 MHz, High Channel, Port 3

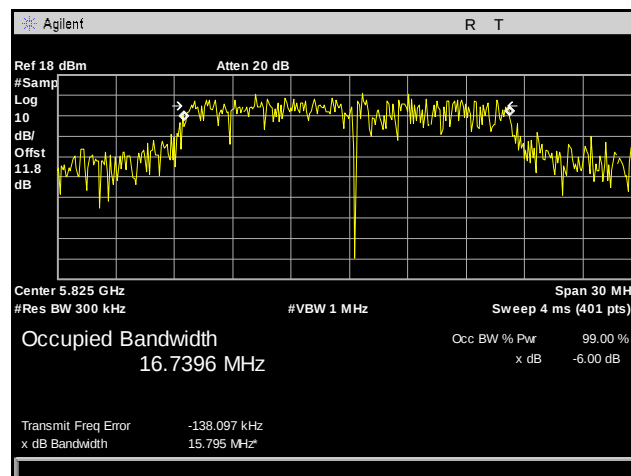
99% Occupied Bandwidth Test Results, 802.11a 20 MHz, Port 1, 5 GHz



Plot 83. 99% Occupied Bandwidth, 802.11a 20MHz, 5745 MHz, Low Channel, Port 1

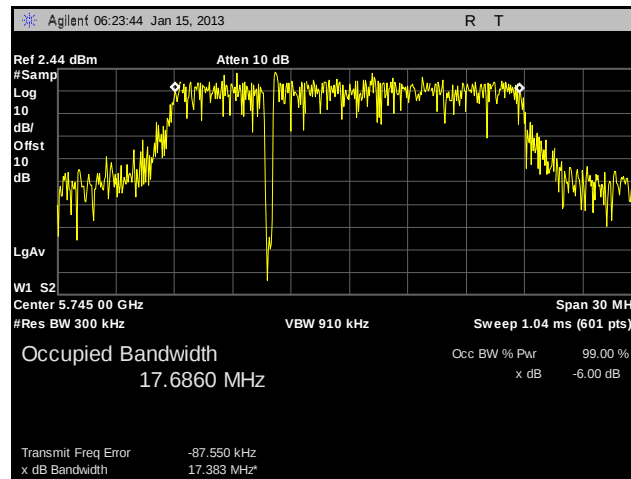


Plot 84. 99% Occupied Bandwidth, 802.11a 20MHz, 5785 MHz, Mid Channel, Port 1

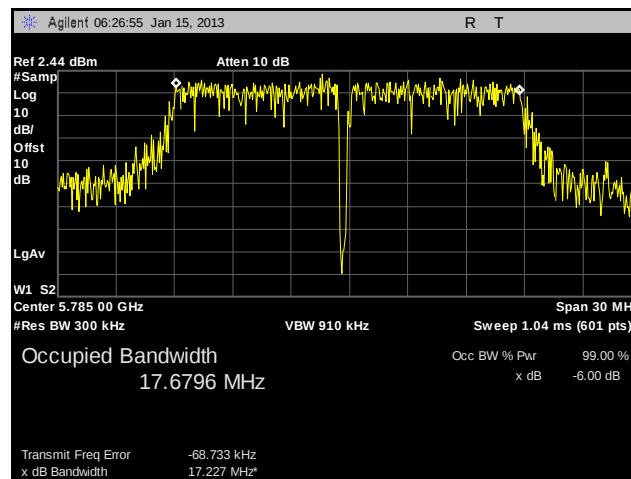


Plot 85. 99% Occupied Bandwidth, 802.11a 20MHz, 5825 MHz, High Channel, Port 1

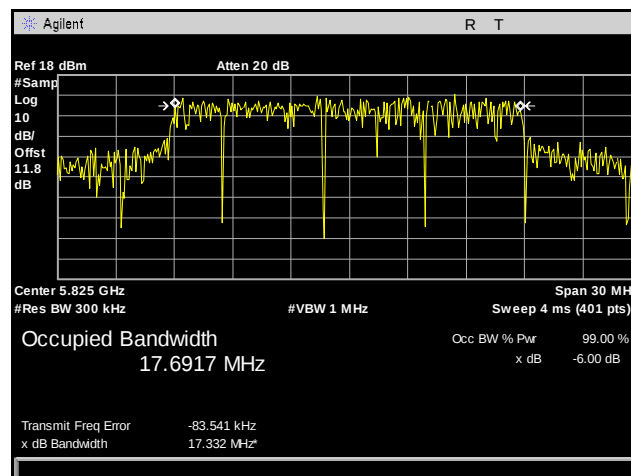
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 1, 5 GHz



Plot 86. 99% Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 1

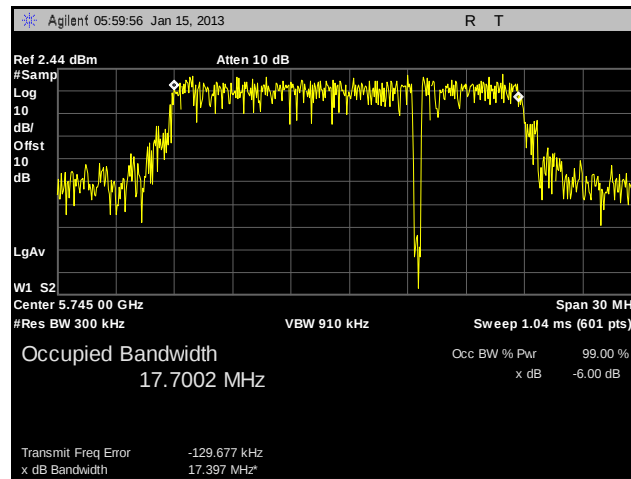


Plot 87. 99% Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 1

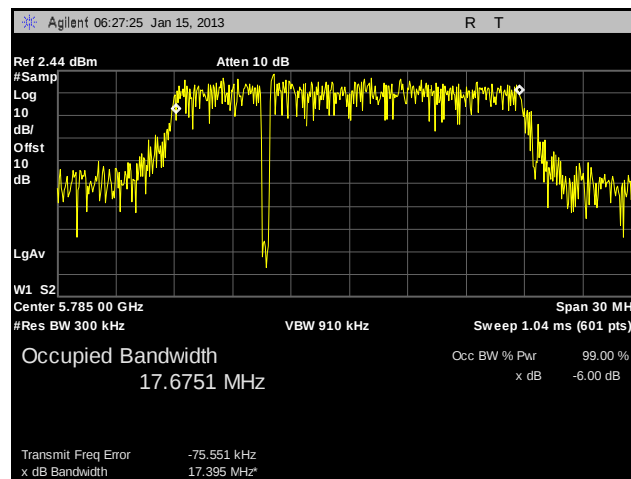


Plot 88. 99% Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 1

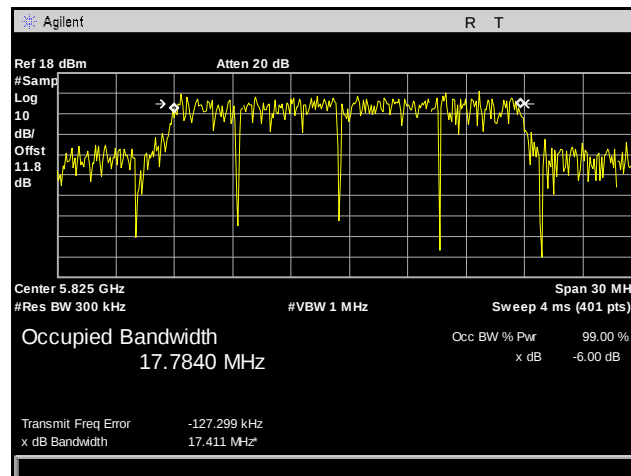
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 2, 5 GHz



Plot 89. 99% Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 2

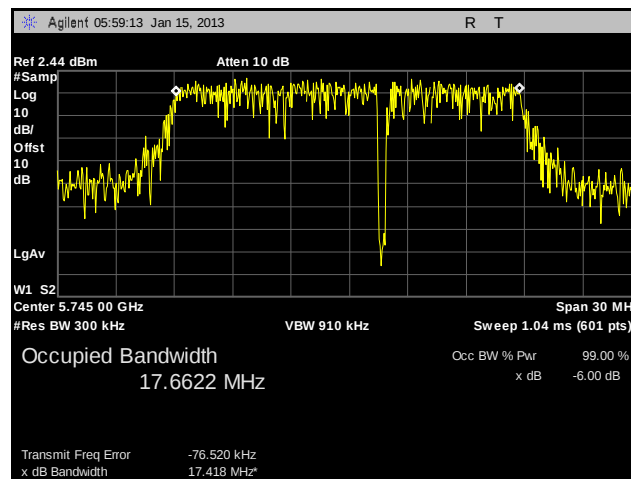


Plot 90. 99% Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 2

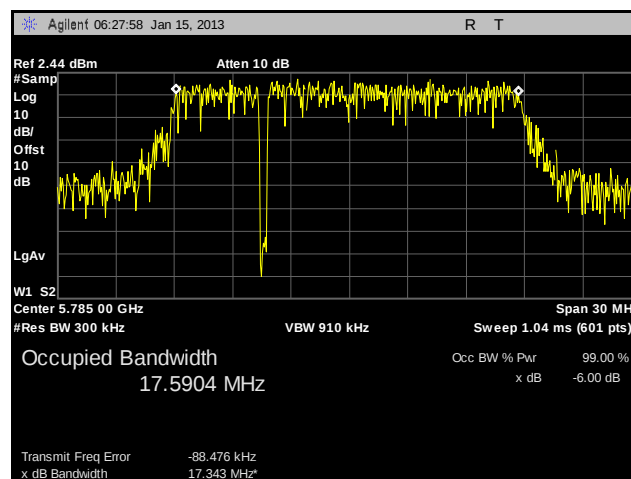


Plot 91. 99% Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 2

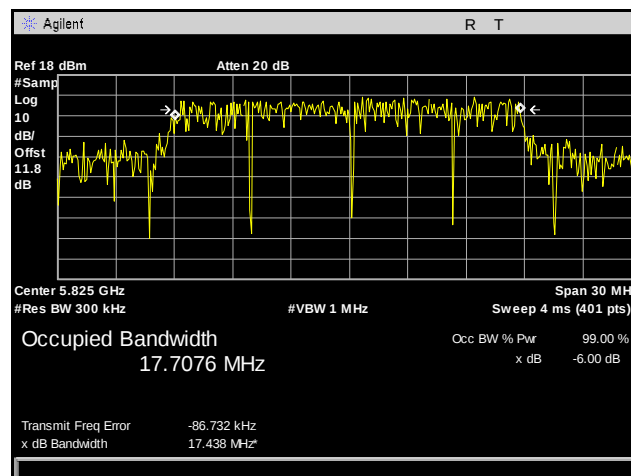
99% Occupied Bandwidth Test Results, 802.11n 20 MHz, Port 3, 5 GHz



Plot 92. 99% Occupied Bandwidth, 802.11n 20MHz, 5745 MHz, Low Channel, Port 3

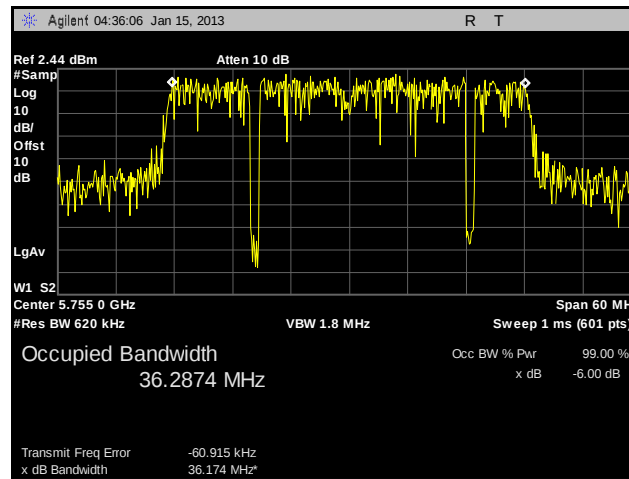


Plot 93. 99% Occupied Bandwidth, 802.11n 20MHz, 5785 MHz, Mid Channel, Port 3

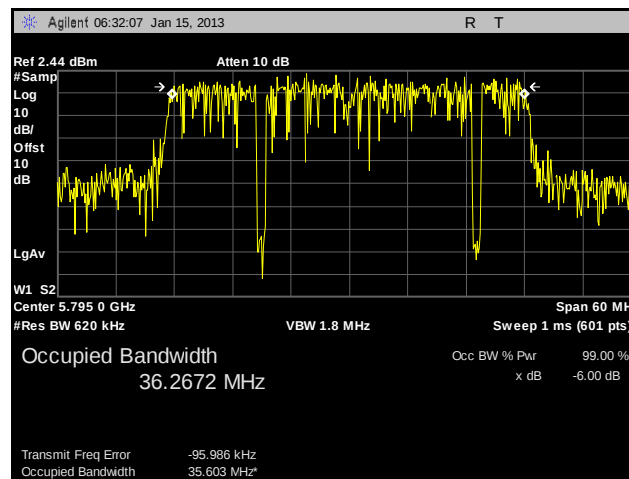


Plot 94. 99% Occupied Bandwidth, 802.11n 20MHz, 5825 MHz, High Channel, Port 3

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 1, 5 GHz

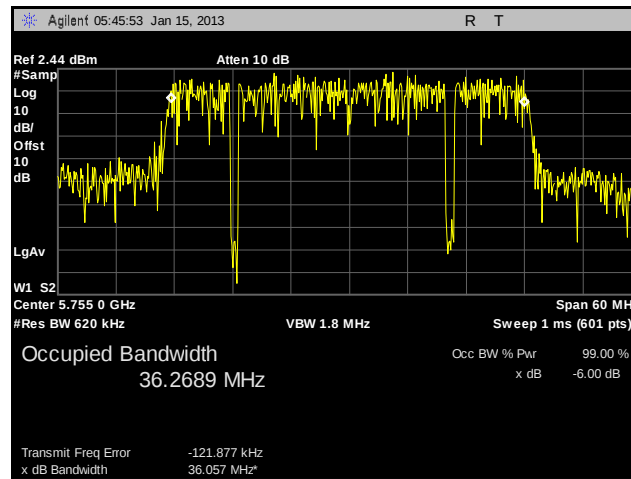


Plot 95. 99% Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 1

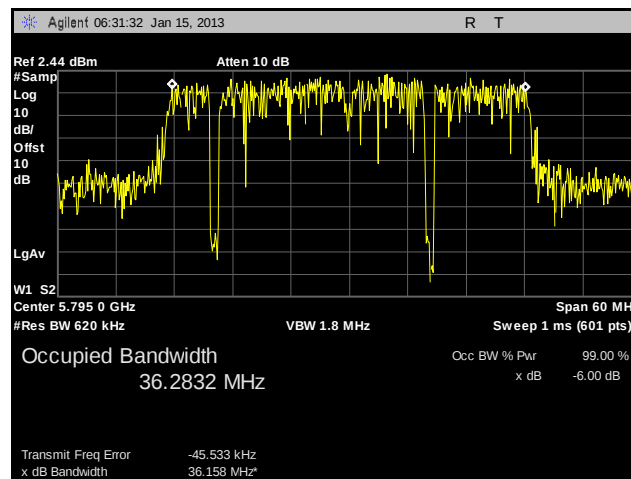


Plot 96. 99% Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 1

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 2, 5 GHz

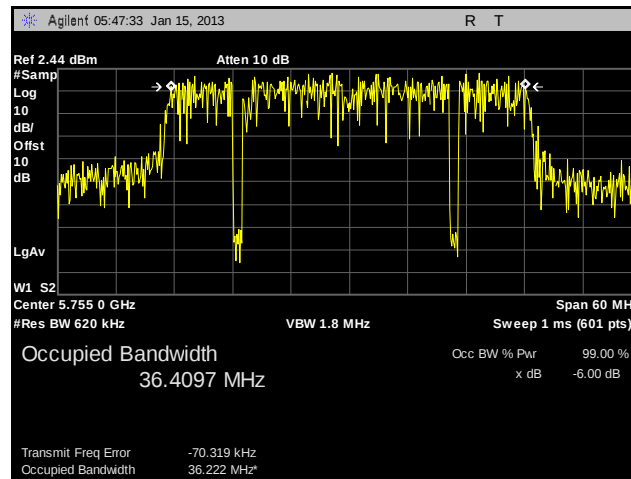


Plot 97. 99% Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 2

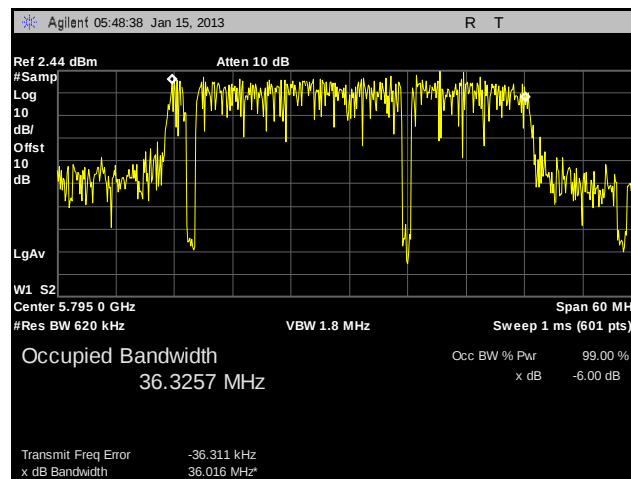


Plot 98. 99% Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 2

99% Occupied Bandwidth Test Results, 802.11n 40 MHz, Port 3, 5 GHz

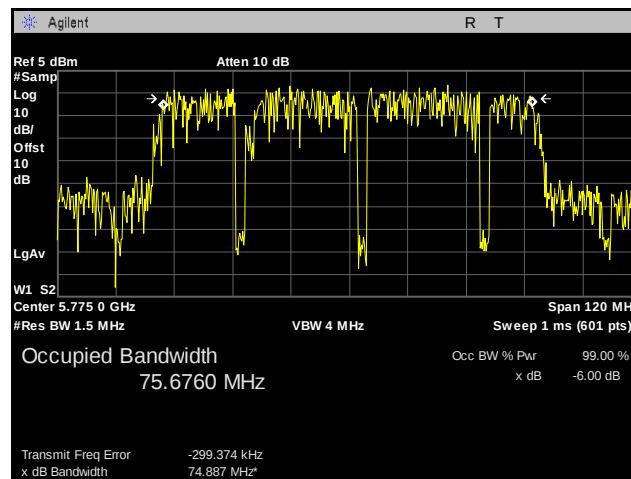


Plot 99. 99% Occupied Bandwidth, 802.11n 40MHz, 5755 MHz, Low Channel, Port 3

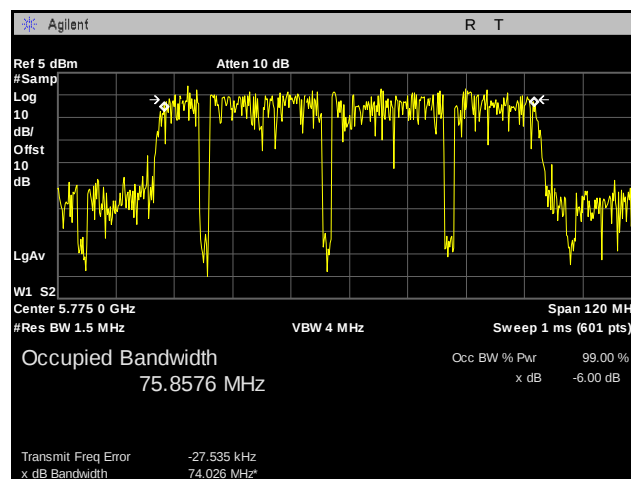


Plot 100. 99% Occupied Bandwidth, 802.11n 40MHz, 5795 MHz, High Channel, Port 3

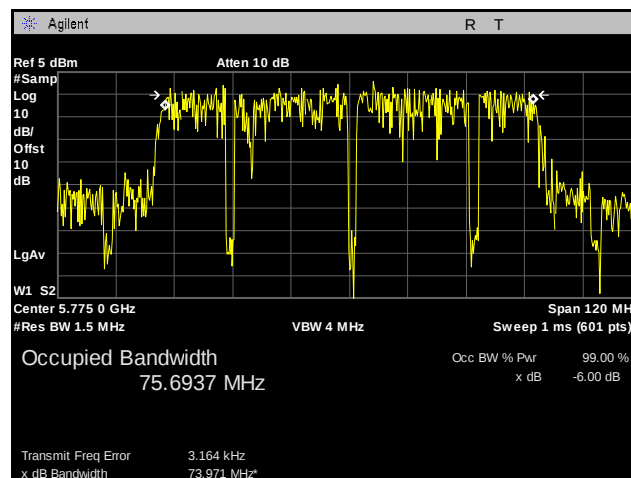
99% Occupied Bandwidth Test Results, 802.11n 80 MHz, 5 GHz



Plot 101. 99% Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 1



Plot 102. 99% Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 2



Plot 103. 99% Occupied Bandwidth, 802.11n 80 MHz, 5775 MHz, Port 3

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 26. 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 26, 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.

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. Plots were corrected for both cable loss and attenuation. Radio setups are professionally installed and output power will be lowered accordingly when both radios are operating simultaneously and operating in the same band.

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

Test Engineer(s): Jonathan Chao

Test Date(s): 02/18/13



Figure 3. Peak Power Output Test Setup

Peak Power Output Test Results

Peak Conducted Output Power – Internal Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11b	Low	2412	17.27
	Mid	2437	17.33
	High	2462	17.32
802.11g	Low	2412	19.44
	Mid	2437	19.26
	High	2462	19.35
802.11n 20 MHz Port 1	Low	2412	19.29
	Mid	2437	19.32
	High	2462	19.11
802.11n 20 MHz Port 2	Low	2412	19.40
	Mid	2437	19.36
	High	2462	19.41
802.11n 20 MHz Port 3	Low	2412	19.28
	Mid	2437	19.44
	High	2462	19.33
802.11n 40 MHz Port 1	Low	2422	16.02
	Mid	2437	18.59
	High	2452	15.94
802.11n 40 MHz Port 2	Low	2422	16.02
	Mid	2437	18.57
	High	2452	16.08
802.11n 40 MHz Port 3	Low	2422	15.92
	Mid	2437	18.71
	High	2452	15.90

Table 27. Peak Power Output, Test Results, Internal Antenna, 2.4 GHz

Summed Peak Conducted Output Power – Internal Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11n 20 MHz Summed	Low	2412	24.094887
	Mid	2437	24.144833
	High	2462	24.056389
802.11n 40 MHz Summed	Low	2422	20.758134
	Mid	2437	23.394987
	High	2452	20.745234

Table 28. Summed Peak Output Power, Test Results, Internal Antenna

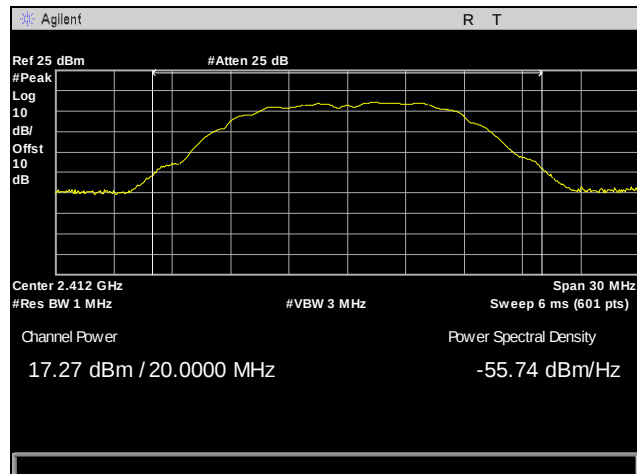
Peak Conducted Output Power – Internal Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11a	Low	5745	21.03
	Mid	5785	21.23
	High	5825	21.13
802.11n 20 MHz Port 1	Low	5745	20.80
	Mid	5785	20.94
	High	5825	21.01
802.11n 20 MHz Port 2	Low	5745	21.06
	Mid	5785	21.32
	High	5825	21.35
802.11n 20 MHz Port 3	Low	5745	21.08
	Mid	5785	21.26
	High	5825	21.34
802.11n 40 MHz Port 1	Low	5755	21.11
	High	5795	21.03
802.11n 40 MHz Port 2	Low	5755	20.77
	High	5795	20.85
802.11n 40 MHz Port 3	Low	5755	20.93
	High	5795	21.01
802.11n 80 MHz Port 1	--	5775	20.62
802.11n 80 MHz Port 2	--	5775	20.56
802.11n 80 MHz Port 3	--	5775	20.63

Table 29. Peak Power Output, Test Results, Internal Antenna, 5 GHz

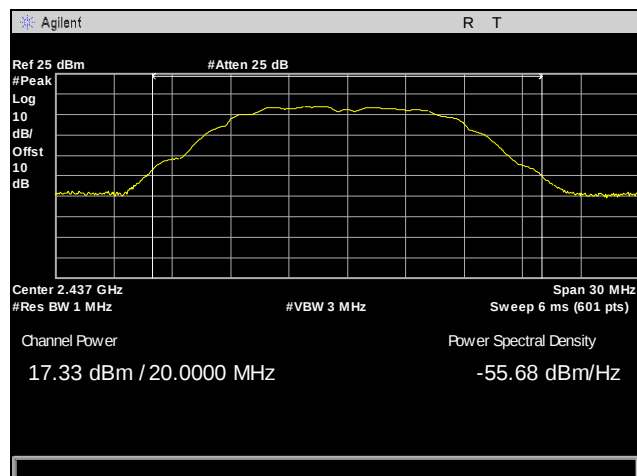
Summed Peak Conducted Output Power – Internal Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11n 20 MHz Summed	Low	5745	25.75
	Mid	5785	25.94
	High	5825	26.00
802.11n 40 MHz Summed	Low	5755	25.71
	High	5795	25.73
802.11n 80 MHz Summed	--	5775	25.37

Table 30. Summed Peak Output Power, Test Results, Internal Antenna

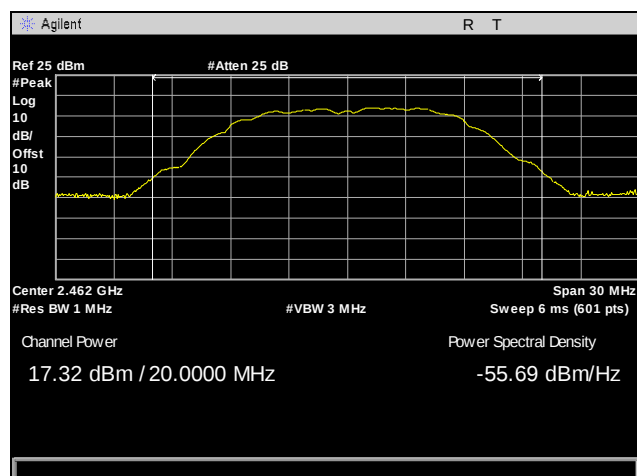
Peak Power Output Test Results, Internal Antenna, 802.11b 20 MHz, 2.4 GHz



Plot 104. Output Power, Internal Antenna, 802.11b 20 MHz, 2412 MHz, Low Channel

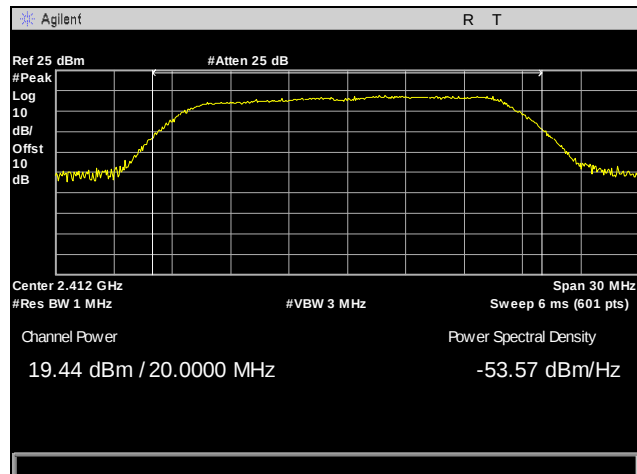


Plot 105. Output Power, Internal Antenna, 802.11b 20 MHz, 2437 MHz, Mid Channel

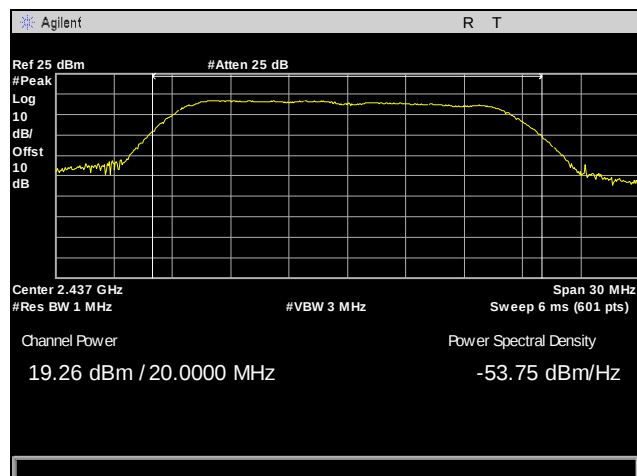


Plot 106. Output Power, Internal Antenna, 802.11b 20 MHz, 2462 MHz, High Channel

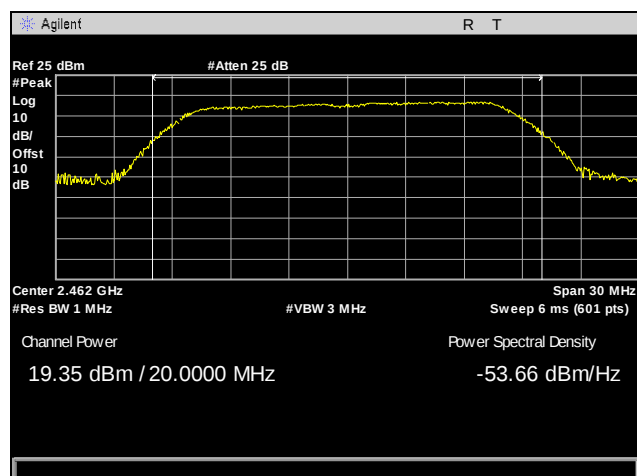
Peak Power Output Test Results, Internal Antenna, 802.11g 20 MHz, 2.4 GHz



Plot 107. Output Power, Internal Antenna, 802.11g 20 MHz, 2412 MHz, Low Channel

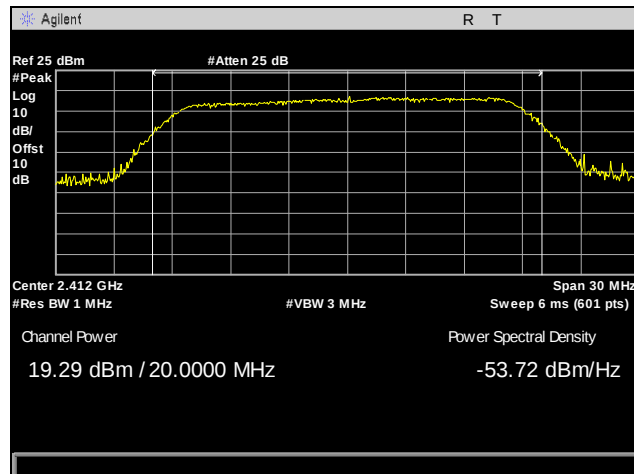


Plot 108. Output Power, Internal Antenna, 802.11g 20 MHz, 2437 MHz, Mid Channel

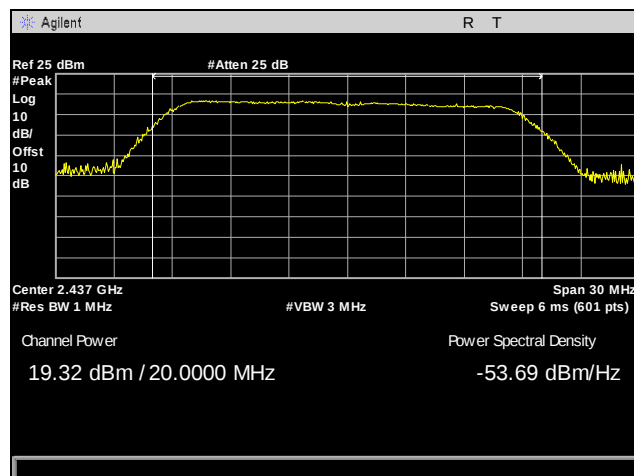


Plot 109. Output Power, Internal Antenna, 802.11g 20 MHz, 2462 MHz, High Channel

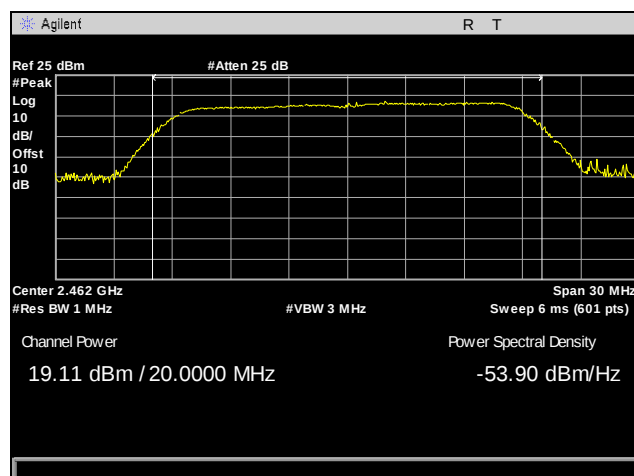
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 110. Output Power, Internal Antenna, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 1

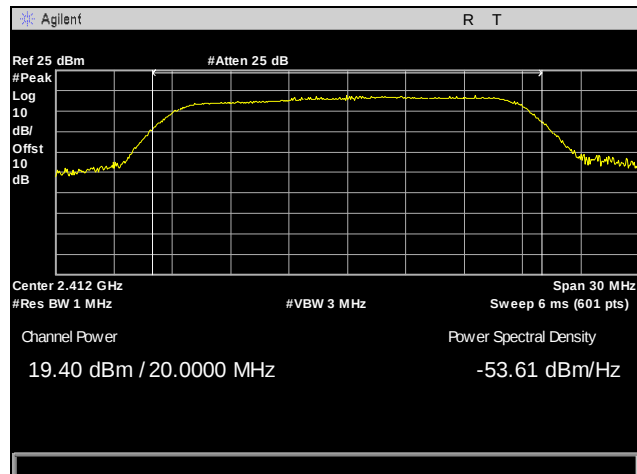


Plot 111. Output Power, Internal Antenna, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 1

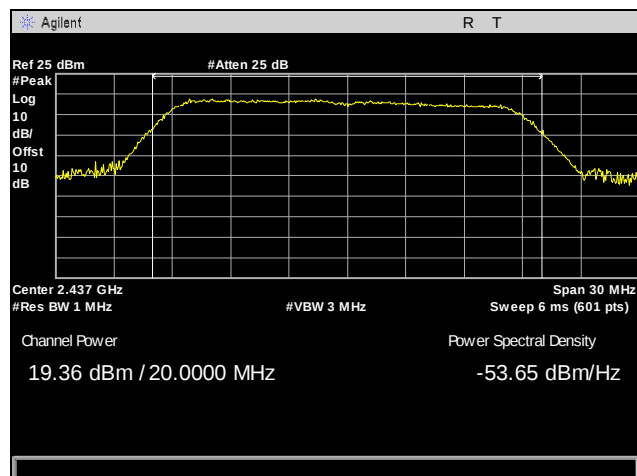


Plot 112. Output Power, Internal Antenna, 802.11n 20 MHz, 2462 MHz, High Channel, Port 1

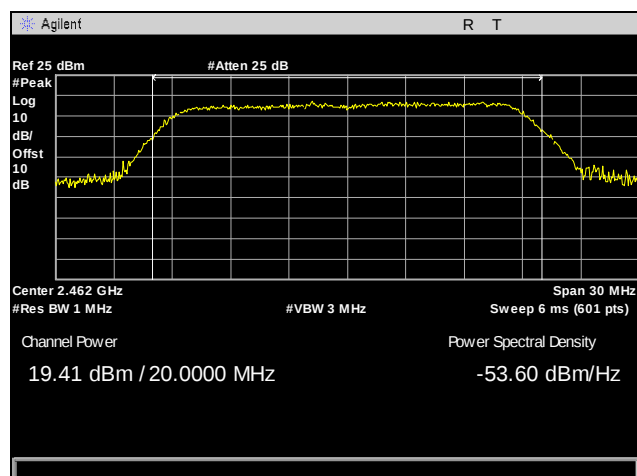
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 113. Output Power, Internal Antenna, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 2

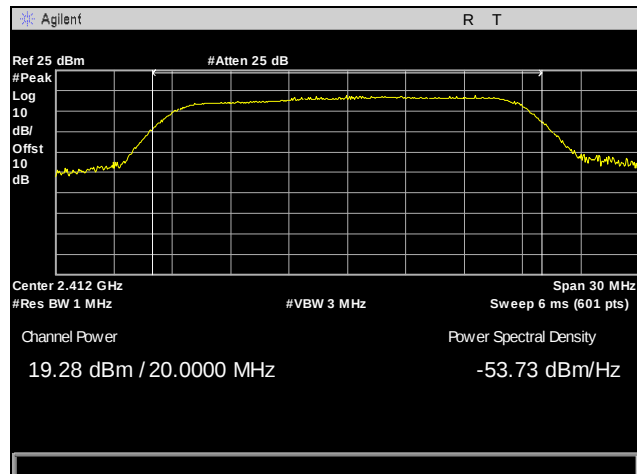


Plot 114. Output Power, Internal Antenna, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 2

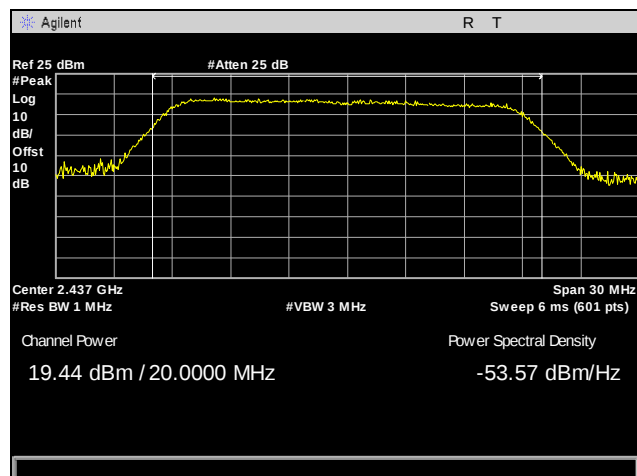


Plot 115. Output Power, Internal Antenna, 802.11n 20 MHz, 2462 MHz, High Channel, Port 2

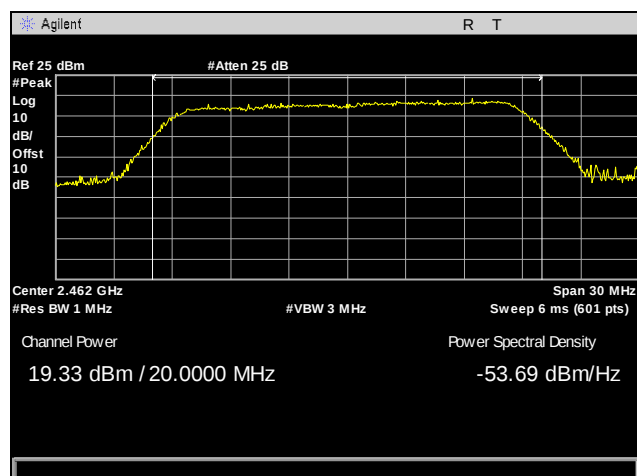
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 3, 2.4 GHz



Plot 116. Output Power, Internal Antenna, 802.11n 20 MHz, 2412 MHz, Low Channel, Port 3

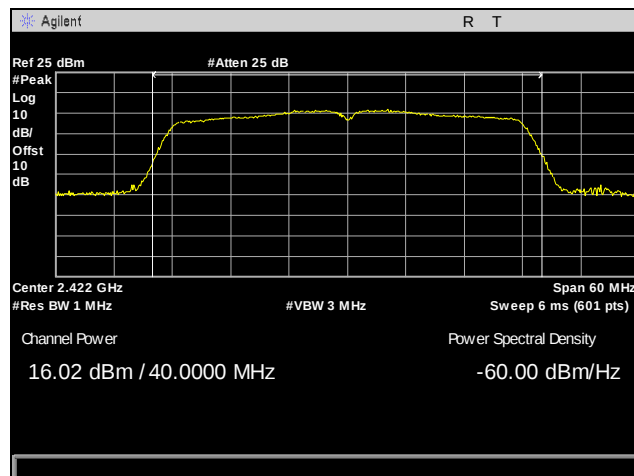


Plot 117. Output Power, Internal Antenna, 802.11n 20 MHz, 2437 MHz, Mid Channel, Port 3

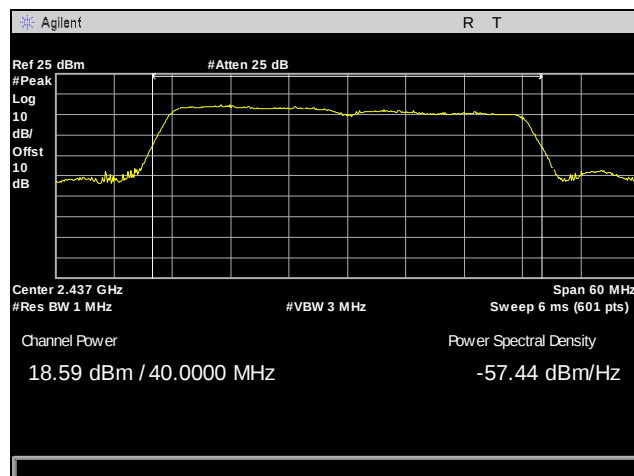


Plot 118. Output Power, Internal Antenna, 802.11n 20 MHz, 2462 MHz, High Channel, Port 3

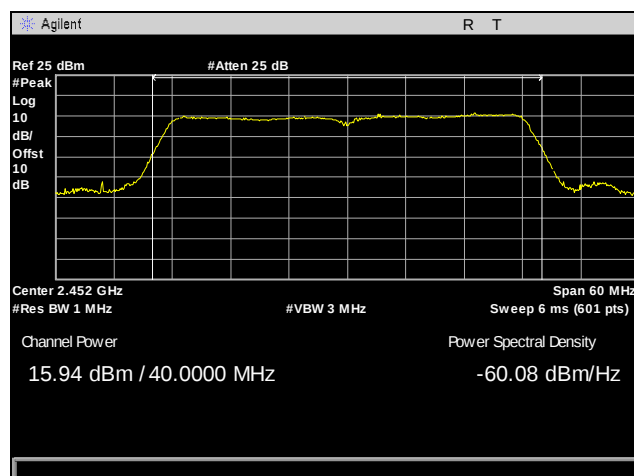
Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 119. Output Power, Internal Antenna, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 1

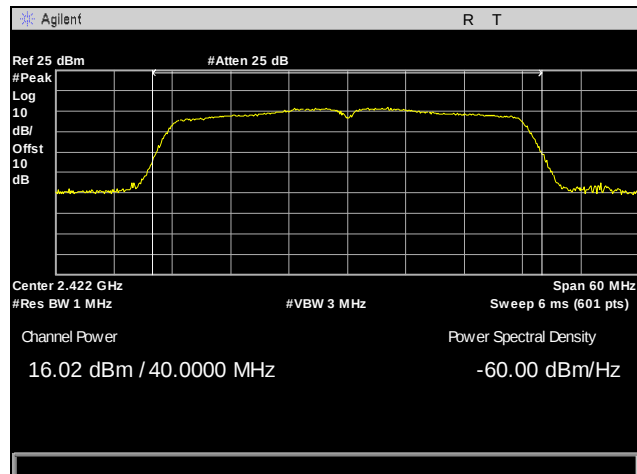


Plot 120. Output Power, Internal Antenna, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 1

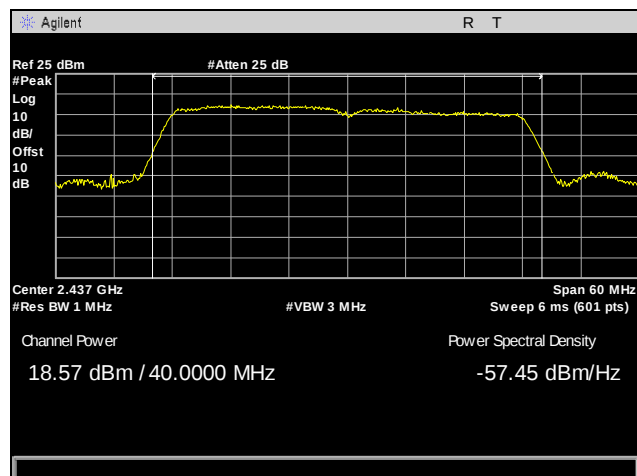


Plot 121. Output Power, Internal Antenna, 802.11n 40 MHz, 2452 MHz, High Channel, Port 1

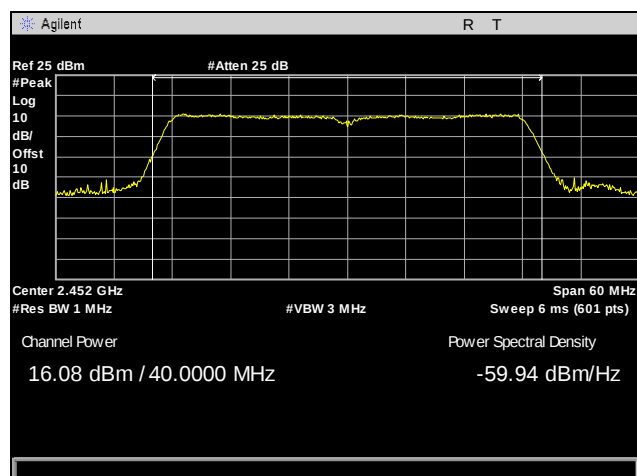
Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 122. Output Power, Internal Antenna, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 2

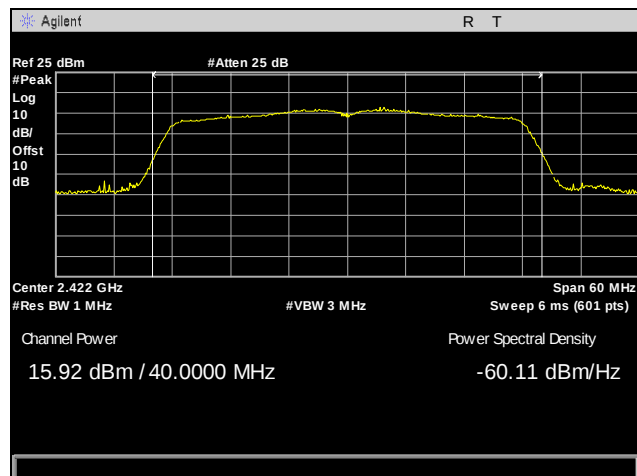


Plot 123. Output Power, Internal Antenna, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 2

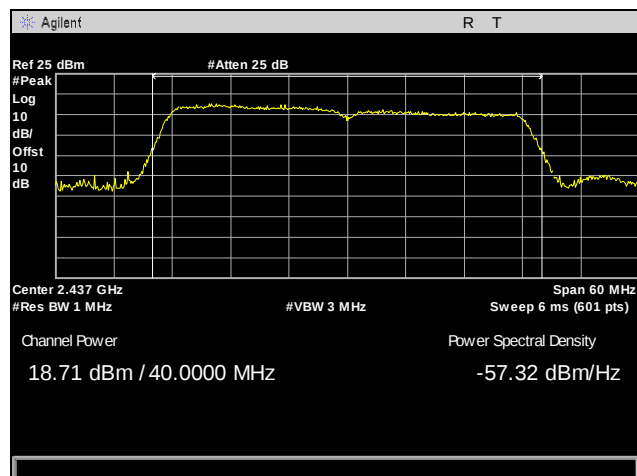


Plot 124. Output Power, Internal Antenna, 802.11n 40 MHz, 2452 MHz, High Channel, Port 2

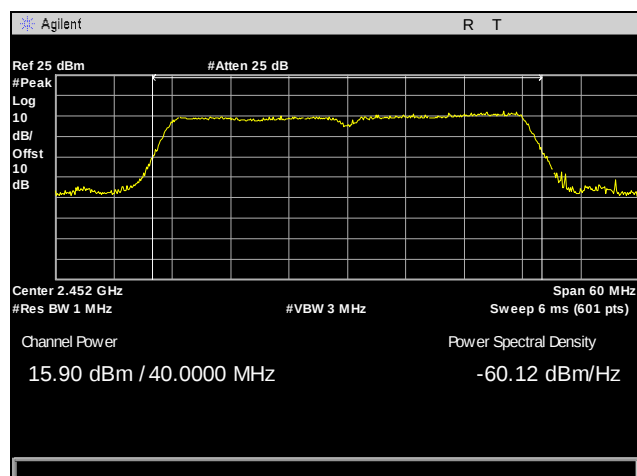
Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 3, 2.4 GHz



Plot 125. Output Power, Internal Antenna, 802.11n 40 MHz, 2422 MHz, Low Channel, Port 3

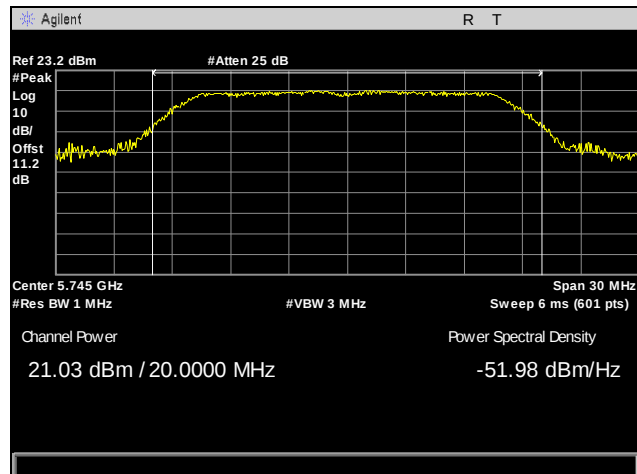


Plot 126. Output Power, Internal Antenna, 802.11n 40 MHz, 2437 MHz, Mid Channel, Port 3

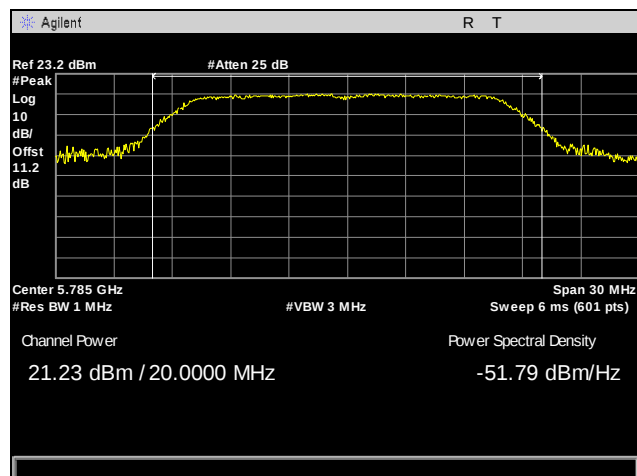


Plot 127. Output Power, Internal Antenna, 802.11n 40 MHz, 2452 MHz, High Channel, Port 3

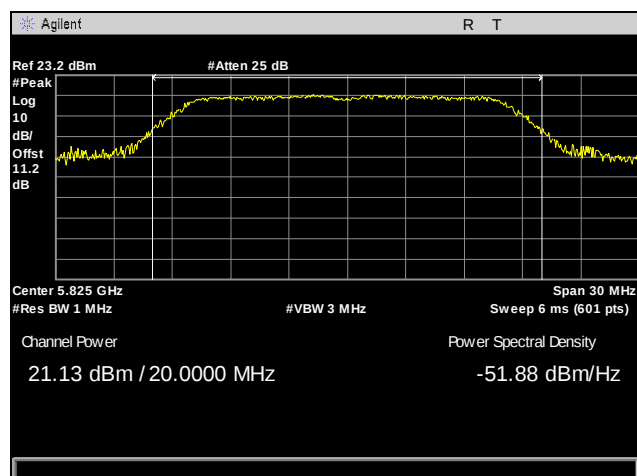
Peak Power Output Test Results, Internal Antenna, 802.11a 20 MHz, 5 GHz



Plot 128. Output Power, Internal Antenna, 802.11a 20 MHz, 5745 MHz, Low Channel

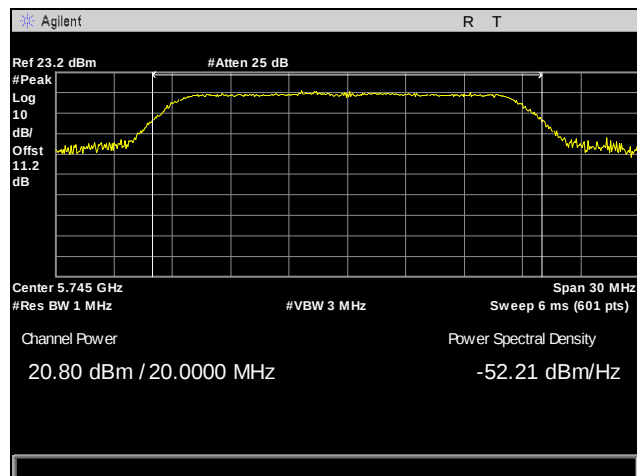


Plot 129. Output Power, Internal Antenna, 802.11a 20 MHz, 5785 MHz, Mid Channel

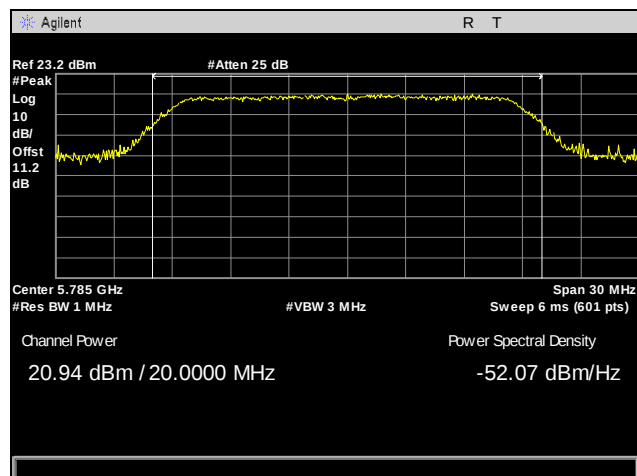


Plot 130. Output Power, Internal Antenna, 802.11a 20 MHz, 5825 MHz, High Channel

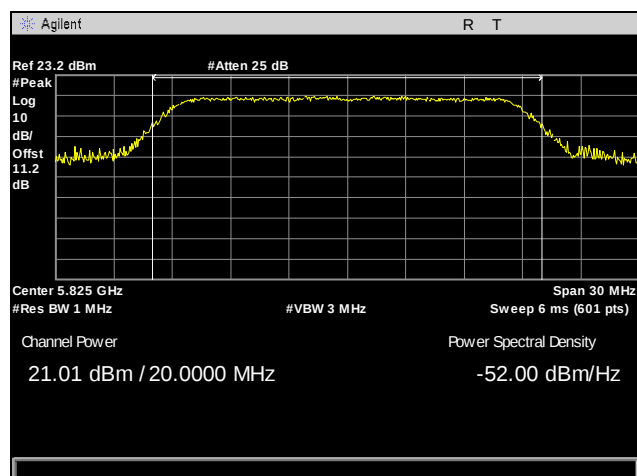
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 1, 5 GHz



Plot 131. Output Power, Internal Antenna, 802.11n 20 MHz, 5745 MHz, Low Channel, Port 1

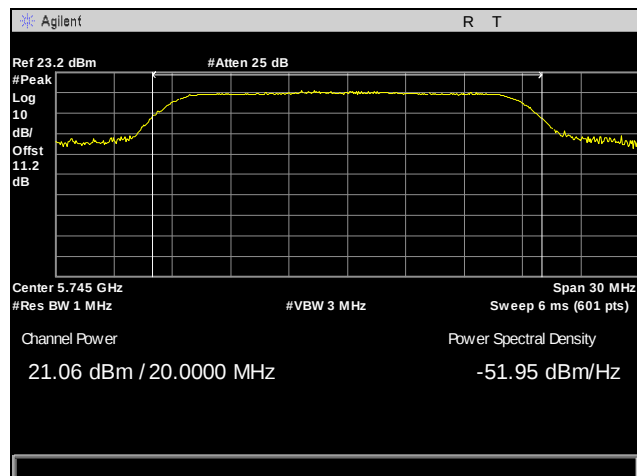


Plot 132. Output Power, Internal Antenna, 802.11n 20 MHz, 5785 MHz, Mid Channel, Port 1

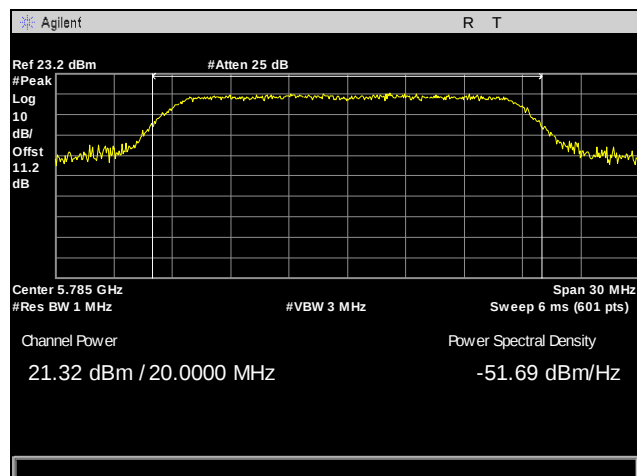


Plot 133. Output Power, Internal Antenna, 802.11n 20 MHz, 5825 MHz, High Channel, Port 1

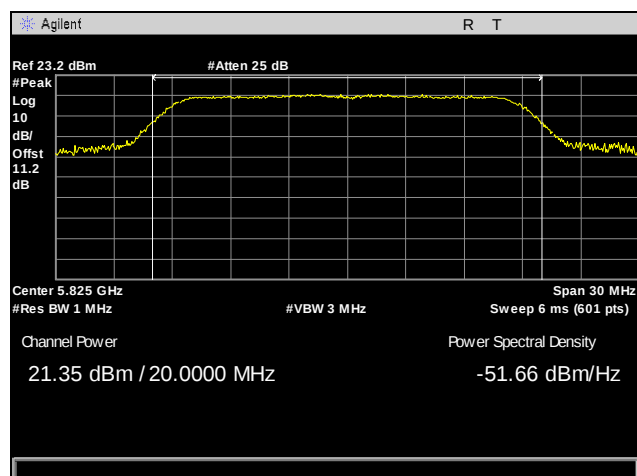
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 2, 5 GHz



Plot 134. Output Power, Internal Antenna, 802.11n 20 MHz, 5745 MHz, Low Channel, Port 2

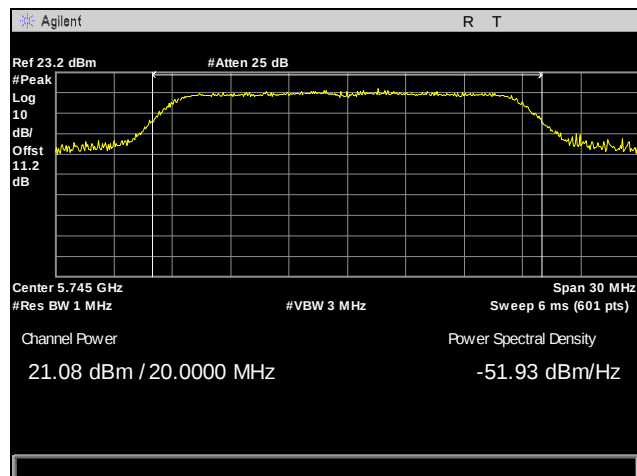


Plot 135. Output Power, Internal Antenna, 802.11n 20 MHz, 5785 MHz, Mid Channel, Port 2

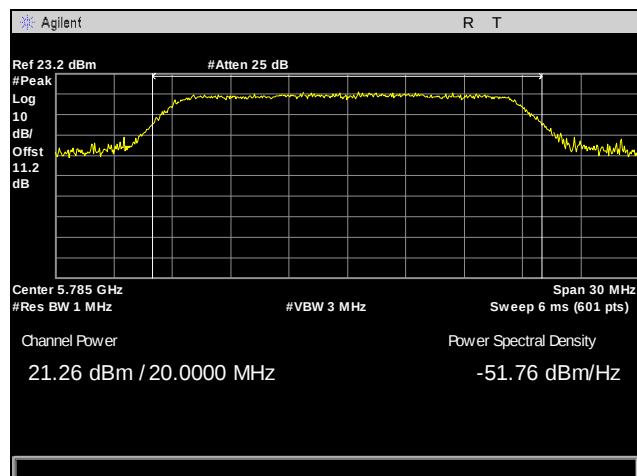


Plot 136. Output Power, Internal Antenna, 802.11n 20 MHz, 5825 MHz, High Channel, Port 2

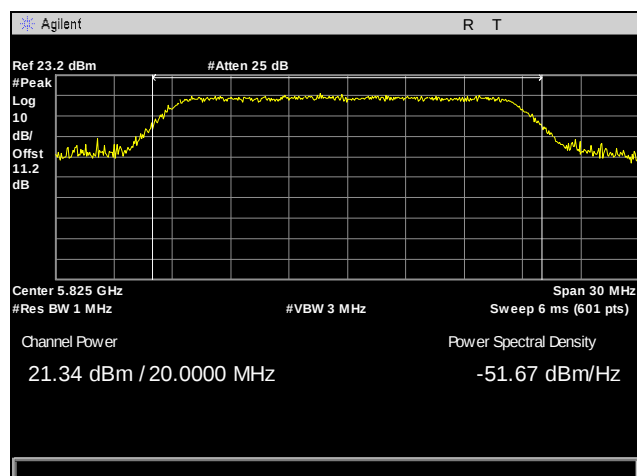
Peak Power Output Test Results, Internal Antenna, 802.11n 20 MHz, Port 3, 5 GHz



Plot 137. Output Power, Internal Antenna, 802.11n 20 MHz, 5745 MHz, Low Channel, Port 3

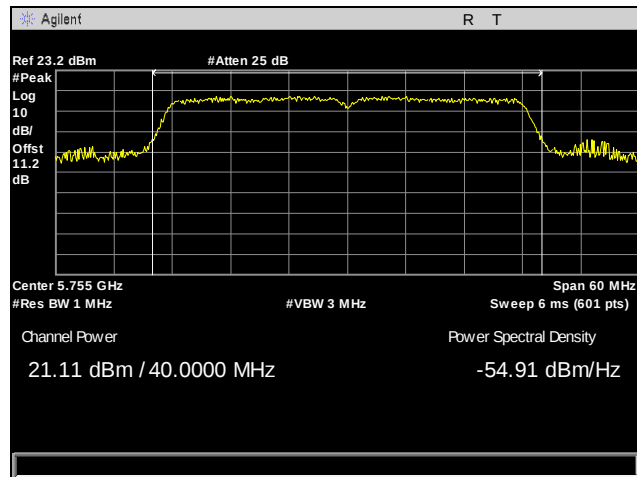


Plot 138. Output Power, Internal Antenna, 802.11n 20 MHz, 5785 MHz, Mid Channel, Port 3

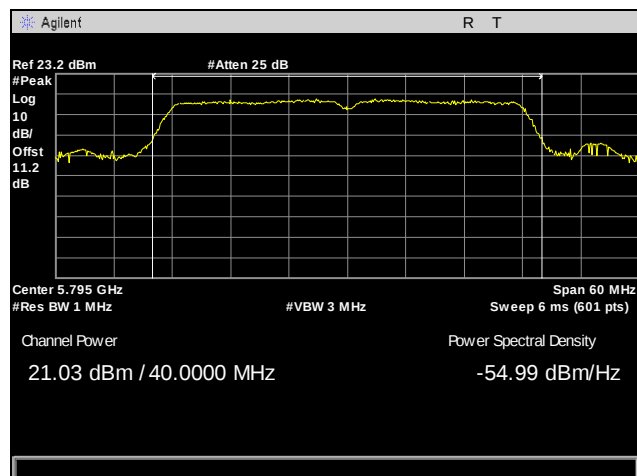


Plot 139. Output Power, Internal Antenna, 802.11n 20 MHz, 5825 MHz, High Channel, Port 3

Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 1, 5 GHz

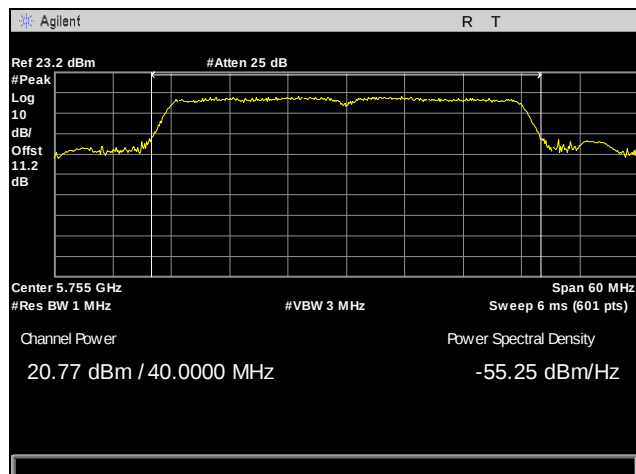


Plot 140. Output Power, Internal Antenna, 802.11n 40 MHz, 5755 MHz, Low Channel, Port 1

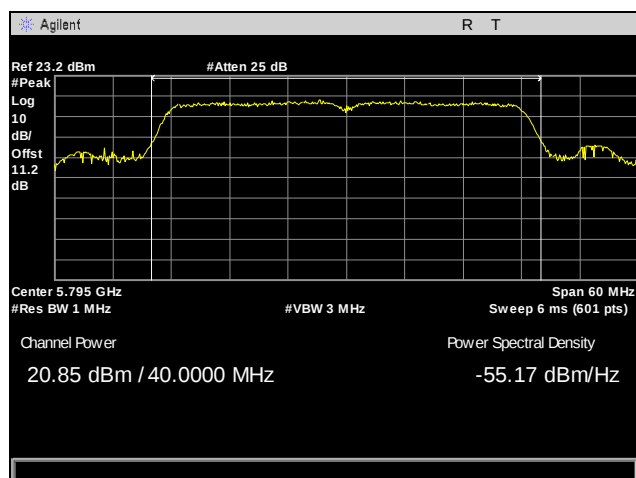


Plot 141. Output Power, Internal Antenna, 802.11n 40 MHz, 5795 MHz, High Channel, Port 1

Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 2, 5 GHz

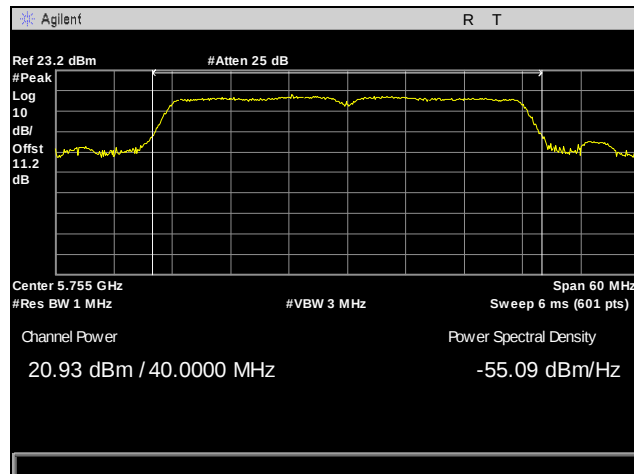


Plot 142. Output Power, Internal Antenna, 802.11n 40 MHz, 5755 MHz, Low Channel, Port 2

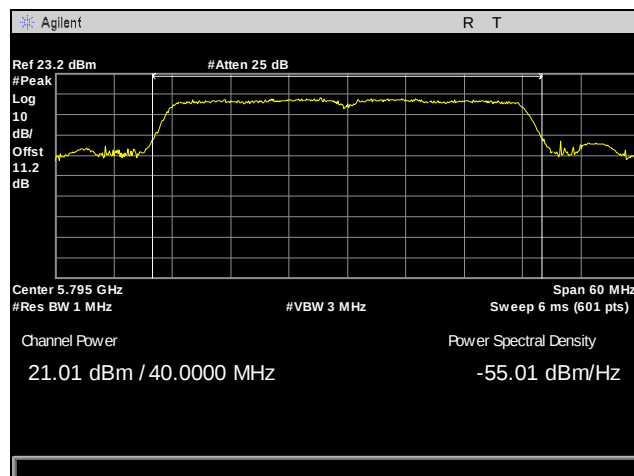


Plot 143. Output Power, Internal Antenna, 802.11n 40 MHz, 5795 MHz, High Channel, Port 2

Peak Power Output Test Results, Internal Antenna, 802.11n 40 MHz, Port 3, 5 GHz

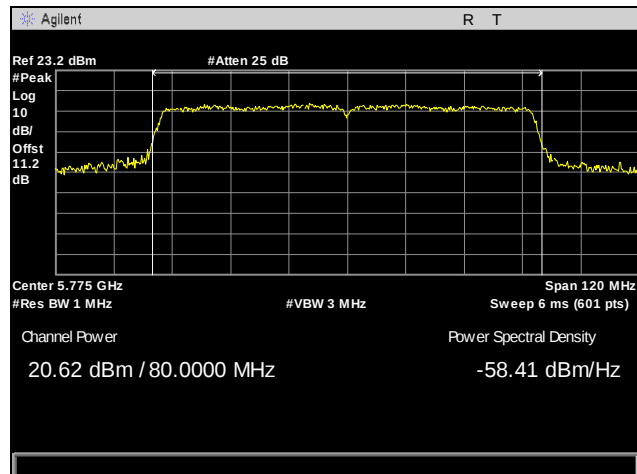


Plot 144. Output Power, Internal Antenna, 802.11n 40 MHz, 5755 MHz, Low Channel, Port 3

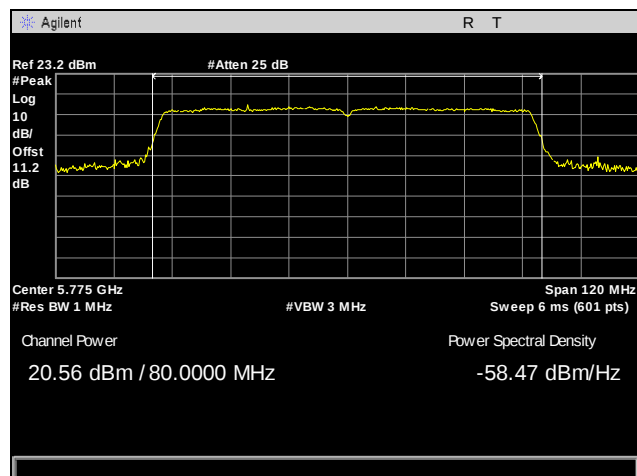


Plot 145. Output Power, Internal Antenna, 802.11n 40 MHz, 5795 MHz, High Channel, Port 3

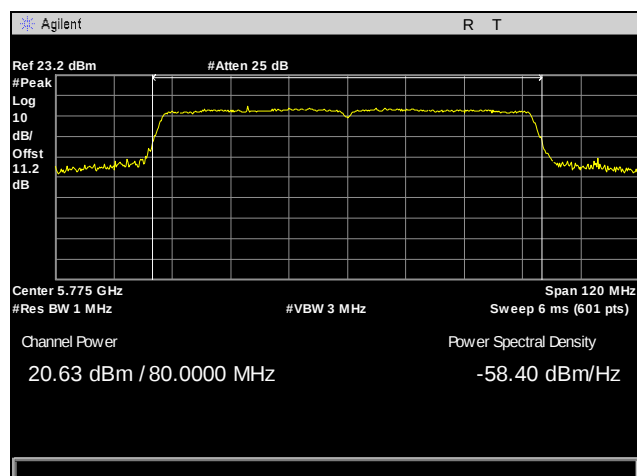
Peak Power Output Test Results, Internal Antenna, 802.11n 80 MHz, 5 GHz



Plot 146. Output Power, Internal Antenna, 802.11n 80 MHz, 5775 MHz, Port 1



Plot 147. Output Power, Internal Antenna, 802.11n 80 MHz, 5775 MHz, Port 2



Plot 148. Output Power, Internal Antenna, 802.11n 80 MHz, 5775 MHz, Port 3

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 31. 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 32.

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

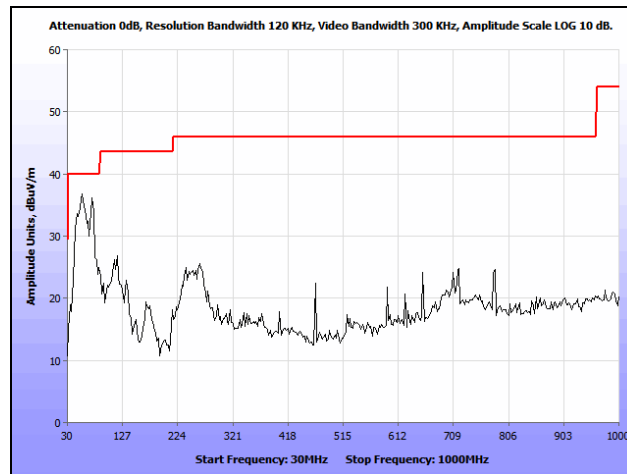
Test Procedures: The transmitter was turned on. Measurements were performed of the low, mid and high Channels. The EUT was rotated orthogonally through all three axes. Plots shown are corrected for both antenna correction factor, cable loss, preamp gain and distance and compared to a 3 m limit line. For 1-18GHz plots, a peak detector was used against a average limit and a notch filter was used to notch out the fundamental frequency. Only noise floor was measured above 18 GHz.

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

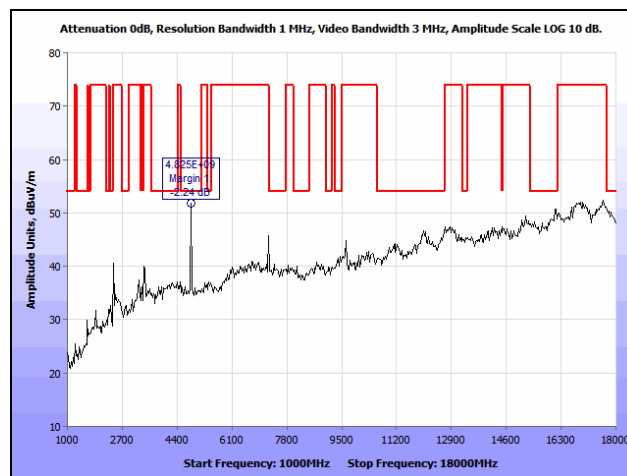
Test Engineer(s): Jonathan Chao

Test Date(s): 02/18/13

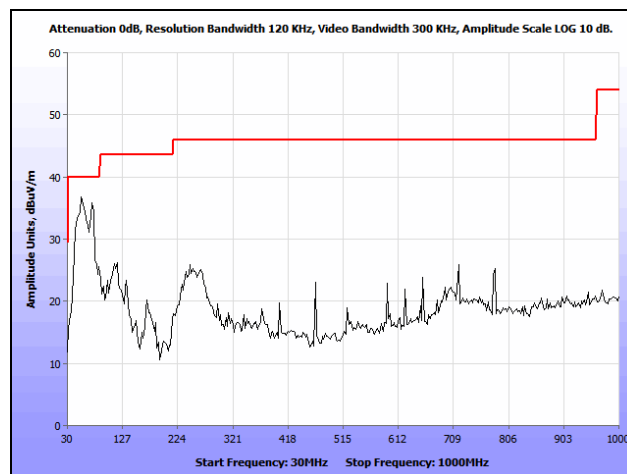
Radiated Spurious Emissions Test Results, Internal PIFA, 802.11 b, 2.4 GHz



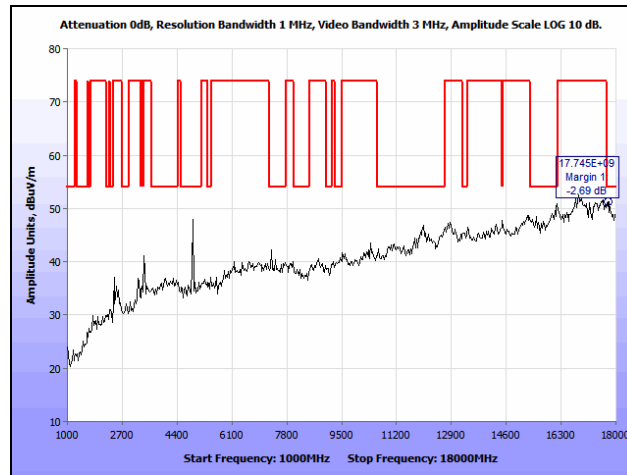
Plot 149. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2412 MHz, Low Channel, 30 MHz - 1 GHz



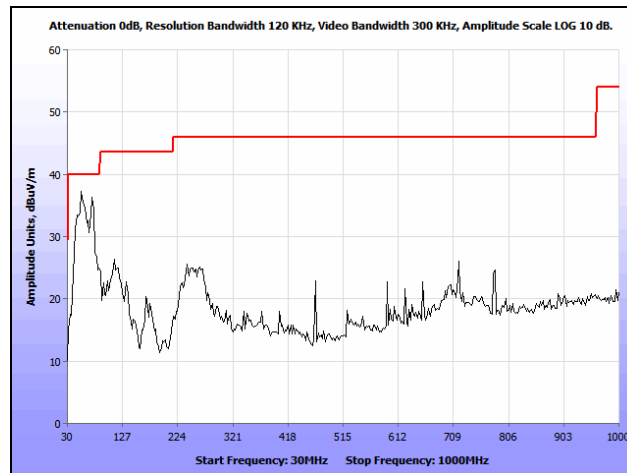
Plot 150. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2412 MHz, Low Channel, 1 GHz - 18 GHz



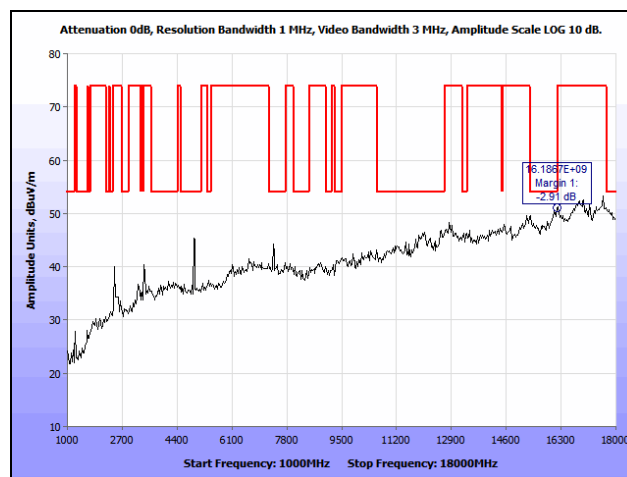
Plot 151. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2437 MHz, Mid Channel, 30 MHz - 1 GHz



Plot 152. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2437 MHz, Mid Channel, 1 GHz - 18 GHz

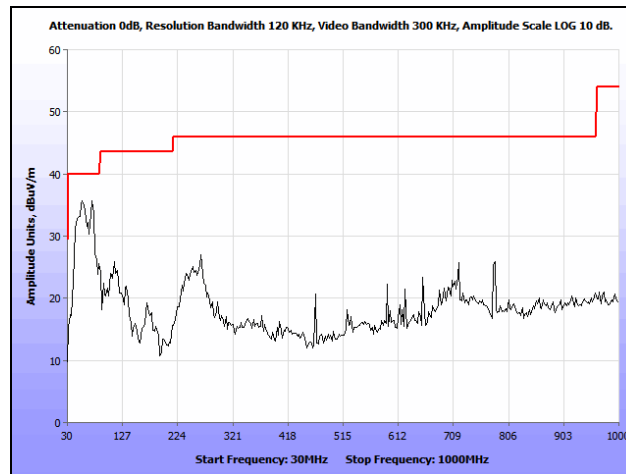


Plot 153. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2462 MHz, High Channel, 30 MHz - 1 GHz

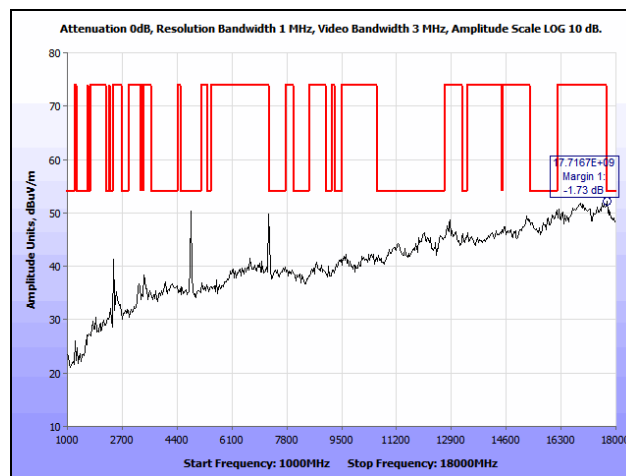


Plot 154. Radiated Spurious Emissions, Internal PIFA, 802.11b, 2462 MHz, High Channel, 1 GHz - 18 GHz

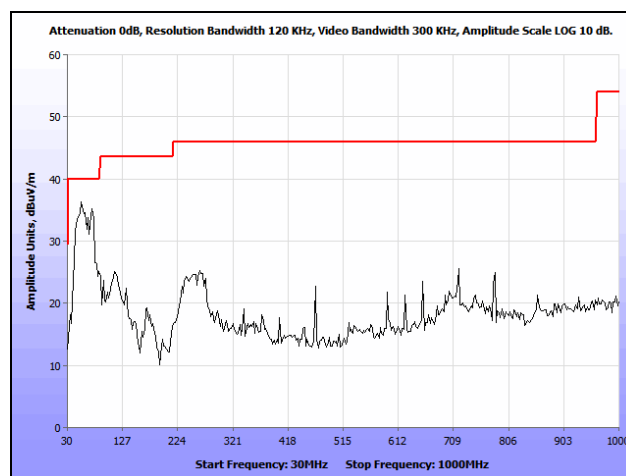
Radiated Spurious Emissions Test Results, Internal PIFA, 802.11 g, 2.4 GHz



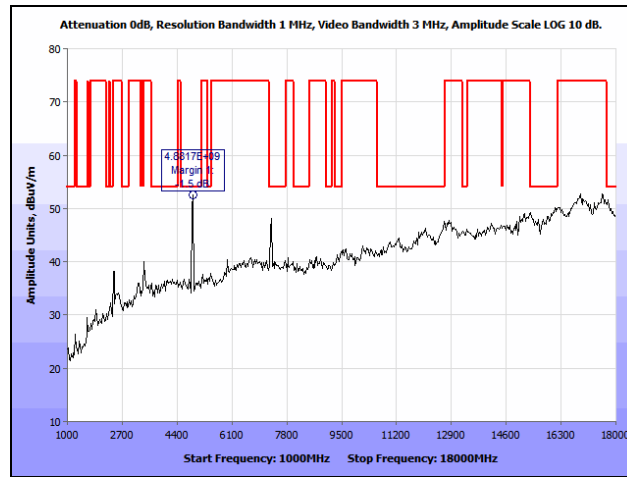
Plot 155. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2412 MHz, Low Channel, 30 MHz - 1 GHz



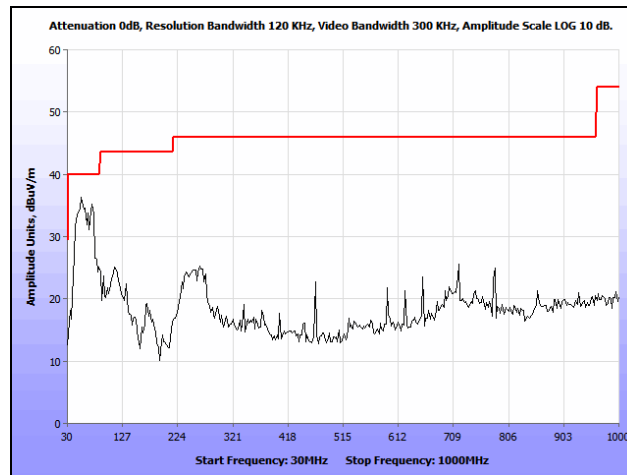
Plot 156. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2412 MHz, Low Channel, 1 GHz - 18 GHz



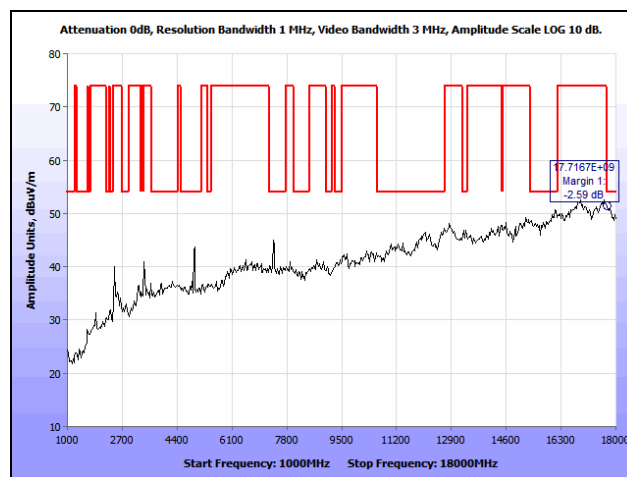
Plot 157. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2437 MHz, Mid Channel, 30 MHz - 1 GHz



Plot 158. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2437 MHz, Mid Channel, 1 GHz - 18 GHz

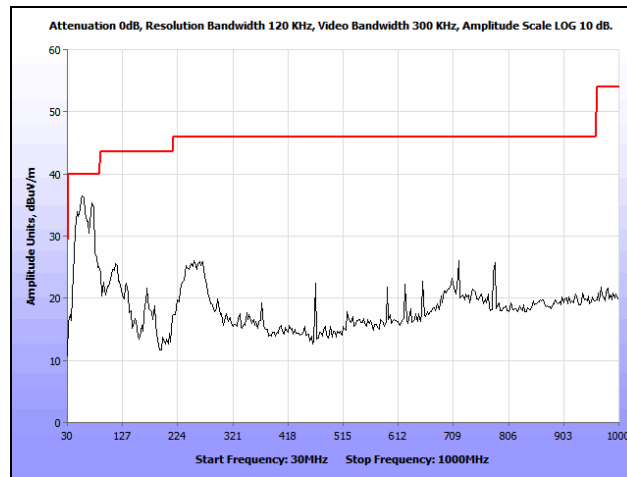


Plot 159. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2462 MHz, High Channel, 30 MHz - 1 GHz

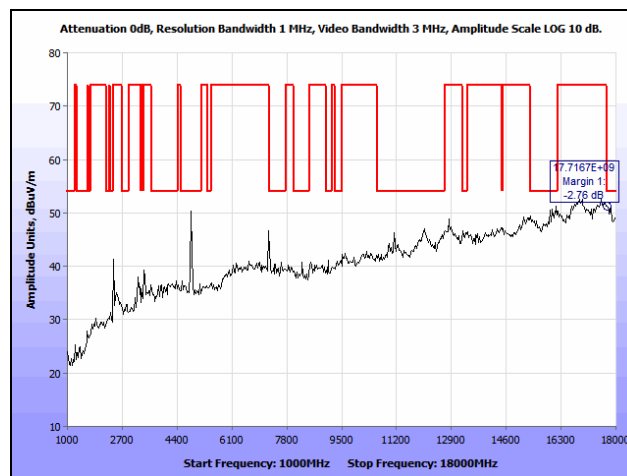


Plot 160. Radiated Spurious Emissions, Internal PIFA, 802.11g, 2462 MHz, High Channel, 1 GHz - 18 GHz

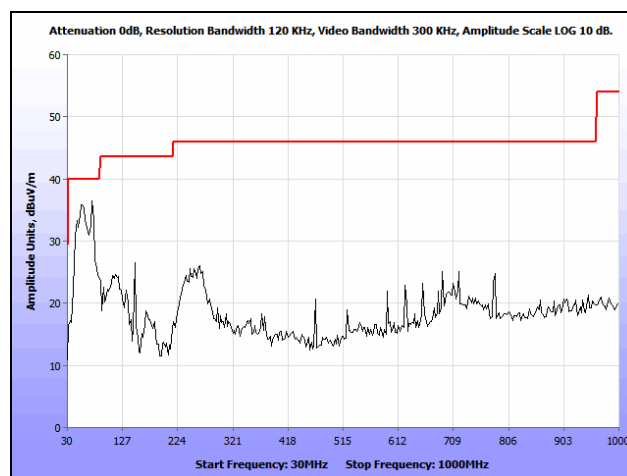
Radiated Spurious Emissions Test Results, Internal PIFA, 802.11 n 20 MHz, 2.4 GHz



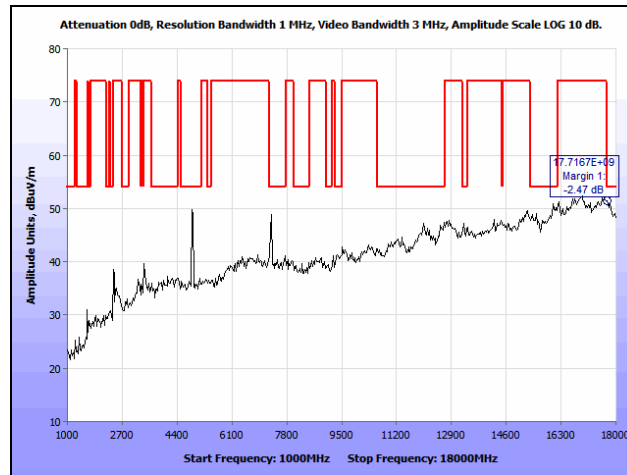
Plot 161. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2412 MHz, Low Channel, 30 MHz - 1 GHz



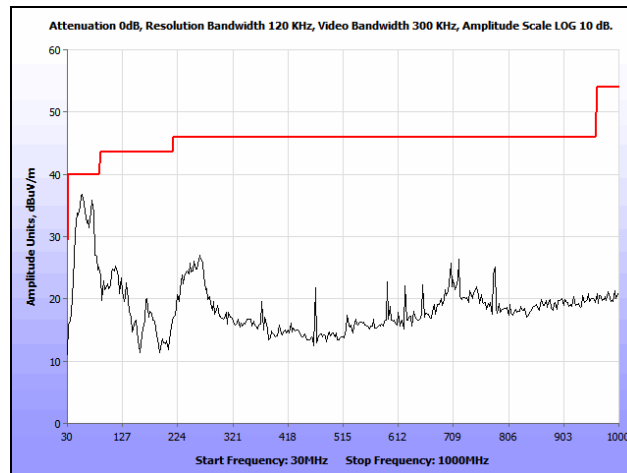
Plot 162. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2412 MHz, Low Channel, 1 GHz - 18 GHz



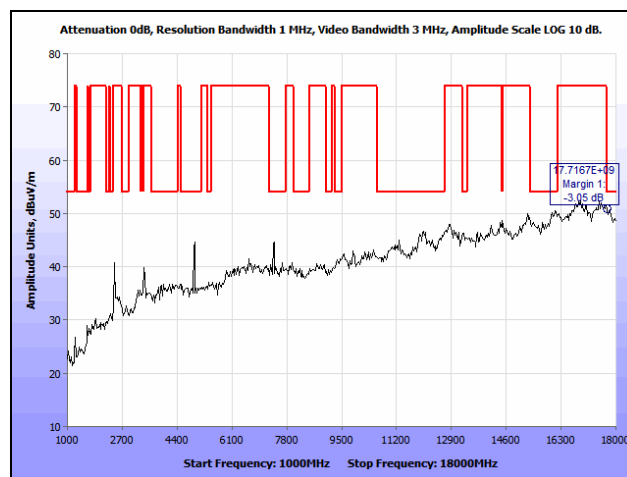
Plot 163. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2437 MHz, Mid Channel, 30 MHz - 1 GHz



Plot 164. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2437 MHz, Mid Channel, 1 GHz - 18 GHz

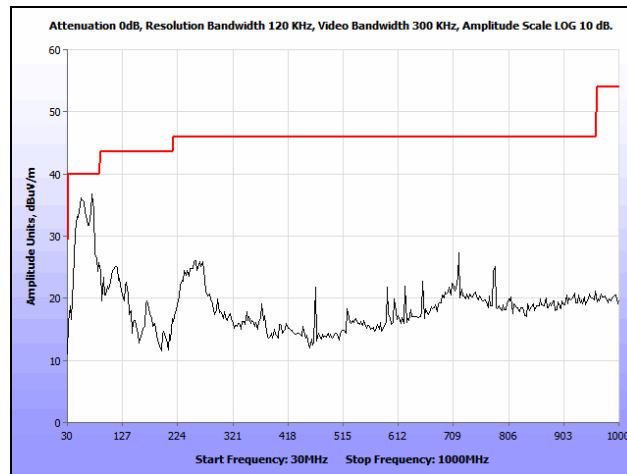


Plot 165. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2462 MHz, High Channel, 30 MHz - 1 GHz

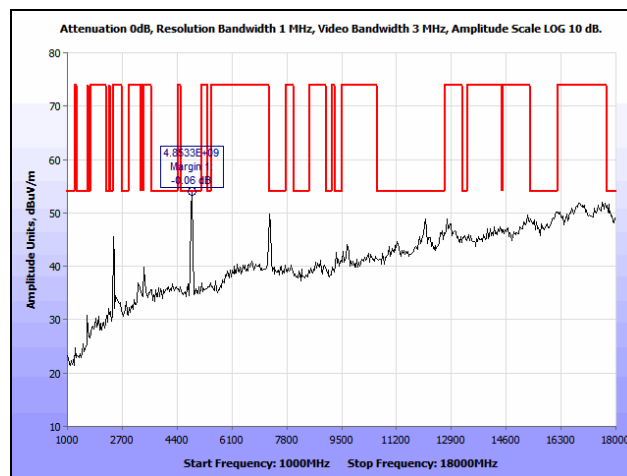


Plot 166. Radiated Spurious Emissions, Internal PIFA, 802.11n 20 MHz, 2462 MHz, High Channel, 1 GHz - 18 GHz

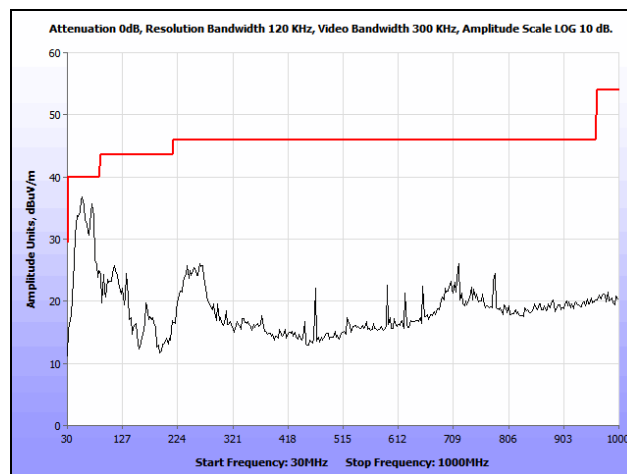
Radiated Spurious Emissions Test Results, Internal PIFA, 802.11n 40 MHz, 2.4 GHz



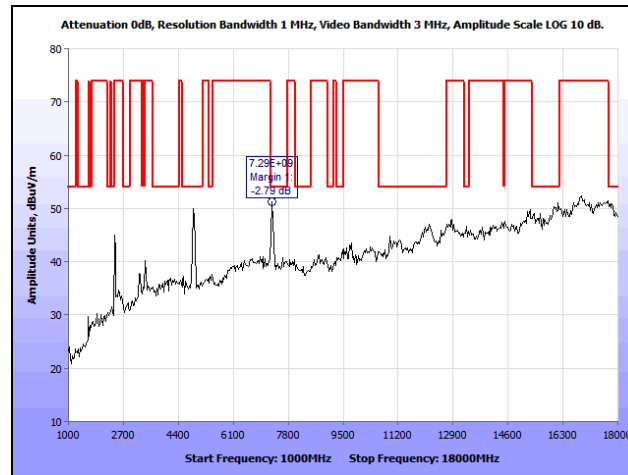
Plot 167. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2422 MHz, Low Channel, 30 MHz - 1 GHz



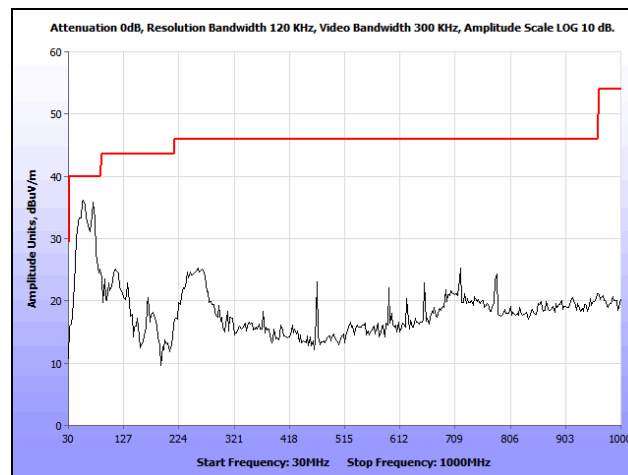
Plot 168. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2422 MHz, Low Channel, 1 GHz - 18 GHz



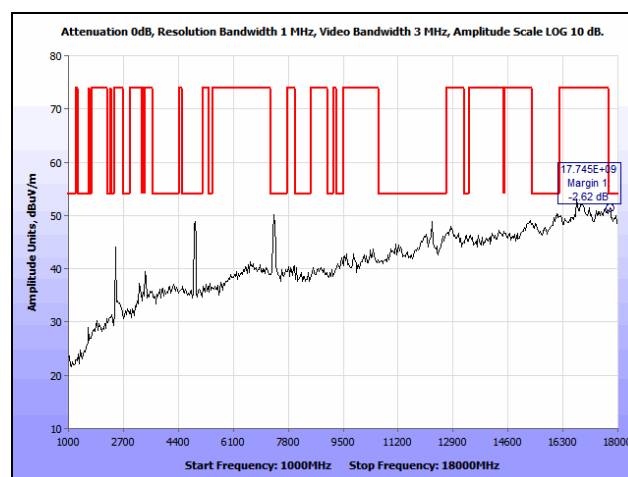
Plot 169. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2437 MHz, Mid Channel, 30 MHz - 1 GHz



Plot 170. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2437 MHz, Mid Channel, 1 GHz - 18 GHz

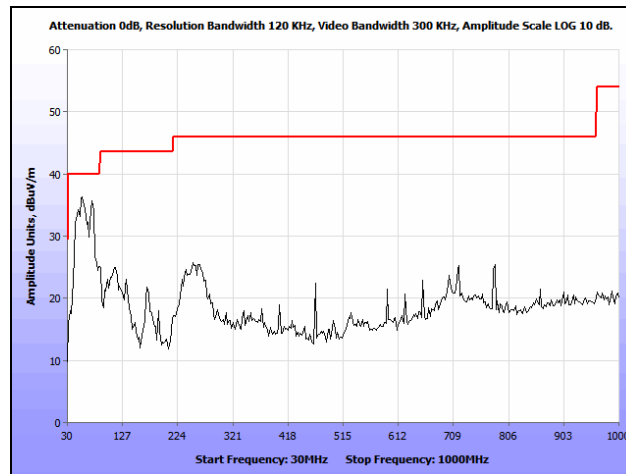


Plot 171. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2452 MHz, High Channel, 30 MHz - 1 GHz

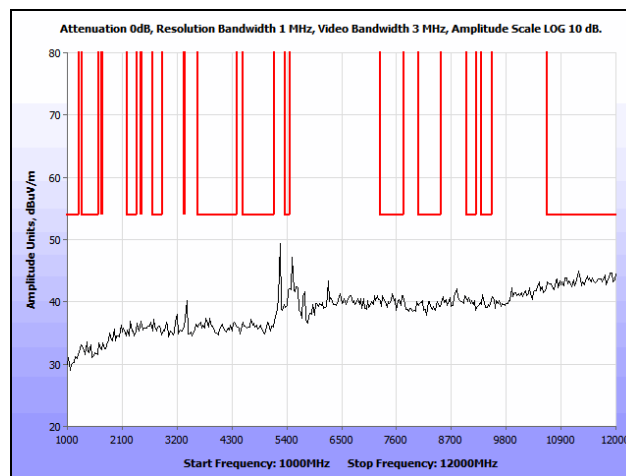


Plot 172. Radiated Spurious Emissions, Internal PIFA, 802.11n 40 MHz, 2452 MHz, High Channel, 1 GHz - 18 GHz

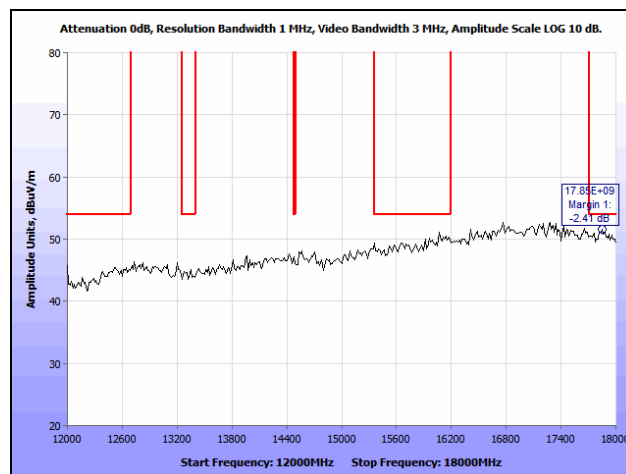
Radiated Spurious Emissions Test Results, PIFA, 802.11a, 5 GHz



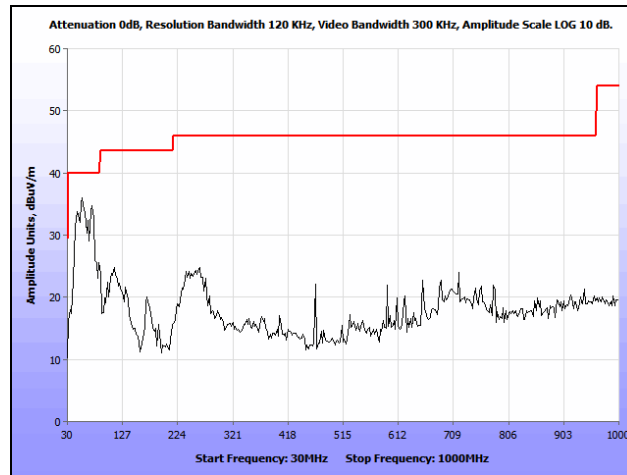
Plot 173. Radiated Spurious Emissions, PIFA, 802.11a, 5745, 30 MHz - 1 GHz



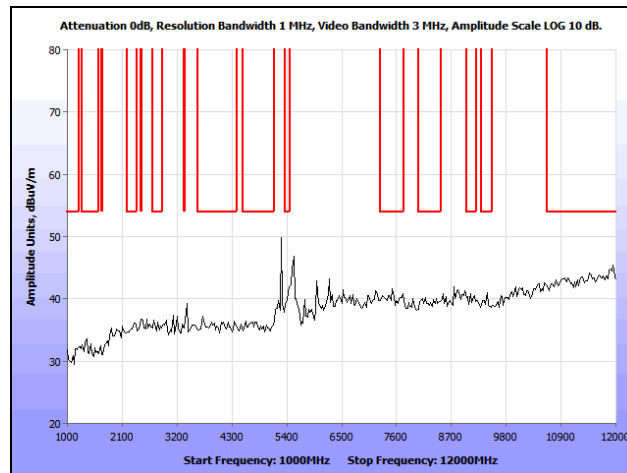
Plot 174. Radiated Spurious Emissions, PIFA, 802.11a, 5745 MHz, 1 GHz - 12 GHz



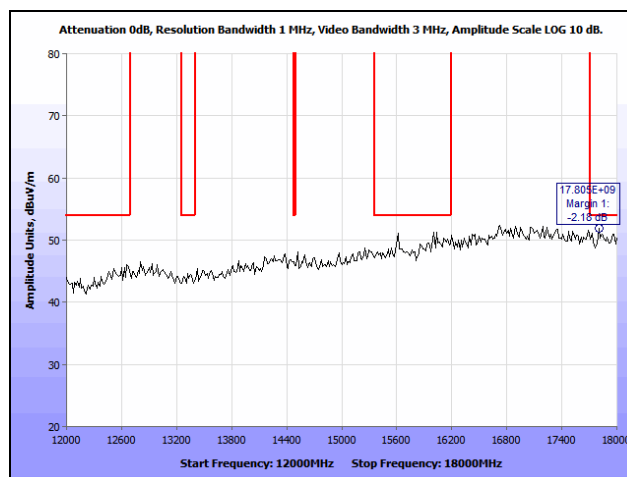
Plot 175. Radiated Spurious Emissions, PIFA, 802.11a, 5745 MHz, 12 GHz - 18 GHz



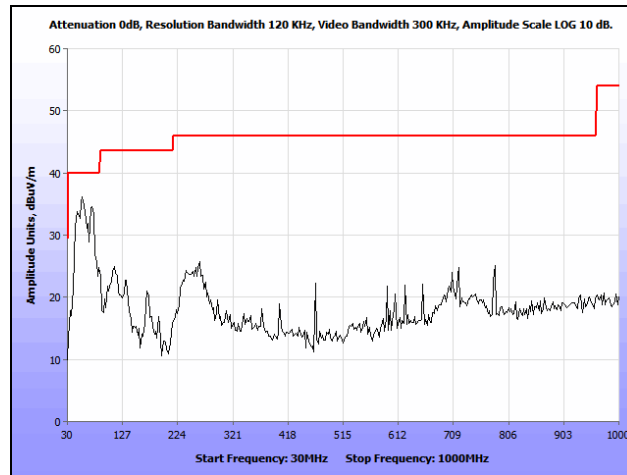
Plot 176. Radiated Spurious Emissions, PIFA, 802.11a, 5785 MHz, 30 MHz - 1 GHz



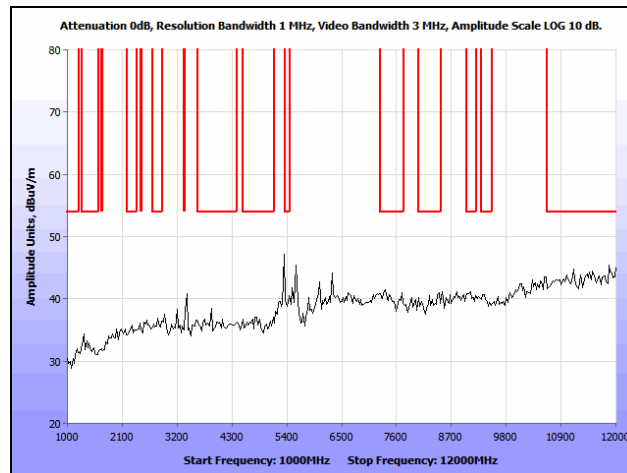
Plot 177. Radiated Spurious Emissions, PIFA, 802.11a, 5785 MHz, 1 GHz - 12 GHz



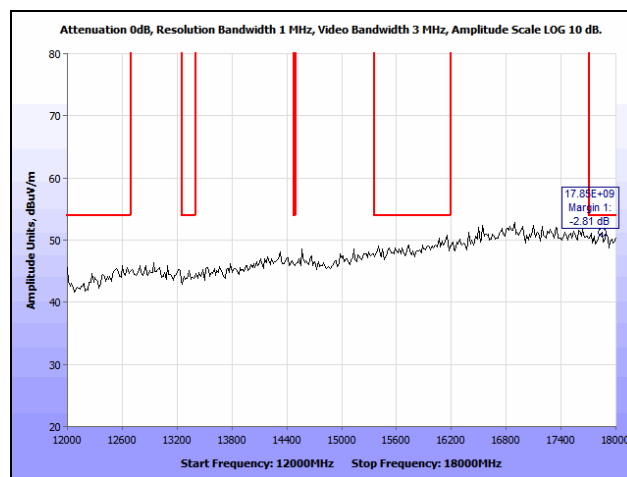
Plot 178. Radiated Spurious Emissions, PIFA, 802.11a, 5785 MHz, 12 GHz - 18 GHz



Plot 179. Radiated Spurious Emissions, PIFA, 802.11a, 5825 MHz, 30 MHz - 1 GHz

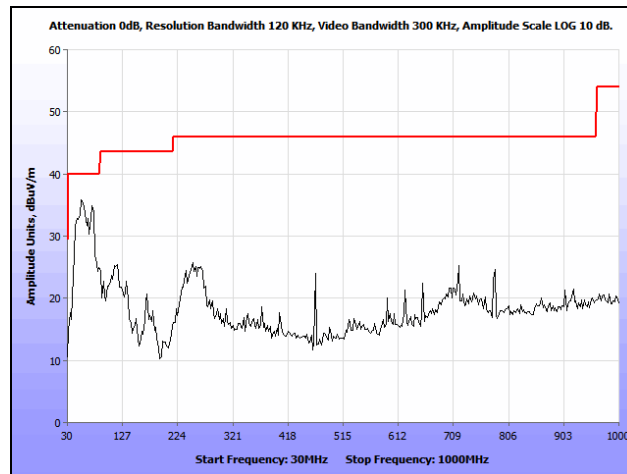


Plot 180. Radiated Spurious Emissions, PIFA, 802.11a, 5825 MHz, 1 GHz - 12 GHz

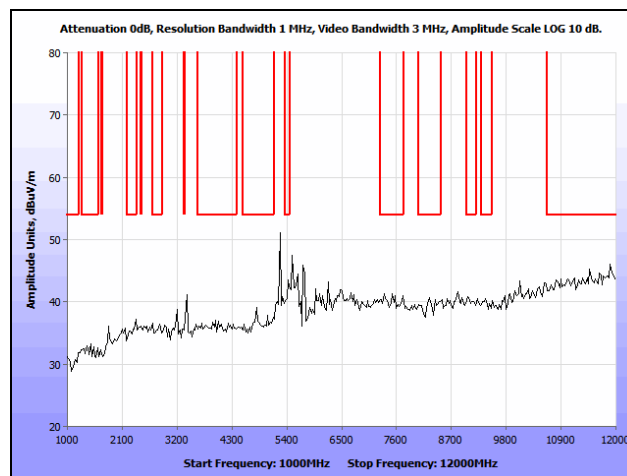


Plot 181. Radiated Spurious Emissions, PIFA, 802.11a, 5825 MHz, 12 GHz - 18 GHz

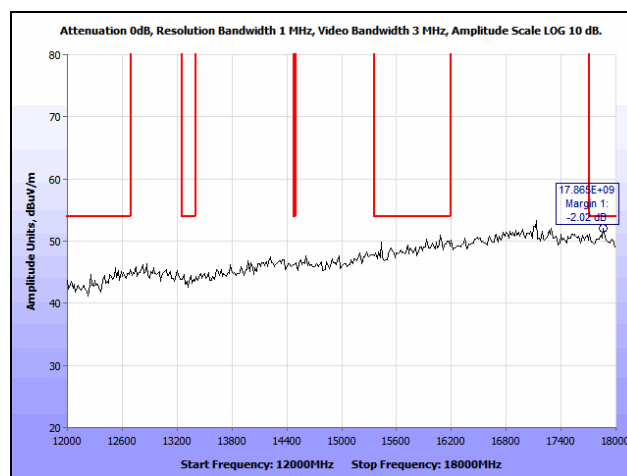
Radiated Spurious Emissions Test Results, PIFA, 802.11n 20 MHz, 5 GHz



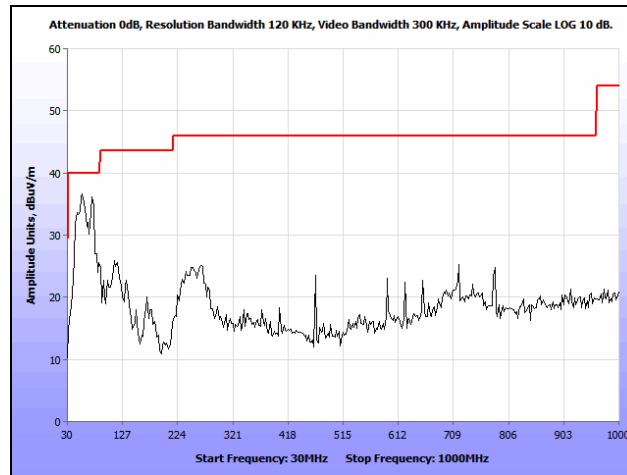
Plot 182. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5745, 30 MHz - 1 GHz



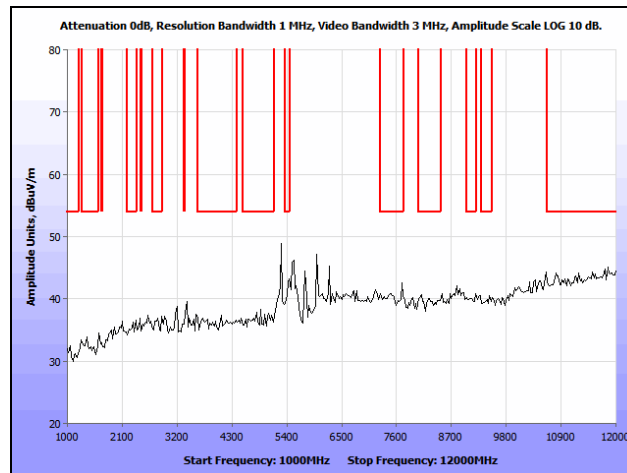
Plot 183. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5745 MHz, 1 GHz - 12 GHz



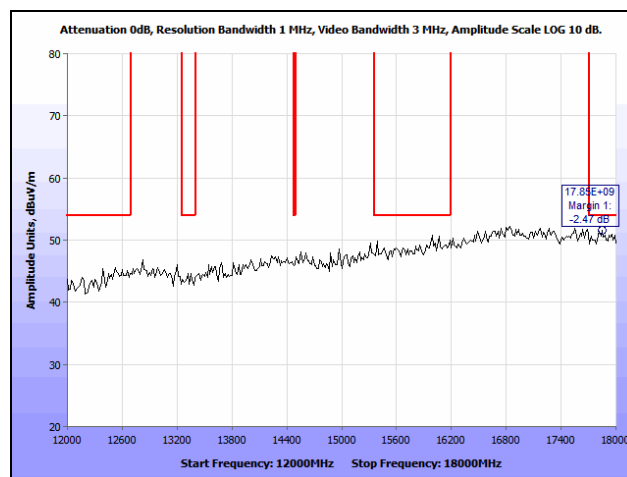
Plot 184. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5745 MHz, 12 GHz - 18 GHz



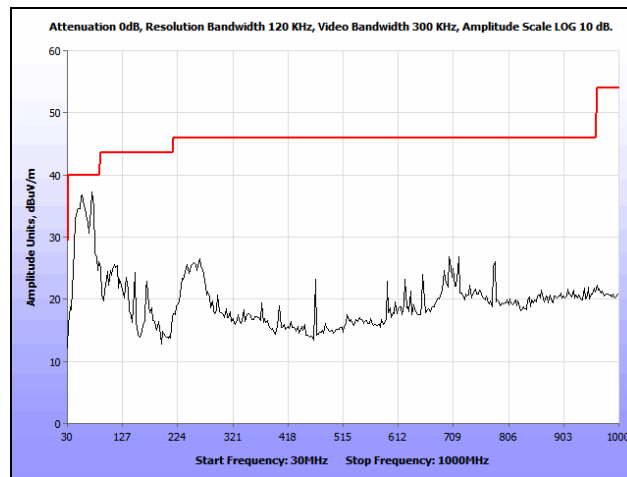
Plot 185. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5785 MHz, 30 MHz - 1 GHz



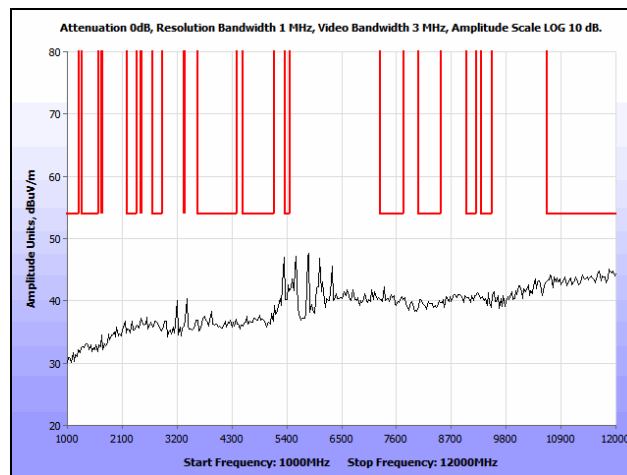
Plot 186. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5785 MHz, 1 GHz - 12 GHz



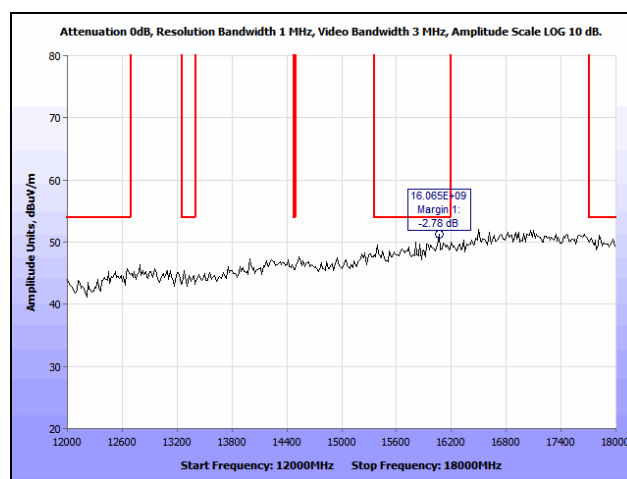
Plot 187. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5785 MHz, 12 GHz - 18 GHz



Plot 188. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5825 MHz, 30 MHz - 1 GHz

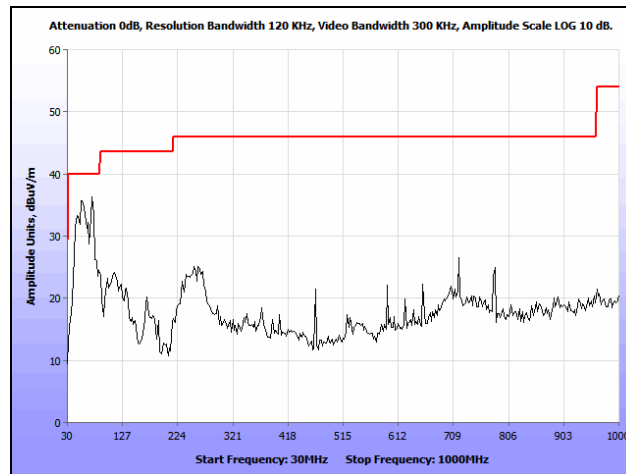


Plot 189. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5825 MHz, 1 GHz - 12 GHz

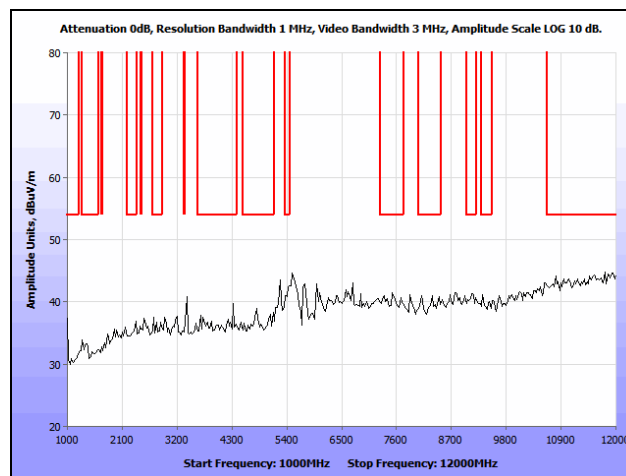


Plot 190. Radiated Spurious Emissions, PIFA, 802.11n 20 MHz, 5825 MHz, 12 GHz - 18 GHz

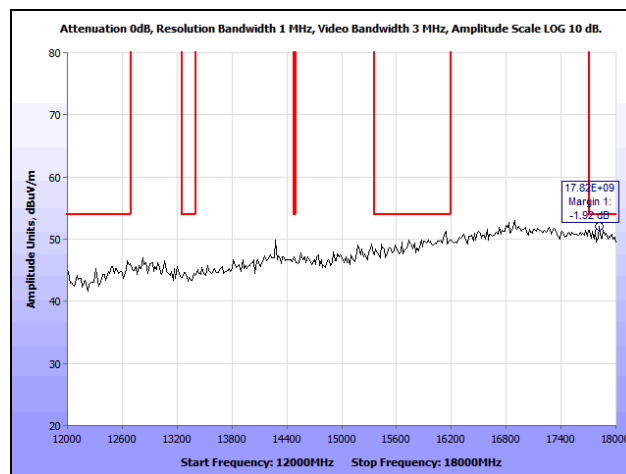
Radiated Spurious Emissions Test Results, PIFA, 802.11n 40 MHz, 5 GHz



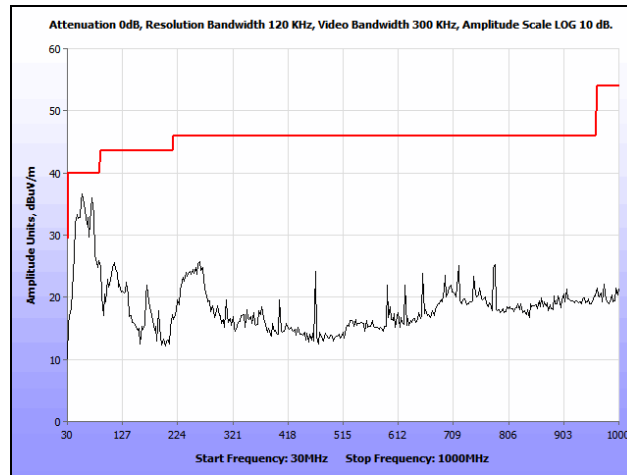
Plot 191. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5755 MHz, 30 MHz - 1 GHz



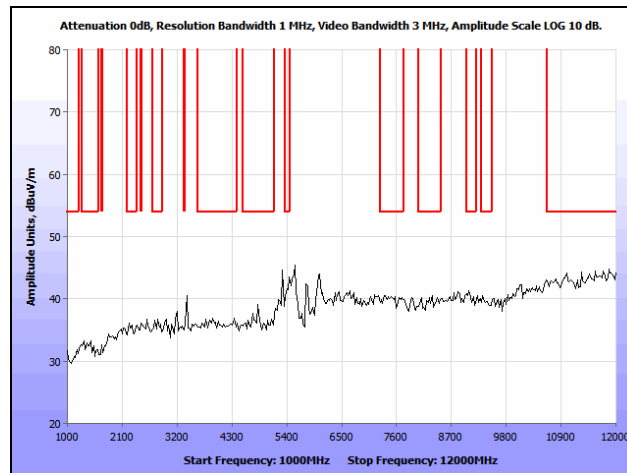
Plot 192. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5755 MHz, 1 GHz - 12 GHz



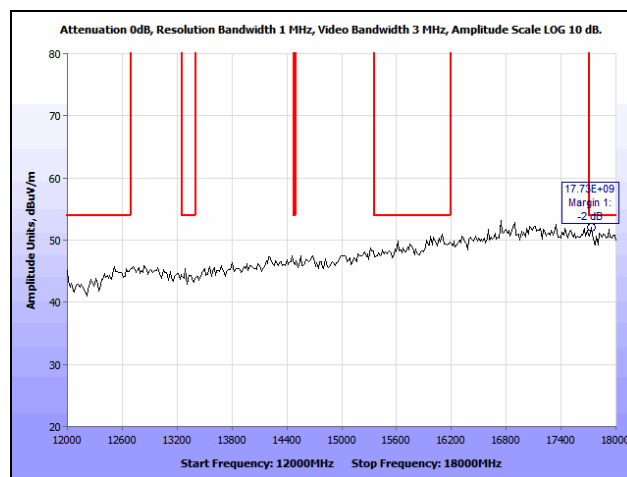
Plot 193. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5755 MHz, 12 GHz - 18 GHz



Plot 194. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5795 MHz, 30 MHz - 1 GHz

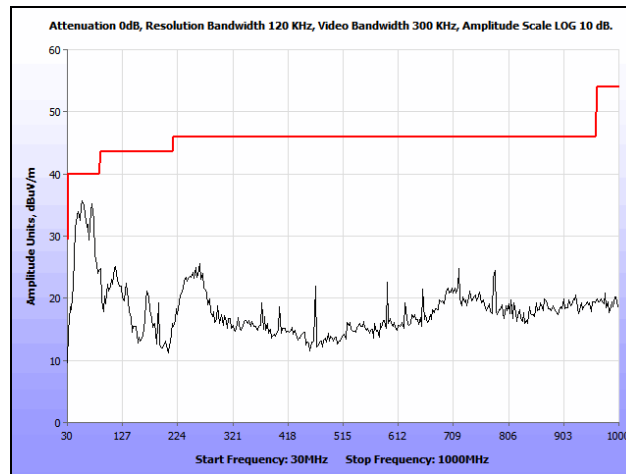


Plot 195. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5795 MHz, 1 GHz - 12 GHz

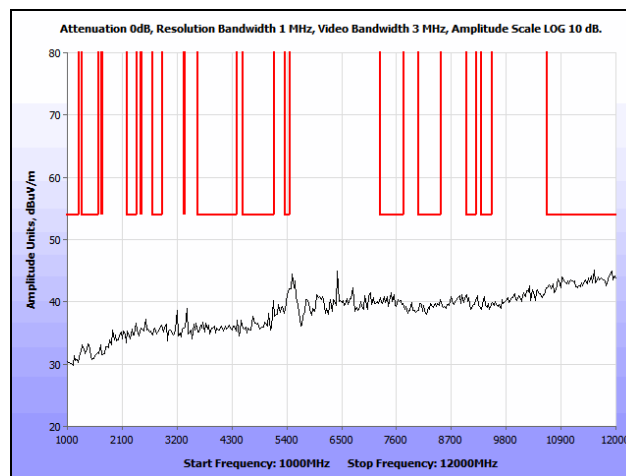


Plot 196. Radiated Spurious Emissions, PIFA, 802.11n 40 MHz, 5795 MHz, 12 GHz - 18 GHz

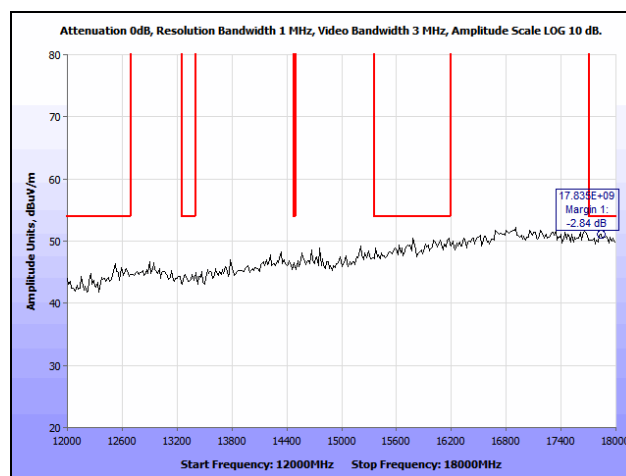
Radiated Spurious Emissions Test Results, PIFA, 802.11n 80 MHz, 5 GHz



Plot 197. Radiated Spurious Emissions, PIFA, 802.11n 80 MHz, 5775 MHz, 30 MHz - 1 GHz



Plot 198. Radiated Spurious Emissions, PIFA, 802.11n 80 MHz, 5775 MHz, 1 GHz - 12 GHz

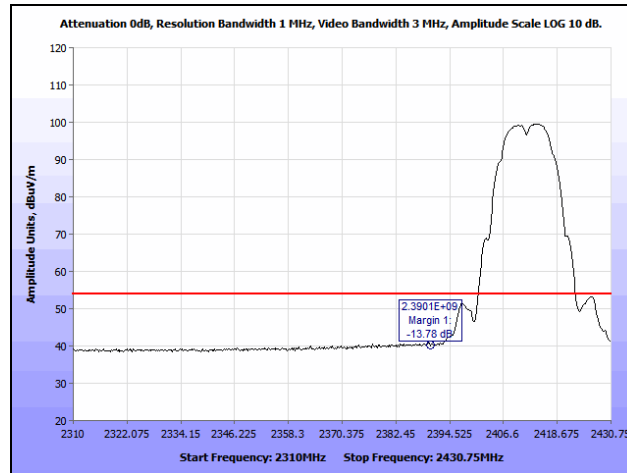


Plot 199. Radiated Spurious Emissions, PIFA, 802.11n 80 MHz, 5775 MHz, 12 GHz - 18 GHz

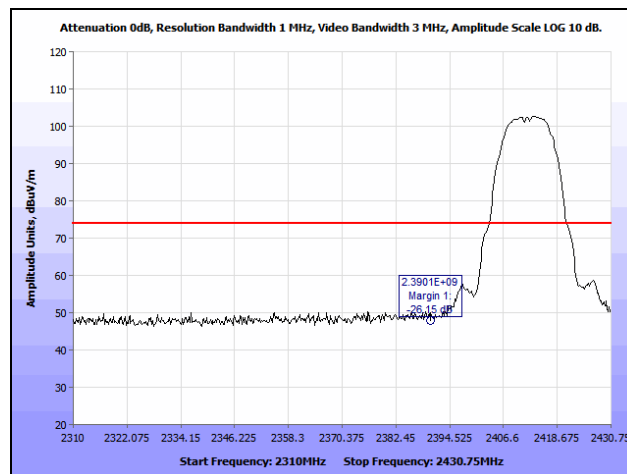
Radiated Band Edge Measurements

Test Procedures: The transmitter was turned on. Measurements were performed of the low 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. The number of points used for average measurements were (2xspan/RBW).

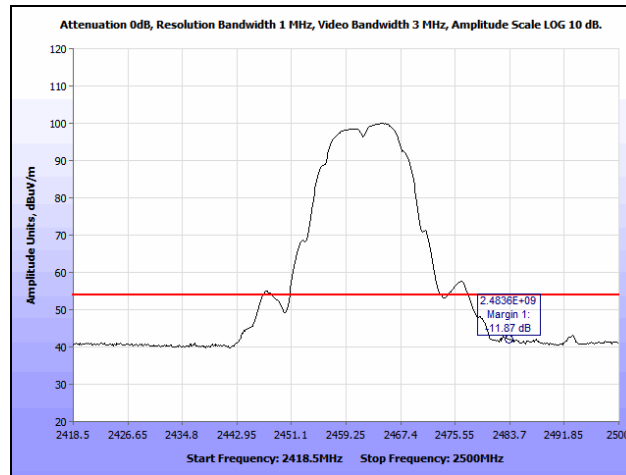
Restricted Band Edge Test Results, Internal PIFA, 802.11b 20 MHz, 2.4 GHz



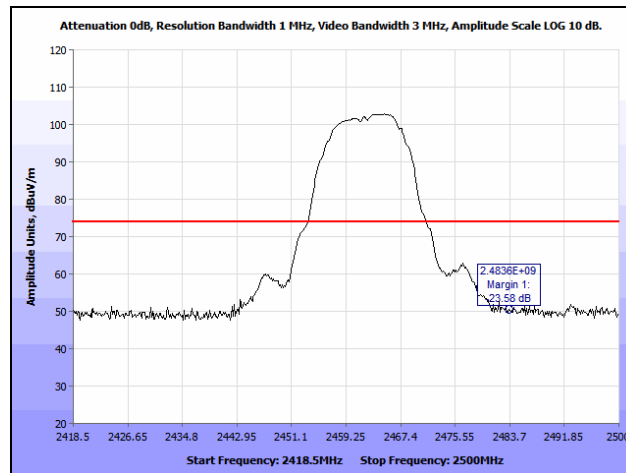
Plot 200. Restricted Band Edge, Internal PIFA, 802.11b 20 MHz, 2412 MHz, Average



Plot 201. Restricted Band Edge, Internal PIFA, 802.11b 20 MHz, 2412 MHz, Peak

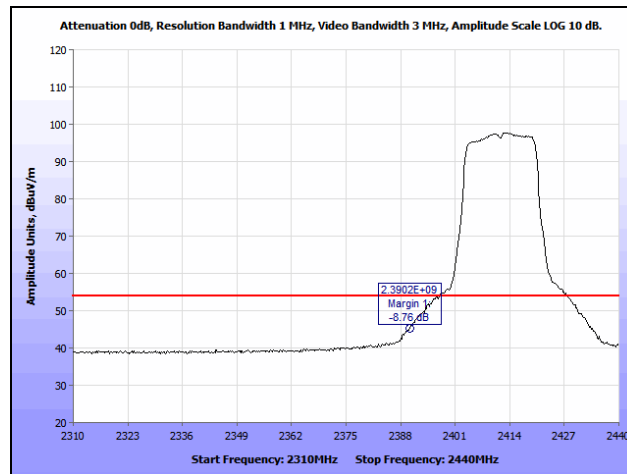


Plot 202. Restricted Band Edge, Internal PIFA, 802.11b 20 MHz, 2462 MHz, Average

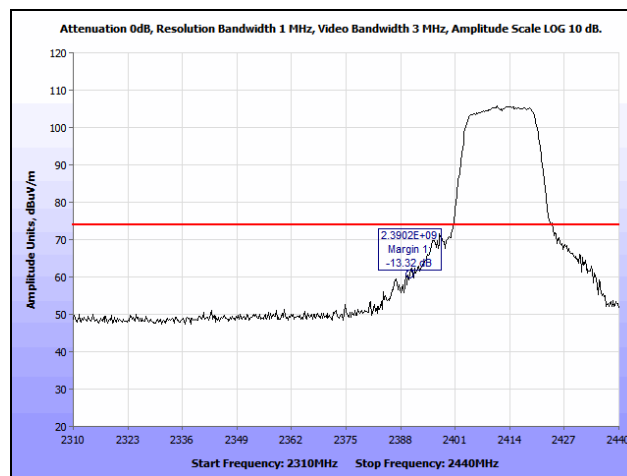


Plot 203. Restricted Band Edge, Internal PIFA, 802.11b 20 MHz, 2462 MHz, Peak

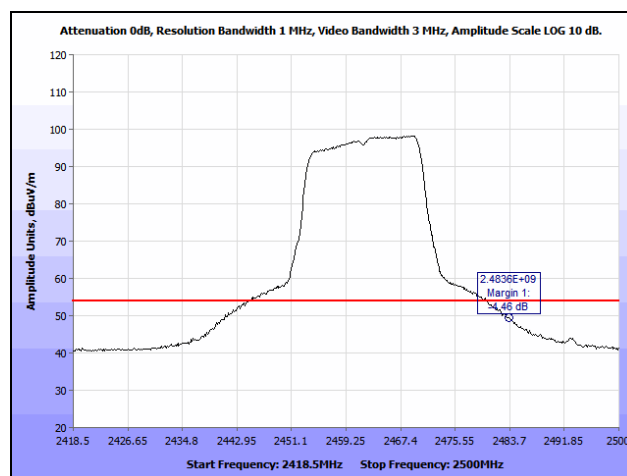
Restricted Band Edge Test Results, Internal PIFA, 802.11g 20 MHz, 2.4 GHz



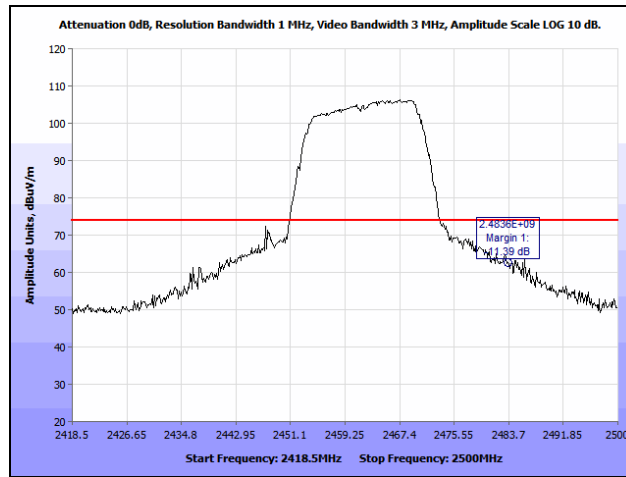
Plot 204. Restricted Band Edge, Internal PIFA, 802.11g 20 MHz, 2412 MHz, Average



Plot 205. Restricted Band Edge, Internal PIFA, 802.11g 20 MHz, 2412 MHz, Peak

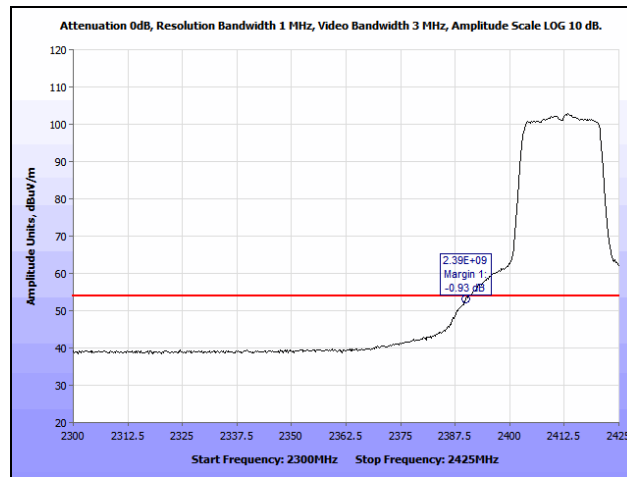


Plot 206. Restricted Band Edge, Internal PIFA, 802.11g 20 MHz, 2462 MHz, Average

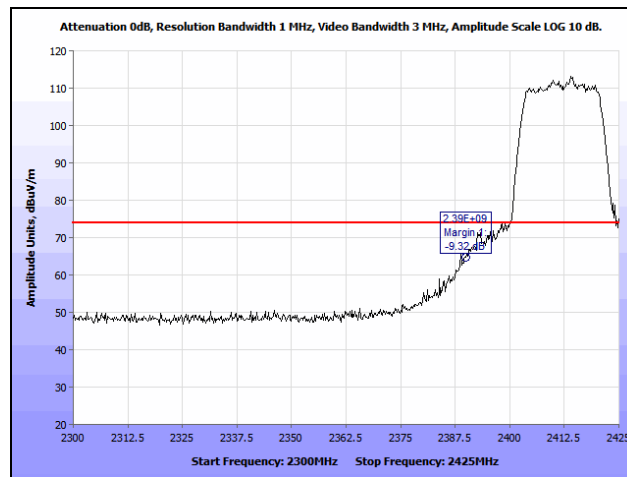


Plot 207. Restricted Band Edge, Internal PIFA, 802.11g 20 MHz, 2462 MHz, Peak

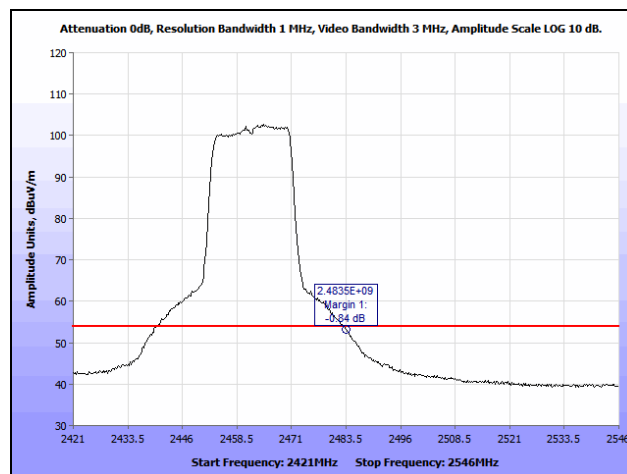
Restricted Band Edge Test Results, Internal PIFA, 802.11n 20 MHz, 2.4 GHz



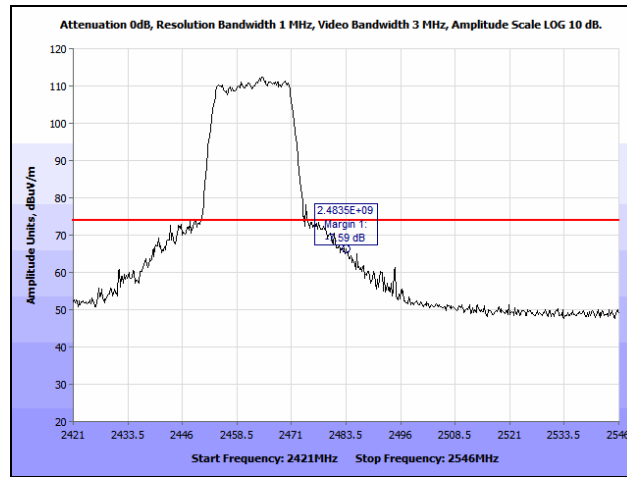
Plot 208. Restricted Band Edge, Internal PIFA, 802.11n 20 MHz, 2412 MHz, Average



Plot 209. Restricted Band Edge, Internal PIFA, 802.11n 20 MHz, 2412 MHz, Peak

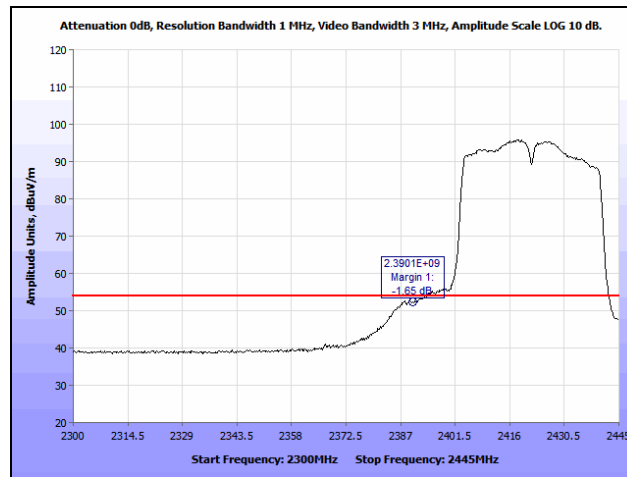


Plot 210. Restricted Band Edge, Internal PIFA, 802.11n 20 MHz, 2462 MHz, Average

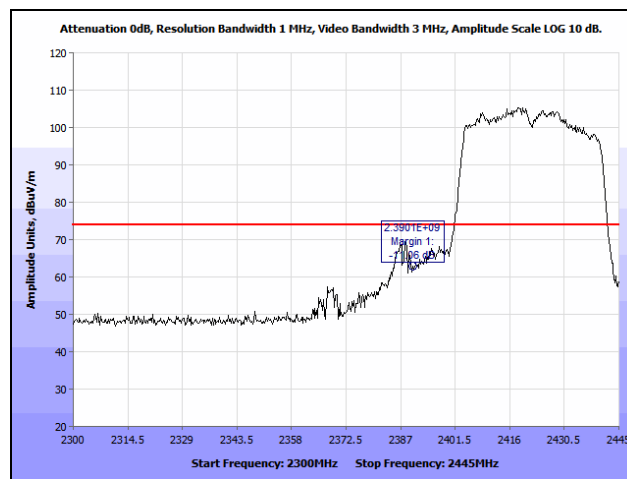


Plot 211. Restricted Band Edge, Internal PIFA, 802.11n 20 MHz, 2462 MHz, Peak

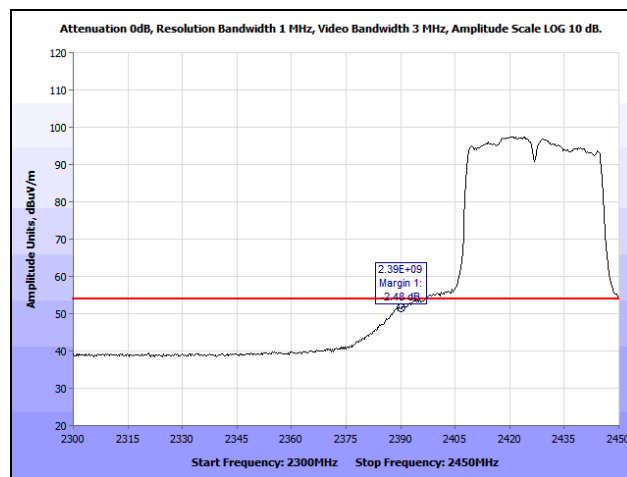
Restricted Band Edge Test Results, Internal PIFA, 802.11n 40 MHz, 2.4 GHz



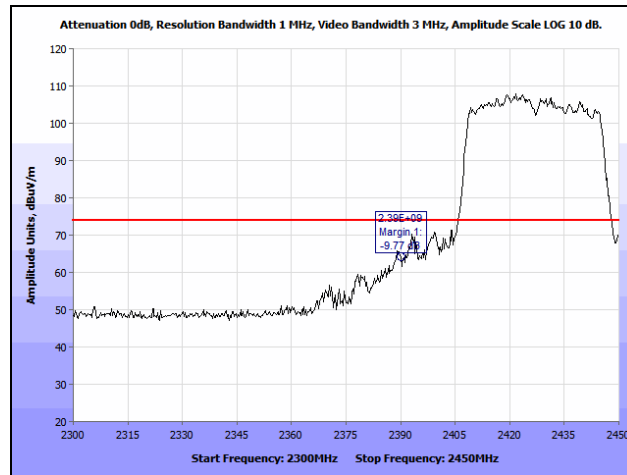
Plot 212. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2422MHz, Average



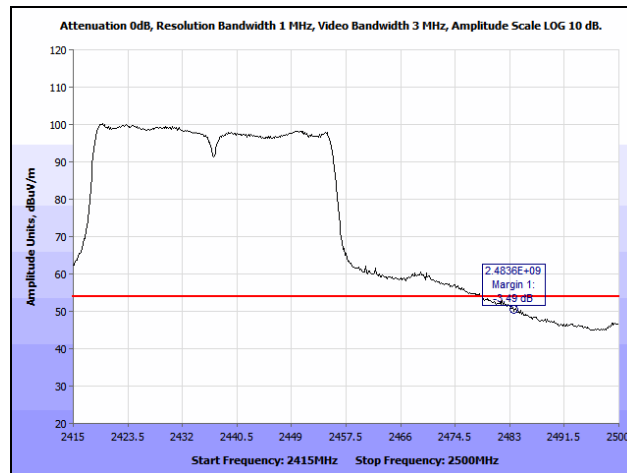
Plot 213. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2422MHz, Peak



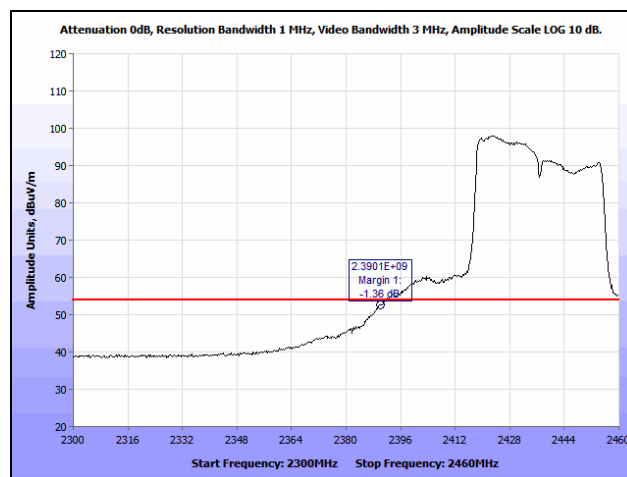
Plot 214. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2427 MHz, Average



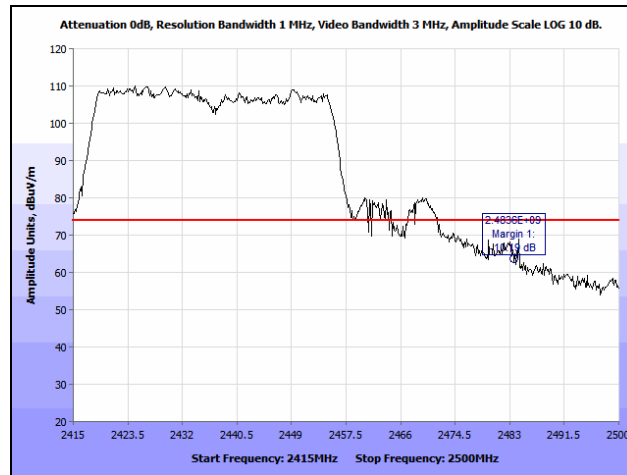
Plot 215. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2427 MHz, Peak



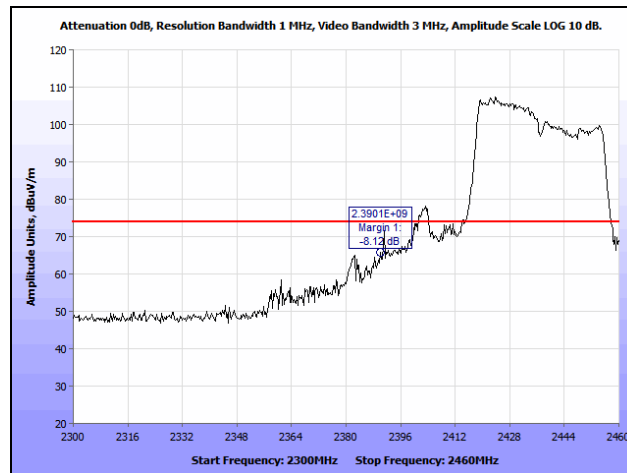
Plot 216. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2437 MHz Channel 6, Average @ 2483.5 MHz)



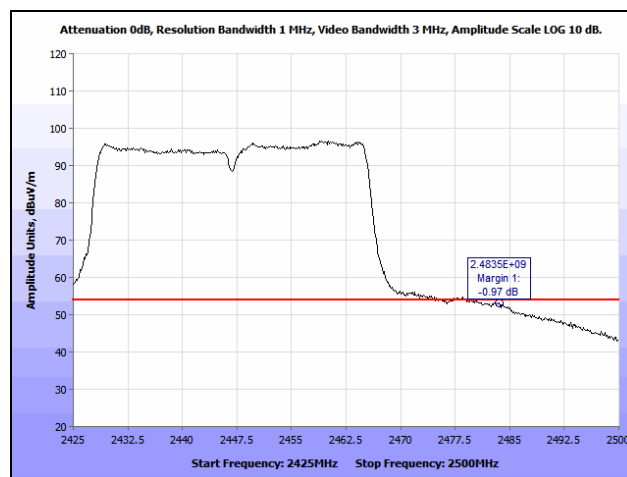
Plot 217. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2427 MHz, Channel 6, Average



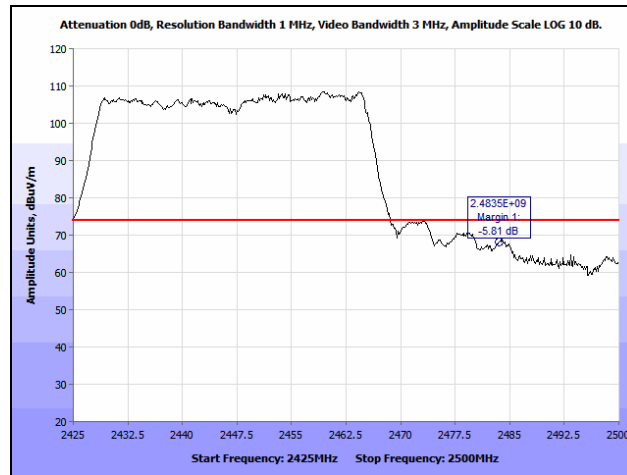
Plot 218. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2427 MHz, Channel 6, Peak @ 2483.5 MHz



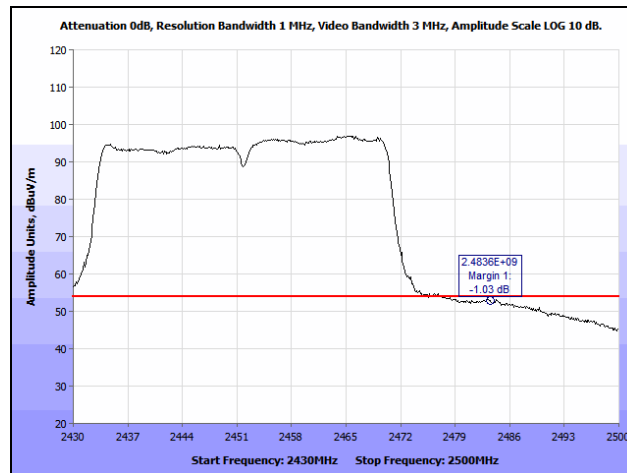
Plot 219. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2427 MHz, Channel 6, Peak



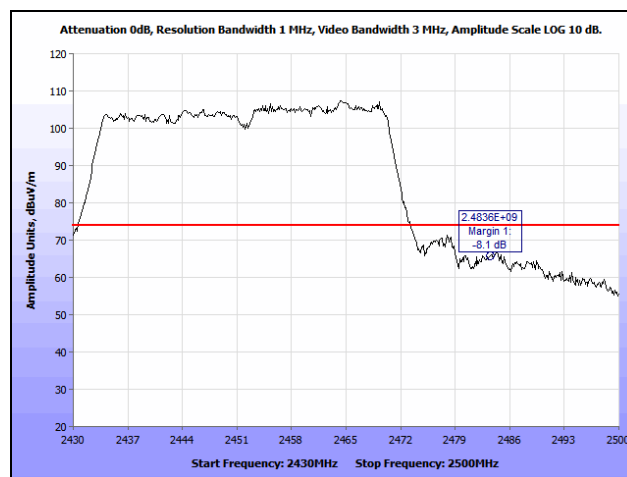
Plot 220. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2452 MHz, Channel 10, Average



Plot 221. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2452 MHz, Channel 10, Peak



Plot 222. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2452 MHz, Average



Plot 223. Restricted Band Edge, Internal PIFA, 802.11n 40 MHz, 2452 MHz, Peak