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June 12, 2015

Arris Group Inc.
3871 Lakefield Drive, Suite 300
Suwanee, GA 30024

Dear Tony Figueiredo,

Enclosed is the EMC Wireless test report for Class II Permissive Change compliance testing of the Arris Group Inc., TG1682G as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Title 47 of the CFR, Part 15.407, Subpart E 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: (\Arris Group Inc.\EMC41689-FCC407 UNII 2 Rev. 2)

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Electromagnetic Compatibility Criteria
Class II Permissive Change Test Report

for the

Arris Group Inc.
Model TG1682G

Tested under
the Certification Rules
contained in
Title 47 of the CFR, Part 15.407 Subpart E
for Intentional Radiators

MET Report: EMC41689-FCC407 UNII 2 Rev. 2

June 12, 2015

Prepared For:

Arris Group Inc.
3871 Lakefield Drive, Suite 300
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Prepared By:
MET Laboratories, Inc.
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Baltimore, MD 21230

Electromagnetic Compatibility Criteria
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Tested under
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contained in
Title 47 of the CFR, Part 15.407 Subpart E
for Intentional Radiators

Surinder Singh, Project Engineer
Electromagnetic Compatibility Lab

Jennifer Warnell
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 15.407 of the FCC Rules under normal use and maintenance.

Asad Bajwa,
Director, Electromagnetic Compatibility Lab

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Report Status Sheet

Revision	Report Date	Reason for Revision
∅	May 21, 2015	Initial Issue.
1	June 9, 2015	Engineer corrections.
2	June 12, 2015	Editorial corrections.

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List of Terms and Abbreviations

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

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I. Executive Summary

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A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Arris Group Inc. TG1682G, with the requirements of Part 15, §15.407. 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 TG1682G. Arris Group Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the TG1682G, 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, §15.407, in accordance with Arris Group Inc., purchase order number 8075549. All tests were conducted using measurement procedure ANSI C63.4-2003.

FCC Reference	Description	Results
§15.203	Antenna Requirements	Compliant
§15.207(a)	AC Conducted Emissions 150KHz – 30MHz	Compliant
§15.403(i)(e)	26dB Occupied Bandwidth	Compliant
§15.407 (a)(1)(i) & §15.407 (a)(3)	Conducted Transmitter Output Power	Compliant
§15.407 (a)(1)(i) & §15.407 (a)(3)	Power Spectral Density	Compliant
§15.407 (b)(1), (4), (6), (7)	Undesirable Emissions (15.205/15.209 - General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Compliant
§15.407(f)	RF Exposure	Compliant
15.407 (h)(1)	TPC	Compliant
15.407 (h)(2)(ii)	Initial Channel Availability Check Time	Compliant
15.407 (h)(2)	DFS Detection Bandwidth	Compliant
15.407 (h)(2)(ii)	Radar Burst at the Beginning of Channel Availability Check Time	Compliant
15.407 (h)(2)(ii)	Radar Burst at the End of Channel Availability Check Time	Compliant
15.407 (h)(2)(iii)	Channel Move Time and Channel Closing Time	Compliant
15.407 (h)(2)(iv)	Non-Occupancy Period	Compliant
15.407 (h)(2)	Statistical Performance Check	Compliant

Table 1. Executive Summary of EMC Part 15.407 ComplianceTesting

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II. Equipment Configuration

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A. Overview

MET Laboratories, Inc. was contracted by Arris Group Inc. to perform testing on the TG1682G, under Arris Group Inc.'s purchase order number 8075549.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Arris Group Inc. TG1682G.

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

Model(s) Tested:	TG1682G	
Model(s) Covered:	TG1682G	
EUT Specifications:	Primary Power: 120 VAC, 60 Hz	
	Class II Permissive Change FCC ID: UIDTG1682	
	Type of Modulations:	OFDM
	Equipment Code:	NII
	Peak RF Output Power:	21.79dBm, 22.78dBm
	EUT Frequency Ranges:	5260-5320MHz, 5500-5700MHz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35º C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Surinder Singh	
Report Date(s):	June 12, 2015	

Table 2. EUT Summary

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B. References

CFR 47, Part 15, Subpart E	Unlicensed National Information Infrastructure Devices (UNII)
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
FCC Knowledge database	FCC Publication 789033
FCC Knowledge database	FCC Publication 905462 D02 UNII DFS Compliance Procedures

Table 3. References

C. Test Site

All testing was performed at MET Laboratories, Inc., 914 W. Patapsco Ave., Baltimore, MD 21230. 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 3 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 Arris Group Inc. TG1682G, Equipment Under Test (EUT), is a residential gateway incorporating two analog voice lines, DECT 6.0 wireless voice, a 4-port Gigabit Router, MoCA 2.0 and a Dual Band 802.11ac wireless access point.

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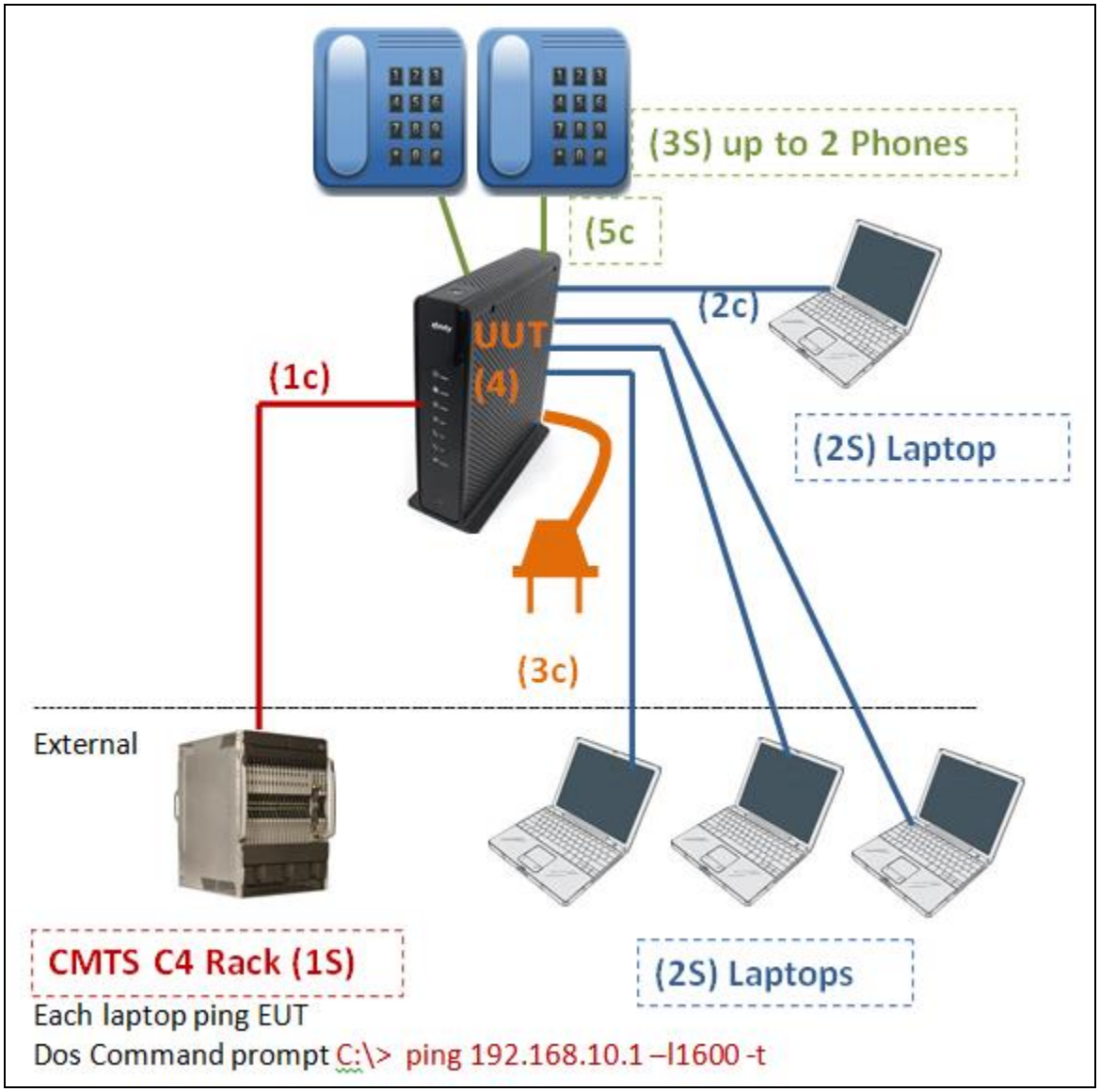

Figure 1. Block Diagram of Equipment Configuration

E. Equipment Configuration

Ref. ID	Name / Description	Model Number	Serial Number	Rev. #
4	UUT	TG1682G	--	--

Table 4. Equipment Configuration

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F. Support Equipment

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

Ref. ID	Name / Description	Manufacturer	Model Number
1s	ARRIS CMTS C4	Arris	N/A
2s	Laptops	Assorted	N/A
3s	Telephones	AT&T	N/A

Table 5. Support Equipment

G. Ports and Cabling Information

Ref. ID	Port name on EUT	Cable Description or reason for no cable	Qty	Length as tested (m)	Max Length (m)	Shielded? (Y/N)	Termination Box ID & Port Name
1C	RF	RG6 Coax	1	10	10	Yes	
2C	Ethernet	5e Modular 8 pin	1	1	1	No	
3C	AC Input	2 conductor, 18 AWG	1	2	2	No	(115v/60hz)
4C	Telephone 1	RJ-11	1	1	1	No	
5C	Telephone 2	RJ-11	1	1	1	No	
6C	Ethernet	5e Modular 8 pin	3	6	6	No	

Table 6. Ports and Cabling Information

H. Mode of Operation

Normal operation is the modem ranged and registered over the RF coax on a headend system CMTS. Traffic is passed through the Ethernet port and calls are made on each line.

I. Method of Monitoring EUT Operation

All indicator lights are active on the modem front and no loss of telephony connection and no loss of data packets.

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 Arris Group Inc. upon completion of testing.

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III. Electromagnetic Compatibility Criteria for Intentional Radiators

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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 to the criteria of §15.203. EUT has an internal antenna.

Test Engineer(s): Surinder Pal Singh

Test Date(s): 04/11/15

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Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.207 Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 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 (dBμV)	
	Quasi-Peak	Average
* 0.15- 0.45	66 – 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

Table 7. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

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

Test Results: The EUT as tested is Compliant to the criteria of §15.207.

Test Engineer(s): Surinder Singh

Test Date(s): 4/23/2015

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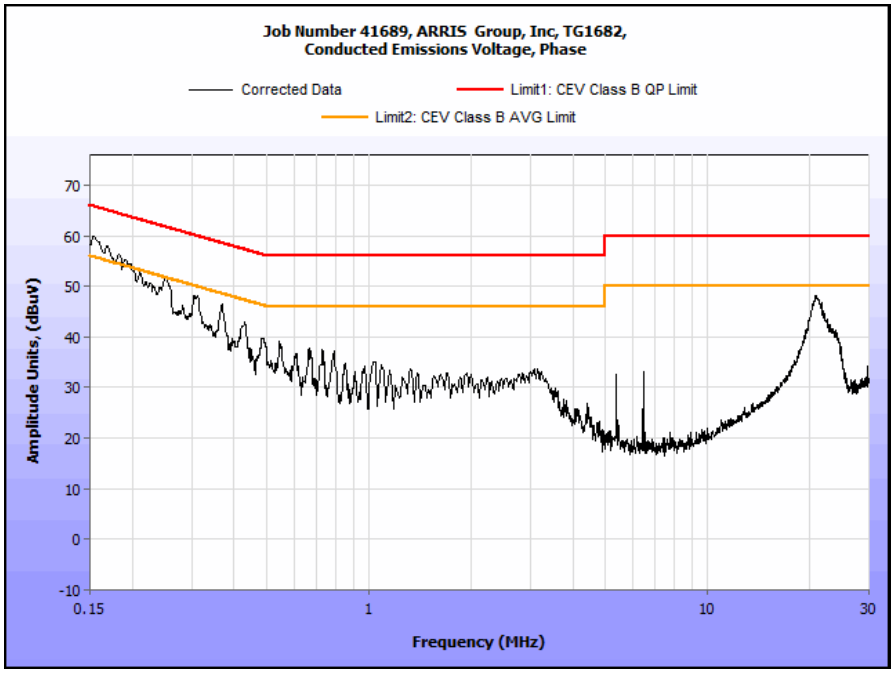
15.207(a) Conducted Emissions Test Results

Frequency (MHz)	Uncorrected Meter Reading (dBµV) QP	Cable Loss (dB)	Corrected Measurement (dBµV) QP	Limit (dBµV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBµV) Avg.	Cable Loss (dB)	Corrected Measurement (dBµV) AVG	Limit (dBµV) AVG	Margin (dB) AVG
0.16	53.29	0	53.29	65.46	-12.17	44.91	0	44.91	55.46	-10.55
0.25	48.65	0	48.65	61.76	-13.11	35.49	0	35.49	51.76	-16.27
21.49	38.75	0	38.75	60	-21.25	30.18	0	30.18	50	-19.82

Table 8. Conducted Emissions, 15.207(a), Phase Line, Test Results



Plot 1. Conducted Emissions, 15.207(a), Phase Line

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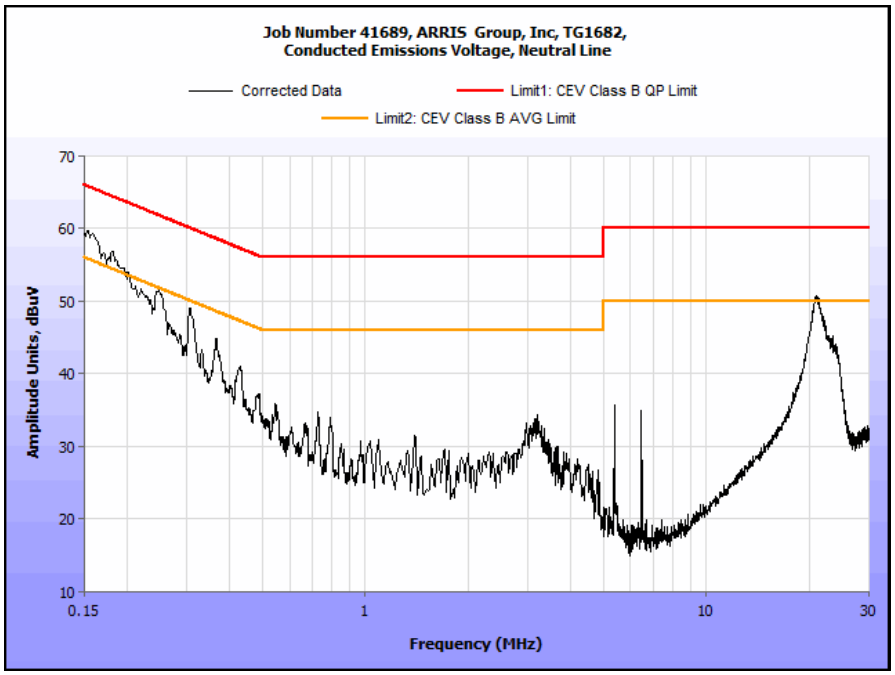
15.207(a) Conducted Emissions Test Results

Frequency (MHz)	Uncorrected Meter Reading (dBµV) QP	Cable Loss (dB)	Corrected Measurement (dBµV) QP	Limit (dBµV) QP	Margin (dB) QP	Uncorrected Meter Reading (dBµV) Avg.	Cable Loss (dB)	Corrected Measurement (dBµV) AVG	Limit (dBµV) AVG	Margin (dB) AVG
0.16	51.49	0	51.49	65.46	-13.97	39.28	0	39.28	55.46	-16.18
0.26	49.19	0	49.19	61.43	-12.24	34.62	0	34.62	51.43	-16.81
21.37	38.66	0	38.66	60	-21.34	28.75	0	28.75	50	-21.25

Table 9. Conducted Emissions, 15.207(a), Neutral Line, Test Results



Plot 4. Conducted Emissions, 15.207(a), Neutral Line

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15.207(a) Conducted Emissions Test Setup Photo

Photograph 1. Conducted Emissions, 15.207(a), Test Setup

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Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15. 403(i) 26dB Bandwidth

Test Requirements: **§ 15.403 (i):** For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Procedure: The transmitter was set to both operating frequencies at the highest output power and connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using a RBW approximately equal to 1% of the total emission bandwidth, VBW > RBW. The 26 dB Bandwidth was measured and recorded.

Test Results The 26 dB Bandwidth was compliant with the requirements of this section and was determined from the plots on the following pages.

Test Engineer(s): Surinder Singh

Test Date(s): 04/21/15

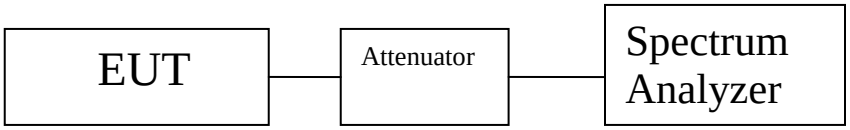

Figure 2. Occupied Bandwidth, Test Setup

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Occupied Bandwidth Test Results

26dB Occupied Bandwidth			
	Carrier Channel	**Frequency (MHz)**	**Occupied Bandwidth (MHz)**
802.11a 20 MHz	Channel 52	5260	21.239
	Channel 60	5300	21.044
	Channel 64	5320	20.948
	Channel 100	5500	20.208
	Channel 116	5580	21.286
	Channel 140	5700	20.275
802.11ac 20 MHz	Channel 52	5260	22.206
	Channel 60	5300	21.808
	Channel 64	5320	21.694
	Channel 100	5500	21.613
	Channel 116	5580	22.268
	Channel 140	5700	21.548
802.11ac 40 MHz	Channel 52	5270	43.433
	Channel 60	5310	42.859
	Channel 100	5510	42.224
	Channel 116	5590	42.274
	Channel 136	5690	42.189
802.11n 20 MHz	Channel 52	5260	21.762
	Channel 60	5300	22.087
	Channel 64	5320	21.711
	Channel 100	5500	21.830
	Channel 116	5580	21.261
	Channel 140	5700	22.027
802.11n 40 MHz	Channel 52	5270	43.069
	Channel 60	5310	42.101
	Channel 100	5510	43.220
	Channel 116	5590	42.318
	Channel 136	5690	42.005
802.11ac 80 MHz	Channel 52	5290	86.217
	Channel 100	5530	85.645
	Channel 116	5610	85.810
	Channel 128	5690	84.807

Table 8. 26 dB Occupied Bandwidth, Test Results

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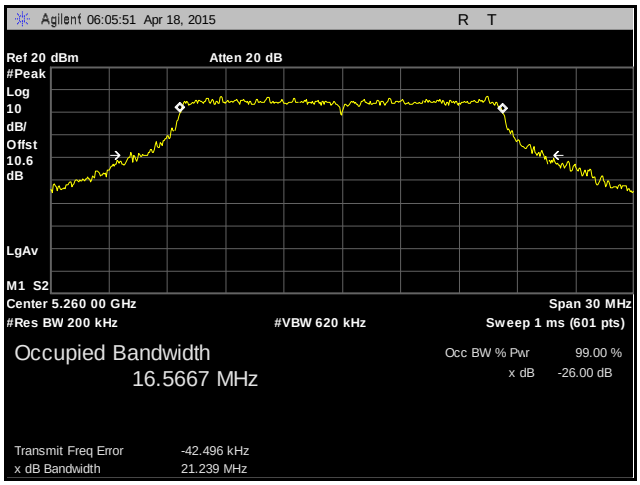
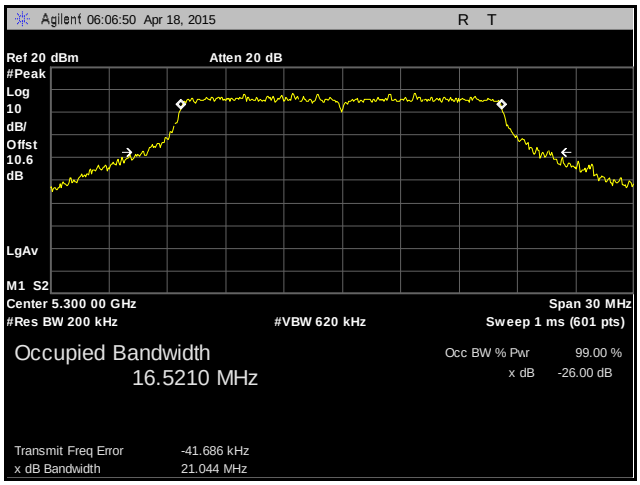
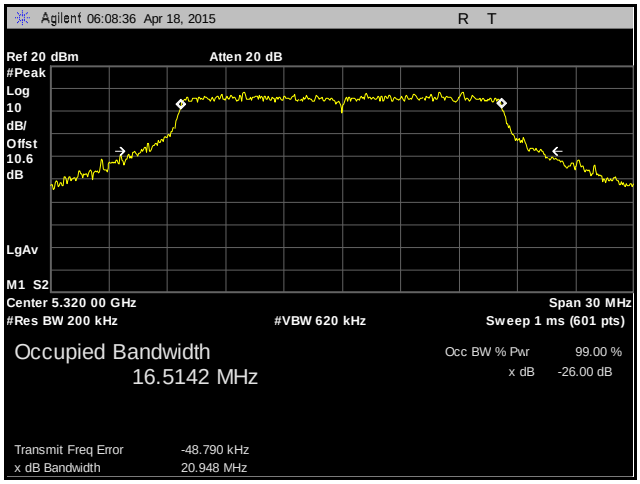
26 dB Occupied Bandwidth, 802.11a 20 MHz



Plot 1. 26 dB Occupied Bandwidth, Channel 52, 802.11a 20 MHz, 5260 MHz



Plot 2. 26 dB Occupied Bandwidth, Channel 60, 802.11a 20 MHz, 5300 MHz



Plot 3. 26 dB Occupied Bandwidth, Channel 64, 802.11a 20 MHz, 5320 MHz

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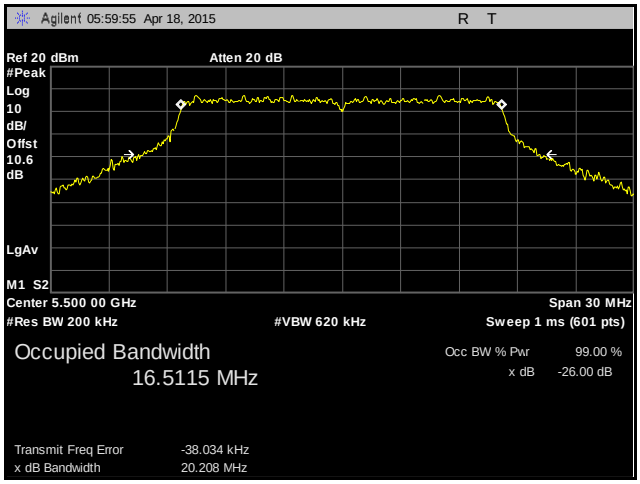
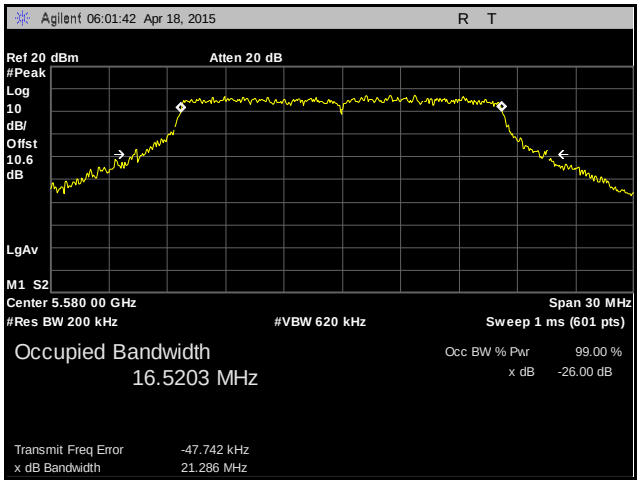
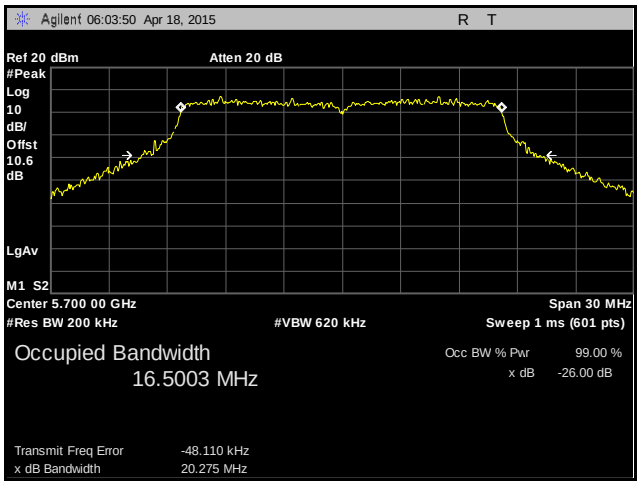


Plot 4. 26 dB Occupied Bandwidth, Channel 100, 802.11a 20 MHz, 5500 MHz



Plot 5. 26 dB Occupied Bandwidth, Channel 116, 802.11a 20 MHz, 5580 MHz



Plot 6. 26 dB Occupied Bandwidth, Channel 140, 802.11a 20 MHz, 5700 MHz

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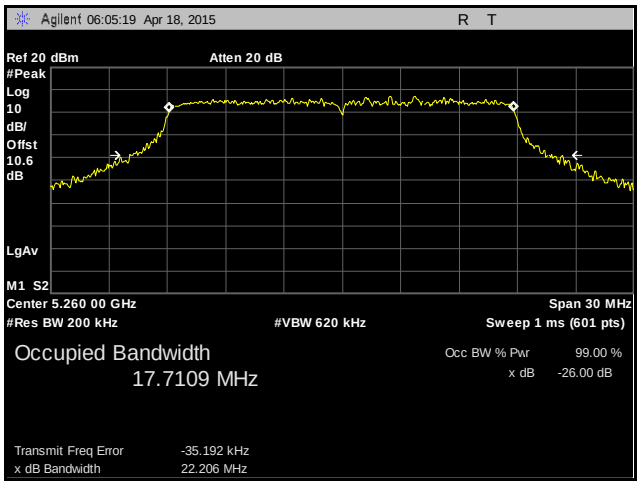
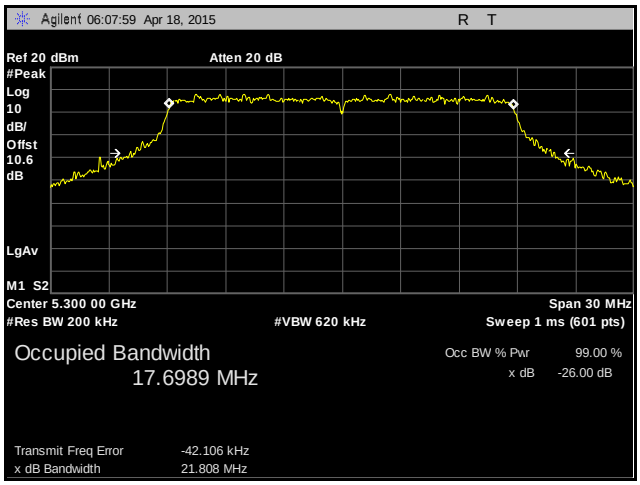
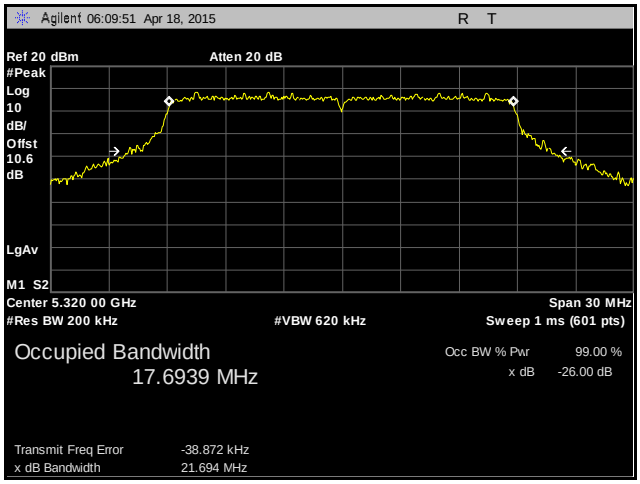
26 dB Occupied Bandwidth, 802.11ac 20 MHz



Plot 7. 26 dB Occupied Bandwidth, Channel 52, 802.11ac 20 MHz, 5260 MHz



Plot 8. 26 dB Occupied Bandwidth, Channel 60, 802.11ac 20 MHz, 5300 MHz



Plot 9. 26 dB Occupied Bandwidth, Channel 64, 802.11ac 20 MHz, 5320 MHz

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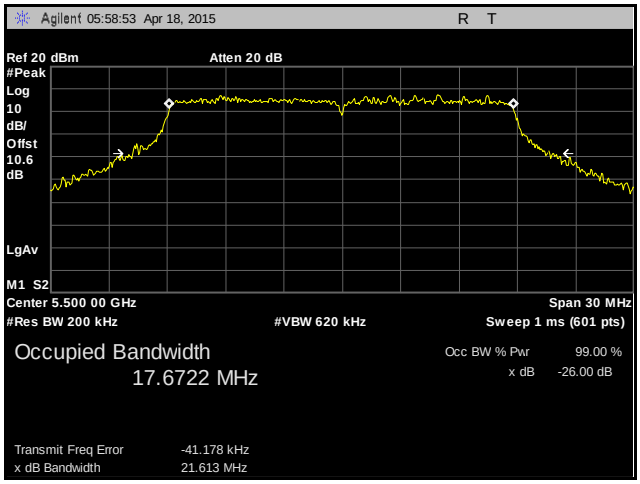
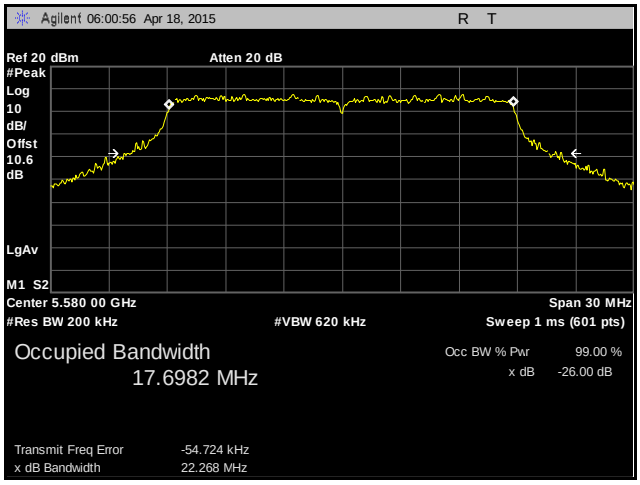
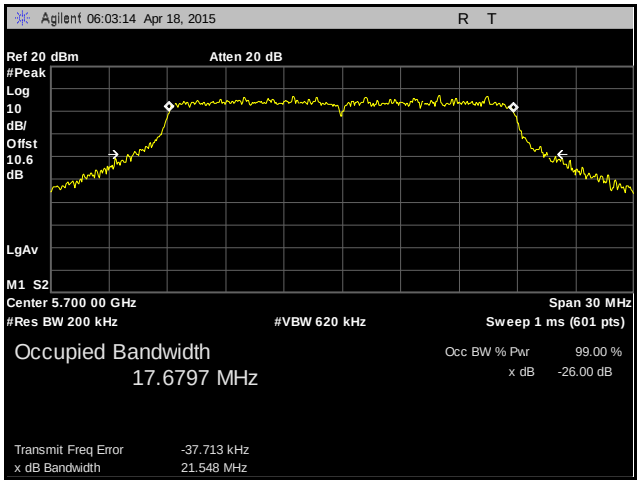


Plot 10. 26 dB Occupied Bandwidth, Channel 100, 802.11ac 20 MHz, 5500 MHz



Plot 11. 26 dB Occupied Bandwidth, Channel 116, 802.11ac 20 MHz, 5580 MHz



Plot 12. 26 dB Occupied Bandwidth, Channel 140, 802.11ac 20 MHz, 5700 MHz

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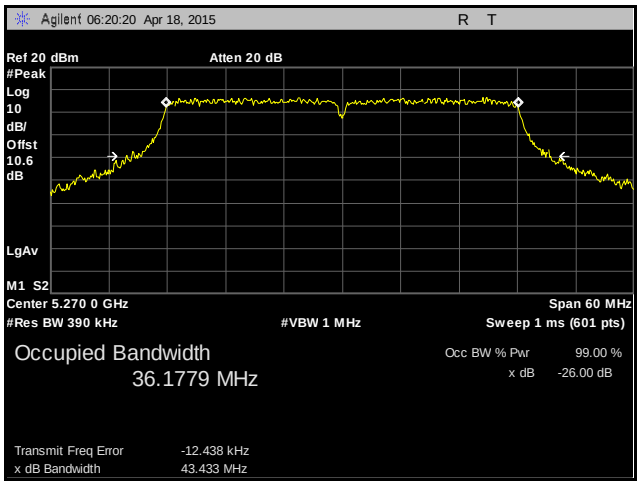
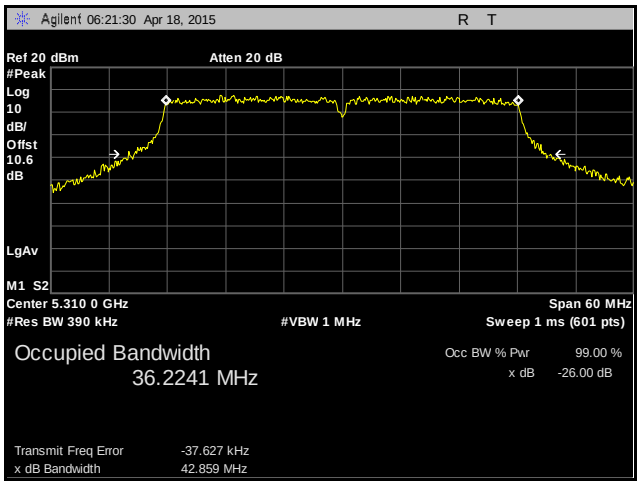
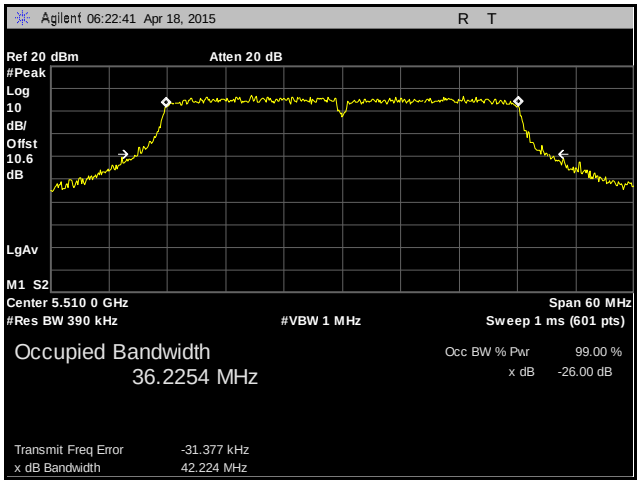
26 dB Occupied Bandwidth, 802.11ac 40 MHz



Plot 13. 26 dB Occupied Bandwidth, Channel 52, 802.11ac 40 MHz, 5270 MHz



Plot 14. 26 dB Occupied Bandwidth, Channel 52, 802.11ac 40 MHz, 5310 MHz



Plot 15. 26 dB Occupied Bandwidth, Channel 100, 802.11ac 40 MHz, 5510 MHz

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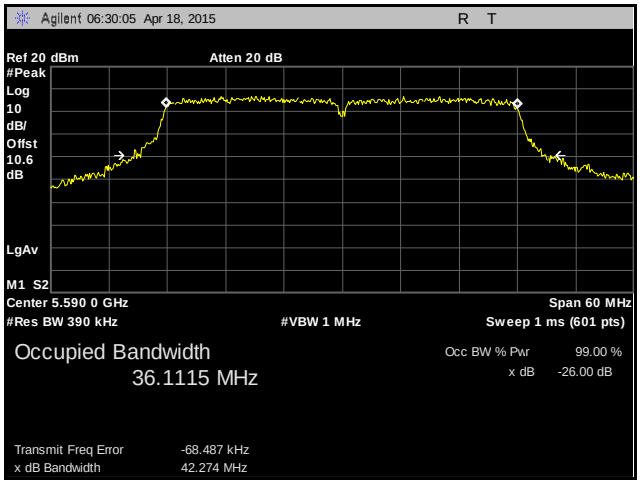
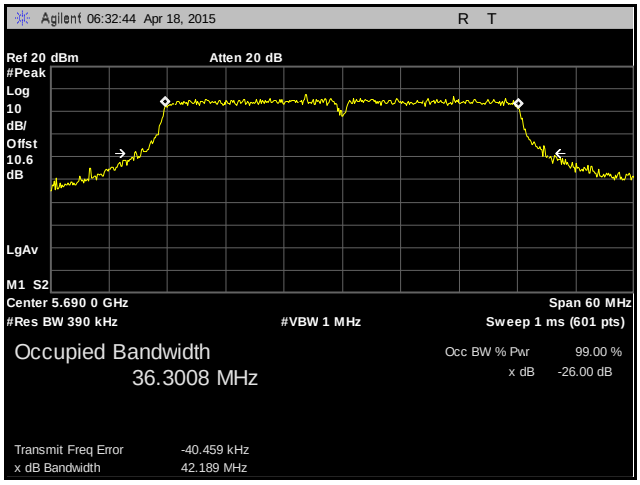


Plot 16. 26 dB Occupied Bandwidth, Channel 116, 802.11ac 40 MHz, 5590 MHz



Plot 17. 26 dB Occupied Bandwidth, Channel 136, 802.11ac 40 MHz, 5690 MHz

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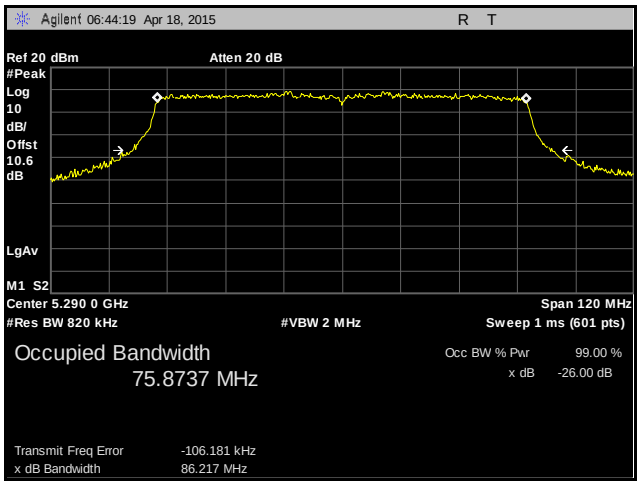
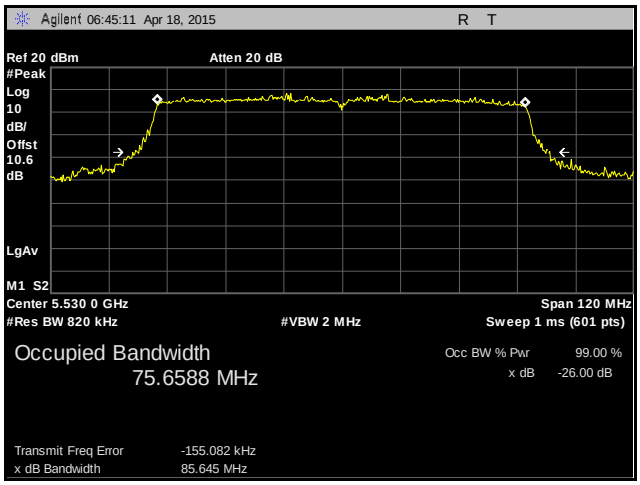
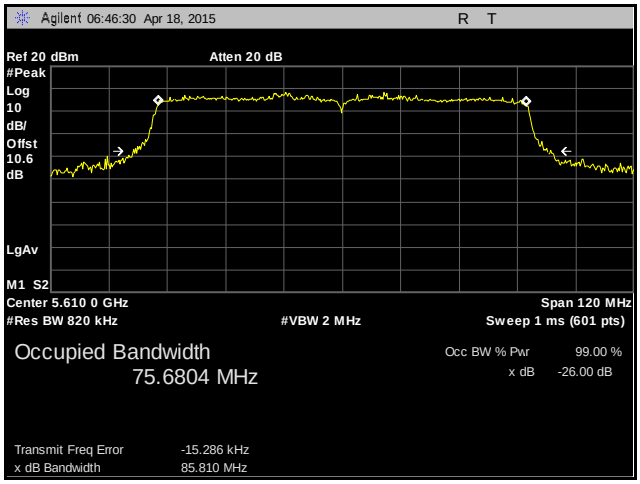
26 dB Occupied Bandwidth, 802.11ac 80 MHz



Plot 18. 26 dB Occupied Bandwidth, Channel 52, 802.11ac 80 MHz, 5290 MHz

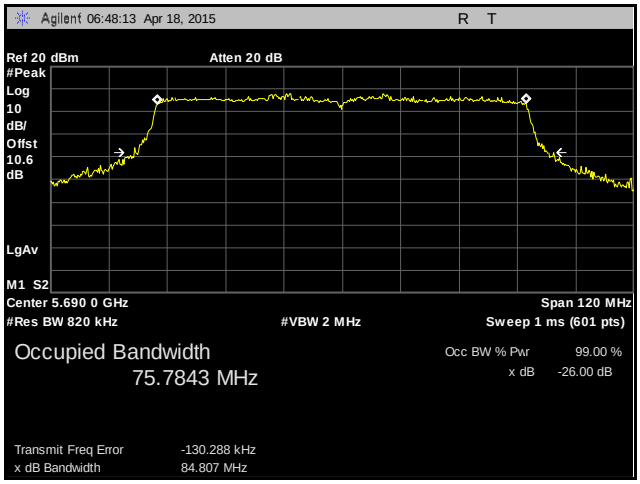


Plot 19. 26 dB Occupied Bandwidth, Channel 100, 802.11ac 80 MHz, 5530 MHz



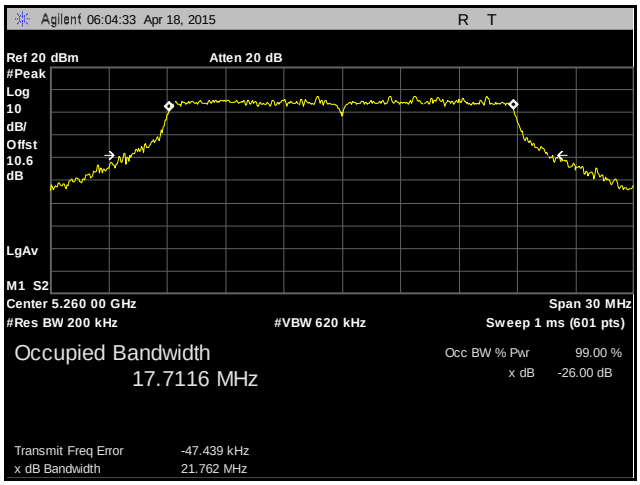
Plot 20. 26 dB Occupied Bandwidth, Channel 116, 802.11ac 80 MHz, 5610 MHz

 © 2015, MET Laboratories, Inc.

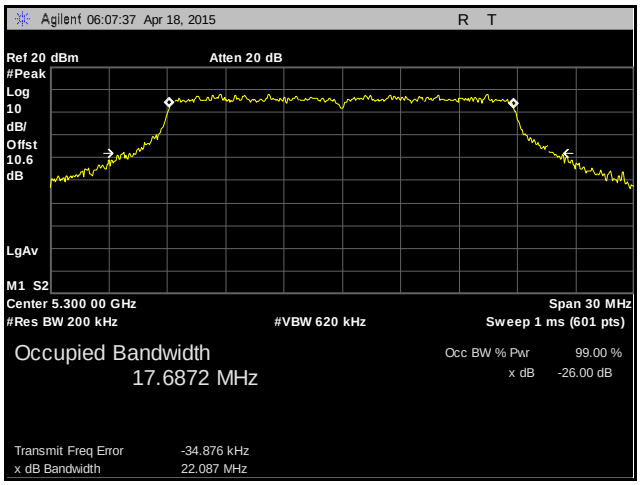


Plot 21. 26 dB Occupied Bandwidth, Channel 128, 802.11ac 80 MHz, 5690MHz

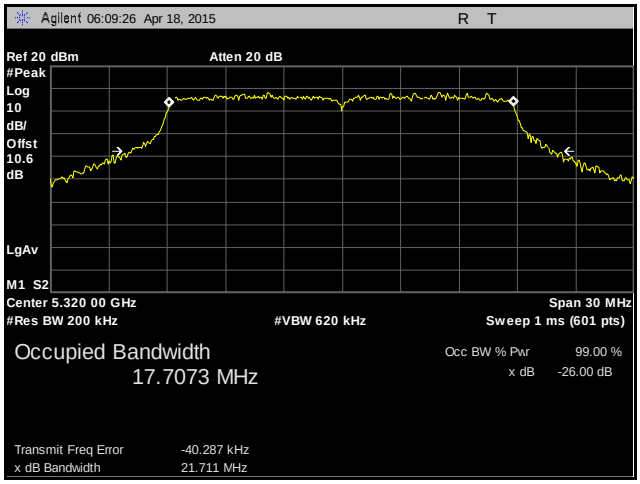
26 dB Occupied Bandwidth, 802.11n 20 MHz



Plot 22. 26 dB Occupied Bandwidth, Channel 52, 802.11n 20 MHz, 5260 MHz



Plot 23. 26 dB Occupied Bandwidth, Channel 60, 802.11n 20 MHz, 5300 MHz



Plot 24. 26 dB Occupied Bandwidth, Channel 64, 802.11n 20 MHz, 5320 MHz

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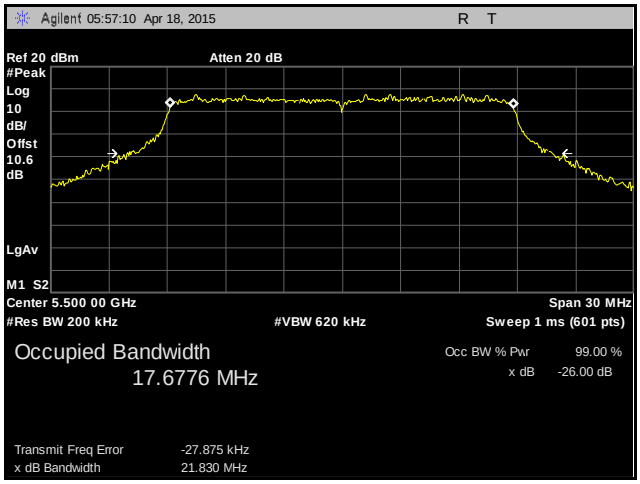
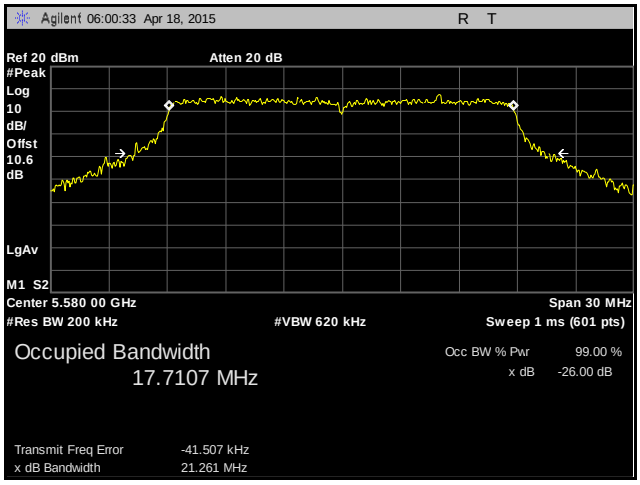
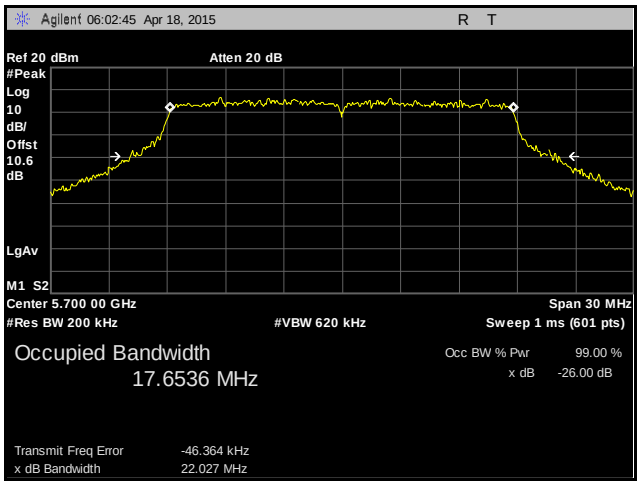


Plot 25. 26 dB Occupied Bandwidth, Channel 100, 802.11n 20 MHz, 5500 MHz



Plot 26. 26 dB Occupied Bandwidth, Channel 116, 802.11n 20 MHz, 5580 MHz



Plot 27. 26 dB Occupied Bandwidth, Channel 140, 802.11n 20 MHz, 5700 MHz

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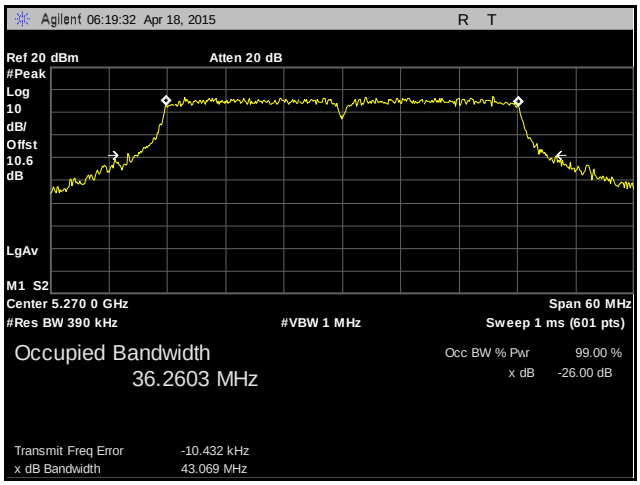
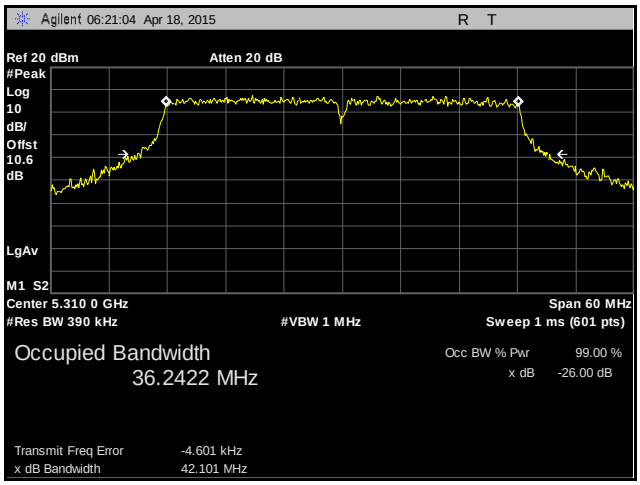
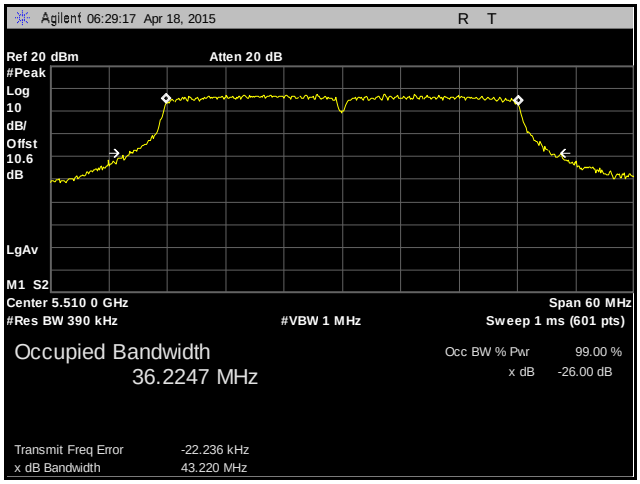
26 dB Occupied Bandwidth, 802.11n 40 MHz



Plot 28. 26 dB Occupied Bandwidth, Channel 52, 802.11n 40 MHz, 5270 MHz



Plot 29. 26 dB Occupied Bandwidth, Channel 60, 802.11n 40 MHz, 5310 MHz



Plot 30. 26 dB Occupied Bandwidth, Channel 100, 802.11n 40 MHz, 5510 MHz

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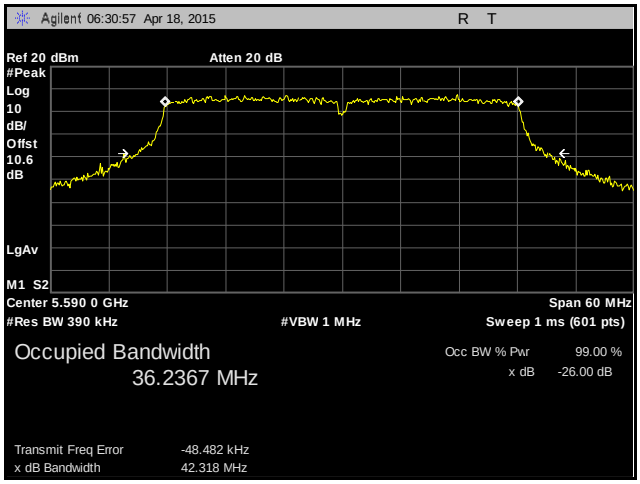
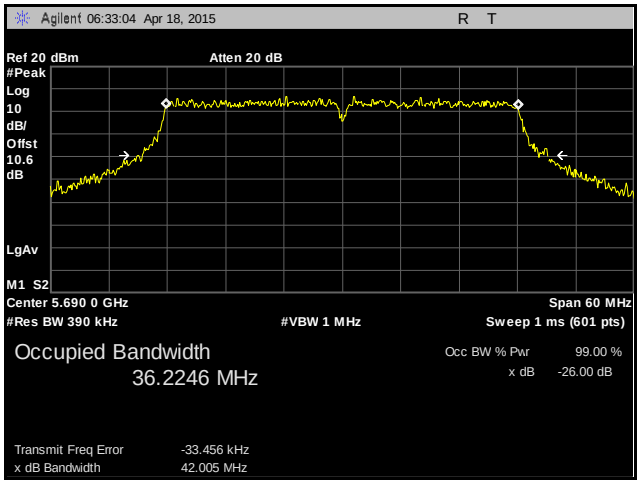


Plot 31. 26 dB Occupied Bandwidth, Channel 116, 802.11n 40 MHz, 5590 MHz



Plot 32. 26 dB Occupied Bandwidth, Channel 136, 802.11n 40 MHz, 5690 MHz

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Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15. 407(a)(2) RF Power Output

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

Test Procedure: The EUT was connected to a spectrum analyzer through an attenuator and set to transmit continuously on the low, mid, and high channels in all modes that device is capable of operating. Its power was measured according to measurement method SA-1, as described in 789033 D02 General UNII Test Procedures New Rule v01. Plots were corrected for attenuator and cable loss. Only worst case measurements were recorded from one of the EUT antenna port and corresponding plots were reported in test report. However all three antenna ports measurement were recorded in tabular form.
Where applicable total array gain of MIMO system was calculated as:
Total Gain of MIMO antenna system (dBi) = Highest Gain of individual antenna (dBi) + 10*log (Number of antenna)

Test Results: Equipment was compliant with the Peak Power Output limits of **§ 15.407(a)(2)**.

Test Engineer(s): Surinder Singh

Test Date(s): 04/11/15

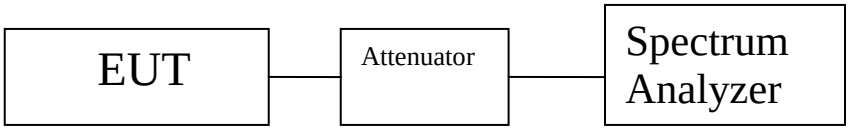

Figure 3. Power Output Test Setup

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Maximum Conducted Output Power 20MHz Band 802.11a/n/ac Mode MIMO									
Channel	**Frequency MHz**	**Measured Maximum Output Power (dBm)/20MHz Ant 0**	**Measured Maximum Output Power (dBm)/20MHz Ant 1**	**Measured Maximum Output Power (dBm)/20MHz Ant 2**	**Mode**	**Total power dBm**	**Power Limit (dBm)**	**Antenna Gain dBi**	**Margin**
52	5260	11.05	11.69	12.52	a	16.57	20.53	9.47	-3.96
52	5260	15.46	15.91	16.31	n	20.68	24	4.7	-3.32
52	5260	15.75	16.18	16.75	ac	21.02	24	4.7	-2.98
60	5300	11.06	11.29	11.99	a	16.24	20.53	9.47	-4.29
60	5300	16.49	17.05	17.45	n	21.79	24	4.7	-2.21
60	5300	16.08	16.44	17.42	ac	21.46	24	4.7	-2.54
64	5320	11.15	11.41	12.28	a	16.42	20.53	9.47	-4.11
64	5320	15.94	16.37	16.95	n	21.22	24	4.7	-2.78
64	5320	15.62	16.05	16.43	ac	20.82	24	4.7	-3.18
100	5500	11.13	11.84	12.45	a	16.62	20.13	9.87	-3.51
100	5500	15.02	15.47	16.27	n	20.39	24	5.1	-3.61
100	5500	15.34	15.84	16.43	ac	20.67	24	5.1	-3.33
116	5580	11.04	11.19	12.12	a	16.25	20.13	9.87	-3.88
116	5580	15.09	15.64	16.62	n	20.61	24	5.1	-3.39
116	5580	14.88	15.36	16.12	ac	20.26	24	5.1	-3.74
140	5700	10.49	10.94	11.2	a	15.66	20.13	9.87	-4.47
140	5700	14.67	15.18	15.96	n	20.08	24	5.1	-3.92
140	5700	14.59	15.24	16.01	ac	20.1	24	5.1	-3.9

Table8. RF Output Power, Test Results, 20 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11n and ac MIMO mode, therefore it did not contribute to array gain in power measurement.

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Maximum Conducted Output Power 40MHz Band n and ac Mode MIMO (3*3)									
Chanel Carrier	Frequency MHz	Measured Maximum Output Power (dBm)/40MHz Ant 0	Measured Maximum Output Power (dBm)/40MHz Ant 1	Measured Maximum Output Power (dBm)/40MHz Ant 2	mode	Total Output Power	Antenna Gain dBi	Power Limit (dBm)	Margin
52	5270	15.85	16.34	17.27	n	21.3	4.7	24	-2.7
52	5270	15.96	16.55	17.71	ac	21.58	4.7	24	-2.42
60	5310	14.44	15.13	15.99	n	20.01	4.7	24	-3.99
60	5310	14.75	15.46	16.12	ac	20.26	4.7	24	-3.74
100	5510	14.63	15.37	16.6	n	20.39	5.1	24	-3.61
100	5510	14.85	15.74	16.8	ac	20.65	5.1	24	-3.35
116	5590	17.12	17.46	18.28	n	22.42	5.1	24	-1.58
116	5590	17.46	18.05	18.44	ac	22.78	5.1	24	-1.22
140	5710	17.11	17.68	18.27	n	22.49	5.1	24	-1.51
140	5710	17.08	17.45	18.18	ac	22.37	5.1	24	-1.63

Table 9. RF Output Power, Test Results, 40 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11n and ac MIMO mode, therefore it did not contribute to array gain in power measurement.

Maximum Conducted Output Power 80MHz Band ac Mode MIMO (3*3)									
Chanel Carrier	Frequency MHz	Measured Maximum Output Power (dBm)/80MHz Ant 0	Measured Maximum Output Power (dBm)/80MHz Ant 1	Measured Maximum Output Power (dBm)/80MHz Ant 2	mode	Total Output Power	Antenna Gain dBi	Power Limit (dBm)	Margin
52	5290	11.08	11.46	12.38	ac	16.45	4.7	24	-7.55
100	5530	11.28	11.59	12.46	ac	16.58	5.1	24	-7.42
116	5610	16.15	16.85	17.6	ac	21.68	5.1	24	-2.32
132	5690	16.48	17.14	17.95	ac	22.01	5.1	24	-1.99

Table 10. RF Output Power, Test Results, 80 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11ac MIMO mode, therefore it did not contribute to array gain in power measurement.

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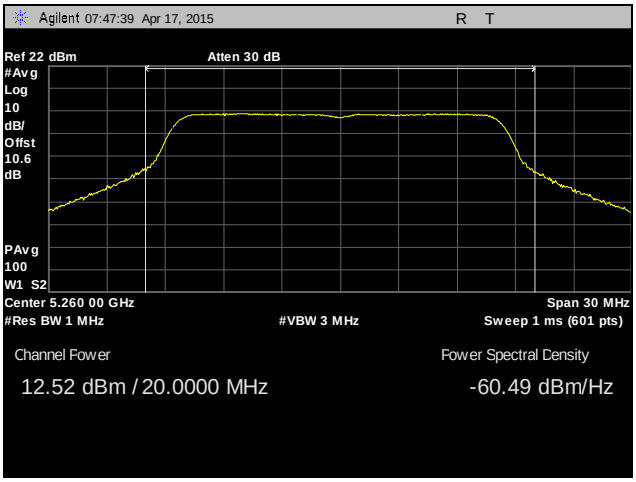
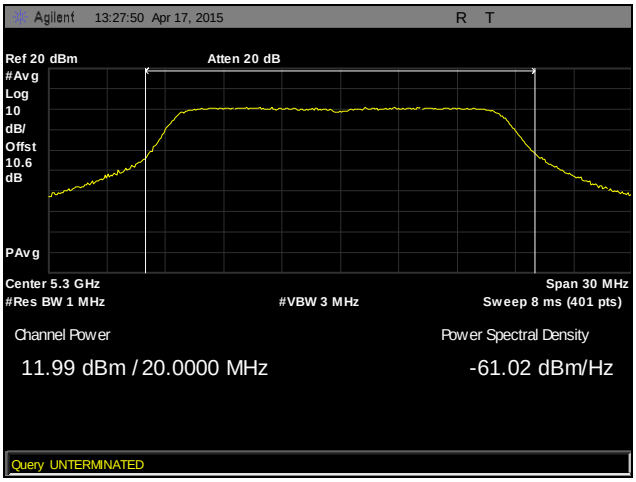
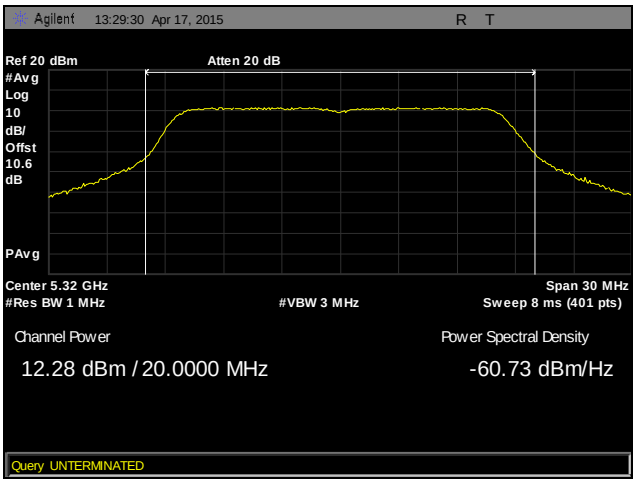
RF Output Power, 802.11a 20 MHz



Plot 33. RF Output Power, Channel 52, 802.11a 20 MHz, 5260 MHz



Plot 34. RF Output Power, Channel 60, 802.11a 20 MHz, 5300 MHz



Plot 35. RF Output Power, Channel 64, 802.11a 20 MHz, 5320 MHz

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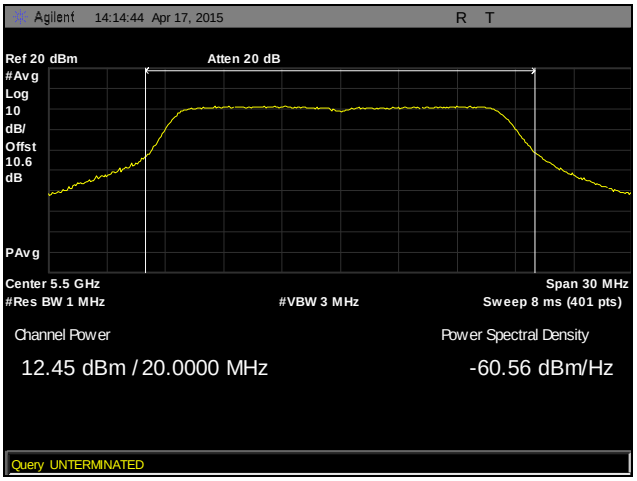
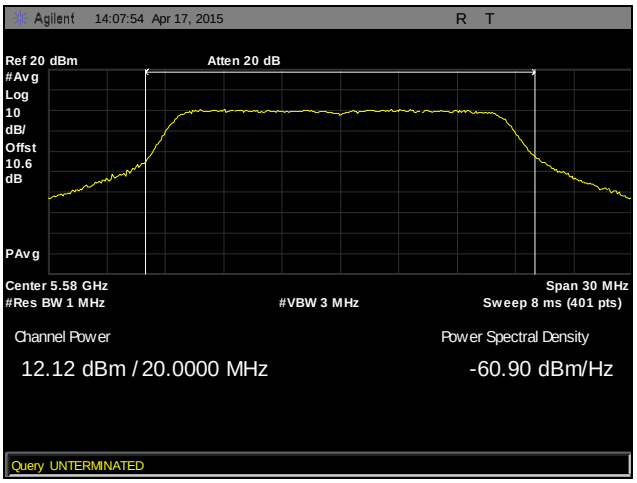
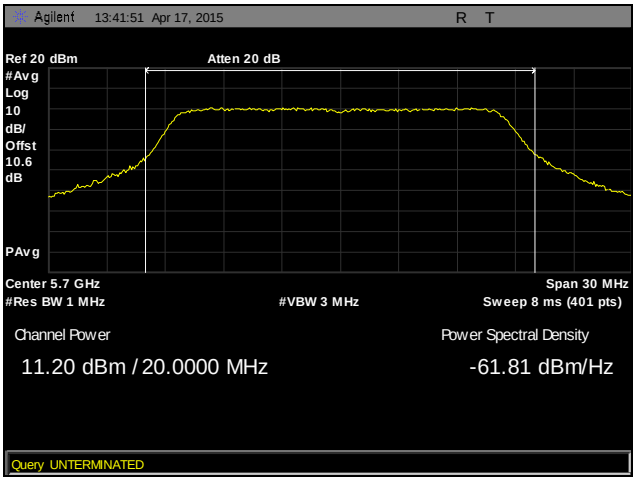


Plot 36. RF Output Power, Channel 100, 802.11a 20 MHz, 5500 MHz



Plot 37. RF Output Power, Channel 116, 802.11a 20 MHz, 5580 MHz



Plot 38. RF Output Power, Channel 140, 802.11a 20 MHz, 5700 MHz

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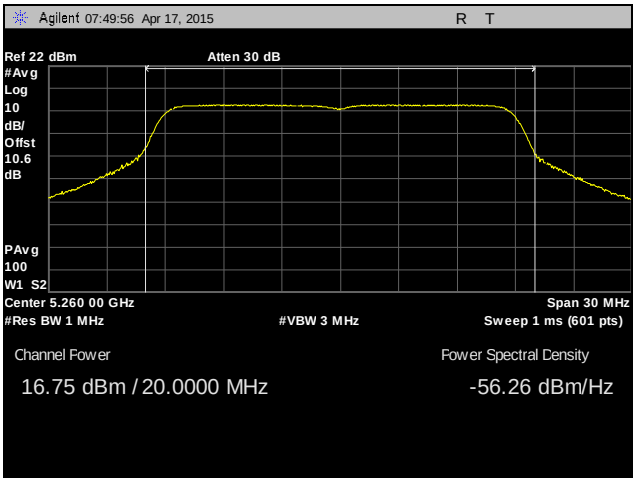
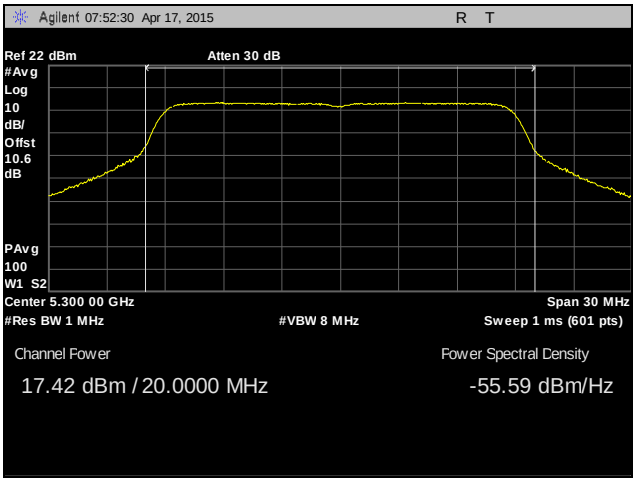
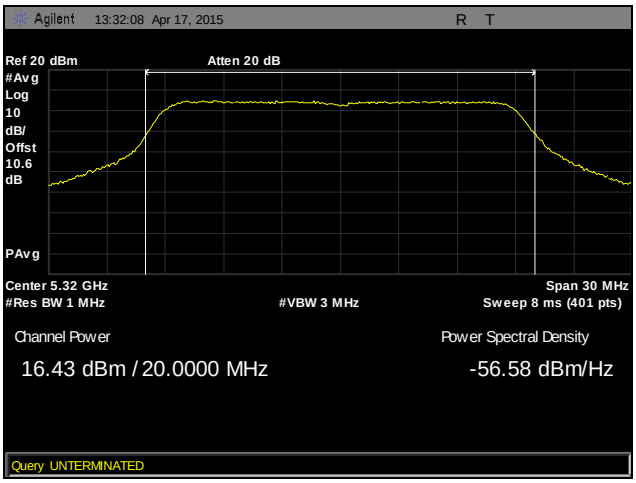
RF Output Power, 802.11ac 20 MHz



Plot 39. RF Output Power, Channel 52, 802.11ac 20 MHz, 5260 MHz



Plot 40. RF Output Power, Channel 60, 802.11ac 20 MHz, 5300 MHz



Plot 41. RF Output Power, Channel 64, 802.11ac 20 MHz, 5320 MHz

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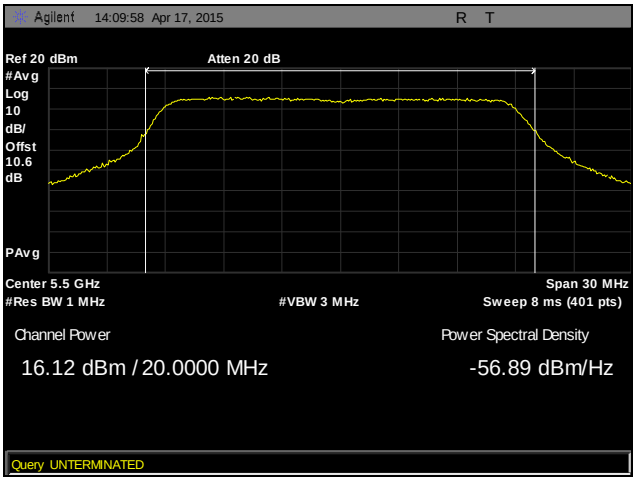
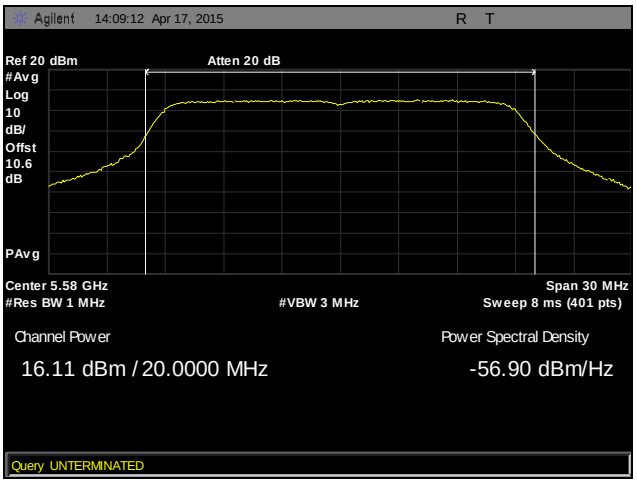
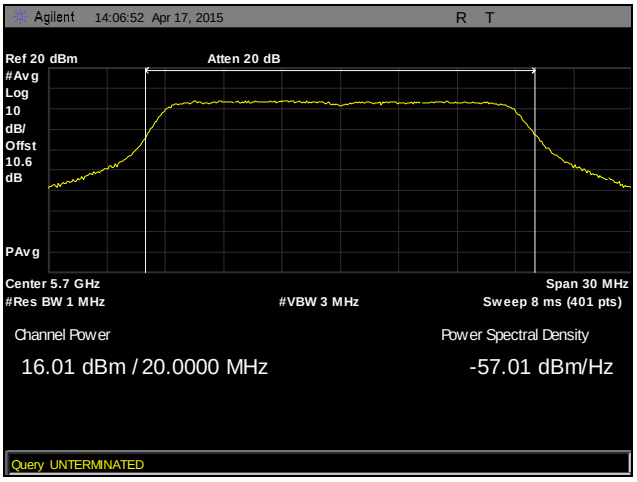


Plot 42. RF Output Power, Channel 100, 802.11ac 20 MHz, 5500 MHz



Plot 43. RF Output Power, Channel 116, 802.11ac 20 MHz, 5580 MHz



Plot 44. RF Output Power, Channel 140, 802.11ac 20 MHz, 5700 MHz

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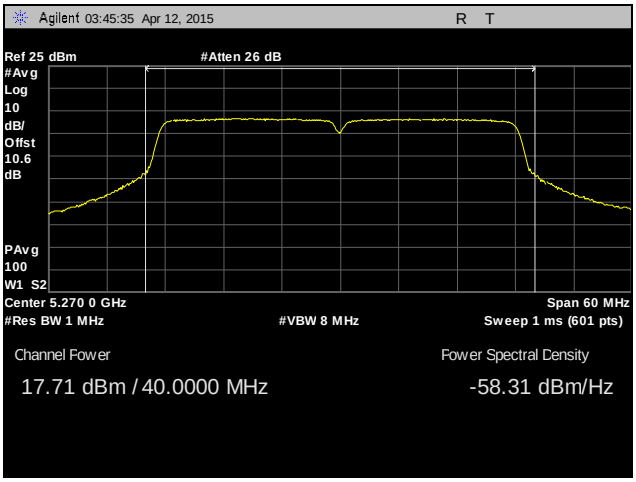
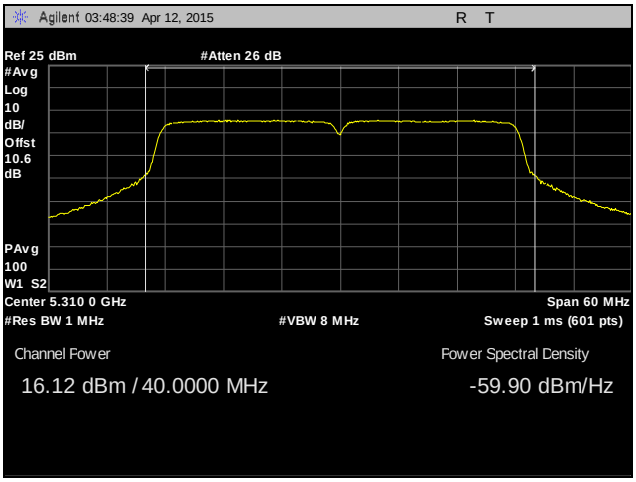
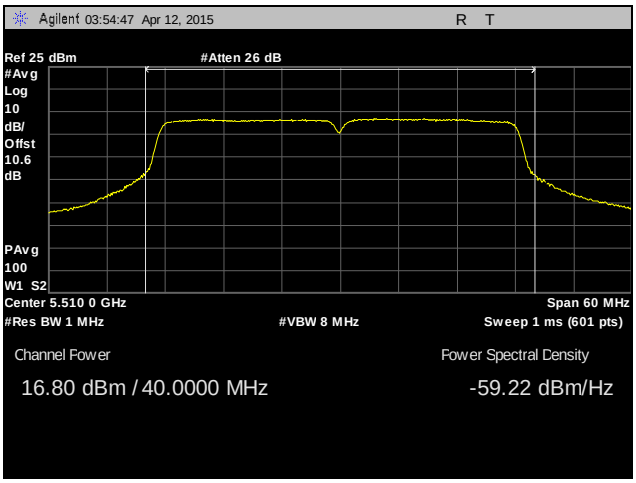
RF Output Power, 802.11ac 40 MHz



Plot 45. RF Output Power, Channel 52, 802.11ac 40 MHz, 5270 MHz



Plot 46. RF Output Power, Channel 60, 802.11ac 40 MHz, 5310 MHz



Plot 47. RF Output Power, Channel 100, 802.11ac 40 MHz, 5510 MHz

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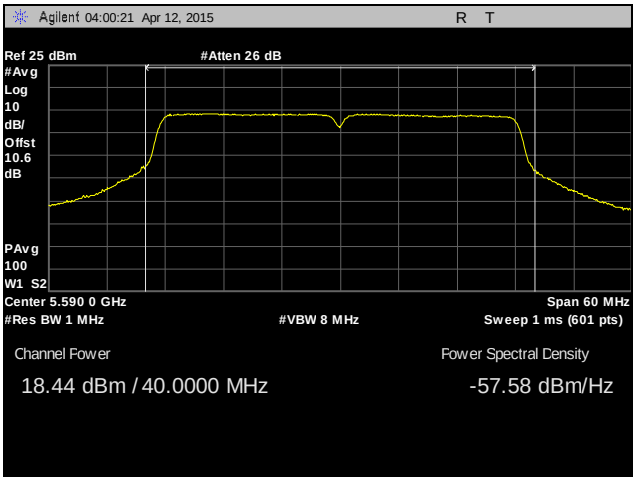
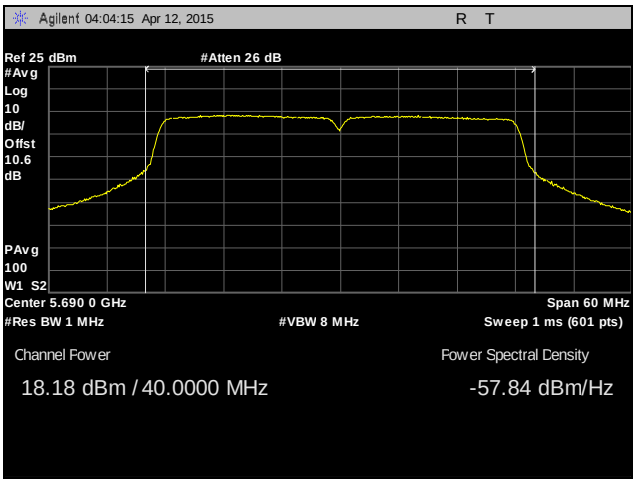


Plot 48. RF Output Power, Channel 116, 802.11ac 40 MHz, 5590 MHz



Plot 49. RF Output Power, Channel 136, 802.11ac 40 MHz, 5690 MHz

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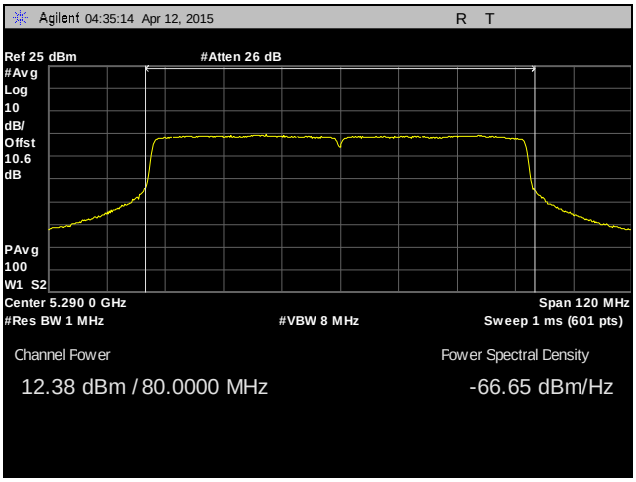
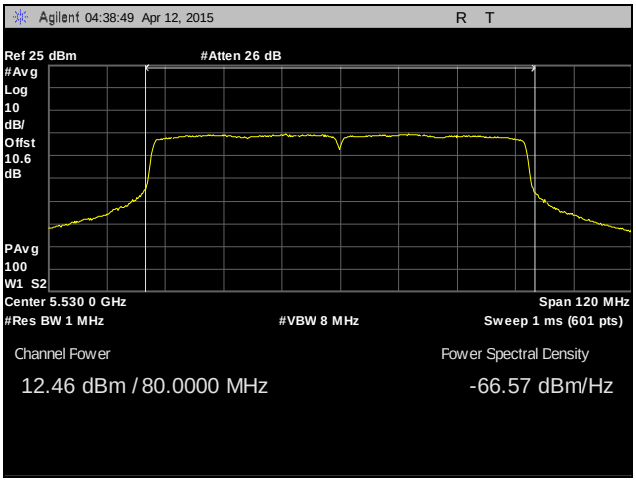
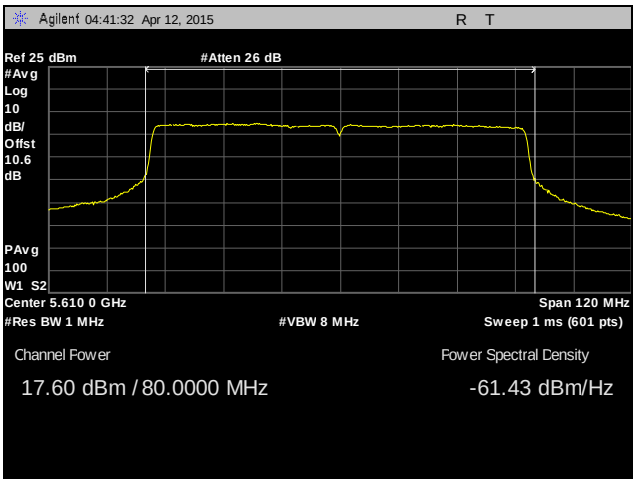
RF Output Power, 802.11ac 80 MHz



Plot 50. RF Output Power, Channel 52, 802.11ac 80 MHz, 5290 MHz



Plot 51. RF Output Power, Channel 100, 802.11ac 80 MHz, 5530 MHz



Plot 52. RF Output Power, Channel 116, 802.11ac 80 MHz, 5610 MHz

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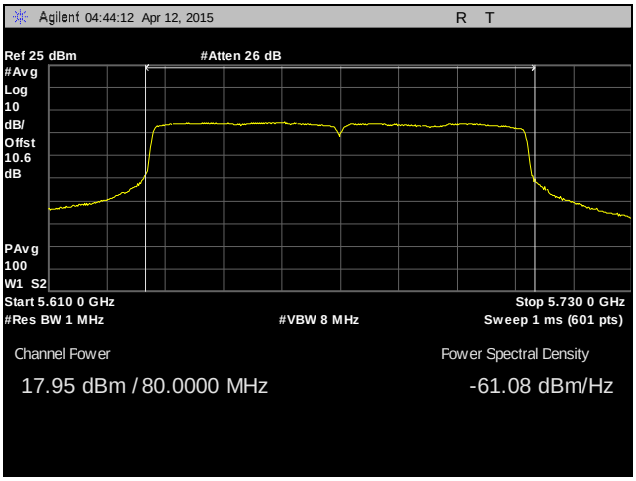
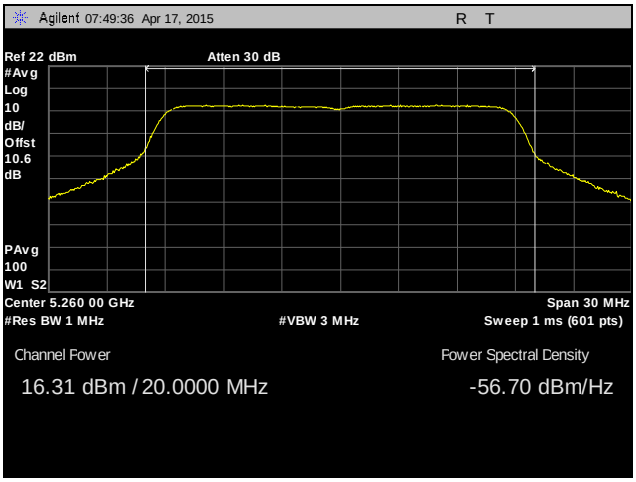
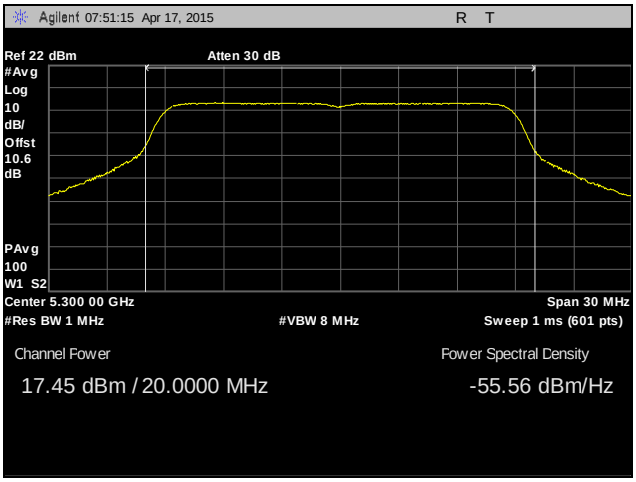


Plot 53. RF Output Power, Channel 128, 802.11ac 80 MHz, 5610 MHz

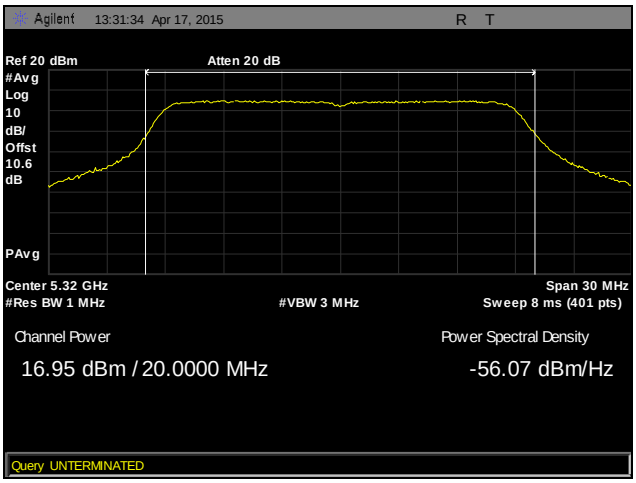
RF Output Power, 802.11n 20 MHz



Plot 54. RF Output Power, Channel 52, 802.11n 20 MHz, 5260 MHz



Plot 55. RF Output Power, Channel 60, 802.11n 20 MHz, 5300 MHz



Plot 56. RF Output Power, Channel 64, 802.11n 20 MHz, 5320 MHz

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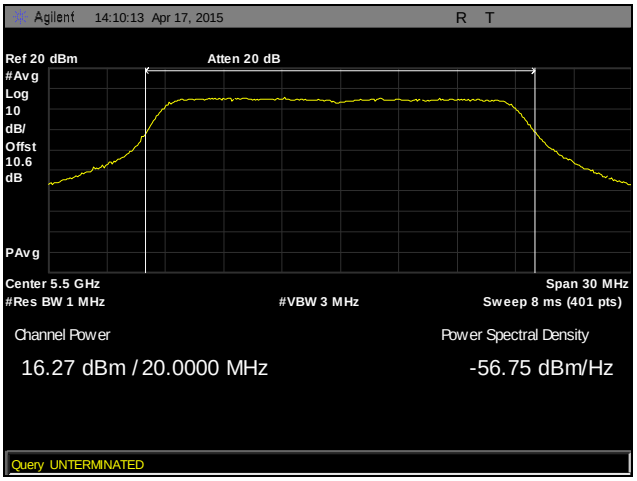
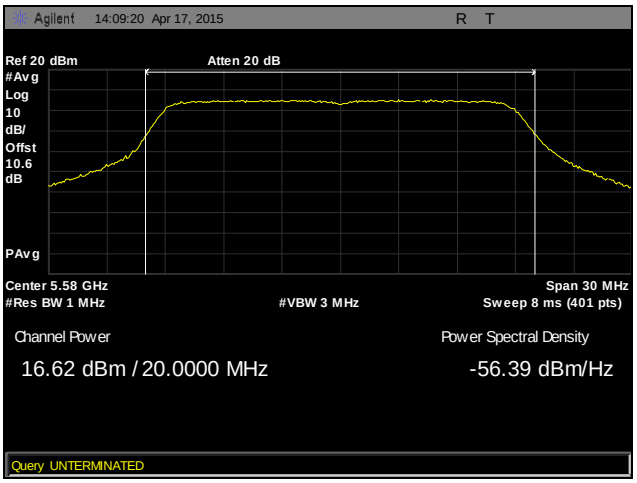
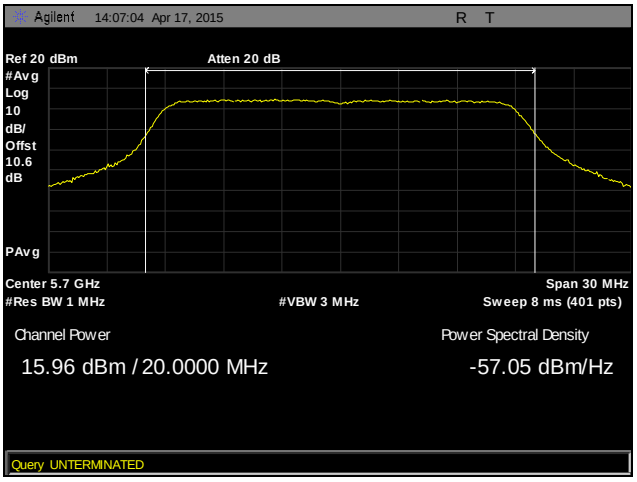


Plot 57. RF Output Power, Channel 100, 802.11n 20 MHz, 5500 MHz



Plot 58. RF Output Power, Channel 116, 802.11n 20 MHz, 5580 MHz



Plot 59. RF Output Power, Channel 140, 802.11n 20 MHz, 5700 MHz

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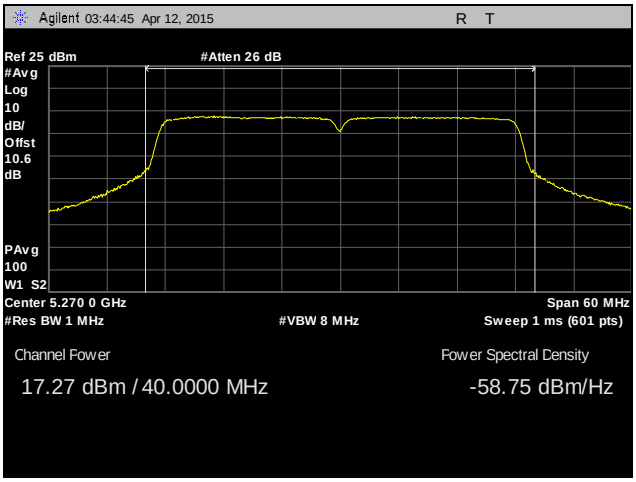
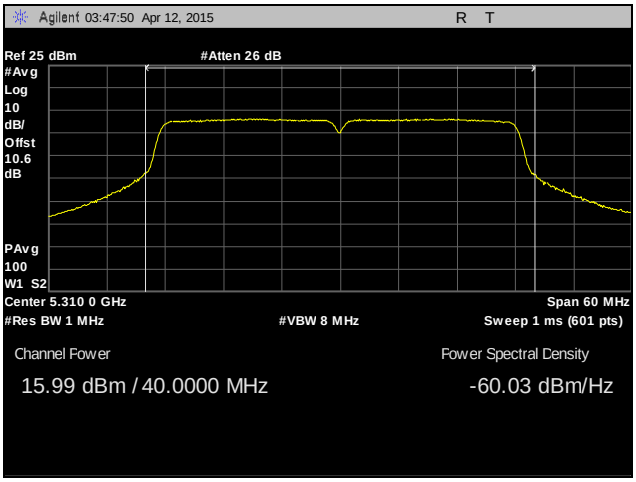
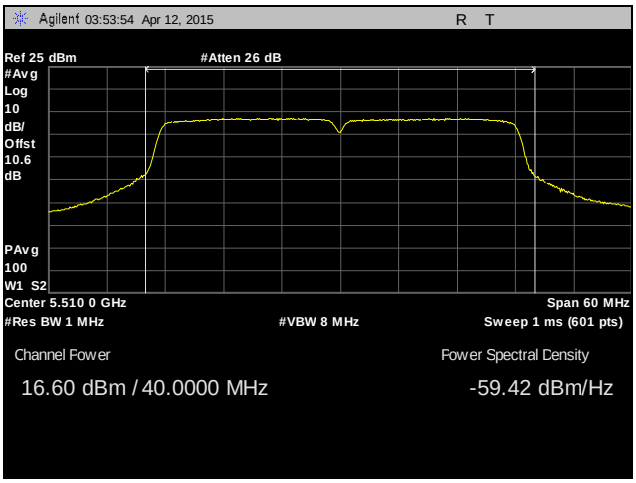
RF Output Power, 802.11n 40 MHz



Plot 60. RF Output Power, Channel 52, 802.11n 40 MHz, 5270 MHz



Plot 61. RF Output Power, Channel 60, 802.11n 40 MHz, 5310 MHz



Plot 62. RF Output Power, Channel 100, 802.11n 40 MHz, 5510 MHz

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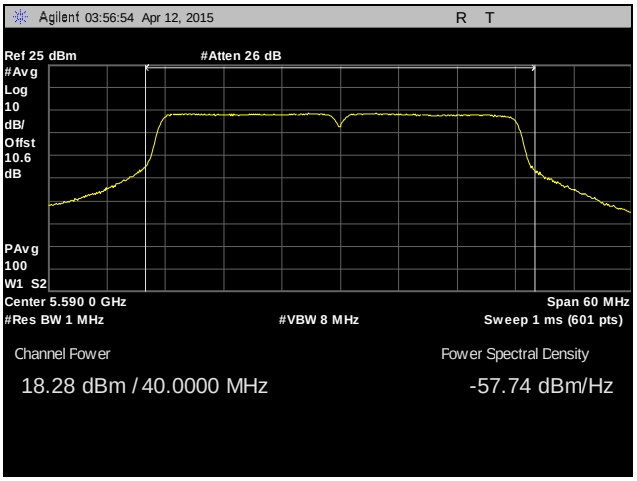
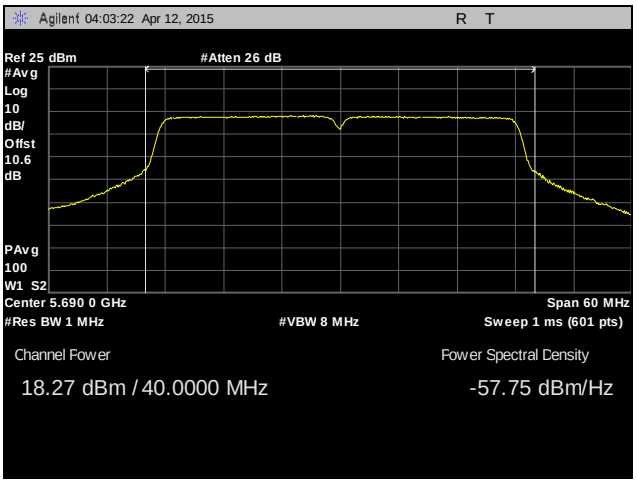


Plot 63. RF Output Power, Channel 116, 802.11n 40 MHz, 5590 MHz



Plot 64. RF Output Power, Channel 136, 802.11n 40 MHz, 5710 MHz

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Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(a)(2) Peak Power Spectral Density

Test Requirements: **§ 15.407(a)(2):** In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure: The transmitter was connected directly to a Spectrum Analyzer through an attenuator at low, mid, and high channels in all modes that device is capable of operating. The power level was set to the maximum level on the EUT. The RBW was set to 1MHz and the VBW was set to 3MHz. The method of measurement used was method SA-1 from 789033 D02 General UNII Test Procedures New Rule v01. Plots are correct for attenuator and cable loss. Only worst case measurements were recorded from one of the EUT antenna port and corresponding plots were reported in test report. However all three antenna ports measurement were recorded in tabular form.
Where applicable total array gain of MIMO system was calculated as:
Total Gain of MIMO antenna system (dBi) = Highest Gain of individual antenna (dBi) + 10*log (Number of antenna)

Test Results: Equipment was compliant with the peak power spectral density limits of **§ 15.407 (a)(2).** The peak power spectral density was determined from plots on the following page(s).

Test Engineer(s): Surinder Singh

Test Date(s): 04/17/15

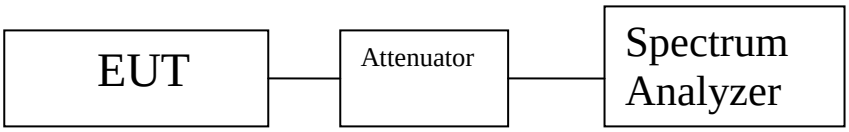

Figure 4. Power Spectral Density Test Setup

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Maximum Conducted Output Power 20MHz Band 802.11a/n/ac Mode MIMO									
Channel	Frequency MHz	Measured PSD (dBm)/1MHz Ant 0	Measured PSD (dBm)/1MHz Ant 1	Measured PSD (dBm)/1MHz Ant 2	Mode	Total PSD dBm	Power Limit (dBm)	Antenna Gain dBi	Margin
52	5260	1.87	1.98	2.22	a	6.8	7.53	9.47	-0.73
52	5260	5.56	5.97	6.18	n	10.69	11	4.7	-0.31
52	5260	5.78	6.04	6.7	ac	10.97	11	4.7	-0.03
60	5300	2.25	2.47	2.74	a	7.27	7.53	9.47	-0.26
60	5300	5.78	5.93	6.18	n	10.74	11	4.7	-0.26
60	5300	5.81	5.98	6.25	ac	10.79	11	4.7	-0.21
64	5320	2.14	2.47	2.69	a	7.22	7.53	9.47	-0.31
64	5320	5.92	6.21	6.46	n	10.98	11	4.7	-0.02
64	5320	5.77	6.03	6.39	ac	10.85	11	4.7	-0.15
100	5500	1.71	1.92	2.11	a	6.69	7.13	9.87	-0.44
100	5500	5.41	5.55	5.72	n	10.34	11	5.1	-0.66
100	5500	4.98	5.29	5.41	ac	10.01	11	5.1	-0.99
116	5580	1.98	2.02	2.35	a	6.9	7.13	9.87	-0.23
116	5580	5.91	6.14	6.29	n	10.89	11	5.1	-0.11
116	5580	5.68	6.03	6.14	ac	10.73	11	5.1	-0.27
140	5700	1.67	1.82	2.06	a	6.63	7.13	9.87	-0.23
140	5700	5.65	5.82	6.08	n	10.63	11	5.1	-0.37
140	5700	5.37	5.74	6.17	ac	10.55	11	5.1	-0.45

Table 11. Peak Spectral Density, Test Results, 20 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11n and ac MIMO mode, therefore it did not contribute to array gain in power measurement.

Maximum Conducted Output Power 40MHz Band n and ac Mode MIMO (3*3)									
Chanel Carrier	Frequency MHz	Measured PSD (dBm)/1MHz Ant 0	Measured PSD (dBm)/1MHz Ant 1	Measured PSD (dBm)/1MHz Ant 2	mode	Total PSD	Antenna Gain dBi	Power Limit (dBm)	Margin
52	5270	2	2.04	2.24	n	6.87	4.7	11	-4.13
52	5270	2.11	2.34	2.56	ac	7.12	4.7	11	-3.88
60	5310	0.84	0.97	1.1	n	5.75	4.7	11	-5.25
60	5310	0.88	1.1	1.28	ac	5.87	4.7	11	-5.13
100	5510	1.29	1.48	1.85	n	6.32	5.1	11	-4.68
100	5510	1.05	1.34	1.68	ac	6.14	5.1	11	-4.86
116	5590	3.04	3.27	3.64	n	8.1	5.1	11	-2.9
116	5590	3.22	3.42	3.98	ac	8.33	5.1	11	-2.67
140	5710	2.42	2.5	2.85	n	7.37	5.1	11	-3.63
140	5710	2.86	2.98	3.11	ac	7.76	5.1	11	-3.24

Table 12. Peak Spectral Density, Test Results, 40 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11n and ac MIMO mode, therefore it did not contribute to array gain in power measurement.

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Maximum Conducted Output Power 80MHz Band ac Mode MIMO (3*3)									
Chanel Carrier	**Frequency MHz**	**Measured Maximum Output Power (dBm)/80MHz Ant 0**	**Measured Maximum Output Power (dBm)/80MHz Ant 1**	**Measured Maximum Output Power (dBm)/80MHz Ant 2**	**mode**	**Total Output Power**	**Antenna Gain dBi**	**Power Limit (dBm)**	**Margin**
52	5290	-7.23	-6.98	-6.6	ac	-2.15	4.7	11	-13.15
100	5530	-7.46	-7.42	-6.92	ac	-2.48	5.1	11	-13.48
116	5610	-1.45	-1.32	-0.96	ac	3.54	5.1	11	-7.46
132	5690	-1.23	-1.1	-0.73	ac	3.76	5.1	11	-7.24

Table 13. Peak Spectral Density, Test Results, 80 MHz

Note: Transmitter employed uncorrelated data stream signal in 802.11ac MIMO mode, therefore it did not contribute to array gain in power measurement.

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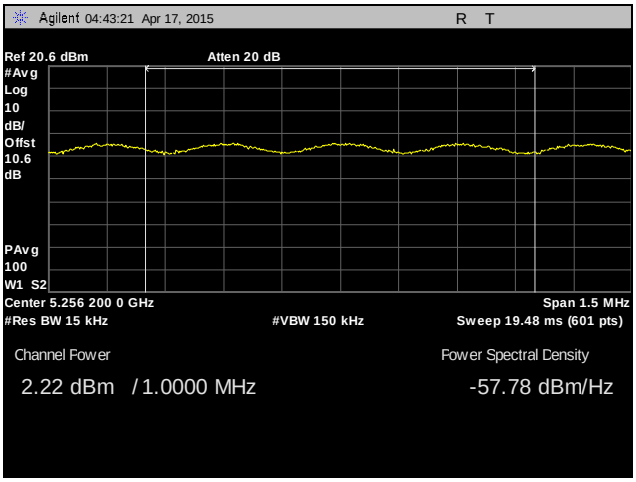
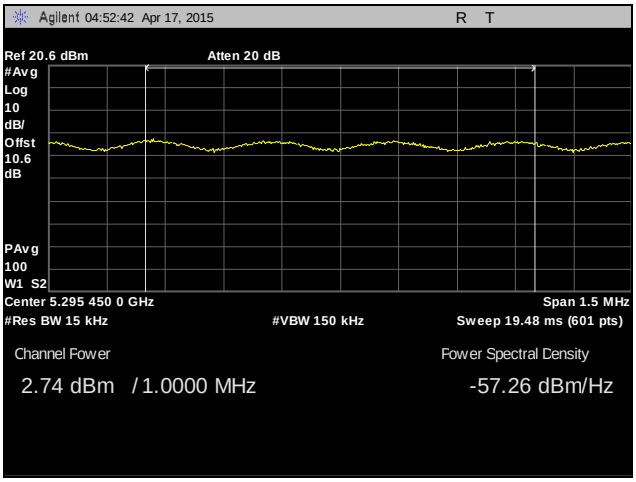
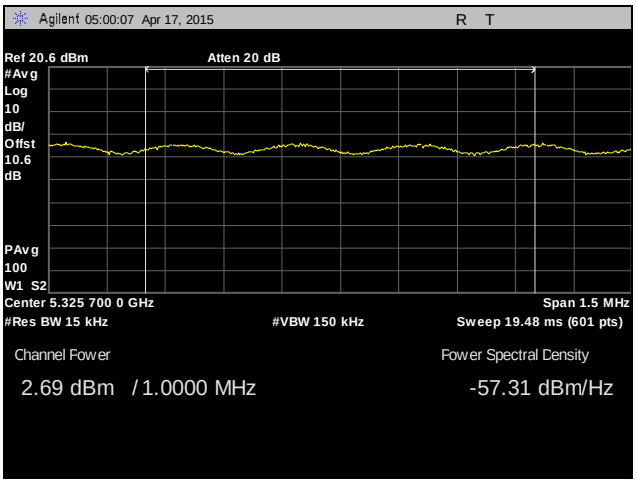
Peak Power Spectral Density, 802.11a 20 MHz



Plot 65. Peak Power Spectral Density, Channel 52, 802.11a 20 MHz, 5260 MHz



Plot 66. Peak Power Spectral Density, Channel 60, 802.11a 20 MHz, 5300 MHz



Plot 67. Peak Power Spectral Density, Channel 64, 802.11a 20 MHz, 5320 MHz

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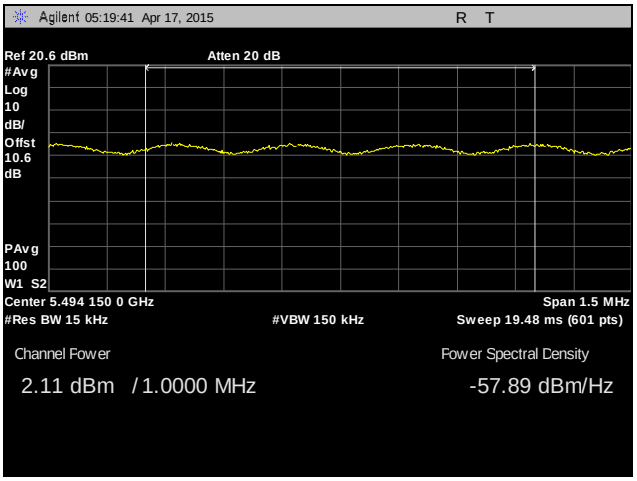
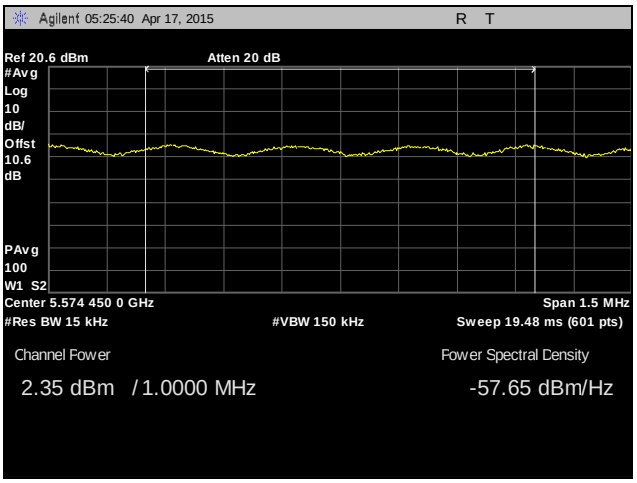
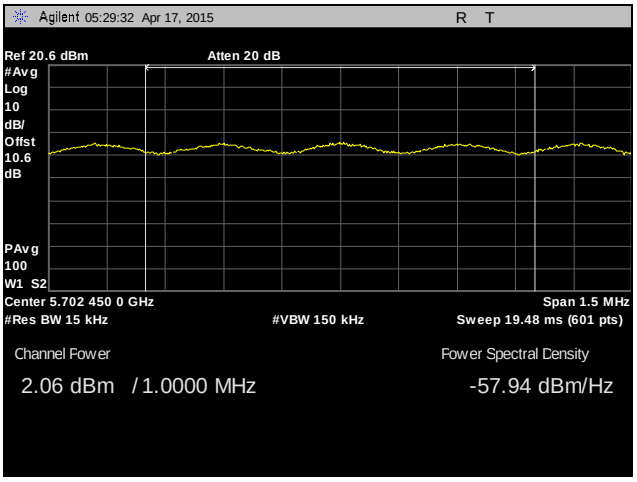


Plot 68. Peak Power Spectral Density, Channel 100, 802.11a 20 MHz, 5500 MHz



Plot 69. Peak Power Spectral Density, Channel 116, 802.11a 20 MHz, 5580 MHz



Plot 70. Peak Power Spectral Density, Channel 140, 802.11a 20 MHz, 5700 MHz

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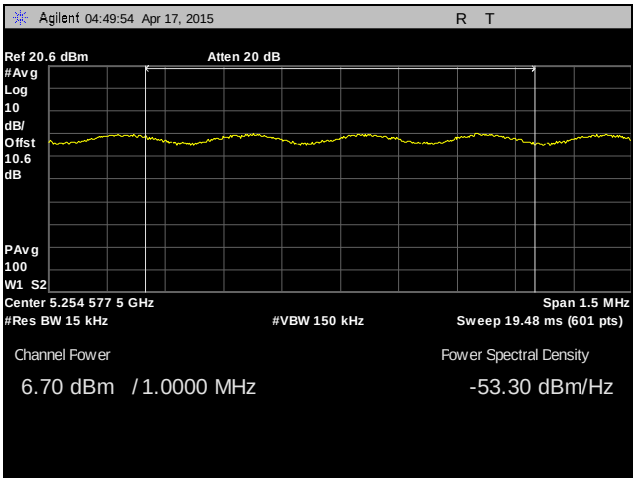
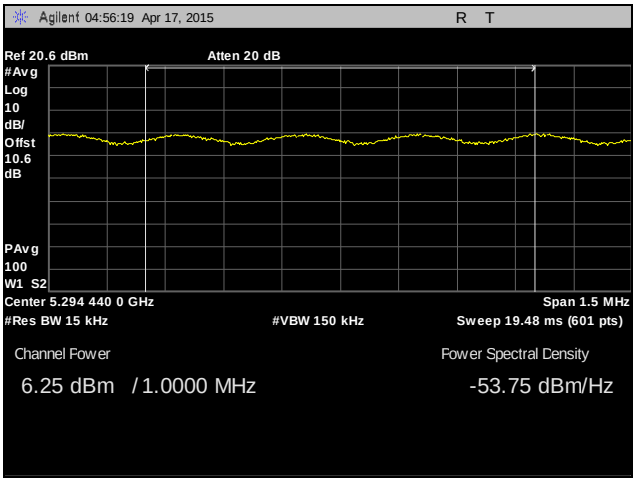
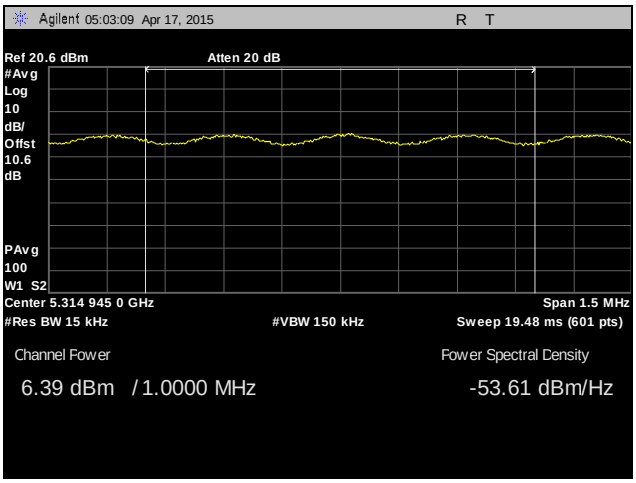
Peak Power Spectral Density, 802.11ac 20 MHz



Plot 71. Peak Power Spectral Density, Channel 52, 802.11ac 20 MHz, 5260 MHz



Plot 72. Peak Power Spectral Density, Channel 60, 802.11ac 20 MHz, 5300 MHz



Plot 73. Peak Power Spectral Density, Channel 64, 802.11ac 20 MHz, 5320 MHz

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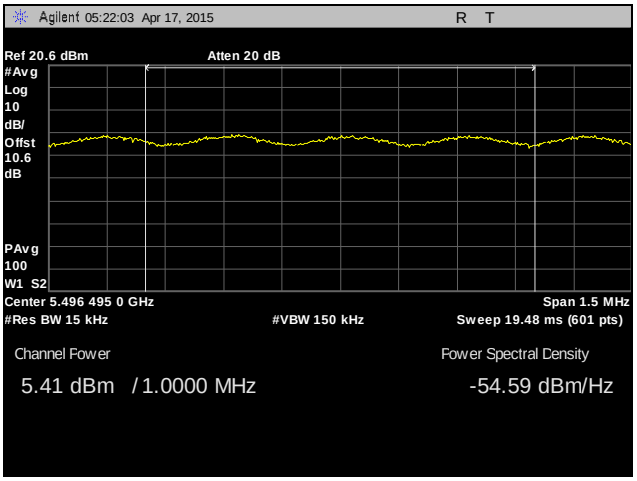
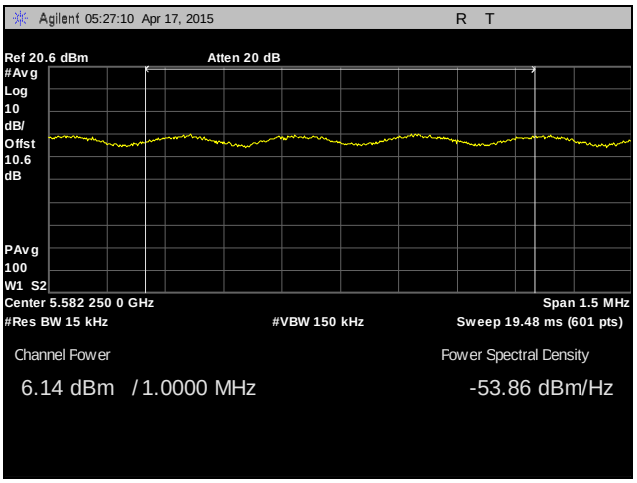
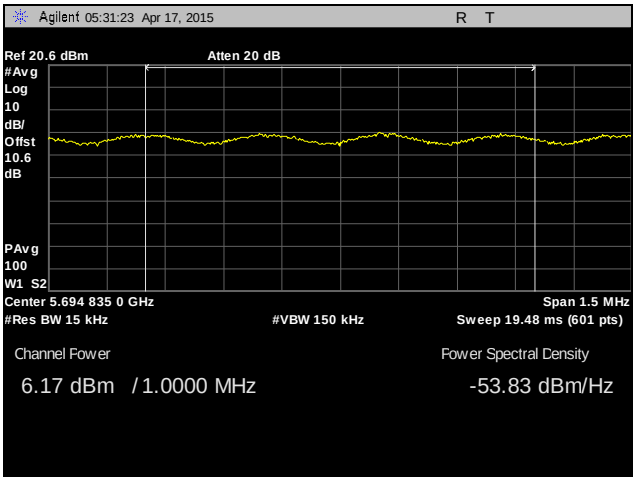


Plot 74. Peak Power Spectral Density, Channel 100, 802.11ac 20 MHz, 5500 MHz



Plot 75. Peak Power Spectral Density, Channel 116, 802.11ac 20 MHz, 5580 MHz



Plot 76. Peak Power Spectral Density, Channel 140, 802.11ac 20 MHz, 5700 MHz

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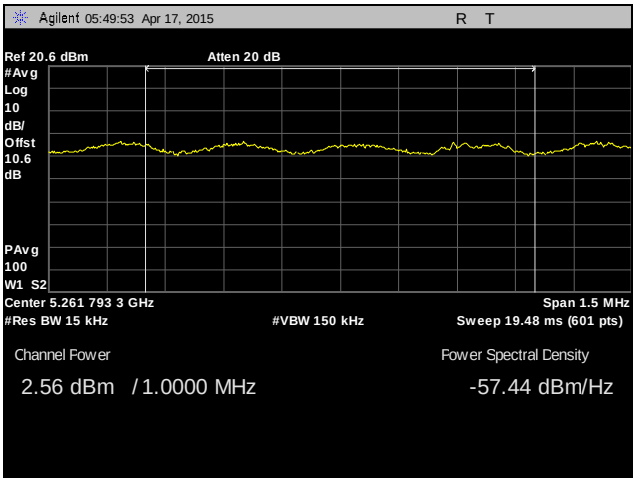
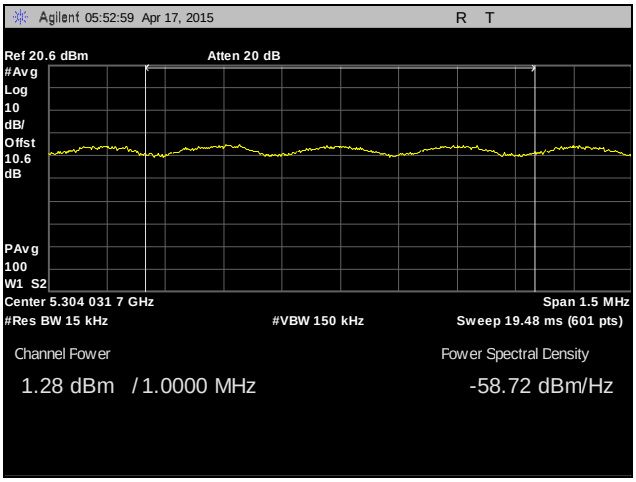
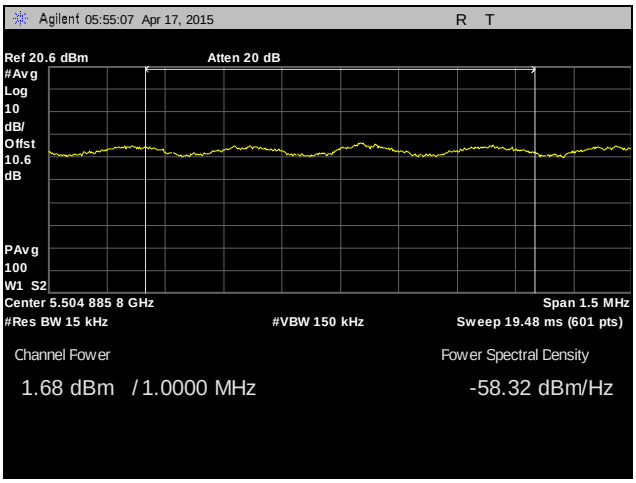
Peak Power Spectral Density, 802.11ac 40 MHz



Plot 77. Peak Power Spectral Density, Channel 52, 802.11ac 40 MHz, 5270 MHz



Plot 78. Peak Power Spectral Density, Channel 60, 802.11ac 40 MHz, 5310 MHz



Plot 79. Peak Power Spectral Density, Channel 100, 802.11ac 40 MHz, 5510 MHz

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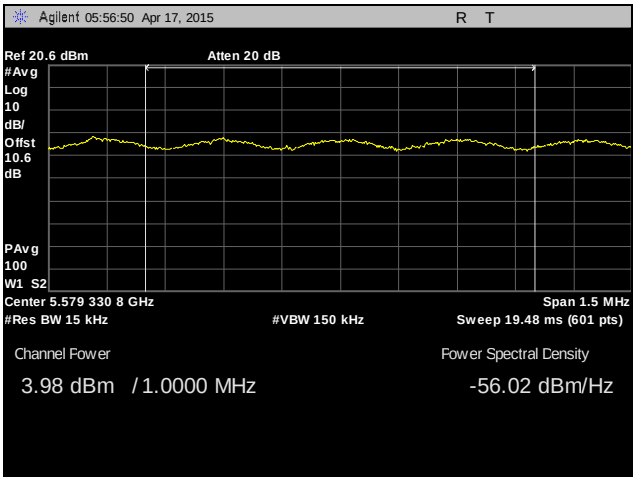
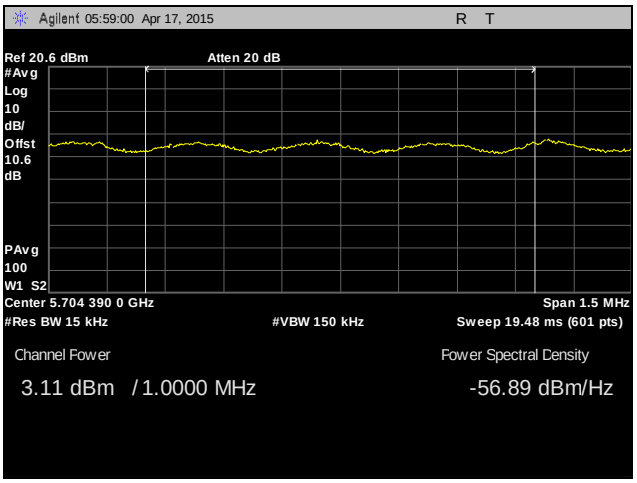


Plot 80. Peak Power Spectral Density, Channel 116, 802.11ac 40 MHz, 5590 MHz



Plot 81. Peak Power Spectral Density, Channel 140, 802.11ac 40 MHz, 5690 MHz

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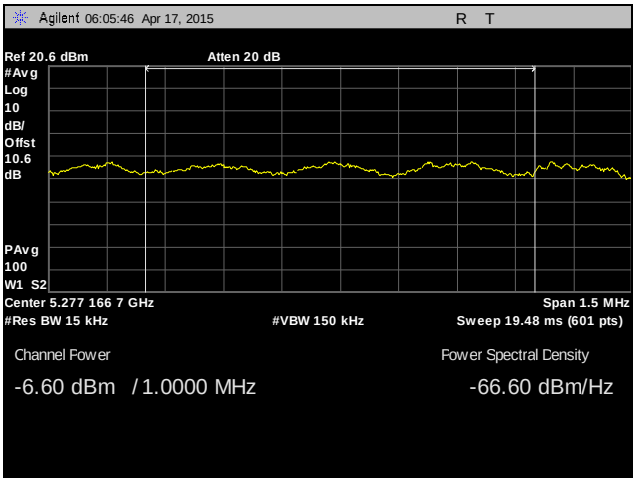
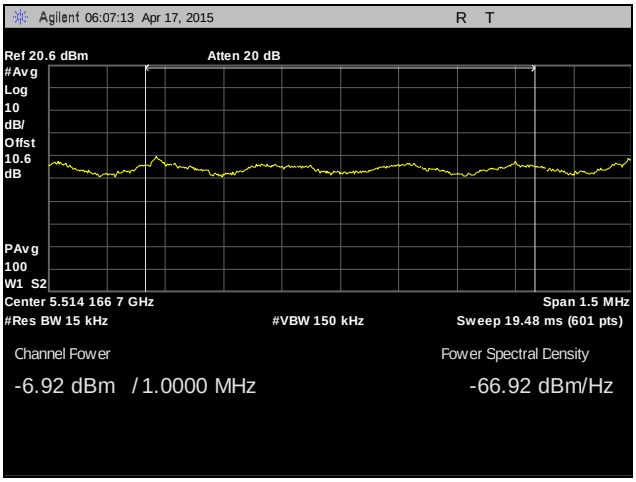
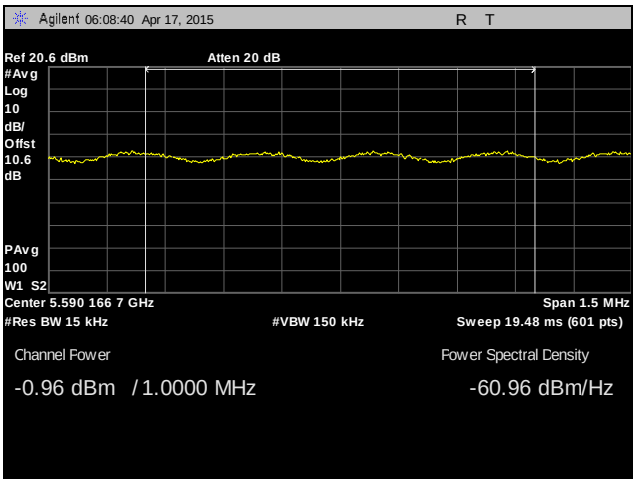
Peak Power Spectral Density, 802.11ac 80 MHz



Plot 82. Peak Power Spectral Density, Channel 52, 802.11ac 80 MHz, 5290 MHz



Plot 83. Peak Power Spectral Density, Channel 100, 802.11ac 80 MHz, 5530 MHz



Plot 84. Peak Power Spectral Density, Channel 116, 802.11ac 80 MHz, 5610 MHz

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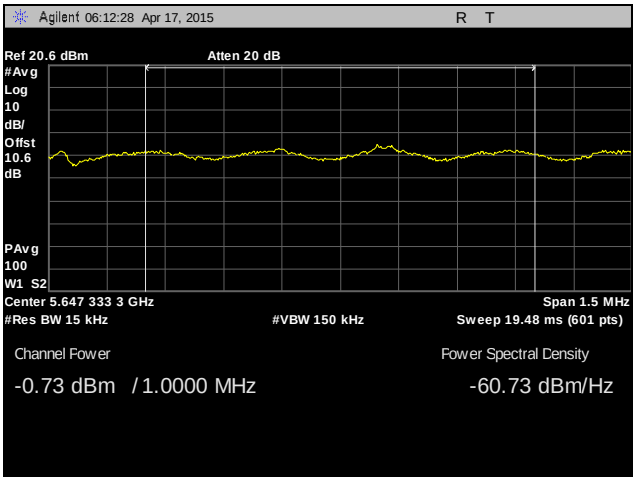
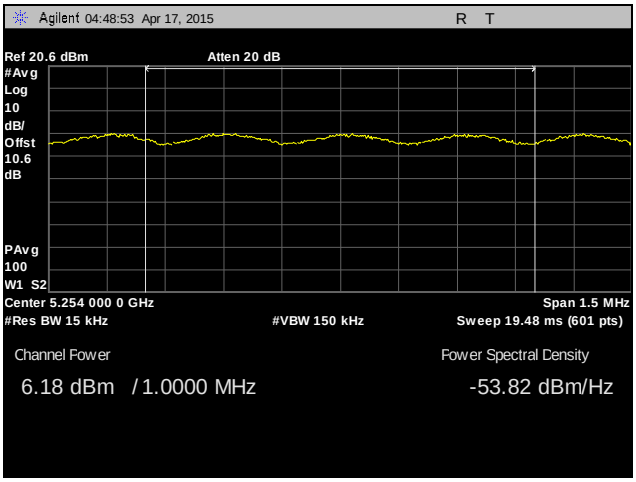
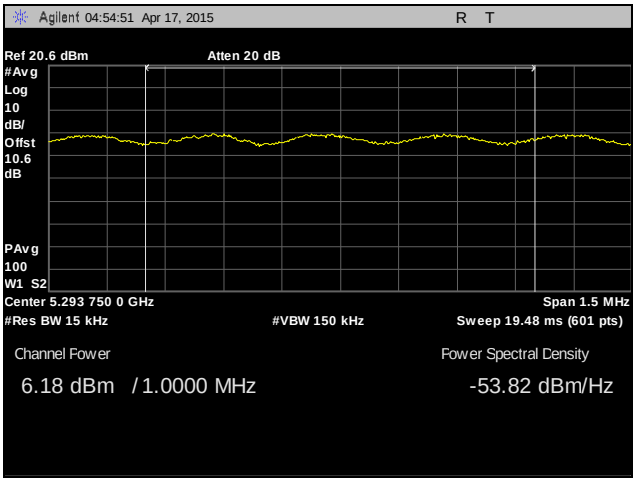


Plot 85. Peak Power Spectral Density, Channel 128, 802.11ac 80 MHz, 5690 MHz

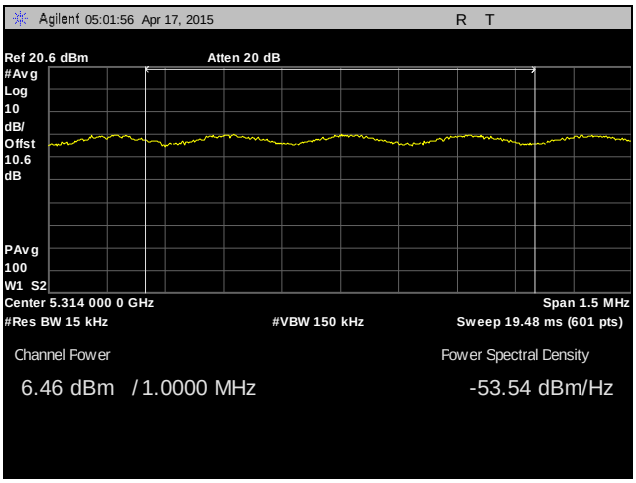
Peak Power Spectral Density, 802.11n 20 MHz



Plot 86. Peak Power Spectral Density, Channel 52, 802.11n 20 MHz, 5260 MHz



Plot 87. Peak Power Spectral Density, Channel 60, 802.11n 20 MHz, 5300 MHz



Plot 88. Peak Power Spectral Density, Channel 64, 802.11n 20 MHz, 5320 MHz

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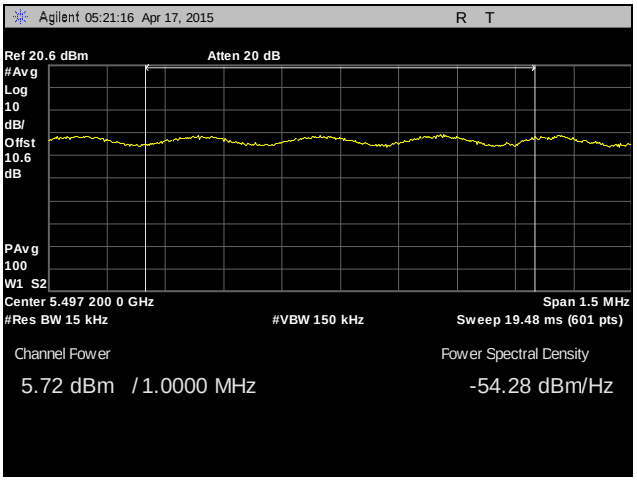
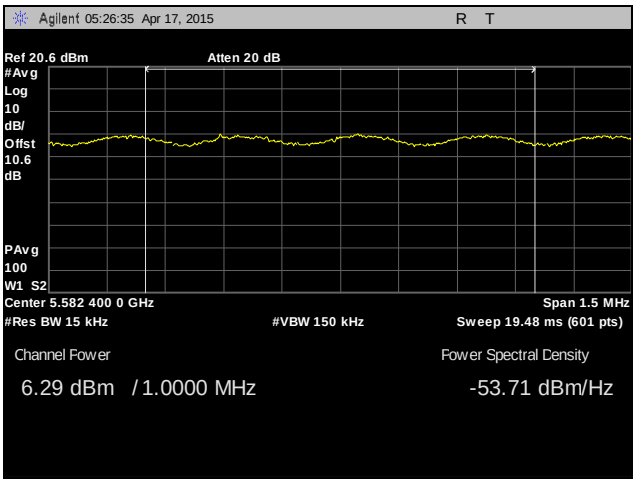
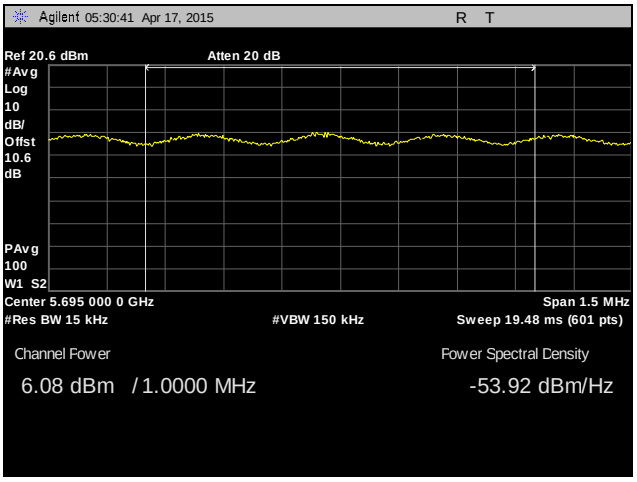


Plot 89. Peak Power Spectral Density, Channel 100, 802.11n 20 MHz, 5500 MHz



Plot 90. Peak Power Spectral Density, Channel 116, 802.11n 20 MHz, 5580 MHz



Plot 91. Peak Power Spectral Density, Channel 140, 802.11n 20 MHz, 5700 MHz

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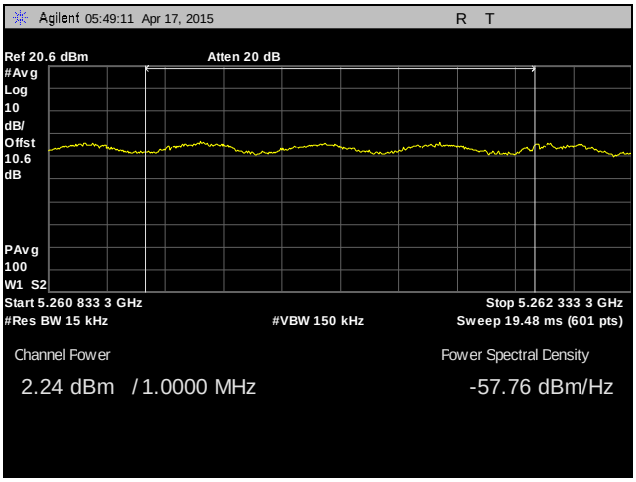
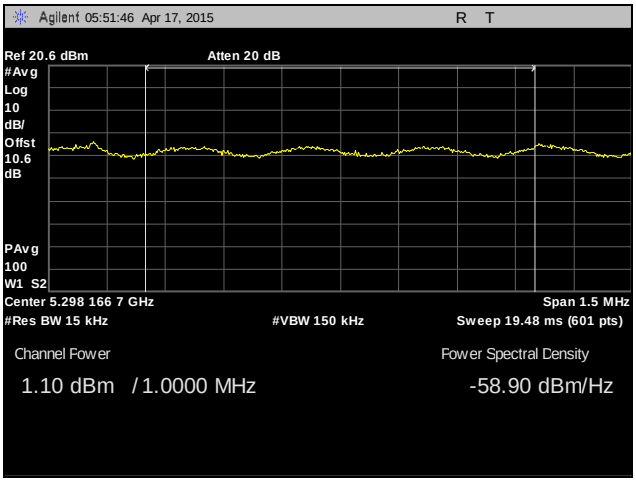
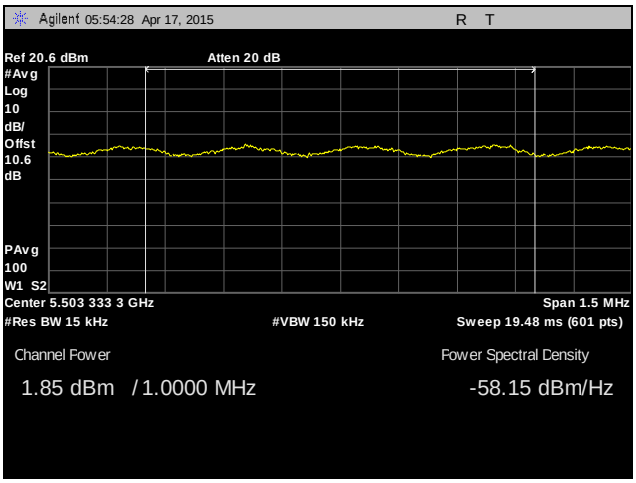
Peak Power Spectral Density, 802.11n 40 MHz



Plot 92. Peak Power Spectral Density, Channel 52, 802.11n 40 MHz, 5270 MHz



Plot 93. Peak Power Spectral Density, Channel 60, 802.11n 40 MHz, 5310 MHz



Plot 94. Peak Power Spectral Density, Channel 100, 802.11n 40 MHz, 5510 MHz

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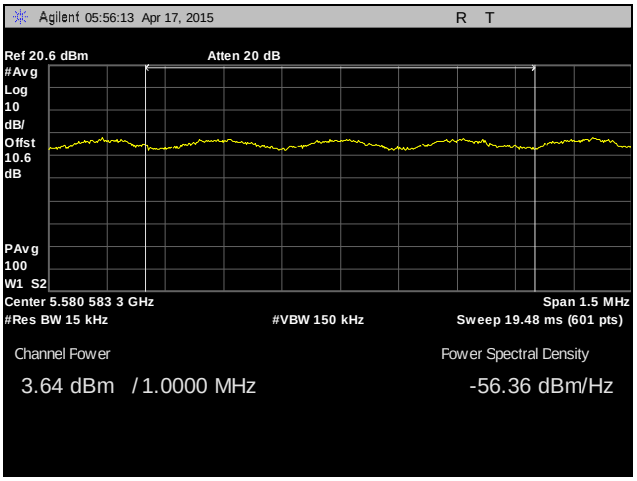
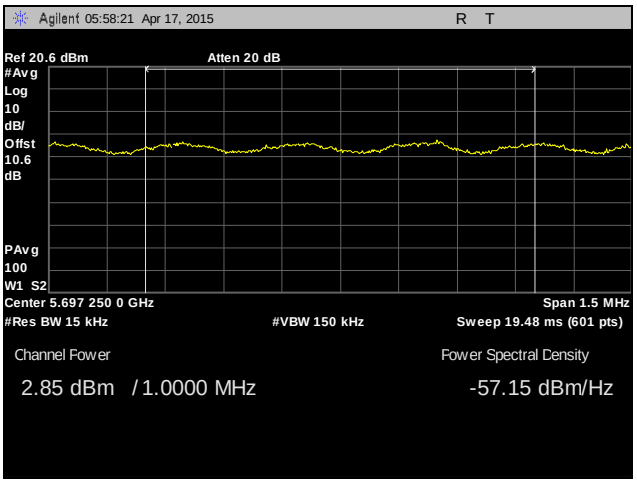


Plot 95. Peak Power Spectral Density, Channel 116, 802.11n 40 MHz, 5590 MHz



Plot 96. Peak Power Spectral Density, Channel 140, 802.11n 40 MHz, 5697 MHz

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Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.407(b)(4), (6), (7) Undesirable Emissions

Test Requirements: **§ 15.407(b)(2)(3):**
For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

§ 15.407(b)(6): Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. **§ 15.407(b)(7):** The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Test Procedure: The transmitter was placed on an 80cm wooden table inside in a semi-anechoic chamber. Measurements were performed with the EUT rotated 360 degrees and varying the adjustable antenna mast height to determine worst case orientation for maximum emissions. A preamp was used in the range from 7-18GHz to improve noise floor with high pass filter (7-18GHz) to protect the measurement instrument. Plots were corrected for cable loss, antenna, and preamp gain.

For measurements above 1 GHz, measurements were made with a Peak detector with 1 MHz resolution bandwidth. Where the spurious emissions fell into a restricted band, measurements were also made with an average detector to make sure they complied with 15.209 limits. Only noise floor was seen above 18 GHz. Worst case emissions shown by antenna.

Test Results: The EUT was compliant with the Radiated Emission limits for Intentional Radiators. See following pages for detailed test results. All emissions above 18 GHz were at the noise floor of the receiver.

***Note:** Below 1GHz there were certain frequencies where peak emission was over FCC15.209 quasi peak limit. These failing frequencies were the result of digital emission (These emission were present even with radio unit turned off) and EUT has conformity with class B radiated emission digital requirement.

Test Engineer(s): Surinder Singh

Test Date(s): 04/21/15

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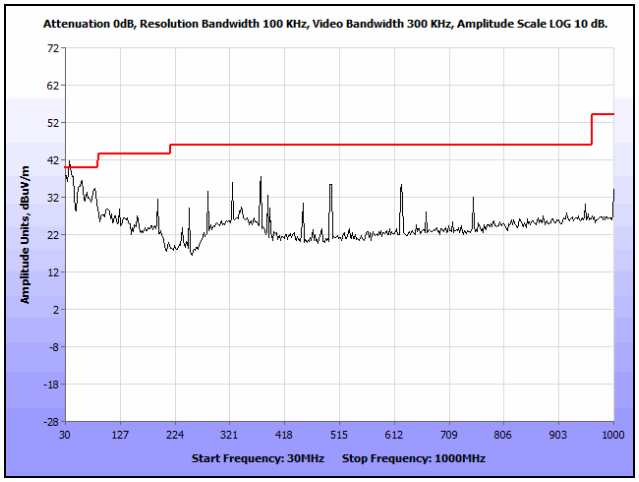
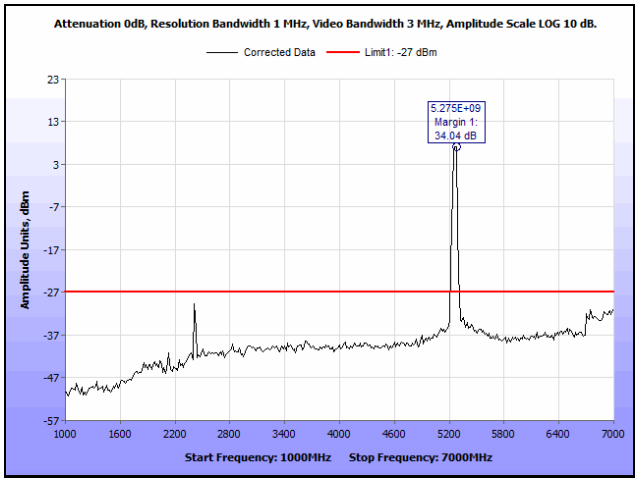
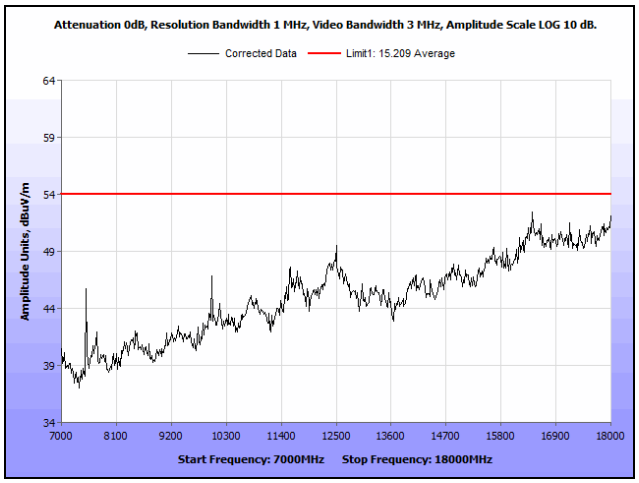
Radiated Spurious Emissions, 802.11a 20 MHz



Plot 97. Radiated Spurious Emissions, Channel 52, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 98. Radiated Spurious Emissions, Channel 52, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 99. Radiated Spurious Emissions, Channel 52, 802.11a 20 MHz, 7 GHz – 18 GHz

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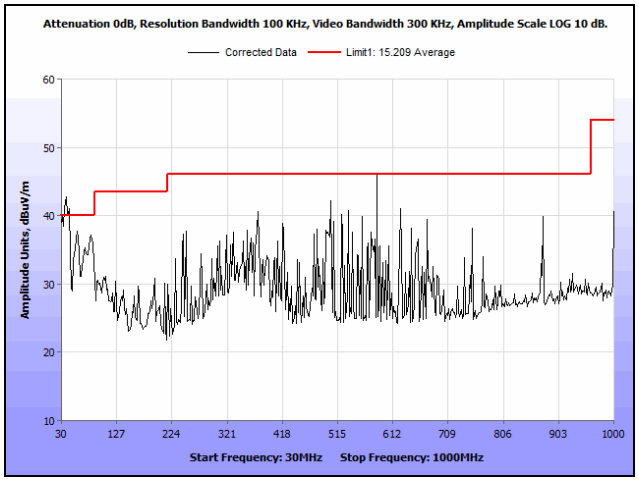
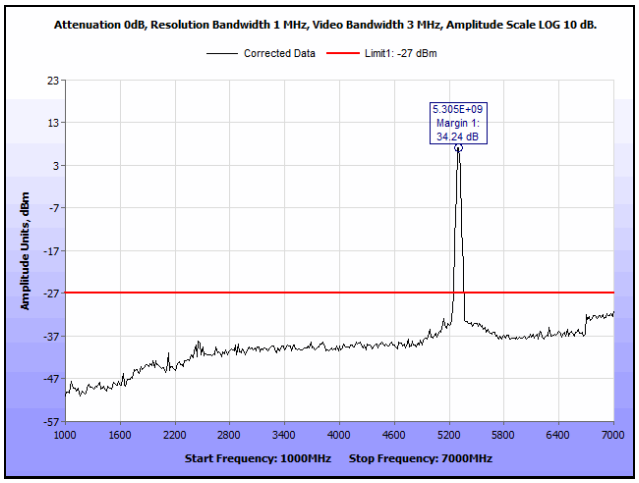
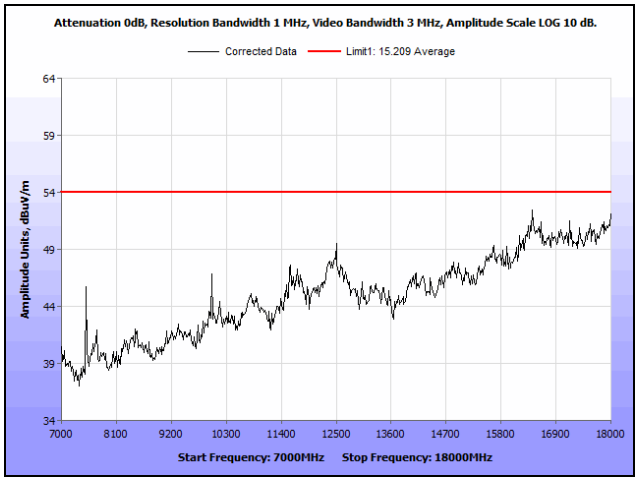


Plot 100. Radiated Spurious Emissions, Channel 60, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 101. Radiated Spurious Emissions, Channel 60, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 102. Radiated Spurious Emissions, Channel 60, 802.11a 20 MHz, 7 GHz – 18 GHz

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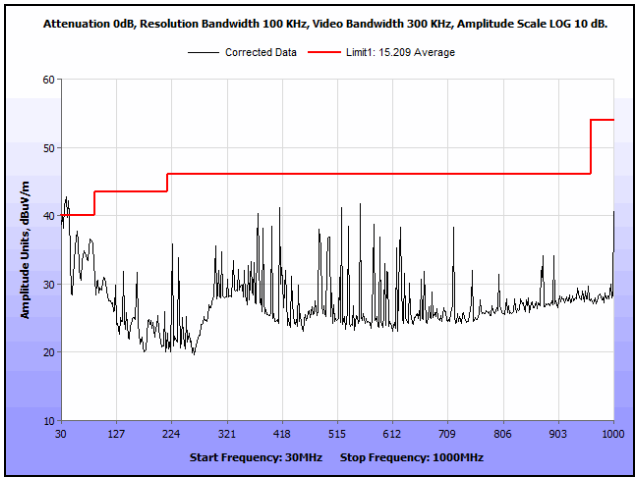
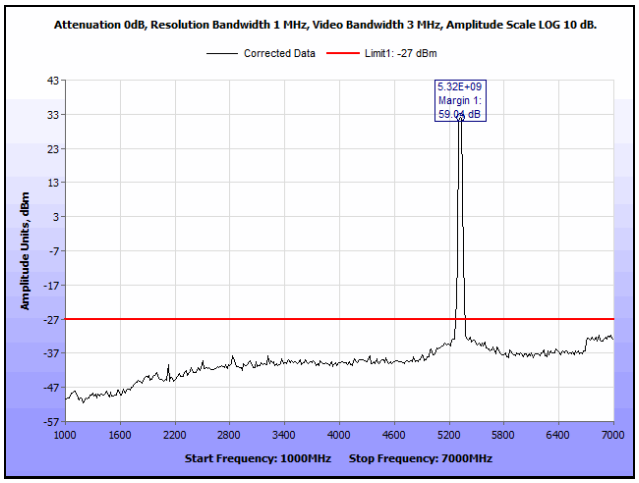
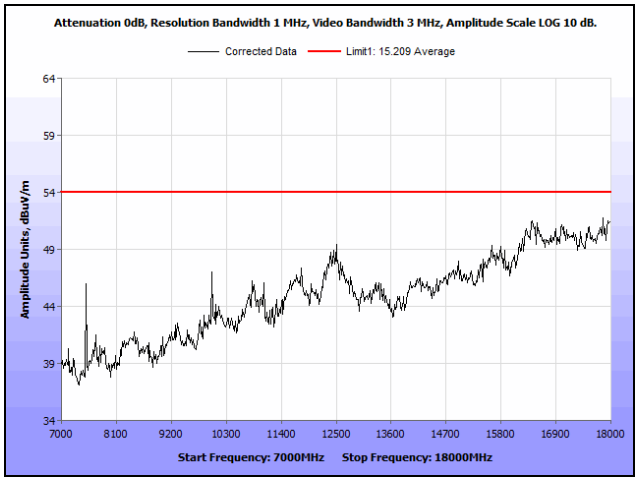


Plot 103. Radiated Spurious Emissions, Channel 64, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 104. Radiated Spurious Emissions, Channel 64, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 105. Radiated Spurious Emissions, Channel 64, 802.11a 20 MHz, 7 GHz – 18 GHz

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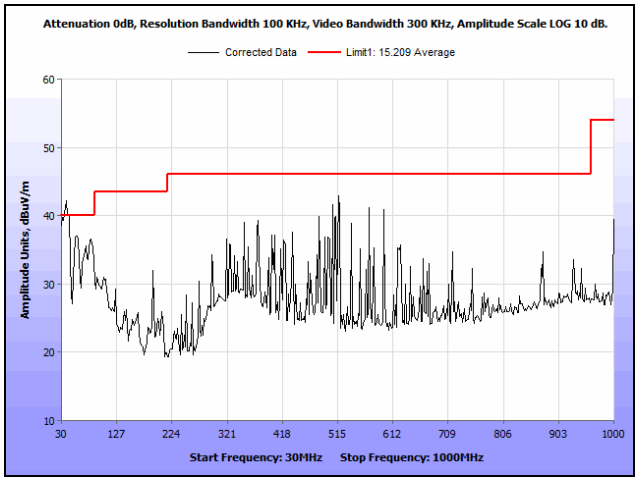
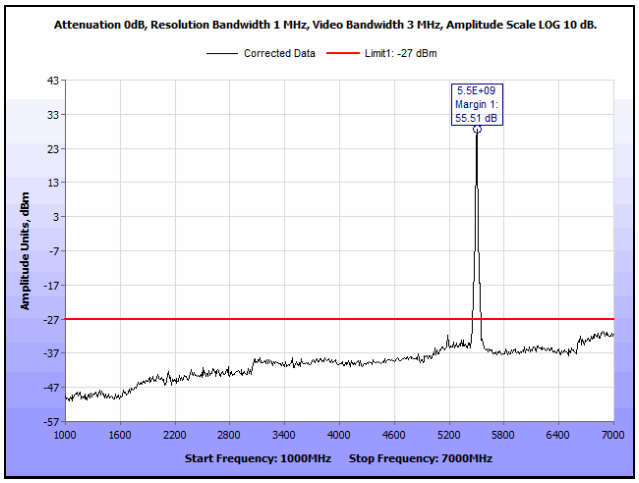
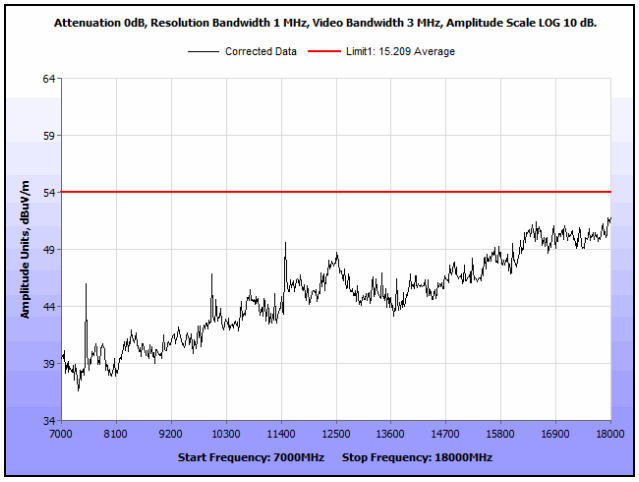


Plot 106. Radiated Spurious Emissions, Channel 100, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 107. Radiated Spurious Emissions, Channel 100, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 108. Radiated Spurious Emissions, Channel 100, 802.11a 20 MHz, 7 GHz – 18 GHz

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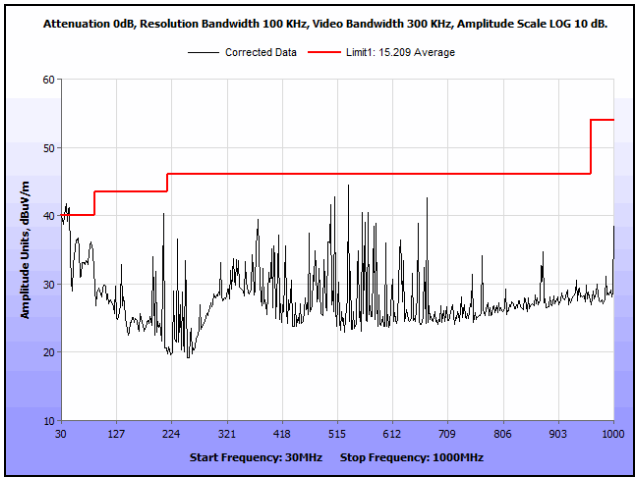
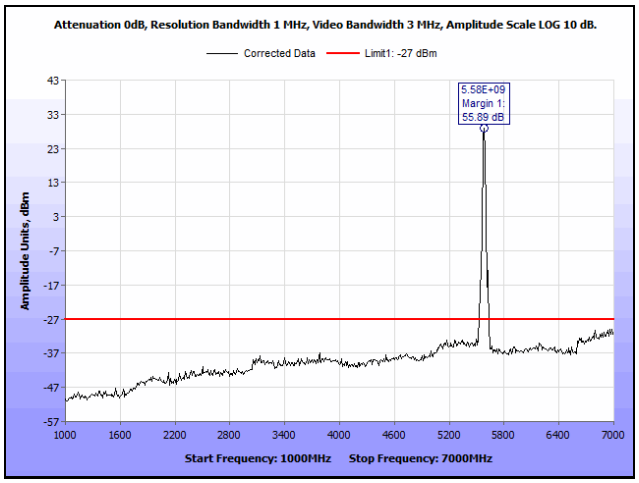
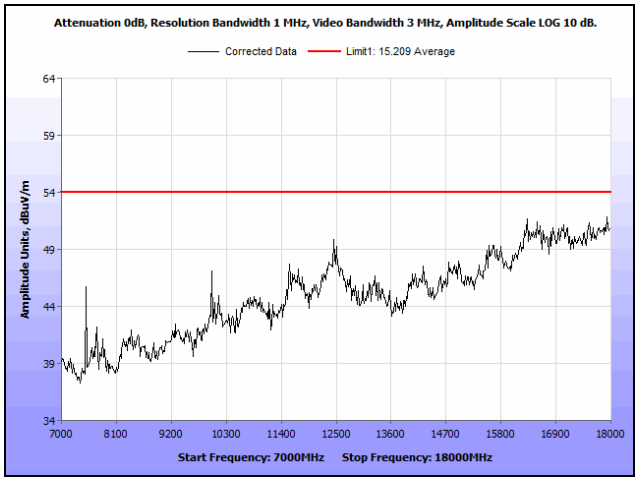


Plot 109. Radiated Spurious Emissions, Channel 116, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 110. Radiated Spurious Emissions, Channel 116, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 111. Radiated Spurious Emissions, Channel 116, 802.11a 20 MHz, 7 GHz – 18 GHz

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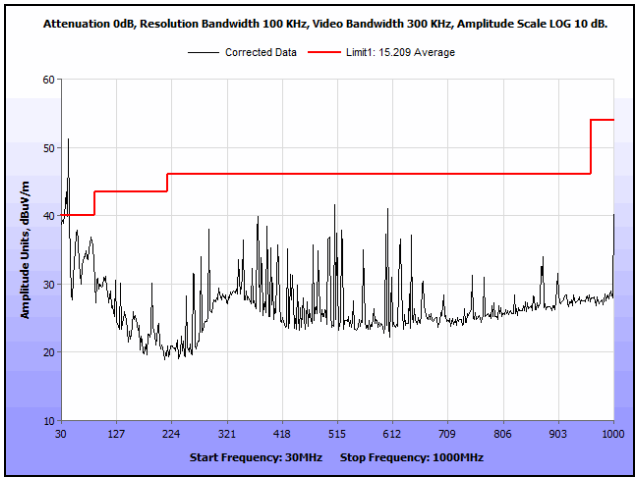
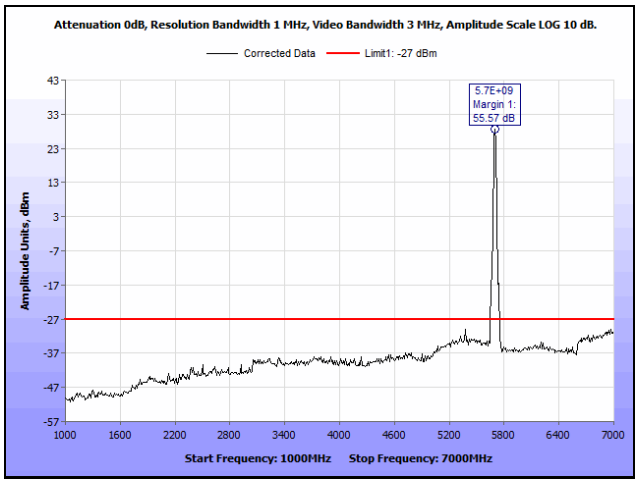
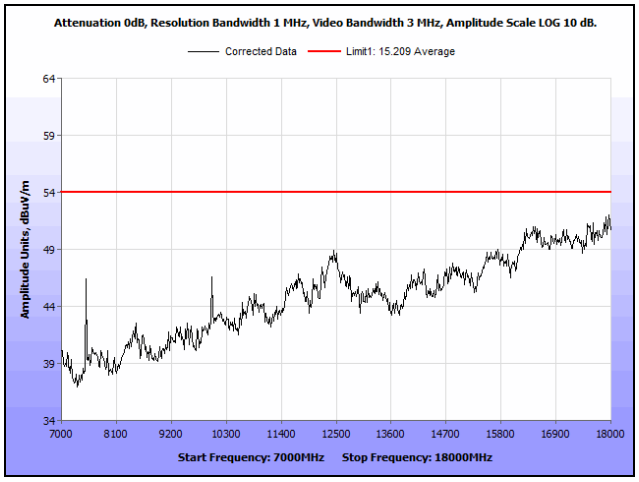


Plot 112. Radiated Spurious Emissions, Channel 140, 802.11a 20 MHz, 30 MHz – 1 GHz



Plot 113. Radiated Spurious Emissions, Channel 140, 802.11a 20 MHz, 1 GHz – 7 GHz



Plot 114. Radiated Spurious Emissions, Channel 140, 802.11a 20 MHz, 7 GHz – 18 GHz

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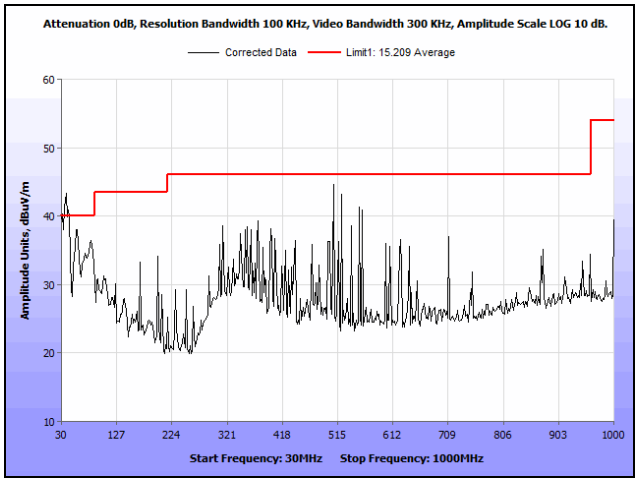
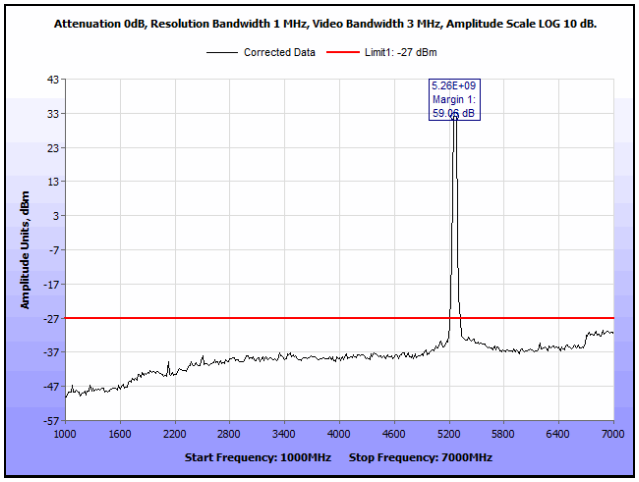
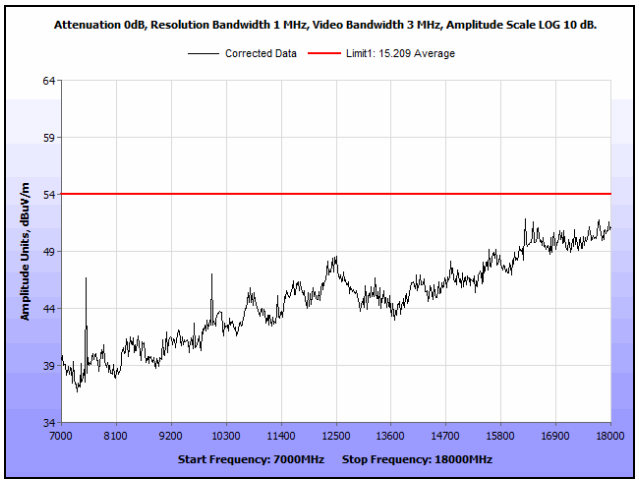
Radiated Spurious Emissions, 802.11ac 20 MHz



Plot 115. Radiated Spurious Emissions, Channel 52, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 116. Radiated Spurious Emissions, Channel 52, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 117. Radiated Spurious Emissions, Channel 52, 802.11ac 20 MHz, 7 GHz – 18 GHz

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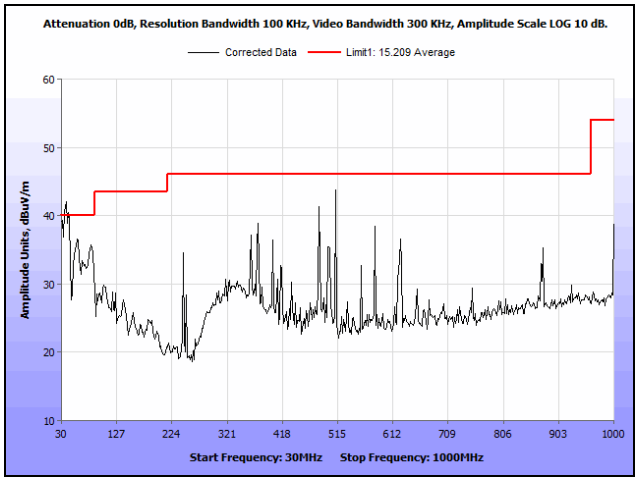
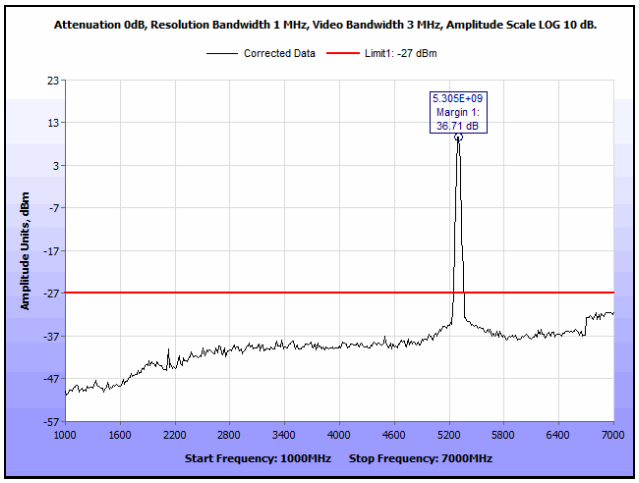
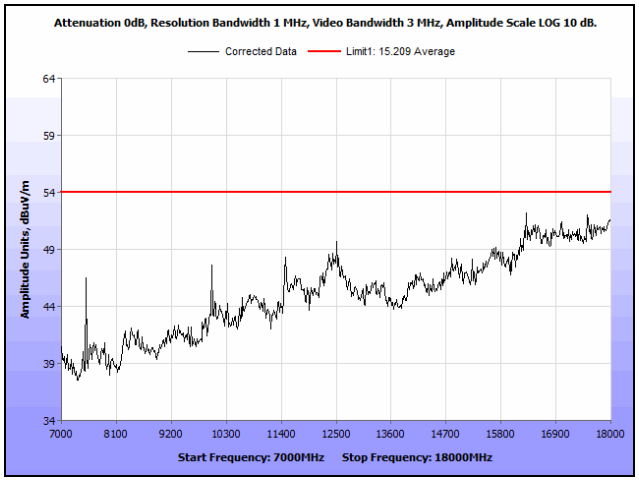


Plot 118. Radiated Spurious Emissions, Channel 60, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 119. Radiated Spurious Emissions, Channel 60, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 120. Radiated Spurious Emissions, Channel 60, 802.11ac 20 MHz, 7 GHz – 18 GHz

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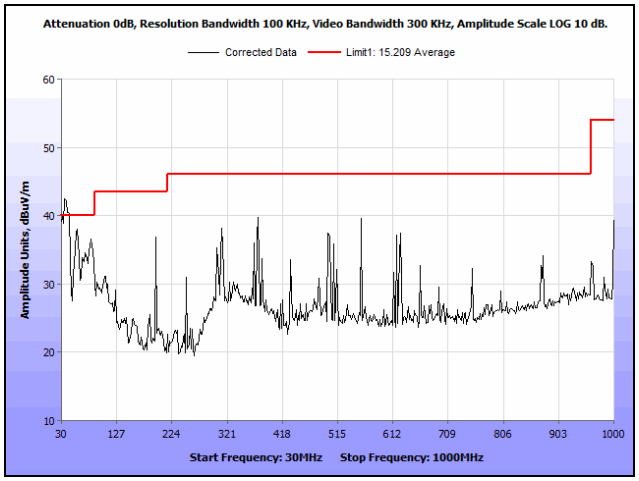
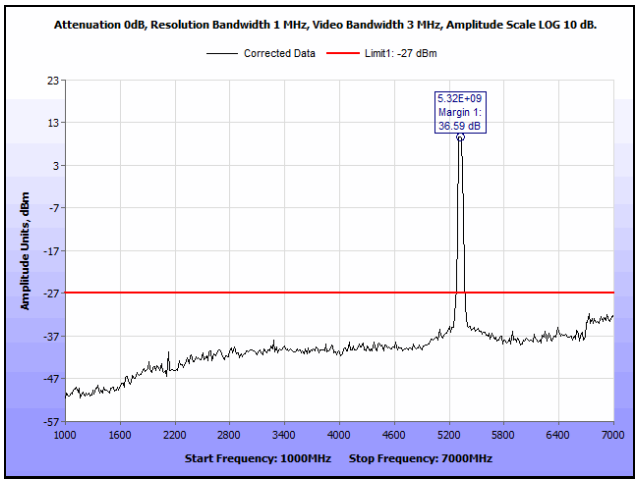
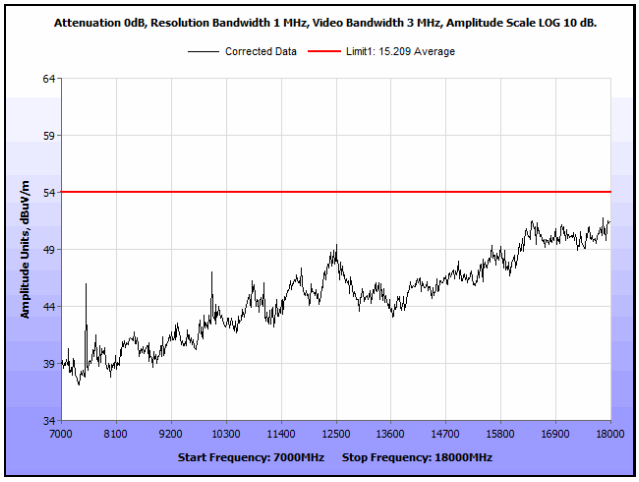


Plot 121. Radiated Spurious Emissions, Channel 64, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 122. Radiated Spurious Emissions, Channel 64, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 123. Radiated Spurious Emissions, Channel 64, 802.11ac 20 MHz, 7 GHz – 18 GHz

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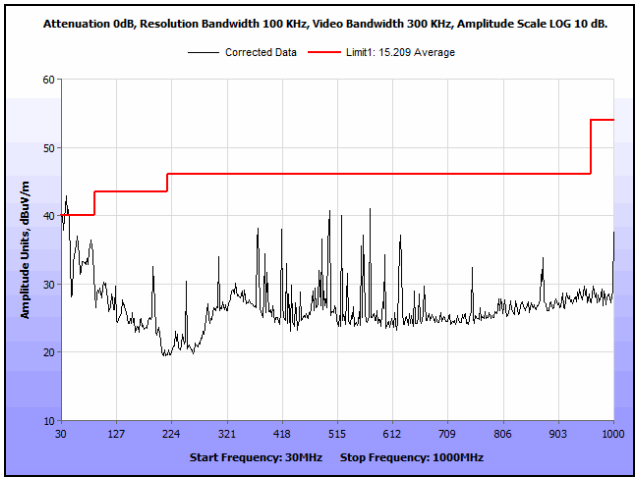
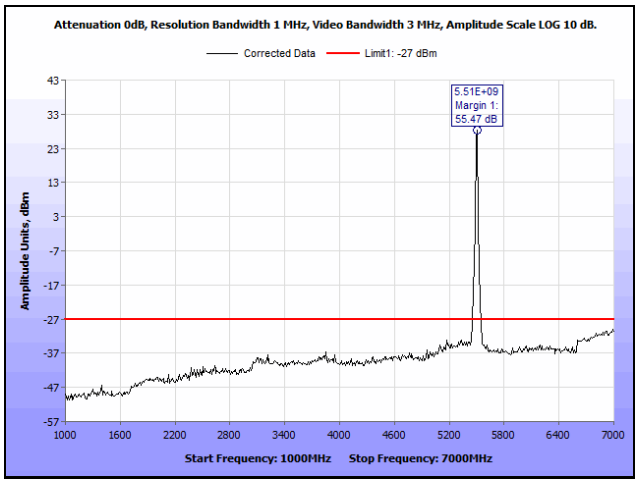
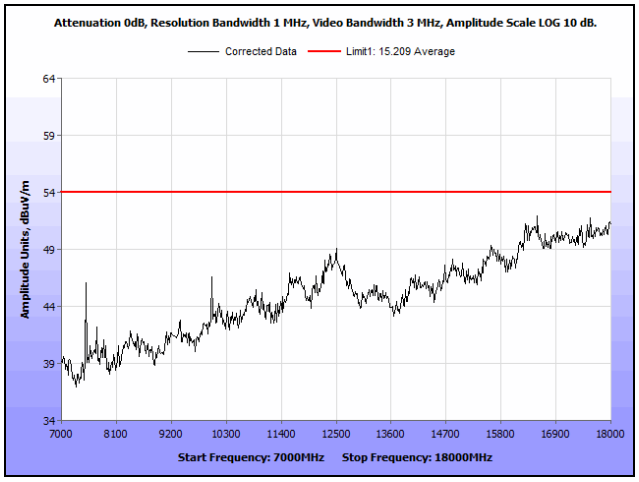


Plot 124. Radiated Spurious Emissions, Channel 100, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 125. Radiated Spurious Emissions, Channel 100, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 126. Radiated Spurious Emissions, Channel 100, 802.11ac 20 MHz, 7 GHz – 18 GHz

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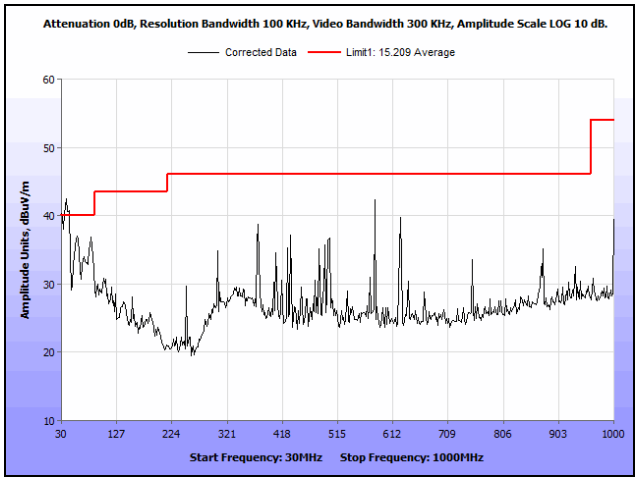
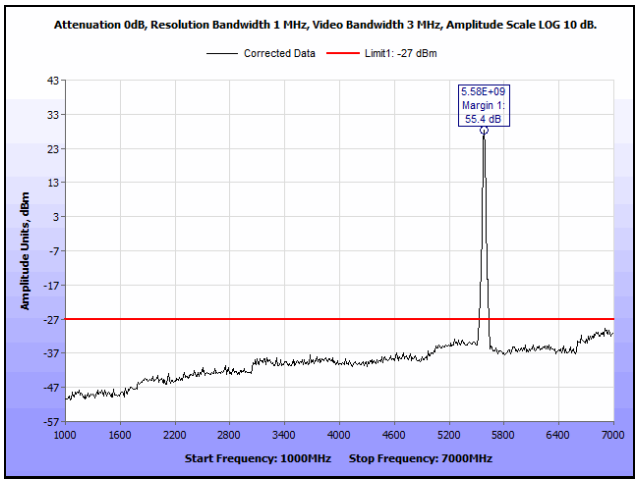
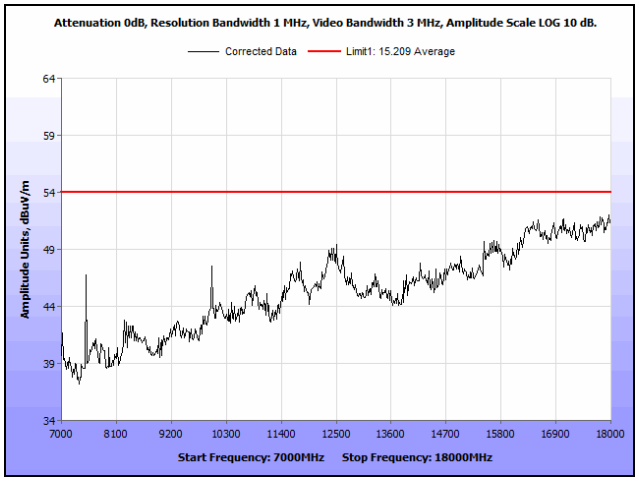


Plot 127. Radiated Spurious Emissions, Channel 116, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 128. Radiated Spurious Emissions, Channel 116, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 129. Radiated Spurious Emissions, Channel 116, 802.11ac 20 MHz, 7 GHz – 18 GHz

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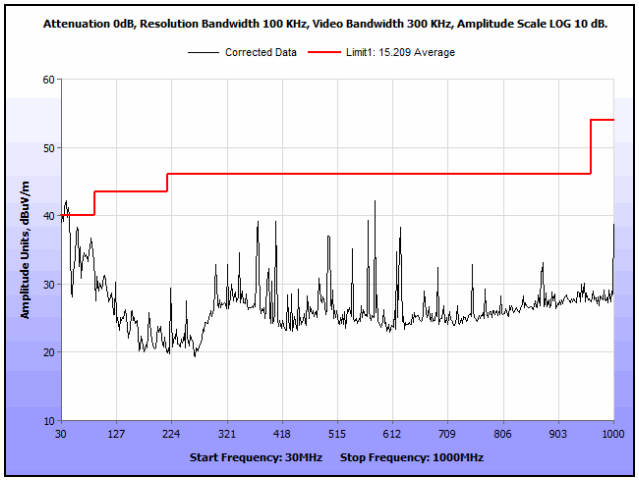
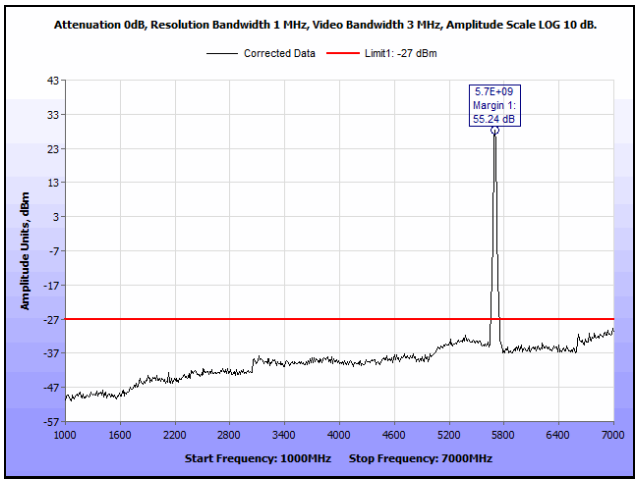
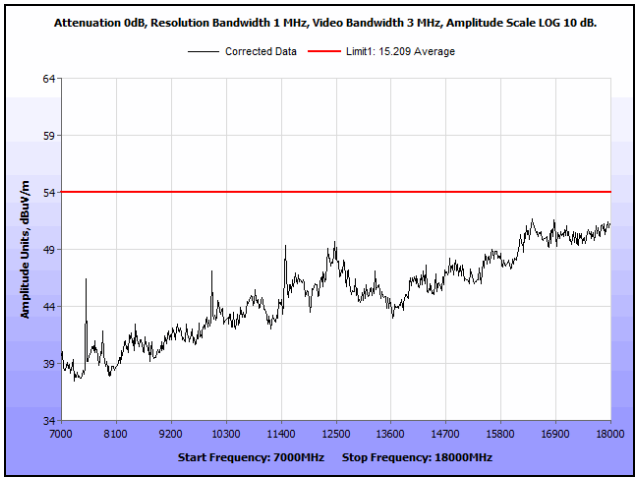


Plot 130. Radiated Spurious Emissions, Channel 140, 802.11ac 20 MHz, 30 MHz – 1 GHz



Plot 131. Radiated Spurious Emissions, Channel 140, 802.11ac 20 MHz, 1 GHz – 7 GHz



Plot 132. Radiated Spurious Emissions, Channel 140, 802.11ac 20 MHz, 7 GHz – 18 GHz

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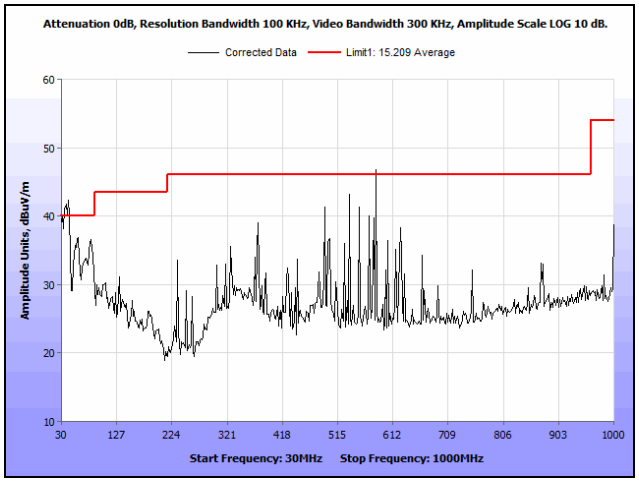
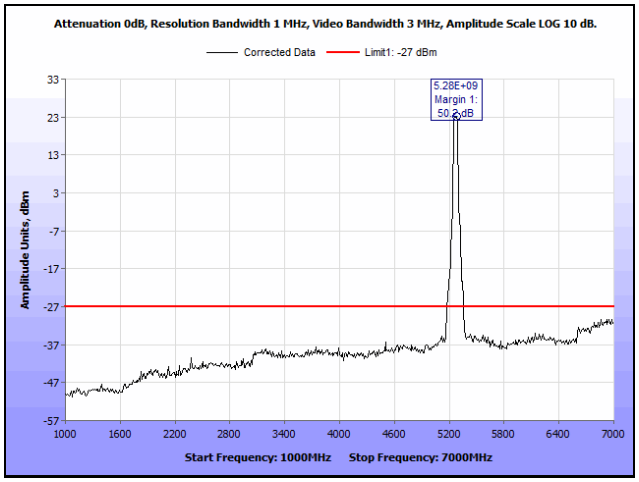
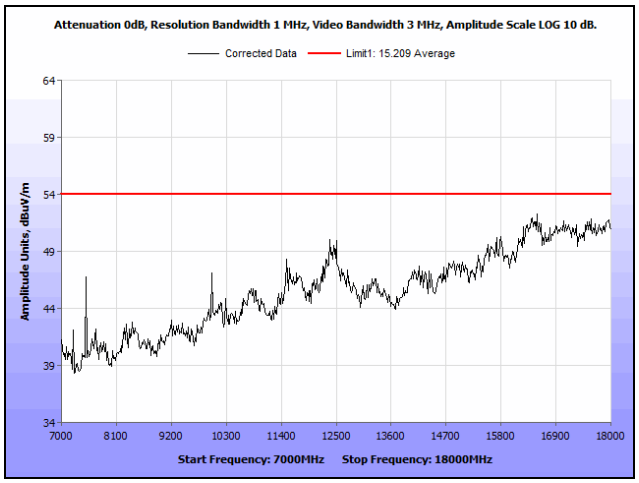
Radiated Spurious Emissions, 802.11ac 40 MHz



Plot 133. Radiated Spurious Emissions, Channel 52, 802.11ac 40 MHz, 30 MHz – 1 GHz



Plot 134. Radiated Spurious Emissions, Channel 52, 802.11ac 40 MHz, 1 GHz – 7 GHz



Plot 135. Radiated Spurious Emissions, Channel 52, 802.11ac 40 MHz, 7 GHz – 18 GHz

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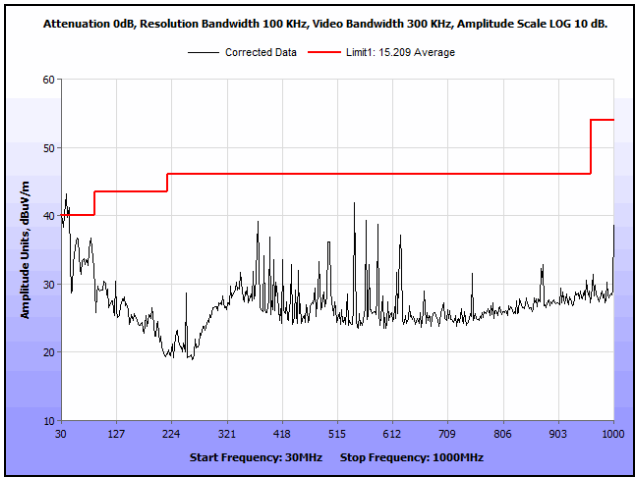
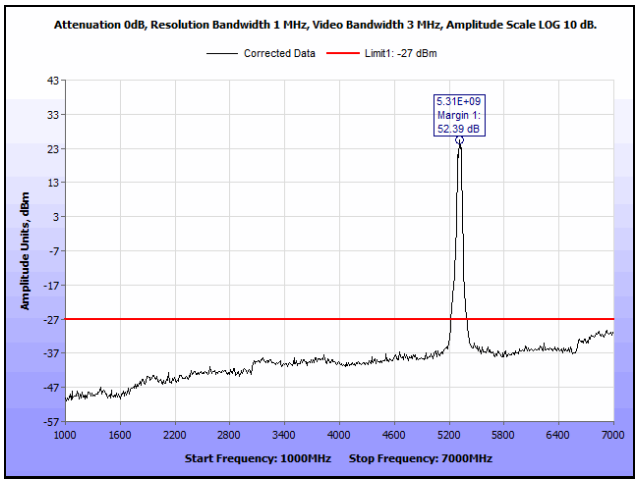
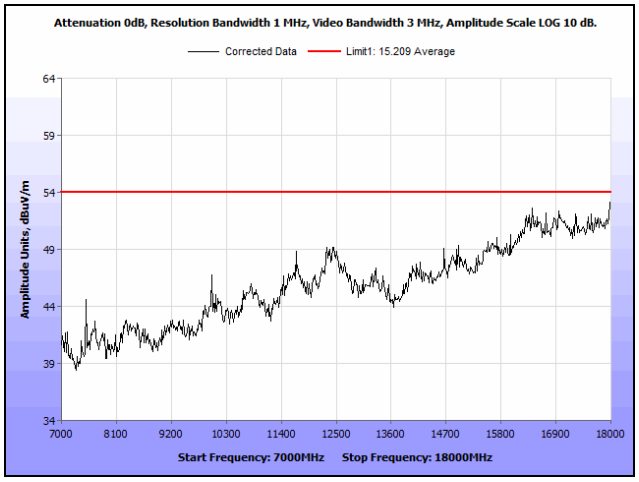


Plot 136. Radiated Spurious Emissions, Channel 60, 802.11ac 40 MHz, 30 MHz – 1 GHz



Plot 137. Radiated Spurious Emissions, Channel 60, 802.11ac 40 MHz, 1 GHz – 7 GHz



Plot 138. Radiated Spurious Emissions, Channel 60, 802.11ac 40 MHz, 7 GHz – 18 GHz

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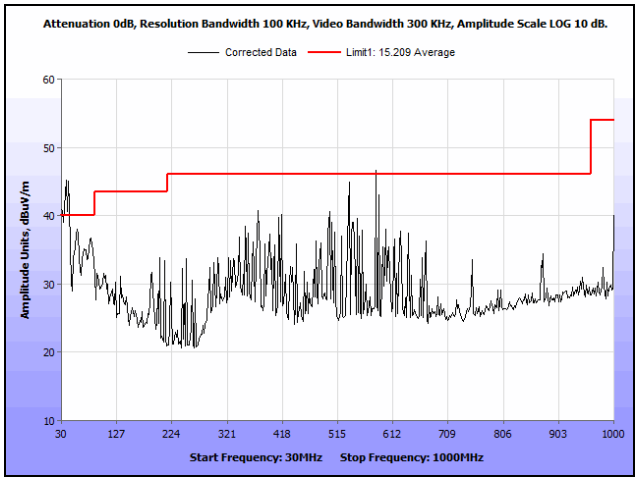
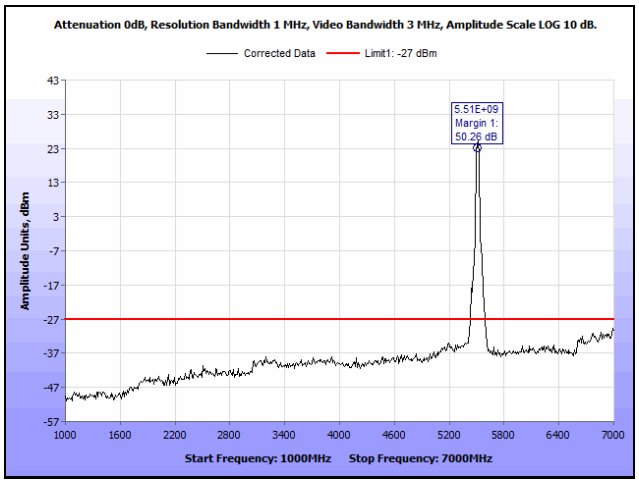
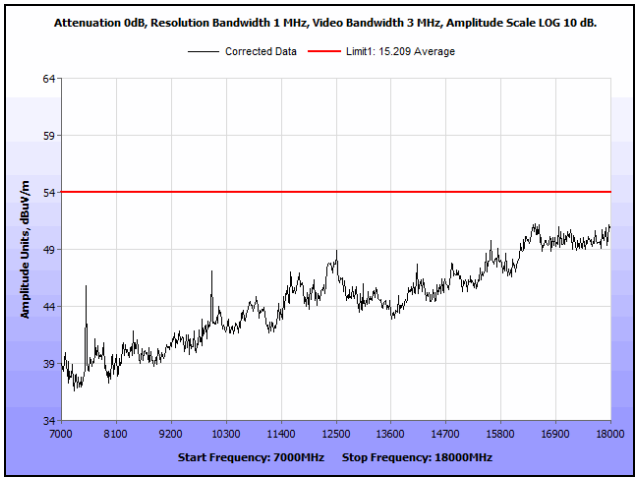


Plot 139. Radiated Spurious Emissions, Channel 100, 802.11ac 40 MHz, 30 MHz – 1 GHz



Plot 140. Radiated Spurious Emissions, Channel 100, 802.11ac 40 MHz, 1 GHz – 7 GHz



Plot 141. Radiated Spurious Emissions, Channel 100, 802.11ac 40 MHz, 7 GHz – 18 GHz

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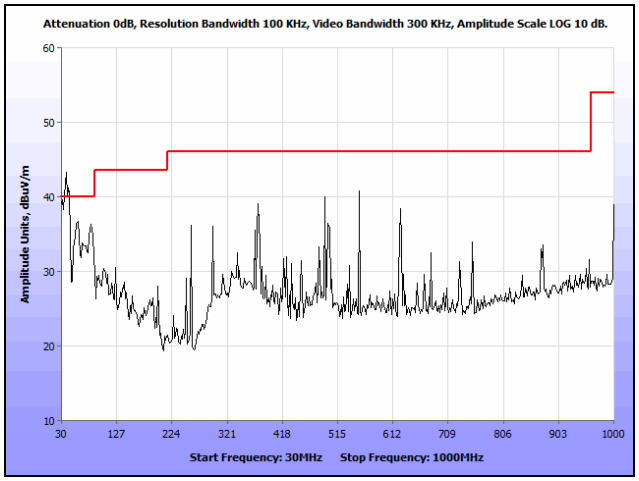
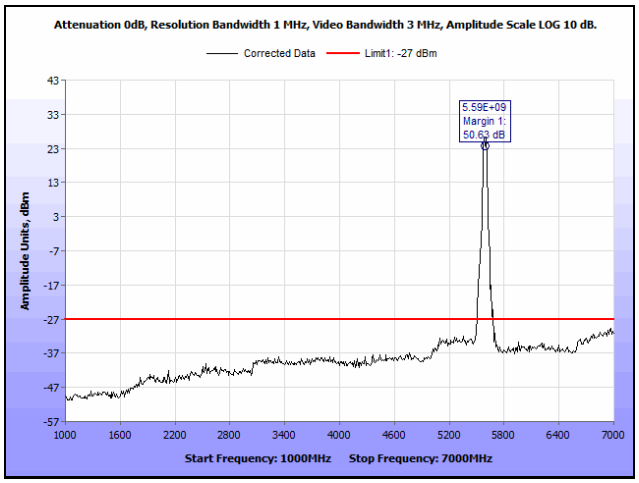
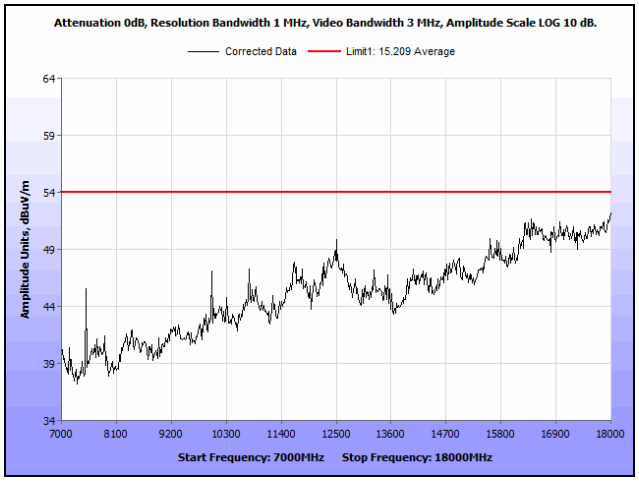


Plot 142. Radiated Spurious Emissions, Channel 116, 802.11ac 40 MHz, 30 MHz – 1 GHz



Plot 143. Radiated Spurious Emissions, Channel 116, 802.11ac 40 MHz, 1 GHz – 7 GHz



Plot 144. Radiated Spurious Emissions, Channel 116, 802.11ac 40 MHz, 7 GHz – 18 GHz

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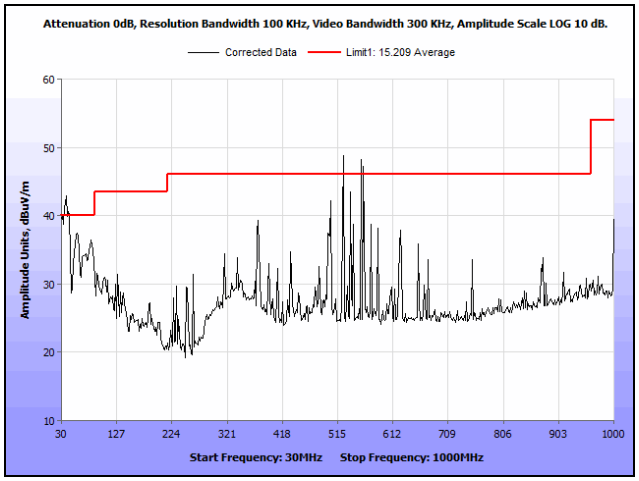
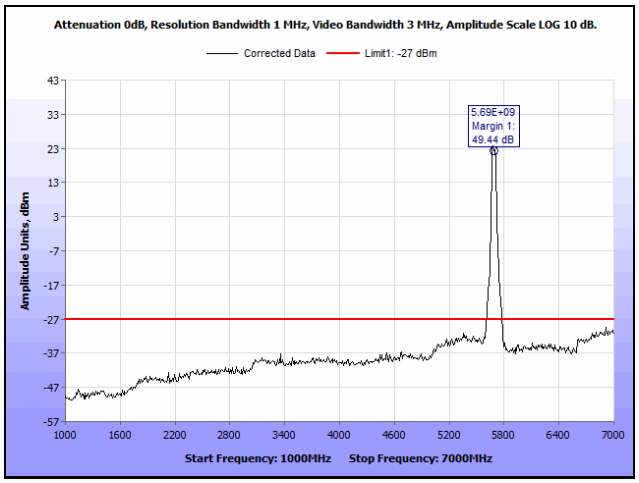
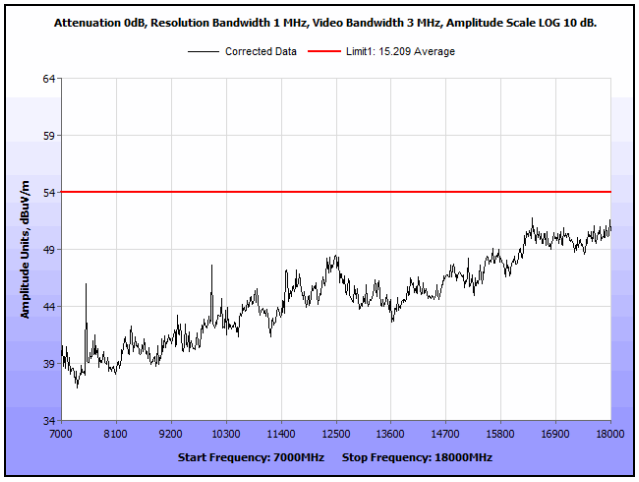


Plot 145. Radiated Spurious Emissions, Channel 132, 802.11ac 40 MHz, 30 MHz – 1 GHz



Plot 146. Radiated Spurious Emissions, Channel 132, 802.11ac 40 MHz, 1 GHz – 7 GHz



Plot 147. Radiated Spurious Emissions, Channel 132, 802.11ac 40 MHz, 7 GHz – 18 GHz

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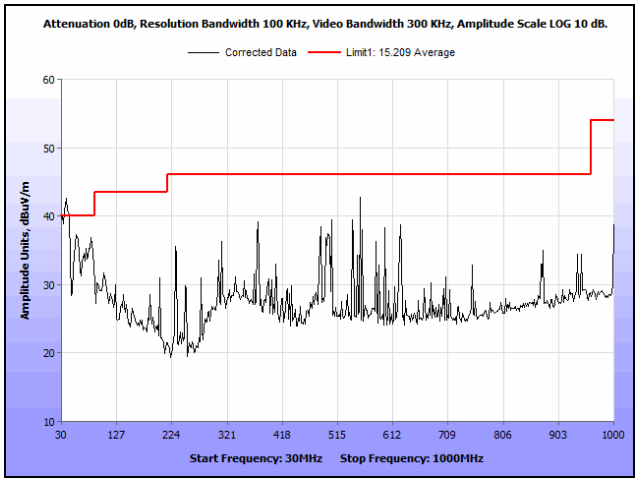
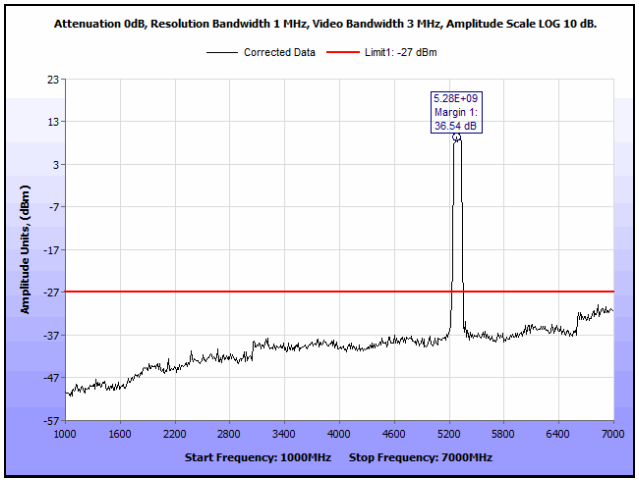
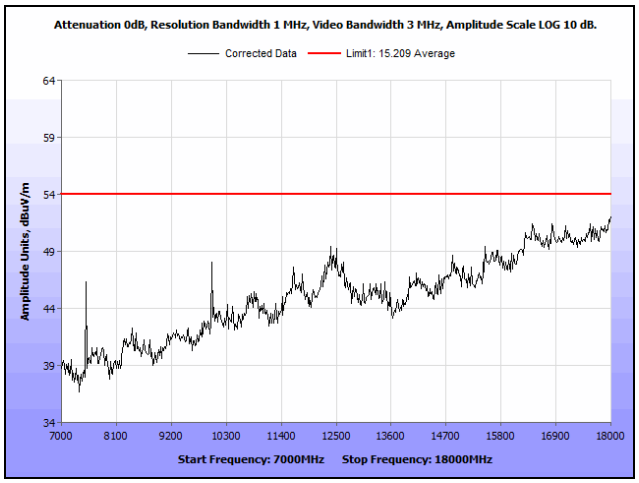
Radiated Spurious Emissions, 802.11ac 80 MHz



Plot 148. Radiated Spurious Emissions, Channel 52, 802.11ac 80 MHz, 30 MHz – 1 GHz



Plot 149. Radiated Spurious Emissions, Channel 52, 802.11ac 80 MHz, 1 GHz – 7 GHz



Plot 150. Radiated Spurious Emissions, Channel 52, 802.11ac 80 MHz, 7 GHz – 18 GHz

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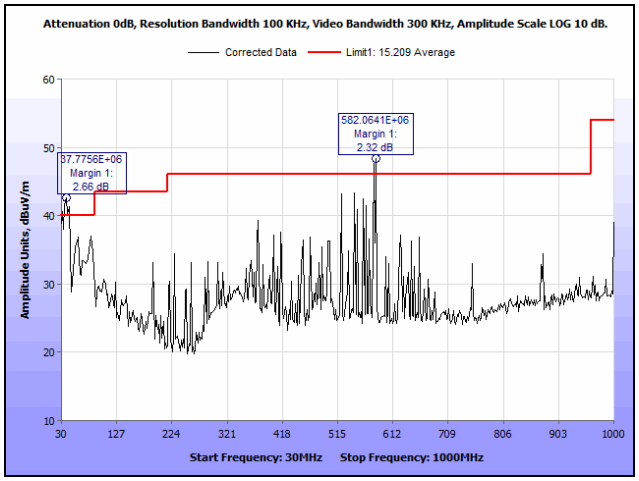
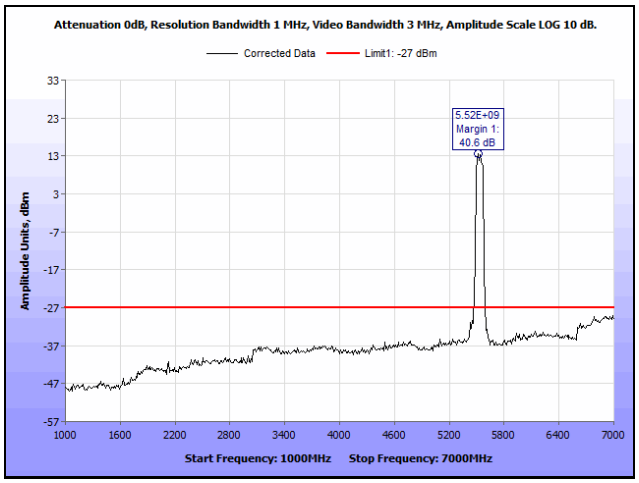
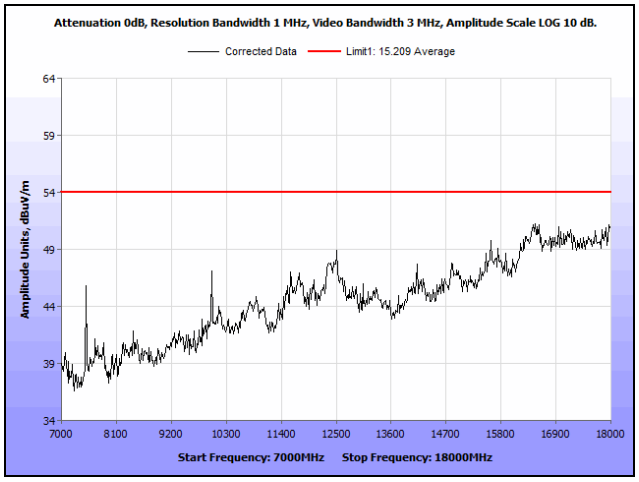


Plot 151. Radiated Spurious Emissions, Channel 100, 802.11ac 80 MHz, 30 MHz – 1 GHz



Plot 152. Radiated Spurious Emissions, Channel 100, 802.11ac 80 MHz, 1 GHz – 7 GHz



Plot 153. Radiated Spurious Emissions, Channel 100, 802.11ac 80 MHz, 7 GHz – 18 GHz

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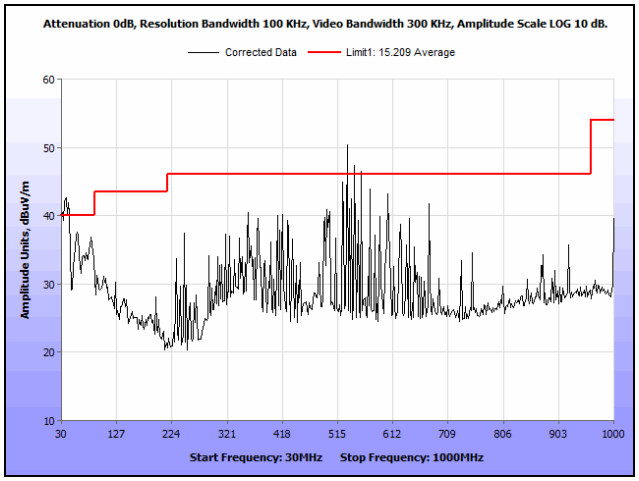
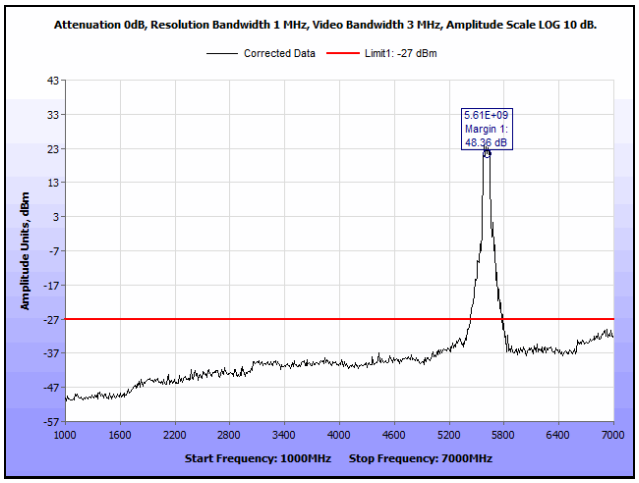
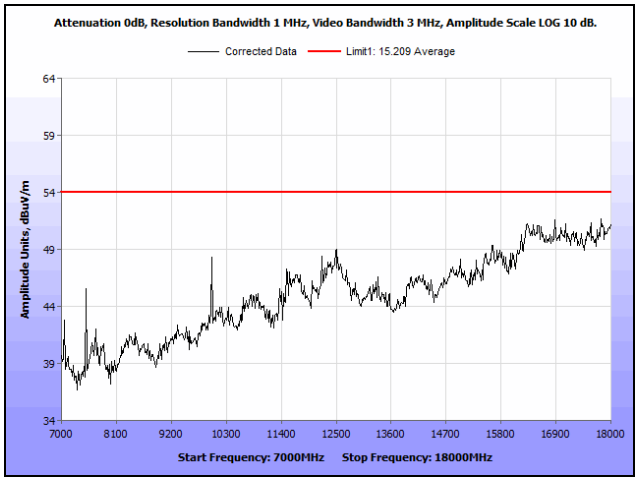


Plot 154. Radiated Spurious Emissions, Channel 116, 802.11ac 80 MHz, 30 MHz – 1 GHz



Plot 155. Radiated Spurious Emissions, Channel 116, 802.11ac 80 MHz, 1 GHz – 7 GHz



Plot 156. Radiated Spurious Emissions, Channel 116, 802.11ac 80 MHz, 7 GHz – 18 GHz

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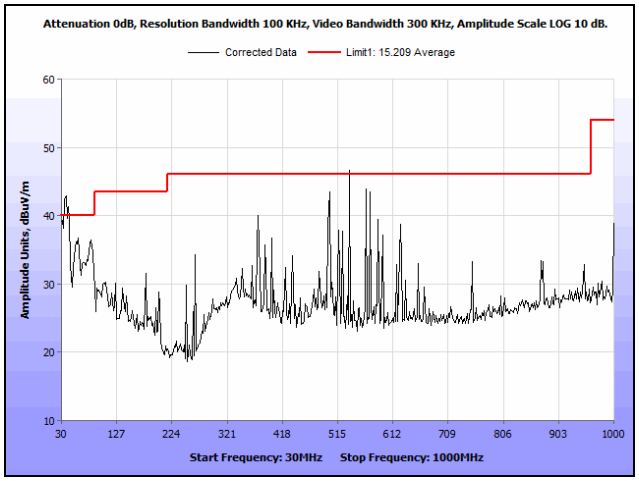
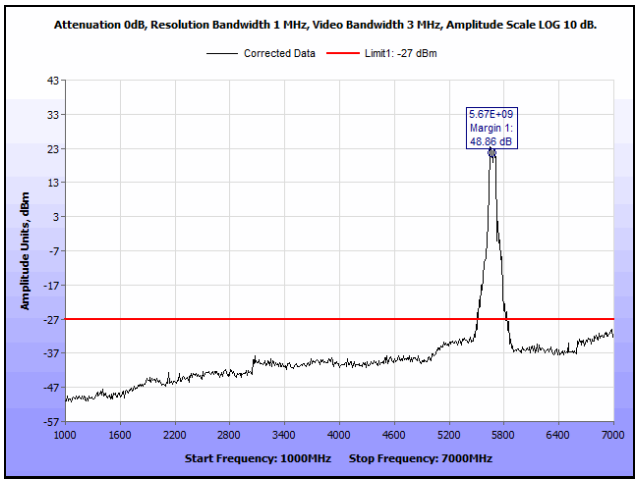
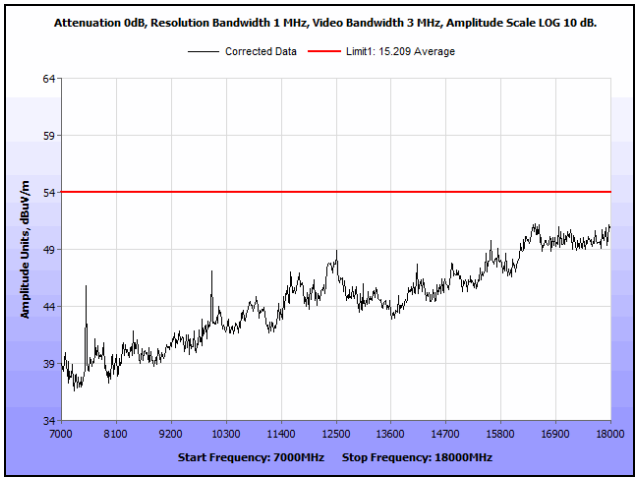


Plot 157. Radiated Spurious Emissions, Channel 128, 802.11ac 80 MHz, 30 MHz – 1 GHz



Plot 158. Radiated Spurious Emissions, Channel 128, 802.11ac 80 MHz, 1 GHz – 7 GHz



Plot 159. Radiated Spurious Emissions, Channel 128, 802.11ac 80 MHz, 7 GHz – 18 GHz

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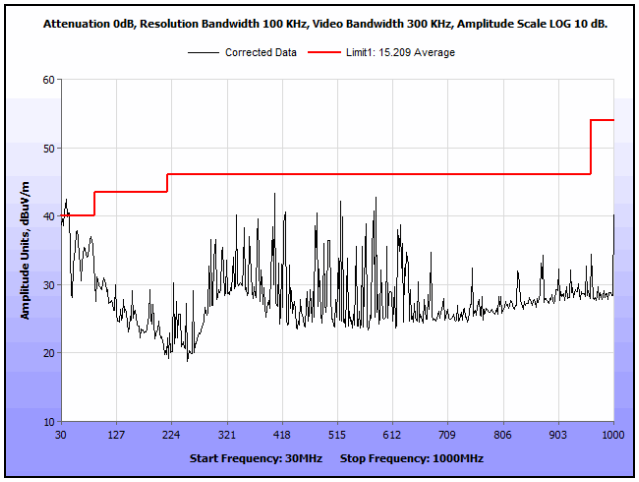
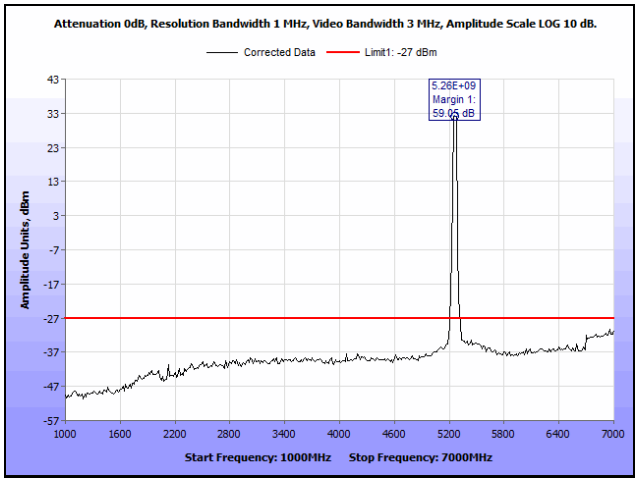
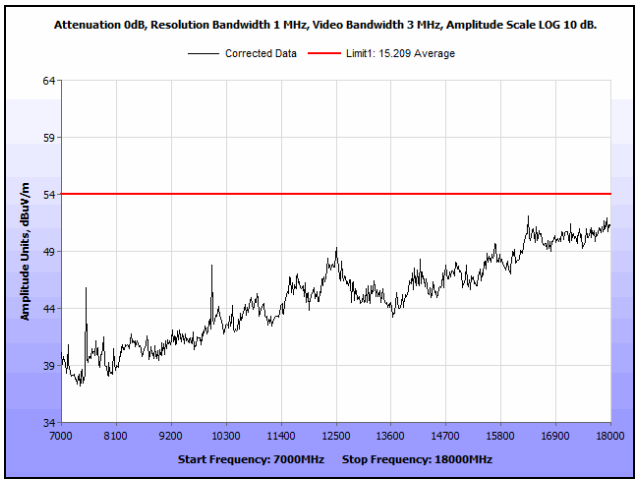
Radiated Spurious Emissions, 802.11n 20 MHz



Plot 160. Radiated Spurious Emissions, Channel 52, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 161. Radiated Spurious Emissions, Channel 52, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 162. Radiated Spurious Emissions, Channel 52, 802.11n 20 MHz, 7 GHz – 18 GHz

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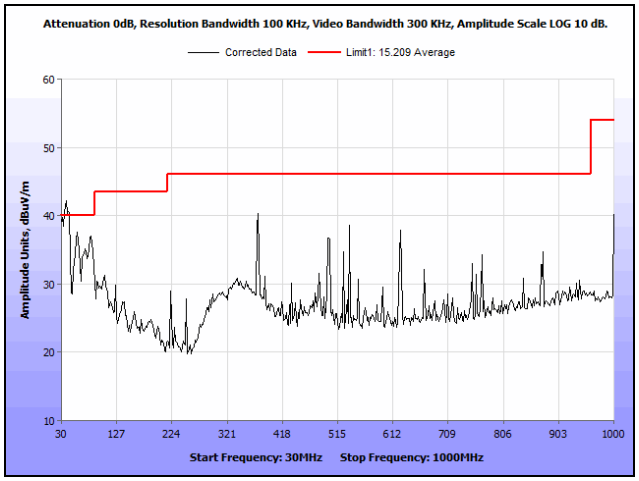
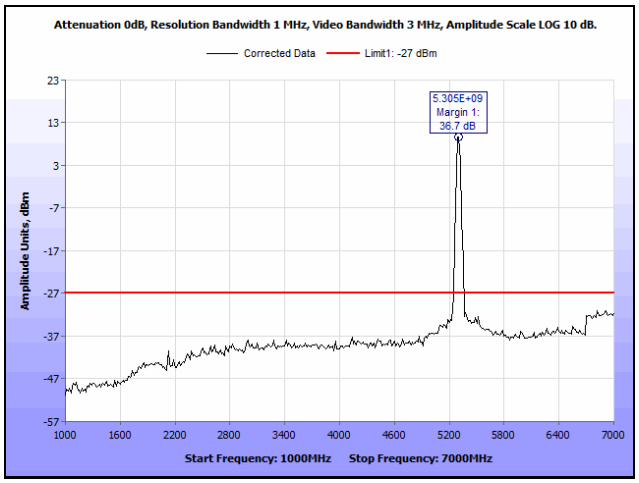
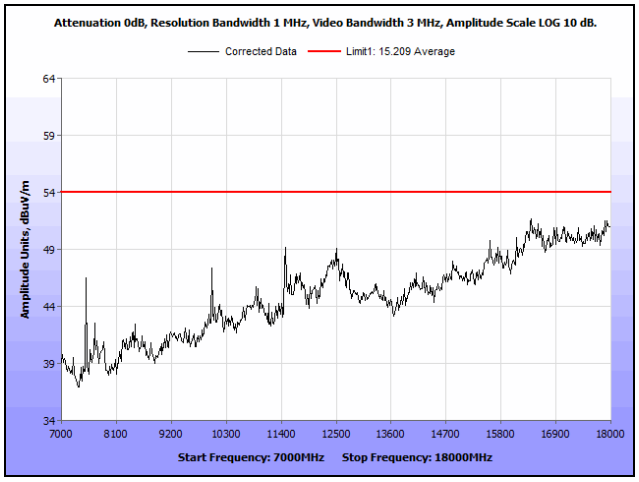


Plot 163. Radiated Spurious Emissions, Channel 60, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 164. Radiated Spurious Emissions, Channel 60, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 165. Radiated Spurious Emissions, Channel 60, 802.11n 20 MHz, 7 GHz – 18 GHz

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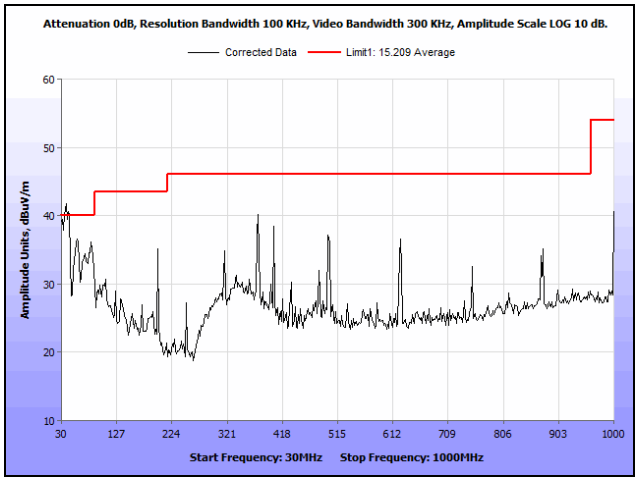
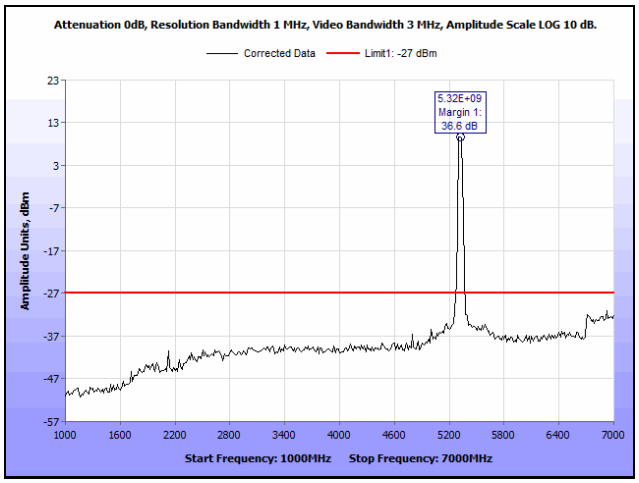
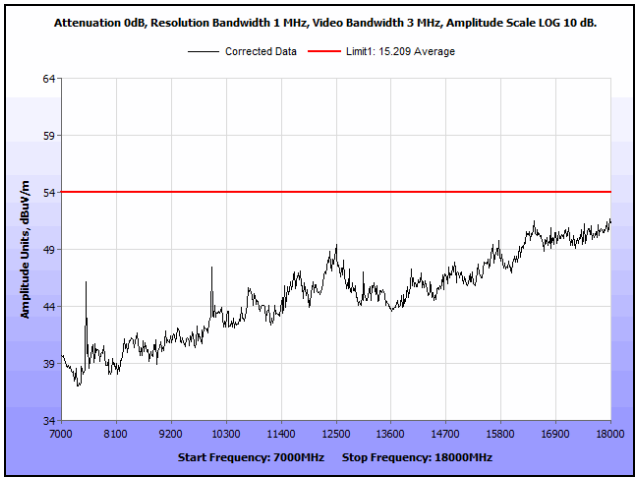


Plot 166. Radiated Spurious Emissions, Channel 64, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 167. Radiated Spurious Emissions, Channel 64, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 168. Radiated Spurious Emissions, Channel 64, 802.11n 20 MHz, 7 GHz – 18 GHz

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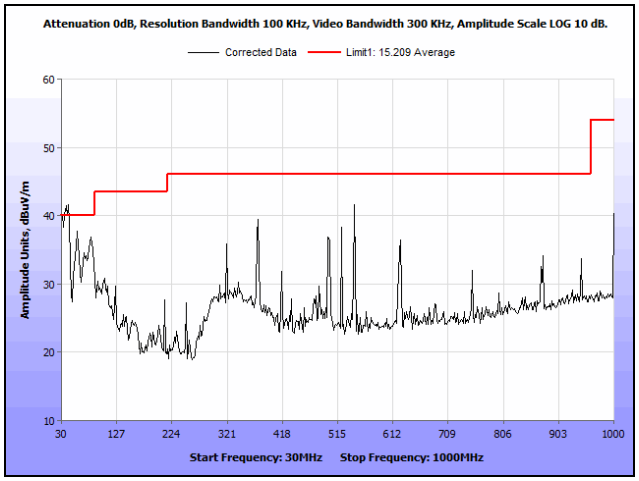
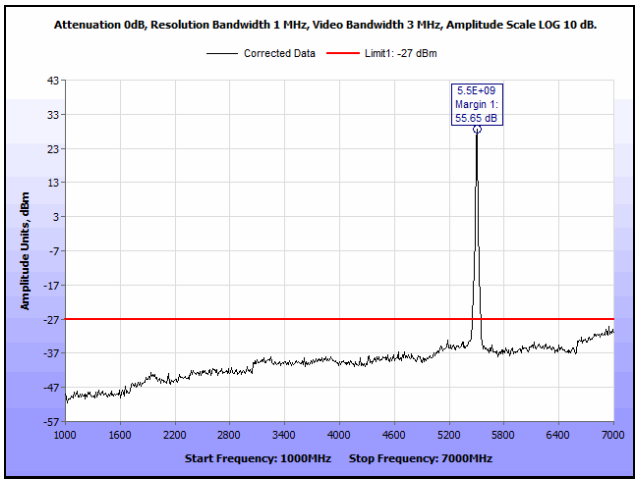
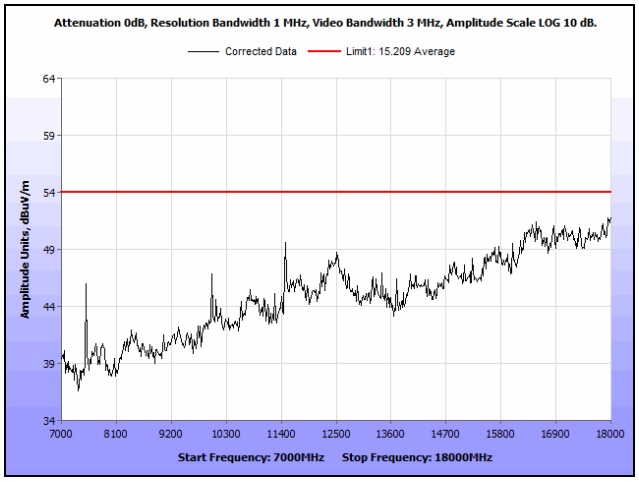


Plot 169. Radiated Spurious Emissions, Channel 100, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 170. Radiated Spurious Emissions, Channel 100, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 171. Radiated Spurious Emissions, Channel 100, 802.11n 20 MHz, 7 GHz – 18 GHz

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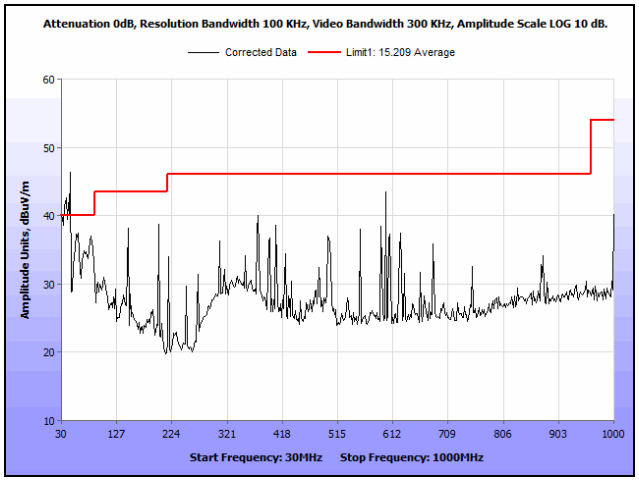
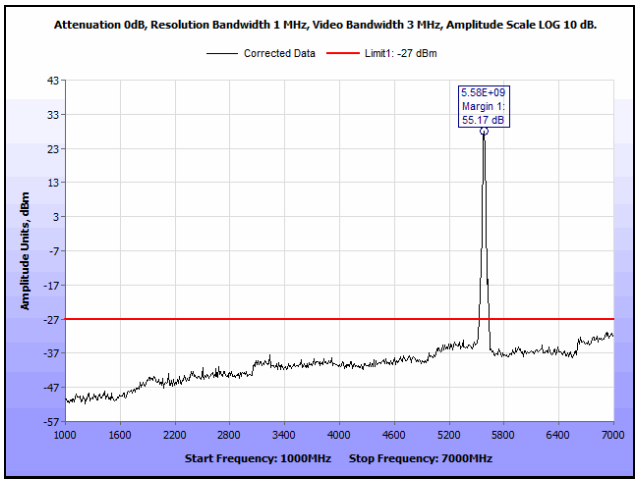
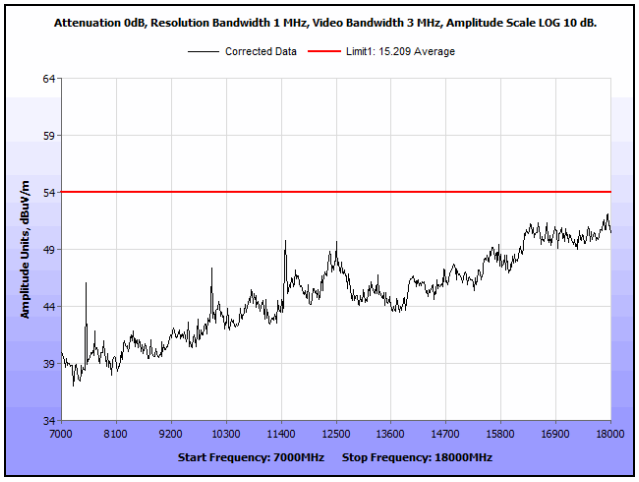


Plot 172. Radiated Spurious Emissions, Channel 116, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 173. Radiated Spurious Emissions, Channel 116, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 174. Radiated Spurious Emissions, Channel 116, 802.11n 20 MHz, 7 GHz – 18 GHz

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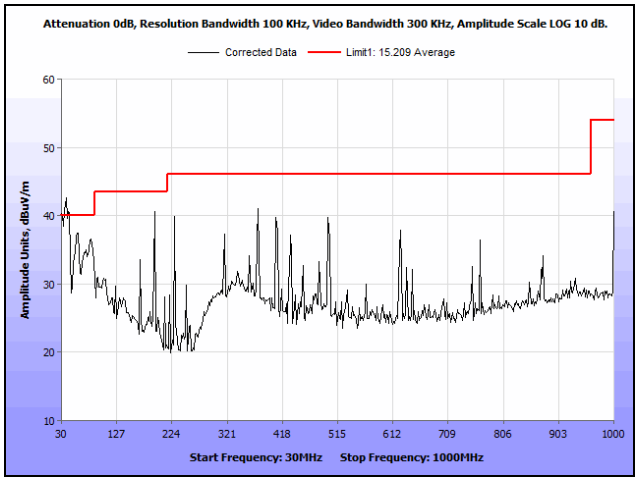
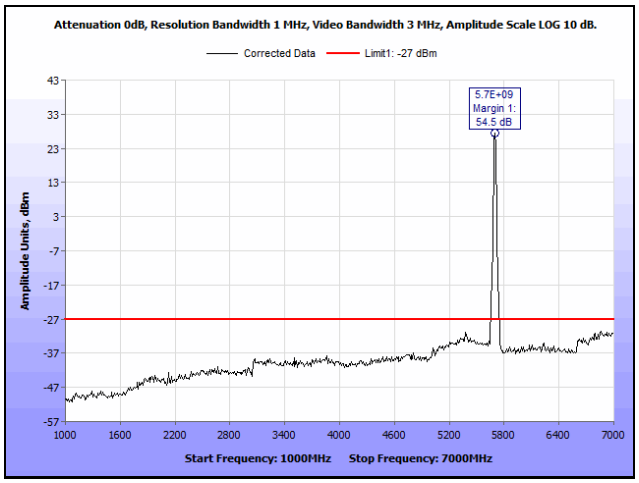
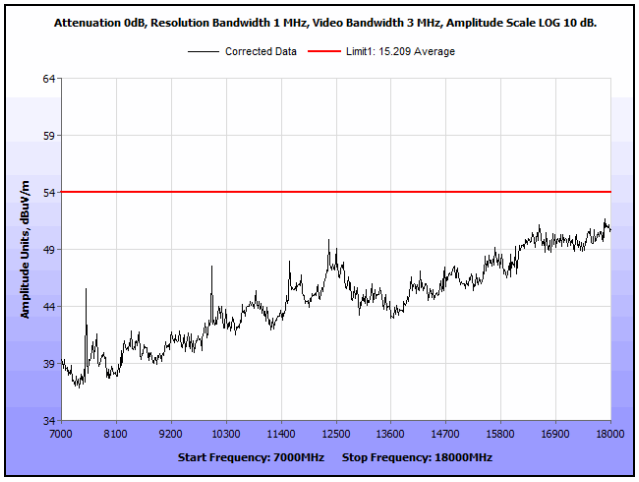


Plot 175. Radiated Spurious Emissions, Channel 140, 802.11n 20 MHz, 30 MHz – 1 GHz



Plot 176. Radiated Spurious Emissions, Channel 140, 802.11n 20 MHz, 1 GHz – 7 GHz



Plot 177. Radiated Spurious Emissions, Channel 140, 802.11n 20 MHz, 7 GHz – 18 GHz

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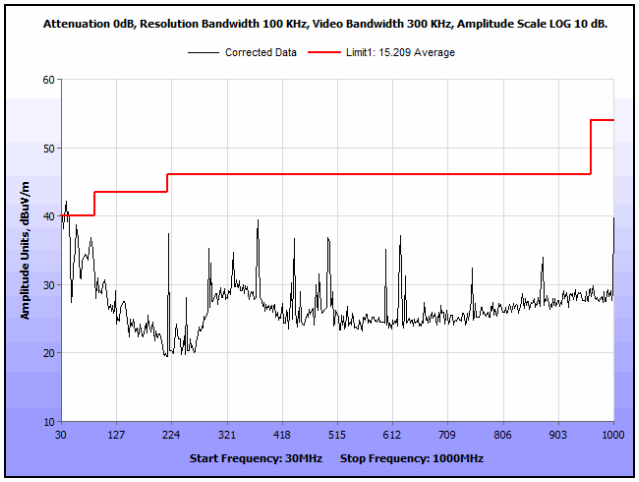
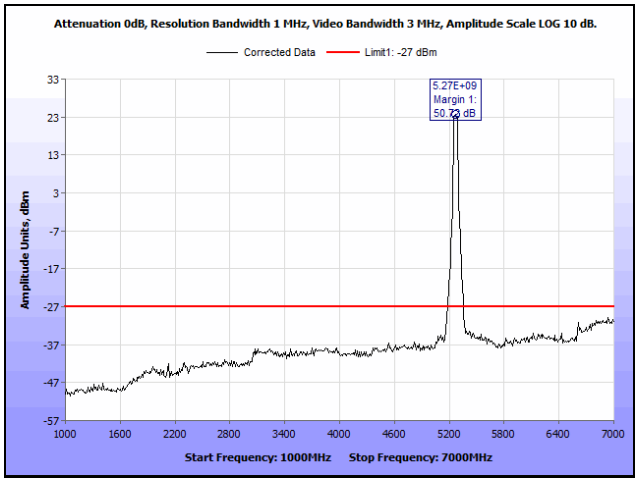
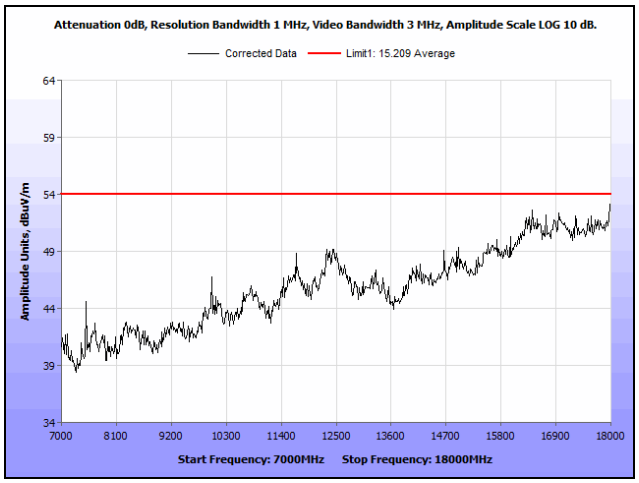
Radiated Spurious Emissions, 802.11n 40 MHz



Plot 178. Radiated Spurious Emissions, Channel 52, 802.11n 40 MHz, 30 MHz – 1 GHz



Plot 179. Radiated Spurious Emissions, Channel 52, 802.11n 40 MHz, 1 GHz – 7 GHz



Plot 180. Radiated Spurious Emissions, Channel 52, 802.11n 40 MHz, 7 GHz – 18 GHz

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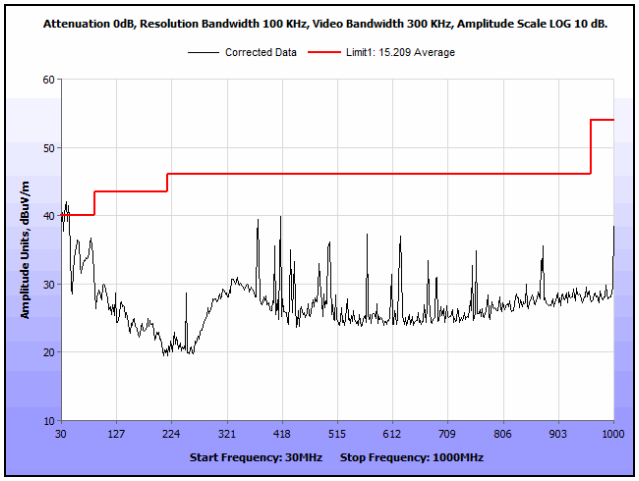
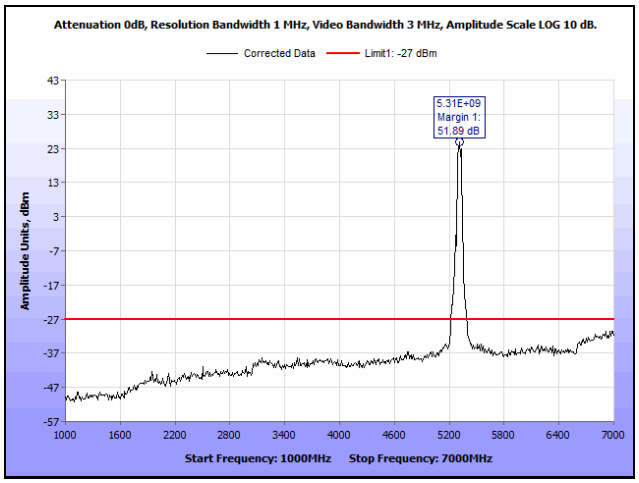
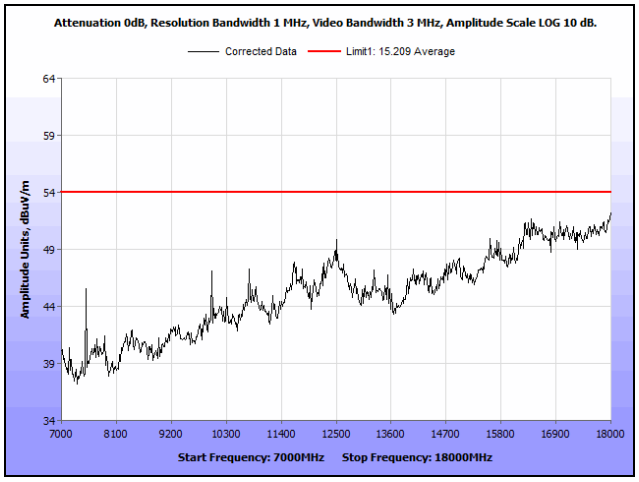


Plot 181. Radiated Spurious Emissions, Channel 60, 802.11n 40 MHz, 30 MHz – 1 GHz



Plot 182. Radiated Spurious Emissions, Channel 60, 802.11n 40 MHz, 1 GHz – 7 GHz



Plot 183. Radiated Spurious Emissions, Channel 60, 802.11n 40 MHz, 7 GHz – 18 GHz

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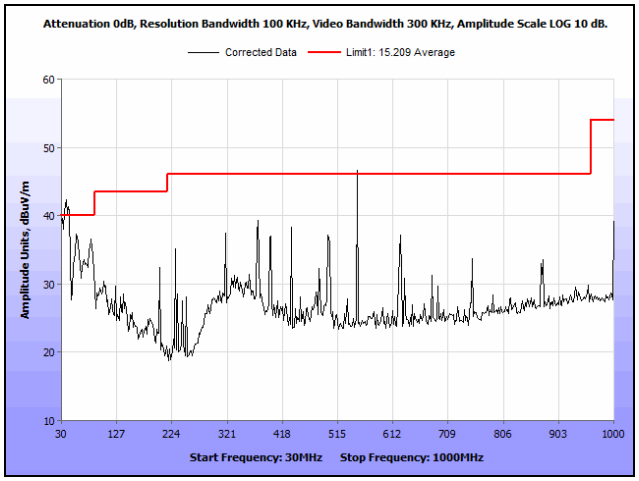
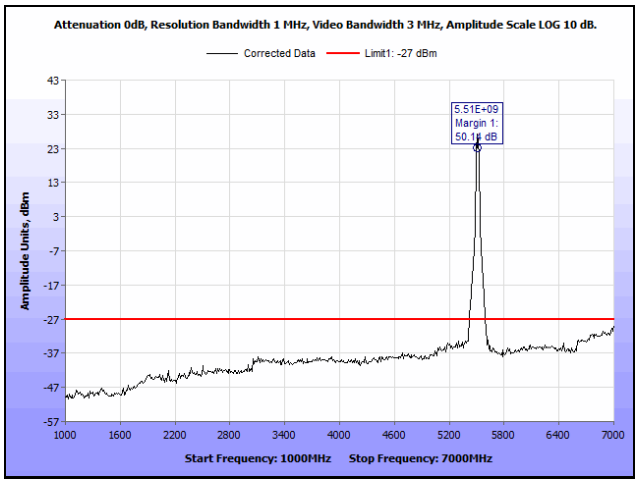
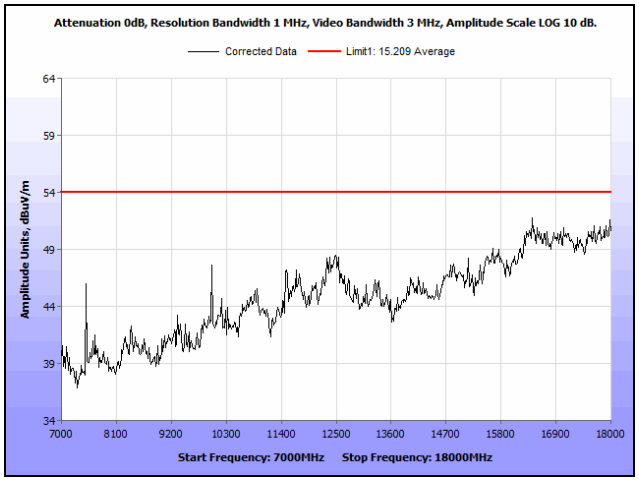


Plot 184. Radiated Spurious Emissions, Channel 100, 802.11n 40 MHz, 30 MHz – 1 GHz



Plot 185. Radiated Spurious Emissions, Channel 100, 802.11n 40 MHz, 1 GHz – 7 GHz



Plot 186. Radiated Spurious Emissions, Channel 100, 802.11n 40 MHz, 7 GHz – 18 GHz

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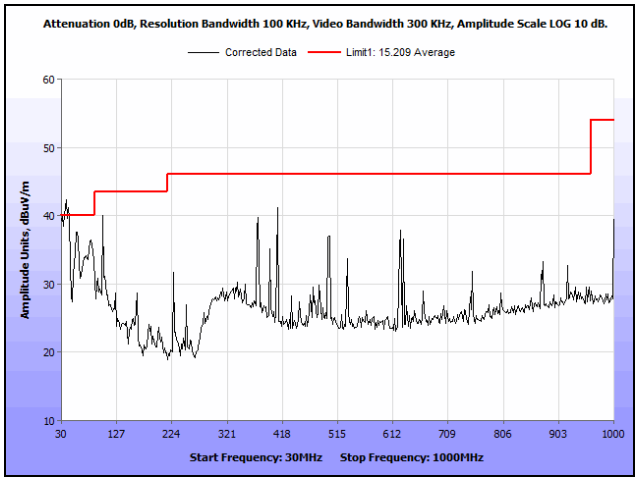
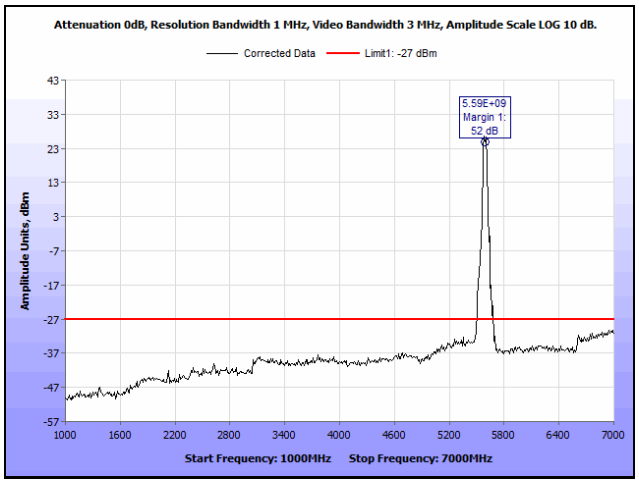
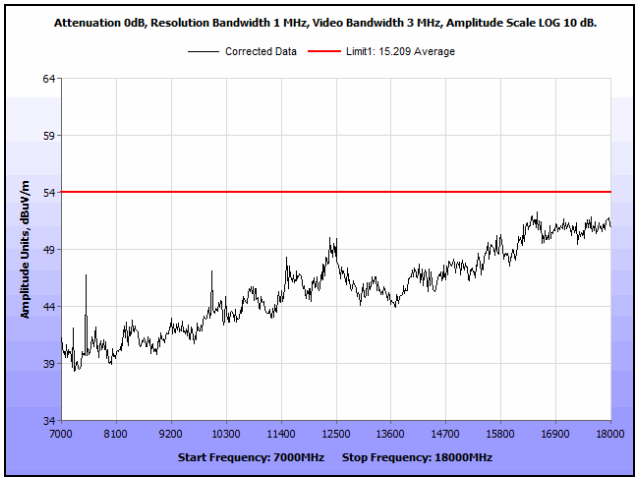


Plot 187. Radiated Spurious Emissions, Channel 116, 802.11n 40 MHz, 30 MHz – 1 GHz



Plot 188. Radiated Spurious Emissions, Channel 116, 802.11n 40 MHz, 1 GHz – 7 GHz



Plot 189. Radiated Spurious Emissions, Channel 116, 802.11n 40 MHz, 7 GHz – 18 GHz

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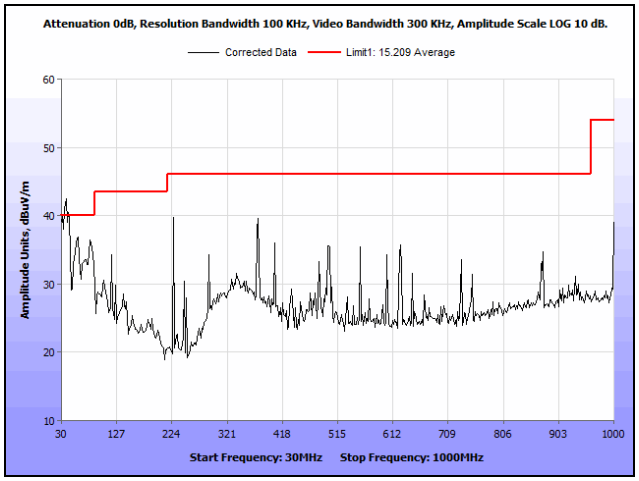
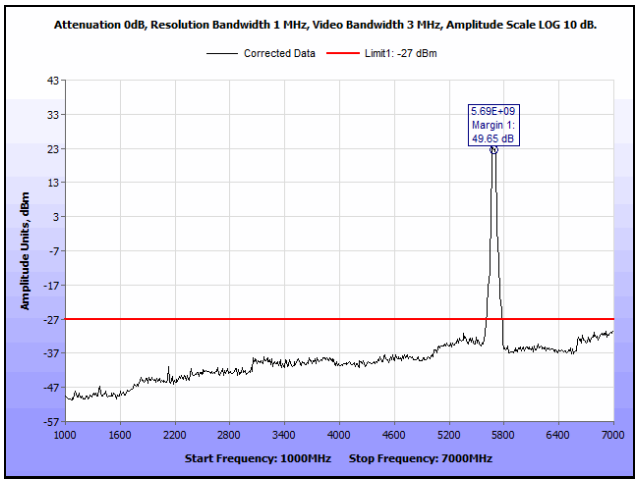
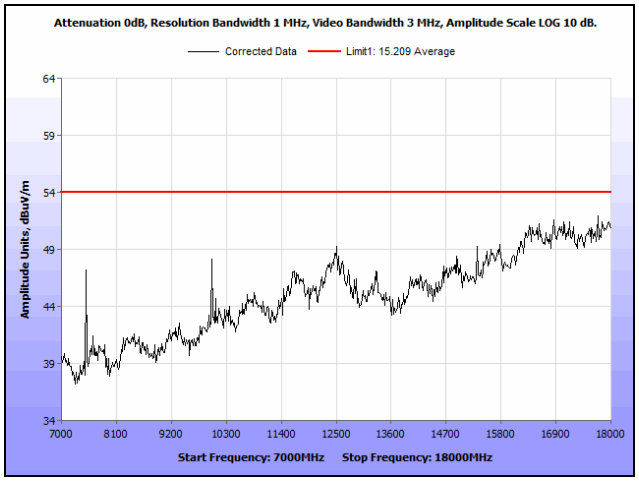


Plot 190. Radiated Spurious Emissions, Channel 132, 802.11n 40 MHz, 30 MHz – 1 GHz



Plot 191. Radiated Spurious Emissions, Channel 132, 802.11n 40 MHz, 1 GHz – 7 GHz



Plot 192. Radiated Spurious Emissions, Channel 132, 802.11n 40 MHz, 7 GHz – 18 GHz

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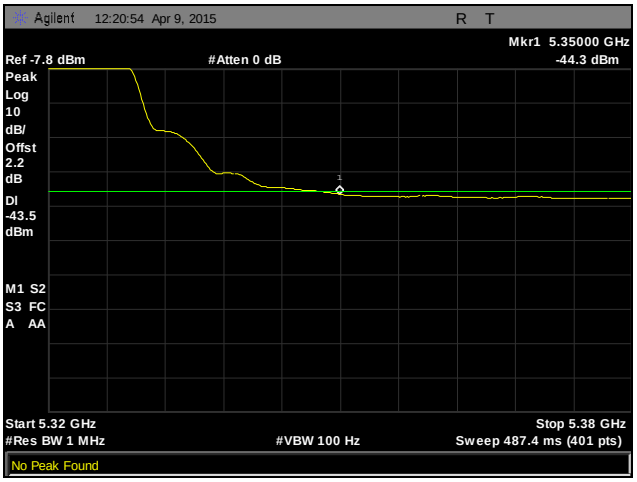
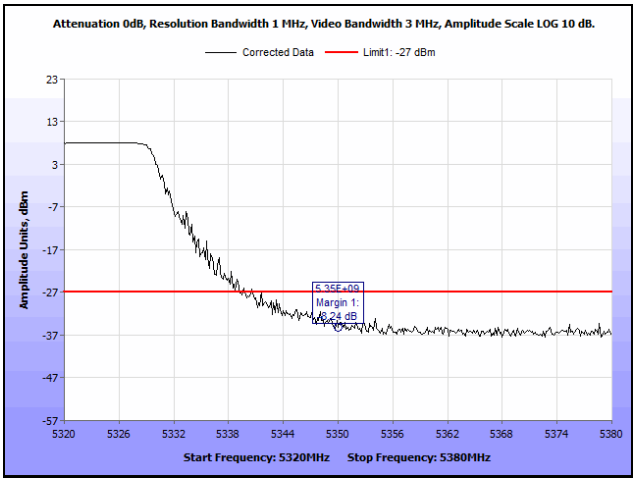
Radiated Band Edge, 802.11a 20 MHz

Following formula was used from KDB Publication 789033 section G.2.a.(3) to convert 54dBuV/m @ 3m FCC15.209 limit to convert into EIRP value for average Band edge plots:

EIRP[dBm] = E[dBµV/m] - 95.2[dB]
= 54[dBµV/m] - 95.2[dB]
=-41.2[dBm]



Plot 193. Radiated Band Edge, 802.11a 20 MHz, Channel 64, Average



Plot 194. Radiated Band Edge, 802.11a 20 MHz, Channel 64, Peak

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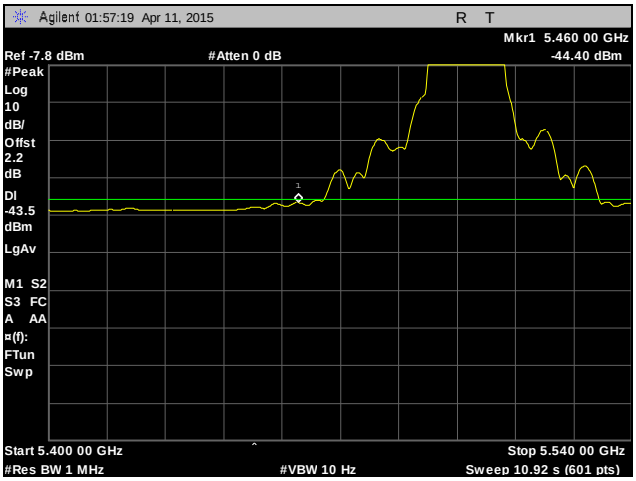
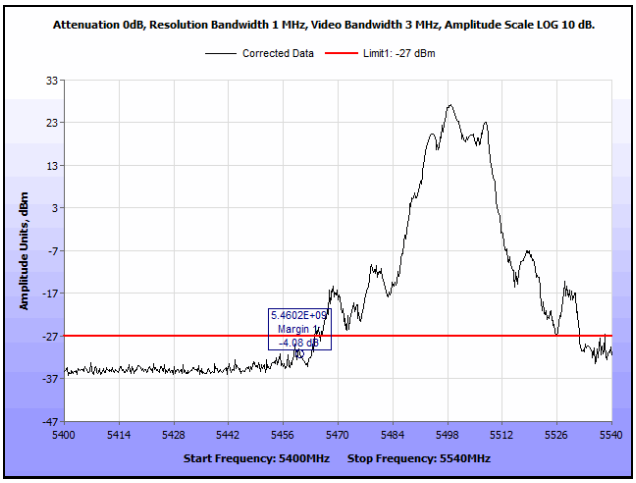


Plot 195. Radiated Band Edge, 802.11a 20 MHz, Channel 100, Average



Plot 196. Radiated Band Edge, 802.11a 20 MHz, Channel 100, Peak

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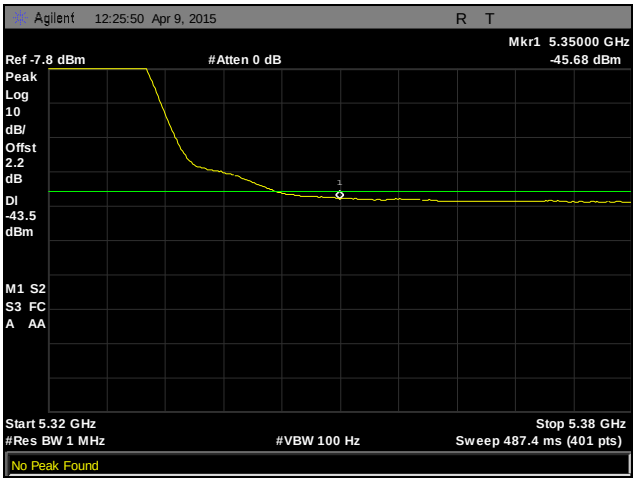
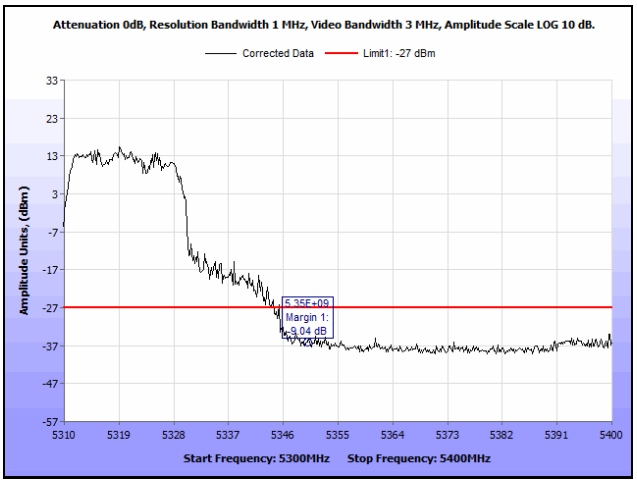
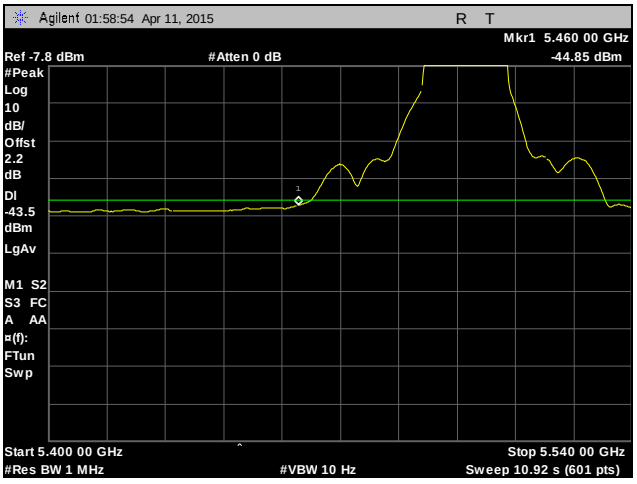
Radiated Band Edge, 802.11ac 20 MHz



Plot 197. Radiated Band Edge, 802.11ac 20 MHz, Channel 64, Average



Plot 198. Radiated Band Edge, 802.11ac 20 MHz, Channel 64, Peak



Plot 199. Radiated Band Edge, 802.11ac 20 MHz, Channel 100, Average

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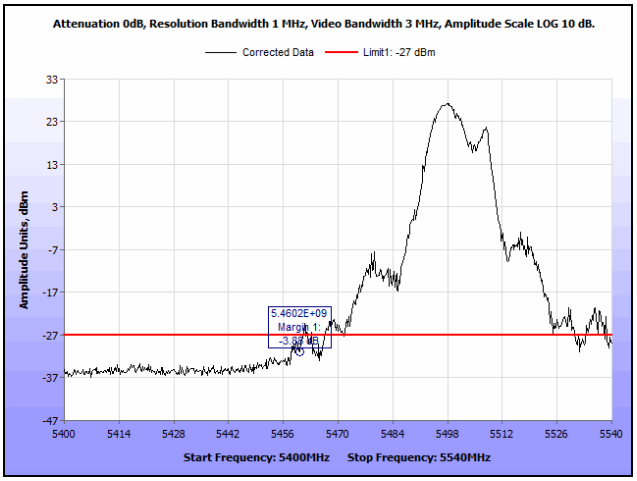

Plot 200. Radiated Band Edge, 802.11ac 20 MHz, Channel 100, Peak

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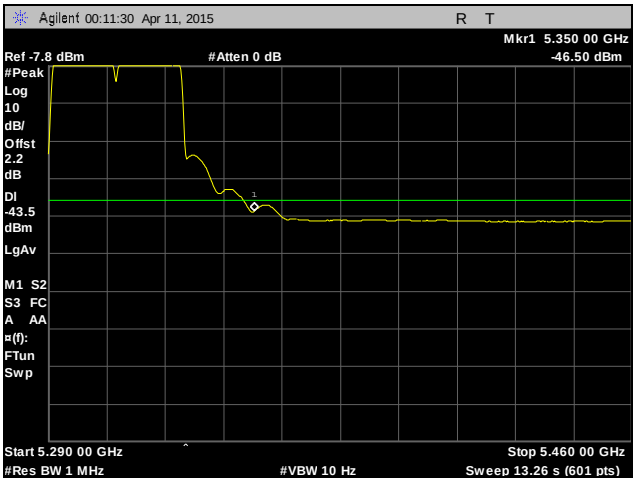
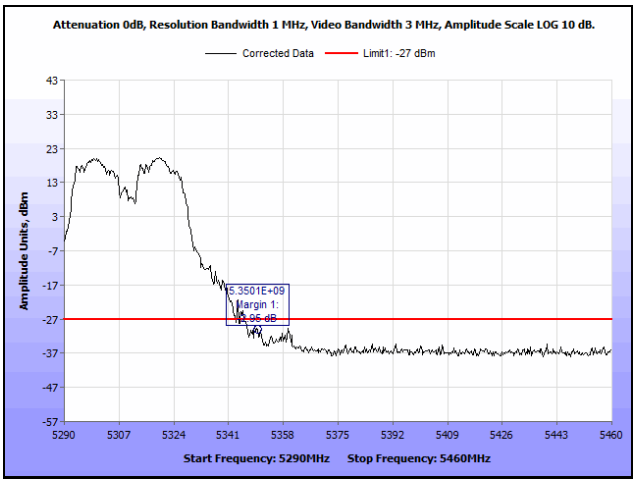
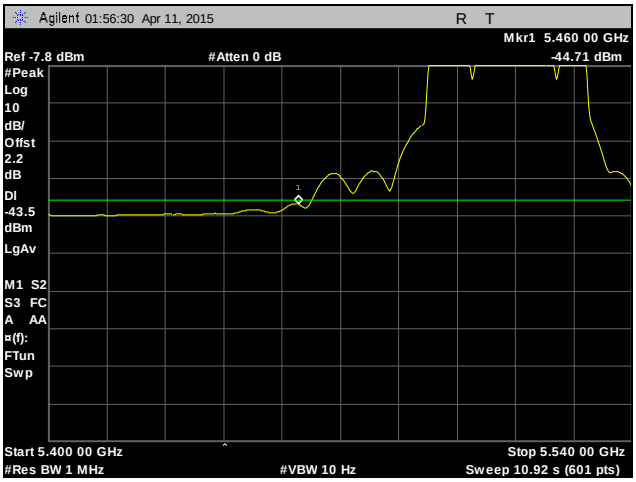
Radiated Band Edge, 802.11ac 40 MHz



Plot 201. Radiated Band Edge, 802.11ac 40 MHz, Channel 60, Average



Plot 202. Radiated Band Edge, 802.11ac 40 MHz, Channel 60, Peak



Plot 203. Radiated Band Edge, 802.11ac 40 MHz, Channel 100, Average

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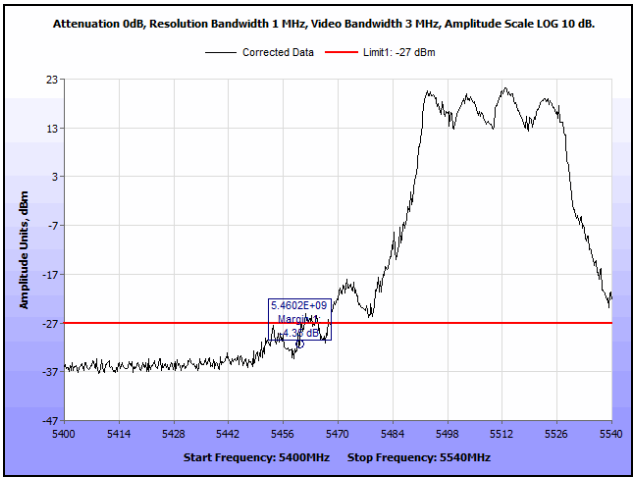

Plot 204. Radiated Band Edge, 802.11ac 40 MHz, Channel 100, Peak

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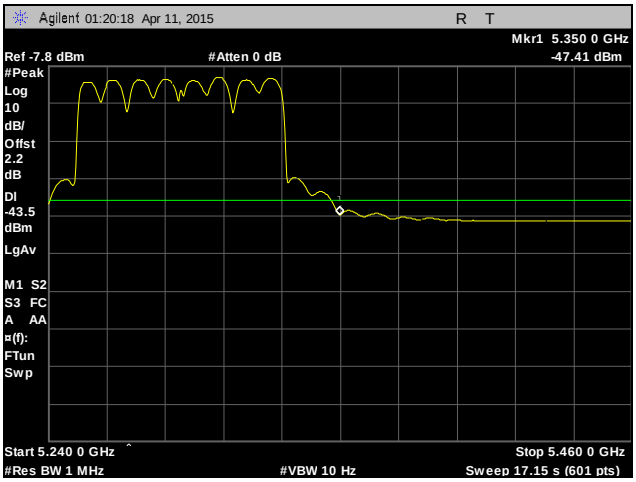
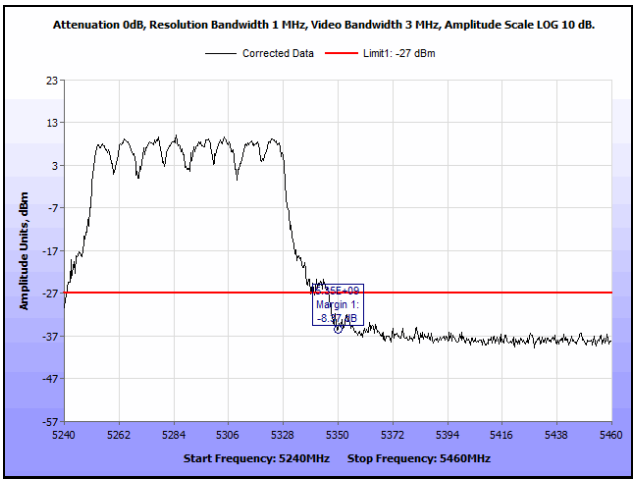
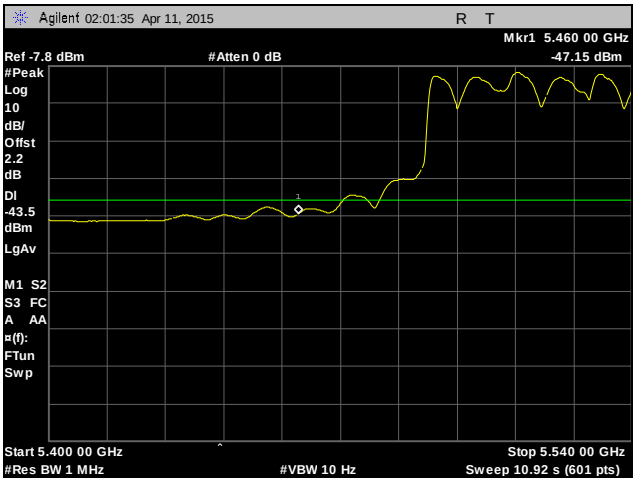
Radiated Band Edge, 802.11ac 80 MHz



Plot 205. Radiated Band Edge, 802.11ac 80 MHz, Channel 52, Average



Plot 206. Radiated Band Edge, 802.11ac 80 MHz, Channel 52, Peak



Plot 207. Radiated Band Edge, 802.11ac 80 MHz, Channel 100, Average

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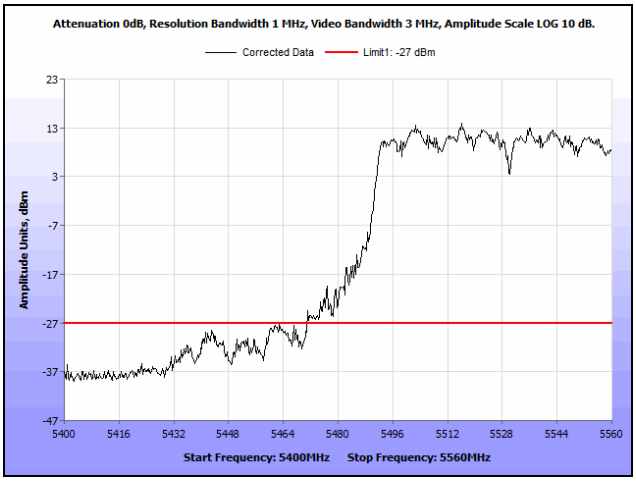
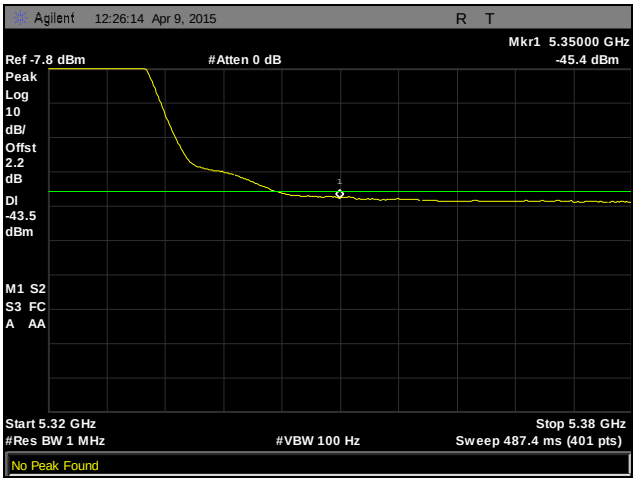
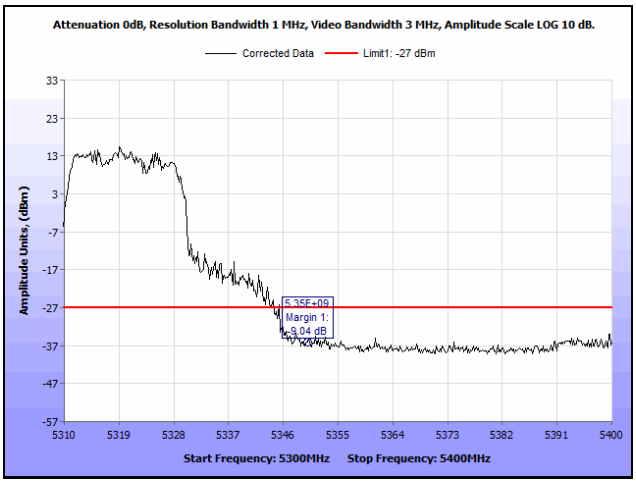


Plot 208. Radiated Band Edge, 802.11ac 80 MHz, Channel 100, Peak

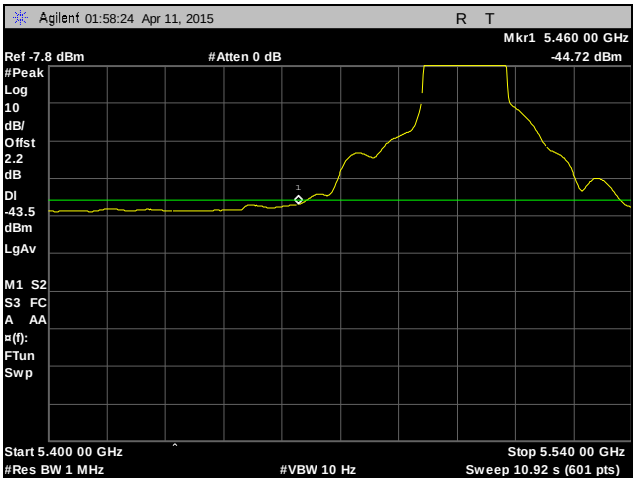
Radiated Band Edge, 802.11n 20 MHz



Plot 209. Radiated Band Edge, 802.11n 20 MHz, Channel 64, Average



Plot 210. Radiated Band Edge, 802.11n 20 MHz, Channel 64, Peak



Plot 211. Radiated Band Edge, 802.11n 20 MHz, Channel 100, Average

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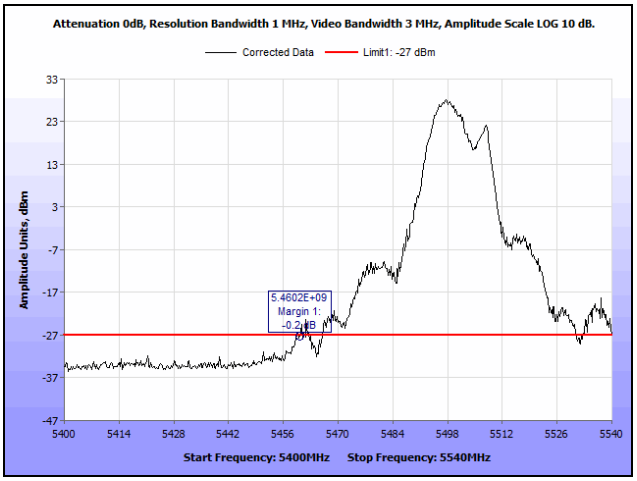

Plot 212. Radiated Band Edge, 802.11n 20 MHz, Channel 100, Peak

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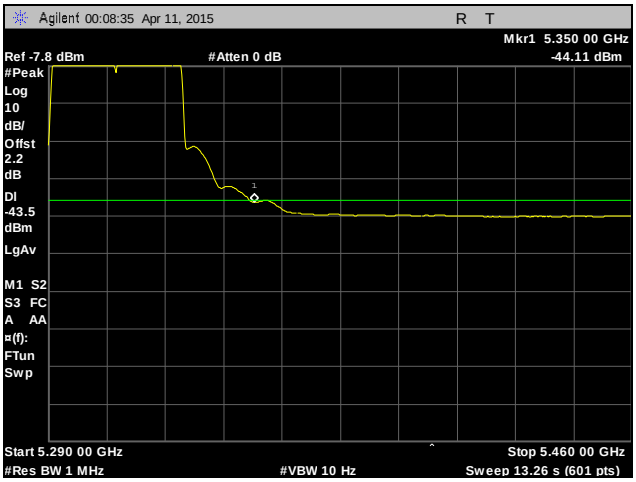
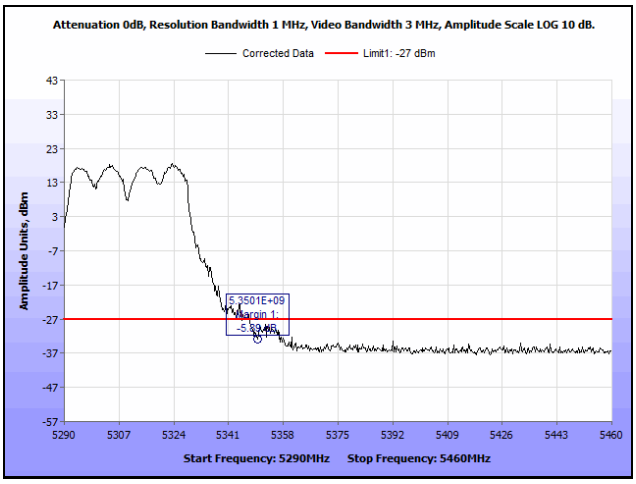
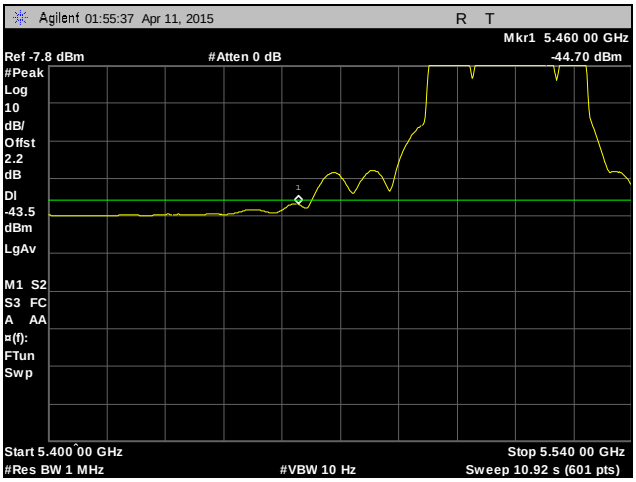
Radiated Band Edge, 802.11n 40 MHz



Plot 213. Radiated Band Edge, 802.11n 40 MHz, Channel 60, Average



Plot 214. Radiated Band Edge, 802.11n 40 MHz, Channel 60, Peak



Plot 215. Radiated Band Edge, 802.11n 40 MHz, Channel 100, Average

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