MET Laboratories, Inc. *Safety Certification - EMI - Telecom Environmental Simulation*
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September 23, 2014

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

Dear Rajendran Chary,

Enclosed is the EMC Wireless test report for compliance testing of the Meru Networks, Inc., Mission Peak (AP822eV2) as tested to the requirements of Title 47 of the CFR, Ch. 1 (10-1-06 ed.), Part 15, Subpart B for a Class B Digital Device and FCC Part 15 Subpart C for Intentional Radiators.

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

Sincerely yours,
MET LABORATORIES, INC.

Jennifer Warnell
Documentation Department

Reference: (\Meru Networks, Inc.\EMCS42577B-FCC247 Rev. 1)

Electromagnetic Compatibility Criteria
Test Report

for the

Meru Networks, Inc.
Mission Peak (AP822eV2)

Tested under
the FCC Certification Rules
contained in
Title 47 of the CFR, Parts 15 Subpart B
for Class B Digital Devices
&
15.247 Subpart C
for Intentional Radiators

MET Report: EMCS42577B-FCC247 Rev. 1

September 23, 2014

Prepared For:

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

Prepared By:
MET Laboratories, Inc.
914 W. Patapsco Ave
Baltimore, MD 21230

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for Intentional Radiators

Andy Shen, Project Engineer
Electromagnetic Compatibility Lab

Jennifer Warnell
Documentation Department

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

Asad Bajwa,
Director, Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	September 16, 2014	Initial Issue.
1	September 23, 2014	Editorial correction.

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List of Terms and Abbreviations

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

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Meru Networks, Inc. Mission Peak (AP822eV2), with the requirements of Part 15, §15.247. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect. In accordance with §2.1033, the following data is presented in support of the Certification of the Mission Peak (AP822eV2). Meru Networks, Inc. should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the Mission Peak (AP822eV2), has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, §15.247, in accordance with Meru Networks, Inc., purchase order number 107001. All tests were conducted using measurement procedure ANSI C63.4-2003.

FCC Reference 47 CFR Part 15.247:2005	Description	Compliance
47 CFR Part 15.107 (a)	Conducted Emission Limits for a Class B Digital Device	Compliant
47 CFR Part 15.109 (a)	Radiated Emission Limits for a Class B Digital Device	Compliant
Title 47 of the CFR, Part 15 §15.203	Antenna Requirement	Compliant
Title 47 of the CFR, Part 15 §15.207(a)	Conducted Emission Limits	Compliant
Title 47 of the CFR, Part 15 §15.247(a)(2)	6dB Occupied Bandwidth	Compliant
	99% Occupied Bandwidth	Compliant
Title 47 of the CFR, Part 15 §15.247(b)	Peak Power Output	Compliant
Title 47 of the CFR, Part 15 §15.247(d); §15.209; §15.205	Radiated Spurious Emissions Requirements	Compliant
Title 47 of the CFR, Part 15 §15.247(d)	RF Conducted Spurious Emissions Requirements	Compliant
Title 47 of the CFR, Part 15 §15.247(d)	RF Conducted Band Edge	Compliant
Title 47 of the CFR, Part 15; §15.247(e)	Peak Power Spectral Density	Compliant
Title 47 of the CFR, Part 15 §15.247(i)	Maximum Permissible Exposure (MPE)	Compliant

Table 1. Executive Summary of EMC Part 15.247 ComplianceTesting

II. Equipment Configuration

A. Overview

MET Laboratories, Inc. was contracted by Meru Networks, Inc. to perform testing on the Mission Peak (AP822eV2), under Meru Networks, Inc.'s purchase order number 107001.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Meru Networks, Inc., Mission Peak (AP822eV2).

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

Model(s) Tested:	Mission Peak (AP822eV2)	
Model(s) Covered:	Mission Peak (AP822eV2)	
EUT Specifications:	Primary Power: 120 VAC, 60 Hz	
	FCC ID: RE7-AP822EV2	
	Type of Modulations:	BPSK, QPSK, QAM16 and QAM64
	Equipment Code:	DTS
	Peak RF Output Power:	29.32 dBm
	EUT Frequency Ranges:	2.412 GHz – 2.462 GHz
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:	Andy Shen	
Report Date(s):	September 23, 2014	

Table 2. EUT Summary Table

B. References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
CFR 47, Part 15, Subpart B	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
ANSI C63.4:2003	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ISO/IEC 17025:2005	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2009	American National Standard for Testing Unlicensed Wireless Devices

Table 3. References

C. Test Site

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

Radiated Emissions measurements were performed in a 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 Meru Networks, Inc. Mission Peak (AP822eV2), Equipment Under Test (EUT), is an 802.11AC wireless access point (WAP) that allows wireless devices to connect to a wired network using Wi-Fi, standard. The WAP usually connects to a router (via a wired network), and can relay data between the wireless devices (such as computers or printers) and wired devices on the network. The EUT supports 2.4 GHz and 5 GHz operation.

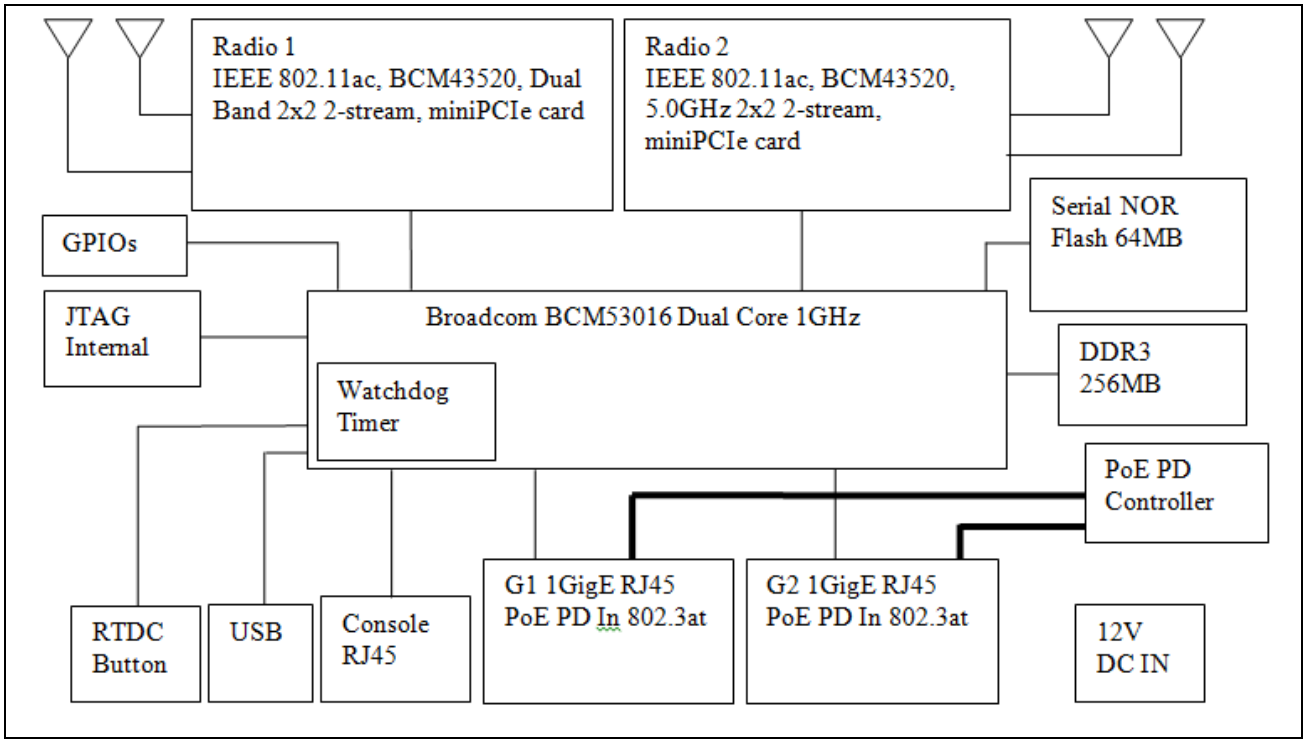


Figure 1. Block Diagram of Test Configuration

E. Equipment Configuration

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

Ref. ID	Name / Description	Model Number	Serial Number	Rev. #
1	Dual Radio Access Point	AP822eV2	2414B822e16DB56	Rev 1
2	Dual Radio Access Point	AP822eV2	2614B822e16DB64	Rev 1

Table 4. Equipment Configuration

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
1	Antenna	Meru	ANT-01ABGN470 Omni directional Dual-Band
2	Antenna	Terrawave	ANT-I2ABGN-0304-O Ceiling mount Omni Dual-Band 2 x 2 MIMO
3	Antenna	Terrawave	ANT-04ABGN-0606-0 Outdoor Omi Dual-Band 2X2 MIMO
4	Antenna	Terrawave	ANT-04ABGN-0607-PT Wall mount Dual-Band 2 X 2 MIMO
5	PoE	Power Design	PD-9001GR/AC
6	Labtop	IBM	IBM Thinkpad
7	Antenna	Meru	ANT-01ABGN-0406-O Omni directional rubber duct Dual-Band
8	Antenna	Meru	ANT-ABGN23O-W Omni directional rubber duct Dual-Band

Table 5. Support Equipment

SN	Meru Part Number	Description	Gain 2.4GHz/5.0GHz
1	ANT-ABGN33O-W	Omni Directional Rubber Duck antenna	3/3dBi
2	ANT-ABGN46O-W	High Gain Omni Directional Rubber Duck antenna	4/6dBi
3	ANT-ABGN23O-W	Omni Directional Rubber Duck antenna	2/3dBi
4	ANT-I2ABGN-0304-O	Ceiling mount Omni Directional Antenna	3/4dBi
5	ANT-O4ABGN-0607-PT	Dual Band Wall Mount Patch 4-lead Antenna	6/7dBi
6	ANT-O4ABGN-0606-O	Outdoor Omni Directional 4-leads Dual Band Antenna	6/6dBi
7	ANT-ABGN-23	Dual Band Ceiling mount Omni Directional 3-lead Antenna	3/4dBi
8	ANT-6ABGN-24	Dual Band Ceiling mount Omni Directional 6-lead Antenna	2.5/4dBi
9	ANT-ABGN47O	Dual Band High Gain Dipole Omni Directional Antenna	4.7/4.7dBi
10	ANT-O6ABGN-0606-O	Dual Band Omni Directional 6-lead Antenna	6/6dBi
11	ANT-I3ABGN-0304-O	Dual Band Ceiling mount Omni Directional 3-lead Antenna	3/4dBi
12	ANT-O6ABGN-0607-PT	Dual Band Wall Mount Patch 6-lead Antenna	6/7dBi
13	ANT-O6ABGN-0607-PT	Dual Band Wall Mount Patch 6-lead Antenna	6/7dBi

Table 6. Antenna List

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
1	Reset Console	dB9 Serial cable	1	1	--	Yes	To computer serial port or USB to Serial adapter
2	G1PoE	Data and Power Ethernet port	1	2	10	YES	To PoE injector or Ethernet switch
3	G2PoE	Data and Power Ethernet port	1	2	10	Yes	To PoE injector or Ethernet switch
4	12 DC	12 DV Audio jack	1	1	10	Yes	To DC adapter
5	A1, A3, A4 and A6	RPSMA to SMA co-axial cable	4	0.5	1	Yes	To power meter or spectrum Analyzer

Table 7. Ports and Cabling Information

H. Mode of Operation

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

I. Method of Monitoring EUT Operation

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

J. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

K. Disposition of EUT

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

III. Electromagnetic Compatibility Criteria for Unintentional Radiators

Electromagnetic Compatibility Criteria

§ 15.107 Conducted Emissions Limits

Test Requirement(s):

15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in Table 8. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

15.107 (b) For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in Table 8. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals. The lower limit applies at the band edges.

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

Table 8. Conducted Limits for Radio Frequency Devices calculated from FCC Part 15 Subsections 15.107(a) (b)

Test Procedures:

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

Test Results:

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

Test Engineer(s):

Danny Alvendia

Test Date(s):

07/28/14

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 Meru PoE Rad_Off 120V L	0.16	46.7	65.465	-18.765	Pass	35.04	55.465	-20.425	Pass
42577 Meru PoE Rad_Off 120V L	0.2	46.06	63.617	-17.557	Pass	28	53.617	-25.617	Pass
42577 Meru PoE Rad_Off 120V L	0.43	45.58	57.277	-11.697	Pass	36.36	47.277	-10.917	Pass
42577 Meru PoE Rad_Off 120V L	0.45	45.59	56.9	-11.31	Pass	37.01	46.9	-9.89	Pass
42577 Meru PoE Rad_Off 120V L	23.83	46.66	60	-13.34	Pass	30.59	50	-19.41	Pass
42577 Meru PoE Rad_Off 120V L	29.93	48.46	60	-11.54	Pass	32.52	50	-17.48	Pass

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

Plot 1. Conducted Emissions, Phase Line, PoE

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 Meru PoE Rad_Off 120V N	0.17	45.12	64.963	-19.843	Pass	29.37	54.963	-25.593	Pass
42577 Meru PoE Rad_Off 120V N	0.44	44.77	57.086	-12.316	Pass	32.92	47.086	-14.166	Pass
42577 Meru PoE Rad_Off 120V N	16.32	46.51	60	-13.49	Pass	29.57	50	-20.43	Pass
42577 Meru PoE Rad_Off 120V N	22.04	46.42	60	-13.58	Pass	27.54	50	-22.46	Pass
42577 Meru PoE Rad_Off 120V N	23.08	45.81	60	-14.19	Pass	29.23	50	-20.77	Pass
42577 Meru PoE Rad_Off 120V N	29.885	47.63	60	-12.37	Pass	32.59	50	-17.41	Pass

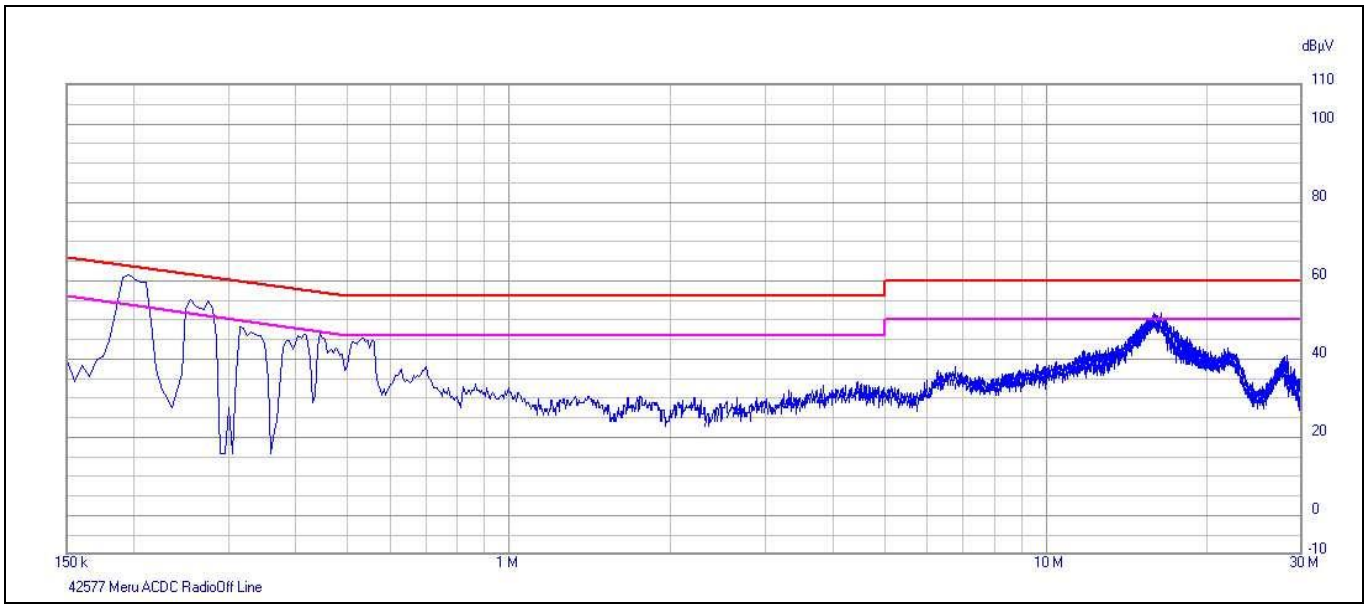
Table 10. Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz), PoE

Plot 2. Conducted Emissions, Neutral Line, PoE

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 CEV ACDC RadOff L	0.195	57.81	63.827	-6.017	Pass	40.17	53.827	-13.657	Pass
42577 CEV ACDC RadOff L	0.255	51.09	61.605	-10.515	Pass	33.29	51.605	-18.315	Pass
42577 CEV ACDC RadOff L	0.315	42.22	59.854	-17.634	Pass	20.77	49.854	-29.084	Pass
42577 CEV ACDC RadOff L	0.445	40.87	56.993	-16.123	Pass	22.88	46.993	-24.113	Pass
42577 CEV ACDC RadOff L	14.47	46.73	60	-13.27	Pass	37.42	50	-12.58	Pass
42577 CEV ACDC RadOff L	15.785	46.88	60	-13.12	Pass	39.03	50	-10.97	Pass

Table 11. Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz), AC/DC



Plot 3. Conducted Emissions, Phase Line, AC/DC

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

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 CEV ACDC RadOff N	0.205	56.12	63.413	-7.293	Pass	33.83	53.413	-19.583	Pass
42577 CEV ACDC RadOff N	0.26	50	61.444	-11.444	Pass	23.09	51.444	-28.354	Pass
42577 CEV ACDC RadOff N	0.27	49.45	61.131	-11.681	Pass	23.09	51.131	-28.041	Pass
42577 CEV ACDC RadOff N	0.32	40.09	59.724	-19.634	Pass	23.6	49.724	-26.124	Pass
42577 CEV ACDC RadOff N	0.46	35.09	56.712	-21.622	Pass	25.81	46.712	-20.902	Pass
42577 CEV ACDC RadOff N	16.07	38.45	60	-21.55	Pass	24.43	50	-25.57	Pass

Table 12. Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz), AC/DC

Plot 4. Conducted Emissions, Neutral Line, AC/DC

Radiated Emission Limits

§ 15.109 Radiated Emissions Limits

Test Requirement(s): **15.109 (a)** Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the Class B limits expressed in Table 13.

15.109 (b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the Class A limits expressed in Table 13.

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

Table 13. Radiated Emissions Limits calculated from FCC Part 15, §15.109 (a) (b)

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

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

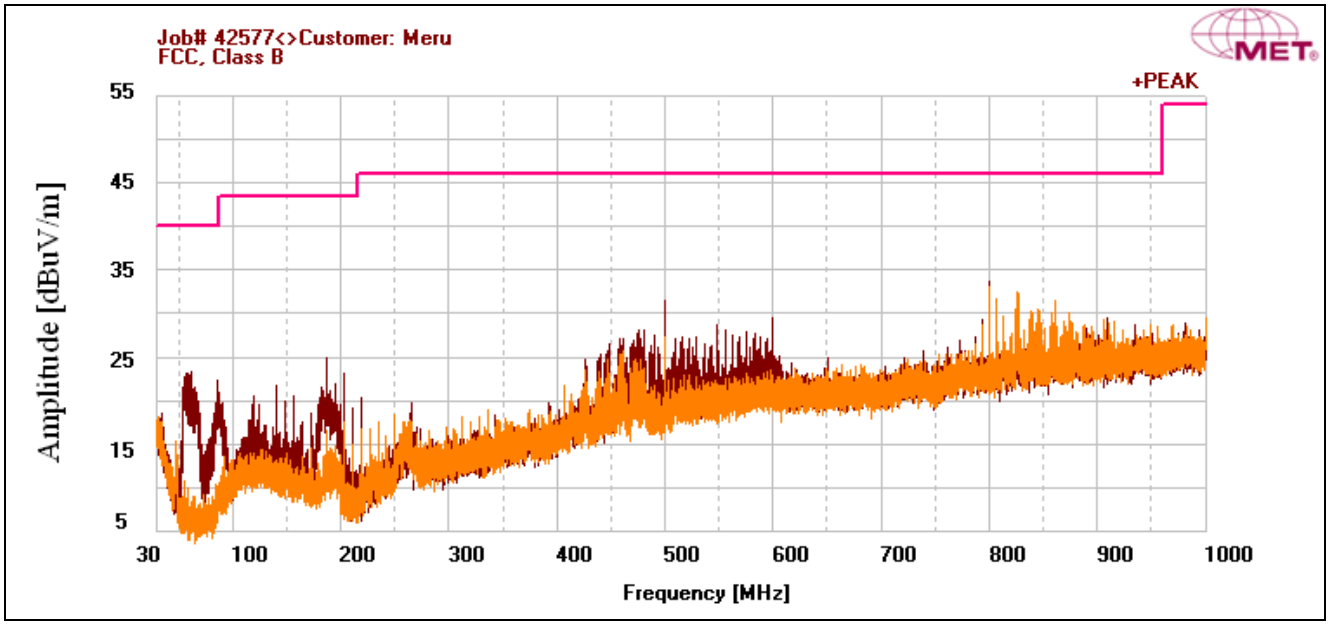
Test Engineer(s): Andy Shen

Test Date(s): 07/24/14

Radiated Emissions Limits Test Results, Class B, PoE

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBµV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
187	H	79	130.11	9.1	9.52	0	2.43	0	21.05	43.5	-22.45
495.84	V	173	100	5.63	16.935	0	3.999	0	26.564	46	-19.436
500.02	H	267	181.41	5.66	17.01	0	4.017	0	26.687	46	-19.313
800	H	169	115.8	8.67	19.67	0	5.182	0	33.522	46	-12.478
806.78	V	46	100	5.63	19.758	0	5.204	0	30.592	46	-15.408
825.94	V	20	100	1.78	20.177	0	5.267	0	27.224	46	-18.776

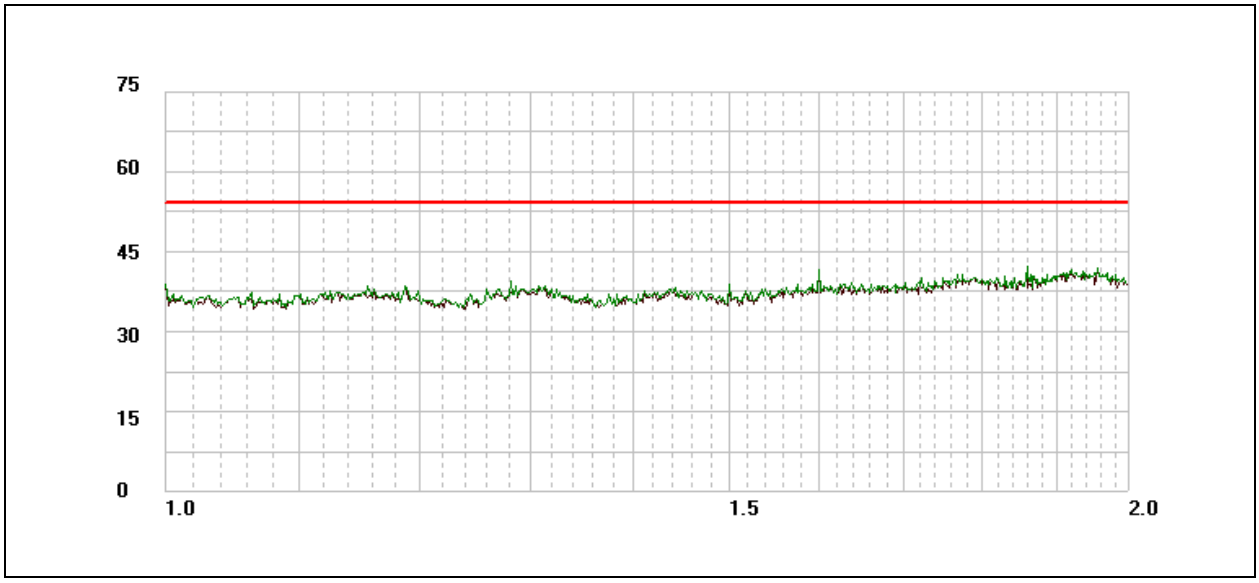
Table 14. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz, PoE



Plot 5. Radiated Emissions, 30 MHz – 1 GHz, PoE

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBµV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1189	H	104	160.23	29.03	28.507	33.471	0	0	24.066	54	-29.934
1282.5	V	133	215.88	29.61	28.722	33.431	0	0	24.901	54	-29.099
1594.367	V	120	114.94	30.2	28.955	33.3	0	0	25.855	54	-28.145
1860	H	17	100	29.14	30.816	33.189	0	0	26.767	54	-27.233
1924	V	73	100	30.44	31.174	33.162	0	0	28.452	54	-25.548
1956	H	0	100	29.79	31.354	33.148	0	0	27.996	54	-26.004

Table 15. Radiated Emissions Limits, Test Results, 1 GHz – 2 GHz, PoE

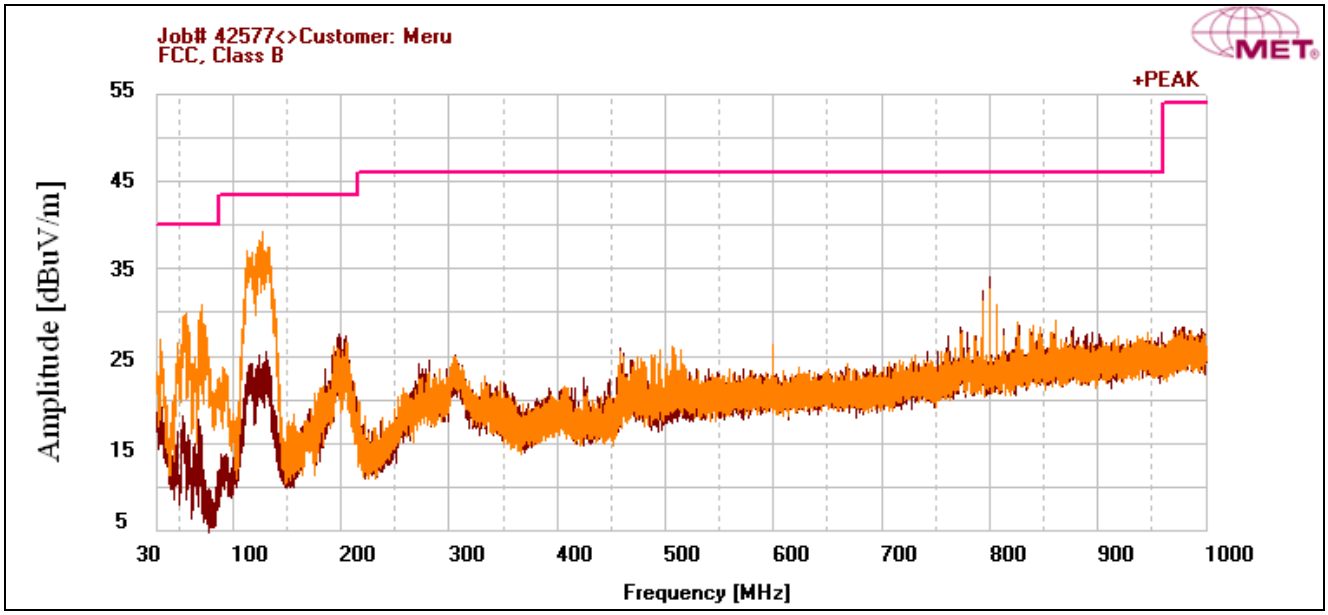


Plot 6. Radiated Emissions, 1 GHz – 2 GHz, PoE

Radiated Emissions Limits Test Results, Class B, AC/DC

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBµV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
71.385	V	151	169.7	13.92	6.801	0	1.477	0	22.198	40	-17.802
131.229	V	283	125.7	13.92	12.479	0	2.021	0	28.42	43.5	-15.08
600.018	V	191	100	1.56	18.82	0	4.486	0	24.866	46	-21.134
793.23	H	269	100.11	5.61	19.792	0	5.156	0	30.558	46	-15.442
800.01	H	264	103.88	9.16	19.67	0	5.182	0	34.012	46	-11.988
806.74	H	270	100.11	3.77	19.758	0	5.204	0	28.732	46	-17.268

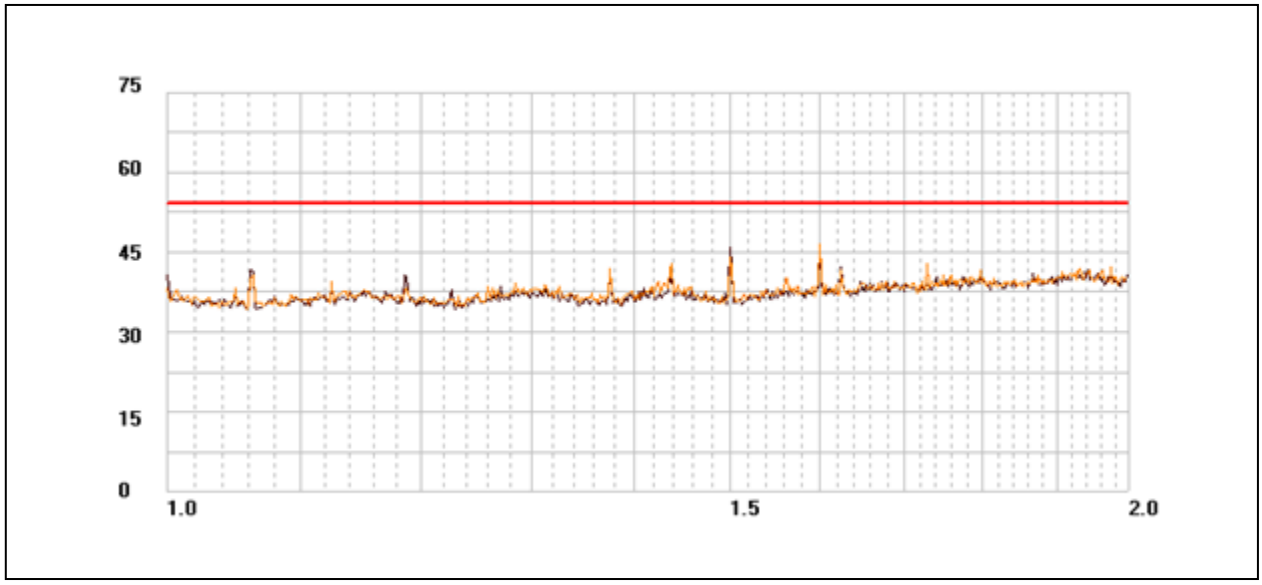
Table 16. Radiated Emissions Limits, Test Results, 30 MHz – 1 GHz, AC/DC



Plot 7. Radiated Emissions, 30 MHz – 1 GHz, AC/DC

Frequency (MHz)	Antenna Polarity	EUT Azimuth (Degrees)	Antenna Height (cm)	Uncorrected Amplitude (dBµV)	ACF (dB/m)	Pre Amp Gain (dB)	CBL (dB)	DCF (dB)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1062.667	H	0	167.17	45.04	27.901	33.524	0	0	39.417	54	-14.583
1375.133	H	37	130.05	38.25	28.5	33.392	0	0	33.358	54	-20.642
1500.267	H	99	137.52	47.17	28.202	33.34	0	0	42.032	54	-11.968
1625.333	V	154	198.29	46.69	29.203	33.287	0	0	42.606	54	-11.394
1625.333	H	169	128.58	43.51	29.203	33.287	0	0	39.426	54	-14.574
1750.5	V	0	128.11	43.42	30.203	33.235	0	0	40.388	54	-13.612

Table 17. Radiated Emissions Limits, Test Results, 1 GHz – 2 GHz, AC/DC



Plot 8. Radiated Emissions, 1 GHz – 2 GHz, AC/DC

IV. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.203 Antenna Requirement

Test Requirement: **§ 15.203:** An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

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

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

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

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

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

Test Engineer(s): Andy Shen

Test Date(s): 07/26/14

SN	Meru Part Number	Description	Gain 2.4GHz/5.0GHz
1	ANT-ABGN33O-W	Omni Directional Rubber Duck antenna	3/3dBi
2	ANT-ABGN46O-W	High Gain Omni Directional Rubber Duck antenna	4/6dBi
3	ANT-ABGN23O-W	Omni Directional Rubber Duck antenna	2/3dBi
4	ANT-I2ABGN-0304-O	Ceiling mount Omni Directional Antenna	3/4dBi
5	ANT-O4ABGN-0607-PT	Dual Band Wall Mount Patch 4-lead Antenna	6/7dBi
6	ANT-O4ABGN-0606-O	Outdoor Omni Directional 4-leads Dual Band Antenna	6/6dBi
7	ANT-ABGN-23	Dual Band Ceiling mount Omni Directional 3-lead Antenna	3/4dBi
8	ANT-6ABGN-24	Dual Band Ceiling mount Omni Directional 6-lead Antenna	2.5/4dBi
9	ANT-ABGN47O	Dual Band High Gain Dipole Omni Directional Antenna	4.7/4.7dBi
10	ANT-O6ABGN-0606-O	Dual Band Omni Directional 6-lead Antenna	6/6dBi
11	ANT-I3ABGN-0304-O	Dual Band Ceiling mount Omni Directional 3-lead Antenna	3/4dBi
12	ANT-O6ABGN-0607-PT	Dual Band Wall Mount Patch 6-lead Antenna	6/7dBi
13	ANT-O6ABGN-0607-PT	Dual Band Wall Mount Patch 6-lead Antenna	6/7dBi

Table 18. Antenna List

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.207(a) Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 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 19. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

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

Test Results: The EUT was compliant with this requirement.

Test Engineer(s): Danny Alvendia

Test Date(s): 07/28/14

Conducted Emissions 15.207(a) - Voltage, AC Power, Phase Line (120 VAC, 60 Hz), PoE

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 Meru PoE Rad_Off 120V L	0.16	46.7	65.465	-18.765	Pass	35.04	55.465	-20.425	Pass
42577 Meru PoE Rad_Off 120V L	0.2	46.06	63.617	-17.557	Pass	28	53.617	-25.617	Pass
42577 Meru PoE Rad_Off 120V L	0.43	45.58	57.277	-11.697	Pass	36.36	47.277	-10.917	Pass
42577 Meru PoE Rad_Off 120V L	0.45	45.59	56.9	-11.31	Pass	37.01	46.9	-9.89	Pass
42577 Meru PoE Rad_Off 120V L	23.83	46.66	60	-13.34	Pass	30.59	50	-19.41	Pass
42577 Meru PoE Rad_Off 120V L	29.93	48.46	60	-11.54	Pass	32.52	50	-17.48	Pass

Table 20. Conducted Emissions - Voltage, AC Power, 15.207(a), Phase Line (120 VAC, 60 Hz), PoE

Plot 9. Conducted Emissions, 15.207(a), Phase Line, PoE

Conducted Emissions 15.207(a) - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz), PoE

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 Meru PoE Rad_Off 120V N	0.17	45.12	64.963	-19.843	Pass	29.37	54.963	-25.593	Pass
42577 Meru PoE Rad_Off 120V N	0.44	44.77	57.086	-12.316	Pass	32.92	47.086	-14.166	Pass
42577 Meru PoE Rad_Off 120V N	16.32	46.51	60	-13.49	Pass	29.57	50	-20.43	Pass
42577 Meru PoE Rad_Off 120V N	22.04	46.42	60	-13.58	Pass	27.54	50	-22.46	Pass
42577 Meru PoE Rad_Off 120V N	23.08	45.81	60	-14.19	Pass	29.23	50	-20.77	Pass
42577 Meru PoE Rad_Off 120V N	29.885	47.63	60	-12.37	Pass	32.59	50	-17.41	Pass

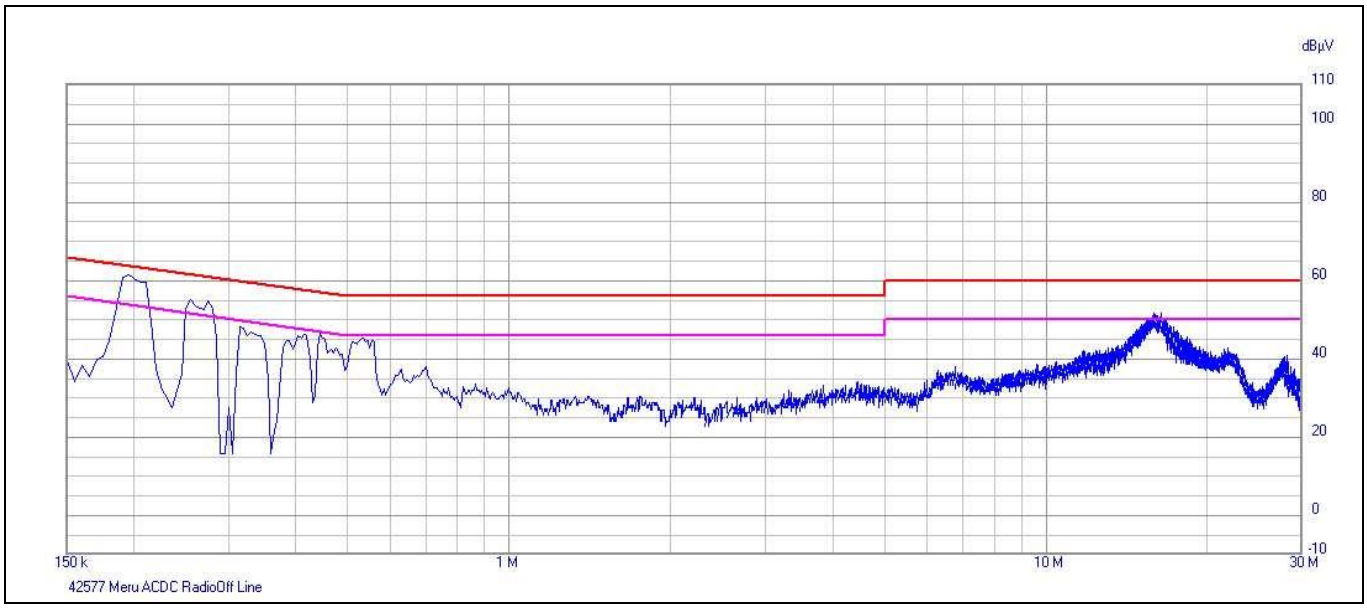
Table 21. Conducted Emissions - Voltage, AC Power, 15.207(a), Neutral Line (120 VAC, 60 Hz), PoE

Plot 10. Conducted Emissions, 15.207(a), Neutral Line, PoE

Conducted Emissions 15.207(a) - Voltage, AC Power, Phase Line (120 VAC, 60 Hz), AC/DC

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 CEV ACDC RadOff L	0.195	57.81	63.827	-6.017	Pass	40.17	53.827	-13.657	Pass
42577 CEV ACDC RadOff L	0.255	51.09	61.605	-10.515	Pass	33.29	51.605	-18.315	Pass
42577 CEV ACDC RadOff L	0.315	42.22	59.854	-17.634	Pass	20.77	49.854	-29.084	Pass
42577 CEV ACDC RadOff L	0.445	40.87	56.993	-16.123	Pass	22.88	46.993	-24.113	Pass
42577 CEV ACDC RadOff L	14.47	46.73	60	-13.27	Pass	37.42	50	-12.58	Pass
42577 CEV ACDC RadOff L	15.785	46.88	60	-13.12	Pass	39.03	50	-10.97	Pass

Table 22. Conducted Emissions - Voltage, AC Power, 15.207(a), Phase Line (120 VAC, 60 Hz), AC/DC



Plot 11. Conducted Emissions, 15.207(a), Phase Line, AC/DC

Conducted Emissions 15.207(a) - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz), AC/DC

Line	Freq. (MHz)	QP Amplitude	QP Limit	Delta	Pass	Average Amplitude	Average Limit	Delta	Pass
42577 CEV ACDC RadOff N	0.205	56.12	63.413	-7.293	Pass	33.83	53.413	-19.583	Pass
42577 CEV ACDC RadOff N	0.26	50	61.444	-11.444	Pass	23.09	51.444	-28.354	Pass
42577 CEV ACDC RadOff N	0.27	49.45	61.131	-11.681	Pass	23.09	51.131	-28.041	Pass
42577 CEV ACDC RadOff N	0.32	40.09	59.724	-19.634	Pass	23.6	49.724	-26.124	Pass
42577 CEV ACDC RadOff N	0.46	35.09	56.712	-21.622	Pass	25.81	46.712	-20.902	Pass
42577 CEV ACDC RadOff N	16.07	38.45	60	-21.55	Pass	24.43	50	-25.57	Pass

Table 23. Conducted Emissions - Voltage, AC Power, 15.207(a), Neutral Line (120 VAC, 60 Hz), AC/DC

Plot 12. Conducted Emissions, 15.207(a), Neutral Line, AC/DC

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(a)(2) 6 dB and 99% Bandwidth

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

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

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

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

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

Test Engineer(s): Andy Shen

Test Date(s): 07/26/14

Figure 2. Block Diagram, Occupied Bandwidth Test Setup

Occupied Bandwidth Test Results

Occupied Bandwidth			
	Carrier Channel	**Frequency (MHz)**	**Measured 6 dB Bandwidth (MHz)**
802.11b	Low	2412	12.806
	Mid	2437	12.666
	High	2462	12.751
802.11g	Low	2412	16.408
	Mid	2437	16.437
	High	2462	16.446
802.11n 20 MHz Port 1	Low	2412	17.577
	Mid	2437	17.637
	High	2462	17.631
802.11n 20 MHz Port 2	Low	2412	17.611
	Mid	2437	17.620
	High	2462	17.641
802.11n 40 MHz Port 1	Low	2422	35.683
	Mid	2437	35.965
	High	2452	36.225
802.11n 40 MHz Port 2	Low	2422	35.792
	Mid	2437	35.941
	High	2452	36.239

Table 24. 6 dB Occupied Bandwidth, Test Results, 2.4 GHz

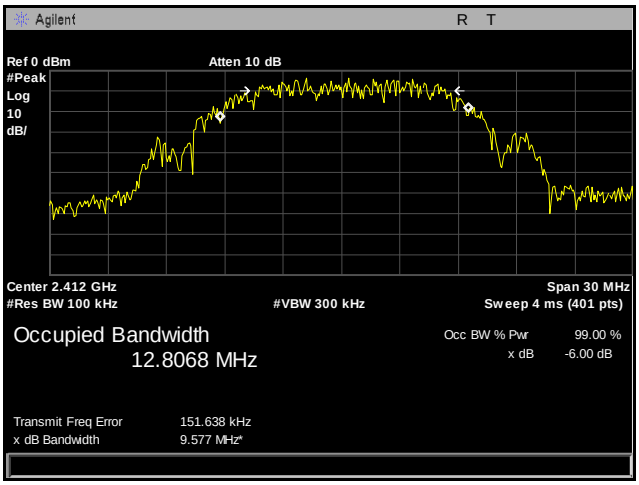
Occupied Bandwidth			
	Carrier Channel	**Frequency (MHz)**	**Measured 6 dB Bandwidth (MHz)**
802.11a 20 MHz Port 1	Low	5745	17.664
	Mid	5785	17.626
	High	5825	17.613
802.11n 20 MHz Port 1	Low	5745	17.637
	Mid	5785	17.609
	High	5825	17.613
802.11n 20 MHz Port 2	Low	5745	17.627
	Mid	5785	17.630
	High	5825	17.624
802.11n 40 MHz Port 1	Low	5755	36.069
	High	5795	36.138
802.11n 40 MHz Port 2	Low	5755	36.129
	High	5795	36.036
802.11n 80 MHz Port 1	--	5775	75.341
802.11n 80 MHz Port 2	--	5775	75.417

Table 25. 6 dB Occupied Bandwidth, Test Results, 5 GHz

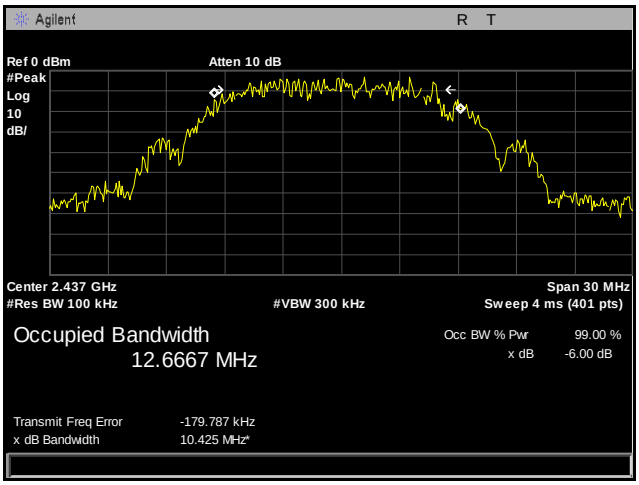
Occupied Bandwidth			
	Carrier Channel	**Frequency (MHz)**	**Measured 6 dB Bandwidth (MHz)**
802.11b	Low	2412	13.1701
	Mid	2437	13.171
	High	2462	13.2097
802.11g	Low	2412	16.7061
	Mid	2437	16.7268
	High	2462	16.7102
802.11n 20 MHz Port 1	Low	2412	17.8129
	Mid	2437	17.8044
	High	2462	17.855
802.11n 20 MHz Port 2	Low	2412	17.6712
	Mid	2437	17.7314
	High	2462	17.7856
802.11n 40 MHz Port 1	Low	2422	36.0937
	Mid	2437	36.3668
	High	2452	36.7825
802.11n 40 MHz Port 2	Low	2422	36.1265
	Mid	2437	36.4717
	High	2452	36.8336

Table 26. 99% Occupied Bandwidth, Test Results, 2.4 GHz

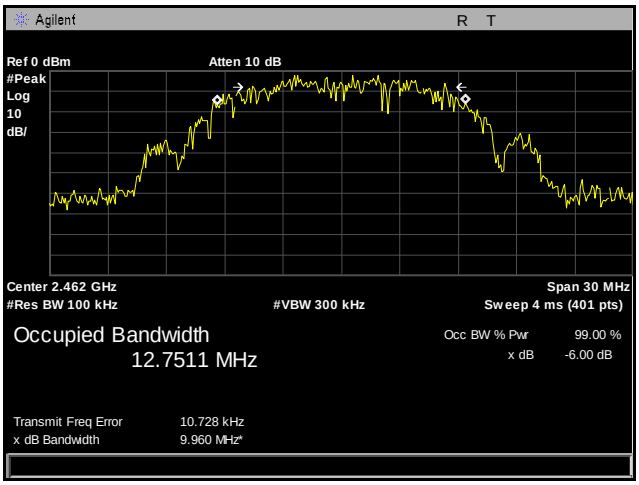
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11b



Plot 13. 6 dB Occupied Bandwidth, Low Channel, 2412 MHz, 802.11b

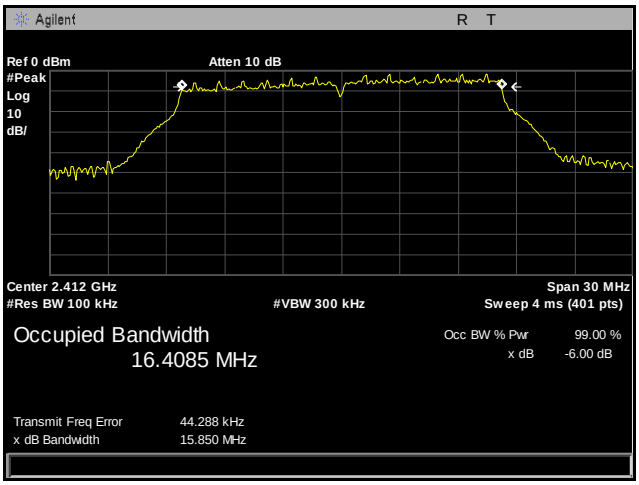


Plot 14. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11b

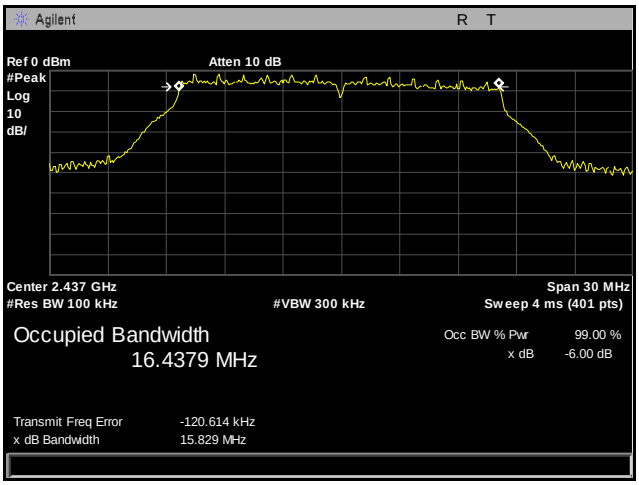


Plot 15. 6 dB Occupied Bandwidth, High Channel, 2462 MHz, 802.11b

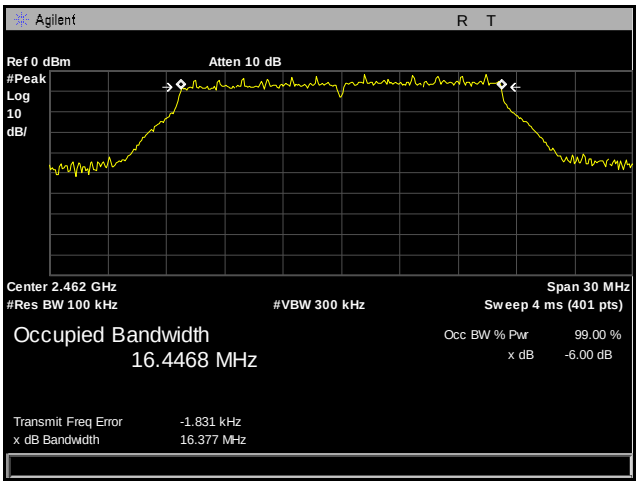
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11g



Plot 16. 6 dB Occupied Bandwidth, Low Channel, 2412 MHz, 802.11g

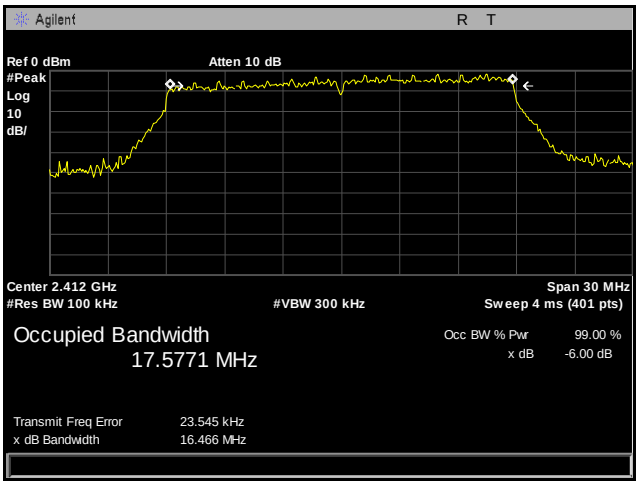


Plot 17. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11g

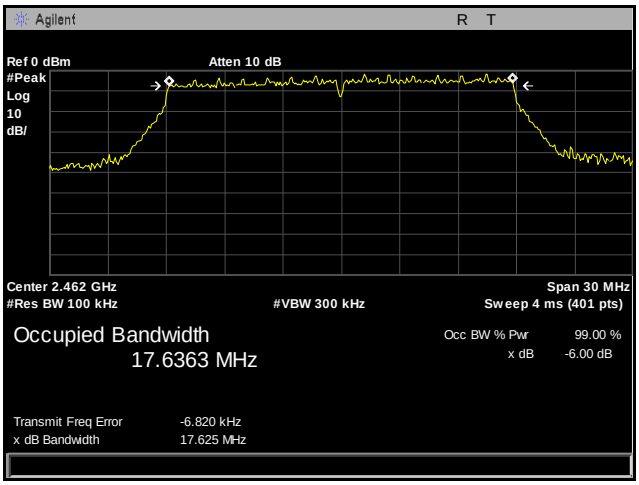


Plot 18. 6 dB Occupied Bandwidth, High Channel, 2462 MHz, 802.11g

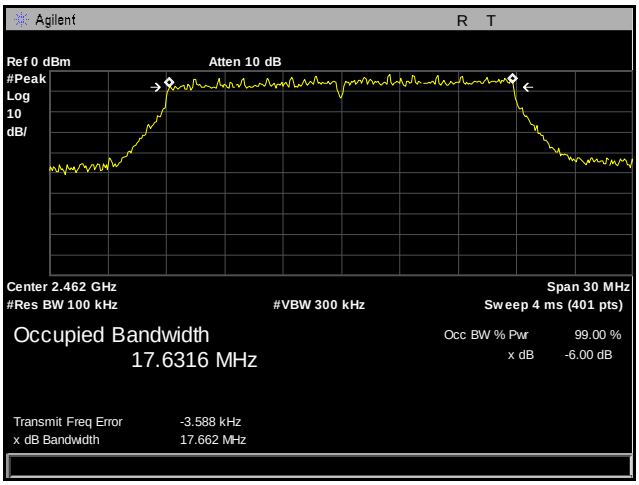
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 20 MHz, Port 1



Plot 19. 6 dB Occupied Bandwidth, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 1

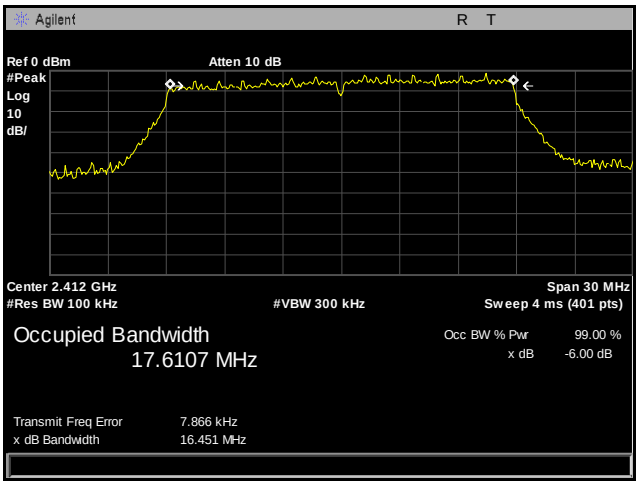


Plot 20. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 1

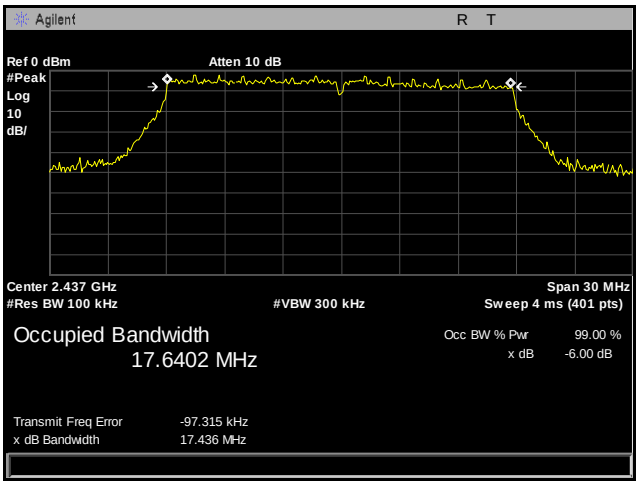


Plot 21. 6 dB Occupied Bandwidth, High Channel, 2462 MHz, 802.11n 20 MHz, Port 1

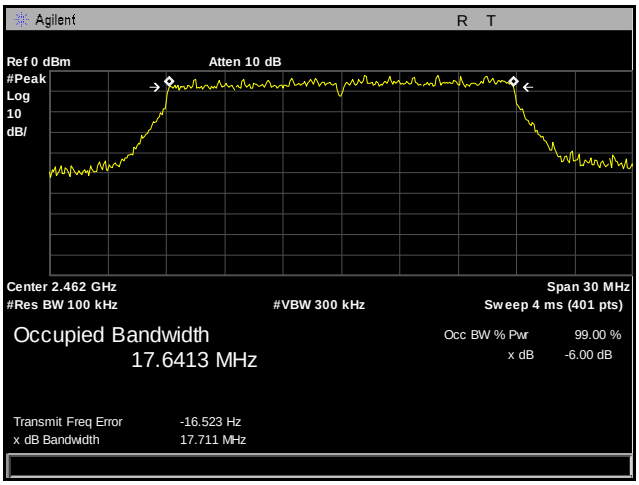
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 20 MHz, Port 2



Plot 22. 6 dB Occupied Bandwidth, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 2

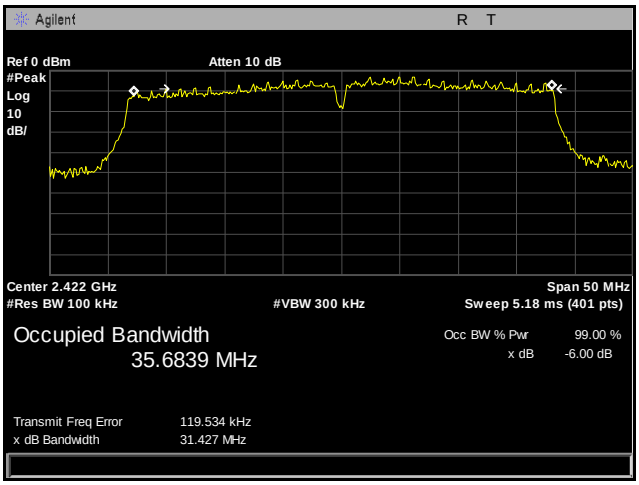


Plot 23. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 2

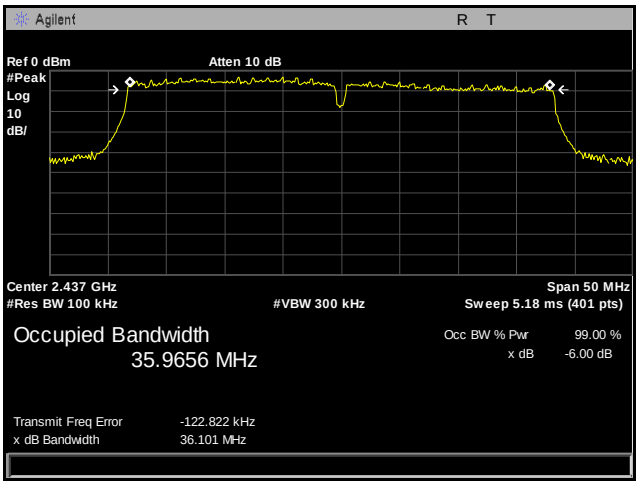


Plot 24. 6 dB Occupied Bandwidth, High Channel, 2462 MHz, 802.11n 20 MHz, Port 2

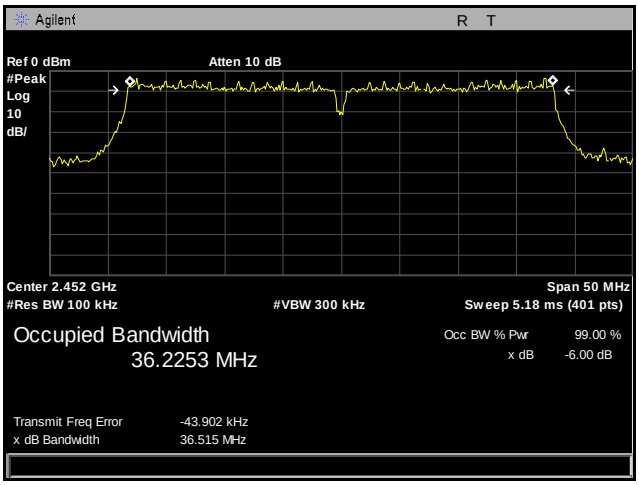
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 40 MHz, Port 1



Plot 25. 6 dB Occupied Bandwidth, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 1

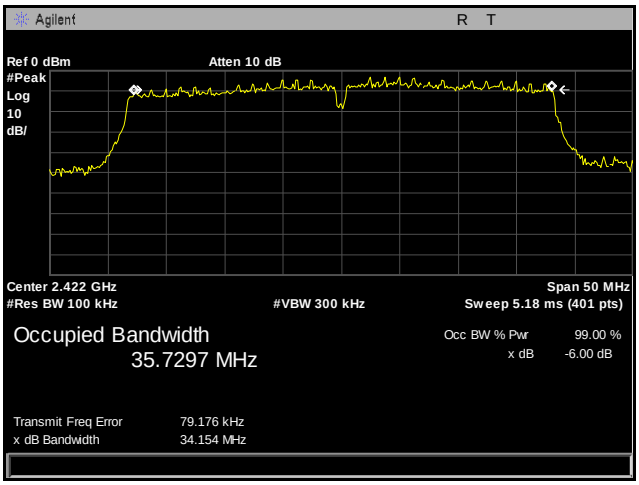


Plot 26. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 1

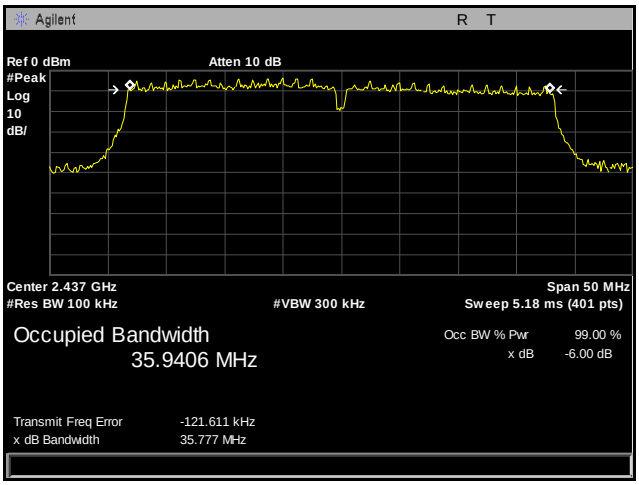


Plot 27. 6 dB Occupied Bandwidth, High Channel, 2452 MHz, 802.11n 40 MHz, Port 1

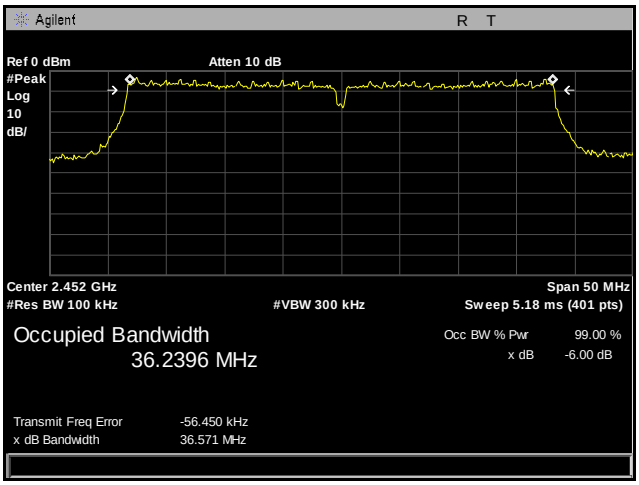
6 dB Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 40 MHz, Port 2



Plot 28. 6 dB Occupied Bandwidth, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 2

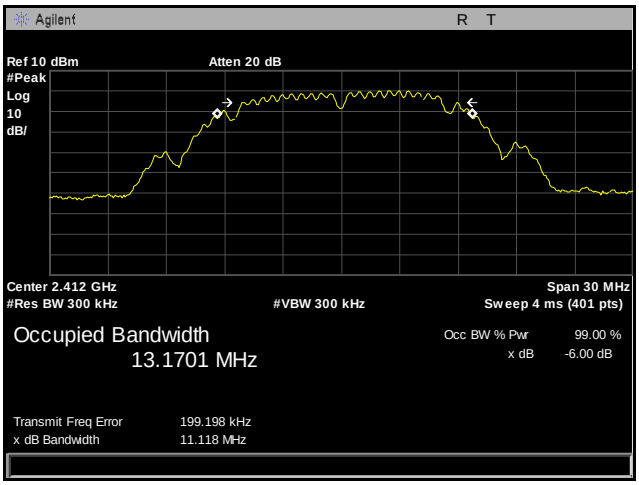


Plot 29. 6 dB Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 2

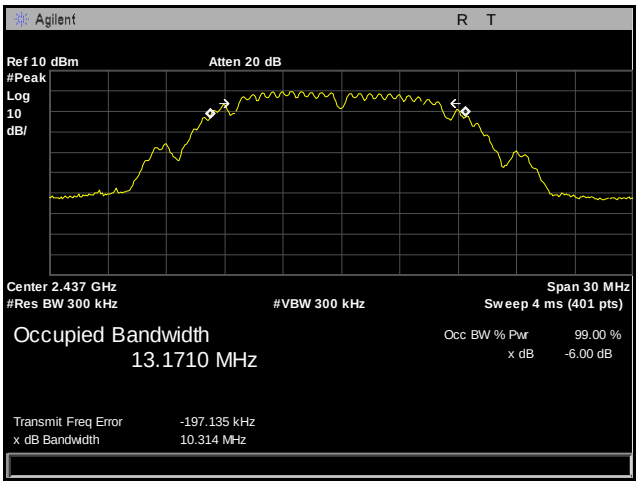


Plot 30. 6 dB Occupied Bandwidth, High Channel, 2452 MHz, 802.11n 40 MHz, Port 2

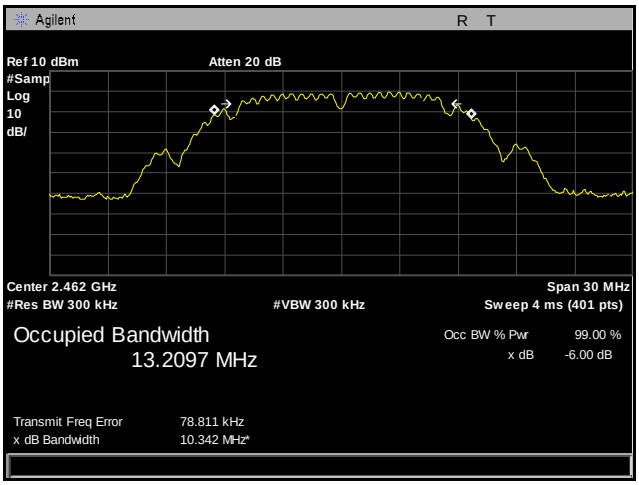
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11b



Plot 31. 99% Occupied Bandwidth, Low Channel, 2412 MHz, 802.11b

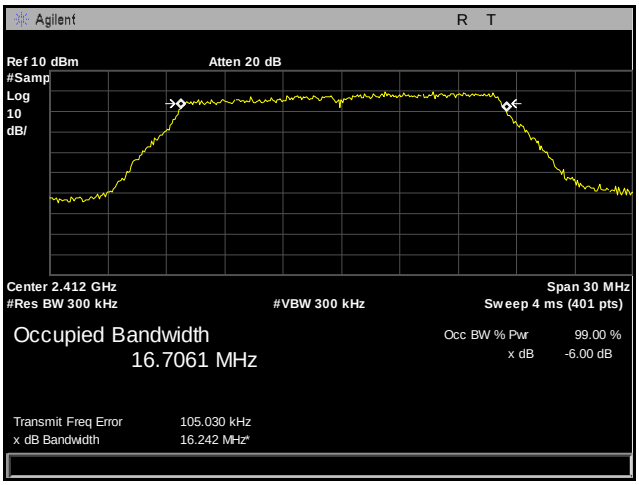


Plot 32. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11b

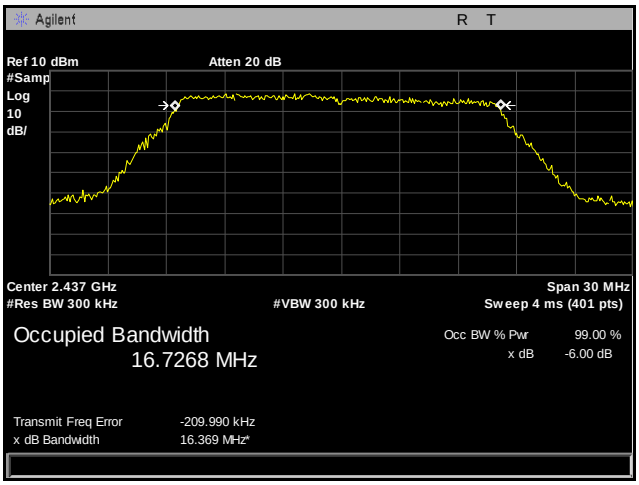


Plot 33. 99% Occupied Bandwidth, High Channel, 2462 MHz, 802.11b

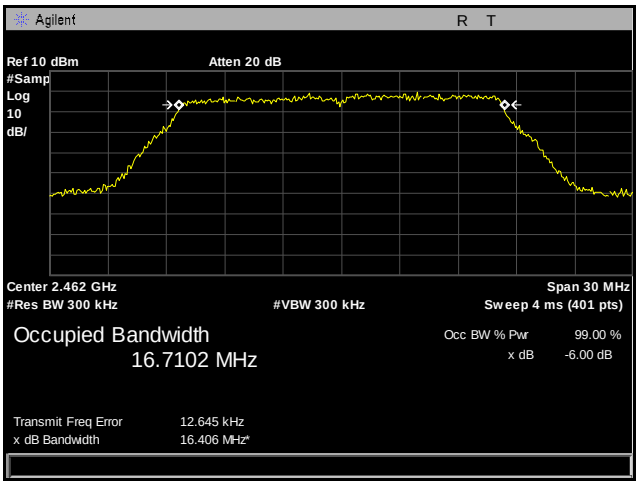
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11g



Plot 34. 99% Occupied Bandwidth, Low Channel, 2412 MHz, 802.11g

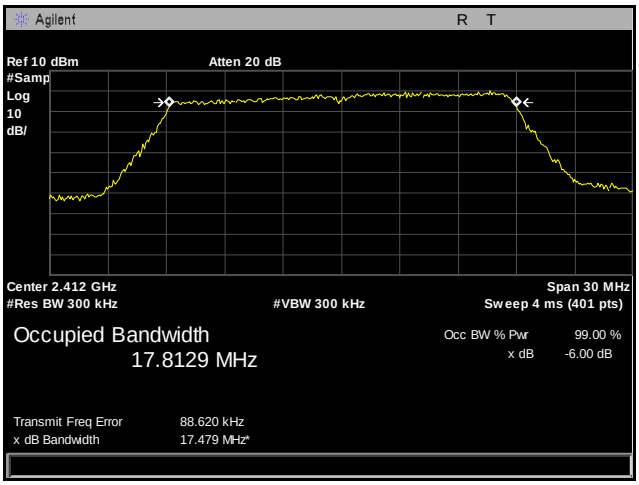


Plot 35. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11g

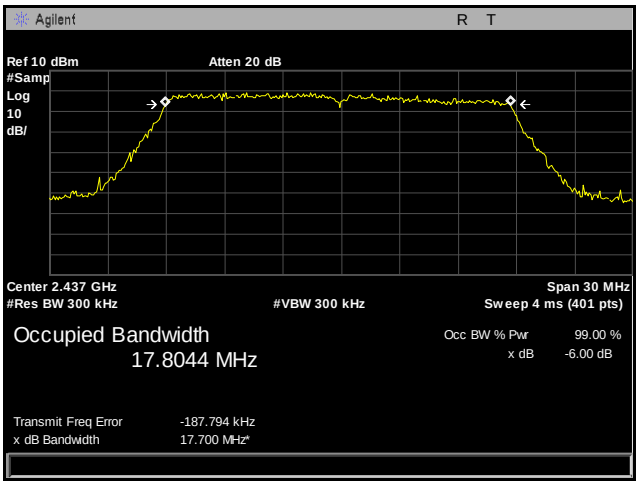


Plot 36. 99% Occupied Bandwidth, High Channel, 2462 MHz, 802.11g

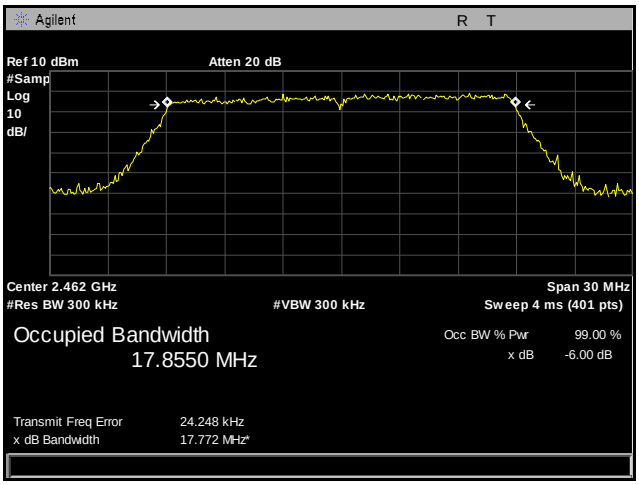
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 20 MHz, Port 1



Plot 37. 99% Occupied Bandwidth, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 1

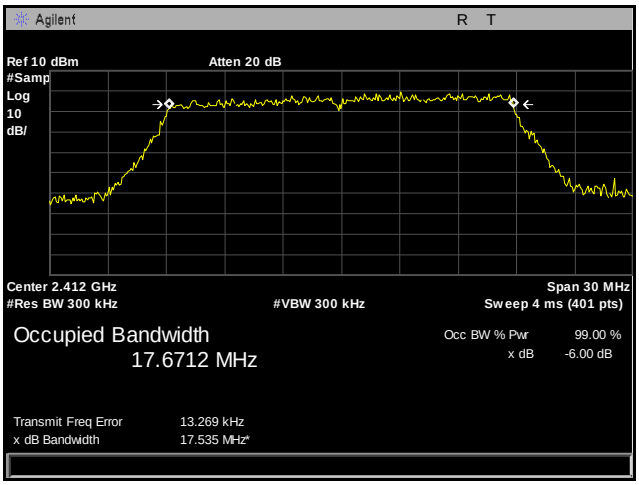


Plot 38. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 1

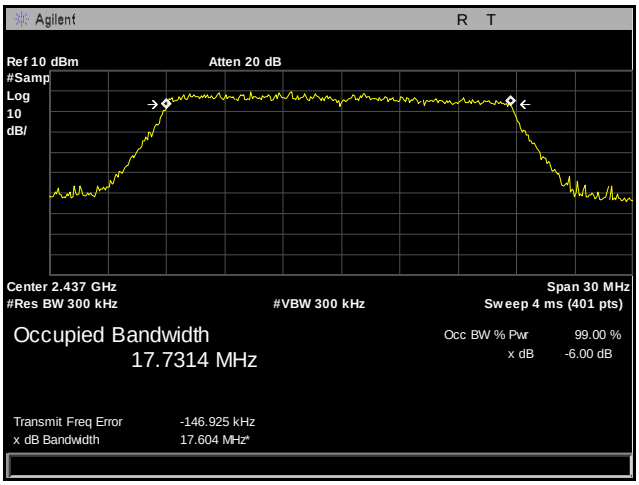


Plot 39. 99% Occupied Bandwidth, High Channel, 2462 MHz, 802.11n 20 MHz, Port 1

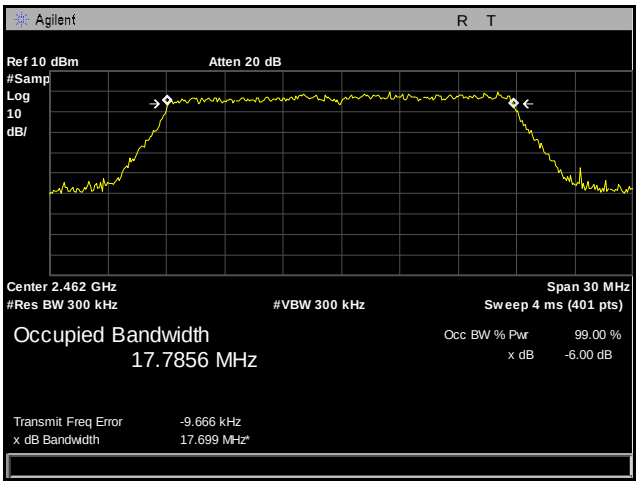
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 20 MHz, Port 2



Plot 40. 99% Occupied Bandwidth, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 2

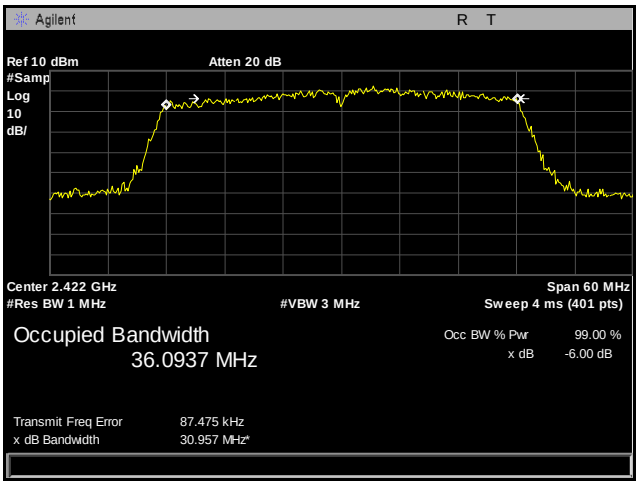


Plot 41. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 2

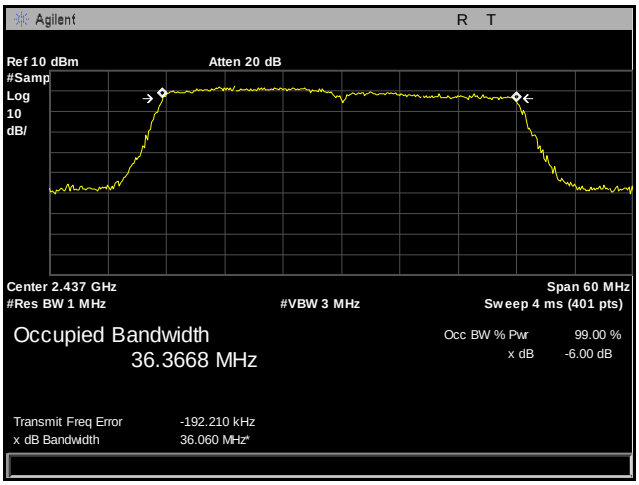


Plot 42. 99% Occupied Bandwidth, High Channel, 2462 MHz, 802.11n 20 MHz, Port 2

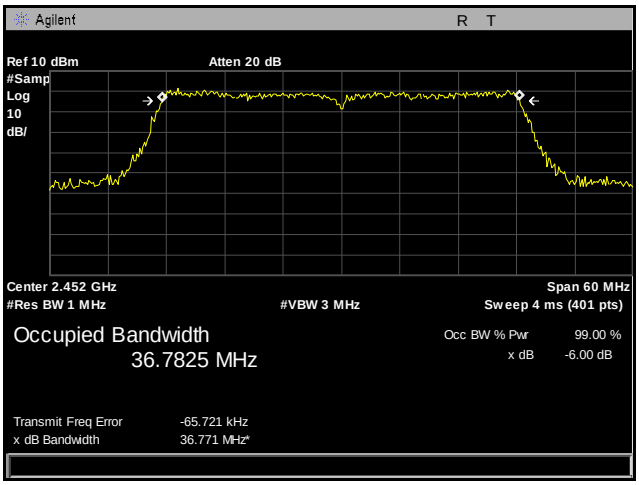
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 40 MHz, Port 1



Plot 43. 99% Occupied Bandwidth, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 1

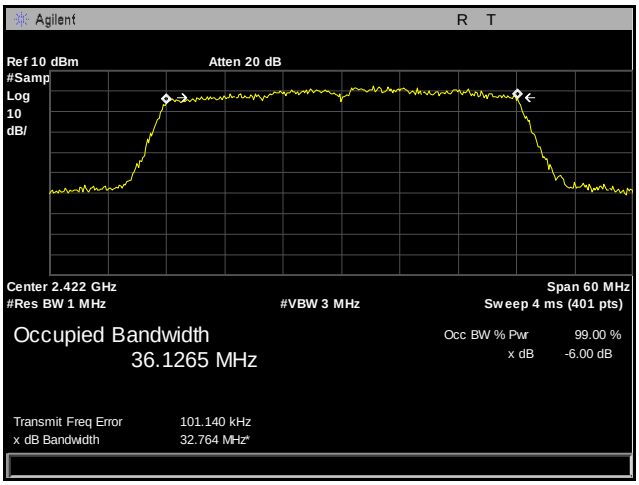


Plot 44. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 1

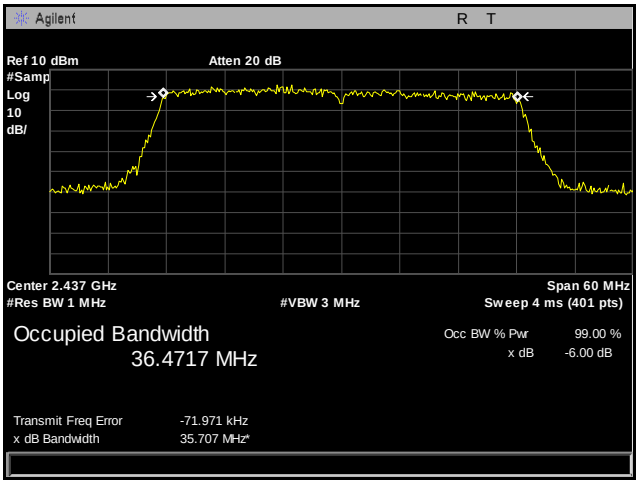


Plot 45. 99% Occupied Bandwidth, High Channel, 2452 MHz, 802.11n 40 MHz, Port 1

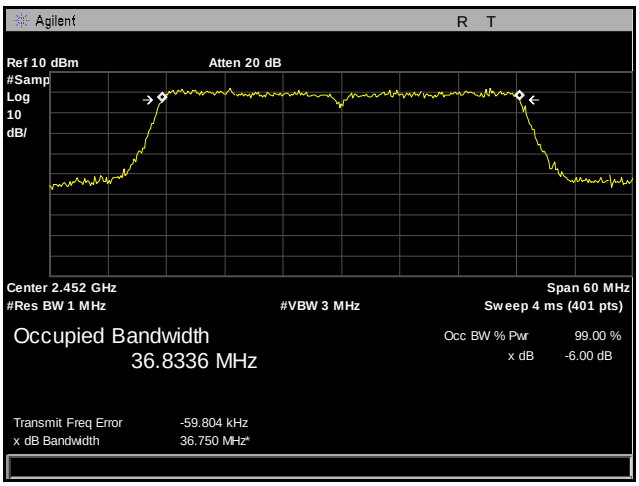
99% Occupied Bandwidth Test Results, 2.4 GHz, 802.11n 40 MHz, Port 2



Plot 46. 99% Occupied Bandwidth, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 2



Plot 47. 99% Occupied Bandwidth, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 2



Plot 48. 99% Occupied Bandwidth, High Channel, 2452 MHz, 802.11n 40 MHz, Port 2

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(b) Peak Power Output

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

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

Table 27. Output Power Requirements from §15.247(b)

§15.247(b)(4): The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

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

Test Engineer(s): Andy Shen

Test Date(s): 09/04/14

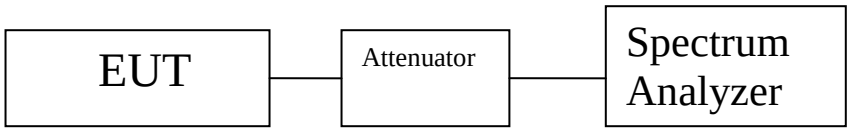


Figure 3. Peak Power Output Test Setup

Peak Power Output Test Results

Peak Conducted Output Power – Ceiling Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11b	Low	2412	24.34
	Mid	2437	24.85
	High	2462	24.45
802.11g	Low	2412	24.13
	Mid	2437	26.18
	High	2462	23.08
802.11n 20 MHz Port 1	Low	2412	22.96
	Mid	2437	25.90
	High	2462	22.26
802.11n 20 MHz Port 2	Low	2412	22.33
	Mid	2437	26.68
	High	2462	22.23
802.11n 40 MHz Port 1	Low	2422	22.02
	Mid	2437	26.38
	High	2452	20.85
802.11n 40 MHz Port 2	Low	2422	21.86
	Mid	2437	25.92
	High	2452	21.08

Table 28. Peak Power Output, Test Results, 2.4 GHz, 3 dBi Ceiling Antenna

Summed Peak Conducted Output Power – Ceiling Antenna			
	Carrier Channel	Frequency (MHz)	Measured Peak Output Power dBm
802.11n 20 MHz Summed	Low	2412	25.67
	Mid	2437	29.32
	High	2462	28.02
802.11n 40 MHz Summed	Low	2422	24.95
	Mid	2437	29.17
	High	2452	23.98

Table 29. Peak Power Output, Test Results, 2.4 GHz, 3 dBi Ceiling Antenna, Summed

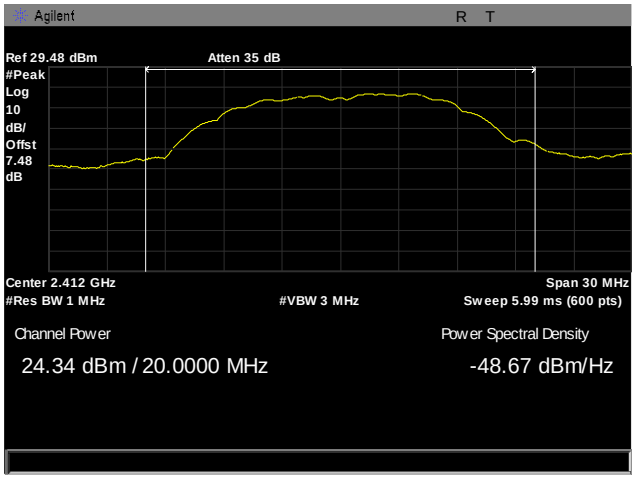
Peak Conducted Output Power – Omni/Patch Antenna			
	Carrier Channel	**Frequency (MHz)**	**Measured Peak Output Power dBm**
802.11b	Low	2412	20.81
	Mid	2437	21.26
	High	2462	21.21
802.11g	Low	2412	22.11
	Mid	2437	22.34
	High	2462	21.15
802.11n 20 MHz Port 1	Low	2412	20.32
	Mid	2437	22.42
	High	2462	19.85
802.11n 20 MHz Port 2	Low	2412	20.16
	Mid	2437	22.65
	High	2462	19.8
802.11n 40 MHz Port 1	Low	2422	18.67
	Mid	2437	22.82
	High	2452	18.22
802.11n 40 MHz Port 2	Low	2422	18.58
	Mid	2437	22.78
	High	2452	18.7

Table 30. Peak Power Output, Test Results, 2.4 GHz, 6 dBi Omni & Patch Antennas

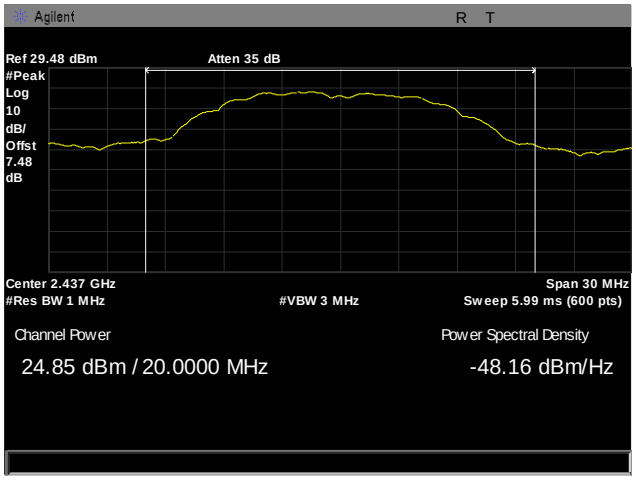
Summed Conducted Output Power – Omni/Patch Antenna			
	Carrier Channel	**Frequency (MHz)**	**Measured Peak Output Power dBm**
802.11n 20 MHz Summed	Low	2412	23.25
	Mid	2437	25.55
	High	2462	22.84
802.11n 40 MHz Summed	Low	2422	21.64
	Mid	2437	24.11
	High	2452	21.48

Table 31. Peak Power Output, Test Results, 2.4 GHz, 6 dBi Omni & Patch Antennas, Summed

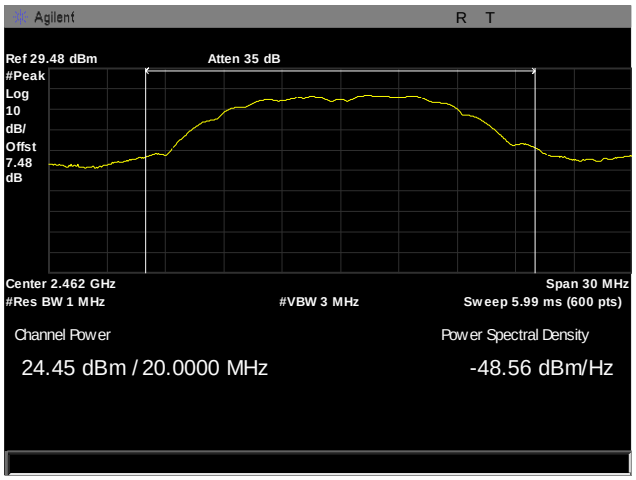
Peak Power Output Test Results, 2.4 GHz, 802.11b, 3 dBi Ceiling Antenna



Plot 49. Peak Power Output, Low Channel, 2412 MHz, 802.11b

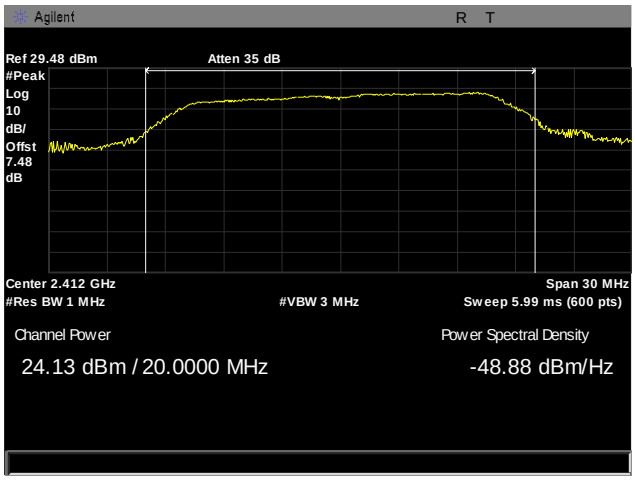


Plot 50. Peak Power Output, Mid Channel, 2437 MHz, 802.11b

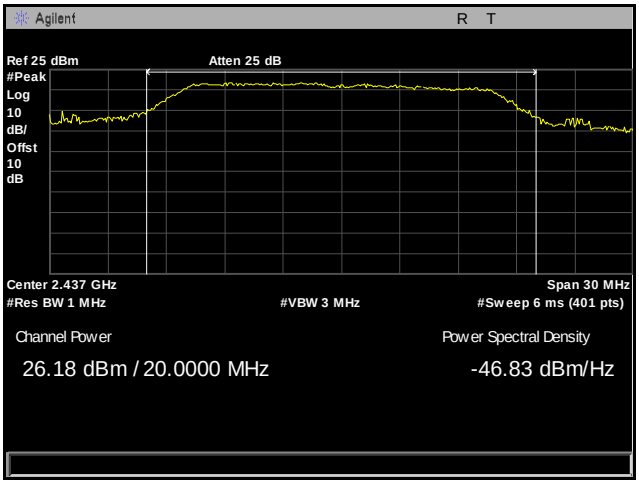


Plot 51. Peak Power Output, High Channel, 2462 MHz, 802.11b

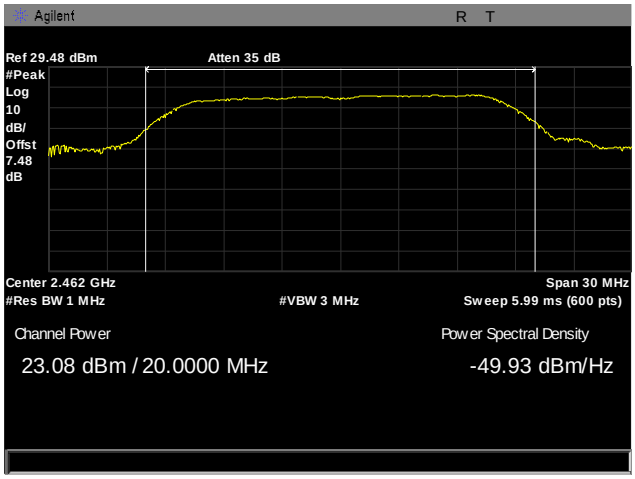
Peak Power Output Test Results, 2.4 GHz, 802.11g



Plot 52. Peak Power Output, Low Channel, 2412 MHz, 802.11g

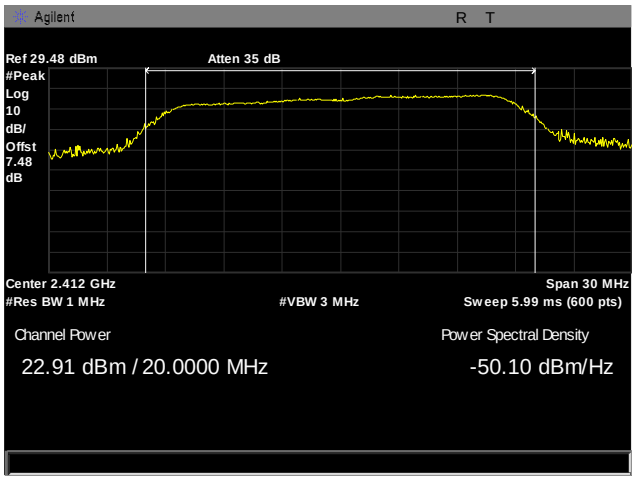


Plot 53. Peak Power Output, Mid Channel, 2437 MHz, 802.11g

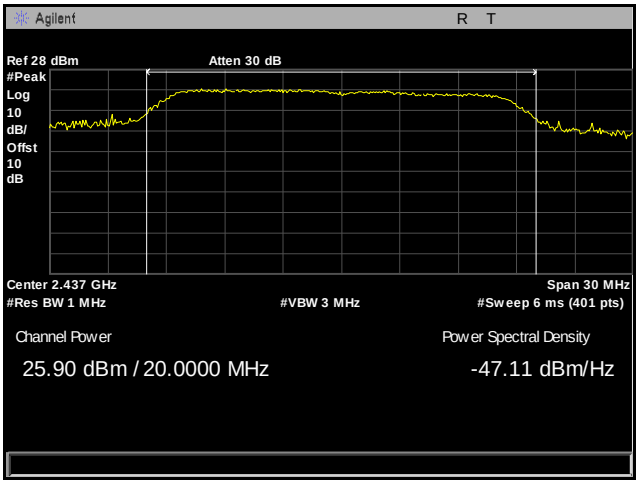


Plot 54. Peak Power Output, High Channel, 2462 MHz, 802.11g

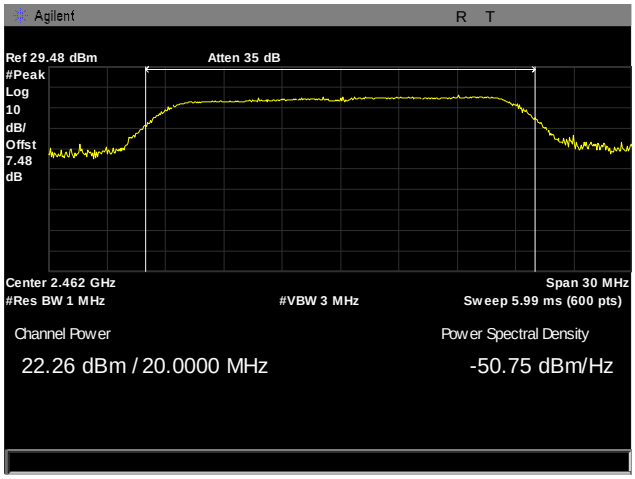
Peak Power Output Test Results, 2.4 GHz, 802.11n 20 MHz, Port 1



Plot 55. Peak Power Output, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 1

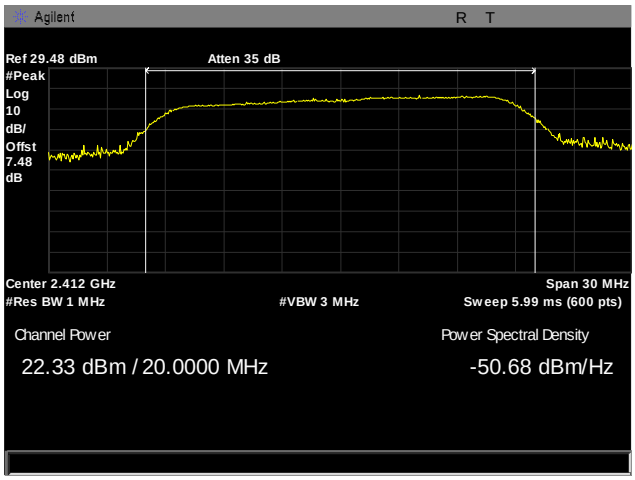


Plot 56. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 1

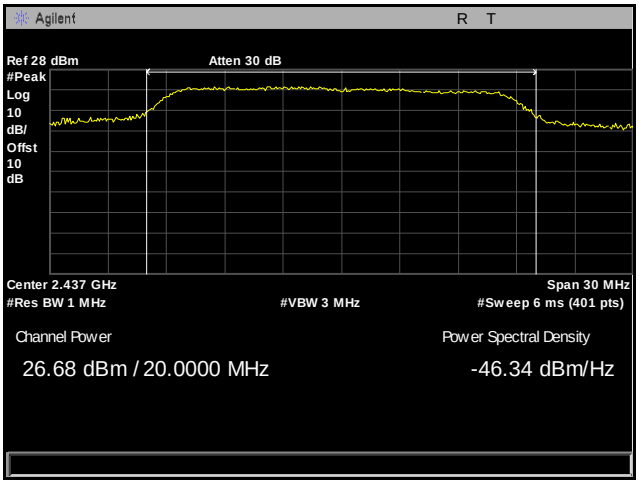


Plot 57. Peak Power Output, High Channel, 2462 MHz, 802.11n 20 MHz, Port 1

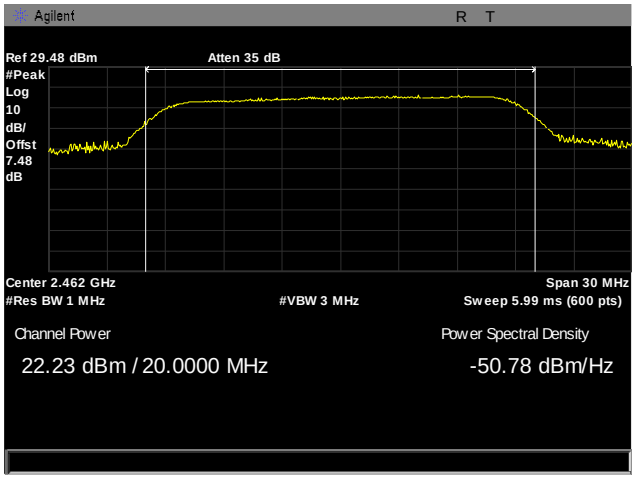
Peak Power Output Test Results, 2.4 GHz, 802.11n 20 MHz, Port 2



Plot 58. Peak Power Output, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 2

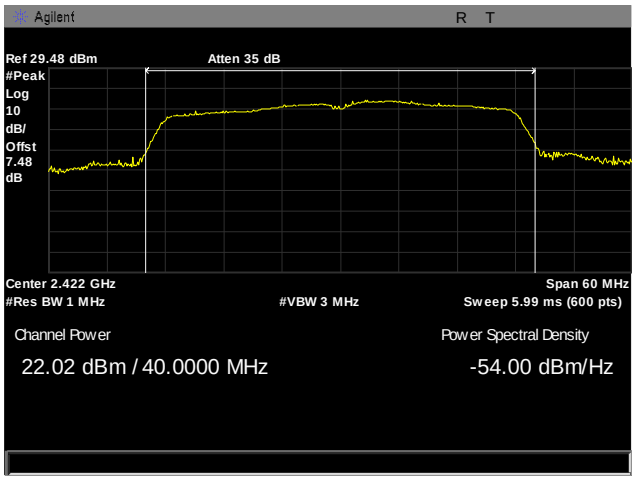


Plot 59. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 2

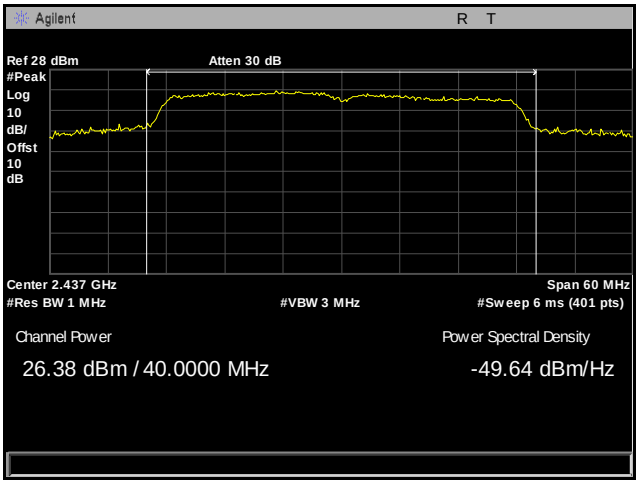


Plot 60. Peak Power Output, High Channel, 2462 MHz, 802.11n 20 MHz, Port 2

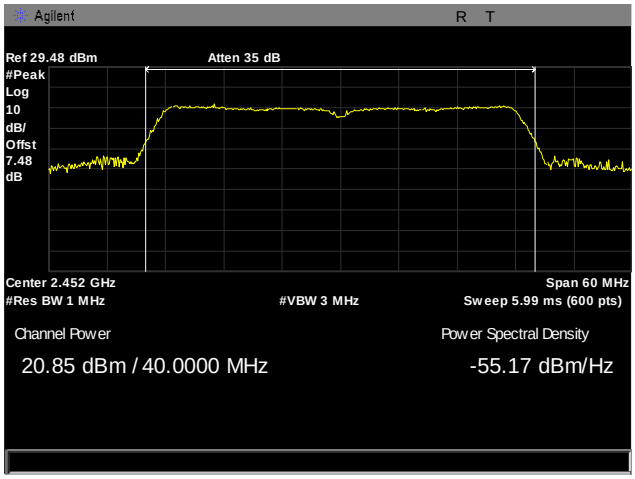
Peak Power Output Test Results, 2.4 GHz, 802.11n 40 MHz, Port 1



Plot 61. Peak Power Output, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 1

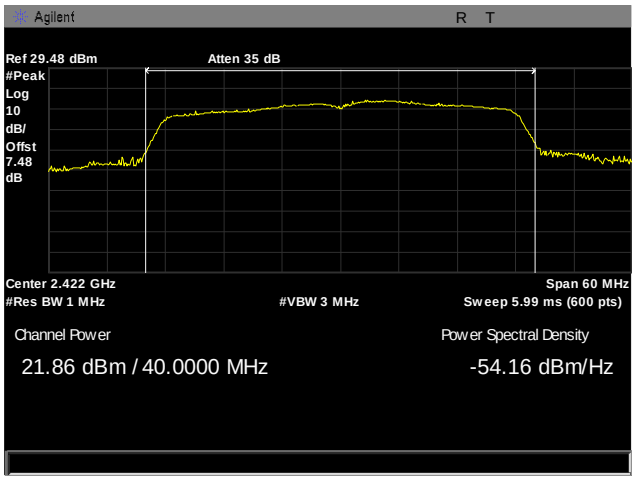


Plot 62. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 1

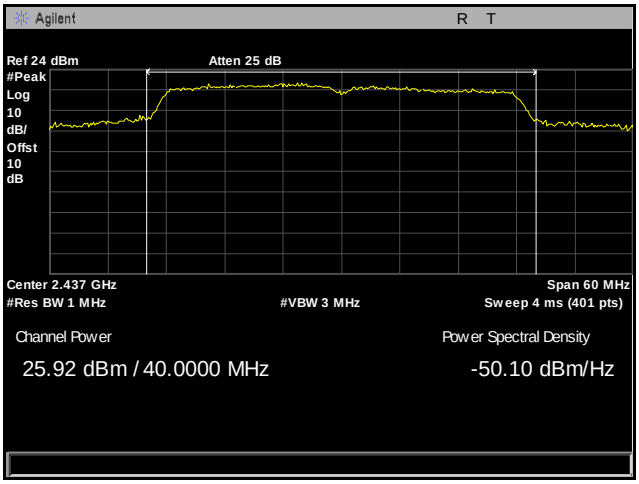


Plot 63. Peak Power Output, High Channel, 2452 MHz, 802.11n 40 MHz, Port 1

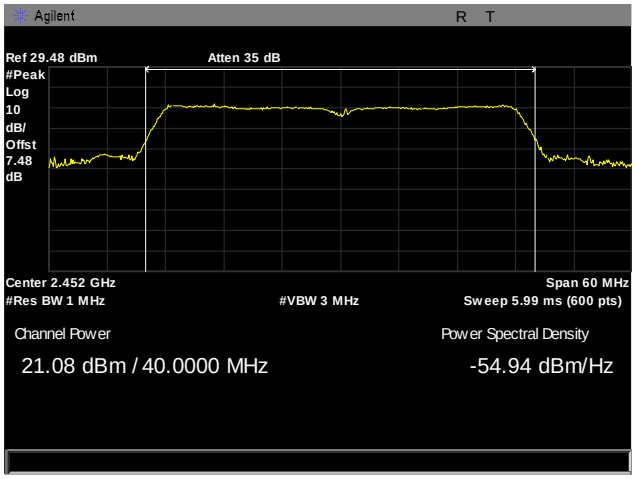
Peak Power Output Test Results, 2.4 GHz, 802.11n 40 MHz



Plot 64. Peak Power Output, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 2

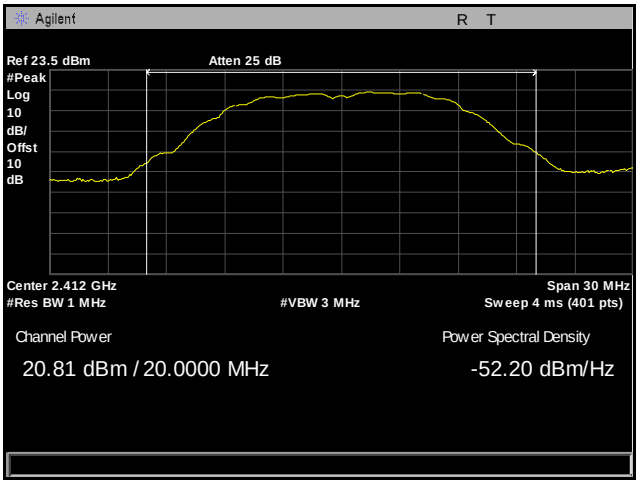


Plot 65. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 2

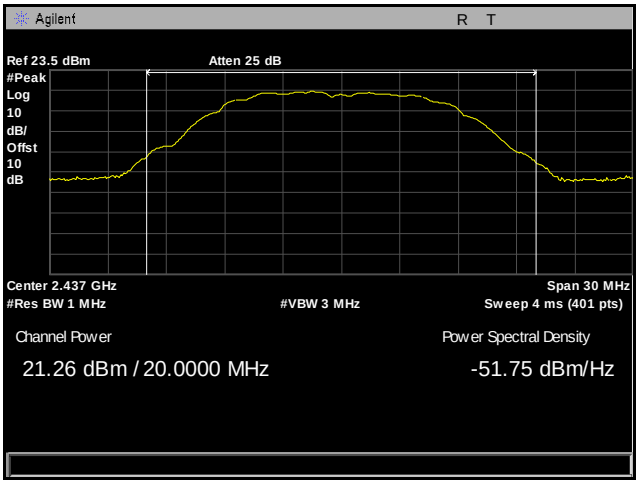


Plot 66. Peak Power Output, High Channel, 2452 MHz, 802.11n 40 MHz, Port 2

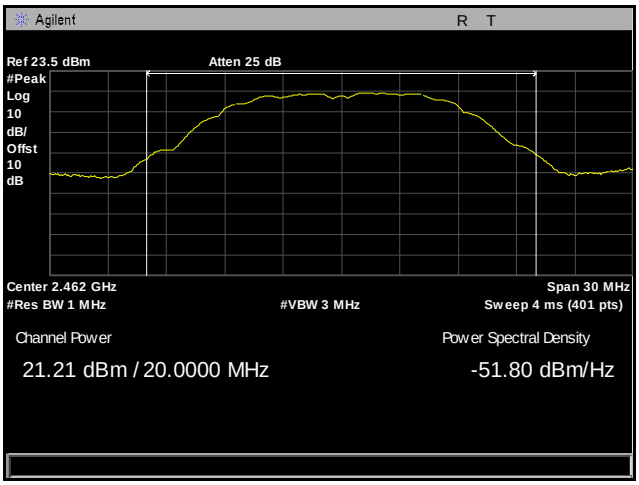
Peak Power Output Test Results, 2.4 GHz, 802.11b, 6 dBi Antennas



Plot 67. Peak Power Output, Low Channel, 2412 MHz, 802.11b

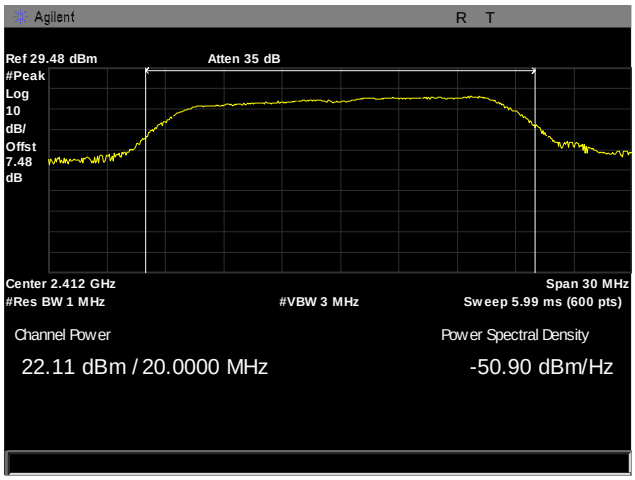


Plot 68. Peak Power Output, Mid Channel, 2437 MHz, 802.11b

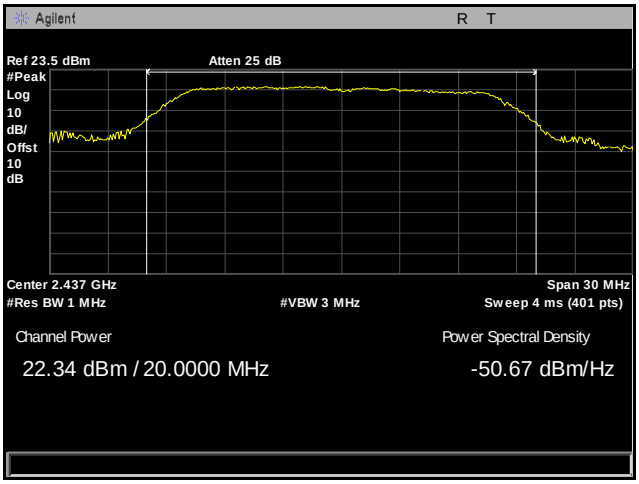


Plot 69. Peak Power Output, High Channel, 2462 MHz, 802.11b

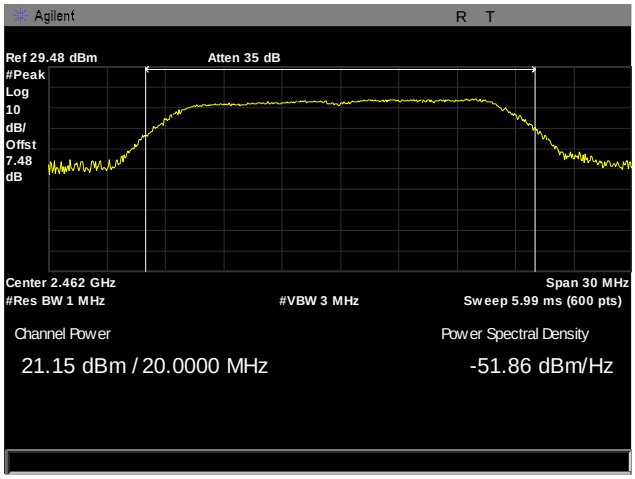
Peak Power Output Test Results, 2.4 GHz, 802.11g, 6 dBi Antennas



Plot 70. Peak Power Output, Low Channel, 2412 MHz, 802.11g

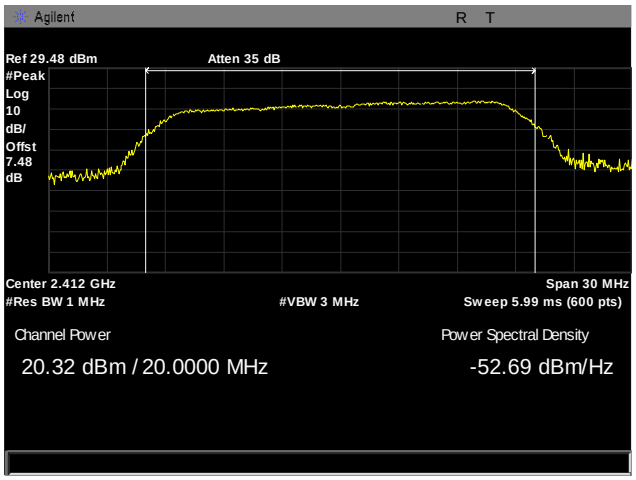


Plot 71. Peak Power Output, Mid Channel, 2437 MHz, 802.11g

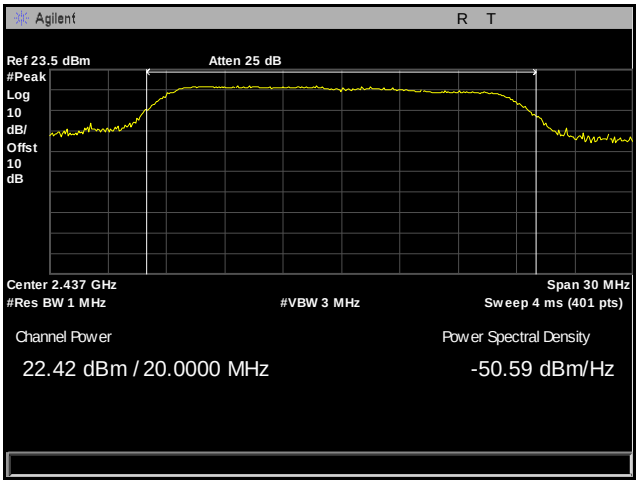


Plot 72. Peak Power Output, High Channel, 2462 MHz, 802.11g

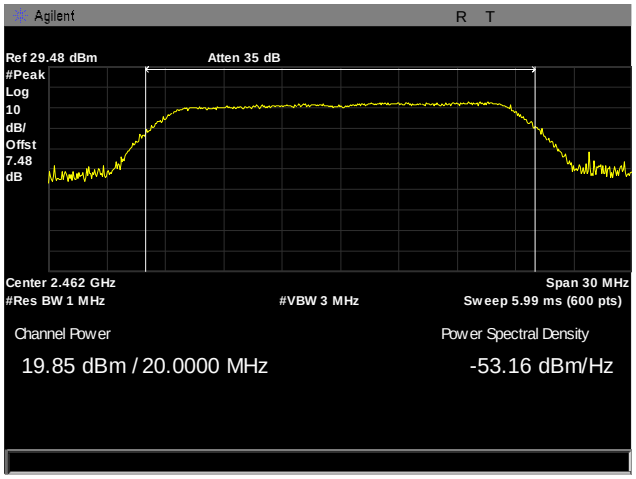
Peak Power Output Test Results, 2.4 GHz, 802.11n 20 MHz, Port 1, 6 dBi Antennas



Plot 73. Peak Power Output, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 1

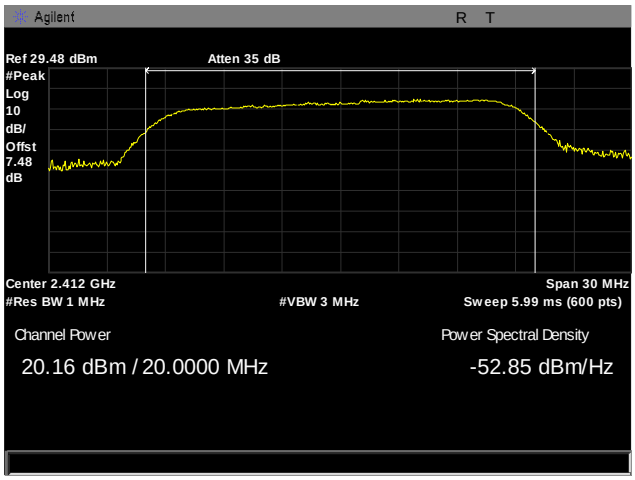


Plot 74. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 1

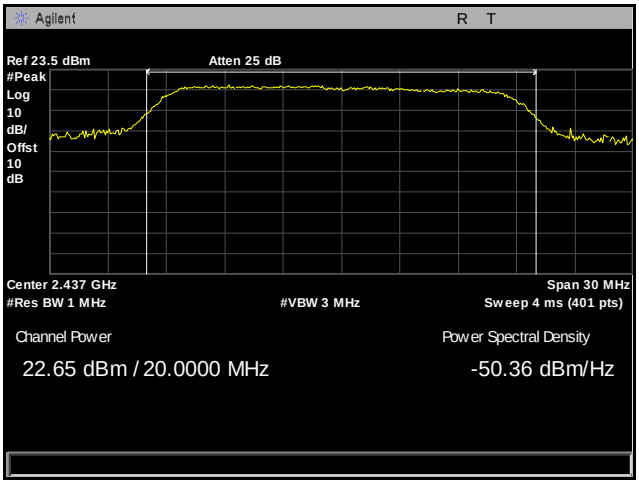


Plot 75. Peak Power Output, High Channel, 2462 MHz, 802.11n 20 MHz, Port 1

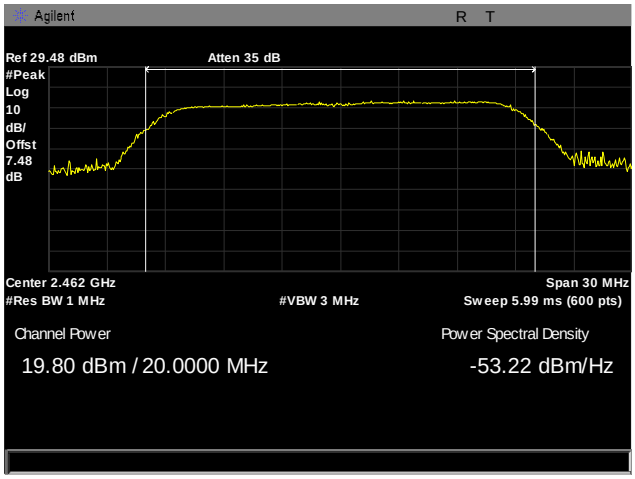
Peak Power Output Test Results, 2.4 GHz, 802.11n 20 MHz, Port 2, 6 dBi Antennas



Plot 76. Peak Power Output, Low Channel, 2412 MHz, 802.11n 20 MHz, Port 2

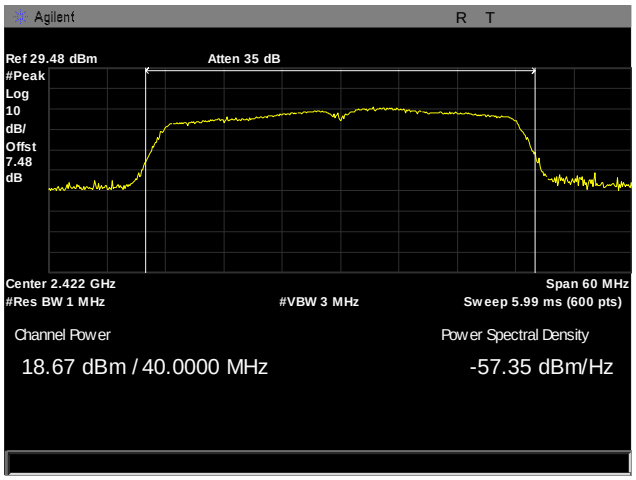


Plot 77. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 20 MHz, Port 2

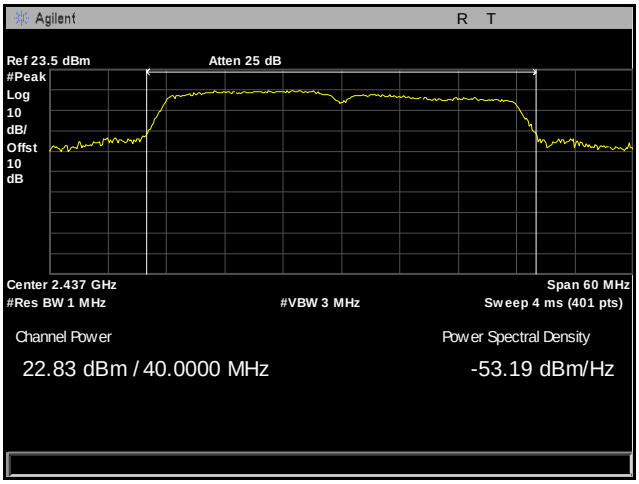


Plot 78. Peak Power Output, High Channel, 2462 MHz, 802.11n 20 MHz, Port 2

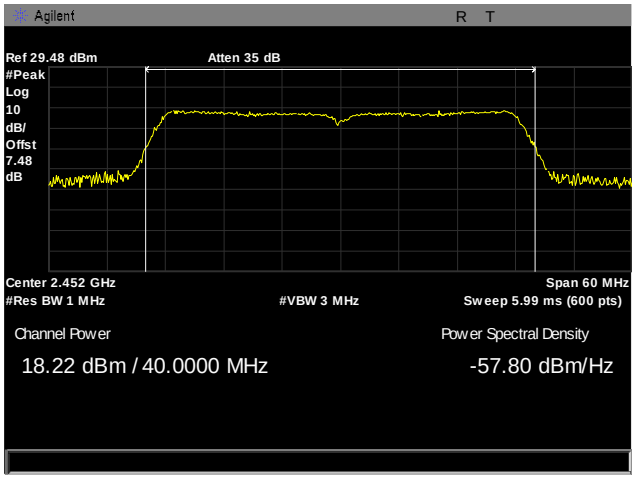
Peak Power Output Test Results, 2.4 GHz, 802.11n 40 MHz, Port 1, 6 dBi Antennas



Plot 79. Peak Power Output, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 1

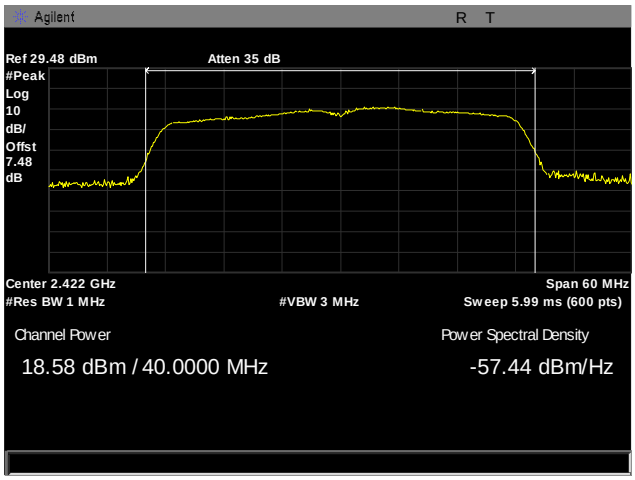


Plot 80. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 1

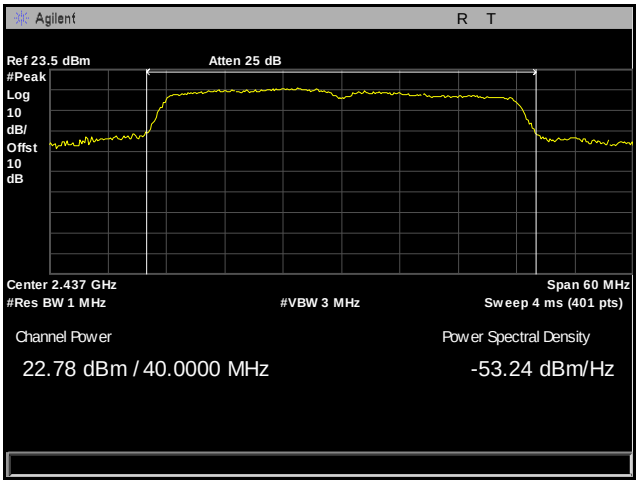


Plot 81. Peak Power Output, High Channel, 2452 MHz, 802.11n 40 MHz, Port 1

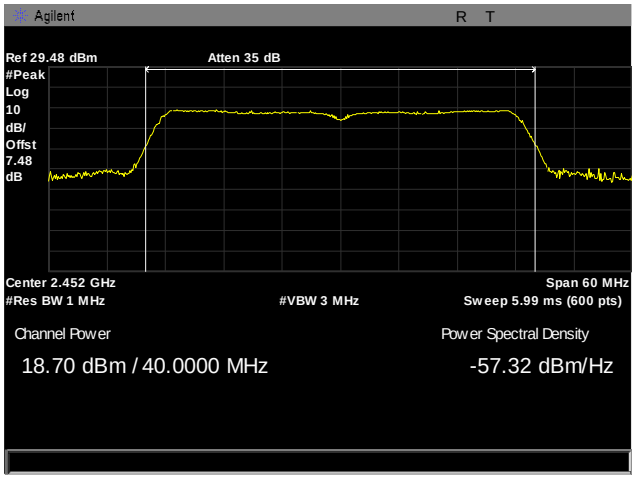
Peak Power Output Test Results, 2.4 GHz, 802.11n 40 MHz, Port 2, 6 dBi Antennas



Plot 82. Peak Power Output, Low Channel, 2422 MHz, 802.11n 40 MHz, Port 2



Plot 83. Peak Power Output, Mid Channel, 2437 MHz, 802.11n 40 MHz, Port 2



Plot 84. Peak Power Output, High Channel, 2452 MHz, 802.11n 40 MHz, Port 2

Electromagnetic Compatibility Criteria for Intentional Radiators

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

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

§15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a).

§15.205(a): Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090–0.110----------	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505----------	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905----------	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128----------	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775----------	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775----------	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218----------	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825----------	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225----------	123–138	2200–2300	14.47–14.5
8.291–8.294----------	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366----------	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675----------	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475----------	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293----------	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025----------	240–285	3345.8–3358 36.	43–36.5
12.57675–12.57725----------	322–335.4	3600–4400	([2])

Table 32. Restricted Bands of Operation

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

Test Requirement(s): **§ 15.209 (a):** Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 33.

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

Table 33. Radiated Emissions Limits Calculated from FCC Part 15, § 15.209 (a)

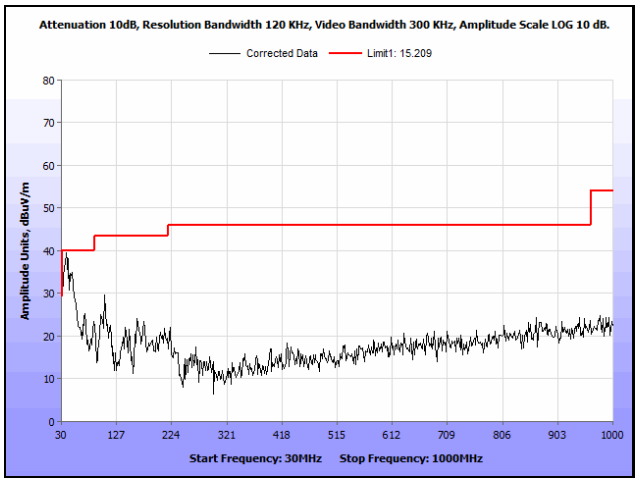
Test Procedures: The transmitter was turned on. Measurements were performed of the low, mid and high Channels. The EUT was rotated orthogonally through all three axes. Plots shown are corrected for both antenna correction factor and distance and compared to a 3 m limit line. Only noise floor was measured above 18 GHz.

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

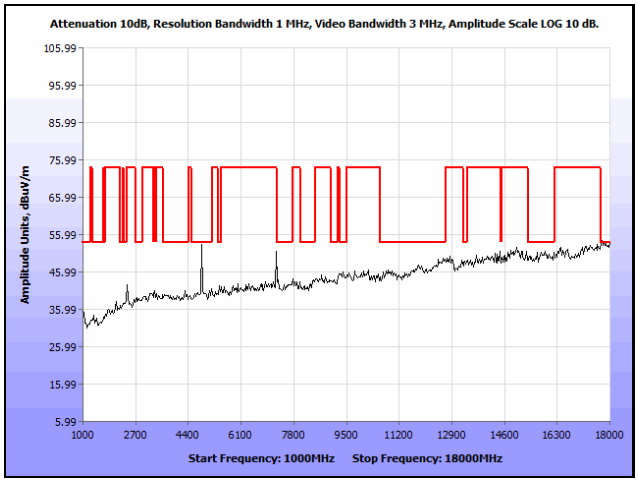
Test Engineer(s): Andy Shen

Test Date(s): 09/04/14

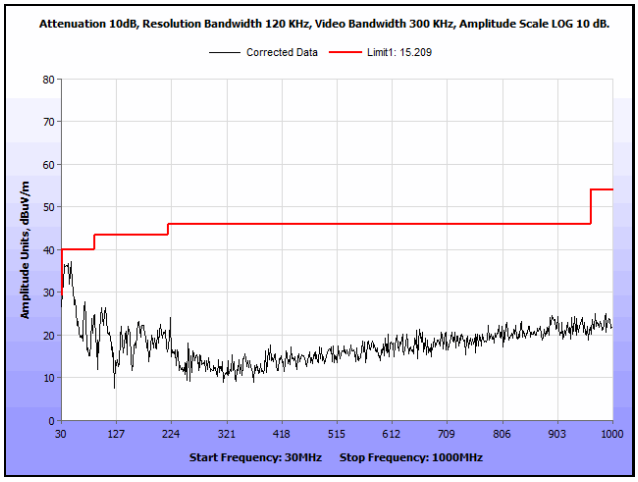
Radiated Spurious Emissions Test Results, 802.11b, Ceiling Antenna



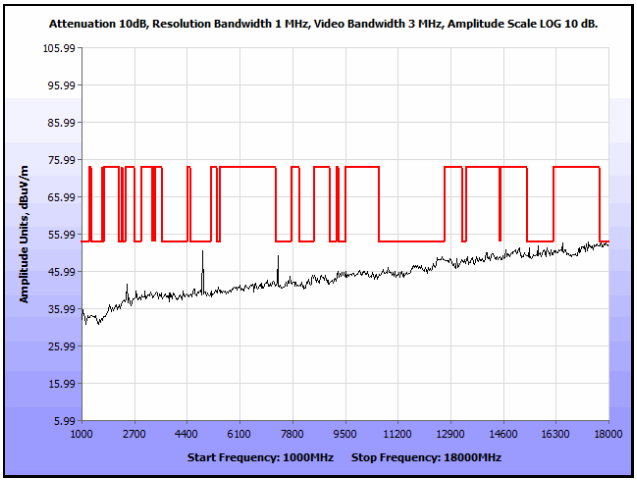
Plot 85. Radiated Spurious Emissions, Low Channel, 802.11b, 30 MHz – 1 GHz, Ceiling Antenna, Average



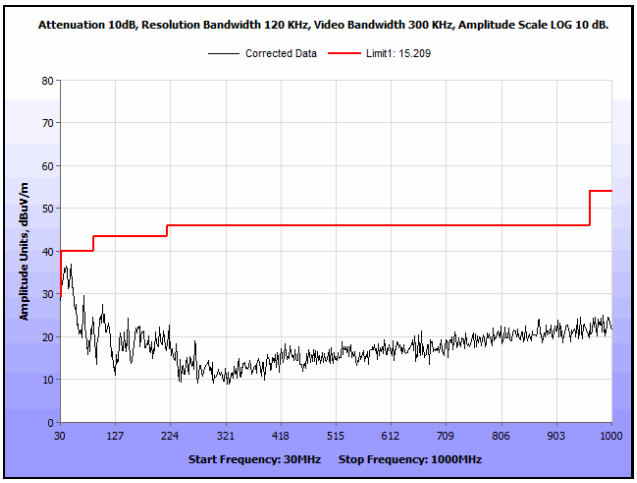
Plot 86. Radiated Spurious Emissions, Low Channel, 802.11b, 1 GHz – 18 GHz, Ceiling Antenna, Average



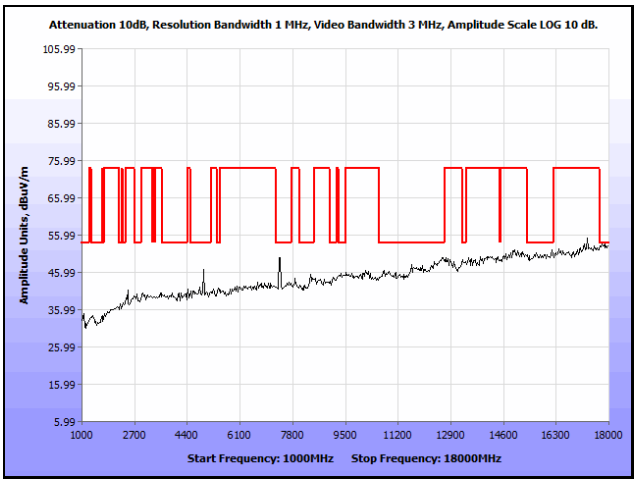
Plot 87. Radiated Spurious Emissions, Mid Channel, 802.11b, 30 MHz – 1 GHz, Ceiling Antenna, Average



Plot 88. Radiated Spurious Emissions, Mid Channel, 802.11b, 1 GHz – 18 GHz, Ceiling Antenna, Average

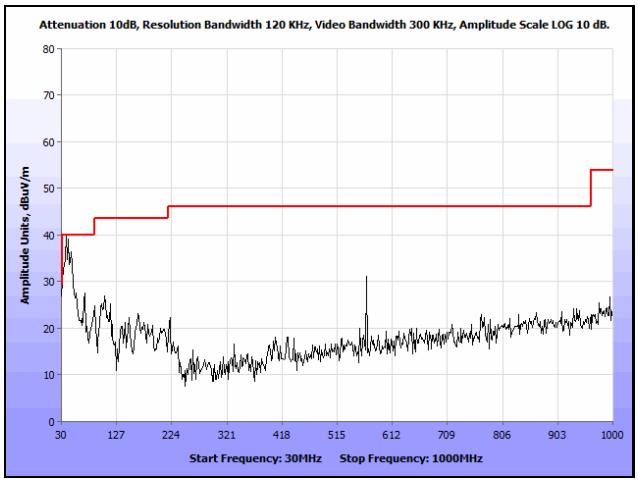


Plot 89. Radiated Spurious Emissions, High Channel, 802.11b, 30 MHz – 1 GHz, Ceiling Antenna, Average

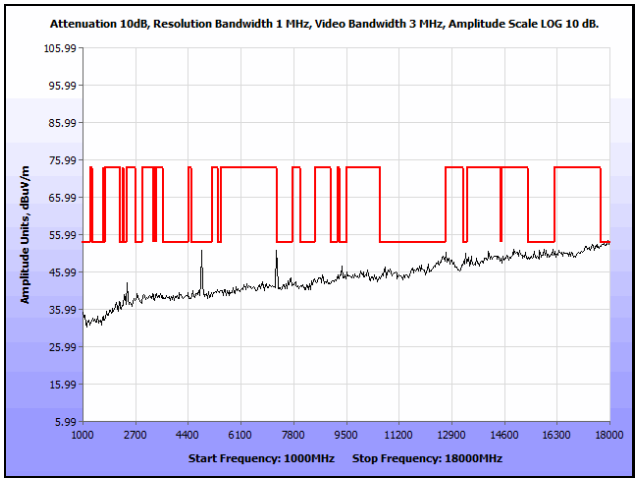


Plot 90. Radiated Spurious Emissions, High Channel, 802.11b, 1 GHz – 18 GHz, Ceiling Antenna, Average

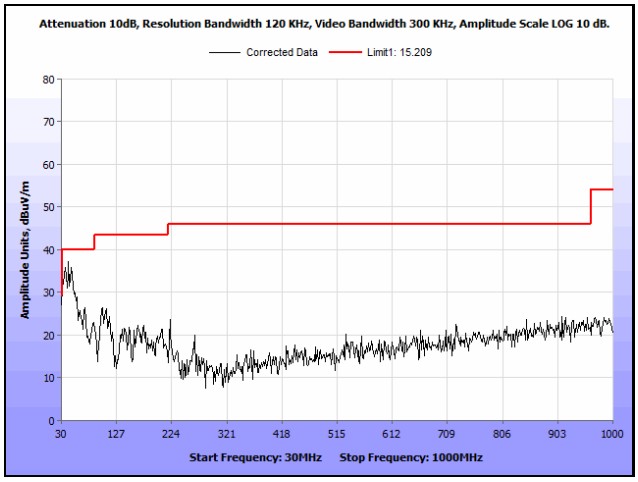
Radiated Spurious Emissions Test Results, 802.11g, Ceiling Antenna



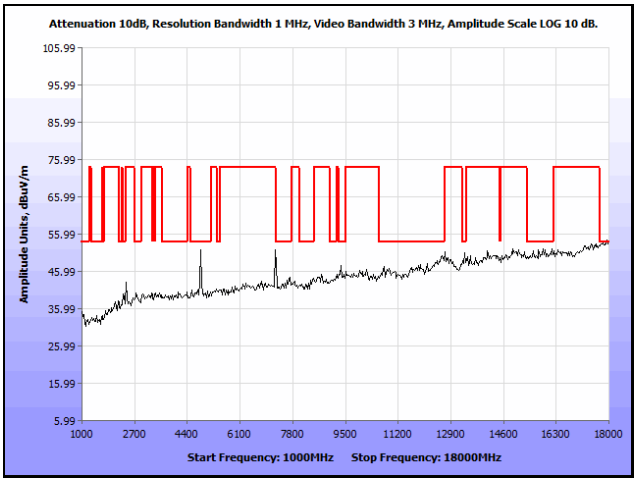
Plot 91. Radiated Spurious Emissions, Low Channel, 802.11g, 30 MHz – 1 GHz, Ceiling Antenna, Average



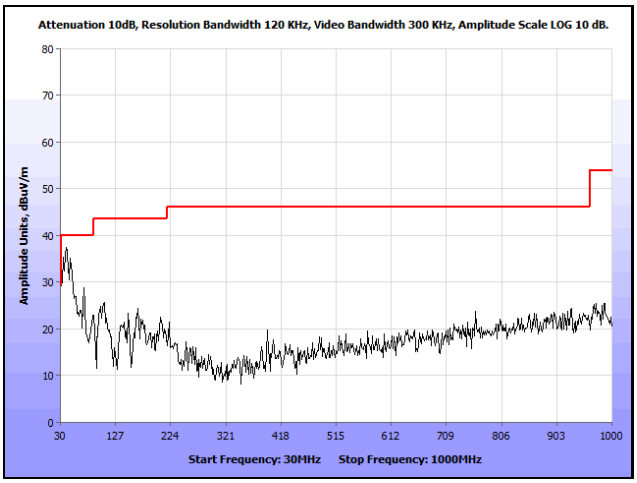
Plot 92. Radiated Spurious Emissions, Low Channel, 802.11g, 1 GHz – 18 GHz, Ceiling Antenna, Average



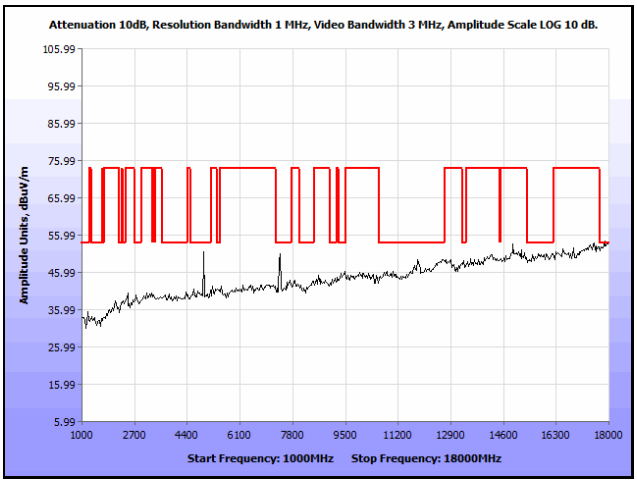
Plot 93. Radiated Spurious Emissions, Mid Channel, 802.11g, 30 MHz – 1 GHz, Ceiling Antenna, Average



Plot 94. Radiated Spurious Emissions, Mid Channel, 802.11g, 1 GHz – 18 GHz, Ceiling Antenna, Average

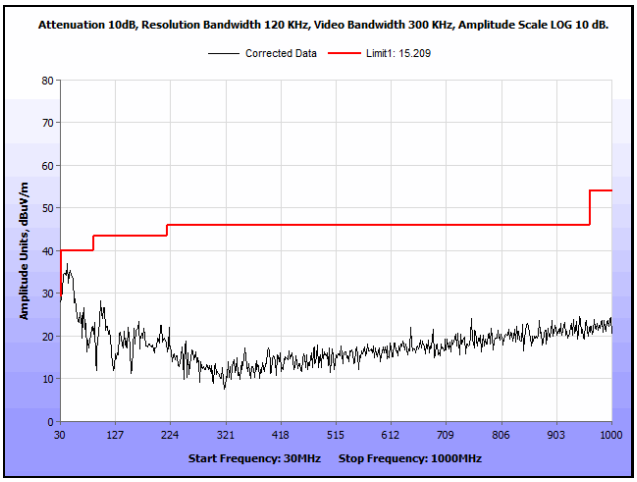


Plot 95. Radiated Spurious Emissions, High Channel, 802.11g, 30 MHz – 1 GHz, Ceiling Antenna, Average

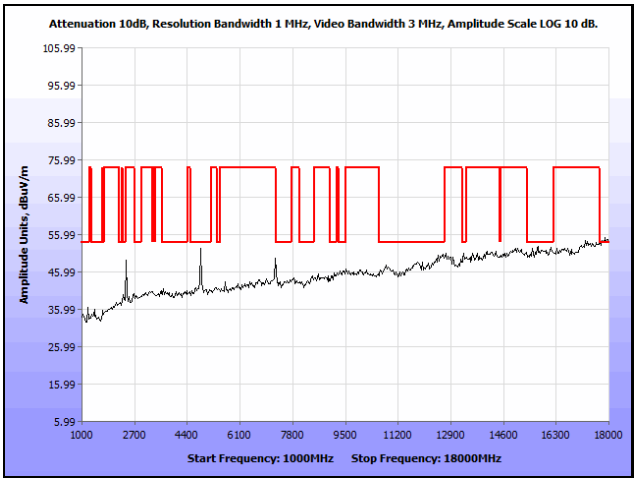


Plot 96. Radiated Spurious Emissions, High Channel, 802.11g, 1 GHz – 18 GHz, Ceiling Antenna, Average

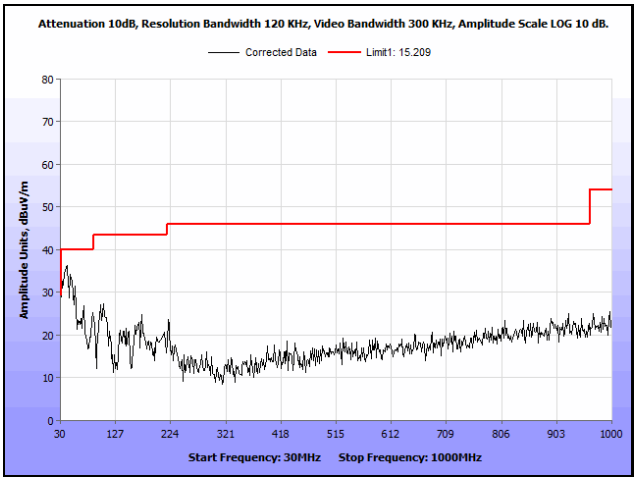
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, Ceiling Antenna



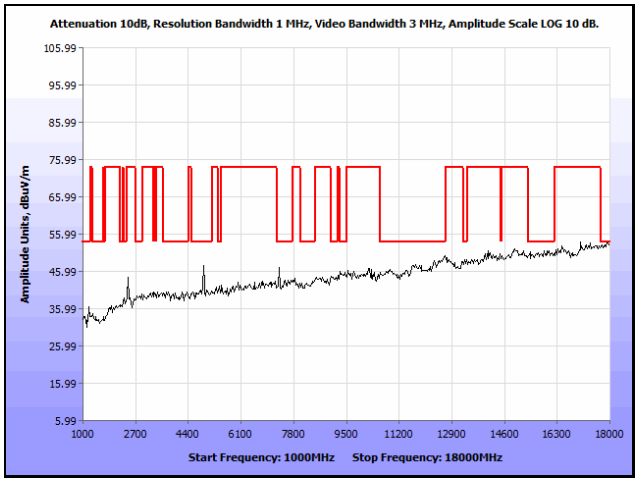
Plot 97. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average



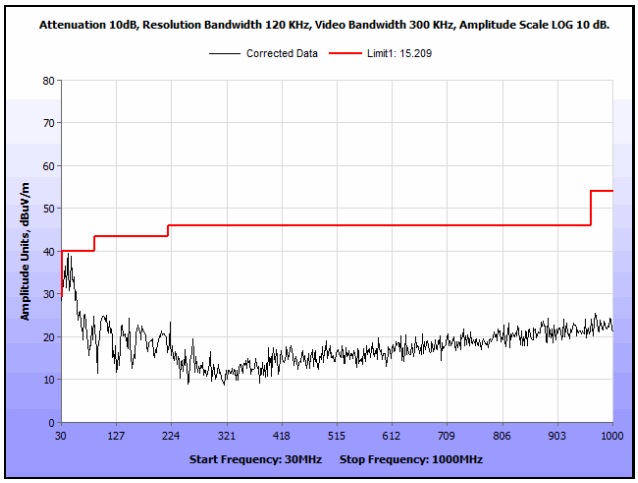
Plot 98. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average



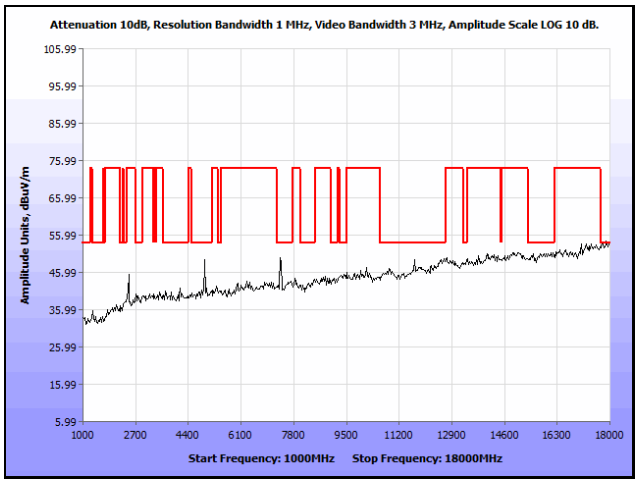
Plot 99. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average



Plot 100. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average

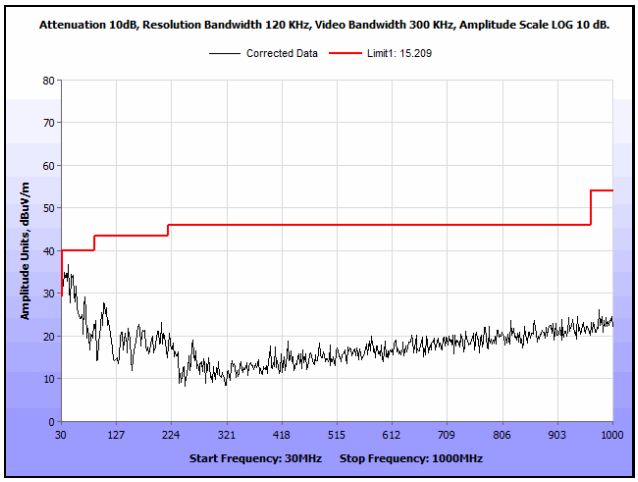


Plot 101. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average

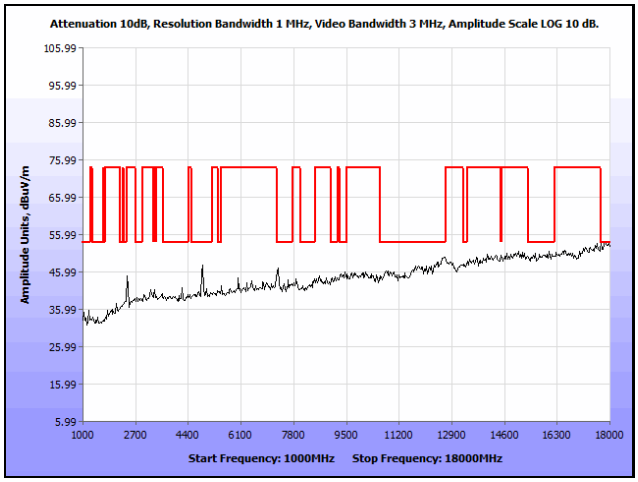


Plot 102. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average

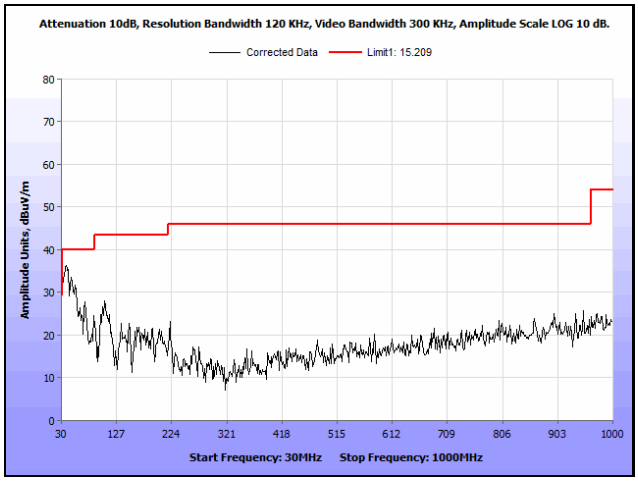
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, Ceiling Antenna



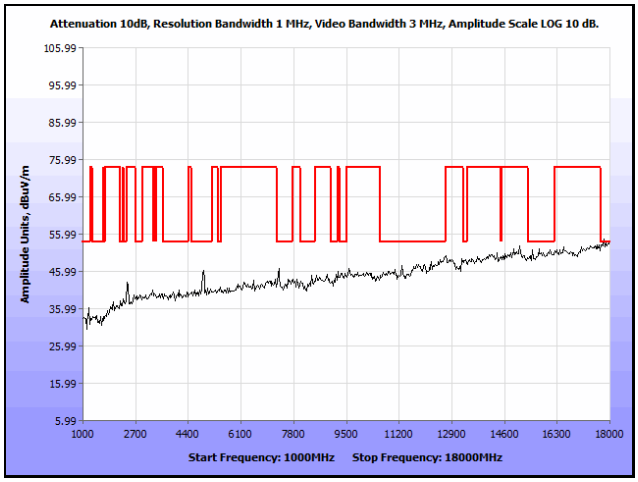
Plot 103. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average



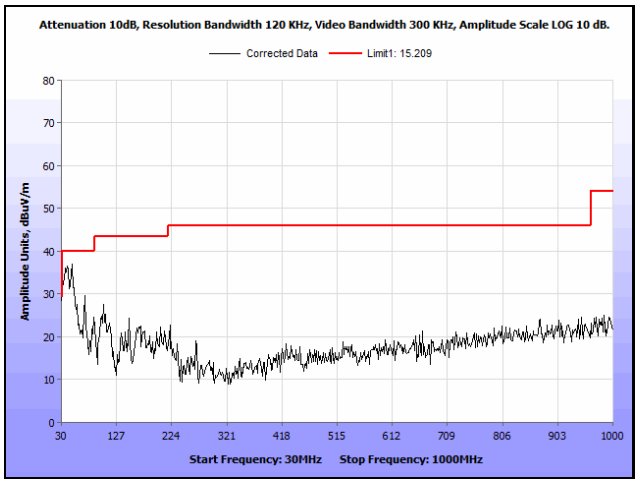
Plot 104. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average



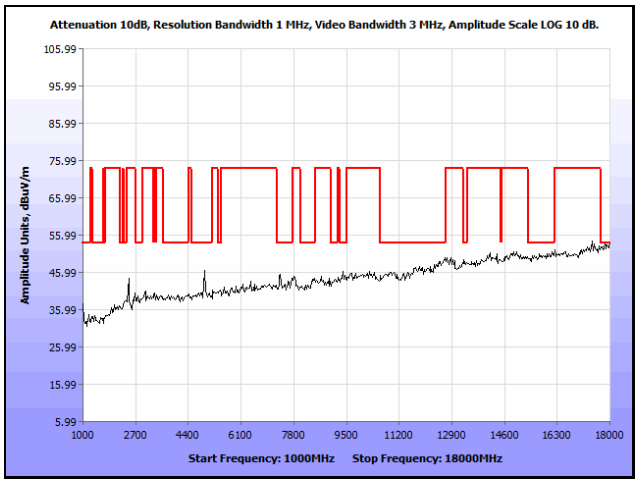
Plot 105. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average



Plot 106. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average

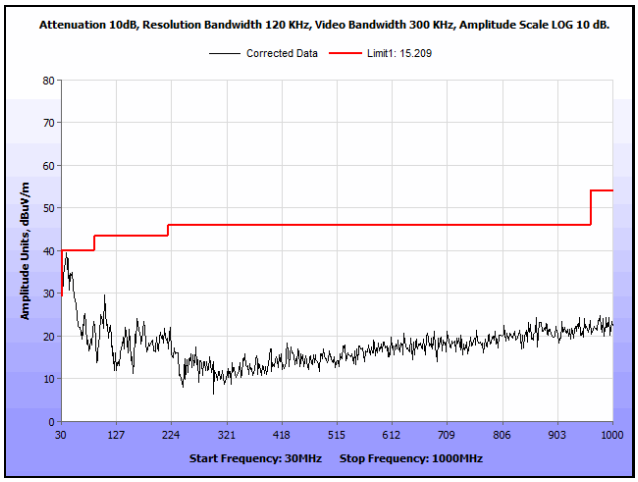


Plot 107. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Ceiling Antenna, Average

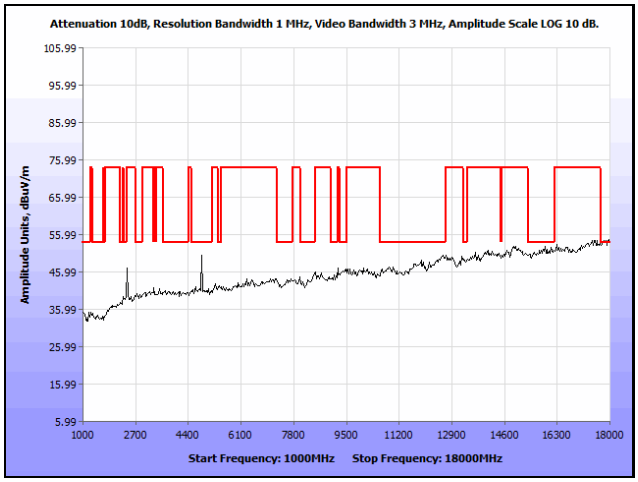


Plot 108. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Ceiling Antenna, Average

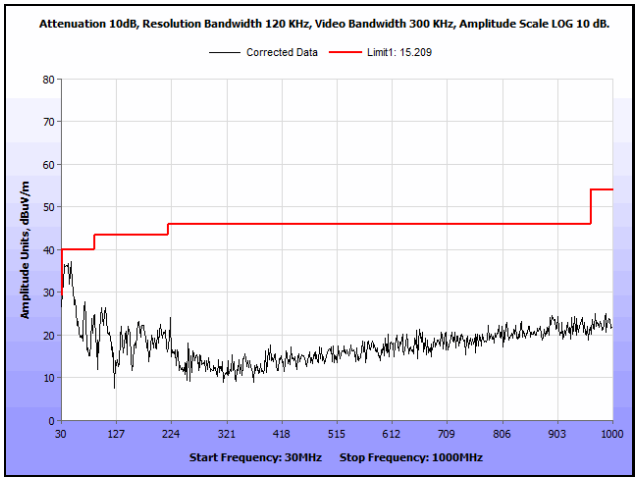
Radiated Spurious Emissions Test Results, 802.11b, Omni Antenna



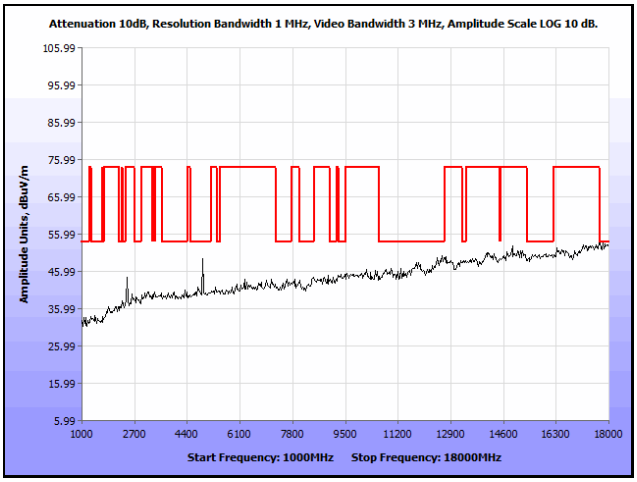
Plot 109. Radiated Spurious Emissions, Low Channel, 802.11b, 30 MHz – 1 GHz, Omni Antenna, Average



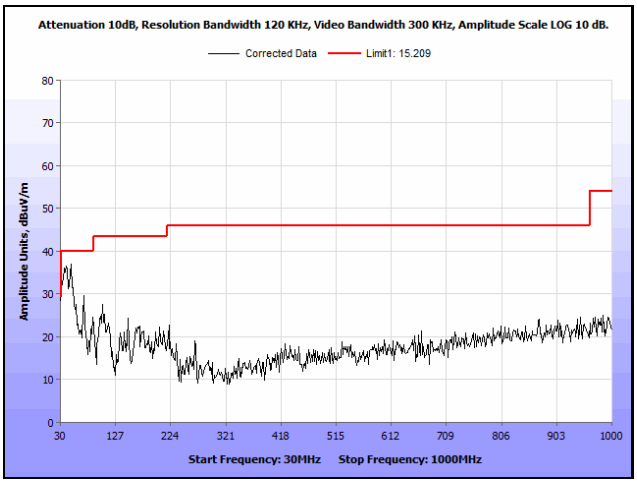
Plot 110. Radiated Spurious Emissions, Low Channel, 802.11b, 1 GHz – 18 GHz, Omni Antenna, Average



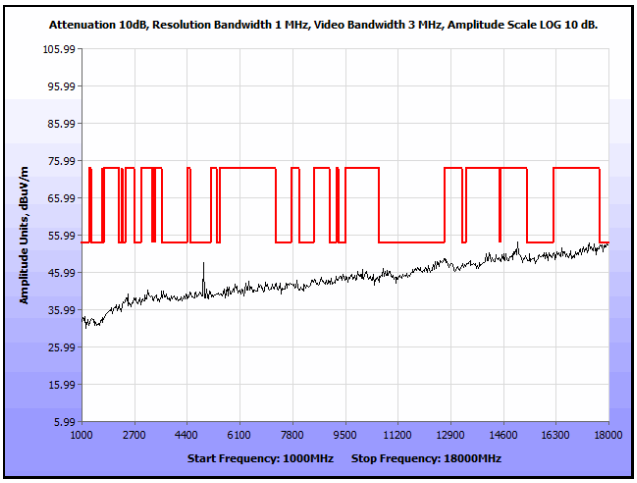
Plot 111. Radiated Spurious Emissions, Mid Channel, 802.11b, 30 MHz – 1 GHz, Omni Antenna, Average



Plot 112. Radiated Spurious Emissions, Mid Channel, 802.11b, 1 GHz – 18 GHz, Omni Antenna, Average

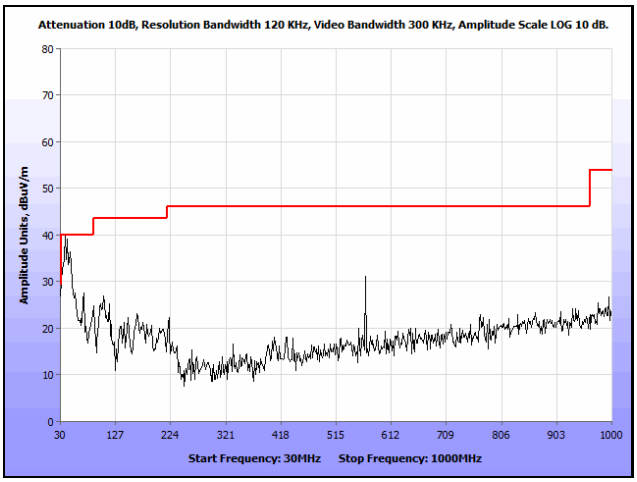


Plot 113. Radiated Spurious Emissions, High Channel, 802.11b, 30 MHz – 1 GHz, Omni Antenna, Average

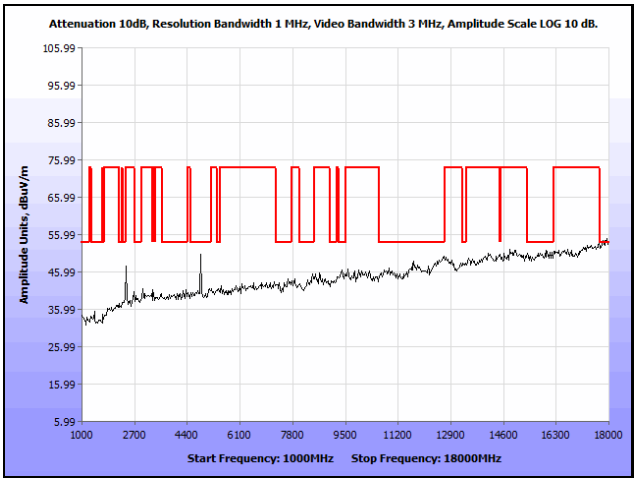


Plot 114. Radiated Spurious Emissions, High Channel, 802.11b, 1 GHz – 18 GHz, Omni Antenna, Average

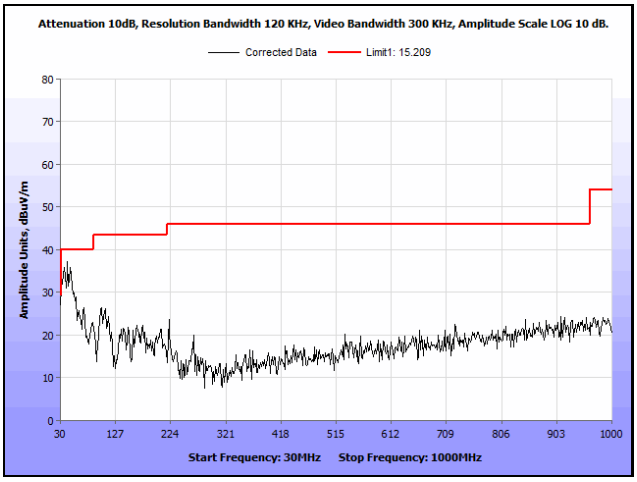
Radiated Spurious Emissions Test Results, 802.11g, Omni Antenna



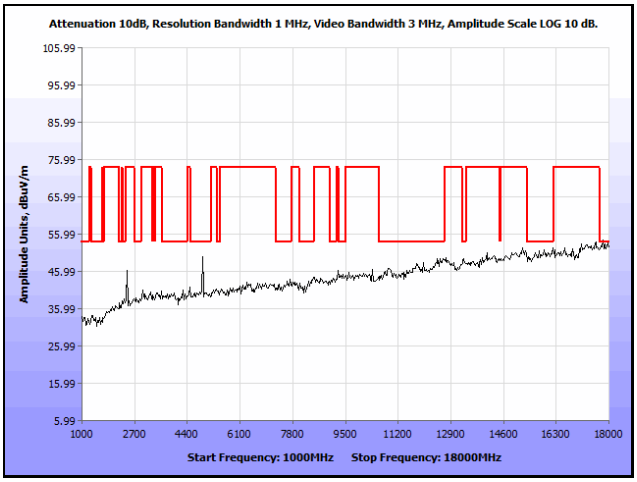
Plot 115. Radiated Spurious Emissions, Low Channel, 802.11g, 30 MHz – 1 GHz, Omni Antenna, Average



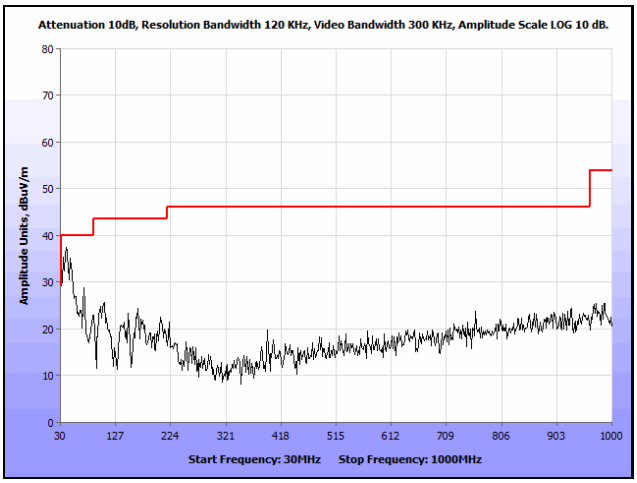
Plot 116. Radiated Spurious Emissions, Low Channel, 802.11g, 1 GHz – 18 GHz, Omni Antenna, Average



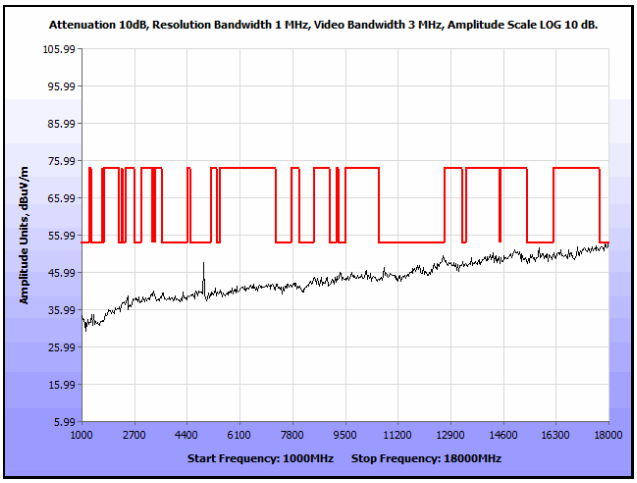
Plot 117. Radiated Spurious Emissions, Mid Channel, 802.11g, 30 MHz – 1 GHz, Omni Antenna, Average



Plot 118. Radiated Spurious Emissions, Mid Channel, 802.11g, 1 GHz – 18 GHz, Omni Antenna, Average

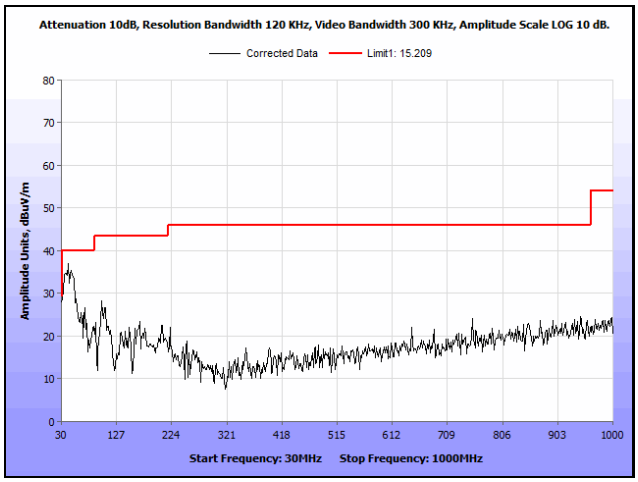


Plot 119. Radiated Spurious Emissions, High Channel, 802.11g, 30 MHz – 1 GHz, Omni Antenna, Average

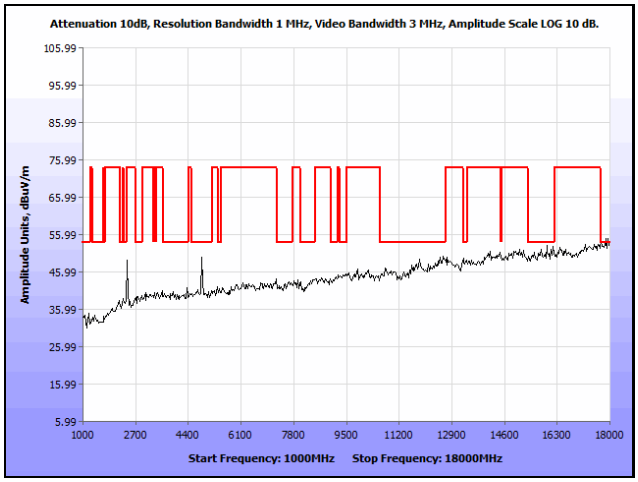


Plot 120. Radiated Spurious Emissions, High Channel, 802.11g, 1 GHz – 18 GHz, Omni Antenna, Average

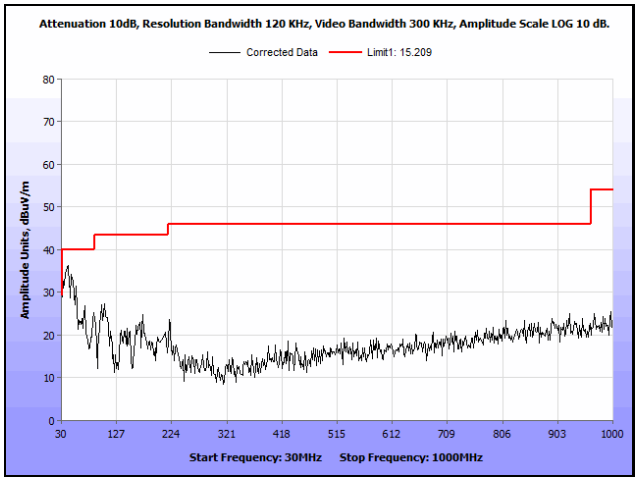
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, Omni Antenna



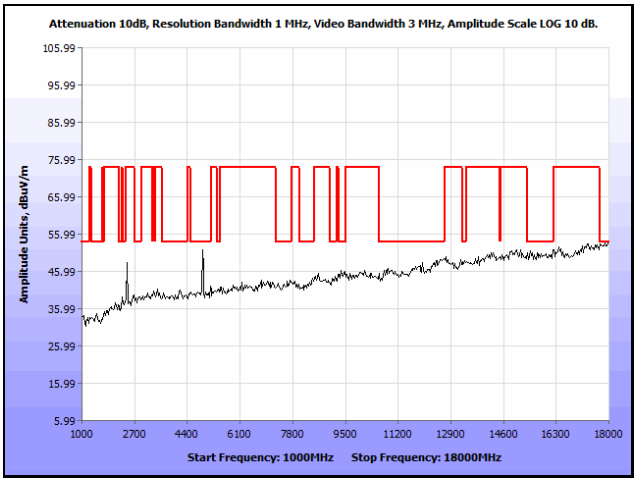
Plot 121. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni Antenna, Average



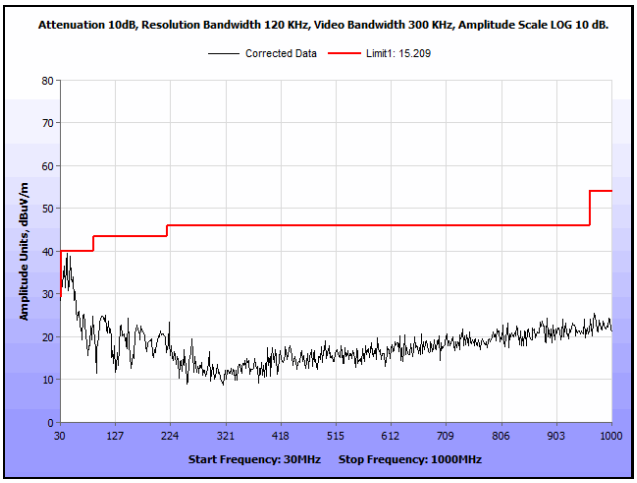
Plot 122. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni Antenna, Average



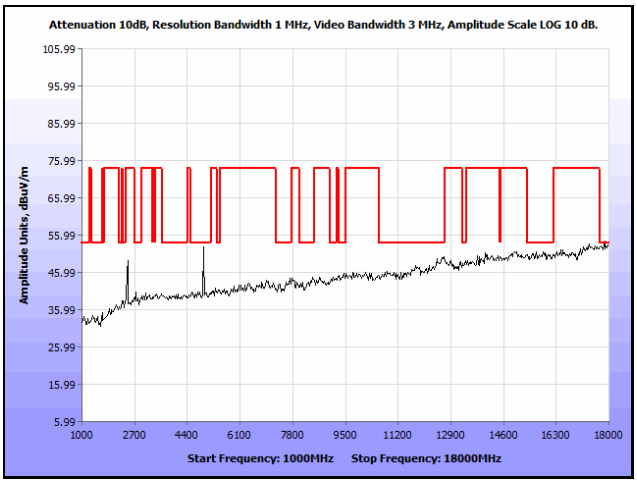
Plot 123. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni Antenna, Average



Plot 124. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni Antenna, Average

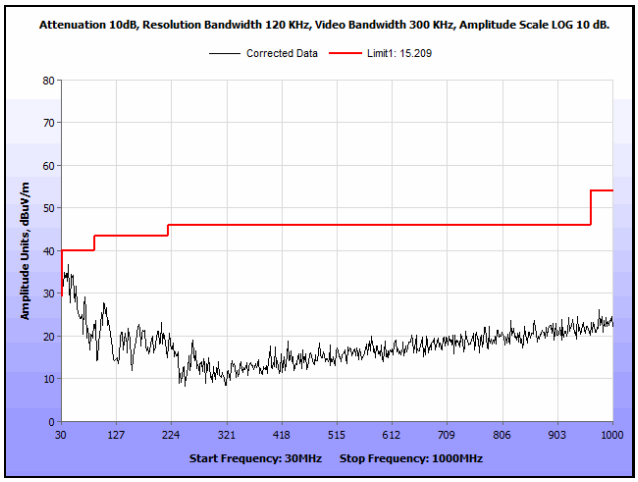


Plot 125. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni Antenna, Average

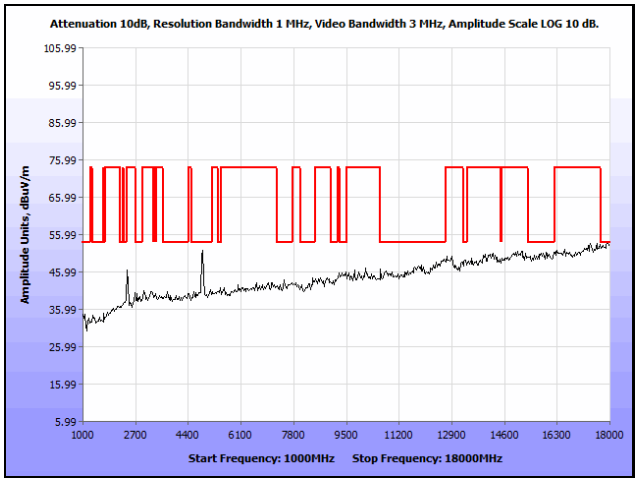


Plot 126. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni Antenna, Average

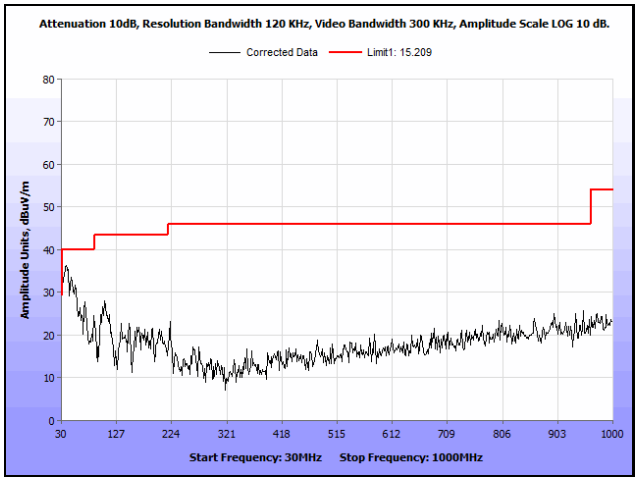
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, Omni Antenna



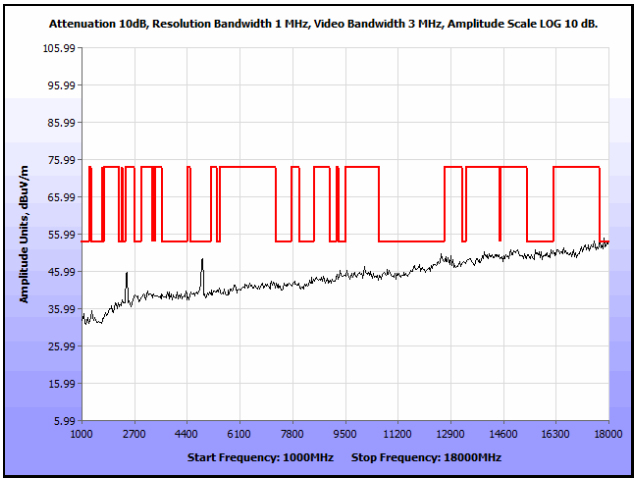
Plot 127. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni Antenna, Average



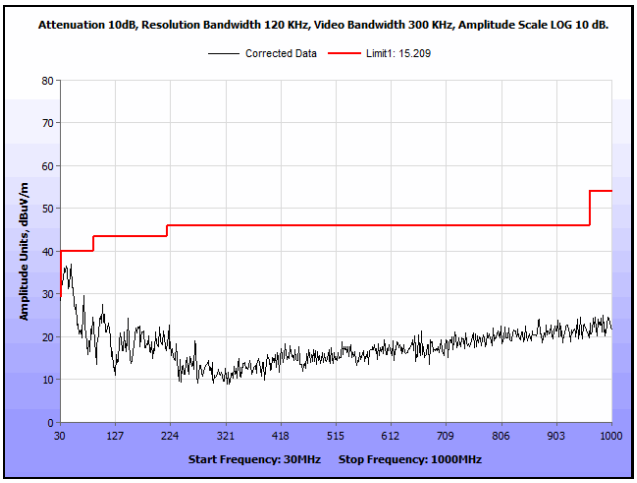
Plot 128. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni Antenna, Average



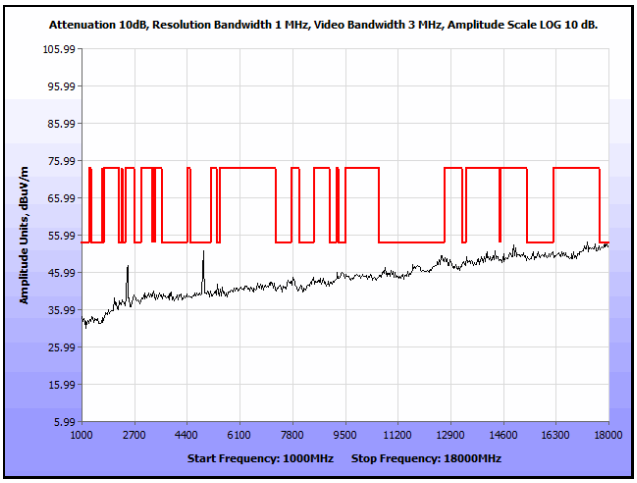
Plot 129. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni Antenna, Average



Plot 130. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni Antenna, Average

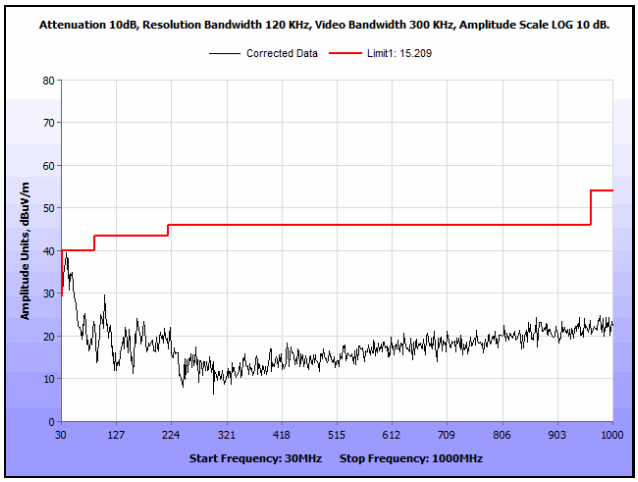


Plot 131. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni Antenna, Average

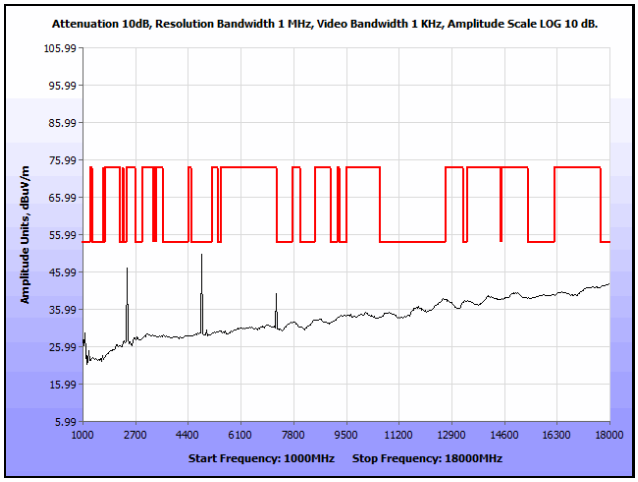


Plot 132. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni Antenna, Average

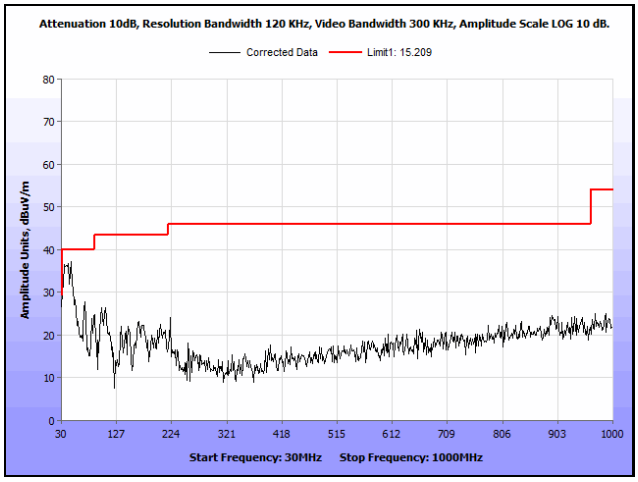
Radiated Spurious Emissions Test Results, 802.11b, Omni-Directional Antenna



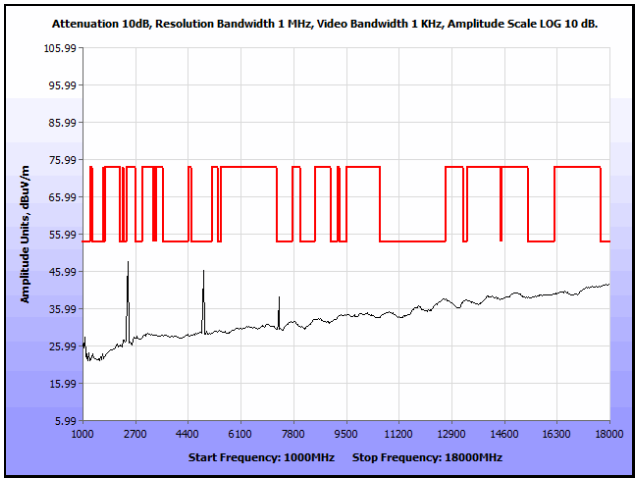
Plot 133. Radiated Spurious Emissions, Low Channel, 802.11b, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



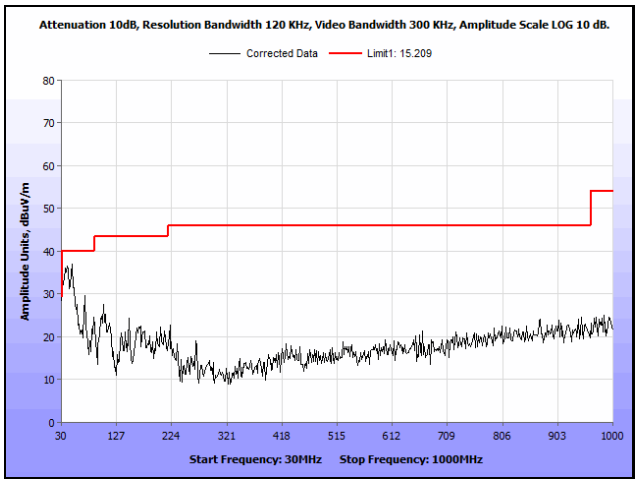
Plot 134. Radiated Spurious Emissions, Low Channel, 802.11b, 1 GHz – 18 GHz, Omni-Directional Antenna, Average



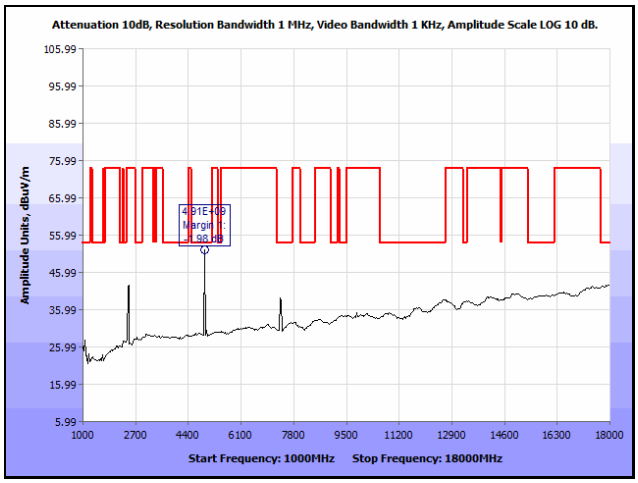
Plot 135. Radiated Spurious Emissions, Mid Channel, 802.11b, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



Plot 136. Radiated Spurious Emissions, Mid Channel, 802.11b, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

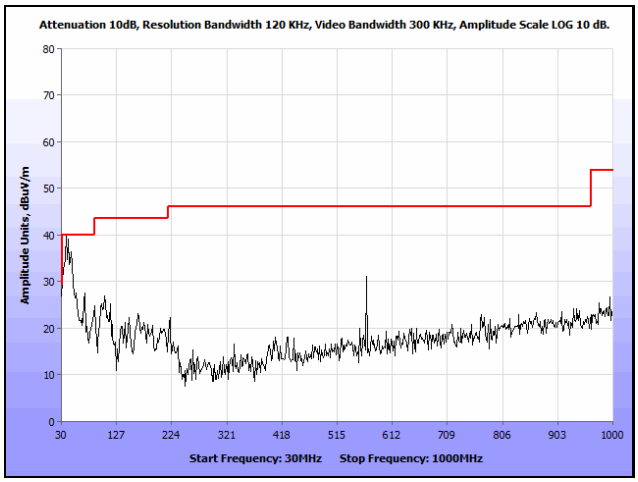


Plot 137. Radiated Spurious Emissions, High Channel, 802.11b, 30 MHz – 1 GHz, Omni-Directional Antenna, Average

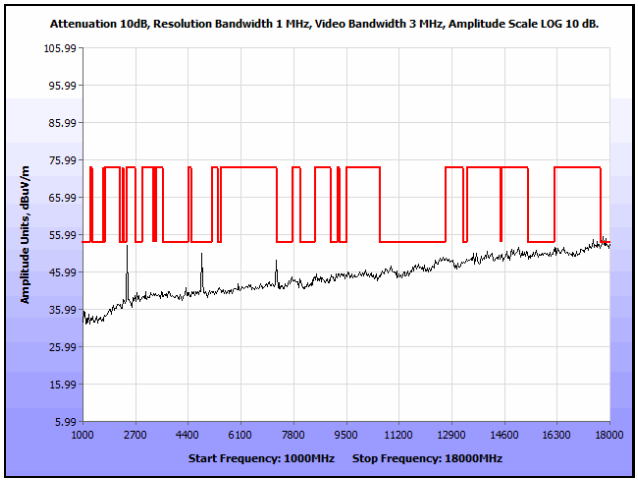


Plot 138. Radiated Spurious Emissions, High Channel, 802.11b, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

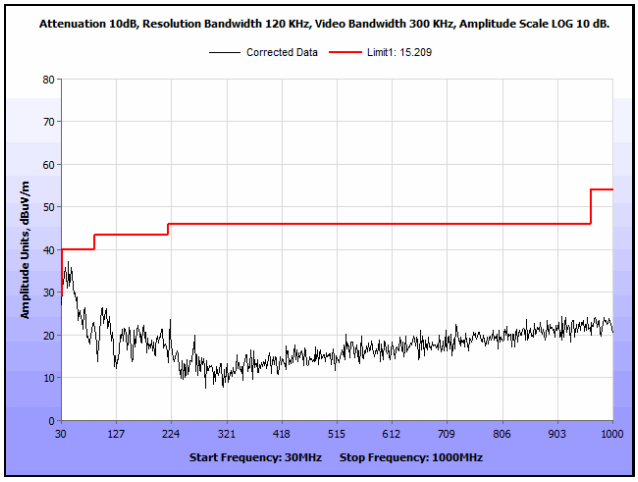
Radiated Spurious Emissions Test Results, 802.11g, Omni-Directional Antenna



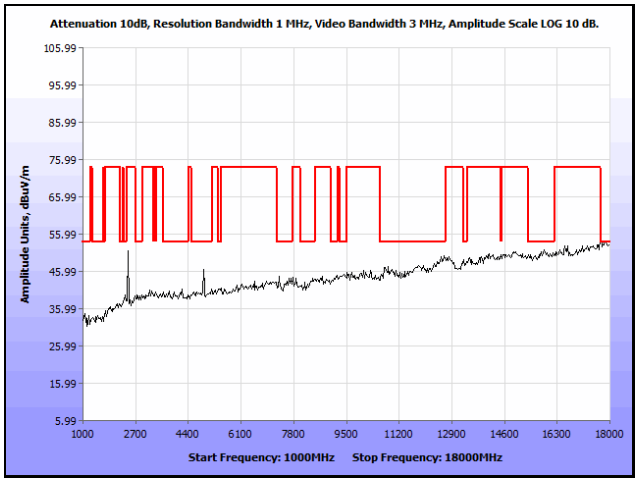
Plot 139. Radiated Spurious Emissions, Low Channel, 802.11g, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



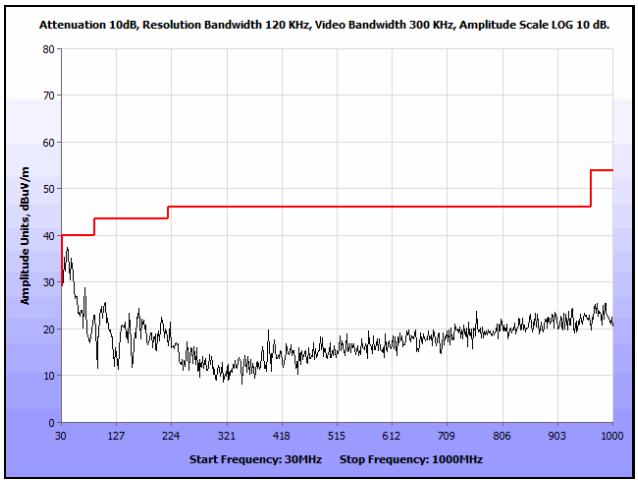
Plot 140. Radiated Spurious Emissions, Low Channel, 802.11g, 1 GHz – 18 GHz, Omni-Directional Antenna, Average



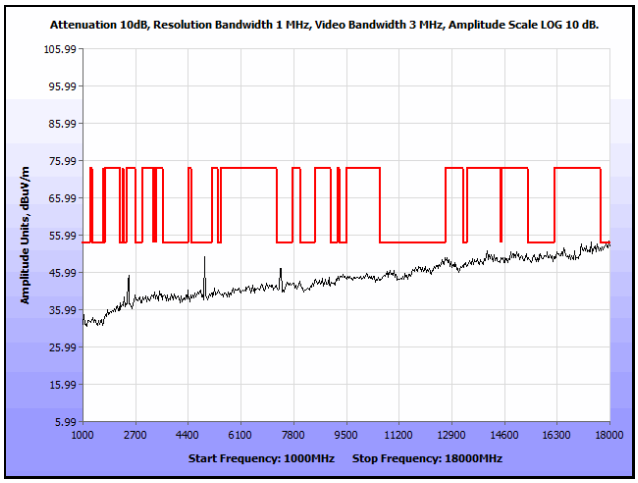
Plot 141. Radiated Spurious Emissions, Mid Channel, 802.11g, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



Plot 142. Radiated Spurious Emissions, Mid Channel, 802.11g, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

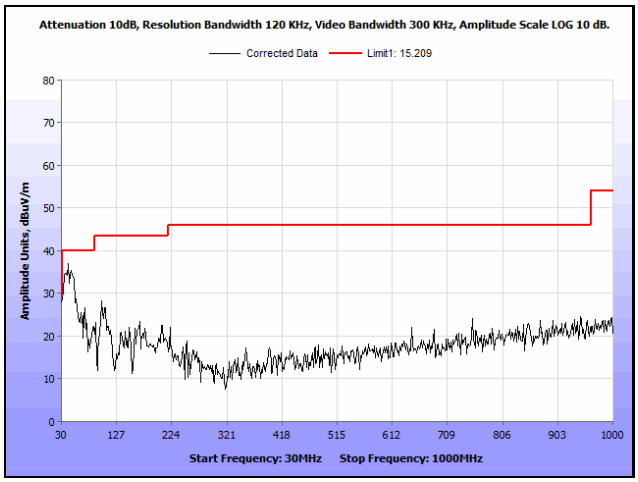


Plot 143. Radiated Spurious Emissions, High Channel, 802.11g, 30 MHz – 1 GHz, Omni-Directional Antenna, Average

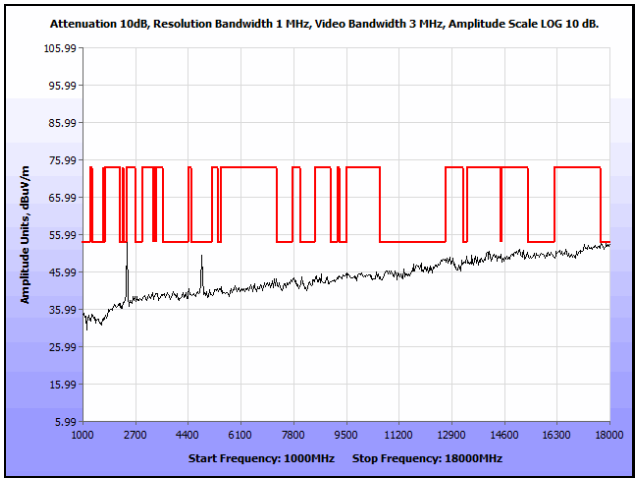


Plot 144. Radiated Spurious Emissions, High Channel, 802.11g, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

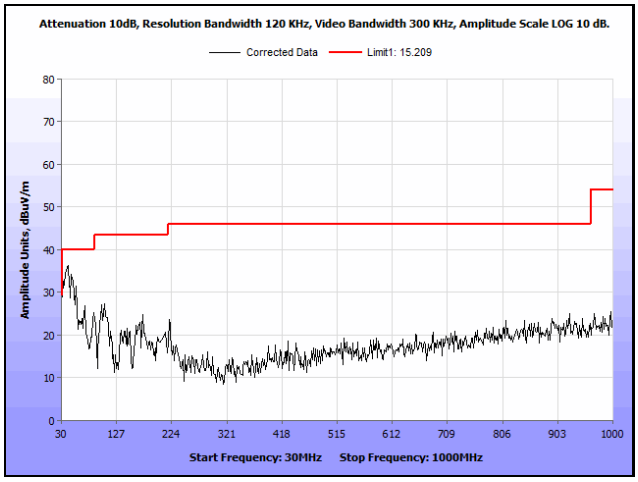
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, Omni-Directional Antenna



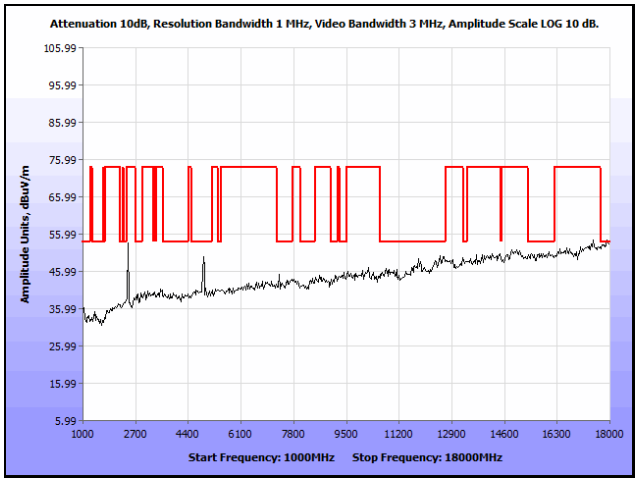
Plot 145. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



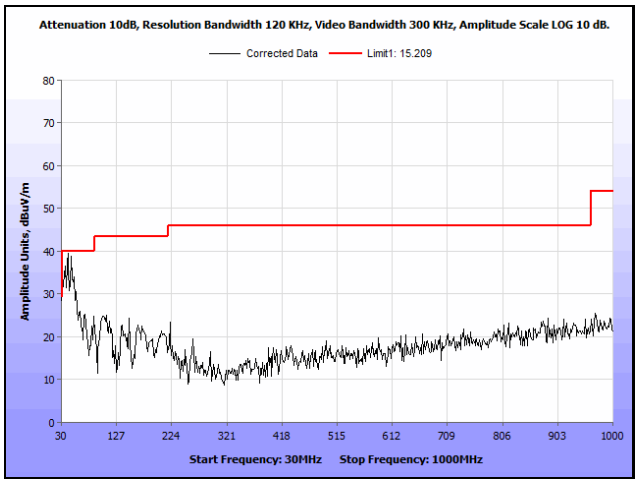
Plot 146. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average



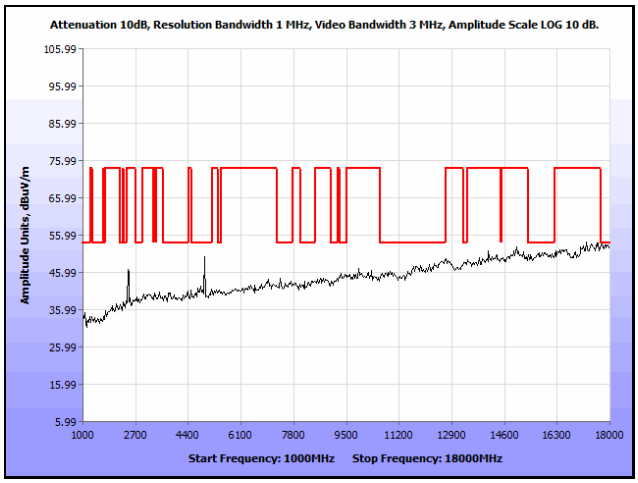
Plot 147. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



Plot 148. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

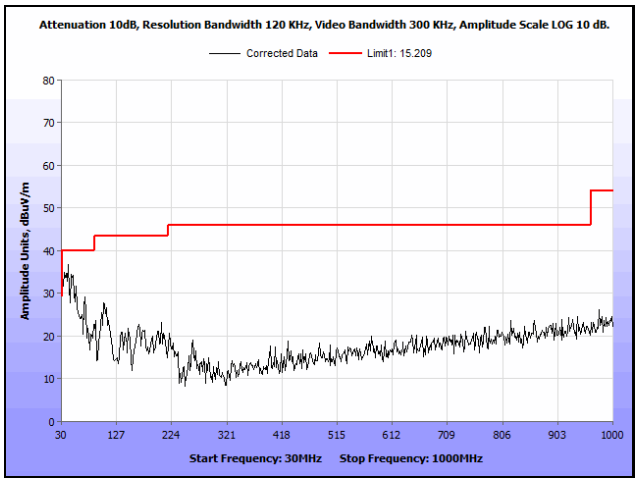


Plot 149. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average

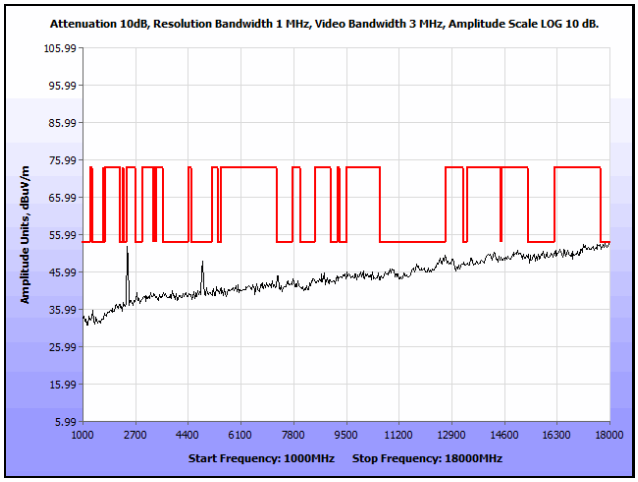


Plot 150. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

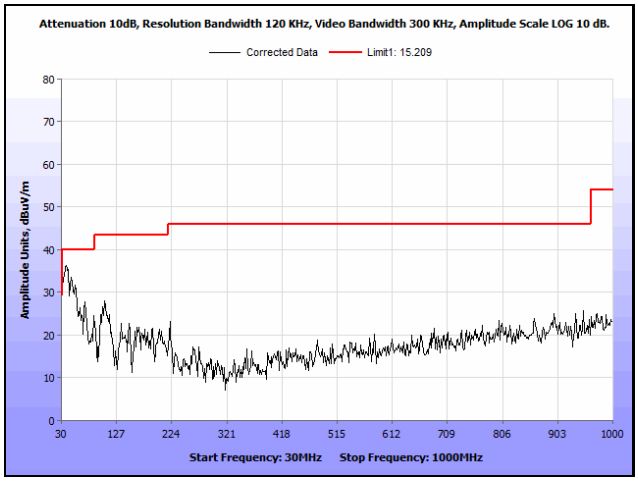
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, Omni-Directional Antenna



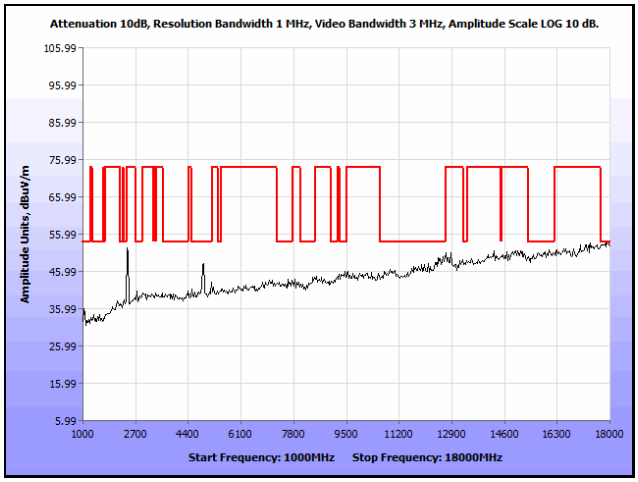
Plot 151. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



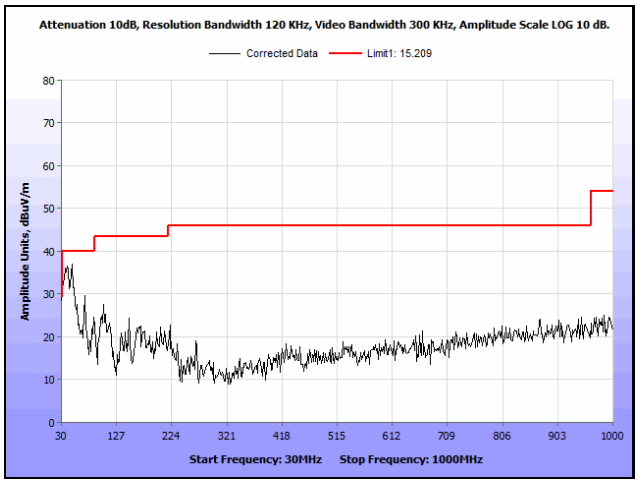
Plot 152. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average



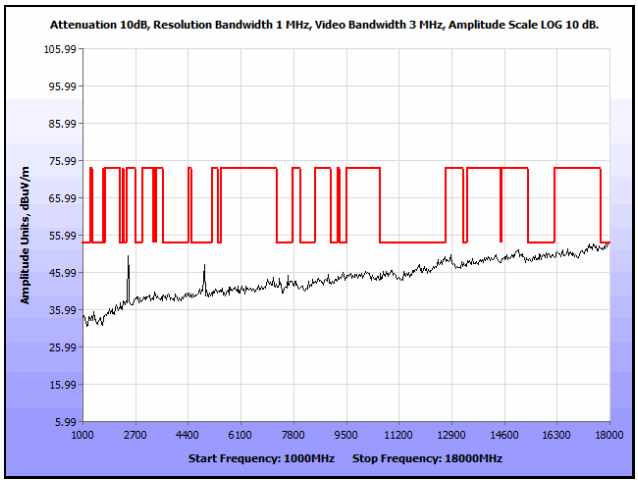
Plot 153. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average



Plot 154. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

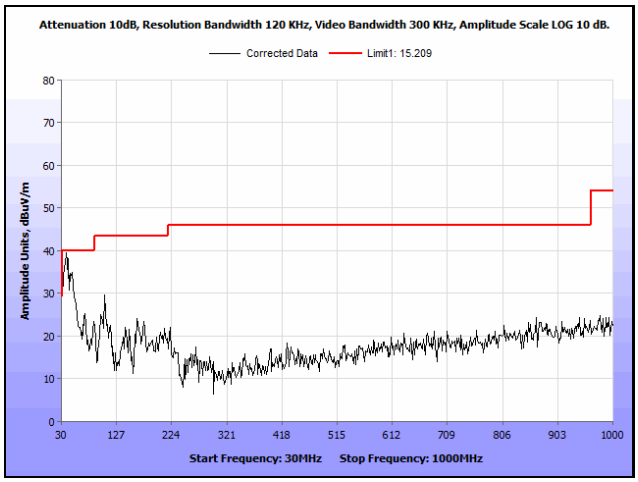


Plot 155. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Omni-Directional Antenna, Average

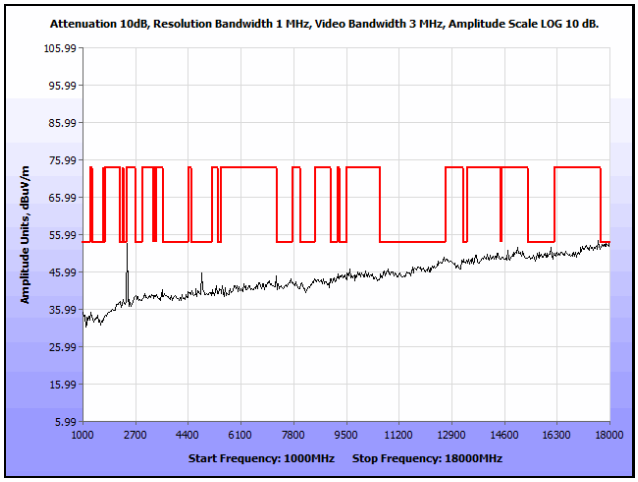


Plot 156. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Omni-Directional Antenna, Average

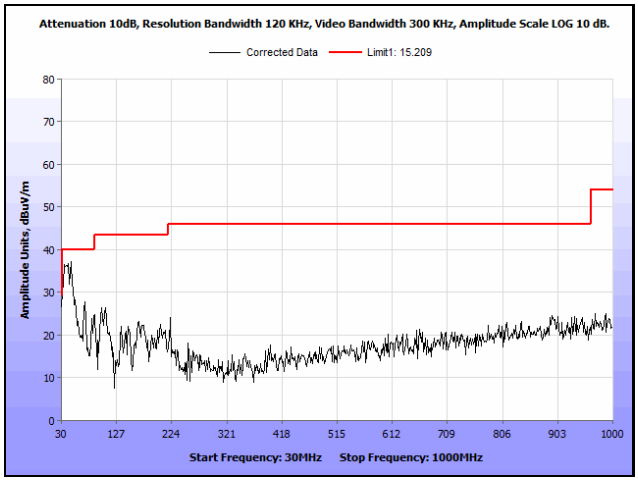
Radiated Spurious Emissions Test Results, 802.11b, Patch Antenna



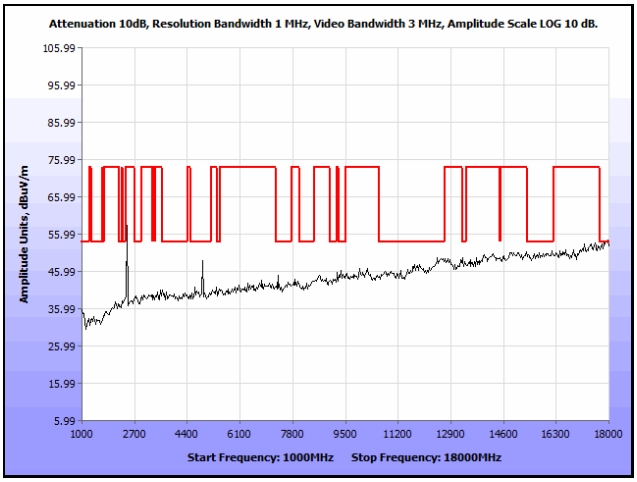
Plot 157. Radiated Spurious Emissions, Low Channel, 802.11b, 30 MHz – 1 GHz, Patch Antenna, Average



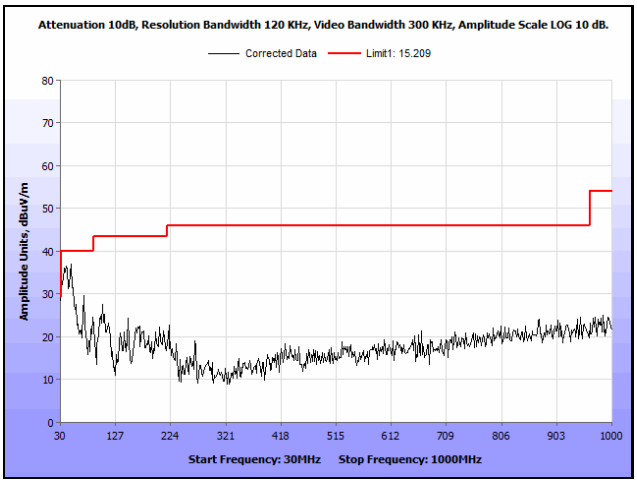
Plot 158. Radiated Spurious Emissions, Low Channel, 802.11b, 1 GHz – 18 GHz, Patch Antenna, Average



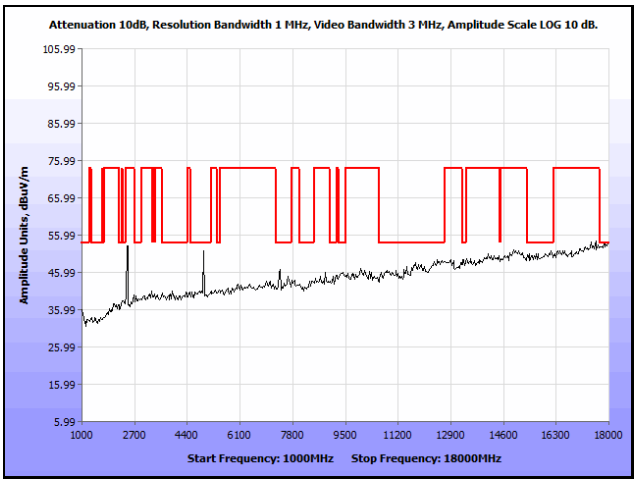
Plot 159. Radiated Spurious Emissions, Mid Channel, 802.11b, 30 MHz – 1 GHz, Patch Antenna, Average



Plot 160. Radiated Spurious Emissions, Mid Channel, 802.11b, 1 GHz – 18 GHz, Patch Antenna, Average

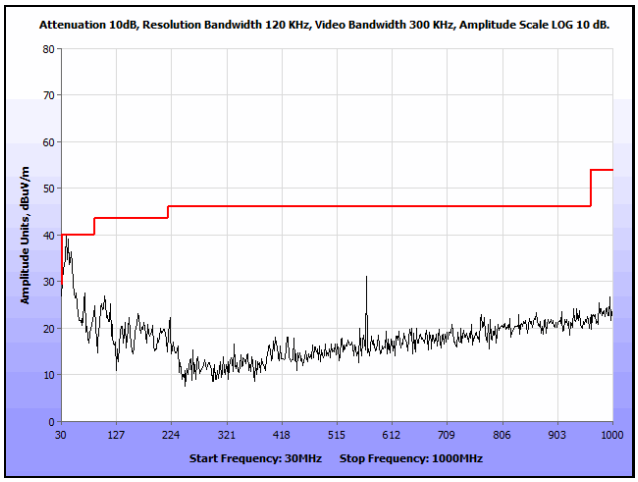


Plot 161. Radiated Spurious Emissions, High Channel, 802.11b, 30 MHz – 1 GHz, Patch Antenna, Average

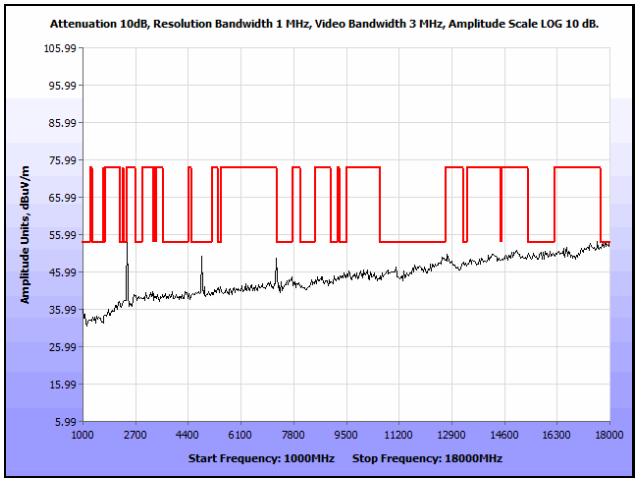


Plot 162. Radiated Spurious Emissions, High Channel, 802.11b, 1 GHz – 18 GHz, Patch Antenna, Average

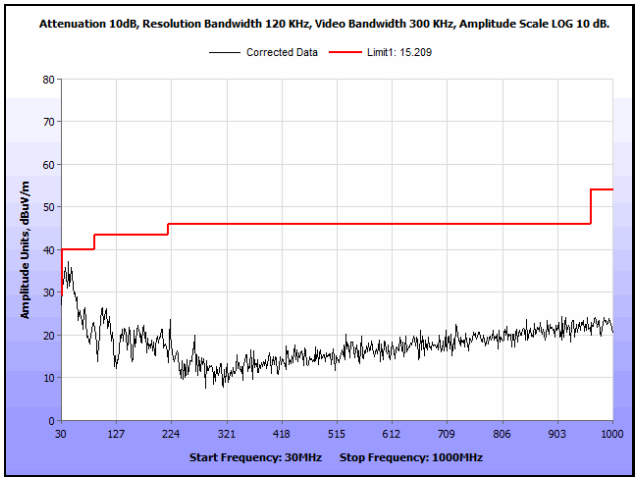
Radiated Spurious Emissions Test Results, 802.11g, Patch Antenna



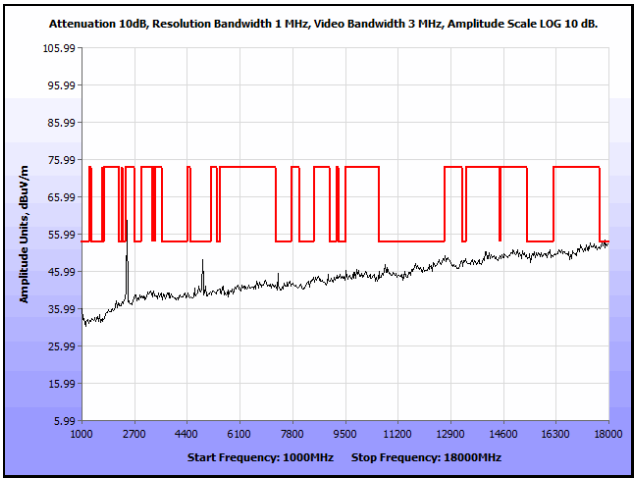
Plot 163. Radiated Spurious Emissions, Low Channel, 802.11g, 30 MHz – 1 GHz, Patch Antenna, Average



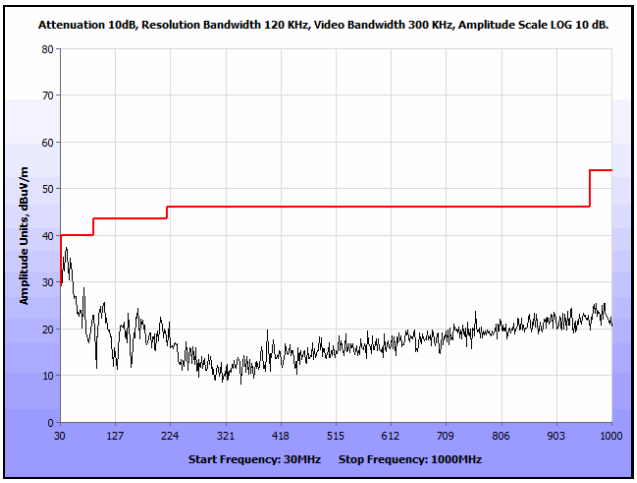
Plot 164. Radiated Spurious Emissions, Low Channel, 802.11g, 1 GHz – 18 GHz, Patch Antenna, Average



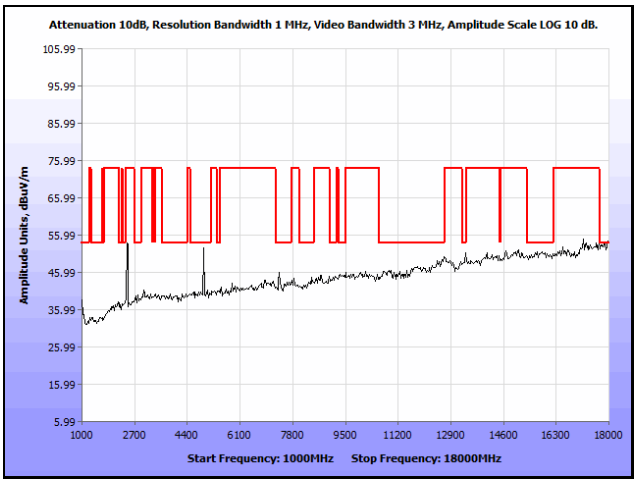
Plot 165. Radiated Spurious Emissions, Mid Channel, 802.11g, 30 MHz – 1 GHz, Patch Antenna, Average



Plot 166. Radiated Spurious Emissions, Mid Channel, 802.11g, 1 GHz – 18 GHz, Patch Antenna, Average

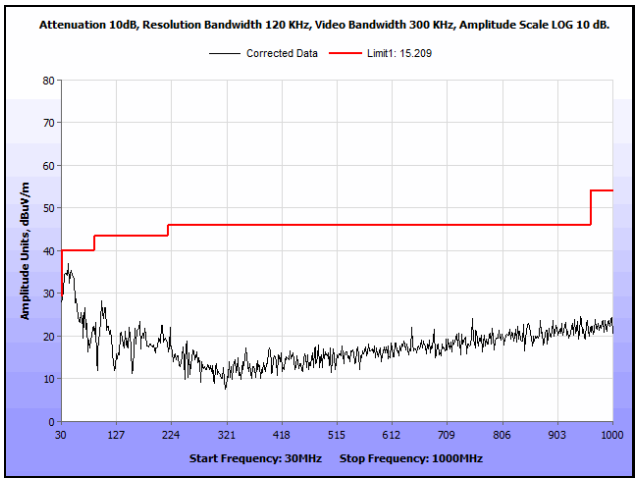


Plot 167. Radiated Spurious Emissions, High Channel, 802.11g, 30 MHz – 1 GHz, Patch Antenna, Average

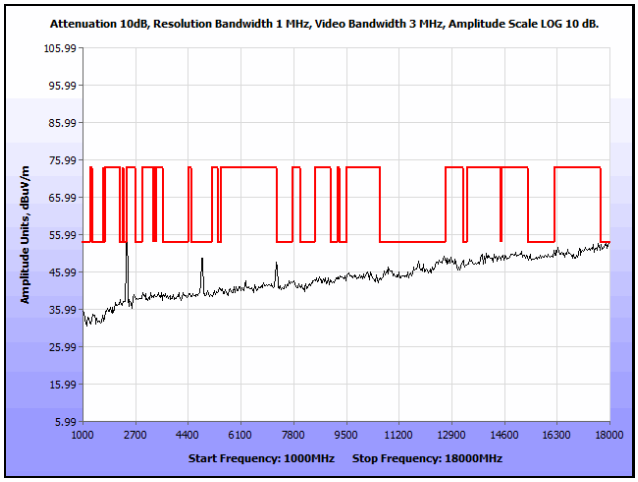


Plot 168. Radiated Spurious Emissions, High Channel, 802.11g, 1 GHz – 18 GHz, Patch Antenna, Average

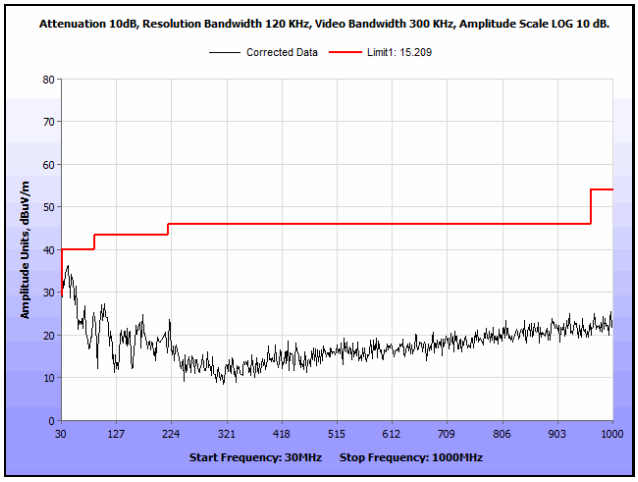
Radiated Spurious Emissions Test Results, 802.11n 20 MHz, Patch Antenna



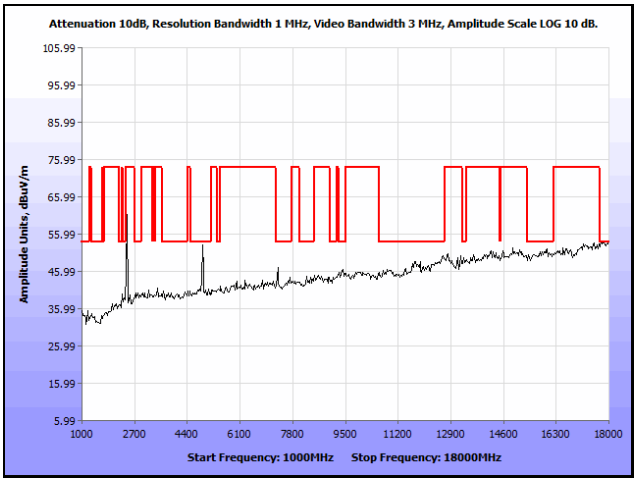
Plot 169. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Patch Antenna, Average



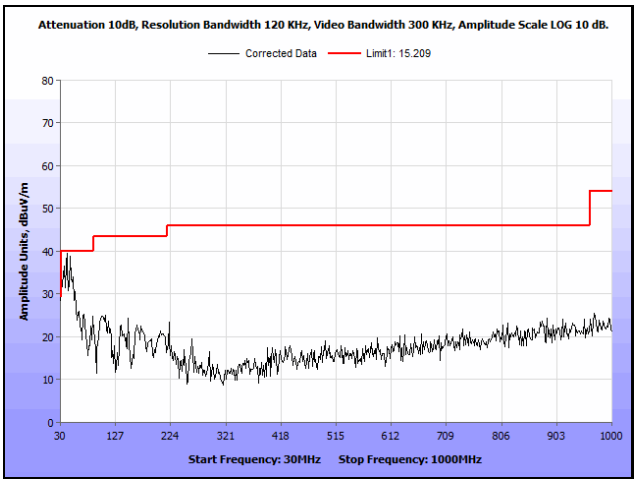
Plot 170. Radiated Spurious Emissions, Low Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Patch Antenna, Average



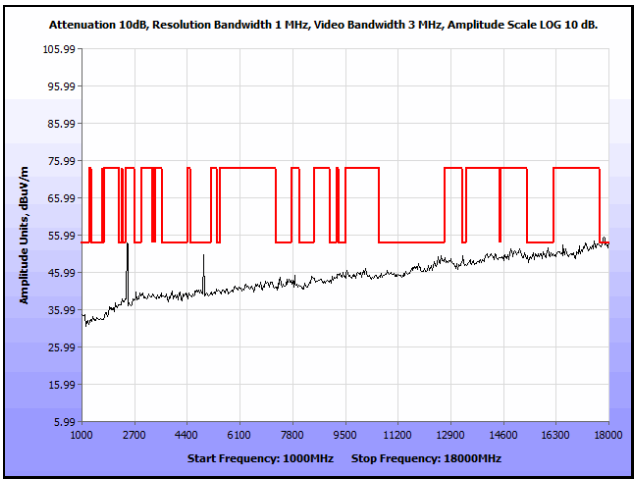
Plot 171. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Patch Antenna, Average



Plot 172. Radiated Spurious Emissions, Mid Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Patch Antenna, Average

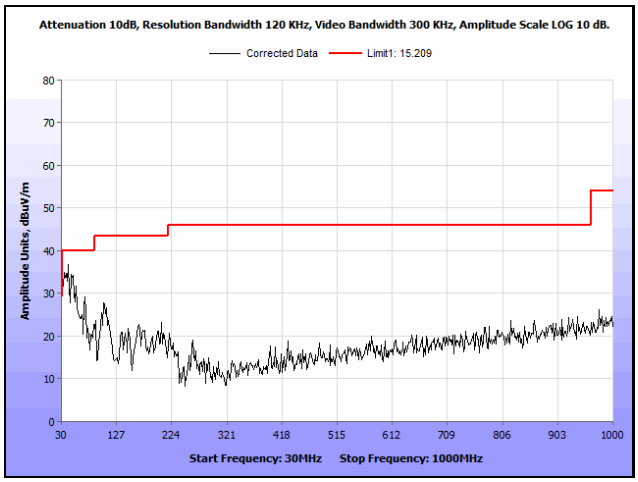


Plot 173. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 30 MHz – 1 GHz, Patch Antenna, Average

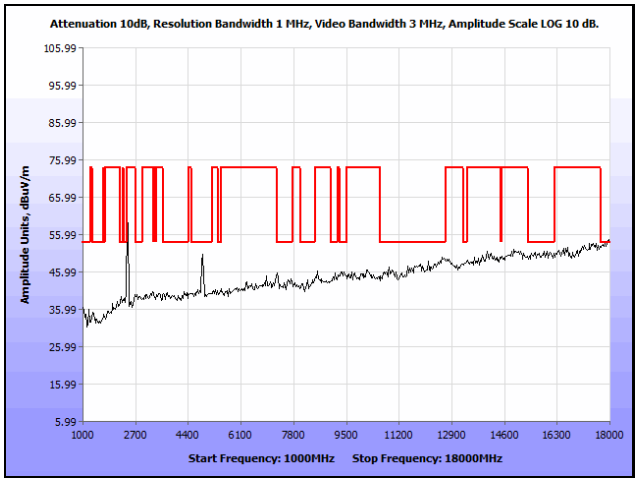


Plot 174. Radiated Spurious Emissions, High Channel, 802.11n 20 MHz, 1 GHz – 18 GHz, Patch Antenna, Average

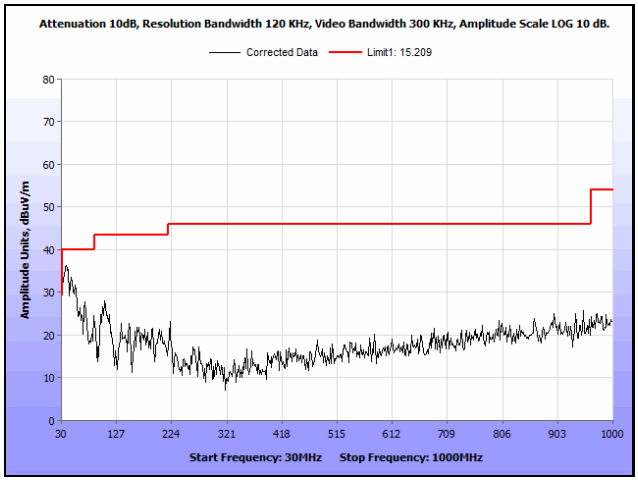
Radiated Spurious Emissions Test Results, 802.11n 40 MHz, Patch Antenna



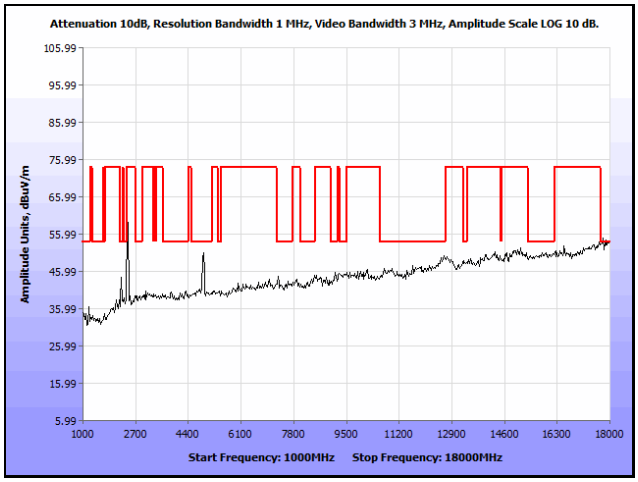
Plot 175. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Patch Antenna, Average



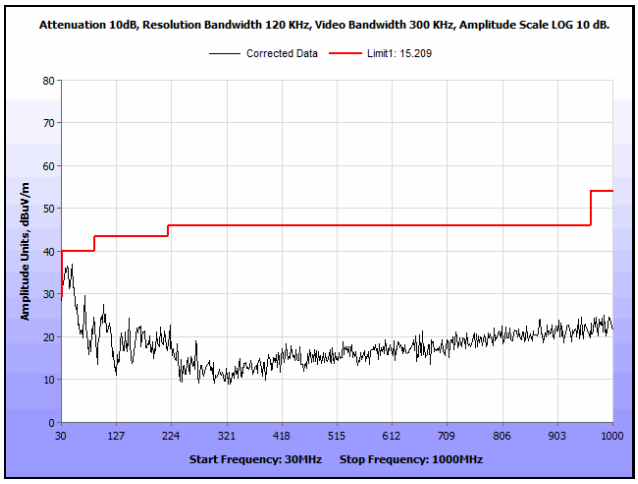
Plot 176. Radiated Spurious Emissions, Low Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Patch Antenna, Average



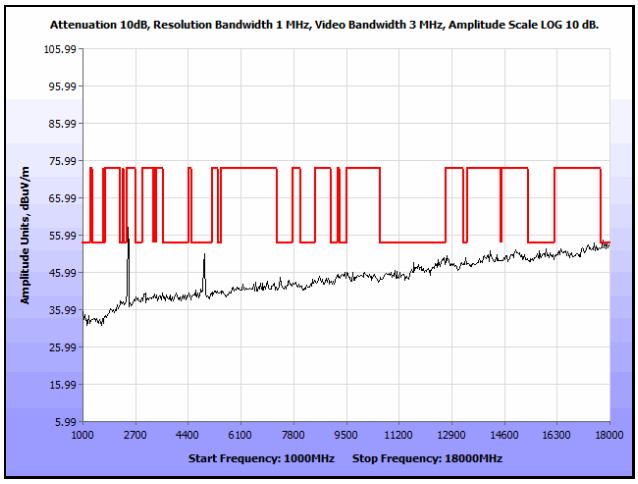
Plot 177. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Patch Antenna, Average



Plot 178. Radiated Spurious Emissions, Mid Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Patch Antenna, Average



Plot 179. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 30 MHz – 1 GHz, Patch Antenna, Average

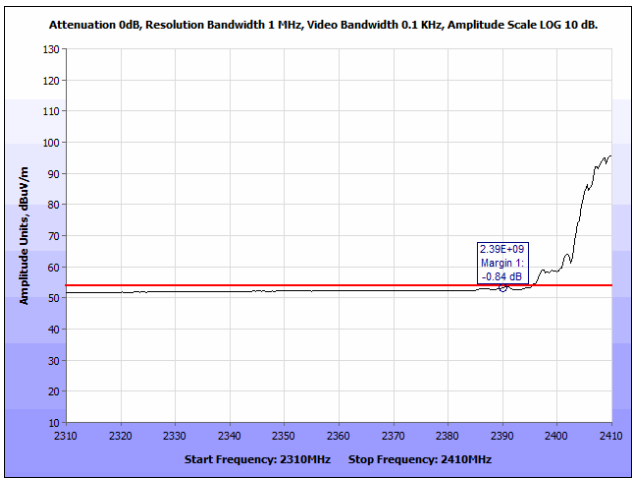


Plot 180. Radiated Spurious Emissions, High Channel, 802.11n 40 MHz, 1 GHz – 18 GHz, Patch Antenna, Average

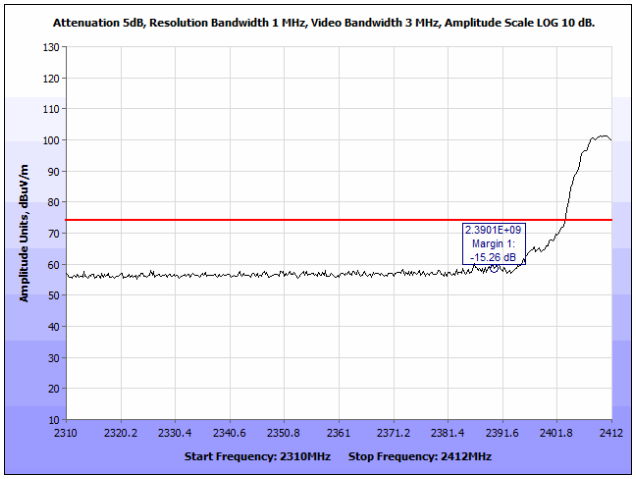
Radiated Band Edge Measurements

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

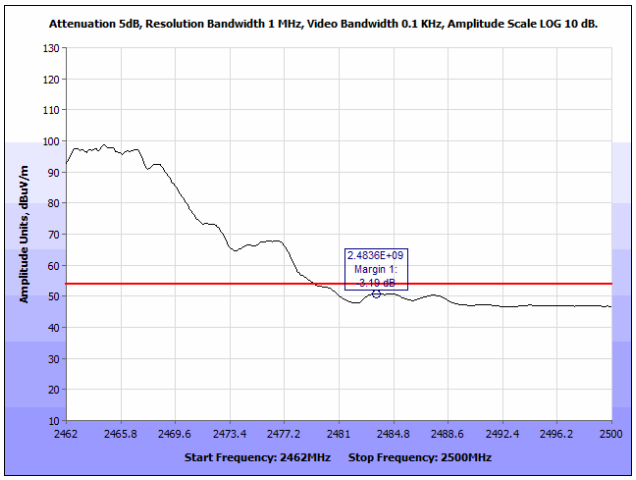
Radiated Band Edge Measurements, 802.11b, 3 dBi antenna



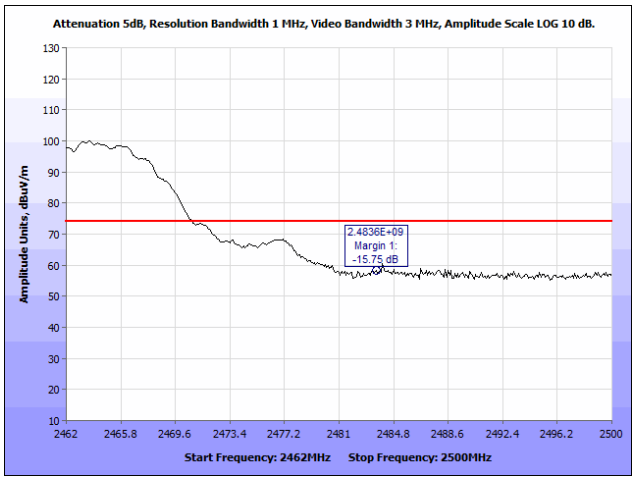
Plot 181. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Average



Plot 182. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Peak

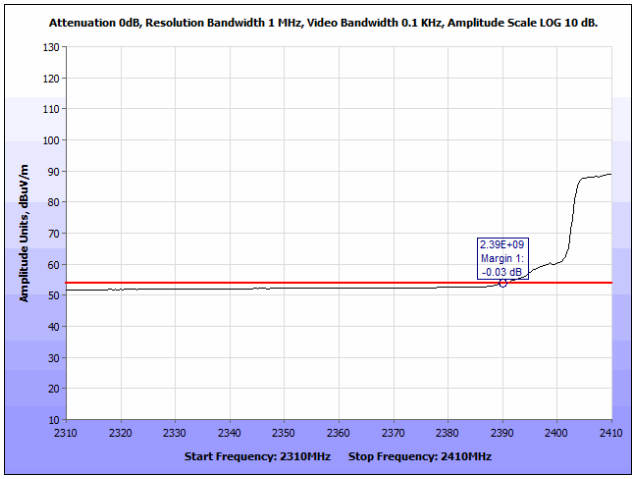


Plot 183. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Average

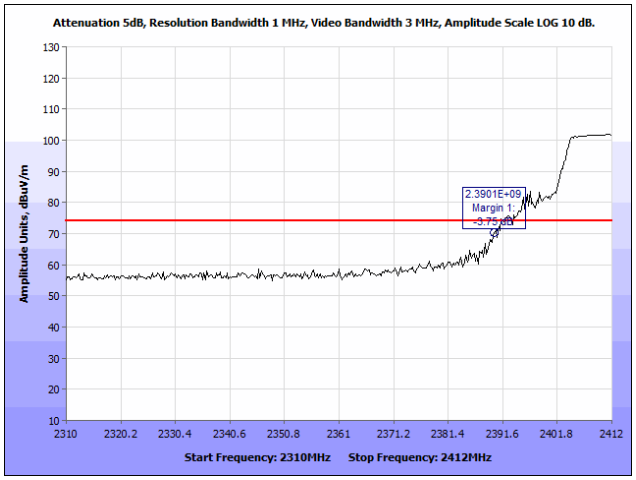


Plot 184. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Peak

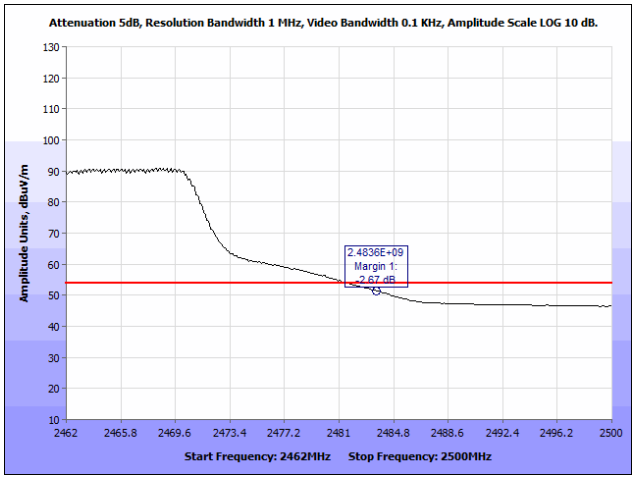
Radiated Band Edge Measurements, 802.11g



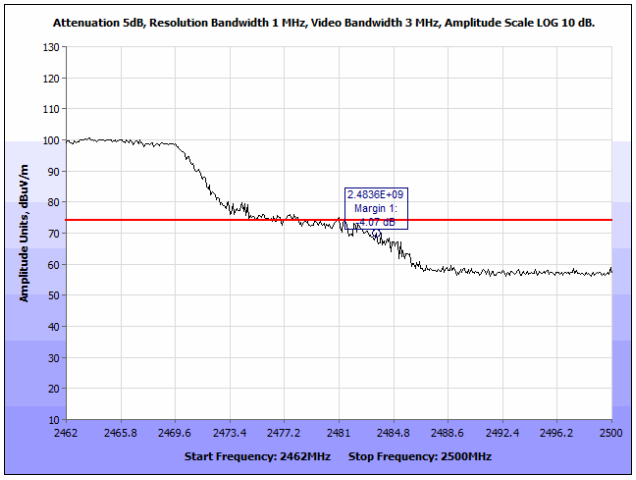
Plot 185. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Average



Plot 186. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Peak

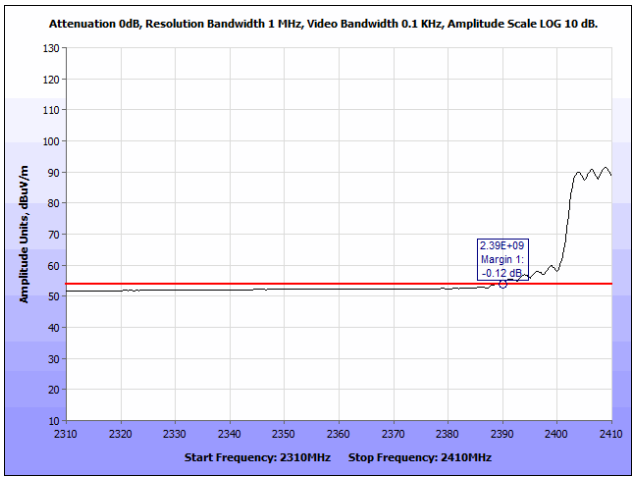


Plot 187. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Average

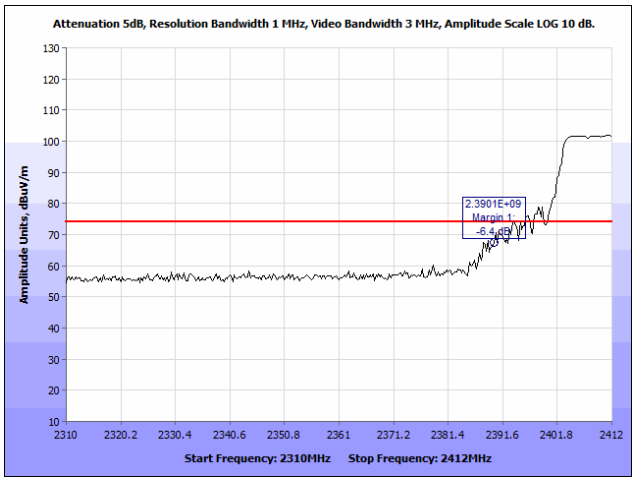


Plot 188. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Peak

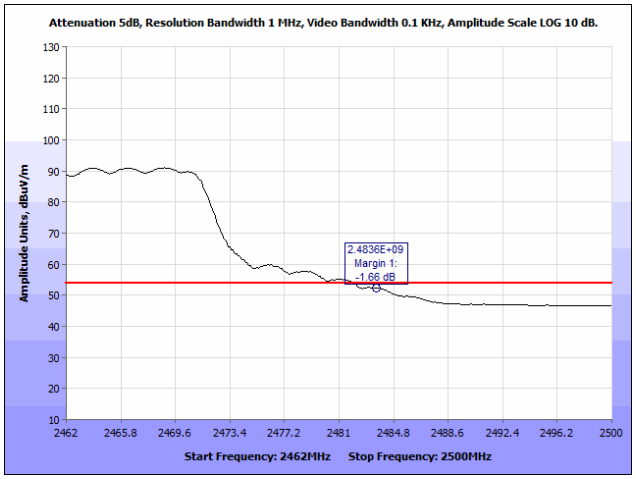
Radiated Band Edge Measurements, 802.11n 20 MHz



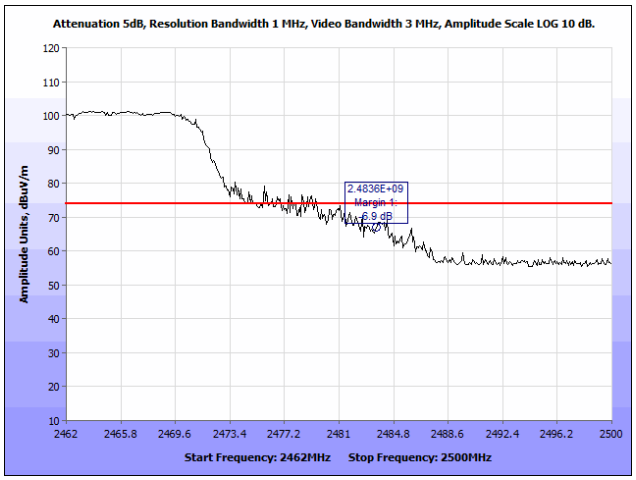
Plot 189. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Average



Plot 190. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Peak

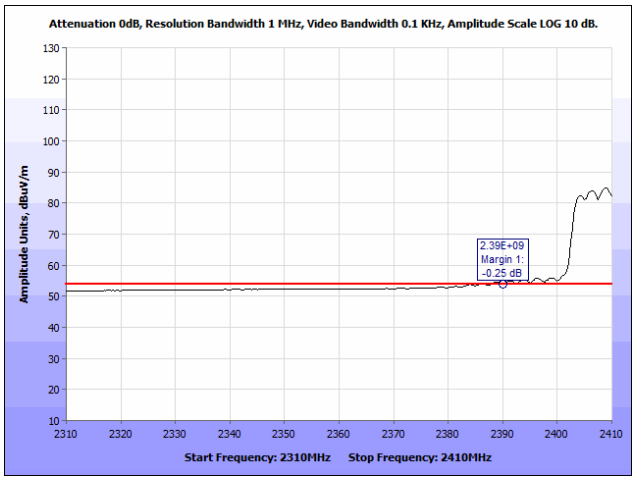


Plot 191. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Average

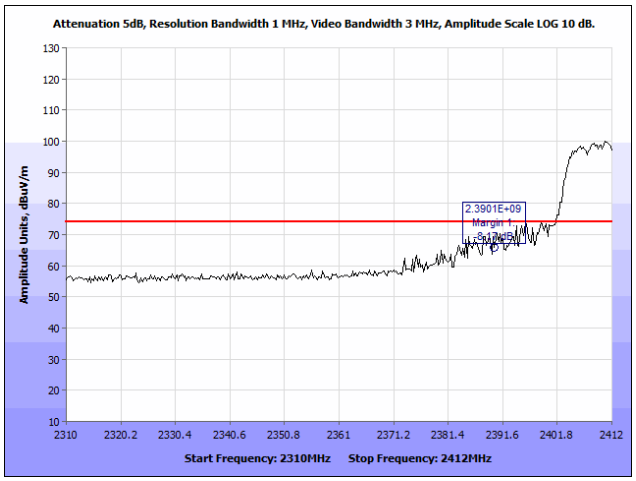


Plot 192. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Peak

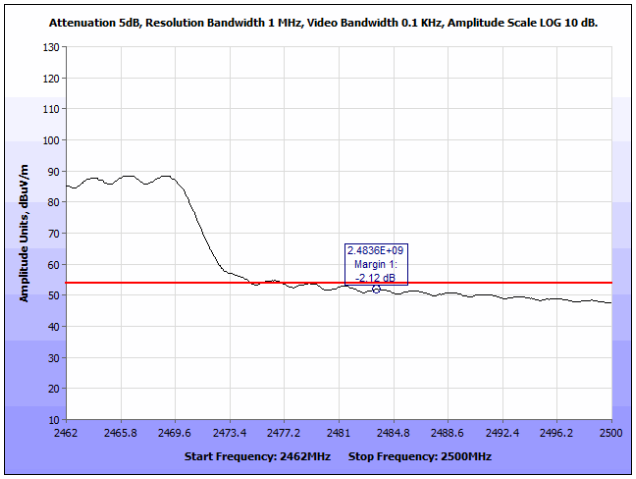
Radiated Band Edge Measurements, 802.11n 40 MHz



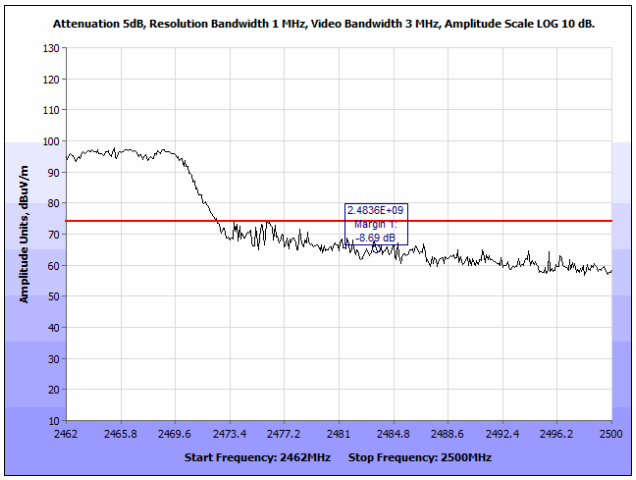
Plot 193. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Average



Plot 194. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Peak

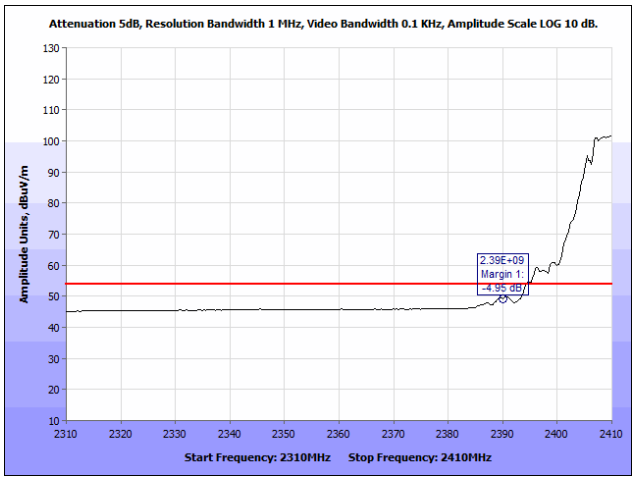


Plot 195. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Average

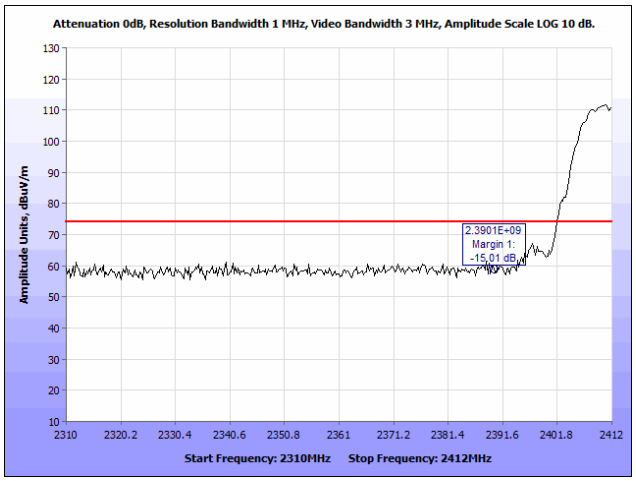


Plot 196. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Peak

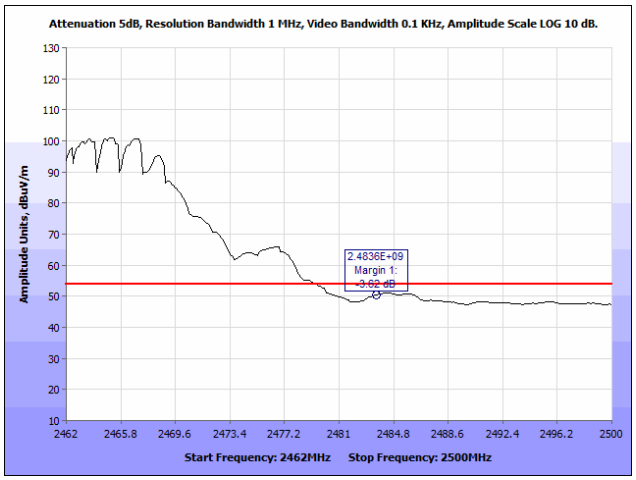
Radiated Band Edge Measurements, 802.11b, 6 dBi Patch Antenna



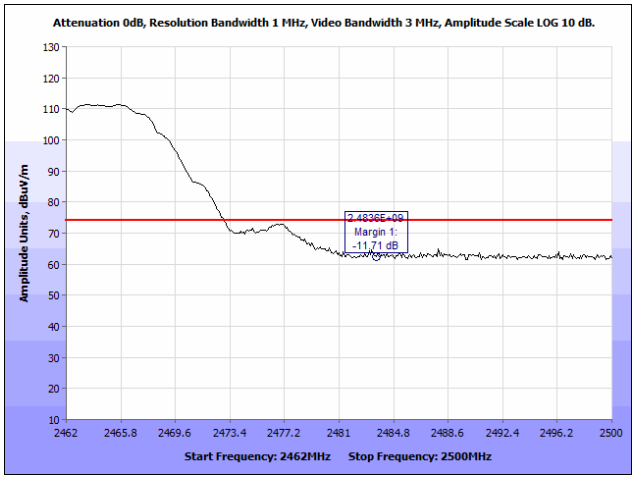
Plot 197. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Average



Plot 198. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Peak

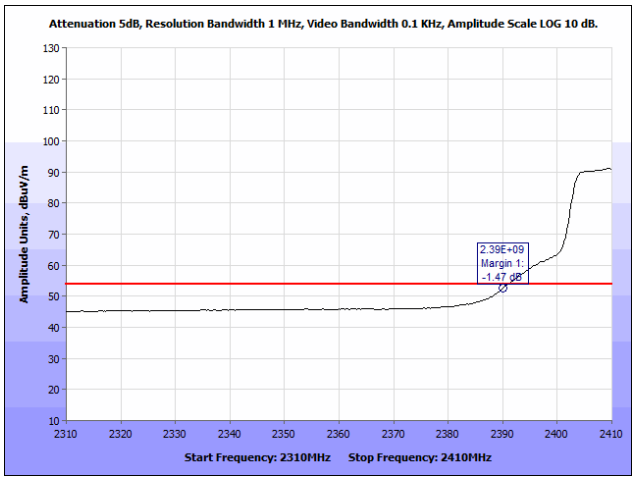


Plot 199. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Average

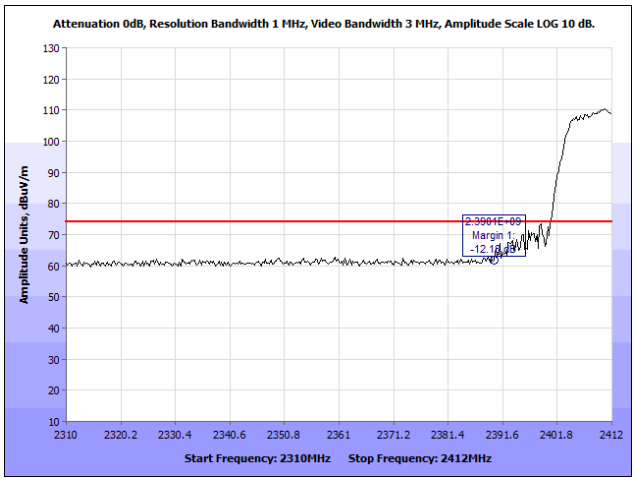


Plot 200. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Peak

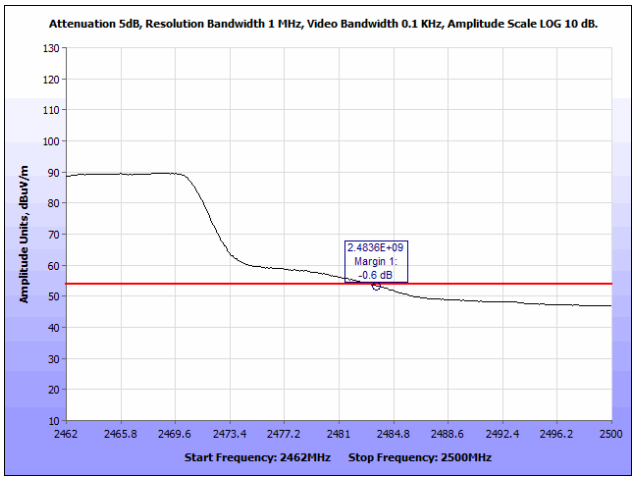
Radiated Band Edge Measurements, 802.11g, 6 dBi Patch Antenna



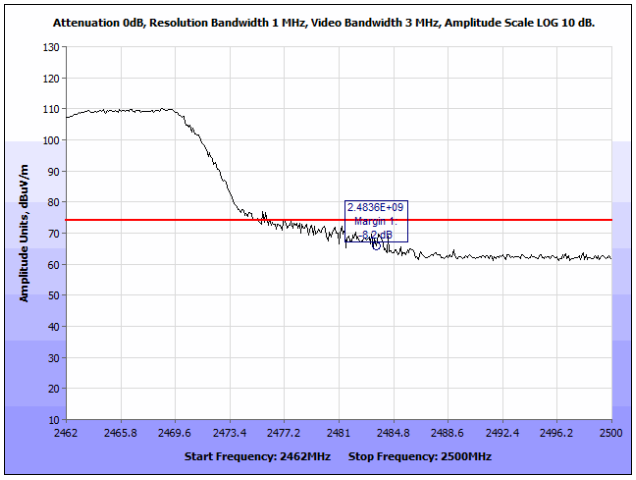
Plot 201. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Average



Plot 202. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Peak

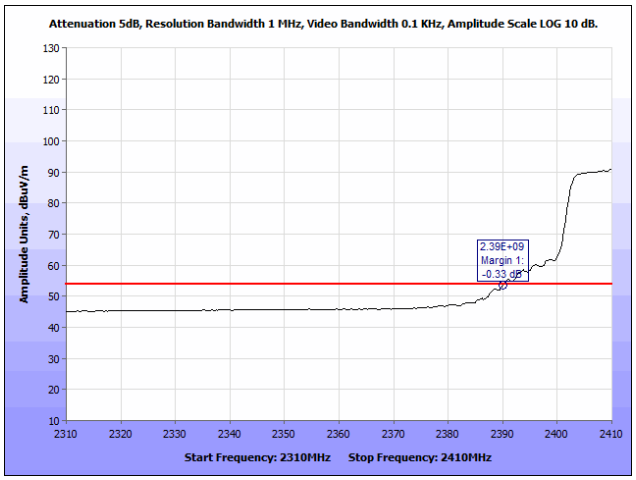


Plot 203. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Average

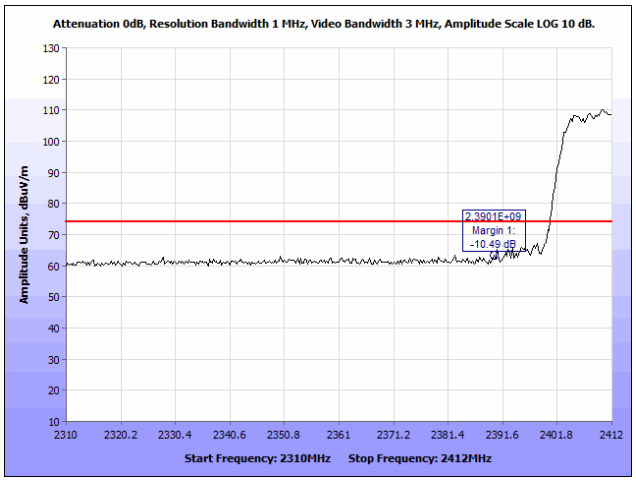


Plot 204. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Peak

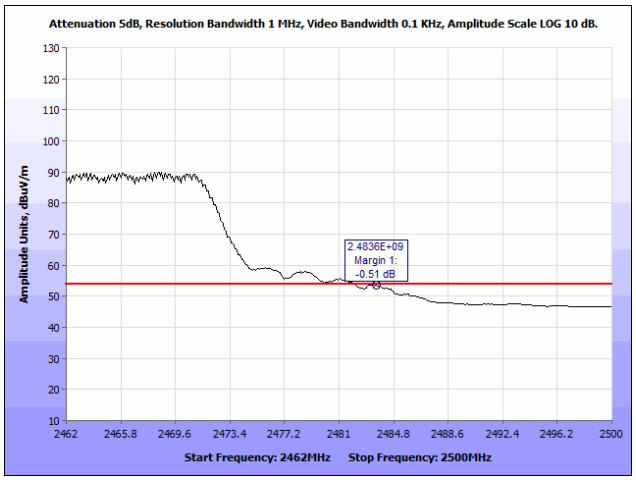
Radiated Band Edge Measurements, 802.11n 20 MHz, 6 dBi Patch Antenna



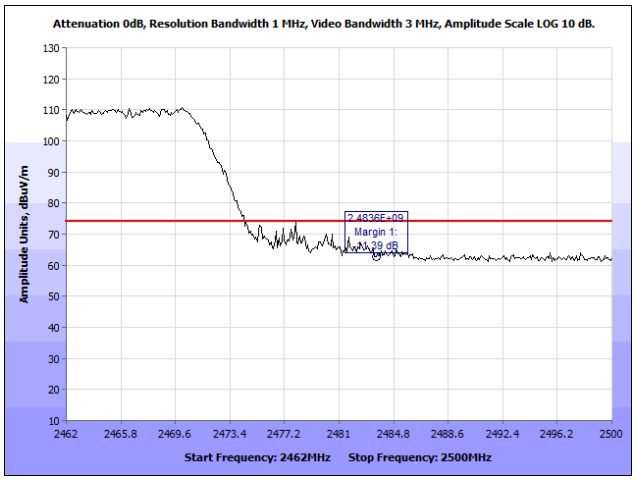
Plot 205. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Average



Plot 206. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Peak

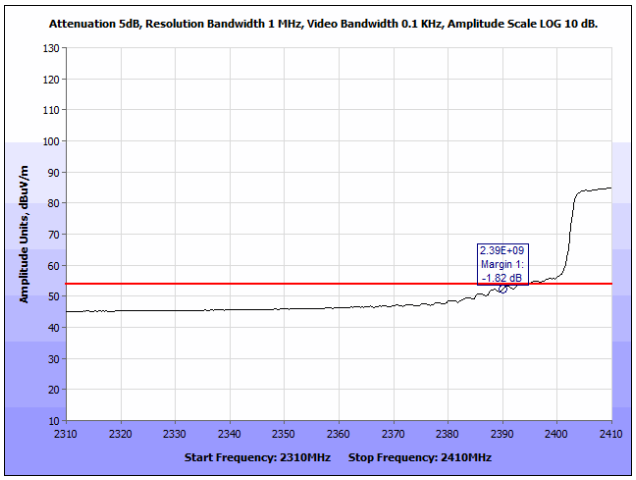


Plot 207. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Average

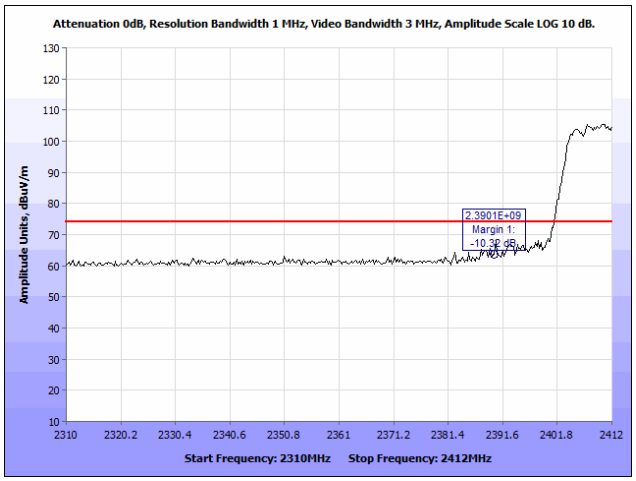


Plot 208. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Peak

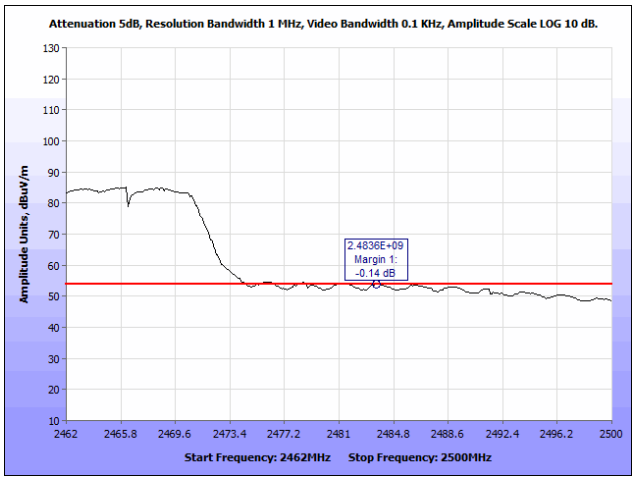
Radiated Band Edge Measurements, 802.11n 40 MHz, 6 dBi Patch Antenna



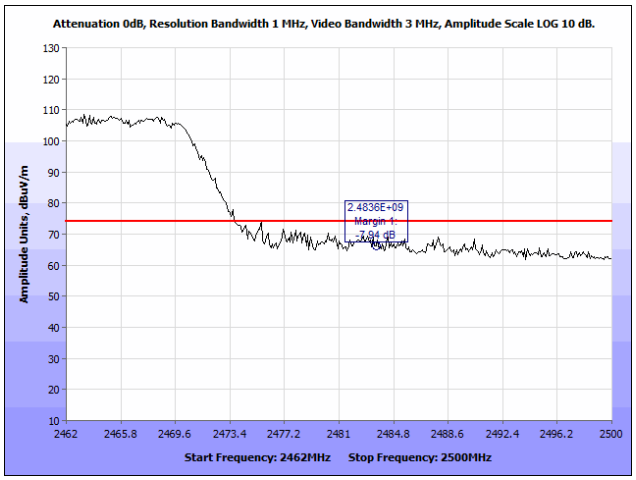
Plot 209. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Average



Plot 210. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Peak

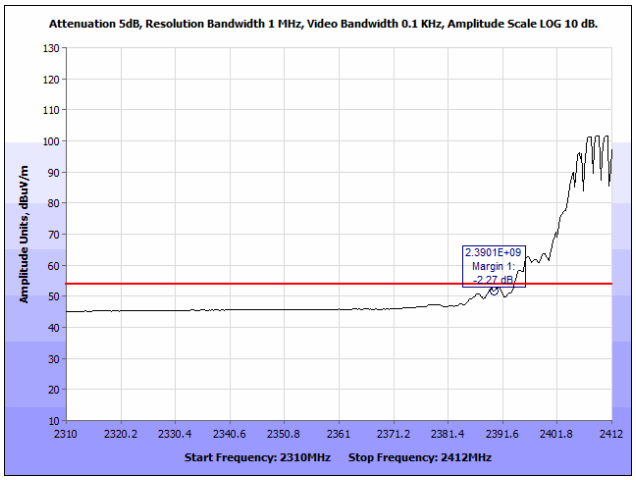


Plot 211. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Average

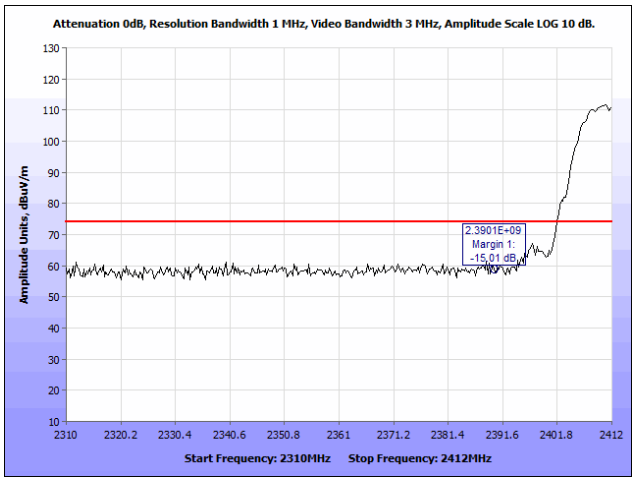


Plot 212. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Peak

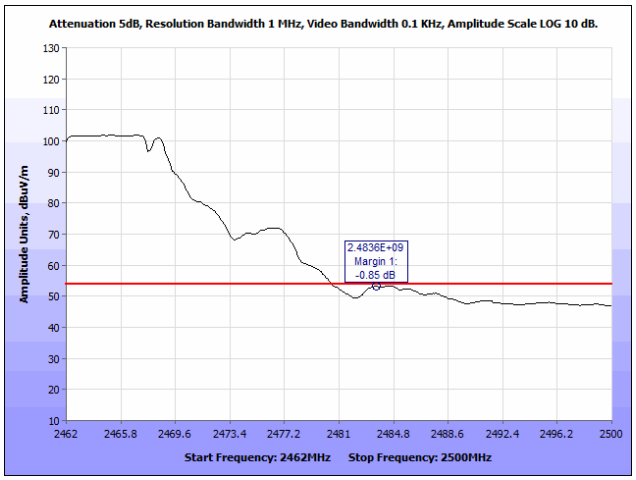
Radiated Band Edge Measurements, 802.11b, Omni-Directional Antenna



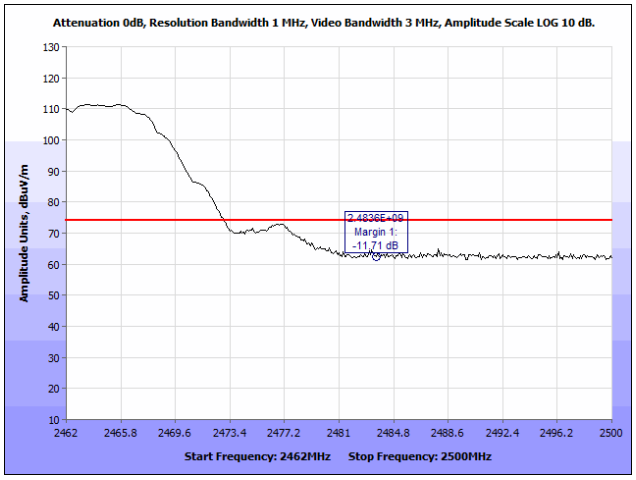
Plot 213. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Average



Plot 214. Radiated Restricted Band Edge, 802.11b, 2412 MHz @ 2390 MHz, Peak

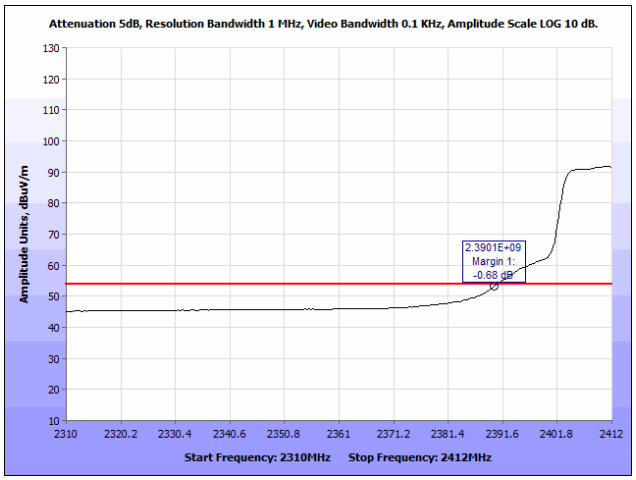


Plot 215. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Average

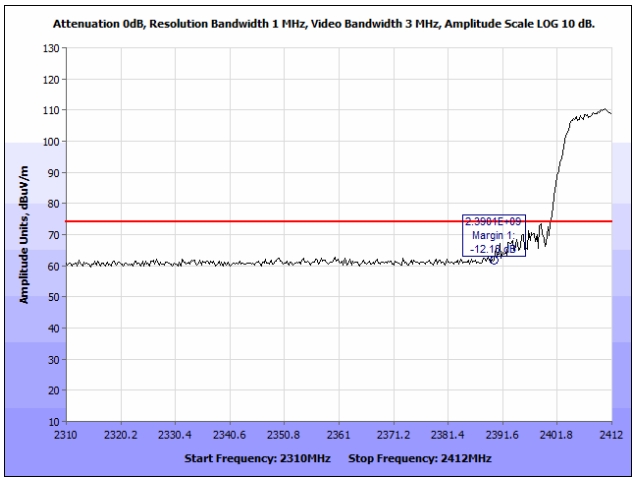


Plot 216. Radiated Restricted Band Edge, 802.11b, 2462 MHz @ 2483.5 MHz, Average

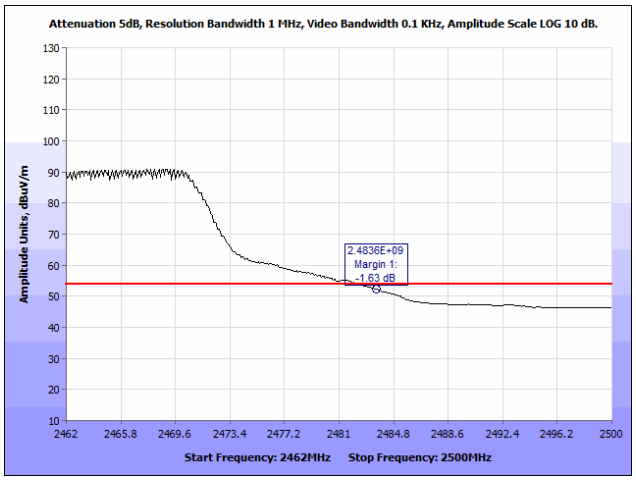
Radiated Band Edge Measurements, 802.11g, Omni-Directional Antenna



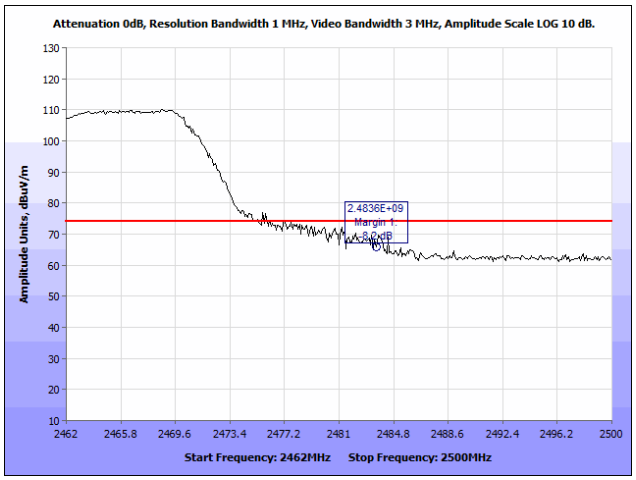
Plot 217. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Average



Plot 218. Radiated Restricted Band Edge, 802.11g, 2412 MHz @ 2390 MHz, Peak

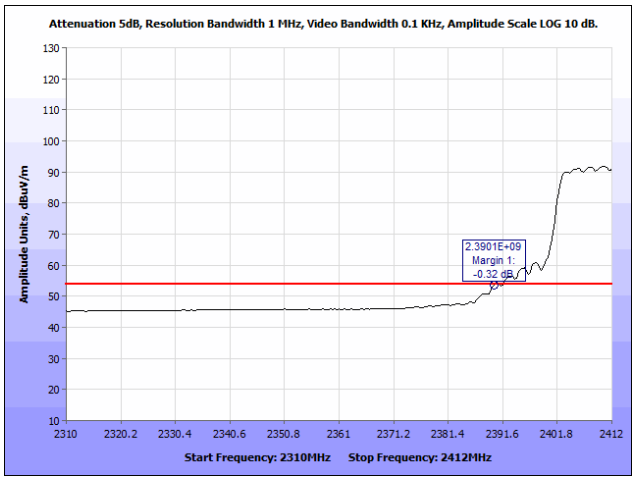


Plot 219. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Average

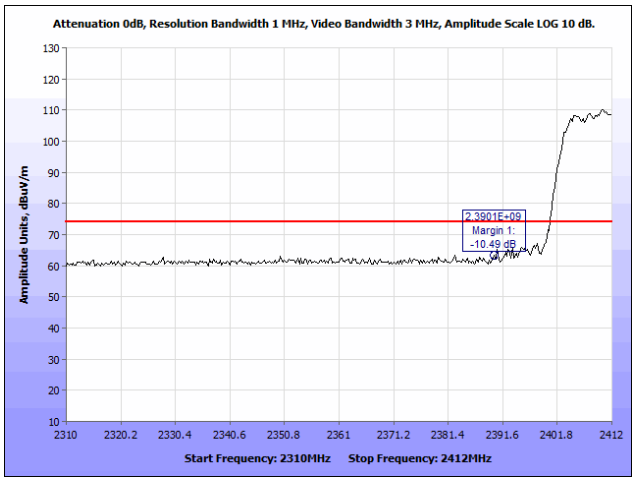


Plot 220. Radiated Restricted Band Edge, 802.11g, 2462 MHz @ 2483.5 MHz, Peak

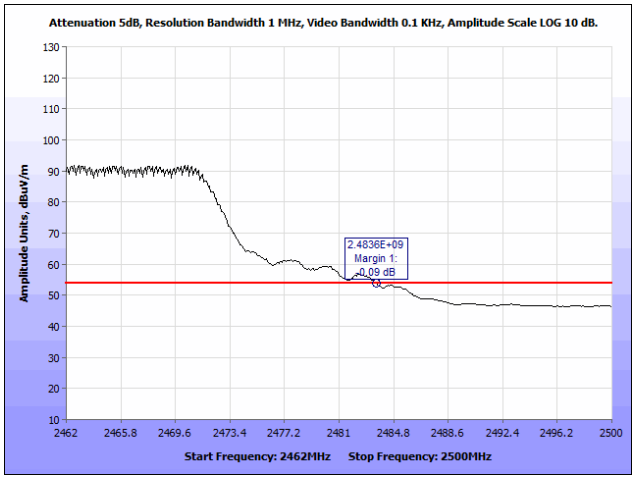
Radiated Band Edge Measurements, 802.11n 20 MHz, Omni-Directional Antenna



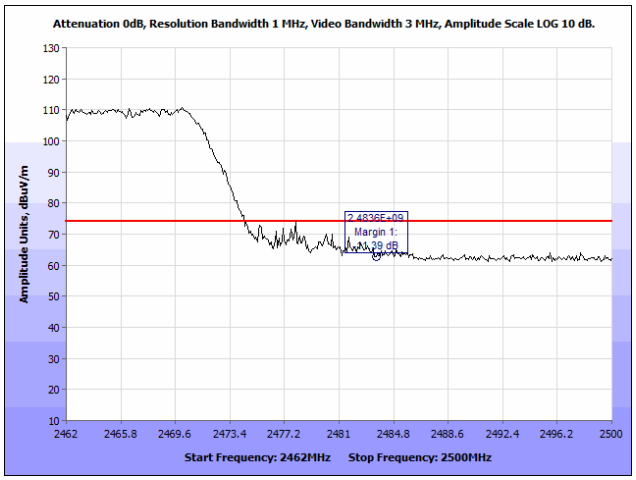
Plot 221. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Average



Plot 222. Radiated Restricted Band Edge, 802.11n 20 MHz, 2412 MHz @ 2390 MHz, Peak

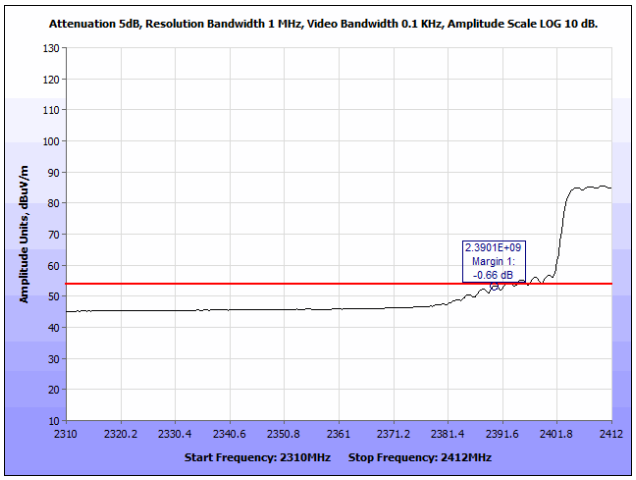


Plot 223. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Average

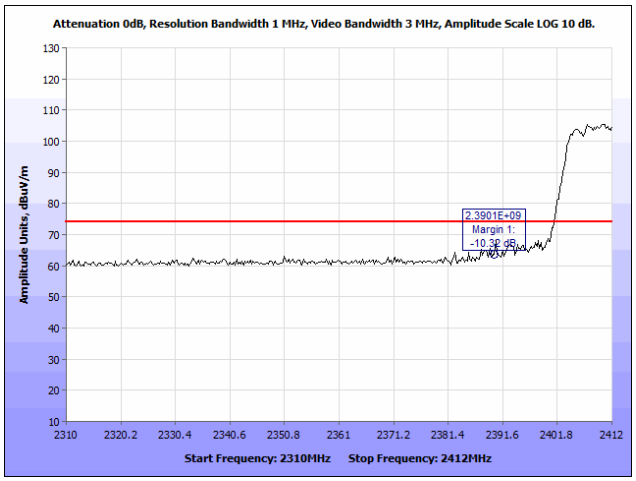


Plot 224. Radiated Restricted Band Edge, 802.11n 20 MHz, 2462 MHz @ 2483.5 MHz, Peak

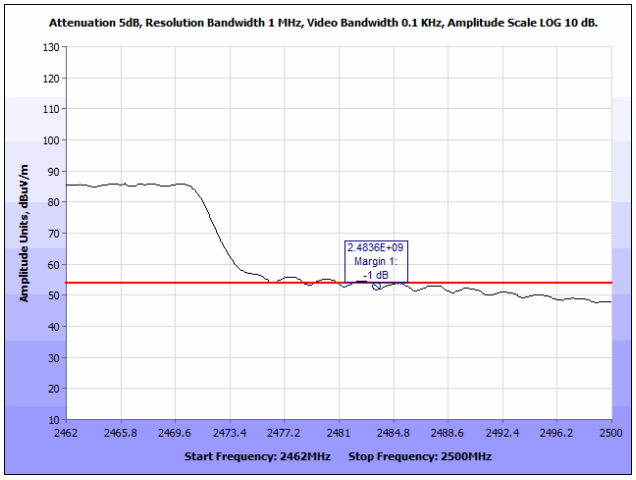
Radiated Band Edge Measurements, 802.11n 40 MHz, Omni-Directional Antenna



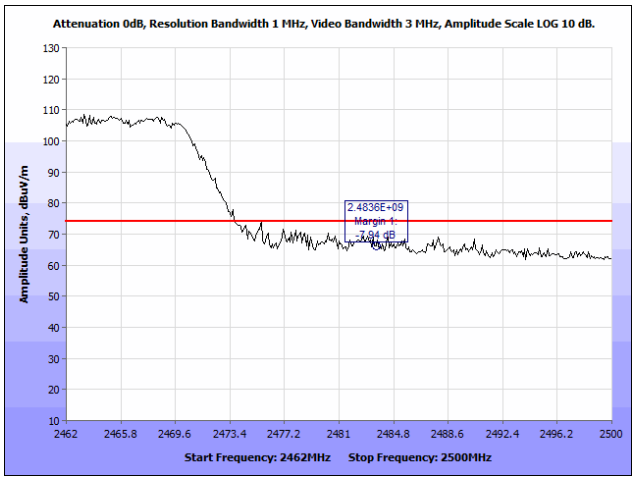
Plot 225. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Average



Plot 226. Radiated Restricted Band Edge, 802.11n 40 MHz, 2412 MHz @ 2390 MHz, Peak



Plot 227. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Average



Plot 228. Radiated Restricted Band Edge, 802.11n 40 MHz, 2452 MHz @ 2483.5 MHz, Peak

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(d) RF Conducted Spurious Emissions Requirements and Band Edge

Test Requirement: **15.247(d)** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Test Procedure: For intentional radiators with a digital device portion which operates below 10 GHz, the spectrum was investigated as per §15.33(a)(1) and §15.33(a)(4); i.e., the lowest RF signal generated or used in the device up to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Since the EUT had an integral antenna, conducted measurements could not be performed. Measurements needed to be taken radiated. An antenna was located 3 m away from the EUT and plots were taken. The EUT was rotated through all three orthogonal axes. The plots were corrected for both antenna correction factor and cable lost.

See following pages for detailed test results with RF Conducted Spurious Emissions.

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

Test Engineer(s): Andy Shen

Test Date(s): 08/27/14

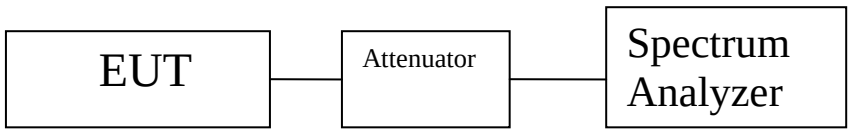
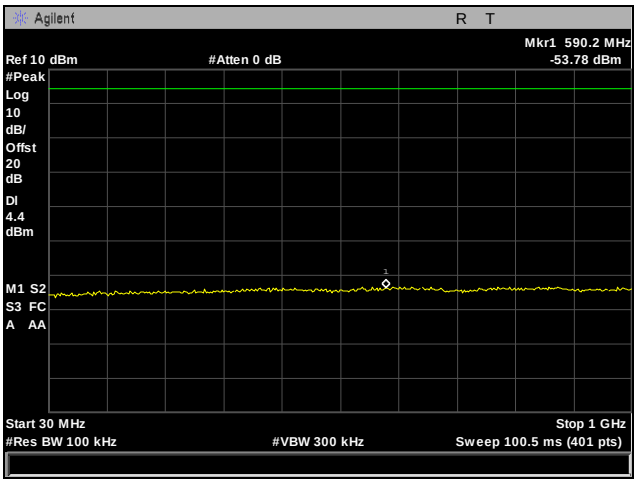
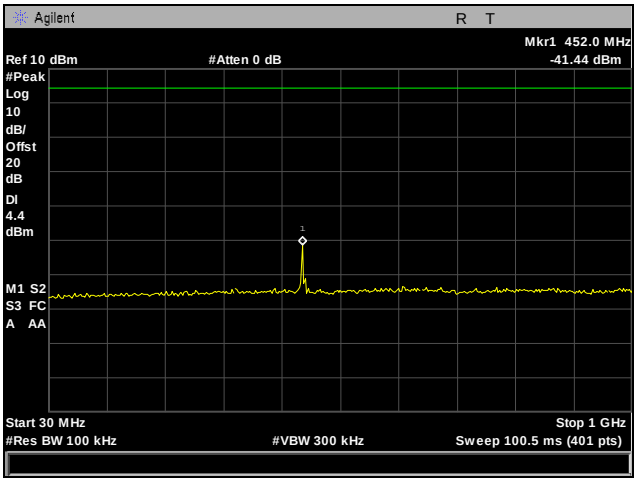


Figure 4. Block Diagram, Conducted Spurious Emissions Test Setup

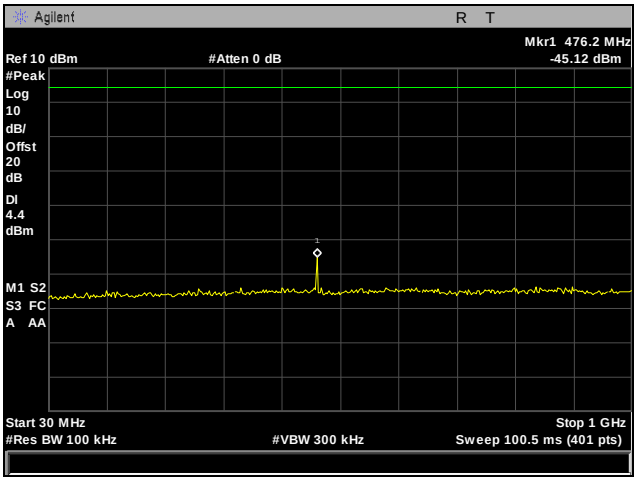
Conducted Spurious Emissions Test Results, 802.11b, 2.4 GHz



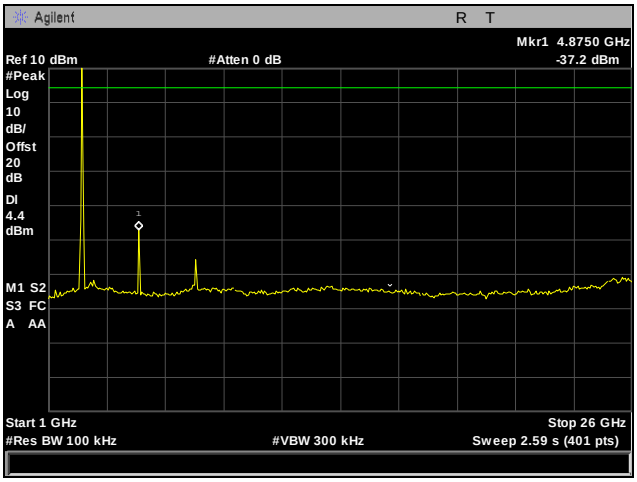
Plot 229. Conducted Spurious Emissions, Low Channel, 802.11b, 2412 MHz, 30 MHz – 1 GHz



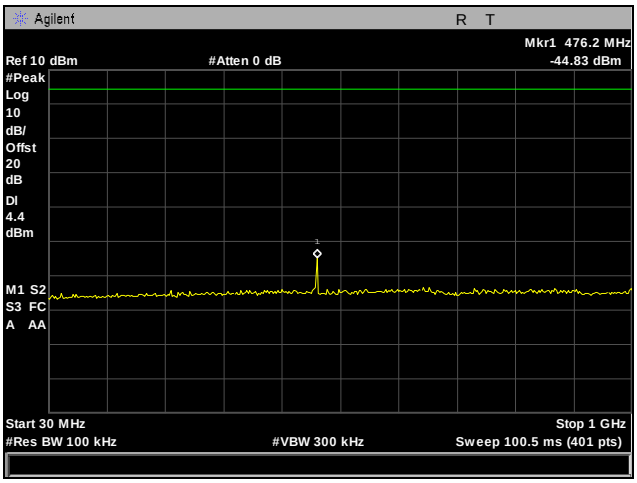
Plot 230. Conducted Spurious Emissions, Low Channel, 802.11b, 2412 MHz, 1 GHz – 26 GHz



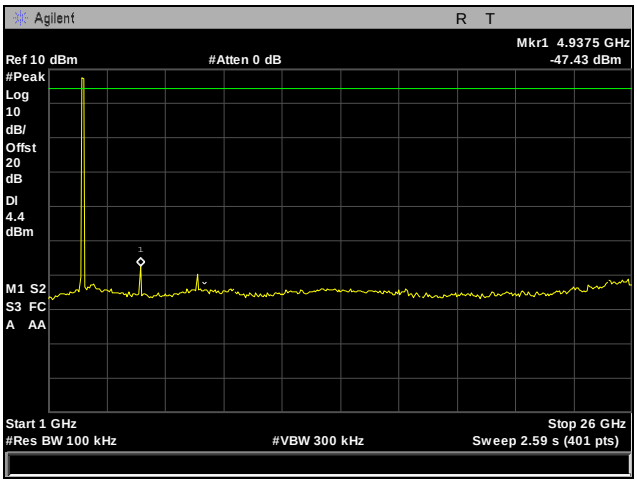
Plot 231. Conducted Spurious Emissions, Mid Channel, 802.11b, 2437 MHz, 30 MHz – 1 GHz



Plot 232. Conducted Spurious Emissions, Mid Channel, 802.11b, 2437 MHz, 1 GHz – 26 GHz

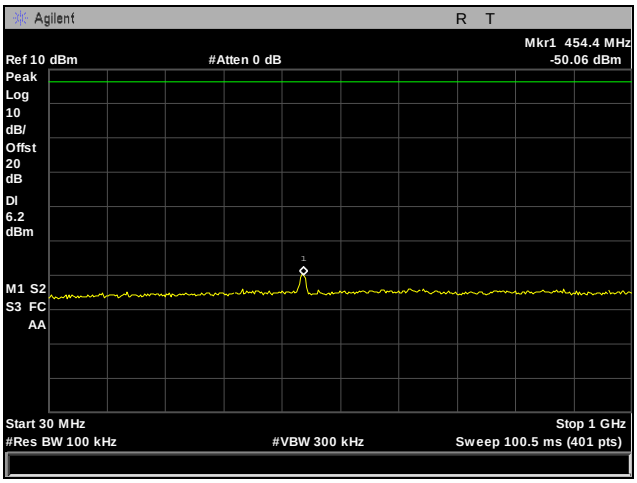


Plot 233. Conducted Spurious Emissions, High Channel, 802.11b, 2462 MHz, 30 MHz – 1 GHz

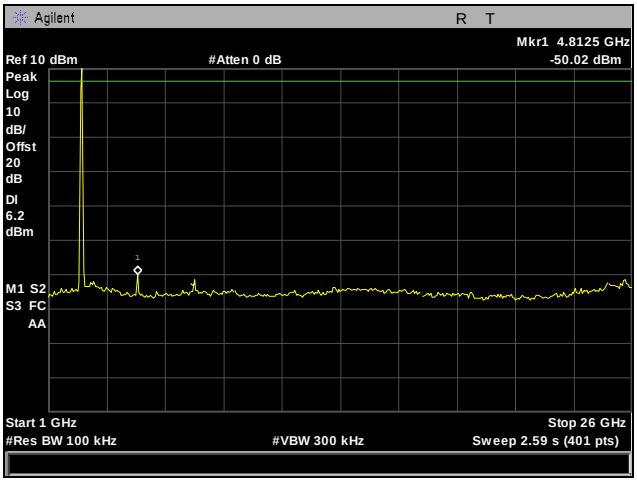


Plot 234. Conducted Spurious Emissions, High Channel, 802.11b, 2462 MHz, 1 GHz – 26 GHz

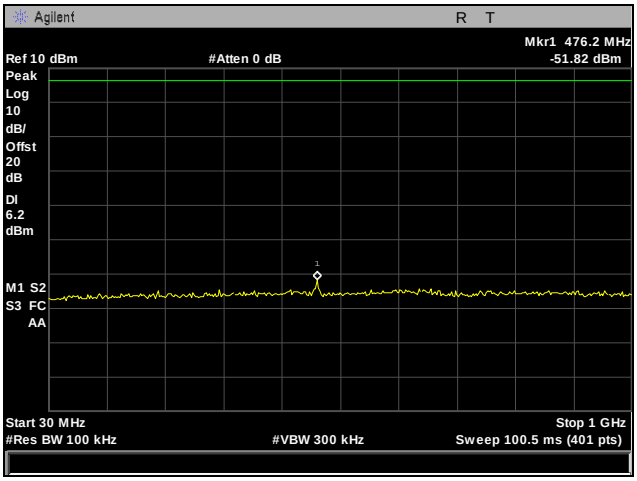
Conducted Spurious Emissions Test Results, 802.11g, 2.4 GHz



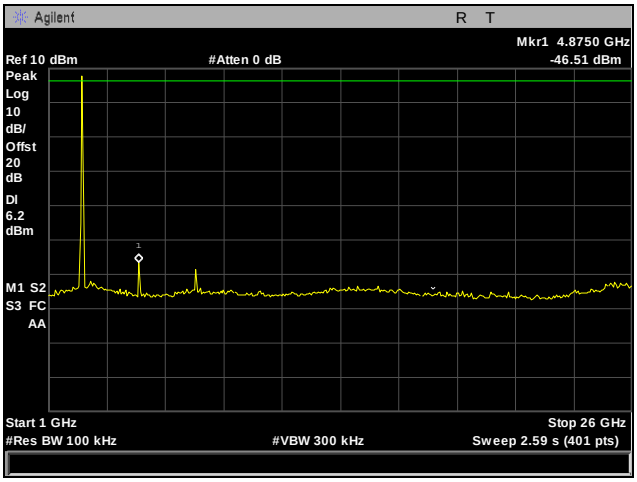
Plot 235. Conducted Spurious Emissions, Low Channel, 802.11g, 2412 MHz, 30 MHz – 1 GHz



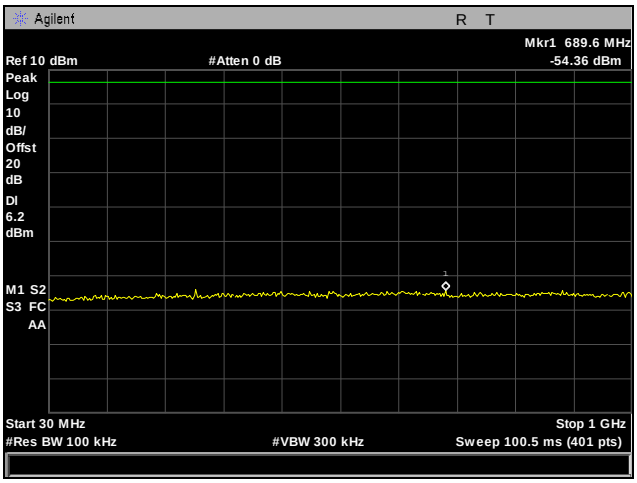
Plot 236. Conducted Spurious Emissions, Low Channel, 802.11g, 2412 MHz, 1 GHz – 26 GHz



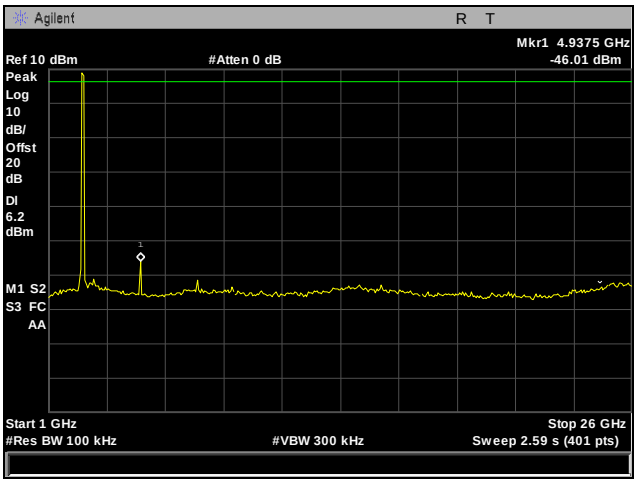
Plot 237. Conducted Spurious Emissions, Mid Channel, 802.11g, 2437 MHz, 30 MHz – 1 GHz



Plot 238. Conducted Spurious Emissions, Mid Channel, 802.11g, 2437 MHz, 1 GHz – 26 GHz

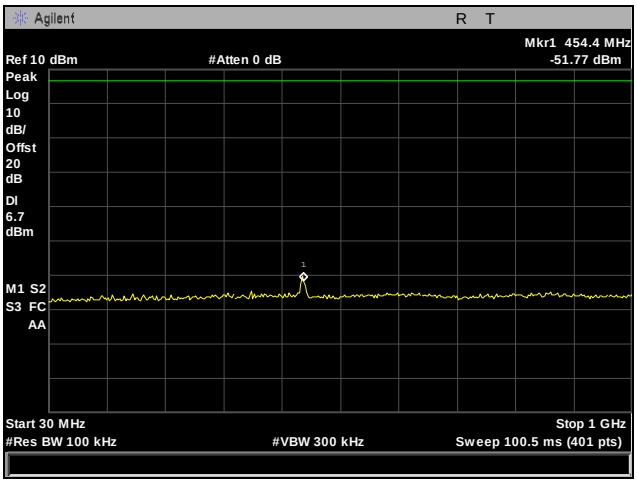


Plot 239. Conducted Spurious Emissions, High Channel, 802.11g, 2462 MHz, 30 MHz – 1 GHz

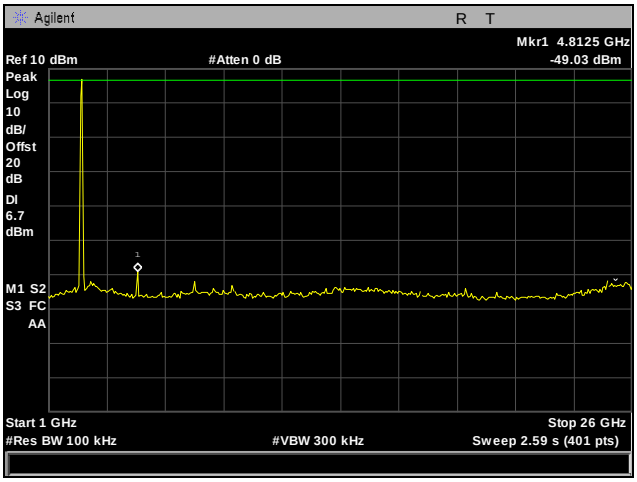


Plot 240. Conducted Spurious Emissions, High Channel, 802.11g, 2462 MHz, 1 GHz – 26 GHz

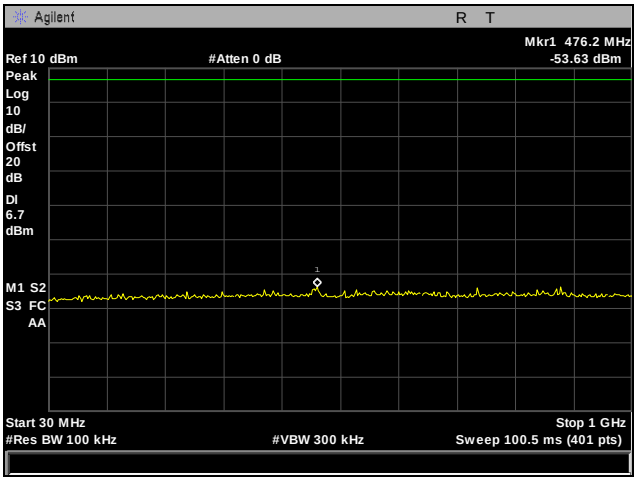
Conducted Spurious Emissions Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz



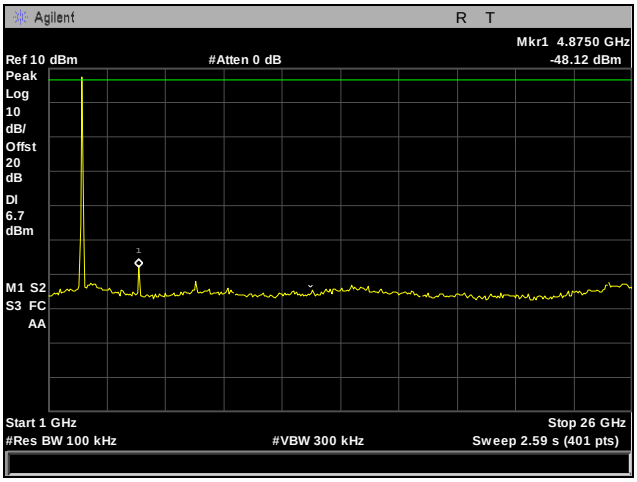
Plot 241. Conducted Spurious Emissions, Low Channel, 802.11n 20 MHz, Port 1, 2412 MHz, 30 MHz – 1 GHz



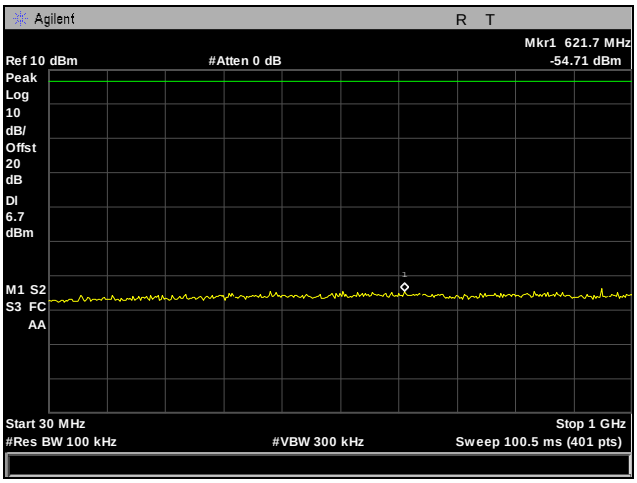
Plot 242. Conducted Spurious Emissions, Low Channel, 802.11n 20 MHz, Port 1, 2412 MHz, 1 GHz – 26 GHz



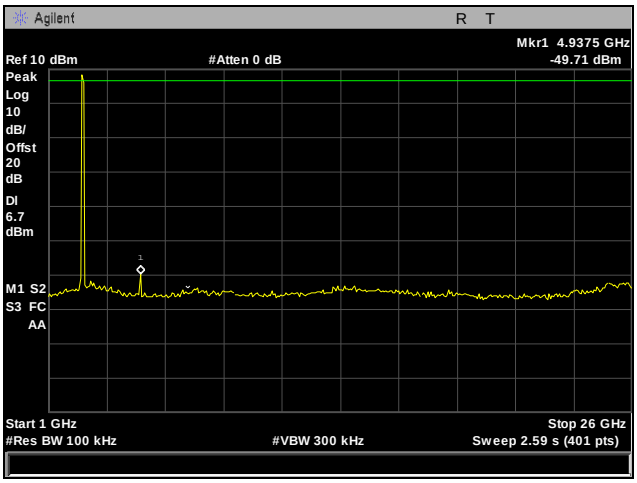
Plot 243. Conducted Spurious Emissions, Mid Channel, 802.11n 20 MHz, Port 1, 2437 MHz, 30 MHz – 1 GHz



Plot 244. Conducted Spurious Emissions, Mid Channel, 802.11n 20 MHz, Port 1, 2437 MHz, 1 GHz – 26 GHz

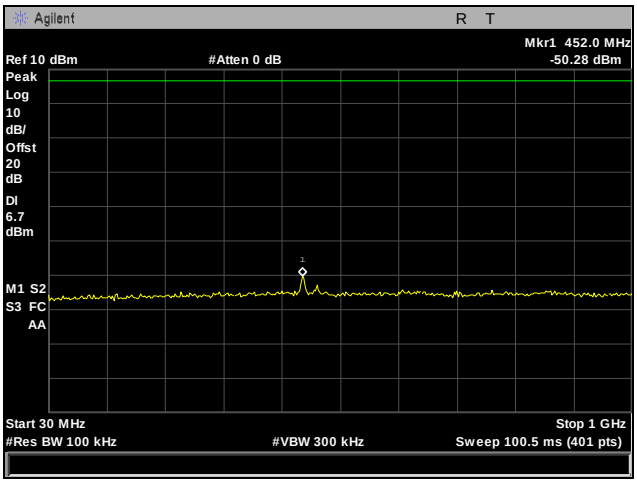


Plot 245. Conducted Spurious Emissions, High Channel, 802.11n 20 MHz, Port 1, 2462 MHz, 30 MHz – 1 GHz

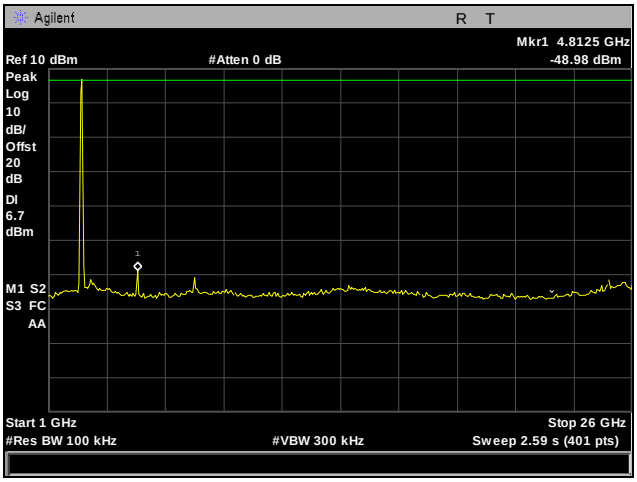


Plot 246. Conducted Spurious Emissions, High Channel, 802.11n 20 MHz, Port 1, 2462 MHz, 1 GHz – 26 GHz

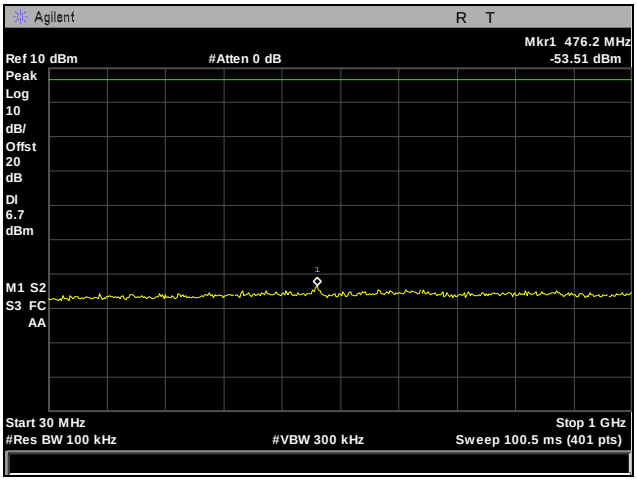
Conducted Spurious Emissions Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz



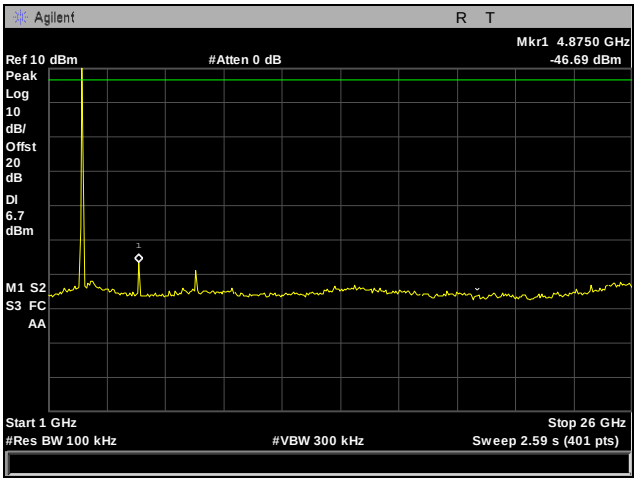
Plot 247. Conducted Spurious Emissions, Low Channel, 802.11n 20 MHz, Port 2, 2412 MHz, 30 MHz – 1 GHz



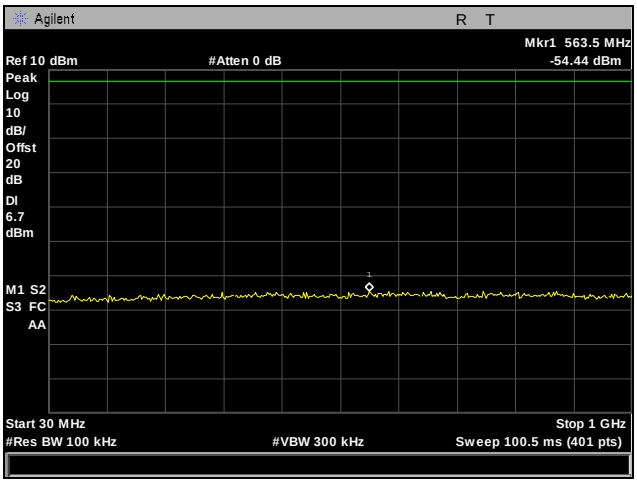
Plot 248. Conducted Spurious Emissions, Low Channel, 802.11n 20 MHz, Port 2, 2412 MHz, 1 GHz – 26 GHz



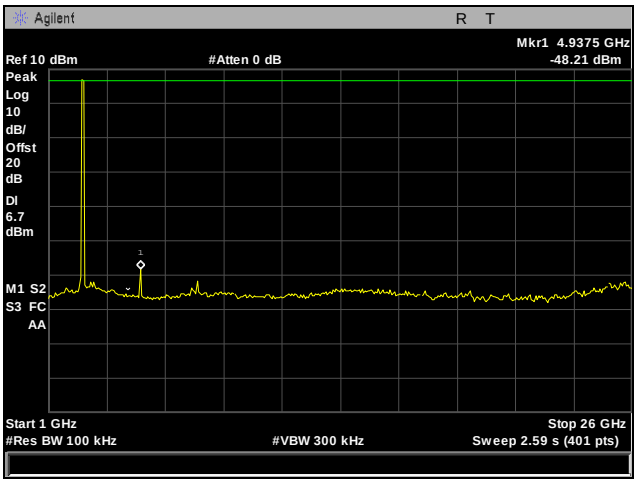
Plot 249. Conducted Spurious Emissions, Mid Channel, 802.11n 20 MHz, Port 2, 2437 MHz, 30 MHz – 1 GHz



Plot 250. Conducted Spurious Emissions, Mid Channel, 802.11n 20 MHz, Port 2, 2437 MHz, 1 GHz – 26 GHz

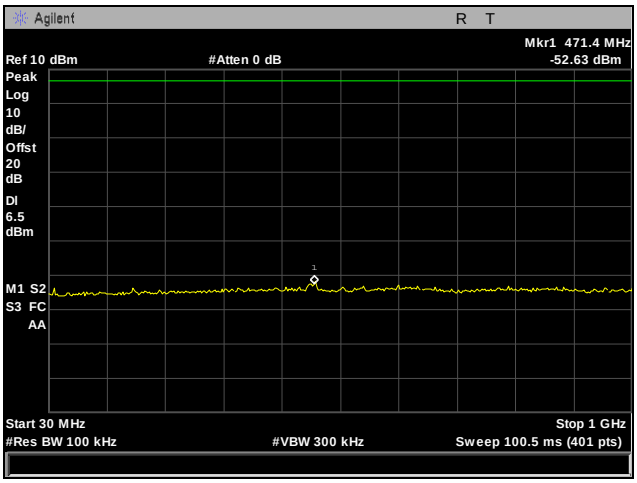


Plot 251. Conducted Spurious Emissions, High Channel, 802.11n 20 MHz, Port 2, 2462 MHz, 30 MHz – 1 GHz

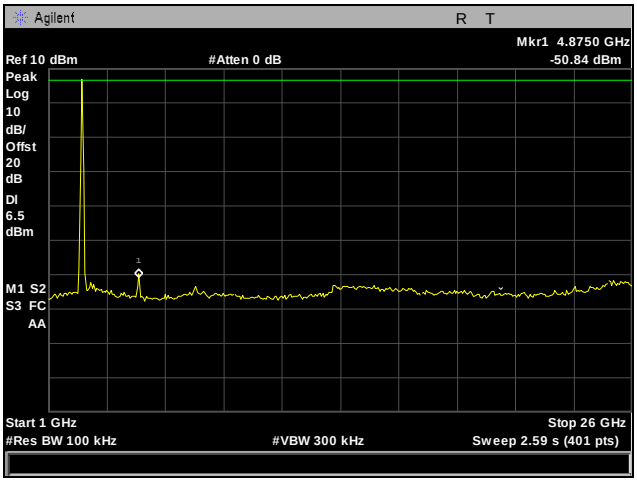


Plot 252. Conducted Spurious Emissions, High Channel, 802.11n 20 MHz, Port 2, 2462 MHz, 1 GHz – 26 GHz

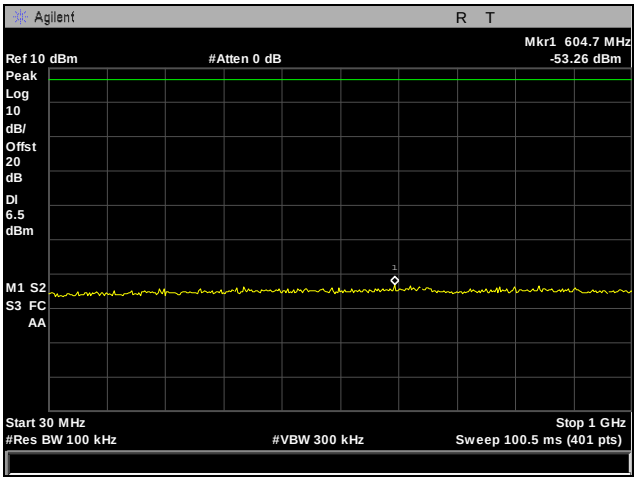
Conducted Spurious Emissions Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz



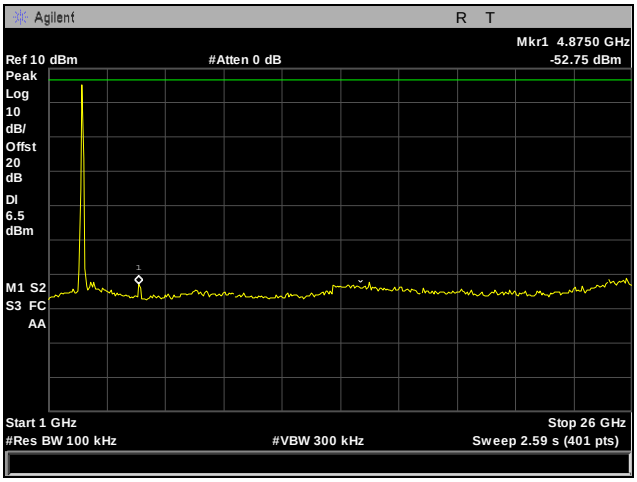
Plot 253. Conducted Spurious Emissions, Low Channel, 802.11n 40 MHz, Port 1, 2422 MHz, 30 MHz – 1 GHz



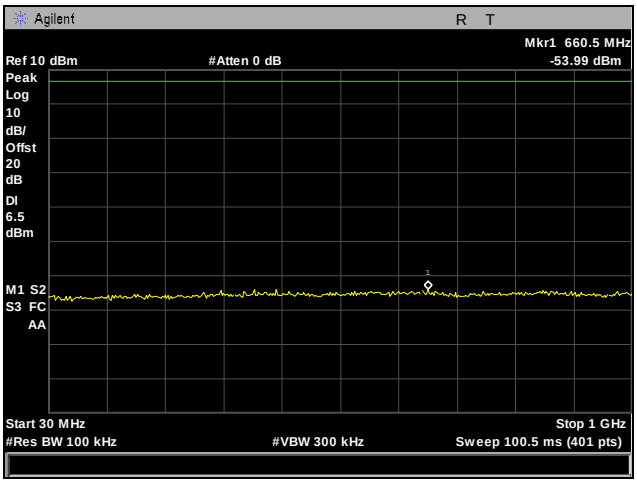
Plot 254. Conducted Spurious Emissions, Low Channel, 802.11n 40 MHz, Port 1, 2422 MHz, 1 GHz – 26 GHz



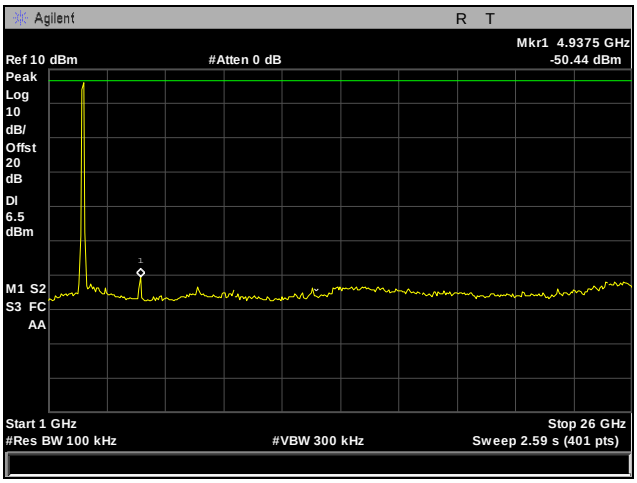
Plot 255. Conducted Spurious Emissions, Mid Channel, 802.11n 40 MHz, Port 1, 2437 MHz, 30 MHz – 1 GHz



Plot 256. Conducted Spurious Emissions, Mid Channel, 802.11n 40 MHz, Port 1, 2437 MHz, 1 GHz – 26 GHz

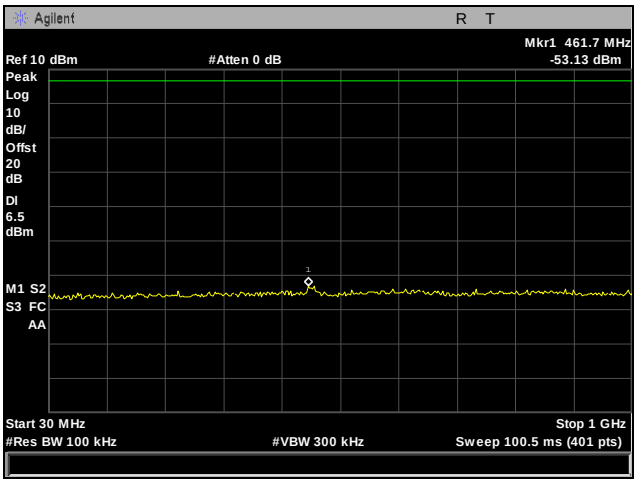


Plot 257. Conducted Spurious Emissions, High Channel, 802.11n 40 MHz, Port 1, 2452 MHz, 30 MHz – 1 GHz

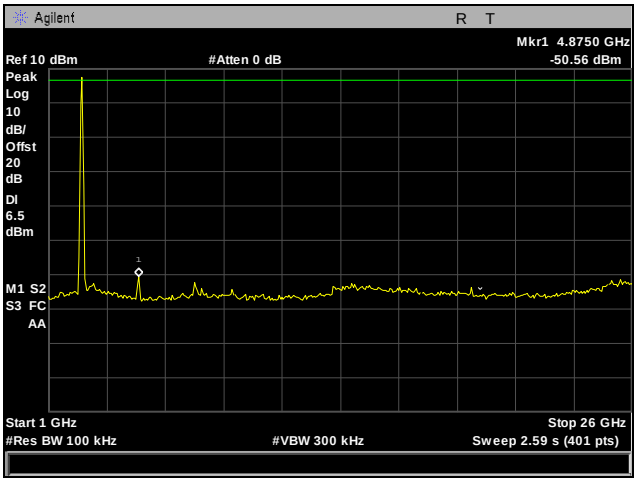


Plot 258. Conducted Spurious Emissions, High Channel, 802.11n 40 MHz, Port 1, 2452 MHz, 1 GHz – 26 GHz

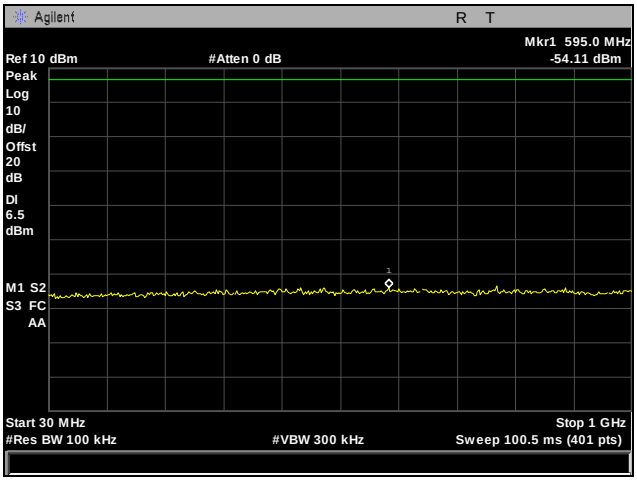
Conducted Spurious Emissions Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



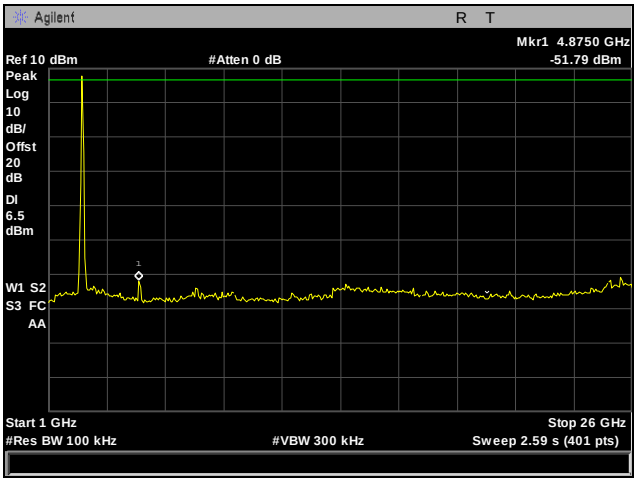
Plot 259. Conducted Spurious Emissions, Low Channel, 802.11n 40 MHz, Port 2, 2422 MHz, 30 MHz – 1 GHz



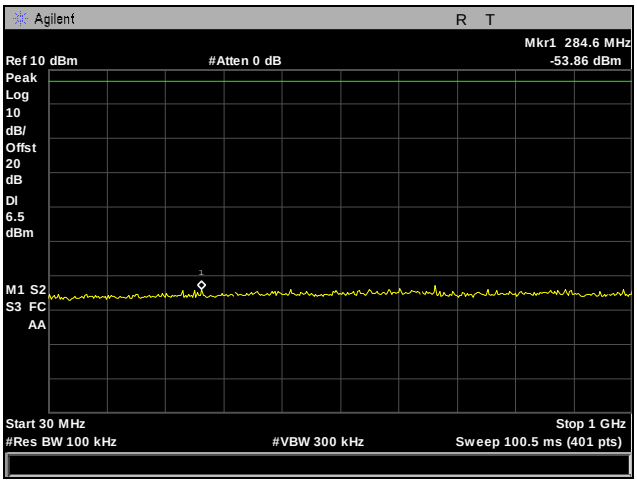
Plot 260. Conducted Spurious Emissions, Low Channel, 802.11n 40 MHz, Port 2, 2422 MHz, 1 GHz – 26 GHz



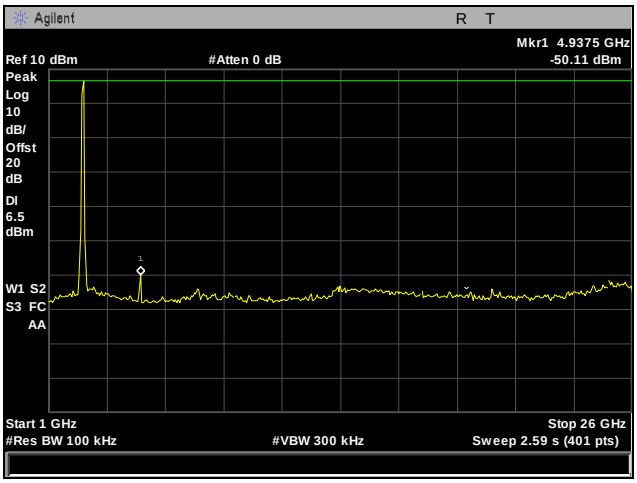
Plot 261. Conducted Spurious Emissions, Mid Channel, 802.11n 40 MHz, Port 2, 2437 MHz, 30 MHz – 1 GHz



Plot 262. Conducted Spurious Emissions, Mid Channel, 802.11n 40 MHz, Port 2, 2437 MHz, 1 GHz – 26 GHz

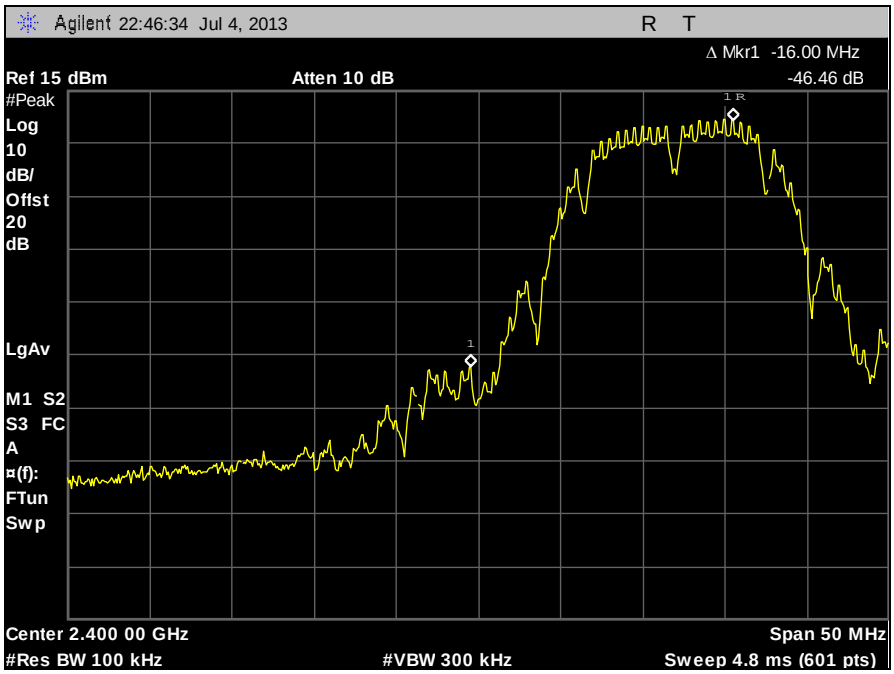


Plot 263. Conducted Spurious Emissions, High Channel, 802.11n 40 MHz, Port 2, 2452 MHz, 30 MHz – 1 GHz

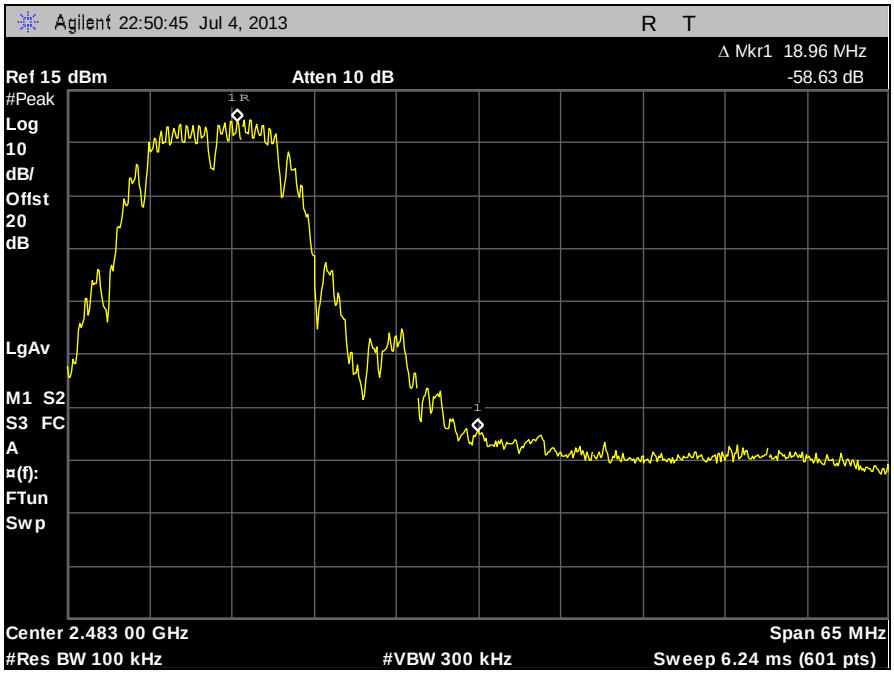


Plot 264. Conducted Spurious Emissions, High Channel, 802.11n 40 MHz, Port 2, 2452 MHz, 1 GHz – 26 GHz

Conducted Band Edge Test Results, 802.11b, 2.4 GHz

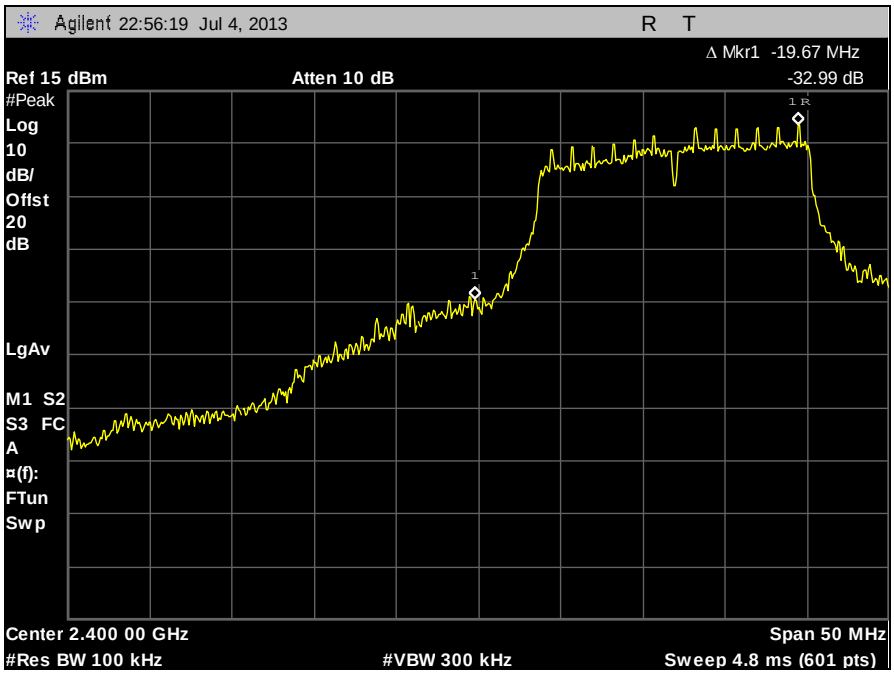


Plot 265. Conducted Band Edge, 802.11b, 2412 MHz

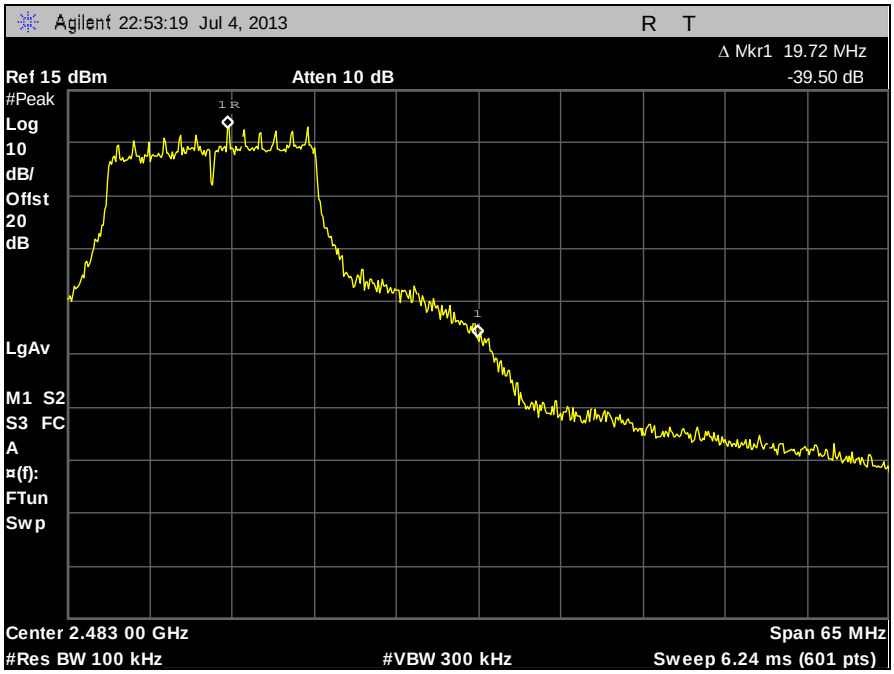


Plot 266. Conducted Band Edge, 802.11b, 2462 MHz

Conducted Band Edge Test Results, 802.11g, 2.4 GHz

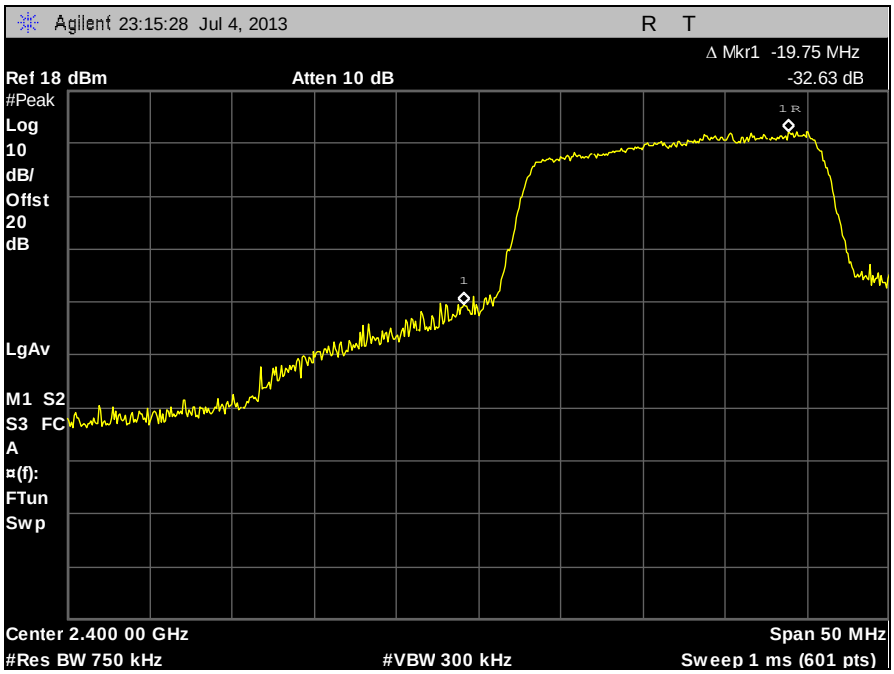


Plot 267. Conducted Band Edge, 802.11g, 2412 MHz

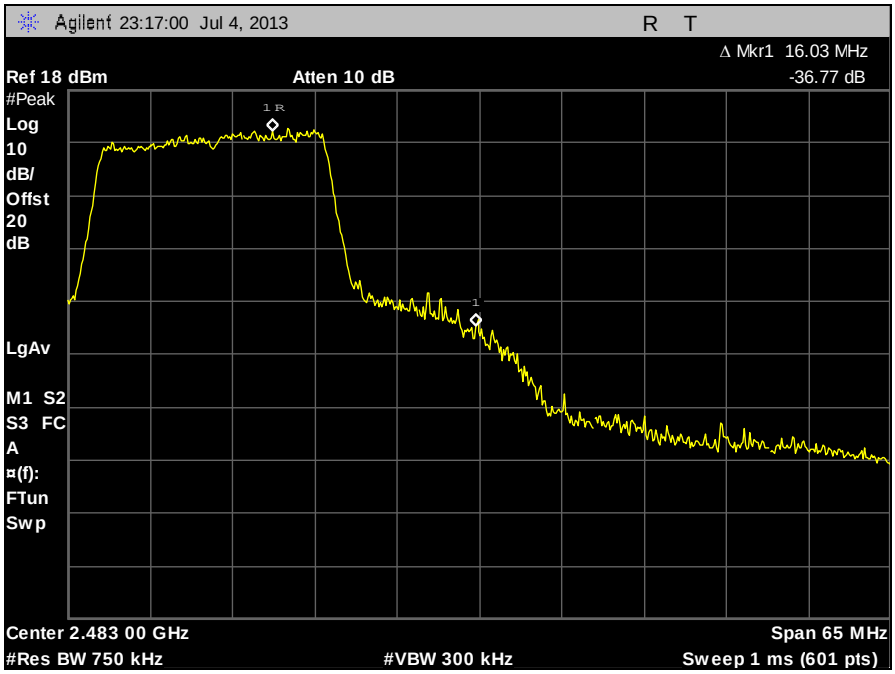


Plot 268. Conducted Band Edge, 802.11g, 2462 MHz

Conducted Band Edge Test Results, 802.11n 20 MHz, Port 1, 2.4 GHz

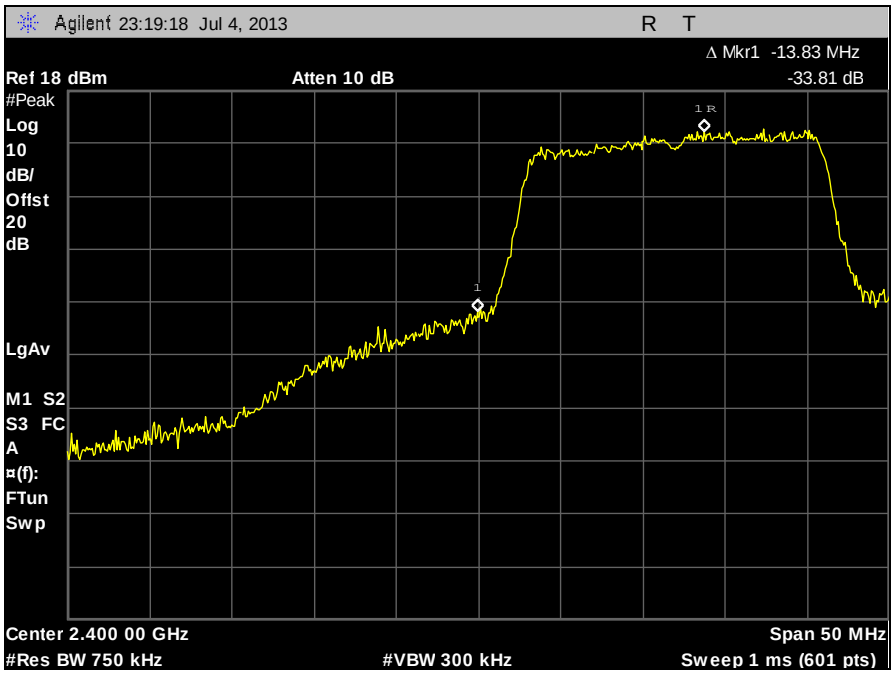


Plot 269. Conducted Band Edge, 802.11n 20 MHz, Port 1, 2412 MHz

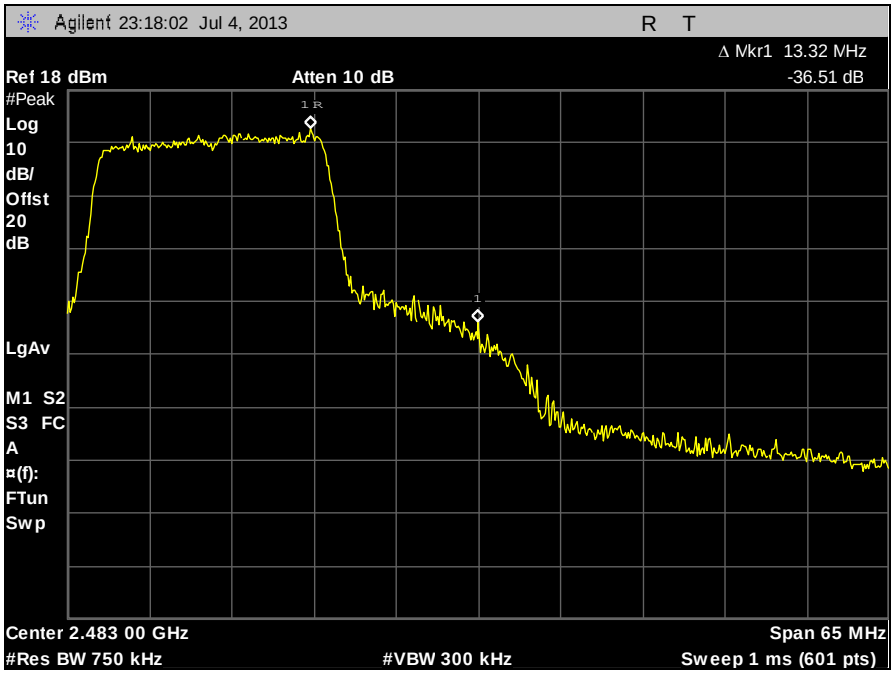


Plot 270. Conducted Band Edge, 802.11n 20 MHz, Port 1, 2462 MHz

Conducted Band Edge Test Results, 802.11n 20 MHz, Port 2, 2.4 GHz

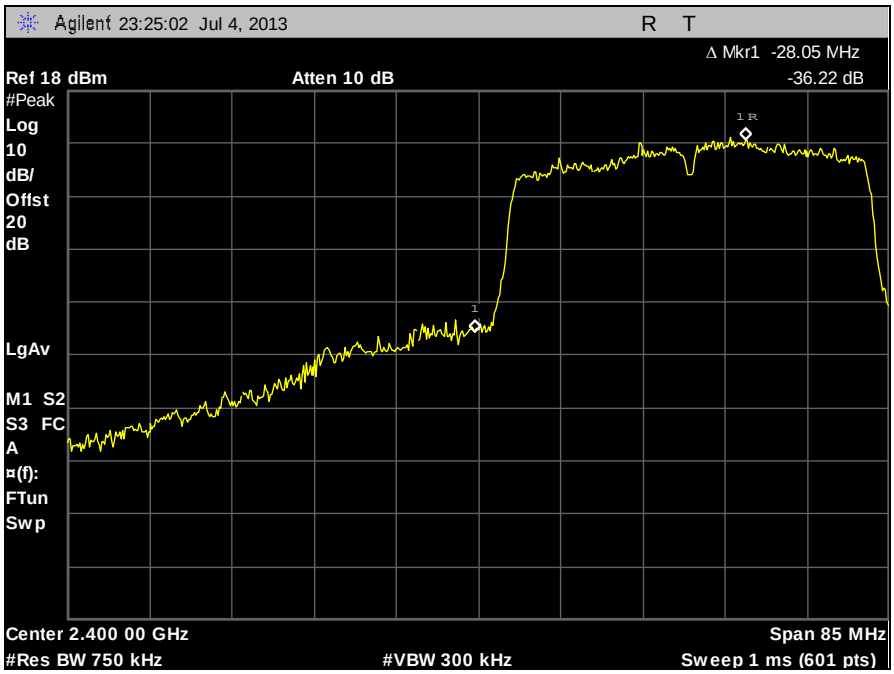


Plot 271. Conducted Band Edge, 802.11n 20 MHz, Port 2, 2412 MHz

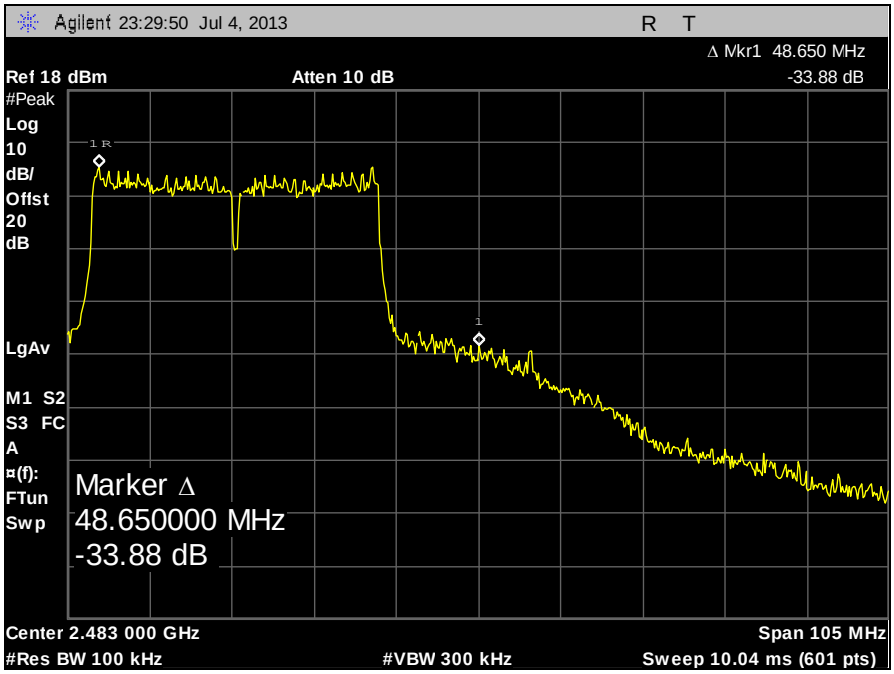


Plot 272. Conducted Band Edge, 802.11n 20 MHz, Port 2, 2462 MHz

Conducted Band Edge Test Results, 802.11n 40 MHz, Port 1, 2.4 GHz

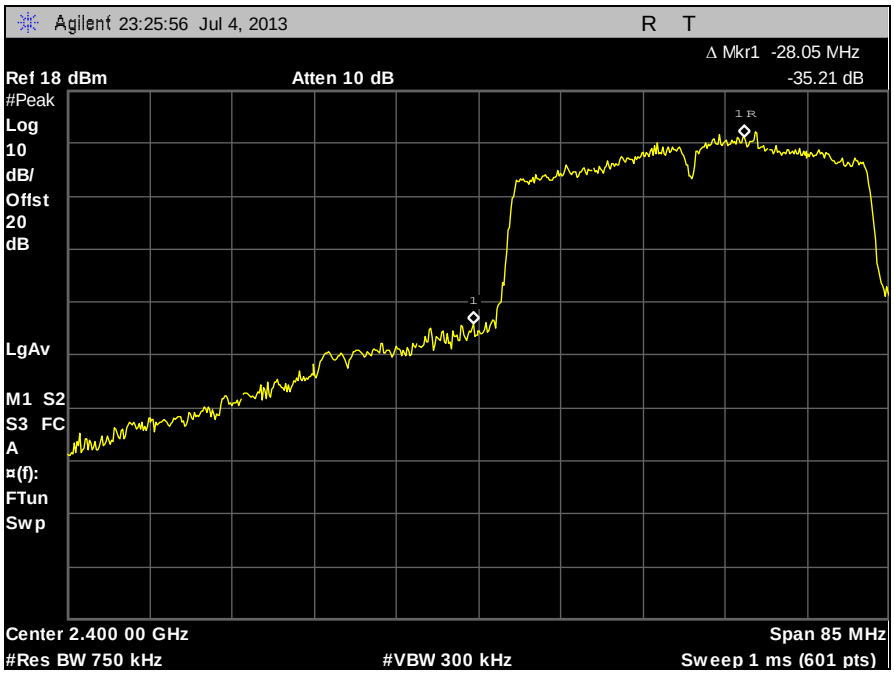


Plot 273. Conducted Band Edge, 802.11n 40 MHz, Port 1, 2422 MHz

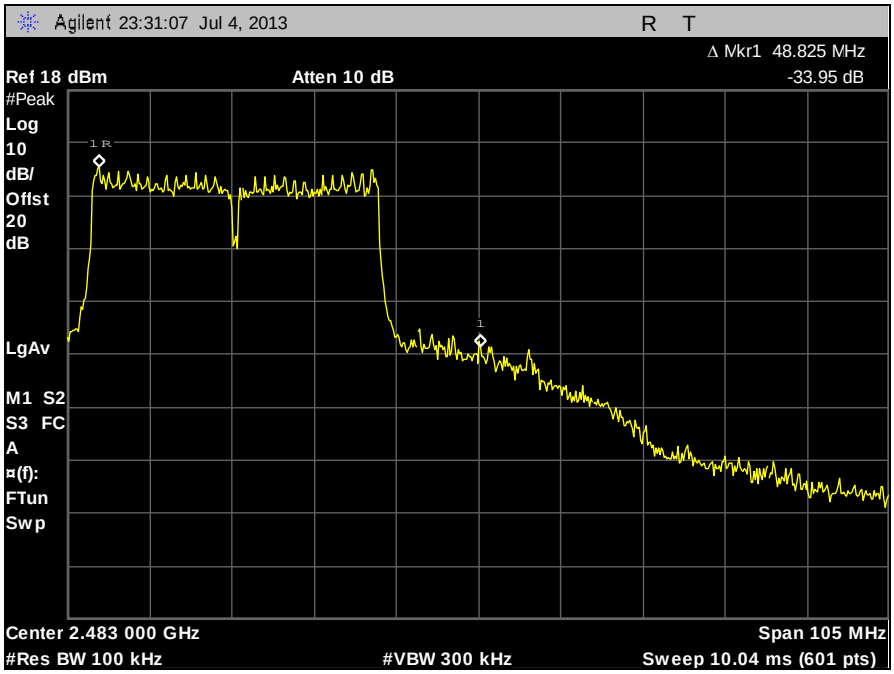


Plot 274. Conducted Band Edge, 802.11n 40 MHz, Port 1, 2452 MHz

Conducted Band Edge Test Results, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 275. Conducted Band Edge, 802.11n 40 MHz, Port 2, 2422 MHz



Plot 276. Conducted Band Edge, 802.11n 40 MHz, Port 2, 2452 MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(e) Peak Power Spectral Density

Test Requirements: **§15.247(e):** For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

Test Procedure: The transmitter was connected directly to a Spectrum Analyzer through an attenuator. The power level was set to the maximum level. A RBW of 1 MHz and VBW of 3 MHz were used to determine the peak emissions within the band. The Spectrum analyzer was then set to a RBW of 3 kHz and VBW was set to 10 kHz. The SPAN of the analyzer was set to 1 MHz with a 333.3 second sweep. Measurements were carried out at the low, mid and high channels.

Test Results: The EUT was compliant with the peak power spectral density limits of **§ 15.247 (e)**.

The peak power spectral density was determined from plots on the following page(s).

Test Engineer: Andy Shen

Test Date: 09/04/14

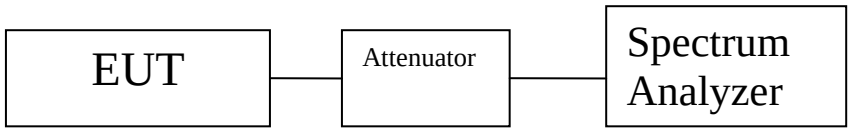


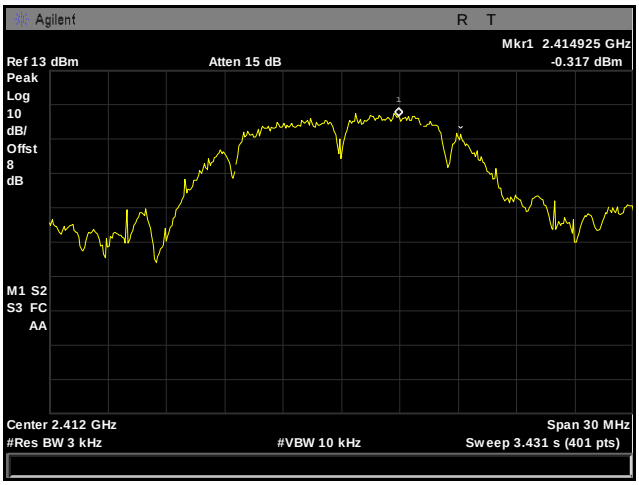
Figure 5. Block Diagram, Peak Power Spectral Density Test Setup

Peak Power Spectral Density Test Results

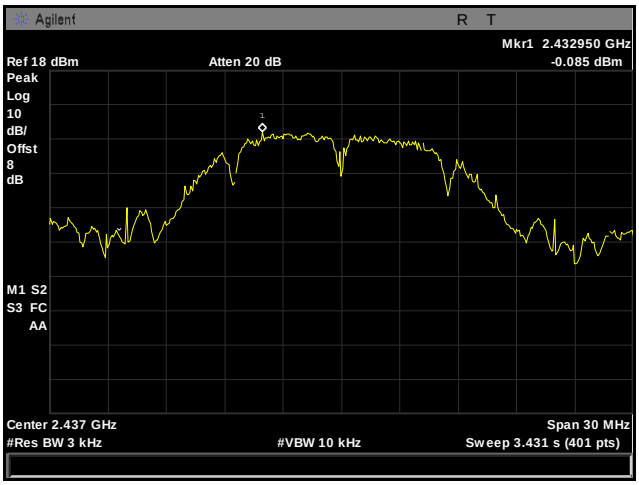
Peak Power Spectral Density					
	Carrier Channel	Frequency (MHz)	Measured PPSD (dBm)	Limit (dBm)	Margin (dB)
802.11b	Low	2412.00	-0.71	8.00	-8.71
	Mid	2437.00	0.09	8.00	-7.92
	High	2462.00	-1.82	8.00	-9.82
802.11g	Low	2412.00	-2.98	8.00	-10.98
	Mid	2437.00	-2.01	8.00	-10.01
	High	2462.00	-4.72	8.00	-12.72
802.11n 20 MHz Port 1	Low	2412.00	-2.84	5.00	-7.84
	Mid	2437.00	-1.37	5.00	-6.37
	High	2462.00	-2.61	5.00	-7.61
802.11n 20 MHz Port 2	Low	2412.00	-2.42	5.00	-7.42
	Mid	2437.00	-2.77	5.00	-7.77
	High	2462.00	-2.89	5.00	-7.89
802.11n 20 MHz Summed	Low	2422.00	0.39	8.00	-7.61
	Mid	2437.00	1.00	8.00	-7.00
	High	2452.00	0.27	8.00	-7.73
802.11n 40 MHz Port 1	Low	2422.00	-5.59	5.00	-10.59
	Mid	2437.00	-5.34	5.00	-10.34
	High	2452.00	-6.33	5.00	-11.33
802.11n 40 MHz Port 2	Low	2422.00	-5.47	5.00	-10.47
	Mid	2437.00	-5.46	5.00	-10.46
	High	2452.00	-5.39	5.00	-10.39
802.11n 40 MHz Summed	Low	2422.00	-2.52	8.01	-10.53
	Mid	2437.00	-2.39	8.01	-10.40
	High	2452.00	-2.82	8.01	-10.83

Table 34. Peak Power Spectral Density, Test Results, 2.4 GHz

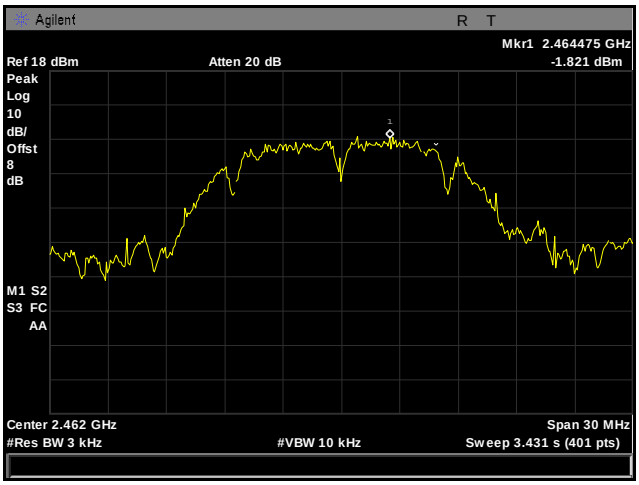
Peak Power Spectral Density, 802.11b, 2.4 GHz



Plot 277. Peak Power Spectral Density, Low Channel, 802.11b, 2412 MHz

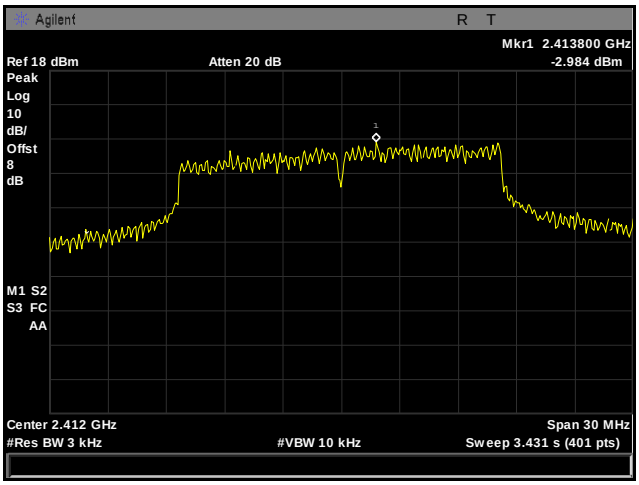


Plot 278. Peak Power Spectral Density, Mid Channel, 802.11b, 2437 MHz

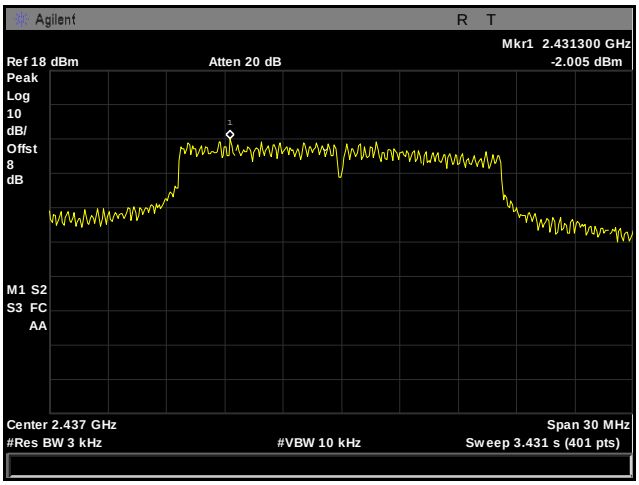


Plot 279. Peak Power Spectral Density, High Channel, 802.11b, 2462 MHz

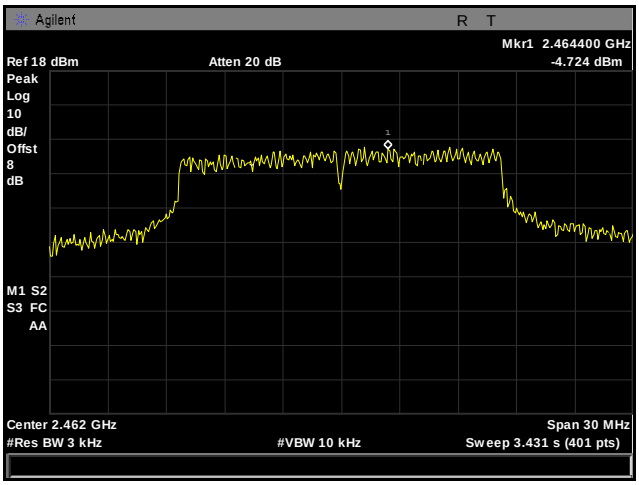
Peak Power Spectral Density, 802.11g, 2.4 GHz



Plot 280. Peak Power Spectral Density, Low Channel, 802.11g, 2412 MHz

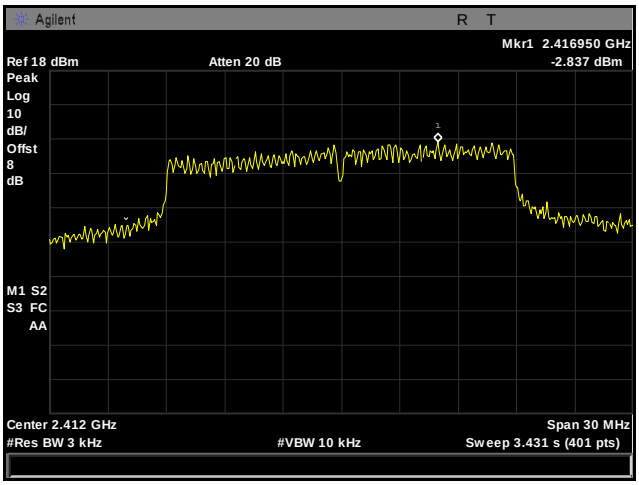


Plot 281. Peak Power Spectral Density, Mid Channel, 802.11g, 2437 MHz

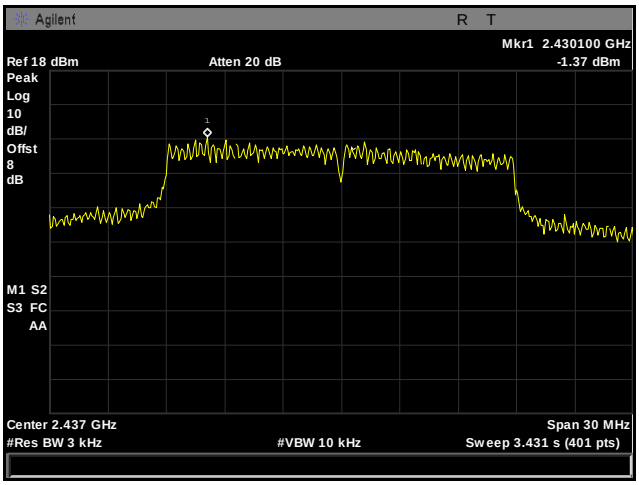


Plot 282. Peak Power Spectral Density, High Channel, 802.11g, 2462 MHz

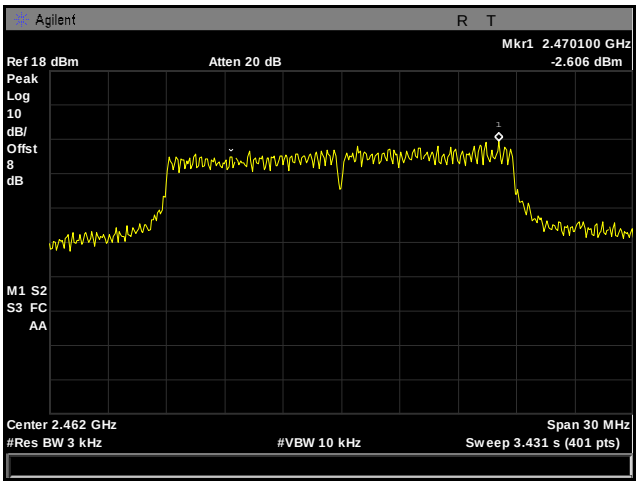
Peak Power Spectral Density, 802.11n 20 MHz, Port 1, 2.4 GHz



Plot 283. Peak Power Spectral Density, Low Channel, 802.11n 20 MHz, Port 1, 2412 MHz

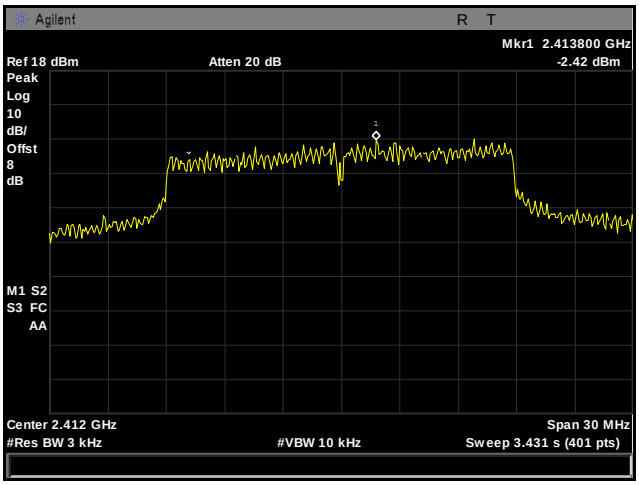


Plot 284. Peak Power Spectral Density, Mid Channel, 802.11n 20 MHz, Port 1, 2437 MHz

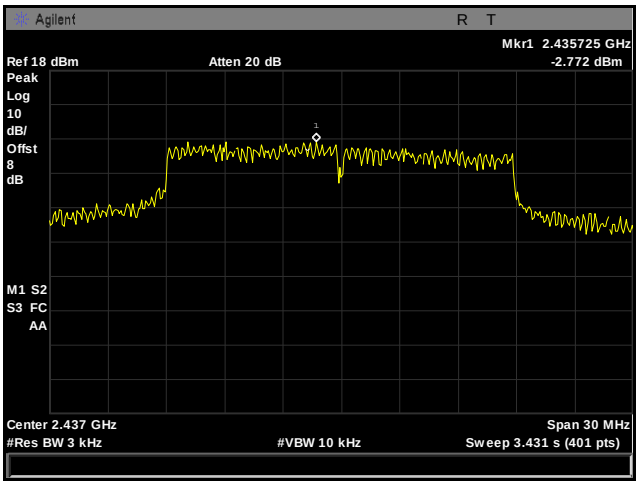


Plot 285. Peak Power Spectral Density, High Channel, 802.11n 20 MHz, Port 1, 2462 MHz

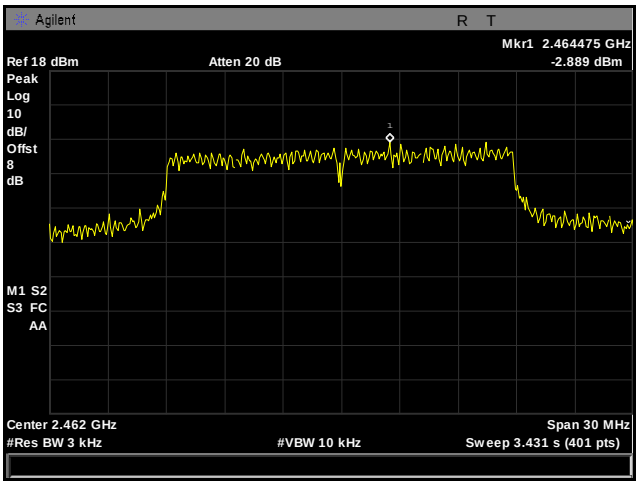
Peak Power Spectral Density, 802.11n 20 MHz, Port 2, 2.4 GHz



Plot 286. Peak Power Spectral Density, Low Channel, 802.11n 20 MHz, Port 2, 2412 MHz

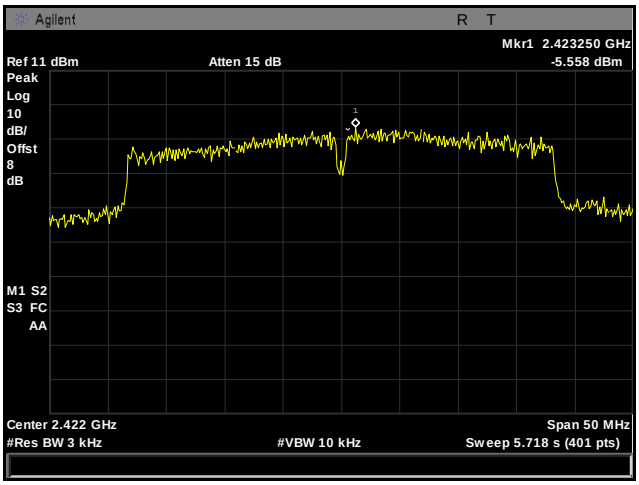


Plot 287. Peak Power Spectral Density, Mid Channel, 802.11n 20 MHz, Port 2, 2437 MHz

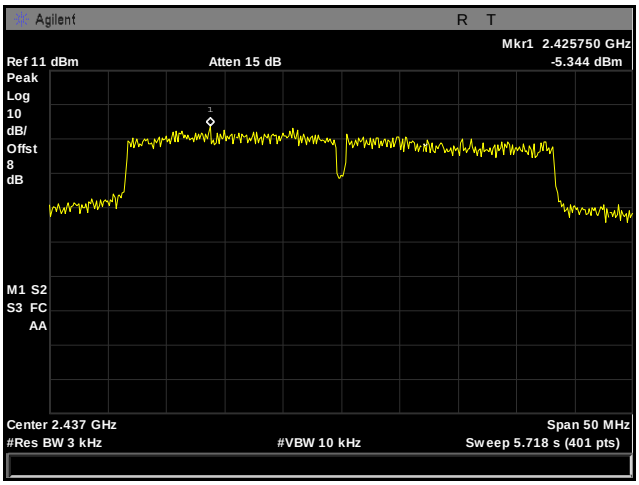


Plot 288. Peak Power Spectral Density, High Channel, 802.11n 20 MHz, Port 2, 2462 MHz

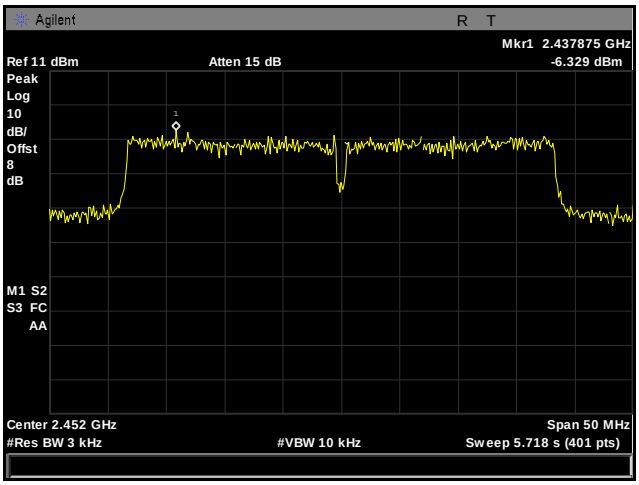
Peak Power Spectral Density, 802.11n 40 MHz, Port 1, 2.4 GHz



Plot 289. Peak Power Spectral Density, Low Channel, 802.11n 40 MHz, Port 1, 2422 MHz

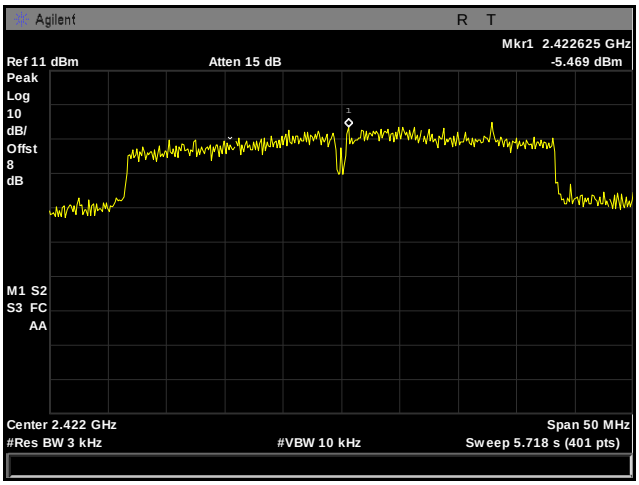


Plot 290. Peak Power Spectral Density, Mid Channel, 802.11n 40 MHz, Port 1, 2437 MHz

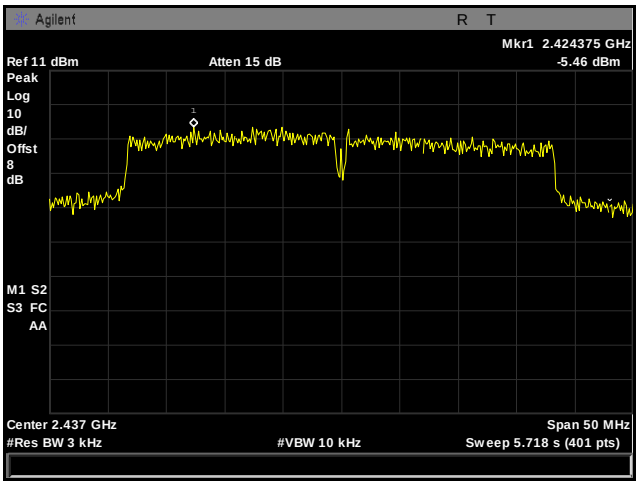


Plot 291. Peak Power Spectral Density, High Channel, 802.11n 40 MHz, Port 1, 2452 MHz

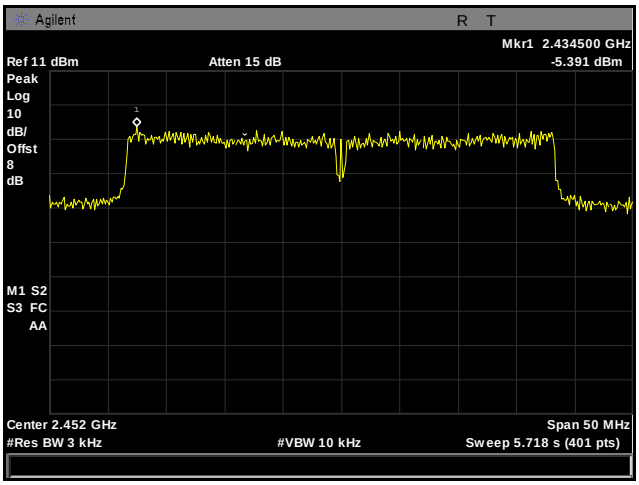
Peak Power Spectral Density, 802.11n 40 MHz, Port 2, 2.4 GHz



Plot 292. Peak Power Spectral Density, Low Channel, 802.11n 40 MHz, Port 2, 2422 MHz



Plot 293. Peak Power Spectral Density, Mid Channel, 802.11n 40 MHz, Port 2, 2437 MHz



Plot 294. Peak Power Spectral Density, High Channel, 802.11n 40 MHz, Port 2, 2452 MHz

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.247(i) Maximum Permissible Exposure

RF Exposure Requirements: **§1.1307(b)(1) and §1.1307(b)(2):** Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

RF Radiation Exposure Limit: **§1.1310:** As specified in this section, the Maximum Permissible Exposure (MPE) Limit shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter.

MPE Limit Calculation: EUT's operating frequencies @ 2400-2483.5 MHz; highest conducted power = *16.18dBm* (peak) therefore, **Limit for Uncontrolled exposure: 1 mW/cm^2 or 10 W/m^2**

2.4 GHz highest power density:

EUT antenna gain = 3 +10log (2) = 6.01 dBi (3.99 linear); power = 855 mW

Equation from page 18 of OET 65, Edition 97-01

$$S = PG / 4\pi R2 \quad \text{or} \quad R = \sqrt{PG / 4\pi S}$$

where, S = Power Density
P = Power Input to antenna
G = Antenna Gain
R = 25 cm

S = (855*3.99/ 4*3.14*625) = 0.43 mW/cm2

Co-location:

Frequency Range	MPE Result (mW/cm^2)	Limit (mW/cm^2)
2.4GHz	0.43	1
5.745-5.805GHz	0.29	1

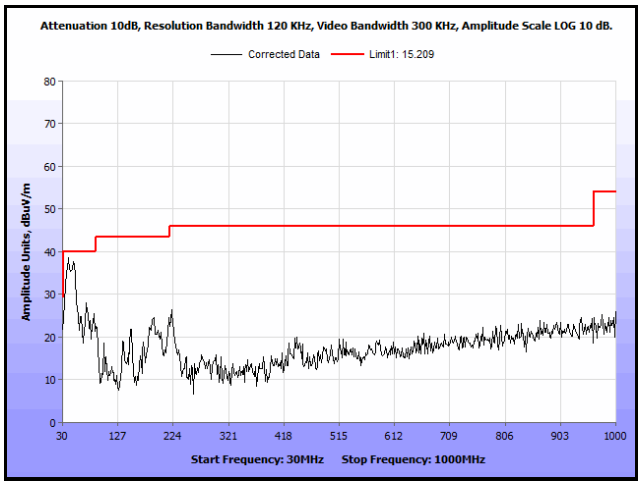
Test Requirements: [MPE(f1) / limit(f1) + MPE(f2) / limit(f2)] < 1

Test Results:

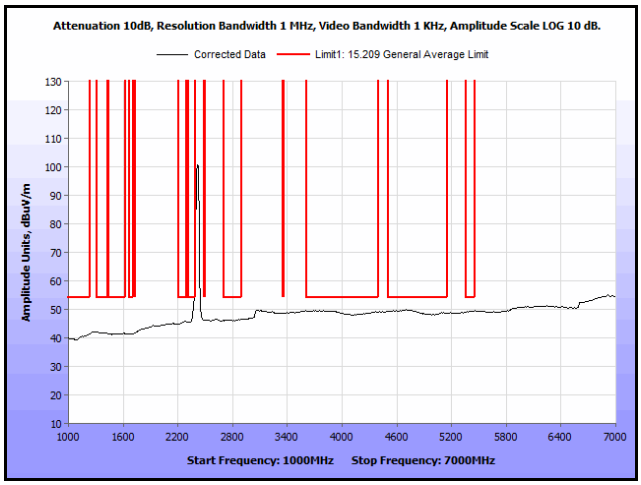
MPE(f1) Frequency (MHZ)	MPE(f2) Frequency (MHZ)	Calculation [MPE(f1) / limit(f1) + MPE(f2) / limit(f2)]	MPE Result (mW/cm^2)
2412 - 2462	5745-5825	0.43 / 1 + 0.29 / 1 = (0.43+ 0.29)	**0.72**

Therefore, the uncontrolled exposure limit is not exceeded at 25 cm.

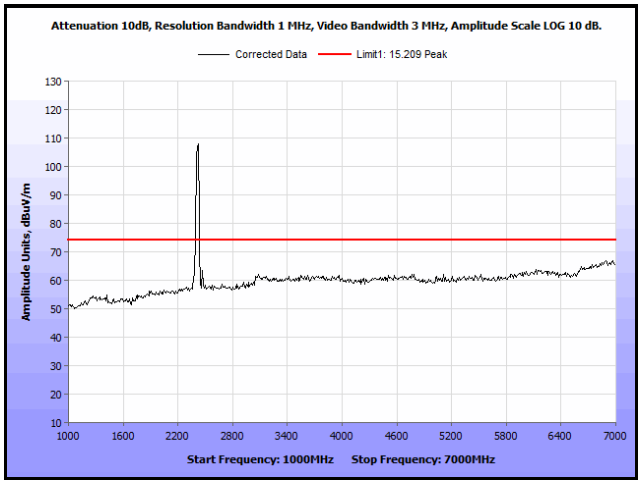
Co-Location Omni Antenna



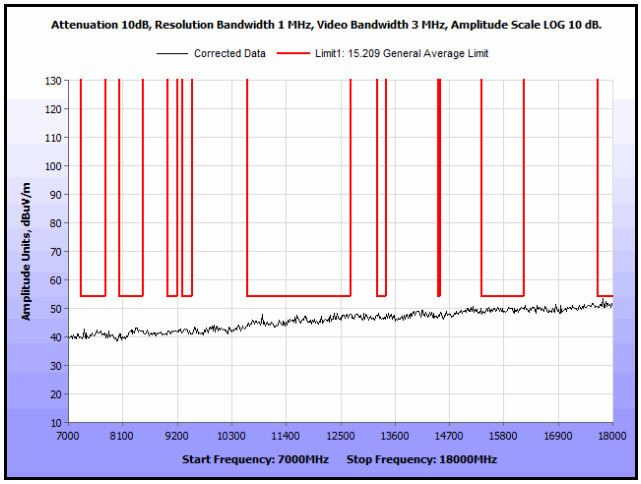
Plot 295. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2412 MHz, 30 MHz – 1 GHz, Peak, Omni



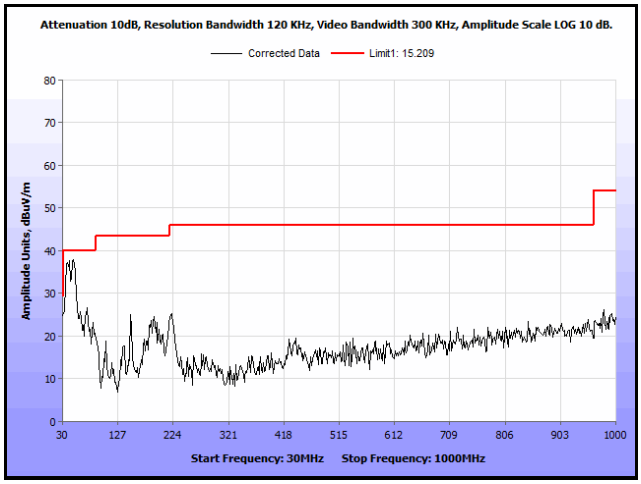
Plot 296. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2412 MHz, 1 GHz – 7 GHz, Avg., Omni



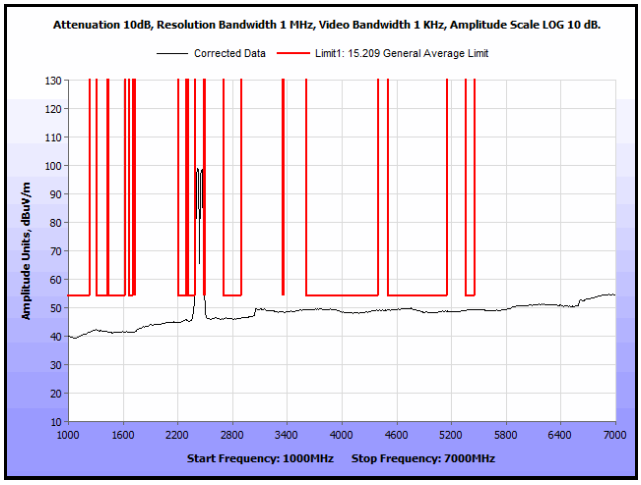
Plot 297. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2412 MHz, 1 GHz – 7 GHz, Peak, Omni



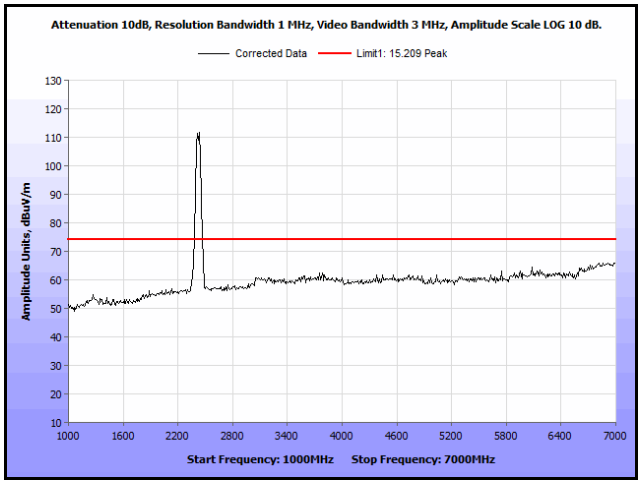
Plot 298. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2412 MHz, 7 GHz – 18 GHz, Peak, Omni



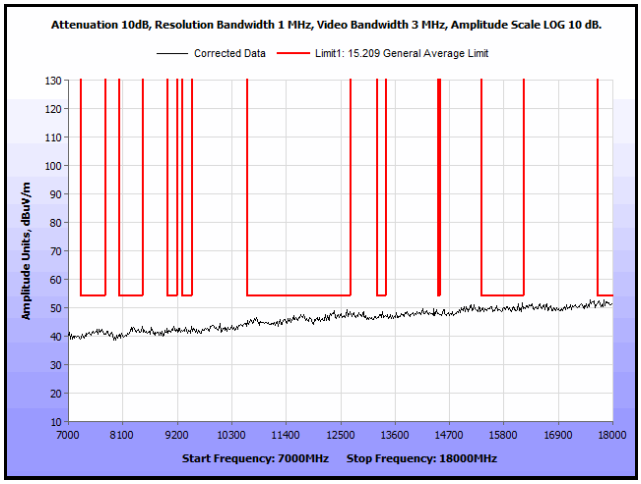
Plot 299. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2437 MHz, 30 MHz – 1 GHz, Peak, Omni



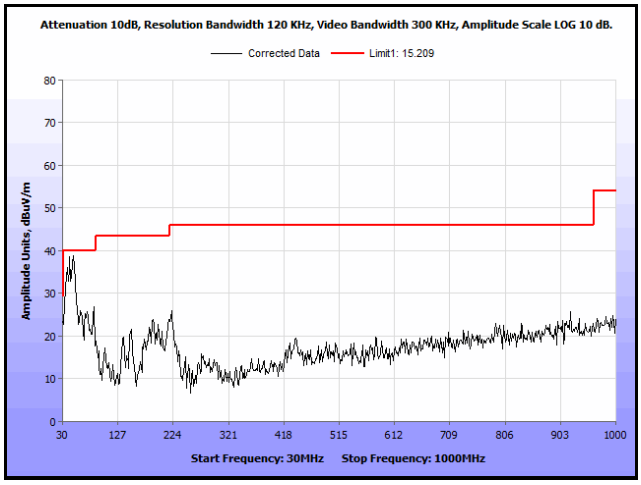
Plot 300. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2437 MHz, 1 GHz – 7 GHz, Avg., Omni



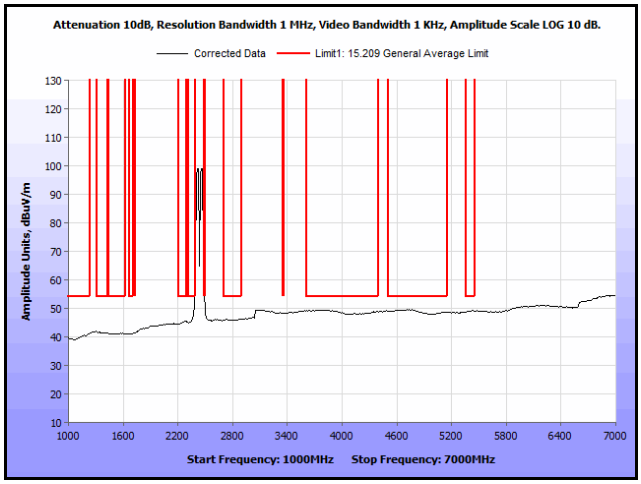
Plot 301. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2437 MHz, 1 GHz – 7 GHz, Peak, Omni



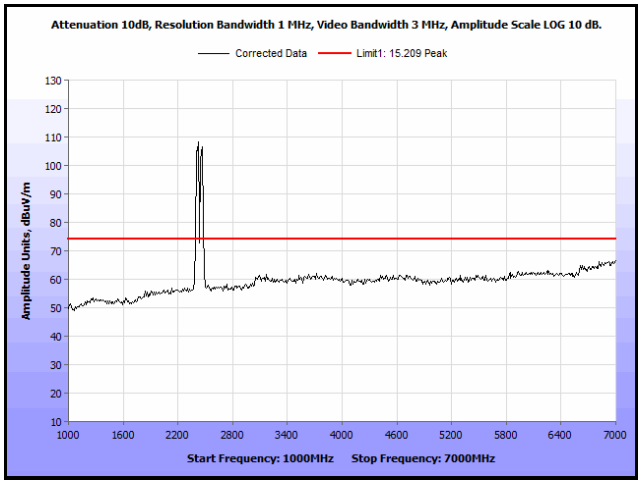
Plot 302. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2437 MHz, 7 GHz – 18 GHz, Peak, Omni



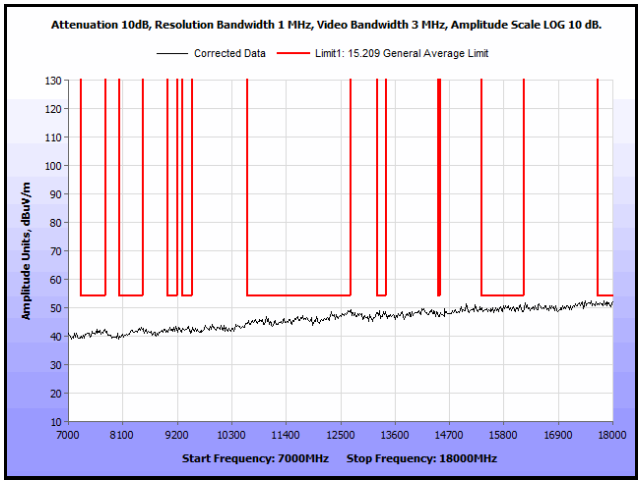
Plot 303. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2462 MHz, 30 MHz – 1 GHz, Peak, Omni



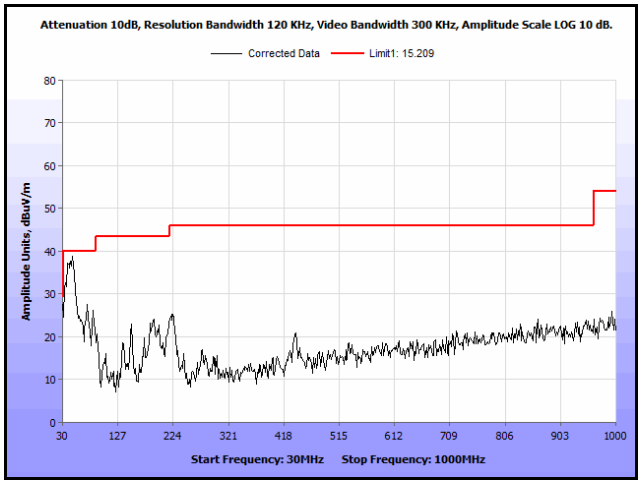
Plot 304. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2462 MHz, 1 GHz – 7 GHz, Avg., Omni



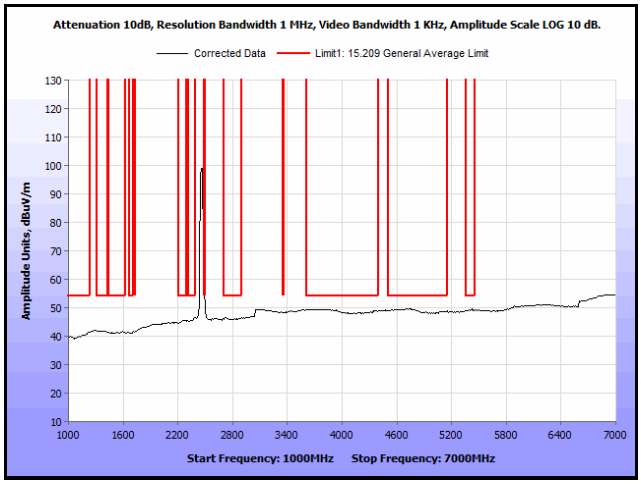
Plot 305. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2462 MHz, 1 GHz – 7 GHz, Peak, Omni



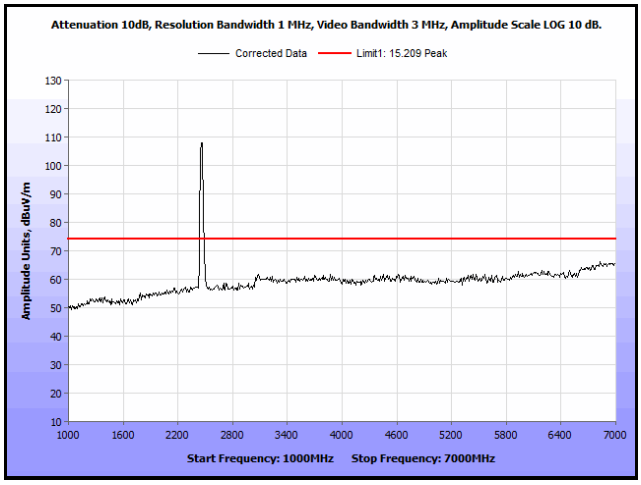
Plot 306. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 2462 MHz, 7 GHz – 18 GHz, Peak, Omni



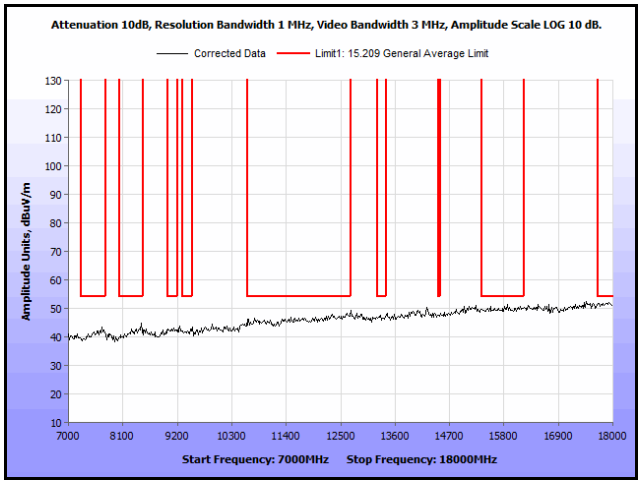
Plot 307. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2437 MHz, 30 MHz – 1 GHz, Peak, Omni



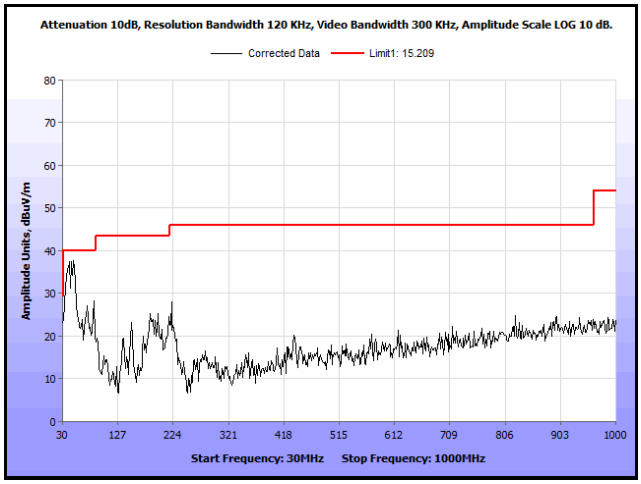
Plot 308. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2437 MHz, 1 GHz – 7 GHz, Avg., Omni



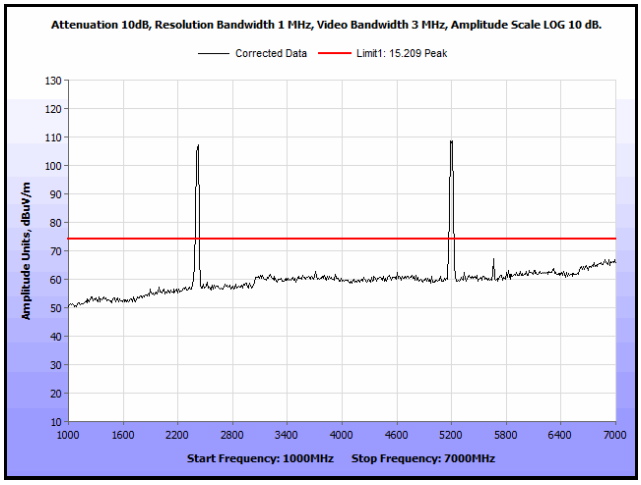
Plot 309. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2437 MHz, 1 GHz – 7 GHz, Peak, Omni



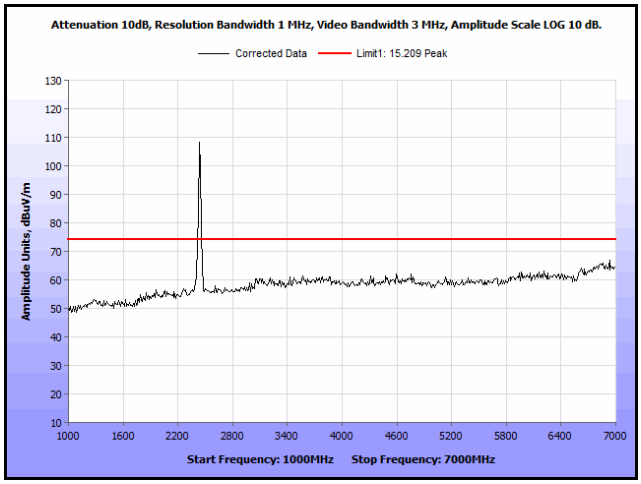
Plot 310. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2437 MHz, 7 GHz – 18 GHz, Peak, Omni



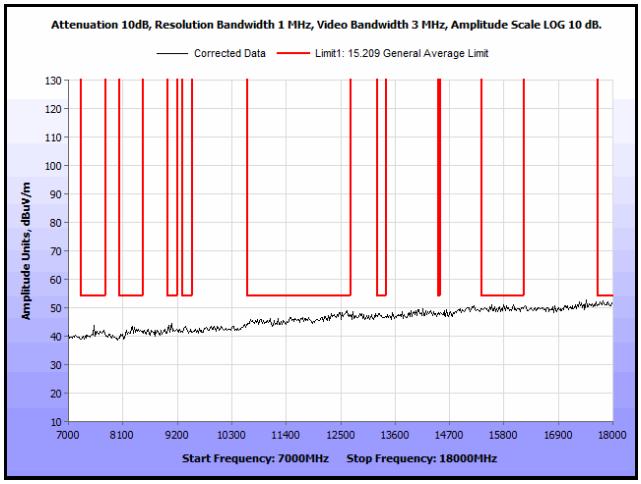
Plot 311. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2462 MHz, 30 MHz – 1 GHz, Peak, Omni



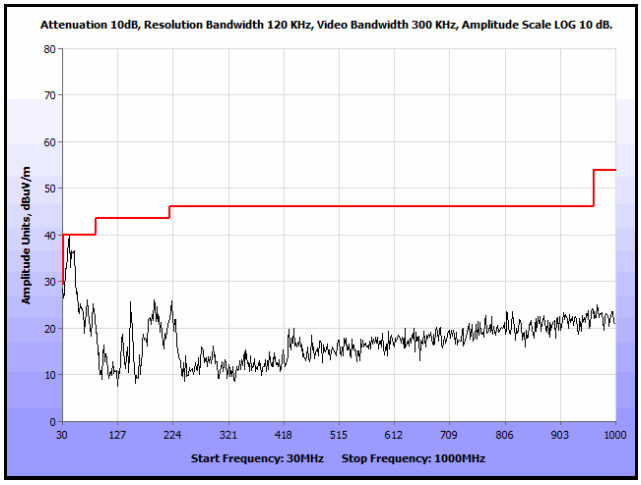
Plot 312. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2462 MHz, 1 GHz – 7 GHz, Avg., Omni



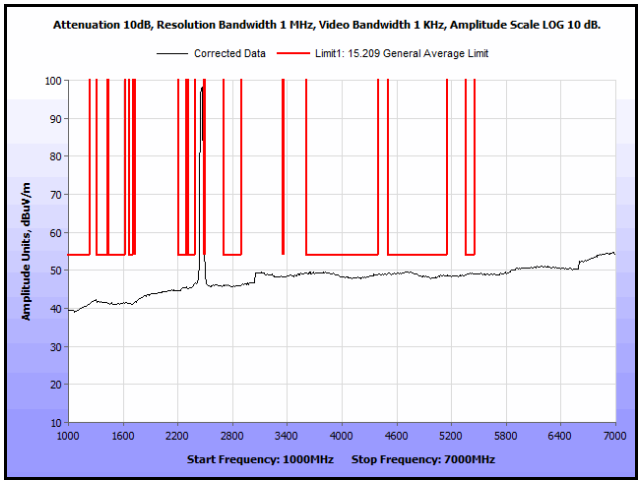
Plot 313. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2462 MHz, 1 GHz – 7 GHz, Peak, Omni



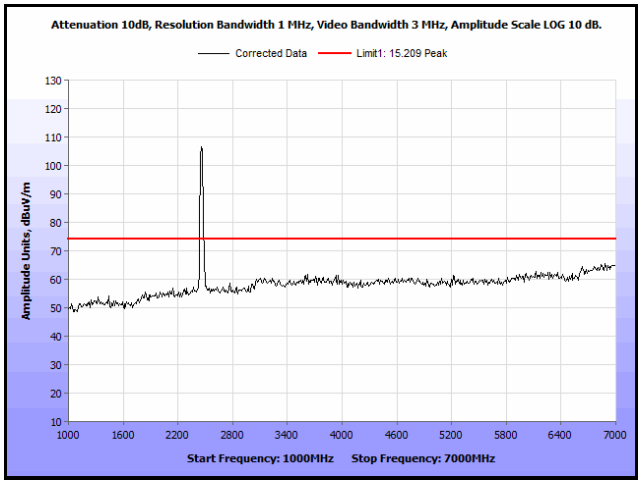
Plot 314. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 2462 MHz, 7 GHz – 18 GHz, Peak, Omni



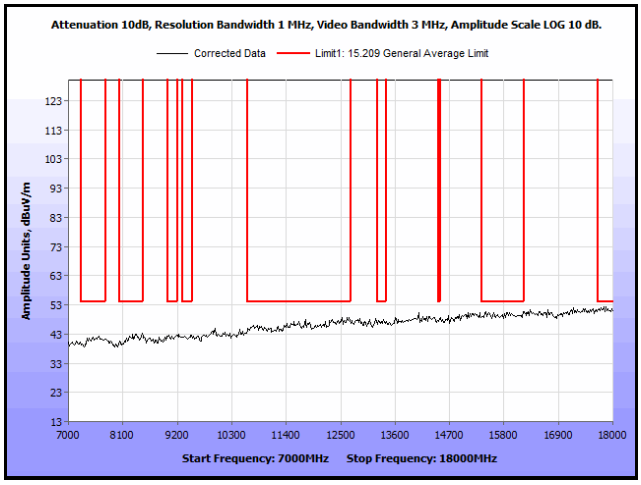
Plot 315. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 2462 MHz, 30 MHz – 1 GHz, Peak, Omni



Plot 316. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 2462 MHz, 1 GHz – 7 GHz, Avg., Omni

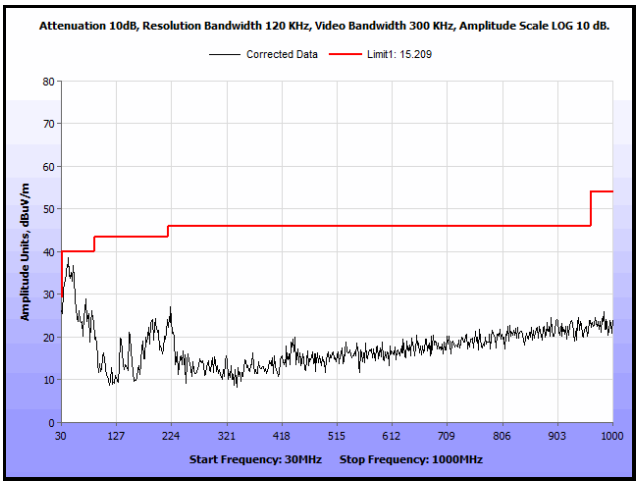


Plot 317. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 2462 MHz, 1 GHz – 7 GHz, Peak, Omni

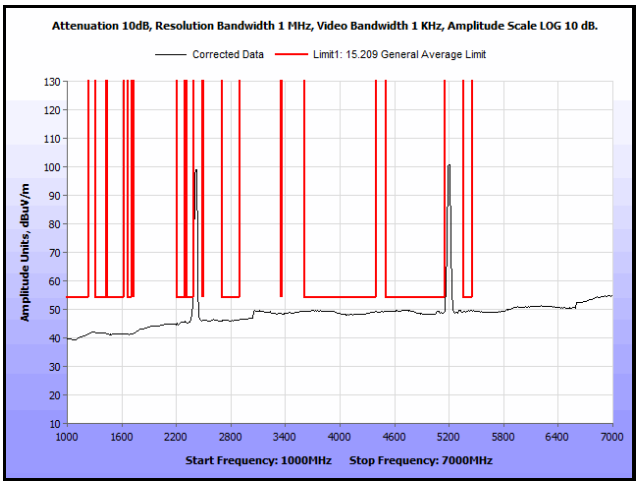


Plot 318. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 2462 MHz, 7 GHz – 18 GHz, Peak, Omni

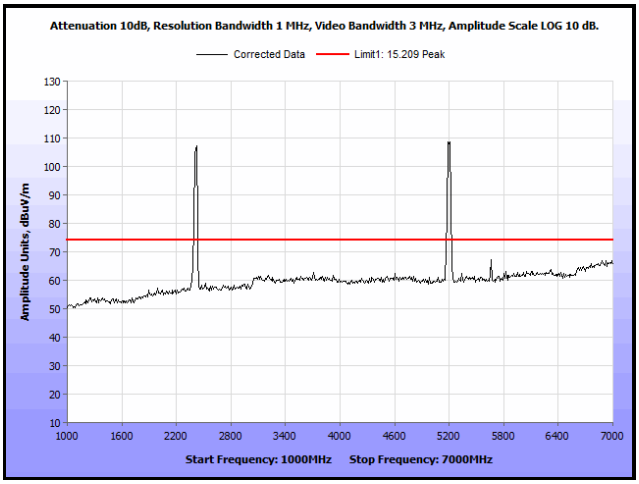
Omni Antenna



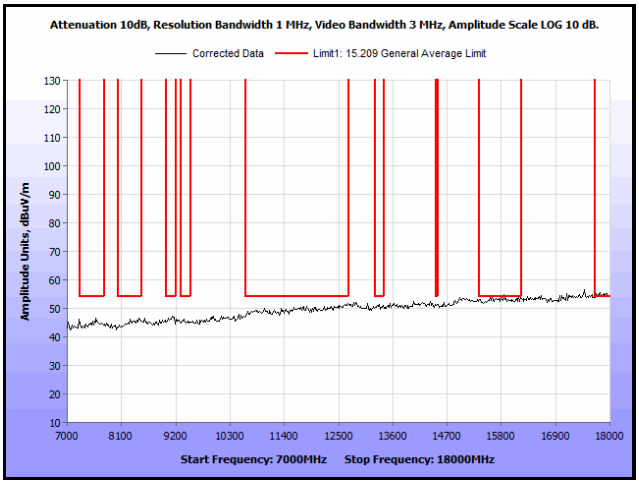
Plot 319. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Omni



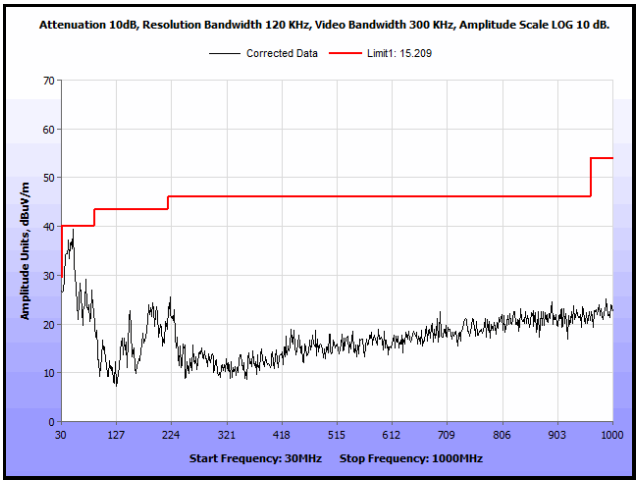
Plot 320. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Omni



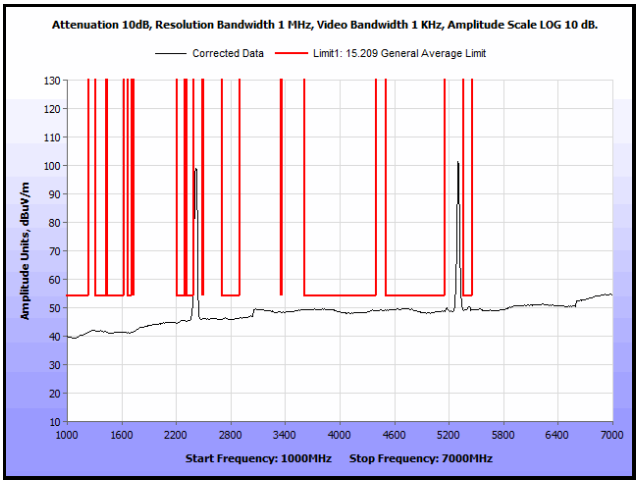
Plot 321. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Omni



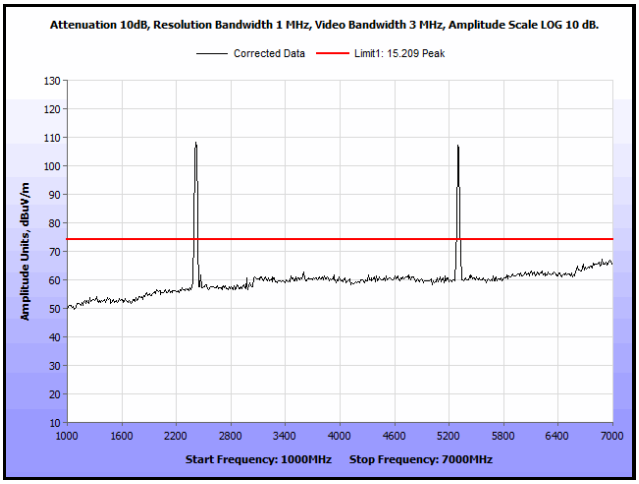
Plot 322. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Omni



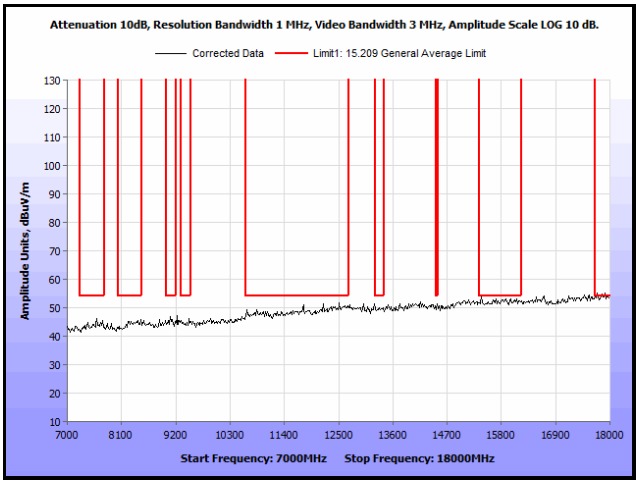
Plot 323. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Omni



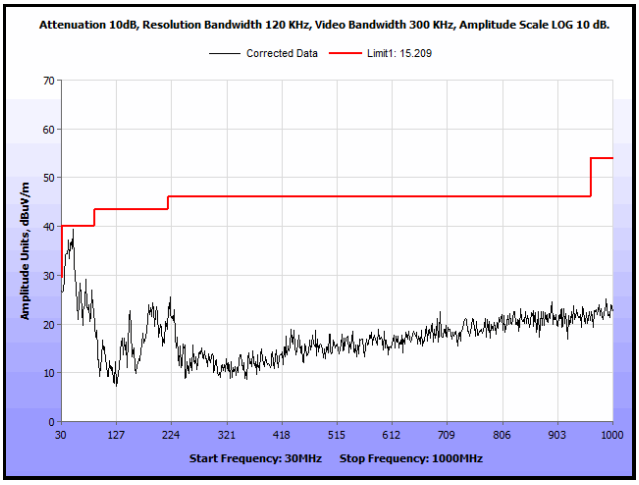
Plot 324. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Omni



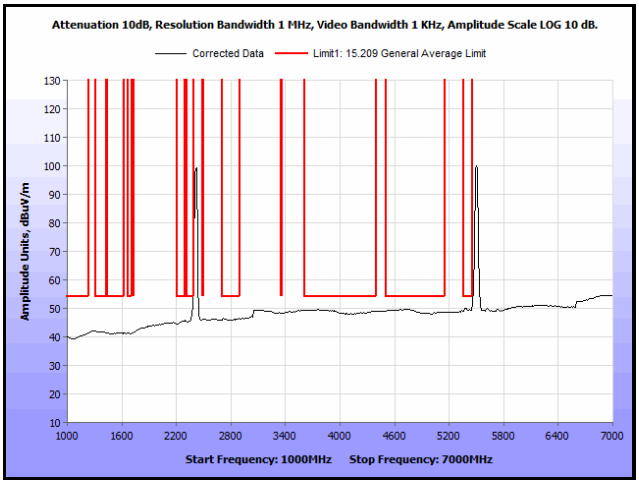
Plot 325. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Omni



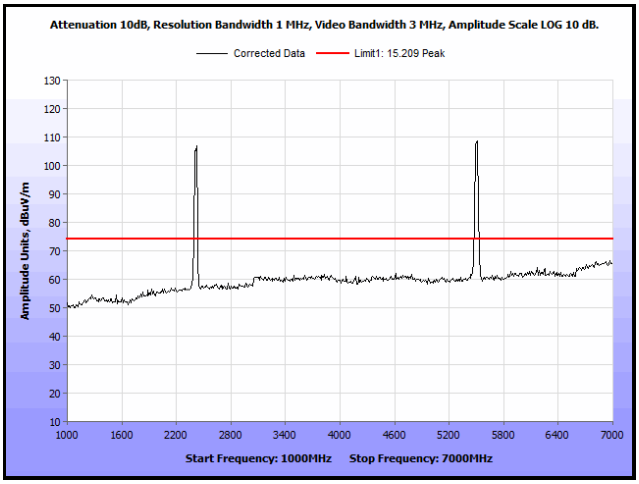
Plot 326. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Omni



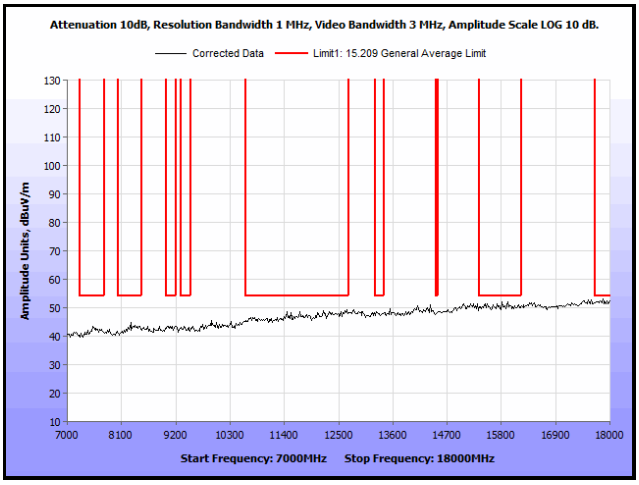
Plot 327. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



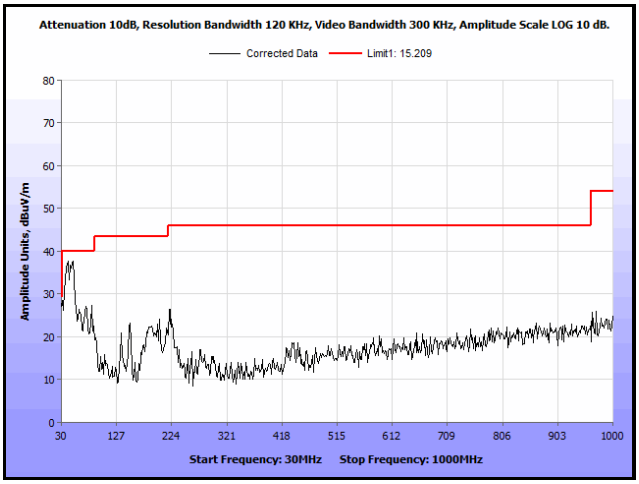
Plot 328. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



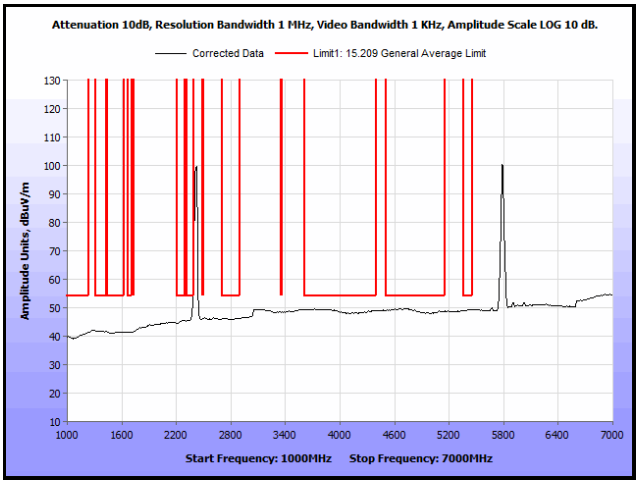
Plot 329. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



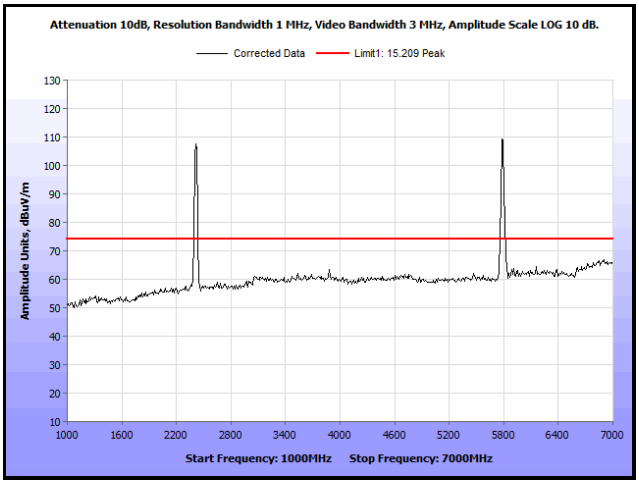
Plot 330. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



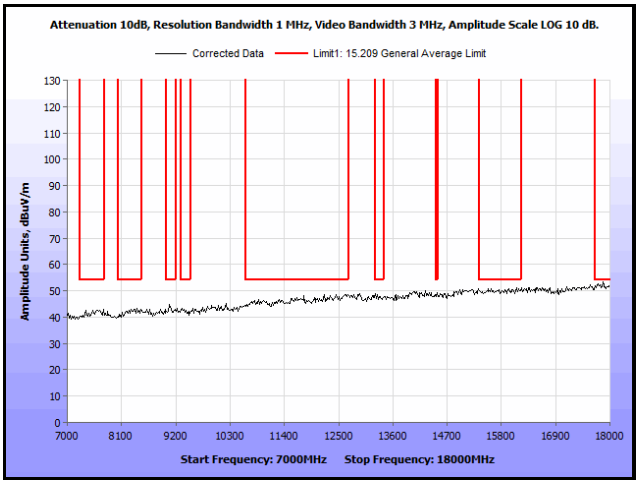
Plot 331. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



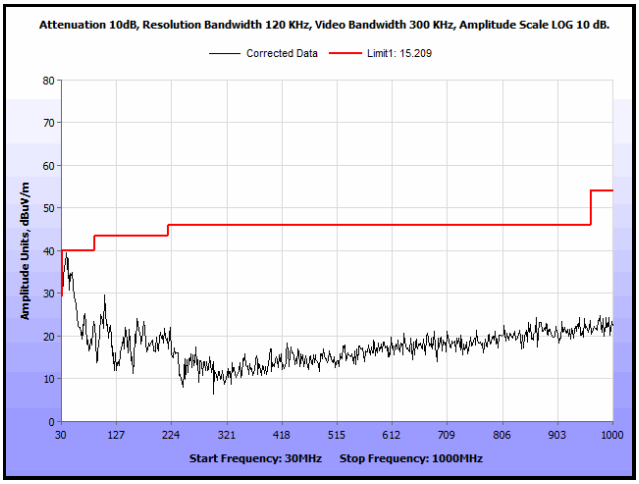
Plot 332. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni



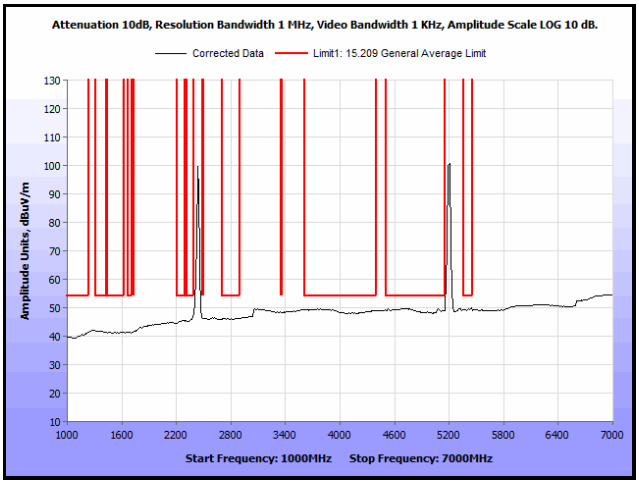
Plot 333. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni



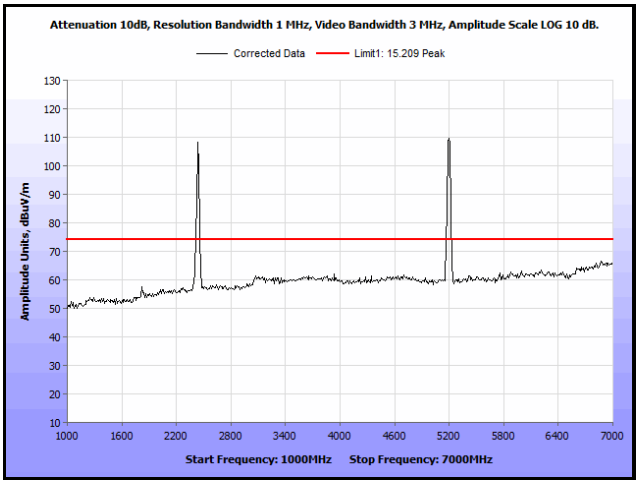
Plot 334. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni



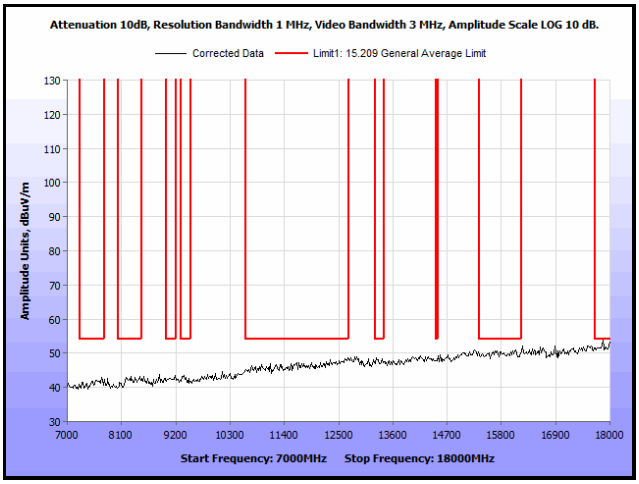
Plot 335. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Omni



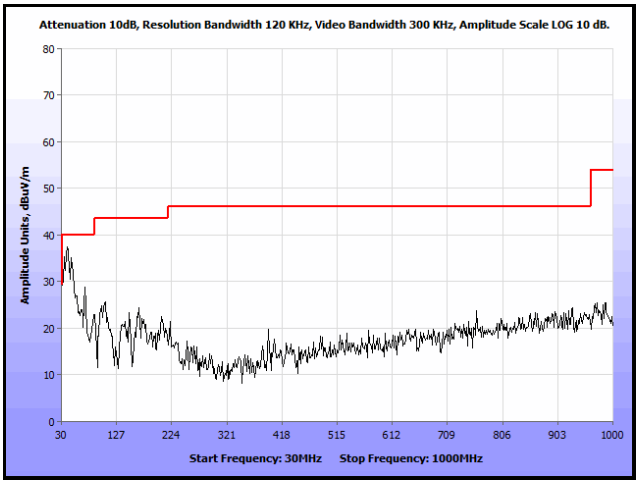
Plot 336. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Omni



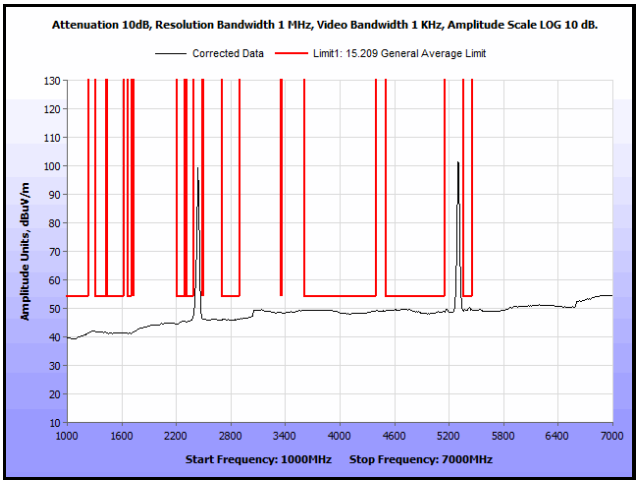
Plot 337. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Omni



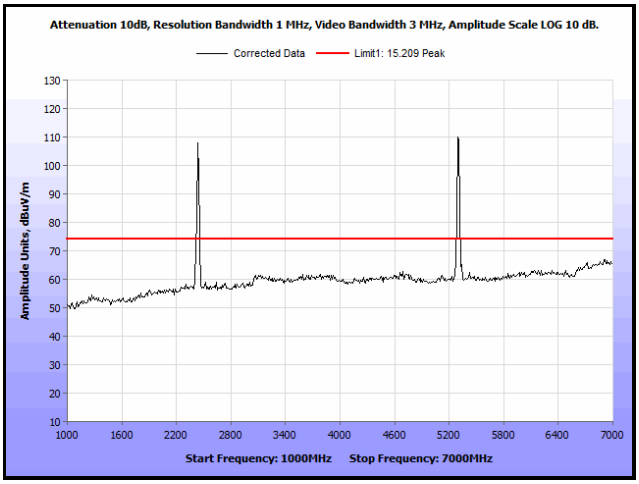
Plot 338. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Omni



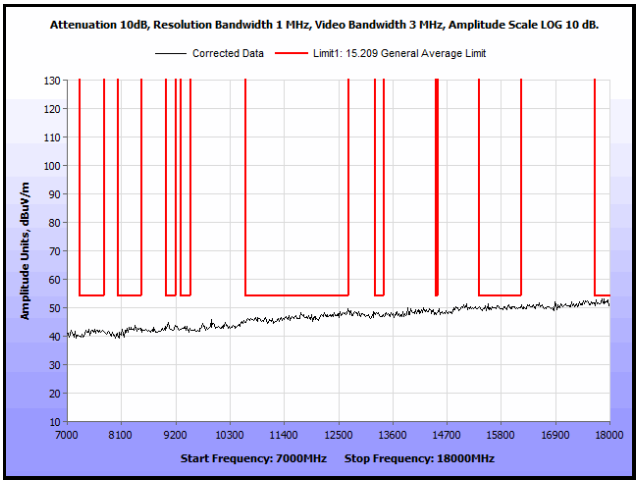
Plot 339. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Omni



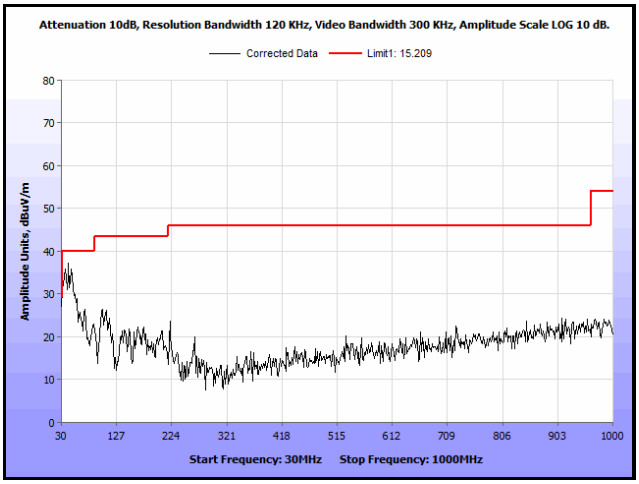
Plot 340. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Omni



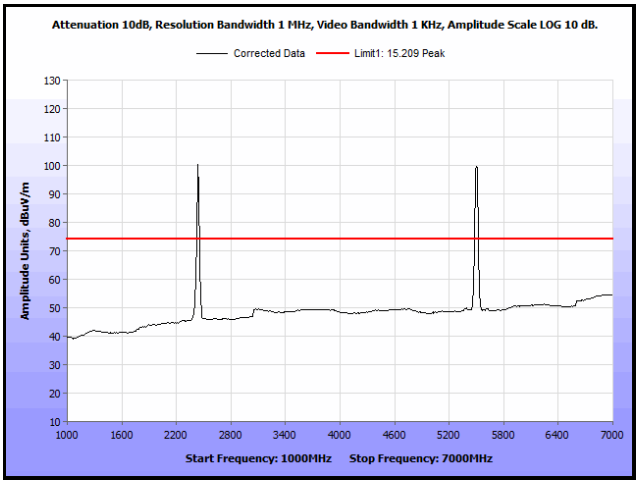
Plot 341. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Omni



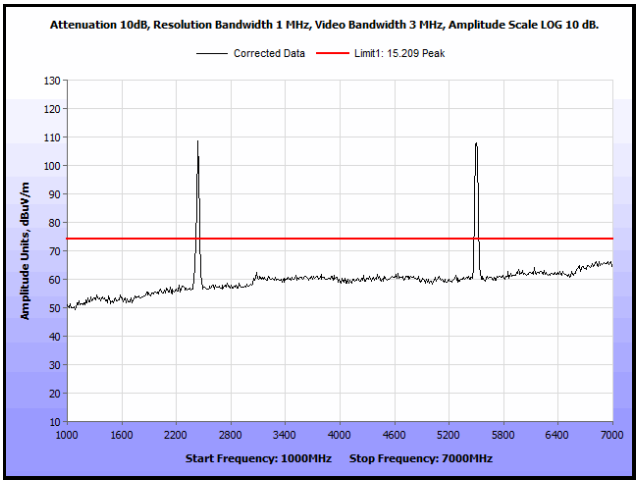
Plot 342. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Omni



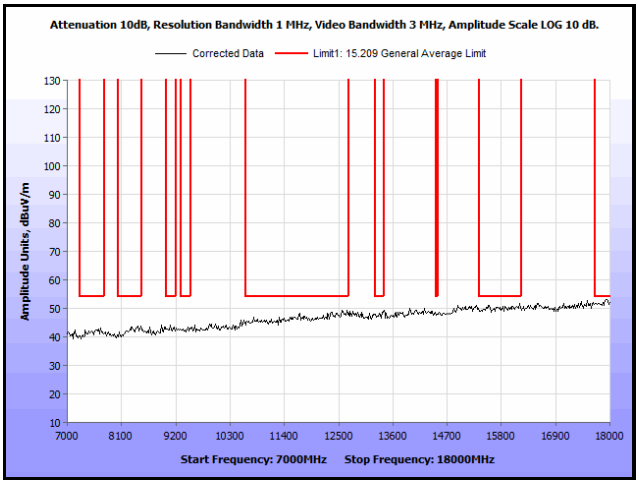
Plot 343. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



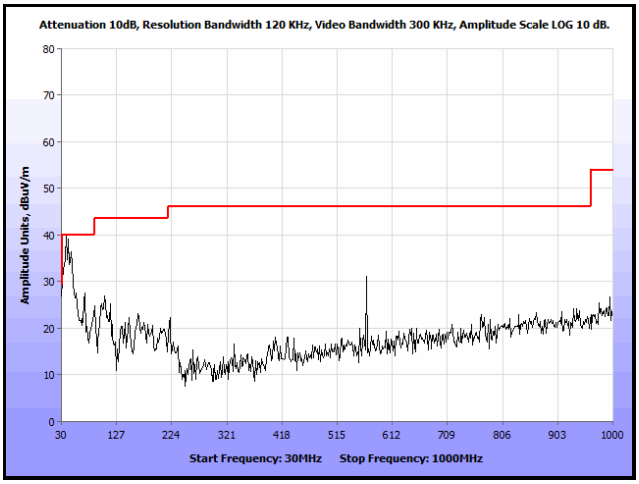
Plot 344. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



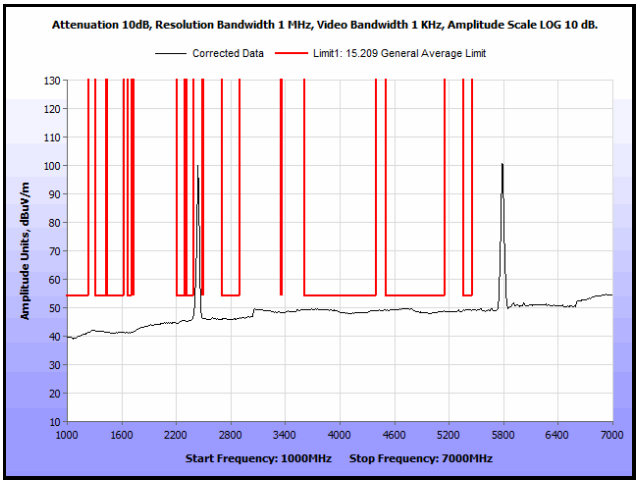
Plot 345. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



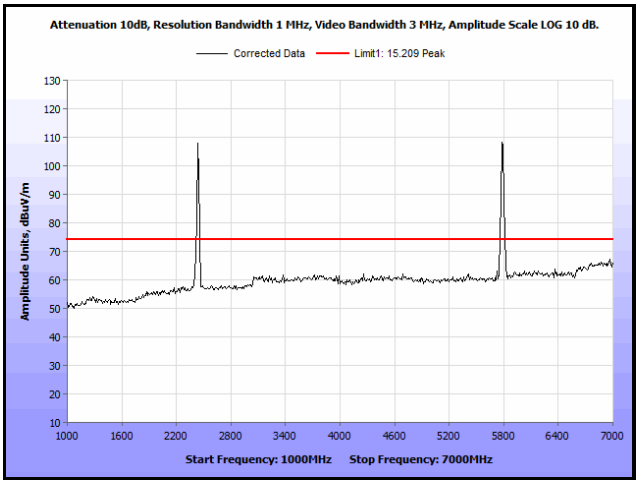
Plot 346. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



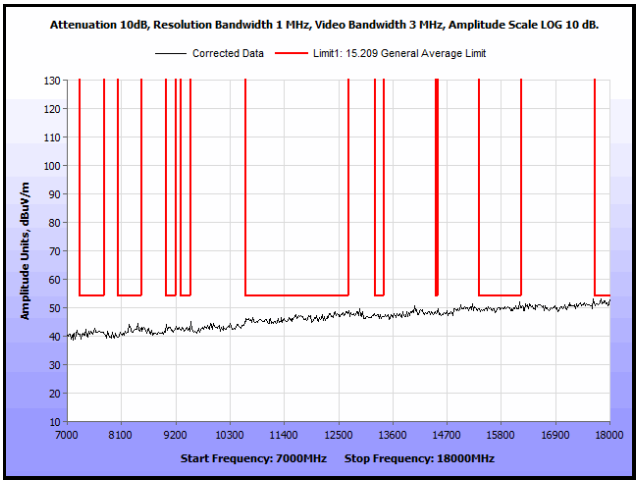
Plot 347. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



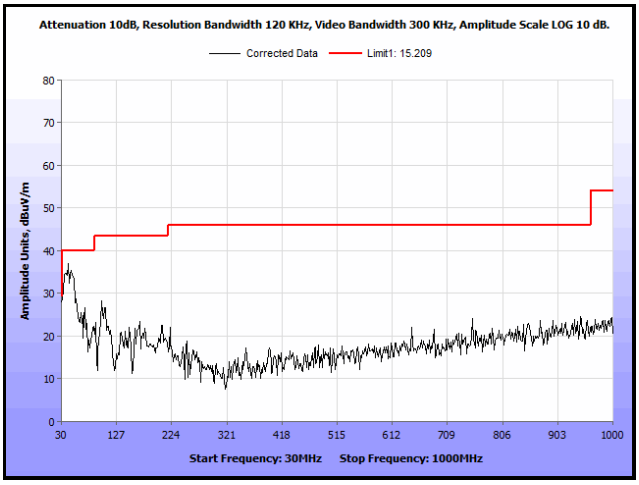
Plot 348. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni



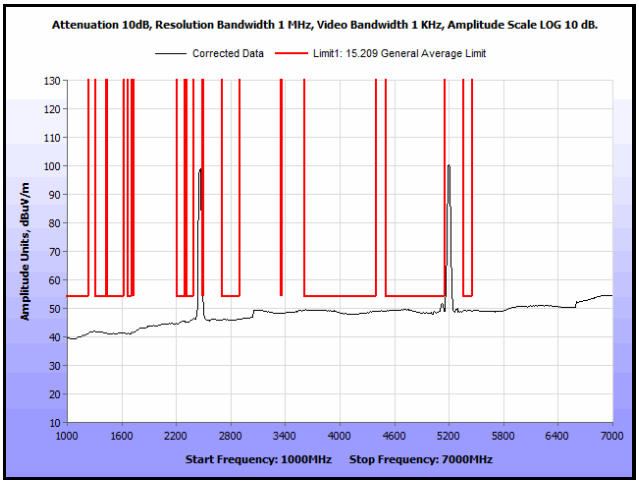
Plot 349. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni



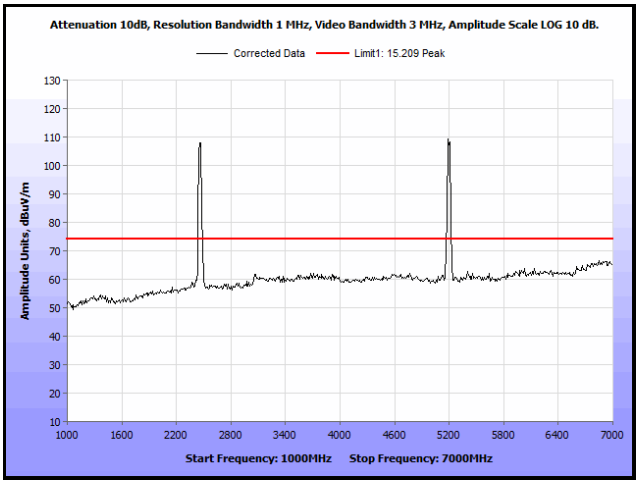
Plot 350. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni



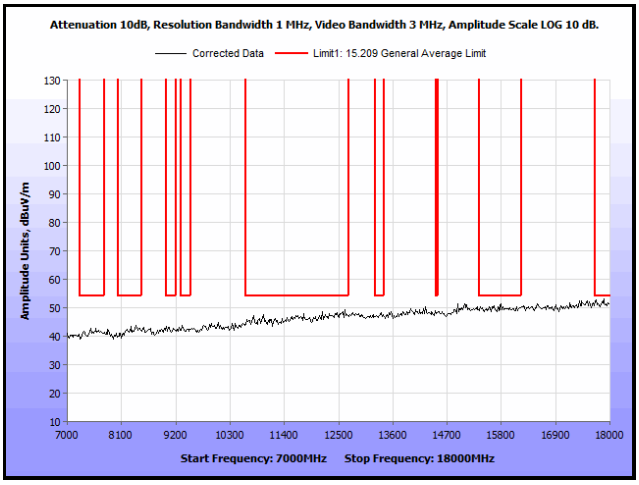
Plot 351. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Omni



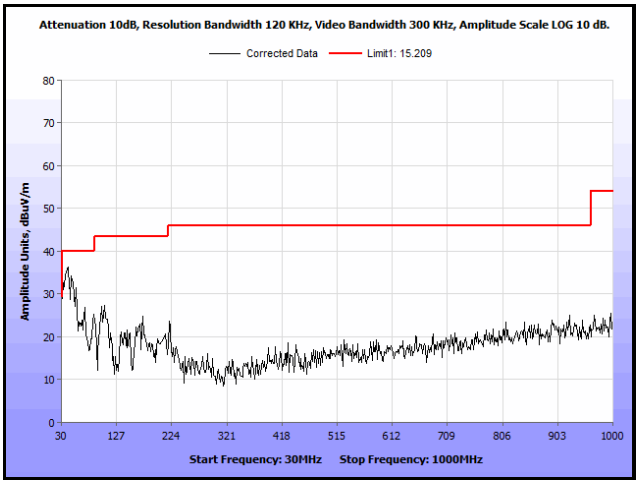
Plot 352. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Omni



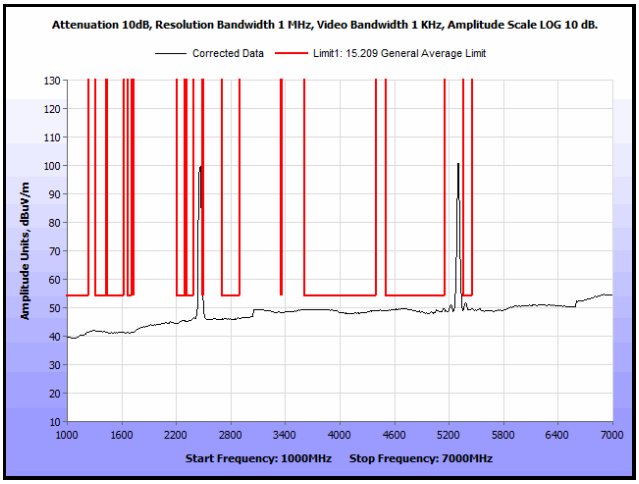
Plot 353. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Omni



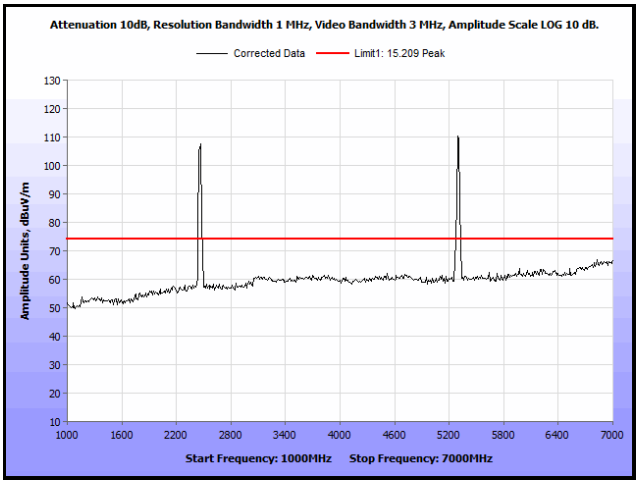
Plot 354. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Omni



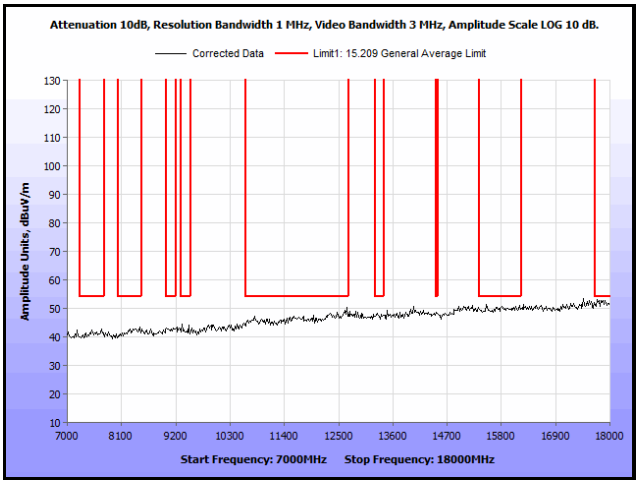
Plot 355. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Omni



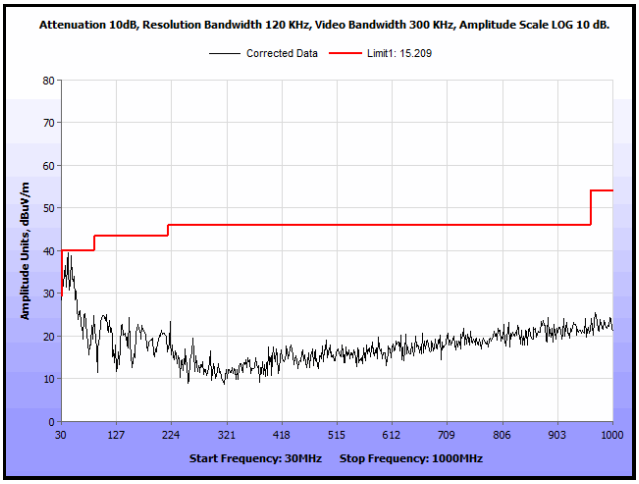
Plot 356. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Omni



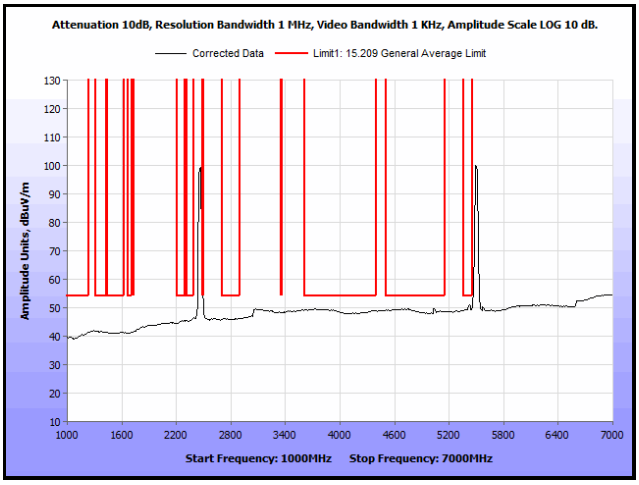
Plot 357. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Omni



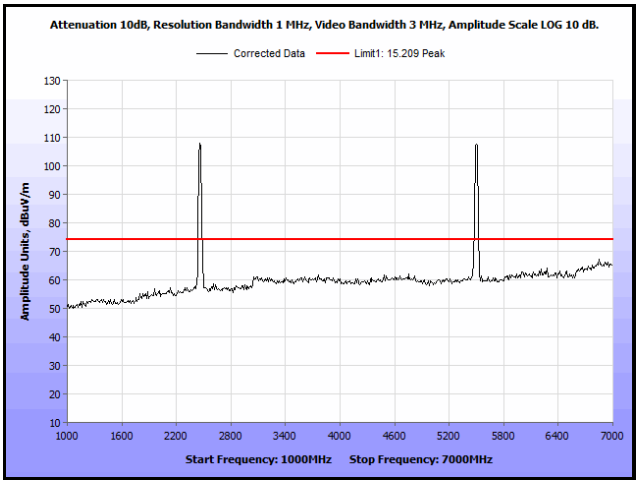
Plot 358. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Omni



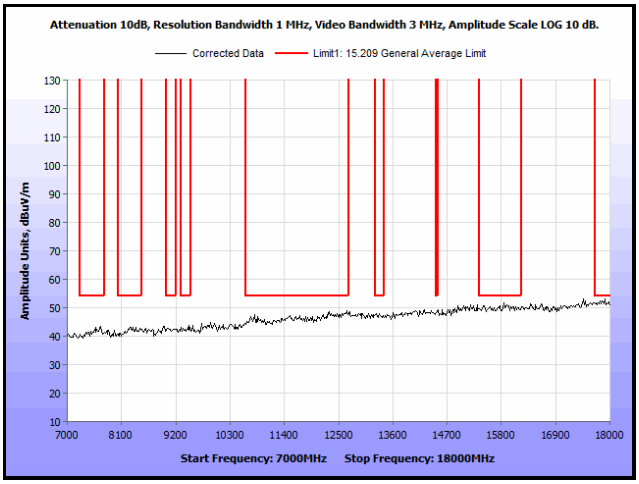
Plot 359. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



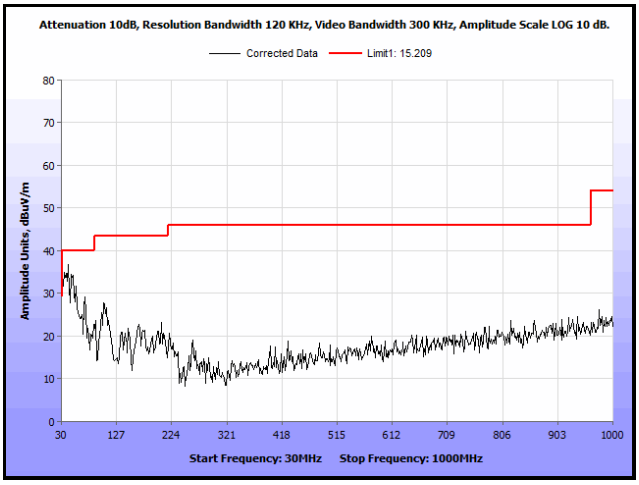
Plot 360. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



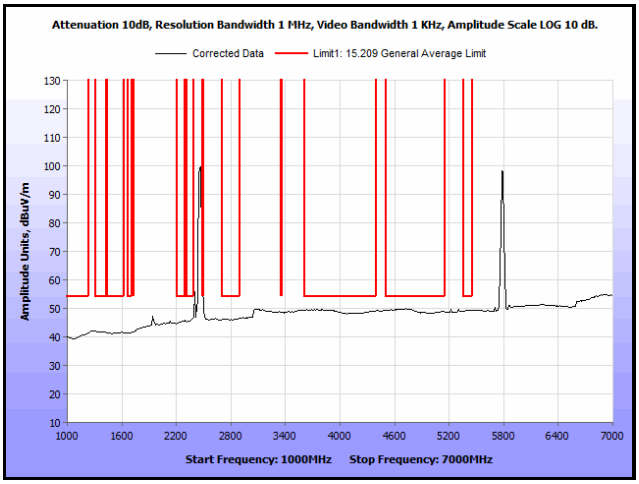
Plot 361. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



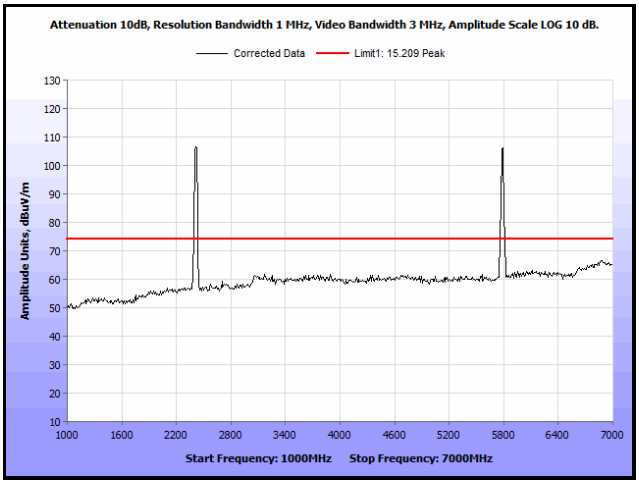
Plot 362. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



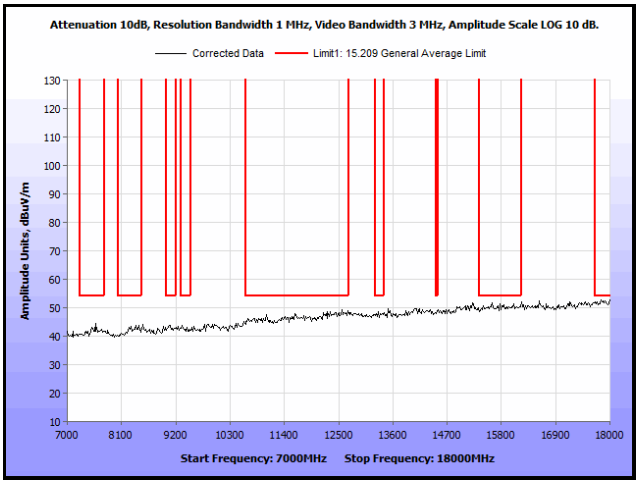
Plot 363. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



Plot 364. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni

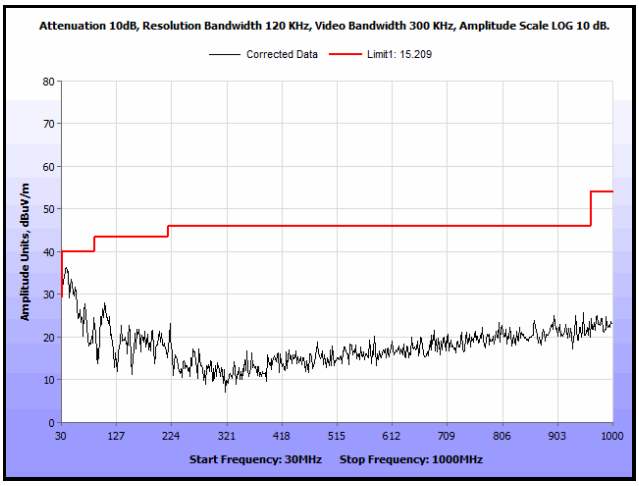


Plot 365. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni

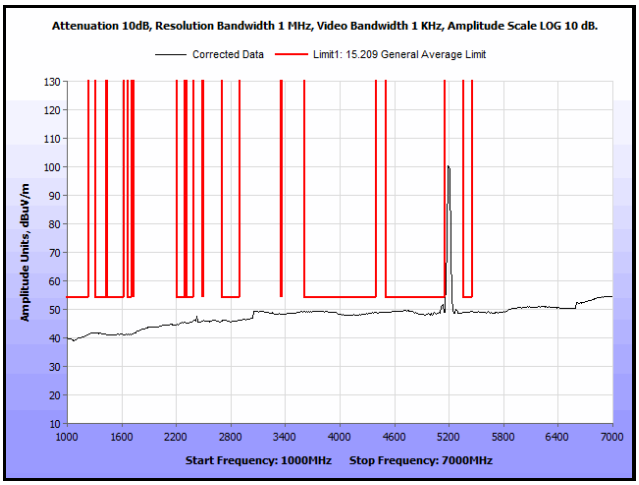


Plot 366. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni

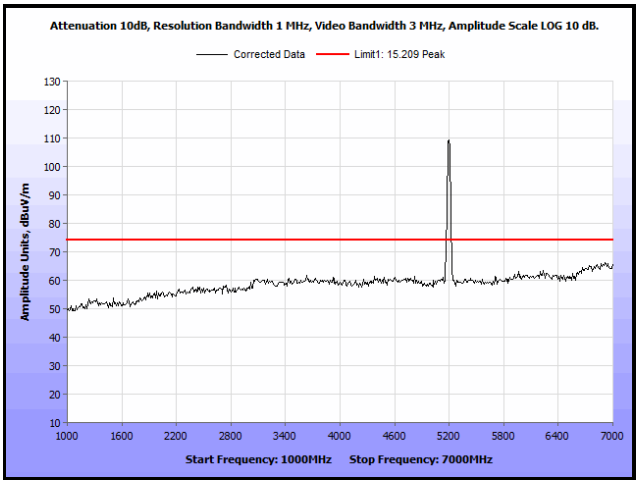
Omni Antenna



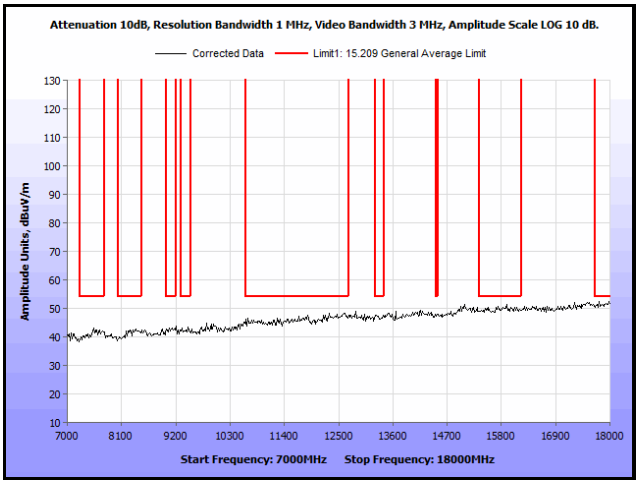
Plot 367. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Omni



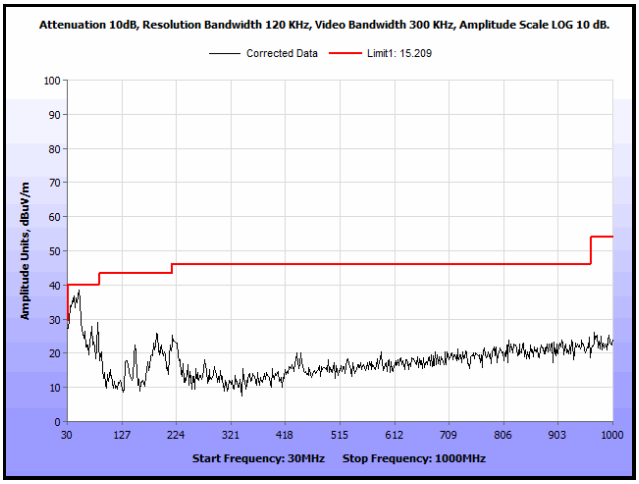
Plot 368. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Omni



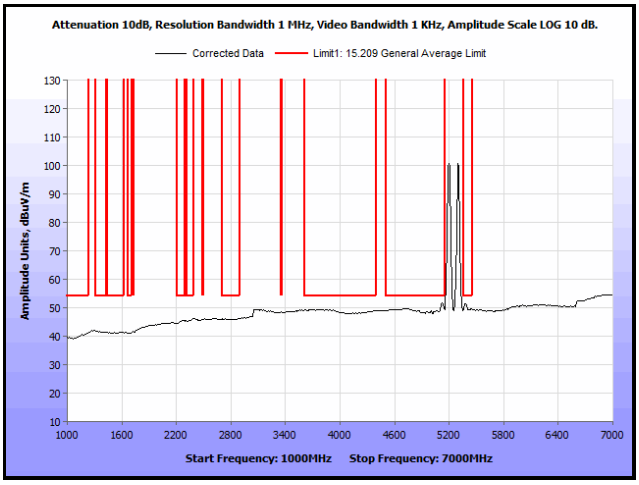
Plot 369. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Omni



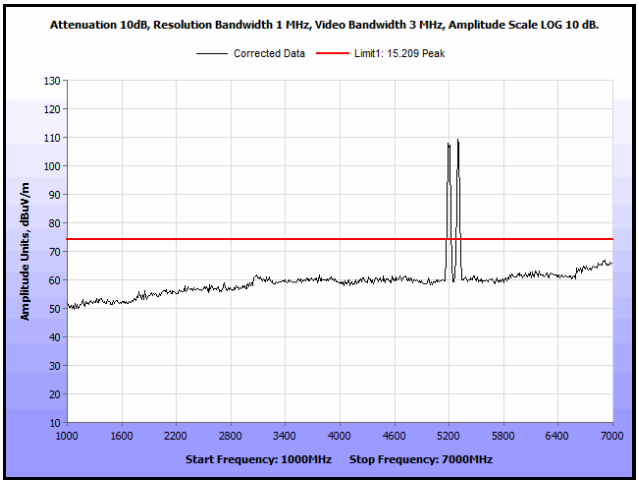
Plot 370. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Omni



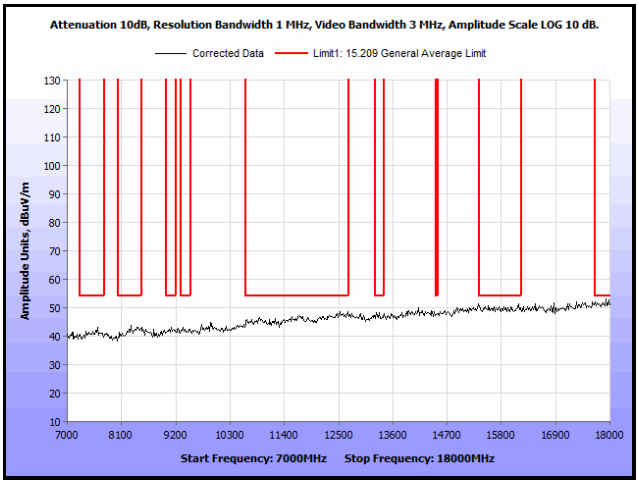
Plot 371. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Omni



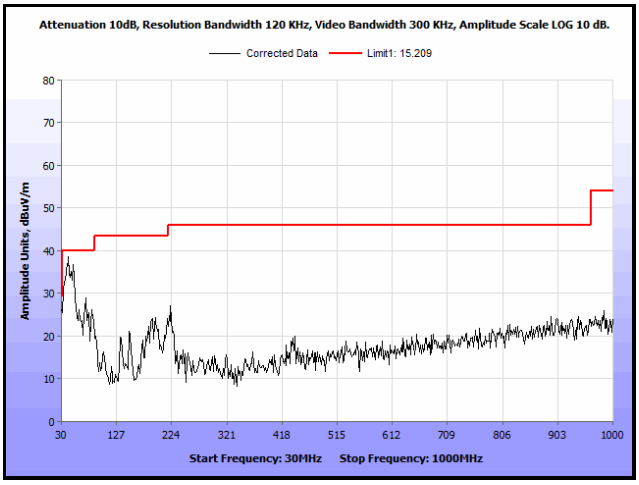
Plot 372. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Omni



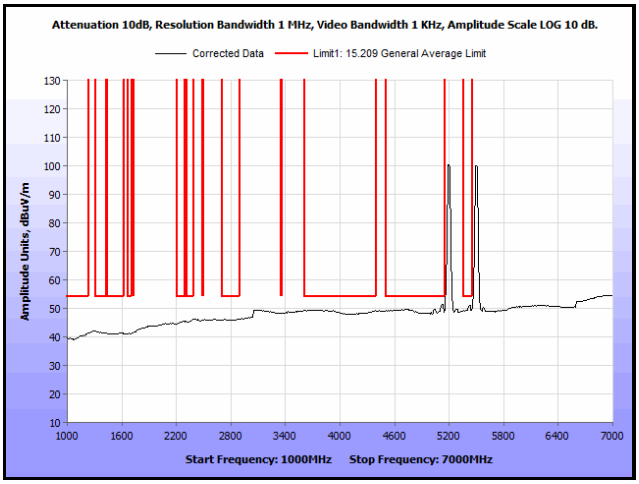
Plot 373. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Omni



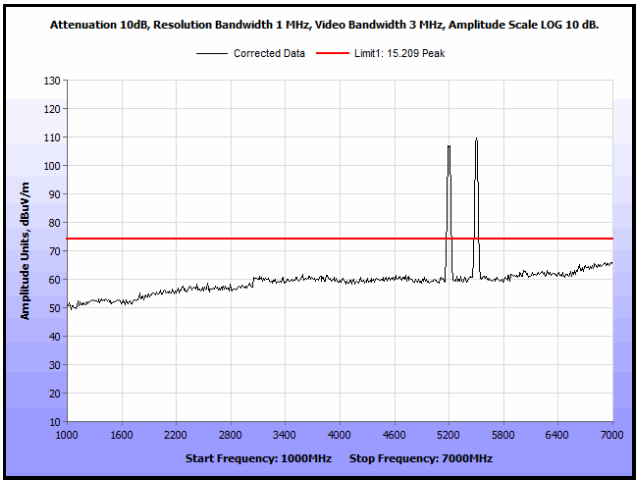
Plot 374. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Omni



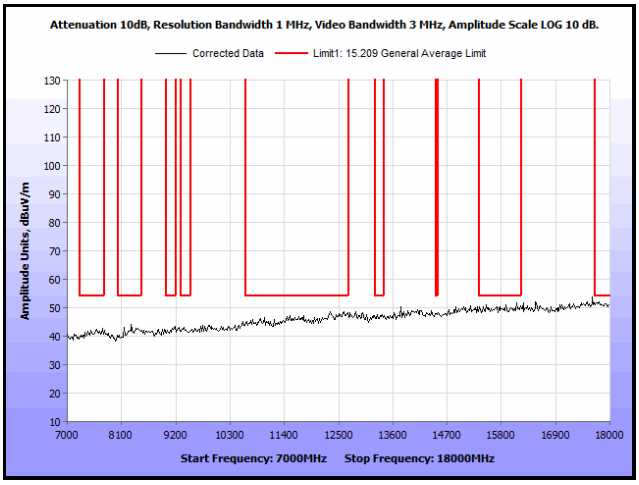
Plot 375. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



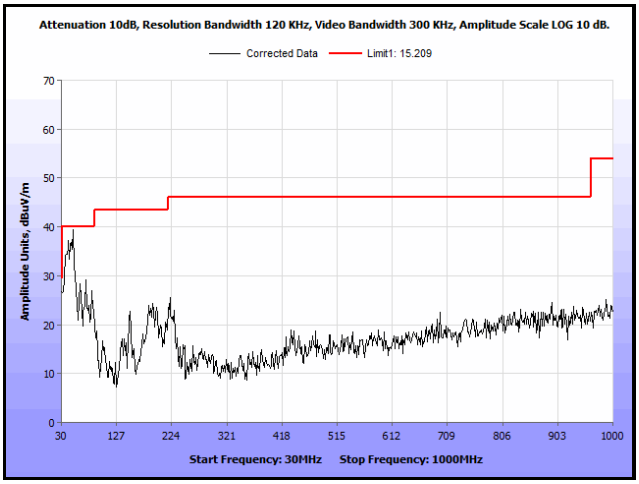
Plot 376. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



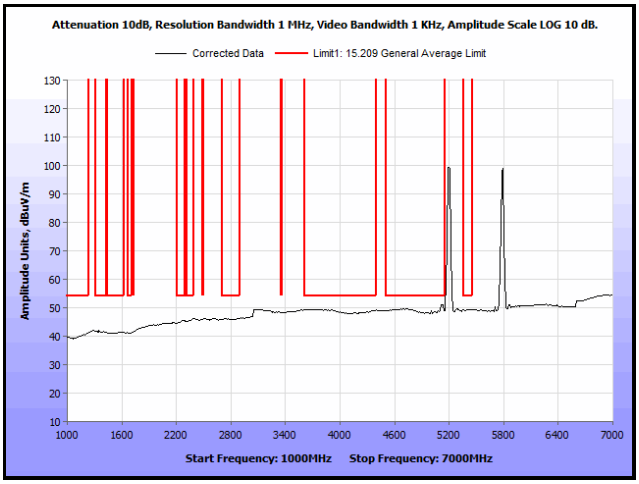
Plot 377. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



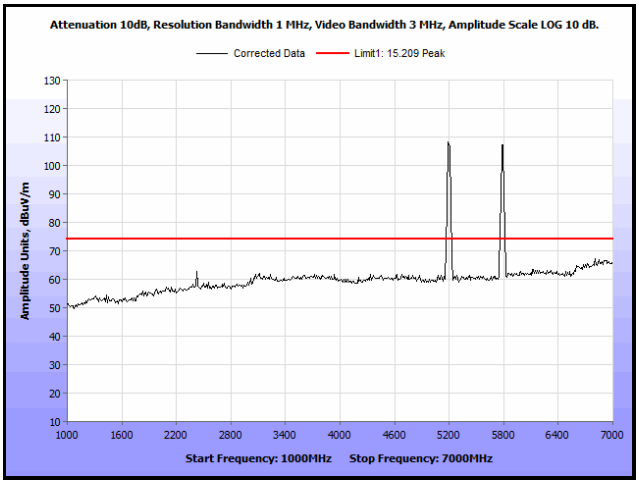
Plot 378. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



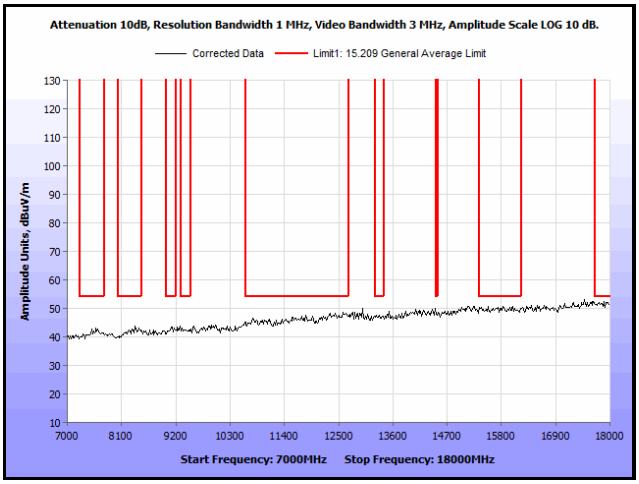
Plot 379. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



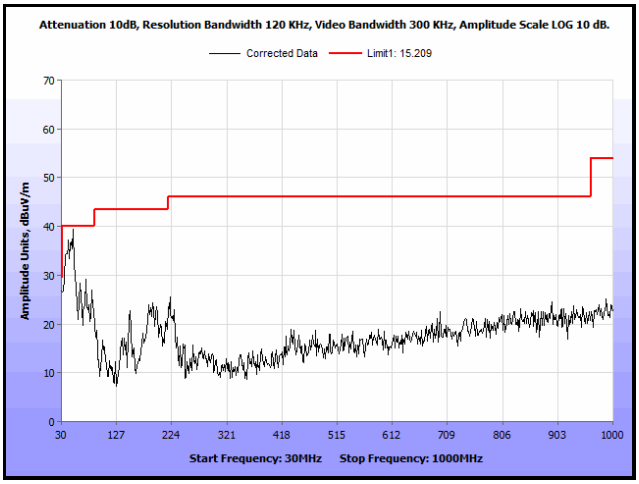
Plot 380. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni



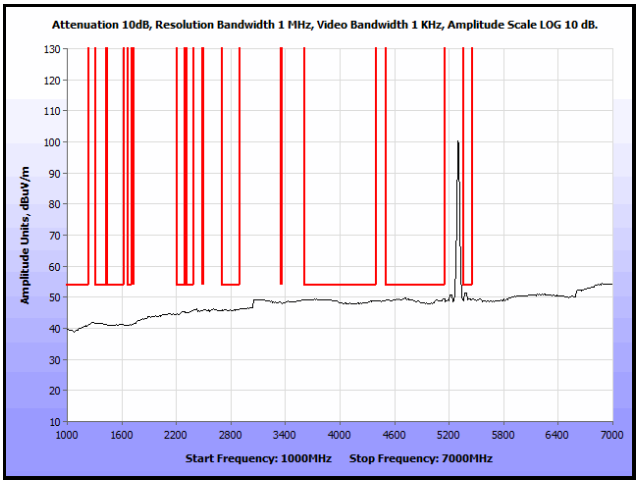
Plot 381. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni



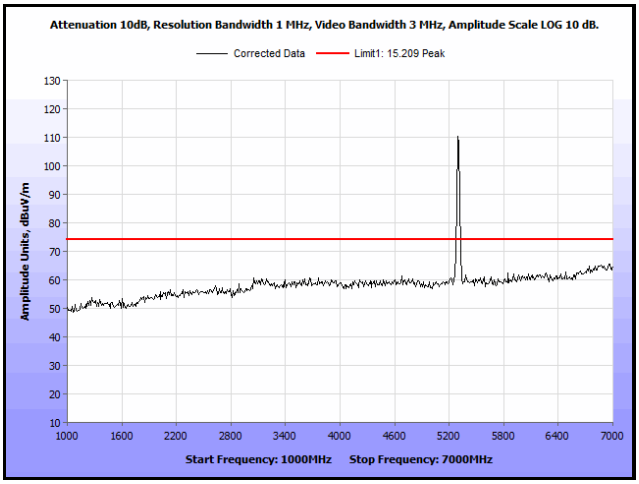
Plot 382. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5200 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni



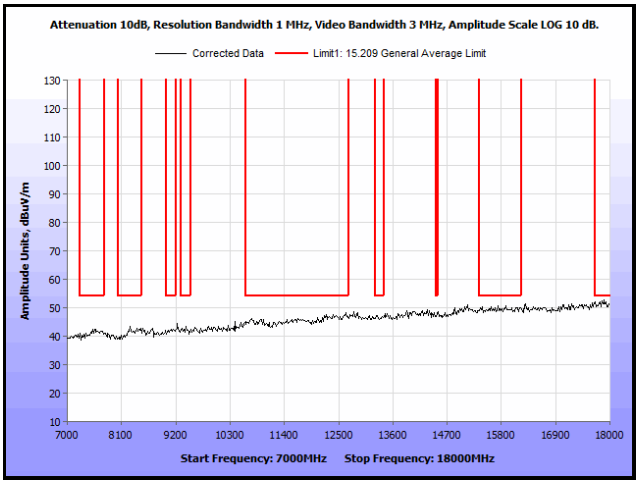
Plot 383. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Omni



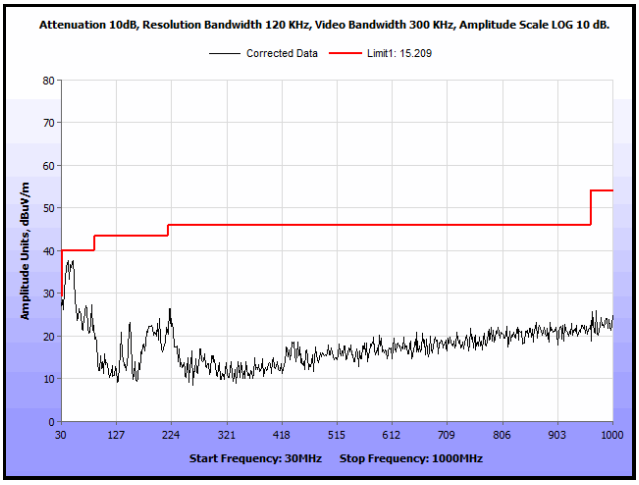
Plot 384. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Omni



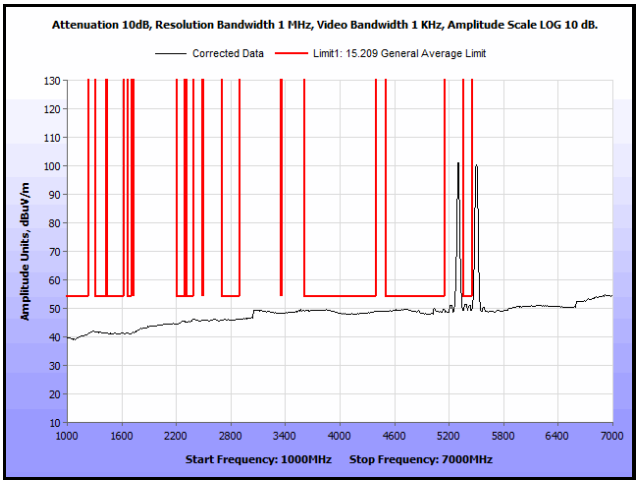
Plot 385. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Omni



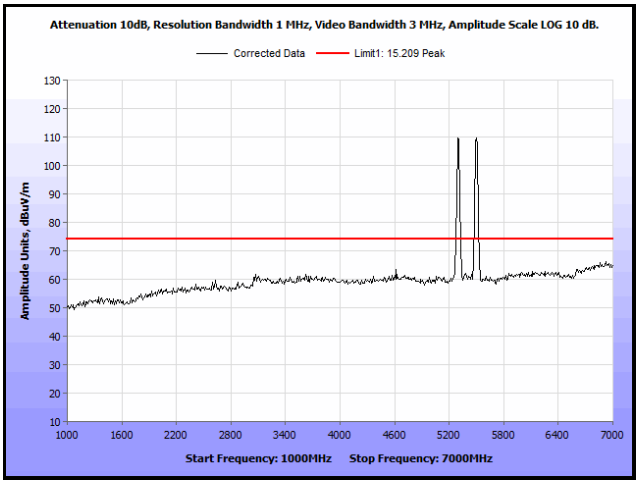
Plot 386. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Omni



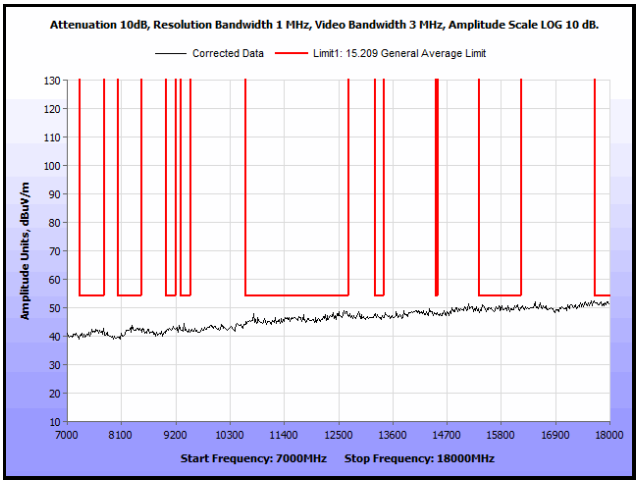
Plot 387. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



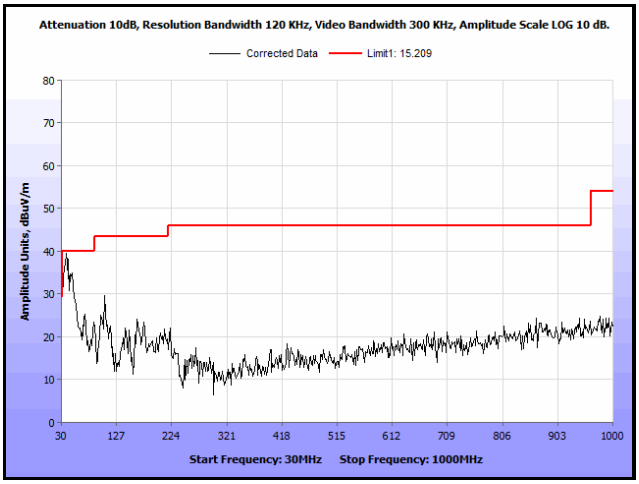
Plot 388. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



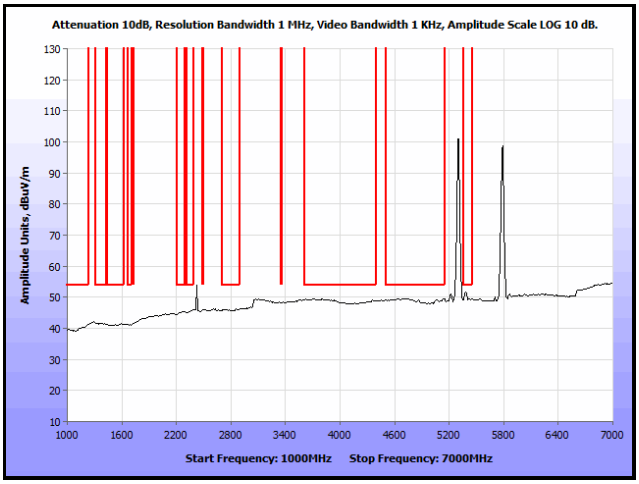
Plot 389. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



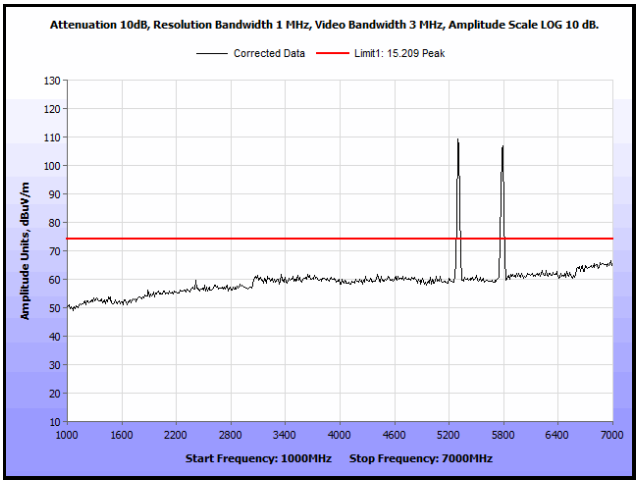
Plot 390. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



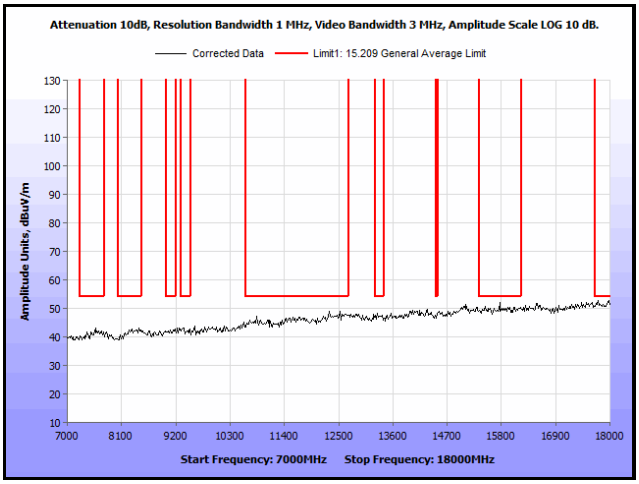
Plot 391. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



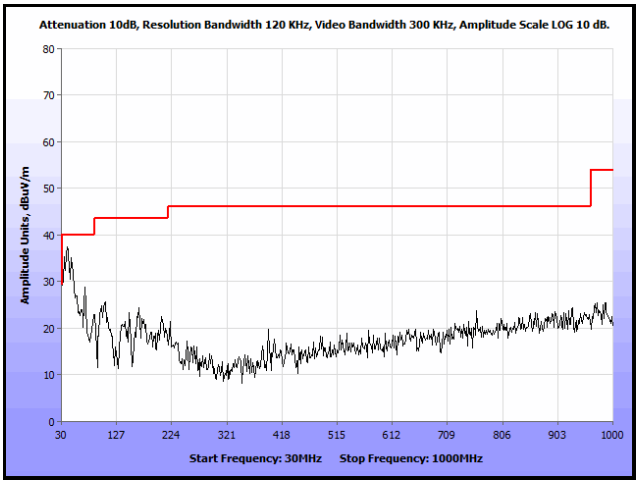
Plot 392. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni



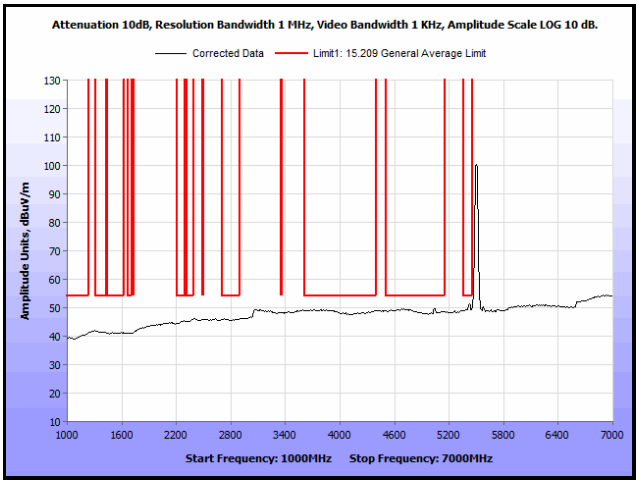
Plot 393. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni



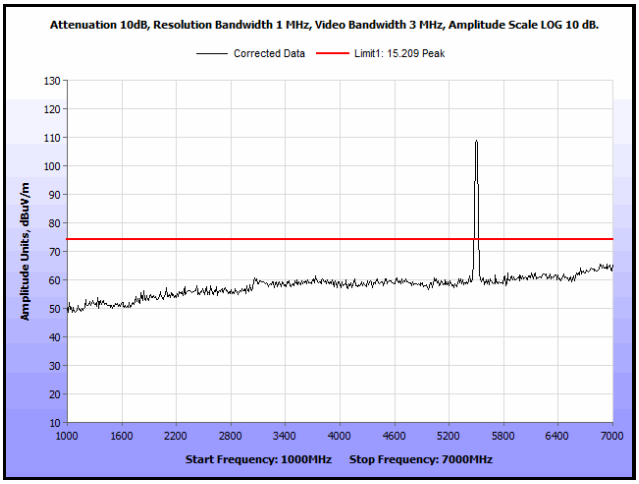
Plot 394. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5300 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni



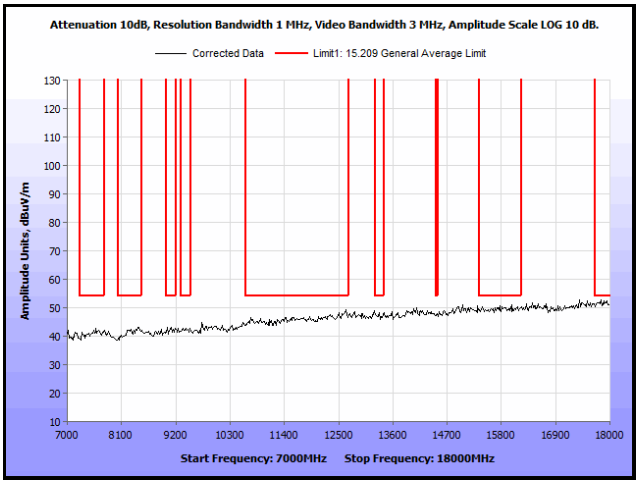
Plot 395. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Omni



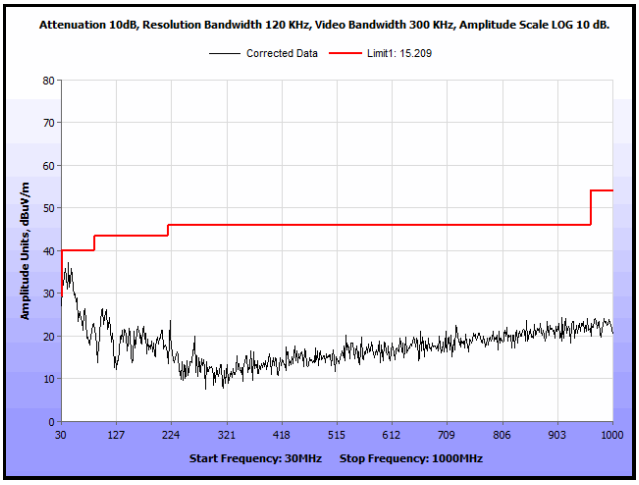
Plot 396. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Omni



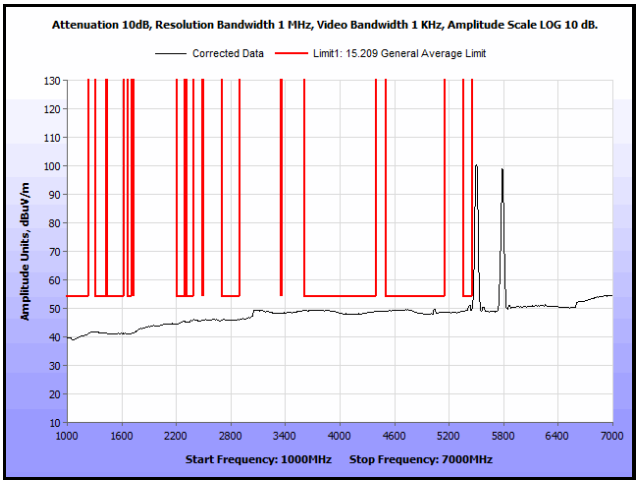
Plot 397. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Omni



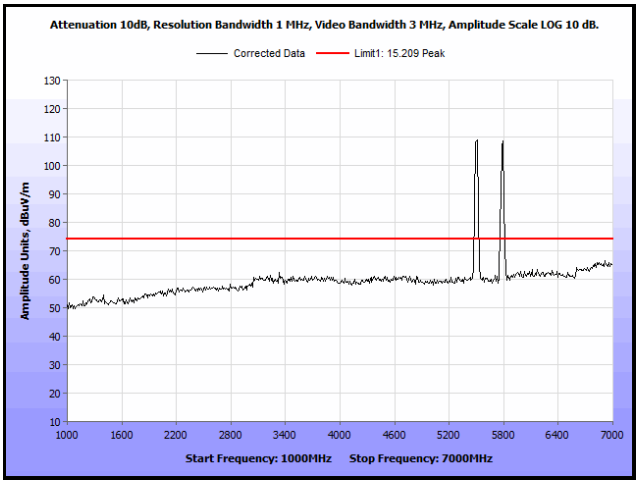
Plot 398. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Omni



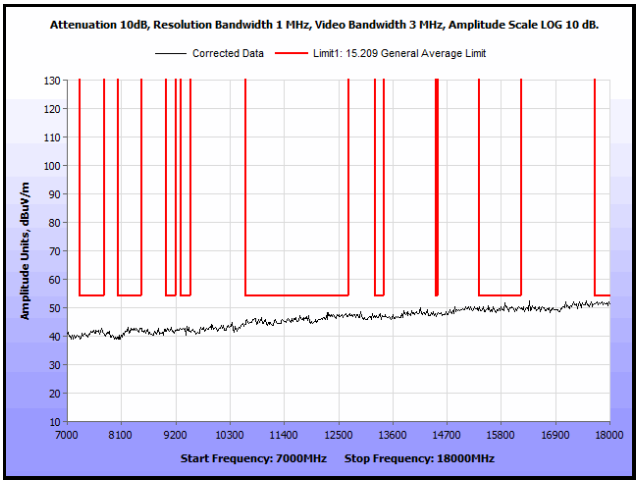
Plot 399. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



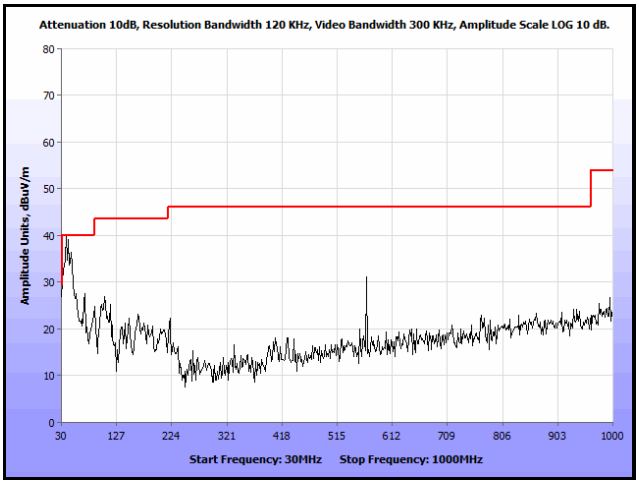
Plot 400. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni



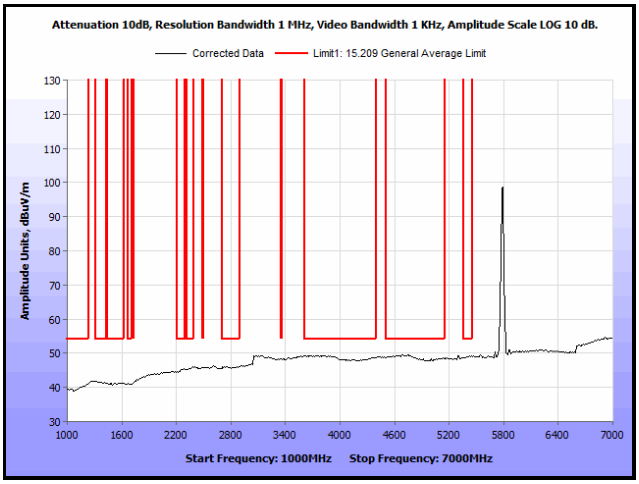
Plot 401. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni



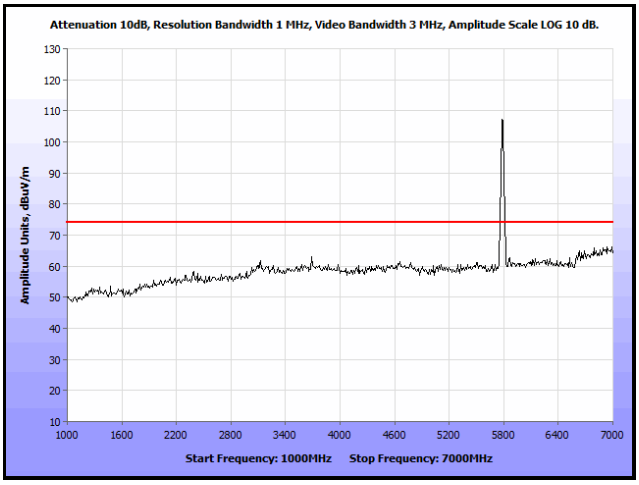
Plot 402. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5580 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni



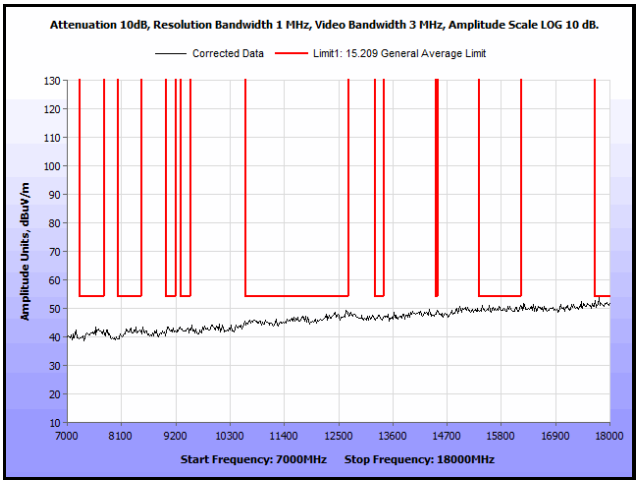
Plot 403. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5785 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Omni



Plot 404. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5785 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Omni

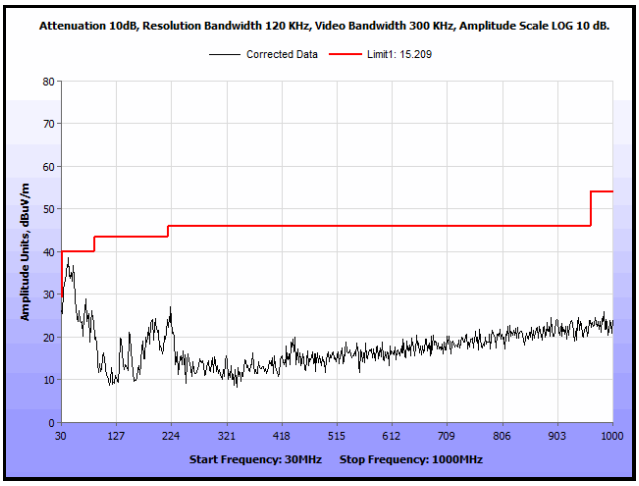


Plot 405. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5785 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Omni

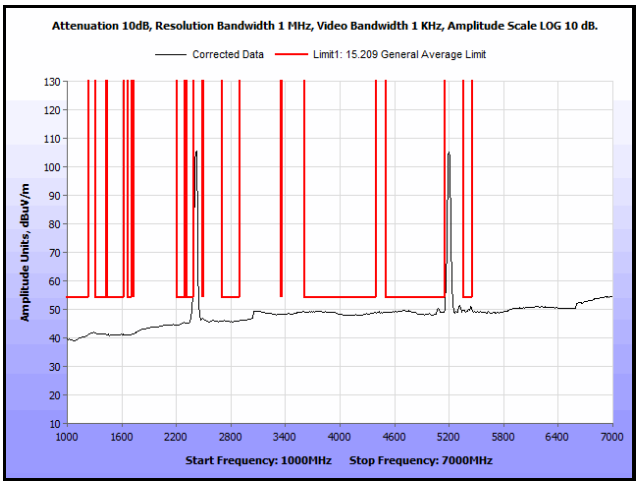


Plot 406. Radiated Spurs, Co-Location, 802.11n 20 MHz, 5785 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Omni

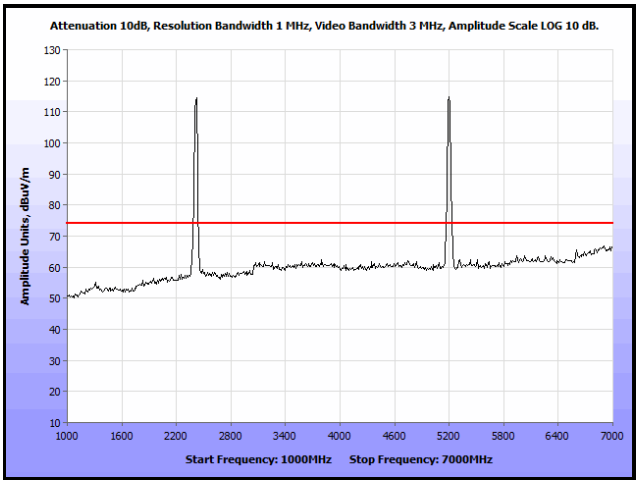
Patch Antenna



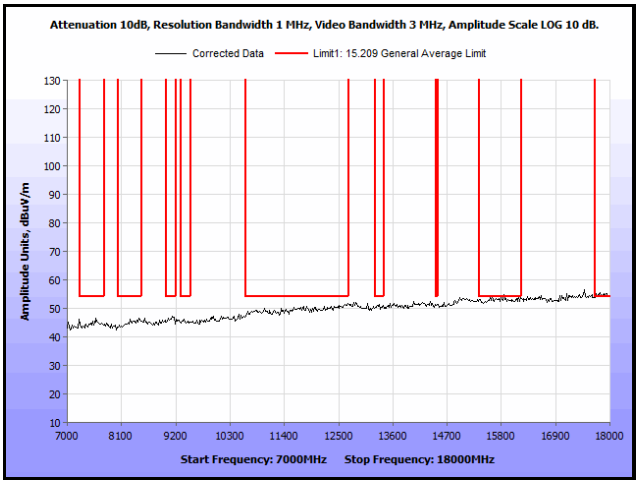
Plot 407. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Patch



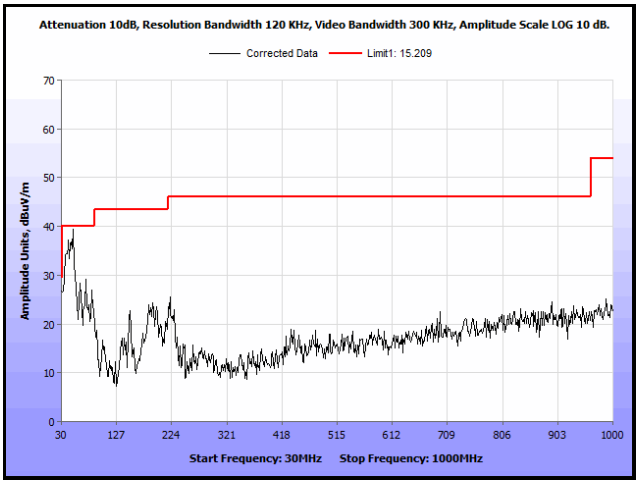
Plot 408. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Patch



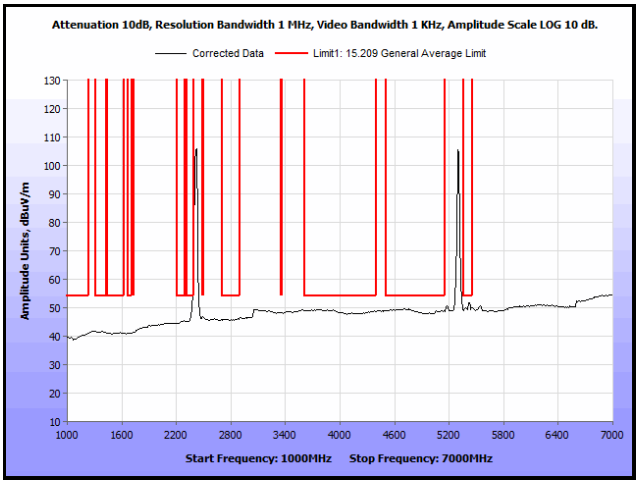
Plot 409. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Patch



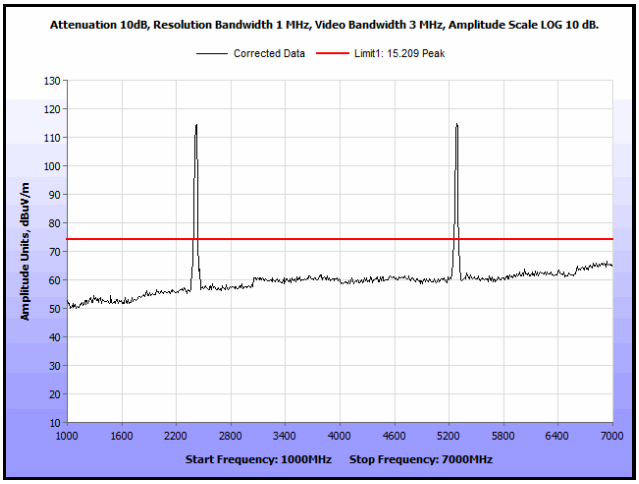
Plot 410. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Patch



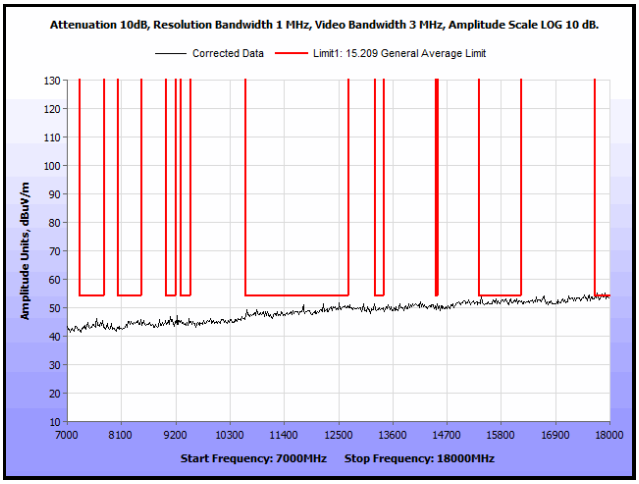
Plot 411. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Patch



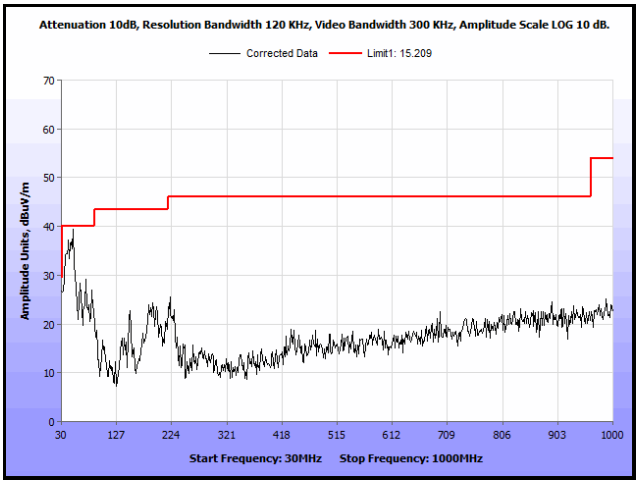
Plot 412. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Patch



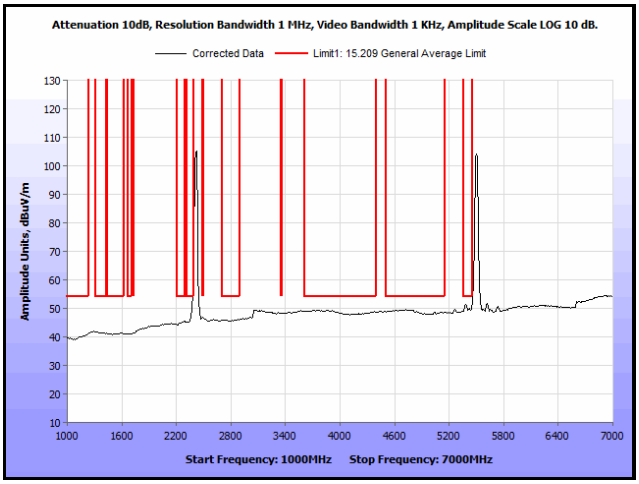
Plot 413. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Patch



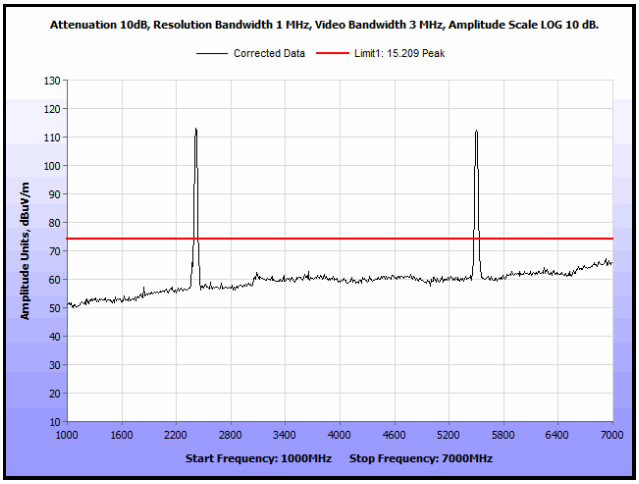
Plot 414. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Patch



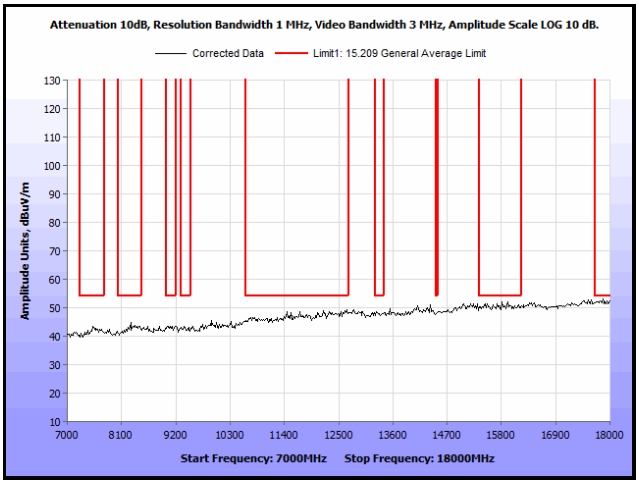
Plot 415. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Patch



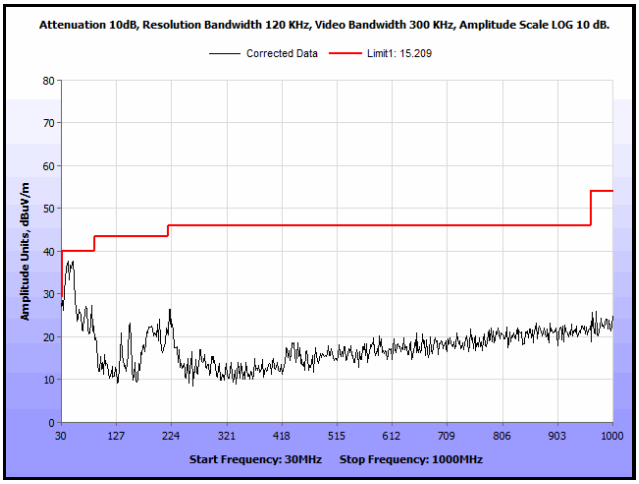
Plot 416. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Patch



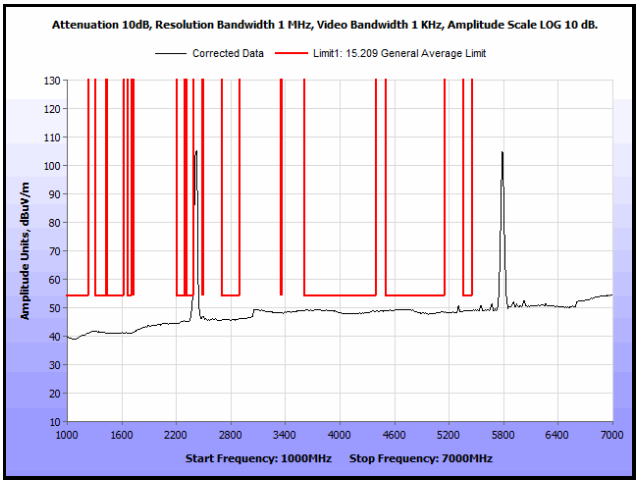
Plot 417. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Patch



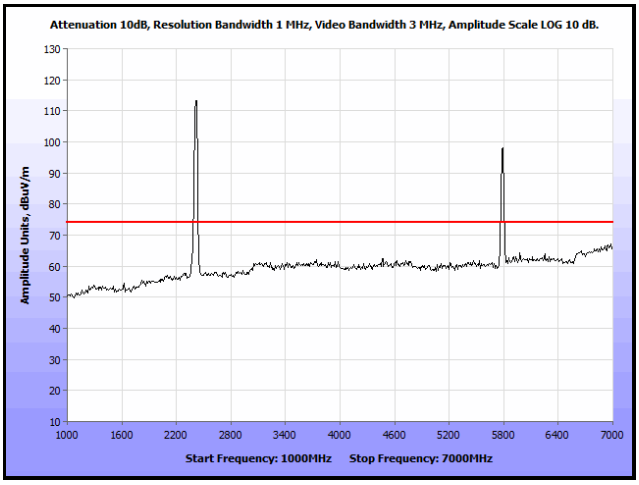
Plot 418. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Patch



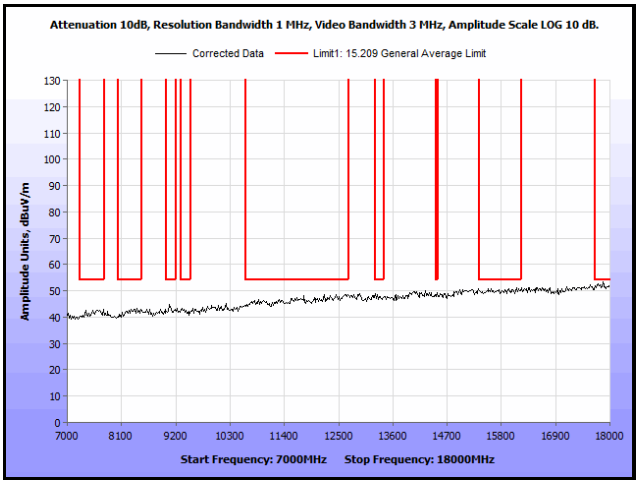
Plot 419. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Patch



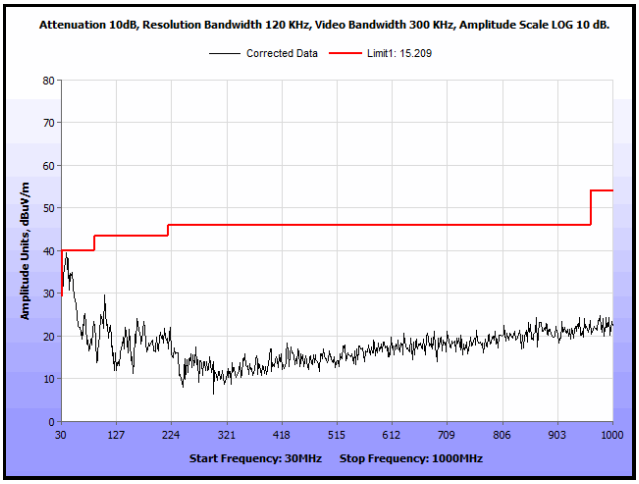
Plot 420. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Patch



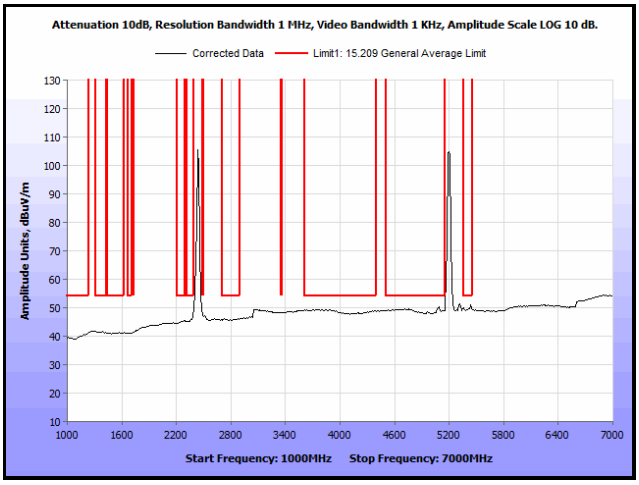
Plot 421. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Patch



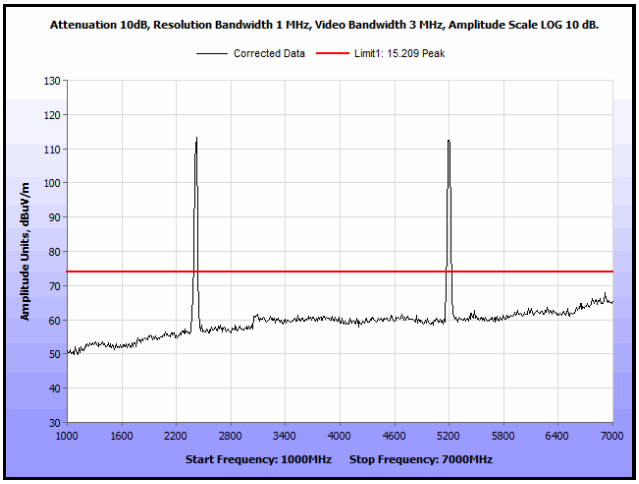
Plot 422. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2412 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Patch



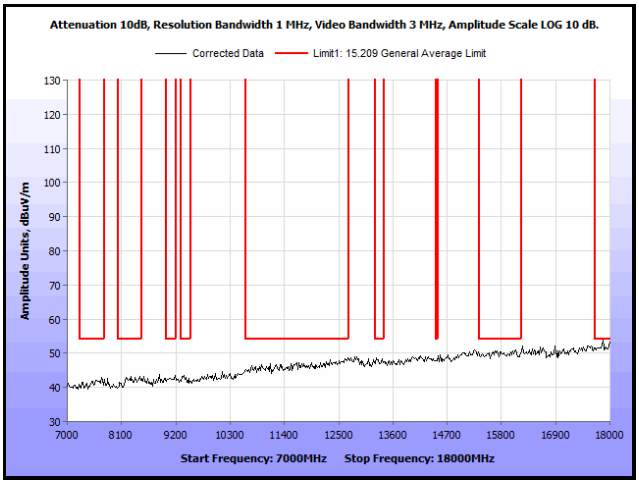
Plot 423. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Patch



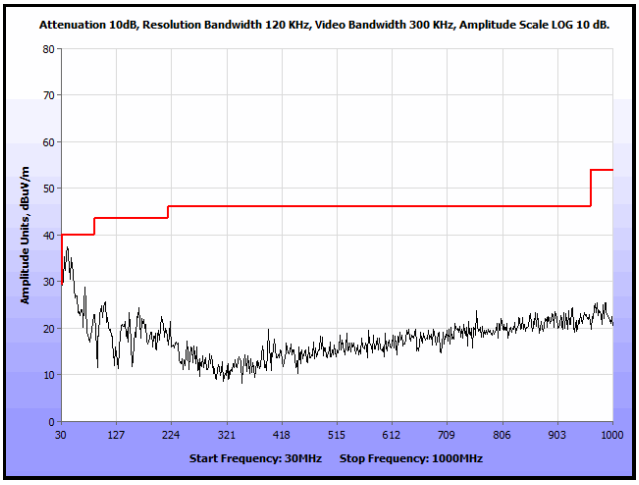
Plot 424. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Patch



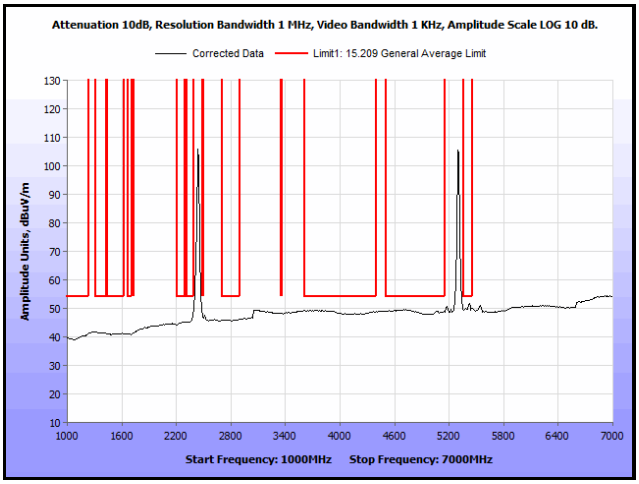
Plot 425. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Patch



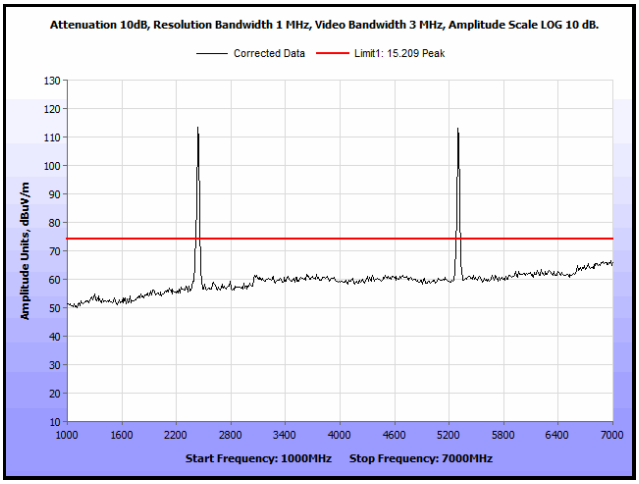
Plot 426. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Patch



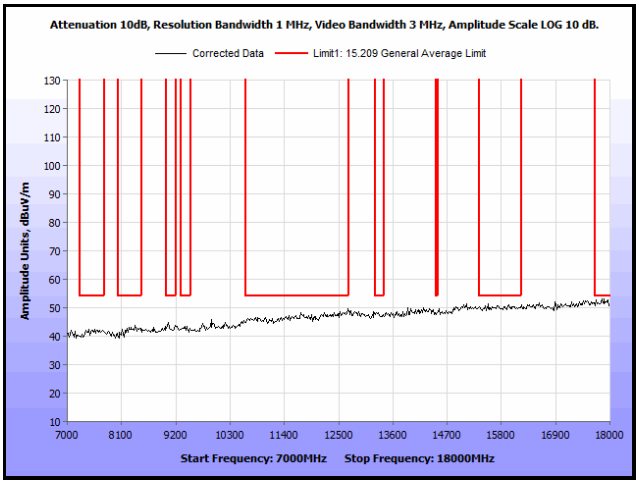
Plot 427. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Patch



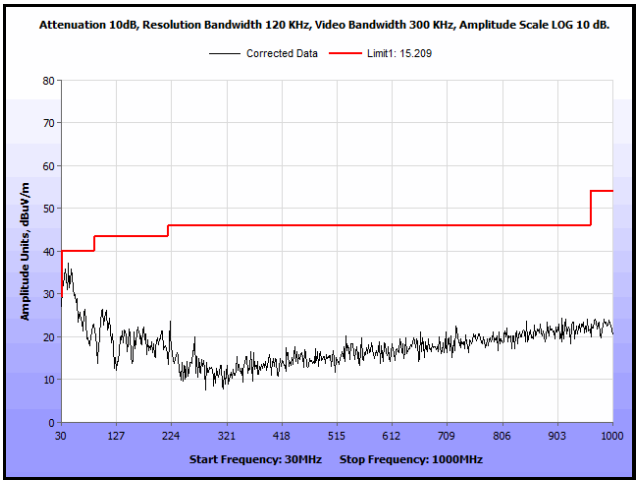
Plot 428. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Patch



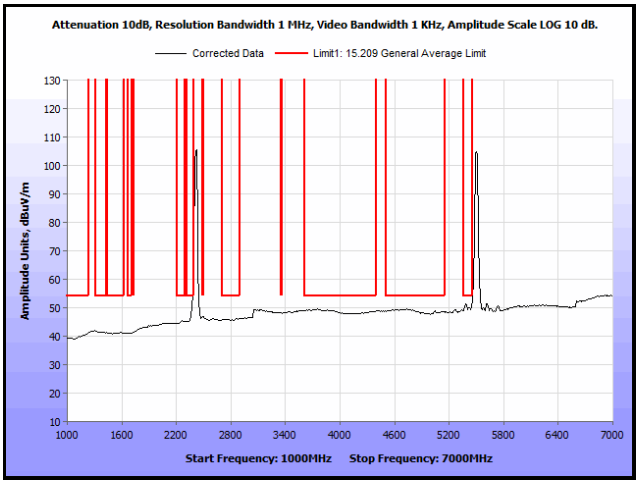
Plot 429. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Patch



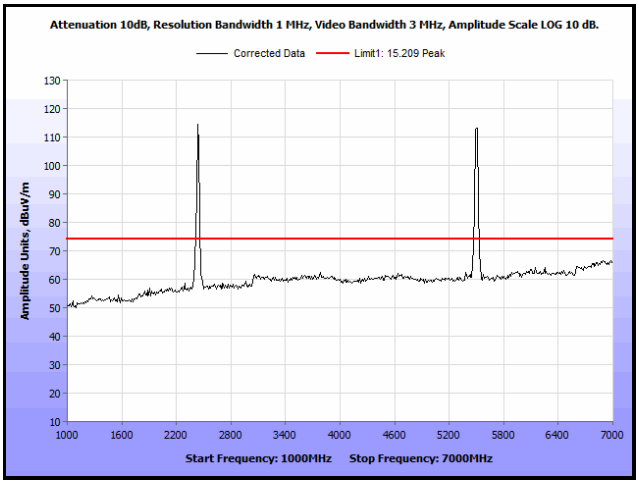
Plot 430. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Patch



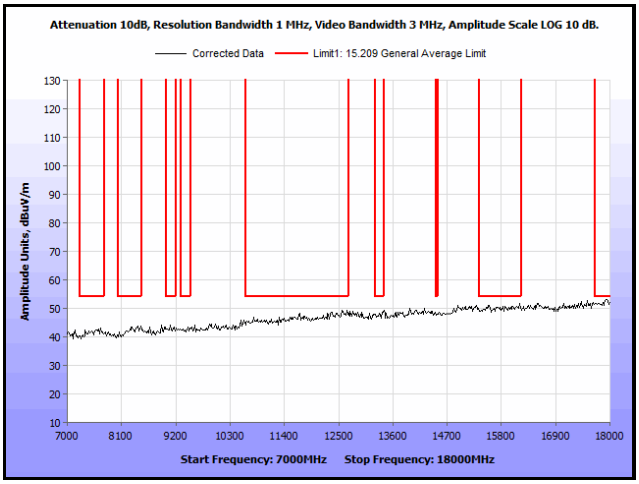
Plot 431. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Patch



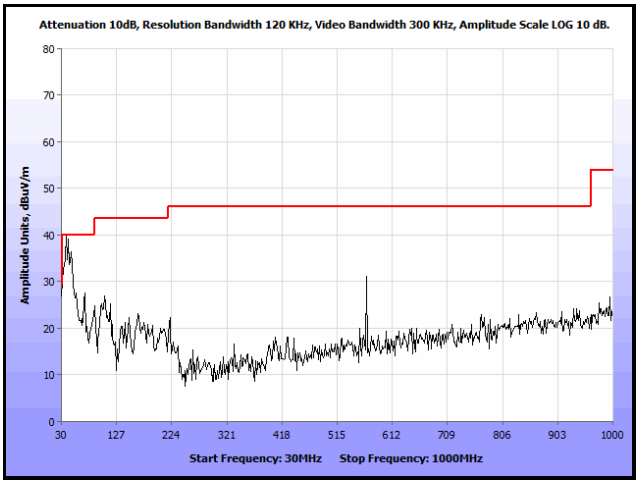
Plot 432. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Patch



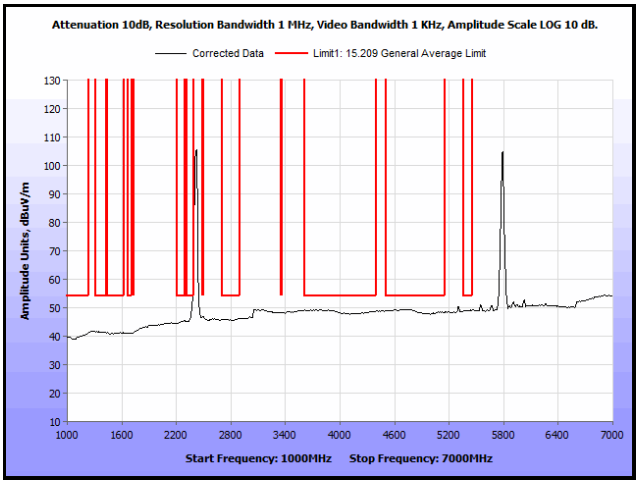
Plot 433. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Patch



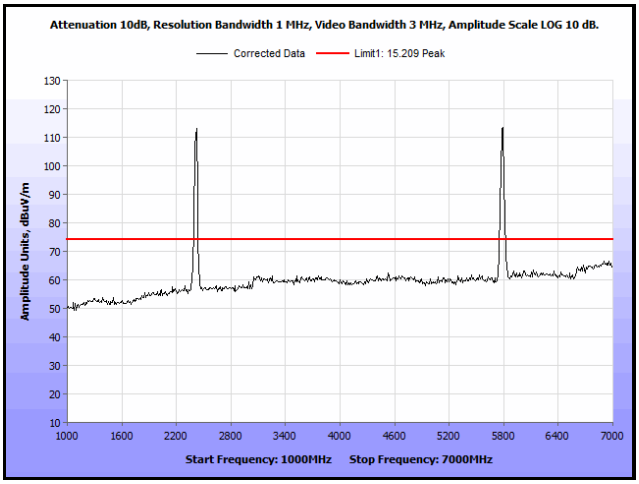
Plot 434. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Patch



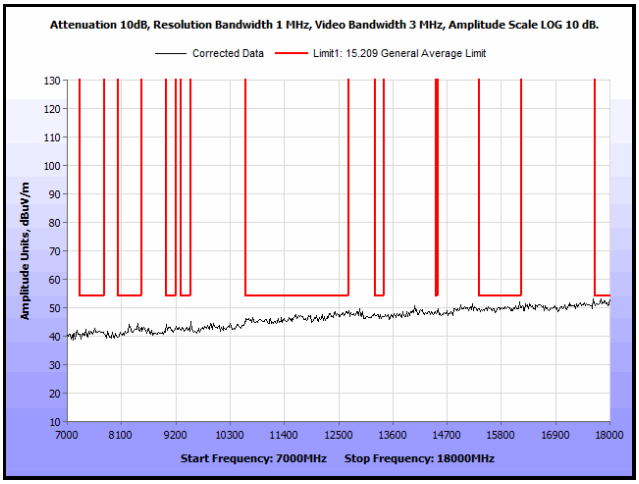
Plot 435. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Patch



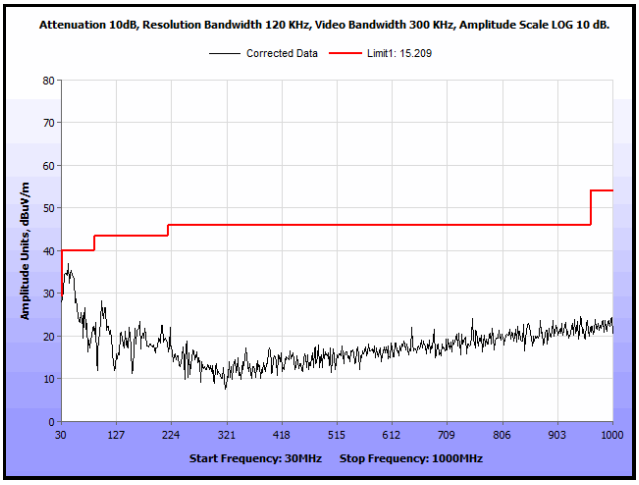
Plot 436. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Patch



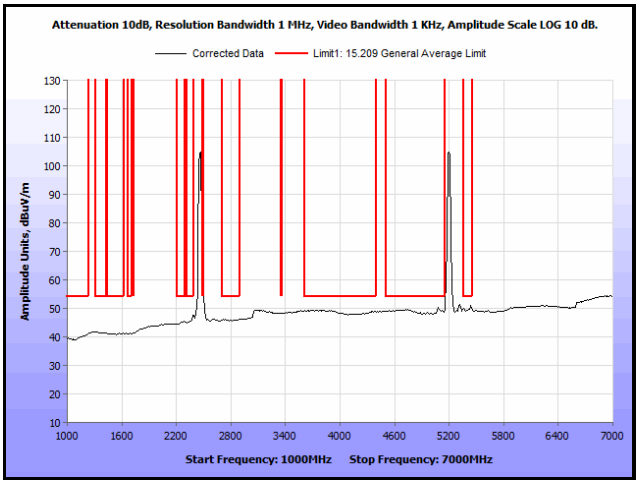
Plot 437. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Patch



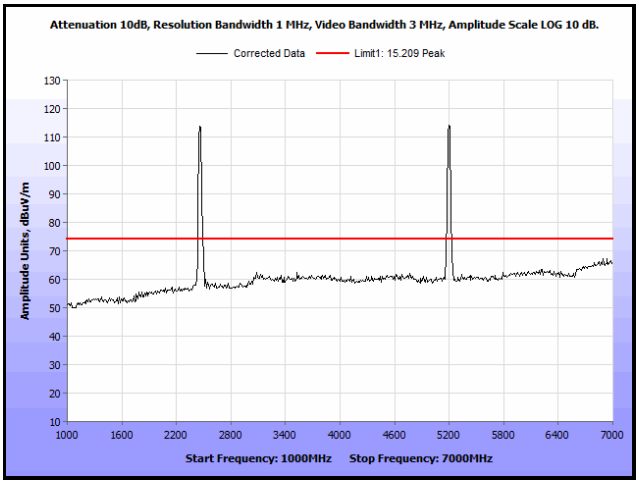
Plot 438. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2437 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Patch



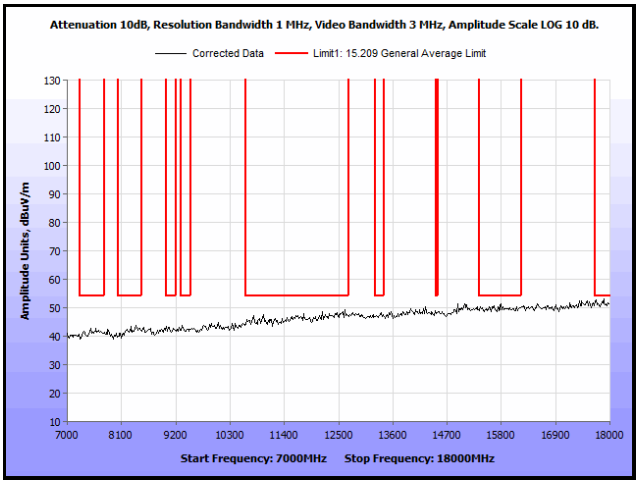
Plot 439. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 30 MHz – 1 GHz, Peak, Patch



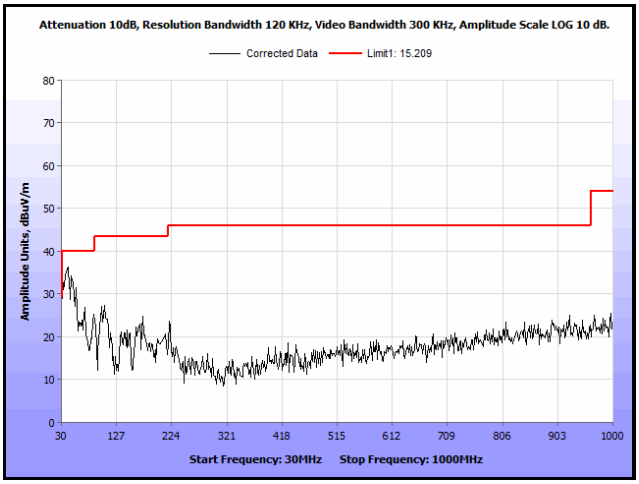
Plot 440. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 1 GHz – 7 GHz, Avg., Patch



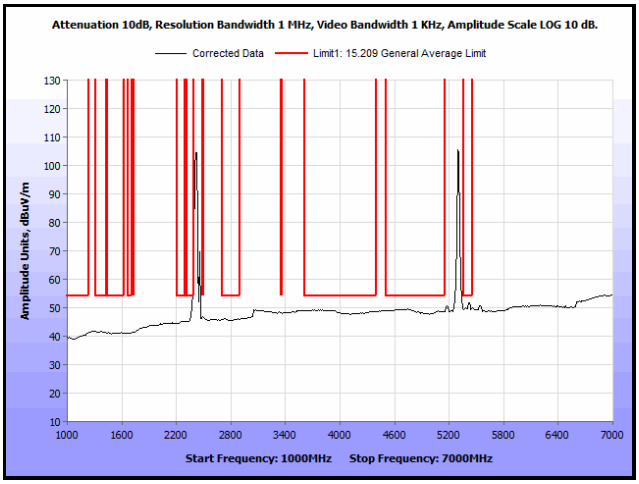
Plot 441. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 1 GHz – 7 GHz, Peak, Patch



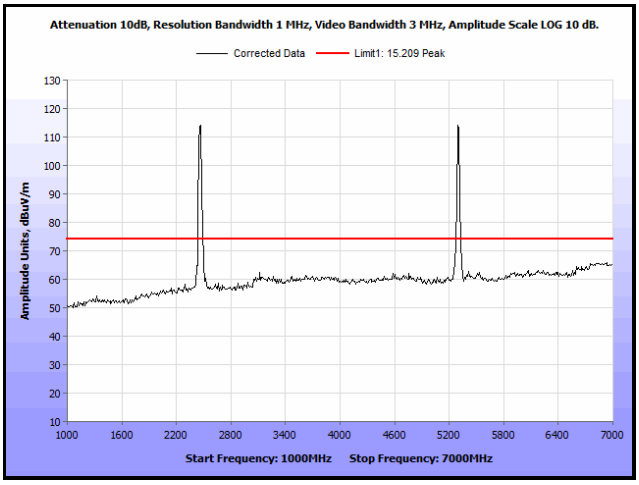
Plot 442. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5200 MHz, 7 GHz – 18 GHz, Peak, Patch



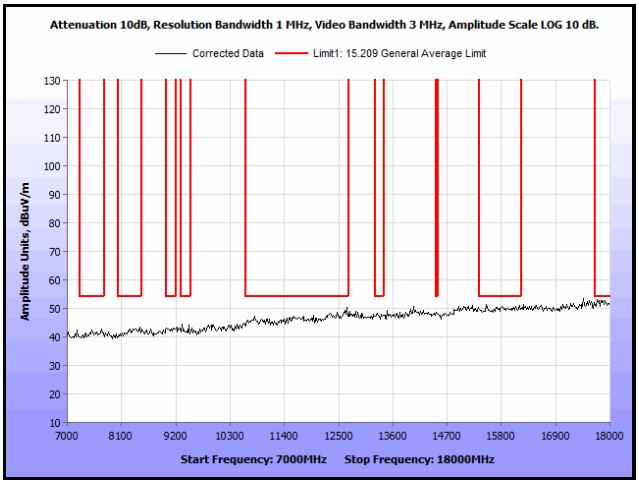
Plot 443. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 30 MHz – 1 GHz, Peak, Patch



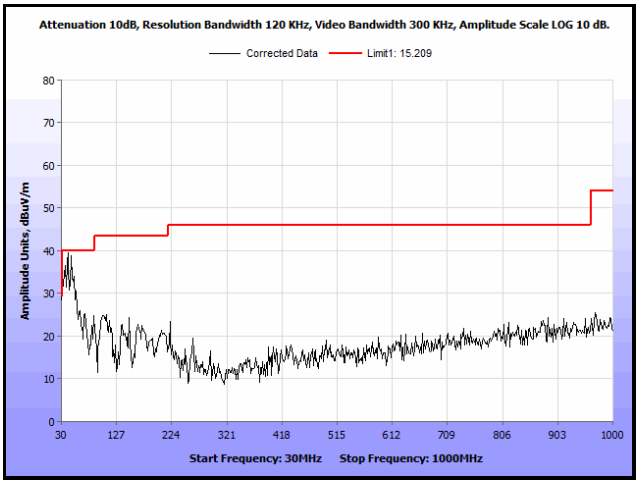
Plot 444. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 1 GHz – 7 GHz, Avg., Patch



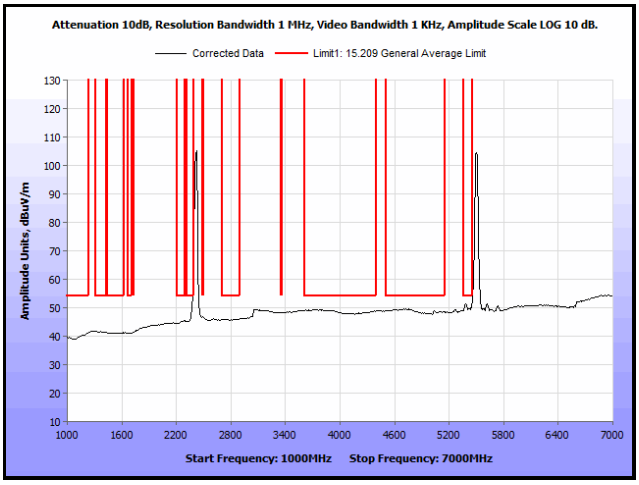
Plot 445. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 1 GHz – 7 GHz, Peak, Patch



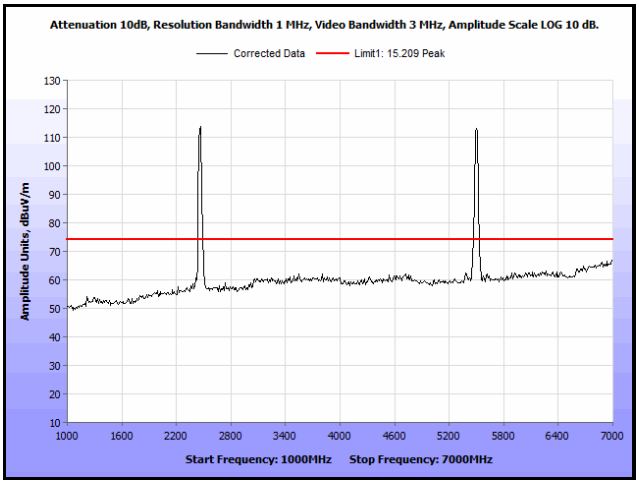
Plot 446. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5300 MHz, 7 GHz – 18 GHz, Peak, Patch



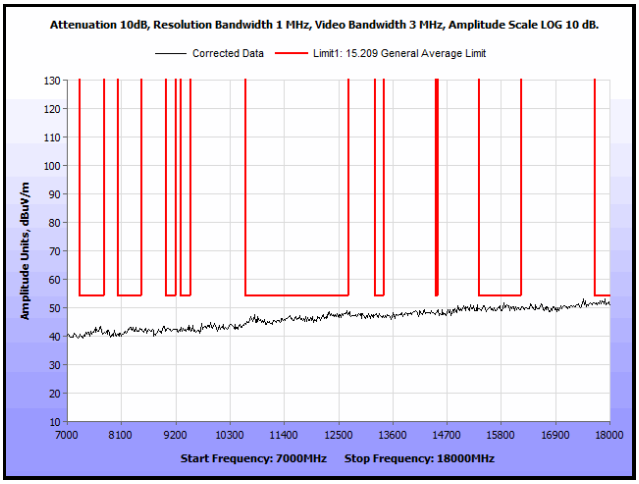
Plot 447. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 30 MHz – 1 GHz, Peak, Patch



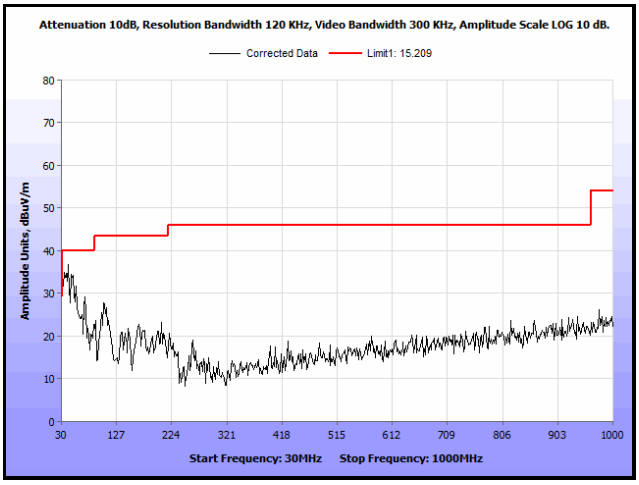
Plot 448. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 1 GHz – 7 GHz, Avg., Patch



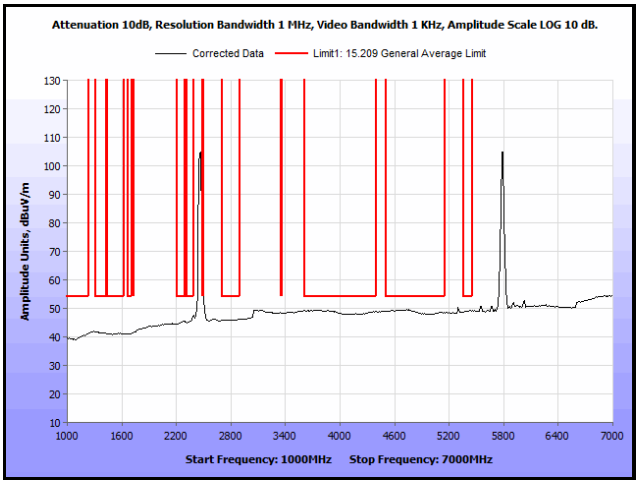
Plot 449. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 1 GHz – 7 GHz, Peak, Patch



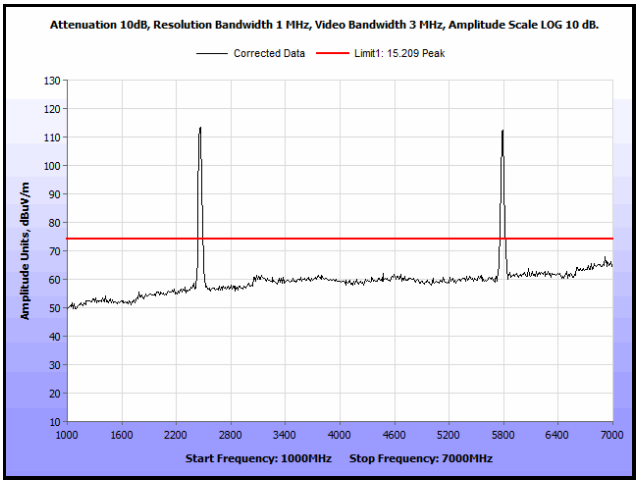
Plot 450. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5580 MHz, 7 GHz – 18 GHz, Peak, Patch



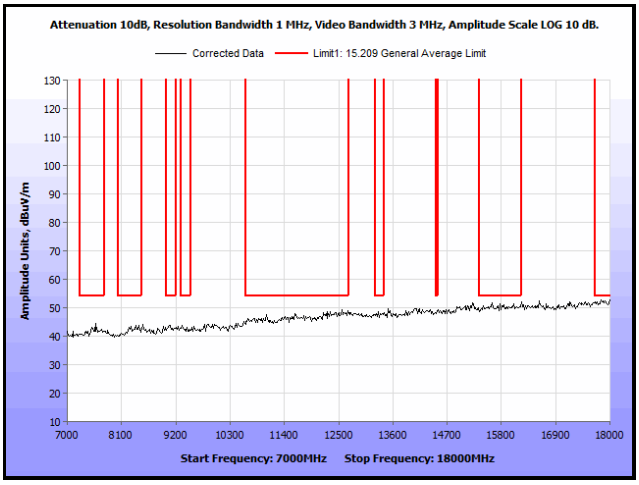
Plot 451. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 30 MHz – 1 GHz, Peak, Patch



Plot 452. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 1 GHz – 7 GHz, Avg., Patch



Plot 453. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 1 GHz – 7 GHz, Peak, Patch



Plot 454. Radiated Spurs, Co-Location, 802.11n 20 MHz, 2462 MHz & 5785 MHz, 7 GHz – 18 GHz, Peak, Patch

IV. Test Equipment

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2005.

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2600	BILOG ANTENNA	TESEQ	CBL6112D	8/29/2013	8/29/2015
1S2482	5 METER CHAMBER (NSA)	PANASHIELD	5 METER SEMI-ANECHOIC CHAMBER	8/12/2013	2/12/2015
1S2583	SPECTRUM ANALYZER	AGILENT/HP	E4447A	11/1/2013	5/1/2015
1S2460	1-26GHZ SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	E4407B	2/27/2014	8/27/2015
1S2603	DOUBLE RIDGED WAVEGUIDE HORN	ETS-LINDGREN	3117	4/24/2013	4/24/2015
1S2523	PREAMPLIFIER	AGILENT TECHNOLOGIES	8449B	SEE NOTE	
1S2729	SONOMA AMPLIFIER	SONOMA INSTRUMENT	310N	SEE NOTE	
1S2460	1-26GHZ SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	E4407B	2/27/2014	8/27/2015
N/A	NOTCH FILTER	MIRCRO-TRONICS	BRM50702	SEE NOTE	
N/A	HIGH PASS FILTER	MICRO-TRONICS	BRM50705	SEE NOTE	

Table 35. Test Equipment List

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.

V. Certification & User's Manual Information

Certification & User's Manual Information

A. Certification Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart I — Marketing of Radio frequency devices:

§ 2.801 Radio-frequency device defined.

As used in this part, a radio-frequency device is any device which in its operation is capable of Emitting radio-frequency energy by radiation, conduction, or other means. Radio- frequency devices include, but are not limited to:

(a) The various types of radio communication transmitting devices described throughout this chapter.

(b) The incidental, unintentional and intentional radiators defined in Part 15 of this chapter.

(c) The industrial, scientific, and medical equipment described in Part 18 of this chapter.

(d) Any part or component thereof which in use emits radio-frequency energy by radiation, conduction, or other means.

§ 2.803 Marketing of radio frequency devices prior to equipment authorization.

(a) Except as provided elsewhere in this chapter, no person shall sell or lease, or offer for sale or lease (including advertising for sale or lease), or import, ship or distribute for the purpose of selling or leasing or offering for sale or lease, any radio frequency device unless:

(1) In the case of a device subject to certification, such device has been authorized by the Commission in accordance with the rules in this chapter and is properly identified and labeled as required by §2.925 and other relevant sections in this chapter; or

(2) In the case of a device that is not required to have a grant of equipment authorization issued by the Commission, but which must comply with the specified technical standards prior to use, such device also complies with all applicable administrative (including verification of the equipment or authorization under a Declaration of Conformity, where required), technical, labeling and identification requirements specified in this chapter.

(d) Notwithstanding the provisions of paragraph (a) of this section, the offer for sale solely to business, commercial, industrial, scientific or medical users (but not an offer for sale to other parties or to end users located in a residential environment) of a radio frequency device that is in the conceptual, developmental, design or pre-production stage is permitted prior to equipment authorization or, for devices not subject to the equipment authorization requirements, prior to a determination of compliance with the applicable technical requirements *provided* that the prospective buyer is advised in writing at the time of the offer for sale that the equipment is subject to the FCC rules and that the equipment will comply with the appropriate rules before delivery to the buyer or to centers of distribution.

(e)(1) Notwithstanding the provisions of paragraph (a) of this section, prior to equipment authorization or determination of compliance with the applicable technical requirements any radio frequency device may be operated, but not marketed, for the following purposes and under the following conditions:

(i) Compliance testing;

(ii) Demonstrations at a trade show provided the notice contained in paragraph (c) of this section is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iii) Demonstrations at an exhibition conducted at a business, commercial, industrial, scientific or medical location, but excluding locations in a residential environment, provided the notice contained in paragraphs (c) or (d) of this section, as appropriate, is displayed in a conspicuous location on, or immediately adjacent to, the device;

(iv) Evaluation of product performance and determination of customer acceptability, provided such operation takes place at the manufacturer's facilities during developmental, design or pre-production states; or

(v) Evaluation of product performance and determination of customer acceptability where customer acceptability of a radio frequency device cannot be determined at the manufacturer's facilities because of size or unique capability of the device, provided the device is operated at a business, commercial, industrial, scientific or medical user's site, but not at a residential site, during the development, design or pre-production stages.

(e)(2) For the purpose of paragraphs (e)(1)(iv) and (e)(1)(v) of this section, the term *manufacturer's facilities* includes the facilities of the party responsible for compliance with the regulations and the manufacturer's premises, as well as the facilities of other entities working under the authorization of the responsible party in connection with the development and manufacture, but not the marketing, of the equipment.

(f) For radio frequency devices subject to verification and sold solely to business, commercial, industrial, scientific and medical users (excluding products sold to other parties or for operation in a residential environment), parties responsible for verification of the devices shall have the option of ensuring compliance with the applicable technical specifications of this chapter at each end user's location after installation, provided that the purchase or lease agreement includes a proviso that such a determination of compliance be made and is the responsibility of the party responsible for verification of the equipment.

Certification & User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart J — Equipment Authorization Procedures:

§ 2.901 Basis and Purpose

(a) In order to carry out its responsibilities under the Communications Act and the various treaties and international regulations, and in order to promote efficient use of the radio spectrum, the Commission has developed technical standards for radio frequency equipment and parts or components thereof. The technical standards applicable to individual types of equipment are found in that part of the rules governing the service wherein the equipment is to be operated.[1] *In addition to the technical standards provided, the rules governing the service may require that such equipment be verified by the manufacturer or importer*, be authorized under a Declaration of Conformity, or receive an equipment authorization from the Commission by one of the following procedures: certification or registration.

(b) The following sections describe the verification procedure, the procedure for a Declaration of Conformity, and the procedures to be followed in obtaining certification from the Commission and the conditions attendant to such a grant.

§ 2.907 Certification.

(a) Certification is an equipment authorization issued by the Commission, based on representation and test data submitted by the applicant.

(b) Certification attaches to all units subsequently marketed by the grantee which are identical (see Section 2.908) to the sample tested except for permissive changes or other variations authorized by the Commission pursuant to Section 2.1043.

[1] In this case, the equipment is subject to the rules of Part 15. More specifically, the equipment falls under Subpart B (of Part 15), which deals with unintentional radiators.

Certification & User's Manual Information

§ 2.948 Description of measurement facilities.

(a) Each party making measurements of equipment that is subject to an equipment authorization under Part 15 or Part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.

(1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.

(i) If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for the verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.

(ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.

(2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current.

Certification & User's Manual Information

1. Label and User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart A — General:

§ 15.19 Labeling requirements.

(a) In addition to the requirements in Part 2 of this chapter, a device subject to certification or verification shall be labeled as follows:

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73 of this chapter, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.

(3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

§ 15.21 Information to user.

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Verification & User's Manual Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart B — Unintentional Radiators:

§ 15.105 Information to the user.

(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at own expense.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.

– Increase the separation between the equipment and receiver.

– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

– Consult the dealer or an experienced radio/TV technician for help.

End of Report

