Masimo

Rad-87

Report No. MASI0009 Rev 01

Report Prepared By

www.nwemc.com
1-888-EMI-CERT

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Testing: September 17, 2008

Masimo

Model: Rad-87

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Spurious Conducted Emissions	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Band Edge Compliance	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Power Spectral Density	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Output Power	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
Occupied Bandwidth	FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2007	ANSI C63.4:2003	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
41 Tesla Ave.
Irvine, CA 92618

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada(Site filing #2834B-2).

Approved By:
Don Facteau, IS Manager

NVLAP Lab Code: 200676-0

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
01	Corrected cable information	9/24/08	12

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2)*

CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories, available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0604C.

TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.

Accreditations and Authorizations

NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).

Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294).*

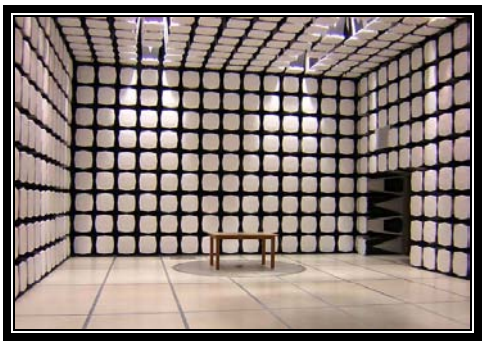
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.

GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

MIC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)*

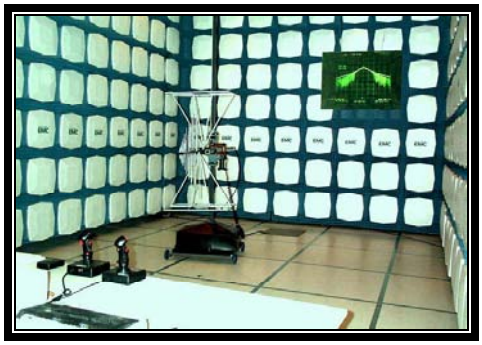
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/



California – Orange County Facility
Labs OC01 – OC13

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



Oregon – Evergreen Facility
Labs EV01 – EV11

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826

Washington – Sultan Facility
Labs SU01 – SU07

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Masimo
Address:	40 Parker
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Paul Lewandowski
Model:	Rad-87
First Date of Test:	September 2, 2008
Last Date of Test:	September 17, 2009
Receipt Date of Samples:	September 2, 2008
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

One 802.11a/b/g radio module installed in a Pulse Oximeter that will be connected to hospital wireless network.

Testing Objective:

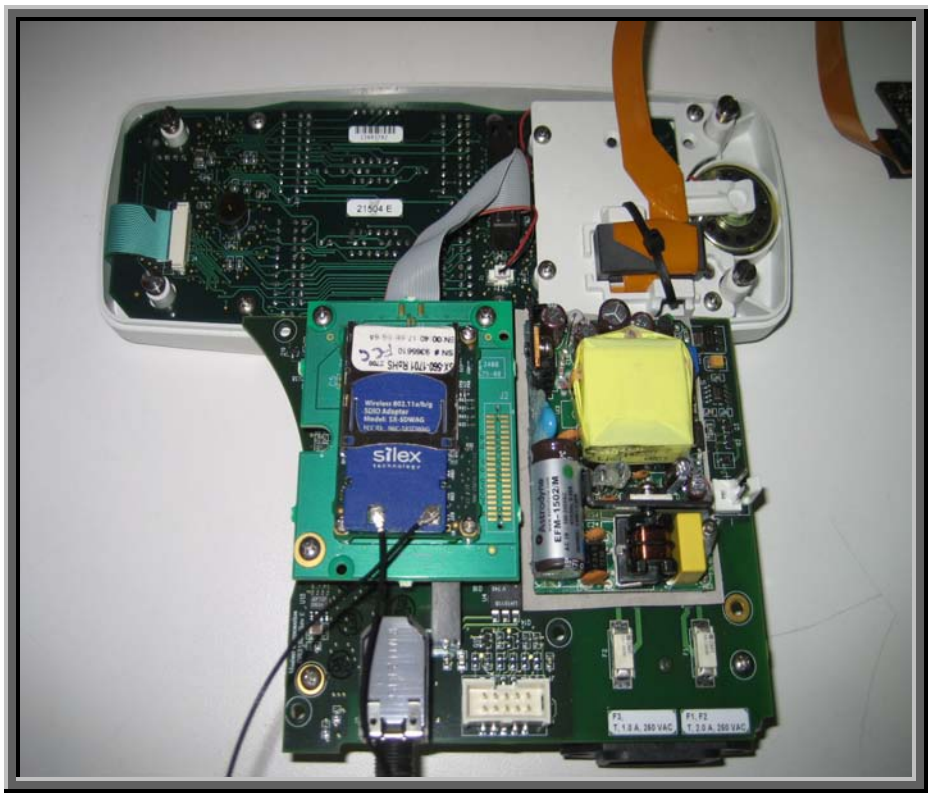
Seeking to demonstrate compliance under FCC 15.247 for operation in the 2.4 and 5.8 GHz bands.

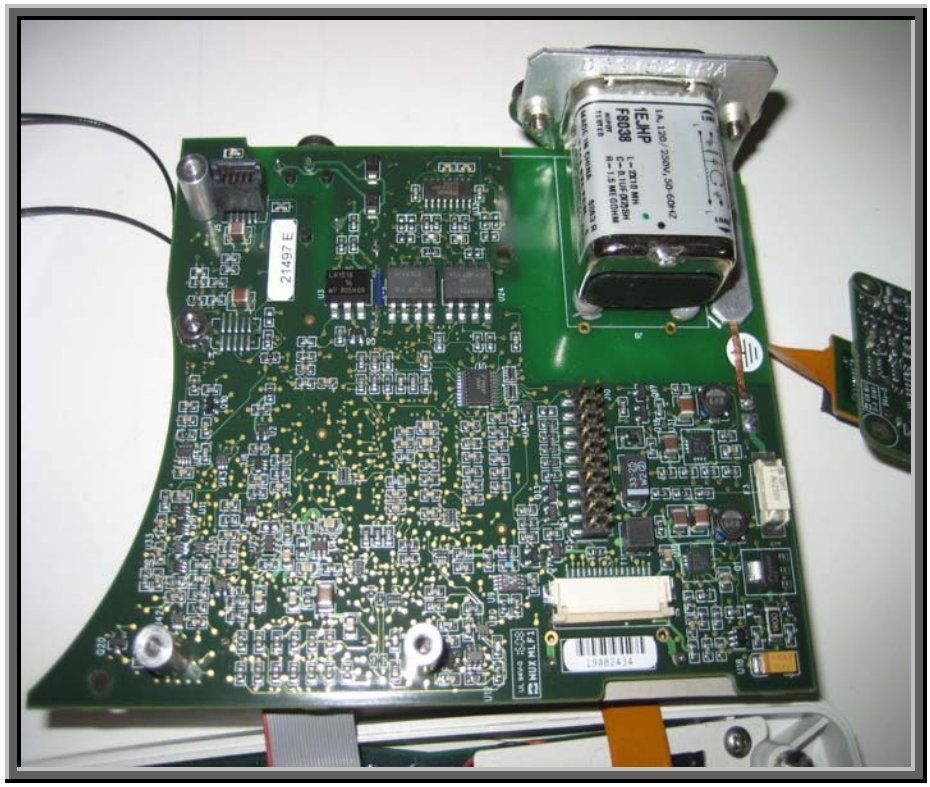
EUT Photo


Masimo
SET
ENTER


Wireless 802.11a/b/g
SDIO Adapter
Model: SX-SDWAG
FCC ID: N6C-SXSDWAG
IC: 4908A-SXSDWAG
silex
technology


0040178EE96A


21504 E
silex


21497 E

CONFIGURATION 1 MASI0009

Software/Firmware Running during test	
Description	**Version**
RadioCfg SX-560	1.0.0.1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Pulse CO-Oximeter	Masimo Corporation	RAD-87	J00073

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	Yes	4.0m	No	Pulse CO-Oximeter	AC Mains
MX-1 Compatible cable	No	2.0m	No	Pulse CO-Oximeter	Unterminated
Serial Cable	Yes	1.8m	No	Pulse CO-Oximeter	Laptop
Ground Cable	Yes	2.0m	No	Pulse CO-Oximeter	Ground
Nurse Call Cable	Yes	4.6m	No	Pulse CO-Oximeter	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 MASI0009

Software/Firmware Running during test	
Description	**Version**
RadioCfg SX-560	1.0.0.1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Pulse CO-Oximeter	Masimo Corporation	RAD-87	J00073

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	IBM	ThinkPAD 2647	78-NZZ08

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	Yes	4.0m	No	Pulse CO-Oximeter	AC Mains
Serial Cable	Yes	1.8m	No	Pulse CO-Oximeter	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	9/2/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	9/3/2008	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	9/4/2008	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	9/17/2008	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	9/17/2008	Power Spectral Denisty	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	9/17/2008	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	9/17/208	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was complete.

SPURIOUS RADIATED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION
Transmitting 802.11(a), 6 Mbps
Tramsmitting 802.11(b/g), 11 Mbps

CHANNELS TESTED
Channel 1
Channel 6
Channel 11
Channel 149
Channel 157
Channel 161

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	40 GHz

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	JS4-26004000-50-5A	AON	7/14/2008	13
Antenna, Horn	EMCO	3160-10	AHI	NCR	0
EV01 Cables		26-40GHz Standard Gain Horn Cable	EVE	7/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	3/3/2008	13
Antenna, Horn	EMCO	3160-09	AHN	NCR	0
OC10 SMA cable for 18026 GHz			OCK	3/3/2008	13
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	2/8/2008	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVL	2/8/2008	13
Antenna, Horn	ETS	3160-07	AHX	10/25/2007	12
OC11 8-18 GHz Cables a-b-c-e			OCS	2/7/2008	13
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	4/25/2008	13
Antenna, Horn	EMCO	3115	AHB	8/31/2007	24
OC11 1-8 GHz Cables a-b-c-d			OCR	2/7/2008	13
Spectrum Analyzer	Agilent	E4440A	AAX	10/1/2007	12

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power:	120VAC/60Hz	Job Site:	OC11`

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 1. 11 Mbps.

EUT OPERATING MODES

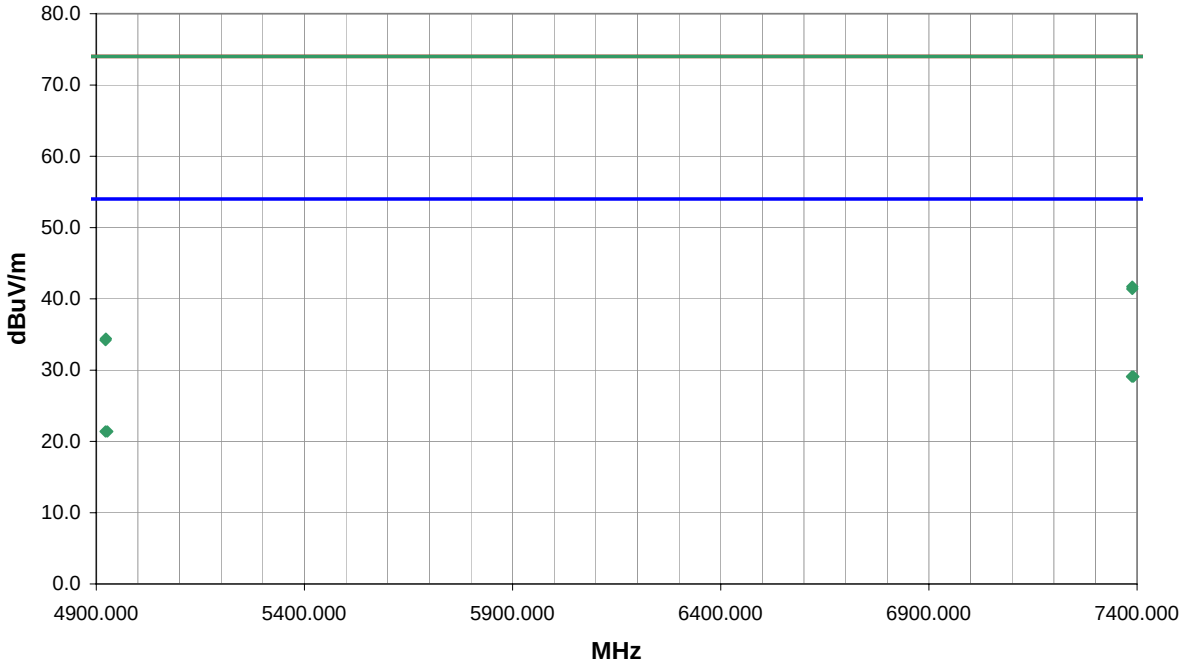
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	13
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7387.756	20.4	8.7	162.0	1.0	0.0	0.0	H-Horn	AV	0.0	29.1	54.0	-24.9
7390.983	20.4	8.7	151.0	3.3	0.0	0.0	V-Horn	AV	0.0	29.1	54.0	-24.9
7388.315	33.1	8.6	151.0	3.3	0.0	0.0	V-Horn	PK	0.0	41.7	74.0	-32.3
4922.321	17.9	3.5	153.0	1.0	0.0	0.0	H-Horn	AV	0.0	21.4	54.0	-32.6
4926.366	17.9	3.5	222.0	1.4	0.0	0.0	V-Horn	AV	0.0	21.4	54.0	-32.6
7388.524	32.8	8.6	162.0	1.0	0.0	0.0	H-Horn	PK	0.0	41.4	74.0	-32.6
4922.926	30.9	3.5	153.0	1.0	0.0	0.0	H-Horn	PK	0.0	34.4	74.0	-39.6
4922.365	30.7	3.5	222.0	1.4	0.0	0.0	V-Horn	PK	0.0	34.2	74.0	-39.8

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 1. 11 Mbps.

EUT OPERATING MODES

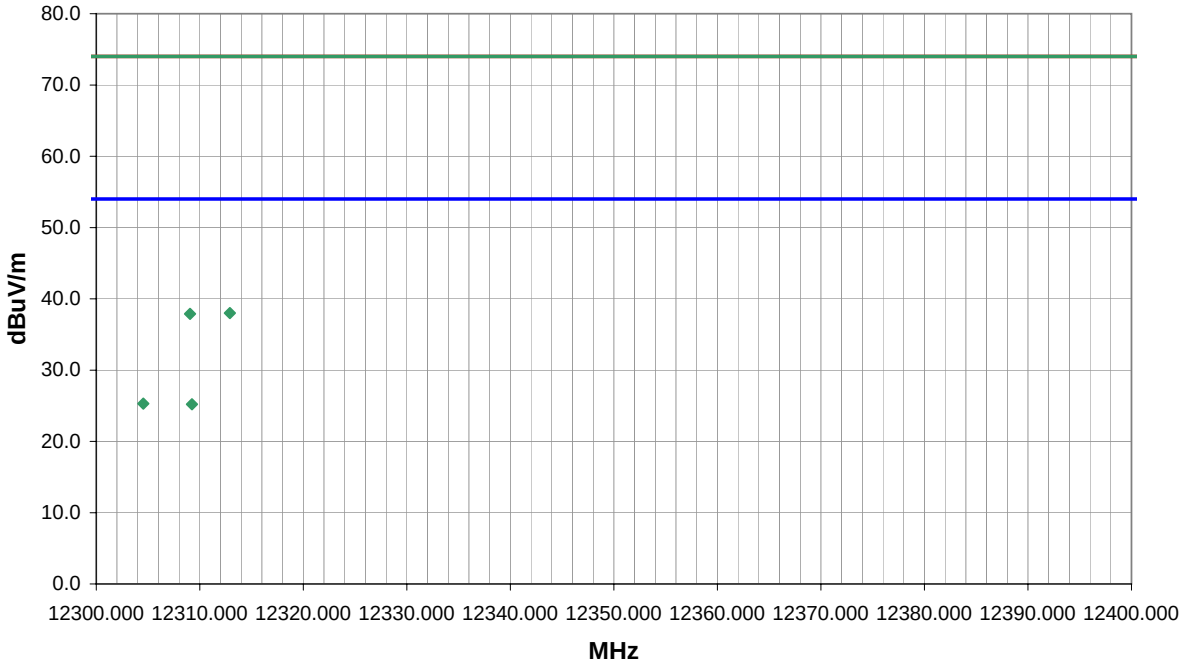
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	15
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
12304.540	35.3	-10.0	322.0	1.0	0.0	0.0	V-Horn	AV	0.0	25.3	54.0	-28.7
12309.250	35.2	-10.0	334.0	1.0	0.0	0.0	H-Horn	AV	0.0	25.2	54.0	-28.8
12312.900	48.0	-10.0	322.0	1.0	0.0	0.0	V-Horn	PK	0.0	38.0	74.0	-36.0
12309.060	47.9	-10.0	334.0	1.0	0.0	0.0	H-Horn	PK	0.0	37.9	74.0	-36.1

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 6. 11Mbps.

EUT OPERATING MODES

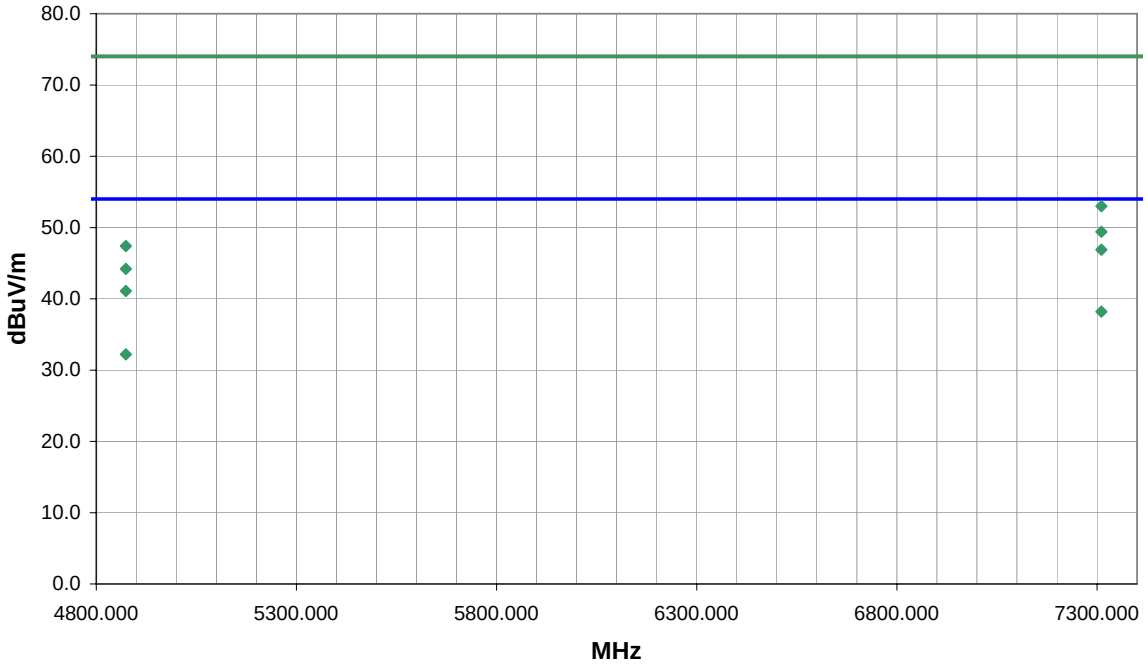
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	16
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7310.912	38.5	8.4	198.0	1.0	3.0	0.0	V-Horn	AV	0.0	46.9	54.0	-7.1
4873.985	37.8	3.3	235.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.1	54.0	-12.9
7311.009	29.8	8.4	183.0	1.4	3.0	0.0	H-Horn	AV	0.0	38.2	54.0	-15.8
7310.907	44.6	8.4	198.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.0	74.0	-21.0
4873.854	28.9	3.3	0.0	1.2	3.0	0.0	H-Horn	AV	0.0	32.2	54.0	-21.8
7310.916	41.0	8.4	183.0	1.4	3.0	0.0	H-Horn	PK	0.0	49.4	74.0	-24.6
4873.918	44.1	3.3	235.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.4	74.0	-26.6
4873.857	40.9	3.3	0.0	1.2	3.0	0.0	H-Horn	PK	0.0	44.2	74.0	-29.8

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 6. 11Mbps.

EUT OPERATING MODES

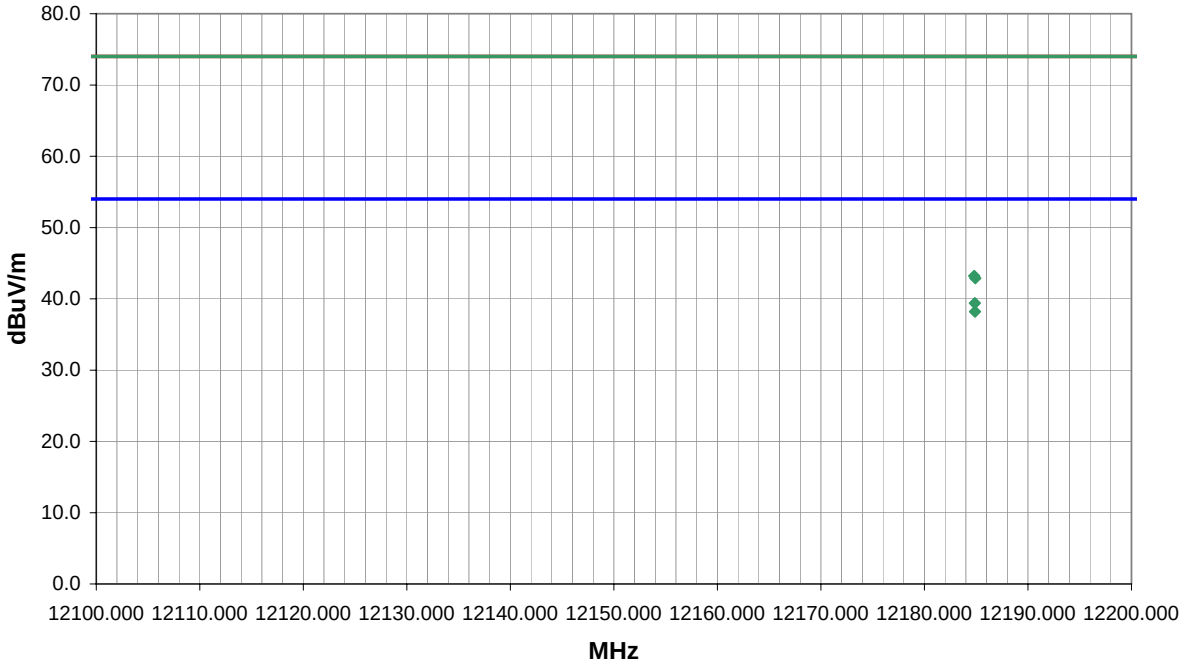
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	16
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
12184.870	49.9	-10.5	249.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6
12184.880	48.7	-10.5	280.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.2	54.0	-15.8
12184.810	53.7	-10.5	249.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.2	74.0	-30.8
12184.910	53.4	-10.5	280.0	1.0	3.0	0.0	H-Horn	PK	0.0	42.9	74.0	-31.1

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Jaemi Suh	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 11. 11 Mbps.

EUT OPERATING MODES

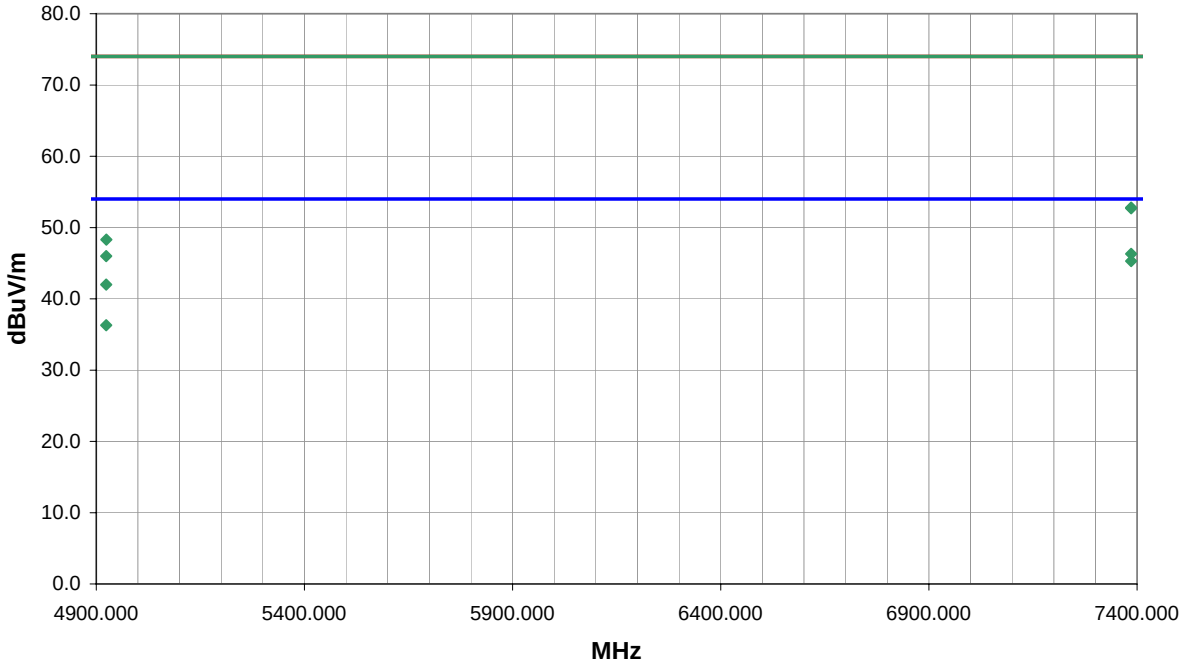
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7385.943	37.7	8.6	283.0	1.0	0.0	0.0	H-Horn	AV	0.0	46.3	54.0	-7.7
7385.930	36.7	8.6	273.0	1.0	0.0	0.0	V-Horn	AV	0.0	45.3	54.0	-8.7
4923.959	38.5	3.5	235.0	1.0	0.0	0.0	V-Horn	AV	0.0	42.0	54.0	-12.0
4923.905	32.8	3.5	201.0	1.4	0.0	0.0	H-Horn	AV	0.0	36.3	54.0	-17.7
7385.782	44.2	8.6	283.0	1.0	0.0	0.0	H-Horn	PK	0.0	52.8	74.0	-21.2
7385.826	44.1	8.6	273.0	1.0	0.0	0.0	V-Horn	PK	0.0	52.7	74.0	-21.3
4924.036	44.8	3.5	235.0	1.0	0.0	0.0	V-Horn	PK	0.0	48.3	74.0	-25.7
4923.675	42.5	3.5	201.0	1.4	0.0	0.0	H-Horn	PK	0.0	46.0	74.0	-28.0

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 11. 11 Mbps.

EUT OPERATING MODES

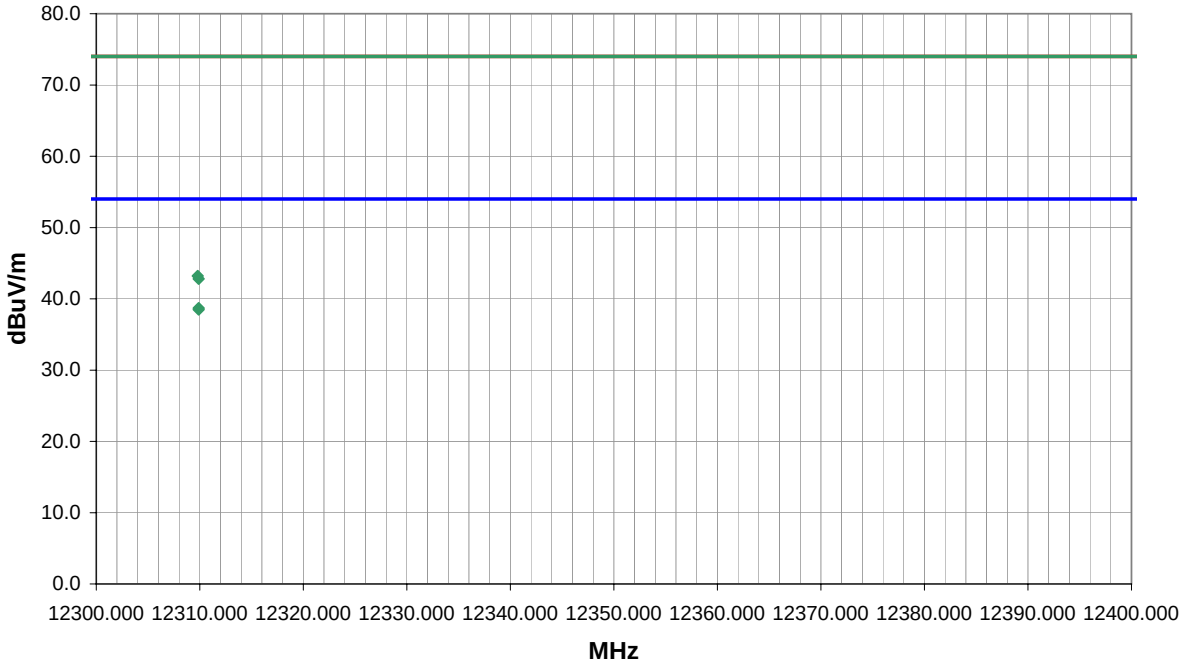
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
12309.890	48.7	-10.0	250.0	1.0	3.0	0.0	V-Horn	AV	0.0	38.7	54.0	-15.3
12309.890	48.5	-10.0	238.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.5	54.0	-15.5
12309.800	53.2	-10.0	238.0	1.0	3.0	0.0	H-Horn	PK	0.0	43.2	74.0	-30.8
12309.890	52.8	-10.0	250.0	1.0	3.0	0.0	V-Horn	PK	0.0	42.8	74.0	-31.2

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/02/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Jaemi Suh	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)		Test Distance (m)	3

COMMENTS

Channel 149. 11 Mbps.

EUT OPERATING MODES

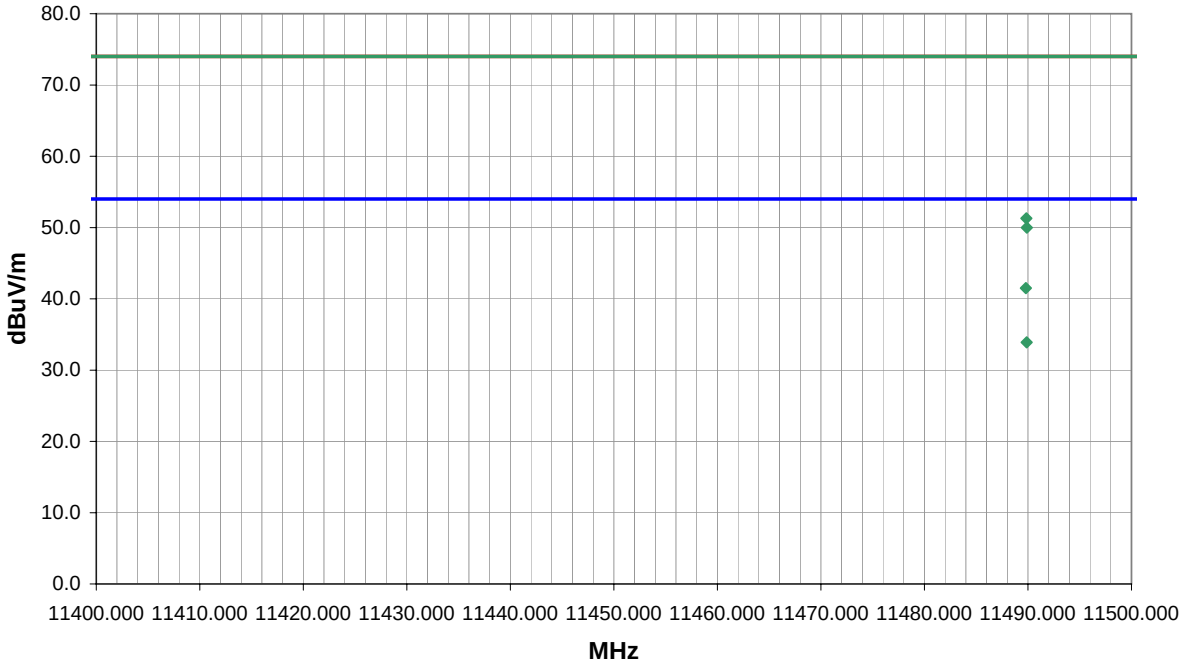
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	18
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
11489.890	61.7	-11.7	197.0	1.0	3.0	0.0	H-Horn	AV	0.0	50.0	54.0	-4.0
11489.880	45.6	-11.7	249.0	1.5	3.0	0.0	V-Horn	AV	0.0	33.9	54.0	-20.1
11489.840	63.0	-11.7	197.0	1.0	3.0	0.0	H-Horn	PK	0.0	51.3	74.0	-22.7
11489.800	53.2	-11.7	249.0	1.5	3.0	0.0	V-Horn	PK	0.0	41.5	74.0	-32.5

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/03/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Jaemi Suh	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 157. 11 Mbps.

EUT OPERATING MODES

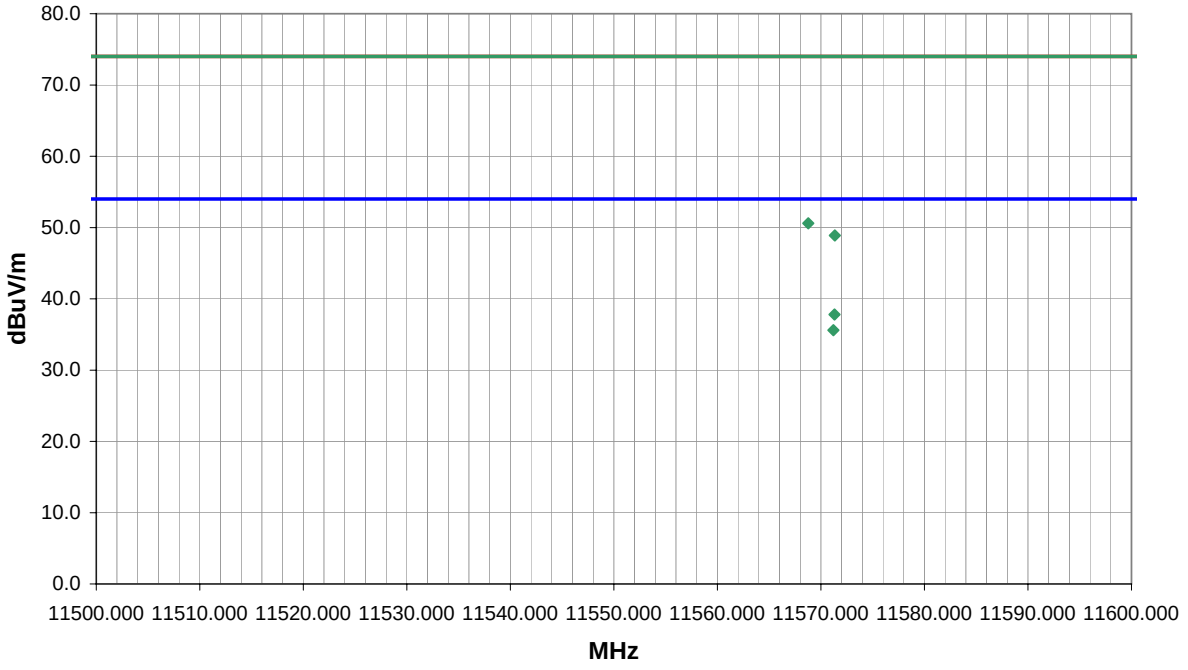
Transmitting.

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	19
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
11571.320	49.3	-11.5	291.0	1.0	0.0	0.0	H-Horn	AV	0.0	37.8	54.0	-16.2
11571.210	47.1	-11.5	229.0	1.0	0.0	0.0	V-Horn	AV	0.0	35.6	54.0	-18.4
11568.780	62.1	-11.5	291.0	1.0	0.0	0.0	H-Horn	PK	0.0	50.6	74.0	-23.4
11571.350	60.4	-11.5	229.0	1.0	0.0	0.0	V-Horn	PK	0.0	48.9	74.0	-25.1

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Rad-87			Work Order:	MASI0009
Serial Number:	J00073			Date:	09/03/08
Customer:	Masimo Corporation			Temperature:	21.88
Attendees:	Eugene Kim			Humidity:	53%
Project:	None			Barometric Pres.:	1011.7
Tested by:	Jaemi Suh	Power:	120VAC/60Hz	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS

Channel 149. 6 Mbps.

EUT OPERATING MODES

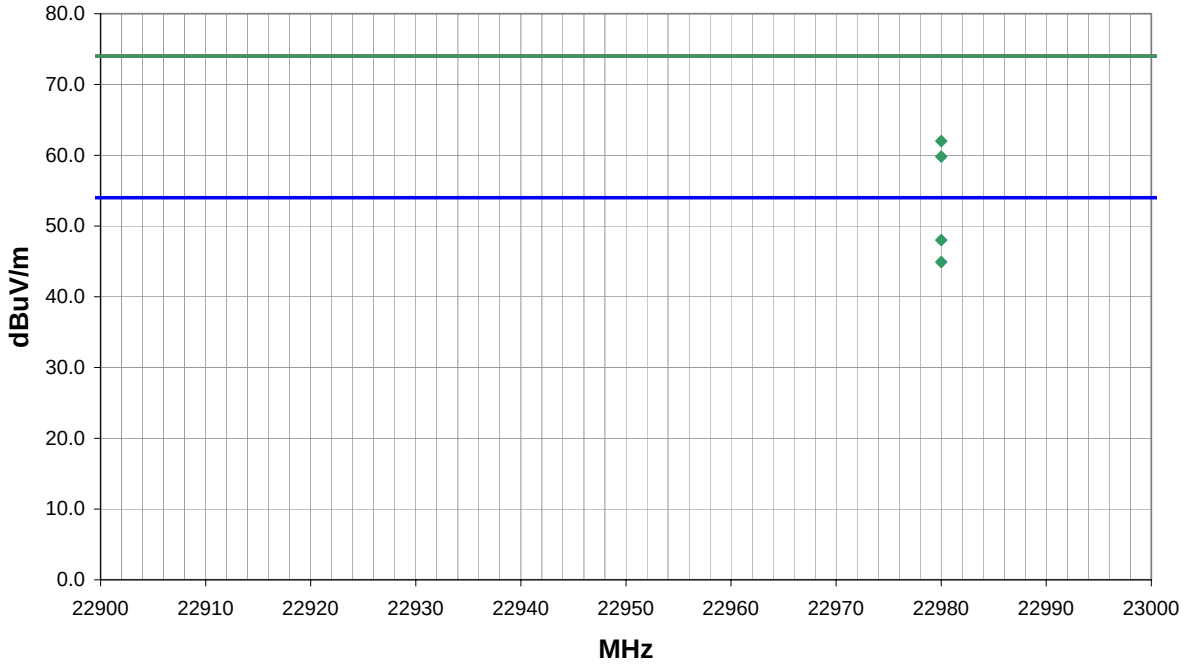
Transmit Mode

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	29
Configuration #	1
Results	Pass

Signature



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted unknown units	Spec. Limit unknown units	Compared to Spec. (dB)
22980	47.9	0.1	289.0	1.0	0.0	0.0	-High Horr	AV	0.0	48.0	54.0	-6.0
22980	44.8	0.1	273.0	1.0	0.0	0.0	√-High Horr	AV	0.0	44.9	54.0	-9.1
22980	61.9	0.1	289.0	1.0	0.0	0.0	-High Horr	PK	0.0	62.0	74.0	-12.0
22980	59.7	0.1	273.0	1.0	0.0	0.0	√-High Horr	PK	0.0	59.8	74.0	-14.2


fcc Test Unit

SPURIOUS CONDUCTED EMISSIONS

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AAX	10/1/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

NORTHWEST EMC

SPURIOUS CONDUCTED EMISSIONS

XMit 2007.06.13

EUT:	Rad-87	Work Order:	MASI0009
Serial Number:	J00073	Date:	09/17/08
Customer:	Masimo Corporation	Temperature:	21.88°C
Attendees:	Eugene Kim	Humidity:	53%
Project:	None	Barometric Pres.:	1011.7
Tested by:	Mark Baytan	Power: 120V/60Hz	Job Site: OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2007	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

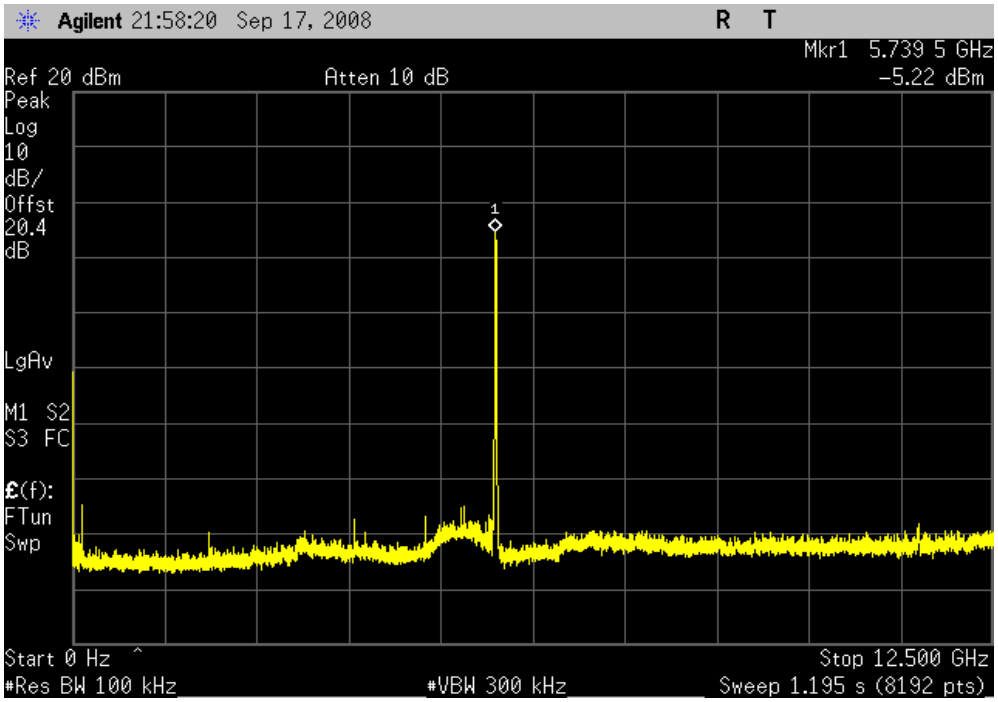
DEVIATIONS FROM TEST STANDARD

No Deviations.

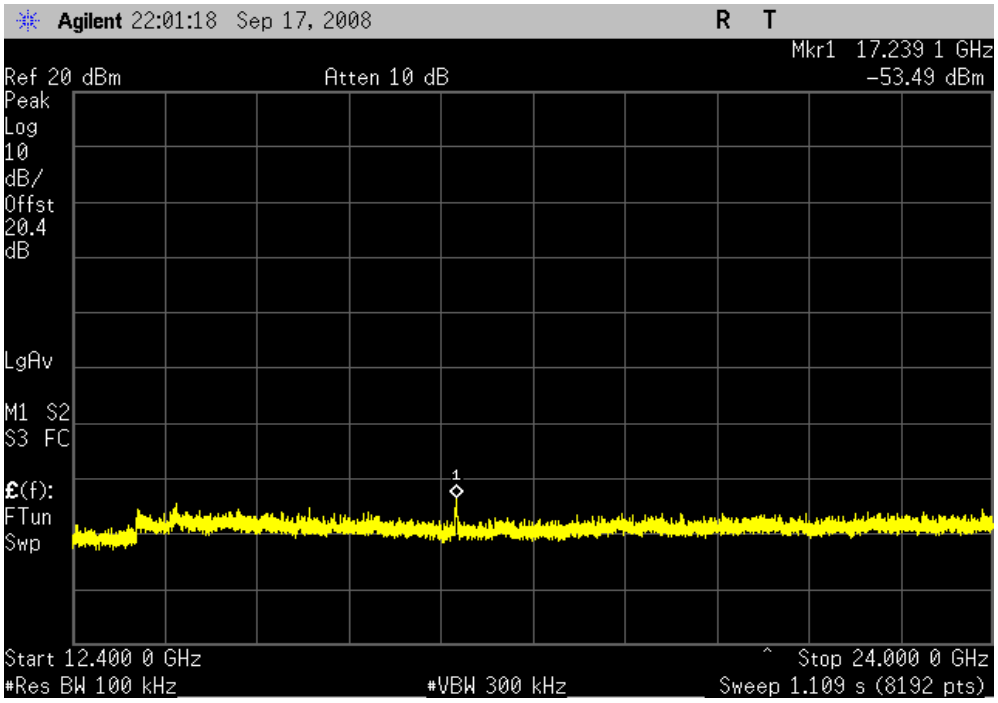
Configuration #	2	Signature

		Value	Limit	Results
802.11(a), 6 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(a), 36 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(a), 54 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(b), 1 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(b), 11 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(g), 6 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(g), 36 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
802.11(g), 54 Mbps				
	Low Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	Mid Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass
	High Channel			
	0 - 12.5 GHz	< -40 dBc	≤ -20dBc	Pass
	12.4 - 24 GHz	< -40 dBc	≤ -20dBc	Pass
	23.5 - 31 GHz	< -40 dBc	≤ -20dBc	Pass
	30.5 - 40 GHz	< -40 dBc	≤ -20dBc	Pass

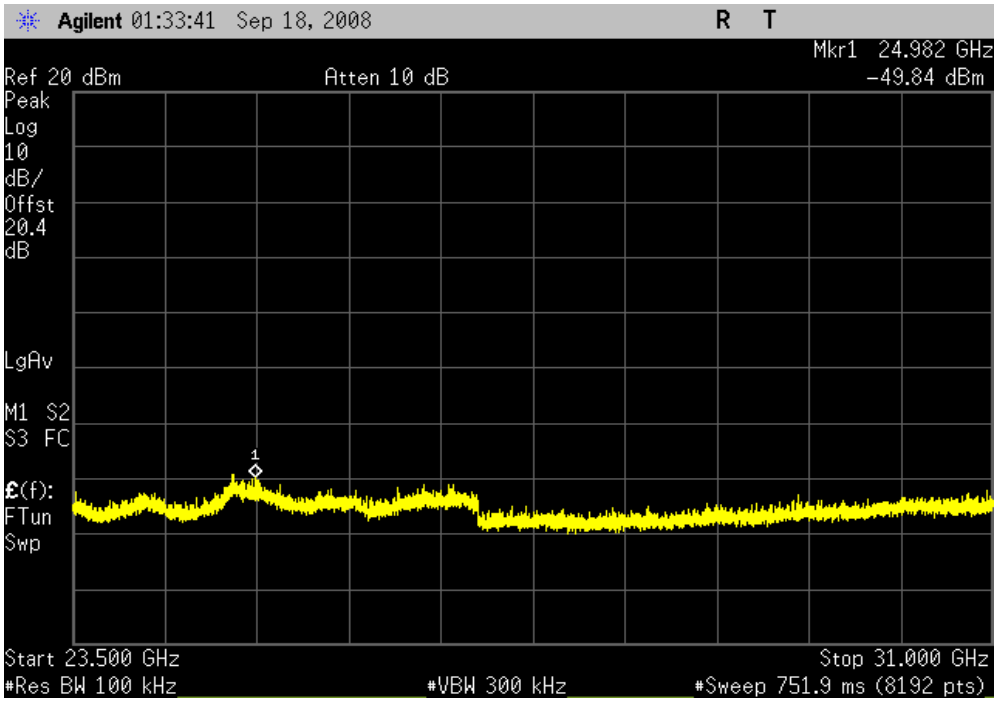
802.11(a), 6 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



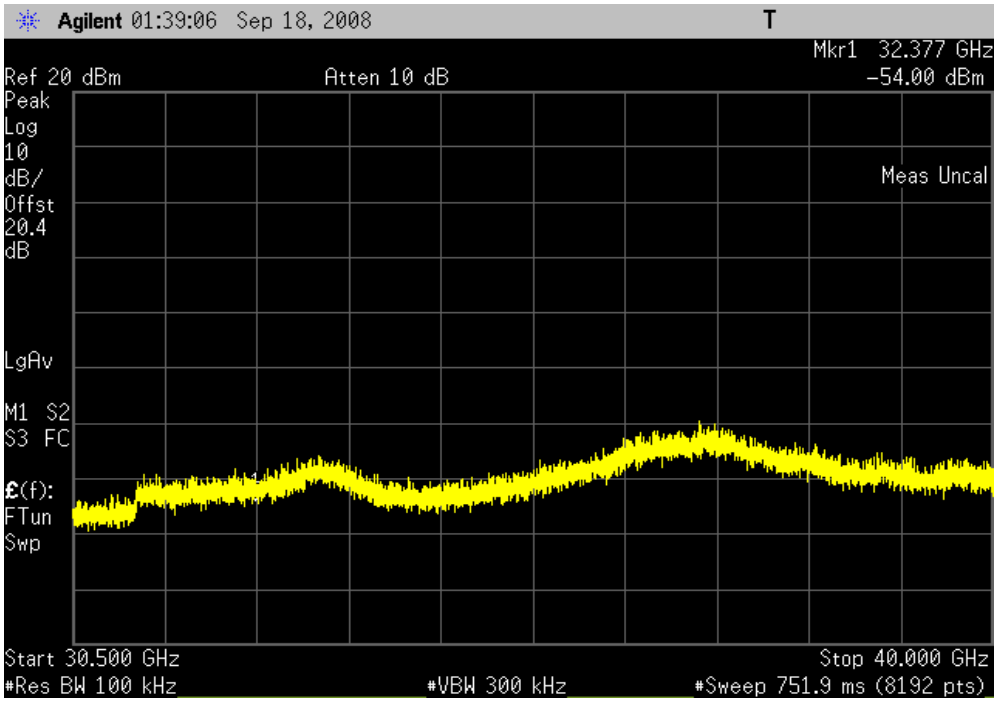
802.11(a), 6 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



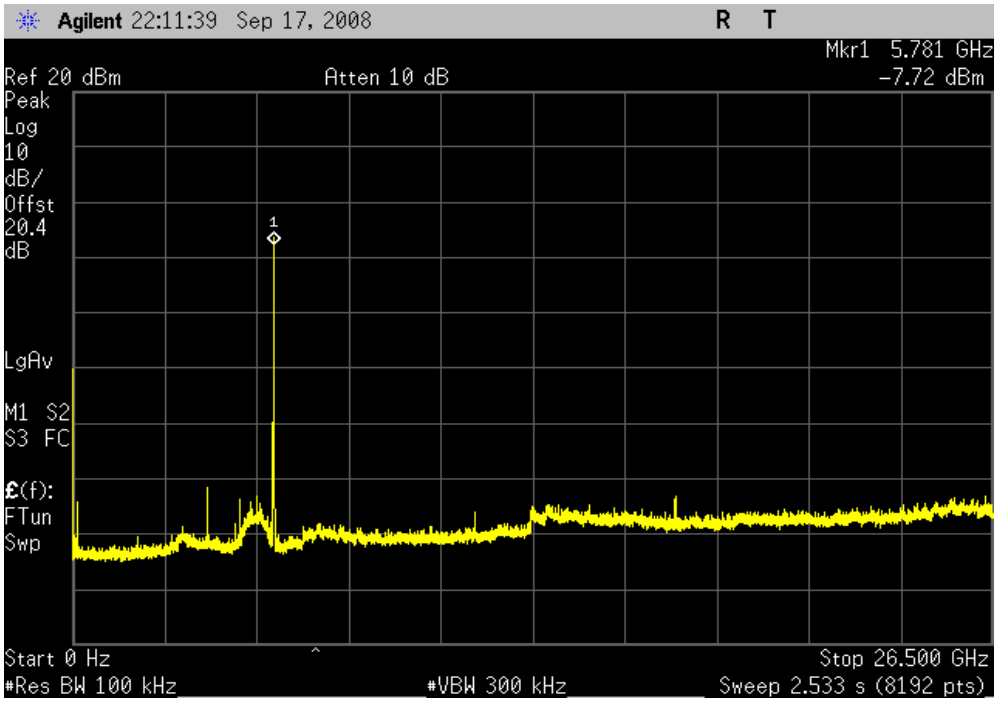
802.11(a), 6 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



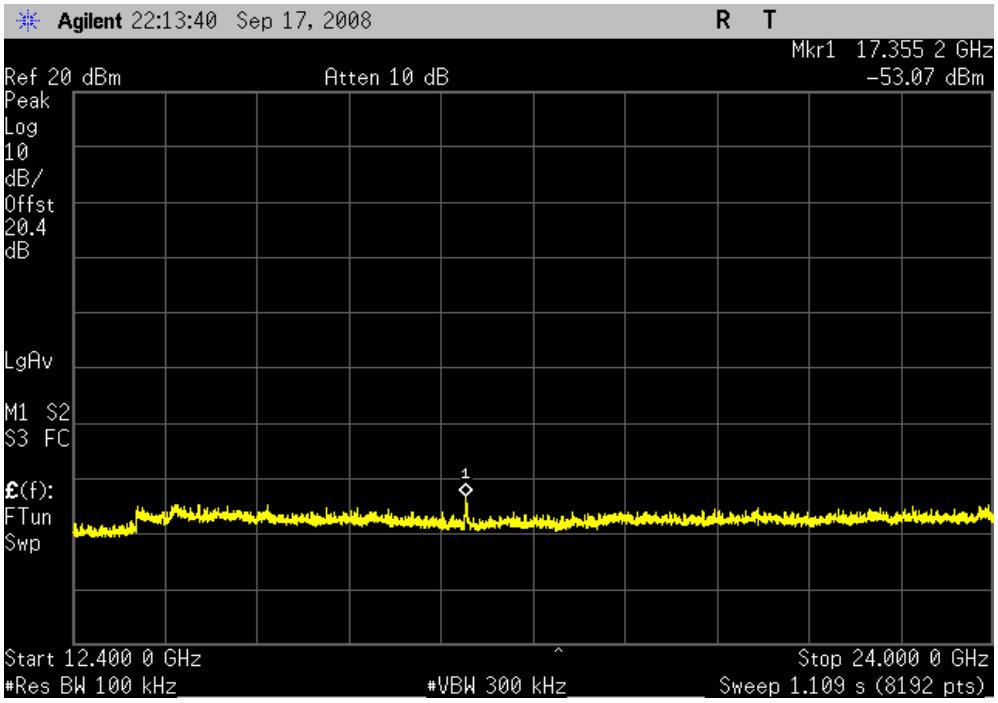
802.11(a), 6 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



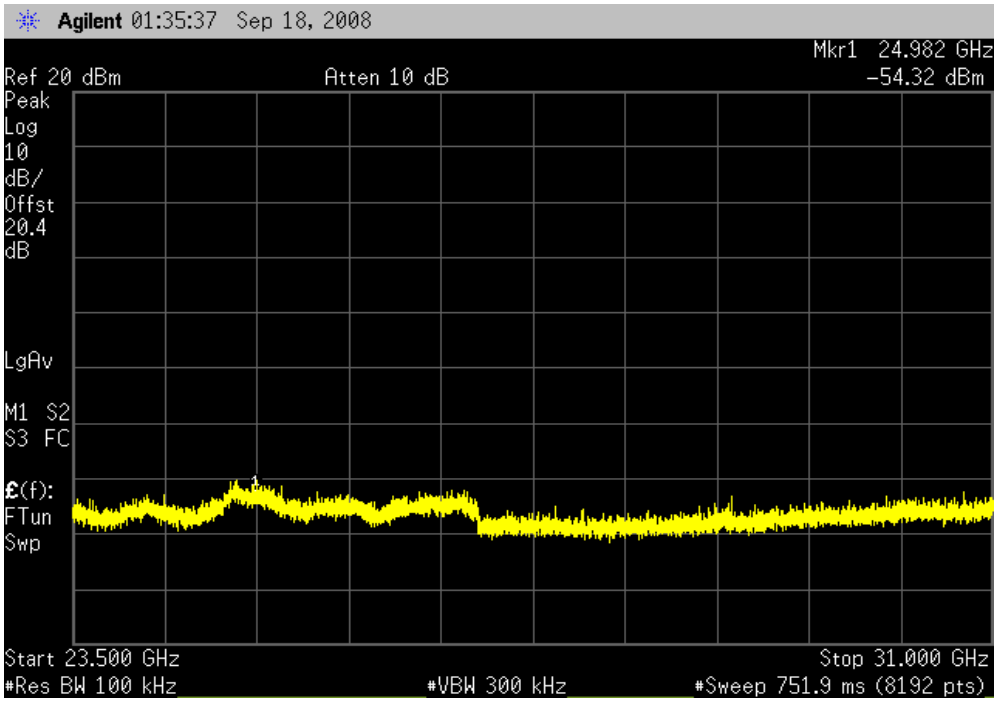
802.11(a), 6 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



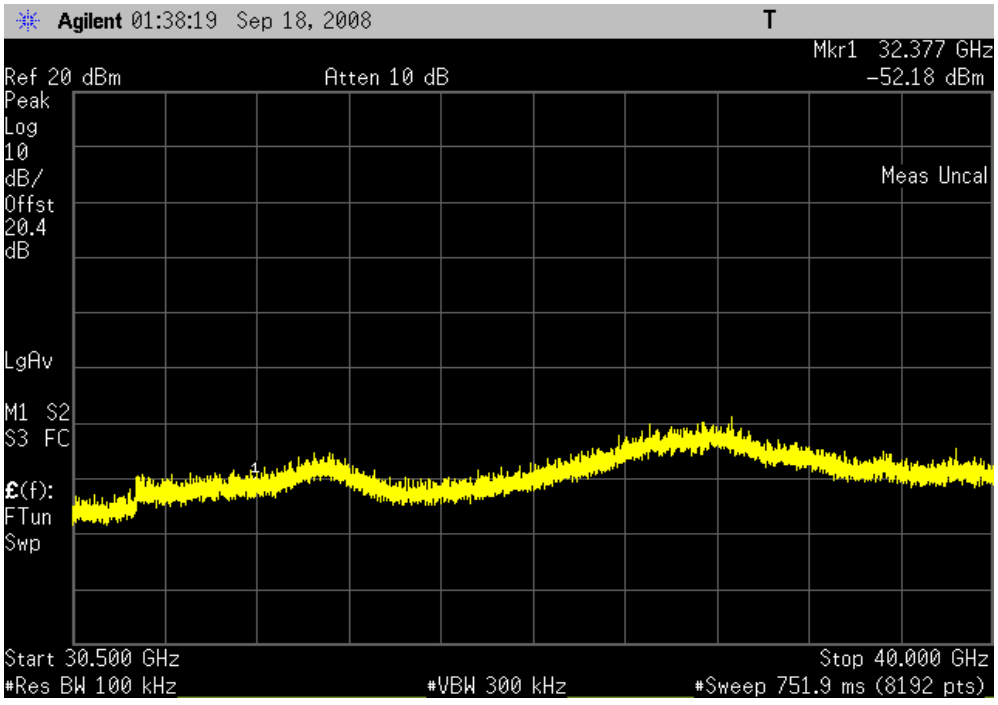
802.11(a), 6 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



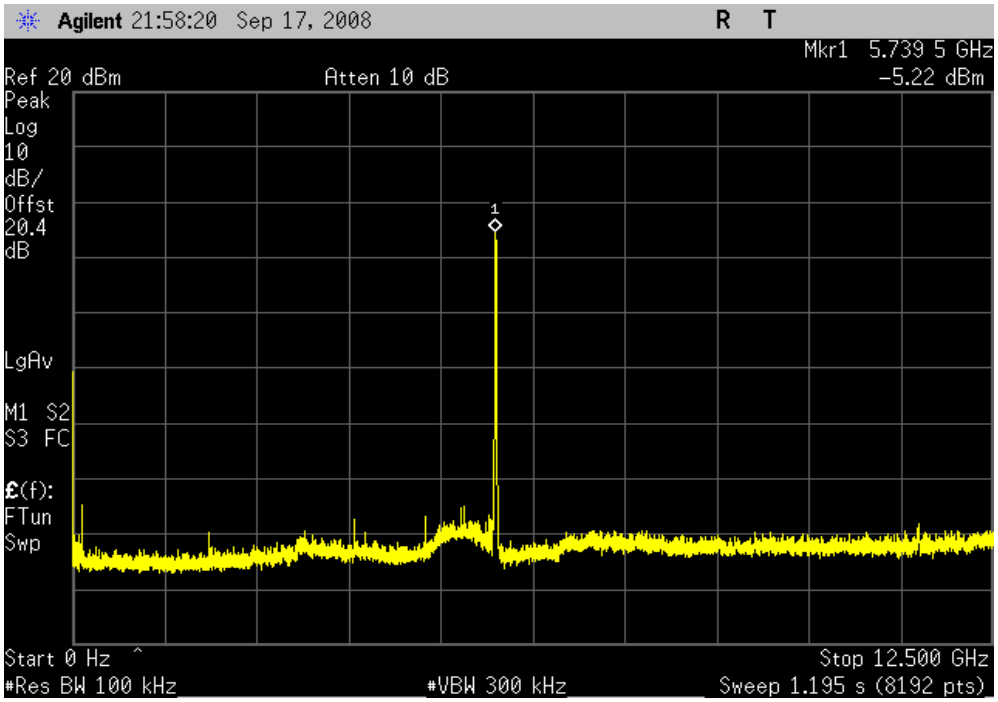
802.11(a), 6 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



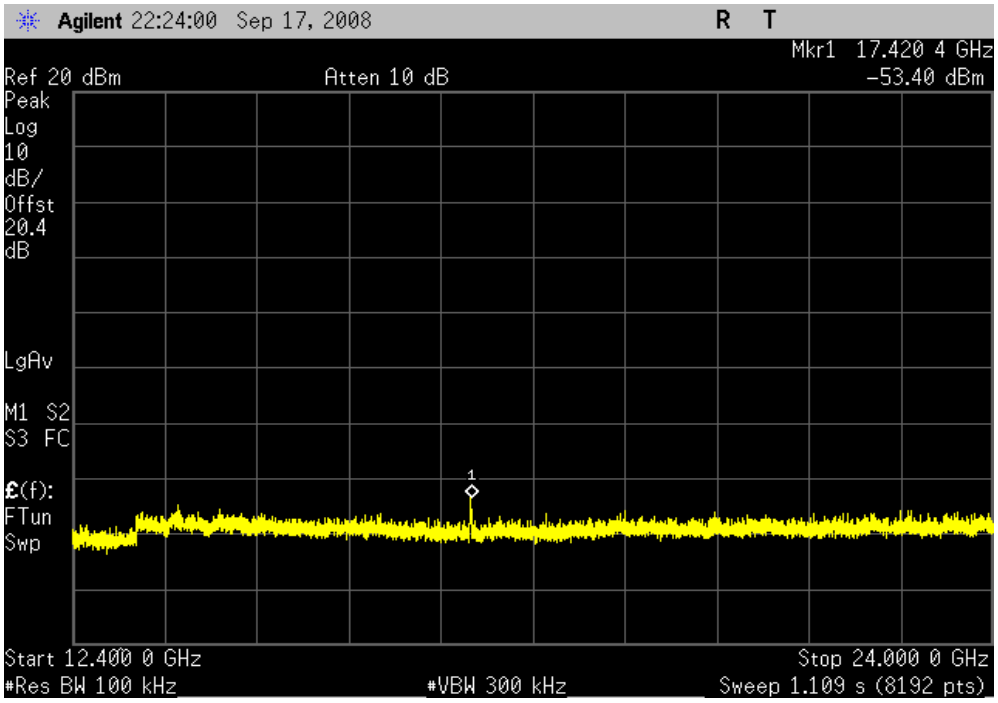
802.11(a), 6 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



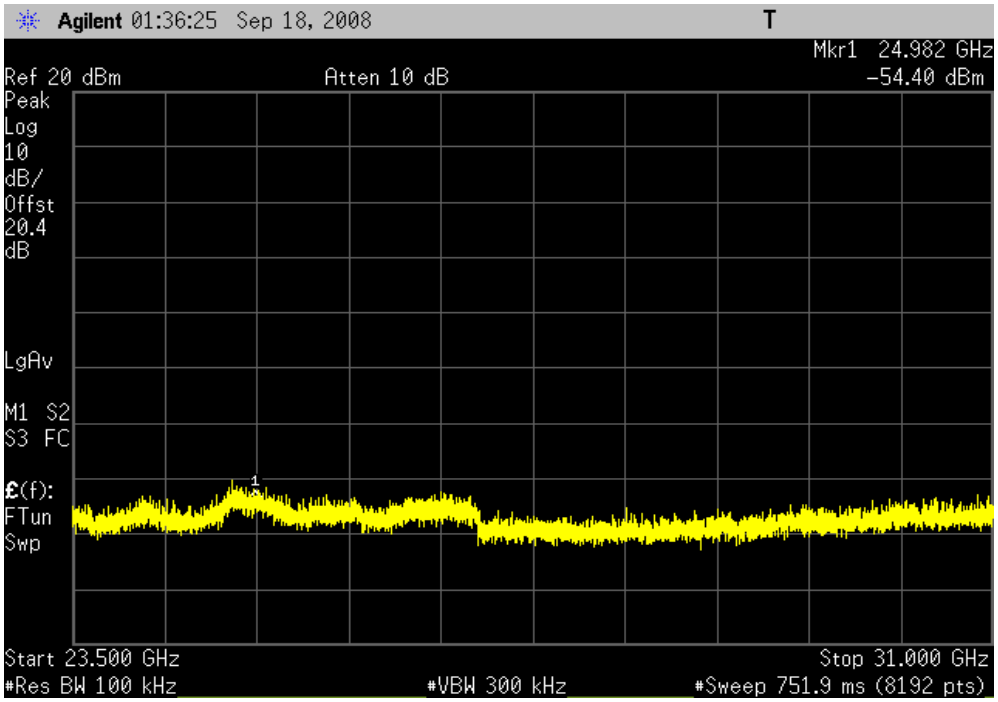
802.11(a), 6 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



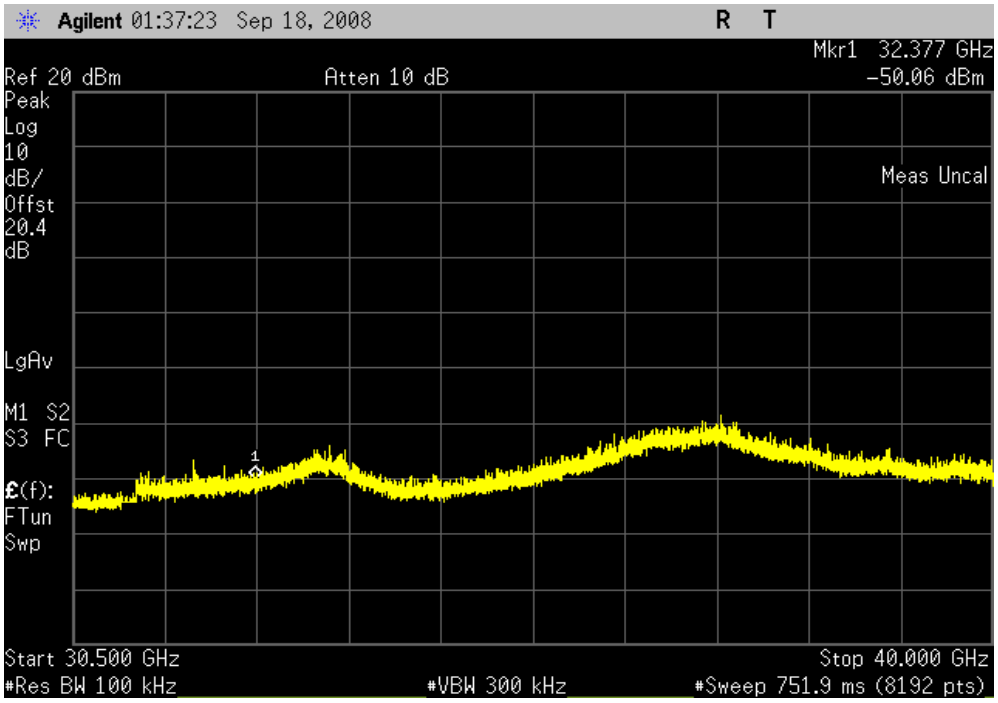
802.11(a), 6 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



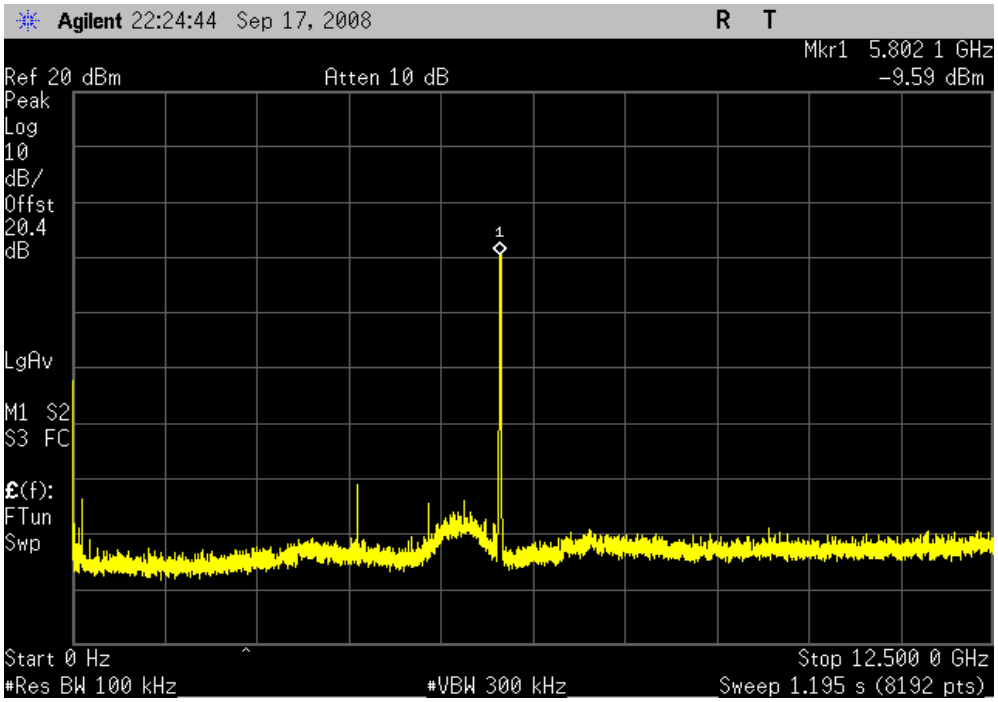
802.11(a), 6 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



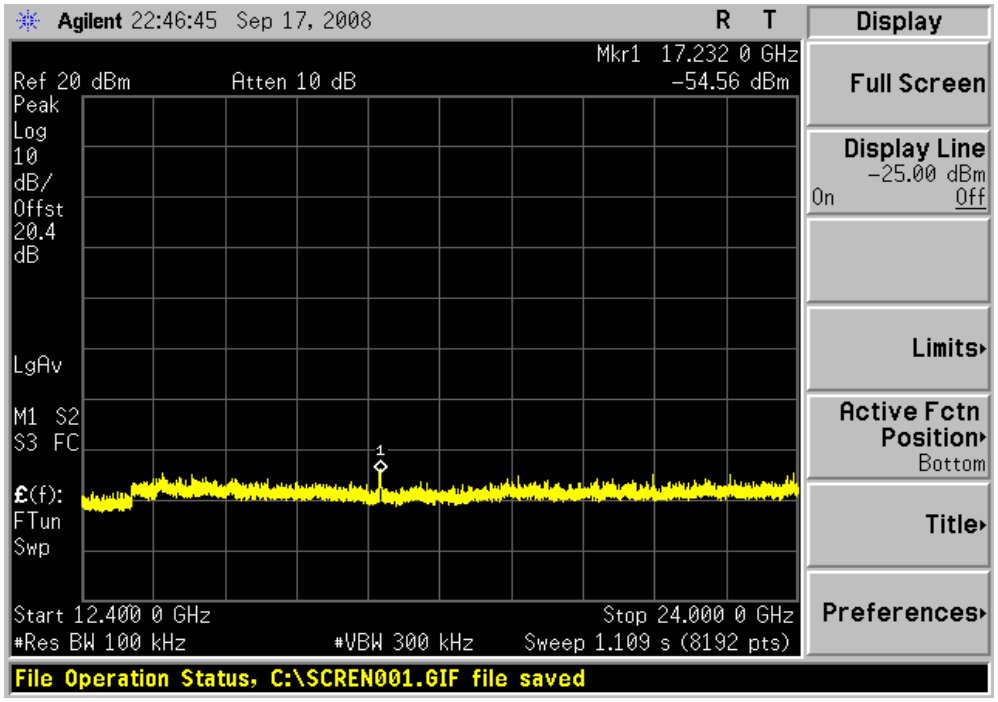
802.11(a), 6 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



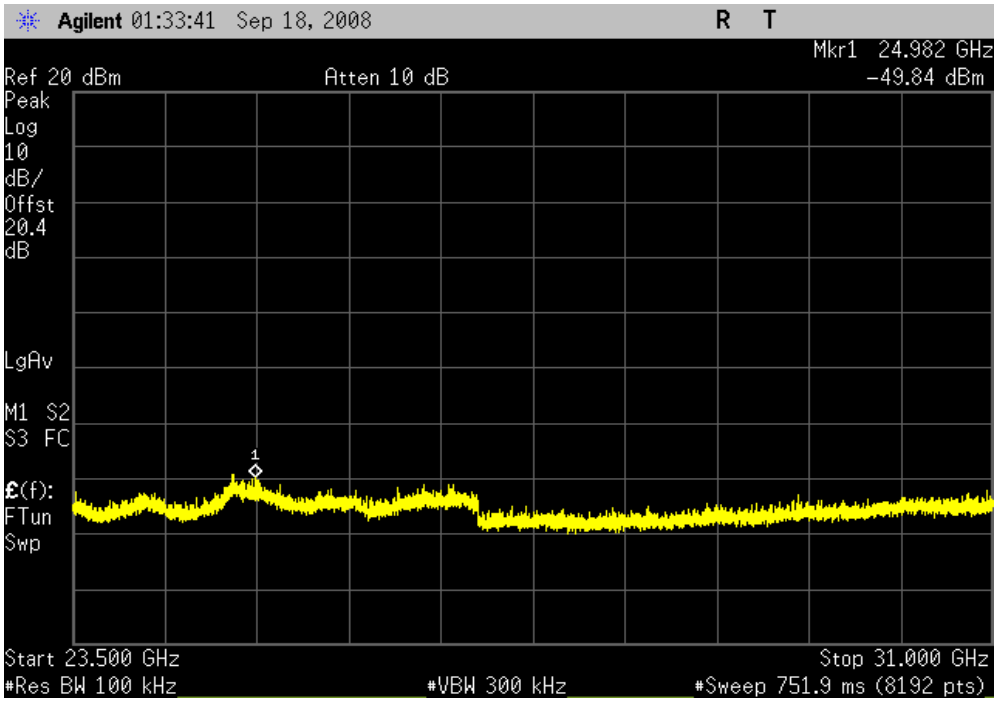
802.11(a), 36 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



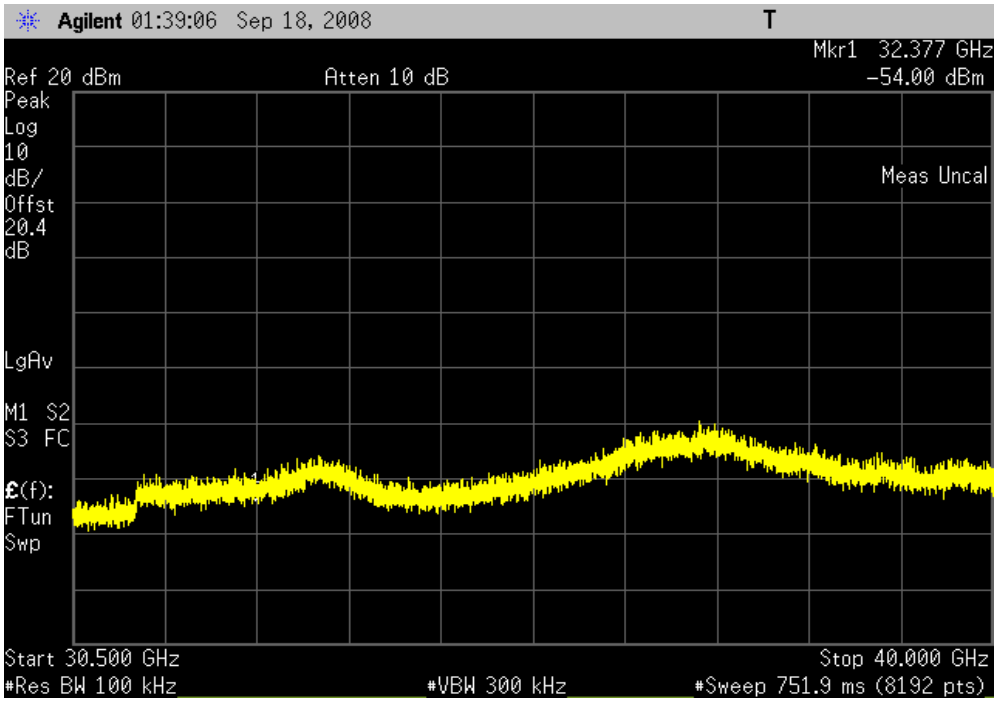
802.11(a), 36 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



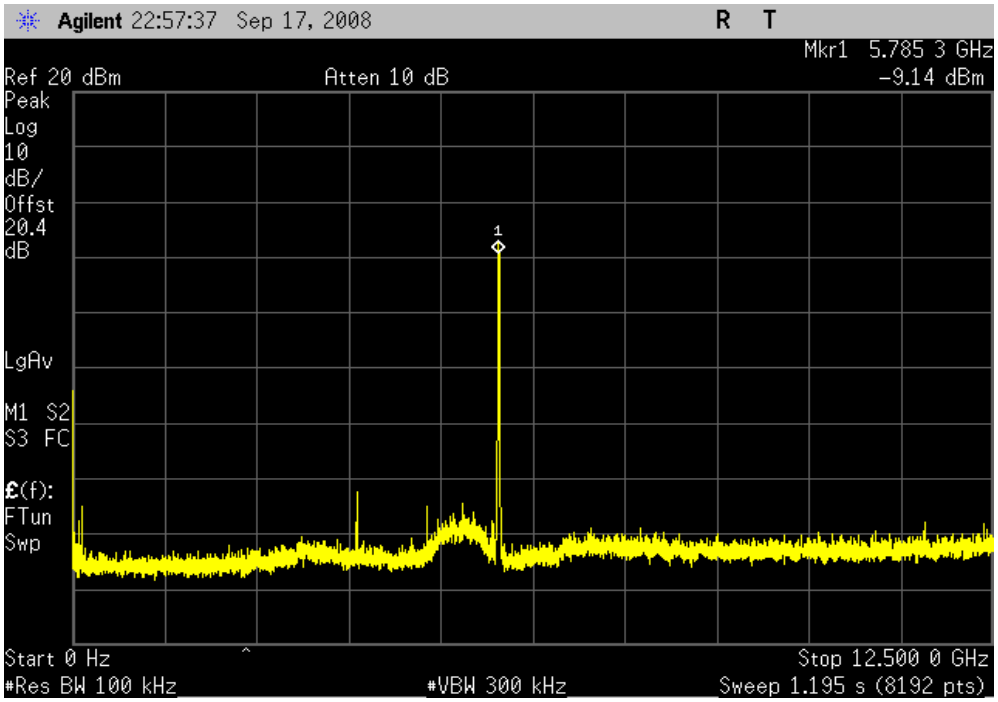
802.11(a), 36 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



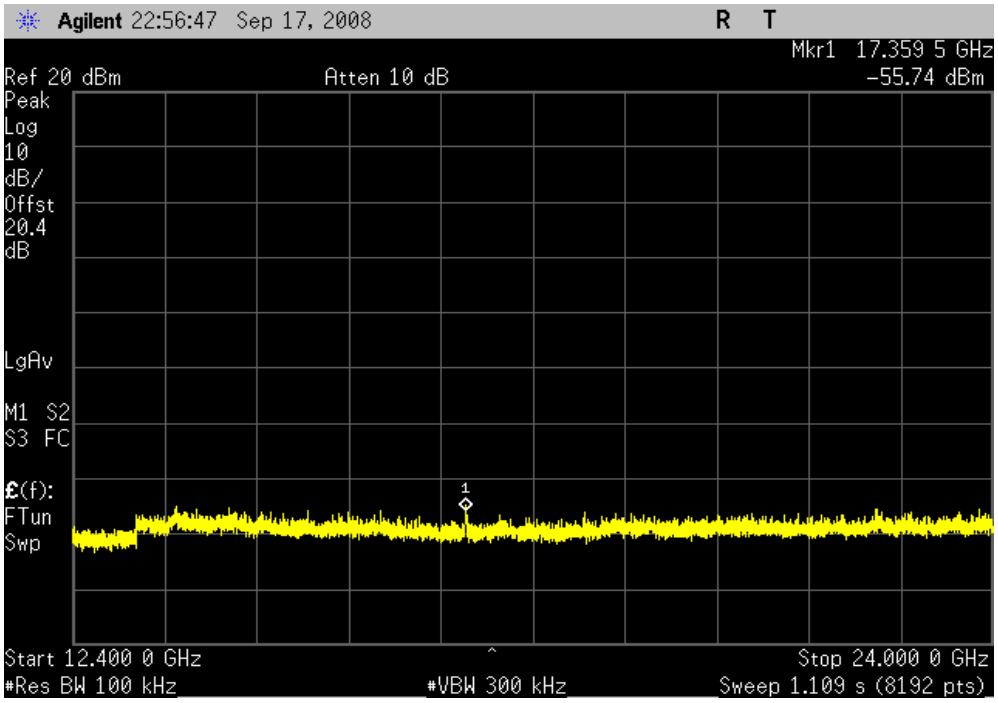
802.11(a), 36 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



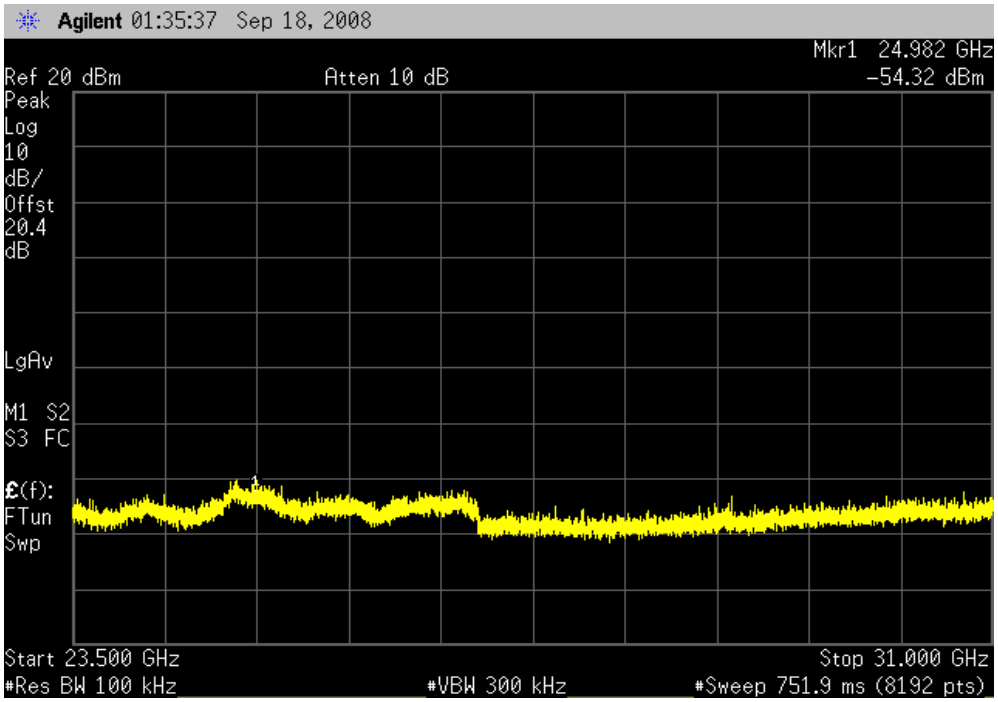
802.11(a), 36 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



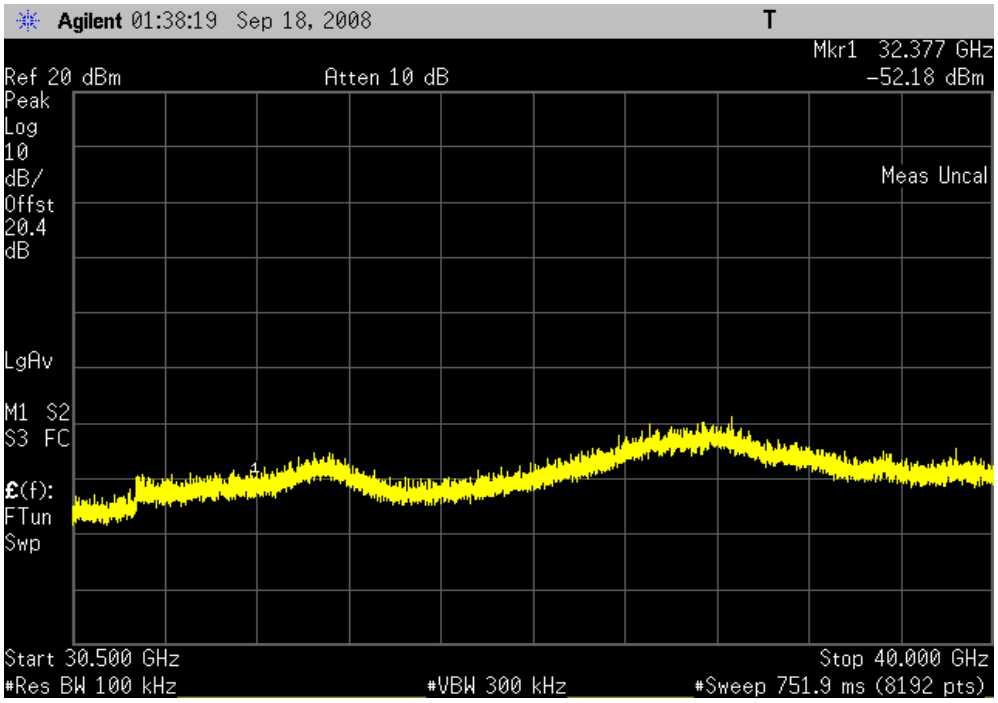
802.11(a), 36 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



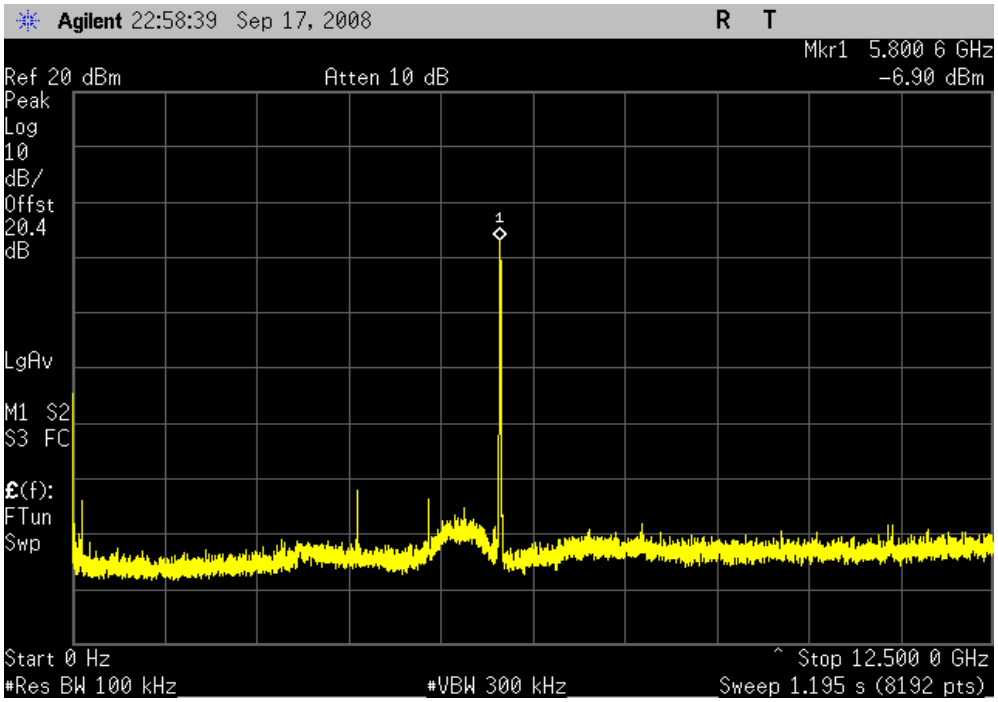
802.11(a), 36 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



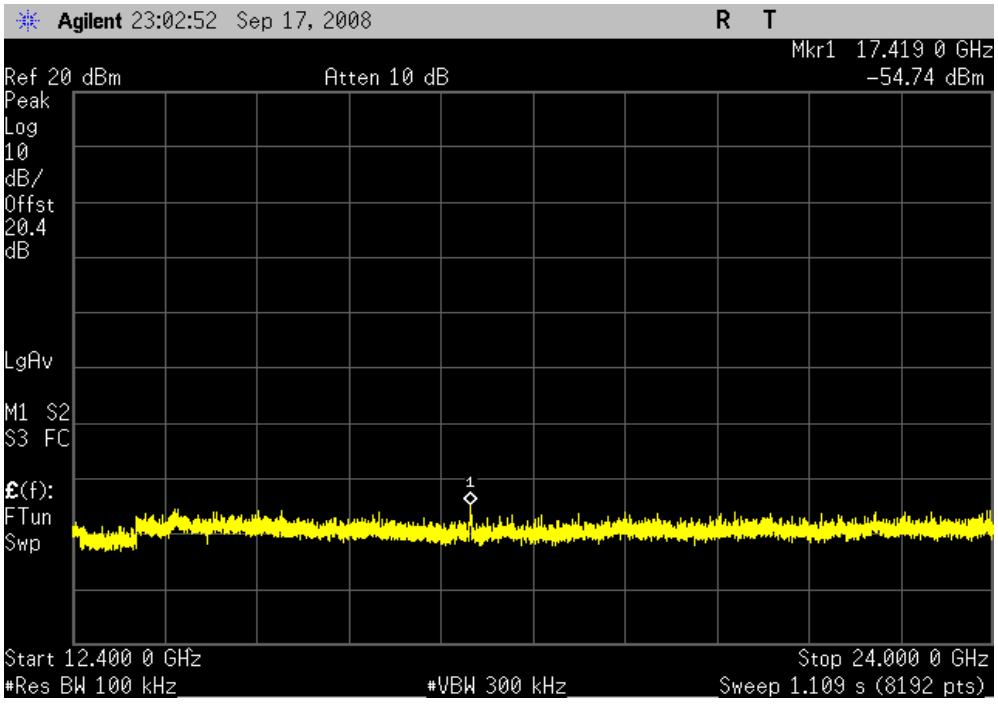
802.11(a), 36 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



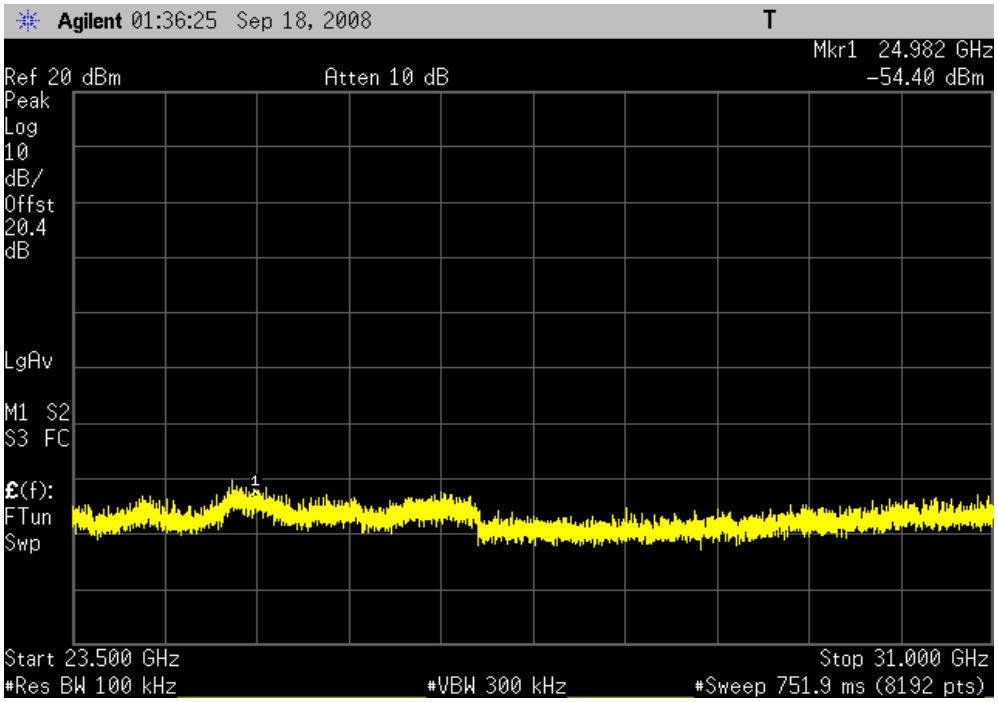
802.11(a), 36 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



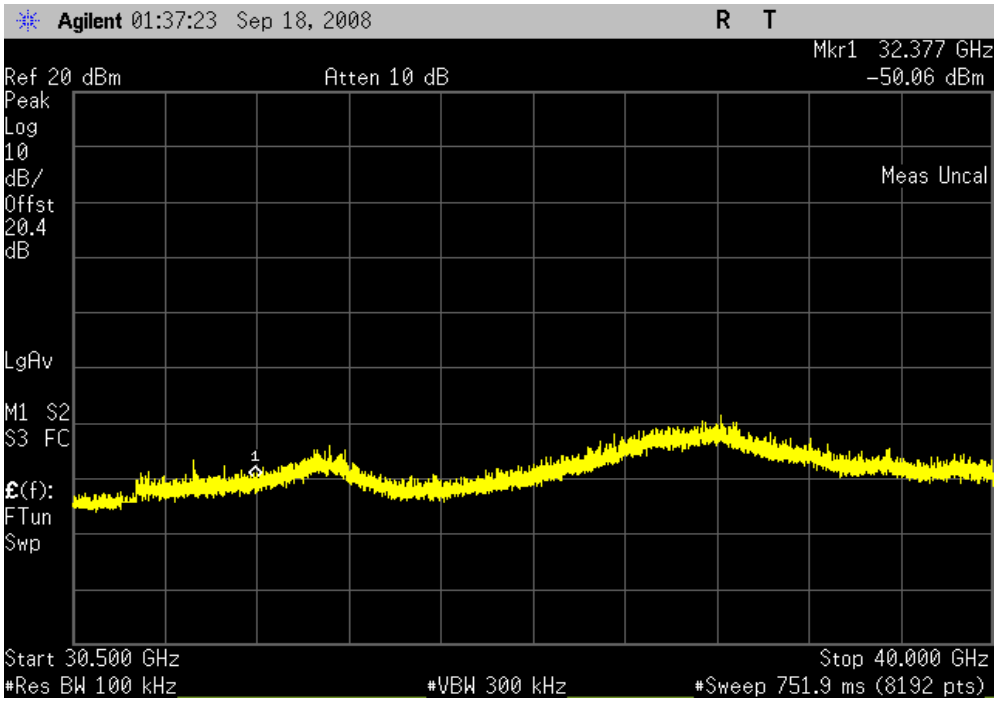
802.11(a), 36 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



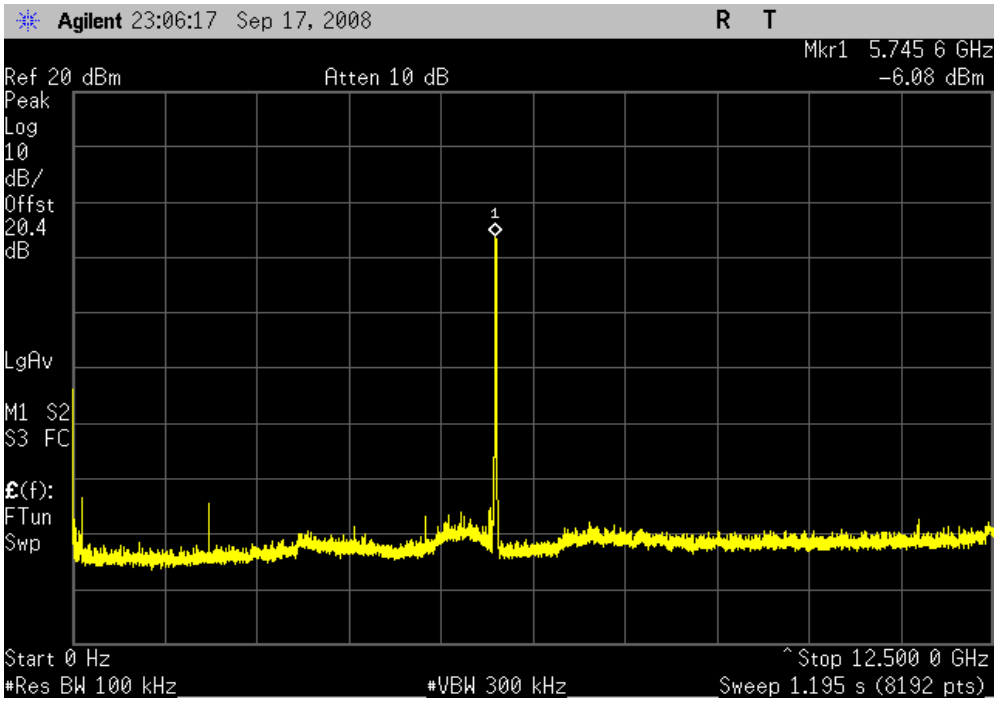
802.11(a), 36 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



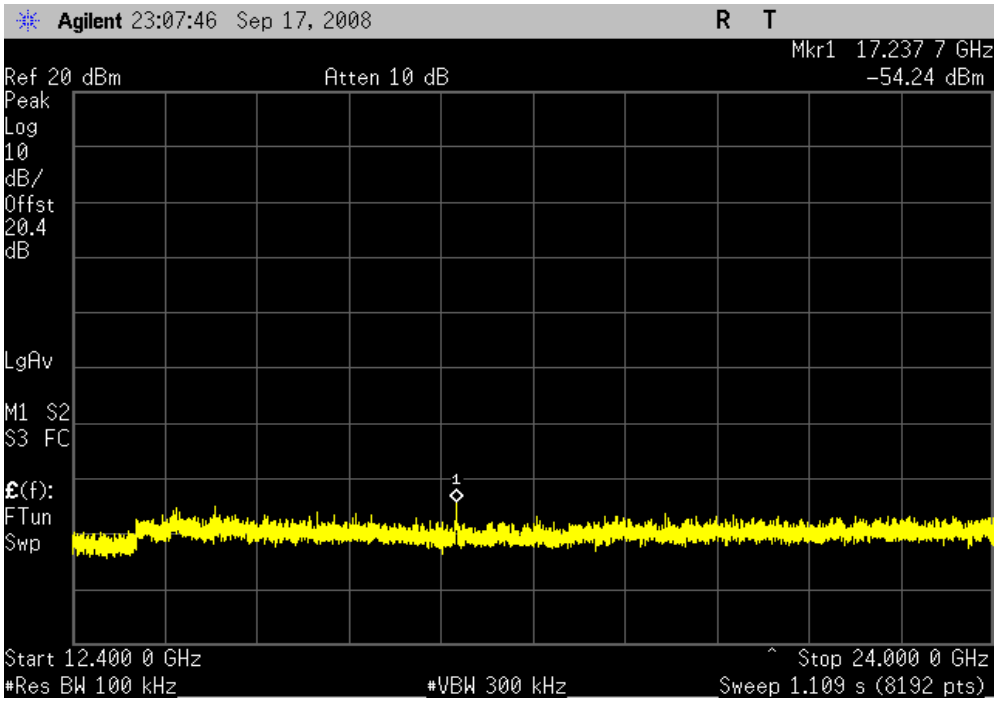
802.11(a), 36 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



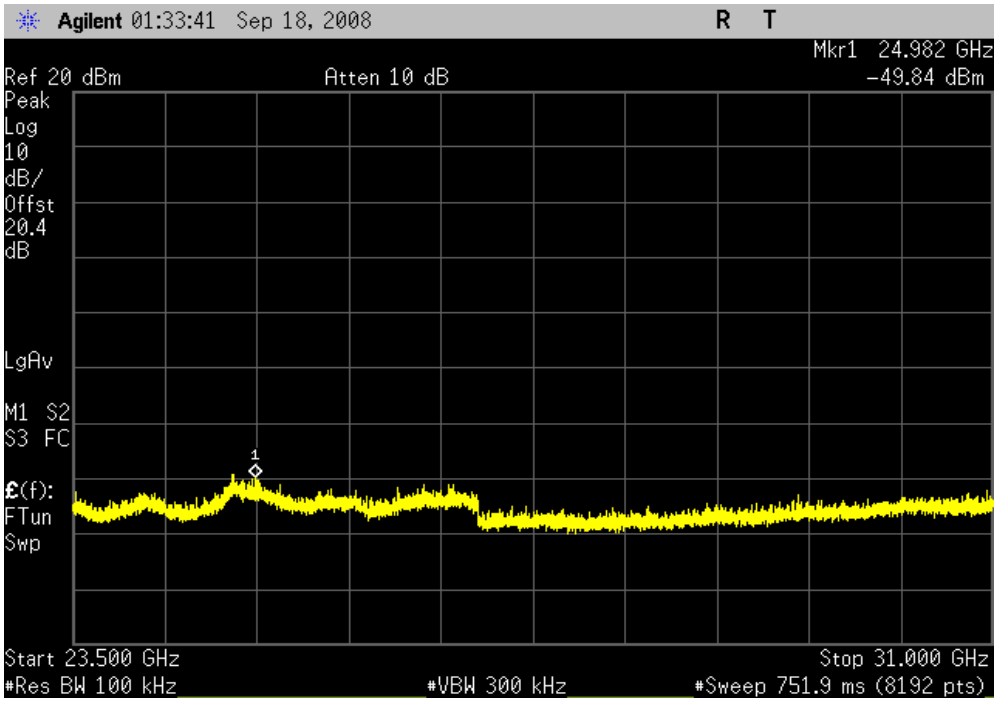
802.11(a), 54 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



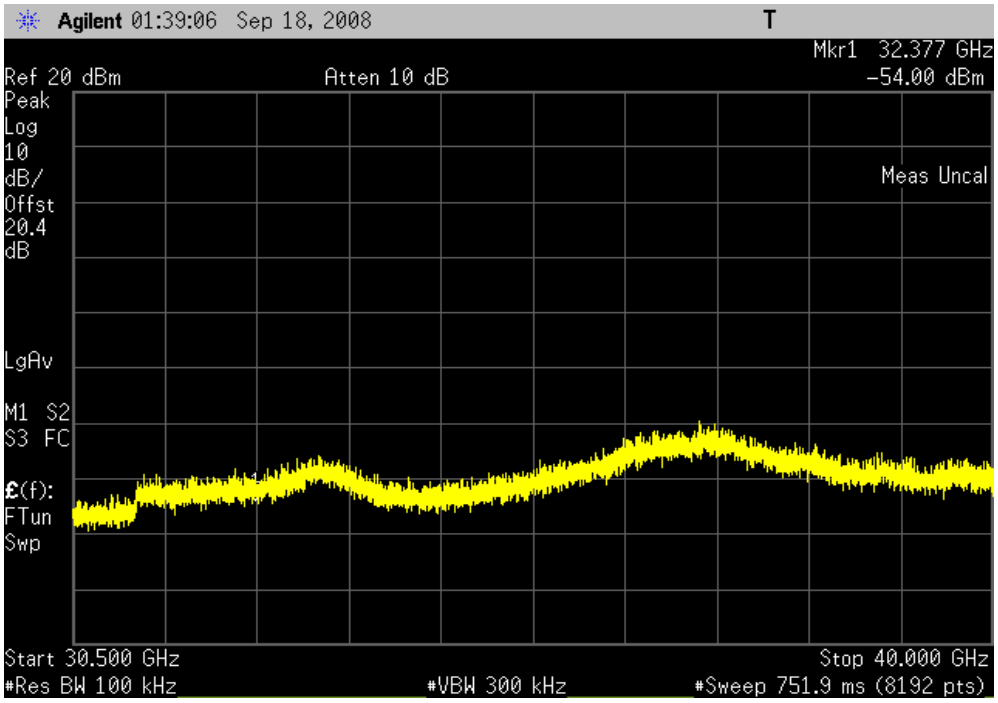
802.11(a), 54 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



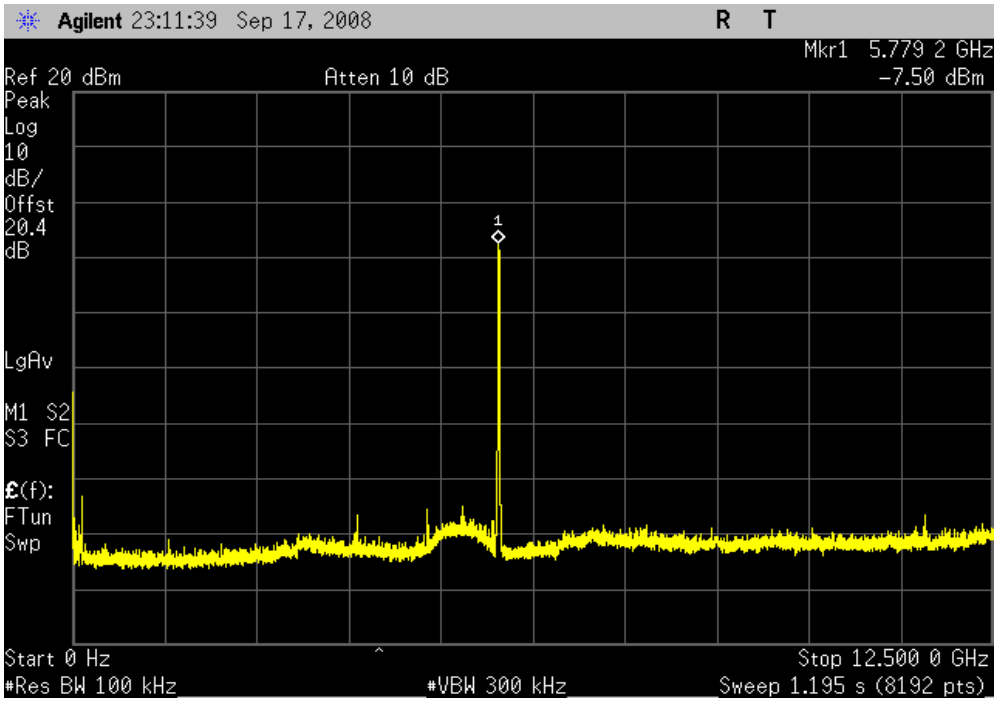
802.11(a), 54 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



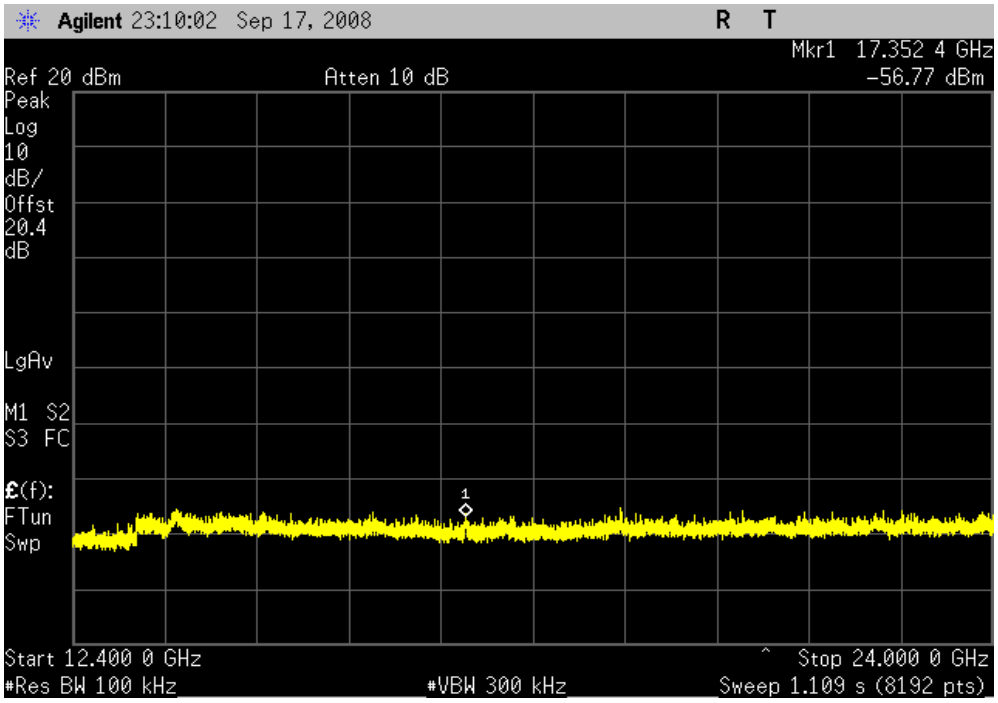
802.11(a), 54 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



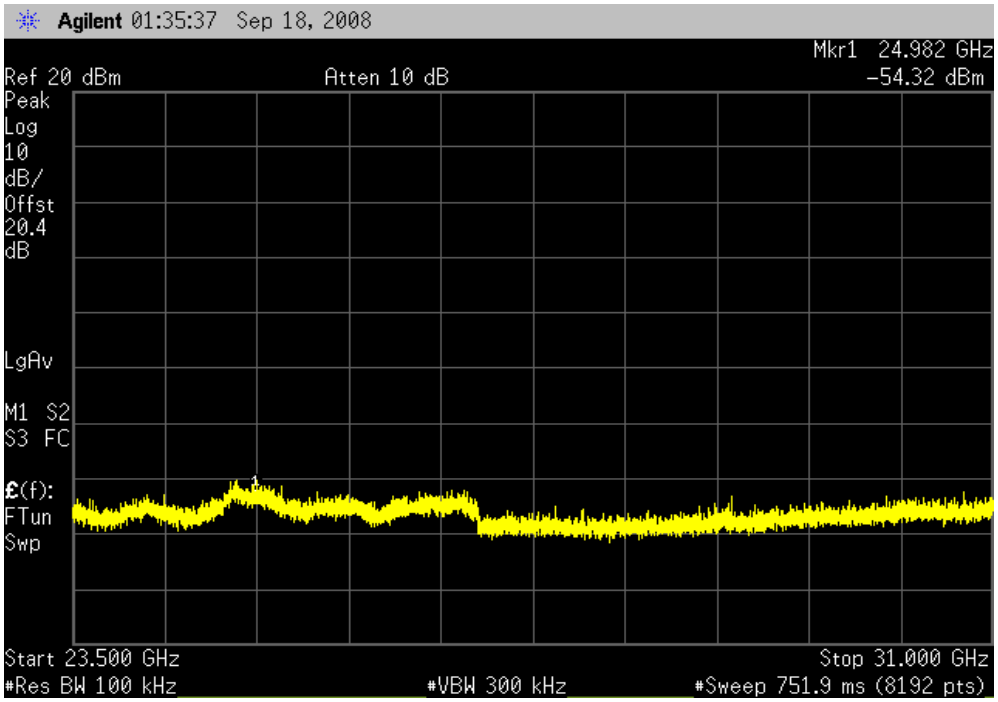
802.11(a), 54 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



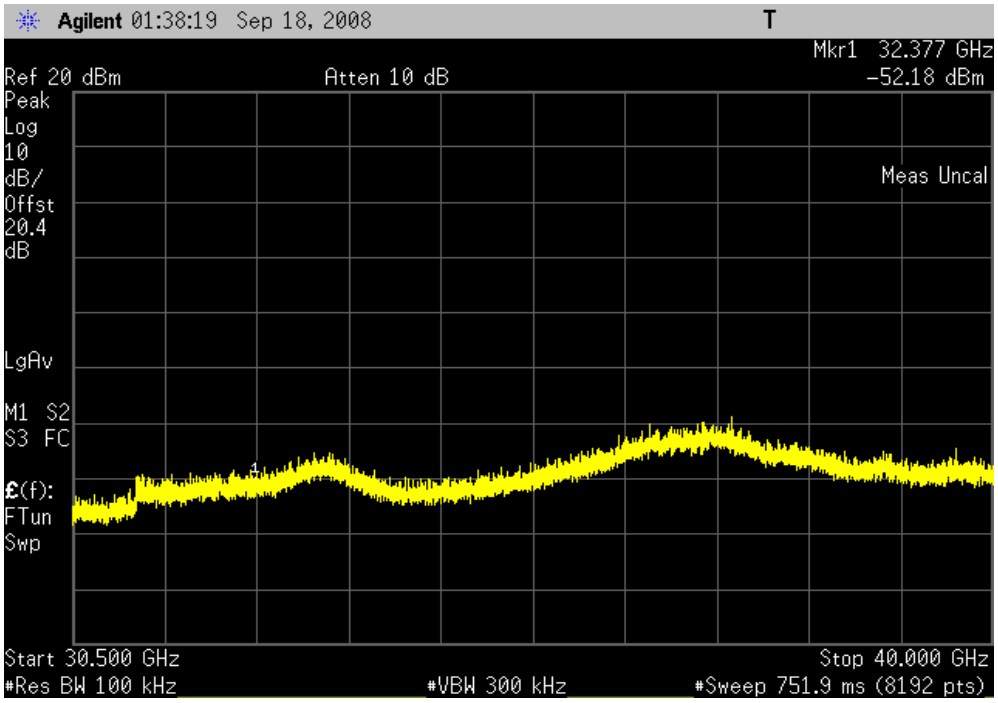
802.11(a), 54 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



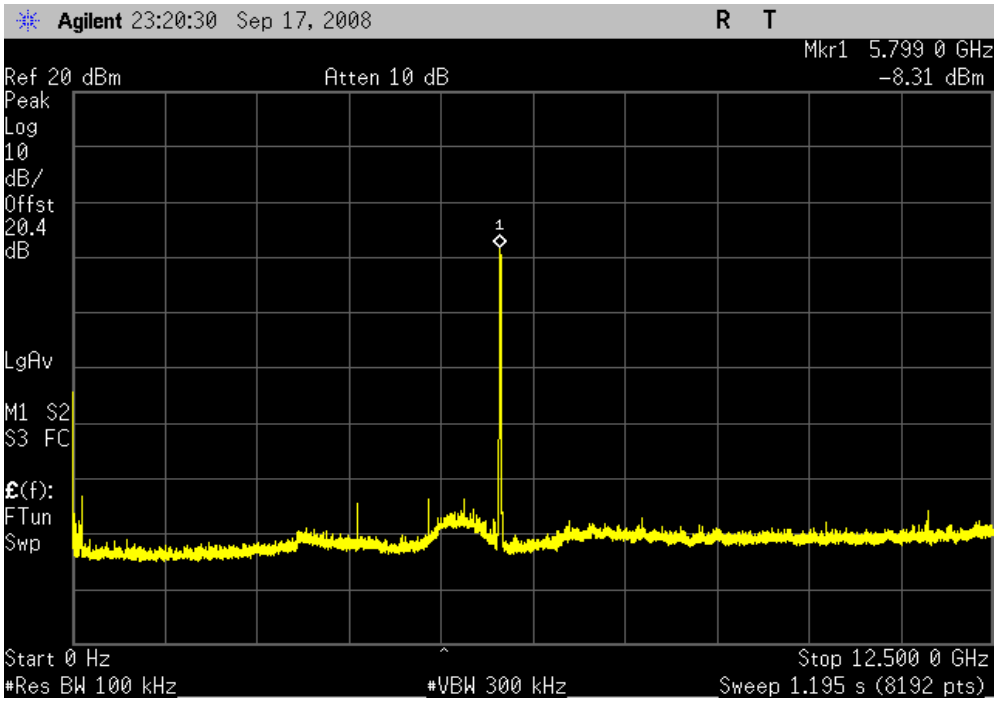
802.11(a), 54 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



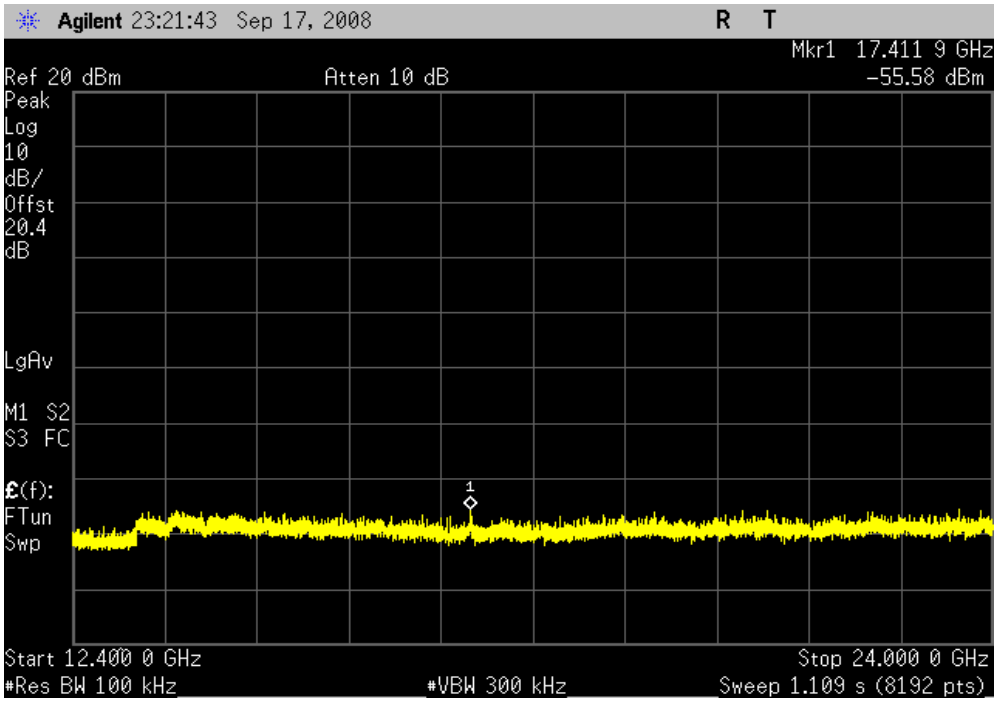
802.11(a), 54 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



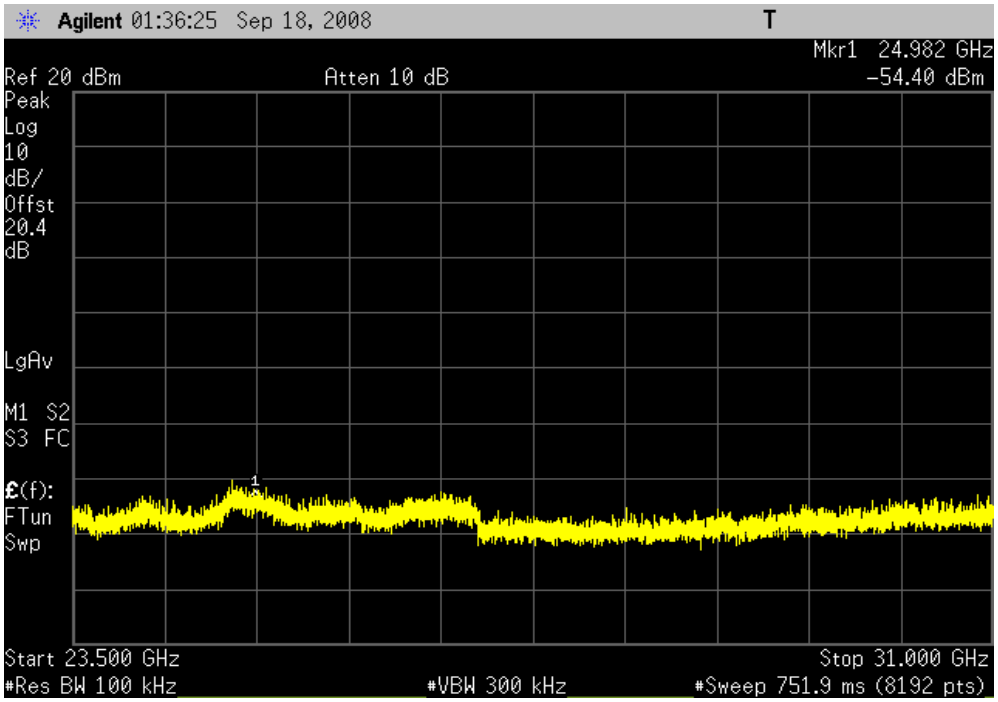
802.11(a), 54 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



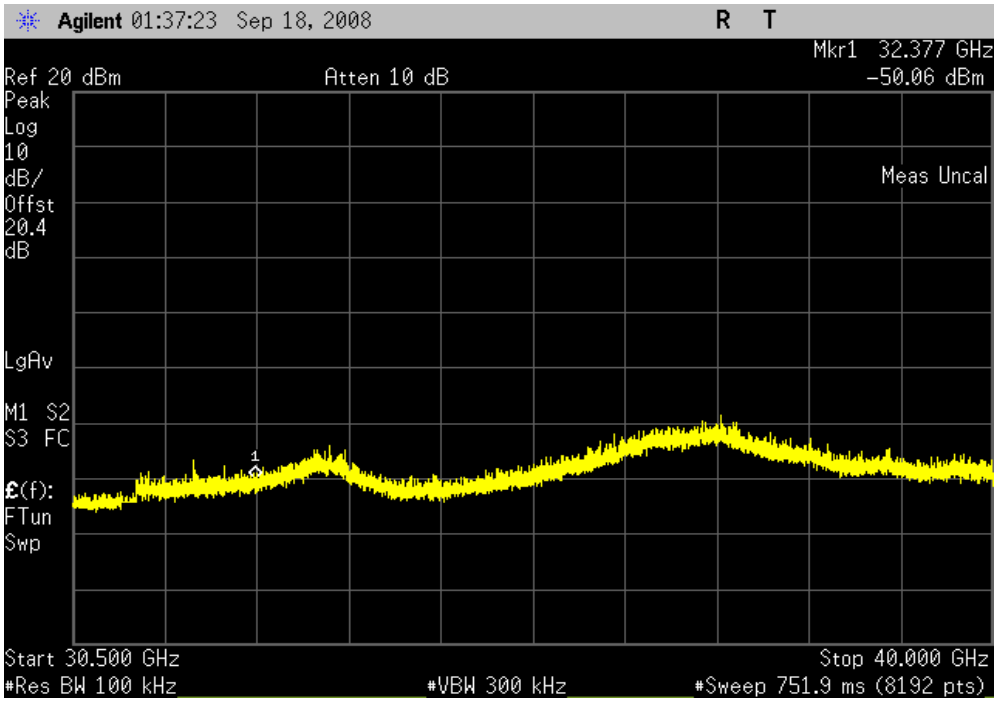
802.11(a), 54 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



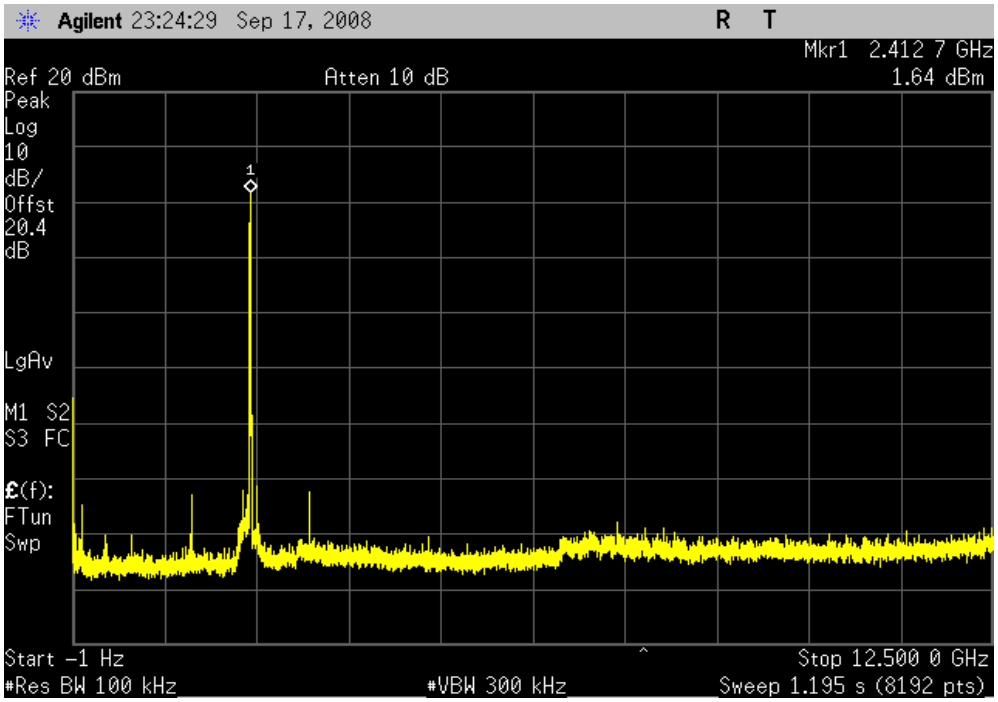
802.11(a), 54 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



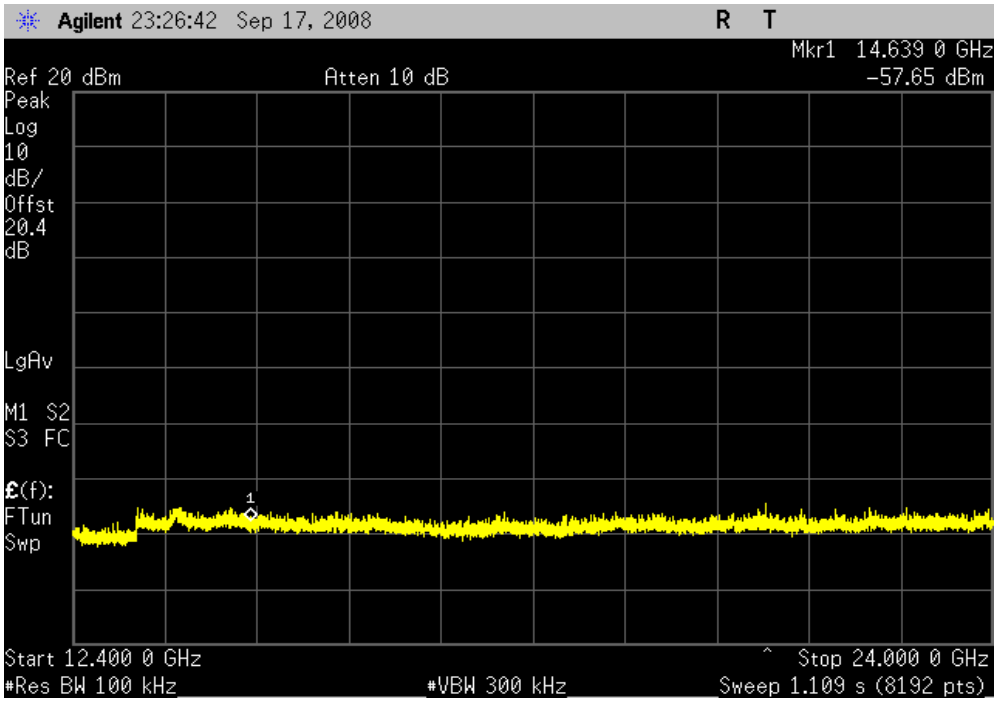
802.11(a), 54 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



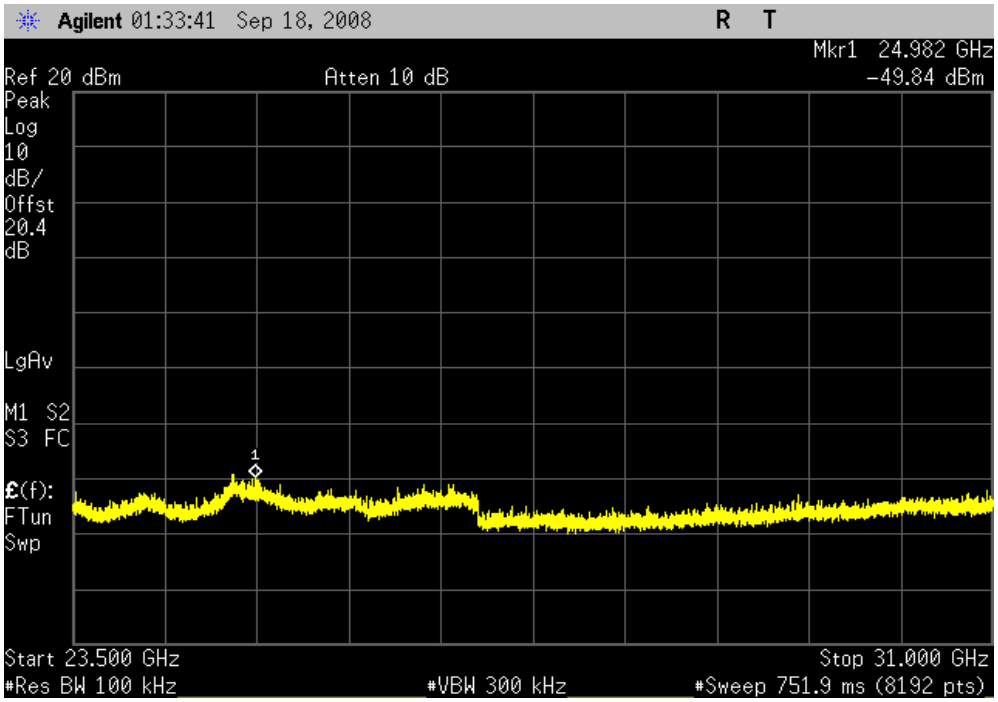
802.11(b), 1 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



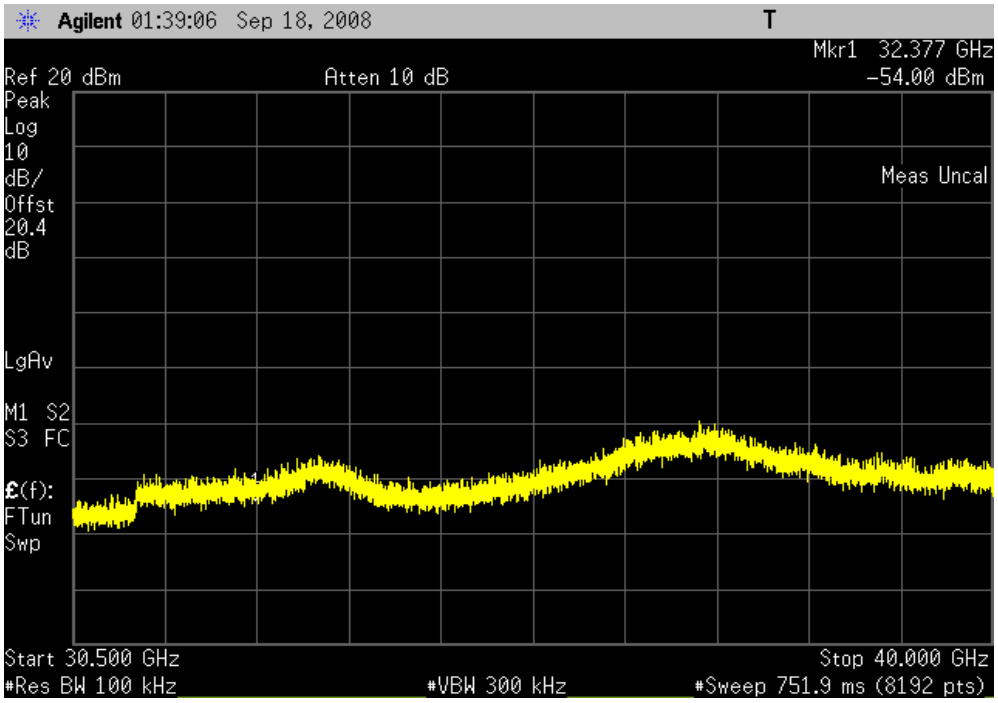
802.11(b), 1 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



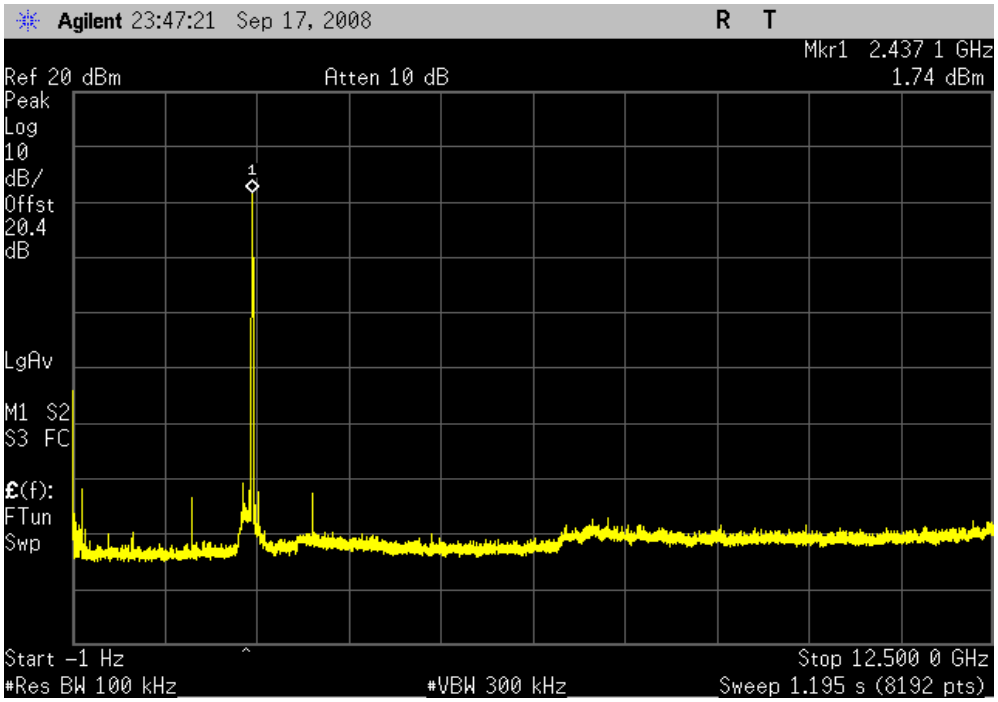
802.11(b), 1 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



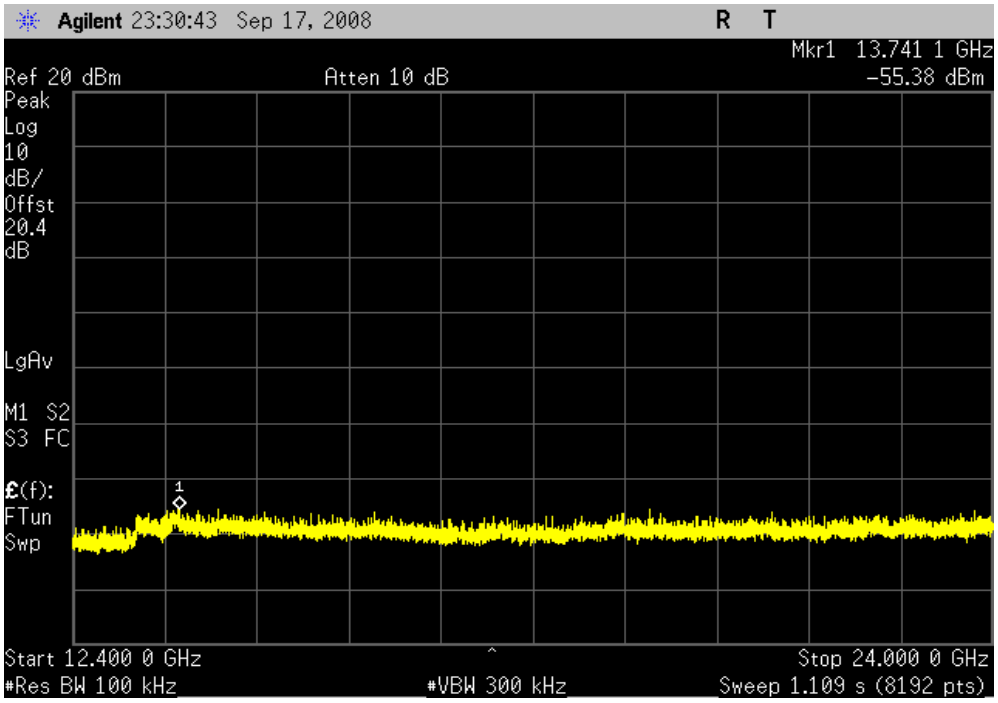
802.11(b), 1 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



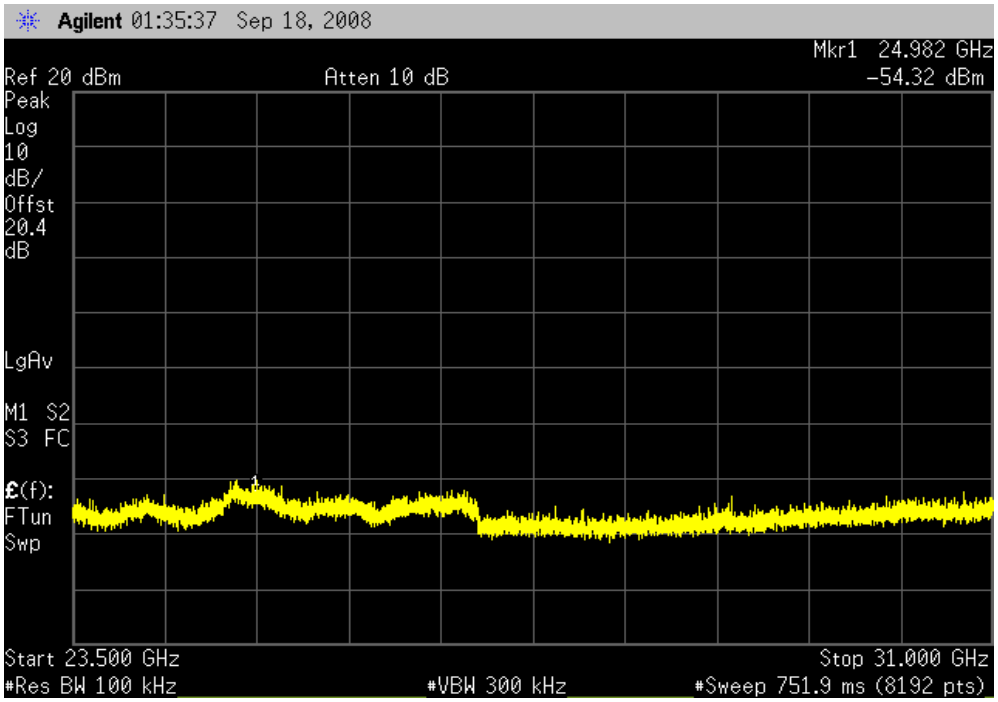
802.11(b), 1 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



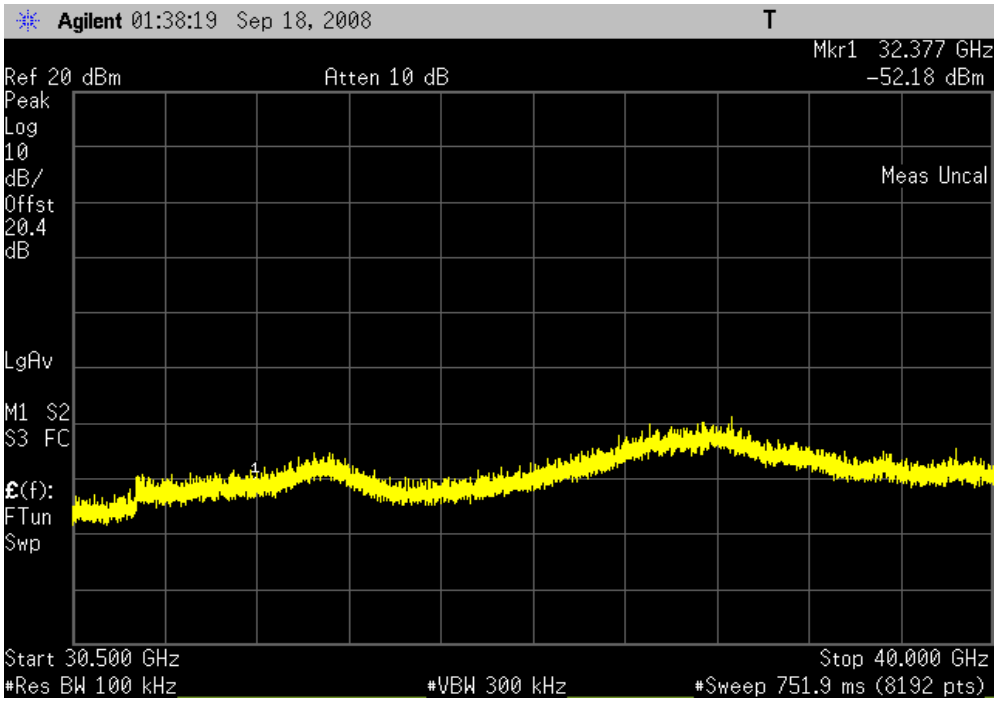
802.11(b), 1 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



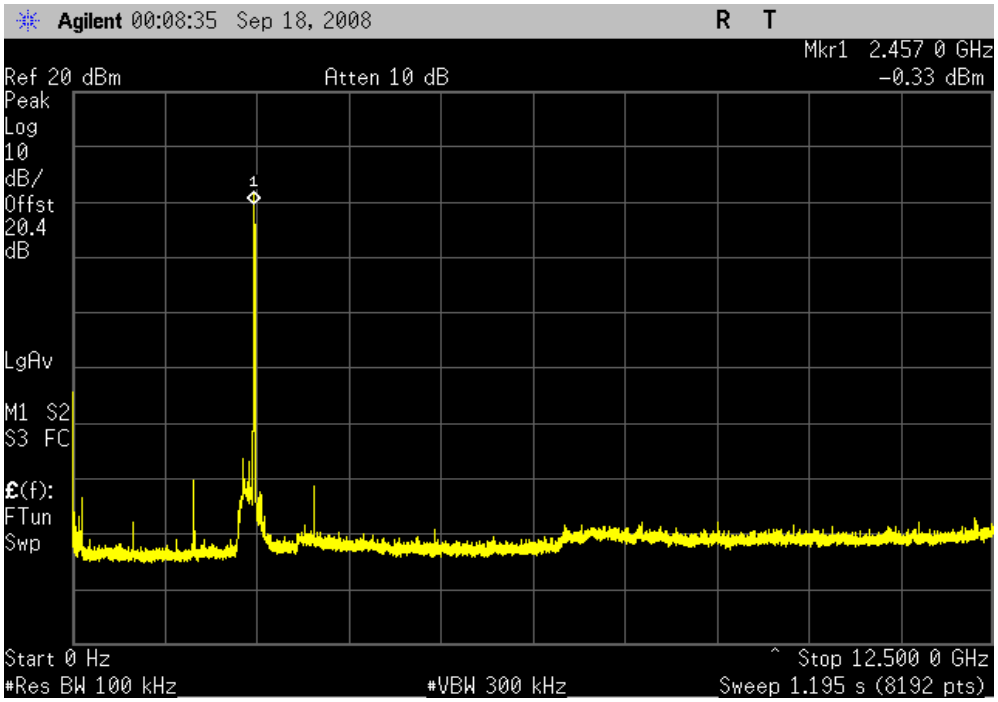
802.11(b), 1 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



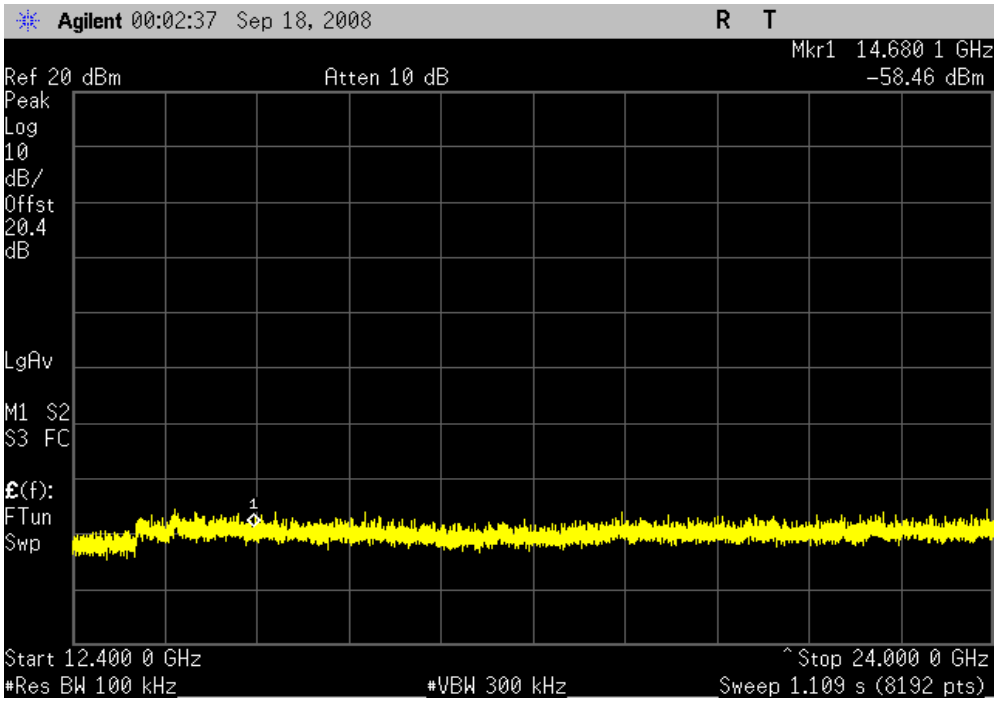
802.11(b), 1 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



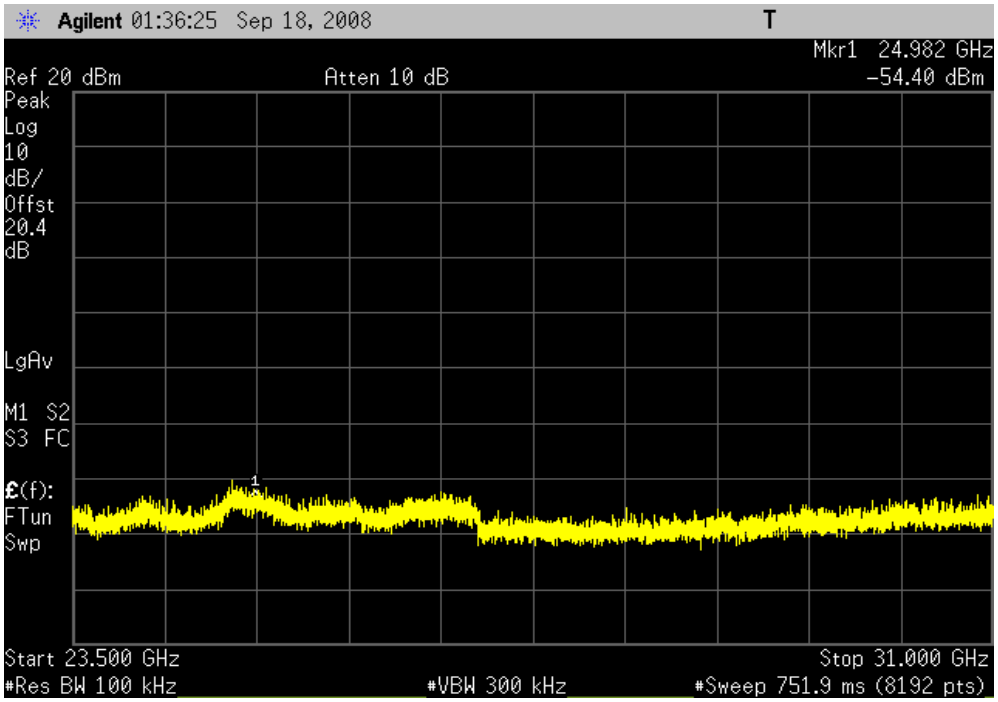
802.11(b), 1 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



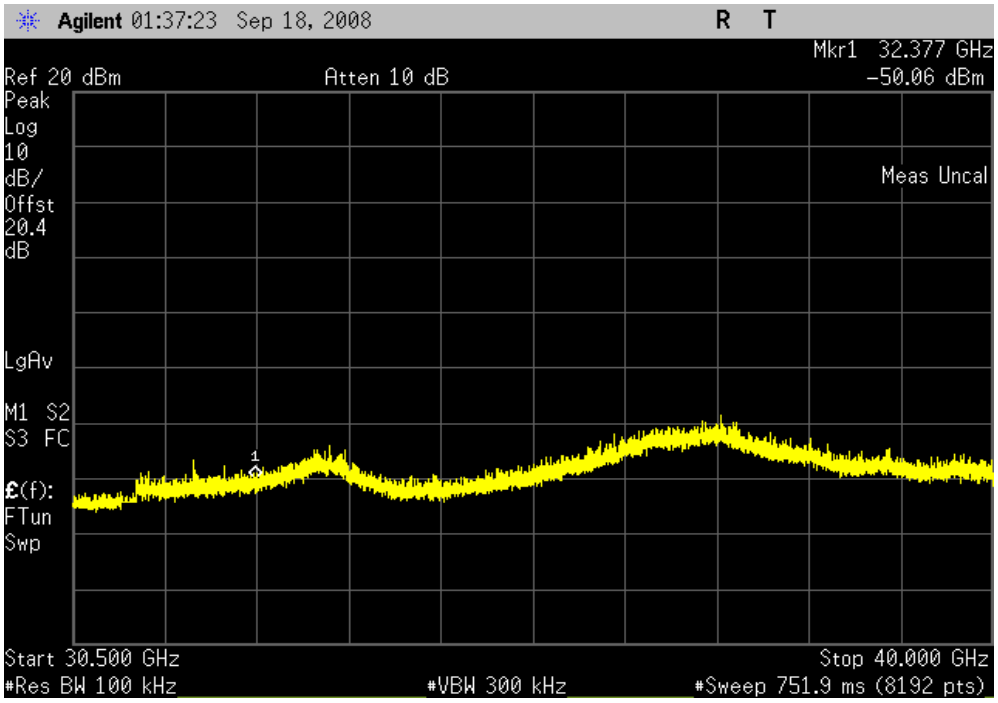
802.11(b), 1 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



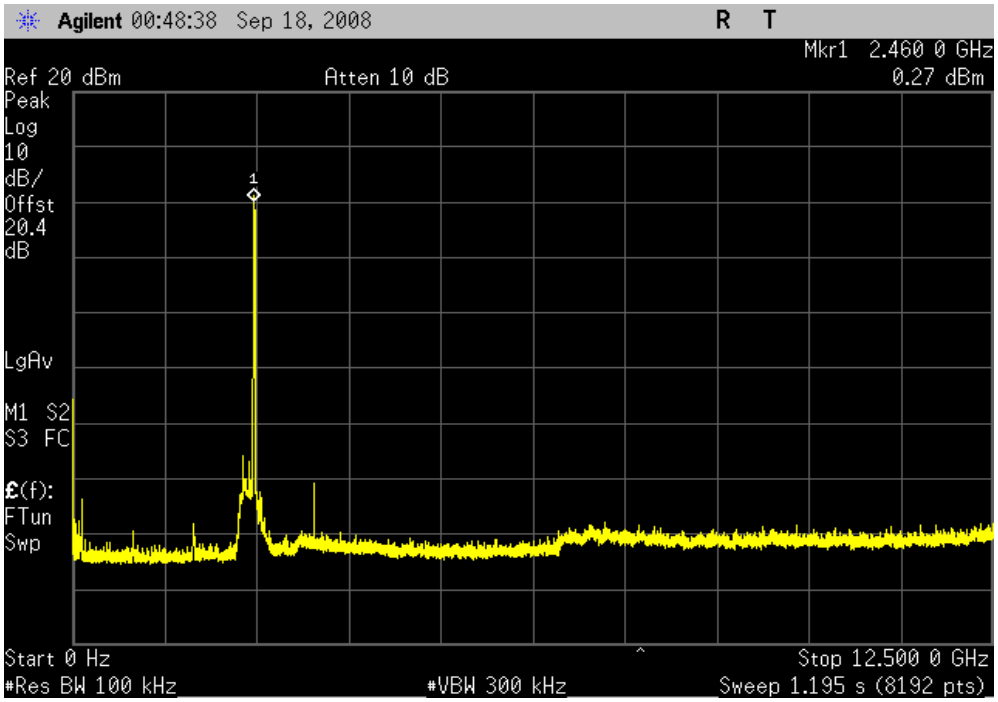
802.11(b), 1 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



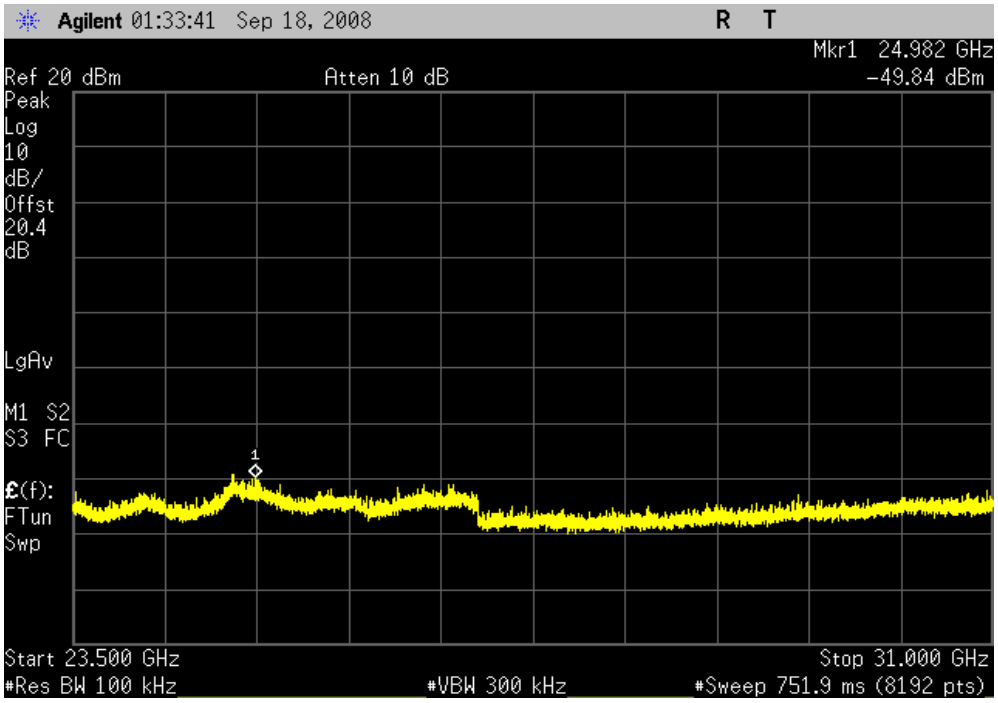
802.11(b), 1 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



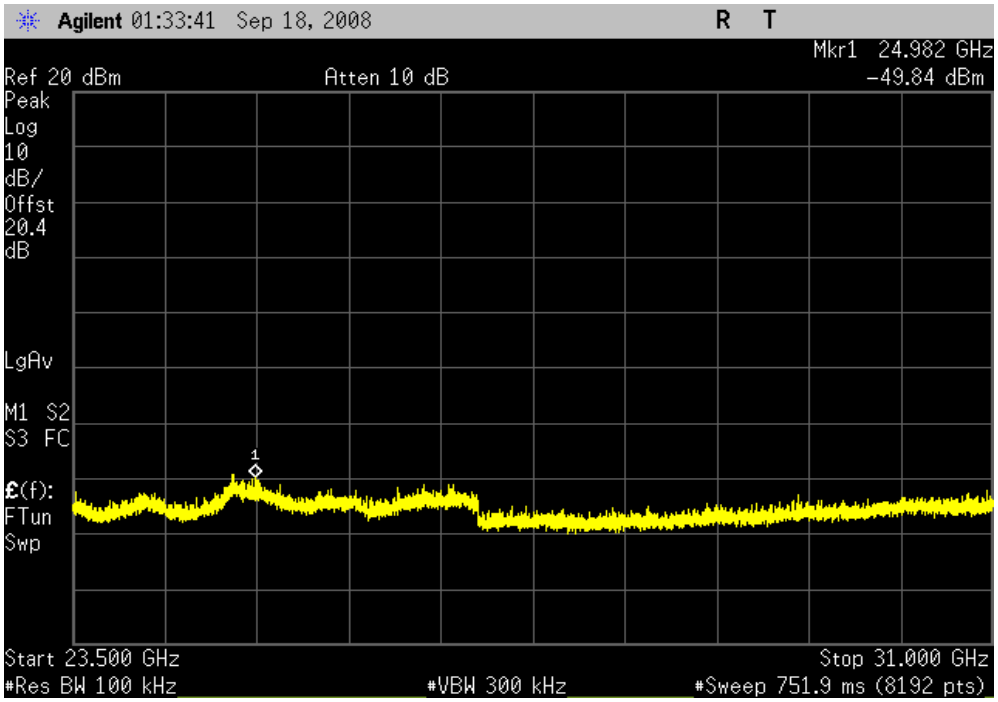
802.11(b), 11 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



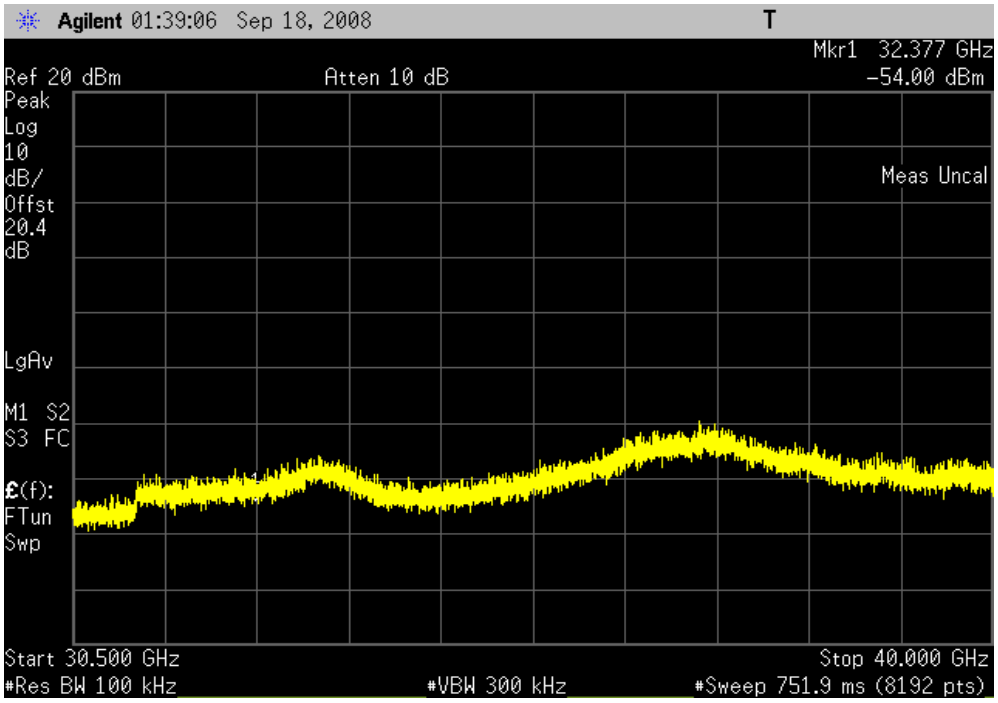
802.11(b), 11 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



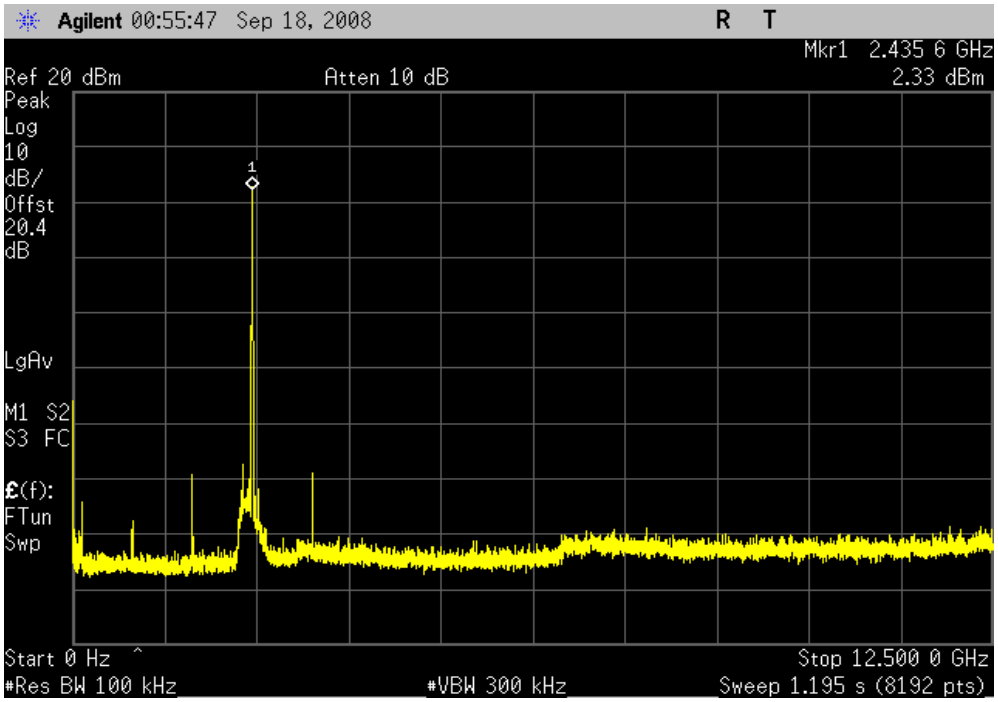
802.11(b), 11 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



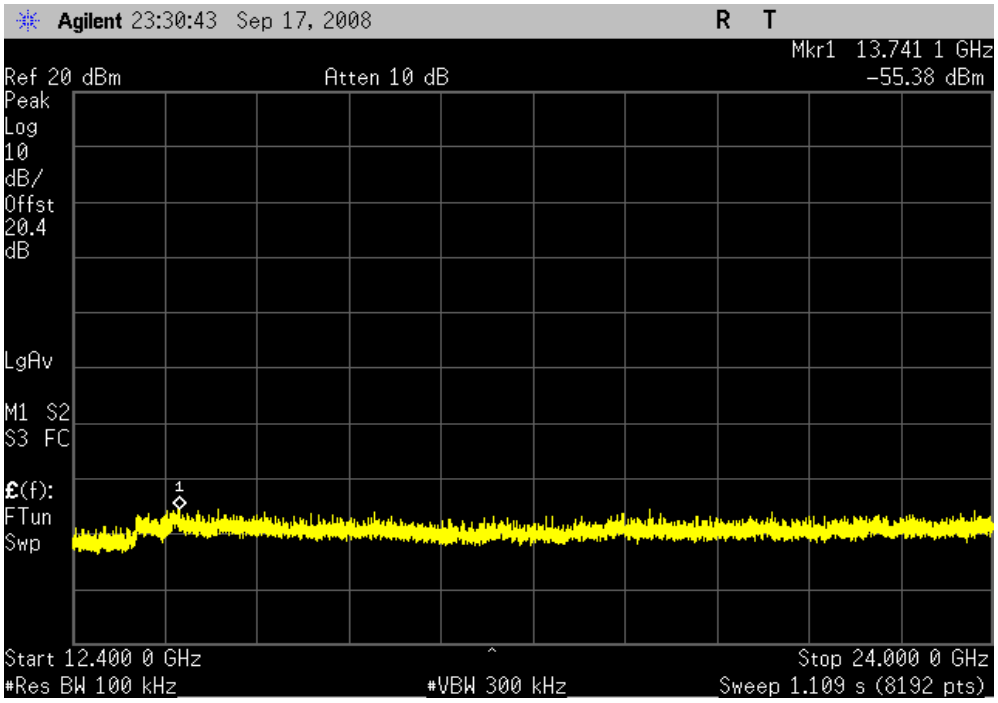
802.11(b), 11 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



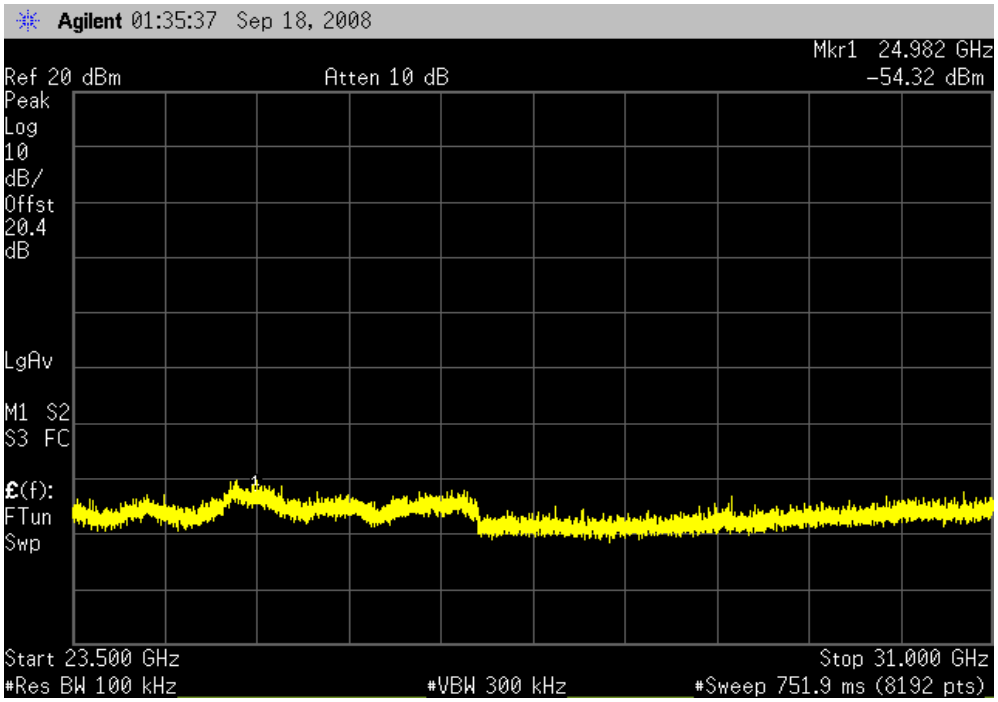
802.11(b), 11 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



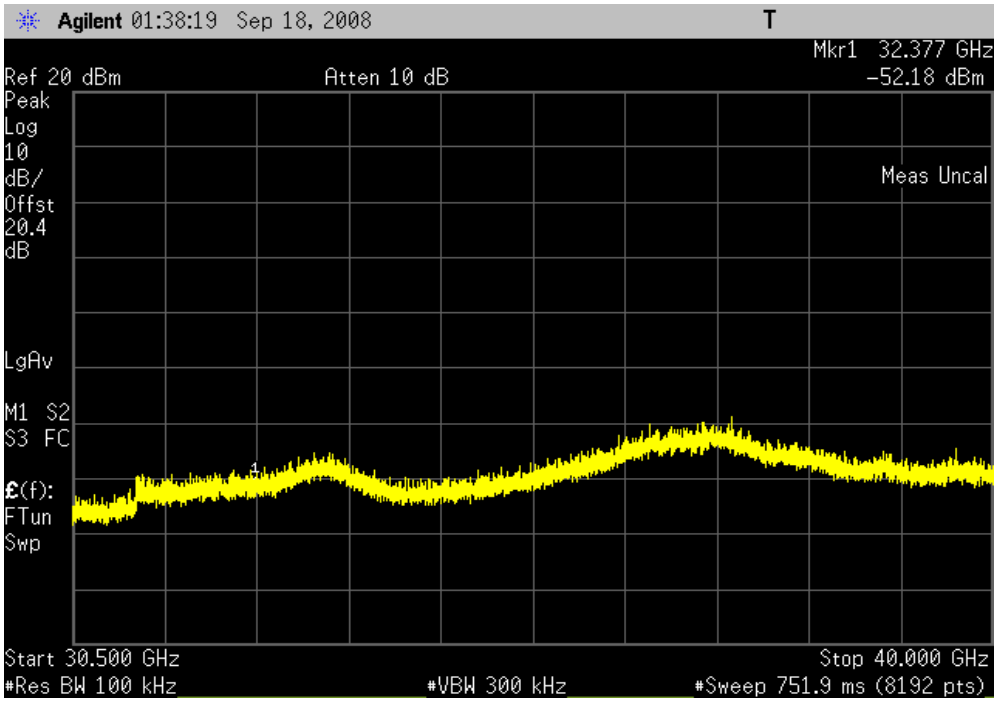
802.11(b), 11 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



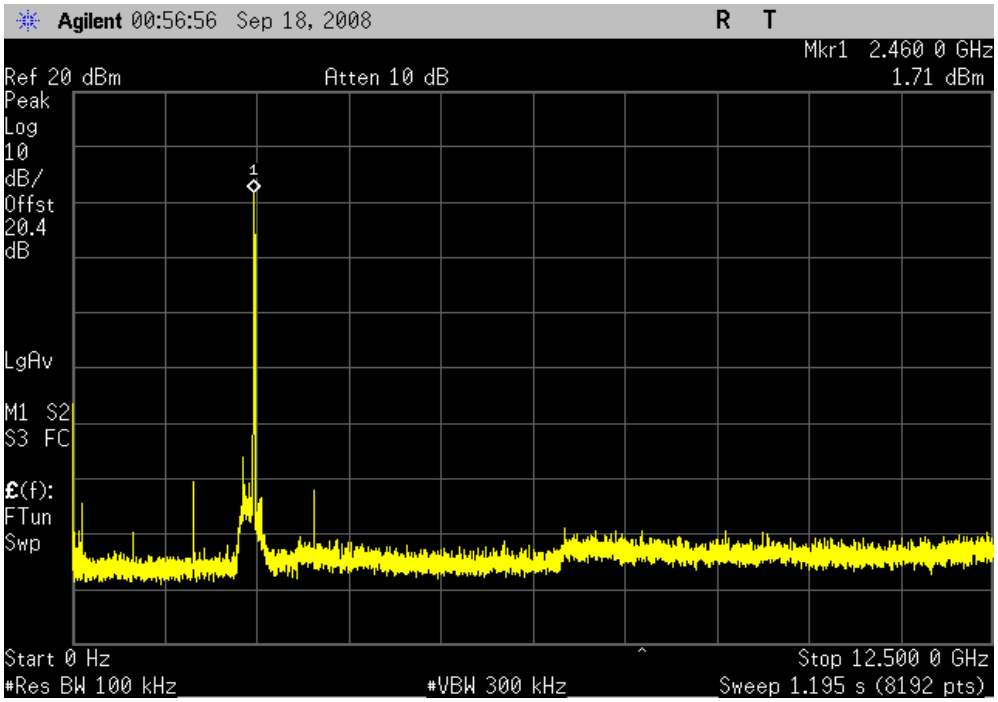
802.11(b), 11 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



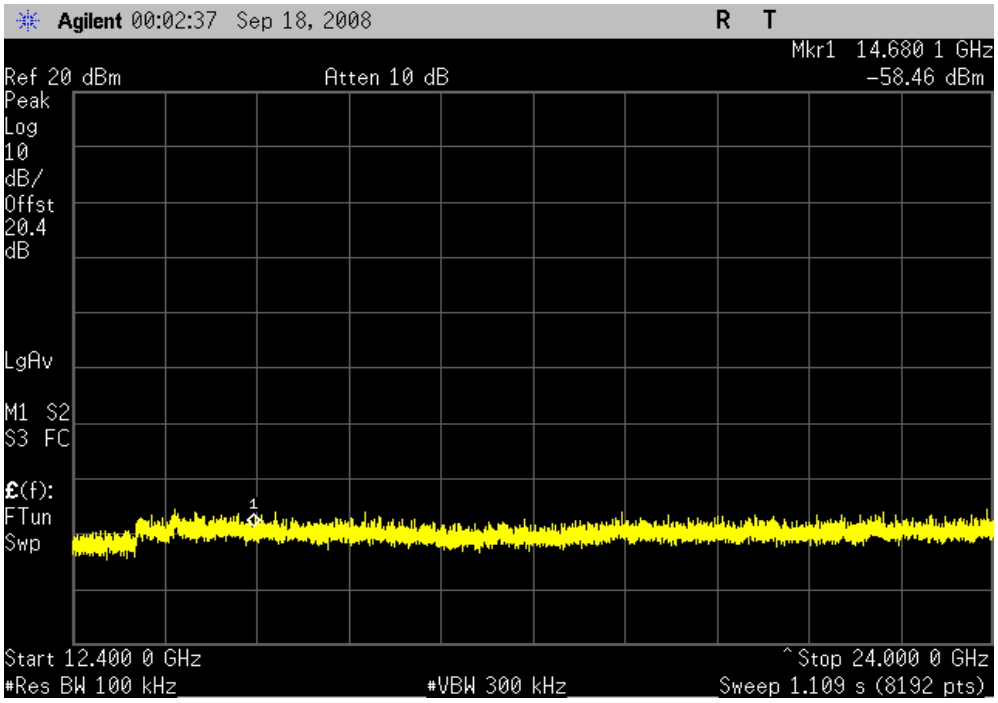
802.11(b), 11 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



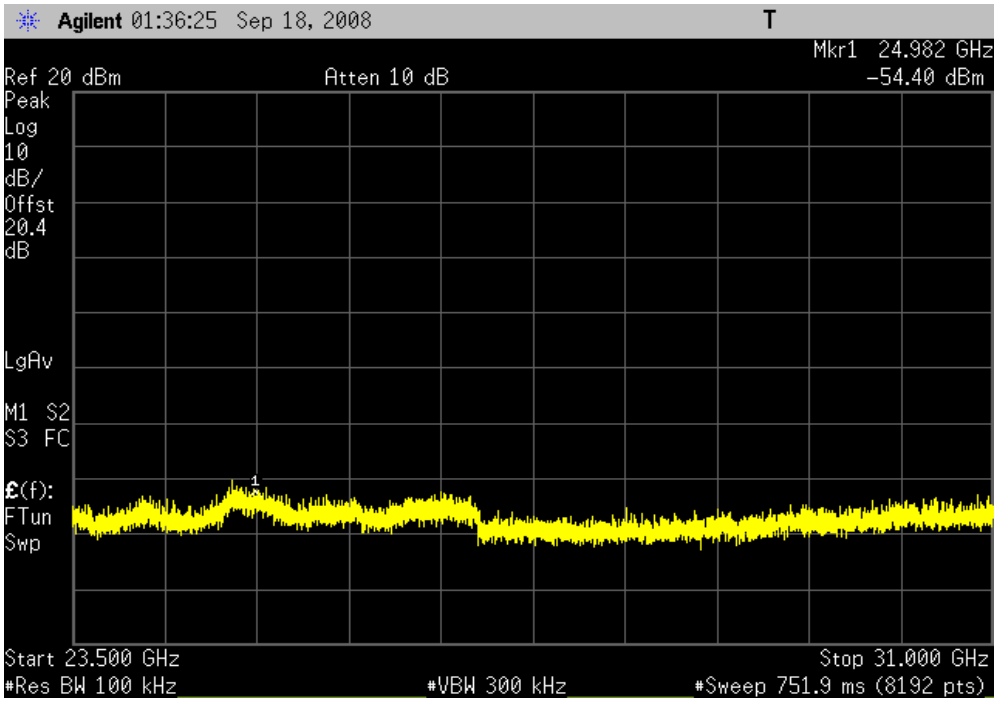
802.11(b), 11 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



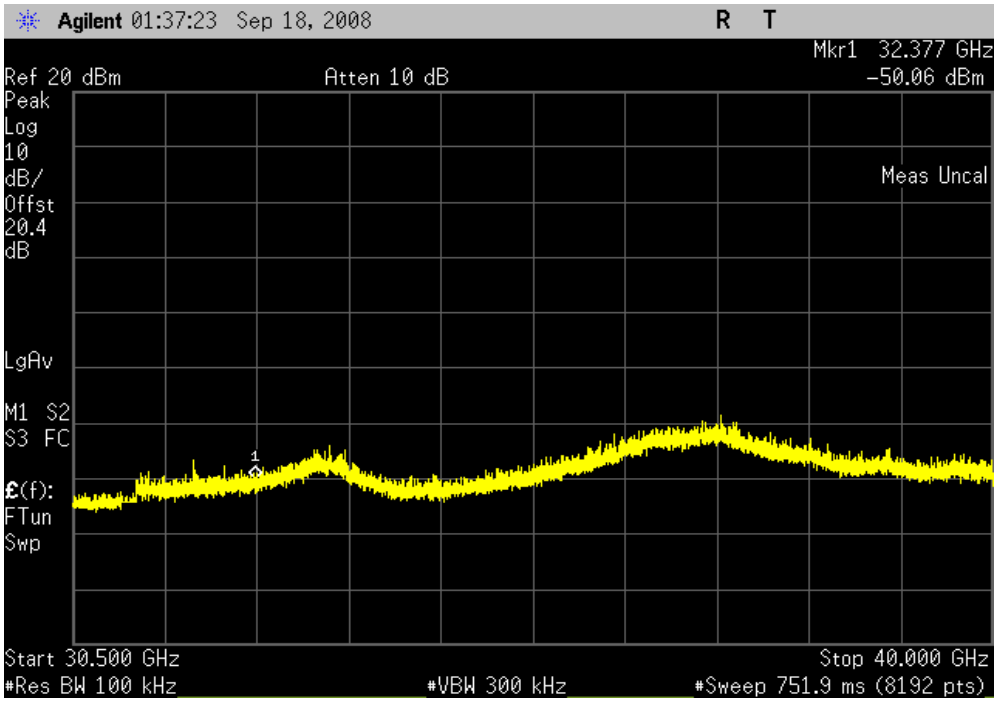
802.11(b), 11 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



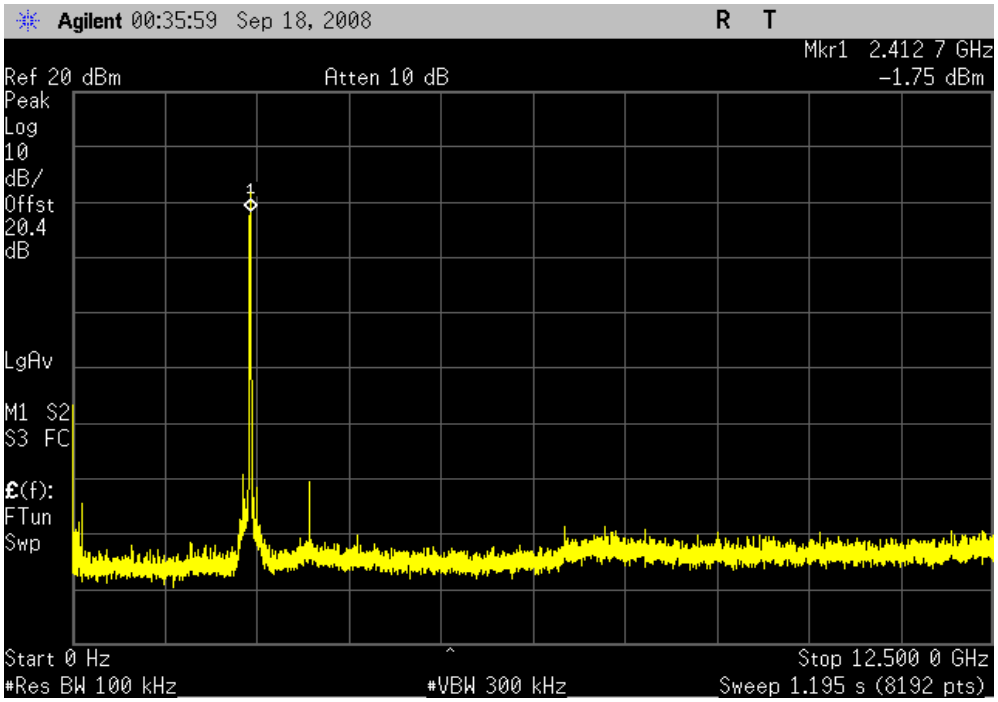
802.11(b), 11 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



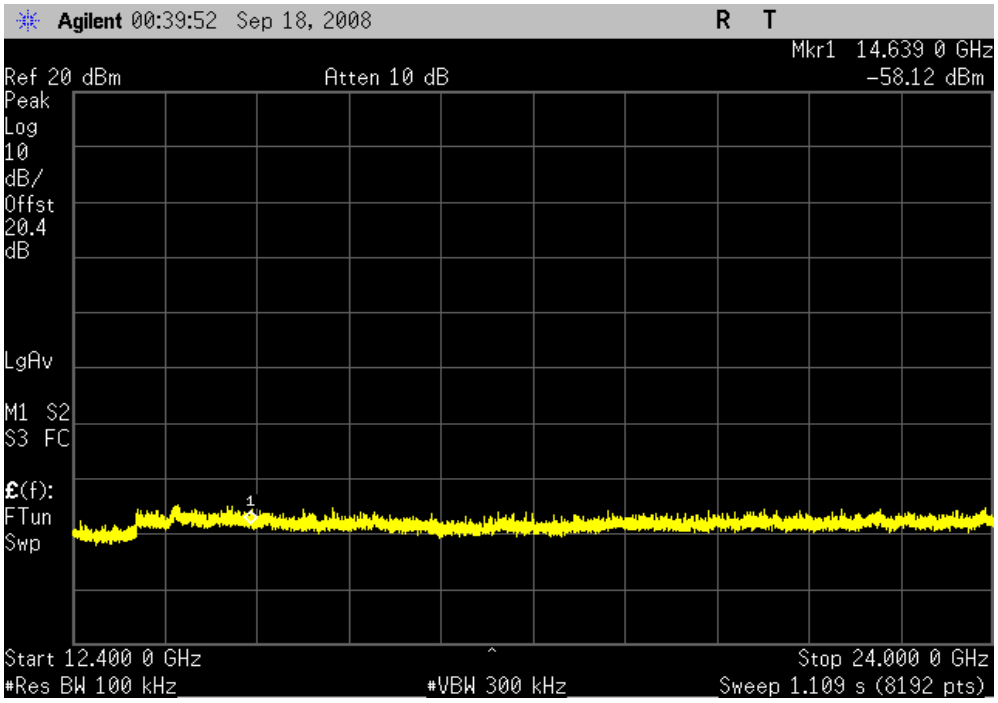
802.11(b), 11 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



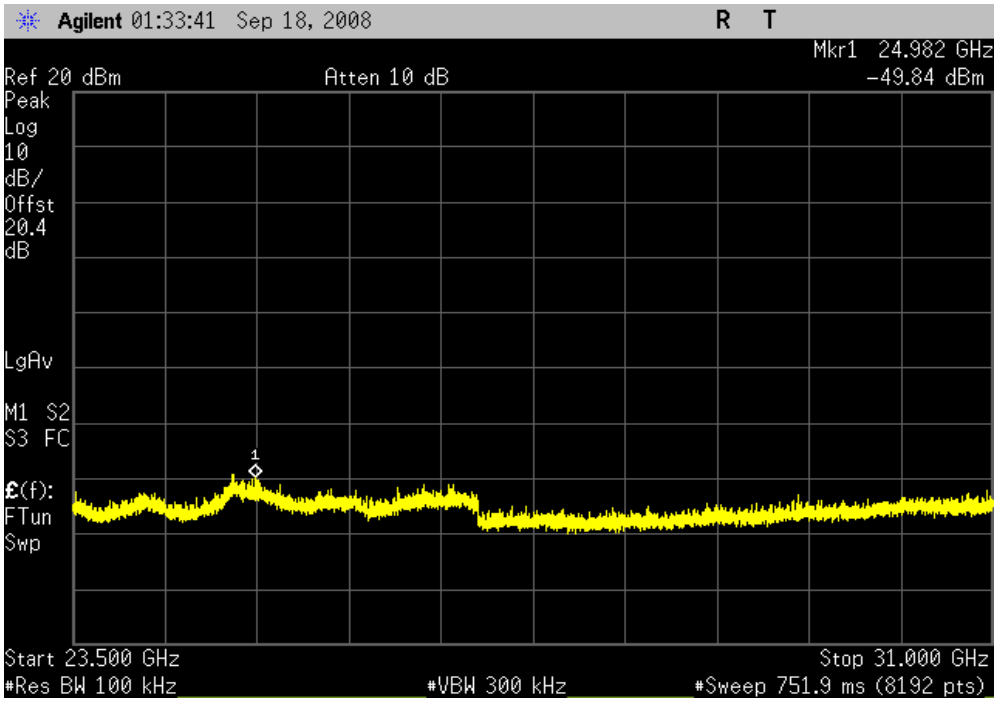
802.11(g), 6 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



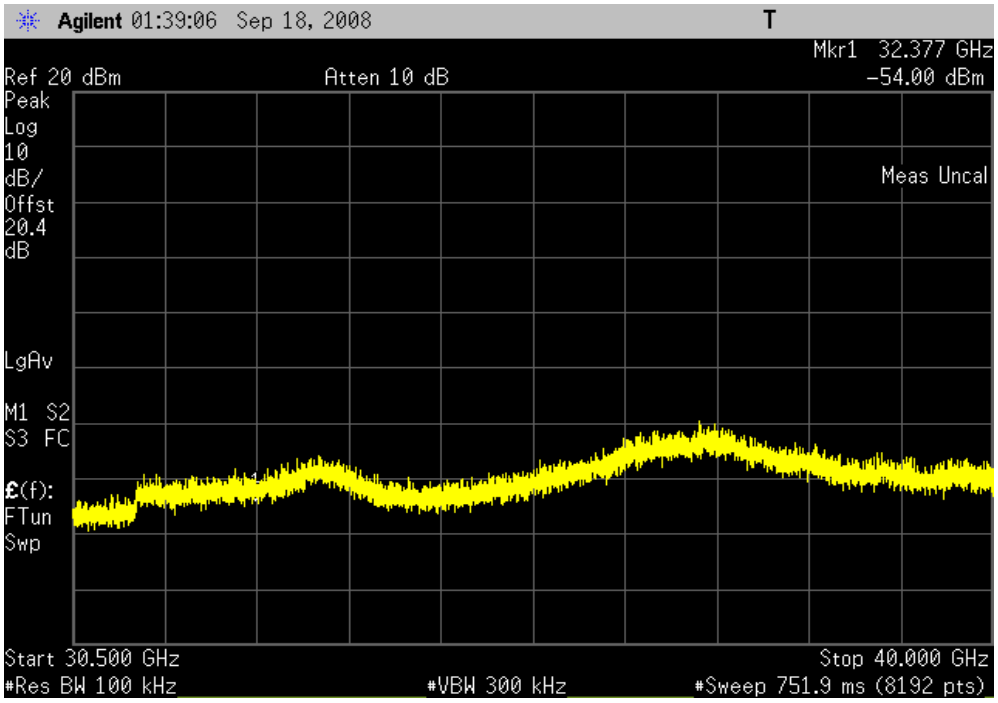
802.11(g), 6 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



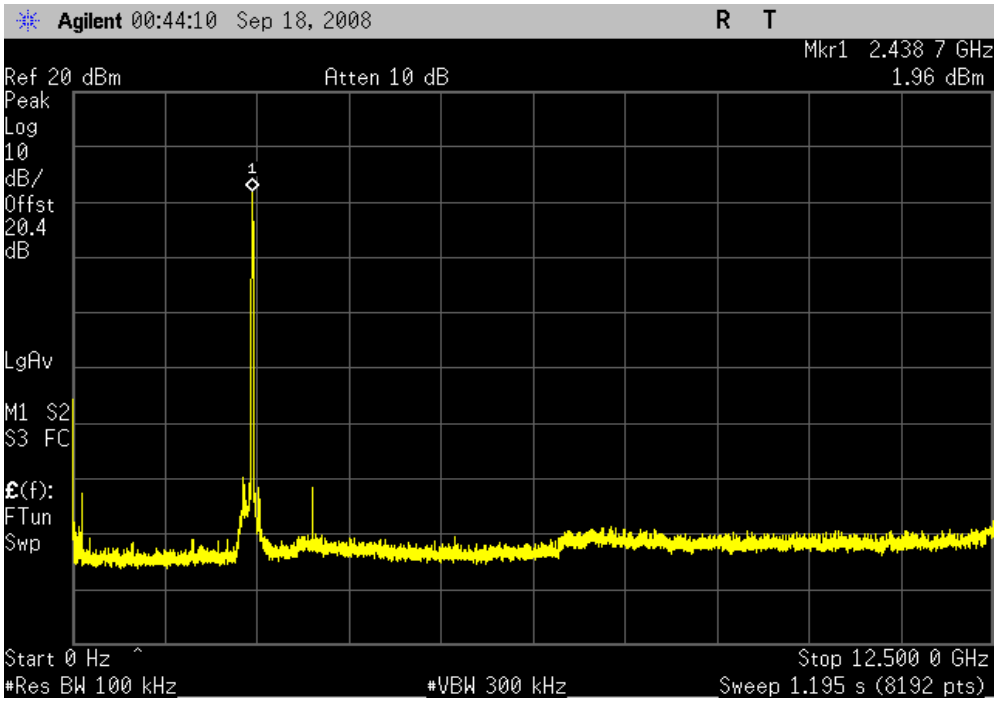
802.11(g), 6 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



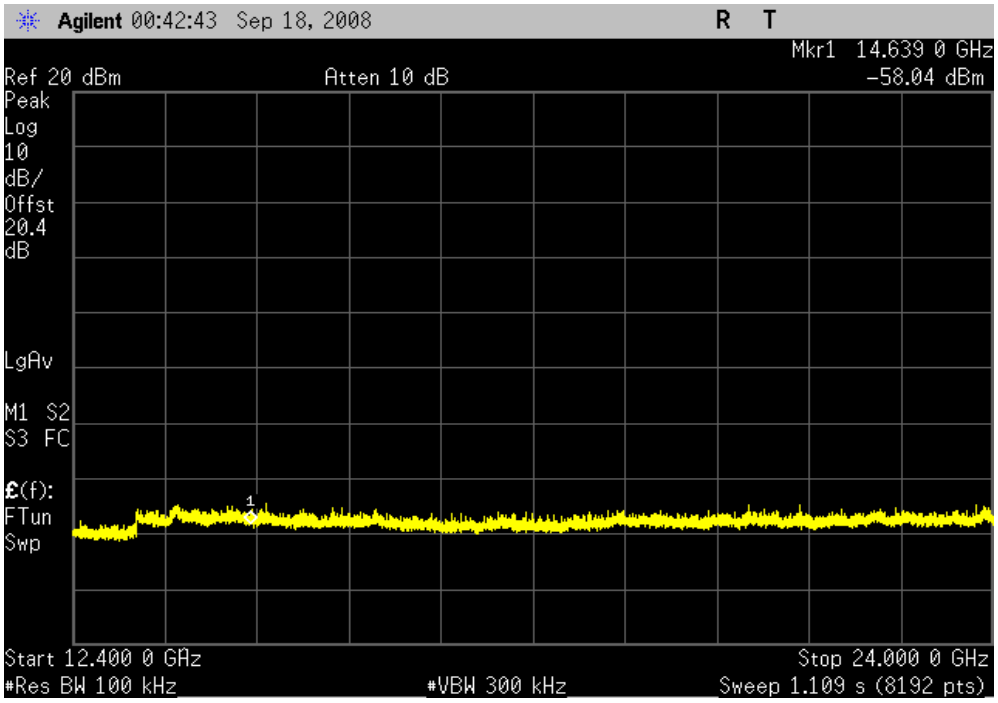
802.11(g), 6 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



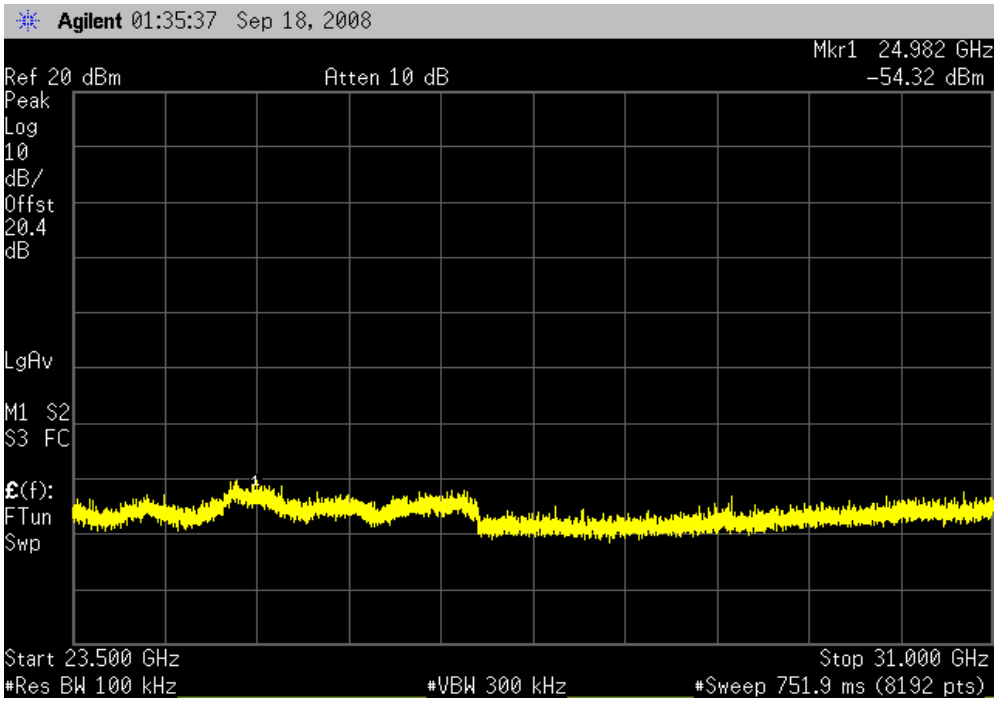
802.11(g), 6 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



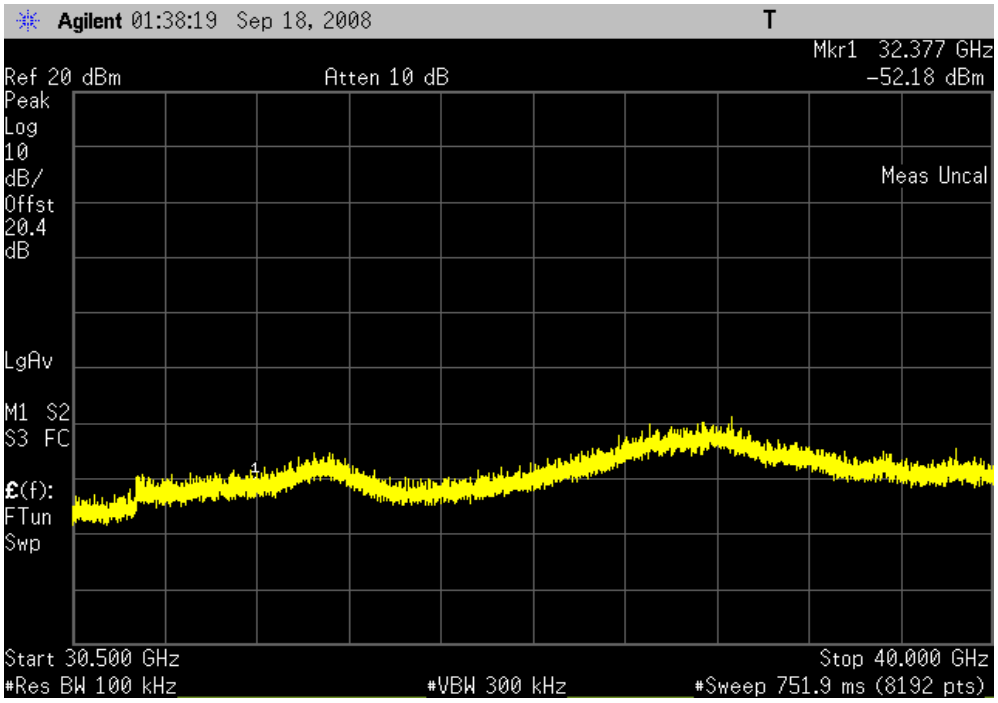
802.11(g), 6 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



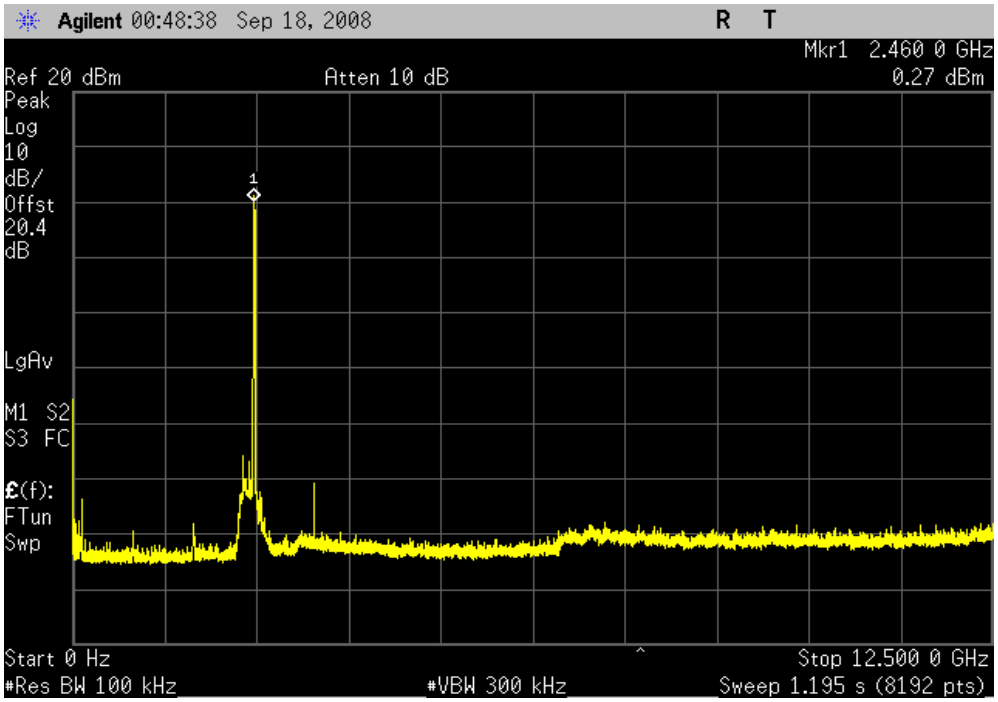
802.11(g), 6 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



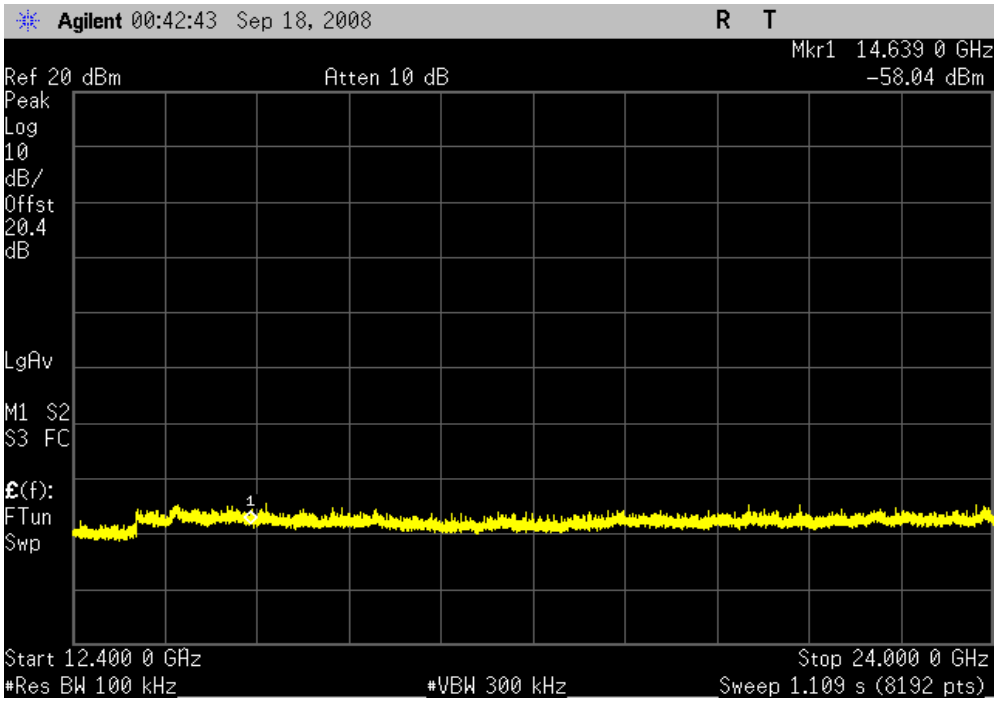
802.11(g), 6 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



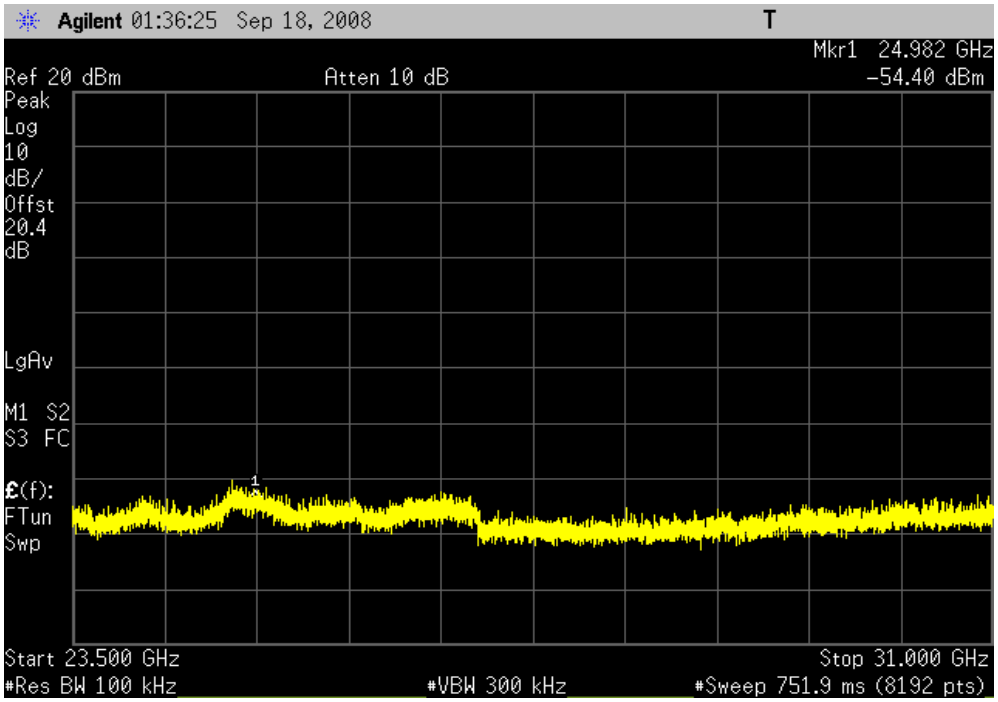
802.11(g), 6 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



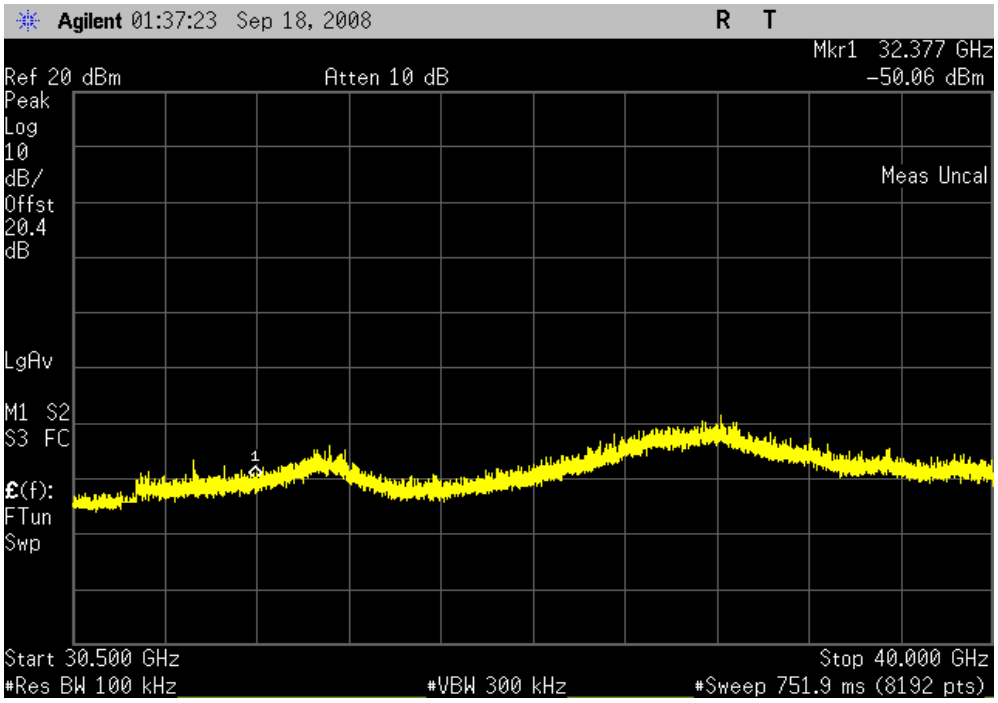
802.11(g), 6 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



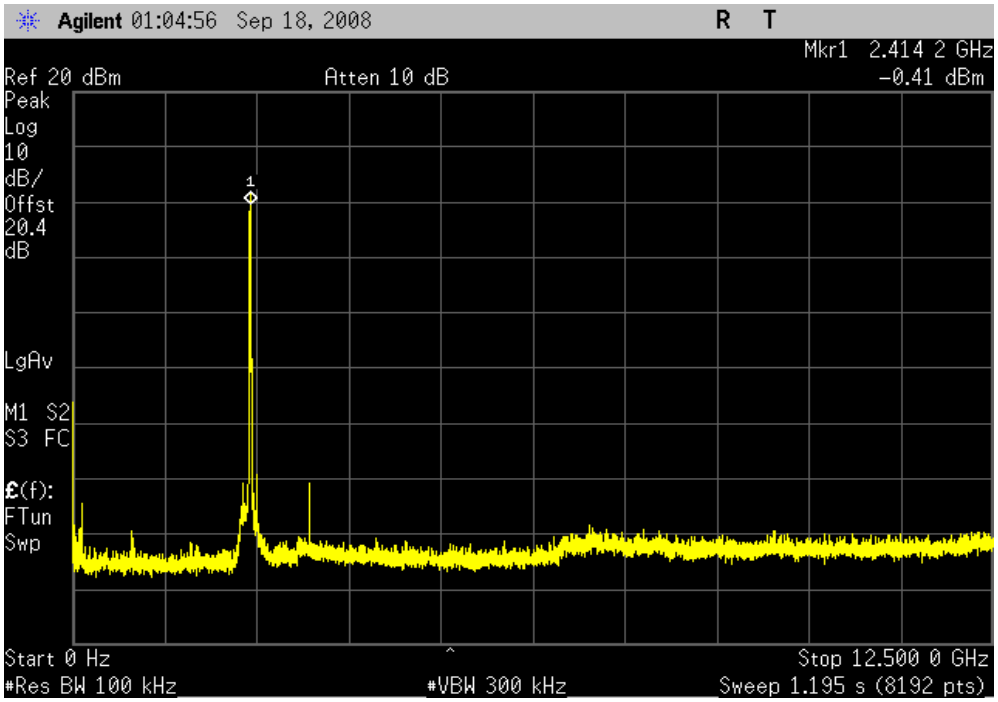
802.11(g), 6 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



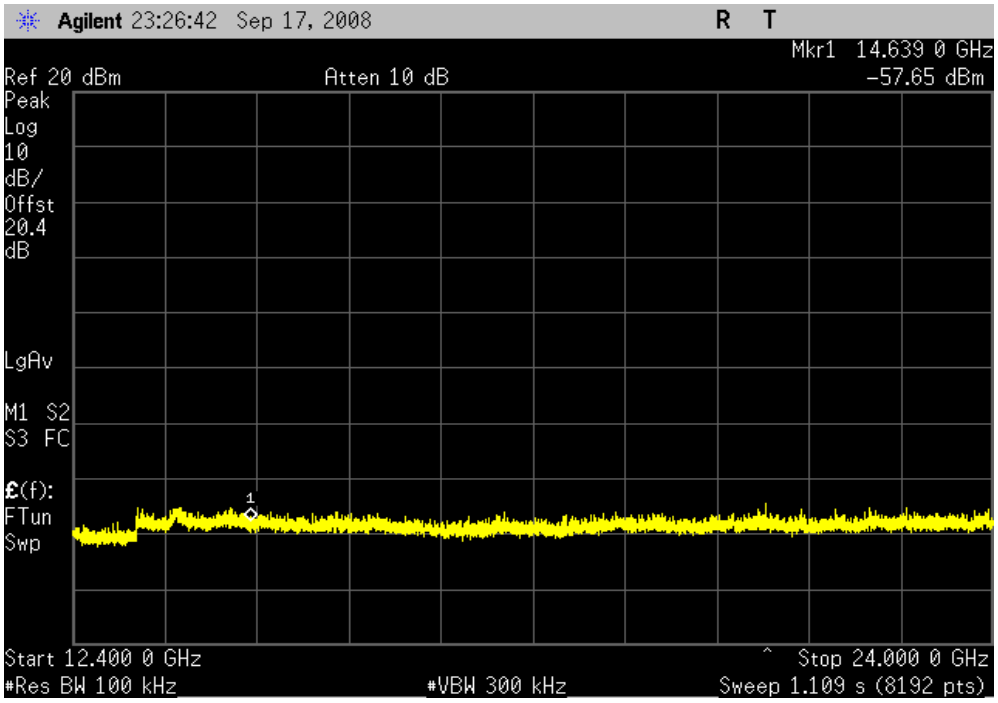
802.11(g), 6 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



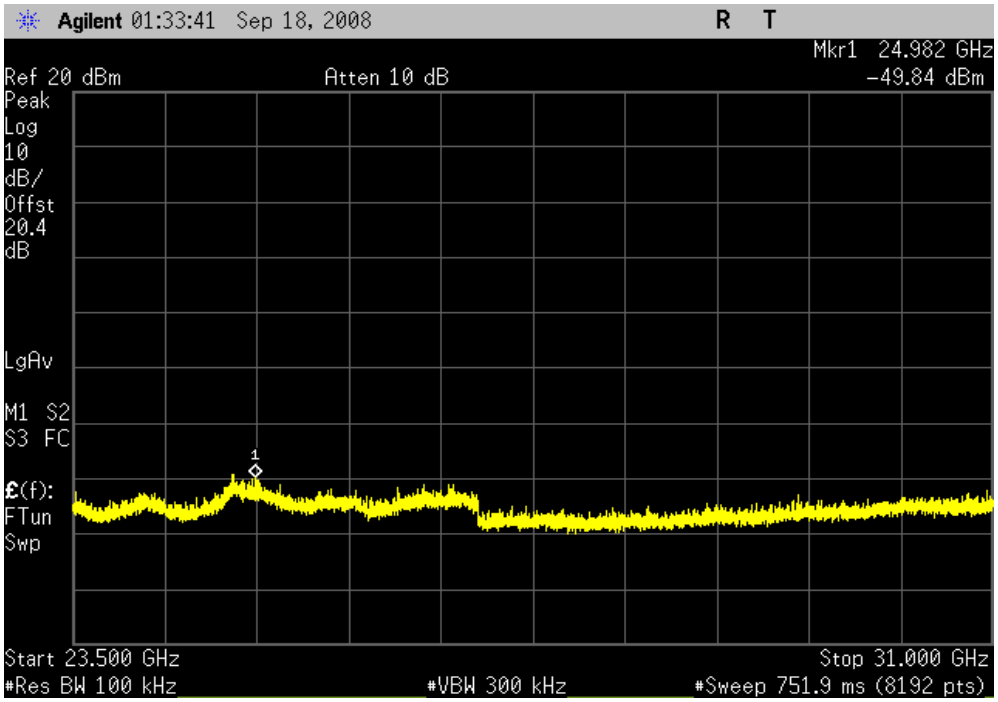
802.11(g), 36 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



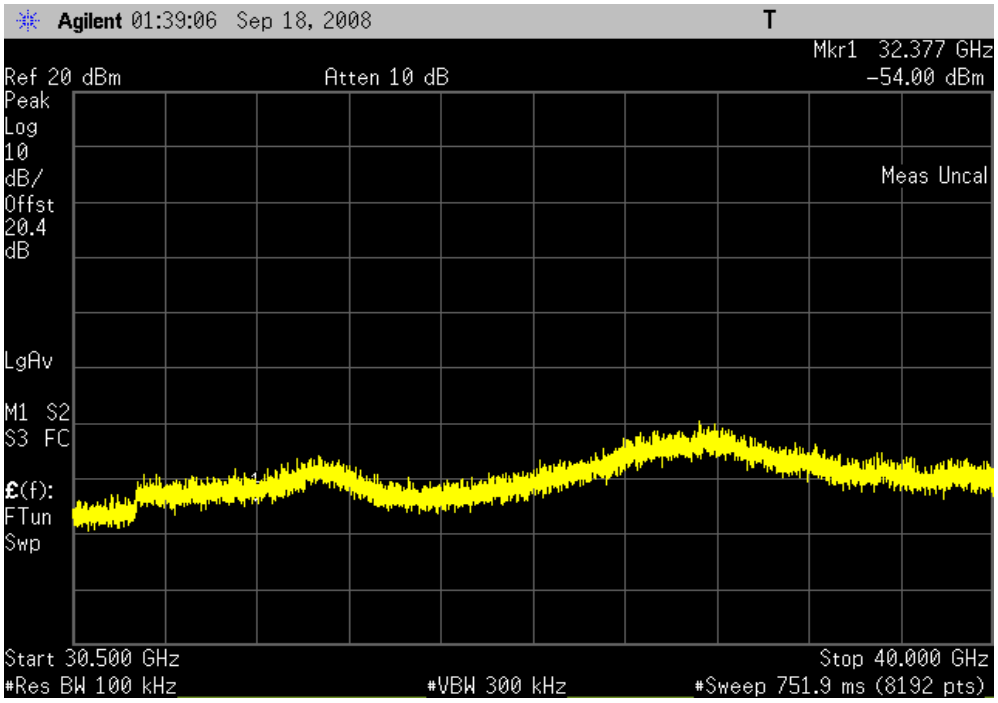
802.11(g), 36 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



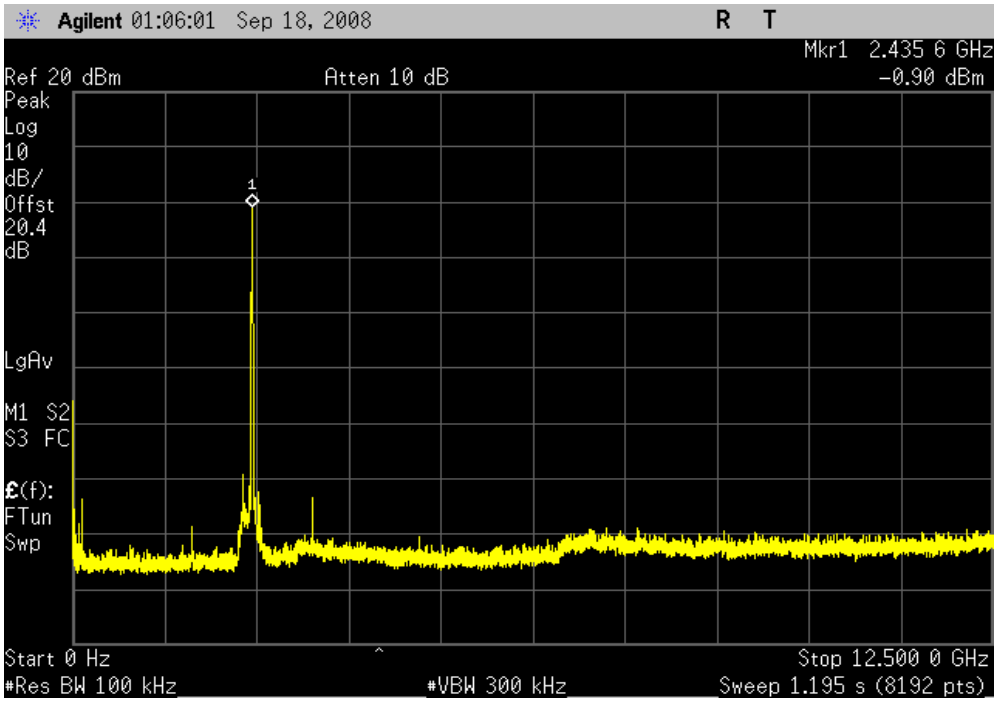
802.11(g), 36 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



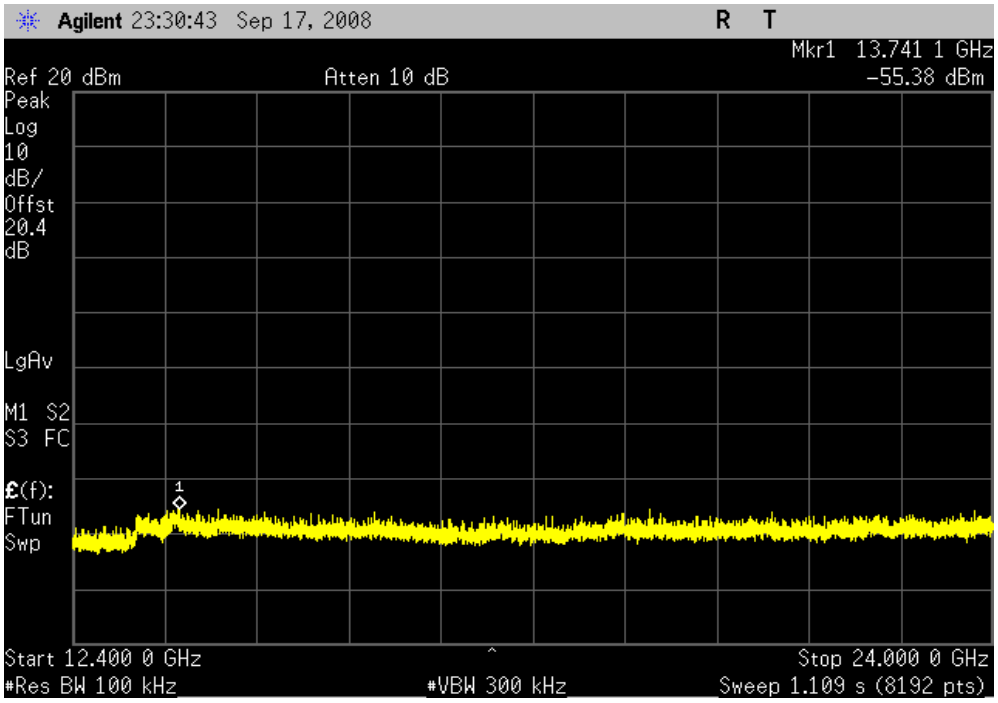
802.11(g), 36 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



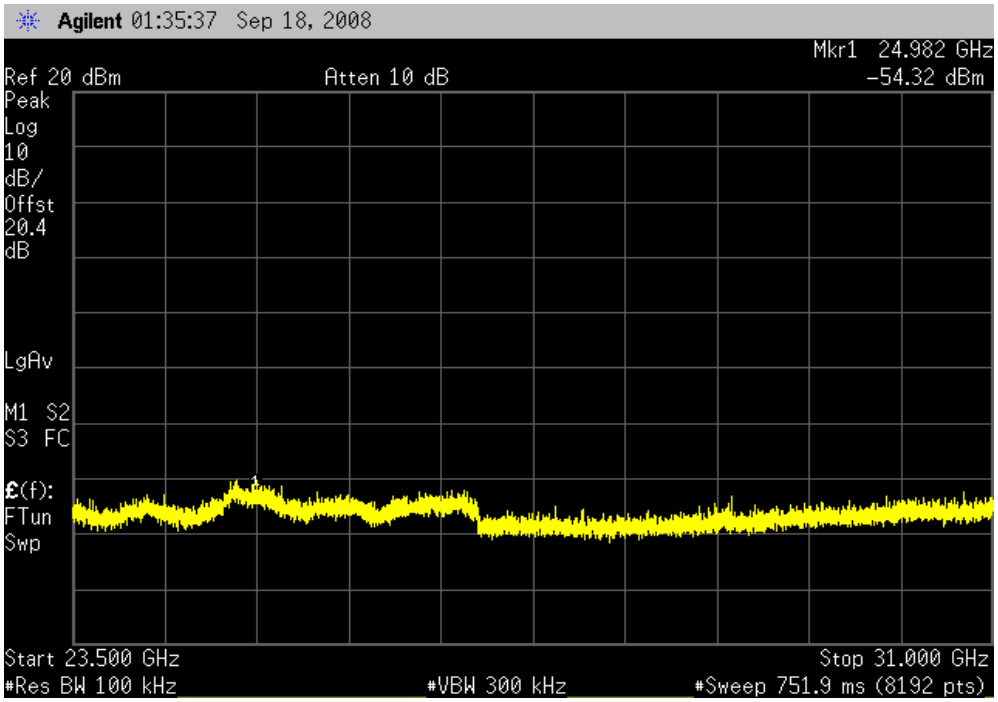
802.11(g), 36 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



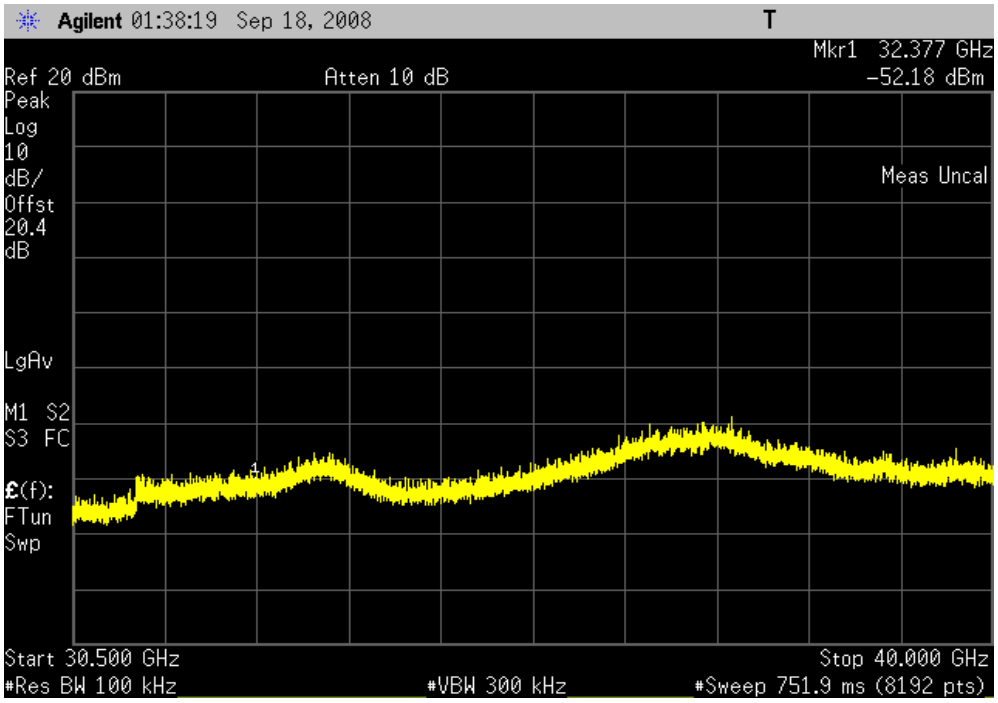
802.11(g), 36 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



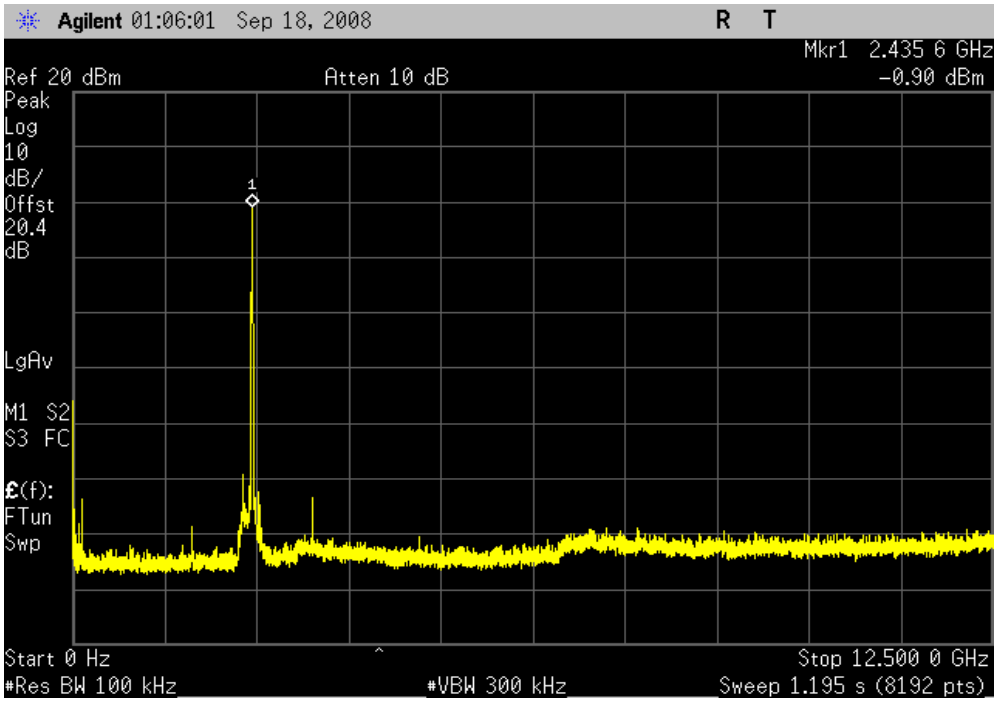
802.11(g), 36 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



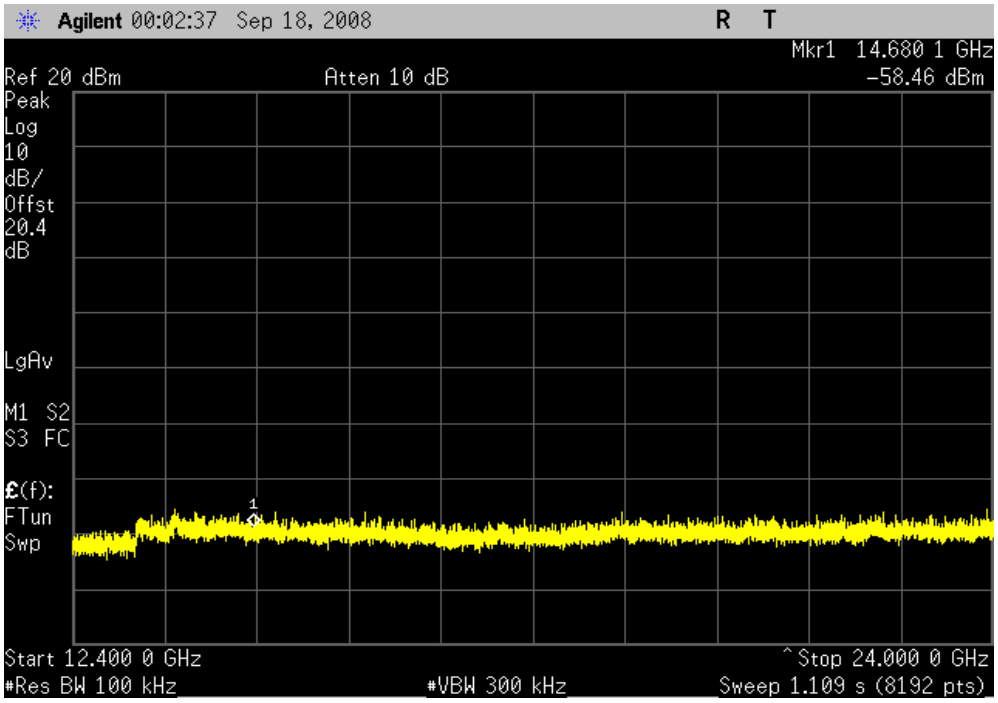
802.11(g), 36 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



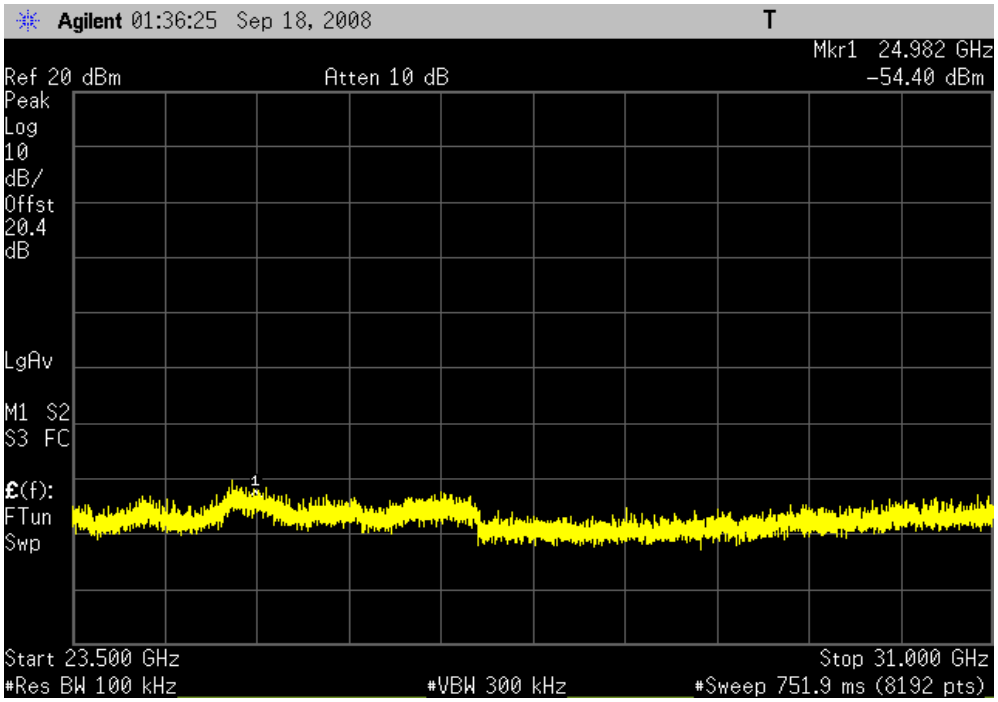
802.11(g), 36 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



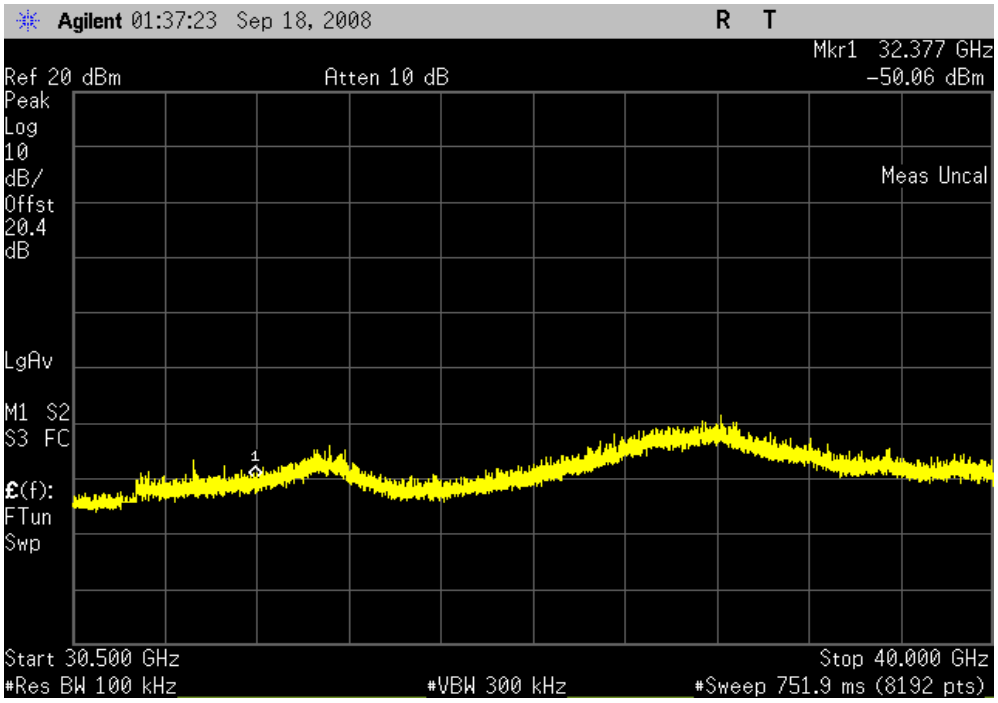
802.11(g), 36 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



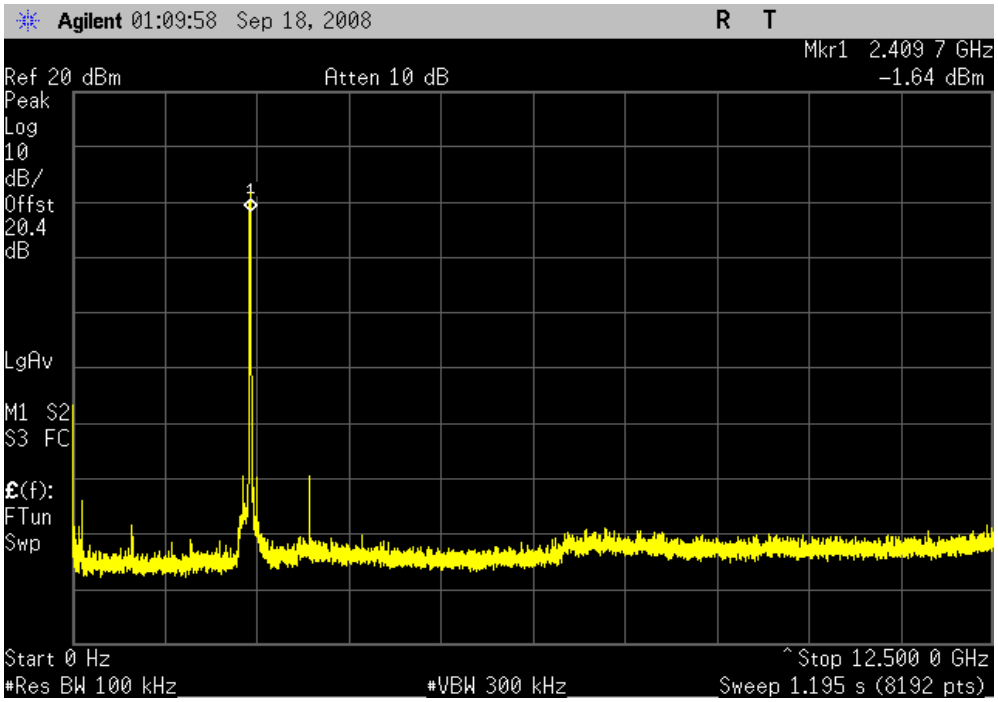
802.11(g), 36 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



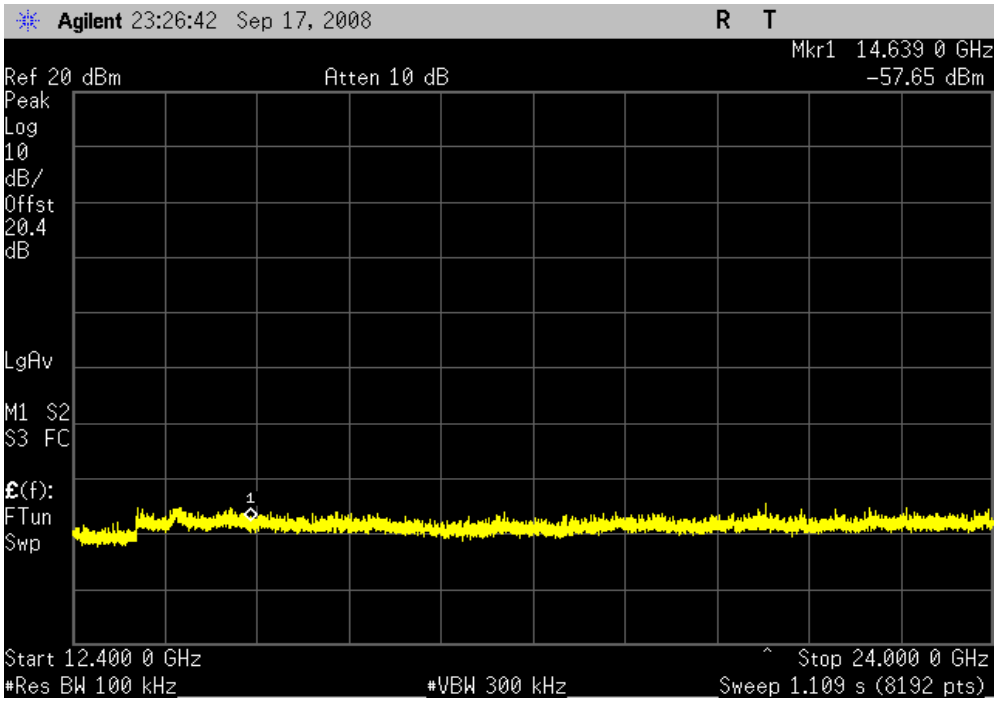
802.11(g), 36 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



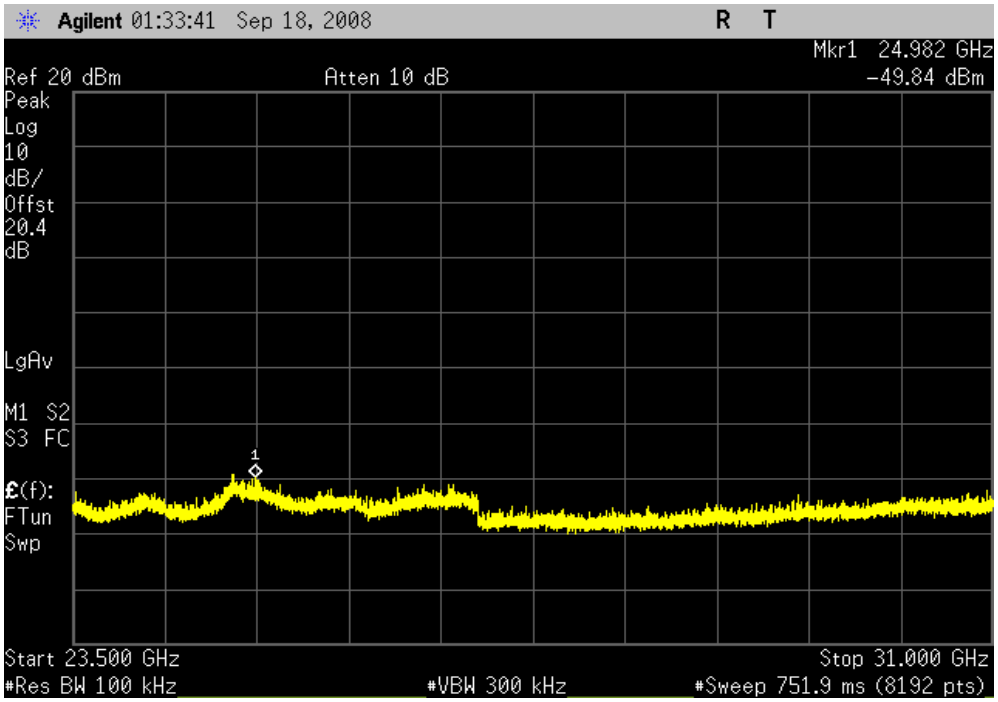
802.11(g), 54 Mbps, Low Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



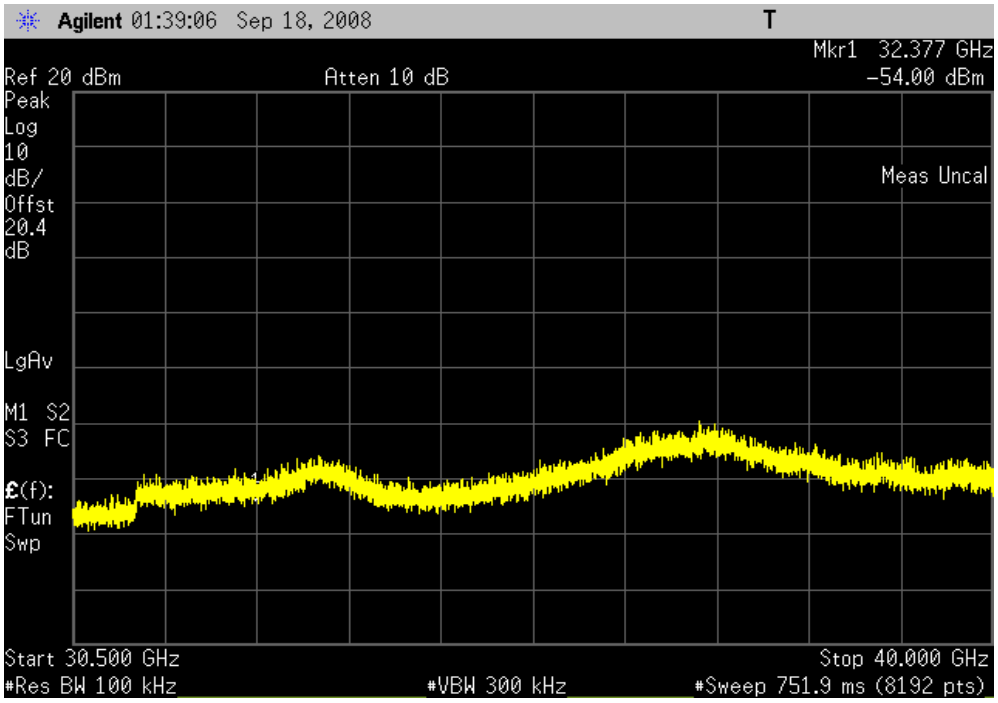
802.11(g), 54 Mbps, Low Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



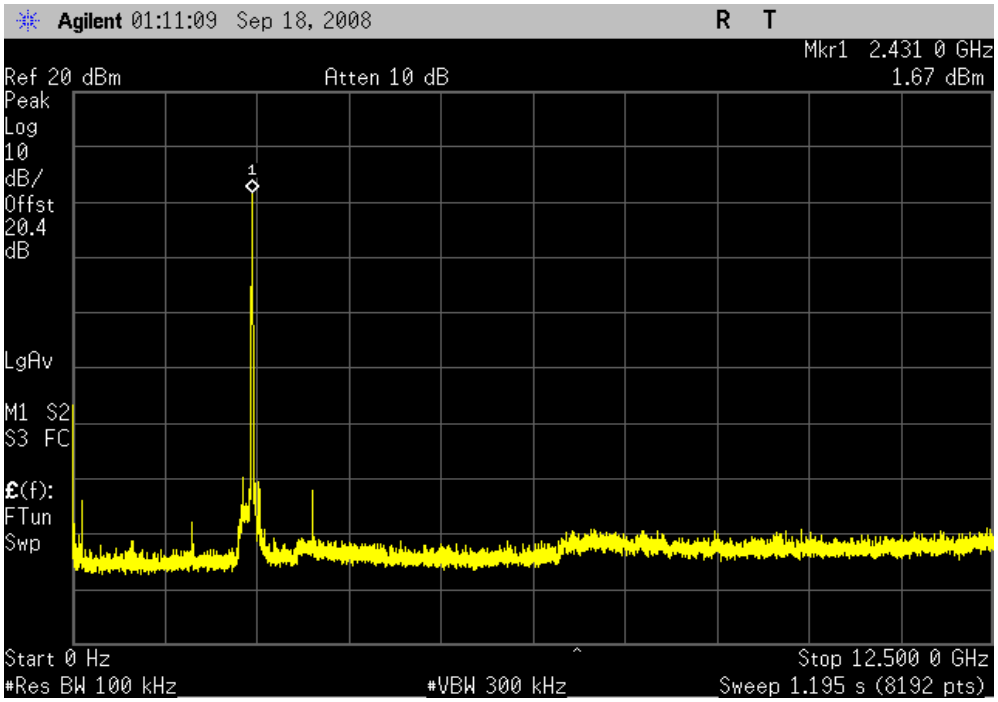
802.11(g), 54 Mbps, Low Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



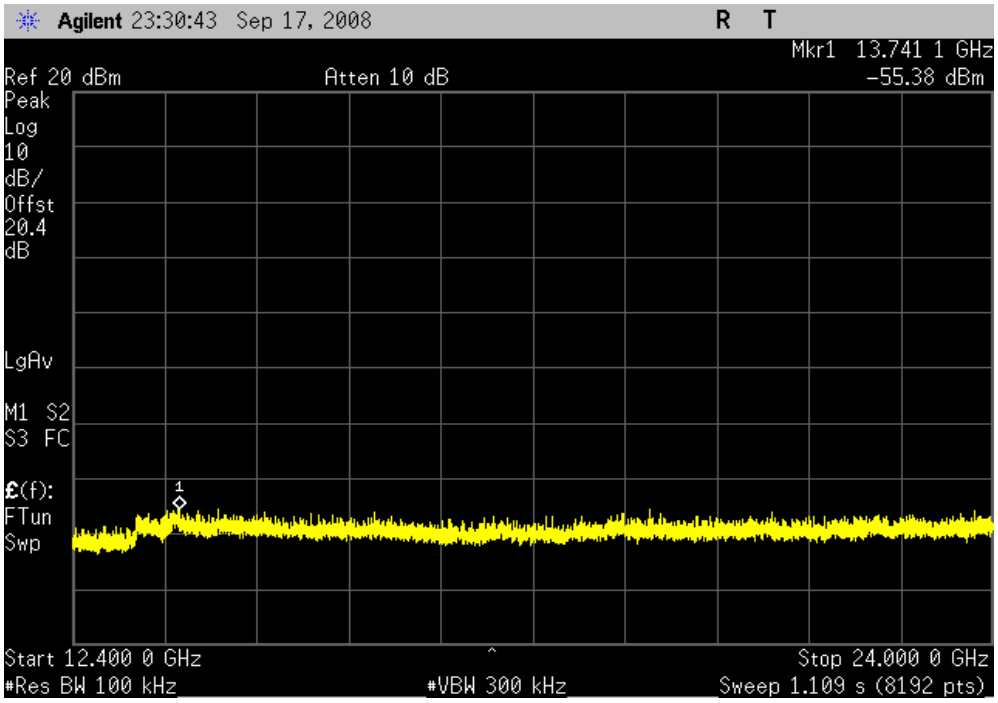
802.11(g), 54 Mbps, Low Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



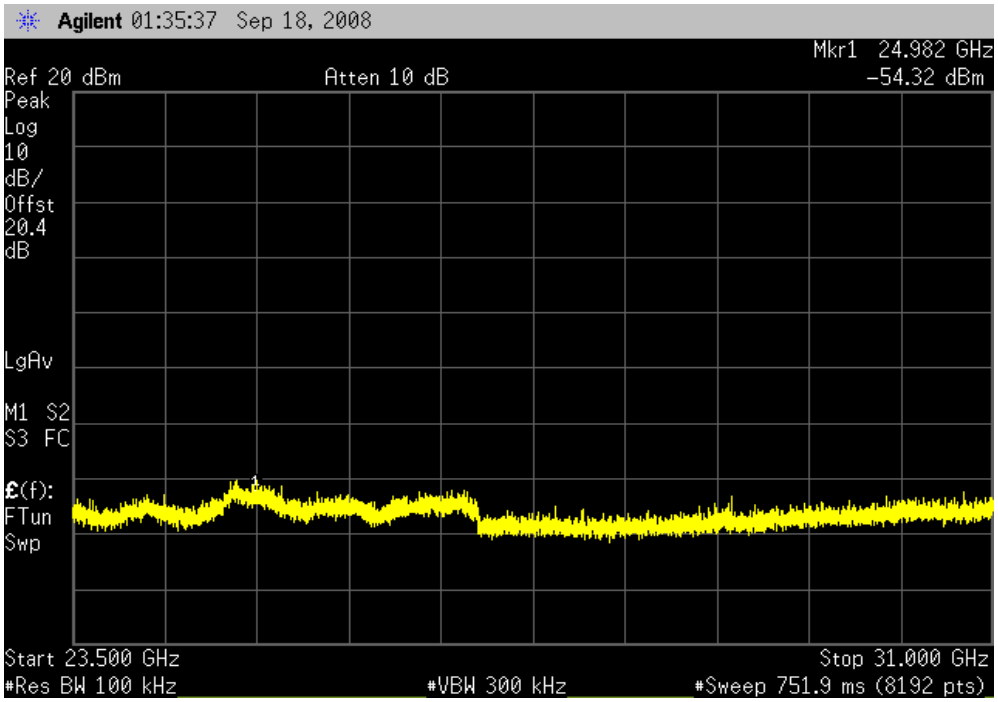
802.11(g), 54 Mbps, Mid Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



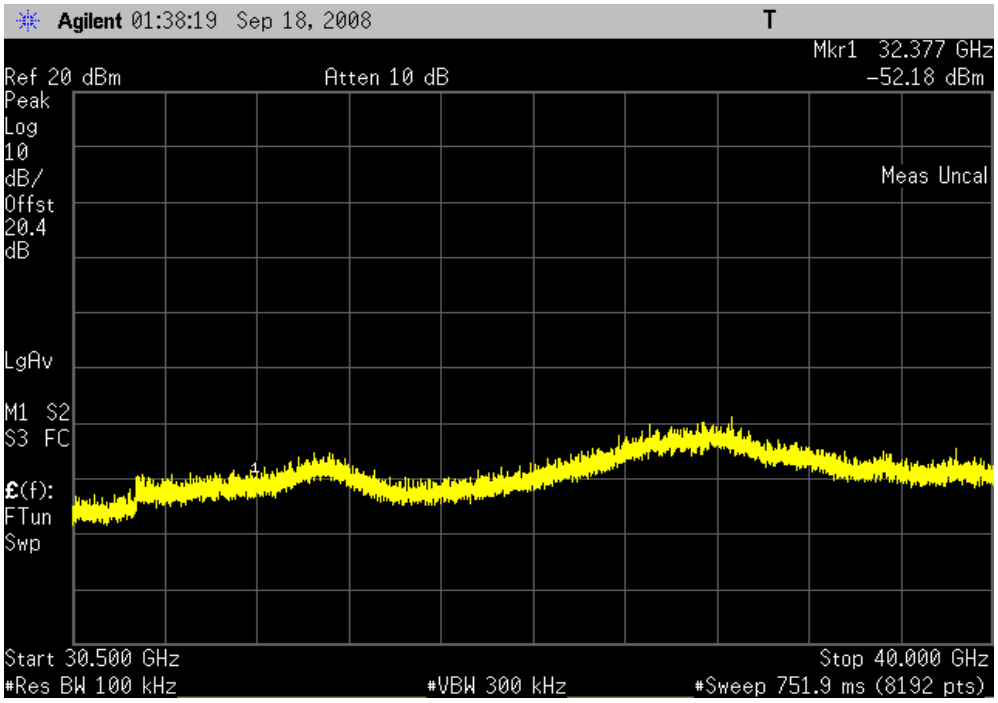
802.11(g), 54 Mbps, Mid Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



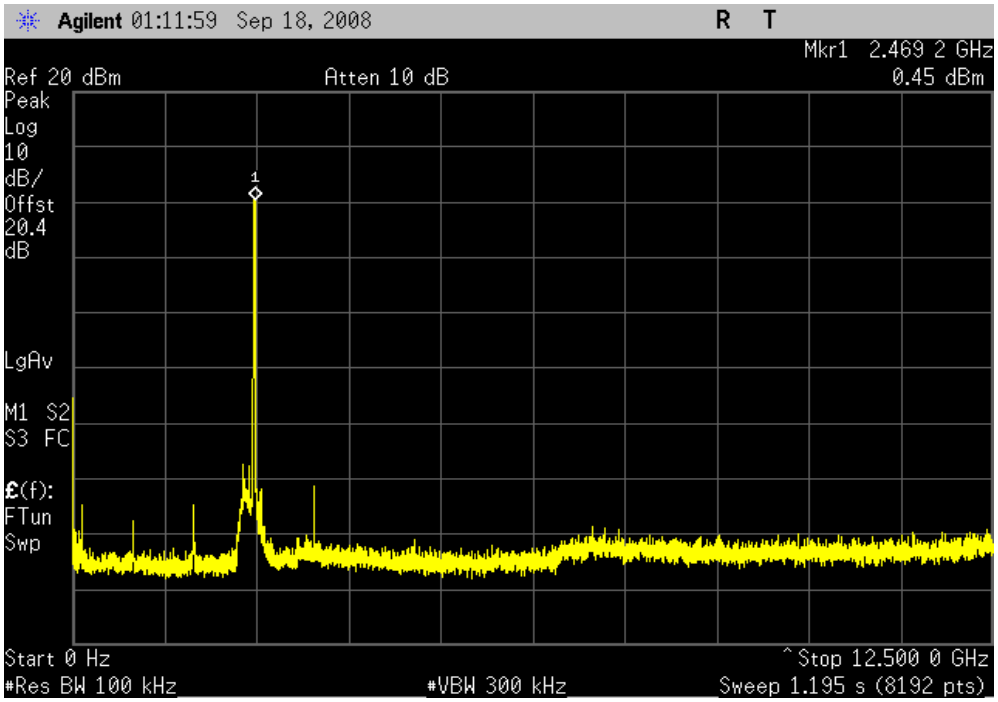
802.11(g), 54 Mbps, Mid Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



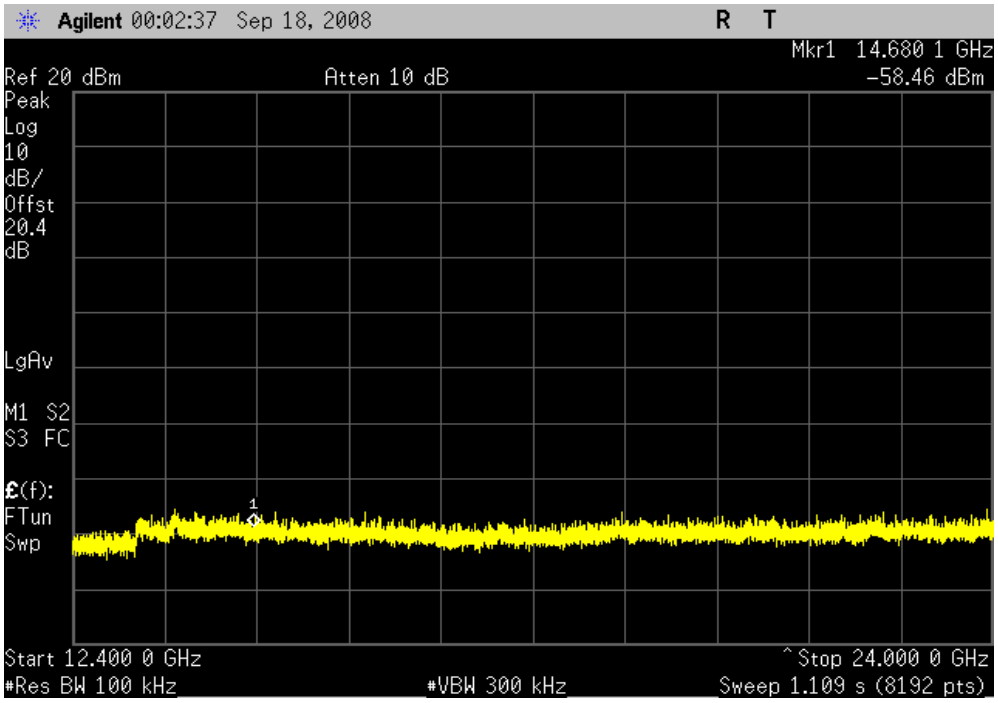
802.11(g), 54 Mbps, Mid Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



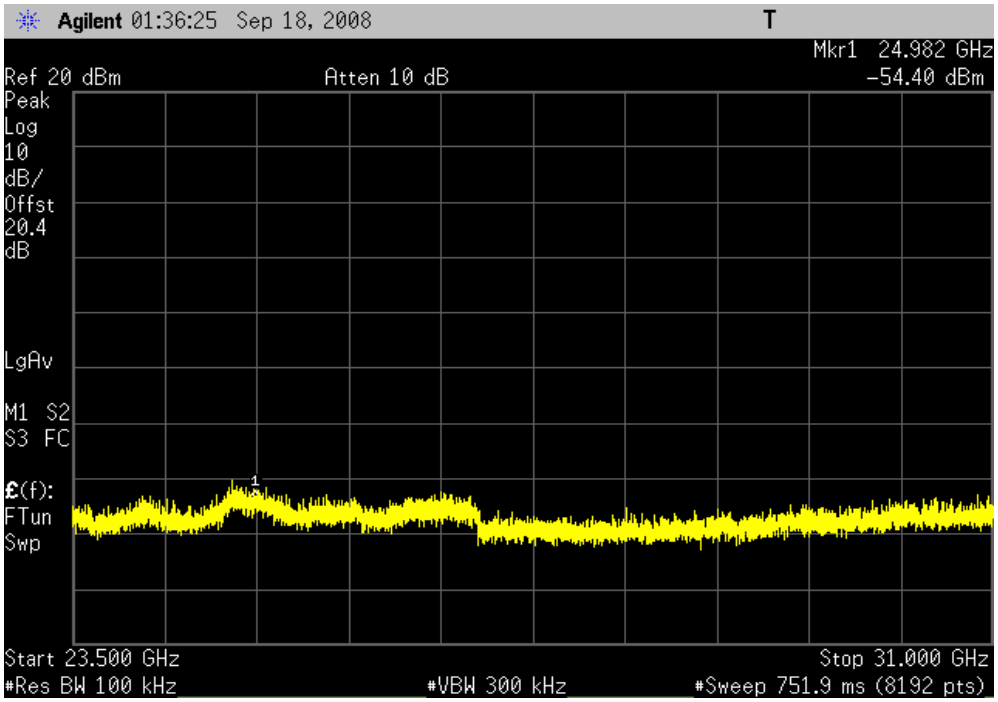
802.11(g), 54 Mbps, High Channel, 0 - 12.5 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc



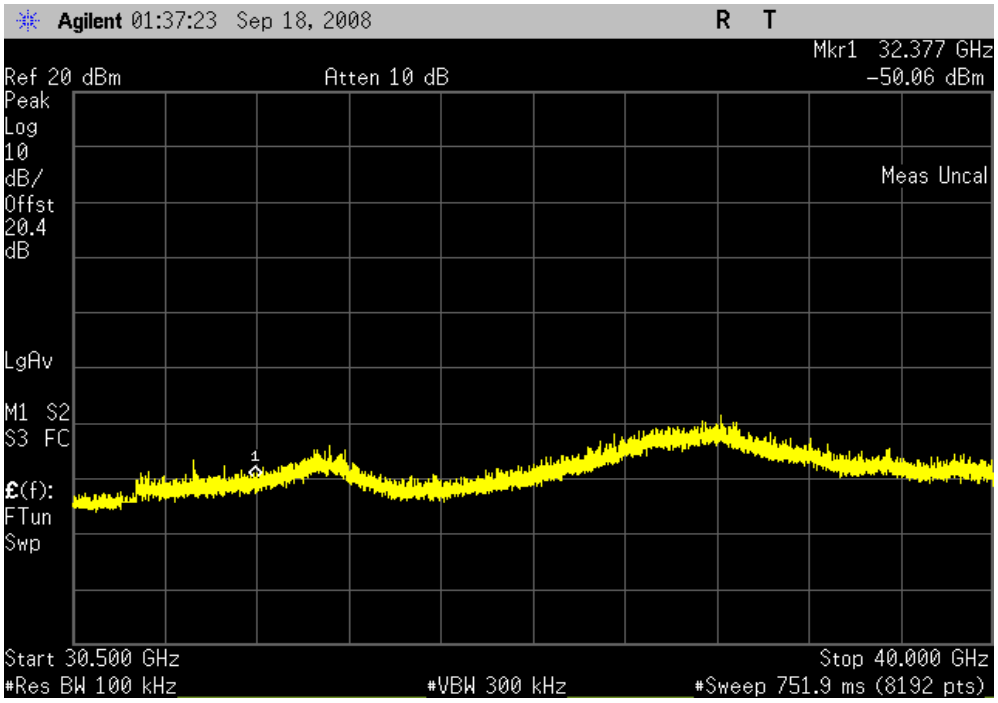
802.11(g), 54 Mbps, High Channel, 12.4 - 24 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc

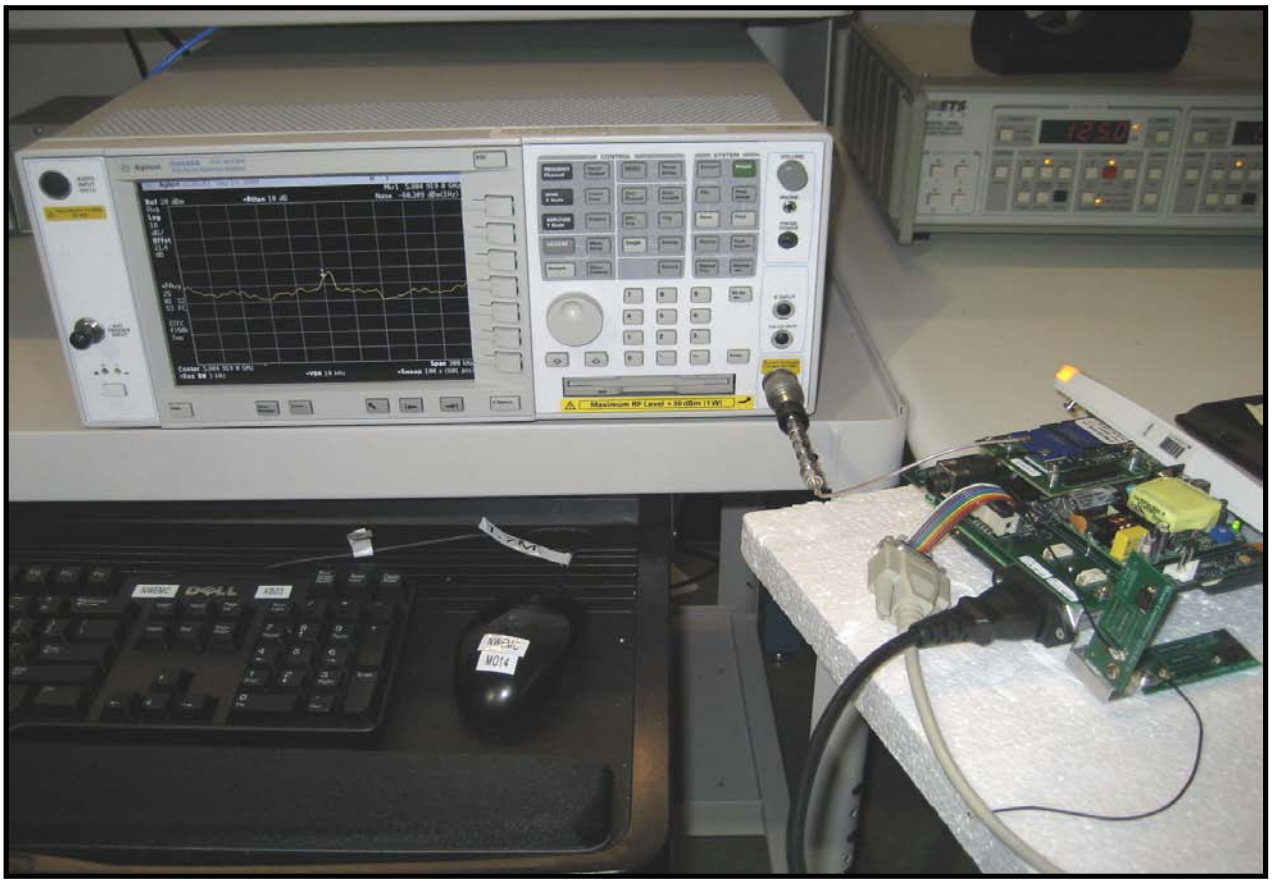


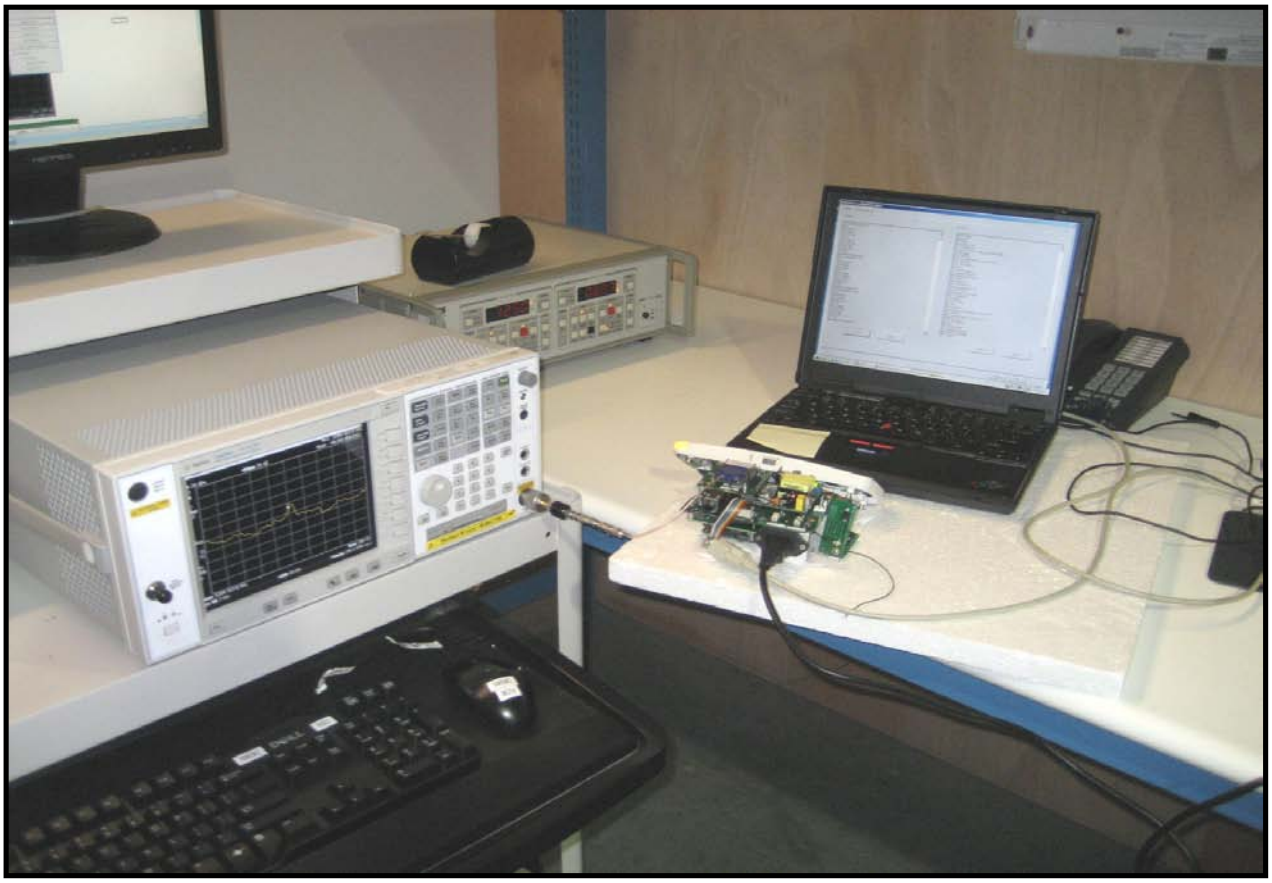
802.11(g), 54 Mbps, High Channel, 23.5 - 31 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc

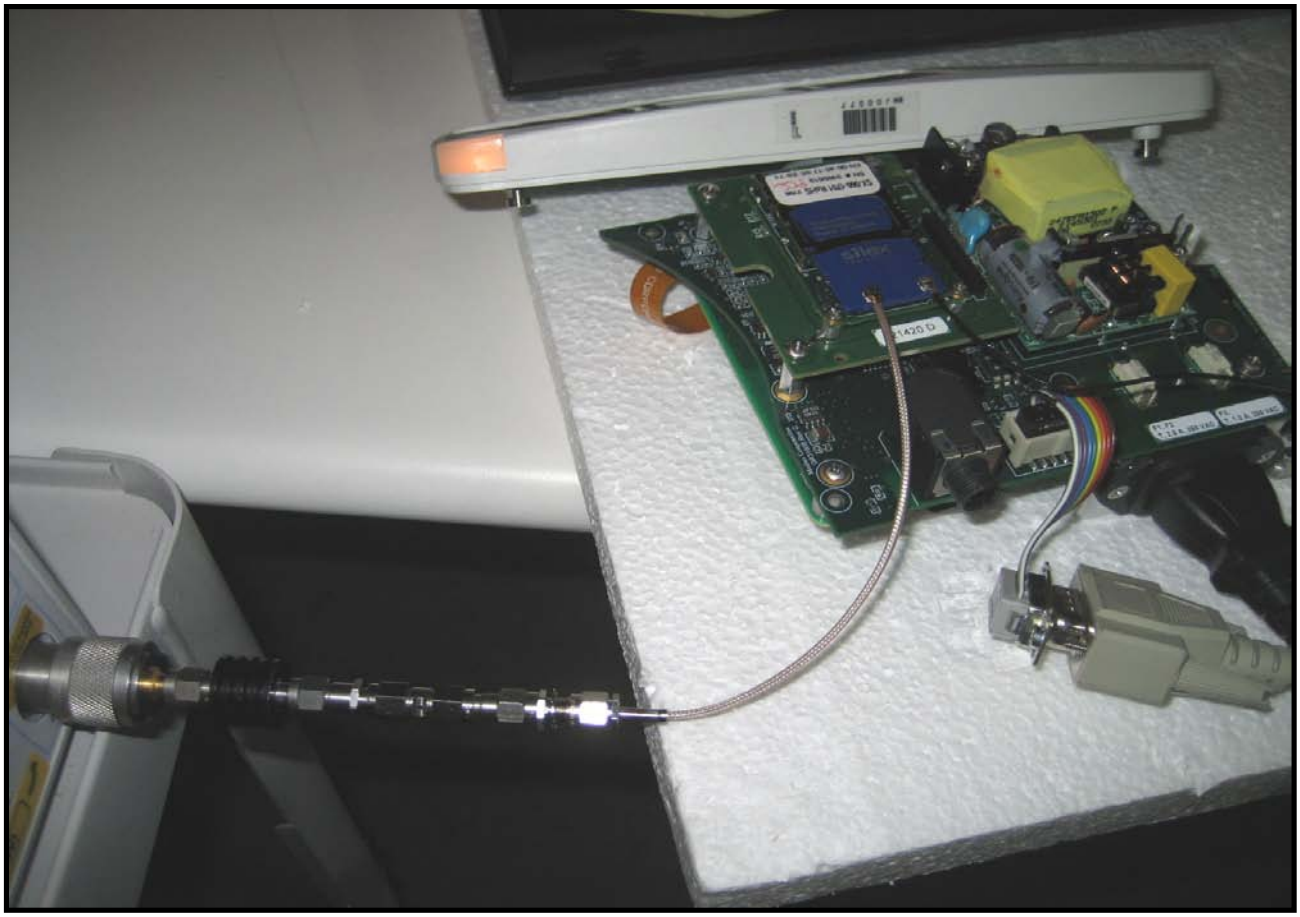


802.11(g), 54 Mbps, High Channel, 30.5 - 40 GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20dBc









Band Edge Compliance

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AAX	10/1/2007	12

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The requirements of FCC 15.247(d) for emissions at least 20dB below the carrier in any 100kHz bandwidth outside the allowable band was measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate using direct sequence modulation. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 10 MHz below the band edge to 10 MHz above the band edge.

NORTHWEST EMC

Band Edge Compliance

XMit 2007.06.13

EUT:	Rad-87			**Work Order:**	MASI0009
Serial Number:	J00073			**Date:**	09/17/08
Customer:	Masimo Corporation			**Temperature:**	21.88°C
Attendees:	Eugene Kim			**Humidity:**	53%
Project:	None			**Barometric Pres.:**	1011.7
Tested by:	Jaemi Suh	**Power:**	120V/60Hz	**Job Site:**	OC11

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2006	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

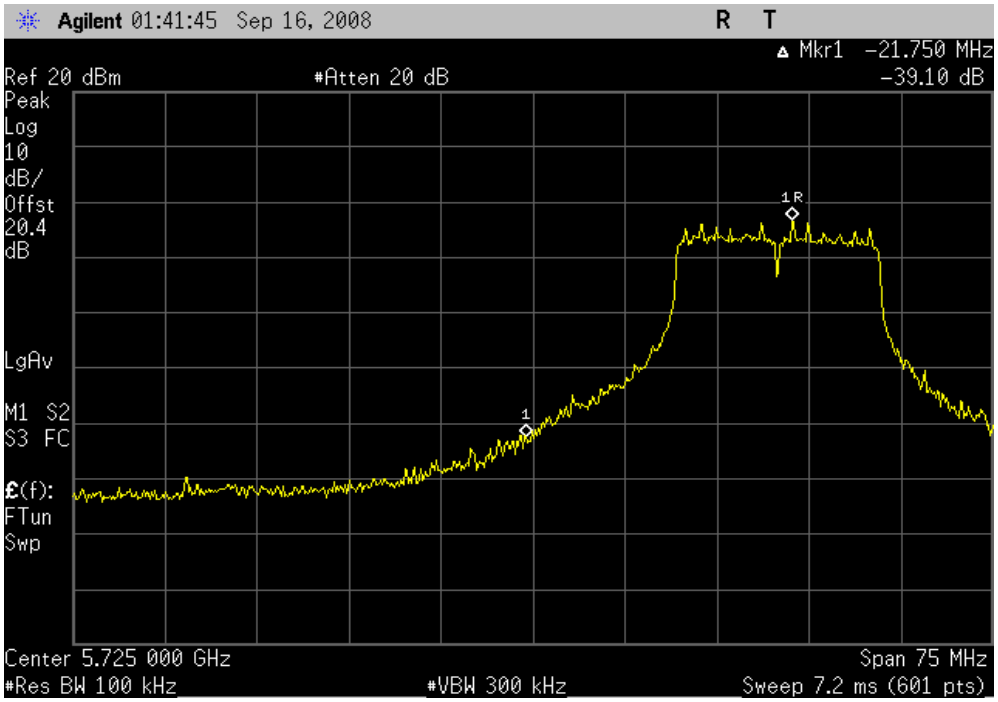
DEVIATIONS FROM TEST STANDARD

No Deviations

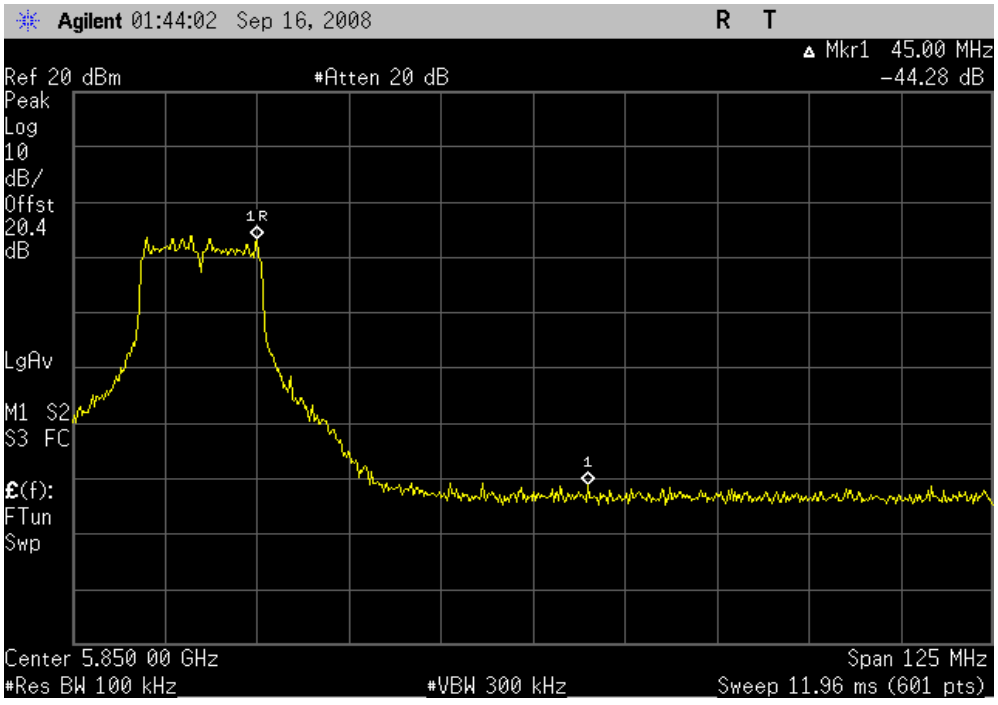
Configuration #	2	Signature

		Value	Limit	Results
802.11(a), 6 Mbps				
	Low Channel	-39.10 dB	≤ -20 dBc	Pass
	High Channel	-44.28 dB	≤ -20 dBc	Pass
802.11(a), 36 Mbps				
	Low Channel	-37.74 dB	≤ -20 dBc	Pass
	High Channel	-46.76 dB	≤ -20 dBc	Pass
802.11(a), 54 Mbps				
	Low Channel	-38.41 dB	≤ -20 dBc	Pass
	High Channel	-45.16 dB	≤ -20 dBc	Pass
802.11(b), 1 Mbps				
	Low Channel	-38.46 dB	≤ -20 dBc	Pass
	High Channel	-49.72 dB	≤ -20 dBc	Pass
802.11(b), 11 Mbps				
	Low Channel	-40.69 dB	≤ -20 dBc	Pass
	High Channel	-51.25 dB	≤ -20 dBc	Pass
802.11(g), 6 Mbps				
	Low Channel	-27.22 dB	≤ -20 dBc	Pass
	High Channel	-43.64 dB	≤ -20 dBc	Pass
802.11(g), 36 Mbps				
	Low Channel	-42.90 dB	≤ -20 dBc	Pass
	High Channel	-46.32 dB	≤ -20 dBc	Pass
802.11(g), 54 Mbps				
	Low Channel	-27.98 dB	≤ -20 dBc	Pass
	High Channel	-43.70 dB	≤ -20 dBc	Pass

802.11(a), 6 Mbps, Low Channel					
Result:	Pass	**Value:**	-39.10 dB	**Limit:**	≤ -20 dBc

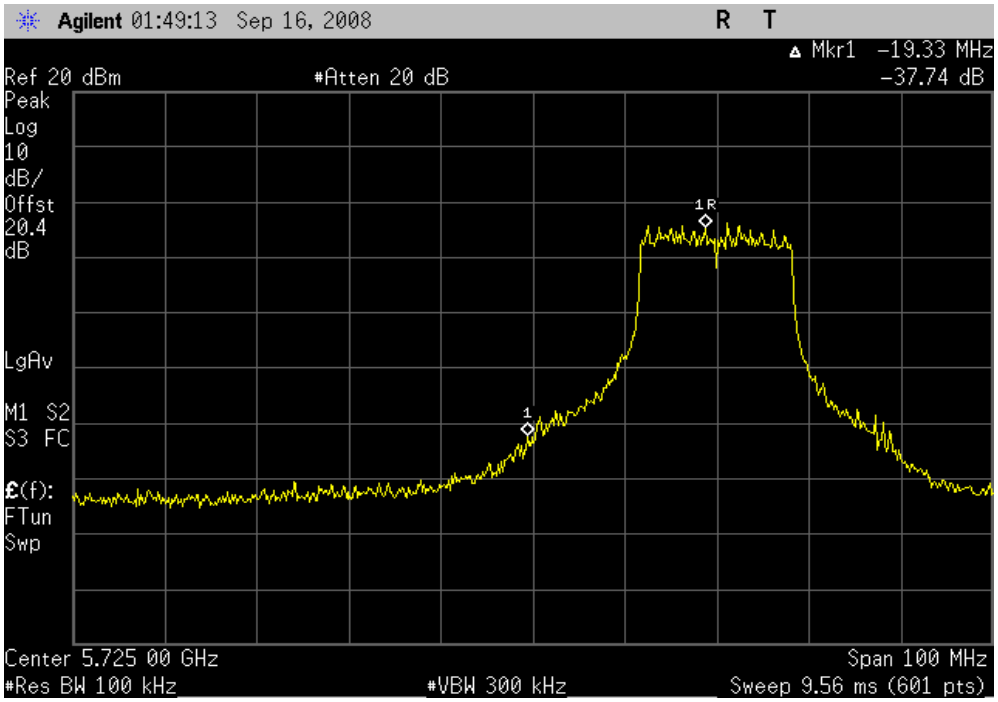


802.11(a), 6 Mbps, High Channel					
Result:	Pass	**Value:**	-44.28 dB	**Limit:**	≤ -20 dBc

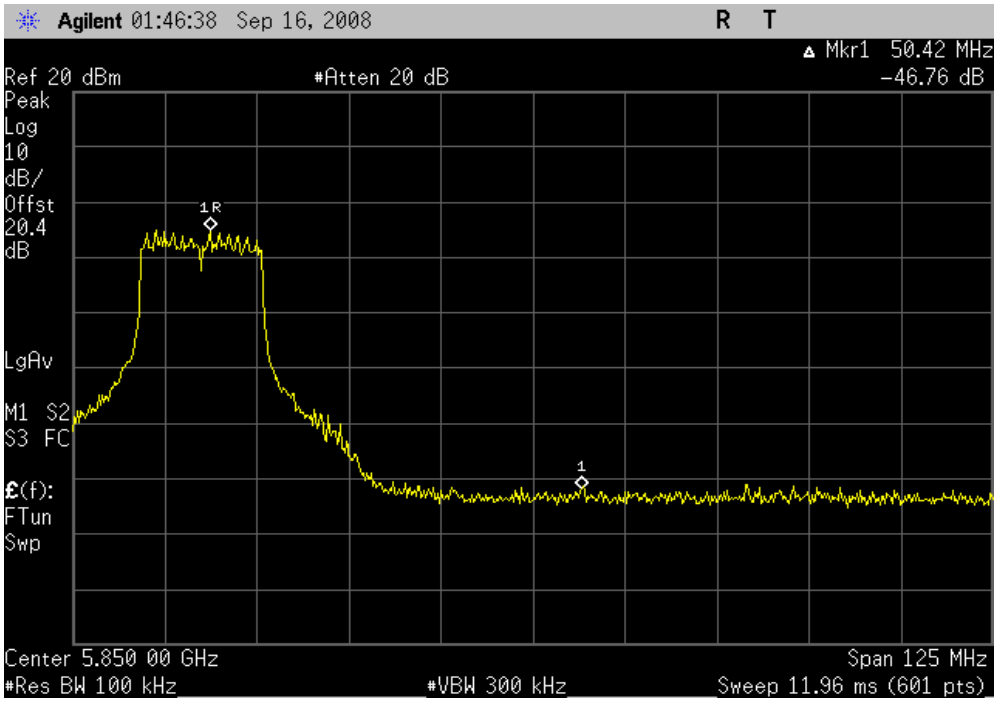


Band Edge Compliance

802.11(a), 36 Mbps, Low Channel					
Result:	Pass	**Value:**	-37.74 dB	**Limit:**	≤ -20 dBc

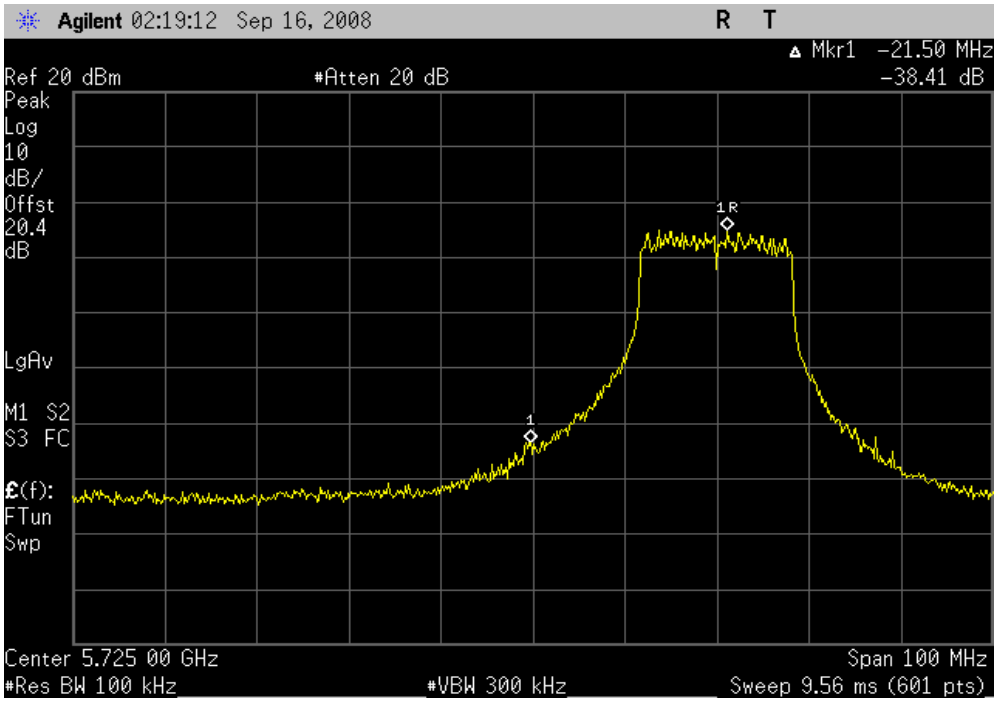


802.11(a), 36 Mbps, High Channel					
Result:	Pass	**Value:**	-46.76 dB	**Limit:**	≤ -20 dBc

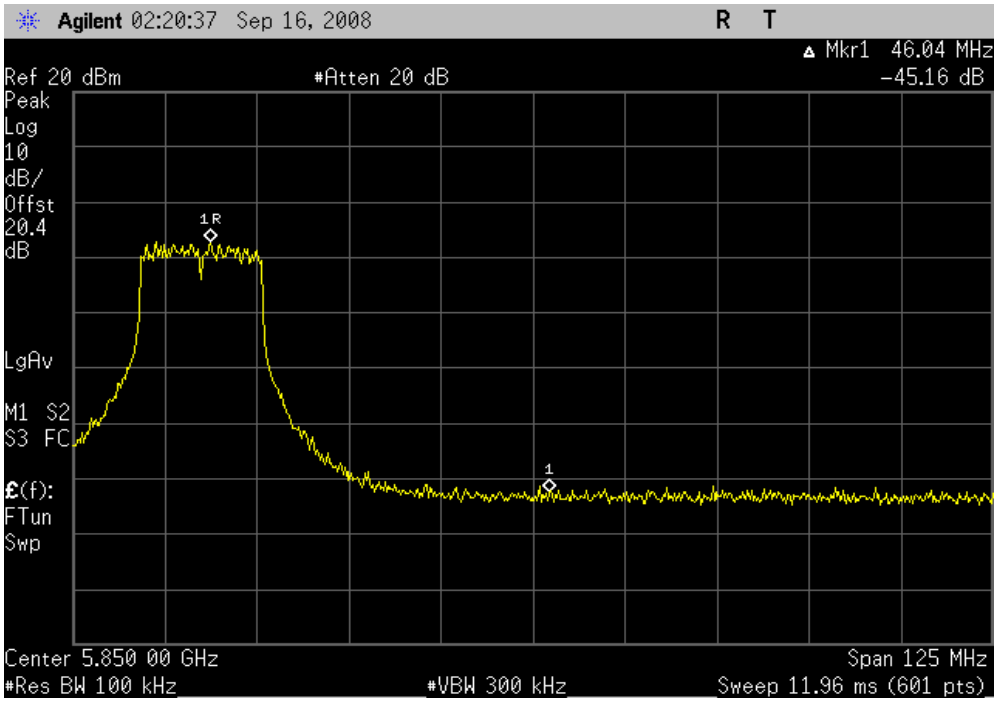


Band Edge Compliance

802.11(a), 54 Mbps, Low Channel					
Result:	Pass	**Value:**	-38.41 dB	**Limit:**	≤ -20 dBc

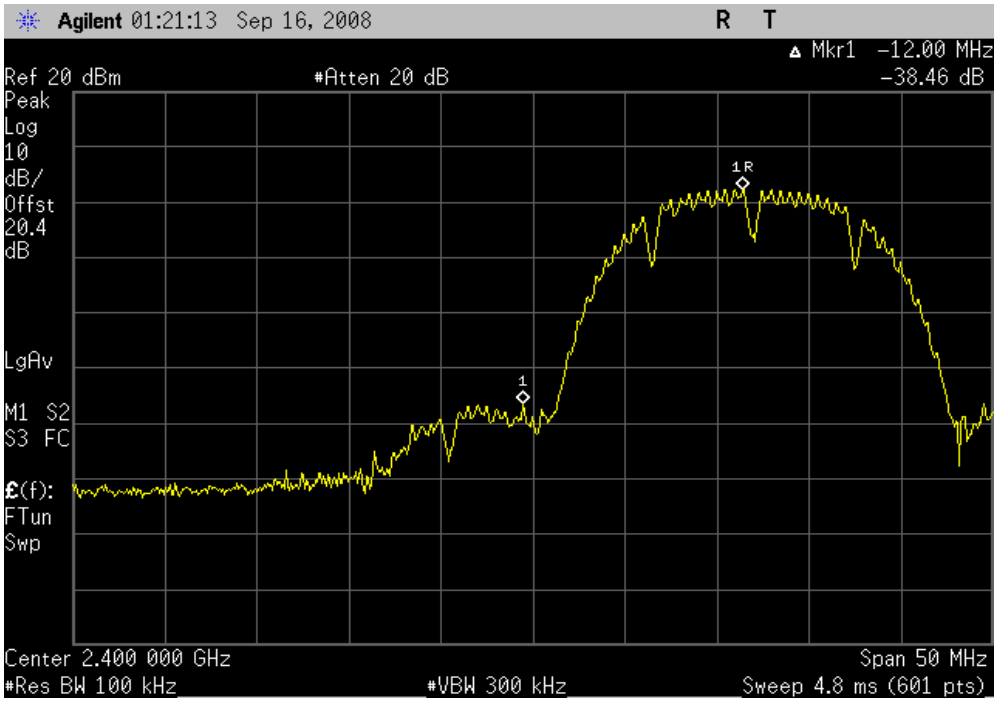


802.11(a), 54 Mbps, High Channel					
Result:	Pass	**Value:**	-45.16 dB	**Limit:**	≤ -20 dBc

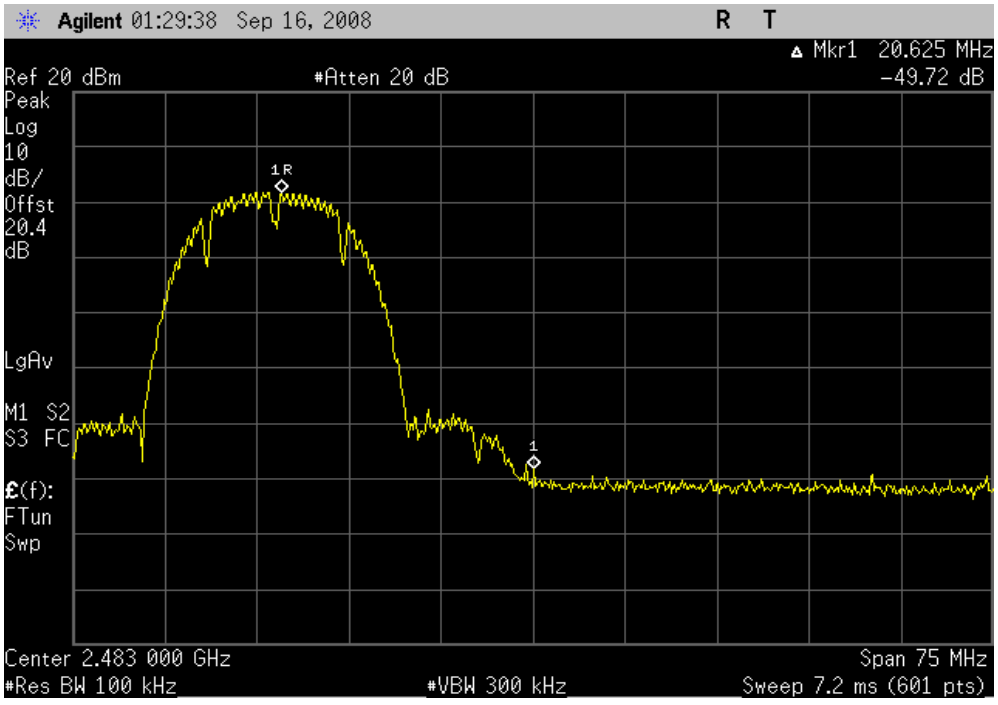


Band Edge Compliance

802.11(b), 1 Mbps, Low Channel					
Result:	Pass	**Value:**	-38.46 dB	**Limit:**	≤ -20 dBc

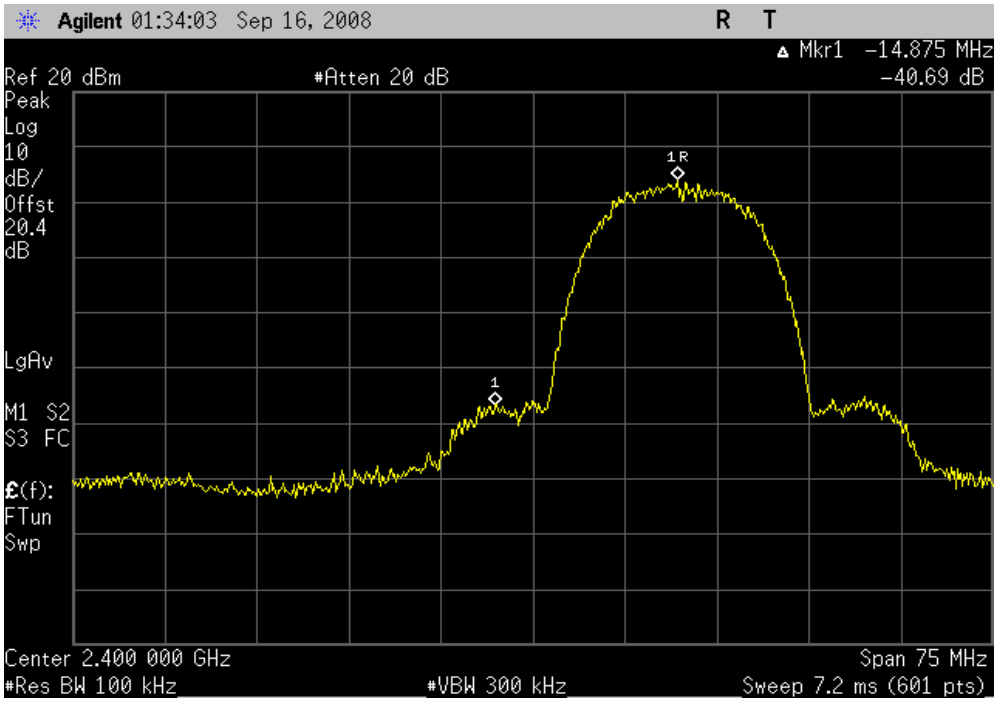


802.11(b), 1 Mbps, High Channel					
Result:	Pass	**Value:**	-49.72 dB	**Limit:**	≤ -20 dBc

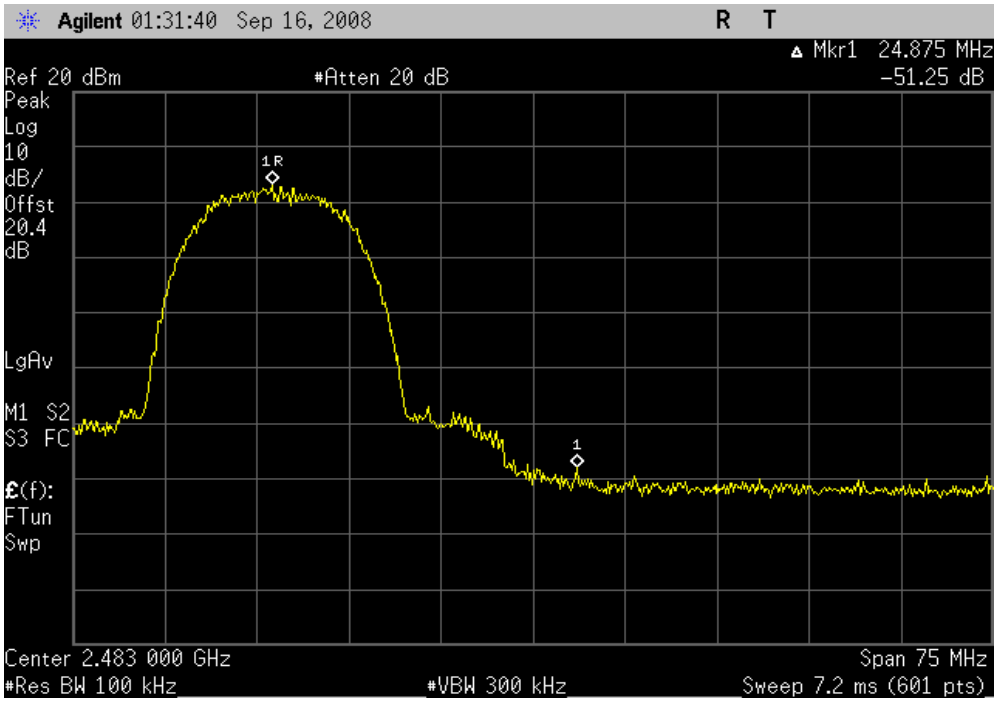


Band Edge Compliance

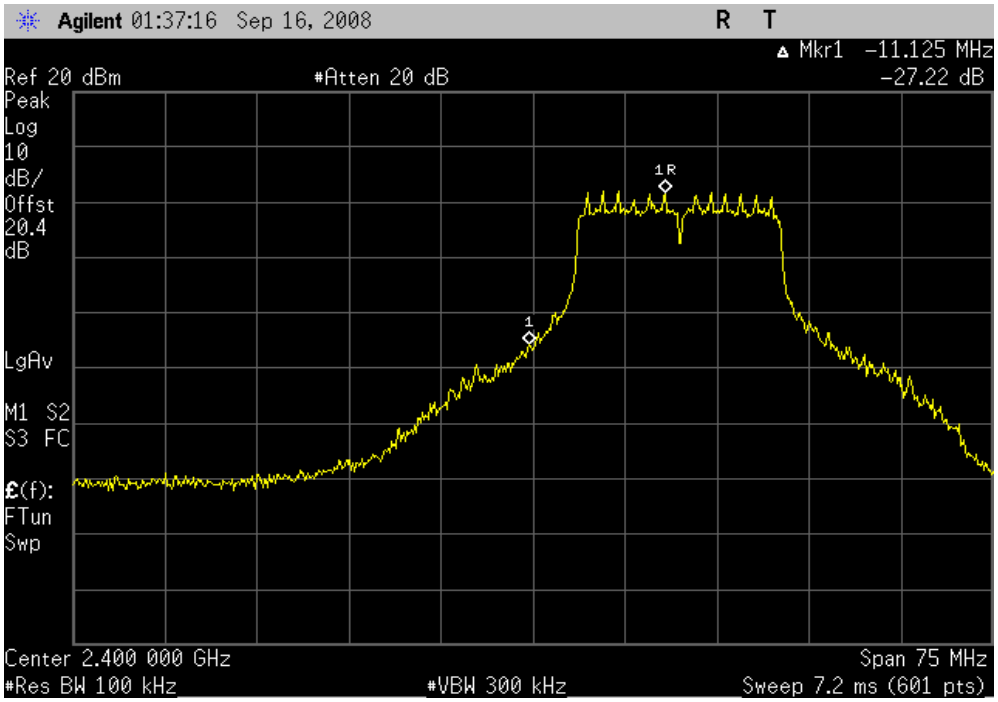
802.11(b), 11 Mbps, Low Channel					
Result:	Pass	**Value:**	-40.69 dB	**Limit:**	≤ -20 dBc



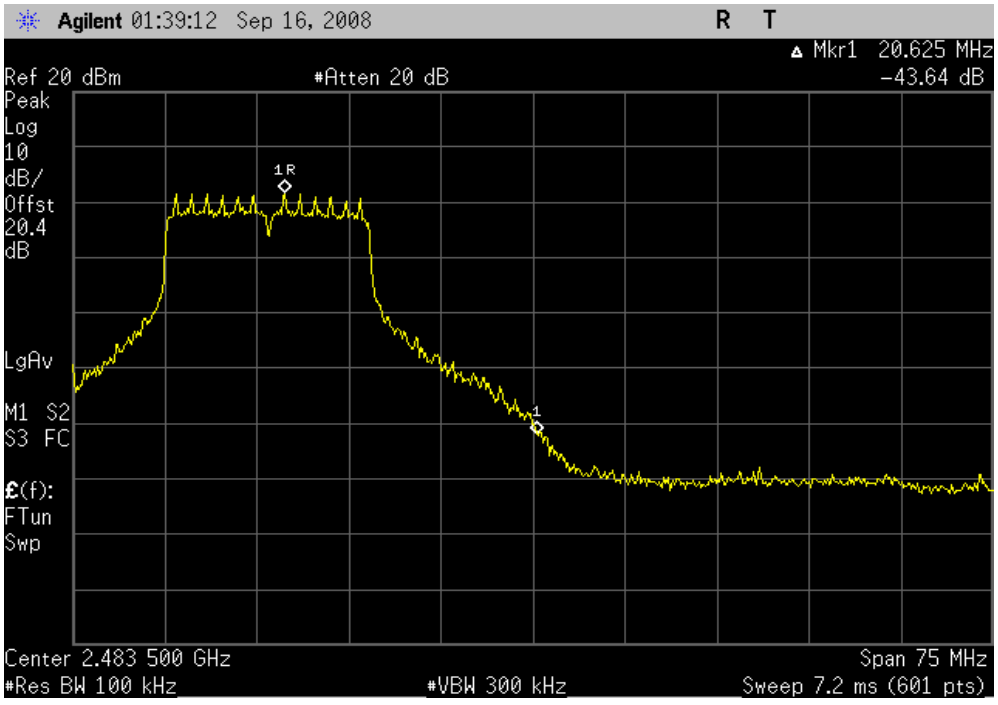
802.11(b), 11 Mbps, High Channel					
Result:	Pass	**Value:**	-51.25 dB	**Limit:**	≤ -20 dBc



802.11(g), 6 Mbps, Low Channel					
Result:	Pass	**Value:**	-27.22 dB	**Limit:**	≤ -20 dBc

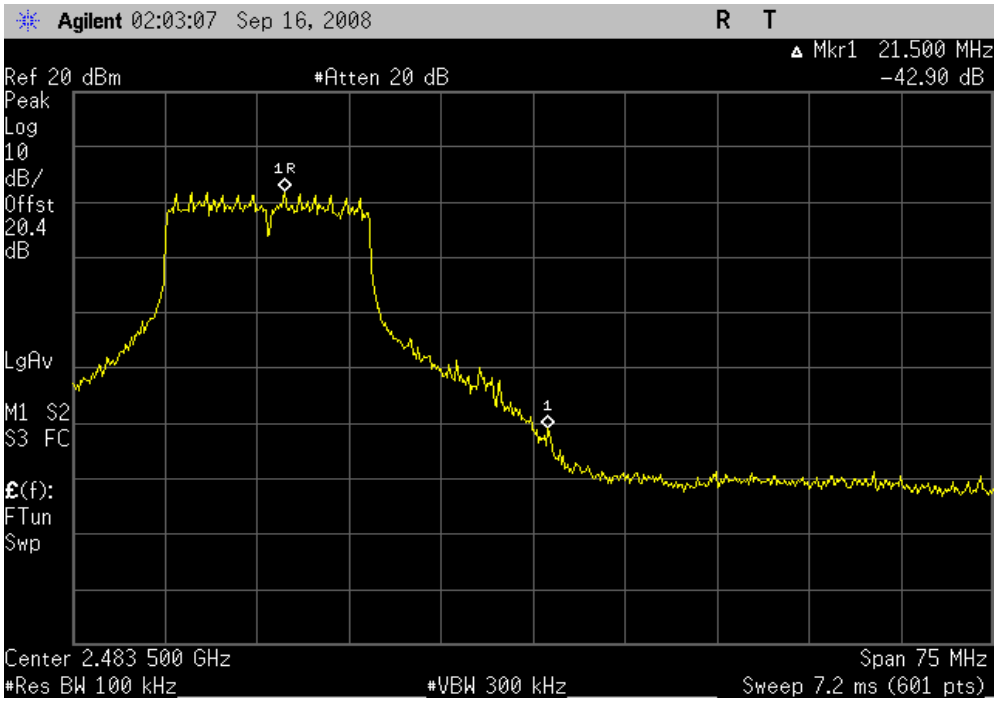


802.11(g), 6 Mbps, High Channel					
Result:	Pass	**Value:**	-43.64 dB	**Limit:**	≤ -20 dBc

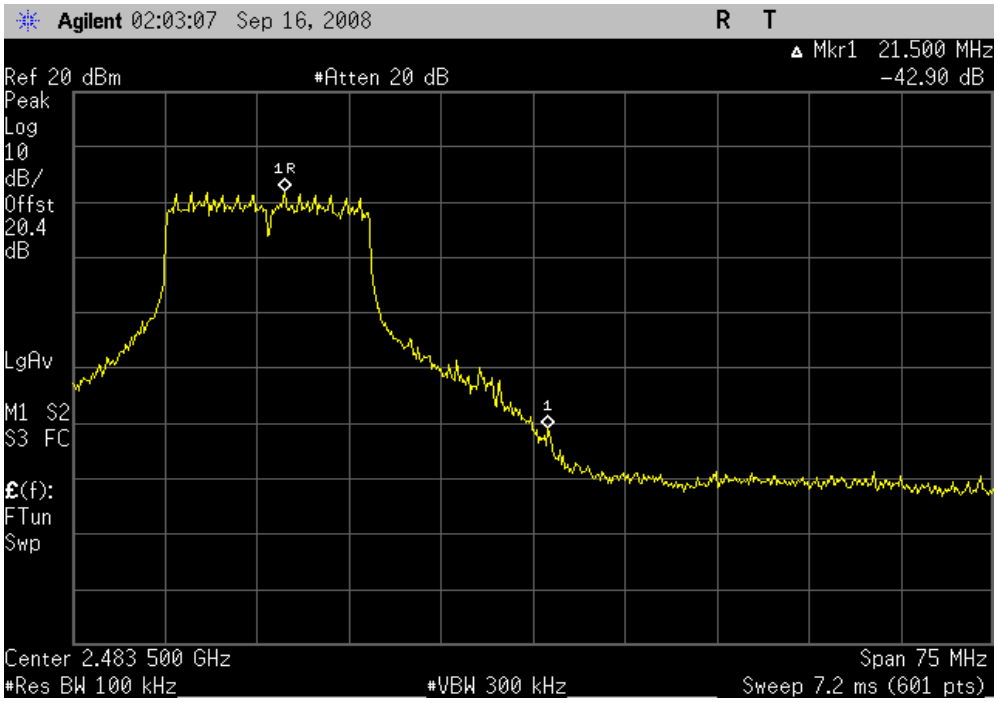


Band Edge Compliance

802.11(g), 36 Mbps, Low Channel					
Result:	Pass	**Value:**	-42.90 dB	**Limit:**	≤ -20 dBc

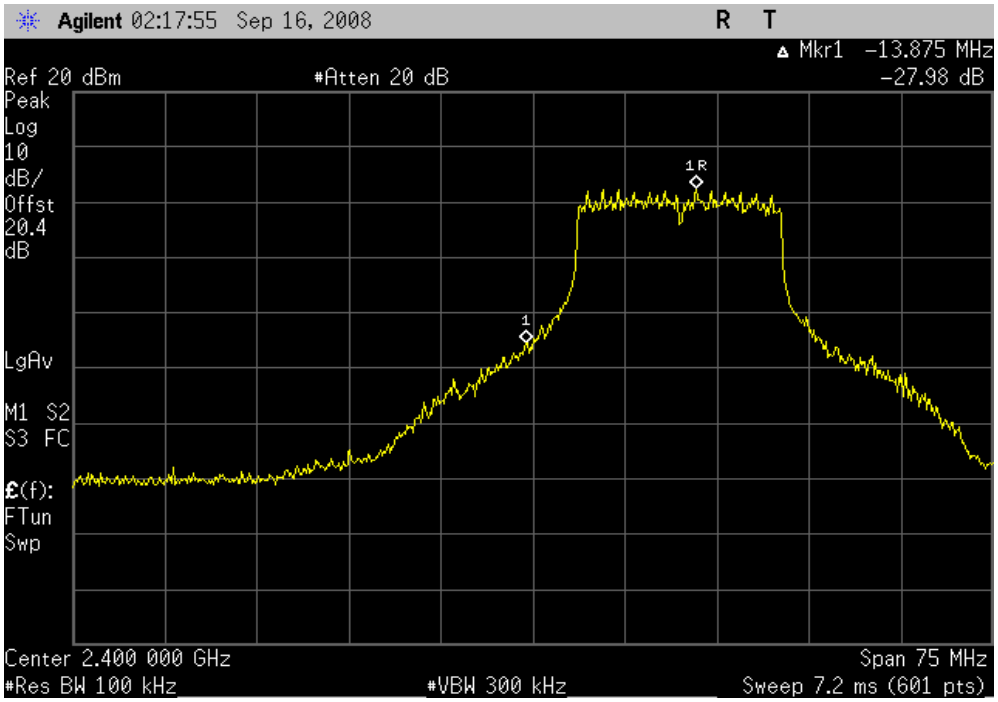


802.11(g), 36 Mbps, High Channel					
Result:	Pass	**Value:**	-46.32 dB	**Limit:**	≤ -20 dBc



Band Edge Compliance

802.11(g), 54 Mbps, Low Channel					
Result:	Pass	**Value:**	-27.98 dB	**Limit:**	≤ -20 dBc



802.11(g), 54 Mbps, High Channel					
Result:	Pass	**Value:**	-43.70 dB	**Limit:**	≤ -20 dBc