

Welch Allyn Protocol, Inc.

Welch Allyn 802.11a/b/g Wireless Radio

Welch Allyn Protocol, Inc.
8500 SW Creekside Place
Beaverton, OR 97008

Report No. PROT0309 Rev. 1

Report Prepared By



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

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test
Last Date of Test: May 20, 2009
Welch Allyn Protocol, Inc.
Model: Lamarr2

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Occupied Bandwidth	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Peak Output Power	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Power Spectral Density	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Spurious Conducted Emissions	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	Pass
Band Edge Compliance	FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074	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.
22975 NW Evergreen Parkway, Suite 400;
Hillsboro, OR 97124

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 #2834D-1).

Approved By:

Don Facteau, IS Manager



NVLAP Lab Code: 200630-0

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	Updated name on cover page per customer request	6-17-09	1

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.



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



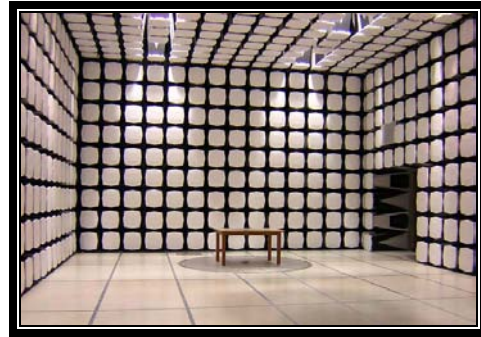
KCC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)



SCOPE

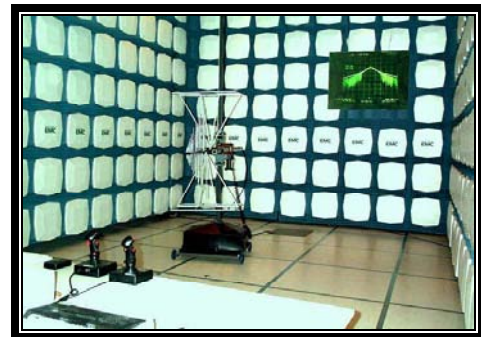
For details on the Scopes of our Accreditations, please visit:

<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

Northwest EMC	Product Description	Rev 11/17/06
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Party Requesting the Test

Company Name:	Welch Allyn Protocol, Inc.
Address:	8500 SW Creekside Place
City, State, Zip:	Beaverton, OR 97008-7107
Test Requested By:	Rob Berry
Model:	Lamarr2
First Date of Test:	May 18, 2009
Last Date of Test:	May 20, 2009
Receipt Date of Samples:	May 18, 2009
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test
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Functional Description of the EUT (Equipment Under Test):
802.11b/g radio

Testing Objective:
Seeking TCB certification under FCC 15.247.

CONFIGURATION 1 PROT0309**Software/Firmware Running during test**

Description	Version
Prism Engineering Tool	2:5:14:0

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT - 802.11(b)(g) radio	Welch Allyn Protocol Inc.	Lamarr2	000B28004C5C

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
AC Adapter (TCC)	CUI Inc.	EPAS-101W-05	None

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
TCC Test Fixture	Welch Allyn Protocol Inc.	851-0034-01 Rev. 02	Unknown
AC Adapter (WAN)	CUI Inc.	PSA18U-120	140500179A2
WAN Modem	Belkin	F5D5231-4	507B1400828
Laptop	IBM	T40	99-OXRAW 04/02

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	1.8m	No	WAN Modem	Laptop
Ethernet	No	5.0m	No	TCC Test Fixture	WAN Modem
DC	No	1.6m	No	TCC Test Fixture	AC Adapter (TCC)

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 2 PROT0309**Software/Firmware Running during test**

Description	Version
Prism Engineering Tool	2:5:14:0

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT - 802.11(b)(g) radio	Welch Allyn Protocol Inc.	Lamarr2	000B28004C5C

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
TCC Test Fixture	Welch Allyn Protocol Inc.	851-0034-01 Rev. 02	Unknown
AC Adapter (TCC)	CUI Inc.	EPAS-101W-05	None

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
AC Adapter (WAN)	CUI Inc.	PSA18U-120	140500179A2
WAN Modem	Belkin	F5D5231-4	507B1400828
Laptop	IBM	T40	99-OXRAW 04/02

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ethernet	No	1.8m	No	WAN Modem	Laptop
Ethernet	No	2.0m	No	TCC Test Fixture	WAN Modem
DC	No	1.6m	No	TCC Test Fixture	AC Adapter (TCC)
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	5/18/2009	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	5/19/2009	Power Spectral Density	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	5/19/2009	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.
4	5/19/2009	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.
5	5/19/2009	Peak 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.
6	5/19/2009	Spurious 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.
7	5/20/2009	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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

MODE USED FOR FINAL DATA

Transmitting 802.11

POWER SETTINGS INVESTIGATED

120VAC/60Hz

POWER SETTINGS USED FOR FINAL DATA

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	25GHz
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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	AMF-6F-12001800-30-10P	AVI	5/14/2008	13
Antenna, Horn	ETS	3160-08	AlA	NCR	0
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Antenna, Horn	ETS	3160-09	AHG	NCR	0
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	5/14/2008	13
Antenna, Horn	ETS	3160.07	AHZ	10/14/2008	24
High Pass Filter	Micro-Tronics	50111	HGE	5/14/2008	13
Attenuator	Pasternack	PE7005-20	AUN	5/10/2008	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/17/2008	13
Antenna, Horn	ETS	3115	AlB	8/25/2008	24
Spectrum Analyzer	Agilent	E44440A	AFA	11/14/2008	12
EV12 Cables		Bilog Cables	EVS	6/17/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/17/2008	13
Antenna, Biconilog	EMCO	3141	AXG	11/4/2008	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	5/21/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
Spectrum Analyzer	Agilent	E4446A	AAY	12/11/2008	13
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13

MEASUREMENT BANDWIDTHS

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation 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

PSA 2008.07.21
EM 2008.7.3

EUT: Lamarr2		Work Order: PROT0309	
Serial Number: 000B28004C5C		Date: 05/18/09	
Customer: Welch Allyn Protocol, Inc.		Temperature: 22	
Attendees: Steve Baker		Humidity: 39%	
Project: None		Barometric Pres.: 29.85 in	
Tested by: Rod Peloquin		Power: 120VAC/60Hz	
		Job Site: EV01	

TEST SPECIFICATIONS

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

EUT orientation noted in comments

EUT OPERATING MODES

Transmitting 802.11

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
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)	Comments
4824.020	43.9	9.5	19.0	1.0	3.0	0.0	V-Horn	AV	0.0	53.4	54.0	-0.6	Low channel, 1 Mbps, Power 39800, Rep Interval 10, EUT on side, Antenna on side - Final
4874.033	43.7	9.7	16.0	1.2	3.0	0.0	V-Horn	AV	0.0	53.4	54.0	-0.6	Mid channel, 1 Mbps, Power 40200, Rep Interval 10, EUT on side, Antenna on side - Final
4873.903	43.2	9.7	23.0	1.1	3.0	0.0	H-Horn	AV	0.0	52.9	54.0	-1.1	Mid channel, 1 Mbps, Power 40200, Rep Interval 10, EUT on side, Antenna on side - Final
4924.037	42.5	9.9	12.0	1.1	3.0	0.0	H-Horn	AV	0.0	52.4	54.0	-1.6	High channel, 1 Mbps, Power 41800, Rep Interval 10, EUT on side, Antenna on side - Final
4923.997	41.6	9.5	21.0	1.1	3.0	0.0	H-Horn	AV	0.0	51.1	54.0	-2.9	Low channel, 1 Mbps, Power 39800, Rep Interval 10, EUT on side, Antenna on side - Final
4823.983	51.8	9.5	19.0	1.0	3.0	0.0	V-Horn	PK	0.0	61.3	74.0	-12.7	Low channel, 1 Mbps, Power 39800, Rep Interval 10, EUT on side, Antenna on side - Final
4873.890	51.6	9.7	16.0	1.2	3.0	0.0	V-Horn	PK	0.0	61.3	74.0	-12.7	Mid channel, 1 Mbps, Power 40200, Rep Interval 10, EUT on side, Antenna on side - Final
4873.867	50.6	9.7	23.0	1.1	3.0	0.0	H-Horn	PK	0.0	60.3	74.0	-13.7	Mid channel, 1 Mbps, Power 40200, Rep Interval 10, EUT on side, Antenna on side - Final

NORTHWEST

EMC

Spurious Radiated Emissions

PSA 2008.07.21
EMI 2008.7.3

EUT: Lamarr2		Work Order: PROT0315	
Serial Number: 000B28004C5C		Date: 05/18/09	
Customer: Welch Allyn Protocol, Inc.		Temperature: 22	
Attendees: Steve Baker		Humidity: 39%	
Project: None		Barometric Pres.: 29.85 In	
Tested by: Rod Peloquin		Power: 120VAC/60Hz	
		Job Site: EV01	

TEST SPECIFICATIONS

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

EUT orientation noted in comments

EUT OPERATING MODES

Transmitting 802.11

DEVIATIONS FROM TEST STANDARD

No deviations.

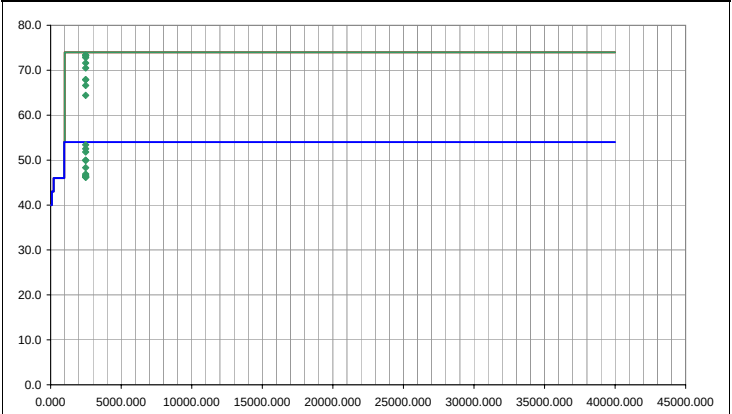
Run #2

Configuration #1

ResultsPass

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)	Comments
2484.290	31.2	2.2	165.0	1.2	3.0	20.0	V-Horn	AV	0.0	53.4	54.0	-0.6	High channel, 1 Mbps, Power 41000, Rep Interval 10, EUT on side, Antenna on side - Final
2484.000	51.2	2.2	43.0	1.0	3.0	20.0	V-Horn	PK	0.0	73.4	74.0	-0.6	High channel, 36 Mbps, Power 48380, Rep Interval 10, EUT on side, Antenna on side - Final
2484.037	51.1	2.2	321.0	1.1	3.0	20.0	H-Horn	PK	0.0	73.3	74.0	-0.7	High channel, 6 Mbps, Power 49340, Rep Interval 10, EUT horizontal, Antenna horizontal - Final
2483.993	51.0	2.2	147.0	1.2	3.0	20.0	V-Horn	PK	0.0	73.2	74.0	-0.8	High channel, 6 Mbps, Power 49340, Rep Interval 10, EUT on side, Antenna on side - Final
2483.553	50.6	2.2	341.0	1.1	3.0	20.0	H-Horn	PK	0.0	72.8	74.0	-1.2	High channel, 36 Mbps, Power 48380, Rep Interval 10, EUT horizontal, Antenna horizontal - Final
2483.500	30.3	2.2	166.0	1.2	3.0	20.0	V-Horn	AV	0.0	52.5	54.0	-1.5	High channel, 11 Mbps, Power 42000, Cont TX, EUT on side, Antenna on side - Final
2484.087	29.6	2.2	302.0	1.1	3.0	20.0	H-Horn	AV	0.0	51.8	54.0	-2.2	High channel, 1 Mbps, Power 41000, Rep Interval 10, EUT on side, Antenna on side - Final
2484.028	49.4	2.2	156.0	1.2	3.0	20.0	V-Horn	PK	0.0	71.6	74.0	-2.4	High channel, 54 Mbps, Power 47000, Rep Interval 10, EUT on side, Antenna on side - Final
2484.097	48.3	2.2	328.0	1.1	3.0	20.0	H-Horn	PK	0.0	70.5	74.0	-3.5	High channel, 54 Mbps, Power 47000, Rep Interval 10, EUT horizontal, Antenna horizontal - Final
2483.525	27.8	2.2	349.0	1.1	3.0	20.0	H-Horn	AV	0.0	50.0	54.0	-4.0	High channel, 11 Mbps, Power 42000, Cont TX, EUT horizontal, Antenna horizontal - Final
2483.500	27.7	2.2	58.0	1.0	3.0	20.0	V-Horn	AV	0.0	49.9	54.0	-4.1	High channel, 36 Mbps, Power 48380, Cont TX, EUT on side, Antenna on side - Final
2483.512	26.1	2.2	64.0	1.0	3.0	20.0	V-Horn	AV	0.0	48.3	54.0	-5.7	High channel, 54 Mbps, Power 47000, Cont TX, EUT on side, Antenna on side - Final

NORTHWEST

EMC

Spurious Radiated Emissions

PSA 2008.07.21
EM 2008.7.3

EUT: Lamarr2		Work Order: PROT0309	
Serial Number: 000B28004C5C		Date: 05/18/09	
Customer: Welch Allyn Protocol, Inc.		Temperature: 22	
Attendees: Steve Baker		Humidity: 39%	
Project: None		Barometric Pres.: 29.85 in	
Tested by: Rod Peloquin		Power: 120VAC/60Hz	
		Job Site: EV01	

TEST SPECIFICATIONS

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

EUT orientation noted in comments

EUT OPERATING MODES

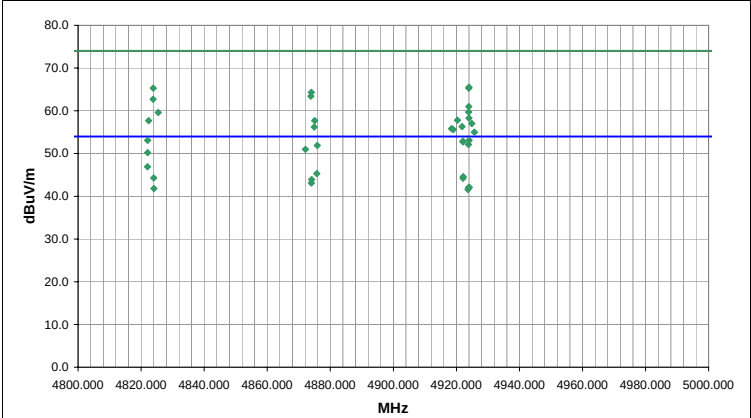
Transmitting 802.11

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
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)	Comments
4924.042	43.2	9.9	17.0	1.2	3.0	0.0	V-Horn	AV	0.0	53.1	54.0	-0.9	High channel, 1 Mbps, Power 41000, Rep Interval 10, EUT on side, Antenna on side - Final
4822.100	43.6	9.5	26.0	1.1	3.0	0.0	V-Horn	AV	0.0	53.1	54.0	-0.9	Low channel, 11 Mbps, Power 40300, Cont Tx, EUT on side, Antenna on side - Final
4922.075	43.0	9.9	209.0	1.1	3.0	0.0	H-Horn	AV	0.0	52.9	54.0	-1.1	High channel, 11 Mbps, Power 42000, Cont TX, EUT on side, Antenna on side - Final
4922.100	42.8	9.9	304.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.7	54.0	-1.3	High channel, 11 Mbps, Power 42000, Cont TX, EUT on side, Antenna on side - Final
4923.840	42.2	9.9	4.0	1.2	3.0	0.0	H-Horn	AV	0.0	52.1	54.0	-1.9	High channel, 1 Mbps, Power 41000, Rep Interval 10, EUT on side, Antenna on side - Final
4875.875	42.2	9.7	285.0	1.0	3.0	0.0	V-Horn	AV	0.0	51.9	54.0	-2.1	Mid channel, 11 Mbps, Power 41200, Cont Tx, EUT on side, Antenna on side - Final
4872.100	41.3	9.7	210.0	1.1	3.0	0.0	H-Horn	AV	0.0	51.0	54.0	-3.0	Mid channel, 11 Mbps, Power 41200, Cont Tx, EUT on side, Antenna on side - Final
4822.075	40.7	9.5	208.0	1.1	3.0	0.0	H-Horn	AV	0.0	50.2	54.0	-3.8	Low channel, 11 Mbps, Power 40300, Cont Tx, EUT on side, Antenna on side - Final
4822.025	37.4	9.5	28.0	1.1	3.0	0.0	V-Horn	AV	0.0	46.9	54.0	-7.1	Low channel, 36 Mbps, Power 48000, Cont Tx, EUT on side, Antenna on side - Final
4923.975	55.6	9.9	209.0	1.1	3.0	0.0	H-Horn	PK	0.0	65.5	74.0	-8.5	High channel, 11 Mbps, Power 42000, Cont TX, EUT on side, Antenna on side - Final
4823.875	55.8	9.5	26.0	1.1	3.0	0.0	V-Horn	PK	0.0	65.3	74.0	-8.7	Low channel, 11 Mbps, Power 40300, Cont Tx, EUT on side, Antenna on side - Final
4923.950	55.4	9.9	304.0	1.0	3.0	0.0	V-Horn	PK	0.0	65.3	74.0	-8.7	High channel, 11 Mbps, Power 42000, Cont TX, EUT on side, Antenna on side - Final
4875.725	35.5	9.8	23.0	1.1	3.0	0.0	V-Horn	AV	0.0	45.3	54.0	-8.7	Mid channel, 36 Mbps, Power 48000, Cont Tx, EUT on side, Antenna on side - Final

EUT:	Lamar2	Work Order:	PROT0309
Serial Number:	000828004C5C	Date:	05/20/09
Customer:	Welch Allyn Protocol, Inc.	Temperature:	21
Attendees:	Steve Baker	Humidity:	36%
Project:	None	Barometric Pres.:	30.27
Tested by:	Jennifer Herrett	Power:	120VAC/60Hz
		Job Site:	EV12

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

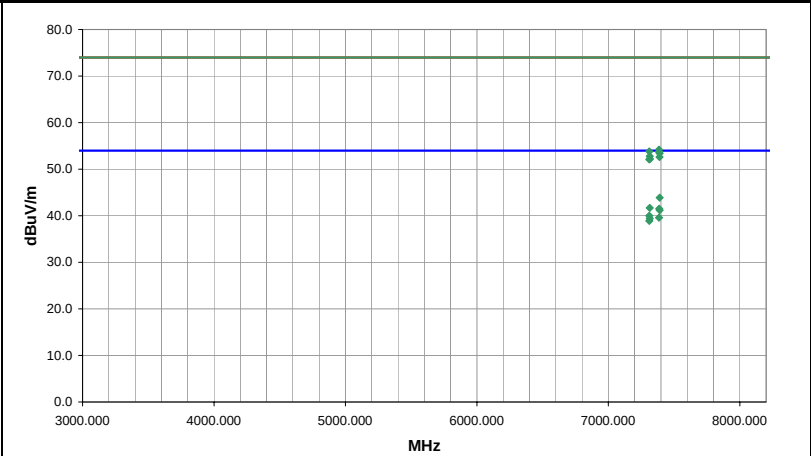
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
Open loop software. See comments for channel, bit rate and EUT orientation.

EUT OPERATING MODES
Transmitting 802.11

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	4	Signature <i>Jennifer Herrett</i>
Configuration #	1	
Results	Pass	



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)	Comments
7390.430	29.0	14.9	283.0	1.2	3.0	0.0	H-Horn	AV	0.0	43.9	54.0	-10.1	High Channel, 1Mbps, EUT on side.
7315.130	26.9	14.8	222.0	1.4	3.0	0.0	V-Horn	AV	0.0	41.7	54.0	-12.3	Mid Channel, 1Mbps, EUT on side.
7386.735	26.6	14.9	307.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.5	54.0	-12.5	High Channel, 11Mbps, EUT on side.
7390.470	26.3	14.9	60.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.2	54.0	-12.8	High Channel, 1Mbps, EUT on side.
7311.355	25.3	14.7	228.0	1.9	3.0	0.0	H-Horn	AV	0.0	40.0	54.0	-14.0	Mid Channel, 11Mbps, EUT on side.
7385.720	24.7	14.9	263.0	1.4	3.0	0.0	V-Horn	AV	0.0	39.6	54.0	-14.4	High Channel, 11Mbps, EUT on side.
7315.070	24.6	14.8	186.0	1.2	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	Mid Channel, 1Mbps, EUT on side.
7311.158	24.2	14.7	302.0	1.9	3.0	0.0	V-Horn	AV	0.0	38.9	54.0	-15.1	Mid Channel, 11Mbps, EUT on side.
7386.033	39.3	14.9	307.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	High Channel, 11Mbps, EUT on side.
7311.015	39.1	14.7	228.0	1.9	3.0	0.0	H-Horn	PK	0.0	53.8	74.0	-20.2	Mid Channel, 11Mbps, EUT on side.
7385.872	38.8	14.9	263.0	1.4	3.0	0.0	V-Horn	PK	0.0	53.7	74.0	-20.3	High Channel, 11Mbps, EUT on side.
7390.930	38.5	14.9	283.0	1.2	3.0	0.0	H-Horn	PK	0.0	53.4	74.0	-20.6	High Channel, 1Mbps, EUT on side.
7315.470	38.1	14.7	222.0	1.4	3.0	0.0	V-Horn	PK	0.0	52.8	74.0	-21.2	Mid Channel, 1Mbps, EUT on side.
7389.530	37.7	14.9	60.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.6	74.0	-21.4	High Channel, 1Mbps, EUT on side.
7316.730	37.5	14.7	186.0	1.2	3.0	0.0	H-Horn	PK	0.0	52.2	74.0	-21.8	Mid Channel, 1Mbps, EUT on side.
7310.973	37.4	14.7	302.0	1.9	3.0	0.0	V-Horn	PK	0.0	52.1	74.0	-21.9	Mid Channel, 11Mbps, EUT on side.

NORTHWEST

EMI 2008.1.9

PSA 2008.07.21

EMC

Spurious Radiated Emissions

EUT: Lamarr2

Serial Number: 000B28004C5C

Customer: Welch Allyn Protocol, Inc.

Attendees: Steve Baker

Project: None

Tested by: Jennifer Herrett

Power: 120VAC/60Hz

Work Order: PROT0309

Date: 05/20/09

Temperature: 21

Humidity: 36%

Barometric Pres.: 30.27

Job Site: EV12

TEST SPECIFICATIONS

FCC 15.247 (DTS):2007

Test Method

ANSI C63.4:2003, KDB No. 558074

TEST PARAMETERS

Antenna Height(s) (m) 1 - 4

Test Distance (m) 3

COMMENTS

Open loop software. See comments for channel, bit rate and EUT orientation.

EUT OPERATING MODES

Transmitting 802.11

DEVIATIONS FROM TEST STANDARD

No deviations.

Run # 5

Configuration # 1

Results Pass

Signature Jennifer Herrett

80.0

70.0

60.0

50.0

40.0

30.0

20.0

10.0

0.0

1000.000

1200.000

1400.000

1600.000

1800.000

2000.000

2200.000

2400.000

2600.000

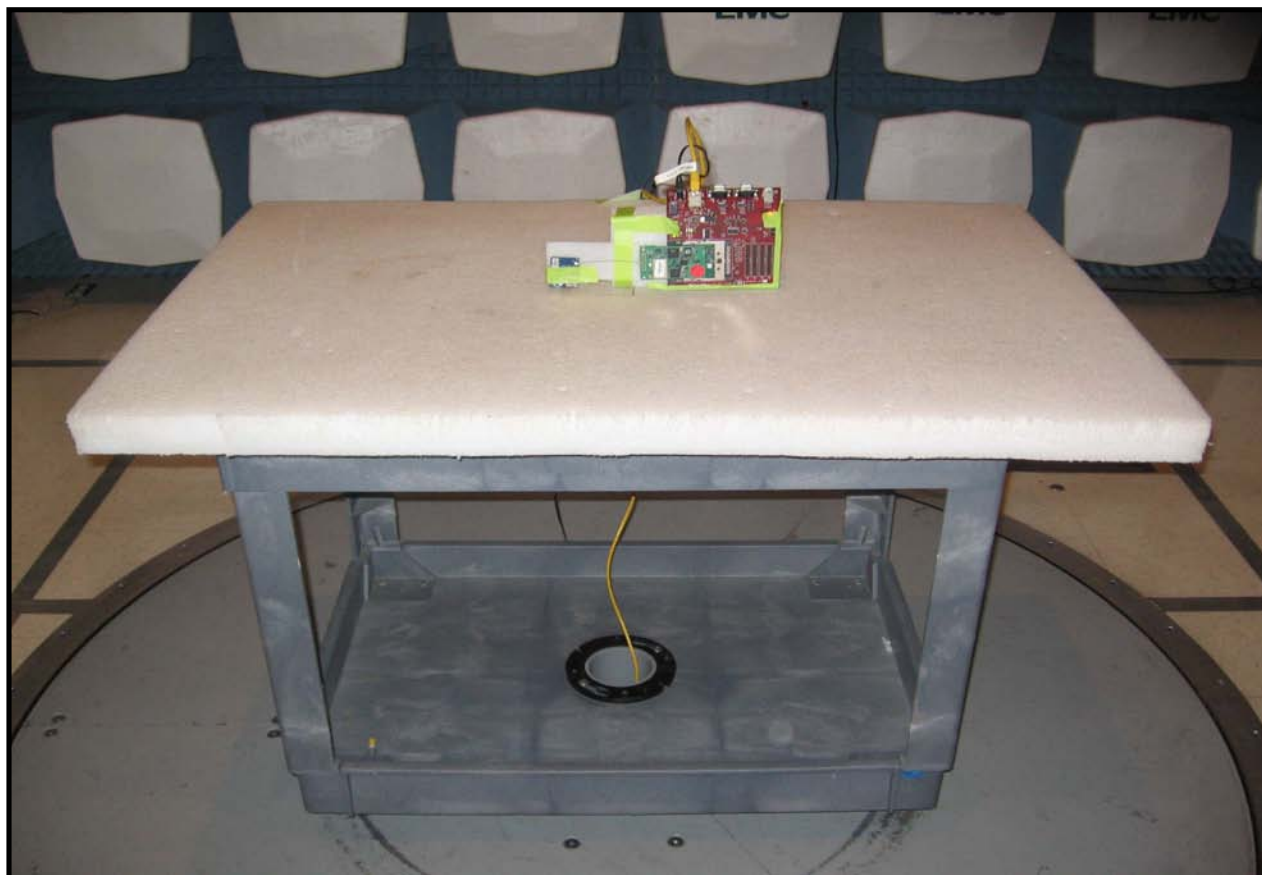
2800.000

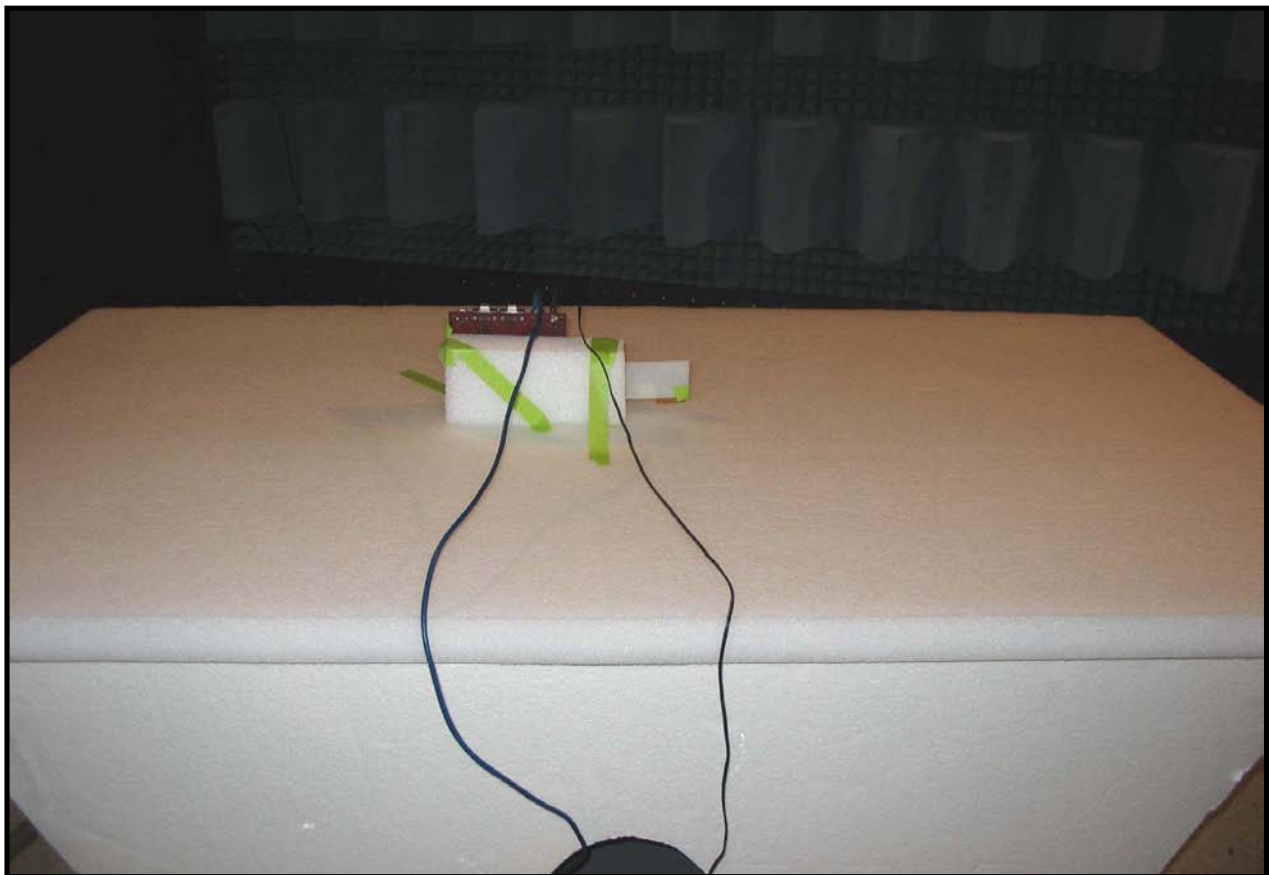
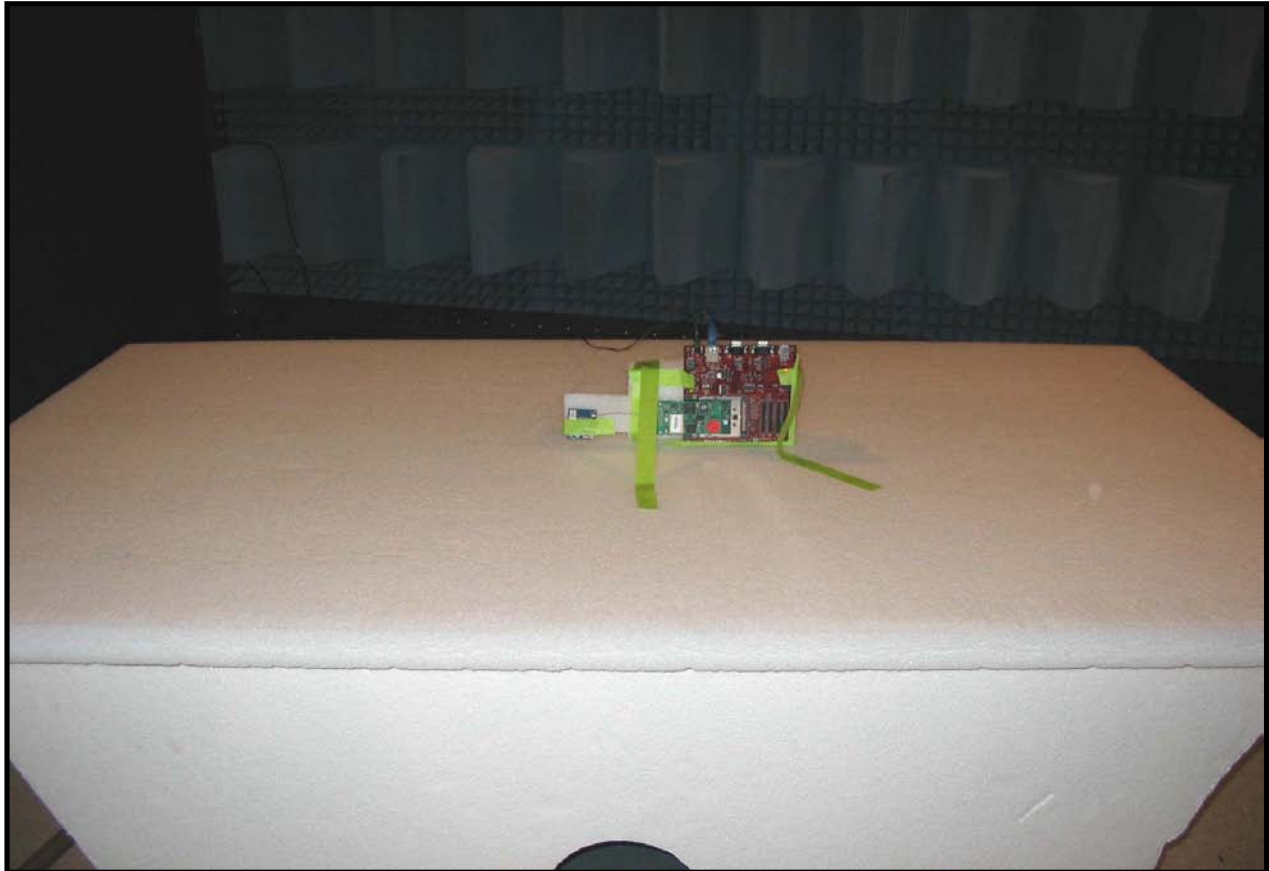
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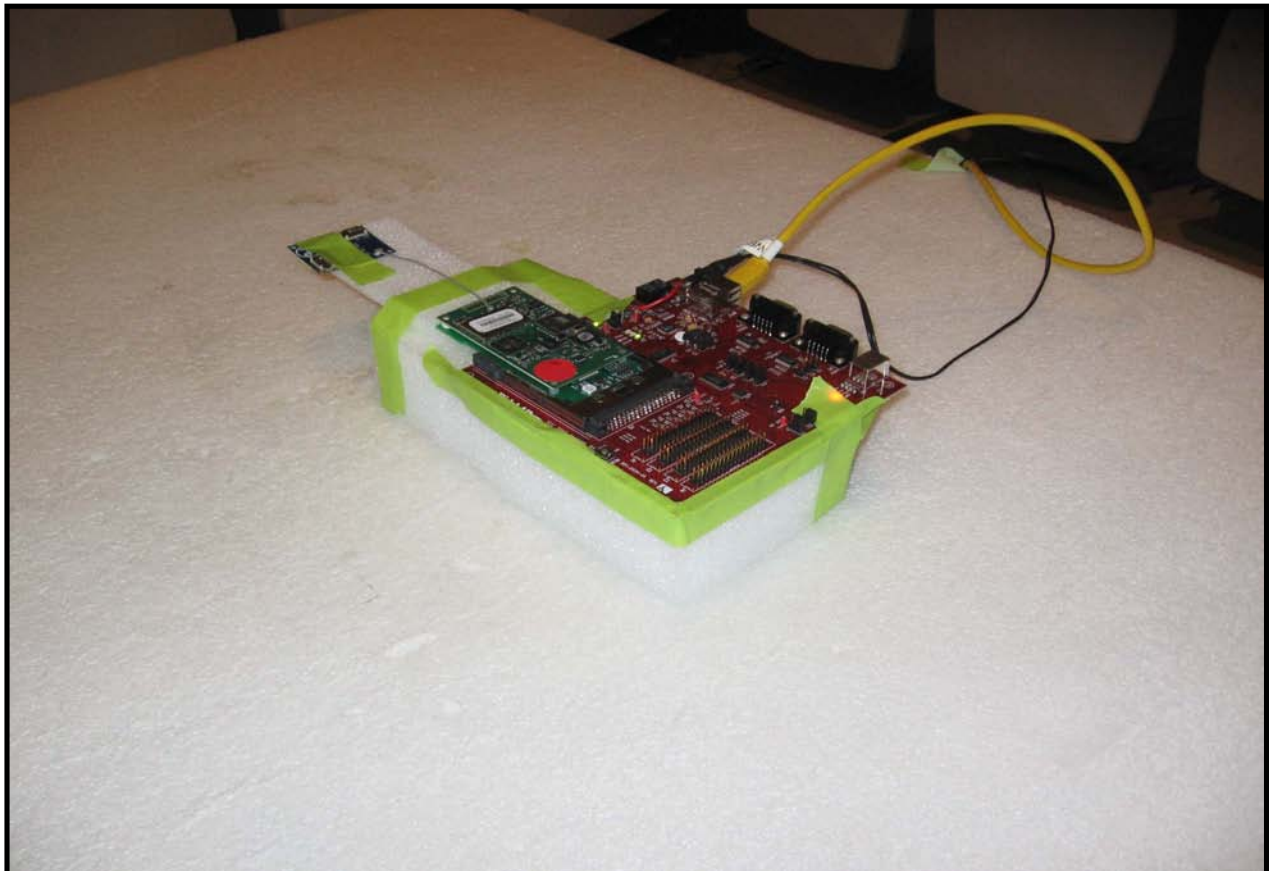
dBuV/m

MHz

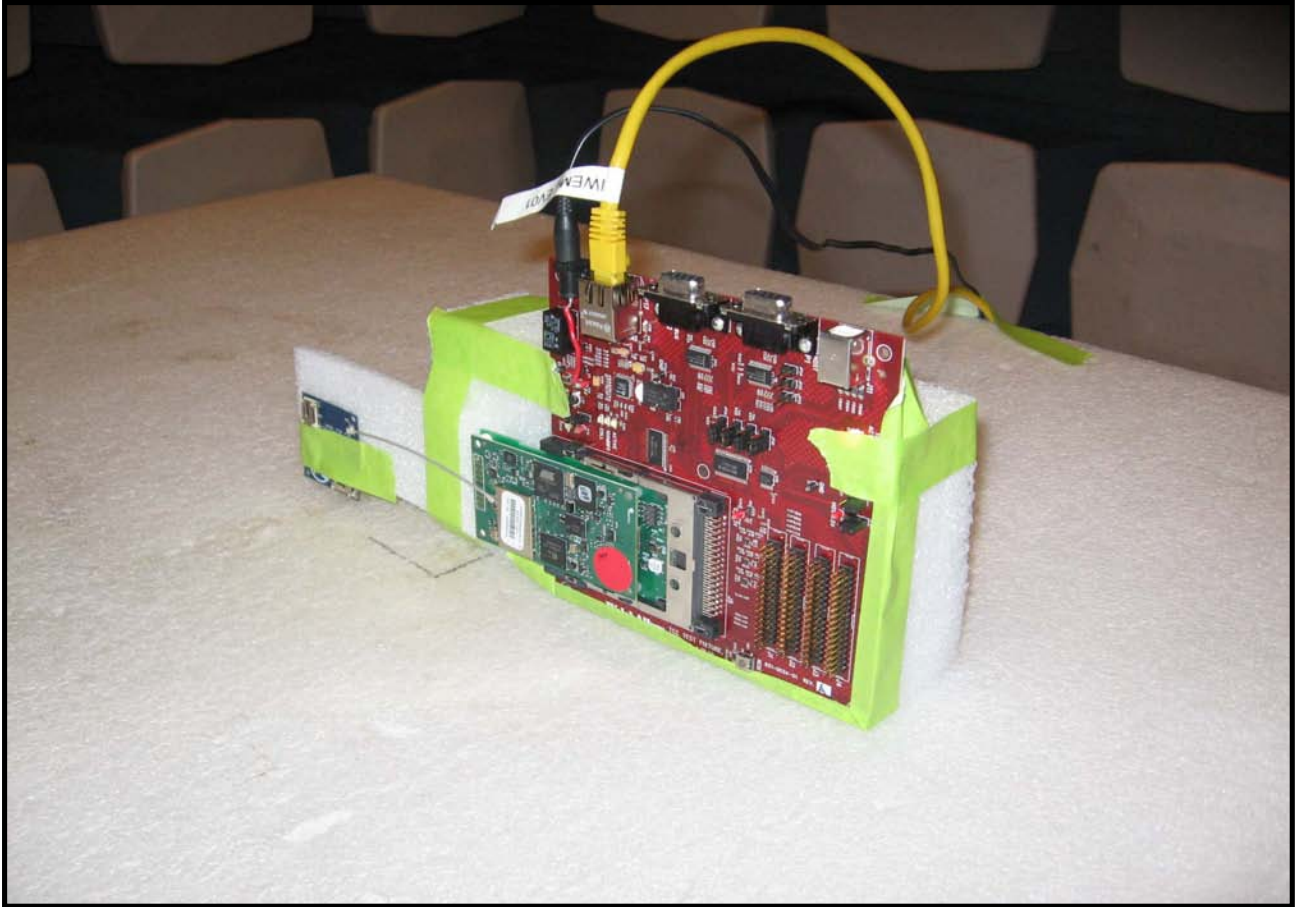
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2380.570	29.3	-1.8	22.0	1.0	3.0	20.0	V-Horn	AV	0.0	47.5	54.0	-6.5	High Channel, 11Mbps, EUT on side.
2380.200	28.9	-1.8	181.0	1.0	3.0	20.0	V-Horn	AV	0.0	47.1	54.0	-6.9	High Channel, 1Mbps, EUT on side.
2333.030	28.5	-1.8	333.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.7	54.0	-7.3	Low Channel, 1Mbps, EUT on side.
2355.370	28.3	-1.7	159.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.6	54.0	-7.4	Mid Channel, 11Mbps, EUT on side.
2332.900	28.2	-1.8	85.0	1.0	3.0	20.0	V-Horn	AV	0.0	46.4	54.0	-7.6	Low Channel, 11Mbps, EUT on side.
2355.570	27.3	-1.7	359.0	2.1	3.0	20.0	V-Horn	AV	0.0	45.6	54.0	-8.4	Mid Channel, 1Mbps, EUT on side.
2332.400	27.1	-1.8	110.0	1.0	3.0	20.0	H-Horn	AV	0.0	45.3	54.0	-8.7	Low Channel, 11Mbps, EUT on side.
2349.830	26.9	-1.7	299.0	3.3	3.0	20.0	H-Horn	AV	0.0	45.2	54.0	-8.8	Mid Channel, 1Mbps, EUT on side.
2350.900	26.9	-1.7	125.0	1.0	3.0	20.0	H-Horn	AV	0.0	45.2	54.0	-8.8	Mid Channel, 11Mbps, EUT on side.
2331.270	27.0	-1.8	87.0	1.0	3.0	20.0	H-Horn	AV	0.0	45.2	54.0	-8.8	Low Channel, 1Mbps, EUT on side.
2380.300	26.9	-1.8	81.0	1.6	3.0	20.0	H-Horn	AV	0.0	45.1	54.0	-8.9	High Channel, 11Mbps, EUT on side.
2398.500	26.8	-1.8	249.0	1.6	3.0	20.0	H-Horn	AV	0.0	45.0	54.0	-9.0	High Channel, 1Mbps, EUT on side.
2385.470	41.7	-1.8	181.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.9	74.0	-14.1	High Channel, 1Mbps, EUT on side.
2350.330	41.6	-1.7	159.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.9	74.0	-14.1	Mid Channel, 11Mbps, EUT on side.
2325.770	41.6	-1.8	85.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.8	74.0	-14.2	Low Channel, 11Mbps, EUT on side.
2383.500	41.4	-1.8	22.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.6	74.0	-14.4	High Channel, 11Mbps, EUT on side.
2331.470	41.0	-1.8	333.0	1.0	3.0	20.0	V-Horn	PK	0.0	59.2	74.0	-14.8	Low Channel, 1Mbps, EUT on side.
2377.330	40.9	-1.8	81.0	1.6	3.0	20.0	H-Horn	PK	0.0	59.1	74.0	-14.9	High Channel, 11Mbps, EUT on side.
2392.030	40.4	-1.8	249.0	1.6	3.0	20.0	H-Horn	PK	0.0	58.6	74.0	-15.4	High Channel, 1Mbps, EUT on side.
2348.900	40.1	-1.7	125.0	1.0	3.0	20.0	H-Horn	PK	0.0	58.4	74.0	-15.6	Mid Channel, 11Mbps, EUT on side.







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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

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 16-4-2. 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 occupied bandwidth was measured with the EUT set to low, medium, 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 with the typical modulation.

EMC

OCCUPIED BANDWIDTH

EUT:	Lamarr2	Work Order:	PROT0309
Serial Number:	000B28004C5C	Date:	05/19/09
Customer:	Welch Allyn Protocol, Inc.	Temperature:	22°C
Attendees:	Steve Baker	Humidity:	39%
Project:	None	Barometric Pres.:	30.05 In
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074

COMMENTS

Operated in a continuous TX mode with the test software power values called out in the 'Peak Output Power' data sheet located elsewhere in this report.

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	2	Signature 
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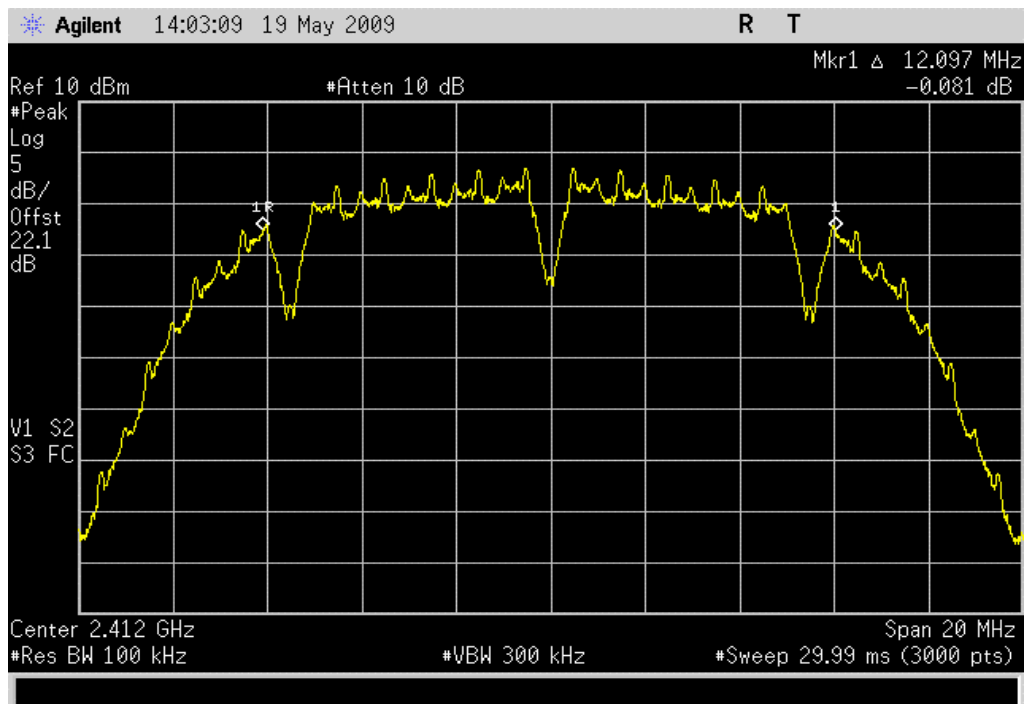
		Value	Limit	Results
802.11(b) 1 Mbps	Low Channel	12.067 MHz	> 500 kHz	Pass
	Mid Channel	12.091 MHz	> 500 kHz	Pass
	High Channel	12.091 MHz	> 500 kHz	Pass
802.11(b) 11 Mbps	Low Channel	12.177 MHz	> 500 kHz	Pass
	Mid Channel	12.164 MHz	> 500 kHz	Pass
	High Channel	12.164 MHz	> 500 kHz	Pass
802.11(g) 6 Mbps	Low Channel	16.492 MHz	> 500 kHz	Pass
	Mid Channel	16.485 MHz	> 500 kHz	Pass
	High Channel	16.479 MHz	> 500 kHz	Pass
802.11(g) 36 Mbps	Low Channel	16.512 MHz	> 500 kHz	Pass
	Mid Channel	16.512 MHz	> 500 kHz	Pass
	High Channel	16.512 MHz	> 500 kHz	Pass
802.11(g) 54 Mbps	Low Channel	16.506 MHz	> 500 kHz	Pass
	Mid Channel	16.506 MHz	> 500 kHz	Pass
	High Channel	16.506 MHz	> 500 kHz	Pass

802.11(b) 1 Mbps, Low Channel

Result: Pass

Value: 12.067 MHz

Limit: > 500 kHz

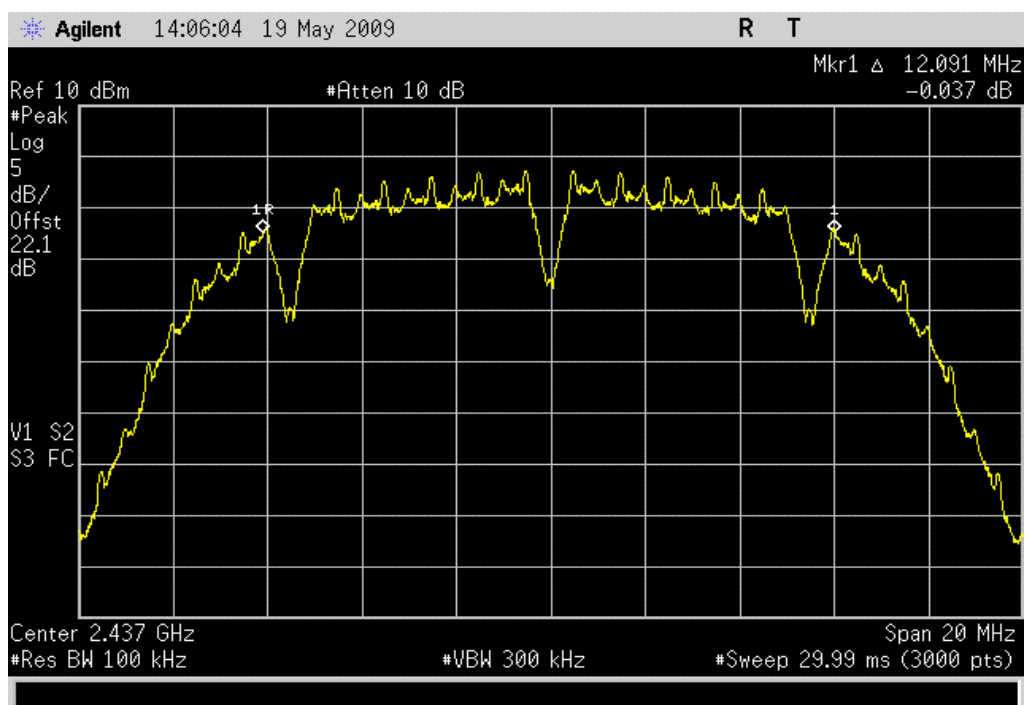


802.11(b) 1 Mbps, Mid Channel

Result: Pass

Value: 12.091 MHz

Limit: > 500 kHz

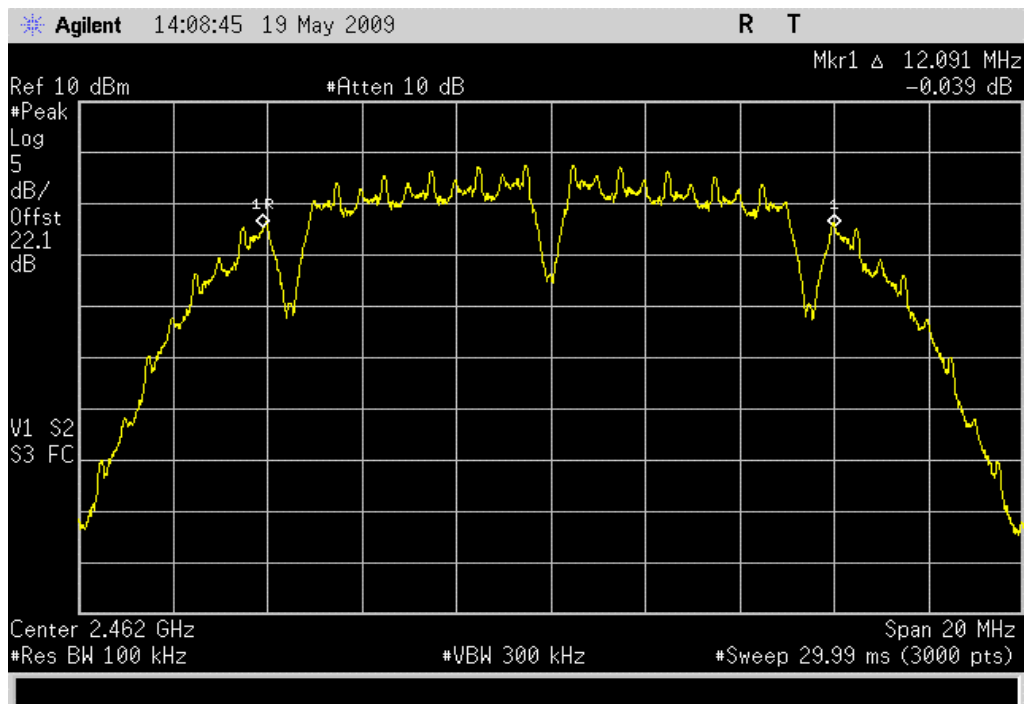


802.11(b) 1 Mbps, High Channel

Result: Pass

Value: 12.091 MHz

Limit: > 500 kHz

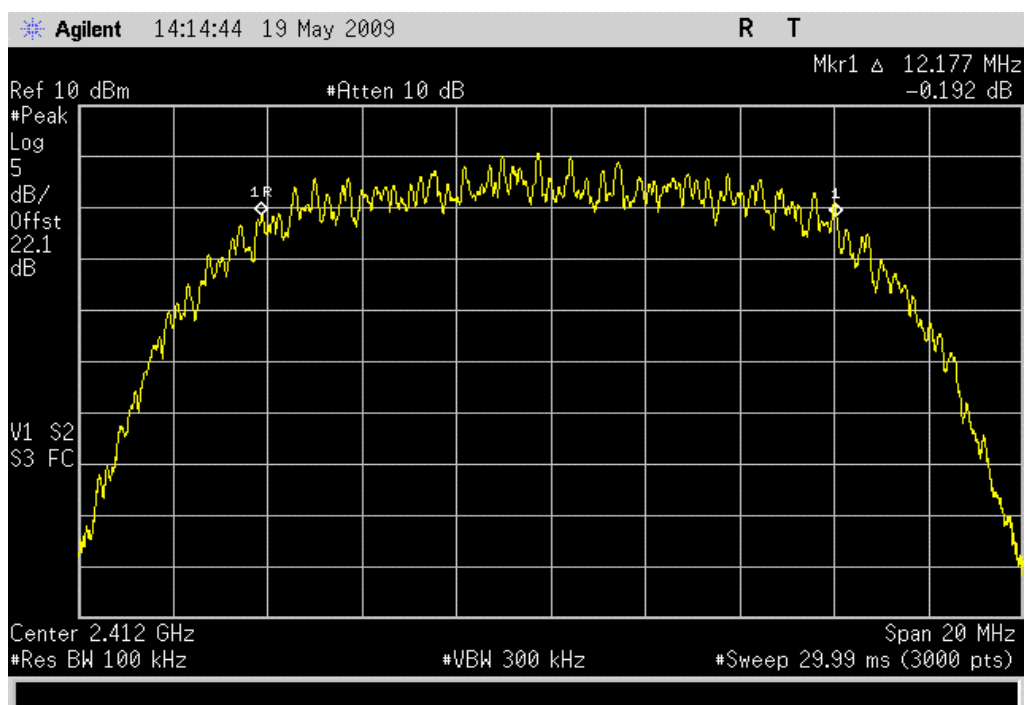


802.11(b) 11 Mbps, Low Channel

Result: Pass

Value: 12.177 MHz

Limit: > 500 kHz



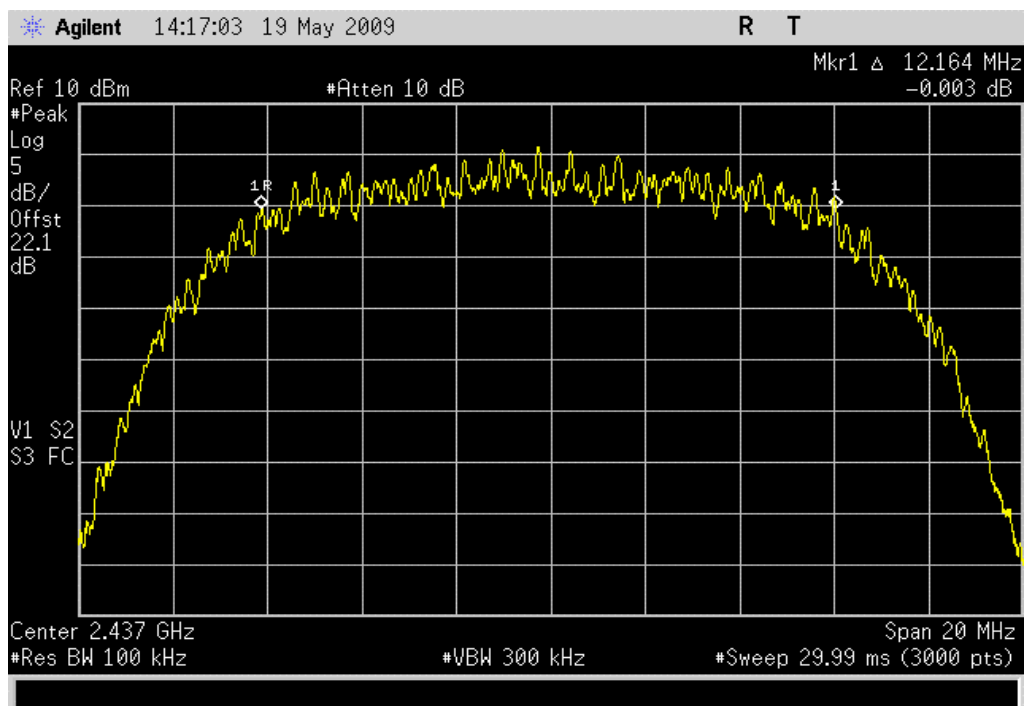
OCCUPIED BANDWIDTH

802.11(b) 11 Mbps, Mid Channel

Result: Pass

Value: 12.164 MHz

Limit: > 500 kHz

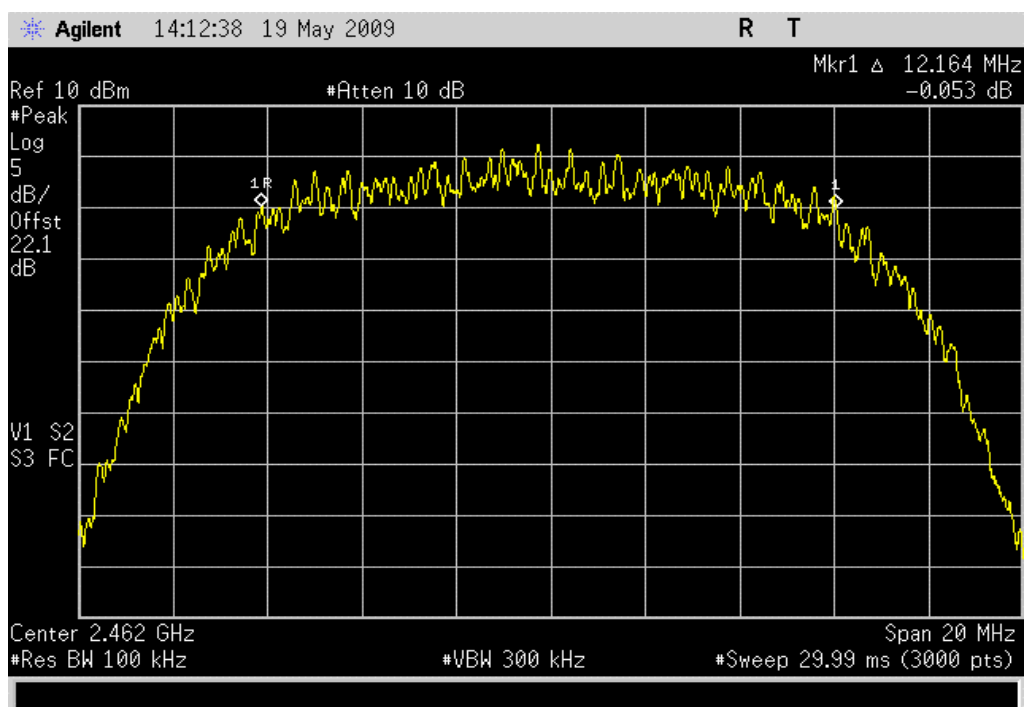


802.11(b) 11 Mbps, High Channel

Result: Pass

Value: 12.164 MHz

Limit: > 500 kHz



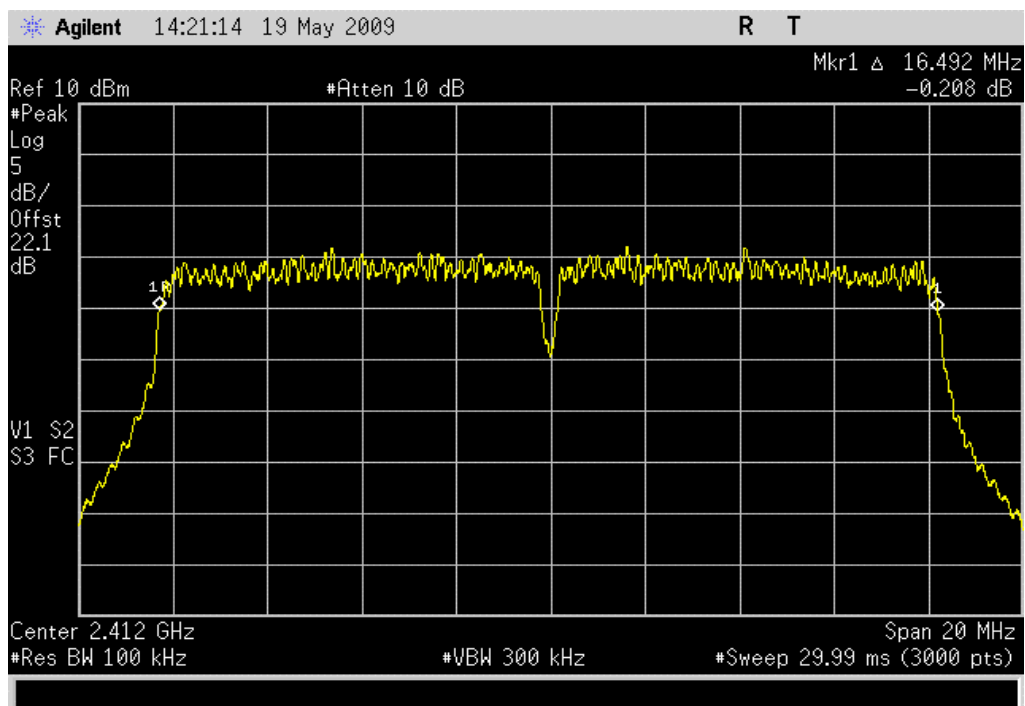
OCCUPIED BANDWIDTH

802.11(g) 6 Mbps, Low Channel

Result: Pass

Value: 16.492 MHz

Limit: > 500 kHz

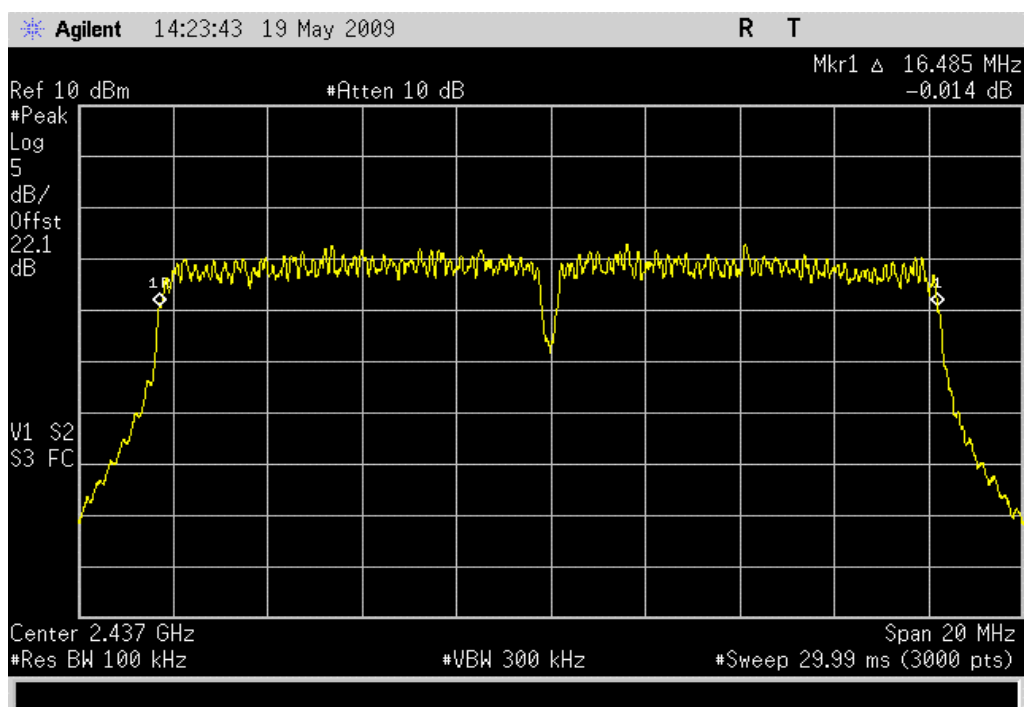


802.11(g) 6 Mbps, Mid Channel

Result: Pass

Value: 16.485 MHz

Limit: > 500 kHz

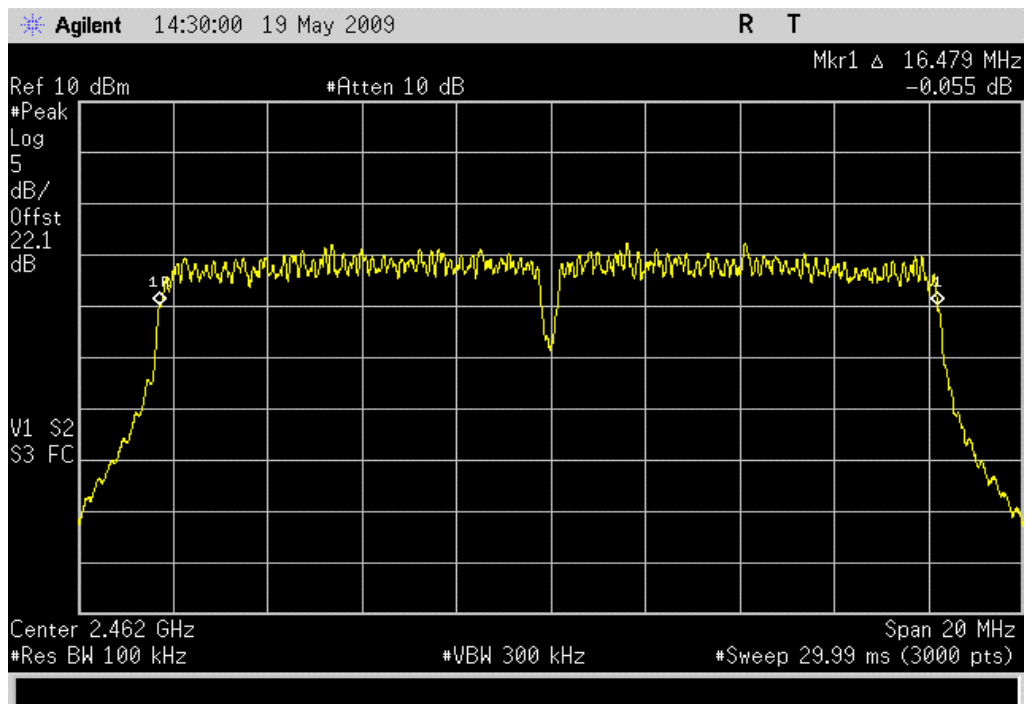


802.11(g) 6 Mbps, High Channel

Result: Pass

Value: 16.479 MHz

Limit: > 500 kHz

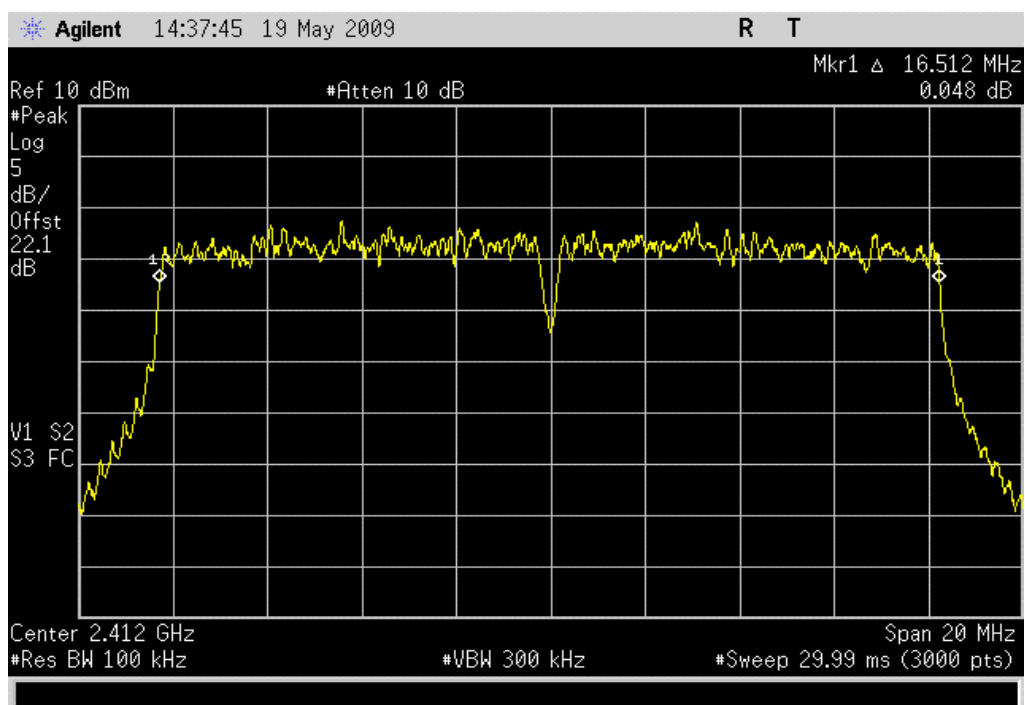


802.11(g) 36 Mbps, Low Channel

Result: Pass

Value: 16.512 MHz

Limit: > 500 kHz

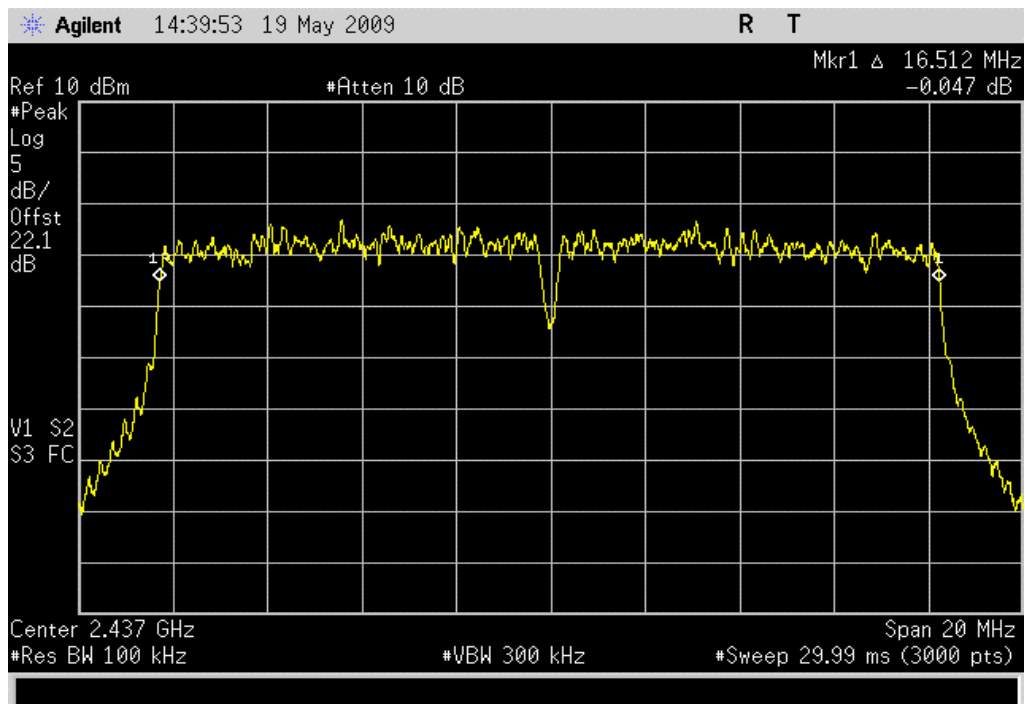


802.11(g) 36 Mbps, Mid Channel

Result: Pass

Value: 16.512 MHz

Limit: > 500 kHz

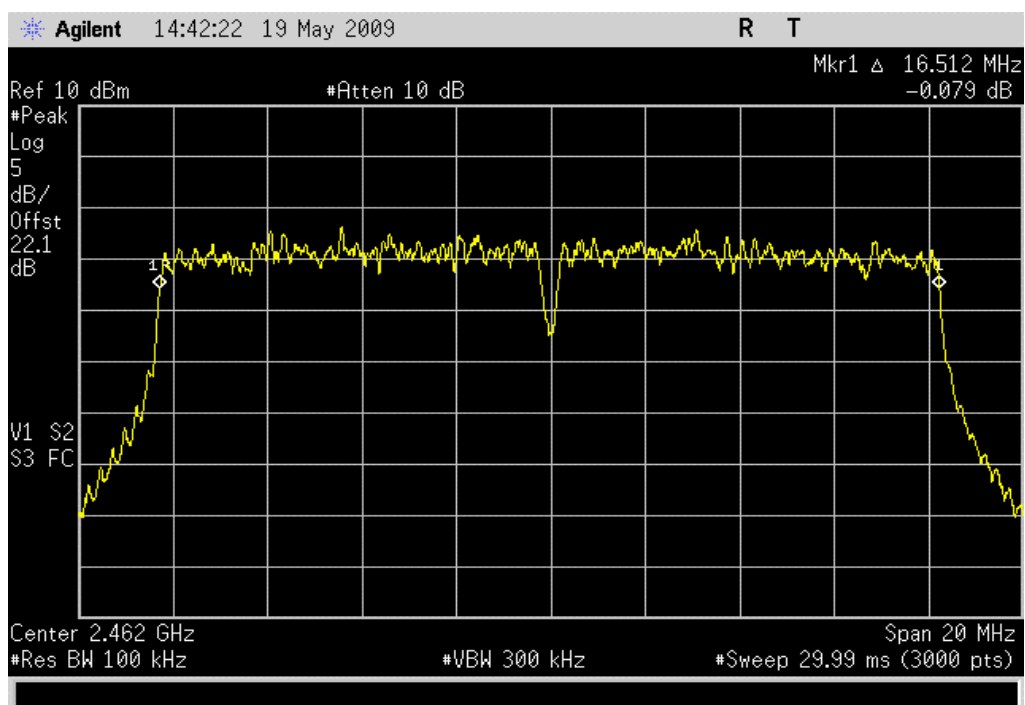


802.11(g) 36 Mbps, High Channel

Result: Pass

Value: 16.512 MHz

Limit: > 500 kHz

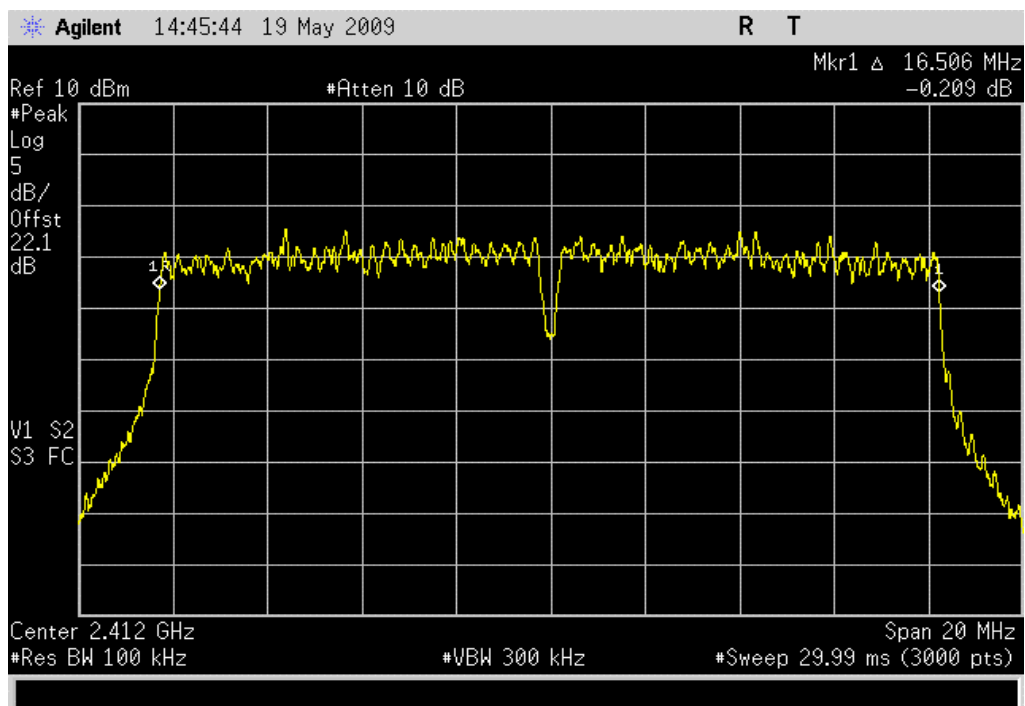


802.11(g) 54 Mbps, Low Channel

Result: Pass

Value: 16.506 MHz

Limit: > 500 kHz

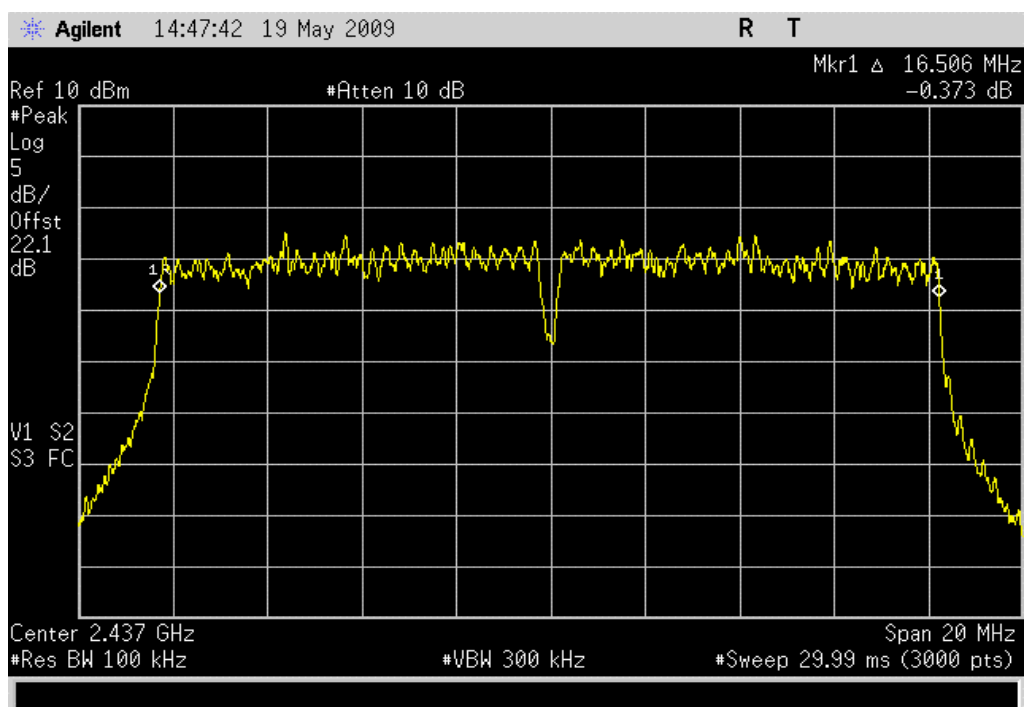


802.11(g) 54 Mbps, Mid Channel

Result: Pass

Value: 16.506 MHz

Limit: > 500 kHz

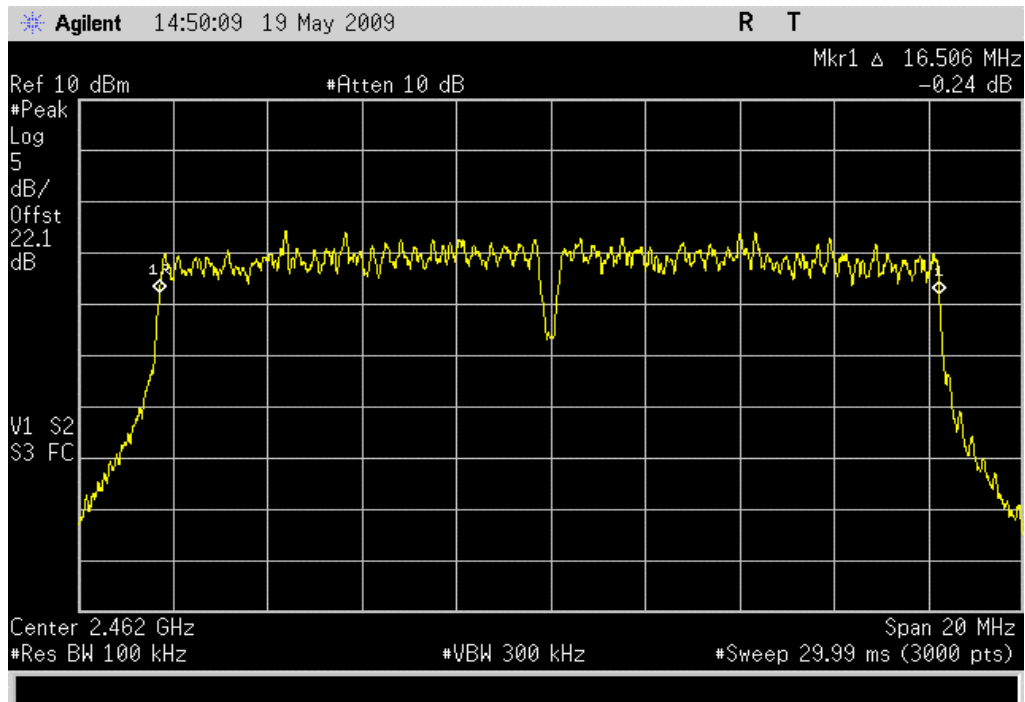


802.11(g) 54 Mbps, High Channel

Result: Pass

Value: 16.506 MHz

Limit: > 500 kHz



OCCUPIED BANDWIDTH



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
Oscilloscope	Tektronix	TDS 3052	TOF	12/10/2008	13
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	0
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Attenuator		93459 3330A-6	AUF	3/13/2009	13
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	4/29/2009	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	13

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 16-4-2. 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

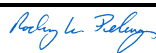
The peak output power was measured with the EUT set to low, medium, and high transmit frequencies at each of the required modulations. The EUT was transmitting at the output power with the test software settings noted in the table. The data rate of the radio was varied to determine the level that produced the highest output power.

The measurement was made using a direct connection between the RF output of the EUT and a RF detector diode with 25.5 dB of attenuation on the input. The DC output of the diode was measured with the oscilloscope. The signal generator, tuned to the transmit frequency, was then substituted for the EUT at the input of the RF detector diode with the input attenuators removed.. A 6 dB attenuator was used on the output of the signal generator for matching purposes. The CW output of the signal generator was adjusted until the DC output of the RF detector diode match the peak level produced when connected to the EUT. To further reduce measurement error, the power meter and sensor were then used to measure the output power level of the signal generator.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

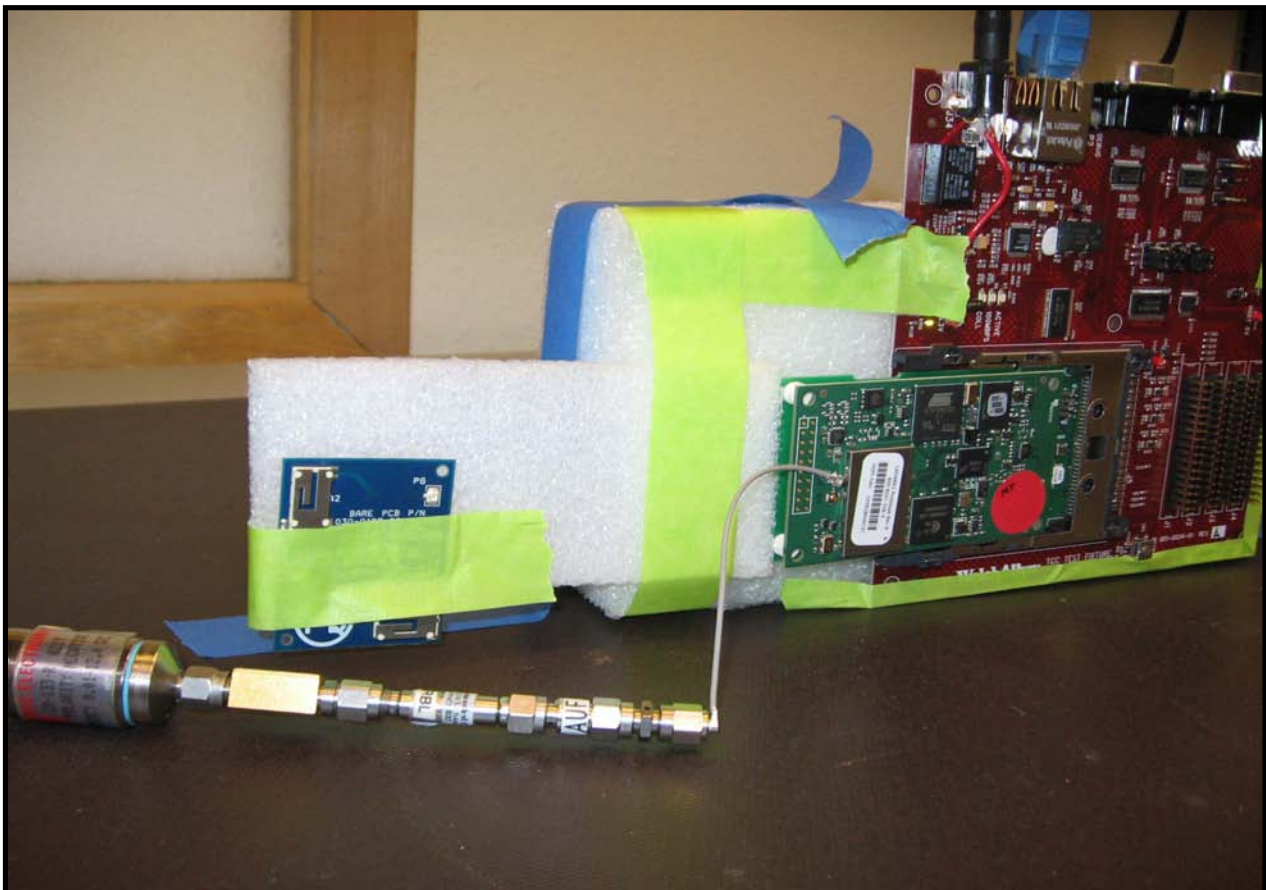
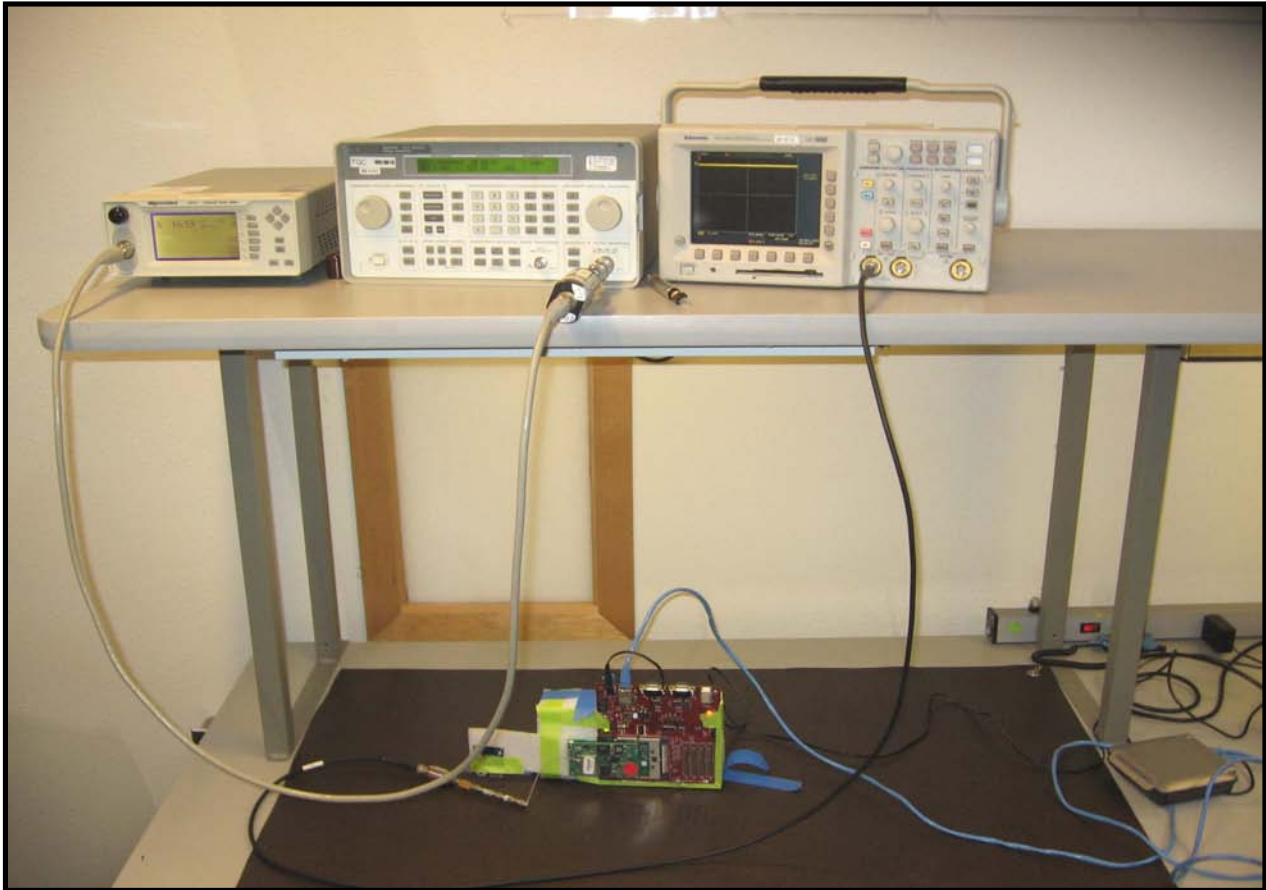
EMC

PEAK OUTPUT POWER

EUT: Lamarr2		Work Order: PROT0309
Serial Number: 000B28004C5C		Date: 05/19/09
Customer: Welch Allyn Protocol, Inc.		Temperature: 22°C
Attendees: Steve Baker		Humidity: 39%
Project: None		Barometric Pres.: 29.85 In
Tested by: Rod Peloquin		Power: 120VAC/60Hz
Job Site: EV06		
TEST SPECIFICATIONS		
FCC 15.247 (DTS):2009		Test Method
		ANSI C63.4:2003 KDB No. 558074
COMMENTS		
Operated in a continuous TX mode		
DEVIATIONS FROM TEST STANDARD		
No Deviations		
Configuration #	2	Signature 
		Value Limit Results

RF Diode Detector Method

PROT0309		Test Tool			6 dB atten			
802.11(b)	1 Mbps	Power Setting			on Output			
Xmit Frequency	Channel		DC on Scope	Attenuator Specific	Sig Gen Output	Power Meter	Power Meter	Limit
(MHz)			(mV)	Ref. Offset (dB)	(dBm)	(dBm)	(mW)	(mW)
2412	1	39800	-56.4	25.5	-2.80	16.6	46.0	1000
2437	6	40200	-55.0	25.5	-2.90	16.6	45.6	1000
2462	11	41000	-59.2	25.5	-2.60	17.1	50.8	1000
802.11(b)	11 Mbps							
Xmit Frequency	Channel		DC on Scope	Attenuator Specific	Sig Gen Output	Power Meter	Power Meter	Limit
(MHz)			(mV)	Ref. Offset (dB)	(dBm)	(dBm)	(mW)	(mW)
2412	1	40300	-57.0	25.5	-2.70	16.8	47.4	1000
2437	6	41200	-58.4	25.5	-2.60	16.9	49.2	1000
2462	11	42000	-61.2	25.5	-2.40	17.3	53.4	1000
802.11(g)	6 Mbps							
Xmit Frequency	Channel		DC on Scope	Attenuator Specific	Sig Gen Output	Power Meter	Power Meter	Limit
(MHz)			(mV)	Ref. Offset (dB)	(dBm)	(dBm)	(mW)	(mW)
2412	1	46300	-42.2	25.5	-4.40	14.9	31.0	1000
2437	6	47000	-42.0	25.5	-4.50	14.9	31.0	1000
2462	11	47000	-44.0	25.5	-4.30	15.3	33.5	1000
802.11(g)	36 Mbps							
Xmit Frequency	Channel		DC on Scope	Attenuator Specific	Sig Gen Output	Power Meter	Power Meter	Limit
(MHz)			(mV)	Ref. Offset (dB)	(dBm)	(dBm)	(mW)	(mW)
2412	1	48000	-48.8	25.5	-3.60	15.8	37.7	1000
2437	6	48000	-48.6	25.5	-3.60	15.8	38.3	1000
2462	11	48000	-48.8	25.5	-3.70	15.9	38.7	1000
802.11(g)	54 Mbps							
Xmit Frequency	Channel		DC on Scope	Attenuator Specific	Sig Gen Output	Power Meter	Power Meter	Limit
(MHz)			(mV)	Ref. Offset (dB)	(dBm)	(dBm)	(mW)	(mW)
2412	1	47000	-42.2	25.5	-4.40	14.9	31.1	1000
2437	6	47000	-40.8	25.5	-4.70	14.7	29.3	1000
2462	11	47000	-36.8	25.5	-5.30	14.2	26.3	1000



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	E4407B	AAU	12/12/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

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 16-4-2. 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.

EMC

BAND EDGE COMPLIANCE

EUT:	Lamar2	Work Order:	PROT0309
Serial Number:	000B28004C5C	Date:	05/19/09
Customer:	Welch Allyn Protocol, Inc.	Temperature:	22°C
Attendees:	Steve Baker	Humidity:	39%
Project:	None	Barometric Pres.:	29.85 In
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV06

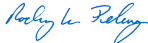
TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074

COMMENTS

Operated in a continuous TX mode with the test software power values called out in the 'Peak Output Power' data sheet located elsewhere in this report.

DEVIATIONS FROM TEST STANDARD

No Deviations

Configuration #	2	Signature 
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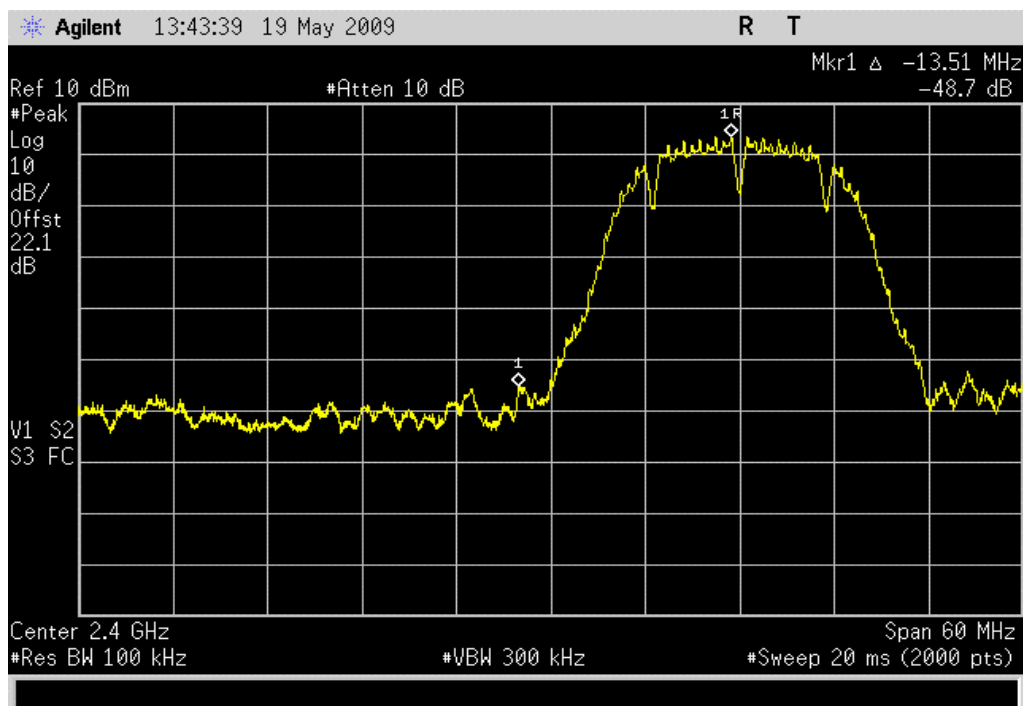
		Value	Limit	Results
802.11(b) 1 Mbps	Low Channel	-48.7 dBc	≤ -20 dBc	Pass
	High Channel	-49.4 dBc	≤ -20 dBc	Pass
802.11(b) 11 Mbps	Low Channel	-47.9 dBc	≤ -20 dBc	Pass
	High Channel	-49.5 dBc	≤ -20 dBc	Pass
802.11(g) 6 Mbps	Low Channel	-37.4 dBc	≤ -20 dBc	Pass
	High Channel	-45.4 dBc	≤ -20 dBc	Pass
802.11(g) 36 Mbps	Low Channel	-37.3 dBc	≤ -20 dBc	Pass
	High Channel	-47.9 dBc	≤ -20 dBc	Pass
802.11(g) 54 Mbps	Low Channel	-39.9 dBc	≤ -20 dBc	Pass
	High Channel	-42.2 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

802.11(b) 1 Mbps, Low Channel

Result: Pass

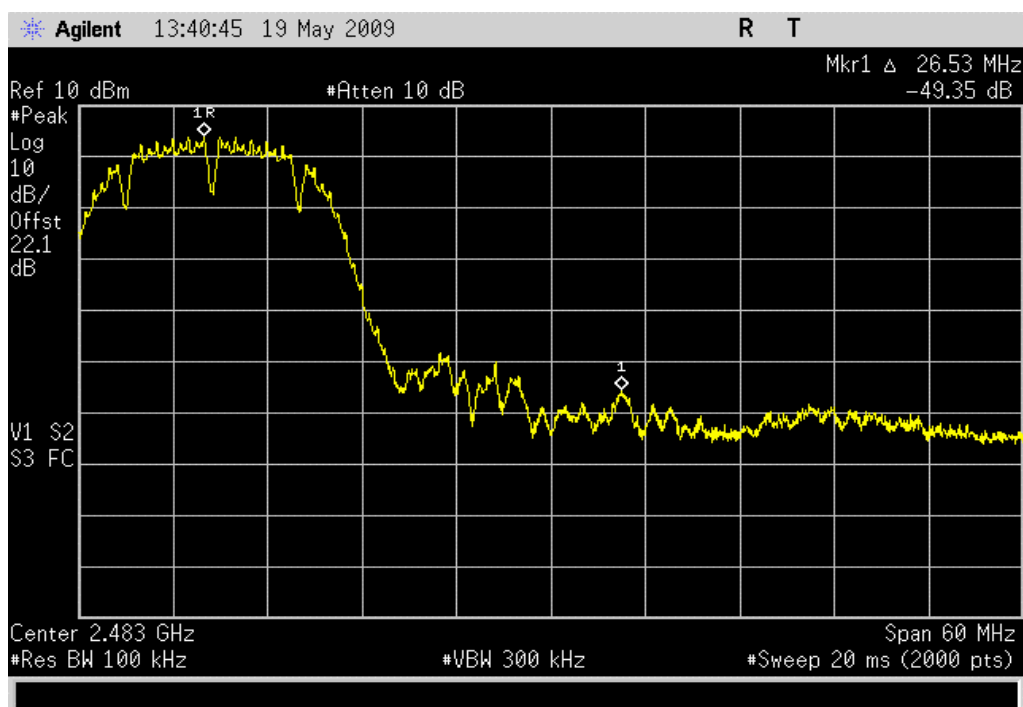
Value: -48.7 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, High Channel

Result: Pass

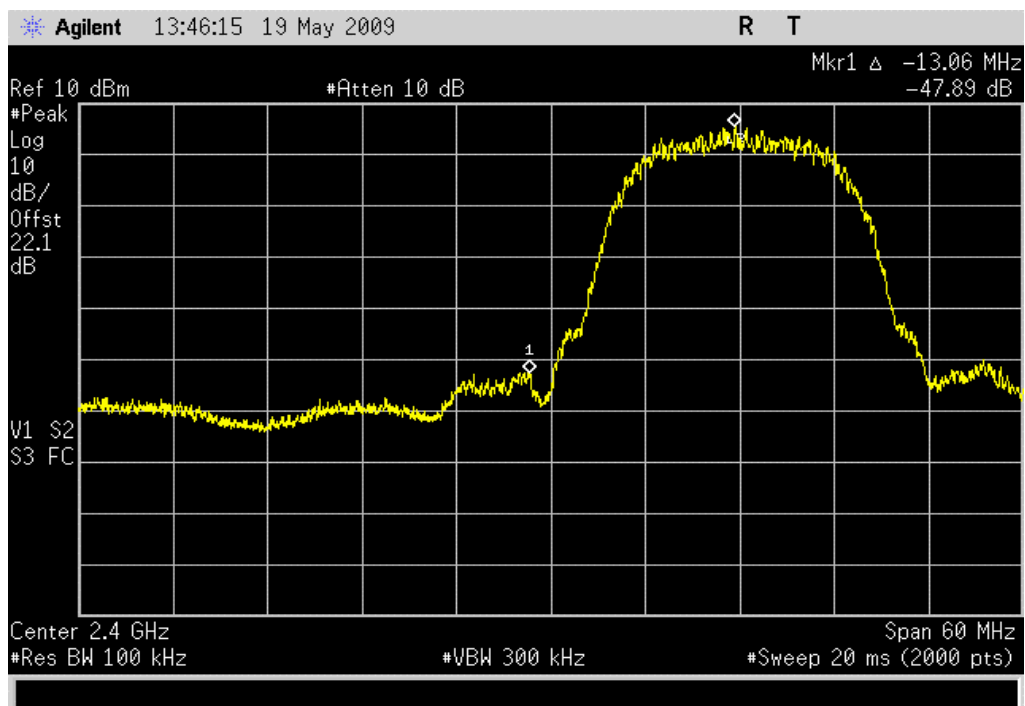
Value: -49.4 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Low Channel

Result: Pass

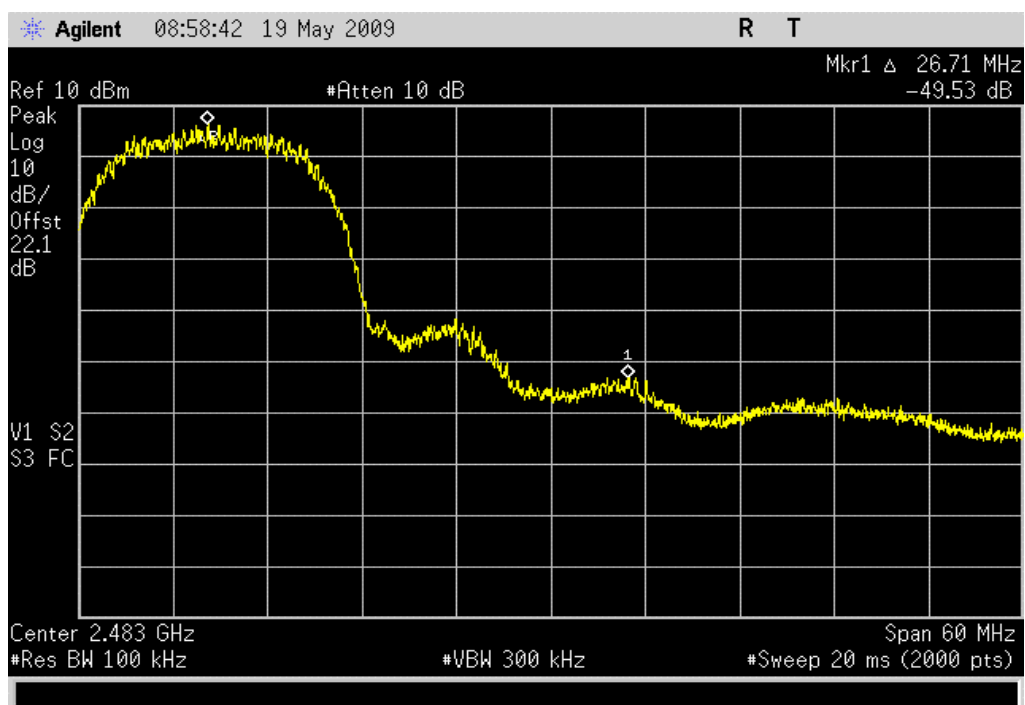
Value: -47.9 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, High Channel

Result: Pass

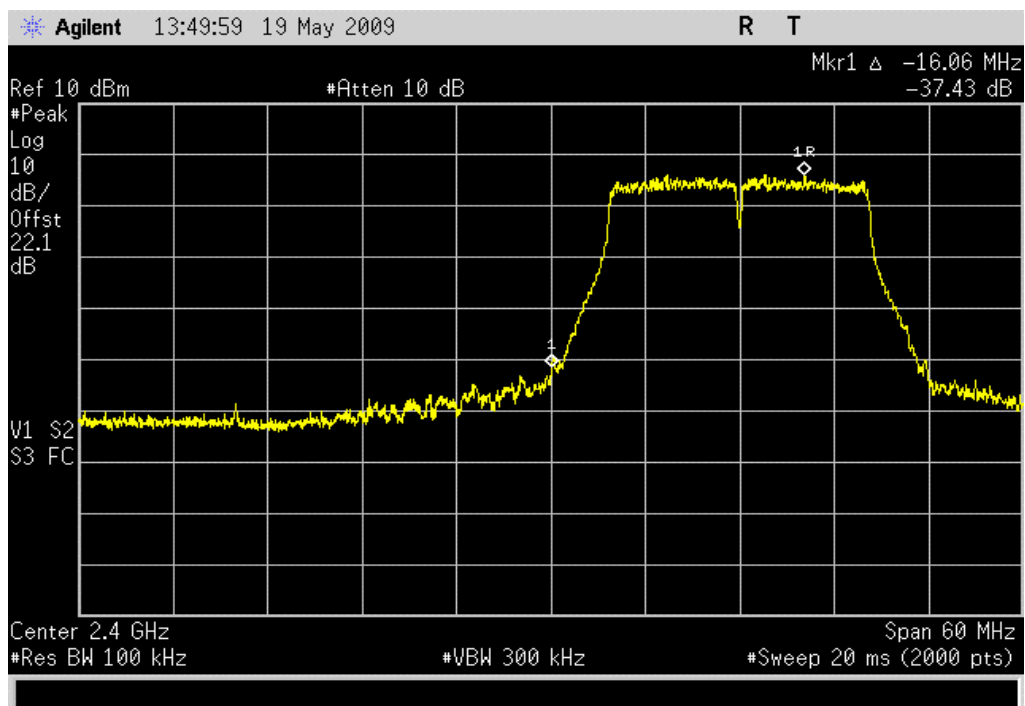
Value: -49.5 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Low Channel

Result: Pass

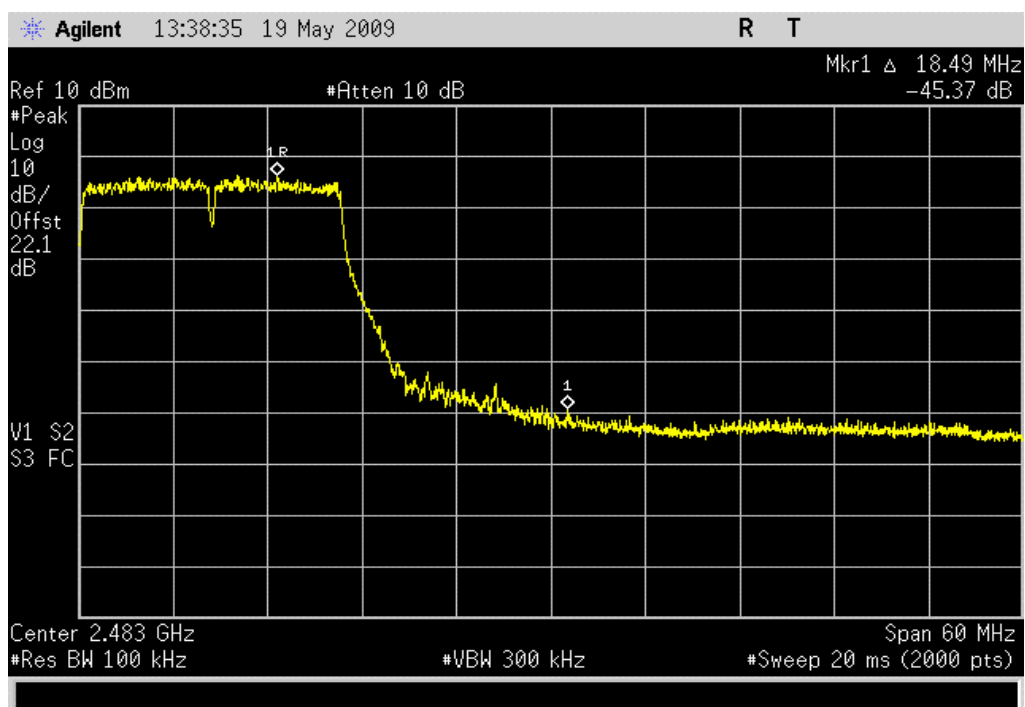
Value: -37.4 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, High Channel

Result: Pass

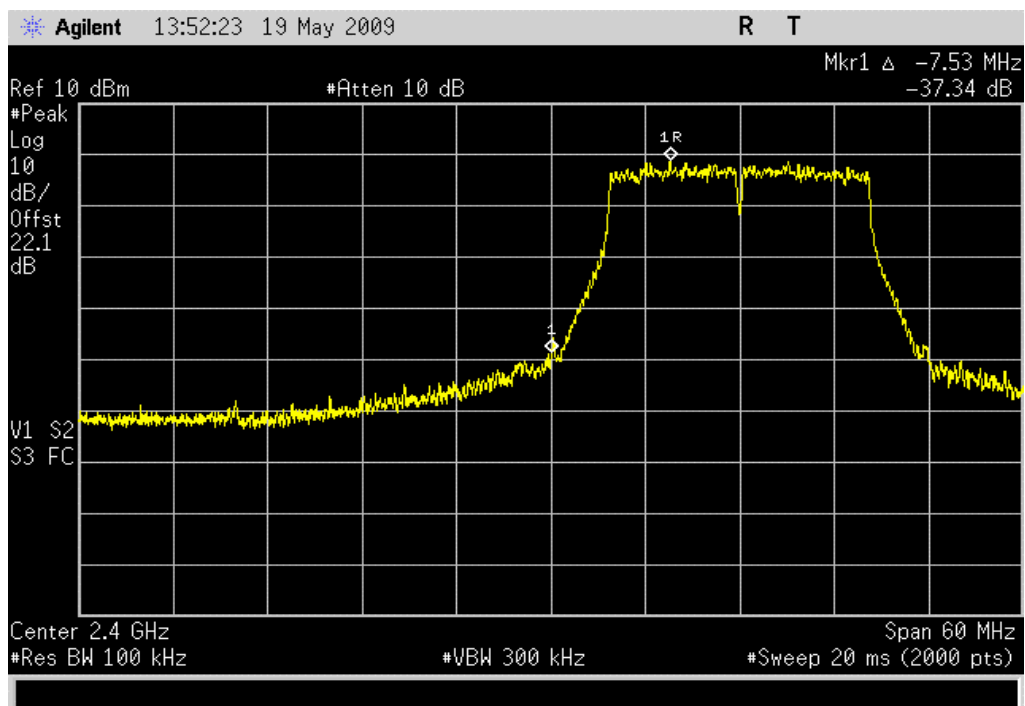
Value: -45.4 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Low Channel

Result: Pass

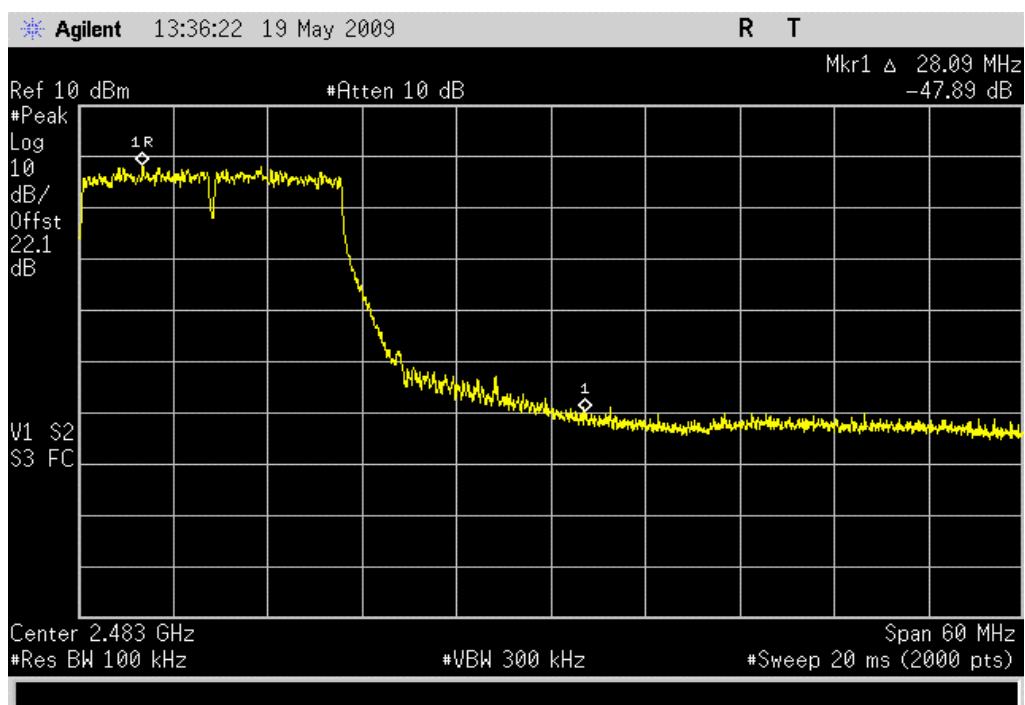
Value: -37.3 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, High Channel

Result: Pass

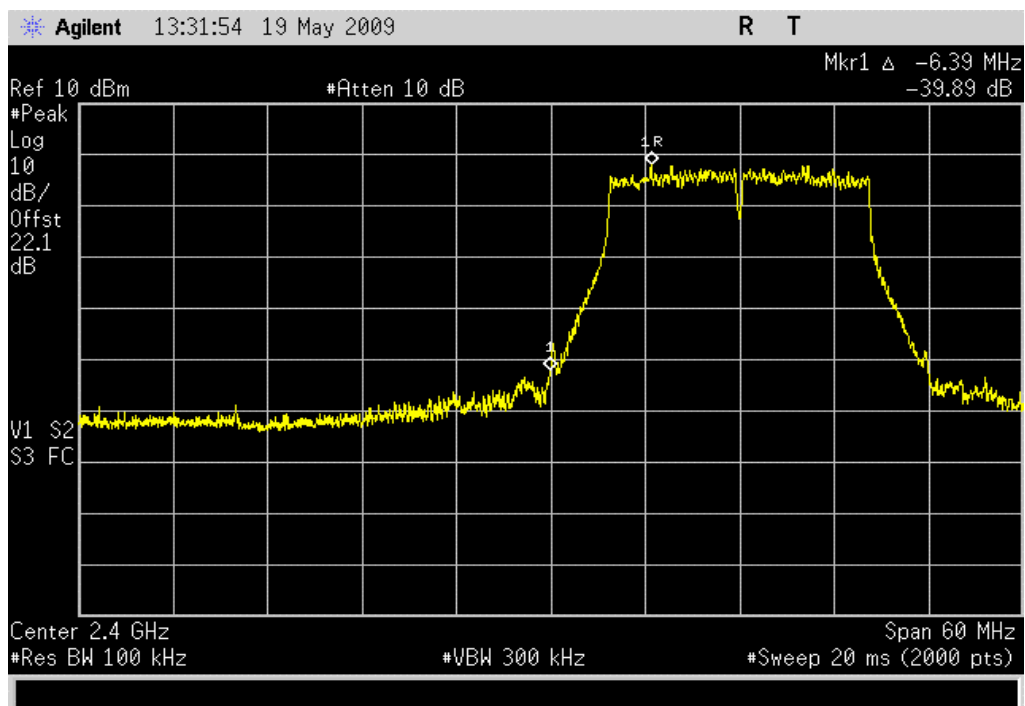
Value: -47.9 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Low Channel

Result: Pass

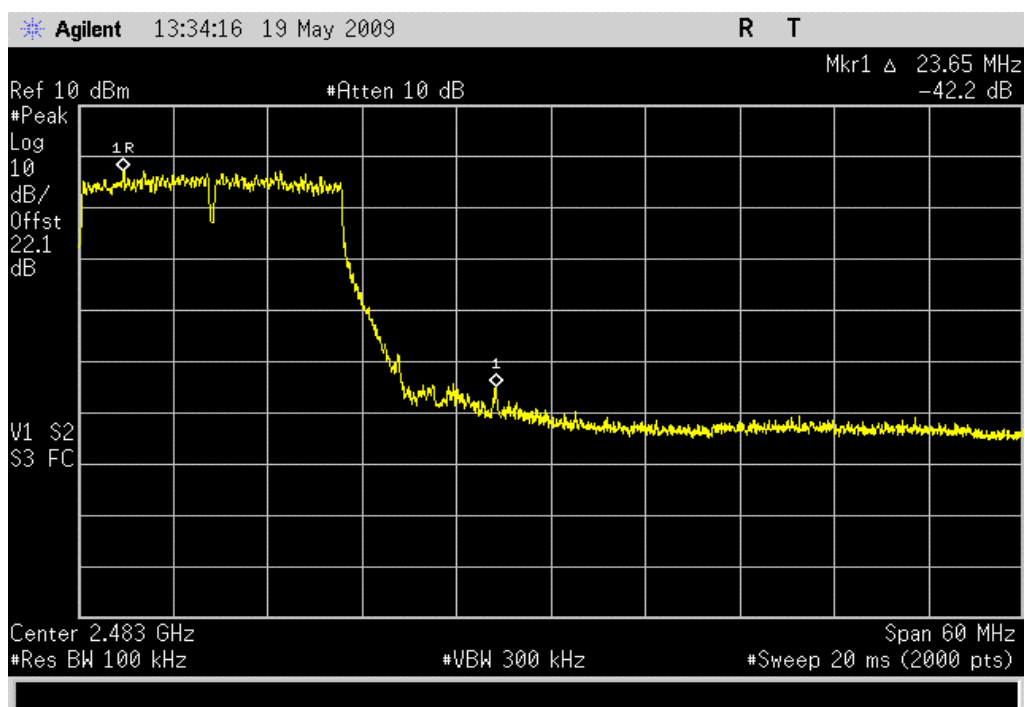
Value: -39.9 dBc

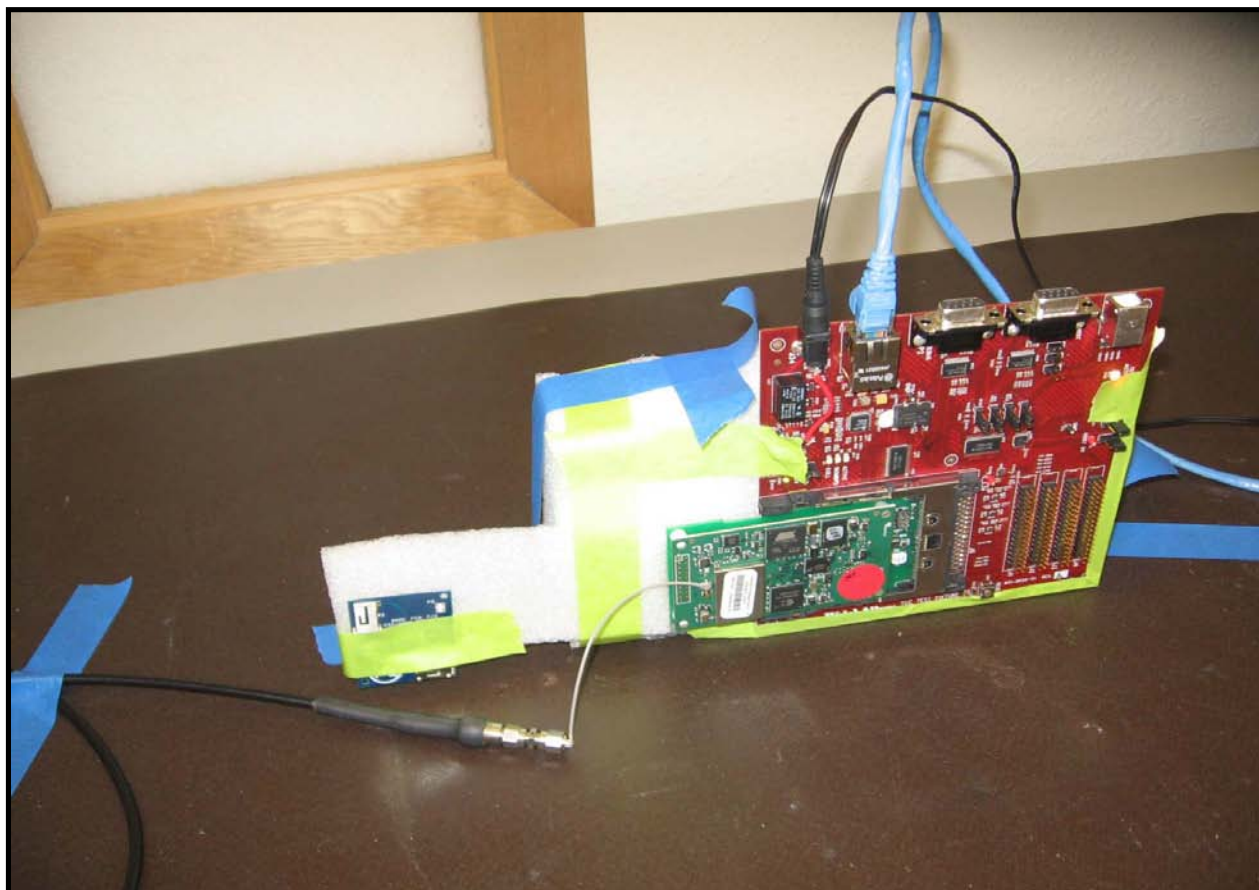
Limit: ≤ -20 dBc

802.11(g) 54 Mbps, High Channel

Result: Pass

Value: -42.2 dBc

Limit: ≤ -20 dBc



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

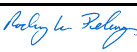
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

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 16-4-2. 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.

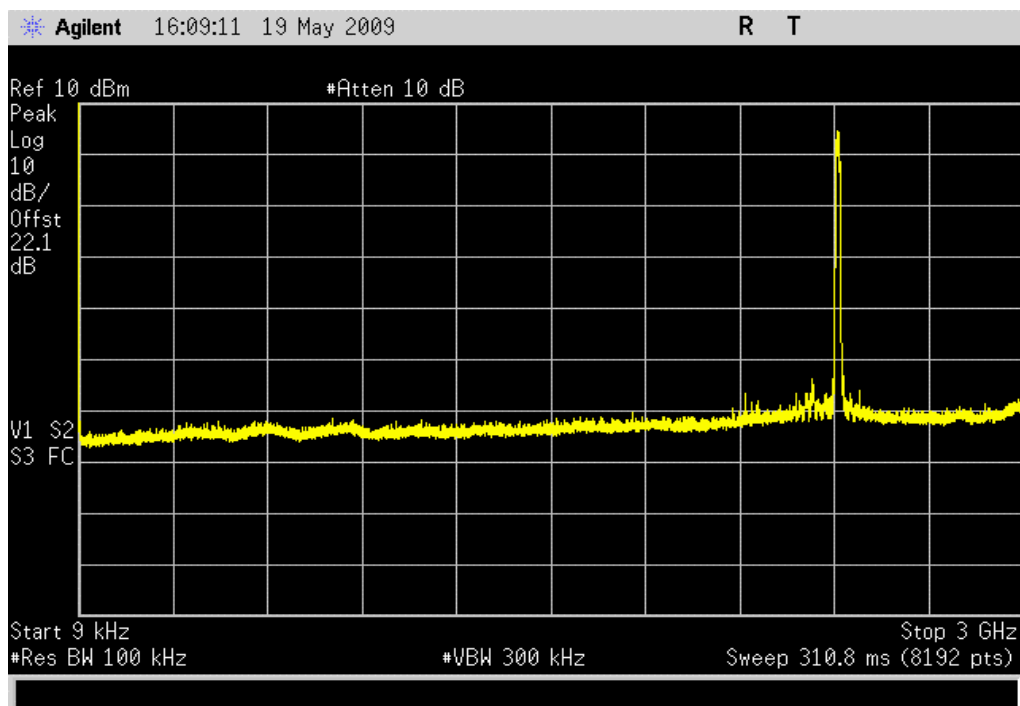
NORTHWEST		XMIT 2008.12.29	
EMC		SPURIOUS CONDUCTED EMISSIONS	
EUT: Lamarr2		Work Order: PROT0309	
Serial Number: 000B28004C5C		Date: 05/19/09	
Customer: Welch Allyn Protocol, Inc.		Temperature: 22°C	
Attendees: Steve Baker		Humidity: 39%	
Project: None		Barometric Pres.: 30.05 In	
Tested by: Rod Peloquin		Power: 120VAC/60Hz	Job Site: EV06
TEST SPECIFICATIONS		Test Method	
FCC 15.247 (DTS):2009		ANSI C63.4:2003 KDB No. 558074	
COMMENTS			
Operated in a continuous TX mode with the test software power values called out in the 'Peak Output Power' data sheet located elsewhere in this report.			
DEVIATIONS FROM TEST STANDARD			
No Deviations			
Configuration #	2	Signature 	
		Value	Limit Results
802.11(b) 1 Mbps			
Low Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
Mid Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
High Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
802.11(b) 11 Mbps			
Low Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
Mid Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
High Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
802.11(g) 6 Mbps			
Low Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
Mid Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
High Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
802.11(g) 36 Mbps			
Low Channel			
0 - 3 GHz		-38.9 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
Mid Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
High Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
802.11(g) 54 Mbps			
Low Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
Mid Channel			
0 - 3 GHz		< -40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass
High Channel			
0 - 3 GHz		< 40 dBc	≤ -20 dBc Pass
3 - 6.5 GHz		< -40 dBc	≤ -20 dBc Pass
6.5 - 12.8 GHz		< -40 dBc	≤ -20 dBc Pass
12.8 - 25 GHz		< -40 dBc	≤ -20 dBc Pass

SPURIOUS CONDUCTED EMISSIONS

802.11(b) 1 Mbps, Low Channel, 0 - 3 GHz

Result: Pass

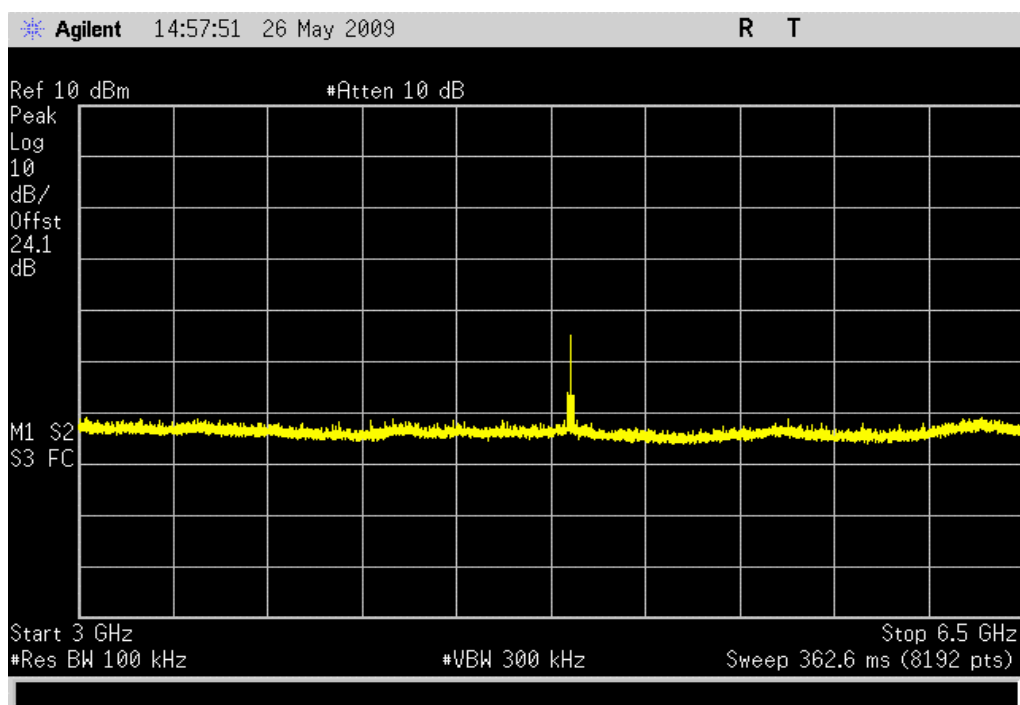
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Low Channel, 3 - 6.5 GHz

Result: Pass

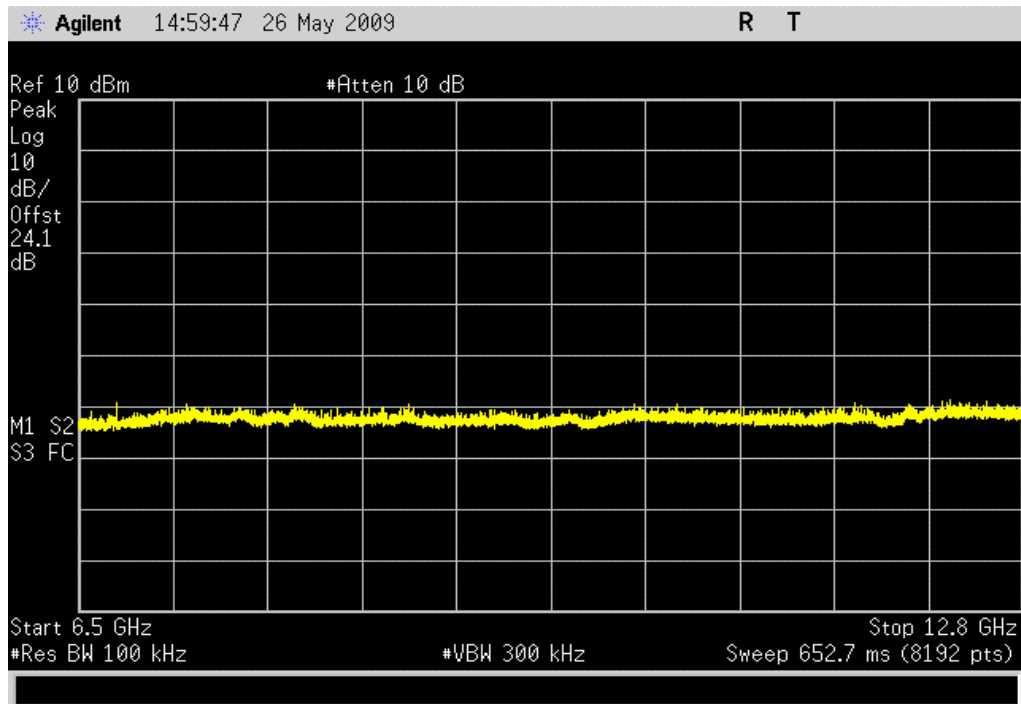
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Low Channel, 6.5 - 12.8 GHz

Result: Pass

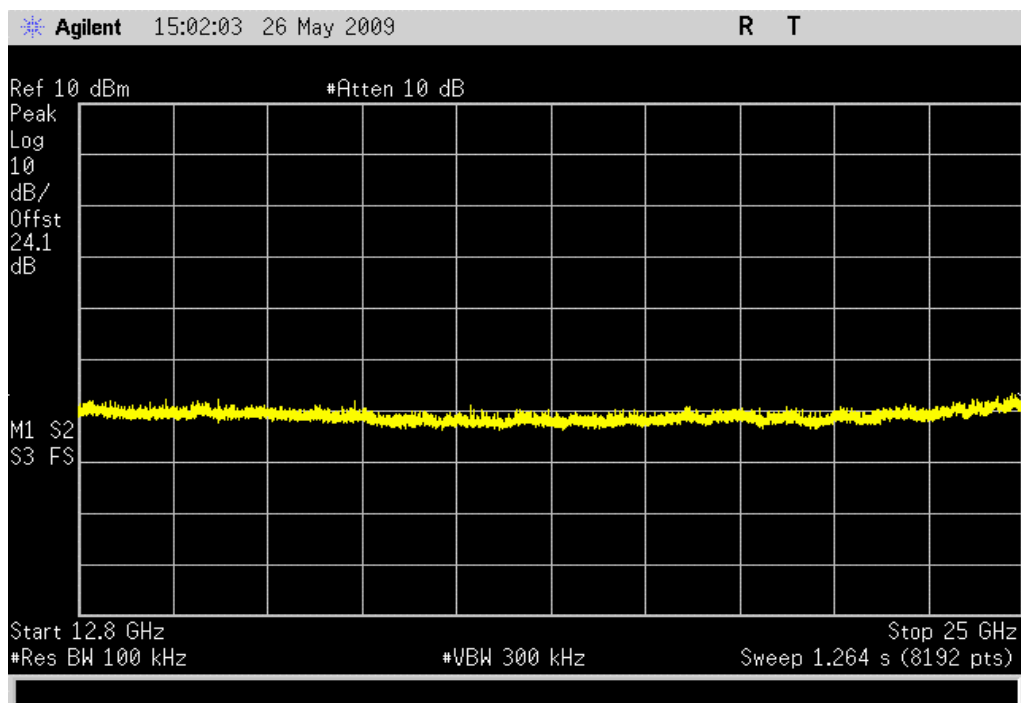
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Low Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

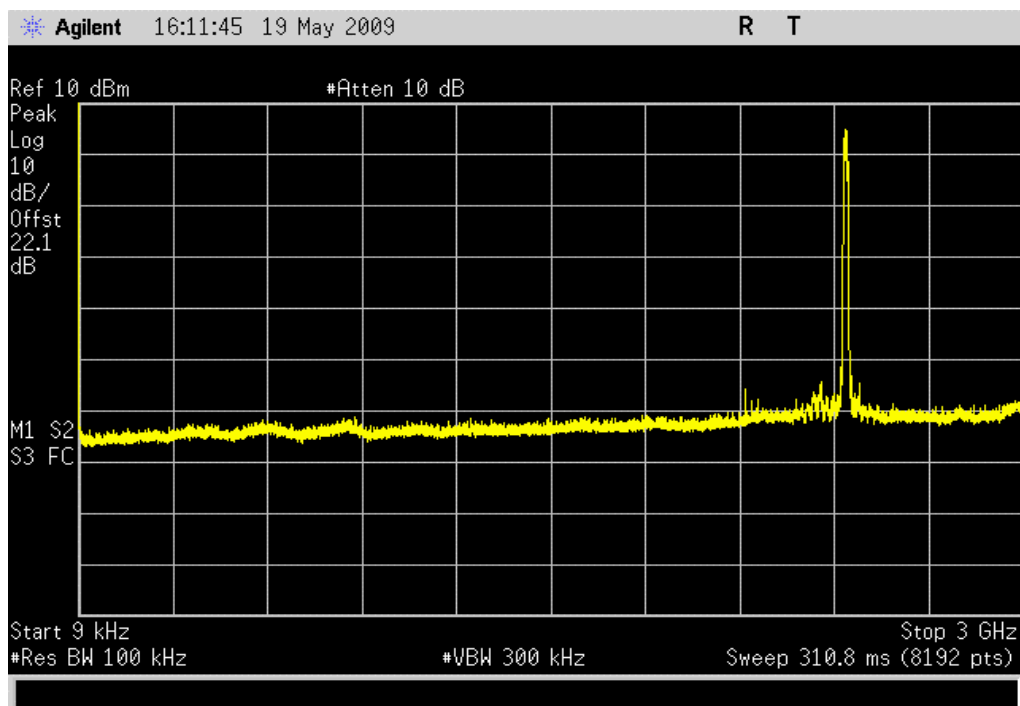
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(b) 1 Mbps, Mid Channel, 0 - 3 GHz

Result: Pass

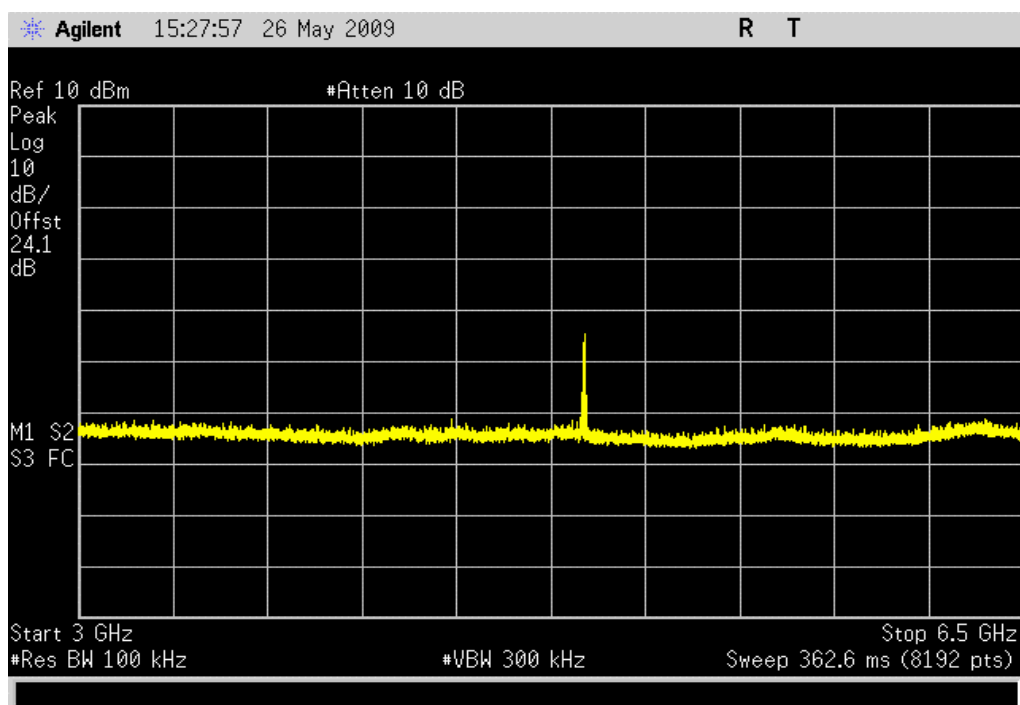
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Mid Channel, 3 - 6.5 GHz

Result: Pass

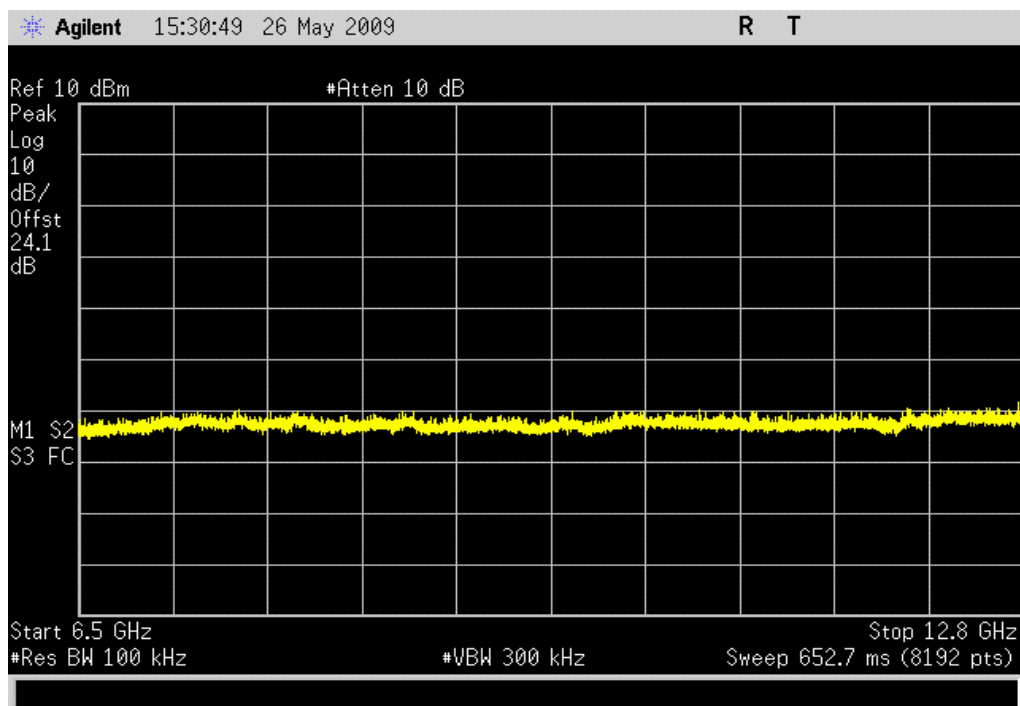
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Mid Channel, 6.5 - 12.8 GHz

Result: Pass

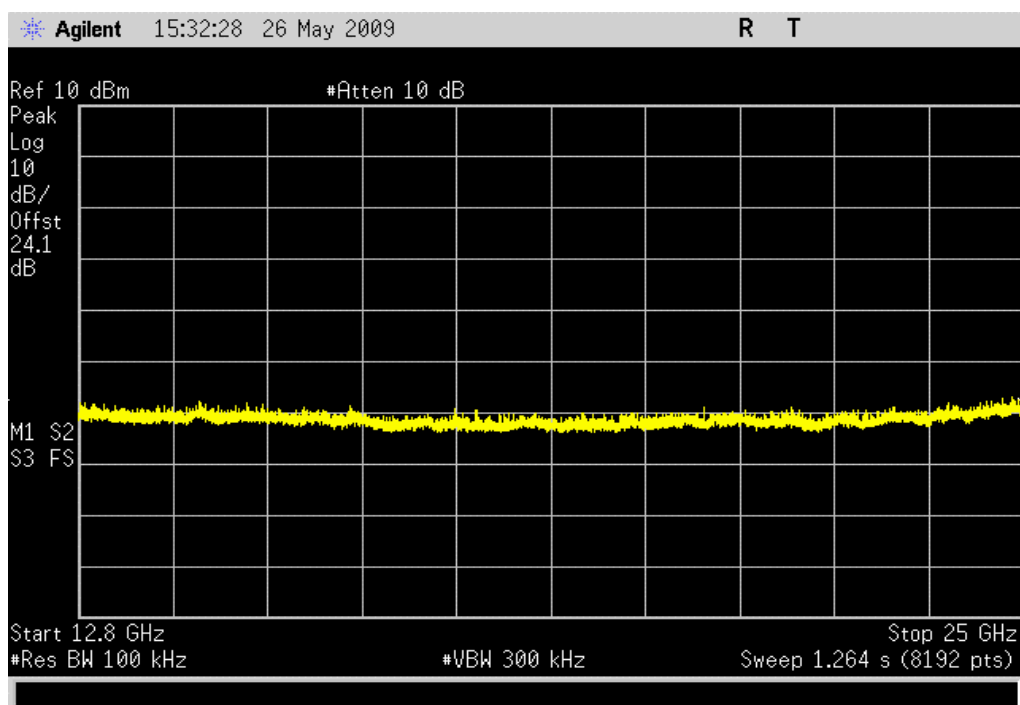
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, Mid Channel, 12.8 - 25 GHz

Result: Pass

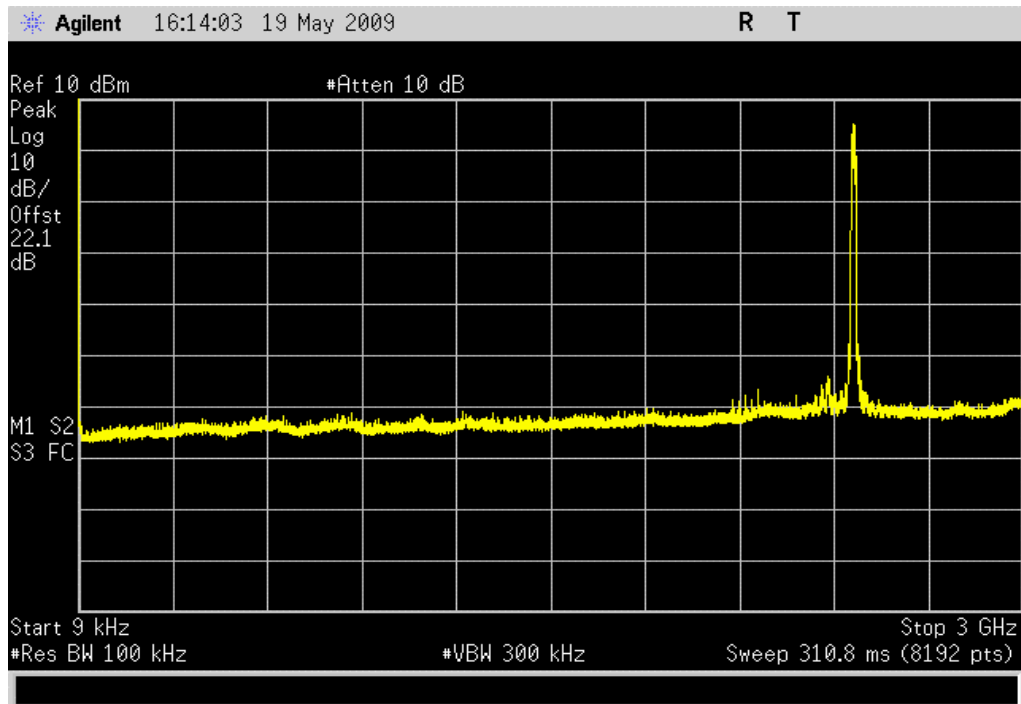
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, High Channel, 0 - 3 GHz

Result: Pass

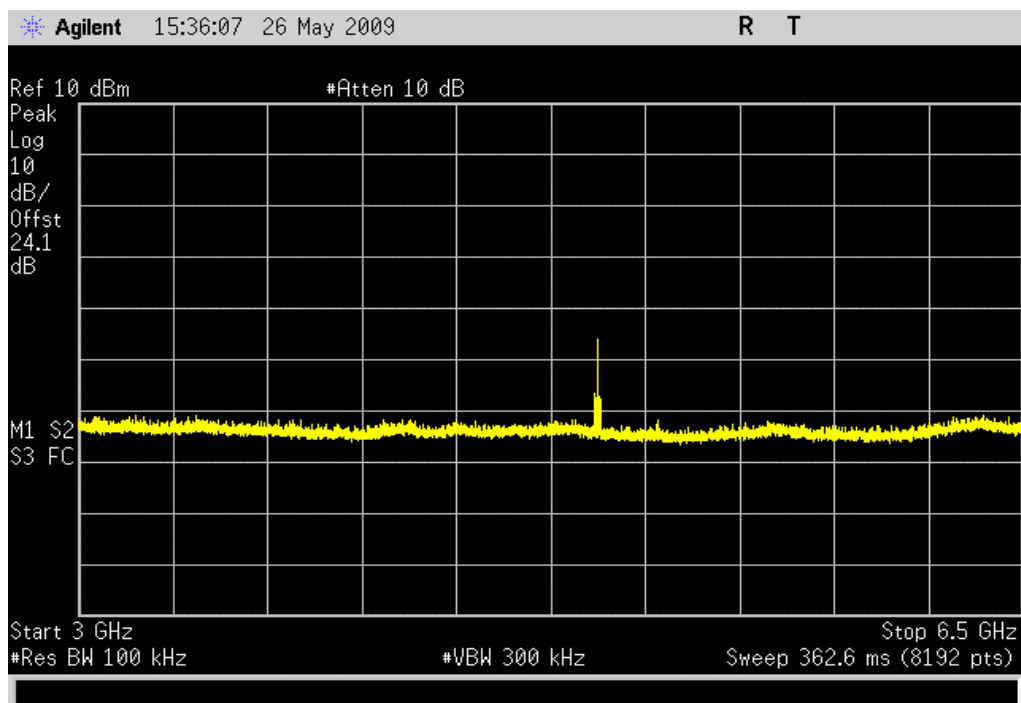
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, High Channel, 3 - 6.5 GHz

Result: Pass

Value: < -40 dBc

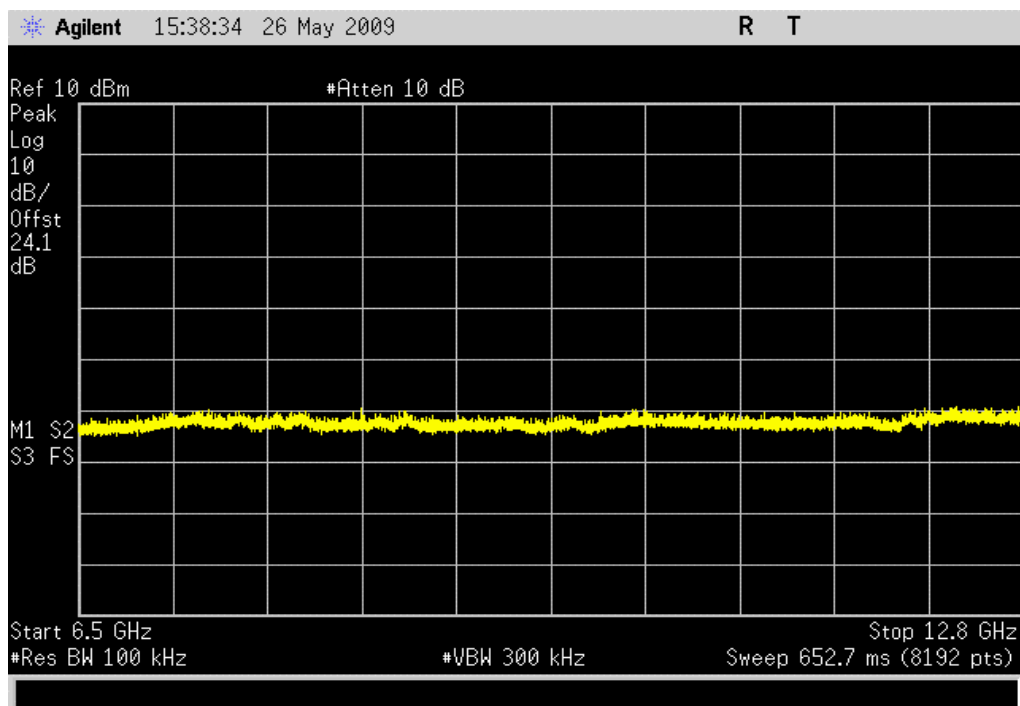
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(b) 1 Mbps, High Channel, 6.5 - 12.8 GHz

Result: Pass

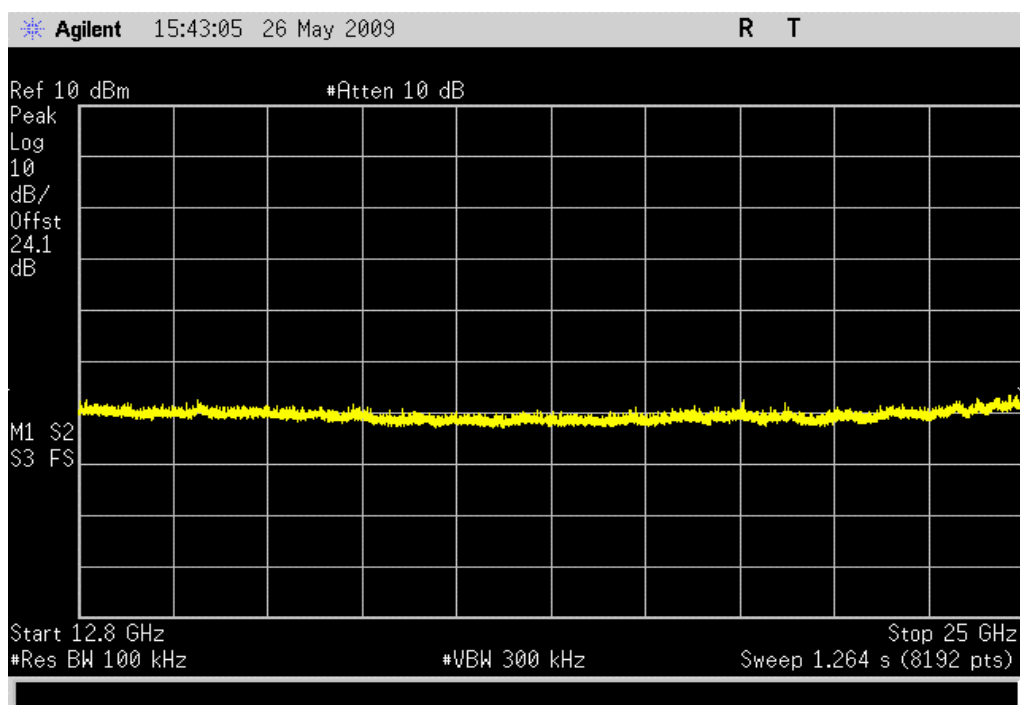
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 1 Mbps, High Channel, 12.8 - 25 GHz

Result: Pass

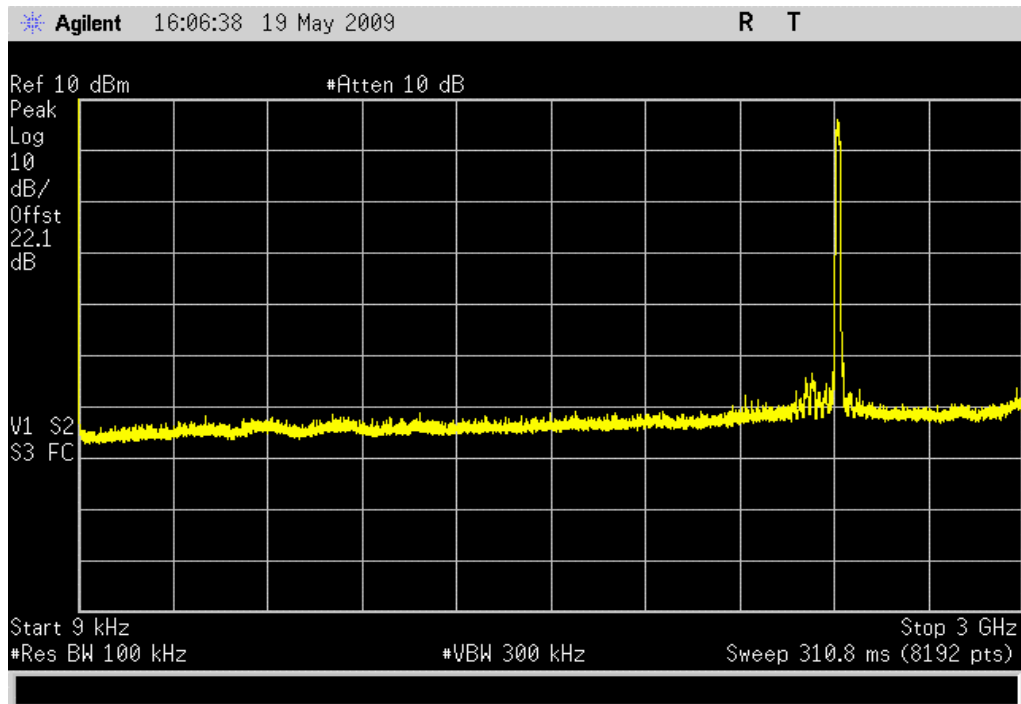
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Low Channel, 0 - 3 GHz

Result: Pass

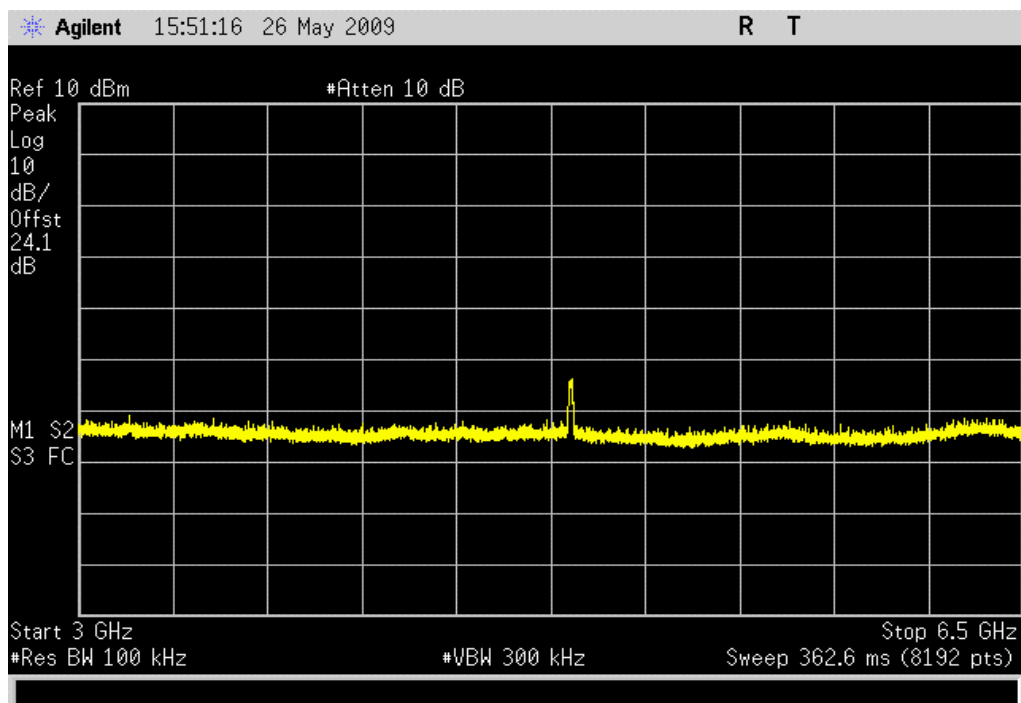
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Low Channel, 3 - 6.5 GHz

Result: Pass

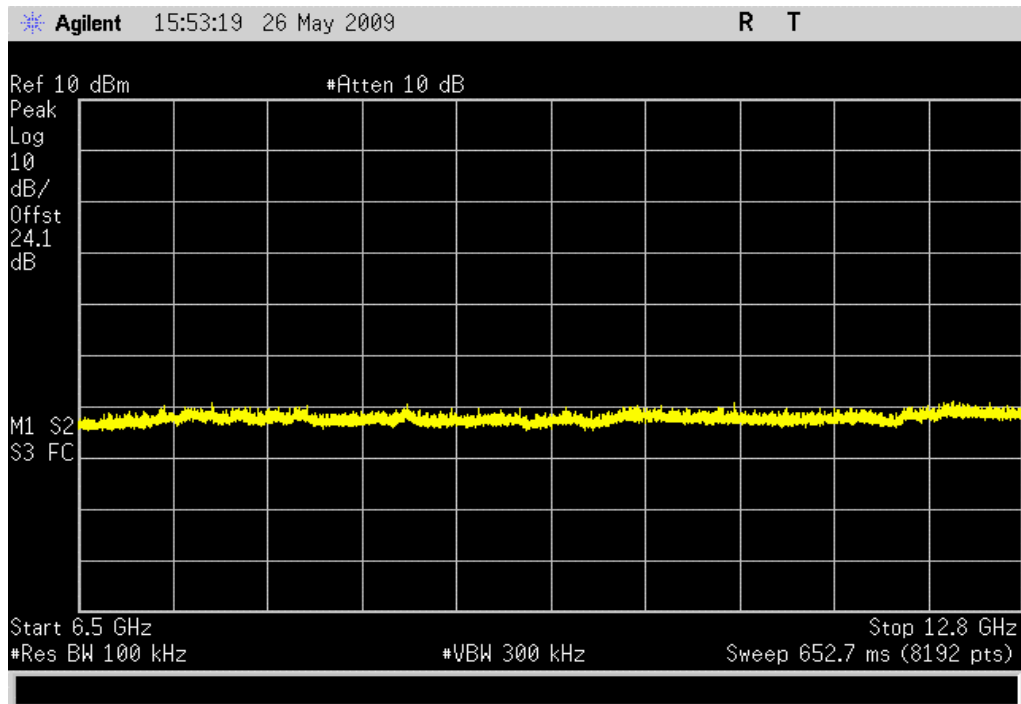
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Low Channel, 6.5 - 12.8 GHz

Result: Pass

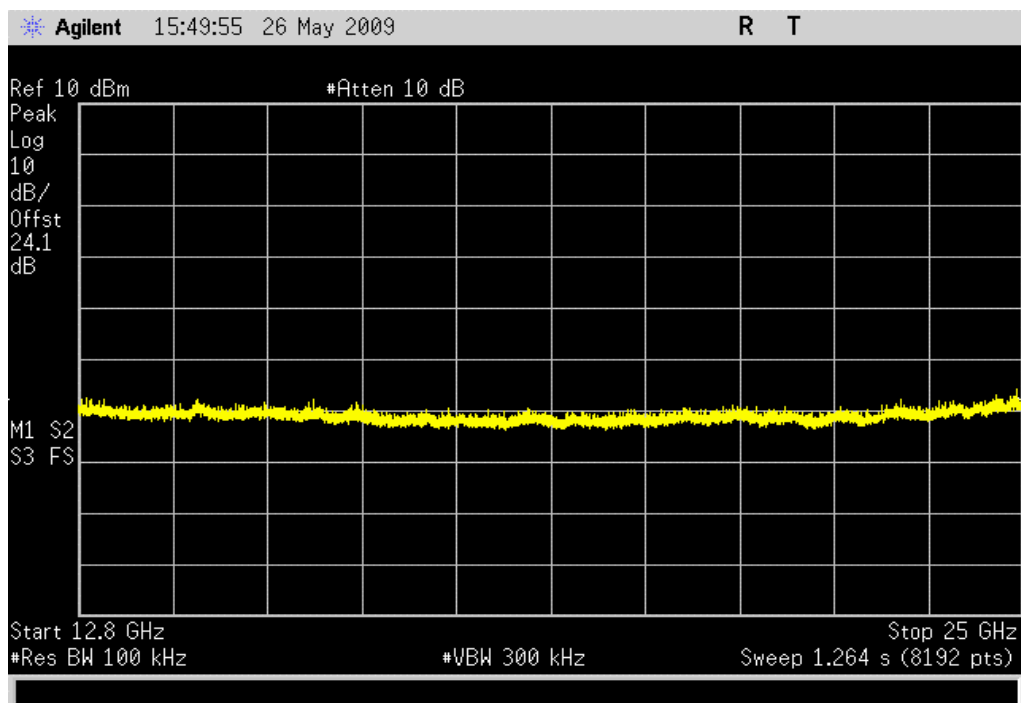
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Low Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

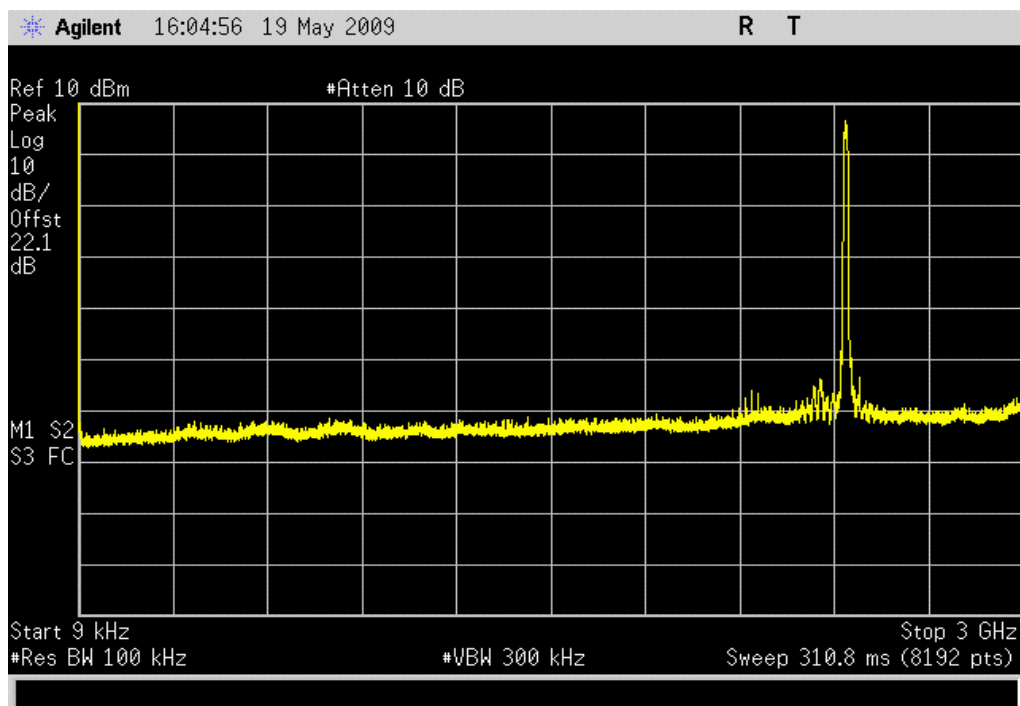
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(b) 11 Mbps, Mid Channel, 0 - 3 GHz

Result: Pass

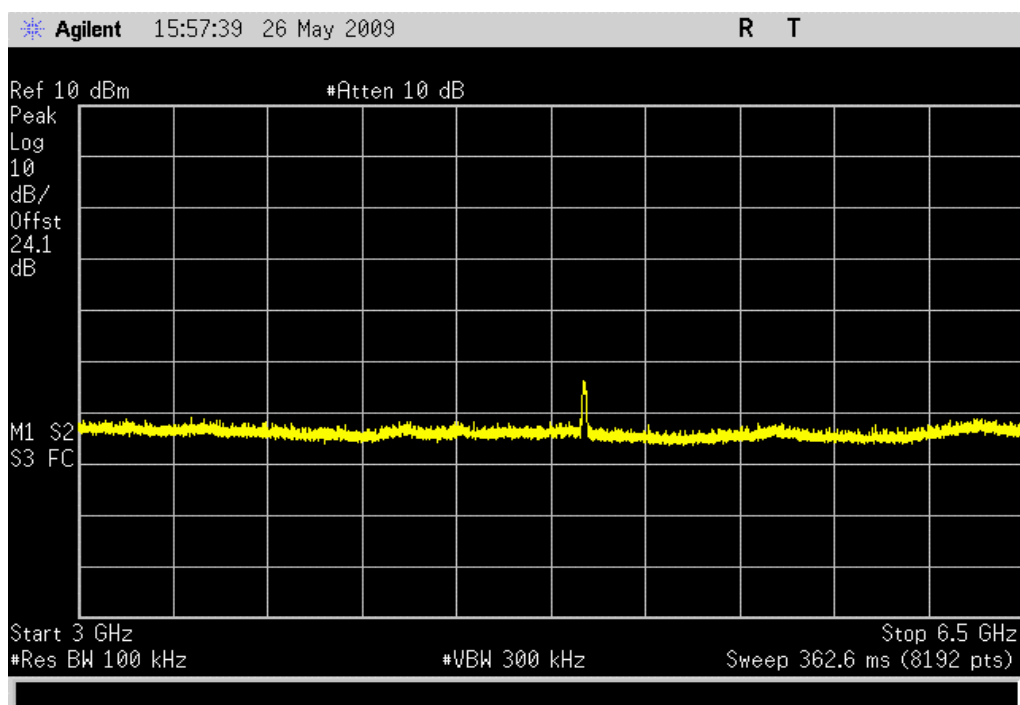
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Mid Channel, 3 - 6.5 GHz

Result: Pass

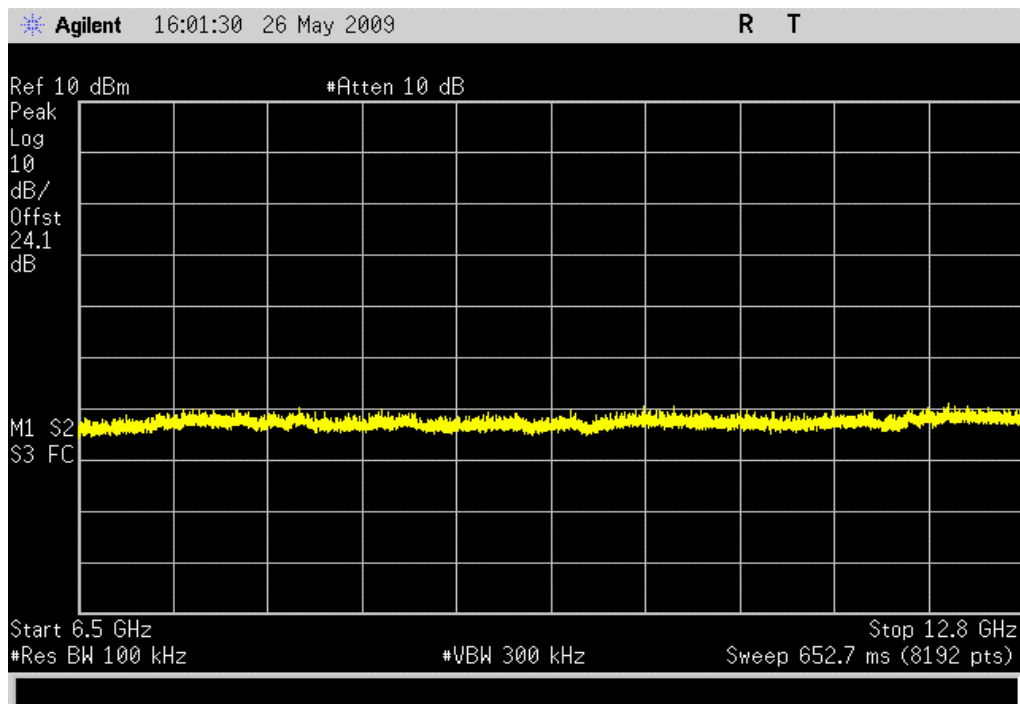
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Mid Channel, 6.5 - 12.8 GHz

Result: Pass

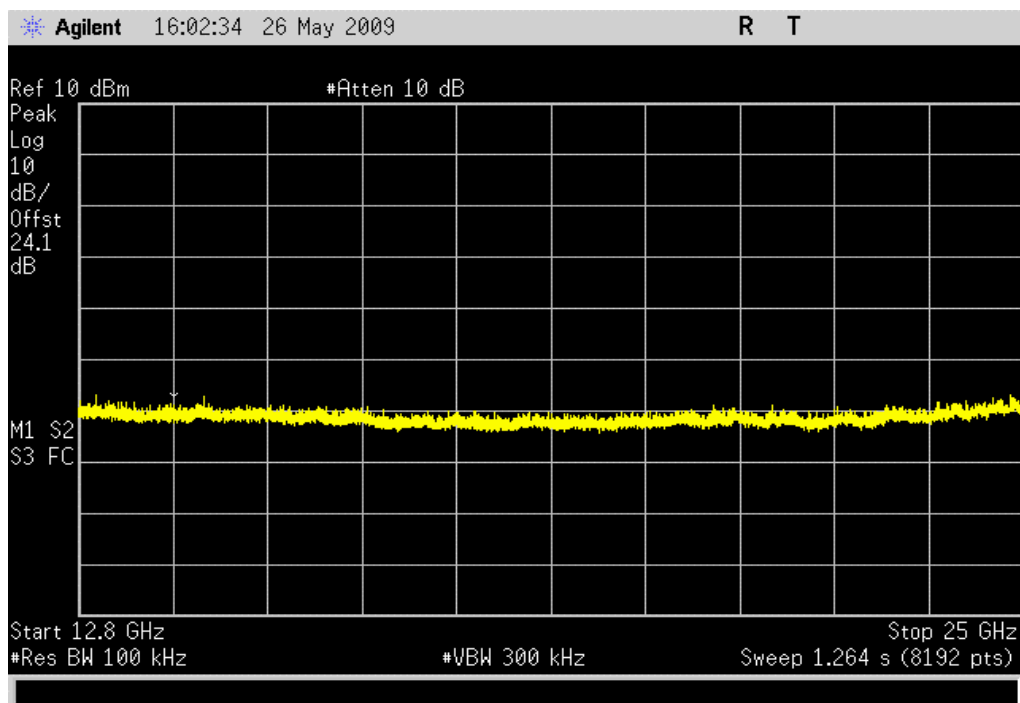
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, Mid Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

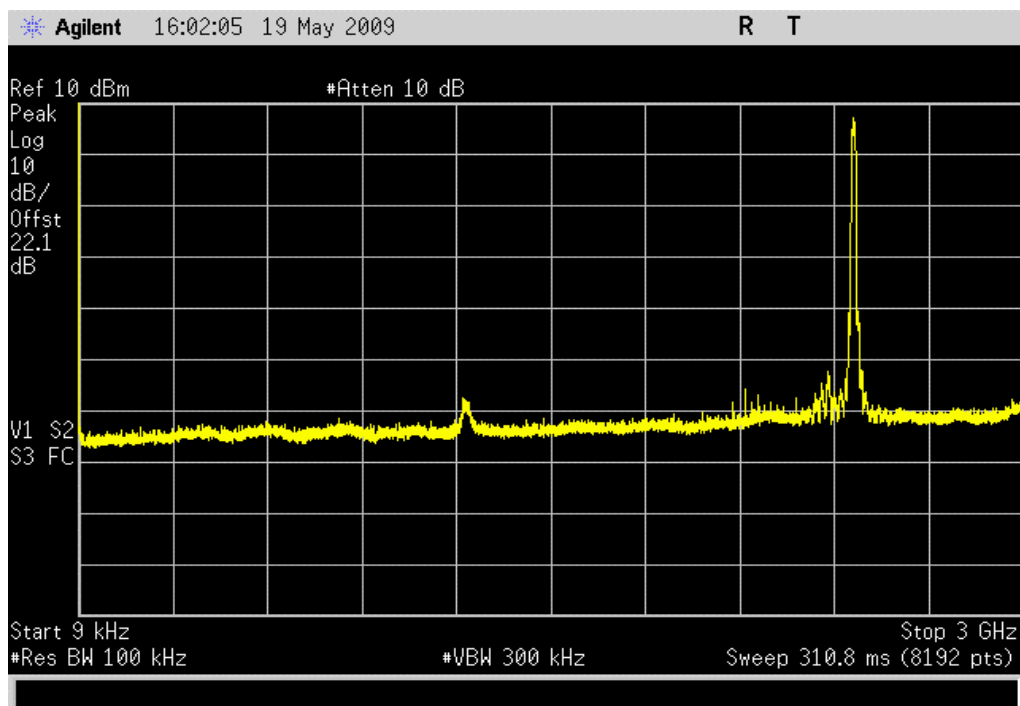
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(b) 11 Mbps, High Channel, 0 - 3 GHz

Result: Pass

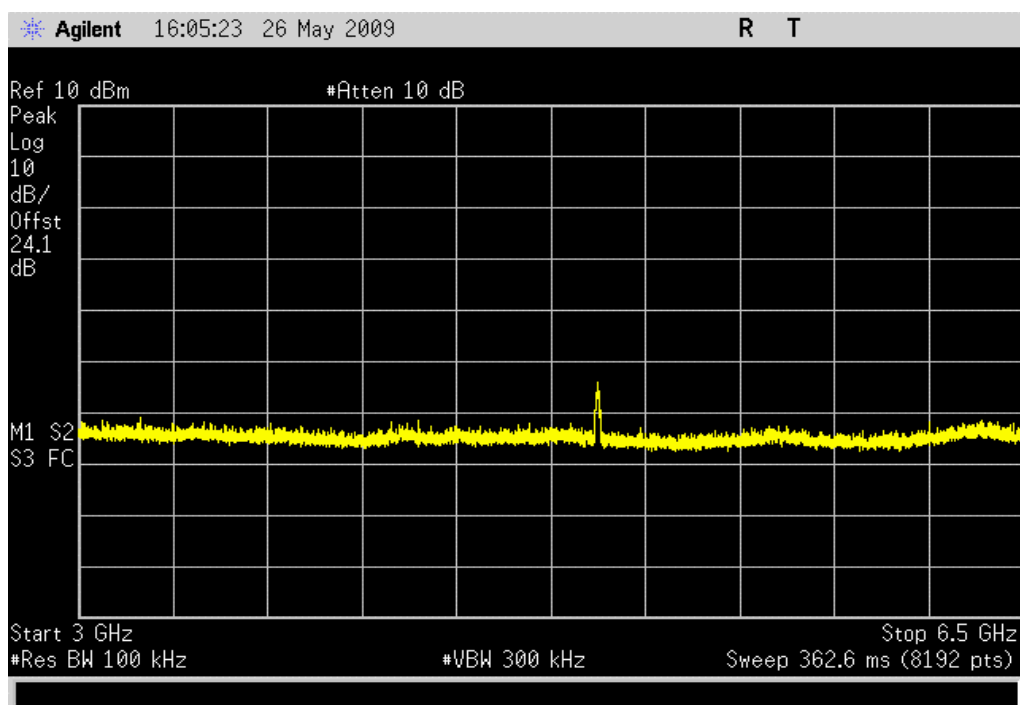
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, High Channel, 3 - 6.5 GHz

Result: Pass

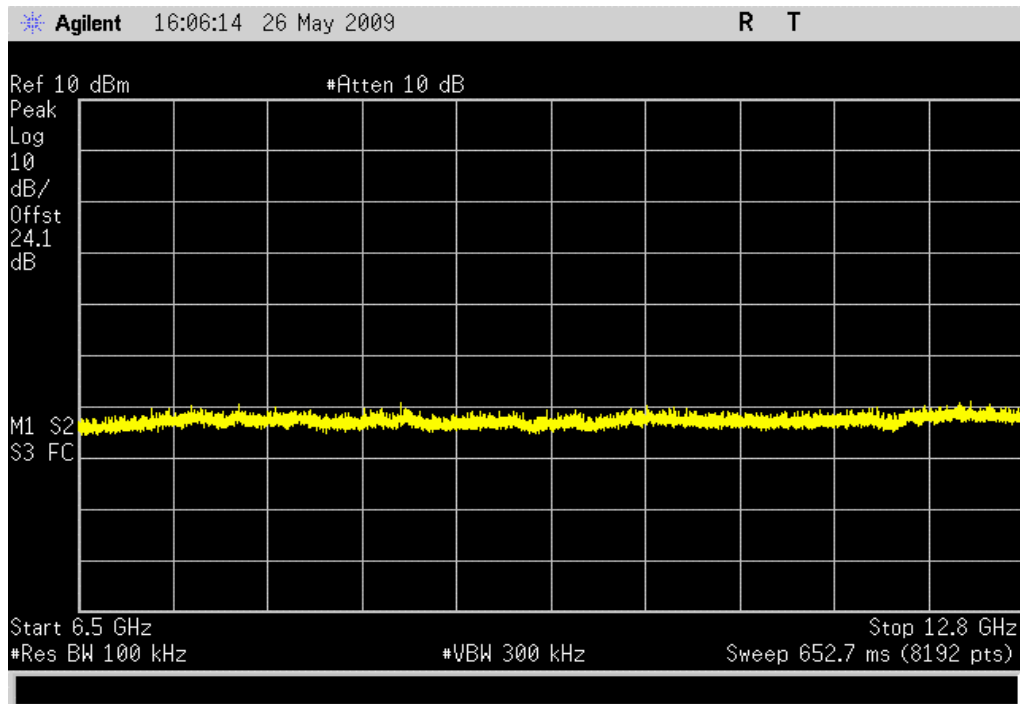
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, High Channel, 6.5 - 12.8 GHz

Result: Pass

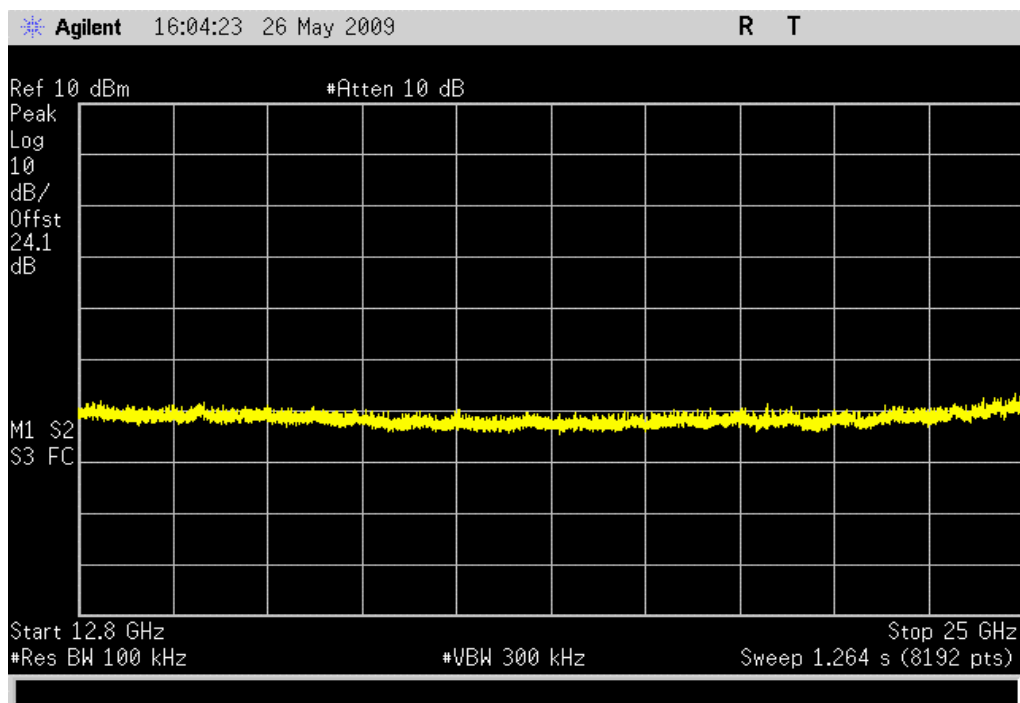
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(b) 11 Mbps, High Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

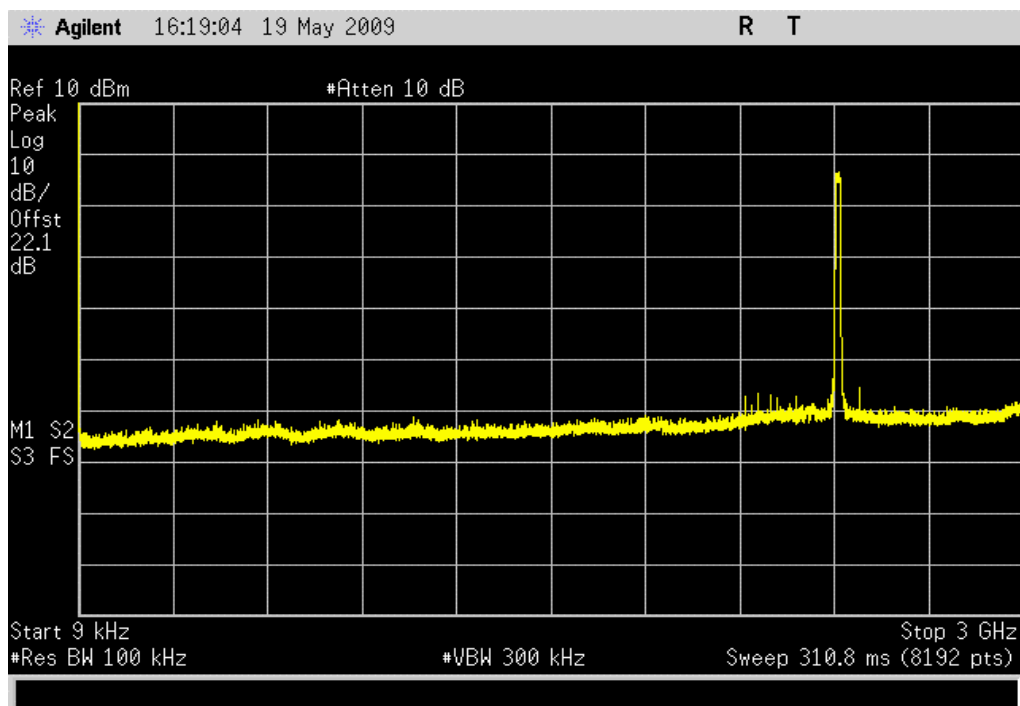
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(g) 6 Mbps, Low Channel, 0 - 3 GHz

Result: Pass

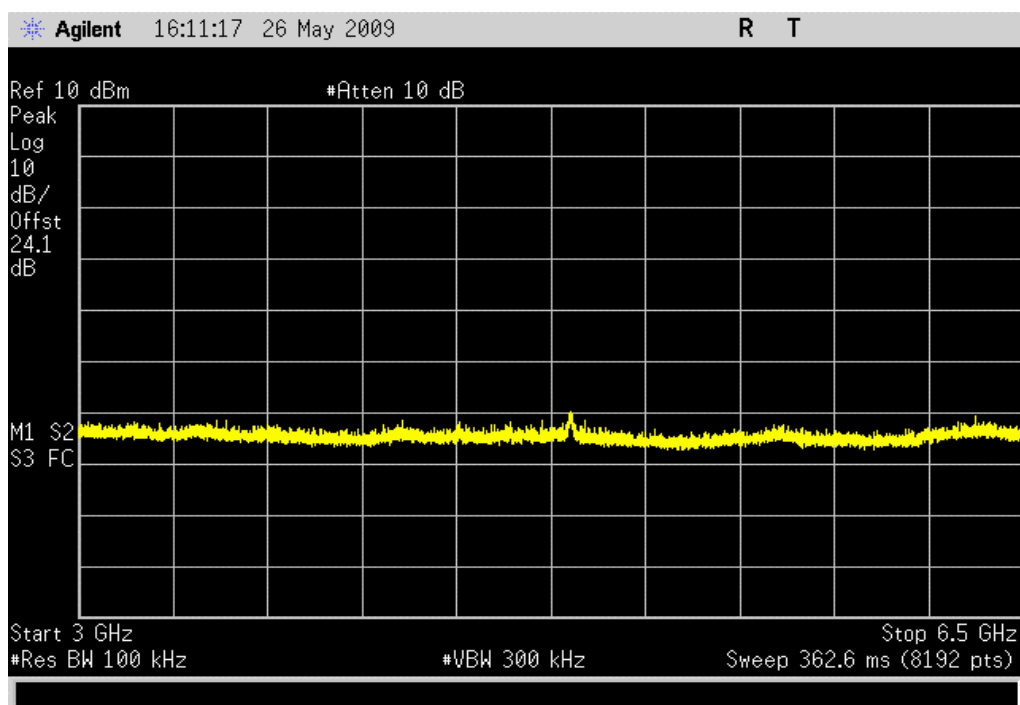
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Low Channel, 3 - 6.5 GHz

Result: Pass

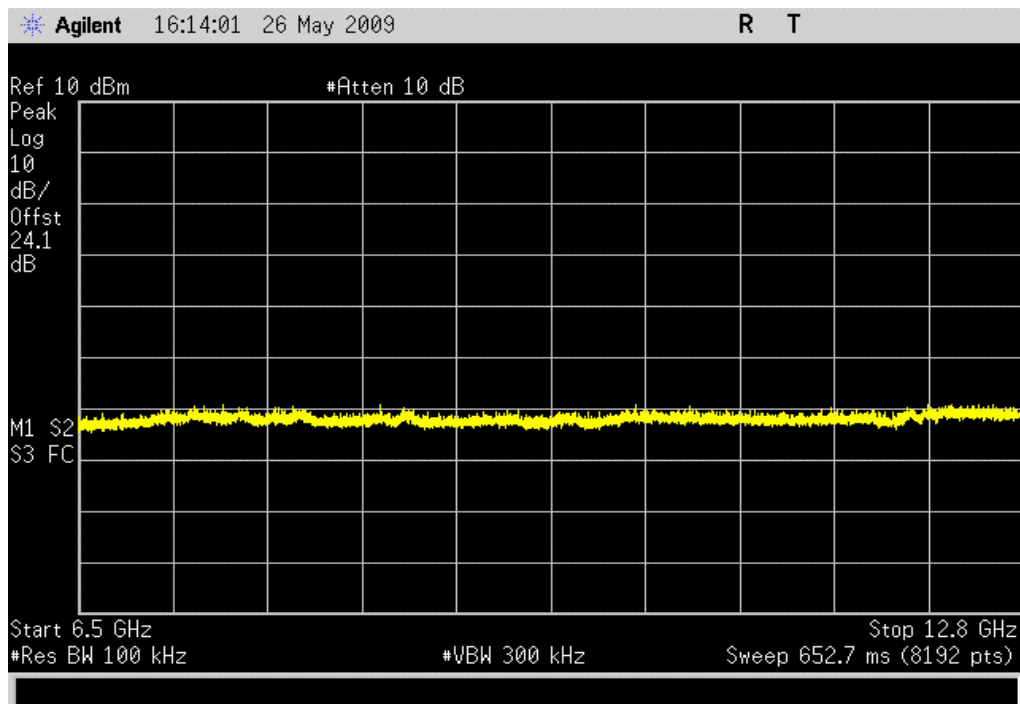
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Low Channel, 6.5 - 12.8 GHz

Result: Pass

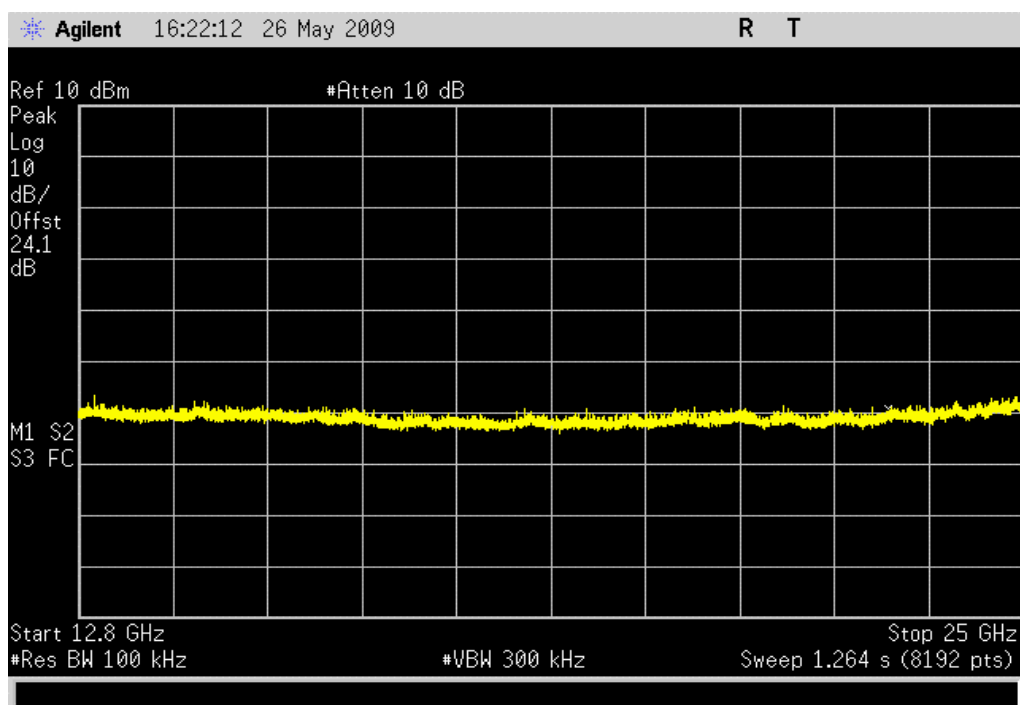
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Low Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

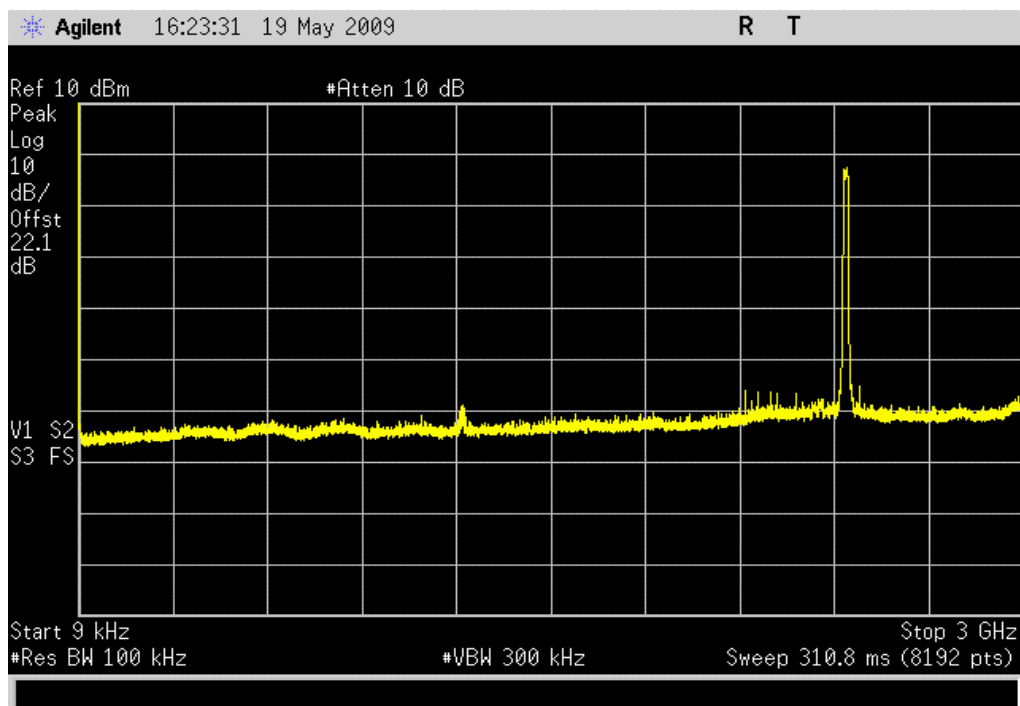
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(g) 6 Mbps, Mid Channel, 0 - 3 GHz

Result: Pass

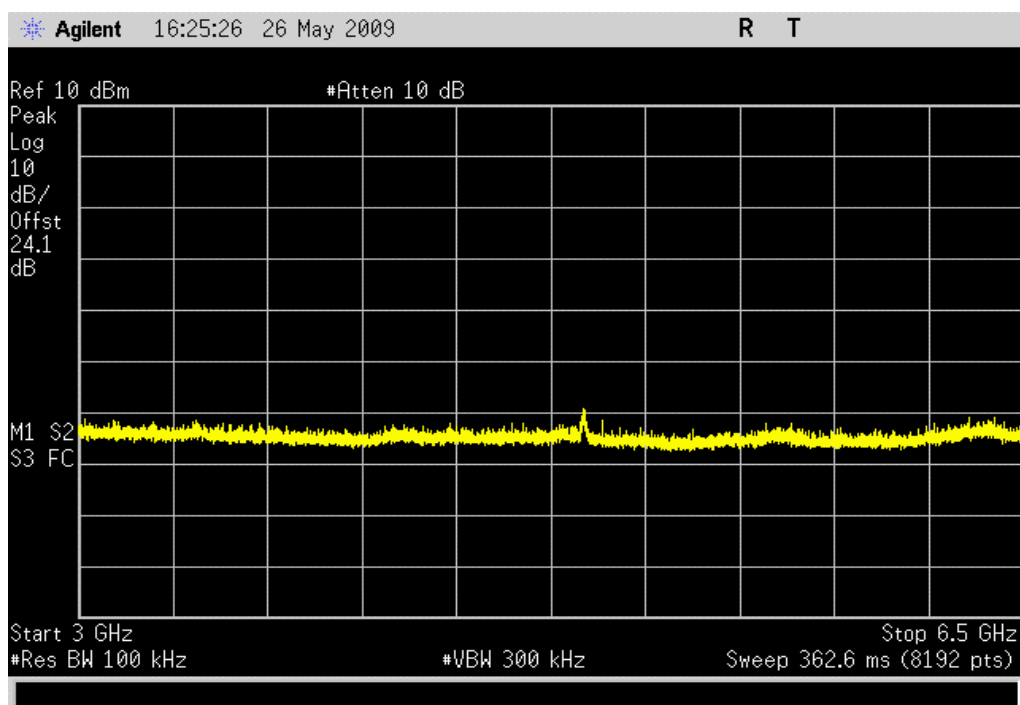
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Mid Channel, 3 - 6.5 GHz

Result: Pass

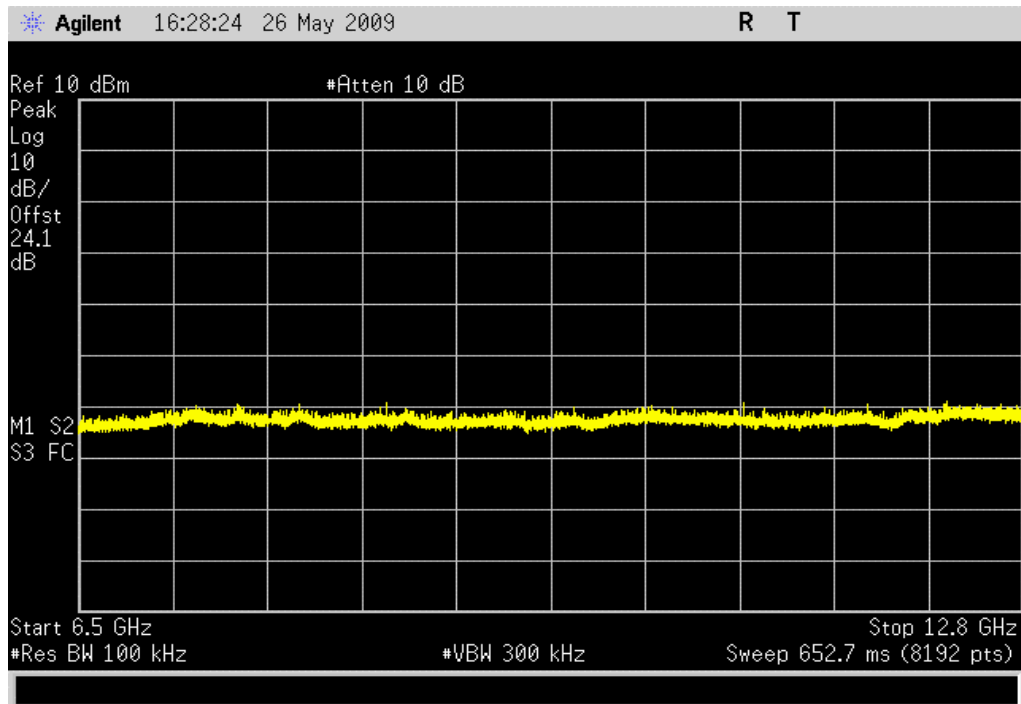
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Mid Channel, 6.5 - 12.8 GHz

Result: Pass

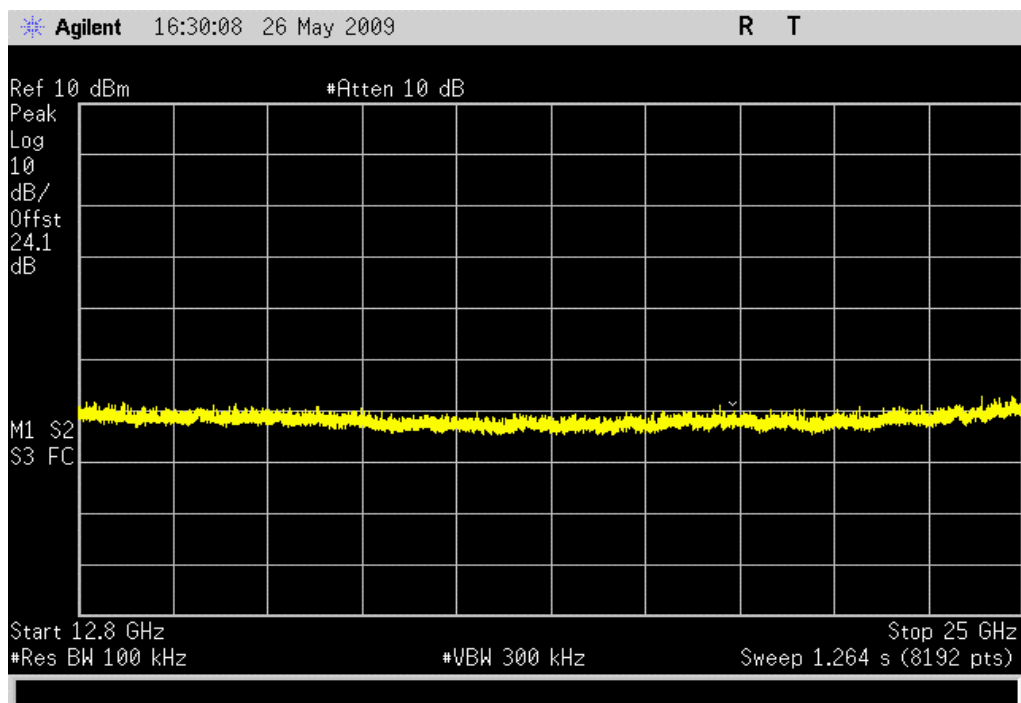
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, Mid Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

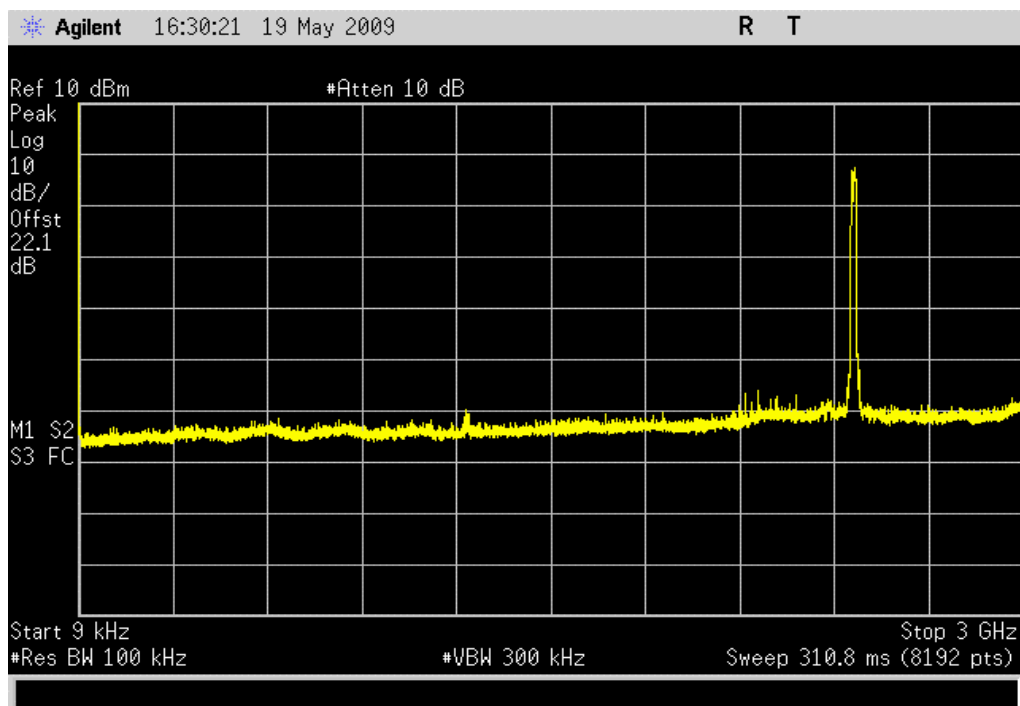
Limit: ≤ -20 dBc

SPURIOUS CONDUCTED EMISSIONS

802.11(g) 6 Mbps, High Channel, 0 - 3 GHz

Result: Pass

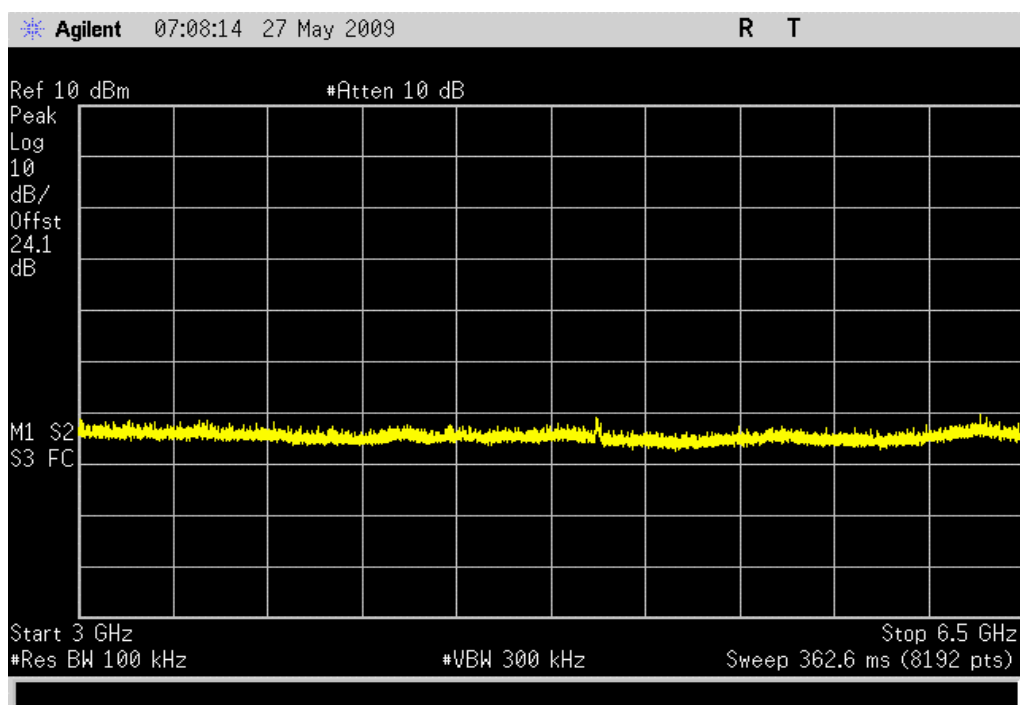
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, High Channel, 3 - 6.5 GHz

Result: Pass

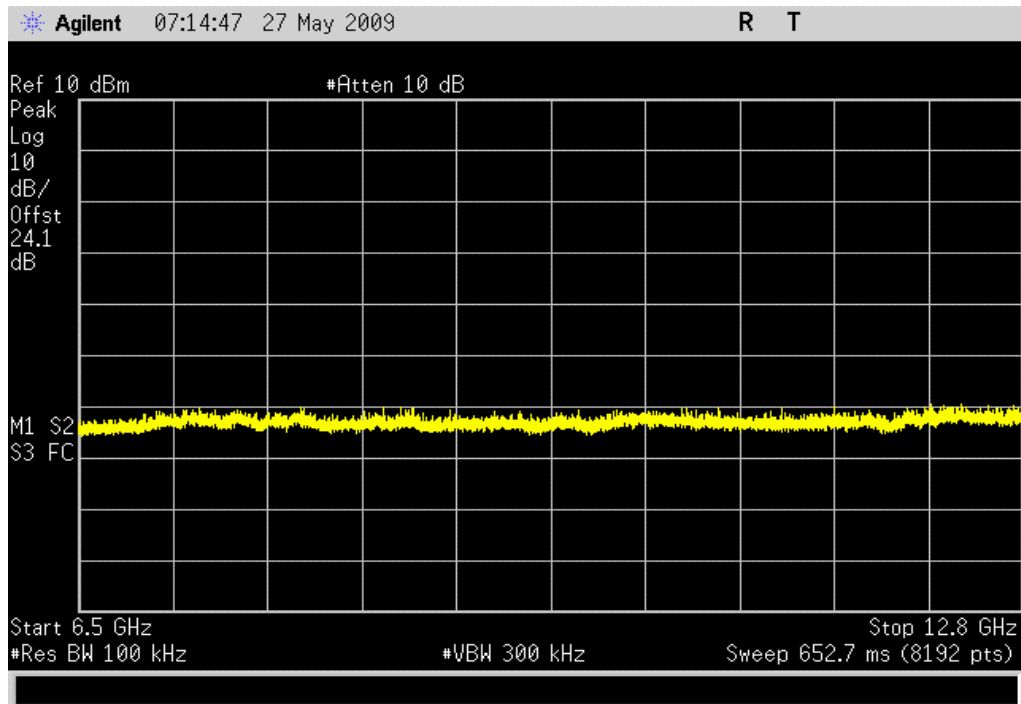
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, High Channel, 6.5 - 12.8 GHz

Result: Pass

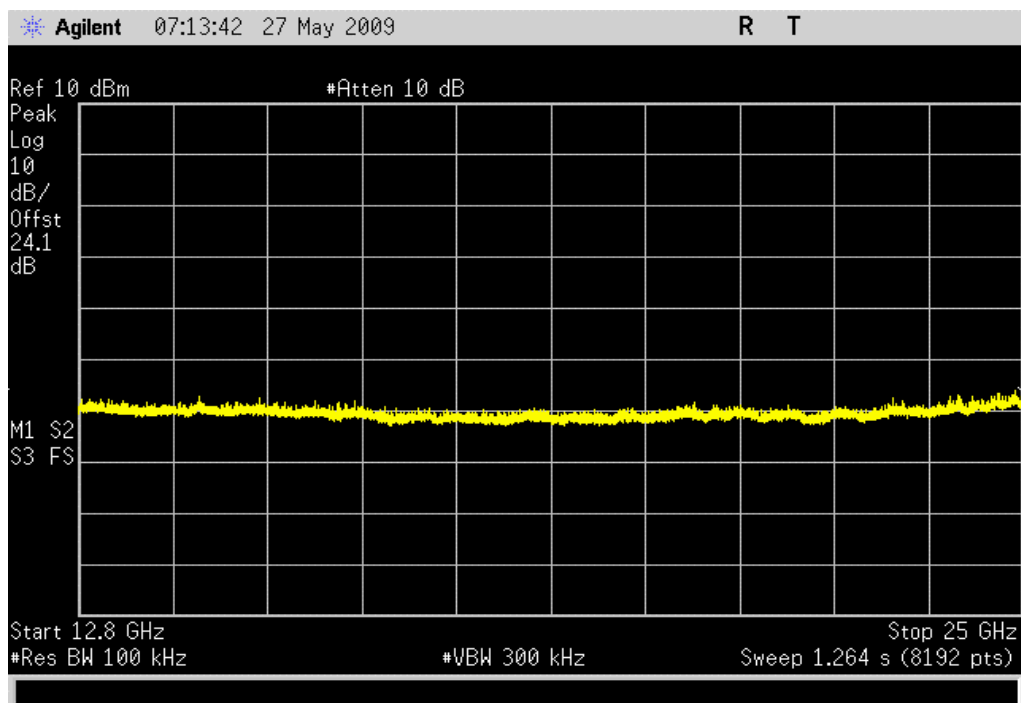
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 6 Mbps, High Channel, 12.8 - 25 GHz

Result: Pass

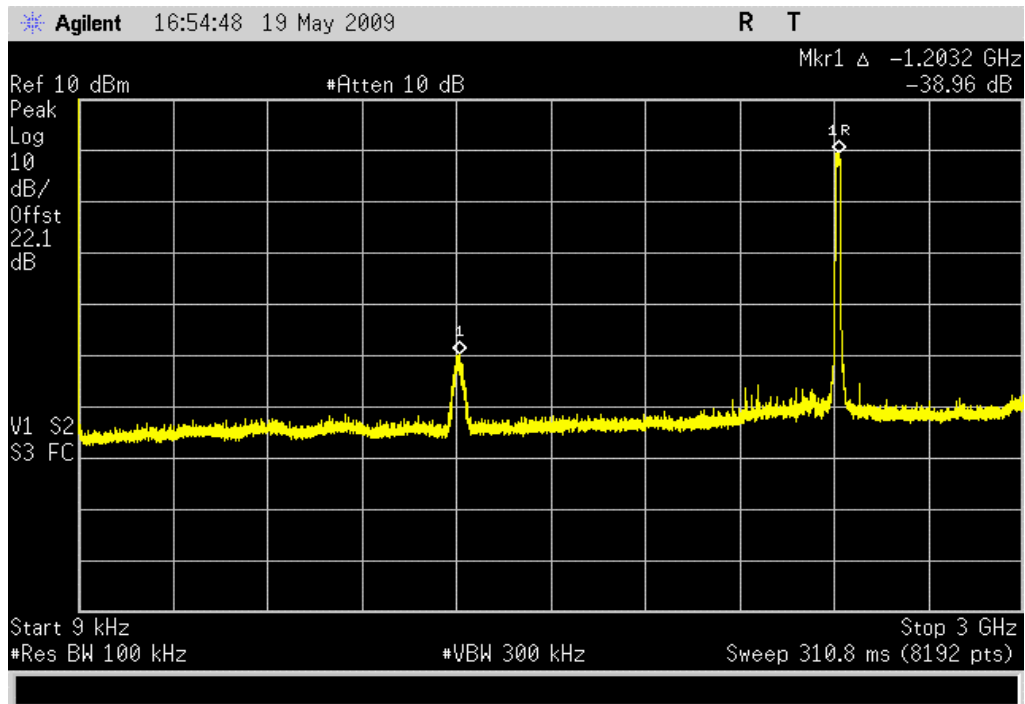
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Low Channel, 0 - 3 GHz

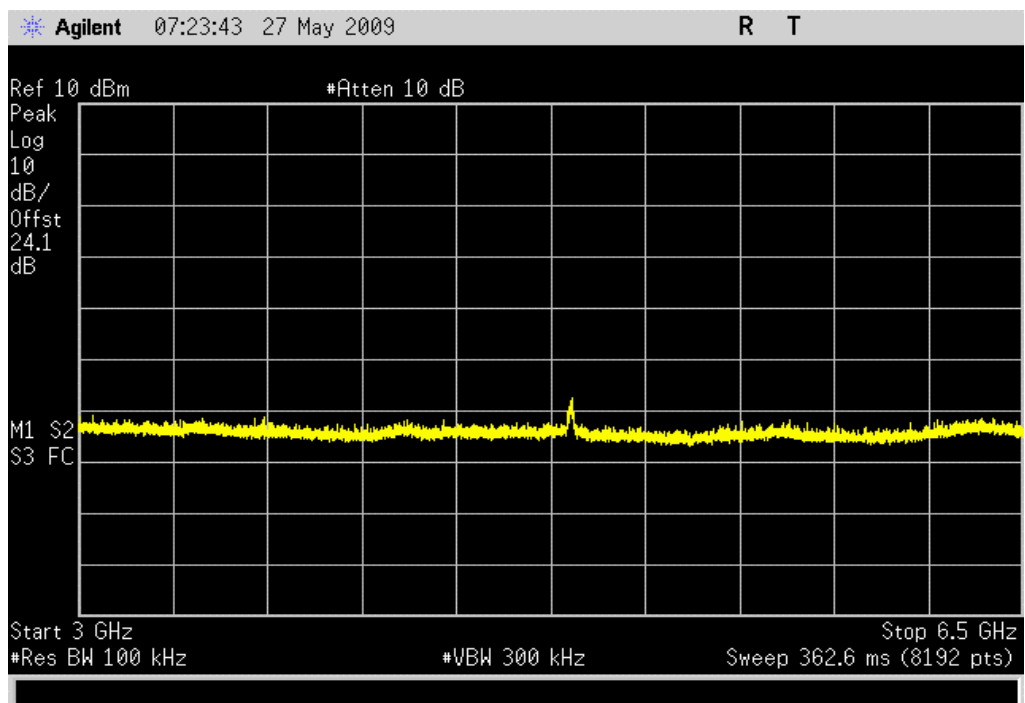
Result: Pass

Value: -38.9 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Low Channel, 3 - 6.5 GHz

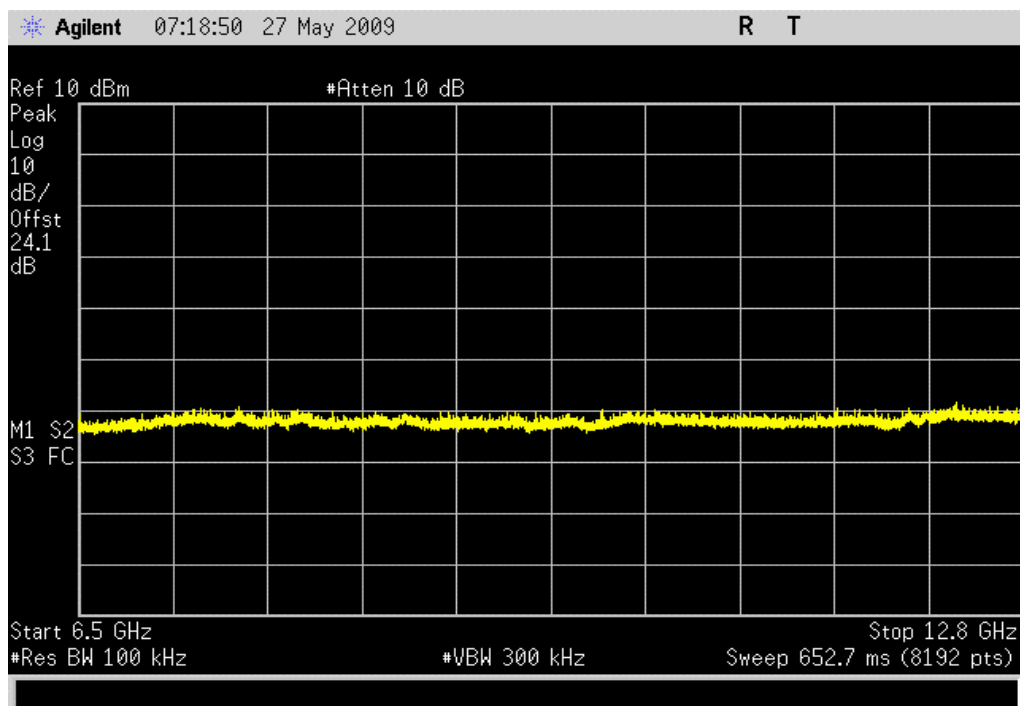
Result: Pass

Value: < -40 dBcLimit: ≤ -20 dBc

802.11(g) 36 Mbps, Low Channel, 6.5 - 12.8 GHz

Result: Pass

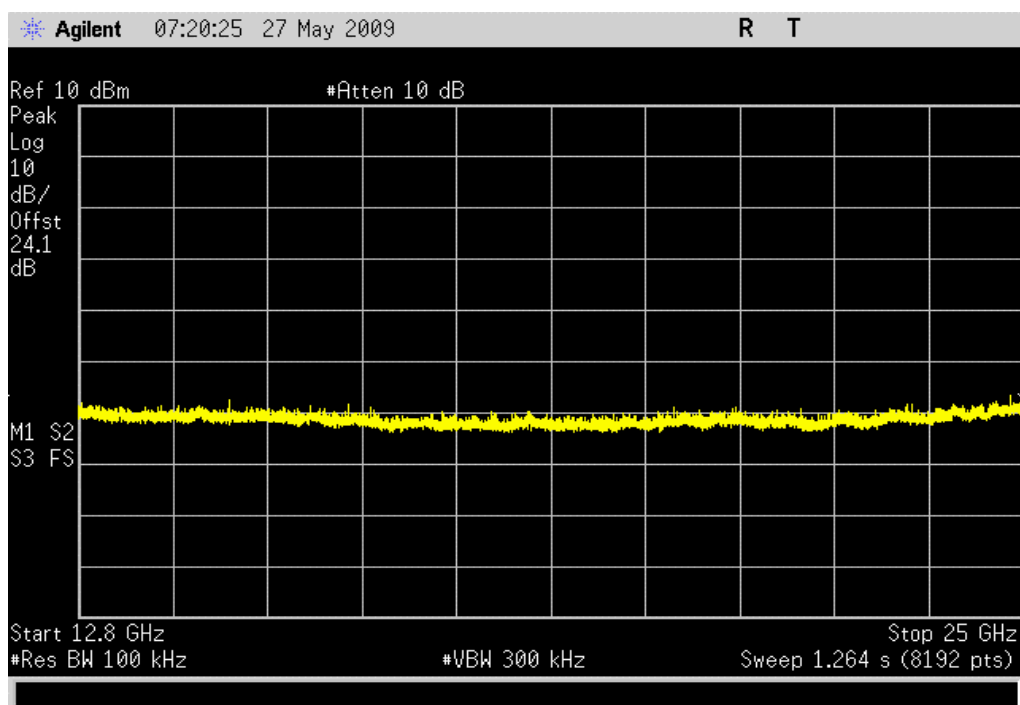
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Low Channel, 12.8 - 25 GHz

Result: Pass

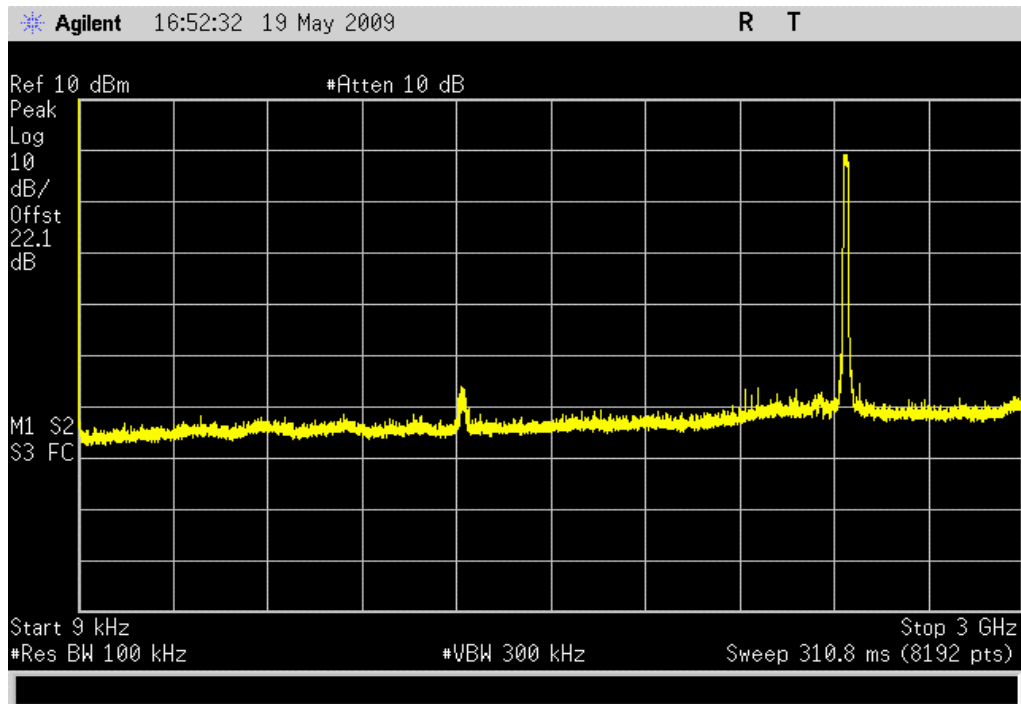
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Mid Channel, 0 - 3 GHz

Result: Pass

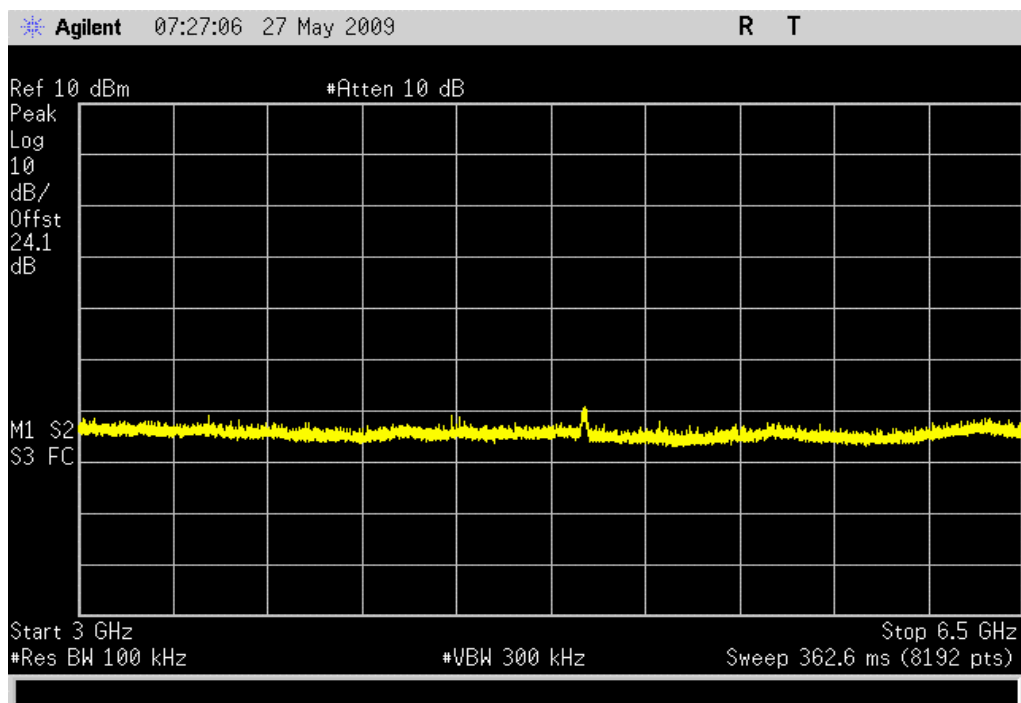
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Mid Channel, 3 - 6.5 GHz

Result: Pass

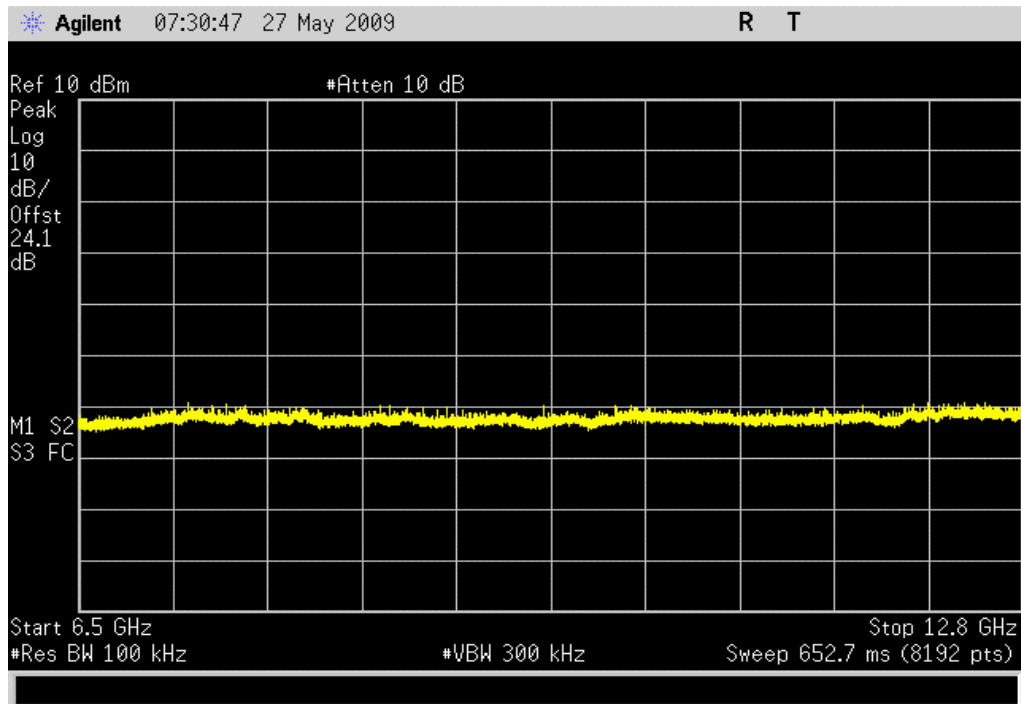
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Mid Channel, 6.5 - 12.8 GHz

Result: Pass

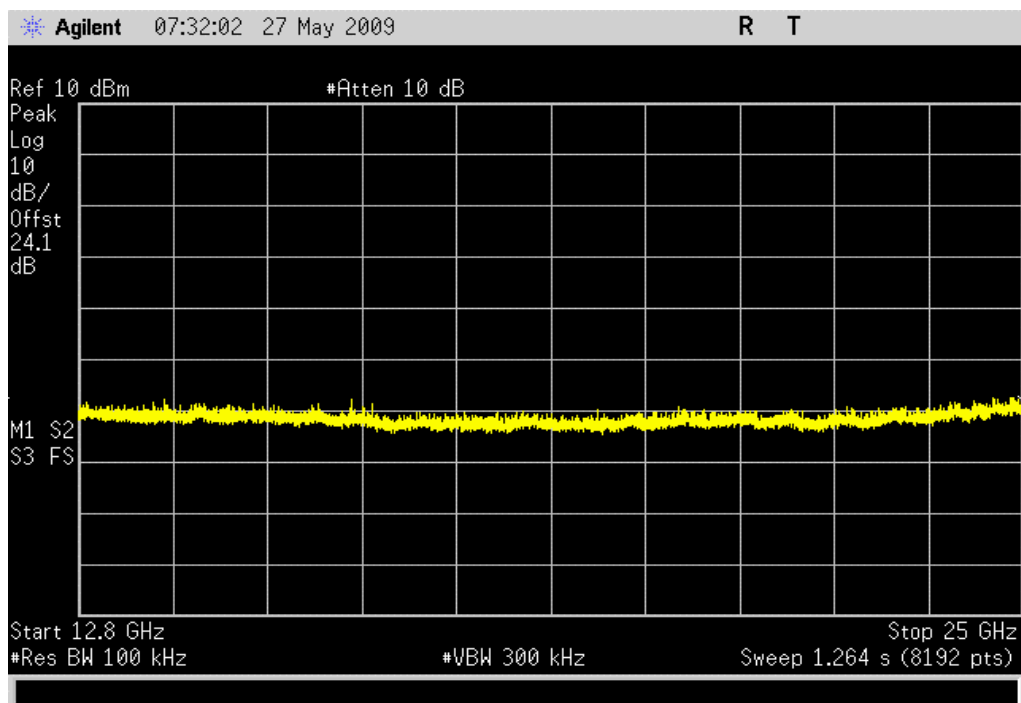
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, Mid Channel, 12.8 - 25 GHz

Result: Pass

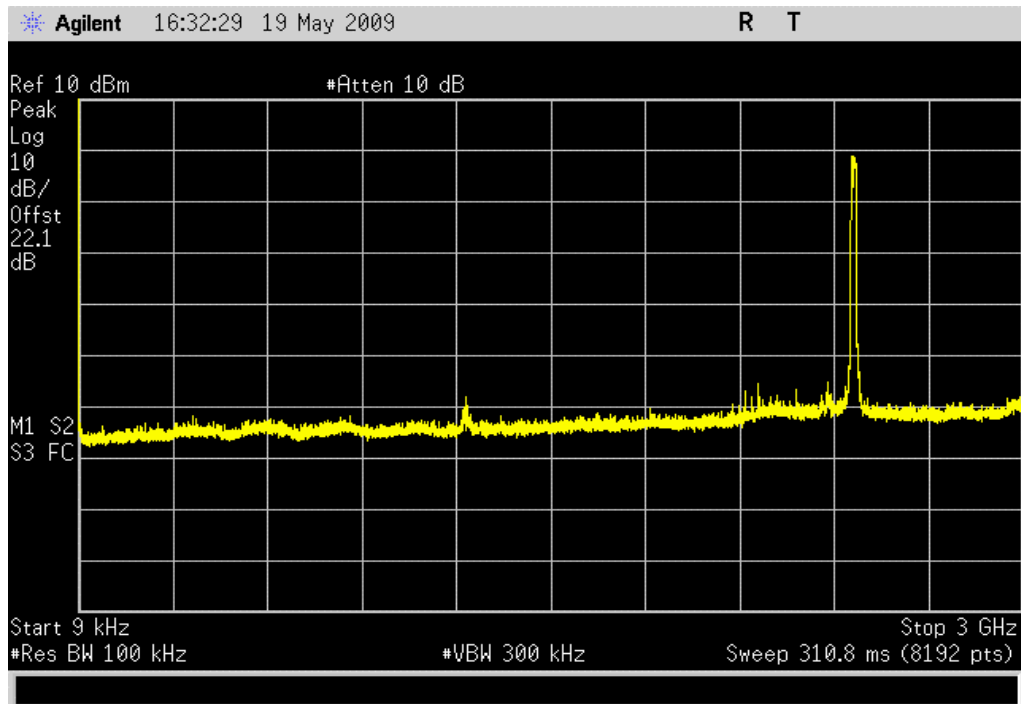
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, High Channel, 0 - 3 GHz

Result: Pass

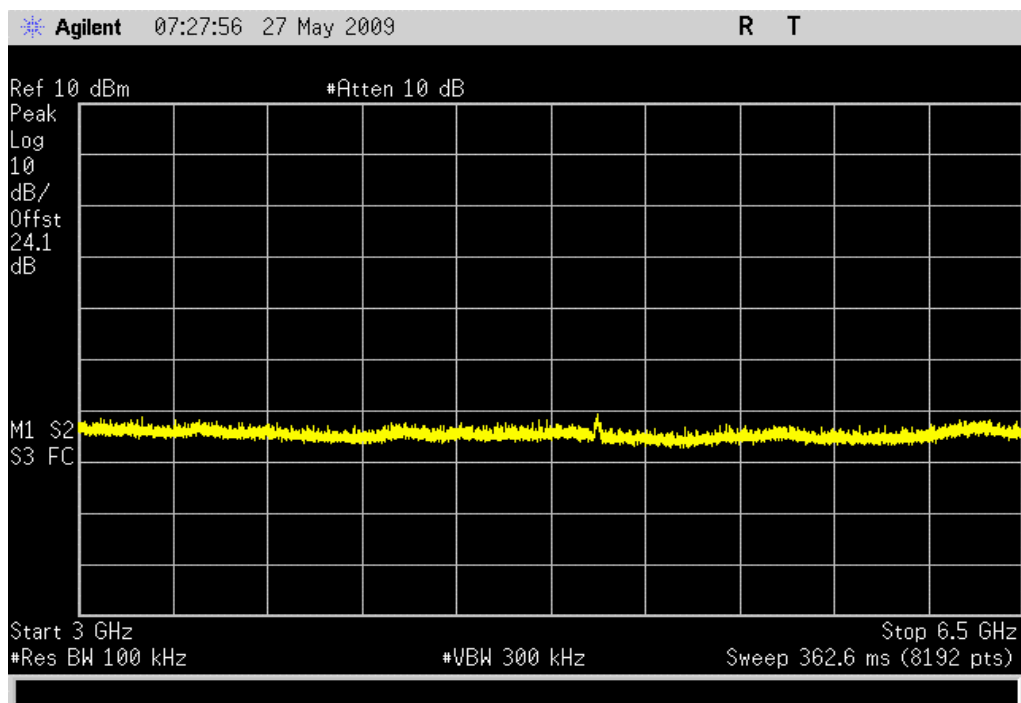
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, High Channel, 3 - 6.5 GHz

Result: Pass

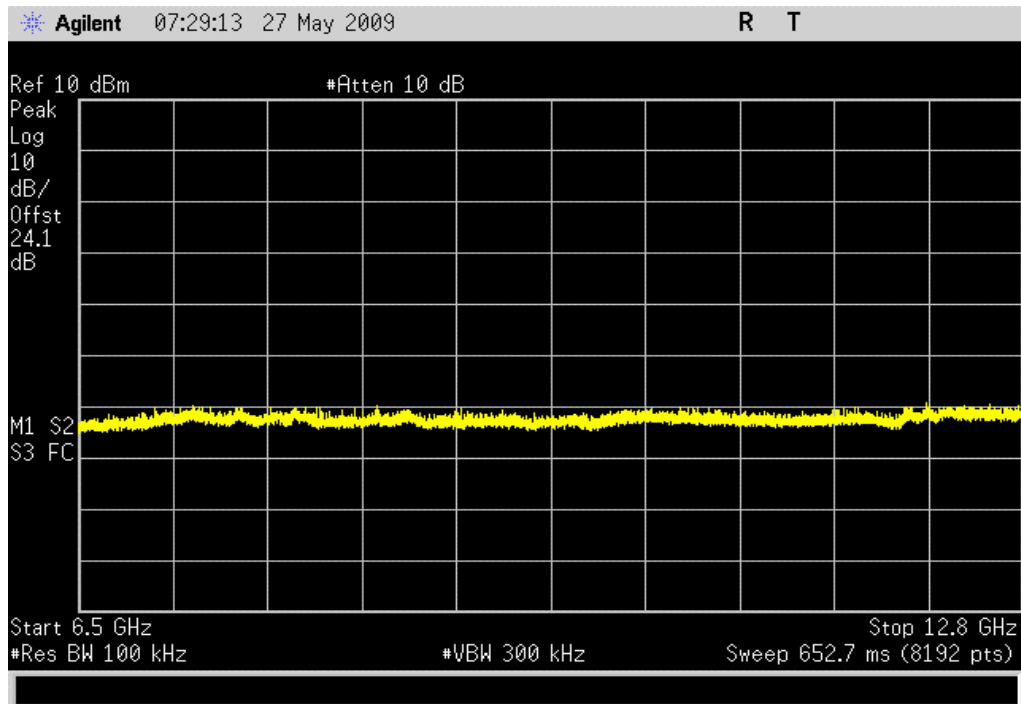
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, High Channel, 6.5 - 12.8 GHz

Result: Pass

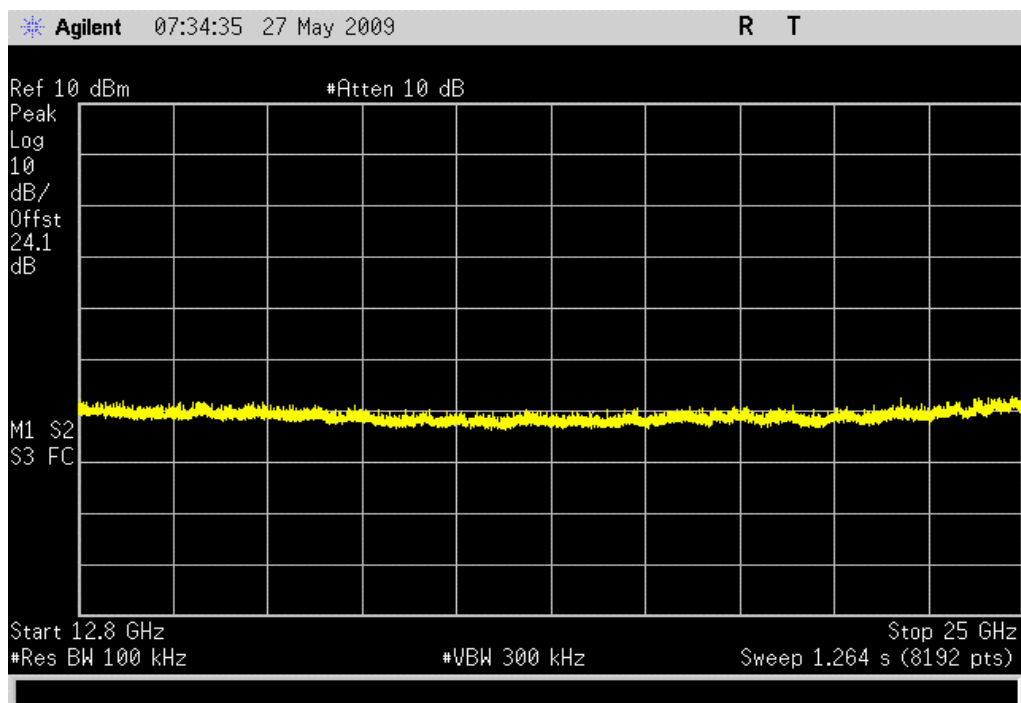
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 36 Mbps, High Channel, 12.8 - 25 GHz

Result: Pass

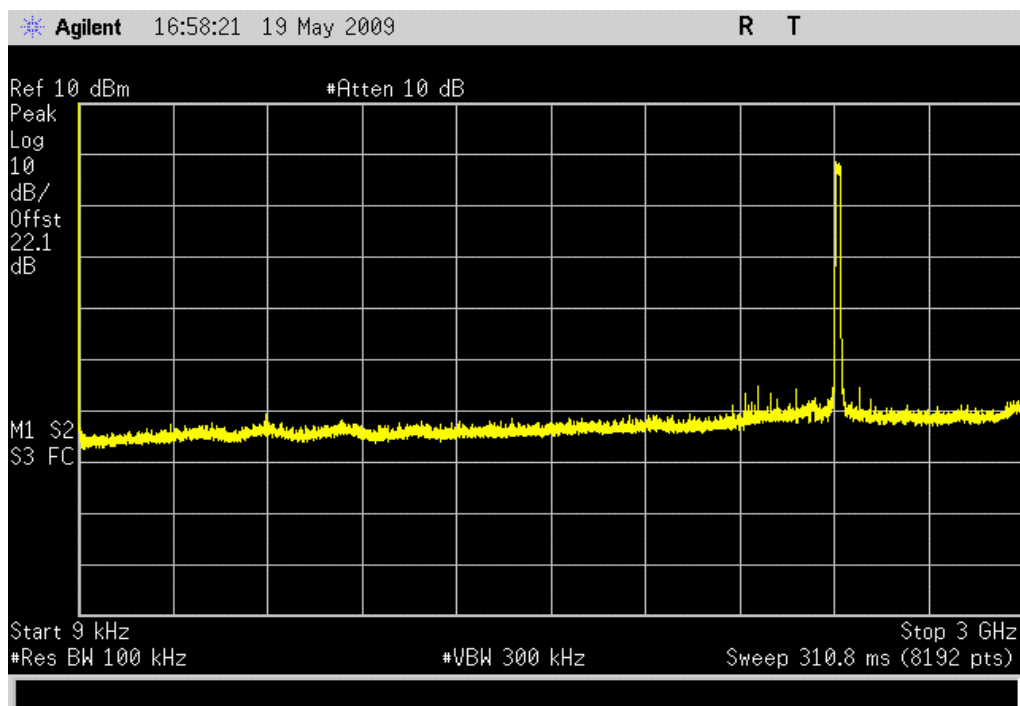
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Low Channel, 0 - 3 GHz

Result: Pass

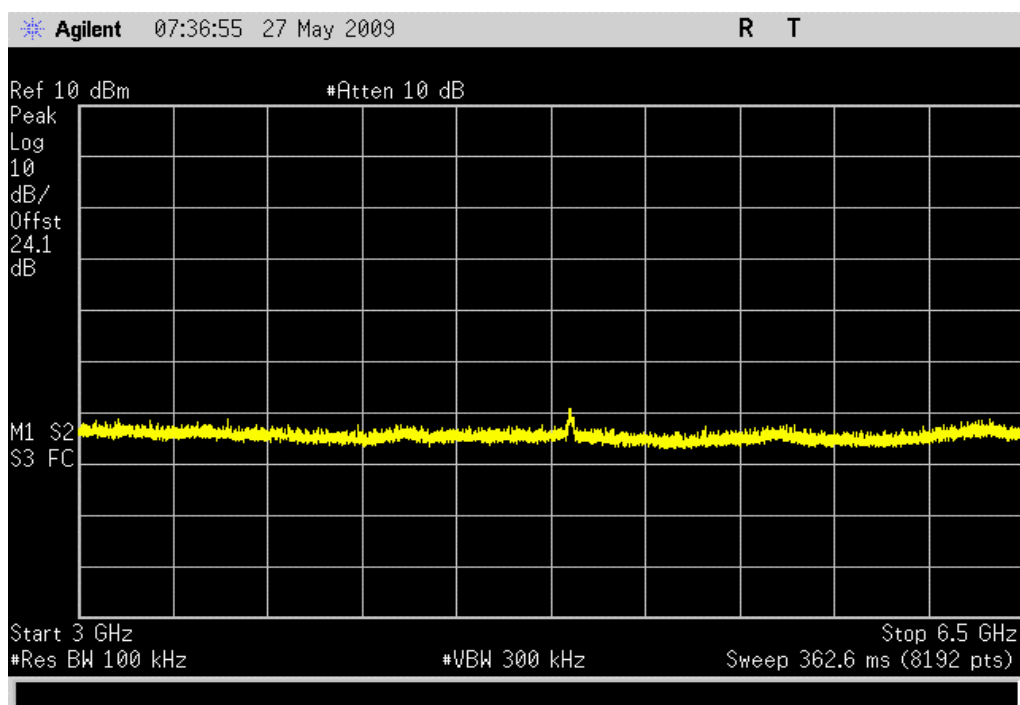
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Low Channel, 3 - 6.5 GHz

Result: Pass

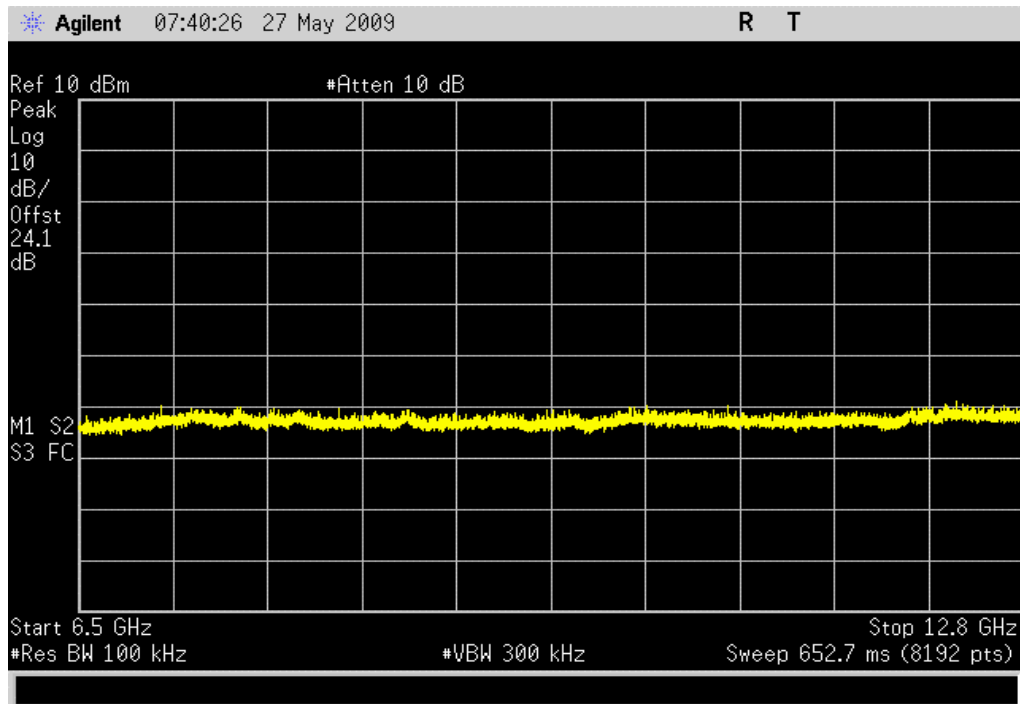
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Low Channel, 6.5 - 12.8 GHz

Result: Pass

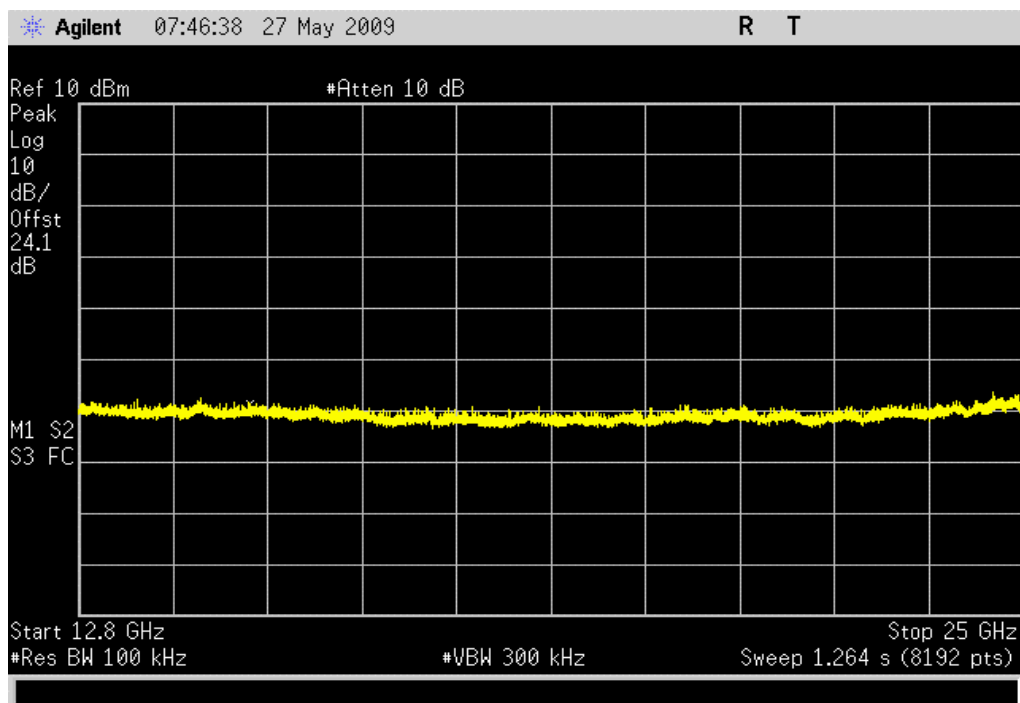
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Low Channel, 12.8 - 25 GHz

Result: Pass

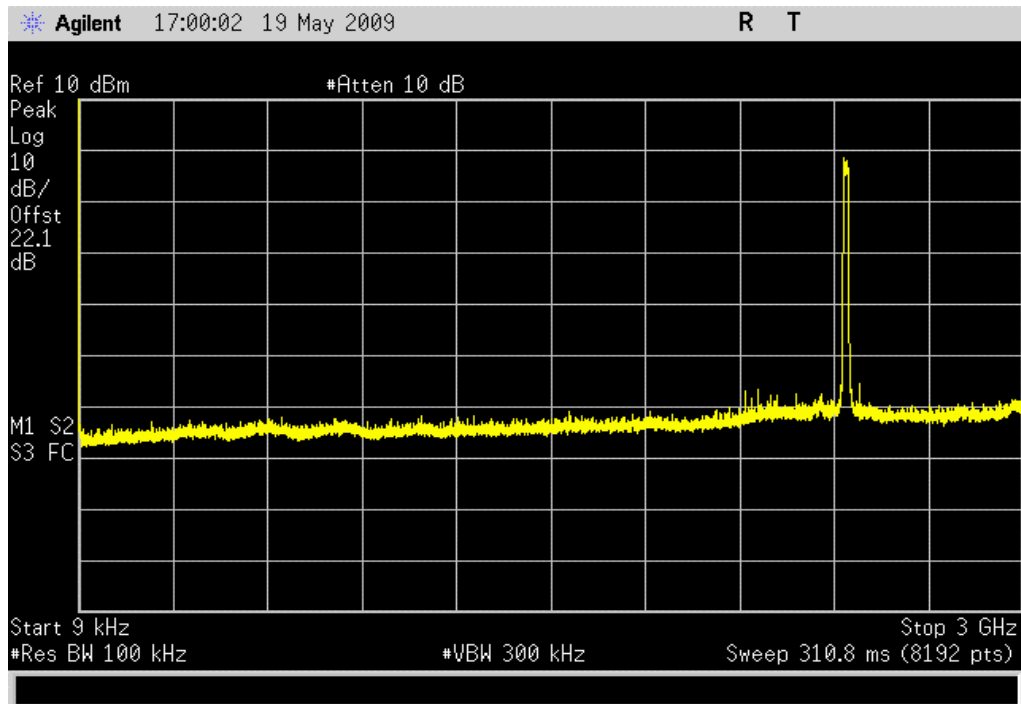
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Mid Channel, 0 - 3 GHz

Result: Pass

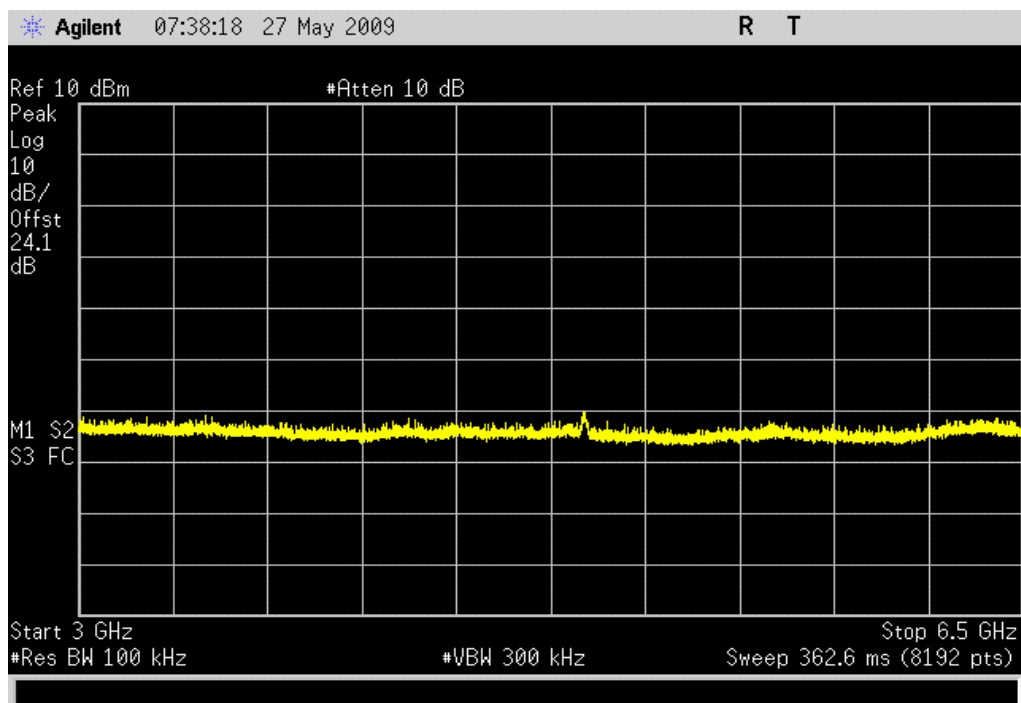
Value: < -40 dBc

Limit: $\leq$ -20 dBc

802.11(g) 54 Mbps, Mid Channel, 3 - 6.5 GHz

Result: Pass

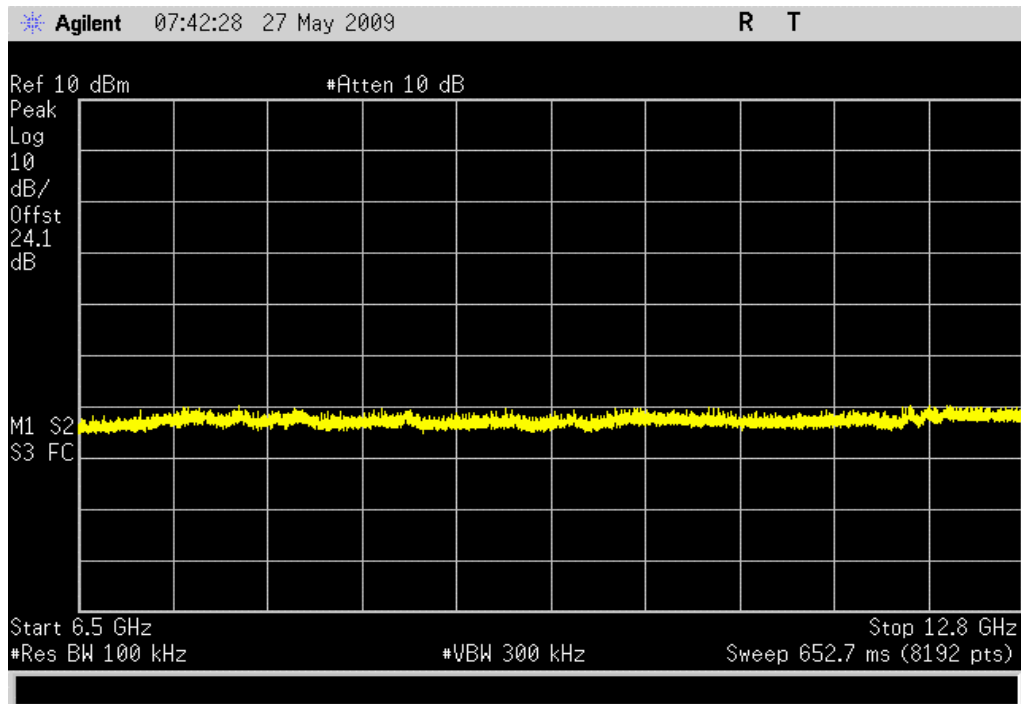
Value: < -40 dBc

Limit: $\leq$ -20 dBc

802.11(g) 54 Mbps, Mid Channel, 6.5 - 12.8 GHz

Result: Pass

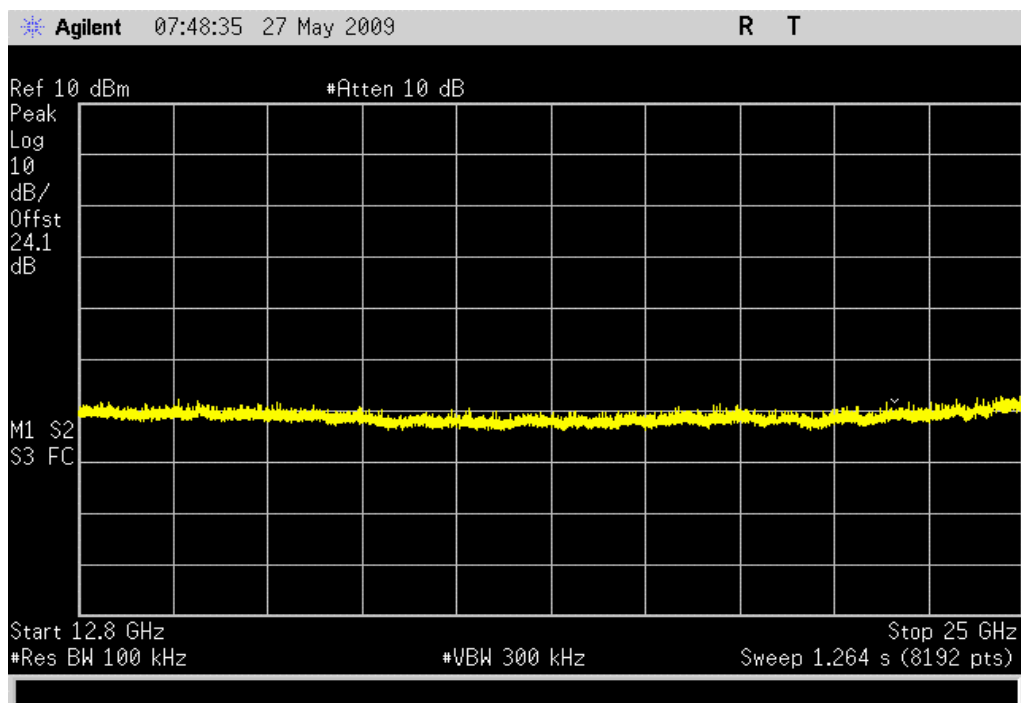
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, Mid Channel, 12.8 - 25 GHz

Result: Pass

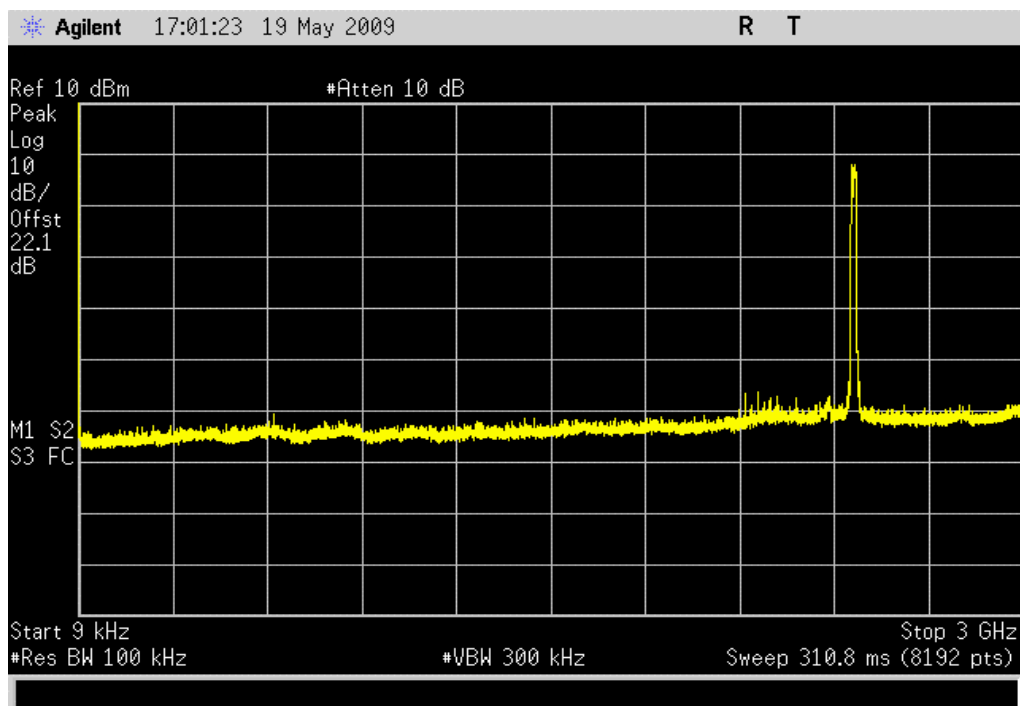
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, High Channel, 0 - 3 GHz

Result: Pass

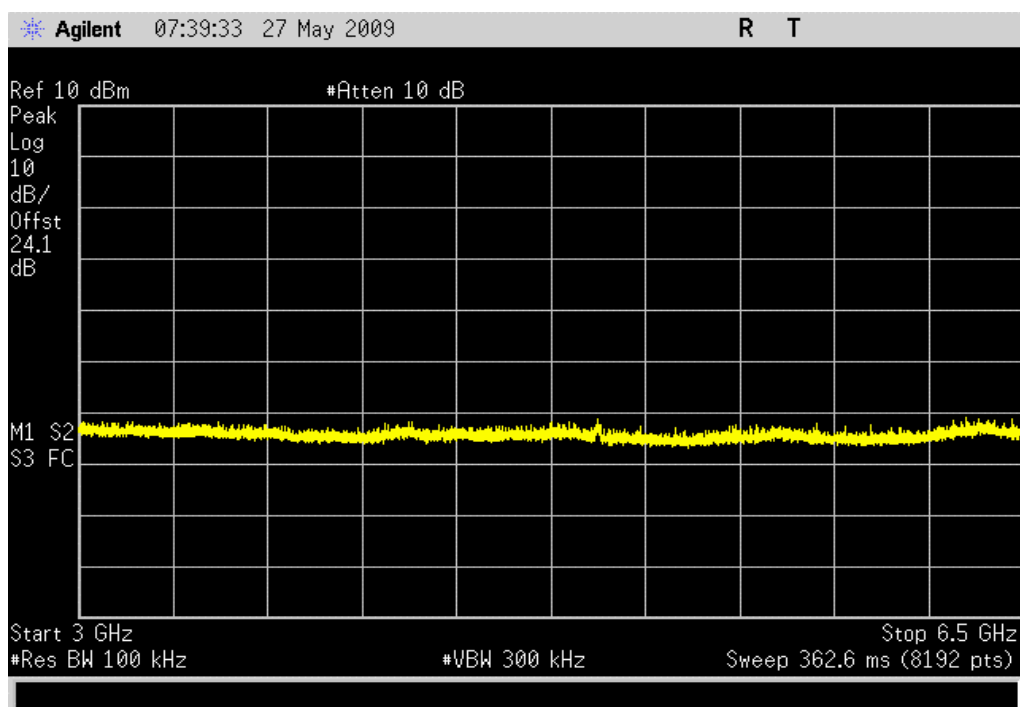
Value: < 40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, High Channel, 3 - 6.5 GHz

Result: Pass

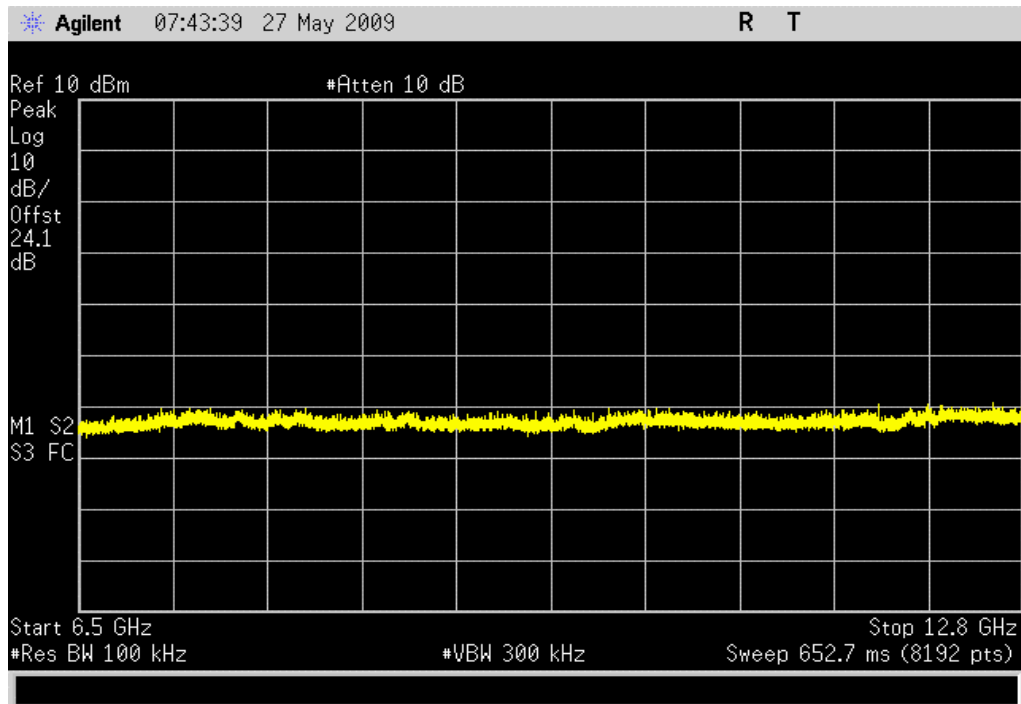
Value: < -40 dBc

Limit: ≤ -20 dBc

802.11(g) 54 Mbps, High Channel, 6.5 - 12.8 GHz

Result: Pass

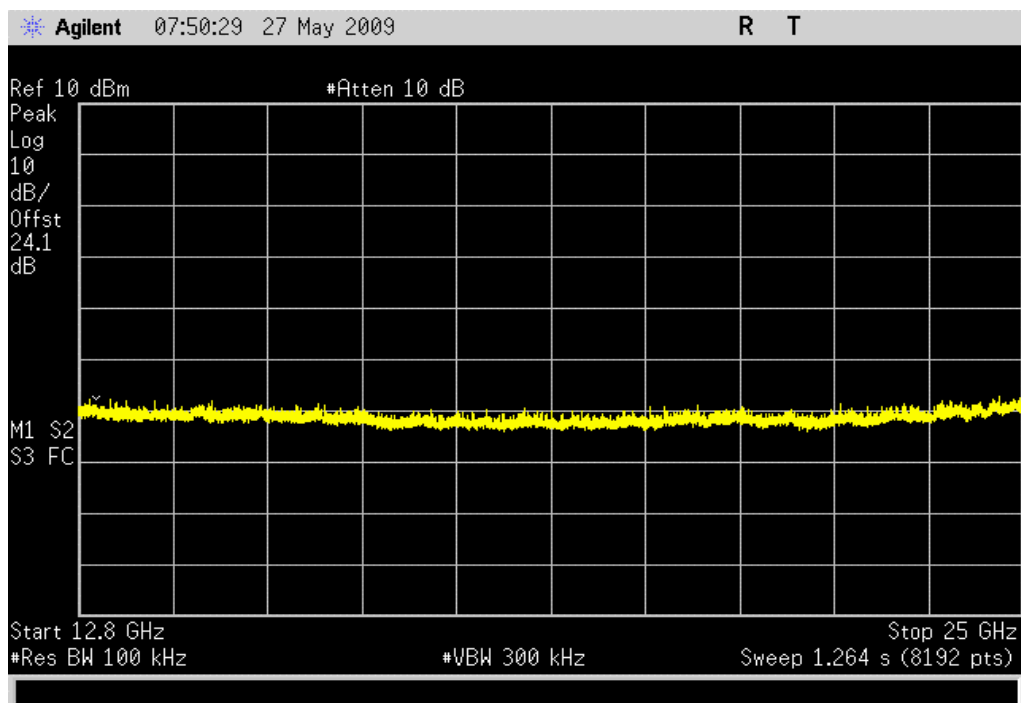
Value: < -40 dBc

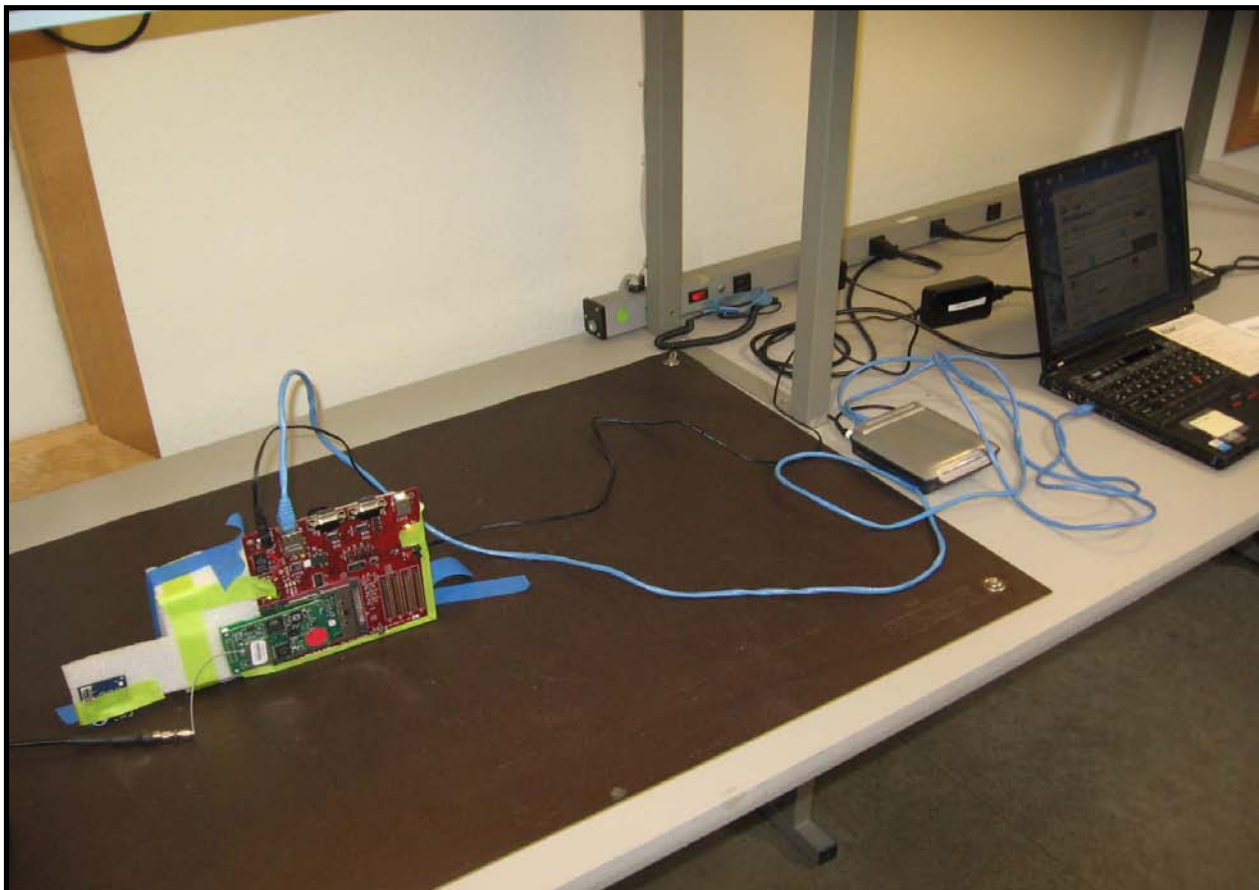
Limit: ≤ -20 dBc

802.11(g) 54 Mbps, High Channel, 12.8 - 25 GHz

Result: Pass

Value: < -40 dBc

Limit: ≤ -20 dBc



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
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/10/2008	13
Power Sensor	Gigatronics	80701A	SPL	12/10/2008	13
Pre-Amplifier (FOR REFERENCE ONLY)	Hewlett-Packard	83017A	APL	NCR	0
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	13

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 16-4-2. 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 peak power spectral density measurements were measured with the EUT set the required transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the lowest, middle, and maximum data rate for each modulation type available. Per the procedure outlined in FCC KDB 558074, March 23, 2005, the spectrum analyzer was used as follows:

The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

EMC

POWER SPECTRAL DENSITY

EUT:	Lamarr2	Work Order:	PROT0309
Serial Number:	000B28004C5C	Date:	05/19/09
Customer:	Welch Allyn Protocol, Inc.	Temperature:	22°C
Attendees:	Steve Baker	Humidity:	39%
Project:	None	Barometric Pres.:	29.85 In
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2009	ANSI C63.4:2003 KDB No. 558074

COMMENTS

Operated in a continuous TX mode with the test software power values called out in the 'Peak Output Power' data sheet located elsewhere in this report.

DEVIATIONS FROM TEST STANDARD

No deviations

Configuration #	2	Signature 
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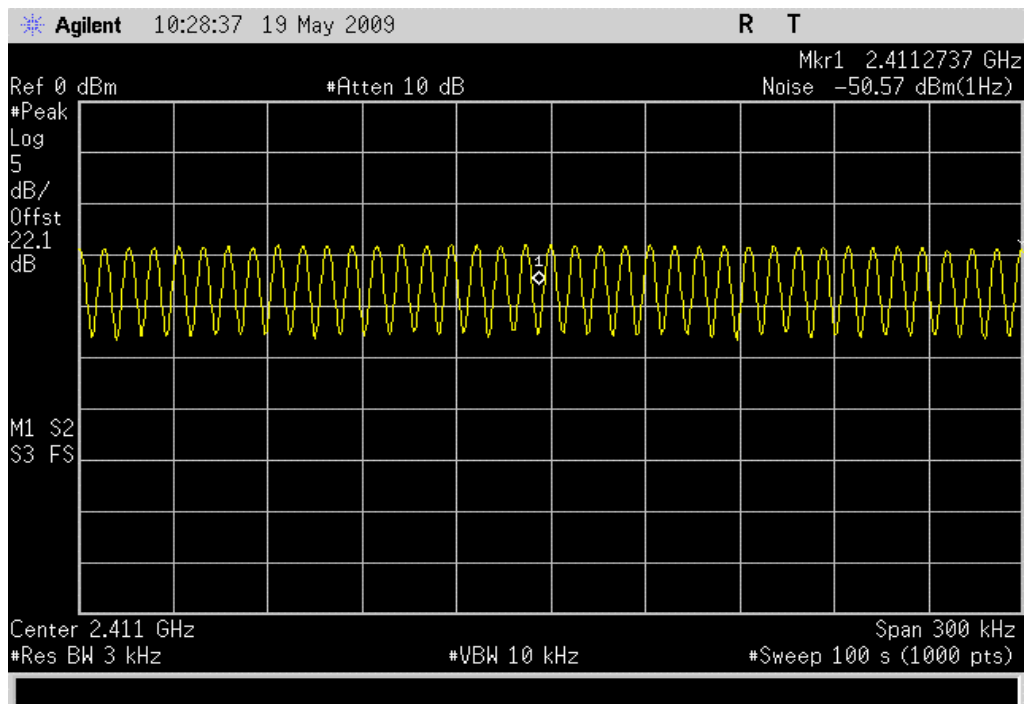
		Value	Limit	Results
802.11(b) 1 Mbps	Low Channel	-15.77 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-15.32 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-14.95 dBm / 3 kHz	8 dBm / 3 kHz	Pass
802.11(b) 11 Mbps	Low Channel	-10.37 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-10.03 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-9.68 dBm / 3 kHz	8 dBm / 3 kHz	Pass
802.11(g) 6 Mbps	Low Channel	-18.74 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-18.28 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-18.40 dBm / 3 kHz	8 dBm / 3 kHz	Pass
802.11(g) 36 Mbps	Low Channel	-17.05 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-17.66 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-17.95 dBm / 3 kHz	8 dBm / 3 kHz	Pass
802.11(g) 54 Mbps	Low Channel	-17.51 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-17.77 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-18.16 dBm / 3 kHz	8 dBm / 3 kHz	Pass

802.11(b) 1 Mbps, Low Channel

Result: Pass

Value: -15.77 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

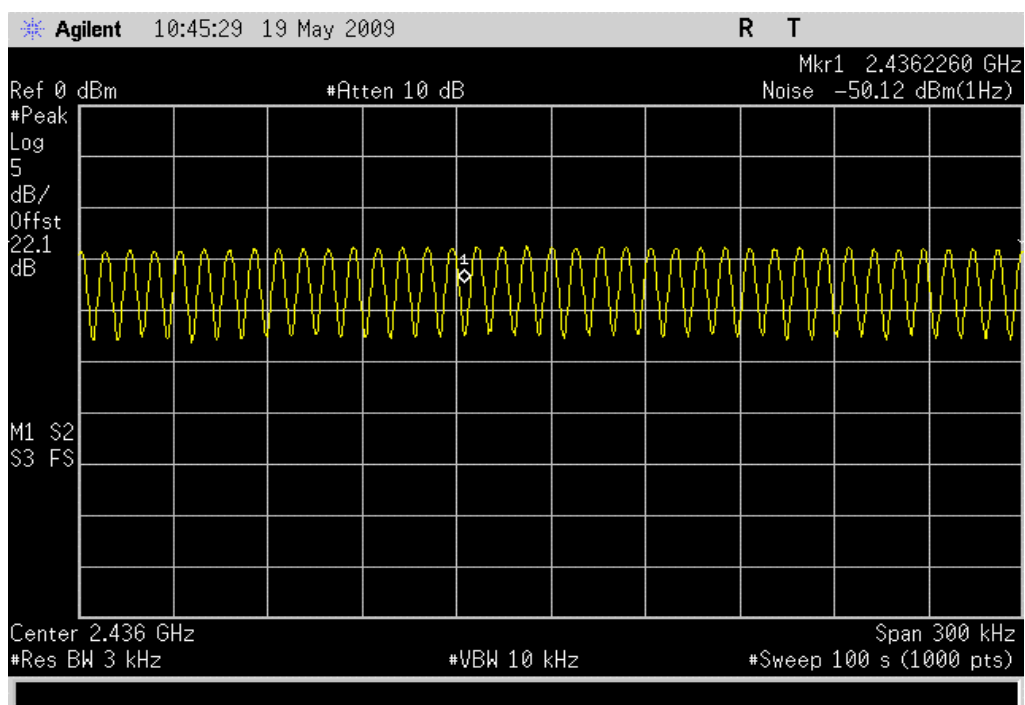


802.11(b) 1 Mbps, Mid Channel

Result: Pass

Value: -15.32 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

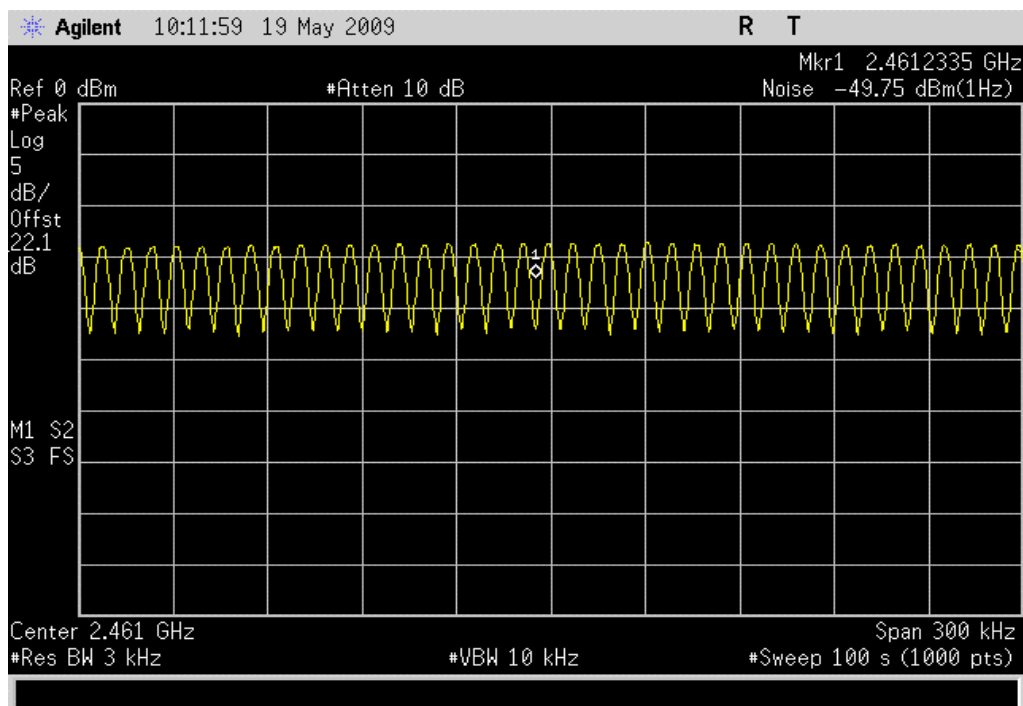


802.11(b) 1 Mbps, High Channel

Result: Pass

Value: -14.95 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

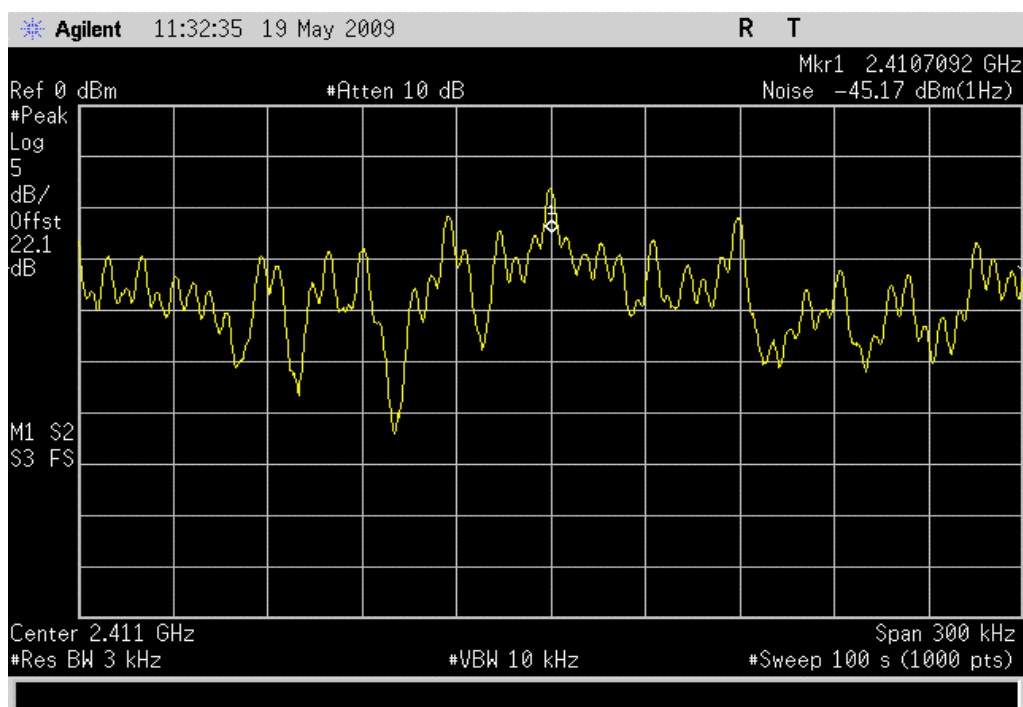


802.11(b) 11 Mbps, Low Channel

Result: Pass

Value: -10.37 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

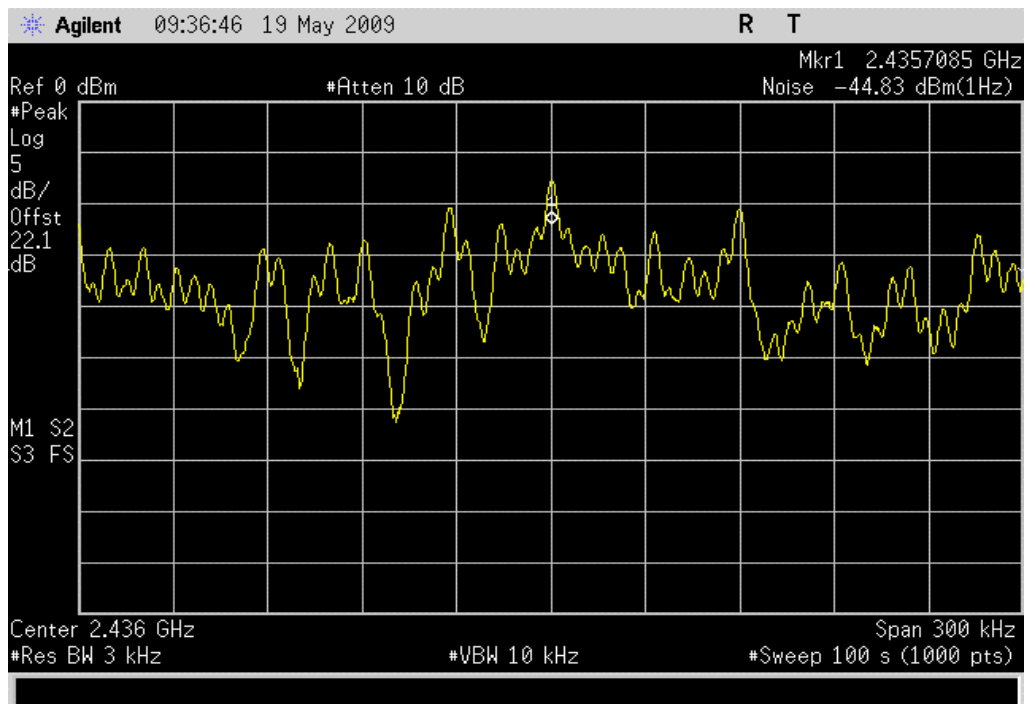


802.11(b) 11 Mbps, Mid Channel

Result: Pass

Value: -10.03 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

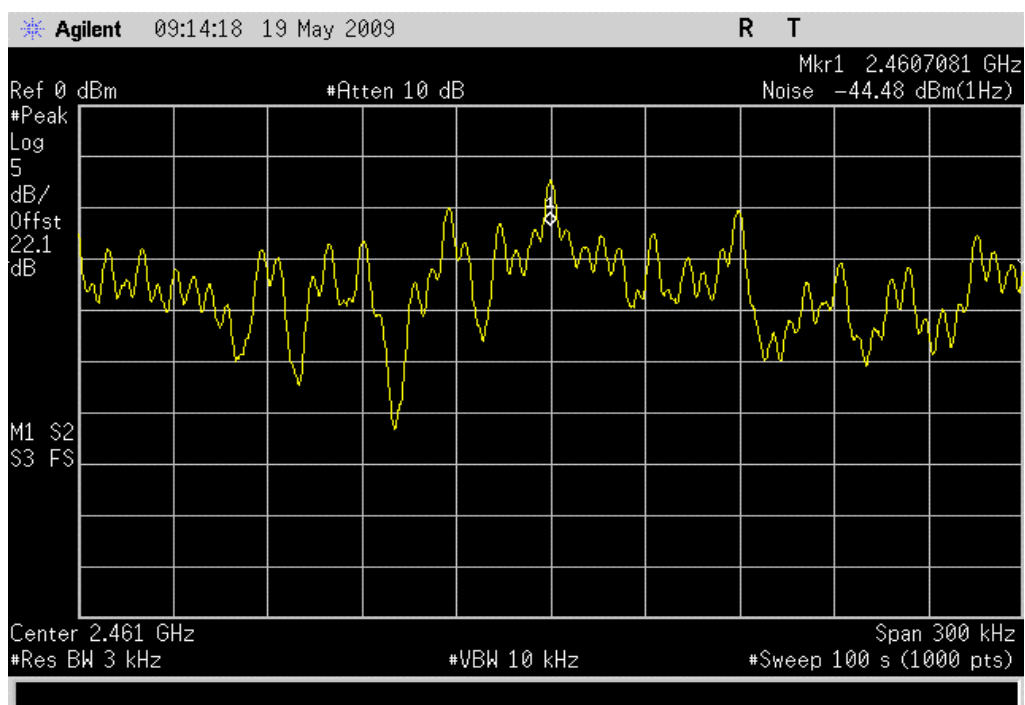


802.11(b) 11 Mbps, High Channel

Result: Pass

Value: -9.68 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

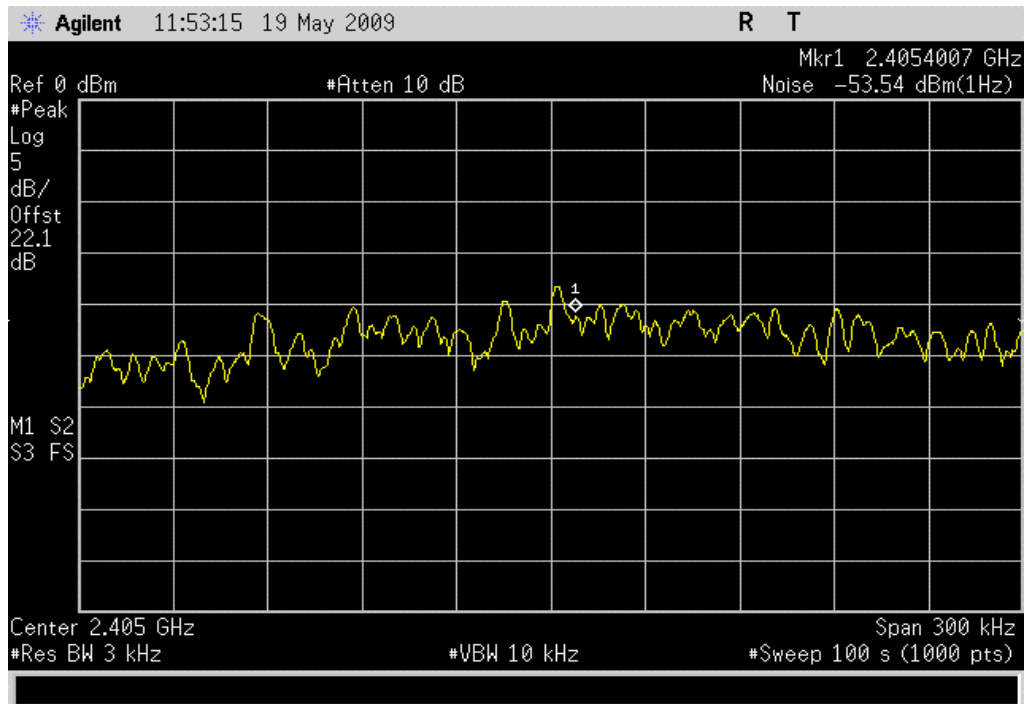


802.11(g) 6 Mbps, Low Channel

Result: Pass

Value: -18.74 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

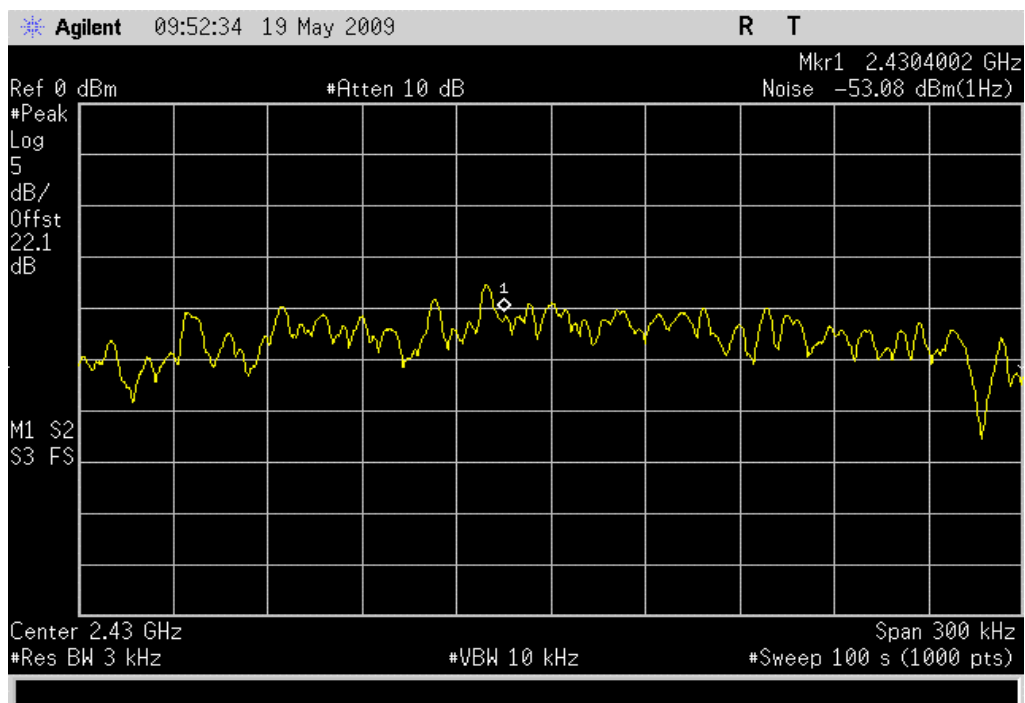


802.11(g) 6 Mbps, Mid Channel

Result: Pass

Value: -18.28 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

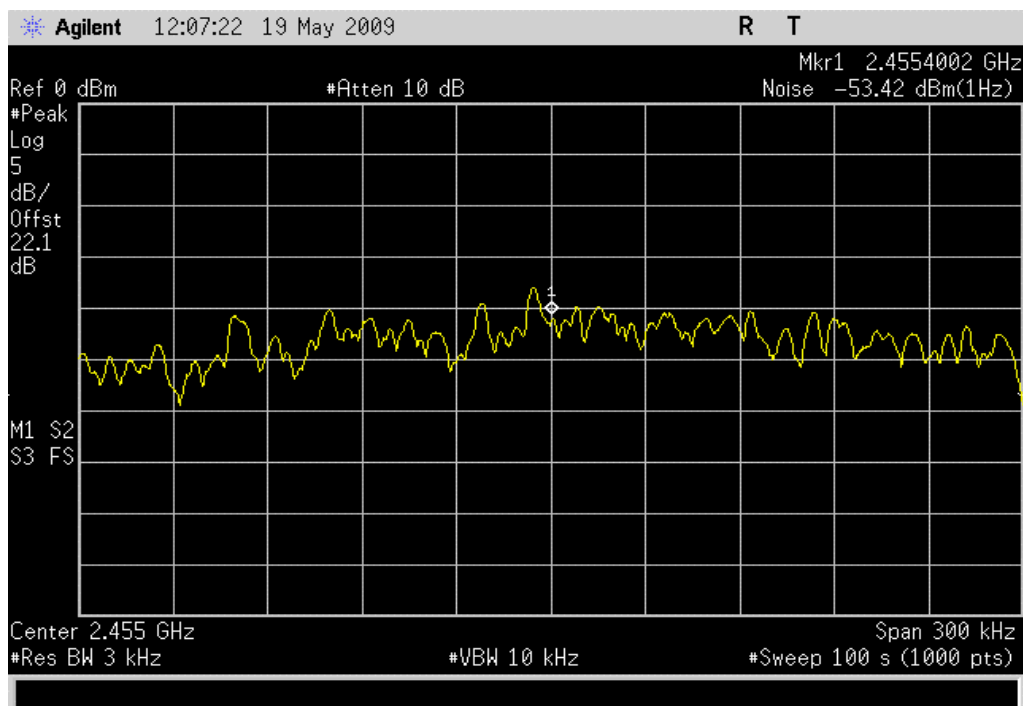


802.11(g) 6 Mbps, High Channel

Result: Pass

Value: -18.40 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

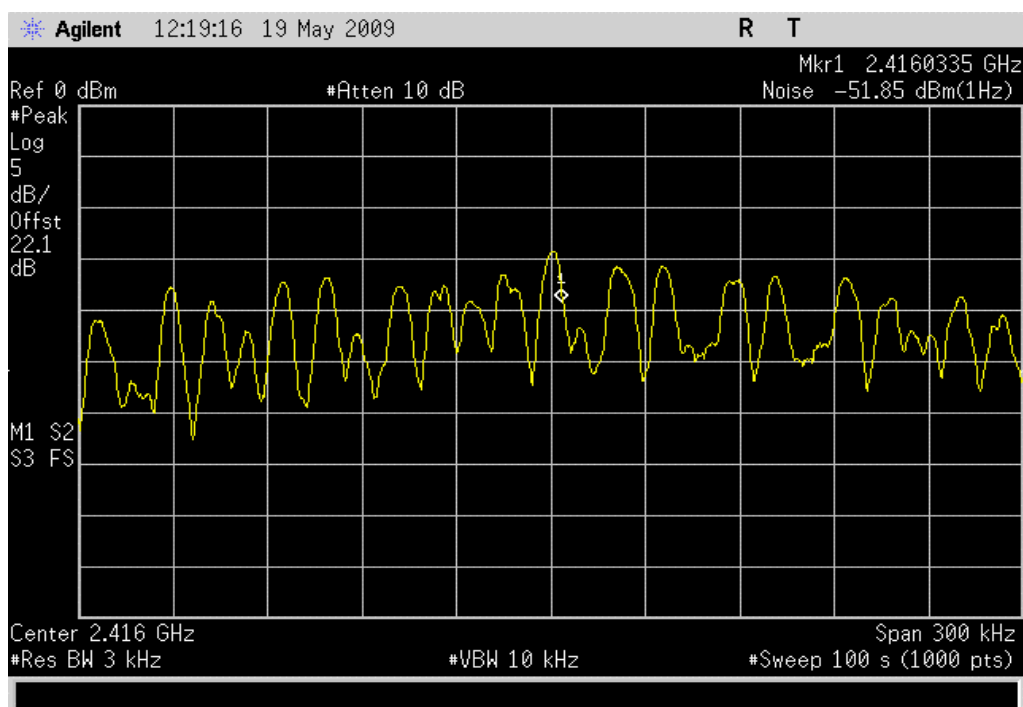


802.11(g) 36 Mbps, Low Channel

Result: Pass

Value: -17.05 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

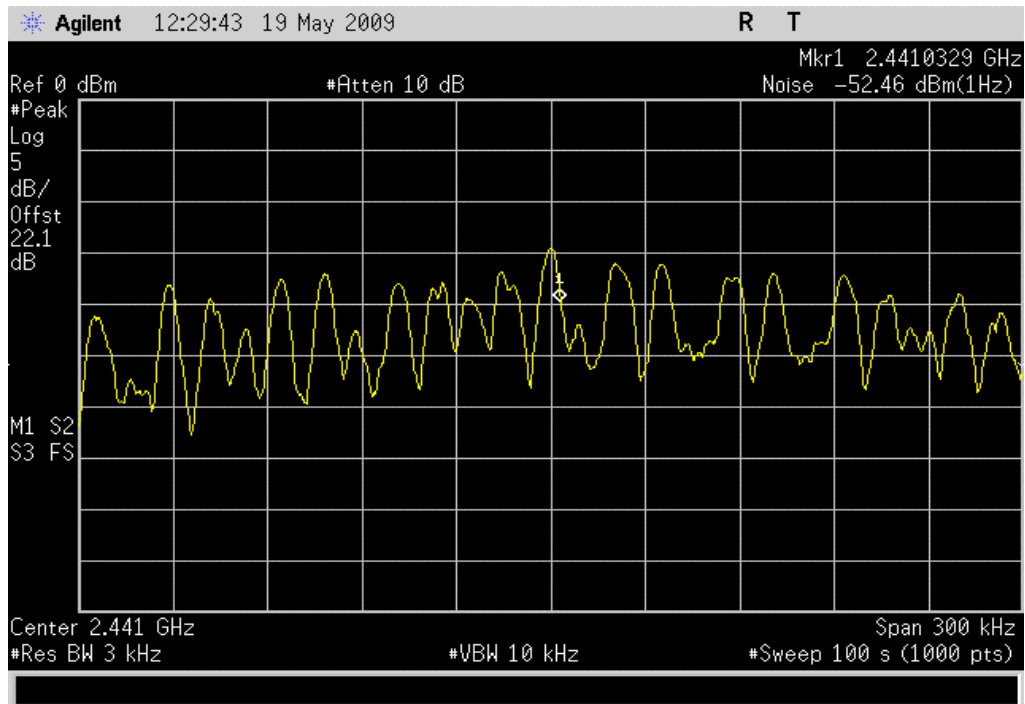


802.11(g) 36 Mbps, Mid Channel

Result: Pass

Value: -17.66 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

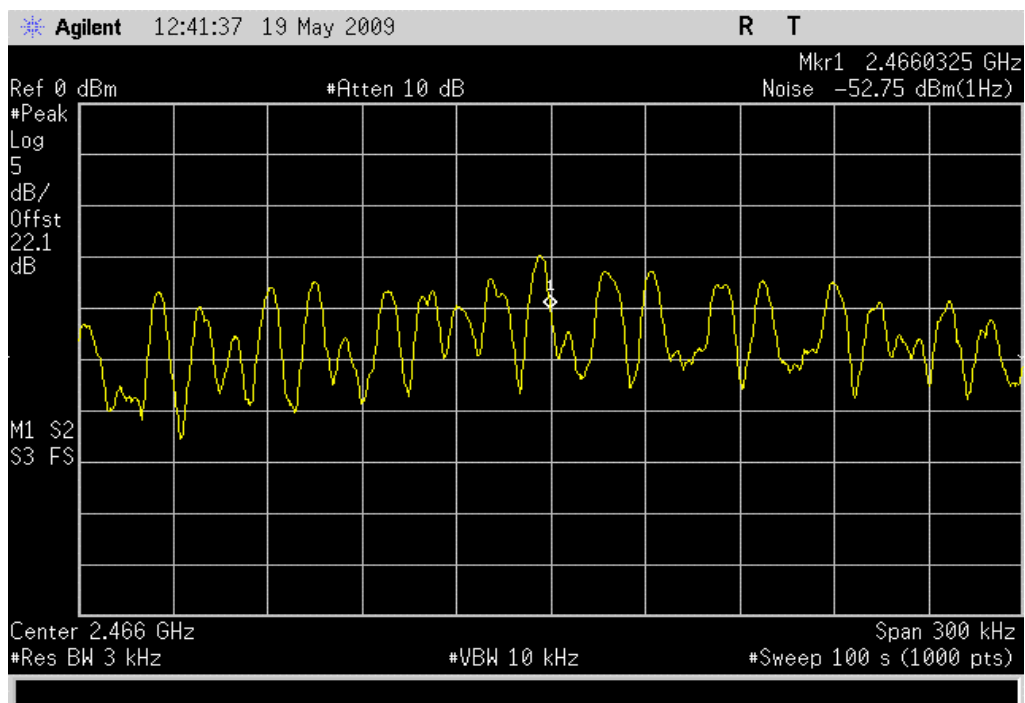


802.11(g) 36 Mbps, High Channel

Result: Pass

Value: -17.95 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

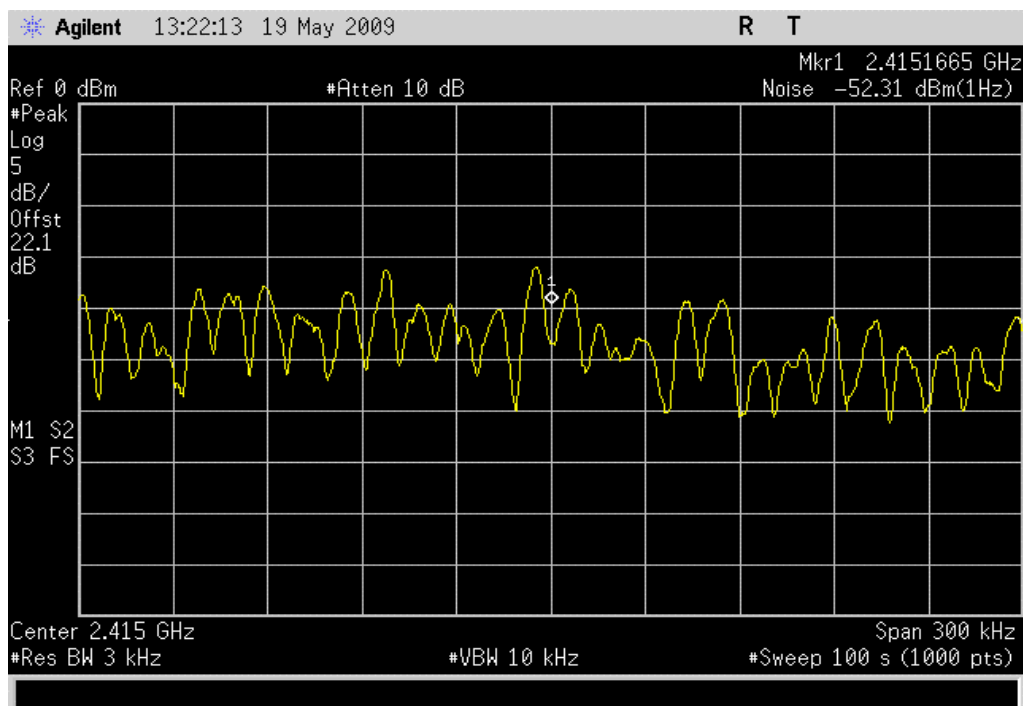


802.11(g) 54 Mbps, Low Channel

Result: Pass

Value: -17.51 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

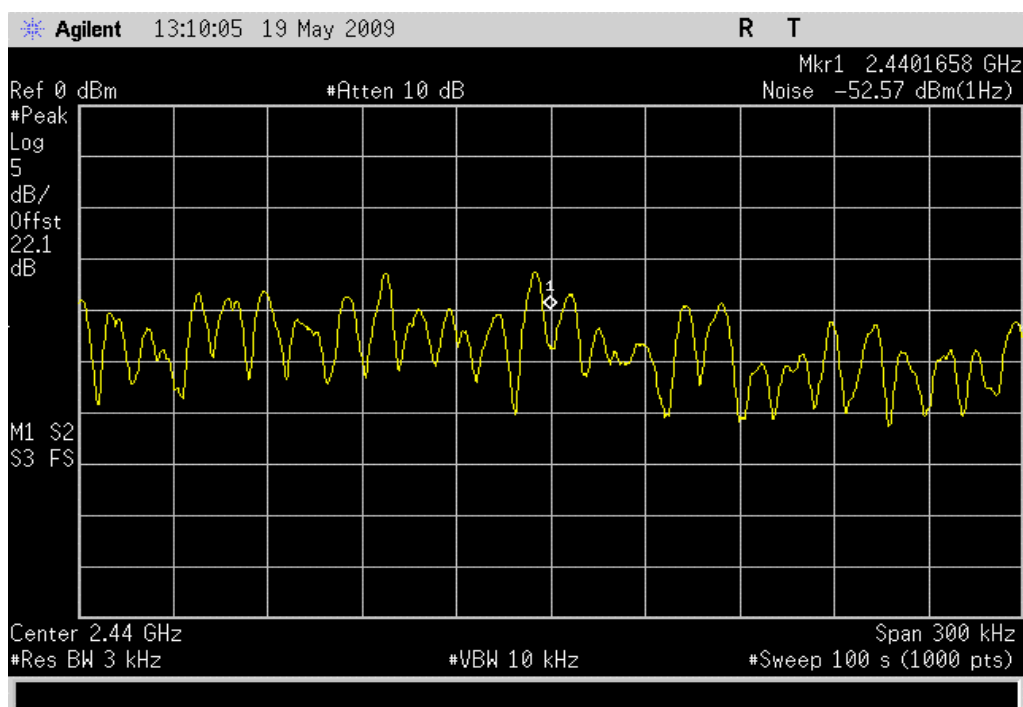


802.11(g) 54 Mbps, Mid Channel

Result: Pass

Value: -17.77 dBm / 3 kHz

Limit: 8 dBm / 3 kHz



802.11(g) 54 Mbps, High Channel

Result: Pass

Value: -18.16 dBm / 3 kHz

Limit: 8 dBm / 3 kHz

