Summit Semiconductor LLC

444-2251

FCC 15.207:2014
FCC 15.209:2014
FCC 15.247:2014

Report #: FOCU0169.3

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

Last Date of Test: June 16, 2014
Summit Semiconductor LLC
Model: 444-2251

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2014	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2014	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2014	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2014	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.209:2014	ANSI C63.10:2009	Pass
Powerline Conducted Emissions	FCC 15.207:2014	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:

Kyle Holgate, Operations 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 HISTORY

REV 2012.08.02

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

NORTHWEST EMC
REV 2012.05.24

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC Guide 65 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

IC - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

European Union

European Commission – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

KCC / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Hong Kong

OFTA – Recognized by OFTA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

SCOPE

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

NORTHWEST EMC
REV 2012.05.24

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SCOPE

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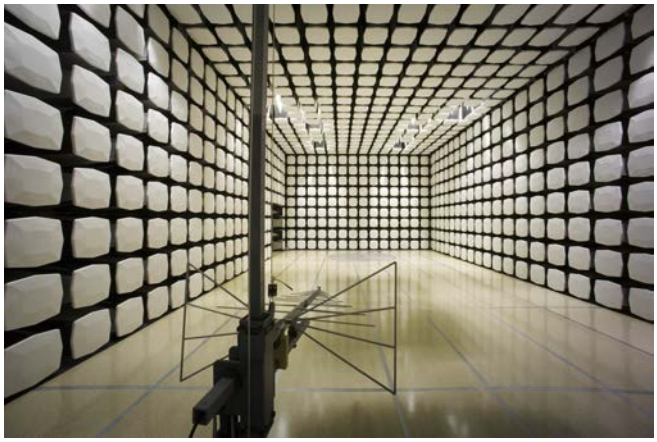
FACILITIES

REV 2013.06.28

Oregon	California	New York	Minnesota	Washington
Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Labs NC01-05,SU02,SU07 19201 120th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-*2*	2834B-1, 2834B-2, 2834B-3		2834E-1	2834F-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Summit Semiconductor LLC
Address:	22867 NW Bennett St, Suite 200
City, State, Zip:	Hillsboro, OR 97124
Test Requested By:	Paul Hamilton
Model:	444-2251
First Date of Test:	June 11, 2014
Last Date of Test:	June 16, 2014
Receipt Date of Samples:	June 09, 2014
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
This is a Master device; it has 1 antenna, no diversity, and a monitor radio that shares the antenna with the working radio.

Testing Objective:
To demonstrate compliance under FCC 15.247 for operation in the 5.8 GHz band.

CONFIGURATIONS

Configuration FOCU0169- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Digital Wireless Master Module	Summit Semiconductor LLC	444-2251	02EA4F000062

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Glenwood-Bridge	Summit Semiconductor LLC	088R104	None
Laptop Computer Direct Connect	Dell	Latitude E5540	61FHTY1
AC/DC Adapter (DELL)	Dell	DPN-6C3W2	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB to Serial Adapter	Yes	1m	No	Glenwood-Bridge	Laptop
DC Power Cable	No	1.4m	Yes	Glenwood-Bridge	AC/DC Power Adapter
AC Power Cable x2	No	.9m	No	AC/DC Power Adapter	AC Mains
DC Power Cable	No	1.2m	Yes	Laptop	AC/DC Power Adapter

Configuration FOCU0169- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Digital Wireless Master Module	Summit Semiconductor LLC	444-2251	02EA4F000062

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Glenwood-Bridge	Summit Semiconductor LLC	088R104	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB to Serial Adapter	Yes	1m	No	Glenwood-Bridge	Laptop
DC Power Cable	No	1.4m	Yes	Glenwood-Bridge	AC/DC Power Adapter
AC Power Cable	No	.9m	No	AC/DC Power Adapter	AC Mains

CONFIGURATIONS

Configuration FOCU0169- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Digital Wireless Master Module	Summit Semiconductor LLC	444-2251	02EA4F000062

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Glenwood-Bridge	Summit Semiconductor LLC	088R104	None
AC/DC Adapter (DELL)	Dell	DPN-6C3W2	None
Laptop Computer Radiated	Dell	PP04X	CN-0HN341-48643-79E-0502
Ethernet Hub	D-Link	DGS-2205	P1BH481000045

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB to Serial Adapter	Yes	1m	No	Glenwood-Bridge	Laptop
DC Power Cable	No	1.2m	Yes	Laptop	AC/DC Power Adapter
AC Power Cable	No	.9m	No	AC/DC Power Adapter	AC Mains
Ethernet	No	1m	No	Laptop	Ethernet Hub
DC Power Cable	No	2m	No	Glenwood-Bridge	DC Power Supply

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	6/11/2014	Duty Cycle	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	6/11/2014	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.
3	6/11/2014	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.
4	6/11/2014	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.
5	6/11/2014	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.
6	6/11/2014	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	6/12/2014	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.
8	6/16/2014	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE

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
40GHz DC Block	Miteq	DCB4000	AMD	4/28/2014	12 mo
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo

TEST DESCRIPTION

The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in this report to only measure during the burst duration.

DUTY CYCLE

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

None

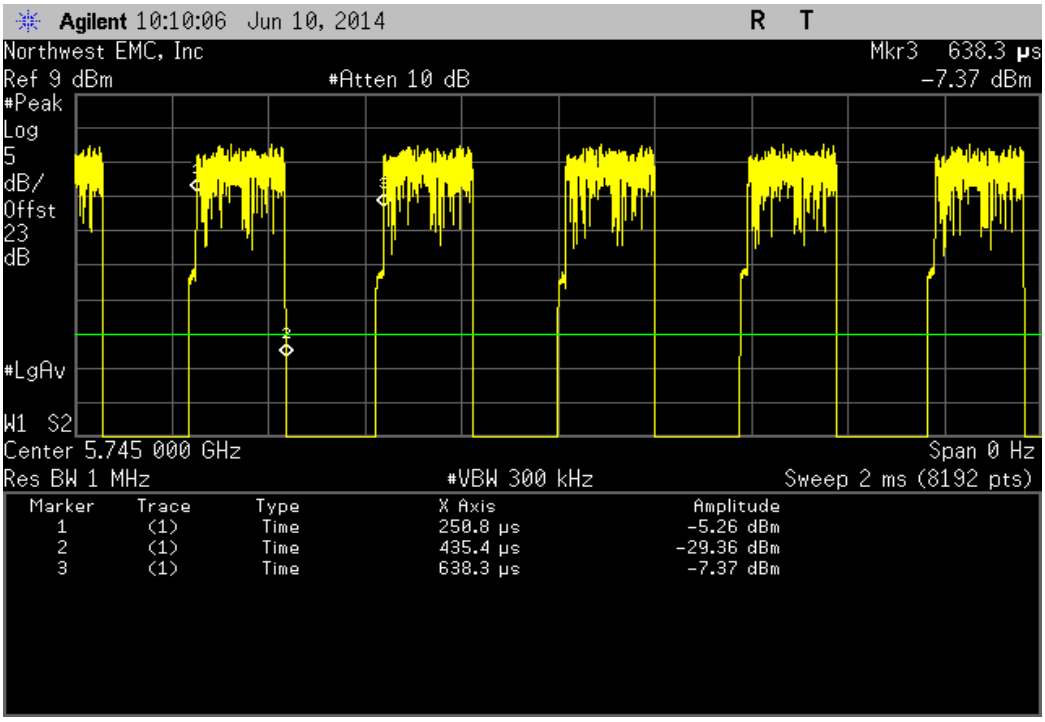
Configuration #	1	Signature 

		Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
802.11(a) 6 Mbps							
	Low Channel 149, 5745MHz	184.6 uS	387.5 uS	1	47.6	N/A	N/A
	Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	184.6 uS	377 uS	1	49	N/A	N/A
	Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 165, 5825MHz	184.8 uS	378.5 uS	1	48.8	N/A	N/A
	High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 18 Mbps							
	Low Channel 149, 5745MHz	72.8 uS	278.9 uS	1	26.1	N/A	N/A
	Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	73 uS	279.1 uS	1	26.2	N/A	N/A
	Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 165, 5825MHz	73.1 uS	278.9 uS	1	26.2	N/A	N/A
	High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps							
	Low Channel 149, 5745MHz	44.9 uS	253.7 uS	1	17.7	N/A	N/A
	Low Channel 149, 5745MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	45.2 uS	254.9 uS	1	17.7	N/A	N/A
	Mid Channel 157, 5785MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 165, 5825MHz	44.9 uS	253.7 uS	1	17.7	N/A	N/A
	High Channel 165, 5825MHz	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE

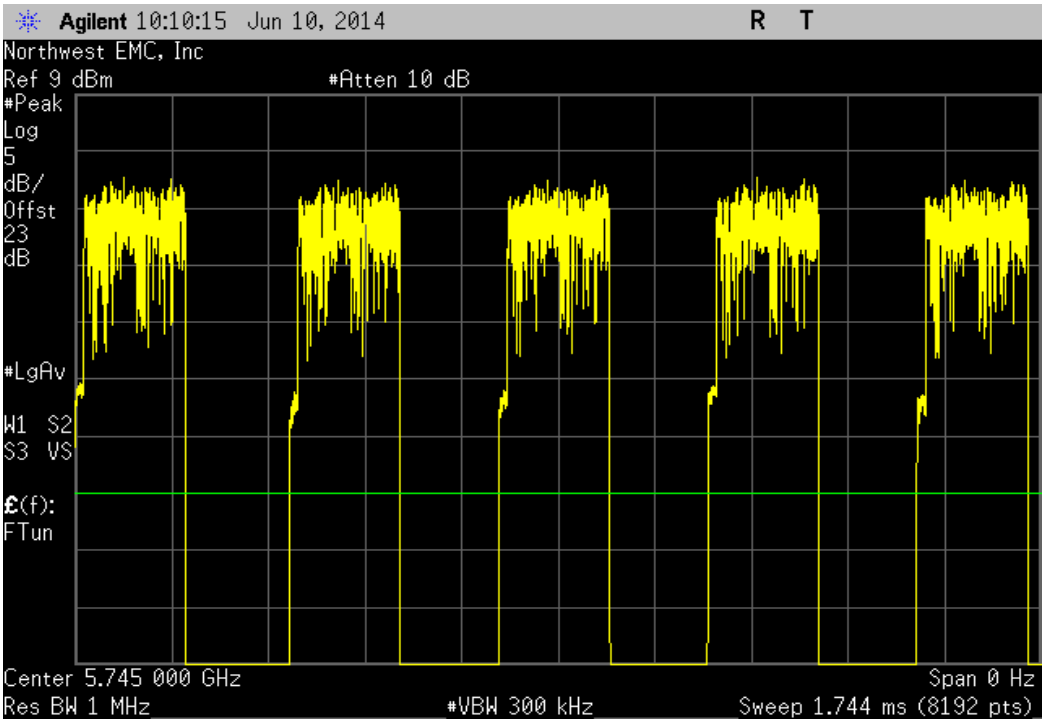
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
184.6 uS	387.5 uS	1	47.6	N/A	N/A



802.11(a) 6 Mbps, Low Channel 149, 5745MHz

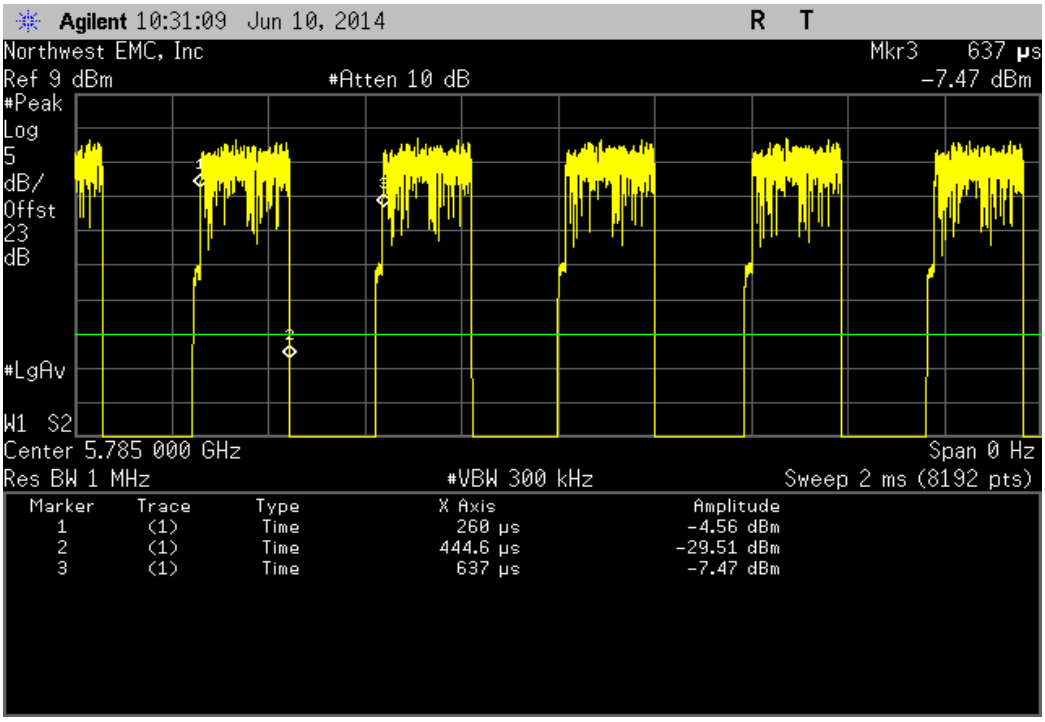
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A



DUTY CYCLE

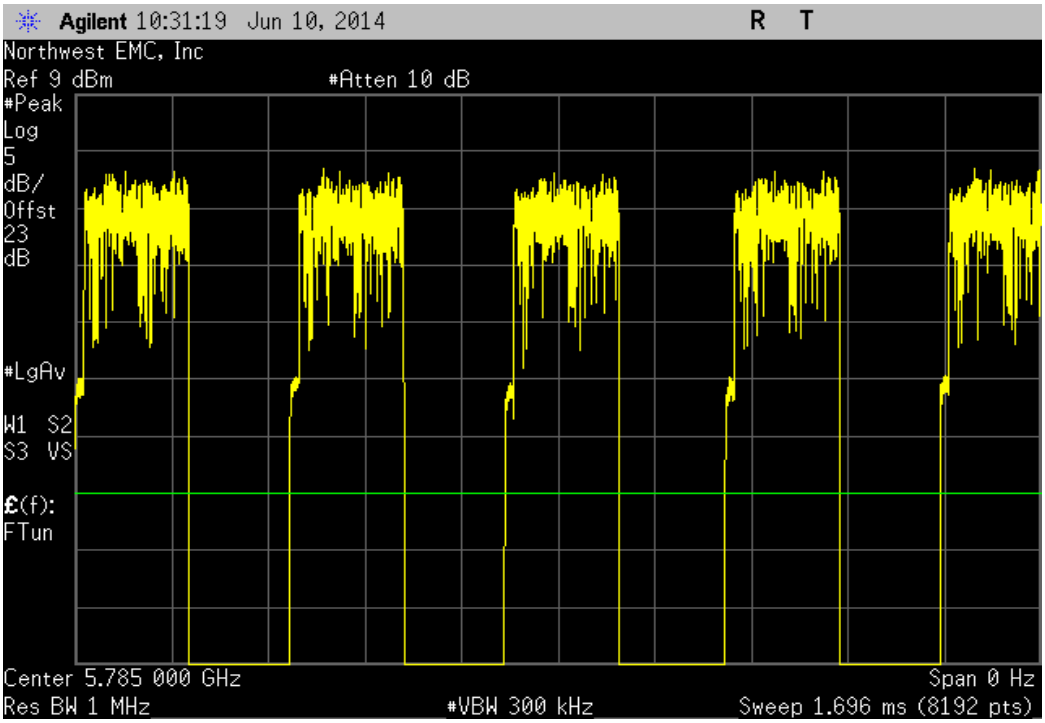
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
184.6 uS	377 uS	1	49	N/A	N/A



802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

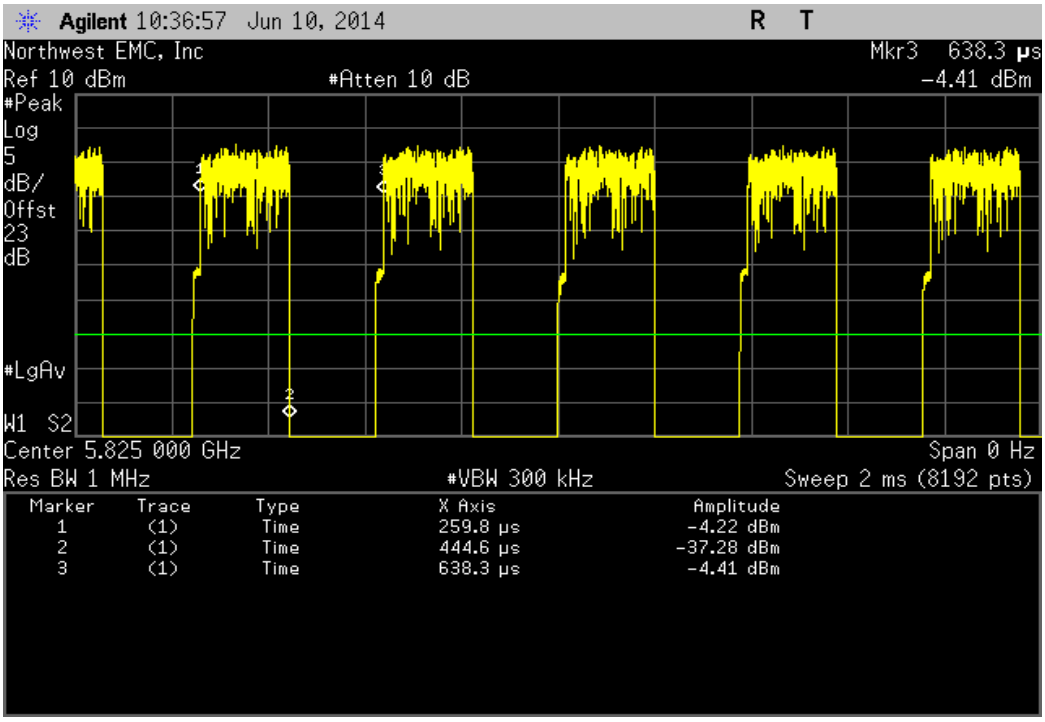
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A



DUTY CYCLE

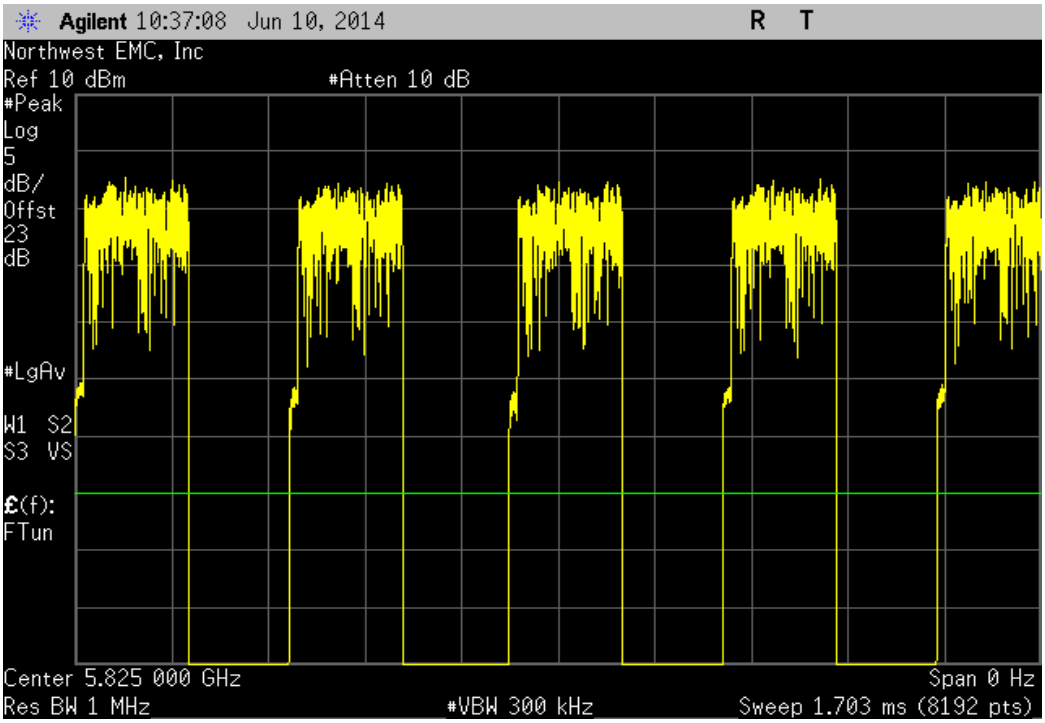
802.11(a) 6 Mbps, High Channel 165, 5825MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	184.8 uS	378.5 uS	1	48.8	N/A	N/A



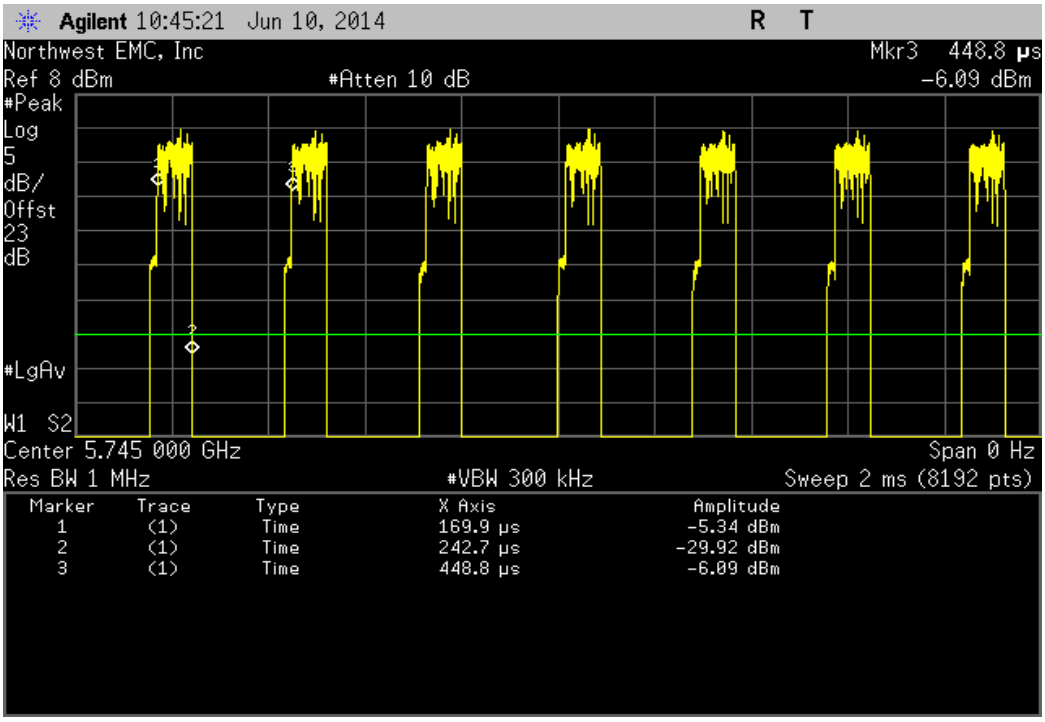
802.11(a) 6 Mbps, High Channel 165, 5825MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



802.11(a) 18 Mbps, Low Channel 149, 5745MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	72.8 uS	278.9 uS	1	26.1	N/A	N/A



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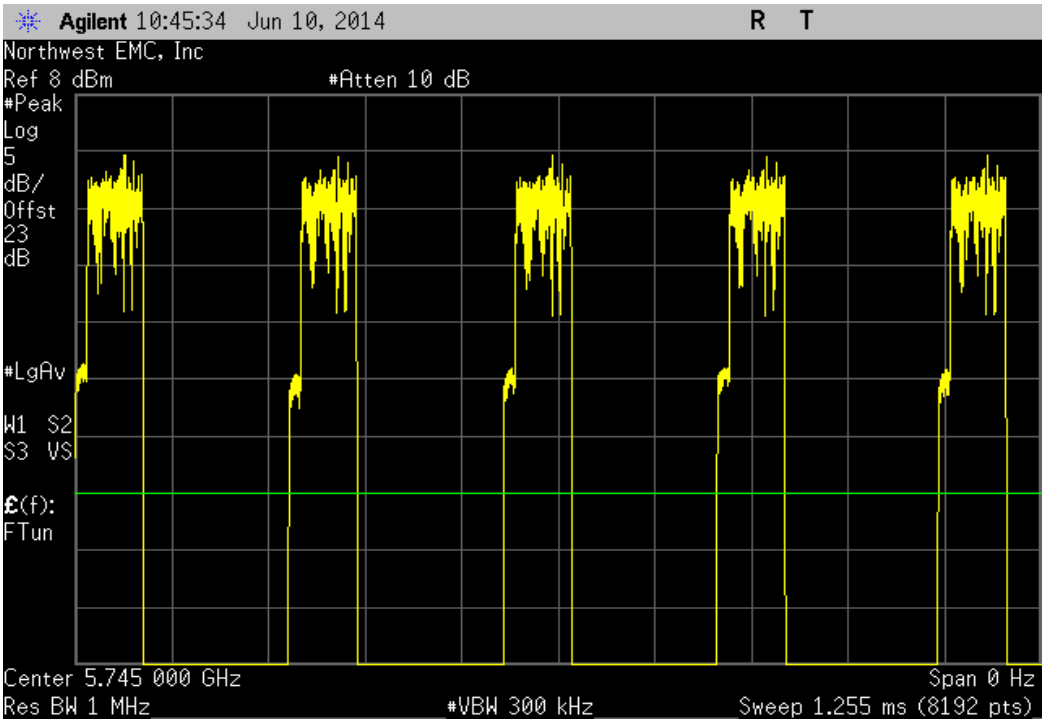
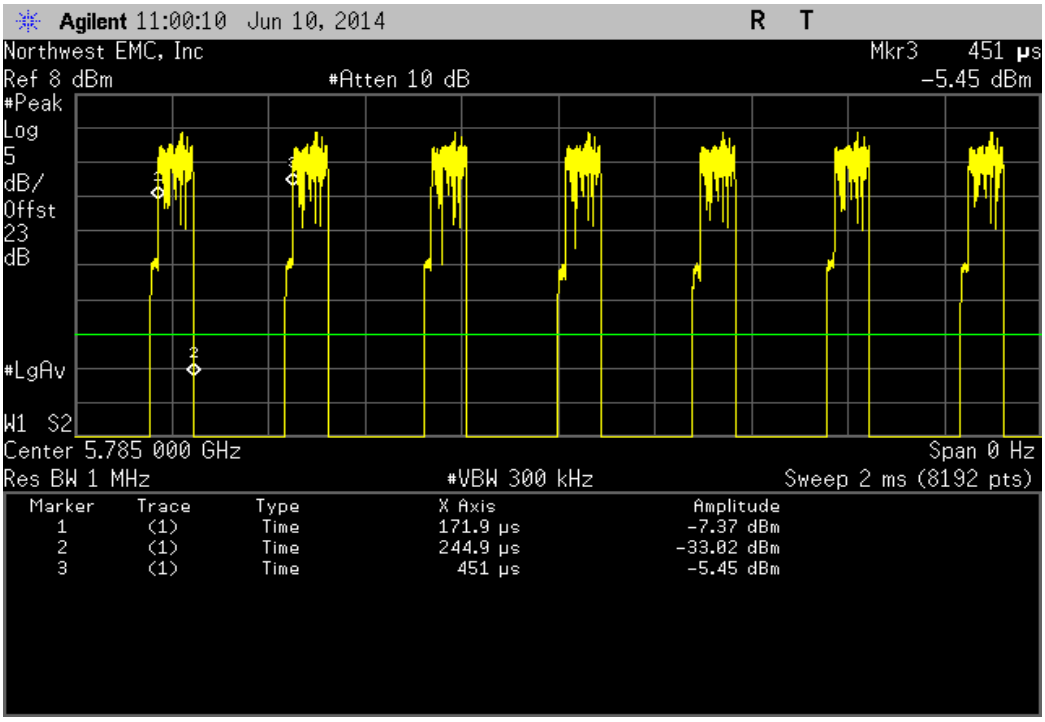
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



DUTY CYCLE

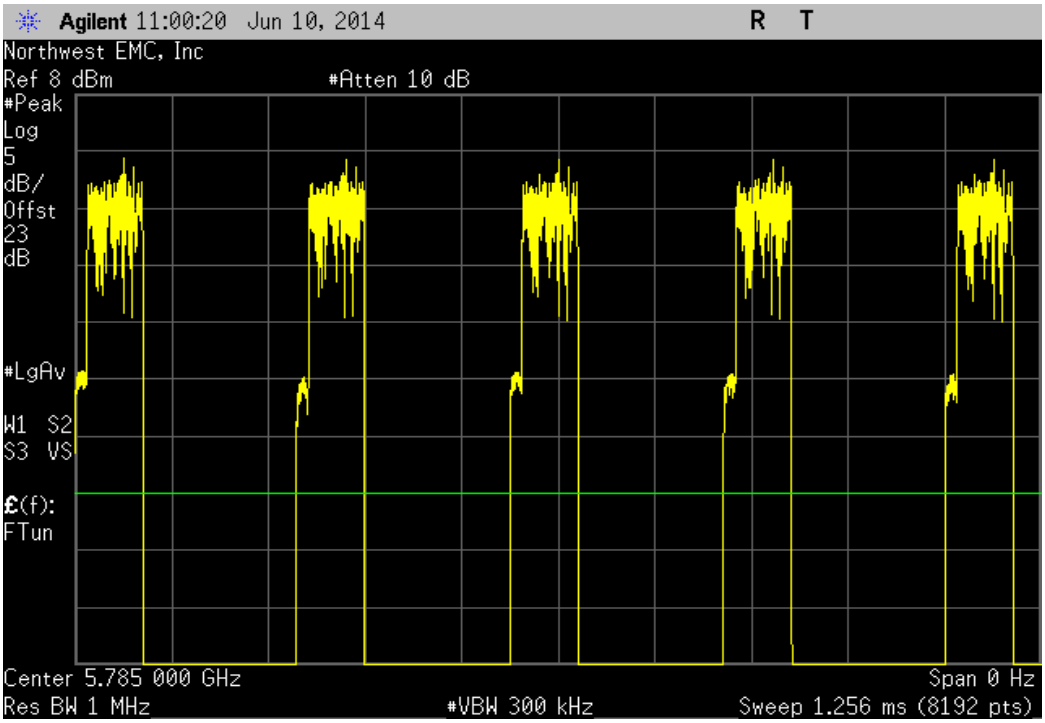
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
73 uS	279.1 uS	1	26.2	N/A	N/A



802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

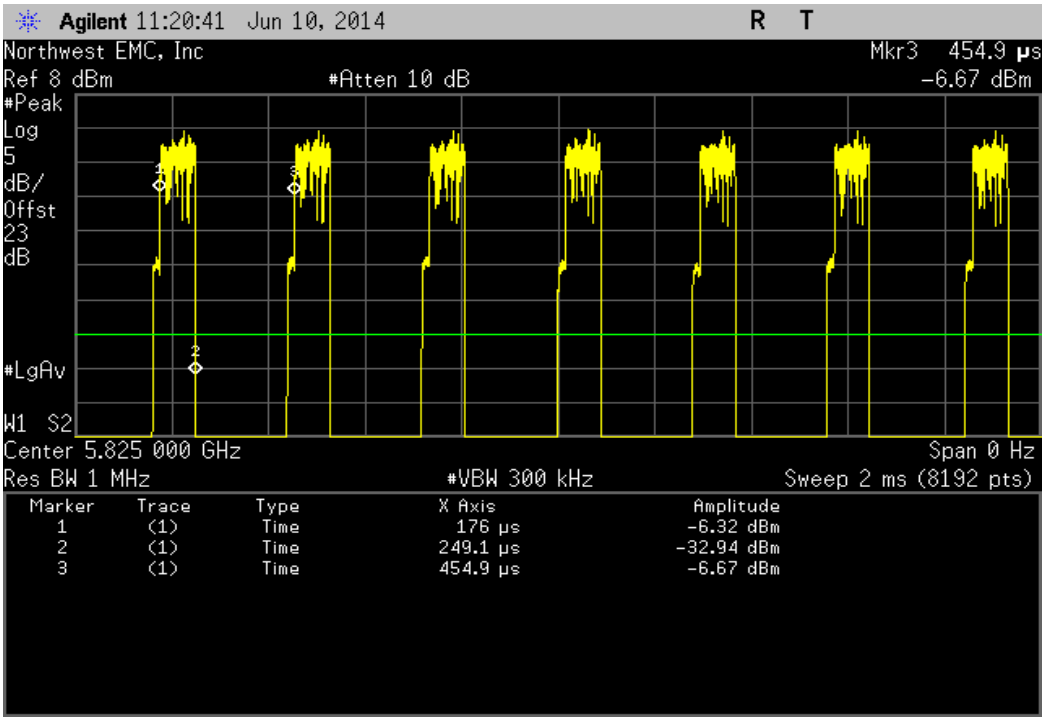
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A



DUTY CYCLE

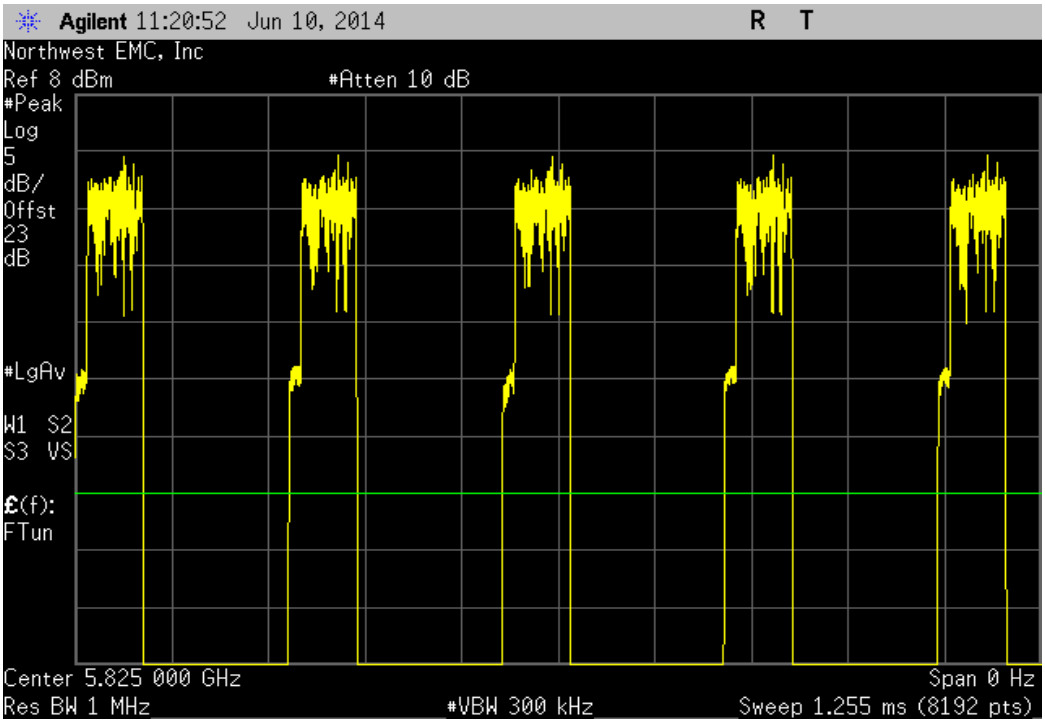
802.11(a) 18 Mbps, High Channel 165, 5825MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	73.1 uS	278.9 uS	1	26.2	N/A	N/A



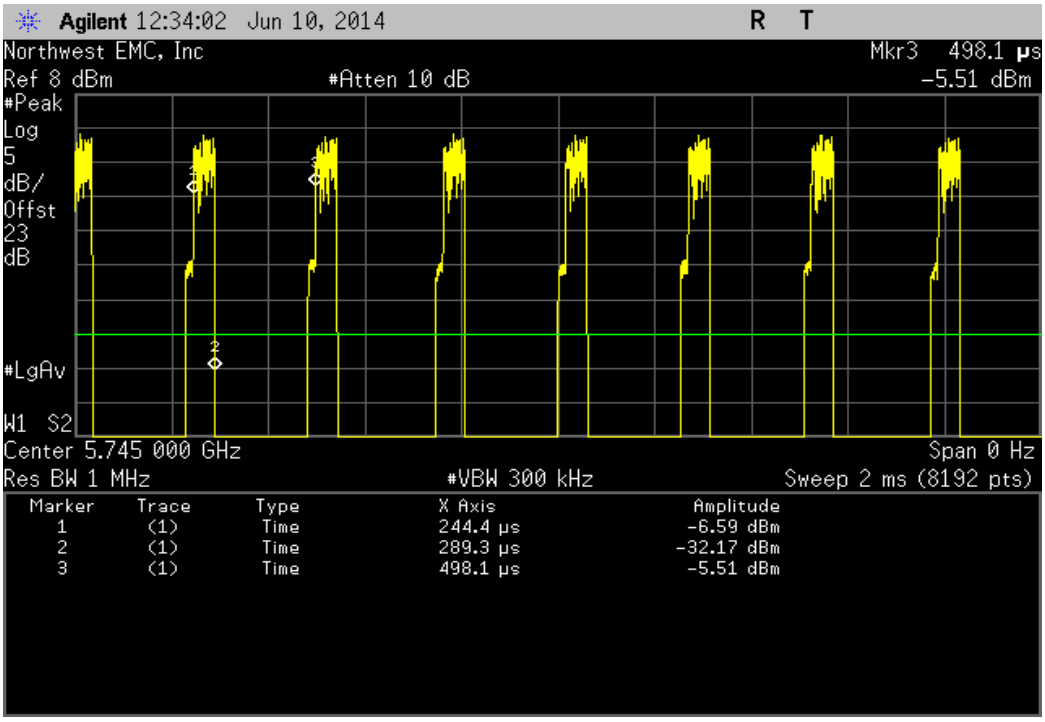
802.11(a) 18 Mbps, High Channel 165, 5825MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



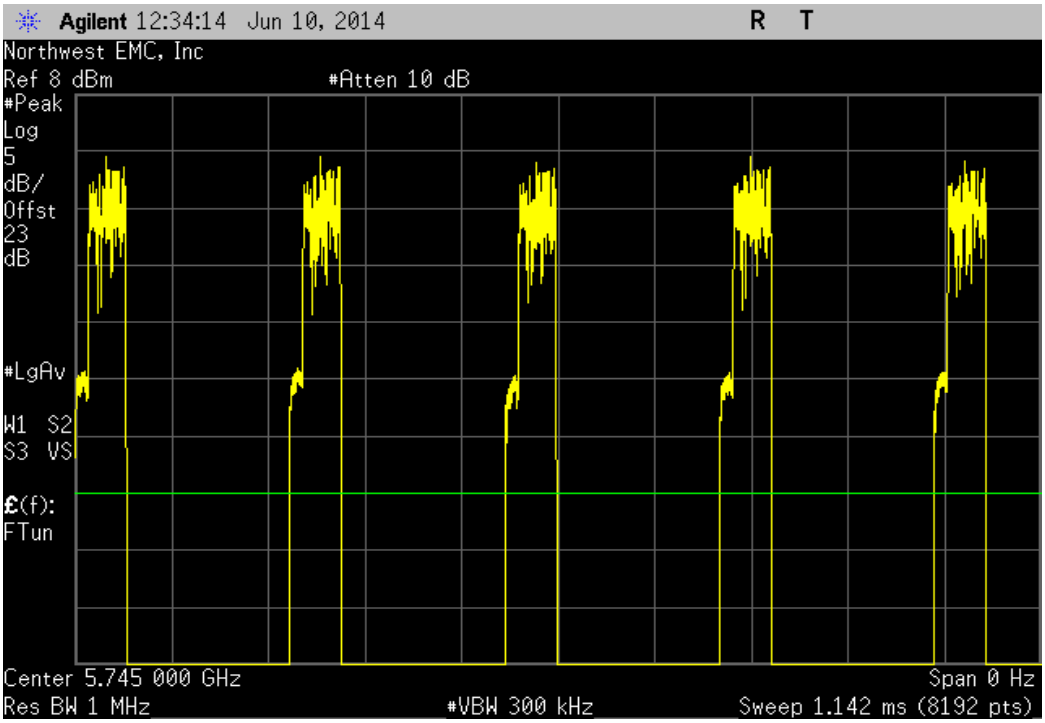
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	44.9 uS	253.7 uS	1	17.7	N/A	N/A



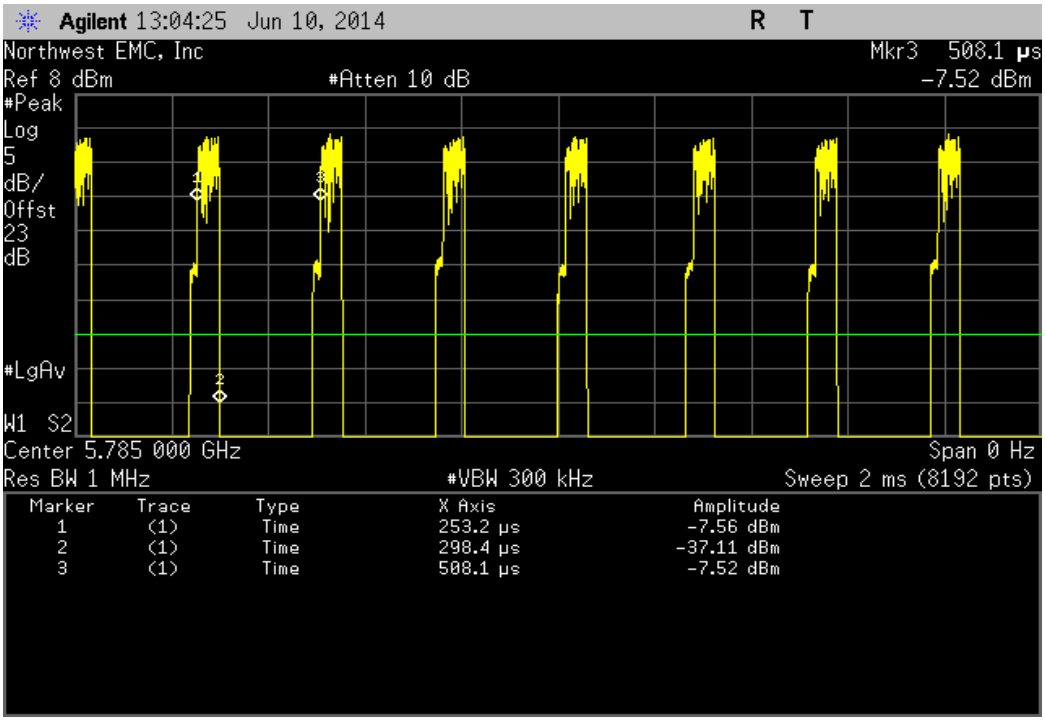
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



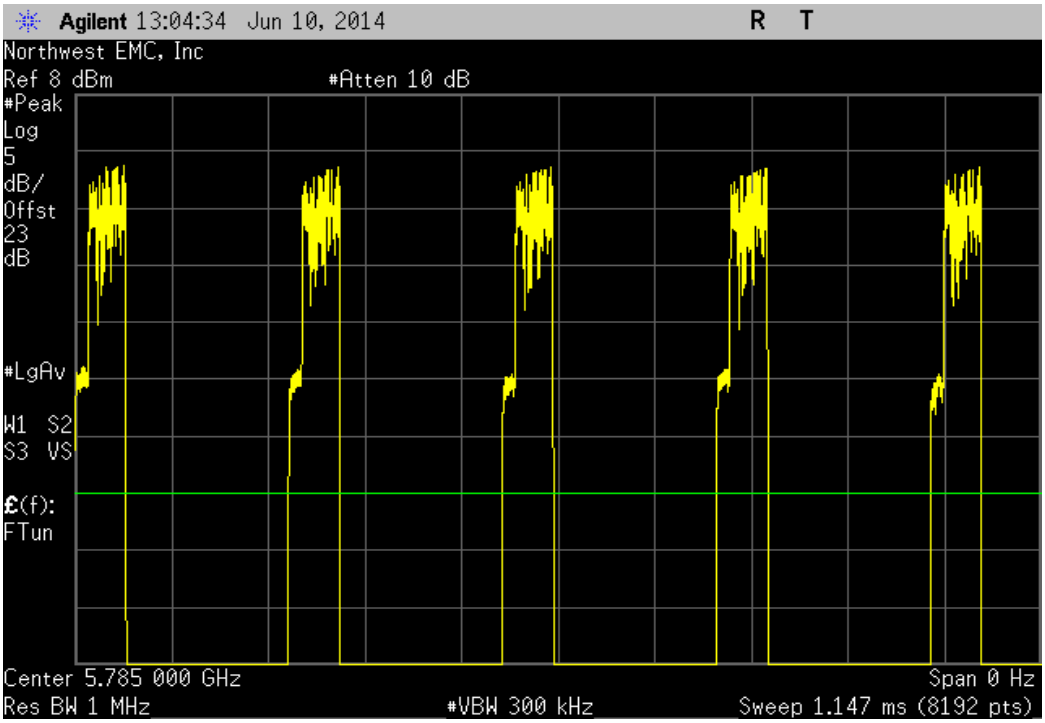
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	45.2 uS	254.9 uS	1	17.7	N/A	N/A



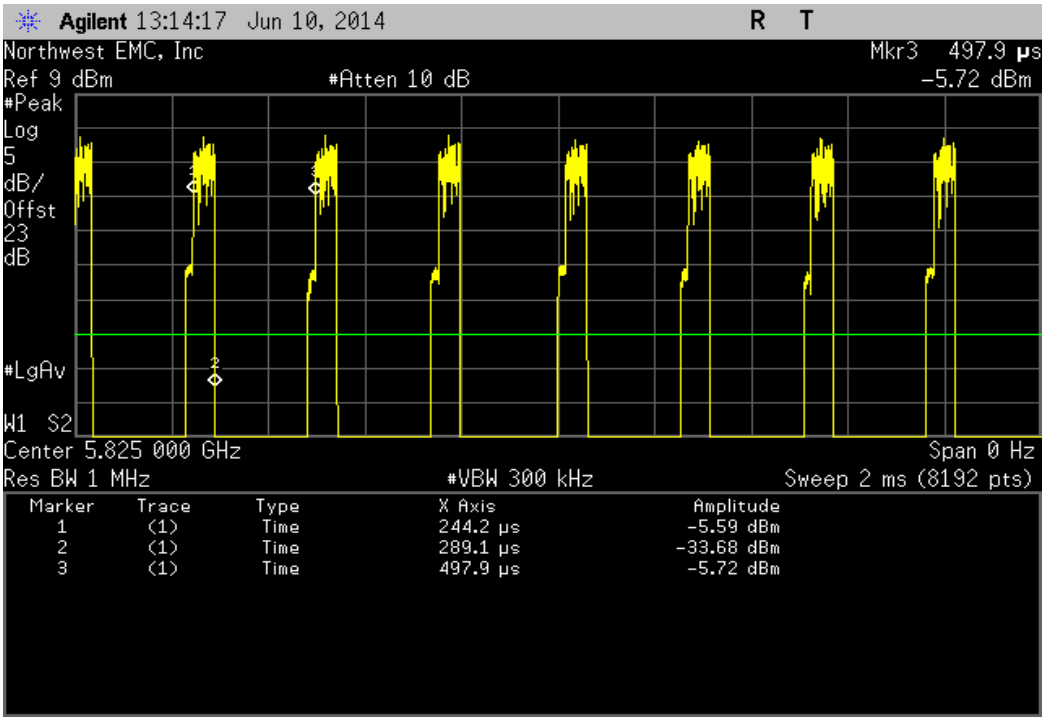
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



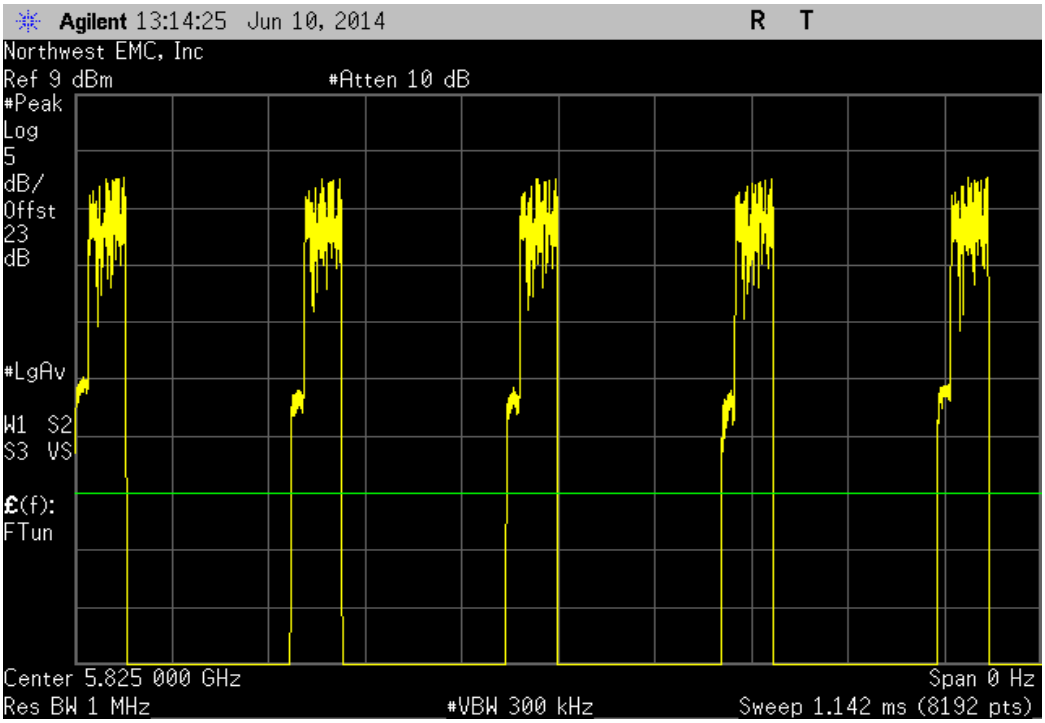
802.11(a) 36 Mbps, High Channel 165, 5825MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
44.9 uS	253.7 uS	1	17.7	N/A	N/A



802.11(a) 36 Mbps, High Channel 165, 5825MHz

Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A



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
40GHz DC Block	Miteq	DCB4000	AMD	4/28/2014	12 mo
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo

TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time.

The EUT was 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 the data rate(s) listed in the datasheet.

OCCUPIED BANDWIDTH

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

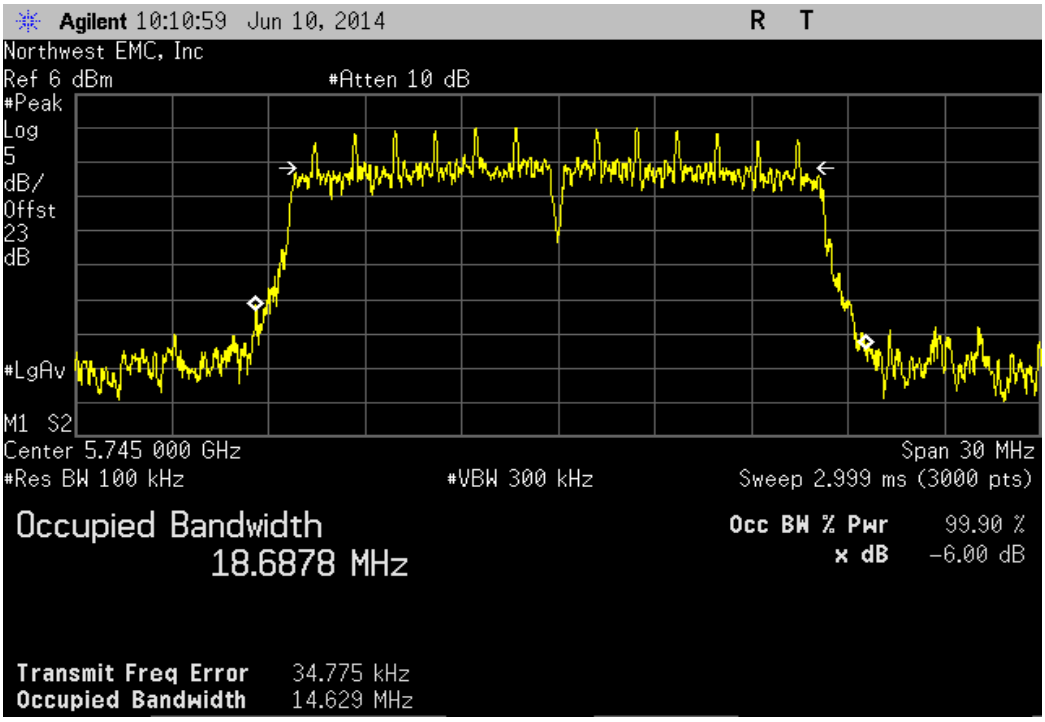
None

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	Low Channel 149, 5745MHz	14.629 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785MHz	15.319 MHz	> 500 kHz	Pass
	High Channel 165, 5825MHz	15.475 MHz	> 500 kHz	Pass
802.11(a) 18 Mbps				
	Low Channel 149, 5745MHz	15.116 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785MHz	14.961 MHz	> 500 kHz	Pass
	High Channel 165, 5825MHz	14.903 MHz	> 500 kHz	Pass
802.11(a) 36 Mbps				
	Low Channel 149, 5745MHz	15.014 MHz	> 500 kHz	Pass
	Mid Channel 157, 5785MHz	14.848 MHz	> 500 kHz	Pass
	High Channel 165, 5825MHz	15.042 MHz	> 500 kHz	Pass

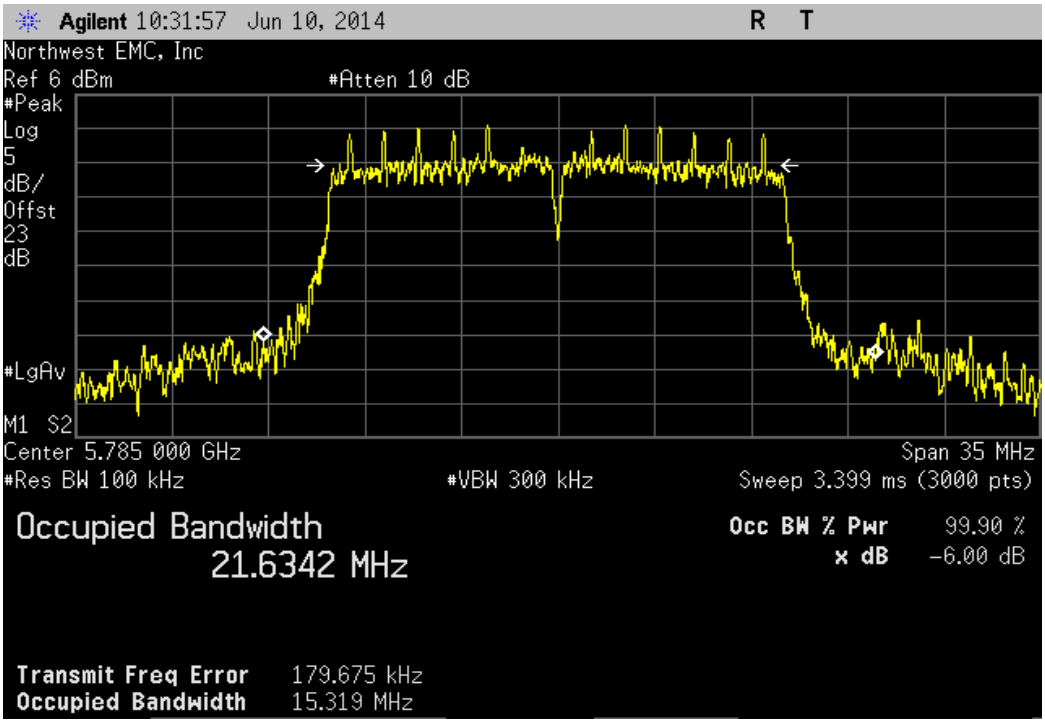
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				14.629 MHz	> 500 kHz	Pass



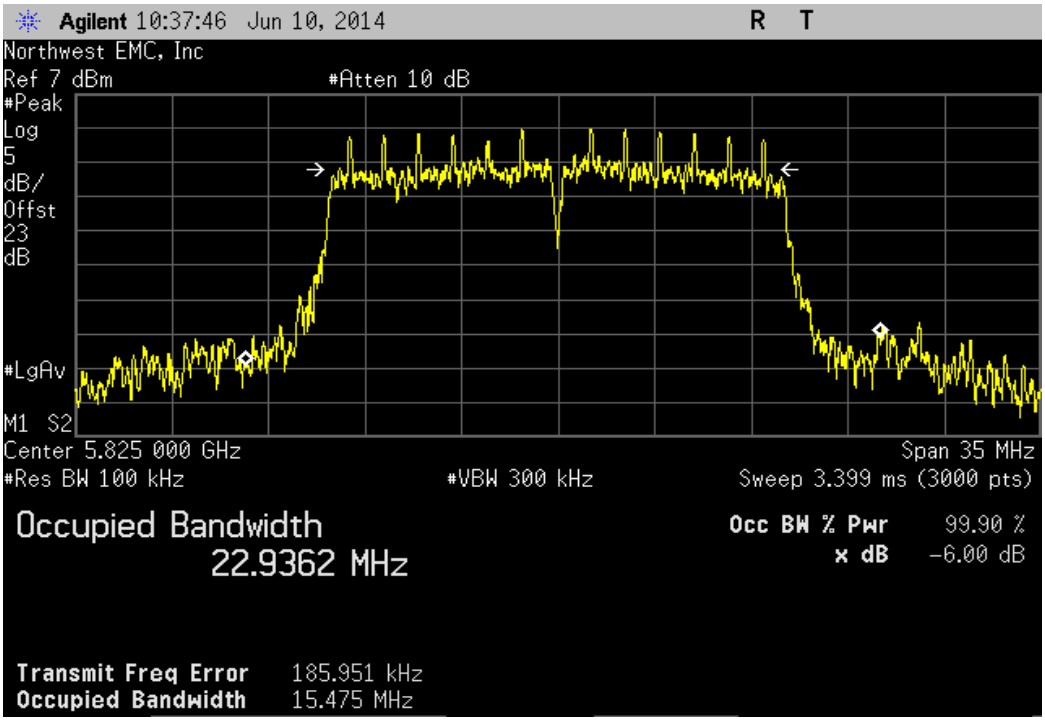
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

				Value	Limit	Result
				15.319 MHz	> 500 kHz	Pass



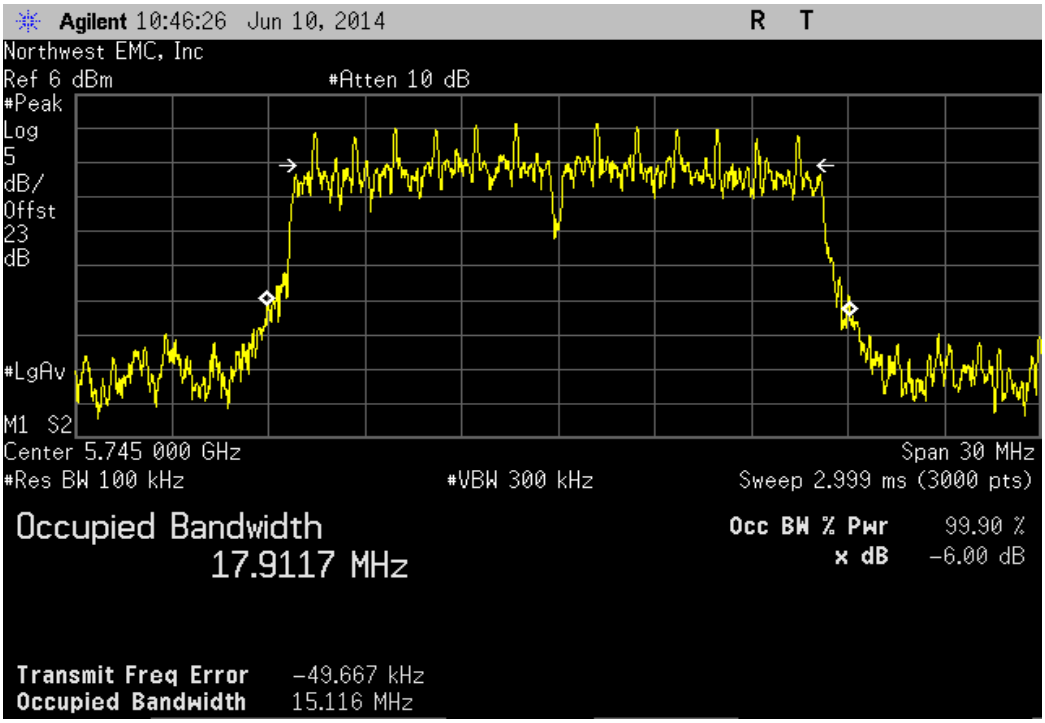
802.11(a) 6 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				15.475 MHz	> 500 kHz	Pass



802.11(a) 18 Mbps, Low Channel 149, 5745MHz

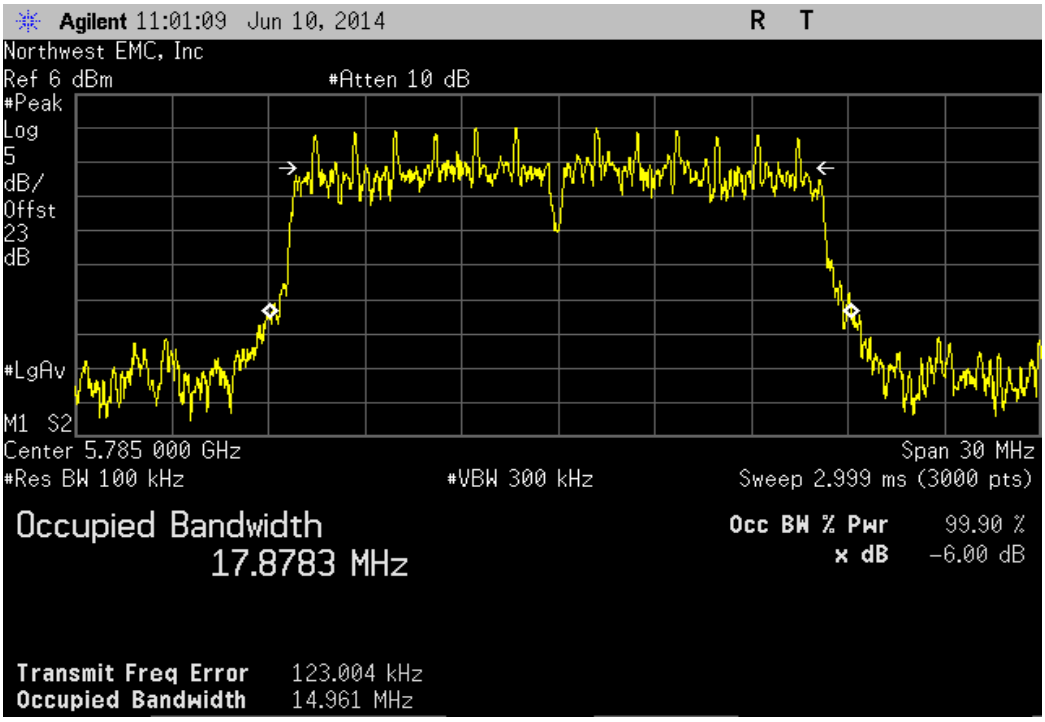
				Value	Limit	Result
				15.116 MHz	> 500 kHz	Pass



OCCUPIED BANDWIDTH

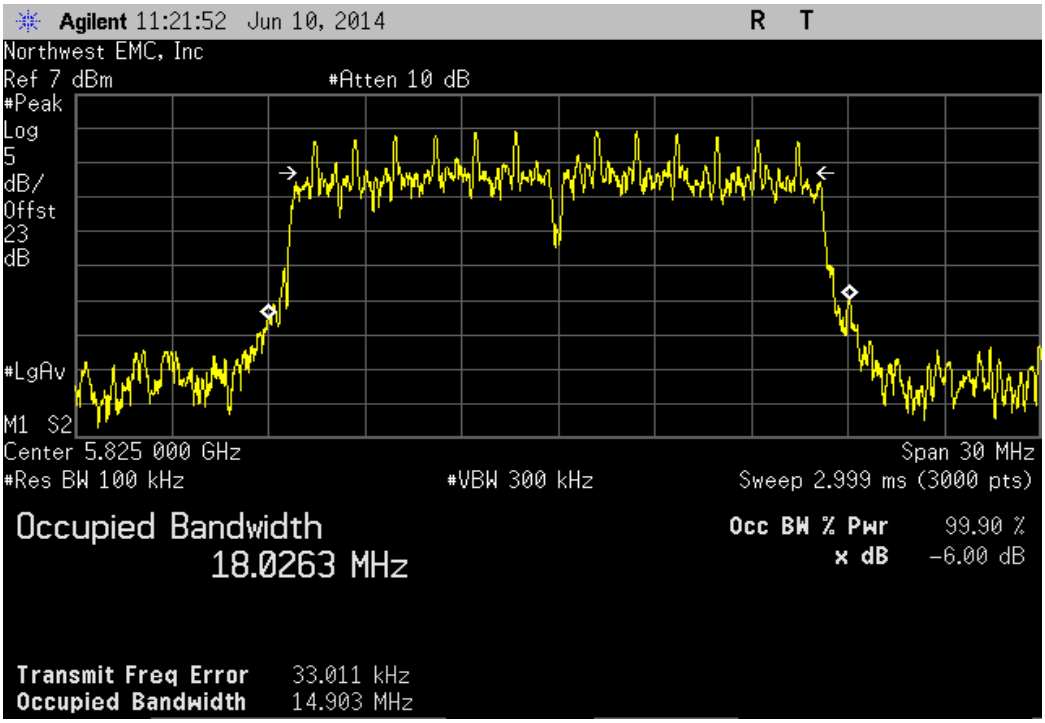
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

				Value	Limit	Result
				14.961 MHz	> 500 kHz	Pass



802.11(a) 18 Mbps, High Channel 165, 5825MHz

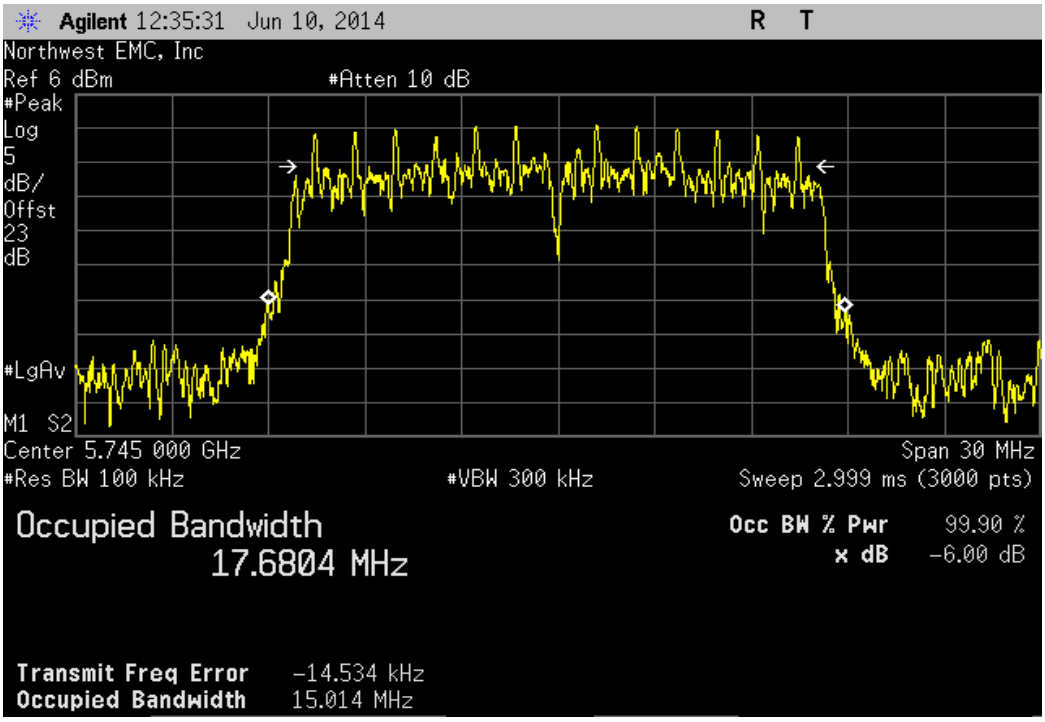
				Value	Limit	Result
				14.903 MHz	> 500 kHz	Pass



OCCUPIED BANDWIDTH

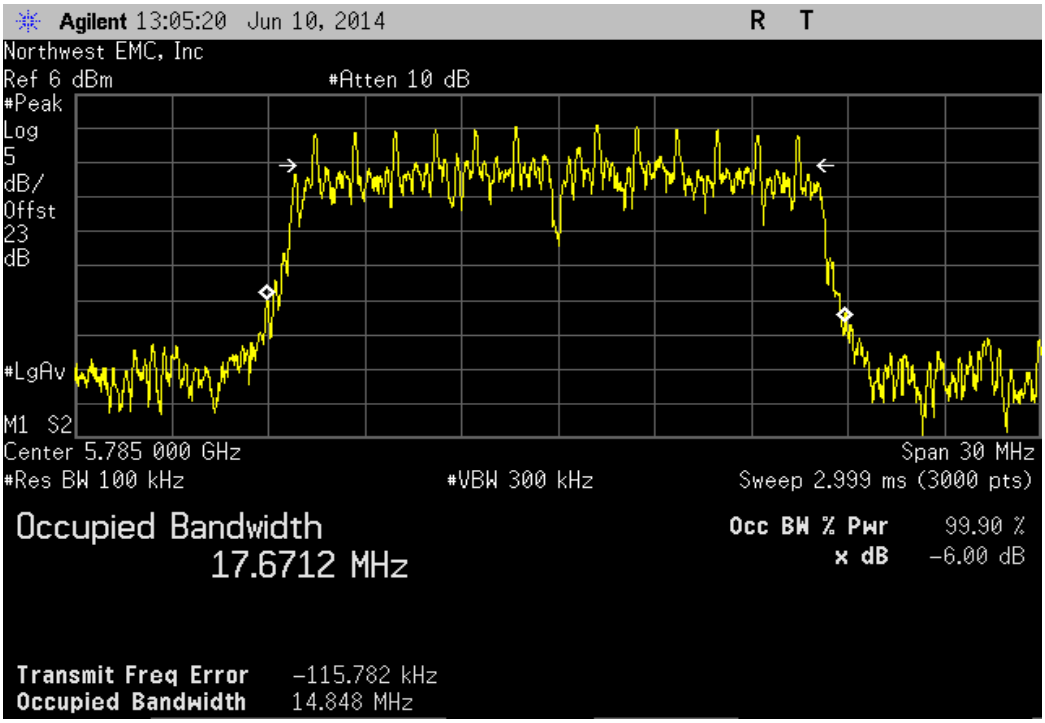
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				15.014 MHz	> 500 kHz	Pass



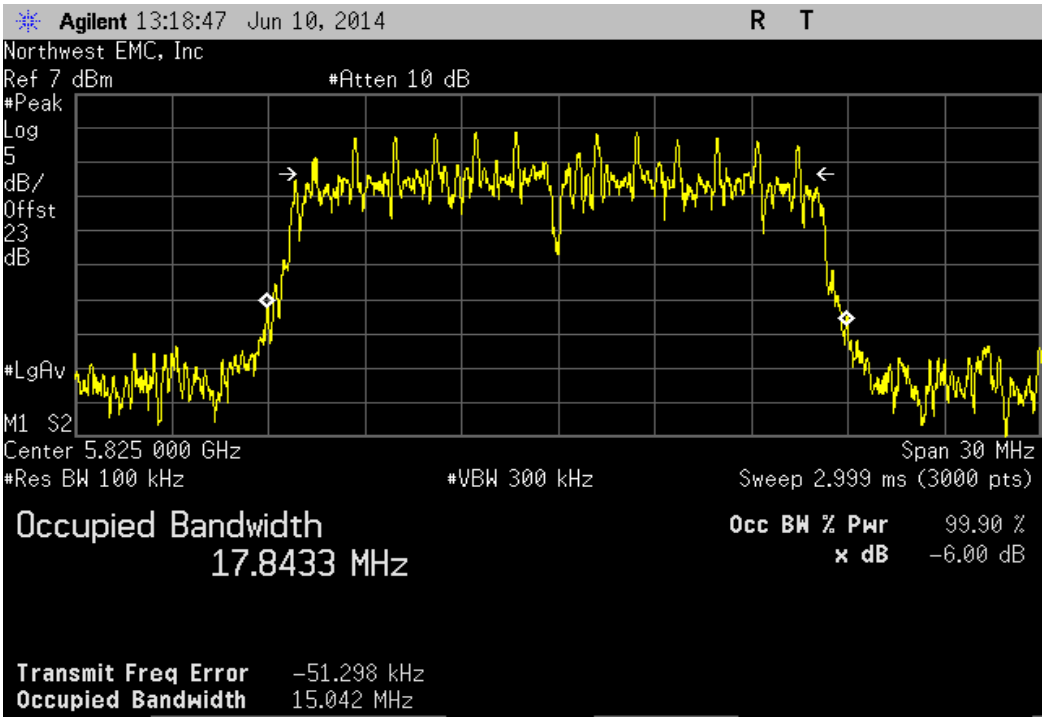
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

				Value	Limit	Result
				14.848 MHz	> 500 kHz	Pass



802.11(a) 36 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				15.042 MHz	> 500 kHz	Pass



OUTPUT POWER

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
40GHz DC Block	Miteq	DCB4000	AMD	4/28/2014	12 mo
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used. The reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Prior to measuring peak transmit power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The channel power integration method found in KDB 558074 DTS D01 Measurement Section 9.1.2 was used because the DTS Bandwidth of the radio was greater than the RBW on the analyzer.

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

OUTPUT POWER

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

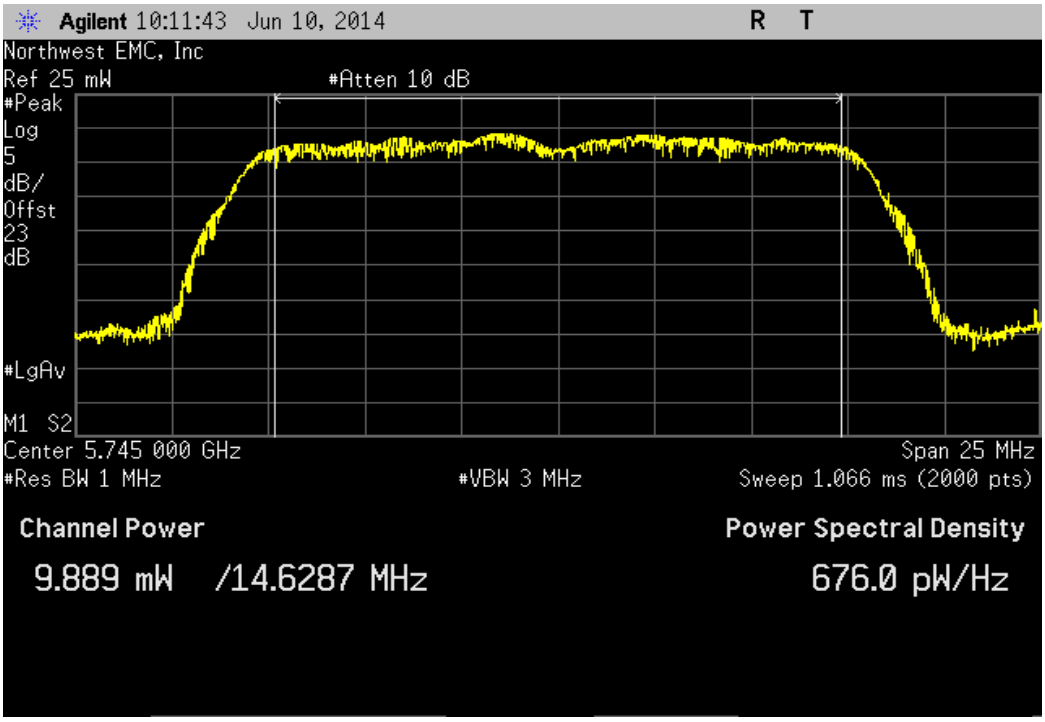
None

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	Low Channel 149, 5745MHz	9.889 mW	< 1 W	Pass
	Mid Channel 157, 5785MHz	11.727 mW	< 1 W	Pass
	High Channel 165, 5825MHz	11.787 mW	< 1 W	Pass
802.11(a) 18 Mbps				
	Low Channel 149, 5745MHz	6.318 mW	< 1 W	Pass
	Mid Channel 157, 5785MHz	6.528 mW	< 1 W	Pass
	High Channel 165, 5825MHz	6.314 mW	< 1 W	Pass
802.11(a) 36 Mbps				
	Low Channel 149, 5745MHz	4.471 mW	< 1 W	Pass
	Mid Channel 157, 5785MHz	4.648 mW	< 1 W	Pass
	High Channel 165, 5825MHz	4.623 mW	< 1 W	Pass

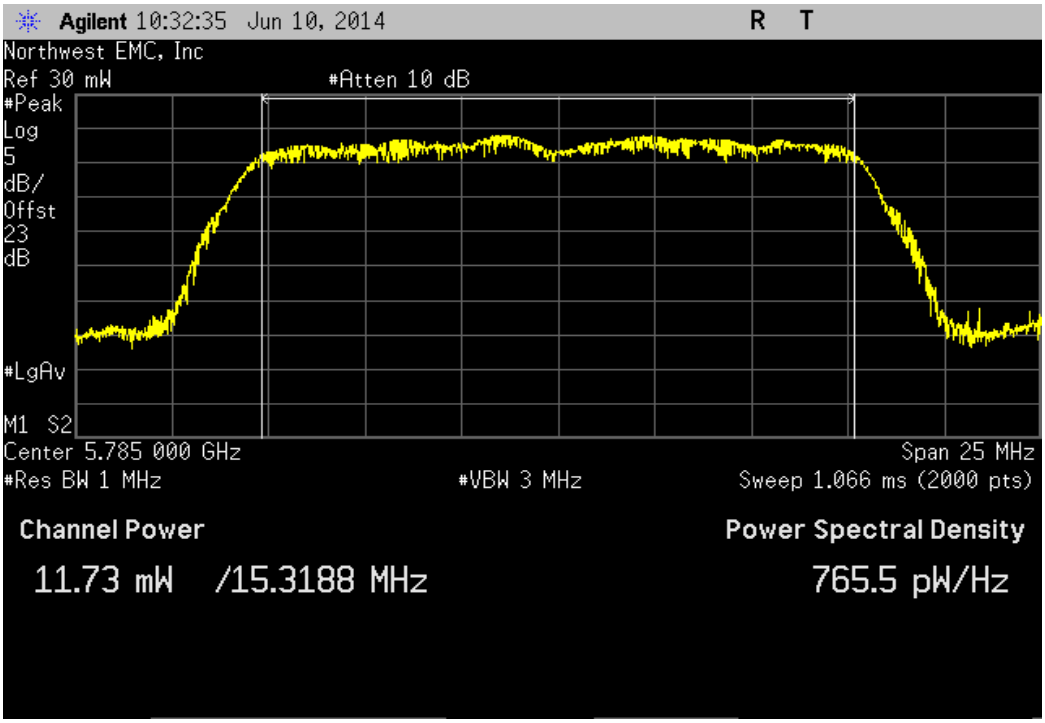
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				9.889 mW	< 1 W	Pass



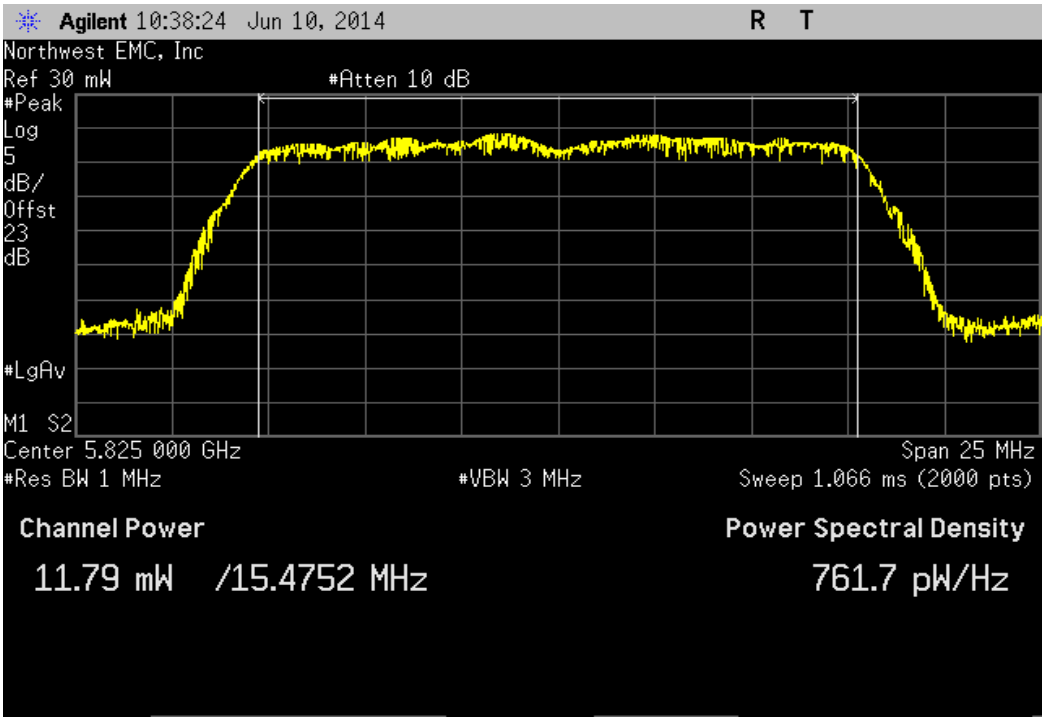
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

				Value	Limit	Result
				11.727 mW	< 1 W	Pass



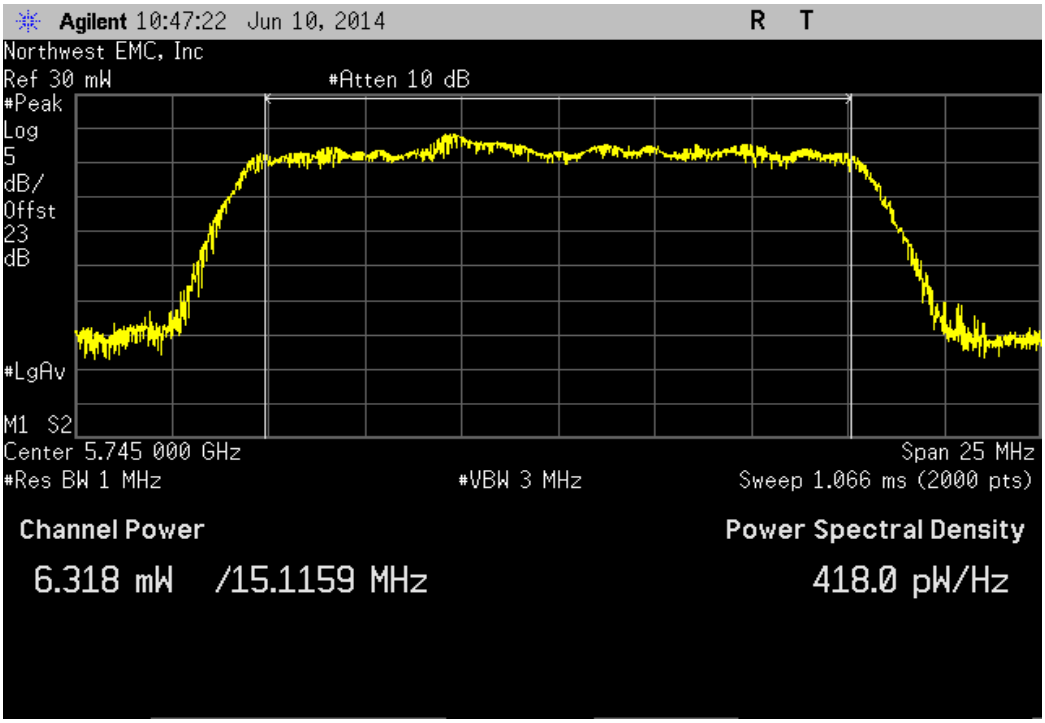
802.11(a) 6 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				11.787 mW	< 1 W	Pass



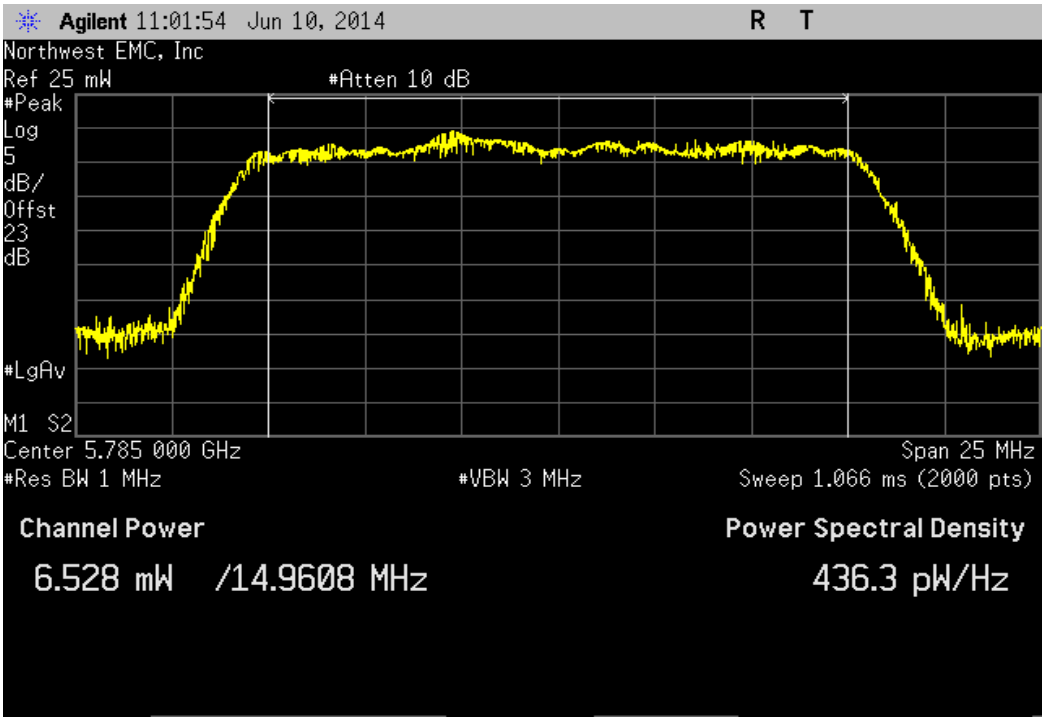
802.11(a) 18 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				6.318 mW	< 1 W	Pass



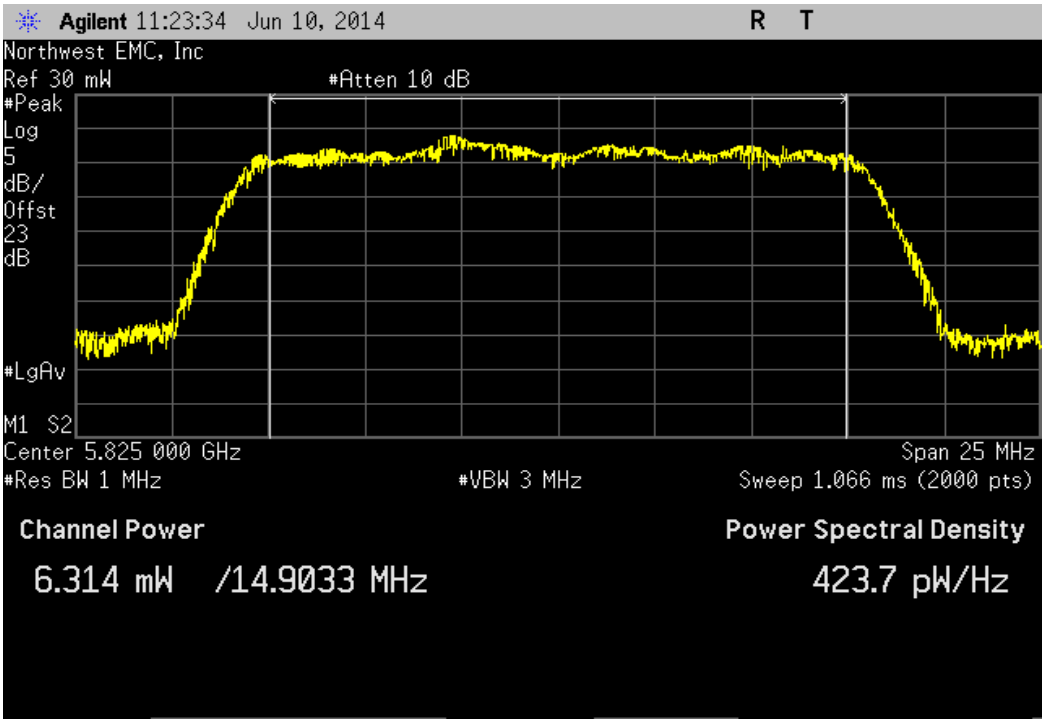
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

				Value	Limit	Result
				6.528 mW	< 1 W	Pass



802.11(a) 18 Mbps, High Channel 165, 5825MHz

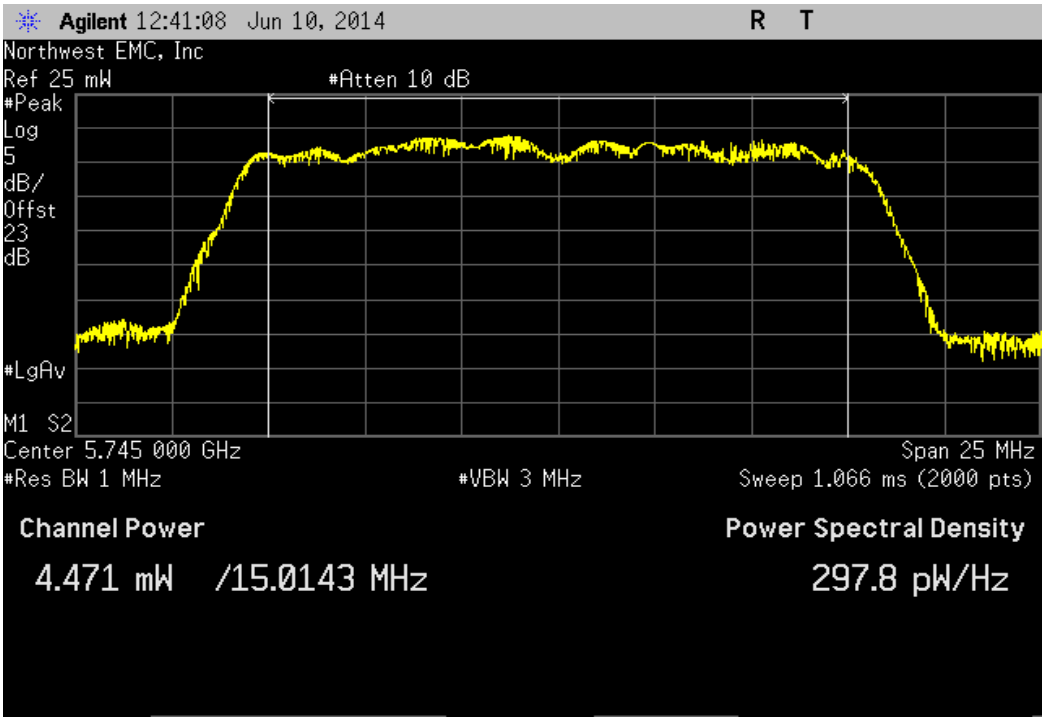
				Value	Limit	Result
				6.314 mW	< 1 W	Pass



OUTPUT POWER

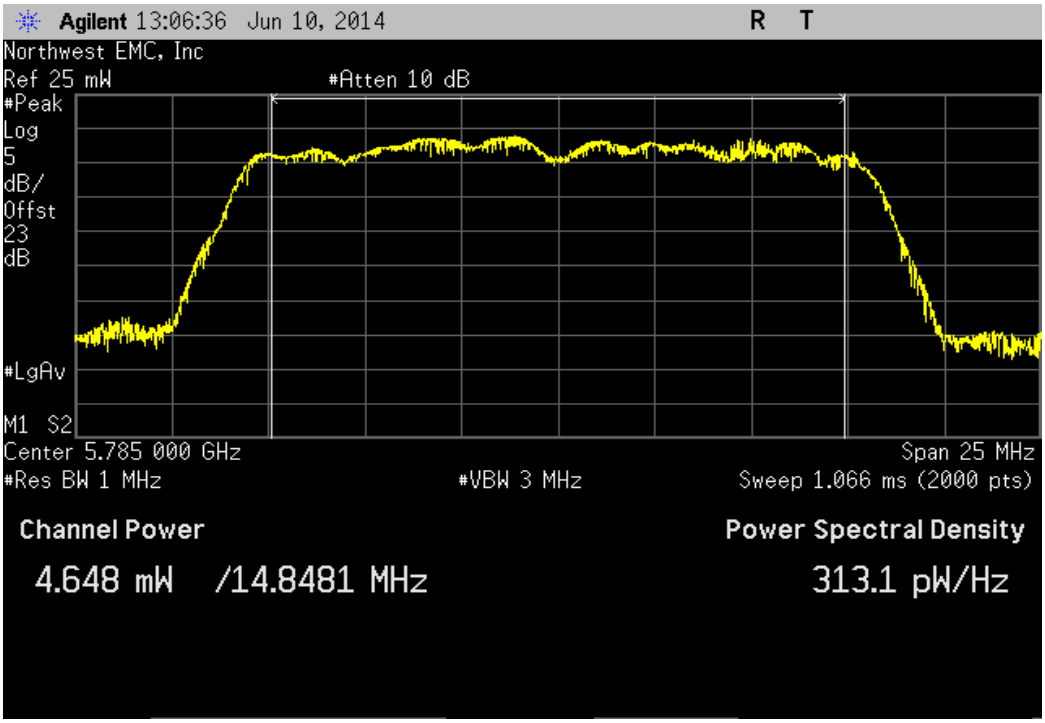
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				4.471 mW	< 1 W	Pass



802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

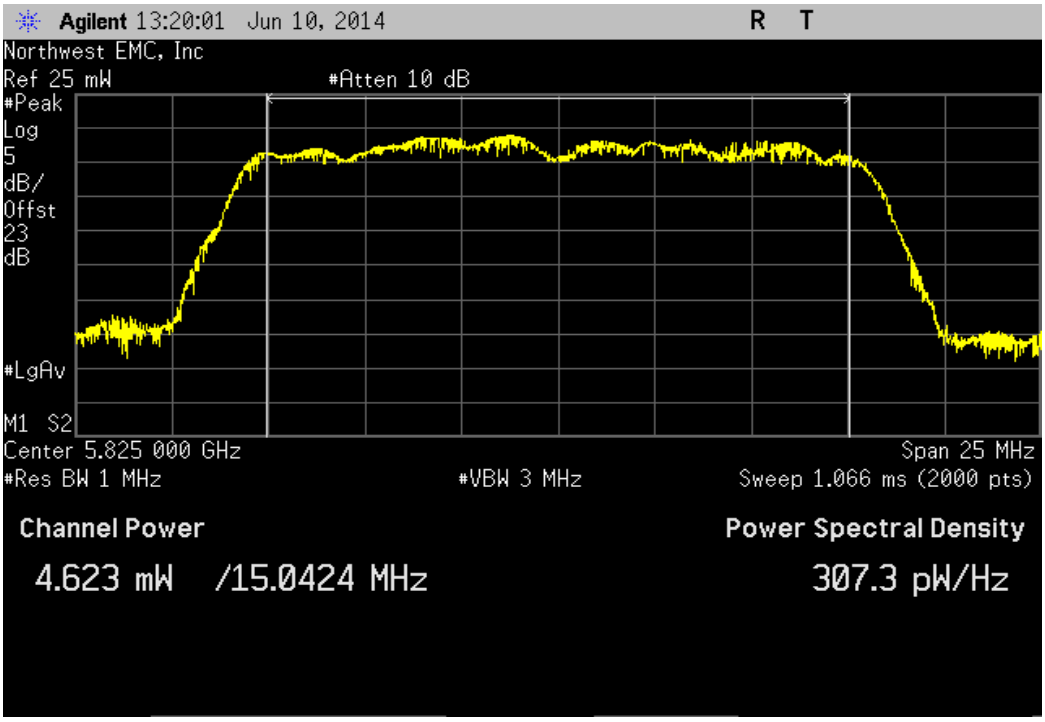
				Value	Limit	Result
				4.648 mW	< 1 W	Pass



OUTPUT POWER

802.11(a) 36 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				4.623 mW	< 1 W	Pass



POWER SPECTRAL DENSITY

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
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Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo

TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to 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 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:

- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

BWCF = 10*LOG (3 kHz / 100 kHz) = -15.2 dB

POWER SPECTRAL DENSITY

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

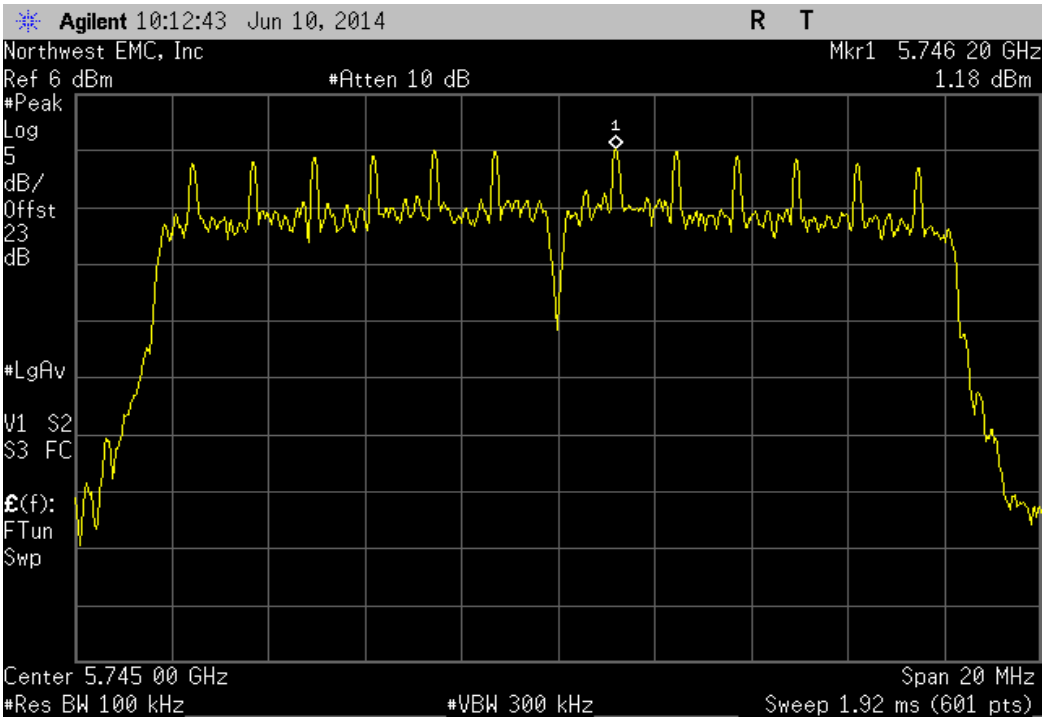
None

Configuration #	1	Signature

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
802.11(a) 6 Mbps						
	Low Channel 149, 5745MHz	1.182	-15.2	-14.018	8	Pass
	Mid Channel 157, 5785MHz	1.829	-15.2	-13.371	8	Pass
	High Channel 165, 5825MHz	1.983	-15.2	-13.217	8	Pass
802.11(a) 18 Mbps						
	Low Channel 149, 5745MHz	1.666	-15.2	-13.534	8	Pass
	Mid Channel 157, 5785MHz	1.405	-15.2	-13.795	8	Pass
	High Channel 165, 5825MHz	1.64	-15.2	-13.56	8	Pass
802.11(a) 36 Mbps						
	Low Channel 149, 5745MHz	1.514	-15.2	-13.686	8	Pass
	Mid Channel 157, 5785MHz	1.474	-15.2	-13.726	8	Pass
	High Channel 165, 5825MHz	1.523	-15.2	-13.677	8	Pass

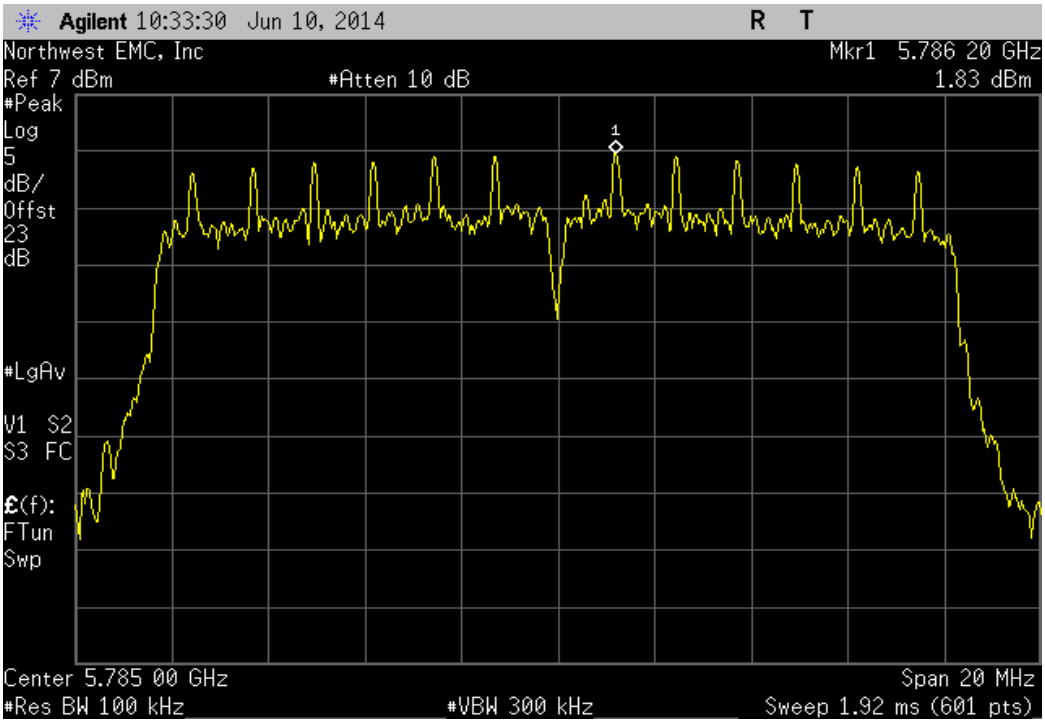
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.182	-15.2	-14.018	8	Pass



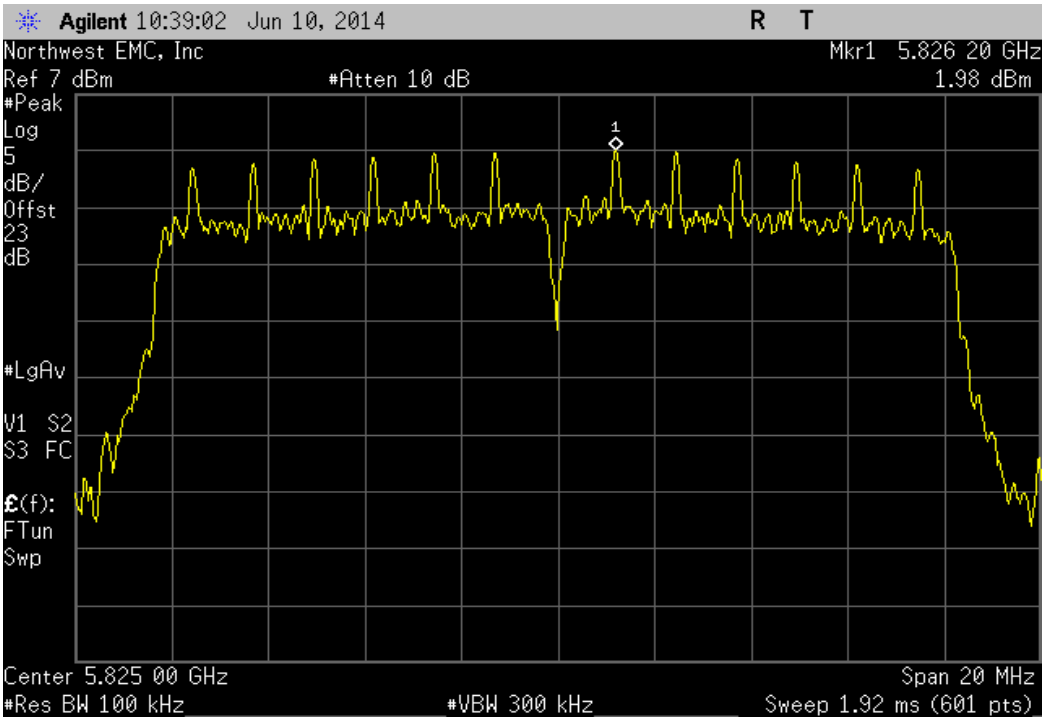
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.829	-15.2	-13.371	8	Pass



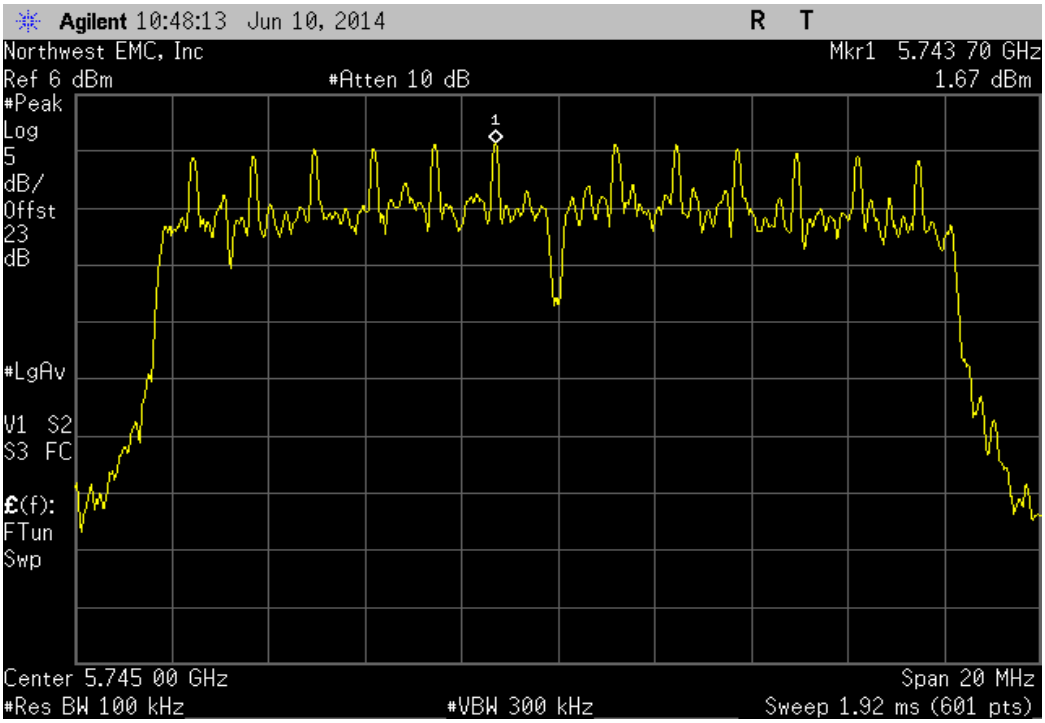
802.11(a) 6 Mbps, High Channel 165, 5825MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.983	-15.2	-13.217	8	Pass



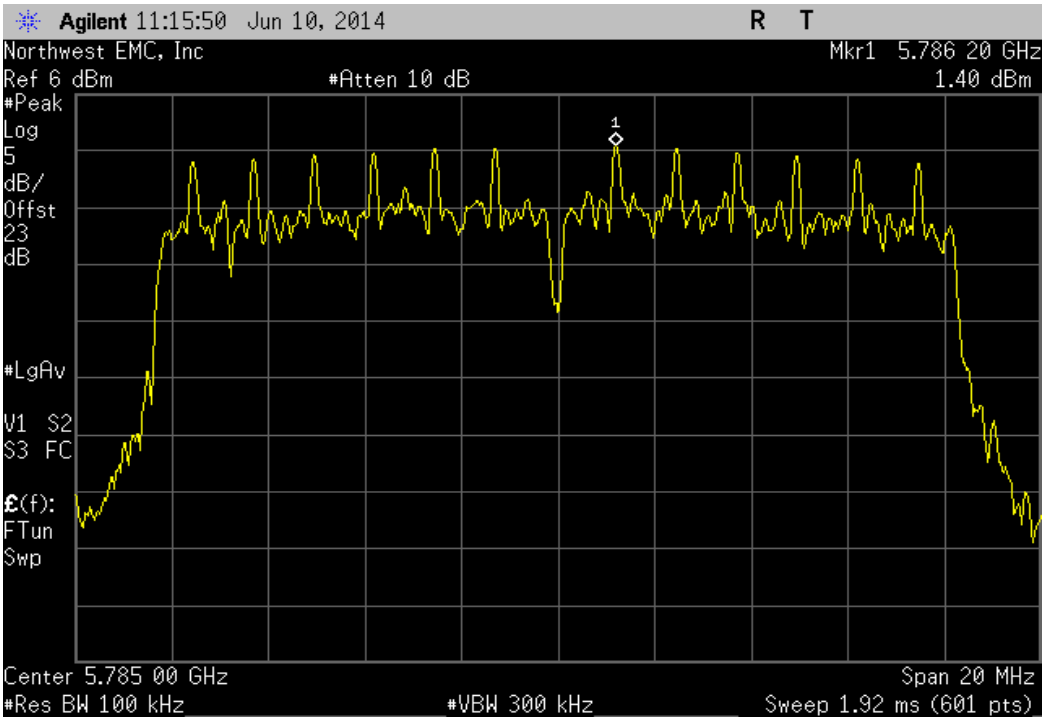
802.11(a) 18 Mbps, Low Channel 149, 5745MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.666	-15.2	-13.534	8	Pass



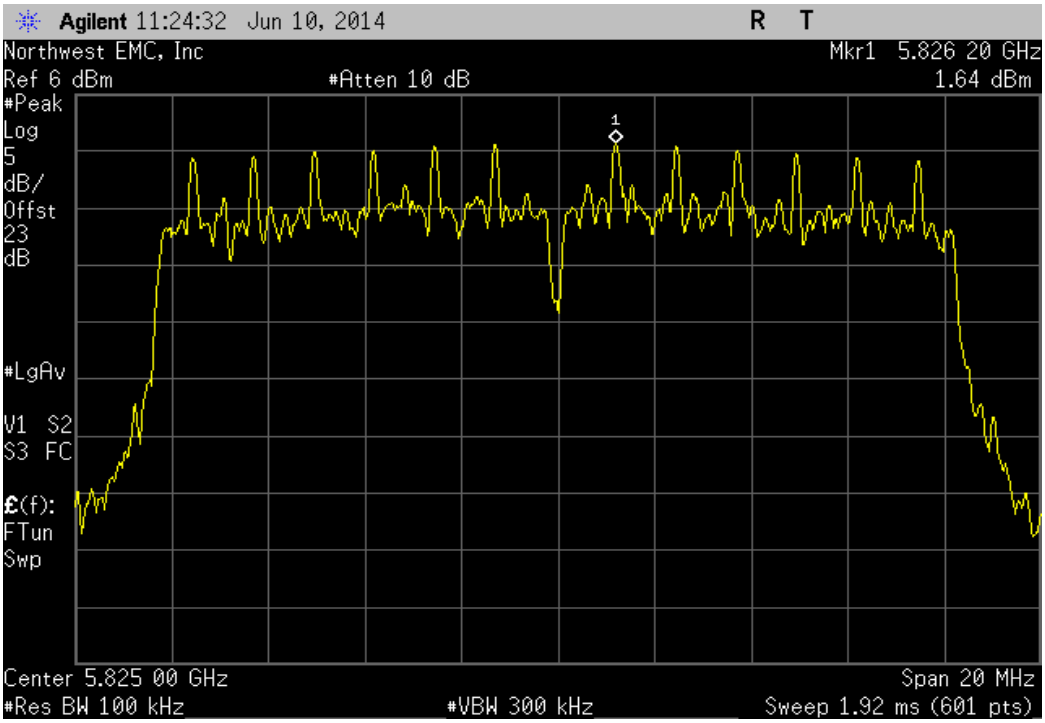
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.405	-15.2	-13.795	8	Pass



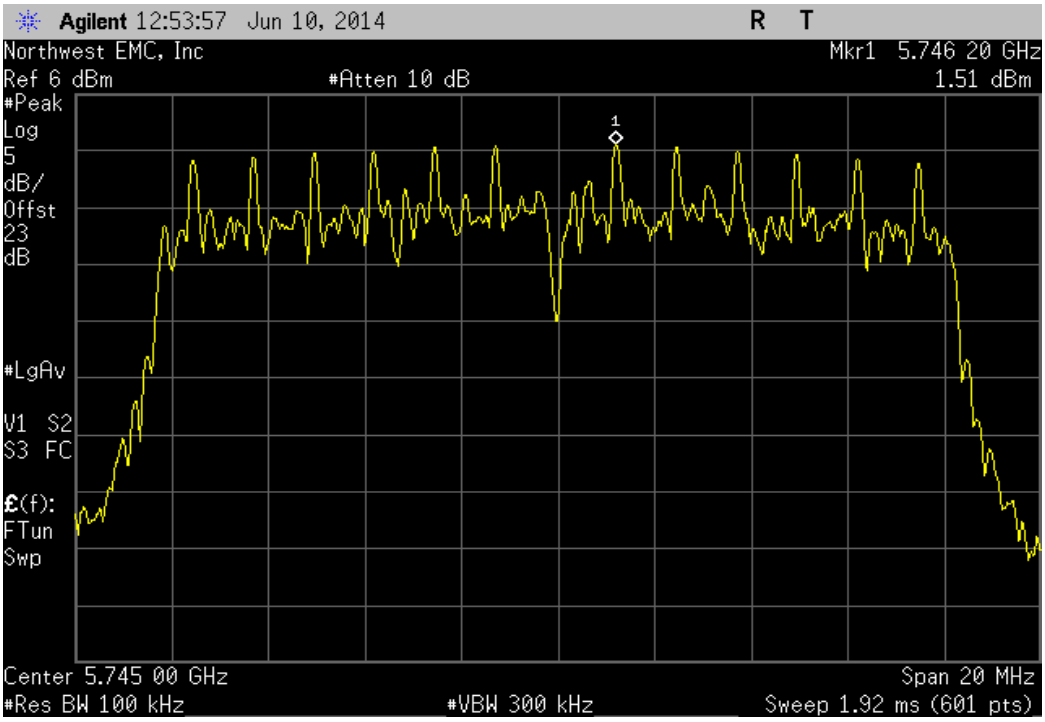
802.11(a) 18 Mbps, High Channel 165, 5825MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.64	-15.2	-13.56	8	Pass



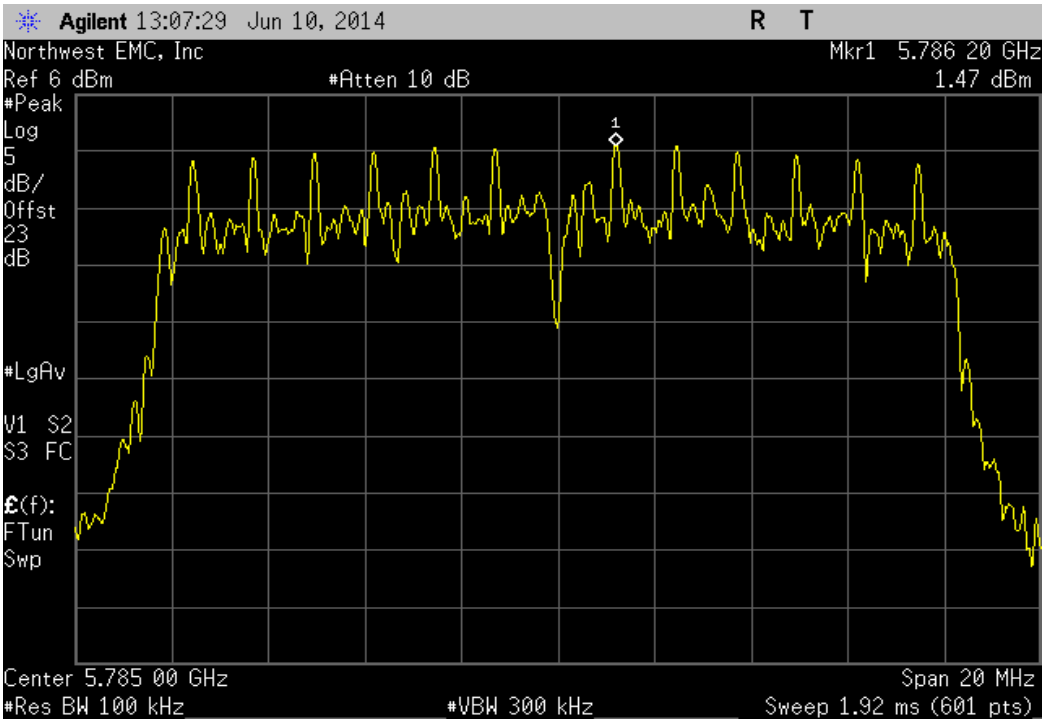
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.514	-15.2	-13.686	8	Pass



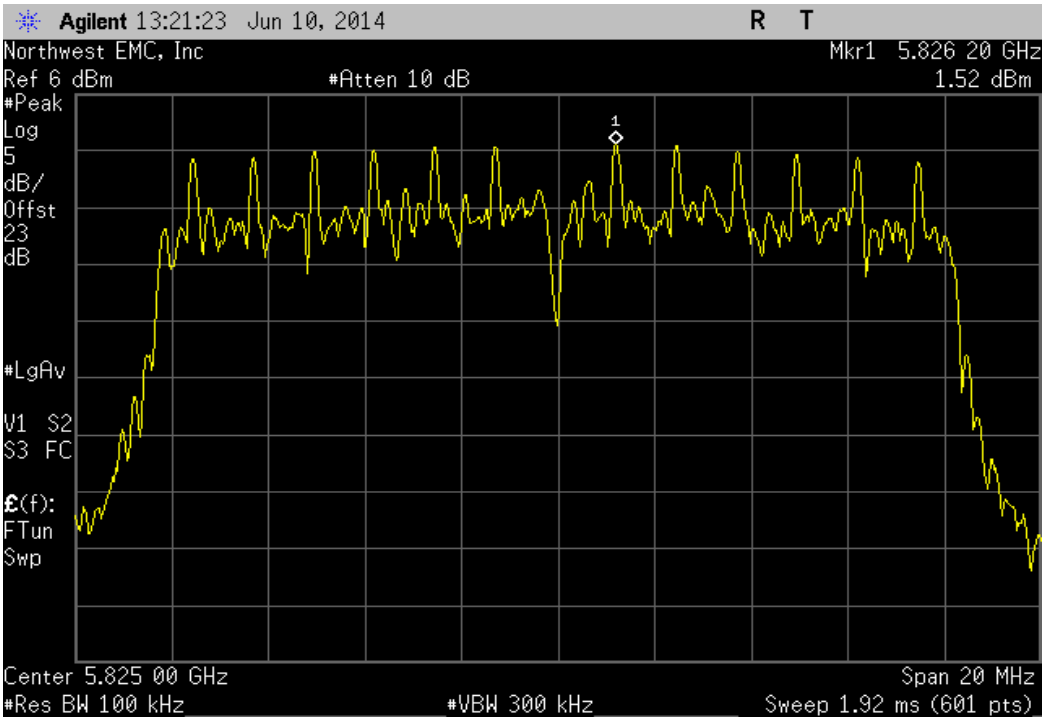
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.474	-15.2	-13.726	8	Pass



POWER SPECTRAL DENSITY

802.11(a) 36 Mbps, High Channel 165, 5825MHz						
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
		1.523	-15.2	-13.677	8	Pass



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
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
40GHz DC Block	Miteq	DCB4000	AMD	4/28/2014	12 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. 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 data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

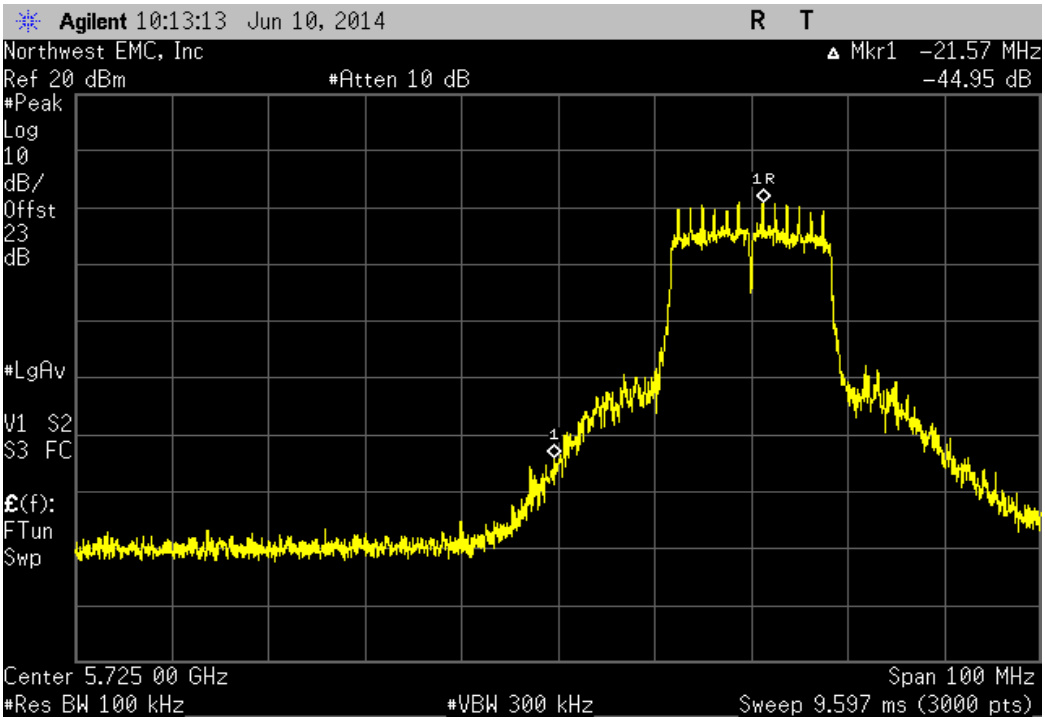
None

Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	Low Channel 149, 5745MHz	-44.95 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	-46.67 dBc	≤ -20 dBc	Pass
802.11(a) 18 Mbps				
	Low Channel 149, 5745MHz	-43.75 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	-48.54 dBc	≤ -20 dBc	Pass
802.11(a) 36 Mbps				
	Low Channel 149, 5745MHz	-45.49 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	-47.46 dBc	≤ -20 dBc	Pass

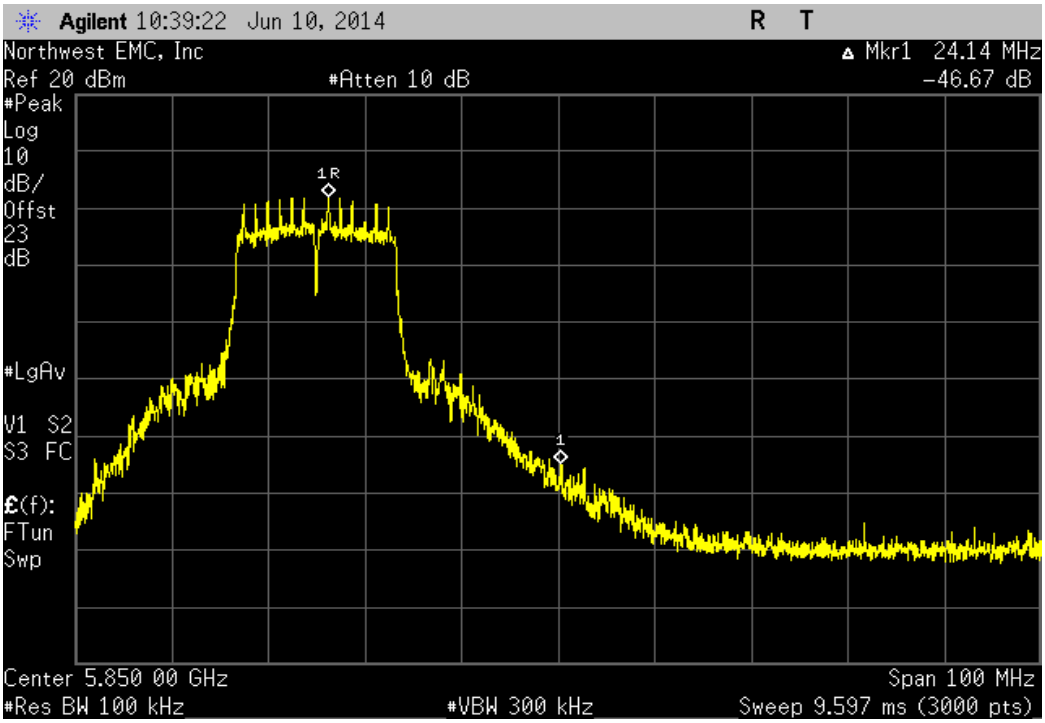
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

Value	Limit	Result
-44.95 dBc	≤ -20 dBc	Pass



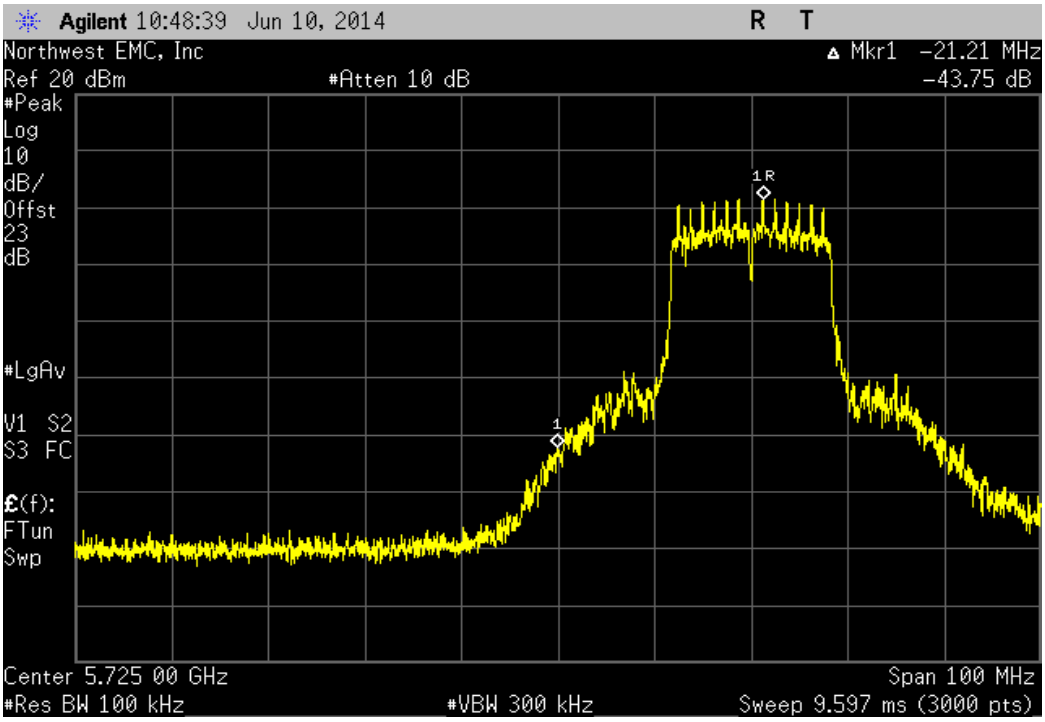
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Value	Limit	Result
-46.67 dBc	≤ -20 dBc	Pass



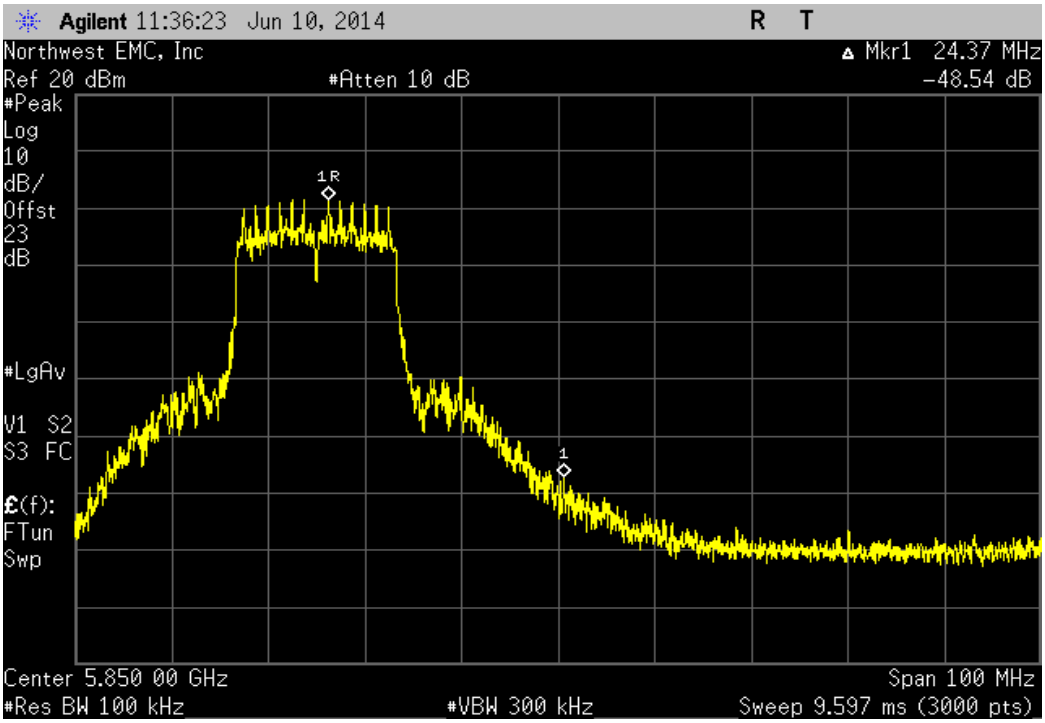
802.11(a) 18 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				-43.75 dBc	≤ -20 dBc	Pass



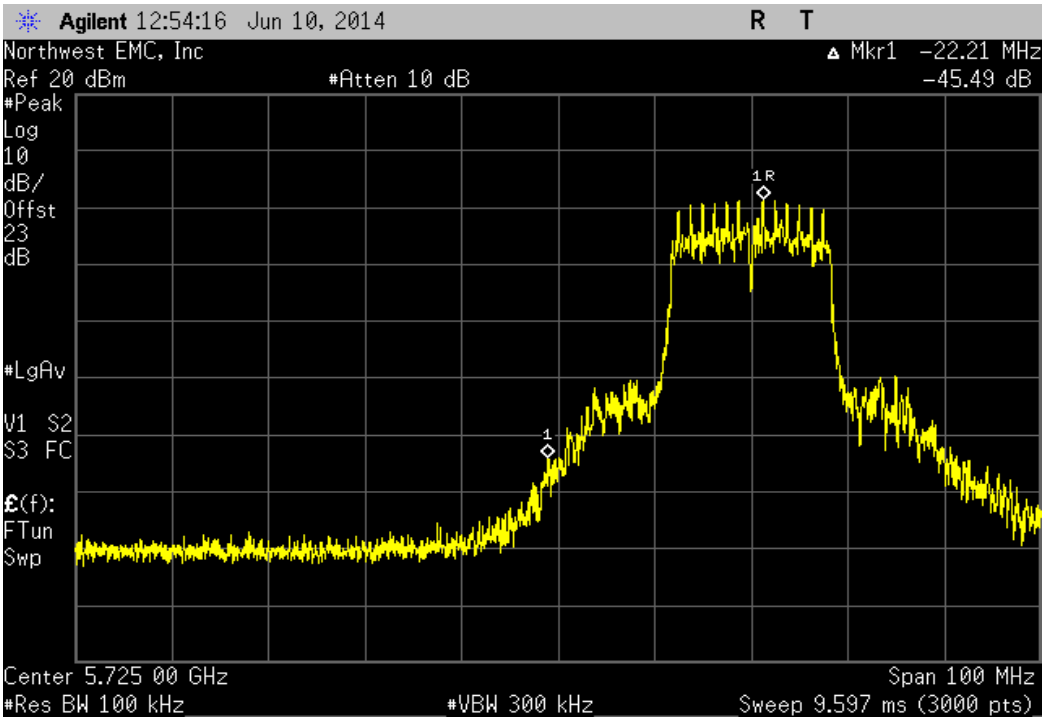
802.11(a) 18 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				-48.54 dBc	≤ -20 dBc	Pass



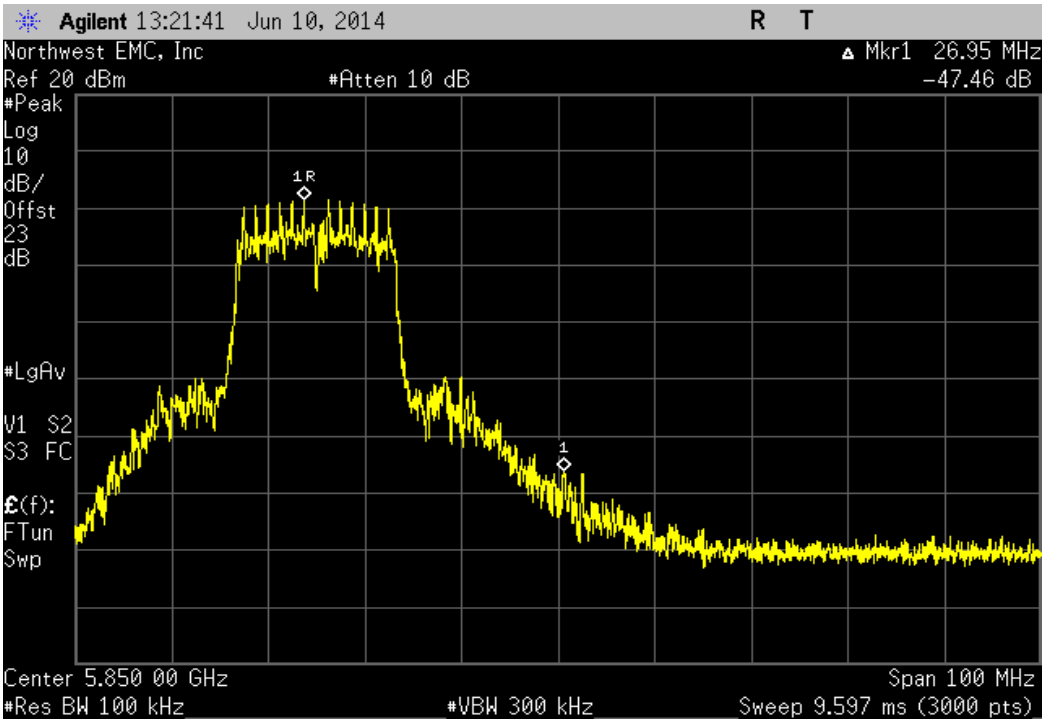
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

				Value	Limit	Result
				-45.49 dBc	≤ -20 dBc	Pass



802.11(a) 36 Mbps, High Channel 165, 5825MHz

				Value	Limit	Result
				-47.46 dBc	≤ -20 dBc	Pass



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
40GHz DC Block	Miteq	DCB4000	AMD	4/28/2014	12 mo
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12 mo
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0 mo
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/2/2013	12 mo
Power Meter	Agilent	N1913A	SQR	4/29/2013	36 mo
Power Sensor	Agilent	E9300H	SQO	4/29/2013	36 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo

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 the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

EUT:	444-2251			**Work Order:**	FOCU0169
Serial Number:	02EA4F000062			**Date:**	06/11/14
Customer:	Summit Semiconductor LLC			**Temperature:**	22.2°C
Attendees:	Paul Hamilton			**Humidity:**	41%
Project:	None			**Barometric Pres.:**	1017
Tested by:	Brandon Hobbs	**Power:**	110VAC/60Hz	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were provided by the client.

DEVIATIONS FROM TEST STANDARD

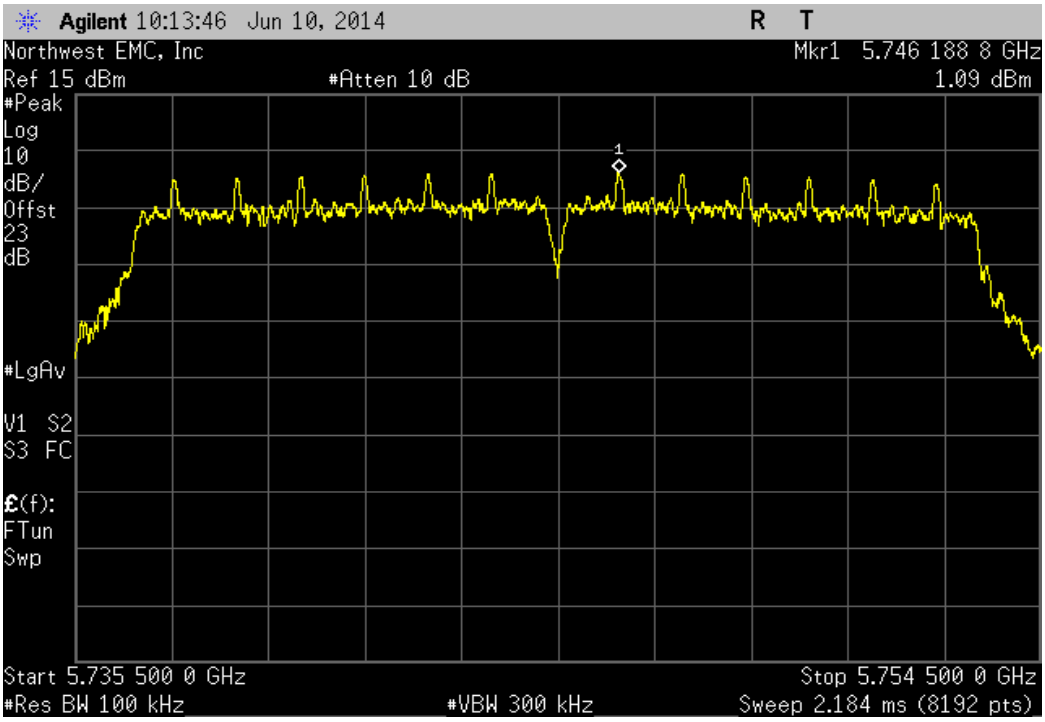
None

Configuration #	1	Signature

		Frequency Range	Value	Limit	Result
802.11(a) 6 Mbps					
	Low Channel 149, 5745MHz	Fundamental	N/A	N/A	N/A
	Low Channel 149, 5745MHz	30 MHz - 12.5 GHz	-52.05 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	12.5 GHz - 25 GHz	-47.45 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	25 GHz - 32 GHz	-46.45 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	32 GHz - 40 GHz	-37.63 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	30 MHz - 12.5 GHz	-50.95 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	12.5 GHz - 25 GHz	-48.07 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	25 GHz - 32 GHz	-46.78 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	32 GHz - 40 GHz	-37.49 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	Fundamental	N/A	N/A	N/A
	High Channel 165, 5825MHz	30 MHz - 12.5 GHz	-50.73 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	12.5 GHz - 25 GHz	-48.31 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	25 GHz - 32 GHz	-46.81 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	32 GHz - 40 GHz	-37.33 dBc	≤ -20 dBc	Pass
802.11(a) 18 Mbps					
	Low Channel 149, 5745MHz	Fundamental	N/A	N/A	N/A
	Low Channel 149, 5745MHz	30 MHz - 12.5 GHz	-52.05 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	12.5 GHz - 25 GHz	-48.35 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	25 GHz - 32 GHz	-47.77 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	32 GHz - 40 GHz	-36.98 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	30 MHz - 12.5 GHz	-51.42 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	12.5 GHz - 25 GHz	-48.05 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	25 GHz - 32 GHz	-46.45 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	32 GHz - 40 GHz	-37.52 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	Fundamental	N/A	N/A	N/A
	High Channel 165, 5825MHz	30 MHz - 12.5 GHz	-50.59 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	12.5 GHz - 25 GHz	-47.8 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	25 GHz - 32 GHz	-47.24 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	32 GHz - 40 GHz	-38.13 dBc	≤ -20 dBc	Pass
802.11(a) 36 Mbps					
	Low Channel 149, 5745MHz	Fundamental	N/A	N/A	N/A
	Low Channel 149, 5745MHz	30 MHz - 12.5 GHz	-52.91 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	12.5 GHz - 25 GHz	-48.47 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	25 GHz - 32 GHz	-46.56 dBc	≤ -20 dBc	Pass
	Low Channel 149, 5745MHz	32 GHz - 40 GHz	-37.47 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	Fundamental	N/A	N/A	N/A
	Mid Channel 157, 5785MHz	30 MHz - 12.5 GHz	-51.24 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	12.5 GHz - 25 GHz	-47.9 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	25 GHz - 32 GHz	-47.19 dBc	≤ -20 dBc	Pass
	Mid Channel 157, 5785MHz	32 GHz - 40 GHz	-37.47 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	Fundamental	N/A	N/A	N/A
	High Channel 165, 5825MHz	30 MHz - 12.5 GHz	-53.82 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	12.5 GHz - 25 GHz	-48.76 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	25 GHz - 32 GHz	-46.61 dBc	≤ -20 dBc	Pass
	High Channel 165, 5825MHz	32 GHz - 40 GHz	-36.8 dBc	≤ -20 dBc	Pass

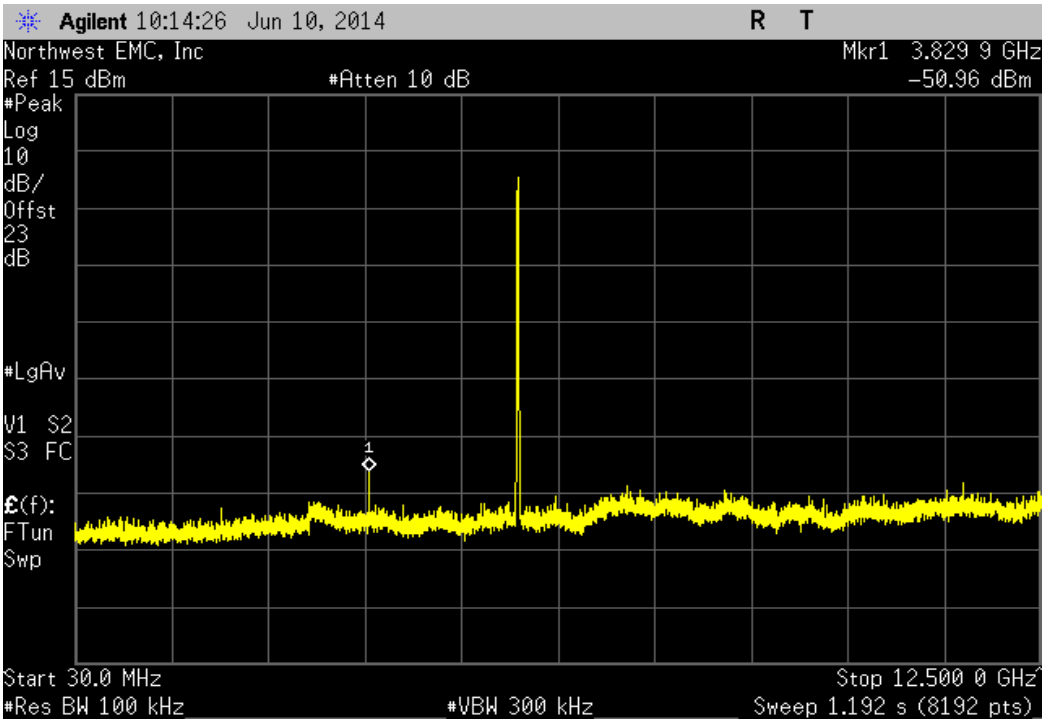
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

Frequency Range			Value	Limit	Result
Fundamental			N/A	N/A	N/A

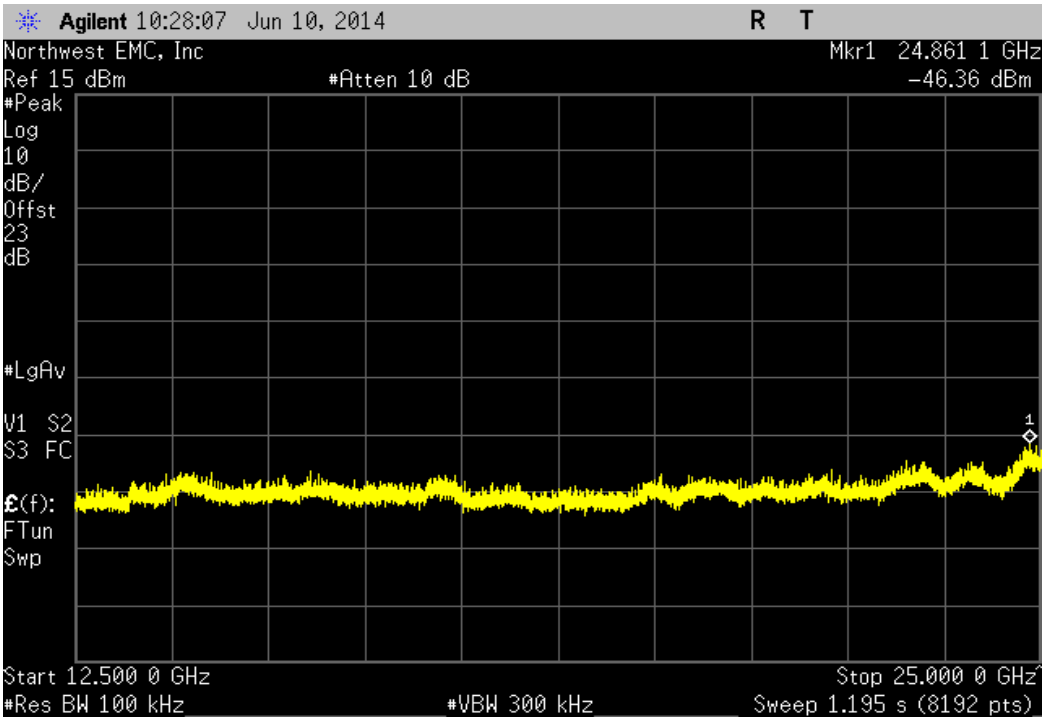


802.11(a) 6 Mbps, Low Channel 149, 5745MHz

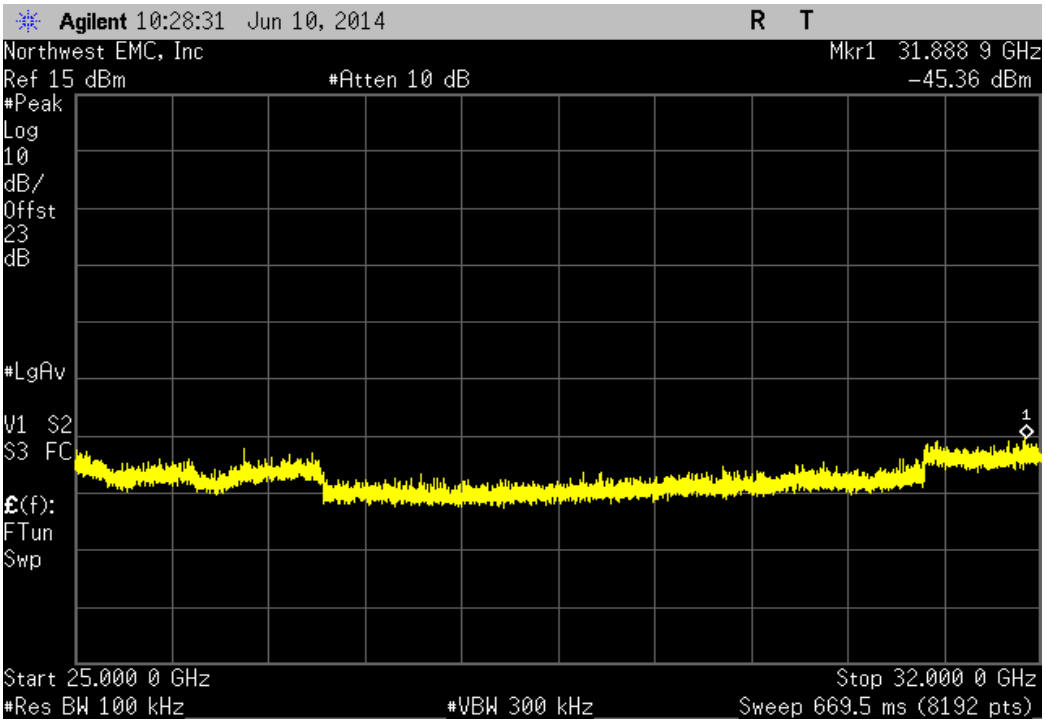
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-52.05 dBc	≤ -20 dBc	Pass



802.11(a) 6 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-47.45 dBc	≤ -20 dBc	Pass

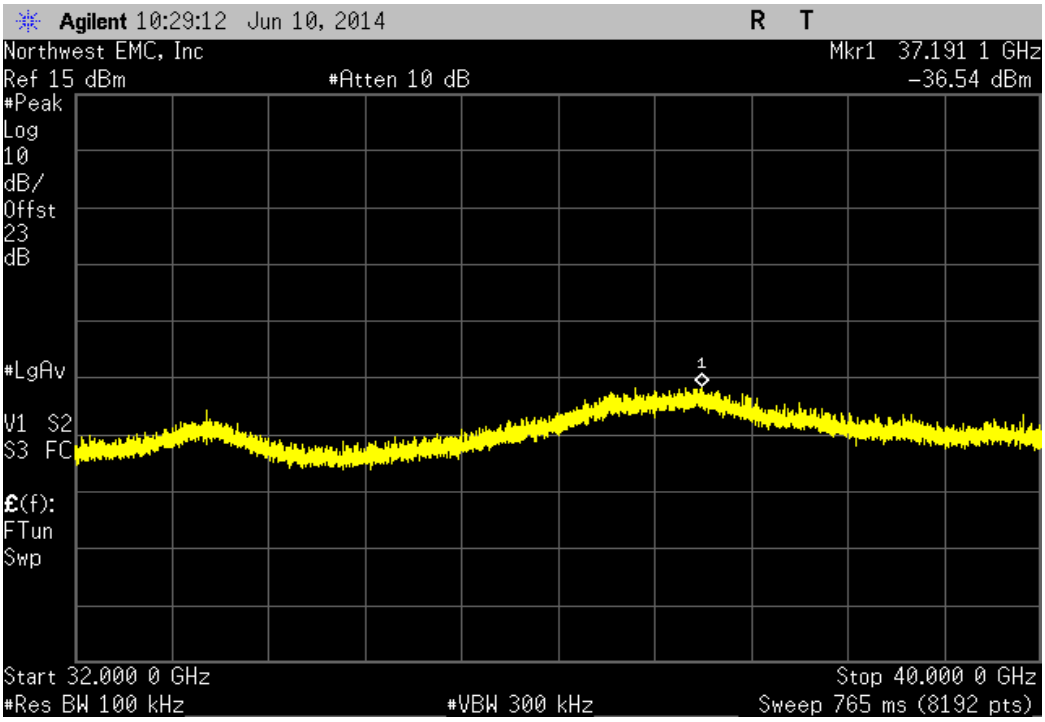


802.11(a) 6 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-46.45 dBc	≤ -20 dBc	Pass



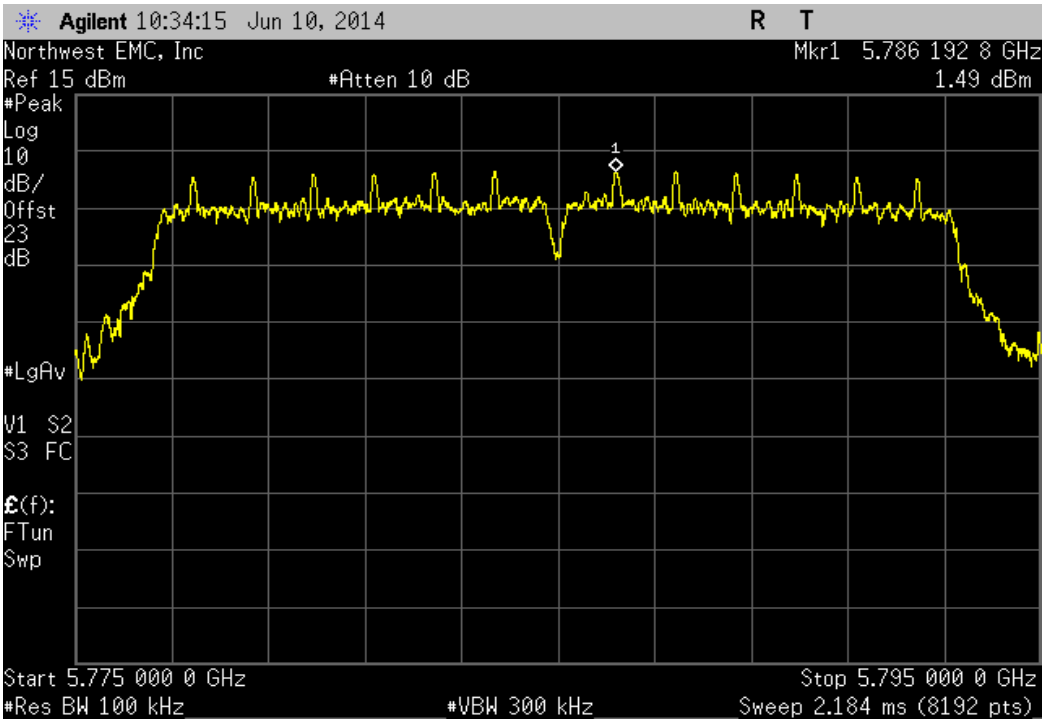
802.11(a) 6 Mbps, Low Channel 149, 5745MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-37.63 dBc	≤ -20 dBc	Pass

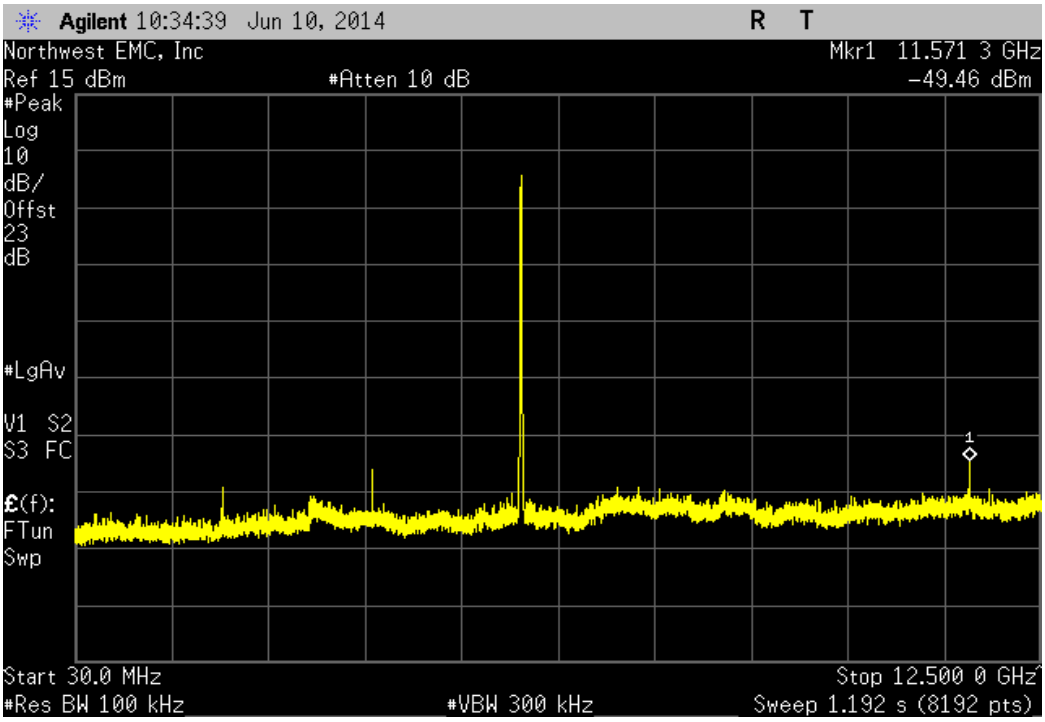


802.11(a) 6 Mbps, Mid Channel 157, 5785MHz

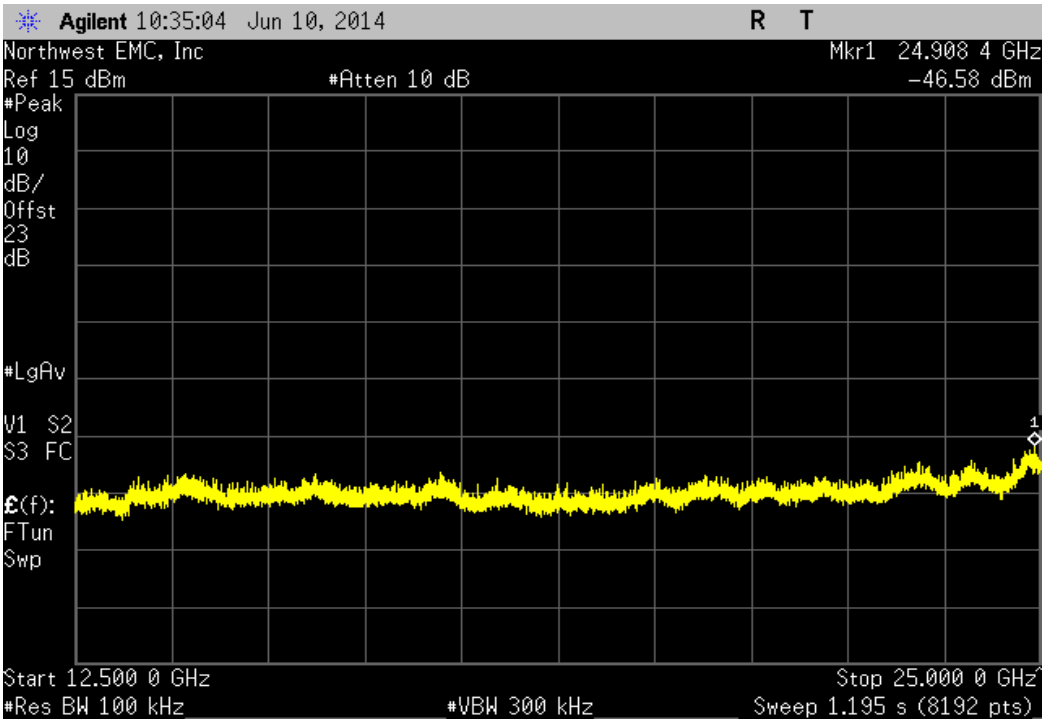
Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A



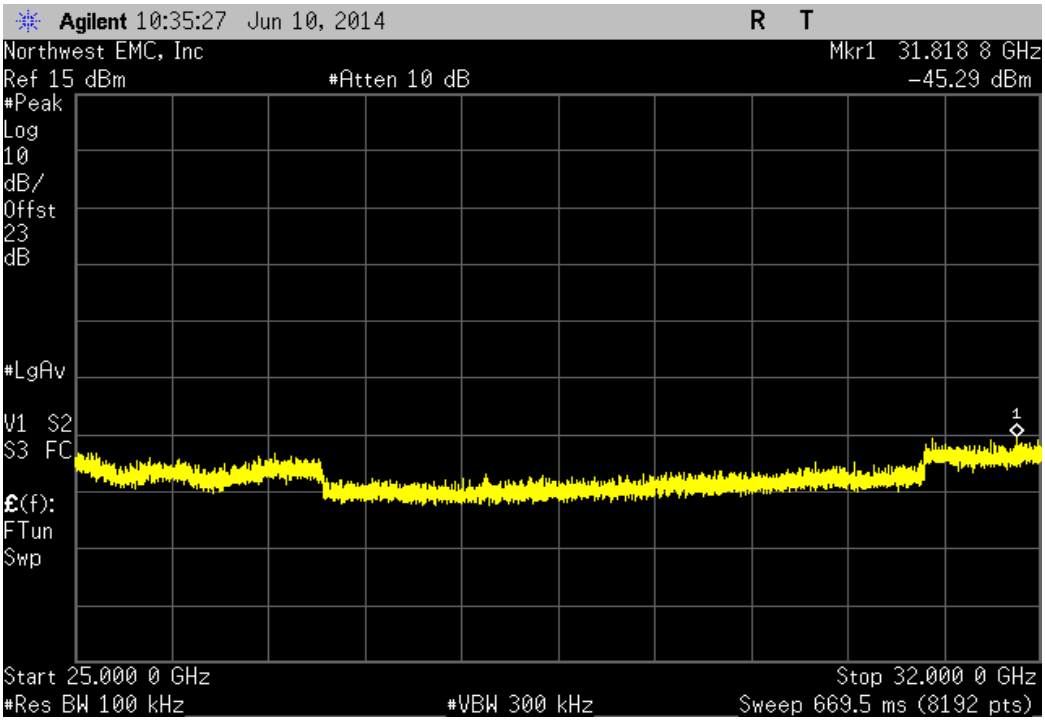
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
30 MHz - 12.5 GHz		-50.95 dBc	≤ -20 dBc	Pass



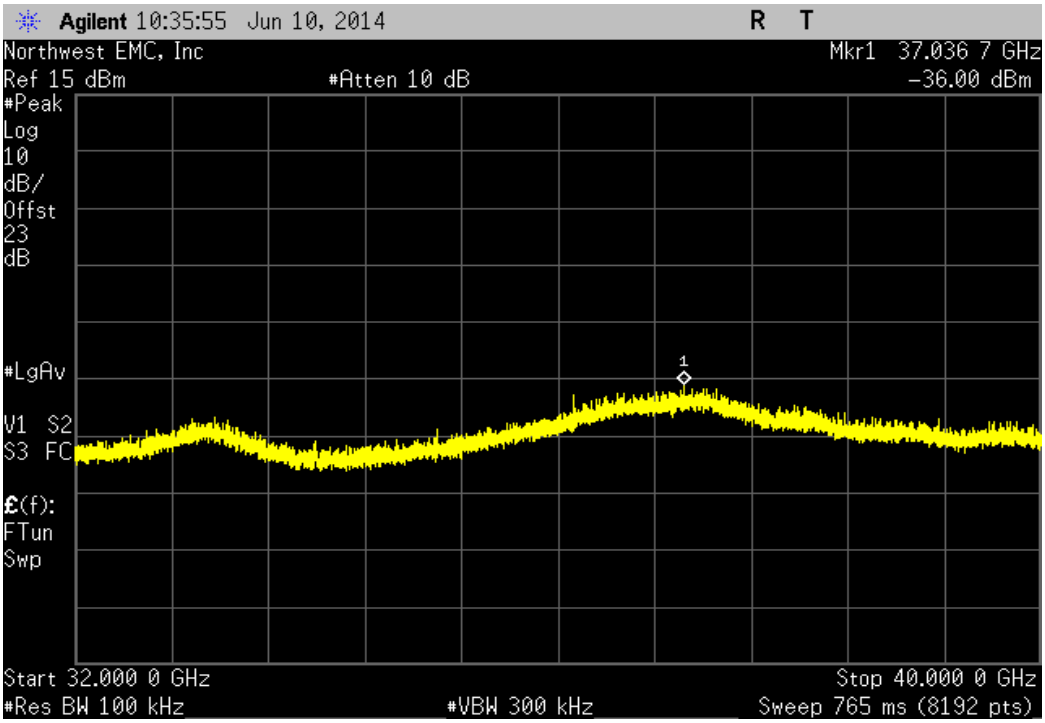
802.11(a) 6 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.07 dBc	≤ -20 dBc	Pass



802.11(a) 6 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-46.78 dBc	≤ -20 dBc	Pass

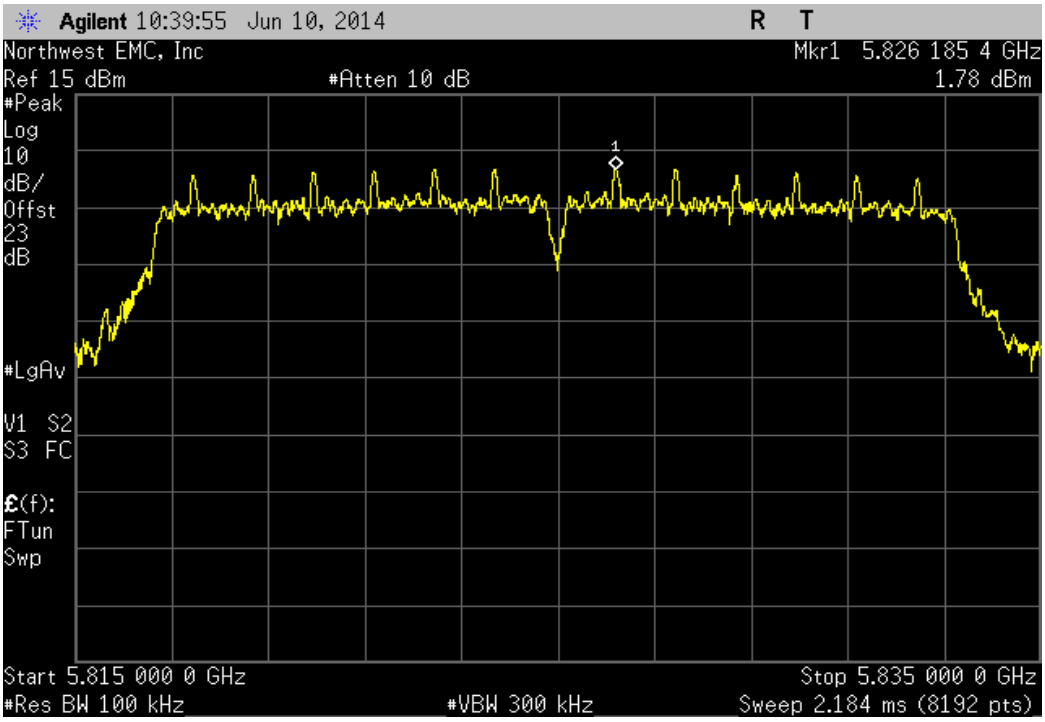


802.11(a) 6 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-37.49 dBc	≤ -20 dBc	Pass



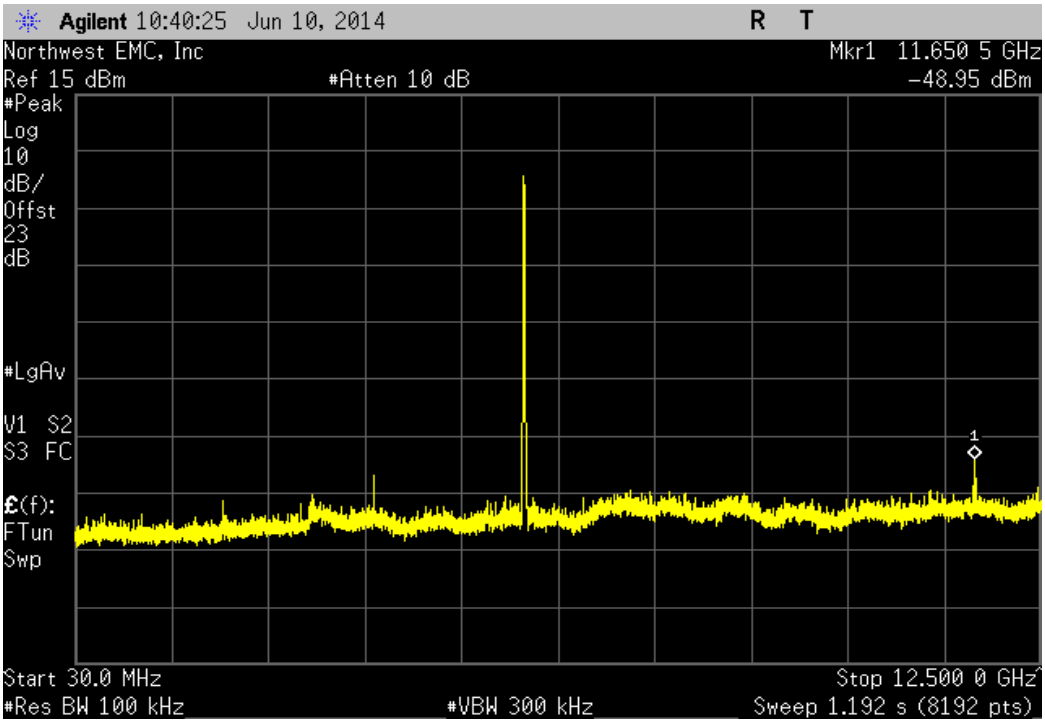
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Frequency Range			Value	Limit	Result
Fundamental			N/A	N/A	N/A



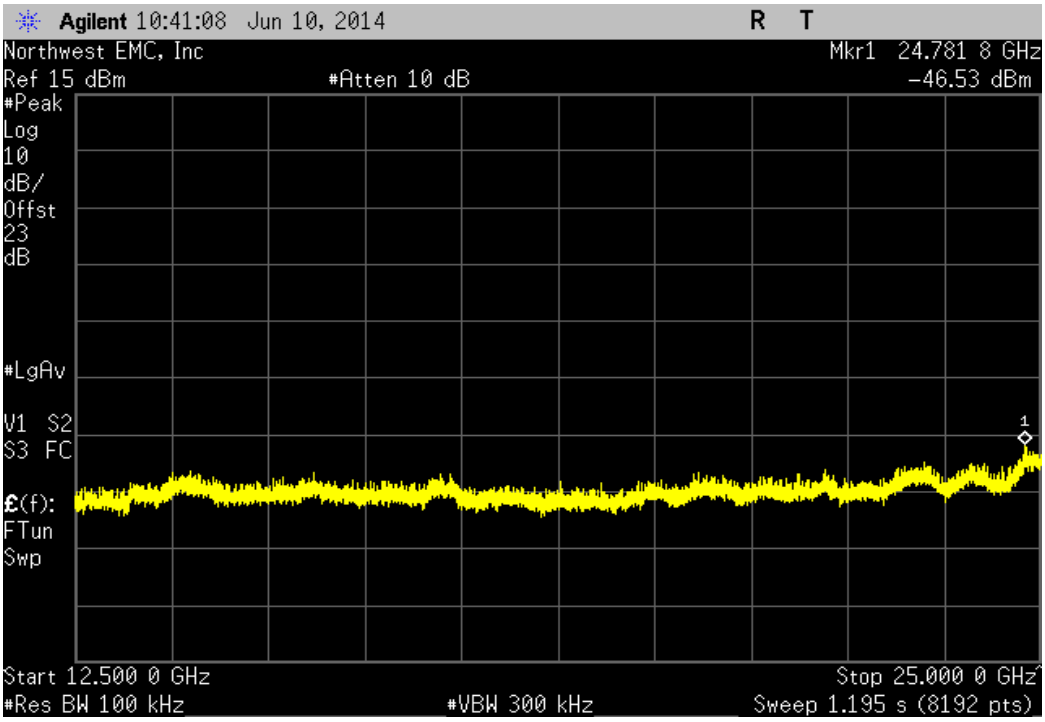
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-50.73 dBc	≤ -20 dBc	Pass



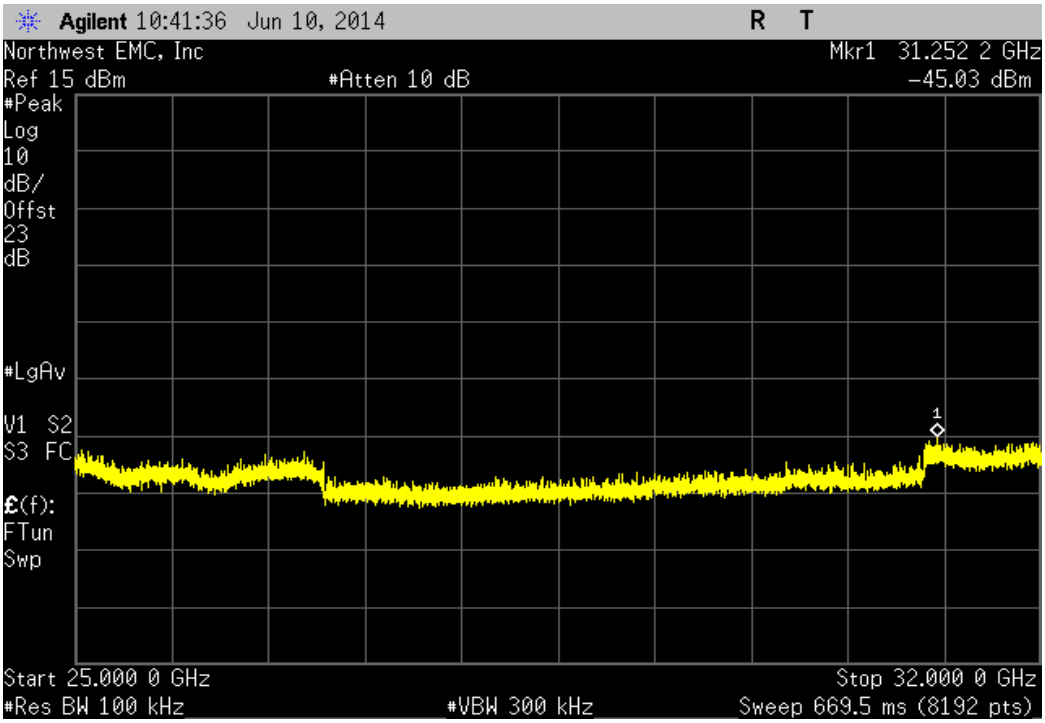
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-48.31 dBc	≤ -20 dBc	Pass



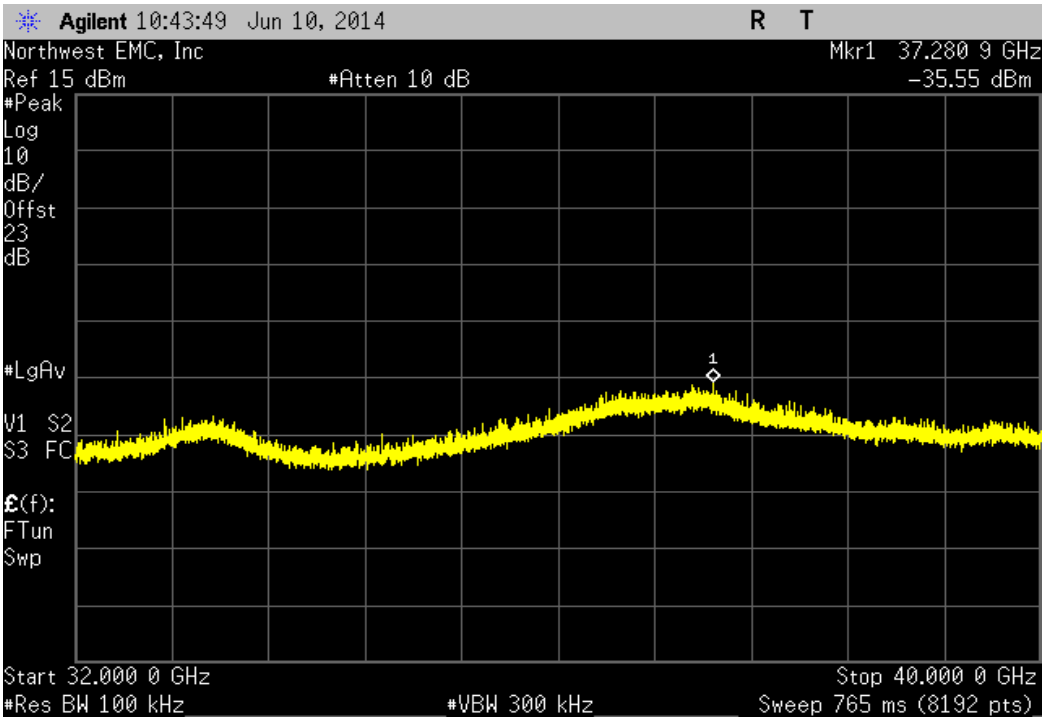
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
25 GHz - 32 GHz		-46.81 dBc	≤ -20 dBc	Pass



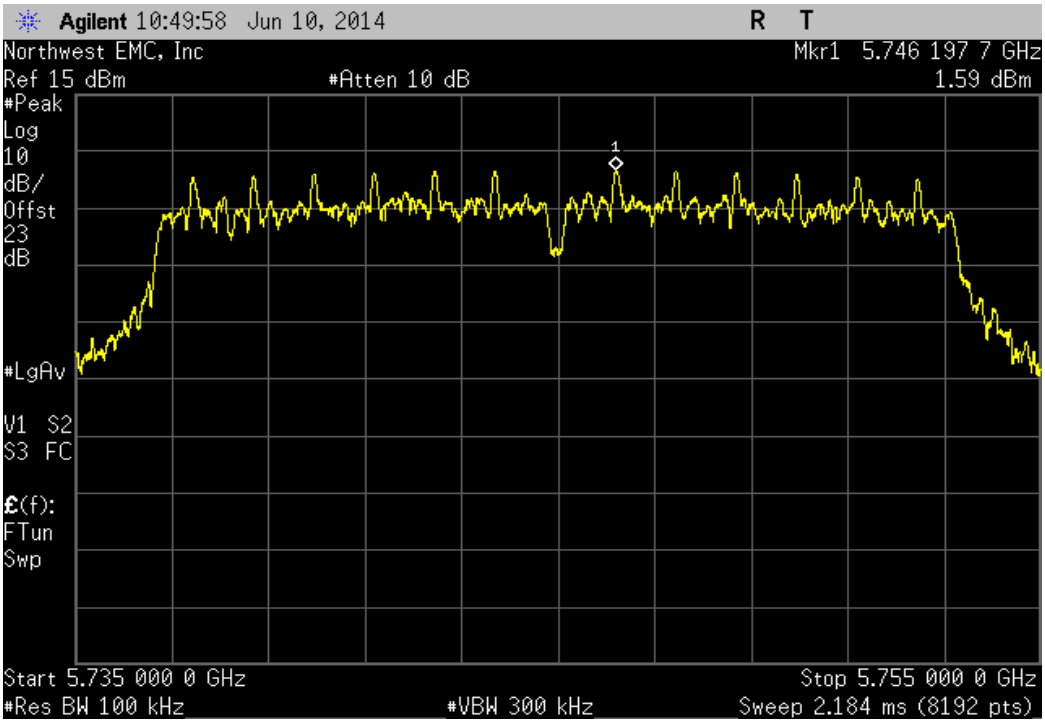
802.11(a) 6 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-37.33 dBc	≤ -20 dBc	Pass



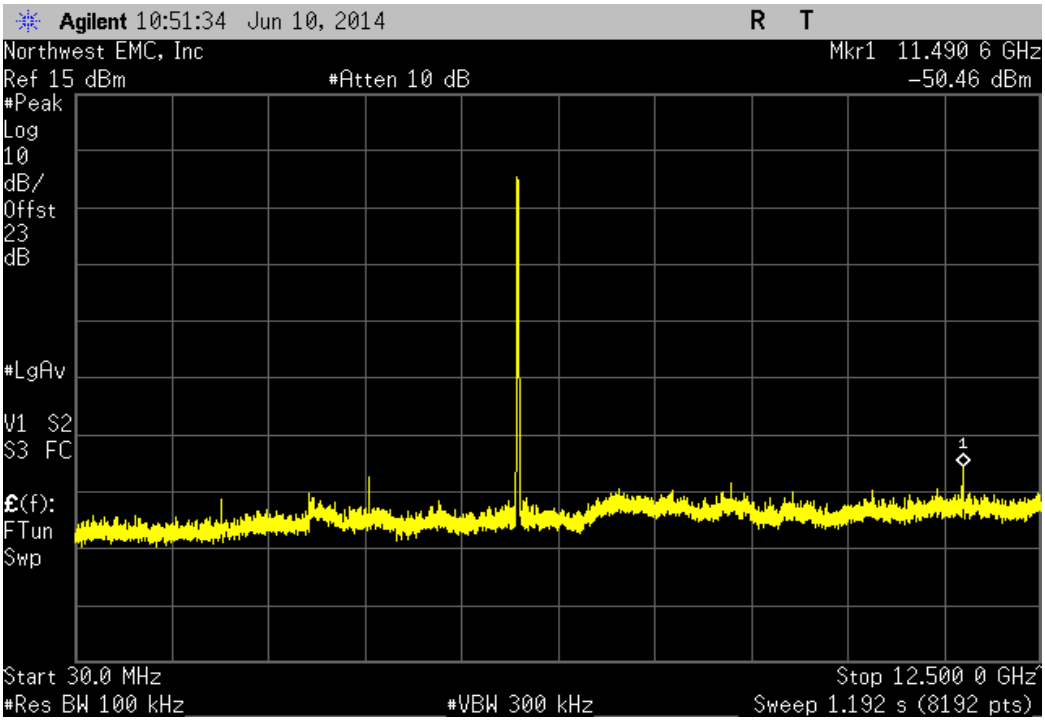
802.11(a) 18 Mbps, Low Channel 149, 5745MHz

Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A



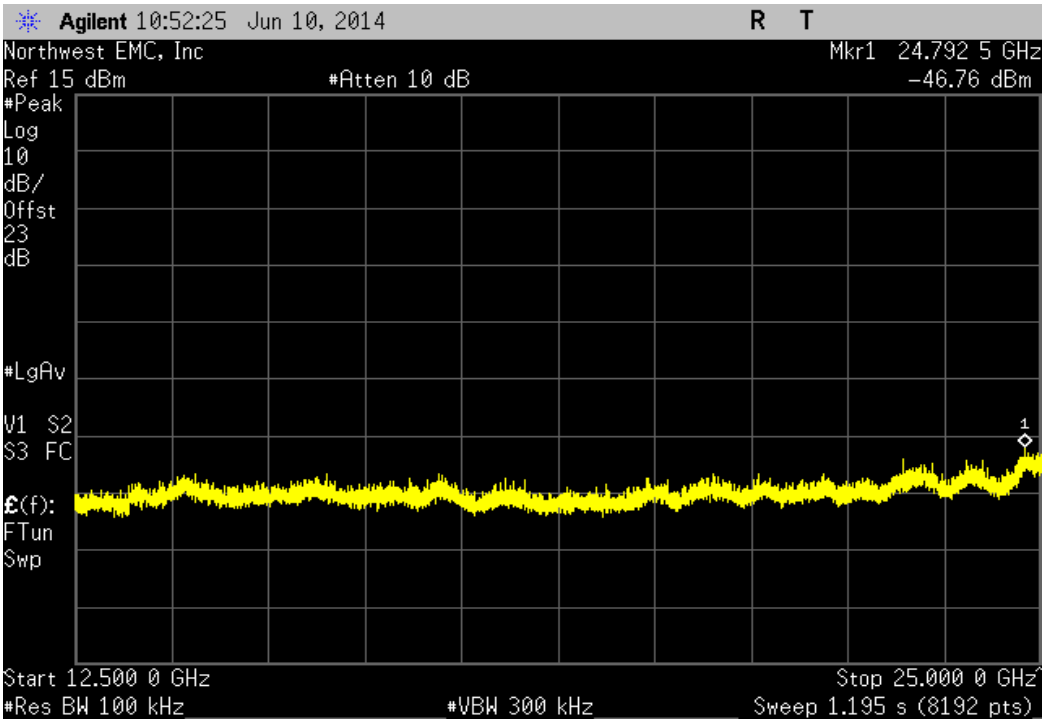
802.11(a) 18 Mbps, Low Channel 149, 5745MHz

Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-52.05 dBc	≤ -20 dBc	Pass

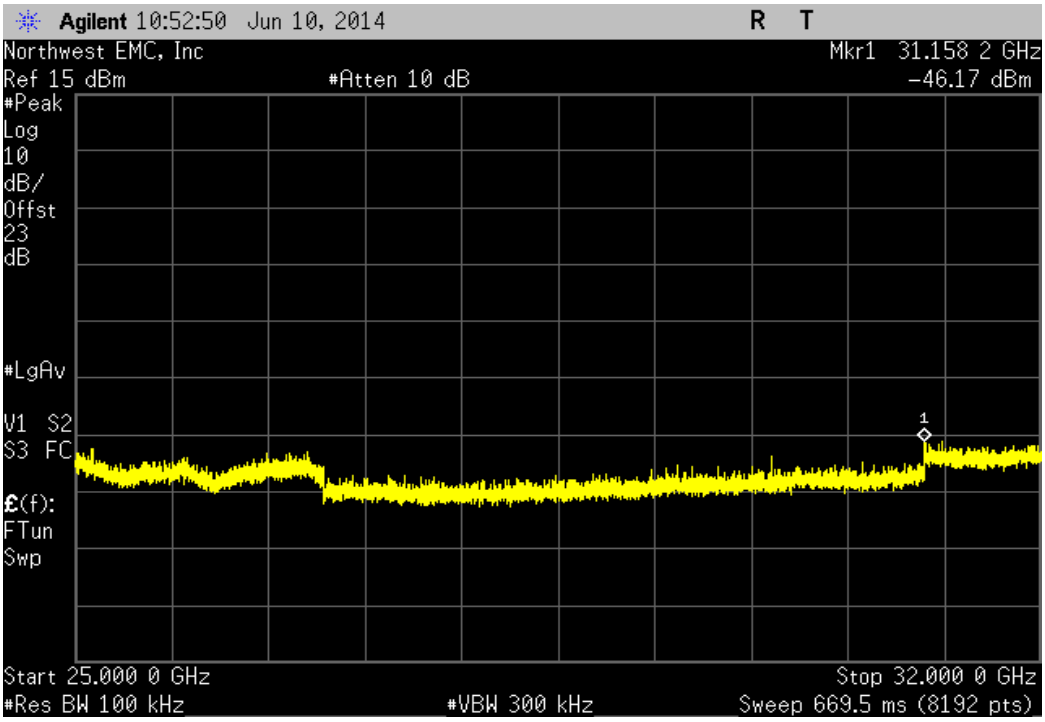


802.11(a) 18 Mbps, Low Channel 149, 5745MHz

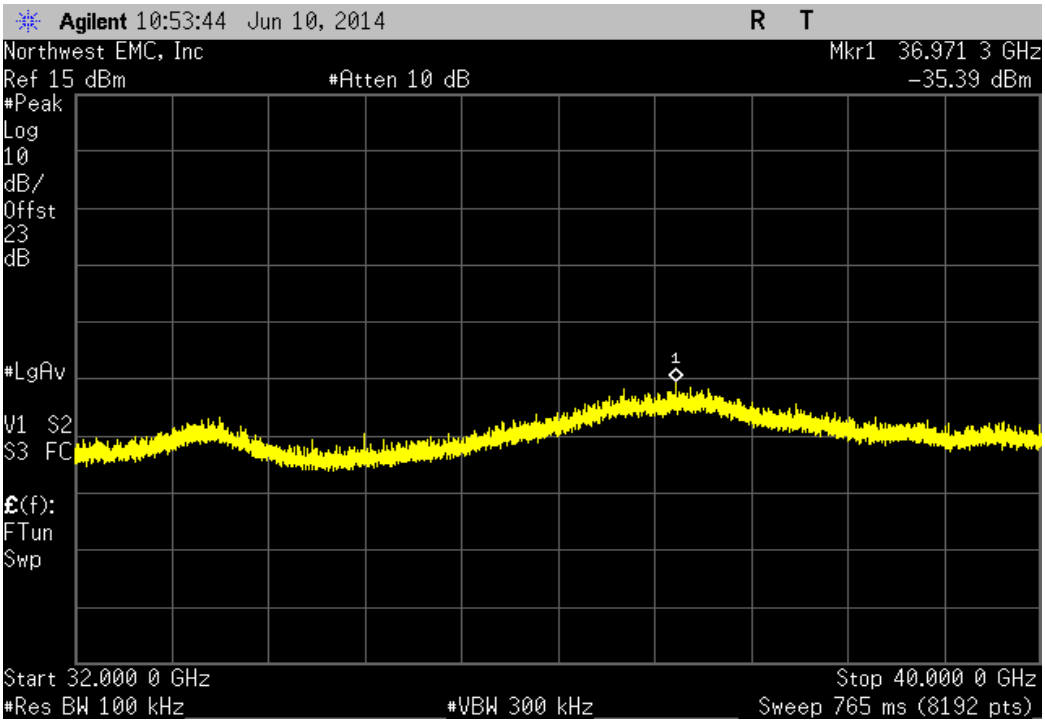
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-48.35 dBc	≤ -20 dBc	Pass



802.11(a) 18 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-47.77 dBc	≤ -20 dBc	Pass

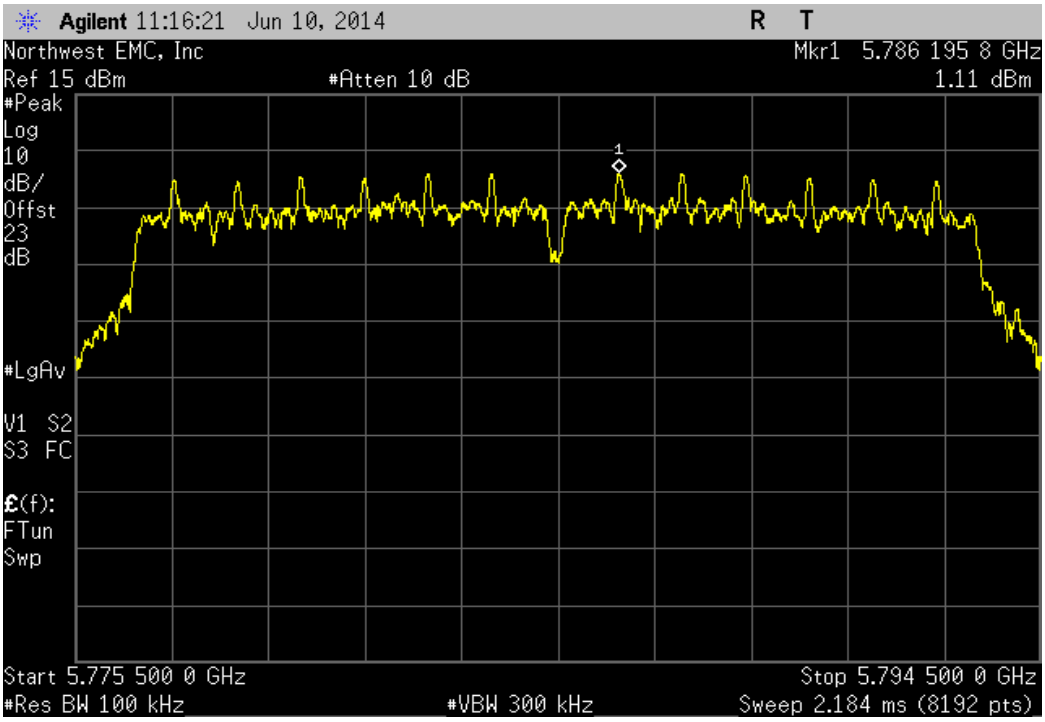


802.11(a) 18 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-36.98 dBc	≤ -20 dBc	Pass



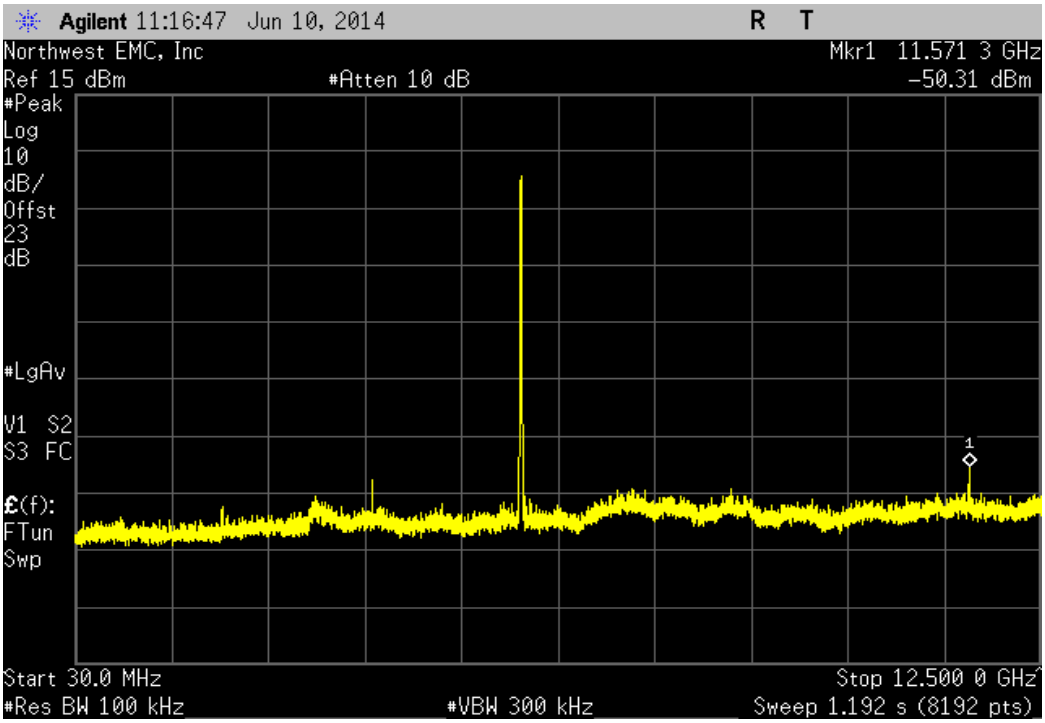
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

Frequency Range			Value	Limit	Result
Fundamental			N/A	N/A	N/A

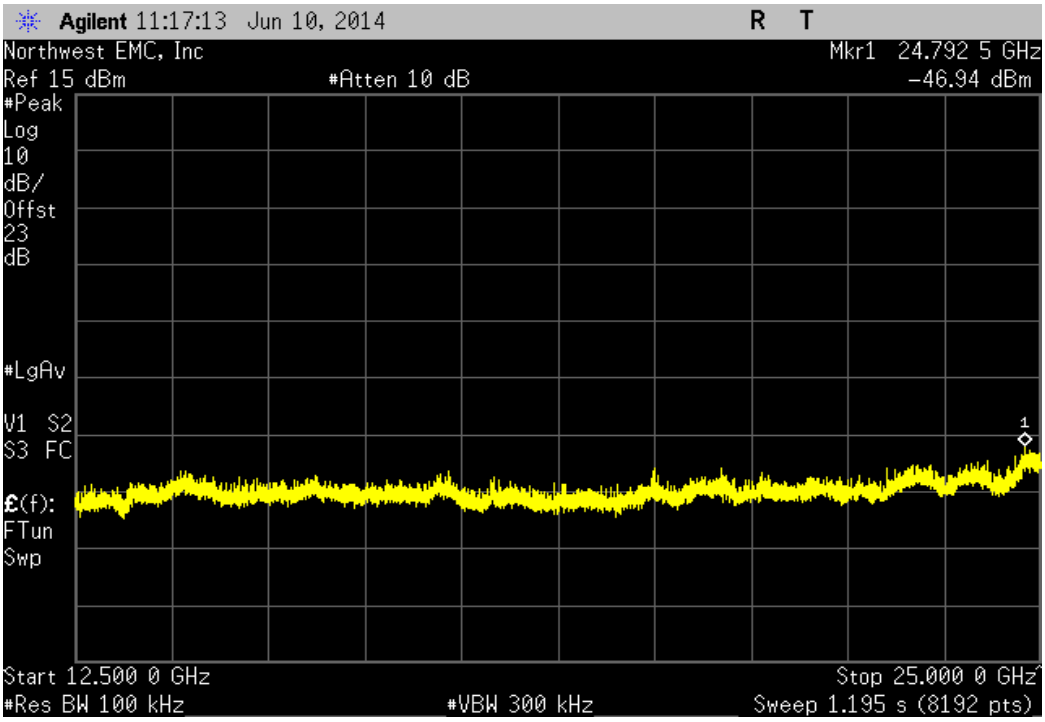


802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

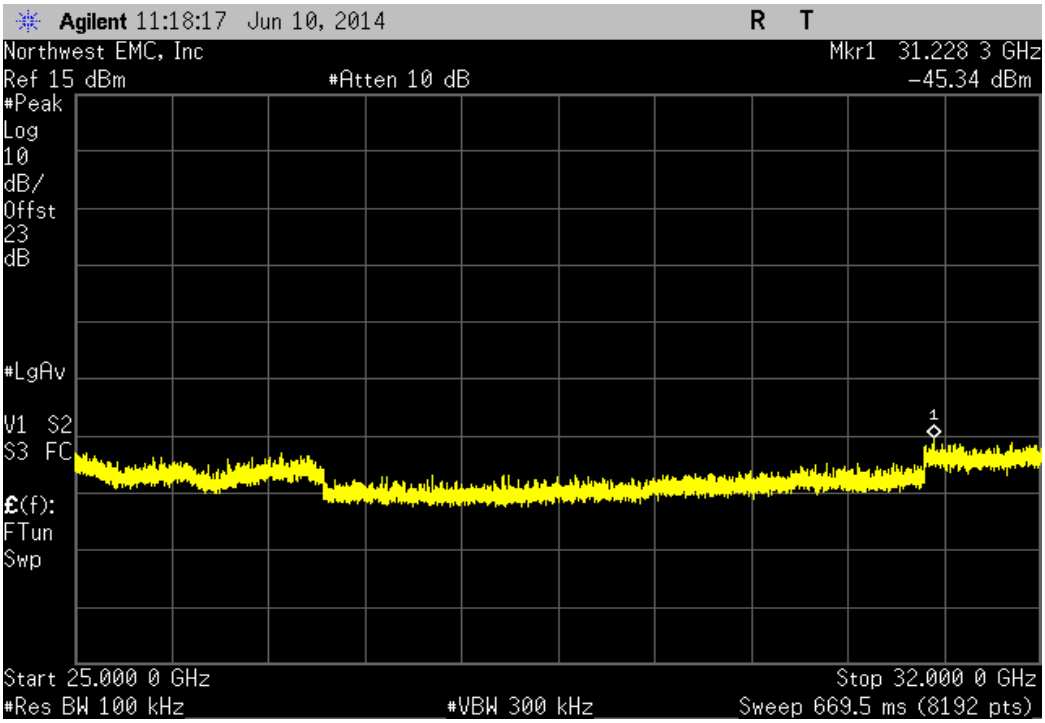
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-51.42 dBc	≤ -20 dBc	Pass



802.11(a) 18 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.05 dBc	≤ -20 dBc	Pass

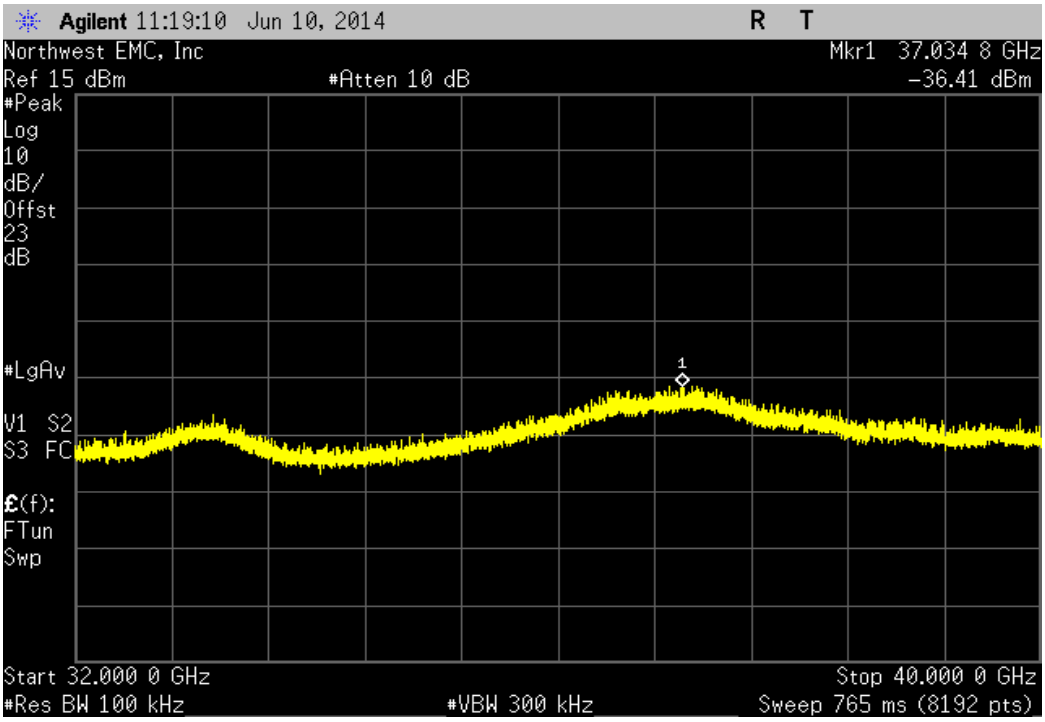


802.11(a) 18 Mbps, Mid Channel 157, 5785MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-46.45 dBc	≤ -20 dBc	Pass



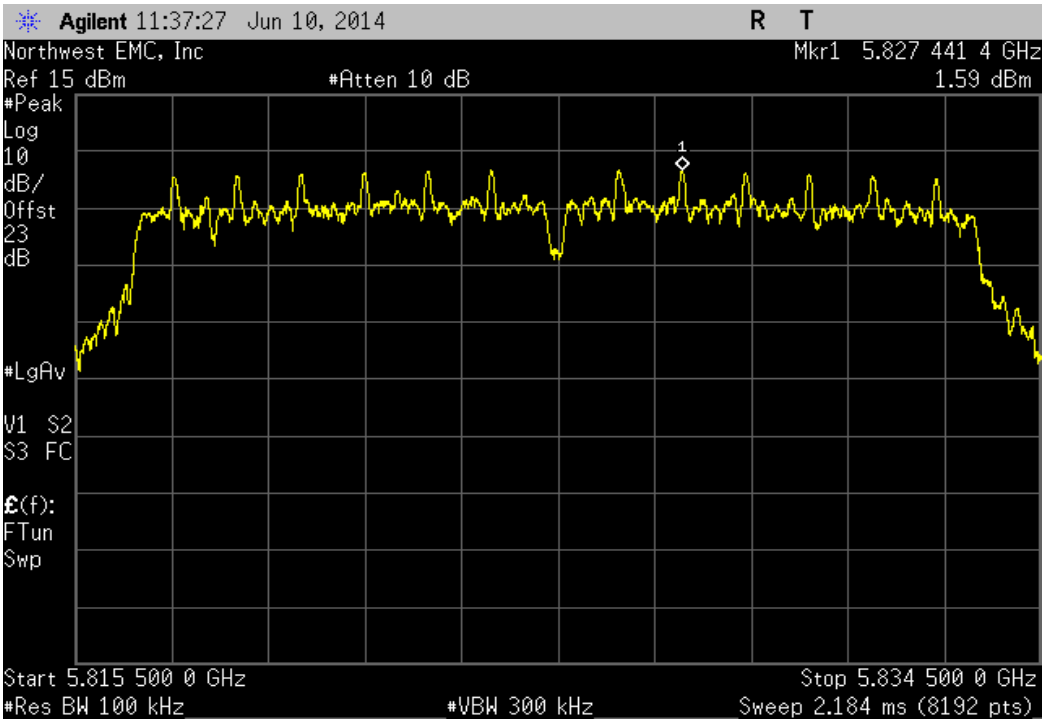
802.11(a) 18 Mbps, Mid Channel 157, 5785MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-37.52 dBc	≤ -20 dBc	Pass



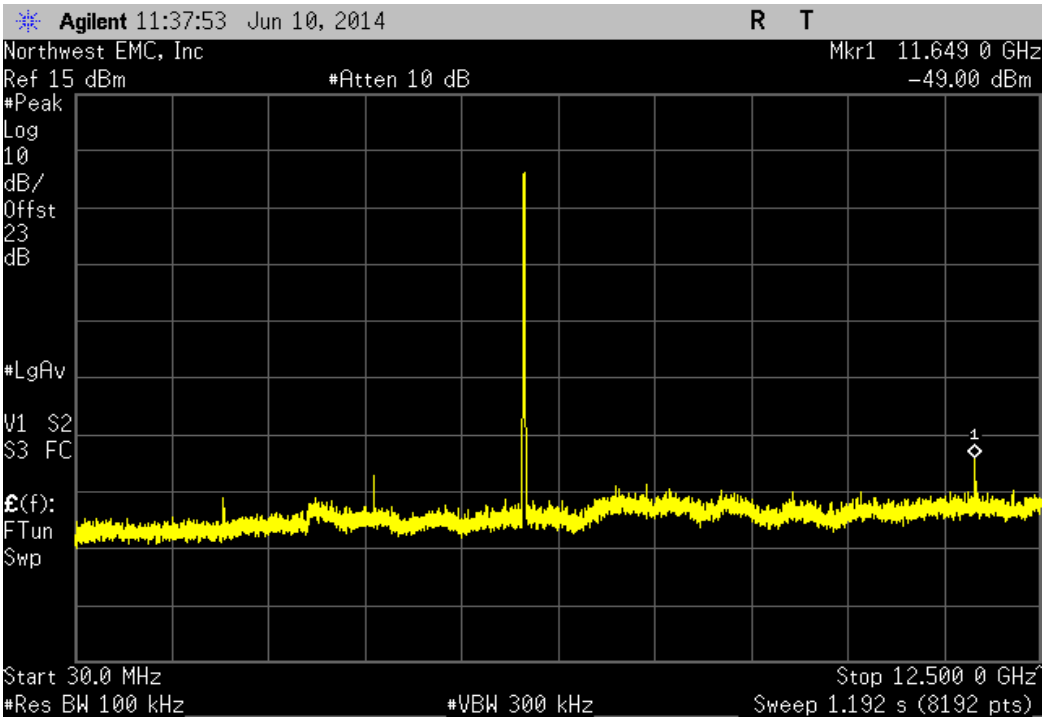
802.11(a) 18 Mbps, High Channel 165, 5825MHz

Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A



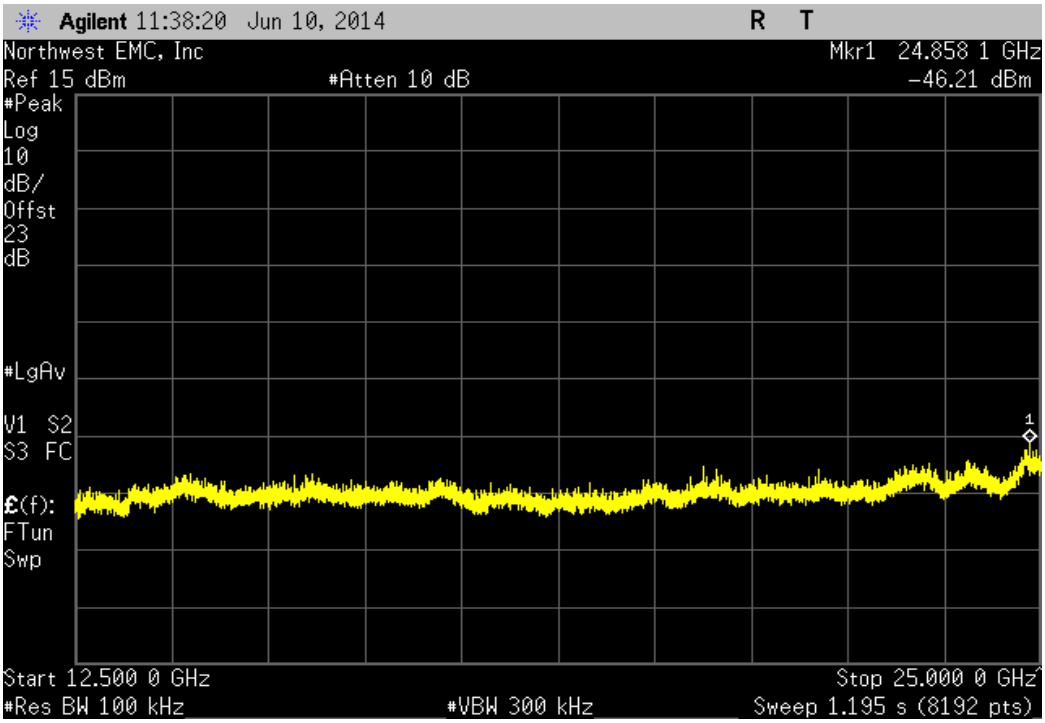
802.11(a) 18 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-50.59 dBc	≤ -20 dBc	Pass



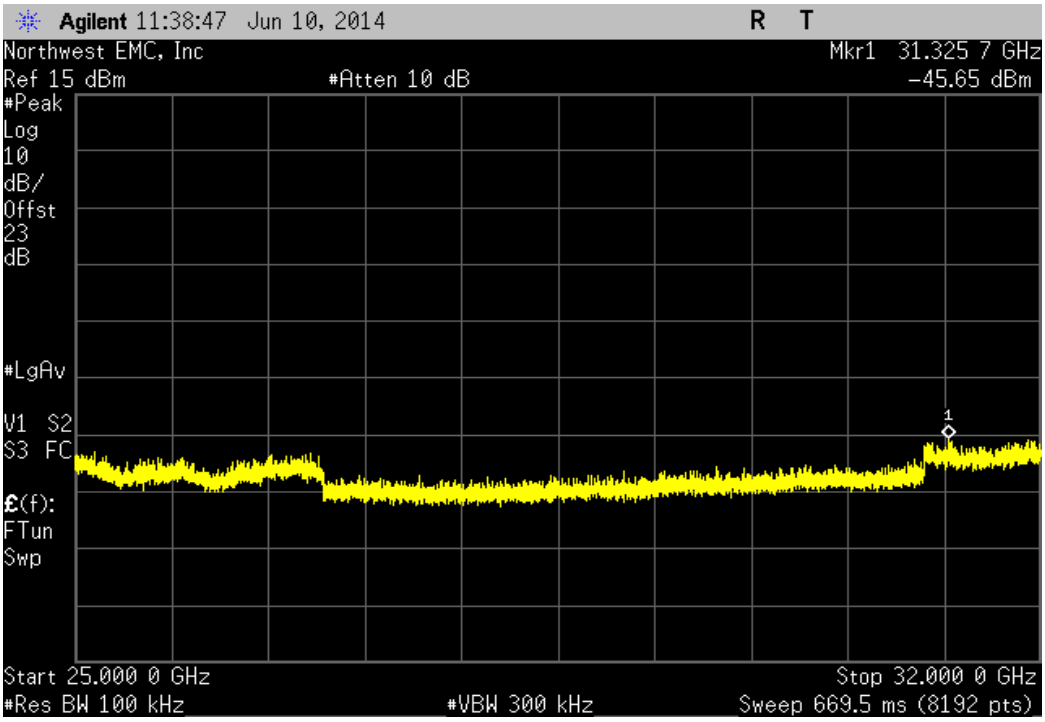
802.11(a) 18 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-47.8 dBc	≤ -20 dBc	Pass



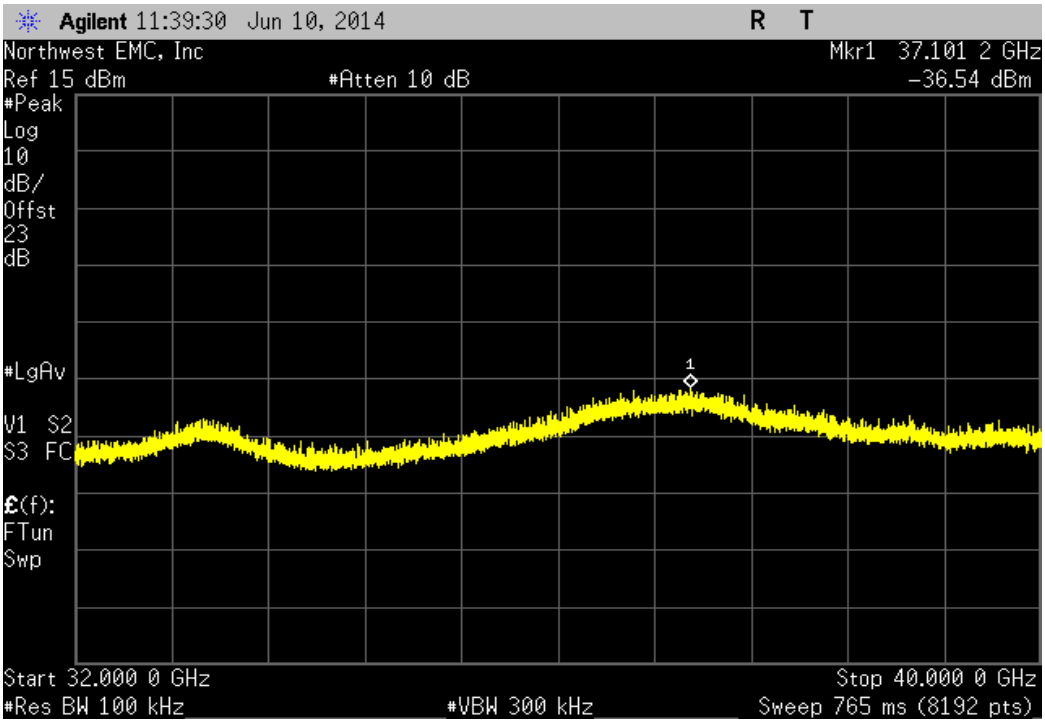
802.11(a) 18 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
25 GHz - 32 GHz		-47.24 dBc	≤ -20 dBc	Pass



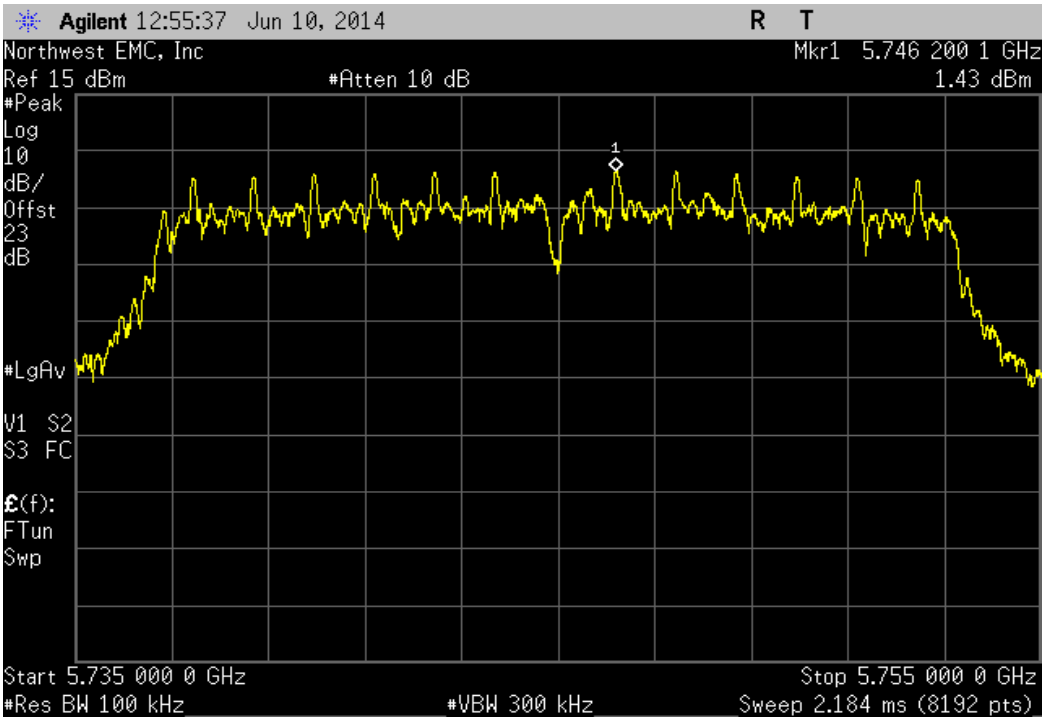
802.11(a) 18 Mbps, High Channel 165, 5825MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-38.13 dBc	≤ -20 dBc	Pass



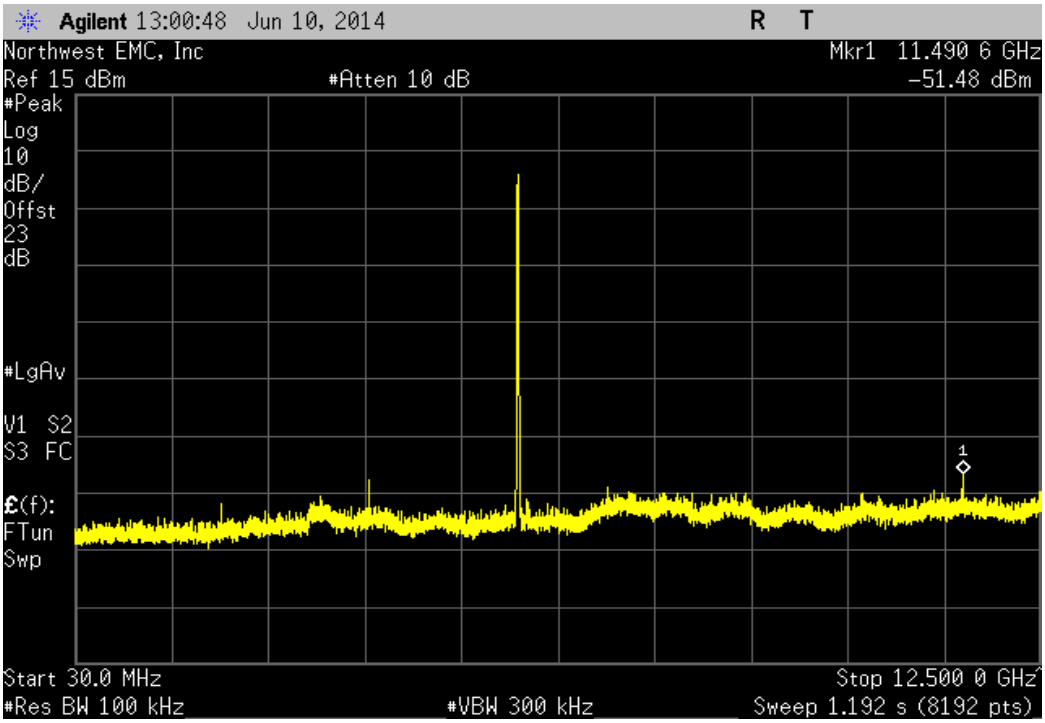
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

Frequency Range			Value	Limit	Result
Fundamental			N/A	N/A	N/A

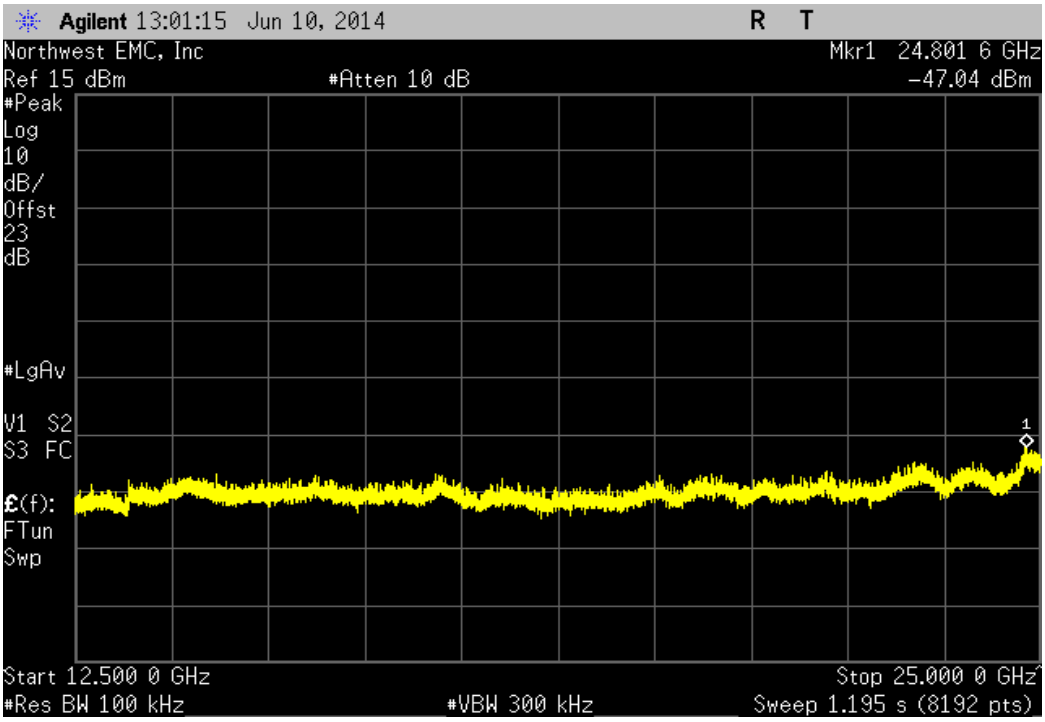


802.11(a) 36 Mbps, Low Channel 149, 5745MHz

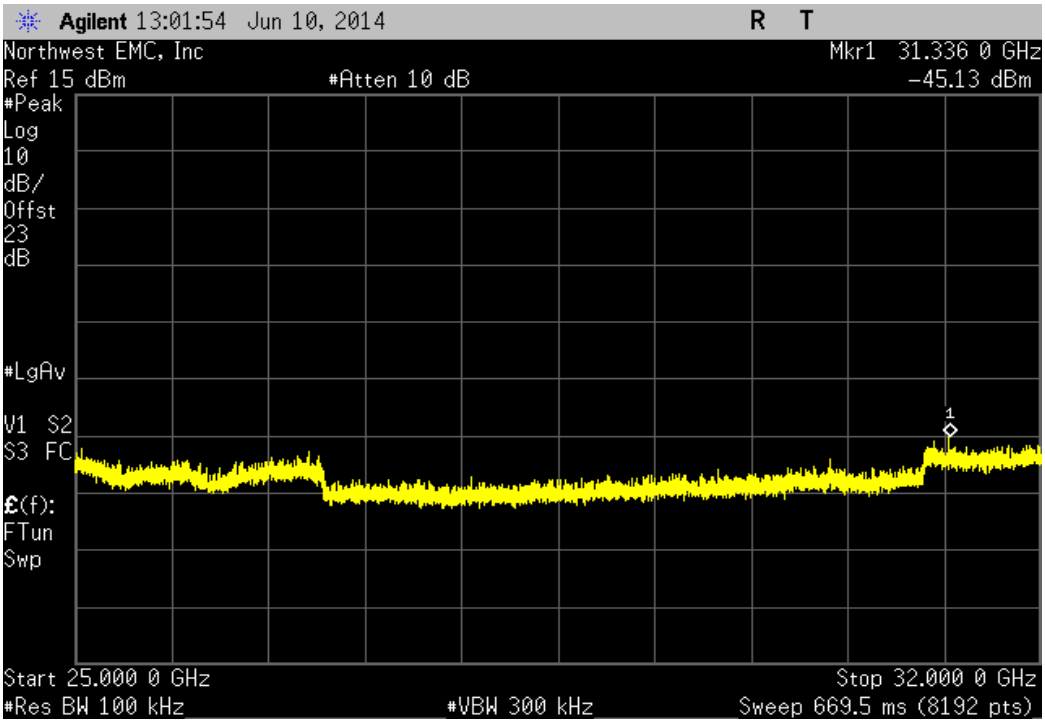
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-52.91 dBc	≤ -20 dBc	Pass



802.11(a) 36 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.47 dBc	≤ -20 dBc	Pass

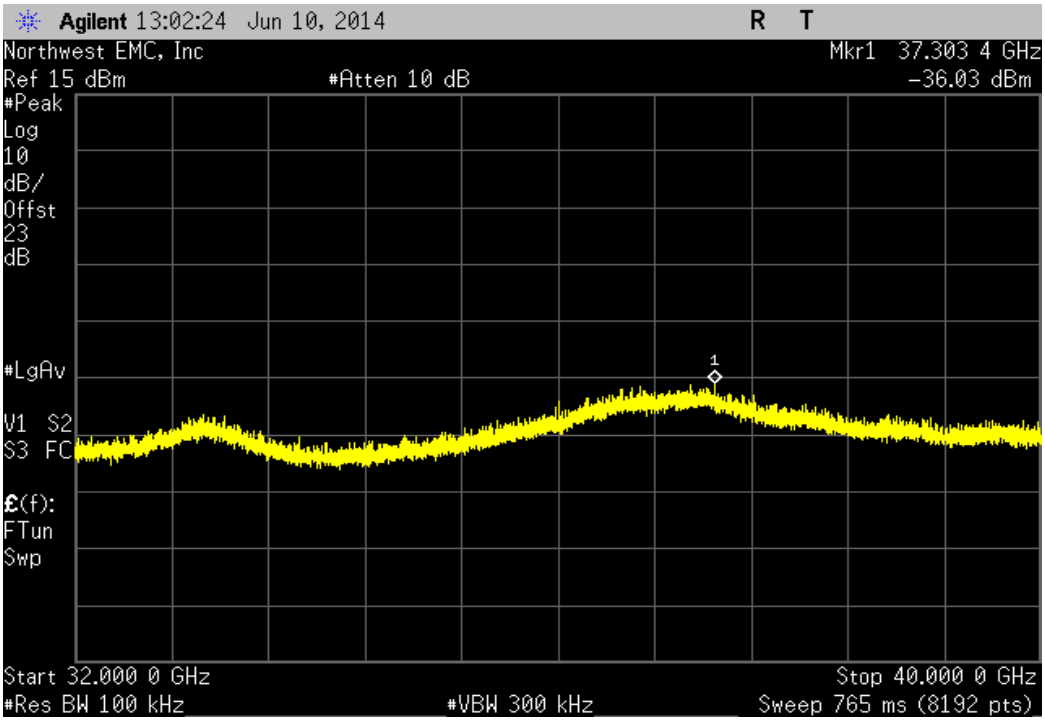


802.11(a) 36 Mbps, Low Channel 149, 5745MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-46.56 dBc	≤ -20 dBc	Pass



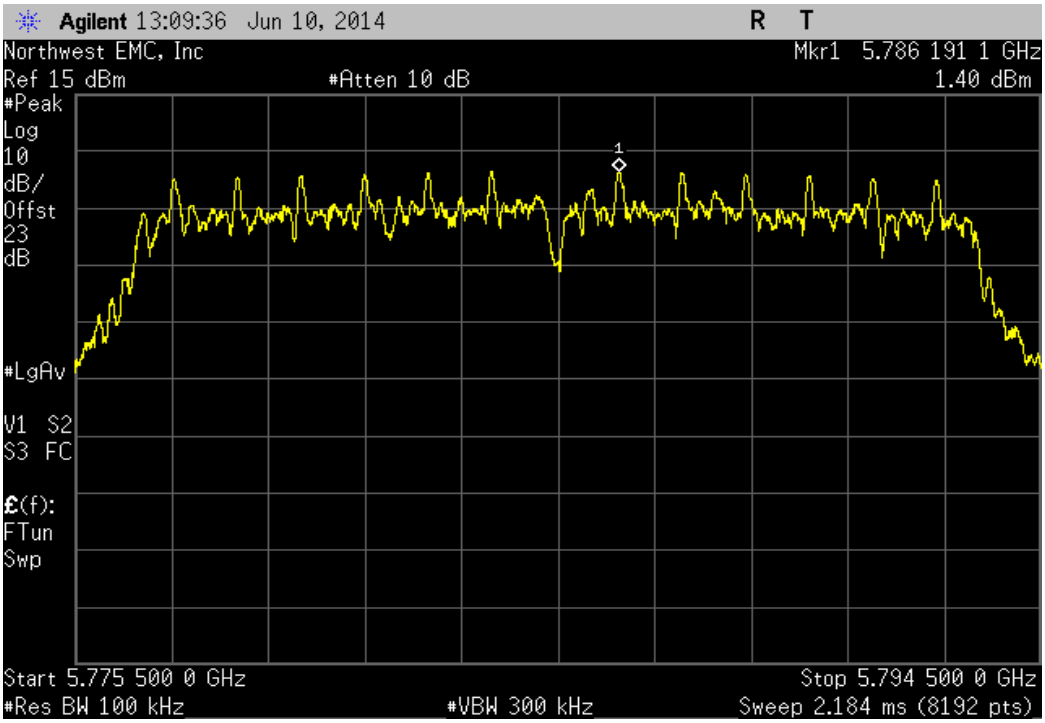
802.11(a) 36 Mbps, Low Channel 149, 5745MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-37.47 dBc	≤ -20 dBc	Pass



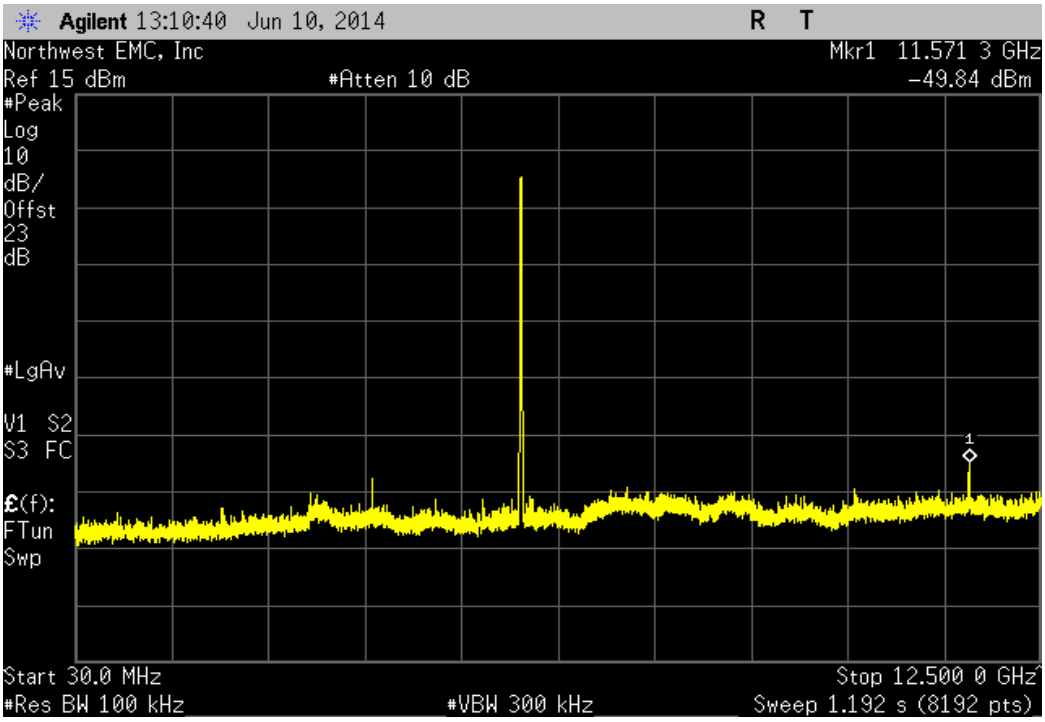
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

Frequency Range				Value	Limit	Result
	Fundamental			N/A	N/A	N/A



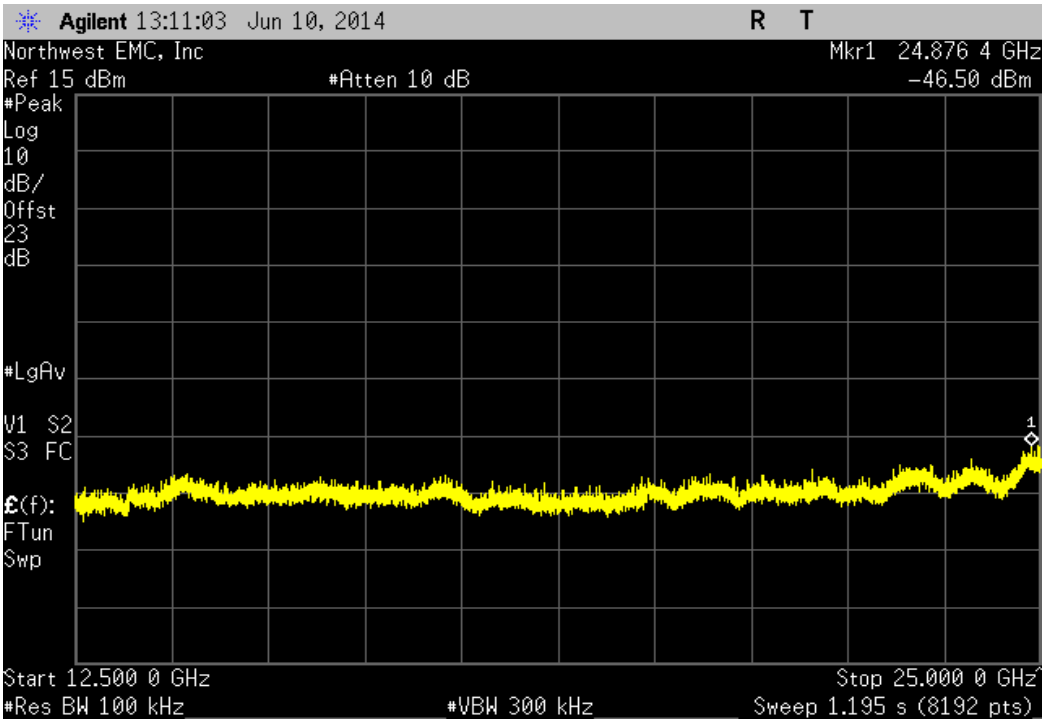
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-51.24 dBc	≤ -20 dBc	Pass



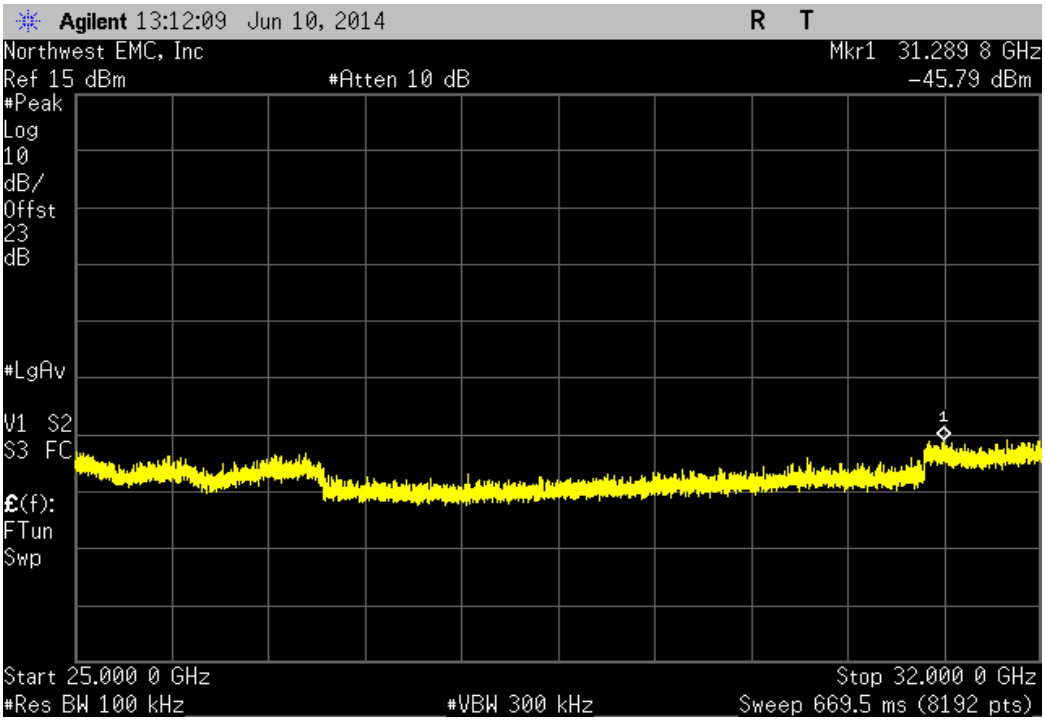
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-47.9 dBc	≤ -20 dBc	Pass



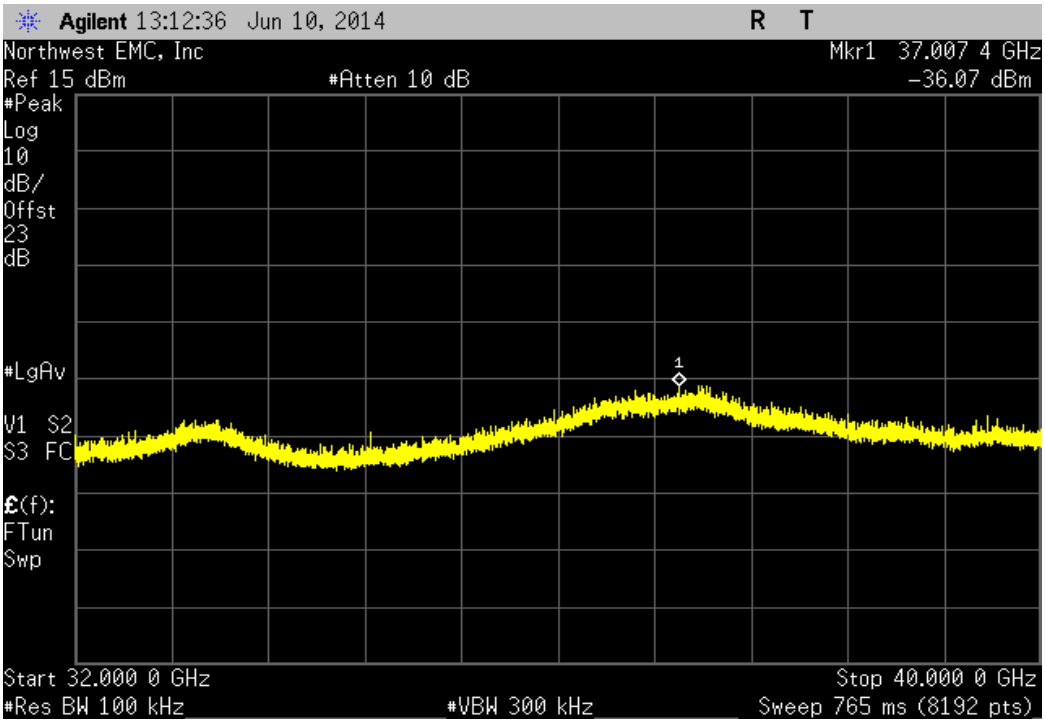
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

Frequency Range		Value	Limit	Result
25 GHz - 32 GHz		-47.19 dBc	≤ -20 dBc	Pass



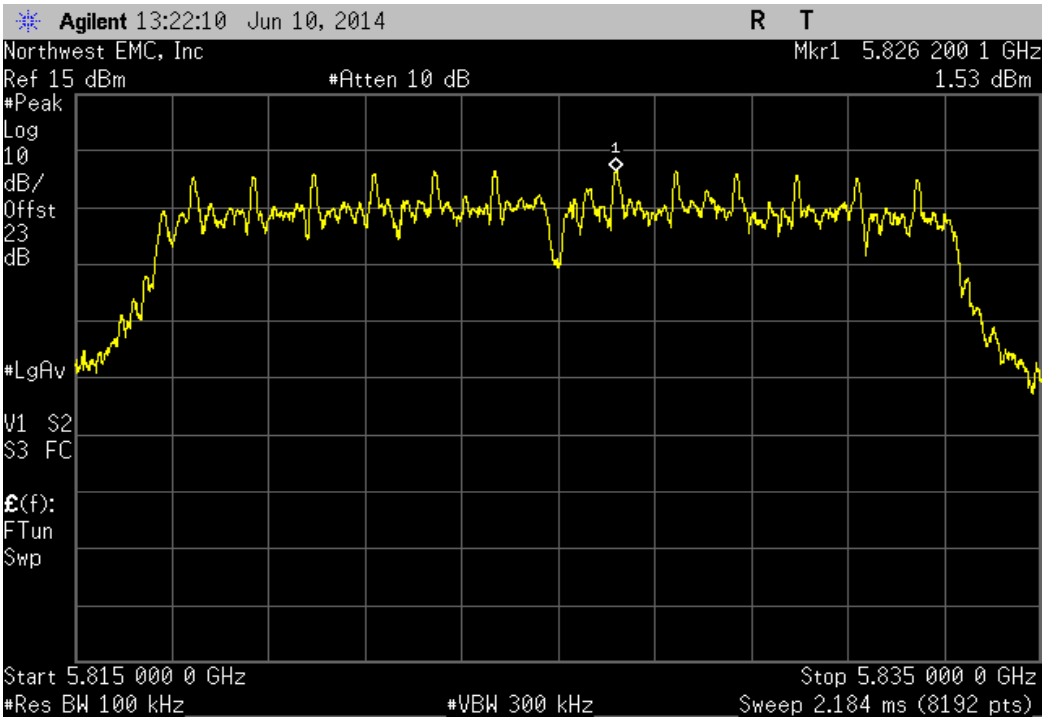
802.11(a) 36 Mbps, Mid Channel 157, 5785MHz

Frequency Range		Value	Limit	Result
32 GHz - 40 GHz		-37.47 dBc	≤ -20 dBc	Pass



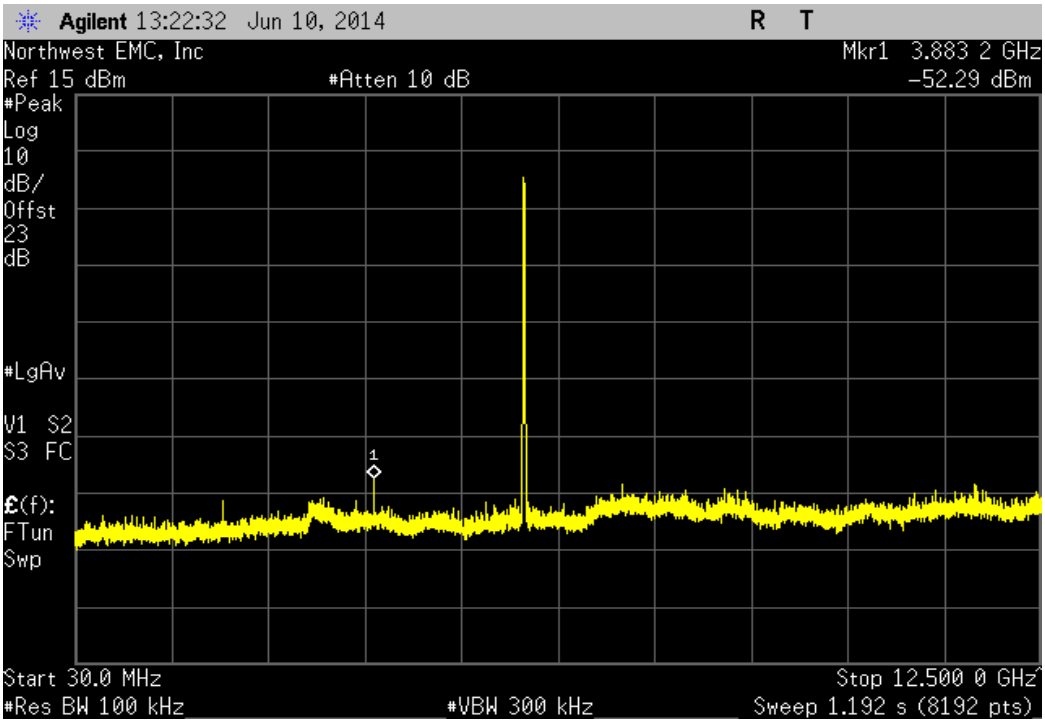
802.11(a) 36 Mbps, High Channel 165, 5825MHz

Frequency Range			Value	Limit	Result
Fundamental			N/A	N/A	N/A

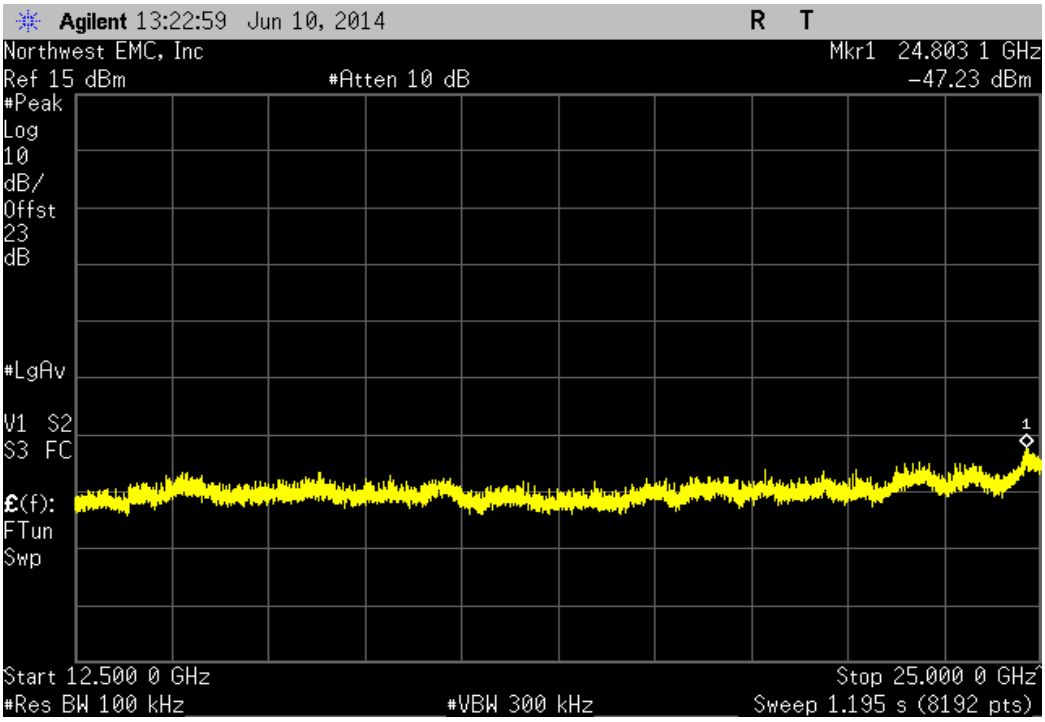


802.11(a) 36 Mbps, High Channel 165, 5825MHz

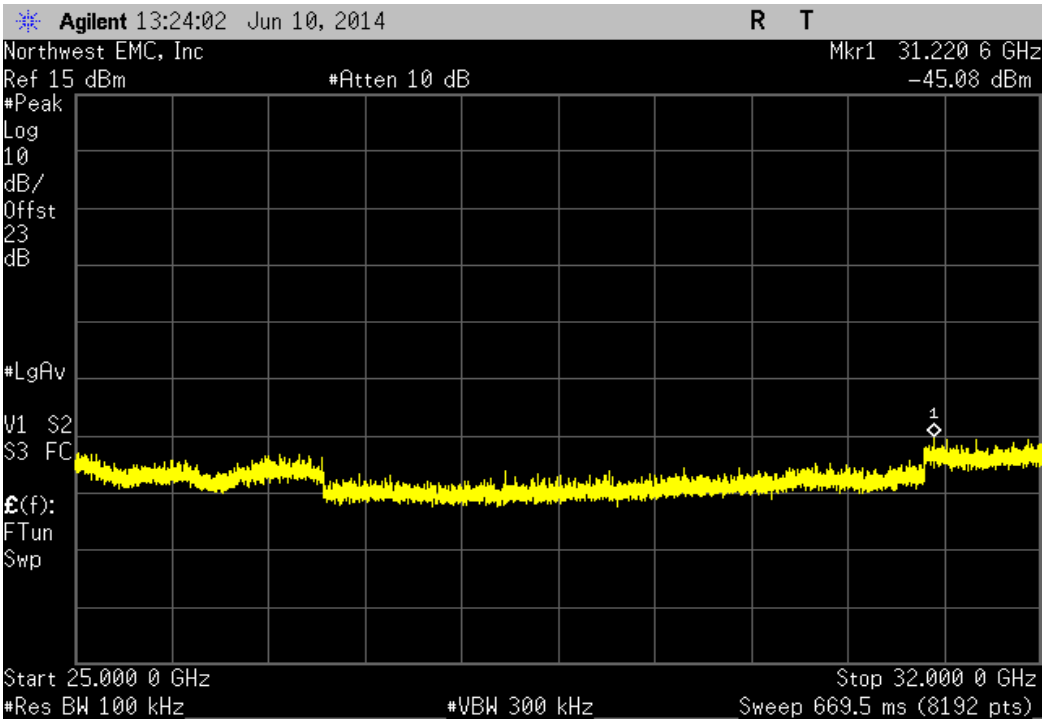
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-53.82 dBc	≤ -20 dBc	Pass



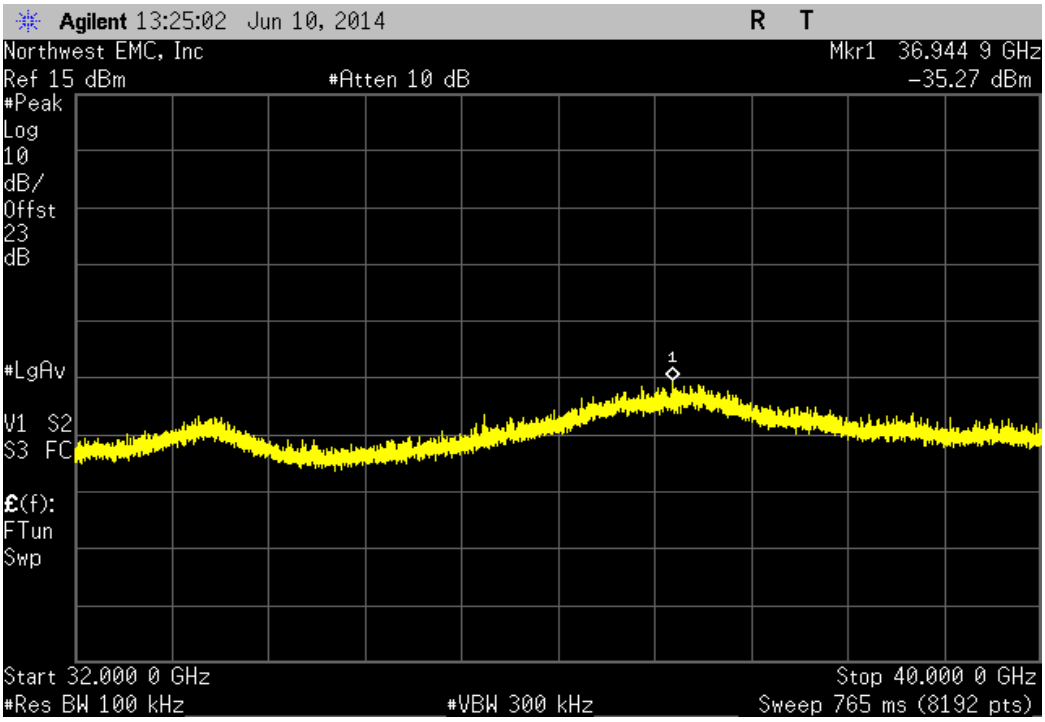
802.11(a) 36 Mbps, High Channel 165, 5825MHz				
Frequency Range		**Value**	**Limit**	**Result**
12.5 GHz - 25 GHz		-48.76 dBc	≤ -20 dBc	Pass



802.11(a) 36 Mbps, High Channel 165, 5825MHz				
Frequency Range		**Value**	**Limit**	**Result**
25 GHz - 32 GHz		-46.61 dBc	≤ -20 dBc	Pass



802.11(a) 36 Mbps, High Channel 165, 5825MHz				
Frequency Range		**Value**	**Limit**	**Result**
32 GHz - 40 GHz		-36.8 dBc	≤ -20 dBc	Pass



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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

CHANNEL OF OPERATION

Ch. 149, 5745 MHz
Ch. 157, 5785 MHz
Ch. 165, 5825 MHz

MODES OF OPERATION

6 Mbps
18 Mbps
36 Mbps

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

FOCU0169 - 2

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
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24 mo
5.725-5.875 Notch Filter	Micro-Tronics	BRC50705	HGJ	2/18/2014	24 mo
LP Filter	Micro-Tronics	LPM50004	LFD	7/6/2012	24 mo
OC Cable	ESM Cable Corp.	KMKM-72	OCV	6/24/2013	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVR	6/24/2013	12 mo
Antenna, Horn	ETS Lindgren	3160-10	AIW	NCR	0 mo
Cable	ESM Cable Corp.	KMKM-72	EVY	9/10/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/10/2013	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2/18/2014	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	2/18/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	2/18/2014	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	2/18/2014	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	2/18/2014	12 mo
Antenna, Horn	ETS	3115	AIZ	1/27/2014	36 mo
EV01 Cables	N/A	Bilog Cables	EVA	2/18/2014	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	2/18/2014	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo

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

TEST DESCRIPTION

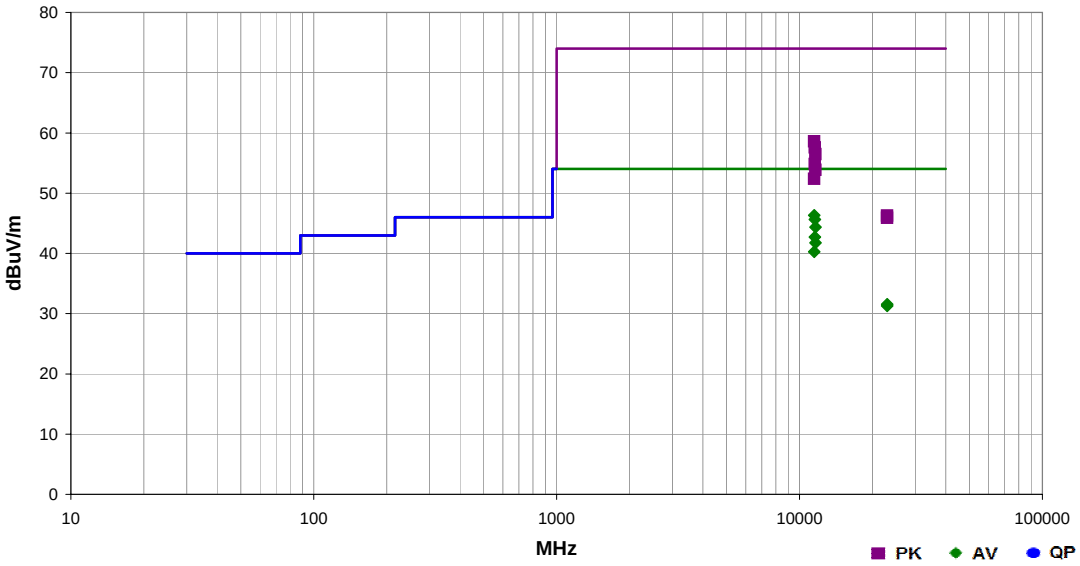
The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify 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. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	FOCU0169	**Date:**	06/12/14		
Project:	None	**Temperature:**	24 °C		
Job Site:	EV01	**Humidity:**	40.1% RH		
Serial Number:	02EAF000061	**Barometric Pres.:**	1011.7 mbar	**Tested by:**	Brandon Hobbs
EUT:	444-2251				
Configuration:	2				
Customer:	Summit Semiconductor LLC				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Tx				
Deviations:	None				
Comments:	Please Reference data comments for EUT orientation, Data Rate and frequency				

Test Specifications	**Test Method**
FCC 15.209:2014	ANSI C63.10:2009

Run #	31	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
11488.420	50.4	-4.1	1.0	306.0	3.0	0.0	Horz	AV	0.0	46.3	54.0	-7.7	Ch.149, 5745MHz, 6Mbps, EUT Vert
11568.420	49.3	-3.7	1.0	308.0	3.0	0.0	Horz	AV	0.0	45.6	54.0	-8.4	Ch.157, 5785MHz, 6Mbps, EUT Vert
11648.420	47.7	-3.3	1.0	305.0	3.0	0.0	Horz	AV	0.0	44.4	54.0	-9.6	Ch. 165, 5825MHz, 6Mbps, EUT Vert
11570.960	46.4	-3.7	1.0	43.0	3.0	0.0	Vert	AV	0.0	42.7	54.0	-11.3	Ch.157, 5785MHz, 6Mbps, EUT On Side
11648.380	45.1	-3.3	1.0	43.0	3.0	0.0	Vert	AV	0.0	41.8	54.0	-12.2	Ch. 165, 5825MHz, 6Mbps, EUT On Side
11491.000	44.3	-4.1	1.0	46.0	3.0	0.0	Vert	AV	0.0	40.2	54.0	-13.8	Ch.149, 5745MHz, 6Mbps, EUT On Side
11487.920	62.7	-4.1	1.0	306.0	3.0	0.0	Horz	PK	0.0	58.6	74.0	-15.4	Ch.149, 5745MHz, 6Mbps, EUT Vert
11561.960	61.3	-3.7	1.0	308.0	3.0	0.0	Horz	PK	0.0	57.6	74.0	-16.4	Ch.157, 5785MHz, 6Mbps, EUT Vert
11647.750	59.8	-3.4	1.0	305.0	3.0	0.0	Horz	PK	0.0	56.4	74.0	-17.6	Ch. 165, 5825MHz, 6Mbps, EUT Vert
11565.960	58.5	-3.7	1.0	43.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	Ch.157, 5785MHz, 6Mbps, EUT On Side
11645.460	57.2	-3.4	1.0	43.0	3.0	0.0	Vert	PK	0.0	53.8	74.0	-20.2	Ch. 165, 5825MHz, 6Mbps, EUT On Side
11486.420	56.5	-4.1	1.0	46.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	Ch.149, 5745MHz, 6Mbps, EUT On Side
22969.460	31.2	0.4	1.1	304.0	3.0	0.0	Horz	AV	0.0	31.6	54.0	-22.4	Ch.149, 5745MHz, 6Mbps, EUT Vert
22968.250	30.9	0.4	1.1	89.0	3.0	0.0	Vert	AV	0.0	31.3	54.0	-22.7	Ch.149, 5745MHz, 6Mbps, EUT On Side
22983.920	45.9	0.4	1.1	304.0	3.0	0.0	Horz	PK	0.0	46.3	74.0	-27.7	Ch.149, 5745MHz, 6Mbps, EUT Vert
22973.960	45.5	0.4	1.1	89.0	3.0	0.0	Vert	PK	0.0	45.9	74.0	-28.1	Ch.149, 5745MHz, 6Mbps, EUT On Side

POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50Ω.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV07 Cables	N/A	Conducted Cables	EVG	03/07/2014	12 mo
Attenuator	Fairview Microwave	SA6B10W-20	RKA	10/24/2013	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HHD	01/22/2014	12 mo
Receiver	Rohde & Schwarz	ESCI	ARH	02/05/2014	12 mo
LISN	Solar	9252-50-R-24-BNC	LIR	10/09/2013	12 mo
LISN	Solar	9252-50-R-24-BNC	LIP	02/16/2014	12 mo
DC Power Supply	Topward	TPS-2000	TPD	NCR	0 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

FOCU0169-3

MODES INVESTIGATED

Tx Ch.149 5745MHz 6Mbps
Tx Ch.157 5785MHz 6Mbps
Tx Ch.165 5825MHz 6Mbps

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	16	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

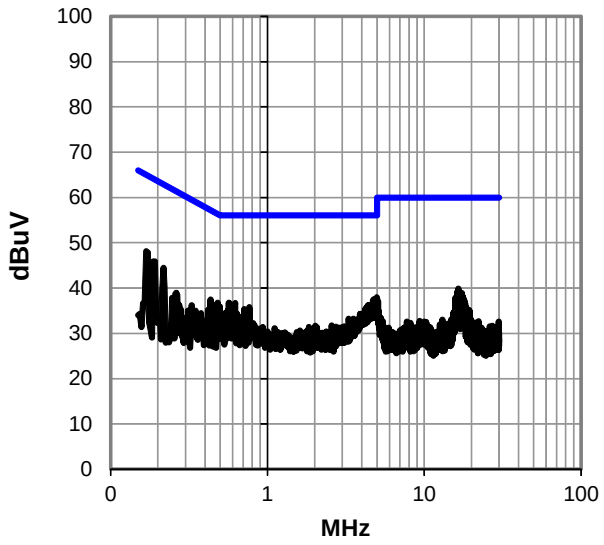
EUT OPERATING MODES

Tx Ch.149 5745MHz 6Mbps

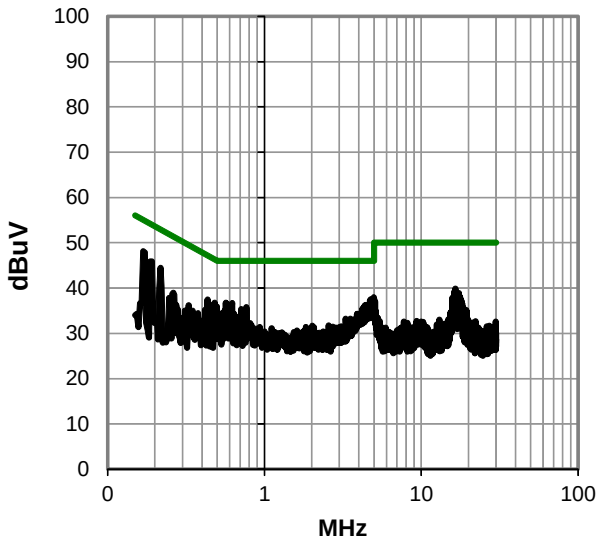
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #16

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.169	28.4	19.7	48.1	65.0	-16.9
4.993	18.4	19.6	38.0	56.0	-18.0
0.187	26.1	19.7	45.8	64.2	-18.3
4.765	18.0	19.6	37.6	56.0	-18.4
0.217	24.7	19.7	44.4	62.9	-18.5
4.713	17.7	19.6	37.3	56.0	-18.7
4.825	17.5	19.6	37.1	56.0	-18.9
4.944	17.4	19.6	37.0	56.0	-19.0
0.568	17.0	19.8	36.8	56.0	-19.2
0.624	16.9	19.8	36.7	56.0	-19.3
0.482	17.0	19.8	36.8	56.3	-19.5
0.434	17.7	19.8	37.5	57.2	-19.7
4.407	16.7	19.6	36.3	56.0	-19.7
4.343	16.5	19.6	36.1	56.0	-19.9
16.521	20.3	19.6	39.9	60.0	-20.1
0.497	16.1	19.8	35.9	56.1	-20.2
0.766	16.0	19.7	35.7	56.0	-20.3
0.460	16.3	19.8	36.1	56.7	-20.6
0.710	15.6	19.8	35.4	56.0	-20.6
16.260	19.5	19.6	39.1	60.0	-20.9
17.375	19.3	19.6	38.9	60.0	-21.1
0.542	14.8	19.8	34.6	56.0	-21.4
16.371	18.9	19.6	38.5	60.0	-21.5
17.506	18.8	19.6	38.4	60.0	-21.6
0.508	14.5	19.8	34.3	56.0	-21.7
0.642	14.5	19.8	34.3	56.0	-21.7

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.169	28.4	19.7	48.1	55.0	-6.9
4.993	18.4	19.6	38.0	46.0	-8.0
0.187	26.1	19.7	45.8	54.2	-8.3
4.765	18.0	19.6	37.6	46.0	-8.4
0.217	24.7	19.7	44.4	52.9	-8.5
4.713	17.7	19.6	37.3	46.0	-8.7
4.825	17.5	19.6	37.1	46.0	-8.9
4.944	17.4	19.6	37.0	46.0	-9.0
0.568	17.0	19.8	36.8	46.0	-9.2
0.624	16.9	19.8	36.7	46.0	-9.3
0.482	17.0	19.8	36.8	46.3	-9.5
0.434	17.7	19.8	37.5	47.2	-9.7
4.407	16.7	19.6	36.3	46.0	-9.7
4.343	16.5	19.6	36.1	46.0	-9.9
16.521	20.3	19.6	39.9	50.0	-10.1
0.497	16.1	19.8	35.9	46.1	-10.2
0.766	16.0	19.7	35.7	46.0	-10.3
0.460	16.3	19.8	36.1	46.7	-10.6
0.710	15.6	19.8	35.4	46.0	-10.6
16.260	19.5	19.6	39.1	50.0	-10.9
17.375	19.3	19.6	38.9	50.0	-11.1
0.542	14.8	19.8	34.6	46.0	-11.4
16.371	18.9	19.6	38.5	50.0	-11.5
17.506	18.8	19.6	38.4	50.0	-11.6
0.508	14.5	19.8	34.3	46.0	-11.7
0.642	14.5	19.8	34.3	46.0	-11.7

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	17	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

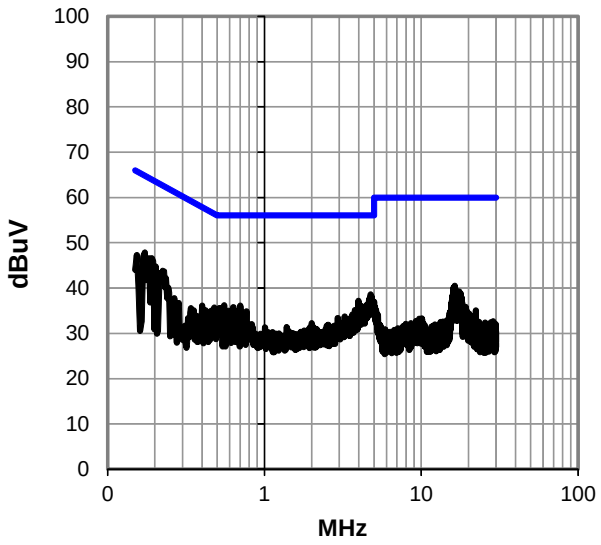
EUT OPERATING MODES

Tx Ch.149 5745MHz 6Mbps

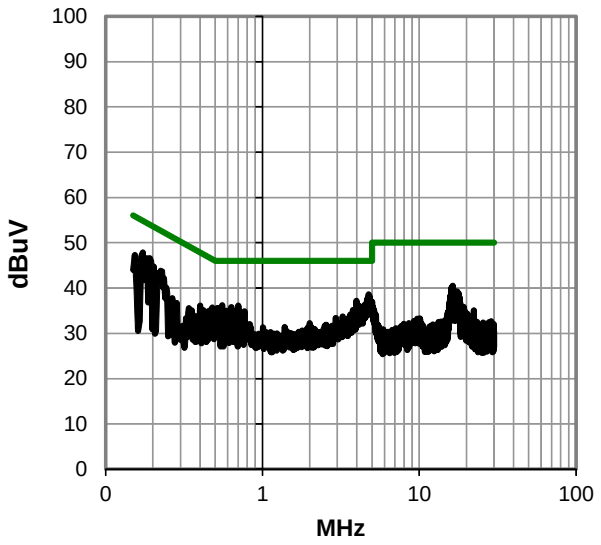
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #17

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.172	28.1	19.7	47.8	64.8	-17.0
4.761	19.0	19.6	38.6	56.0	-17.4
0.191	26.8	19.7	46.5	64.0	-17.5
0.184	26.8	19.7	46.5	64.3	-17.8
4.825	18.6	19.6	38.2	56.0	-17.8
4.672	18.0	19.6	37.6	56.0	-18.4
0.154	27.6	19.7	47.3	65.8	-18.5
4.881	17.7	19.6	37.3	56.0	-18.7
0.202	25.0	19.7	44.7	63.5	-18.8
3.974	17.6	19.6	37.2	56.0	-18.8
0.225	24.1	19.7	43.8	62.6	-18.8
16.390	20.9	19.6	40.5	60.0	-19.5
4.064	16.6	19.6	36.2	56.0	-19.8
0.553	16.4	19.8	36.2	56.0	-19.8
0.702	16.4	19.8	36.2	56.0	-19.8
16.215	20.5	19.6	40.1	60.0	-19.9
16.103	20.5	19.6	40.1	60.0	-19.9
4.198	16.3	19.6	35.9	56.0	-20.1
4.157	16.2	19.6	35.8	56.0	-20.2
16.551	20.2	19.6	39.8	60.0	-20.2
16.472	20.2	19.6	39.8	60.0	-20.2
0.631	16.0	19.8	35.8	56.0	-20.2
4.302	16.1	19.6	35.7	56.0	-20.3
0.516	15.8	19.8	35.6	56.0	-20.4
16.401	20.0	19.6	39.6	60.0	-20.4
16.274	19.9	19.6	39.5	60.0	-20.5

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.172	28.1	19.7	47.8	54.8	-7.0
4.761	19.0	19.6	38.6	46.0	-7.4
0.191	26.8	19.7	46.5	54.0	-7.5
0.184	26.8	19.7	46.5	54.3	-7.8
4.825	18.6	19.6	38.2	46.0	-7.8
4.672	18.0	19.6	37.6	46.0	-8.4
0.154	27.6	19.7	47.3	55.8	-8.5
4.881	17.7	19.6	37.3	46.0	-8.7
0.202	25.0	19.7	44.7	53.5	-8.8
3.974	17.6	19.6	37.2	46.0	-8.8
0.225	24.1	19.7	43.8	52.6	-8.8
16.390	20.9	19.6	40.5	50.0	-9.5
4.064	16.6	19.6	36.2	46.0	-9.8
0.553	16.4	19.8	36.2	46.0	-9.8
0.702	16.4	19.8	36.2	46.0	-9.8
16.215	20.5	19.6	40.1	50.0	-9.9
16.103	20.5	19.6	40.1	50.0	-9.9
4.198	16.3	19.6	35.9	46.0	-10.1
4.157	16.2	19.6	35.8	46.0	-10.2
16.551	20.2	19.6	39.8	50.0	-10.2
16.472	20.2	19.6	39.8	50.0	-10.2
0.631	16.0	19.8	35.8	46.0	-10.2
4.302	16.1	19.6	35.7	46.0	-10.3
0.516	15.8	19.8	35.6	46.0	-10.4
16.401	20.0	19.6	39.6	50.0	-10.4
16.274	19.9	19.6	39.5	50.0	-10.5

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	18	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

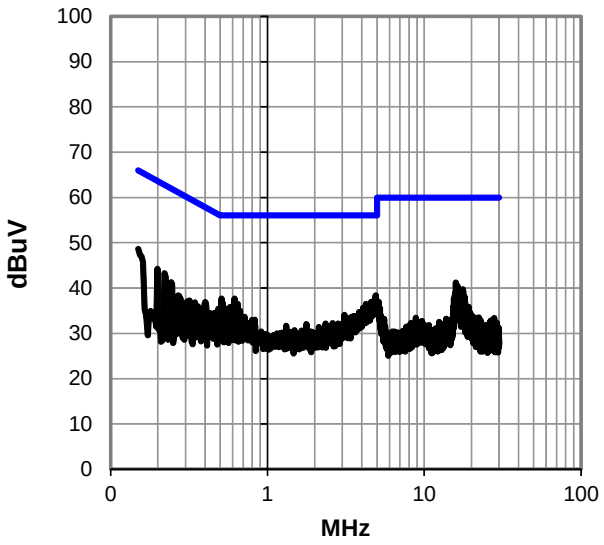
EUT OPERATING MODES

Tx Ch.157 5785MHz 6Mbps

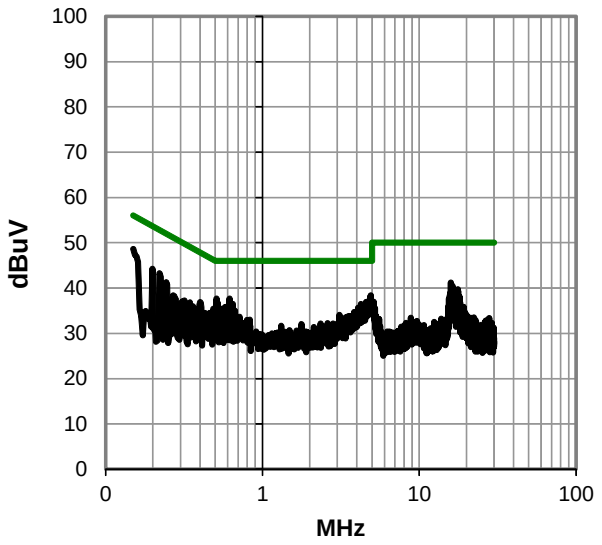
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #18

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.0	19.6	48.6	66.0	-17.4
4.918	18.8	19.6	38.4	56.0	-17.6
4.884	18.6	19.6	38.2	56.0	-17.8
0.508	17.9	19.8	37.7	56.0	-18.3
0.616	17.9	19.8	37.7	56.0	-18.3
15.913	21.6	19.6	41.2	60.0	-18.8
4.638	17.4	19.6	37.0	56.0	-19.0
4.582	17.3	19.6	36.9	56.0	-19.1
0.519	16.9	19.8	36.7	56.0	-19.3
0.199	24.5	19.7	44.2	63.7	-19.4
4.243	16.9	19.6	36.5	56.0	-19.5
16.263	20.9	19.6	40.5	60.0	-19.5
0.646	16.7	19.8	36.5	56.0	-19.5
0.221	23.5	19.7	43.2	62.8	-19.5
16.084	20.6	19.6	40.2	60.0	-19.8
4.332	16.5	19.6	36.1	56.0	-19.9
0.587	16.1	19.8	35.9	56.0	-20.1
16.610	20.2	19.6	39.8	60.0	-20.2
15.980	20.2	19.6	39.8	60.0	-20.2
17.651	20.1	19.6	39.7	60.0	-20.3
4.075	16.0	19.6	35.6	56.0	-20.4
16.509	20.0	19.6	39.6	60.0	-20.4
0.534	15.8	19.8	35.6	56.0	-20.4
17.528	19.9	19.6	39.5	60.0	-20.5
16.461	19.9	19.6	39.5	60.0	-20.5
17.718	19.7	19.6	39.3	60.0	-20.7

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.150	29.0	19.6	48.6	56.0	-7.4
4.918	18.8	19.6	38.4	46.0	-7.6
4.884	18.6	19.6	38.2	46.0	-7.8
0.508	17.9	19.8	37.7	46.0	-8.3
0.616	17.9	19.8	37.7	46.0	-8.3
15.913	21.6	19.6	41.2	50.0	-8.8
4.638	17.4	19.6	37.0	46.0	-9.0
4.582	17.3	19.6	36.9	46.0	-9.1
0.519	16.9	19.8	36.7	46.0	-9.3
0.199	24.5	19.7	44.2	53.7	-9.4
4.243	16.9	19.6	36.5	46.0	-9.5
16.263	20.9	19.6	40.5	50.0	-9.5
0.646	16.7	19.8	36.5	46.0	-9.5
0.221	23.5	19.7	43.2	52.8	-9.5
16.084	20.6	19.6	40.2	50.0	-9.8
4.332	16.5	19.6	36.1	46.0	-9.9
0.587	16.1	19.8	35.9	46.0	-10.1
16.610	20.2	19.6	39.8	50.0	-10.2
15.980	20.2	19.6	39.8	50.0	-10.2
17.651	20.1	19.6	39.7	50.0	-10.3
4.075	16.0	19.6	35.6	46.0	-10.4
16.509	20.0	19.6	39.6	50.0	-10.4
0.534	15.8	19.8	35.6	46.0	-10.4
17.528	19.9	19.6	39.5	50.0	-10.5
16.461	19.9	19.6	39.5	50.0	-10.5
17.718	19.7	19.6	39.3	50.0	-10.7

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	19	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

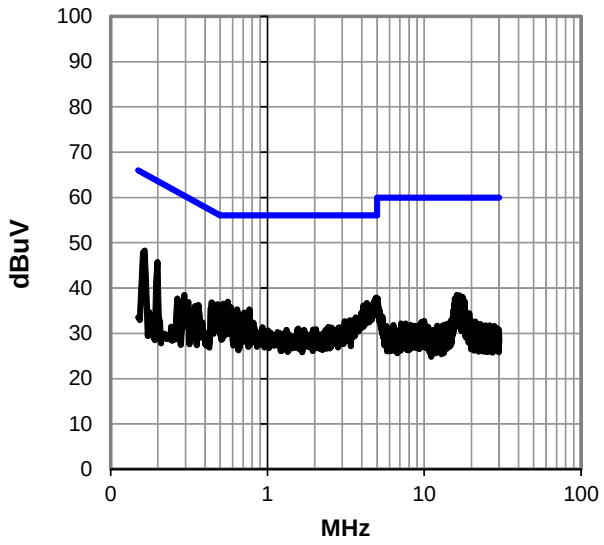
EUT OPERATING MODES

Tx Ch.157 5785MHz 6Mbps

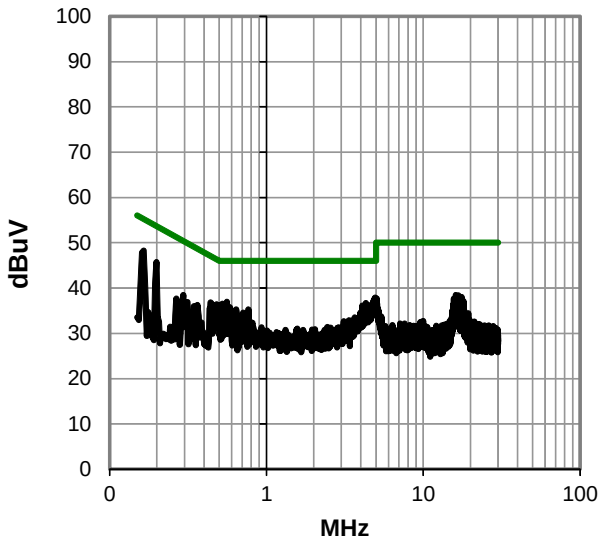
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #19

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.165	28.5	19.7	48.2	65.2	-17.0
0.199	26.0	19.7	45.7	63.7	-17.9
4.937	18.3	19.6	37.9	56.0	-18.1
4.821	17.6	19.6	37.2	56.0	-18.8
0.560	17.2	19.8	37.0	56.0	-19.0
4.302	17.1	19.6	36.7	56.0	-19.3
0.523	16.8	19.8	36.6	56.0	-19.4
0.538	16.6	19.8	36.4	56.0	-19.6
4.347	16.6	19.6	36.2	56.0	-19.8
4.093	16.5	19.6	36.1	56.0	-19.9
0.482	16.6	19.8	36.4	56.3	-19.9
0.583	16.0	19.8	35.8	56.0	-20.2
0.441	17.0	19.8	36.8	57.0	-20.2
4.243	16.1	19.6	35.7	56.0	-20.3
0.642	15.5	19.8	35.3	56.0	-20.7
0.766	15.5	19.7	35.2	56.0	-20.8
0.594	15.2	19.8	35.0	56.0	-21.0
3.970	15.0	19.6	34.6	56.0	-21.4
0.710	14.8	19.8	34.6	56.0	-21.4
16.181	18.9	19.6	38.5	60.0	-21.5
16.767	18.8	19.6	38.4	60.0	-21.6
0.296	18.7	19.8	38.5	60.4	-21.9
16.151	18.5	19.6	38.1	60.0	-21.9
17.576	18.4	19.6	38.0	60.0	-22.0
16.733	18.4	19.6	38.0	60.0	-22.0
16.069	18.1	19.6	37.7	60.0	-22.3

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.165	28.5	19.7	48.2	55.2	-7.0
0.199	26.0	19.7	45.7	53.7	-7.9
4.937	18.3	19.6	37.9	46.0	-8.1
4.821	17.6	19.6	37.2	46.0	-8.8
0.560	17.2	19.8	37.0	46.0	-9.0
4.302	17.1	19.6	36.7	46.0	-9.3
0.523	16.8	19.8	36.6	46.0	-9.4
0.538	16.6	19.8	36.4	46.0	-9.6
4.347	16.6	19.6	36.2	46.0	-9.8
4.093	16.5	19.6	36.1	46.0	-9.9
0.482	16.6	19.8	36.4	46.3	-9.9
0.583	16.0	19.8	35.8	46.0	-10.2
0.441	17.0	19.8	36.8	47.0	-10.2
4.243	16.1	19.6	35.7	46.0	-10.3
0.642	15.5	19.8	35.3	46.0	-10.7
0.766	15.5	19.7	35.2	46.0	-10.8
0.594	15.2	19.8	35.0	46.0	-11.0
3.970	15.0	19.6	34.6	46.0	-11.4
0.710	14.8	19.8	34.6	46.0	-11.4
16.181	18.9	19.6	38.5	50.0	-11.5
16.767	18.8	19.6	38.4	50.0	-11.6
0.296	18.7	19.8	38.5	50.4	-11.9
16.151	18.5	19.6	38.1	50.0	-11.9
17.576	18.4	19.6	38.0	50.0	-12.0
16.733	18.4	19.6	38.0	50.0	-12.0
16.069	18.1	19.6	37.7	50.0	-12.3

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	20	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

None

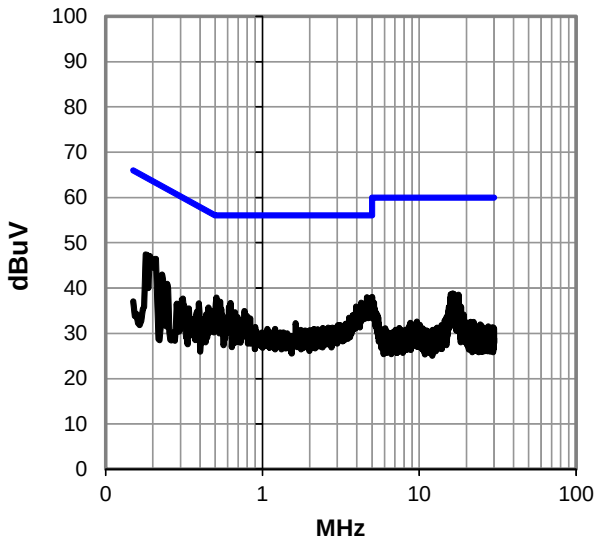
EUT OPERATING MODES

Tx Ch.165 5825MHz 6Mbps

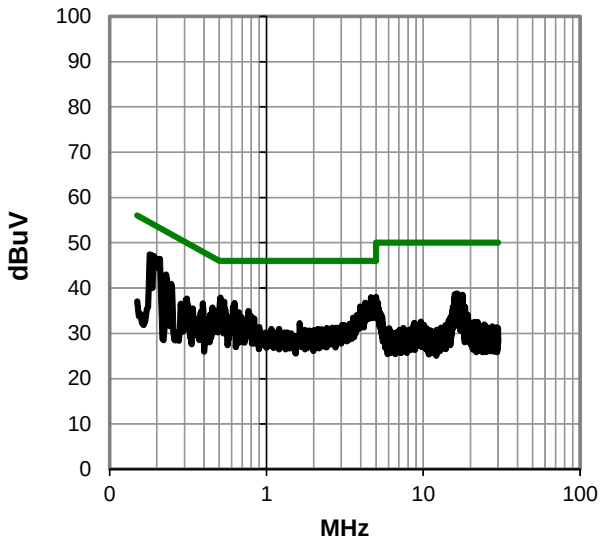
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #20

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.191	27.3	19.7	47.0	64.0	-17.0
0.180	27.7	19.7	47.4	64.5	-17.0
4.649	18.4	19.6	38.0	56.0	-18.0
0.508	18.1	19.8	37.9	56.0	-18.1
4.828	18.1	19.6	37.7	56.0	-18.3
4.955	18.1	19.6	37.7	56.0	-18.3
0.534	17.2	19.8	37.0	56.0	-19.0
4.601	17.3	19.6	36.9	56.0	-19.1
4.273	17.2	19.6	36.8	56.0	-19.2
0.628	16.9	19.8	36.7	56.0	-19.3
0.228	23.2	19.7	42.9	62.5	-19.6
4.459	16.8	19.6	36.4	56.0	-19.6
3.952	16.3	19.6	35.9	56.0	-20.1
0.247	21.2	19.7	40.9	61.9	-20.9
0.766	15.2	19.7	34.9	56.0	-21.1
0.452	15.9	19.8	35.7	56.8	-21.1
16.383	19.2	19.6	38.8	60.0	-21.2
16.610	19.1	19.6	38.7	60.0	-21.3
0.669	14.9	19.8	34.7	56.0	-21.3
0.393	16.8	19.8	36.6	58.0	-21.4
16.685	19.0	19.6	38.6	60.0	-21.4
16.431	19.0	19.6	38.6	60.0	-21.4
15.909	19.0	19.6	38.6	60.0	-21.4
17.800	18.9	19.6	38.5	60.0	-21.5
16.513	18.9	19.6	38.5	60.0	-21.5
0.478	15.0	19.8	34.8	56.4	-21.6

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.191	27.3	19.7	47.0	54.0	-7.0
0.180	27.7	19.7	47.4	54.5	-7.0
4.649	18.4	19.6	38.0	46.0	-8.0
0.508	18.1	19.8	37.9	46.0	-8.1
4.828	18.1	19.6	37.7	46.0	-8.3
4.955	18.1	19.6	37.7	46.0	-8.3
0.534	17.2	19.8	37.0	46.0	-9.0
4.601	17.3	19.6	36.9	46.0	-9.1
4.273	17.2	19.6	36.8	46.0	-9.2
0.628	16.9	19.8	36.7	46.0	-9.3
0.228	23.2	19.7	42.9	52.5	-9.6
4.459	16.8	19.6	36.4	46.0	-9.6
3.952	16.3	19.6	35.9	46.0	-10.1
0.247	21.2	19.7	40.9	51.9	-10.9
0.766	15.2	19.7	34.9	46.0	-11.1
0.452	15.9	19.8	35.7	46.8	-11.1
16.383	19.2	19.6	38.8	50.0	-11.2
16.610	19.1	19.6	38.7	50.0	-11.3
0.669	14.9	19.8	34.7	46.0	-11.3
0.393	16.8	19.8	36.6	48.0	-11.4
16.685	19.0	19.6	38.6	50.0	-11.4
16.431	19.0	19.6	38.6	50.0	-11.4
15.909	19.0	19.6	38.6	50.0	-11.4
17.800	18.9	19.6	38.5	50.0	-11.5
16.513	18.9	19.6	38.5	50.0	-11.5
0.478	15.0	19.8	34.8	46.4	-11.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	444-2251	Work Order:	FOCU0169
Serial Number:	02EAF000061	Date:	06/16/2014
Customer:	Summit Semiconductor LLC	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	38.3%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	FOCU0169-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	21	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

None

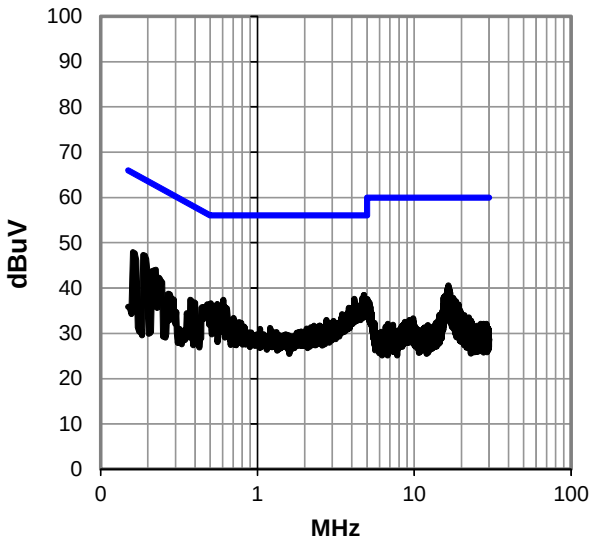
EUT OPERATING MODES

Tx Ch.165 5825MHz 6Mbps

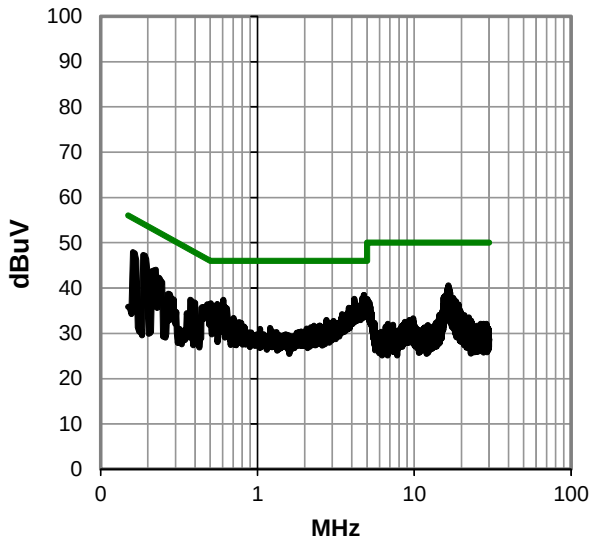
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #21

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.187	27.5	19.7	47.2	64.2	-16.9
0.161	28.2	19.7	47.9	65.4	-17.5
4.765	18.9	19.6	38.5	56.0	-17.5
4.661	18.2	19.6	37.8	56.0	-18.2
4.153	18.0	19.6	37.6	56.0	-18.4
4.948	18.0	19.6	37.6	56.0	-18.4
0.225	24.3	19.7	44.0	62.6	-18.6
0.605	17.6	19.8	37.4	56.0	-18.6
4.209	17.1	19.6	36.7	56.0	-19.3
0.504	16.8	19.8	36.6	56.0	-19.4
16.532	21.0	19.6	40.6	60.0	-19.4
0.553	16.7	19.8	36.5	56.0	-19.5
4.396	16.5	19.6	36.1	56.0	-19.9
0.478	16.6	19.8	36.4	56.4	-20.0
0.236	22.5	19.7	42.2	62.2	-20.0
16.707	20.4	19.6	40.0	60.0	-20.0
16.394	20.4	19.6	40.0	60.0	-20.0
4.090	16.2	19.6	35.8	56.0	-20.2
0.624	16.0	19.8	35.8	56.0	-20.2
3.821	16.0	19.6	35.6	56.0	-20.4
16.330	20.0	19.6	39.6	60.0	-20.4
16.883	19.9	19.6	39.5	60.0	-20.5
0.639	15.7	19.8	35.5	56.0	-20.5
3.899	15.8	19.6	35.4	56.0	-20.6
16.666	19.8	19.6	39.4	60.0	-20.6
16.588	19.8	19.6	39.4	60.0	-20.6

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.187	27.5	19.7	47.2	54.2	-6.9
0.161	28.2	19.7	47.9	55.4	-7.5
4.765	18.9	19.6	38.5	46.0	-7.5
4.661	18.2	19.6	37.8	46.0	-8.2
4.153	18.0	19.6	37.6	46.0	-8.4
4.948	18.0	19.6	37.6	46.0	-8.4
0.225	24.3	19.7	44.0	52.6	-8.6
0.605	17.6	19.8	37.4	46.0	-8.6
4.209	17.1	19.6	36.7	46.0	-9.3
0.504	16.8	19.8	36.6	46.0	-9.4
16.532	21.0	19.6	40.6	50.0	-9.4
0.553	16.7	19.8	36.5	46.0	-9.5
4.396	16.5	19.6	36.1	46.0	-9.9
0.478	16.6	19.8	36.4	46.4	-10.0
0.236	22.5	19.7	42.2	52.2	-10.0
16.707	20.4	19.6	40.0	50.0	-10.0
16.394	20.4	19.6	40.0	50.0	-10.0
4.090	16.2	19.6	35.8	46.0	-10.2
0.624	16.0	19.8	35.8	46.0	-10.2
3.821	16.0	19.6	35.6	46.0	-10.4
16.330	20.0	19.6	39.6	50.0	-10.4
16.883	19.9	19.6	39.5	50.0	-10.5
0.639	15.7	19.8	35.5	46.0	-10.5
3.899	15.8	19.6	35.4	46.0	-10.6
16.666	19.8	19.6	39.4	50.0	-10.6
16.588	19.8	19.6	39.4	50.0	-10.6

CONCLUSION

Pass

Tested By