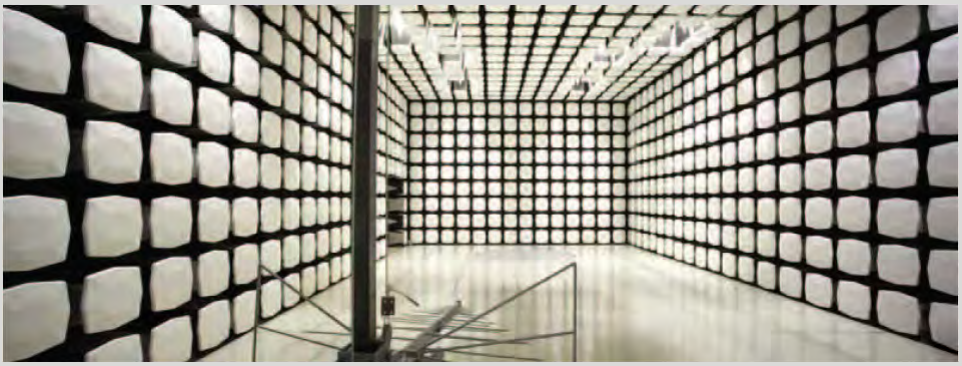
Synapse Product Development LLC

Kezar

FCC 15.407:2014

Report #: SYNA0151.2



Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

WTD 12.5.23

Last Date of Test: April 14, 2014
Synapse Product Development LLC
Model: Kezar

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.407:2014	ANSI C63.10:2009	Pass
Emission Bandwidth	FCC 15.407:2014	ANSI C63.10:2009	Pass
Peak Transmit Power	FCC 15.407:2014	ANSI C63.10:2009	Pass
Peak Power Spectral Density	FCC 15.407:2014	ANSI C63.10:2009	Pass
Peak Excursion of the Modulation Envelope	FCC 15.407:2014	ANSI C63.10:2009	Pass
Band Edge	FCC 15.407:2014	ANSI C63.10:2009	Pass
Frequency Stability	FCC 15.407:2014	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.407:2014	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.407:2014	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

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

ACCREDITATIONS AND AUTHORIZATIONS

REV 2012.05.24

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/

MEASUREMENT UNCERTAINTY

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

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. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

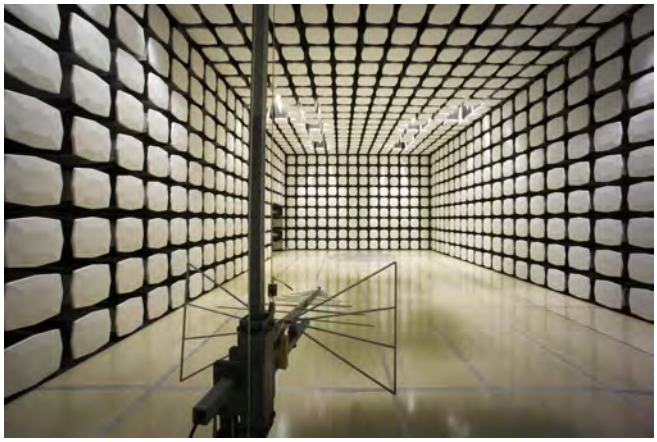
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

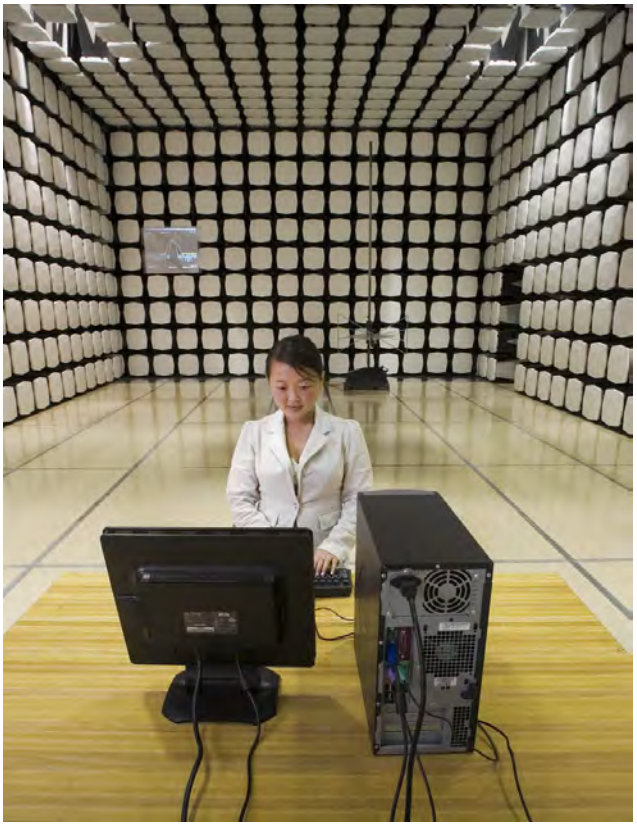
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94	-2.94

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

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	Synapse Product Development LLC
Address:	1511 6th Ave. 4th Floor
City, State, Zip:	Seattle, WA 98101
Test Requested By:	Adrian Fox
Model:	Kezar
First Date of Test:	February 24, 2014
Last Date of Test:	April 14, 2014
Receipt Date of Samples:	February 24, 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):
WLAN 802.11an SISO radio device with 1 antenna

Testing Objective:
To demonstrate compliance under FCC 15.407 for operation in the 5.2GHz, 5.3GHz and 5.6GHz band(s).

CONFIGURATIONS

Configuration SYNA0151- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Kezar Access Point	Synapse Product Development LLC	Kezar	1

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC/DC Power Supply	ITE Power Supply	None	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial Cable	No	1m	No	Kezar Access Point	Client PC
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration SYNA0151- 3

Software/Firmware Running during test	
Description	**Version**
Windows	7
Putty	None

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Kezar Access Point	Synapse Product Development LLC	Kezar	1

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Lenovo	T520	4239L65
AC/DC Adapter (Lenovo)	Lenovo	42T4438	11842T4438Z1ZHY62774N6
AC/DC Adapter (Kezar)	ITE Power Supply	CENB1060A1203F01	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial Cable	No	1m	No	Kezar Access Point	Client PC
AC Power Cable	No	1.2m	No	AC/DC Power Adapter (Kezar)	AC mains
AC Power Cable	No	1m	No	AC/DC Power Adapter (Lenovo)	AC mains
DC Power Cable	No	1.3m	Yes	AC/DC Power Adapter (Kezar)	Kezar
DC Power Cable	No	1.5m	No	AC/DC Power Adapter (Lenovo)	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration SYNA0151- 4

Software/Firmware Running during test	
Description	**Version**
Windows	7
Putty	None

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Kezar Access Point	Synapse Product Development LLC	Kezar	1

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Lenovo	T520	4239L65
AC/DC Adapter (Lenovo)	Lenovo	42T4438	11842T4438Z1ZHY62774N6

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Serial Cable	No	1m	No	Kezar Access Point	Client PC
AC Power Cable	No	1m	No	AC/DC Power Adapter (Lenovo)	AC mains
DC Power Cable	No	1.3m	Yes	AC/DC Power Adapter (Kezar)	Kezar
DC Power Cable	No	1.5m	No	AC/DC Power Adapter (Lenovo)	Laptop
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2/24/2014	Peak Transmit 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.
2	2/24/2014	Emissions 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	2/24/2014	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.
4	2/24/2014	Peak Excursion of the Modulation Envelope	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	2/24/2014	Peak 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.
6	2/25/2014	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.
7	2/28/2014	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
8	4/07/2014	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.
9	4/14/2014	Frequency Stability	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 (mo.)
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36

TEST DESCRIPTION

The transmission pulse duration (T) and Duty Cycle (x) were measured for each of the EUT operating modes per the FCC KDB 789033 D01 General UNII Test Procedures.

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 only measure during the burst duration.

TRANSMISSIONS BURST DURATION

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/24/14
Customer:	Synapse Product Development LLC	Temperature:	21.1°C
Attendees:	None	Humidity:	32%
Project:	Kezar	Barometric Pres.:	1018
Tested by:	Jared Ison, Brandon Hobbs	Job Site:	EV06
Power:	Internal Battery, 12 VDC		

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

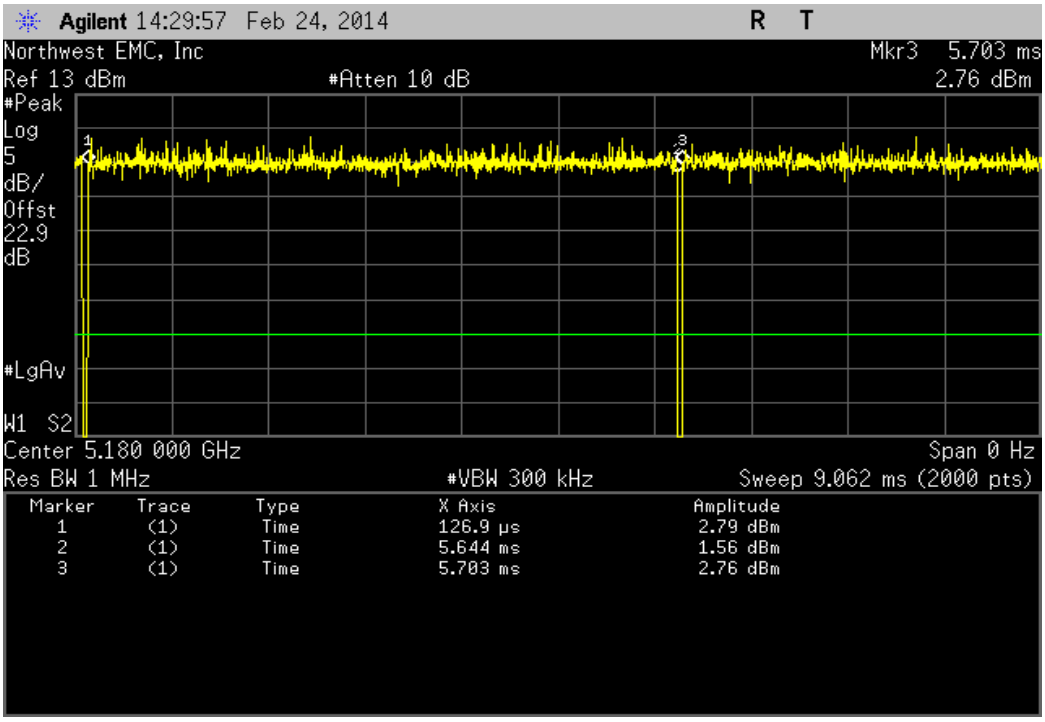
None

Configuration #	1	Signature

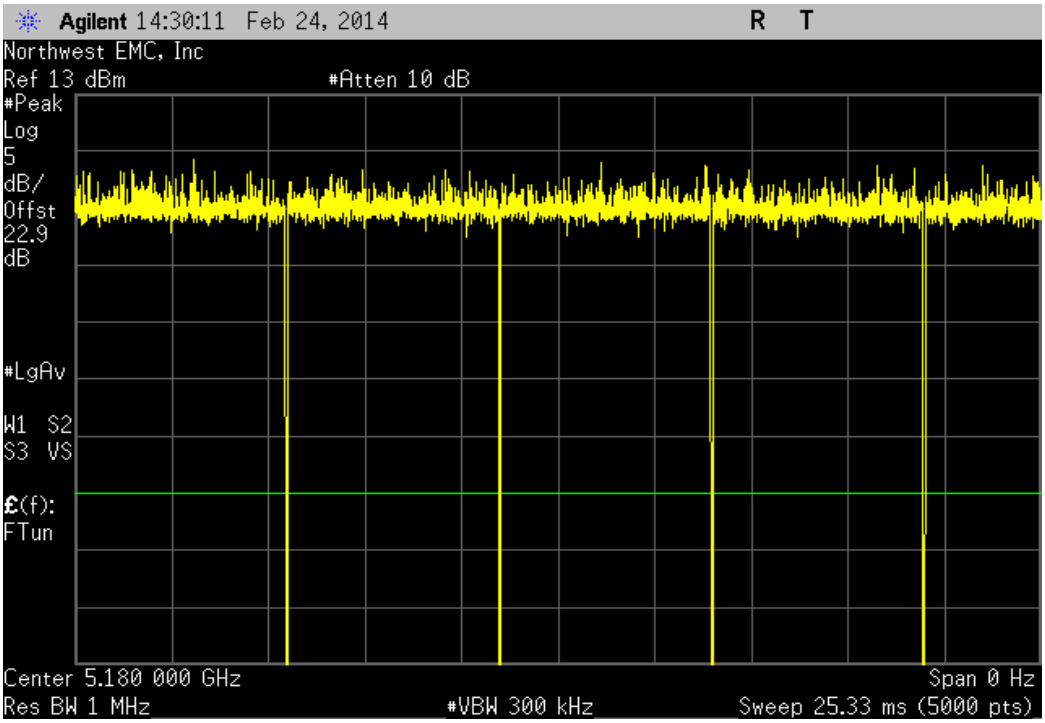
		Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
802.11(a) 6 Mbps							
	5150 - 5250 MHz Band						
	Channel 36, Low Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 36, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 48, High Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 48, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5250 - 5350 MHz Band						
	Channel 52, Low Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 52, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 64, High Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 64, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5470 - 5725 MHz Band						
	Channel 100, Low Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 100, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 116, Mid Channel	5.517 mS	5.572 mS	1	99	N/A	N/A
	Channel 116, Mid Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 140, High Channel	5.517 mS	5.576 mS	1	98.9	N/A	N/A
	Channel 140, High Channel	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 36 Mbps							
	5150 - 5250 MHz Band						
	Channel 36, Low Channel	932.3 uS	990.6 uS	1	94.1	N/A	N/A
	Channel 36, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 48, High Channel	932.3 uS	990.6 uS	1	94.1	N/A	N/A
	Channel 48, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5250 - 5350 MHz Band						
	Channel 52, Low Channel	932.3 uS	990.6 uS	1	94.1	N/A	N/A
	Channel 52, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 64, High Channel	932.3 uS	990.6 uS	1	94.1	N/A	N/A
	Channel 64, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5470 - 5725 MHz Band						
	Channel 100, Low Channel	932.3 uS	992.1 uS	1	94	N/A	N/A
	Channel 100, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 116, Mid Channel	932.3 uS	990.6 uS	1	94.1	N/A	N/A
	Channel 116, Mid Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 140, High Channel	932.3 uS	992.1 uS	1	94	N/A	N/A
	Channel 140, High Channel	N/A	N/A	5	N/A	N/A	N/A
802.11(a) 54 Mbps							
	5150 - 5250 MHz Band						
	Channel 36, Low Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 36, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 48, High Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 48, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5250 - 5350 MHz Band						
	Channel 52, Low Channel	625 uS	683 uS	1	91.5	N/A	N/A
	Channel 52, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 64, High Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 64, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5470 - 5725 MHz Band						
	Channel 100, Low Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 100, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 116, Mid Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 116, Mid Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 140, High Channel	624 uS	683 uS	1	91.4	N/A	N/A
	Channel 140, High Channel	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS0							
	5150 - 5250 MHz Band						
	Channel 36, Low Channel	2.764 mS	2.822 mS	1	97.9	N/A	N/A
	Channel 36, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 48, High Channel	2.764 mS	2.822 mS	1	97.9	N/A	N/A
	Channel 48, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5250 - 5350 MHz Band						
	Channel 52, Low Channel	5.096 mS	5.157 mS	1	98.8	N/A	N/A
	Channel 52, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 64, High Channel	2.766 mS	2.825 mS	1	97.9	N/A	N/A
	Channel 64, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5470 - 5725 MHz Band						
	Channel 100, Low Channel	2.764 mS	2.822 mS	1	97.9	N/A	N/A
	Channel 100, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 116, Mid Channel	2.764 mS	2.825 mS	1	97.8	N/A	N/A
	Channel 116, Mid Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 140, High Channel	2.764 mS	2.825 mS	1	97.8	N/A	N/A
	Channel 140, High Channel	N/A	N/A	5	N/A	N/A	N/A
802.11(n) MCS7							
	5150 - 5250 MHz Band						
	Channel 36, Low Channel	1.85 mS	1.908 mS	1	97	N/A	N/A
	Channel 36, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 48, High Channel	1.848 mS	1.906 mS	1	97	N/A	N/A
	Channel 48, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5250 - 5350 MHz Band						
	Channel 52, Low Channel	1.848 mS	1.906 mS	1	97	N/A	N/A
	Channel 52, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 64, High Channel	1.848 mS	1.908 mS	1	96.9	N/A	N/A
	Channel 64, High Channel	N/A	N/A	5	N/A	N/A	N/A
	5470 - 5725 MHz Band						
	Channel 100, Low Channel	1.848 mS	1.906 mS	1	97	N/A	N/A
	Channel 100, Low Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 116, Mid Channel	1.848 mS	1.906 mS	1	97	N/A	N/A
	Channel 116, Mid Channel	N/A	N/A	5	N/A	N/A	N/A
	Channel 140, High Channel	1.848 mS	1.906 mS	1	97	N/A	N/A
	Channel 140, High Channel	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE

802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
5.517 mS	5.576 mS	1	98.9	N/A	N/A

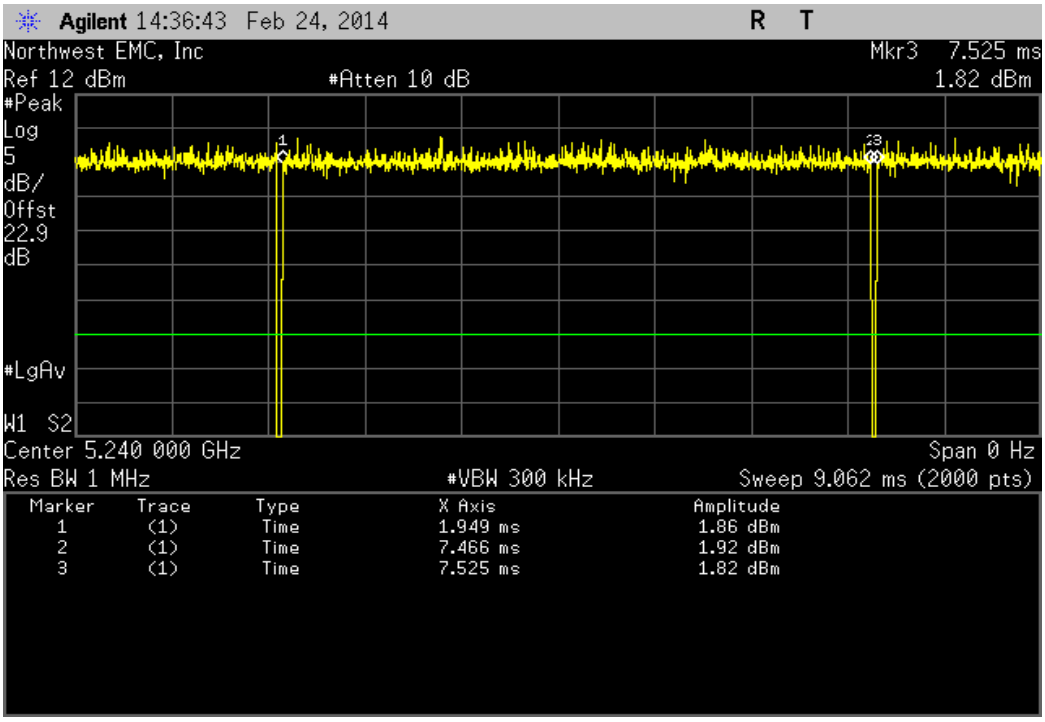


802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

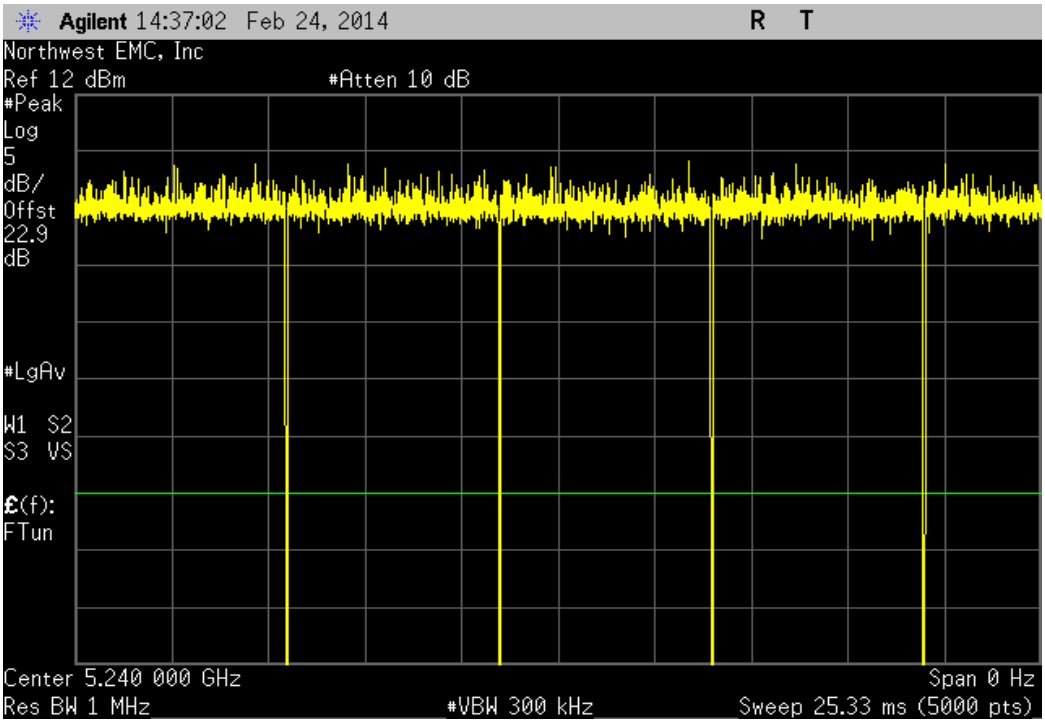


DUTY CYCLE

802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.576 mS	1	98.9	N/A	N/A

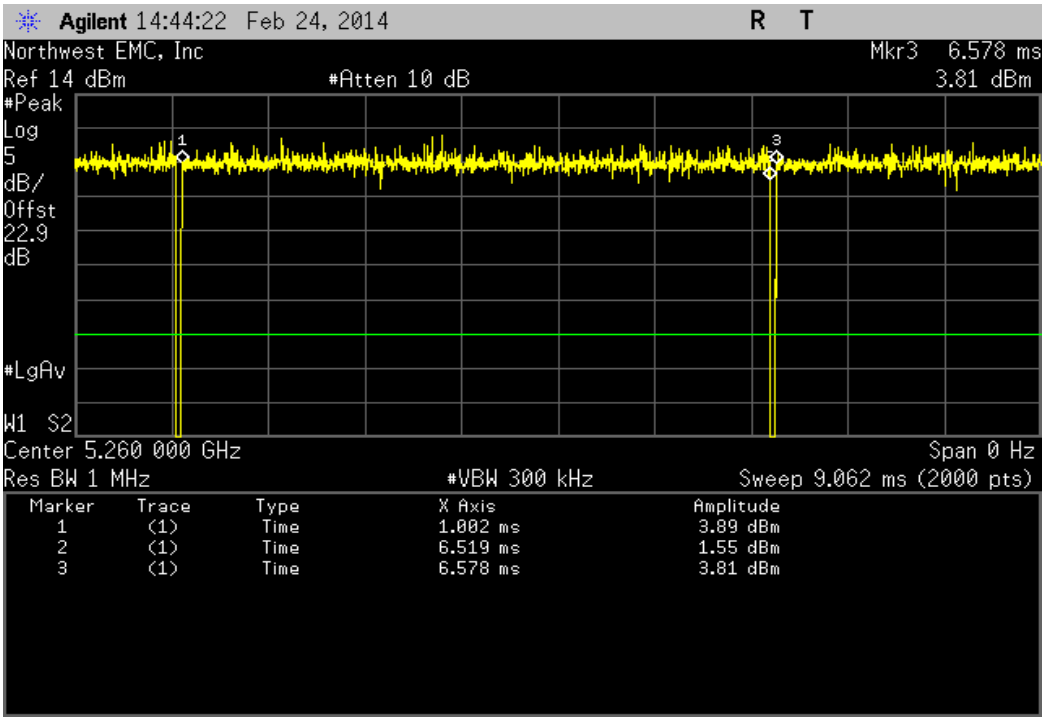


802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

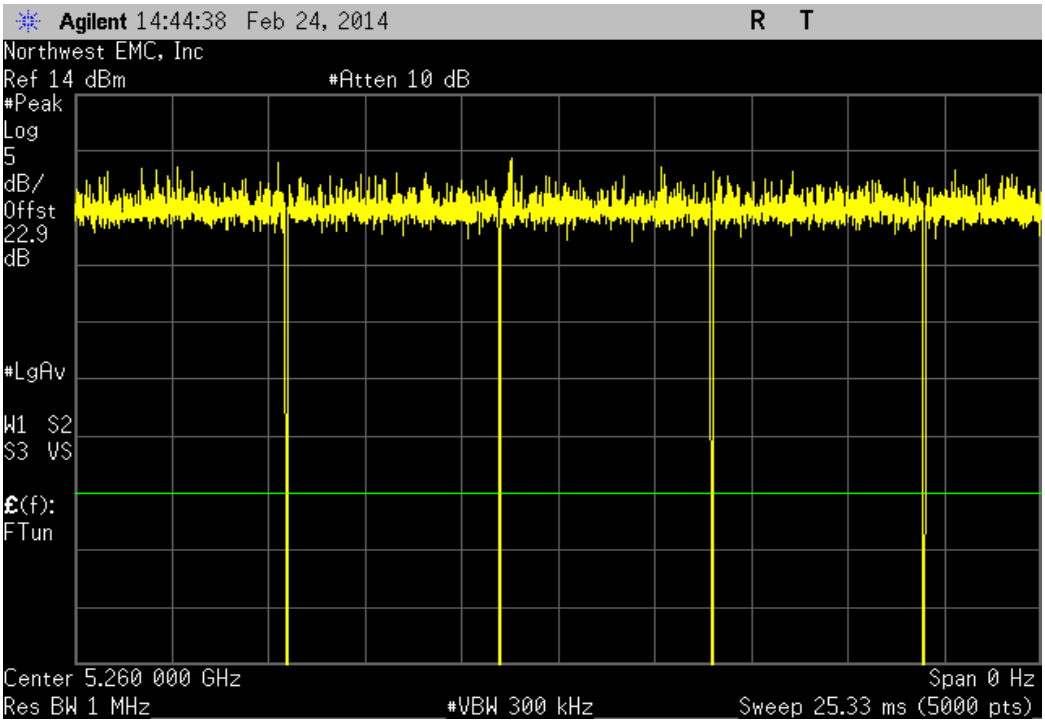


DUTY CYCLE

802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.576 mS	1	98.9	N/A	N/A

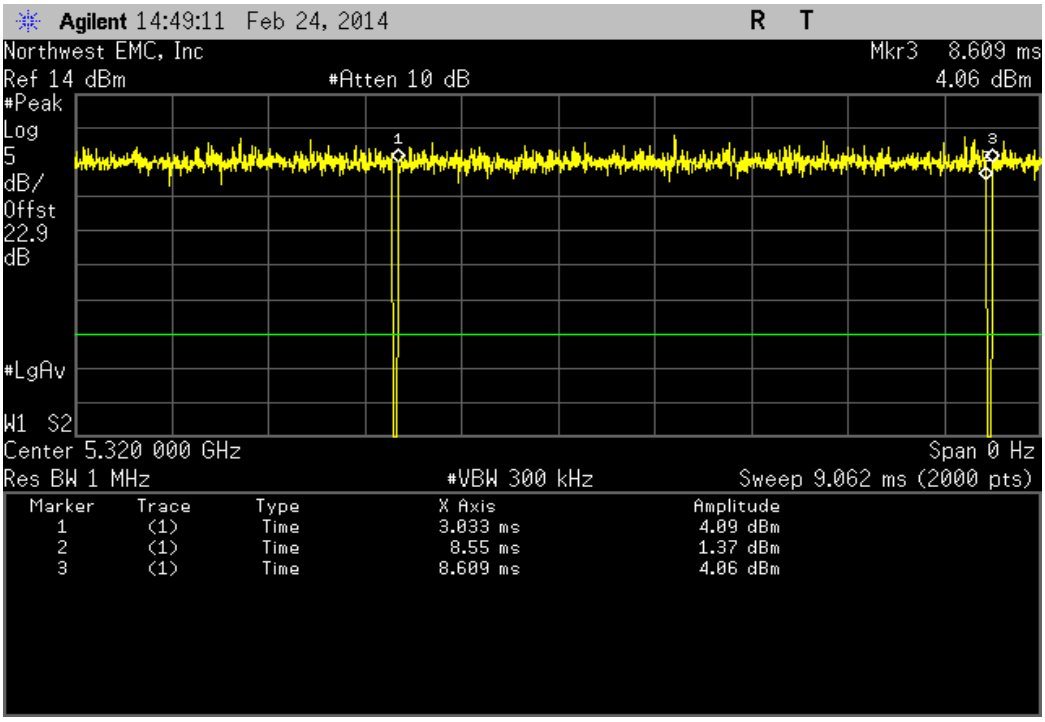


802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

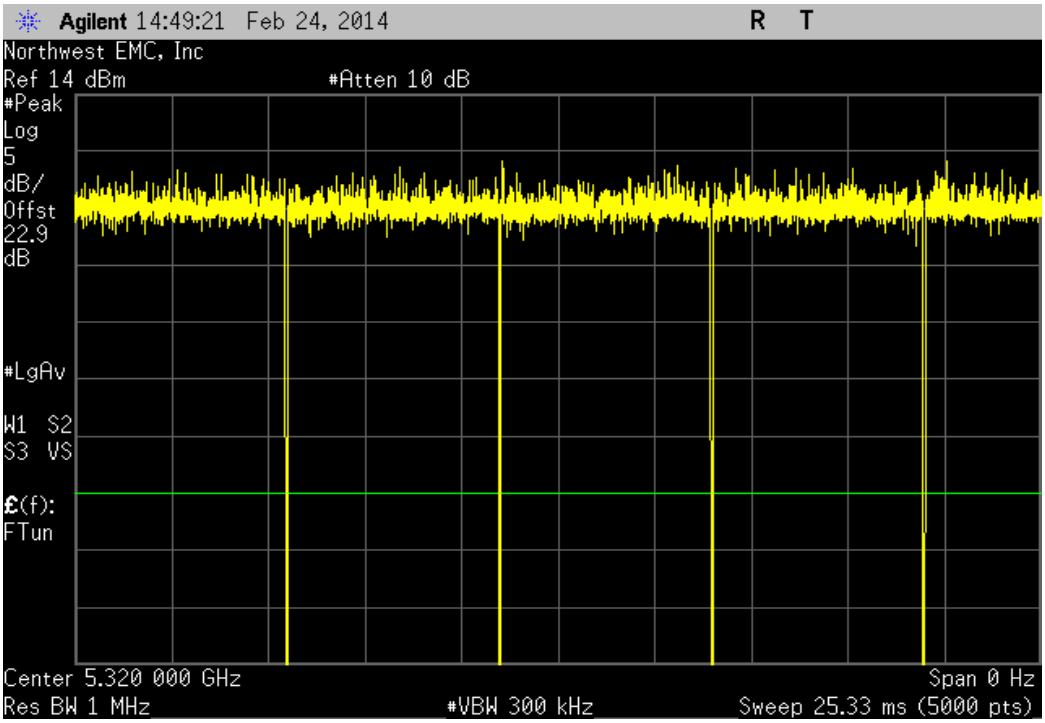


DUTY CYCLE

802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.576 mS	1	98.9	N/A	N/A

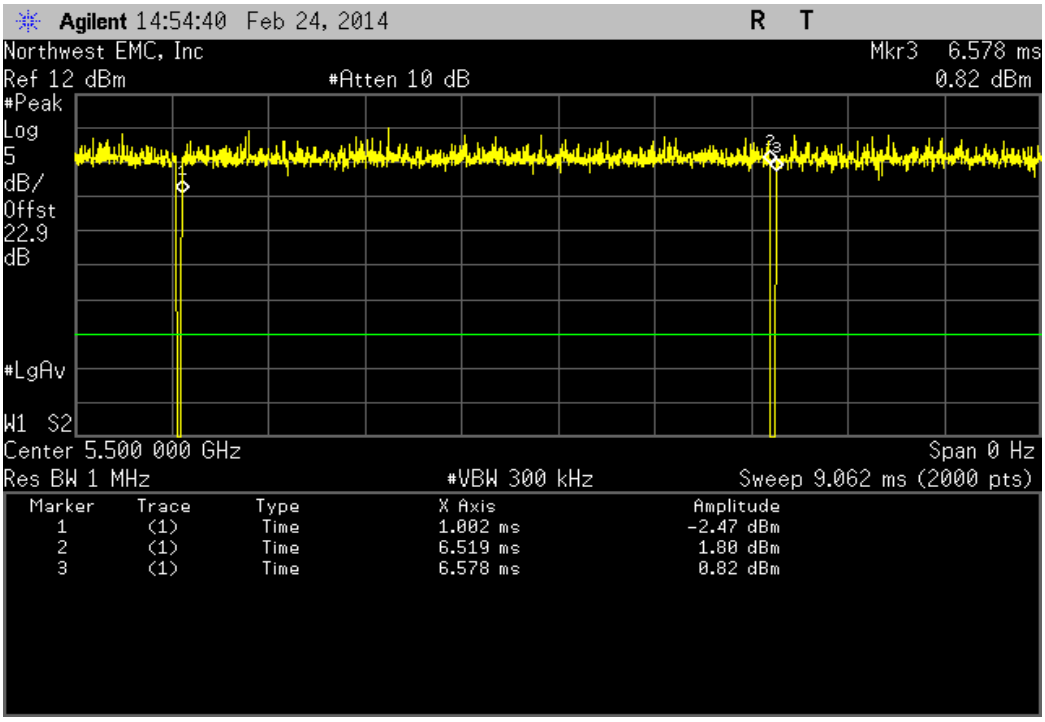


802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

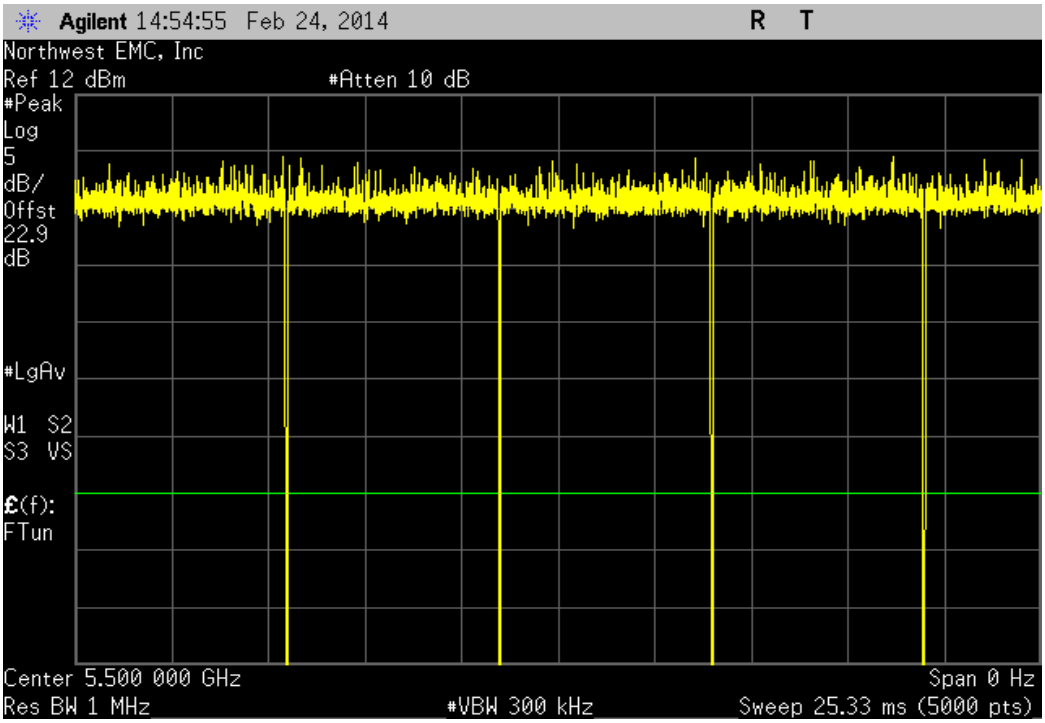


DUTY CYCLE

802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.576 mS	1	98.9	N/A	N/A

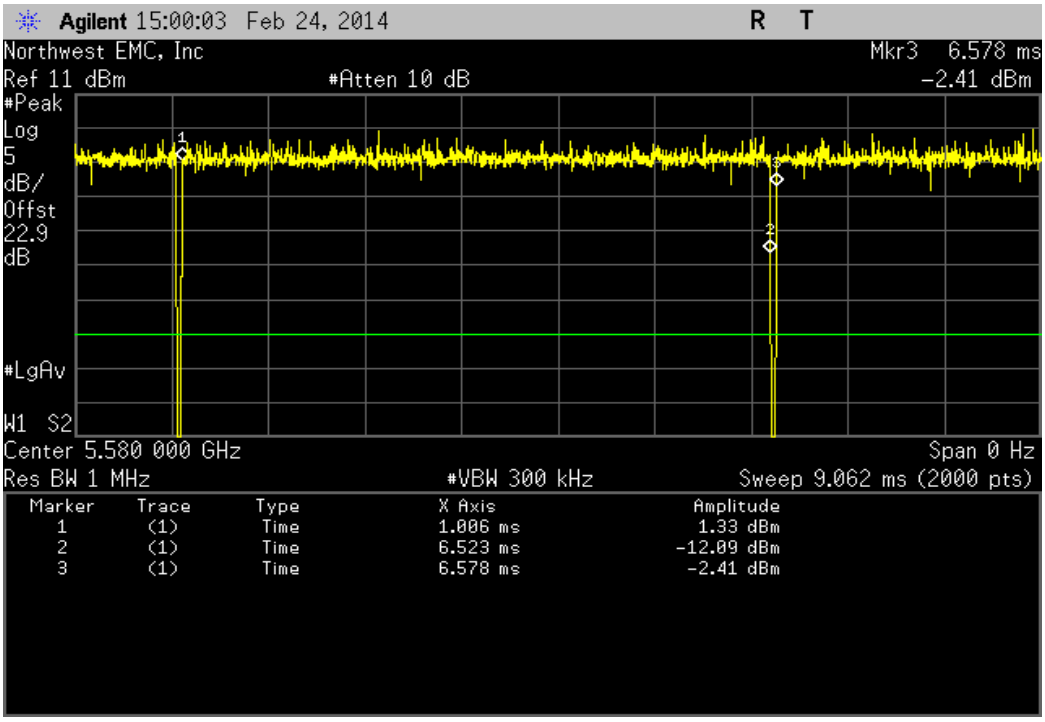


802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

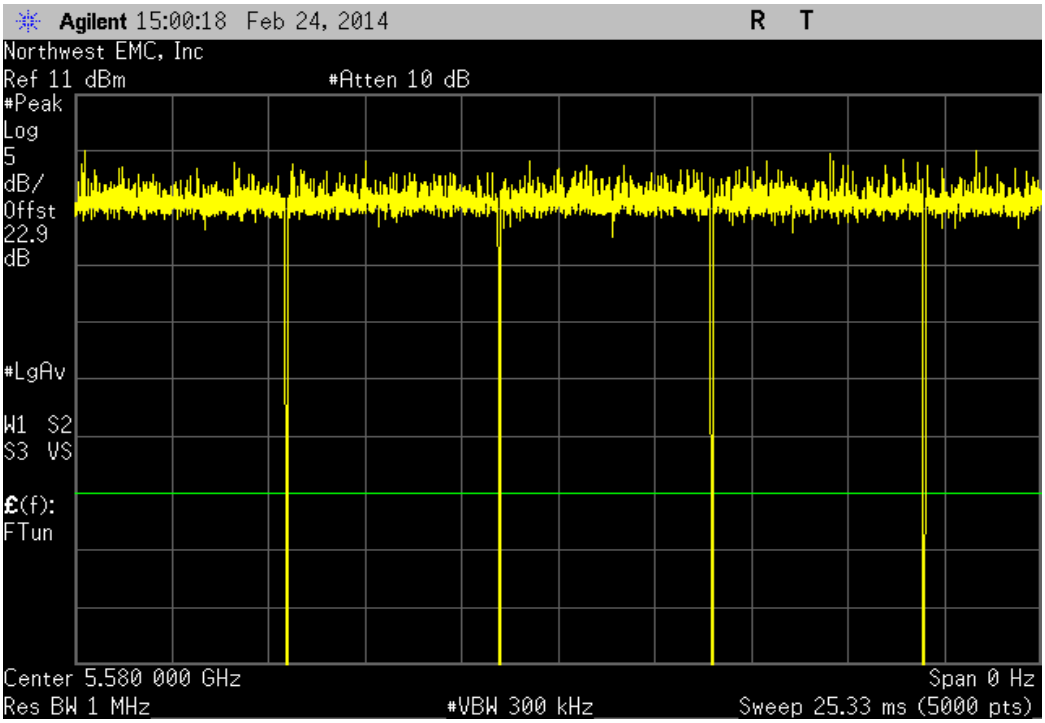


DUTY CYCLE

802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.572 mS	1	99	N/A	N/A

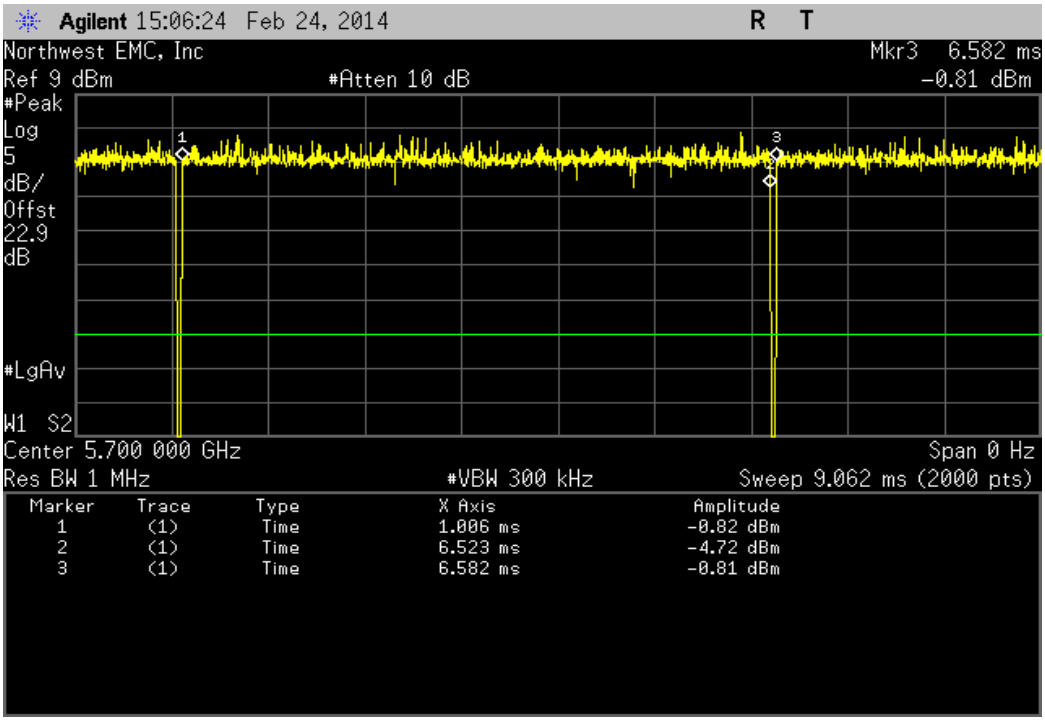


802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

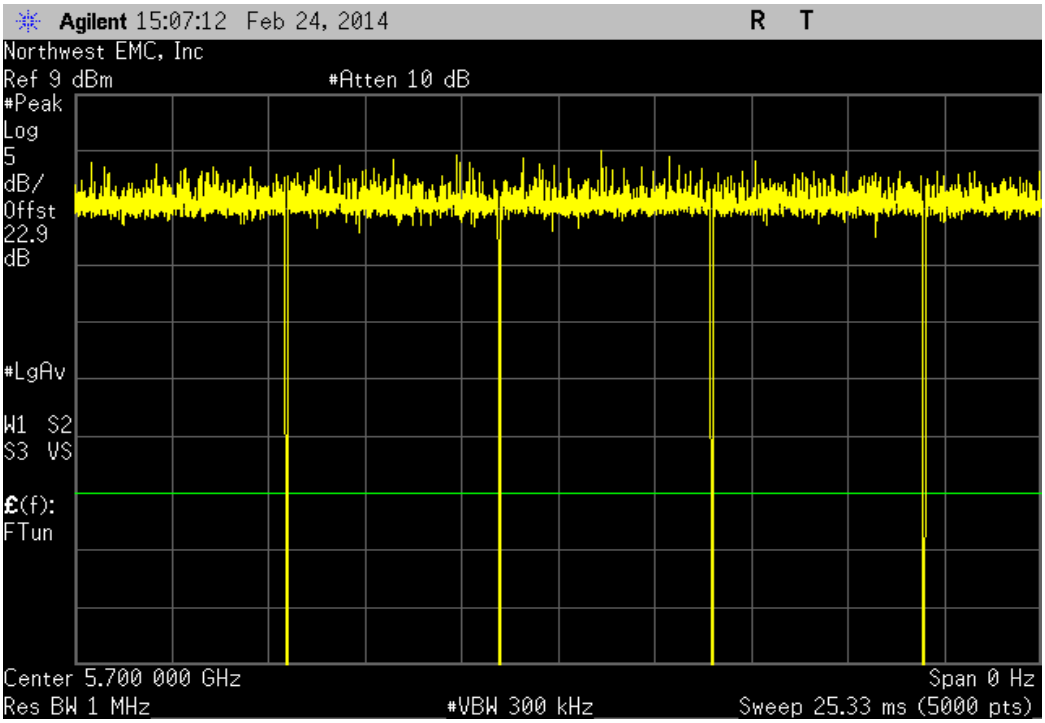


DUTY CYCLE

802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	5.517 mS	5.576 mS	1	98.9	N/A	N/A

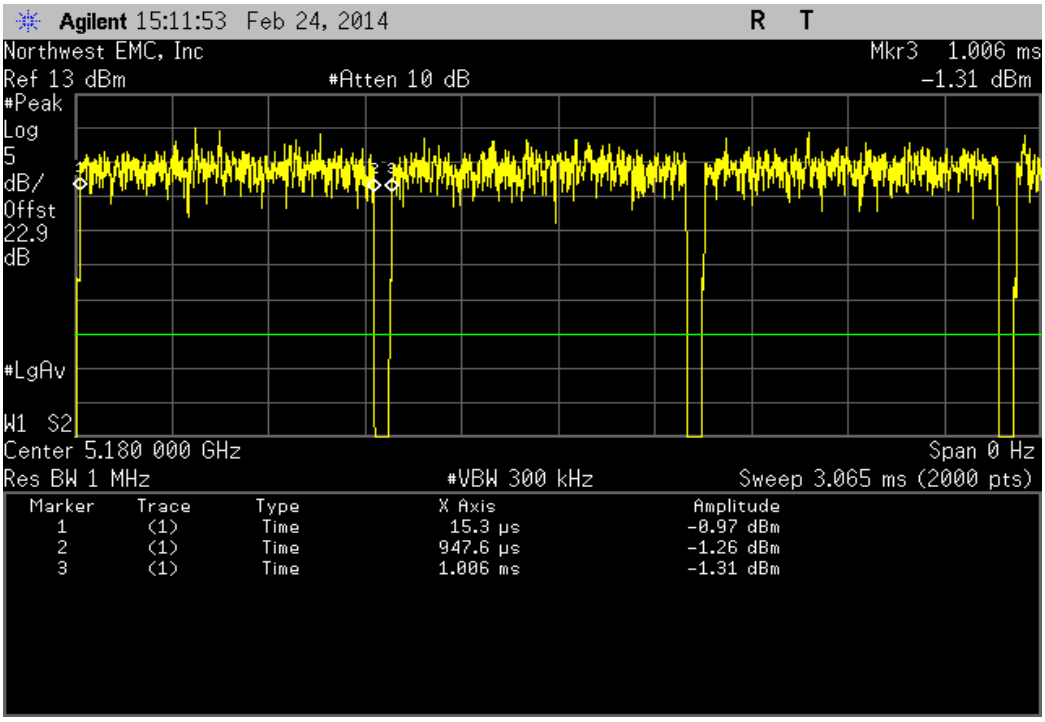


802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

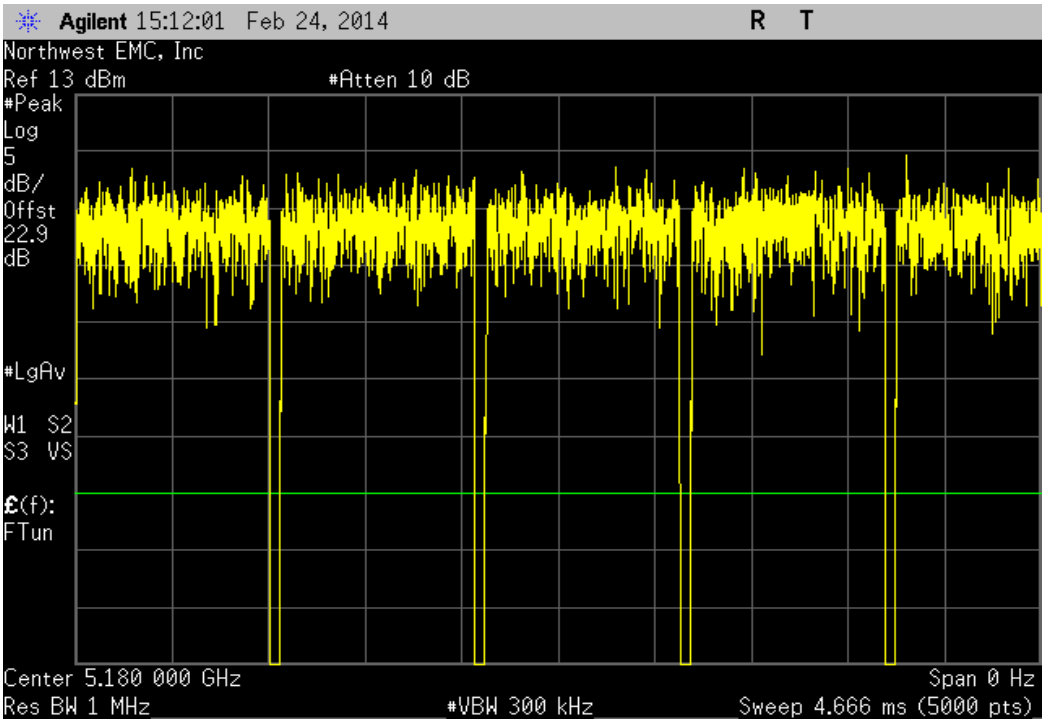


DUTY CYCLE

802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	990.6 uS	1	94.1	N/A	N/A

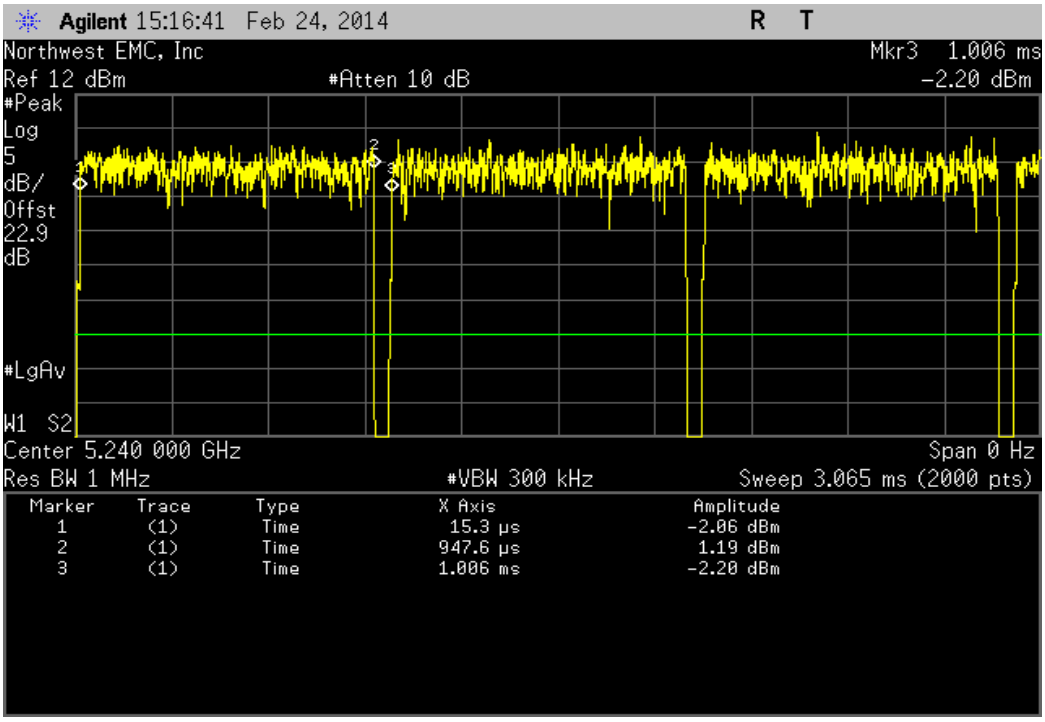


802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

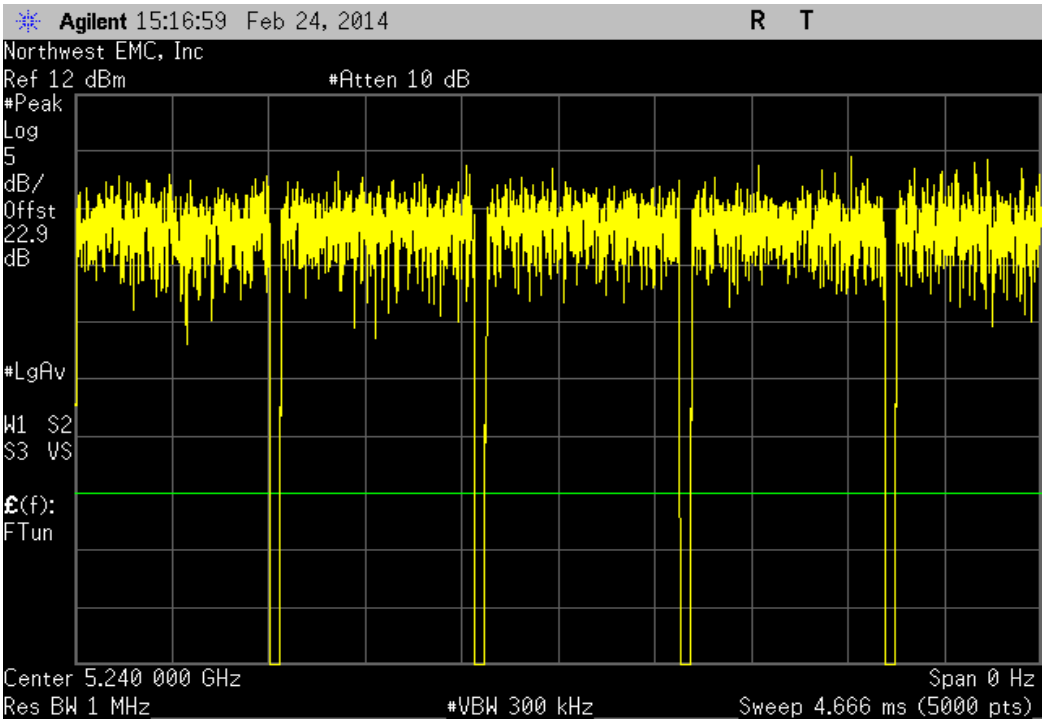


DUTY CYCLE

802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	990.6 uS	1	94.1	N/A	N/A

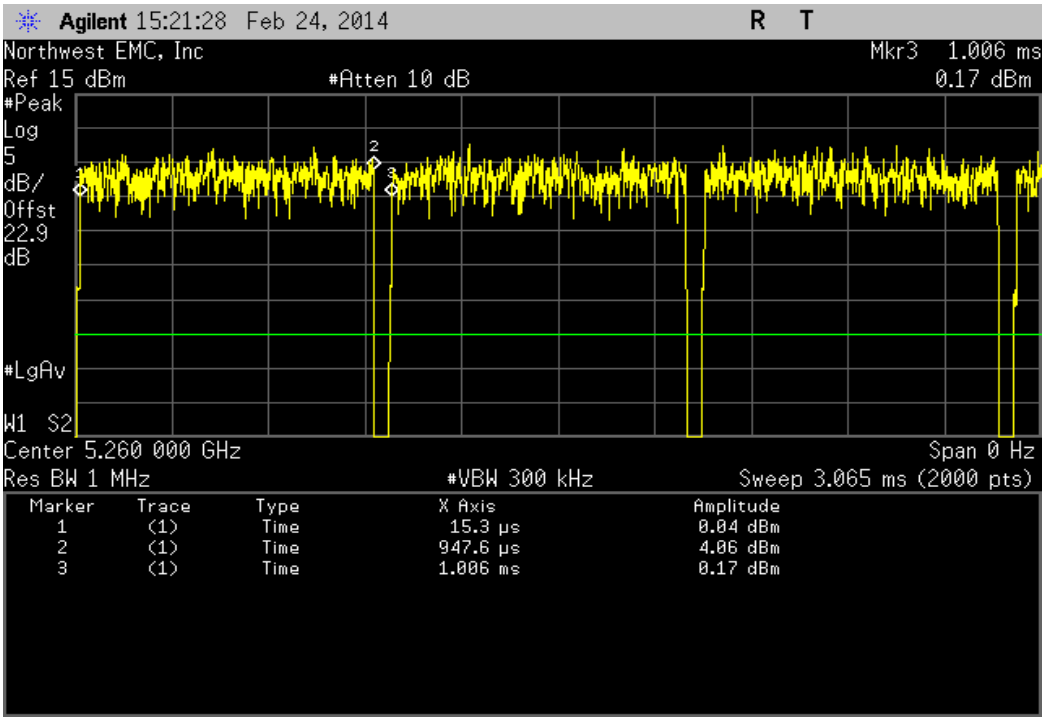


802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

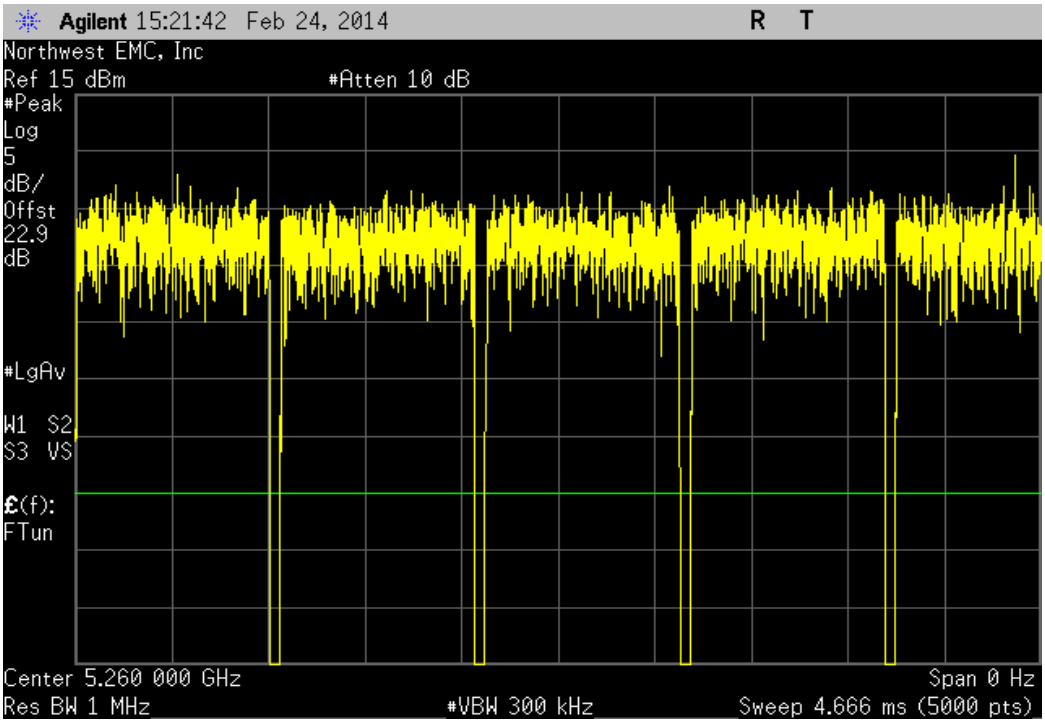


DUTY CYCLE

802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	990.6 uS	1	94.1	N/A	N/A

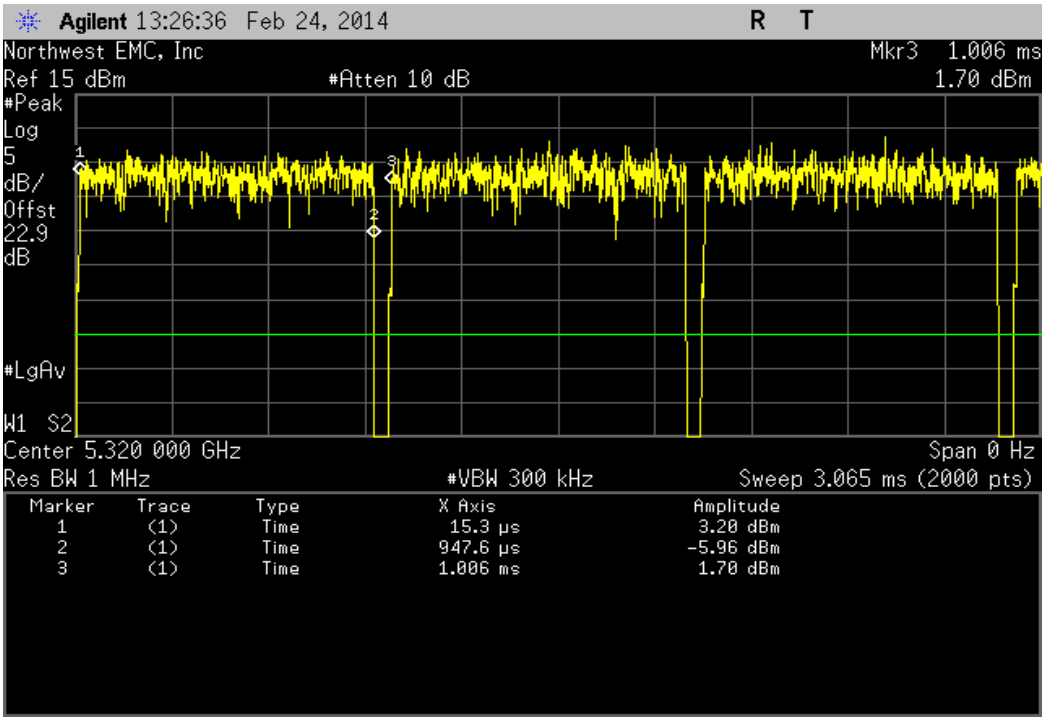


802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

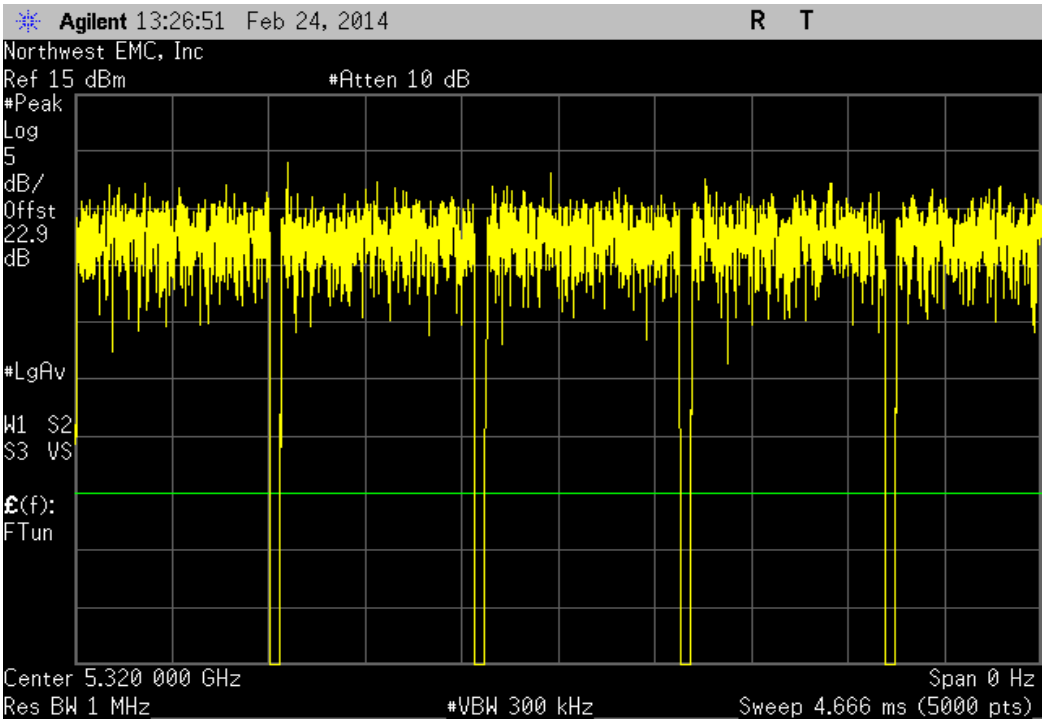


DUTY CYCLE

802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	990.6 uS	1	94.1	N/A	N/A

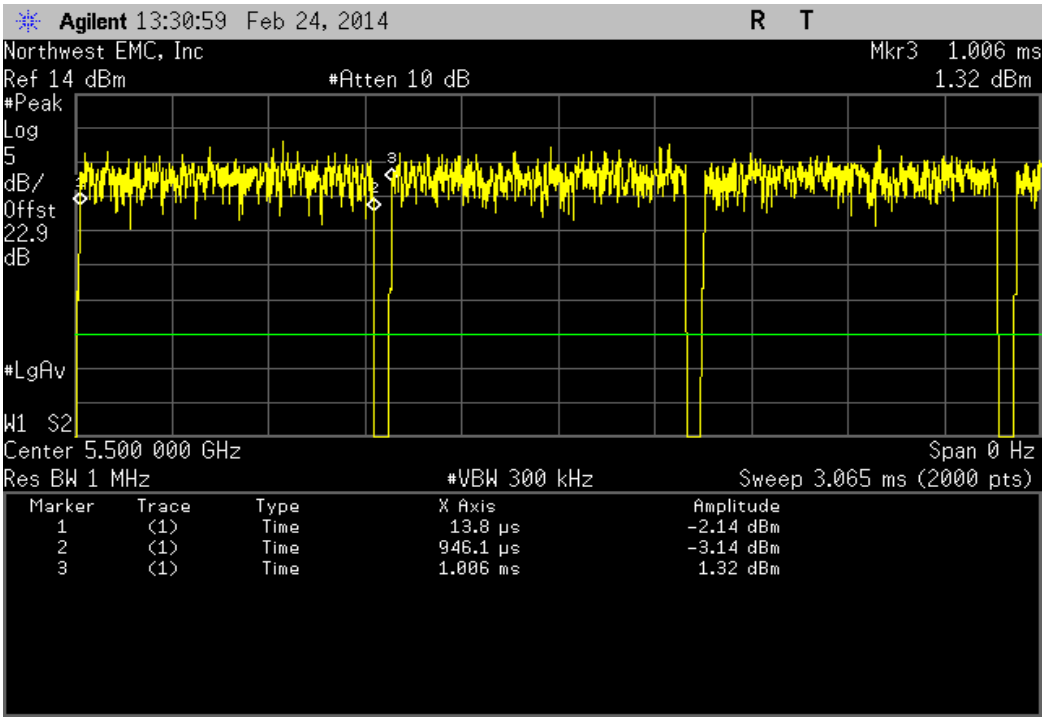


802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

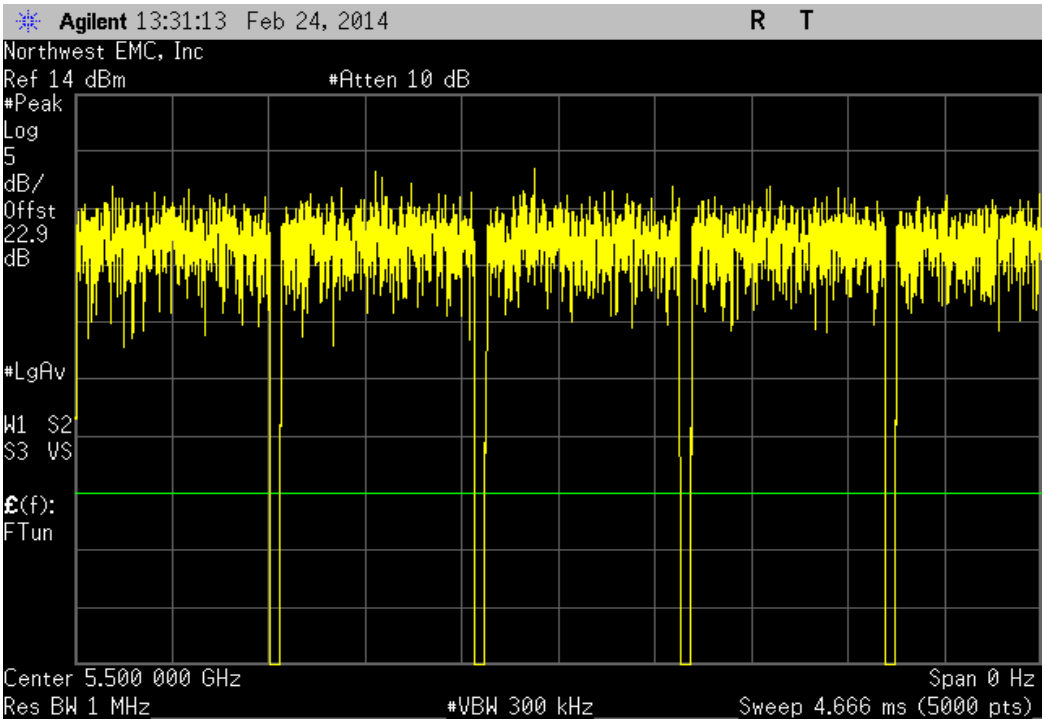


DUTY CYCLE

802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	992.1 uS	1	94	N/A	N/A

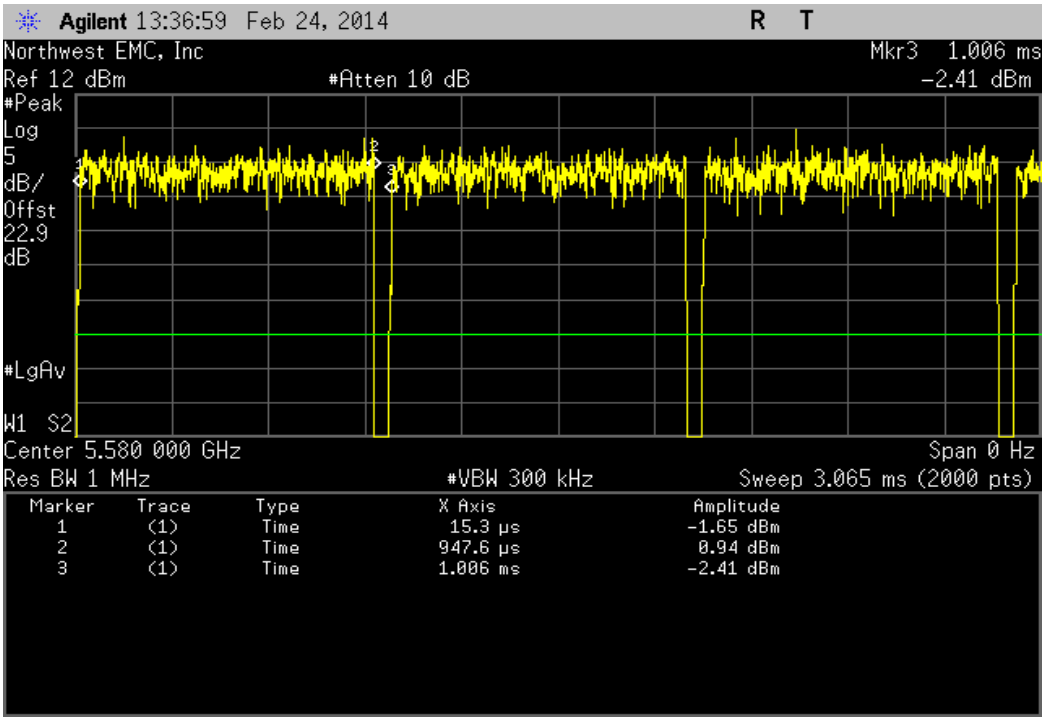


802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

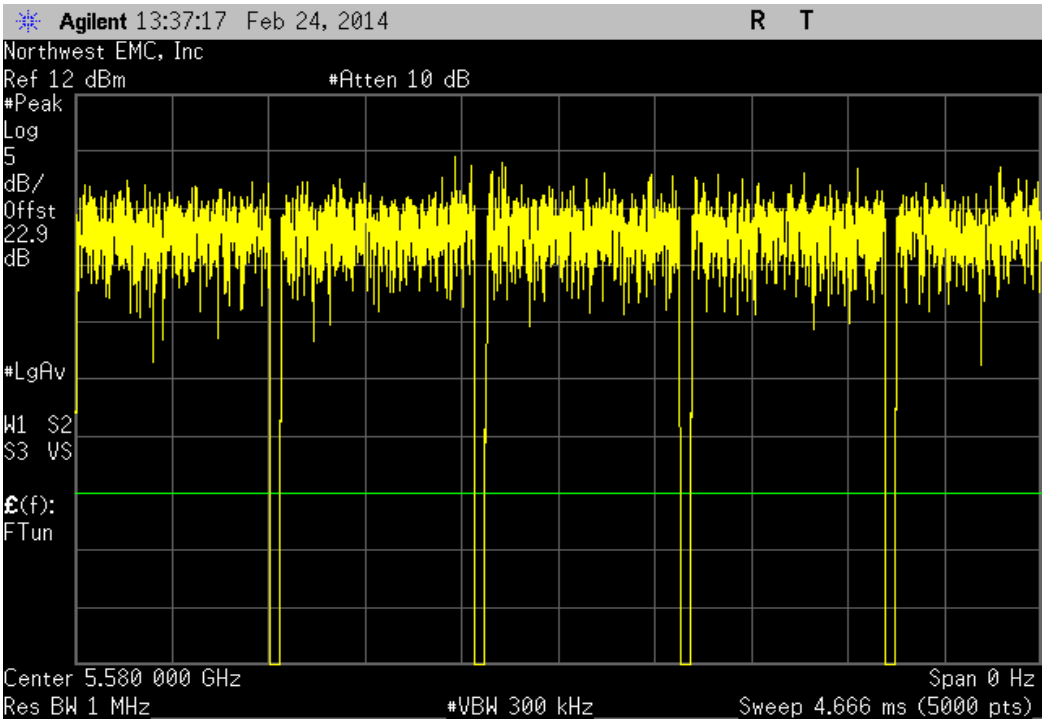


DUTY CYCLE

802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	990.6 uS	1	94.1	N/A	N/A

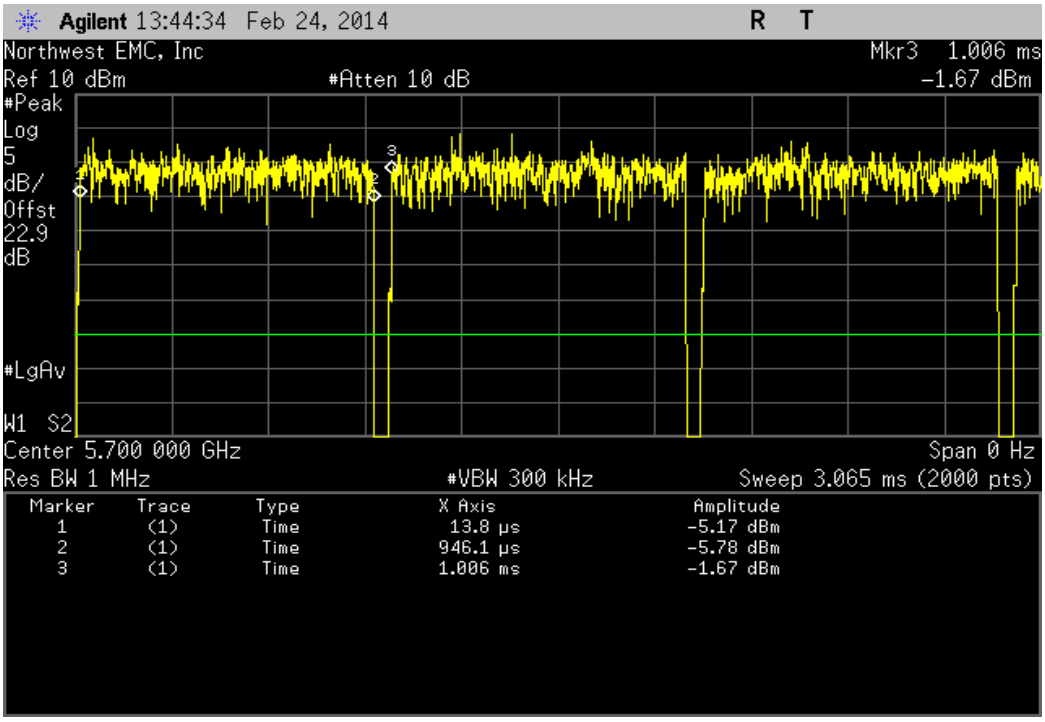


802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

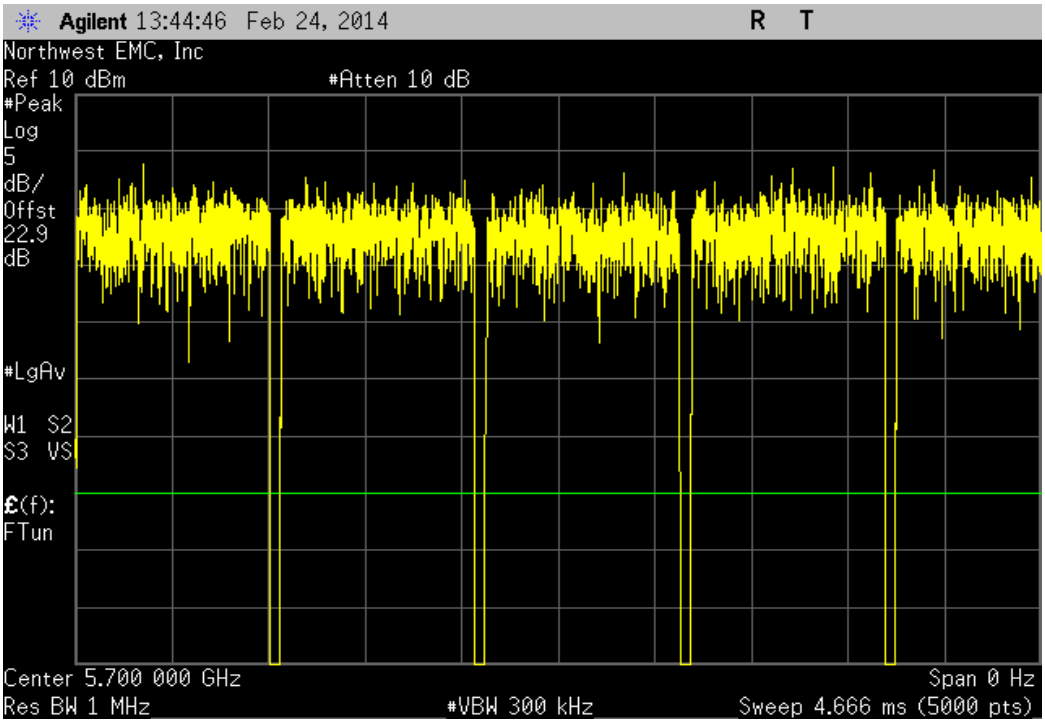


DUTY CYCLE

802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	932.3 uS	992.1 uS	1	94	N/A	N/A

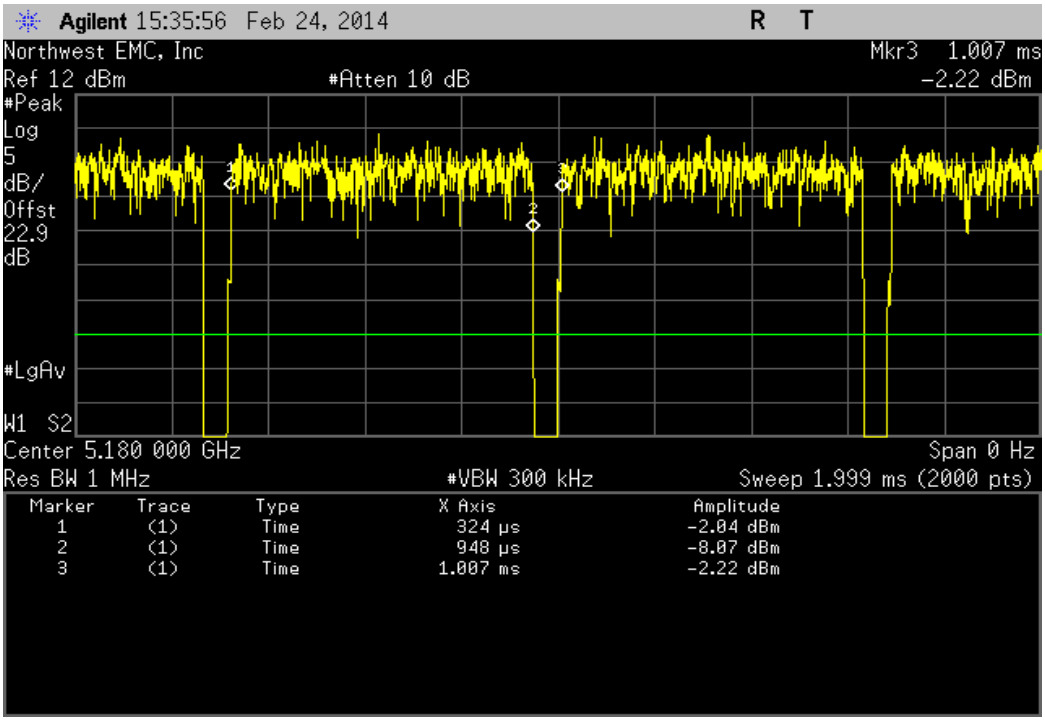


802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

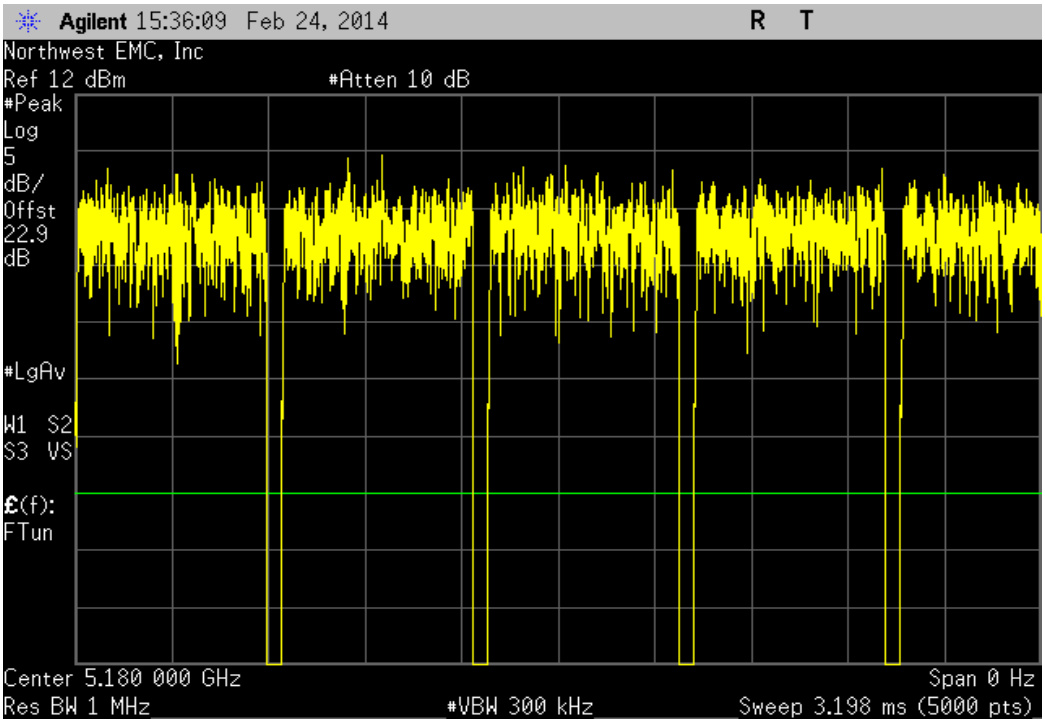


DUTY CYCLE

802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

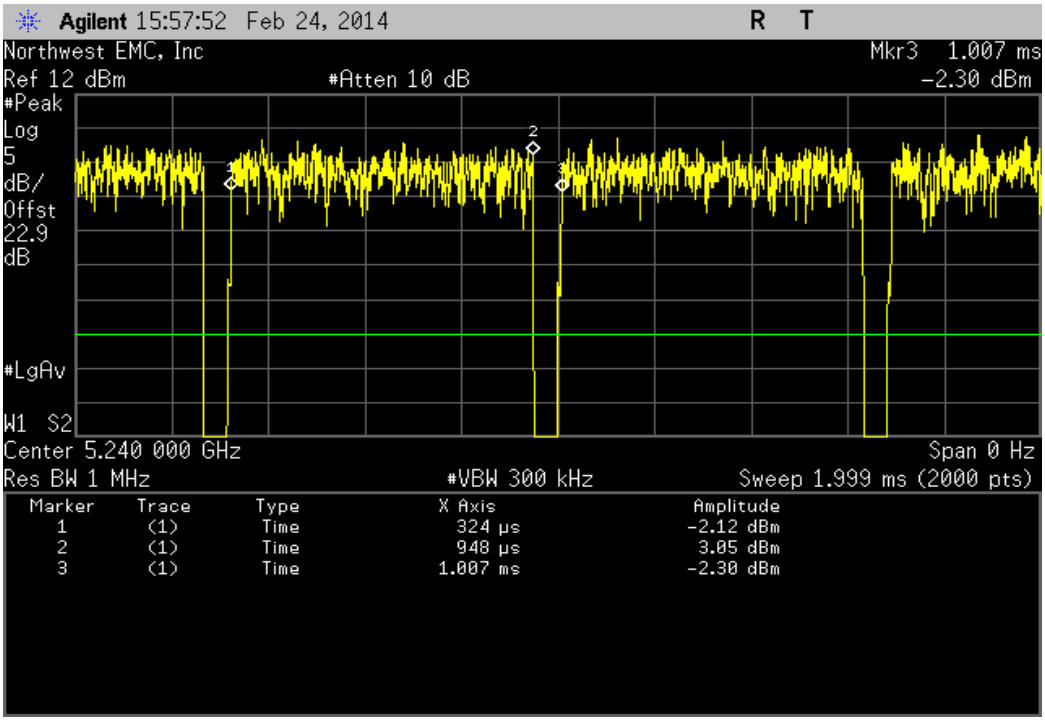


802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

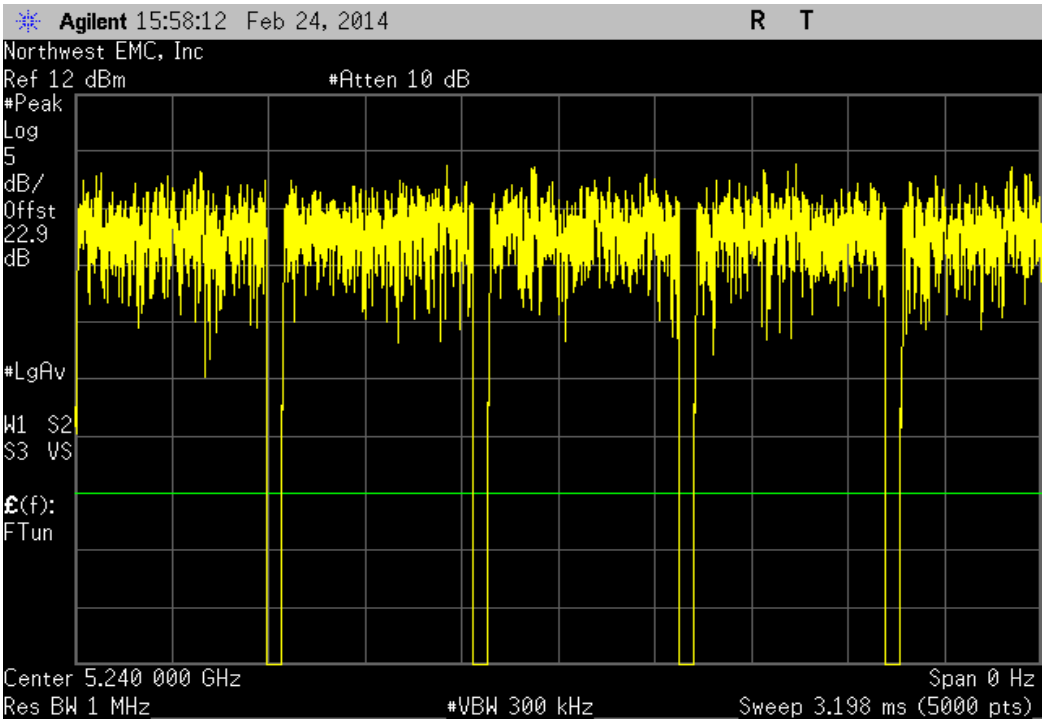


DUTY CYCLE

802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

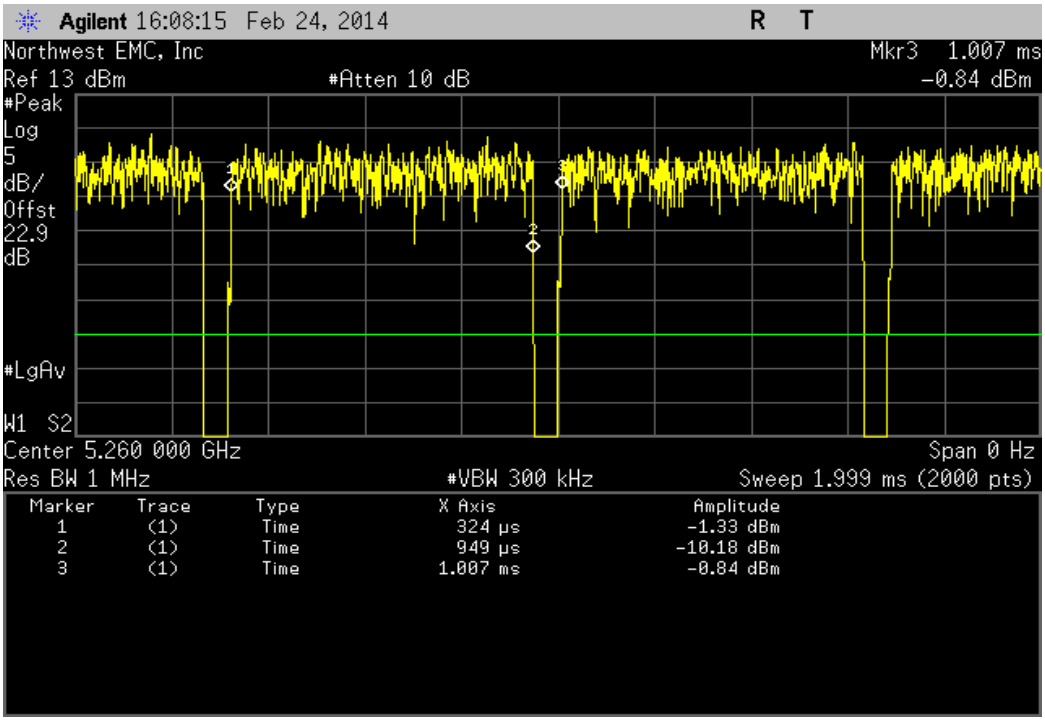


802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

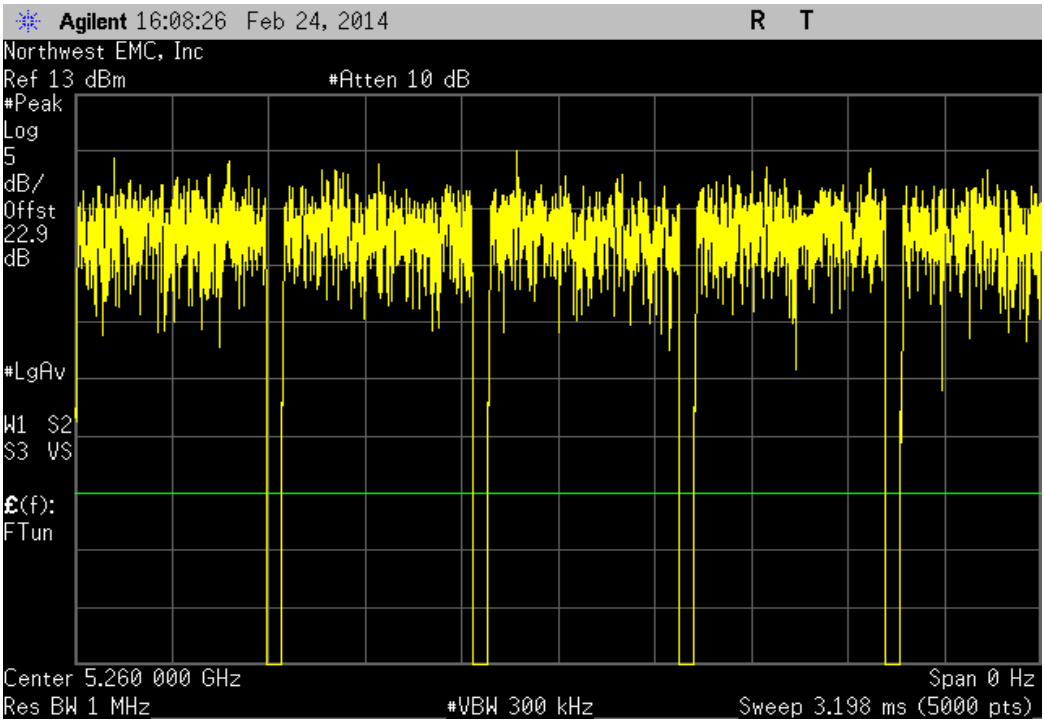


DUTY CYCLE

802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	625 uS	683 uS	1	91.5	N/A	N/A

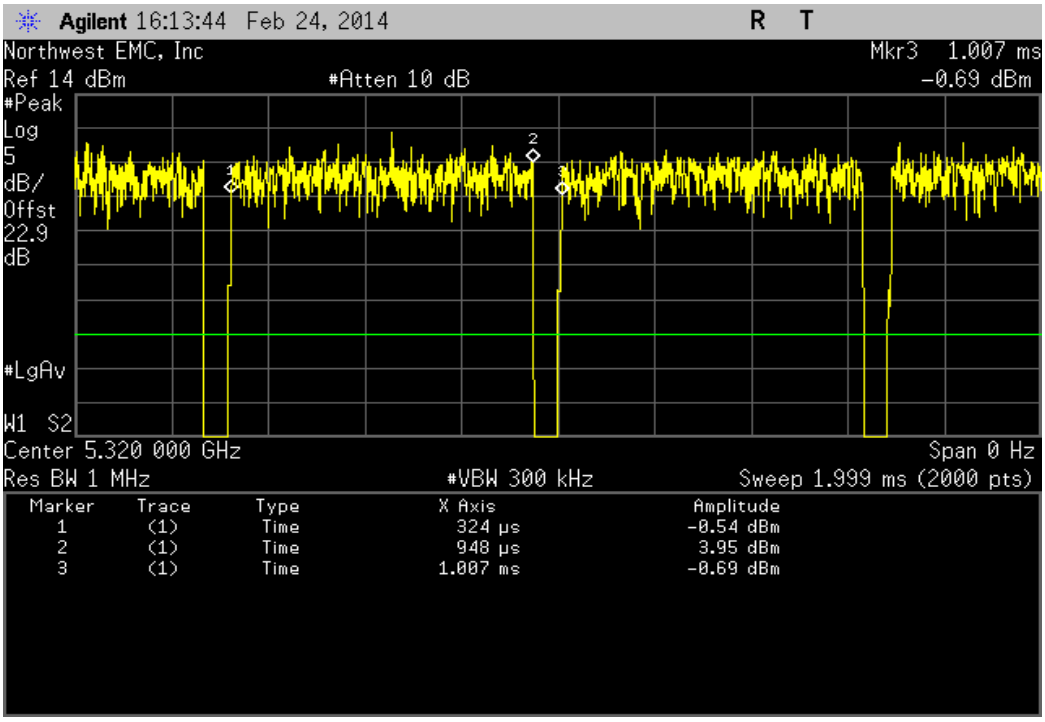


802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

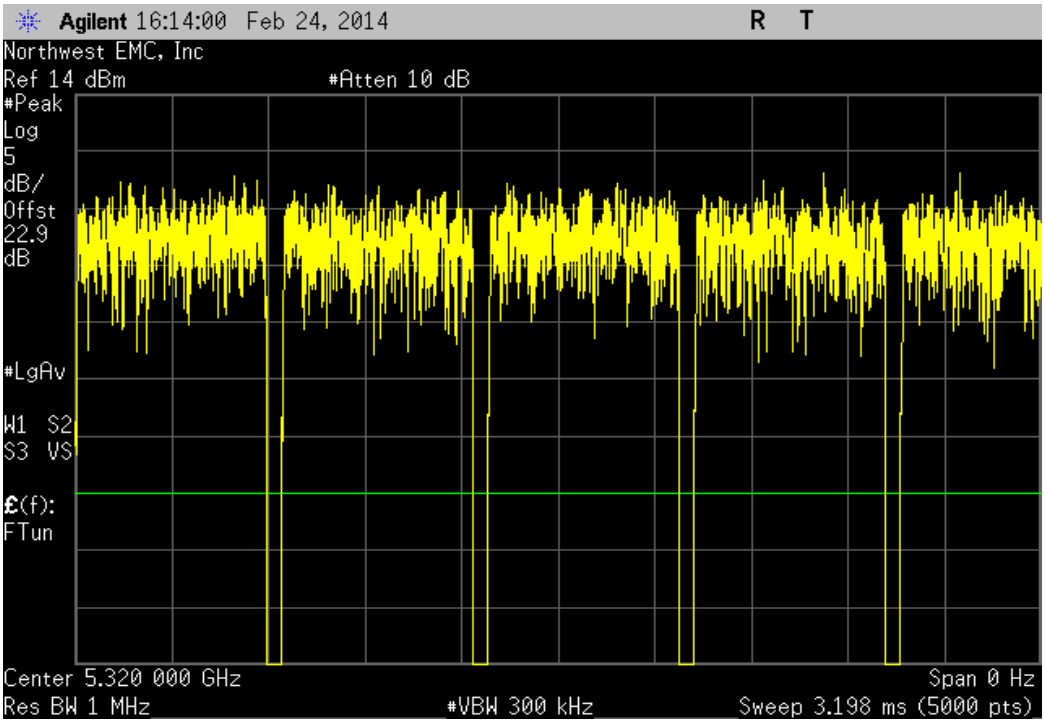


DUTY CYCLE

802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

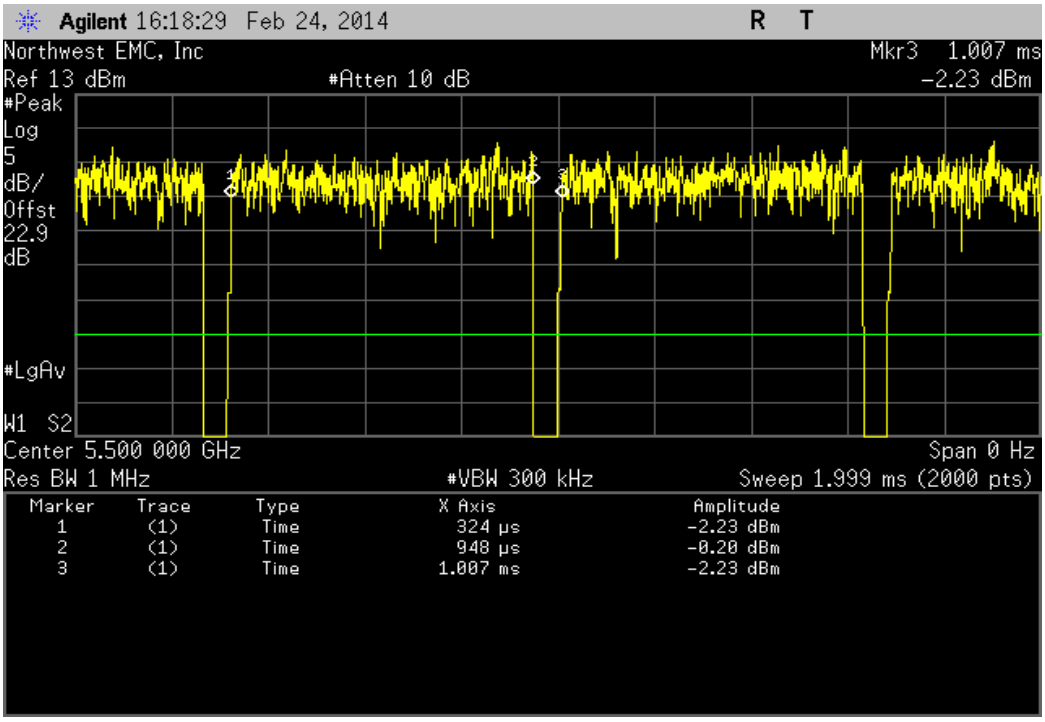


802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

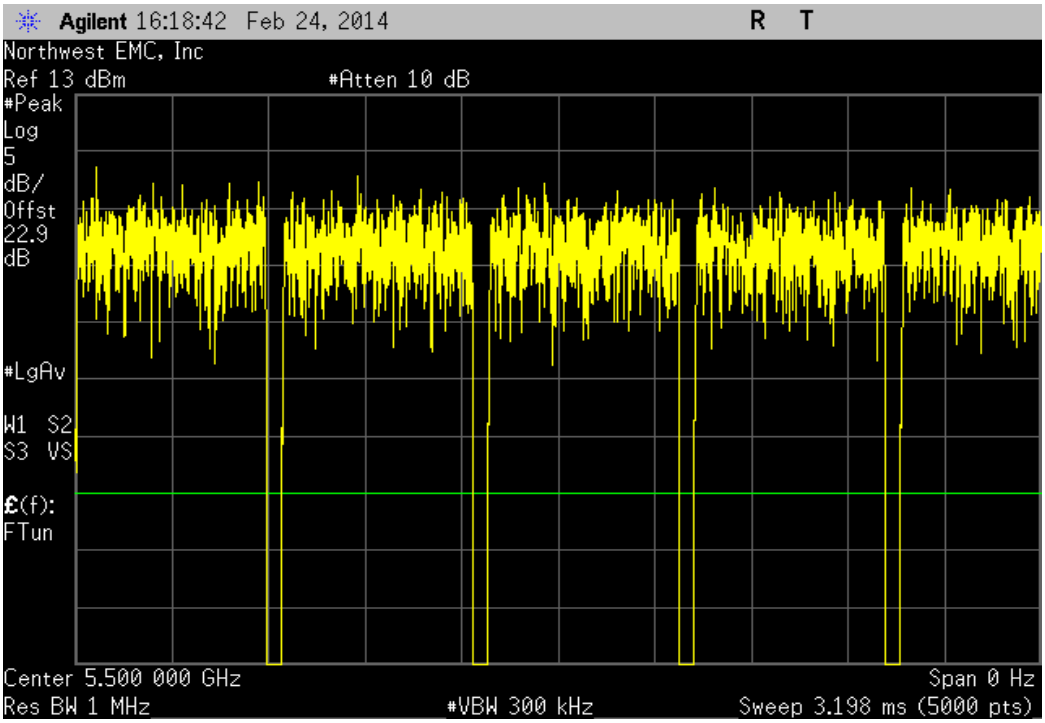


DUTY CYCLE

802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

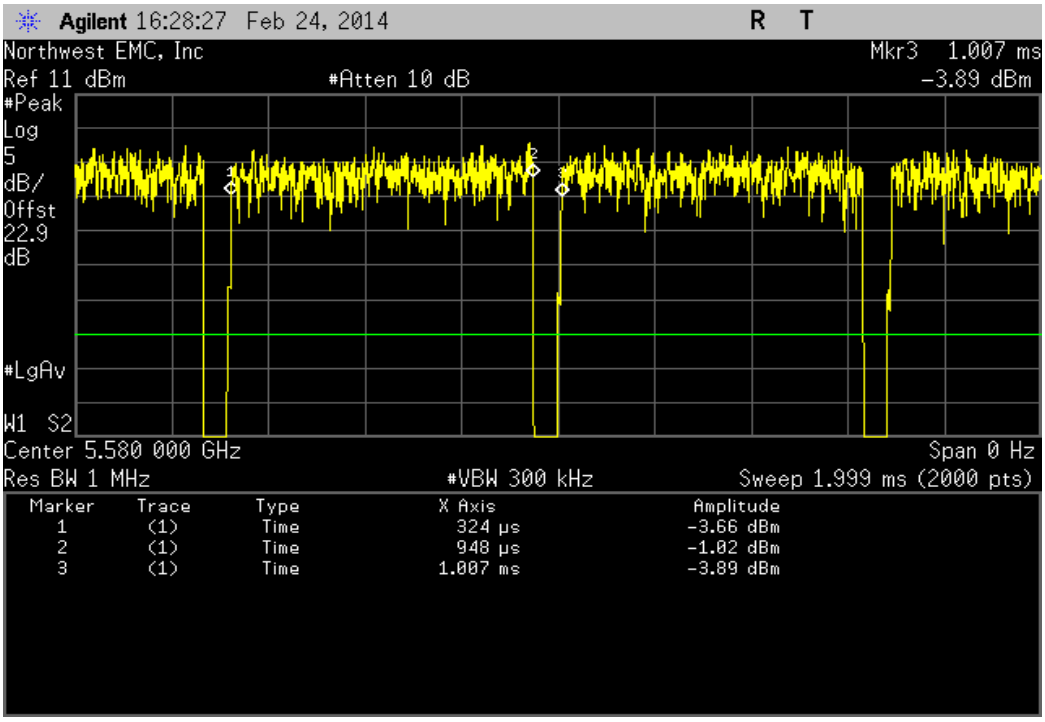


802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

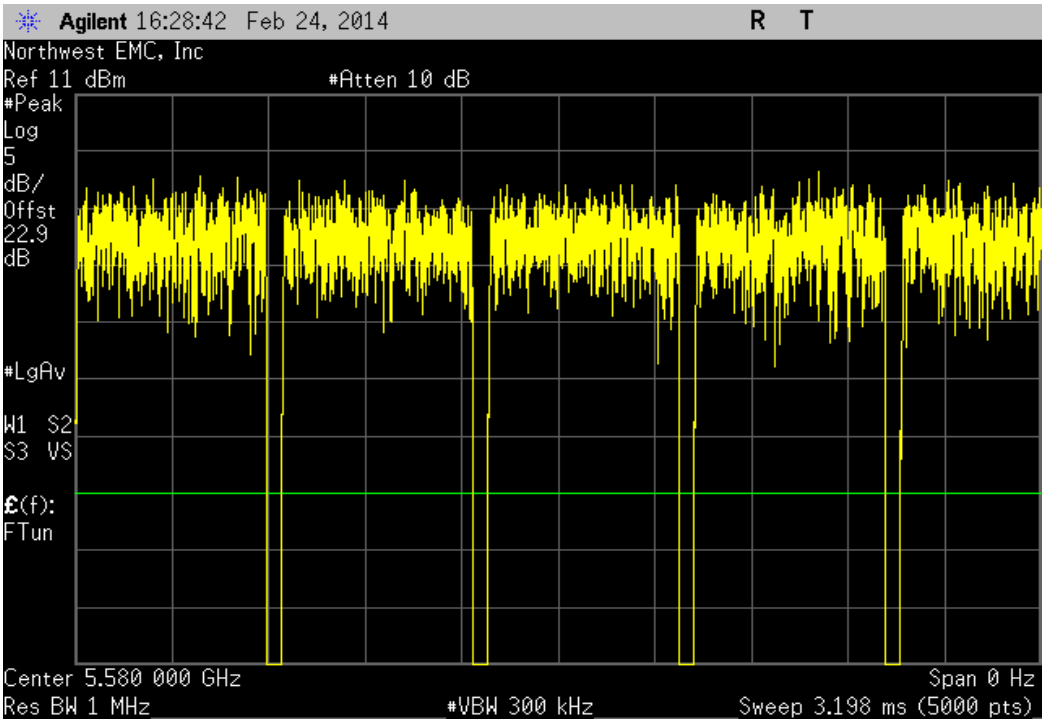


DUTY CYCLE

802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

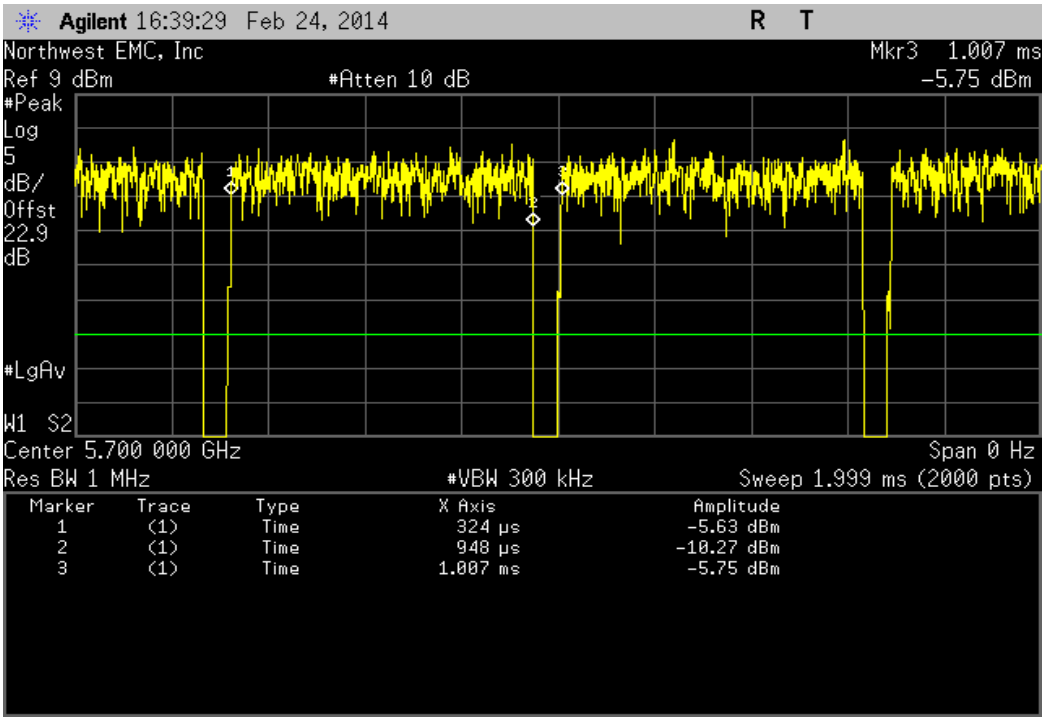


802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

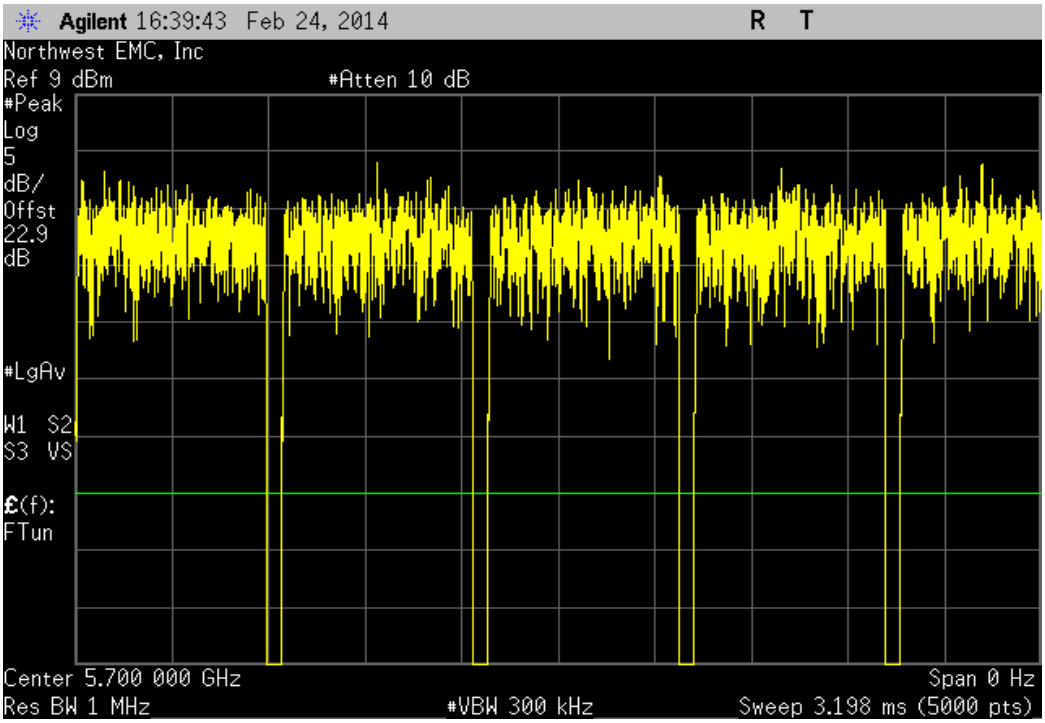


DUTY CYCLE

802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	624 uS	683 uS	1	91.4	N/A	N/A

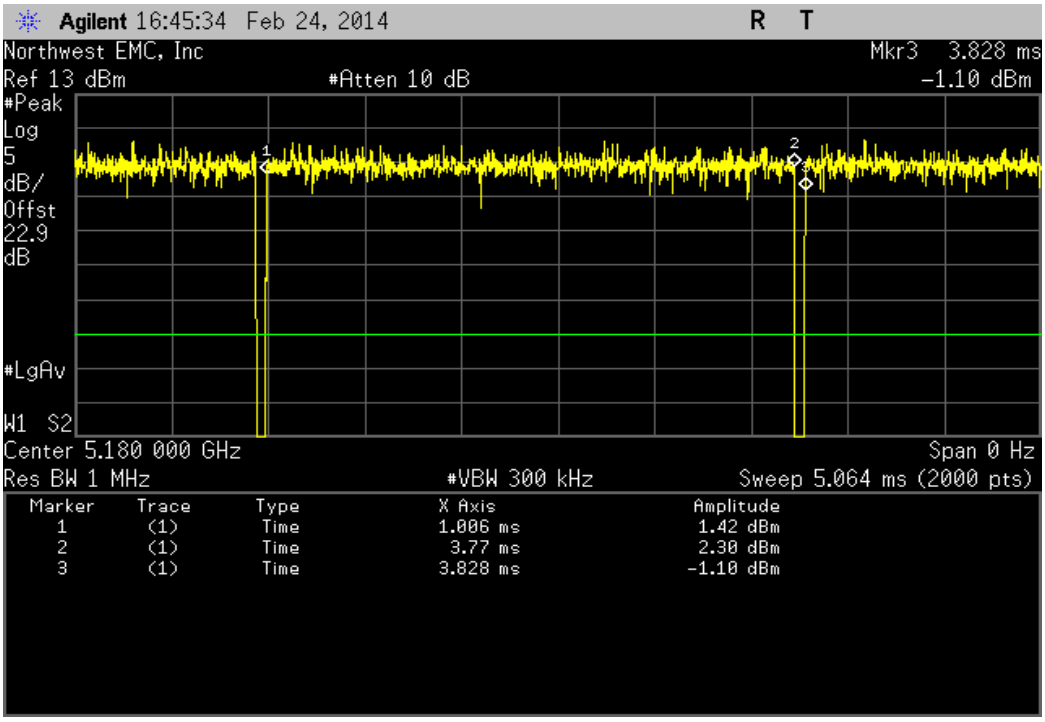


802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

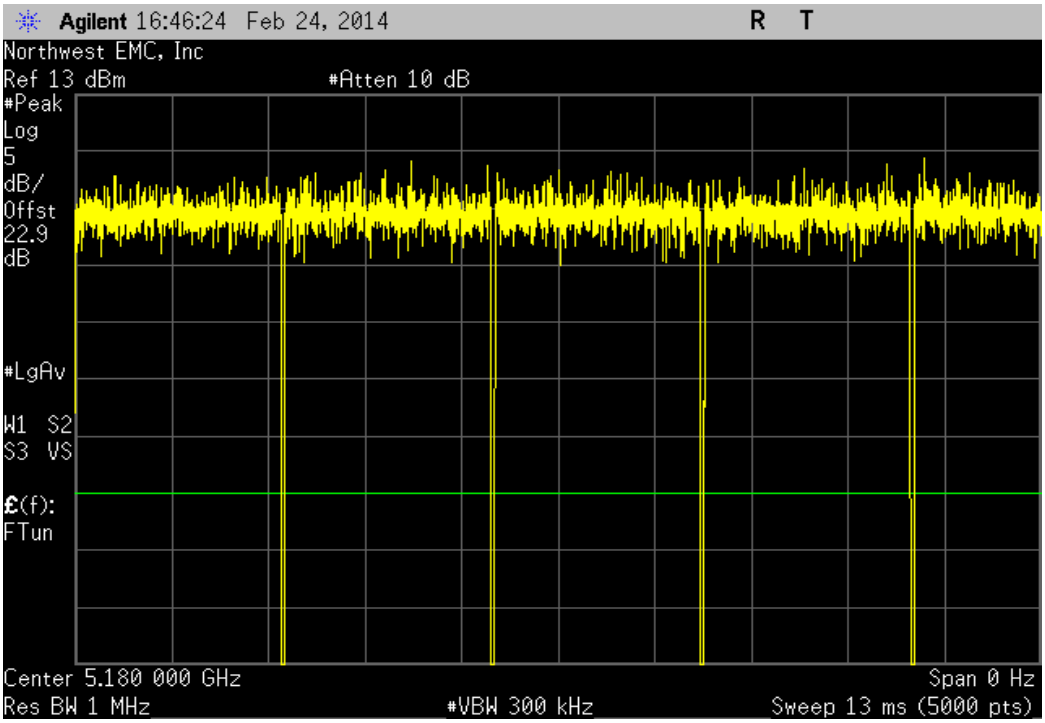


DUTY CYCLE

802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.764 mS	2.822 mS	1	97.9	N/A	N/A

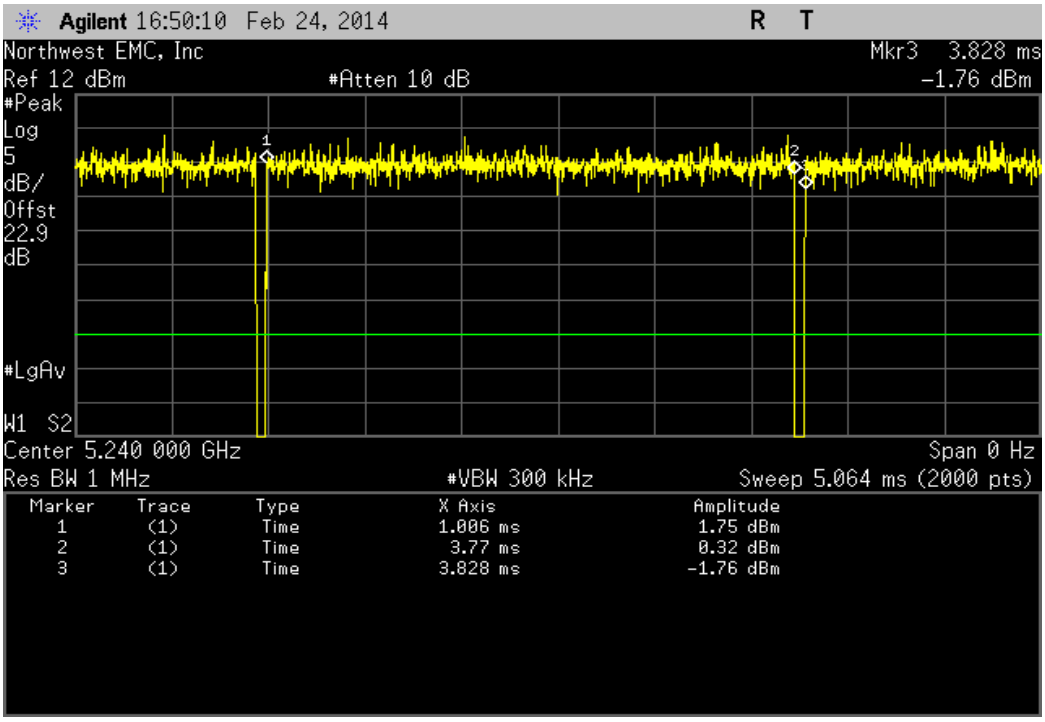


802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

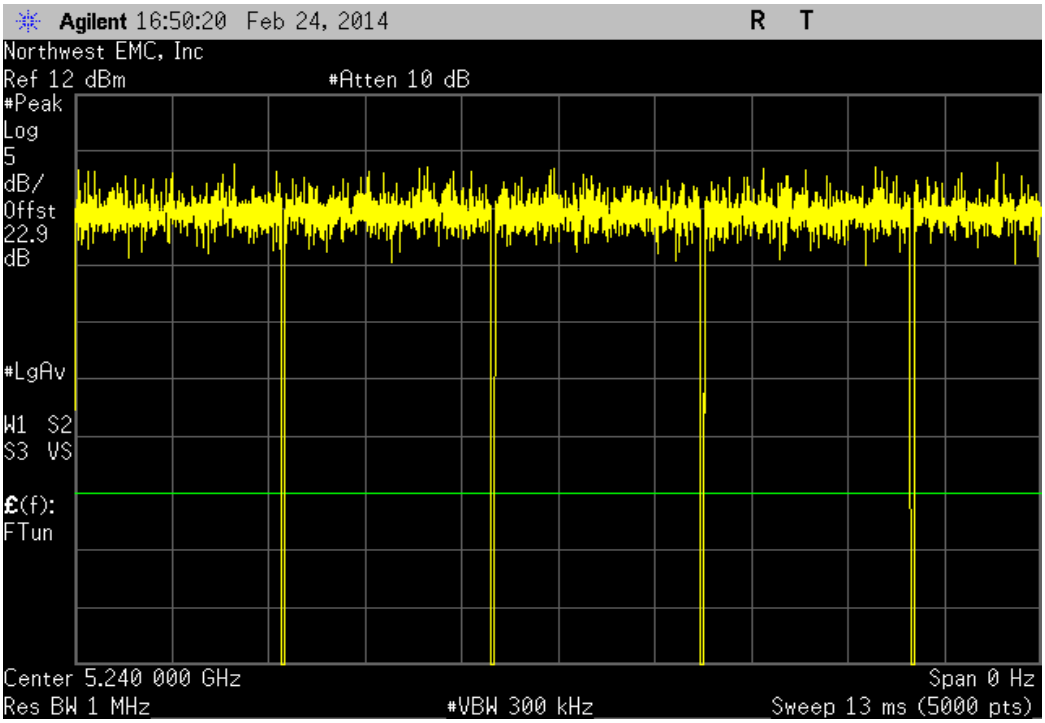


DUTY CYCLE

802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.764 mS	2.822 mS	1	97.9	N/A	N/A

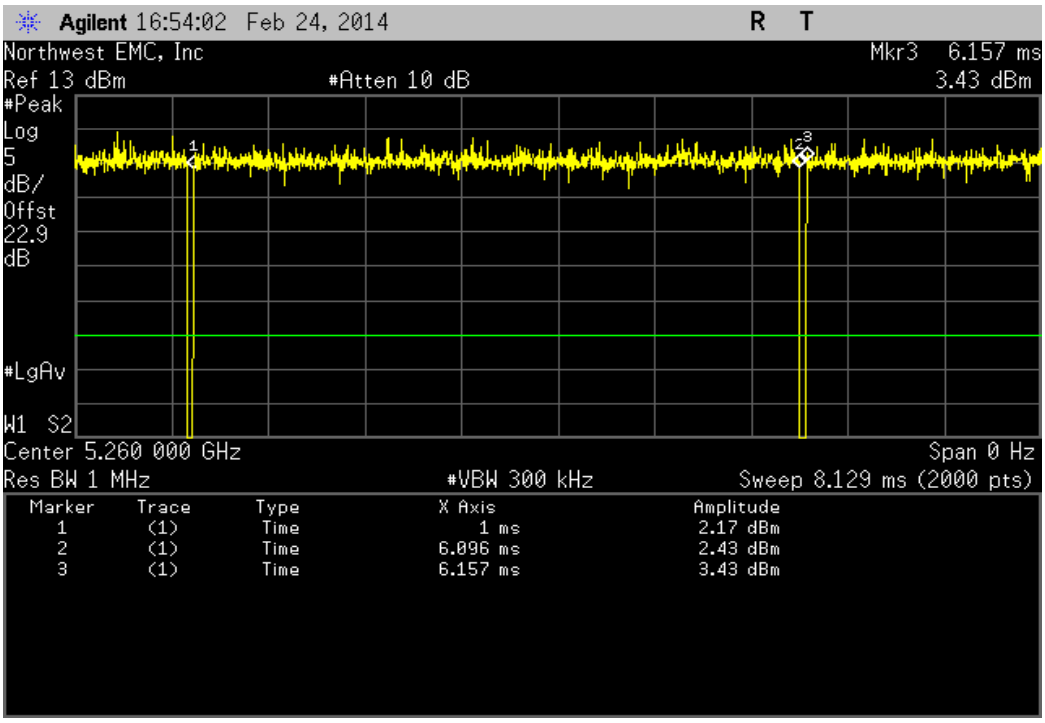


802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

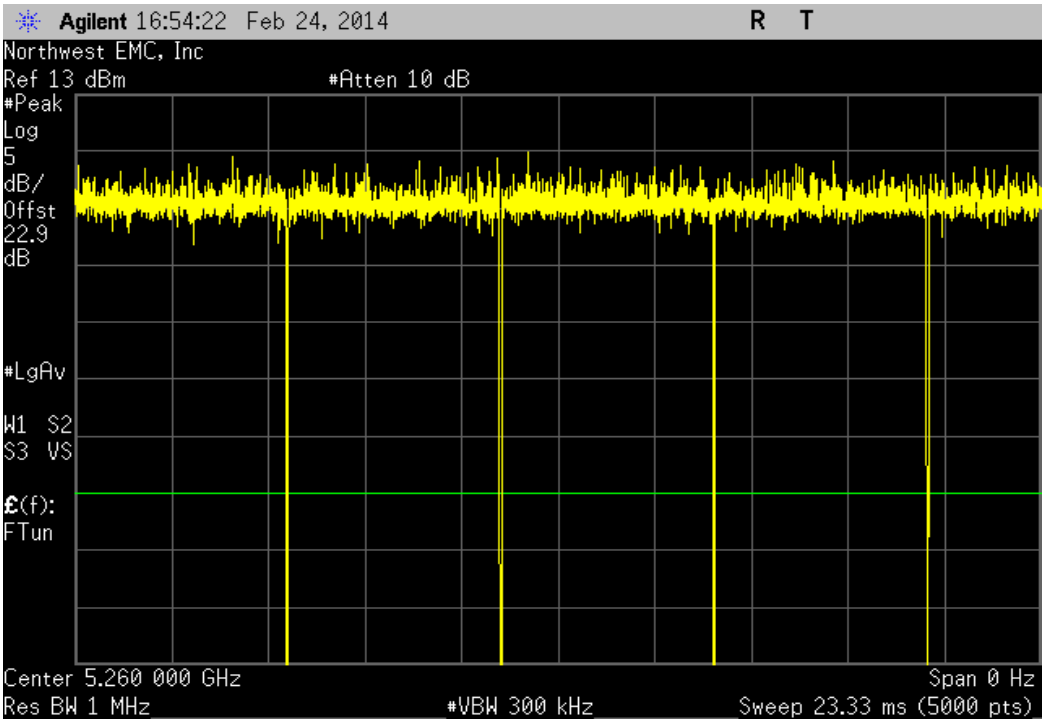


DUTY CYCLE

802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
5.096 mS	5.157 mS	1	98.8	N/A	N/A

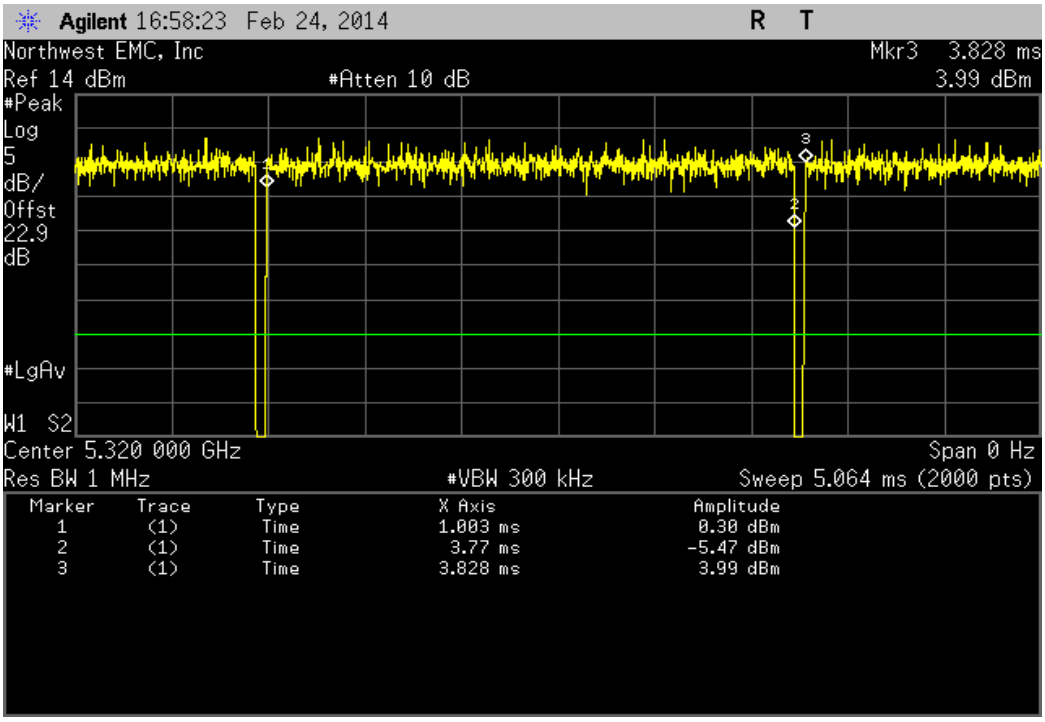


802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

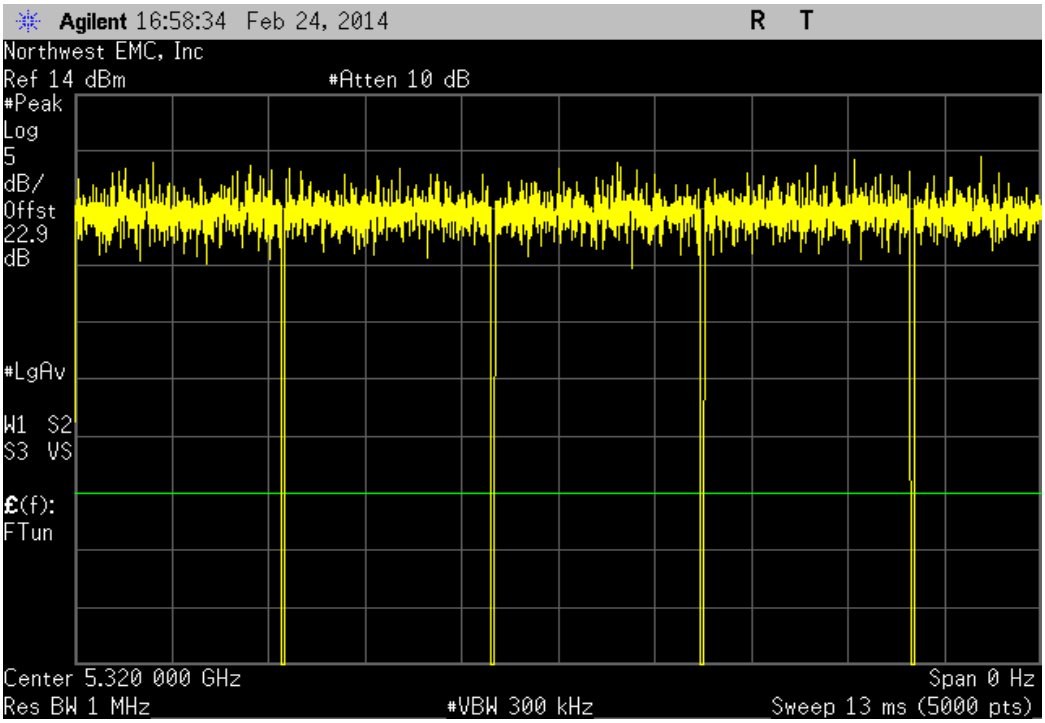


DUTY CYCLE

802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.766 mS	2.825 mS	1	97.9	N/A	N/A

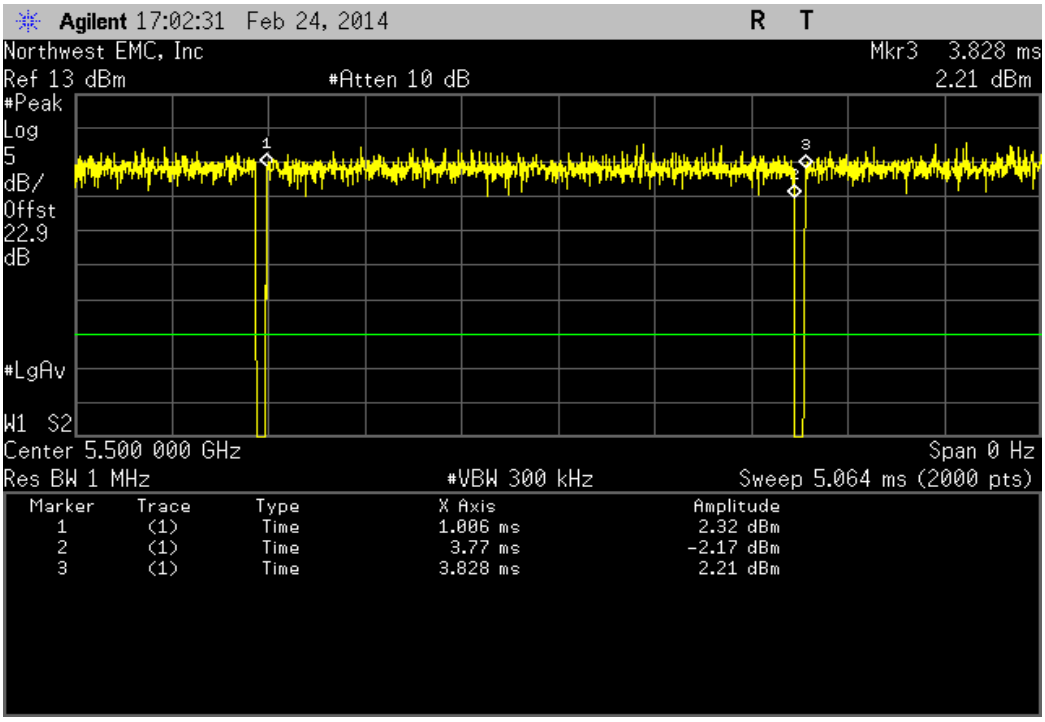


802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

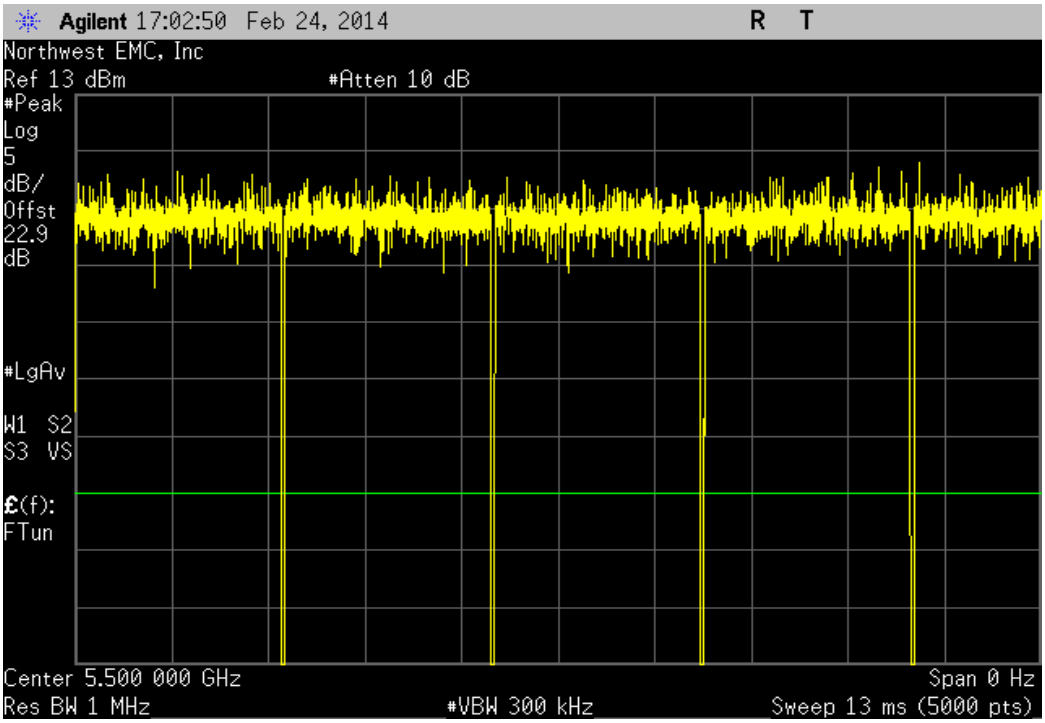


DUTY CYCLE

802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.764 mS	2.822 mS	1	97.9	N/A	N/A

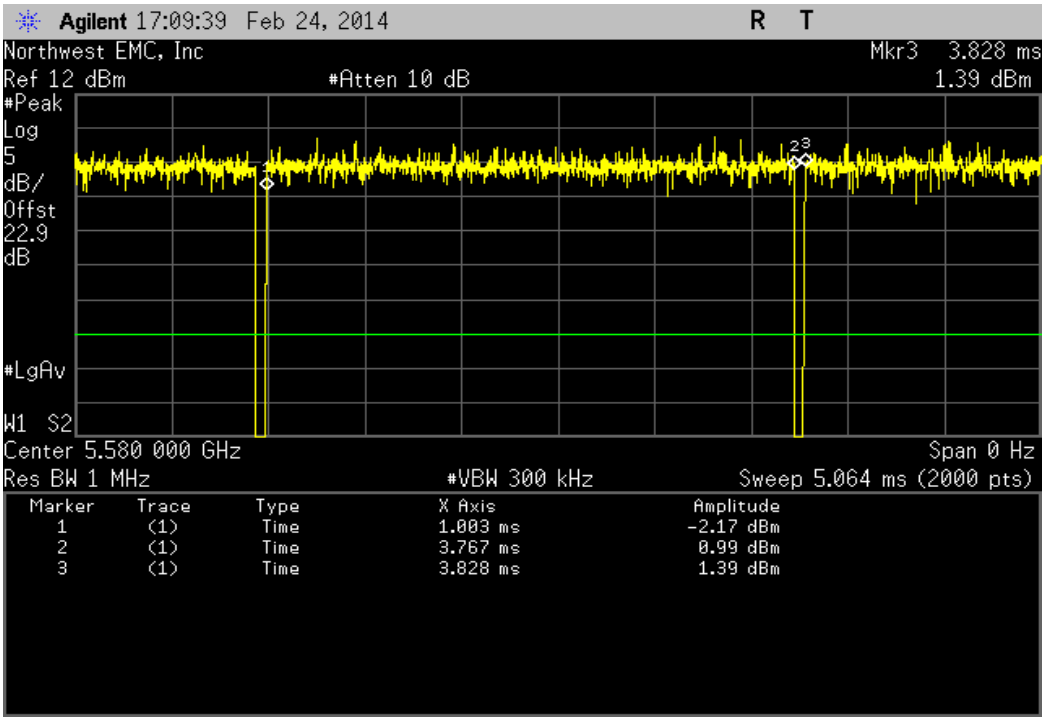


802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

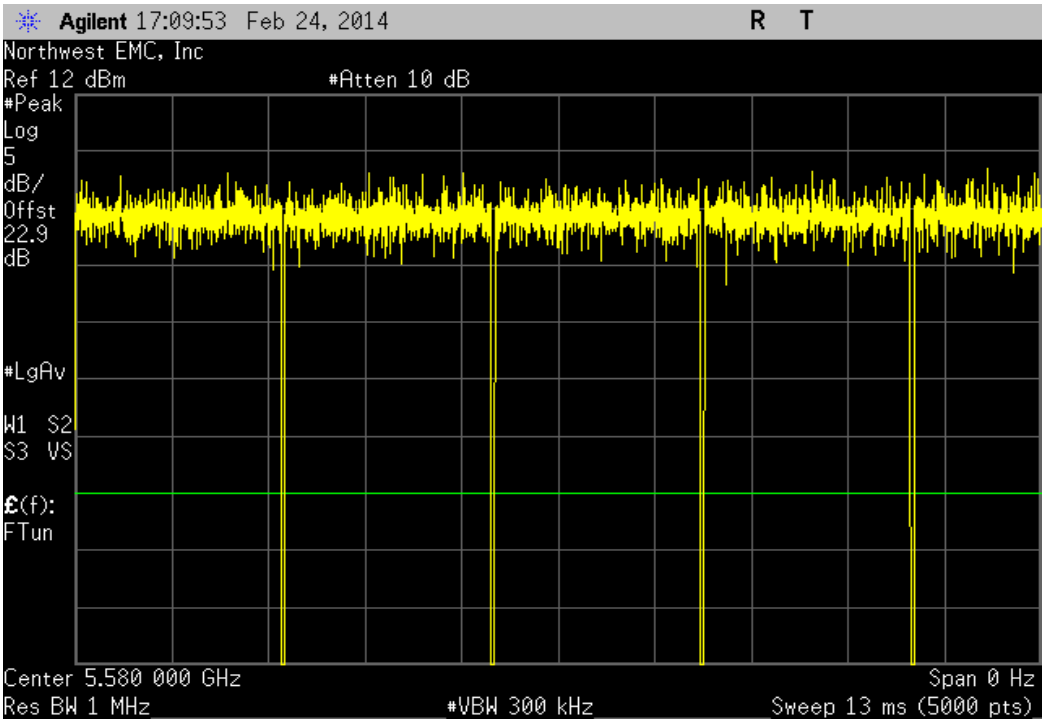


DUTY CYCLE

802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.764 mS	2.825 mS	1	97.8	N/A	N/A

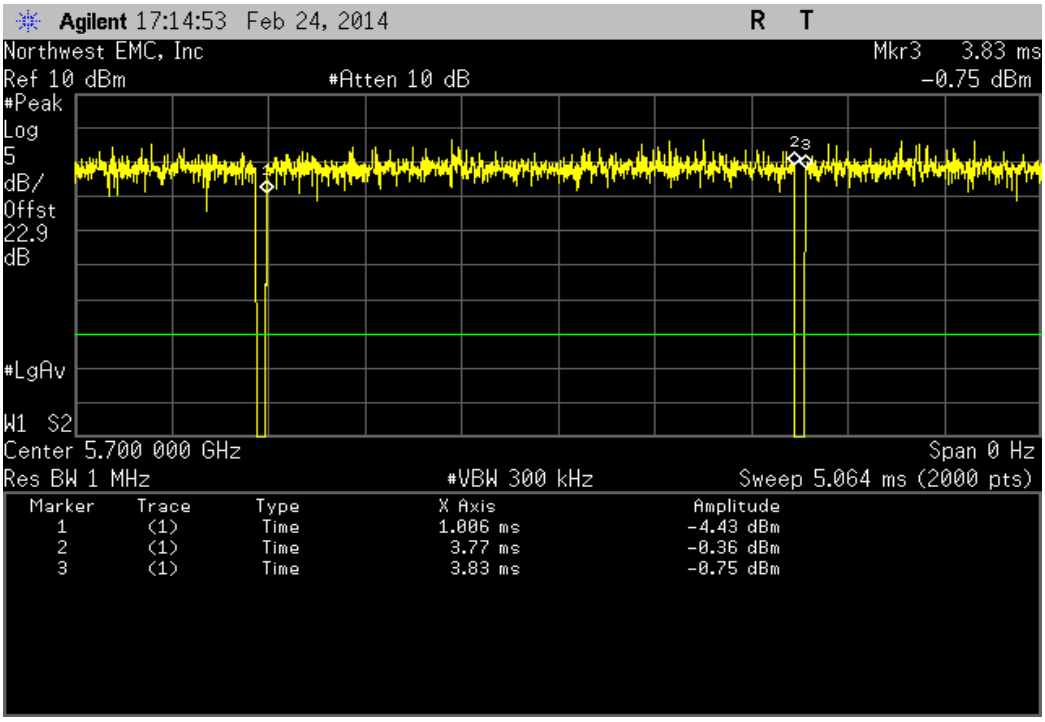


802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

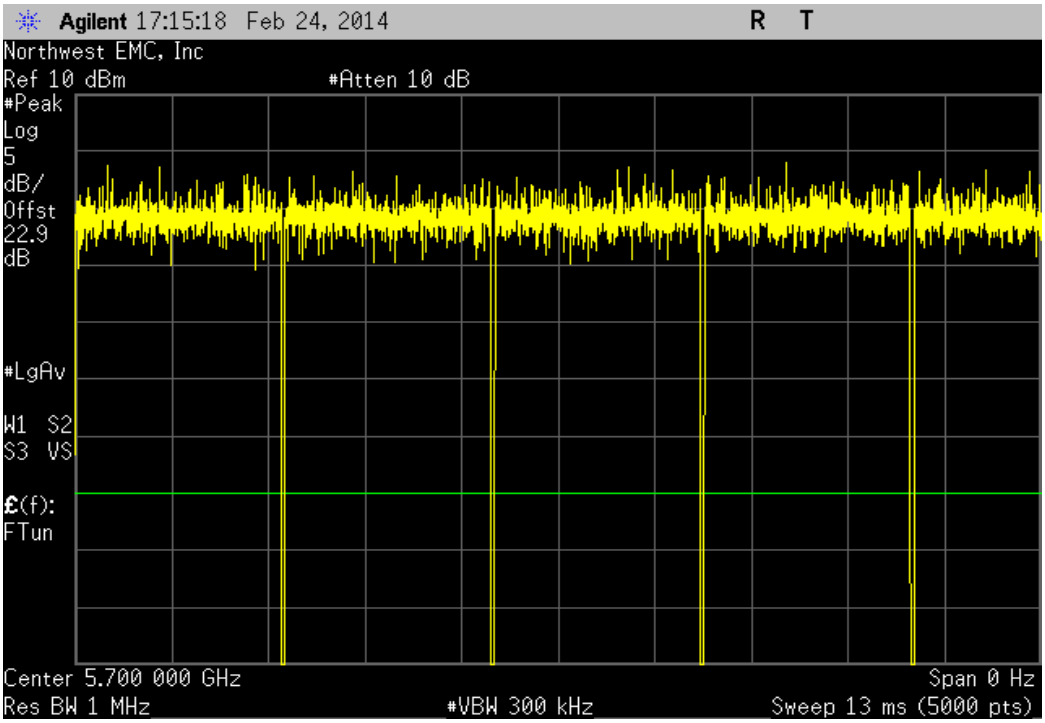


DUTY CYCLE

802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	2.764 mS	2.825 mS	1	97.8	N/A	N/A

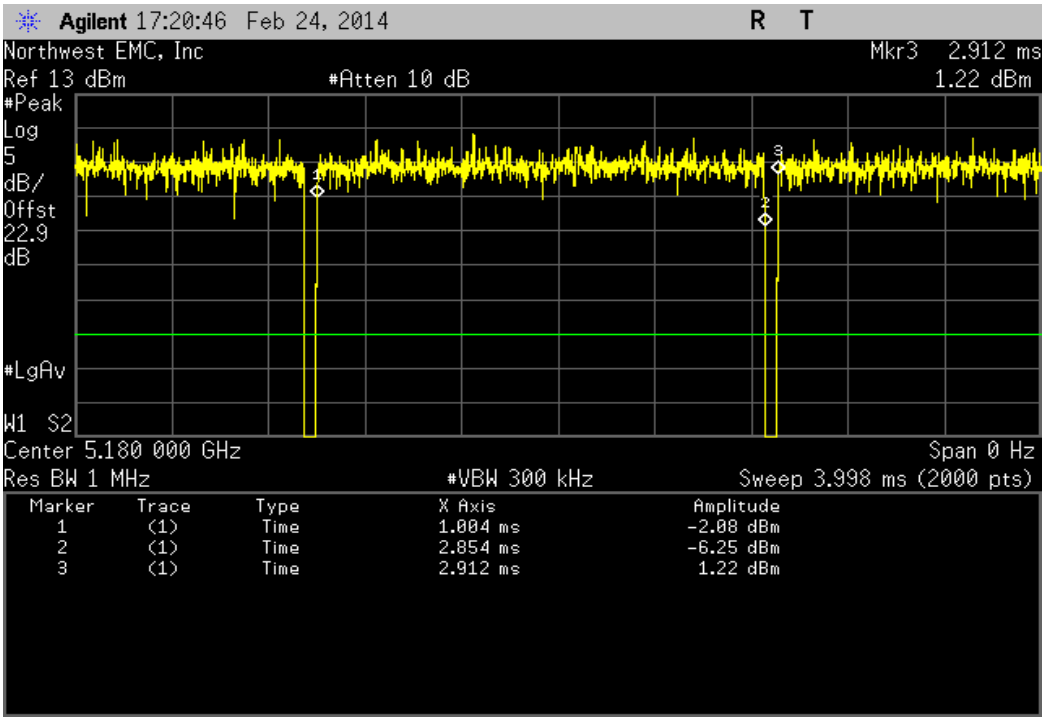


802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

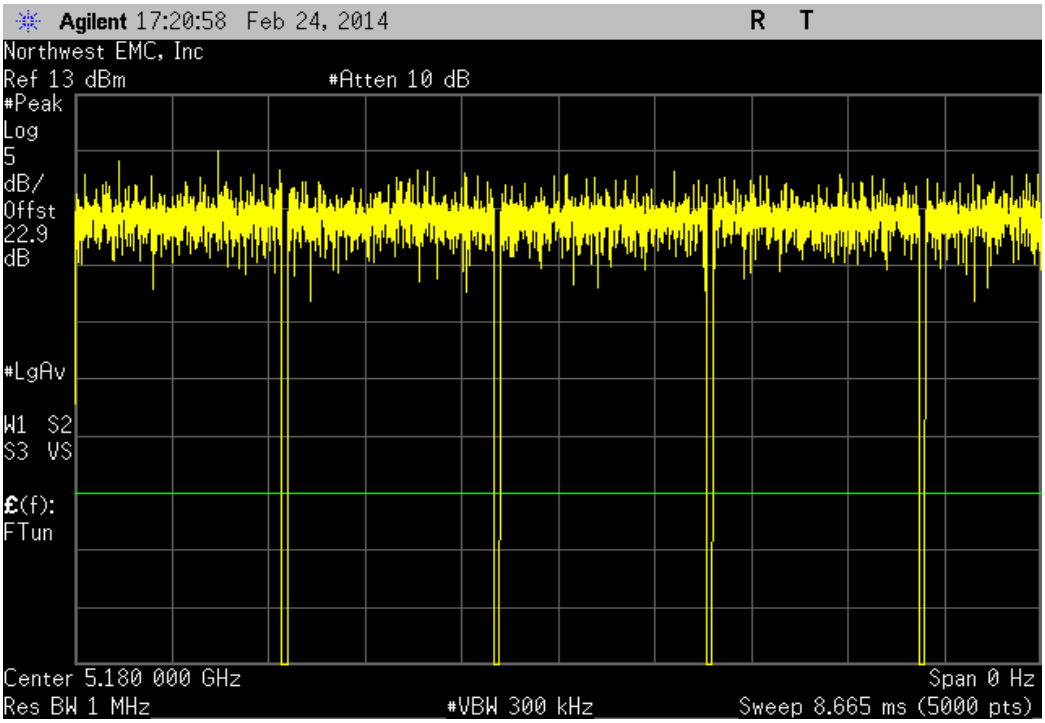


DUTY CYCLE

802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.85 mS	1.908 mS	1	97	N/A	N/A

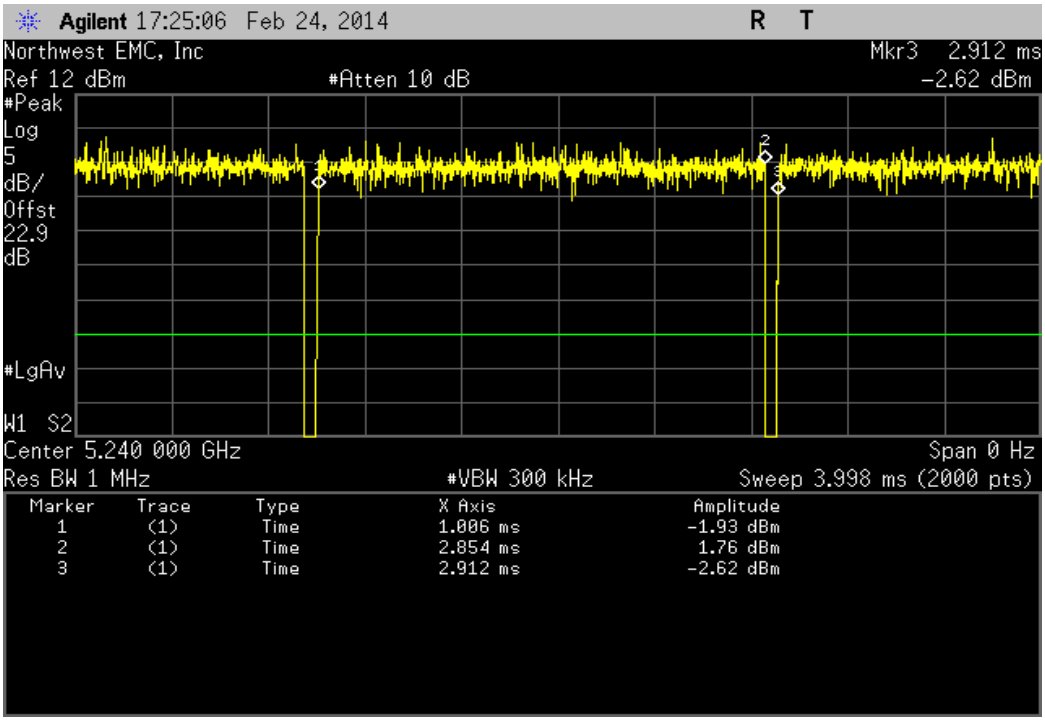


802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

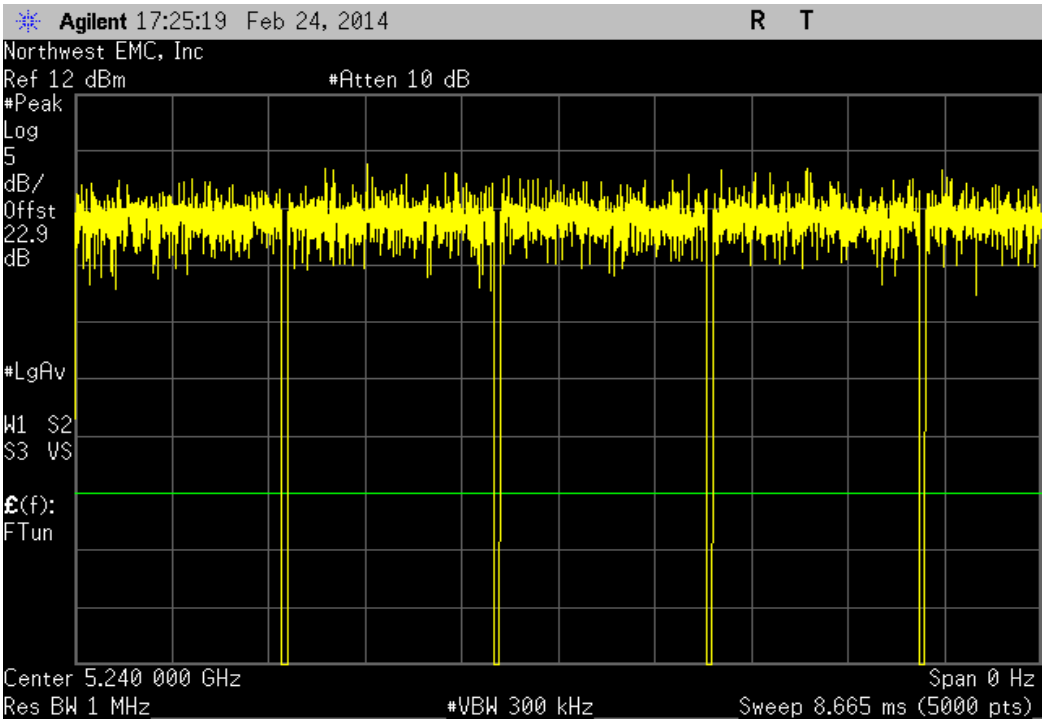


DUTY CYCLE

802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
1.848 mS	1.906 mS	1	97	N/A	N/A

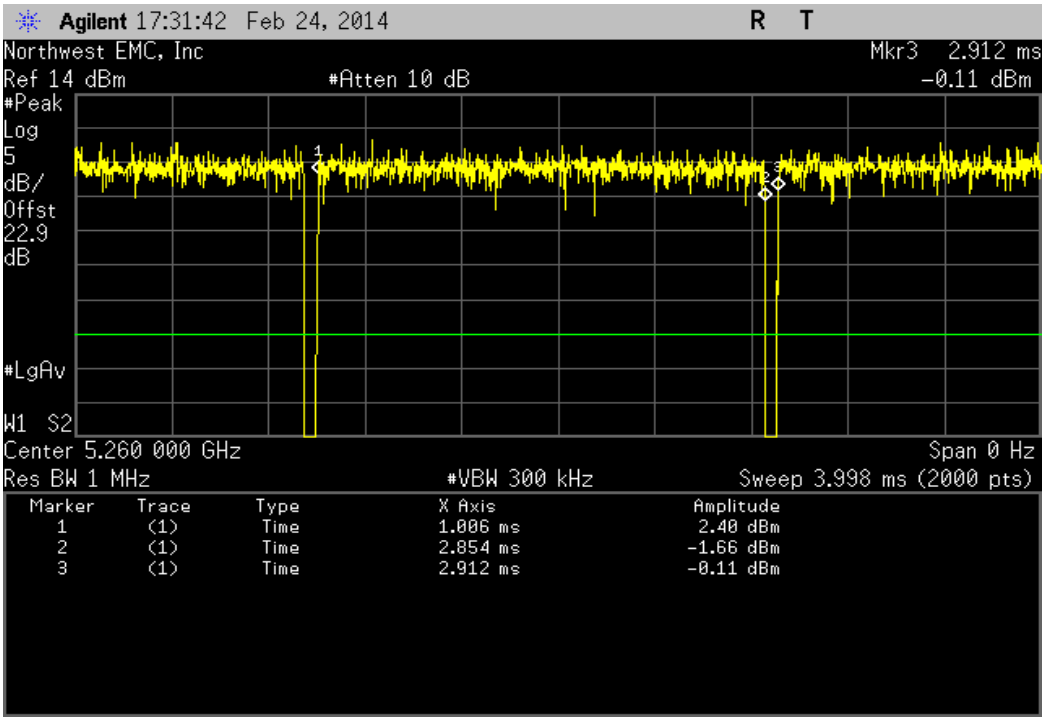


802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

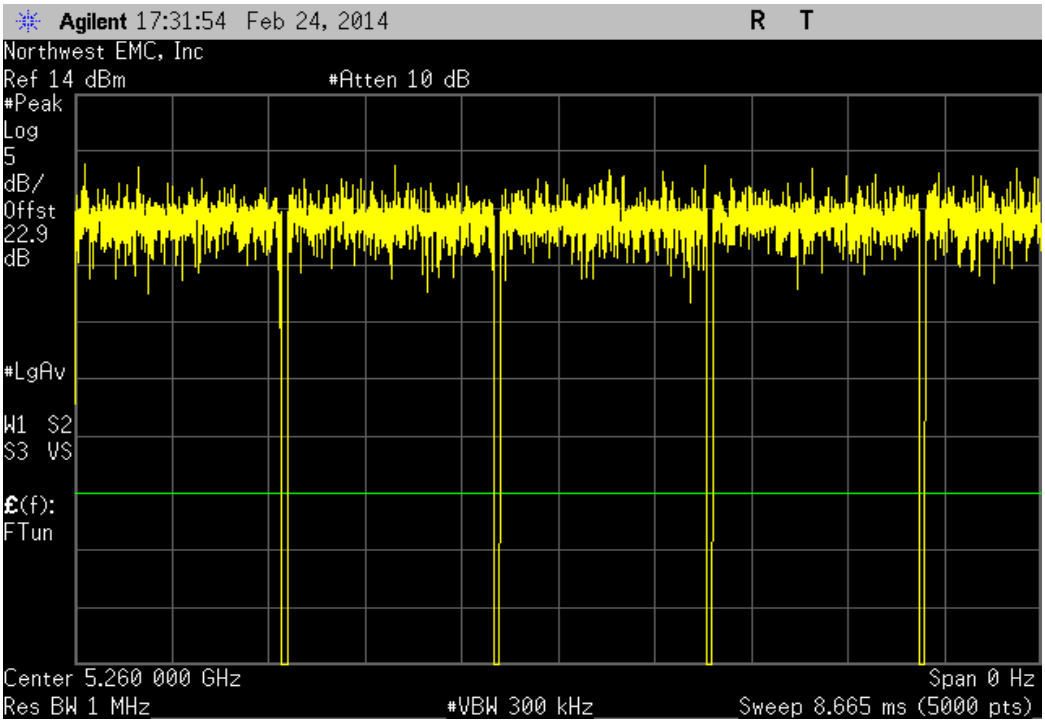


DUTY CYCLE

802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
1.848 mS	1.906 mS	1	97	N/A	N/A

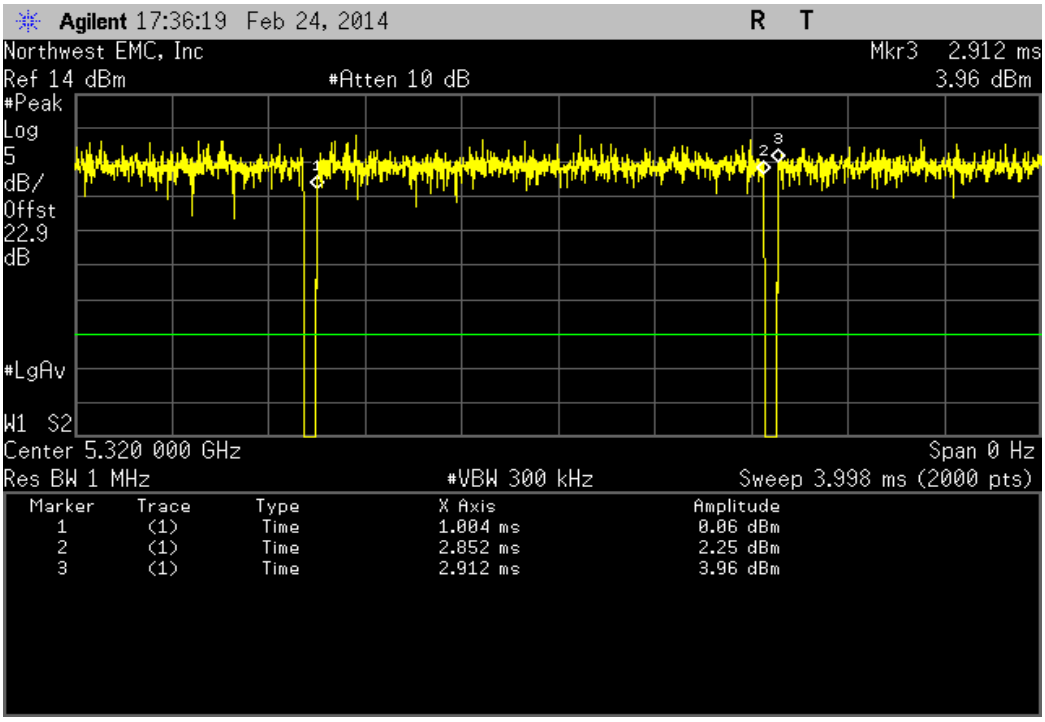


802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

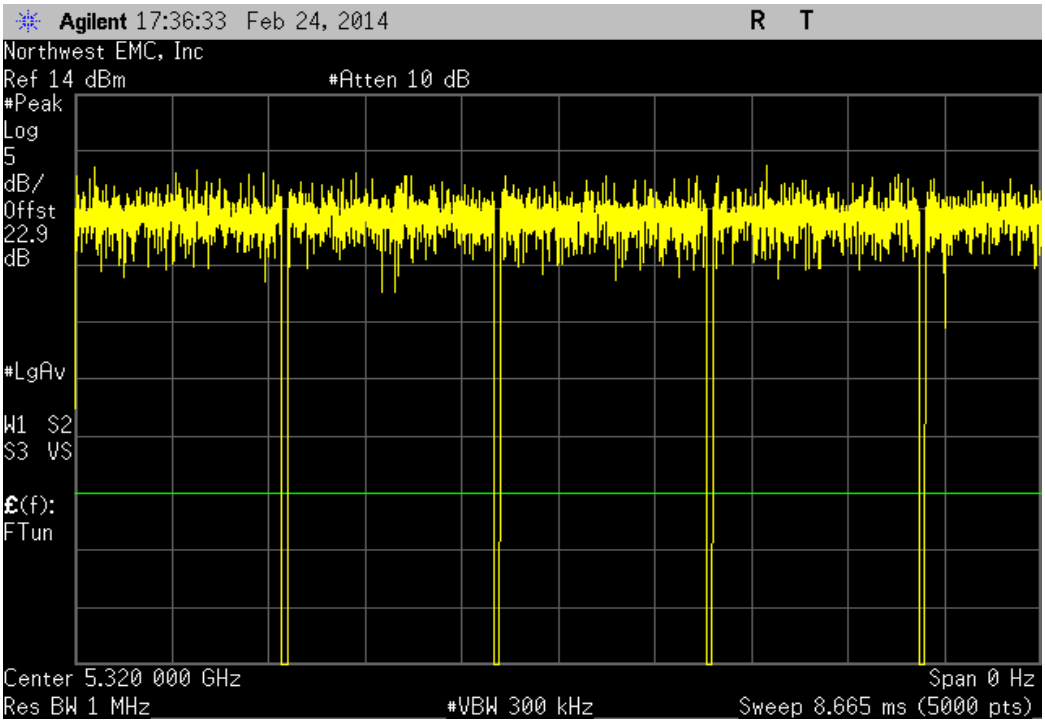


DUTY CYCLE

802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
1.848 mS	1.908 mS	1	96.9	N/A	N/A

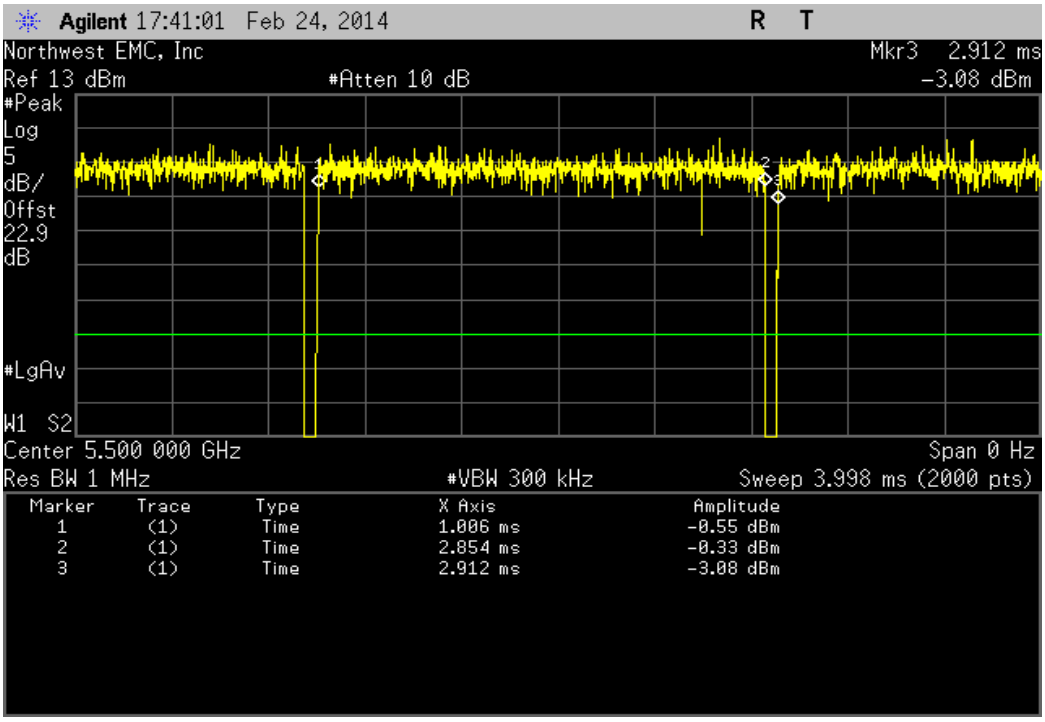


802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel					
Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
N/A	N/A	5	N/A	N/A	N/A

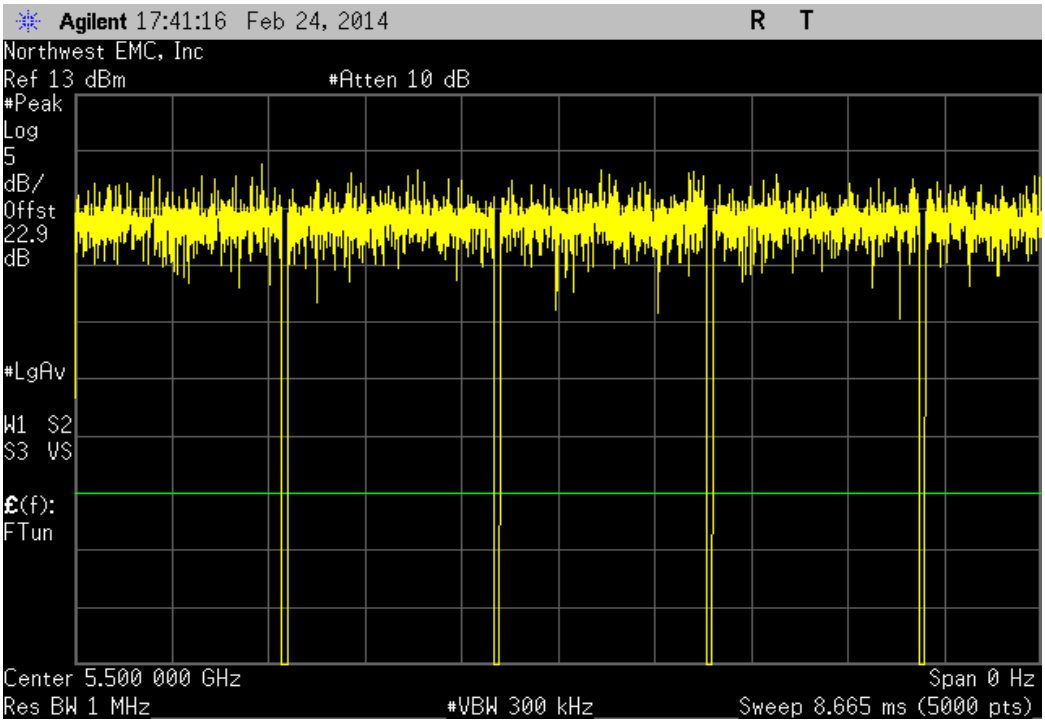


DUTY CYCLE

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.848 mS	1.906 mS	1	97	N/A	N/A

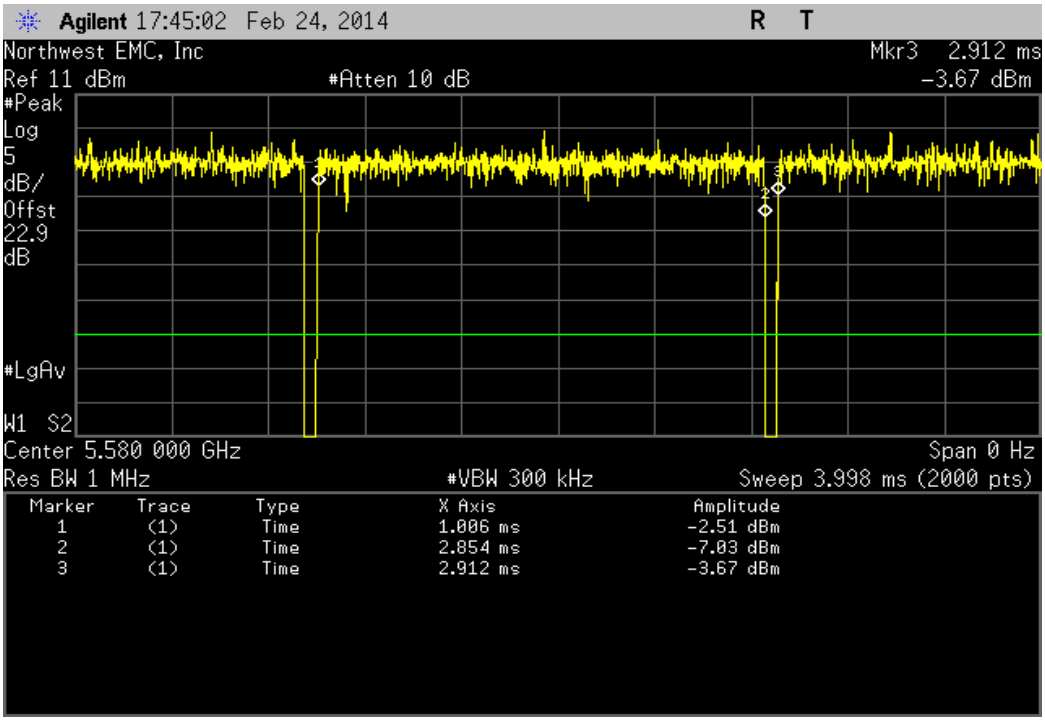


802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

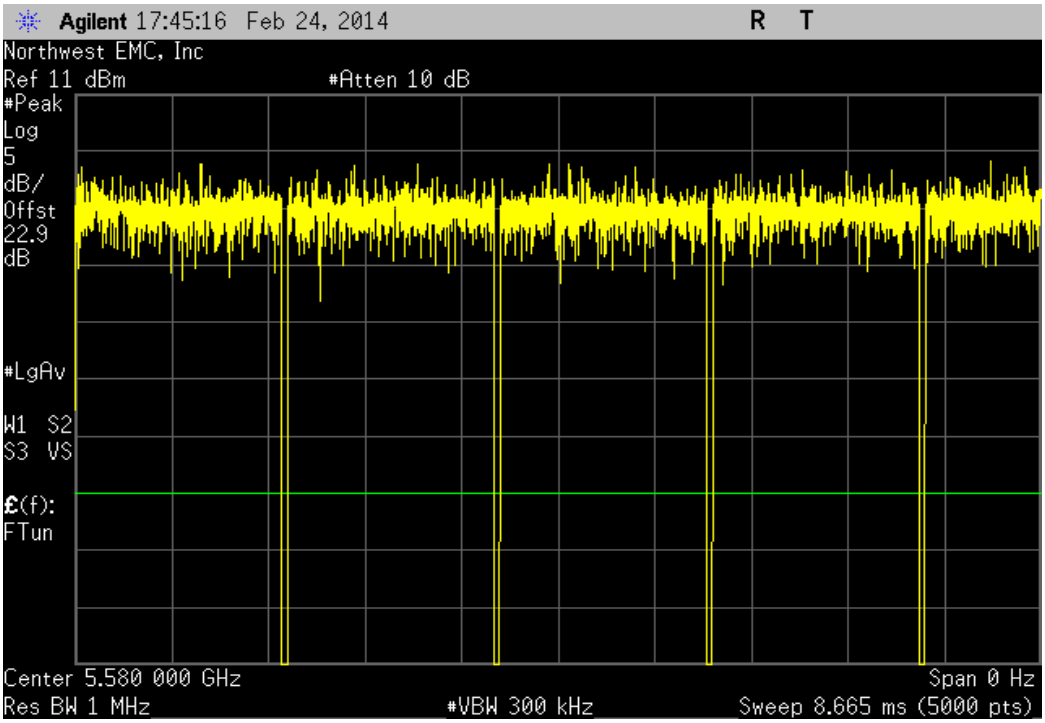


DUTY CYCLE

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.848 mS	1.906 mS	1	97	N/A	N/A

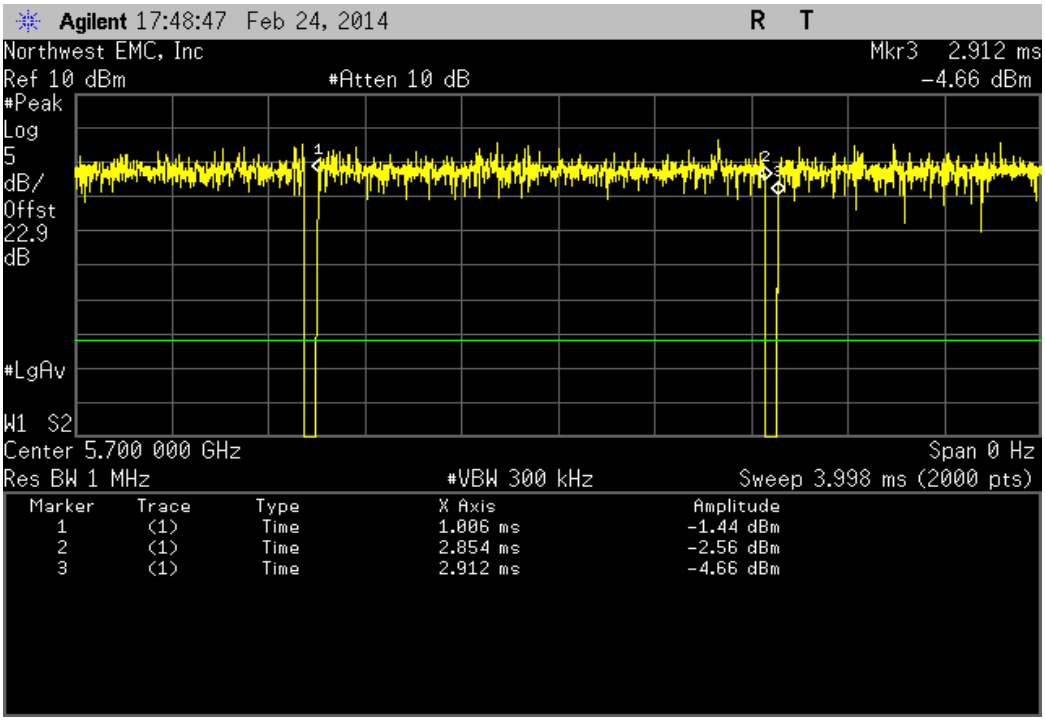


802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A

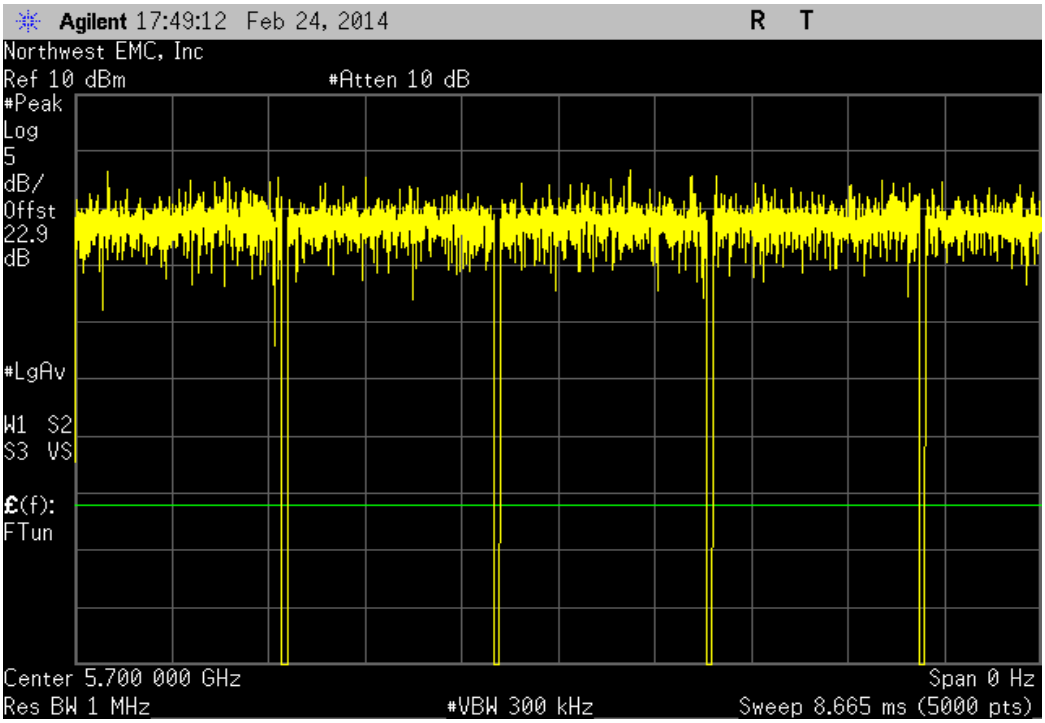


DUTY CYCLE

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	1.848 mS	1.906 mS	1	97	N/A	N/A



802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel					
	Pulse Width	Period	Number of Pulses	Value (%)	Limit	Result
	N/A	N/A	5	N/A	N/A	N/A



EMISSION 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 (mo.)
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures were followed.

The transmit frequencies and data rates listed in the datasheet were measured in each band utilized by the radio. 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.

The spectrum analyzer settings were as follows:

- RBW = Approx. 1% of the emission bandwidth (B). This was an iterative process to determine the RBW based on the emissions bandwidth (B).
- VBW= > RBW
- A peak detector was used
- Trace max hold.

The spectrum analyzer occupied bandwidth measurement function was then used to measure 26 dB emission bandwidth.

There is no required limit to be met in the rule part for this test. The purpose of the test is to both report the results as required by the KDB, and to utilize the emission bandwidth for setting the channel power integration bandwidth during conducted output power testing.

EMISSION BANDWIDTH

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/24/14
Customer:	Synapse Product Development LLC	Temperature:	21.1°C
Attendees:	None	Humidity:	32%
Project:	Kezar	Barometric Pres.:	1018
Tested by:	Jared Ison, Brandon Hobbs	Job Site:	EV06
Power:	Internal Battery, 12 VDC		

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation were client provided.

DEVIATIONS FROM TEST STANDARD

None

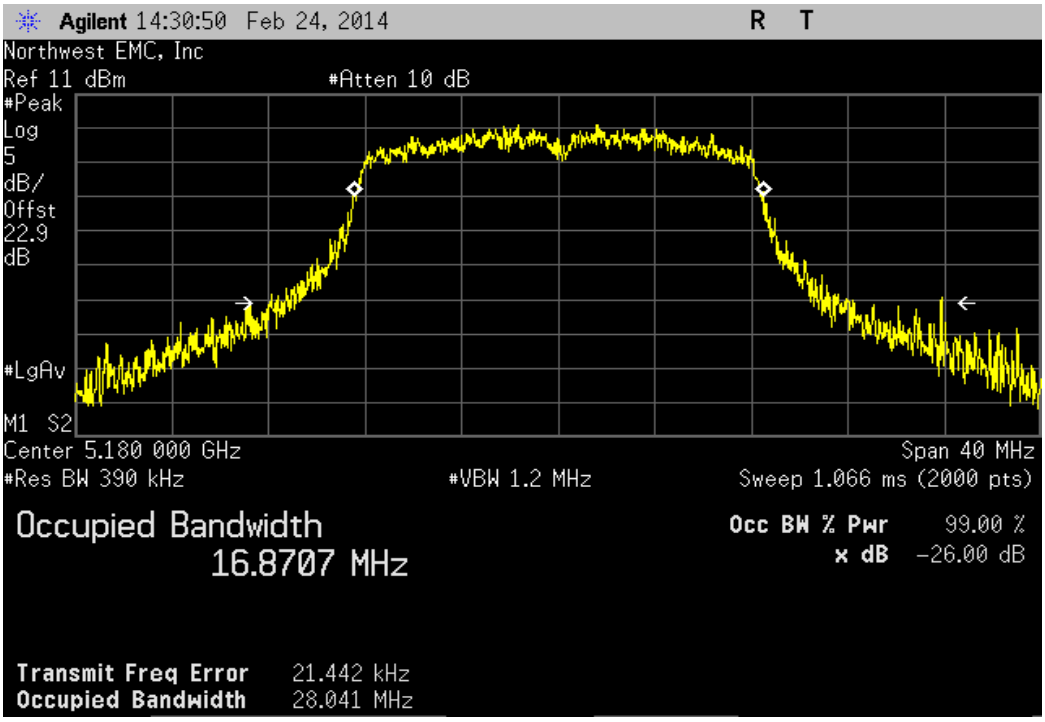
Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	28.041 MHz	> 500 kHz	Pass
	Channel 48, High Channel	23.598 MHz	> 500 kHz	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	29.42 MHz	> 500 kHz	Pass
	Channel 64, High Channel	30.444 MHz	> 500 kHz	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	27.486 MHz	> 500 kHz	Pass
	Channel 116, Mid Channel	27.62 MHz	> 500 kHz	Pass
	Channel 140, High Channel	24.207 MHz	> 500 kHz	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	22.811 MHz	> 500 kHz	Pass
	Channel 48, High Channel	23.337 MHz	> 500 kHz	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	24.521 MHz	> 500 kHz	Pass
	Channel 64, High Channel	26.192 MHz	> 500 kHz	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	24.509 MHz	> 500 kHz	Pass
	Channel 116, Mid Channel	23.165 MHz	> 500 kHz	Pass
	Channel 140, High Channel	21.671 MHz	> 500 kHz	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	23.291 MHz	> 500 kHz	Pass
	Channel 48, High Channel	22.029 MHz	> 500 kHz	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	24.133 MHz	> 500 kHz	Pass
	Channel 64, High Channel	25.539 MHz	> 500 kHz	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	22.105 MHz	> 500 kHz	Pass
	Channel 116, Mid Channel	23.031 MHz	> 500 kHz	Pass
	Channel 140, High Channel	21.787 MHz	> 500 kHz	Pass
802.11(n) MCS0				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	24.002 MHz	> 500 kHz	Pass
	Channel 48, High Channel	23.211 MHz	> 500 kHz	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	29.957 MHz	> 500 kHz	Pass
	Channel 64, High Channel	29.436 MHz	> 500 kHz	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	24.976 MHz	> 500 kHz	Pass
	Channel 116, Mid Channel	23.513 MHz	> 500 kHz	Pass
	Channel 140, High Channel	22.602 MHz	> 500 kHz	Pass
802.11(n) MCS7				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	23.368 MHz	> 500 kHz	Pass
	Channel 48, High Channel	22.801 MHz	> 500 kHz	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	24.496 MHz	> 500 kHz	Pass
	Channel 64, High Channel	26.263 MHz	> 500 kHz	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	25.663 MHz	> 500 kHz	Pass
	Channel 116, Mid Channel	24.29 MHz	> 500 kHz	Pass
	Channel 140, High Channel	22.695 MHz	> 500 kHz	Pass

EMISSION BANDWIDTH

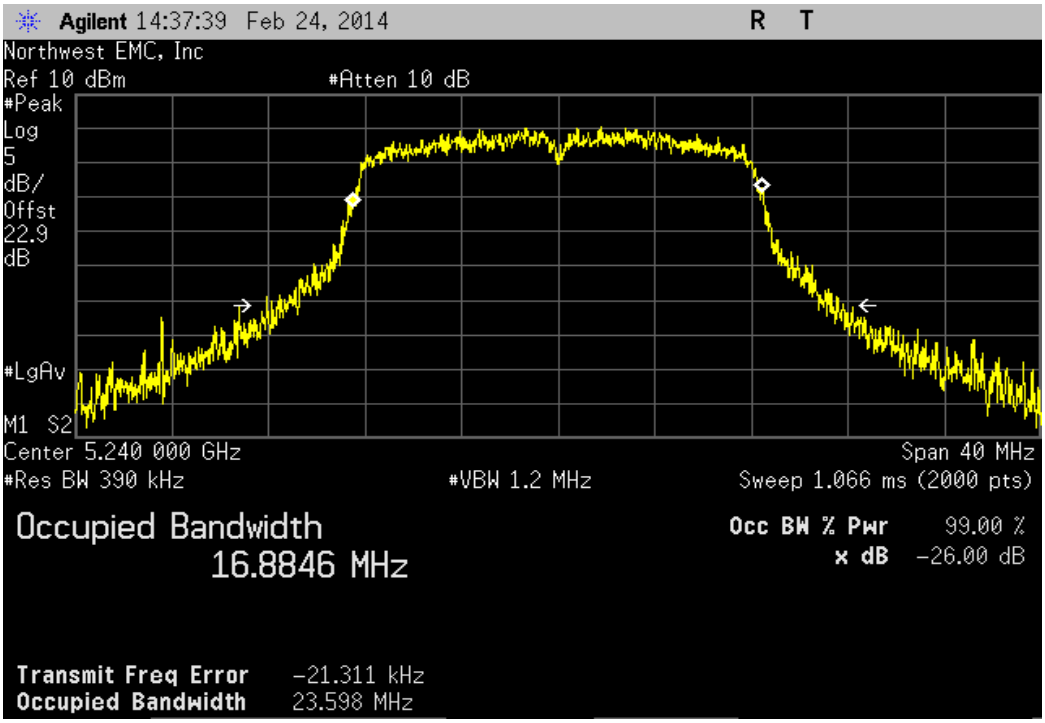
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				28.041 MHz	> 500 kHz	Pass



802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

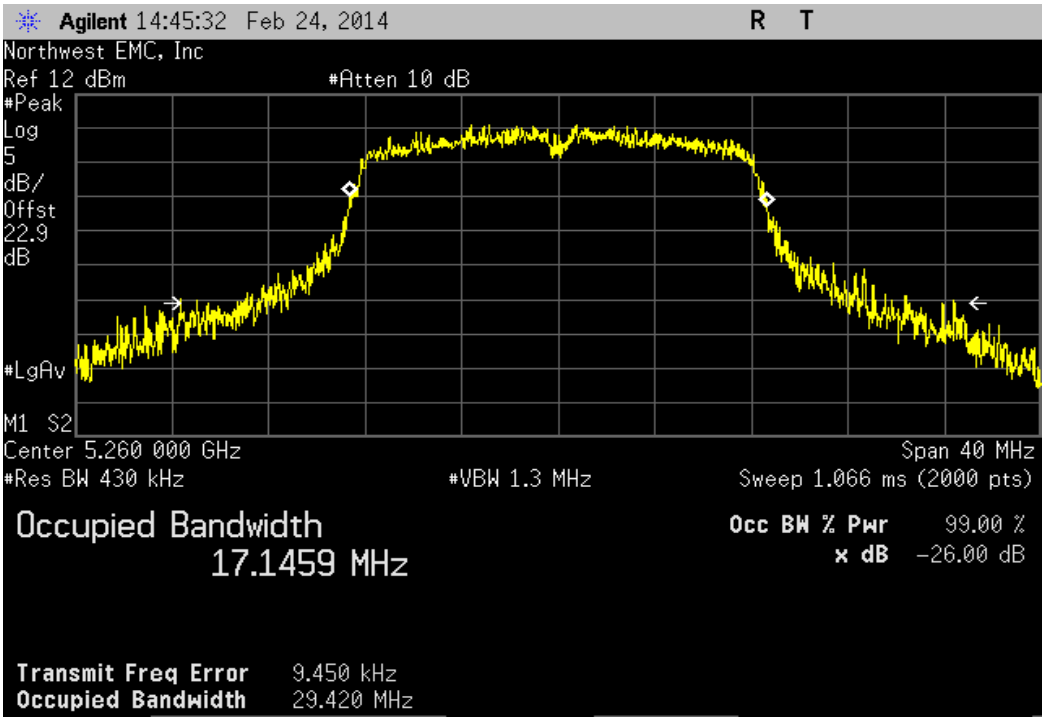
				Value	Limit	Result
				23.598 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

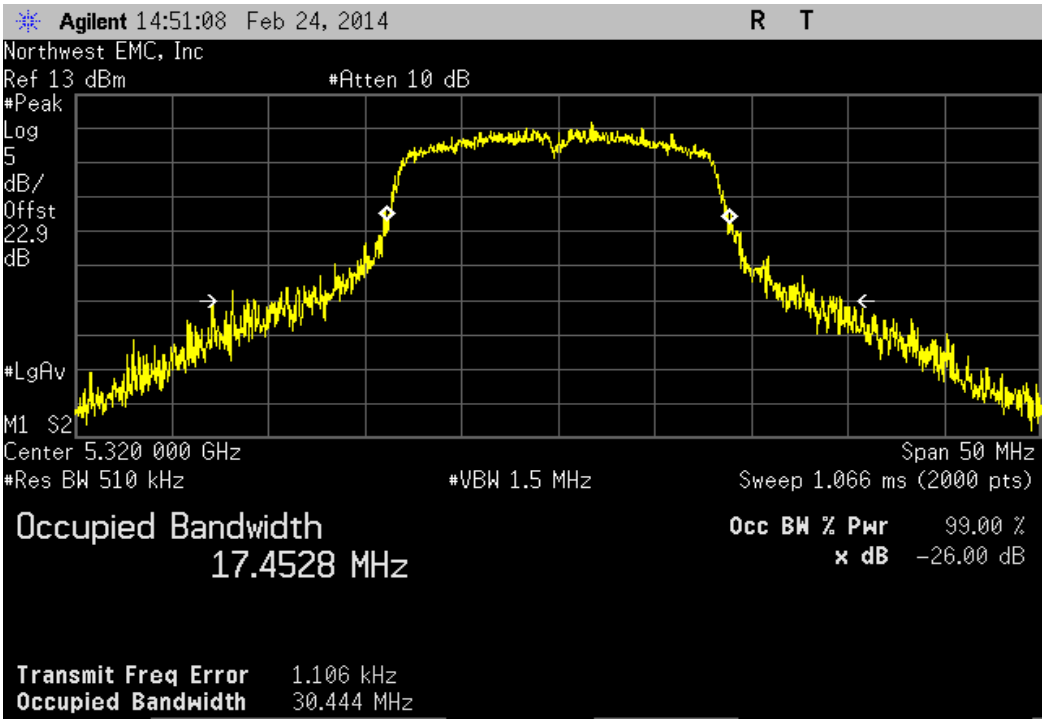
802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				29.42 MHz	> 500 kHz	Pass



802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

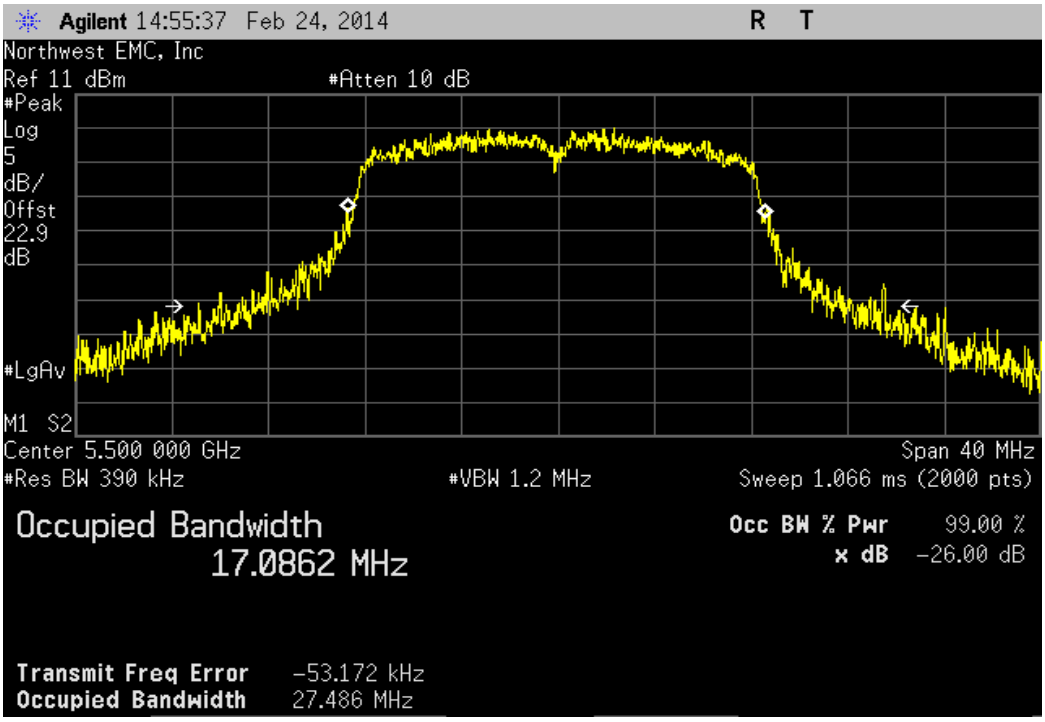
				Value	Limit	Result
				30.444 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

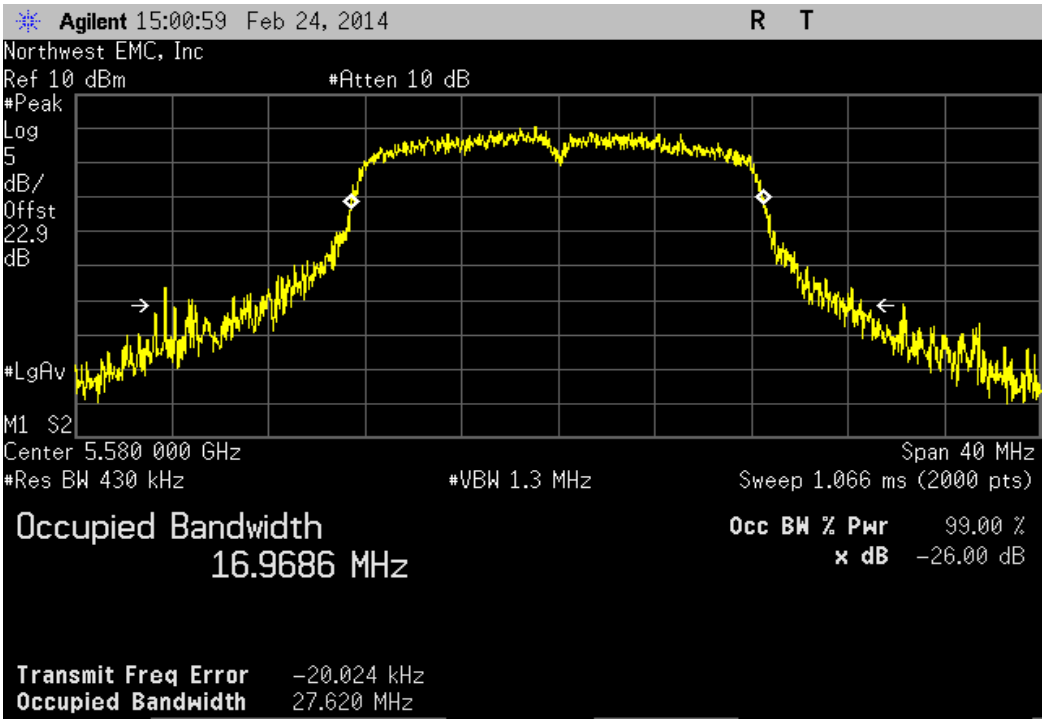
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				27.486 MHz	> 500 kHz	Pass



802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

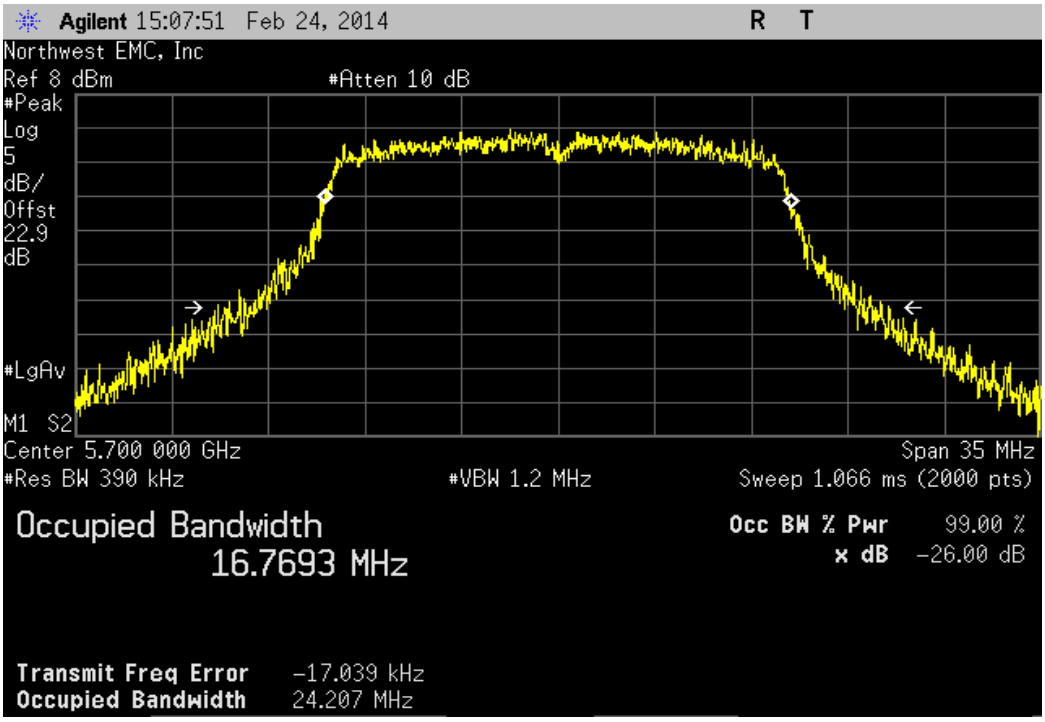
				Value	Limit	Result
				27.62 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

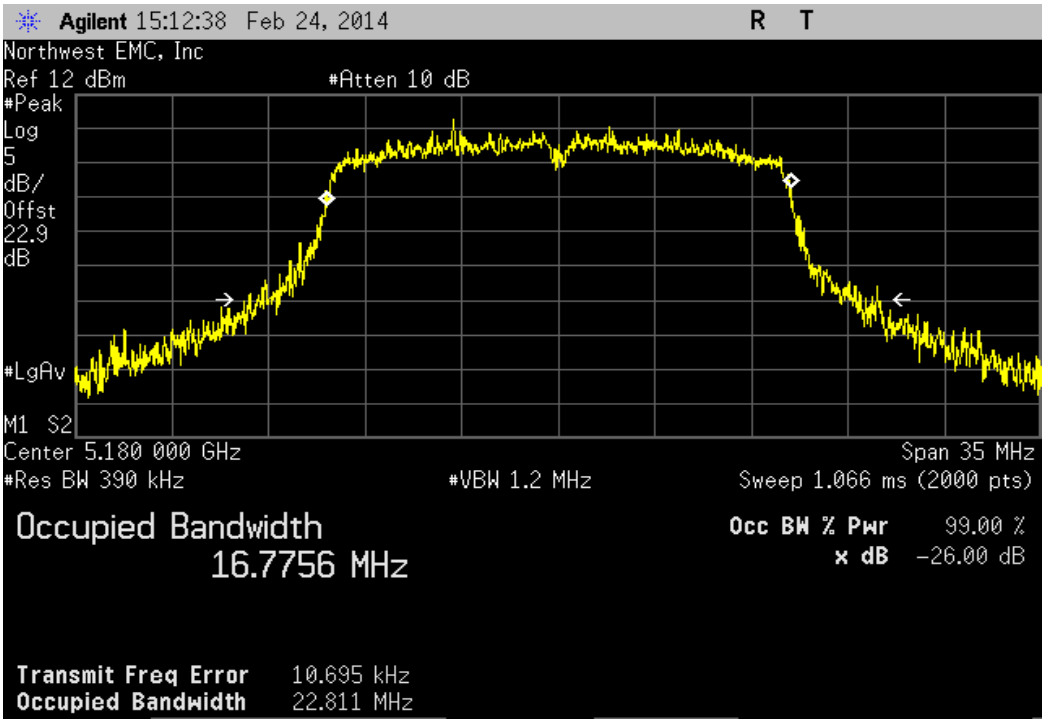
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				24.207 MHz	> 500 kHz	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

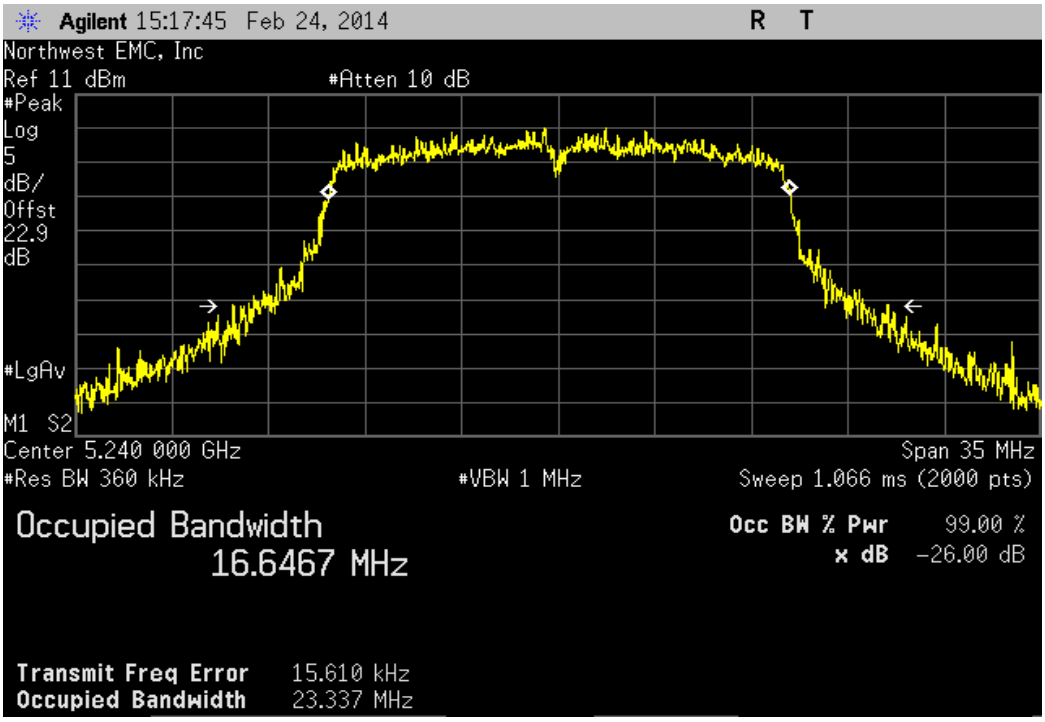
				Value	Limit	Result
				22.811 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

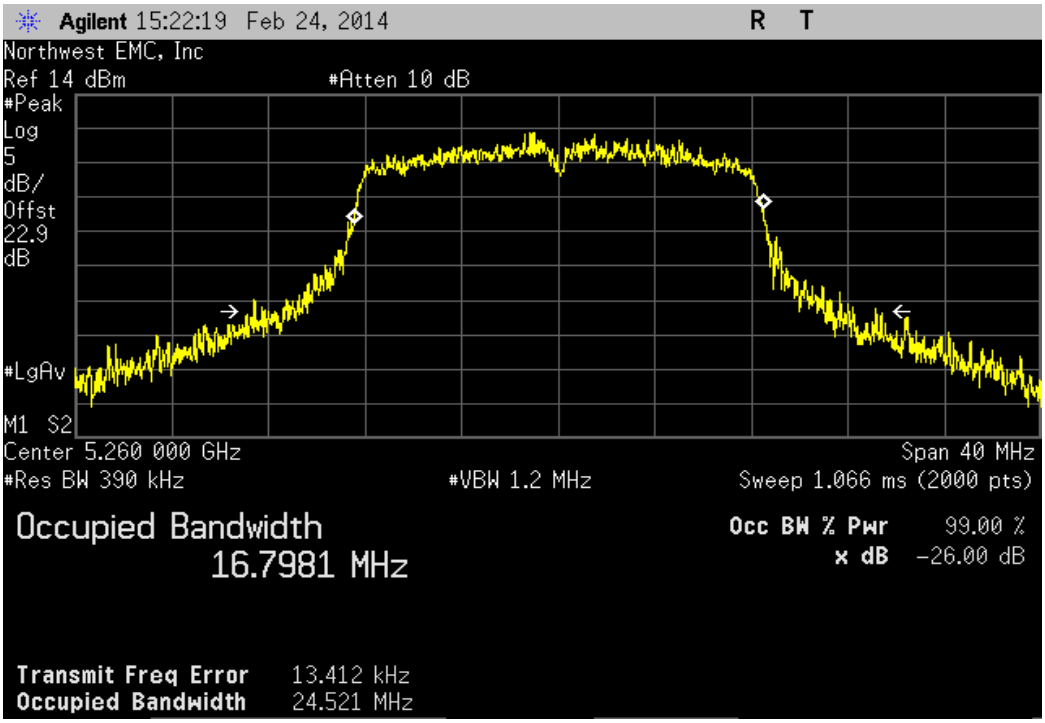
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				23.337 MHz	> 500 kHz	Pass



802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

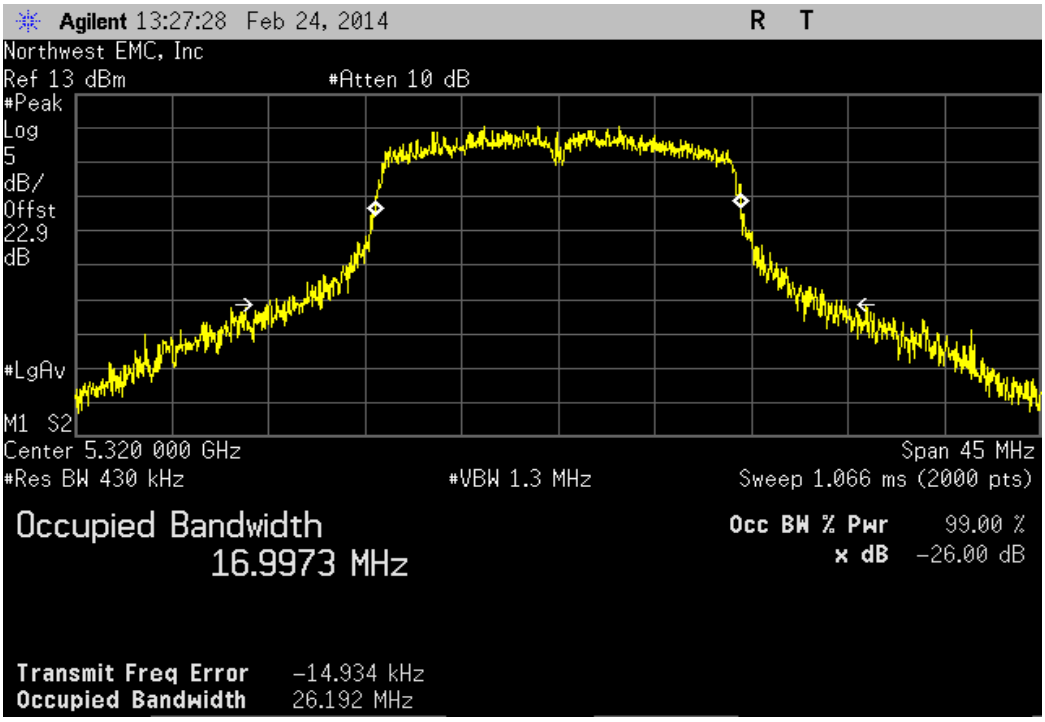
				Value	Limit	Result
				24.521 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

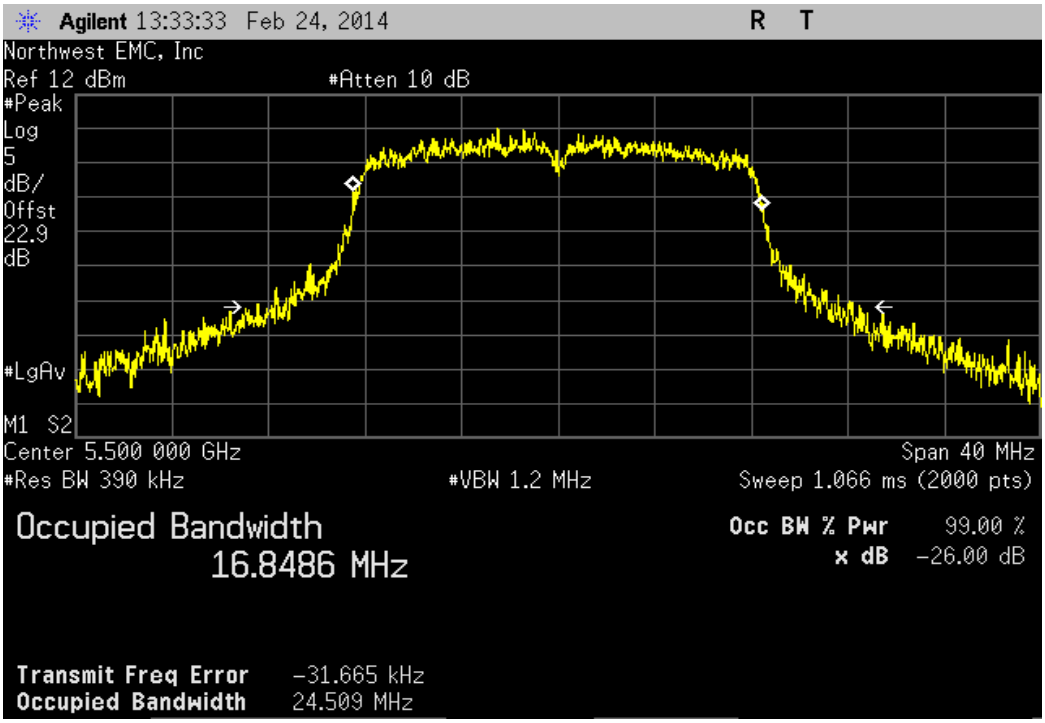
802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				26.192 MHz	> 500 kHz	Pass



802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

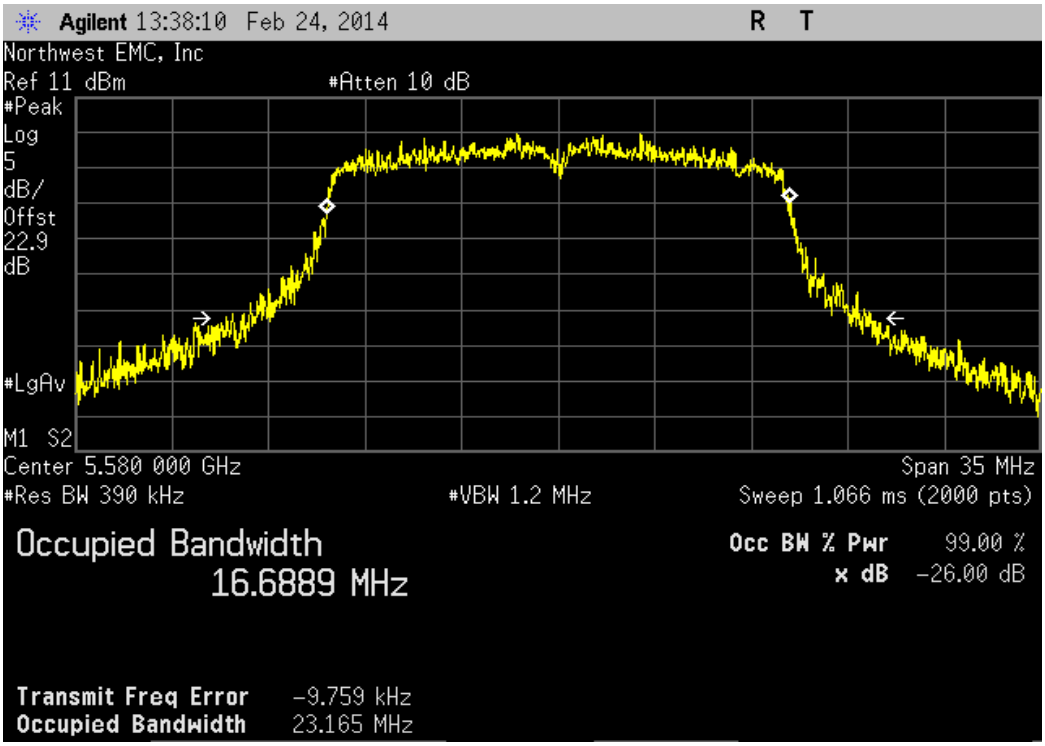
				Value	Limit	Result
				24.509 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

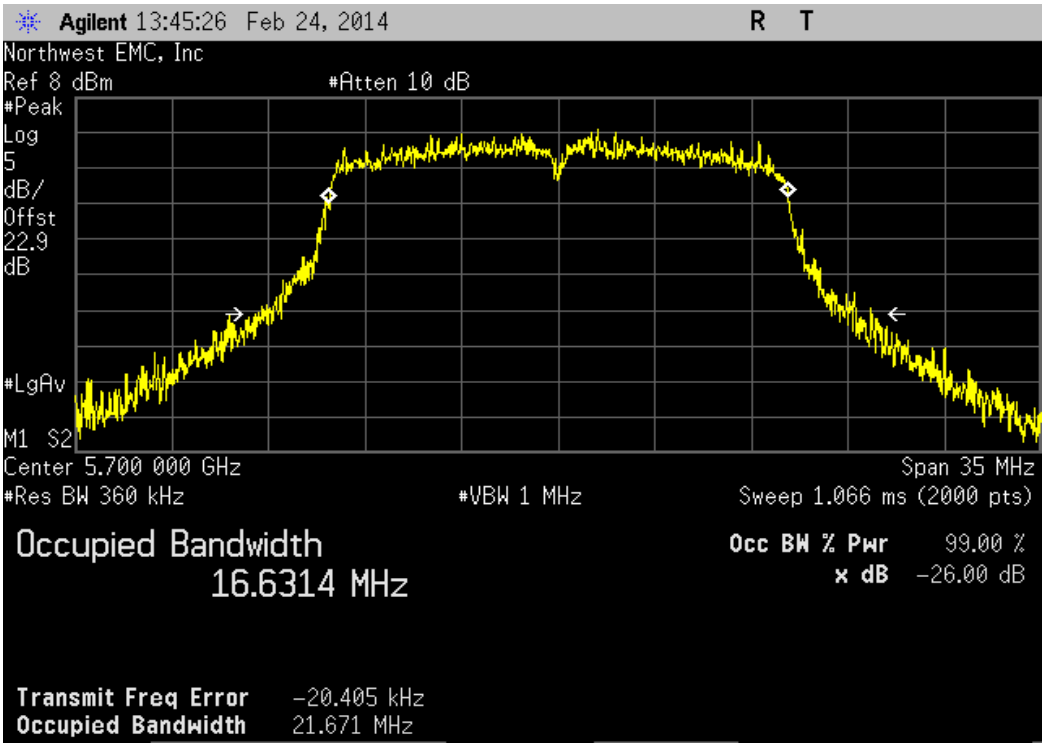
802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				23.165 MHz	> 500 kHz	Pass



802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

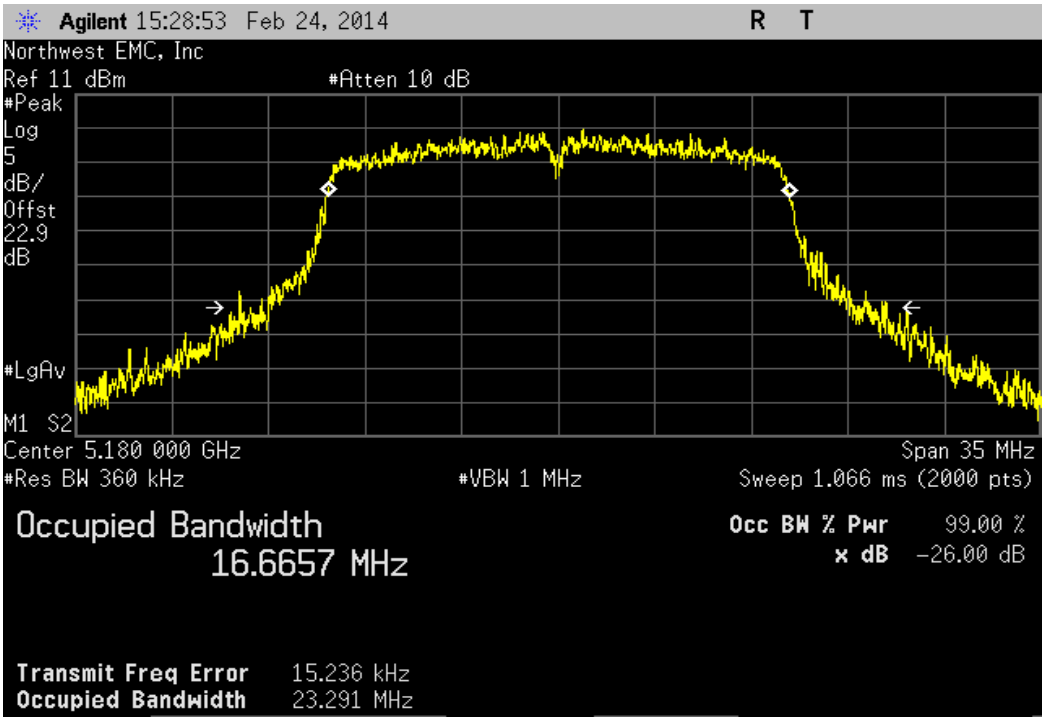
				Value	Limit	Result
				21.671 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

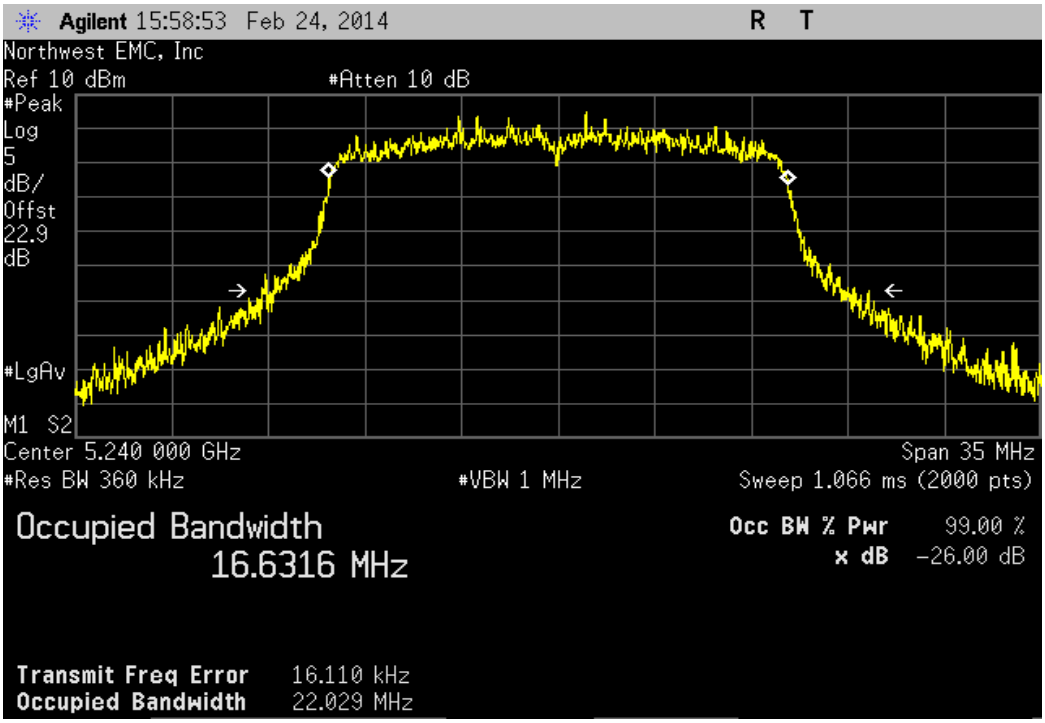
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				23.291 MHz	> 500 kHz	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

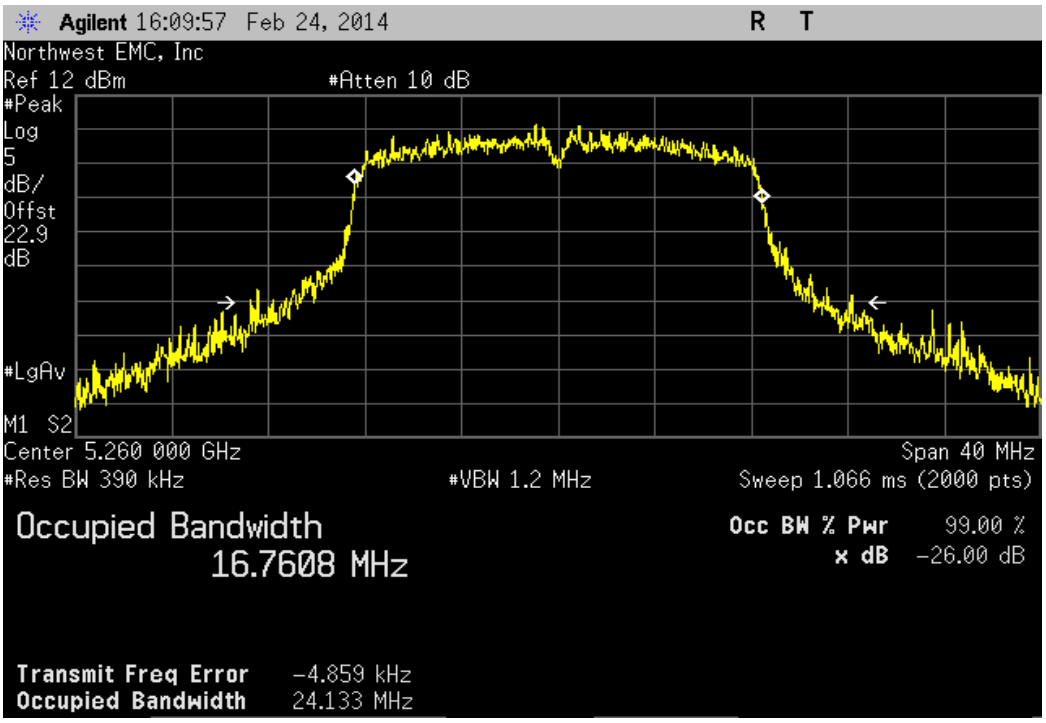
				Value	Limit	Result
				22.029 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

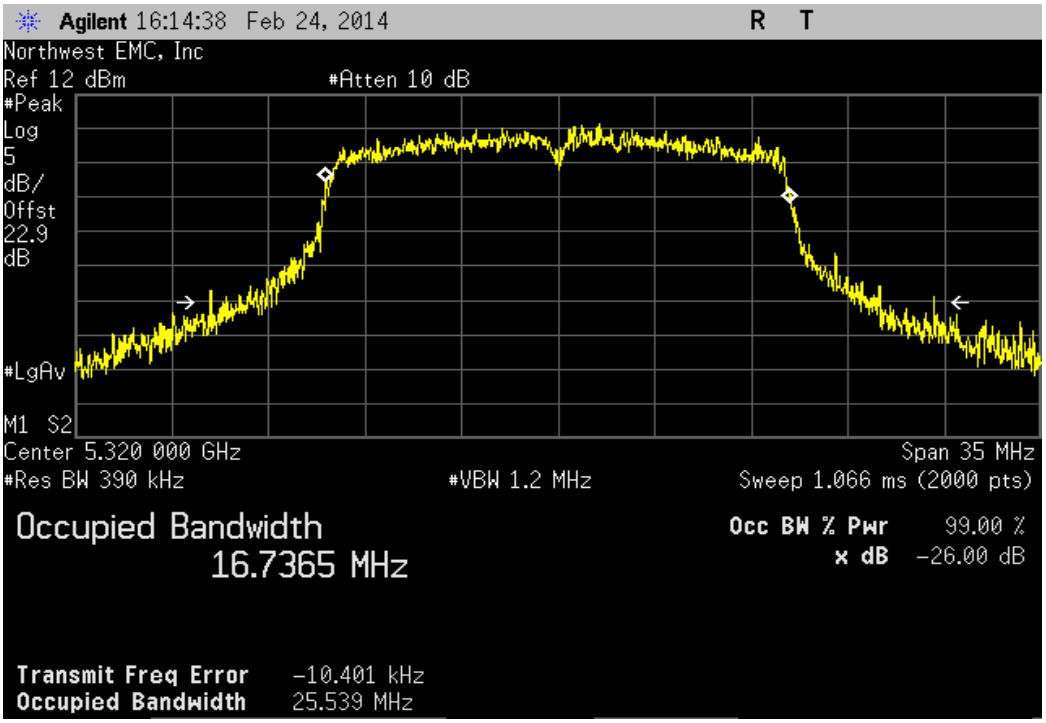
802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				24.133 MHz	> 500 kHz	Pass



802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

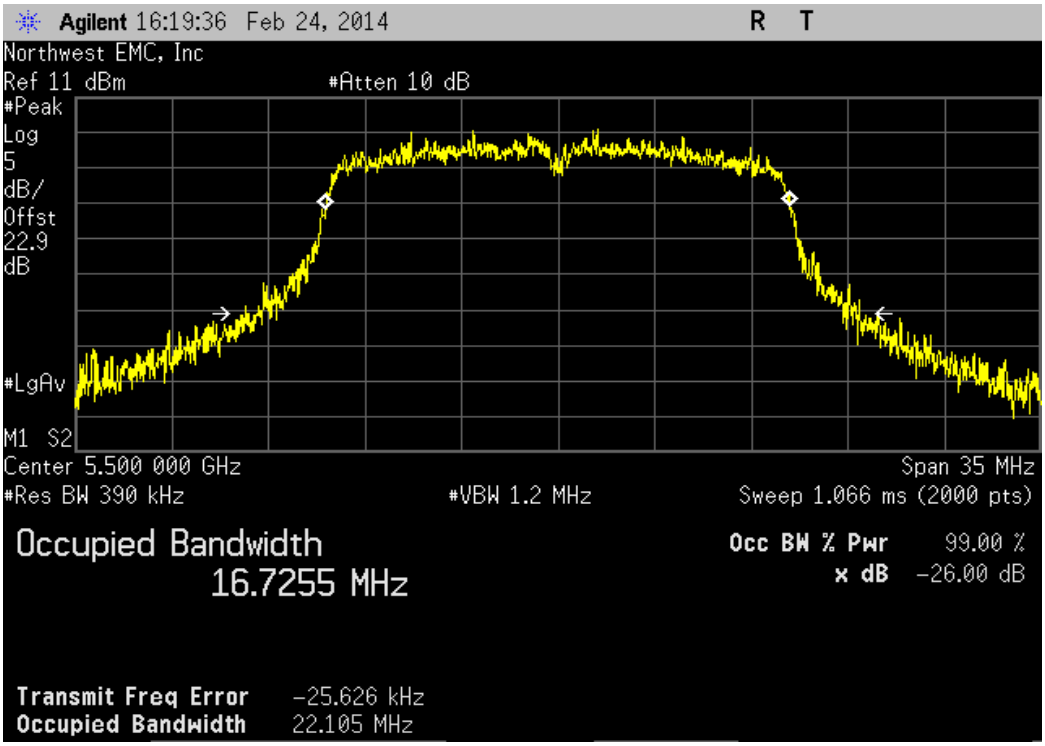
				Value	Limit	Result
				25.539 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

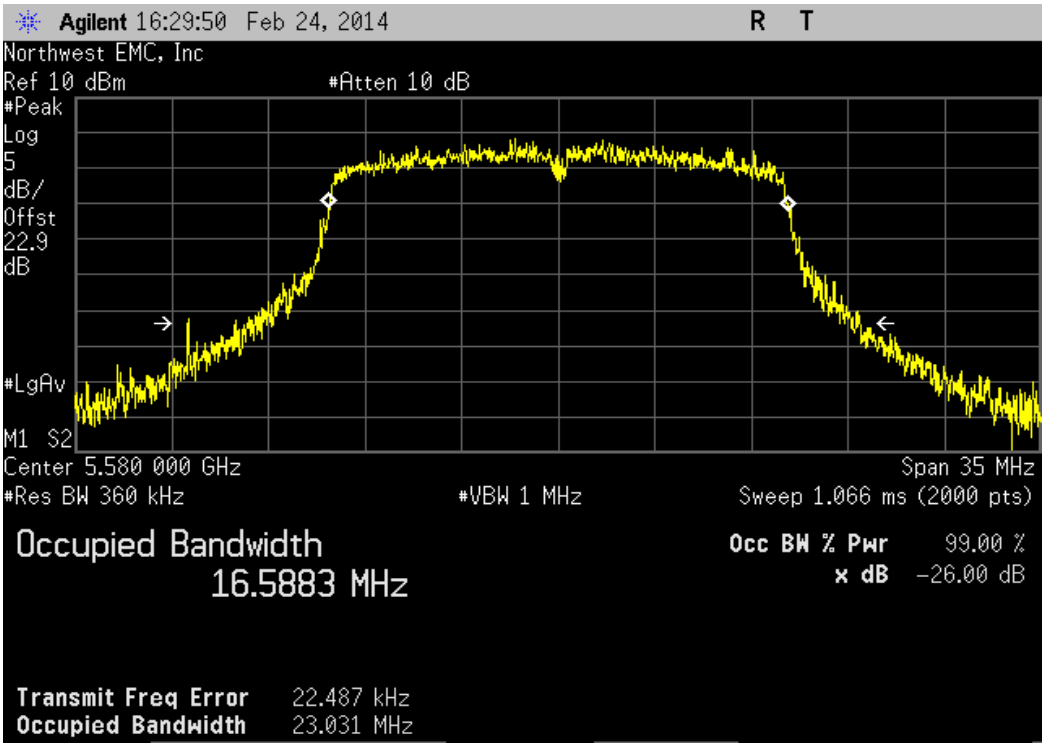
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				22.105 MHz	> 500 kHz	Pass



802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

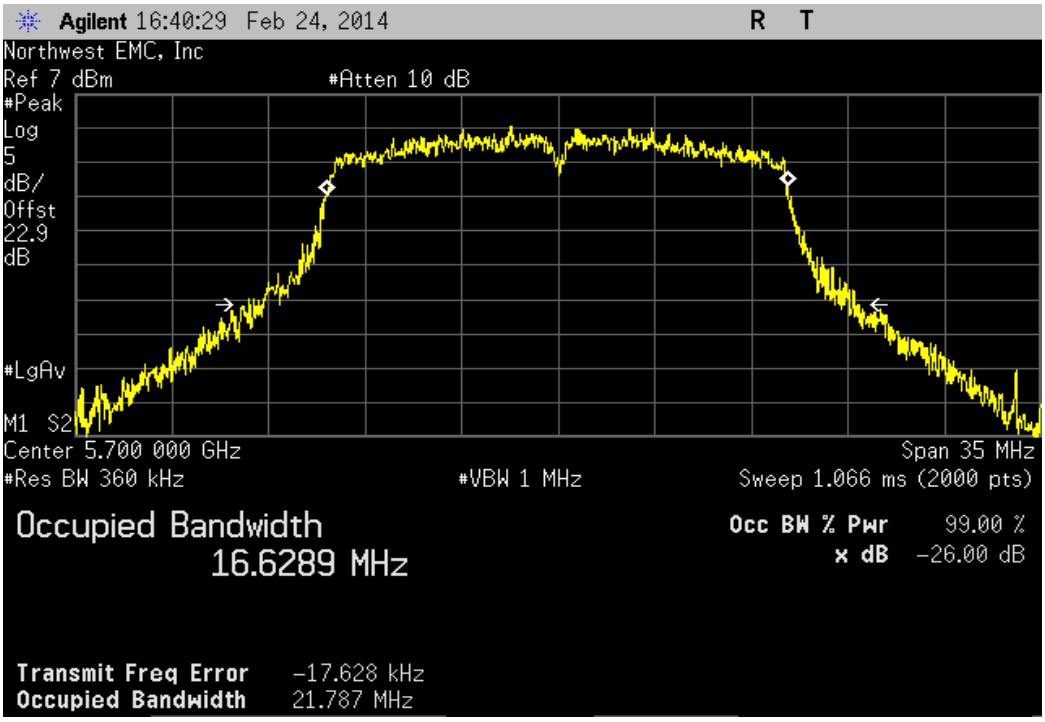
				Value	Limit	Result
				23.031 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

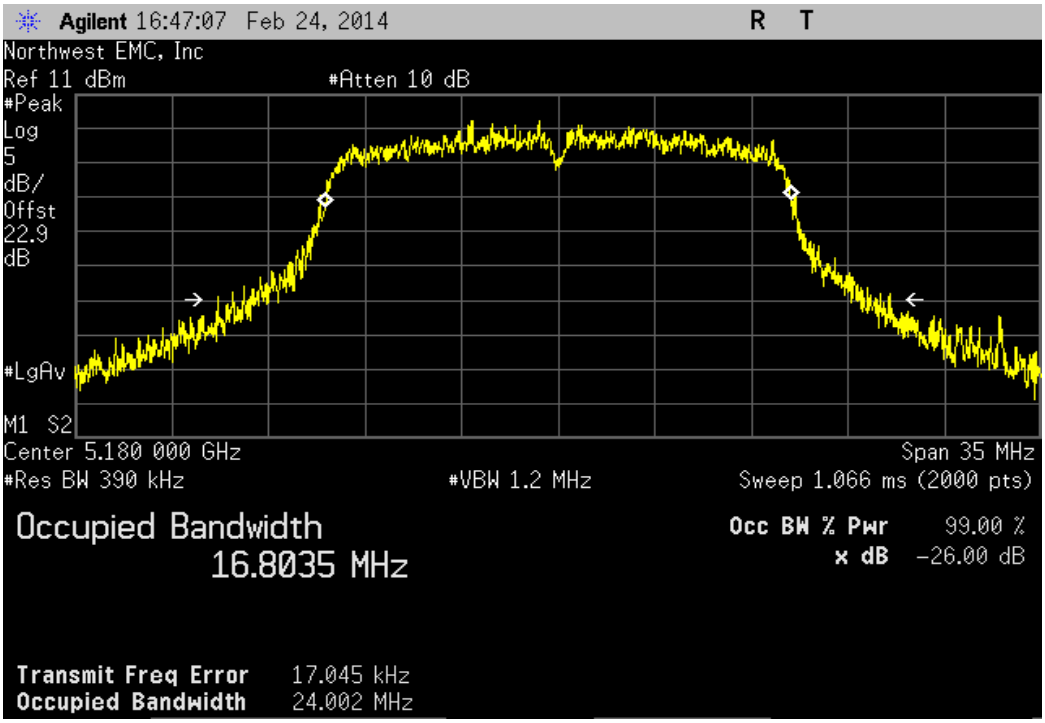
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				21.787 MHz	> 500 kHz	Pass



802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel

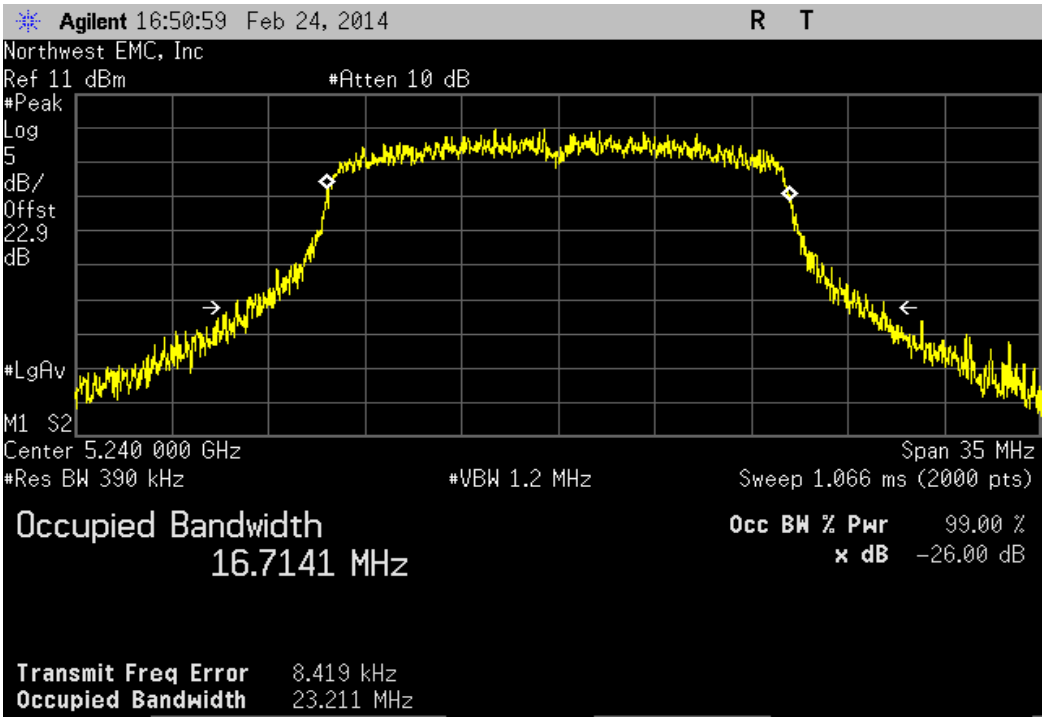
				Value	Limit	Result
				24.002 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

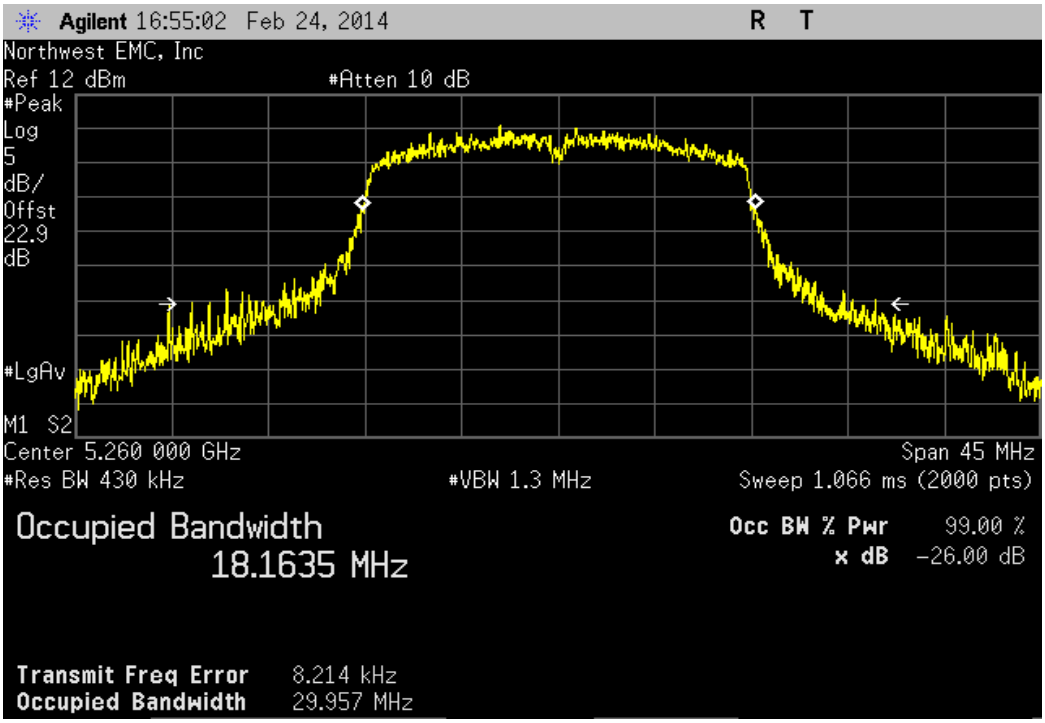
802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				23.211 MHz	> 500 kHz	Pass



802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel

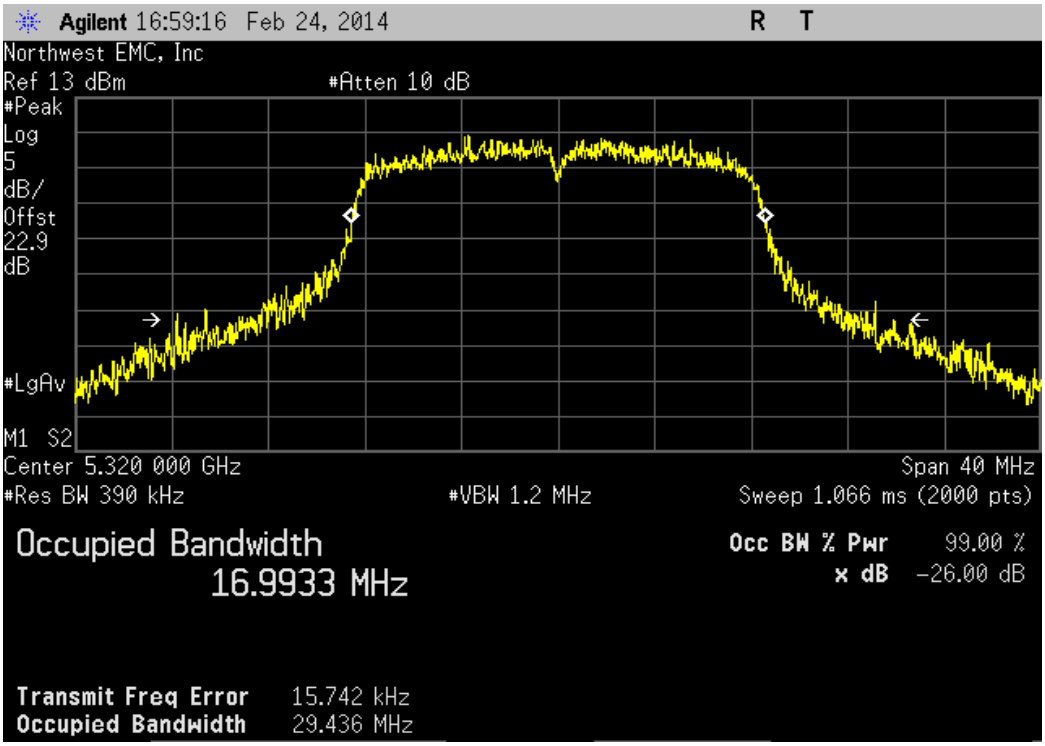
				Value	Limit	Result
				29.957 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

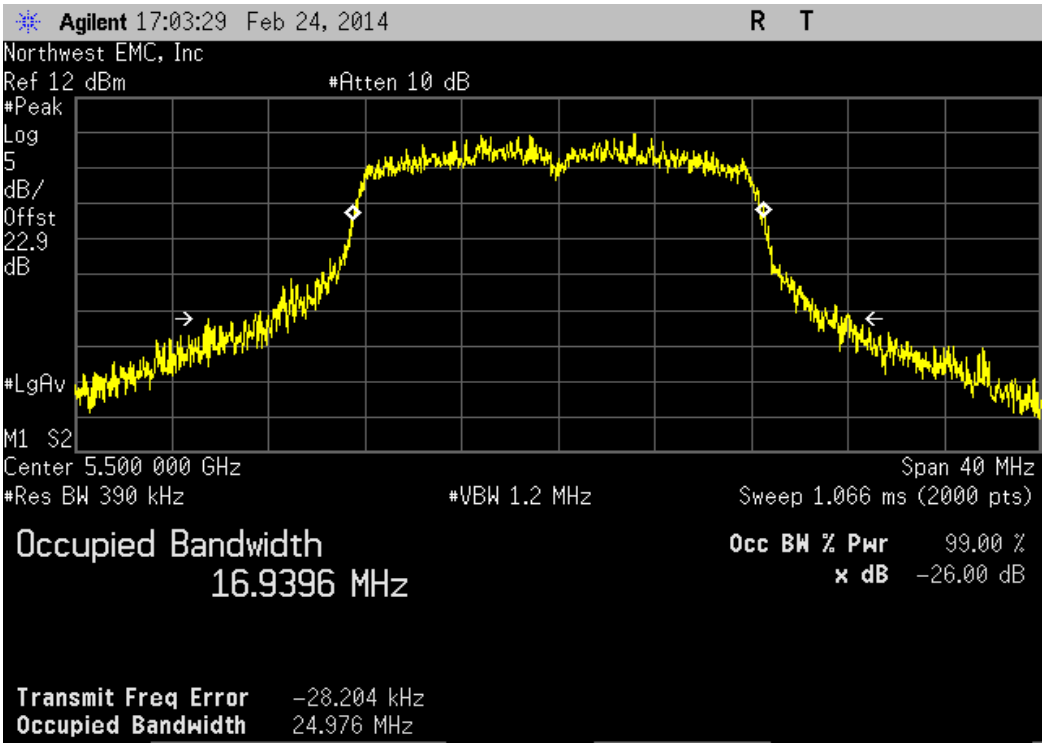
802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				29.436 MHz	> 500 kHz	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel

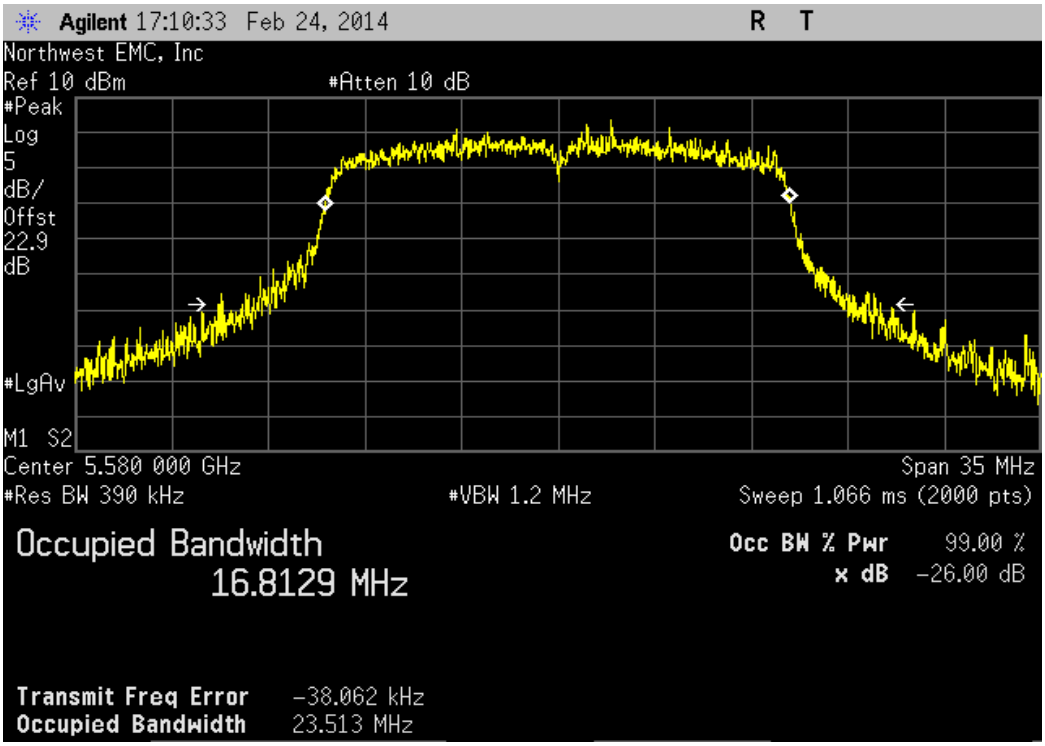
				Value	Limit	Result
				24.976 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

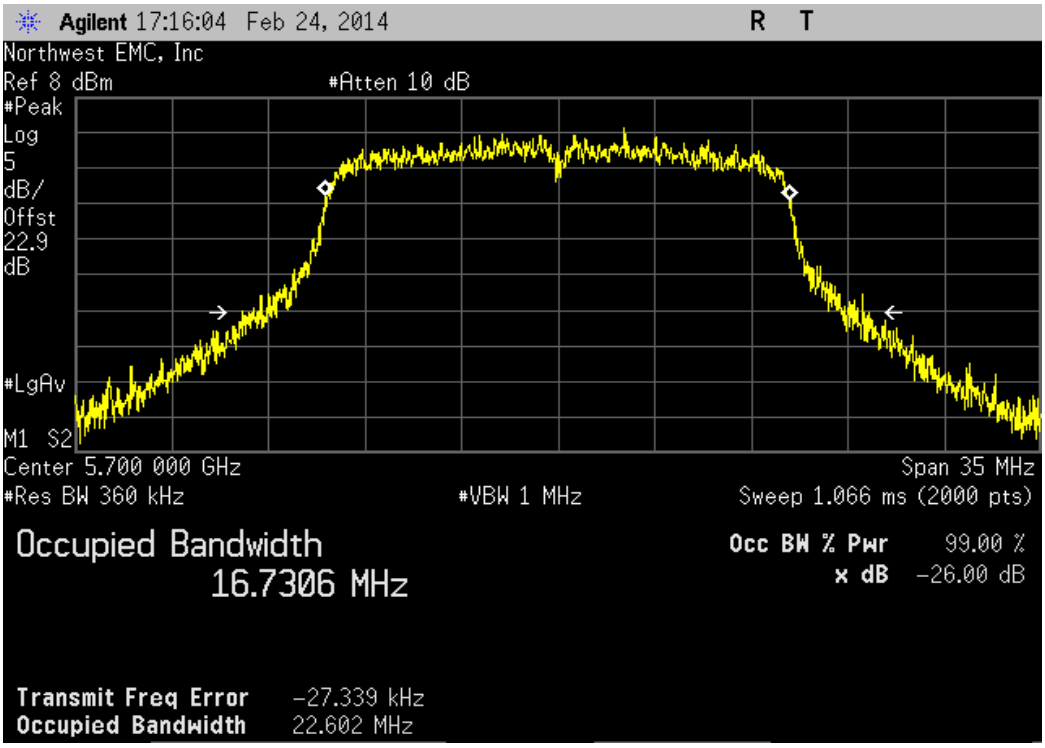
802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				23.513 MHz	> 500 kHz	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel

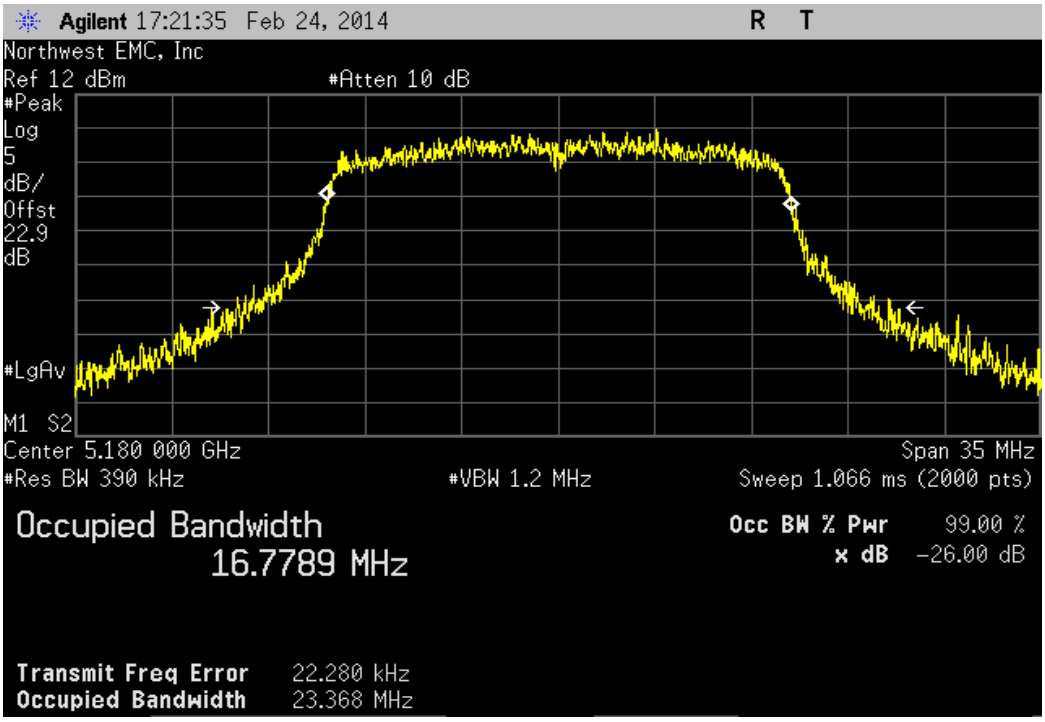
				Value	Limit	Result
				22.602 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

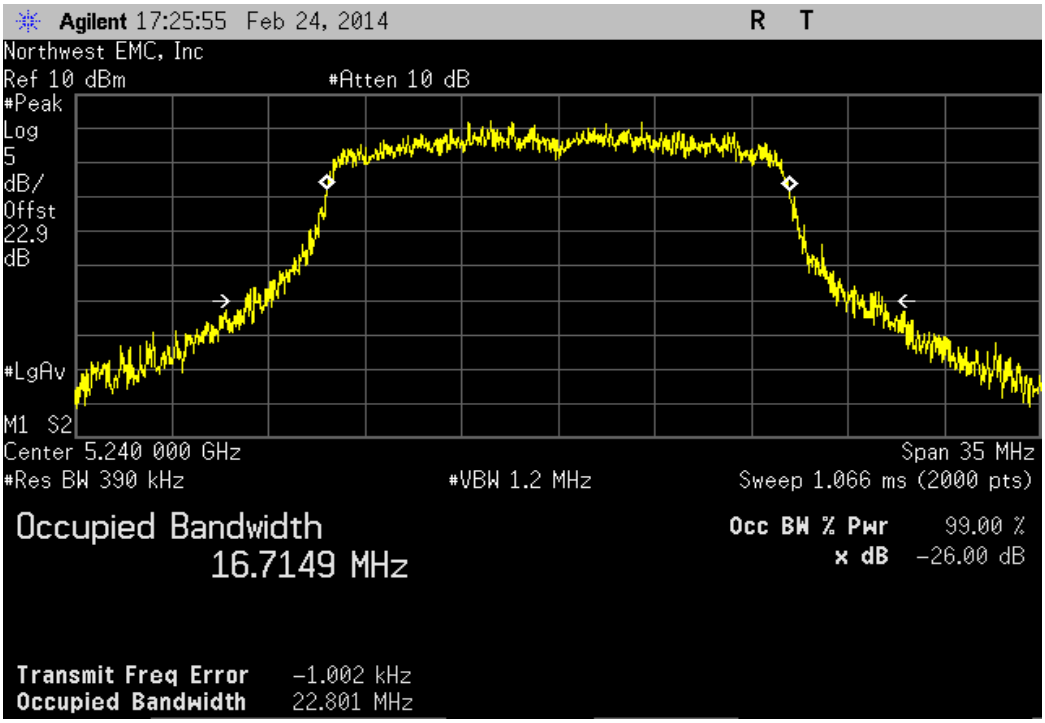
802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				23.368 MHz	> 500 kHz	Pass



802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel

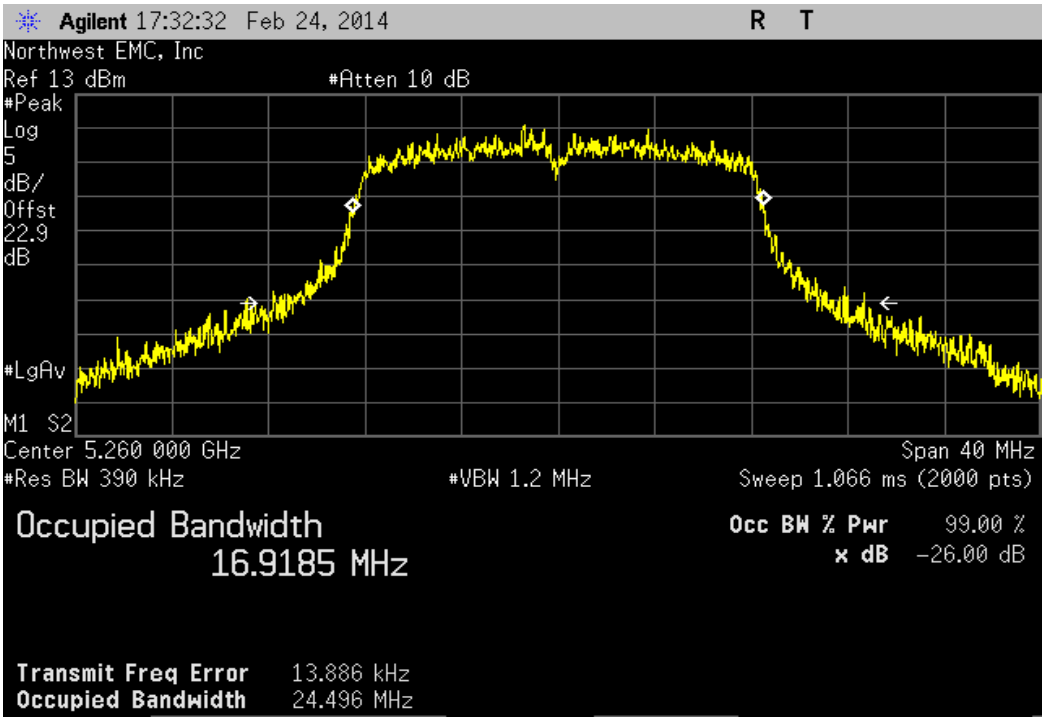
				Value	Limit	Result
				22.801 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

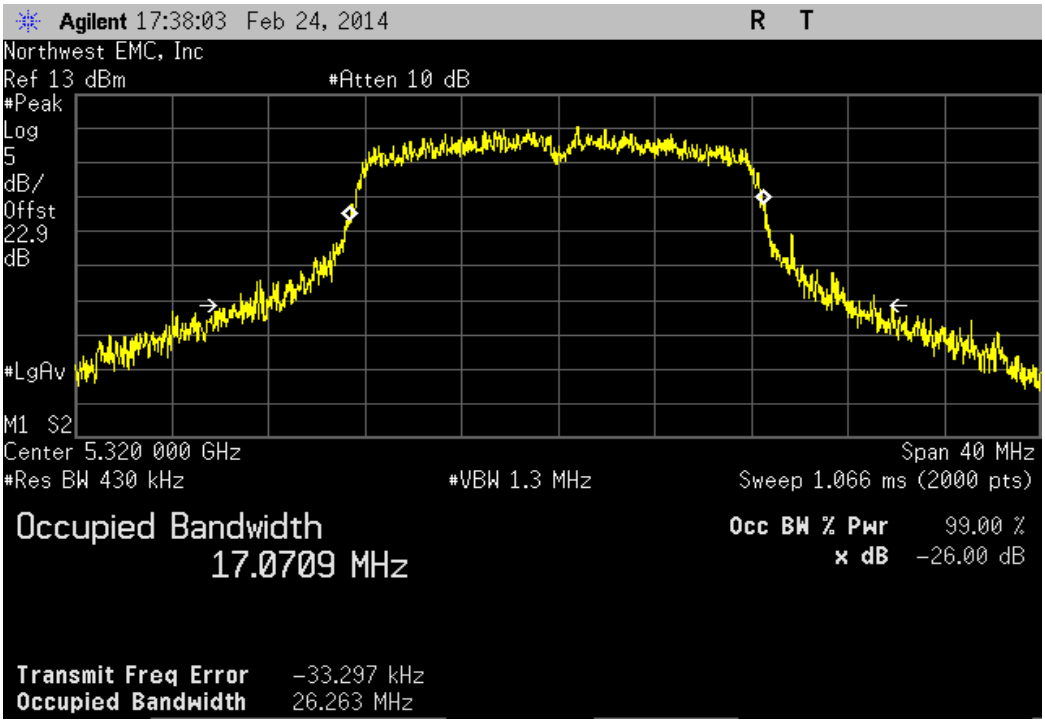
802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				24.496 MHz	> 500 kHz	Pass



802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel

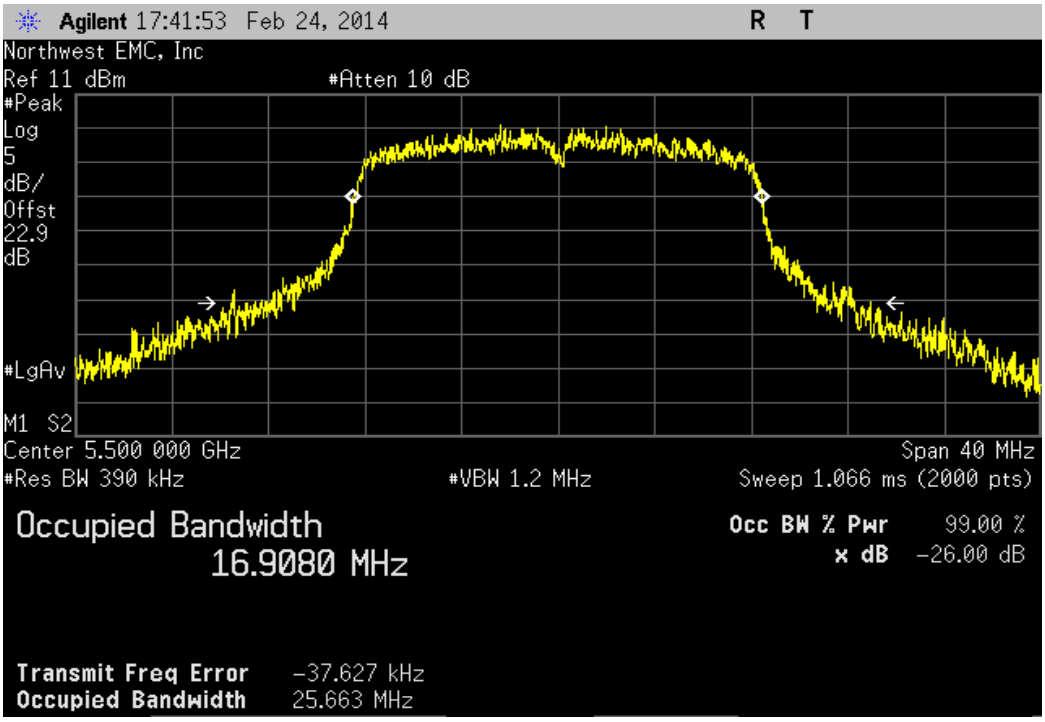
				Value	Limit	Result
				26.263 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

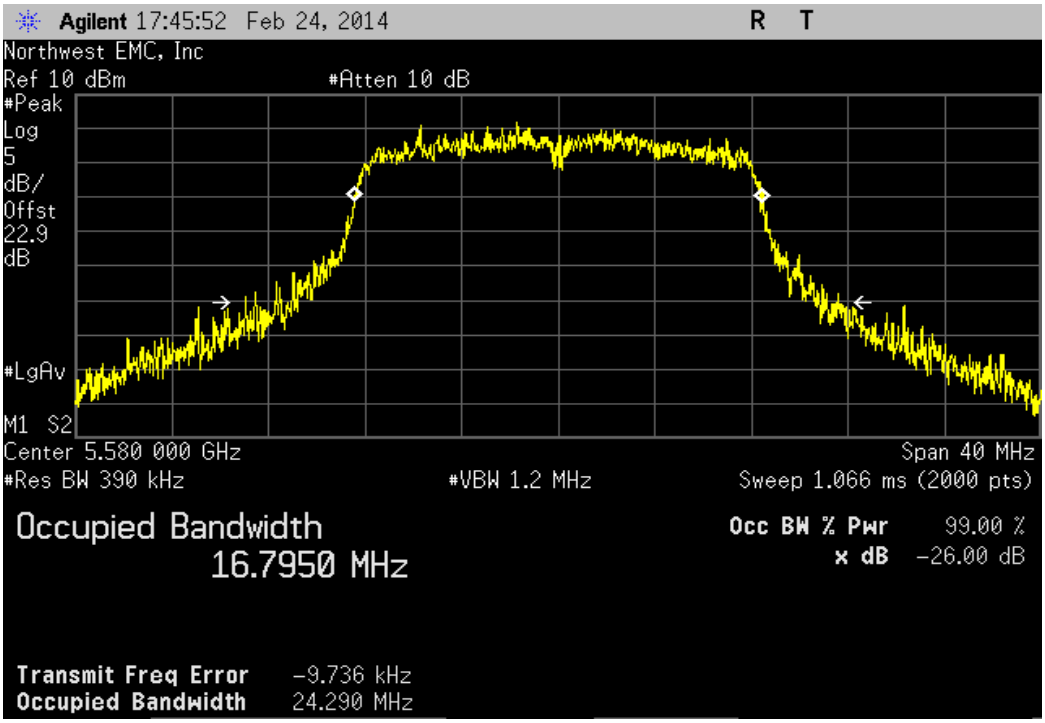
802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				25.663 MHz	> 500 kHz	Pass



802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel

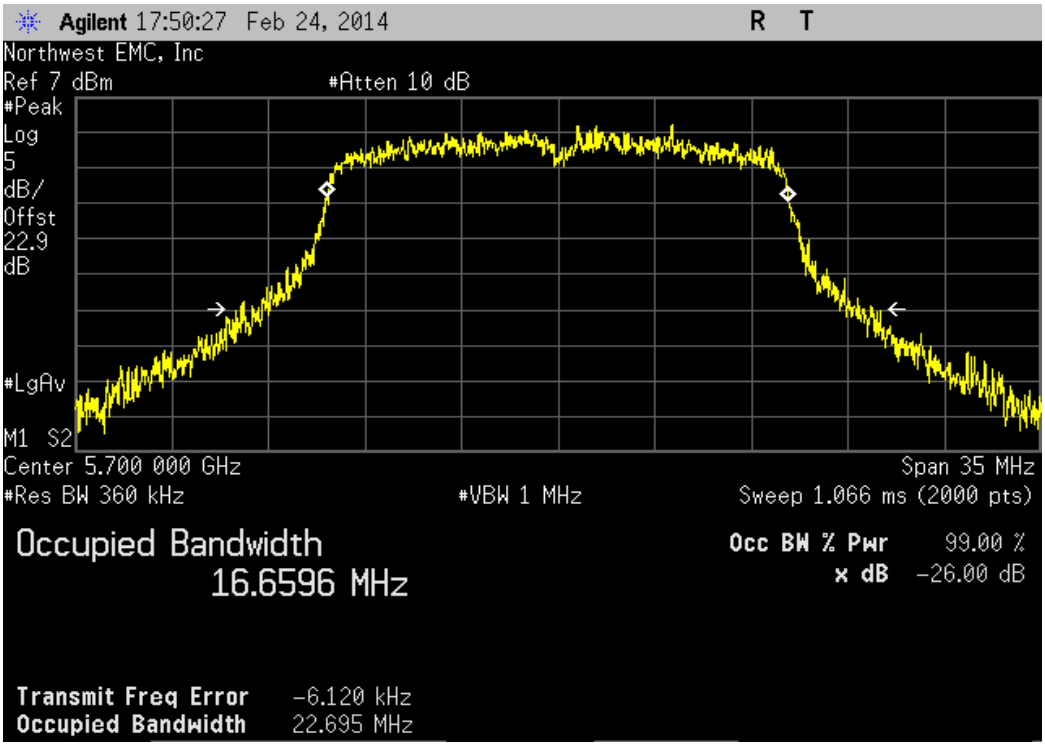
				Value	Limit	Result
				24.29 MHz	> 500 kHz	Pass



EMISSION BANDWIDTH

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				22.695 MHz	> 500 kHz	Pass



PEAK TRANSMIT 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 (mo.)
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section C was followed. 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. The amplitude accuracy of the spectrum analyzer was further enhanced by calibrating the setup using the power meter and synthesized signal generator.

Prior to measuring peak transmit power; the emission bandwidth (B) was measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report

Method SA-2 Alternate (RMS detection with slow sweep across on and off times of the EUT transmission and use of a duty cycle correction factor) was used for this test.

The spectrum analyzer settings were set per the guidance as well as the following specifics:

The number of points was set to 601. This satisfied the requirement of being > 2 * span (25) / RBW (1)

Sweep time was to 2.2 seconds to satisfy the function of > 10 * (number of points being 601) * (total transmitter period of 360 µs)

Power was integrated across “B”, by using the channel power function of the analyzer.

The duty cycle correction of 2.6 dB was added to the measured value as measured and calculated in the Duty Cycle, Transmission Pulse Duration test module located elsewhere in this report.

PEAK TRANSMIT POWER

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/24/14
Customer:	Synapse Product Development LLC	Temperature:	21.1°C
Attendees:	None	Humidity:	32%
Project:	Kezar	Barometric Pres.:	1018
Tested by:	Jared Ison, Brandon Hobbs	Power: Internal Battery, 12 VDC	Job Site: EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

None

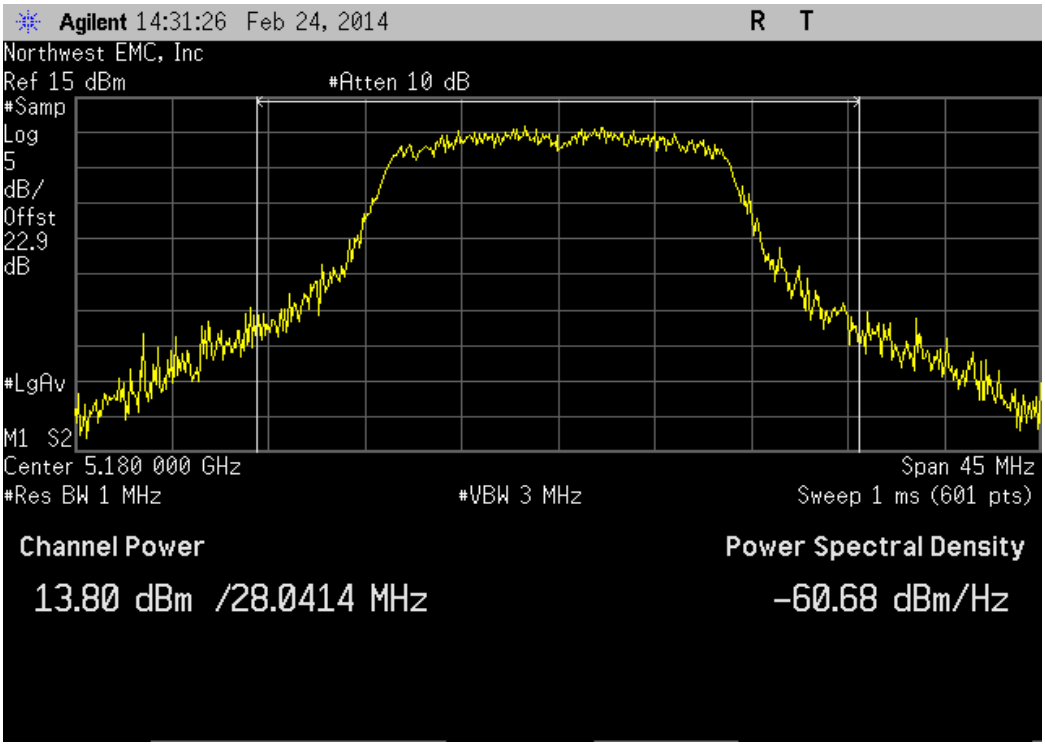
Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	13.795 dBm	< 17 dBm	Pass
	Channel 48, High Channel	12.896 dBm	< 17 dBm	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	14.701 dBm	< 24 dBm	Pass
	Channel 64, High Channel	14.799 dBm	< 24 dBm	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	13.48 dBm	< 24 dBm	Pass
	Channel 116, Mid Channel	12.404 dBm	< 24 dBm	Pass
	Channel 140, High Channel	10.368 dBm	< 24 dBm	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	13.562 dBm	< 17 dBm	Pass
	Channel 48, High Channel	12.641 dBm	< 17 dBm	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	14.449 dBm	< 24 dBm	Pass
	Channel 64, High Channel	14.734 dBm	< 24 dBm	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	13.408 dBm	< 24 dBm	Pass
	Channel 116, Mid Channel	12.413 dBm	< 24 dBm	Pass
	Channel 140, High Channel	10.235 dBm	< 24 dBm	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	12.697 dBm	< 17 dBm	Pass
	Channel 48, High Channel	12.863 dBm	< 17 dBm	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	13.937 dBm	< 24 dBm	Pass
	Channel 64, High Channel	14.116 dBm	< 24 dBm	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	12.605 dBm	< 24 dBm	Pass
	Channel 116, Mid Channel	11.406 dBm	< 24 dBm	Pass
	Channel 140, High Channel	9.299 dBm	< 24 dBm	Pass
802.11(n) MCS0				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	13.725 dBm	< 17 dBm	Pass
	Channel 48, High Channel	12.817 dBm	< 17 dBm	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	14.506 dBm	< 24 dBm	Pass
	Channel 64, High Channel	14.771 dBm	< 24 dBm	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	13.396 dBm	< 24 dBm	Pass
	Channel 116, Mid Channel	12.464 dBm	< 24 dBm	Pass
	Channel 140, High Channel	10.301 dBm	< 24 dBm	Pass
802.11(n) MCS7				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	13.752 dBm	< 17 dBm	Pass
	Channel 48, High Channel	12.69 dBm	< 17 dBm	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	14.53 dBm	< 24 dBm	Pass
	Channel 64, High Channel	14.802 dBm	< 24 dBm	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	13.392 dBm	< 24 dBm	Pass
	Channel 116, Mid Channel	12.388 dBm	< 24 dBm	Pass
	Channel 140, High Channel	10.267 dBm	< 24 dBm	Pass

PEAK TRANSMIT POWER

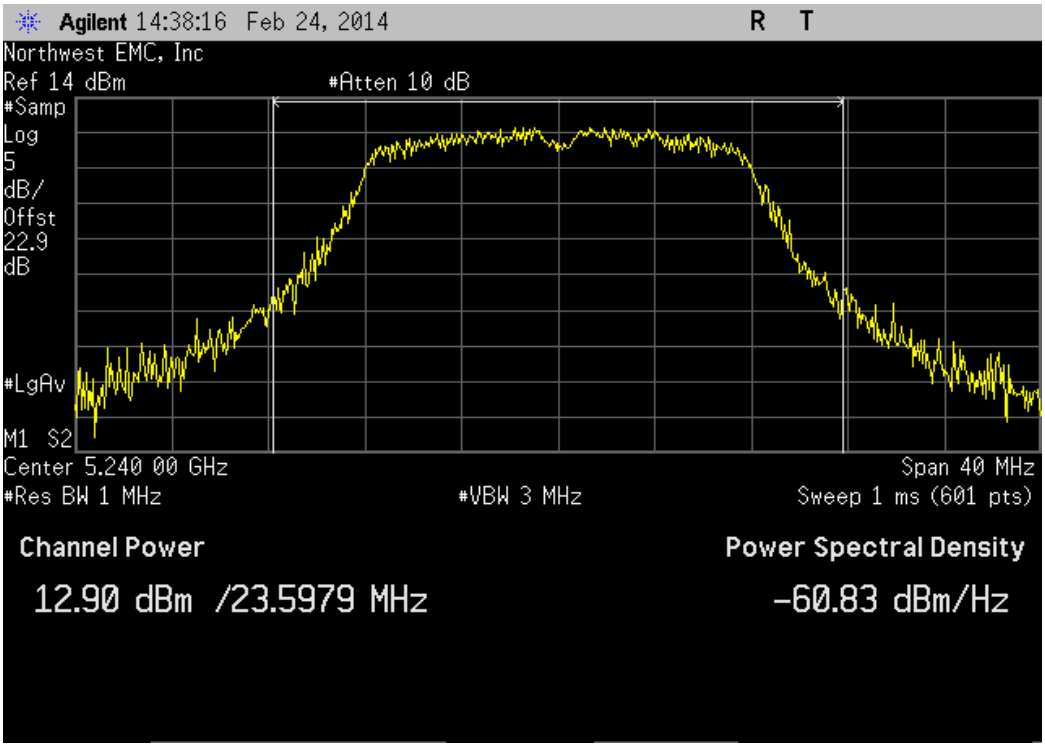
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				13.795 dBm	< 17 dBm	Pass



802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

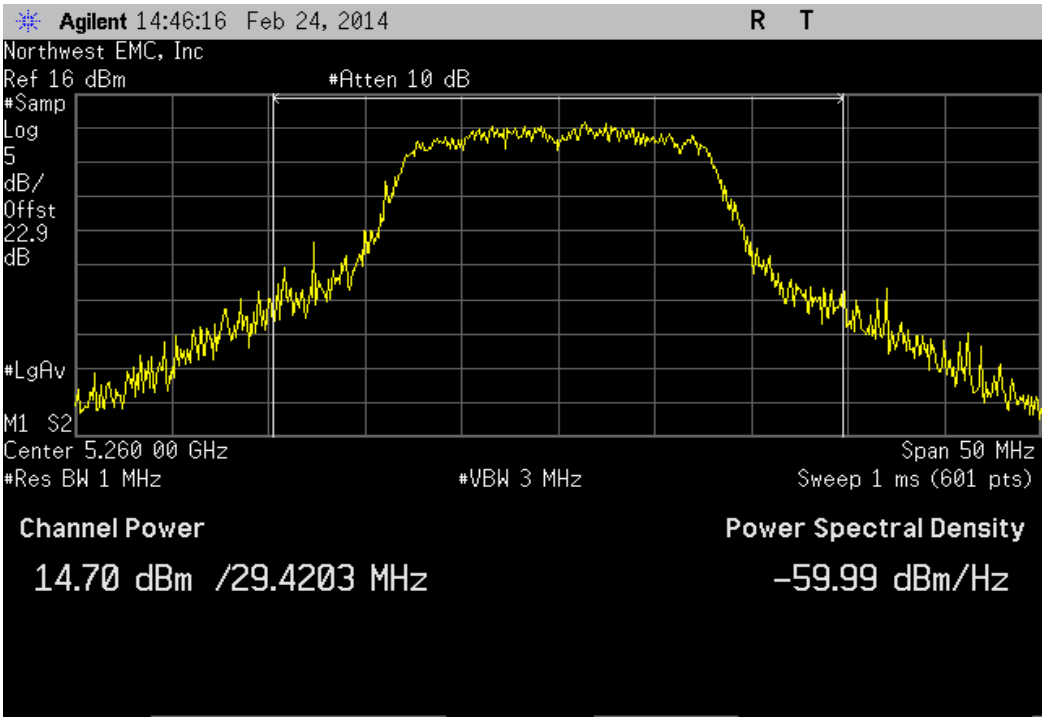
				Value	Limit	Result
				12.896 dBm	< 17 dBm	Pass



PEAK TRANSMIT POWER

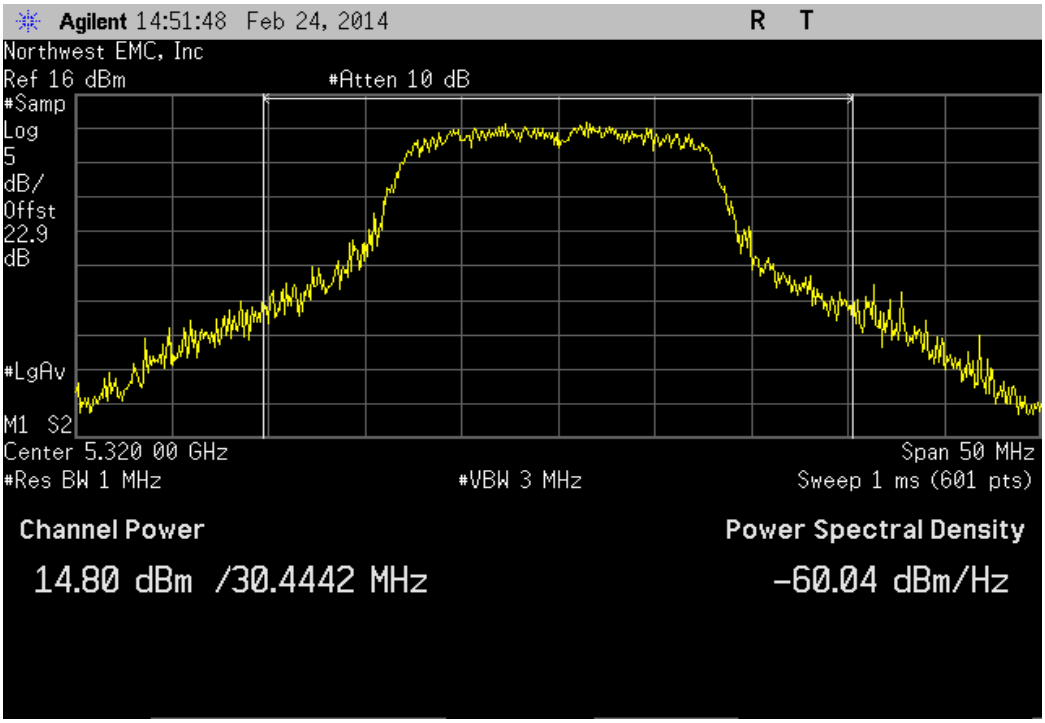
802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				14.701 dBm	< 24 dBm	Pass



802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

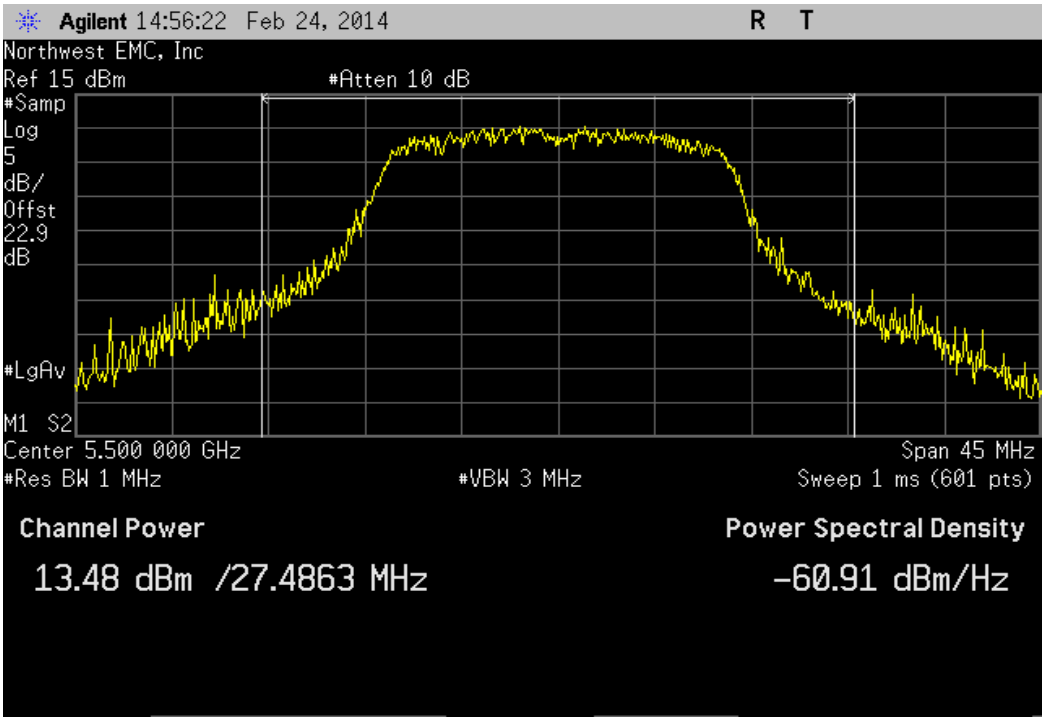
				Value	Limit	Result
				14.799 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

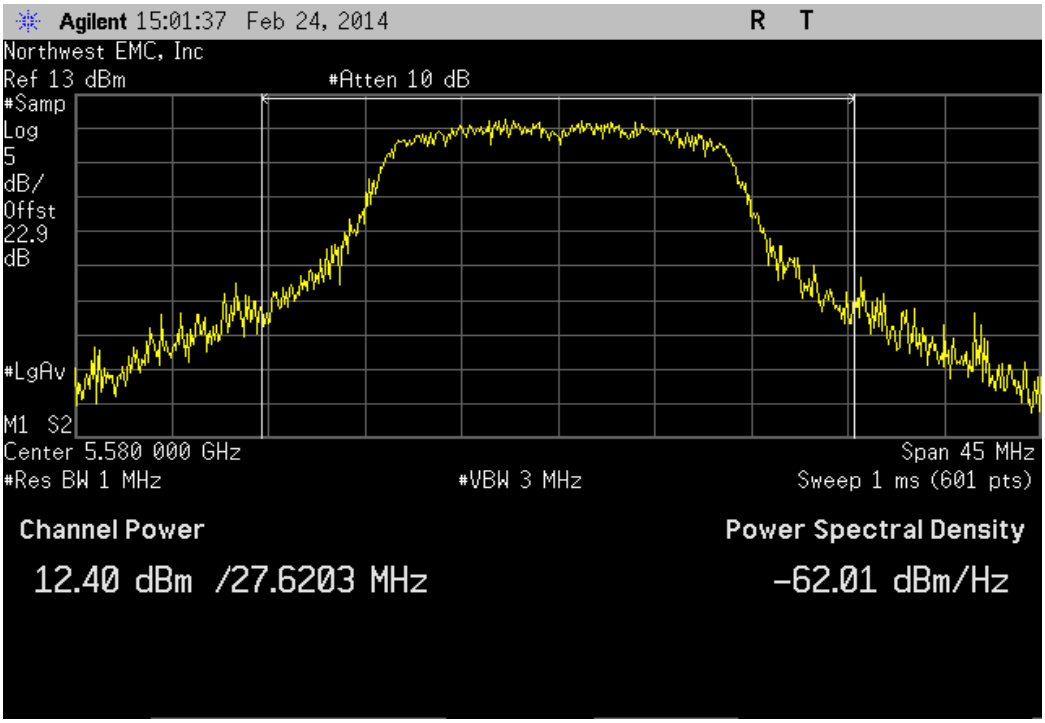
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				13.48 dBm	< 24 dBm	Pass



802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

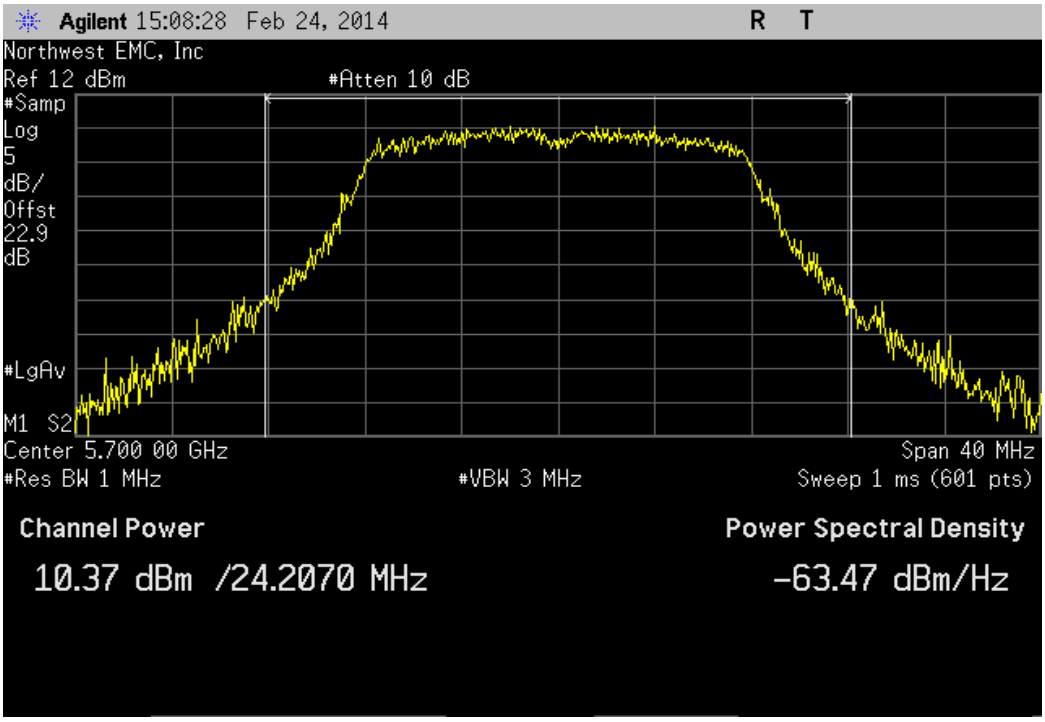
				Value	Limit	Result
				12.404 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

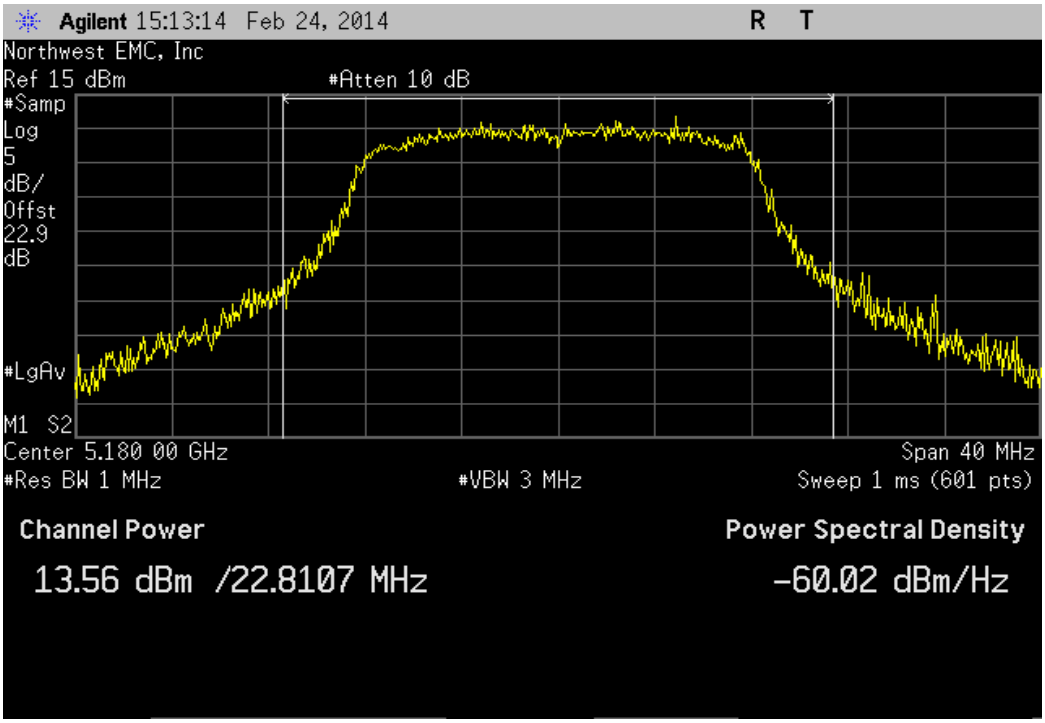
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				10.368 dBm	< 24 dBm	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

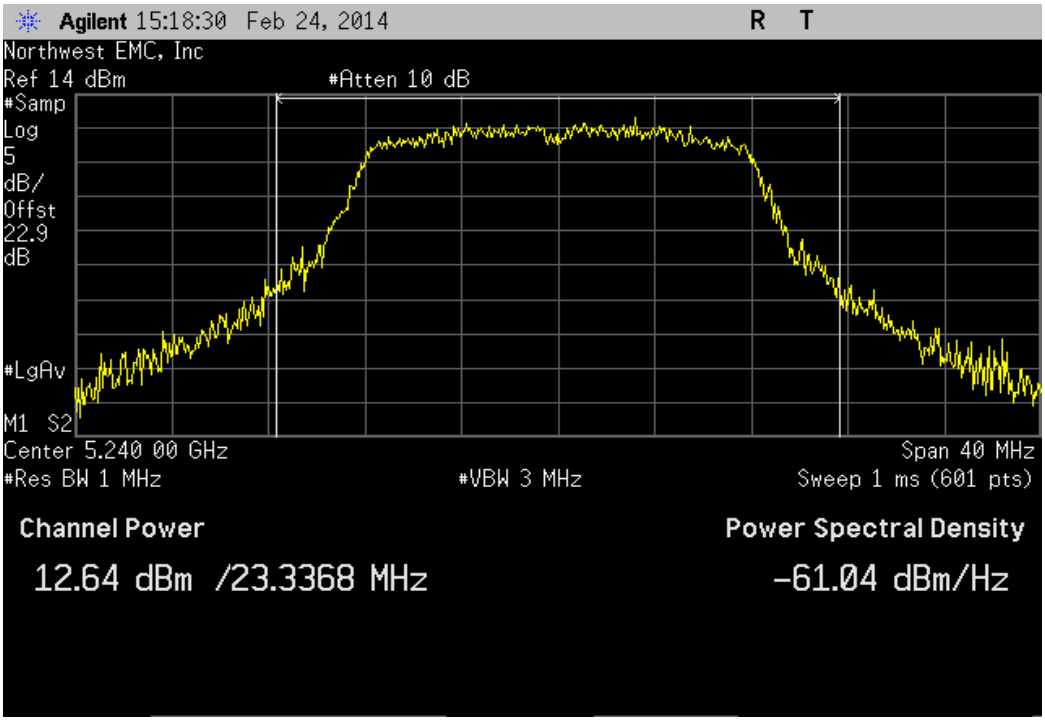
				Value	Limit	Result
				13.562 dBm	< 17 dBm	Pass



PEAK TRANSMIT POWER

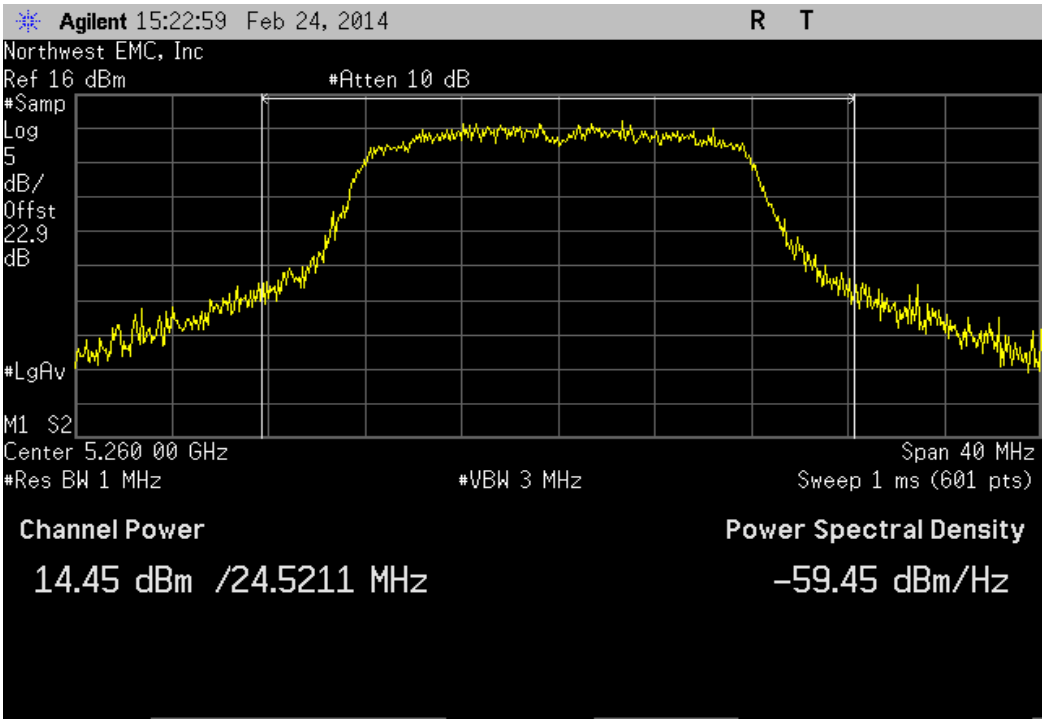
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				12.641 dBm	< 17 dBm	Pass



802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

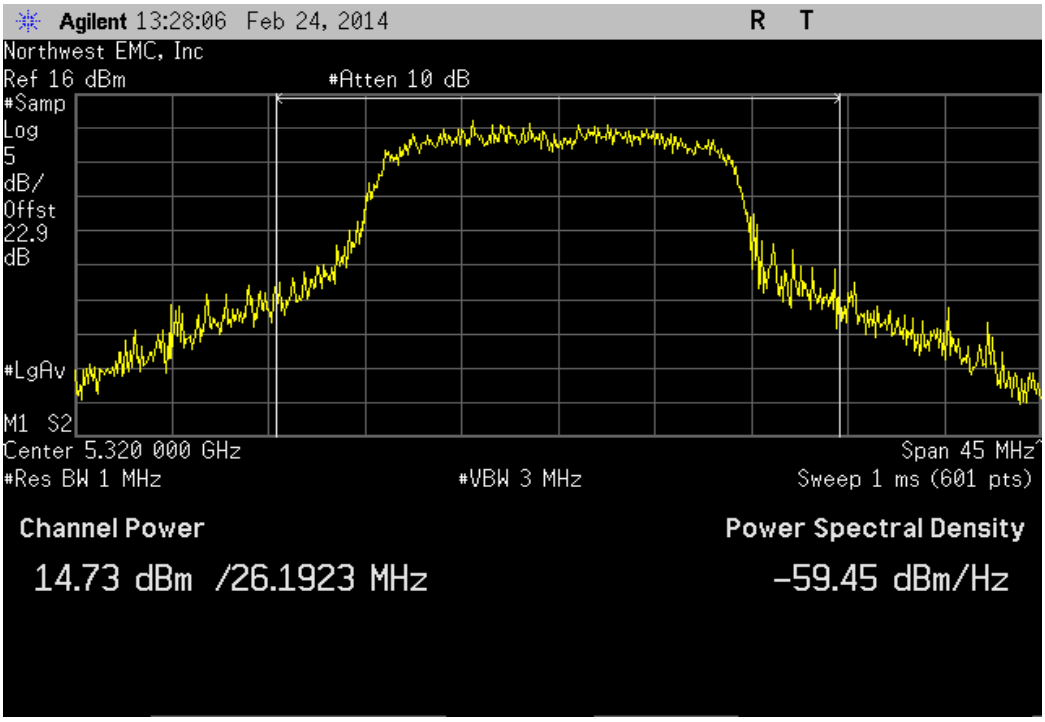
				Value	Limit	Result
				14.449 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

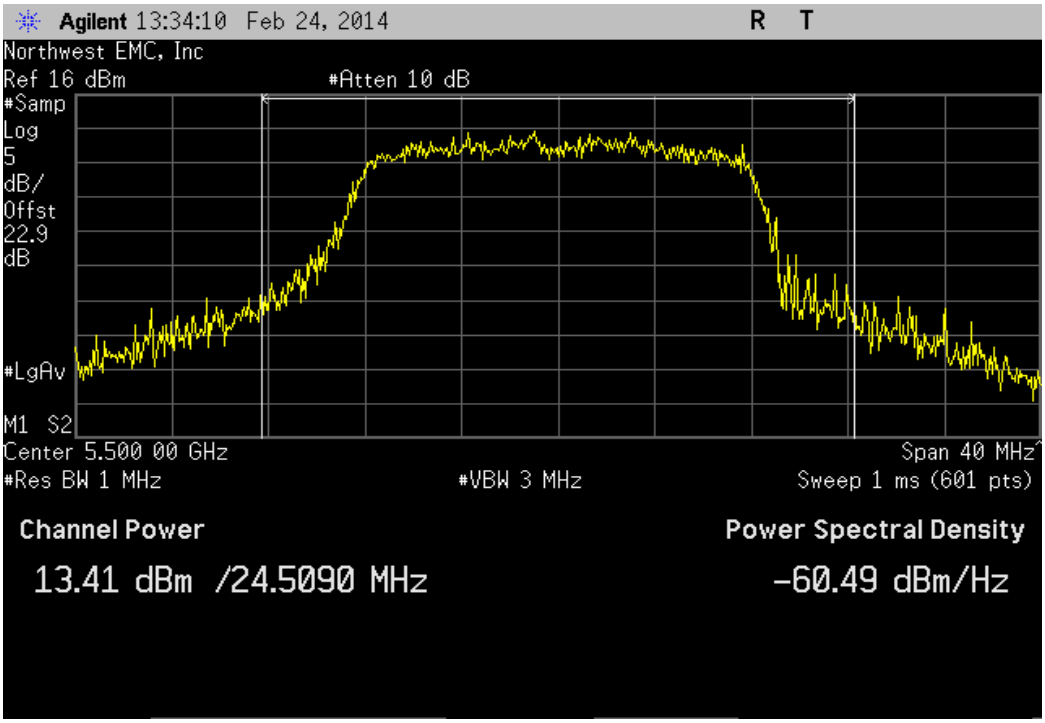
802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				14.734 dBm	< 24 dBm	Pass



802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

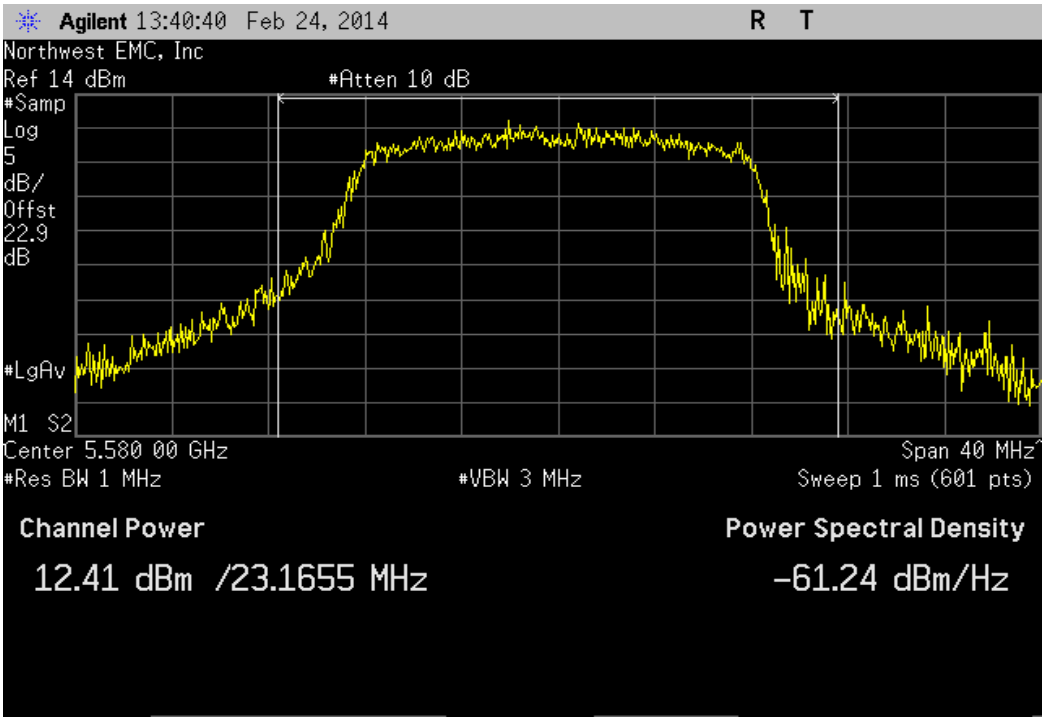
				Value	Limit	Result
				13.408 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

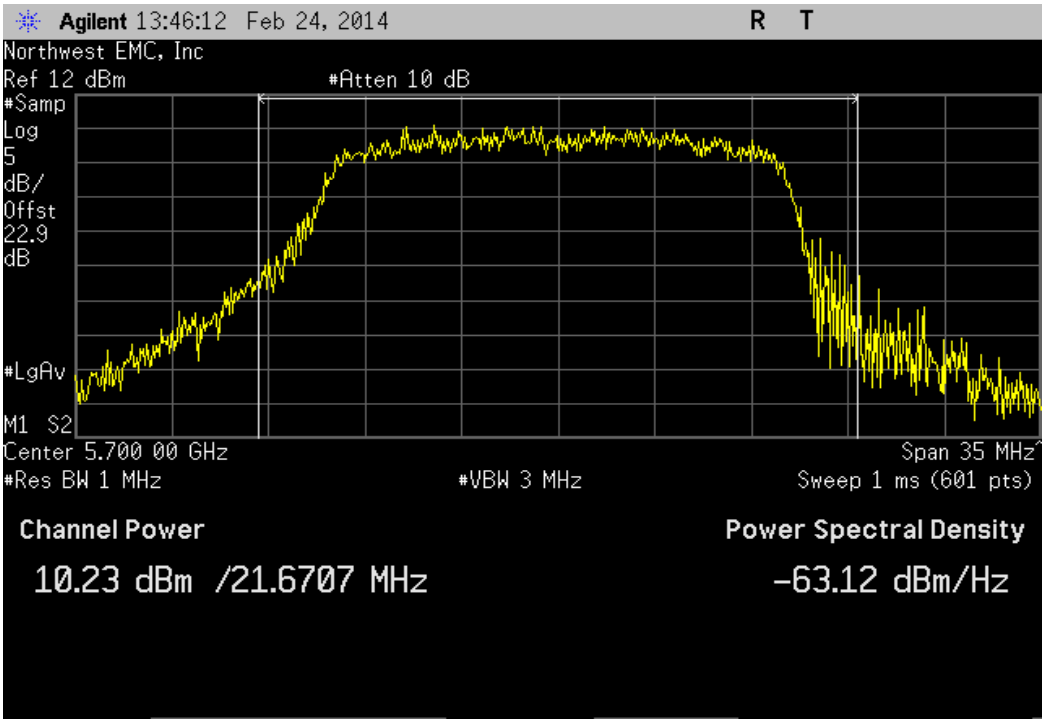
802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				12.413 dBm	< 24 dBm	Pass



802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

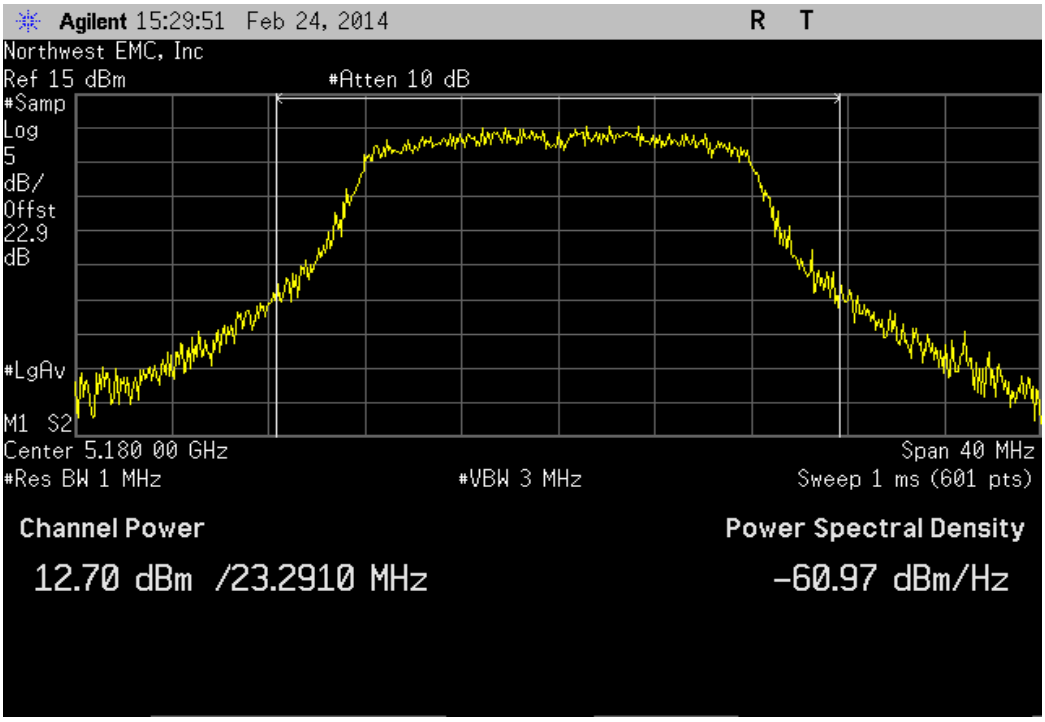
				Value	Limit	Result
				10.235 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

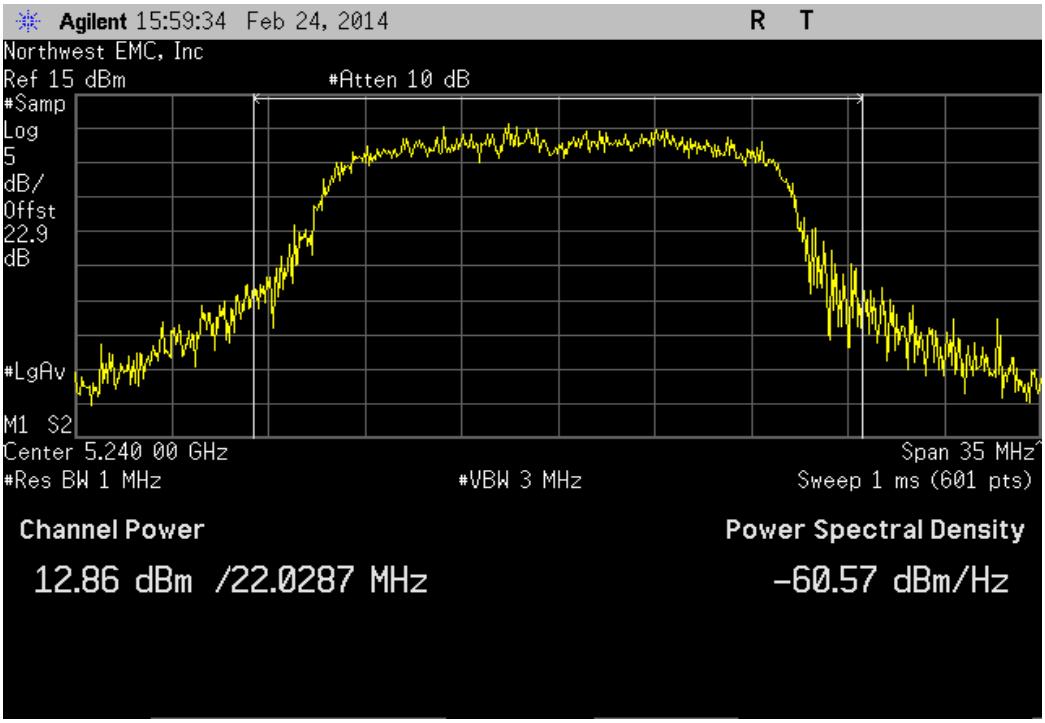
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				12.697 dBm	< 17 dBm	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

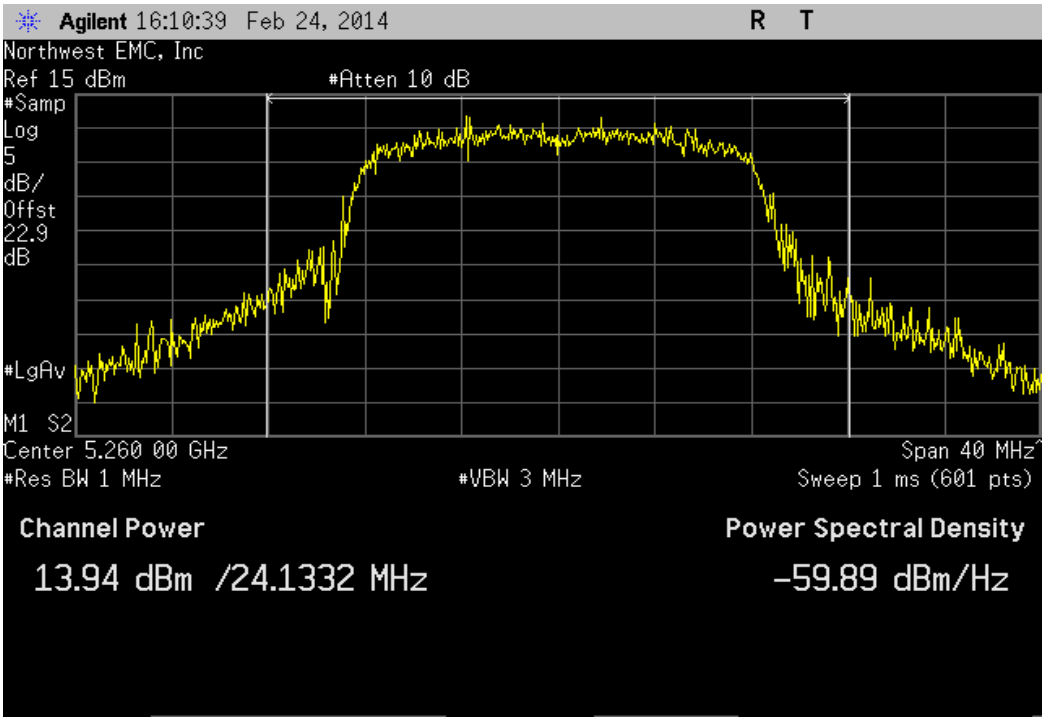
				Value	Limit	Result
				12.863 dBm	< 17 dBm	Pass



PEAK TRANSMIT POWER

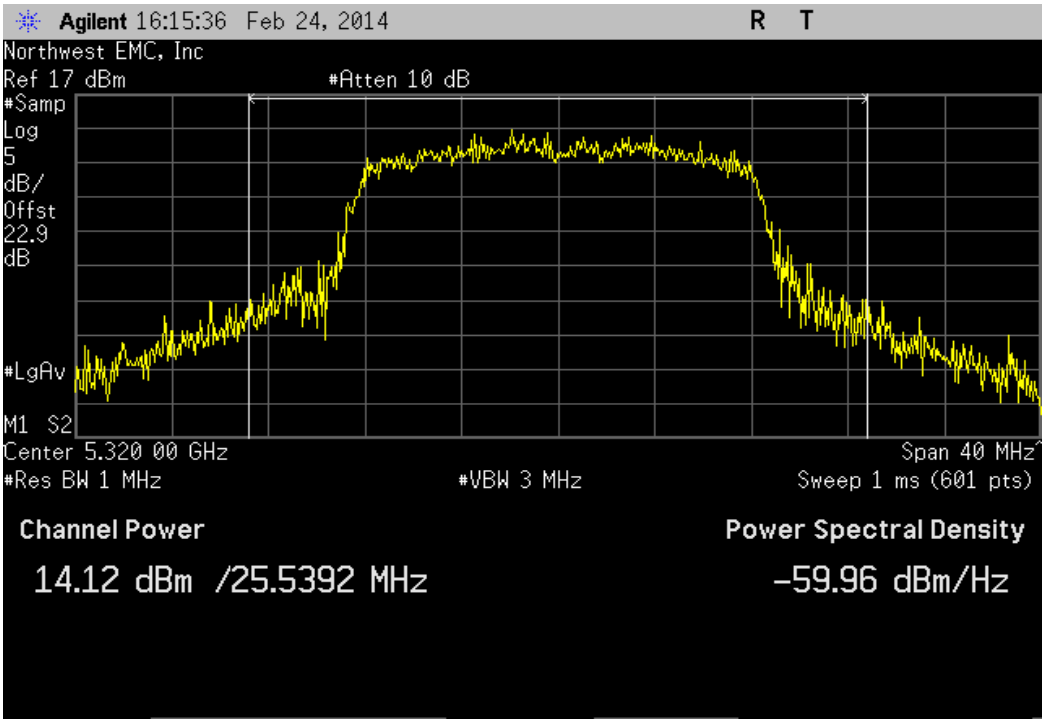
802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				13.937 dBm	< 24 dBm	Pass



802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

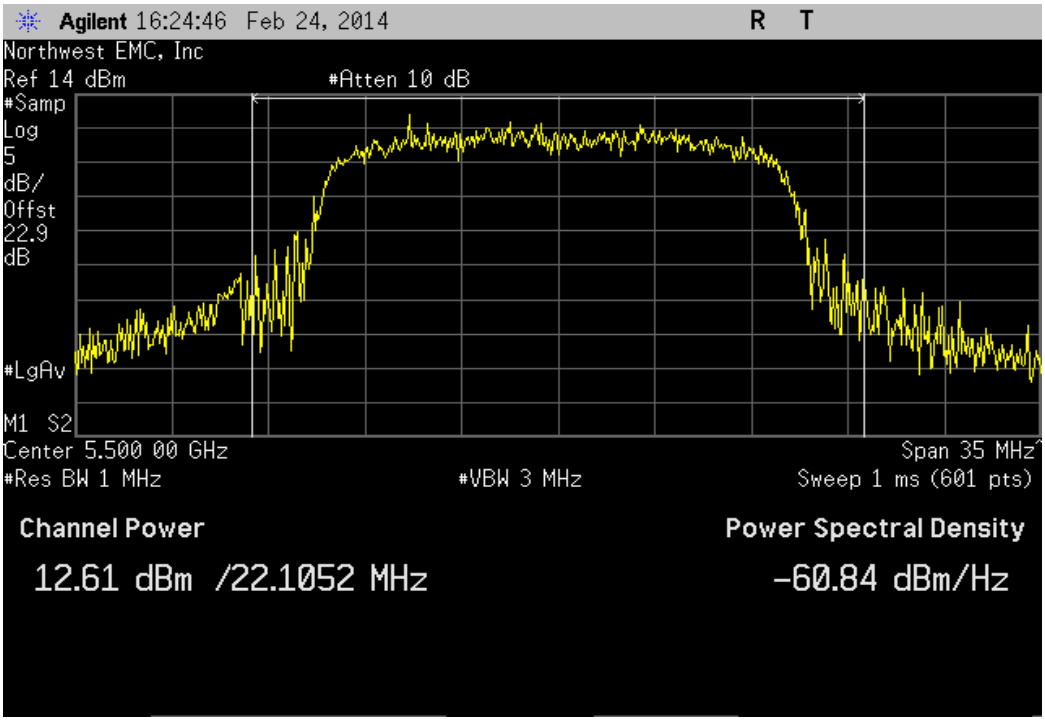
				Value	Limit	Result
				14.116 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

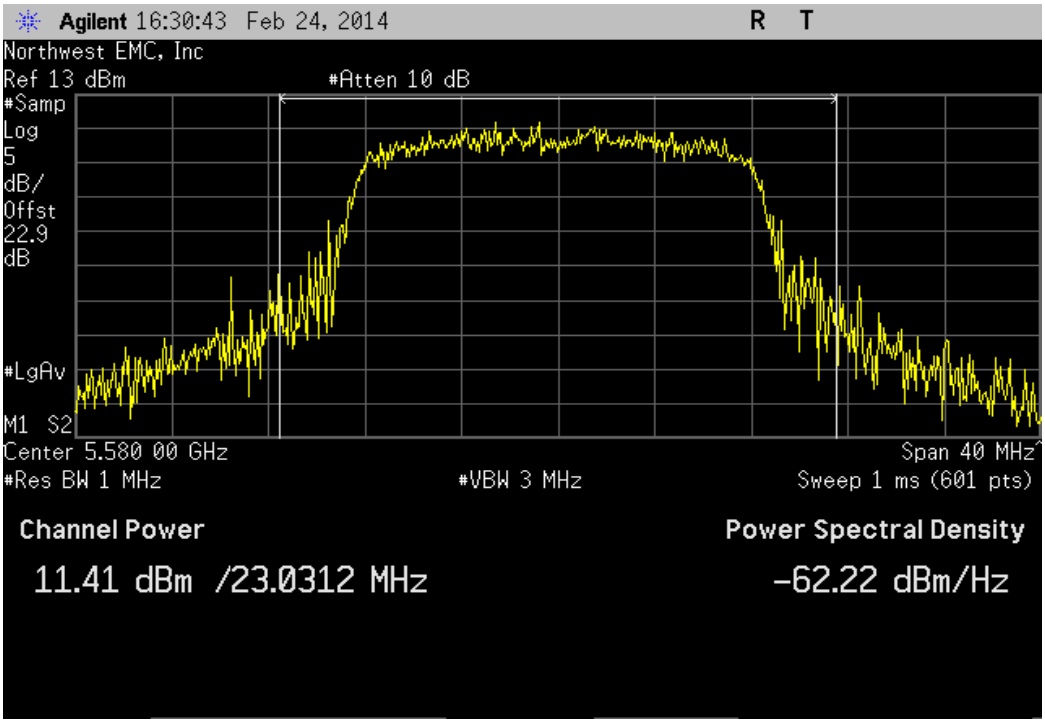
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				12.605 dBm	< 24 dBm	Pass



802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

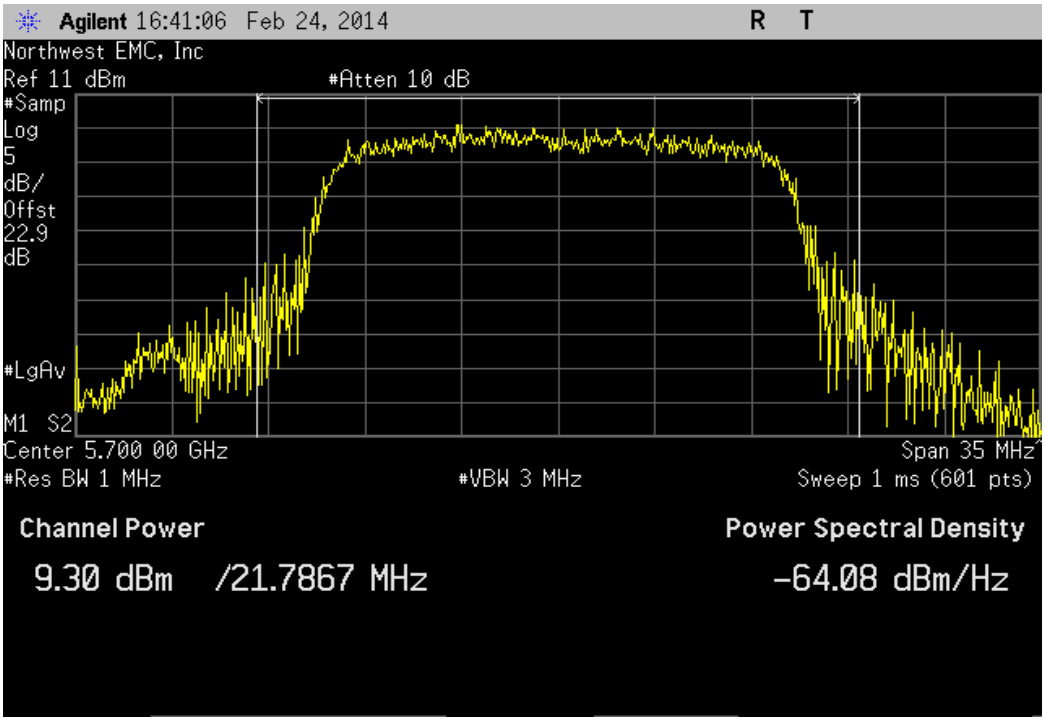
				Value	Limit	Result
				11.406 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

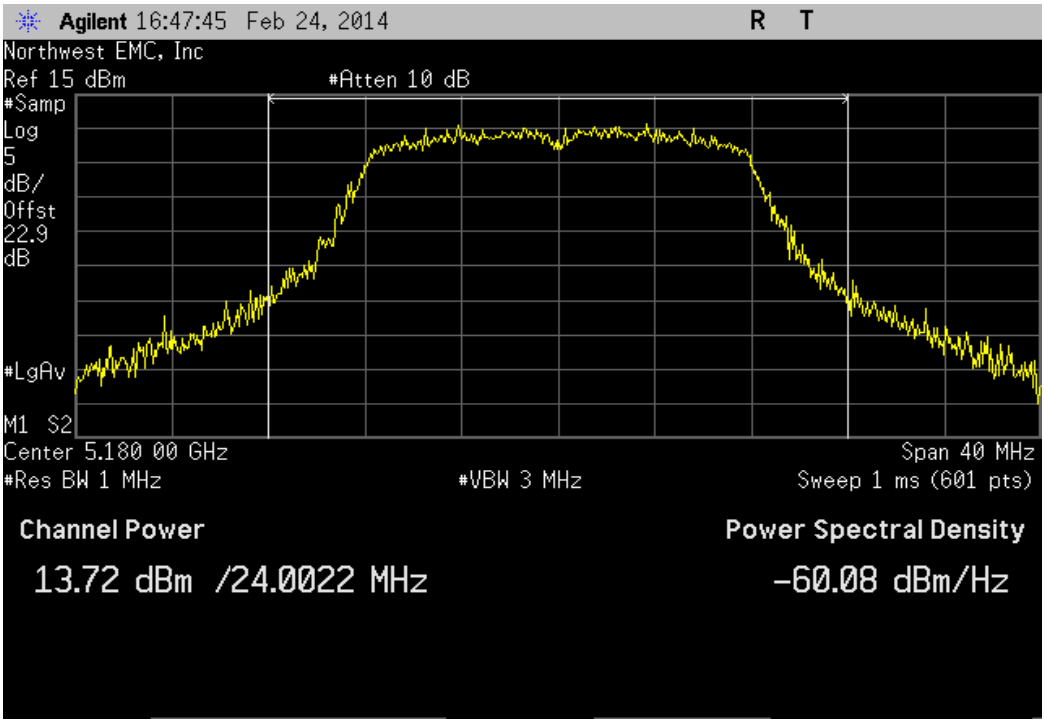
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				9.299 dBm	< 24 dBm	Pass



802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel

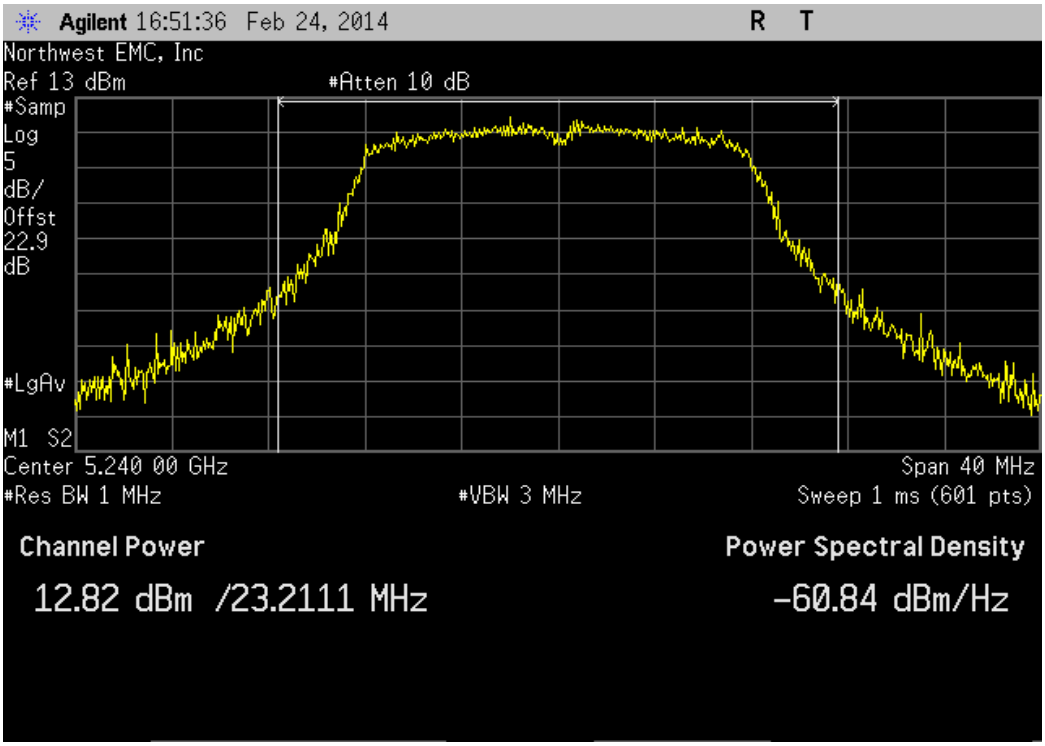
				Value	Limit	Result
				13.725 dBm	< 17 dBm	Pass



PEAK TRANSMIT POWER

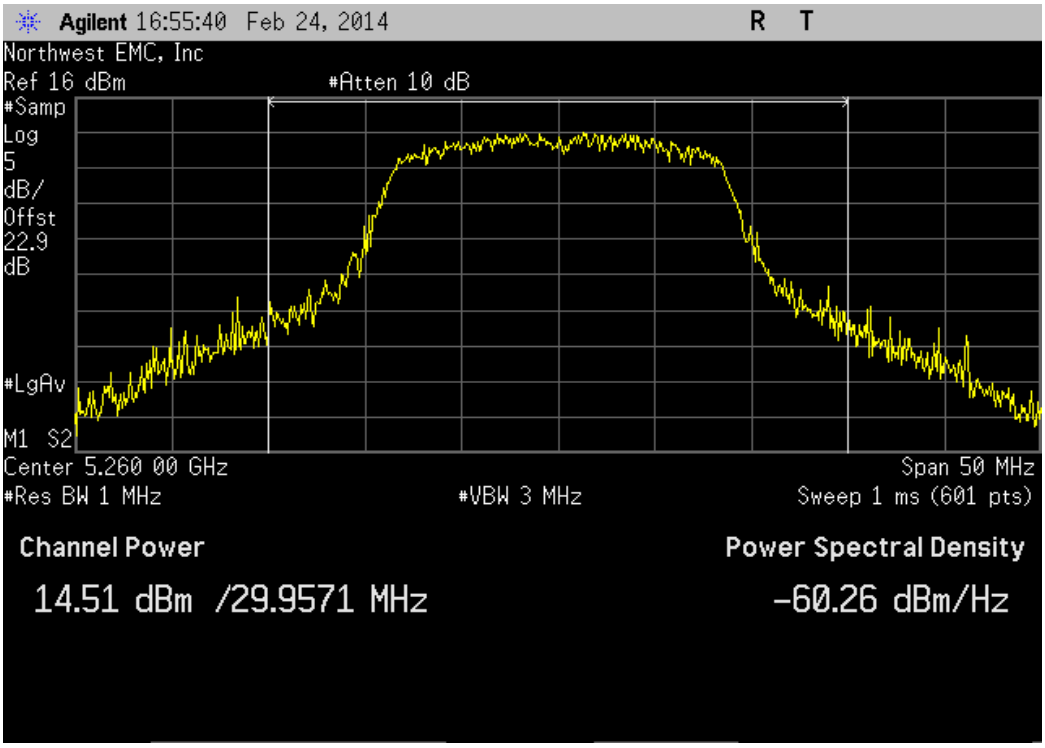
802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				12.817 dBm	< 17 dBm	Pass



802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel

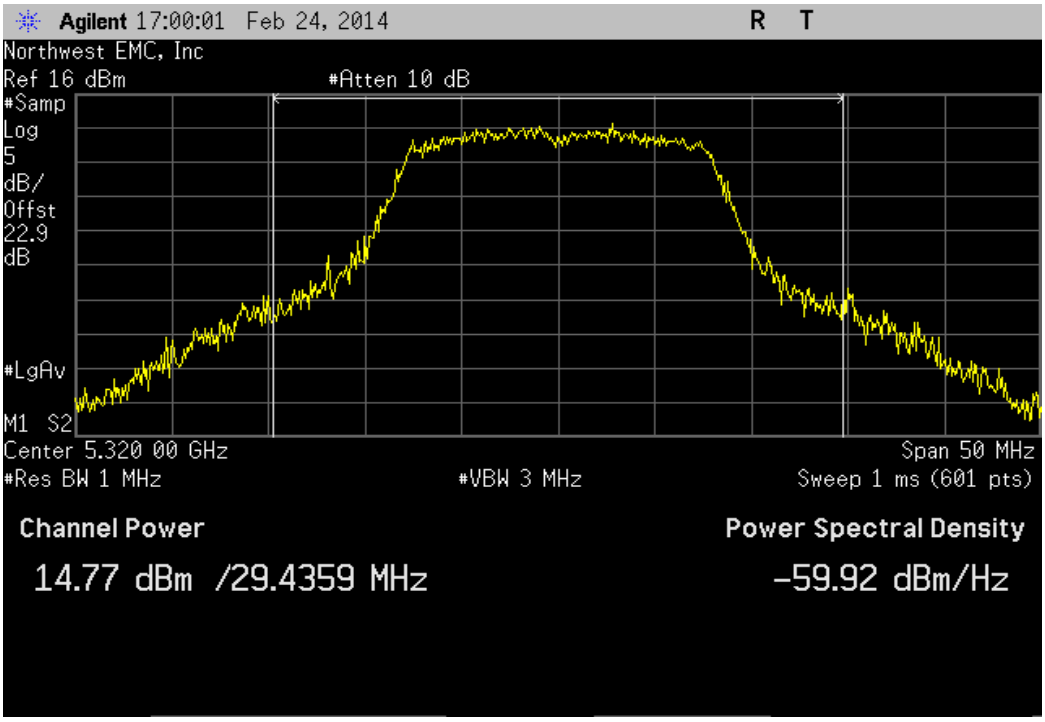
				Value	Limit	Result
				14.506 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

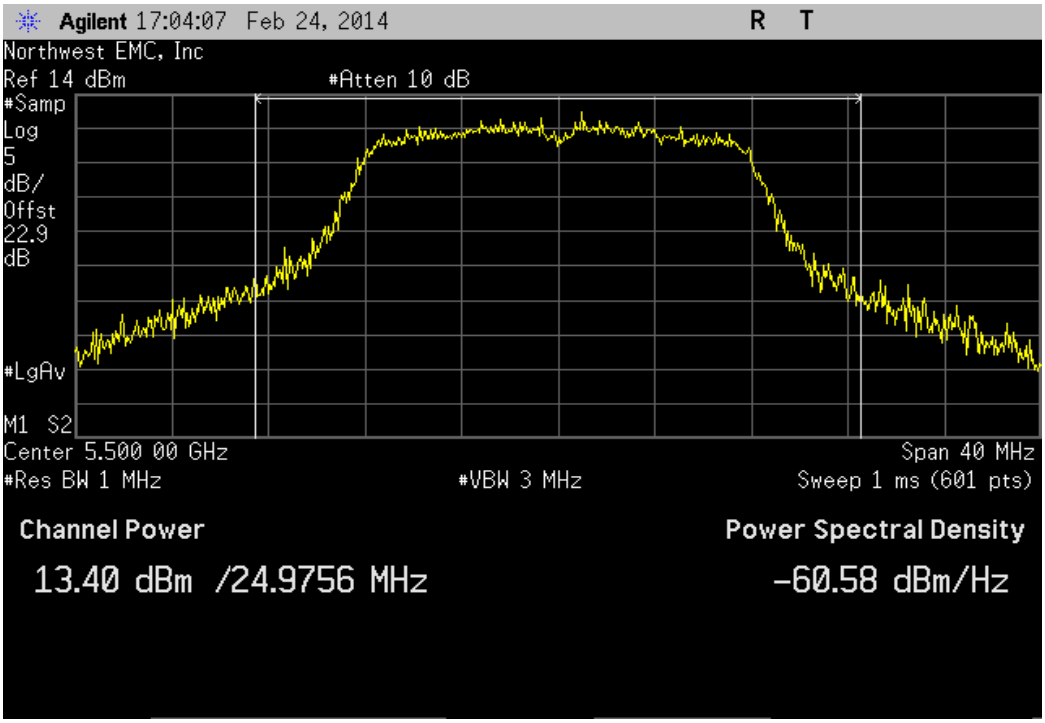
802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				14.771 dBm	< 24 dBm	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel

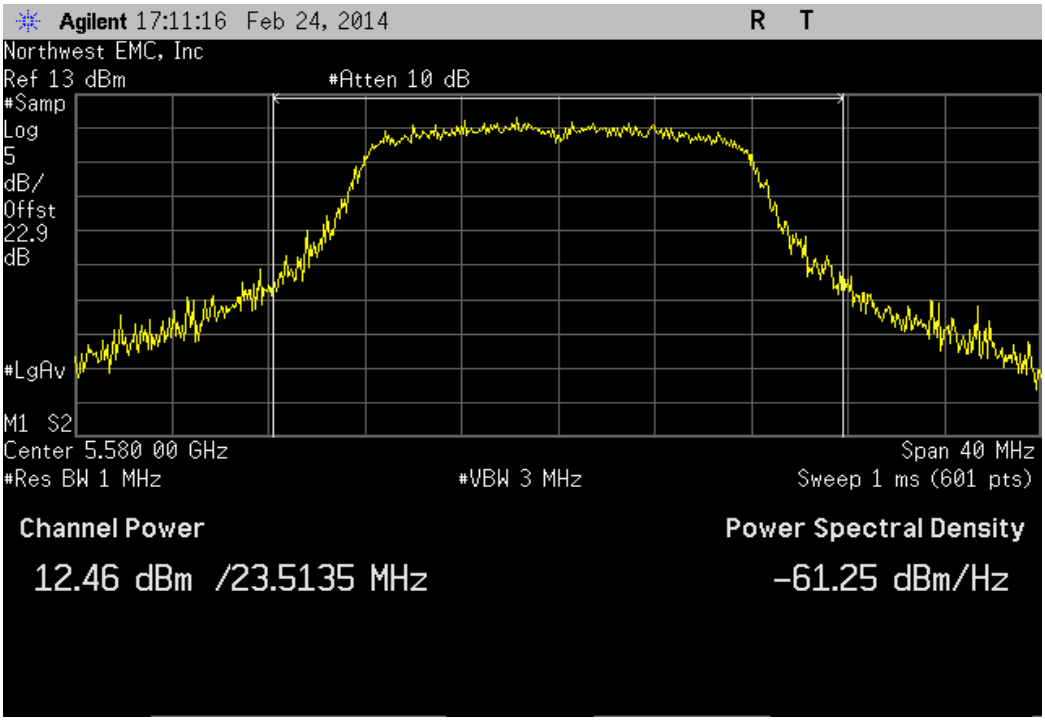
				Value	Limit	Result
				13.396 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

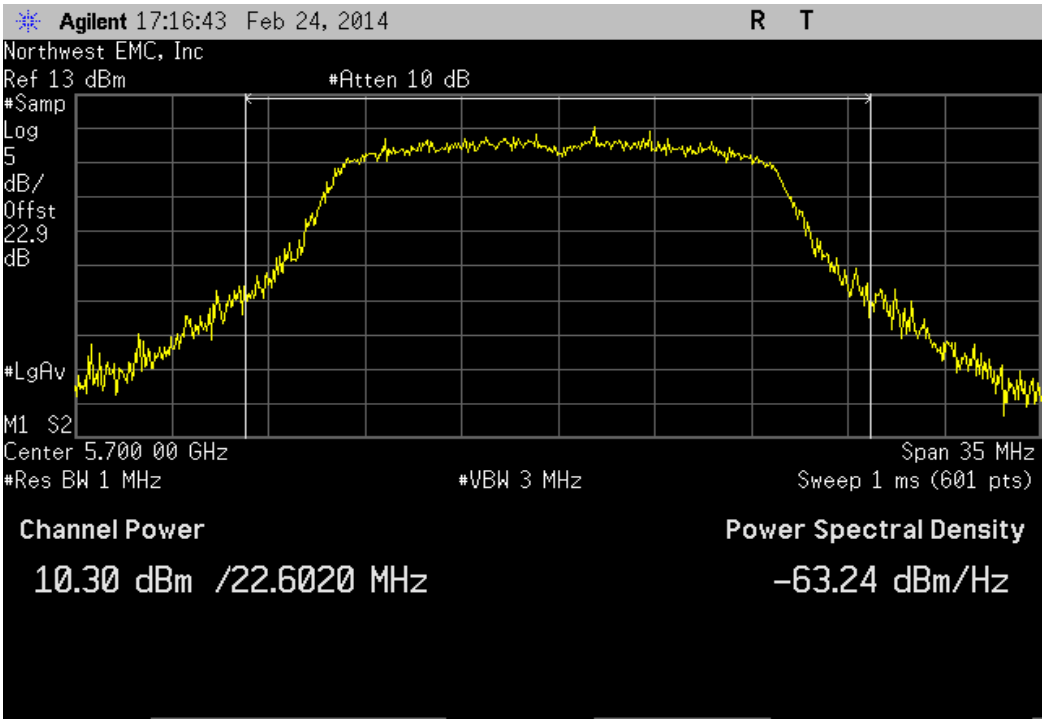
802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				12.464 dBm	< 24 dBm	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel

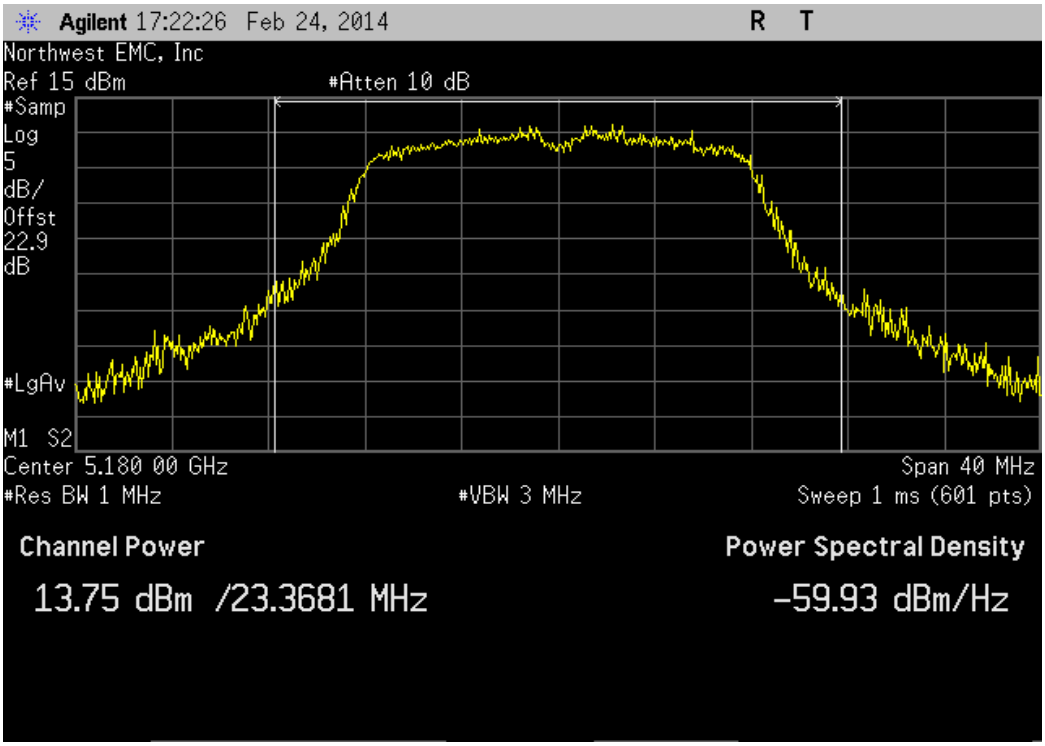
				Value	Limit	Result
				10.301 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

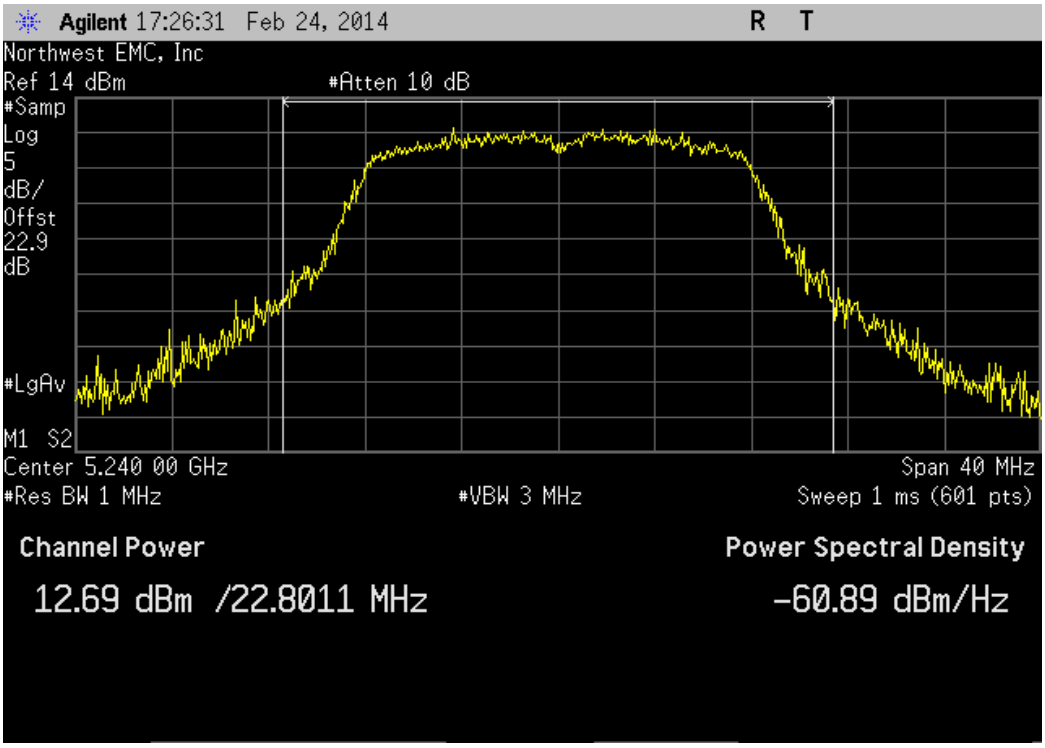
802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				13.752 dBm	< 17 dBm	Pass



802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel

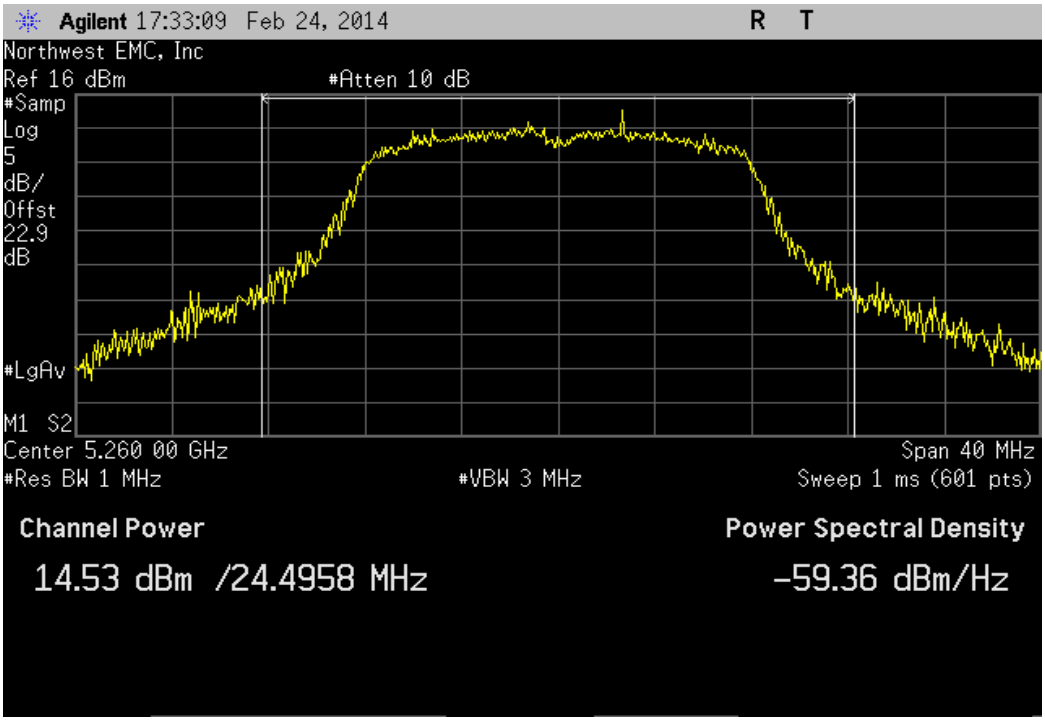
				Value	Limit	Result
				12.69 dBm	< 17 dBm	Pass



PEAK TRANSMIT POWER

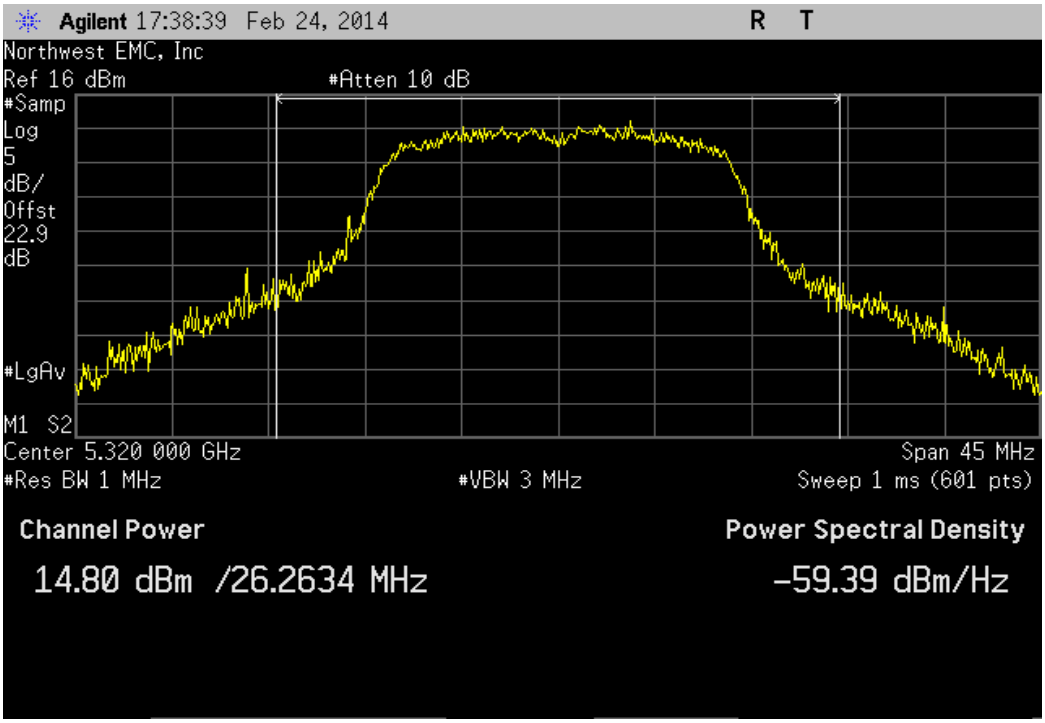
802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				14.53 dBm	< 24 dBm	Pass



802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel

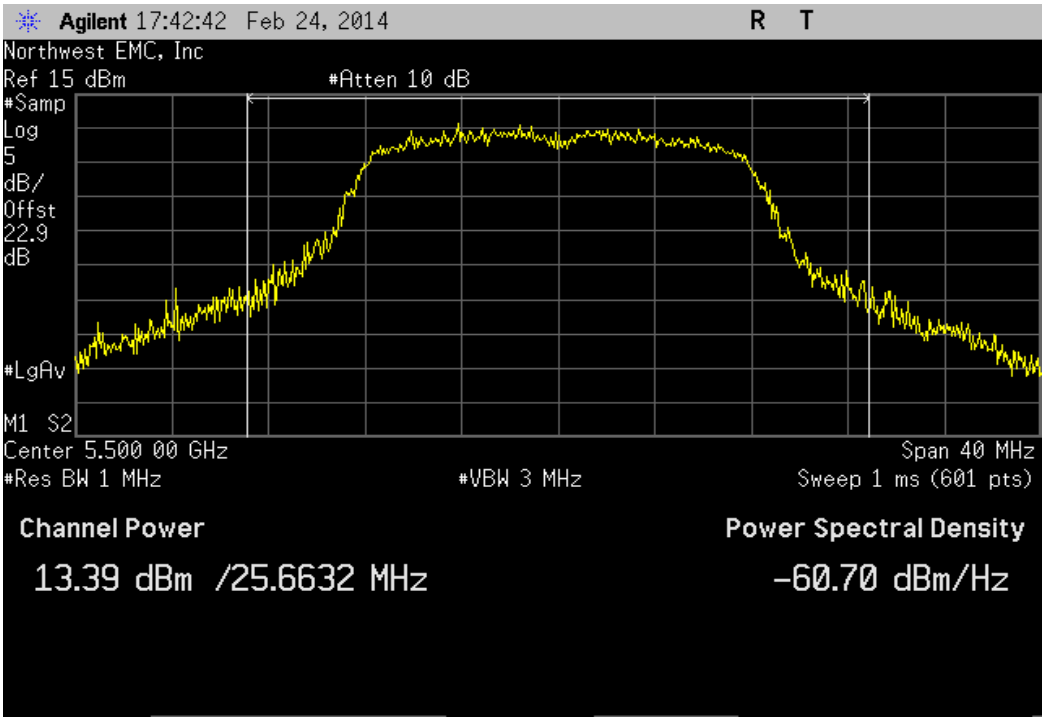
				Value	Limit	Result
				14.802 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

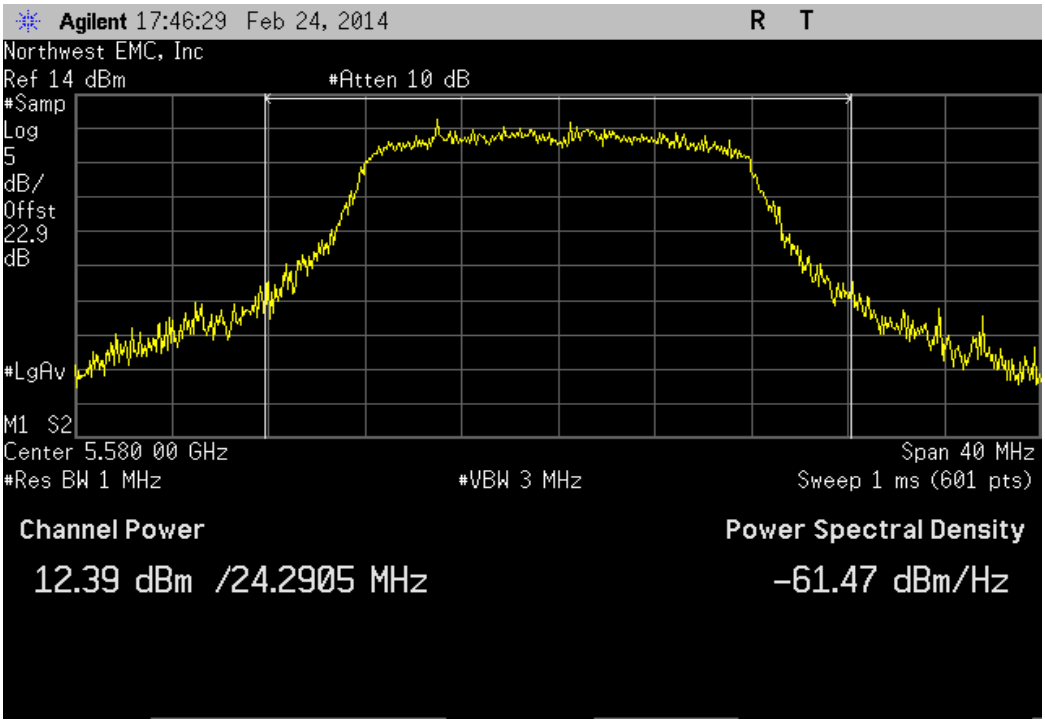
802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				13.392 dBm	< 24 dBm	Pass



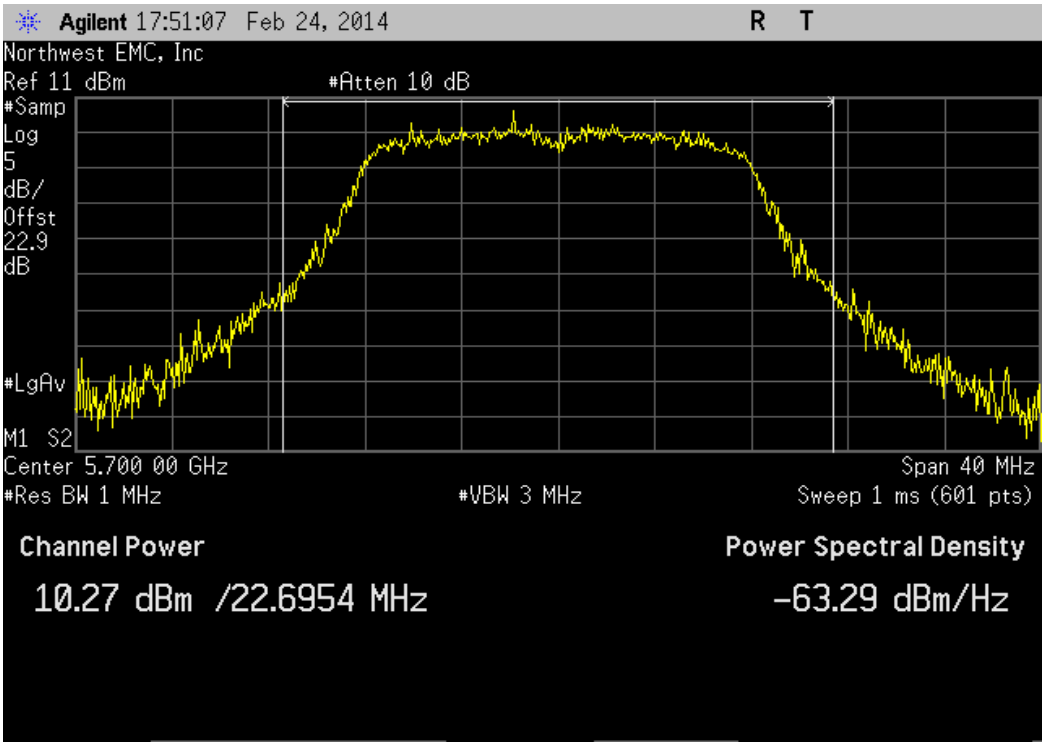
802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				12.388 dBm	< 24 dBm	Pass



PEAK TRANSMIT POWER

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value	Limit	Result
				10.267 dBm	< 24 dBm	Pass



PEAK 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 (mo.)
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section E was followed. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The data rate(s) listed in the datasheet were tested. 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 power spectral density, the transmission pulse duration (T) was measured. The transmission pulse duration and the associated data are found elsewhere in this test report.

The spectrum analyzer settings were as follows:

- The span was set to encompass entire emission bandwidth (B), centered on the transmit channel.
- RBW = 1 MHz, VBW ≥ 3 MHz
- Sample detector was used because Method SA-1 Alternate was used to measure the Maximum Conducted Output Power.
- Trace average 100 traces in power averaging mode (not video averaging).

The peak power spectral density (PPSD) was determined to be the highest level found across the emission in any 1 MHz band after 100 sweeps of power averaging (not video averaging).

PEAK POWER SPECTRAL DENSITY

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/24/14
Customer:	Synapse Product Development LLC	Temperature:	21.1°C
Attendees:	None	Humidity:	32%
Project:	Kezar	Barometric Pres.:	1018
Tested by:	Jared Ison, Brandon Hobbs	Power: Internal Battery, 12 VDC	Job Site: EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

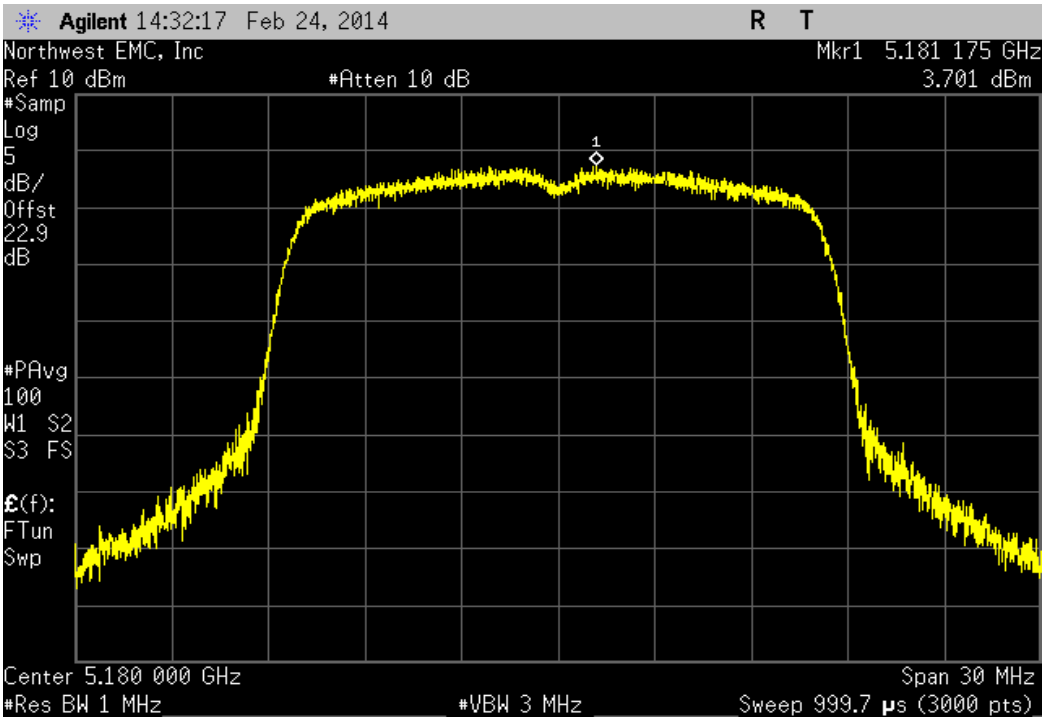
None

Configuration #	1	Signature

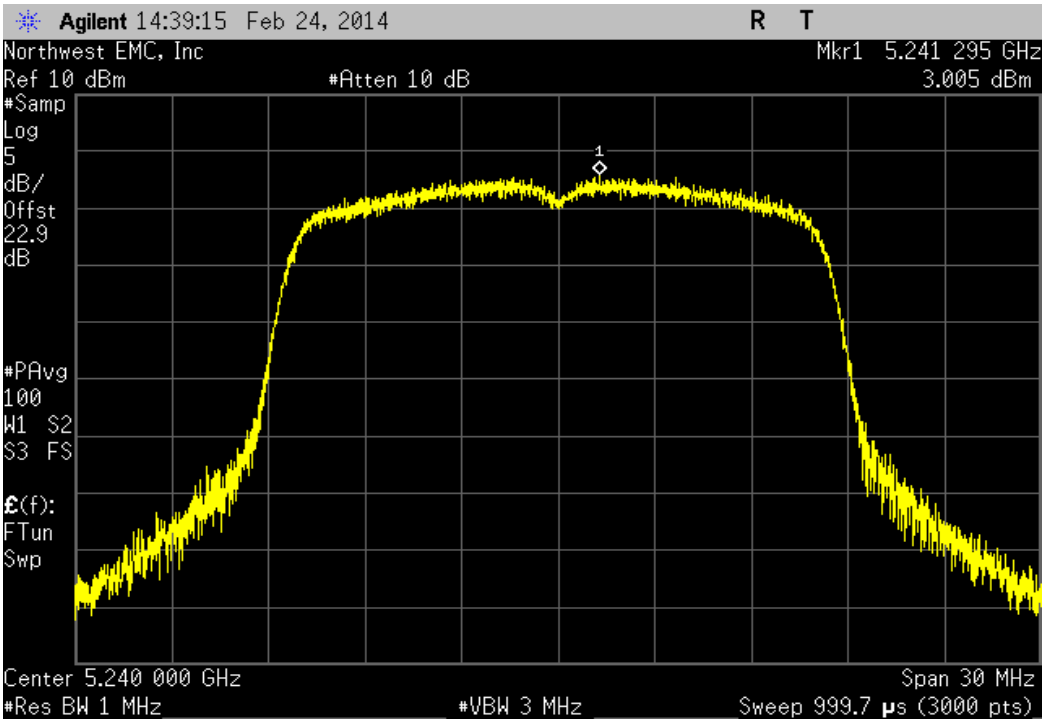
		Value (dBm / MHz)	Limit (dBm / MHz)	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	3.701	4	Pass
	Channel 48, High Channel	3.005	4	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	4.357	11	Pass
	Channel 64, High Channel	4.656	11	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	3.287	11	Pass
	Channel 116, Mid Channel	2.422	11	Pass
	Channel 140, High Channel	0.481	11	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	3.598	4	Pass
	Channel 48, High Channel	2.781	4	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	4.153	11	Pass
	Channel 64, High Channel	5.191	11	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	4.534	11	Pass
	Channel 116, Mid Channel	3.428	11	Pass
	Channel 140, High Channel	0.837	11	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	2.953	4	Pass
	Channel 48, High Channel	3.682	4	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	5.236	11	Pass
	Channel 64, High Channel	4.913	11	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	3.741	11	Pass
	Channel 116, Mid Channel	2.735	11	Pass
	Channel 140, High Channel	-0.083	11	Pass
802.11(n) MCS0				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	3.783	4	Pass
	Channel 48, High Channel	2.693	4	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	4.162	11	Pass
	Channel 64, High Channel	4.582	11	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	3.562	11	Pass
	Channel 116, Mid Channel	2.319	11	Pass
	Channel 140, High Channel	0.435	11	Pass
802.11(n) MCS7				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	3.698	4	Pass
	Channel 48, High Channel	2.49	4	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	4.438	11	Pass
	Channel 64, High Channel	4.858	11	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	3.419	11	Pass
	Channel 116, Mid Channel	2.255	11	Pass
	Channel 140, High Channel	0.153	11	Pass

PEAK POWER SPECTRAL DENSITY

802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.701	4	Pass

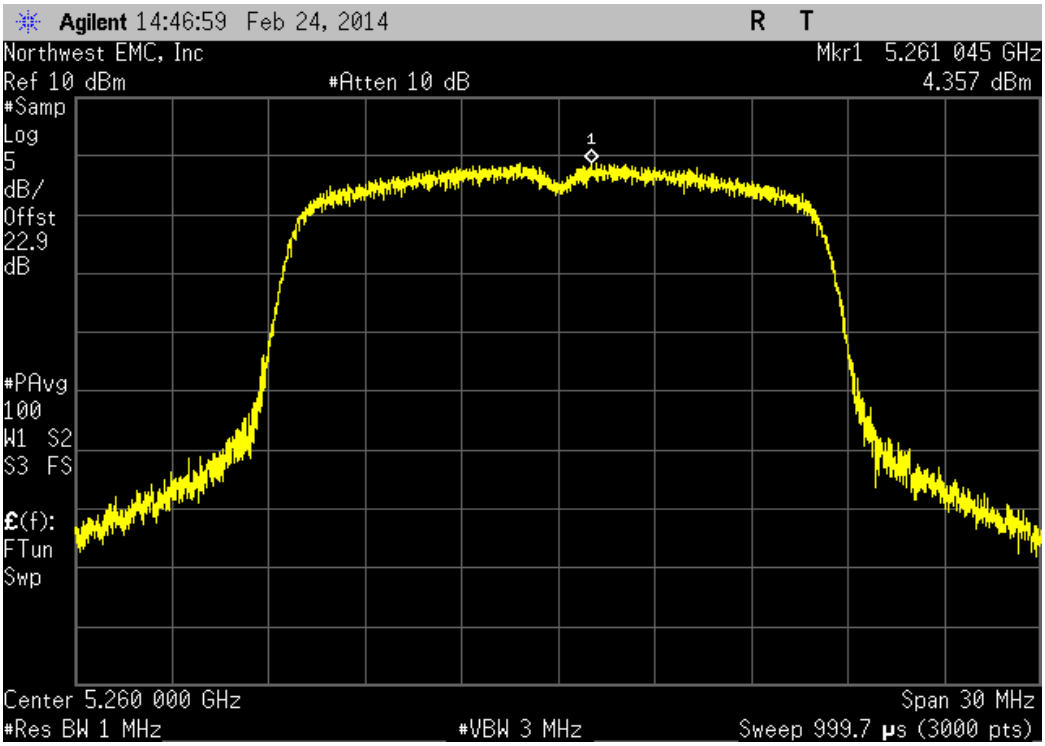


802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.005	4	Pass

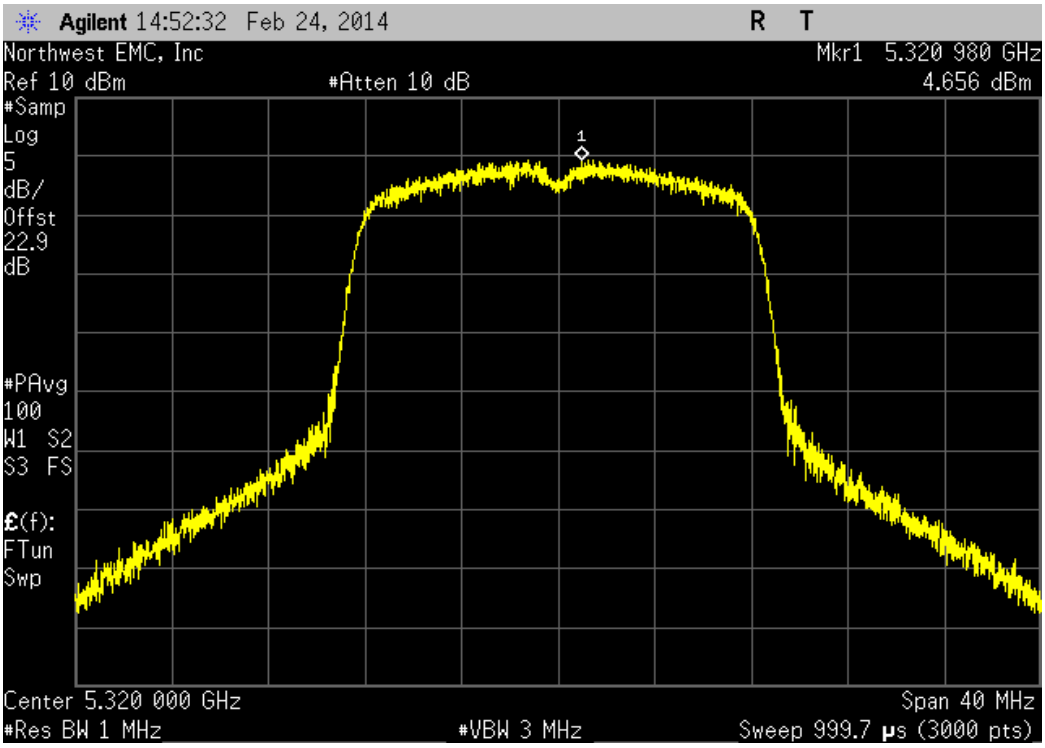


PEAK POWER SPECTRAL DENSITY

802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.357	11	Pass

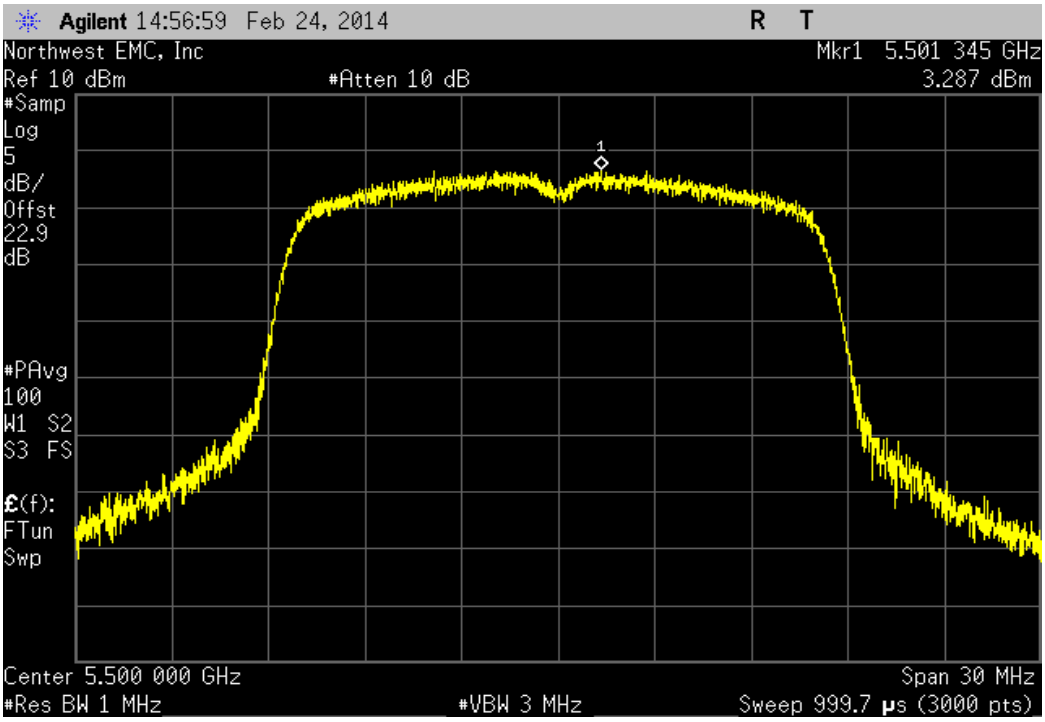


802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.656	11	Pass

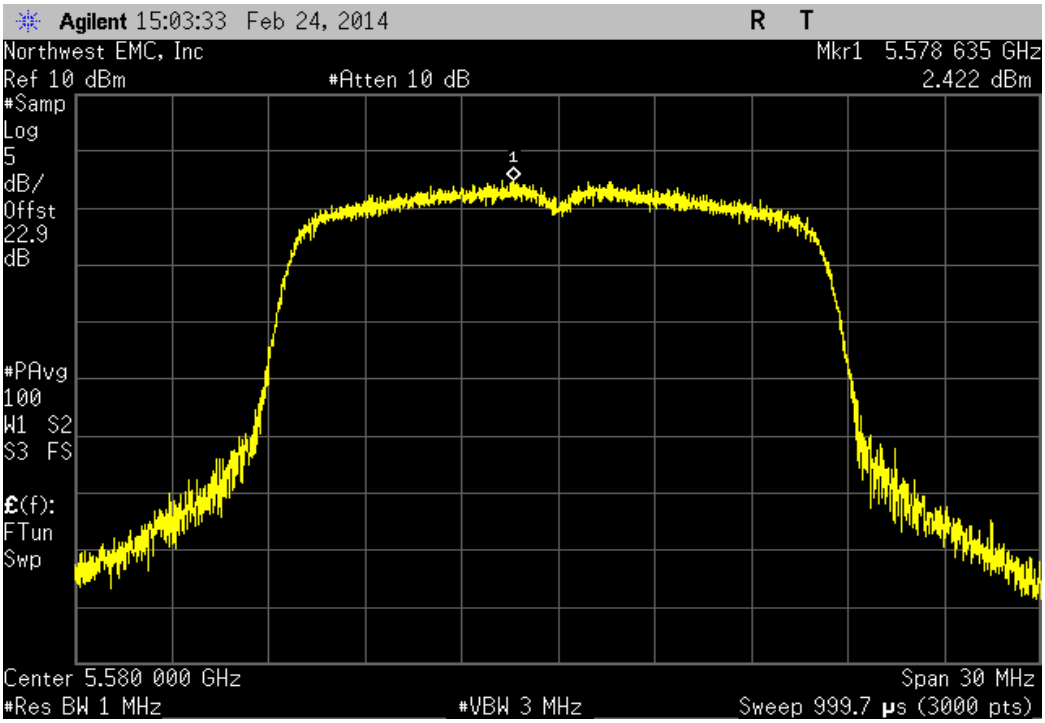


PEAK POWER SPECTRAL DENSITY

802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.287	11	Pass

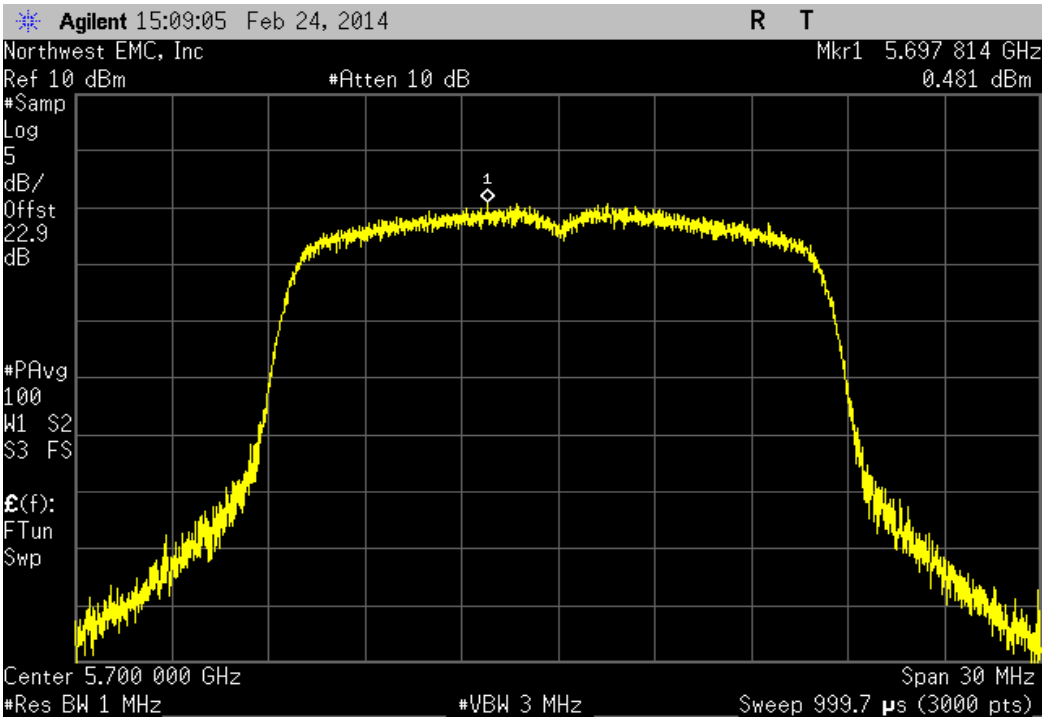


802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.422	11	Pass

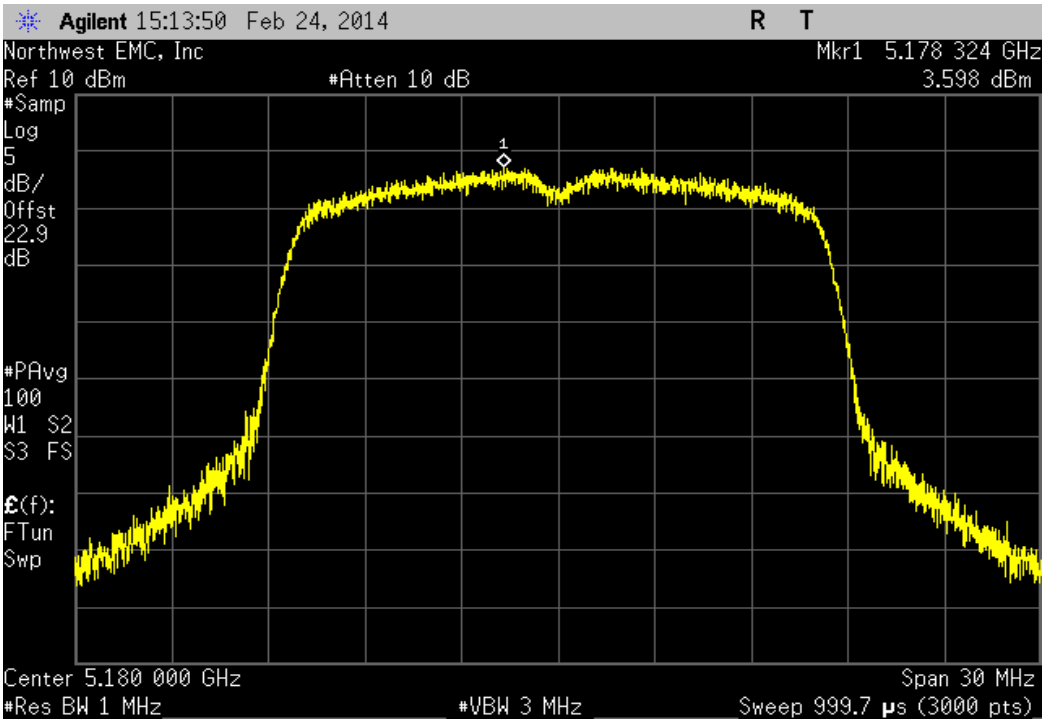


PEAK POWER SPECTRAL DENSITY

802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				0.481	11	Pass

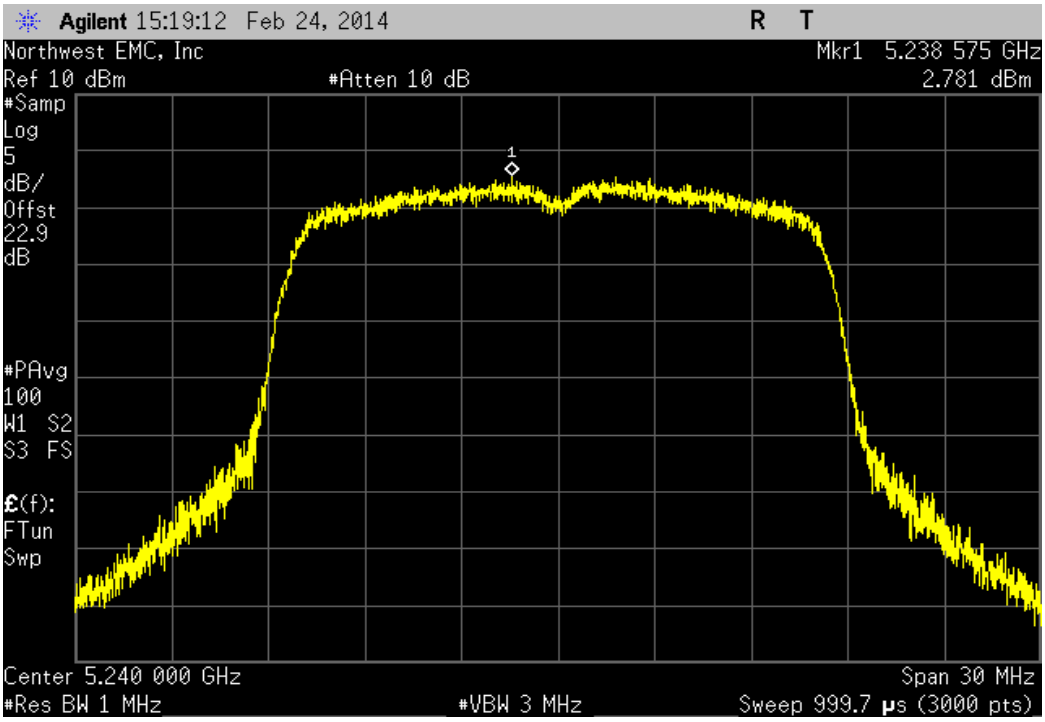


802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.598	4	Pass

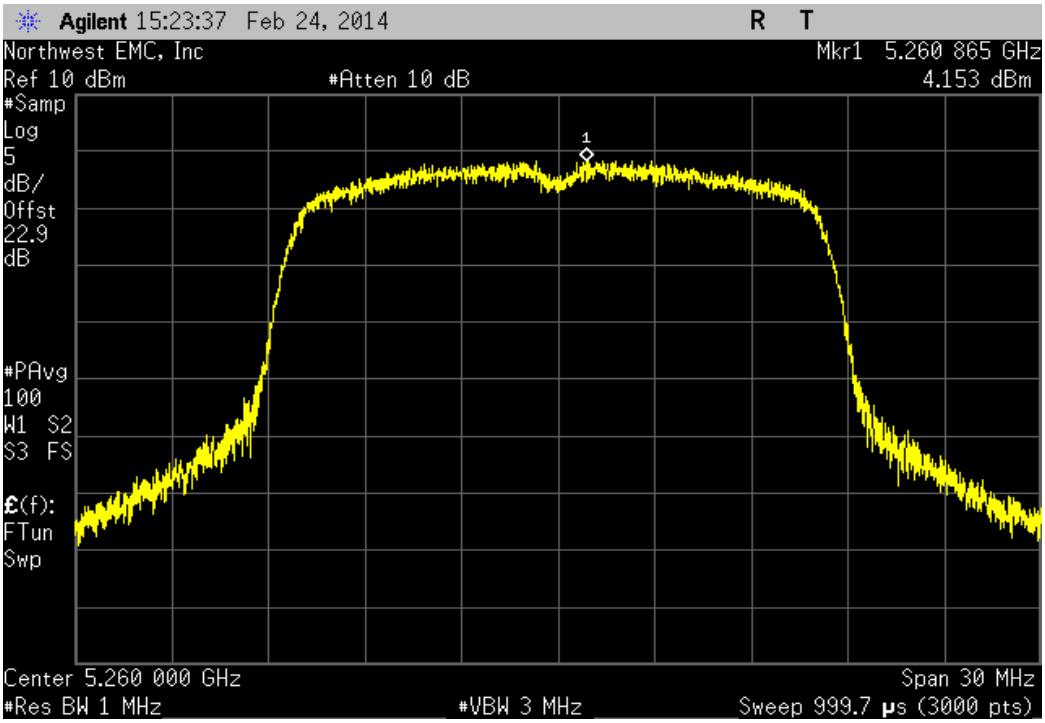


PEAK POWER SPECTRAL DENSITY

802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.781	4	Pass

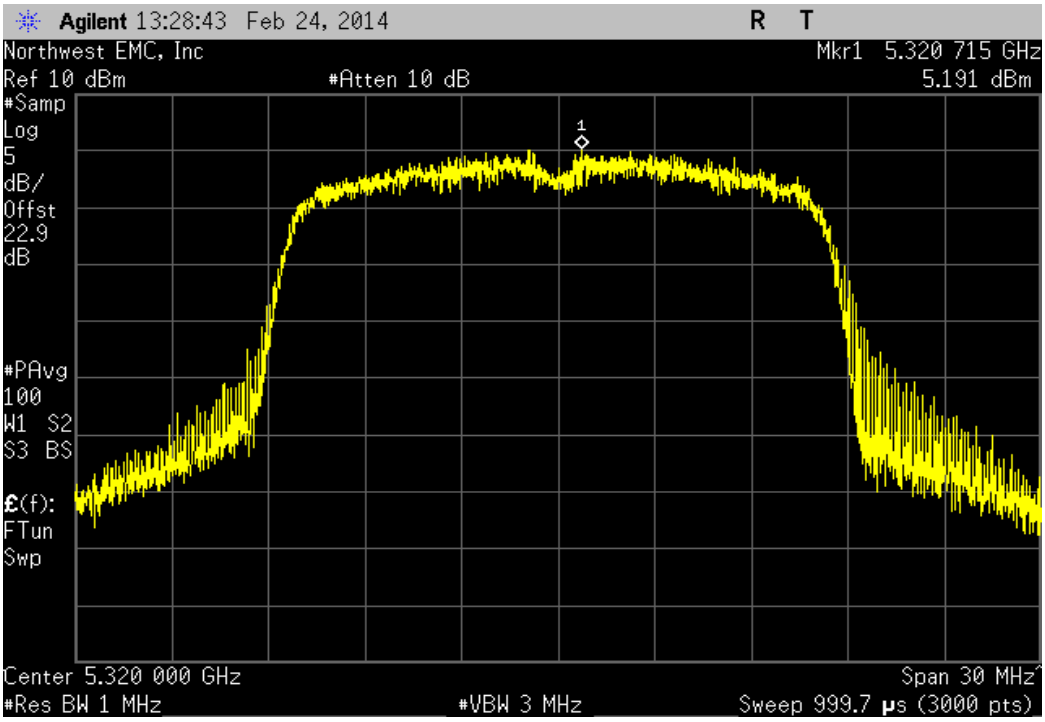


802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.153	11	Pass

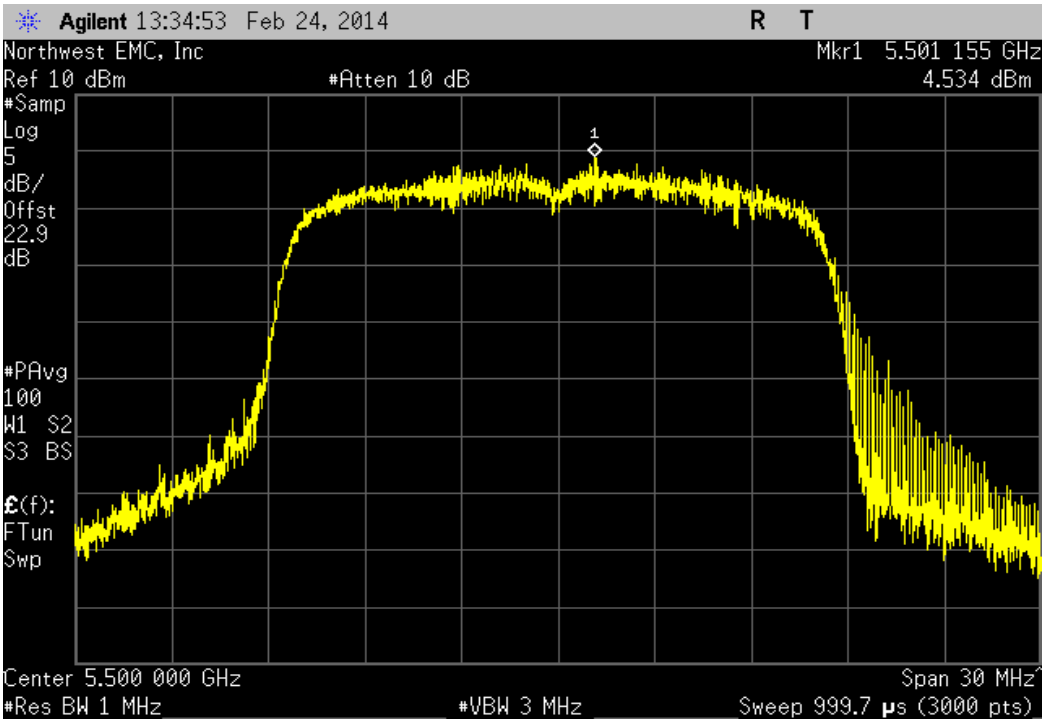


PEAK POWER SPECTRAL DENSITY

802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				5.191	11	Pass

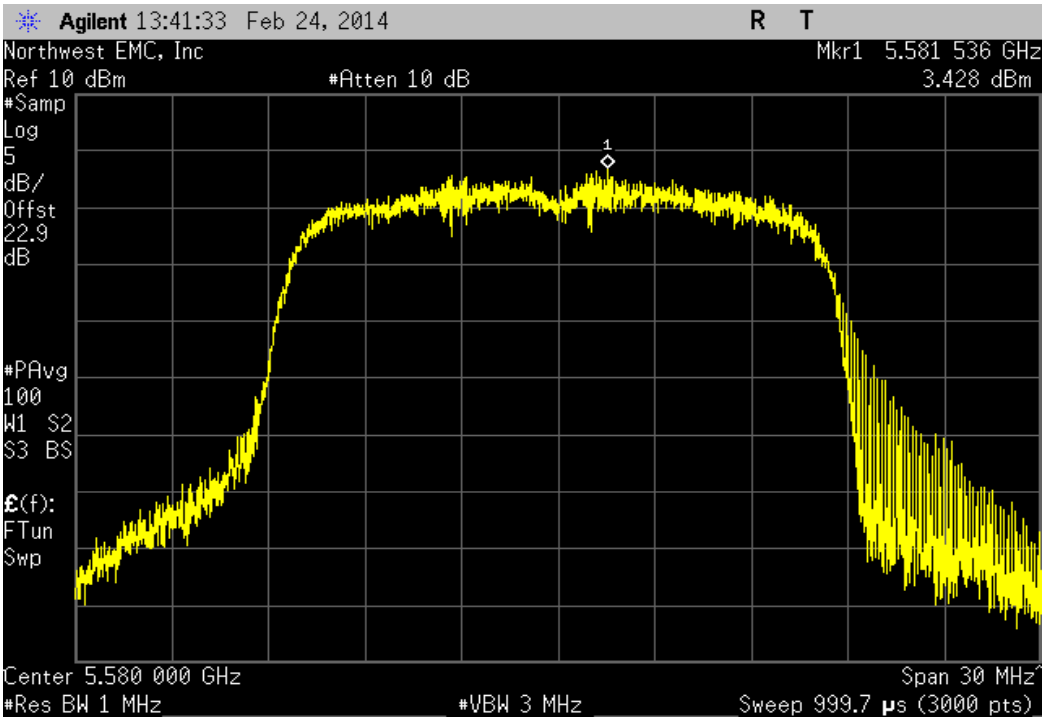


802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.534	11	Pass

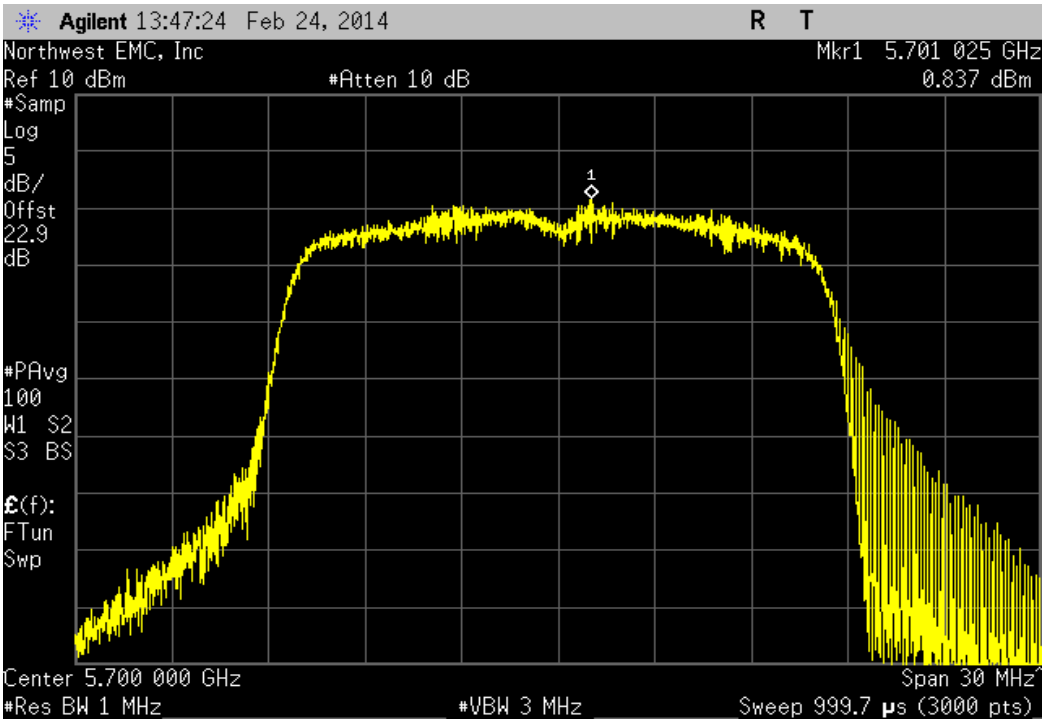


PEAK POWER SPECTRAL DENSITY

802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.428	11	Pass

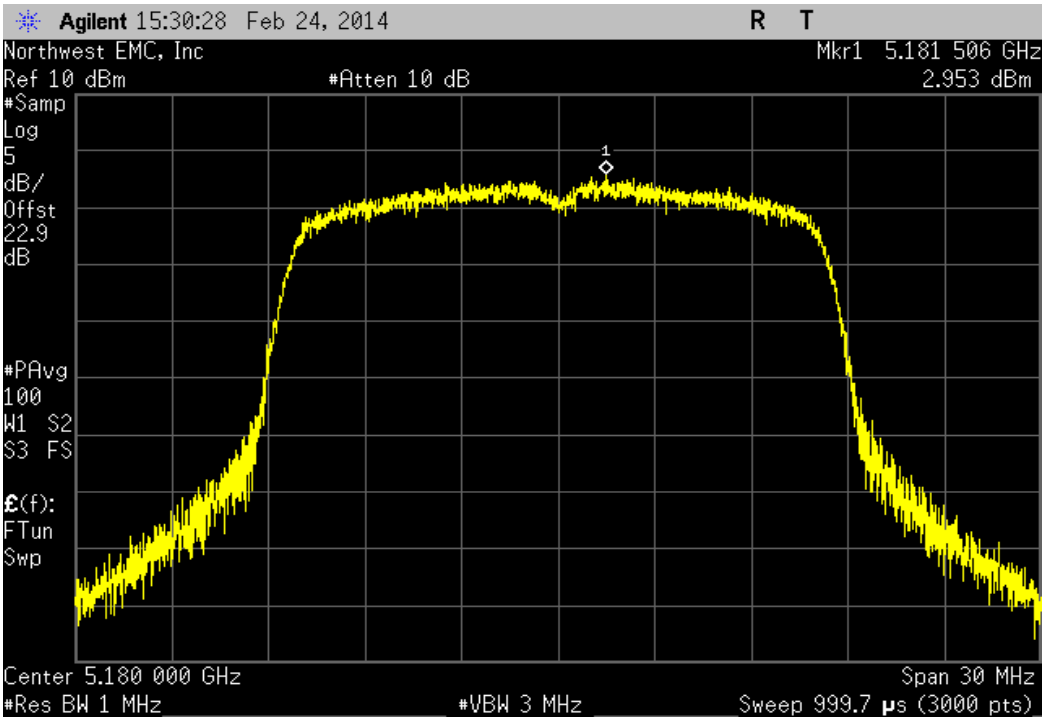


802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				0.837	11	Pass

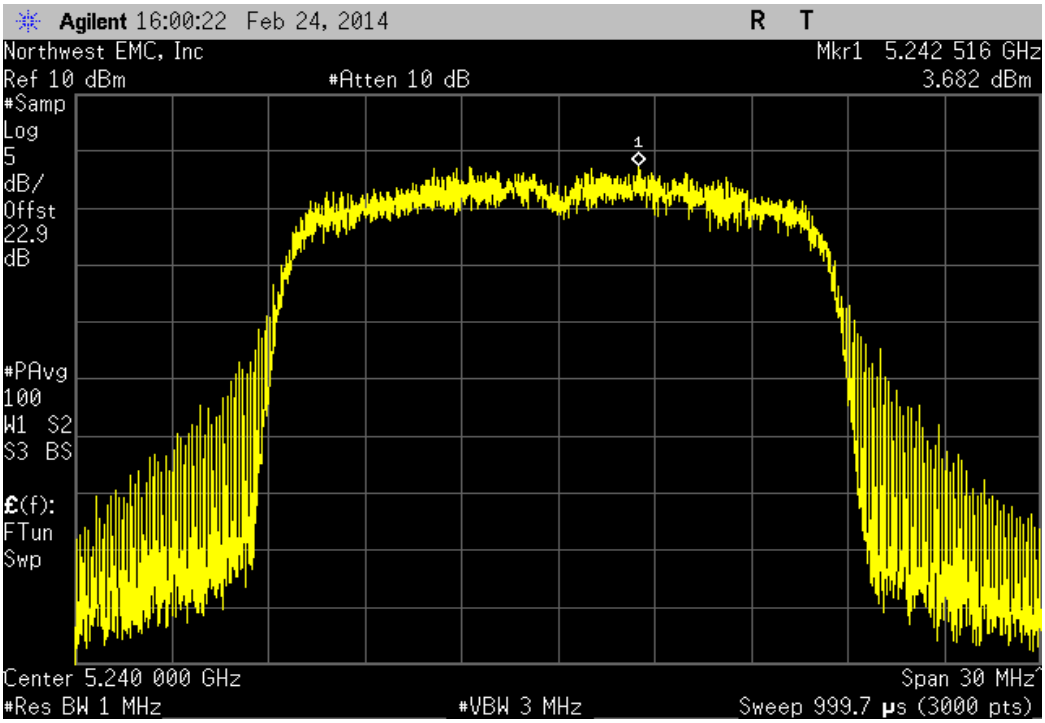


PEAK POWER SPECTRAL DENSITY

802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.953	4	Pass

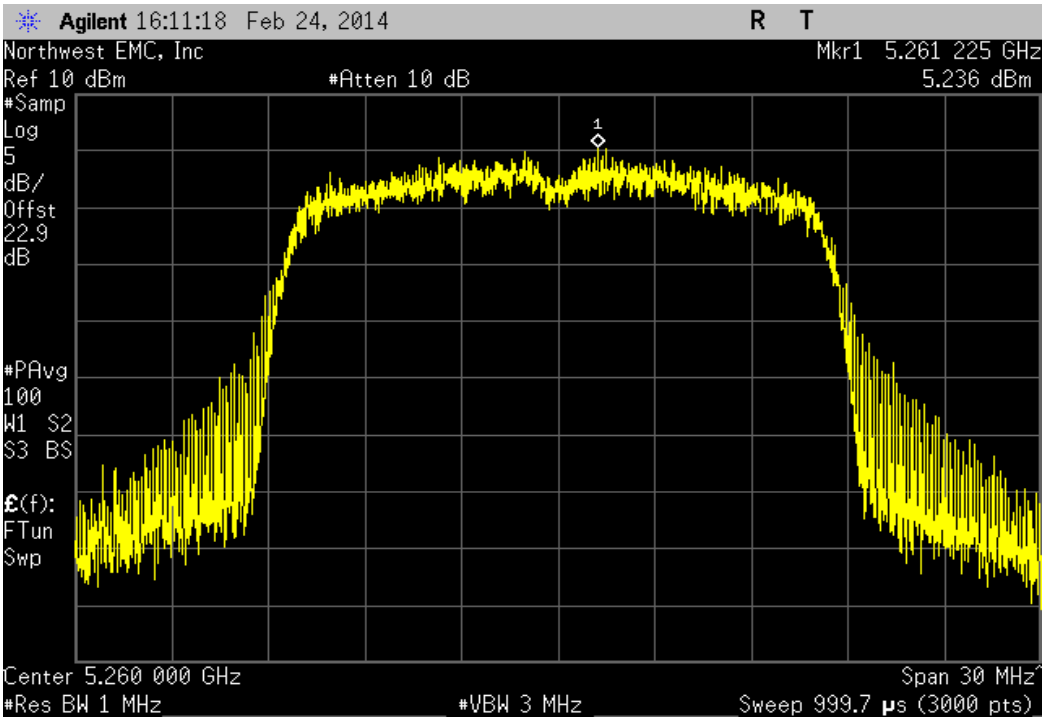


802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.682	4	Pass

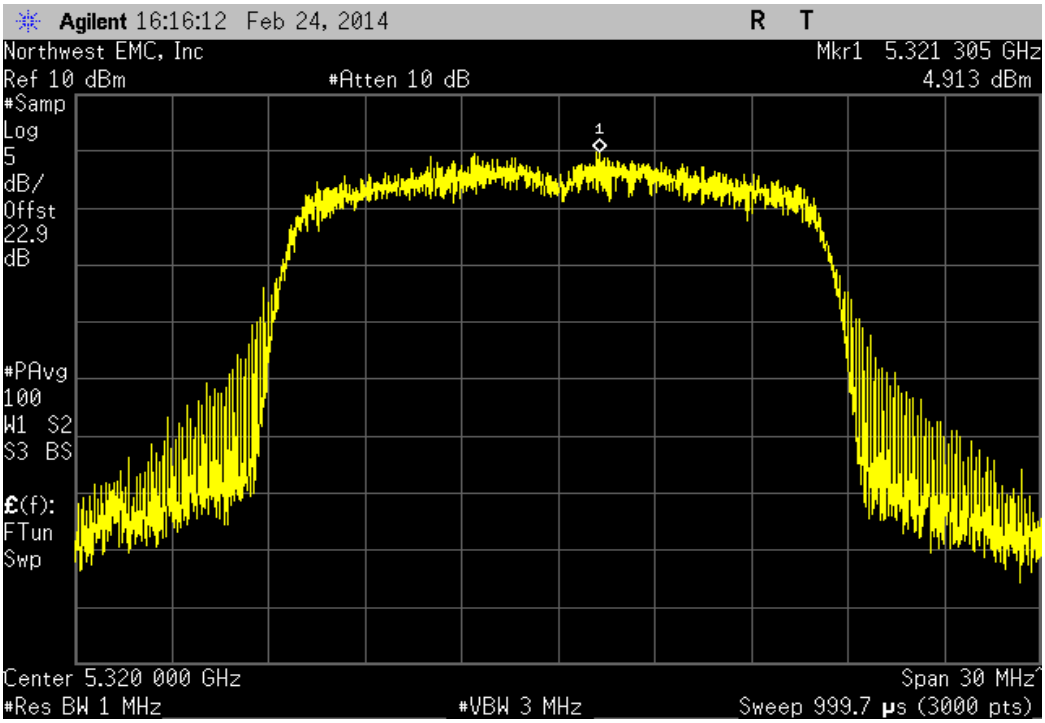


PEAK POWER SPECTRAL DENSITY

802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				5.236	11	Pass

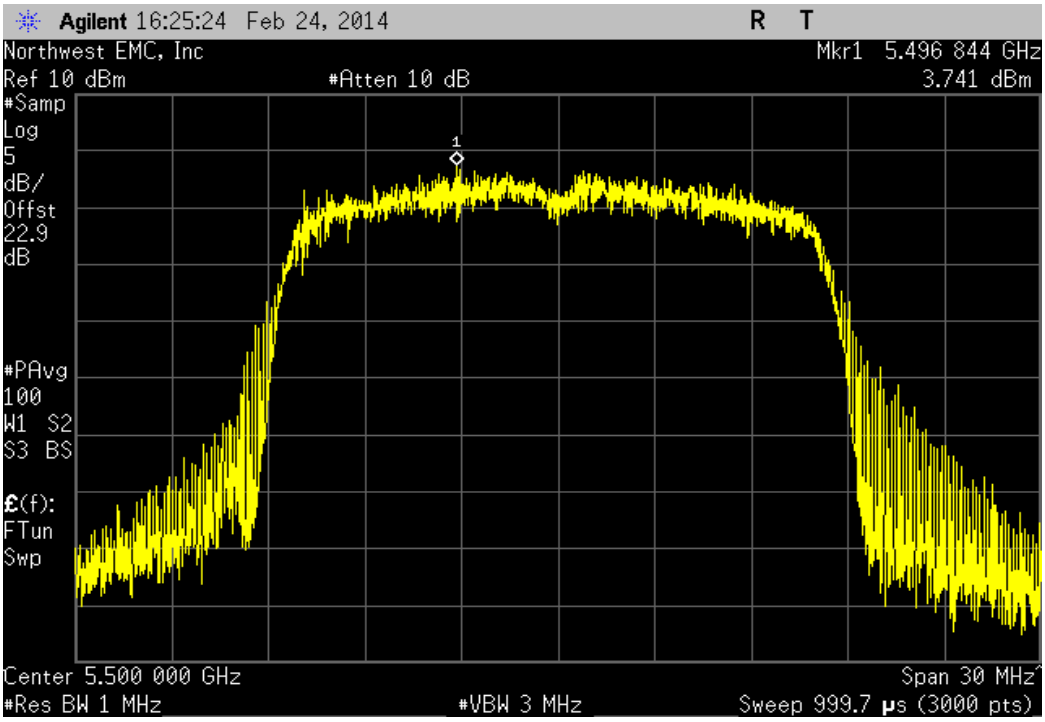


802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.913	11	Pass

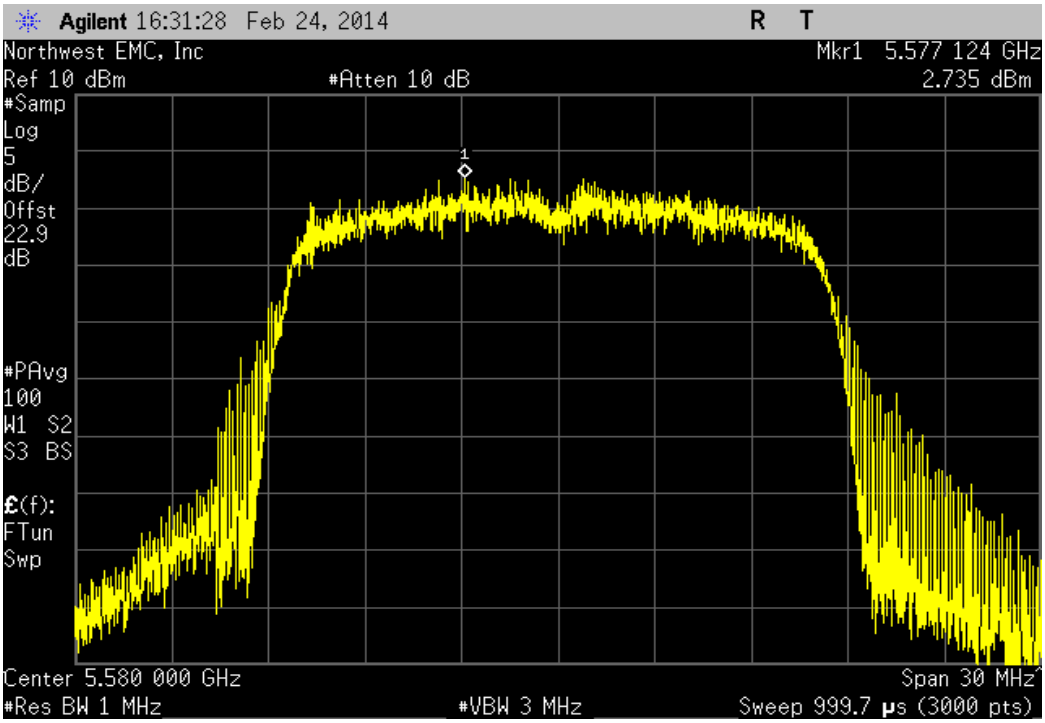


PEAK POWER SPECTRAL DENSITY

802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.741	11	Pass

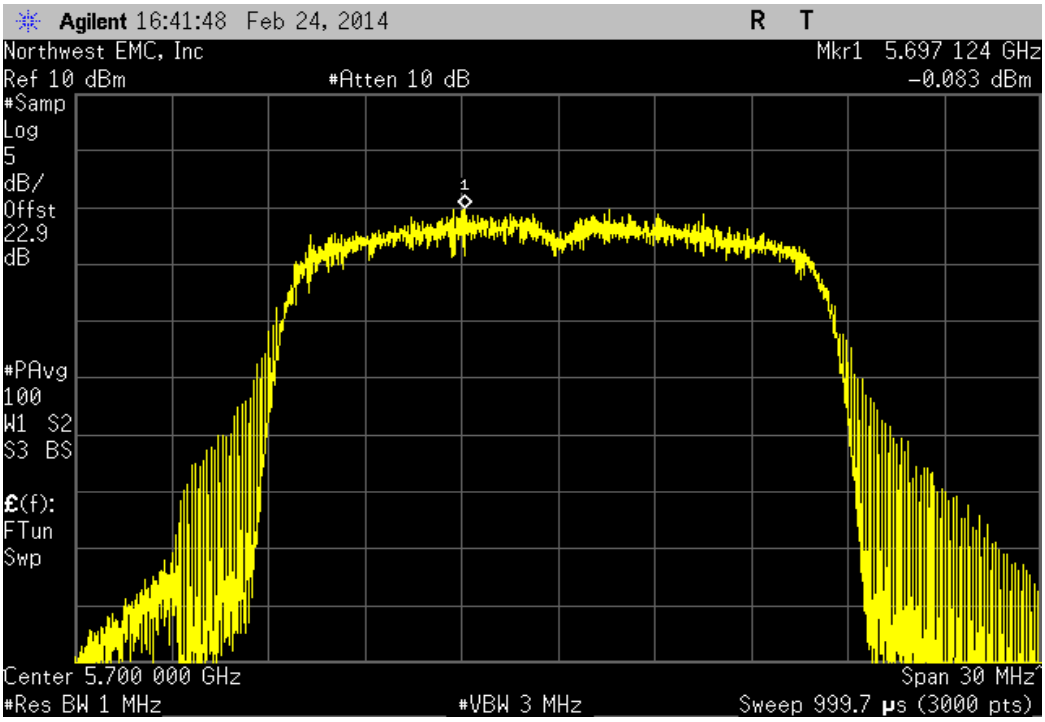


802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.735	11	Pass

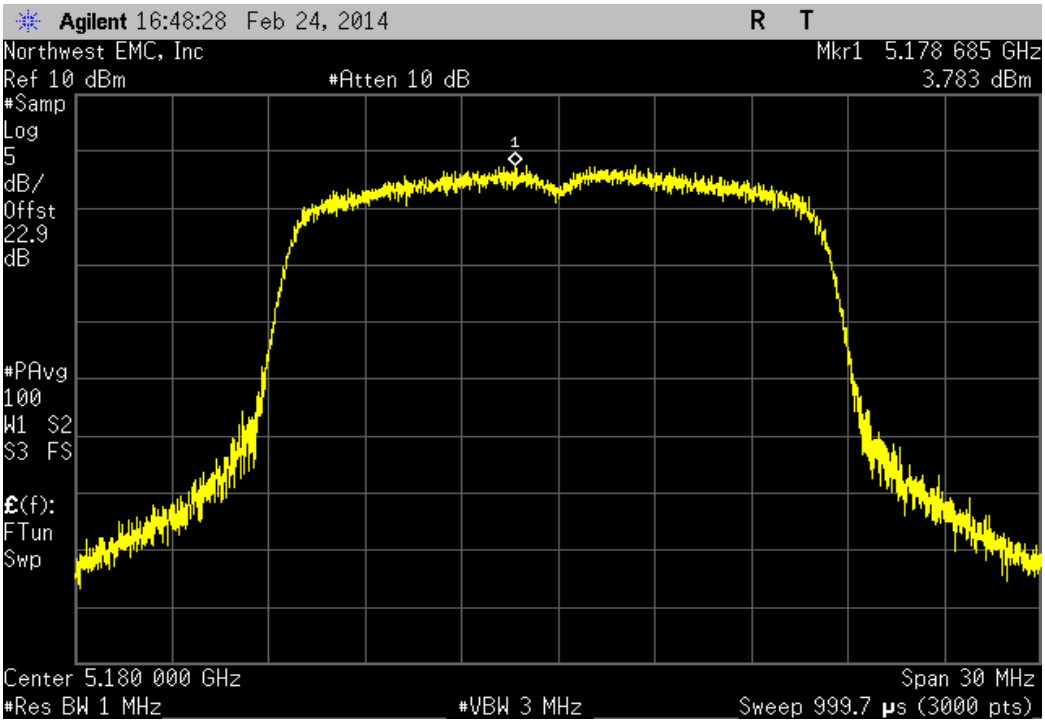


PEAK POWER SPECTRAL DENSITY

802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				-0.083	11	Pass

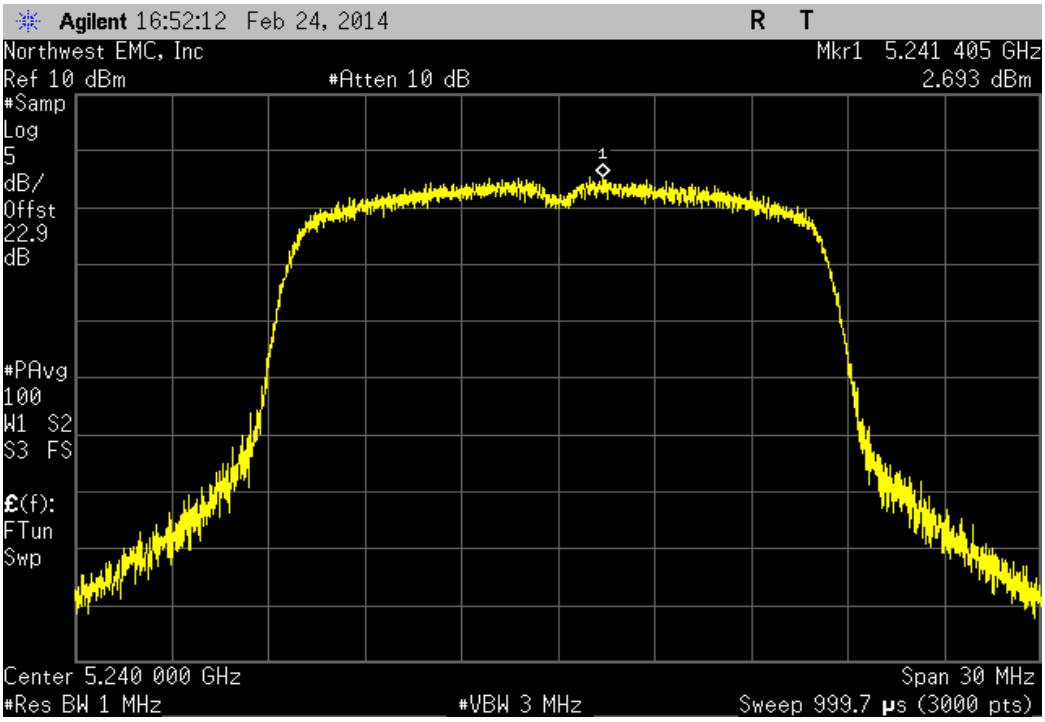


802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.783	4	Pass

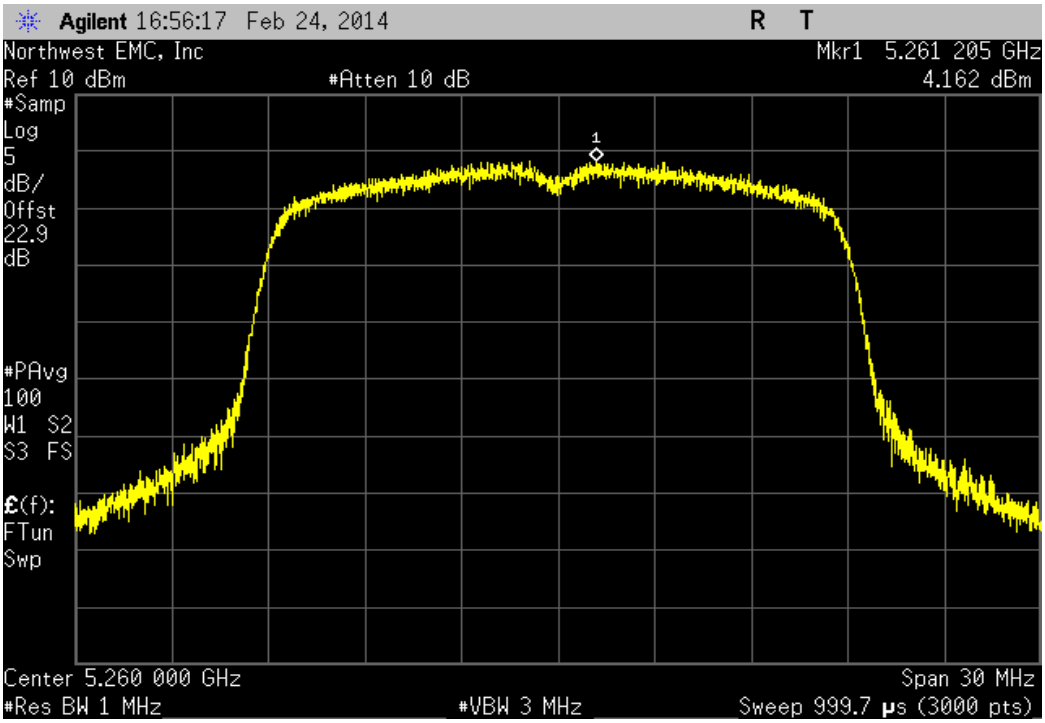


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.693	4	Pass

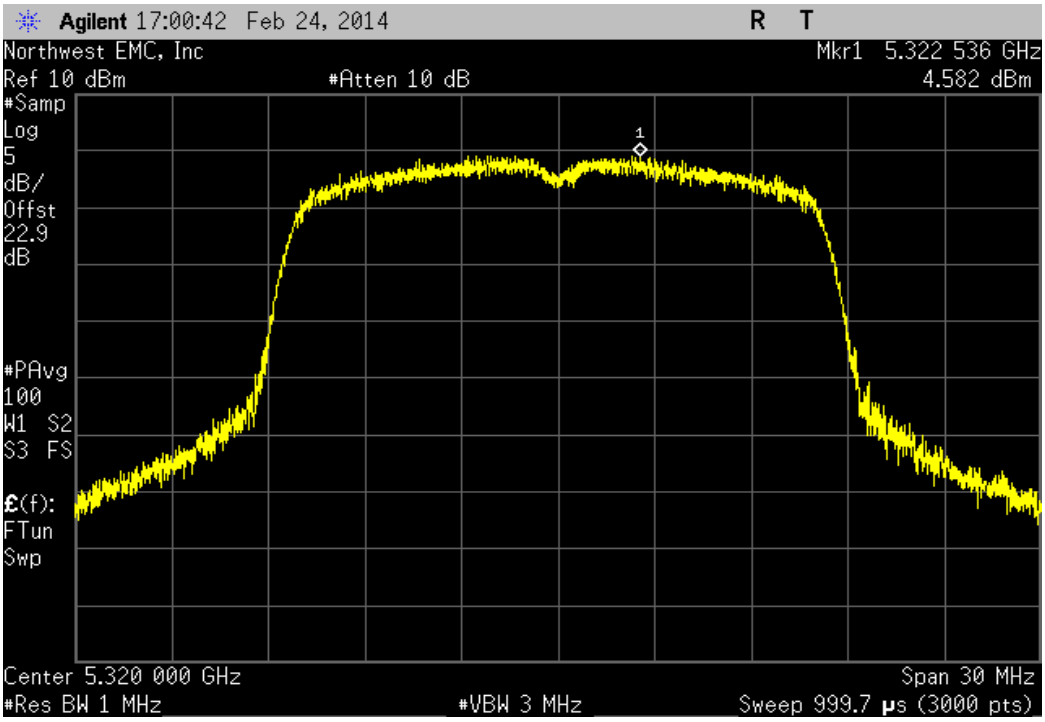


802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.162	11	Pass

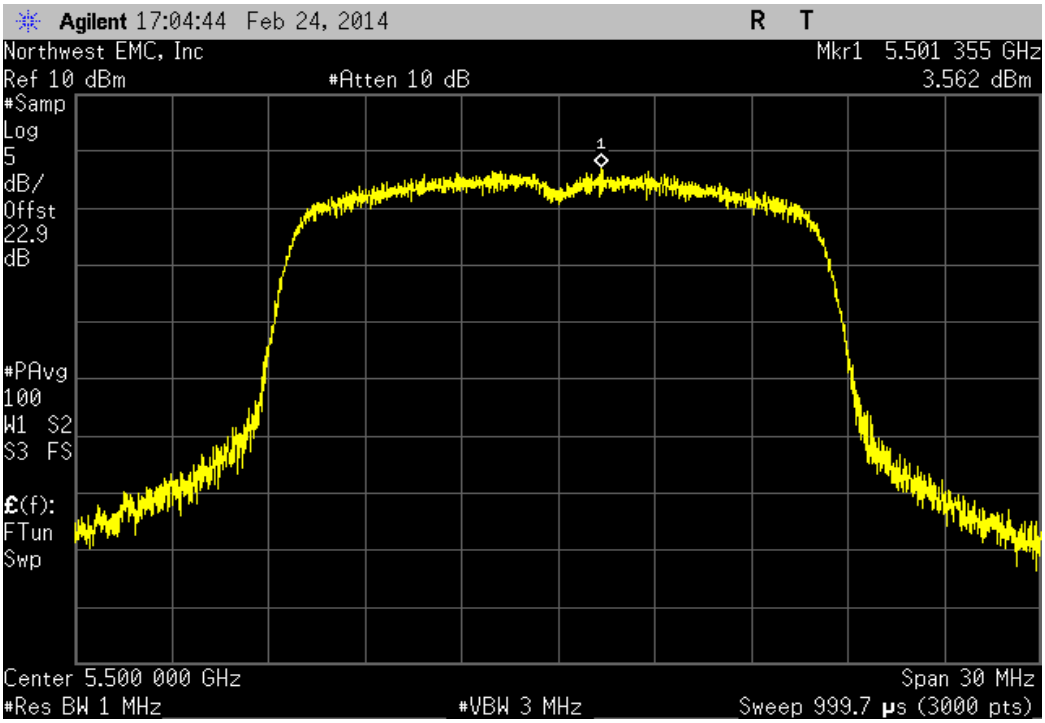


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.582	11	Pass

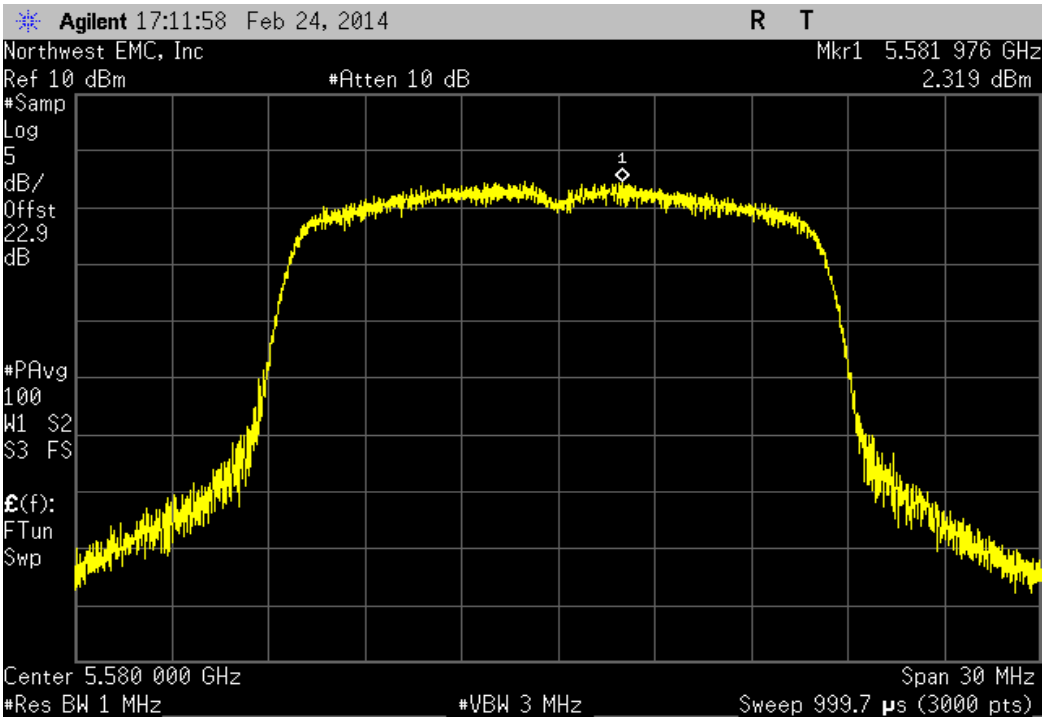


802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.562	11	Pass

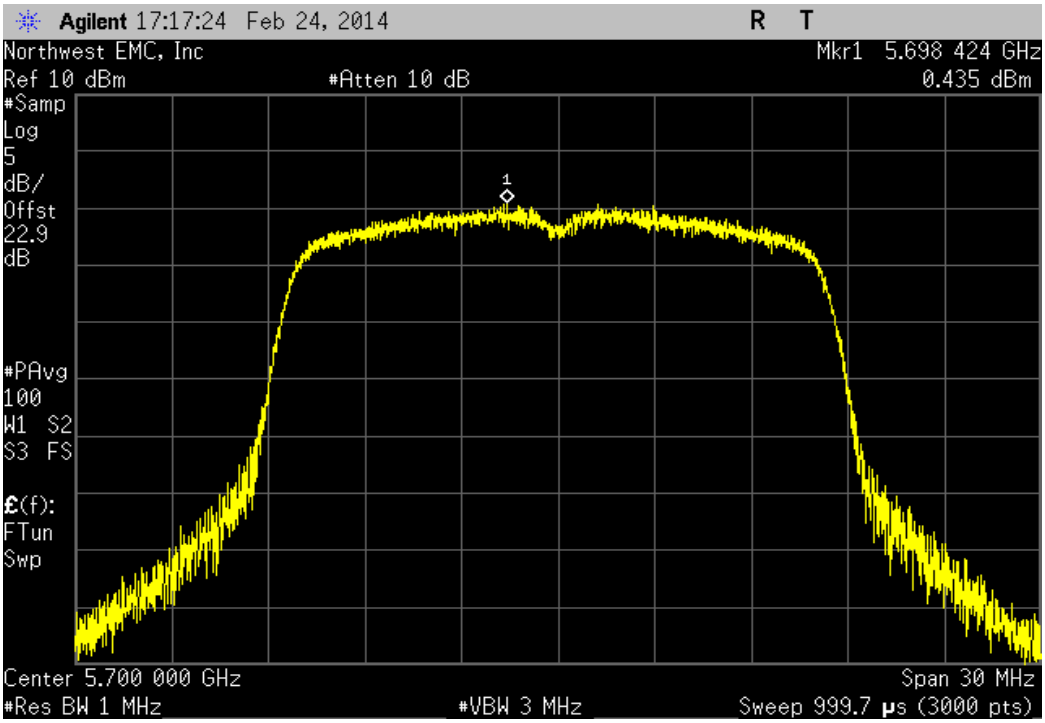


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.319	11	Pass

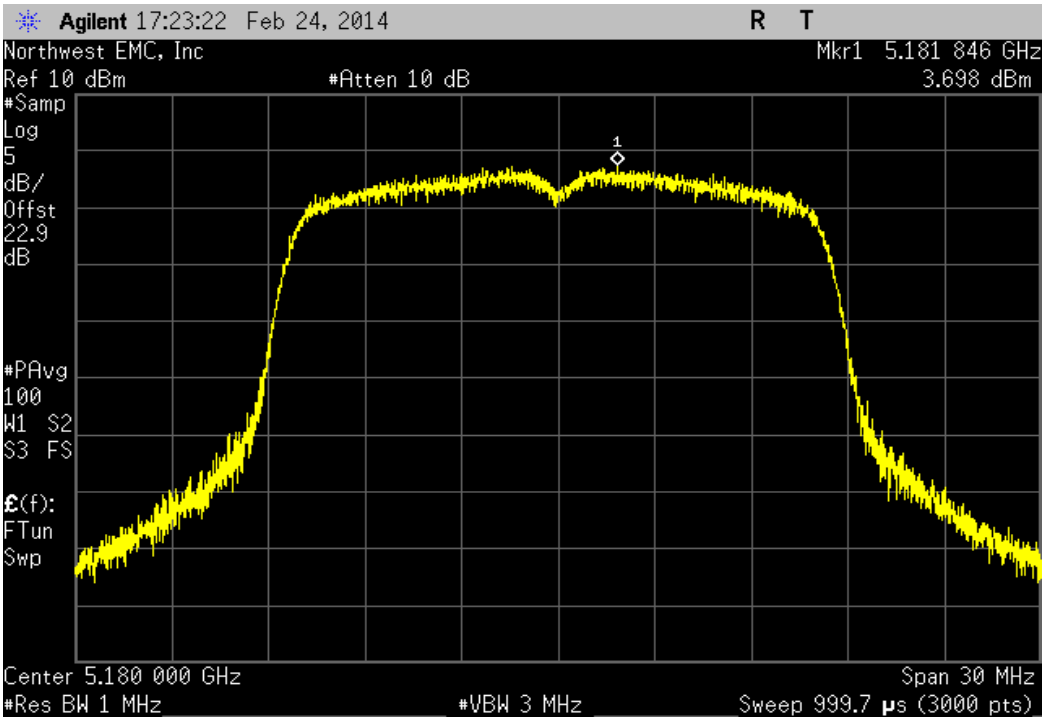


802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				0.435	11	Pass

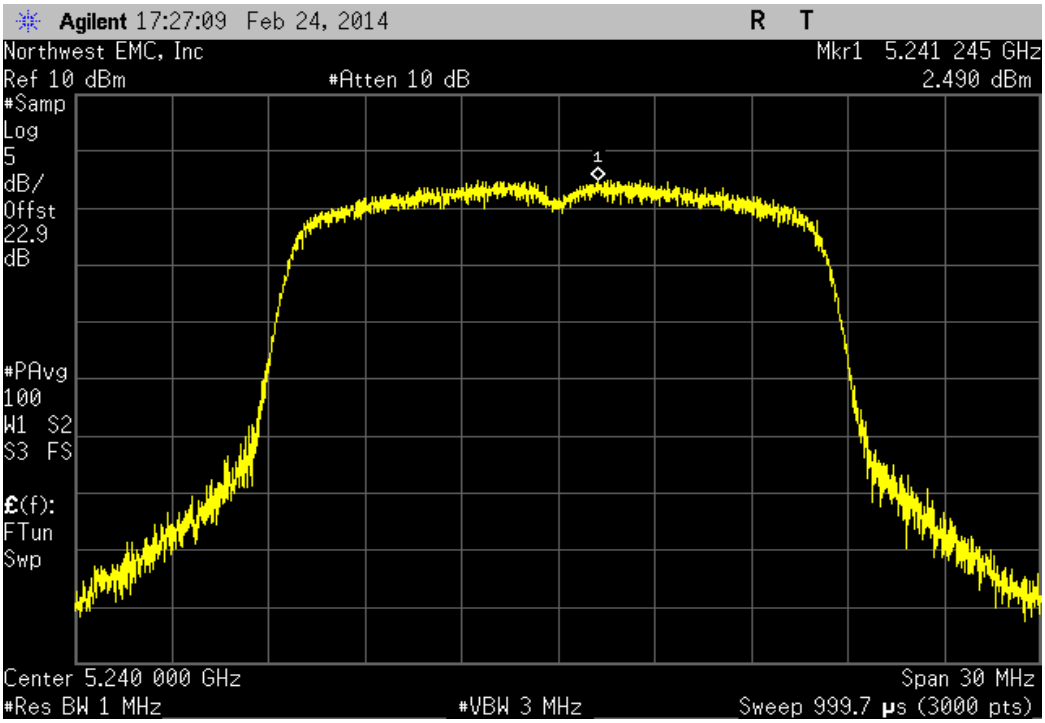


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.698	4	Pass

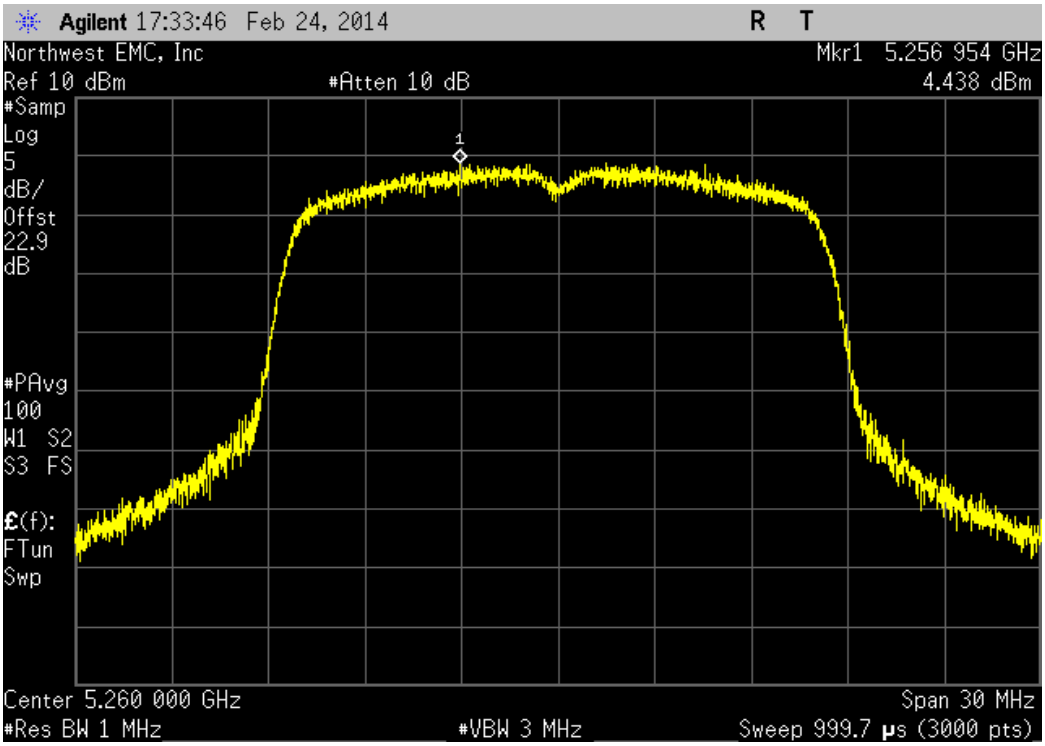


802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.49	4	Pass

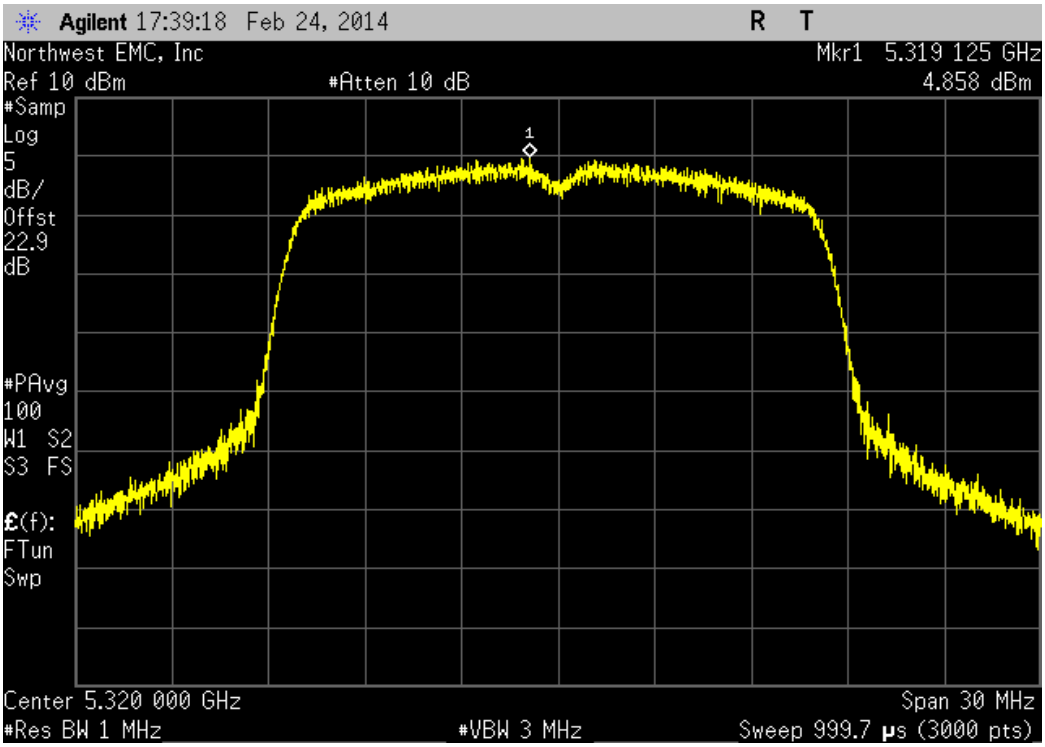


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.438	11	Pass

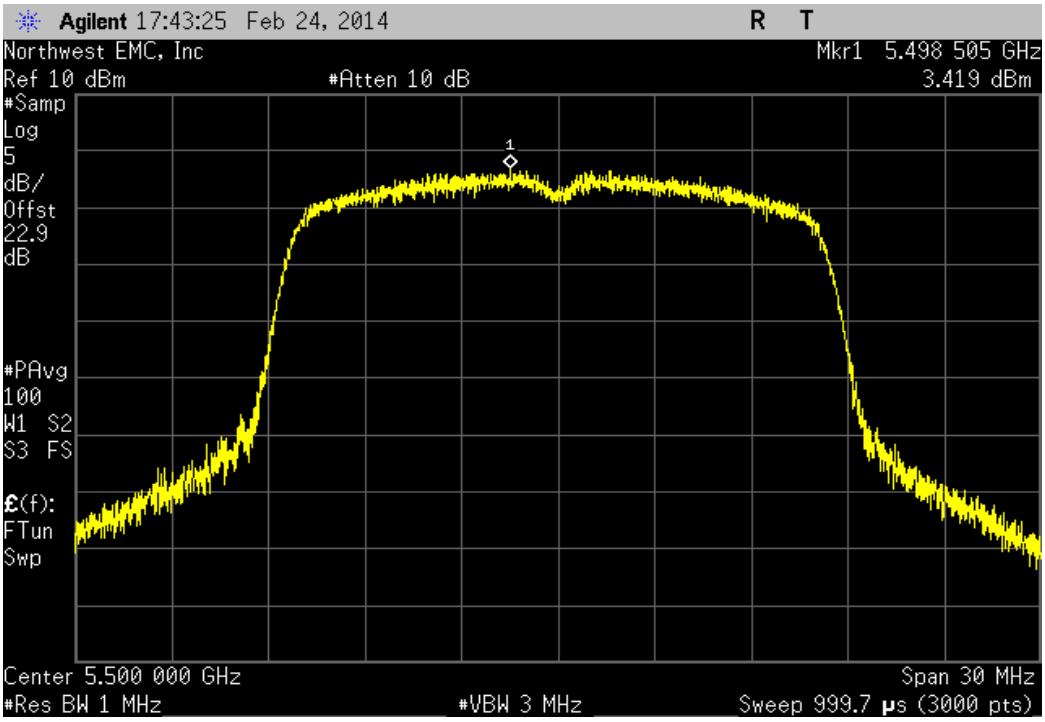


802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				4.858	11	Pass

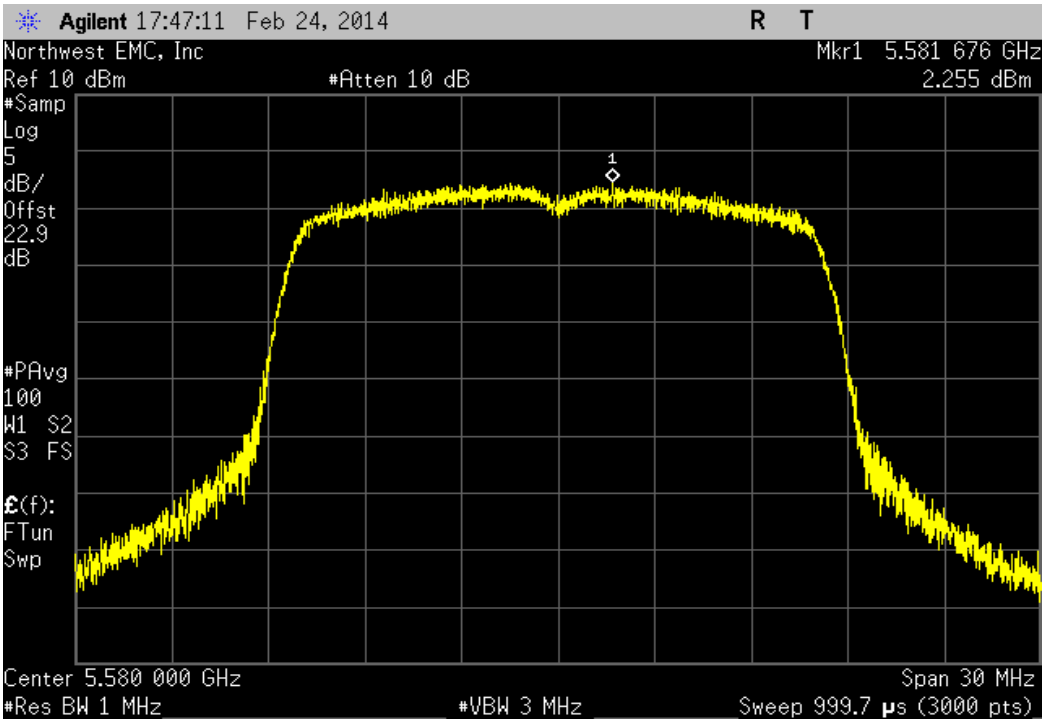


PEAK POWER SPECTRAL DENSITY

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				3.419	11	Pass

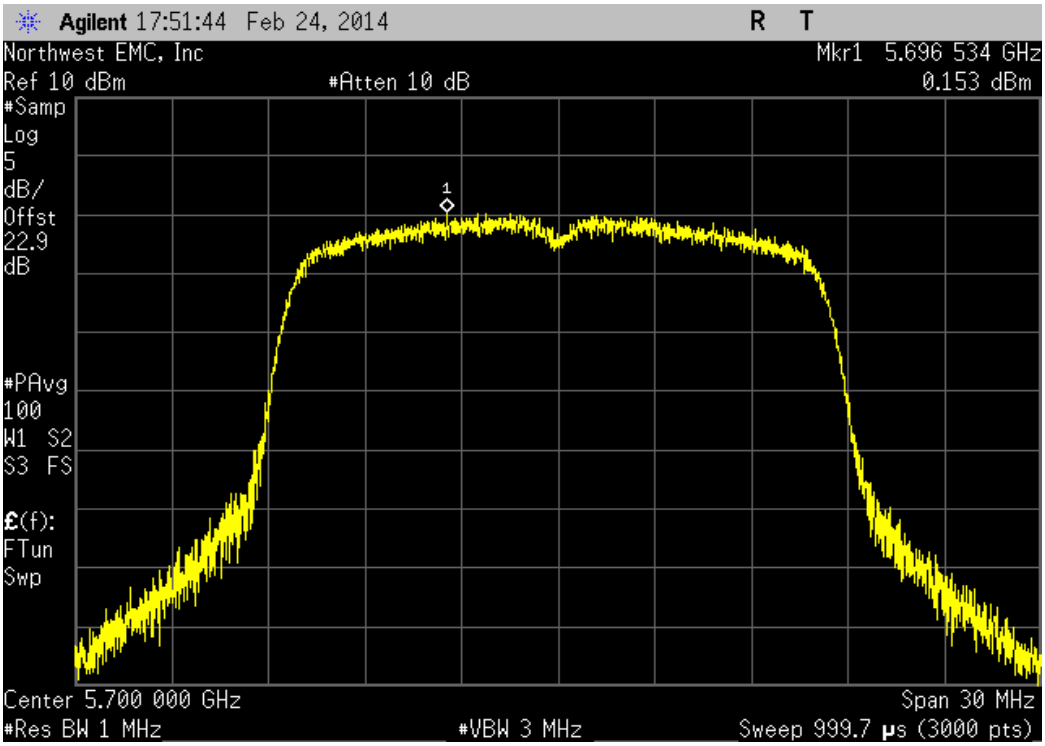


802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				2.255	11	Pass



PEAK POWER SPECTRAL DENSITY

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value (dBm / MHz)	Limit (dBm / MHz)	Result
				0.153	11	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

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 (mo.)
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	NCR	0
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test Procedures Section F was followed to show that the radio of the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed 13 dBm.

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.

The spectrum analyzer settings were as follows:

Span set to encompass the entire emission bandwidth (B), centered on the transmit channel.

Using the marker delta function, the largest difference between the following two traces was measured:

- 1st Trace: RBW = 1 MHz, VBW >= 3 MHz with peak detector and trace max-hold..
- 2nd Trace: The same procedure and settings as was used for peak power spectral density

PEAK EXCURSION OF THE MODULATION ENVELOPE

EUT:	Kezar	**Work Order:**	SYNA0151
Serial Number:	1	**Date:**	02/24/14
Customer:	Synapse Product Development LLC	**Temperature:**	21.1°C
Attendees:	None	**Humidity:**	32%
Project:	Kezar	**Barometric Pres.:**	1018
Tested by:	Jared Ison, Brandon Hobbs	**Power:** Internal Battery, 12 VDC	**Job Site:** EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Modes of operation tested were client provided.

DEVIATIONS FROM TEST STANDARD

None

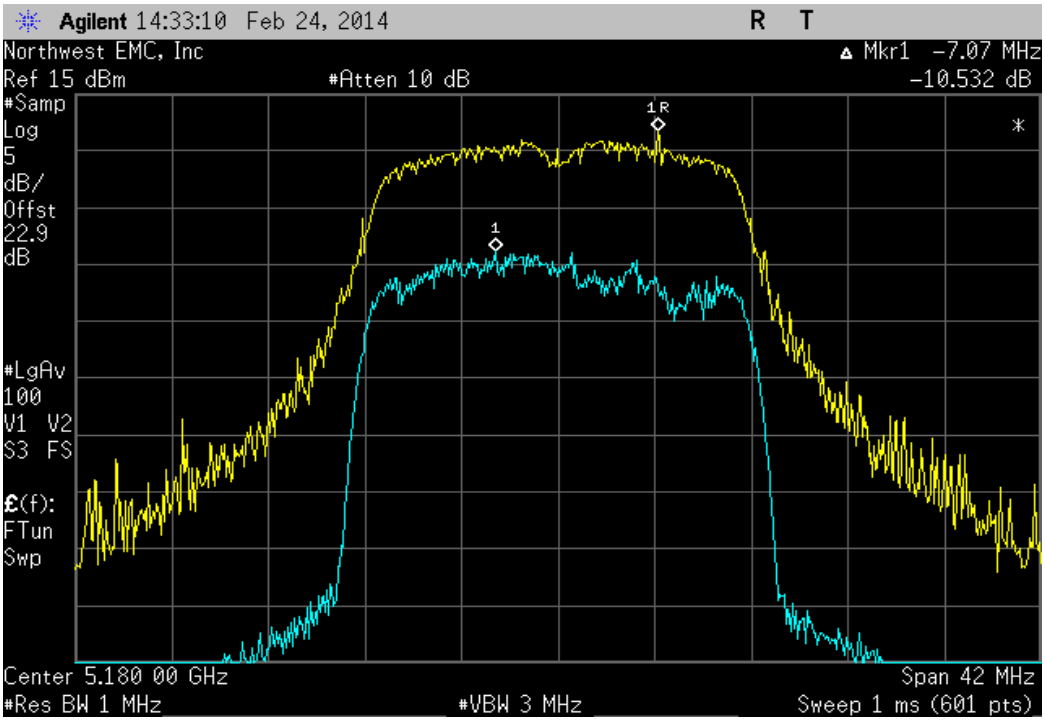
Configuration #	1	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	10.532 dB	≤ 13 dB	Pass
	Channel 48, High Channel	9.888 dB	≤ 13 dB	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	10.033 dB	≤ 13 dB	Pass
	Channel 64, High Channel	10.012 dB	≤ 13 dB	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	10.197 dB	≤ 13 dB	Pass
	Channel 116, Mid Channel	9.832 dB	≤ 13 dB	Pass
	Channel 140, High Channel	10.106 dB	≤ 13 dB	Pass
802.11(a) 36 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	12.938 dB	≤ 13 dB	Pass
	Channel 48, High Channel	11.682 dB	≤ 13 dB	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	12.252 dB	≤ 13 dB	Pass
	Channel 64, High Channel	9.995 dB	≤ 13 dB	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	9.72 dB	≤ 13 dB	Pass
	Channel 116, Mid Channel	10.831 dB	≤ 13 dB	Pass
	Channel 140, High Channel	9.657 dB	≤ 13 dB	Pass
802.11(a) 54 Mbps				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	10.206 dB	≤ 13 dB	Pass
	Channel 48, High Channel	9.356 dB	≤ 13 dB	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	8.701 dB	≤ 13 dB	Pass
	Channel 64, High Channel	9.229 dB	≤ 13 dB	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	10.013 dB	≤ 13 dB	Pass
	Channel 116, Mid Channel	9.864 dB	≤ 13 dB	Pass
	Channel 140, High Channel	9.778 dB	≤ 13 dB	Pass
802.11(n) MCS0				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	11.027 dB	≤ 13 dB	Pass
	Channel 48, High Channel	10.948 dB	≤ 13 dB	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	9.466 dB	≤ 13 dB	Pass
	Channel 64, High Channel	10.934 dB	≤ 13 dB	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	9.923 dB	≤ 13 dB	Pass
	Channel 116, Mid Channel	9.139 dB	≤ 13 dB	Pass
	Channel 140, High Channel	9.649 dB	≤ 13 dB	Pass
802.11(n) MCS7				
	5150 - 5250 MHz Band			
	Channel 36, Low Channel	10.132 dB	≤ 13 dB	Pass
	Channel 48, High Channel	10.464 dB	≤ 13 dB	Pass
	5250 - 5350 MHz Band			
	Channel 52, Low Channel	11.465 dB	≤ 13 dB	Pass
	Channel 64, High Channel	10.047 dB	≤ 13 dB	Pass
	5470 - 5725 MHz Band			
	Channel 100, Low Channel	10.668 dB	≤ 13 dB	Pass
	Channel 116, Mid Channel	9.558 dB	≤ 13 dB	Pass
	Channel 140, High Channel	10.16 dB	≤ 13 dB	Pass

PEAK EXCURSION OF THE MODULATION ENVELOPE

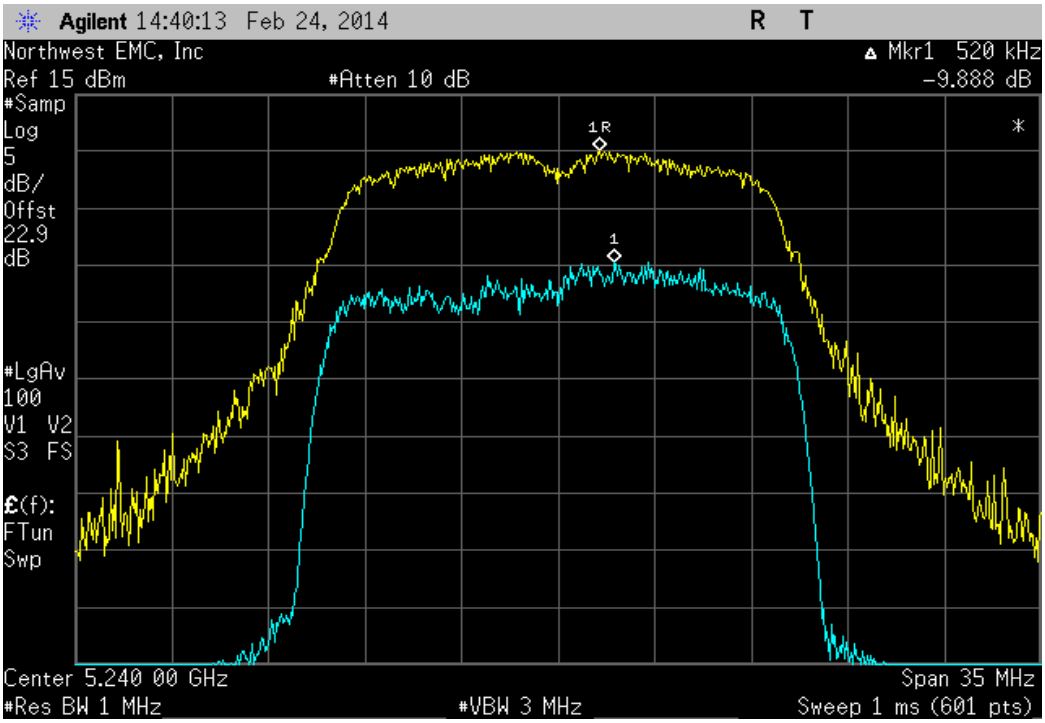
802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				10.532 dB	≤ 13 dB	Pass



802.11(a) 6 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

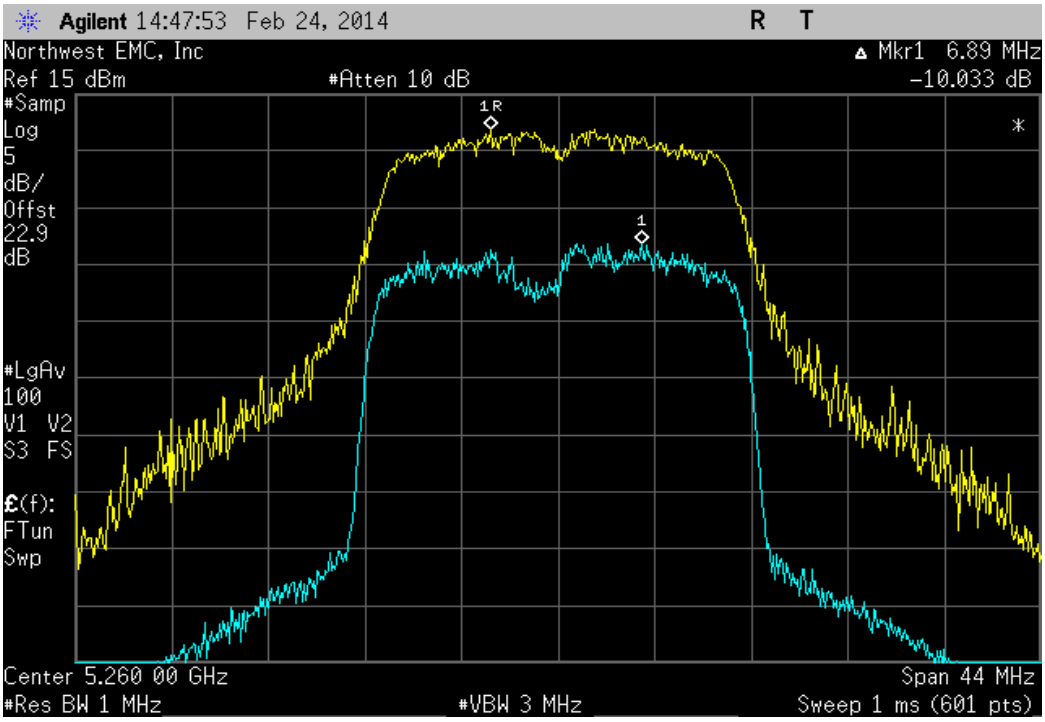
				Value	Limit	Result
				9.888 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

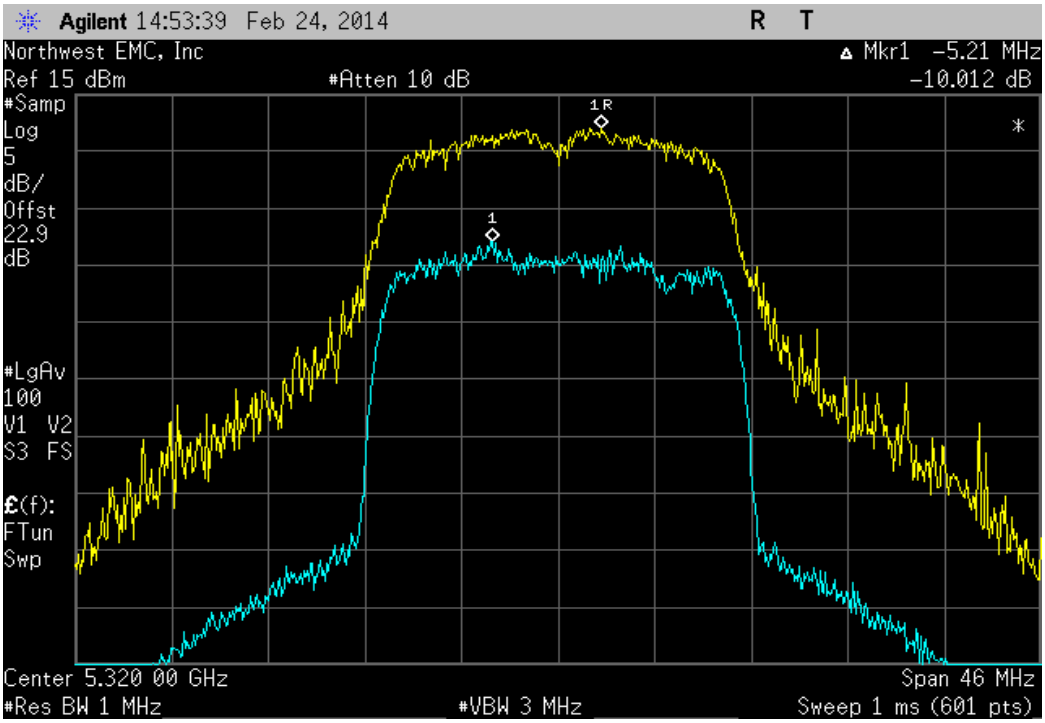
802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				10.033 dB	≤ 13 dB	Pass



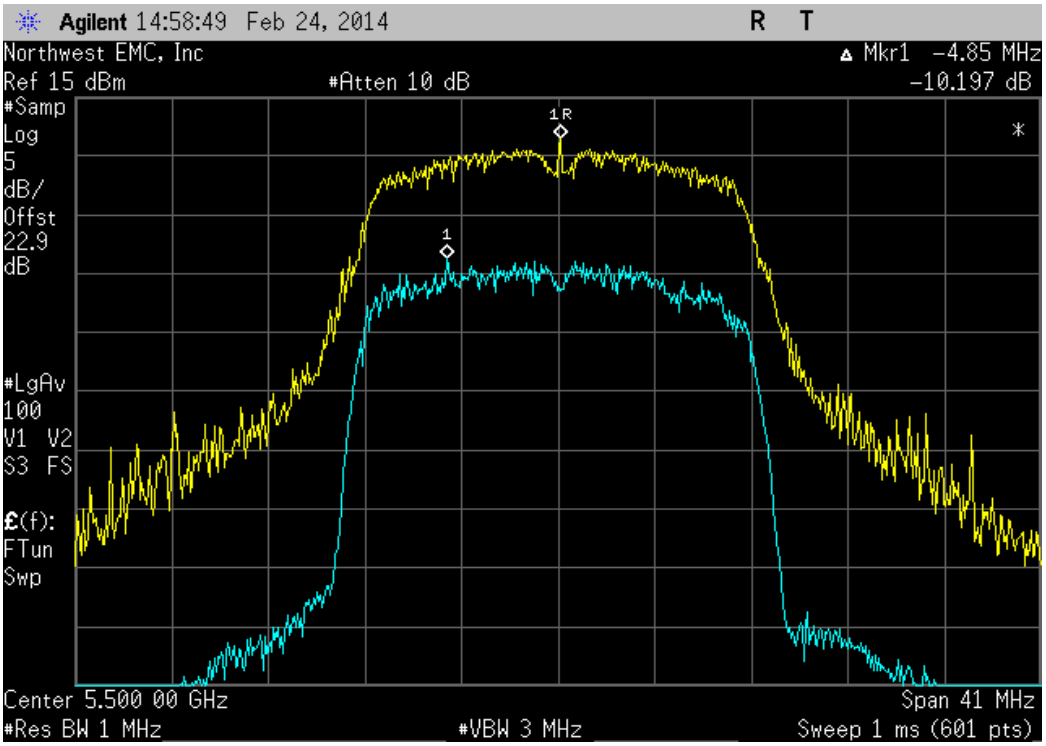
802.11(a) 6 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				10.012 dB	≤ 13 dB	Pass



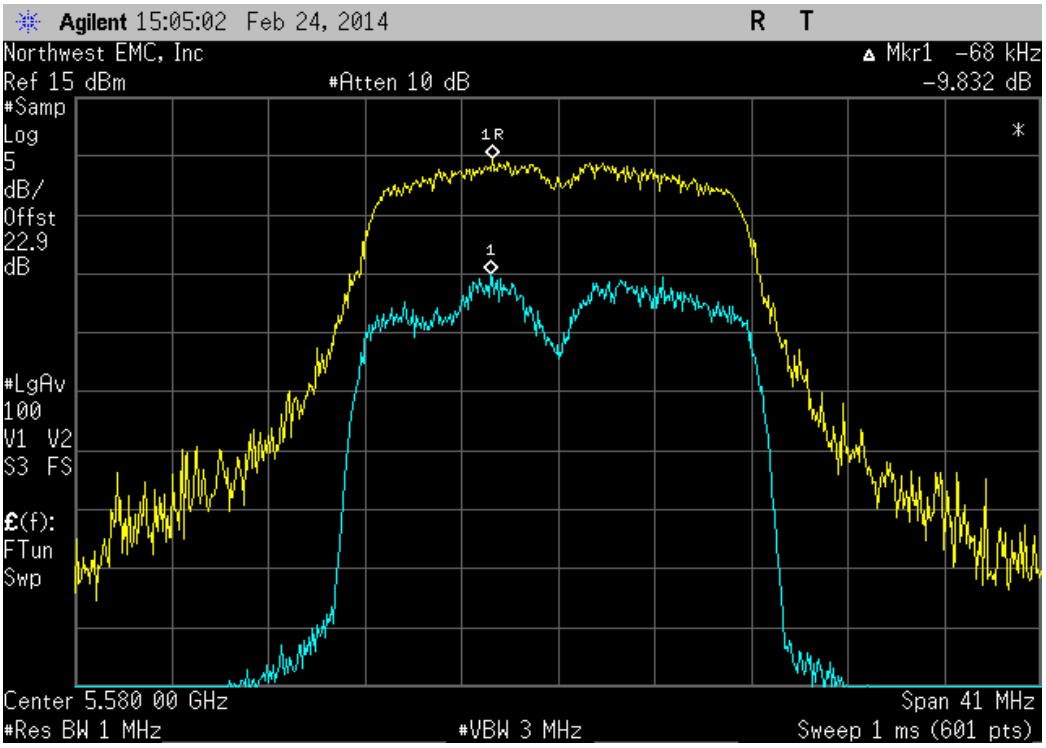
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				10.197 dB	≤ 13 dB	Pass



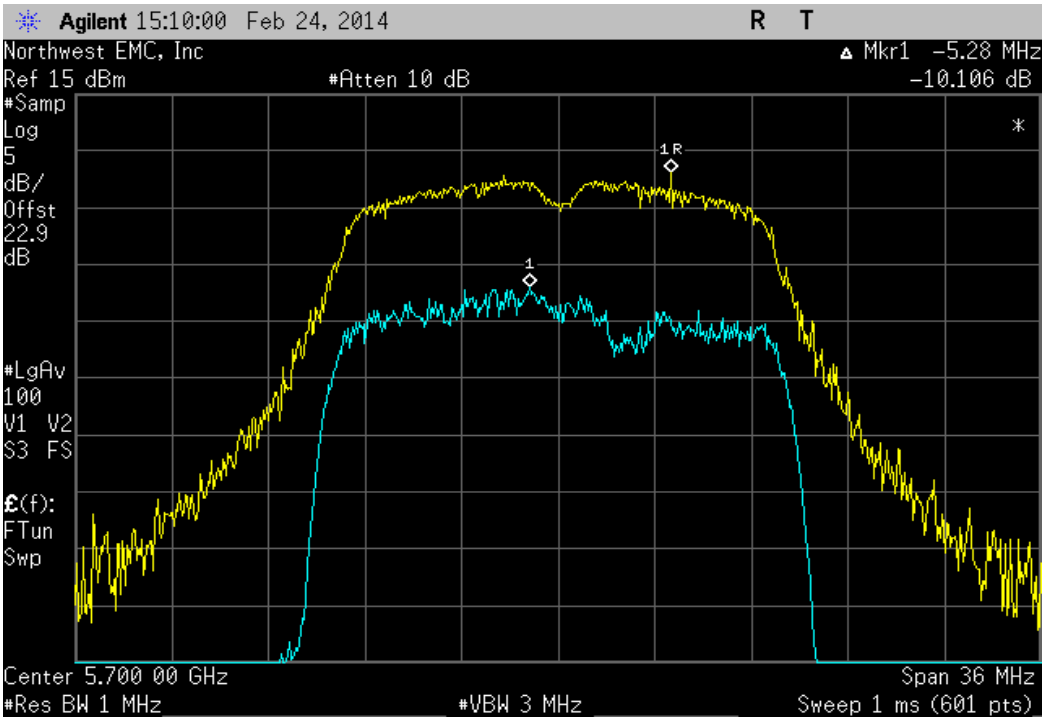
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				9.832 dB	≤ 13 dB	Pass



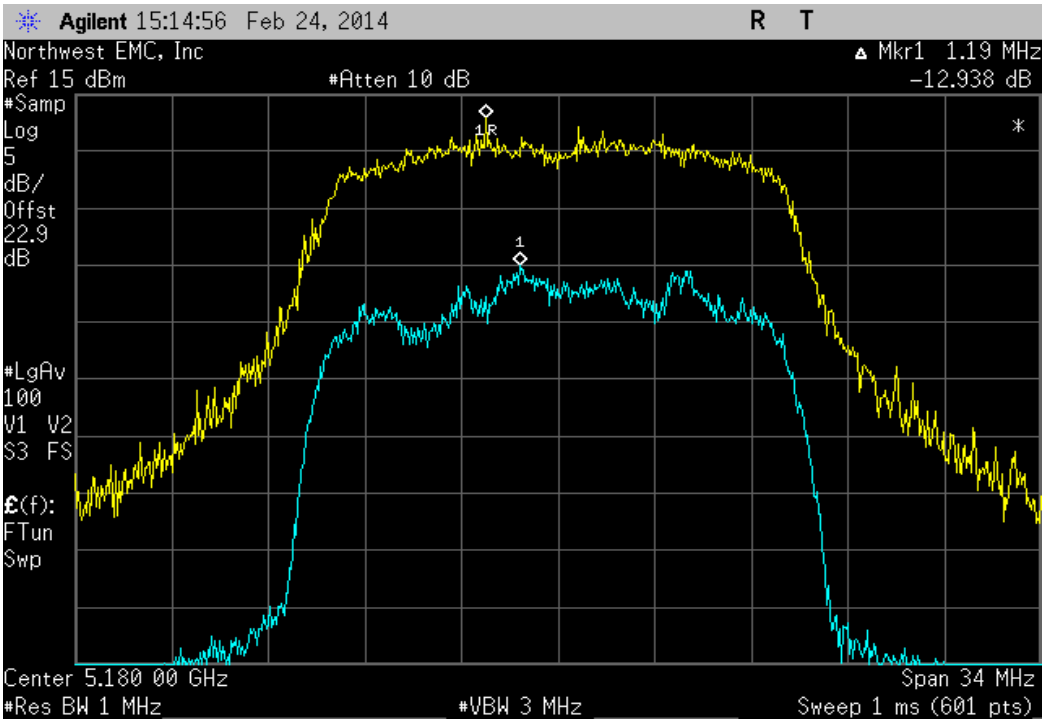
802.11(a) 6 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				10.106 dB	≤ 13 dB	Pass



802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

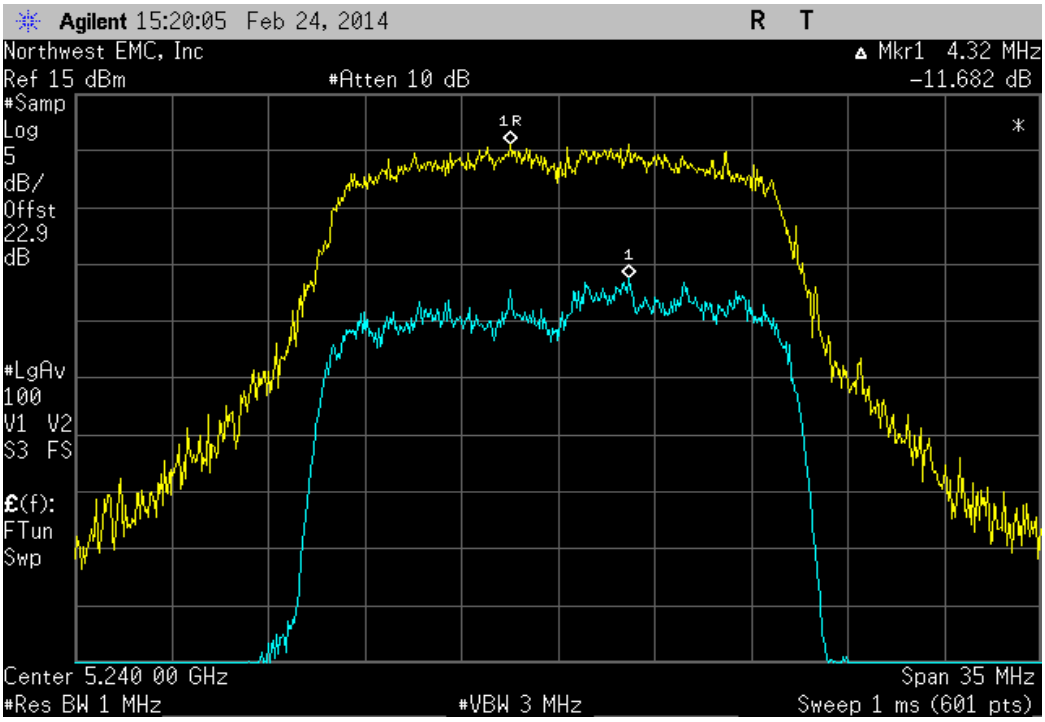
				Value	Limit	Result
				12.938 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

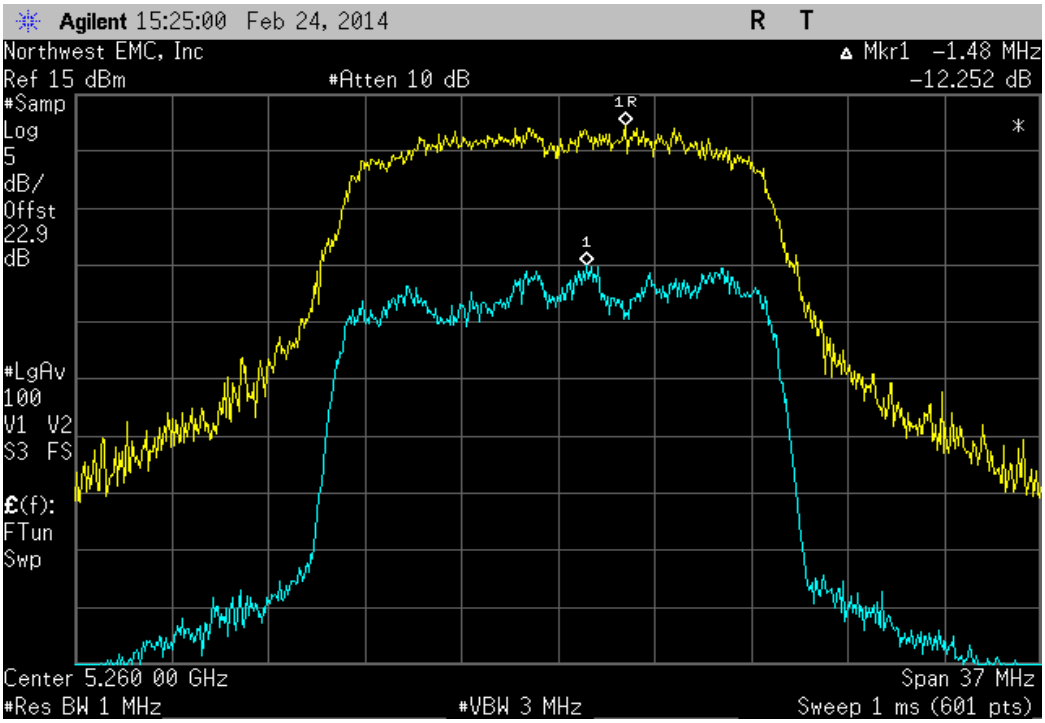
802.11(a) 36 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				11.682 dB	≤ 13 dB	Pass



802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

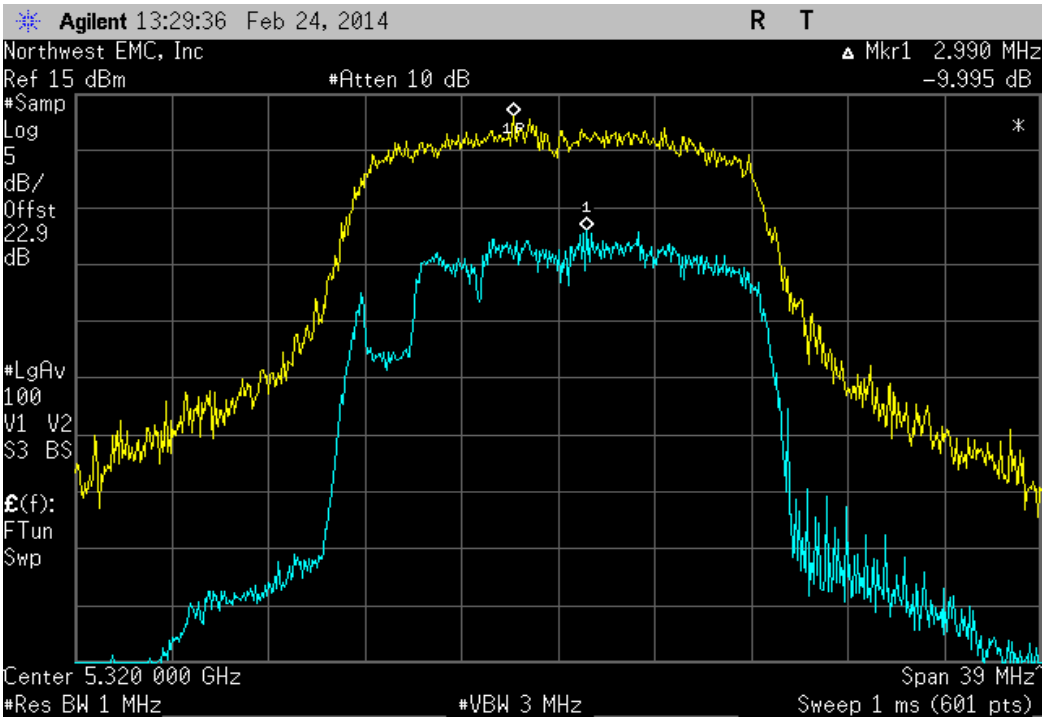
				Value	Limit	Result
				12.252 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

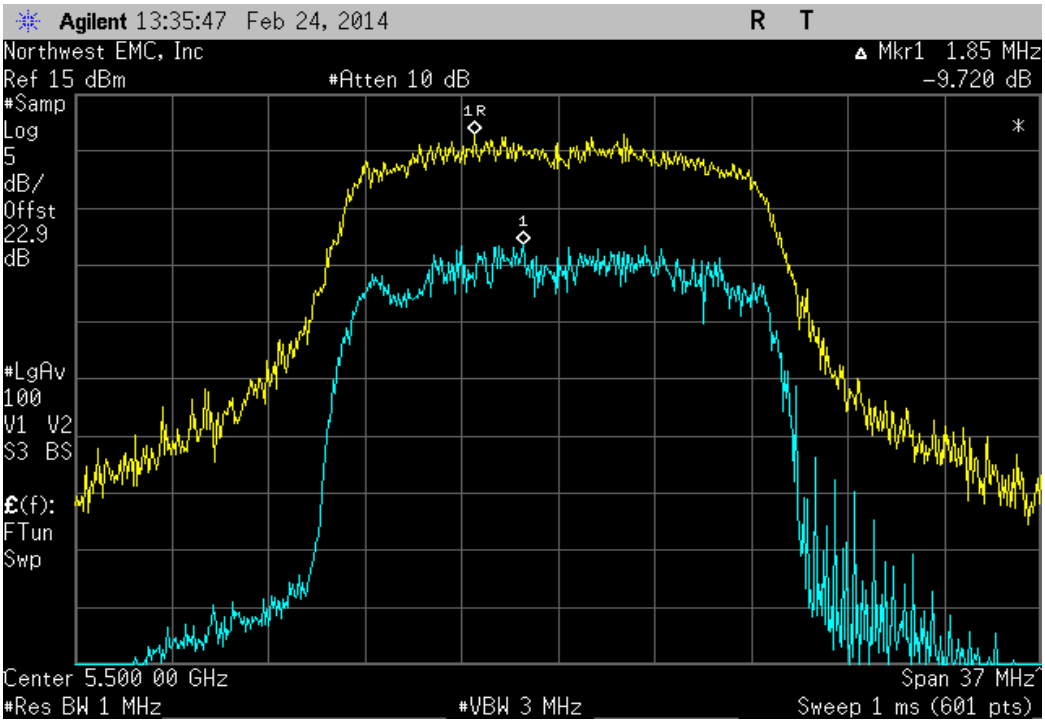
802.11(a) 36 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				9.995 dB	≤ 13 dB	Pass



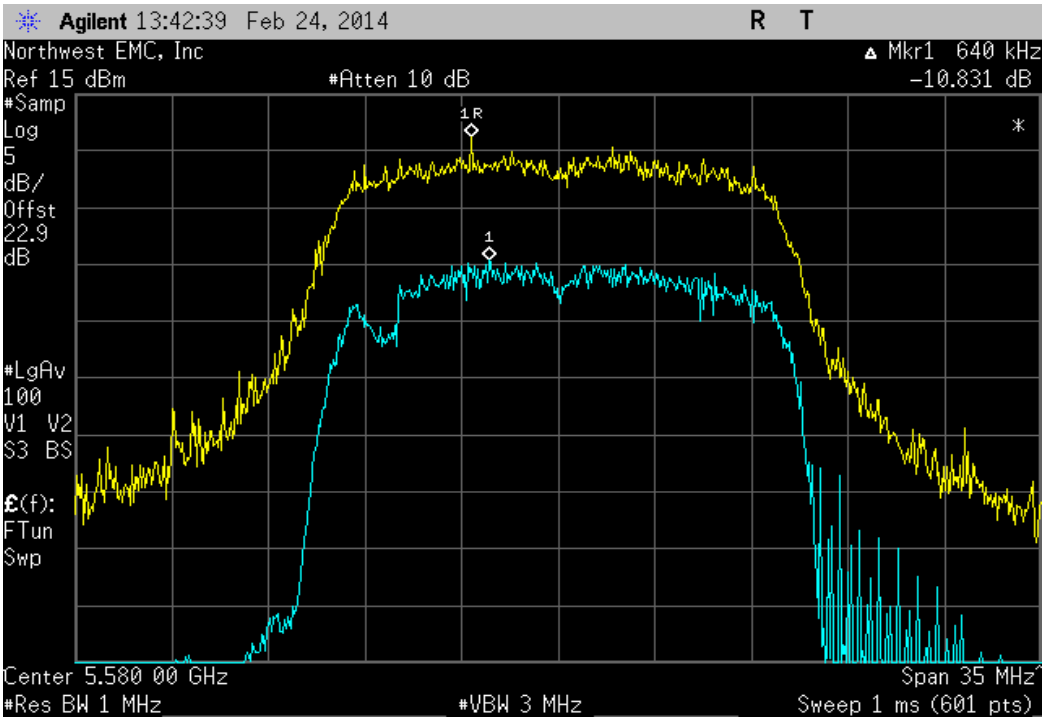
802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				9.72 dB	≤ 13 dB	Pass



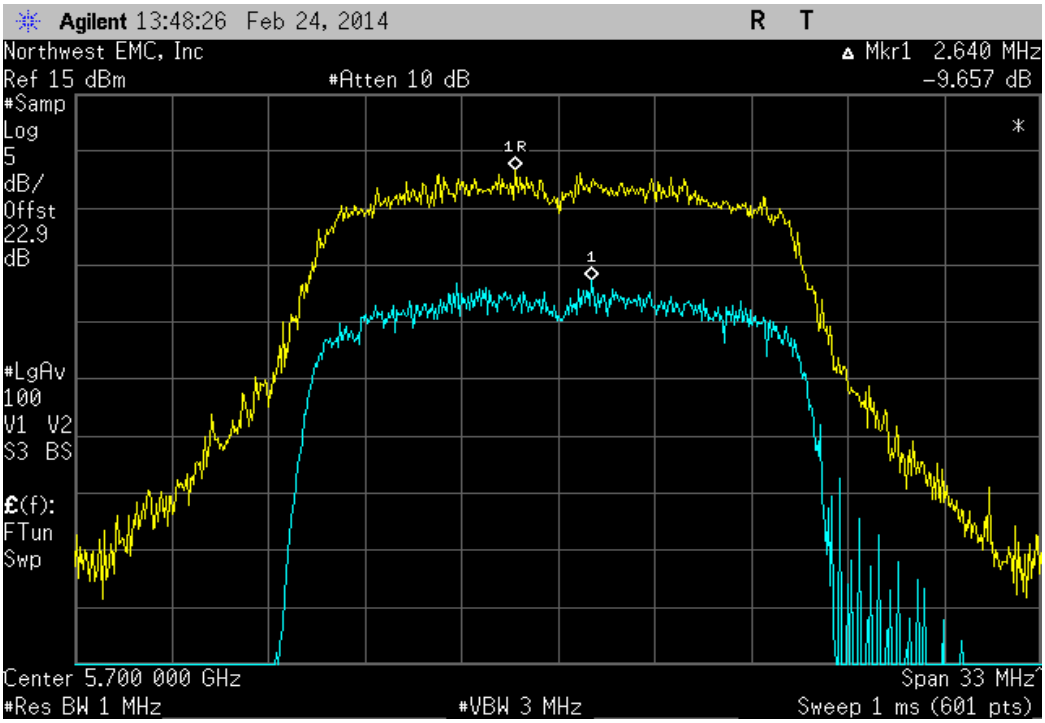
802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				10.831 dB	≤ 13 dB	Pass



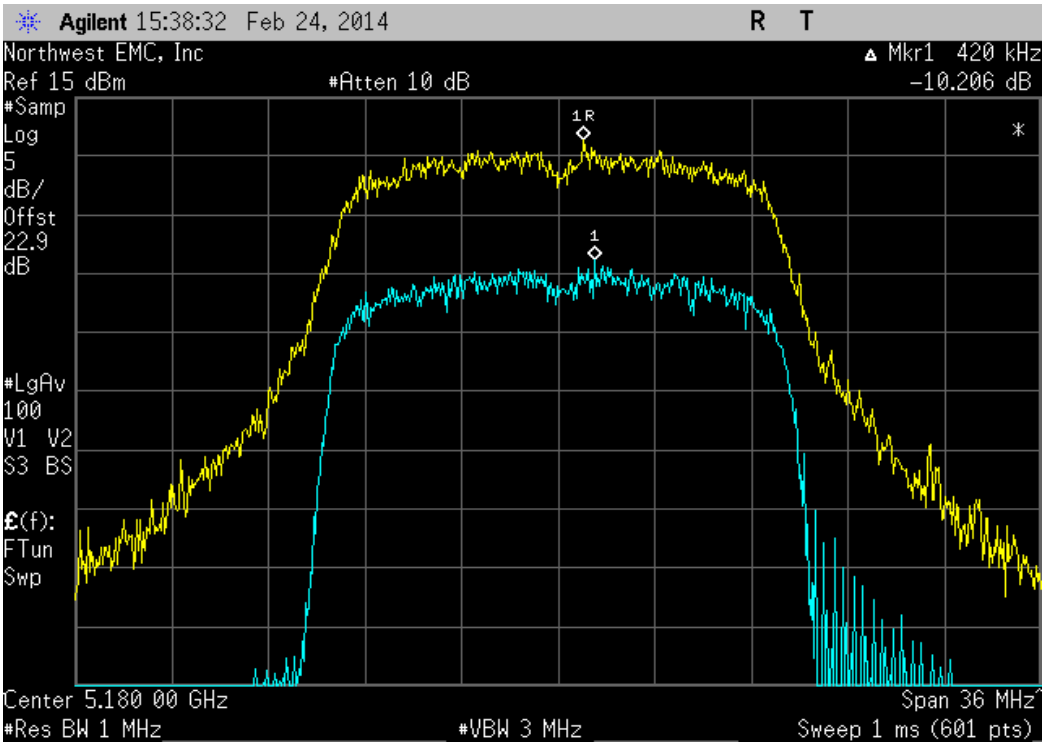
802.11(a) 36 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				9.657 dB	≤ 13 dB	Pass



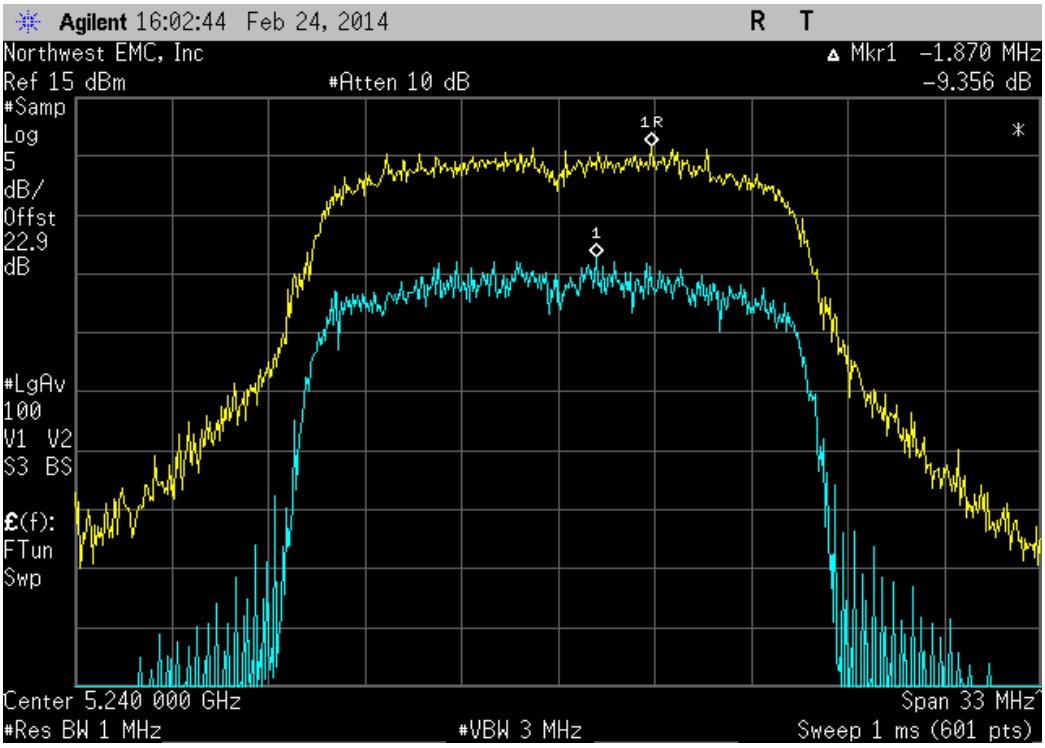
802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				10.206 dB	≤ 13 dB	Pass



802.11(a) 54 Mbps, 5150 - 5250 MHz Band, Channel 48, High Channel

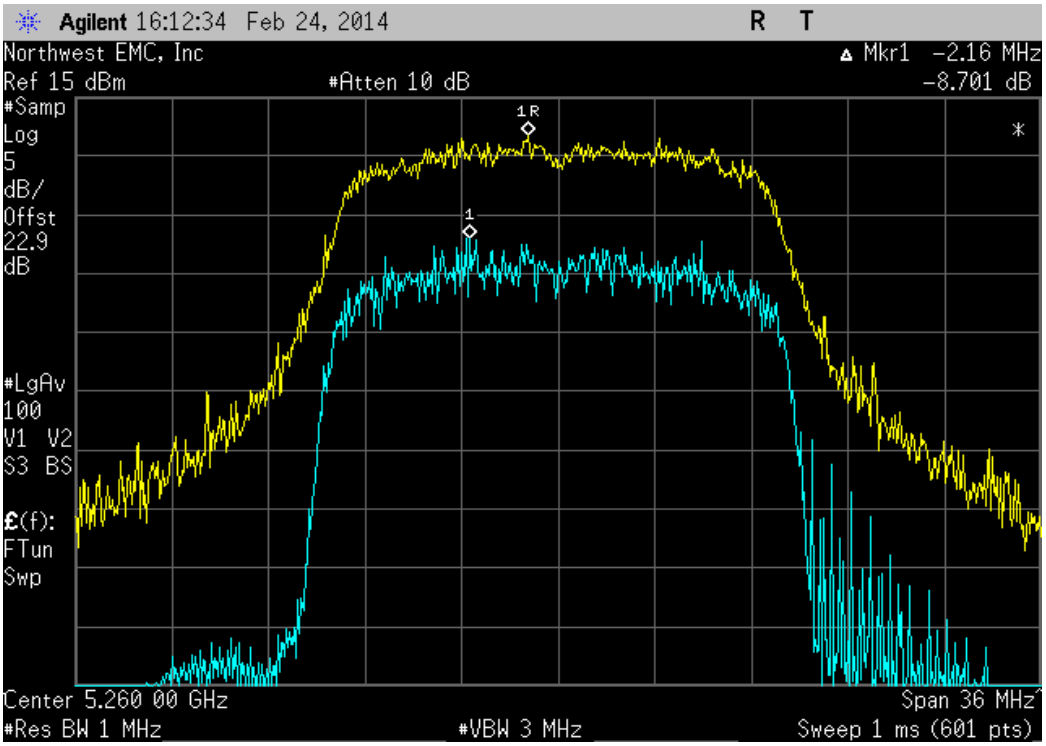
				Value	Limit	Result
				9.356 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

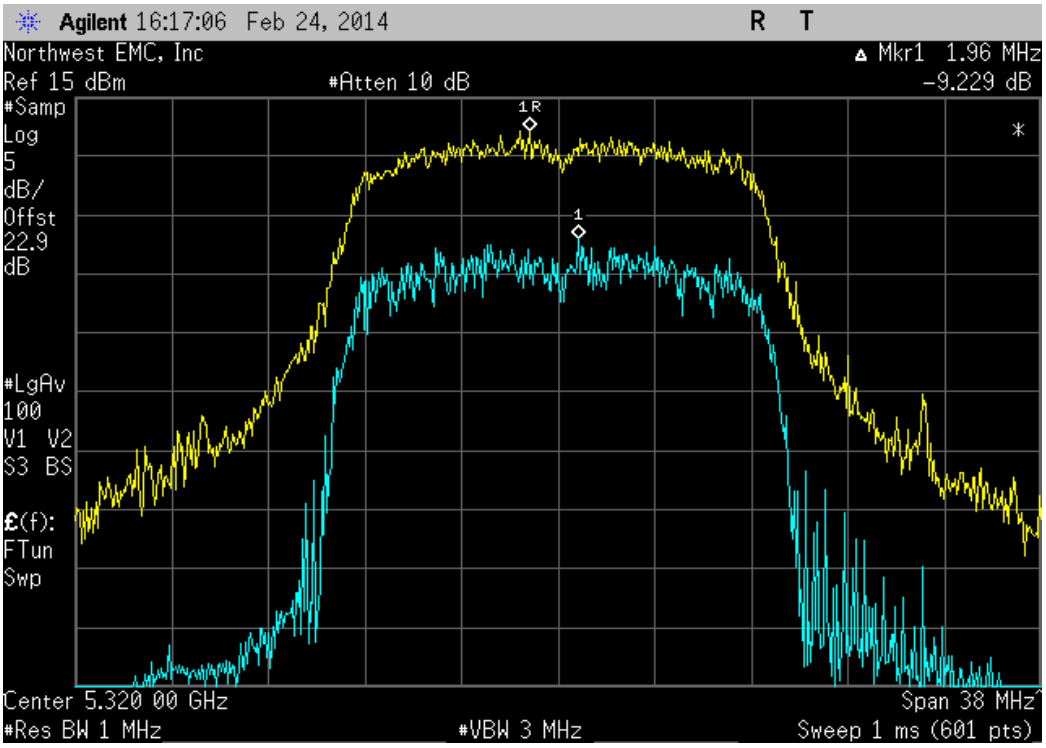
802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				8.701 dB	≤ 13 dB	Pass



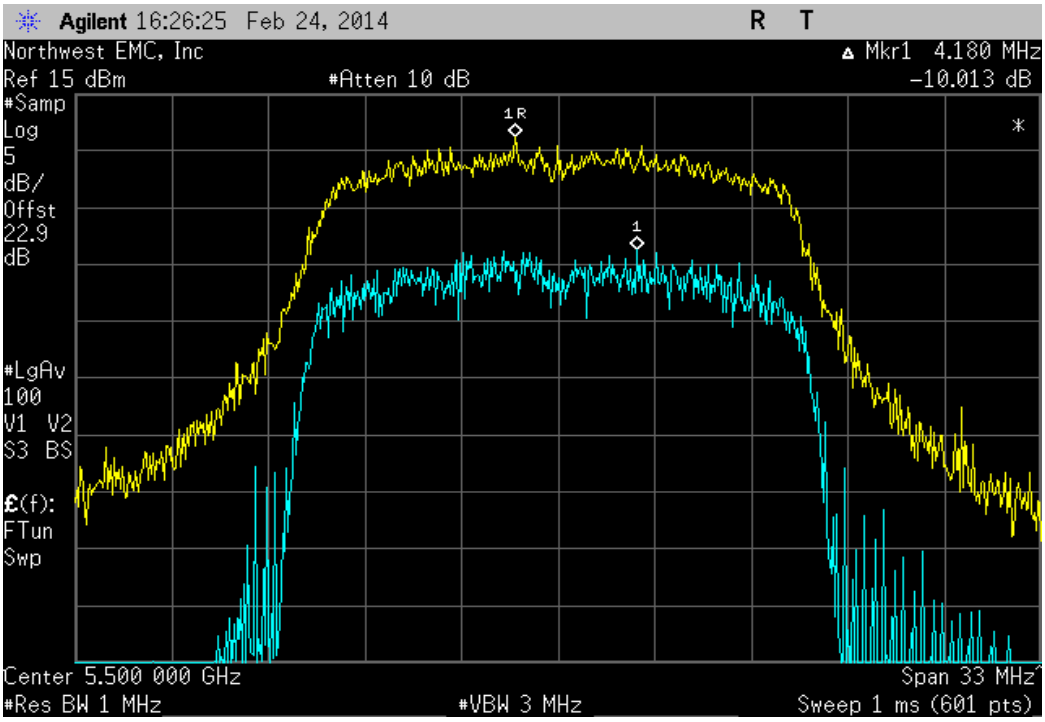
802.11(a) 54 Mbps, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				9.229 dB	≤ 13 dB	Pass



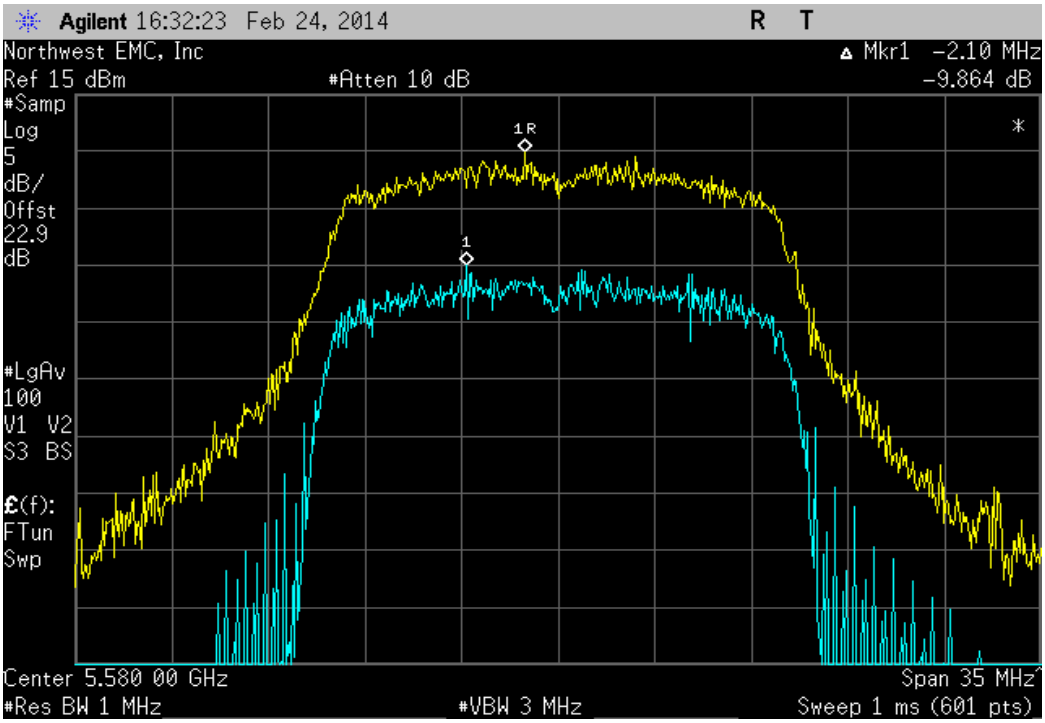
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				10.013 dB	≤ 13 dB	Pass



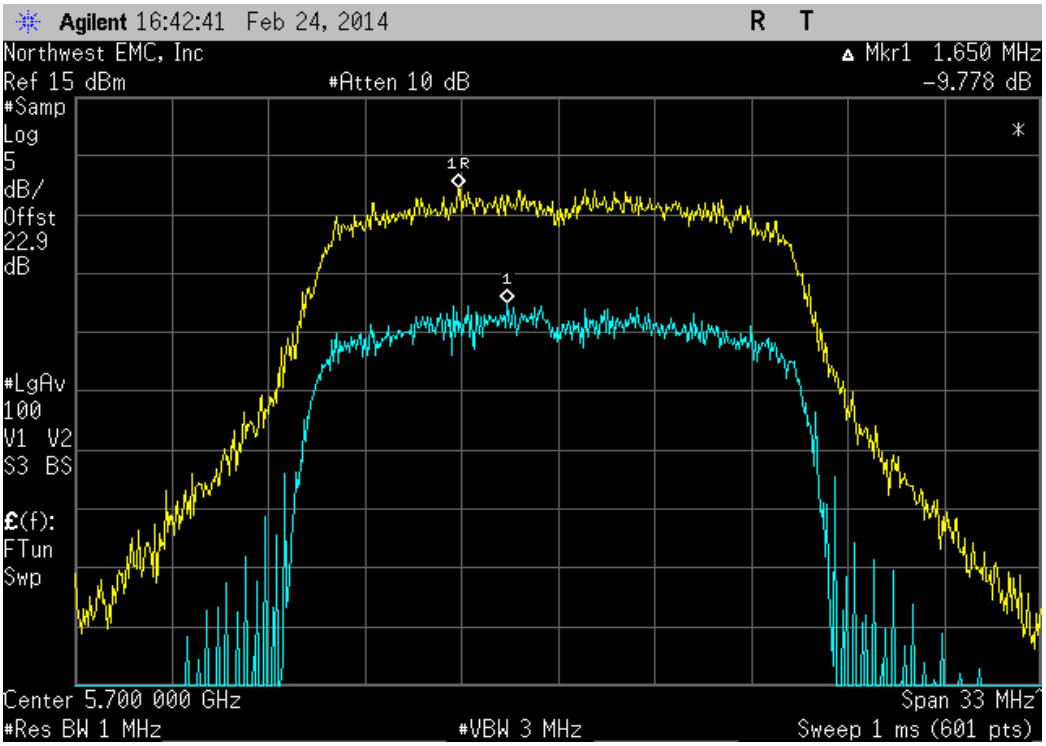
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				9.864 dB	≤ 13 dB	Pass



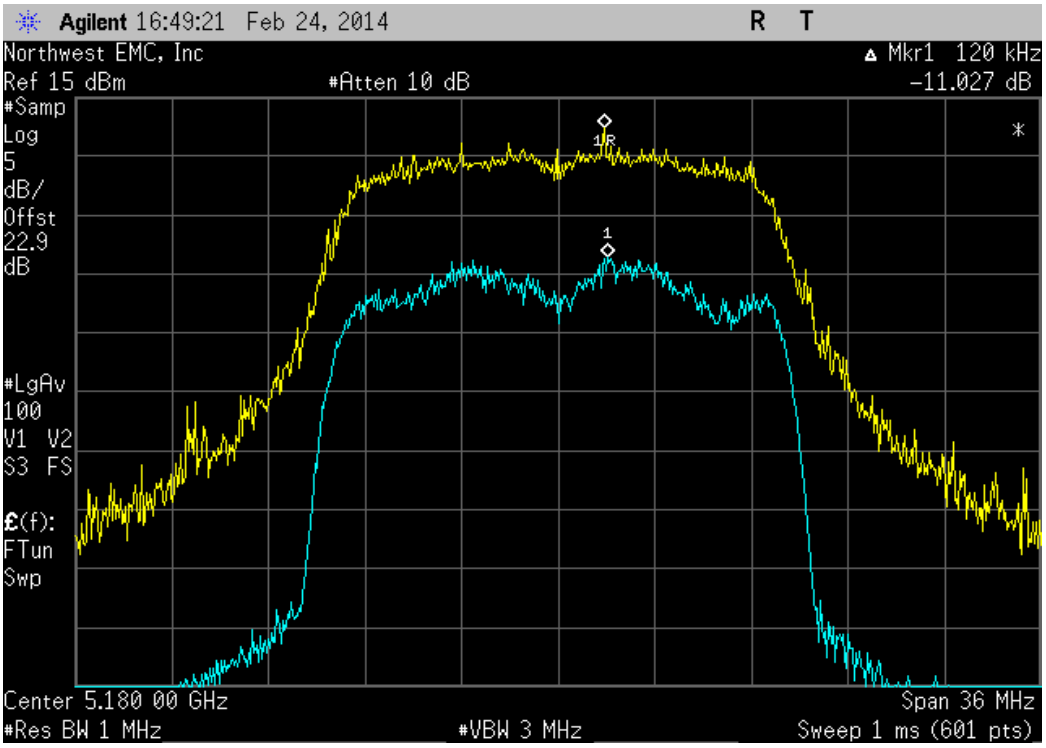
802.11(a) 54 Mbps, 5470 - 5725 MHz Band, Channel 140, High Channel

				Value	Limit	Result
				9.778 dB	≤ 13 dB	Pass



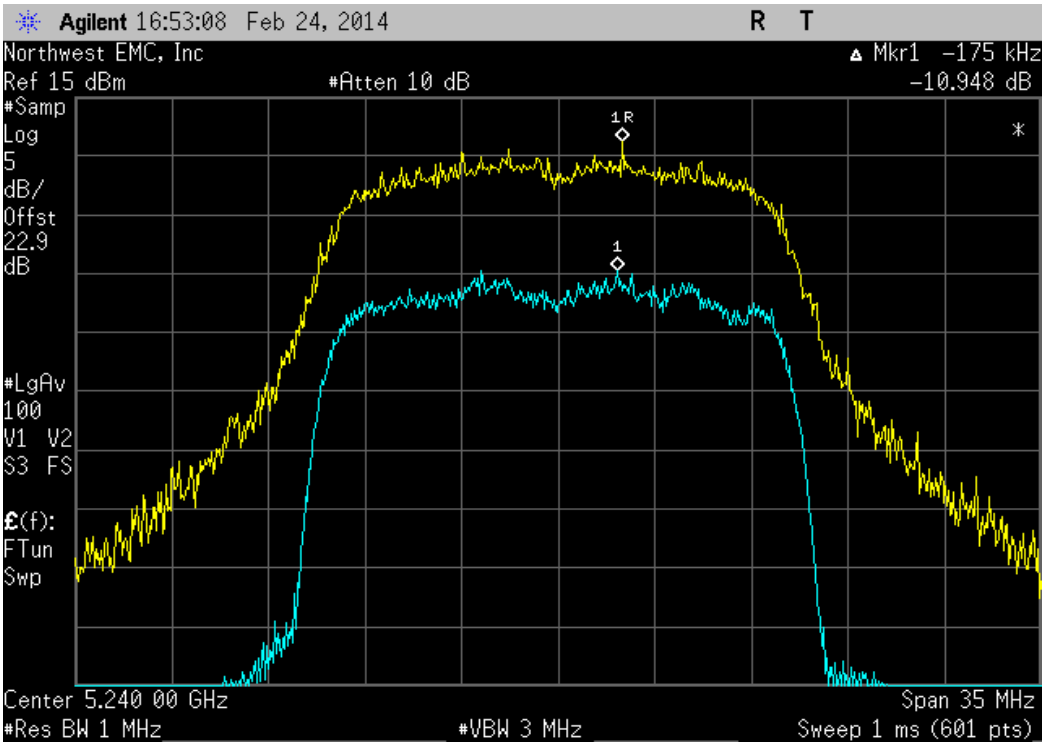
802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				11.027 dB	≤ 13 dB	Pass



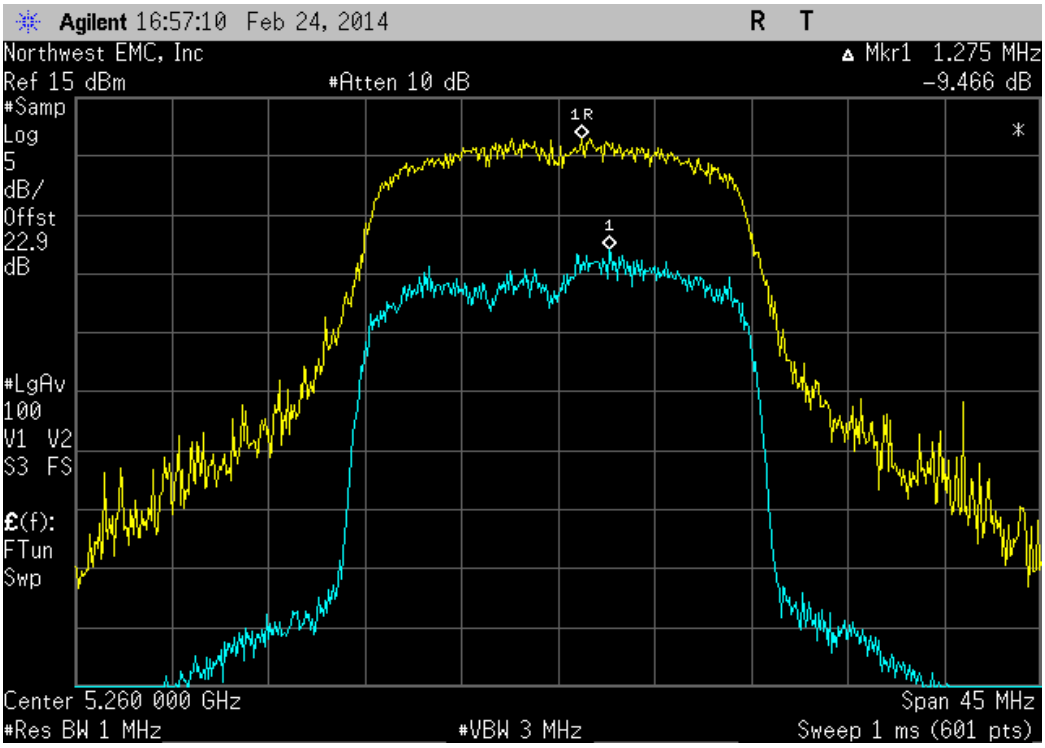
802.11(n) MCS0, 5150 - 5250 MHz Band, Channel 48, High Channel

				Value	Limit	Result
				10.948 dB	≤ 13 dB	Pass



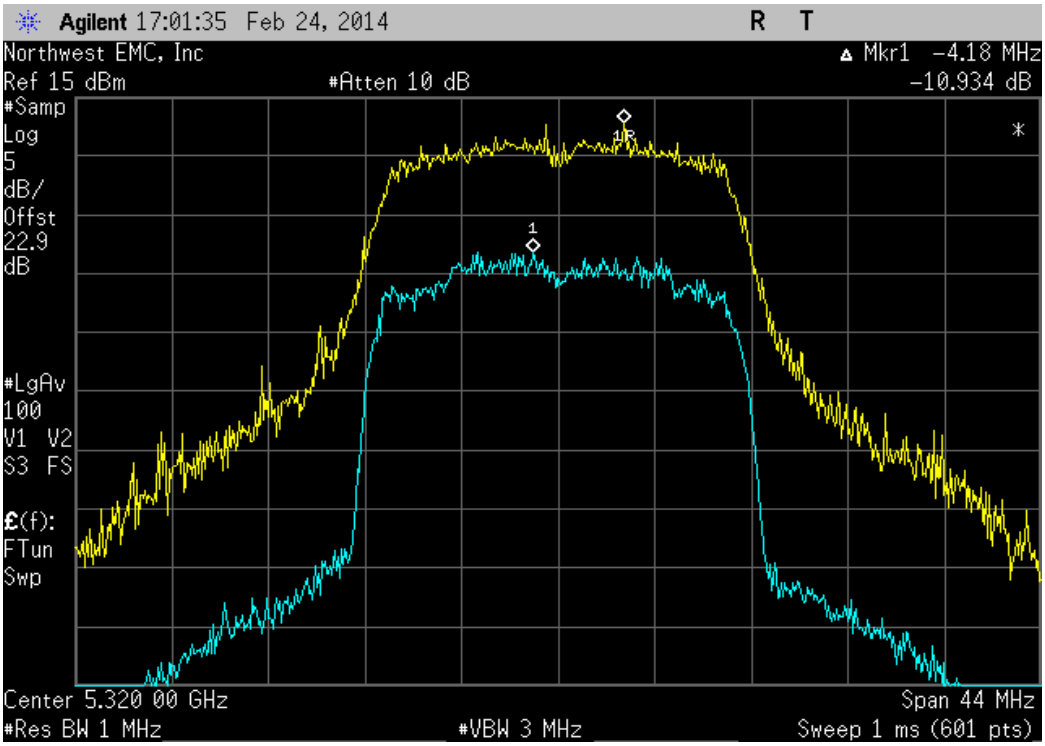
802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				9.466 dB	≤ 13 dB	Pass



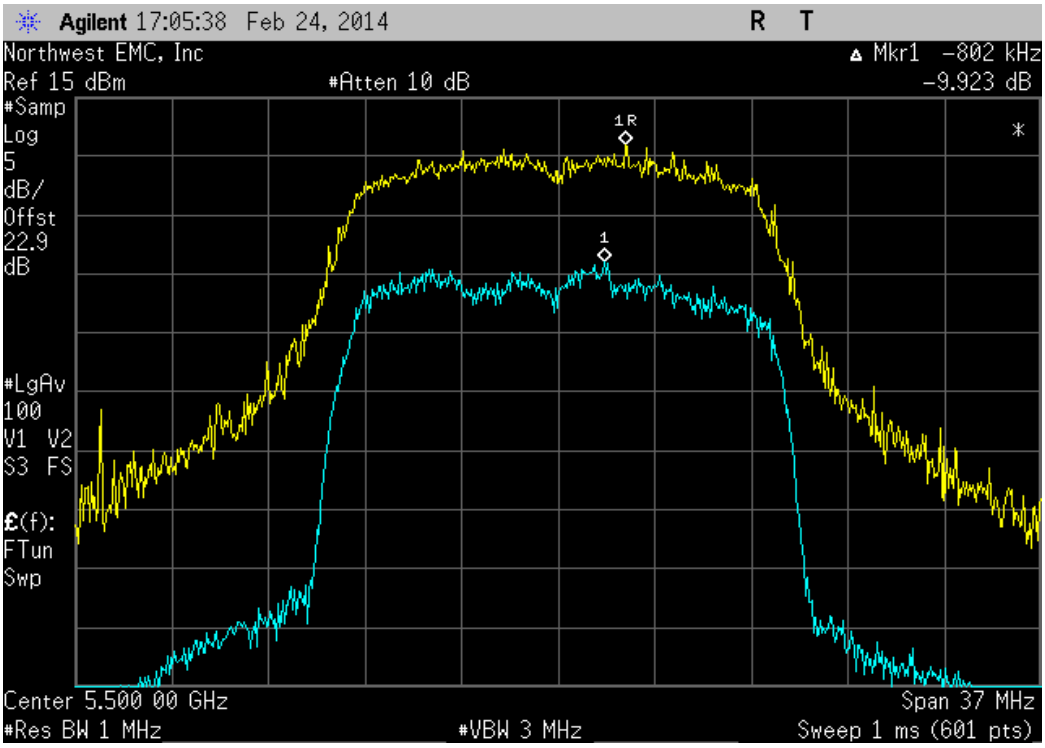
802.11(n) MCS0, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				10.934 dB	≤ 13 dB	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 100, Low Channel

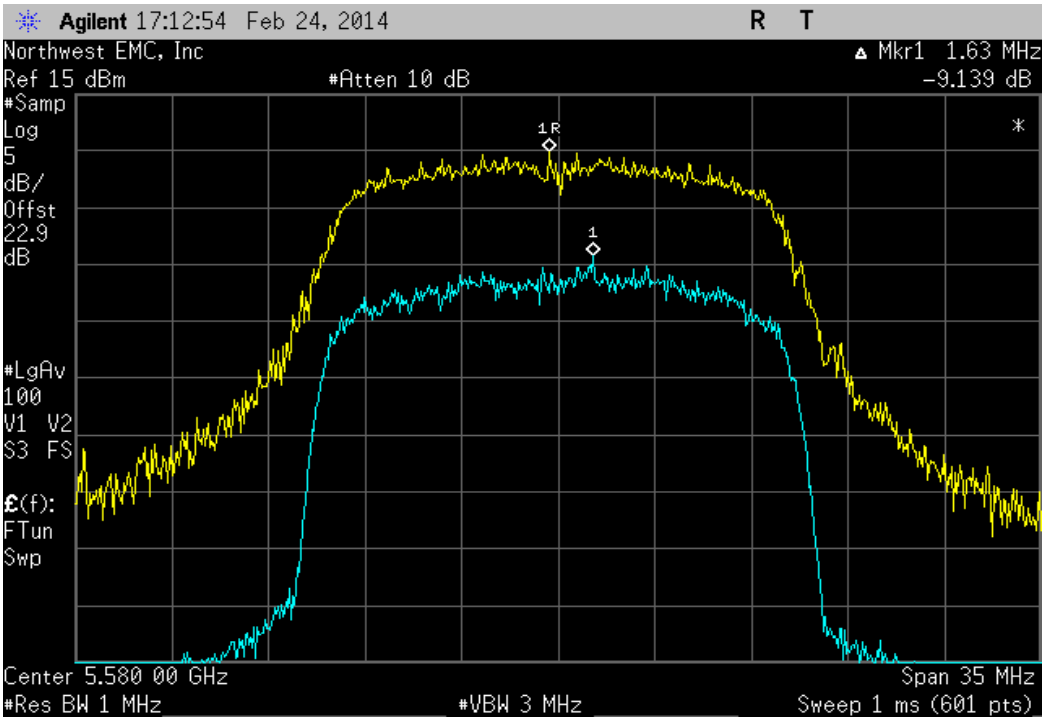
				Value	Limit	Result
				9.923 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

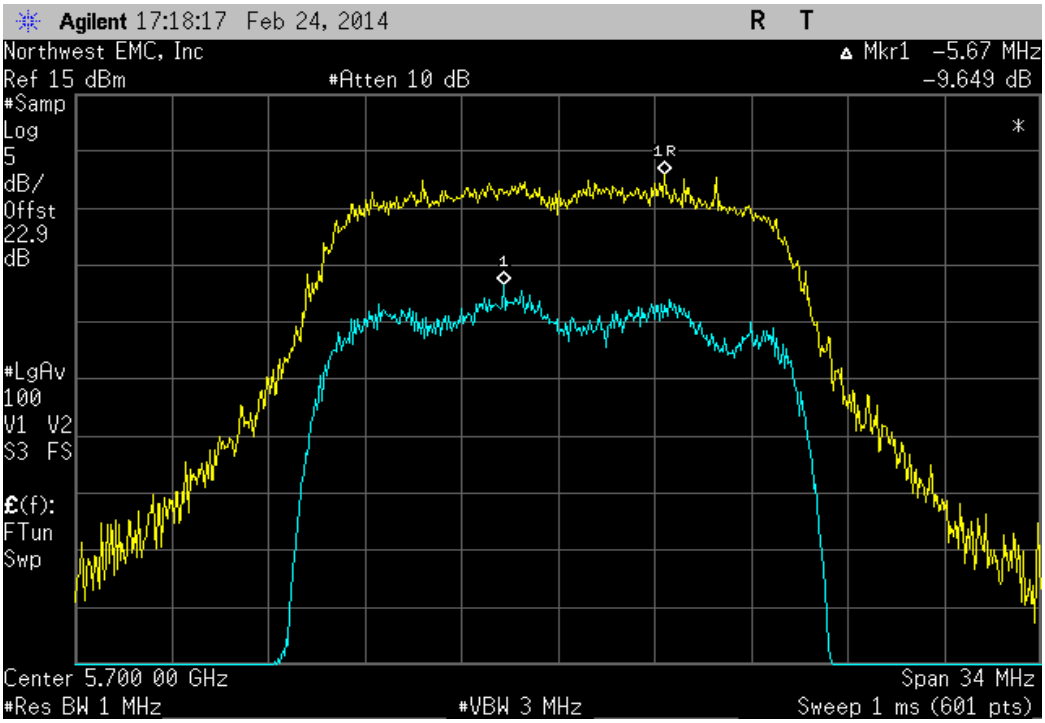
802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				9.139 dB	≤ 13 dB	Pass



802.11(n) MCS0, 5470 - 5725 MHz Band, Channel 140, High Channel

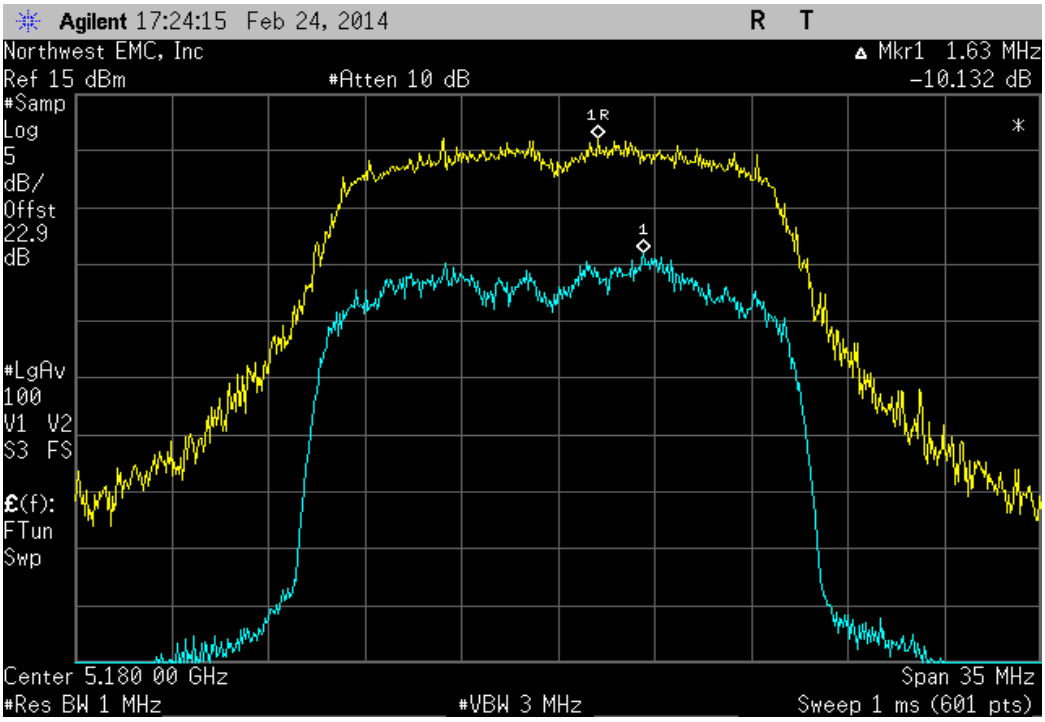
				Value	Limit	Result
				9.649 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

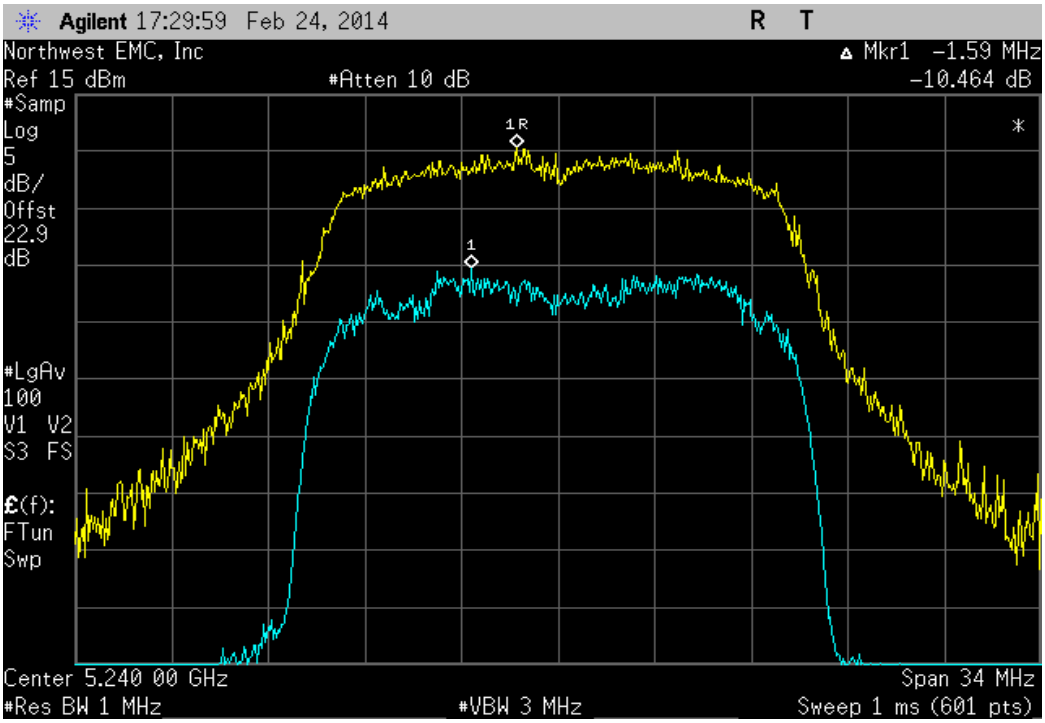
802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 36, Low Channel

				Value	Limit	Result
				10.132 dB	≤ 13 dB	Pass



802.11(n) MCS7, 5150 - 5250 MHz Band, Channel 48, High Channel

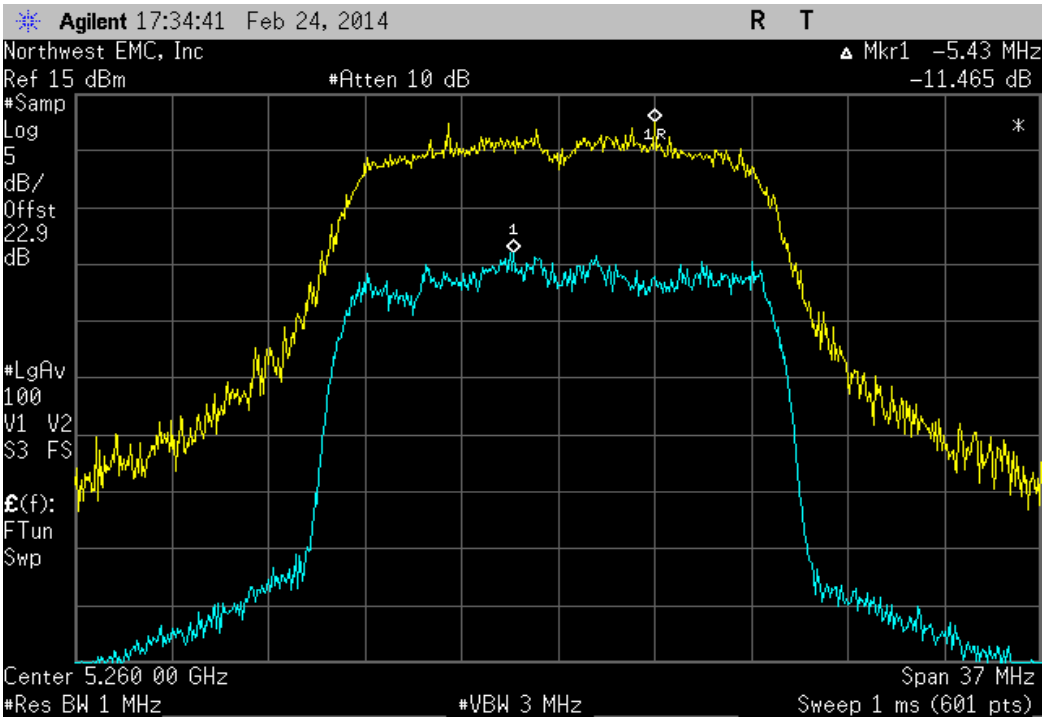
				Value	Limit	Result
				10.464 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

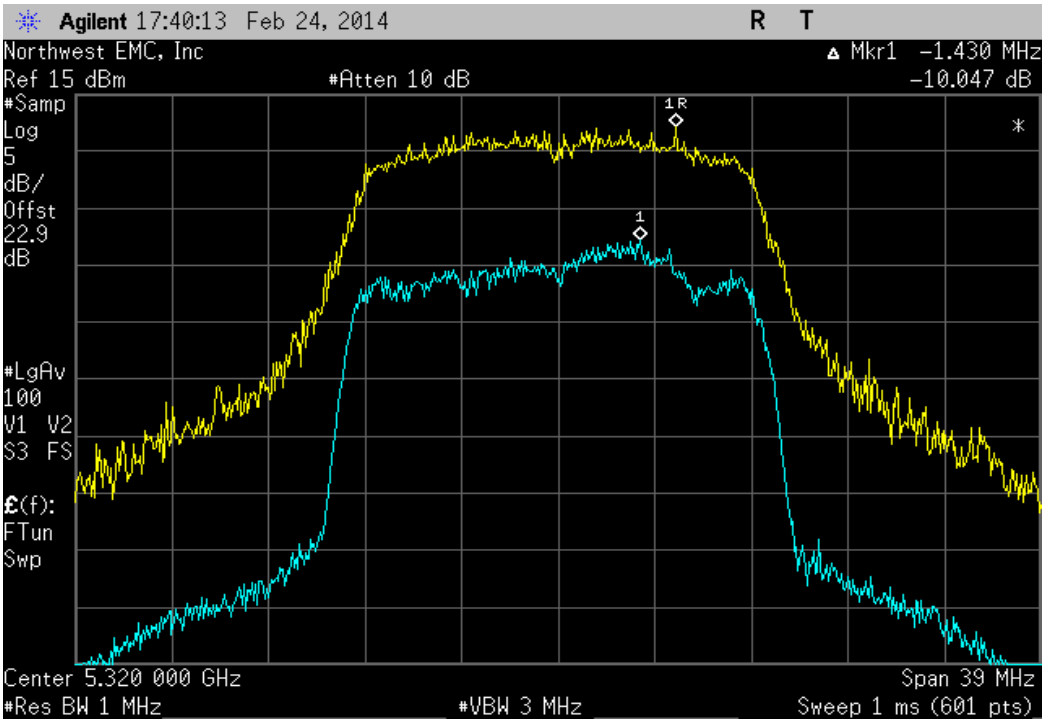
802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 52, Low Channel

				Value	Limit	Result
				11.465 dB	≤ 13 dB	Pass



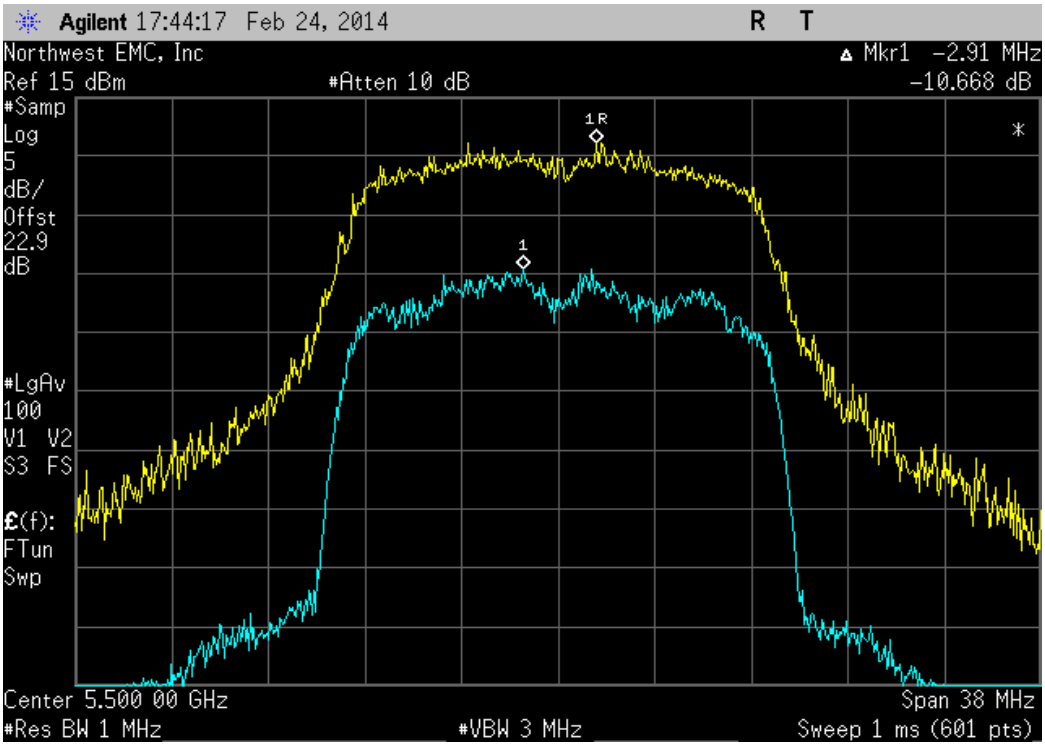
802.11(n) MCS7, 5250 - 5350 MHz Band, Channel 64, High Channel

				Value	Limit	Result
				10.047 dB	≤ 13 dB	Pass



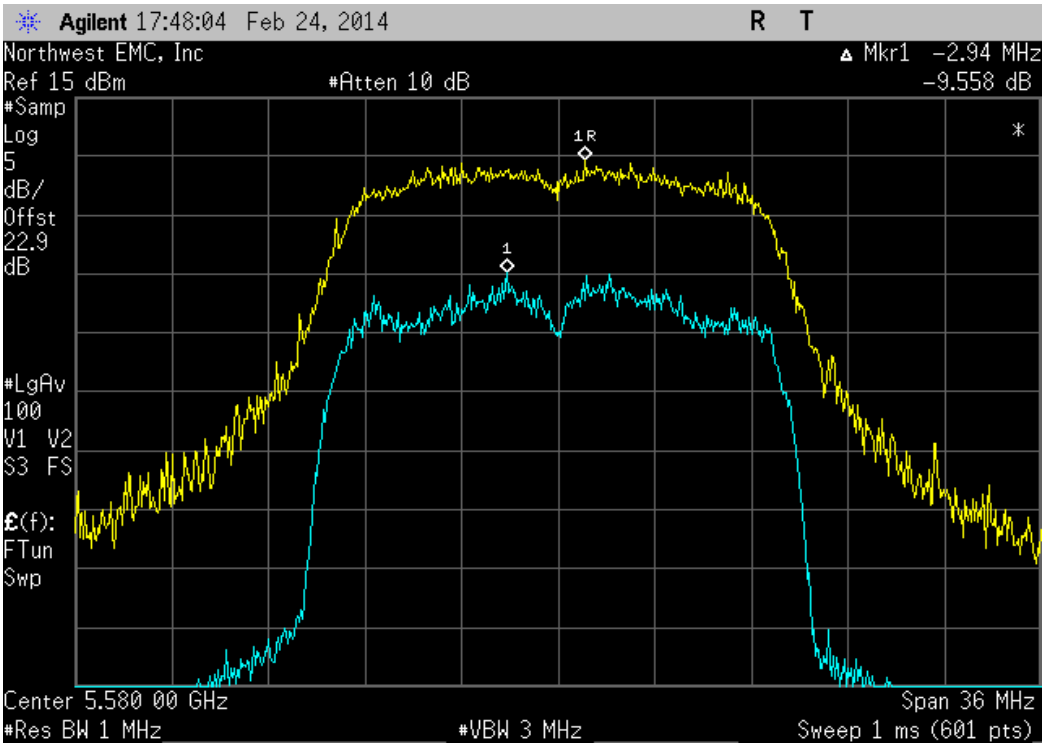
802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 100, Low Channel

				Value	Limit	Result
				10.668 dB	≤ 13 dB	Pass



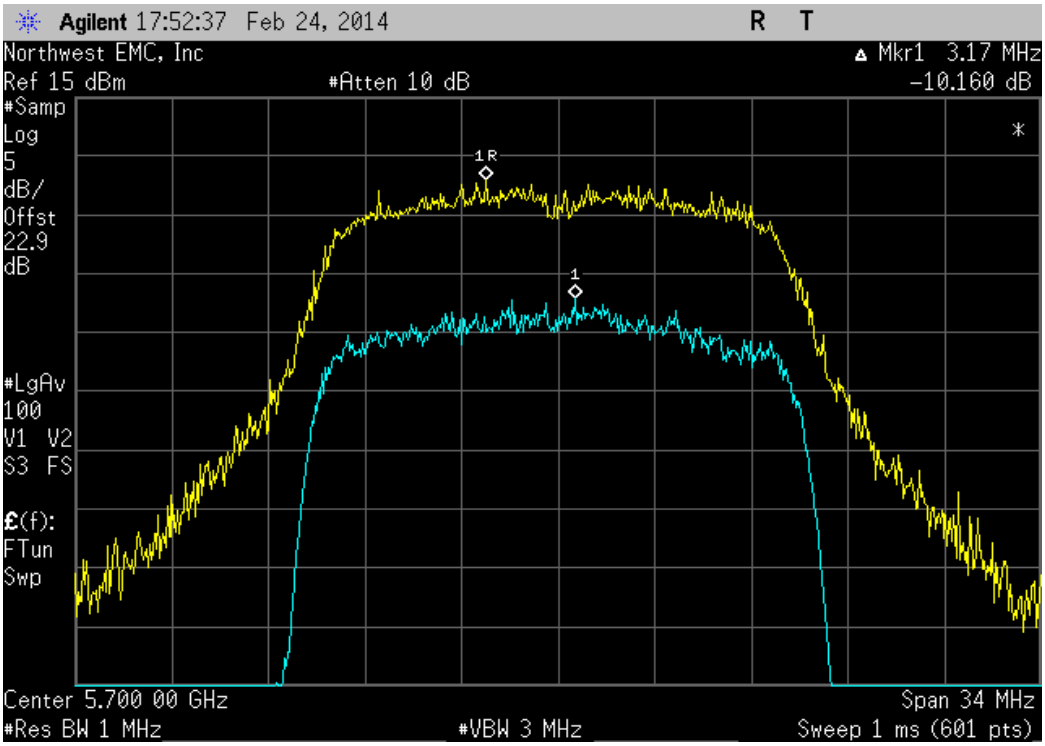
802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 116, Mid Channel

				Value	Limit	Result
				9.558 dB	≤ 13 dB	Pass



PEAK EXCURSION OF THE MODULATION ENVELOPE

802.11(n) MCS7, 5470 - 5725 MHz Band, Channel 140, High Channel						
				Value	Limit	Result
				10.16 dB	≤ 13 dB	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 (mo.)
Power Meter	Gigatronics	8651A	SPM	11/26/2013	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	2/3/2014	12
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24

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:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	04/07/14
Customer:	Synapse Product Development LLC	Temperature:	22.4°C
Attendees:	None	Humidity:	44%
Project:	Kezar	Barometric Pres.:	1022
Tested by:	Brandon Hobbs	Power: 110VAC/60Hz	Job Site: EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Product was test at a 17dBm maximum power level.

DEVIATIONS FROM TEST STANDARD

None

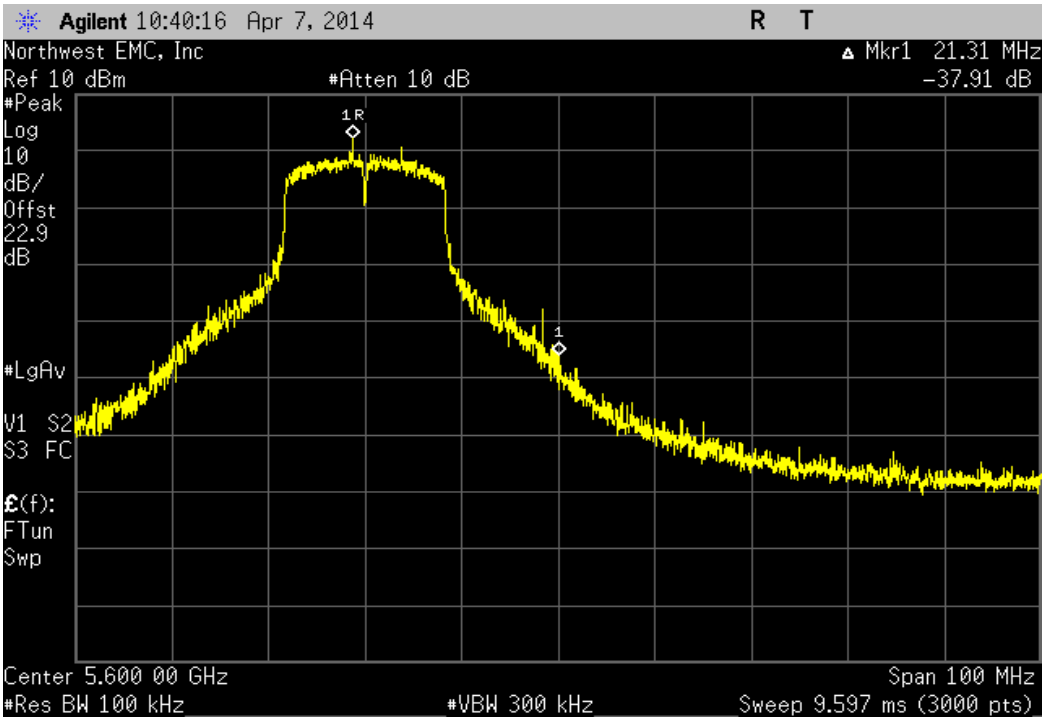
Configuration #	3	Signature

		Value	Limit	Result
802.11(a) 6 Mbps				
	5600 MHz Band Edge			
	Channel 116, 5580 MHz	-37.91 dBc	≤ -20 dBc	Pass
	5650 MHz Band Edge			
	Channel 132, 5660 MHz	-26.62 dBc	≤ -20 dBc	Pass
802.11(a) 36 Mbps				
	5600 MHz Band Edge			
	Channel 116, 5580 MHz	-37.43 dBc	≤ -20 dBc	Pass
	5650 MHz Band Edge			
	Channel 132, 5660 MHz	-25.16 dBc	≤ -20 dBc	Pass
802.11(a) 54 Mbps				
	5600 MHz Band Edge			
	Channel 116, 5580 MHz	-41.8 dBc	≤ -20 dBc	Pass
	5650 MHz Band Edge			
	Channel 132, 5660 MHz	-24.99 dBc	≤ -20 dBc	Pass
802.11(n) MCS0				
	5600 MHz Band Edge			
	Channel 116, 5580 MHz	-38.1 dBc	≤ -20 dBc	Pass
	5650 MHz Band Edge			
	Channel 132, 5660 MHz	-23.26 dBc	≤ -20 dBc	Pass
802.11(n) MCS7				
	5600 MHz Band Edge			
	Channel 116, 5580 MHz	-42.63 dBc	≤ -20 dBc	Pass
	5650 MHz Band Edge			
	Channel 132, 5660 MHz	-23.4 dBc	≤ -20 dBc	Pass

BAND EDGE COMPLIANCE

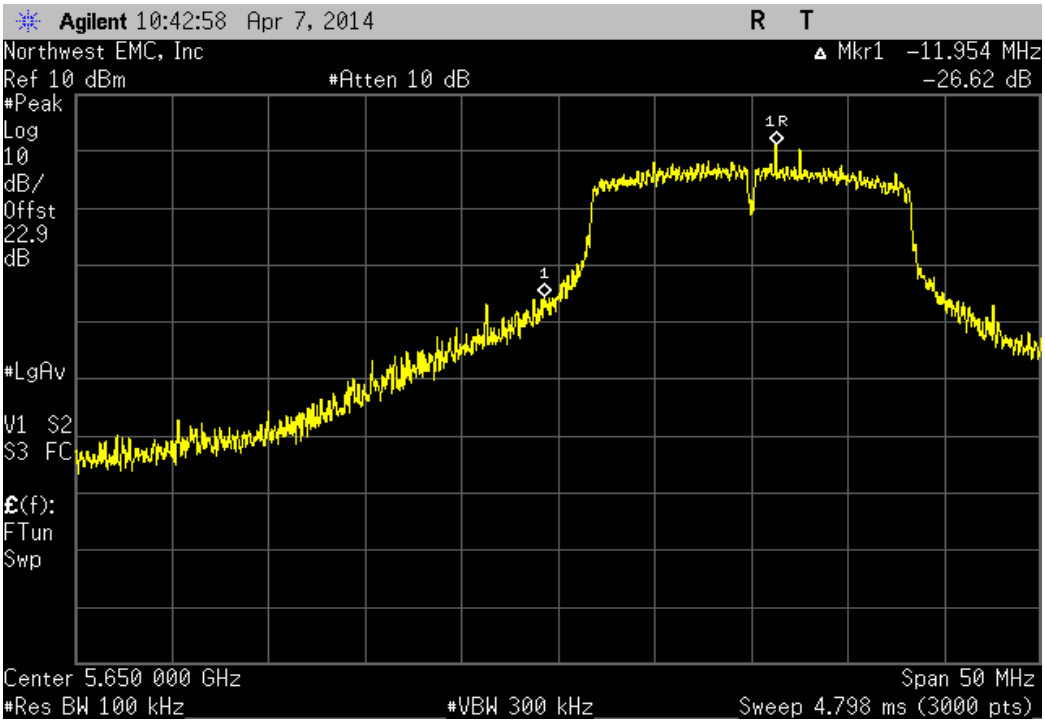
802.11(a) 6 Mbps, 5600 MHz Band Edge, Channel 116, 5580 MHz

				Value	Limit	Result
				-37.91 dBc	≤ -20 dBc	Pass



802.11(a) 6 Mbps, 5650 MHz Band Edge, Channel 132, 5660 MHz

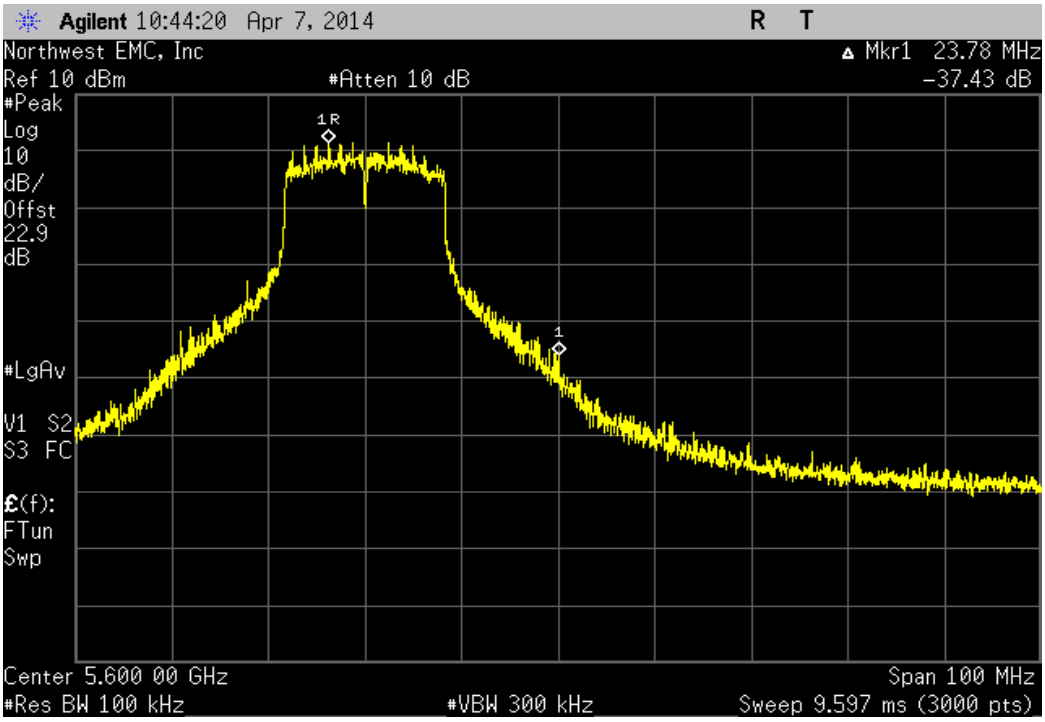
				Value	Limit	Result
				-26.62 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

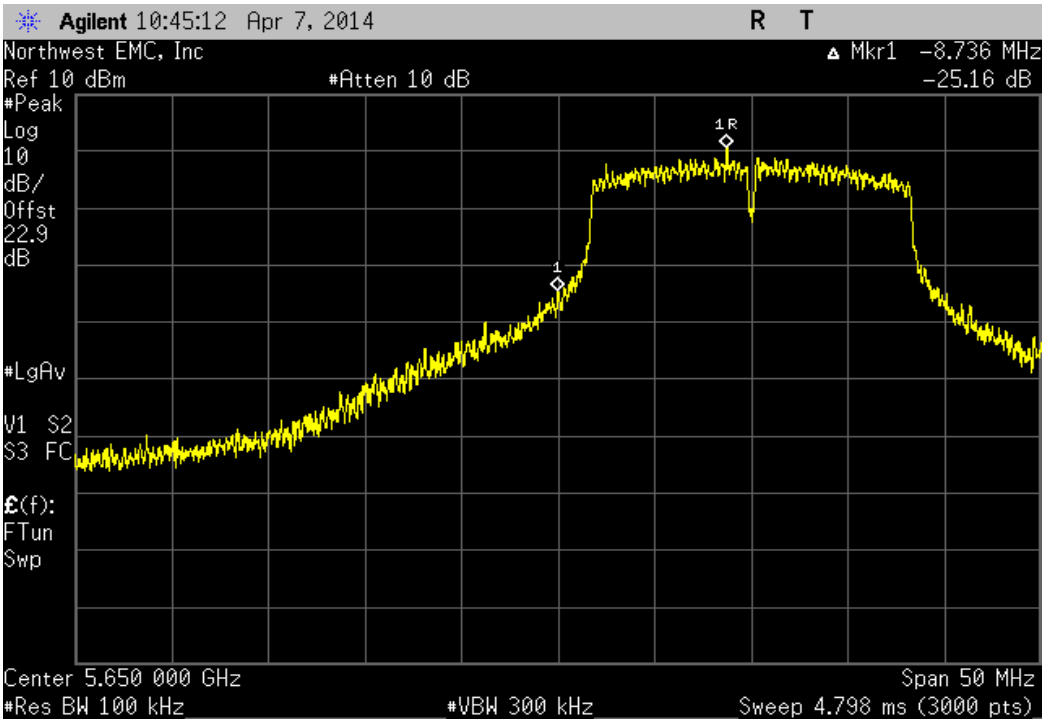
802.11(a) 36 Mbps, 5600 MHz Band Edge, Channel 116, 5580 MHz

				Value	Limit	Result
				-37.43 dBc	≤ -20 dBc	Pass



802.11(a) 36 Mbps, 5650 MHz Band Edge, Channel 132, 5660 MHz

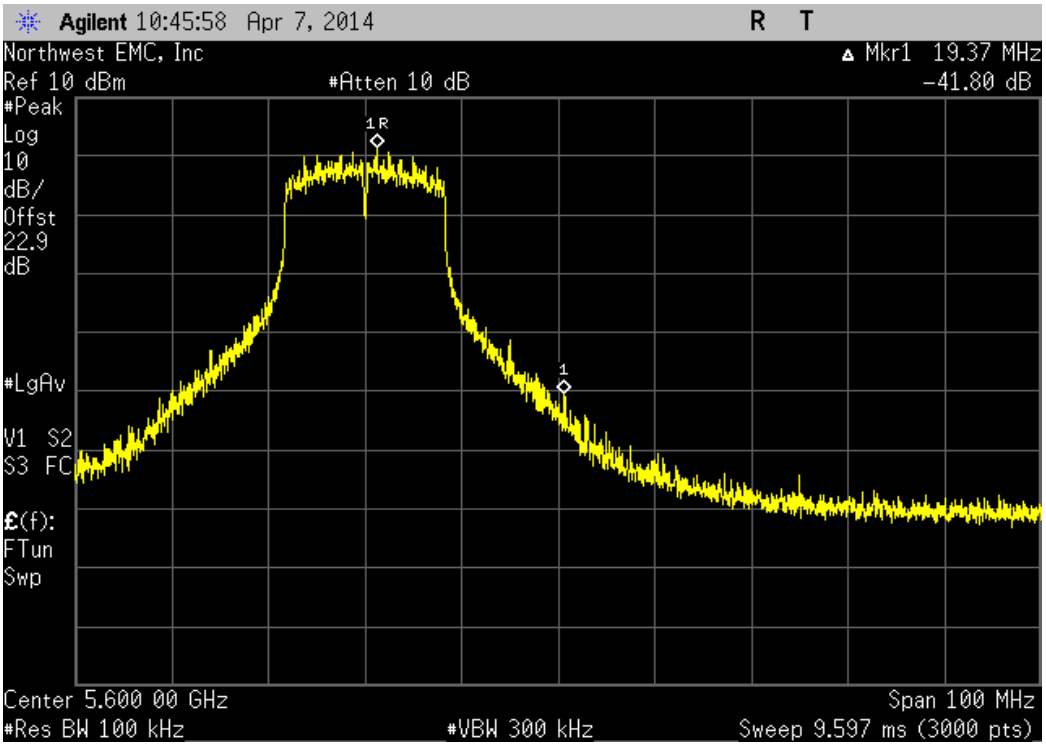
				Value	Limit	Result
				-25.16 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

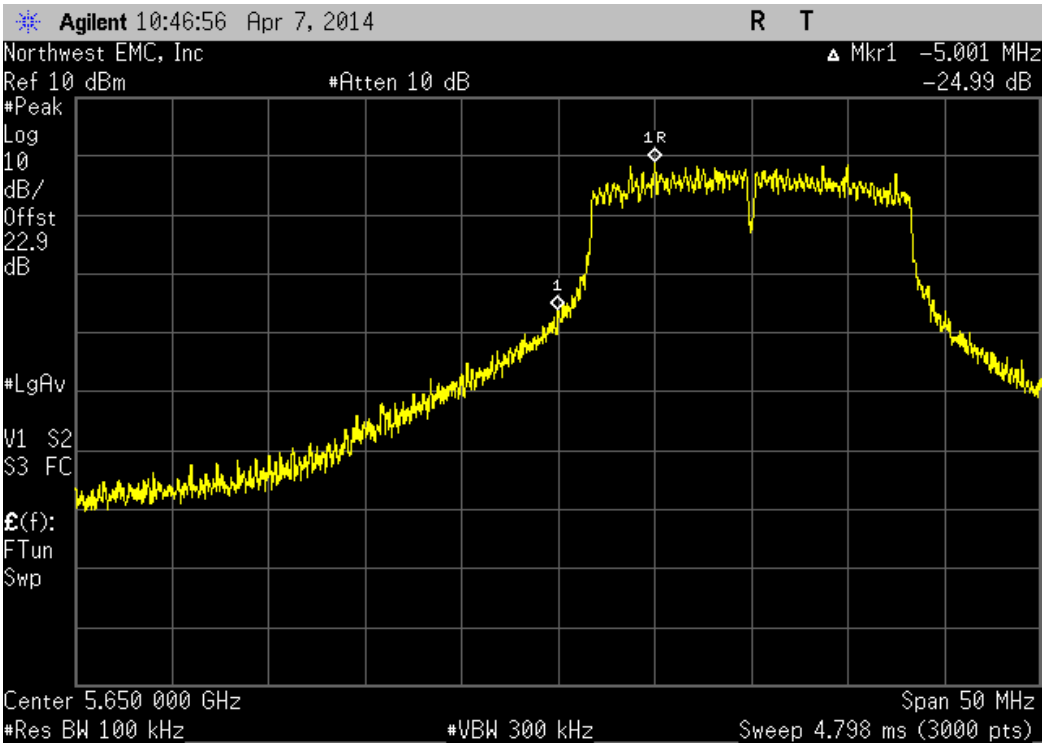
802.11(a) 54 Mbps, 5600 MHz Band Edge, Channel 116, 5580 MHz

				Value	Limit	Result
				-41.8 dBc	≤ -20 dBc	Pass



802.11(a) 54 Mbps, 5650 MHz Band Edge, Channel 132, 5660 MHz

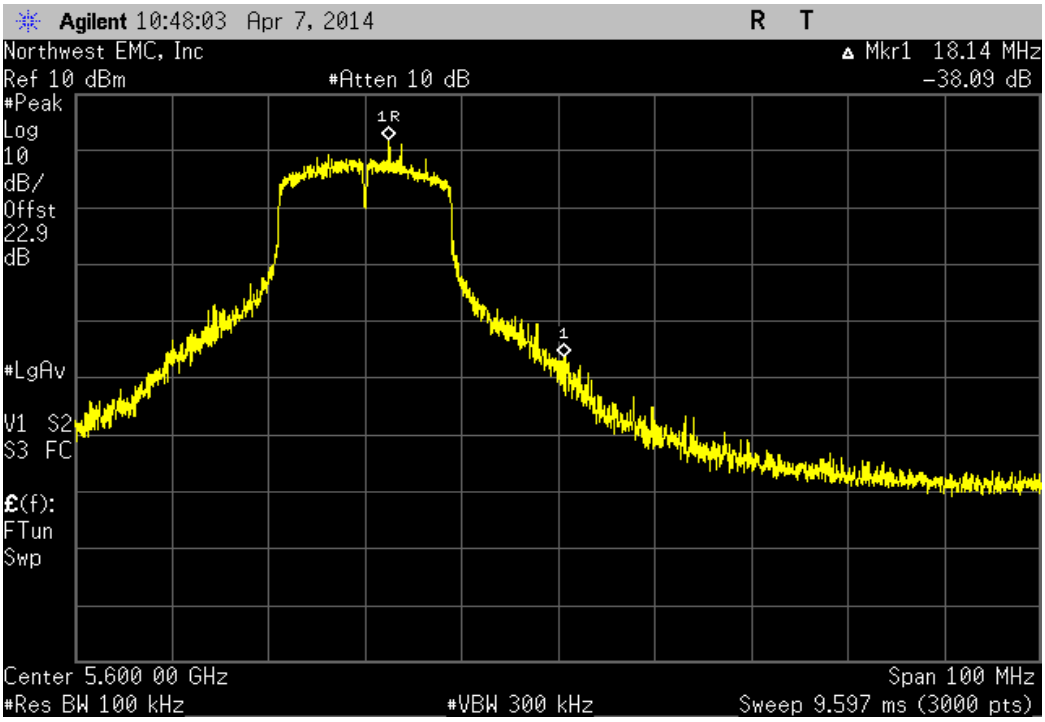
				Value	Limit	Result
				-24.99 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

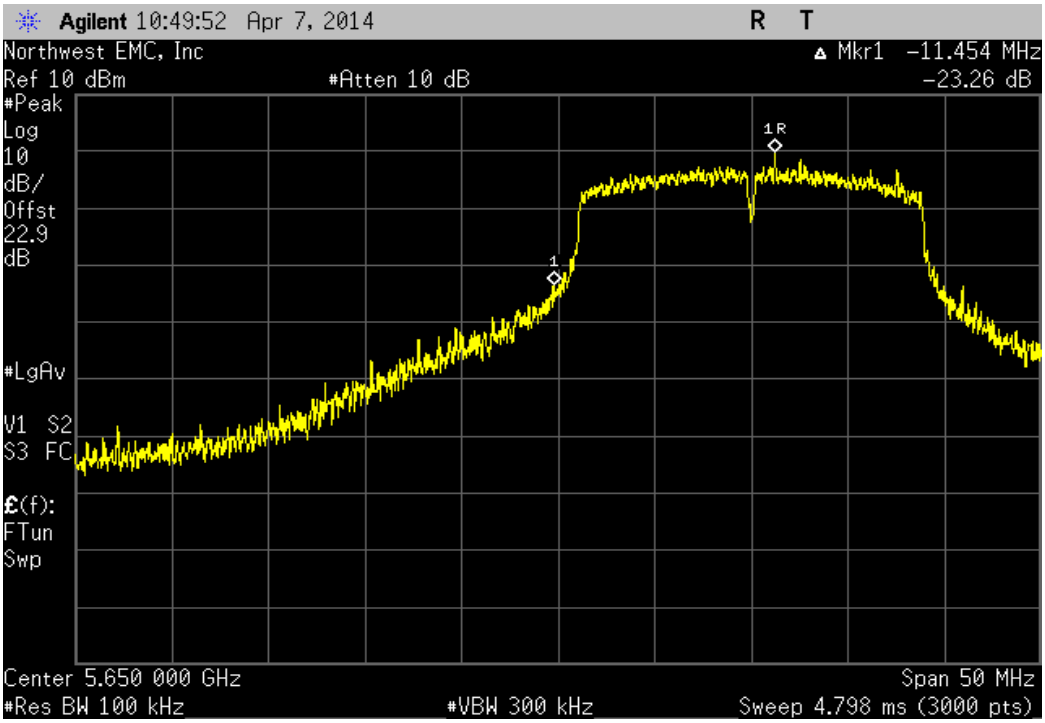
802.11(n) MCS0, 5600 MHz Band Edge, Channel 116, 5580 MHz

				Value	Limit	Result
				-38.1 dBc	≤ -20 dBc	Pass



802.11(n) MCS0, 5650 MHz Band Edge, Channel 132, 5660 MHz

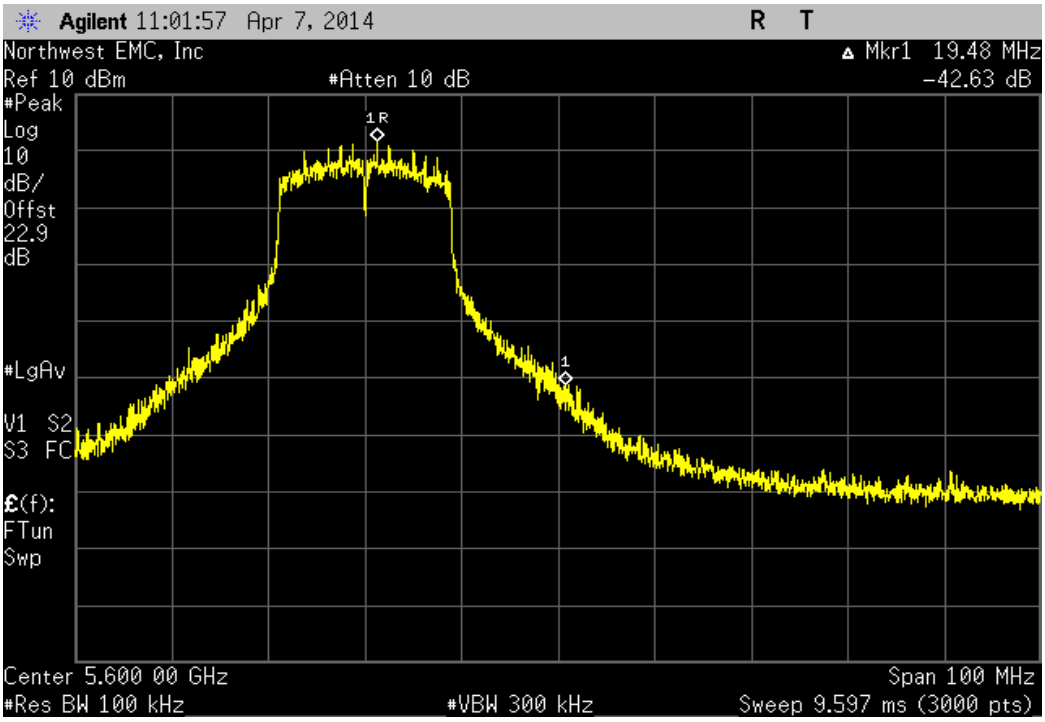
				Value	Limit	Result
				-23.26 dBc	≤ -20 dBc	Pass



BAND EDGE COMPLIANCE

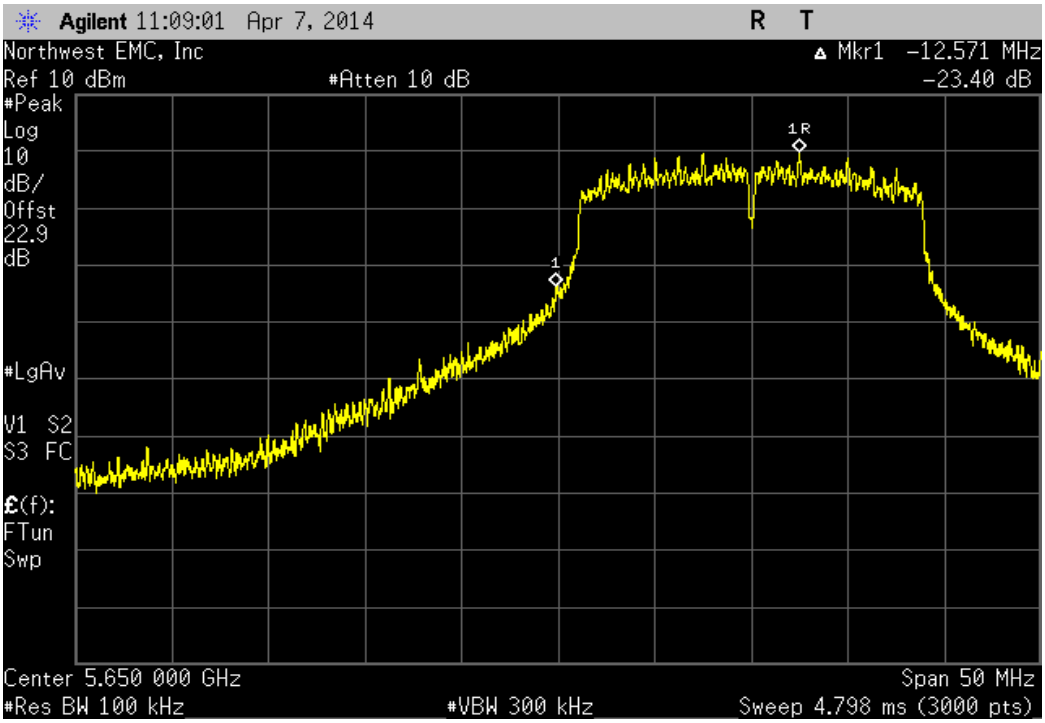
802.11(n) MCS7, 5600 MHz Band Edge, Channel 116, 5580 MHz

				Value	Limit	Result
				-42.63 dBc	≤ -20 dBc	Pass



802.11(n) MCS7, 5650 MHz Band Edge, Channel 132, 5660 MHz

				Value	Limit	Result
				-23.4 dBc	≤ -20 dBc	Pass



FREQUENCY STABILITY

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 (mo.)
Multimeter	Tektronix	DMM912	MMH	2/5/2013	24
Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	NCR	0
Humidity Temperature Meter	Omega	HH311	DUH	2/19/2013	36
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Near Field Probe	EMCO	7405	IPD	NCR	0
Spectrum Analyzer	Agilent	E4446A	AAQ	1/21/2014	24

TEST DESCRIPTION

A near field probe measurement was made between the EUT's antenna and a spectrum analyzer. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with an absence of modulation in a CW mode of operation.

The primary supply voltage was varied from 85 % to 115% of the nominal voltage Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50° C) and at 10°C intervals.

Per the requirements of FCC 15.407:

"Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual."

No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	04/14/14
Customer:	Synapse Product Development LLC	Temperature:	22.4°C
Attendees:	None	Humidity:	44%
Project:	Kezar	Barometric Pres.:	1022
Tested by:	Brandon Hobbs	Power: 12 VDC Nominal	Job Site: EV06

TEST SPECIFICATIONS	Test Method
FCC 15.407:2014	ANSI C63.10:2009

COMMENTS

Product was test at a 10dBm maximum power level.

DEVIATIONS FROM TEST STANDARD

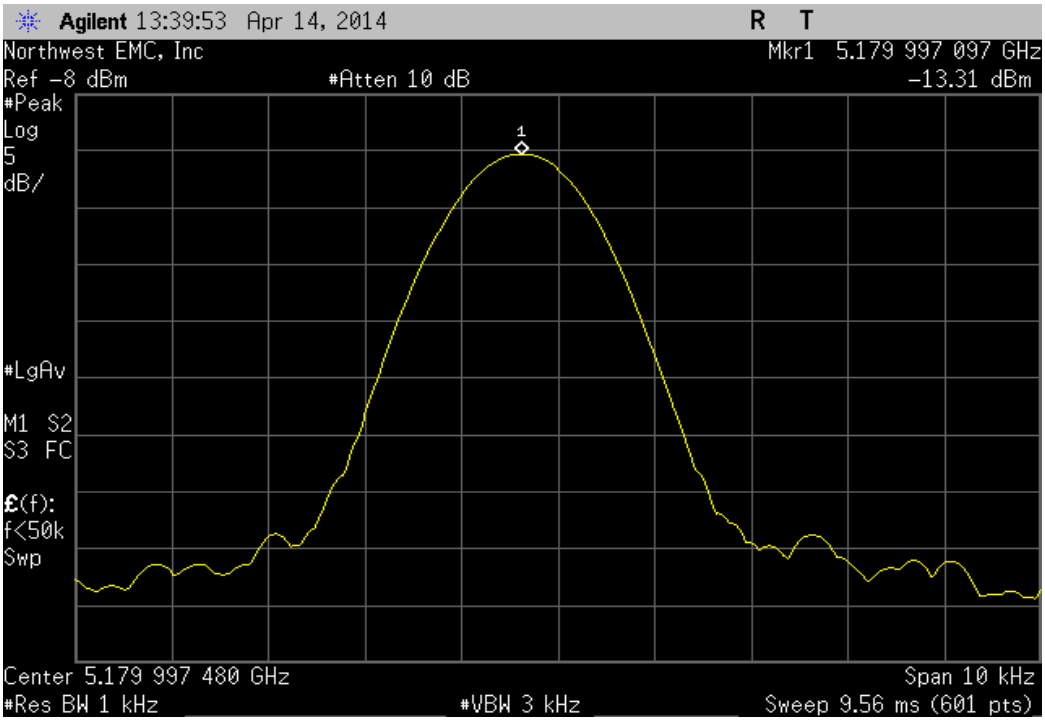
None

Configuration #	4	Signature

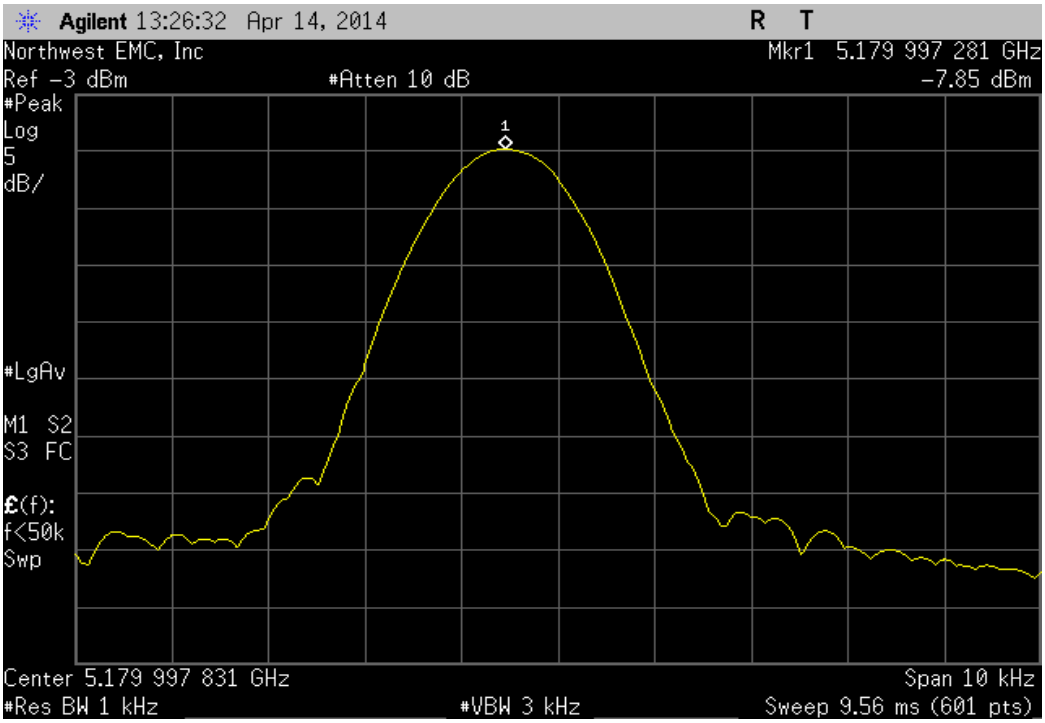
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
5150 MHz - 5250 MHz - Low Channel, 5180 MHz					
Voltage: 115%	5179.997097	5180	0.6	100	Pass
Voltage: 100%	5179.997281	5180	0.5	100	Pass
Voltage: 85%	5179.997047	5180	0.6	100	Pass
Temperature: +50°	5179.996145	5180	0.7	100	Pass
Temperature: +40°	5179.997498	5180	0.5	100	Pass
Temperature: +30°	5180.000721	5180	0.1	100	Pass
Temperature: +20°	5179.99703	5180	0.6	100	Pass
Temperature: +10°	5179.997715	5180	0.4	100	Pass
Temperature: 0°	5179.999184	5180	0.2	100	Pass
Temperature: -10°	5180.001021	5180	0.2	100	Pass
Temperature: -20°	5180.001939	5180	0.4	100	Pass
Temperature: -30°	5180.003809	5180	0.7	100	Pass
5250 MHz - 5350 MHz - High Channel, 5320 MHz					
Voltage: 115%	5319.996961	5320	0.6	100	Pass
Voltage: 100%	5319.997028	5320	0.6	100	Pass
Voltage: 85%	5319.996911	5320	0.6	100	Pass
Temperature: +50°	5319.995907	5320	0.8	100	Pass
Temperature: +40°	5319.997114	5320	0.5	100	Pass
Temperature: +30°	5320.000354	5320	0.1	100	Pass
Temperature: +20°	5319.996894	5320	0.6	100	Pass
Temperature: +10°	5319.99768	5320	0.4	100	Pass
Temperature: 0°	5319.999149	5320	0.2	100	Pass
Temperature: -10°	5320.000906	5320	0.2	100	Pass
Temperature: -20°	5320.001927	5320	0.4	100	Pass
Temperature: -30°	5320.003648	5320	0.7	100	Pass
5470 MHz - 5725 MHz - Low Channel, 5500 MHz					
Voltage: 115%	5499.99683	5500	0.6	100	Pass
Voltage: 100%	5499.99688	5500	0.6	100	Pass
Voltage: 85%	5499.99678	5500	0.6	100	Pass
Temperature: +50°	5499.995696	5500	0.8	100	Pass
Temperature: +40°	5499.99688	5500	0.6	100	Pass
Temperature: +30°	5499.999717	5500	0.1	100	Pass
Temperature: +20°	5499.996863	5500	0.6	100	Pass
Temperature: +10°	5499.997615	5500	0.4	100	Pass
Temperature: 0°	5499.999134	5500	0.2	100	Pass
Temperature: -10°	5500.000902	5500	0.2	100	Pass
Temperature: -20°	5500.00197	5500	0.4	100	Pass
Temperature: -30°	5500.003771	5500	0.7	100	Pass
5470 MHz - 5725 MHz - High Channel, 5700 MHz					
Voltage: 115%	5699.996742	5700	0.6	100	Pass
Voltage: 100%	5699.996777	5700	0.6	100	Pass
Voltage: 85%	5699.996696	5700	0.6	100	Pass
Temperature: +50°	5699.995712	5700	0.8	100	Pass
Temperature: +40°	5699.996627	5700	0.6	100	Pass
Temperature: +30°	5699.999436	5700	0.1	100	Pass
Temperature: +20°	5699.996727	5700	0.6	100	Pass
Temperature: +10°	5699.997598	5700	0.4	100	Pass
Temperature: 0°	5699.999115	5700	0.2	100	Pass
Temperature: -10°	5700.000937	5700	0.2	100	Pass
Temperature: -20°	5700.002106	5700	0.4	100	Pass
Temperature: -30°	5700.003997	5700	0.7	100	Pass

FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997097	5180	0.6	100	Pass

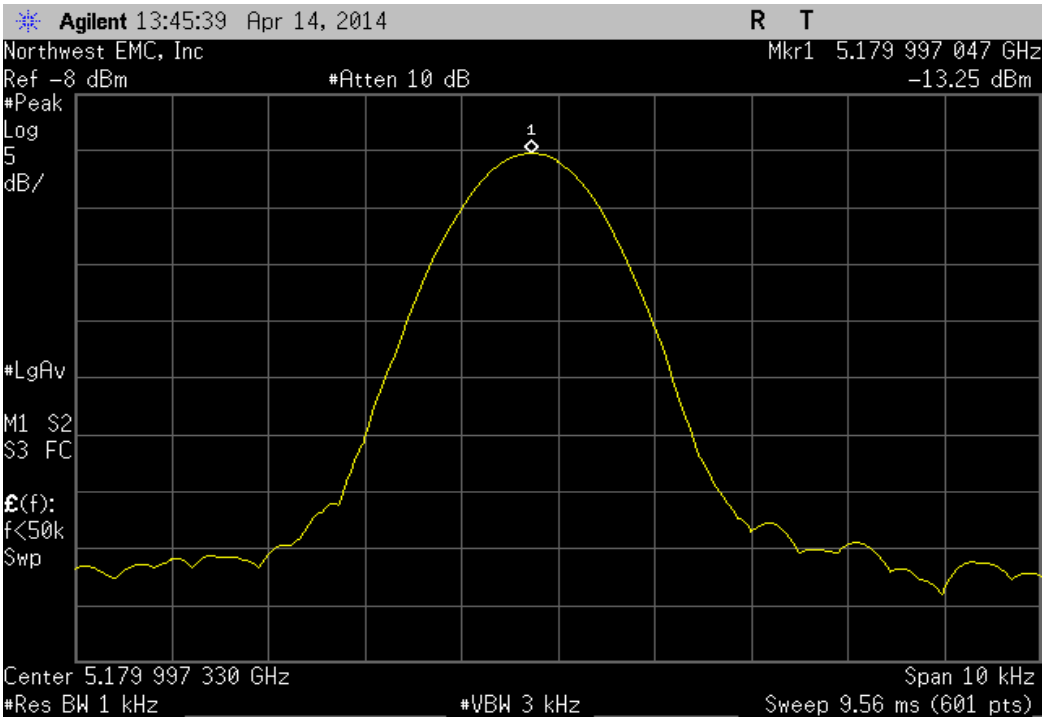


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997281	5180	0.5	100	Pass

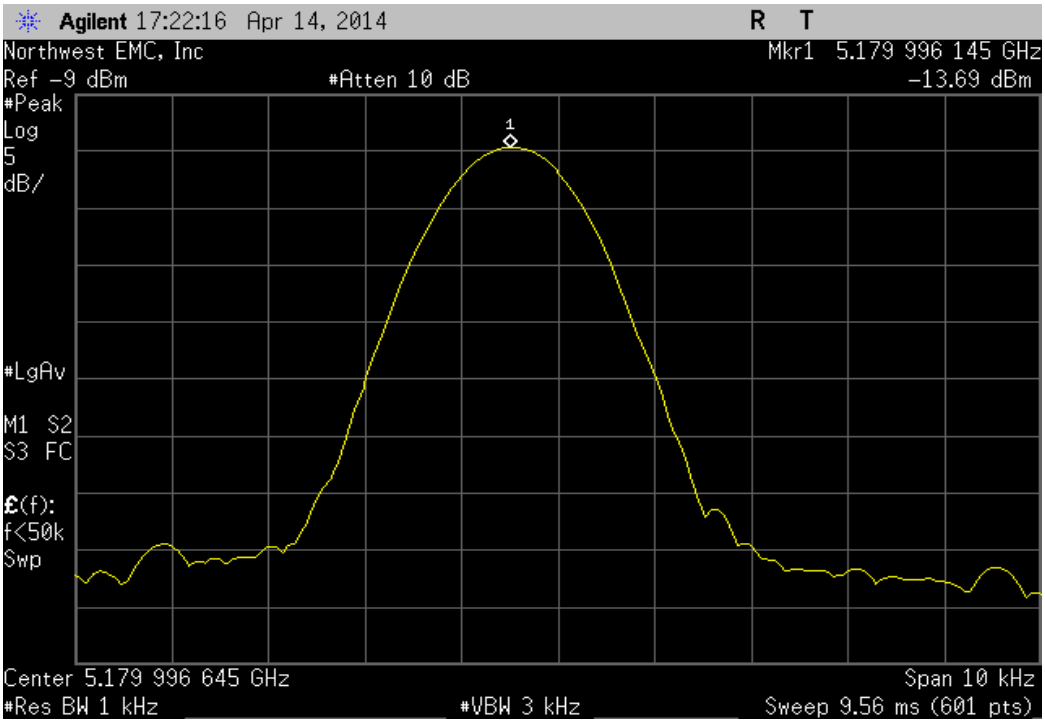


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997047	5180	0.6	100	Pass

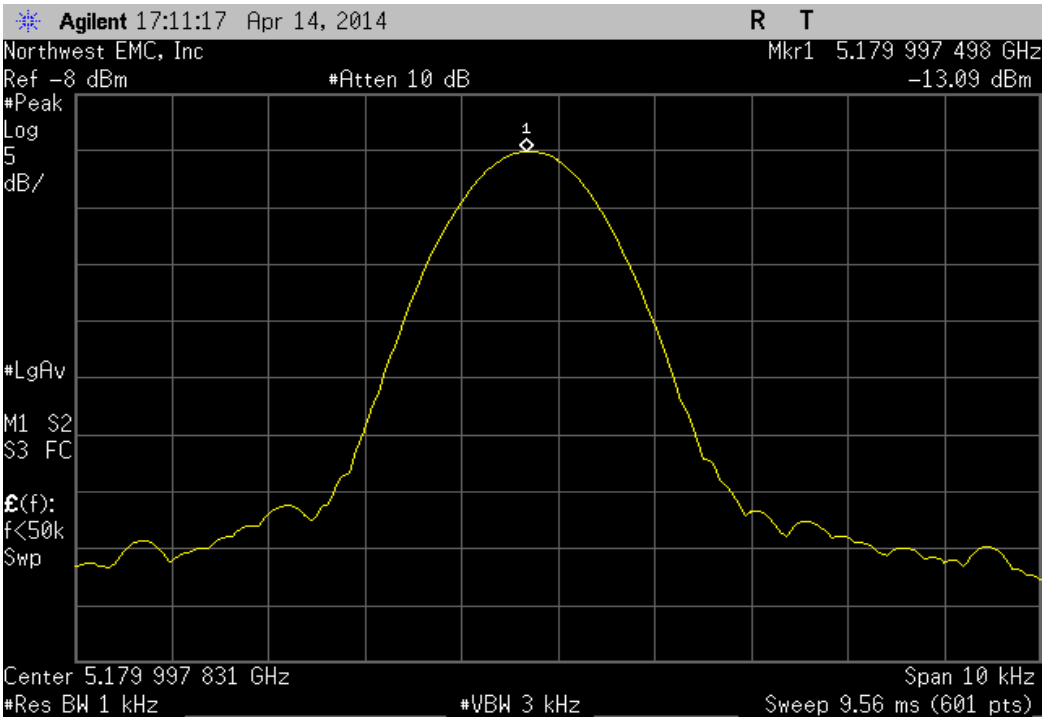


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.996145	5180	0.7	100	Pass

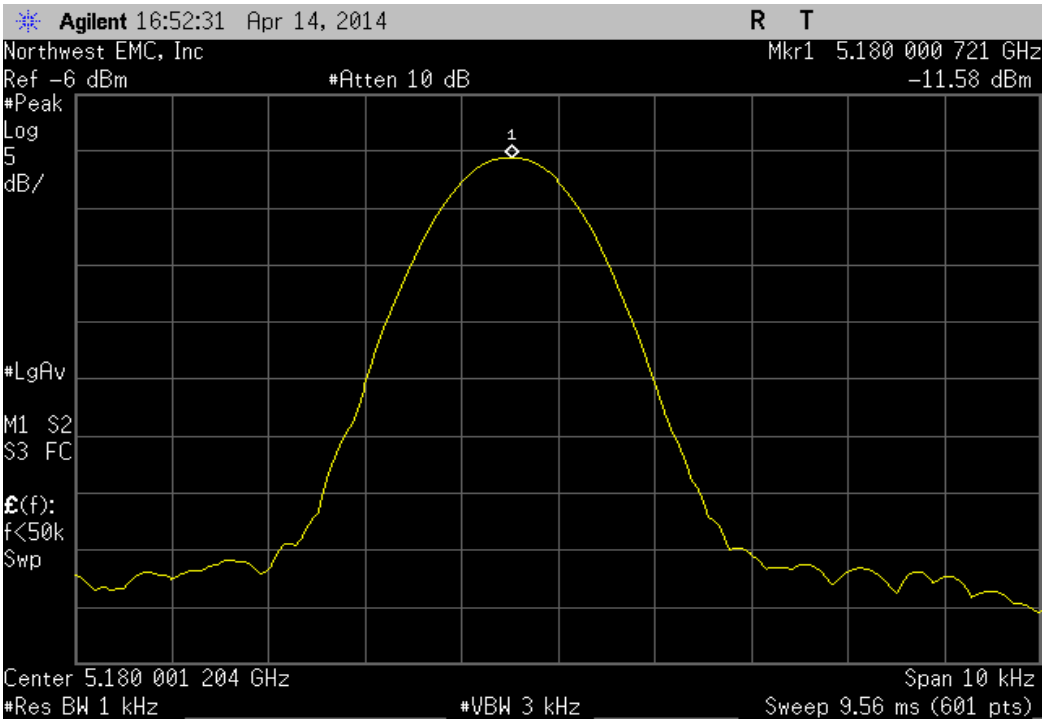


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997498	5180	0.5	100	Pass

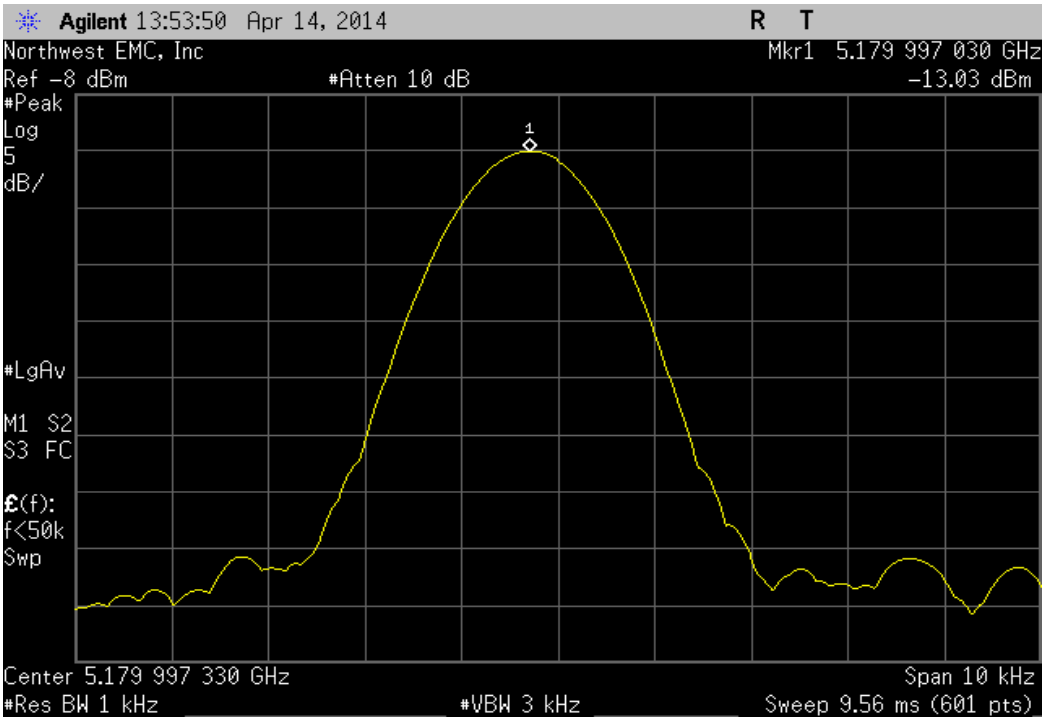


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.000721	5180	0.1	100	Pass

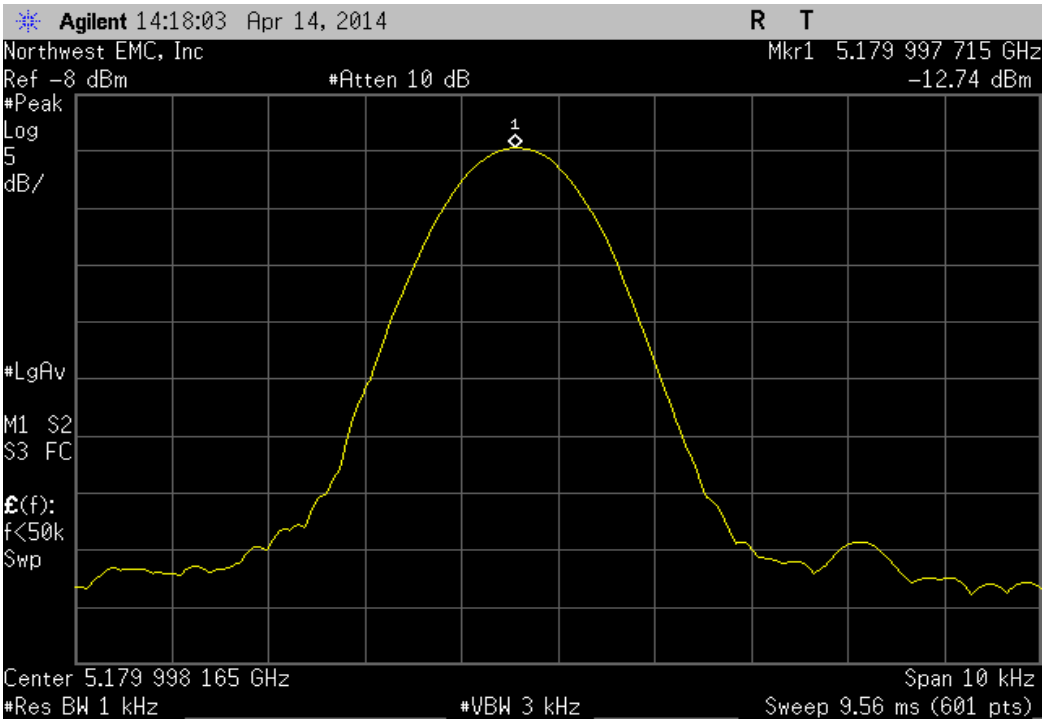


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.99703	5180	0.6	100	Pass

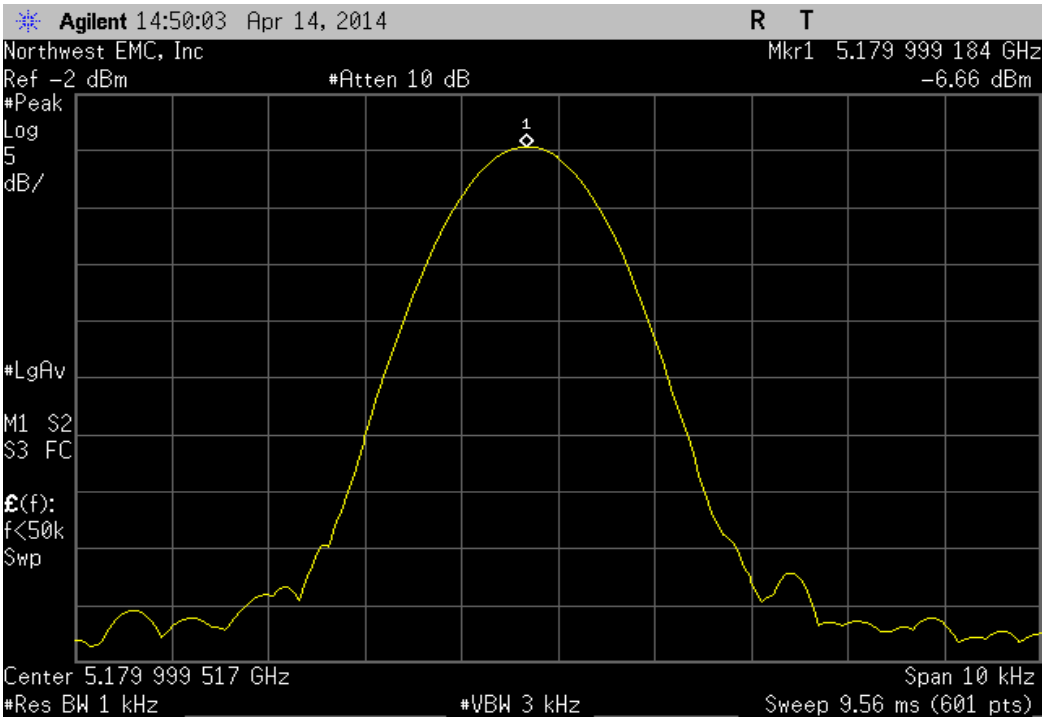


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.997715	5180	0.4	100	Pass

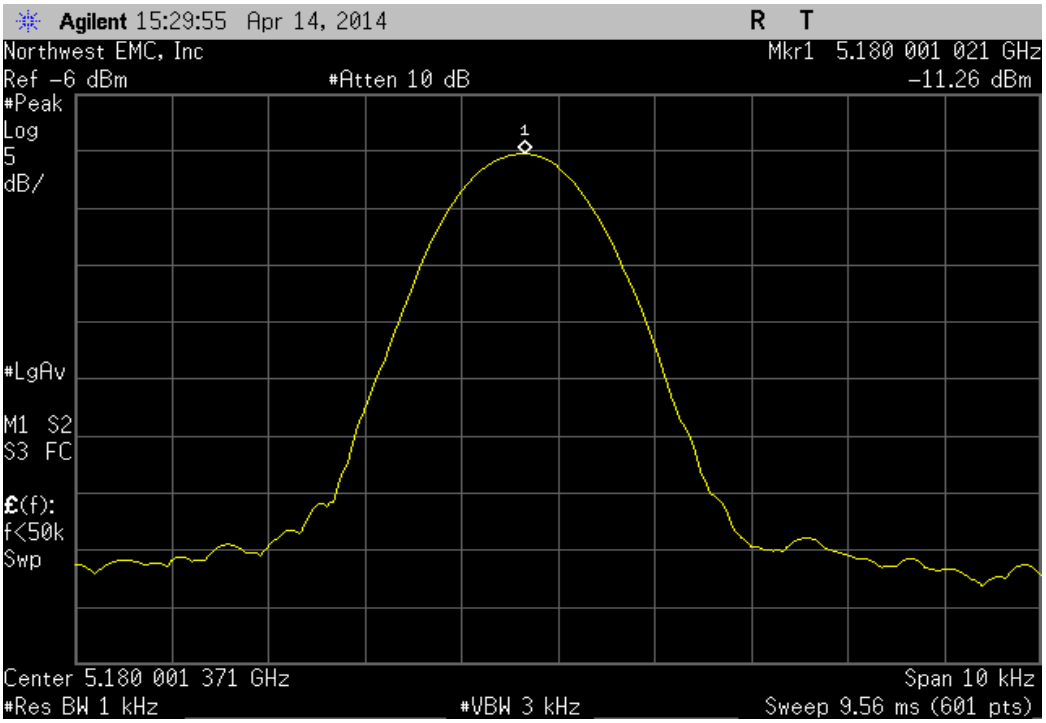


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5179.999184	5180	0.2	100	Pass

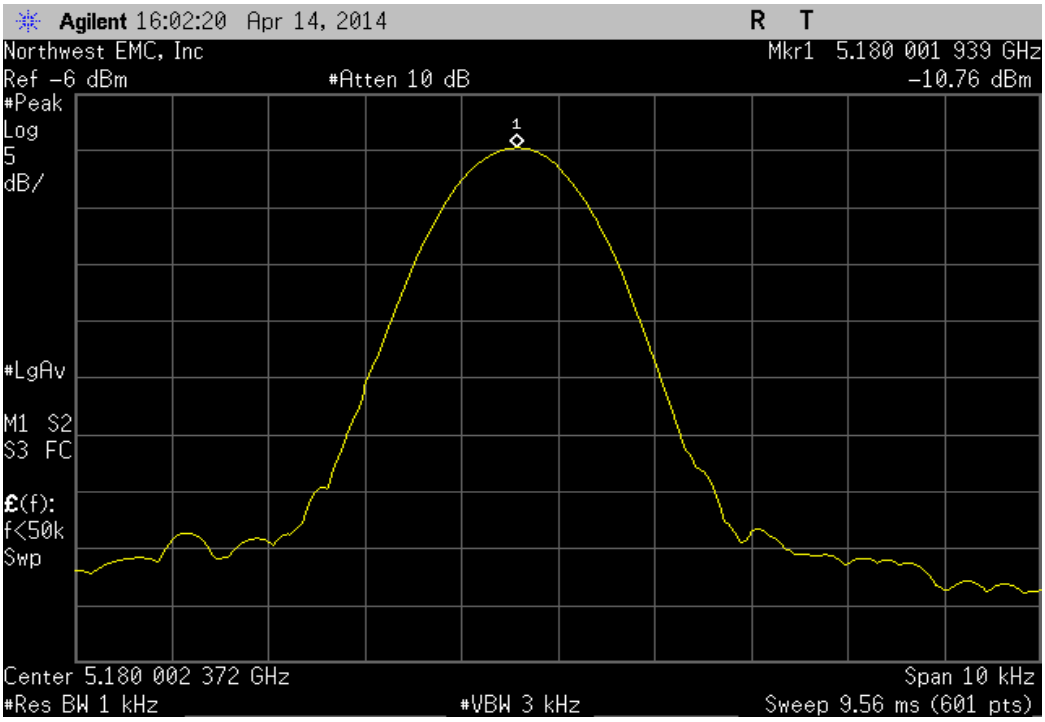


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.001021	5180	0.2	100	Pass

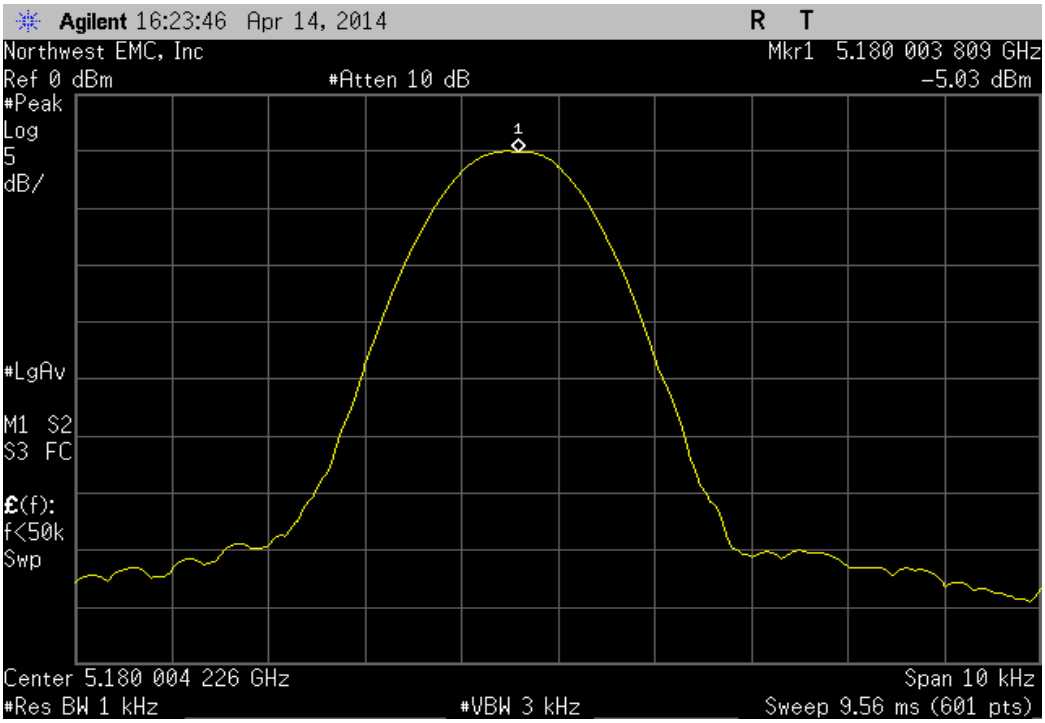


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.001939	5180	0.4	100	Pass

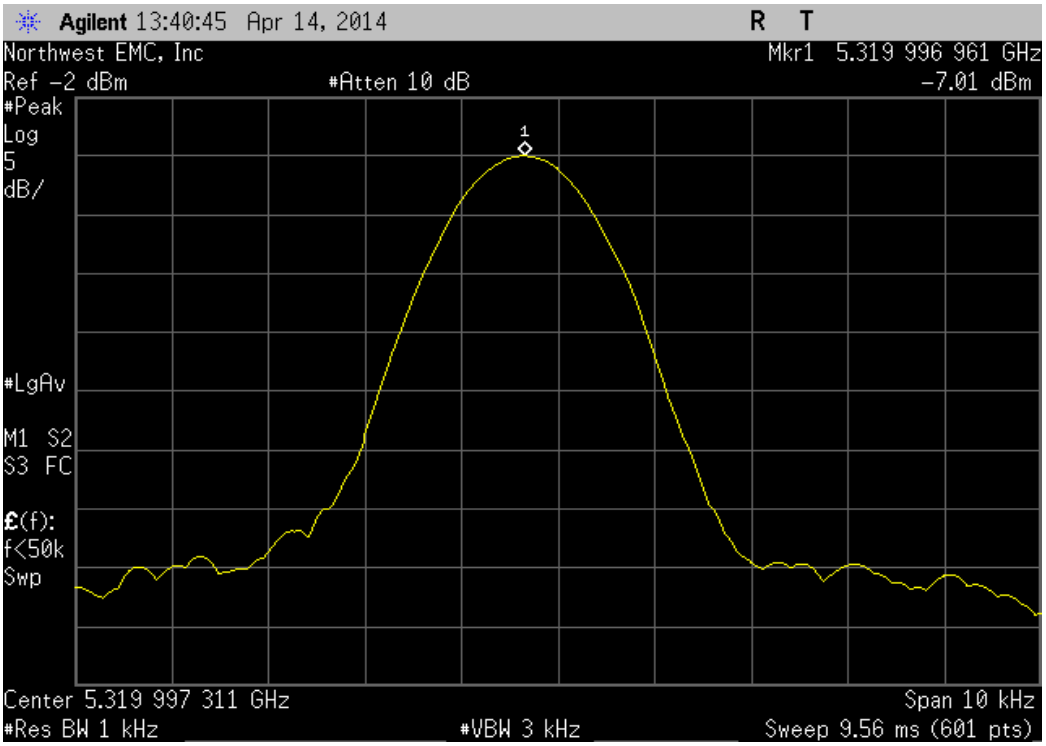


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5180.003809	5180	0.7	100	Pass

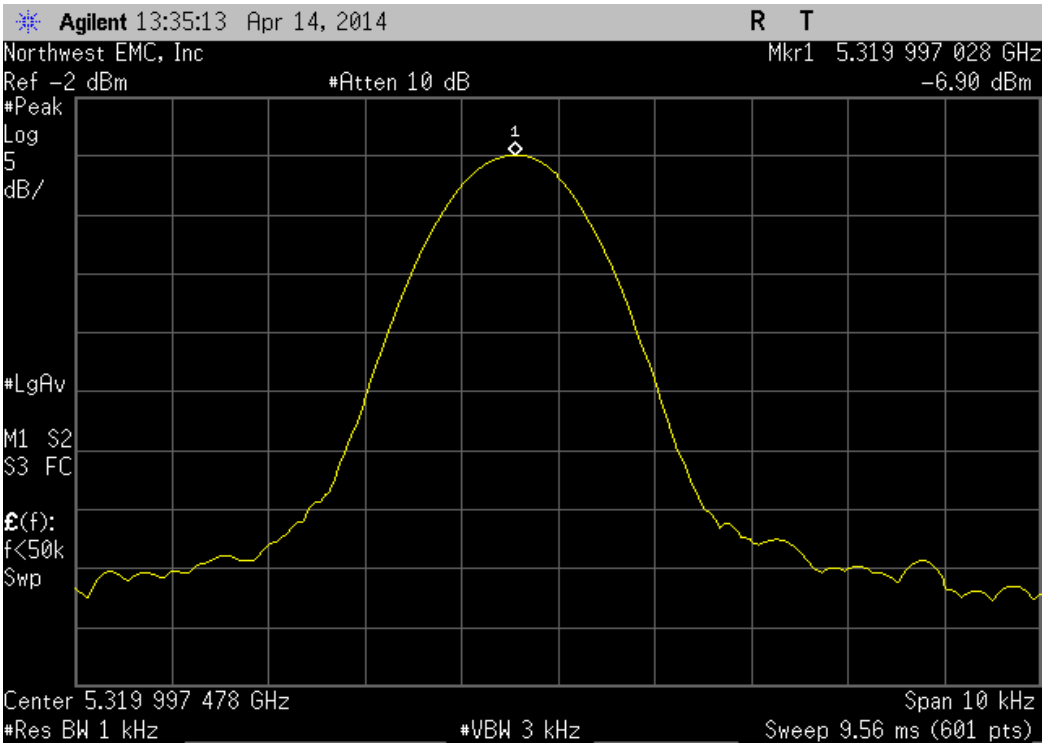


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.996961	5320	0.6	100	Pass

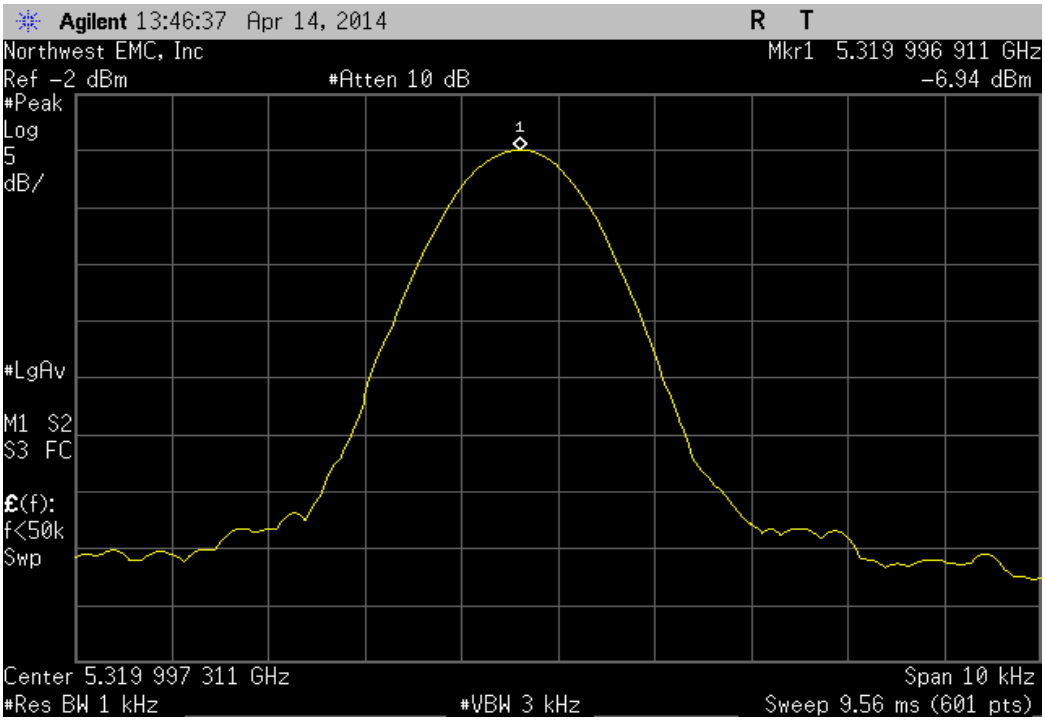


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.997028	5320	0.6	100	Pass

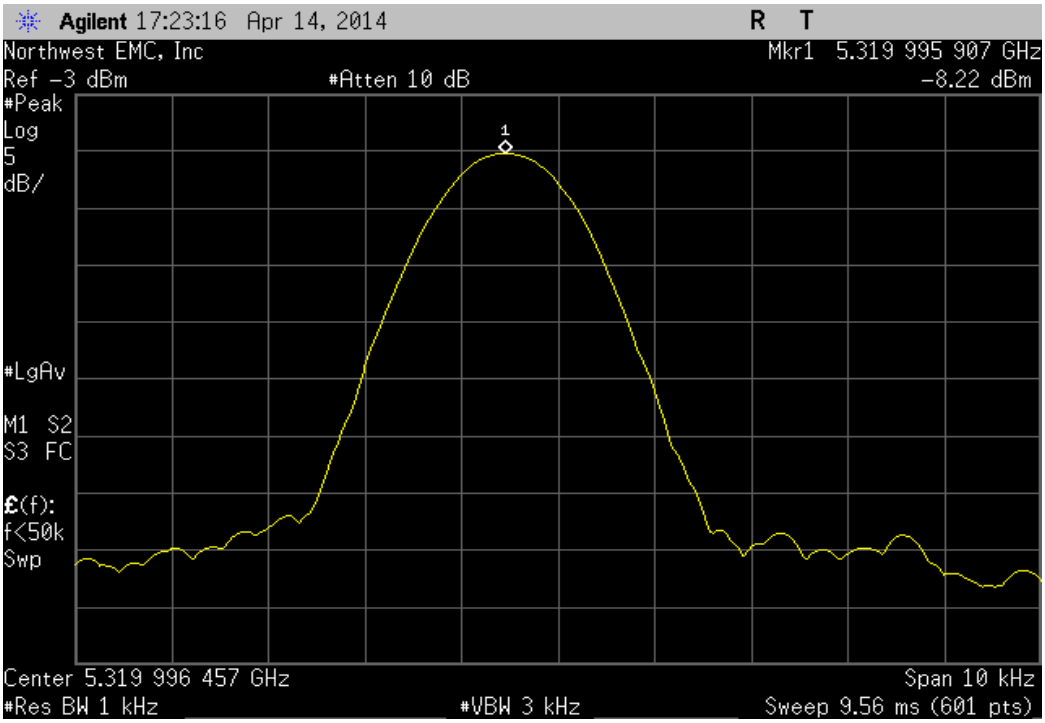


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.996911	5320	0.6	100	Pass

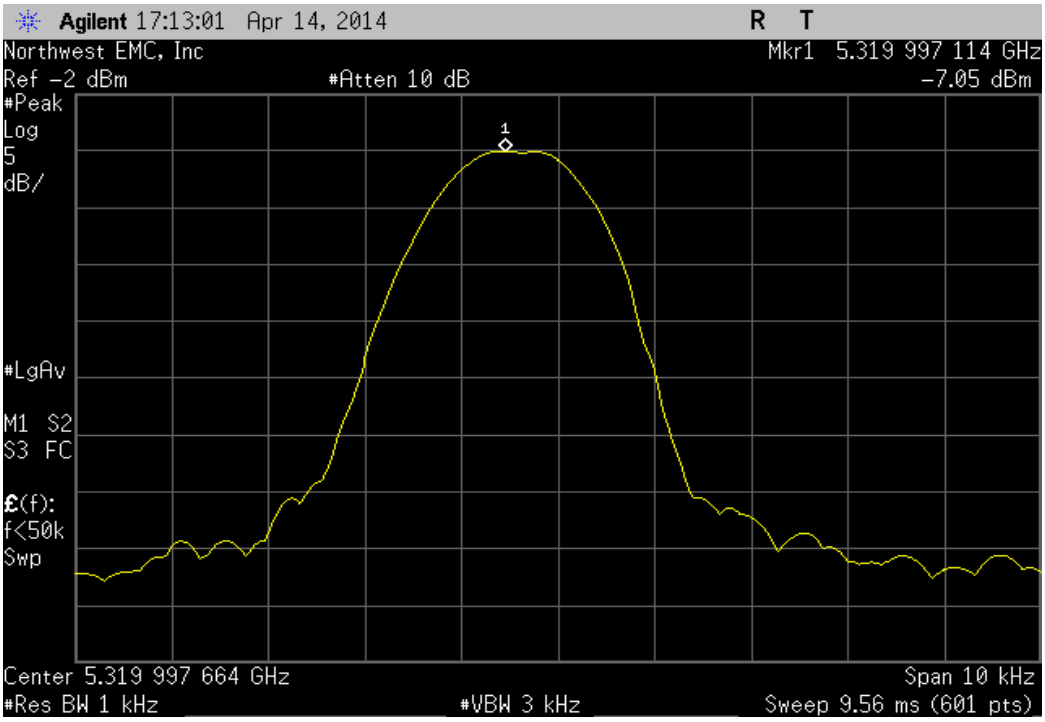


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.995907	5320	0.8	100	Pass

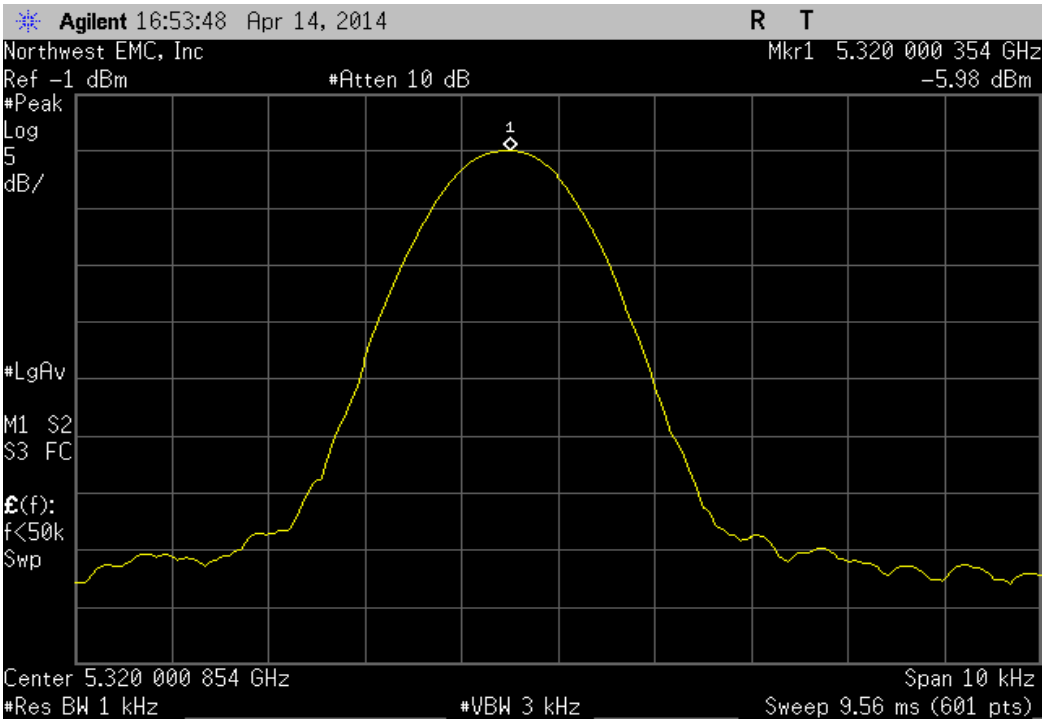


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.997114	5320	0.5	100	Pass

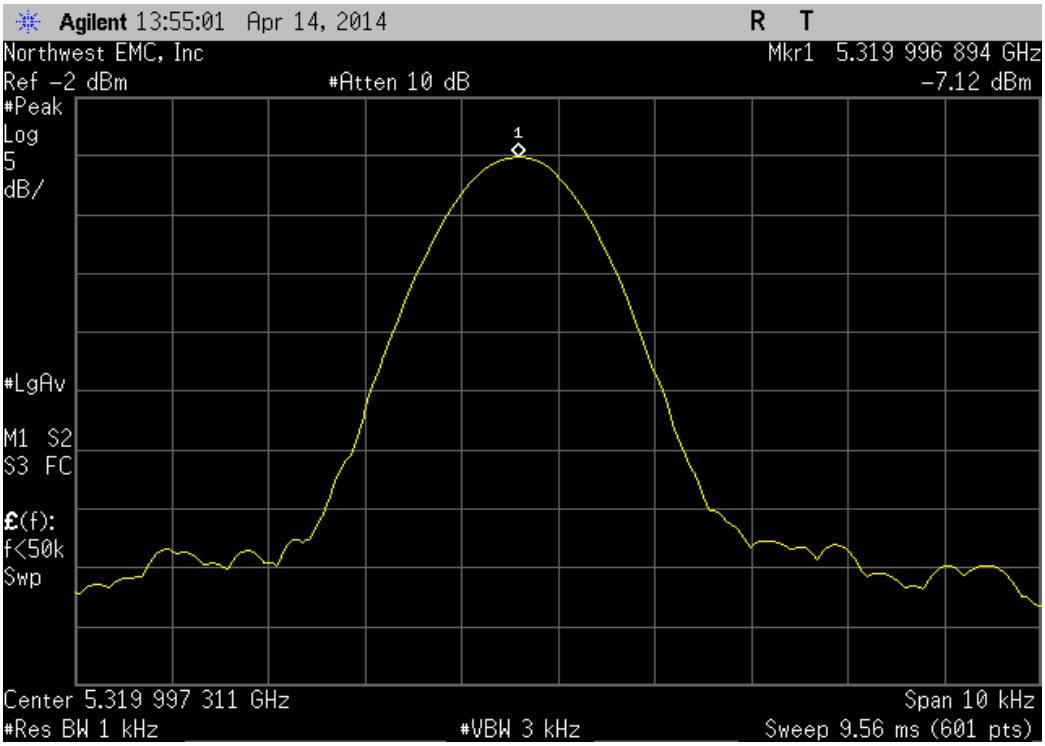


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.000354	5320	0.1	100	Pass

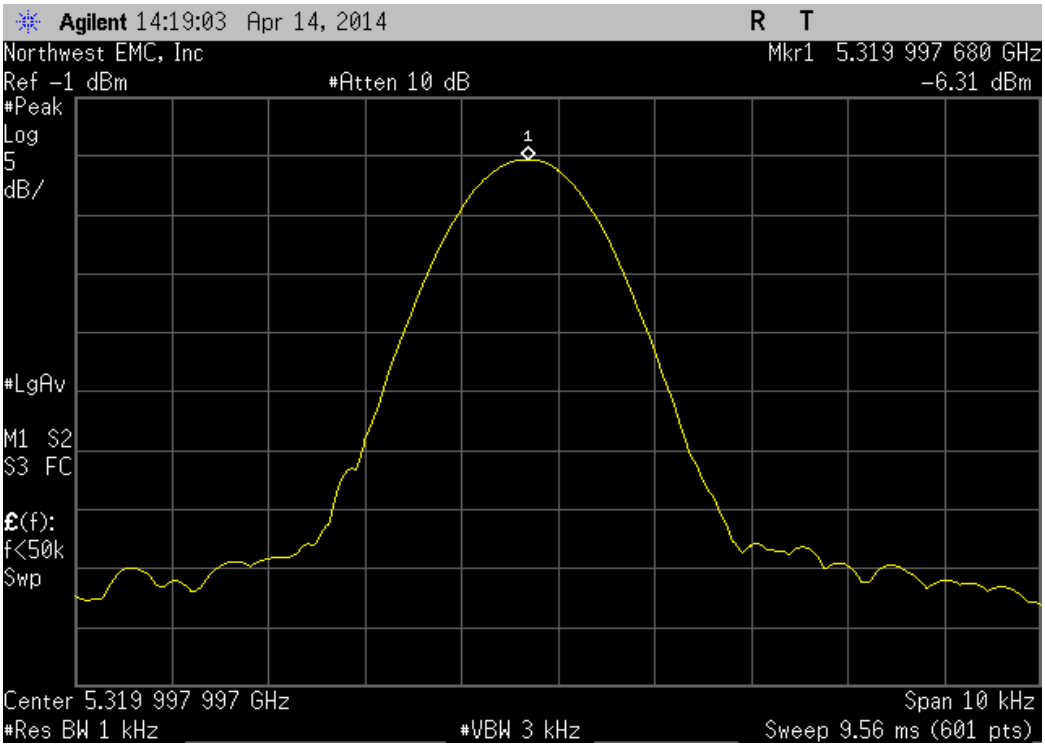


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.996894	5320	0.6	100	Pass

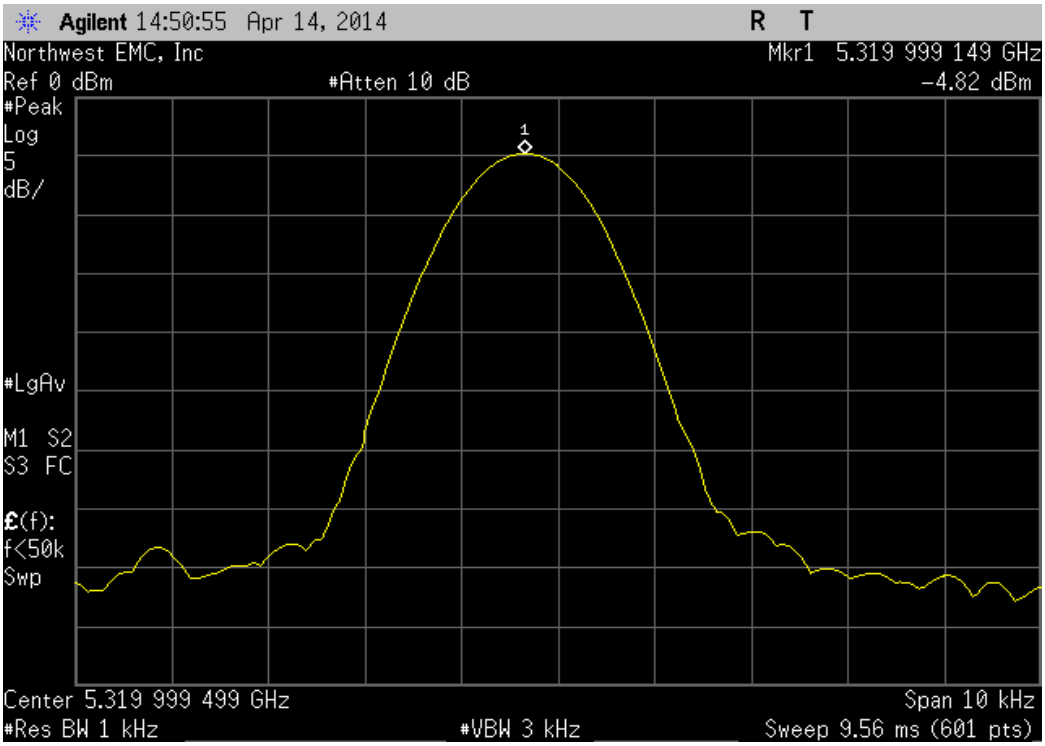


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.99768	5320	0.4	100	Pass

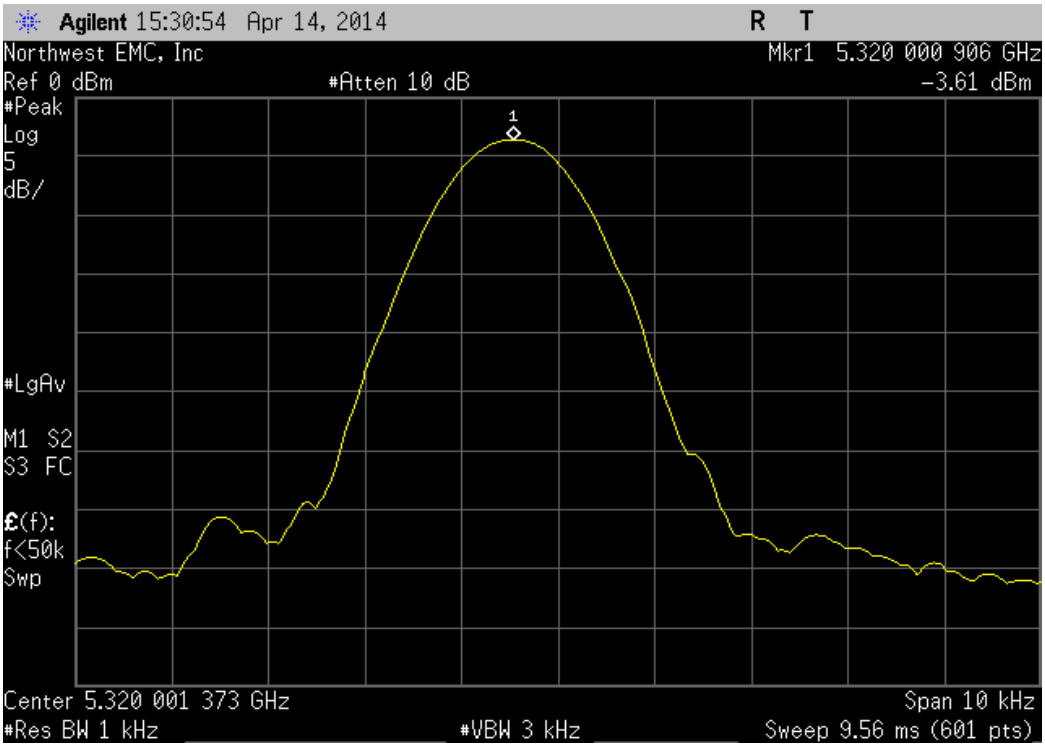


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5319.999149	5320	0.2	100	Pass

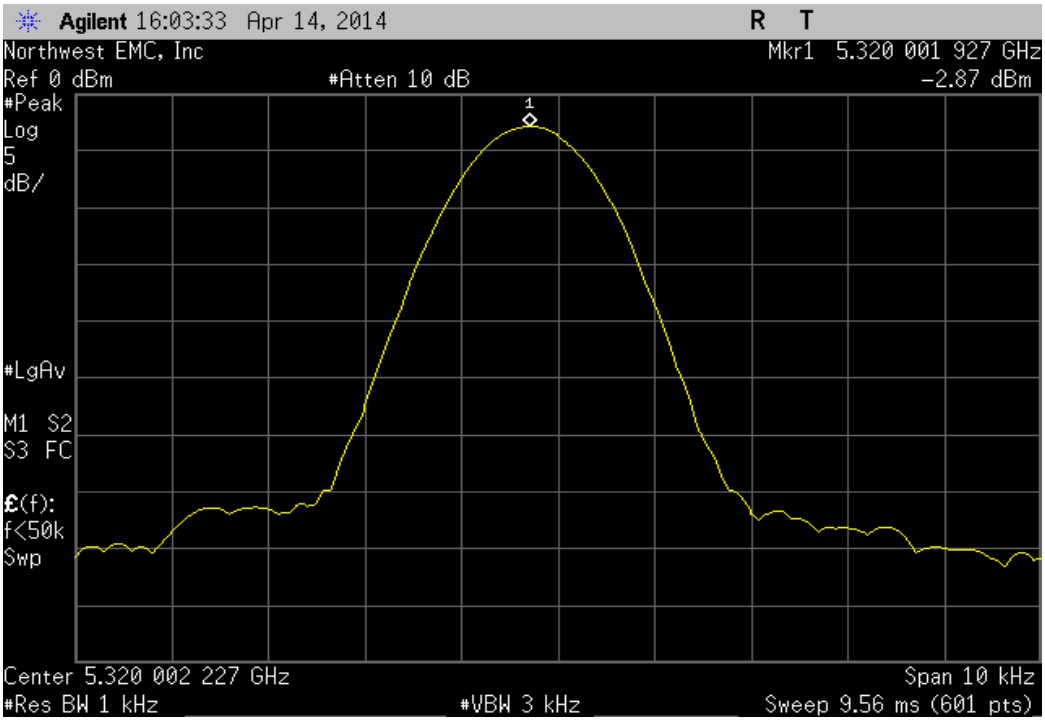


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.000906	5320	0.2	100	Pass

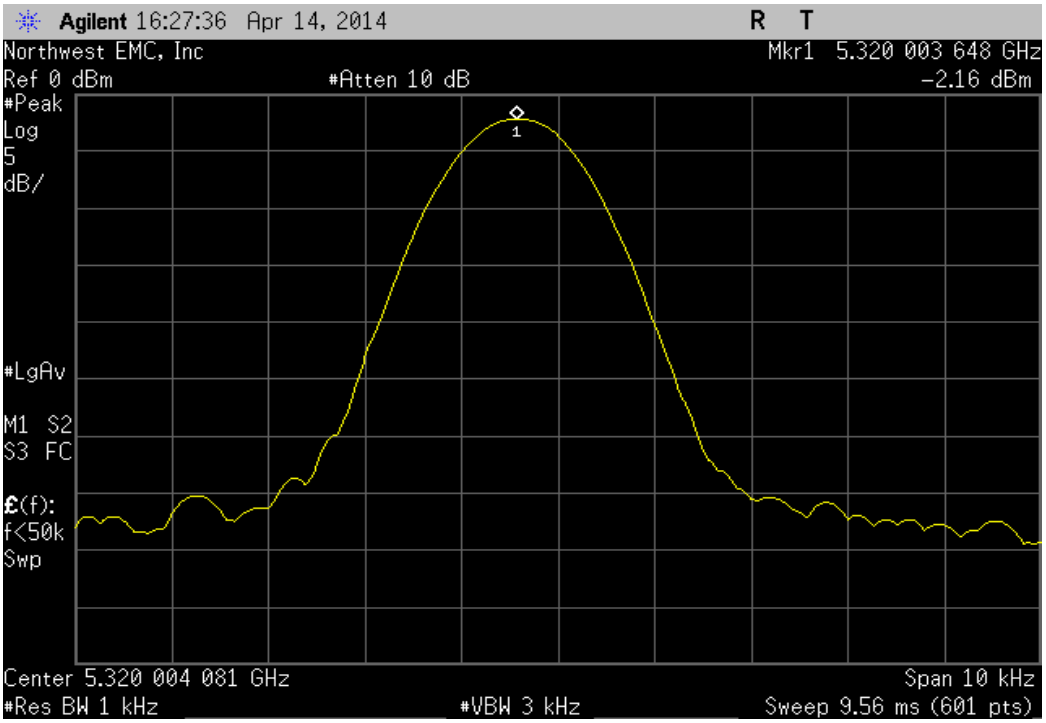


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.001927	5320	0.4	100	Pass

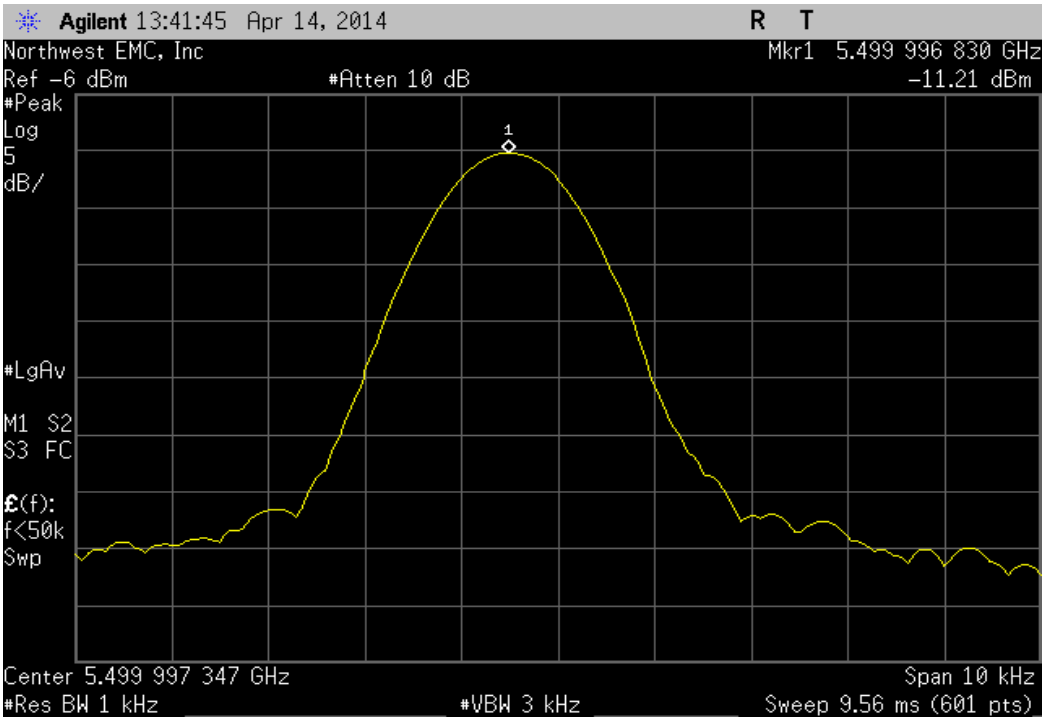


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5320.003648	5320	0.7	100	Pass

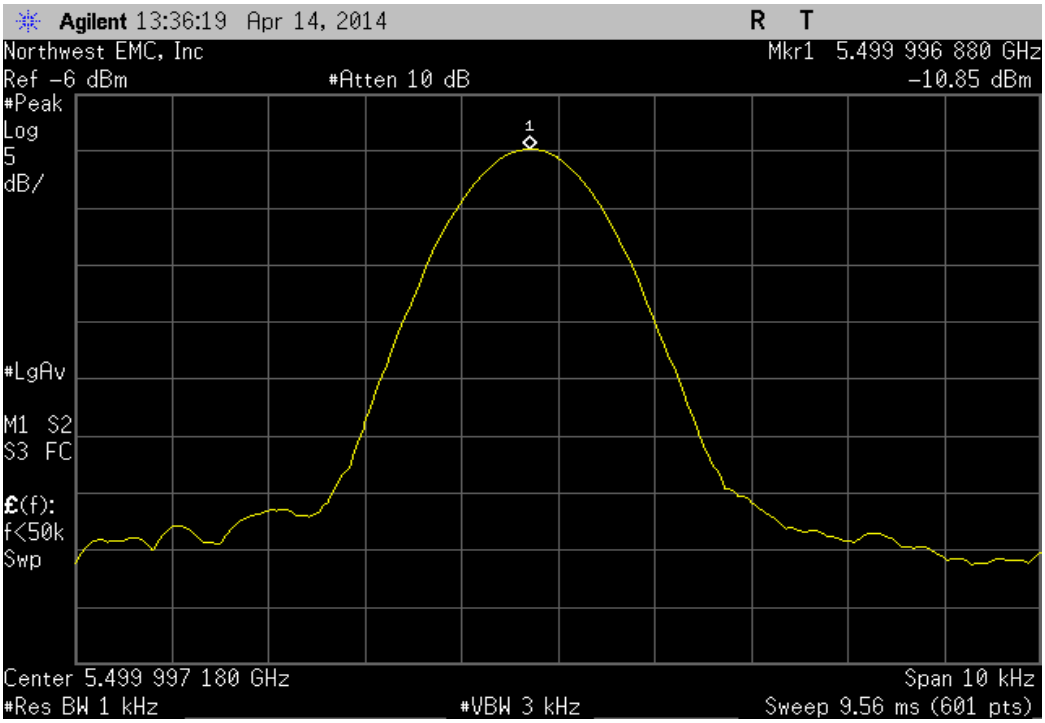


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.99683	5500	0.6	100	Pass

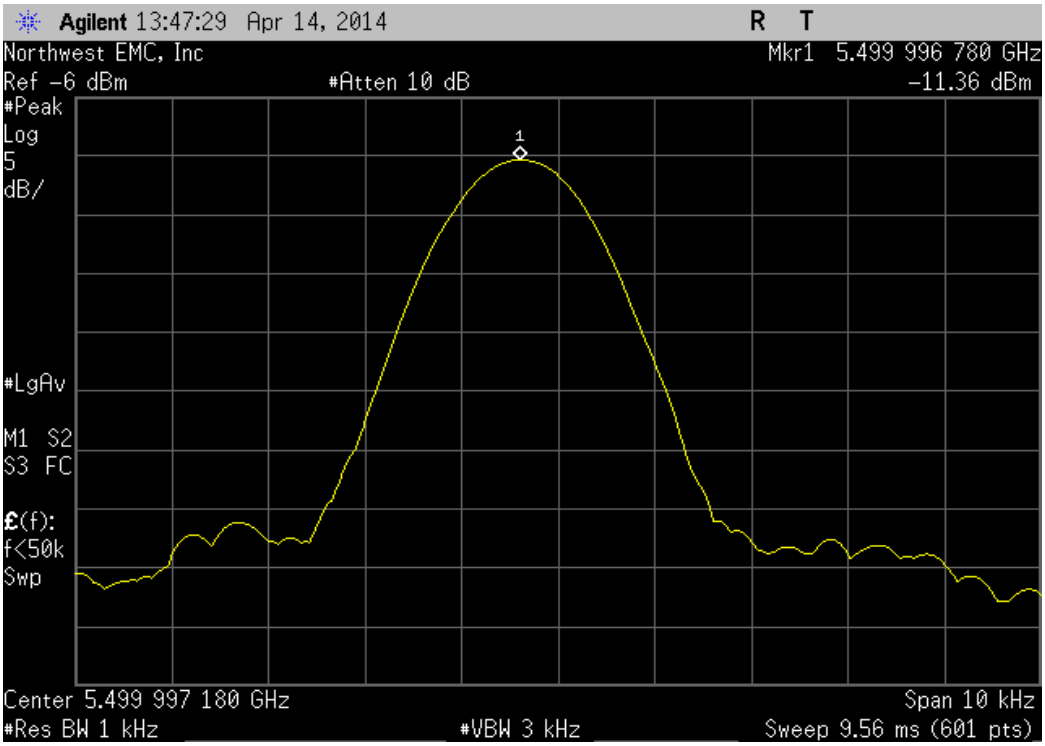


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.99688	5500	0.6	100	Pass

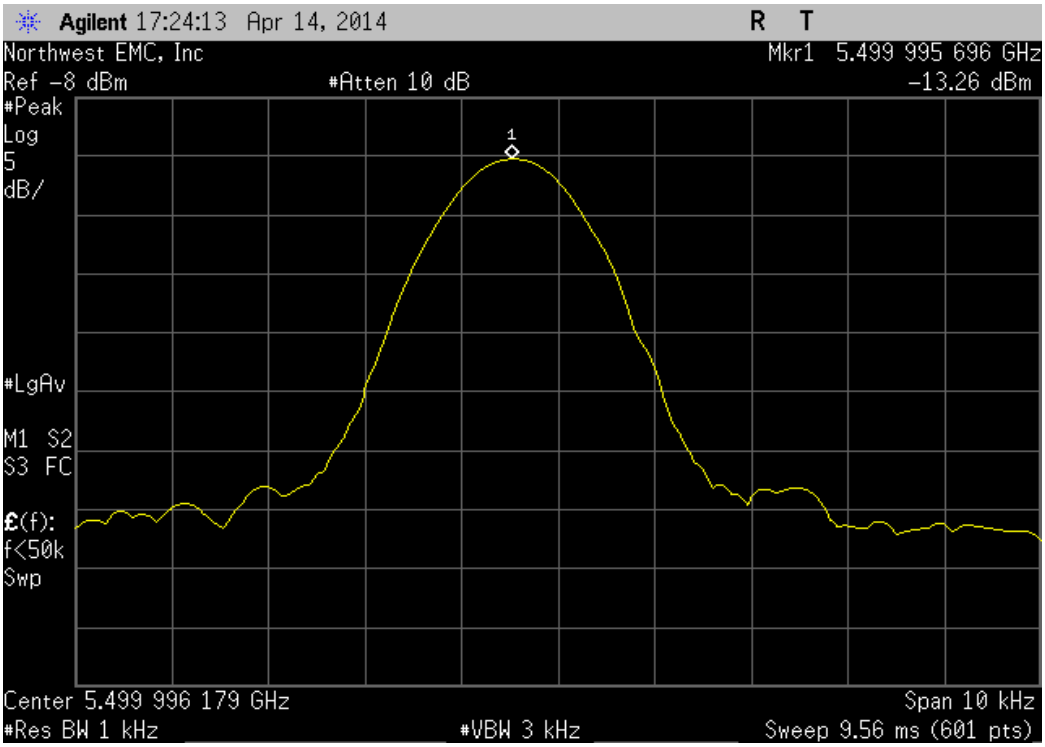


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.99678	5500	0.6	100	Pass

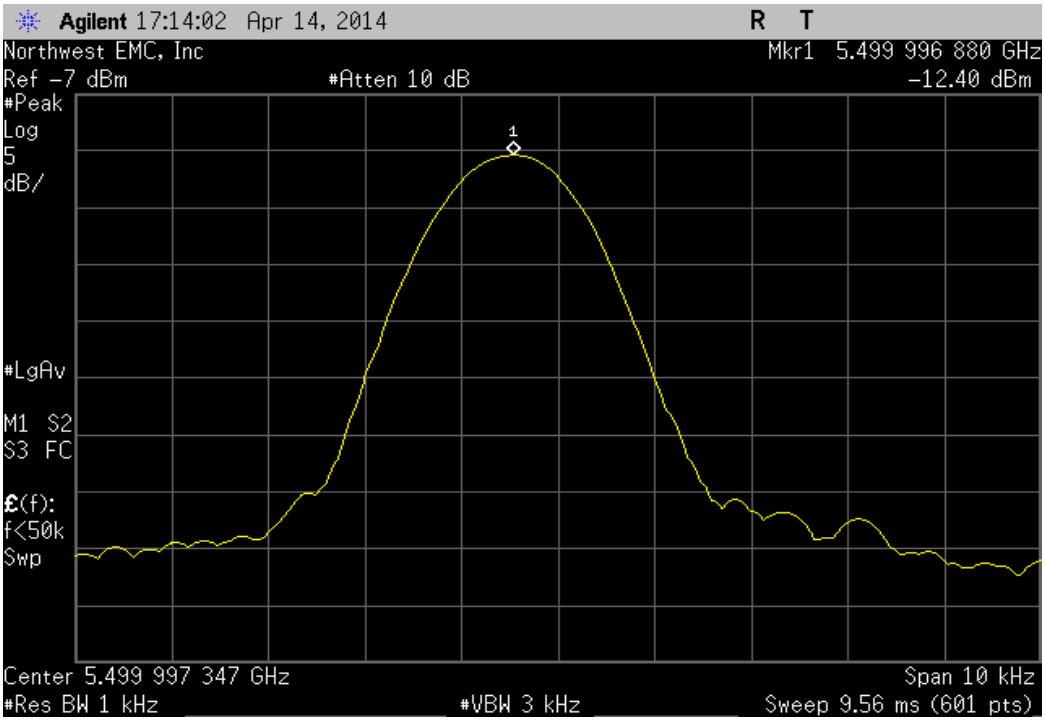


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.995696	5500	0.8	100	Pass

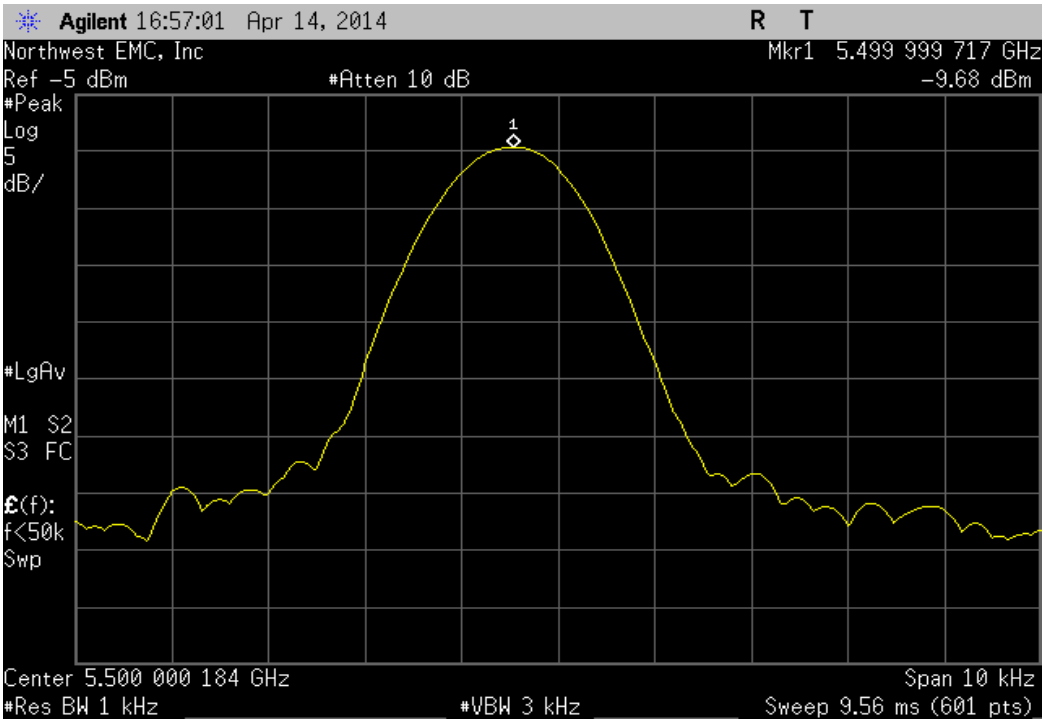


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.99688	5500	0.6	100	Pass

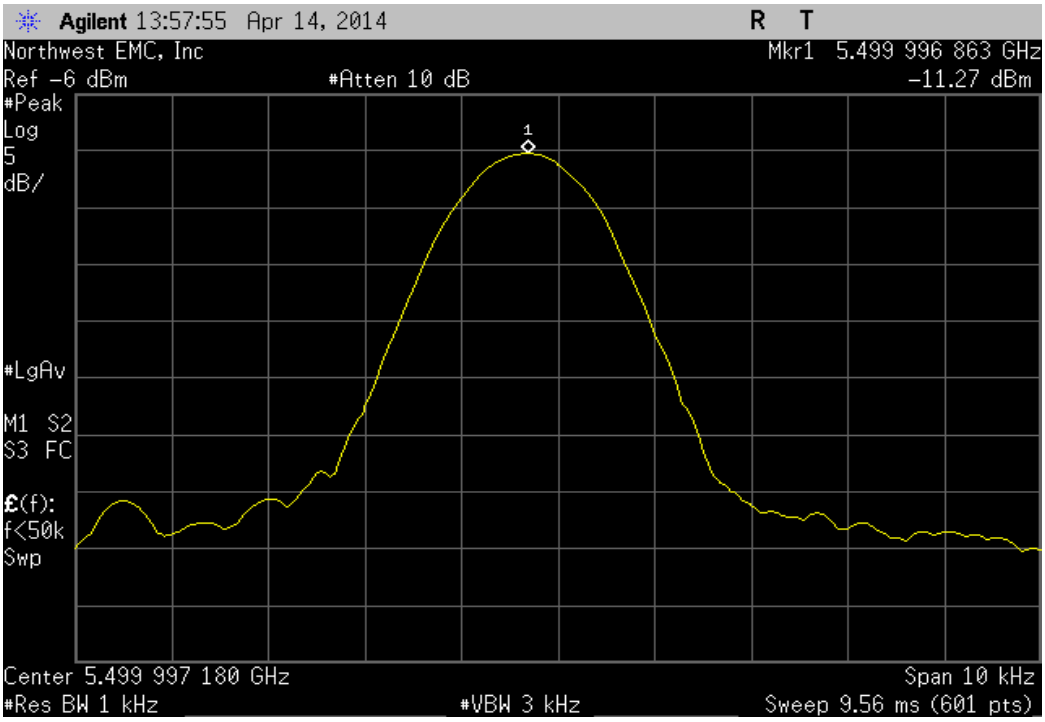


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.999717	5500	0.1	100	Pass

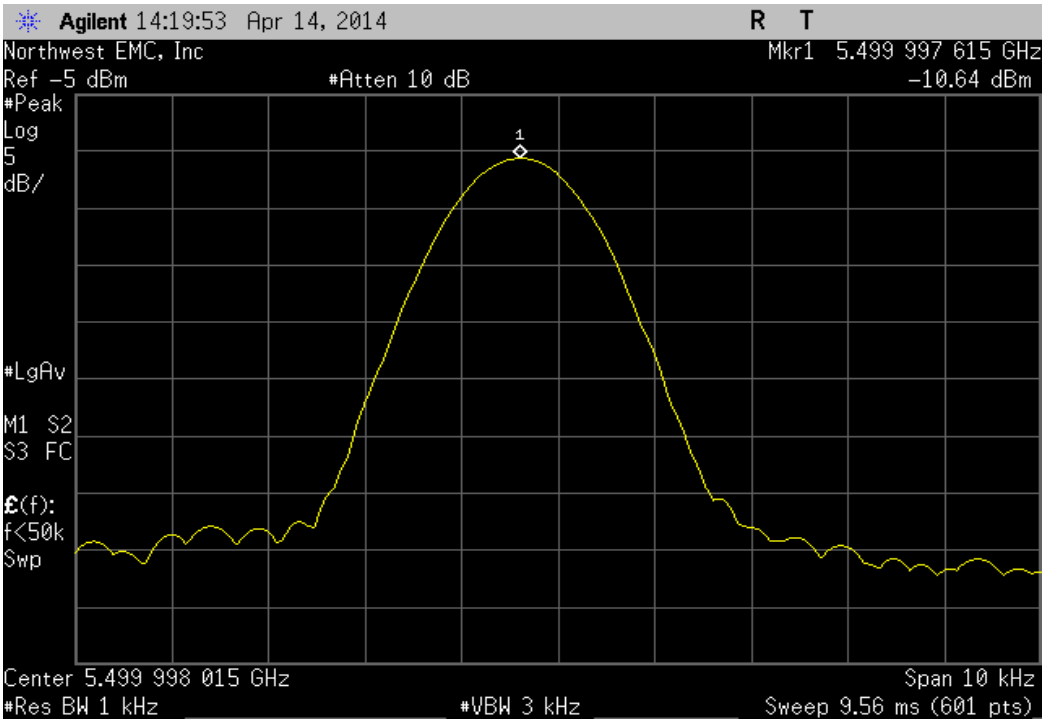


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.996863	5500	0.6	100	Pass

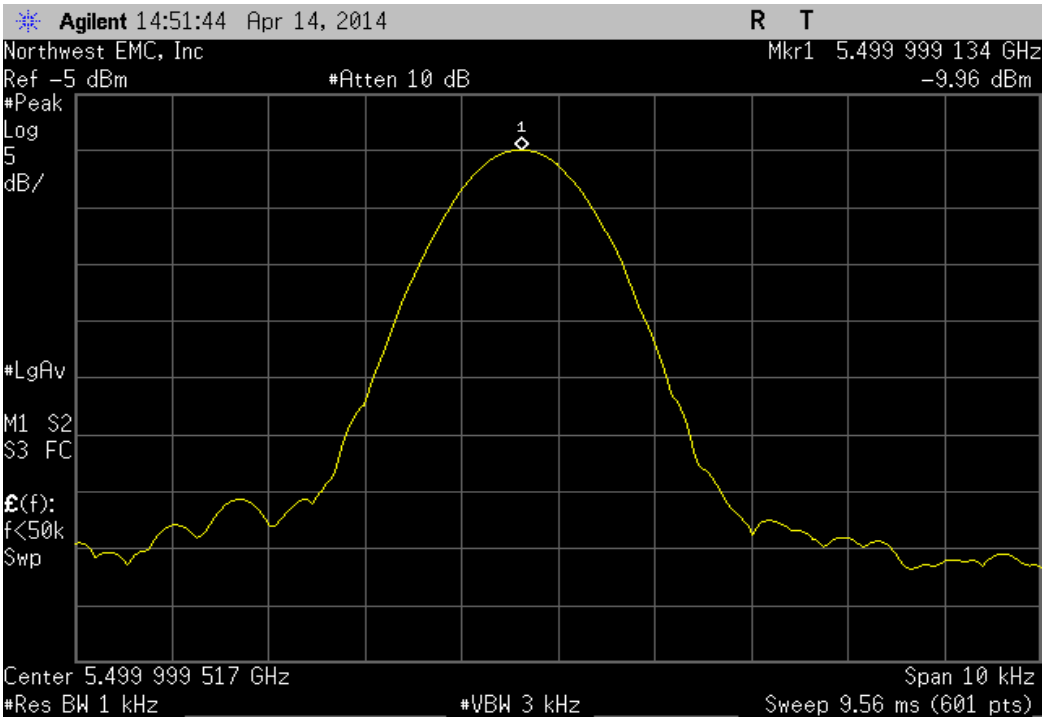


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.997615	5500	0.4	100	Pass

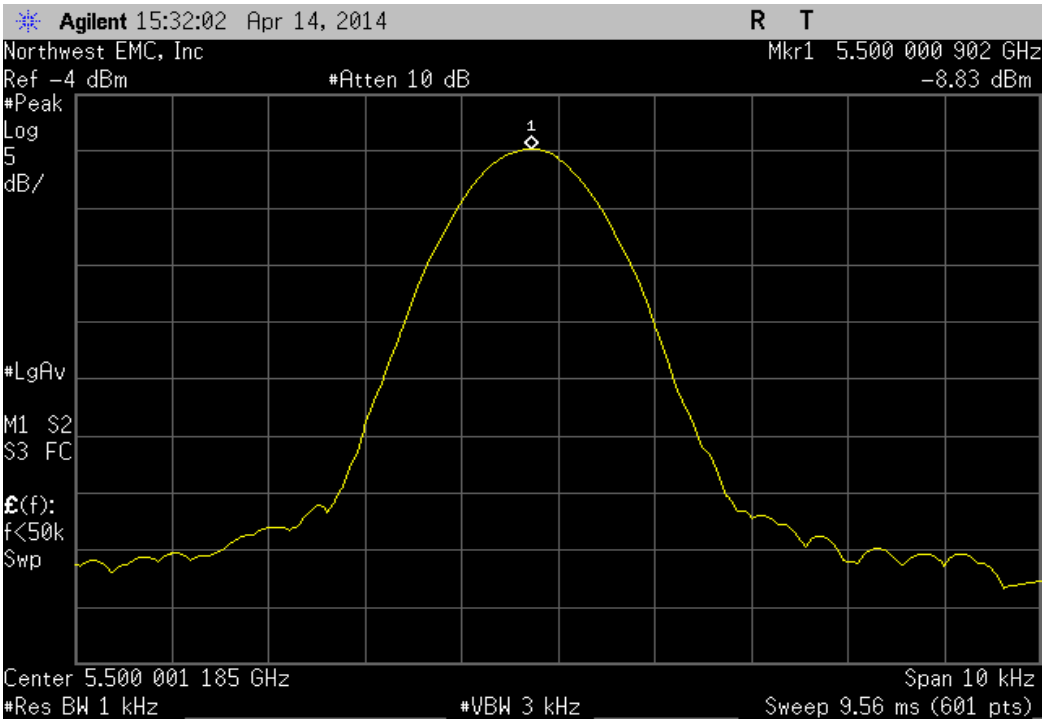


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5499.999134	5500	0.2	100	Pass

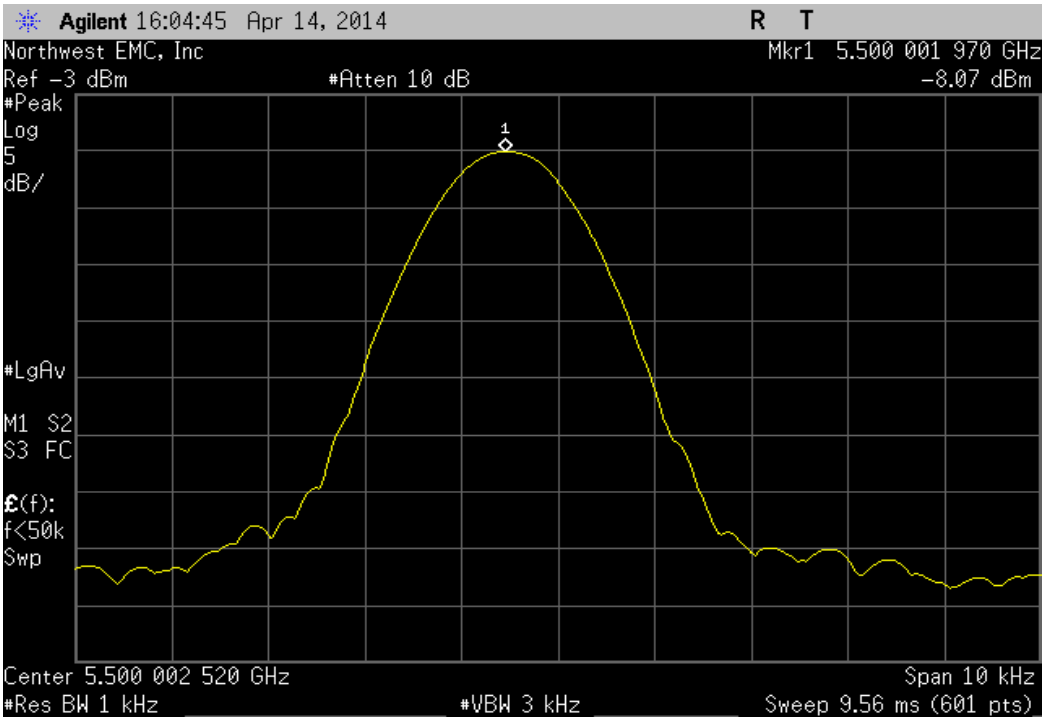


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.000902	5500	0.2	100	Pass

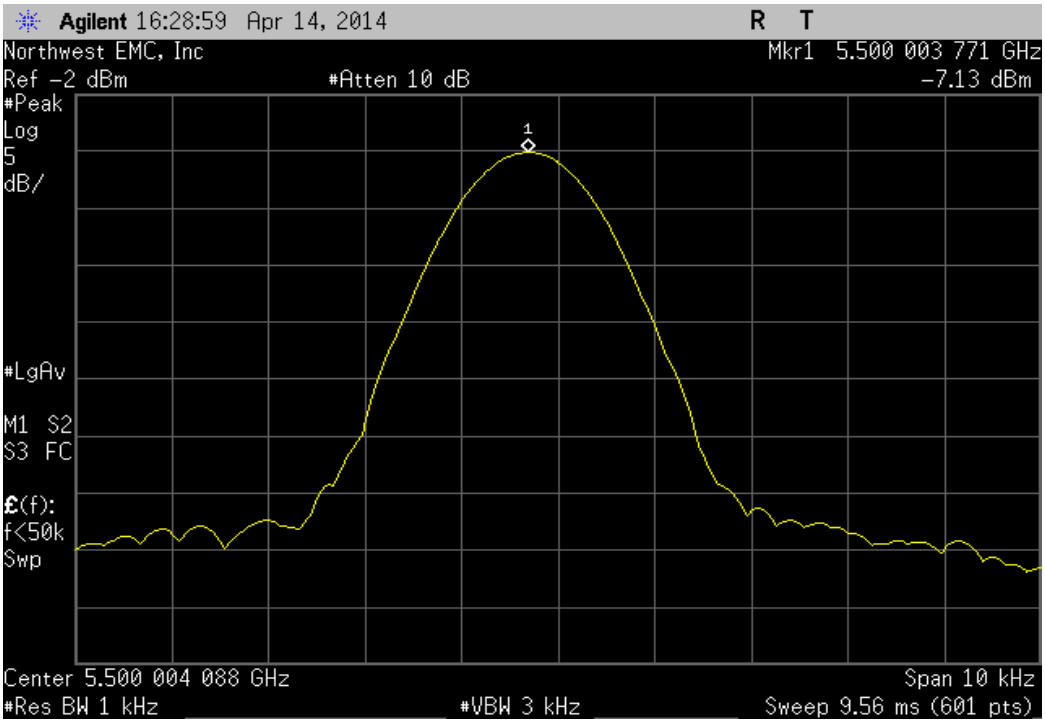


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.00197	5500	0.4	100	Pass

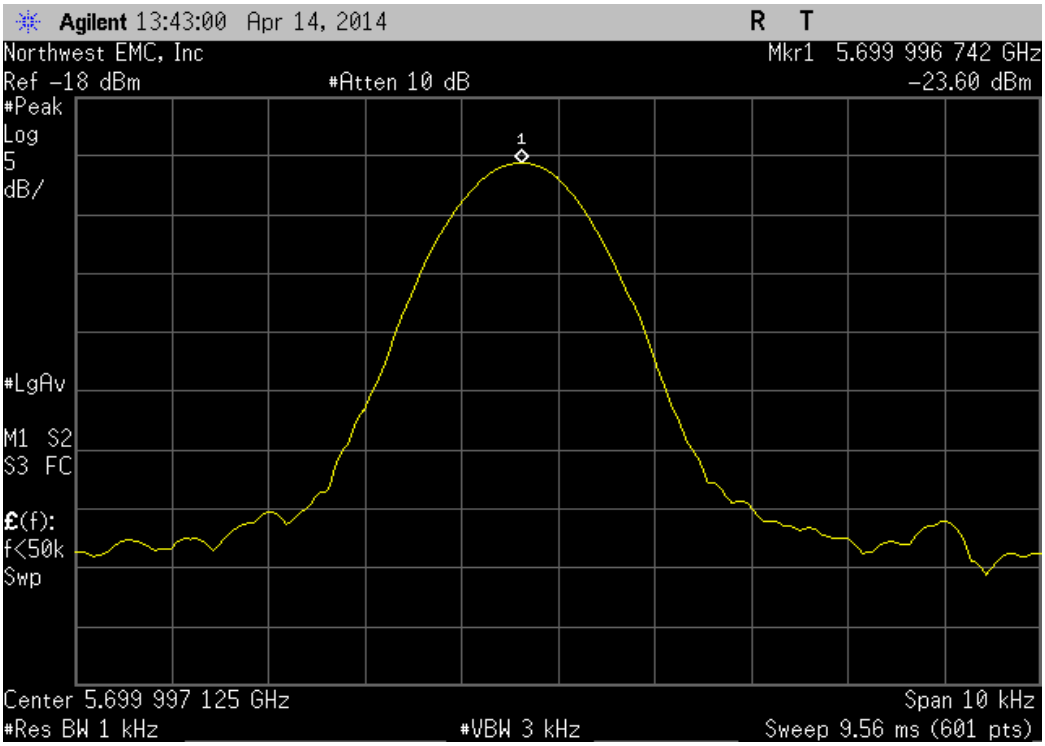


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5500.003771	5500	0.7	100	Pass

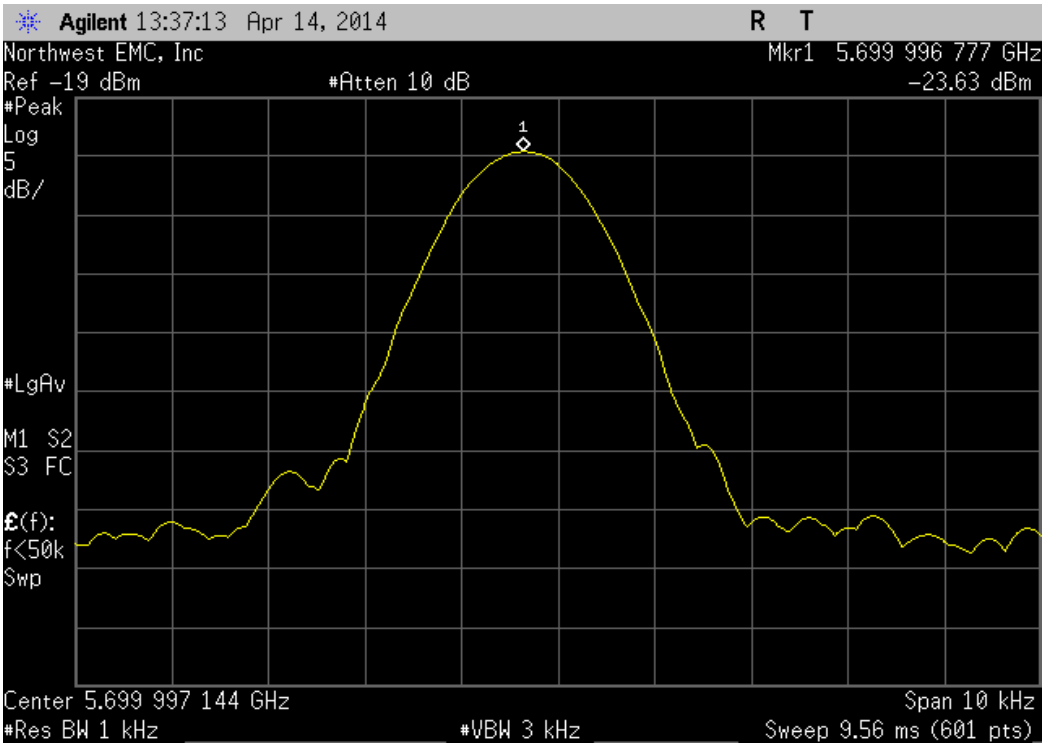


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 115%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996742	5700	0.6	100	Pass

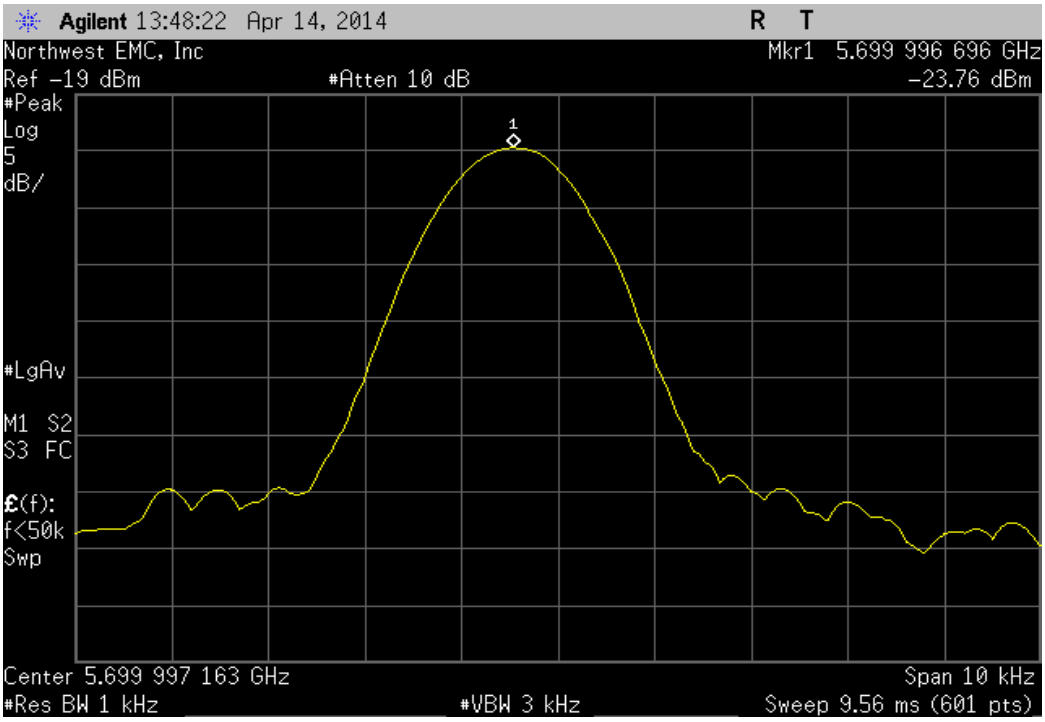


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 100%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996777	5700	0.6	100	Pass

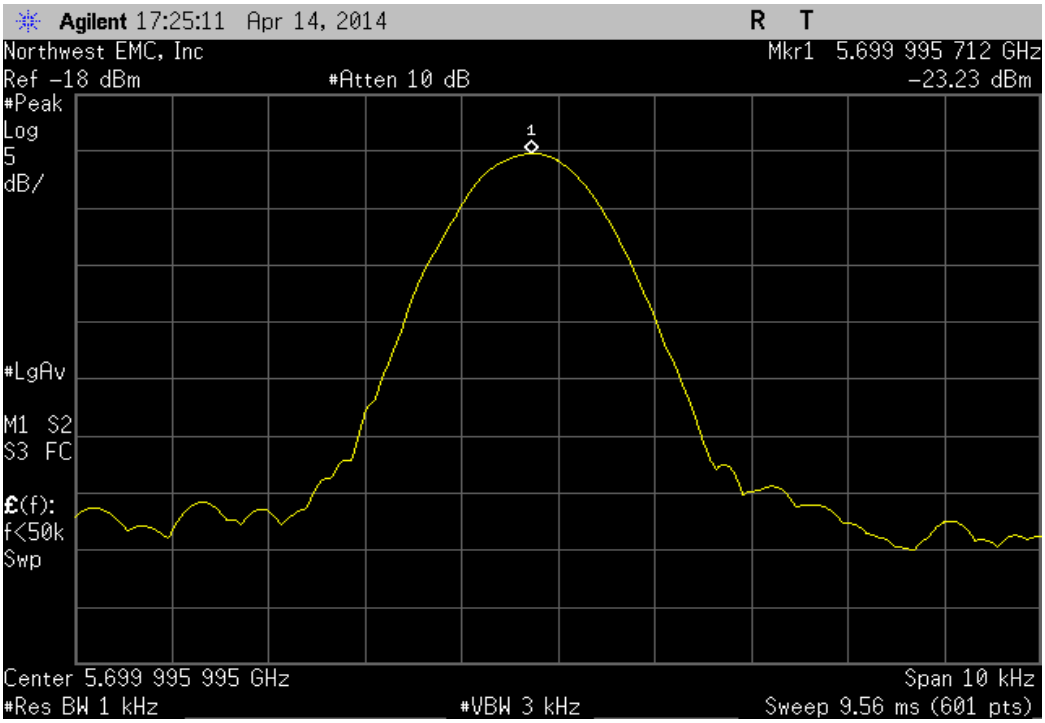


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 85%						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996696	5700	0.6	100	Pass

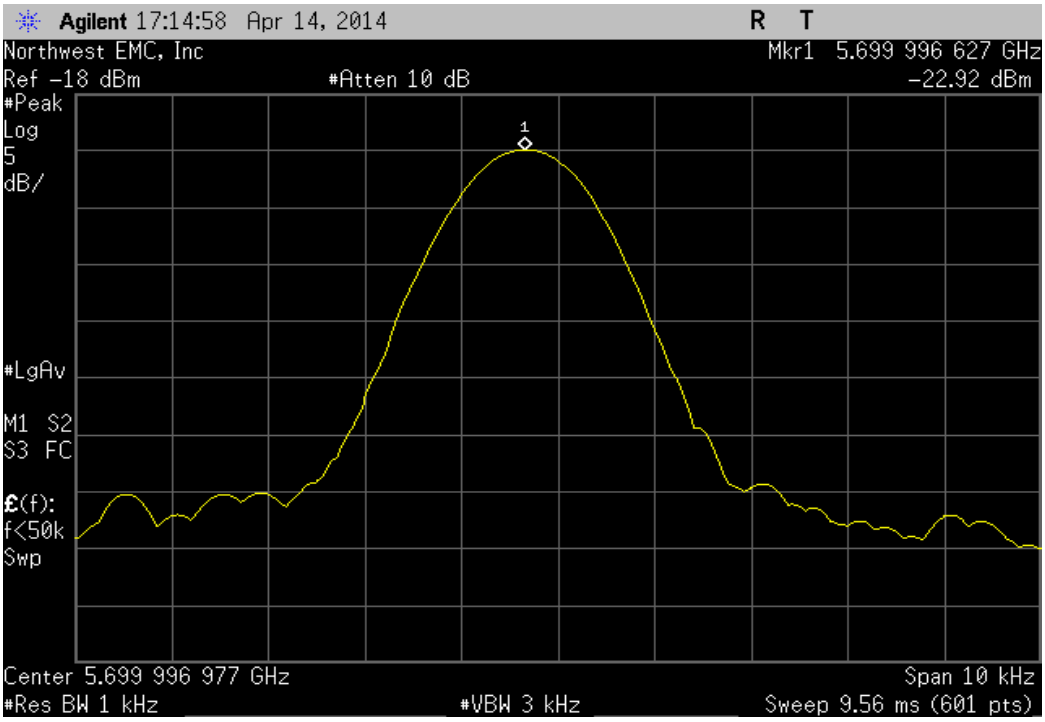


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +50°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.995712	5700	0.8	100	Pass

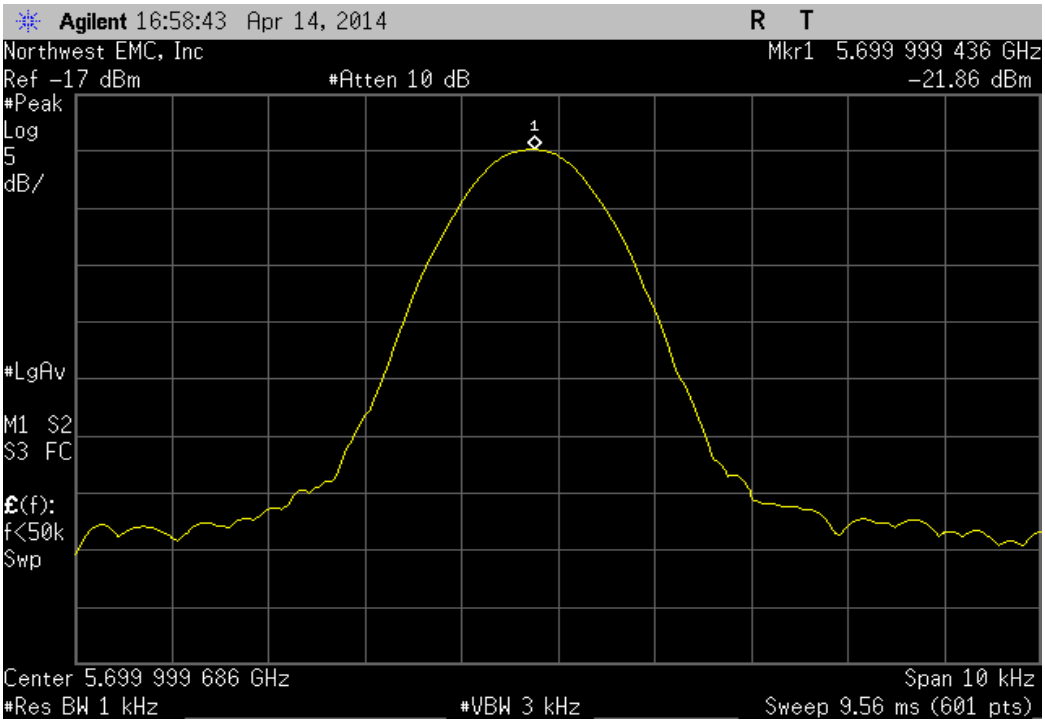


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +40°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996627	5700	0.6	100	Pass

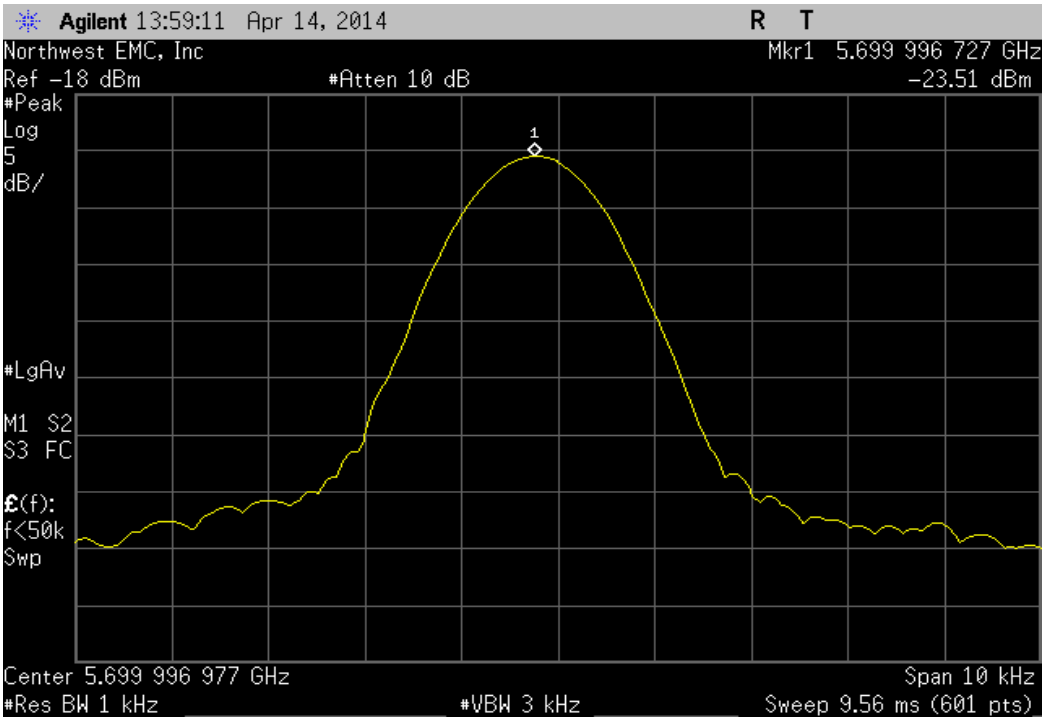


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.999436	5700	0.1	100	Pass

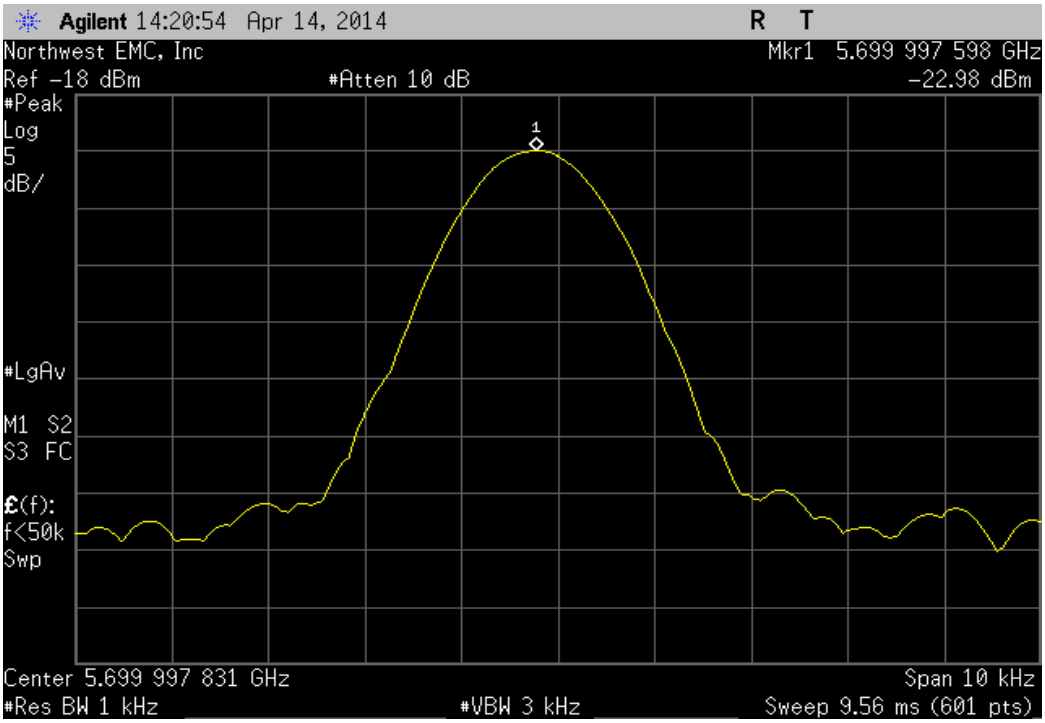


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.996727	5700	0.6	100	Pass

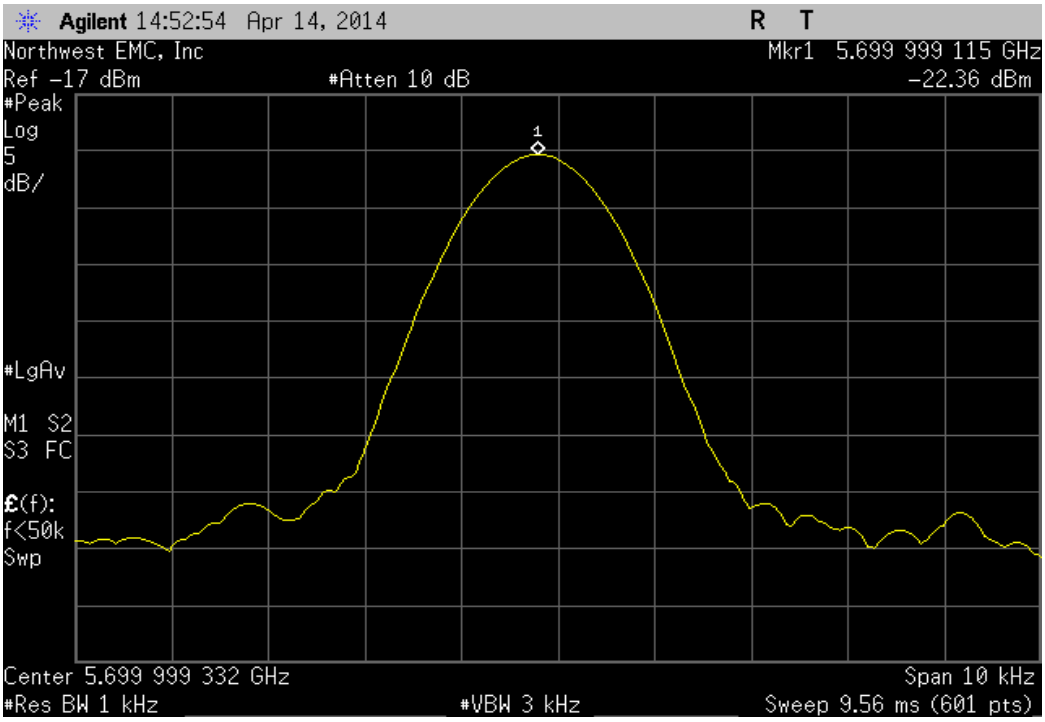


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.997598	5700	0.4	100	Pass

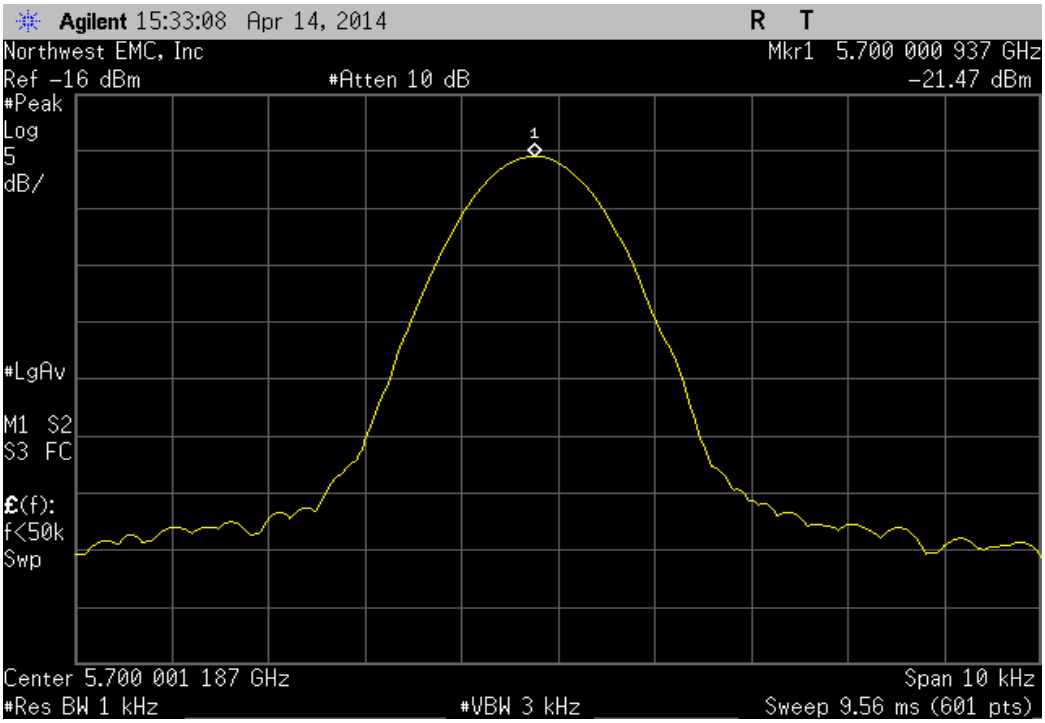


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: 0°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5699.999115	5700	0.2	100	Pass

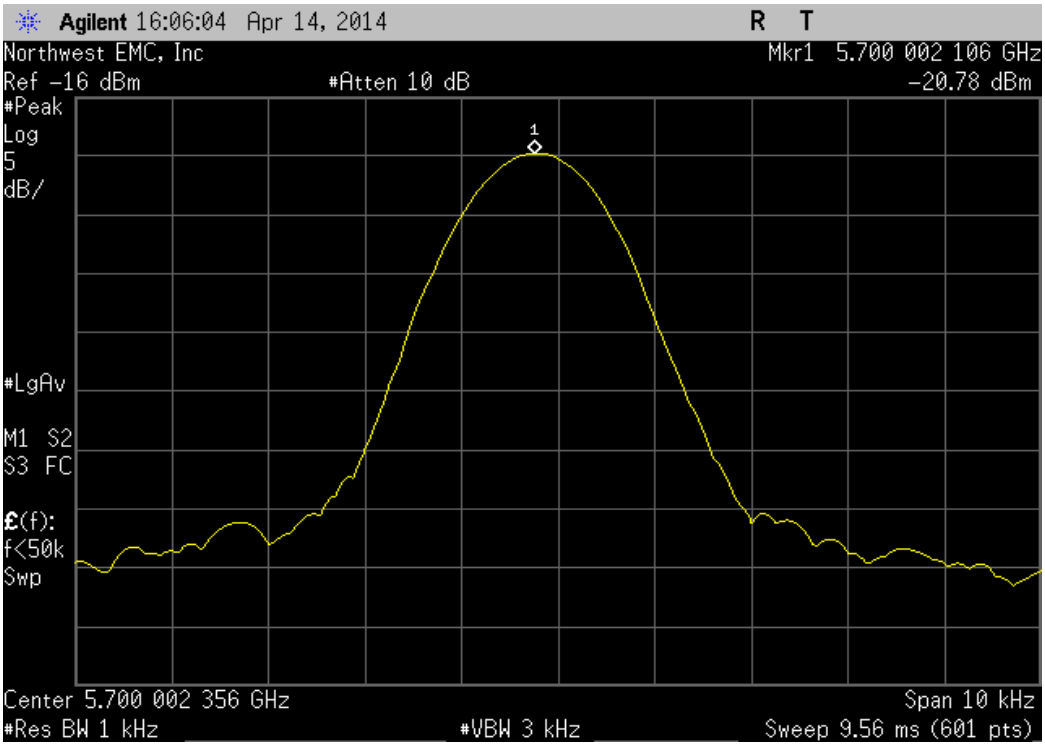


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -10°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5700.000937	5700	0.2	100	Pass

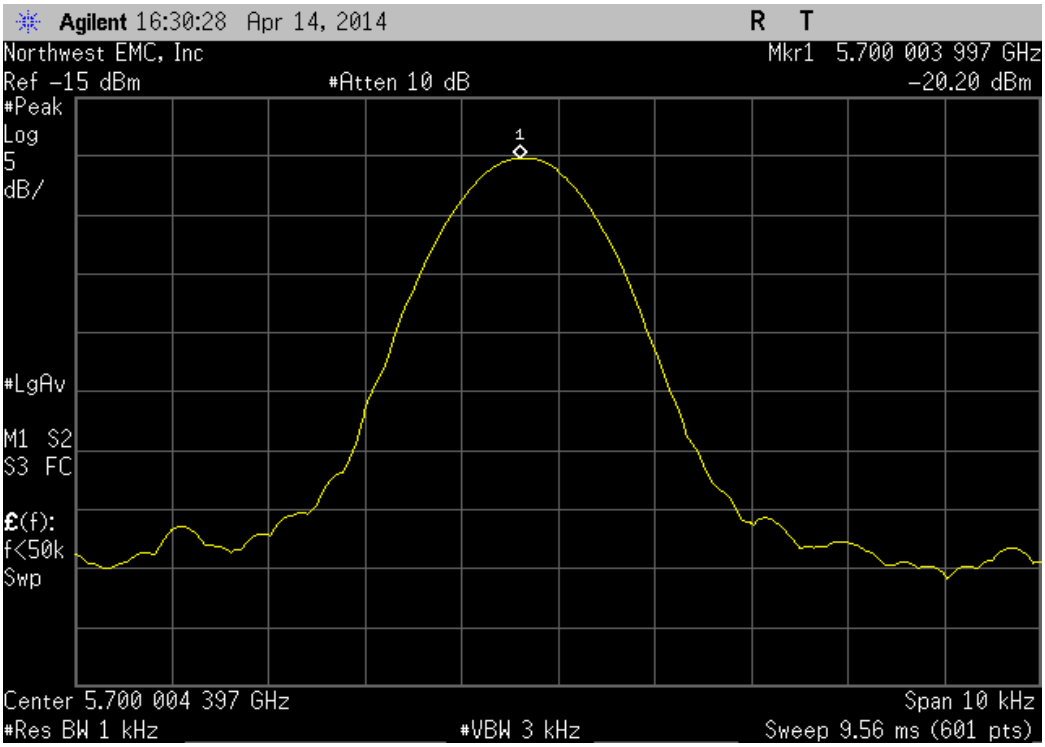


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -20°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5700.002106	5700	0.4	100	Pass



5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -30°						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		5700.003997	5700	0.7	100	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.

CHANNELS OF OPERATION

Ch. 36, 5180 MHz
Ch. 48, 5240 MHz
Ch. 52, 5260 MHz
Ch. 64, 5320 MHz
Ch. 100, 5500 MHz
Ch. 116, 5580 MHz
Ch. 140, 5700 MHz

MODULATION OF OPERATION

6 Mbps
34 Mbps
54 Mbps
MCS0
MCS7

POWER SETTINGS INVESTIGATED

Internal Battery, 12 VDC

CONFIGURATIONS INVESTIGATED

SYNA0151 - 1

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
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
Spectrum Analyzer	Agilent	E4440	AFE	11/4/2013	24 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 antenna of each type to be used with the EUT were tested. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to satisfy the three requirements of 47 CFR 15.407: Field strength under 1GHz, Restricted Bands of 47 CFR 15.205, and EIRP of 47 CFR 15.407.

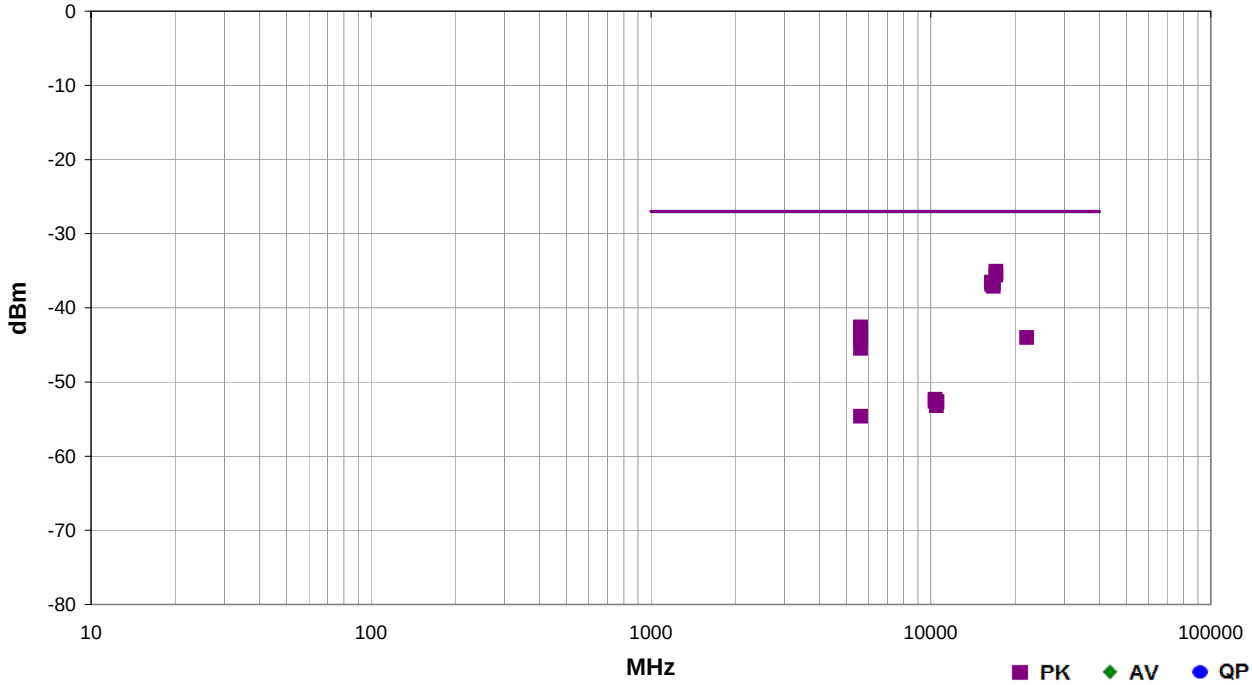
While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

SPURIOUS RADIATED EMISSIONS

Work Order:	SYNA0151	**Date:**	02/25/14		
Project:	Kezar	**Temperature:**	21.2 °C		
Job Site:	EV01	**Humidity:**	33.7% RH		
Serial Number:	1	**Barometric Pres.:**	1017.9 mbar	**Tested by:**	Jared Ison
EUT:	Kezar				
Configuration:	1				
Customer:	Synapse Product Development LLC				
Attendees:	None				
EUT Power:	Internal Battery, 12 VDC				
Operating Mode:	Continuous transmit, 802.11an, max power level.				
Deviations:	None				
Comments:	Please reference data comments for EUT channel, frequency, data rate and orientation.				

Test Specifications	**Test Method**
FCC 15.407:2014	ANSI C63.10:2009

Run #	44	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



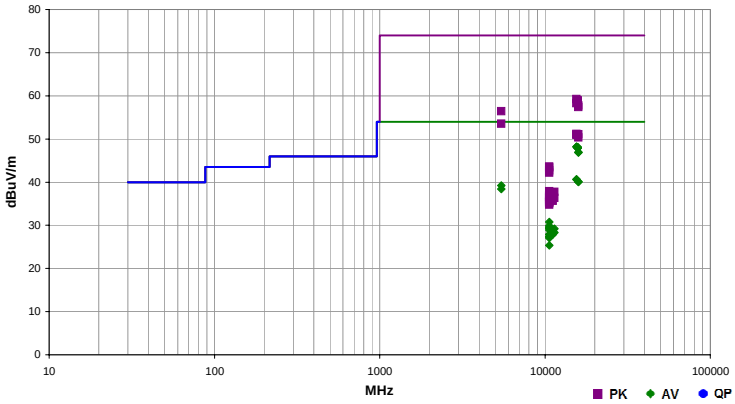
	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	17097.500	3.9	15.0	Vert	PK	3.09E-07	-35.1	-27.0	-8.1	Ch. 140, 5700 MHz, 6Mbps, Horz
	17097.560	1.0	97.0	Horz	PK	2.76E-07	-35.6	-27.0	-8.6	Ch. 140, 5700 MHz, 6Mbps, On Side
	16499.300	1.0	213.0	Vert	PK	2.22E-07	-36.5	-27.0	-9.5	Ch. 100, 5500 MHz, 6Mbps, Horz
	16740.480	1.0	101.0	Vert	PK	2.18E-07	-36.6	-27.0	-9.6	Ch. 116, 5580 MHz, 6Mbps, Horz
	16501.380	1.0	292.0	Horz	PK	2.07E-07	-36.8	-27.0	-9.8	Ch. 100, 5500 MHz, 6Mbps, On Side
	16741.530	1.4	348.0	Horz	PK	1.94E-07	-37.1	-27.0	-10.1	Ch. 116, 5580 MHz, 6Mbps, On Side
	5611.917	1.0	338.0	Horz	PK	5.53E-08	-42.6	-27.0	-15.6	Ch. 36, 5180 MHz, On Side
	5611.692	1.1	39.0	Horz	PK	5.16E-08	-42.9	-27.0	-15.9	Ch. 36, 5180 MHz, Vert
	5611.950	1.2	342.0	Vert	PK	4.10E-08	-43.9	-27.0	-16.9	Ch. 36, 5180 MHz, On Side
	21999.880	1.1	208.0	Horz	PK	3.95E-08	-44.0	-27.0	-17.0	Ch. 100, 5500MHz, 6Mbps, On Side
	5611.817	2.1	284.0	Vert	PK	3.83E-08	-44.2	-27.0	-17.2	Ch. 36, 5180 MHz, Horz
	5611.283	1.0	200.0	Horz	PK	2.84E-08	-45.5	-27.0	-18.5	Ch. 36, 5180 MHz, Horz

SPURIOUS RADIATED EMISSIONS

Work Order:	SYNA0152	**Date:**	02/25/14		
Project:	Kezar	**Temperature:**	21.2 °C		
Job Site:	EV01	**Humidity:**	33.7% RH		
Serial Number:	1	**Barometric Pres.:**	1017.9 mbar	**Tested by:**	Jared Ison
EUT:	Kezar				
Configuration:	1				
Customer:	Synapse Product Development LLC				
Attendees:	None				
EUT Power:	Internal Battery, 12 VDC				
Operating Mode:	Continuous transmit, 802.11an, max power level.				
Deviations:	None				
Comments:	Please reference data comments for EUT channel, frequency, data rate and orientation.				

Test Specifications	Test Method
FCC 15.407:2014	ANSI C63.10:2009

Run #	44	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass



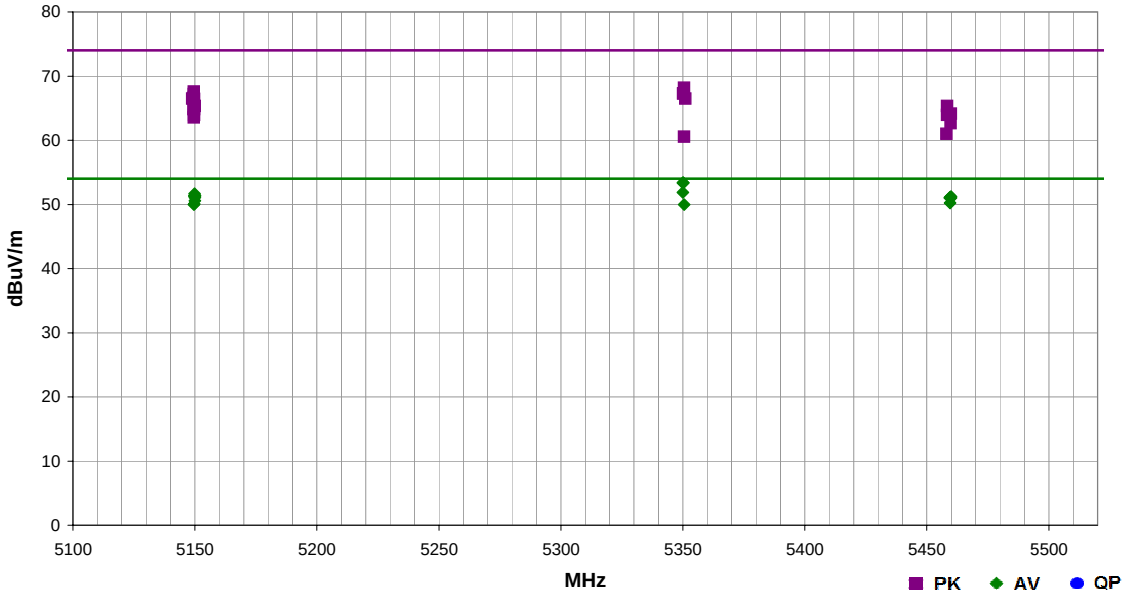
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
15542.300	28.0	20.2	2.5	271.0	3.0	0.0	Vert	AV	0.0	48.2	54.0	-5.8	Ch. 36, 5180 MHz, 6Mbps, Horz
15539.530	28.0	20.2	1.0	330.0	3.0	0.0	Horz	AV	0.0	48.2	54.0	-5.8	Ch. 36, 5180 MHz, 6Mbps, On Side
15781.200	27.6	20.5	1.0	269.0	3.0	0.0	Horz	AV	0.0	48.1	54.0	-5.9	Ch. 52, 5260 MHz, 6Mbps, On Side
15720.000	27.4	20.5	1.0	48.0	3.0	0.0	Horz	AV	0.0	47.9	54.0	-6.1	Ch. 48, 5240 MHz, 6Mbps, On Side
15719.610	27.4	20.5	1.0	98.0	3.0	0.0	Vert	AV	0.0	47.9	54.0	-6.1	Ch. 48, 5240 MHz, 6Mbps, Horz
15778.950	27.4	20.5	1.0	150.0	3.0	0.0	Vert	AV	0.0	47.9	54.0	-6.1	Ch. 52, 5260 MHz, 6Mbps, Horz
15958.010	26.8	20.1	1.0	35.0	3.0	0.0	Vert	AV	0.0	46.9	54.0	-7.1	Ch. 64, 5260 MHz, 6Mbps, Horz
15962.430	26.8	20.1	1.0	253.0	3.0	0.0	Horz	AV	0.0	46.9	54.0	-7.1	Ch. 64, 5260 MHz, 6Mbps, On Side
15540.330	28.6	12.1	1.0	81.0	3.0	0.0	Horz	AV	0.0	40.7	54.0	-13.4	Ch. 36, 5180 MHz, 54Mbps, On Side
15539.820	28.6	12.0	1.0	341.0	3.0	0.0	Vert	AV	0.0	40.6	54.0	-13.4	Ch. 36, 5180 MHz, 54Mbps, Horz
15960.280	27.7	12.4	1.8	2.0	3.0	0.0	Horz	AV	0.0	40.1	54.0	-13.9	Ch. 64, 5320 MHz, 54Mbps, On Side
15959.780	27.6	12.4	1.0	315.0	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	Ch. 64, 5320 MHz, 54Mbps, Horz
15538.430	39.1	20.2	1.0	330.0	3.0	0.0	Horz	PK	0.0	59.3	74.0	-14.7	Ch. 36, 5180 MHz, 6Mbps, On Side
5442.542	26.7	12.5	1.0	346.0	3.0	0.0	Horz	AV	0.0	39.2	54.0	-14.8	Ch. 64, 5320 MHz, 54Mbps, On Side
15778.930	38.4	20.5	1.0	269.0	3.0	0.0	Horz	PK	0.0	58.9	74.0	-15.1	Ch. 52, 5260 MHz, 6Mbps, On Side
15720.580	38.3	20.5	1.0	98.0	3.0	0.0	Vert	PK	0.0	58.8	74.0	-15.2	Ch. 48, 5240 MHz, 6Mbps, Horz
15780.650	38.2	20.5	1.0	150.0	3.0	0.0	Vert	PK	0.0	58.7	74.0	-15.3	Ch. 52, 5260 MHz, 6Mbps, Horz
15721.010	38.0	20.5	1.0	48.0	3.0	0.0	Horz	PK	0.0	58.5	74.0	-15.5	Ch. 48, 5240 MHz, 6Mbps, On Side
5441.308	25.9	12.5	1.9	247.0	3.0	0.0	Vert	AV	0.0	38.4	54.0	-15.6	Ch. 64, 5320 MHz, 54Mbps, Horz
15541.630	38.1	20.2	2.5	271.0	3.0	0.0	Vert	PK	0.0	58.3	74.0	-15.7	Ch. 36, 5180 MHz, 6Mbps, Horz
15961.560	37.7	20.1	1.0	35.0	3.0	0.0	Vert	PK	0.0	57.8	74.0	-16.2	Ch. 64, 5260 MHz, 6Mbps, Horz
15959.030	37.3	20.1	1.0	253.0	3.0	0.0	Horz	PK	0.0	57.4	74.0	-16.6	Ch. 64, 5260 MHz, 6Mbps, On Side
10639.960	47.0	-9.8	1.0	24.0	3.0	0.0	Vert	AV	0.0	37.2	54.0	-16.8	Ch. 64, 5320 MHz, 54Mbps, Horz
5439.833	43.9	12.5	1.0	346.0	3.0	0.0	Horz	PK	0.0	56.4	74.0	-17.6	Ch. 64, 5320 MHz, 54Mbps, On Side
10640.050	45.1	-9.8	1.0	357.0	3.0	0.0	Horz	AV	0.0	35.3	54.0	-18.7	Ch. 64, 5260 MHz, 6Mbps, On Side
10640.070	45.0	-9.8	1.0	8.0	3.0	0.0	Horz	AV	0.0	35.2	54.0	-18.8	Ch. 64, 5320 MHz, 54Mbps, On Side
10639.990	44.9	-9.8	1.0	35.0	3.0	0.0	Vert	AV	0.0	35.1	54.0	-18.9	Ch. 64, 5260 MHz, 6Mbps, Horz
5443.792	41.0	12.5	1.9	247.0	3.0	0.0	Vert	PK	0.0	53.5	74.0	-20.5	Ch. 64, 5320 MHz, 54Mbps, Horz
15538.680	39.1	12.0	1.0	81.0	3.0	0.0	Horz	PK	0.0	51.1	74.0	-22.9	Ch. 36, 5180 MHz, 54Mbps, On Side
15961.590	38.7	12.4	1.8	2.0	3.0	0.0	Horz	PK	0.0	51.1	74.0	-22.9	Ch. 64, 5320 MHz, 54Mbps, On Side
15537.760	38.9	12.0	1.0	341.0	3.0	0.0	Vert	PK	0.0	50.9	74.0	-23.1	Ch. 36, 5180 MHz, 54Mbps, Horz
10639.980	40.6	-9.8	1.0	228.0	3.0	0.0	Horz	AV	0.0	30.8	54.0	-23.2	Ch. 64, 5320MHz, 6Mbps, On Side
15961.010	37.9	12.4	1.0	315.0	3.0	0.0	Vert	PK	0.0	50.3	74.0	-23.7	Ch. 64, 5320 MHz, 54Mbps, Horz
10640.010	39.7	-9.8	1.0	231.0	3.0	0.0	Horz	AV	0.0	29.9	54.0	-24.1	Ch. 64, 5320MHz, MCS7, On Side
10640.040	39.4	-9.8	1.0	234.0	3.0	0.0	Horz	AV	0.0	29.6	54.0	-24.4	Ch. 64, 5320MHz, 36Mbps, On Side
10639.950	39.2	-9.8	1.1	352.0	3.0	0.0	Horz	AV	0.0	29.4	54.0	-24.6	Ch. 64, 5320MHz, 54Mbps, On Side
10640.010	39.1	-9.8	1.0	56.0	3.0	0.0	Horz	AV	0.0	29.3	54.0	-24.7	Ch. 64, 5320MHz, 6Mbps, Vert
11400.010	34.3	-5.1	1.0	346.0	3.0	0.0	Horz	AV	0.0	29.2	54.0	-24.8	Ch. 140, 5700 MHz, 6Mbps, On Side
11159.960	36.4	-7.4	1.0	347.0	3.0	0.0	Horz	AV	0.0	29.0	54.0	-25.0	Ch. 116, 5580 MHz, 6Mbps, On Side
10639.980	38.7	-9.8	1.0	352.0	3.0	0.0	Horz	AV	0.0	28.9	54.0	-25.1	Ch. 64, 5320MHz, MCS0, On Side
10999.960	37.3	-8.6	1.0	305.0	3.0	0.0	Horz	AV	0.0	28.7	54.0	-25.3	Ch. 100, 5500 MHz, 6Mbps, On Side
11399.990	33.4	-5.1	1.1	5.0	3.0	0.0	Vert	AV	0.0	28.3	54.0	-25.7	Ch. 140, 5700 MHz, 6Mbps, Horz
10999.940	36.9	-8.6	1.3	355.0	3.0	0.0	Vert	AV	0.0	28.3	54.0	-25.7	Ch. 100, 5500 MHz, 6Mbps, Horz
11159.970	35.3	-7.4	1.0	146.0	3.0	0.0	Vert	AV	0.0	27.9	54.0	-26.1	Ch. 116, 5580 MHz, 6Mbps, Horz
10639.950	37.7	-9.8	1.0	125.0	3.0	0.0	Vert	AV	0.0	27.9	54.0	-26.1	Ch. 64, 5320MHz, 6Mbps, Horz
10639.930	37.7	-9.8	1.0	125.0	3.0	0.0	Vert	AV	0.0	27.9	54.0	-26.1	Ch. 64, 5320MHz, 36Mbps, Horz
10640.060	37.2	-9.8	1.0	125.0	3.0	0.0	Vert	AV	0.0	27.4	54.0	-26.6	Ch. 64, 5320MHz, 54Mbps, Horz
10639.950	37.2	-9.8	1.0	127.0	3.0	0.0	Vert	AV	0.0	27.4	54.0	-26.6	Ch. 64, 5320MHz), MCS7, Horz
10639.990	36.9	-9.8	1.0	127.0	3.0	0.0	Vert	AV	0.0	27.1	54.0	-26.9	Ch. 64, 5320MHz, MCS0, Horz
10639.940	35.2	-9.8	1.0	324.0	3.0	0.0	Vert	AV	0.0	25.4	54.0	-28.6	Ch. 64, 5320MHz, 6Mbps, Vert
10640.140	53.4	-9.8	1.0	24.0	3.0	0.0	Vert	PK	0.0	43.6	74.0	-30.4	Ch. 64, 5320 MHz, 54Mbps, Horz
10640.070	53.2	-9.8	1.0	357.0	3.0	0.0	Horz	PK	0.0	43.4	74.0	-30.6	Ch. 64, 5320MHz, 6Mbps, On Side
10639.820	52.5	-9.8	1.0	8.0	3.0	0.0	Horz	PK	0.0	42.7	74.0	-31.3	Ch. 64, 5320 MHz, 54Mbps, On Side
10639.730	52.0	-9.8	1.0	35.0	3.0	0.0	Vert	PK	0.0	42.2	74.0	-31.8	Ch. 64, 5320MHz, 6Mbps, Horz
10639.770	47.7	-9.8	1.0	228.0	3.0	0.0	Horz	PK	0.0	37.9	74.0	-36.1	Ch. 64, 5320MHz, 6Mbps, On Side
11399.970	42.8	-5.1	1.0	346.0	3.0	0.0	Horz	PK	0.0	37.7	74.0	-36.3	Ch. 140, 5700 MHz, 6Mbps, On Side
11000.190	46.2	-8.6	1.3	355.0	3.0	0.0	Vert	PK	0.0	37.6	74.0	-36.4	Ch. 100, 5500 MHz, 6Mbps, Horz
10640.080	46.8	-9.8	1.0	56.0	3.0	0.0	Horz	PK	0.0	37.0	74.0	-37.0	Ch. 64, 5320MHz, 6Mbps, Vert
10639.820	46.7	-9.8	1.0	231.0	3.0	0.0	Horz	PK	0.0	36.9	74.0	-37.1	Ch. 64, 5320MHz, MCS7, On Side
10640.200	46.4	-9.8	1.0	125.0	3.0	0.0	Vert	PK	0.0	36.6	74.0	-37.4	Ch. 64, 5320MHz, 36Mbps, Horz
10639.850	46.4	-9.8	1.0	234.0	3.0	0.0	Horz	PK	0.0	36.6	74.0	-37.4	Ch. 64, 5320MHz, 36Mbps, On Side
11160.270	43.9	-7.4	1.0	347.0	3.0	0.0	Horz	PK	0.0	36.5	74.0	-37.5	Ch. 116, 5580 MHz, 6Mbps, On Side
11399.780	41.4	-5.1	1.1	5.0	3.0	0.0	Vert	PK	0.0	36.3	74.0	-37.7	Ch. 140, 5700 MHz, 6Mbps, Horz
10999.810	44.8	-8.6	1.0	305.0	3.0	0.0	Horz	PK	0.0	36.2	74.0	-37.8	Ch. 100, 5500 MHz, 6Mbps, On Side
10639.900	46.0	-9.8	1.1	352.0	3.0	0.0	Horz	PK	0.0	36.2	74.0	-37.8	Ch. 64, 5320MHz, 54Mbps, On Side
10639.970	45.7	-9.8	1.0	125.0	3.0	0.0	Vert	PK	0.0	35.9	74.0	-38.1	Ch. 64, 5320MHz, 6Mbps, Horz
11159.840	43.1	-7.4	1.0	146.0	3.0	0.0	Vert	PK	0.0	35.7	74.0	-38.3	Ch. 116, 5580 MHz, 6Mbps, Horz
10640.060	45.3	-9.8	1.0	352.0	3.0	0.0	Horz	PK	0.0	35.5	74.0	-38.5	Ch. 64, 5320MHz, MCS0, On Side
10639.870	45.3	-9.8	1.0	125.0	3.0	0.0	Vert	PK	0.0	35.5	74.0	-38.5	Ch. 64, 5320MHz, 54Mbps, Horz
10640.160	45.1	-9.8	1.0	127.0	3.0	0.0	Vert	PK	0.0	35.3	74.0	-38.7	Ch. 64, 5320MHz, MCS0, Horz
10639.900	45.0	-9.8	1.0	127.0	3.0	0.0	Vert	PK	0.0	35.2	74.0	-38.8	Ch. 64, 5320MHz, MCS7, Horz
10640.290	44.6	-9.8	1.0	324.0	3.0	0.0	Vert	PK	0.0	34.8	74.0	-39.2	Ch. 64, 5320MHz, 6Mbps, Vert

SPURIOUS RADIATED EMISSIONS

Work Order:	SYNA0151	**Date:**	02/25/14		
Project:	Kezar	**Temperature:**	20.3 °C		
Job Site:	EV01	**Humidity:**	31.3% RH		
Serial Number:	1	**Barometric Pres.:**	1004 mbar	**Tested by:**	Jared Ison
EUT:	Kezar				
Configuration:	1				
Customer:	Synapse Product Development LLC				
Attendees:	None				
EUT Power:	Internal Battery, 12 VDC				
Operating Mode:	Continuous transmit, 802.11an, max power level.				
Deviations:	None				
Comments:	Please reference data comments for EUT channel, frequency, data rate and orientation.				

Test Specifications	Test Method
FCC 15.407:2014	ANSI C63.10:2009

Run #	61	Test Distance (m)	1	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
5350.120	25.5	37.4	1.0	283.0	1.0	0.0	Vert	AV	-9.5	53.4	54.0	-0.6	Ch. 64(5320MHz), 6Mbps, Horz
5350.027	25.5	37.4	1.0	283.0	1.0	0.0	Vert	AV	-9.5	53.4	54.0	-0.6	Ch. 64(5320MHz), MCS7, Horz
5350.167	25.5	37.4	1.0	283.0	1.0	0.0	Vert	AV	-9.5	53.4	54.0	-0.6	Ch. 64(5320MHz), MCS0, Horz
5350.027	24.0	37.4	1.0	283.0	1.0	0.0	Vert	AV	-9.5	51.9	54.0	-2.1	Ch. 64(5320MHz), 54Mbps, Horz
5149.890	24.3	36.9	1.0	306.0	1.0	0.0	Vert	AV	-9.5	51.7	54.0	-2.3	Ch. 36(5180MHz), 6Mbps, On Side
5149.870	24.0	36.9	1.0	283.0	1.0	0.0	Vert	AV	-9.5	51.4	54.0	-2.6	Ch. 36(5180MHz), MCS7, Horz
5149.917	24.0	36.9	1.0	292.0	1.0	0.0	Vert	AV	-9.5	51.4	54.0	-2.6	Ch. 36(5180MHz), 6Mbps, Horz
5149.933	24.0	36.9	1.0	283.0	1.0	0.0	Vert	AV	-9.5	51.4	54.0	-2.6	Ch. 36(5180MHz), MCS0, Horz
5149.823	23.9	36.9	1.0	283.0	1.0	0.0	Vert	AV	-9.5	51.3	54.0	-2.7	Ch. 36(5180MHz), 36Mbps, Horz
5149.990	23.9	36.9	1.1	237.0	1.0	0.0	Horz	AV	-9.5	51.3	54.0	-2.7	Ch. 36(5180MHz), 6Mbps, On Side
5459.880	23.3	37.5	1.0	261.0	1.0	0.0	Vert	AV	-9.5	51.2	54.0	-2.8	Ch. 100(5500MHz), 6Mbps, Horz
5459.547	23.2	37.5	1.0	261.0	1.0	0.0	Vert	AV	-9.5	51.1	54.0	-2.9	Ch. 100(5500MHz), 36Mbps, Horz
5149.977	23.7	36.9	1.3	311.0	1.0	0.0	Horz	AV	-9.5	51.1	54.0	-2.9	Ch. 36(5180MHz), 36Mbps, On Side
5459.927	23.1	37.5	1.0	261.0	1.0	0.0	Vert	AV	-9.5	51.0	54.0	-3.0	Ch. 100(5500MHz), MCS0, Horz
5459.367	23.1	37.5	1.0	261.0	1.0	0.0	Vert	AV	-9.5	51.0	54.0	-3.0	Ch. 100(5500MHz), MCS7, Horz
5149.917	23.2	36.9	1.0	326.0	1.0	0.0	Horz	AV	-9.5	50.6	54.0	-3.4	Ch. 36(5180MHz), 6Mbps, Horz
5459.587	22.3	37.5	1.0	261.0	1.0	0.0	Vert	AV	-9.5	50.2	54.0	-3.8	Ch. 100(5500MHz), 54Mbps, Horz
5149.650	22.7	36.9	1.2	308.0	1.0	0.0	Horz	AV	-9.5	50.1	54.0	-3.9	Ch. 36(5180MHz), 6Mbps, Vert
5350.523	22.1	37.4	1.0	283.0	1.0	0.0	Vert	AV	-9.5	50.0	54.0	-4.0	Ch. 64(5320MHz), 36Mbps, Horz
5149.520	22.6	36.9	1.0	283.0	1.0	0.0	Vert	AV	-9.5	50.0	54.0	-4.0	Ch. 36(5180MHz), 54Mbps, Horz
5350.493	40.3	37.4	1.0	283.0	1.0	0.0	Vert	PK	-9.5	68.2	74.0	-5.8	Ch. 64(5320MHz), 6Mbps, Horz
5149.533	40.2	36.9	1.0	292.0	1.0	0.0	Vert	PK	-9.5	67.6	74.0	-6.4	Ch. 36(5180MHz), 6Mbps, Horz
5350.197	39.4	37.4	1.0	283.0	1.0	0.0	Vert	PK	-9.5	67.3	74.0	-6.7	Ch. 64(5320MHz), MCS7, Horz
5350.277	39.4	37.4	1.0	283.0	1.0	0.0	Vert	PK	-9.5	67.3	74.0	-6.7	Ch. 64(5320MHz), MCS0, Horz
5149.633	39.8	36.9	1.0	306.0	1.0	0.0	Vert	PK	-9.5	67.2	74.0	-6.8	Ch. 36(5180MHz), 6Mbps, On Side
5149.327	39.2	36.9	1.0	283.0	1.0	0.0	Vert	PK	-9.5	66.6	74.0	-7.4	Ch. 36(5180MHz), MCS0, Horz
5148.953	39.1	36.9	1.1	237.0	1.0	0.0	Horz	PK	-9.5	66.5	74.0	-7.5	Ch. 36(5180MHz), 6Mbps, On Side
5351.093	38.6	37.4	1.0	283.0	1.0	0.0	Vert	PK	-9.5	66.5	74.0	-7.5	Ch. 64(5320MHz), 54Mbps, Horz

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
5149.693	39.1	36.9	1.0	283.0	1.0	0.0	Vert	PK	-9.5	66.5	74.0	-7.5	Ch. 36(5180MHz), MCS7, Horz
5149.957	38.0	36.9	1.0	326.0	1.0	0.0	Horz	PK	-9.5	65.4	74.0	-8.6	Ch. 36(5180MHz), 6Mbps, Horz
5458.307	37.4	37.5	1.0	261.0	1.0	0.0	Vert	PK	-9.5	65.3	74.0	-8.7	Ch. 100(5500MHz), 6Mbps, Horz
5149.453	37.5	36.9	1.0	283.0	1.0	0.0	Vert	PK	-9.5	64.9	74.0	-9.1	Ch. 36(5180MHz), 36Mbps, Horz
5149.697	37.5	36.9	1.3	311.0	1.0	0.0	Horz	PK	-9.5	64.9	74.0	-9.1	Ch. 36(5180MHz), 36Mbps, On Side
5459.867	36.2	37.5	1.0	261.0	1.0	0.0	Vert	PK	-9.5	64.1	74.0	-9.9	Ch. 100(5500MHz), 36Mbps, Horz
5149.677	36.6	36.9	1.0	283.0	1.0	0.0	Vert	PK	-9.5	64.0	74.0	-10.0	Ch. 36(5180MHz), 54Mbps, Horz
5458.343	36.0	37.5	1.0	261.0	1.0	0.0	Vert	PK	-9.5	63.9	74.0	-10.1	Ch. 100(5500MHz), MCS0, Horz
5149.597	36.2	36.9	1.2	308.0	1.0	0.0	Horz	PK	-9.5	63.6	74.0	-10.4	Ch. 36(5180MHz), 6Mbps, Vert
5459.770	34.7	37.5	1.0	261.0	1.0	0.0	Vert	PK	-9.5	62.6	74.0	-11.4	Ch. 100(5500MHz), MCS7, Horz
5458.043	33.1	37.5	1.0	261.0	1.0	0.0	Vert	PK	-9.5	61.0	74.0	-13.0	Ch. 100(5500MHz), 54Mbps, Horz
5350.500	32.7	37.4	1.0	283.0	1.0	0.0	Vert	PK	-9.5	60.6	74.0	-13.4	Ch. 64(5320MHz), 36Mbps, Horz

AC 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
Receiver	Rohde & Schwarz	ESCI	ARH	02/05/2014	12 mo
EV07 Cables	N/A	Conducted Cables	EVG	04/25/2013	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
LISN	Solar	9252-50-R-24-BNC	LIP	02/16/2014	12 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

SYNA0151-1

MODES INVESTIGATED

Tx, Ch. 100(5500MHz), 6Mbps
Tx, Ch. 116(5580MHz), 6Mbps
Tx, Ch. 140(5700MHz), 6Mbps
Tx, Ch. 36(5180MHz), 6Mbps
Tx, Ch. 48(5240MHz), 6Mbps
Tx, Ch. 52(5260MHz), 6Mbps
Tx, Ch. 64(5320MHz), 6Mbps

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	2	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

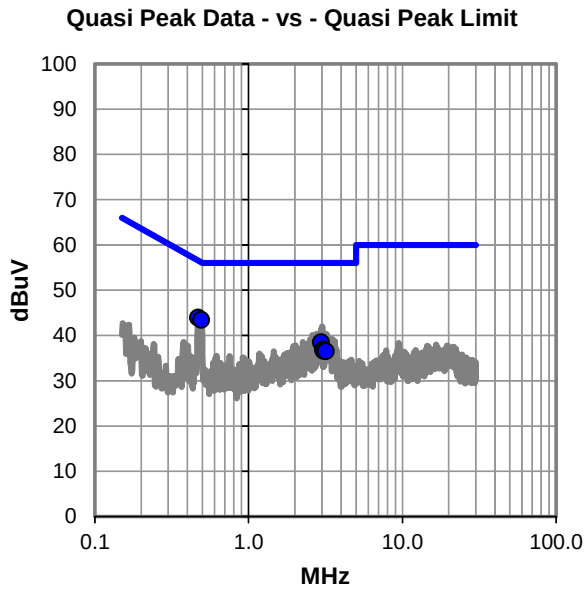
None

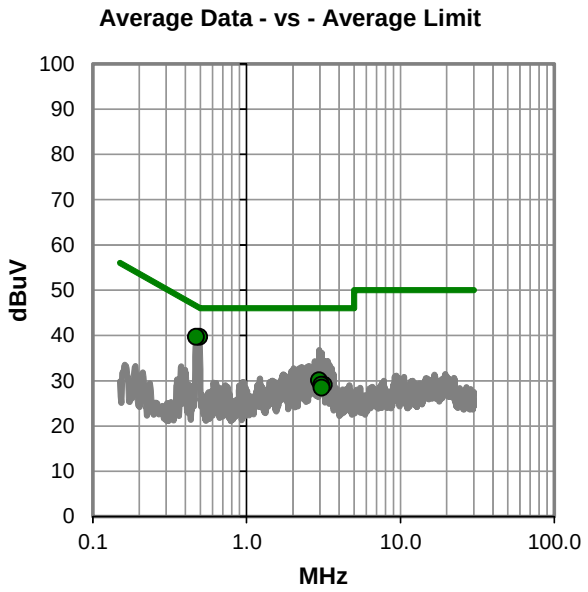
EUT OPERATING MODES

Tx, Ch. 36(5180MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #2

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.470	23.7	20.3	44.0	56.5	-12.6
0.492	23.2	20.3	43.5	56.1	-12.7
2.960	18.0	20.5	38.5	56.0	-17.5
3.056	16.4	20.5	36.9	56.0	-19.1
3.080	16.1	20.5	36.6	56.0	-19.4
3.172	16.0	20.5	36.5	56.0	-19.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	19.4	20.3	39.7	46.1	-6.5
0.470	19.4	20.3	39.7	46.5	-6.9
2.960	9.6	20.5	30.1	46.0	-15.9
3.172	8.6	20.5	29.1	46.0	-16.9
3.056	8.6	20.5	29.1	46.0	-16.9
3.080	8.0	20.5	28.5	46.0	-17.5

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	3	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

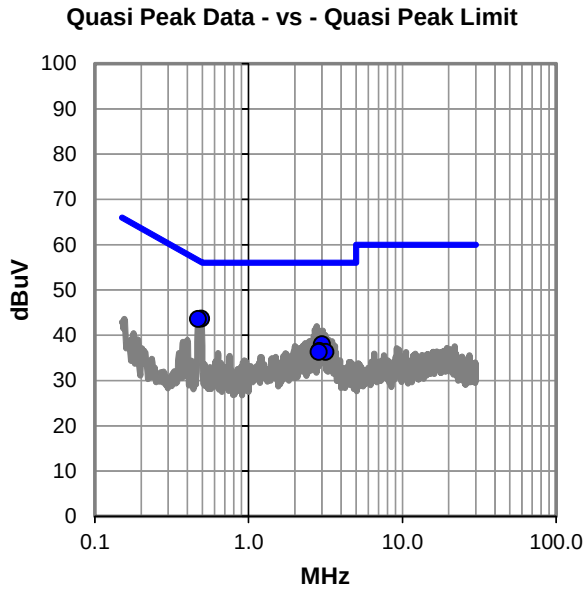
None

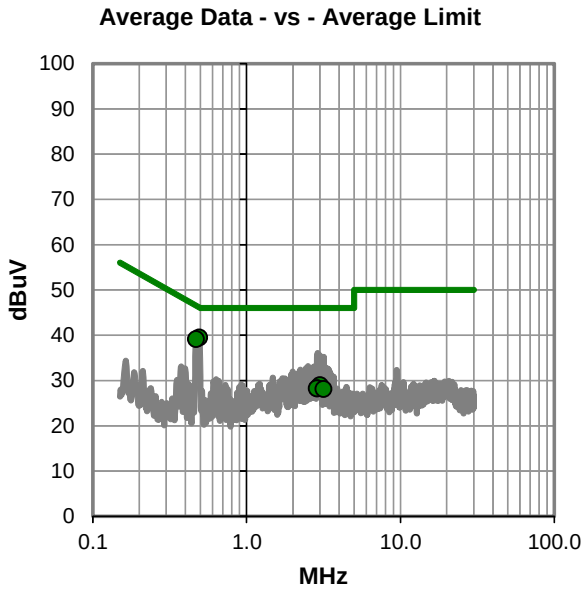
EUT OPERATING MODES

Tx, Ch. 36(5180MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	23.4	20.3	43.7	56.1	-12.5
0.470	23.3	20.3	43.6	56.5	-13.0
3.004	17.5	20.5	38.0	56.0	-18.0
2.888	16.0	20.5	36.5	56.0	-19.5
3.168	15.8	20.5	36.3	56.0	-19.7
2.864	15.8	20.5	36.3	56.0	-19.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	19.2	20.3	39.5	46.1	-6.7
0.470	18.9	20.3	39.2	46.5	-7.4
3.004	8.5	20.5	29.0	46.0	-17.0
2.888	7.8	20.5	28.3	46.0	-17.7
2.864	7.8	20.5	28.3	46.0	-17.7
3.168	7.6	20.5	28.1	46.0	-17.9

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	4	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

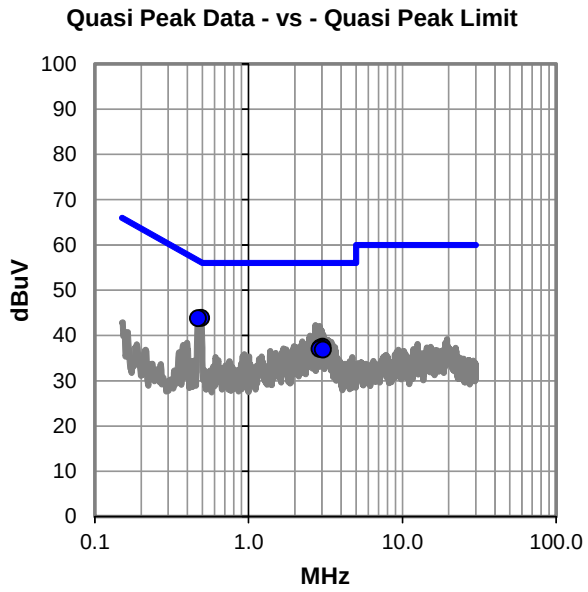
None

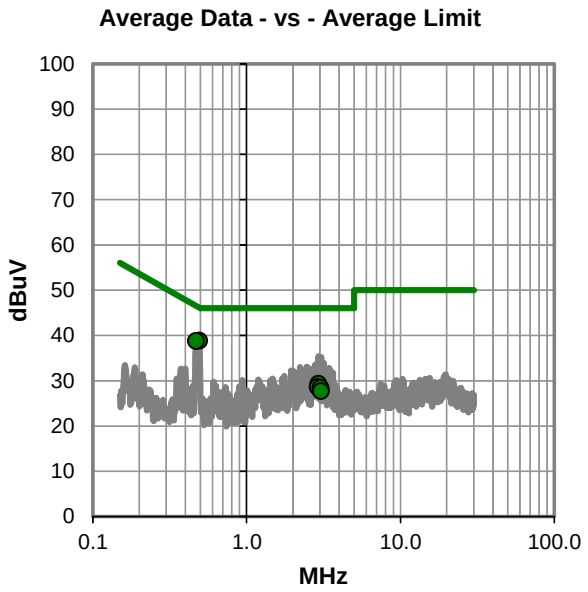
EUT OPERATING MODES

Tx, Ch. 48(5240MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	23.6	20.3	43.9	56.1	-12.3
0.470	23.5	20.3	43.8	56.5	-12.8
3.024	17.0	20.5	37.5	56.0	-18.5
2.932	16.8	20.5	37.3	56.0	-18.7
2.908	16.5	20.5	37.0	56.0	-19.0
3.048	16.4	20.5	36.9	56.0	-19.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	18.6	20.3	38.9	46.1	-7.3
0.470	18.5	20.3	38.8	46.5	-7.8
2.932	8.8	20.5	29.3	46.0	-16.7
2.908	8.1	20.5	28.6	46.0	-17.4
3.024	7.9	20.5	28.4	46.0	-17.6
3.048	7.2	20.5	27.7	46.0	-18.3

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	5	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

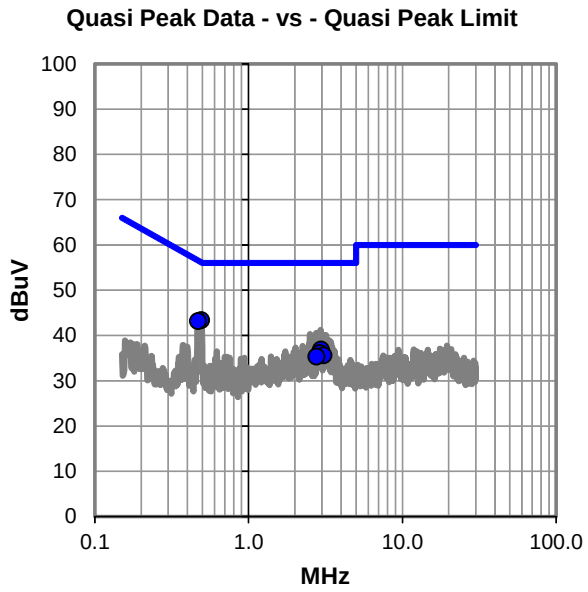
None

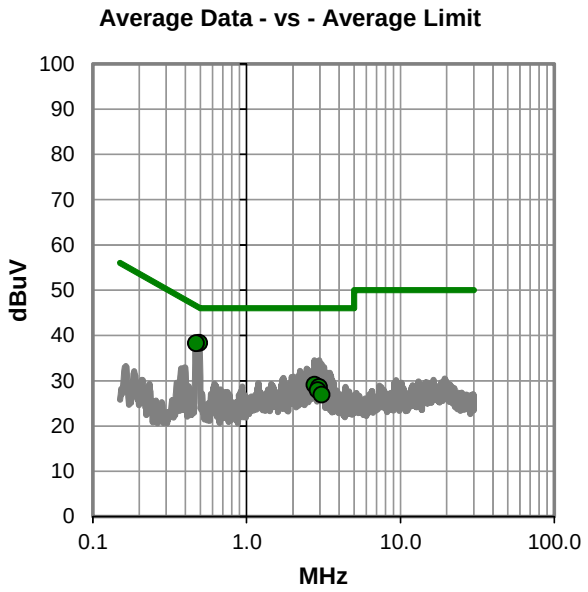
EUT OPERATING MODES

Tx, Ch. 48(5240MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	23.1	20.3	43.4	56.1	-12.8
0.470	22.9	20.3	43.2	56.5	-13.4
2.956	16.4	20.5	36.9	56.0	-19.1
2.908	15.6	20.5	36.1	56.0	-19.9
3.072	15.1	20.5	35.6	56.0	-20.4
2.768	14.8	20.5	35.3	56.0	-20.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	18.1	20.3	38.4	46.1	-7.8
0.470	18.0	20.3	38.3	46.5	-8.3
2.768	8.6	20.5	29.1	46.0	-16.9
2.956	8.1	20.5	28.6	46.0	-17.4
2.908	7.4	20.5	27.9	46.0	-18.1
3.072	6.4	20.5	26.9	46.0	-19.1

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	6	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

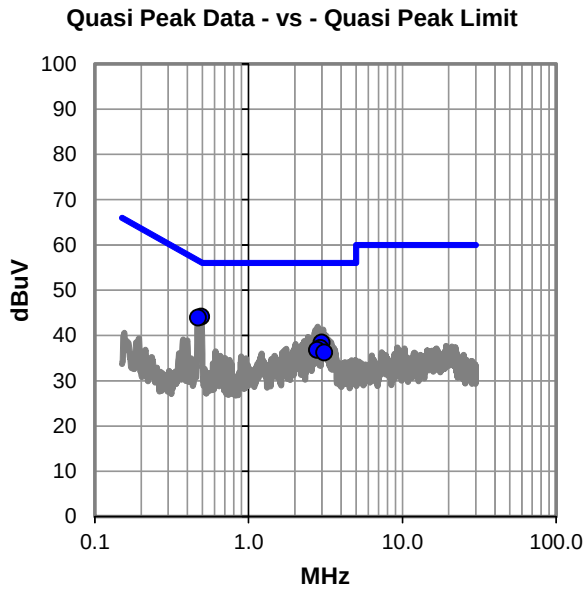
None

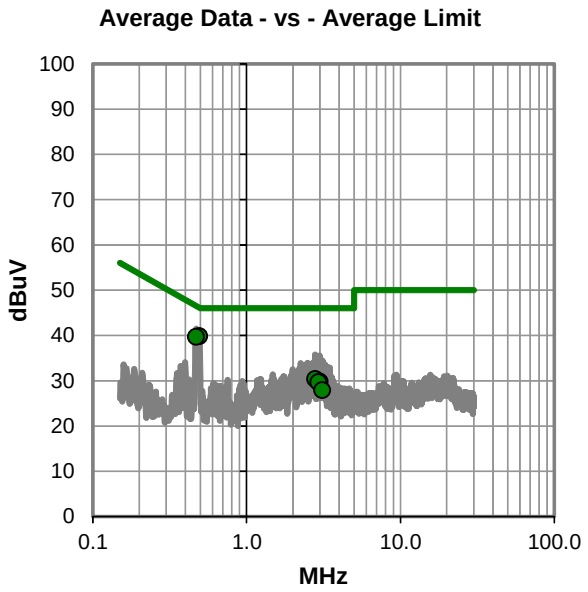
EUT OPERATING MODES

Tx, Ch. 52(5260MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	23.9	20.3	44.2	56.1	-12.0
0.470	23.7	20.3	44.0	56.5	-12.6
2.980	17.9	20.5	38.4	56.0	-17.6
2.932	16.7	20.5	37.2	56.0	-18.8
2.792	16.3	20.5	36.8	56.0	-19.2
3.096	15.7	20.5	36.2	56.0	-19.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.493	19.6	20.3	39.9	46.1	-6.3
0.470	19.4	20.3	39.7	46.5	-6.9
2.792	9.9	20.5	30.4	46.0	-15.6
2.980	9.3	20.5	29.8	46.0	-16.2
2.932	9.2	20.5	29.7	46.0	-16.3
3.096	7.4	20.5	27.9	46.0	-18.1

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	7	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

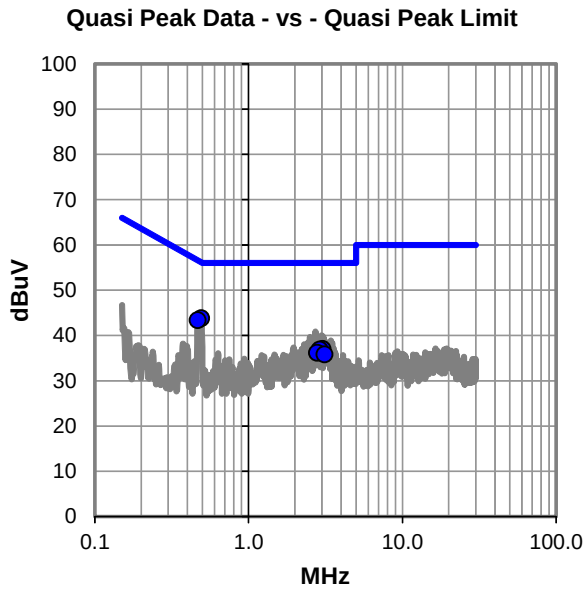
None

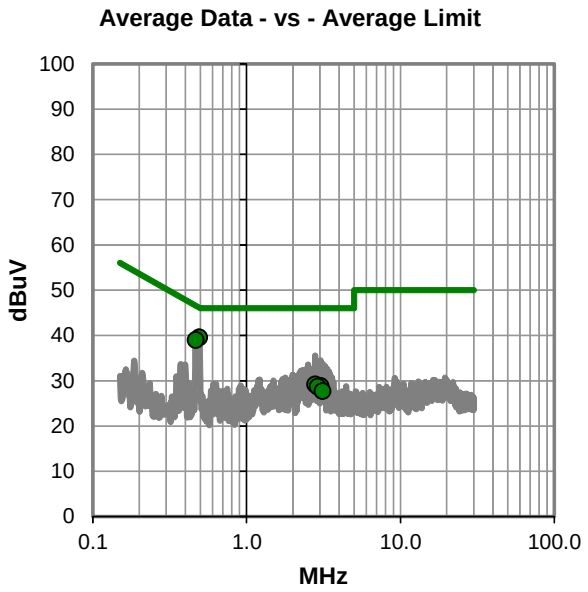
EUT OPERATING MODES

Tx, Ch. 52(5260MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	23.5	20.3	43.8	56.1	-12.4
0.468	23.1	20.3	43.4	56.5	-13.2
3.024	16.5	20.5	37.0	56.0	-19.0
2.904	16.4	20.5	36.9	56.0	-19.1
2.792	15.7	20.5	36.2	56.0	-19.8
3.116	15.3	20.5	35.8	56.0	-20.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	19.3	20.3	39.6	46.1	-6.6
0.468	18.7	20.3	39.0	46.5	-7.6
2.792	8.7	20.5	29.2	46.0	-16.8
3.024	8.3	20.5	28.8	46.0	-17.2
2.904	8.2	20.5	28.7	46.0	-17.3
3.116	7.2	20.5	27.7	46.0	-18.3

CONCLUSION

Pass

Tested By

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	8	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

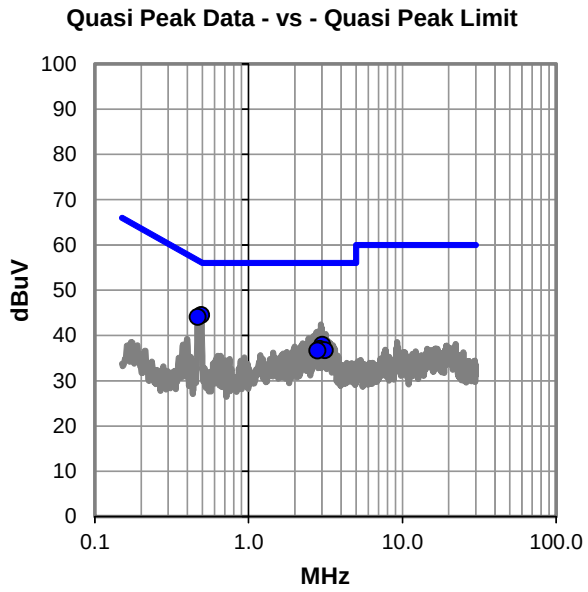
None

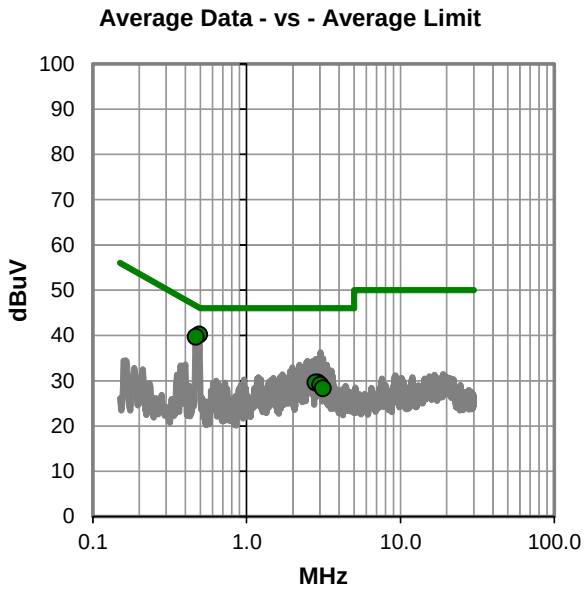
EUT OPERATING MODES

Tx, Ch. 64(5320MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	24.2	20.3	44.5	56.1	-11.7
0.468	23.8	20.3	44.1	56.5	-12.5
3.020	17.4	20.5	37.9	56.0	-18.1
2.904	16.5	20.5	37.0	56.0	-19.0
3.140	16.2	20.5	36.7	56.0	-19.3
2.812	16.2	20.5	36.7	56.0	-19.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	19.9	20.3	40.2	46.1	-6.0
0.468	19.4	20.3	39.7	46.5	-6.9
2.904	9.1	20.5	29.6	46.0	-16.4
2.812	9.1	20.5	29.6	46.0	-16.4
3.020	8.6	20.5	29.1	46.0	-16.9
3.140	7.8	20.5	28.3	46.0	-17.7

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	9	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

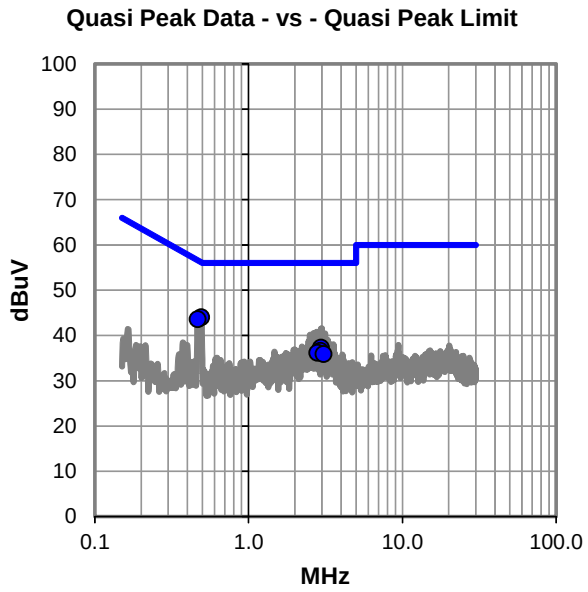
None

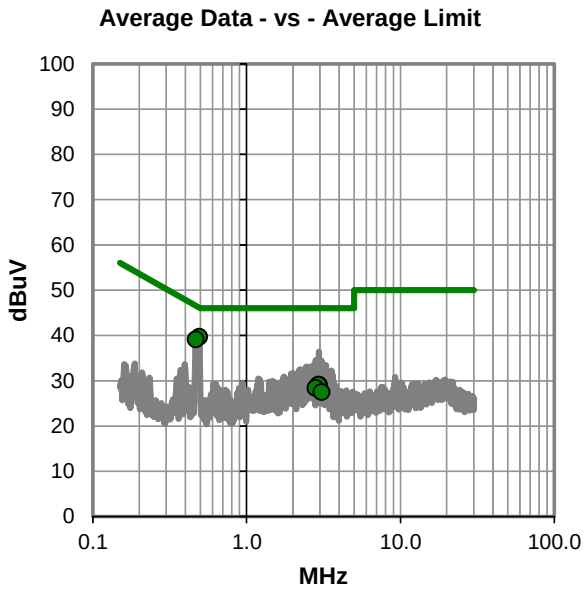
EUT OPERATING MODES

Tx, Ch. 64(5320MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	23.7	20.3	44.0	56.1	-12.2
0.468	23.3	20.3	43.6	56.5	-13.0
2.952	16.8	20.5	37.3	56.0	-18.7
2.928	16.1	20.5	36.6	56.0	-19.4
2.812	15.7	20.5	36.2	56.0	-19.8
3.068	15.4	20.5	35.9	56.0	-20.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	19.4	20.3	39.7	46.1	-6.5
0.468	18.9	20.3	39.2	46.5	-7.4
2.952	8.6	20.5	29.1	46.0	-16.9
2.928	8.6	20.5	29.1	46.0	-16.9
2.812	7.9	20.5	28.4	46.0	-17.6
3.068	7.0	20.5	27.5	46.0	-18.5

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	10	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

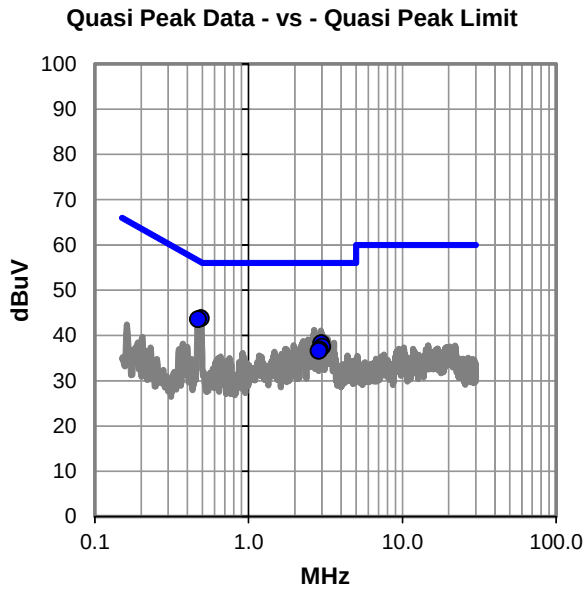
None

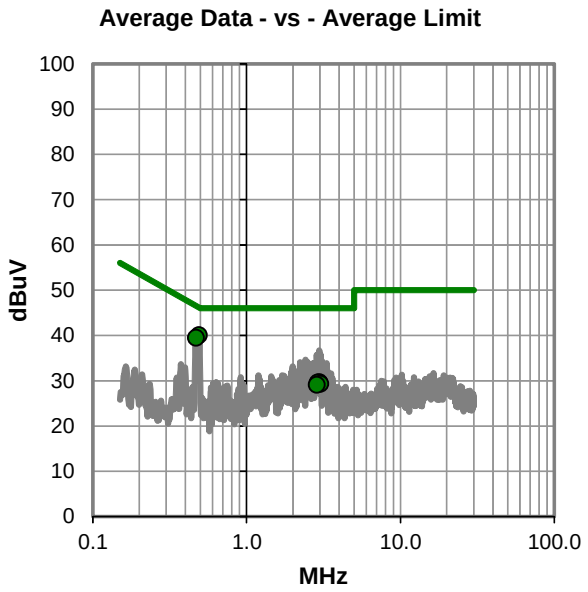
EUT OPERATING MODES

Tx, Ch. 100(5500MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	23.5	20.3	43.8	56.2	-12.4
0.470	23.3	20.3	43.6	56.5	-13.0
2.976	17.8	20.5	38.3	56.0	-17.7
3.020	17.0	20.5	37.5	56.0	-18.5
2.904	16.4	20.5	36.9	56.0	-19.1
2.856	16.1	20.5	36.6	56.0	-19.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	19.8	20.3	40.1	46.2	-6.1
0.470	19.2	20.3	39.5	46.5	-7.1
2.976	9.2	20.5	29.7	46.0	-16.3
2.904	9.1	20.5	29.6	46.0	-16.4
3.020	8.8	20.5	29.3	46.0	-16.7
2.856	8.6	20.5	29.1	46.0	-16.9

CONCLUSION

Pass

Tested By

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	11	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

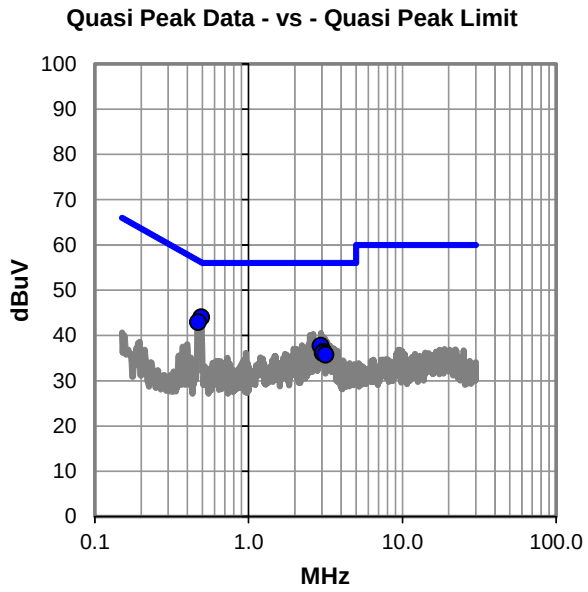
None

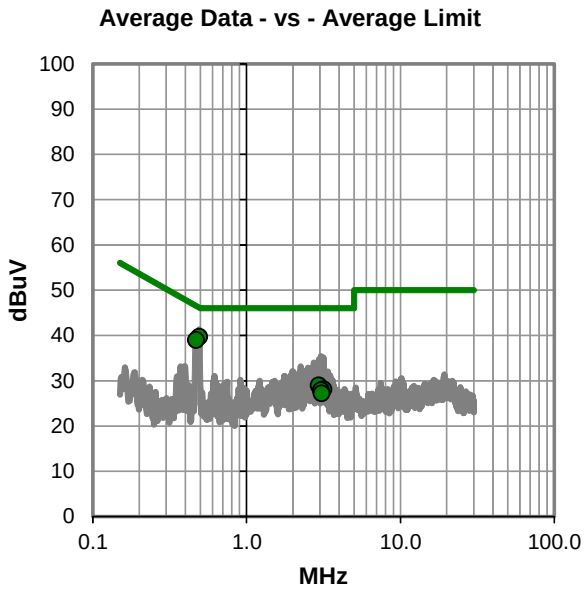
EUT OPERATING MODES

Tx, Ch. 100(5500MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	23.7	20.3	44.0	56.1	-12.2
0.470	22.7	20.3	43.0	56.5	-13.6
2.948	17.2	20.5	37.7	56.0	-18.3
3.068	15.9	20.5	36.4	56.0	-19.6
3.044	15.6	20.5	36.1	56.0	-19.9
3.160	15.2	20.5	35.7	56.0	-20.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.492	19.4	20.3	39.7	46.1	-6.5
0.470	18.7	20.3	39.0	46.5	-7.6
2.948	8.5	20.5	29.0	46.0	-17.0
3.160	7.6	20.5	28.1	46.0	-17.9
3.044	7.4	20.5	27.9	46.0	-18.1
3.068	6.7	20.5	27.2	46.0	-18.8

CONCLUSION

Pass

Tested By

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	12	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

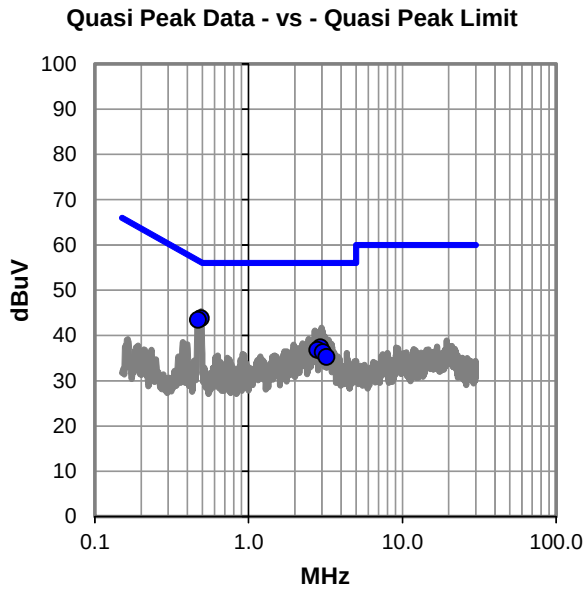
None

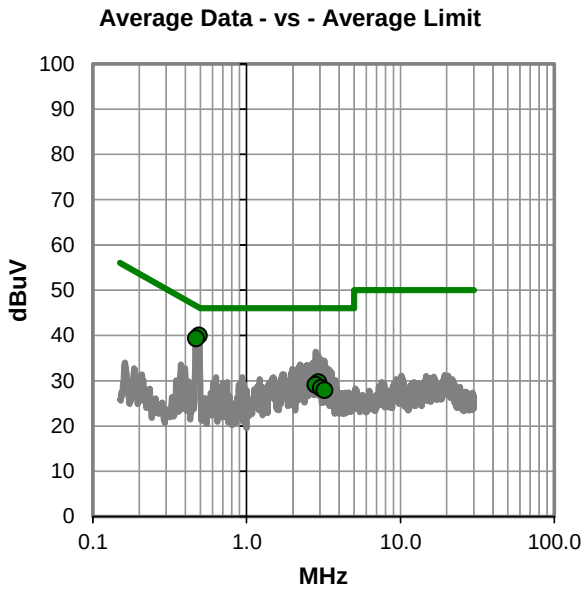
EUT OPERATING MODES

Tx, Ch. 116(5580MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #12

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	23.5	20.3	43.8	56.2	-12.4
0.470	23.2	20.3	43.5	56.5	-13.1
2.928	16.9	20.5	37.4	56.0	-18.6
2.808	16.3	20.5	36.8	56.0	-19.2
3.044	15.8	20.5	36.3	56.0	-19.7
3.208	14.7	20.5	35.2	56.0	-20.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	19.7	20.3	40.0	46.2	-6.2
0.470	19.1	20.3	39.4	46.5	-7.2
2.928	9.2	20.5	29.7	46.0	-16.3
2.808	8.6	20.5	29.1	46.0	-16.9
3.044	7.9	20.5	28.4	46.0	-17.6
3.208	7.4	20.5	27.9	46.0	-18.1

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	13	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

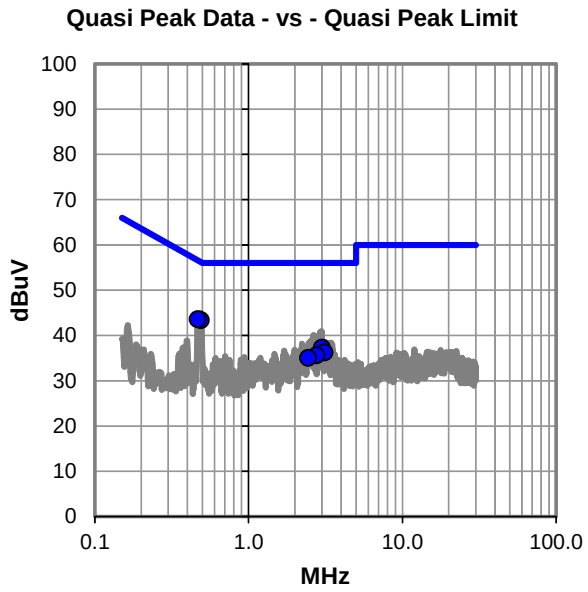
None

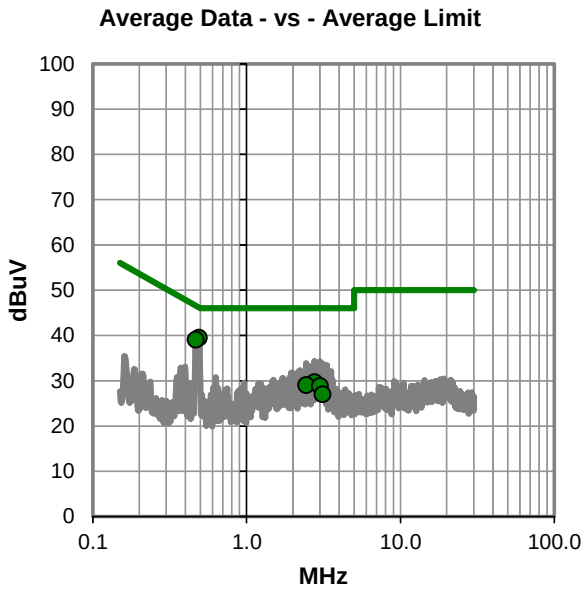
EUT OPERATING MODES

Tx, Ch. 116(5580MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	23.1	20.3	43.4	56.2	-12.8
0.468	23.3	20.3	43.6	56.5	-13.0
2.996	16.8	20.5	37.3	56.0	-18.7
3.112	15.7	20.5	36.2	56.0	-19.8
2.764	15.1	20.5	35.6	56.0	-20.4
2.436	14.6	20.5	35.1	56.0	-20.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	19.2	20.3	39.5	46.2	-6.7
0.468	18.8	20.3	39.1	46.5	-7.5
2.764	9.2	20.5	29.7	46.0	-16.3
2.436	8.6	20.5	29.1	46.0	-16.9
2.996	8.3	20.5	28.8	46.0	-17.2
3.112	6.5	20.5	27.0	46.0	-19.0

CONCLUSION

Pass

Tested By

AC POWERLINE CONDUCTED EMISSIONS

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	14	Line:	Neutral	Ext. Attenuation (dB):	20

COMMENTS

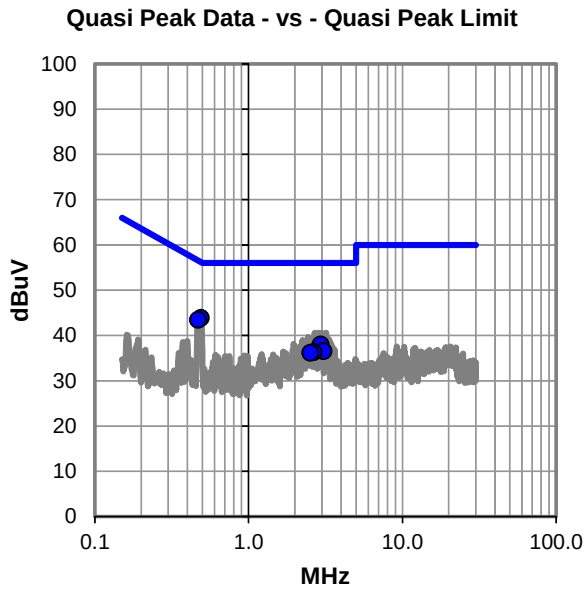
None

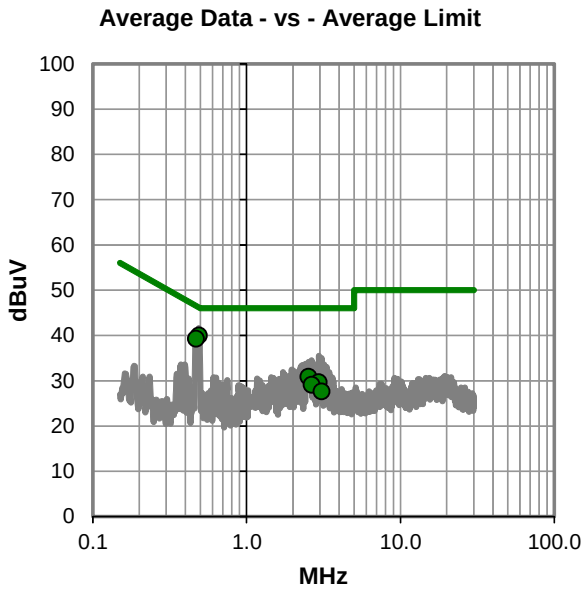
EUT OPERATING MODES

Tx, Ch. 140(5700MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	23.6	20.3	43.9	56.2	-12.3
0.470	23.2	20.3	43.5	56.5	-13.1
2.948	17.5	20.5	38.0	56.0	-18.0
3.068	16.0	20.5	36.5	56.0	-19.5
2.644	15.8	20.5	36.3	56.0	-19.7
2.528	15.7	20.5	36.2	56.0	-19.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	19.7	20.3	40.0	46.2	-6.2
0.470	19.0	20.3	39.3	46.5	-7.3
2.528	10.4	20.5	30.9	46.0	-15.1
2.948	9.2	20.5	29.7	46.0	-16.3
2.644	8.6	20.5	29.1	46.0	-16.9
3.068	7.1	20.5	27.6	46.0	-18.4

CONCLUSION

Pass

Tested By

WTD.2013.07.23, PSA-ESCI 2012.12.14, PSA-ESCI Version 2013.2.20

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Kezar	Work Order:	SYNA0151
Serial Number:	1	Date:	02/28/2014
Customer:	Synapse Product Development LLC	Temperature:	20.3°C
Attendees:	None	Relative Humidity:	36.6%
Customer Project:	Kezar	Bar. Pressure:	1002 mb
Tested By:	Jared Ison	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	SYNA0151-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.407:2014	ANSI C63.10:2009

TEST PARAMETERS

Run #:	15	Line:	High Line	Ext. Attenuation (dB):	20

COMMENTS

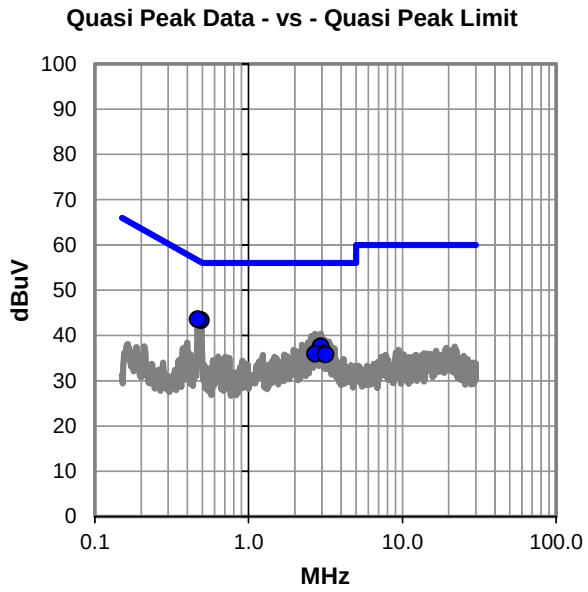
None

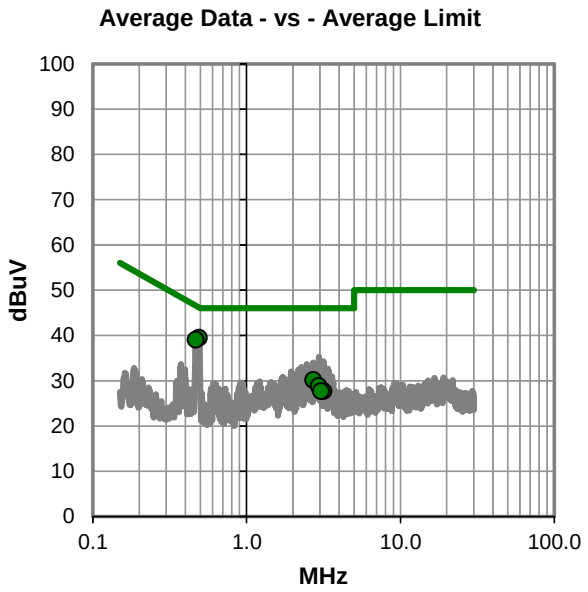
EUT OPERATING MODES

Tx, Ch. 140(5700MHz), 6Mbps

DEVIATIONS FROM TEST STANDARD

None





AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #15

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	23.1	20.3	43.4	56.2	-12.8
0.468	23.3	20.3	43.6	56.5	-13.0
2.948	17.1	20.5	37.6	56.0	-18.4
3.044	15.5	20.5	36.0	56.0	-20.0
2.716	15.5	20.5	36.0	56.0	-20.0
3.160	15.3	20.5	35.8	56.0	-20.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.490	19.2	20.3	39.5	46.2	-6.7
0.468	18.8	20.3	39.1	46.5	-7.5
2.716	9.7	20.5	30.2	46.0	-15.8
2.948	8.3	20.5	28.8	46.0	-17.2
3.160	7.2	20.5	27.7	46.0	-18.3
3.044	7.2	20.5	27.7	46.0	-18.3

CONCLUSION

Pass

Tested By