

NORTHWEST EMC

Summit Semiconductor LLC

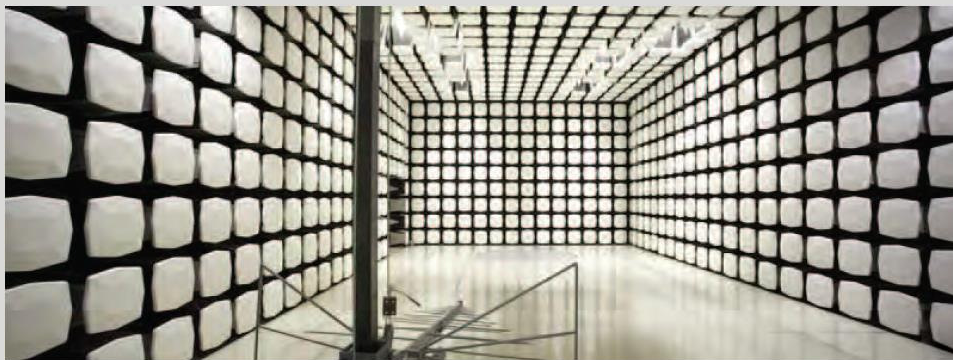
Athena4XD (Extended Distance)

FCC 15.207:2015

FCC 15.407:2015

802.11 Radio

Report # FOCU0214.1



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. This Report may only be duplicated in its entirety

CERTIFICATE OF TEST

Last Date of Test: October 8, 2015
Summit Semiconductor LLC
Model: Athena4XD (Extended Distance)

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2015	ANSI C63.10:2009
FCC 15.407:2015	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.8	Frequency Stability	Yes	Pass	
6.9.1	Emission Bandwidth	Yes	Pass	
6.9.1	Occupied Bandwidth	Yes	Pass	
6.10.3	Maximum Conducted Output Power	Yes	Pass	
6.11.1	Peak Power Spectral Density	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Kyle Holgate, Operations Manager

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. 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. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

REVISION HISTORY

Revision Number		Description	Date	Page Number
00		None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

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

A2LA - Accredited by A2LA to ISO / IEC 17065 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

MSIP / 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.

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

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

<http://www.nwemc.com/accreditations/>
<http://gsi.nist.gov/global/docs/cabs/designations.html>

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 on each data sheet. 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 16-4-2 as applicable), and are available upon request.

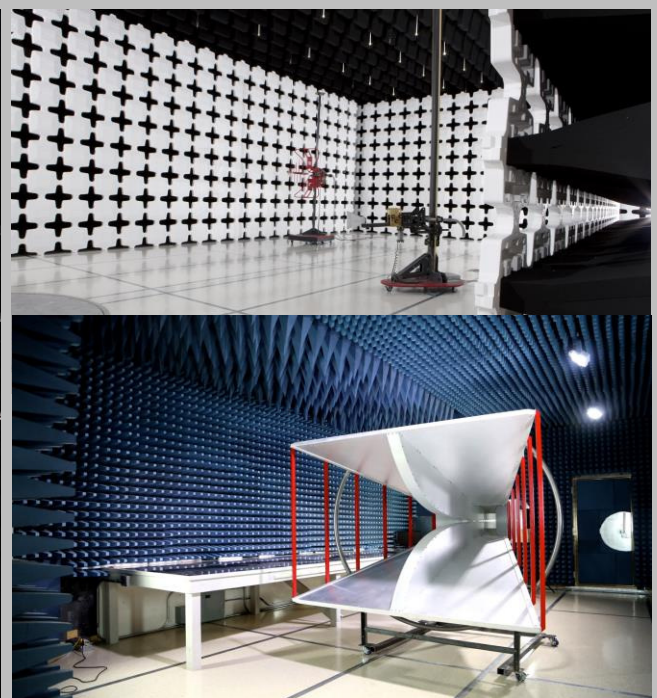
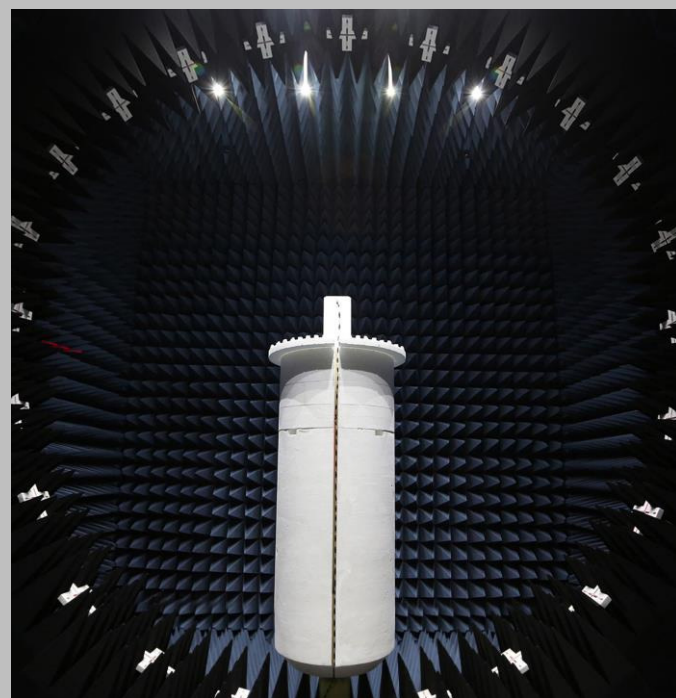
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

FACILITIES



California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 9801 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Industry Canada					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Summit Semiconductor LLC
Address:	20575 NW Von Neumann Dr., Suite 100
City, State, Zip:	Beaverton, OR 97006
Test Requested By:	Kenneth Boehlke
Model:	Athena4XD (Extended Distance)
First Date of Test:	August 21, 2015
Last Date of Test:	October 8, 2015
Receipt Date of Samples:	August 21, 2015
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
UNII client radio module with 4 identical SISO ports. The Athena may be battery powered or it can be AC powered with an adapter, or battery charged via an AC adapter.
Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.407 for operation in the 5.2 GHz, 5.3 GHz, 5.6 GHz and 5.8 GHz band(s).

CONFIGURATIONS

Configuration FOCU0214- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radio Module (Athena4XD) Extended Distance	Summit Semiconductor LLC	Athena4XD / 444-2253	02EA3CD00087

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Development Board (Athena)	Summit Semiconductor LLC	None	None
Laptop (Dell)	Dell	Latitude D820	CN-0GF470-48643-7391438
AC/DC Adapter (DELL)	Dell	LA90PS-00	CN-0DF26671615-81L
AC/DC Adapter (Athena)	CONDOR	STD-1836P	SA-183A6IV

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial Cable	No	1.6m	Yes	Development Board (Athena)	Laptop
AC Power Cable (Laptop)	No	2m	No	AC mains	AC/DC Power Adapter (Dell)
DC Power Cable (Laptop)	Unknown	2m	Yes	AC/DC Power Adapter (Dell)	Laptop
DC Power Cable (Athena)	Unknown	1.5m	Yes	AC/DC Adapter (Athena)	Development Board (Athena)
AC Power Cable (Athena)	No	1.5m	No	AC mains	AC/DC Adapter (Athena)

CONFIGURATIONS

Configuration FOCU0214- 4

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radio Module (Athena4XD) Extended Distance	Summit Semiconductor LLC	Athena4XD / 444-2253	02EA3CD00087

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Development Board (Athena)	Summit Semiconductor LLC	None	None
Laptop (Dell)	Dell	Latitude D820	CN-0GF470-48643-7391438
AC/DC Adapter (DELL)	Dell	LA90PS-00	CN-0DF26671615-81L
AC/DC Adapter (Athena)	CONDOR	STD-1836P	SA-183A6IV

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial Cable	No	1.6m	Yes	Development Board (Athena)	Laptop
AC Power Cable (Laptop)	No	2m	No	AC mains	AC/DC Power Adapter (Dell)
DC Power Cable (Laptop)	Unknown	2m	Yes	AC/DC Power Adapter (Dell)	Laptop
DC Power Cable (Athena)	Unknown	1.5m	Yes	AC/DC Adapter (Athena)	Development Board (Athena)
AC Power Cable (Athena)	No	1.5m	No	AC mains	AC/DC Adapter (Athena)

CONFIGURATIONS

Configuration FOCU0214- 5

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radio Board (Athena4XD) Extended Distance	Summit Semiconductor LLC	Athena4XD / 444-2253	02EA4CD00042

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Development Board (Athena)	Summit Semiconductor LLC	None	None
Laptop (Dell)	Dell	Latitude D820	CN-0GF470-48643-7391438
AC/DC Adapter (DELL)	Dell	LA90PS-00	CN-0DF26671615-81L
Power Supply Development Board	Summit Semiconductor LLC	None	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable (Laptop)	No	2m	No	AC mains	AC/DC Power Adapter (Dell)
DC Power Cable (Laptop)	Unknown	2m	Yes	AC/DC Power Adapter (Dell)	Laptop
DC Leads x2	No	2m	No	DC Power Supply	Development Boards
USB Cable	Yes	1.2m	No	Laptop	Development Board (Athena)

CONFIGURATIONS

Configuration FOCU0214- 7

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radio Board (Athena4XD) Extended Distance	Summit Semiconductor LLC	Athena4XD / 444-2253	02EA4CD00042

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Development Board (Athena)	Summit Semiconductor LLC	None	None
Power Supply Development Board	Summit Semiconductor LLC	None	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop (Dell)	Dell	Latitude D820	CN-0GF470-48643-7391438
AC/DC Adapter (DELL)	Dell	LA90PS-00	CN-0DF26671615-81L

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable (Laptop)	No	2m	No	AC mains	AC/DC Power Adapter (Dell)
DC Power Cable (Laptop)	Unknown	2m	Yes	AC/DC Power Adapter (Dell)	Laptop
DC Leads x4	No	.5m	No	DC Power Supply	Development Board

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	8/21/2015	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT was taken home by the client before the next scheduled test.
2	8/21/2015	Emission 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	8/21/2015	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	8/21/2015	Maximum Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	8/21/2015	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	8/21/2015	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.
7	10/7/2015	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	10/8/2015	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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 50 Ω .

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
LISN	Solar Electronics	9252-50-R-24-BNC	LIN	1/27/2015	1/27/2016
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, TQQ	EVGA	5/12/2015	5/12/2016
Attenuator	Fairview Microwave	SA6B10W-20	TQQ	NCR	NCR
Filter - High Pass	TTE	H97-100K-50-720B	HHD	NCR	NCR
Receiver	Rohde & Schwarz	ESCI	ARH	3/11/2015	3/11/2016
Power Supply - DC	Tektronix	PS280	TPM	NCR	NCR

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

FOCU0214-7

MODES INVESTIGATED

Continuous Tx, 6Mbps 5180 MHz Ch.8
Continuous Tx, 6Mbps 5240 MHz Ch.14
Continuous Tx, 6Mbps 5260 MHz Ch.15
Continuous Tx, 6Mbps 5320 MHz Ch.18
Continuous Tx, 6Mbps 5500 MHz Ch.19
Continuous Tx, 6Mbps 5580 MHz Ch.23
Continuous Tx, 6Mbps 5700 MHz Ch.29
Continuous Tx, 6Mbps 5745 MHz Ch.30
Continuous Tx, 6Mbps 5785 MHz Ch.32
Continuous Tx, 6Mbps 5825 MHz Ch.34

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	2	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

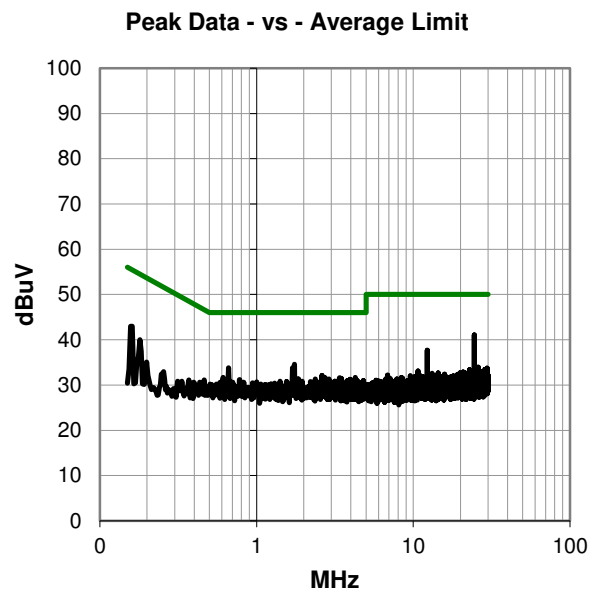
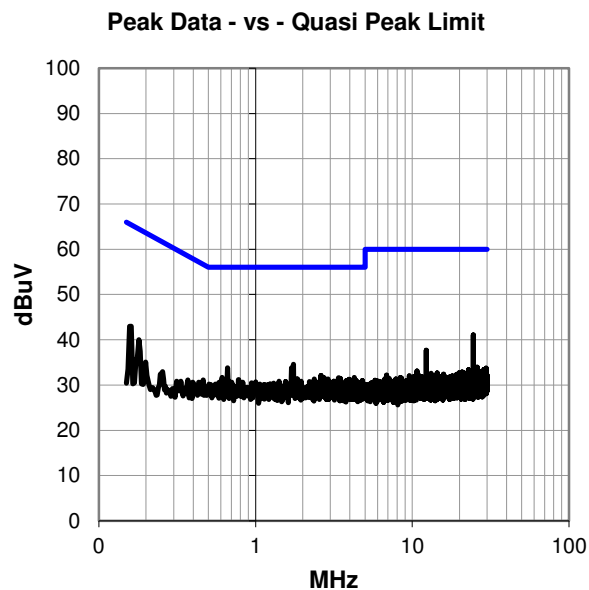
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5180 MHz Ch.8

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #2

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.5	21.6	41.1	60.0	-18.9
1.743	14.4	20.2	34.6	56.0	-21.4
0.661	13.8	20.0	33.8	56.0	-22.2
1.695	13.6	20.2	33.8	56.0	-22.2
12.286	16.8	20.9	37.7	60.0	-22.3
0.157	22.7	20.3	43.0	65.6	-22.6
2.616	11.8	20.3	32.1	56.0	-23.9
0.613	11.7	20.0	31.7	56.0	-24.3
4.273	11.3	20.4	31.7	56.0	-24.3
2.698	11.3	20.3	31.6	56.0	-24.4
2.735	11.3	20.3	31.6	56.0	-24.4
3.381	11.3	20.3	31.6	56.0	-24.4
0.180	19.9	20.1	40.0	64.5	-24.5
3.470	11.2	20.3	31.5	56.0	-24.5
1.848	11.1	20.2	31.3	56.0	-24.7
2.907	11.0	20.3	31.3	56.0	-24.7
2.374	11.0	20.3	31.3	56.0	-24.7
3.952	10.9	20.4	31.3	56.0	-24.7
0.777	11.2	20.0	31.2	56.0	-24.8
4.392	10.6	20.4	31.0	56.0	-25.0
4.802	10.6	20.4	31.0	56.0	-25.0
3.776	10.6	20.3	30.9	56.0	-25.1
3.444	10.6	20.3	30.9	56.0	-25.1
4.108	10.5	20.4	30.9	56.0	-25.1
3.832	10.5	20.3	30.8	56.0	-25.2
1.411	10.7	20.1	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.5	21.6	41.1	50.0	-8.9
1.743	14.4	20.2	34.6	46.0	-11.4
0.661	13.8	20.0	33.8	46.0	-12.2
1.695	13.6	20.2	33.8	46.0	-12.2
12.286	16.8	20.9	37.7	50.0	-12.3
0.157	22.7	20.3	43.0	55.6	-12.6
2.616	11.8	20.3	32.1	46.0	-13.9
0.613	11.7	20.0	31.7	46.0	-14.3
4.273	11.3	20.4	31.7	46.0	-14.3
2.698	11.3	20.3	31.6	46.0	-14.4
2.735	11.3	20.3	31.6	46.0	-14.4
3.381	11.3	20.3	31.6	46.0	-14.4
0.180	19.9	20.1	40.0	54.5	-14.5
3.470	11.2	20.3	31.5	46.0	-14.5
1.848	11.1	20.2	31.3	46.0	-14.7
2.907	11.0	20.3	31.3	46.0	-14.7
2.374	11.0	20.3	31.3	46.0	-14.7
3.952	10.9	20.4	31.3	46.0	-14.7
0.777	11.2	20.0	31.2	46.0	-14.8
4.392	10.6	20.4	31.0	46.0	-15.0
4.802	10.6	20.4	31.0	46.0	-15.0
3.776	10.6	20.3	30.9	46.0	-15.1
3.444	10.6	20.3	30.9	46.0	-15.1
4.108	10.5	20.4	30.9	46.0	-15.1
3.832	10.5	20.3	30.8	46.0	-15.2
1.411	10.7	20.1	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	3	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

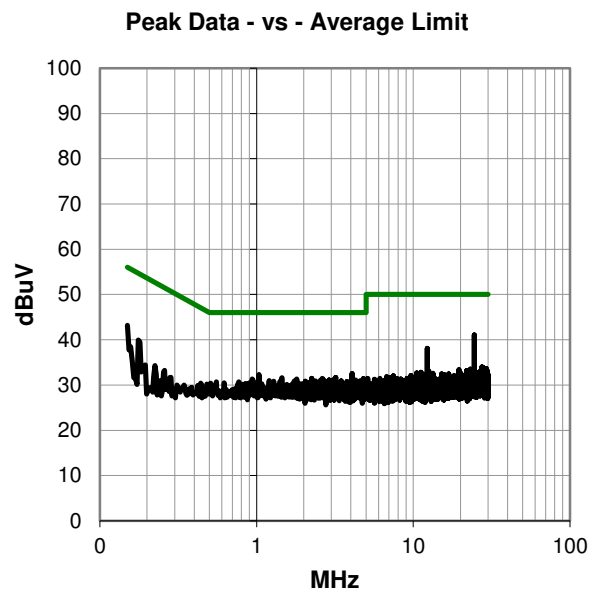
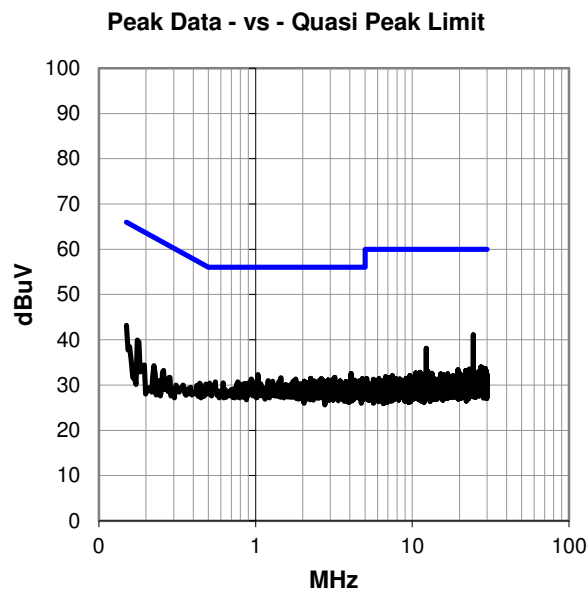
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5180 MHz Ch.8

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #3

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.5	21.6	41.1	60.0	-18.9
12.286	17.2	20.9	38.1	60.0	-21.9
0.150	22.9	20.3	43.2	66.0	-22.8
4.071	12.1	20.4	32.5	56.0	-23.5
1.038	12.2	20.1	32.3	56.0	-23.7
3.202	11.4	20.3	31.7	56.0	-24.3
1.452	11.5	20.1	31.6	56.0	-24.4
2.624	11.2	20.3	31.5	56.0	-24.5
2.250	11.2	20.3	31.5	56.0	-24.5
4.802	11.0	20.4	31.4	56.0	-24.6
1.803	11.1	20.2	31.3	56.0	-24.7
0.937	11.2	20.1	31.3	56.0	-24.7
0.176	19.8	20.1	39.9	64.7	-24.7
2.564	10.8	20.3	31.1	56.0	-24.9
2.903	10.8	20.3	31.1	56.0	-24.9
3.082	10.8	20.3	31.1	56.0	-24.9
4.295	10.7	20.4	31.1	56.0	-24.9
4.978	10.7	20.4	31.1	56.0	-24.9
3.127	10.7	20.3	31.0	56.0	-25.0
4.590	10.6	20.4	31.0	56.0	-25.0
1.202	10.9	20.1	31.0	56.0	-25.0
2.381	10.6	20.3	30.9	56.0	-25.1
2.702	10.6	20.3	30.9	56.0	-25.1
3.467	10.6	20.3	30.9	56.0	-25.1
1.743	10.7	20.2	30.9	56.0	-25.1
1.415	10.7	20.1	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.5	21.6	41.1	50.0	-8.9
12.286	17.2	20.9	38.1	50.0	-11.9
0.150	22.9	20.3	43.2	56.0	-12.8
4.071	12.1	20.4	32.5	46.0	-13.5
1.038	12.2	20.1	32.3	46.0	-13.7
3.202	11.4	20.3	31.7	46.0	-14.3
1.452	11.5	20.1	31.6	46.0	-14.4
2.624	11.2	20.3	31.5	46.0	-14.5
2.250	11.2	20.3	31.5	46.0	-14.5
4.802	11.0	20.4	31.4	46.0	-14.6
1.803	11.1	20.2	31.3	46.0	-14.7
0.937	11.2	20.1	31.3	46.0	-14.7
0.176	19.8	20.1	39.9	54.7	-14.7
2.564	10.8	20.3	31.1	46.0	-14.9
2.903	10.8	20.3	31.1	46.0	-14.9
3.082	10.8	20.3	31.1	46.0	-14.9
4.295	10.7	20.4	31.1	46.0	-14.9
4.978	10.7	20.4	31.1	46.0	-14.9
3.127	10.7	20.3	31.0	46.0	-15.0
4.590	10.6	20.4	31.0	46.0	-15.0
1.202	10.9	20.1	31.0	46.0	-15.0
2.381	10.6	20.3	30.9	46.0	-15.1
2.702	10.6	20.3	30.9	46.0	-15.1
3.467	10.6	20.3	30.9	46.0	-15.1
1.743	10.7	20.2	30.9	46.0	-15.1
1.415	10.7	20.1	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	4	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

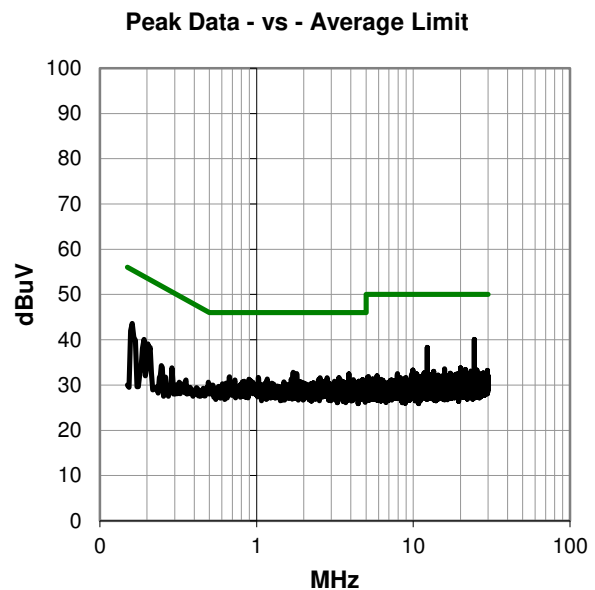
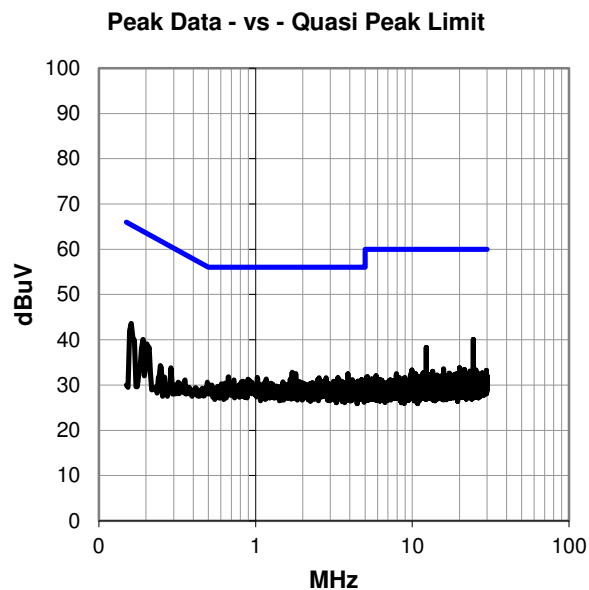
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5240 MHz Ch.14

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.5	21.6	40.1	60.0	-19.9
12.286	17.4	20.9	38.3	60.0	-21.7
0.161	23.4	20.2	43.6	65.4	-21.8
1.709	12.6	20.2	32.8	56.0	-23.2
1.806	12.3	20.2	32.5	56.0	-23.5
3.881	12.1	20.4	32.5	56.0	-23.5
0.191	20.0	20.1	40.1	64.0	-23.9
1.762	11.7	20.2	31.9	56.0	-24.1
0.672	11.8	20.0	31.8	56.0	-24.2
1.027	11.6	20.1	31.7	56.0	-24.3
2.538	11.3	20.3	31.6	56.0	-24.4
2.821	11.3	20.3	31.6	56.0	-24.4
3.355	11.3	20.3	31.6	56.0	-24.4
0.202	19.0	20.1	39.1	63.5	-24.4
1.668	11.1	20.2	31.3	56.0	-24.7
1.169	11.2	20.1	31.3	56.0	-24.7
0.896	11.2	20.1	31.3	56.0	-24.7
2.482	10.9	20.3	31.2	56.0	-24.8
4.138	10.8	20.4	31.2	56.0	-24.8
4.754	10.8	20.4	31.2	56.0	-24.8
0.728	11.1	20.0	31.1	56.0	-24.9
3.314	10.7	20.3	31.0	56.0	-25.0
3.452	10.7	20.3	31.0	56.0	-25.0
4.884	10.6	20.4	31.0	56.0	-25.0
4.664	10.5	20.4	30.9	56.0	-25.1
0.833	10.8	20.0	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.5	21.6	40.1	50.0	-9.9
12.286	17.4	20.9	38.3	50.0	-11.7
0.161	23.4	20.2	43.6	55.4	-11.8
1.709	12.6	20.2	32.8	46.0	-13.2
1.806	12.3	20.2	32.5	46.0	-13.5
3.881	12.1	20.4	32.5	46.0	-13.5
0.191	20.0	20.1	40.1	54.0	-13.9
1.762	11.7	20.2	31.9	46.0	-14.1
0.672	11.8	20.0	31.8	46.0	-14.2
1.027	11.6	20.1	31.7	46.0	-14.3
2.538	11.3	20.3	31.6	46.0	-14.4
2.821	11.3	20.3	31.6	46.0	-14.4
3.355	11.3	20.3	31.6	46.0	-14.4
0.202	19.0	20.1	39.1	53.5	-14.4
1.668	11.1	20.2	31.3	46.0	-14.7
1.169	11.2	20.1	31.3	46.0	-14.7
0.896	11.2	20.1	31.3	46.0	-14.7
2.482	10.9	20.3	31.2	46.0	-14.8
4.138	10.8	20.4	31.2	46.0	-14.8
4.754	10.8	20.4	31.2	46.0	-14.8
0.728	11.1	20.0	31.1	46.0	-14.9
3.314	10.7	20.3	31.0	46.0	-15.0
3.452	10.7	20.3	31.0	46.0	-15.0
4.884	10.6	20.4	31.0	46.0	-15.0
4.664	10.5	20.4	30.9	46.0	-15.1
0.833	10.8	20.0	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	5	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

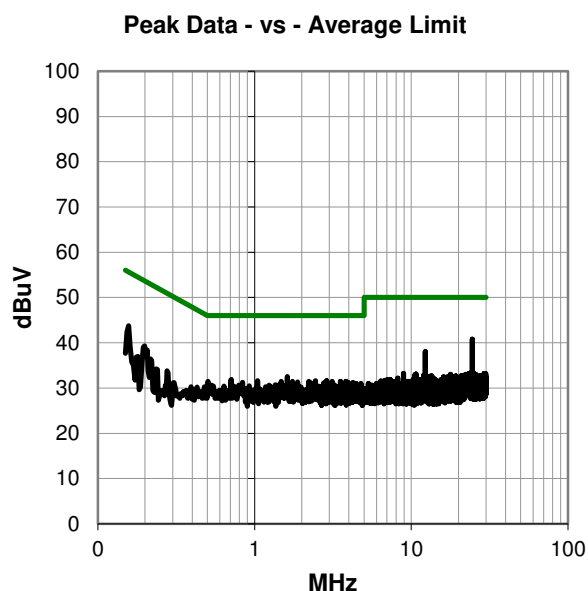
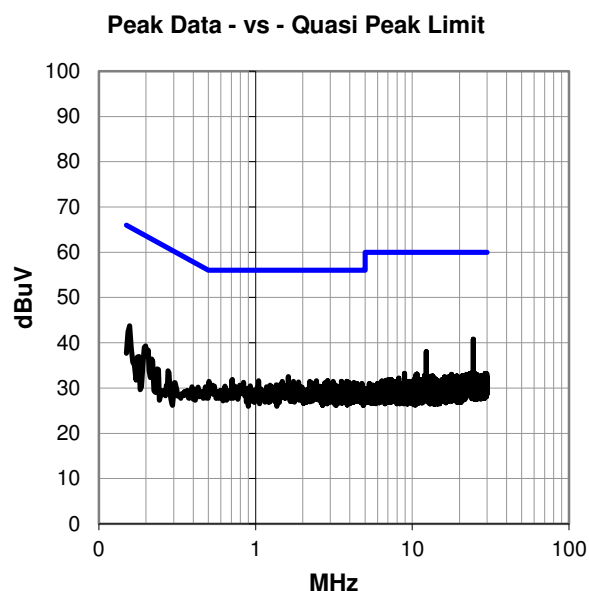
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5240 MHz Ch.14

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #5

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.2	21.6	40.8	60.0	-19.2
0.157	23.5	20.3	43.8	65.6	-21.8
12.286	17.1	20.9	38.0	60.0	-22.0
1.616	12.3	20.2	32.5	56.0	-23.5
0.710	11.9	20.0	31.9	56.0	-24.1
0.199	19.2	20.1	39.3	63.7	-24.4
2.444	11.3	20.3	31.6	56.0	-24.4
2.885	11.3	20.3	31.6	56.0	-24.4
1.045	11.5	20.1	31.6	56.0	-24.4
0.504	11.5	20.0	31.5	56.0	-24.5
1.747	11.3	20.2	31.5	56.0	-24.5
3.135	11.2	20.3	31.5	56.0	-24.5
3.534	11.2	20.3	31.5	56.0	-24.5
1.482	11.3	20.2	31.5	56.0	-24.5
3.825	11.1	20.3	31.4	56.0	-24.6
2.217	11.2	20.2	31.4	56.0	-24.6
1.881	11.1	20.2	31.3	56.0	-24.7
0.836	11.2	20.0	31.2	56.0	-24.8
4.250	10.8	20.4	31.2	56.0	-24.8
3.952	10.8	20.4	31.2	56.0	-24.8
2.262	10.9	20.3	31.2	56.0	-24.8
2.769	10.8	20.3	31.1	56.0	-24.9
4.448	10.6	20.4	31.0	56.0	-25.0
4.769	10.6	20.4	31.0	56.0	-25.0
2.318	10.7	20.3	31.0	56.0	-25.0
3.982	10.6	20.4	31.0	56.0	-25.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.2	21.6	40.8	50.0	-9.2
0.157	23.5	20.3	43.8	55.6	-11.8
12.286	17.1	20.9	38.0	50.0	-12.0
1.616	12.3	20.2	32.5	46.0	-13.5
0.710	11.9	20.0	31.9	46.0	-14.1
0.199	19.2	20.1	39.3	53.7	-14.4
2.444	11.3	20.3	31.6	46.0	-14.4
2.885	11.3	20.3	31.6	46.0	-14.4
1.045	11.5	20.1	31.6	46.0	-14.4
0.504	11.5	20.0	31.5	46.0	-14.5
1.747	11.3	20.2	31.5	46.0	-14.5
3.135	11.2	20.3	31.5	46.0	-14.5
3.534	11.2	20.3	31.5	46.0	-14.5
1.482	11.3	20.2	31.5	46.0	-14.5
3.825	11.1	20.3	31.4	46.0	-14.6
2.217	11.2	20.2	31.4	46.0	-14.6
1.881	11.1	20.2	31.3	46.0	-14.7
0.836	11.2	20.0	31.2	46.0	-14.8
4.250	10.8	20.4	31.2	46.0	-14.8
3.952	10.8	20.4	31.2	46.0	-14.8
2.262	10.9	20.3	31.2	46.0	-14.8
2.769	10.8	20.3	31.1	46.0	-14.9
4.448	10.6	20.4	31.0	46.0	-15.0
4.769	10.6	20.4	31.0	46.0	-15.0
2.318	10.7	20.3	31.0	46.0	-15.0
3.982	10.6	20.4	31.0	46.0	-15.0

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	6	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

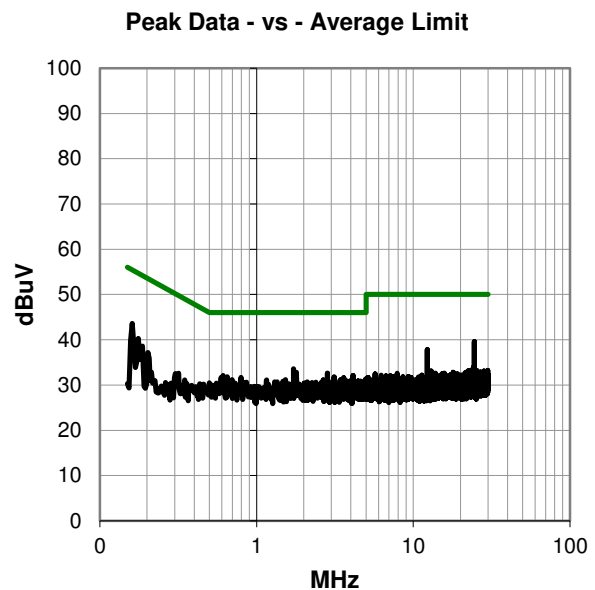
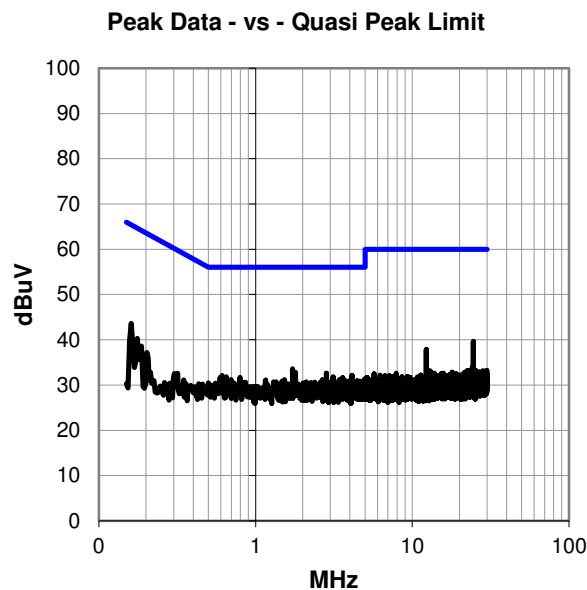
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5260 MHz Ch.15

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #6

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.0	21.6	39.6	60.0	-20.4
0.161	23.4	20.2	43.6	65.4	-21.8
12.286	16.9	20.9	37.8	60.0	-22.2
1.724	13.4	20.2	33.6	56.0	-22.4
1.795	12.6	20.2	32.8	56.0	-23.2
2.836	12.3	20.3	32.6	56.0	-23.4
0.613	12.1	20.0	32.1	56.0	-23.9
4.123	11.7	20.4	32.1	56.0	-23.9
0.650	11.8	20.0	31.8	56.0	-24.2
3.123	11.5	20.3	31.8	56.0	-24.2
0.594	11.7	20.0	31.7	56.0	-24.3
0.795	11.7	20.0	31.7	56.0	-24.3
0.176	20.2	20.1	40.3	64.7	-24.3
3.601	11.3	20.3	31.6	56.0	-24.4
4.989	10.9	20.4	31.3	56.0	-24.7
0.698	11.2	20.0	31.2	56.0	-24.8
3.448	10.9	20.3	31.2	56.0	-24.8
1.530	11.0	20.2	31.2	56.0	-24.8
2.665	10.8	20.3	31.1	56.0	-24.9
1.157	11.0	20.1	31.1	56.0	-24.9
3.982	10.6	20.4	31.0	56.0	-25.0
3.735	10.6	20.3	30.9	56.0	-25.1
3.396	10.6	20.3	30.9	56.0	-25.1
4.452	10.5	20.4	30.9	56.0	-25.1
1.474	10.7	20.1	30.8	56.0	-25.2
4.619	10.4	20.4	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.0	21.6	39.6	50.0	-10.4
0.161	23.4	20.2	43.6	55.4	-11.8
12.286	16.9	20.9	37.8	50.0	-12.2
1.724	13.4	20.2	33.6	46.0	-12.4
1.795	12.6	20.2	32.8	46.0	-13.2
2.836	12.3	20.3	32.6	46.0	-13.4
0.613	12.1	20.0	32.1	46.0	-13.9
4.123	11.7	20.4	32.1	46.0	-13.9
0.650	11.8	20.0	31.8	46.0	-14.2
3.123	11.5	20.3	31.8	46.0	-14.2
0.594	11.7	20.0	31.7	46.0	-14.3
0.795	11.7	20.0	31.7	46.0	-14.3
0.176	20.2	20.1	40.3	54.7	-14.3
3.601	11.3	20.3	31.6	46.0	-14.4
4.989	10.9	20.4	31.3	46.0	-14.7
0.698	11.2	20.0	31.2	46.0	-14.8
3.448	10.9	20.3	31.2	46.0	-14.8
1.530	11.0	20.2	31.2	46.0	-14.8
2.665	10.8	20.3	31.1	46.0	-14.9
1.157	11.0	20.1	31.1	46.0	-14.9
3.982	10.6	20.4	31.0	46.0	-15.0
3.735	10.6	20.3	30.9	46.0	-15.1
3.396	10.6	20.3	30.9	46.0	-15.1
4.452	10.5	20.4	30.9	46.0	-15.1
1.474	10.7	20.1	30.8	46.0	-15.2
4.619	10.4	20.4	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	7	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

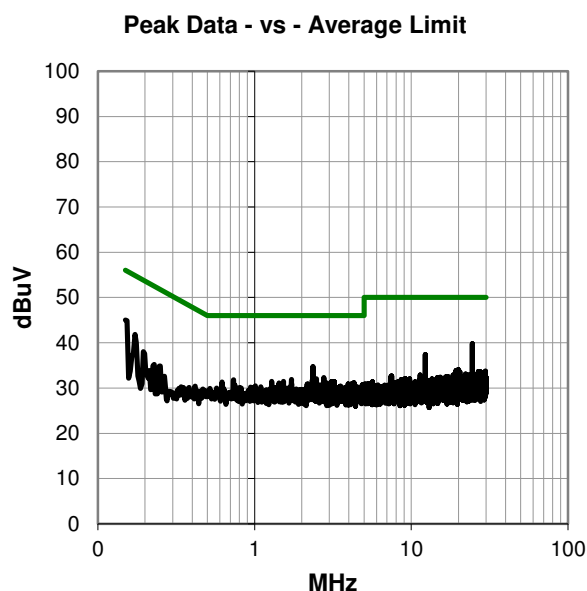
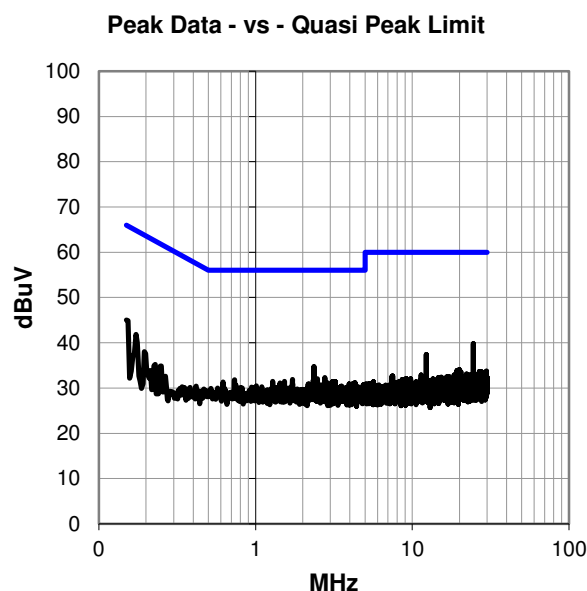
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5260 MHz Ch.15

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #7

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.2	21.6	39.8	60.0	-20.2
0.150	24.7	20.3	45.0	66.0	-21.0
2.359	14.4	20.3	34.7	56.0	-21.3
12.286	16.5	20.9	37.4	60.0	-22.6
0.172	21.7	20.1	41.8	64.8	-23.0
2.769	12.0	20.3	32.3	56.0	-23.7
2.478	11.7	20.3	32.0	56.0	-24.0
1.721	11.7	20.2	31.9	56.0	-24.1
0.736	11.8	20.0	31.8	56.0	-24.2
2.336	11.5	20.3	31.8	56.0	-24.2
1.288	11.4	20.1	31.5	56.0	-24.5
1.527	11.3	20.2	31.5	56.0	-24.5
3.101	11.1	20.3	31.4	56.0	-24.6
3.232	11.1	20.3	31.4	56.0	-24.6
0.620	11.3	20.0	31.3	56.0	-24.7
2.385	11.0	20.3	31.3	56.0	-24.7
4.302	10.8	20.4	31.2	56.0	-24.8
1.430	11.0	20.1	31.1	56.0	-24.9
2.907	10.8	20.3	31.1	56.0	-24.9
4.187	10.6	20.4	31.0	56.0	-25.0
2.165	10.7	20.2	30.9	56.0	-25.1
2.732	10.6	20.3	30.9	56.0	-25.1
3.959	10.5	20.4	30.9	56.0	-25.1
2.209	10.6	20.2	30.8	56.0	-25.2
4.355	10.4	20.4	30.8	56.0	-25.2
2.582	10.4	20.3	30.7	56.0	-25.3

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.2	21.6	39.8	50.0	-10.2
0.150	24.7	20.3	45.0	56.0	-11.0
2.359	14.4	20.3	34.7	46.0	-11.3
12.286	16.5	20.9	37.4	50.0	-12.6
0.172	21.7	20.1	41.8	54.8	-13.0
2.769	12.0	20.3	32.3	46.0	-13.7
2.478	11.7	20.3	32.0	46.0	-14.0
1.721	11.7	20.2	31.9	46.0	-14.1
0.736	11.8	20.0	31.8	46.0	-14.2
2.336	11.5	20.3	31.8	46.0	-14.2
1.288	11.4	20.1	31.5	46.0	-14.5
1.527	11.3	20.2	31.5	46.0	-14.5
3.101	11.1	20.3	31.4	46.0	-14.6
3.232	11.1	20.3	31.4	46.0	-14.6
0.620	11.3	20.0	31.3	46.0	-14.7
2.385	11.0	20.3	31.3	46.0	-14.7
4.302	10.8	20.4	31.2	46.0	-14.8
1.430	11.0	20.1	31.1	46.0	-14.9
2.907	10.8	20.3	31.1	46.0	-14.9
4.187	10.6	20.4	31.0	46.0	-15.0
2.165	10.7	20.2	30.9	46.0	-15.1
2.732	10.6	20.3	30.9	46.0	-15.1
3.959	10.5	20.4	30.9	46.0	-15.1
2.209	10.6	20.2	30.8	46.0	-15.2
4.355	10.4	20.4	30.8	46.0	-15.2
2.582	10.4	20.3	30.7	46.0	-15.3

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	8	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

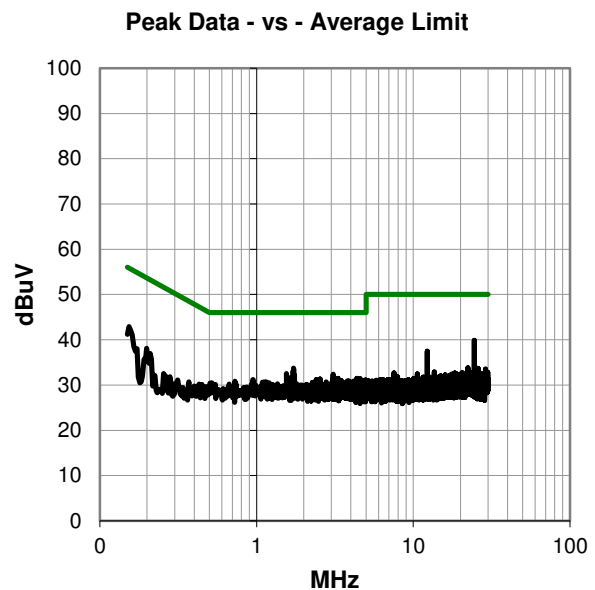
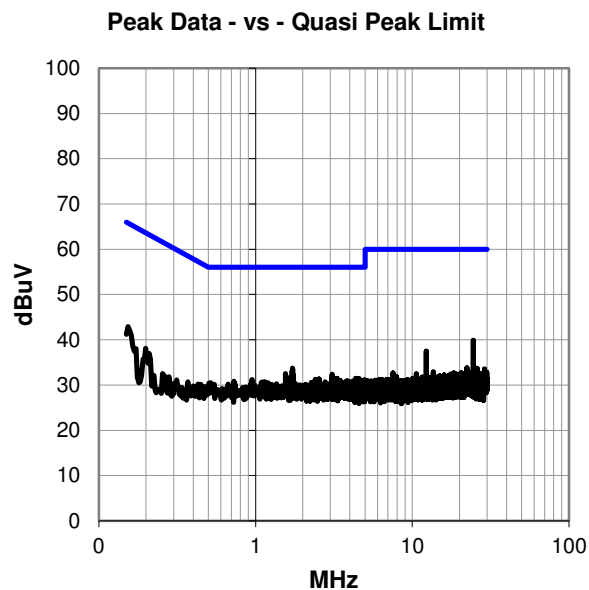
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5320 MHz Ch.18

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #8

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.3	21.6	39.9	60.0	-20.1
1.724	13.5	20.2	33.7	56.0	-22.3
12.286	16.6	20.9	37.5	60.0	-22.5
1.713	12.9	20.2	33.1	56.0	-22.9
0.154	22.6	20.3	42.9	65.8	-22.9
1.553	12.3	20.2	32.5	56.0	-23.5
3.079	12.1	20.3	32.4	56.0	-23.6
1.739	12.1	20.2	32.3	56.0	-23.7
1.642	11.4	20.2	31.6	56.0	-24.4
3.310	11.2	20.3	31.5	56.0	-24.5
4.373	11.1	20.4	31.5	56.0	-24.5
4.575	11.0	20.4	31.4	56.0	-24.6
2.545	11.0	20.3	31.3	56.0	-24.7
4.552	10.9	20.4	31.3	56.0	-24.7
0.948	11.1	20.1	31.2	56.0	-24.8
2.403	10.9	20.3	31.2	56.0	-24.8
4.955	10.7	20.4	31.1	56.0	-24.9
3.467	10.7	20.3	31.0	56.0	-25.0
4.485	10.6	20.4	31.0	56.0	-25.0
3.836	10.6	20.3	30.9	56.0	-25.1
2.459	10.6	20.3	30.9	56.0	-25.1
4.194	10.5	20.4	30.9	56.0	-25.1
4.720	10.5	20.4	30.9	56.0	-25.1
4.866	10.5	20.4	30.9	56.0	-25.1
3.926	10.5	20.4	30.9	56.0	-25.1
0.728	10.8	20.0	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.3	21.6	39.9	50.0	-10.1
1.724	13.5	20.2	33.7	46.0	-12.3
12.286	16.6	20.9	37.5	50.0	-12.5
1.713	12.9	20.2	33.1	46.0	-12.9
0.154	22.6	20.3	42.9	55.8	-12.9
1.553	12.3	20.2	32.5	46.0	-13.5
3.079	12.1	20.3	32.4	46.0	-13.6
1.739	12.1	20.2	32.3	46.0	-13.7
1.642	11.4	20.2	31.6	46.0	-14.4
3.310	11.2	20.3	31.5	46.0	-14.5
4.373	11.1	20.4	31.5	46.0	-14.5
4.575	11.0	20.4	31.4	46.0	-14.6
2.545	11.0	20.3	31.3	46.0	-14.7
4.552	10.9	20.4	31.3	46.0	-14.7
0.948	11.1	20.1	31.2	46.0	-14.8
2.403	10.9	20.3	31.2	46.0	-14.8
4.955	10.7	20.4	31.1	46.0	-14.9
3.467	10.7	20.3	31.0	46.0	-15.0
4.485	10.6	20.4	31.0	46.0	-15.0
3.836	10.6	20.3	30.9	46.0	-15.1
2.459	10.6	20.3	30.9	46.0	-15.1
4.194	10.5	20.4	30.9	46.0	-15.1
4.720	10.5	20.4	30.9	46.0	-15.1
4.866	10.5	20.4	30.9	46.0	-15.1
3.926	10.5	20.4	30.9	46.0	-15.1
0.728	10.8	20.0	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	9	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

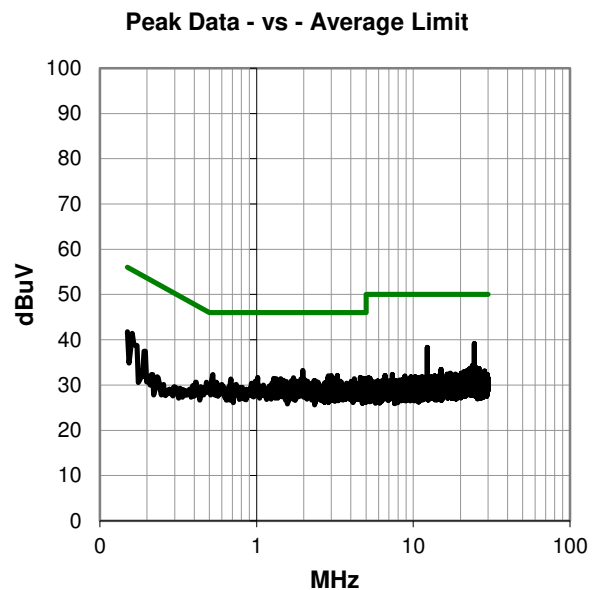
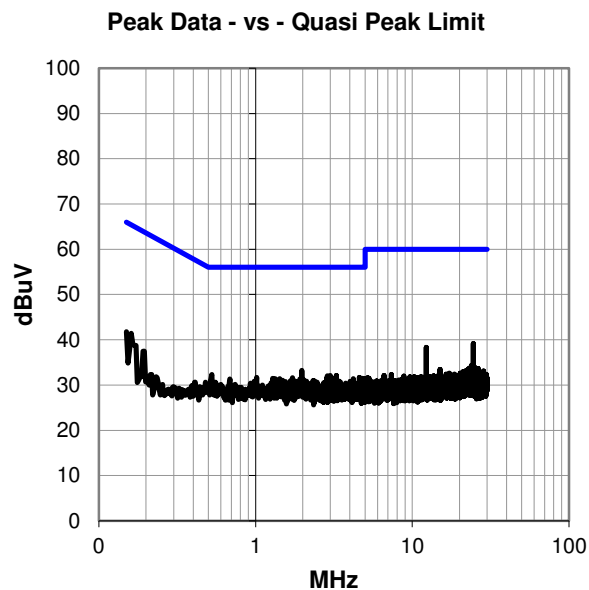
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5320 MHz Ch.18

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #9

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	17.6	21.6	39.2	60.0	-20.8
12.286	17.4	20.9	38.3	60.0	-21.7
1.971	13.0	20.2	33.2	56.0	-22.8
0.527	12.3	20.0	32.3	56.0	-23.7
2.993	11.8	20.3	32.1	56.0	-23.9
3.276	11.8	20.3	32.1	56.0	-23.9
0.161	21.2	20.2	41.4	65.4	-24.0
2.870	11.7	20.3	32.0	56.0	-24.0
0.150	21.5	20.3	41.8	66.0	-24.2
1.016	11.6	20.1	31.7	56.0	-24.3
4.601	11.3	20.4	31.7	56.0	-24.3
1.721	11.4	20.2	31.6	56.0	-24.4
4.802	11.1	20.4	31.5	56.0	-24.5
1.284	11.4	20.1	31.5	56.0	-24.5
1.426	11.3	20.1	31.4	56.0	-24.6
2.851	11.1	20.3	31.4	56.0	-24.6
3.131	11.1	20.3	31.4	56.0	-24.6
1.336	11.3	20.1	31.4	56.0	-24.6
4.213	11.0	20.4	31.4	56.0	-24.6
0.684	11.3	20.0	31.3	56.0	-24.7
1.915	11.1	20.2	31.3	56.0	-24.7
4.937	10.9	20.4	31.3	56.0	-24.7
2.034	10.9	20.2	31.1	56.0	-24.9
1.486	10.9	20.2	31.1	56.0	-24.9
1.739	10.8	20.2	31.0	56.0	-25.0
2.362	10.7	20.3	31.0	56.0	-25.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	17.6	21.6	39.2	50.0	-10.8
12.286	17.4	20.9	38.3	50.0	-11.7
1.971	13.0	20.2	33.2	46.0	-12.8
0.527	12.3	20.0	32.3	46.0	-13.7
2.993	11.8	20.3	32.1	46.0	-13.9
3.276	11.8	20.3	32.1	46.0	-13.9
0.161	21.2	20.2	41.4	55.4	-14.0
2.870	11.7	20.3	32.0	46.0	-14.0
0.150	21.5	20.3	41.8	56.0	-14.2
1.016	11.6	20.1	31.7	46.0	-14.3
4.601	11.3	20.4	31.7	46.0	-14.3
1.721	11.4	20.2	31.6	46.0	-14.4
4.802	11.1	20.4	31.5	46.0	-14.5
1.284	11.4	20.1	31.5	46.0	-14.5
1.426	11.3	20.1	31.4	46.0	-14.6
2.851	11.1	20.3	31.4	46.0	-14.6
3.131	11.1	20.3	31.4	46.0	-14.6
1.336	11.3	20.1	31.4	46.0	-14.6
4.213	11.0	20.4	31.4	46.0	-14.6
0.684	11.3	20.0	31.3	46.0	-14.7
1.915	11.1	20.2	31.3	46.0	-14.7
4.937	10.9	20.4	31.3	46.0	-14.7
2.034	10.9	20.2	31.1	46.0	-14.9
1.486	10.9	20.2	31.1	46.0	-14.9
1.739	10.8	20.2	31.0	46.0	-15.0
2.362	10.7	20.3	31.0	46.0	-15.0

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	10	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

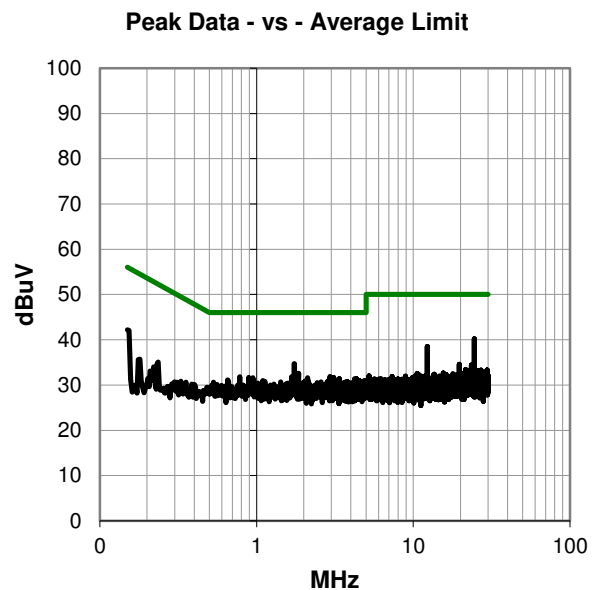
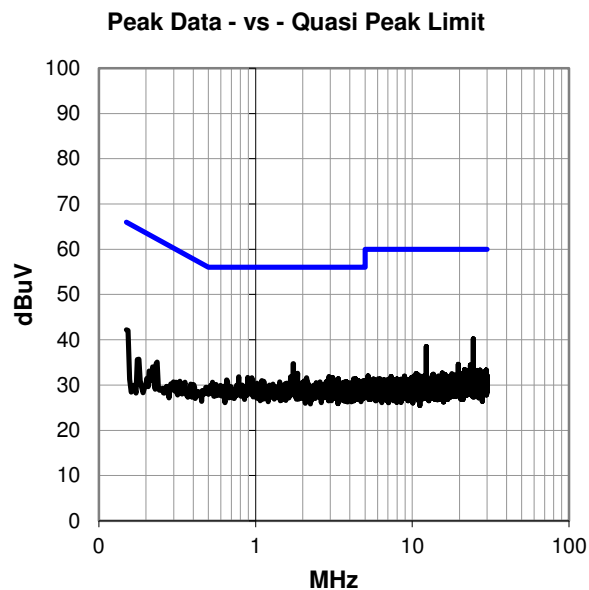
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5500 MHz Ch.19

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.6	21.6	40.2	60.0	-19.8
1.739	14.5	20.2	34.7	56.0	-21.3
12.286	17.6	20.9	38.5	60.0	-21.5
1.855	12.4	20.2	32.6	56.0	-23.4
1.806	12.3	20.2	32.5	56.0	-23.5
0.150	21.9	20.3	42.2	66.0	-23.8
2.948	11.6	20.3	31.9	56.0	-24.1
0.781	11.8	20.0	31.8	56.0	-24.2
1.672	11.6	20.2	31.8	56.0	-24.2
3.097	11.4	20.3	31.7	56.0	-24.3
0.892	11.6	20.1	31.7	56.0	-24.3
2.112	11.4	20.2	31.6	56.0	-24.4
0.948	11.5	20.1	31.6	56.0	-24.4
3.370	11.1	20.3	31.4	56.0	-24.6
4.235	11.0	20.4	31.4	56.0	-24.6
4.343	11.0	20.4	31.4	56.0	-24.6
3.224	10.8	20.3	31.1	56.0	-24.9
0.654	11.1	20.0	31.1	56.0	-24.9
2.060	10.8	20.2	31.0	56.0	-25.0
4.537	10.6	20.4	31.0	56.0	-25.0
4.873	10.6	20.4	31.0	56.0	-25.0
4.970	10.6	20.4	31.0	56.0	-25.0
1.094	10.9	20.1	31.0	56.0	-25.0
2.135	10.7	20.2	30.9	56.0	-25.1
2.855	10.6	20.3	30.9	56.0	-25.1
1.127	10.7	20.1	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.6	21.6	40.2	50.0	-9.8
1.739	14.5	20.2	34.7	46.0	-11.3
12.286	17.6	20.9	38.5	50.0	-11.5
1.855	12.4	20.2	32.6	46.0	-13.4
1.806	12.3	20.2	32.5	46.0	-13.5
0.150	21.9	20.3	42.2	56.0	-13.8
2.948	11.6	20.3	31.9	46.0	-14.1
0.781	11.8	20.0	31.8	46.0	-14.2
1.672	11.6	20.2	31.8	46.0	-14.2
3.097	11.4	20.3	31.7	46.0	-14.3
0.892	11.6	20.1	31.7	46.0	-14.3
2.112	11.4	20.2	31.6	46.0	-14.4
0.948	11.5	20.1	31.6	46.0	-14.4
3.370	11.1	20.3	31.4	46.0	-14.6
4.235	11.0	20.4	31.4	46.0	-14.6
4.343	11.0	20.4	31.4	46.0	-14.6
3.224	10.8	20.3	31.1	46.0	-14.9
0.654	11.1	20.0	31.1	46.0	-14.9
2.060	10.8	20.2	31.0	46.0	-15.0
4.537	10.6	20.4	31.0	46.0	-15.0
4.873	10.6	20.4	31.0	46.0	-15.0
4.970	10.6	20.4	31.0	46.0	-15.0
1.094	10.9	20.1	31.0	46.0	-15.0
2.135	10.7	20.2	30.9	46.0	-15.1
2.855	10.6	20.3	30.9	46.0	-15.1
1.127	10.7	20.1	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	11	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

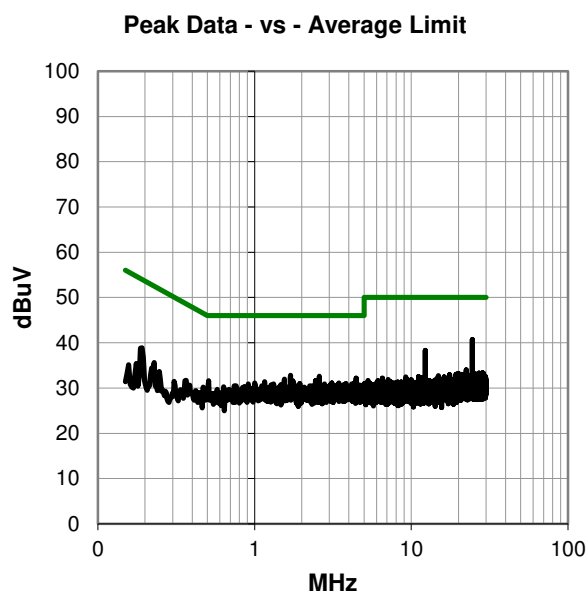
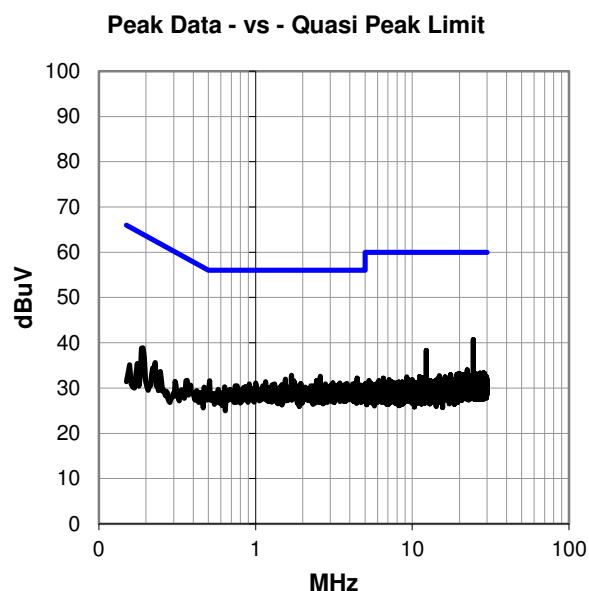
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5500 MHz Ch.19

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.1	21.6	40.7	60.0	-19.3
12.286	17.4	20.9	38.3	60.0	-21.7
1.695	12.6	20.2	32.8	56.0	-23.2
2.586	12.3	20.3	32.6	56.0	-23.4
4.452	11.8	20.4	32.2	56.0	-23.8
1.549	11.8	20.2	32.0	56.0	-24.0
2.448	11.3	20.3	31.6	56.0	-24.4
0.508	11.6	20.0	31.6	56.0	-24.4
1.751	11.4	20.2	31.6	56.0	-24.4
1.157	11.3	20.1	31.4	56.0	-24.6
1.717	11.1	20.2	31.3	56.0	-24.7
4.470	10.9	20.4	31.3	56.0	-24.7
3.116	10.8	20.3	31.1	56.0	-24.9
3.459	10.8	20.3	31.1	56.0	-24.9
1.004	11.0	20.1	31.1	56.0	-24.9
4.340	10.7	20.4	31.1	56.0	-24.9
1.945	10.8	20.2	31.0	56.0	-25.0
4.306	10.6	20.4	31.0	56.0	-25.0
3.829	10.6	20.3	30.9	56.0	-25.1
0.191	18.8	20.1	38.9	64.0	-25.1
2.788	10.6	20.3	30.9	56.0	-25.1
3.437	10.6	20.3	30.9	56.0	-25.1
0.911	10.8	20.1	30.9	56.0	-25.1
1.325	10.8	20.1	30.9	56.0	-25.1
4.176	10.5	20.4	30.9	56.0	-25.1
1.471	10.6	20.1	30.7	56.0	-25.3

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.1	21.6	40.7	50.0	-9.3
12.286	17.4	20.9	38.3	50.0	-11.7
1.695	12.6	20.2	32.8	46.0	-13.2
2.586	12.3	20.3	32.6	46.0	-13.4
4.452	11.8	20.4	32.2	46.0	-13.8
1.549	11.8	20.2	32.0	46.0	-14.0
2.448	11.3	20.3	31.6	46.0	-14.4
0.508	11.6	20.0	31.6	46.0	-14.4
1.751	11.4	20.2	31.6	46.0	-14.4
1.157	11.3	20.1	31.4	46.0	-14.6
1.717	11.1	20.2	31.3	46.0	-14.7
4.470	10.9	20.4	31.3	46.0	-14.7
3.116	10.8	20.3	31.1	46.0	-14.9
3.459	10.8	20.3	31.1	46.0	-14.9
1.004	11.0	20.1	31.1	46.0	-14.9
4.340	10.7	20.4	31.1	46.0	-14.9
1.945	10.8	20.2	31.0	46.0	-15.0
4.306	10.6	20.4	31.0	46.0	-15.0
3.829	10.6	20.3	30.9	46.0	-15.1
0.191	18.8	20.1	38.9	54.0	-15.1
2.788	10.6	20.3	30.9	46.0	-15.1
3.437	10.6	20.3	30.9	46.0	-15.1
0.911	10.8	20.1	30.9	46.0	-15.1
1.325	10.8	20.1	30.9	46.0	-15.1
4.176	10.5	20.4	30.9	46.0	-15.1
1.471	10.6	20.1	30.7	46.0	-15.3

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	12	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

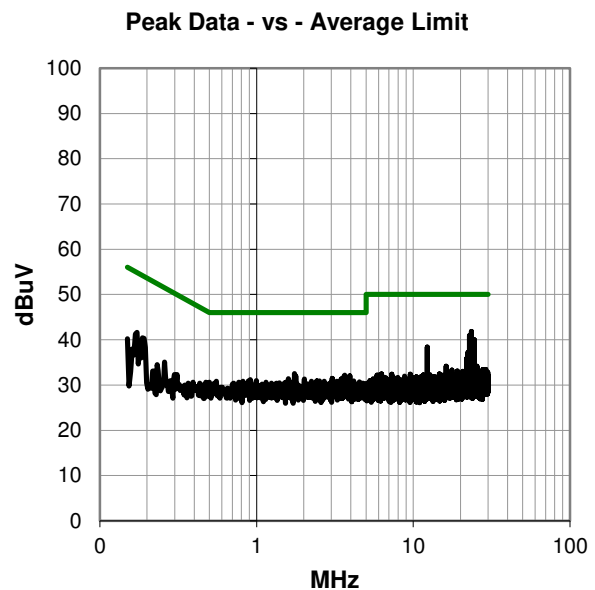
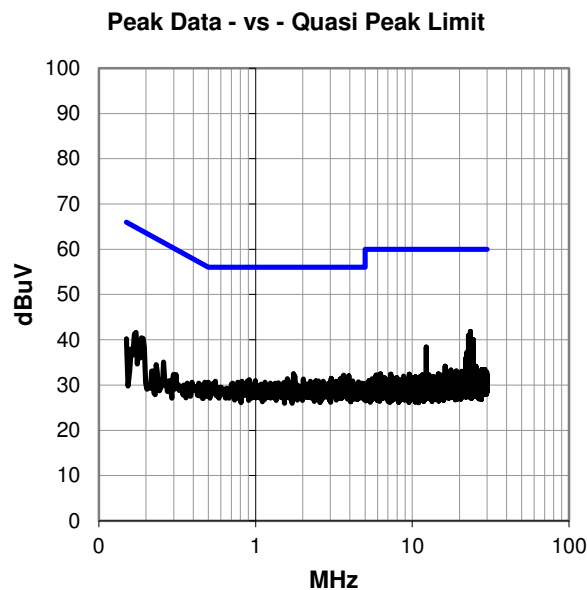
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5580 MHz Ch.23

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #12

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.516	20.3	21.5	41.8	60.0	-18.2
22.826	19.5	21.5	41.0	60.0	-19.0
24.575	18.4	21.6	40.0	60.0	-20.0
23.747	18.3	21.5	39.8	60.0	-20.2
23.050	17.1	21.5	38.6	60.0	-21.4
12.286	17.5	20.9	38.4	60.0	-21.6
23.986	16.5	21.5	38.0	60.0	-22.0
22.371	15.8	21.4	37.2	60.0	-22.8
0.172	21.5	20.1	41.6	64.8	-23.2
1.747	12.3	20.2	32.5	56.0	-23.5
0.187	20.3	20.1	40.4	64.2	-23.8
3.661	11.9	20.3	32.2	56.0	-23.8
3.937	11.7	20.4	32.1	56.0	-23.9
1.777	11.8	20.2	32.0	56.0	-24.0
21.930	14.5	21.4	35.9	60.0	-24.1
3.594	11.5	20.3	31.8	56.0	-24.2
3.038	11.2	20.3	31.5	56.0	-24.5
1.598	11.2	20.2	31.4	56.0	-24.6
2.015	11.1	20.2	31.3	56.0	-24.7
3.467	11.0	20.3	31.3	56.0	-24.7
3.530	11.0	20.3	31.3	56.0	-24.7
0.911	11.1	20.1	31.2	56.0	-24.8
0.997	10.9	20.1	31.0	56.0	-25.0
2.426	10.6	20.3	30.9	56.0	-25.1
2.515	10.6	20.3	30.9	56.0	-25.1
4.176	10.5	20.4	30.9	56.0	-25.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
23.516	20.3	21.5	41.8	50.0	-8.2
22.826	19.5	21.5	41.0	50.0	-9.0
24.575	18.4	21.6	40.0	50.0	-10.0
23.747	18.3	21.5	39.8	50.0	-10.2
23.050	17.1	21.5	38.6	50.0	-11.4
12.286	17.5	20.9	38.4	50.0	-11.6
23.986	16.5	21.5	38.0	50.0	-12.0
22.371	15.8	21.4	37.2	50.0	-12.8
0.172	21.5	20.1	41.6	54.8	-13.2
1.747	12.3	20.2	32.5	46.0	-13.5
0.187	20.3	20.1	40.4	54.2	-13.8
3.661	11.9	20.3	32.2	46.0	-13.8
3.937	11.7	20.4	32.1	46.0	-13.9
1.777	11.8	20.2	32.0	46.0	-14.0
21.930	14.5	21.4	35.9	50.0	-14.1
3.594	11.5	20.3	31.8	46.0	-14.2
3.038	11.2	20.3	31.5	46.0	-14.5
1.598	11.2	20.2	31.4	46.0	-14.6
2.015	11.1	20.2	31.3	46.0	-14.7
3.467	11.0	20.3	31.3	46.0	-14.7
3.530	11.0	20.3	31.3	46.0	-14.7
0.911	11.1	20.1	31.2	46.0	-14.8
0.997	10.9	20.1	31.0	46.0	-15.0
2.426	10.6	20.3	30.9	46.0	-15.1
2.515	10.6	20.3	30.9	46.0	-15.1
4.176	10.5	20.4	30.9	46.0	-15.1

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	13	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

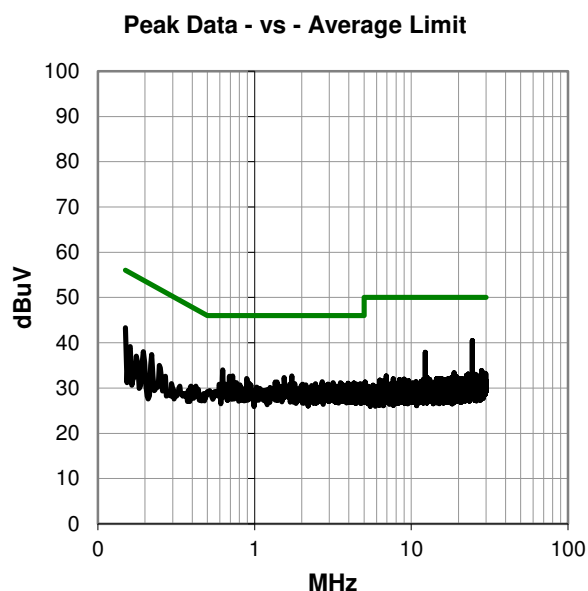
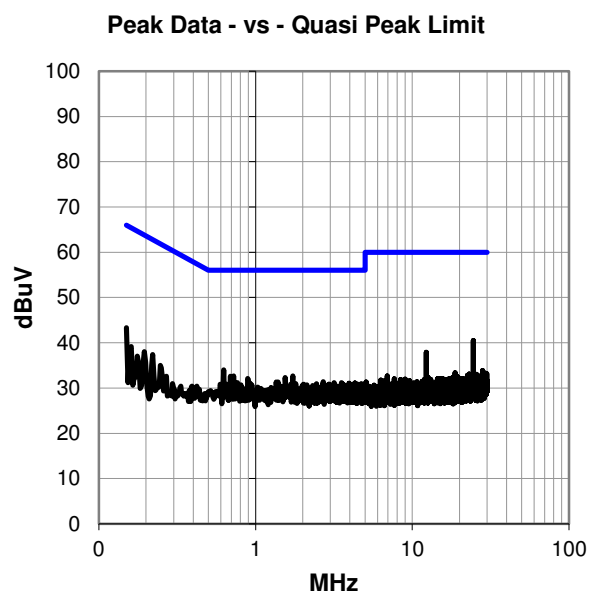
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5580 MHz Ch.23

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #13

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.9	21.6	40.5	60.0	-19.5
0.628	14.0	20.0	34.0	56.0	-22.0
12.286	17.0	20.9	37.9	60.0	-22.1
0.150	23.0	20.3	43.3	66.0	-22.7
0.725	12.7	20.0	32.7	56.0	-23.3
1.728	12.5	20.2	32.7	56.0	-23.3
0.691	12.6	20.0	32.6	56.0	-23.4
1.545	12.1	20.2	32.3	56.0	-23.7
0.892	12.0	20.1	32.1	56.0	-23.9
2.698	11.1	20.3	31.4	56.0	-24.6
1.392	11.2	20.1	31.3	56.0	-24.7
1.355	11.2	20.1	31.3	56.0	-24.7
0.766	11.2	20.0	31.2	56.0	-24.8
3.168	10.9	20.3	31.2	56.0	-24.8
3.541	10.9	20.3	31.2	56.0	-24.8
0.922	11.0	20.1	31.1	56.0	-24.9
4.306	10.7	20.4	31.1	56.0	-24.9
3.955	10.7	20.4	31.1	56.0	-24.9
1.806	10.8	20.2	31.0	56.0	-25.0
4.739	10.6	20.4	31.0	56.0	-25.0
2.452	10.6	20.3	30.9	56.0	-25.1
3.601	10.6	20.3	30.9	56.0	-25.1
0.594	10.8	20.0	30.8	56.0	-25.2
2.030	10.6	20.2	30.8	56.0	-25.2
2.941	10.5	20.3	30.8	56.0	-25.2
4.228	10.4	20.4	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.9	21.6	40.5	50.0	-9.5
0.628	14.0	20.0	34.0	46.0	-12.0
12.286	17.0	20.9	37.9	50.0	-12.1
0.150	23.0	20.3	43.3	56.0	-12.7
0.725	12.7	20.0	32.7	46.0	-13.3
1.728	12.5	20.2	32.7	46.0	-13.3
0.691	12.6	20.0	32.6	46.0	-13.4
1.545	12.1	20.2	32.3	46.0	-13.7
0.892	12.0	20.1	32.1	46.0	-13.9
2.698	11.1	20.3	31.4	46.0	-14.6
1.392	11.2	20.1	31.3	46.0	-14.7
1.355	11.2	20.1	31.3	46.0	-14.7
0.766	11.2	20.0	31.2	46.0	-14.8
3.168	10.9	20.3	31.2	46.0	-14.8
3.541	10.9	20.3	31.2	46.0	-14.8
0.922	11.0	20.1	31.1	46.0	-14.9
4.306	10.7	20.4	31.1	46.0	-14.9
3.955	10.7	20.4	31.1	46.0	-14.9
1.806	10.8	20.2	31.0	46.0	-15.0
4.739	10.6	20.4	31.0	46.0	-15.0
2.452	10.6	20.3	30.9	46.0	-15.1
3.601	10.6	20.3	30.9	46.0	-15.1
0.594	10.8	20.0	30.8	46.0	-15.2
2.030	10.6	20.2	30.8	46.0	-15.2
2.941	10.5	20.3	30.8	46.0	-15.2
4.228	10.4	20.4	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	14	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

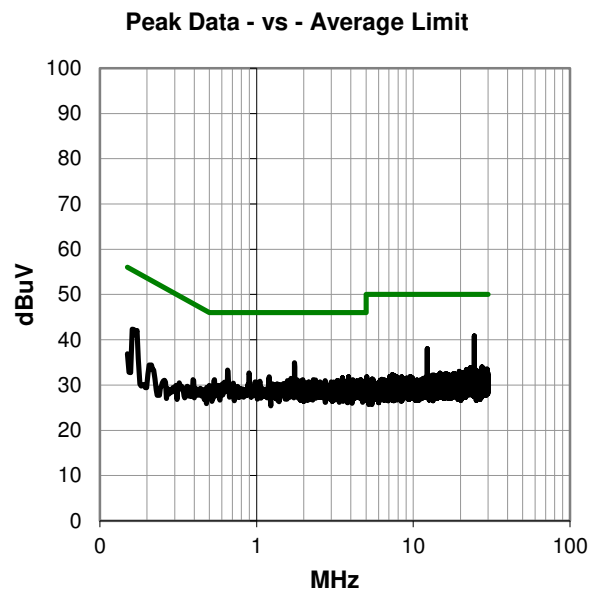
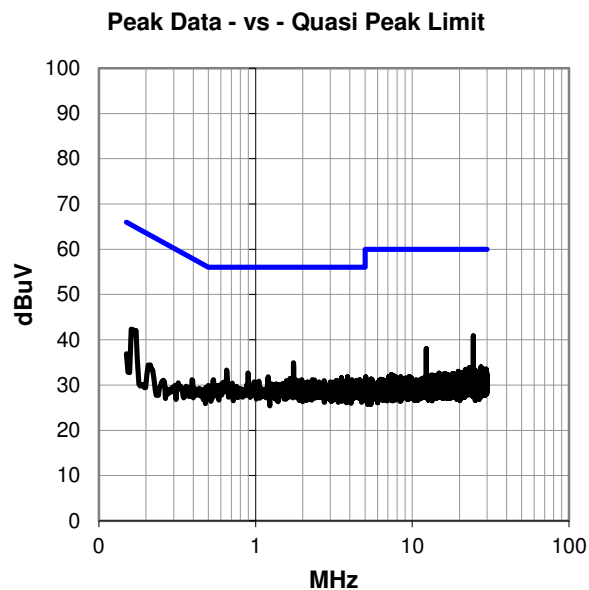
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5700 MHz Ch.29

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #14

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.3	21.6	40.9	60.0	-19.1
1.747	14.7	20.2	34.9	56.0	-21.1
12.286	17.1	20.9	38.0	60.0	-22.0
0.654	13.3	20.0	33.3	56.0	-22.7
0.161	22.1	20.2	42.3	65.4	-23.1
0.896	12.6	20.1	32.7	56.0	-23.3
3.866	11.5	20.4	31.9	56.0	-24.1
1.202	11.7	20.1	31.8	56.0	-24.2
3.530	11.3	20.3	31.6	56.0	-24.4
1.661	11.3	20.2	31.5	56.0	-24.5
0.538	11.2	20.0	31.2	56.0	-24.8
1.971	11.0	20.2	31.2	56.0	-24.8
4.116	10.8	20.4	31.2	56.0	-24.8
4.608	10.8	20.4	31.2	56.0	-24.8
2.306	10.9	20.3	31.2	56.0	-24.8
1.821	10.9	20.2	31.1	56.0	-24.9
4.646	10.7	20.4	31.1	56.0	-24.9
2.377	10.8	20.3	31.1	56.0	-24.9
1.571	10.8	20.2	31.0	56.0	-25.0
2.735	10.7	20.3	31.0	56.0	-25.0
3.276	10.7	20.3	31.0	56.0	-25.0
3.582	10.7	20.3	31.0	56.0	-25.0
4.138	10.6	20.4	31.0	56.0	-25.0
4.981	10.6	20.4	31.0	56.0	-25.0
3.773	10.6	20.3	30.9	56.0	-25.1
3.414	10.6	20.3	30.9	56.0	-25.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	19.3	21.6	40.9	50.0	-9.1
1.747	14.7	20.2	34.9	46.0	-11.1
12.286	17.1	20.9	38.0	50.0	-12.0
0.654	13.3	20.0	33.3	46.0	-12.7
0.161	22.1	20.2	42.3	55.4	-13.1
0.896	12.6	20.1	32.7	46.0	-13.3
3.866	11.5	20.4	31.9	46.0	-14.1
1.202	11.7	20.1	31.8	46.0	-14.2
3.530	11.3	20.3	31.6	46.0	-14.4
1.661	11.3	20.2	31.5	46.0	-14.5
0.538	11.2	20.0	31.2	46.0	-14.8
1.971	11.0	20.2	31.2	46.0	-14.8
4.116	10.8	20.4	31.2	46.0	-14.8
4.608	10.8	20.4	31.2	46.0	-14.8
2.306	10.9	20.3	31.2	46.0	-14.8
1.821	10.9	20.2	31.1	46.0	-14.9
4.646	10.7	20.4	31.1	46.0	-14.9
2.377	10.8	20.3	31.1	46.0	-14.9
1.571	10.8	20.2	31.0	46.0	-15.0
2.735	10.7	20.3	31.0	46.0	-15.0
3.276	10.7	20.3	31.0	46.0	-15.0
3.582	10.7	20.3	31.0	46.0	-15.0
4.138	10.6	20.4	31.0	46.0	-15.0
4.981	10.6	20.4	31.0	46.0	-15.0
3.773	10.6	20.3	30.9	46.0	-15.1
3.414	10.6	20.3	30.9	46.0	-15.1

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	15	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

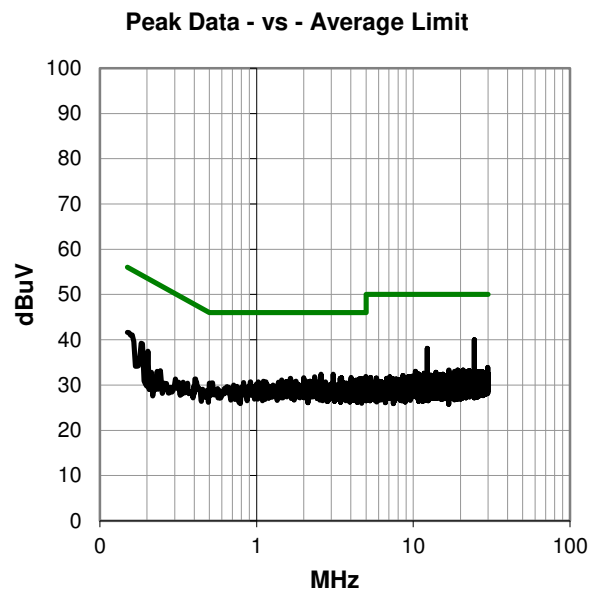
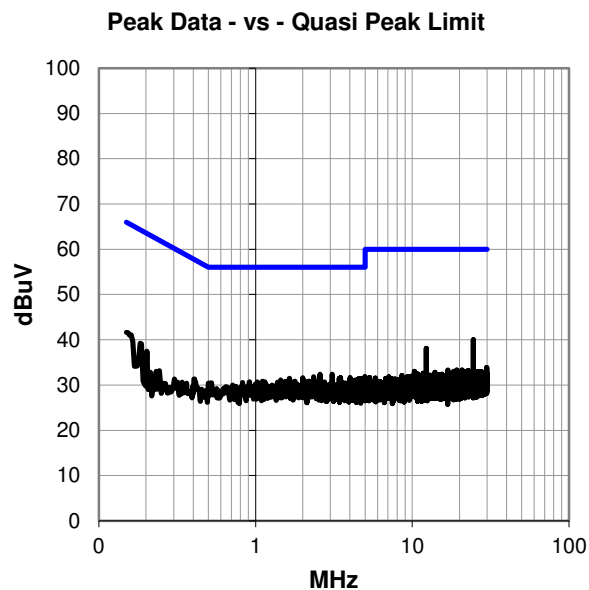
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5700 MHz Ch.29

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #15

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	60.0	-20.0
12.286	17.2	20.9	38.1	60.0	-21.9
2.582	12.1	20.3	32.4	56.0	-23.6
3.090	12.1	20.3	32.4	56.0	-23.6
4.974	11.5	20.4	31.9	56.0	-24.1
2.351	11.5	20.3	31.8	56.0	-24.2
4.023	11.3	20.4	31.7	56.0	-24.3
3.482	11.3	20.3	31.6	56.0	-24.4
1.997	11.4	20.2	31.6	56.0	-24.4
0.150	21.3	20.3	41.6	66.0	-24.4
1.642	11.3	20.2	31.5	56.0	-24.5
3.422	11.2	20.3	31.5	56.0	-24.5
4.672	11.0	20.4	31.4	56.0	-24.6
4.511	10.9	20.4	31.3	56.0	-24.7
1.445	11.0	20.1	31.1	56.0	-24.9
4.317	10.7	20.4	31.1	56.0	-24.9
2.541	10.7	20.3	31.0	56.0	-25.0
4.828	10.6	20.4	31.0	56.0	-25.0
4.948	10.6	20.4	31.0	56.0	-25.0
3.993	10.6	20.4	31.0	56.0	-25.0
0.184	19.1	20.1	39.2	64.3	-25.1
2.198	10.6	20.2	30.8	56.0	-25.2
1.672	10.6	20.2	30.8	56.0	-25.2
1.780	10.6	20.2	30.8	56.0	-25.2
2.075	10.6	20.2	30.8	56.0	-25.2
1.105	10.7	20.1	30.8	56.0	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	50.0	-10.0
12.286	17.2	20.9	38.1	50.0	-11.9
2.582	12.1	20.3	32.4	46.0	-13.6
3.090	12.1	20.3	32.4	46.0	-13.6
4.974	11.5	20.4	31.9	46.0	-14.1
2.351	11.5	20.3	31.8	46.0	-14.2
4.023	11.3	20.4	31.7	46.0	-14.3
3.482	11.3	20.3	31.6	46.0	-14.4
1.997	11.4	20.2	31.6	46.0	-14.4
0.150	21.3	20.3	41.6	56.0	-14.4
1.642	11.3	20.2	31.5	46.0	-14.5
3.422	11.2	20.3	31.5	46.0	-14.5
4.672	11.0	20.4	31.4	46.0	-14.6
4.511	10.9	20.4	31.3	46.0	-14.7
1.445	11.0	20.1	31.1	46.0	-14.9
4.317	10.7	20.4	31.1	46.0	-14.9
2.541	10.7	20.3	31.0	46.0	-15.0
4.828	10.6	20.4	31.0	46.0	-15.0
4.948	10.6	20.4	31.0	46.0	-15.0
3.993	10.6	20.4	31.0	46.0	-15.0
0.184	19.1	20.1	39.2	54.3	-15.1
2.198	10.6	20.2	30.8	46.0	-15.2
1.672	10.6	20.2	30.8	46.0	-15.2
1.780	10.6	20.2	30.8	46.0	-15.2
2.075	10.6	20.2	30.8	46.0	-15.2
1.105	10.7	20.1	30.8	46.0	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	16	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

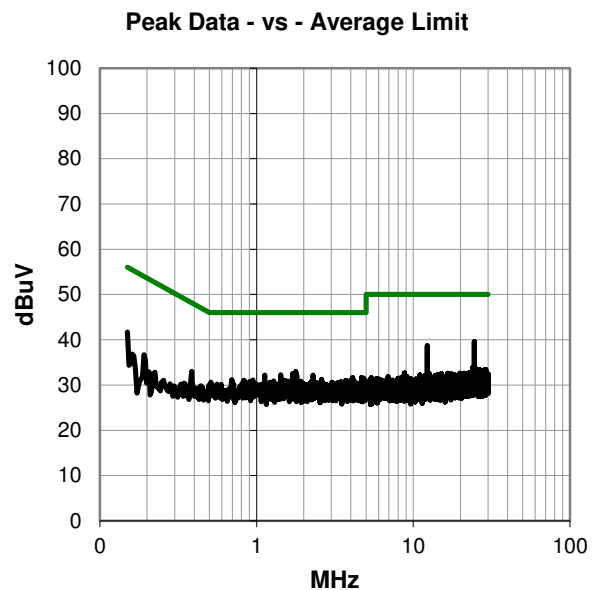
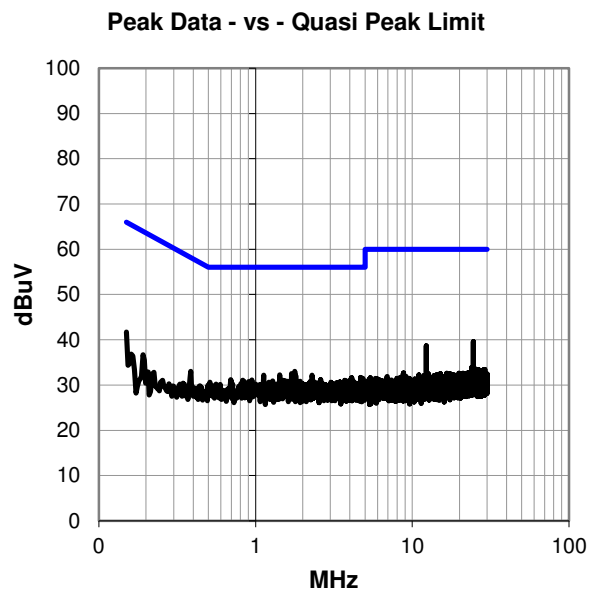
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5745 MHz Ch.30

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #16

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.0	21.6	39.6	60.0	-20.4
12.290	17.8	20.9	38.7	60.0	-21.3
1.780	12.8	20.2	33.0	56.0	-23.0
1.695	12.3	20.2	32.5	56.0	-23.5
1.426	12.1	20.1	32.2	56.0	-23.8
1.127	12.1	20.1	32.2	56.0	-23.8
2.295	11.9	20.3	32.2	56.0	-23.8
1.806	11.9	20.2	32.1	56.0	-23.9
4.690	11.3	20.4	31.7	56.0	-24.3
0.150	21.4	20.3	41.7	66.0	-24.3
4.108	11.2	20.4	31.6	56.0	-24.4
4.855	11.1	20.4	31.5	56.0	-24.5
4.067	11.0	20.4	31.4	56.0	-24.6
0.695	11.2	20.0	31.2	56.0	-24.8
2.605	10.9	20.3	31.2	56.0	-24.8
0.948	11.0	20.1	31.1	56.0	-24.9
1.497	10.9	20.2	31.1	56.0	-24.9
0.829	11.0	20.0	31.0	56.0	-25.0
3.698	10.7	20.3	31.0	56.0	-25.0
1.534	10.8	20.2	31.0	56.0	-25.0
3.724	10.6	20.3	30.9	56.0	-25.1
1.288	10.8	20.1	30.9	56.0	-25.1
4.190	10.5	20.4	30.9	56.0	-25.1
3.974	10.5	20.4	30.9	56.0	-25.1
3.832	10.5	20.3	30.8	56.0	-25.2
0.385	13.0	20.0	33.0	58.2	-25.2

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.0	21.6	39.6	50.0	-10.4
12.290	17.8	20.9	38.7	50.0	-11.3
1.780	12.8	20.2	33.0	46.0	-13.0
1.695	12.3	20.2	32.5	46.0	-13.5
1.426	12.1	20.1	32.2	46.0	-13.8
1.127	12.1	20.1	32.2	46.0	-13.8
2.295	11.9	20.3	32.2	46.0	-13.8
1.806	11.9	20.2	32.1	46.0	-13.9
4.690	11.3	20.4	31.7	46.0	-14.3
0.150	21.4	20.3	41.7	56.0	-14.3
4.108	11.2	20.4	31.6	46.0	-14.4
4.855	11.1	20.4	31.5	46.0	-14.5
4.067	11.0	20.4	31.4	46.0	-14.6
0.695	11.2	20.0	31.2	46.0	-14.8
2.605	10.9	20.3	31.2	46.0	-14.8
0.948	11.0	20.1	31.1	46.0	-14.9
1.497	10.9	20.2	31.1	46.0	-14.9
0.829	11.0	20.0	31.0	46.0	-15.0
3.698	10.7	20.3	31.0	46.0	-15.0
1.534	10.8	20.2	31.0	46.0	-15.0
3.724	10.6	20.3	30.9	46.0	-15.1
1.288	10.8	20.1	30.9	46.0	-15.1
4.190	10.5	20.4	30.9	46.0	-15.1
3.974	10.5	20.4	30.9	46.0	-15.1
3.832	10.5	20.3	30.8	46.0	-15.2
0.385	13.0	20.0	33.0	48.2	-15.2

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

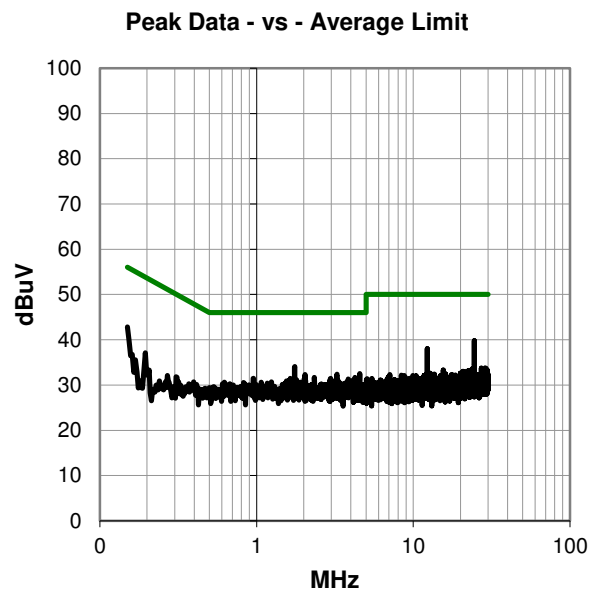
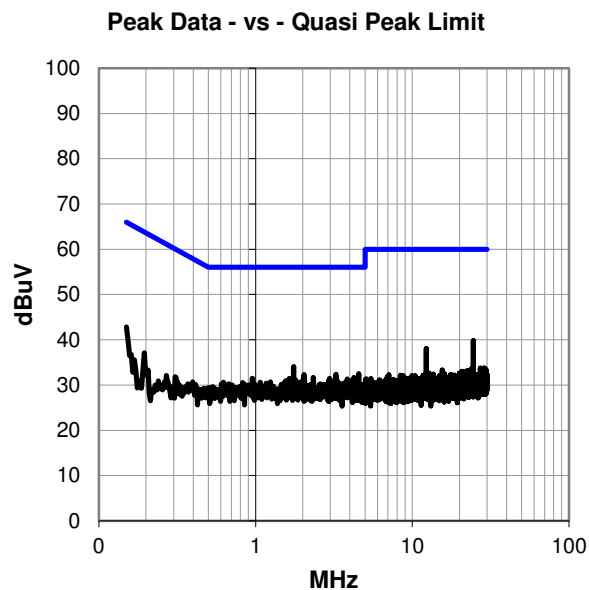
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5745 MHz Ch.30

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #17

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.2	21.6	39.8	60.0	-20.2
1.751	13.9	20.2	34.1	56.0	-21.9
12.286	17.1	20.9	38.0	60.0	-22.0
0.150	22.5	20.3	42.8	66.0	-23.2
4.549	12.1	20.4	32.5	56.0	-23.5
3.258	12.1	20.3	32.4	56.0	-23.6
2.042	12.1	20.2	32.3	56.0	-23.7
4.250	11.3	20.4	31.7	56.0	-24.3
2.340	11.4	20.3	31.7	56.0	-24.3
1.642	11.3	20.2	31.5	56.0	-24.5
2.015	11.3	20.2	31.5	56.0	-24.5
2.967	11.2	20.3	31.5	56.0	-24.5
0.952	11.4	20.1	31.5	56.0	-24.5
3.840	11.0	20.3	31.3	56.0	-24.7
2.948	10.9	20.3	31.2	56.0	-24.8
1.806	10.9	20.2	31.1	56.0	-24.9
4.470	10.7	20.4	31.1	56.0	-24.9
4.041	10.6	20.4	31.0	56.0	-25.0
3.317	10.6	20.3	30.9	56.0	-25.1
1.549	10.7	20.2	30.9	56.0	-25.1
3.105	10.5	20.3	30.8	56.0	-25.2
3.877	10.4	20.4	30.8	56.0	-25.2
1.247	10.6	20.1	30.7	56.0	-25.3
3.926	10.3	20.4	30.7	56.0	-25.3
0.624	10.6	20.0	30.6	56.0	-25.4
1.072	10.5	20.1	30.6	56.0	-25.4

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.2	21.6	39.8	50.0	-10.2
1.751	13.9	20.2	34.1	46.0	-11.9
12.286	17.1	20.9	38.0	50.0	-12.0
0.150	22.5	20.3	42.8	56.0	-13.2
4.549	12.1	20.4	32.5	46.0	-13.5
3.258	12.1	20.3	32.4	46.0	-13.6
2.042	12.1	20.2	32.3	46.0	-13.7
4.250	11.3	20.4	31.7	46.0	-14.3
2.340	11.4	20.3	31.7	46.0	-14.3
1.642	11.3	20.2	31.5	46.0	-14.5
2.015	11.3	20.2	31.5	46.0	-14.5
2.967	11.2	20.3	31.5	46.0	-14.5
0.952	11.4	20.1	31.5	46.0	-14.5
3.840	11.0	20.3	31.3	46.0	-14.7
2.948	10.9	20.3	31.2	46.0	-14.8
1.806	10.9	20.2	31.1	46.0	-14.9
4.470	10.7	20.4	31.1	46.0	-14.9
4.041	10.6	20.4	31.0	46.0	-15.0
3.317	10.6	20.3	30.9	46.0	-15.1
1.549	10.7	20.2	30.9	46.0	-15.1
3.105	10.5	20.3	30.8	46.0	-15.2
3.877	10.4	20.4	30.8	46.0	-15.2
1.247	10.6	20.1	30.7	46.0	-15.3
3.926	10.3	20.4	30.7	46.0	-15.3
0.624	10.6	20.0	30.6	46.0	-15.4
1.072	10.5	20.1	30.6	46.0	-15.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	18	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

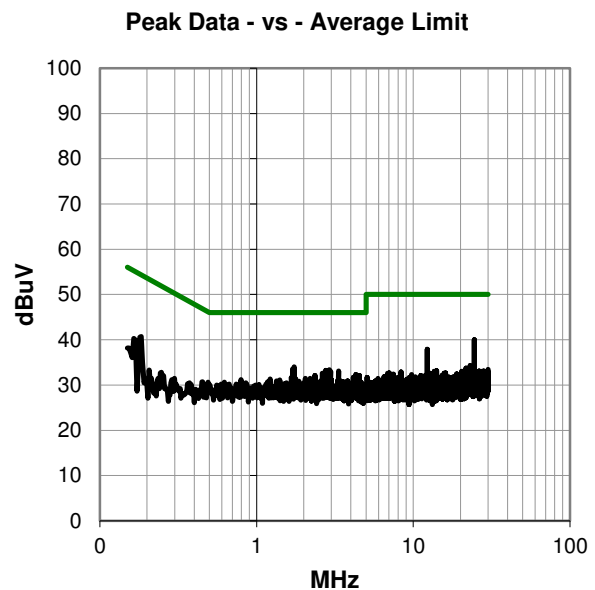
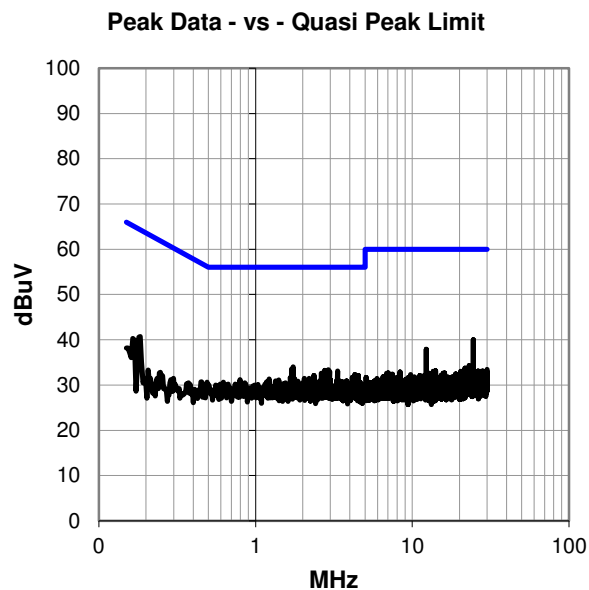
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5785 MHz Ch.32

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #18

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	60.0	-20.0
1.736	13.8	20.2	34.0	56.0	-22.0
12.286	17.0	20.9	37.9	60.0	-22.1
1.698	13.3	20.2	33.5	56.0	-22.5
2.911	13.1	20.3	33.4	56.0	-22.6
2.765	12.9	20.3	33.2	56.0	-22.8
3.336	12.8	20.3	33.1	56.0	-22.9
2.967	12.7	20.3	33.0	56.0	-23.0
2.631	12.3	20.3	32.6	56.0	-23.4
0.184	20.6	20.1	40.7	64.3	-23.6
4.310	11.9	20.4	32.3	56.0	-23.7
4.534	11.7	20.4	32.1	56.0	-23.9
2.359	11.8	20.3	32.1	56.0	-23.9
1.758	11.5	20.2	31.7	56.0	-24.3
2.821	11.4	20.3	31.7	56.0	-24.3
4.149	11.3	20.4	31.7	56.0	-24.3
1.668	11.4	20.2	31.6	56.0	-24.4
2.049	11.3	20.2	31.5	56.0	-24.5
2.202	11.2	20.2	31.4	56.0	-24.6
1.773	11.1	20.2	31.3	56.0	-24.7
1.221	11.2	20.1	31.3	56.0	-24.7
0.795	11.2	20.0	31.2	56.0	-24.8
1.404	11.0	20.1	31.1	56.0	-24.9
0.165	20.1	20.2	40.3	65.2	-24.9
2.224	10.8	20.2	31.0	56.0	-25.0
4.246	10.6	20.4	31.0	56.0	-25.0

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	50.0	-10.0
1.736	13.8	20.2	34.0	46.0	-12.0
12.286	17.0	20.9	37.9	50.0	-12.1
1.698	13.3	20.2	33.5	46.0	-12.5
2.911	13.1	20.3	33.4	46.0	-12.6
2.765	12.9	20.3	33.2	46.0	-12.8
3.336	12.8	20.3	33.1	46.0	-12.9
2.967	12.7	20.3	33.0	46.0	-13.0
2.631	12.3	20.3	32.6	46.0	-13.4
0.184	20.6	20.1	40.7	54.3	-13.6
4.310	11.9	20.4	32.3	46.0	-13.7
4.534	11.7	20.4	32.1	46.0	-13.9
2.359	11.8	20.3	32.1	46.0	-13.9
1.758	11.5	20.2	31.7	46.0	-14.3
2.821	11.4	20.3	31.7	46.0	-14.3
4.149	11.3	20.4	31.7	46.0	-14.3
1.668	11.4	20.2	31.6	46.0	-14.4
2.049	11.3	20.2	31.5	46.0	-14.5
2.202	11.2	20.2	31.4	46.0	-14.6
1.773	11.1	20.2	31.3	46.0	-14.7
1.221	11.2	20.1	31.3	46.0	-14.7
0.795	11.2	20.0	31.2	46.0	-14.8
1.404	11.0	20.1	31.1	46.0	-14.9
0.165	20.1	20.2	40.3	55.2	-14.9
2.224	10.8	20.2	31.0	46.0	-15.0
4.246	10.6	20.4	31.0	46.0	-15.0

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	19	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

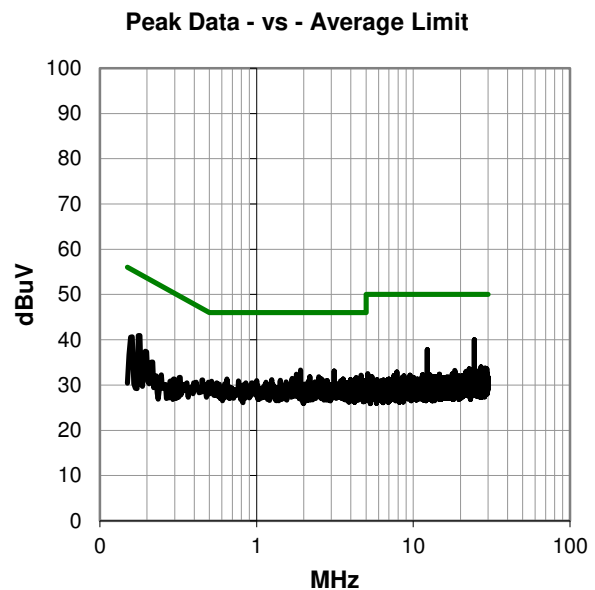
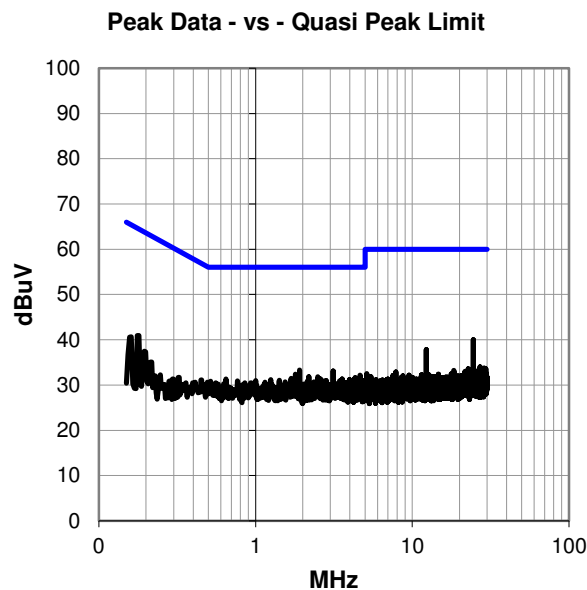
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5785 MHz Ch.32

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #19

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	60.0	-20.0
12.290	16.9	20.9	37.8	60.0	-22.2
1.911	13.1	20.2	33.3	56.0	-22.7
3.127	12.8	20.3	33.1	56.0	-22.9
1.799	12.2	20.2	32.4	56.0	-23.6
0.176	20.8	20.1	40.9	64.7	-23.7
4.653	11.8	20.4	32.2	56.0	-23.8
2.187	11.6	20.2	31.8	56.0	-24.2
2.500	11.5	20.3	31.8	56.0	-24.2
4.317	11.3	20.4	31.7	56.0	-24.3
1.687	11.3	20.2	31.5	56.0	-24.5
0.646	11.3	20.0	31.3	56.0	-24.7
2.590	11.0	20.3	31.3	56.0	-24.7
3.564	11.0	20.3	31.3	56.0	-24.7
4.254	10.9	20.4	31.3	56.0	-24.7
0.161	20.4	20.2	40.6	65.4	-24.8
1.251	11.1	20.1	31.2	56.0	-24.8
3.978	10.8	20.4	31.2	56.0	-24.8
1.418	10.9	20.1	31.0	56.0	-25.0
2.818	10.7	20.3	31.0	56.0	-25.0
3.575	10.7	20.3	31.0	56.0	-25.0
4.370	10.6	20.4	31.0	56.0	-25.0
1.001	10.9	20.1	31.0	56.0	-25.0
0.766	10.9	20.0	30.9	56.0	-25.1
2.698	10.6	20.3	30.9	56.0	-25.1
3.437	10.6	20.3	30.9	56.0	-25.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.4	21.6	40.0	50.0	-10.0
12.290	16.9	20.9	37.8	50.0	-12.2
1.911	13.1	20.2	33.3	46.0	-12.7
3.127	12.8	20.3	33.1	46.0	-12.9
1.799	12.2	20.2	32.4	46.0	-13.6
0.176	20.8	20.1	40.9	54.7	-13.7
4.653	11.8	20.4	32.2	46.0	-13.8
2.187	11.6	20.2	31.8	46.0	-14.2
2.500	11.5	20.3	31.8	46.0	-14.2
4.317	11.3	20.4	31.7	46.0	-14.3
1.687	11.3	20.2	31.5	46.0	-14.5
0.646	11.3	20.0	31.3	46.0	-14.7
2.590	11.0	20.3	31.3	46.0	-14.7
3.564	11.0	20.3	31.3	46.0	-14.7
4.254	10.9	20.4	31.3	46.0	-14.7
0.161	20.4	20.2	40.6	55.4	-14.8
1.251	11.1	20.1	31.2	46.0	-14.8
3.978	10.8	20.4	31.2	46.0	-14.8
1.418	10.9	20.1	31.0	46.0	-15.0
2.818	10.7	20.3	31.0	46.0	-15.0
3.575	10.7	20.3	31.0	46.0	-15.0
4.370	10.6	20.4	31.0	46.0	-15.0
1.001	10.9	20.1	31.0	46.0	-15.0
0.766	10.9	20.0	30.9	46.0	-15.1
2.698	10.6	20.3	30.9	46.0	-15.1
3.437	10.6	20.3	30.9	46.0	-15.1

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	20	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

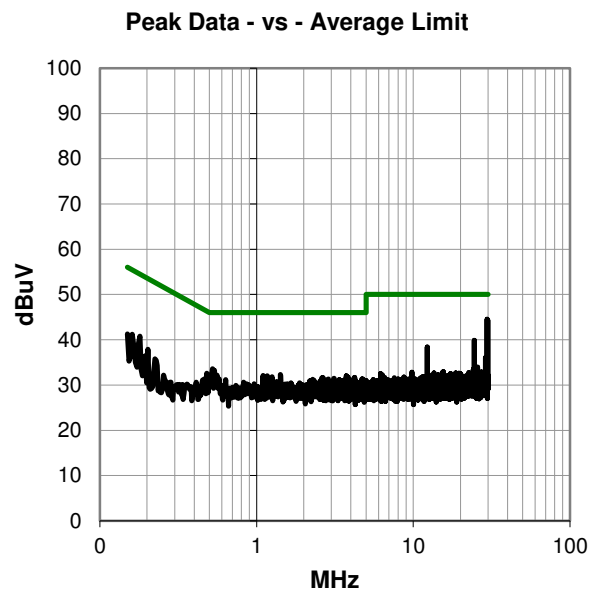
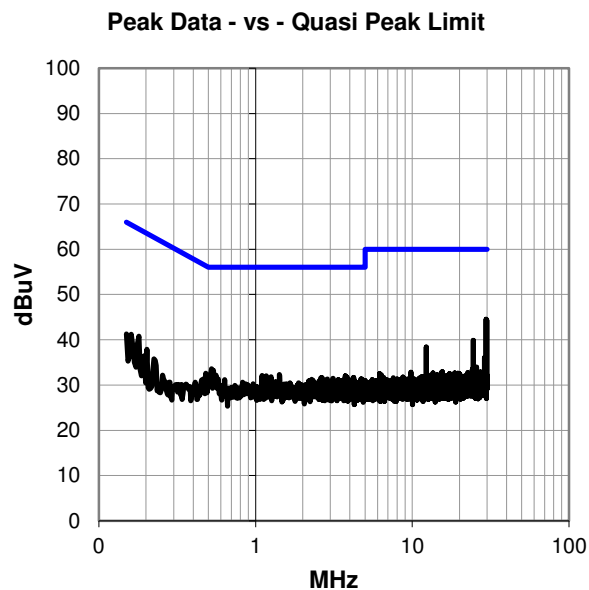
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5825 MHz Ch.34

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #20

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.560	22.6	21.9	44.5	60.0	-15.5
29.858	22.4	21.9	44.3	60.0	-15.7
24.575	18.3	21.6	39.9	60.0	-20.1
12.286	17.5	20.9	38.4	60.0	-21.6
0.523	13.6	20.0	33.6	56.0	-22.4
0.538	13.2	20.0	33.2	56.0	-22.8
1.422	12.2	20.1	32.3	56.0	-23.7
0.180	20.7	20.1	40.8	64.5	-23.7
0.482	12.6	20.0	32.6	56.3	-23.7
1.101	12.0	20.1	32.1	56.0	-23.9
28.982	14.2	21.8	36.0	60.0	-24.0
3.735	11.7	20.3	32.0	56.0	-24.0
1.172	11.9	20.1	32.0	56.0	-24.0
0.161	21.0	20.2	41.2	65.4	-24.2
1.254	11.7	20.1	31.8	56.0	-24.2
3.829	11.4	20.3	31.7	56.0	-24.3
4.228	11.3	20.4	31.7	56.0	-24.3
2.612	11.3	20.3	31.6	56.0	-24.4
2.653	11.3	20.3	31.6	56.0	-24.4
3.120	11.2	20.3	31.5	56.0	-24.5
2.870	11.0	20.3	31.3	56.0	-24.7
0.150	21.0	20.3	41.3	66.0	-24.7
4.705	10.9	20.4	31.3	56.0	-24.7
4.765	10.9	20.4	31.3	56.0	-24.7
2.284	11.0	20.3	31.3	56.0	-24.7
0.635	11.2	20.0	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.560	22.6	21.9	44.5	50.0	-5.5
29.858	22.4	21.9	44.3	50.0	-5.7
24.575	18.3	21.6	39.9	50.0	-10.1
12.286	17.5	20.9	38.4	50.0	-11.6
0.523	13.6	20.0	33.6	46.0	-12.4
0.538	13.2	20.0	33.2	46.0	-12.8
1.422	12.2	20.1	32.3	46.0	-13.7
0.180	20.7	20.1	40.8	54.5	-13.7
0.482	12.6	20.0	32.6	46.3	-13.7
1.101	12.0	20.1	32.1	46.0	-13.9
28.982	14.2	21.8	36.0	50.0	-14.0
3.735	11.7	20.3	32.0	46.0	-14.0
1.172	11.9	20.1	32.0	46.0	-14.0
0.161	21.0	20.2	41.2	55.4	-14.2
1.254	11.7	20.1	31.8	46.0	-14.2
3.829	11.4	20.3	31.7	46.0	-14.3
4.228	11.3	20.4	31.7	46.0	-14.3
2.612	11.3	20.3	31.6	46.0	-14.4
2.653	11.3	20.3	31.6	46.0	-14.4
3.120	11.2	20.3	31.5	46.0	-14.5
2.870	11.0	20.3	31.3	46.0	-14.7
0.150	21.0	20.3	41.3	56.0	-14.7
4.705	10.9	20.4	31.3	46.0	-14.7
4.765	10.9	20.4	31.3	46.0	-14.7
2.284	11.0	20.3	31.3	46.0	-14.7
0.635	11.2	20.0	31.2	46.0	-14.8

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Athena4XD (Extended Distance)	Work Order:	FOCU0214
Serial Number:	02EA4CD00042	Date:	10/07/2015
Customer:	Summit Semiconductor LLC	Temperature:	23.3°C
Attendees:	David Schilling	Relative Humidity:	46.1%
Customer Project:	None	Bar. Pressure:	1020 mb
Tested By:	Brandon Hobbs	Job Site:	EV07
Power:	3.3/1.2 VDC	Configuration:	FOCU0214-7

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2015	ANSI C63.10:2013

TEST PARAMETERS

Run #:	21	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

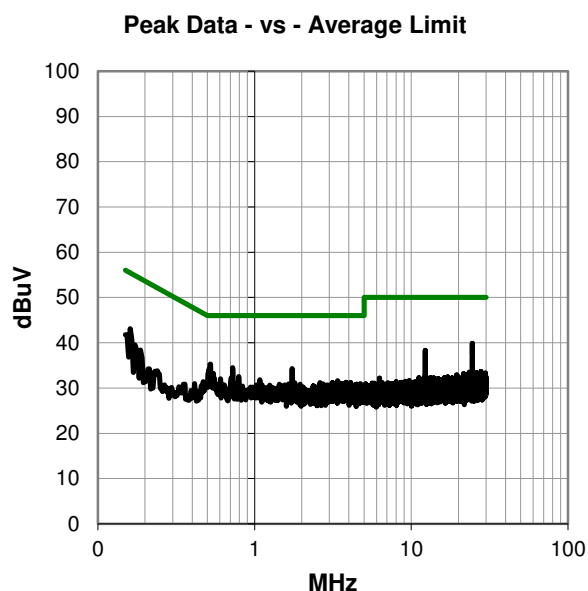
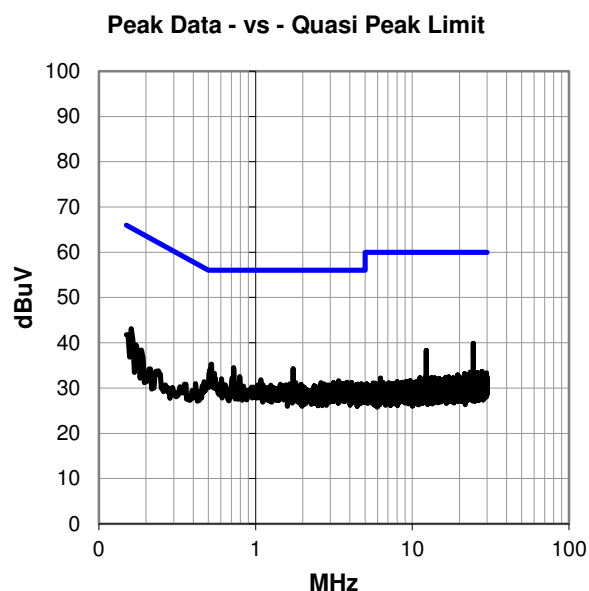
None using a dual channel linear power supply

EUT OPERATING MODES

Continuous Tx, 6Mbps 5825 MHz Ch.34

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #21

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.3	21.6	39.9	60.0	-20.1
0.523	15.3	20.0	35.3	56.0	-20.7
0.725	14.5	20.0	34.5	56.0	-21.5
1.739	14.1	20.2	34.3	56.0	-21.7
12.290	17.4	20.9	38.3	60.0	-21.7
0.512	14.1	20.0	34.1	56.0	-21.9
0.161	22.9	20.2	43.1	65.4	-22.3
0.545	13.2	20.0	33.2	56.0	-22.8
0.792	12.5	20.0	32.5	56.0	-23.5
0.710	12.3	20.0	32.3	56.0	-23.7
0.605	12.0	20.0	32.0	56.0	-24.0
0.150	21.5	20.3	41.8	66.0	-24.2
1.079	11.7	20.1	31.8	56.0	-24.2
3.381	11.3	20.3	31.6	56.0	-24.4
3.847	10.9	20.3	31.2	56.0	-24.8
1.806	11.0	20.2	31.2	56.0	-24.8
2.612	10.9	20.3	31.2	56.0	-24.8
3.142	10.9	20.3	31.2	56.0	-24.8
4.105	10.8	20.4	31.2	56.0	-24.8
3.470	10.8	20.3	31.1	56.0	-24.9
3.437	10.7	20.3	31.0	56.0	-25.0
3.564	10.7	20.3	31.0	56.0	-25.0
4.735	10.6	20.4	31.0	56.0	-25.0
4.067	10.6	20.4	31.0	56.0	-25.0
3.691	10.6	20.3	30.9	56.0	-25.1
2.735	10.6	20.3	30.9	56.0	-25.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
24.575	18.3	21.6	39.9	50.0	-10.1
0.523	15.3	20.0	35.3	46.0	-10.7
0.725	14.5	20.0	34.5	46.0	-11.5
1.739	14.1	20.2	34.3	46.0	-11.7
12.290	17.4	20.9	38.3	50.0	-11.7
0.512	14.1	20.0	34.1	46.0	-11.9
0.161	22.9	20.2	43.1	55.4	-12.3
0.545	13.2	20.0	33.2	46.0	-12.8
0.792	12.5	20.0	32.5	46.0	-13.5
0.710	12.3	20.0	32.3	46.0	-13.7
0.605	12.0	20.0	32.0	46.0	-14.0
0.150	21.5	20.3	41.8	56.0	-14.2
1.079	11.7	20.1	31.8	46.0	-14.2
3.381	11.3	20.3	31.6	46.0	-14.4
3.847	10.9	20.3	31.2	46.0	-14.8
1.806	11.0	20.2	31.2	46.0	-14.8
2.612	10.9	20.3	31.2	46.0	-14.8
3.142	10.9	20.3	31.2	46.0	-14.8
4.105	10.8	20.4	31.2	46.0	-14.8
3.470	10.8	20.3	31.1	46.0	-14.9
3.437	10.7	20.3	31.0	46.0	-15.0
3.564	10.7	20.3	31.0	46.0	-15.0
4.735	10.6	20.4	31.0	46.0	-15.0
4.067	10.6	20.4	31.0	46.0	-15.0
3.691	10.6	20.3	30.9	46.0	-15.1
2.735	10.6	20.3	30.9	46.0	-15.1

CONCLUSION

Pass



Tested By

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.

MODES OF OPERATION

Continuous Tx, 6 Mbps

Continuous Tx, 18 Mbps

CHANNELS OF OPERATION

Ch.8, 5180 MHz

Ch.14, 5240 MHz

Ch.15, 5260 MHz

Ch.18, 5320 MHz

Ch.19, 5500 MHz

Ch.23, 5580 MHz

Ch.29, 5700 MHz

Ch.30, 5745 MHz

Ch.32, 5785 MHz

Ch.34, 5825 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

FOCU0214 - 4

FOCU0214 - 8

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 40000 MHz

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
Notch Filter, 5.15 - 5.35 GHz	Micro-Tronics	BRC50703	HHJ	3/11/2015	12 mo
Notch Filter, 5.47-5.725 GHz	Micro-Tronics	BRC50704	HGI	1/27/2015	12 mo
Notch Filter, 5.725-5.875 GHz	Micro-Tronics	BRC50705	HGJ	1/27/2015	12 mo
Spectrum Analyzer	Keysight	N9010A	AFN	2/10/2015	12 mo
Cable	ESM Cable Corp.	KMKM-72	EVE	6/6/2015	12 mo
Pre-Amplifier	Miteq	JSW45-26004000-40-5P	PAE	6/6/2015	12 mo
Antenna, Horn	ETS Lindgren	3160-10	AIW	NCR	0 mo
Cable	ESM Cable Corp.	KMKM-72	EVY	11/9/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	11/9/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	4/16/2015	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AHV	NCR	0 mo
Cable	None	Standard Gain Horns Cable	EVF	4/20/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	4/20/2015	12 mo
Antenna, Horn	ETS Lindgren	3160-07	AHU	NCR	0 mo
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	4/16/2015	12 mo
Antenna, Horn	ETS Lindgren	3115	AIZ	1/27/2014	24 mo
Low Pass Filter, 0 - 1000 MHz	Micro-Tronics	LPM50004	LFD	5/24/2015	12 mo
Cable	N/A	Bilog Cables	EVA	2/10/2015	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	2/10/2015	12 mo
Antenna, Biconilog	EMCO	3141	AXE	8/29/2014	24 mo
Cable	ESM Cable Corp.	TTBJ-141-KMKM-72	EV3	6/24/2015	12 mo
Antenna, Horn	EMCO	3115	AHC	6/13/2014	24 mo

TEST DESCRIPTION

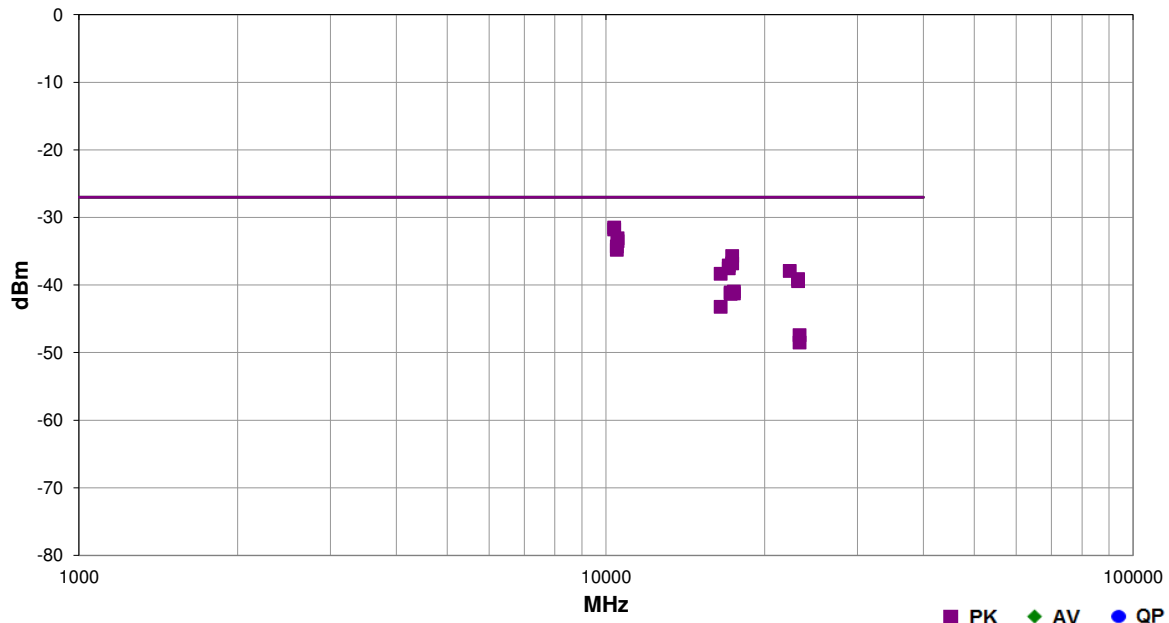
The highest gain antenna of each type to be used with the EUT were tested. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. Measurements were made to satisfy the 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 C63.10:2013). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Work Order:	FOCU0214	Date:	10/08/15	
Project:	None	Temperature:	22.2 °C	
Job Site:	EV01	Humidity:	47.3% RH	
Serial Number:	02EA4CD00042	Barometric Pres.:	1020.1 mbar	
EUT:	Athena4XD (Extended Distance)			Tested by: Cole Ghizzone, Brandon Hobbs
Configuration:	4			
Customer:	Summit Semiconductor LLC			
Attendees:	David Schilling			
EUT Power:	3.3/1.2 VDC			
Operating Mode:	Continuous Tx, see data comments for channel, frequency and data rate.			
Deviations:	None			
Comments:	See comments for EUT orientation			

Test Specifications	Test Method
FCC 15.407:2015	ANSI C63.10:2013

Run #	165	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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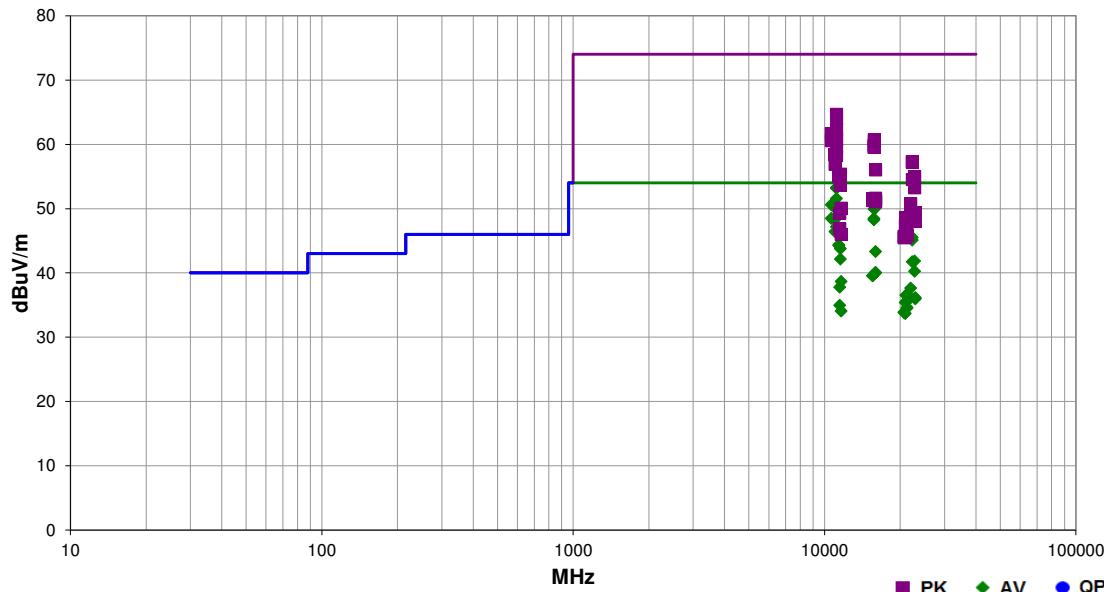


Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
10359.660	1.8	63.0	Horz	PK	7.10E-07	-31.5	-27.0	-4.5	Ch. 8, 5180MHz, 6Mbps, EUT Vert
10359.470	2.1	309.0	Vert	PK	6.62E-07	-31.8	-27.0	-4.8	Ch. 8, 5180MHz, 6Mbps, EUT Horz
10519.770	2.1	307.0	Vert	PK	4.90E-07	-33.1	-27.0	-6.1	Ch. 15, 5260MHz, 6Mbps, EUT Horz
23140.070	1.8	41.0	Horz	PK	1.22E-07	-39.1	-27.0	-12.1	Ch. 32, 5785MHz, 6Mbps, EUT Vert
10519.800	1.9	299.0	Horz	PK	4.47E-07	-33.5	-27.0	-6.5	Ch. 15, 5260MHz, 6Mbps, EUT Vert
23140.960	1.8	344.0	Vert	PK	1.14E-07	-39.4	-27.0	-12.4	Ch. 32, 5785MHz, 6Mbps, EUT Horz
10481.100	2.1	308.0	Vert	PK	3.72E-07	-34.3	-27.0	-7.3	Ch. 14, 5240MHz, 6Mbps, EUT Horz
10481.170	1.9	297.0	Horz	PK	3.31E-07	-34.8	-27.0	-7.8	Ch. 14, 5240MHz, 6Mbps, EUT Vert
17354.100	1.0	37.0	Horz	PK	2.68E-07	-35.7	-27.0	-8.7	Ch. 32, 5785MHz, 6Mbps, EUT Vert
17355.910	3.2	342.0	Vert	PK	2.08E-07	-36.8	-27.0	-9.8	Ch. 32, 5785MHz, 6Mbps, EUT Horz
17098.620	2.2	0.0	Vert	PK	1.94E-07	-37.1	-27.0	-10.1	Ch. 29, 5700MHz, 6Mbps, EUT Horz
17099.090	1.0	67.0	Horz	PK	1.77E-07	-37.5	-27.0	-10.5	Ch. 29, 5700MHz, 6Mbps, EUT Vert
22320.010	1.8	26.0	Horz	PK	1.62E-07	-37.9	-27.0	-10.9	Ch. 23, 5580MHz, 18Mbps, EUT Vert
16498.700	1.0	69.0	Horz	PK	1.47E-07	-38.3	-27.0	-11.3	Ch. 19, 5500MHz, 6Mbps, EUT Vert
17476.290	1.0	217.0	Vert	PK	8.02E-08	-41.0	-27.0	-14.0	Ch. 34, 5825MHz, 6Mbps, EUT Horz
17234.510	1.0	146.0	Horz	PK	7.76E-08	-41.1	-27.0	-14.1	Ch. 30, 5745MHz, 6Mbps, EUT Vert
17476.450	1.0	247.0	Horz	PK	7.49E-08	-41.3	-27.0	-14.3	Ch. 34, 5825MHz, 6Mbps, EUT Vert
17234.040	1.1	289.0	Vert	PK	7.41E-08	-41.3	-27.0	-14.3	Ch. 30, 5745MHz, 6Mbps, EUT Horz
23298.760	1.7	24.0	Horz	PK	1.82E-08	-47.4	-27.0	-20.4	Ch. 34, 5825MHz, 6Mbps, EUT Vert
23299.200	1.6	359.0	Vert	PK	1.41E-08	-48.5	-27.0	-21.5	Ch. 34, 5825MHz, 6Mbps, EUT Horz
16499.860	1.0	245.0	Vert	PK	4.75E-08	-43.2	-27.0	-16.2	Ch. 19, 5500MHz, 6Mbps, EUT Horz

Work Order:	FOCU0214	Date:	10/08/15	
Project:	None	Temperature:	22.2 °C	
Job Site:	EV01	Humidity:	47.3% RH	
Serial Number:	02EA4CD00042	Barometric Pres.:	1020.1 mbar	
		Tested by: Cole Ghizzone, Brandon Hobbs		
EUT:	Athena4XD (Extended Distance)			
Configuration:	4			
Customer:	Summit Semiconductor LLC			
Attendees:	David Schilling			
EUT Power:	3.3/1.2 VDC			
Operating Mode:	Continuous Tx, see data comments for channel, frequency and data rate.			
Deviations:	None			
Comments:	See comments for EUT orientation			

Test Specifications	Test Method
FCC 15.407:2015	ANSI C63.10:2013

Run #	165	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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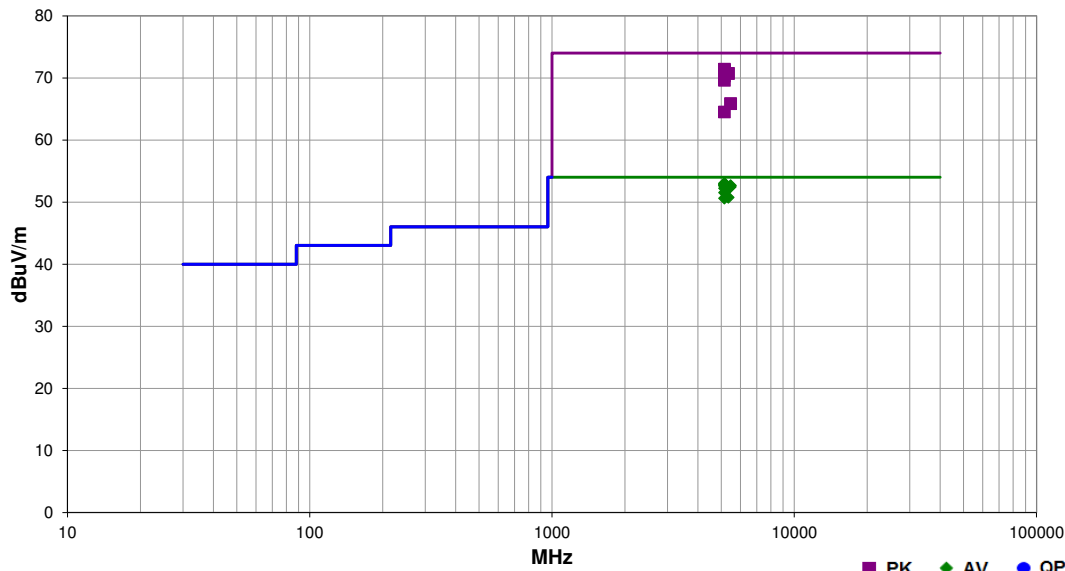


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
11158.960	58.4	-5.1	1.8	308.0	3.0	0.0	Horz	AV	0.0	53.3	54.0	-0.7	Ch. 23, 5580MHz, 6Mbps, EUT Vert
11158.680	58.3	-5.1	1.9	307.0	3.0	0.0	Horz	AV	0.0	53.2	54.0	-0.8	Ch. 23, 5580MHz, 18Mbps, EUT Vert
11159.190	56.7	-5.1	2.2	26.0	3.0	0.0	Vert	AV	0.0	51.6	54.0	-2.4	Ch. 23, 5580MHz, 6Mbps, EUT Horz
10641.150	58.6	-8.0	1.8	62.0	3.0	0.0	Horz	AV	0.0	50.6	54.0	-3.4	Ch. 18, 5320MHz, 6Mbps, EUT Vert
11158.900	55.7	-5.1	2.5	312.0	3.0	0.0	Horz	AV	0.0	50.6	54.0	-3.4	Ch. 23, 5580MHz, 6Mbps, EUT On Side
15779.760	35.5	14.5	2.2	52.0	3.0	0.0	Vert	AV	0.0	50.0	54.0	-4.0	Ch. 15, 5260MHz, 6Mbps, EUT Horz
15779.880	35.4	14.5	1.1	71.0	3.0	0.0	Horz	AV	0.0	49.9	54.0	-4.1	Ch. 15, 5260MHz, 6Mbps, EUT Vert
11158.680	55.0	-5.1	1.8	319.0	3.0	0.0	Vert	AV	0.0	49.9	54.0	-4.1	Ch. 23, 5580MHz, 6Mbps, EUT Vert
11158.640	53.7	-5.1	2.8	136.0	3.0	0.0	Horz	AV	0.0	48.6	54.0	-5.4	Ch. 23, 5580MHz, 6Mbps, EUT Horz
10641.130	56.5	-8.0	2.7	308.0	3.0	0.0	Vert	AV	0.0	48.5	54.0	-5.5	Ch. 18, 5320MHz, 6Mbps, EUT Horz
15719.860	34.0	14.5	1.6	75.0	3.0	0.0	Horz	AV	0.0	48.5	54.0	-5.5	Ch. 14, 5240MHz, 6Mbps, EUT Vert
11001.110	54.1	-5.8	1.8	60.0	3.0	0.0	Horz	AV	0.0	48.3	54.0	-5.7	Ch. 19, 5500MHz, 6Mbps, EUT Vert
15719.970	33.8	14.5	2.1	51.0	3.0	0.0	Vert	AV	0.0	48.3	54.0	-5.7	Ch. 14, 5240MHz, 6Mbps, EUT Horz
11158.670	52.3	-5.1	1.5	306.0	3.0	0.0	Vert	AV	0.0	47.2	54.0	-6.8	Ch. 23, 5580MHz, 6Mbps, EUT On Side
11001.060	52.2	-5.8	2.5	50.0	3.0	0.0	Vert	AV	0.0	46.4	54.0	-7.6	Ch. 19, 5500MHz, 6Mbps, EUT Horz
22319.910	45.4	0.1	1.8	23.0	3.0	0.0	Horz	AV	0.0	45.5	54.0	-8.5	Ch. 23, 5580MHz, 6Mbps, EUT Vert
22319.840	45.0	0.1	1.8	26.0	3.0	0.0	Horz	AV	0.0	45.1	54.0	-8.9	Ch. 23, 5580MHz, 18Mbps, EUT Vert
11160.420	69.8	-5.1	1.9	307.0	3.0	0.0	Horz	PK	0.0	64.7	74.0	-9.3	Ch. 23, 5580MHz, 6Mbps, EUT Vert
11398.620	48.1	-3.7	2.7	315.0	3.0	0.0	Vert	AV	0.0	44.4	54.0	-9.6	Ch. 29, 5700MHz, 6Mbps, EUT Horz
11398.620	48.0	-3.7	1.8	305.0	3.0	0.0	Horz	AV	0.0	44.3	54.0	-9.7	Ch. 29, 5700MHz, 6Mbps, EUT Vert
11160.190	69.1	-5.1	1.8	308.0	3.0	0.0	Horz	PK	0.0	64.0	74.0	-10.0	Ch. 23, 5580MHz, 6Mbps, EUT Vert
11568.940	46.2	-2.4	2.5	54.0	3.0	0.0	Vert	AV	0.0	43.8	54.0	-10.2	Ch. 32, 5785MHz, 6Mbps, EUT Horz
15959.880	28.6	14.7	1.1	71.0	3.0	0.0	Horz	AV	0.0	43.3	54.0	-10.7	Ch. 18, 5320MHz, 6Mbps, EUT Vert
11159.490	67.5	-5.1	2.2	26.0	3.0	0.0	Vert	PK	0.0	62.4	74.0	-11.6	Ch. 23, 5580MHz, 6Mbps, EUT Horz
11568.970	44.6	-2.4	1.6	50.0	3.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Ch. 32, 5785MHz, 6Mbps, EUT Vert
22801.210	41.6	0.2	1.8	24.0	3.0	0.0	Horz	AV	0.0	41.8	54.0	-12.2	Ch. 29, 5700MHz, 6Mbps, EUT Vert
22319.830	41.6	0.1	1.8	311.0	3.0	0.0	Vert	AV	0.0	41.7	54.0	-12.3	Ch. 23, 5580MHz, 6Mbps, EUT Horz
10639.370	69.7	-8.0	1.8	62.0	3.0	0.0	Horz	PK	0.0	61.7	74.0	-12.3	Ch. 18, 5320MHz, 6Mbps, EUT Vert

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
11160.080	66.3	-5.1	2.5	312.0	3.0	0.0	Horz	PK	0.0	61.2	74.0	-12.8	Ch. 23, 5580MHz, 6Mbps, EUT On Side
15780.070	46.2	14.5	1.1	71.0	3.0	0.0	Horz	PK	0.0	60.7	74.0	-13.3	Ch. 15, 5260MHz, 6Mbps, EUT Vert
11160.220	65.8	-5.1	1.8	319.0	3.0	0.0	Vert	PK	0.0	60.7	74.0	-13.3	Ch. 23, 5580MHz, 6Mbps, EUT Vert
10639.380	68.6	-8.0	2.7	308.0	3.0	0.0	Vert	PK	0.0	60.6	74.0	-13.4	Ch. 18, 5320MHz, 6Mbps, EUT Horz
15780.060	46.0	14.5	2.2	52.0	3.0	0.0	Vert	PK	0.0	60.5	74.0	-13.5	Ch. 15, 5260MHz, 6Mbps, EUT Horz
22801.370	40.0	0.2	1.8	357.0	3.0	0.0	Vert	AV	0.0	40.2	54.0	-13.8	Ch. 29, 5700MHz, 6Mbps, EUT Horz
15960.700	25.3	14.7	1.0	225.0	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	Ch. 23, 5580MHz, 6Mbps, EUT Horz
15959.710	25.3	14.7	1.0	316.0	3.0	0.0	Horz	AV	0.0	40.0	54.0	-14.0	Ch. 23, 5580MHz, 6Mbps, EUT Vert
15958.780	25.3	14.7	1.0	149.0	3.0	0.0	Vert	AV	0.0	40.0	54.0	-14.0	Ch. 18, 5320MHz, 6Mbps, EUT Horz
15720.780	45.4	14.5	1.6	75.0	3.0	0.0	Horz	PK	0.0	59.9	74.0	-14.1	Ch. 14, 5240MHz, 6Mbps, EUT Vert
15539.870	25.2	14.4	1.0	122.0	3.0	0.0	Horz	AV	0.0	39.6	54.0	-14.4	Ch. 8, 5180MHz, 6Mbps, EUT Vert
15538.770	25.2	14.4	2.6	355.0	3.0	0.0	Vert	AV	0.0	39.6	54.0	-14.4	Ch. 8, 5180MHz, 6Mbps, EUT Horz
15720.690	45.1	14.5	2.1	51.0	3.0	0.0	Vert	PK	0.0	59.6	74.0	-14.4	Ch. 14, 5240MHz, 6Mbps, EUT Horz
11160.250	64.5	-5.1	2.8	136.0	3.0	0.0	Horz	PK	0.0	59.4	74.0	-14.6	Ch. 23, 5580MHz, 6Mbps, EUT Horz
11648.760	40.4	-1.7	1.0	33.0	3.0	0.0	Horz	AV	0.0	38.7	54.0	-15.3	Ch. 34, 5825MHz, 6Mbps, EUT Vert
11000.430	64.2	-5.8	1.8	60.0	3.0	0.0	Horz	PK	0.0	58.4	74.0	-15.6	Ch. 19, 5500MHz, 6Mbps, EUT Vert
11160.170	63.4	-5.1	1.5	306.0	3.0	0.0	Vert	PK	0.0	58.3	74.0	-15.7	Ch. 23, 5580MHz, 6Mbps, EUT On Side
11488.640	40.9	-3.1	1.8	302.0	3.0	0.0	Horz	AV	0.0	37.8	54.0	-16.2	Ch. 30, 5745MHz, 6Mbps, EUT Vert
22001.450	37.4	0.2	1.8	39.0	3.0	0.0	Horz	AV	0.0	37.6	54.0	-16.4	Ch. 19, 5500MHz, 6Mbps, EUT Vert
22320.010	57.2	0.1	1.8	26.0	3.0	0.0	Horz	PK	0.0	57.3	74.0	-16.7	Ch. 23, 5580MHz, 18Mbps, EUT Vert
22320.330	57.1	0.1	1.8	23.0	3.0	0.0	Horz	PK	0.0	57.2	74.0	-16.8	Ch. 23, 5580MHz, 6Mbps, EUT Vert
11000.770	62.7	-5.8	2.5	50.0	3.0	0.0	Vert	PK	0.0	56.9	74.0	-17.1	Ch. 19, 5500MHz, 6Mbps, EUT Horz
21039.740	36.8	-0.3	1.8	353.0	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	Ch. 15, 5260MHz, 6Mbps, EUT Vert
22979.960	35.8	0.4	1.8	66.0	3.0	0.0	Horz	AV	0.0	36.2	54.0	-17.8	Ch. 30, 5745MHz, 6Mbps, EUT Vert
22001.430	35.9	0.2	1.8	0.0	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	Ch. 19, 5500MHz, 6Mbps, EUT Horz
15959.040	41.3	14.7	1.1	71.0	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	Ch. 18, 5320MHz, 6Mbps, EUT Vert
22979.540	35.6	0.4	1.5	4.0	3.0	0.0	Vert	AV	0.0	36.0	54.0	-18.0	Ch. 30, 5745MHz, 6Mbps, EUT Horz
21039.920	35.8	-0.3	1.8	51.0	3.0	0.0	Vert	AV	0.0	35.5	54.0	-18.5	Ch. 15, 5260MHz, 6Mbps, EUT Horz
20959.890	35.7	-0.3	1.6	53.0	3.0	0.0	Vert	AV	0.0	35.4	54.0	-18.6	Ch. 14, 5240MHz, 6Mbps, EUT Horz
11569.660	57.8	-2.4	2.5	54.0	3.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	Ch. 32, 5785MHz, 6Mbps, EUT Horz
11400.310	59.0	-3.7	2.7	315.0	3.0	0.0	Vert	PK	0.0	55.3	74.0	-18.7	Ch. 29, 5700MHz, 6Mbps, EUT Horz
11488.790	38.1	-3.1	2.1	322.0	3.0	0.0	Vert	AV	0.0	35.0	54.0	-19.0	Ch. 30, 5745MHz, 6Mbps, EUT Horz
11400.180	58.7	-3.7	1.8	305.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	Ch. 29, 5700MHz, 6Mbps, EUT Vert
22799.950	54.7	0.2	1.8	24.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	Ch. 29, 5700MHz, 6Mbps, EUT Vert
21281.470	34.8	-0.2	1.8	17.0	3.0	0.0	Horz	AV	0.0	34.6	54.0	-19.4	Ch. 18, 5320MHz, 6Mbps, EUT Vert
21279.660	34.7	-0.2	1.6	12.0	3.0	0.0	Vert	AV	0.0	34.5	54.0	-19.5	Ch. 18, 5320MHz, 6Mbps, EUT Horz
22320.130	54.4	0.1	1.8	311.0	3.0	0.0	Vert	PK	0.0	54.5	74.0	-19.5	Ch. 23, 5580MHz, 6Mbps, EUT Horz
11648.620	35.8	-1.7	3.2	76.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	Ch. 34, 5825MHz, 6Mbps, EUT Horz
20718.530	34.3	-0.4	1.6	243.0	3.0	0.0	Vert	AV	0.0	33.9	54.0	-20.1	Ch. 8, 5180MHz, 6Mbps, EUT Horz
20718.030	34.3	-0.4	1.6	158.0	3.0	0.0	Horz	AV	0.0	33.9	54.0	-20.1	Ch. 8, 5180MHz, 6Mbps, EUT Vert
20959.030	34.0	-0.3	1.6	219.0	3.0	0.0	Horz	AV	0.0	33.7	54.0	-20.3	Ch. 14, 5240MHz, 6Mbps, EUT Vert
11569.520	56.1	-2.4	1.6	50.0	3.0	0.0	Horz	PK	0.0	53.7	74.0	-20.3	Ch. 32, 5785MHz, 6Mbps, EUT Vert
22800.080	53.0	0.2	1.8	357.0	3.0	0.0	Vert	PK	0.0	53.2	74.0	-20.8	Ch. 29, 5700MHz, 6Mbps, EUT Horz
15960.830	36.9	14.7	1.0	316.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Ch. 23, 5580MHz, 6Mbps, EUT Vert
15540.670	37.2	14.4	1.0	122.0	3.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Ch. 8, 5180MHz, 6Mbps, EUT Vert
15539.440	36.9	14.4	2.6	355.0	3.0	0.0	Vert	PK	0.0	51.3	74.0	-22.7	Ch. 8, 5180MHz, 6Mbps, EUT Horz
15960.990	36.5	14.7	1.0	225.0	3.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	Ch. 23, 5580MHz, 6Mbps, EUT Horz
15959.780	36.3	14.7	1.0	149.0	3.0	0.0	Vert	PK	0.0	51.0	74.0	-23.0	Ch. 18, 5320MHz, 6Mbps, EUT Horz
22001.170	50.5	0.2	1.8	39.0	3.0	0.0	Horz	PK	0.0	50.7	74.0	-23.3	Ch. 19, 5500MHz, 6Mbps, EUT Vert
11650.010	51.8	-1.7	1.0	33.0	3.0	0.0	Horz	PK	0.0	50.1	74.0	-23.9	Ch. 34, 5825MHz, 6Mbps, EUT Vert
22979.320	49.0	0.4	1.5	4.0	3.0	0.0	Vert	PK	0.0	49.4	74.0	-24.6	Ch. 30, 5745MHz, 6Mbps, EUT Horz
11490.110	52.4	-3.1	1.8	302.0	3.0	0.0	Horz	PK	0.0	49.3	74.0	-24.7	Ch. 30, 5745MHz, 6Mbps, EUT Vert
22000.420	48.7	0.2	1.8	0.0	3.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	Ch. 19, 5500MHz, 6Mbps, EUT Horz
21039.560	48.9	-0.3	1.8	353.0	3.0	0.0	Horz	PK	0.0	48.6	74.0	-25.4	Ch. 15, 5260MHz, 6Mbps, EUT Vert
22979.670	47.7	0.4	1.8	66.0	3.0	0.0	Horz	PK	0.0	48.1	74.0	-25.9	Ch. 30, 5745MHz, 6Mbps, EUT Vert
20959.530	47.7	-0.3	1.6	53.0	3.0	0.0	Vert	PK	0.0	47.4	74.0	-26.6	Ch. 14, 5240MHz, 6Mbps, EUT Horz
21040.470	47.5	-0.3	1.8	51.0	3.0	0.0	Vert	PK	0.0	47.2	74.0	-26.8	Ch. 15, 5260MHz, 6Mbps, EUT Horz
11490.110	50.0	-3.1	2.1	322.0	3.0	0.0	Vert	PK	0.0	46.9	74.0	-27.1	Ch. 30, 5745MHz, 6Mbps, EUT Horz
21278.900	46.9	-0.2	1.8	17.0	3.0	0.0	Horz	PK	0.0	46.7	74.0	-27.3	Ch. 18, 5320MHz, 6Mbps, EUT Vert
11650.350	47.7	-1.7	3.2	76.0	3.0	0.0	Vert	PK	0.0	46.0	74.0	-28.0	Ch. 34, 5825MHz, 6Mbps, EUT Horz
21281.230	46.0	-0.2	1.6	12.0	3.0	0.0	Vert	PK	0.0	45.8	74.0	-28.2	Ch. 18, 5320MHz, 6Mbps, EUT Horz
20719.010	46.1	-0.4	1.6	243.0	3.0	0.0	Vert	PK	0.0	45.7	74.0	-28.3	Ch. 8, 5180MHz, 6Mbps, EUT Horz
20961.120	45.9	-0.3	1.6	219.0	3.0	0.0	Horz	PK	0.0	45.6	74.0	-28.4	Ch. 14, 5240MHz, 6Mbps, EUT Vert
20720.840	45.9	-0.4	1.6	158.0	3.0	0.0	Horz	PK	0.0	45.5	74.0	-28.5	Ch. 8, 5180MHz, 6Mbps, EUT Vert

Work Order:	FOCU0214	Date:	10/08/15		
Project:	None	Temperature:	23 °C		
Job Site:	EV01	Humidity:	48.9% RH		
Serial Number:	02EA4CD00042	Barometric Pres.:	1016 mbar	Tested by:	Cole Ghizzone, Brandon Hobbs
EUT:	Athena4XD (Extended Distance)				
Configuration:	4				
Customer:	Summit Semiconductor LLC				
Attendees:	Gerald				
EUT Power:	3.3/1.2 VDC				
Operating Mode:	Continuous Tx, see data comments for channel, frequency and data rate.				
Deviations:	None				
Comments:	See comments for EUT orientation				

Test Specifications					Test Method		
FCC 15.407:2015					ANSI C63.10:2013		
Run #	166	Test Distance (m)	1	Antenna Height(s)	1 to 4(m)	Results	Pass

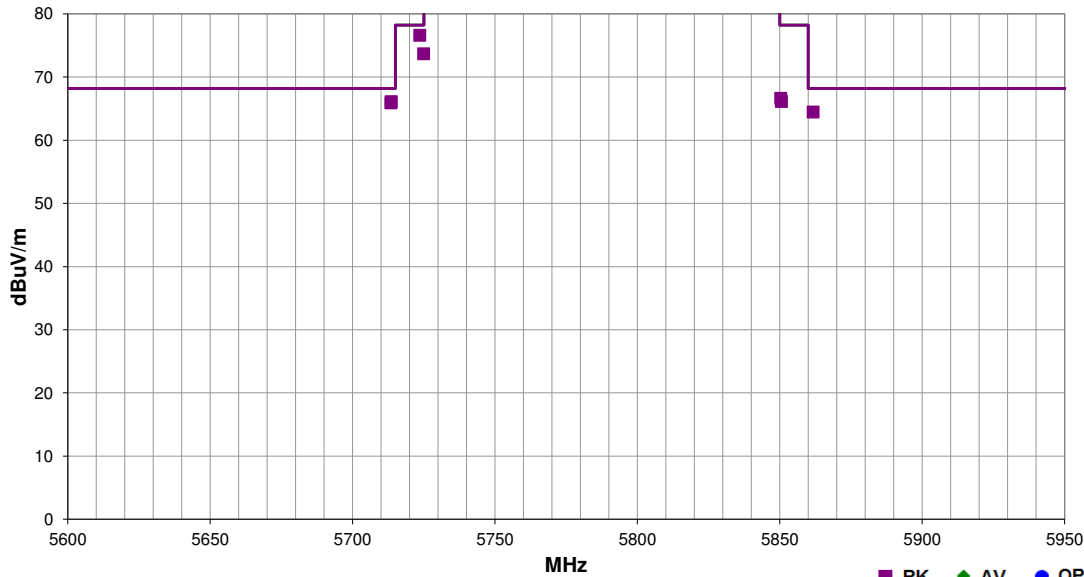


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
5149.695	25.4	37.1	1.6	48.0	1.0	0.0	Horz	AV	-9.5	53.0	54.0	-1.0	Ch. 8, 5180MHz, 6Mbps, EUT Horz
5150.000	25.3	37.1	2.0	23.0	1.0	0.0	Horz	AV	-9.5	52.9	54.0	-1.1	Ch. 8, 5180MHz, 6Mbps, EUT On Side, 10Hz
5149.990	25.2	37.1	1.4	16.0	1.0	0.0	Vert	AV	-9.5	52.8	54.0	-1.2	Ch. 8, 5180MHz, 6Mbps, EUT Vert, 10Hz
5150.000	25.1	37.1	1.7	342.0	1.0	0.0	Horz	AV	-9.5	52.7	54.0	-1.3	Ch. 8, 5180MHz, 6Mbps, EUT Vert, 10Hz
5459.885	24.4	37.8	1.9	40.0	1.0	0.0	Horz	AV	-9.5	52.6	54.0	-1.4	Ch. 19, 5500MHz, 6Mbps, EUT On Side
5150.000	25.0	37.1	1.9	24.0	1.0	0.0	Vert	AV	-9.5	52.6	54.0	-1.4	Ch. 8, 5180MHz, 6Mbps, EUT Horz, 10Hz
5459.485	24.2	37.8	1.9	40.0	1.0	0.0	Horz	AV	-9.5	52.4	54.0	-1.6	Ch. 19, 5500MHz, 18Mbps, EUT On Side
5350.005	24.4	37.5	1.9	16.0	1.0	0.0	Horz	AV	-9.5	52.3	54.0	-1.7	Ch. 18, 5320MHz, 6Mbps, EUT On Side, 10Hz
5150.000	24.6	37.1	1.2	353.0	1.0	0.0	Vert	AV	-9.5	52.2	54.0	-1.8	Ch. 8, 5180MHz, 6Mbps, EUT On Side, 10Hz
5150.000	23.9	37.1	2.0	23.0	1.0	0.0	Horz	AV	-9.5	51.5	54.0	-2.5	Ch. 8, 5180MHz, 18Mbps, EUT On Side, 10Hz
5149.630	43.8	37.1	2.0	23.0	1.0	0.0	Horz	PK	-9.5	71.4	74.0	-2.6	Ch. 8, 5180MHz, 6Mbps, EUT On Side
5148.825	43.7	37.1	1.4	16.0	1.0	0.0	Vert	PK	-9.5	71.3	74.0	-2.7	Ch. 8, 5180MHz, 6Mbps, EUT Vert
5149.830	43.5	37.1	1.9	24.0	1.0	0.0	Vert	PK	-9.5	71.1	74.0	-2.9	Ch. 8, 5180MHz, 6Mbps, EUT Horz
5149.905	43.3	37.1	2.0	23.0	1.0	0.0	Horz	PK	-9.5	70.9	74.0	-3.1	Ch. 8, 5180MHz, 18Mbps, EUT On Side
5351.640	42.8	37.5	1.9	16.0	1.0	0.0	Horz	PK	-9.5	70.7	74.0	-3.3	Ch. 18, 5320MHz, 18Mbps, EUT On Side
5350.480	42.8	37.5	1.9	16.0	1.0	0.0	Horz	PK	-9.5	70.7	74.0	-3.3	Ch. 18, 5320MHz, 6Mbps, EUT On Side
5350.000	22.8	37.5	1.9	16.0	1.0	0.0	Horz	AV	-9.5	50.7	54.0	-3.3	Ch. 18, 5320MHz, 18Mbps, EUT On Side, 10Hz
5149.960	23.0	37.1	1.6	48.0	1.0	0.0	Horz	AV	-9.5	50.6	54.0	-3.4	Ch. 8, 5180MHz, 6Mbps, EUT Horz, 10Hz
5149.900	42.7	37.1	1.7	342.0	1.0	0.0	Horz	PK	-9.5	70.3	74.0	-3.7	Ch. 8, 5180MHz, 6Mbps, EUT Vert
5148.980	42.0	37.1	1.2	353.0	1.0	0.0	Vert	PK	-9.5	69.6	74.0	-4.4	Ch. 8, 5180MHz, 6Mbps, EUT On Side
5459.805	37.6	37.8	1.9	40.0	1.0	0.0	Horz	PK	-9.5	65.8	74.0	-8.2	Ch. 19, 5500MHz, 18Mbps, EUT On Side
5457.510	37.6	37.8	1.9	40.0	1.0	0.0	Horz	PK	-9.5	65.8	74.0	-8.2	Ch. 19, 5500MHz, 6Mbps, EUT On Side
5149.790	36.9	37.1	1.6	48.0	1.0	0.0	Horz	PK	-9.5	64.5	74.0	-9.5	Ch. 8, 5180MHz, 6Mbps, EUT Horz

Work Order:	FOCU0214	Date:	10/08/15	
Project:	None	Temperature:	23 °C	
Job Site:	EV01	Humidity:	48.9% RH	
Serial Number:	02EA4CD00042	Barometric Pres.:	1016 mbar	
EUT:	Athena4XD (Extended Distance)			
Configuration:	4			
Customer:	Summit Semiconductor LLC			
Attendees:	Gerald			
EUT Power:	3.3/1.2 VDC			
Operating Mode:	Continuous Tx, see data comments for channel, frequency and data rate.			
Deviations:	None			
Comments:	See comments for EUT orientation			

Test Specifications	Test Method
FCC 15.407:2015	ANSI C63.10:2013

Run #	167	Test Distance (m)	1	Antenna Height(s)	1 to 4(m)	Results	Pass
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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
5723.525	48.5	37.6	1.8	356.0	1.0	0.0	Horz	PK	-9.5	76.6	78.2	-1.6	Ch. 30, 5745MHz, 6Mbps, EUT On Side
5713.570	38.0	37.6	1.7	0.0	1.0	0.0	Horz	PK	-9.5	66.1	68.2	-2.1	Ch. 30, 5745MHz, 6Mbps, EUT On Side
5713.445	37.8	37.6	1.7	0.0	1.0	0.0	Horz	PK	-9.5	65.9	68.2	-2.3	Ch. 30, 5745MHz, 18Mbps, EUT On Side
5861.680	36.2	37.8	1.6	360.0	1.0	0.0	Horz	PK	-9.5	64.5	68.2	-3.7	Ch. 34, 5825MHz, 6Mbps, EUT On Side
5724.915	45.6	37.6	1.8	356.0	1.0	0.0	Horz	PK	-9.5	73.7	78.2	-4.5	Ch. 30, 5745MHz, 18Mbps, EUT On Side
5850.330	38.4	37.8	1.6	349.0	1.0	0.0	Horz	PK	-9.5	66.6	78.2	-11.6	Ch. 34, 5825MHz, 18Mbps, EUT On Side
5850.585	37.9	37.8	1.6	349.0	1.0	0.0	Horz	PK	-9.5	66.1	78.2	-12.1	Ch. 34, 5825MHz, 6Mbps, EUT On Side

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)
Meter - Multimeter	Tektronix	DMM912	MMH	2/5/2013	36
Thermometer	Omegaette	HH311	DTY	1/21/2015	36
Power Supply - DC	Instek	PC-3030D	TPR	NCR	0
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPH-8-2-SCT/AC	TBI	NCR	0
Power Supply - DC	Topward	TPS-2000	TPD	NCR	0
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Block - DC	Fairview Microwave	SD3379	AMP	6/18/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

A direct connect measurement was made between the EUT's antenna cable 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 could not be done with the absence of modulation or CW mode so testing was completed modulated using the lowest data rate available.

The primary supply voltage was varied from 90 % to 110% 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."

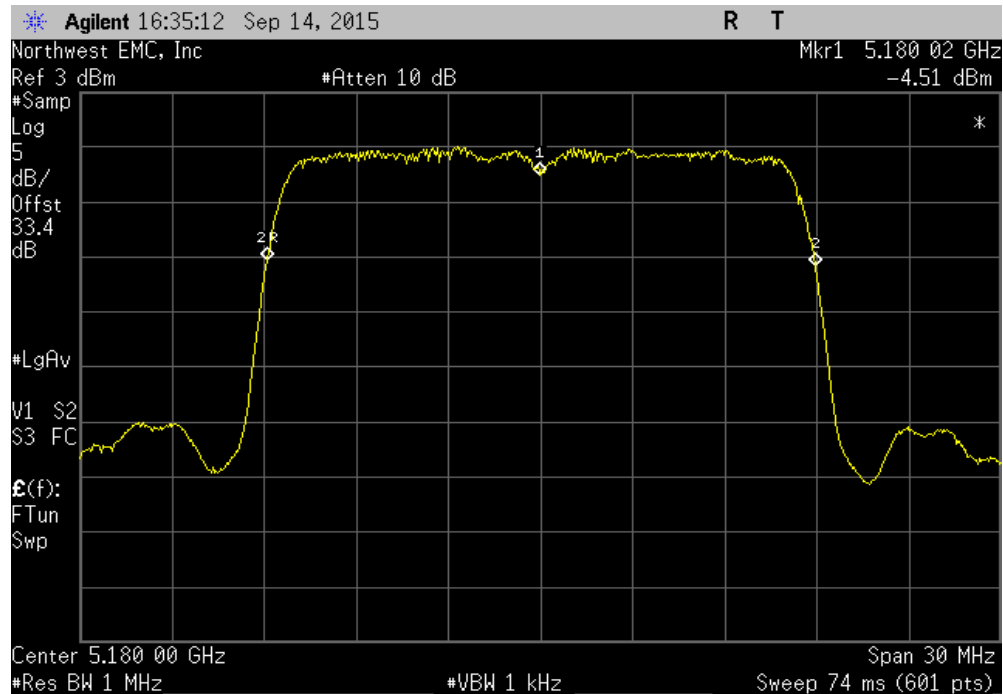
No specific limits are provided in either FCC 15.407, the product specific rule part, or FCC 2.1055, the equipment authorization procedure for testing frequency stability. While there are no limits called out, any results less than 100ppm will still allow the radio to be operating within the band.

FREQUENCY STABILITY

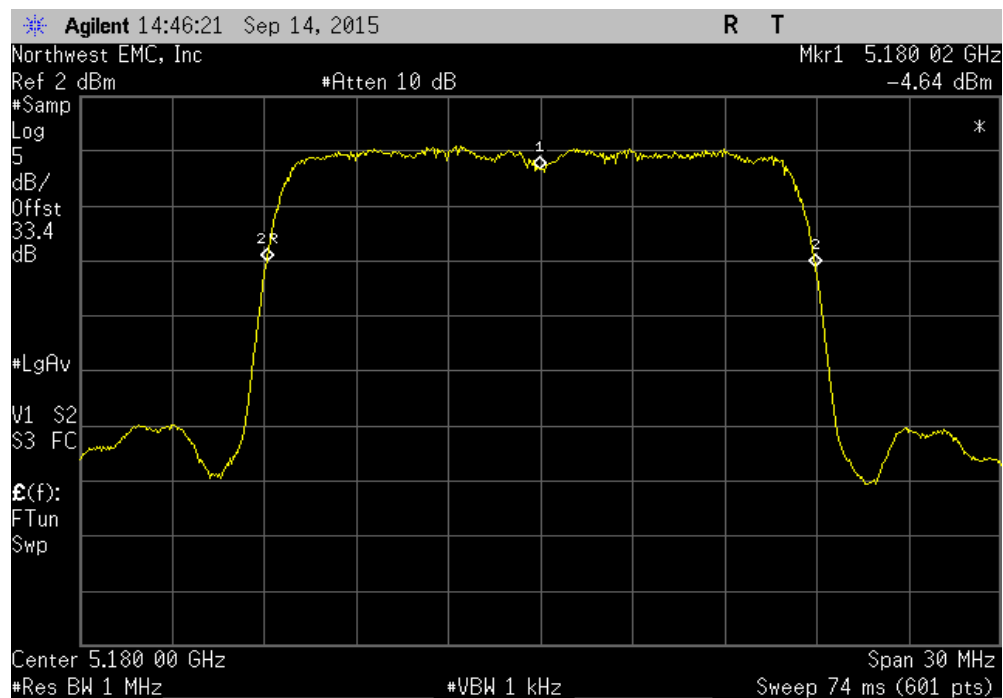
EUT: Athena4XD (extended distance)		Work Order: FOCU0214				
Serial Number: 02EA4CD00042		Date: 09/15/15				
Customer: Summit Semiconductor LLC		Temperature: 23.4°C				
Attendees: David Schilling		Humidity: 38%				
Project: None		Barometric Pres.: 1009.2				
Tested by: Brandon Hobbs		Power: 3.3/1.2 VDC Nominal				
		Job Site: EV06				
TEST SPECIFICATIONS		Test Method				
FCC 15.407:2015		ANSI C63.10:2013				
COMMENTS						
The EUT was not tested in ISOC mode. Testing was completed using a 10% variation in DC voltage. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	5	Signature 				
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results
5150 MHz - 5250 MHz - Low Channel, 5180 MHz						
Voltage: 110% (3.63/1.32 VDC)		5180.02	5180	3.9	100	Pass
Voltage: 100% (3.3/1.2 VDC)		5180.02	5180	3.9	100	Pass
Voltage: 90% (2.97/1.08 VDC)		5180.02	5180	3.9	100	Pass
Temperature: +50°		5180	5180	0	100	Pass
Temperature: +40°		5180	5180	0	100	Pass
Temperature: +30°		5180.02	5180	3.9	100	Pass
Temperature: +20°		5180.02	5180	3.9	100	Pass
Temperature: +10°		5180.02	5180	3.9	100	Pass
Temperature: 0°		5180.05	5180	9.7	100	Pass
Temperature: -10°		5180.05	5180	9.7	100	Pass
Temperature: -20°		5180.05	5180	9.7	100	Pass
Temperature: -30°		5180.02	5180	3.9	100	Pass
5250 MHz - 5350 MHz - High Channel, 5320 MHz						
Voltage: 110% (3.63/1.32 VDC)		5320	5320	0	100	Pass
Voltage: 100% (3.3/1.2 VDC)		5320.02	5320	3.8	100	Pass
Voltage: 90% (2.97/1.08 VDC)		5320.05	5320	9.4	100	Pass
Temperature: +50°		5320.02	5320	3.8	100	Pass
Temperature: +40°		5320.02	5320	3.8	100	Pass
Temperature: +30°		5320	5320	0	100	Pass
Temperature: +20°		5320.02	5320	3.8	100	Pass
Temperature: +10°		5320.02	5320	3.8	100	Pass
Temperature: 0°		5320.05	5320	9.4	100	Pass
Temperature: -10°		5320.08	5320	15	100	Pass
Temperature: -20°		5320.05	5320	9.4	100	Pass
Temperature: -30°		5320.05	5320	9.4	100	Pass
5470 MHz - 5725 MHz - Low Channel, 5500 MHz						
Voltage: 110% (3.63/1.32 VDC)		5500.02	5500	3.6	100	Pass
Voltage: 100% (3.3/1.2 VDC)		5500.02	5500	3.6	100	Pass
Voltage: 90% (2.97/1.08 VDC)		5500.02	5500	3.6	100	Pass
Temperature: +50°		5500	5500	0	100	Pass
Temperature: +40°		5500.02	5500	3.6	100	Pass
Temperature: +30°		5500.02	5500	3.6	100	Pass
Temperature: +20°		5500.02	5500	3.6	100	Pass
Temperature: +10°		5500.05	5500	9.1	100	Pass
Temperature: 0°		5500.08	5500	14.6	100	Pass
Temperature: -10°		5500.1	5500	18.2	100	Pass
Temperature: -20°		5500.08	5500	14.6	100	Pass
Temperature: -30°		5500.05	5500	9.1	100	Pass
5470 MHz - 5725 MHz - High Channel, 5700 MHz						
Voltage: 110% (3.63/1.32 VDC)		5700.02	5700	3.5	100	Pass
Voltage: 100% (3.3/1.2 VDC)		5700	5700	0	100	Pass
Voltage: 90% (2.97/1.08 VDC)		5700	5700	0	100	Pass
Temperature: +50°		5700	5700	0	100	Pass
Temperature: +40°		5699.98	5700	3.5	100	Pass
Temperature: +30°		5700	5700	0	100	Pass
Temperature: +20°		5700	5700	0	100	Pass
Temperature: +10°		5700.02	5700	3.5	100	Pass
Temperature: 0°		5700.05	5700	8.8	100	Pass
Temperature: -10°		5700.05	5700	8.8	100	Pass
Temperature: -20°		5700.05	5700	8.8	100	Pass
Temperature: -30°		5700.02	5700	3.5	100	Pass
5725 MHz - 5850 MHz - High Channel, 5825 MHz						
Voltage: 110% (3.63/1.32 VDC)		5825	5825	0	100	Pass
Voltage: 100% (3.3/1.2 VDC)		5825	5825	0	100	Pass
Voltage: 90% (2.97/1.08 VDC)		5825.02	5825	3.4	100	Pass
Temperature: +50°		5825.02	5825	3.4	100	Pass
Temperature: +40°		5824.98	5825	3.4	100	Pass
Temperature: +30°		5825	5825	0	100	Pass
Temperature: +20°		5825	5825	0	100	Pass
Temperature: +10°		5825.02	5825	3.4	100	Pass
Temperature: 0°		5825.05	5825	8.6	100	Pass
Temperature: -10°		5825.05	5825	8.6	100	Pass
Temperature: -20°		5825.05	5825	8.6	100	Pass
Temperature: -30°		5825.02	5825	3.4	100	Pass

FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 110% (3.63/1.32 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

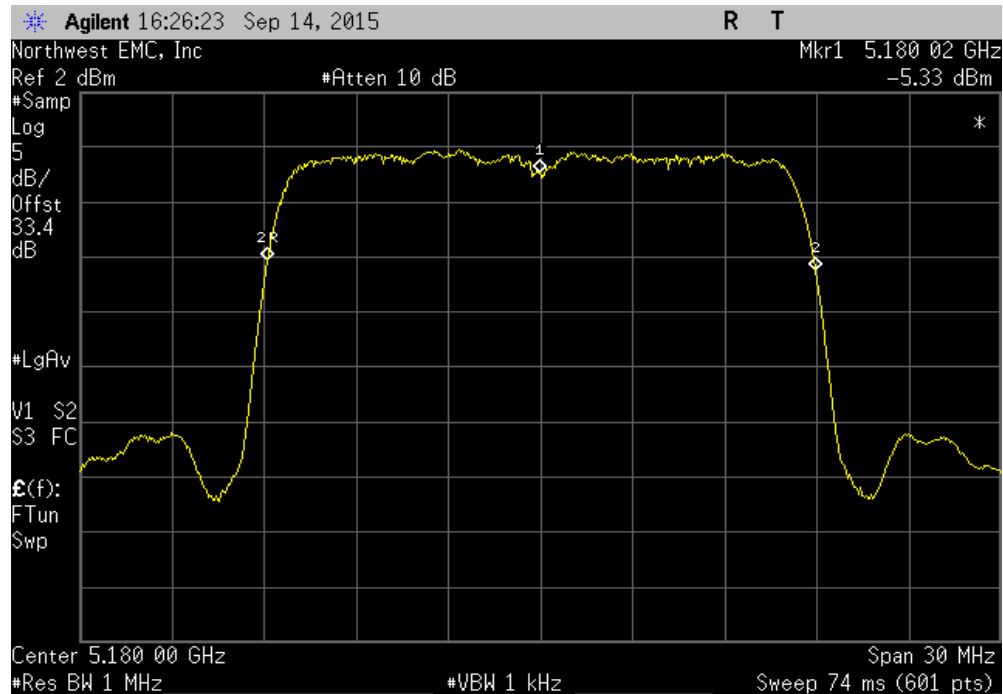


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 100% (3.3/1.2 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

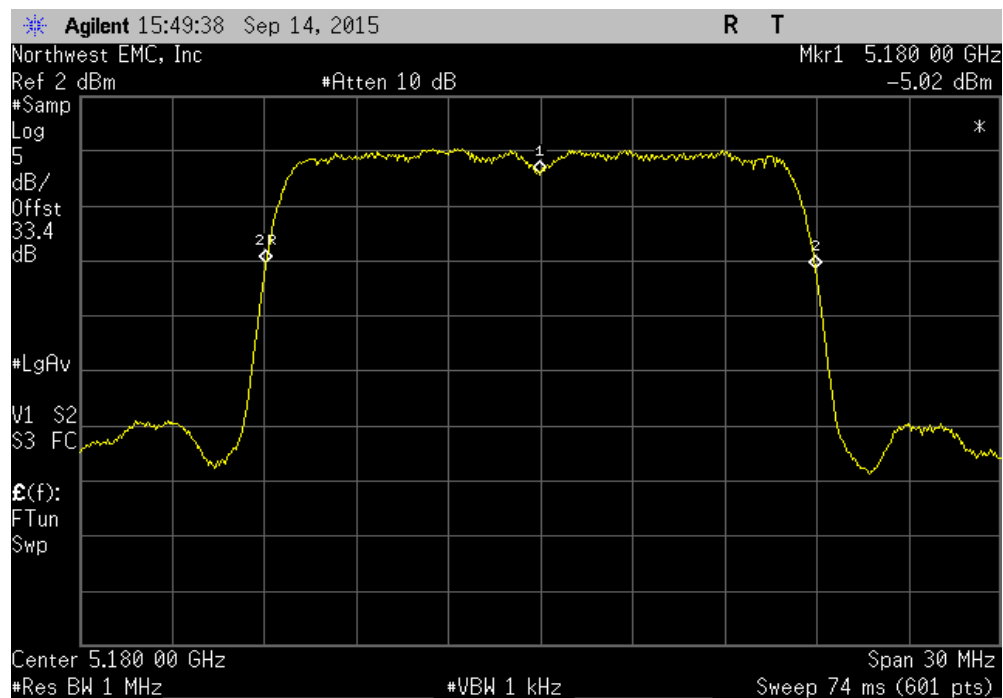


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Voltage: 90% (2.97/1.08 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

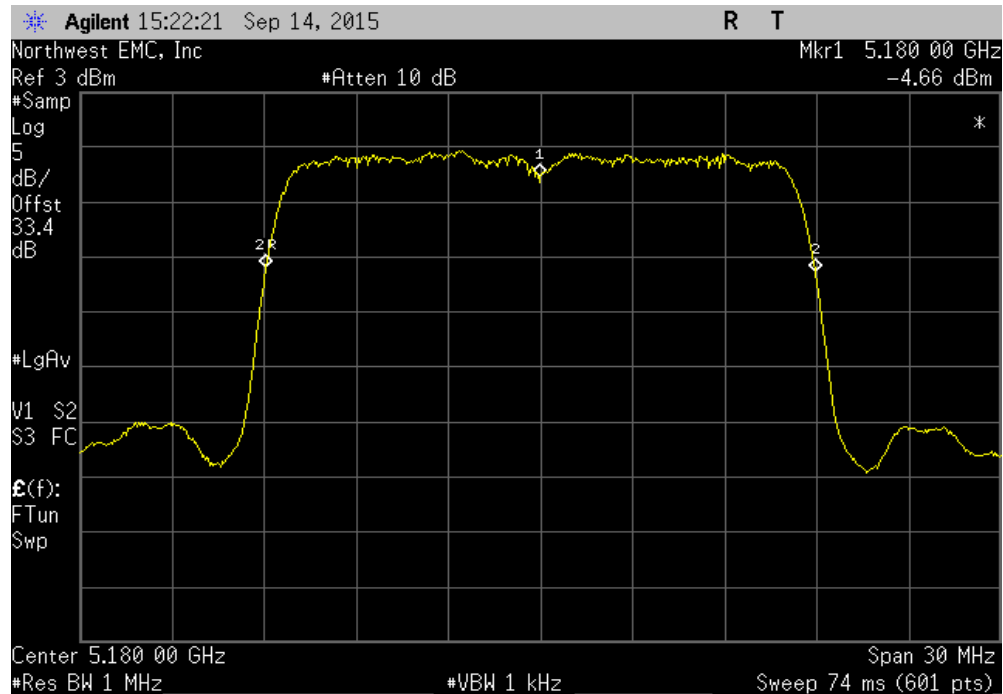


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180	5180	0	100	Pass	

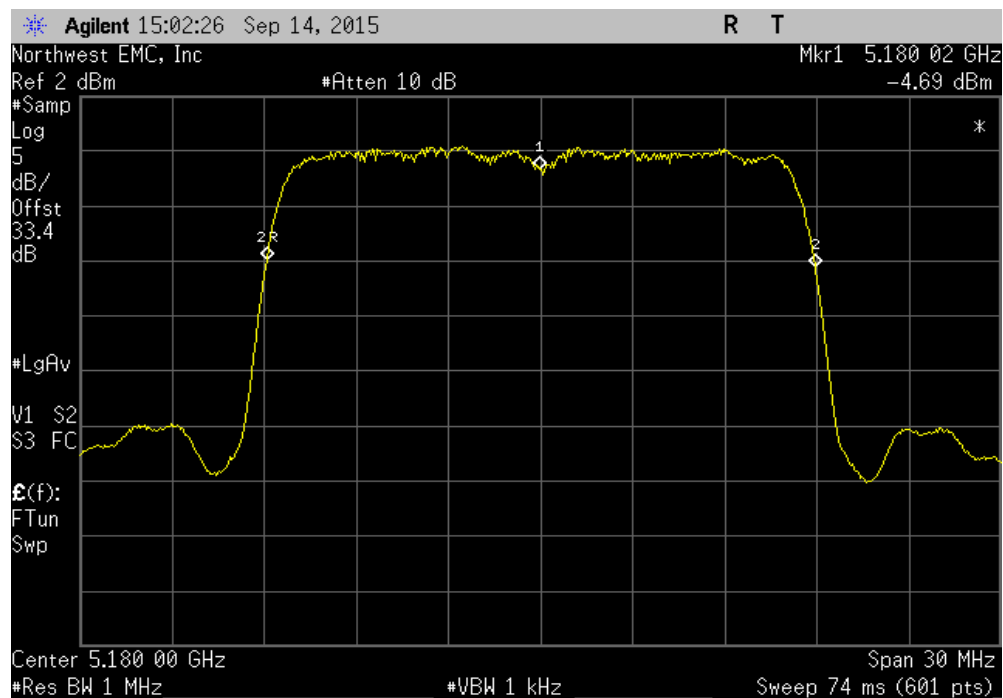


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180	5180	0	100	Pass	

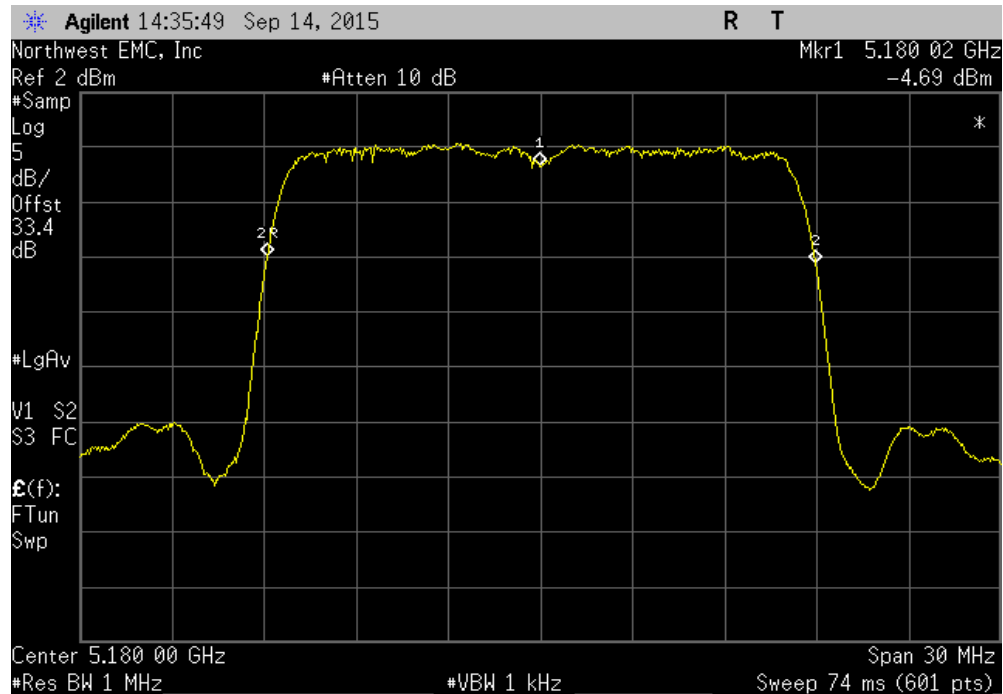


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

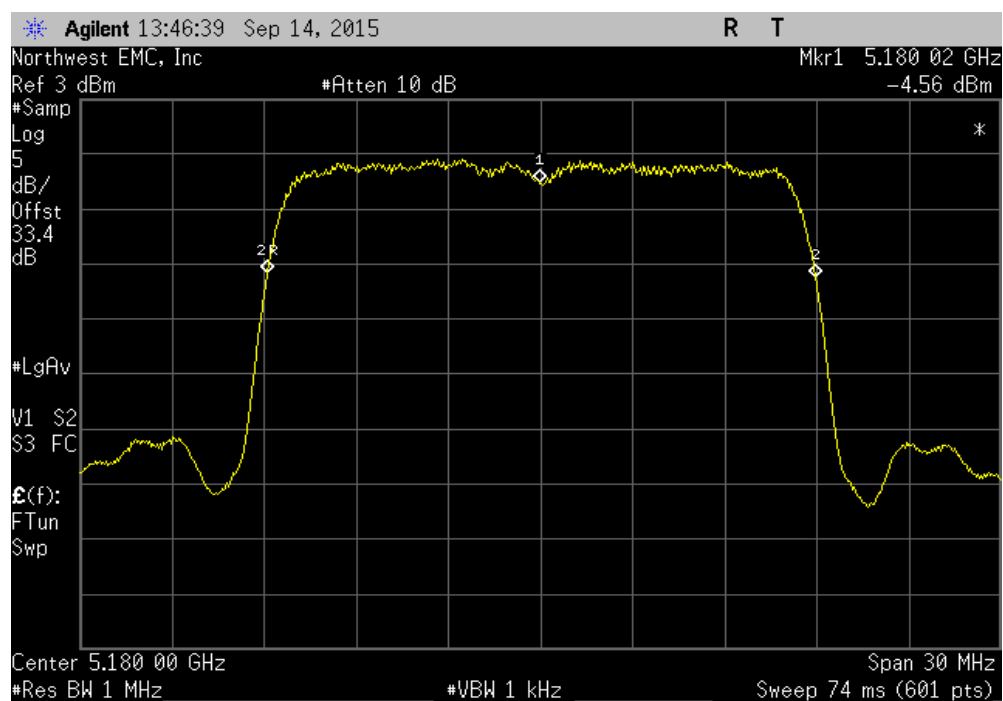


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

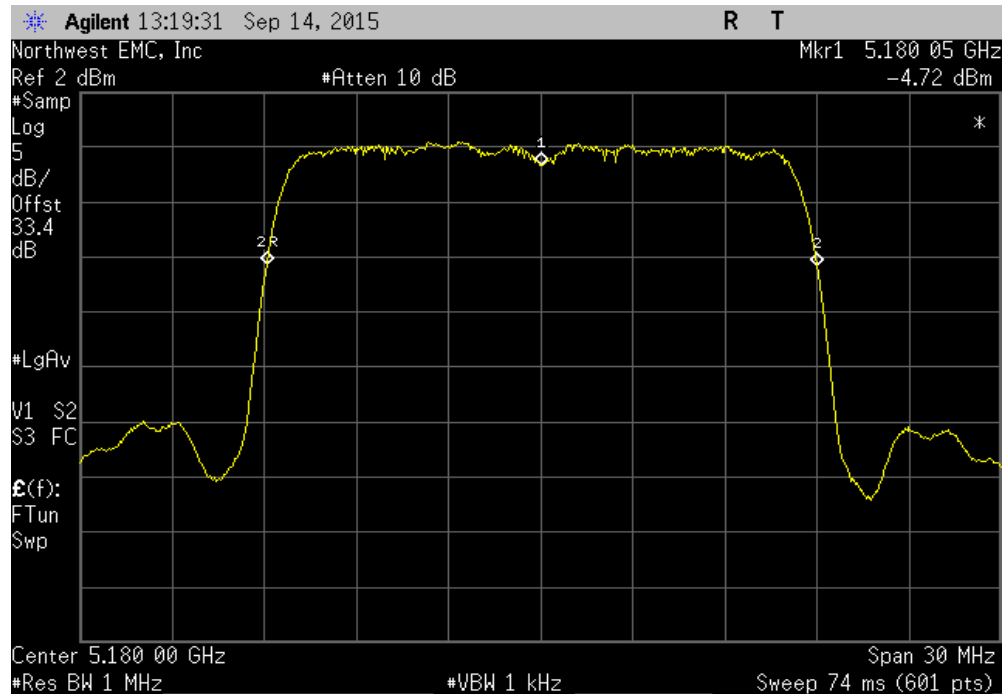


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

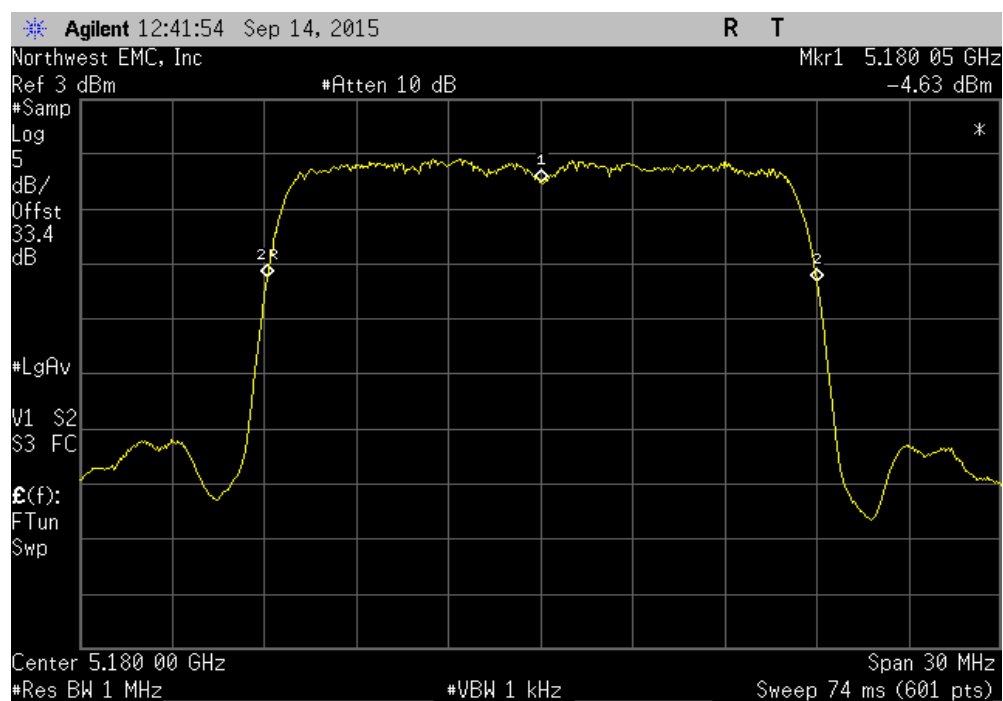


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.05	5180	9.7	100	Pass	

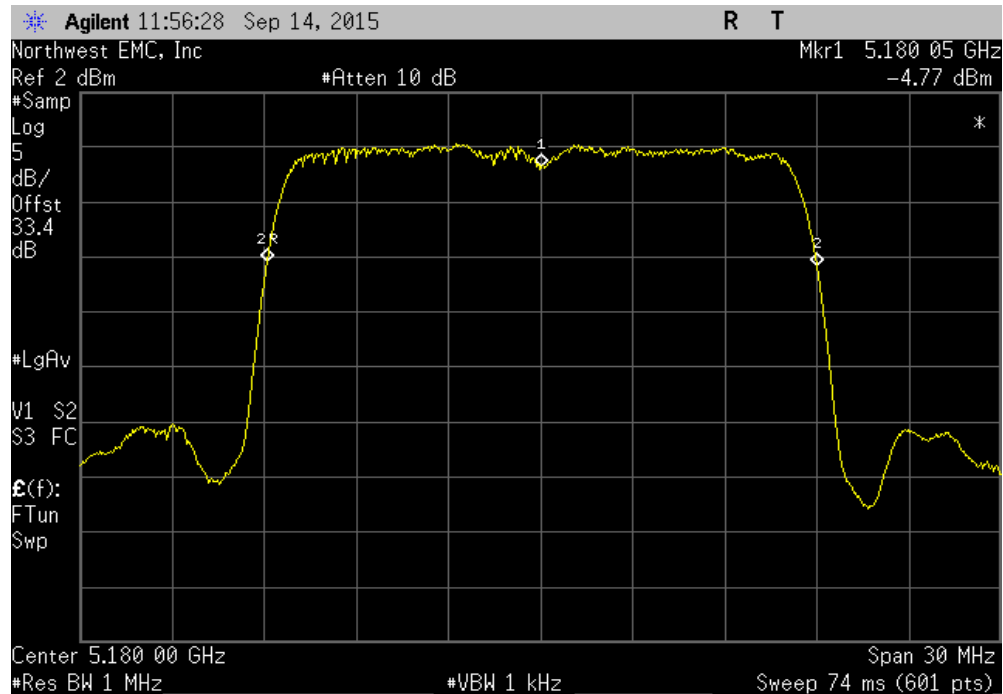


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.05	5180	9.7	100	Pass	

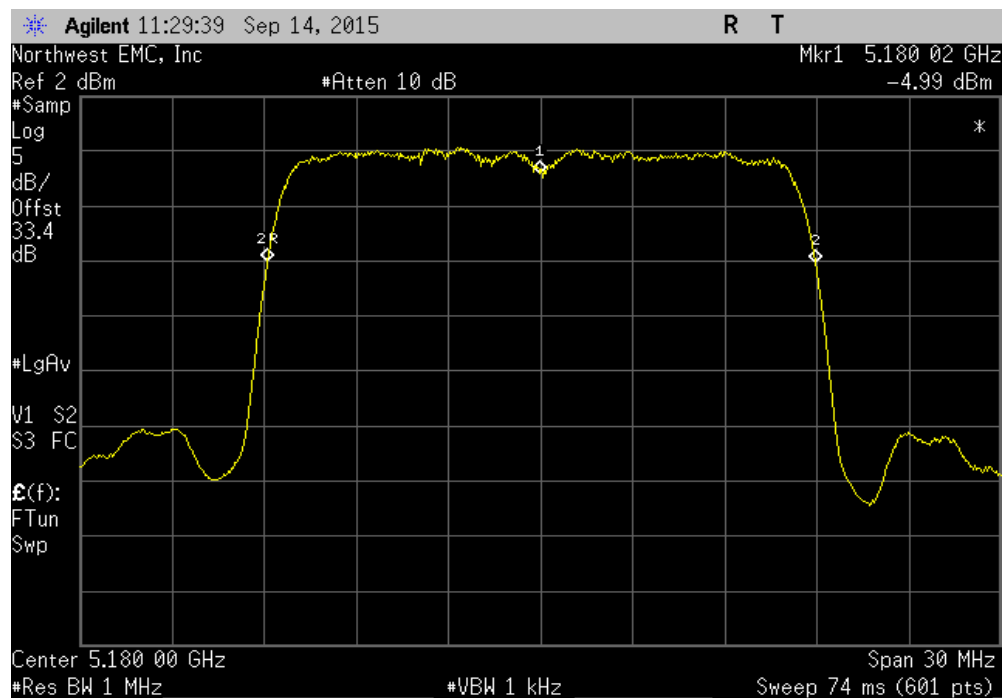


FREQUENCY STABILITY

5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.05	5180	9.7	100	Pass	

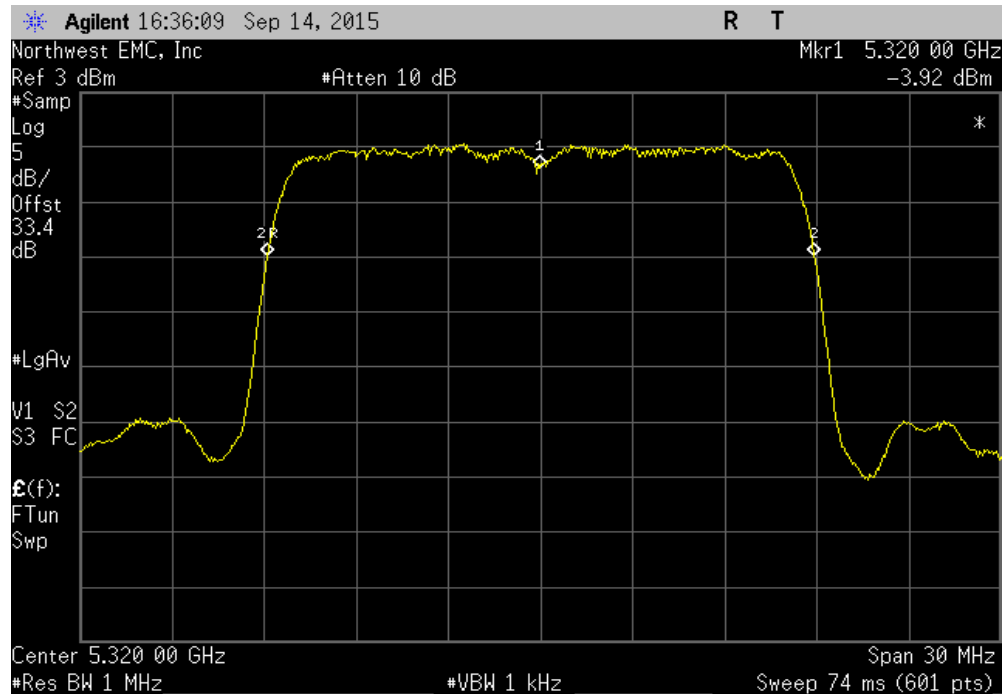


5150 MHz - 5250 MHz - Low Channel, 5180 MHz, Temperature: -30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5180.02	5180	3.9	100	Pass	

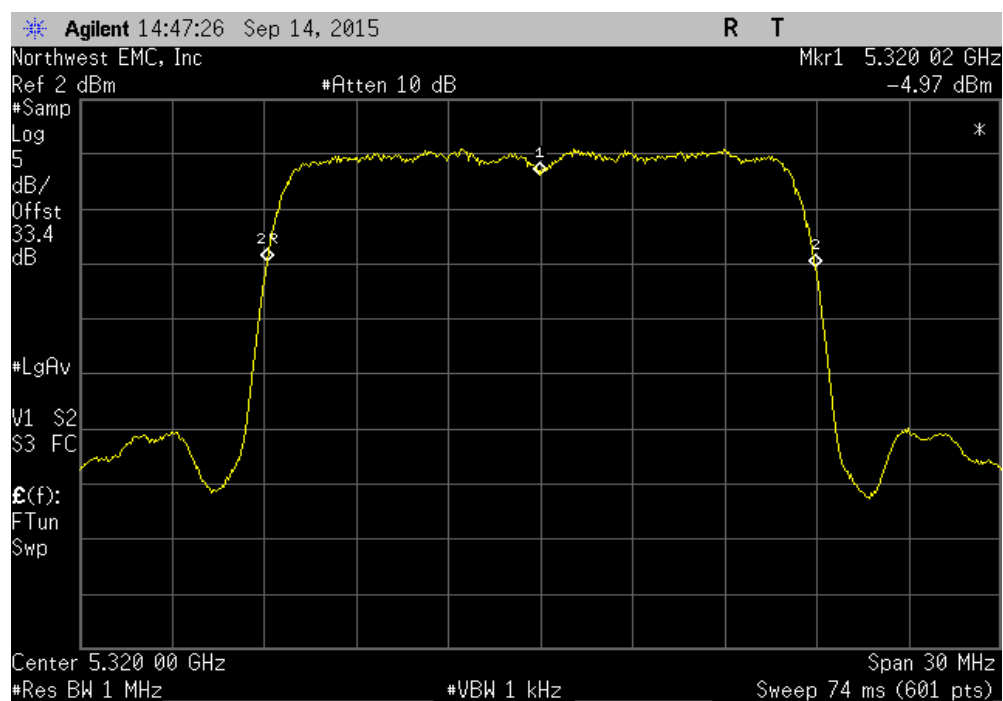


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 110% (3.63/1.32 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320	5320	0	100	Pass	

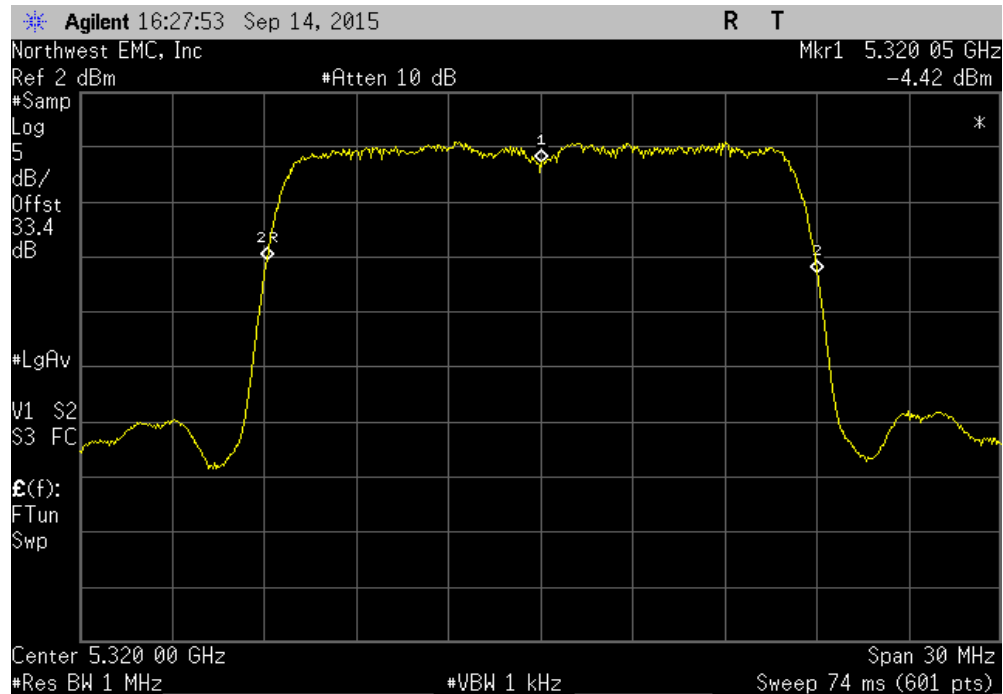


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 100% (3.3/1.2 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.02	5320	3.8	100	Pass	

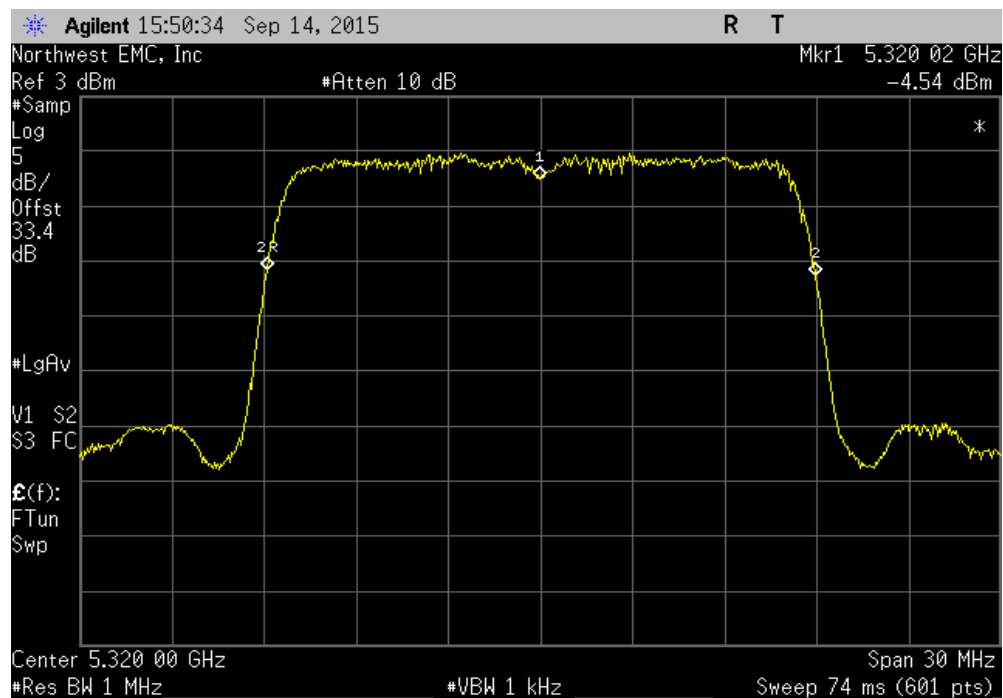


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Voltage: 90% (2.97/1.08 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.05	5320	9.4	100	Pass	

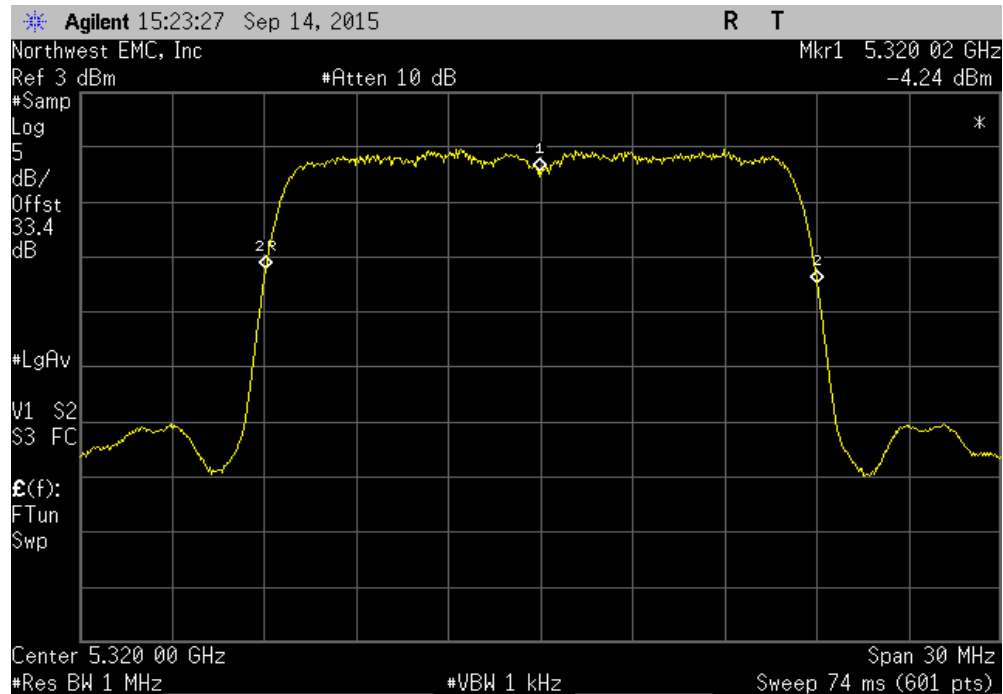


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.02	5320	3.8	100	Pass	

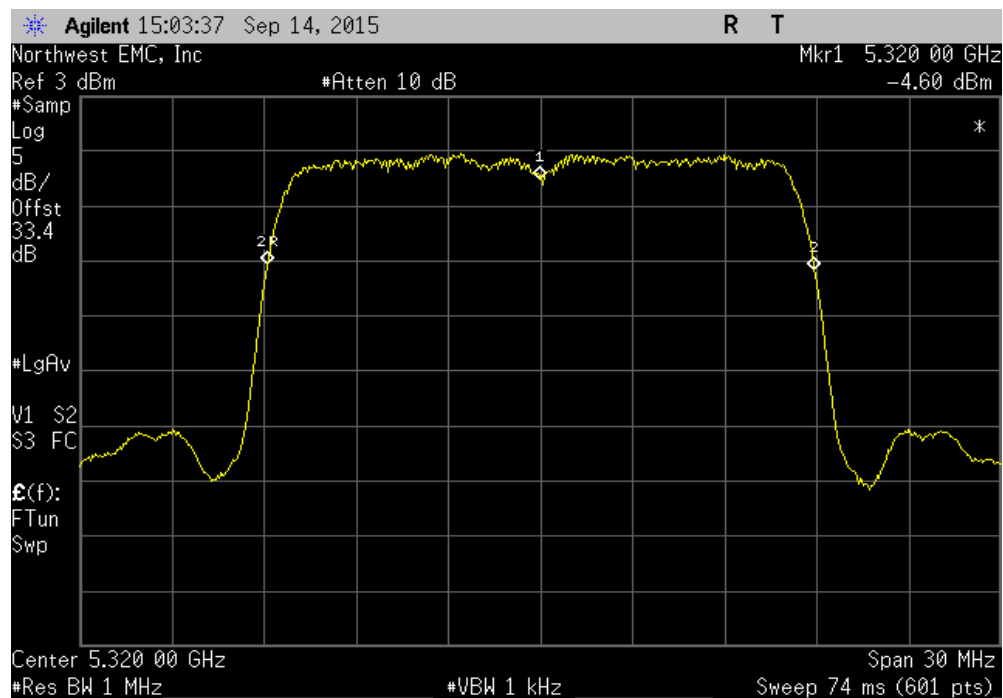


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.02	5320	3.8	100	Pass	

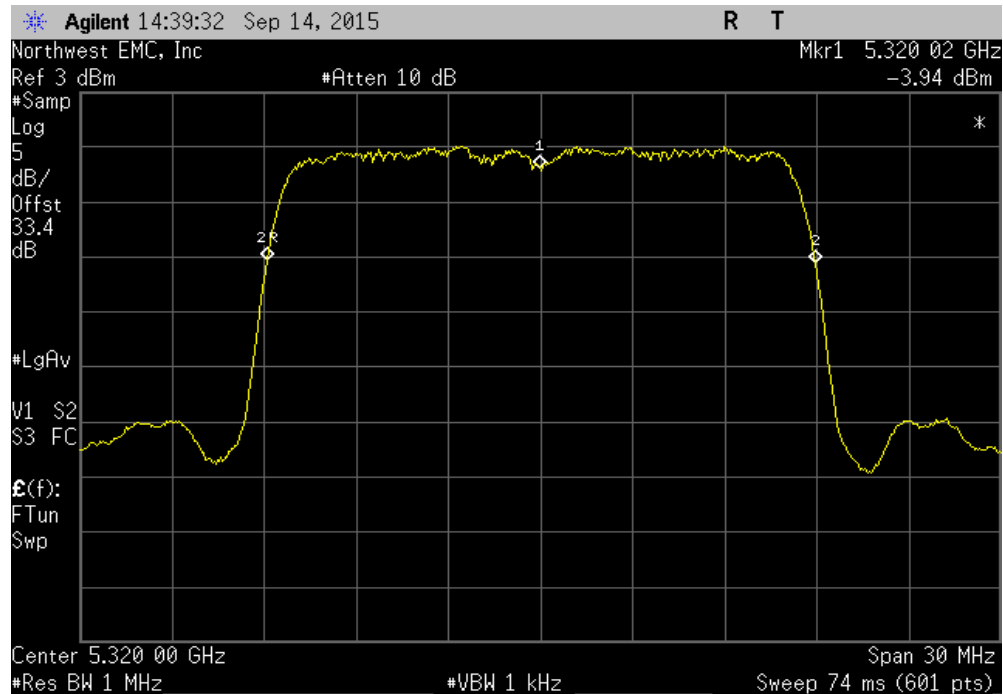


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320	5320	0	100	Pass	

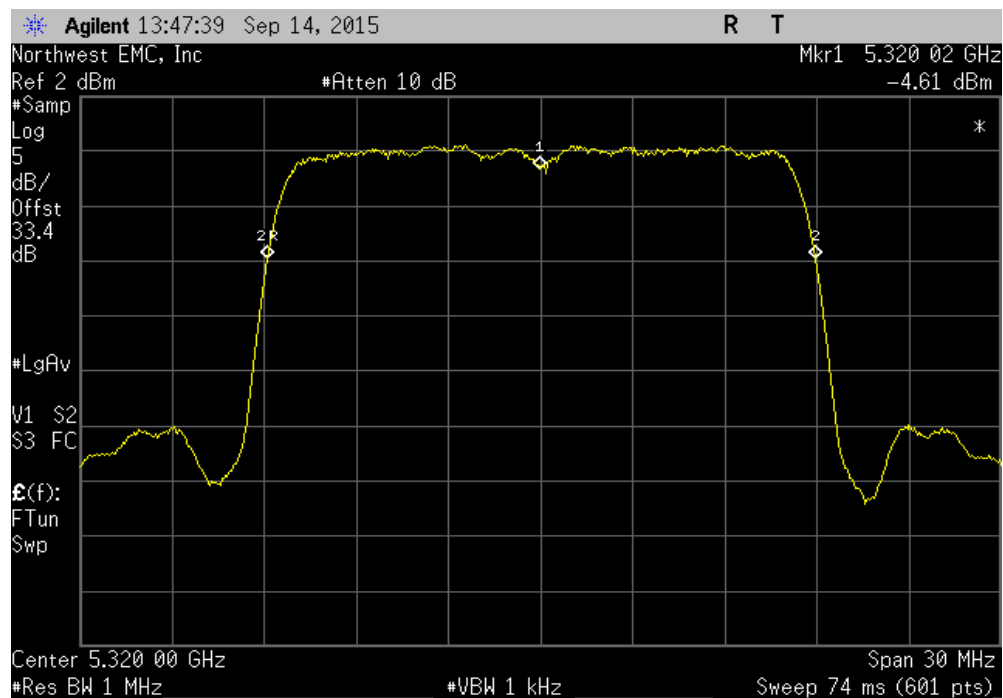


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.02	5320	3.8	100	Pass	

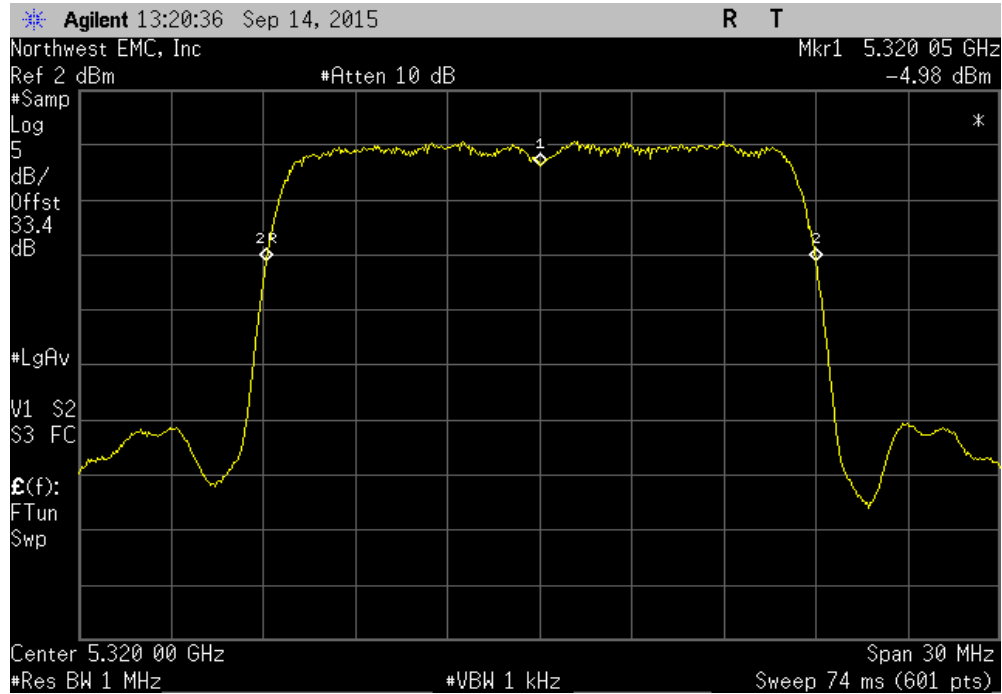


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.02	5320	3.8	100	Pass	

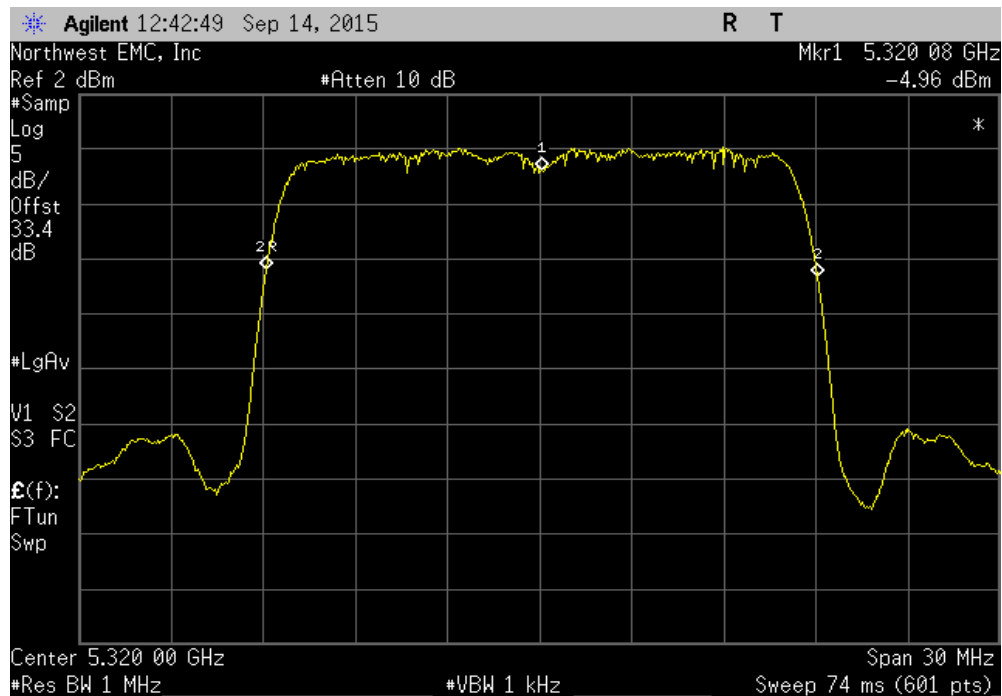


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.05	5320	9.4	100	Pass	

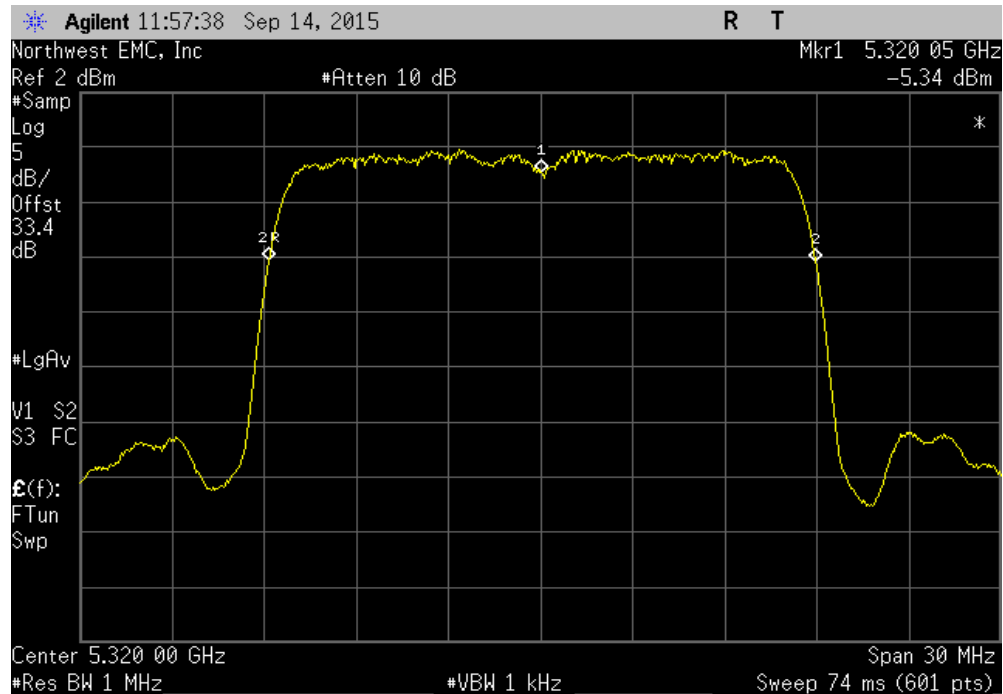


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.08	5320	15	100	Pass	

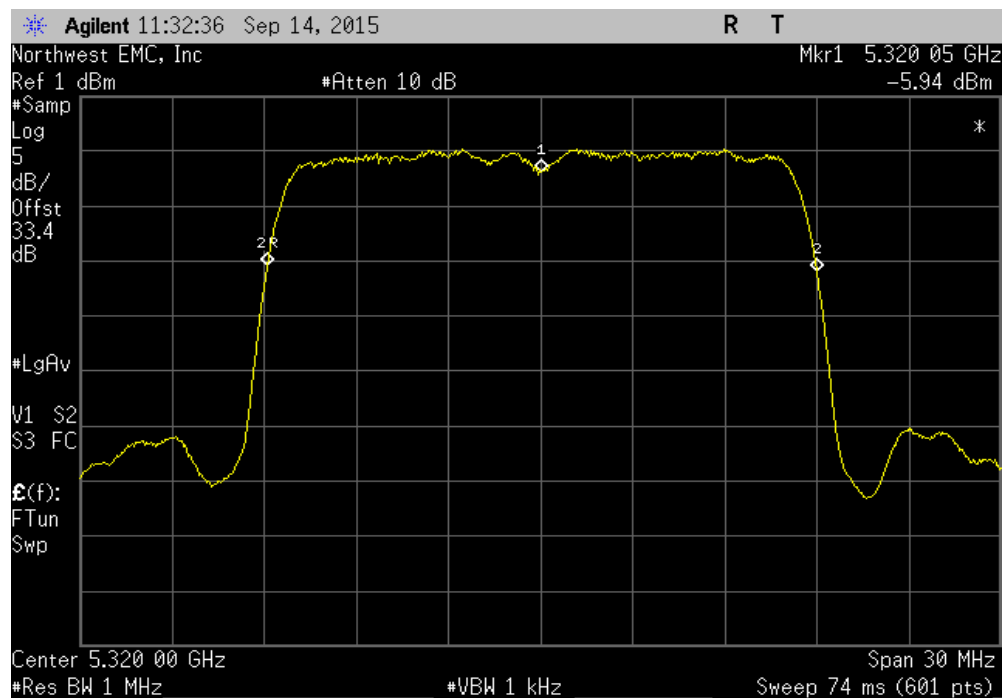


FREQUENCY STABILITY

5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.05	5320	9.4	100	Pass	

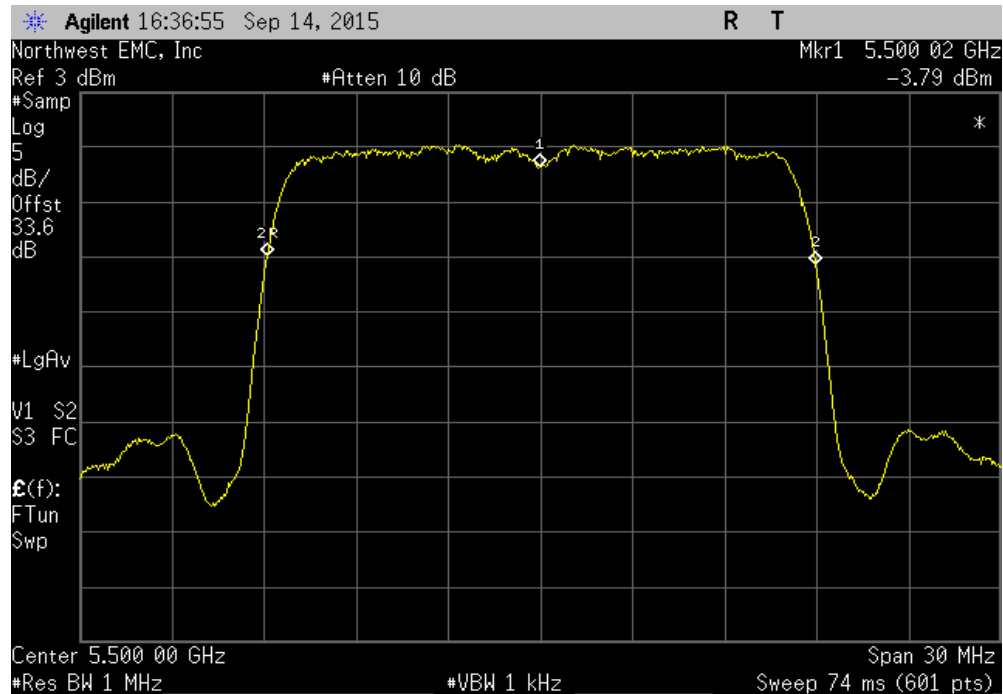


5250 MHz - 5350 MHz - High Channel, 5320 MHz, Temperature: -30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5320.05	5320	9.4	100	Pass	

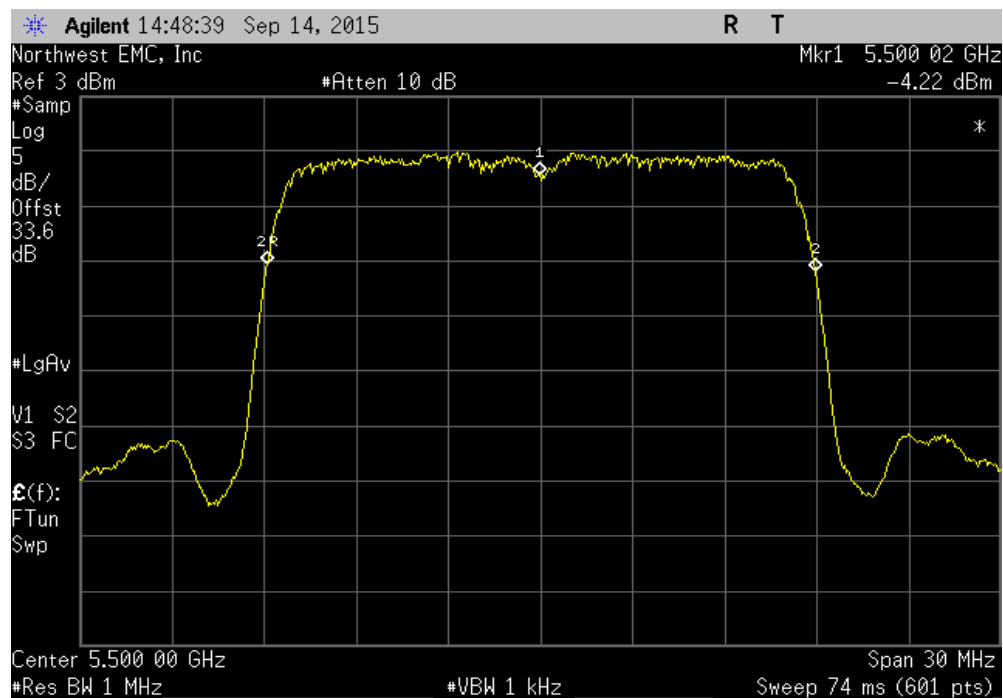


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 110% (3.63/1.32 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

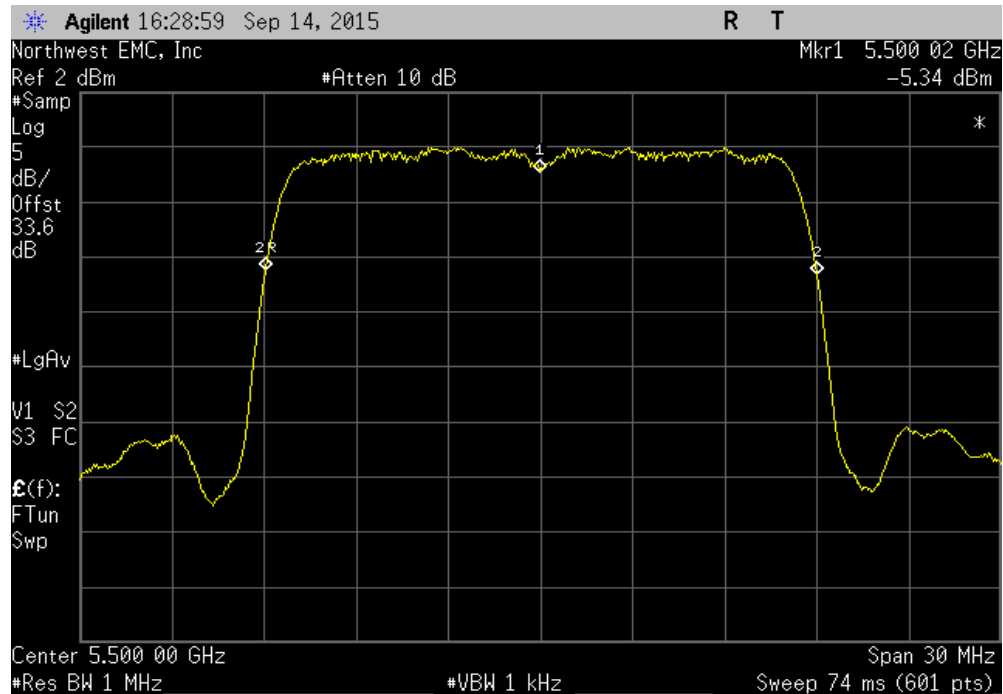


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 100% (3.3/1.2 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

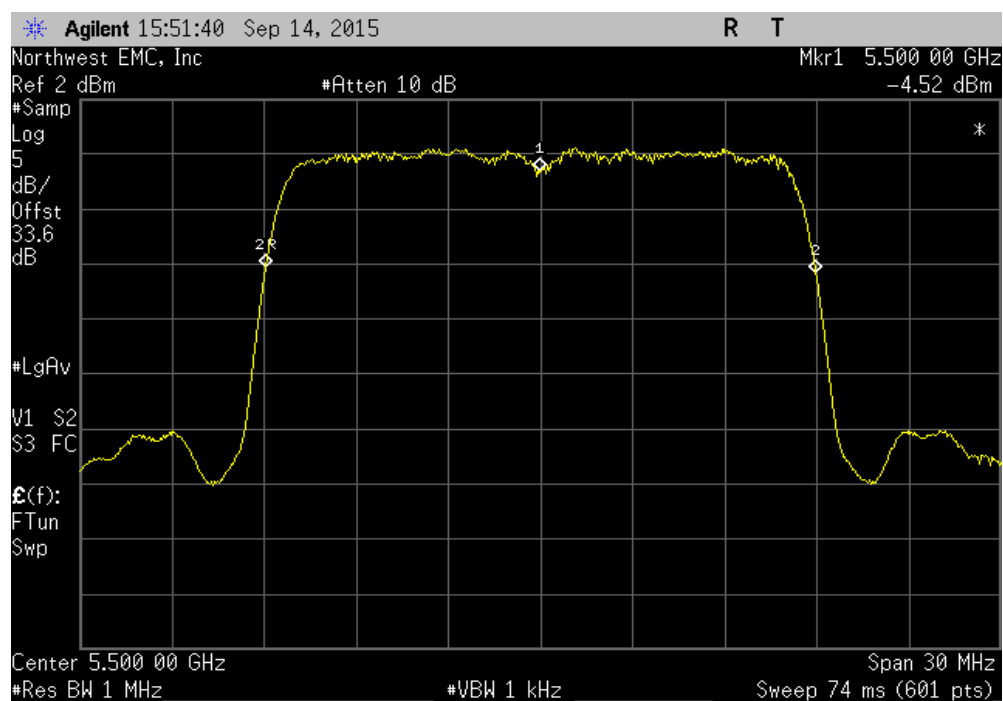


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Voltage: 90% (2.97/1.08 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

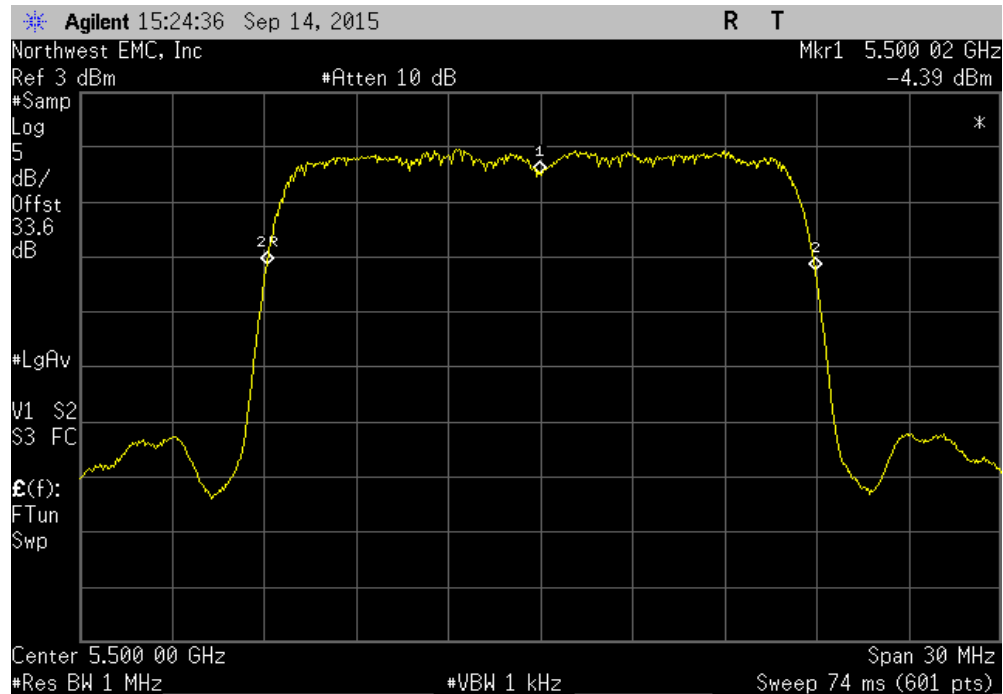


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500	5500	0	100	Pass	

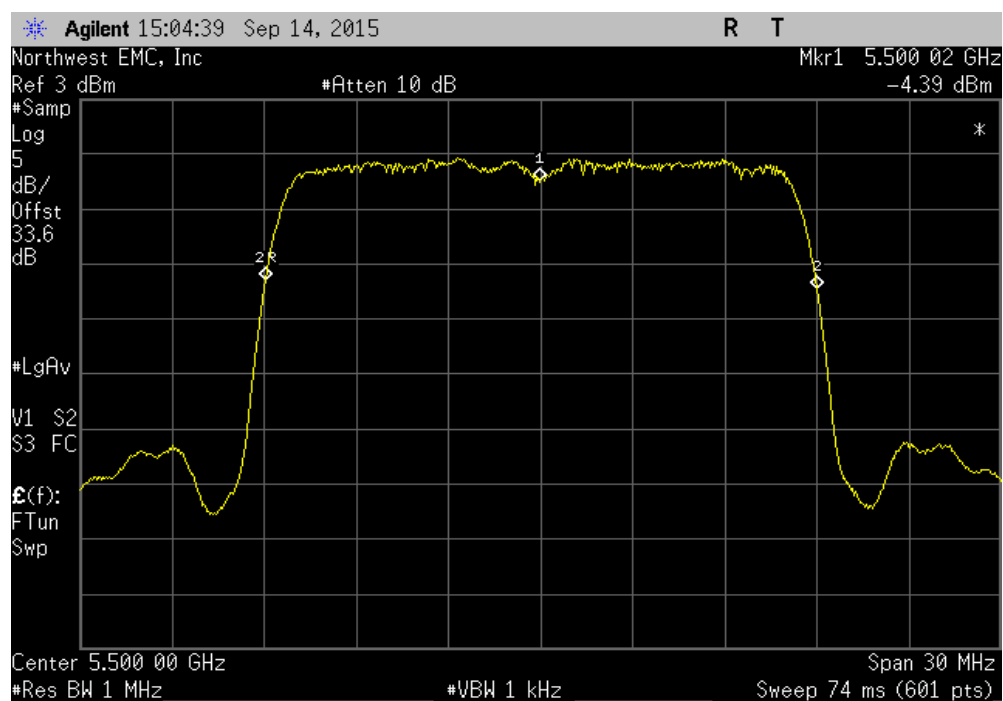


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

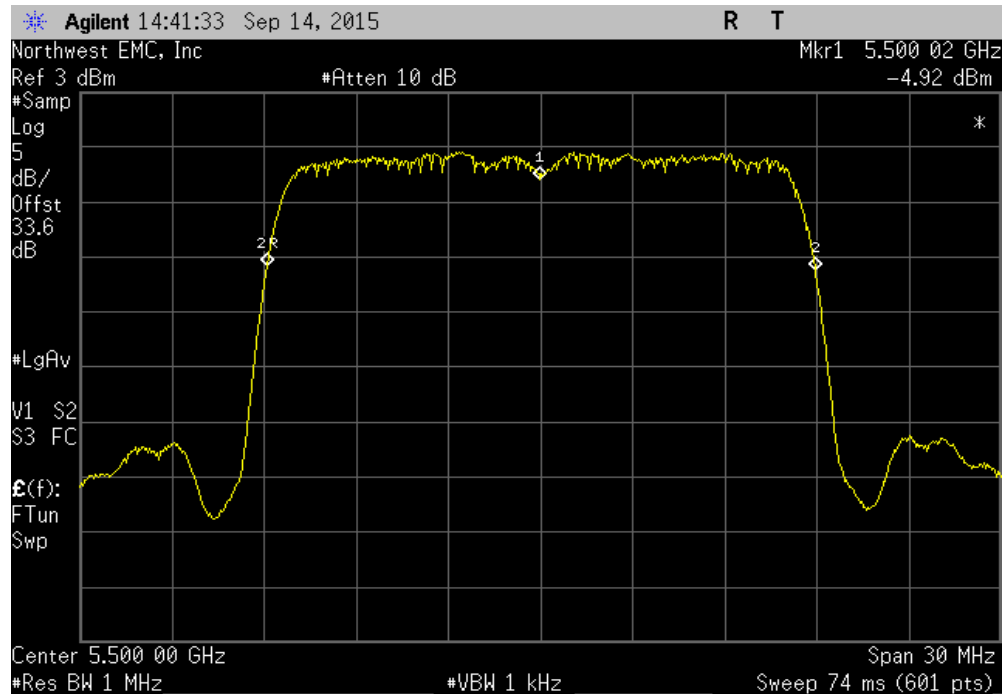


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

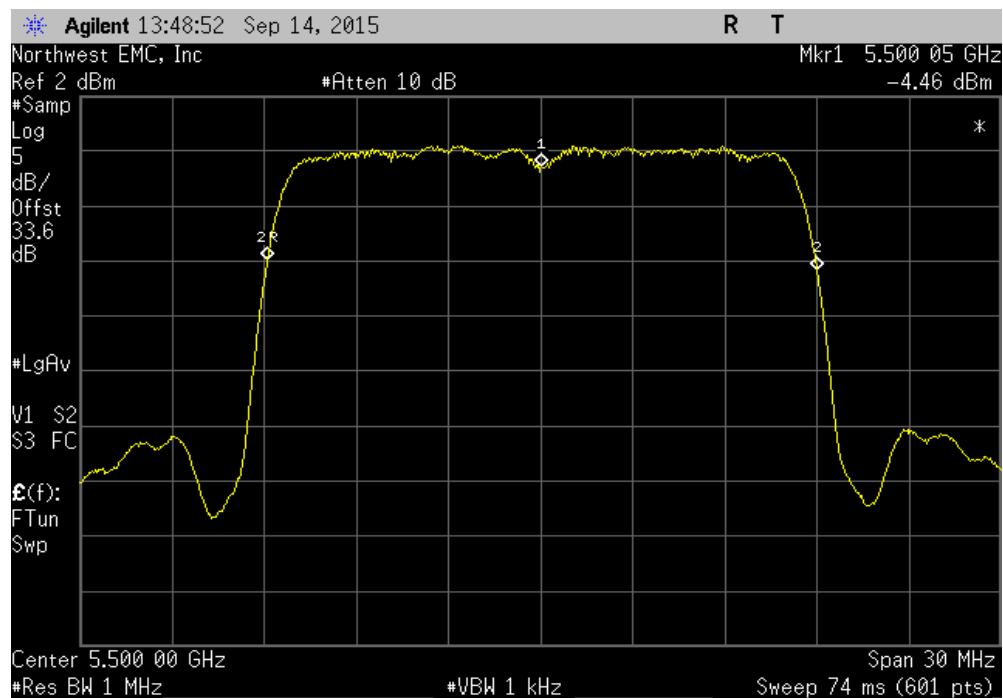


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.02	5500	3.6	100	Pass	

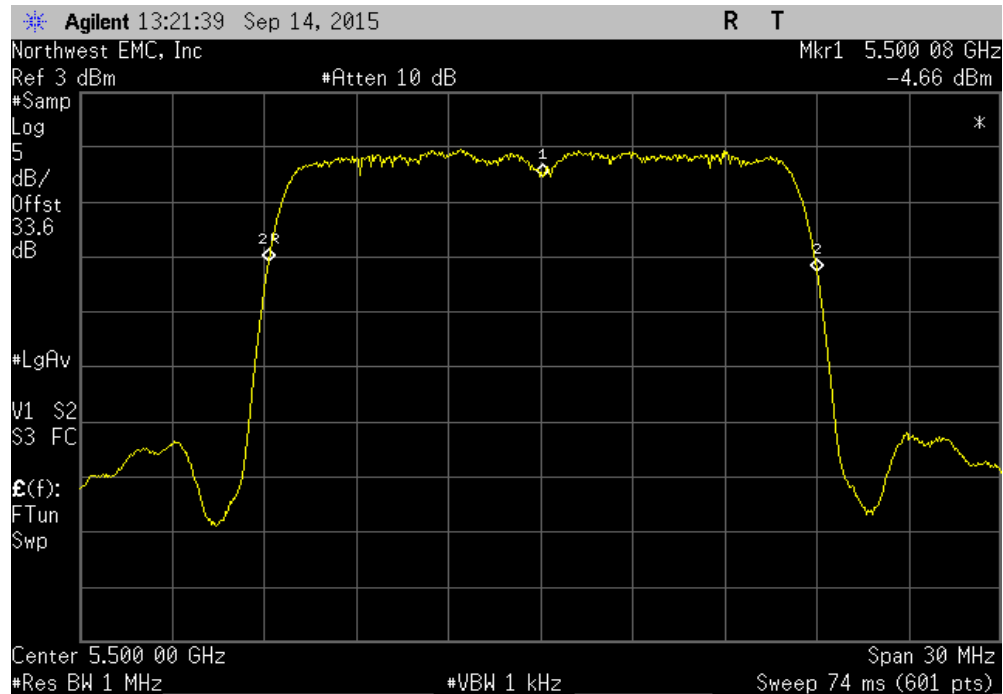


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.05	5500	9.1	100	Pass	

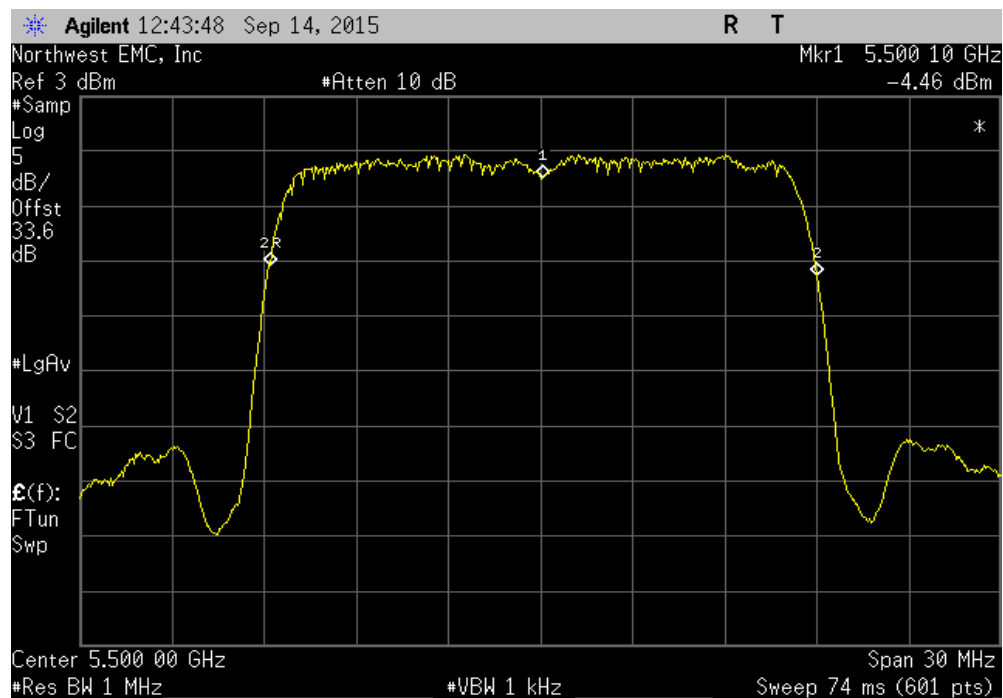


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.08	5500	14.6	100	Pass	

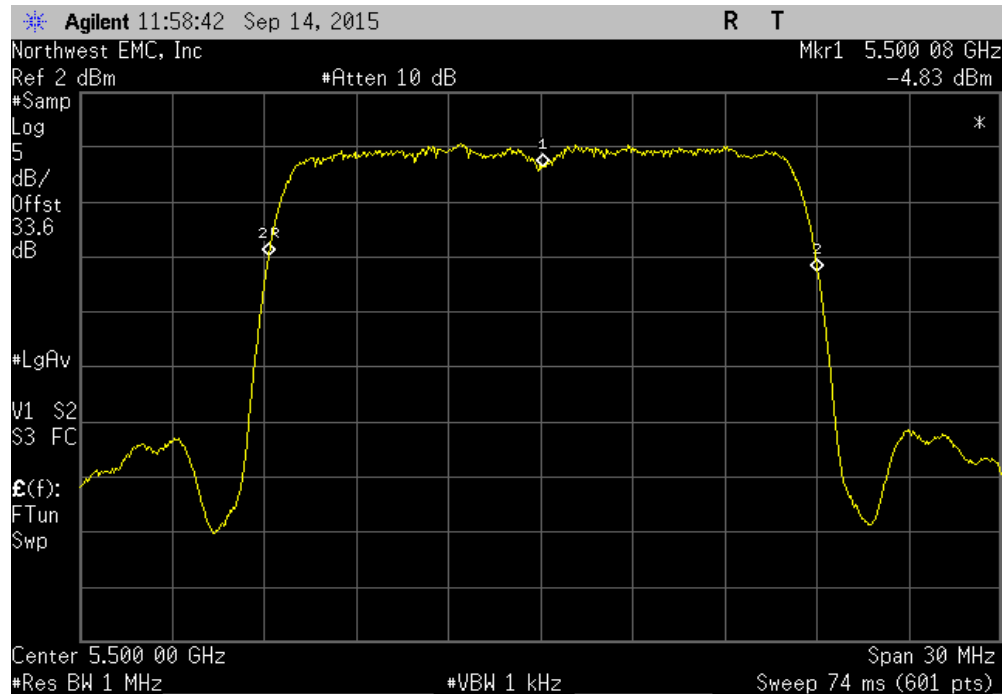


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.1	5500	18.2	100	Pass	

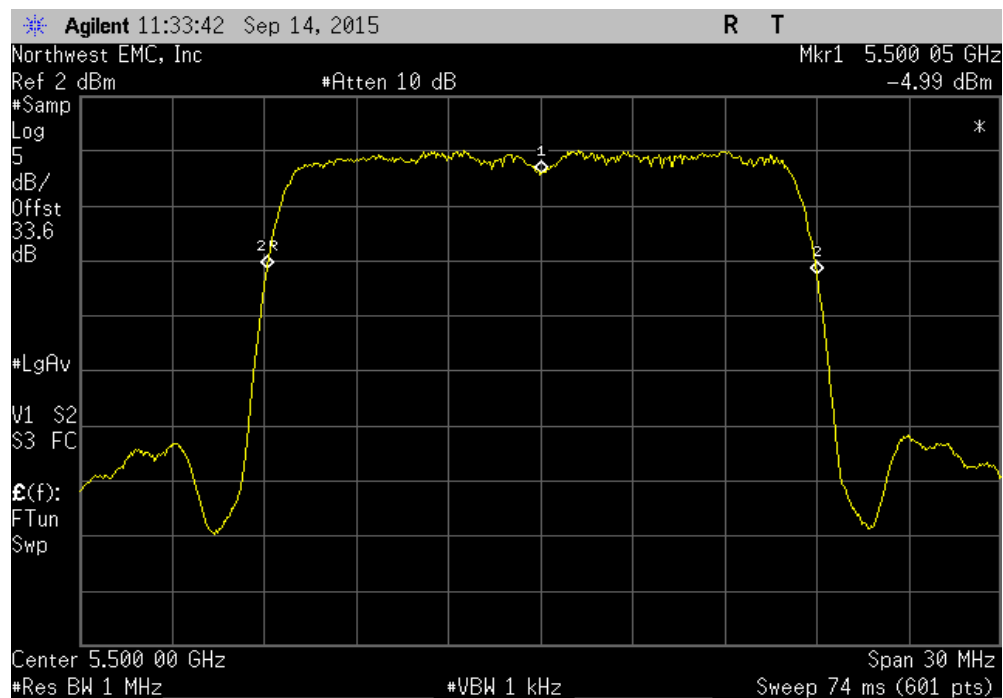


FREQUENCY STABILITY

5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.08	5500	14.6	100	Pass	

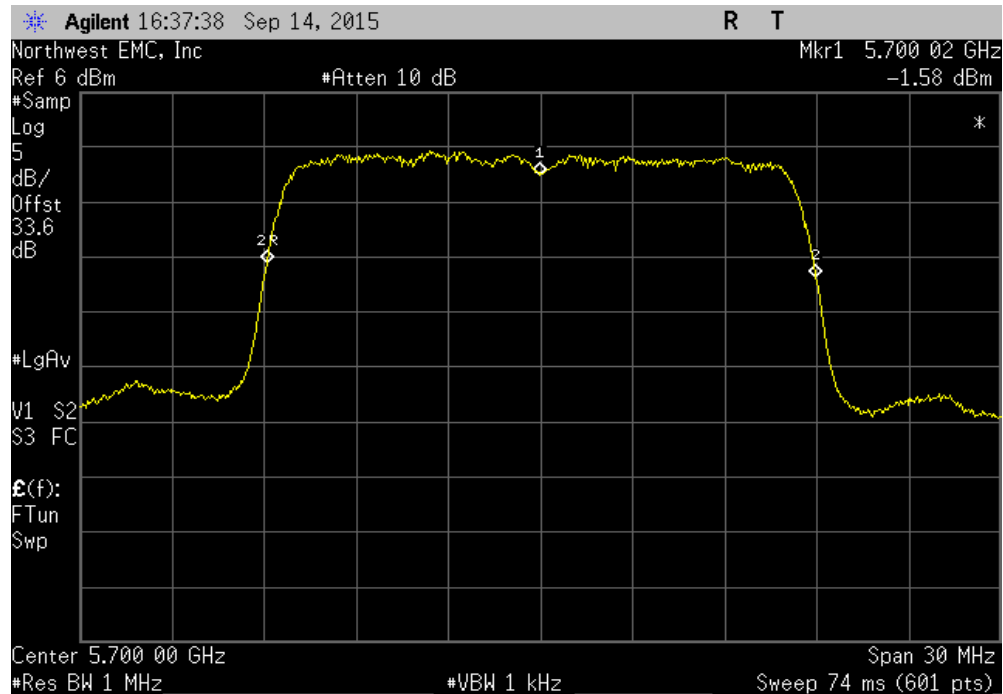


5470 MHz - 5725 MHz - Low Channel, 5500 MHz, Temperature: -30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5500.05	5500	9.1	100	Pass	

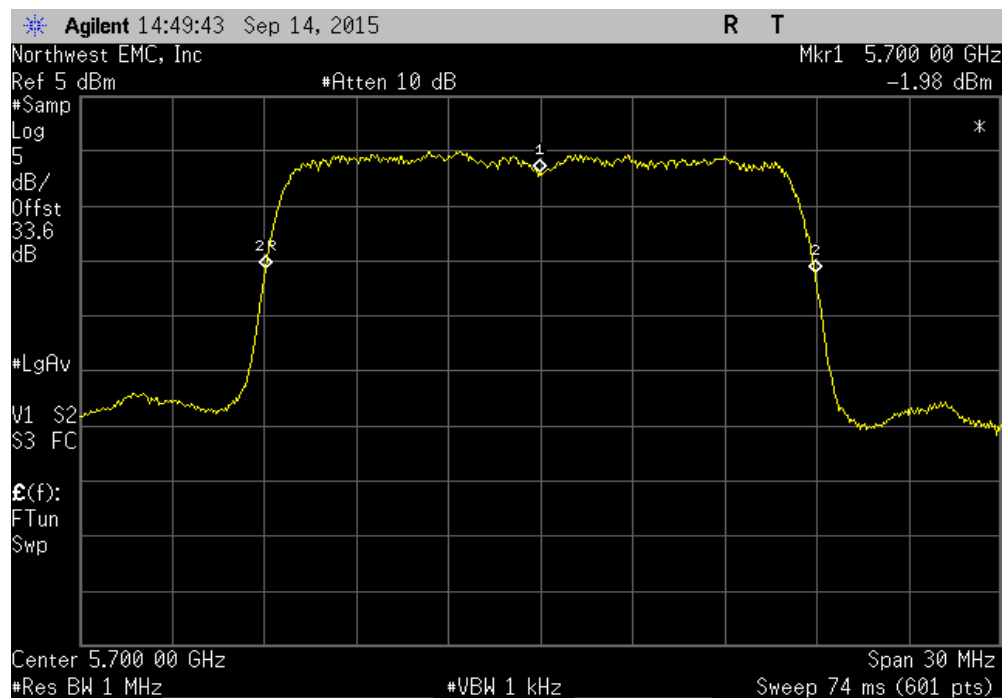


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 110% (3.63/1.32 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.02	5700	3.5	100	Pass	

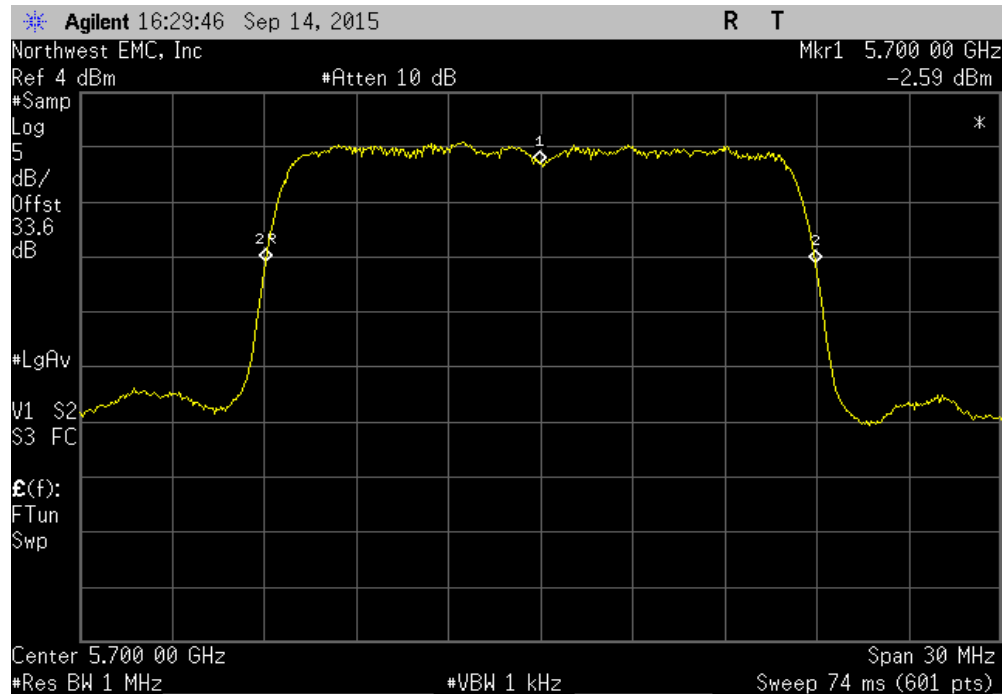


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 100% (3.3/1.2 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700	5700	0	100	Pass	

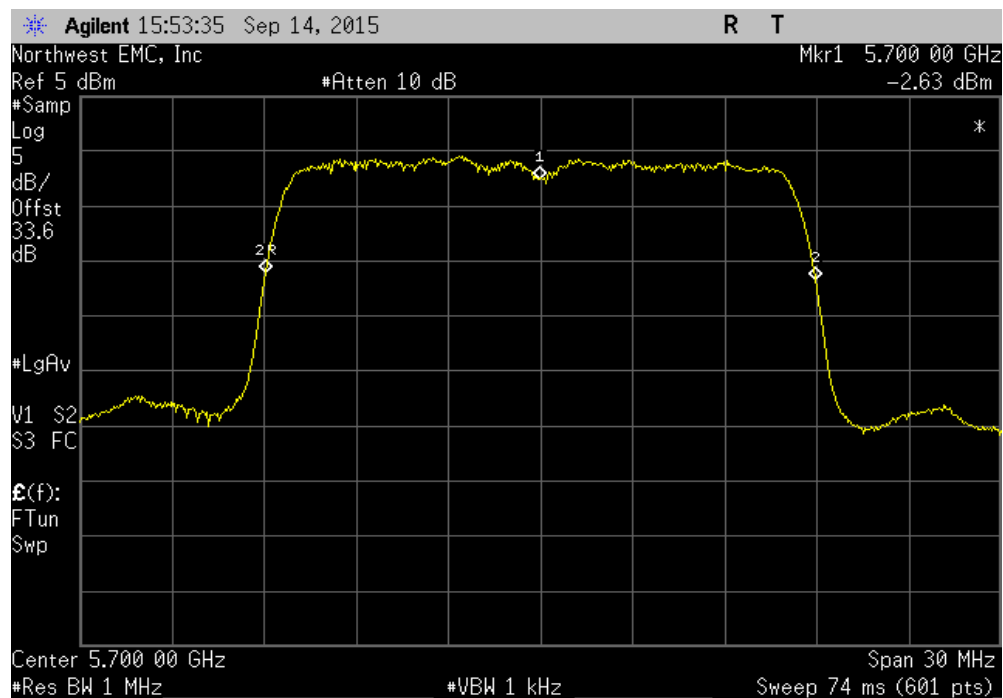


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Voltage: 90% (2.97/1.08 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700	5700	0	100	Pass	

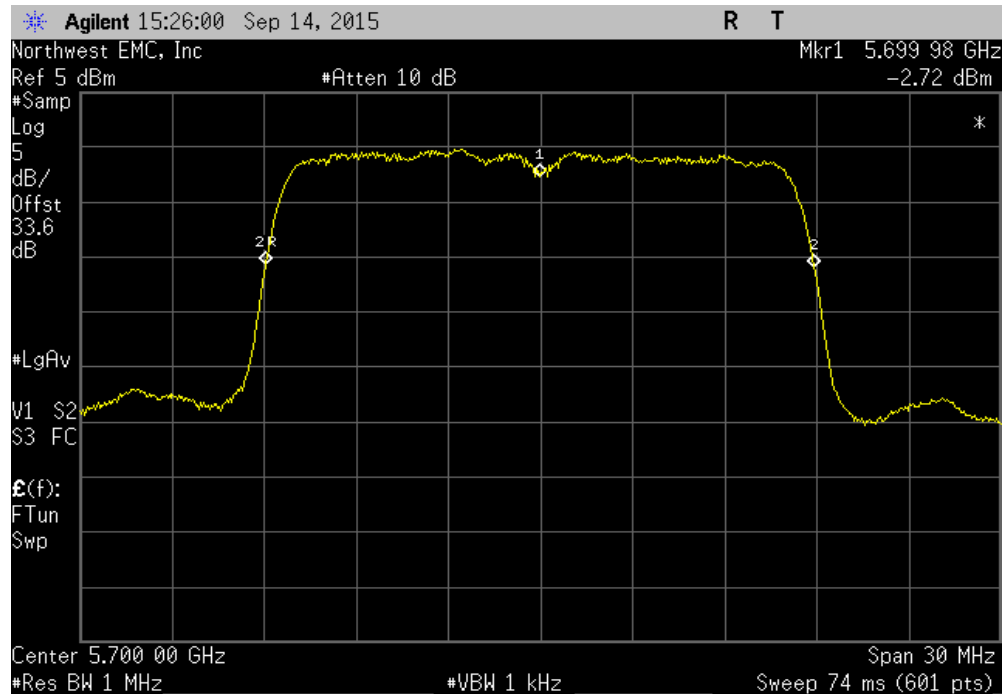


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700	5700	0	100	Pass	

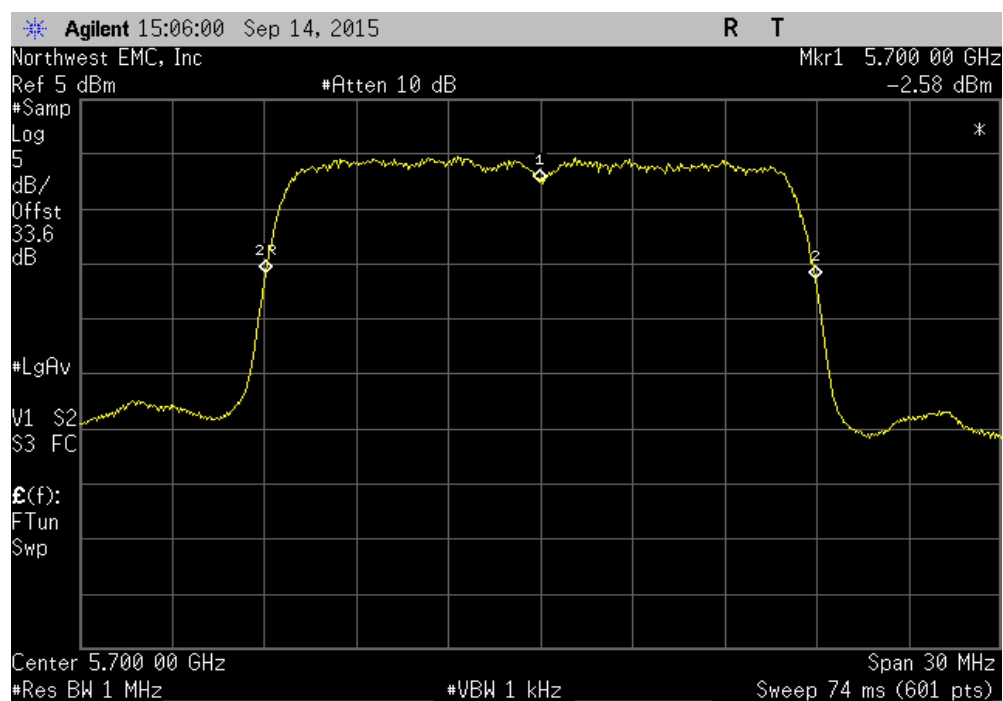


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5699.98	5700	3.5	100	Pass	

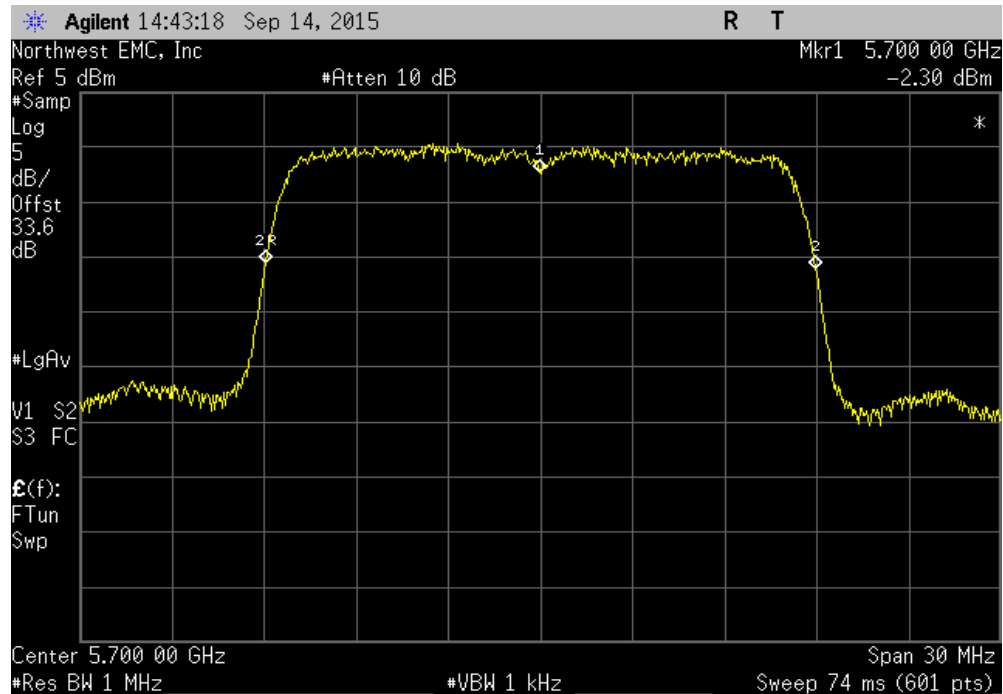


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700	5700	0	100	Pass	

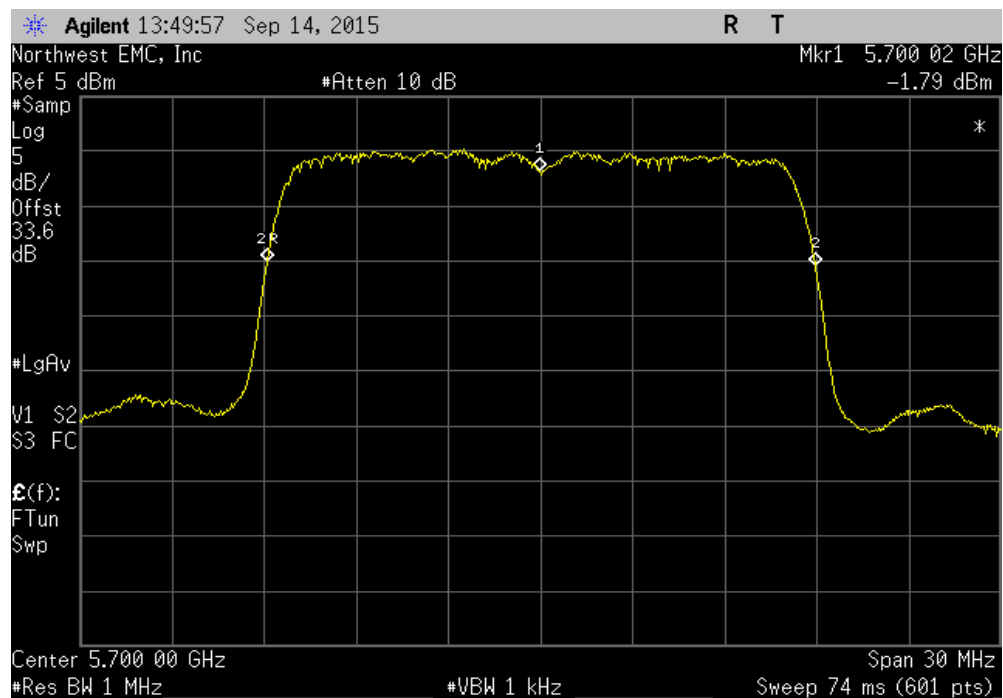


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700	5700	0	100	Pass	

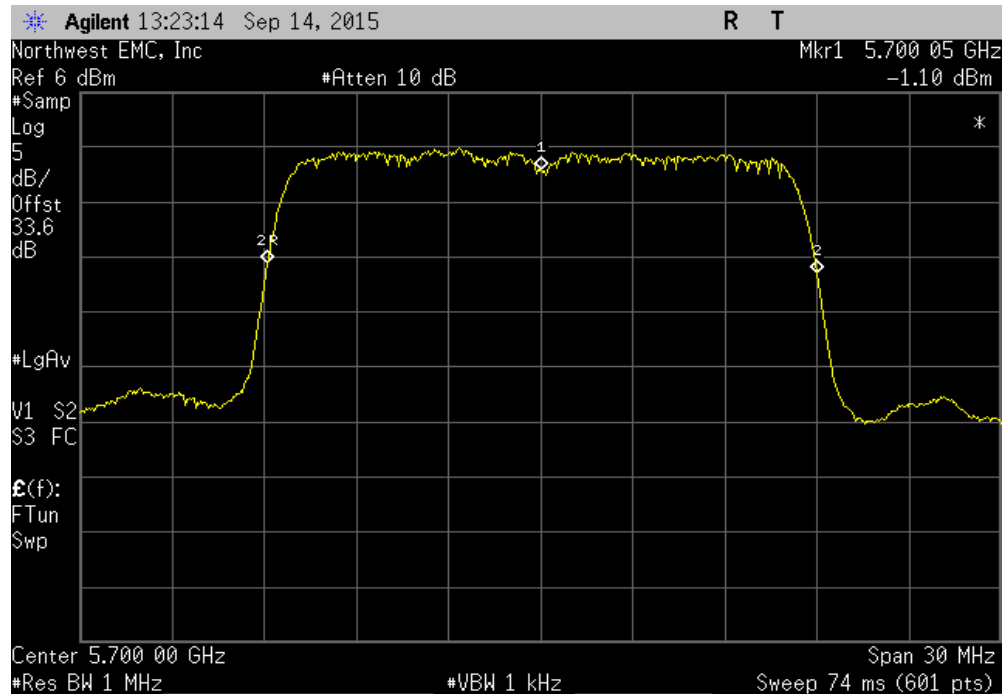


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.02	5700	3.5	100	Pass	

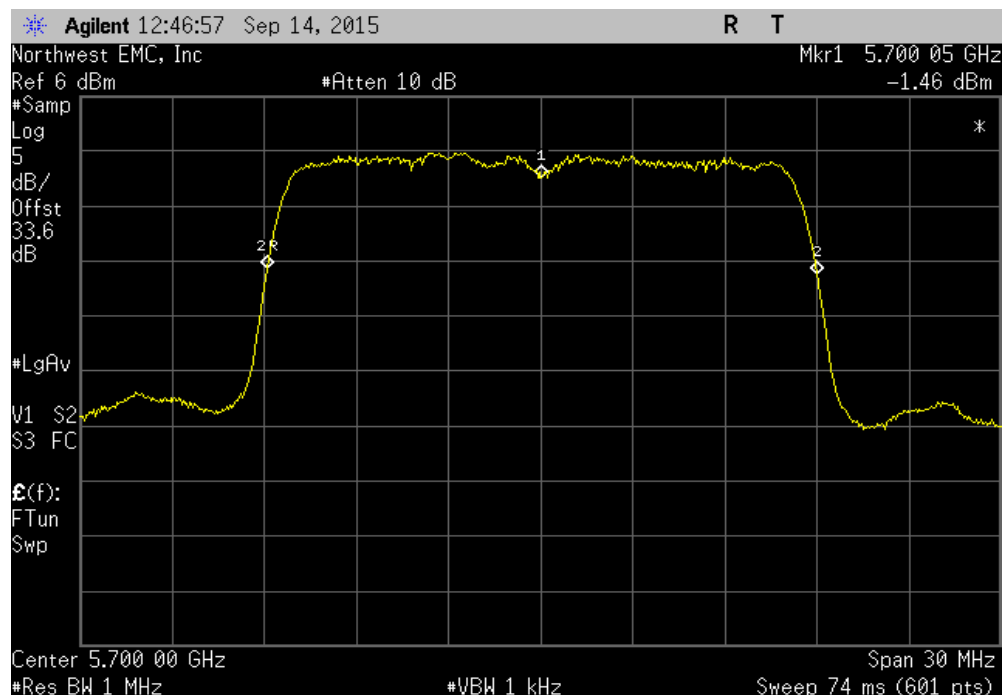


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.05	5700	8.8	100	Pass	

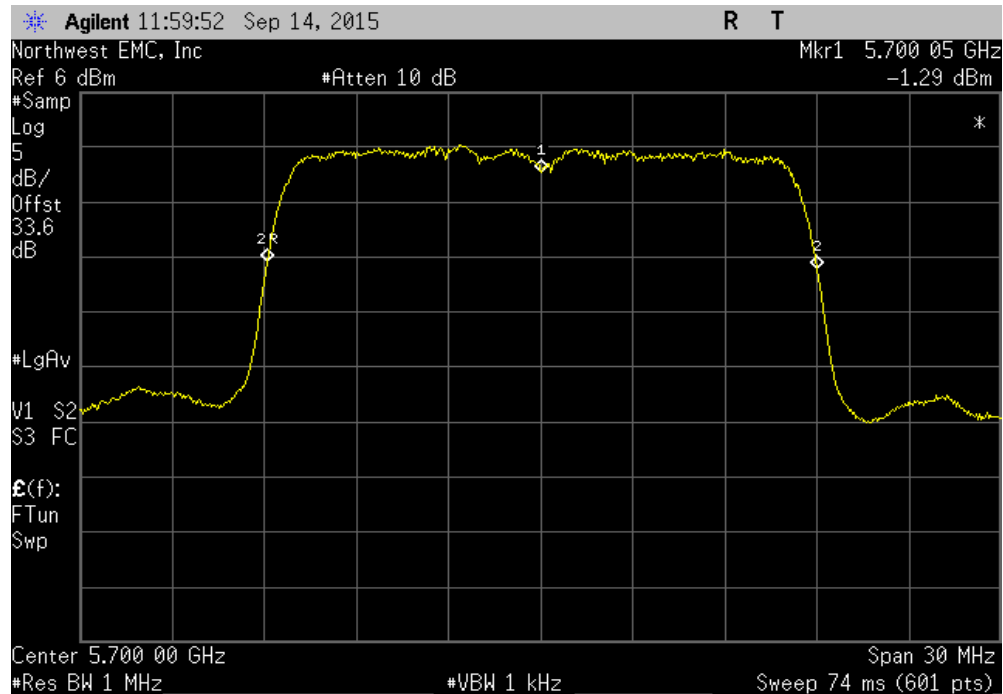


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.05	5700	8.8	100	Pass	

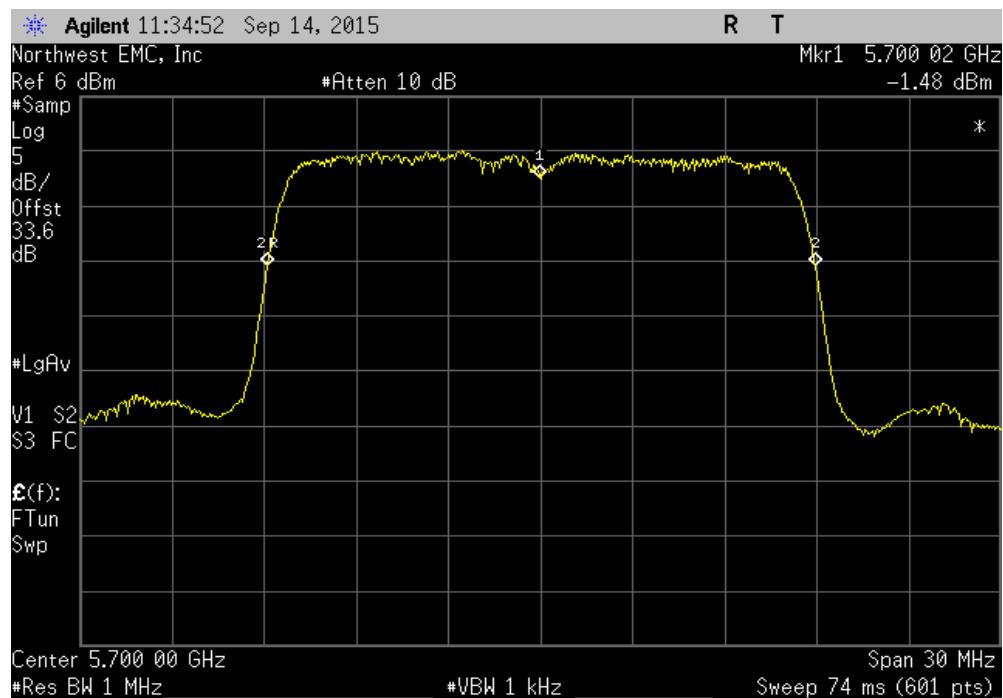


FREQUENCY STABILITY

5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.05	5700	8.8	100	Pass	

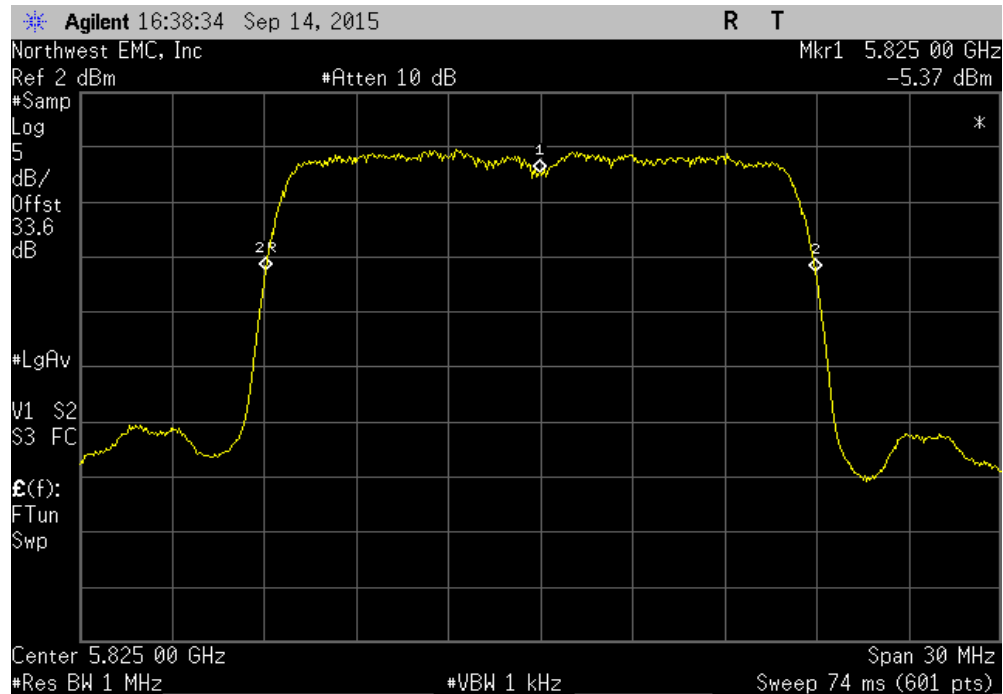


5470 MHz - 5725 MHz - High Channel, 5700 MHz, Temperature: -30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5700.02	5700	3.5	100	Pass	

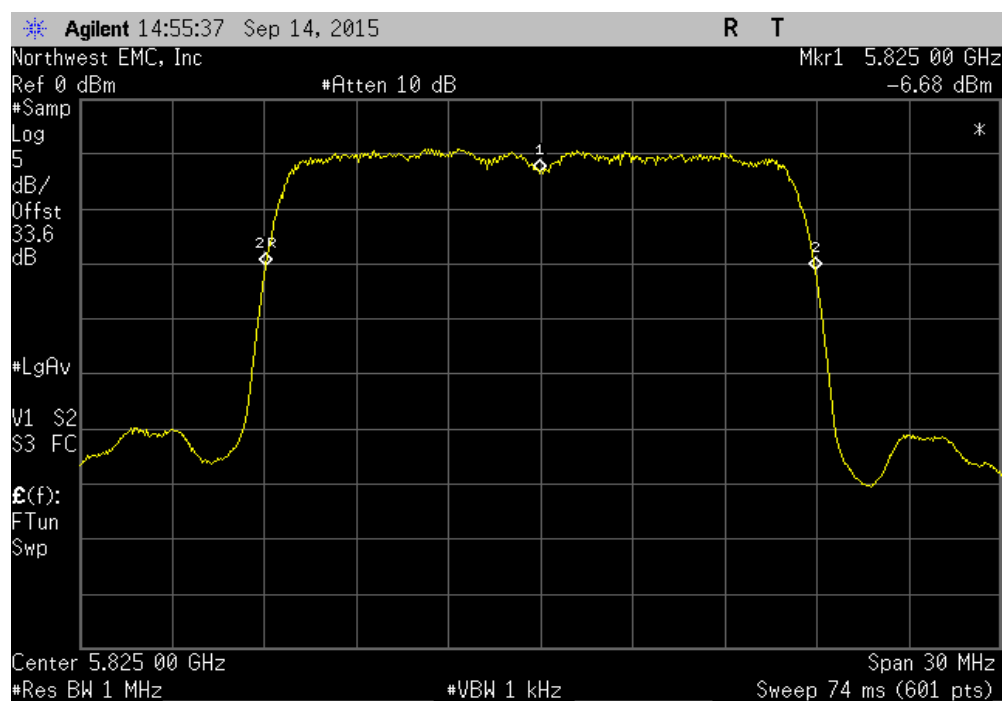


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 110% (3.63/1.32 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825	5825	0	100	Pass	

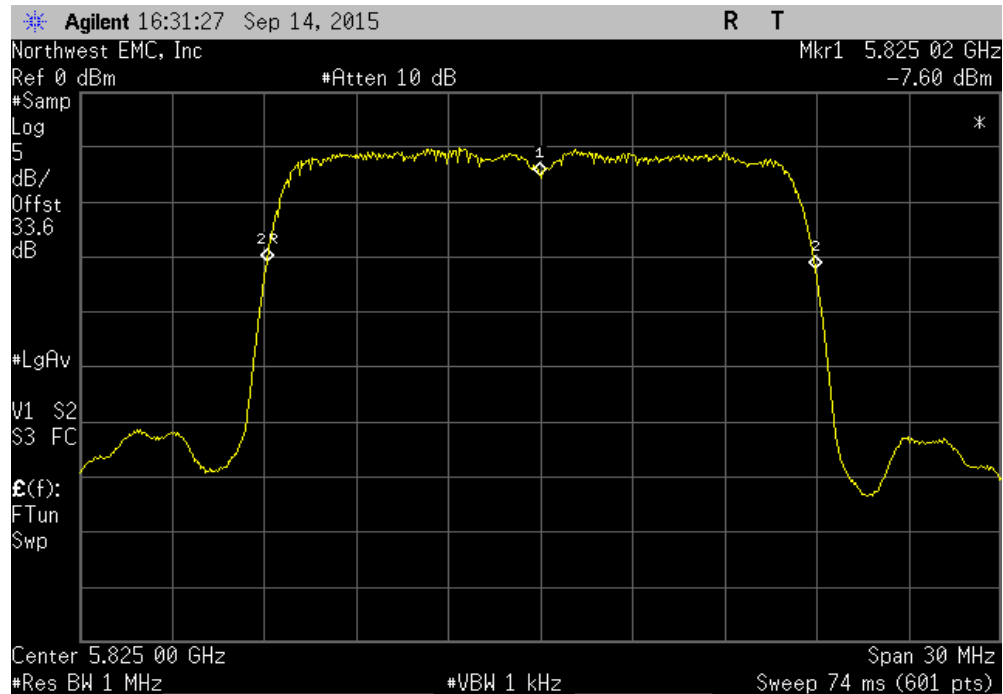


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 100% (3.3/1.2 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825	5825	0	100	Pass	

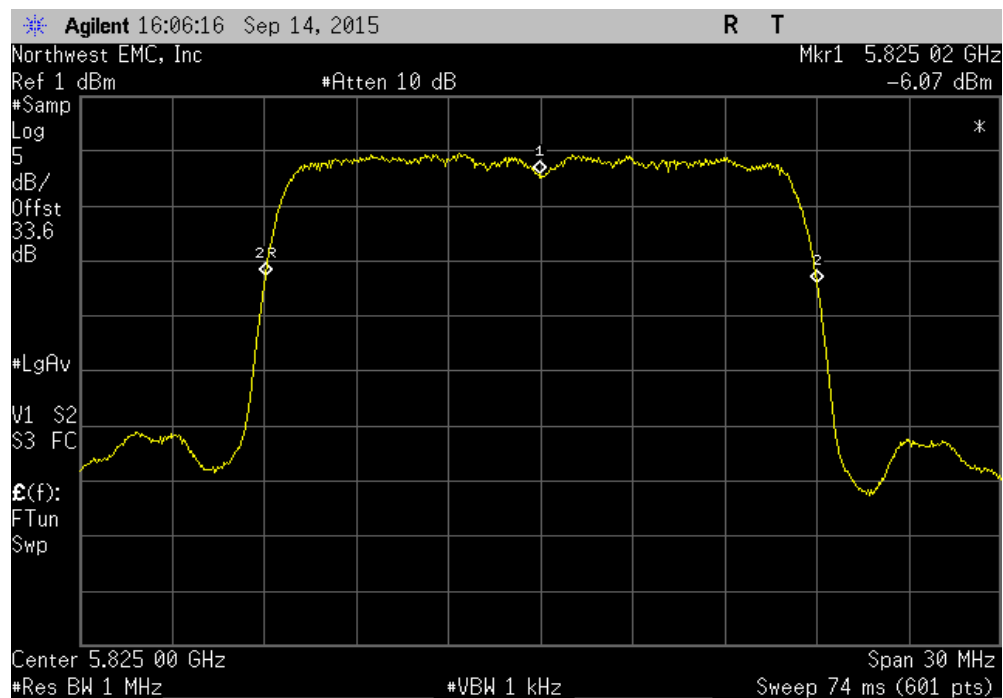


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Voltage: 90% (2.97/1.08 VDC)						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.02	5825	3.4	100	Pass	

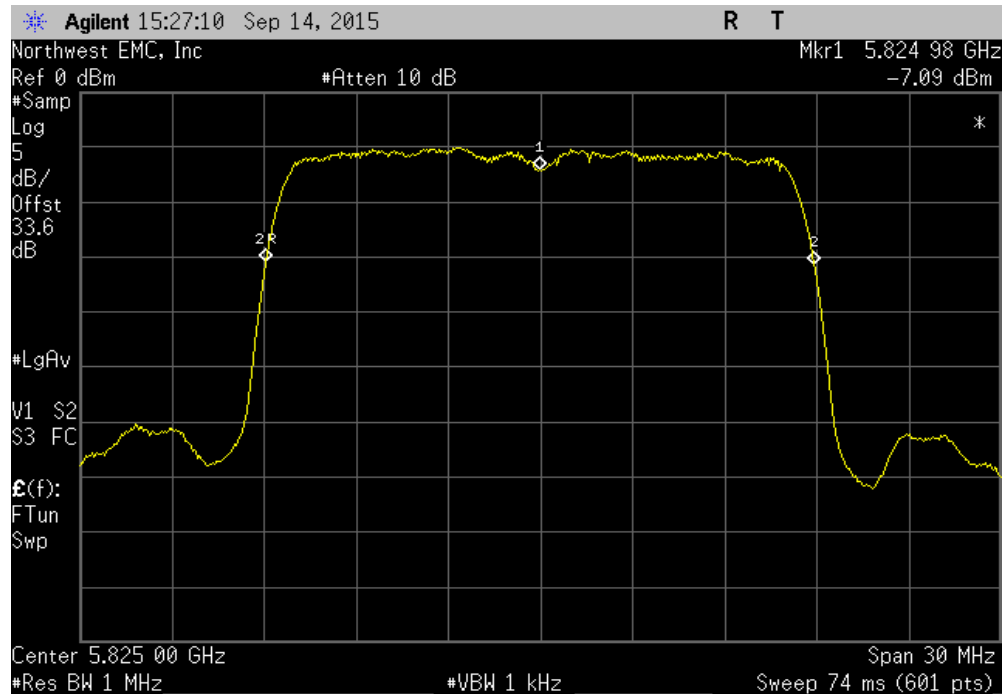


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +50°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.02	5825	3.4	100	Pass	

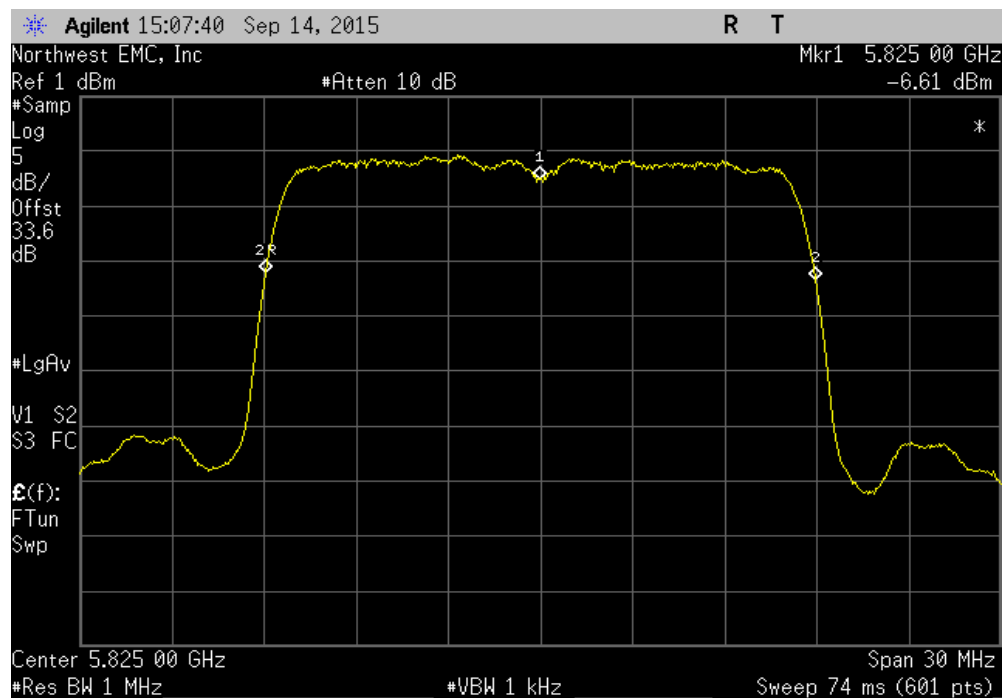


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +40°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5824.98	5825	3.4	100	Pass	

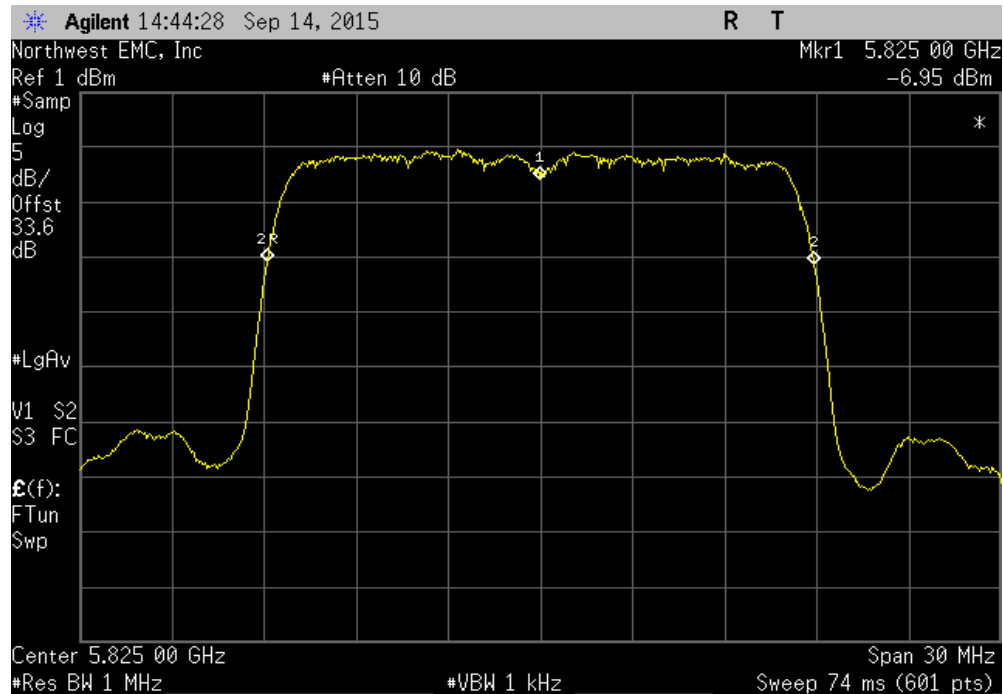


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825	5825	0	100	Pass	

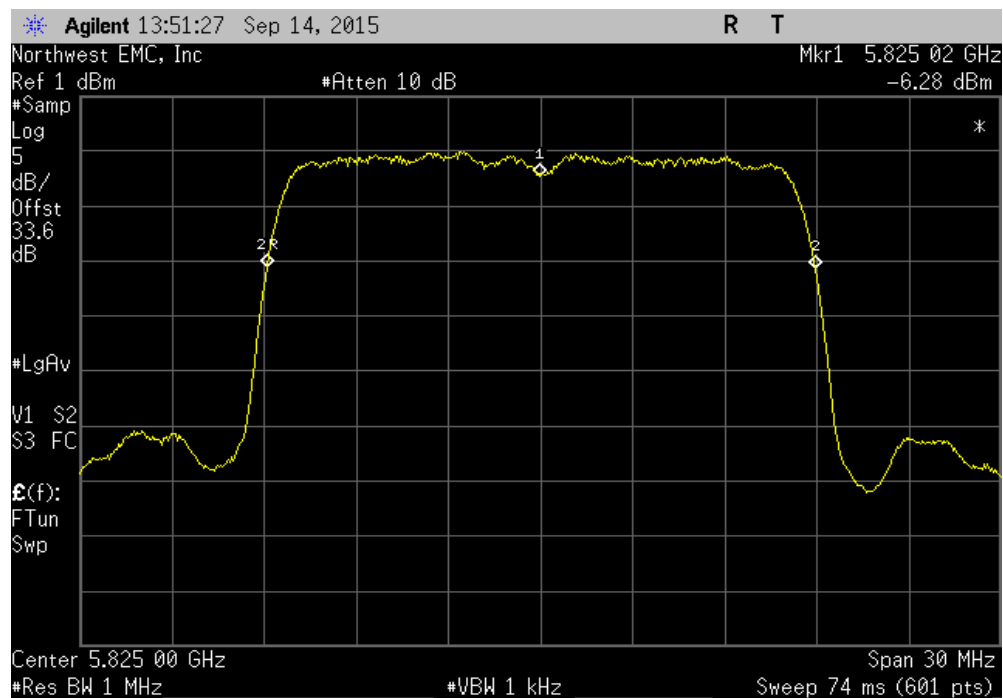


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825	5825	0	100	Pass	

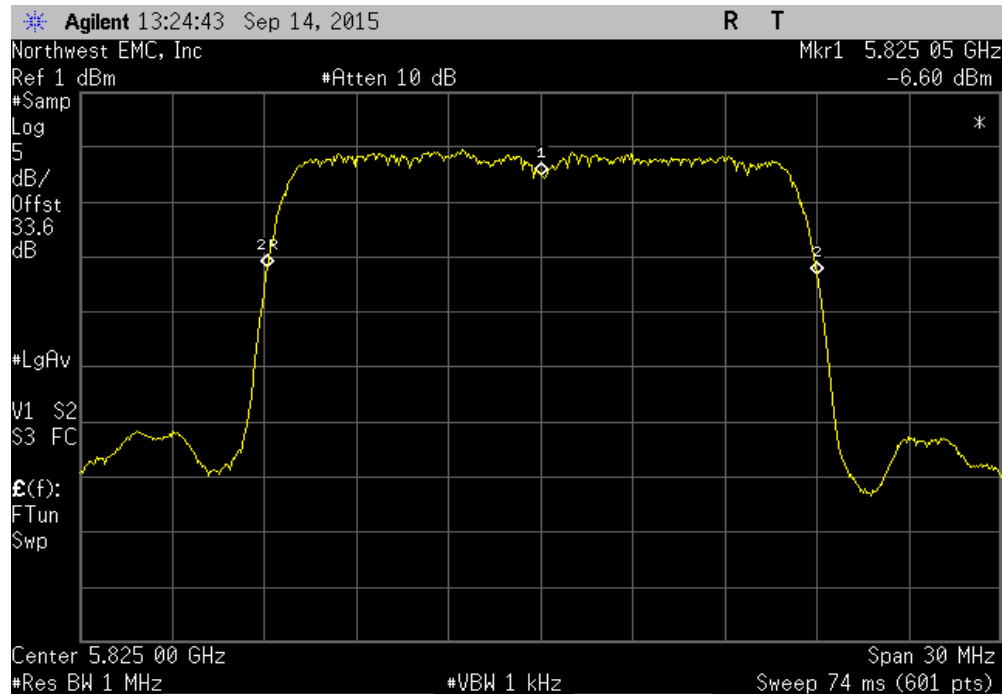


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: +10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.02	5825	3.4	100	Pass	

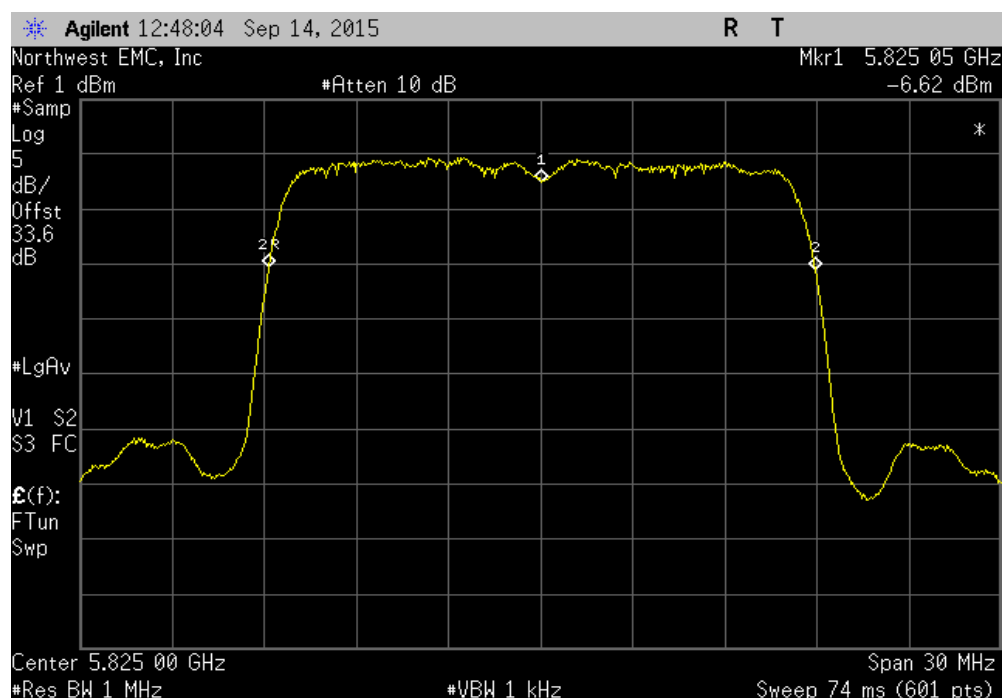


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: 0°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.05	5825	8.6	100	Pass	

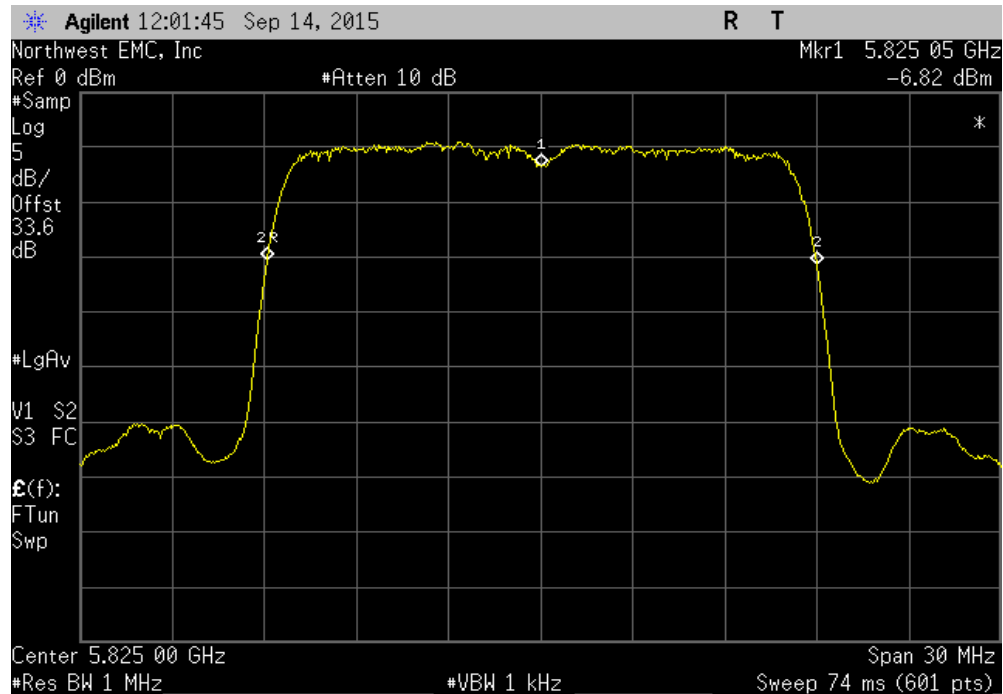


5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -10°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.05	5825	8.6	100	Pass	

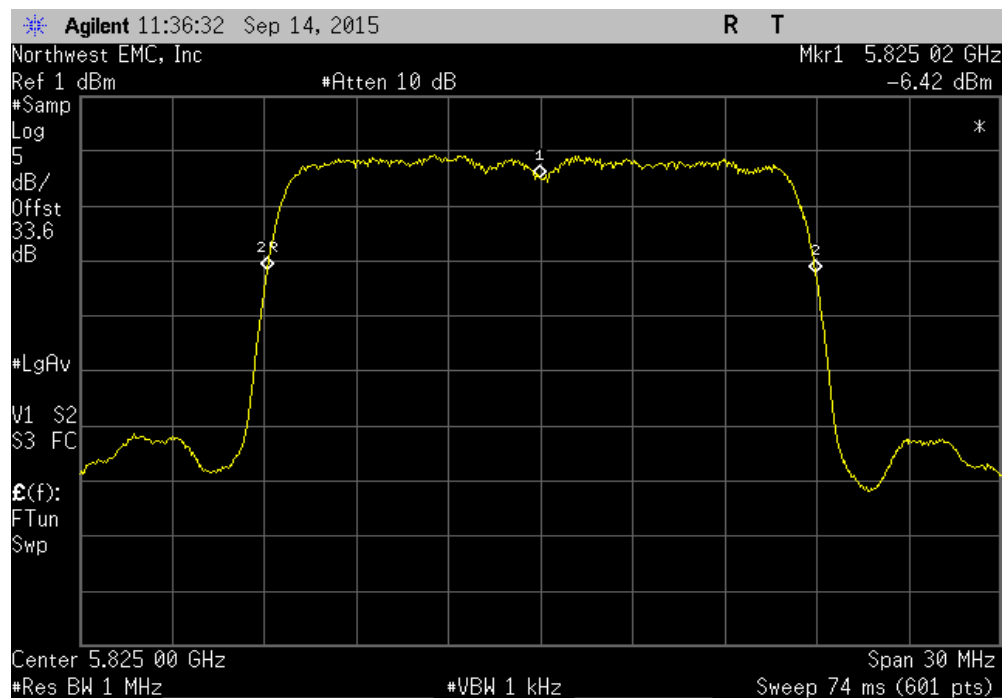


FREQUENCY STABILITY

5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -20°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.05	5825	8.6	100	Pass	



5725 MHz - 5850 MHz - High Channel, 5825 MHz, Temperature: -30°						
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Results	
	5825.02	5825	3.4	100	Pass	



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)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 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).
- VBW = > RBW
- Detector = Peak
- Trace mode = 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.

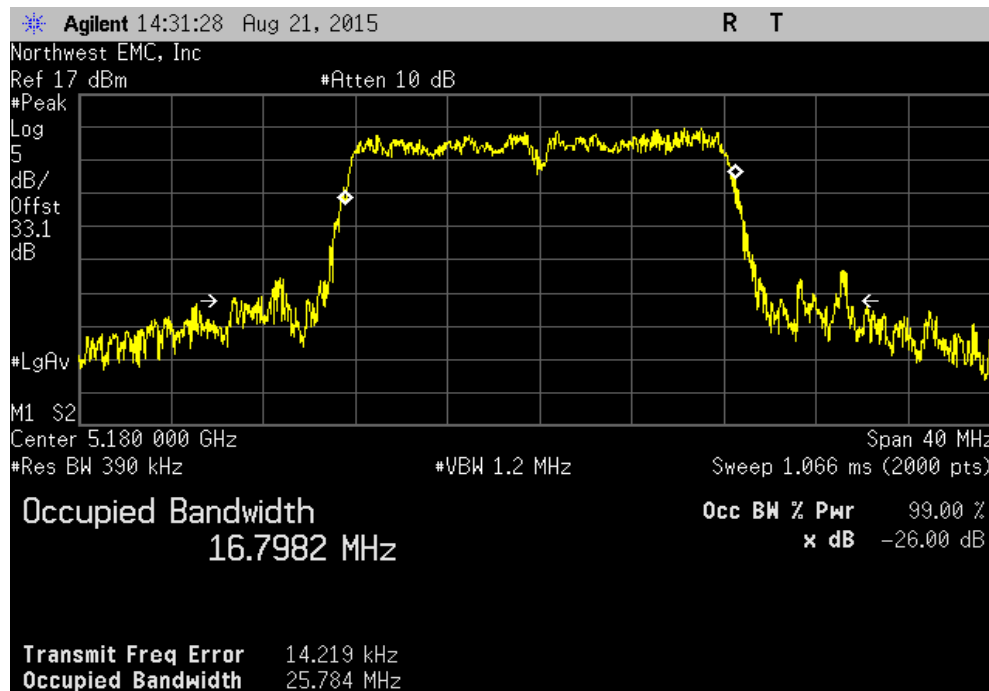
EMISSION BANDWIDTH

EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit (N/A)
Normal Conditions			
802.11(a) 6 Mbps			
	Low Channel, Ch.8 5180 MHz	25.784 MHz	N/A
	High Channel, Ch.14 5240 MHz	33.922 MHz	N/A
	Low Channel, Ch.15 5260 MHz	34.665 MHz	N/A
	High Channel, Ch.18 5320 MHz	26.299 MHz	N/A
	Low Channel, Ch.19 5500 MHz	21.614 MHz	N/A
	Mid Channel, Ch.23 5580 MHz	24.269 MHz	N/A
	High Channel, Ch.29 5700 MHz	27.969 MHz	N/A
802.11(a) 18 Mbps			
	Low Channel, Ch.8 5180 MHz	18.703 MHz	N/A
	High Channel, Ch.14 5240 MHz	31.897 MHz	N/A
	Low Channel, Ch.15 5260 MHz	26.601 MHz	N/A
	High Channel, Ch.18 5320 MHz	18.695 MHz	N/A
	Low Channel, Ch.19 5500 MHz	18.727 MHz	N/A
	Mid Channel, Ch.23 5580 MHz	19.066 MHz	N/A
	High Channel, Ch.29 5700 MHz	19.078 MHz	N/A

EMISSION BANDWIDTH

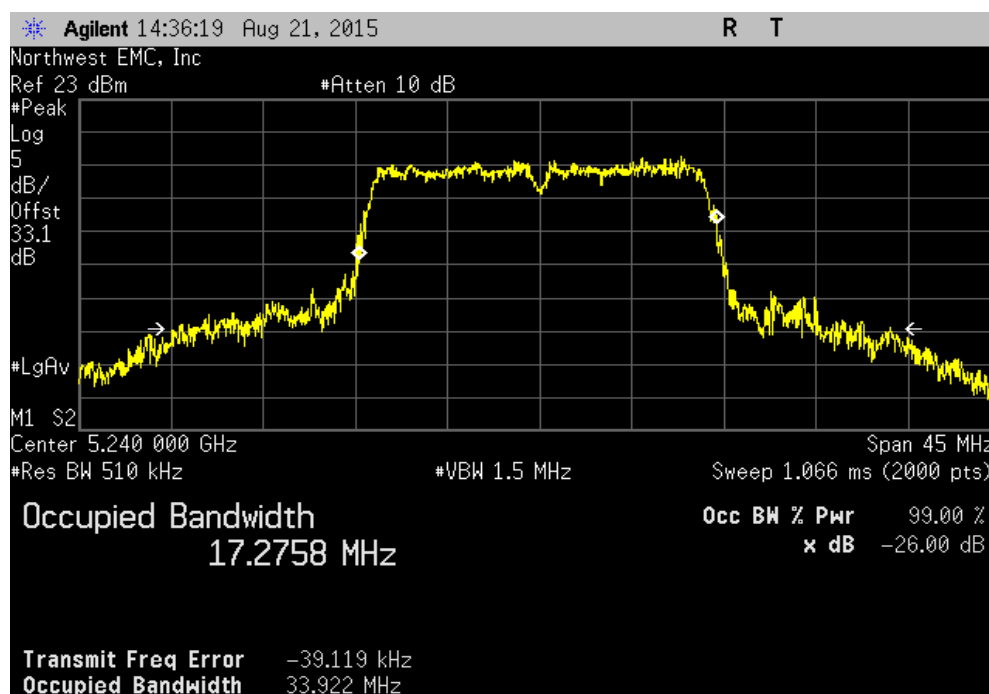
Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.8 5180 MHz

	Value	Limit (N/A)	Result
	25.784 MHz	N/A	N/A



Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.14 5240 MHz

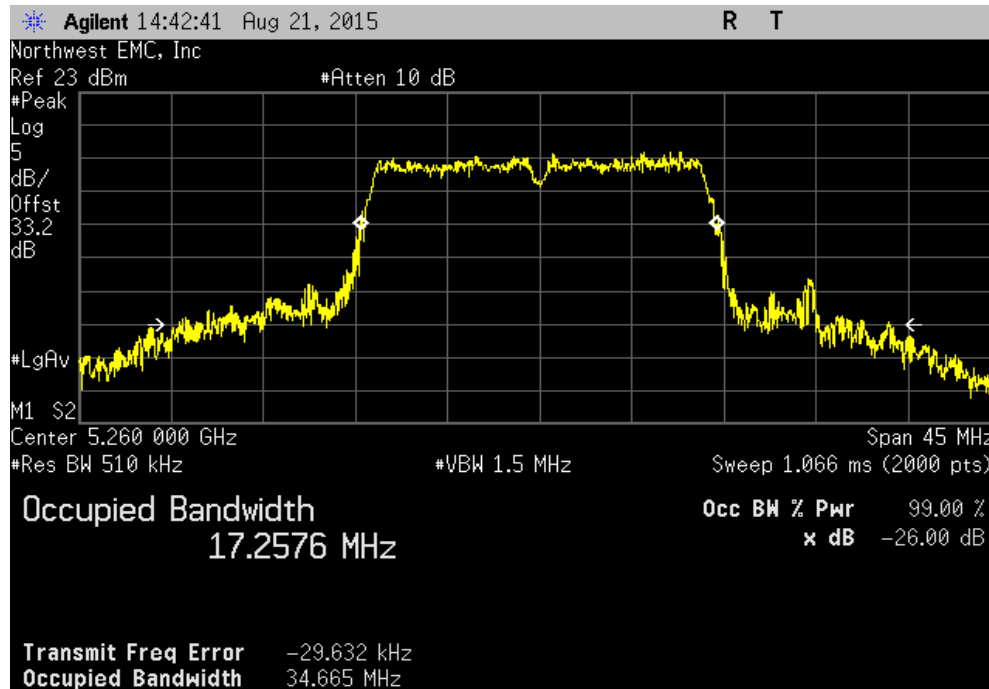
	Value	Limit (N/A)	Result
	33.922 MHz	N/A	N/A



EMISSION BANDWIDTH

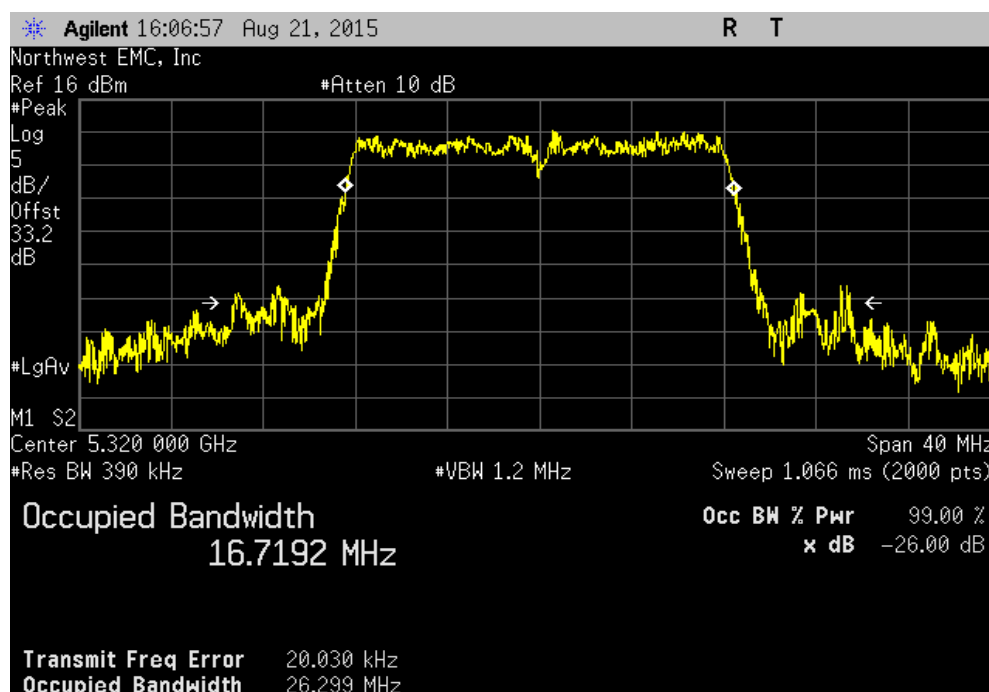
Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.15 5260 MHz

	Value	Limit (N/A)	Result
	34.665 MHz	N/A	N/A



Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.18 5320 MHz

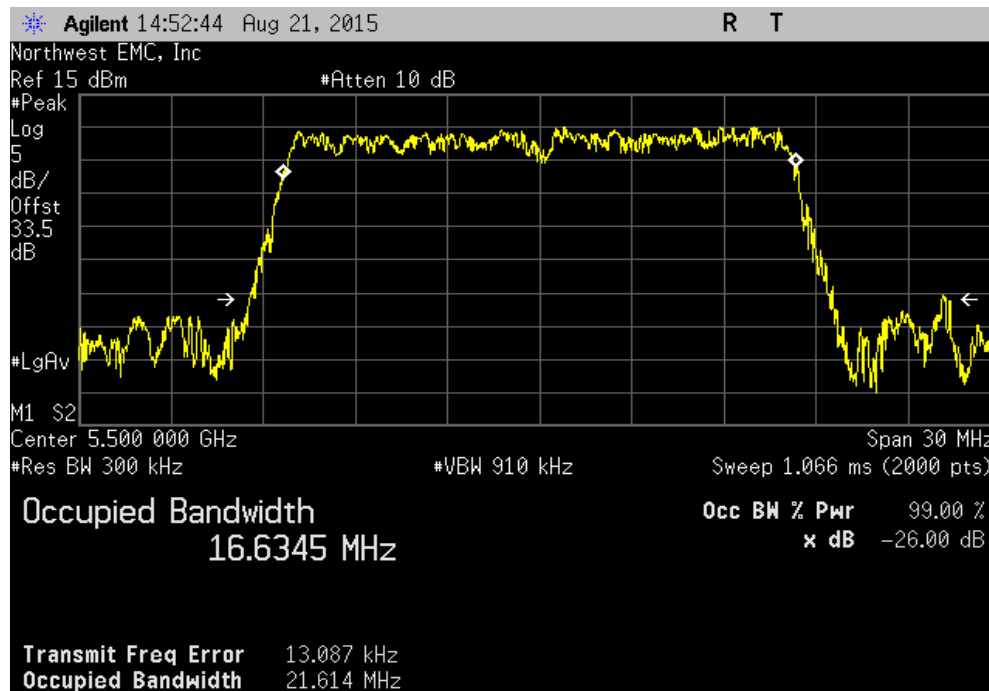
	Value	Limit (N/A)	Result
	26.299 MHz	N/A	N/A



EMISSION BANDWIDTH

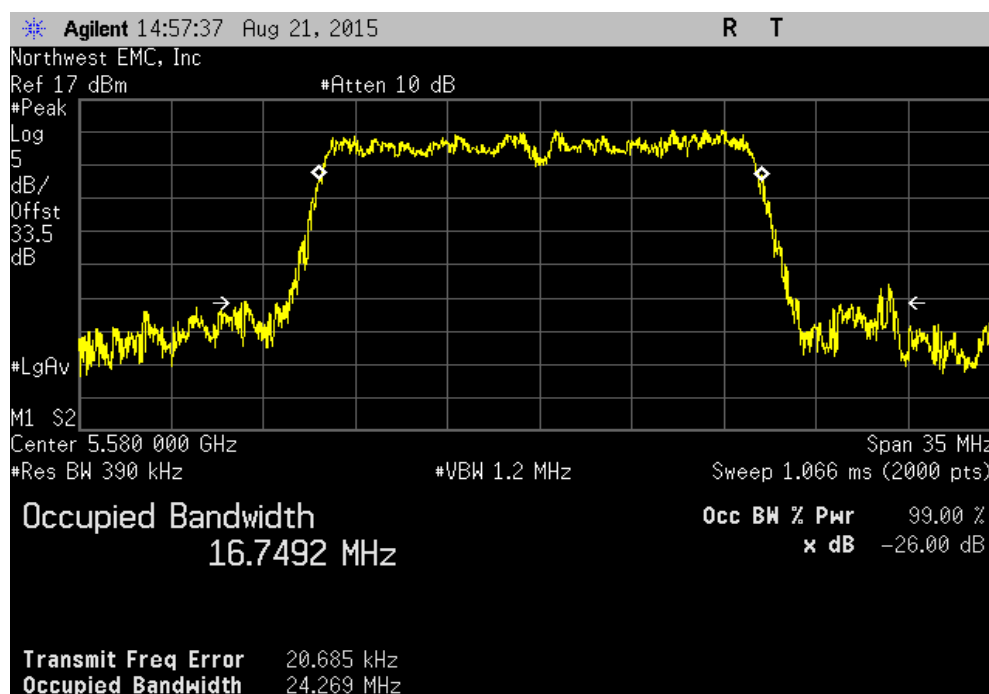
Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.19 5500 MHz

	Value	Limit (N/A)	Result
	21.614 MHz	N/A	N/A



Normal Conditions, 802.11(a) 6 Mbps, Mid Channel, Ch.23 5580 MHz

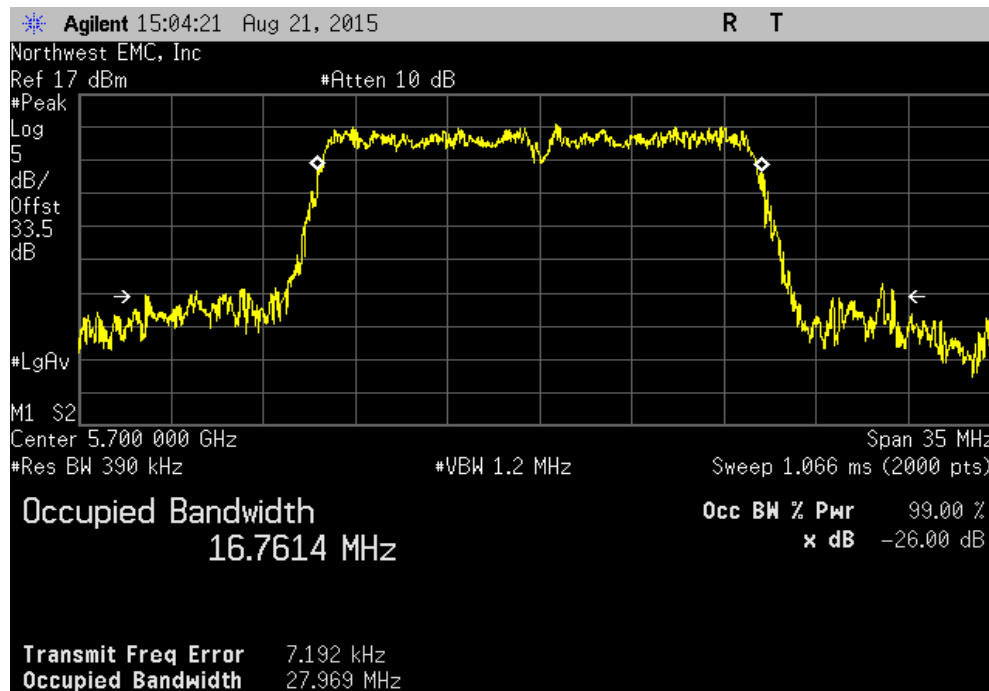
	Value	Limit (N/A)	Result
	24.269 MHz	N/A	N/A



EMISSION BANDWIDTH

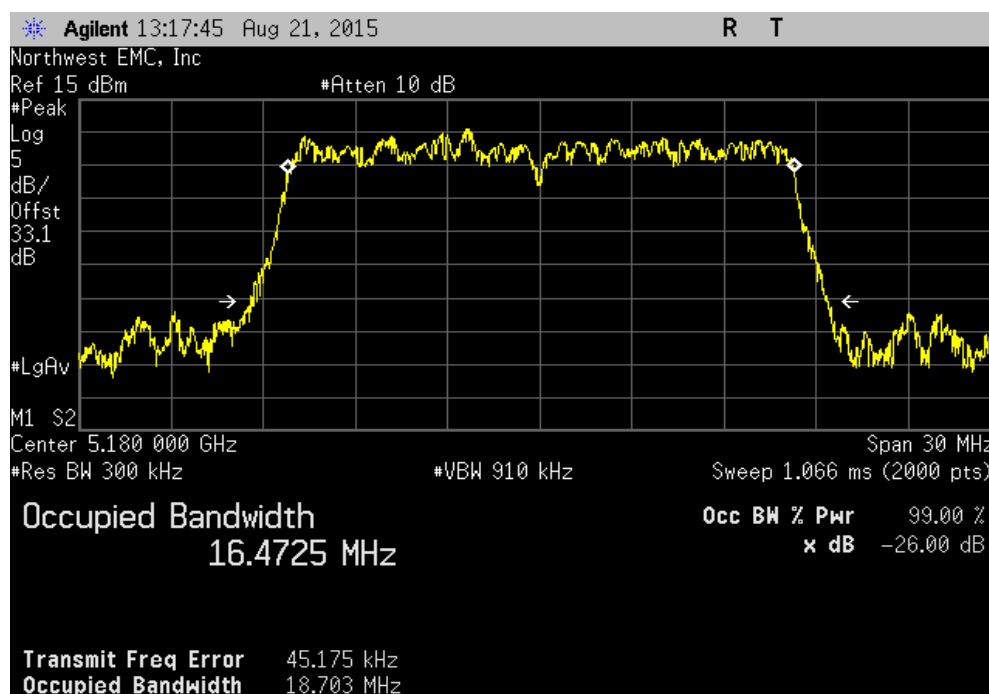
Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.29 5700 MHz

				Value	Limit (N/A)	Result
				27.969 MHz	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.8 5180 MHz

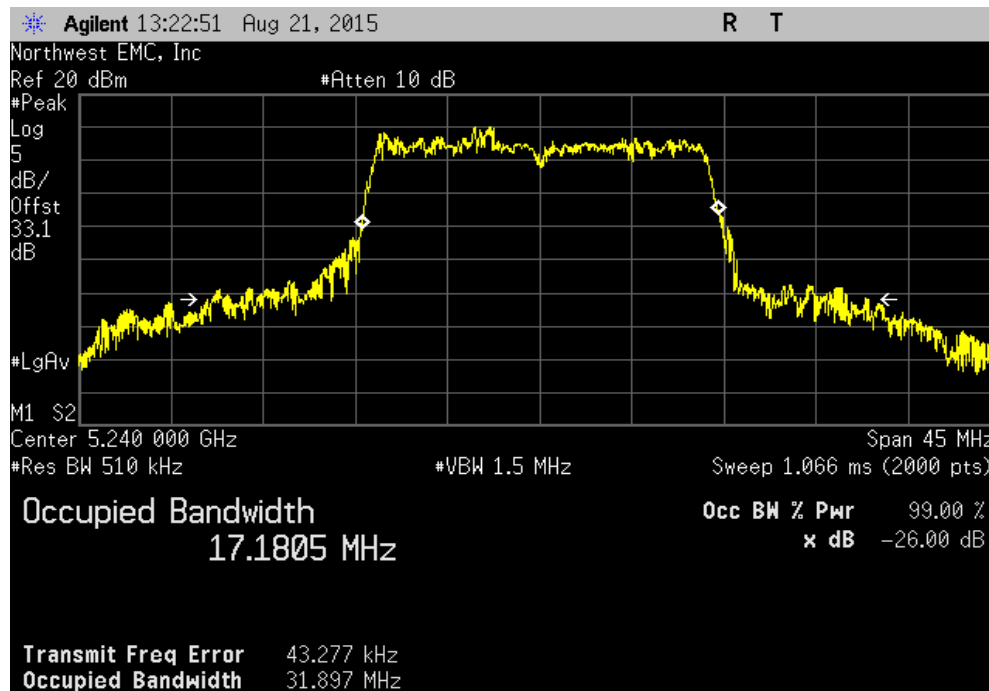
				Value	Limit (N/A)	Result
				18.703 MHz	N/A	N/A



EMISSION BANDWIDTH

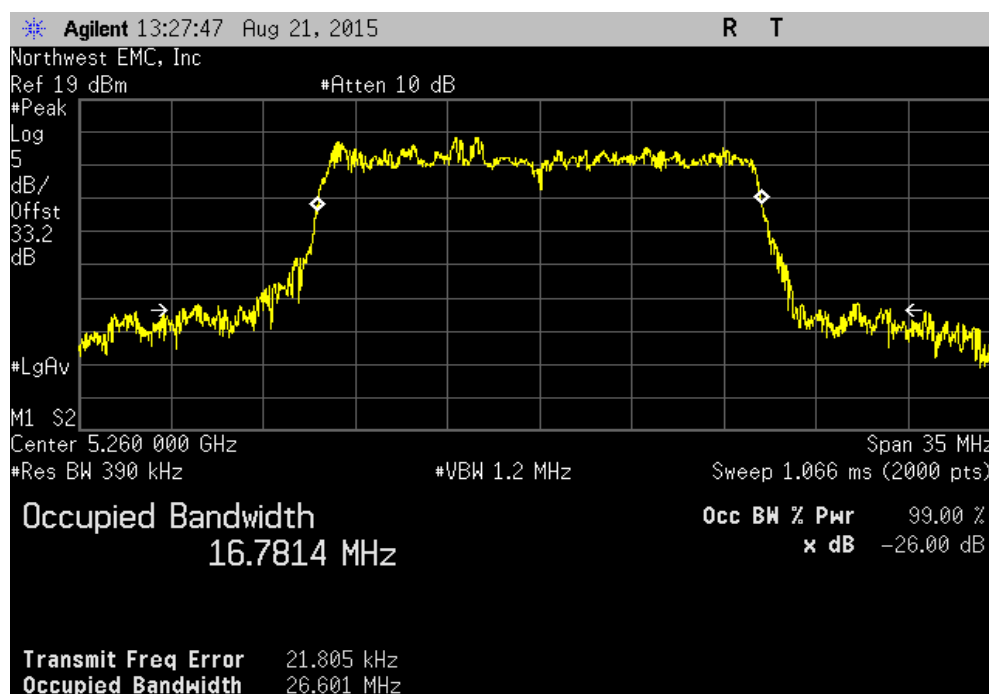
Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.14 5240 MHz

				Value	Limit (N/A)	Result
				31.897 MHz	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.15 5260 MHz

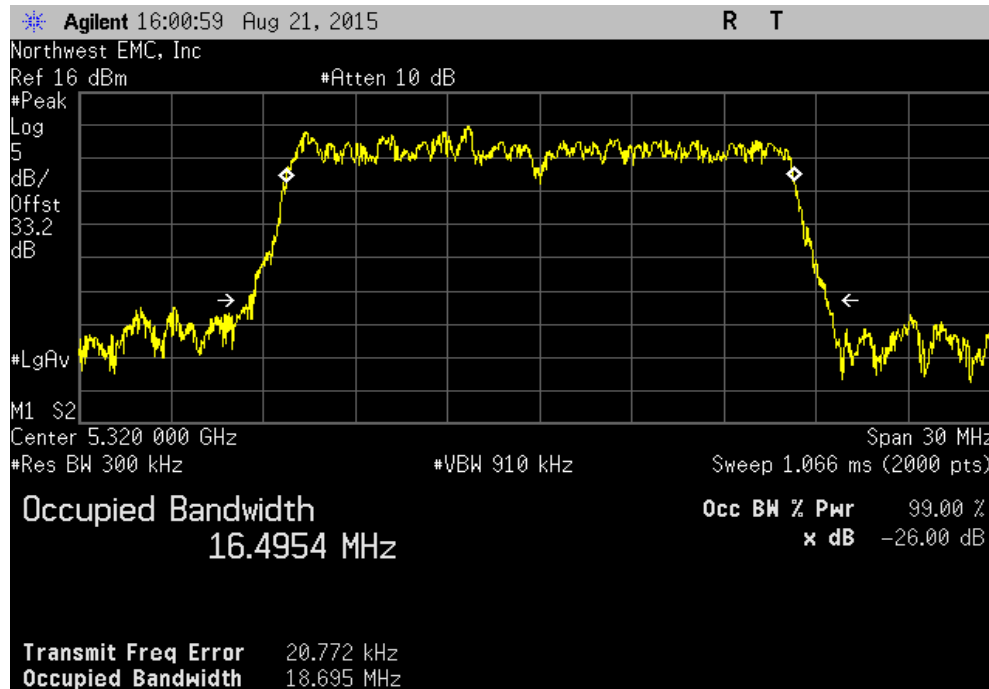
				Value	Limit (N/A)	Result
				26.601 MHz	N/A	N/A



EMISSION BANDWIDTH

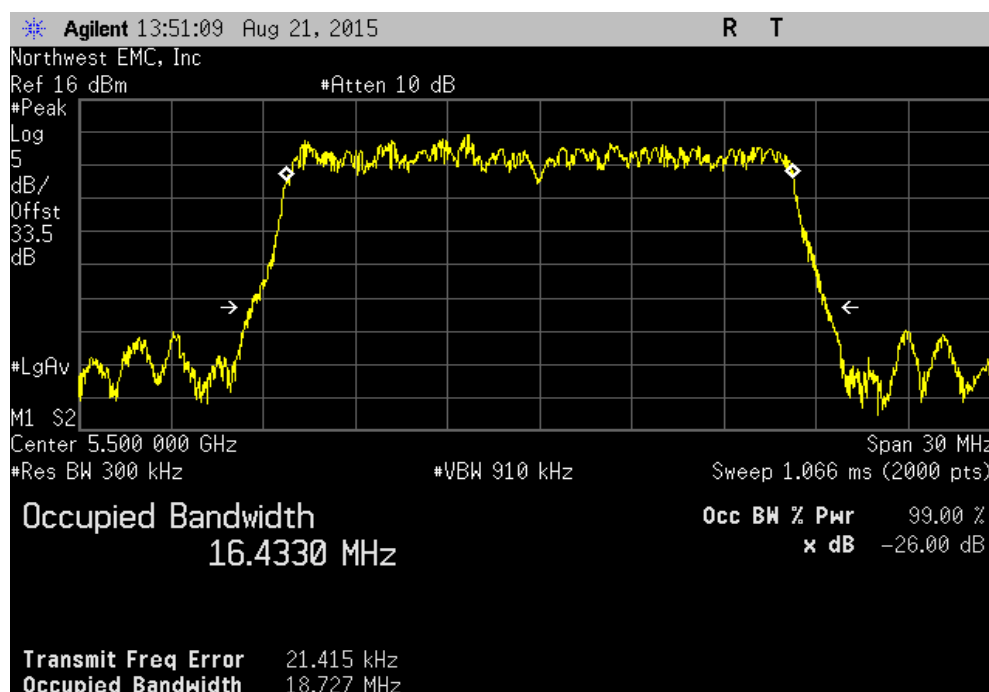
Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.18 5320 MHz

				Value	Limit (N/A)	Result
				18.695 MHz	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.19 5500 MHz

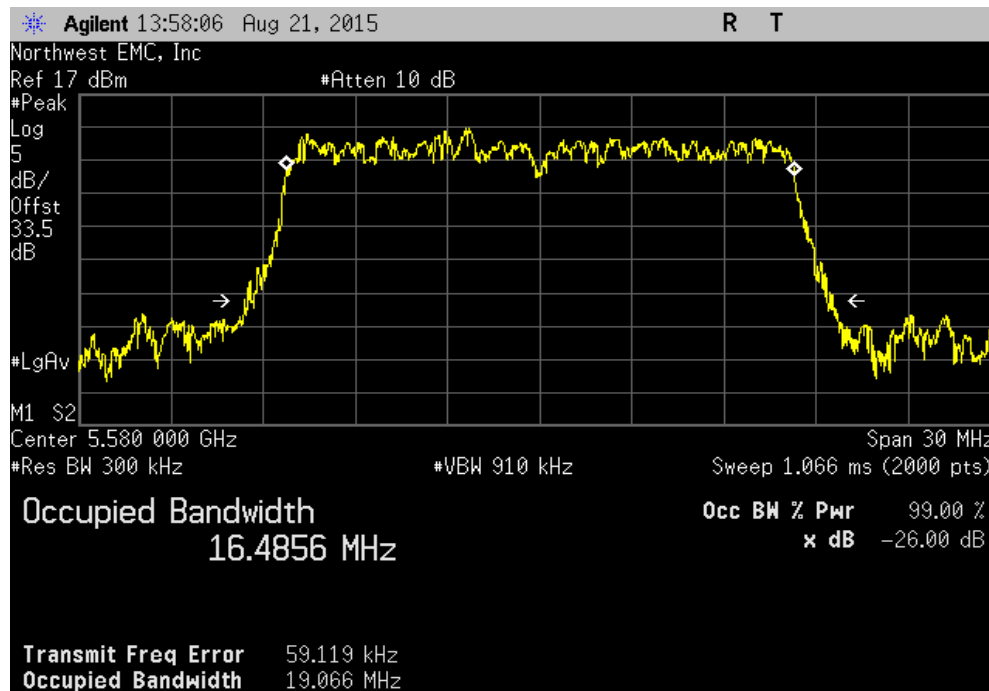
				Value	Limit (N/A)	Result
				18.727 MHz	N/A	N/A



EMISSION BANDWIDTH

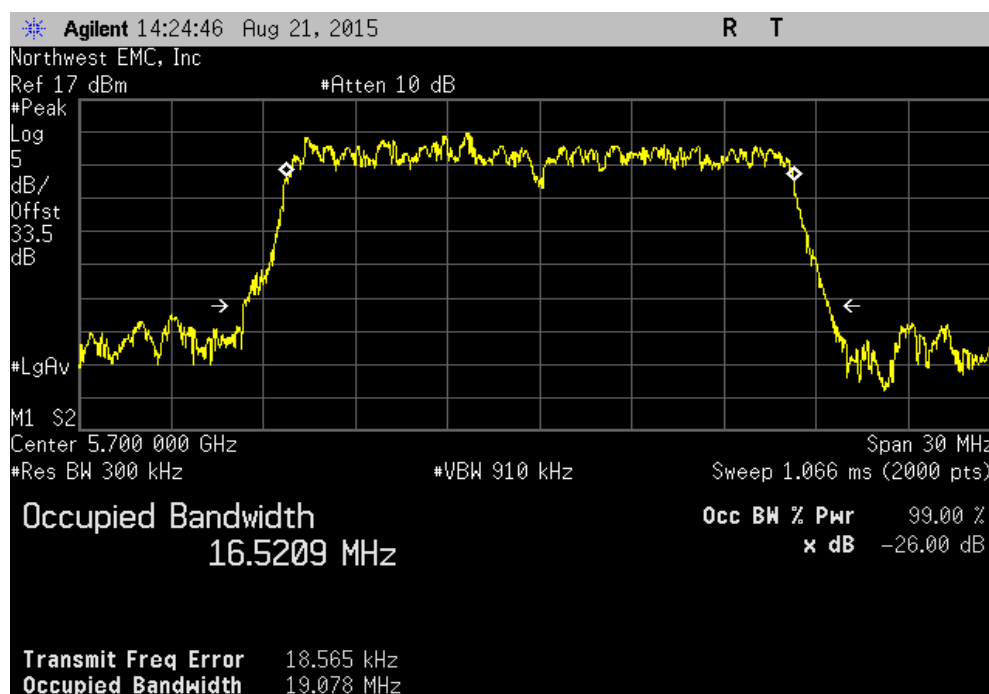
Normal Conditions, 802.11(a) 18 Mbps, Mid Channel, Ch.23 5580 MHz

	Value	Limit (N/A)	Result
	19.066 MHz	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.29 5700 MHz

	Value	Limit (N/A)	Result
	19.078 MHz	N/A	N/A



OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 General UNII Test Procedures were followed to measure the minimum emission bandwidth for the 5.725-5.85 GHz band.

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 = 100 kHz
- VBW = $\geq 3 \times$ RBW
- Detector = Peak
- Trace mode = max hold

The spectrum analyzer occupied bandwidth measurement function was then used to measure 6 dB emission bandwidth.

The 99.9% (approximate 26 dB) emission bandwidth (EBW) was also measured at the same time to be used for setting the channel power integration bandwidth during conducted output power testing.

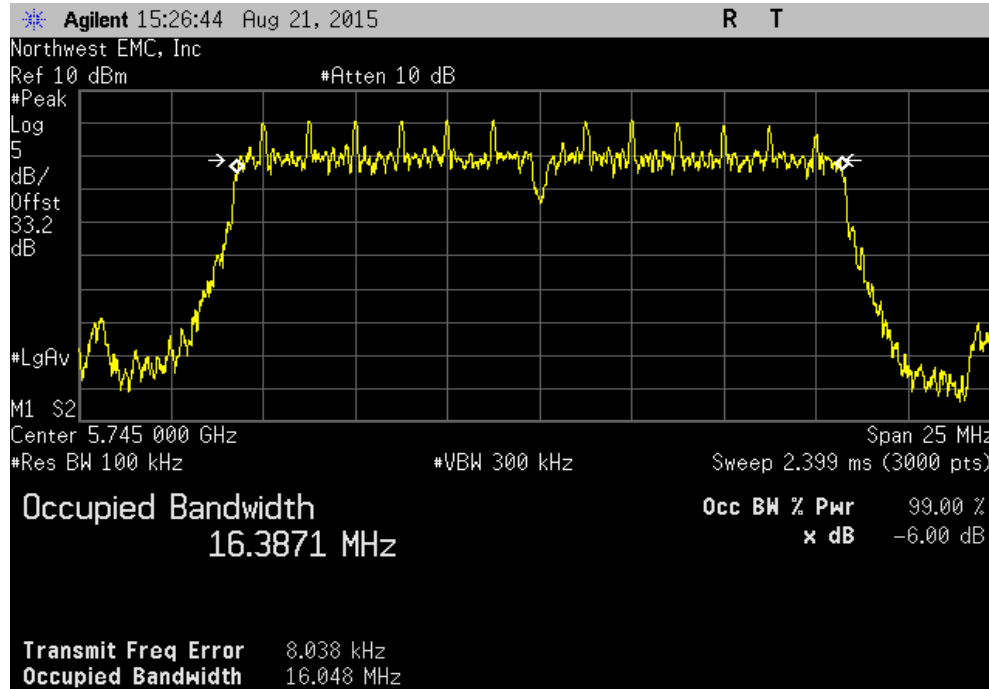
OCCUPIED BANDWIDTH

EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs	Power: 3.3 VDC Nominal	Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit (>) Result
Normal Conditions			
802.11(a) 6 Mbps			
	Low channel, Ch.30, 5745 MHz	16.048 MHz	500 kHz Pass
	Mid channel, Ch.32, 5785 MHz	16.141 MHz	500 kHz Pass
	High channel, Ch.34, 5825 MHz	16.006 MHz	500 kHz Pass
802.11(a) 18 Mbps			
	Low channel, Ch.30, 5745 MHz	15.427 MHz	500 kHz Pass
	Mid channel, Ch.32, 5785 MHz	15.096 MHz	500 kHz Pass
	High channel, Ch.34, 5825 MHz	15.759 MHz	500 kHz Pass

OCCUPIED BANDWIDTH

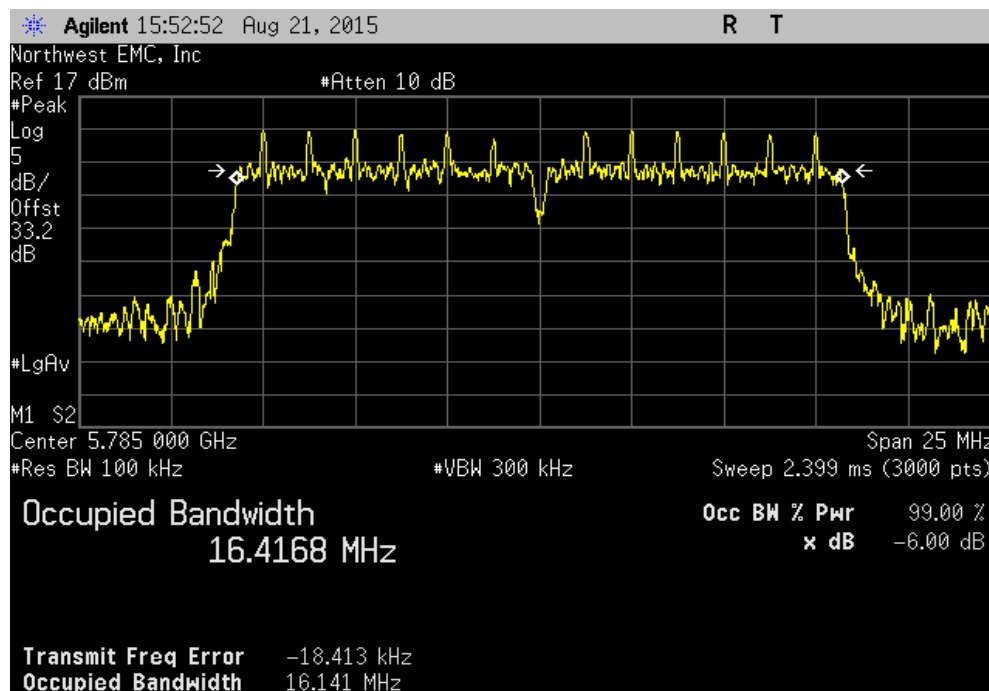
Normal Conditions, 802.11(a) 6 Mbps, Low channel, Ch.30, 5745 MHz

	Value	Limit	Result
	16.048 MHz	(>) 500 kHz	Pass



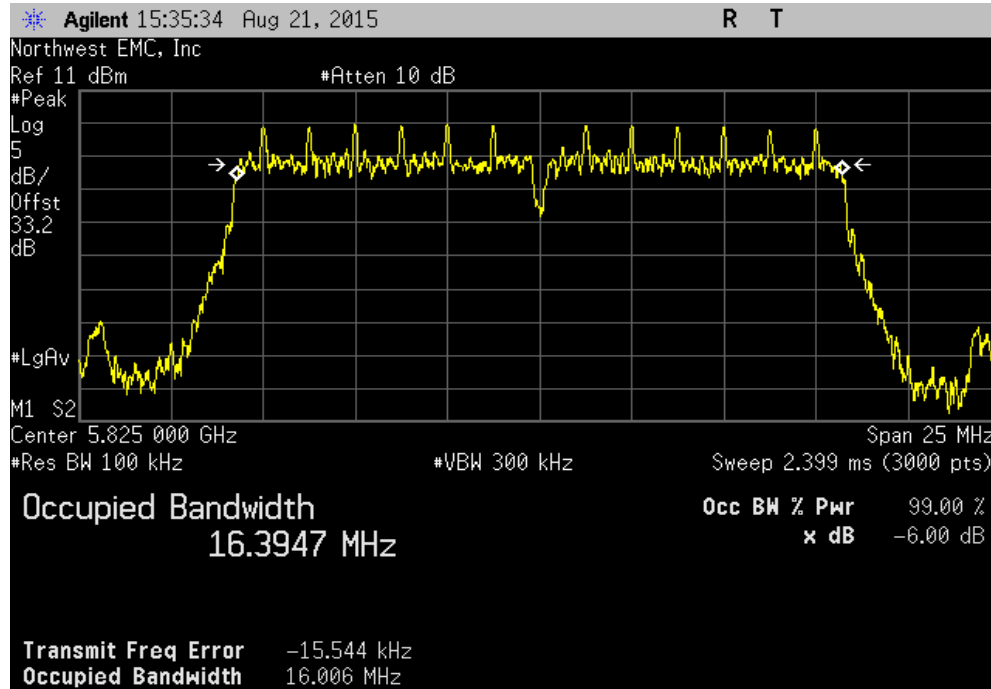
Normal Conditions, 802.11(a) 6 Mbps, Mid channel, Ch.32, 5785 MHz

	Value	Limit	Result
	16.141 MHz	(>) 500 kHz	Pass

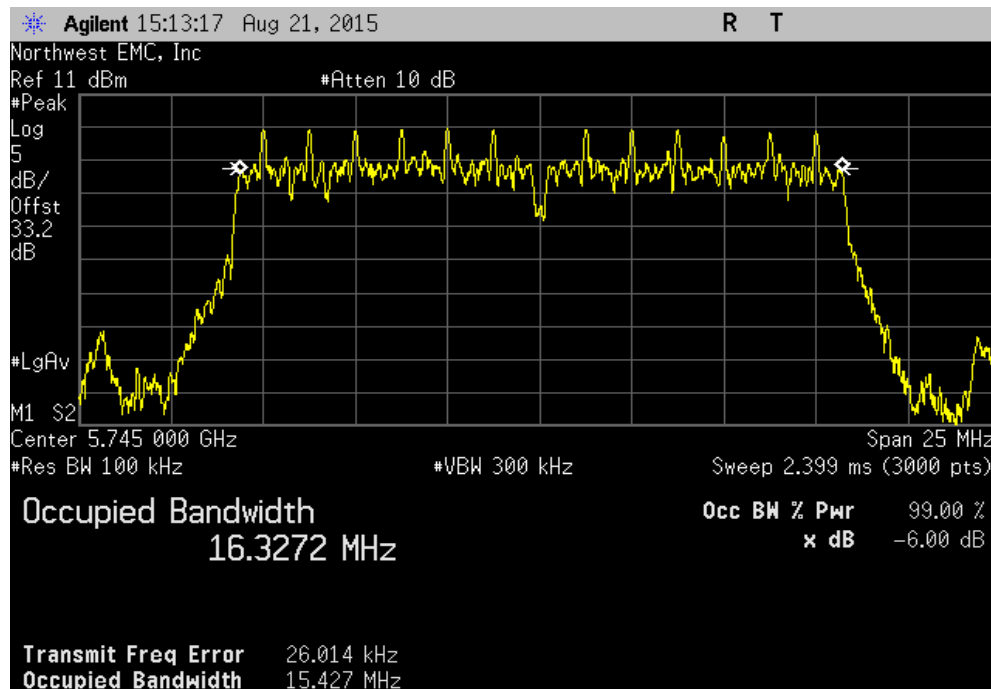


OCCUPIED BANDWIDTH

Normal Conditions, 802.11(a) 6 Mbps, High channel, Ch.34, 5825 MHz						
				Value	Limit (>)	Result
				16.006 MHz	500 kHz	Pass

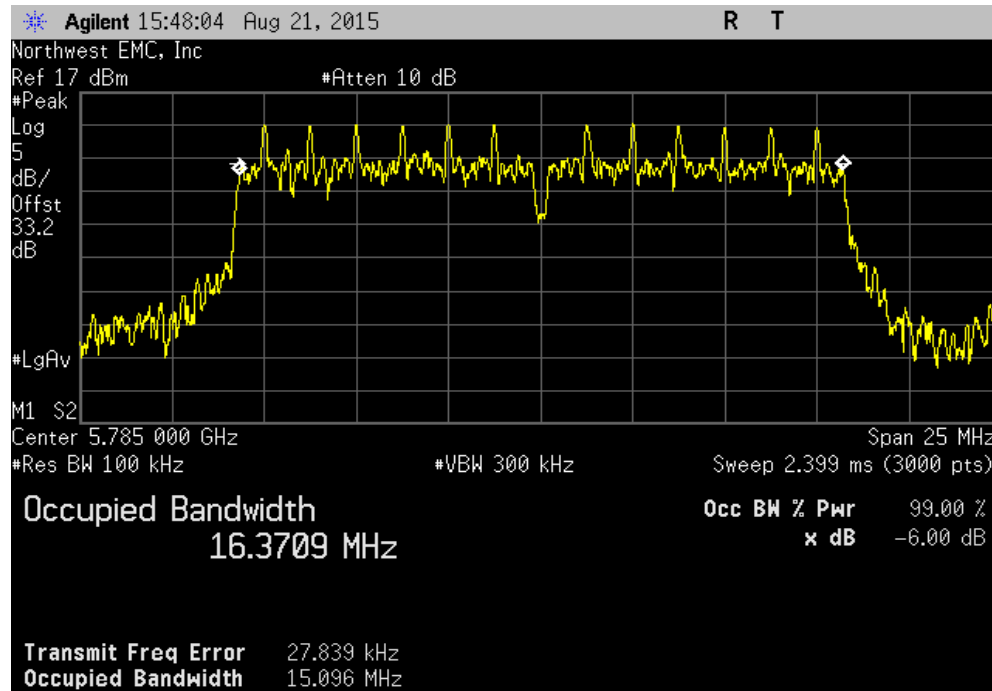


Normal Conditions, 802.11(a) 18 Mbps, Low channel, Ch.30, 5745 MHz						
				Value	Limit (>)	Result
				15.427 MHz	500 kHz	Pass

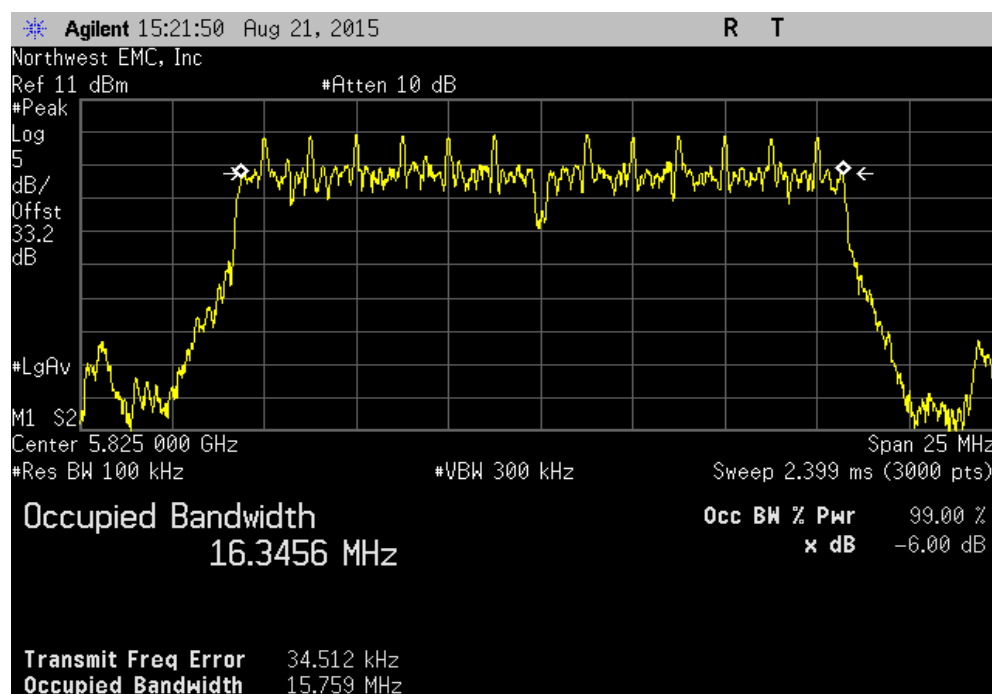


OCCUPIED BANDWIDTH

Normal Conditions, 802.11(a) 18 Mbps, Mid channel, Ch.32, 5785 MHz						
				Value	Limit	Result
				15.096 MHz	500 kHz	Pass



Normal Conditions, 802.11(a) 18 Mbps, High channel, Ch.34, 5825 MHz						
				Value	Limit	Result
				15.759 MHz	500 kHz	Pass



MAXIMUM CONDUCTED OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test.

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.

MAXIMUM CONDUCTED OUTPUT POWER

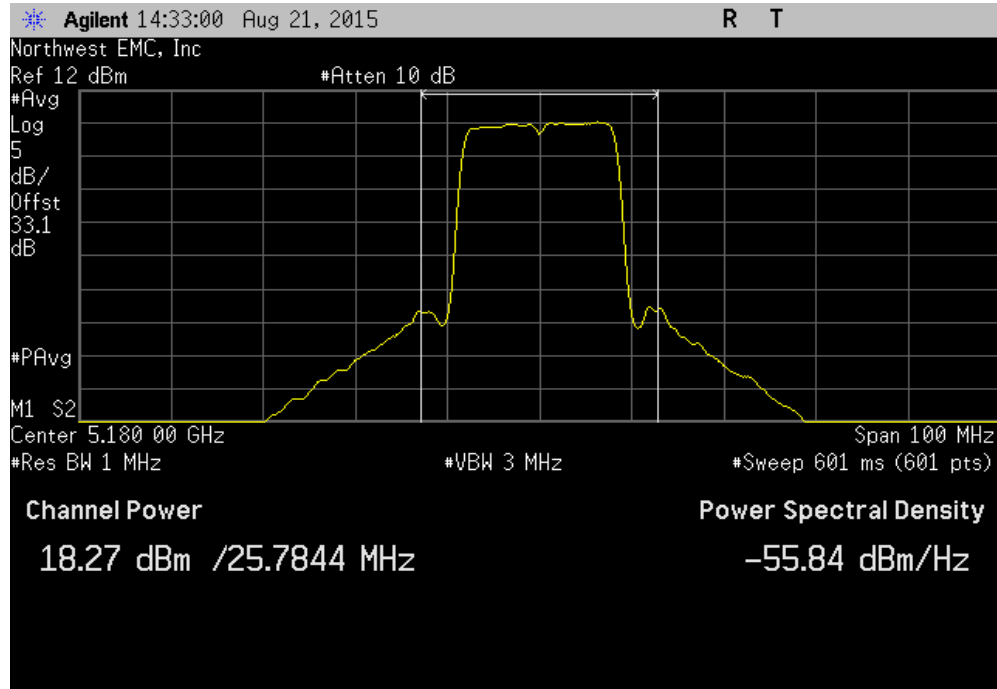


XMR 2015.01.14

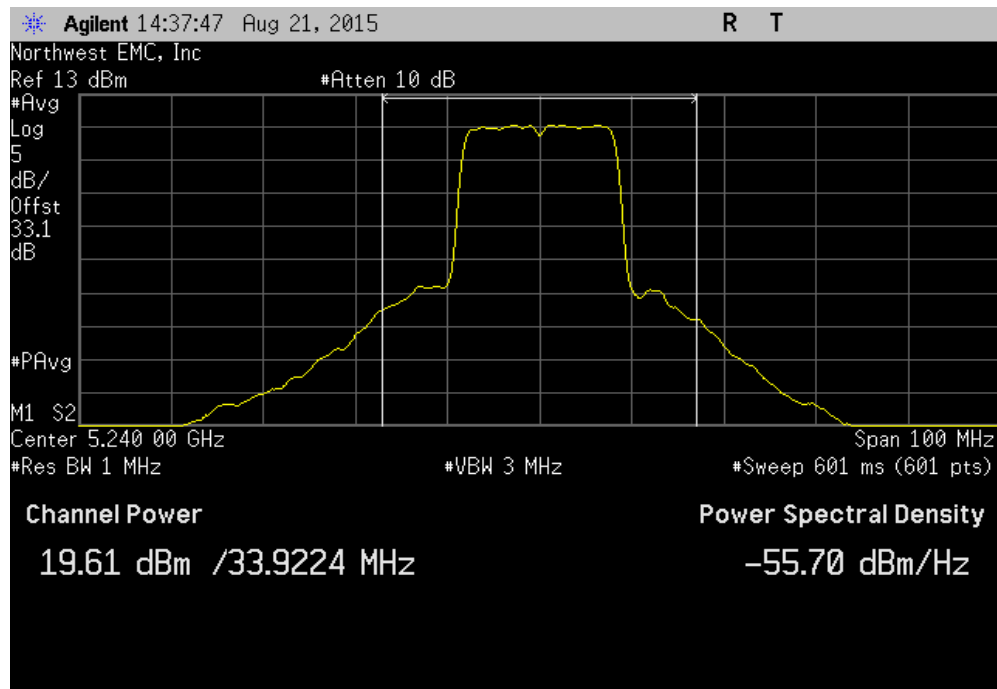
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)
		Output Power (dBm)	Limit (dBm)
			Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low Channel, Ch.8 5180 MHz	18.271	1.9
	High Channel, Ch.14 5240 MHz	19.607	1.9
	Low Channel, Ch.15 5260 MHz	19.453	2
	High Channel, Ch.18 5320 MHz	17.729	1.9
	Low Channel, Ch.19 5500 MHz	18.22	1.9
	Mid Channel, Ch.23 5580 MHz	18.929	1.9
	High Channel, Ch.29 5700 MHz	19.191	1.9
802.11(a) 18 Mbps			
	Low Channel, Ch.8 5180 MHz	16.552	3.8
	High Channel, Ch.14 5240 MHz	18.595	3.7
	Low Channel, Ch.15 5260 MHz	17.942	3.7
	High Channel, Ch.18 5320 MHz	16.41	3.7
	Low Channel, Ch.19 5500 MHz	16.41	3.9
	Mid Channel, Ch.23 5580 MHz	17.736	3.7
	High Channel, Ch.29 5700 MHz	17.486	3.7

MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.8 5180 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	18.271	1.9		20.1	24	Pass

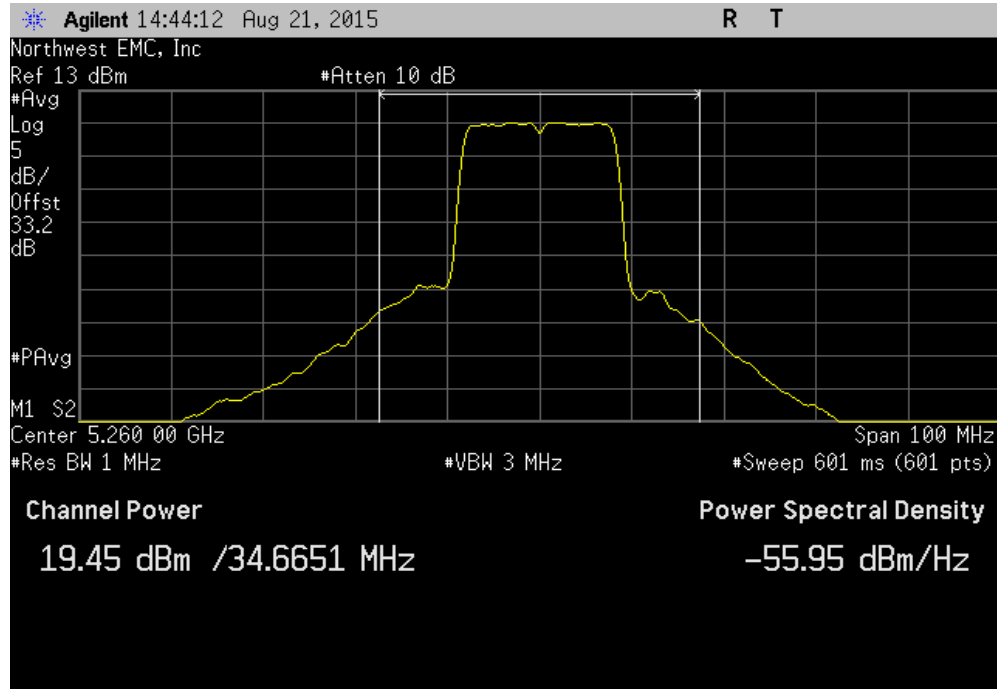


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.14 5240 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	19.607	1.9		21.5	24	Pass

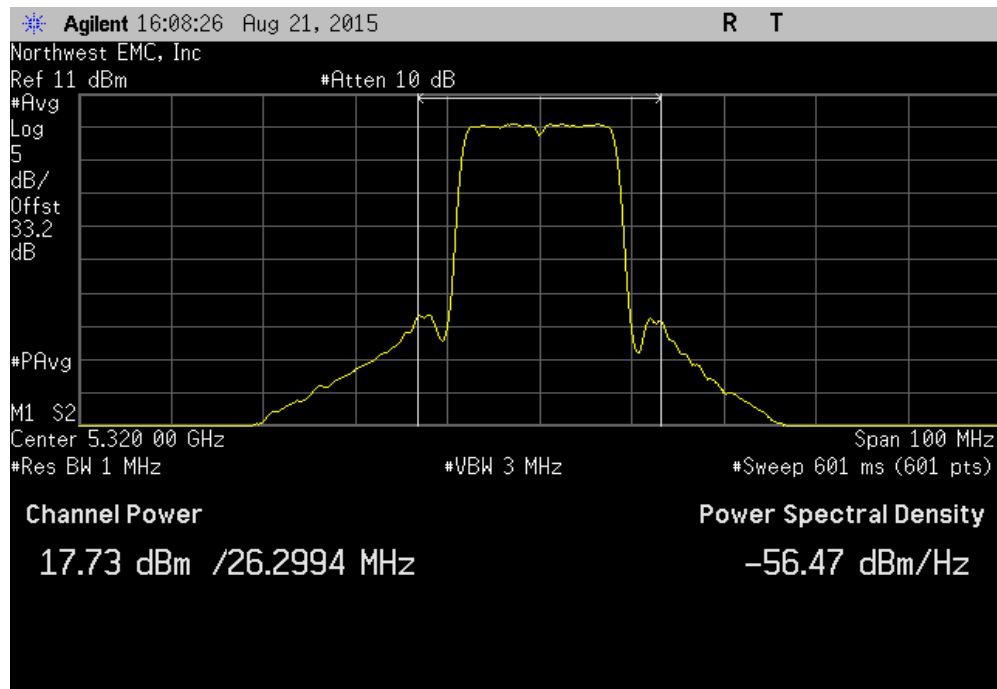


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.15 5260 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	19.453	2		21.5	24	Pass

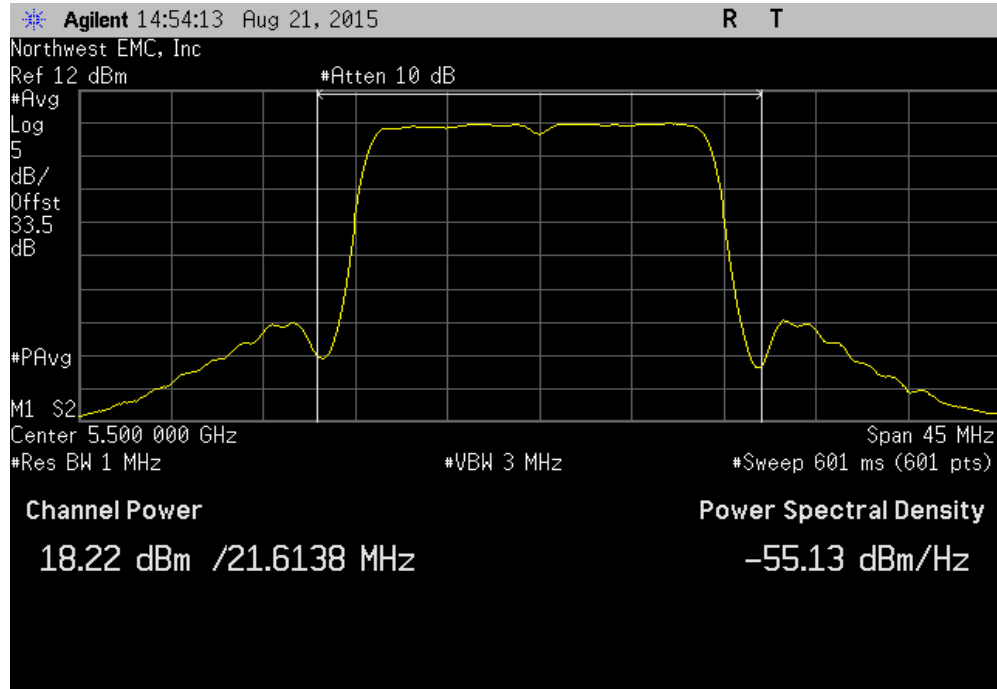


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.18 5320 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	17.729	1.9		19.6	24	Pass

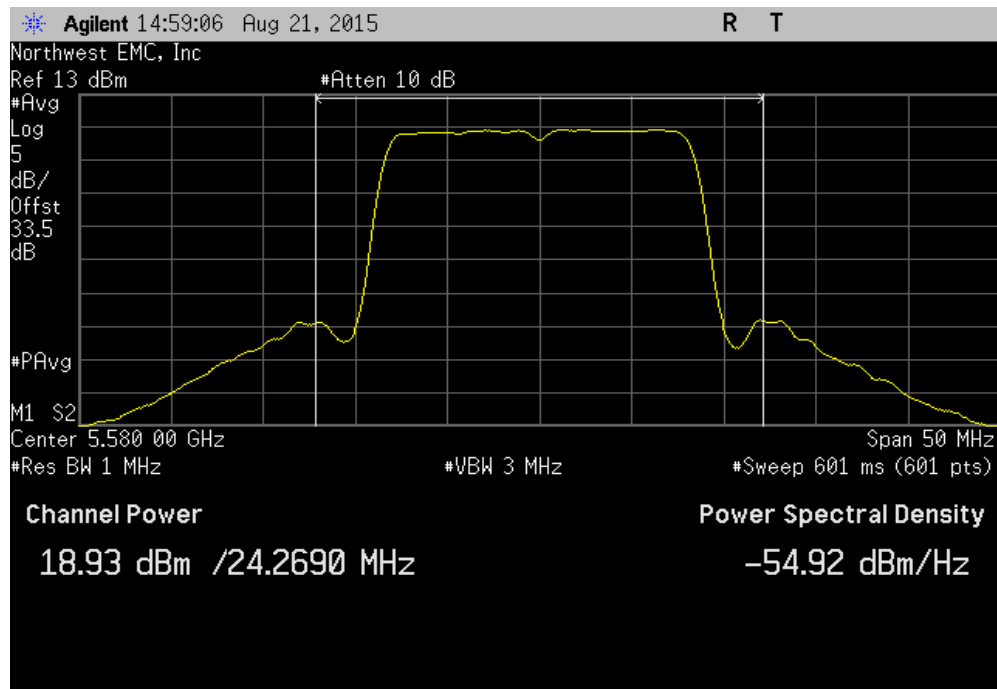


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.19 5500 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
18.22	1.9	20.1	24	Pass	

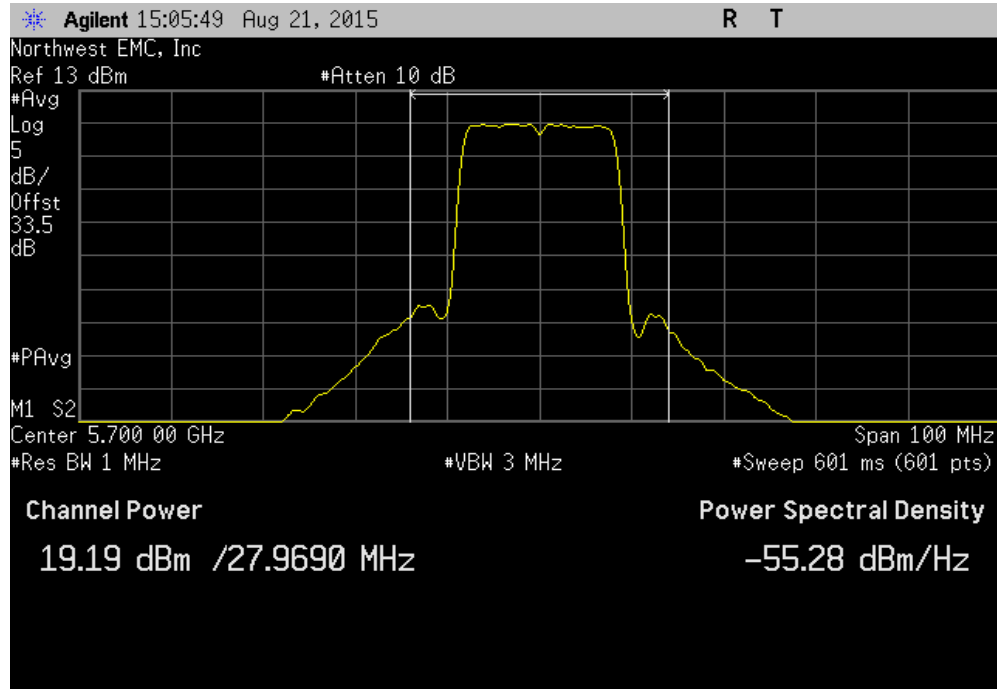


Normal Conditions, 802.11(a) 6 Mbps, Mid Channel, Ch.23 5580 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
18.929	1.9	20.8	24	Pass	

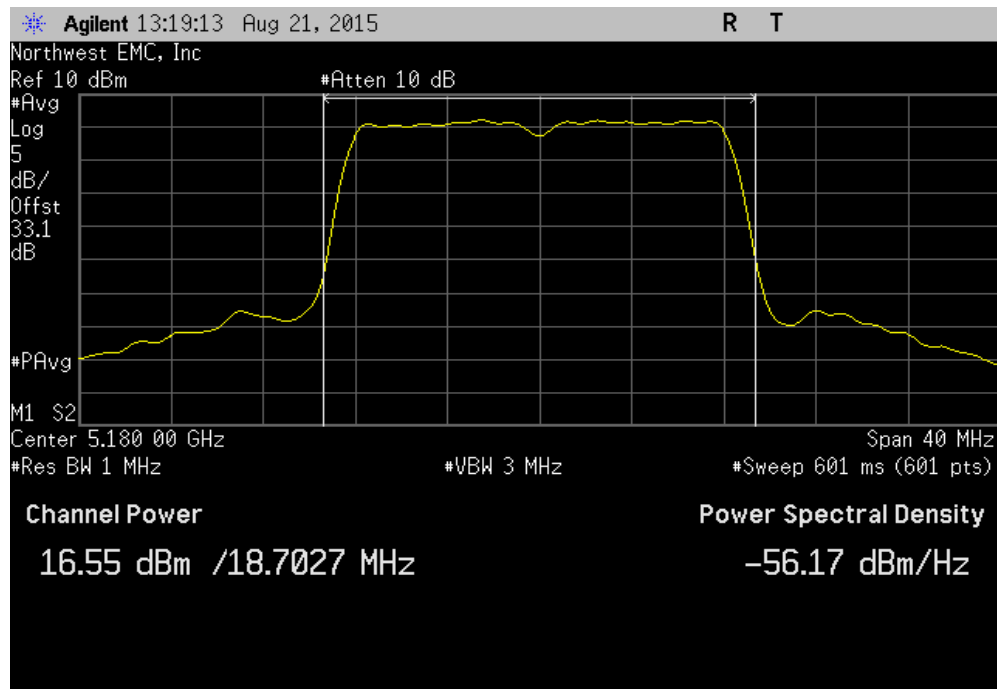


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.29 5700 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
19.191	1.9	21.1	24	Pass	

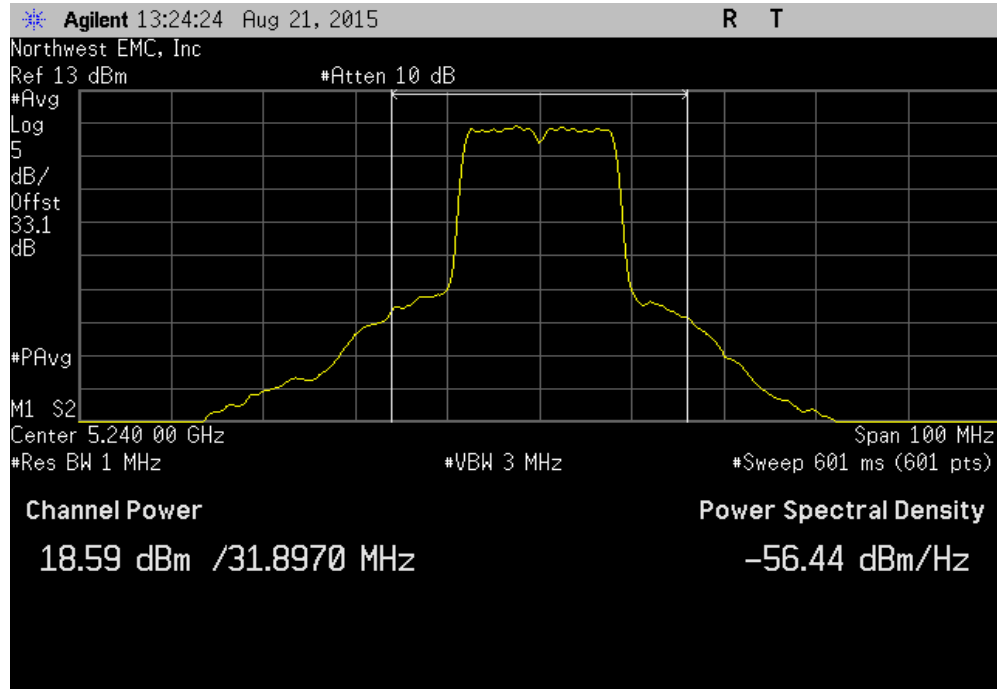


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.8 5180 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
16.552	3.8	20.3	24	Pass	

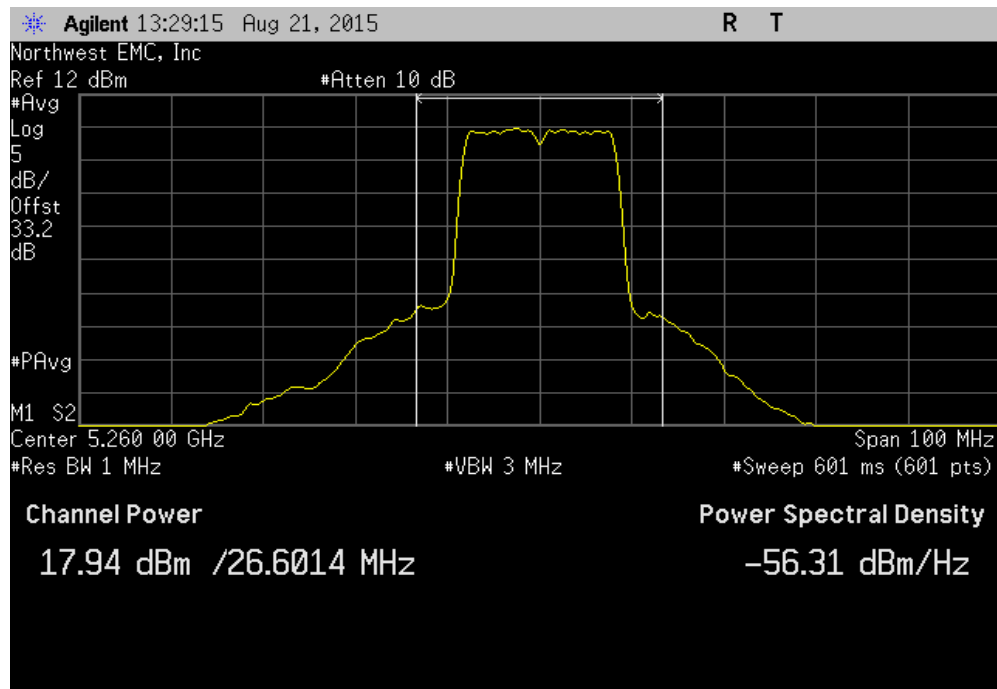


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.14 5240 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
18.595	3.7	22.3	24	Pass	

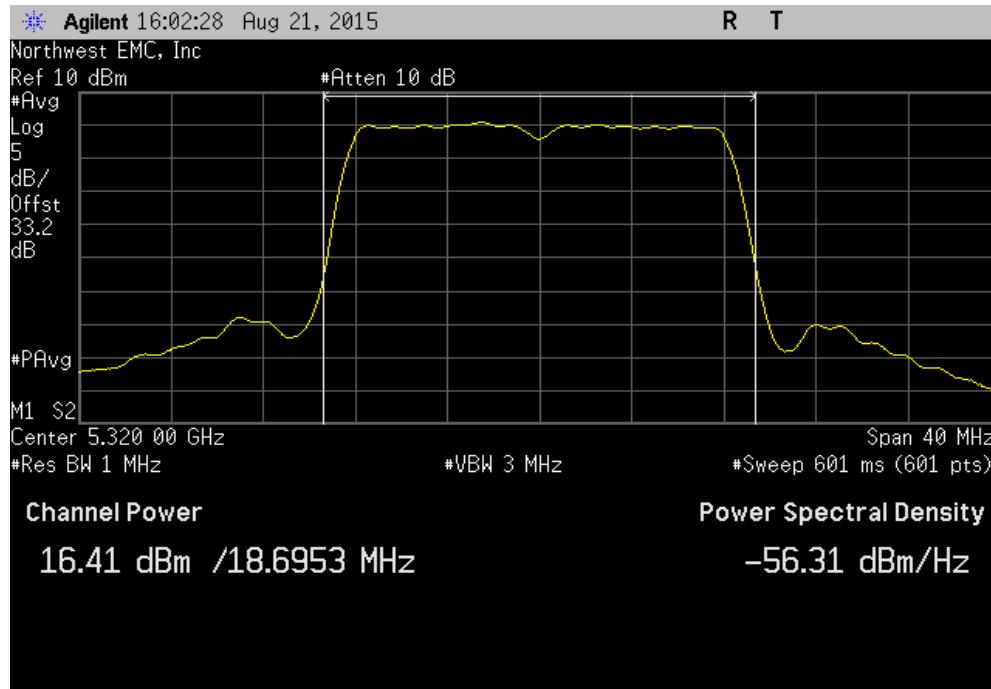


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.15 5260 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
17.942	3.7	21.7	24	Pass	

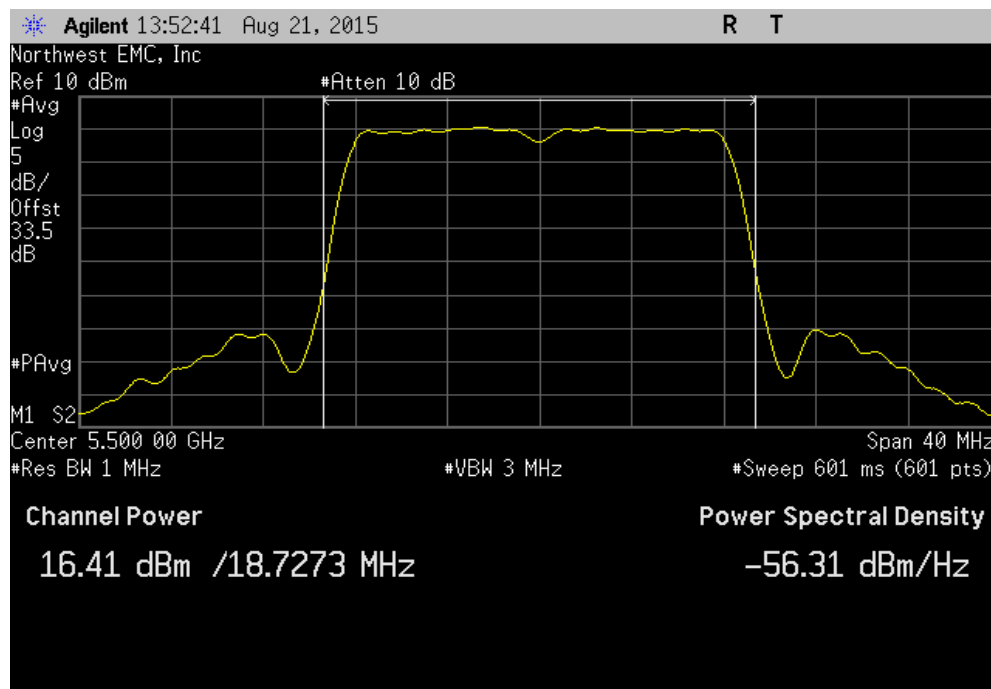


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.18 5320 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
16.41	3.7	20.1	24	Pass	

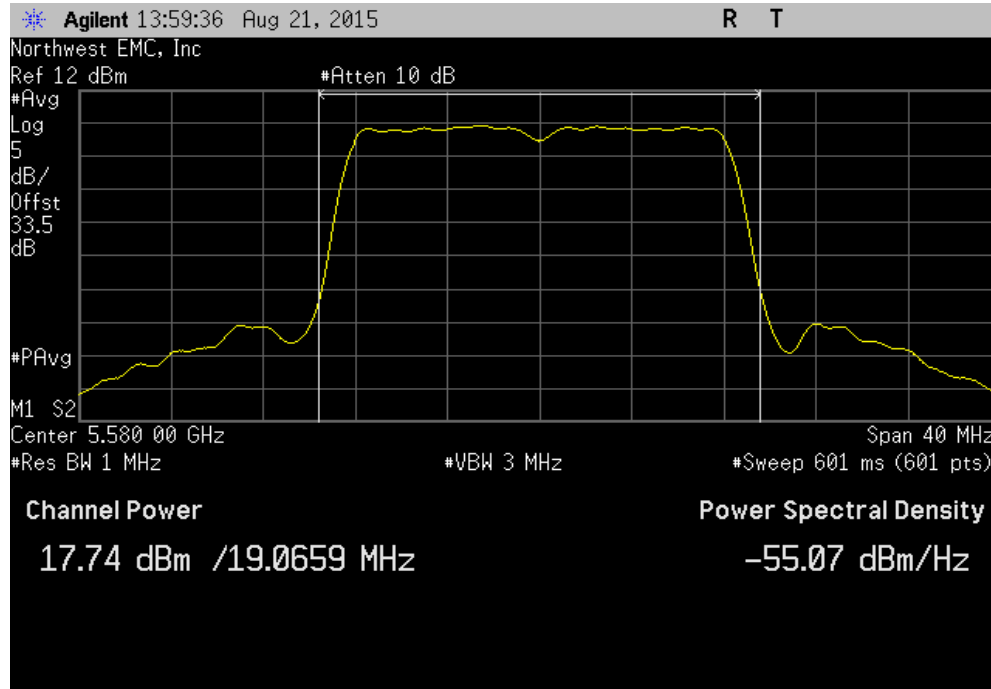


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.19 5500 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
16.41	3.9	20.3	24	Pass	

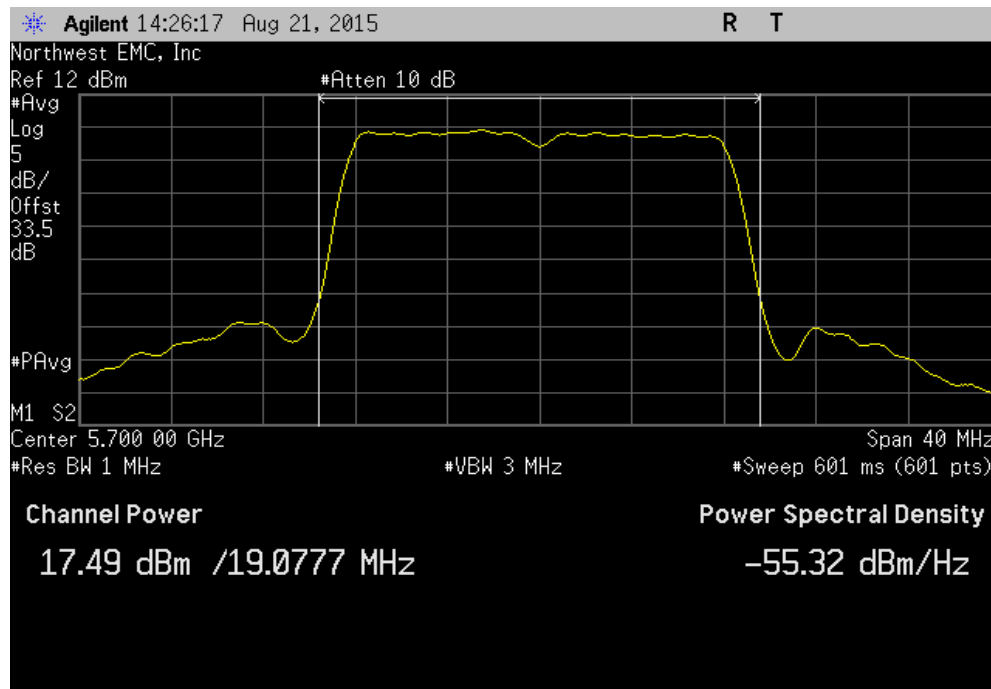


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 18 Mbps, Mid Channel, Ch.23 5580 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
17.736	3.7	21.5	24	Pass	



Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.29 5700 MHz					
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Output Power (dBm)	Limit (dBm)	Results	
17.486	3.7	21.2	24	Pass	



MAXIMUM CONDUCTED OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval (mo)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test.

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

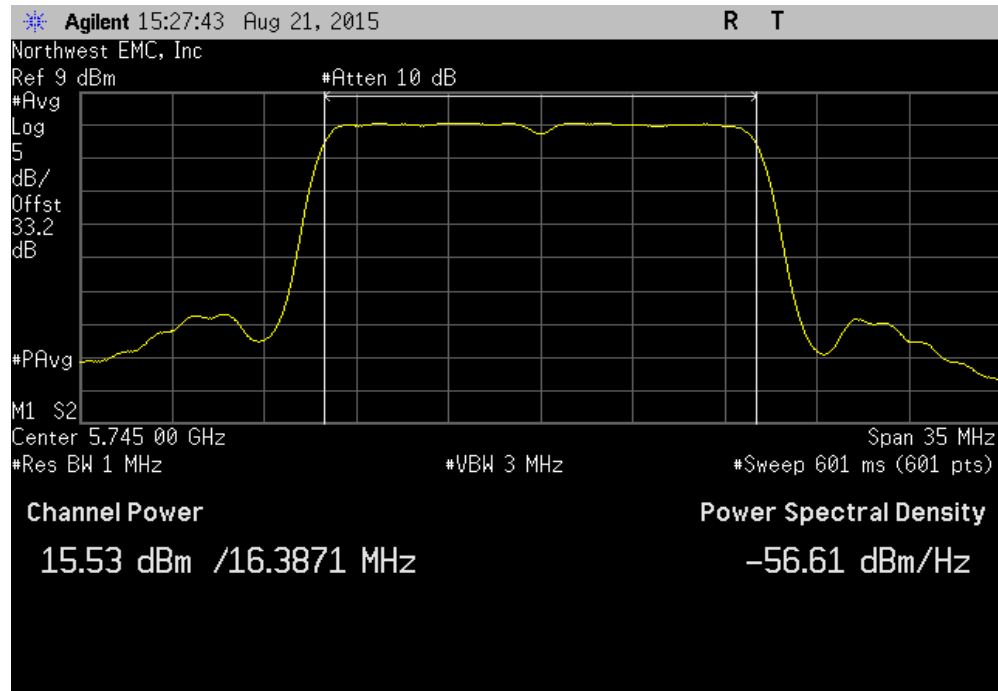
Method SA-2 Alternate (RMS detection with slow sweep across on and off times of the EUT transmission and use of a duty cycle correction factor) was used for this test.

MAXIMUM CONDUCTED OUTPUT POWER

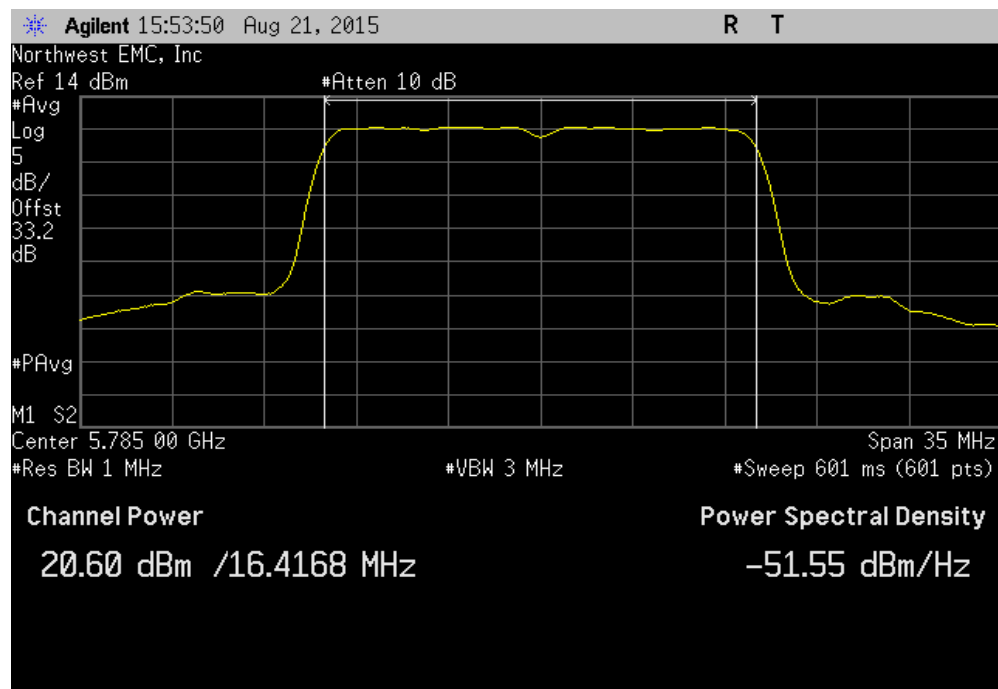
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs	Power: 3.3 VDC Nominal	Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.407:2015		Test Method: ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)
		Output Power (dBm)	Limit (dBm)
			Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low channel, Ch.30, 5745 MHz	15.53	1.9
	Mid channel, Ch.32, 5785 MHz	20.6	1.9
	High channel, Ch.34, 5825 MHz	15.015	1.9
802.11(a) 18 Mbps			
	Low channel, Ch.30, 5745 MHz	13.435	3.7
	Mid channel, Ch.32, 5785 MHz	19.349	3.8
	High channel, Ch.34, 5825 MHz	13.353	3.7

MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, Low channel, Ch.30, 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	15.53	1.9		17.4	30	Pass

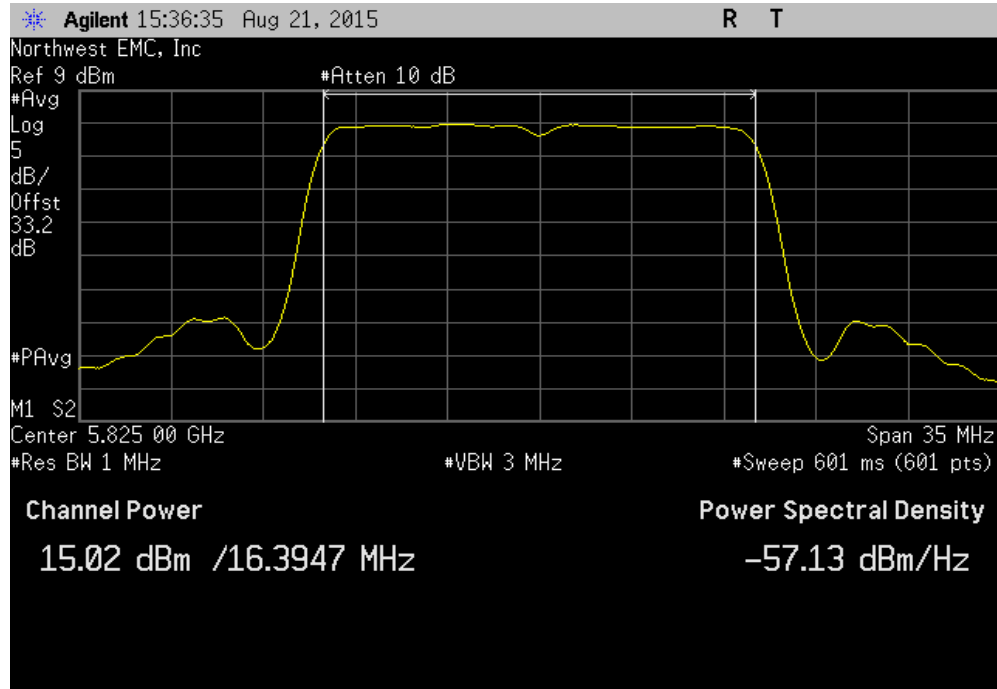


Normal Conditions, 802.11(a) 6 Mbps, Mid channel, Ch.32, 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	20.6	1.9		22.5	30	Pass

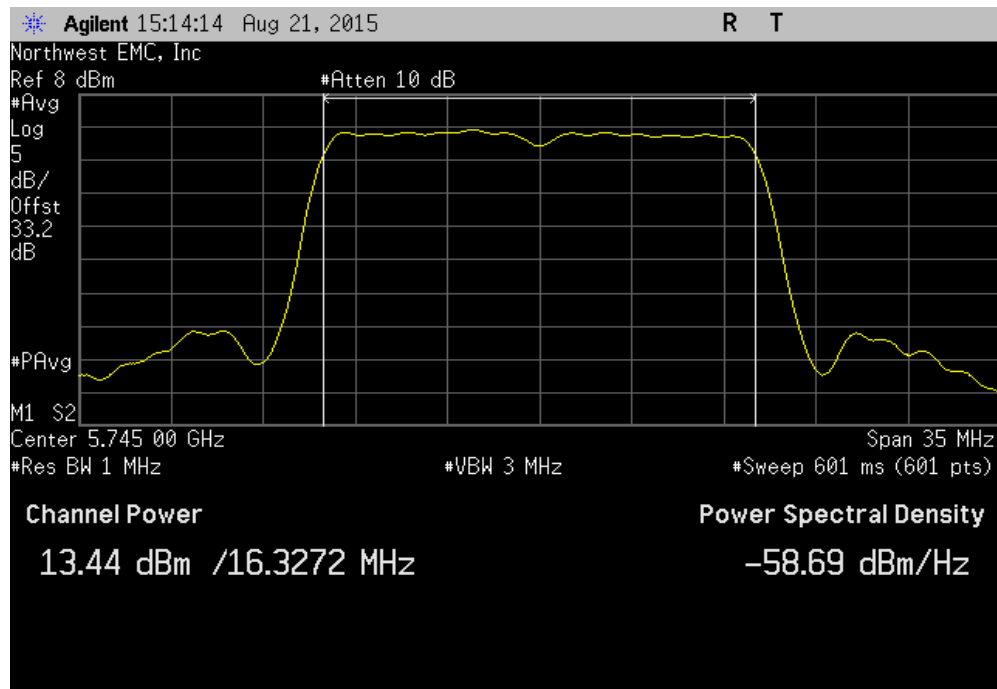


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 6 Mbps, High channel, Ch.34, 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	15.015	1.9		16.9	30	Pass

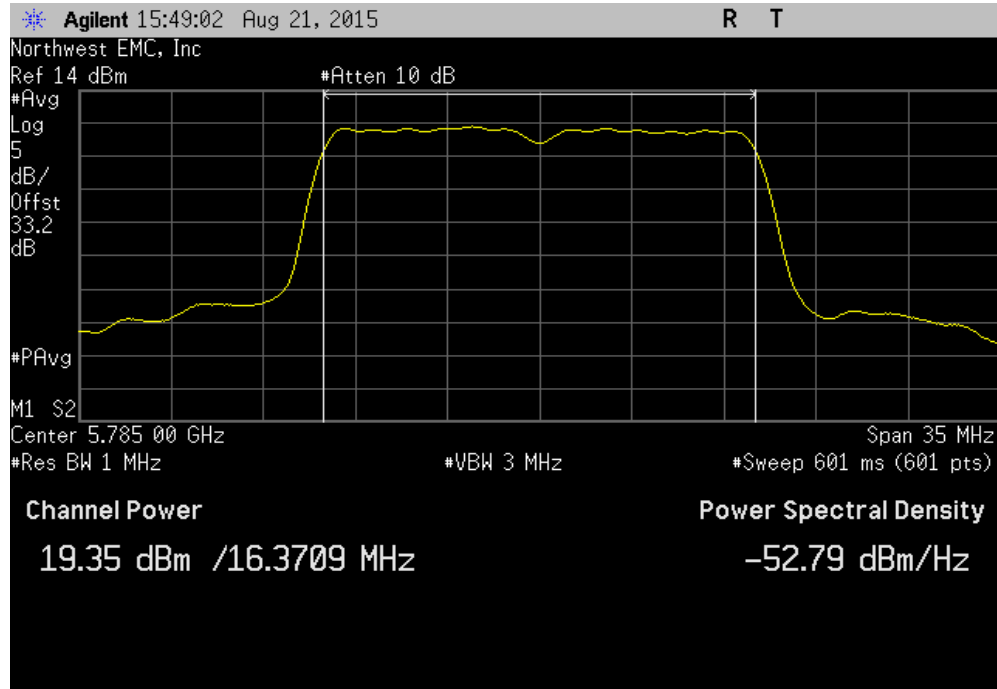


Normal Conditions, 802.11(a) 18 Mbps, Low channel, Ch.30, 5745 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	13.435	3.7		17.2	30	Pass

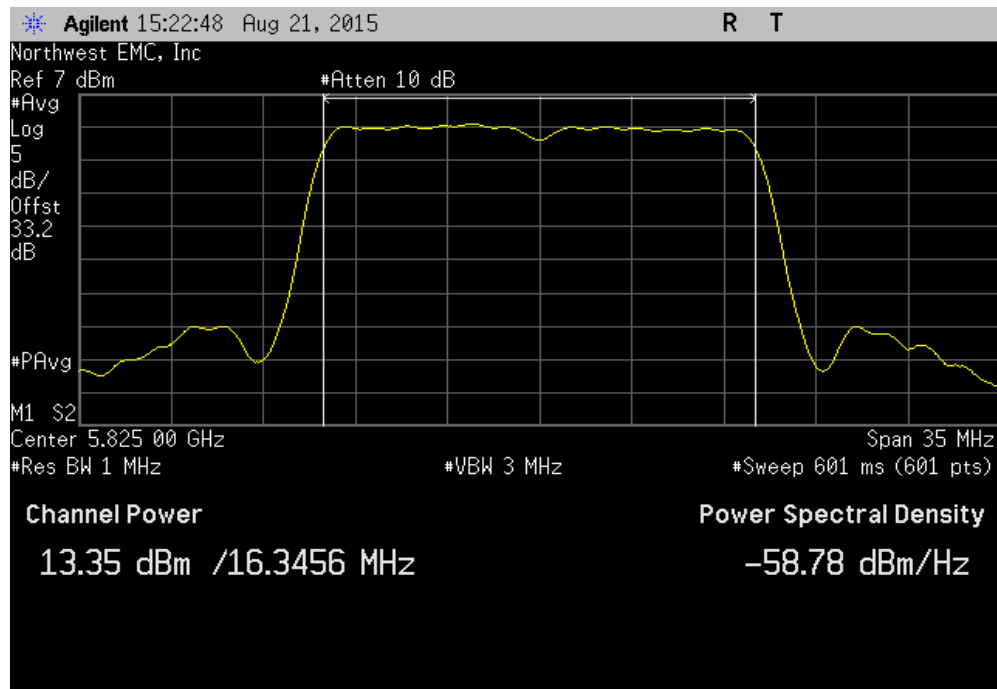


MAXIMUM CONDUCTED OUTPUT POWER

Normal Conditions, 802.11(a) 18 Mbps, Mid channel, Ch.32, 5785 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	19.349	3.8		23.1	30	Pass



Normal Conditions, 802.11(a) 18 Mbps, High channel, Ch.34, 5825 MHz						
	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)		Output Power (dBm)	Limit (dBm)	Results
	13.353	3.7		17.1	30	Pass



MAXIMUM 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)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test.

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.

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.

MAXIMUM POWER SPECTRAL DENSITY

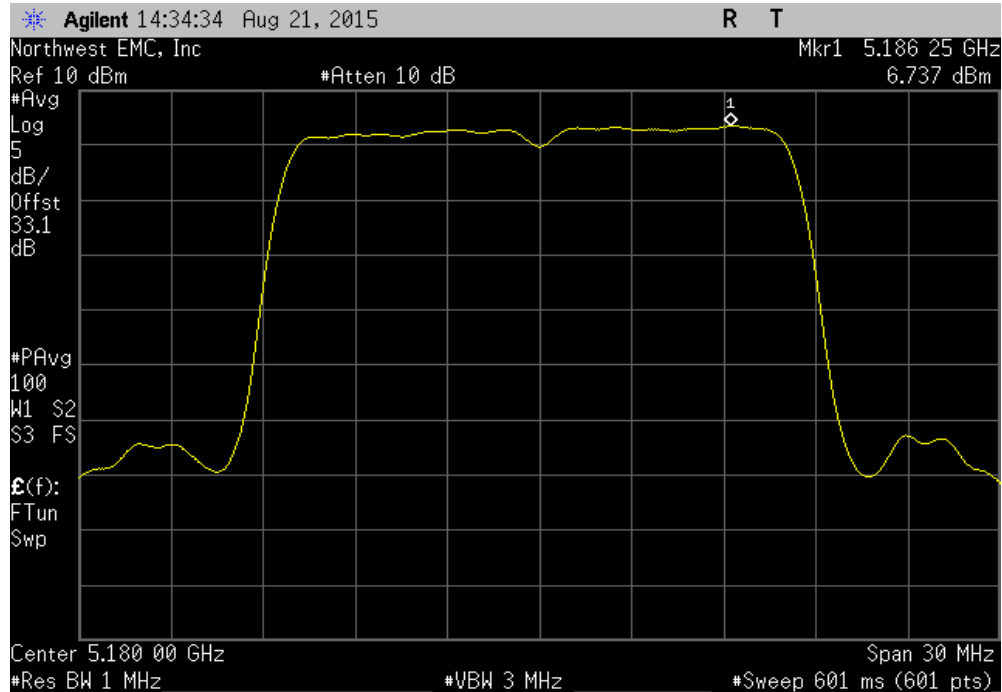


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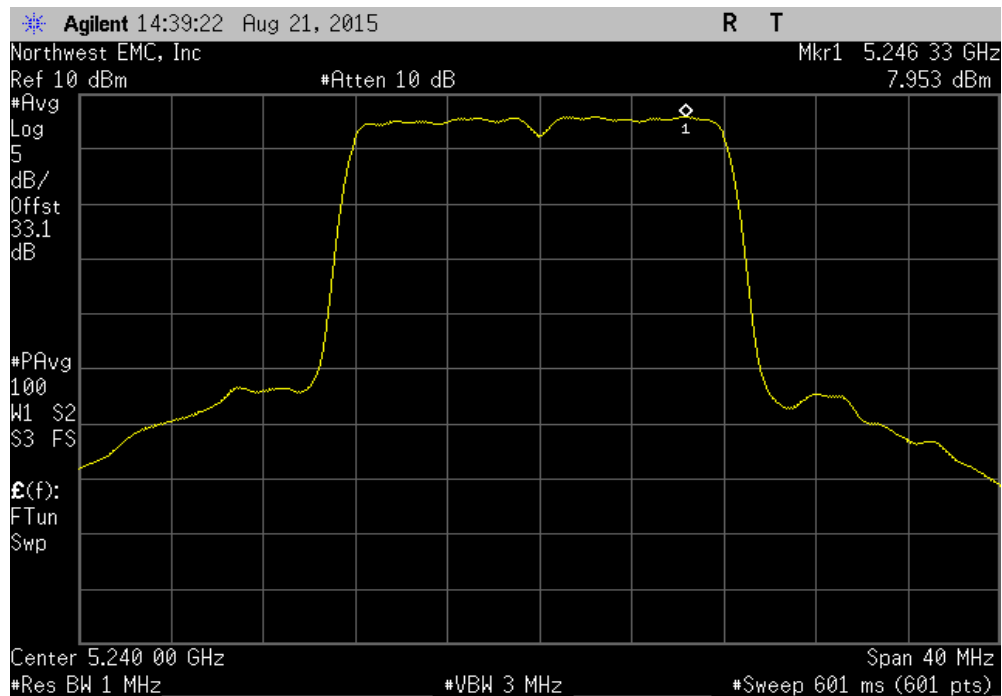
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Power (dBm/MHz)	Duty Cycle Factor (dB)
		Density (dBm/MHz)	Limit (dBm / Ref BW)
			Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low Channel, Ch.8 5180 MHz	6.737	1.9
	High Channel, Ch.14 5240 MHz	7.953	1.9
	Low Channel, Ch.15 5260 MHz	7.86	2
	High Channel, Ch.18 5320 MHz	5.969	1.9
	Low Channel, Ch.19 5500 MHz	6.691	1.9
	Mid Channel, Ch.23 5580 MHz	7.37	1.9
	High Channel, Ch.29 5700 MHz	7.522	1.9
802.11(a) 18 Mbps			
	Low Channel, Ch.8 5180 MHz	5.824	3.8
	High Channel, Ch.14 5240 MHz	7.192	3.7
	Low Channel, Ch.15 5260 MHz	6.661	3.7
	High Channel, Ch.18 5320 MHz	5.18	3.7
	Low Channel, Ch.19 5500 MHz	5.063	3.9
	Mid Channel, Ch.23 5580 MHz	6.4	3.7
	High Channel, Ch.29 5700 MHz	6.561	3.7

MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.8 5180 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW)	Results
	6.737	1.9		8.6	11	Pass

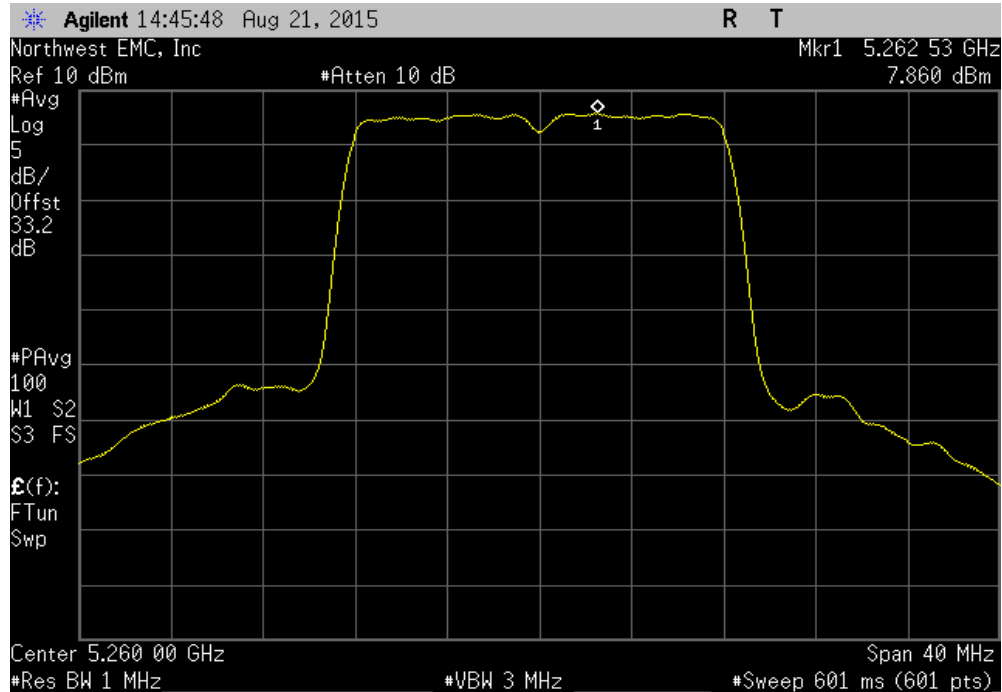


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.14 5240 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)		Density (dBm/MHz)	Limit (dBm / Ref BW)	Results
	7.953	1.9		9.8	11	Pass

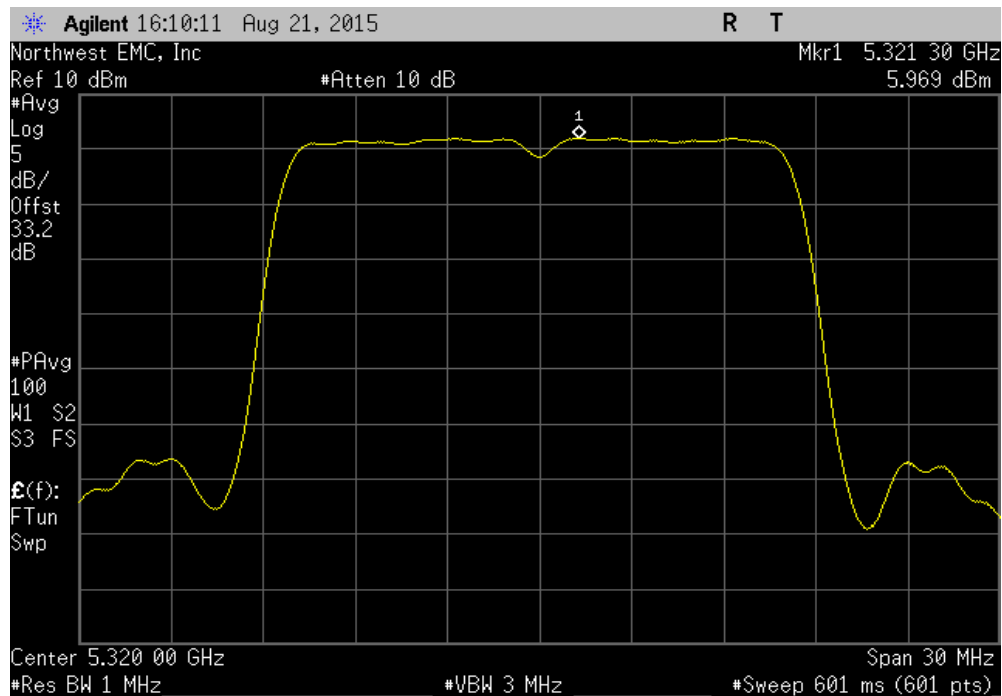


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.15 5260 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
7.86	2	9.9	11	Pass	

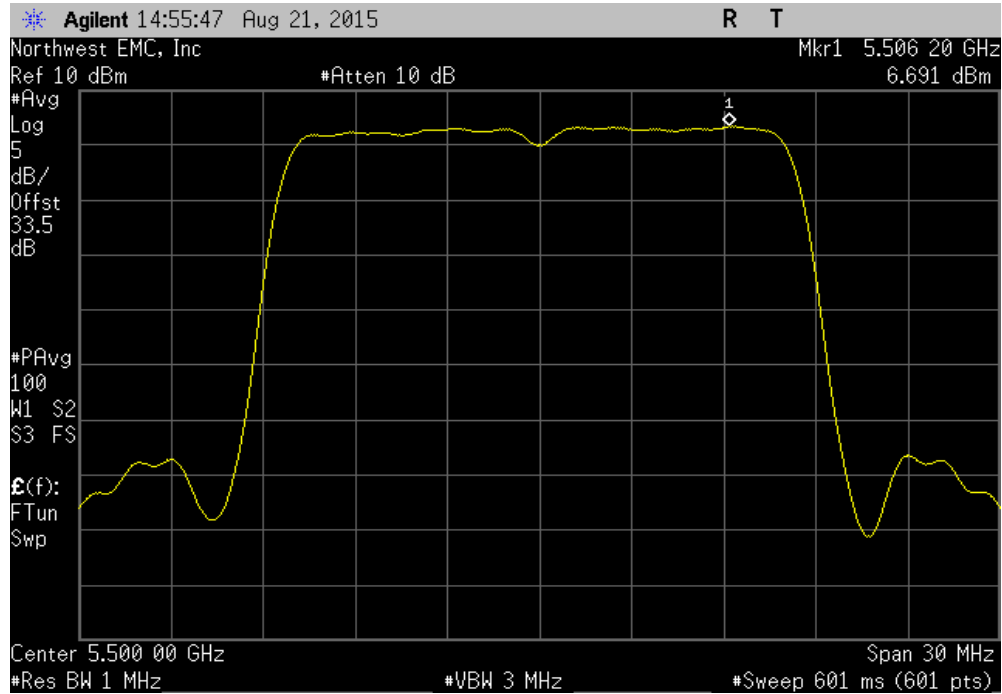


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.18 5320 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
5.969	1.9	7.8	11	Pass	

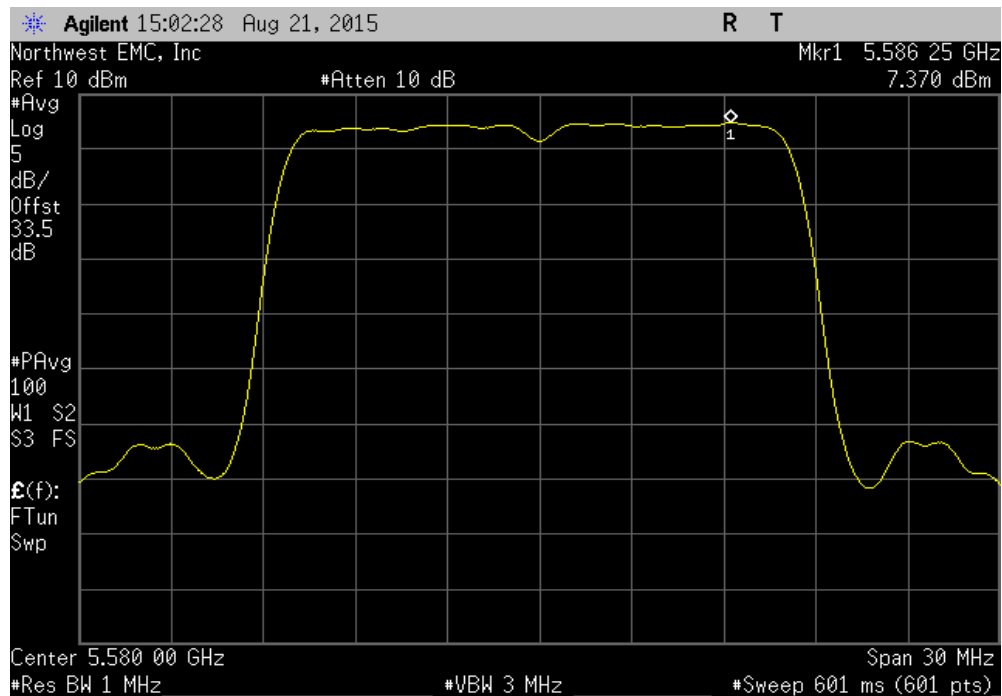


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.19 5500 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
6.691	1.9	8.6	11	Pass		

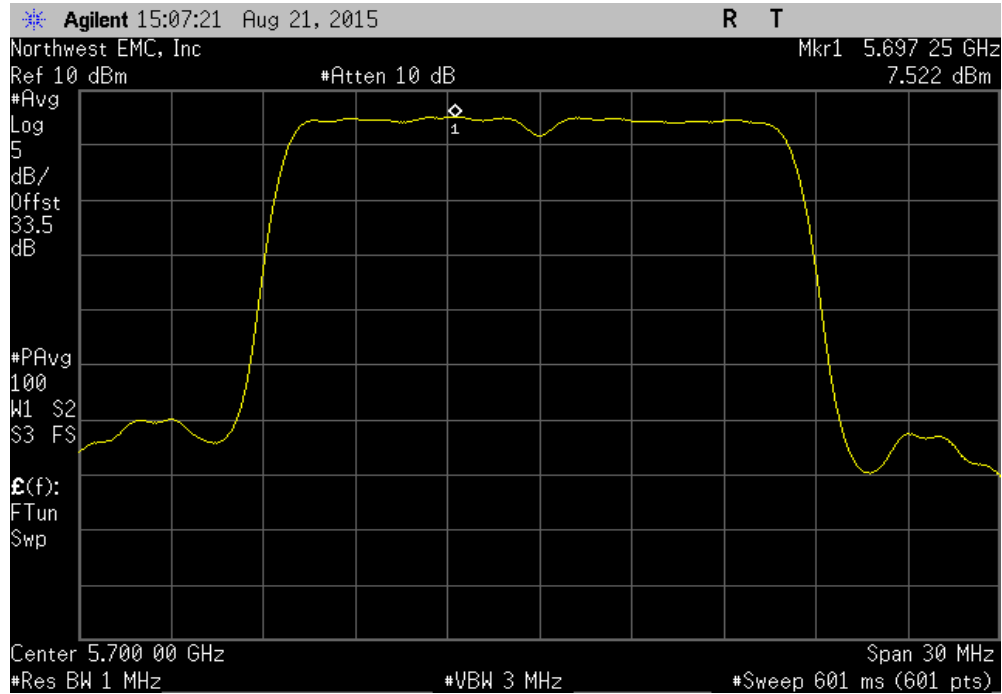


Normal Conditions, 802.11(a) 6 Mbps, Mid Channel, Ch.23 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
7.37	1.9	9.3	11	Pass		

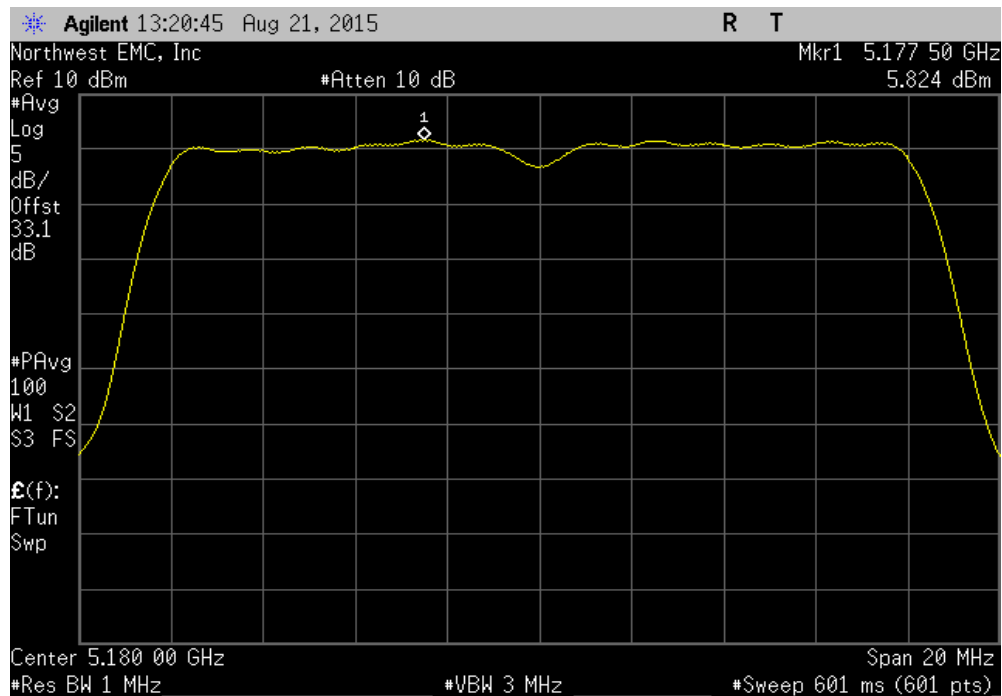


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.29 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
7.522	1.9	9.4	11	Pass		

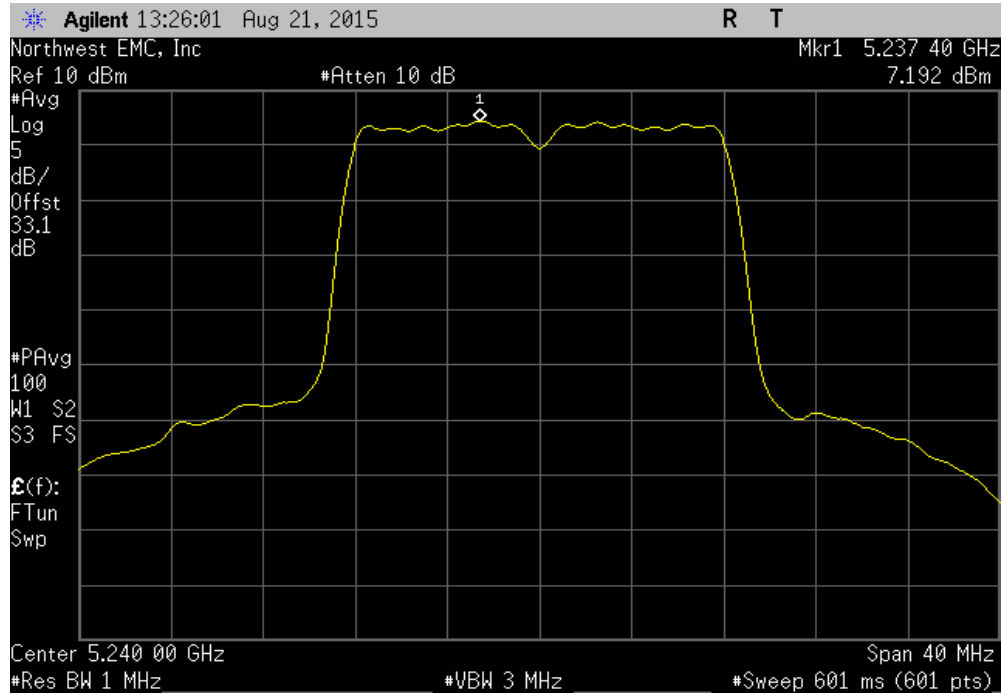


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.8 5180 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
5.824	3.8	9.6	11	Pass		

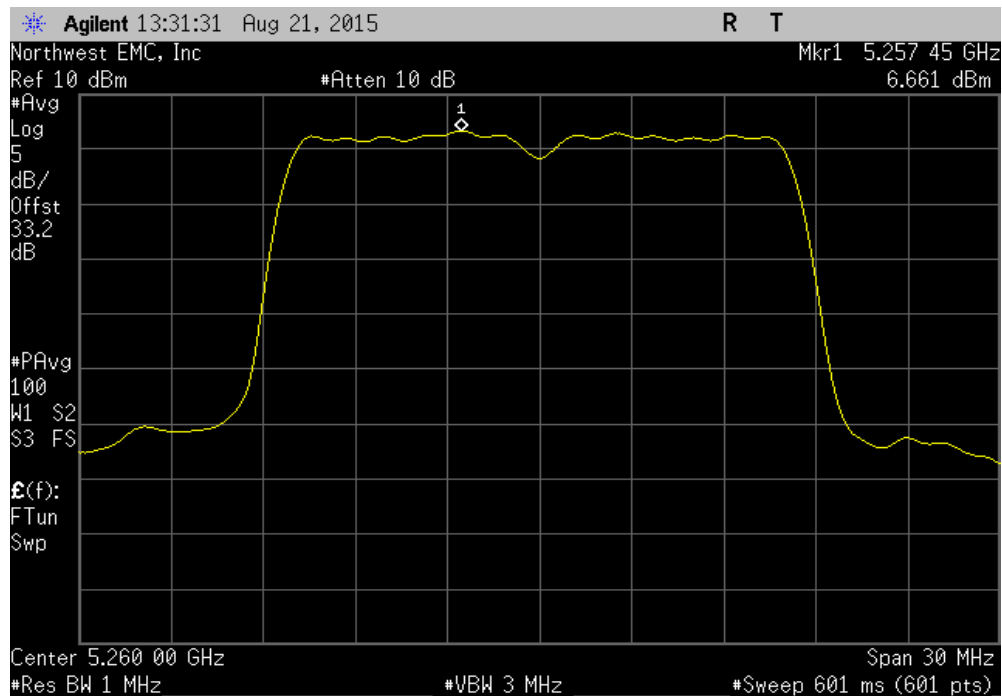


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.14 5240 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
7.192	3.7	10.9	11	Pass	

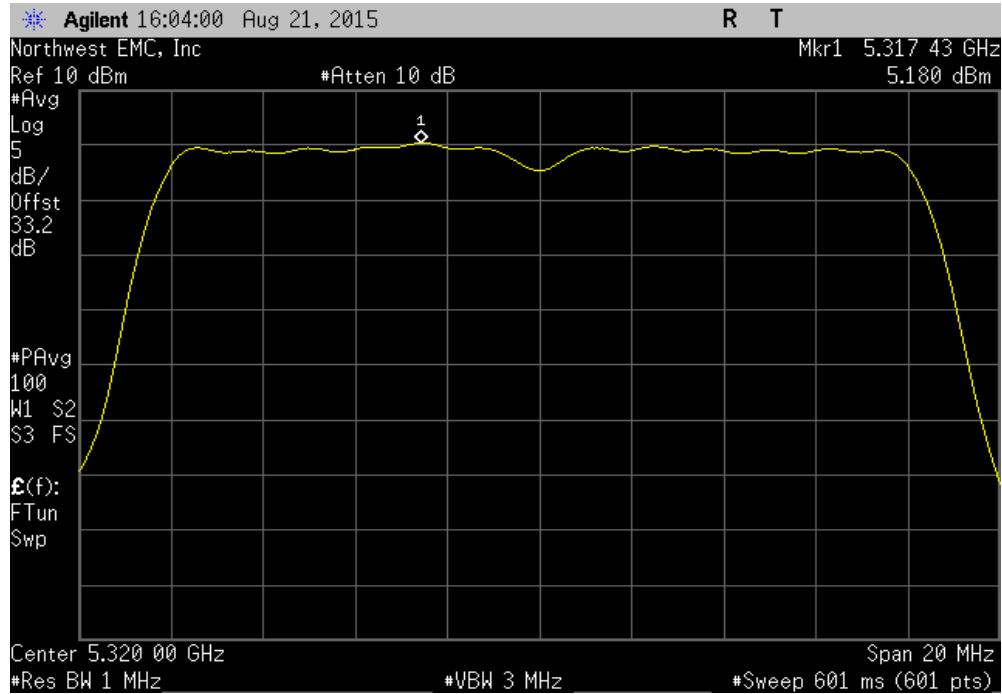


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.15 5260 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
6.661	3.7	10.4	11	Pass	

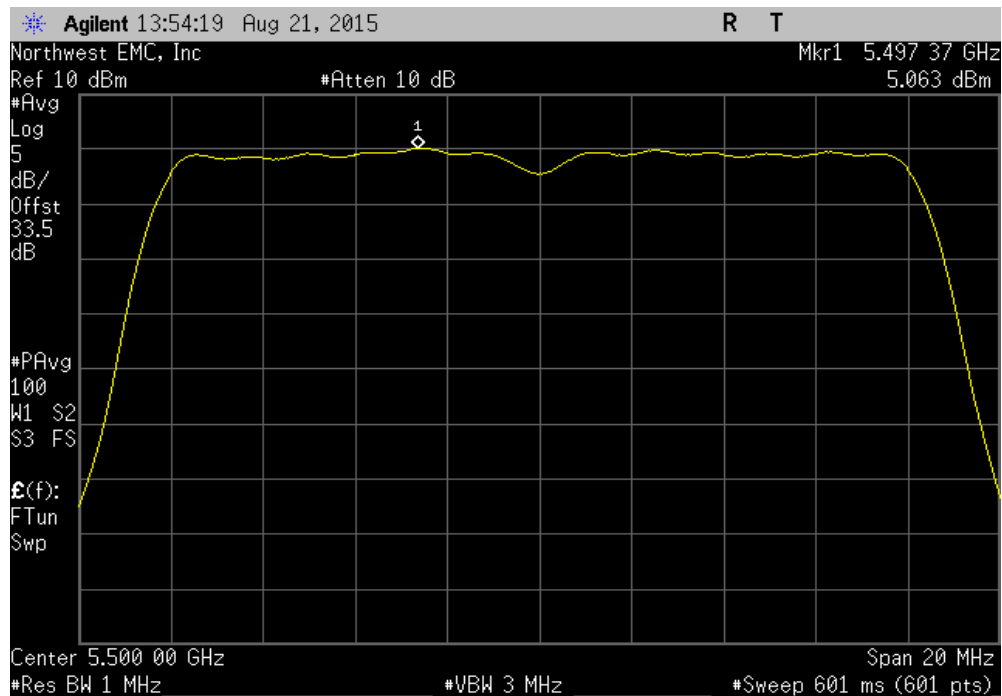


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.18 5320 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
5.18	3.7	8.9	11	Pass	

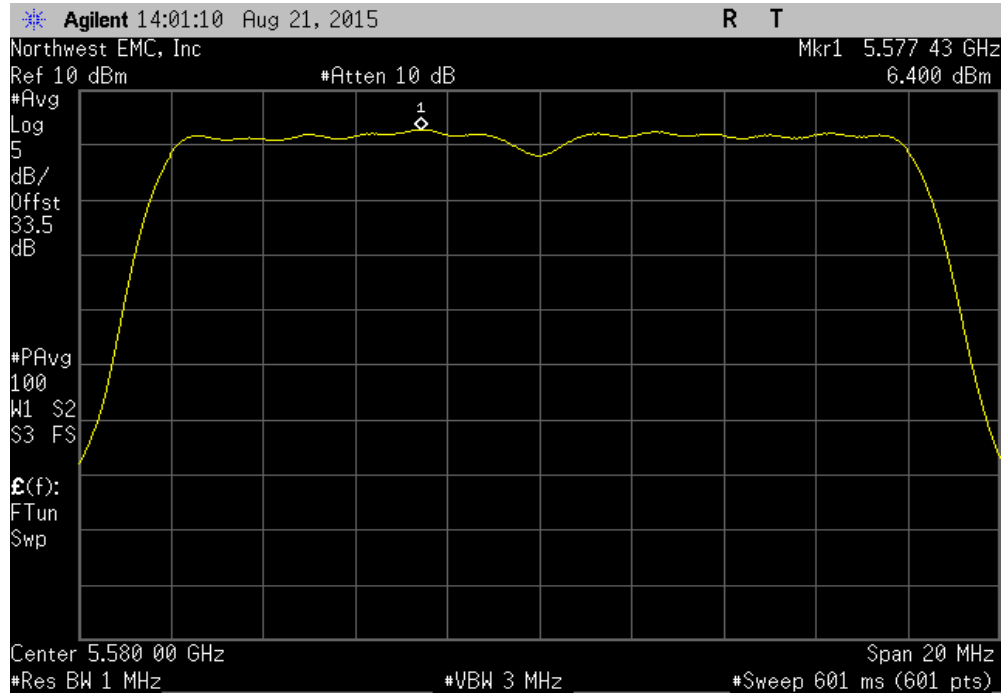


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.19 5500 MHz					
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
5.063	3.9	9	11	Pass	

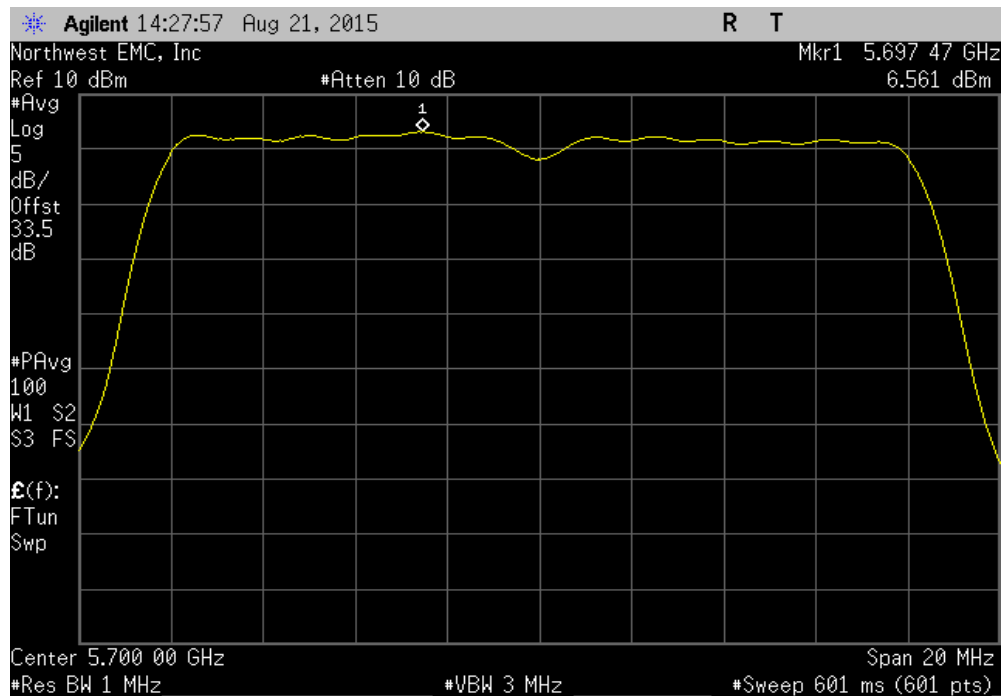


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 18 Mbps, Mid Channel, Ch.23 5580 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
6.4	3.7	10.1	11	Pass		



Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.29 5700 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
6.561	3.7	10.3	11	Pass		



MAXIMUM 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)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

TEST DESCRIPTION

FCC KDB 789033 D01 General UNII Test.

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.

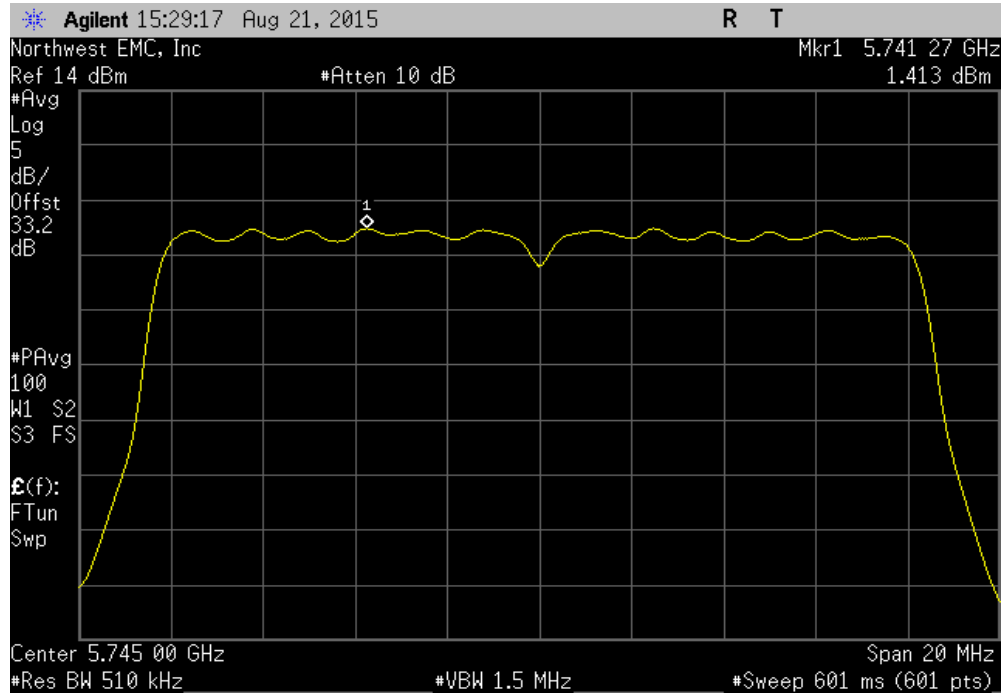
Method SA-2 Alternate (RMS detection with slow sweep across on and off times of the EUT transmission and use of a duty cycle correction factor) was used for this test.

MAXIMUM POWER SPECTRAL DENSITY

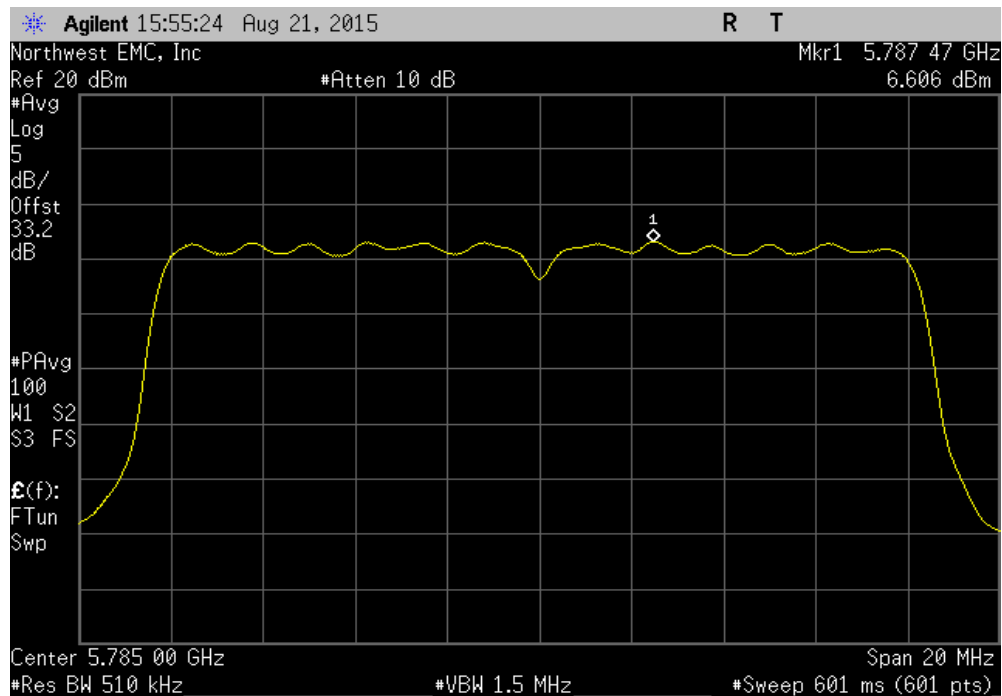
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Power (dBm/MHz)	Duty Cycle Factor (dB)
		Density (dBm/MHz)	Limit (dBm / Ref BW)
			Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low channel, Ch.30, 5745 MHz	1.413	1.9
	Mid channel, Ch.32, 5785 MHz	6.606	1.9
	High channel, Ch.34, 5825 MHz	1.054	1.9
802.11(a) 18 Mbps			
	Low channel, Ch.30, 5745 MHz	0.255	3.7
	Mid channel, Ch.32, 5785 MHz	6.443	3.8
	High channel, Ch.34, 5825 MHz	0.134	3.7

MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, Low channel, Ch.30, 5745 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
1.413	1.9	3.3	30	Pass		

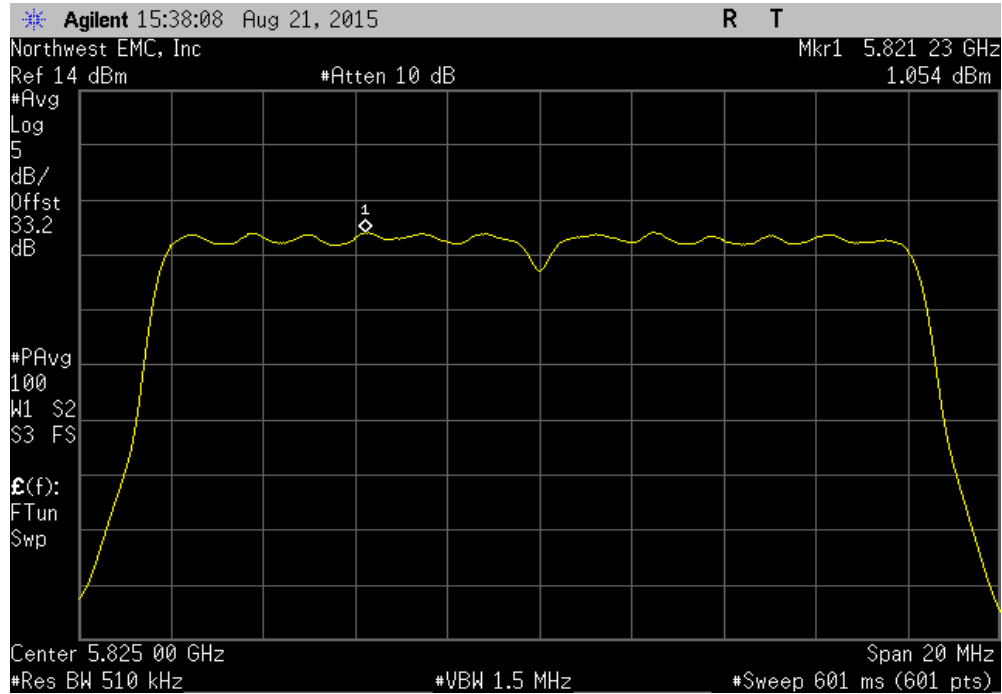


Normal Conditions, 802.11(a) 6 Mbps, Mid channel, Ch.32, 5785 MHz						
Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results		
6.606	1.9	8.5	30	Pass		

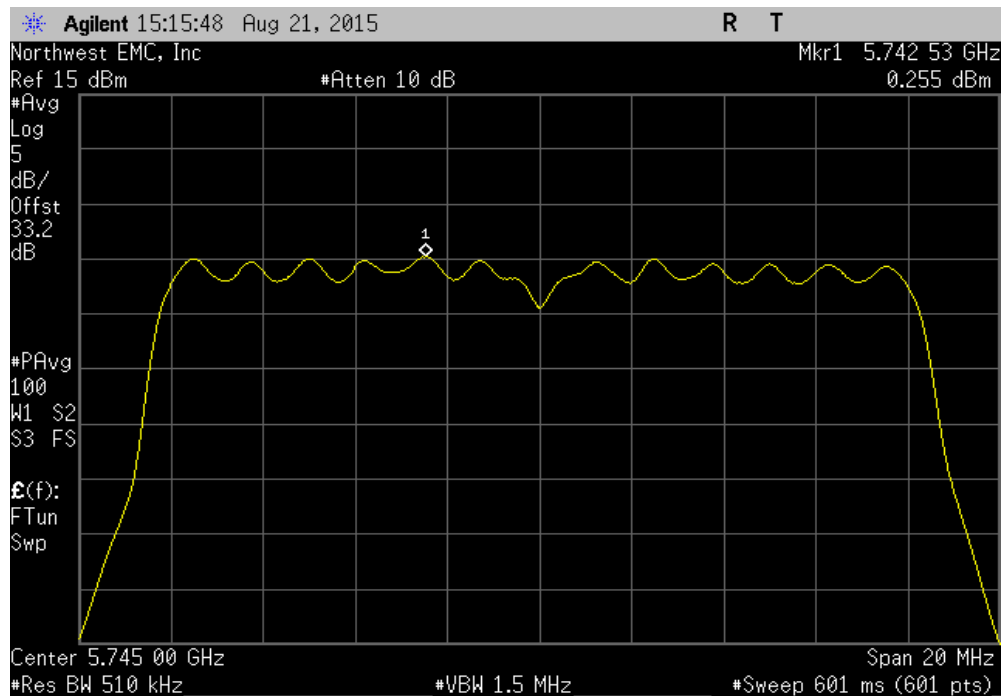


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 6 Mbps, High channel, Ch.34, 5825 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
	1.054	1.9	2.9	30	Pass	

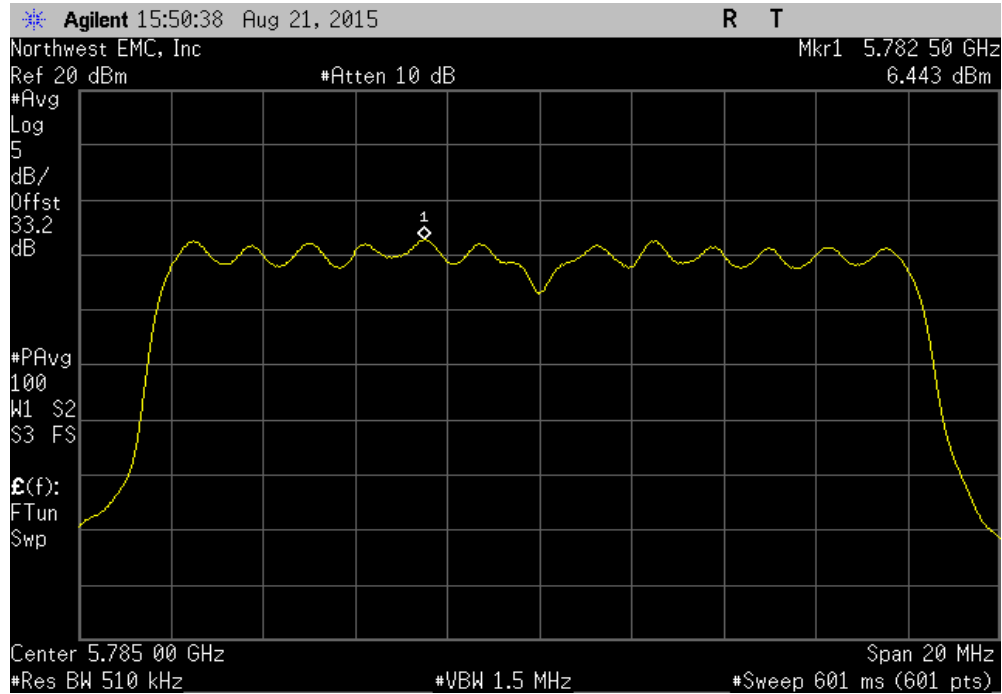


Normal Conditions, 802.11(a) 18 Mbps, Low channel, Ch.30, 5745 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
	0.255	3.7	4	30	Pass	

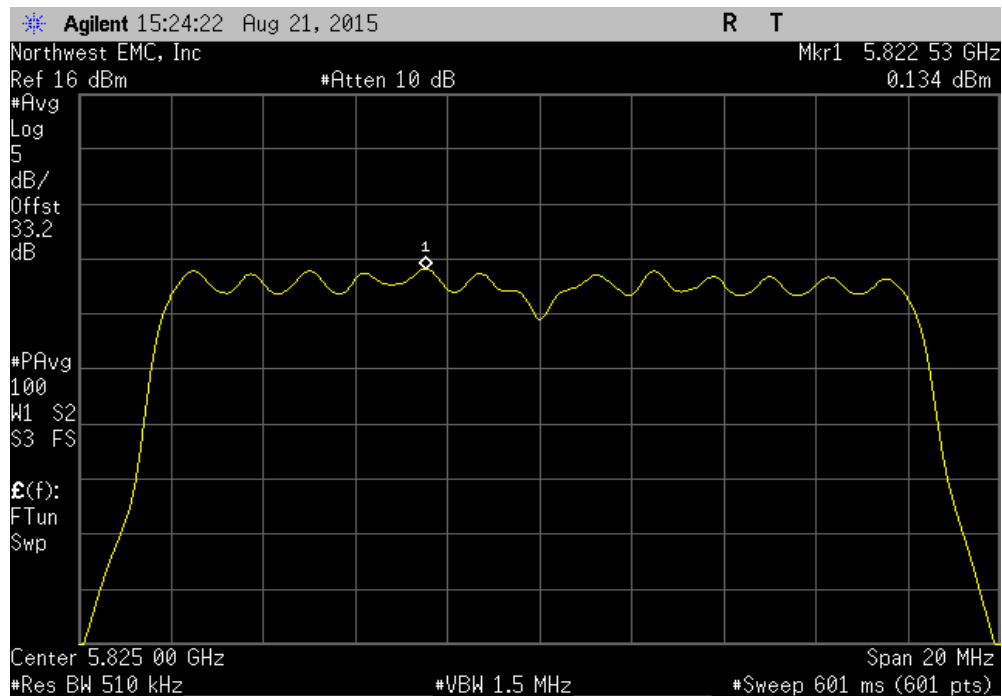


MAXIMUM POWER SPECTRAL DENSITY

Normal Conditions, 802.11(a) 18 Mbps, Mid channel, Ch.32, 5785 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
	6.443	3.8	10.2	30	Pass	



Normal Conditions, 802.11(a) 18 Mbps, High channel, Ch.34, 5825 MHz						
	Power (dBm/MHz)	Duty Cycle Factor (dB)	Density (dBm/MHz)	Limit (dBm / Ref BW)	Results	
	0.134	3.7	3.9	30	Pass	



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)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAY	10/27/2014	12

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.

DUTY CYCLE

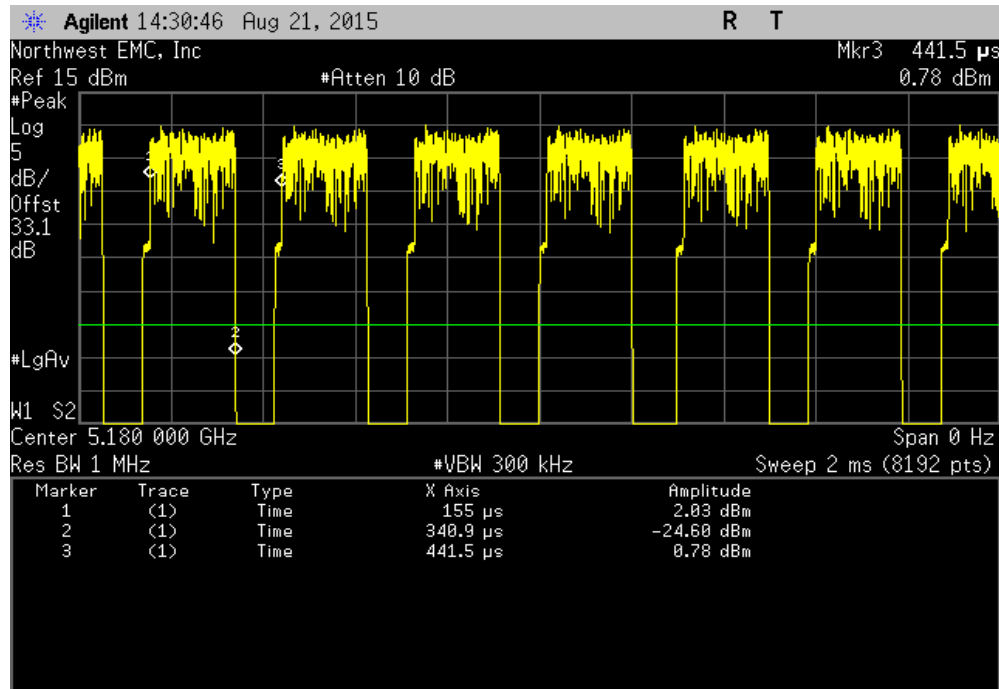


XMR 2015.01.14

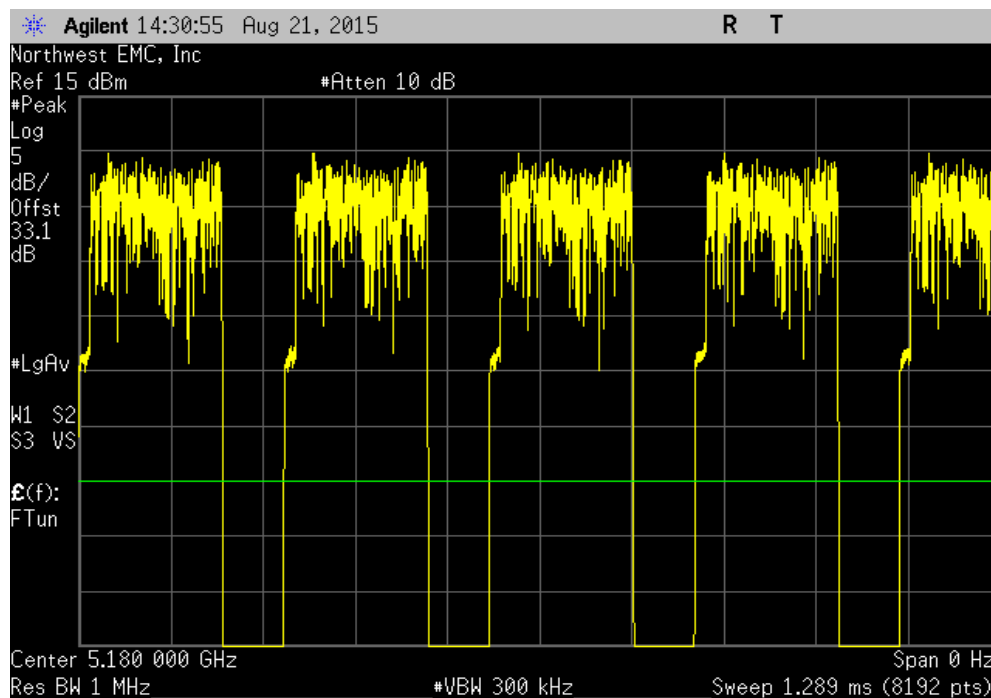
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Pulse Width	Period
		Number of Pulses	Value (%)
		Limit	Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low Channel, Ch.8 5180 MHz	185.9 us	286.5 us
	Low Channel, Ch.8 5180 MHz	N/A	N/A
	High Channel, Ch.14 5240 MHz	186 us	286.9 us
	High Channel, Ch.14 5240 MHz	N/A	N/A
	Low Channel, Ch.15 5260 MHz	186.1 us	296.7 us
	Low Channel, Ch.15 5260 MHz	N/A	N/A
	High Channel, Ch.18 5320 MHz	186.4 us	287.4 us
	High Channel, Ch.18 5320 MHz	N/A	N/A
	Low Channel, Ch.19 5500 MHz	185.8 us	287.2 us
	Low Channel, Ch.19 5500 MHz	N/A	N/A
	Mid Channel, Ch.23 5580 MHz	186.1 us	287.4 us
	Mid Channel, Ch.23 5580 MHz	N/A	N/A
	High Channel, Ch.29 5700 MHz	185.8 us	287.2 us
	High Channel, Ch.29 5700 MHz	N/A	N/A
802.11(a) 18 Mbps			
	Low Channel, Ch.8 5180 MHz	73.7 us	175.3 us
	Low Channel, Ch.8 5180 MHz	N/A	N/A
	High Channel, Ch.14 5240 MHz	74 us	175.3 us
	High Channel, Ch.14 5240 MHz	N/A	N/A
	Low Channel, Ch.15 5260 MHz	74 us	175.1 us
	Low Channel, Ch.15 5260 MHz	N/A	N/A
	High Channel, Ch.18 5320 MHz	74.2 us	175.3 us
	High Channel, Ch.18 5320 MHz	N/A	N/A
	Low Channel, Ch.19 5500 MHz	73.7 us	181.9 us
	Low Channel, Ch.19 5500 MHz	N/A	N/A
	Mid Channel, Ch.23 5580 MHz	74 us	174.9 us
	Mid Channel, Ch.23 5580 MHz	N/A	N/A
	High Channel, Ch.29 5700 MHz	74 us	175.3 us
	High Channel, Ch.29 5700 MHz	N/A	N/A

DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.8 5180 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	185.9 us	286.5 us	1	64.9	N/A	N/A

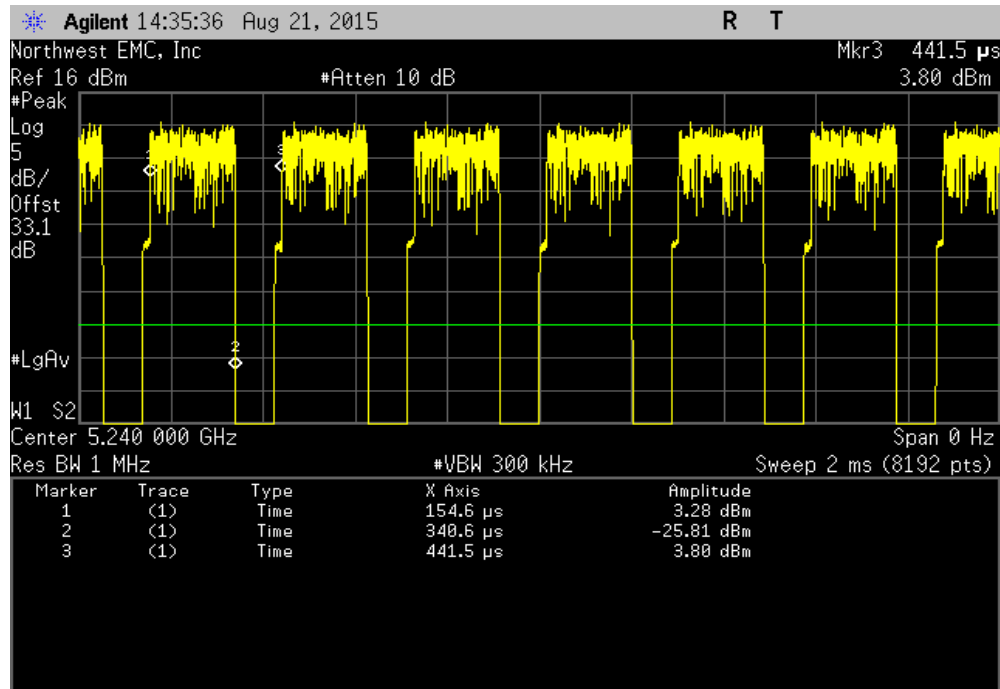


Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.8 5180 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

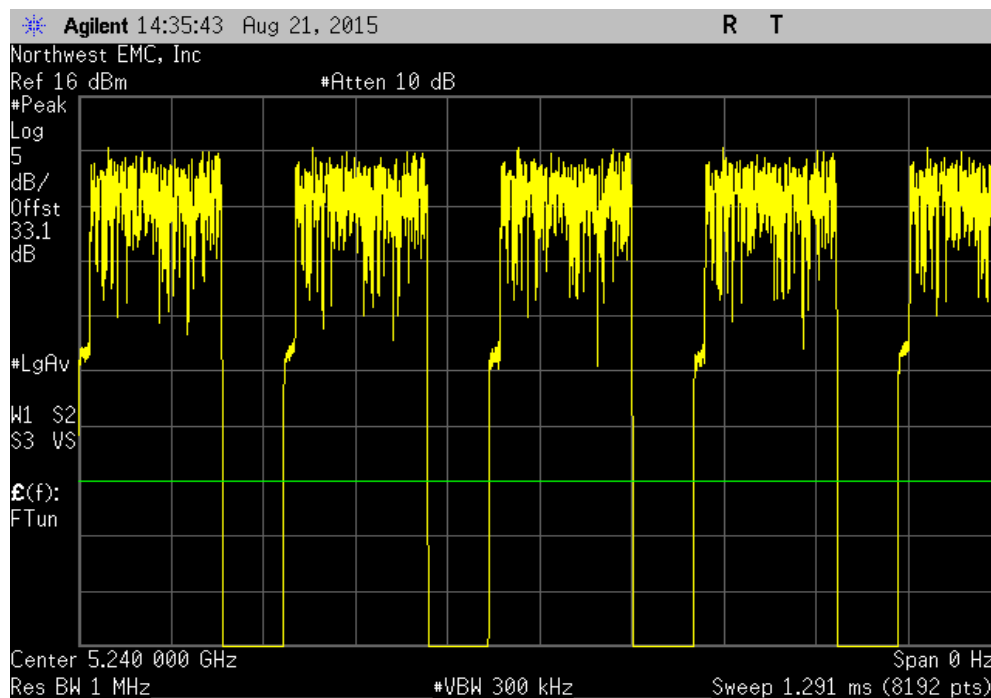


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.14 5240 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	186 us	286.9 us	1	64.8	N/A	N/A

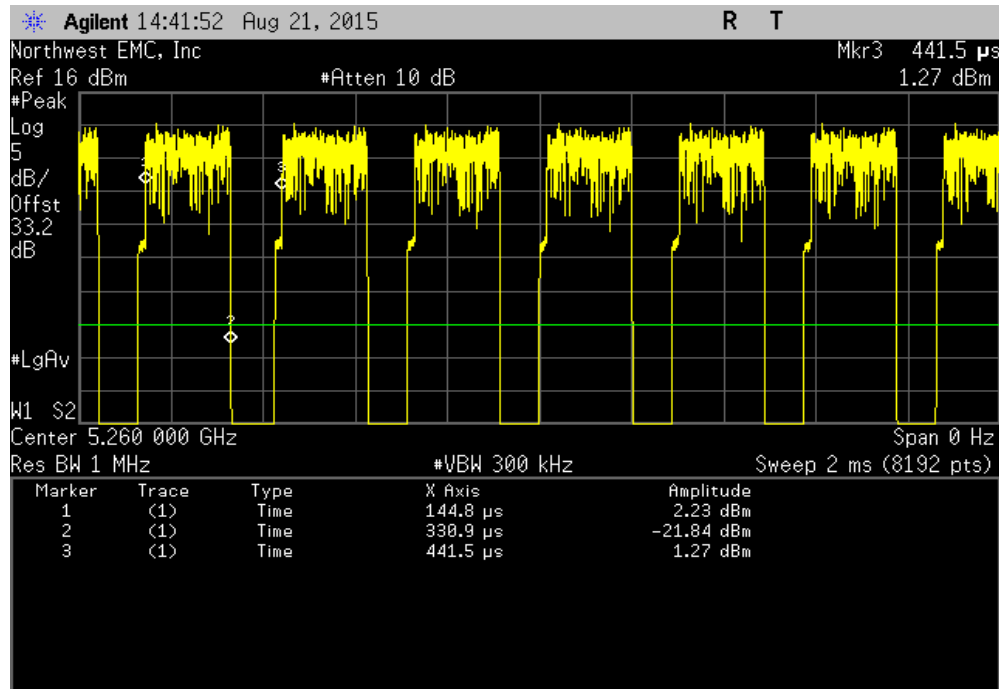


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.14 5240 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

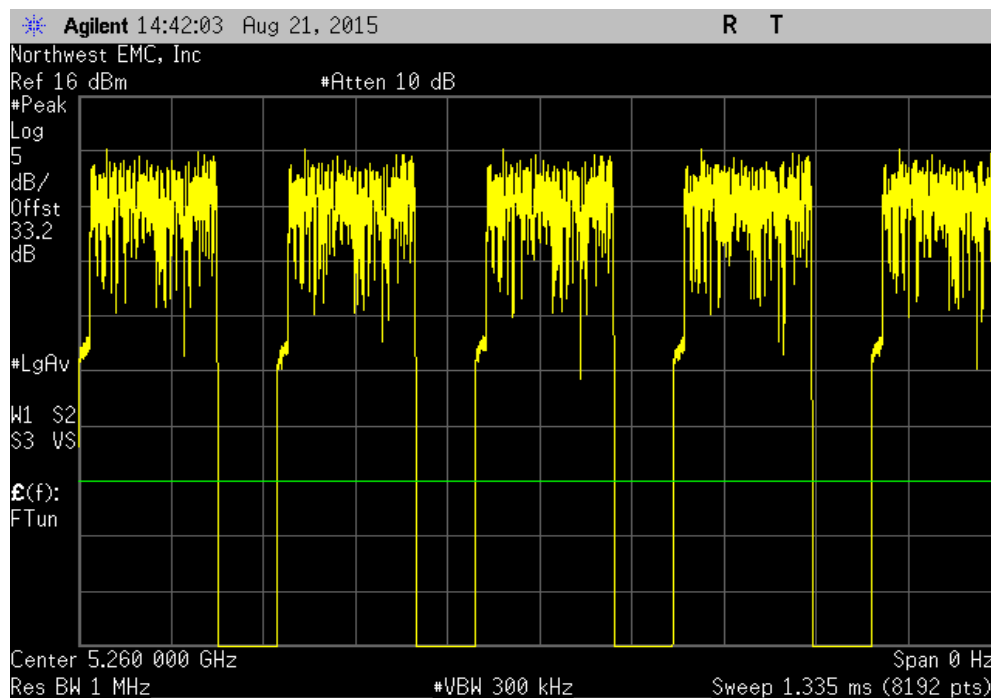


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.15 5260 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	186.1 us	296.7 us	1	62.7	N/A	N/A

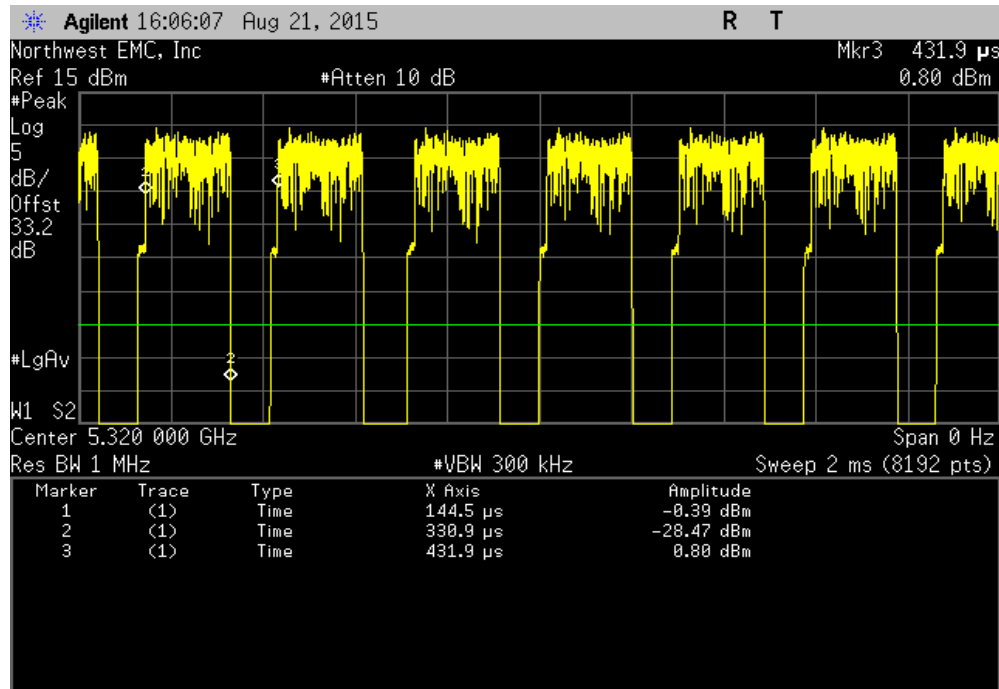


Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.15 5260 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

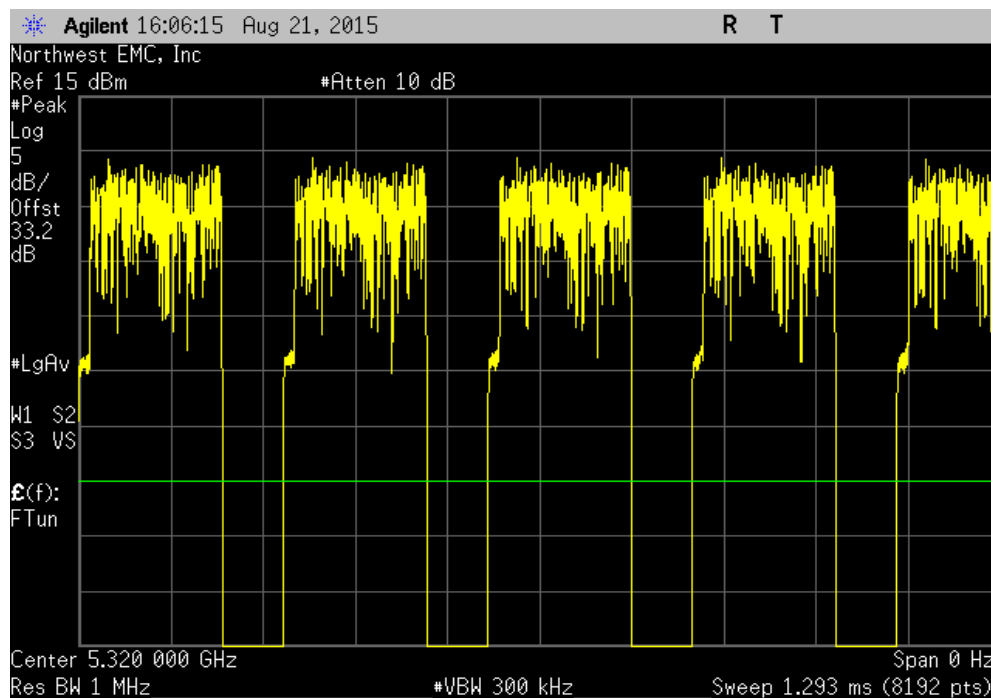


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.18 5320 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	186.4 us	287.4 us	1	64.9	N/A	N/A

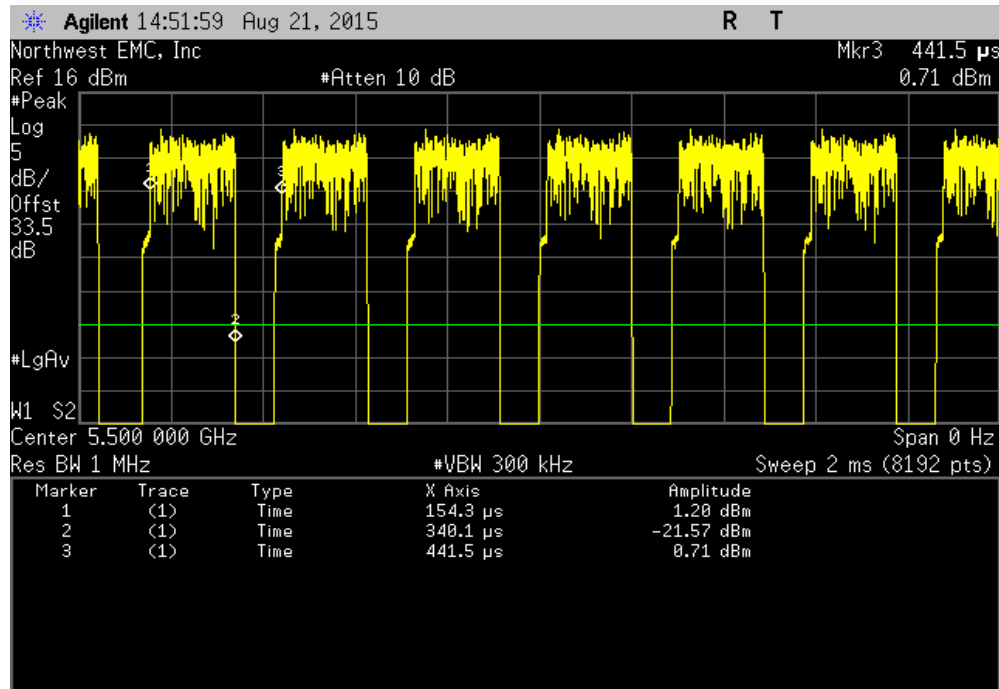


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.18 5320 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

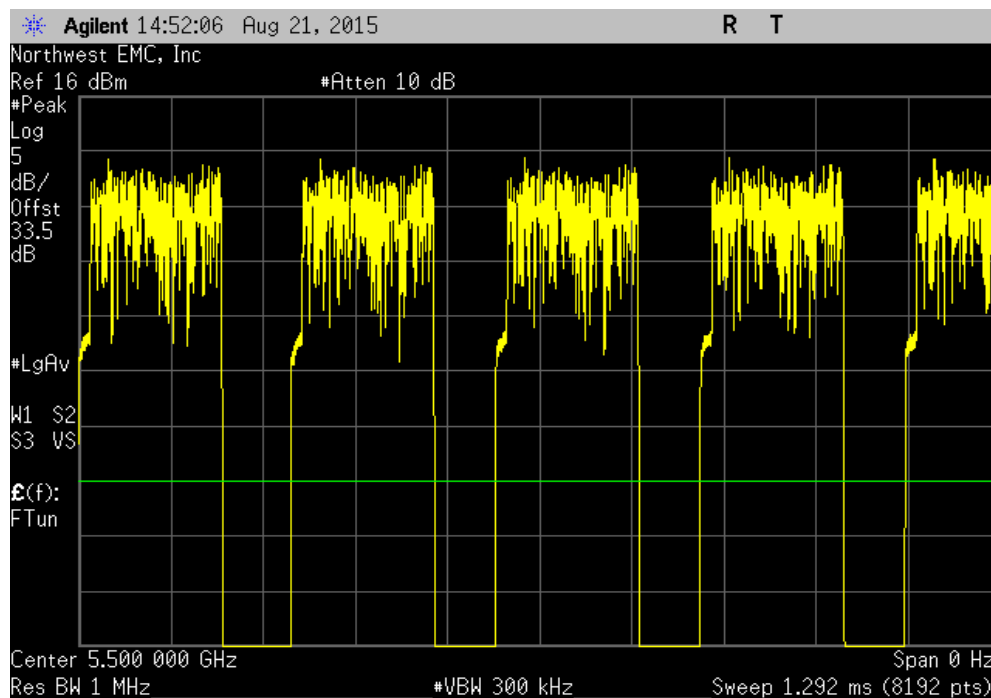


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.19 5500 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	185.8 us	287.2 us	1	64.7	N/A	N/A

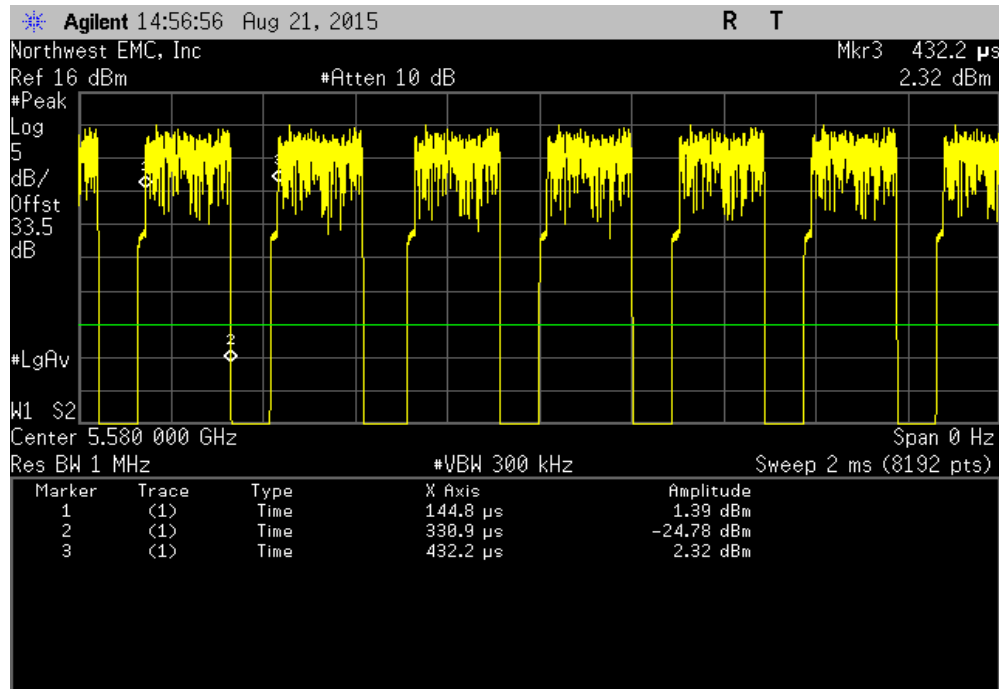


Normal Conditions, 802.11(a) 6 Mbps, Low Channel, Ch.19 5500 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

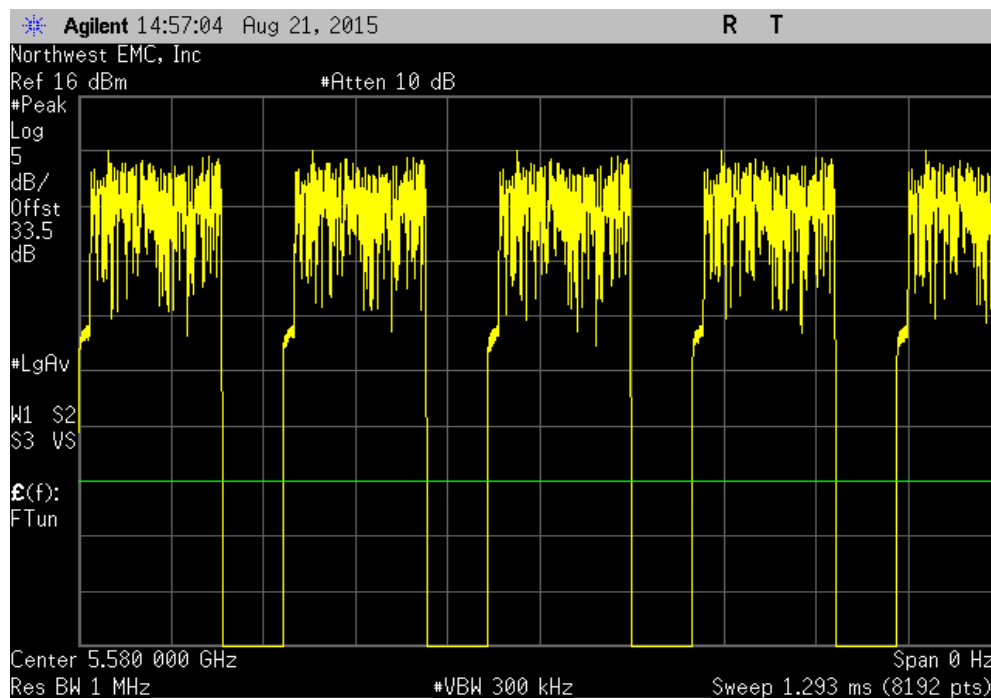


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Mid Channel, Ch.23 5580 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	186.1 us	287.4 us	1	64.8	N/A	N/A

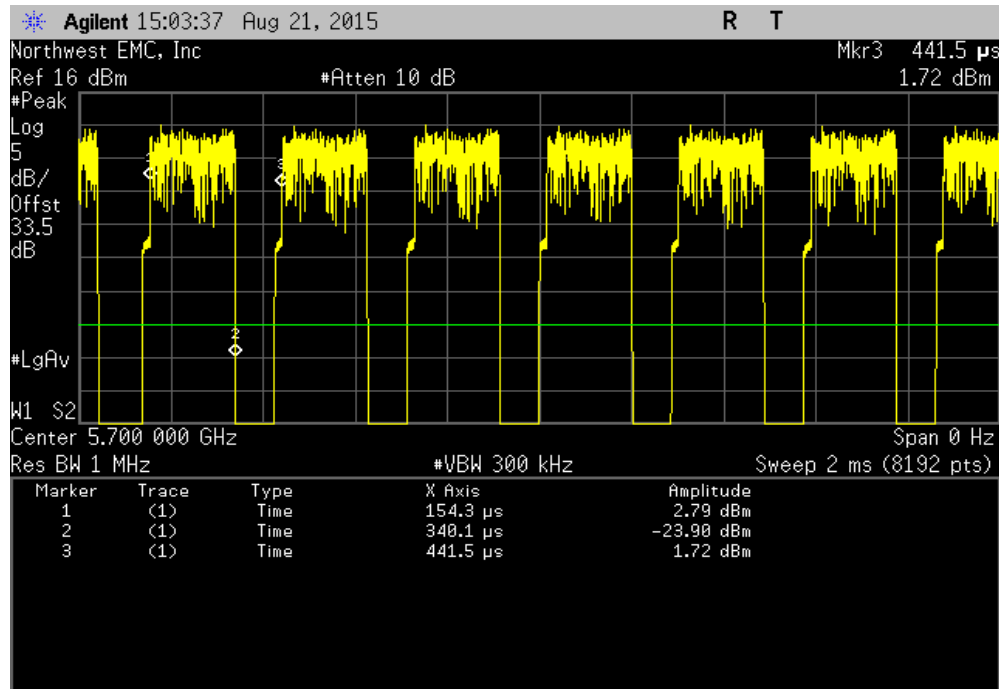


Normal Conditions, 802.11(a) 6 Mbps, Mid Channel, Ch.23 5580 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

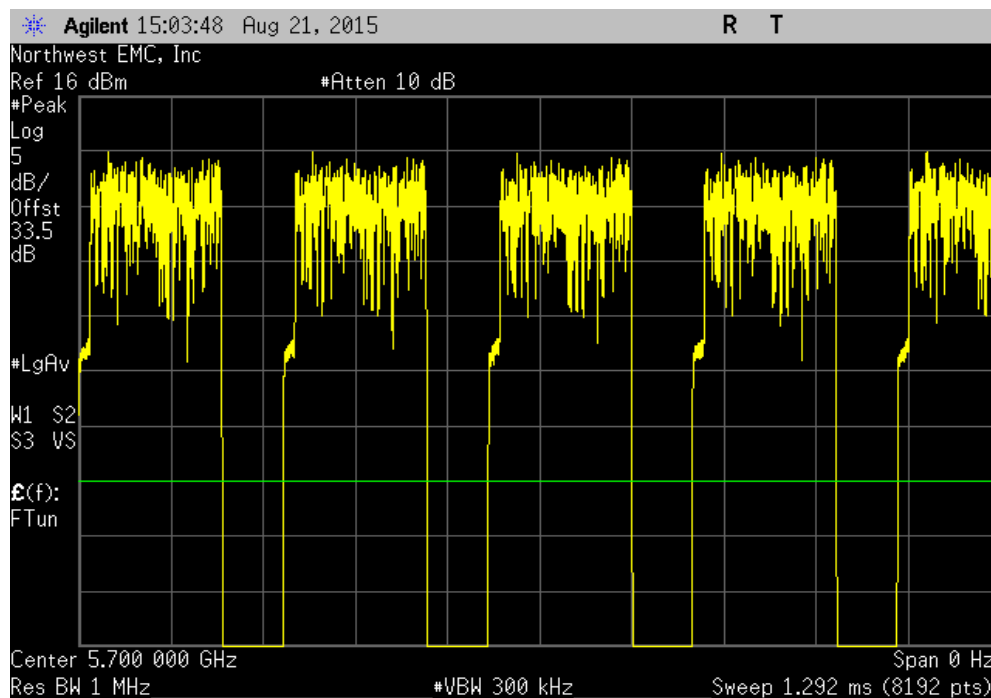


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.29 5700 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	185.8 us	287.2 us	1	64.7	N/A	N/A

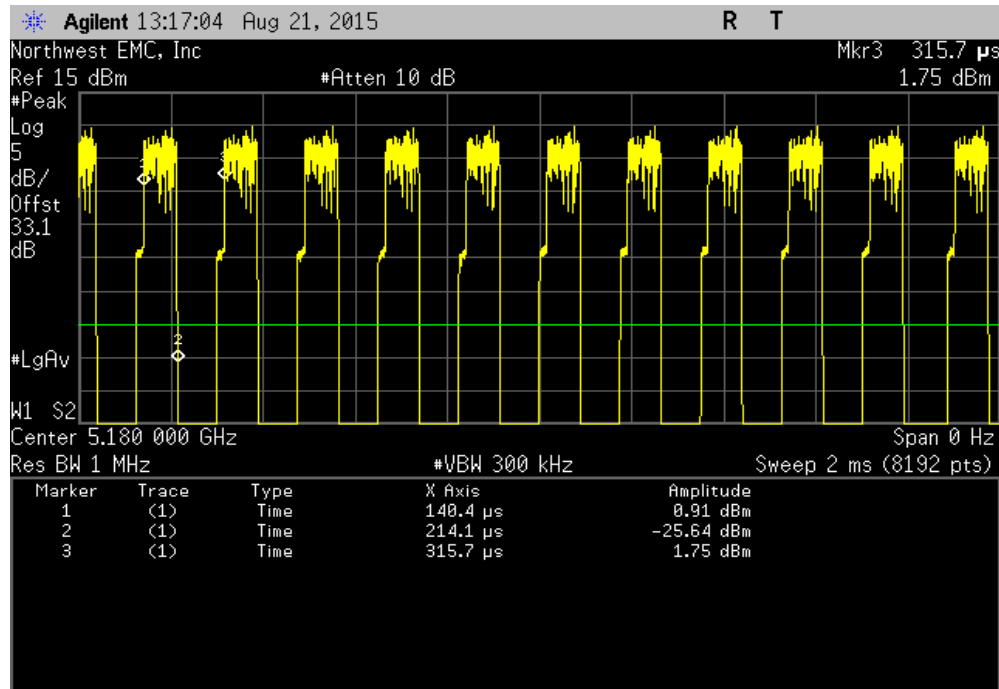


Normal Conditions, 802.11(a) 6 Mbps, High Channel, Ch.29 5700 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

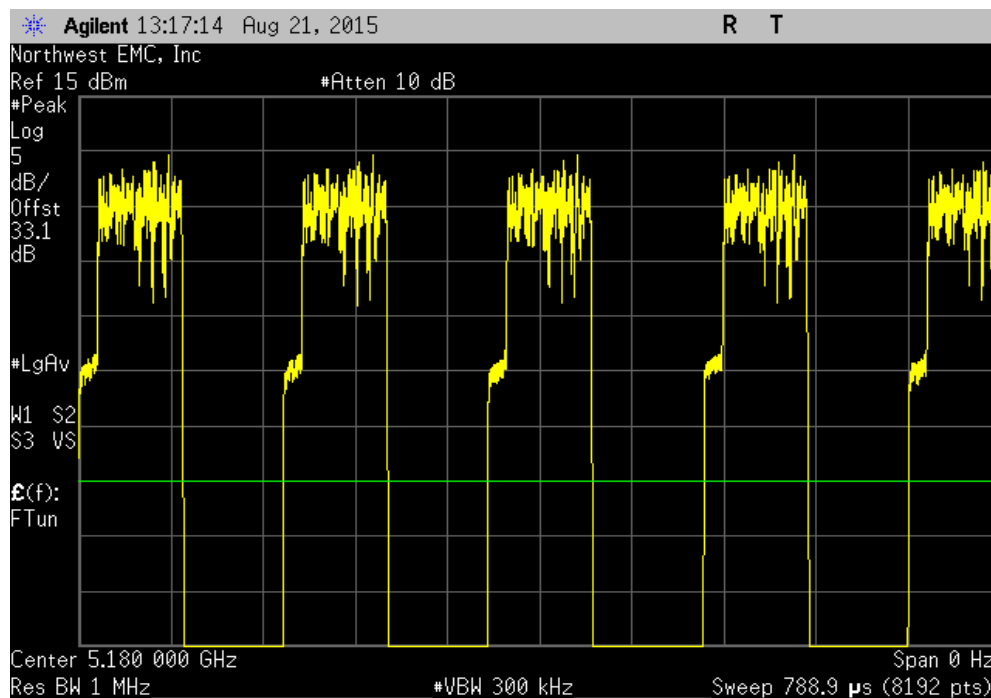


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.8 5180 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	73.7 μ s	175.3 μ s	1	42	N/A	N/A

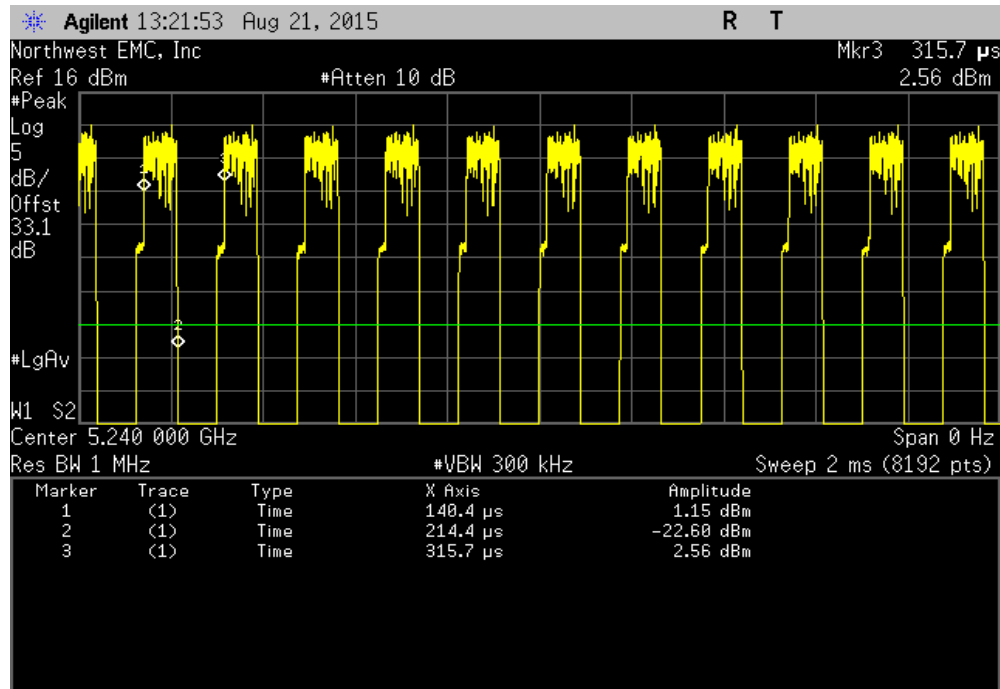


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.8 5180 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

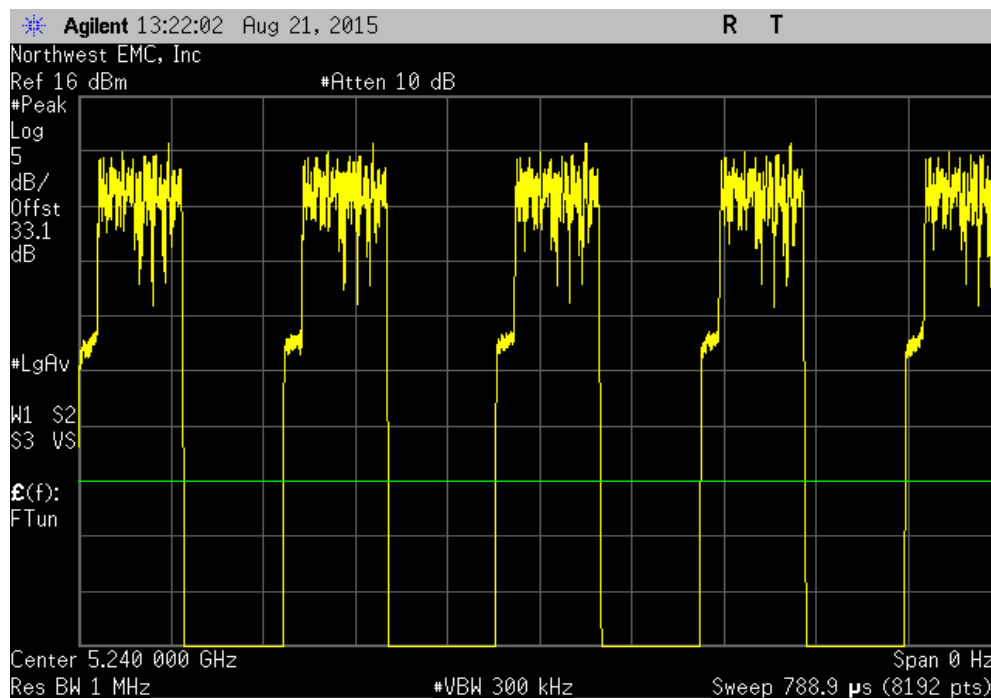


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.14 5240 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	74 us	175.3 us	1	42.2	N/A	N/A

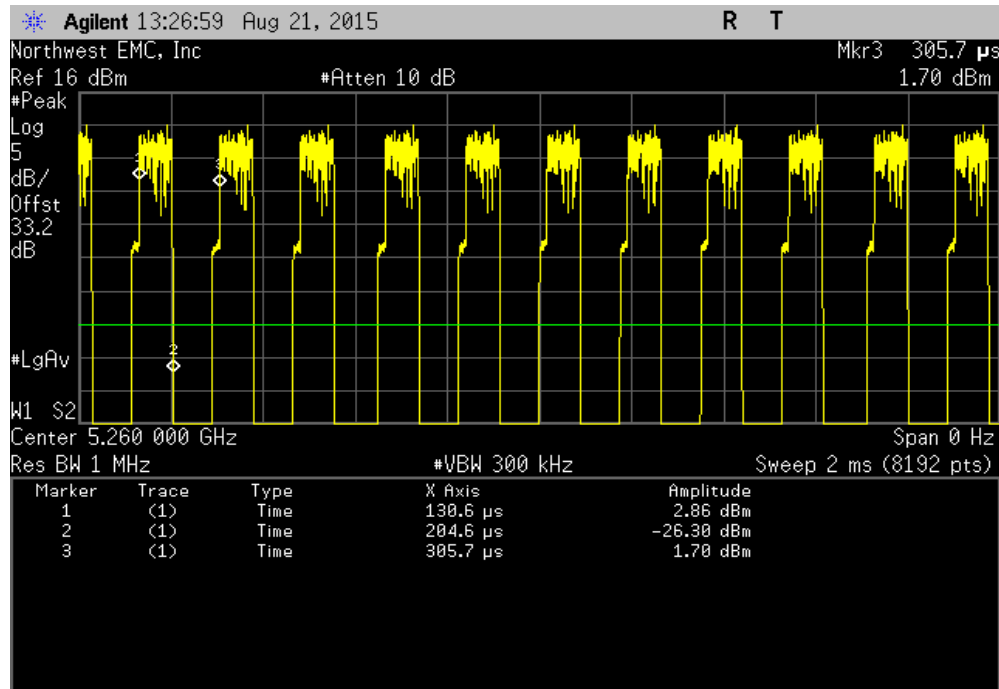


Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.14 5240 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

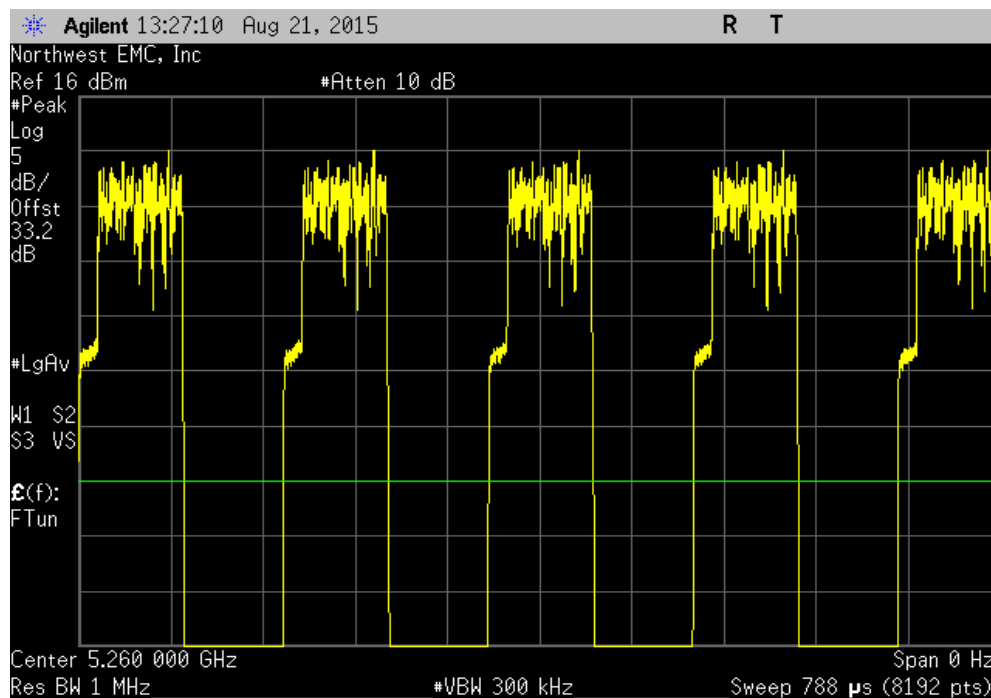


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.15 5260 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	74 us	175.1 us	1	42.3	N/A	N/A

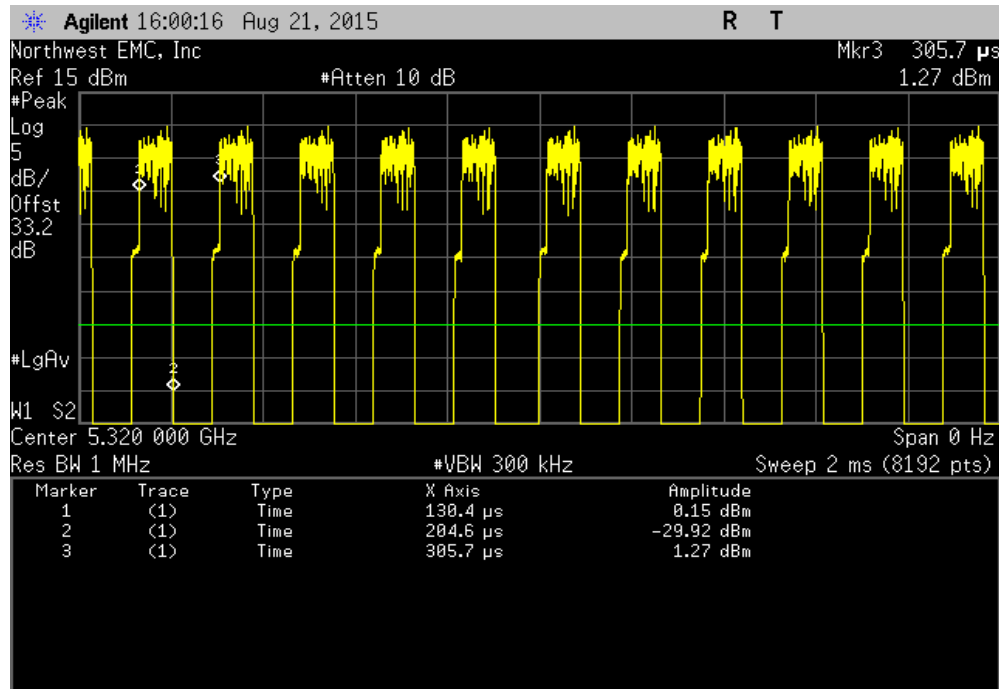


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.15 5260 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

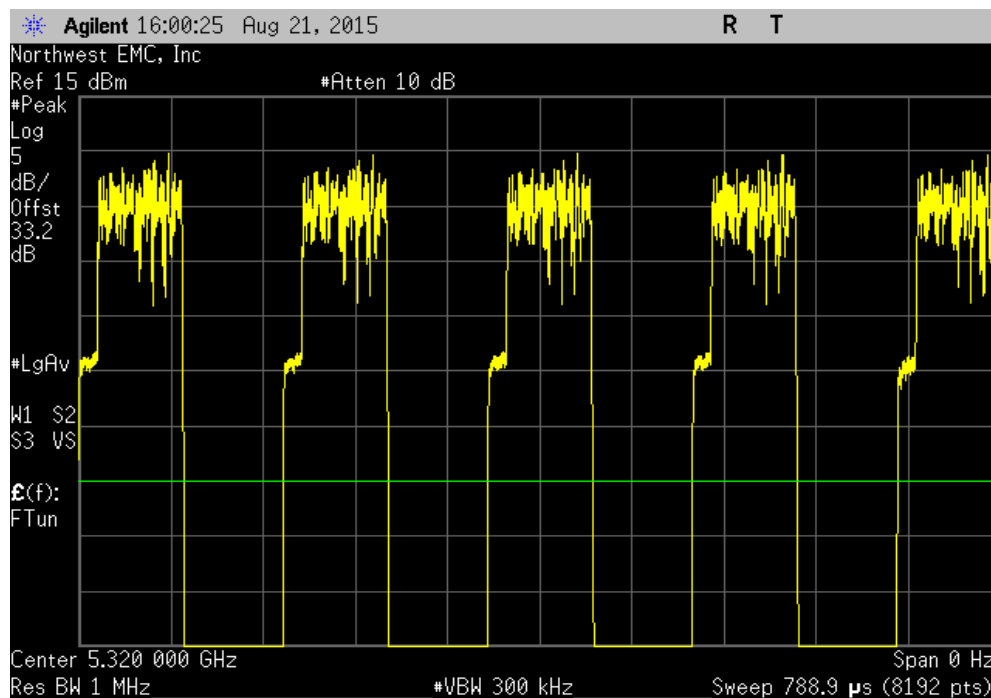


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.18 5320 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	74.2 us	175.3 us	1	42.3	N/A	N/A

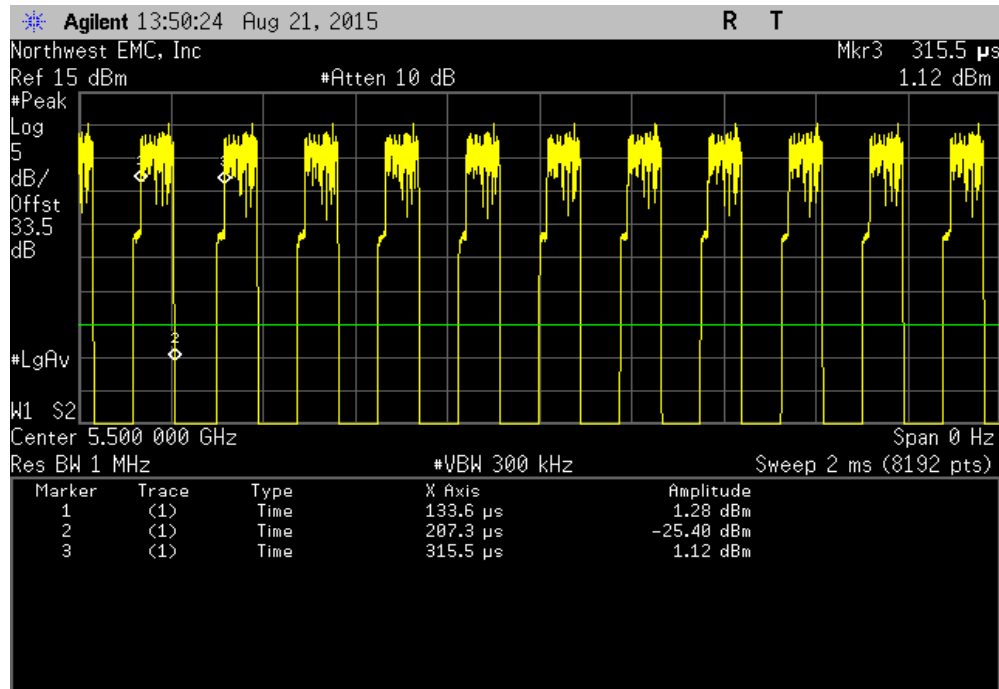


Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.18 5320 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

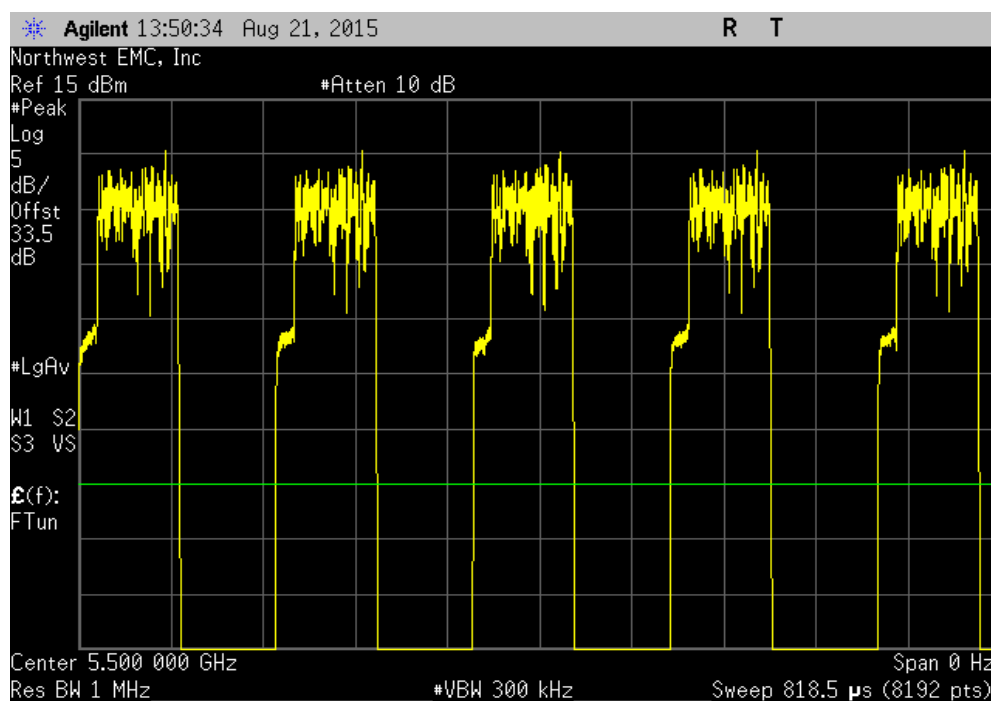


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.19 5500 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	73.7 μ s	181.9 μ s	1	40.5	N/A	N/A

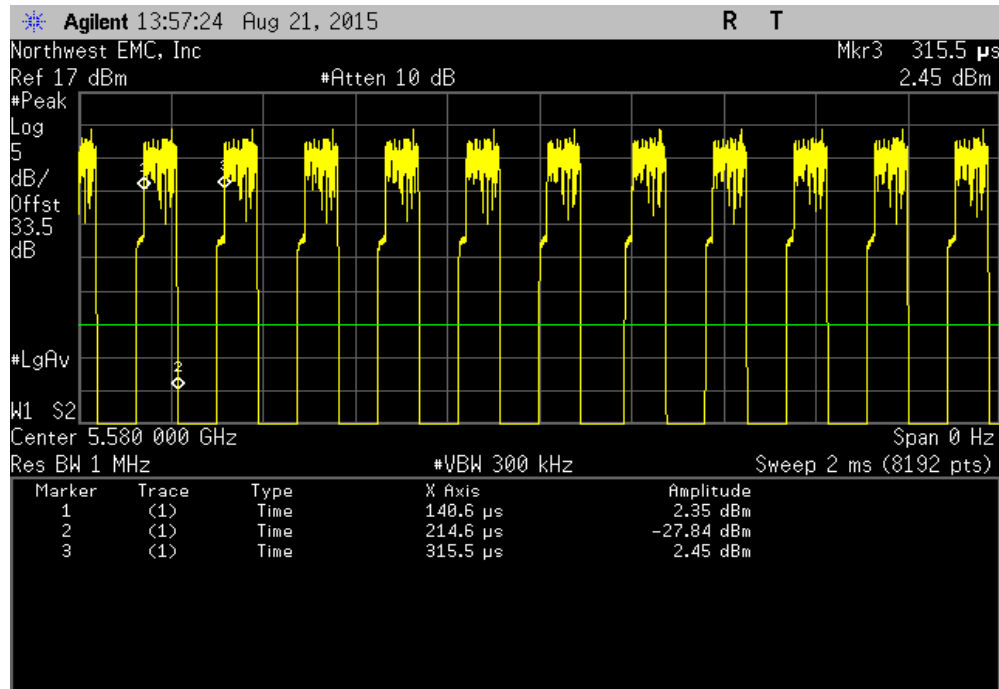


Normal Conditions, 802.11(a) 18 Mbps, Low Channel, Ch.19 5500 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

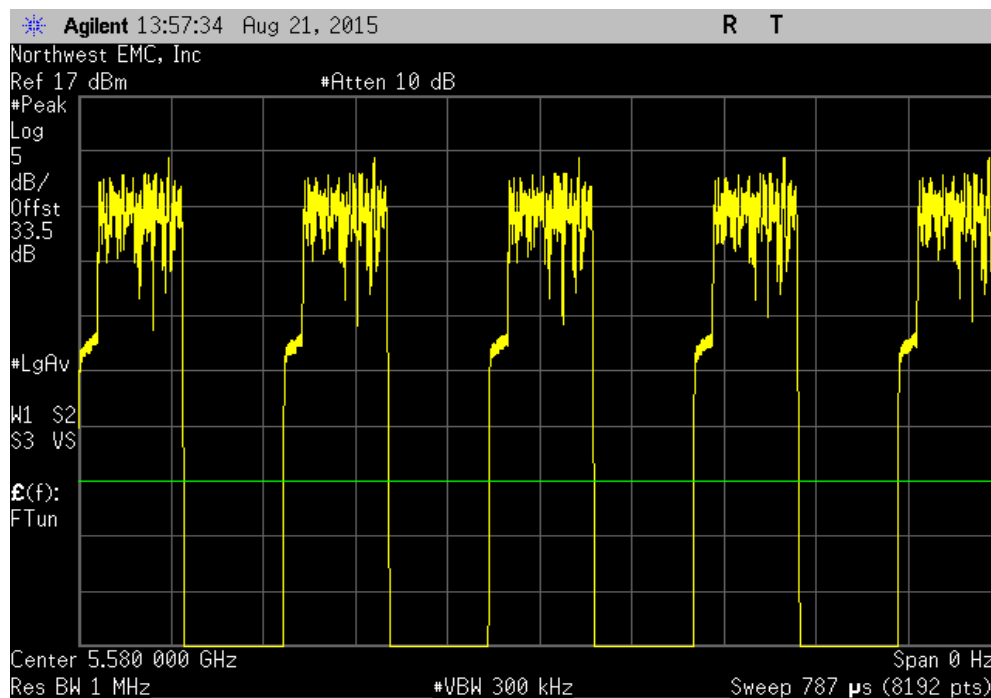


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Mid Channel, Ch.23 5580 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	74 us	174.9 us	1	42.3	N/A	N/A

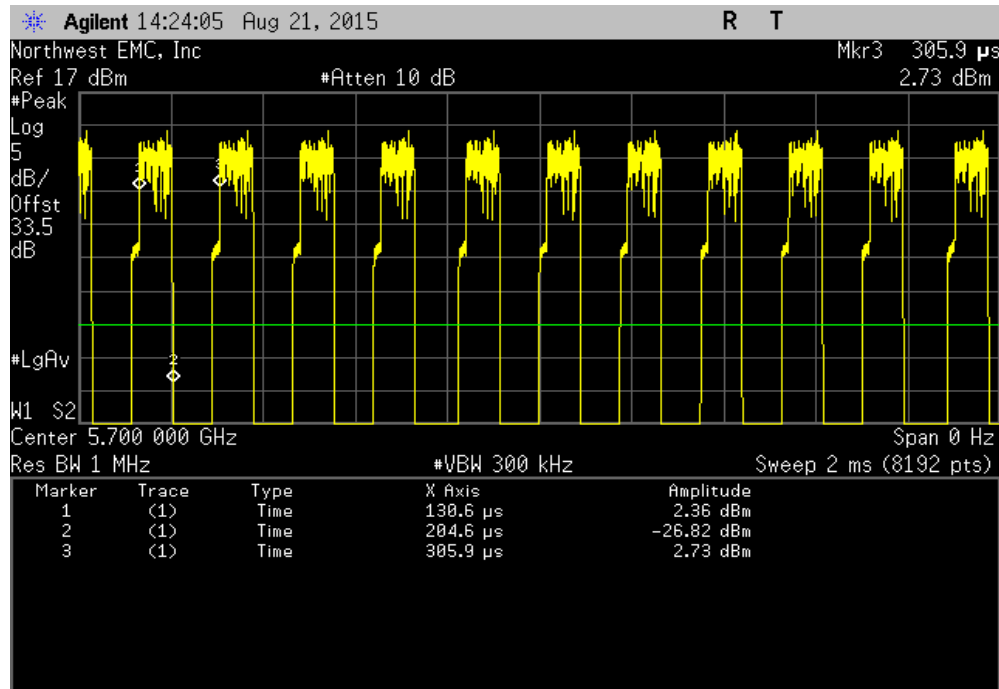


Normal Conditions, 802.11(a) 18 Mbps, Mid Channel, Ch.23 5580 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A

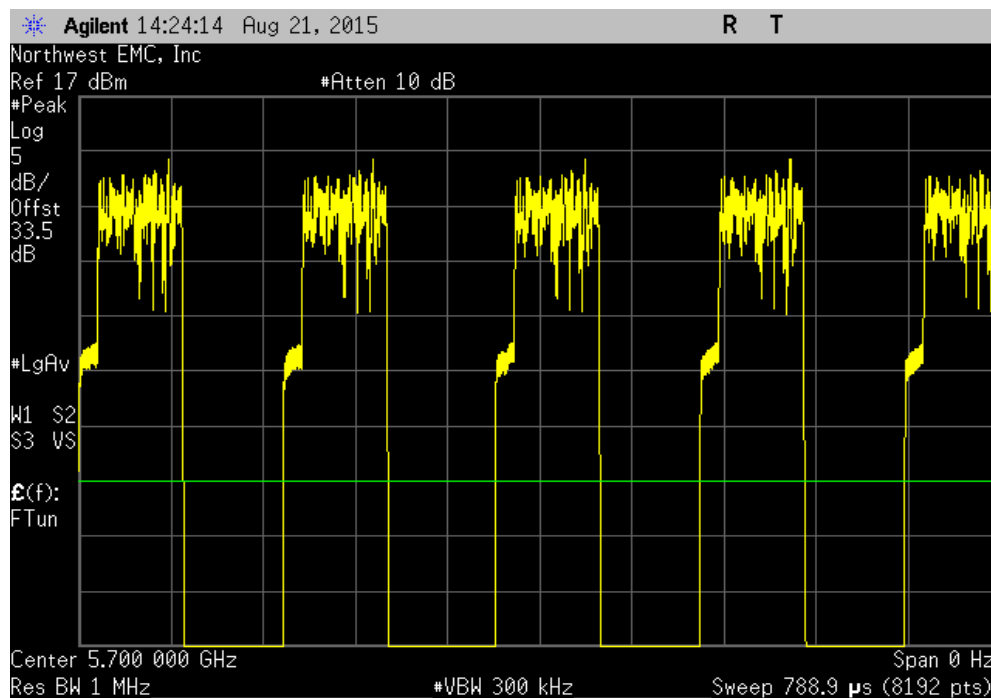


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.29 5700 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	74 us	175.3 us	1	42.2	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, High Channel, Ch.29 5700 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A (N/A)	Results
	N/A	N/A	5	N/A	N/A	N/A



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)
Generator - Signal	Keysight	N5182B	TFX	4/16/2015	36
Cable	ESM Cable Corp.	TT	EV1	NCR	0
Attenuator	S.M. Electronics	SA26B-20	AUY	7/14/2015	12
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	3/10/2015	12

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.

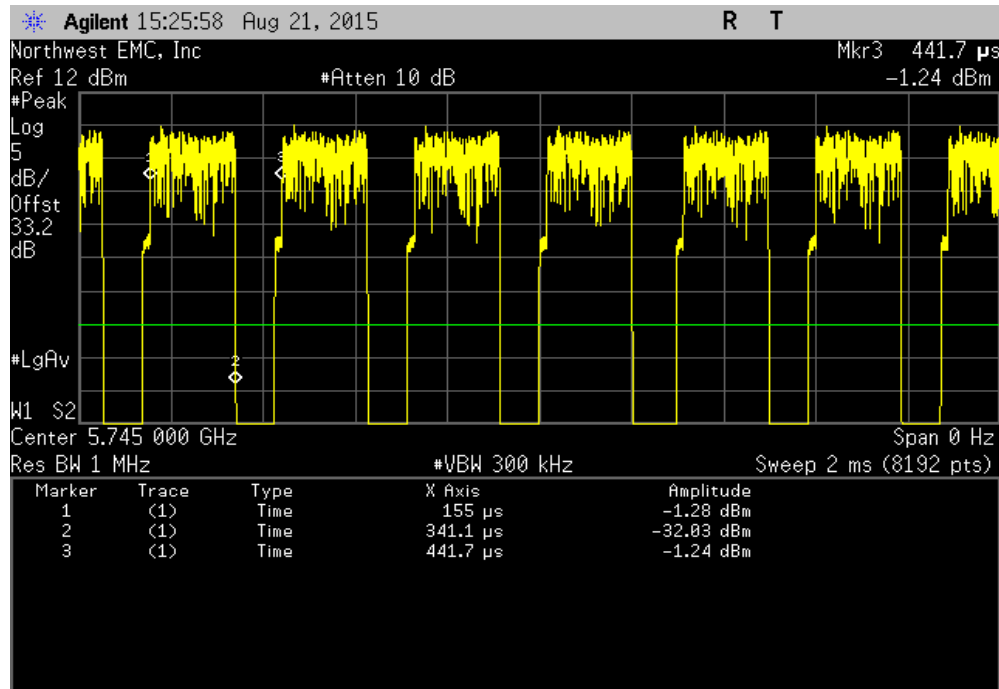
If the transmit duty cycle < 98 percent, burst gating was used during some of the other tests in this report only measure during the burst duration.

DUTY CYCLE

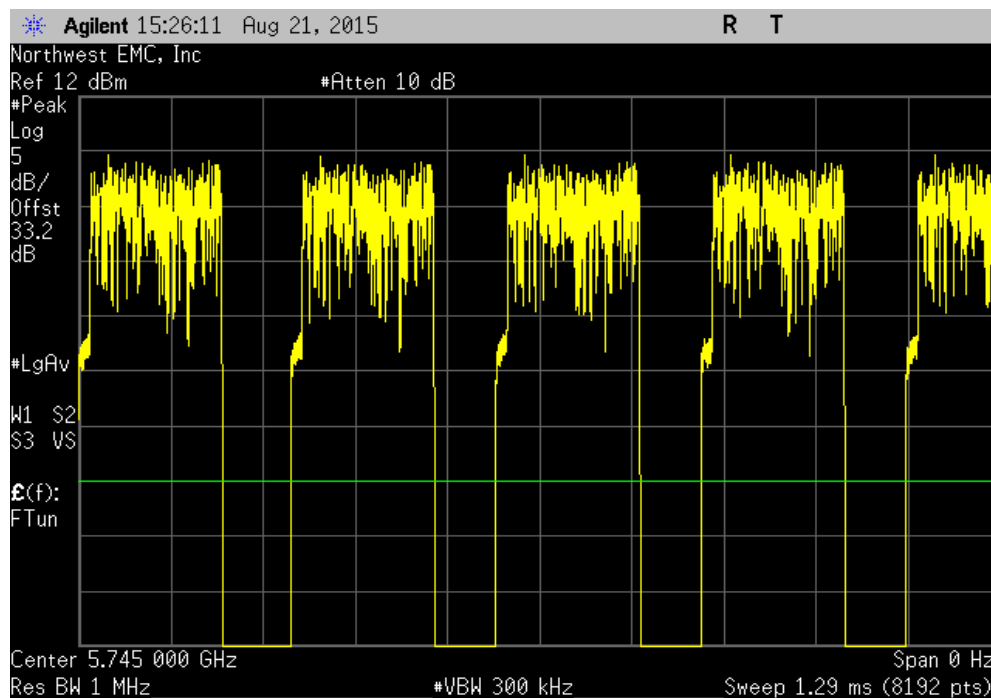
EUT: Athena4XD (extended distance)		Work Order: FOCU0214	
Serial Number: 02EA3CD00087		Date: 08/21/15	
Customer: Summit Semiconductor LLC		Temperature: 24.6°C	
Attendees: David Schilling		Humidity: 41%	
Project: None		Barometric Pres.: 1009.2	
Tested by: Brandon Hobbs		Power: 3.3 VDC Nominal	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.407:2015		ANSI C63.10:2013	
COMMENTS			
The EUT was not tested in ISOC mode. Based on transmission line length to all four identical antennas, a direct connect port was located on the worst case/shortest antenna path which was provided by the client. This test location was determined to be worst case by the client.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Pulse Width	Period
		Number of Pulses	Value (%)
		Limit (%)	Results
Normal Conditions			
802.11(a) 6 Mbps			
	Low channel, Ch.30, 5745 MHz	186.1 us	286.7 us
	Low channel, Ch.30, 5745 MHz	N/A	N/A
	Mid channel, Ch.32, 5785 MHz	186 us	287.3 us
	Mid channel, Ch.32, 5785 MHz	N/A	N/A
	High channel, Ch.34, 5825 MHz	185.8 us	287.2 us
	High channel, Ch.34, 5825 MHz	N/A	N/A
802.11(a) 18 Mbps			
	Low channel, Ch.30, 5745 MHz	74 us	174.6 us
	Low channel, Ch.30, 5745 MHz	N/A	N/A
	Mid channel, Ch.32, 5785 MHz	73.8 us	175.1 us
	Mid channel, Ch.32, 5785 MHz	N/A	N/A
	High channel, Ch.34, 5825 MHz	74 us	175.3 us
	High channel, Ch.34, 5825 MHz	N/A	N/A

DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Low channel, Ch.30, 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	186.1 us	286.7 us	1	64.9	N/A	N/A

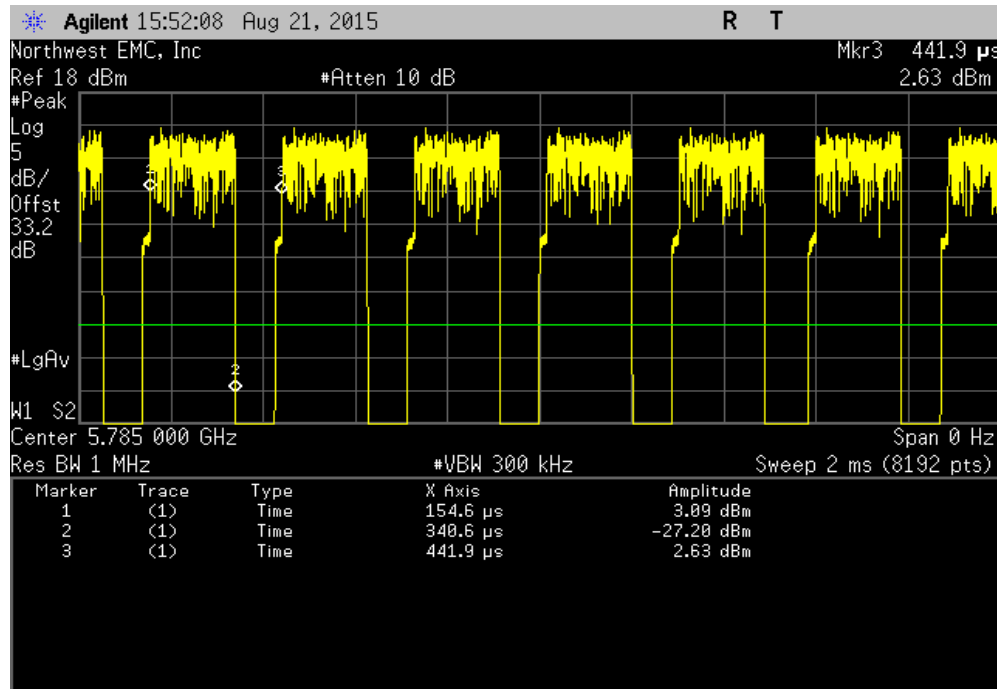


Normal Conditions, 802.11(a) 6 Mbps, Low channel, Ch.30, 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

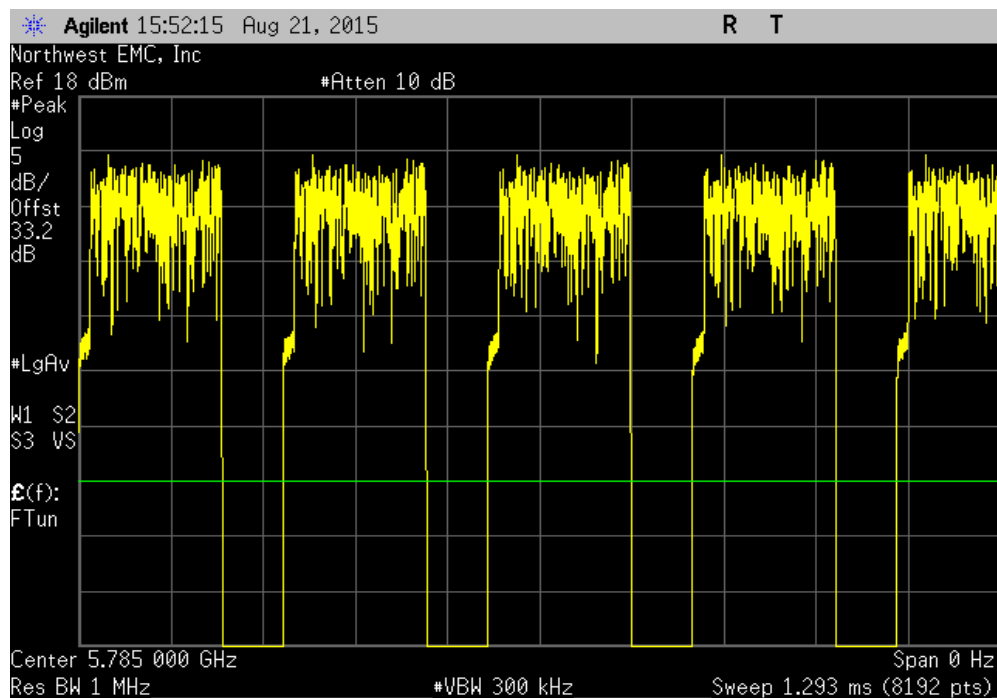


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, Mid channel, Ch.32, 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	186 us	287.3 us	1	64.7	N/A	N/A

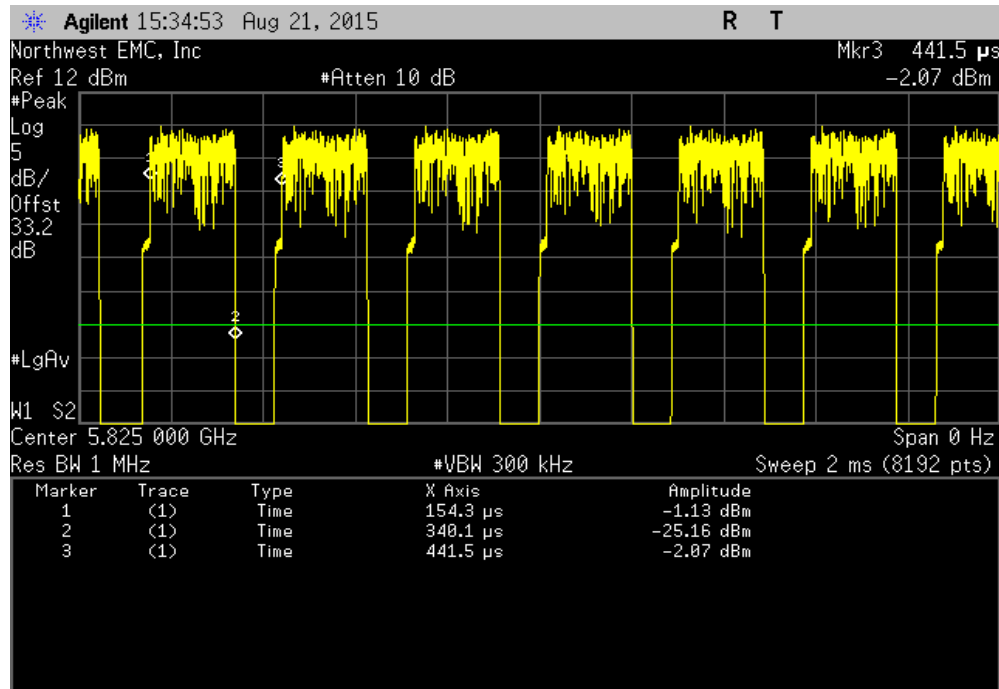


Normal Conditions, 802.11(a) 6 Mbps, Mid channel, Ch.32, 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

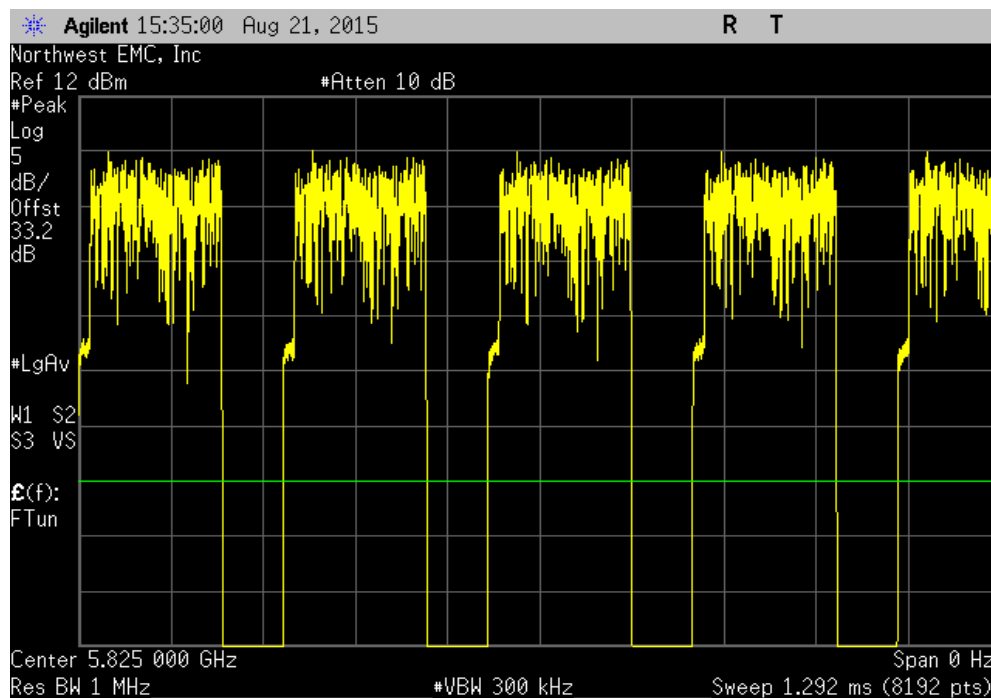


DUTY CYCLE

Normal Conditions, 802.11(a) 6 Mbps, High channel, Ch.34, 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	185.8 us	287.2 us	1	64.7	N/A	N/A

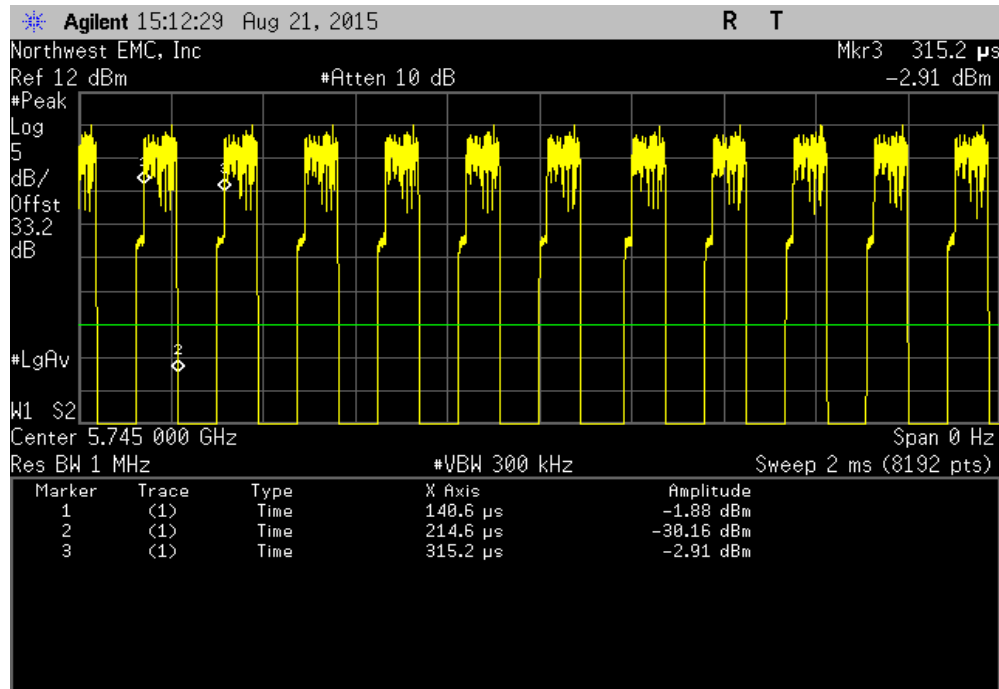


Normal Conditions, 802.11(a) 6 Mbps, High channel, Ch.34, 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

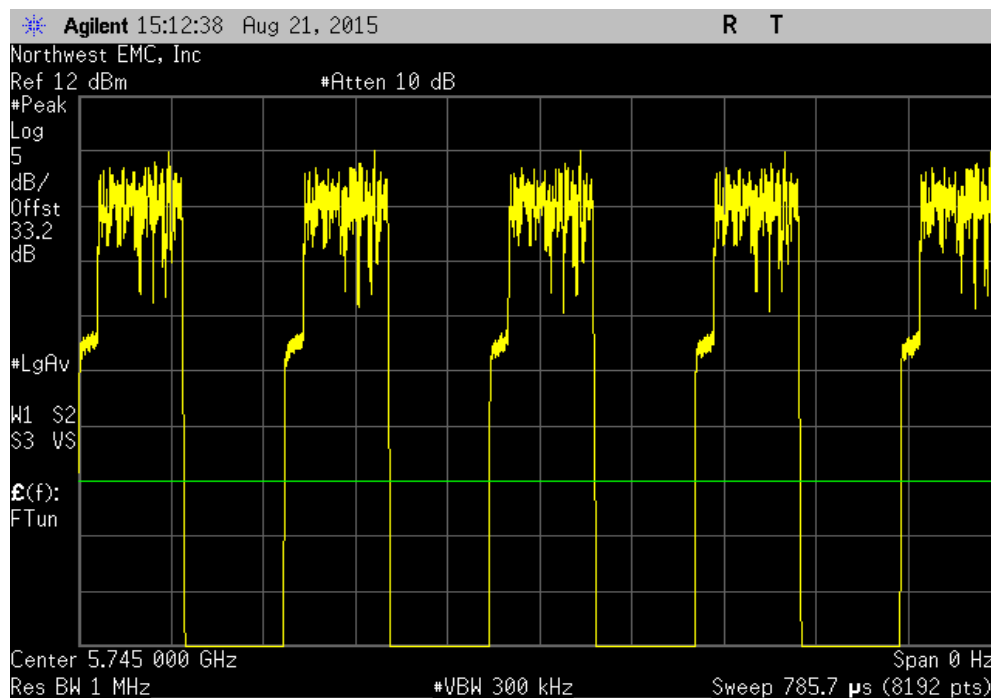


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Low channel, Ch.30, 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	74 us	174.6 us	1	42.4	N/A	N/A

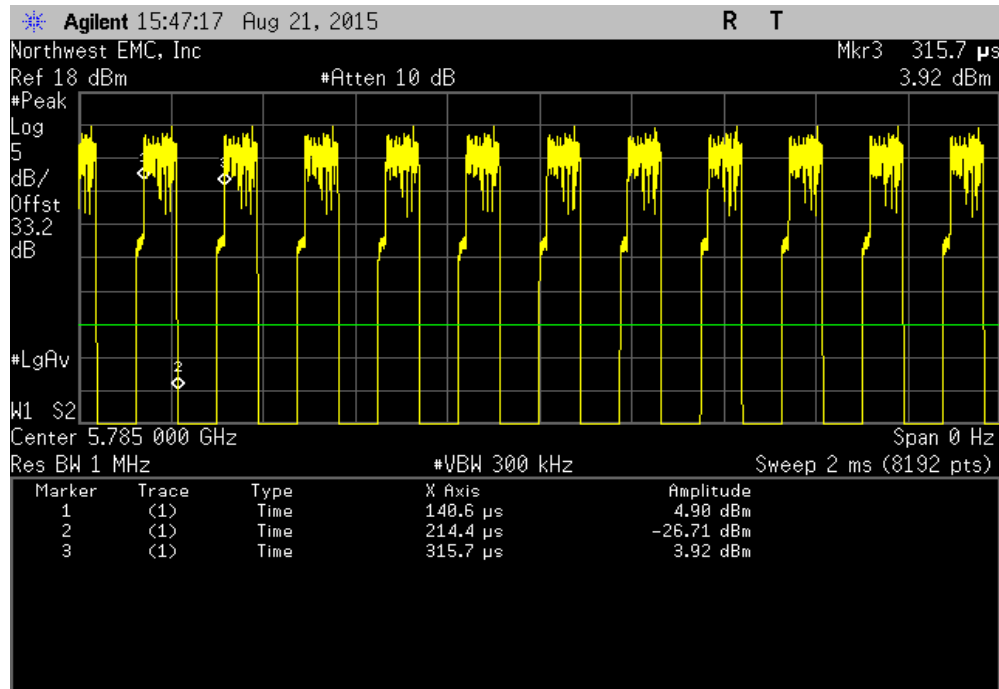


Normal Conditions, 802.11(a) 18 Mbps, Low channel, Ch.30, 5745 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

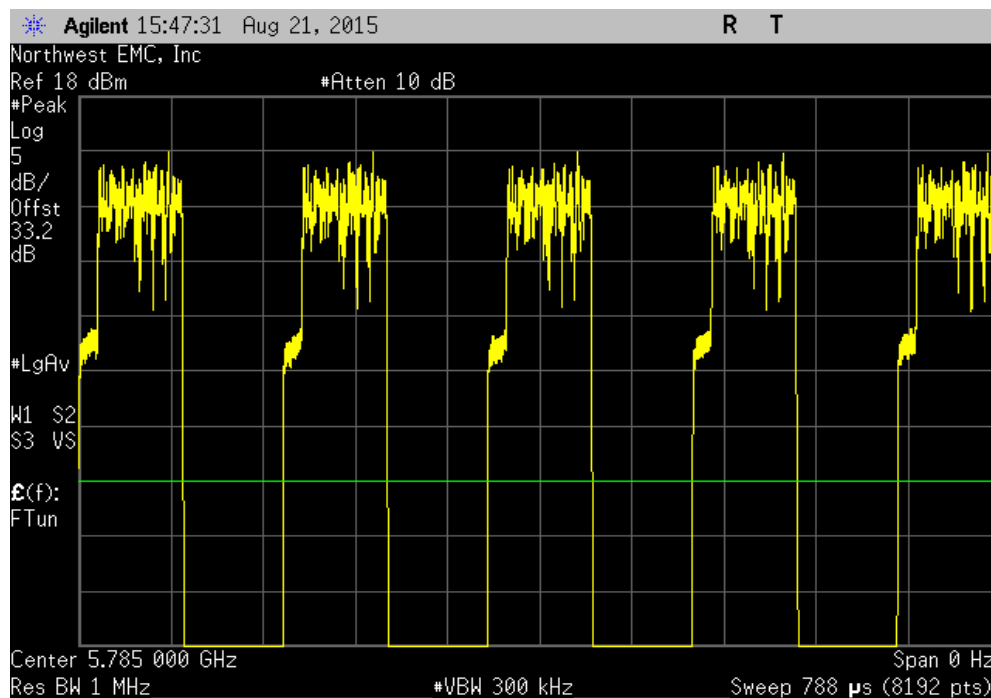


DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, Mid channel, Ch.32, 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	73.8 us	175.1 us	1	42.1	N/A	N/A

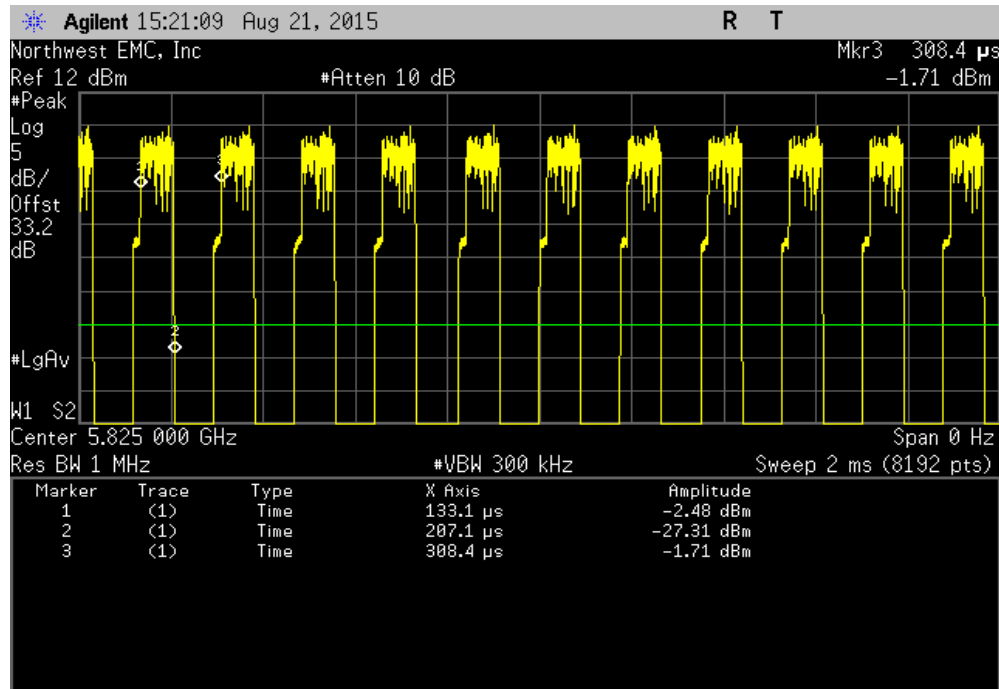


Normal Conditions, 802.11(a) 18 Mbps, Mid channel, Ch.32, 5785 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



DUTY CYCLE

Normal Conditions, 802.11(a) 18 Mbps, High channel, Ch.34, 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	74 us	175.3 us	1	42.2	N/A	N/A



Normal Conditions, 802.11(a) 18 Mbps, High channel, Ch.34, 5825 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

