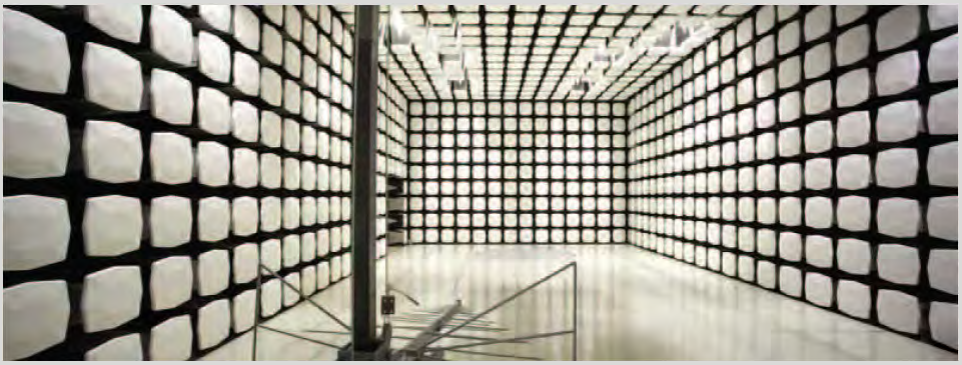
TE Connectivity / ADC Telecommunications

Prism HDM 40W AWS SISO RF Module

FCC 27:2013

Report #: TECO0003



Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

WTD 12.5.23

Last Date of Test: August 29, 2013
TE Connectivity / ADC Telecommunications
Model: Prism HDM 40W AWS SISO RF Module

Emissions

Test Description	Specification	Test Method	Pass/Fail
Conducted Output Power	FCC 27:2013, FCC 2.1046:2013	ANSI/TIA/EIA-603-C-2004	Pass
Occupied Bandwidth	FCC 27:2013, FCC 2.1049:2013	ANSI/TIA/EIA-603-C-2004	Pass
Out–of- Band Emissions - Conducted	FCC 27:2013, FCC 2.1051:2013	ANSI/TIA/EIA-603-C-2004	Pass
Band Edge Compliance	FCC 27:2013, FCC 2.1051:2013	ANSI/TIA/EIA-603-C-2004	Pass
Intermodulation	FCC 27:2013, FCC 2.1051:2013	ANSI/TIA/EIA-603-C-2004	Pass
Frequency Stability	FCC 27:2013, FCC 2.1055:2013	ANSI/TIA/EIA-603-C-2004	Pass
Field Strength of Spurious Emissions	FCC 27:2013, FCC 2.1053:2013	ANSI/TIA/EIA-603-C-2004	Pass

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP Lab Code: 200881-0

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

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

REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

NORTHWEST EMC

REV 2012.05.24

ACCREDITATIONS AND AUTHORIZATIONS

United States

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

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

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

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

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Hong Kong

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

Vietnam

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

Russia

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

SCOPE

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

MEASUREMENT UNCERTAINTY

Measurement Uncertainty

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-1 as applicable), and are available upon request.

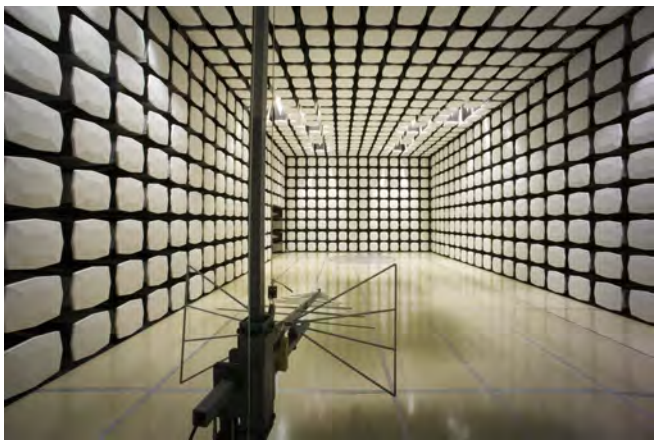
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

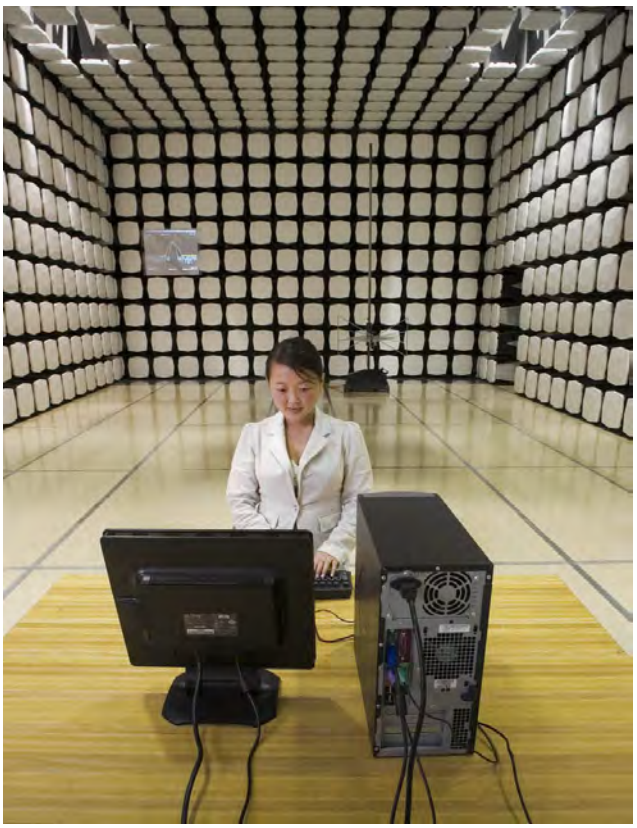
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94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

FACILITIES

REV 2013.06.28

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





PRODUCT DESCRIPTION

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	TE Connectivity / ADC Telecommunications
Address:	1187 Park Place
City, State, Zip:	Shakopee, MN 55379
Test Requested By:	Joshua Wittman
Model:	Prism HDM 40W AWS SISO RF Module
First Date of Test:	August 26, 2013
Last Date of Test:	August 29, 2013
Receipt Date of Samples:	August 26, 2013
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

The Prism HDM is an industrial signal booster which is used to enhance wireless networks in outdoor locations and large venues.

Testing Objective:

To demonstrate compliance to FCC Part 27.

CONFIGURATIONS

Configuration TECO0003- 1

Software/Firmware Running during test	
Description	**Version**
PRU	8.1.1.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Prism HDM 40W AWS SISO RF Module	TE Connectivity / ADC Telecommunications	FWP-A81T000MOD	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RF Signal Generator	Aeroflex	IFR 3413	341006
Power Supply	Sorensen	DCS80-13E	None
IO Control Device	TE Connectivity / ADC Telecommunications	SVT-GU-1011	7109A001D
Laptop	Dell	Latitude D630	34562243089
Laptop Supply	Dell	LA90PS0-00	CN-0DF266-71615-68A-7166
30 dB attenuator	Aeroflex	86-30-12DC-22GHz	369

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	> 3m	No	Prism HDM 40W PCS SISO RF Module	AC Mains
Fiber	No	> 3m	No	Prism HDM 40W PCS SISO RF Module	IO Control Device
RF	Yes	0.9m	No	Prism HDM 40W PCS SISO RF Module	30 dB attenuator
RF	Yes	0.7m	No	IO Control Device	RF Signal Generator
AC Power	No	1.8m	No	RF Signal Generator	AC Mains
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	2.8m	Yes	IO Control Device	Power Supply
AC Power	No	1.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
Ethernet	No	1.5m	No	Laptop	IO Control Device
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATIONS

Configuration TECO0003- 2

Software/Firmware Running during test	
Description	**Version**
PRU	8.1.1.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Prism HDM 40W AWS SISO RF Module	TE Connectivity / ADC Telecommunications	FWP-A81T000MOD	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
30 dB attenuator	Aeroflex	57-30-43	NL616

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RF Signal Generator	Aeroflex	IFR 3413	341006
Power Supply	Sorensen	DCS80-13E	None
IO Control Device	TE Connectivity / ADC Telecommunications	SVT-GU-1011	7109A001D
Laptop	Dell	Latitude D630	34562243089
Laptop Supply	Dell	LA90PS0-00	CN-0DF266-71615-68A-7166

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	> 3m	No	Prism HDM 40W PCS SISO RF Module	AC Mains
Fiber	No	> 3m	No	Prism HDM 40W PCS SISO RF Module	IO Control Device
RF	Yes	0.9m	No	Prism HDM 40W PCS SISO RF Module	30 dB attenuator
RF	Yes	0.7m	No	IO Control Device	RF Signal Generator
AC Power	No	1.8m	No	RF Signal Generator	AC Mains
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	2.8m	Yes	IO Control Device	Power Supply
AC Power	No	1.8m	No	Laptop Supply	AC Mains
DC Power	No	1.8m	Yes	Laptop	Laptop Supply
Ethernet	No	1.5m	No	Laptop	IO Control Device
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	8/26/2013	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.
2	8/26/2013	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	8/26/2013	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	8/27/2013	Intermodulation	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	8/27/2013	Out of band Emissions - Conducted	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	8/28/2013	Frequency Stability	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	8/29/2013	Field Strength of Spurious Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

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

The EUT operates at 100% Duty Cycle.

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
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	24

TEST DESCRIPTION

The Average (RMS) output power was measured with the EUT set to the parameters called out in the data sheets. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Prior to making the measurements the setup including cables and attenuator was calibrated and added into the reference level offset.

Output Power

EUT:	Prism HDM 40W AWS SISO RF Module			**Work Order:**	TECO0003
Serial Number:	None			**Date:**	08/26/13
Customer:	TE Connectivity / ADC Telecommunications			**Temperature:**	27.0°C
Attendees:	None			**Humidity:**	53%
Project:	None			**Barometric Pres.:**	1013.6
Tested by:	Trevor Buls	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator that was added into the reference level offset.

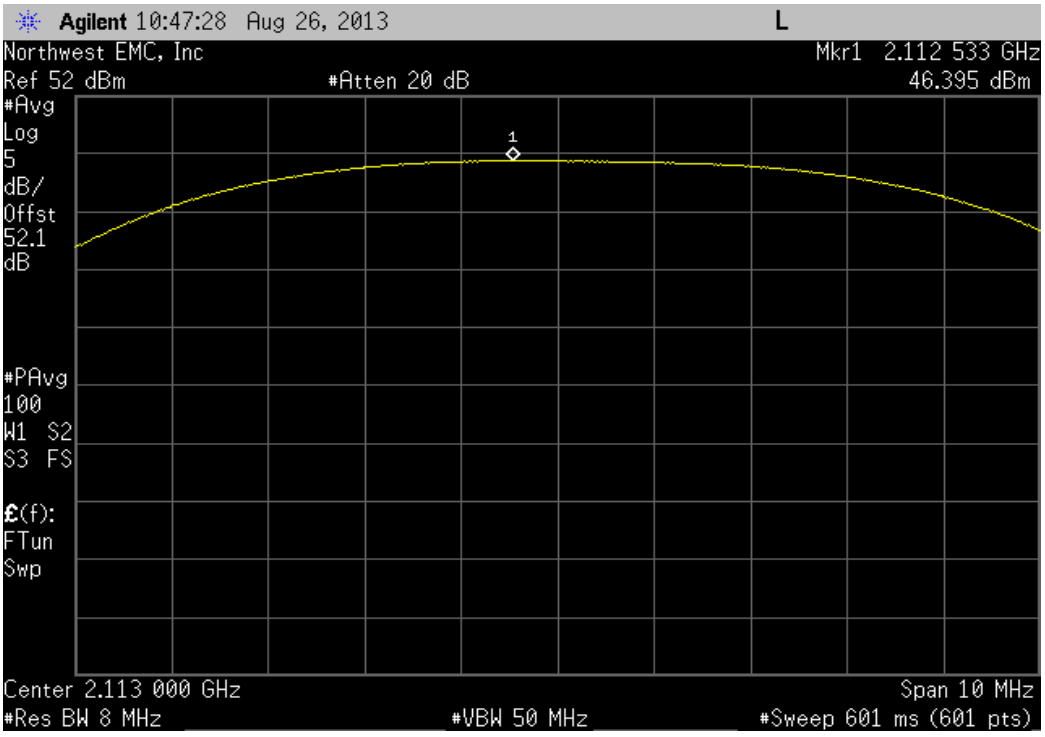
DEVIATIONS FROM TEST STANDARD

None

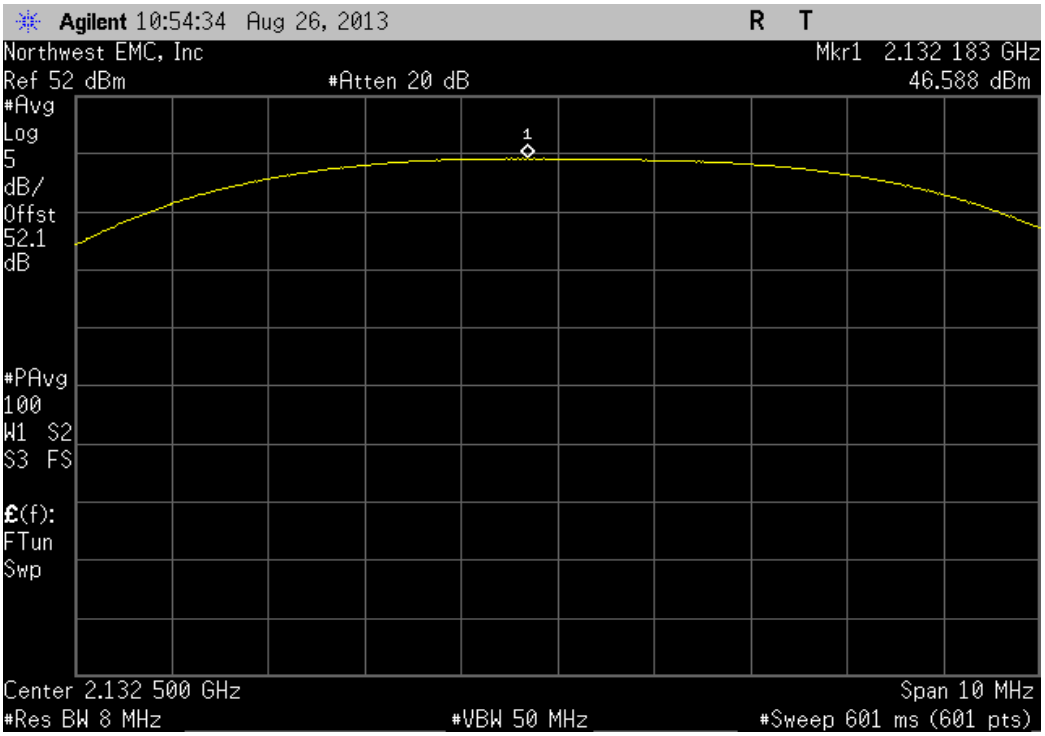
Configuration #	1	Signature	Trevor Buls

		Value (dBm)	Value (W)	Limit	Result
WCDMA					
	Low Channel	46.395	43.6	< 1640 W	Pass
	Mid Channel	46.588	45.6	< 1640 W	Pass
	High Channel	46.233	42.0	< 1640 W	Pass
LTE 1.4 MHz					
	Low Channel	46.079	40.5	< 1640 W	Pass
	Mid Channel	46.112	40.9	< 1640 W	Pass
	High Channel	46.071	40.5	< 1640 W	Pass
LTE 3 MHz					
	Low Channel	46.527	44.9	< 1640 W	Pass
	Mid Channel	46.669	46.4	< 1640 W	Pass
	High Channel	46.232	42.0	< 1640 W	Pass
LTE 5 MHz					
	Low Channel	46.187	41.6	< 1640 W	Pass
	Mid Channel	46.547	45.2	< 1640 W	Pass
	High Channel	46.153	41.2	< 1640 W	Pass
LTE 10 MHz					
	Low Channel	46.116	40.9	< 1640 W	Pass
	Mid Channel	46.392	43.6	< 1640 W	Pass
	High Channel	46.058	40.3	< 1640 W	Pass
LTE 15 MHz					
	Low Channel	46.19	41.6	< 1640 W	Pass
	Mid Channel	46.387	43.5	< 1640 W	Pass
	High Channel	46.113	40.9	< 1640 W	Pass
LTE 20 MHz					
	Low Channel	46.223	41.9	< 1640 W	Pass
	Mid Channel	46.431	44.0	< 1640 W	Pass
	High Channel	46.064	40.4	< 1640 W	Pass

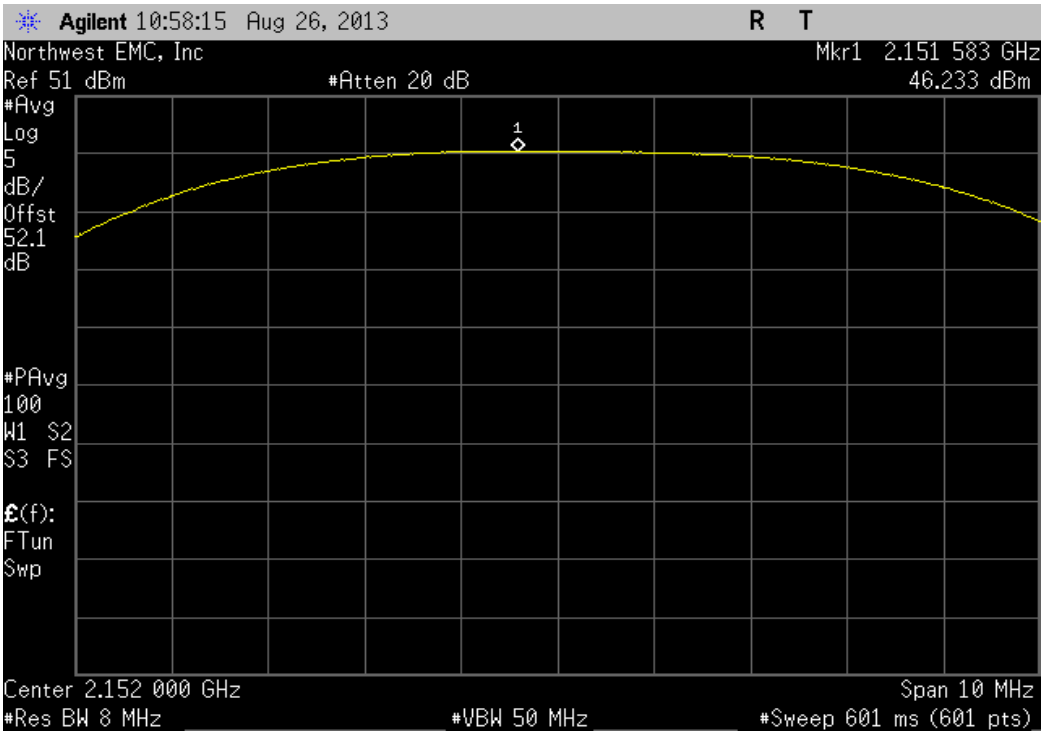
WCMDA, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.395		43.6	< 1640 W	Pass



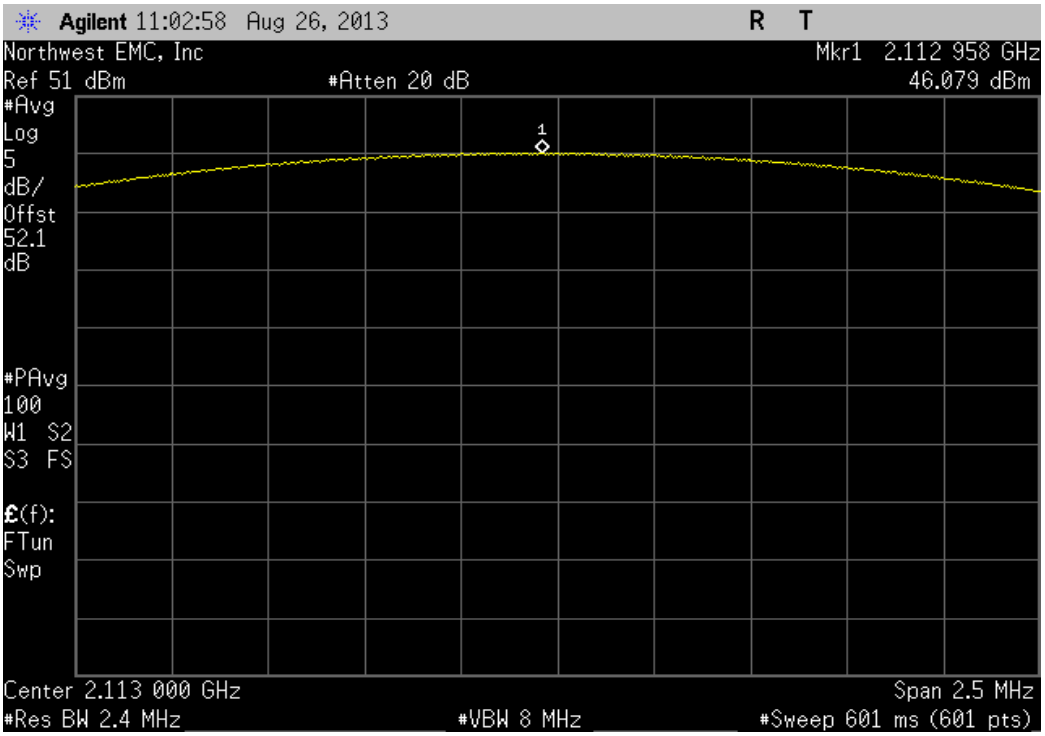
WCMDA, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.588		45.6	< 1640 W	Pass



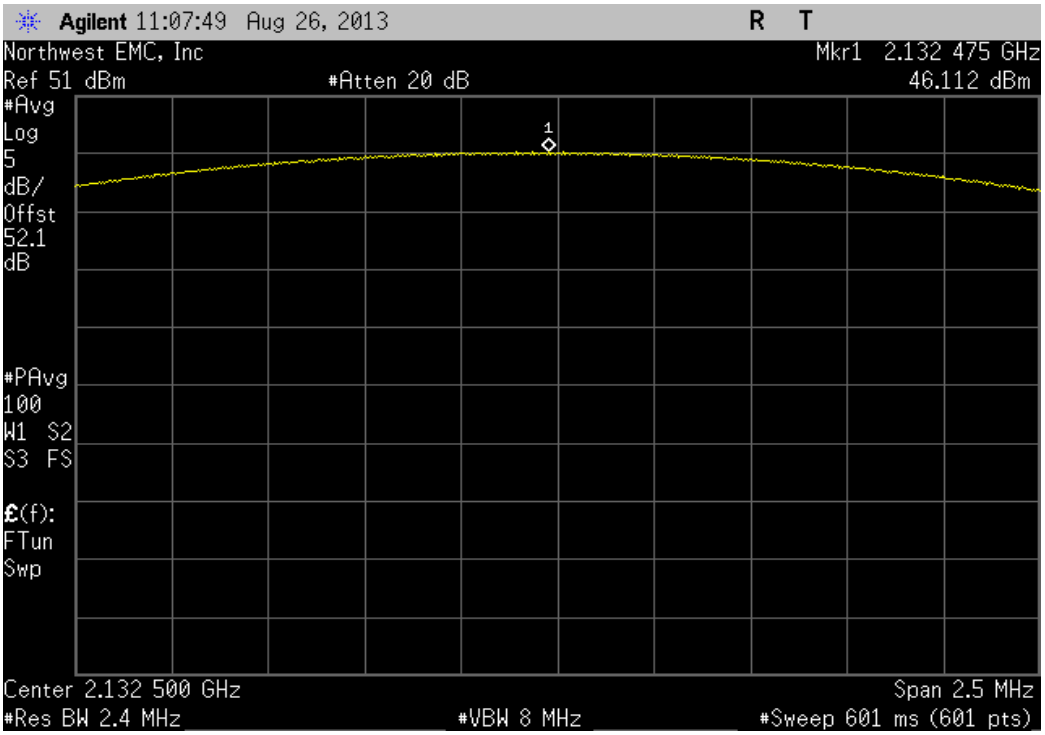
WCDMA, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.233		42.0	< 1640 W	Pass



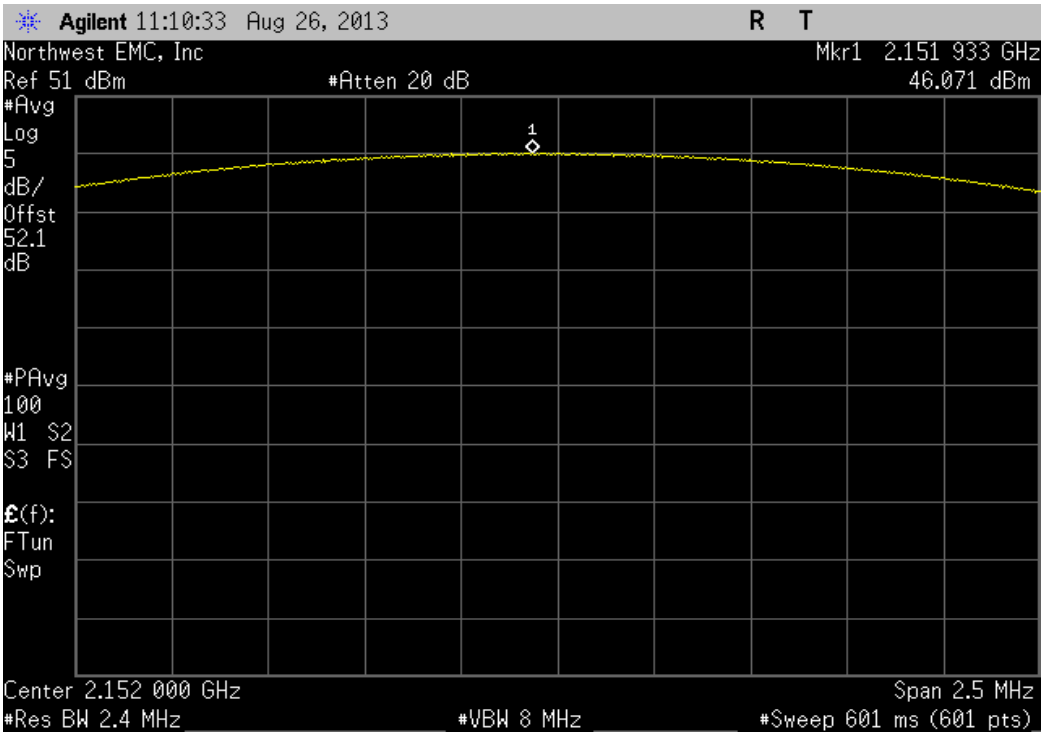
LTE 1.4 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.079		40.5	< 1640 W	Pass



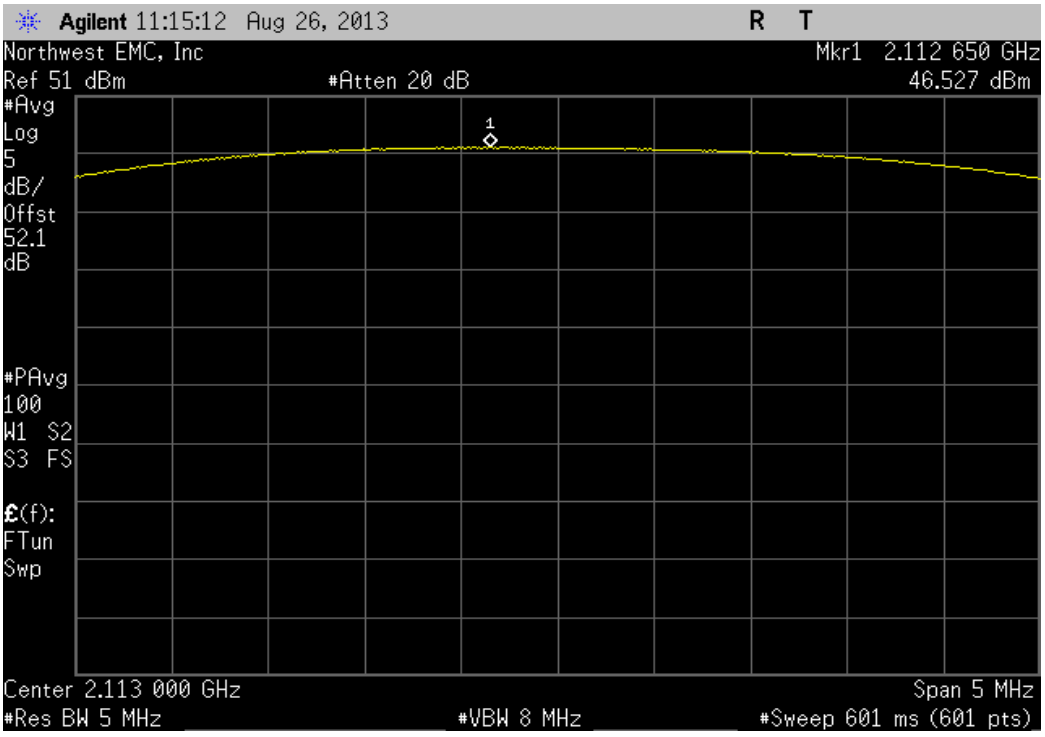
LTE 1.4 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.112		40.9	< 1640 W	Pass



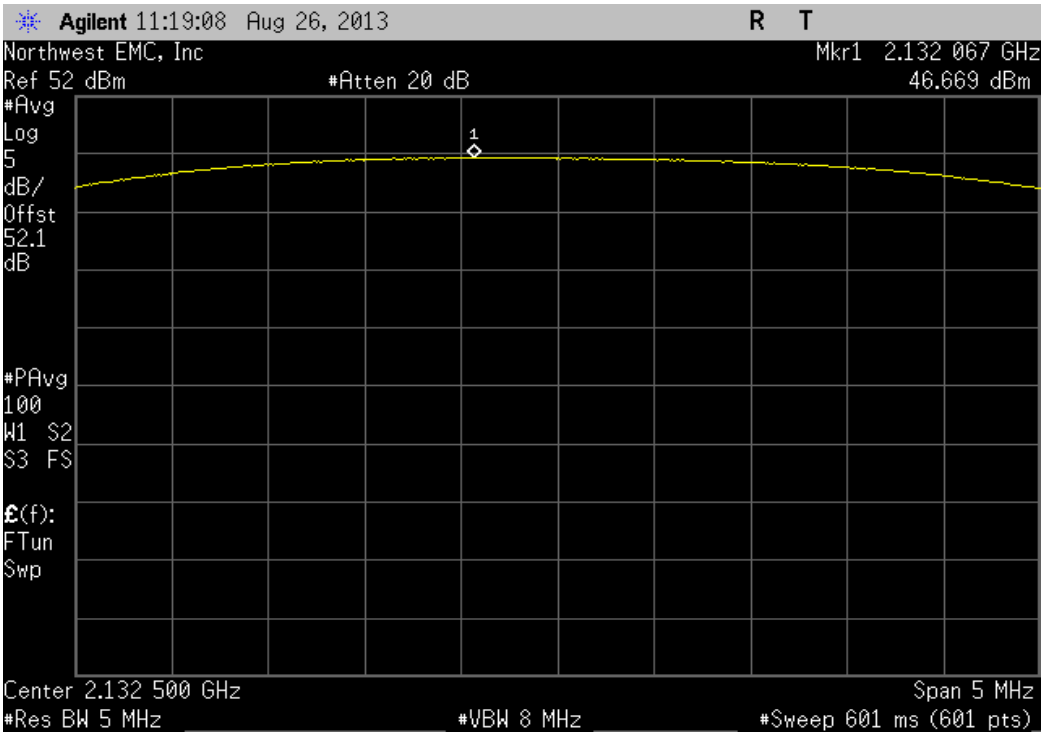
LTE 1.4 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.071		40.5	< 1640 W	Pass



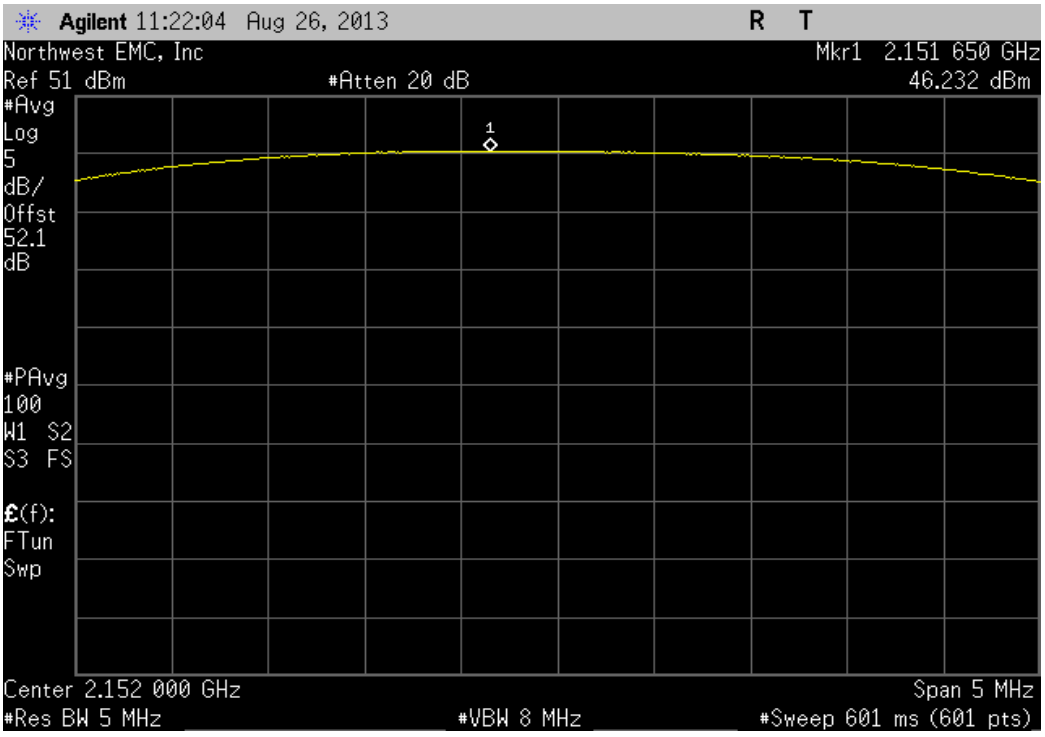
LTE 3 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.527		44.9	< 1640 W	Pass



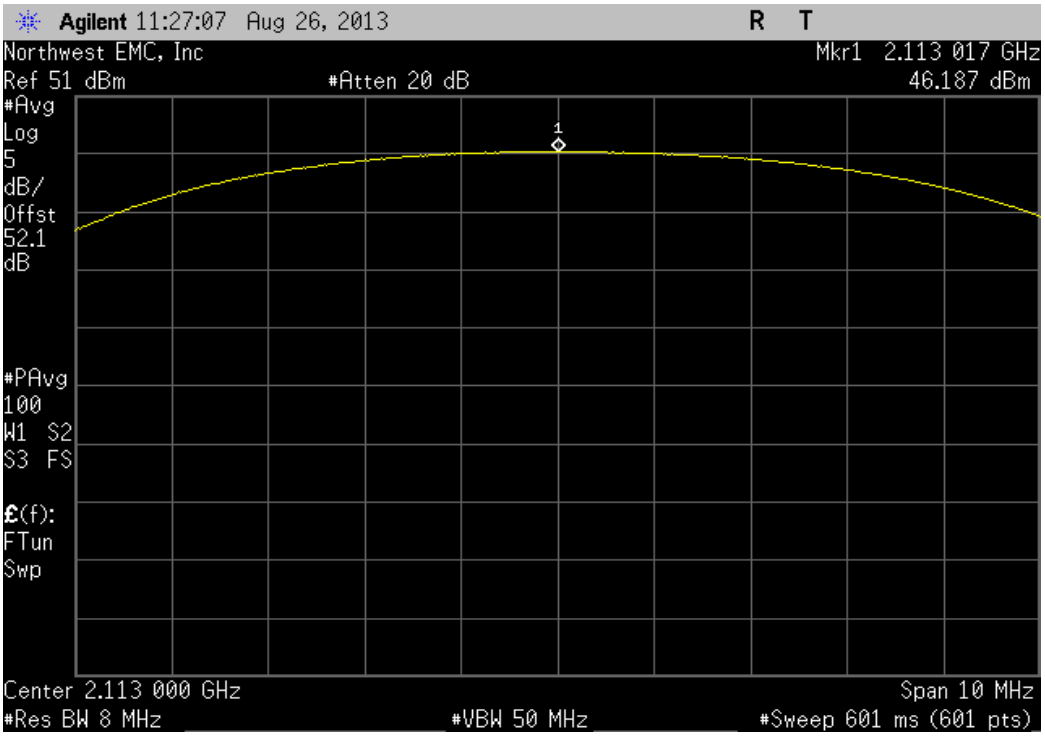
LTE 3 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.669		46.4	< 1640 W	Pass



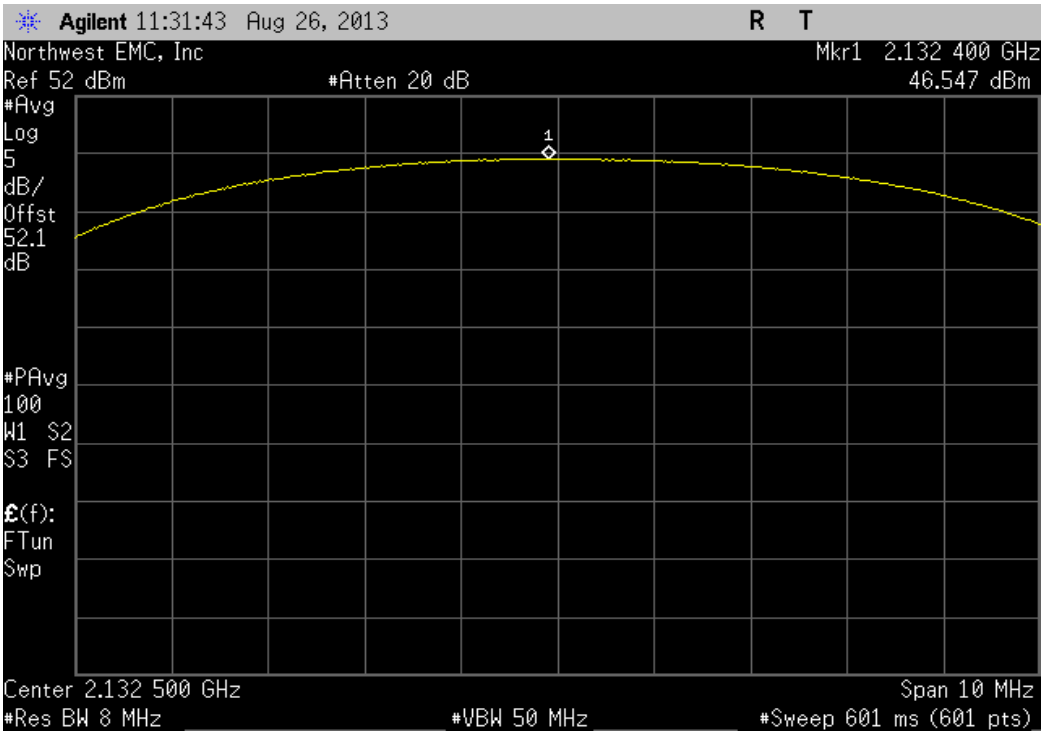
LTE 3 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.232		42.0	< 1640 W	Pass



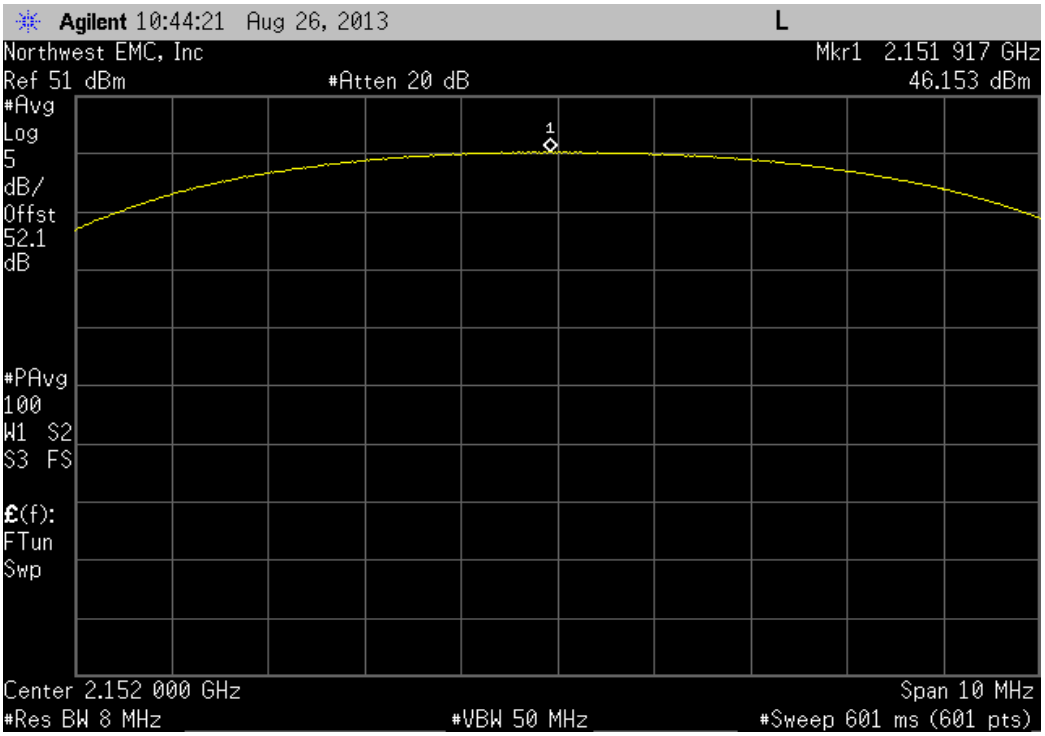
LTE 5 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.187		41.6	< 1640 W	Pass



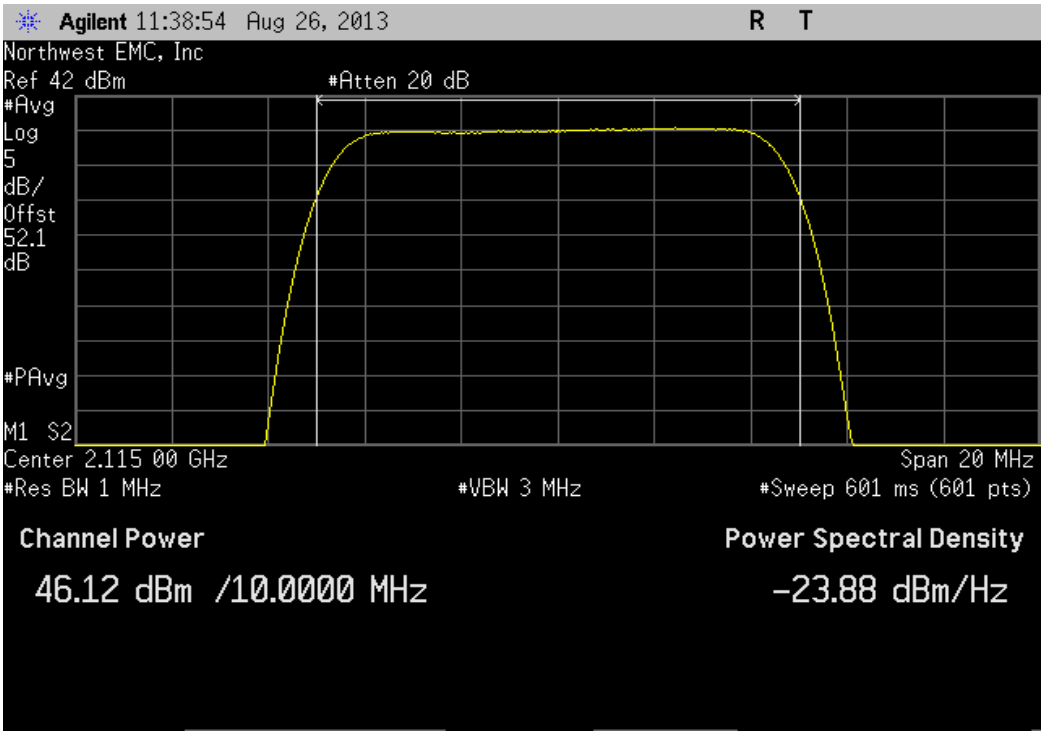
LTE 5 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.547		45.2	< 1640 W	Pass



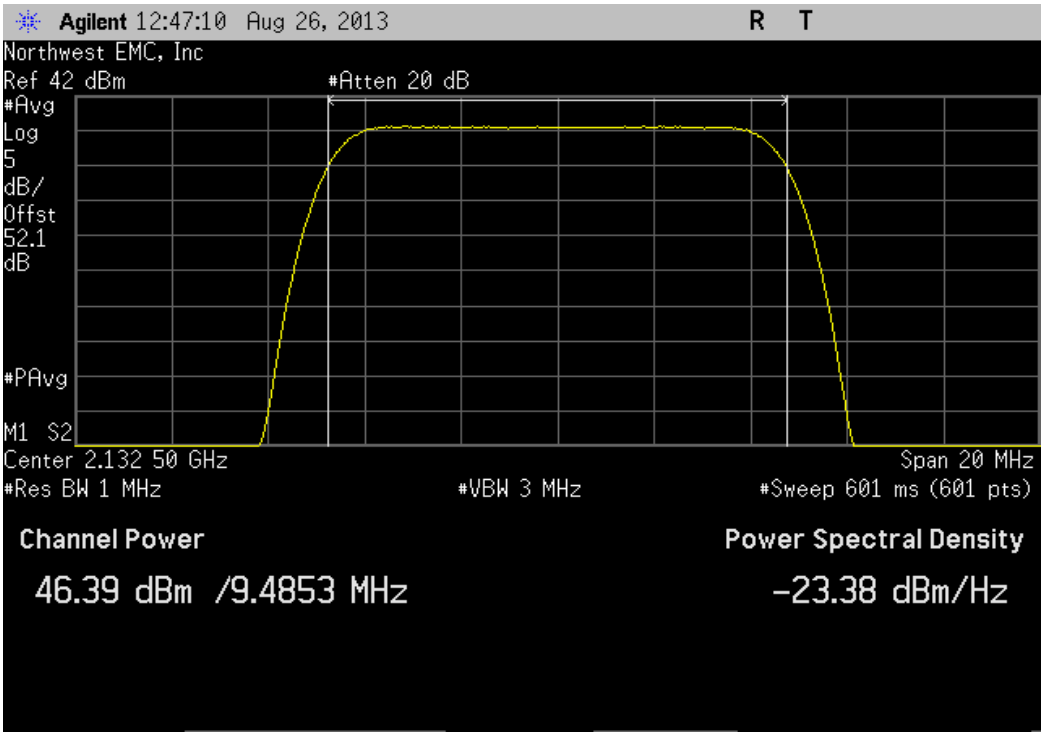
LTE 5 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.153		41.2	< 1640 W	Pass



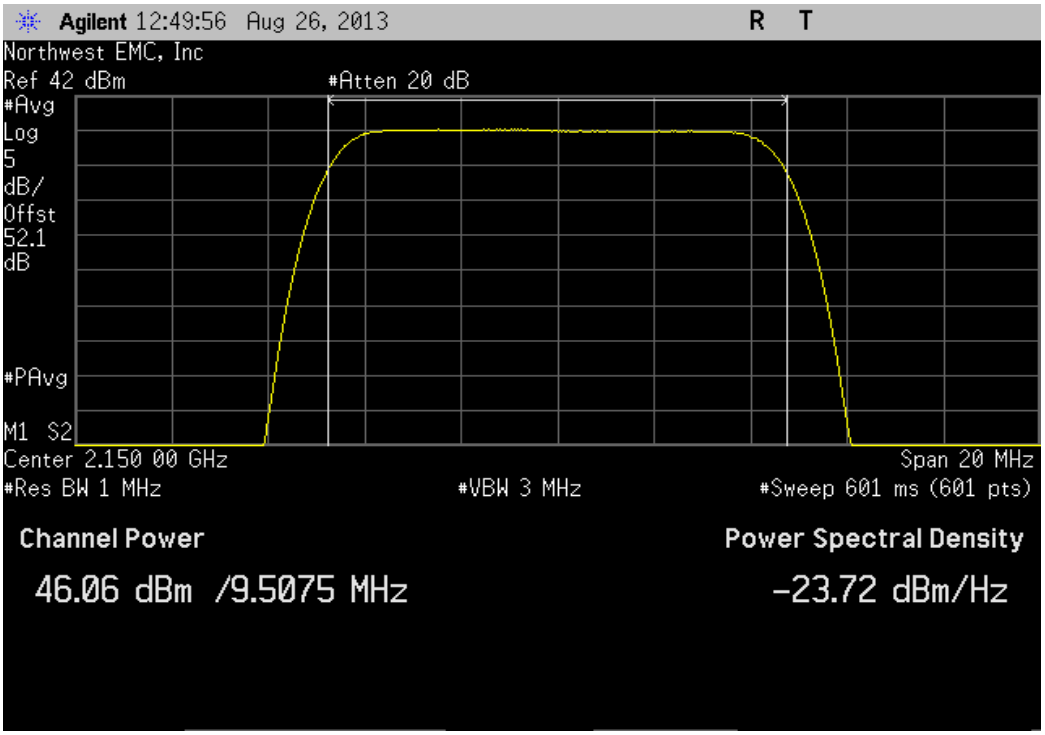
LTE 10 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.116		40.9	< 1640 W	Pass



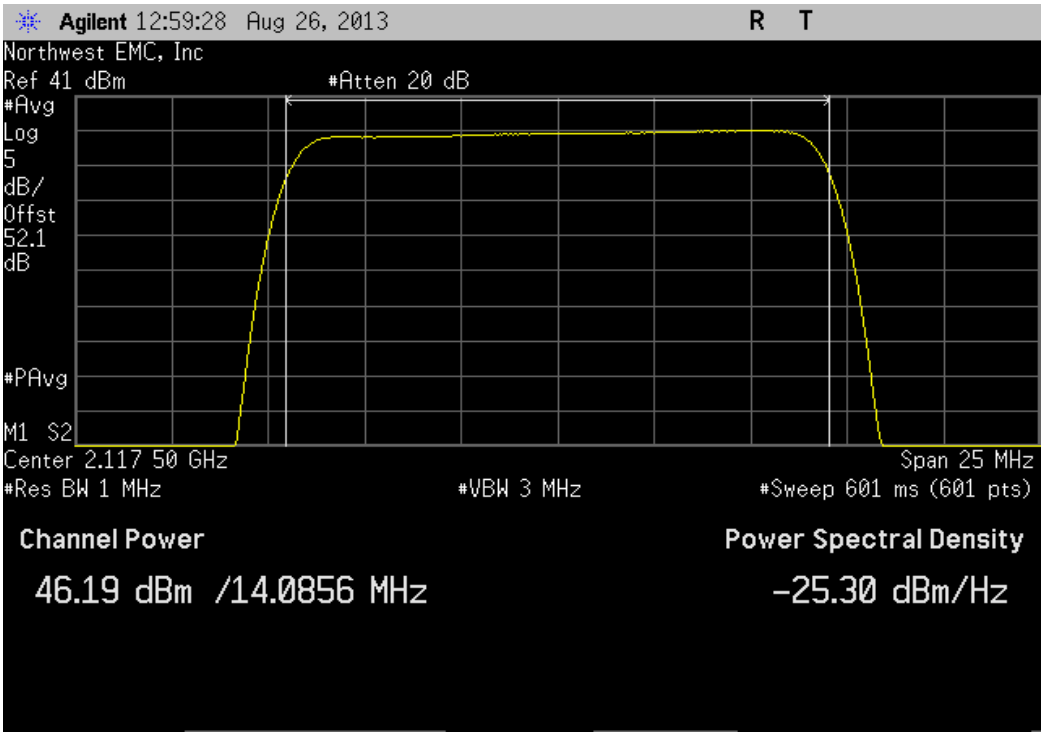
LTE 10 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.392		43.6	< 1640 W	Pass



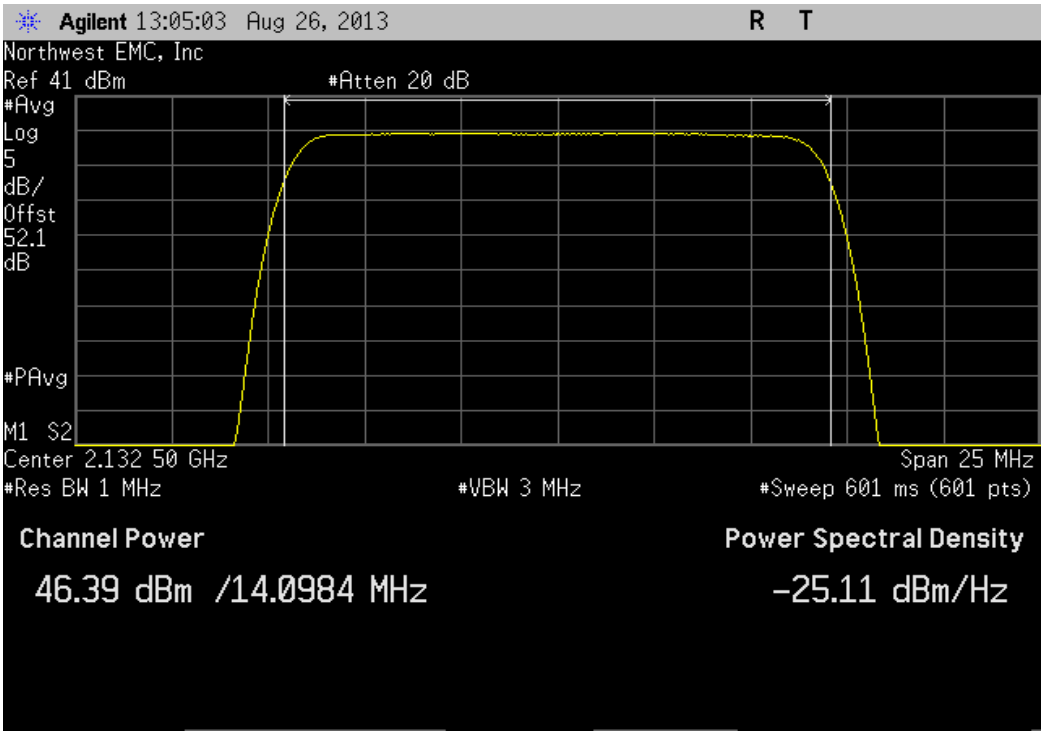
LTE 10 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.058		40.3	< 1640 W	Pass



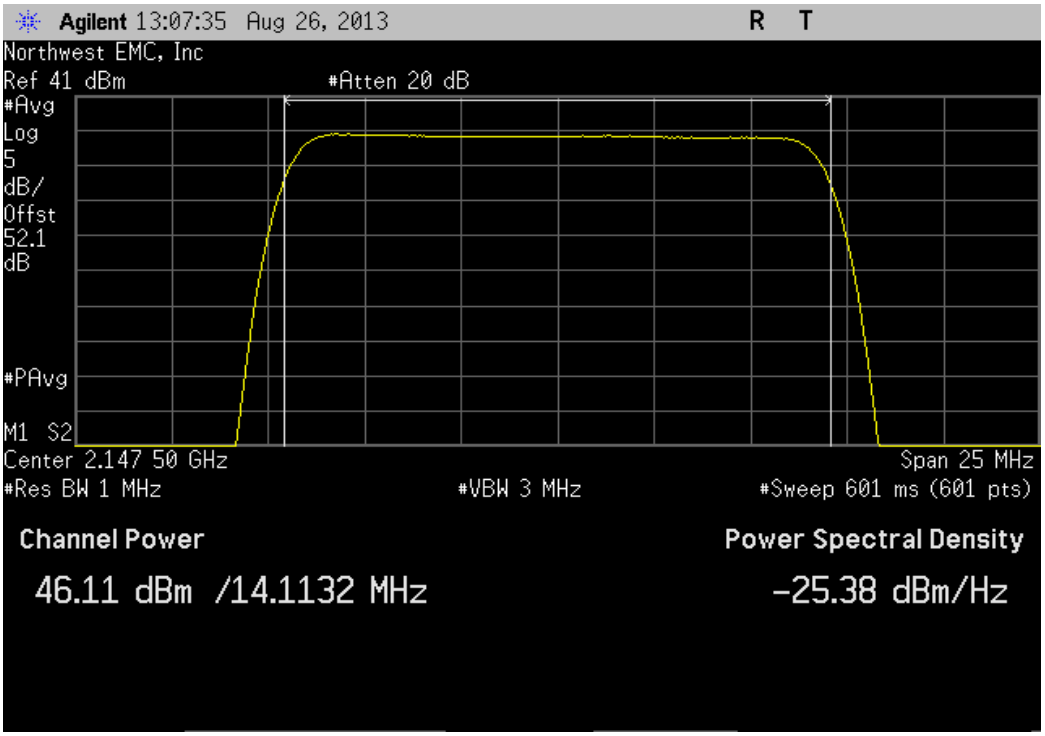
LTE 15 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.19		41.6	< 1640 W	Pass



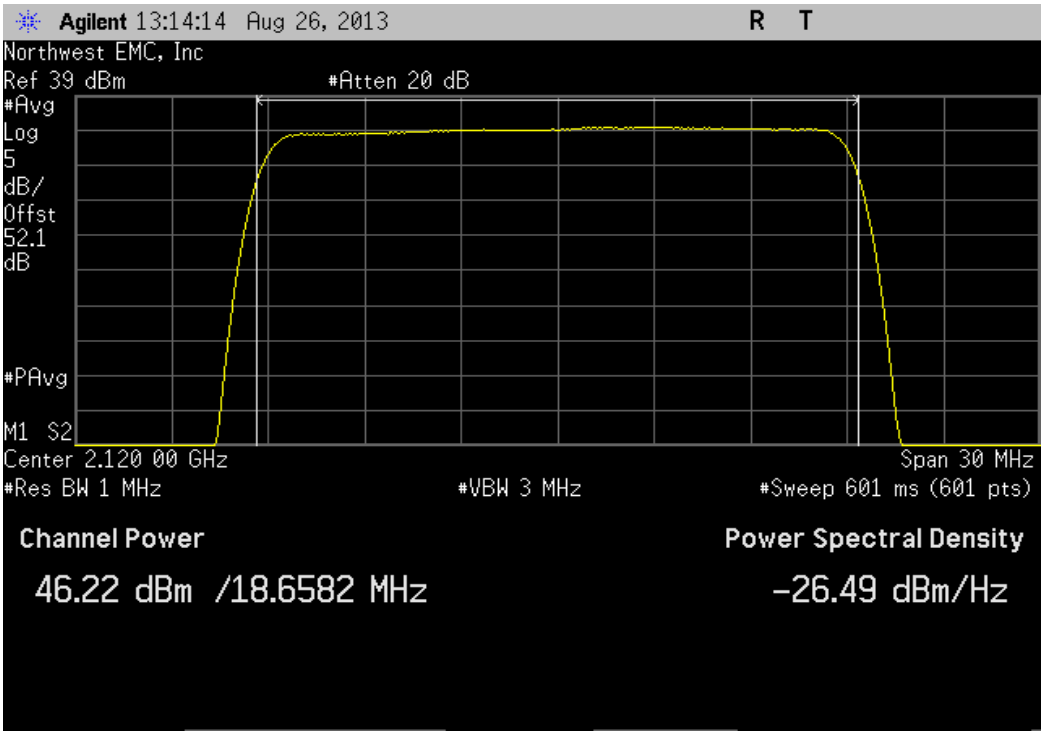
LTE 15 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.387		43.5	< 1640 W	Pass



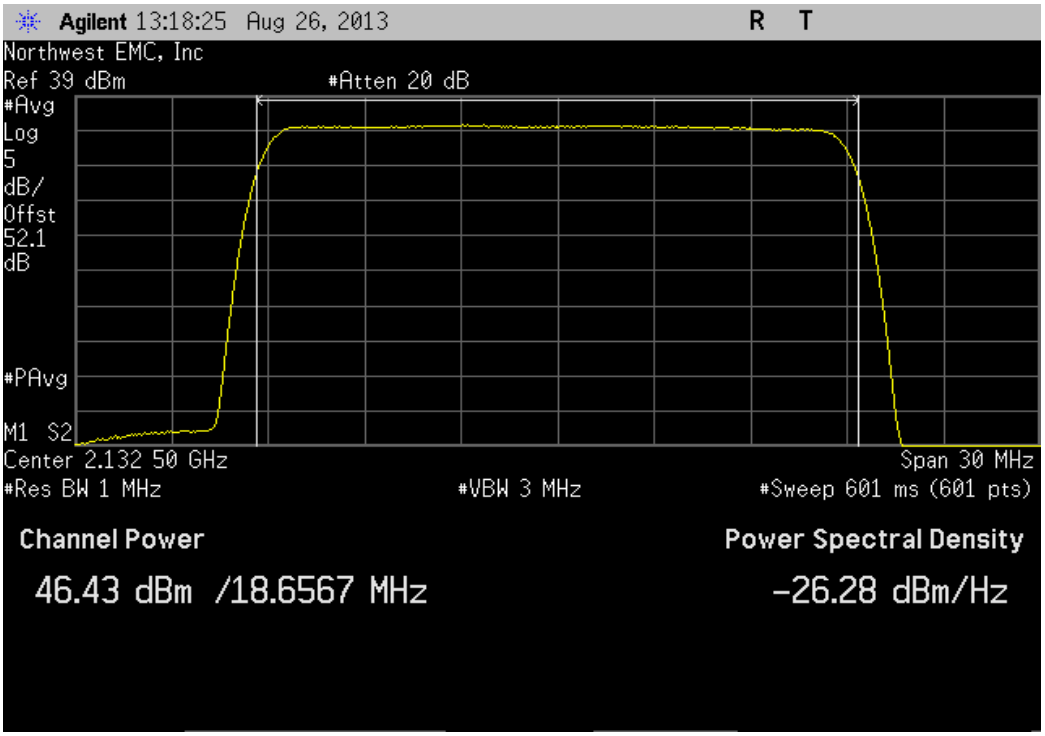
LTE 15 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.113		40.9	< 1640 W	Pass



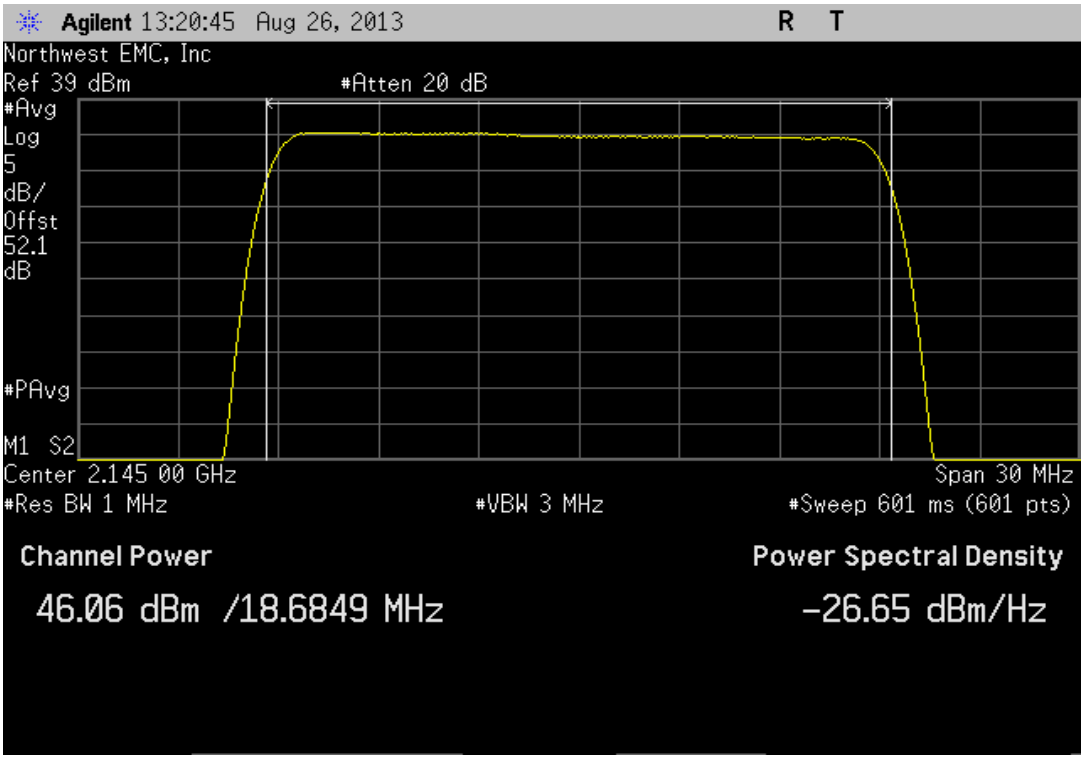
LTE 20 MHz, Low Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.223		41.9	< 1640 W	Pass



LTE 20 MHz, Mid Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.431		44.0	< 1640 W	Pass



LTE 20 MHz, High Channel						
		Value (dBm)		Value (W)	Limit	Result
		46.064		40.4	< 1640 W	Pass



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
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

TEST DESCRIPTION

The 26 dB bandwidth was measured utilizing the analyzer's peak detector based on the peak output power level measured. A plot was taken to show the occupied bandwidth is contained within the allowable transmit band.

A direct connection was made between the EUT and a spectrum analyzer. The resolution bandwidth was approximately equal to 1% of the 26dB bandwidth and the video bandwidth was greater than or equal to the resolution bandwidth.

The occupied bandwidth was measured with the EUT configured in the modes called out in the data sheets.

Occupied Bandwidth

EUT:	Prism HDM 40W AWS SISO RF Module			**Work Order:**	TECO0003
Serial Number:	None			**Date:**	08/26/13
Customer:	TE Connectivity / ADC Telecommunications			**Temperature:**	27.0°C
Attendees:	None			**Humidity:**	53%
Project:	None			**Barometric Pres.:**	1013.6
Tested by:	Trevor Buls	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator that was added into the reference level offset.

DEVIATIONS FROM TEST STANDARD

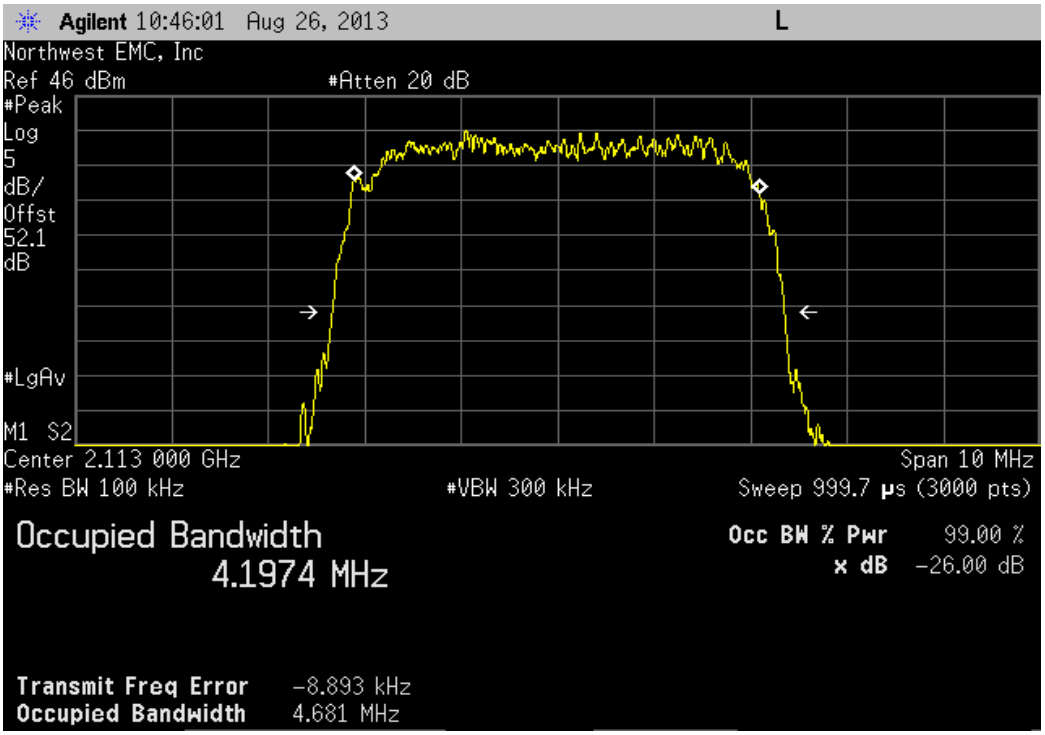
None

Configuration #	1	Signature	Trevor Buls

		Value	Limit	Result
WCDMA				
	Low Channel	4.681 MHz	N/A	N/A
	Mid Channel	4.686 MHz	N/A	N/A
	High Channel	4.668 MHz	N/A	N/A
LTE 1.4 MHz				
	Low Channel	1.358 MHz	N/A	N/A
	Mid Channel	1.418 MHz	N/A	N/A
	High Channel	1.342 MHz	N/A	N/A
LTE 3 MHz				
	Low Channel	3.004 MHz	N/A	N/A
	Mid Channel	3.034 MHz	N/A	N/A
	High Channel	3.011 MHz	N/A	N/A
LTE 5 MHz				
	Low Channel	4.863 MHz	N/A	N/A
	Mid Channel	4.972 MHz	N/A	N/A
	High Channel	4.852 MHz	N/A	N/A
LTE 10 MHz				
	Low Channel	9.489 MHz	N/A	N/A
	Mid Channel	9.485 MHz	N/A	N/A
	High Channel	9.507 MHz	N/A	N/A
LTE 15 MHz				
	Low Channel	14.086 MHz	N/A	N/A
	Mid Channel	14.098 MHz	N/A	N/A
	High Channel	14.113 MHz	N/A	N/A
LTE 20 MHz				
	Low Channel	18.658 MHz	N/A	N/A
	Mid Channel	18.657 MHz	N/A	N/A
	High Channel	18.685 MHz	N/A	N/A

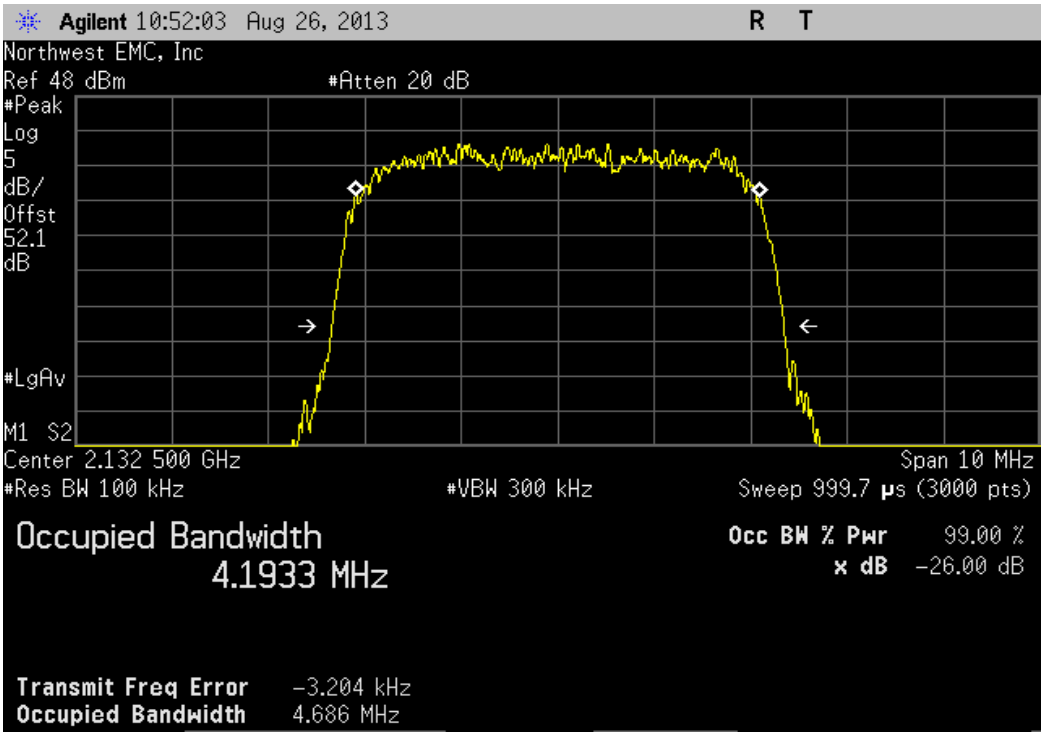
WCDMA, Low Channel

				Value	Limit	Result
				4.681 MHz	N/A	N/A



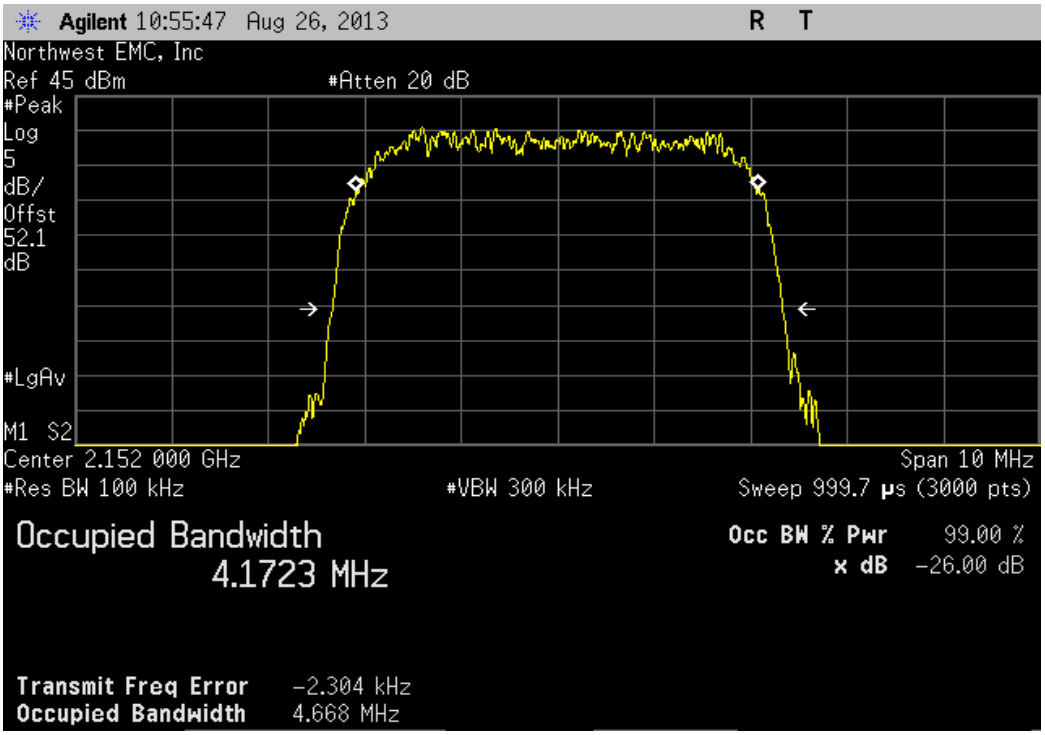
WCDMA, Mid Channel

				Value	Limit	Result
				4.686 MHz	N/A	N/A



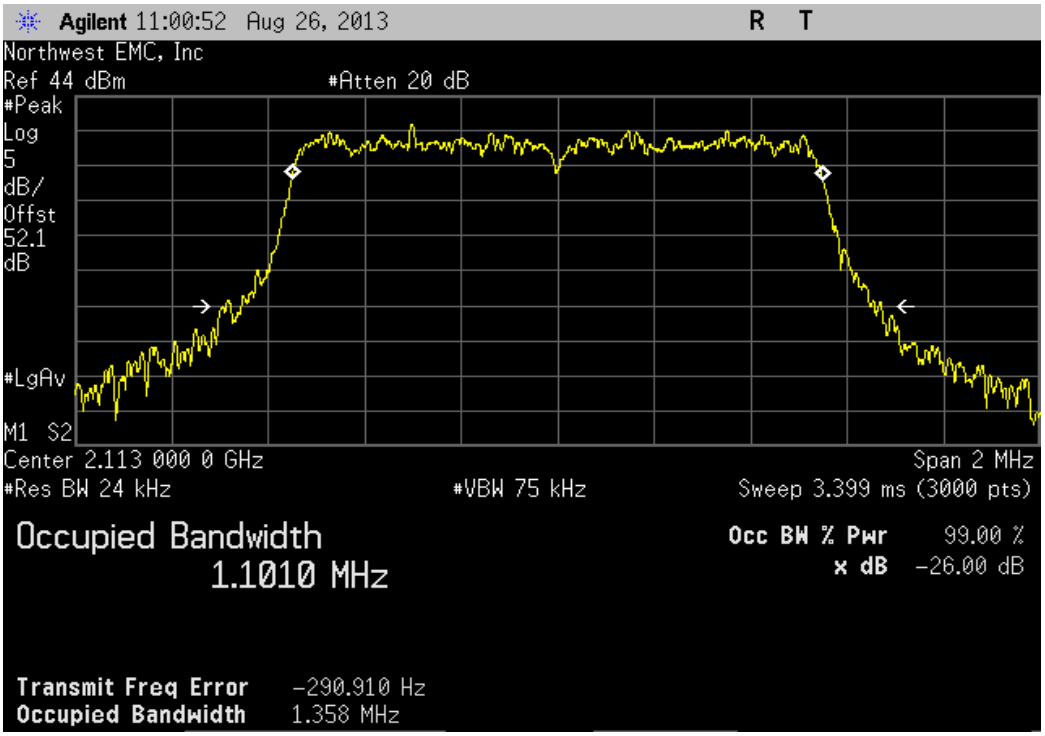
WCDMA, High Channel

				Value	Limit	Result
				4.668 MHz	N/A	N/A



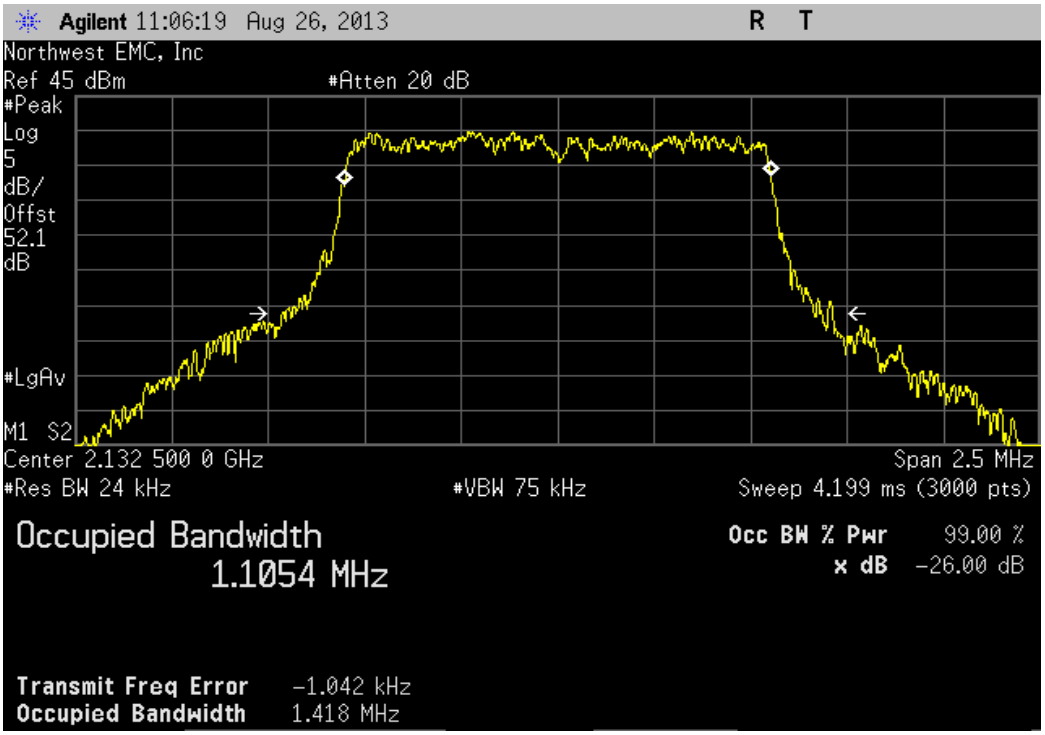
LTE 1.4 MHz, Low Channel

				Value	Limit	Result
				1.358 MHz	N/A	N/A



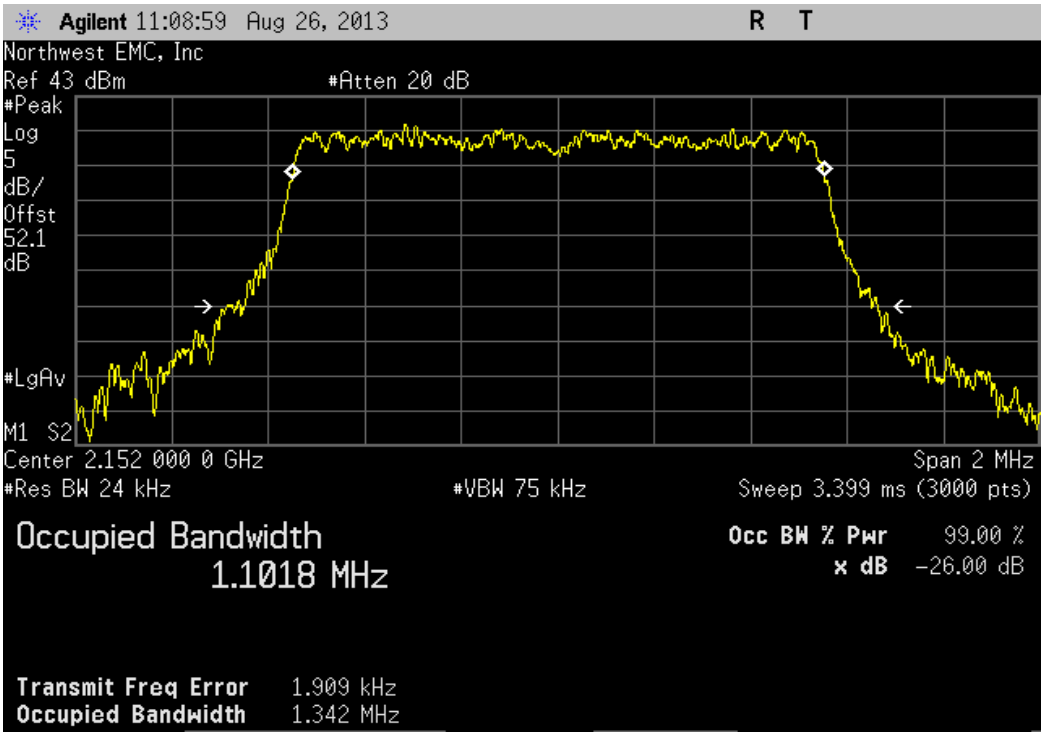
LTE 1.4 MHz, Mid Channel

				Value	Limit	Result
				1.418 MHz	N/A	N/A



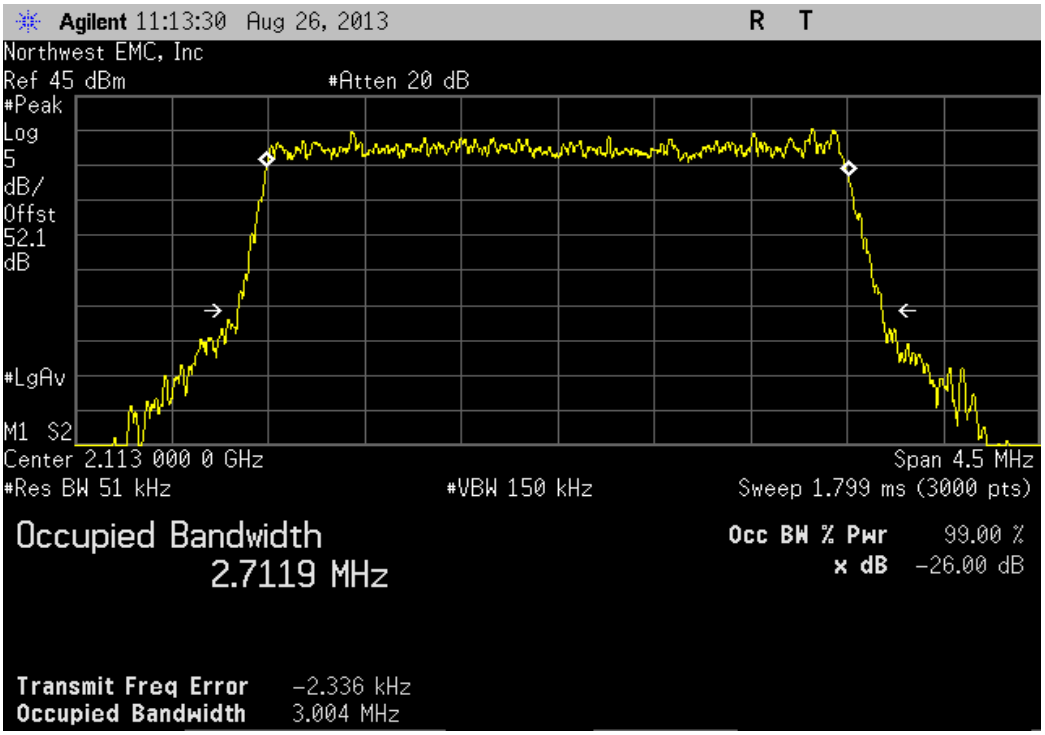
LTE 1.4 MHz, High Channel

				Value	Limit	Result
				1.342 MHz	N/A	N/A



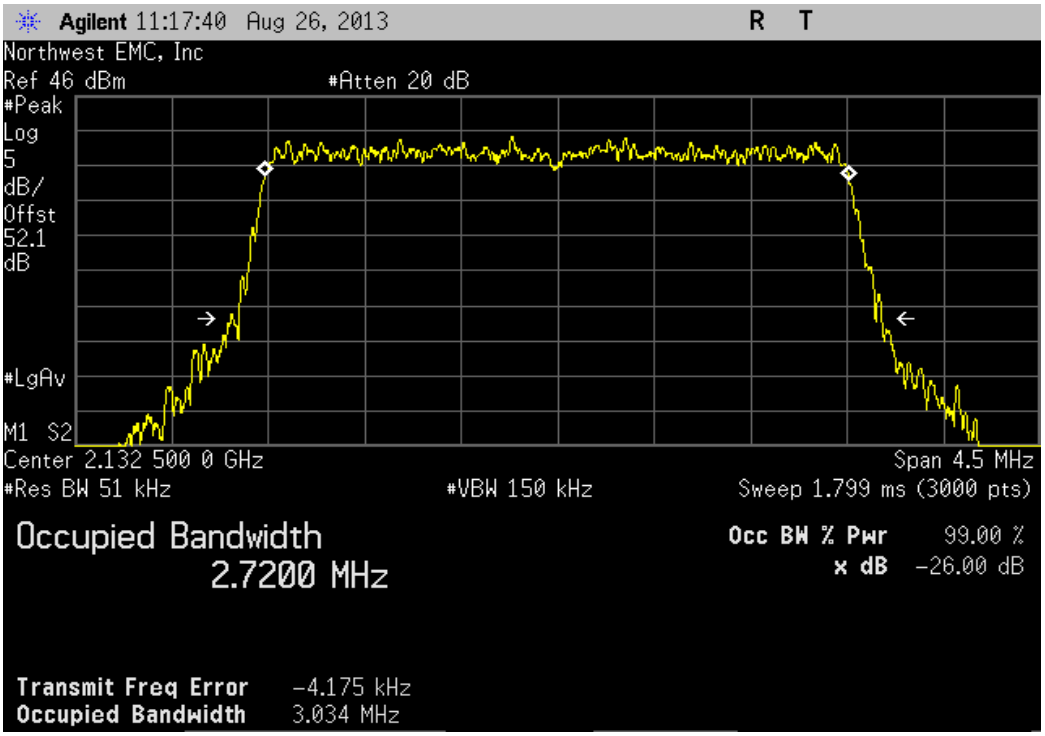
LTE 3 MHz, Low Channel

Value	Limit	Result
3.004 MHz	N/A	N/A



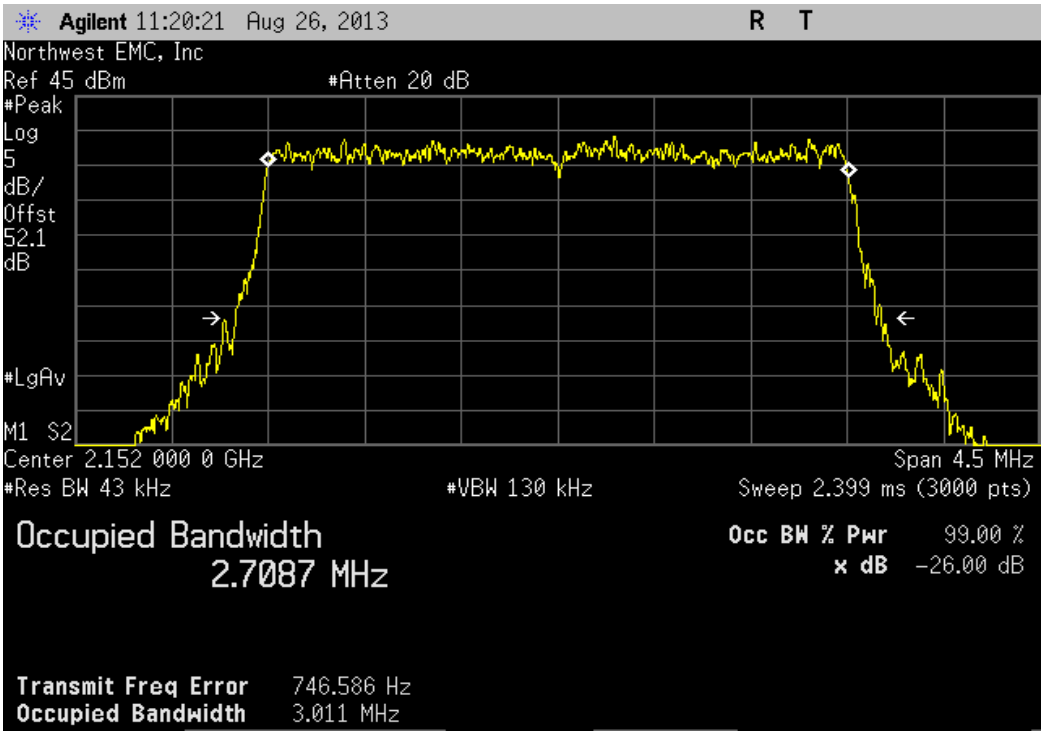
LTE 3 MHz, Mid Channel

Value	Limit	Result
3.034 MHz	N/A	N/A



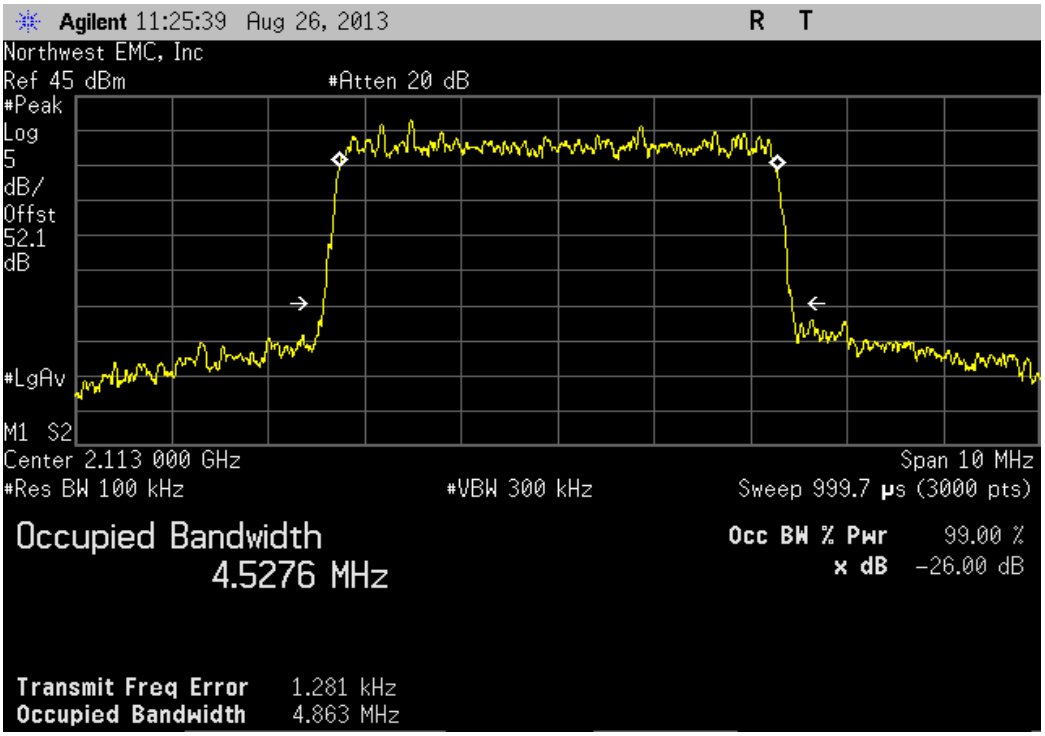
LTE 3 MHz, High Channel

				Value	Limit	Result
				3.011 MHz	N/A	N/A



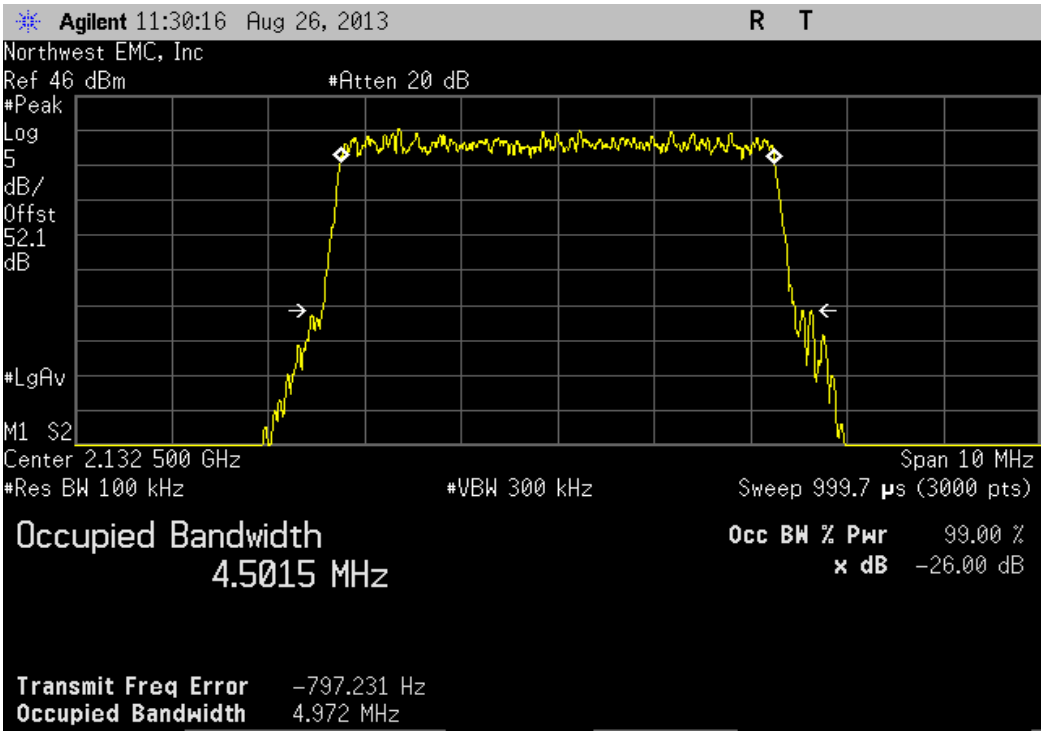
LTE 5 MHz, Low Channel

				Value	Limit	Result
				4.863 MHz	N/A	N/A



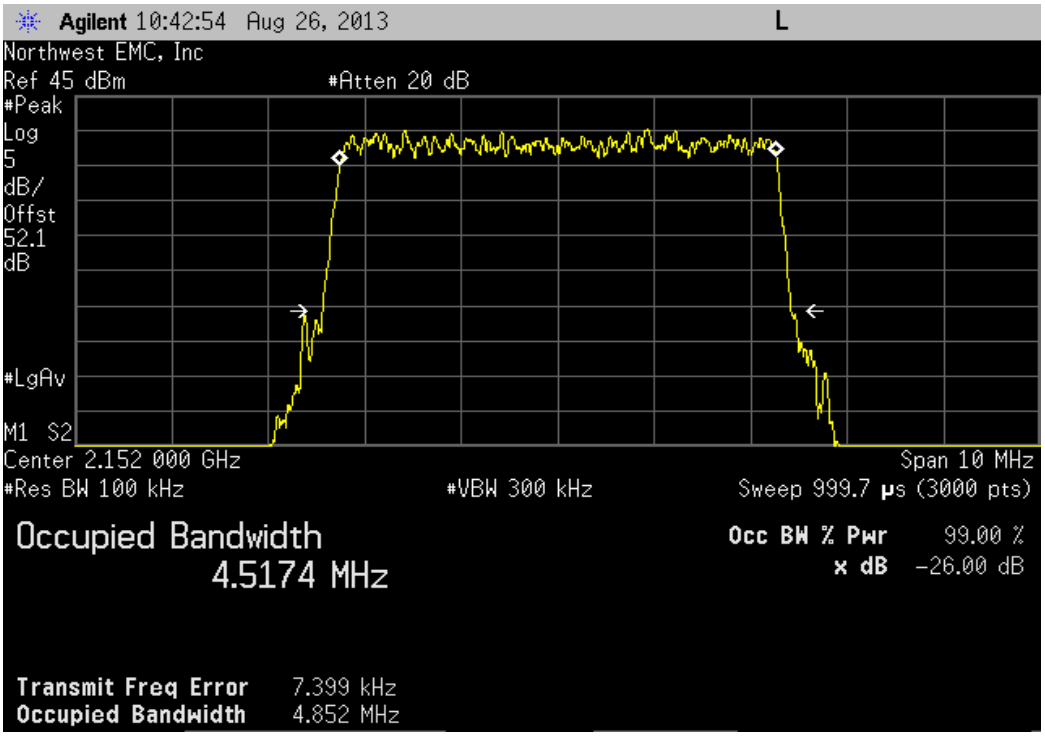
LTE 5 MHz, Mid Channel

				Value	Limit	Result
				4.972 MHz	N/A	N/A



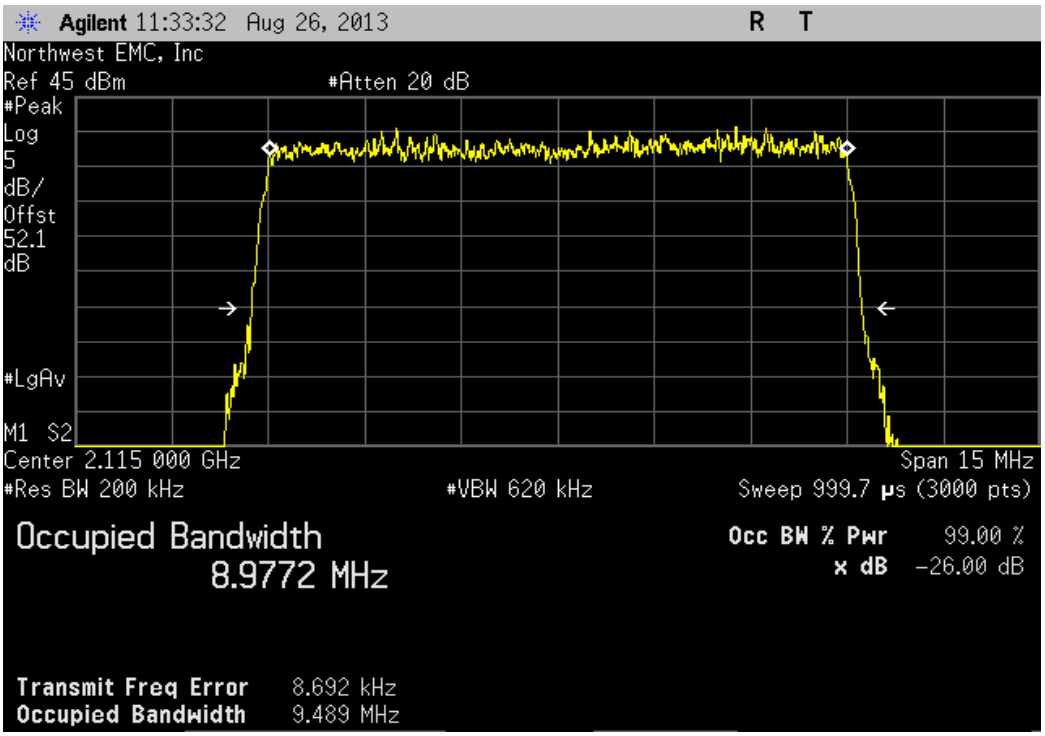
LTE 5 MHz, High Channel

				Value	Limit	Result
				4.852 MHz	N/A	N/A



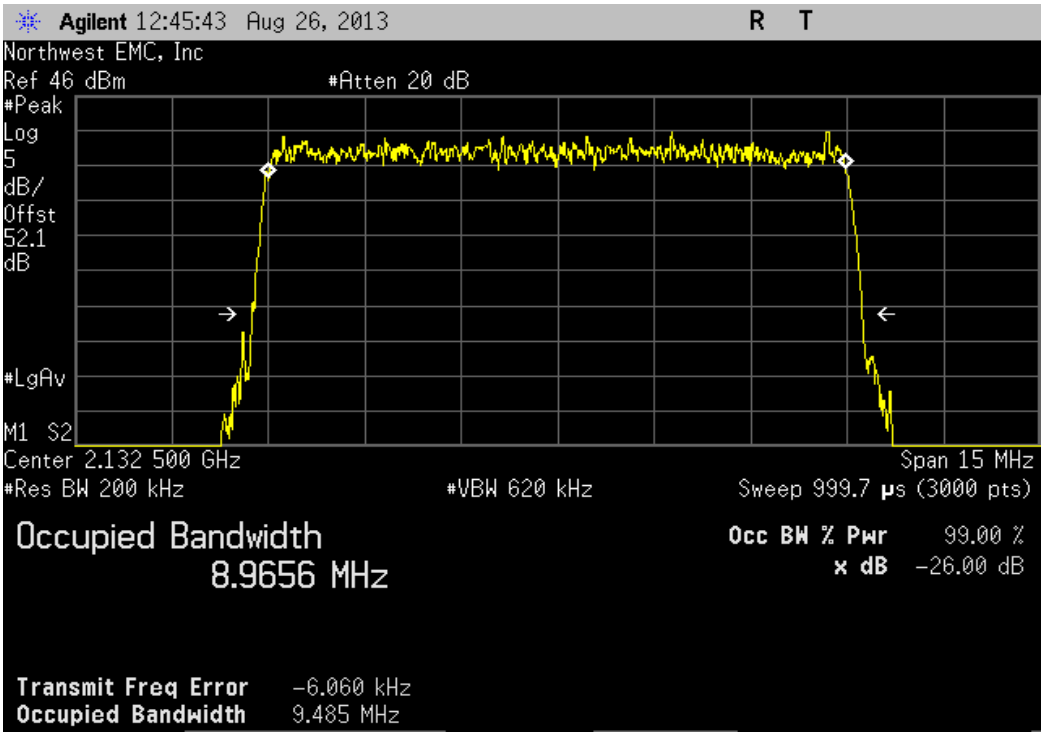
LTE 10 MHz, Low Channel

				Value	Limit	Result
				9.489 MHz	N/A	N/A



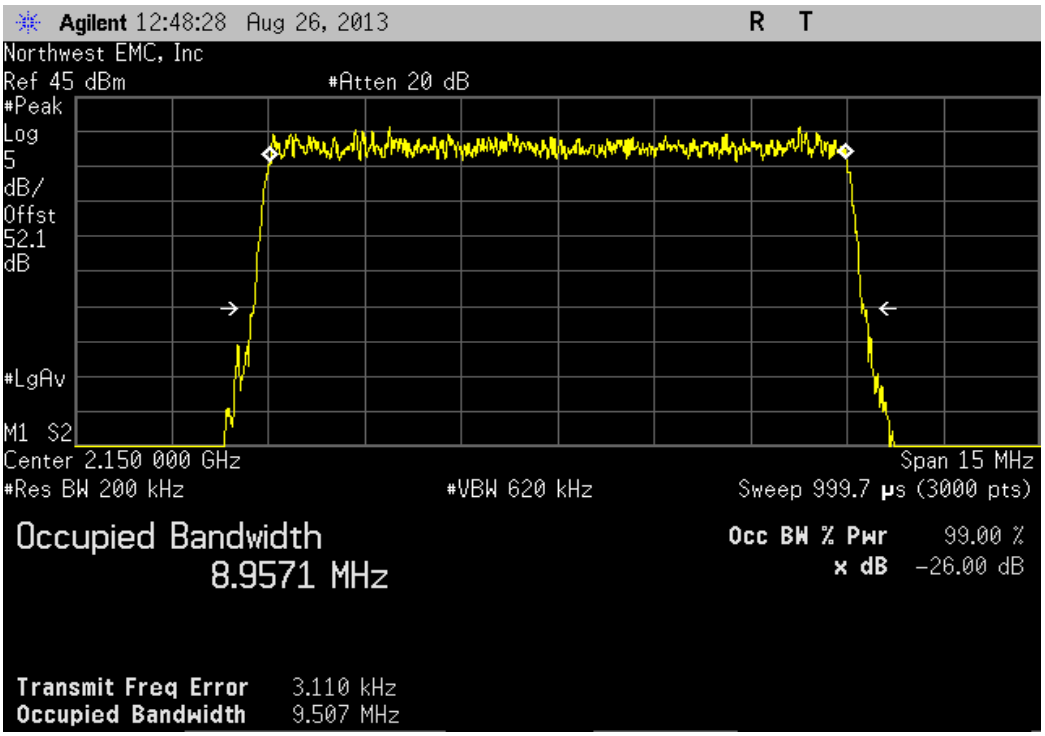
LTE 10 MHz, Mid Channel

				Value	Limit	Result
				9.485 MHz	N/A	N/A



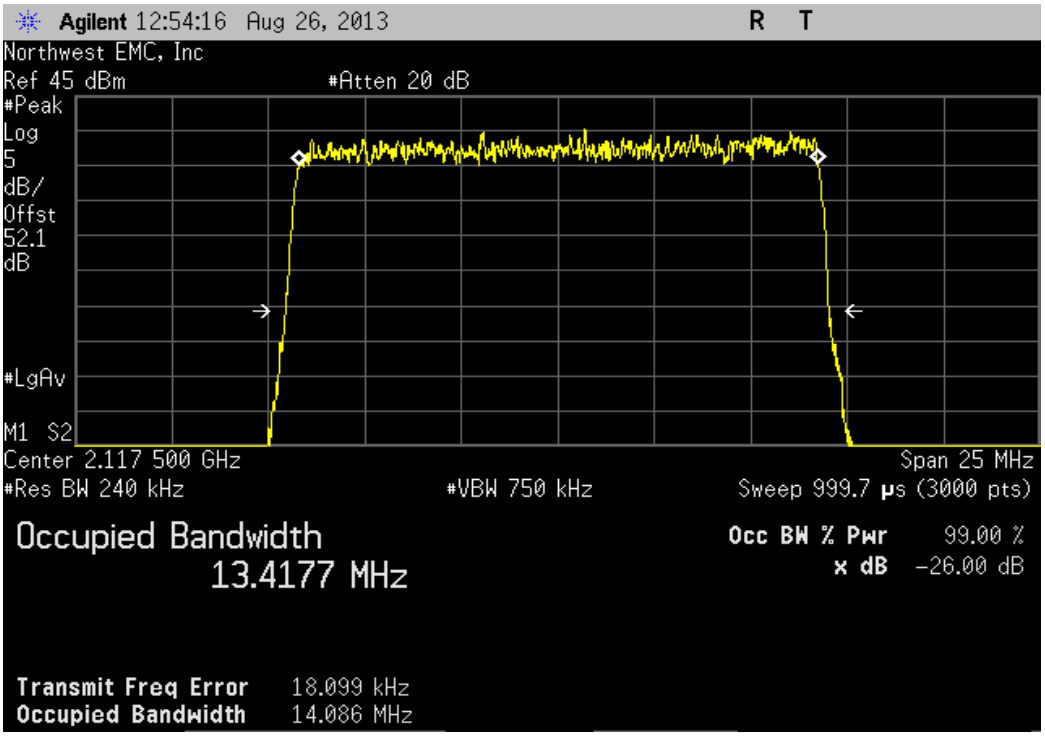
LTE 10 MHz, High Channel

Value	Limit	Result
9.507 MHz	N/A	N/A



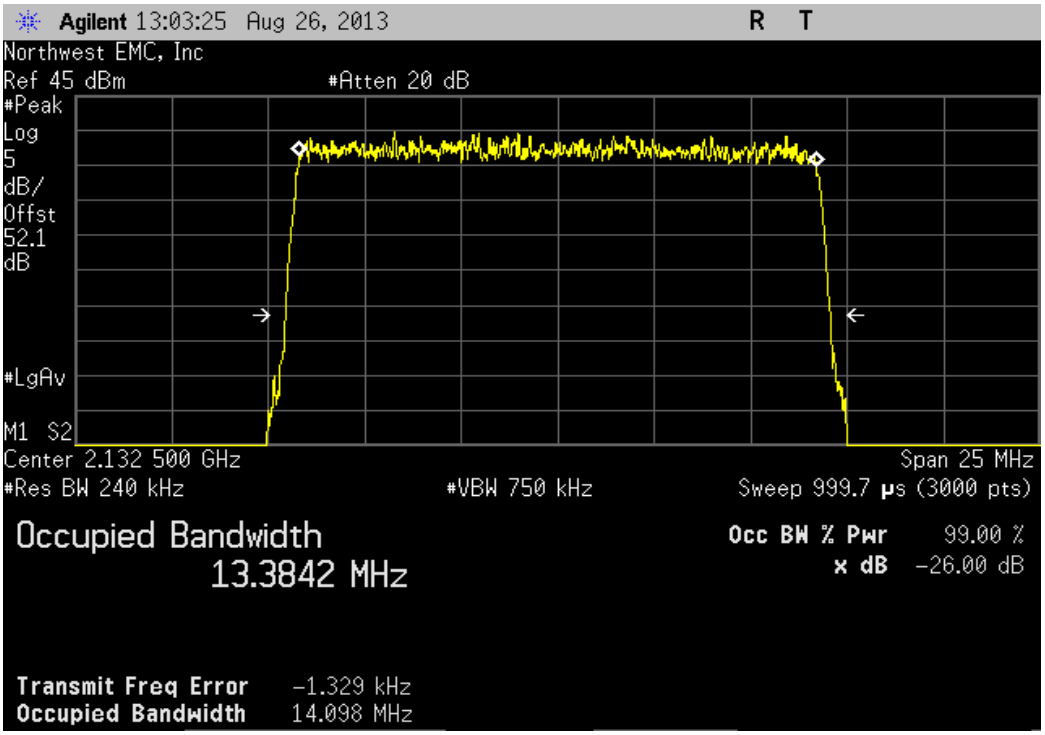
LTE 15 MHz, Low Channel

Value	Limit	Result
14.086 MHz	N/A	N/A



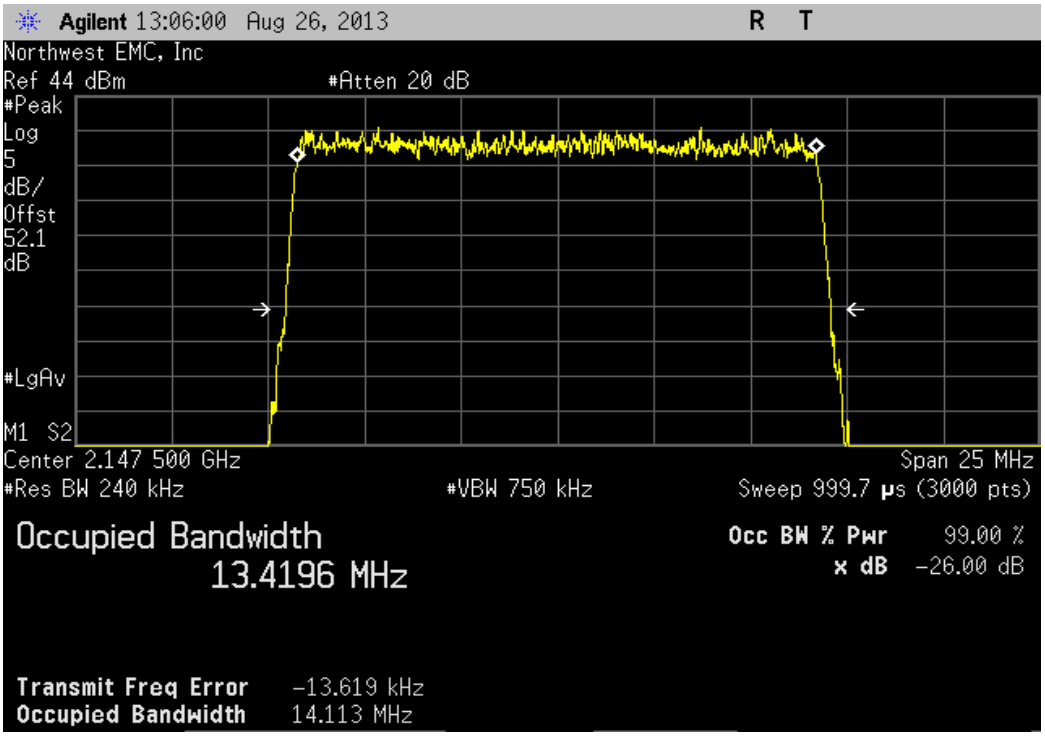
LTE 15 MHz, Mid Channel

				Value	Limit	Result
				14.098 MHz	N/A	N/A



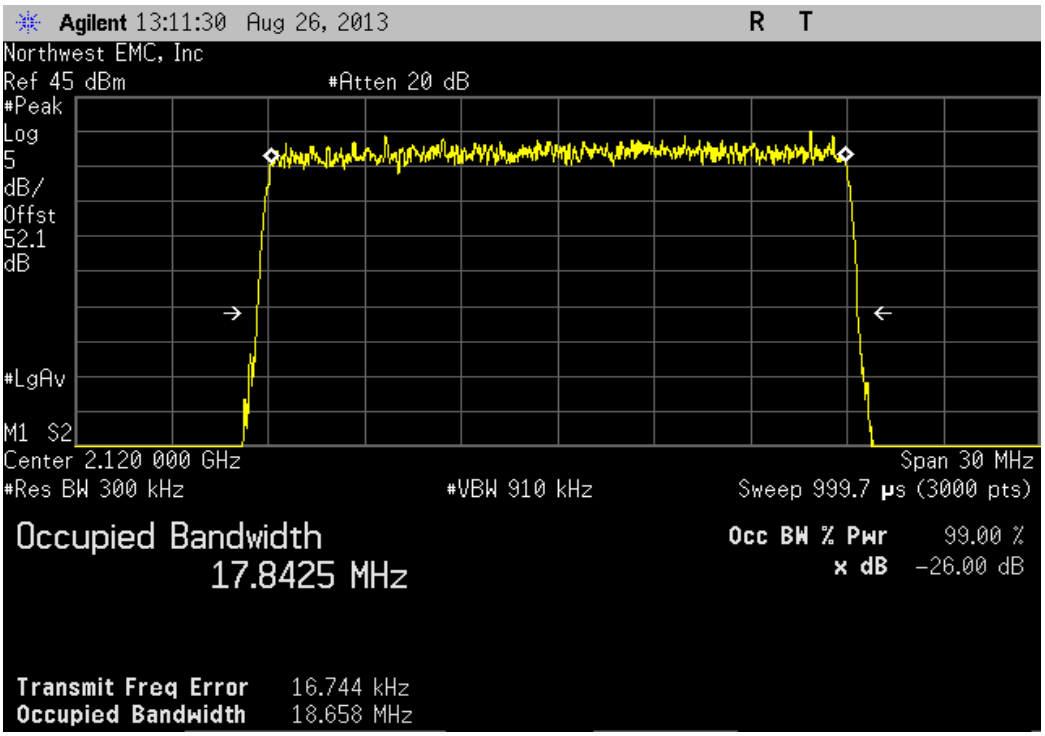
LTE 15 MHz, High Channel

				Value	Limit	Result
				14.113 MHz	N/A	N/A



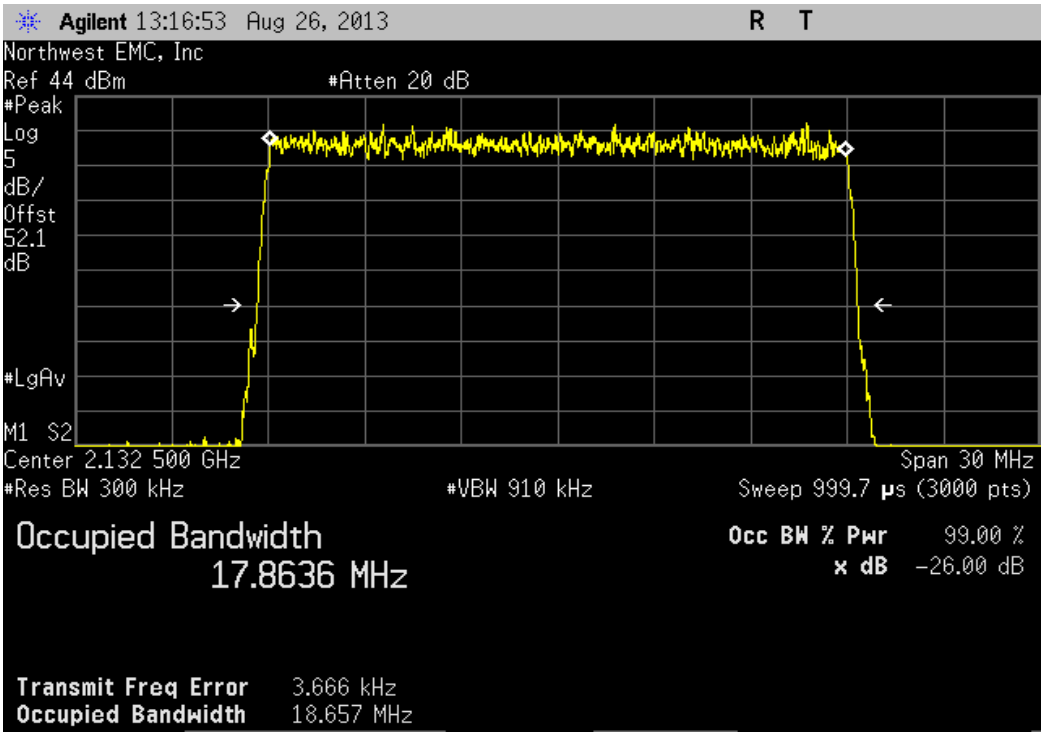
LTE 20 MHz, Low Channel

Value	Limit	Result
18.658 MHz	N/A	N/A



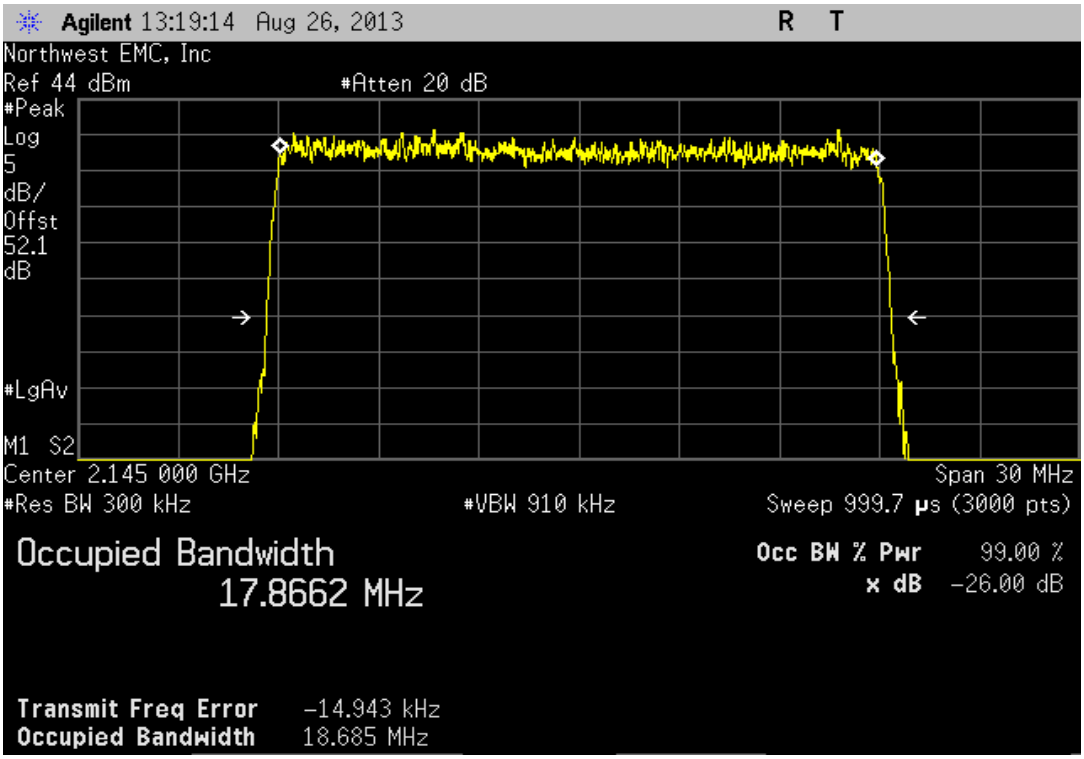
LTE 20 MHz, Mid Channel

Value	Limit	Result
18.657 MHz	N/A	N/A



LTE 20 MHz, High Channel

				Value	Limit	Result
				18.685 MHz	N/A	N/A



Out-Of-Band Emissions - Conducted

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
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	HGV	10/5/2012	24
High Pass Filter	Micro-Tronics	HPM50111	HGY	10/5/2012	24
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT with external attenuation on the RF input of the spectrum analyzer. Analyzer plots utilizing a 1MHz resolution bandwidth and no video filtering were made for each modulation type from 30 MHz to 22 GHz. The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to –13 dBm.

Out-Of-Band Emissions -Conducted

EUT:	Prism HDM 40W AWS SISO RF Module			**Work Order:**	TECO0003
Serial Number:	None			**Date:**	08/27/13
Customer:	TE Connectivity / ADC Telecommunications			**Temperature:**	25.6°C
Attendees:	None			**Humidity:**	55%
Project:	None			**Barometric Pres.:**	1009
Tested by:	Trevor Buls	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator that was added into the reference level offset.

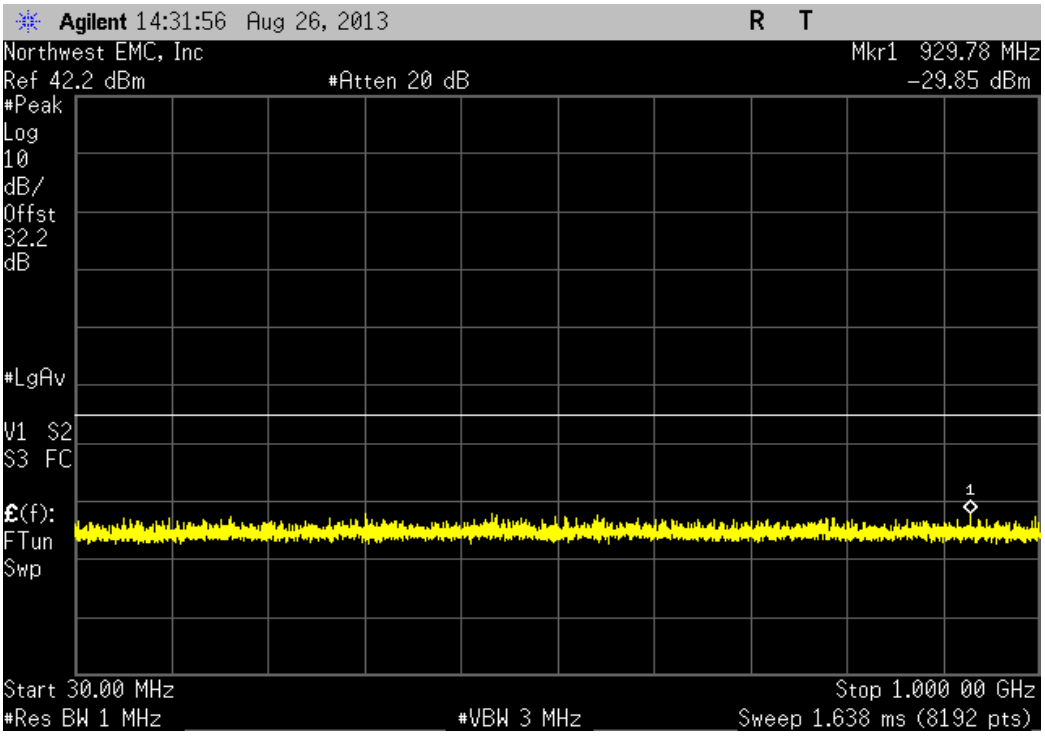
DEVIATIONS FROM TEST STANDARD

None

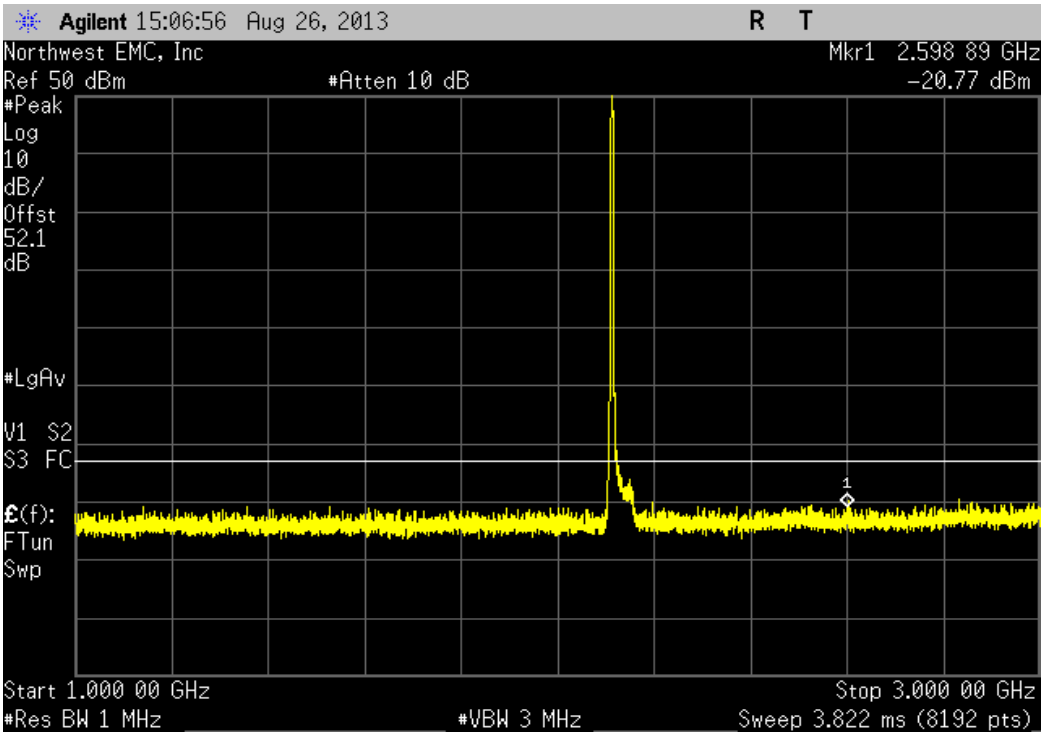
Configuration #	1	Signature	Trevor Buls

		Frequency Range	Value	Limit	Result
WCDMA					
	Low Channel	30 MHz - 1 GHz	-29.85 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-20.77 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-22.7 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-29.73 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-19.13 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.46 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.54 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-19.29 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-20.39 dBm	≤ -13 dBm	Pass
LTE 1.4 MHz					
	Low Channel	30 MHz - 1 GHz	-29.78 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-19.55 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-21.87 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-29.97 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-17.12 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.78 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.67 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-17.17 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-17.36 dBm	≤ -13 dBm	Pass
LTE 3 MHz					
	Low Channel	30 MHz - 1 GHz	-30 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-19.45 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-24.8 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-30.1 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-18.6 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.95 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-28.9 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-18.55 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-21.63 dBm	≤ -13 dBm	Pass
LTE 5 MHz					
	Low Channel	30 MHz - 1 GHz	-29.63 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-19.41 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-24.26 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-29.77 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-18.68 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.97 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.36 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-20.23 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-23.57 dBm	≤ -13 dBm	Pass
LTE 10 MHz					
	Low Channel	30 MHz - 1 GHz	-29.82 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-20.66 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-29.21 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-30.3 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-19.1 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.66 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.5 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-19.37 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-26.44 dBm	≤ -13 dBm	Pass
LTE 15 MHz					
	Low Channel	30 MHz - 1 GHz	-30.13 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-19.07 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-28.59 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-29.71 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-19.28 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.59 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.76 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-18.51 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-28.3 dBm	≤ -13 dBm	Pass
LTE 20 MHz					
	Low Channel	30 MHz - 1 GHz	-29.5 dBm	≤ -13 dBm	Pass
	Low Channel	1 GHz - 3 GHz	-19.75 dBm	≤ -13 dBm	Pass
	Low Channel	3 GHz - 22 GHz	-28.39 dBm	≤ -13 dBm	Pass
	Mid Channel	30 MHz - 1 GHz	-30.12 dBm	≤ -13 dBm	Pass
	Mid Channel	1 GHz - 3 GHz	-19.26 dBm	≤ -13 dBm	Pass
	Mid Channel	3 GHz - 22 GHz	-28.75 dBm	≤ -13 dBm	Pass
	High Channel	30 MHz - 1 GHz	-29.3 dBm	≤ -13 dBm	Pass
	High Channel	1 GHz - 3 GHz	-19.43 dBm	≤ -13 dBm	Pass
	High Channel	3 GHz - 22 GHz	-28.69 dBm	≤ -13 dBm	Pass

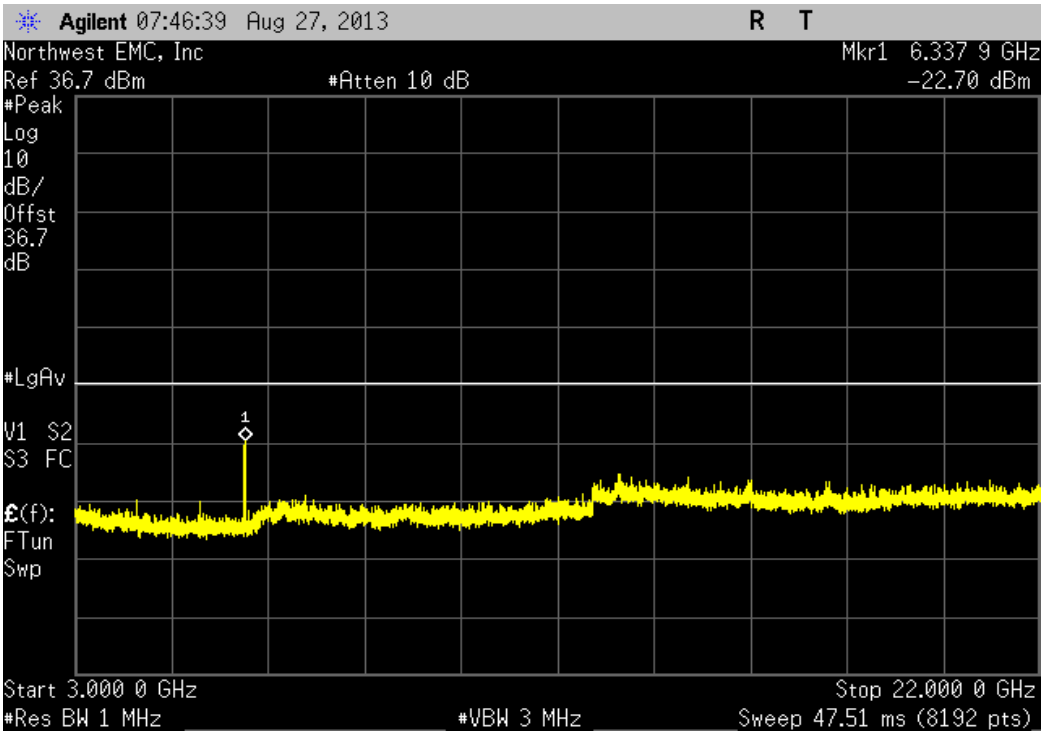
WCDMA, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.85 dBm	≤ -13 dBm	Pass



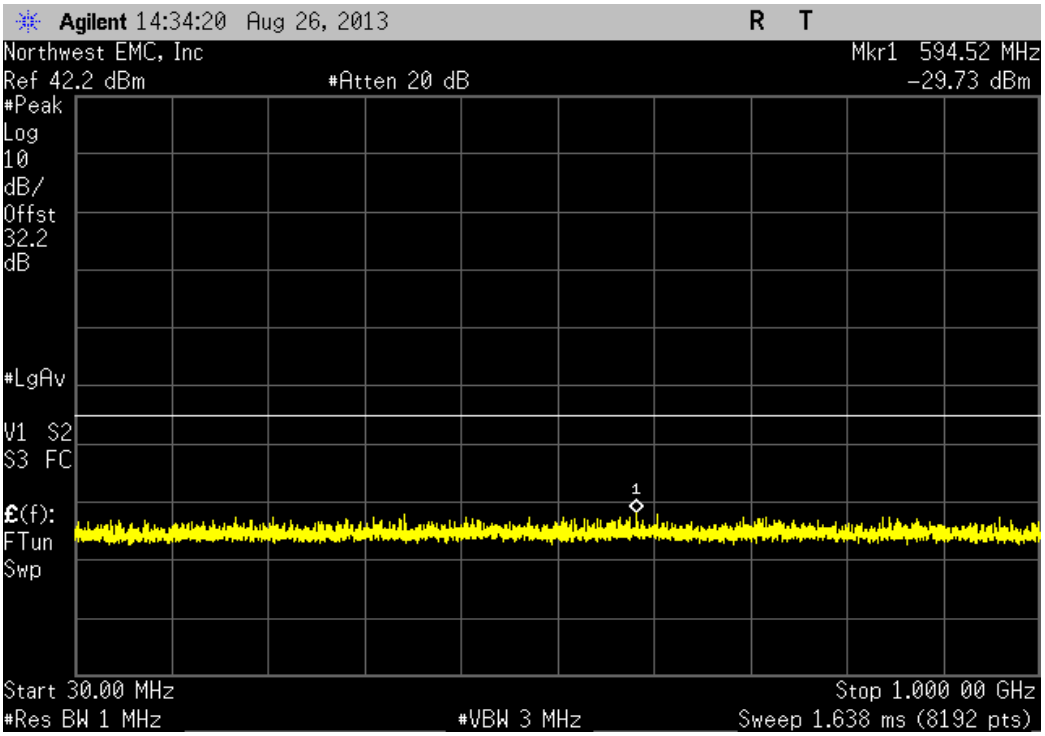
WCDMA, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-20.77 dBm	≤ -13 dBm	Pass



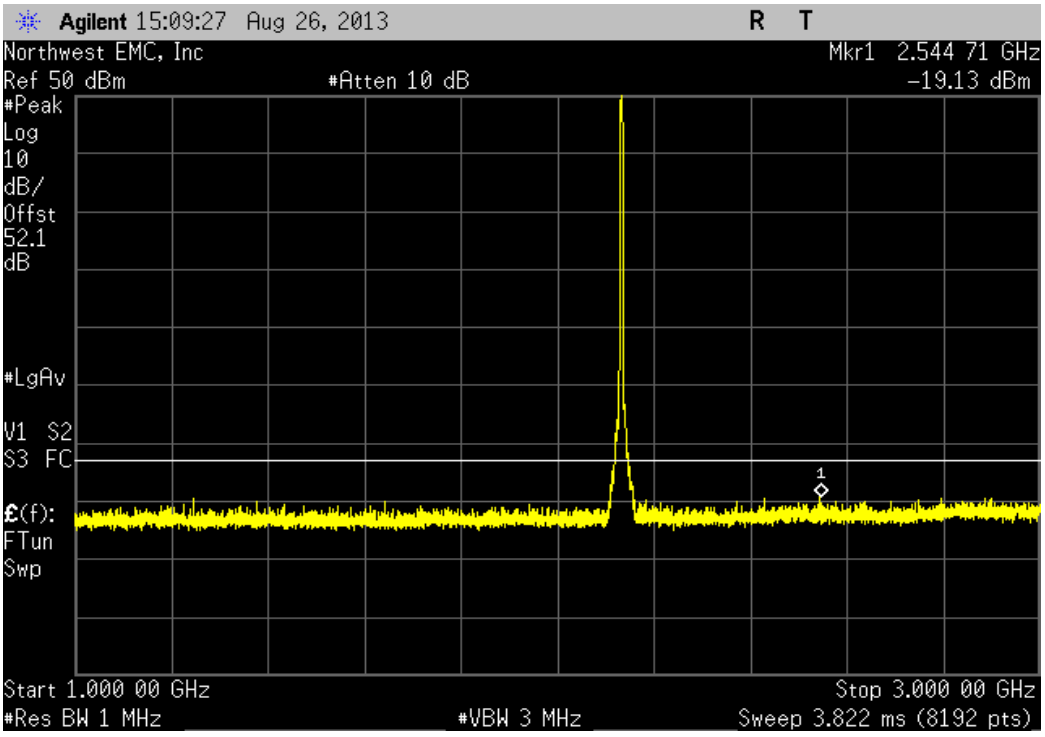
WCDMA, Low Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-22.7 dBm	≤ -13 dBm	Pass



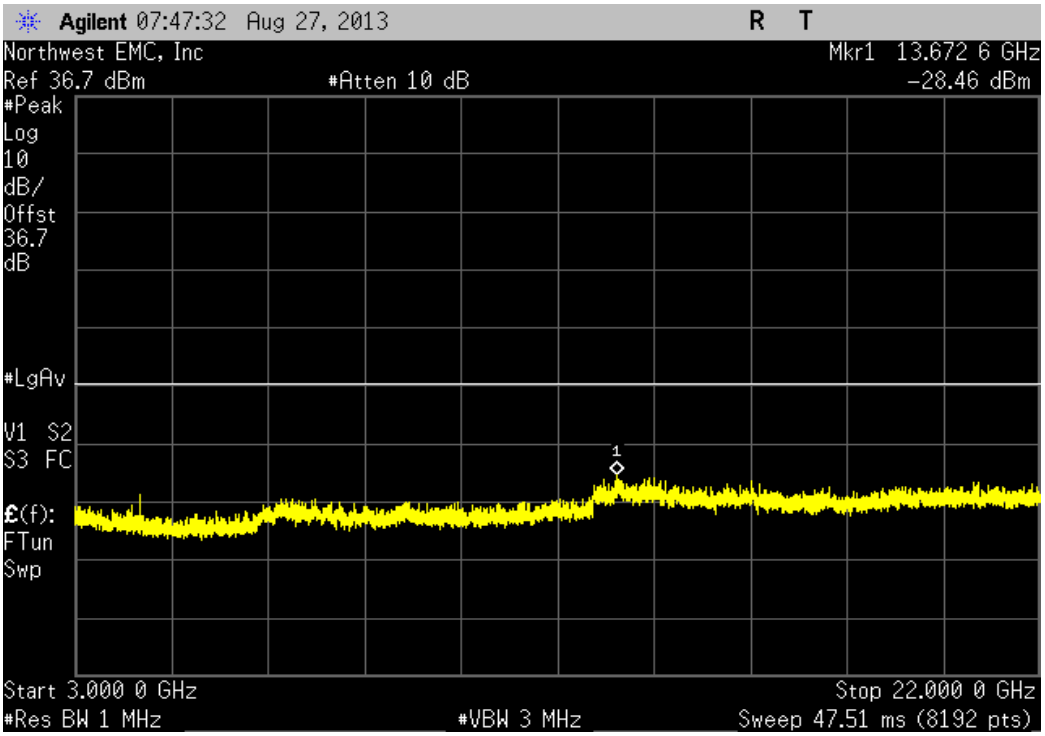
WCDMA, Mid Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.73 dBm	≤ -13 dBm	Pass



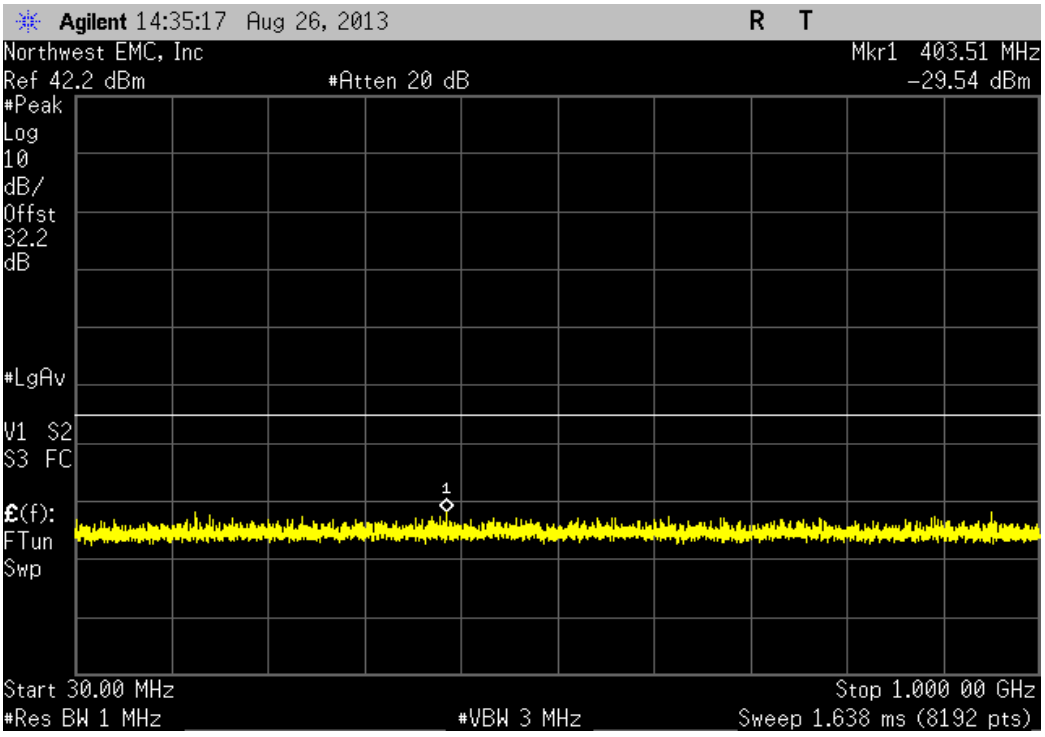
WCDMA, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.13 dBm	≤ -13 dBm	Pass



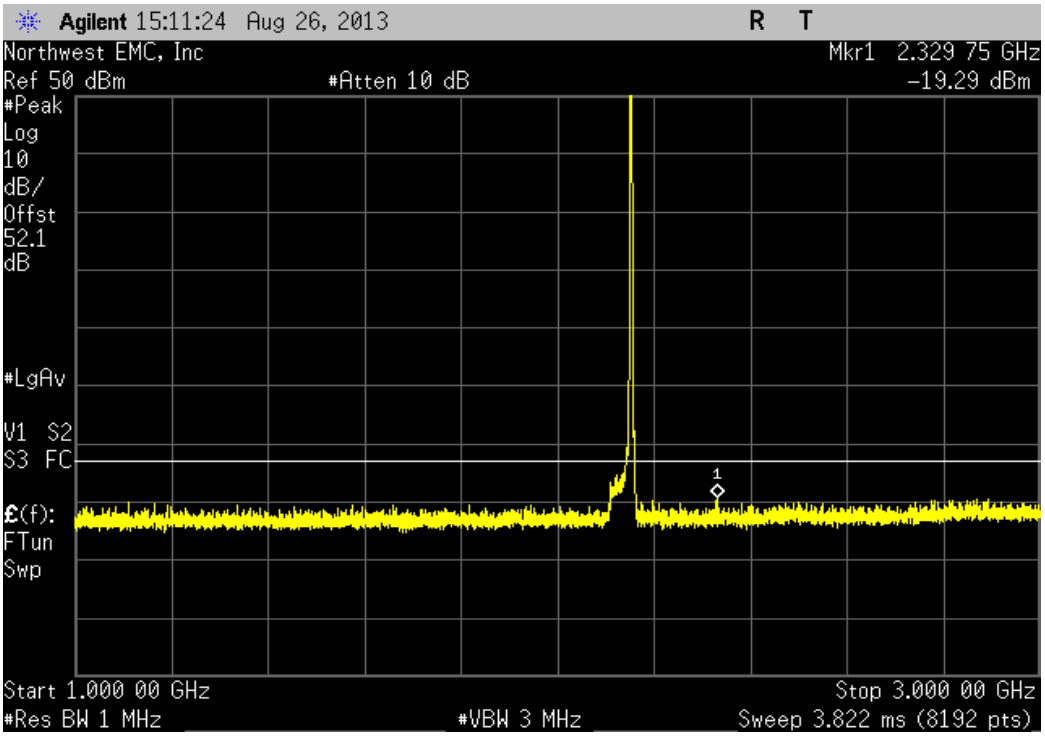
WCDMA, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.46 dBm	≤ -13 dBm	Pass



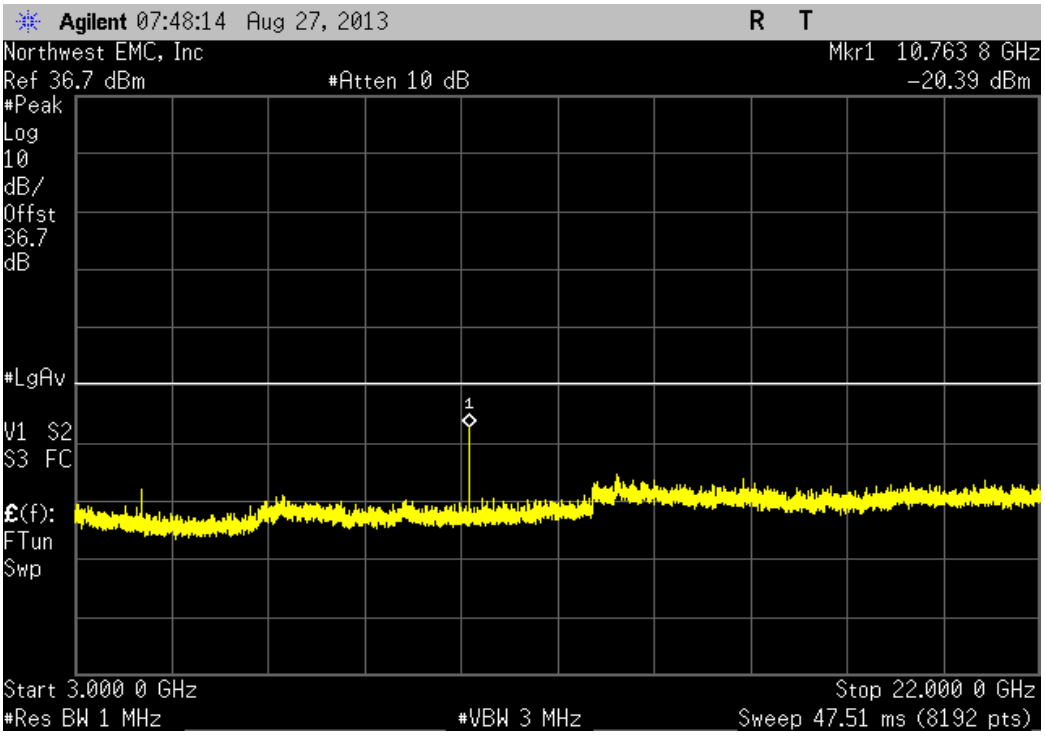
WCDMA, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.54 dBm	≤ -13 dBm	Pass



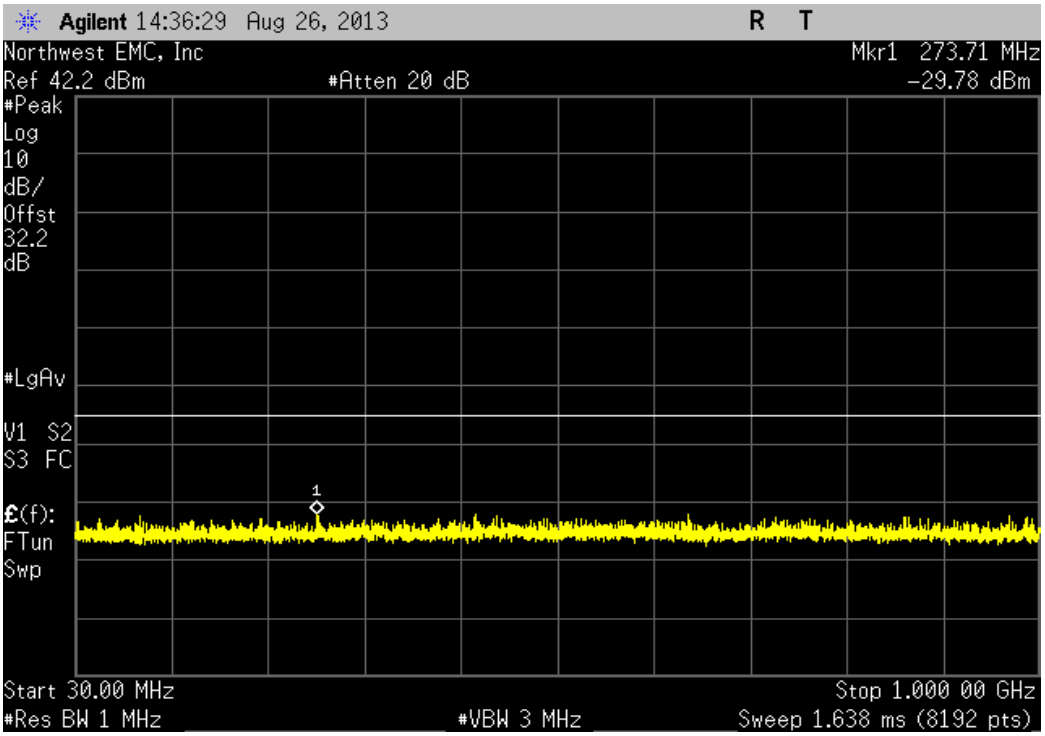
WCDMA, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.29 dBm	≤ -13 dBm	Pass



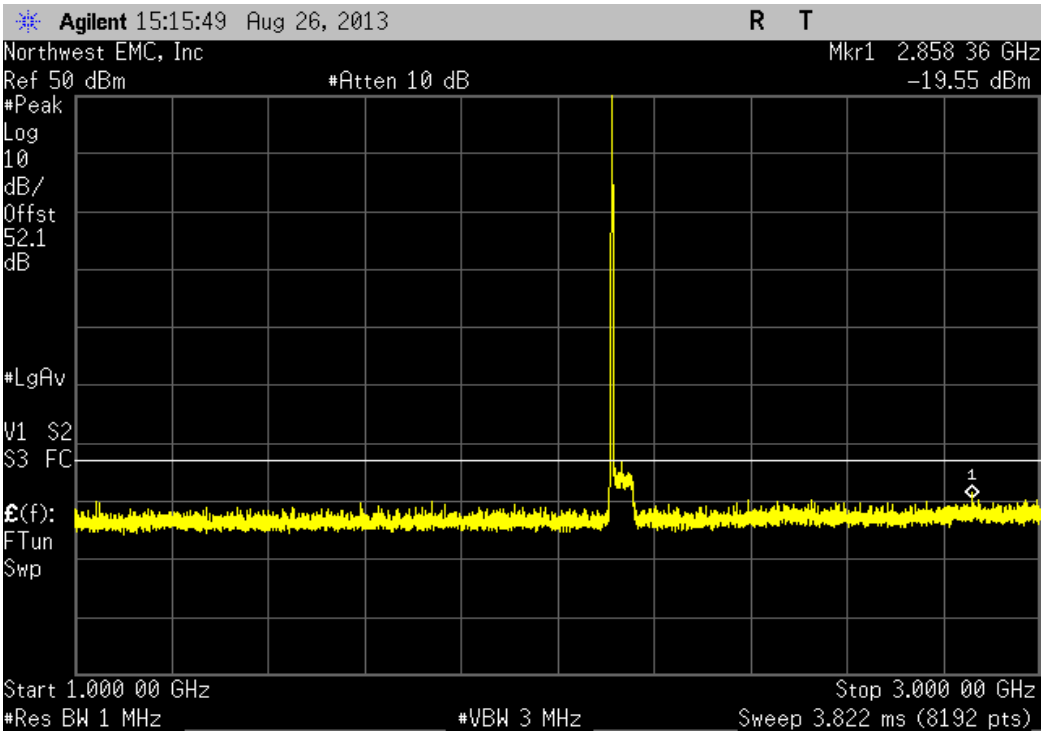
WCDMA, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-20.39 dBm	≤ -13 dBm	Pass



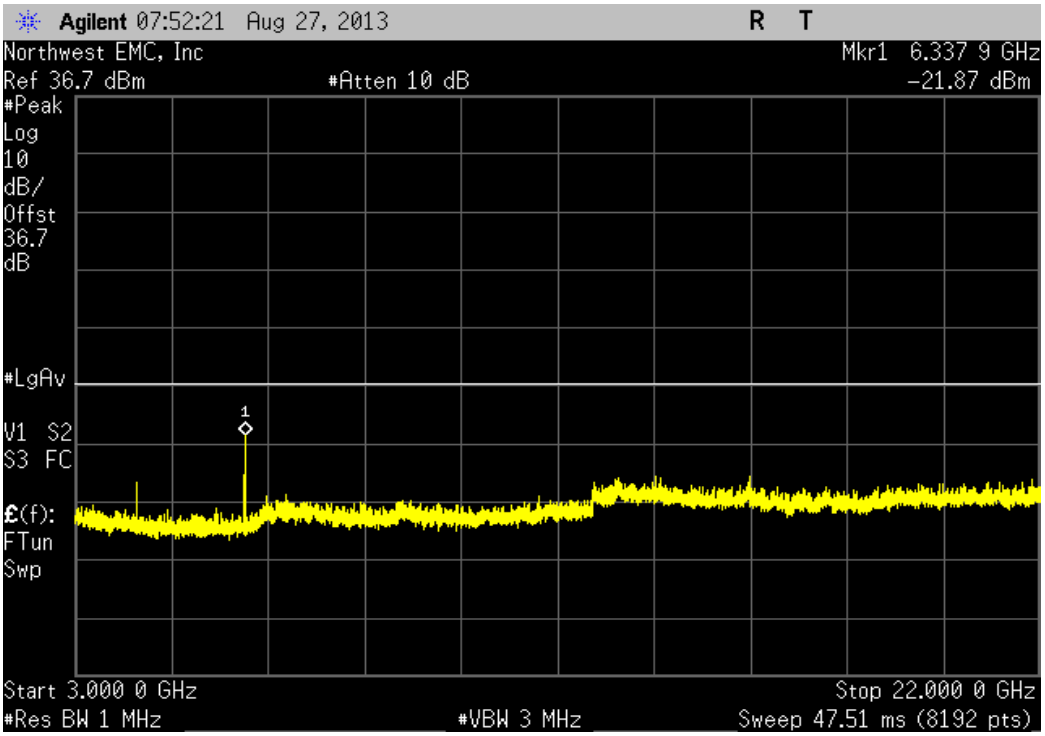
LTE 1.4 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.78 dBm	≤ -13 dBm	Pass



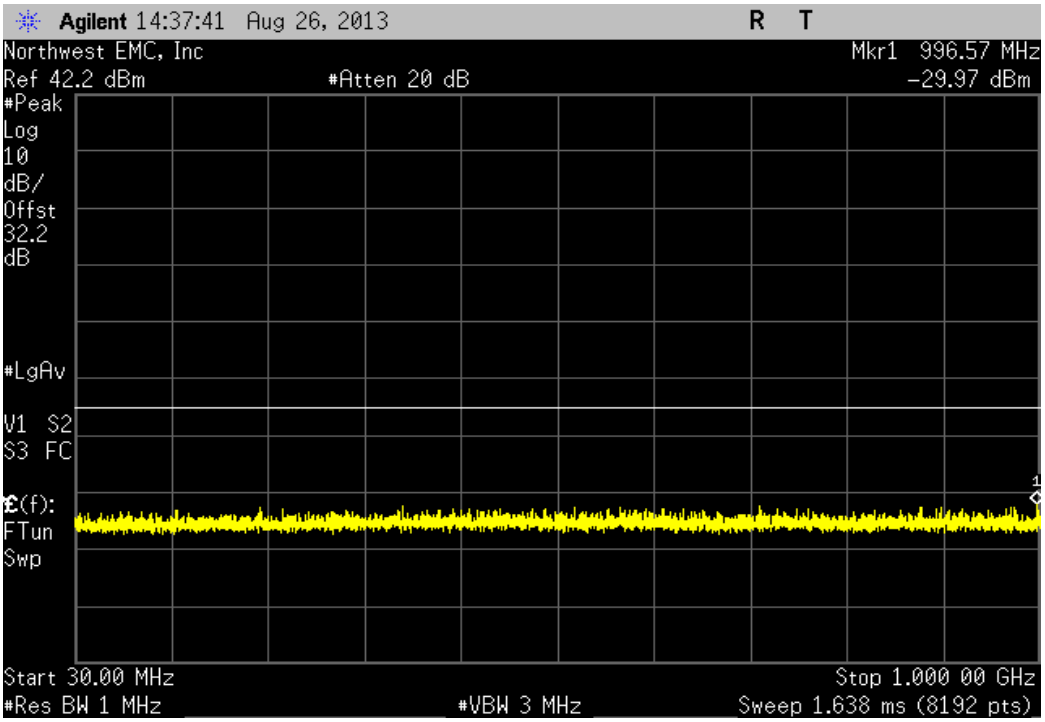
LTE 1.4 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.55 dBm	≤ -13 dBm	Pass



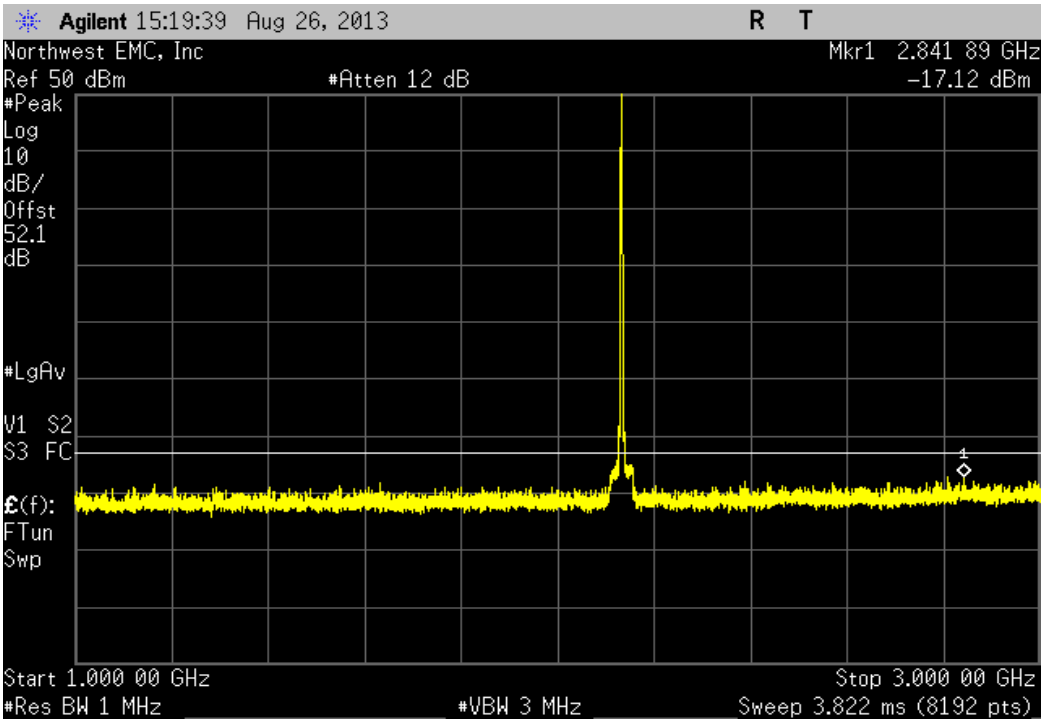
LTE 1.4 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-21.87 dBm	≤ -13 dBm	Pass



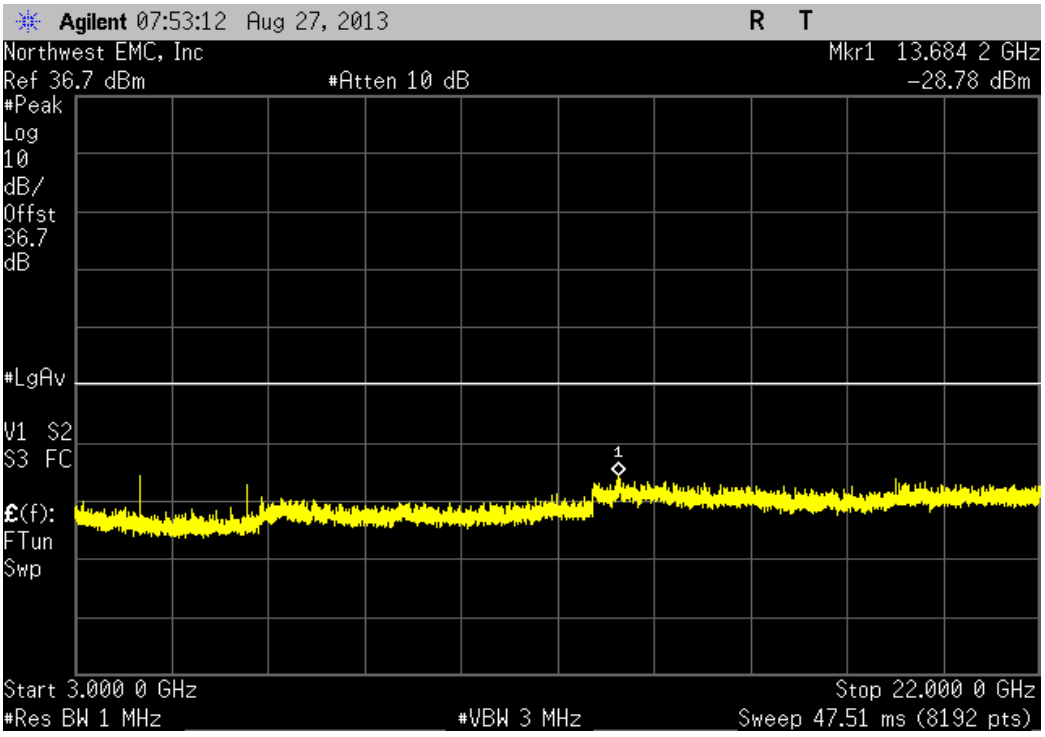
LTE 1.4 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.97 dBm	≤ -13 dBm	Pass



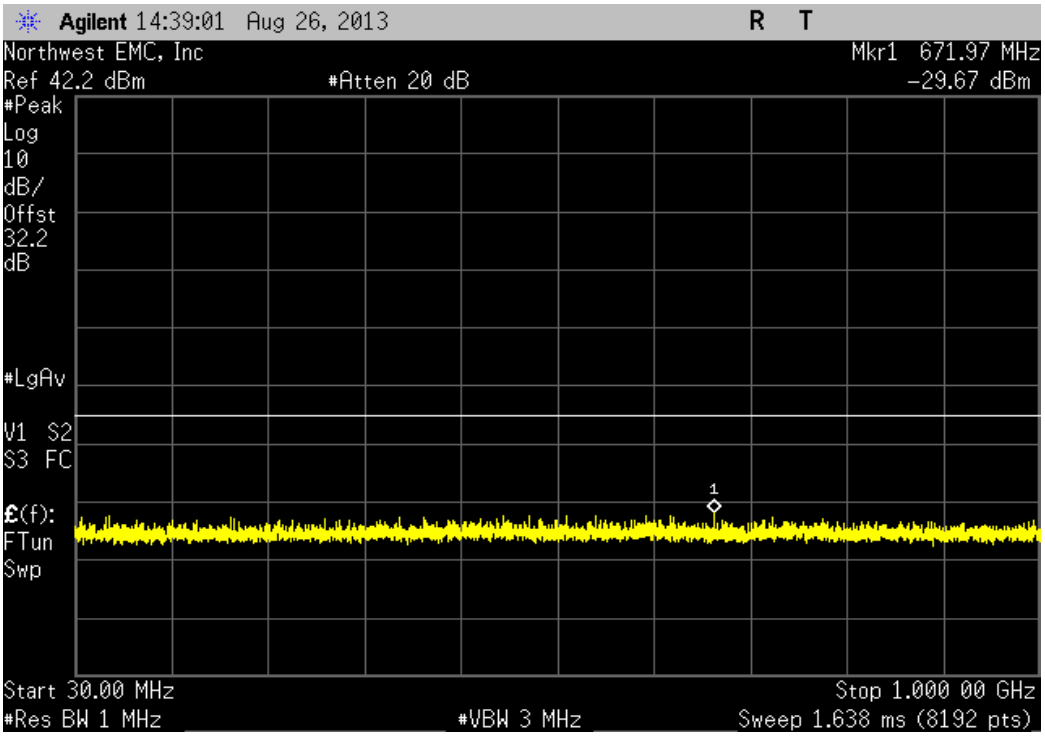
LTE 1.4 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-17.12 dBm	≤ -13 dBm	Pass



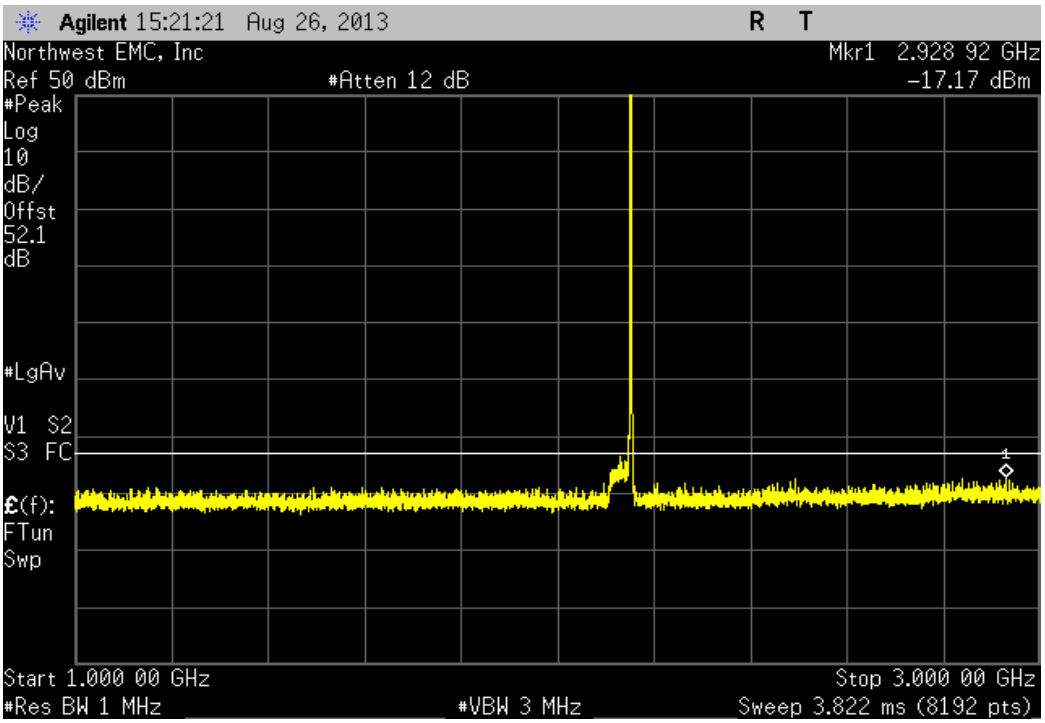
LTE 1.4 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.78 dBm	≤ -13 dBm	Pass



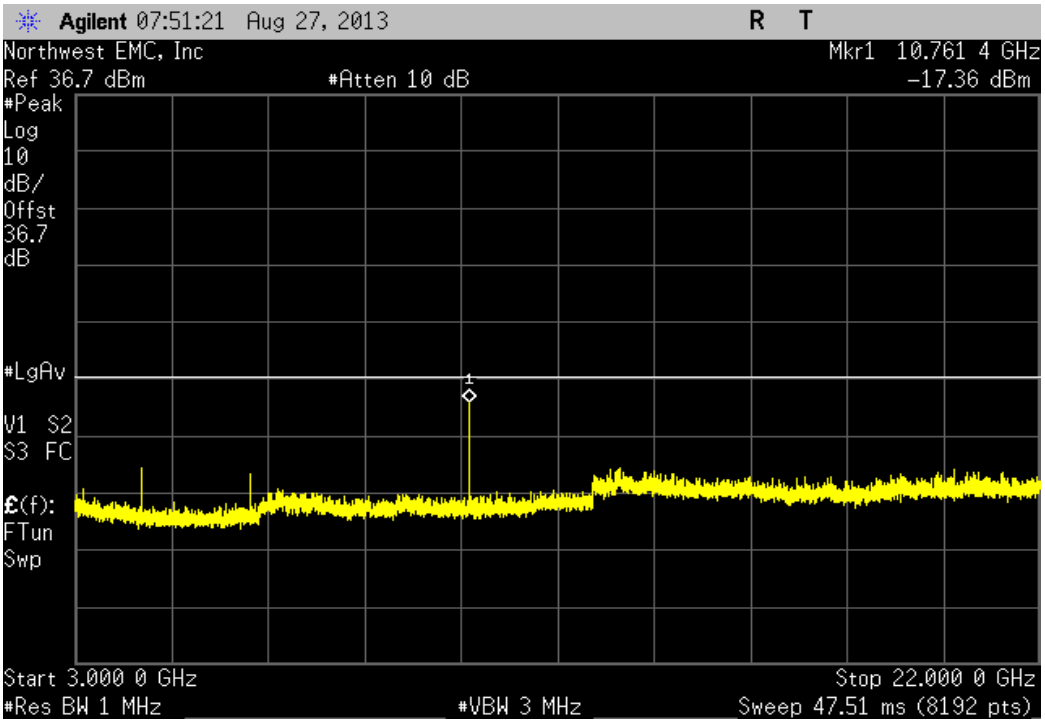
LTE 1.4 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.67 dBm	≤ -13 dBm	Pass



LTE 1.4 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-17.17 dBm	≤ -13 dBm	Pass

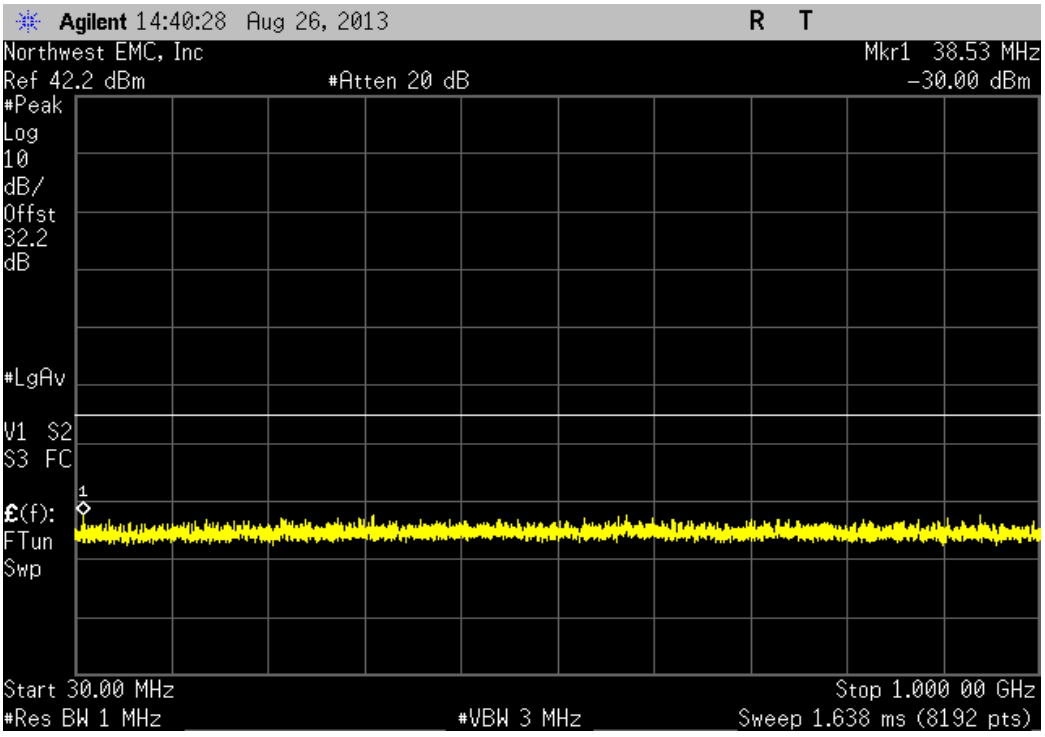


LTE 1.4 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-17.36 dBm	≤ -13 dBm	Pass



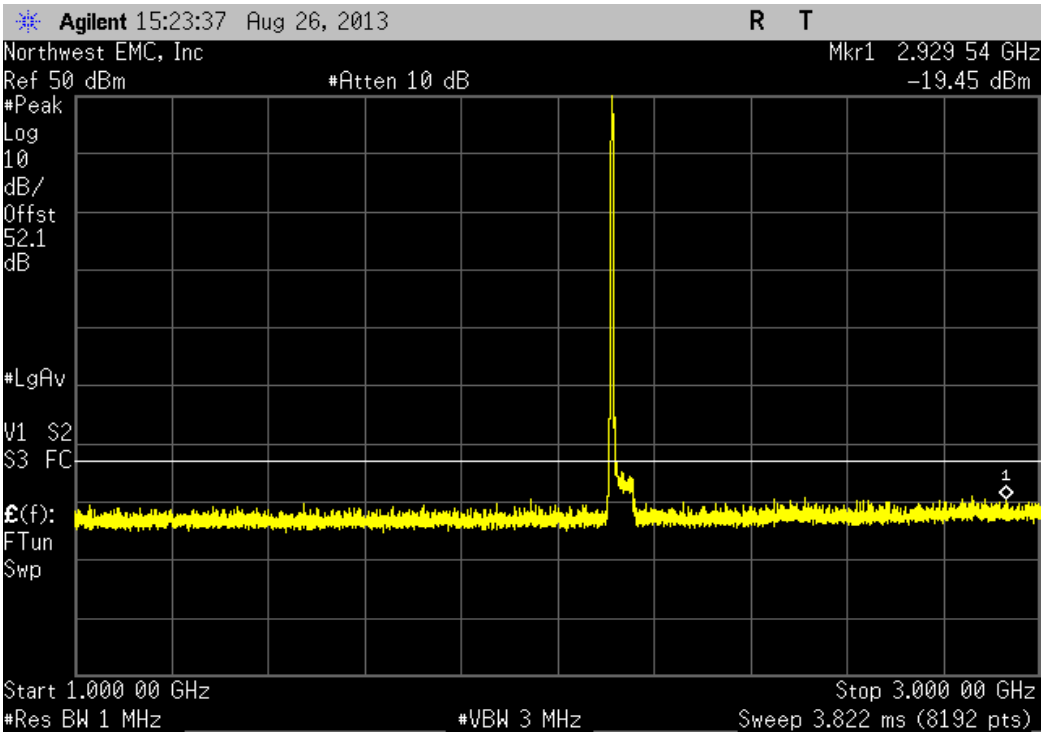
LTE 3 MHz, Low Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-30 dBm	≤ -13 dBm	Pass



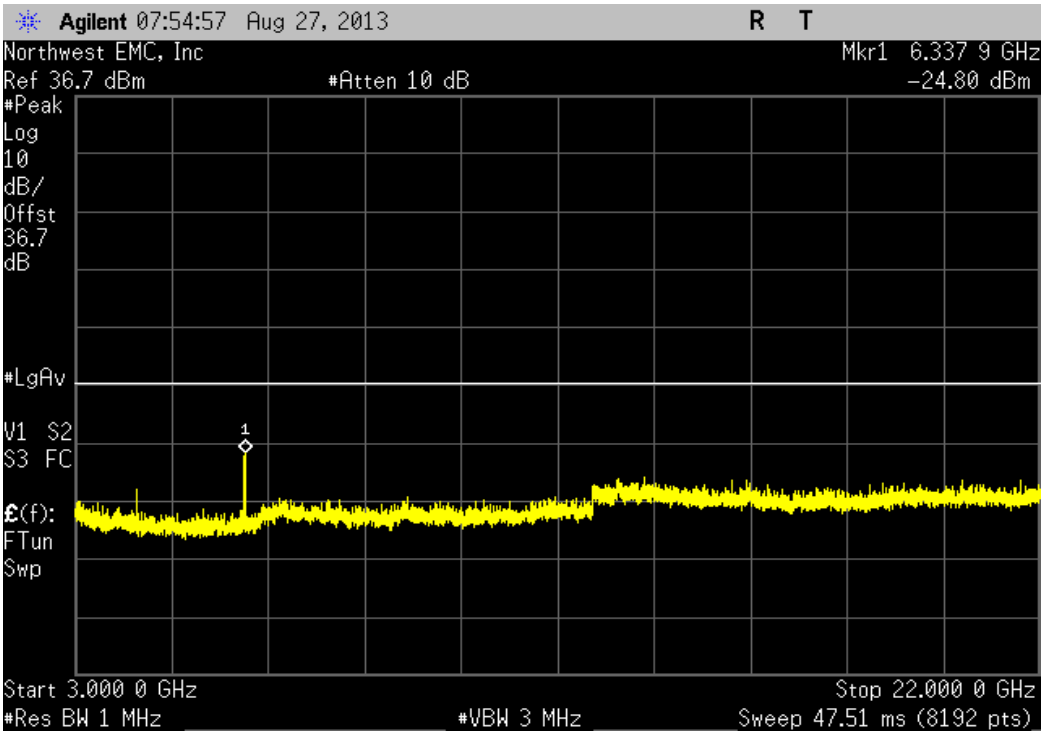
LTE 3 MHz, Low Channel

Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-19.45 dBm	≤ -13 dBm	Pass



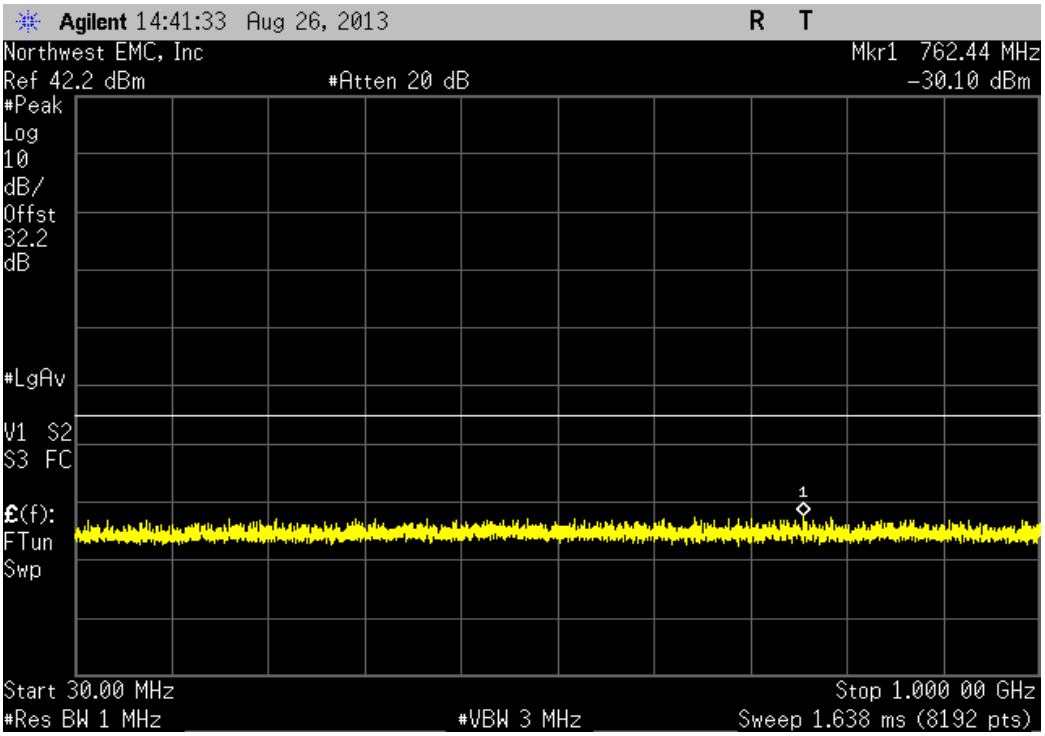
LTE 3 MHz, Low Channel

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-24.8 dBm	≤ -13 dBm	Pass

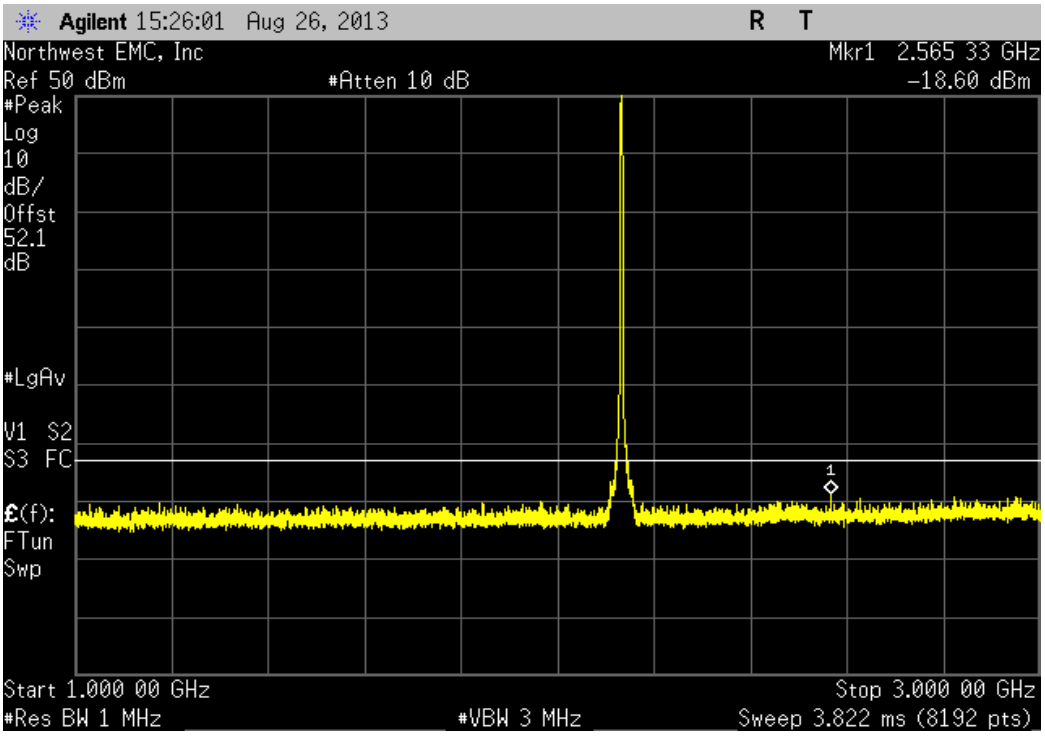


LTE 3 MHz, Mid Channel

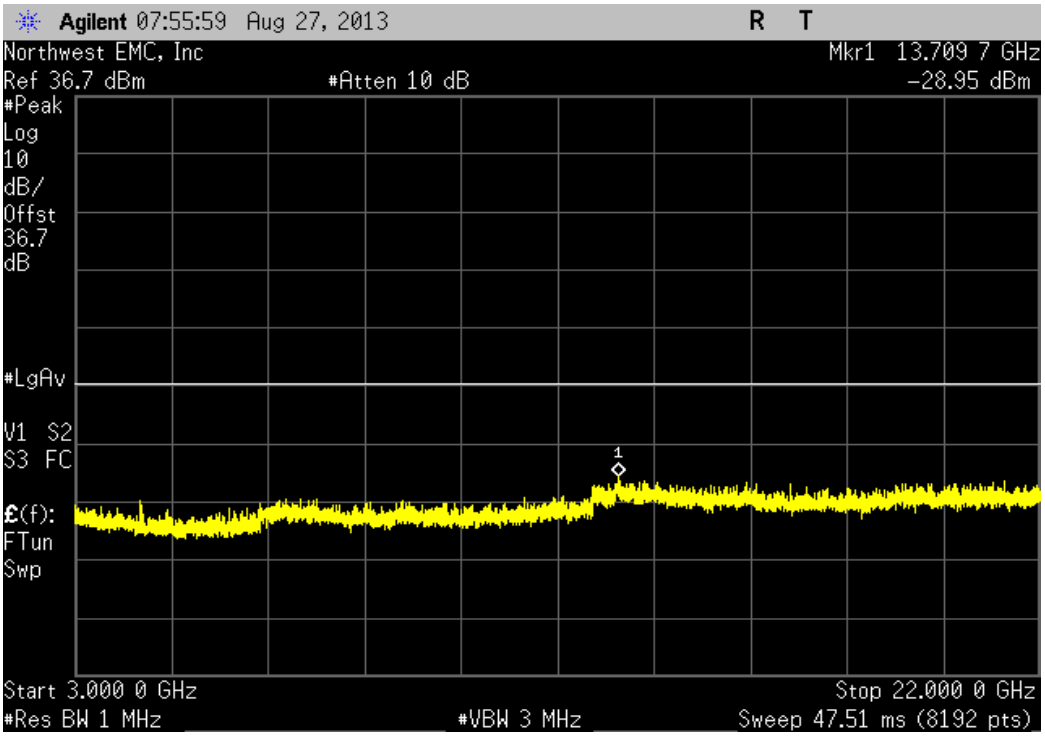
Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-30.1 dBm	≤ -13 dBm	Pass



LTE 3 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-18.6 dBm	≤ -13 dBm	Pass

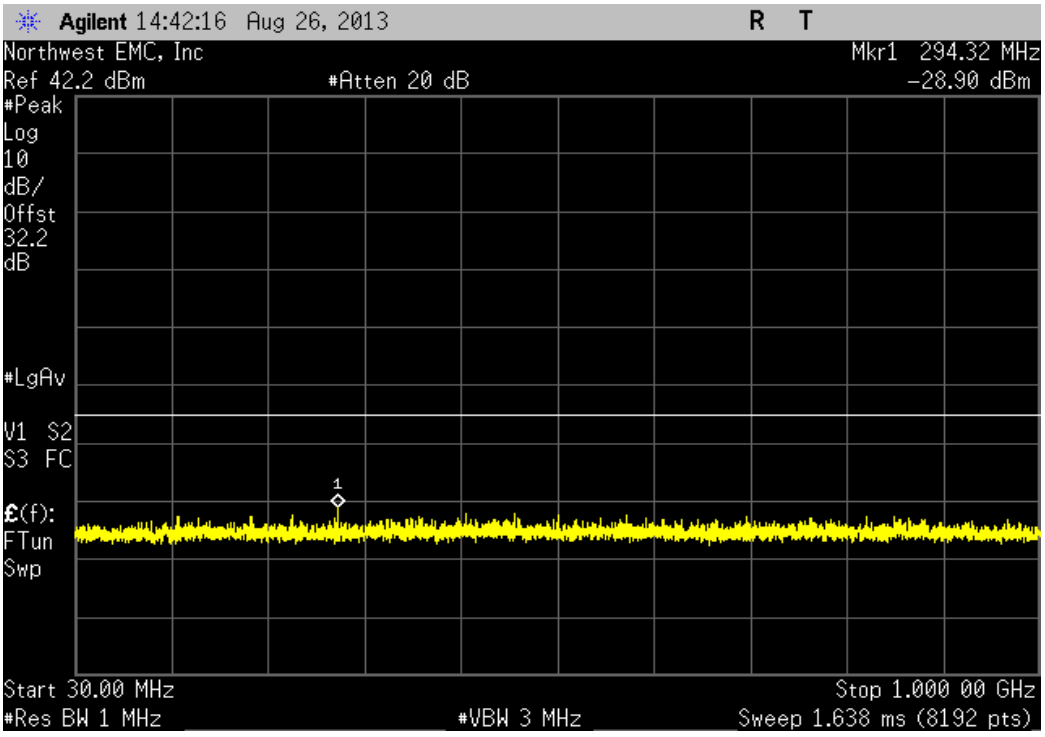


LTE 3 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.95 dBm	≤ -13 dBm	Pass



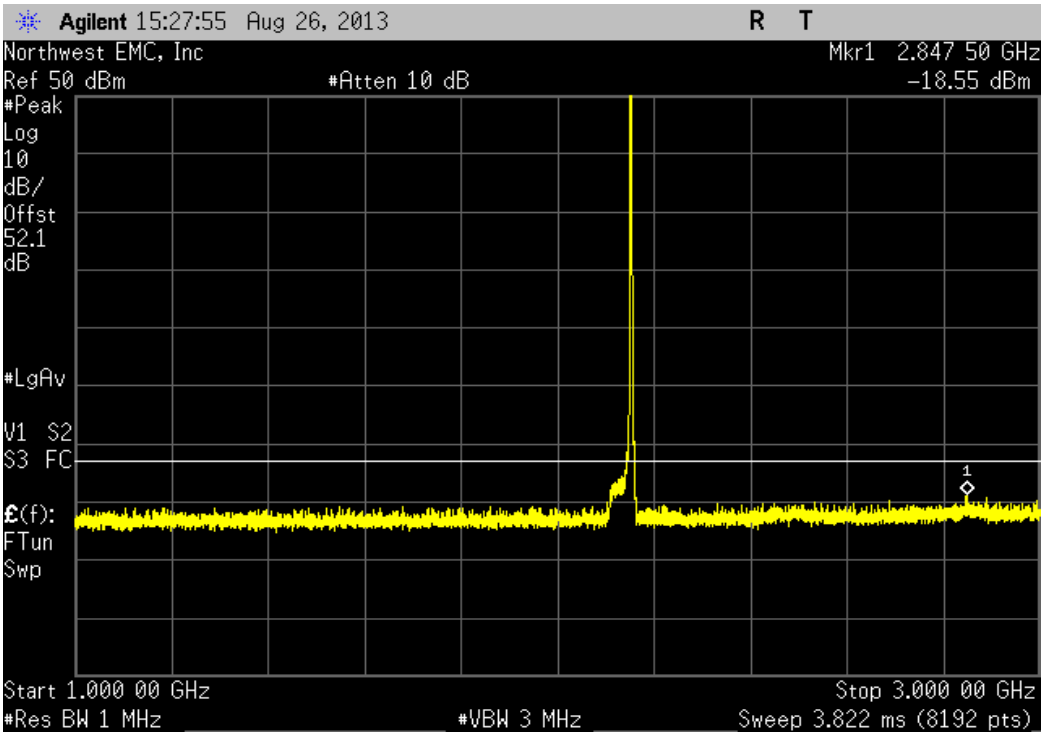
LTE 3 MHz, High Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-28.9 dBm	≤ -13 dBm	Pass

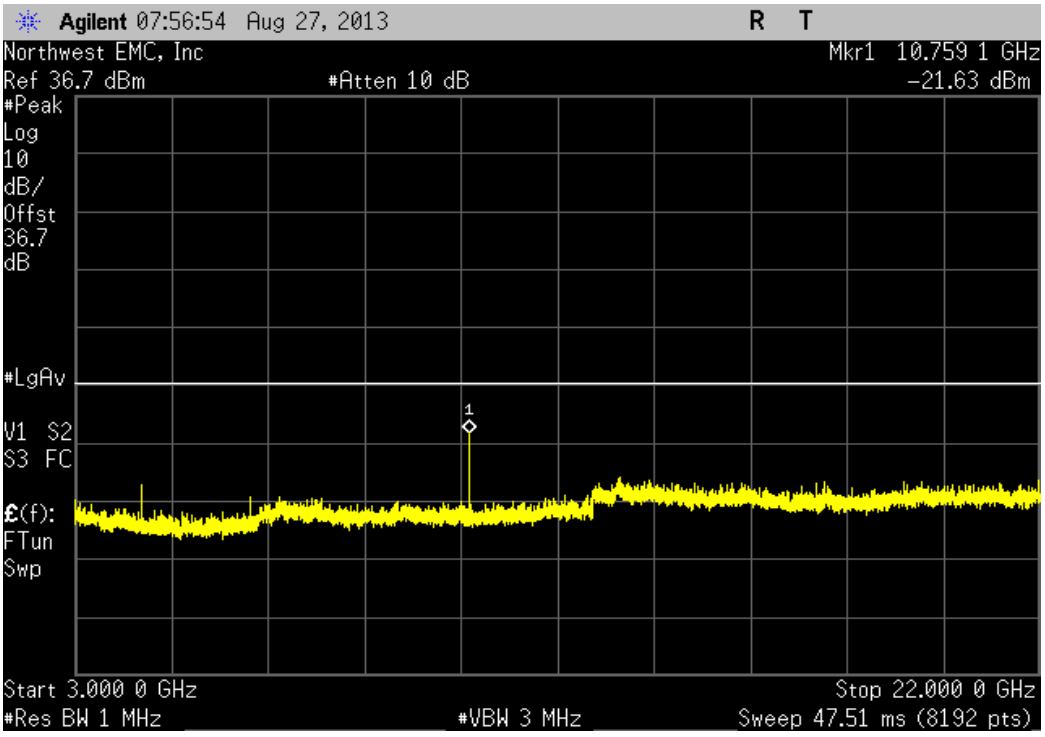


LTE 3 MHz, High Channel

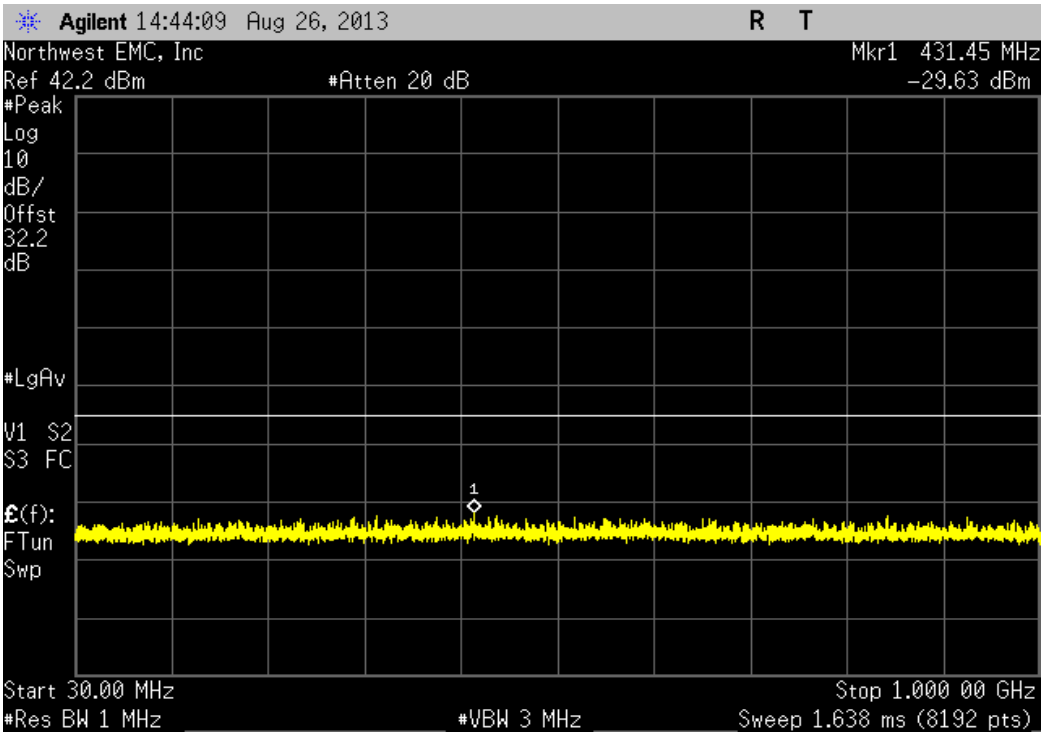
Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-18.55 dBm	≤ -13 dBm	Pass



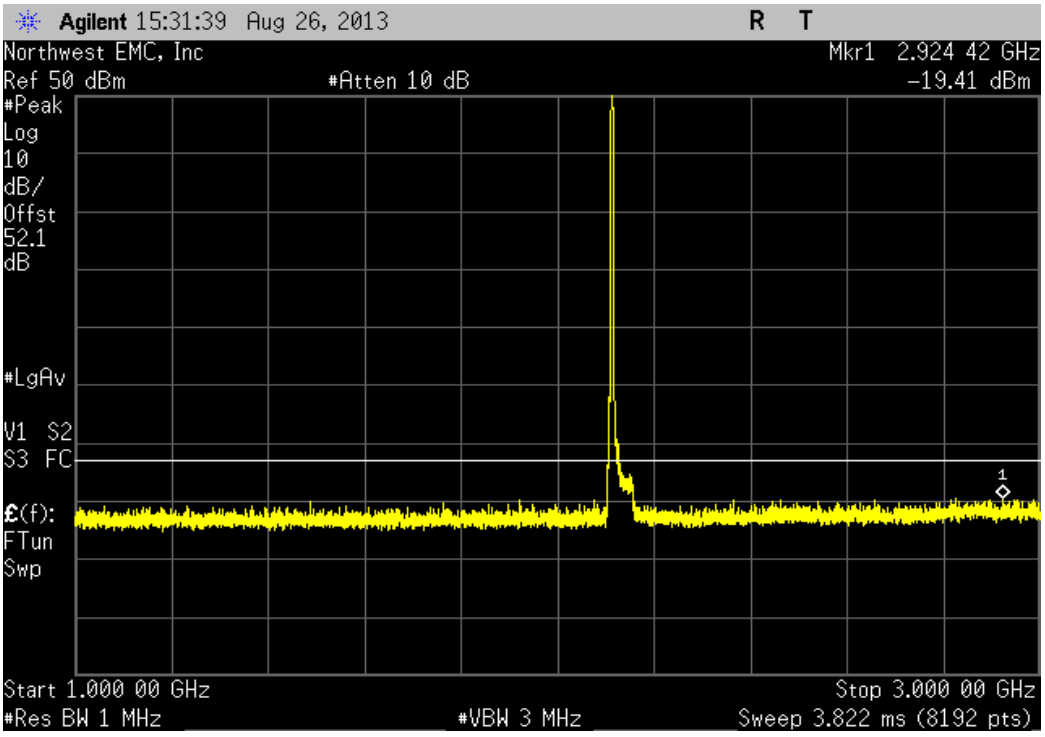
LTE 3 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-21.63 dBm	≤ -13 dBm	Pass



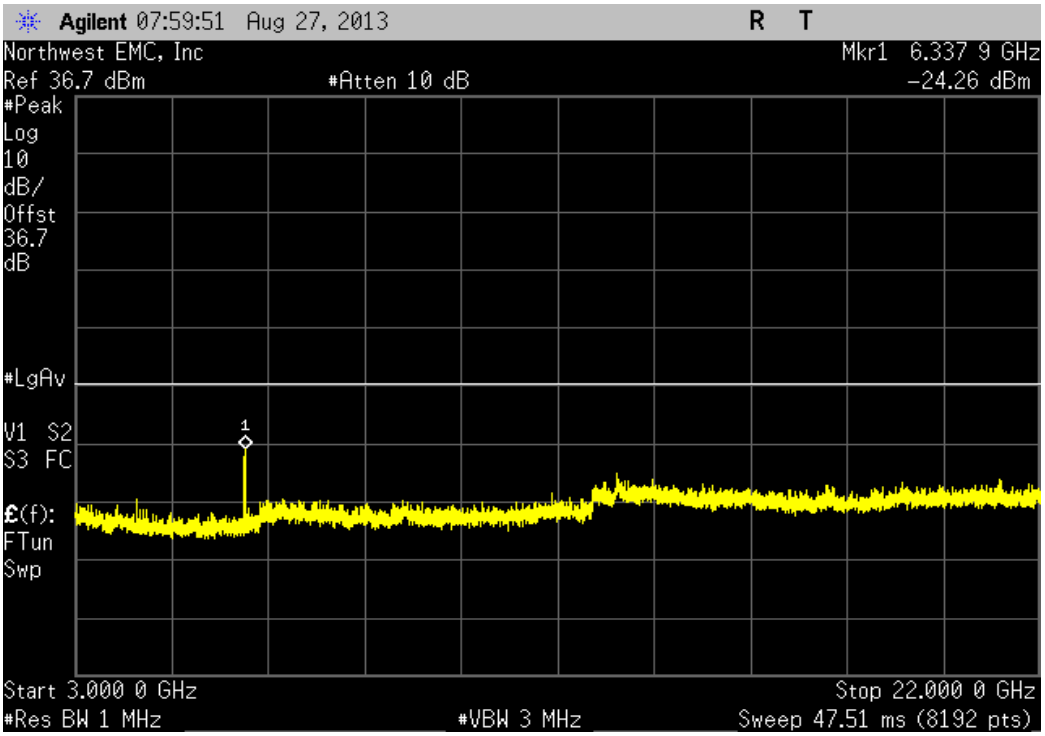
LTE 5 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.63 dBm	≤ -13 dBm	Pass



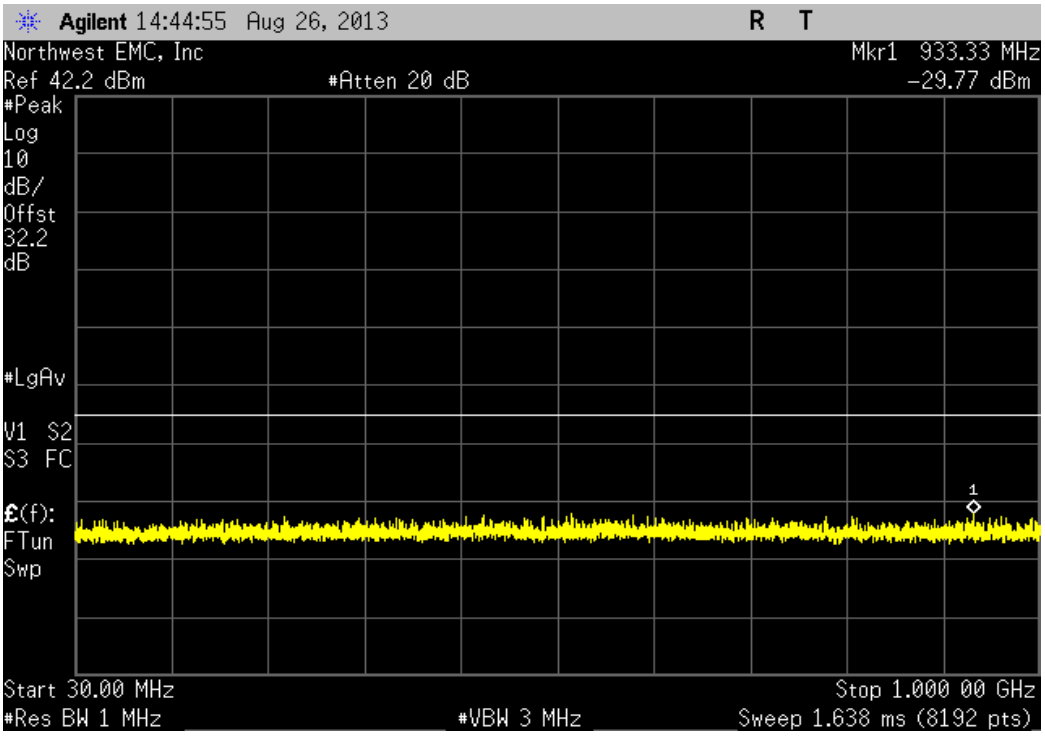
LTE 5 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.41 dBm	≤ -13 dBm	Pass



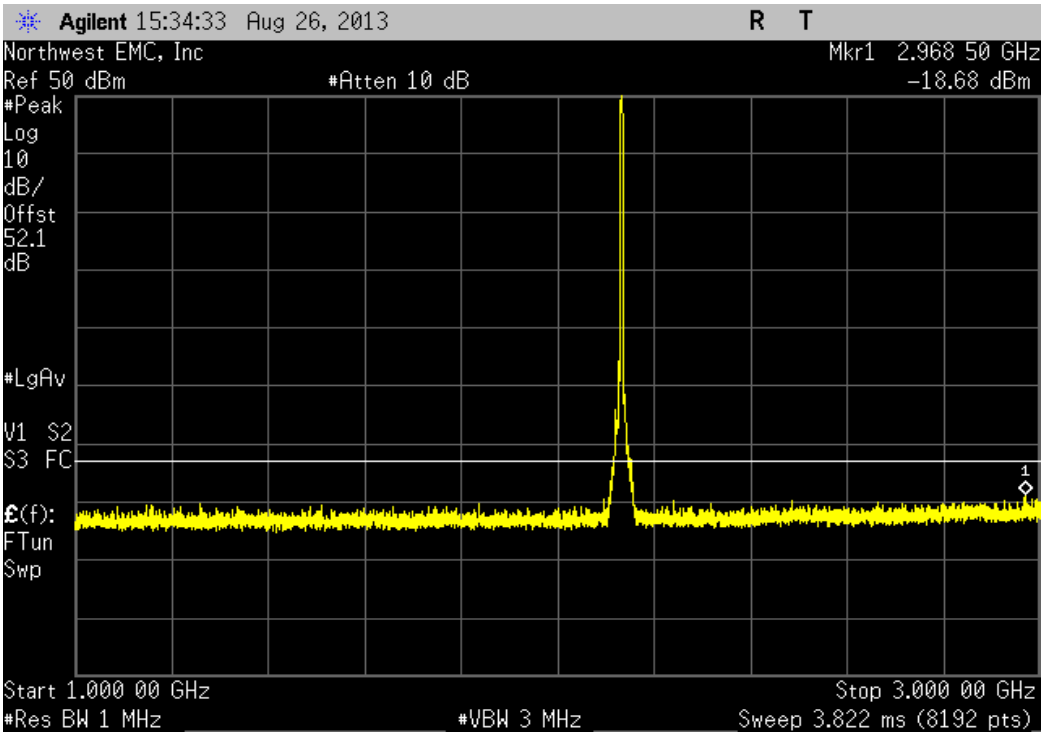
LTE 5 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-24.26 dBm	≤ -13 dBm	Pass



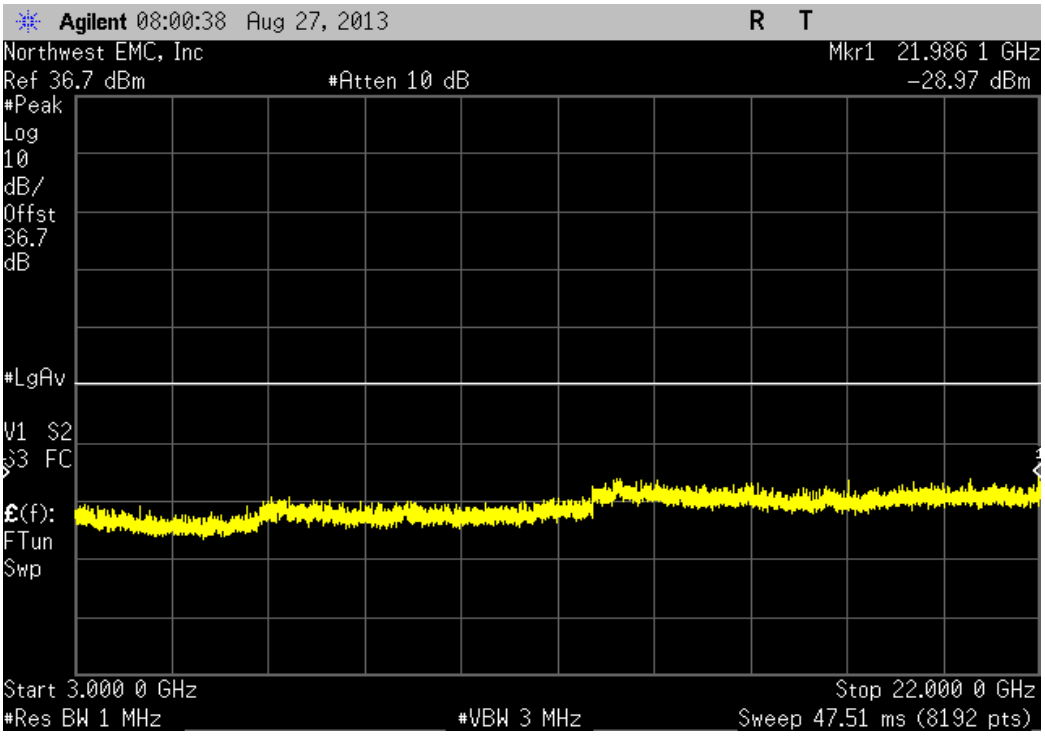
LTE 5 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.77 dBm	≤ -13 dBm	Pass



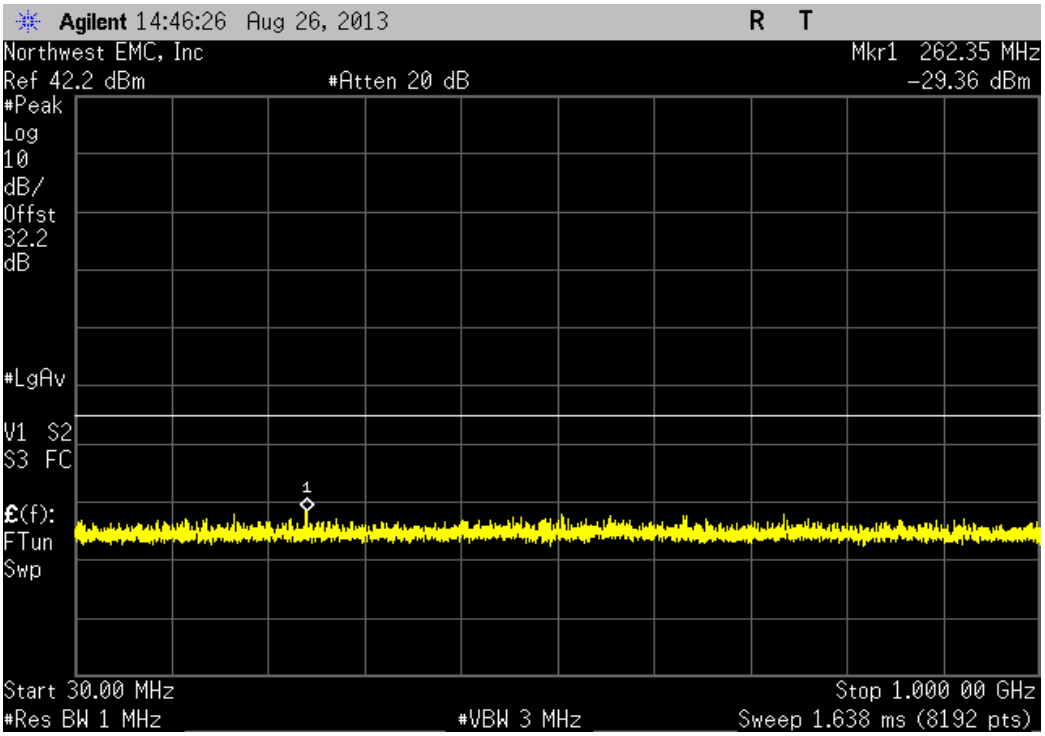
LTE 5 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-18.68 dBm	≤ -13 dBm	Pass



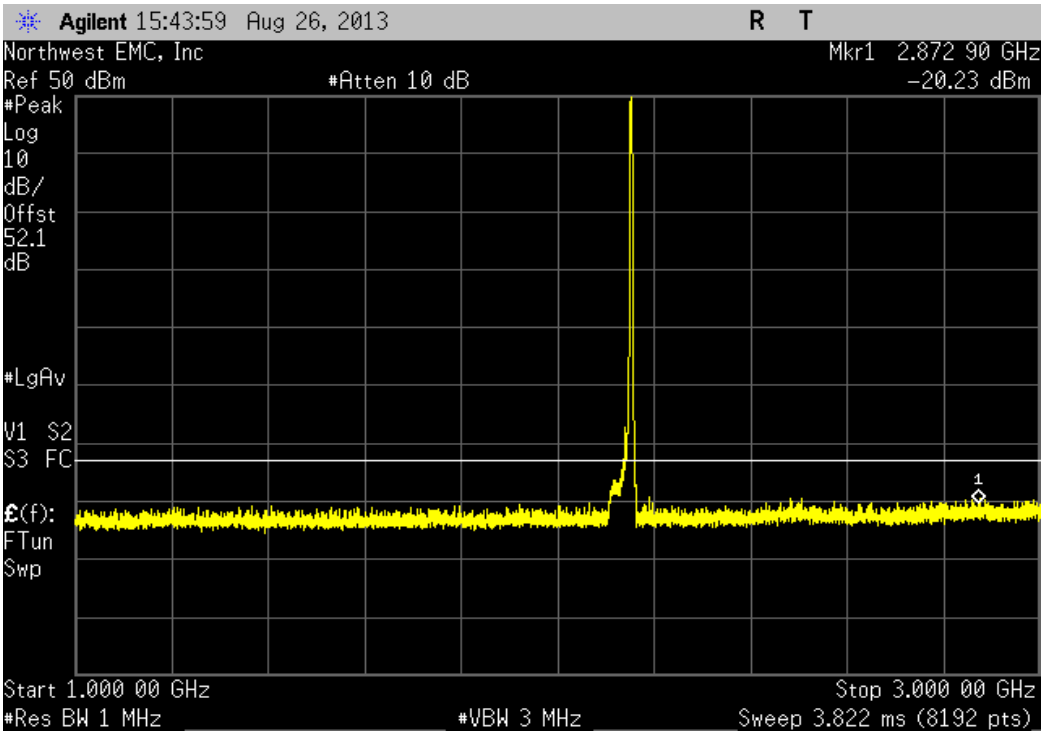
LTE 5 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.97 dBm	≤ -13 dBm	Pass



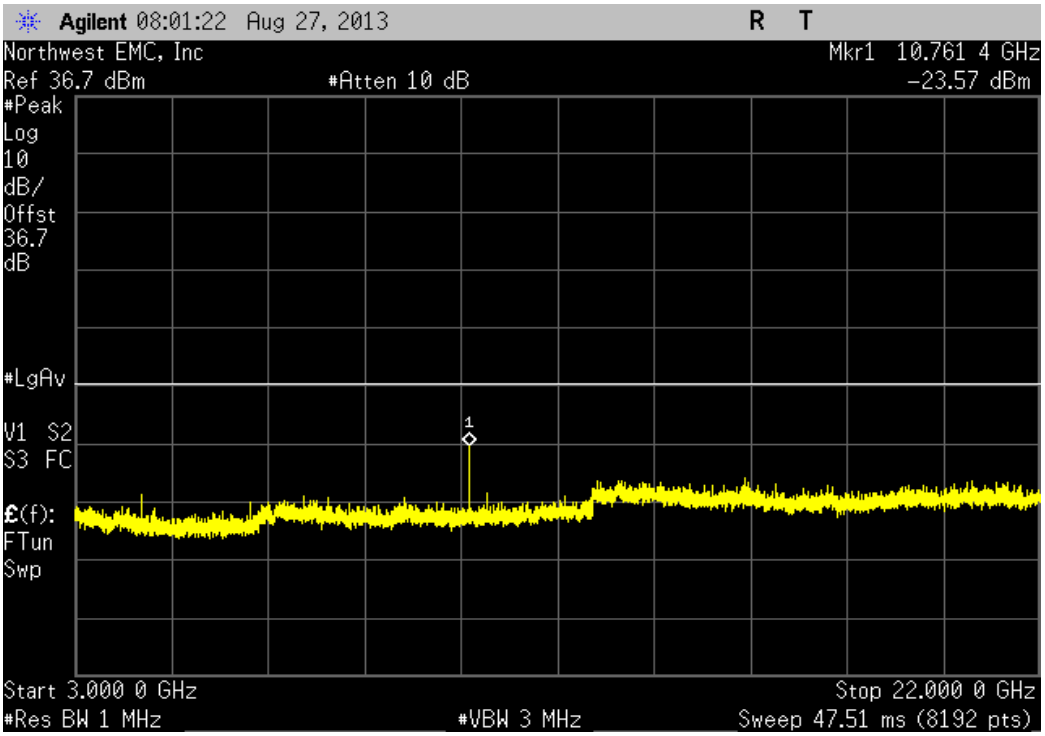
LTE 5 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.36 dBm	≤ -13 dBm	Pass



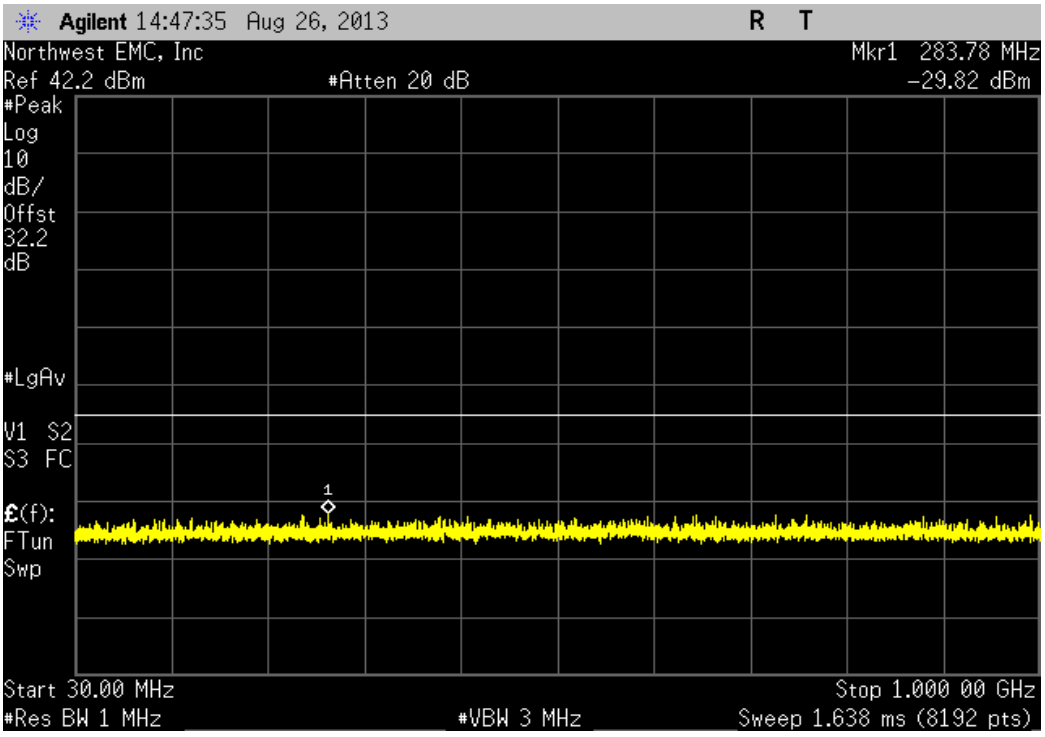
LTE 5 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-20.23 dBm	≤ -13 dBm	Pass



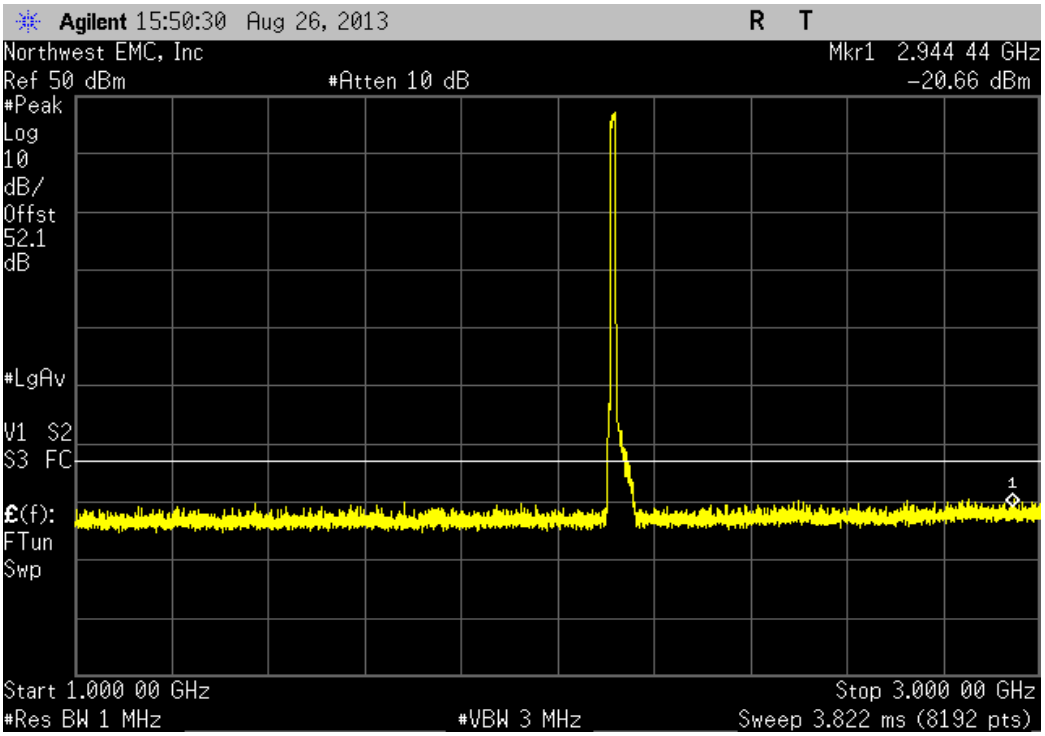
LTE 5 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-23.57 dBm	≤ -13 dBm	Pass



LTE 10 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.82 dBm	≤ -13 dBm	Pass

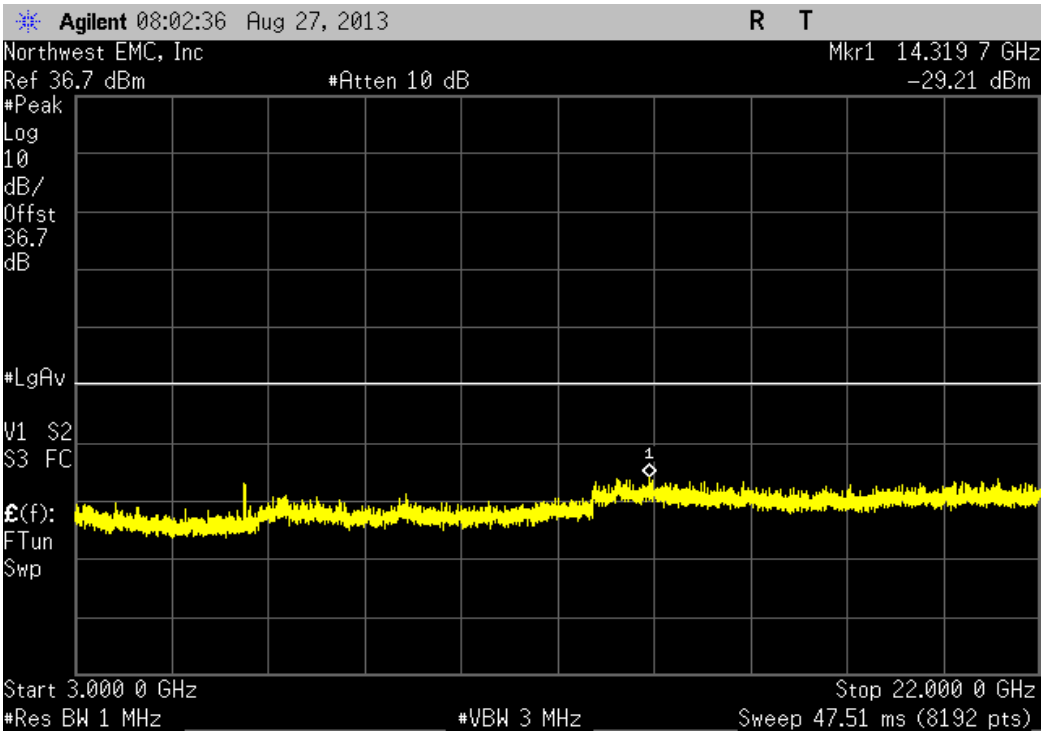


LTE 10 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-20.66 dBm	≤ -13 dBm	Pass



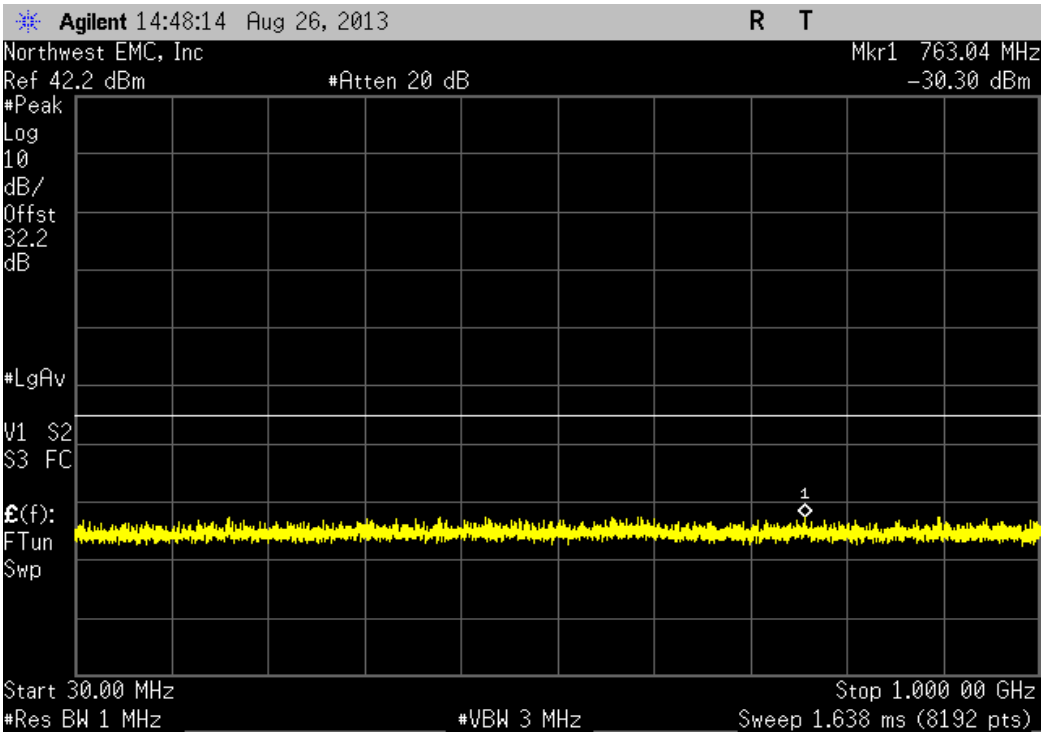
LTE 10 MHz, Low Channel

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-29.21 dBm	≤ -13 dBm	Pass

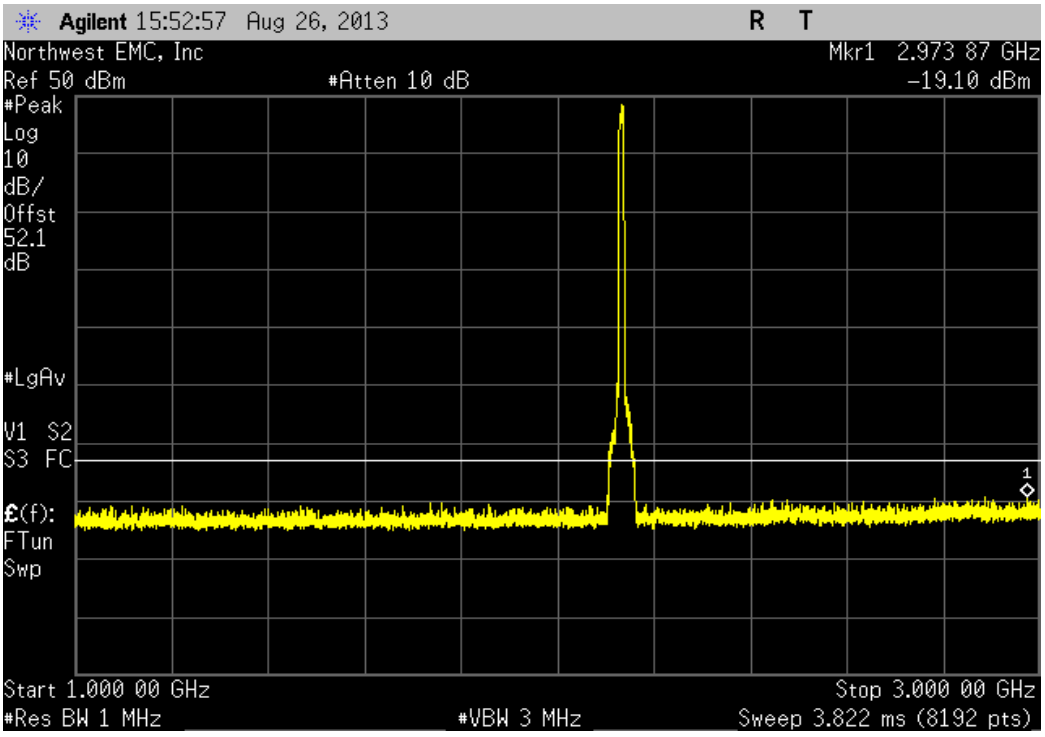


LTE 10 MHz, Mid Channel

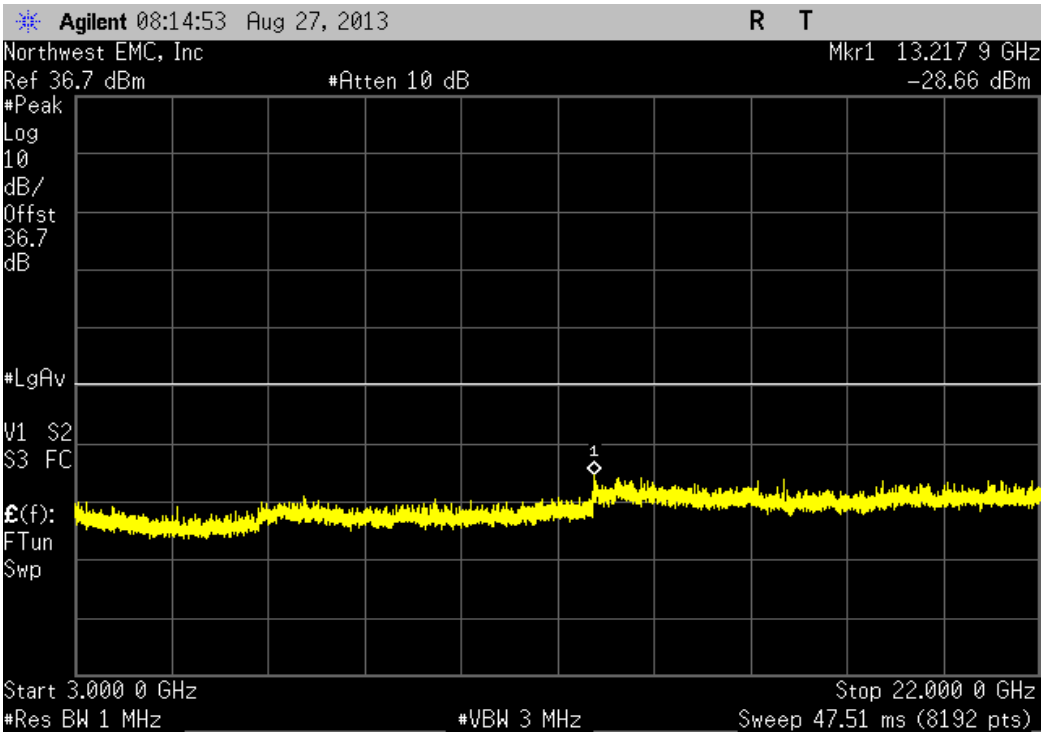
Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-30.3 dBm	≤ -13 dBm	Pass



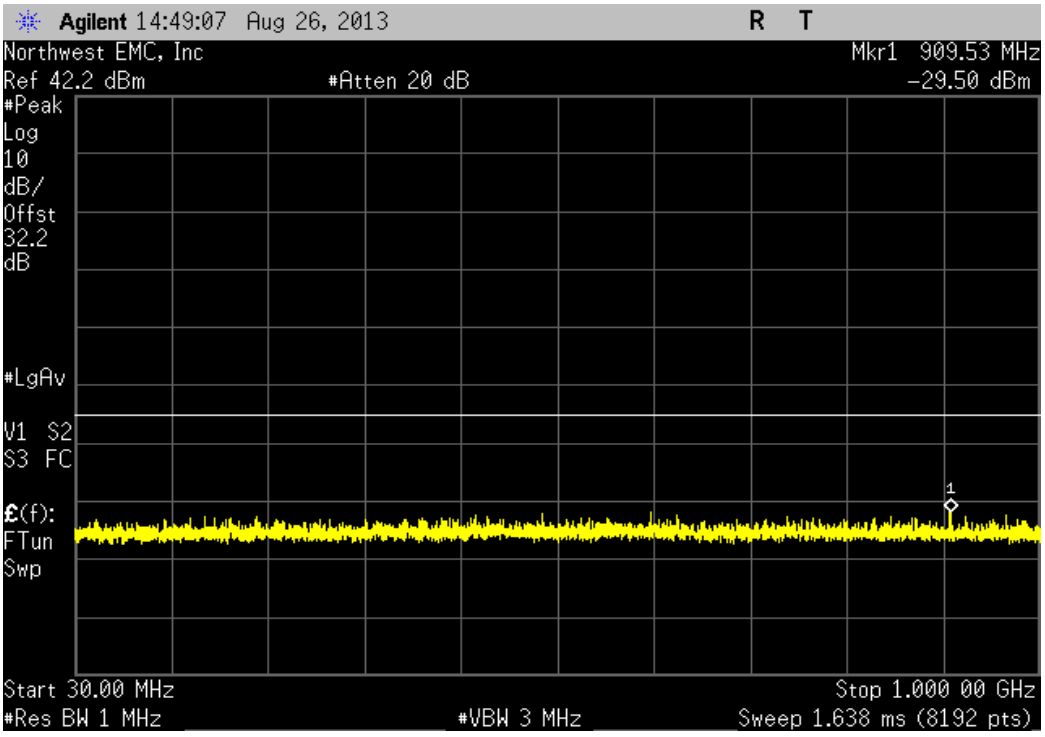
LTE 10 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.1 dBm	≤ -13 dBm	Pass



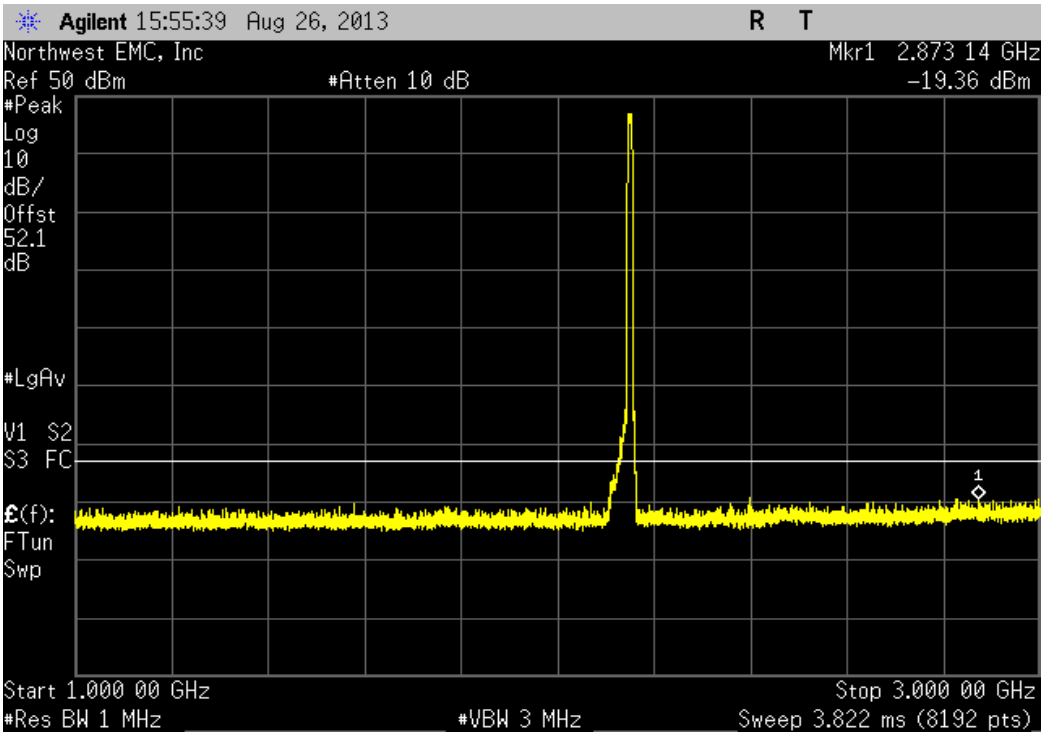
LTE 10 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.66 dBm	≤ -13 dBm	Pass



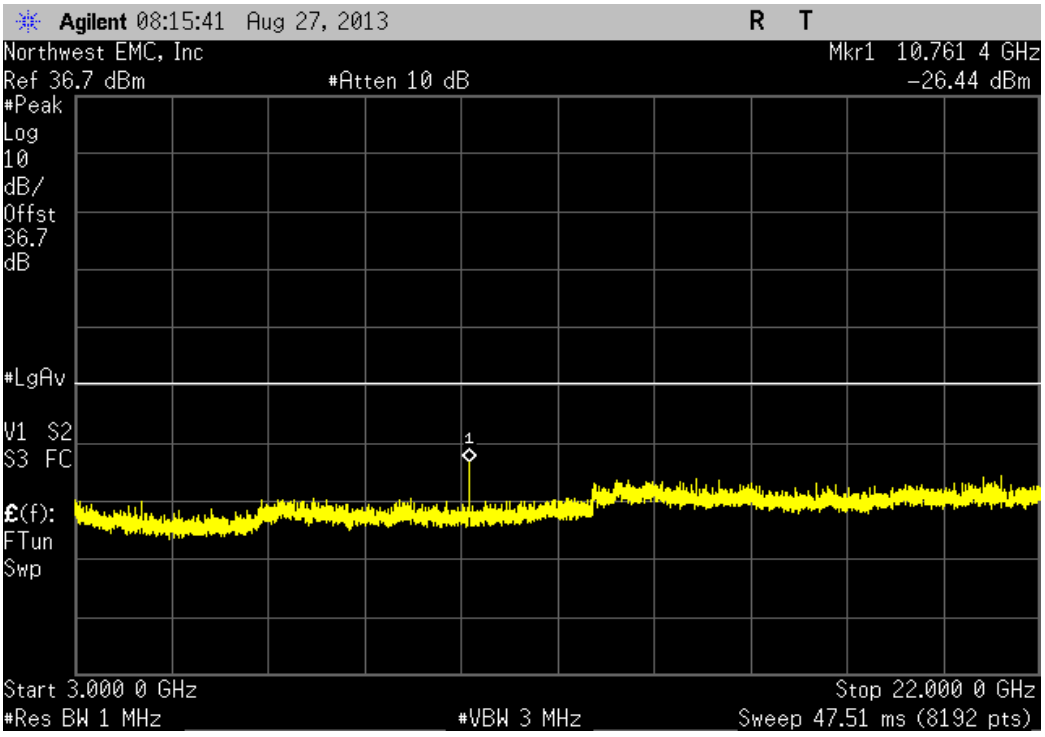
LTE 10 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.5 dBm	≤ -13 dBm	Pass



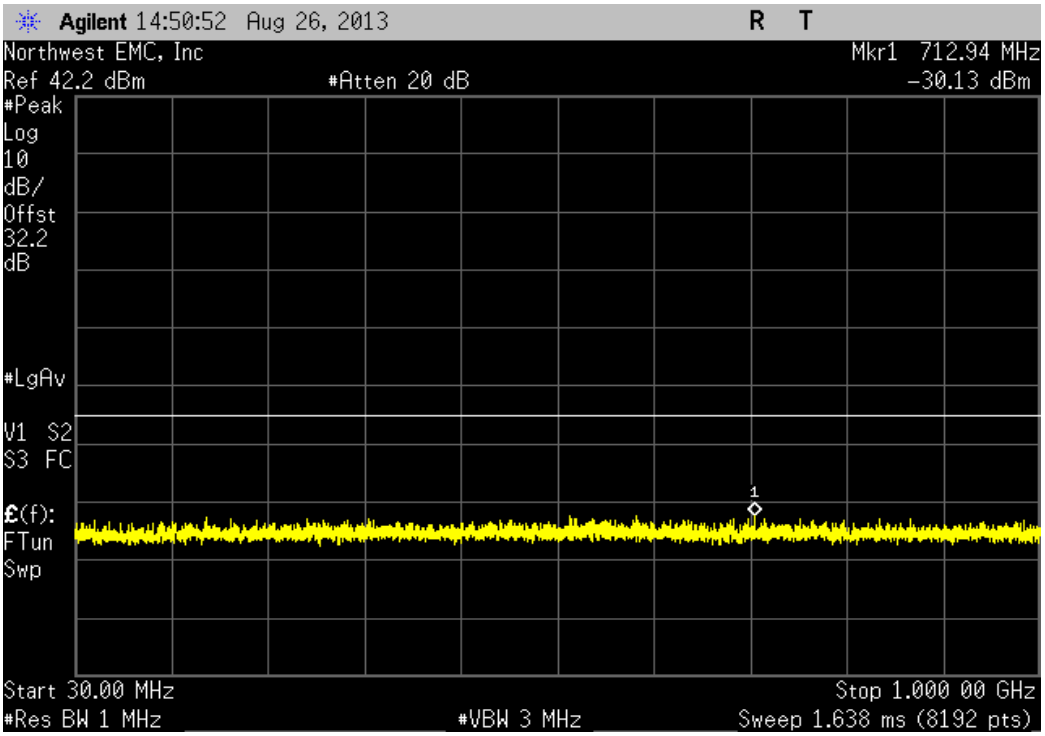
LTE 10 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.37 dBm	≤ -13 dBm	Pass



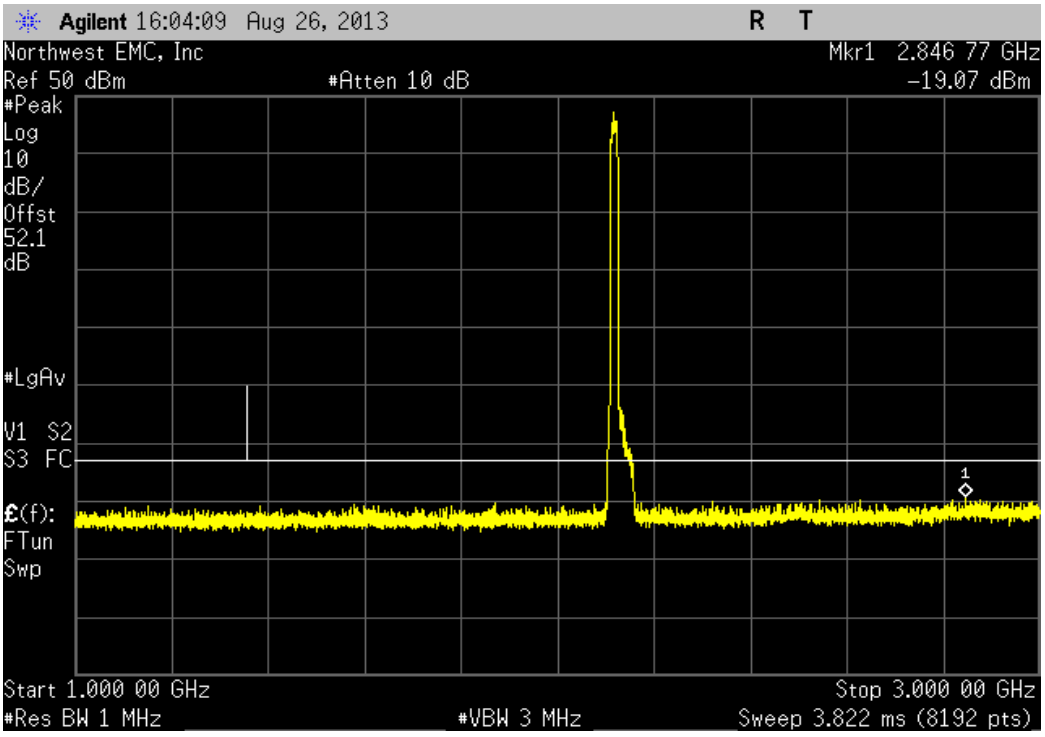
LTE 10 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-26.44 dBm	≤ -13 dBm	Pass



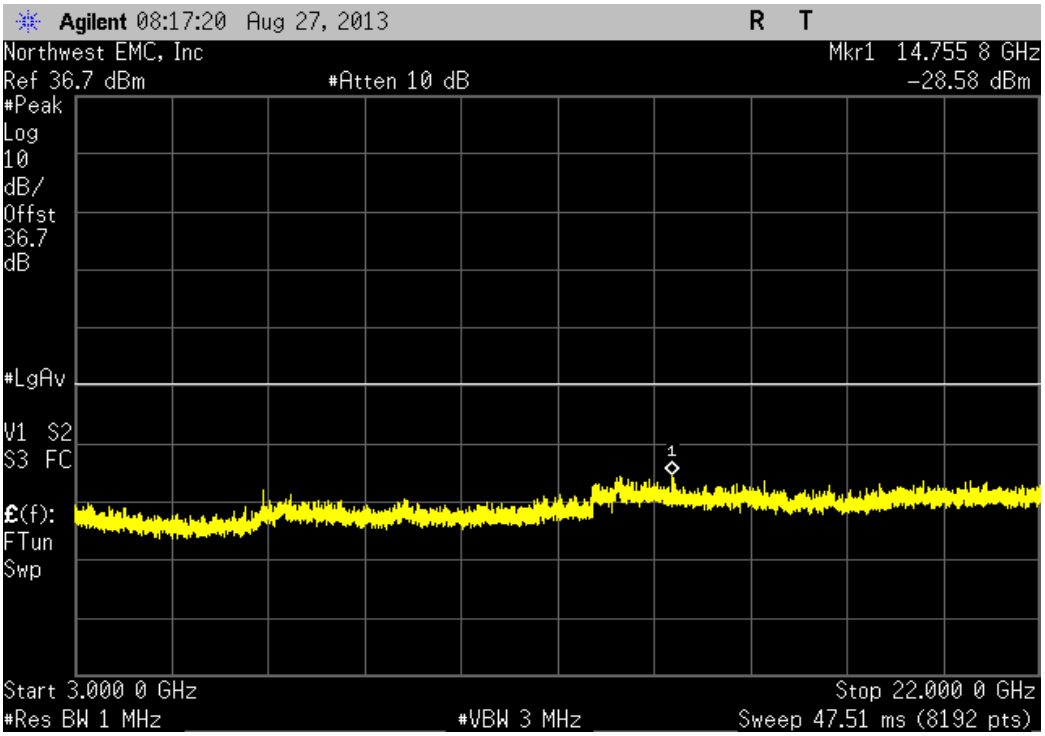
LTE 15 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-30.13 dBm	≤ -13 dBm	Pass



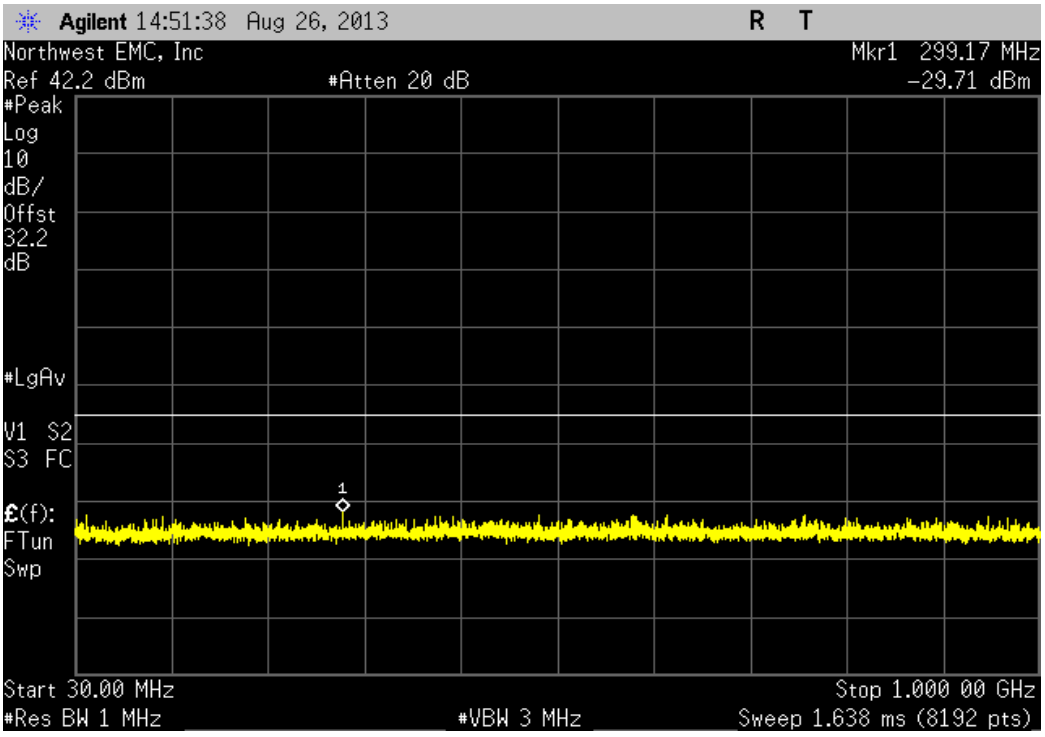
LTE 15 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.07 dBm	≤ -13 dBm	Pass



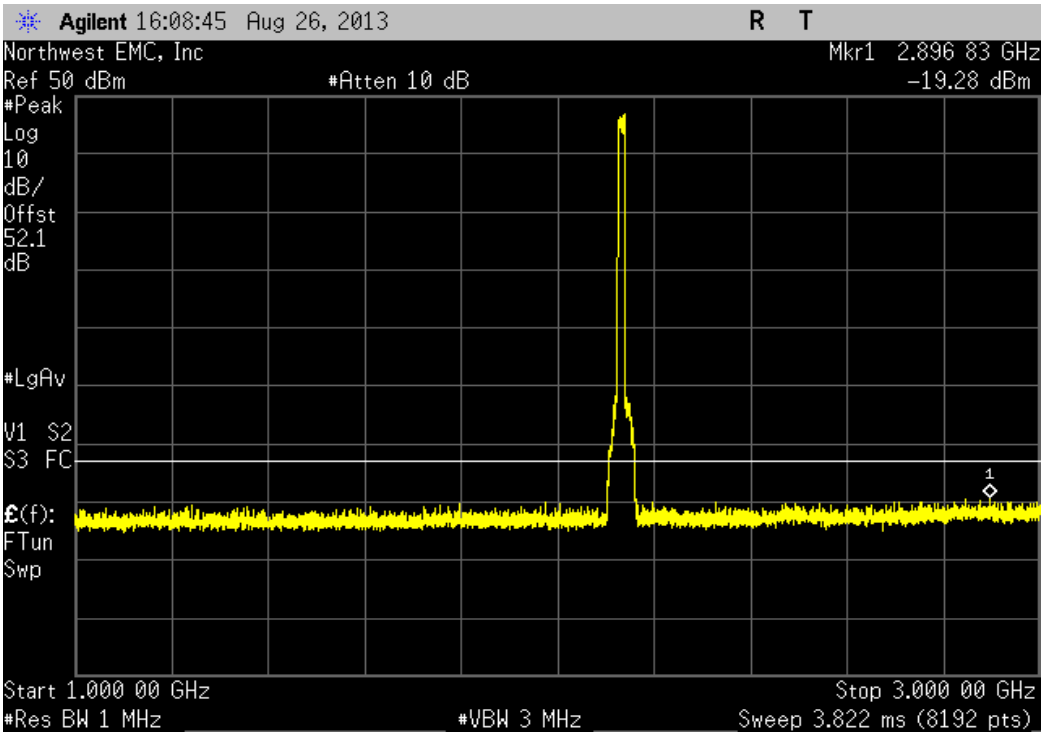
LTE 15 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.59 dBm	≤ -13 dBm	Pass



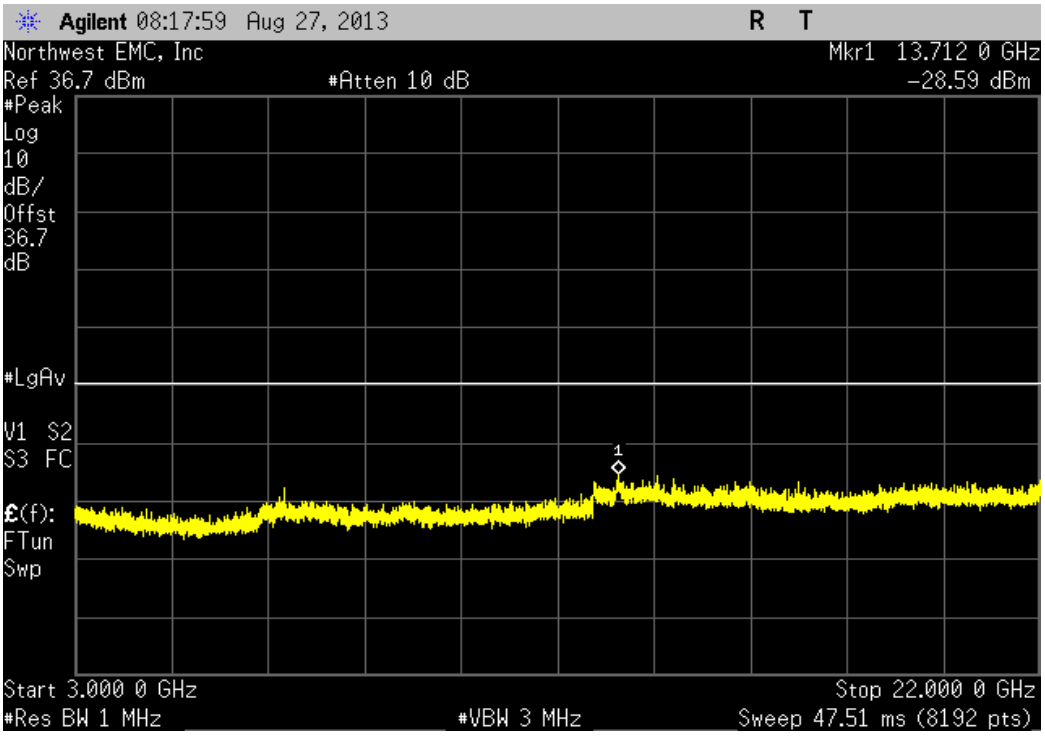
LTE 15 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.71 dBm	≤ -13 dBm	Pass



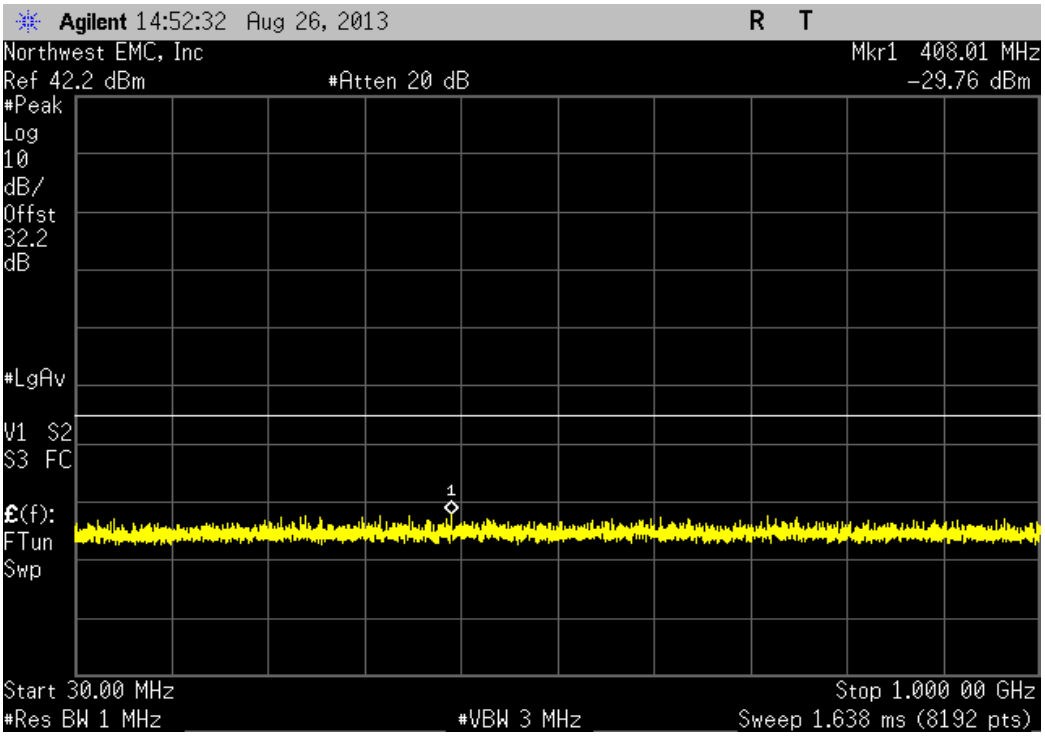
LTE 15 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.28 dBm	≤ -13 dBm	Pass



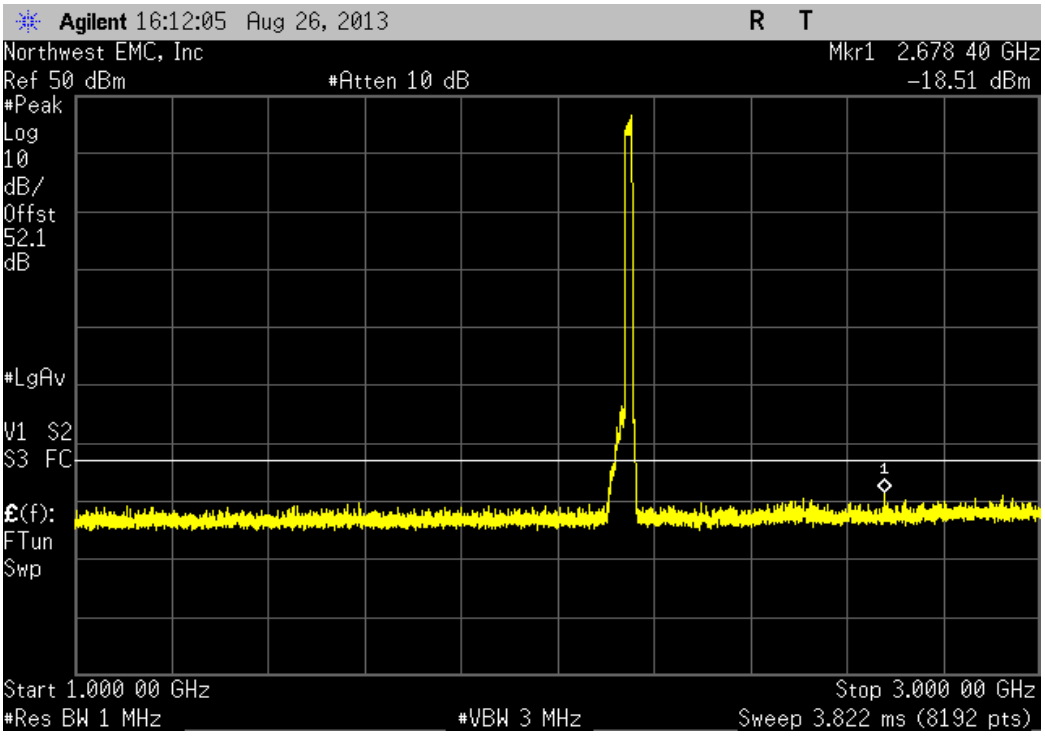
LTE 15 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.59 dBm	≤ -13 dBm	Pass



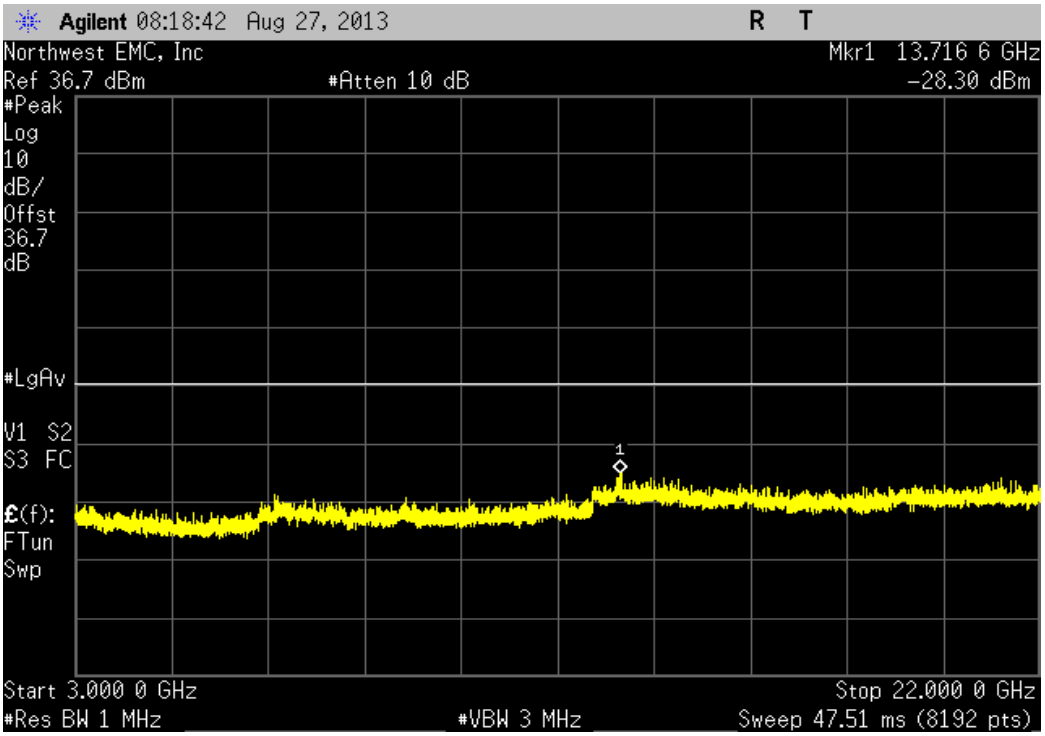
LTE 15 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.76 dBm	≤ -13 dBm	Pass



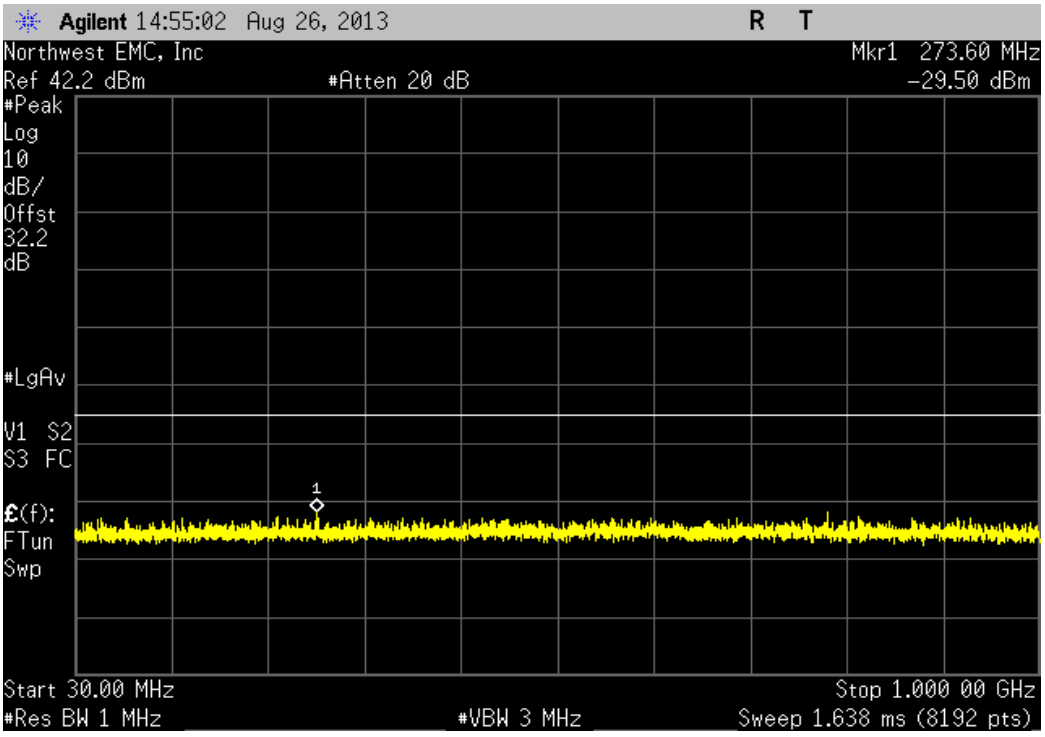
LTE 15 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-18.51 dBm	≤ -13 dBm	Pass



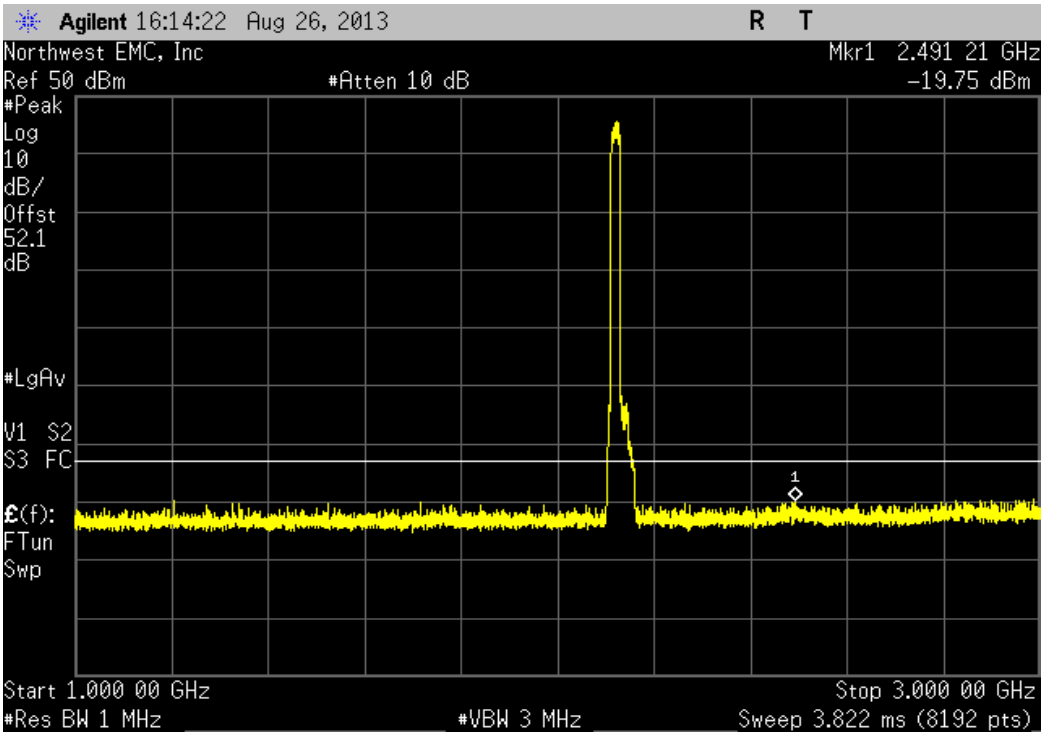
LTE 15 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.3 dBm	≤ -13 dBm	Pass



LTE 20 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.5 dBm	≤ -13 dBm	Pass

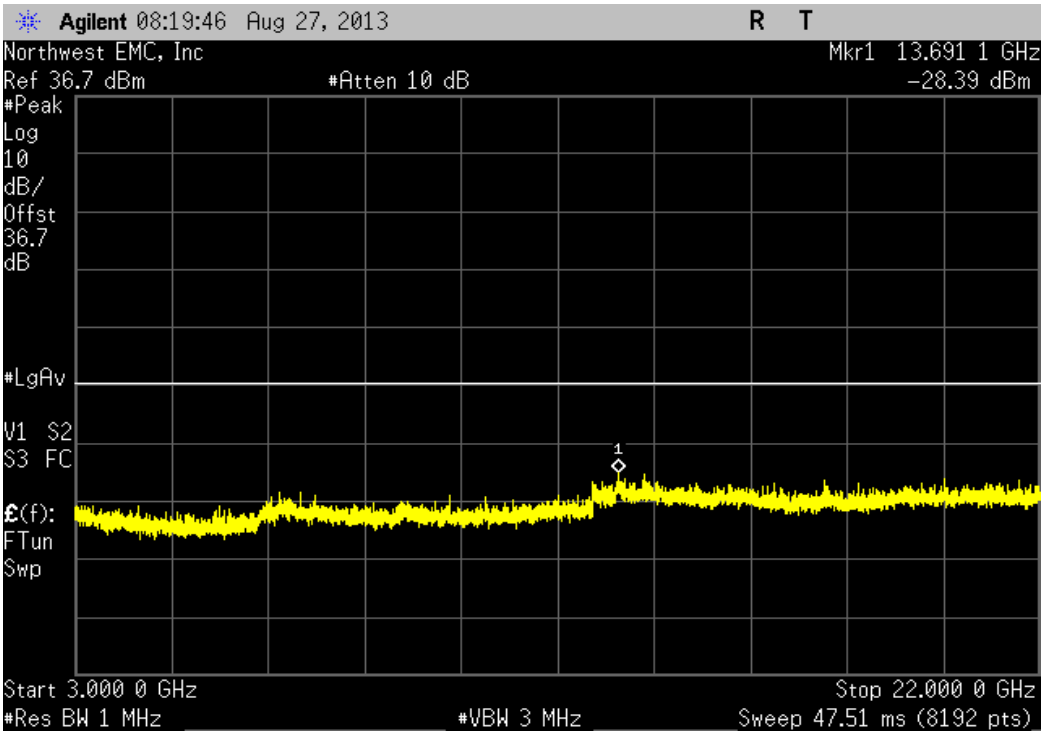


LTE 20 MHz, Low Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.75 dBm	≤ -13 dBm	Pass



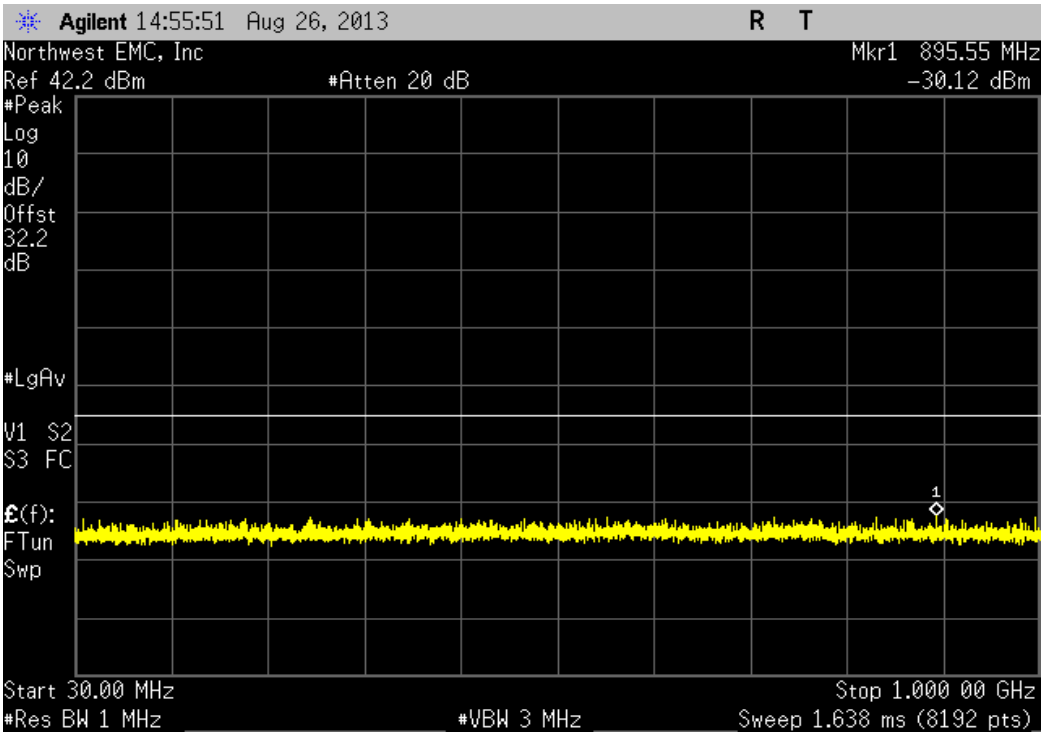
LTE 20 MHz, Low Channel

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-28.39 dBm	≤ -13 dBm	Pass

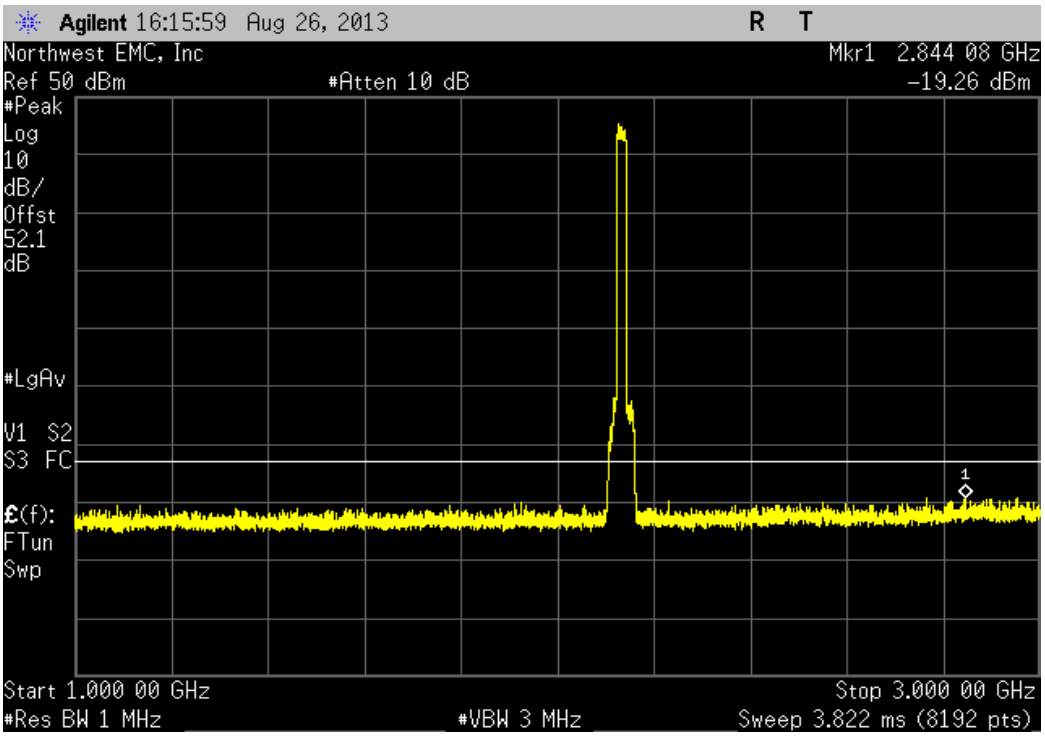


LTE 20 MHz, Mid Channel

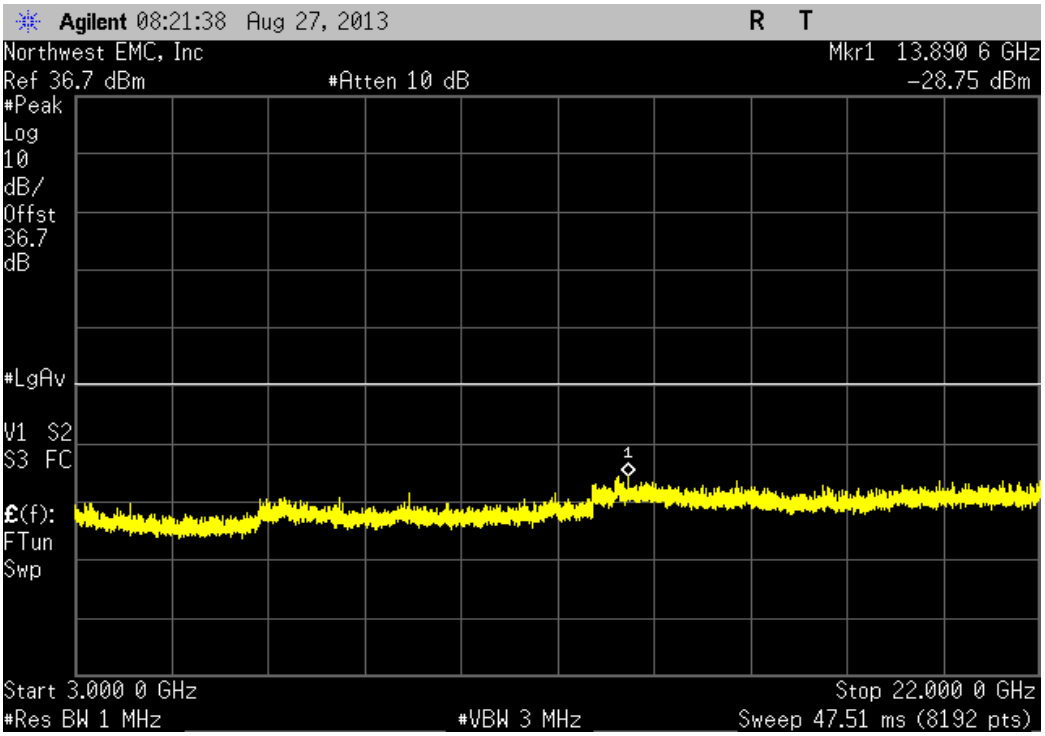
Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-30.12 dBm	≤ -13 dBm	Pass



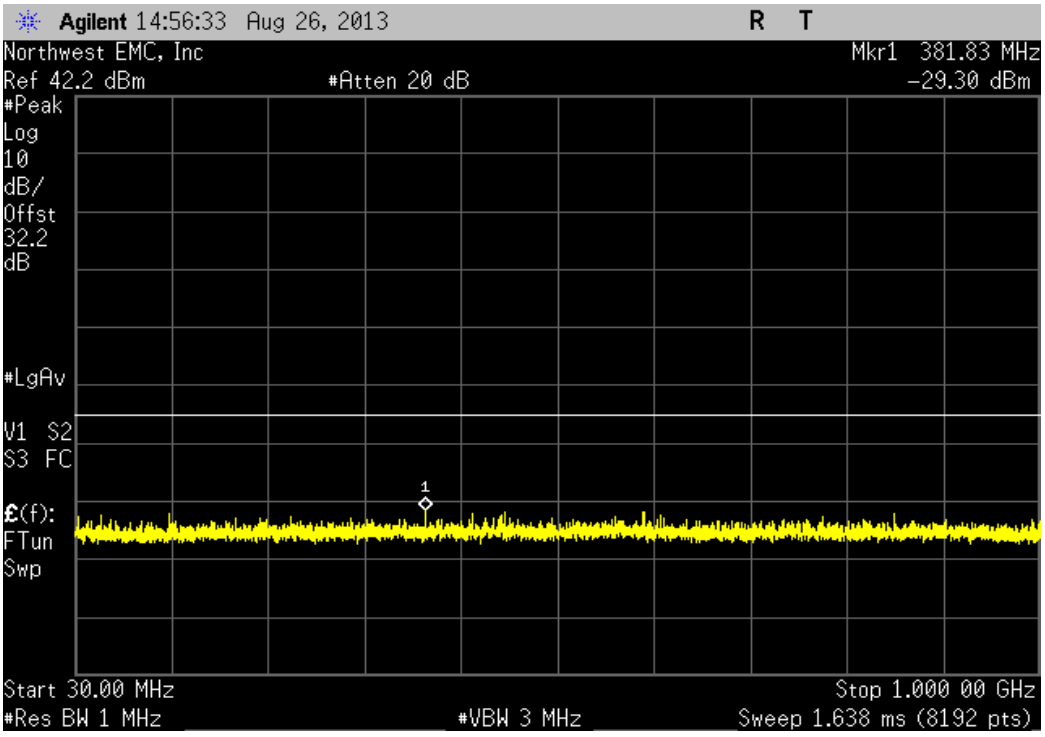
LTE 20 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.26 dBm	≤ -13 dBm	Pass



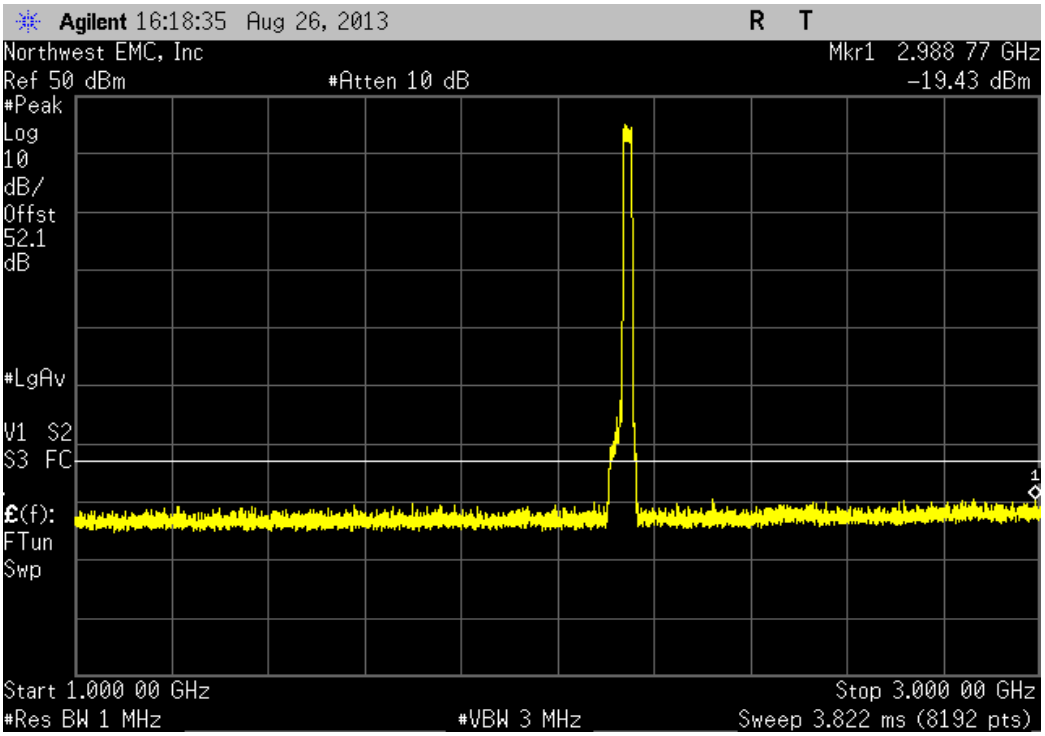
LTE 20 MHz, Mid Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.75 dBm	≤ -13 dBm	Pass



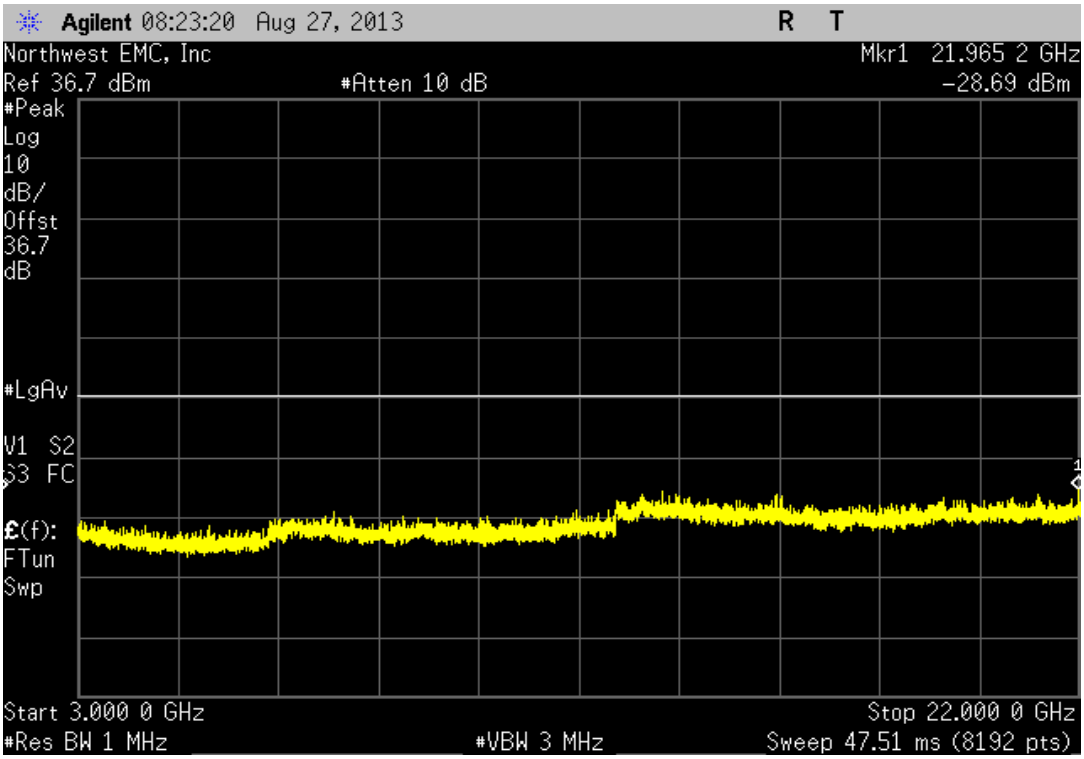
LTE 20 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-29.3 dBm	≤ -13 dBm	Pass



LTE 20 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.43 dBm	≤ -13 dBm	Pass



LTE 20 MHz, High Channel						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.69 dBm	≤ -13 dBm	Pass



Band Edge Compliance

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge. The resolution bandwidth was set to approximately 1% of the measured emissions bandwidth. An average RMS detector was used to match the method used during Output Power. The screen capture shows the margin between the measured value and the -13 dBm limit at the band edge.

Band Edge Compliance

EUT:	Prism HDM 40W AWS SISO RF Module	Work Order:	TECO0003
Serial Number:	None	Date:	08/26/13
Customer:	TE Connectivity / ADC Telecommunications	Temperature:	27.0°C
Attendees:	None	Humidity:	53%
Project:	None	Barometric Pres.:	1013.6
Tested by:	Trevor Buls	Power: 110VAC/60Hz	Job Site: MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator that was added into the reference level offset.

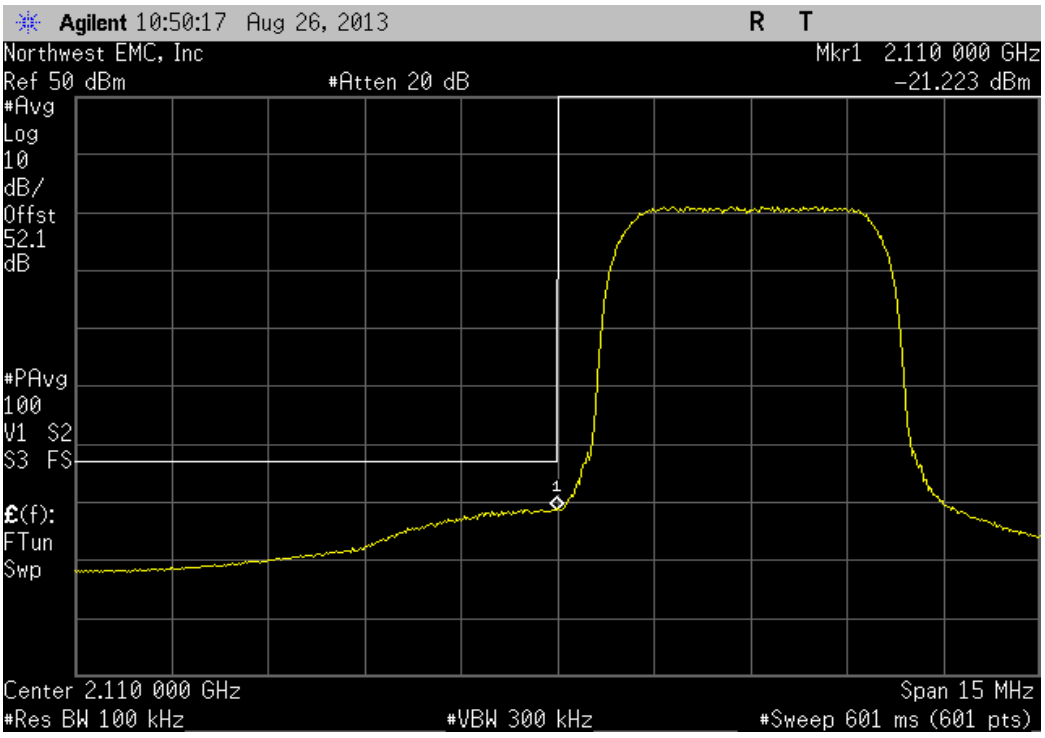
DEVIATIONS FROM TEST STANDARD

None

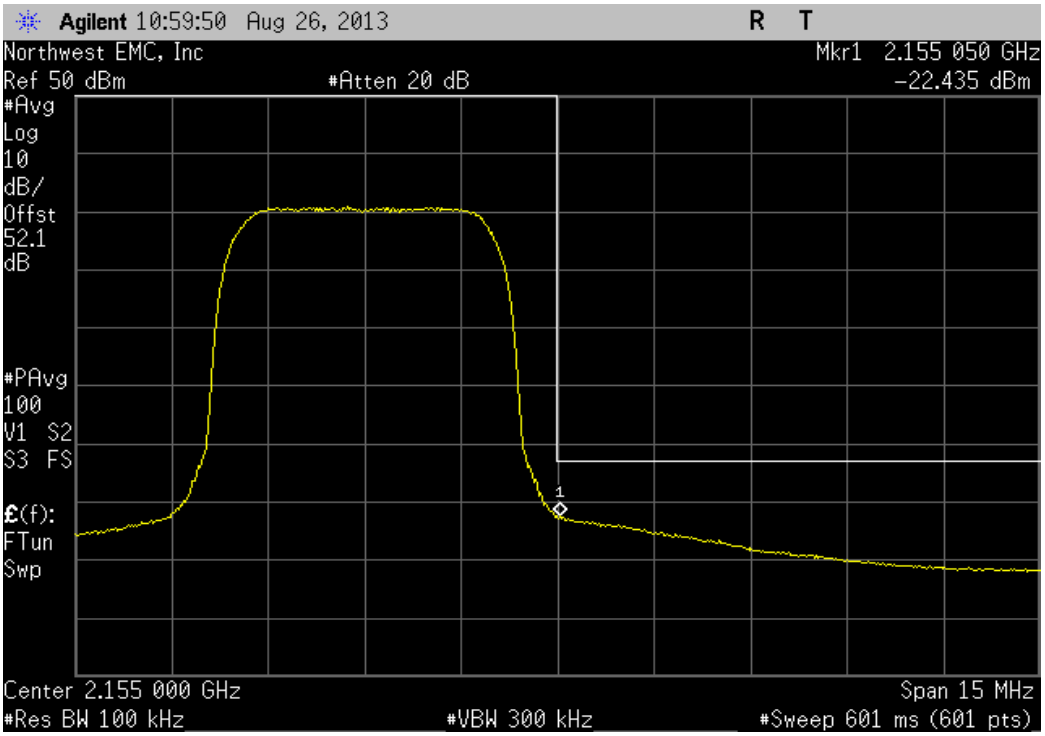
Configuration #	1	Signature	Trevor Buls

		Value (dBm)	Limit ≤ (dBm)	Result
WCDMA				
	Low Channel	-21.22	-13	Pass
	High Channel	-22.44	-13	Pass
LTE 1.4 MHz				
	Low Channel	-28.19	-13	Pass
	High Channel	-27.21	-13	Pass
LTE 3 MHz				
	Low Channel	-19.11	-13	Pass
	High Channel	-22.42	-13	Pass
LTE 5 MHz				
	Low Channel	-19.93	-13	Pass
	High Channel	-20.49	-13	Pass
LTE 10 MHz				
	Low Channel	-13.5	-13	Pass
	High Channel	-13.67	-13	Pass
LTE 15 MHz				
	Low Channel	-20.18	-13	Pass
	High Channel	-19.6	-13	Pass
LTE 20 MHz				
	Low Channel	-17.75	-13	Pass
	High Channel	-19.18	-13	Pass

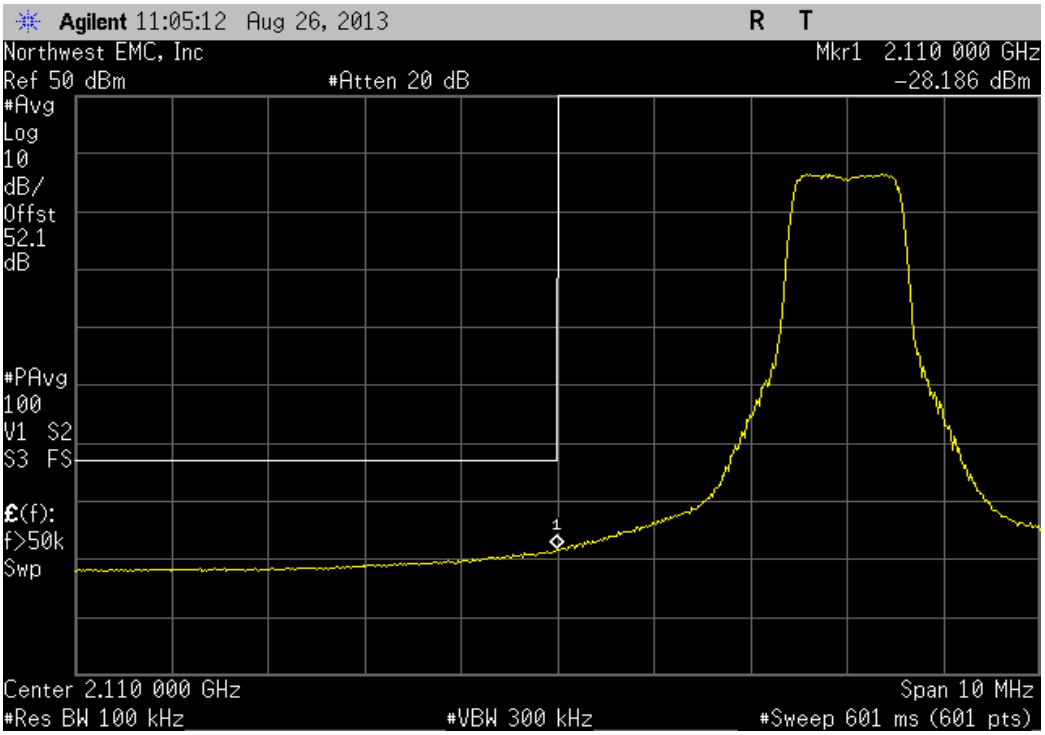
WCDMA, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-21.22	-13	Pass



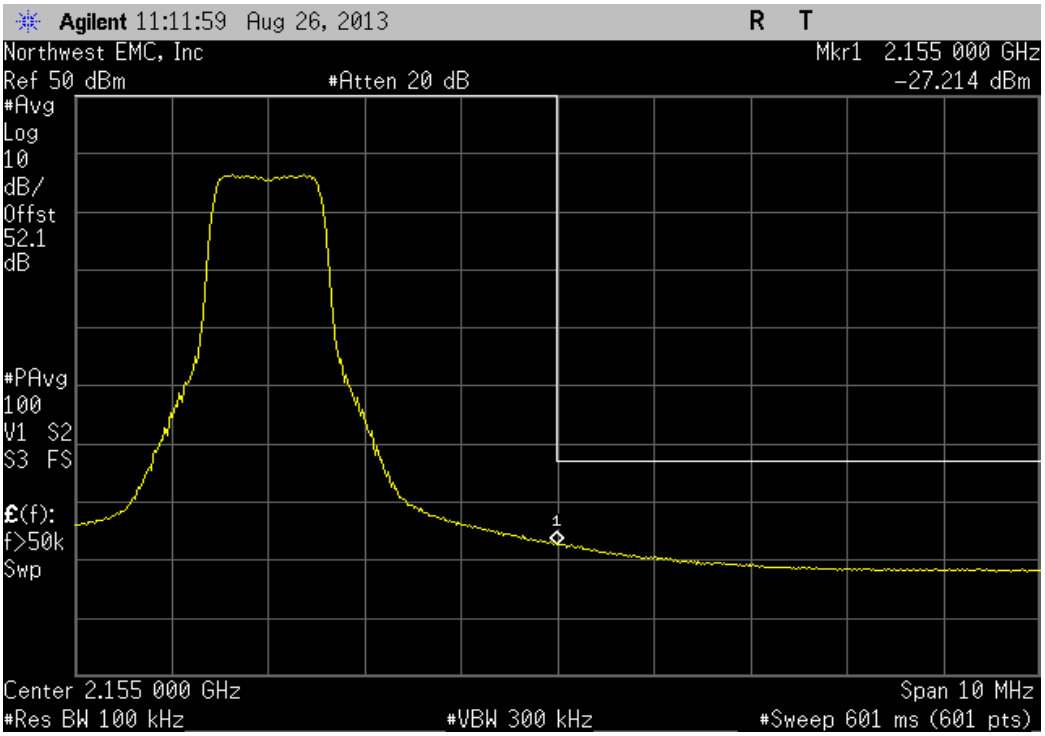
WCDMA, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-22.44	-13	Pass



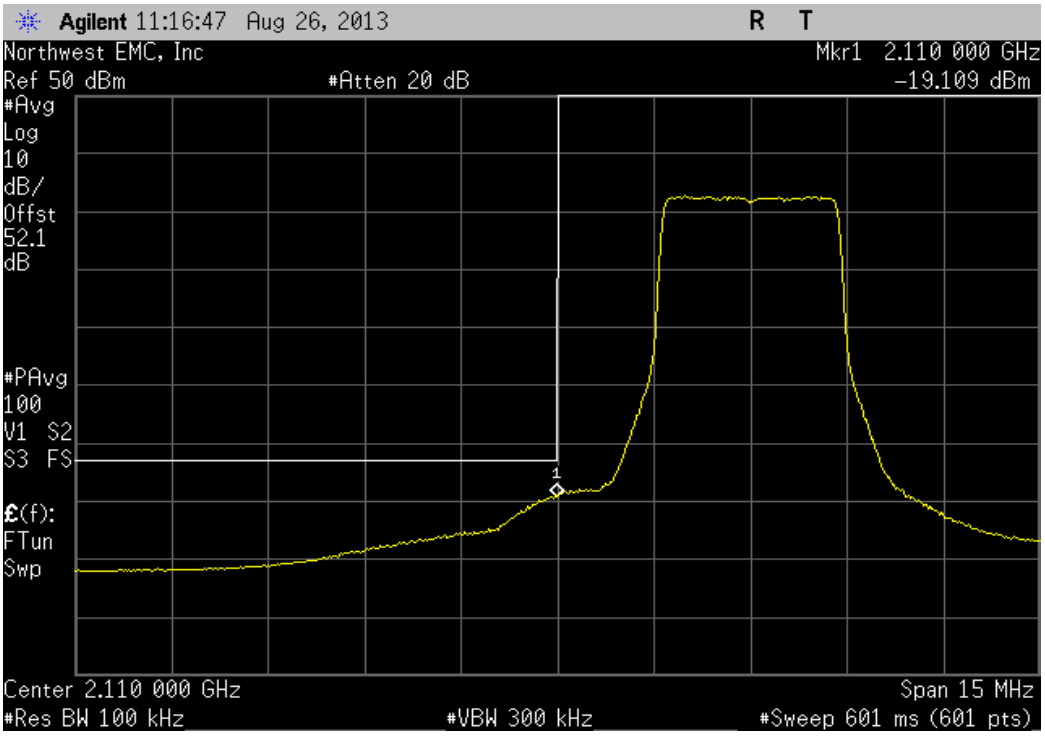
LTE 1.4 MHz, Low Channel						
				Value (dBm)	Limit ≤ (dBm)	Result
				-28.19	-13	Pass



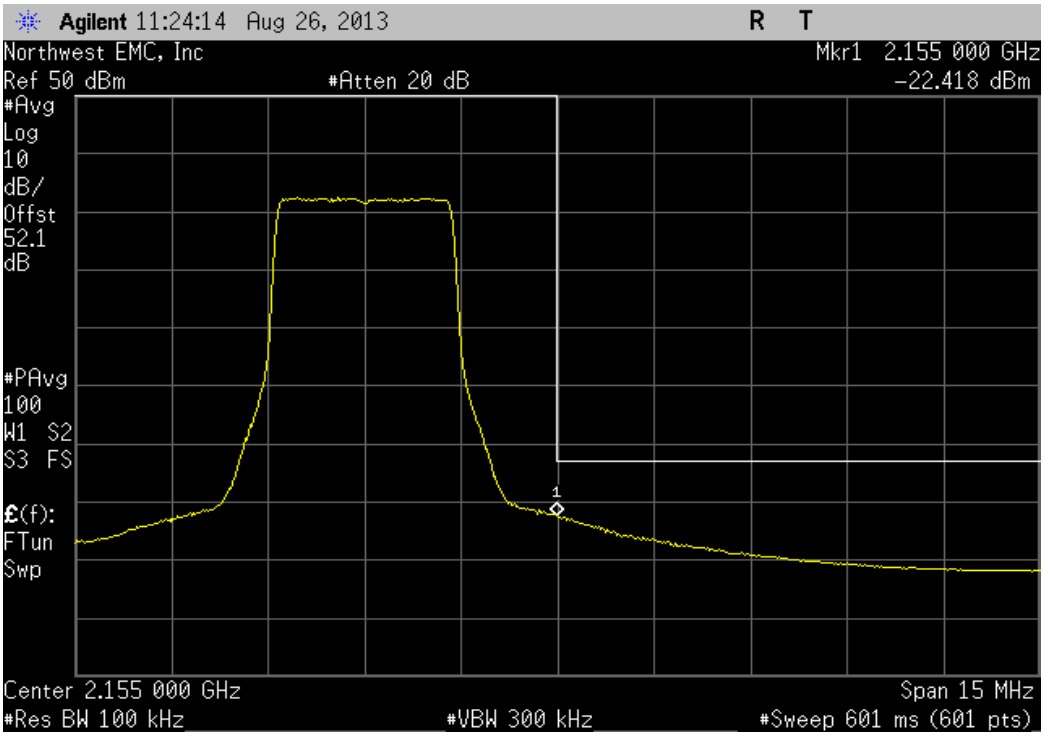
LTE 1.4 MHz, High Channel						
				Value (dBm)	Limit ≤ (dBm)	Result
				-27.21	-13	Pass



LTE 3 MHz, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-19.11	-13	Pass

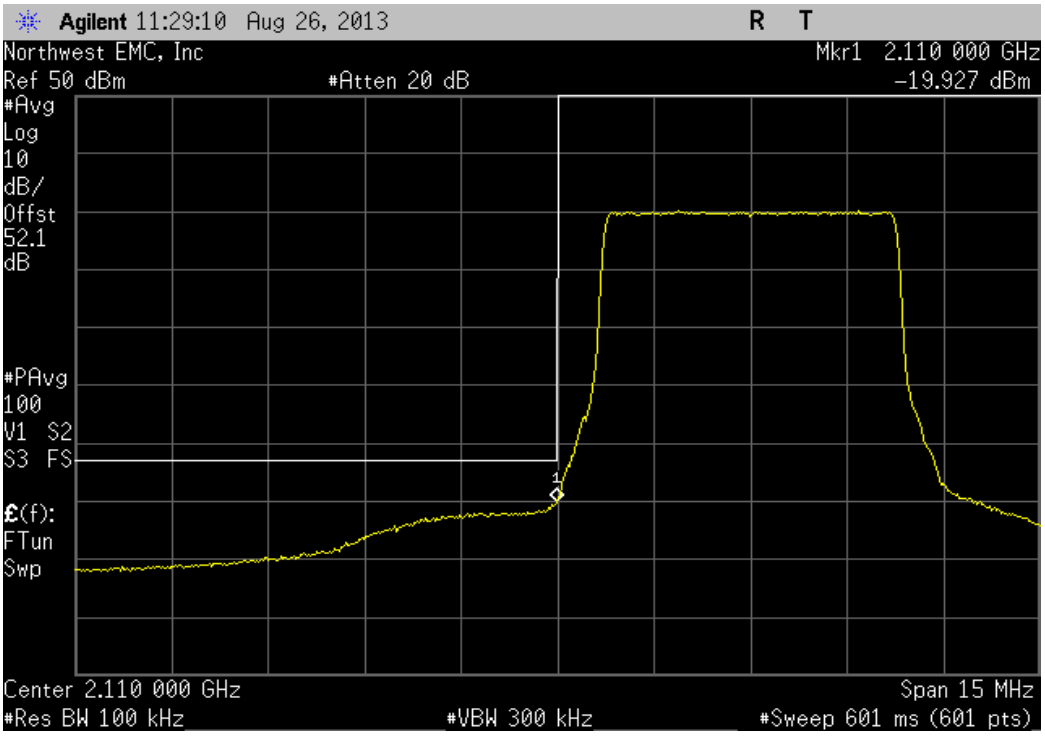


LTE 3 MHz, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-22.42	-13	Pass

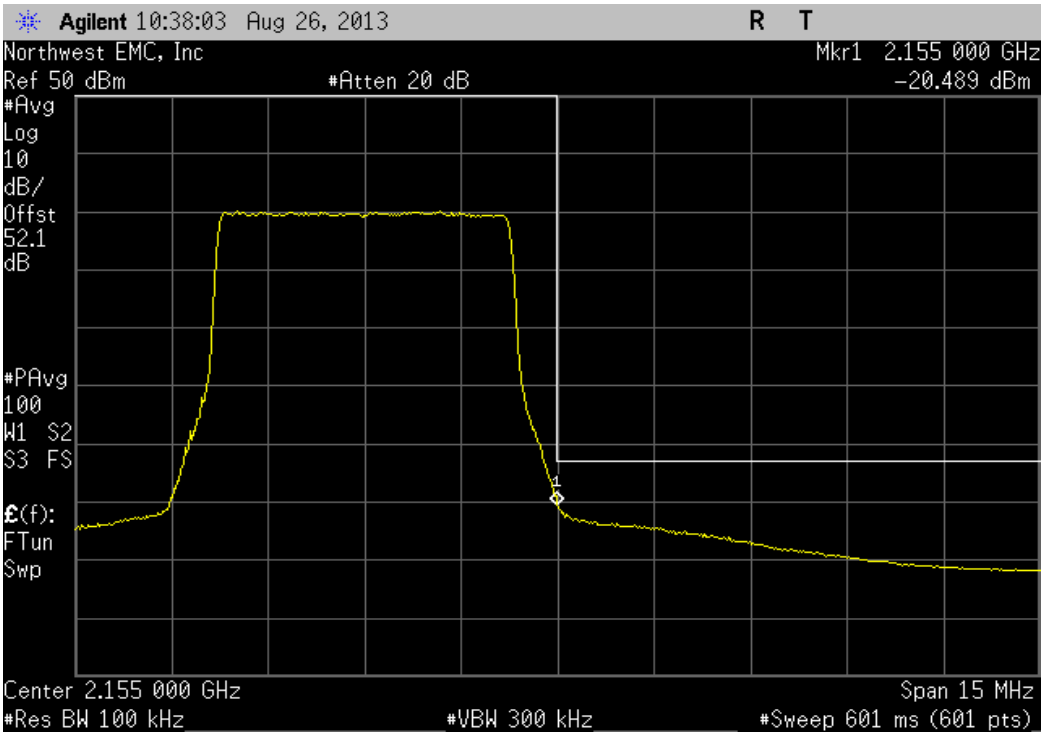


Band Edge Compliance

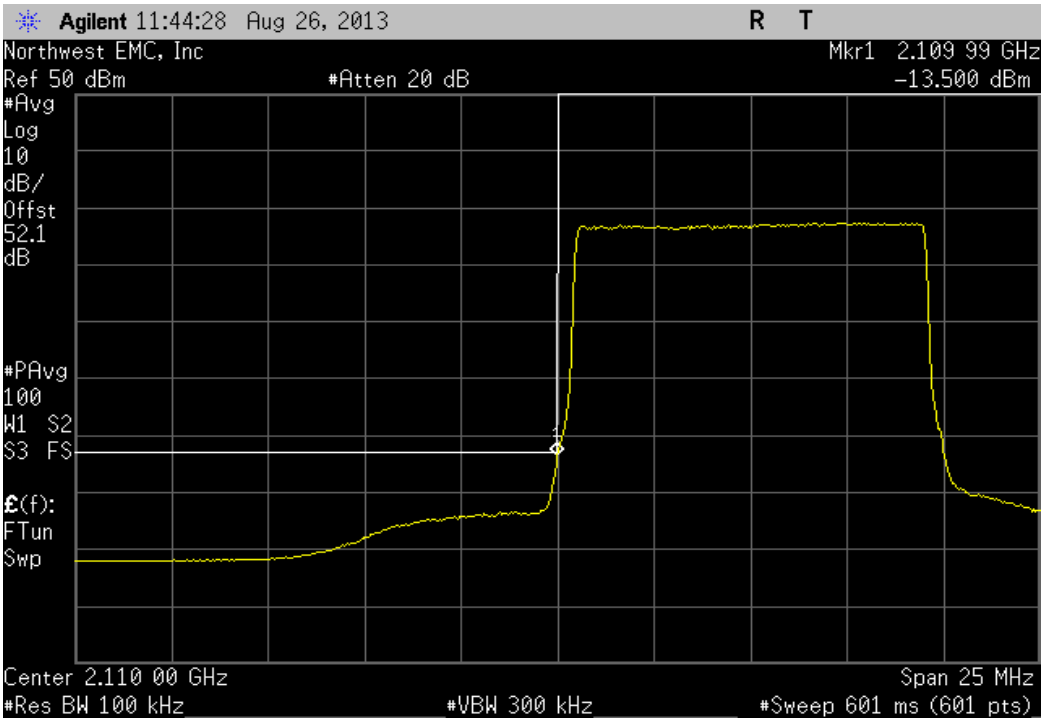
LTE 5 MHz, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-19.93	-13	Pass



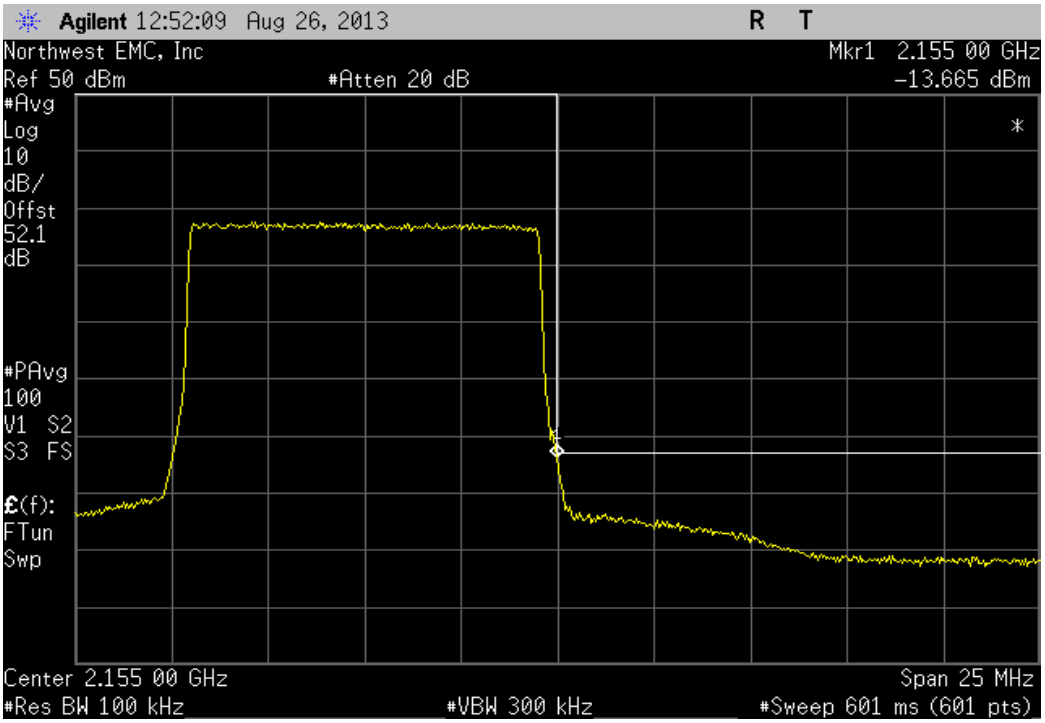
LTE 5 MHz, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-20.49	-13	Pass



LTE 10 MHz, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-13.5	-13	Pass

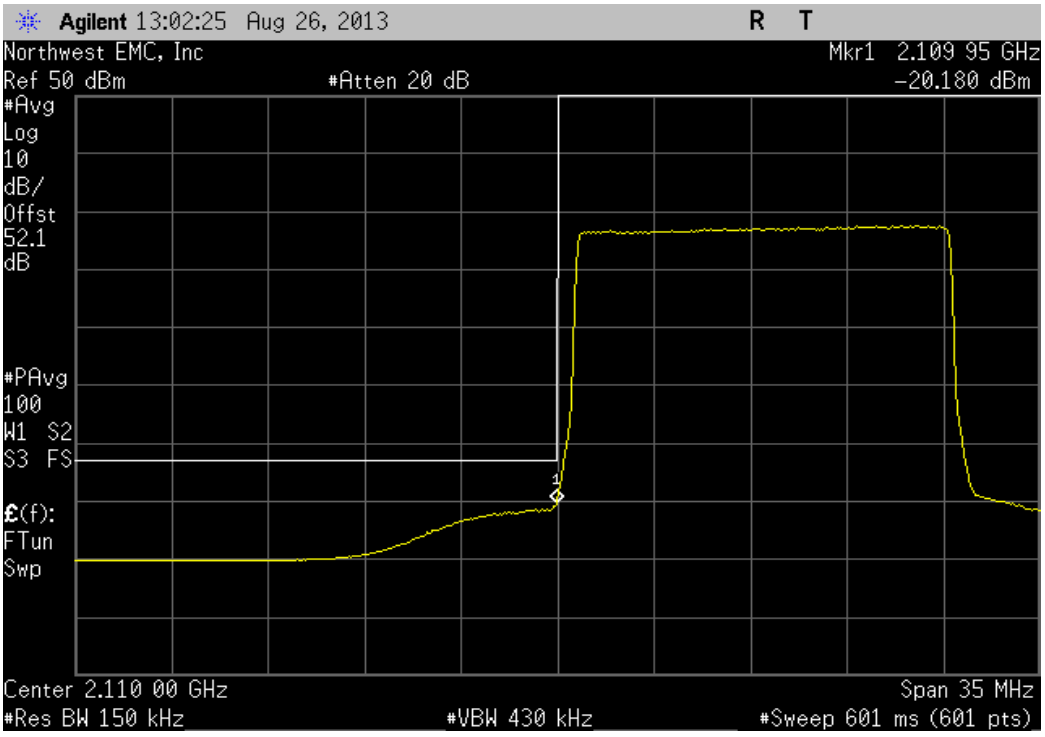


LTE 10 MHz, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-13.67	-13	Pass



Band Edge Compliance

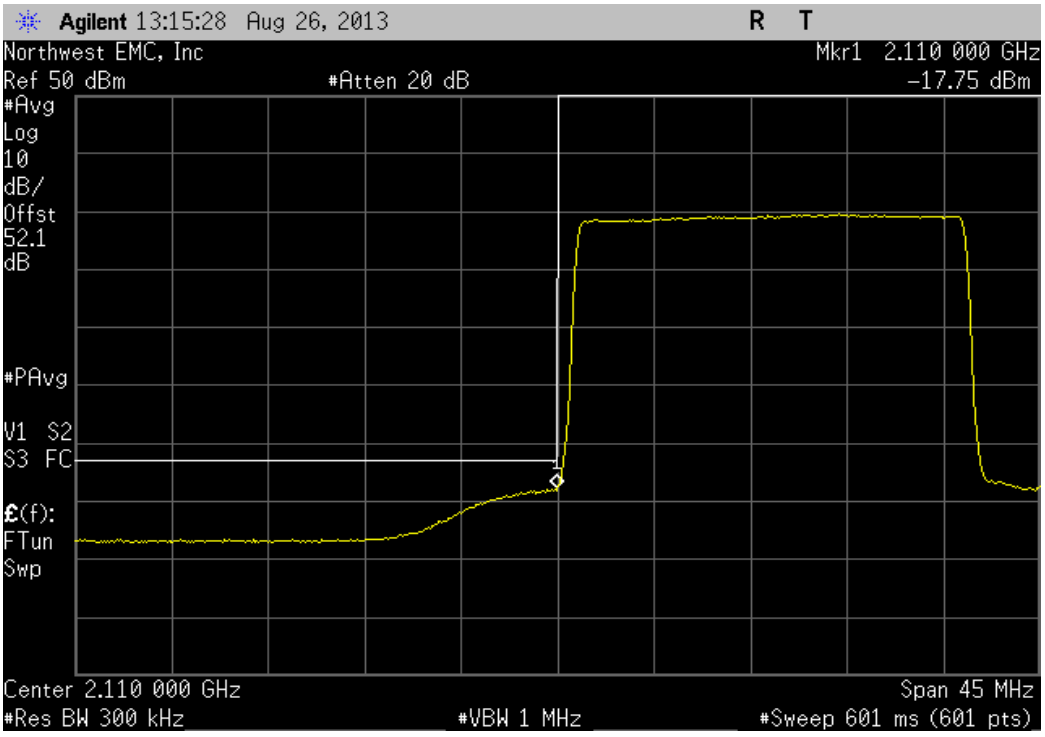
LTE 15 MHz, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-20.18	-13	Pass



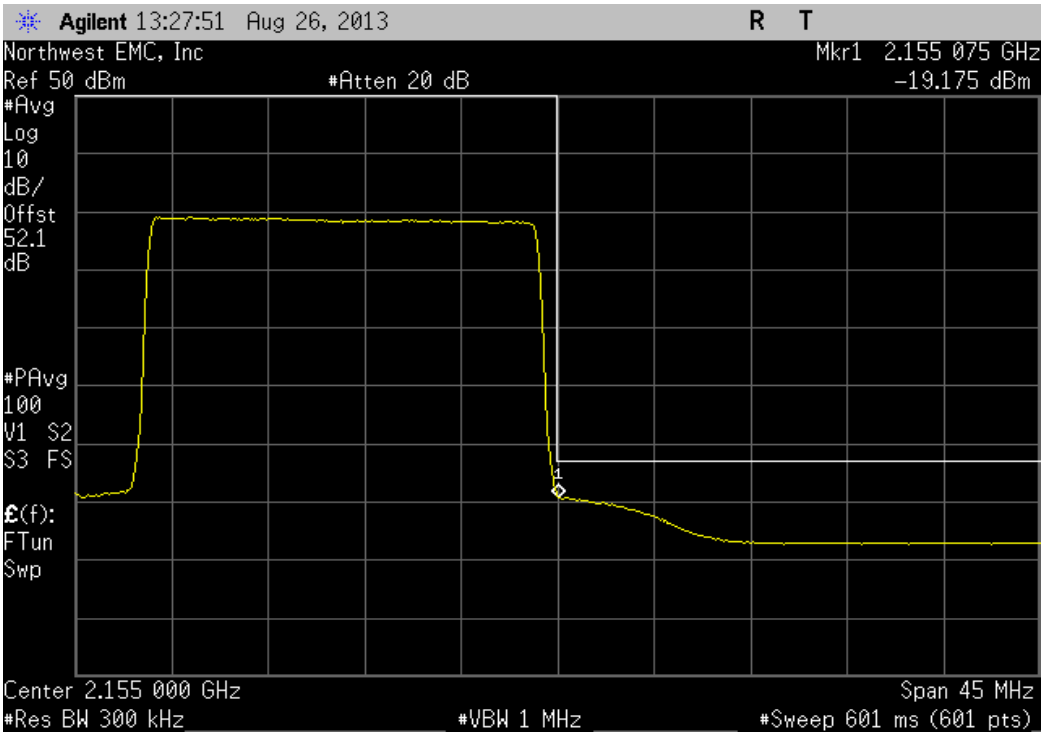
LTE 15 MHz, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-19.6	-13	Pass

Band Edge Compliance

LTE 20 MHz, Low Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-17.75	-13	Pass



LTE 20 MHz, High Channel							
					Value (dBm)	Limit ≤ (dBm)	Result
					-19.18	-13	Pass



Intermodulation

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
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAE	NCR	0
Power Divider/Combiner	Fairview Microwave	MP0208-2	IAF	NCR	0
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	HGV	10/5/2012	24
High Pass Filter	Micro-Tronics	HPM50111	HGY	10/5/2012	24
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator	Agilent	E4422B	TGQ	3/5/2012	36
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

TEST DESCRIPTION

The EUT was configured with an input of a CW pulse at the bottom of the band, a CW pulse at the bottom of the band, and a modulated pulse near the bottom of the band.

The antenna port spurious emissions were measured at the RF output terminal of the EUT with external attenuation on the RF input of the spectrum analyzer. Analyzer plots utilizing a 1MHz resolution bandwidth and no video filtering were made for each modulation type from 30 MHz to 22 GHz. The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than or equal to –13 dBm.

Intermodulation

EUT:	Prism HDM 40W AWS SISO RF Module			Work Order:	TECO0003
Serial Number:	None			Date:	08/27/13
Customer:	TE Connectivity / ADC Telecommunications			Temperature:	25.6°C
Attendees:	None			Humidity:	55%
Project:	None			Barometric Pres.:	1009
Tested by:	Trevor Buls	Power:	110VAC/60Hz	Job Site:	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator that was added into the reference level offset.

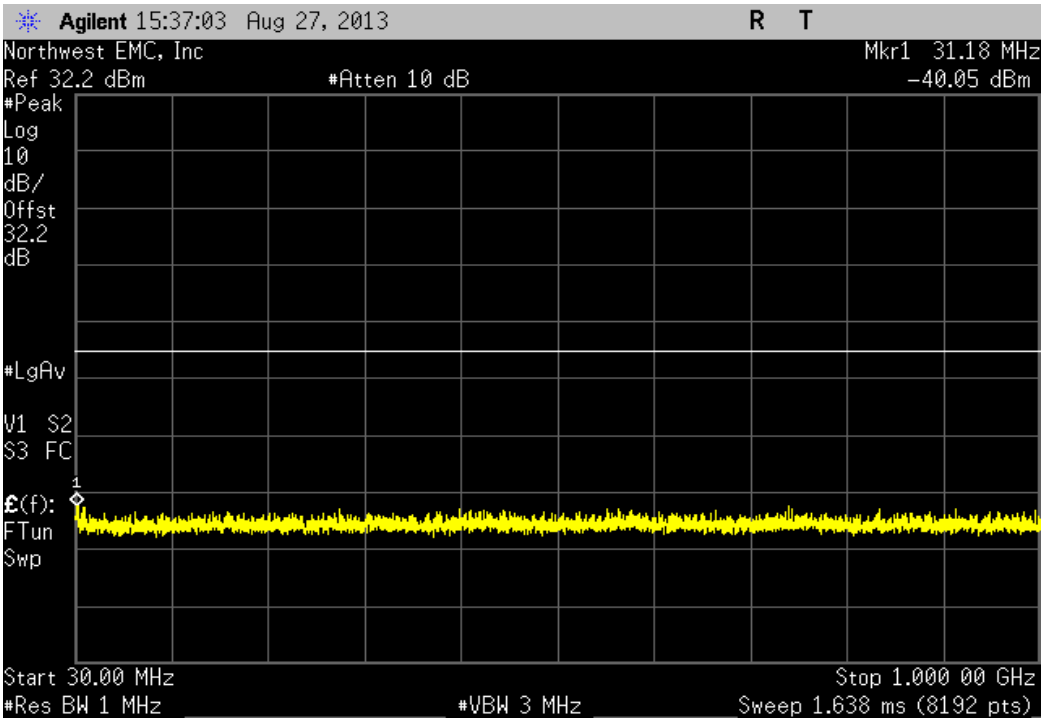
DEVIATIONS FROM TEST STANDARD

None

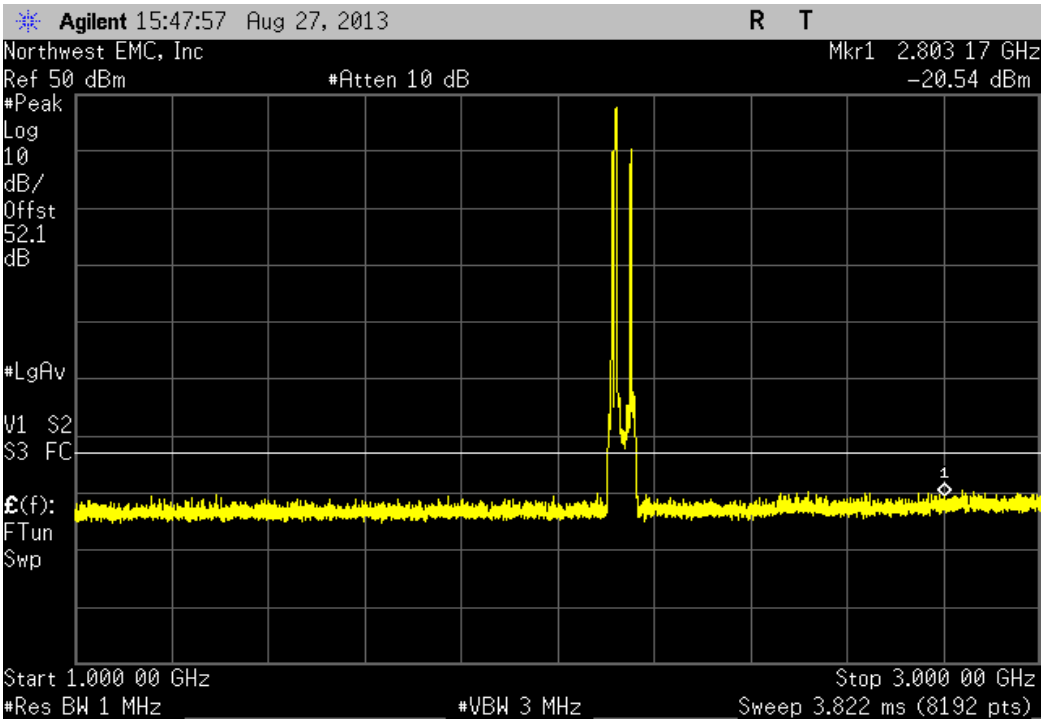
Configuration #	1	Signature	Trevor Buls

	Frequency Range	Value	Limit	Result
WCDMA	30 MHz - 1 GHz	-40.05 dBm	≤ -13 dBm	Pass
WCDMA	1 GHz - 3 GHz	-20.54 dBm	≤ -13 dBm	Pass
WCDMA	3 GHz - 22 GHz	-28.69 dBm	≤ -13 dBm	Pass
LTE 1.4 MHz	30 MHz - 1 GHz	-40.01 dBm	≤ -13 dBm	Pass
LTE 1.4 MHz	1 GHz - 3 GHz	-19.05 dBm	≤ -13 dBm	Pass
LTE 1.4 MHz	3 GHz - 22 GHz	-29.27 dBm	≤ -13 dBm	Pass
LTE 3 MHz	30 MHz - 1 GHz	-38.94 dBm	≤ -13 dBm	Pass
LTE 3 MHz	1 GHz - 3 GHz	-19.31 dBm	≤ -13 dBm	Pass
LTE 3 MHz	3 GHz - 22 GHz	-29.03 dBm	≤ -13 dBm	Pass
LTE 5 MHz	30 MHz - 1 GHz	-39.82 dBm	≤ -13 dBm	Pass
LTE 5 MHz	1 GHz - 3 GHz	-19.8 dBm	≤ -13 dBm	Pass
LTE 5 MHz	3 GHz - 22 GHz	-27.66 dBm	≤ -13 dBm	Pass
LTE 10 MHz	30 MHz - 1 GHz	-39.64 dBm	≤ -13 dBm	Pass
LTE 10 MHz	1 GHz - 3 GHz	-19.8 dBm	≤ -13 dBm	Pass
LTE 10 MHz	3 GHz - 22 GHz	-28.91 dBm	≤ -13 dBm	Pass
LTE 15 MHz	30 MHz - 1 GHz	-39.96 dBm	≤ -13 dBm	Pass
LTE 15 MHz	1 GHz - 3 GHz	-18.85 dBm	≤ -13 dBm	Pass
LTE 15 MHz	3 GHz - 22 GHz	-28.48 dBm	≤ -13 dBm	Pass
LTE 20 MHz	30 MHz - 1 GHz	-40.16 dBm	≤ -13 dBm	Pass
LTE 20 MHz	1 GHz - 3 GHz	-20.16 dBm	≤ -13 dBm	Pass
LTE 20 MHz	3 GHz - 22 GHz	-28.4 dBm	≤ -13 dBm	Pass

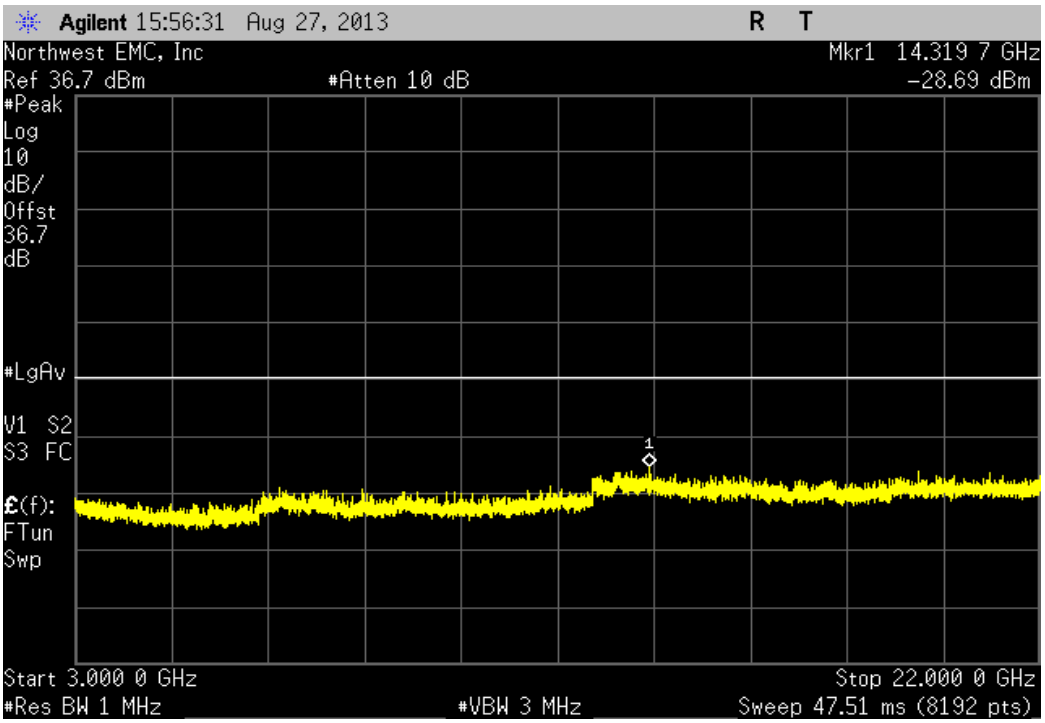
WCDMA						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-40.05 dBm	≤ -13 dBm	Pass



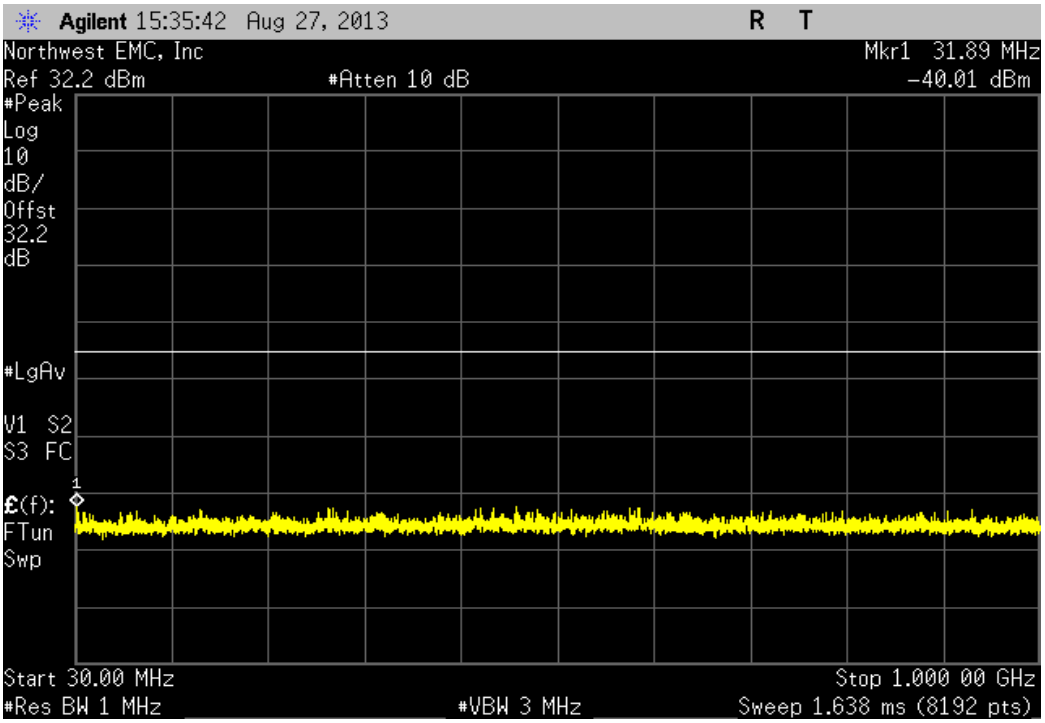
WCDMA						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-20.54 dBm	≤ -13 dBm	Pass



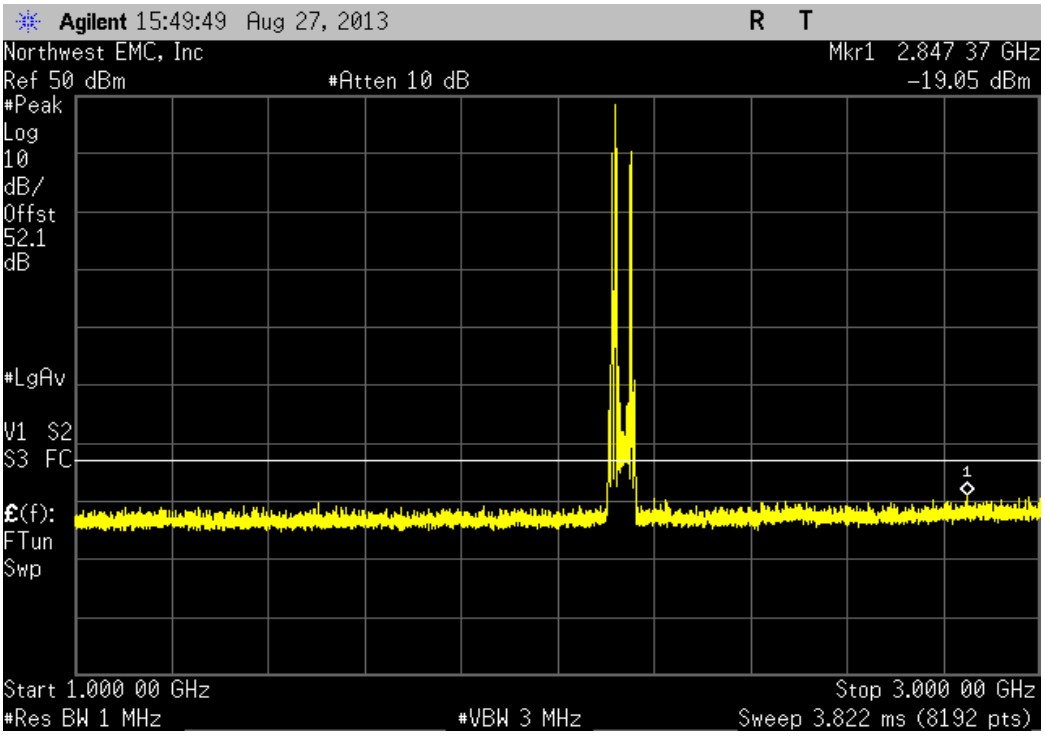
WCDMA						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.69 dBm	≤ -13 dBm	Pass



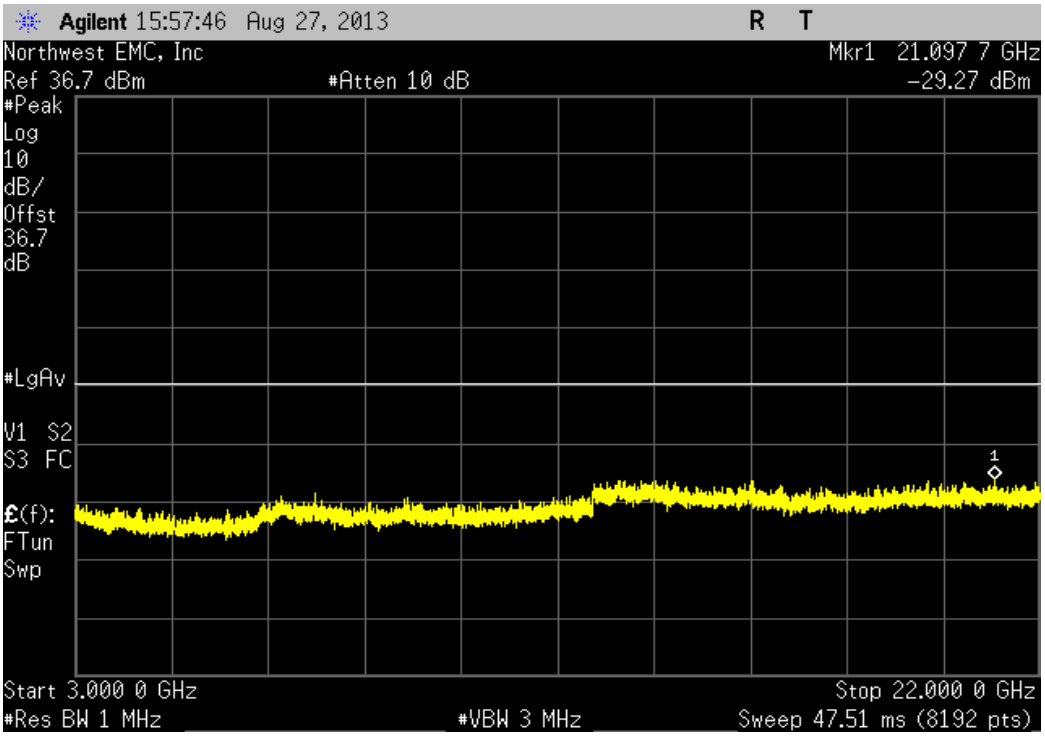
LTE 1.4 MHz						
	Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz			-40.01 dBm	≤ -13 dBm	Pass



LTE 1.4 MHz						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.05 dBm	≤ -13 dBm	Pass

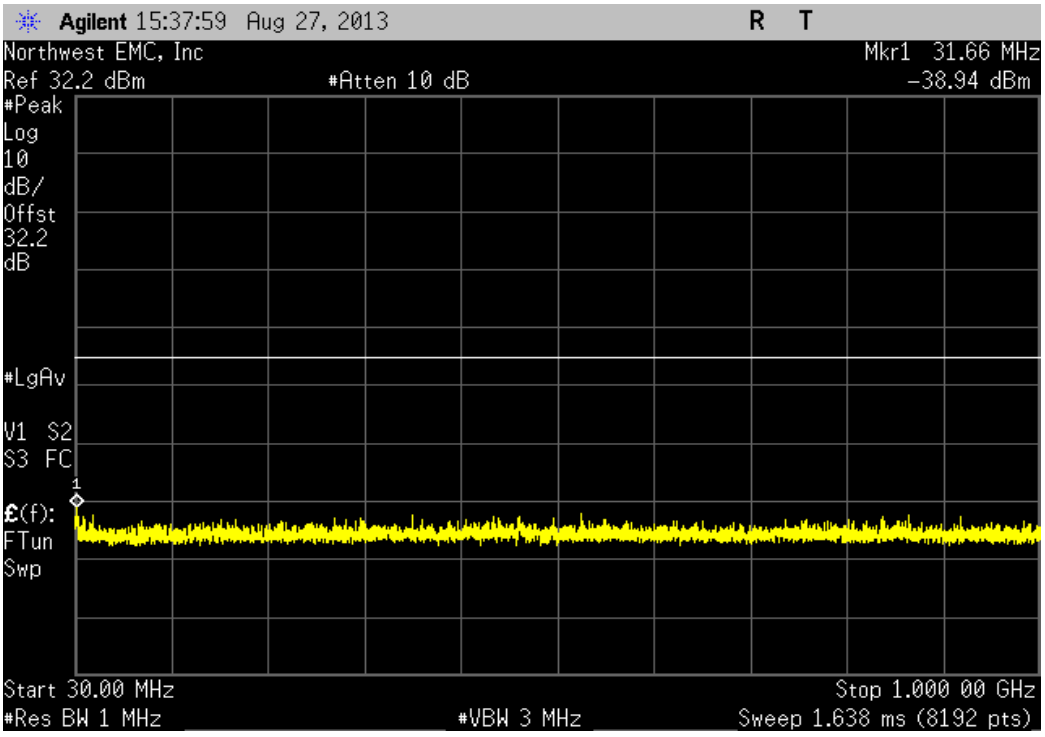


LTE 1.4 MHz						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-29.27 dBm	≤ -13 dBm	Pass



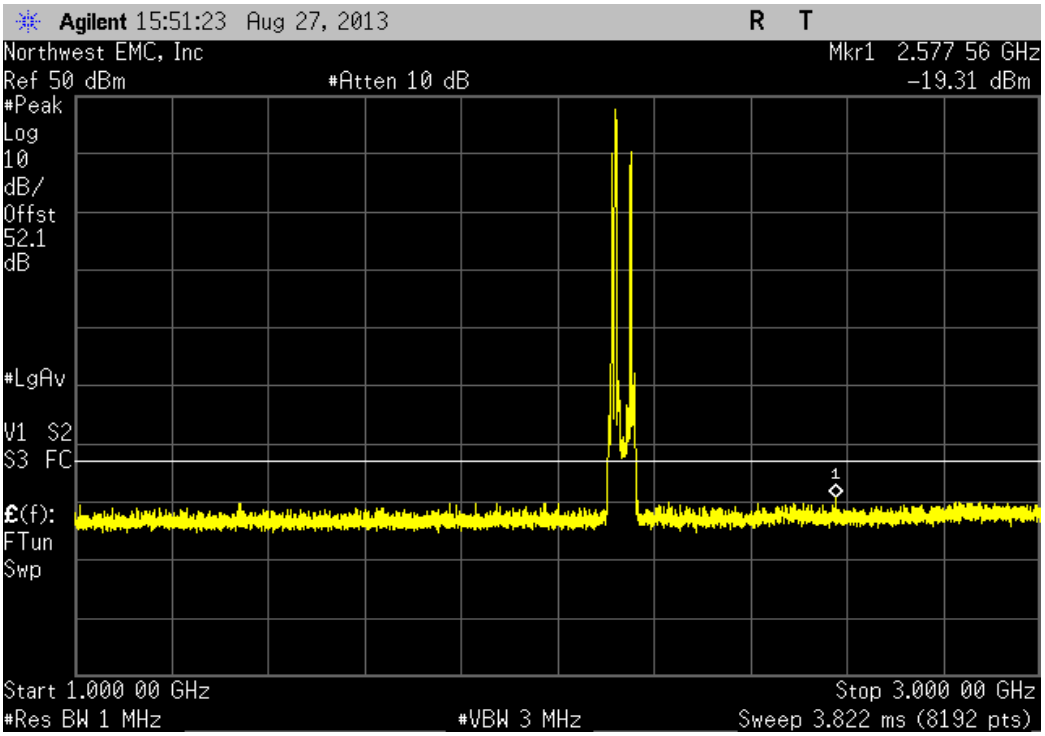
LTE 3 MHz

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-38.94 dBm	≤ -13 dBm	Pass



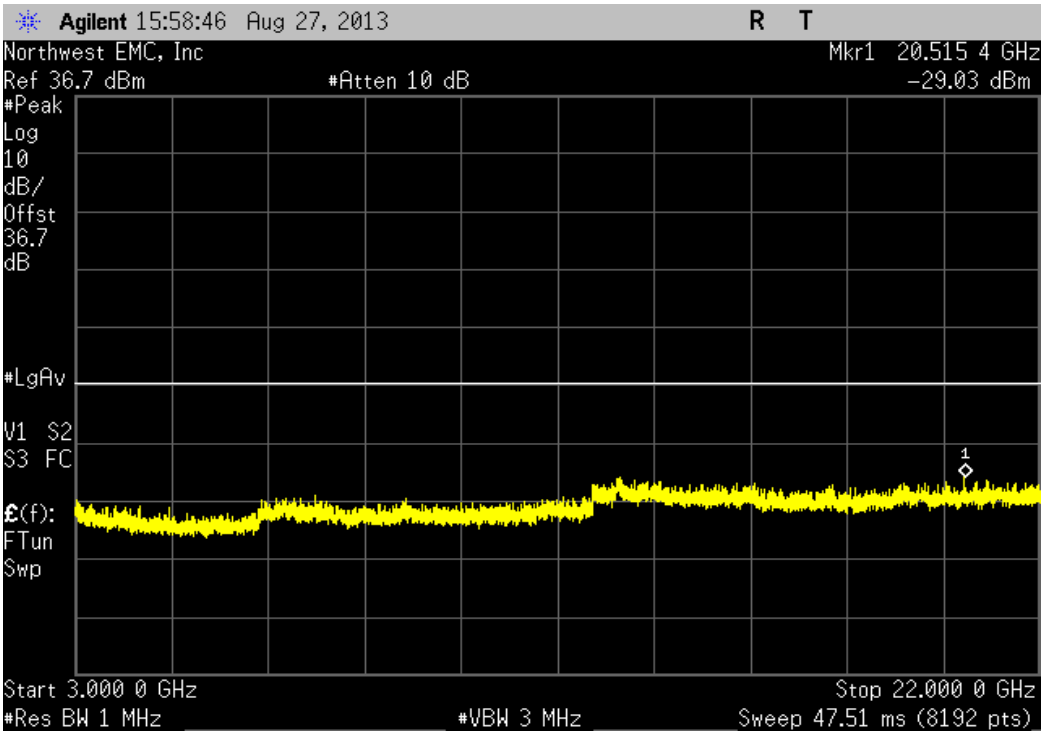
LTE 3 MHz

Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-19.31 dBm	≤ -13 dBm	Pass



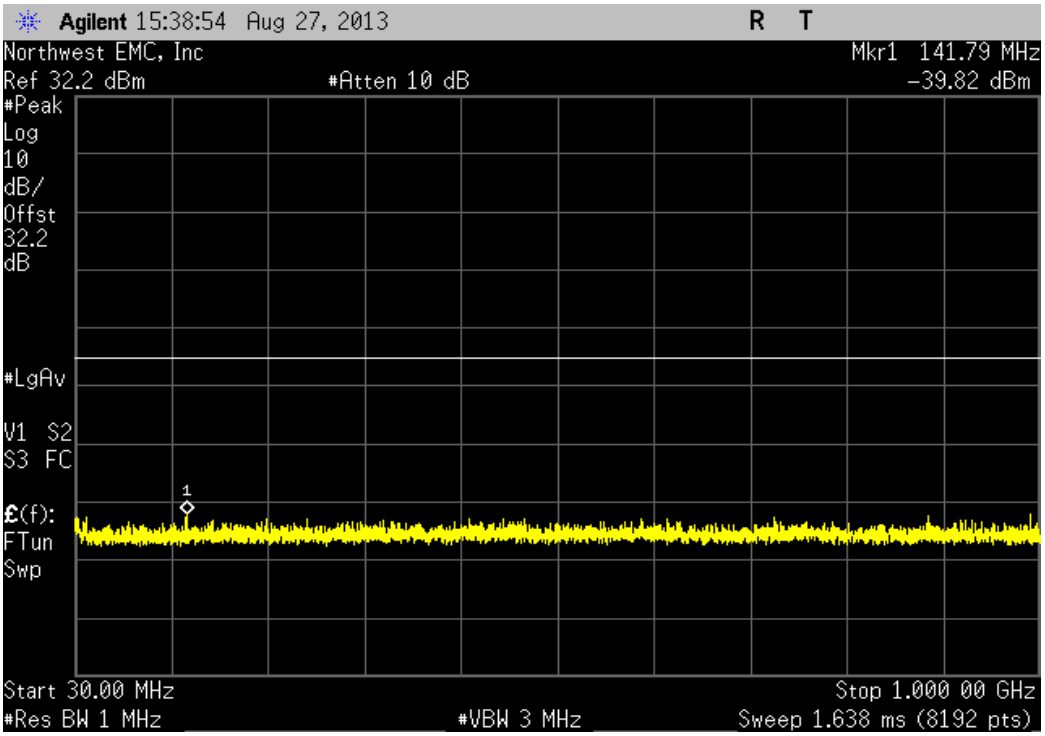
LTE 3 MHz

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-29.03 dBm	≤ -13 dBm	Pass

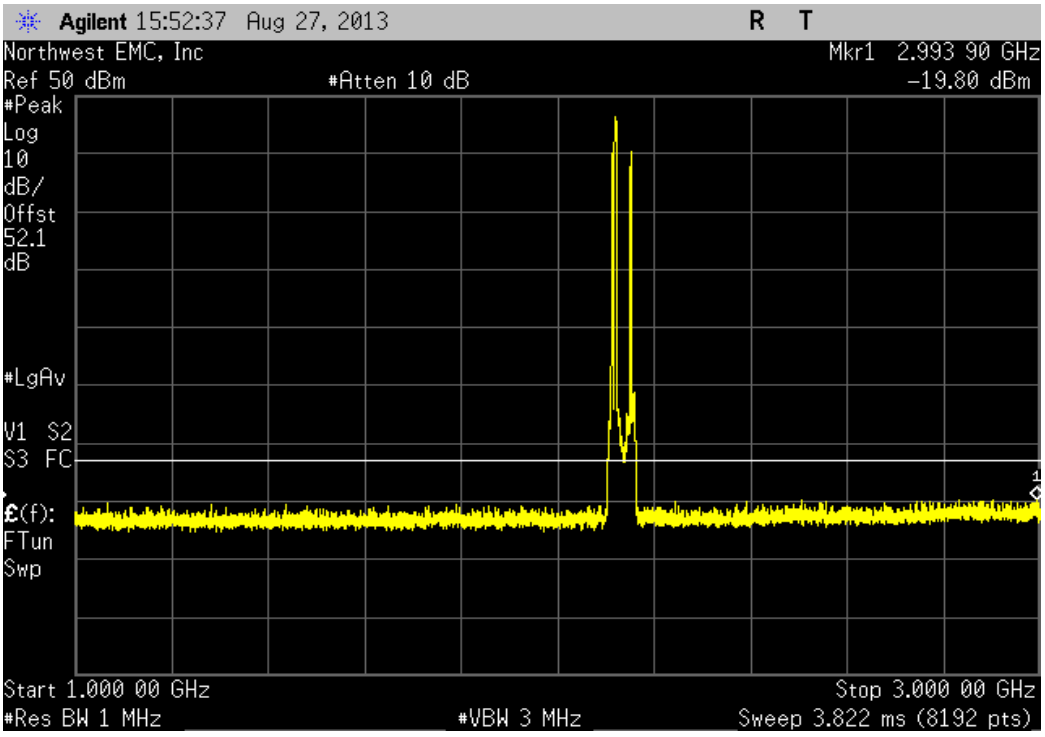


LTE 5 MHz

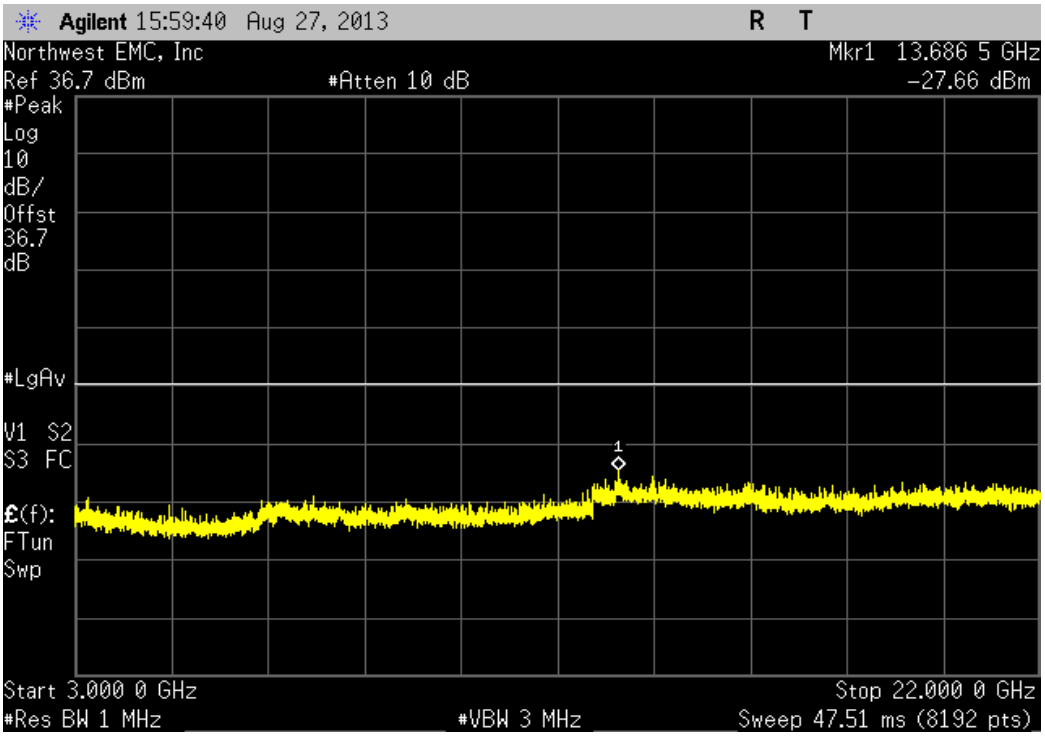
Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-39.82 dBm	≤ -13 dBm	Pass



LTE 5 MHz						
	Frequency Range			Value	Limit	Result
	1 GHz - 3 GHz			-19.8 dBm	≤ -13 dBm	Pass

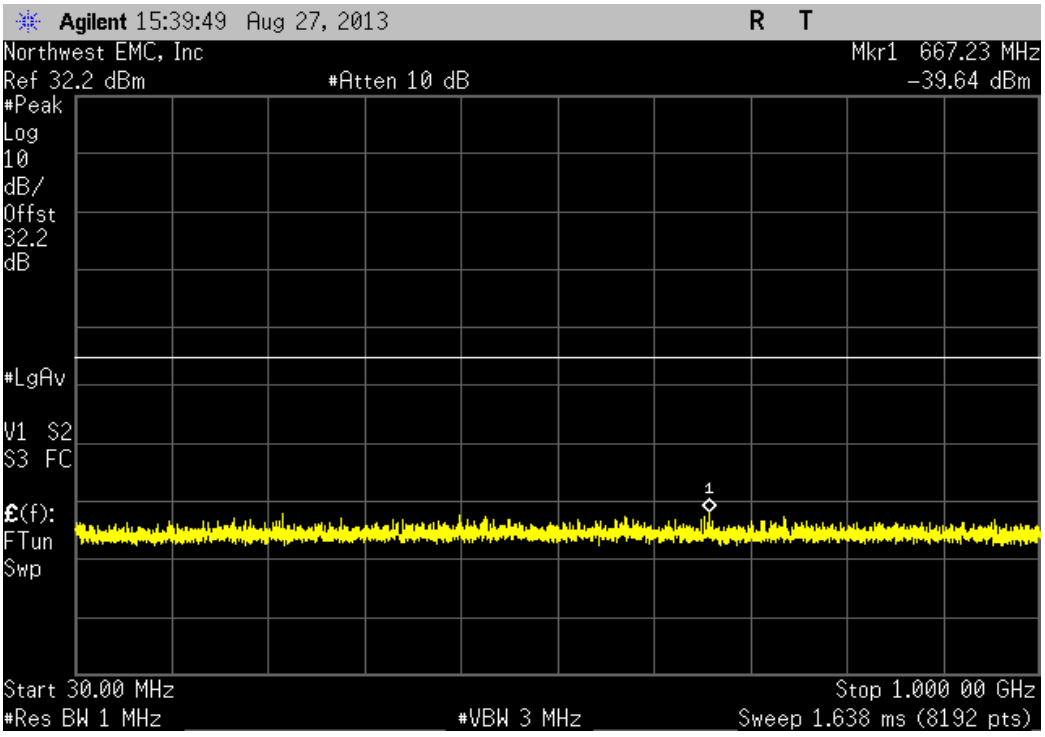


LTE 5 MHz						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-27.66 dBm	≤ -13 dBm	Pass



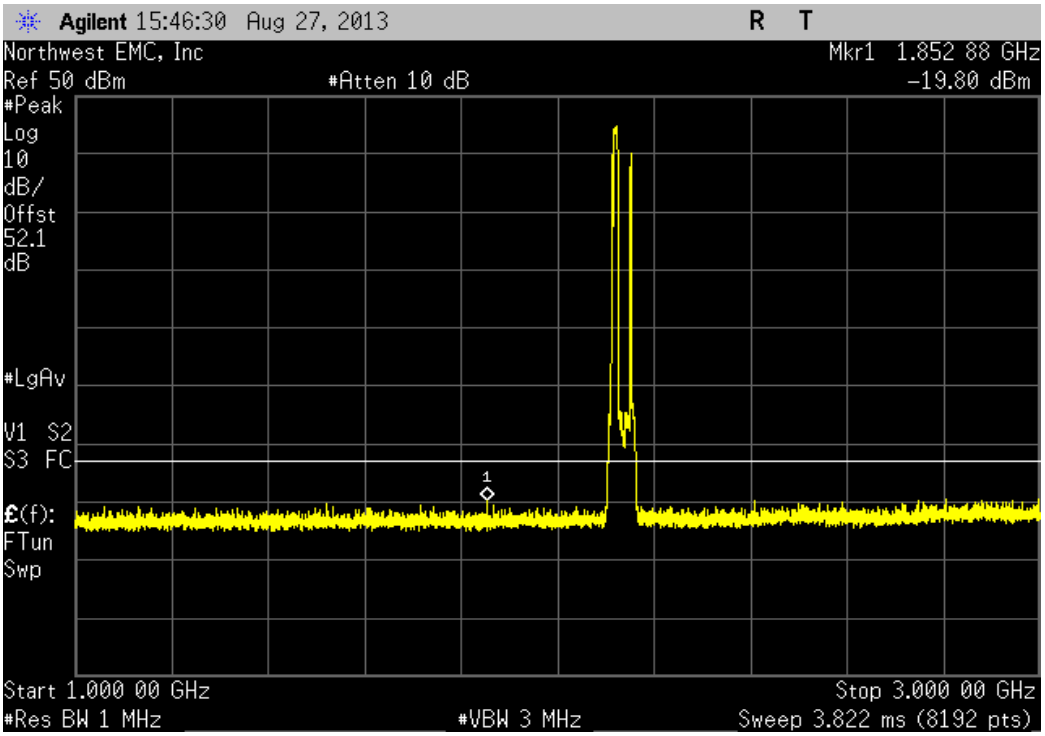
LTE 10 MHz

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-39.64 dBm	≤ -13 dBm	Pass



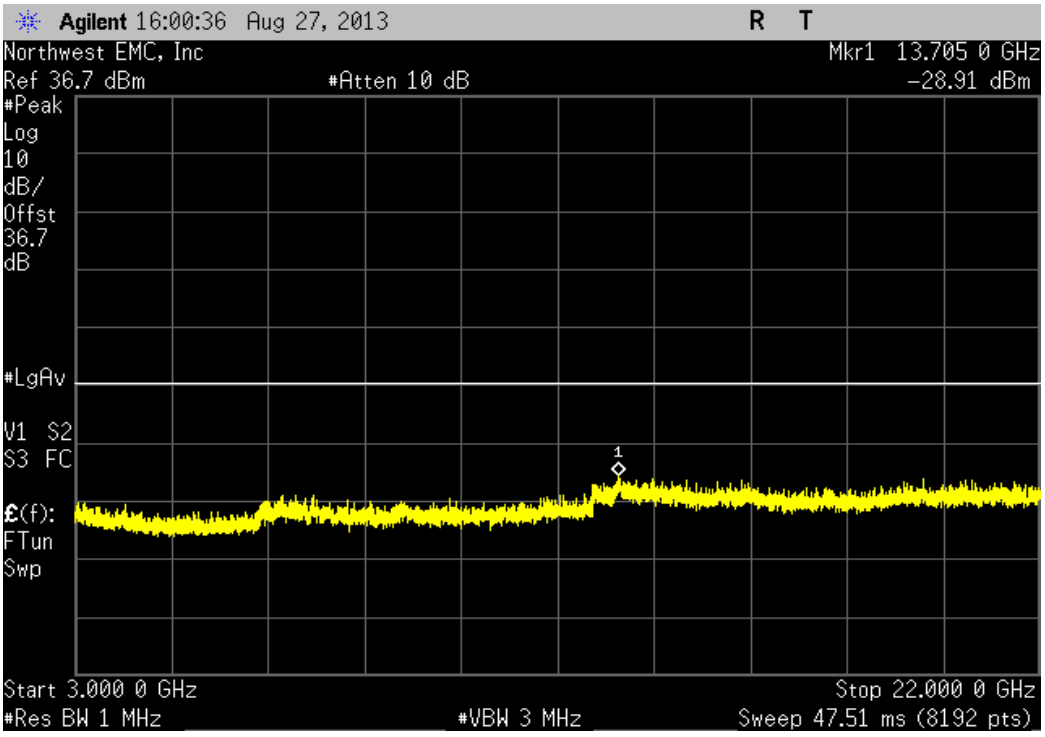
LTE 10 MHz

Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-19.8 dBm	≤ -13 dBm	Pass



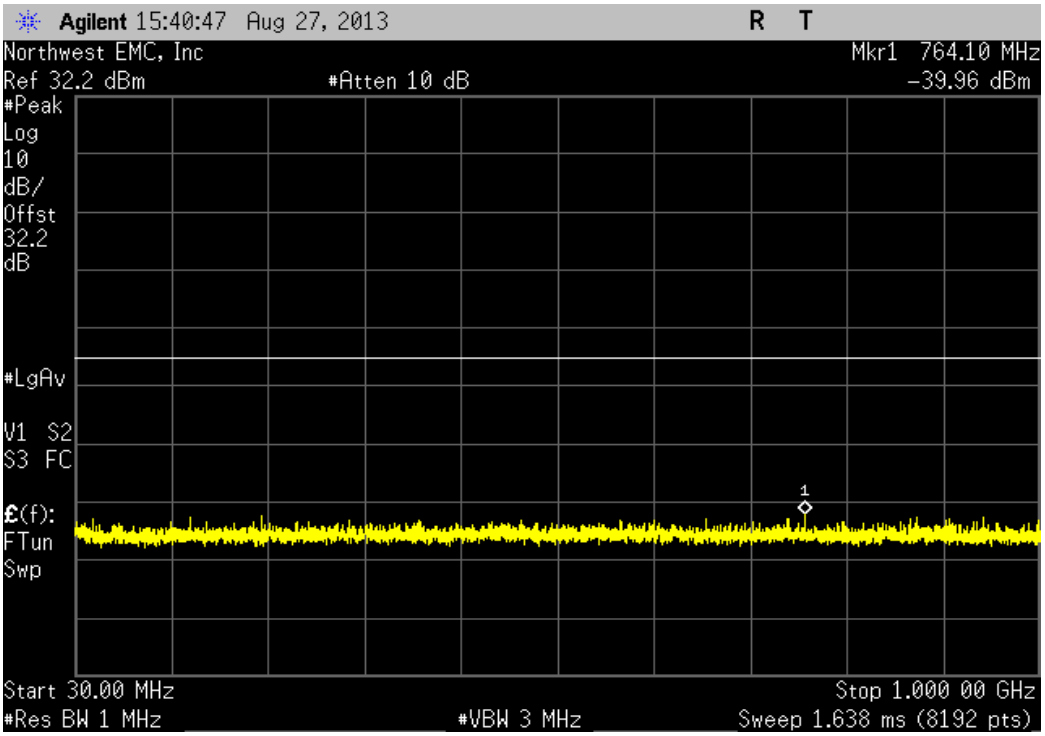
LTE 10 MHz

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-28.91 dBm	≤ -13 dBm	Pass



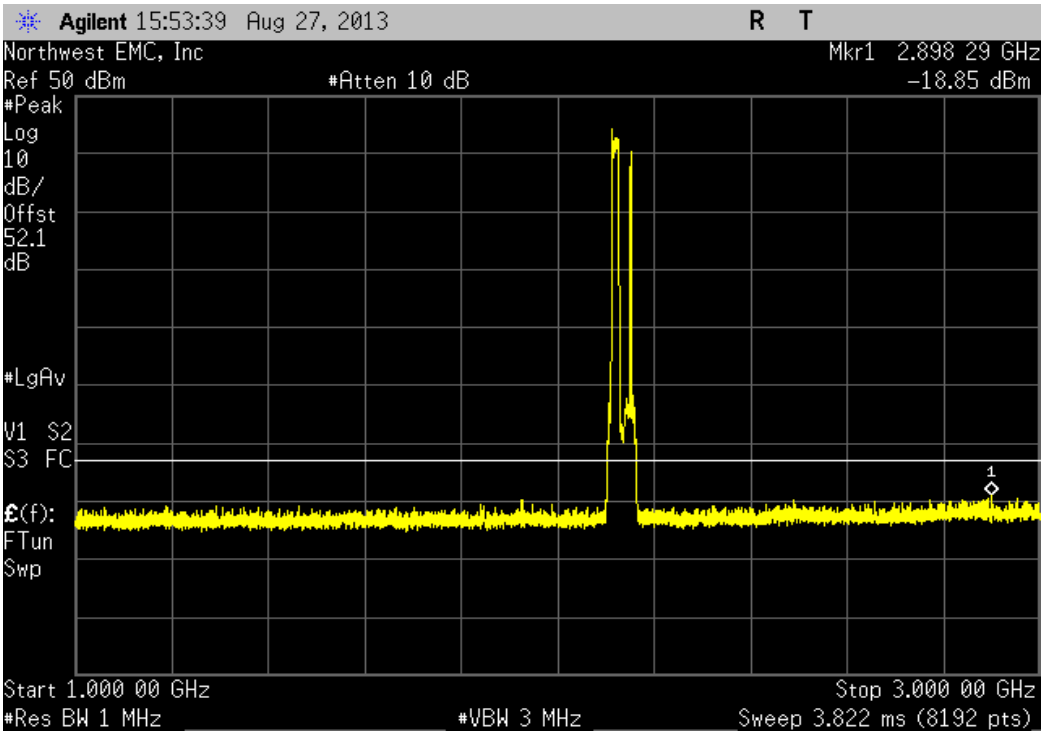
LTE 15 MHz

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-39.96 dBm	≤ -13 dBm	Pass



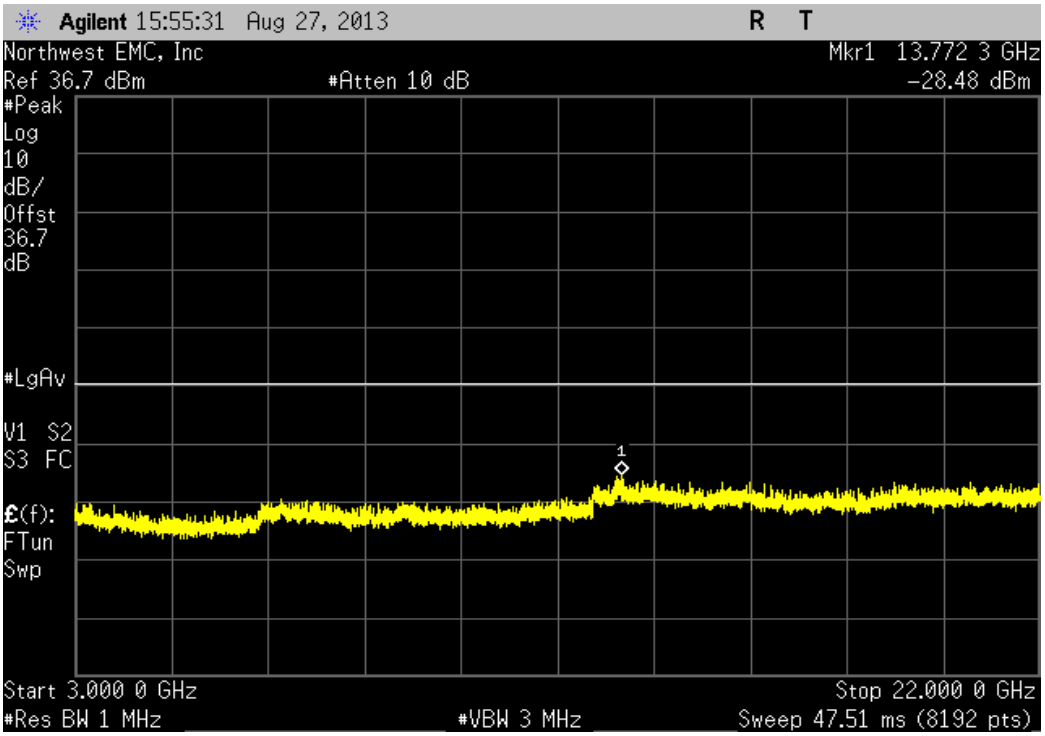
LTE 15 MHz

Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-18.85 dBm	≤ -13 dBm	Pass



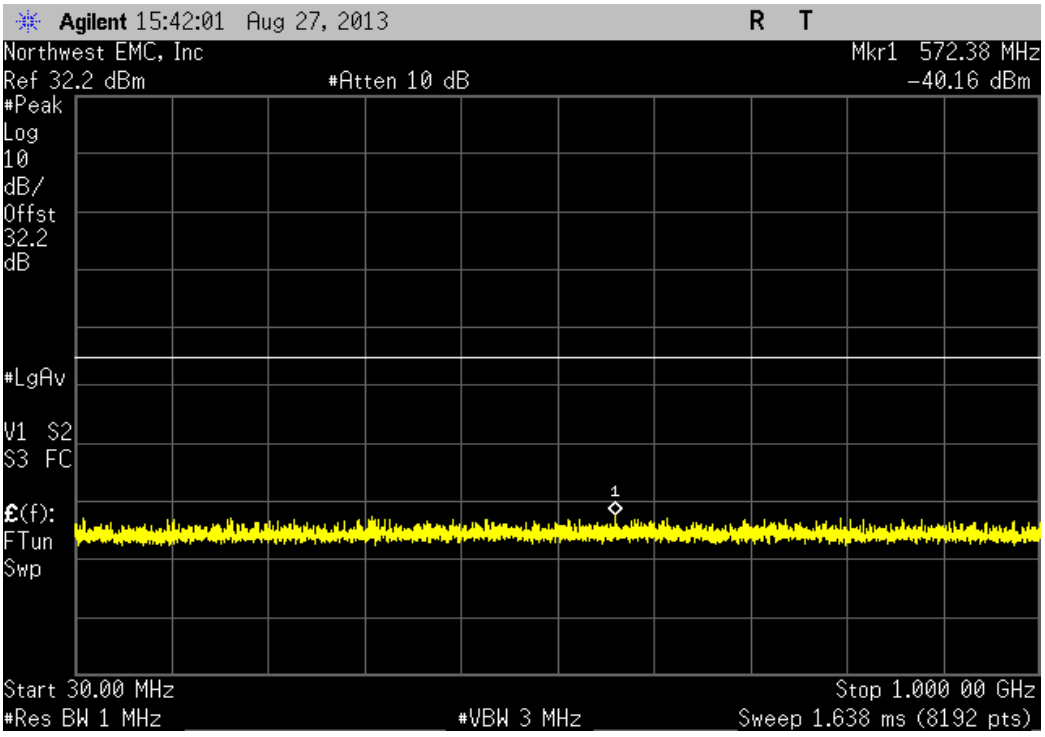
LTE 15 MHz

Frequency Range			Value	Limit	Result
3 GHz - 22 GHz			-28.48 dBm	≤ -13 dBm	Pass



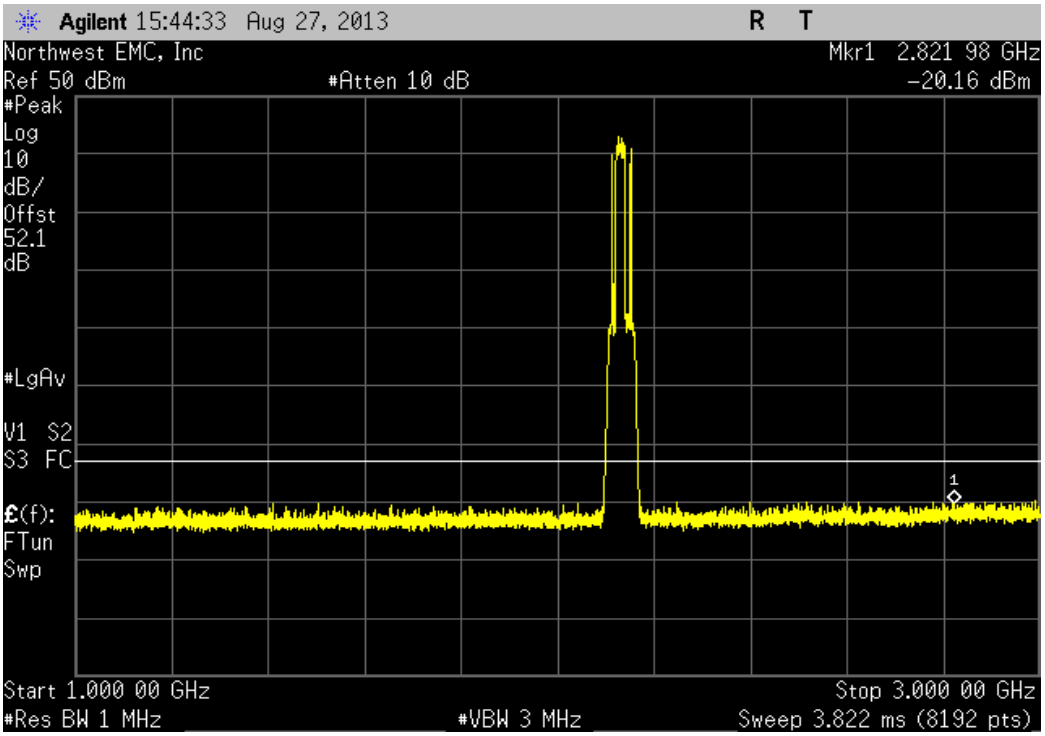
LTE 20 MHz

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-40.16 dBm	≤ -13 dBm	Pass



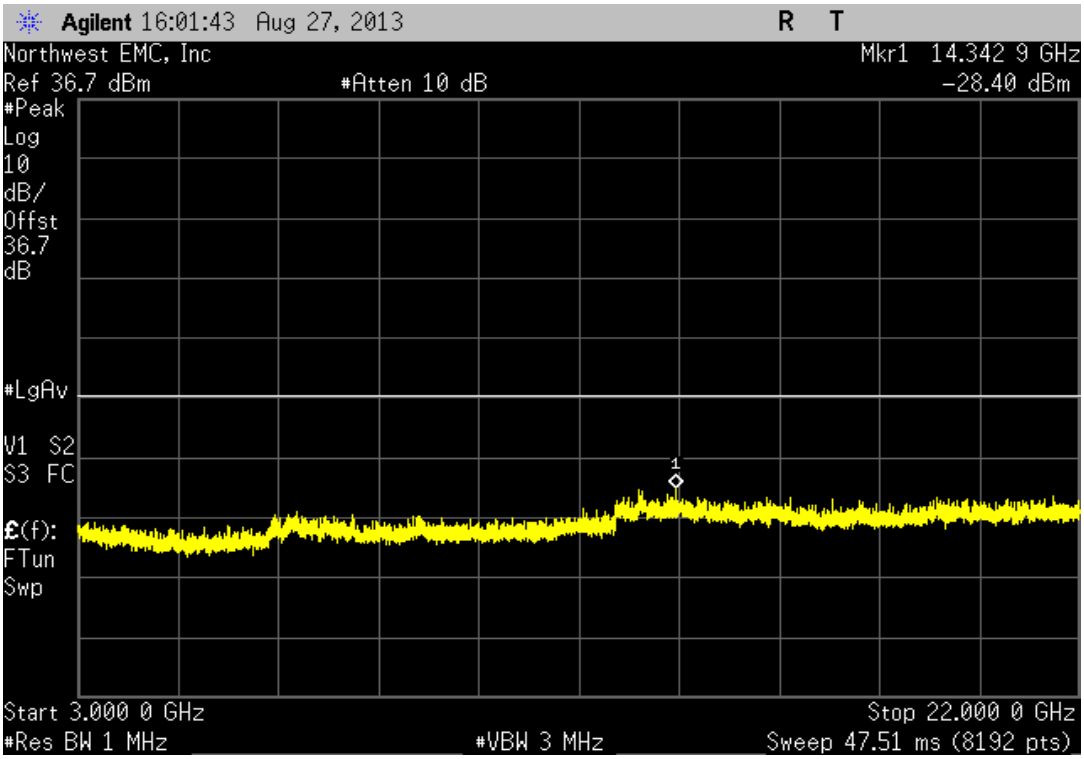
LTE 20 MHz

Frequency Range			Value	Limit	Result
1 GHz - 3 GHz			-20.16 dBm	≤ -13 dBm	Pass



Intermodulation

LTE 20 MHz						
	Frequency Range			Value	Limit	Result
	3 GHz - 22 GHz			-28.4 dBm	≤ -13 dBm	Pass



Frequency Stability

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Variable Transformer	Powerstat	246	XFR	NCR	0
Multimeter	Fluke	114	MMU	7/8/2011	36
Humidity Temperature Meter	Omega Engineering, Inc.	HH31	DUB	10/25/2011	36
Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZPH-32-3.5-SCT/AC	TBF	NCR	0
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/12/2013	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	10/5/2012	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	24

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. Testing was done with an absence of modulation in a CW mode of operation.

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

Per the requirements of FCC 27.54:

“The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.”

No specific limits are provided in either FCC 27.54, 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 1.5ppm will still allow the radio to be operating within the band.

RSS-131:2003 requires the EUT to meet a frequency stability limit of 1.5 ppm.

Frequency Stability

EUT:	Prism HDM 40W AWS SISO RF Module			**Work Order:**	TECO0003
Serial Number:	None			**Date:**	08/28/13
Customer:	TE Connectivity / ADC Telecommunications			**Temperature:**	24.1°C
Attendees:	None			**Humidity:**	55%
Project:	None			**Barometric Pres.:**	1014.7
Tested by:	Trevor Buls	**Power:**	110VAC/60Hz	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 27:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS

Customer provided a high wattage 30 dB attenuator. Voltage range vaired from 93.5 to 126.5 VAC.

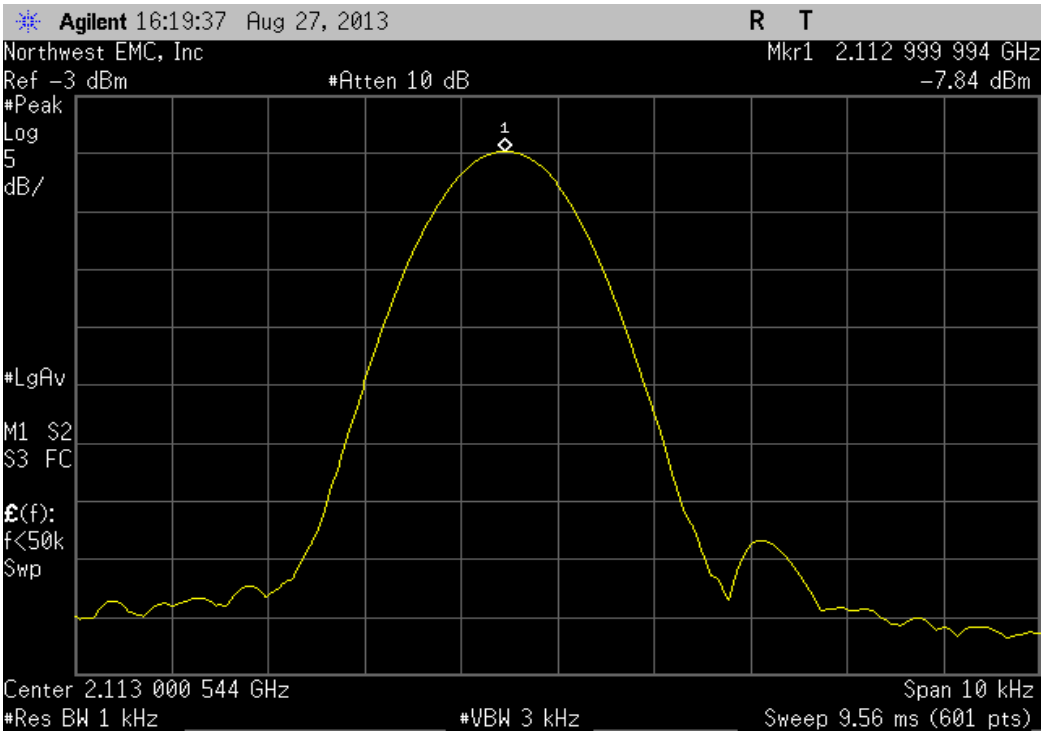
DEVIATIONS FROM TEST STANDARD

None

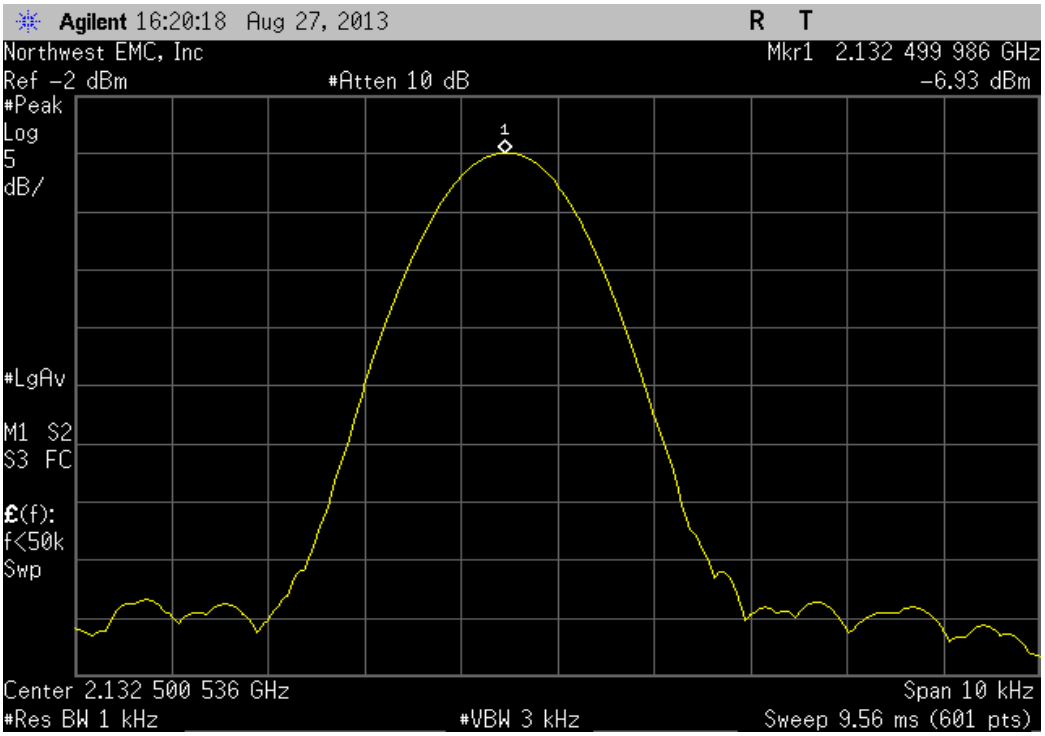
Configuration #	1	*Signature* Trevor Buls

		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
Voltage: 115%						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Voltage: 100%						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Voltage: 85%						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2151.999985	2152	0.0070	1.5	Pass
Temperature: +50°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2152.000002	2152	0.0009	1.5	Pass
Temperature: +40°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: +30°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: +20°						
	Low Channel, 2113 MHz	2113.00001	2113	0.0047	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: +10°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: 0°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: -10°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2152.000001	2152	0.0005	1.5	Pass
Temperature: -20°						
	Low Channel, 2113 MHz	2112.999994	2113	0.0028	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.500002	2132.5	0.0009	1.5	Pass
	High Channel, 2152 MHz	2152.000002	2152	0.0009	1.5	Pass
Temperature: -30°						
	Low Channel, 2113 MHz	2113.000005	2113	0.0024	1.5	Pass
	Mid Channel, 2132.5 MHz	2132.499986	2132.5	0.0066	1.5	Pass
	High Channel, 2152 MHz	2151.999985	2152	0.0070	1.5	Pass

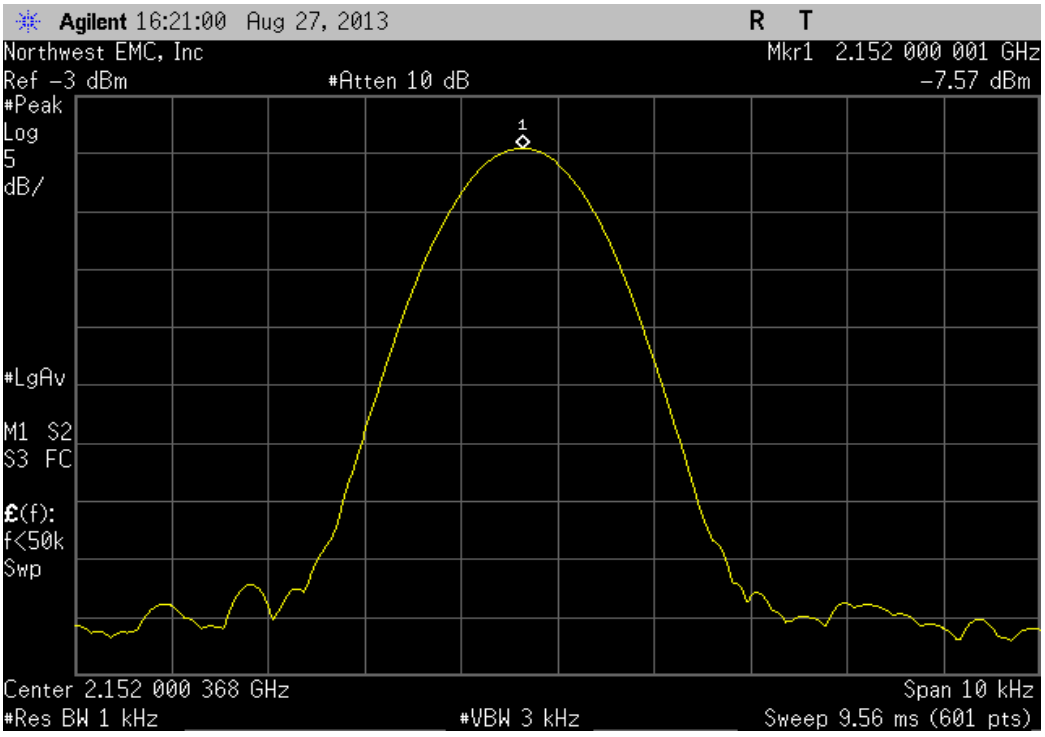
Voltage: 115%, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass



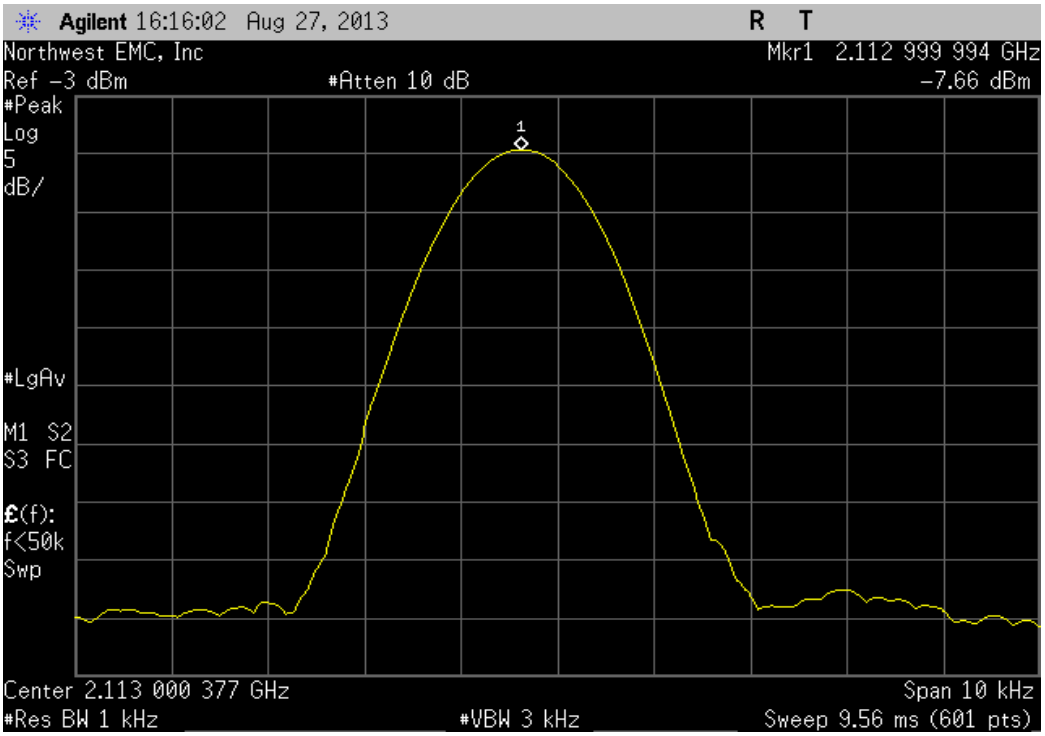
Voltage: 115%, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass



Voltage: 115%, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

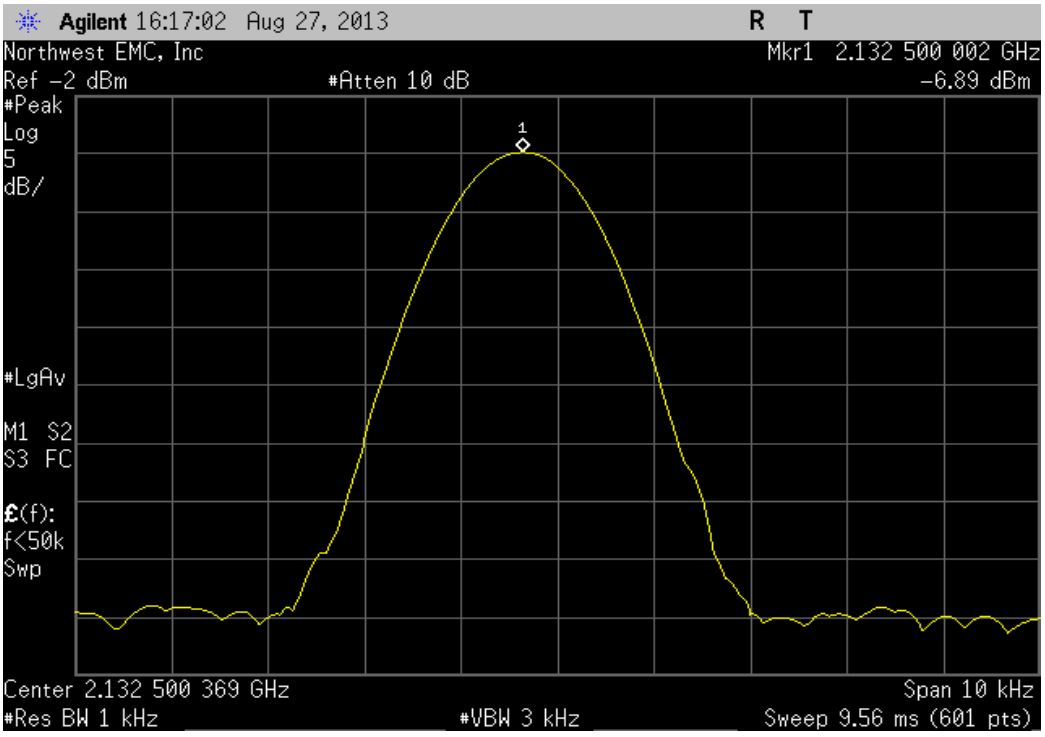


Voltage: 100%, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

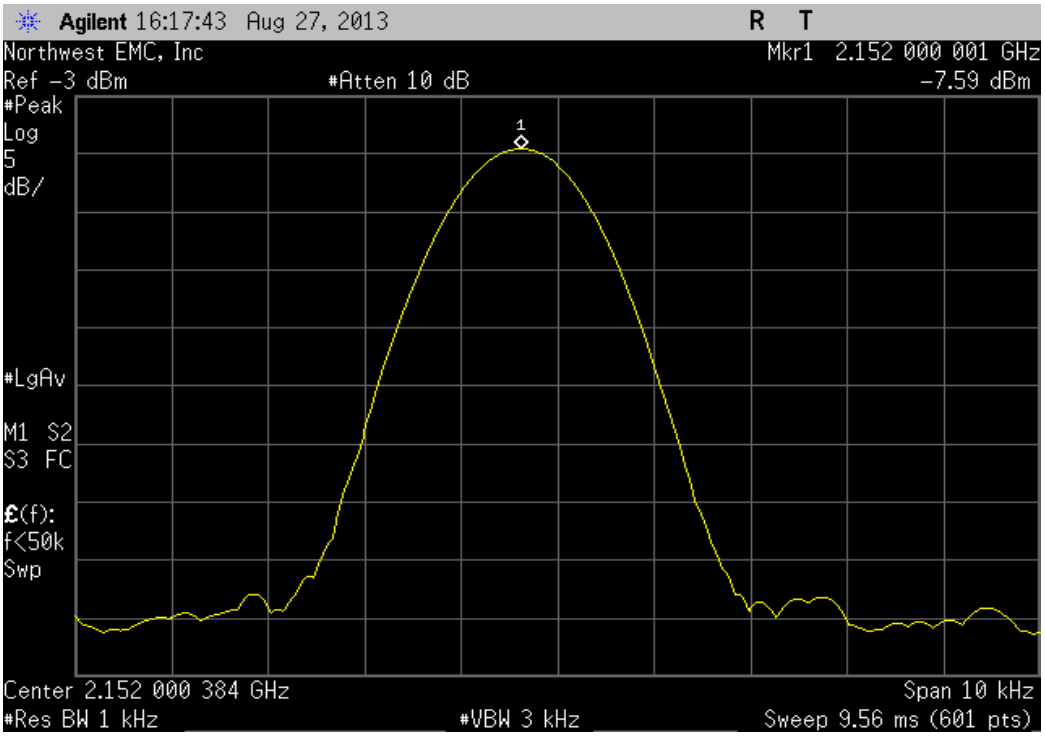


Frequency Stability

Voltage: 100%, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

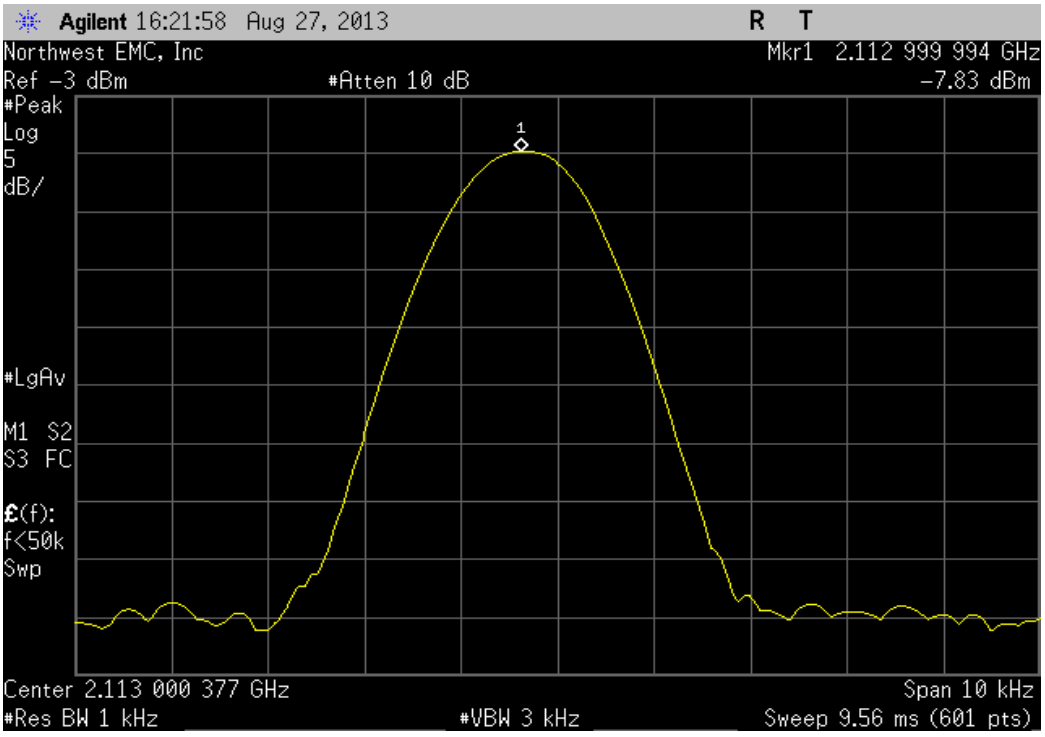


Voltage: 100%, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

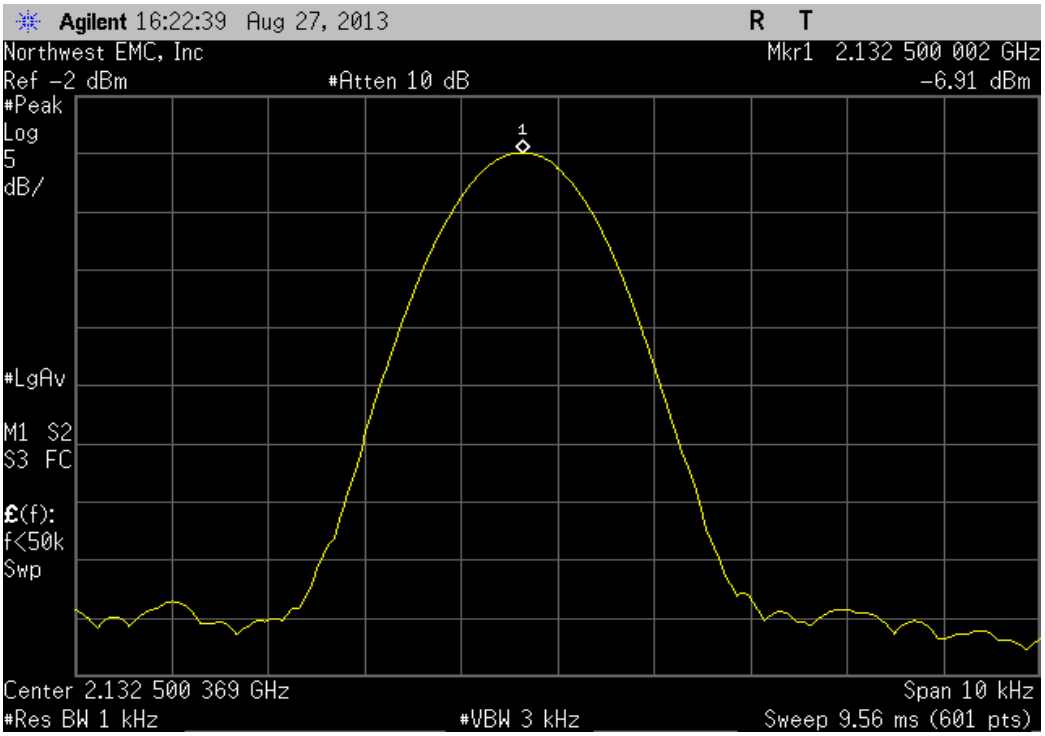


Frequency Stability

Voltage: 85%, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

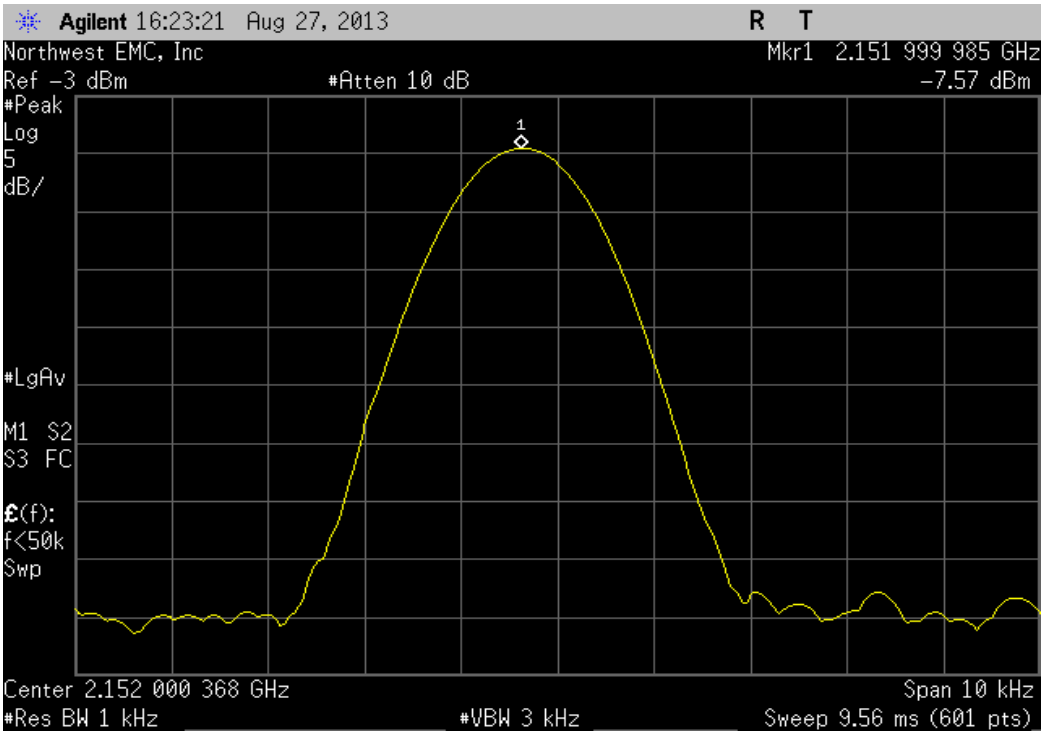


Voltage: 85%, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

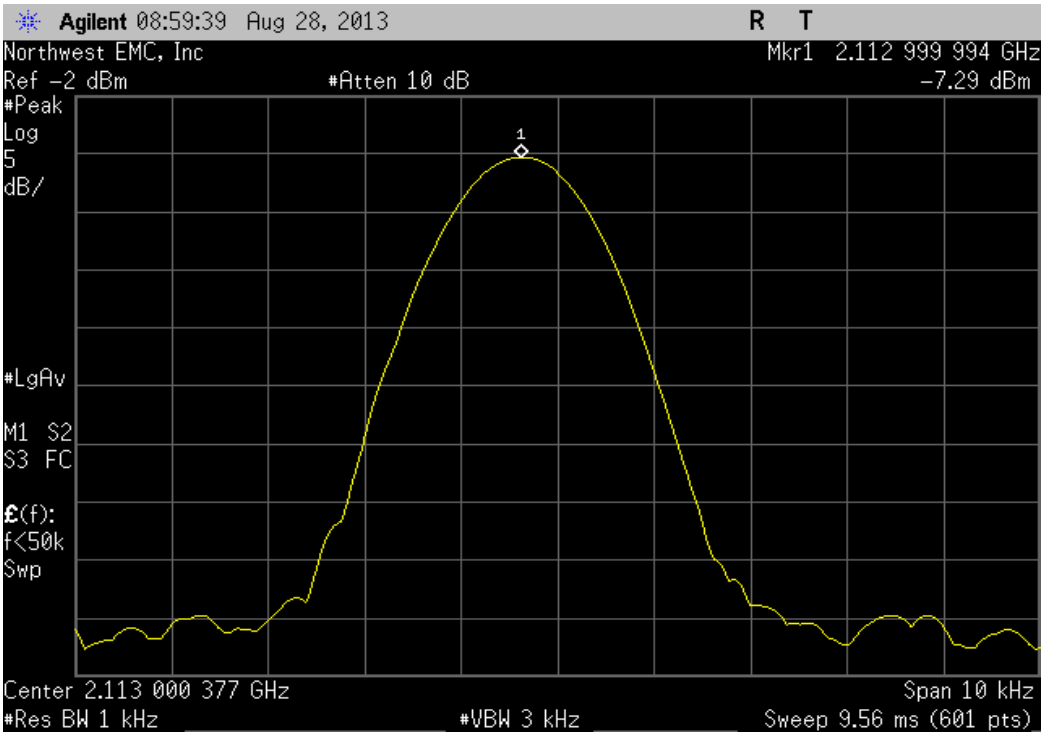


Frequency Stability

Voltage: 85%, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2151.999985	2152	0.0070	1.5	Pass

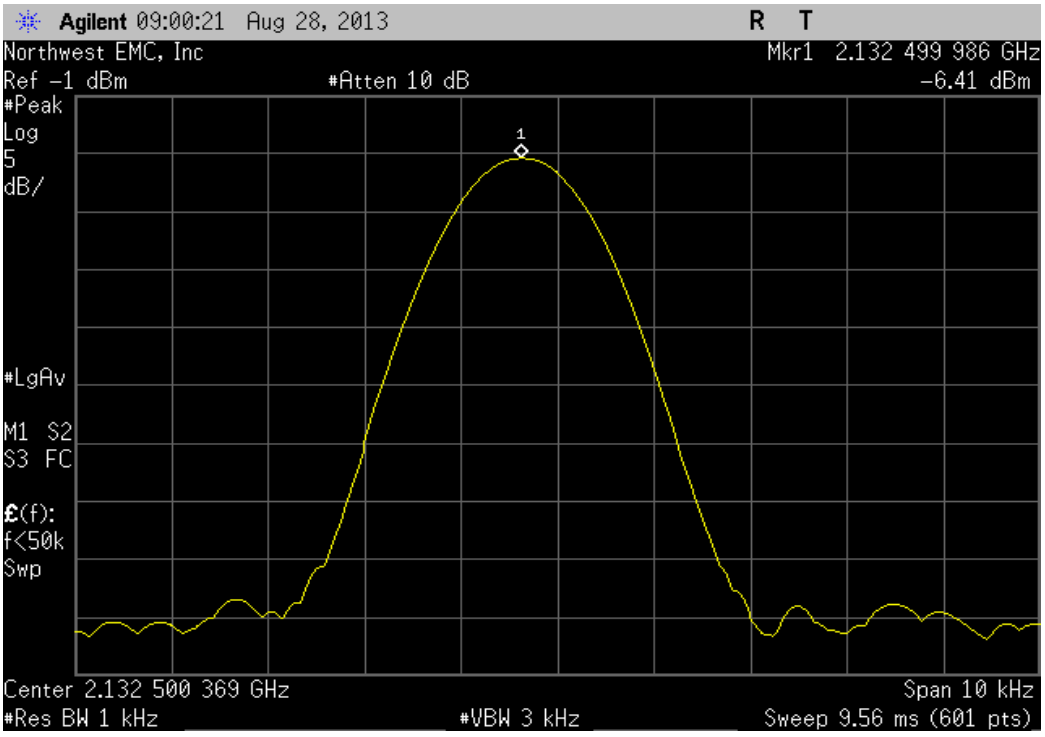


Temperature: +50°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

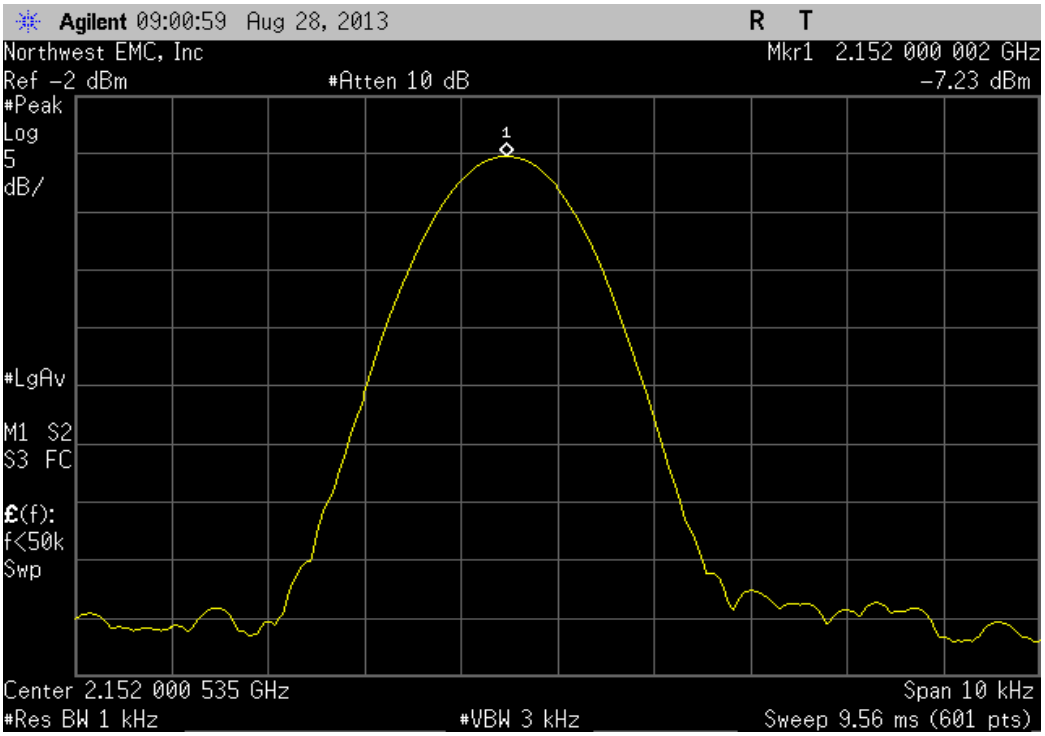


Frequency Stability

Temperature: +50°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass

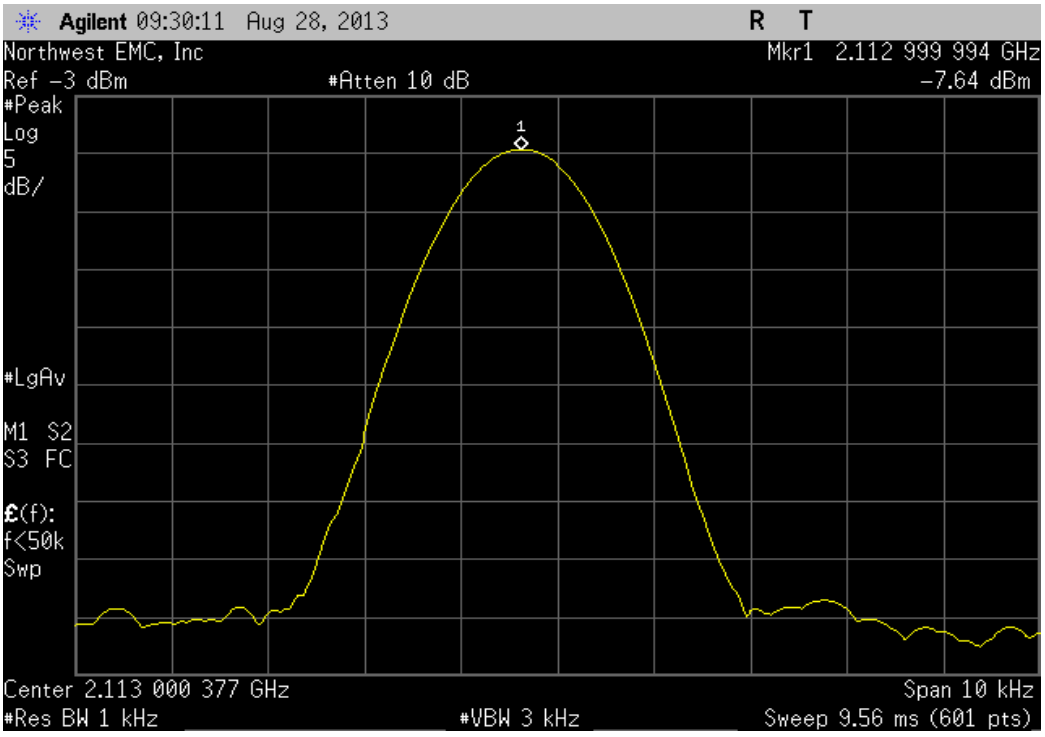


Temperature: +50°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000002	2152	0.0009	1.5	Pass

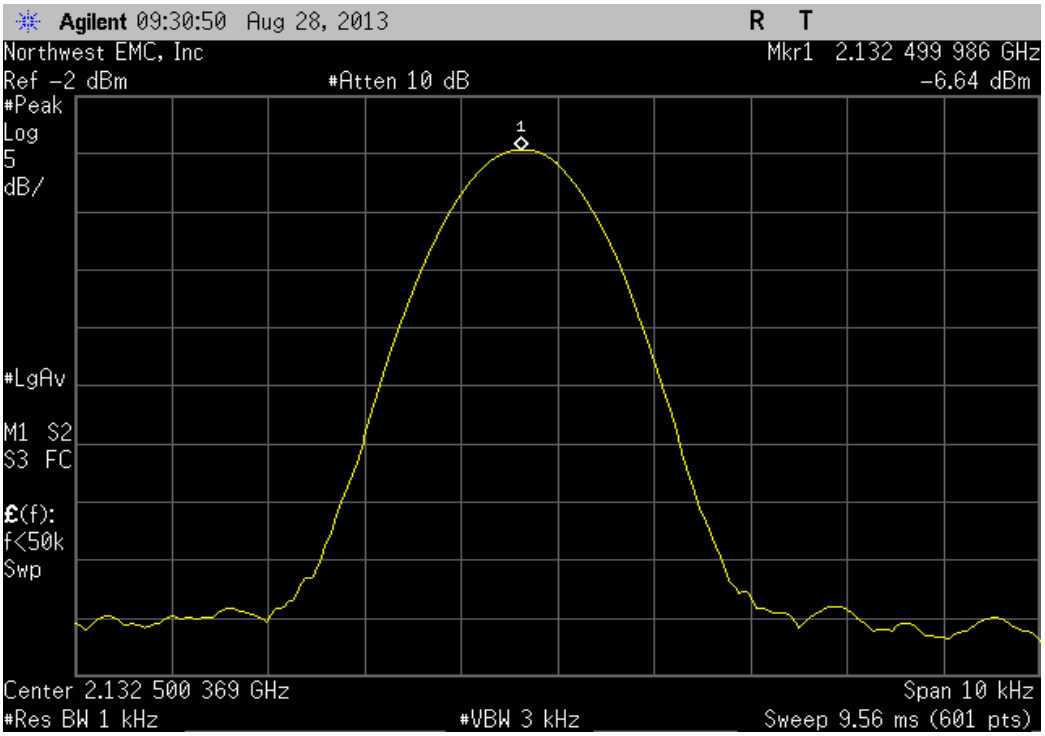


Frequency Stability

Temperature: +40°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

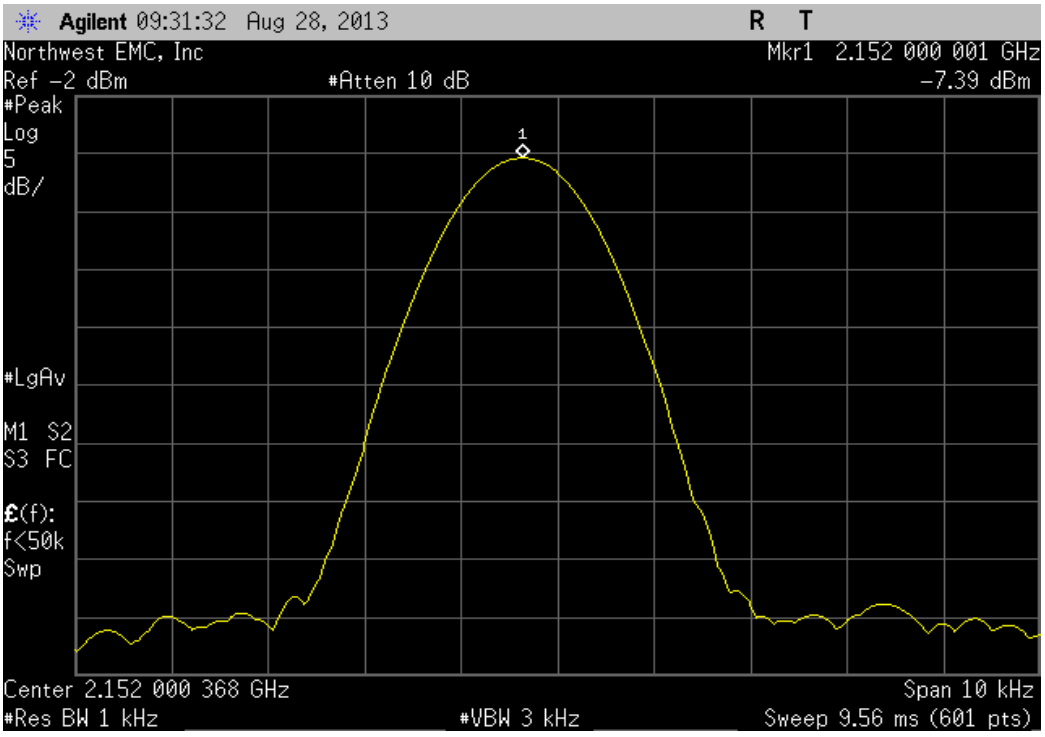


Temperature: +40°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass

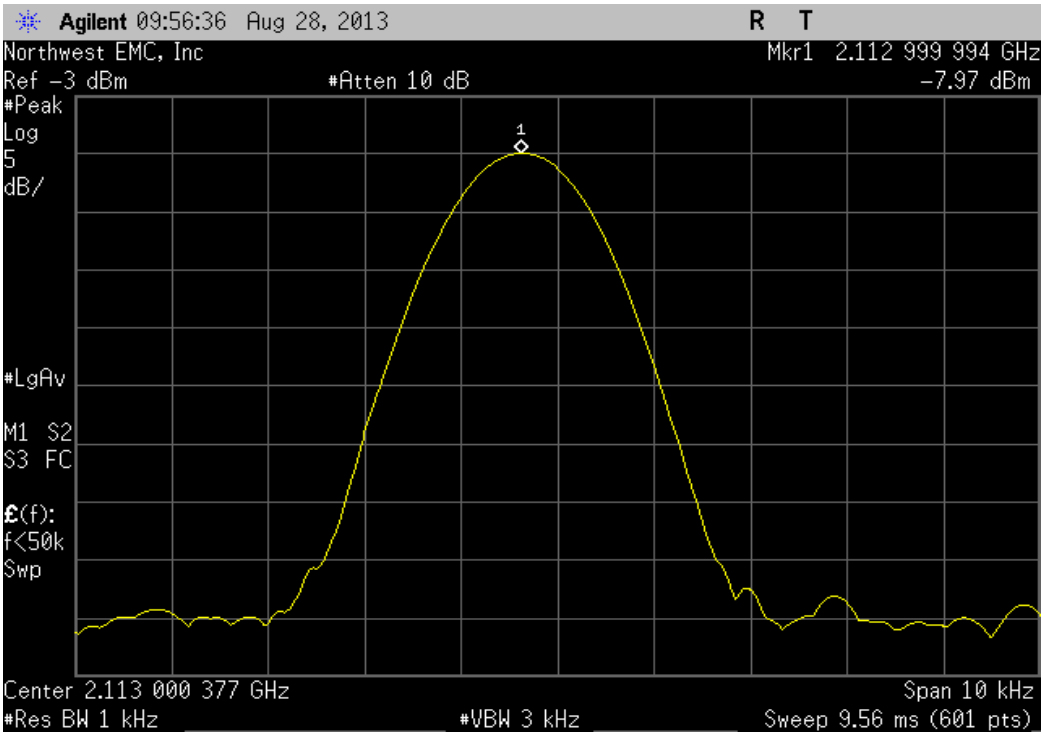


Frequency Stability

Temperature: +40°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

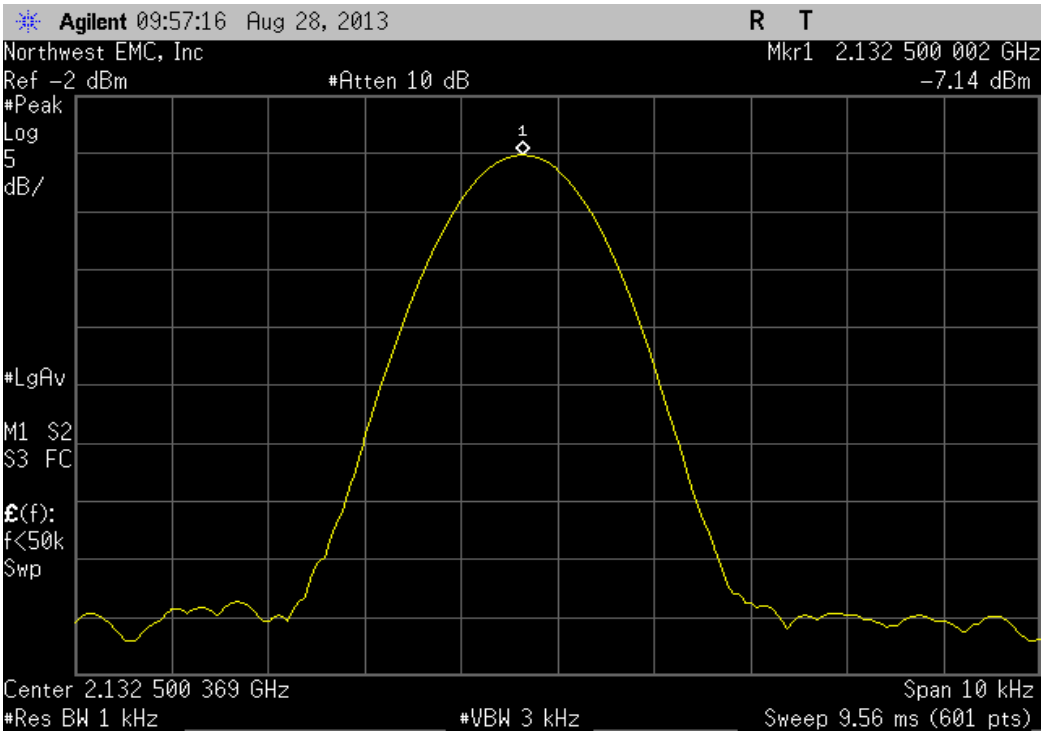


Temperature: +30°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

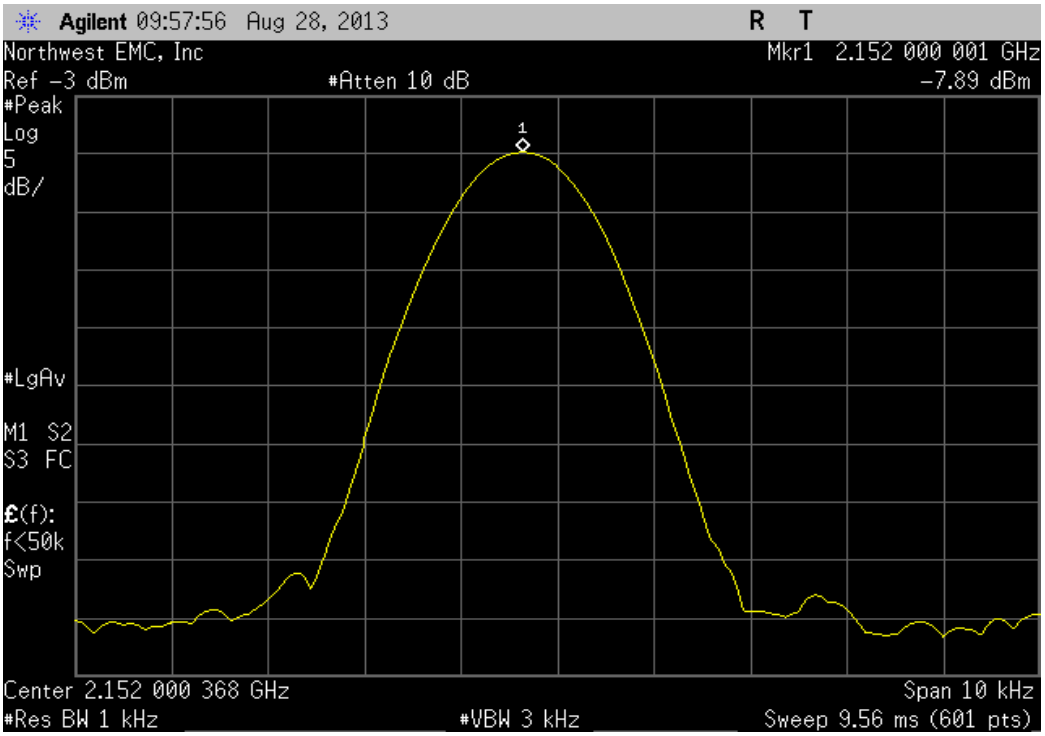


Frequency Stability

Temperature: +30°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

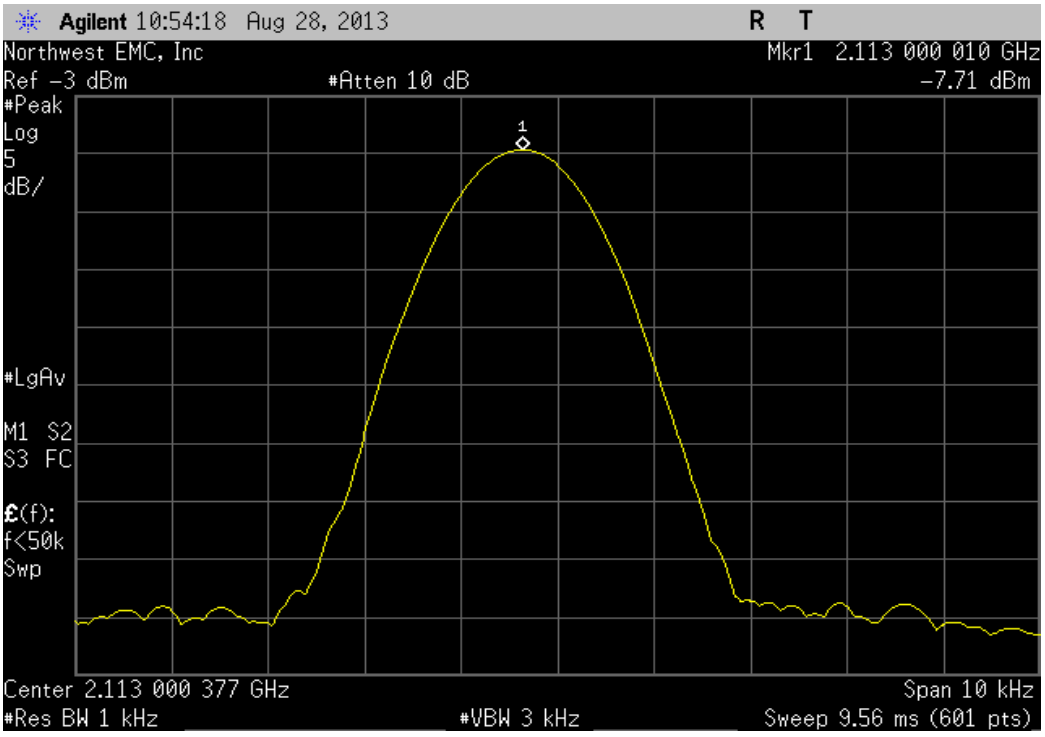


Temperature: +30°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

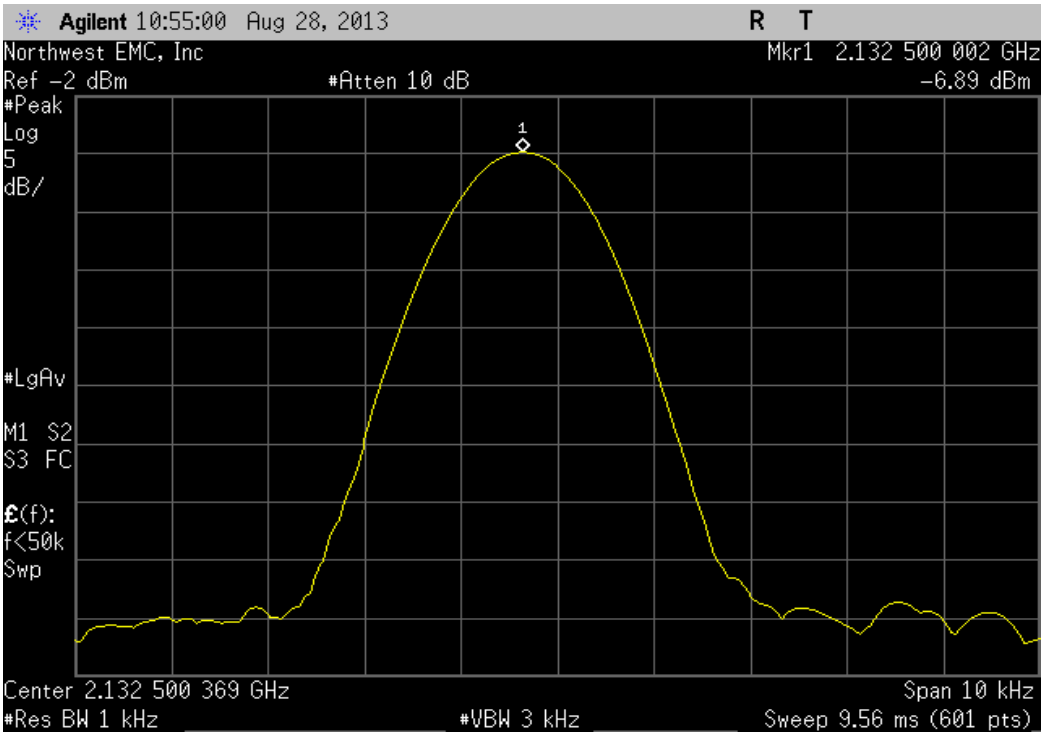


Frequency Stability

Temperature: +20°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2113.00001	2113	0.0047	1.5	Pass

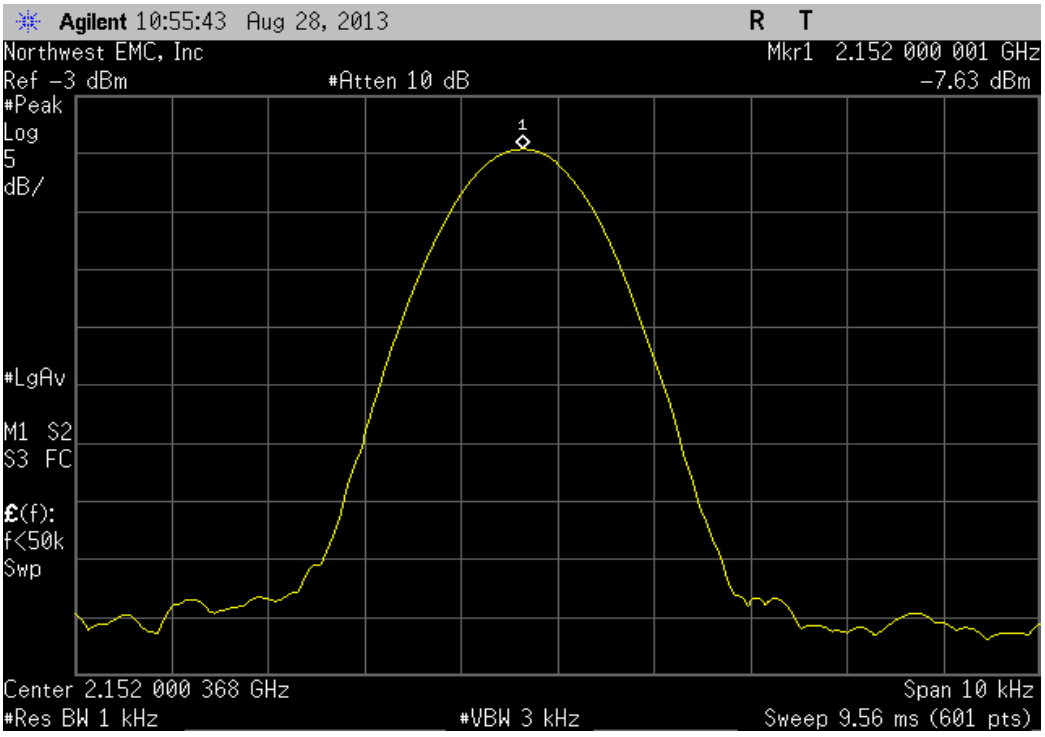


Temperature: +20°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

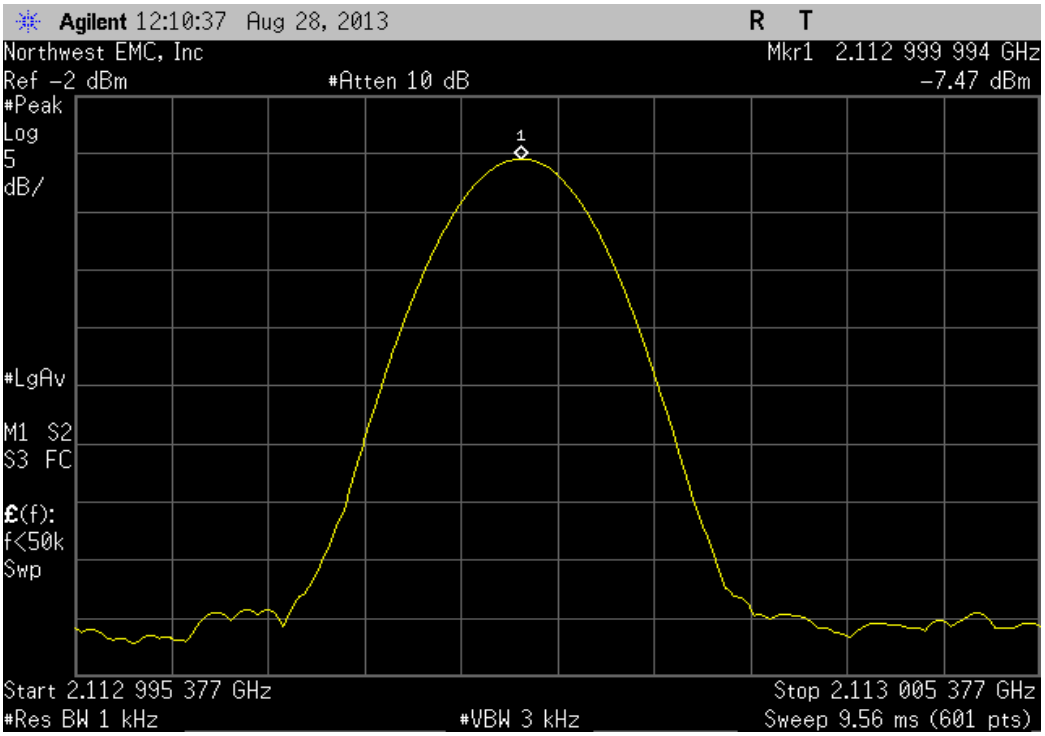


Frequency Stability

Temperature: +20°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

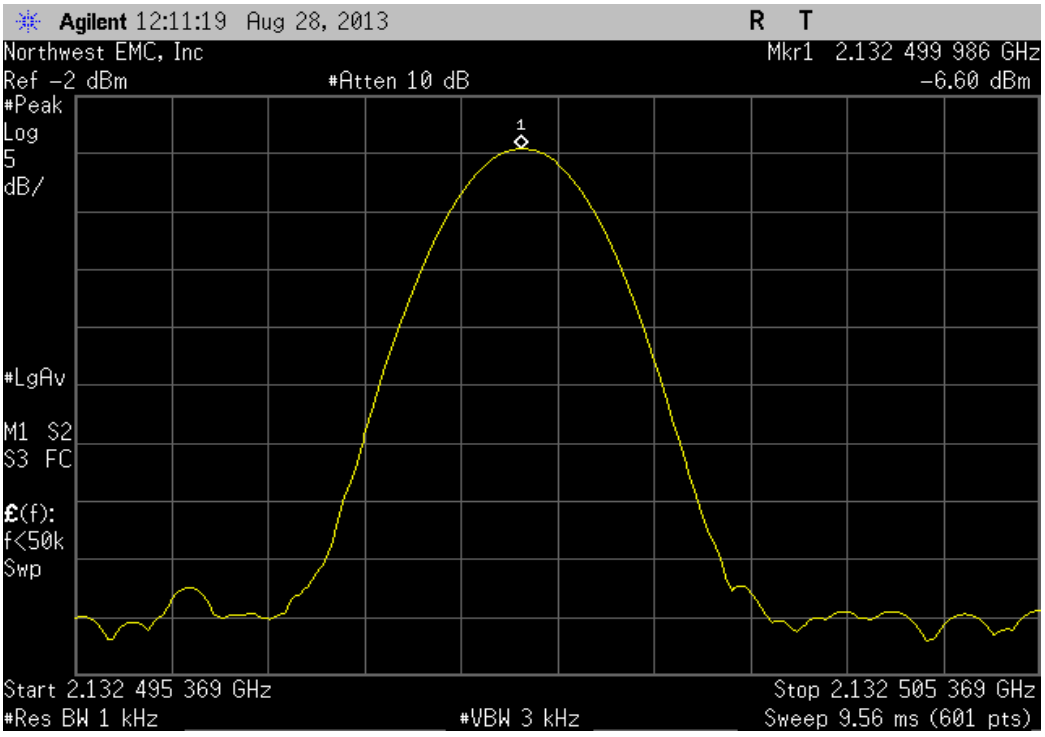


Temperature: +10°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

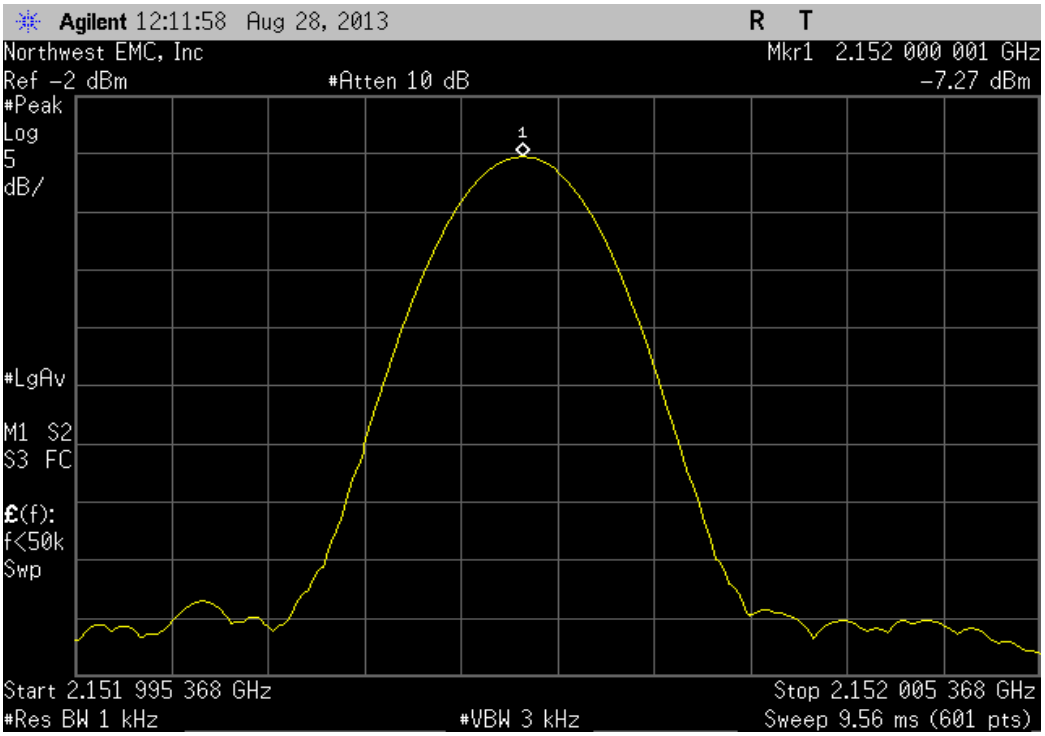


Frequency Stability

Temperature: +10°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass

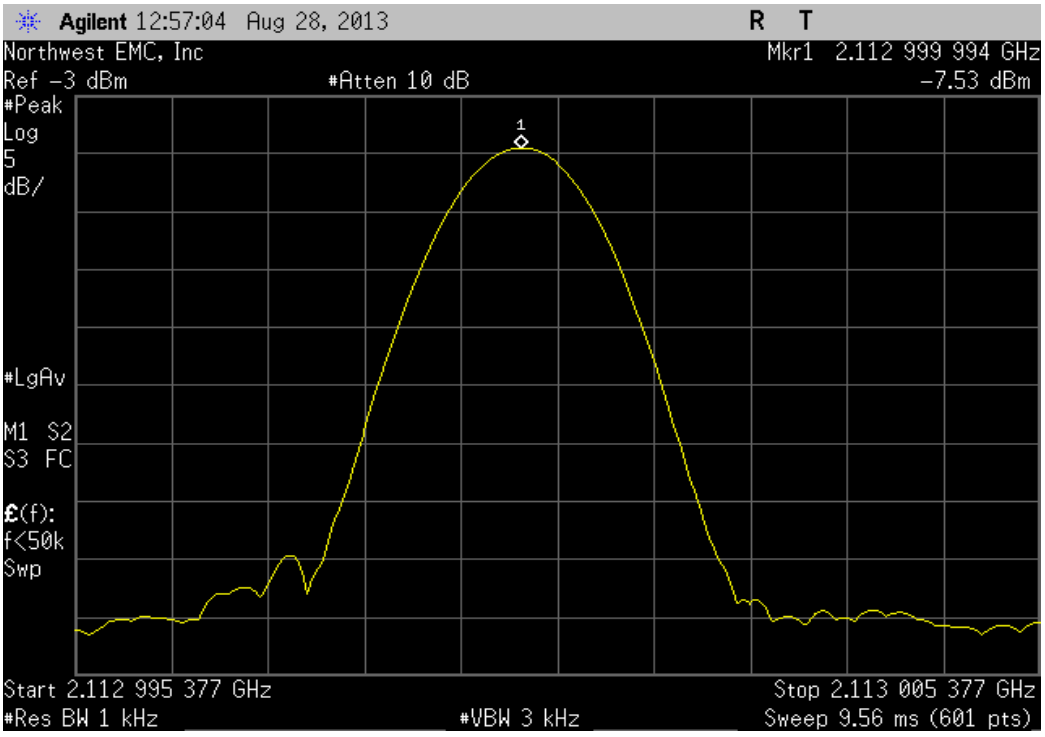


Temperature: +10°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

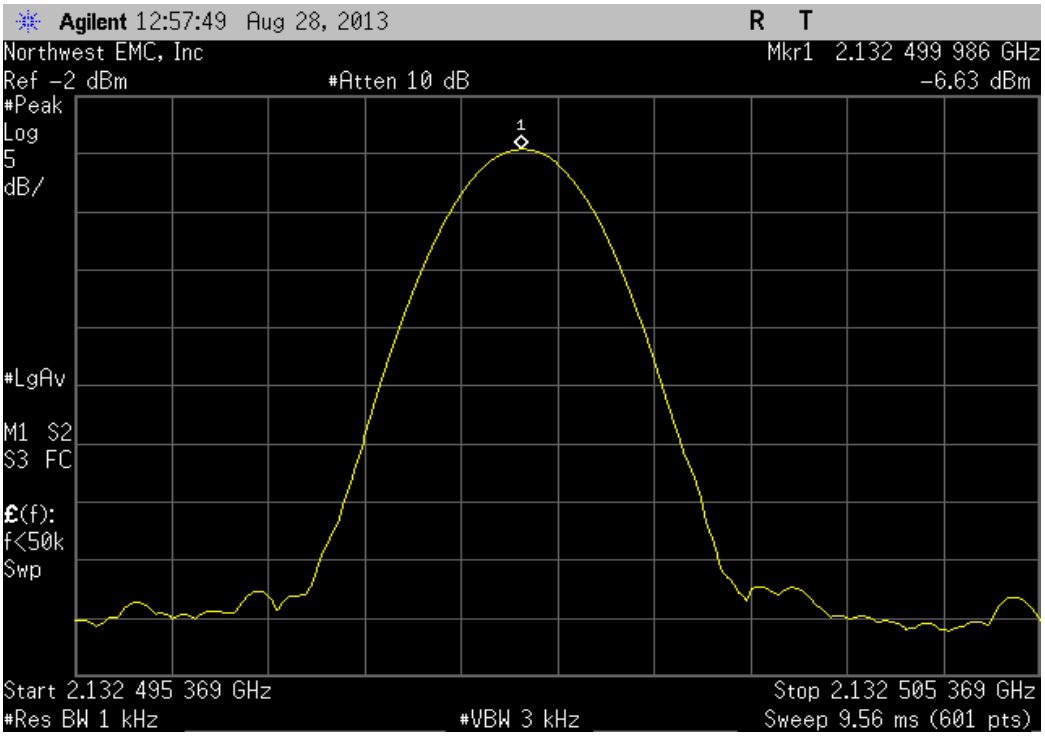


Frequency Stability

Temperature: 0°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

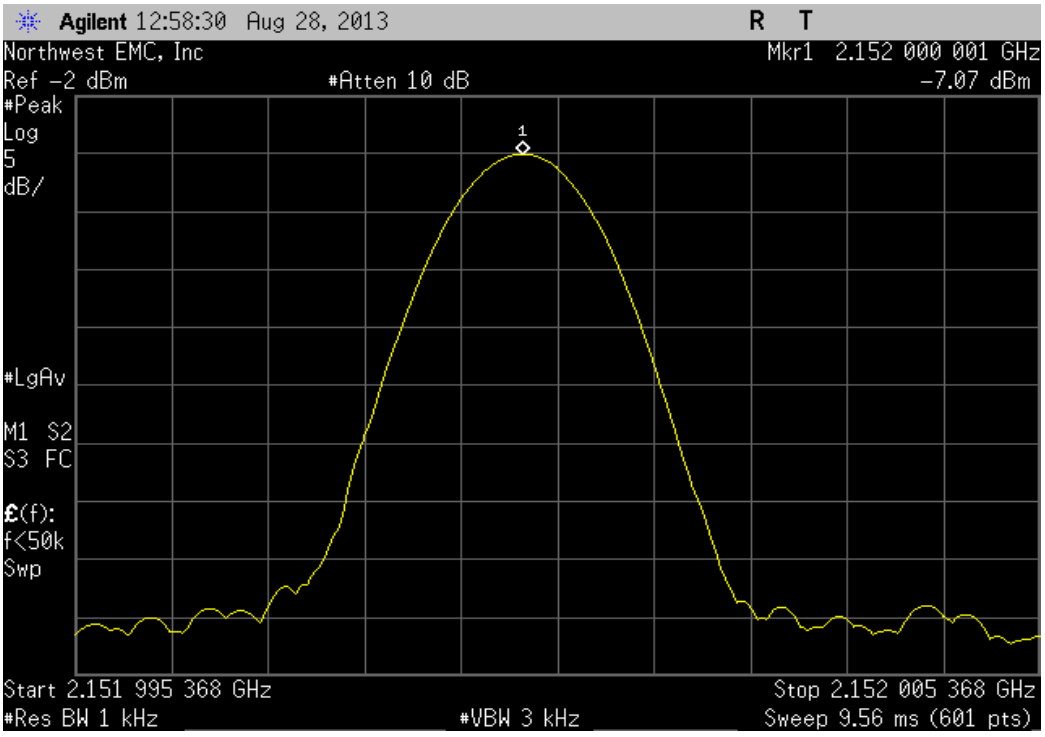


Temperature: 0°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass

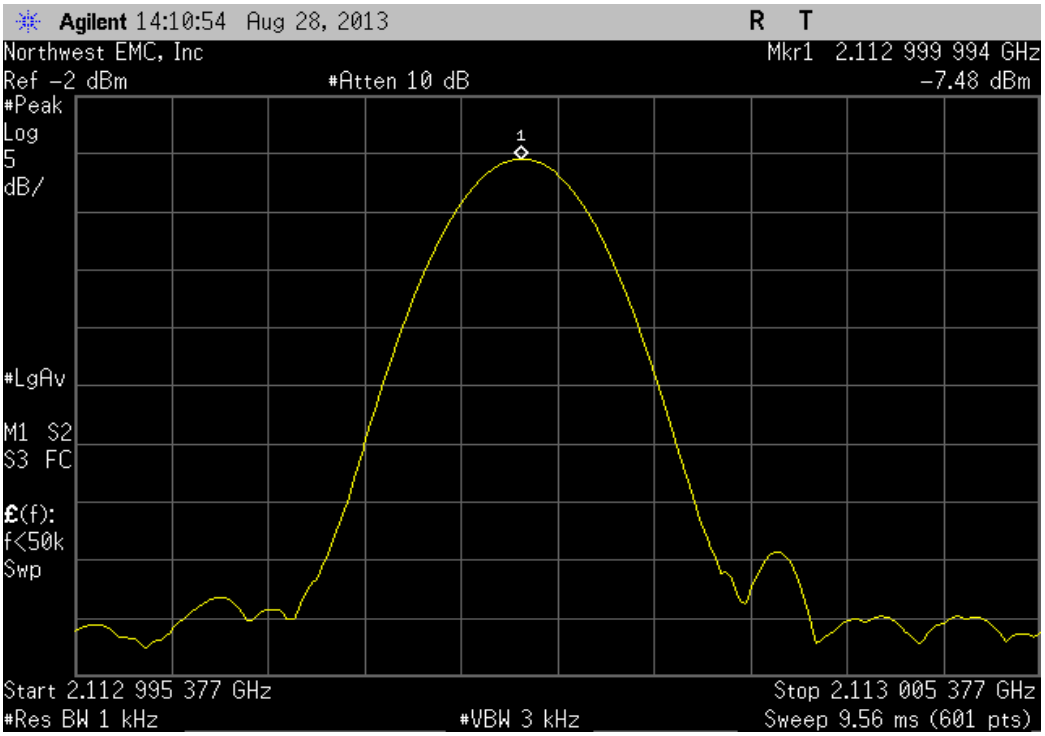


Frequency Stability

Temperature: 0°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

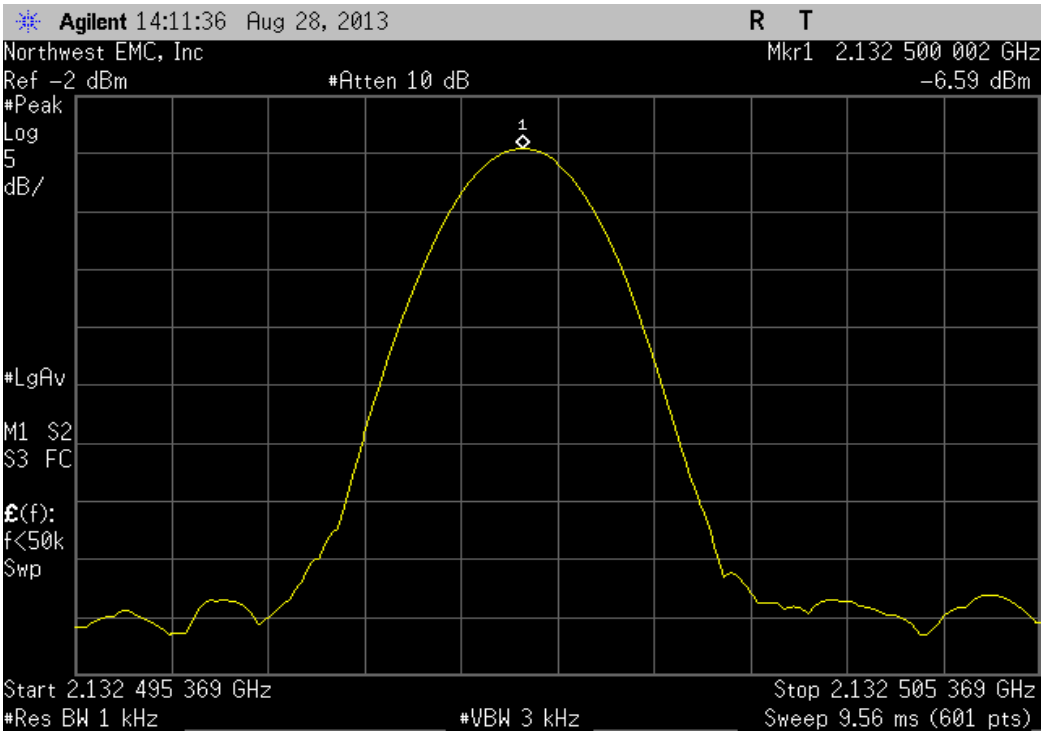


Temperature: -10°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

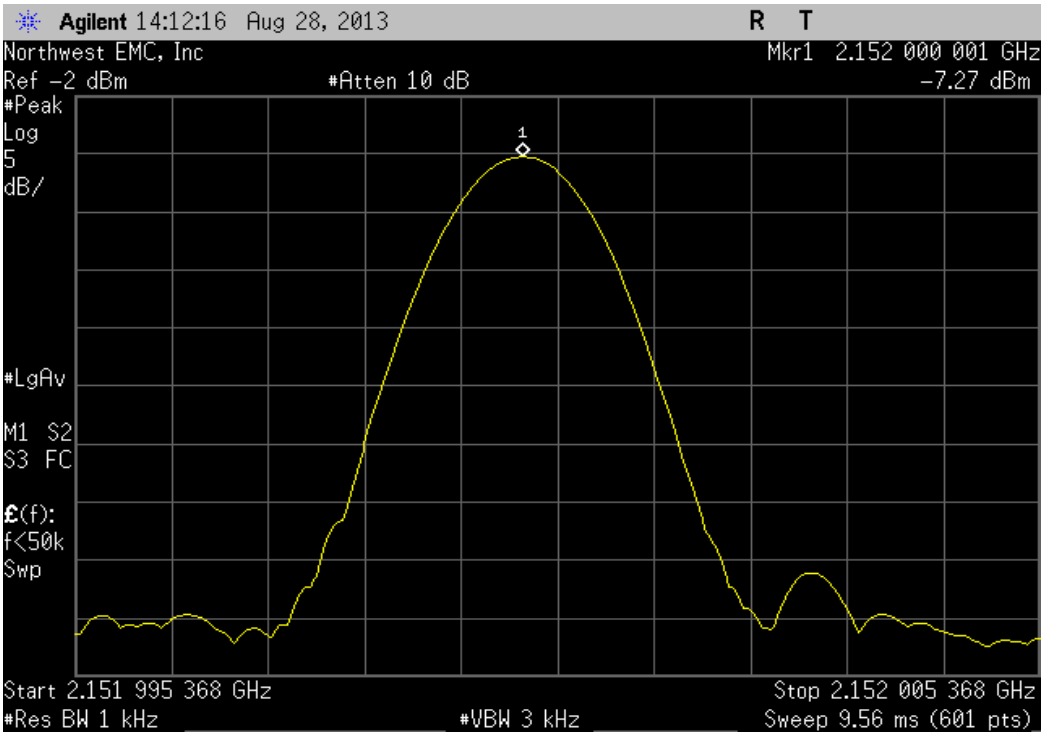


Frequency Stability

Temperature: -10°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

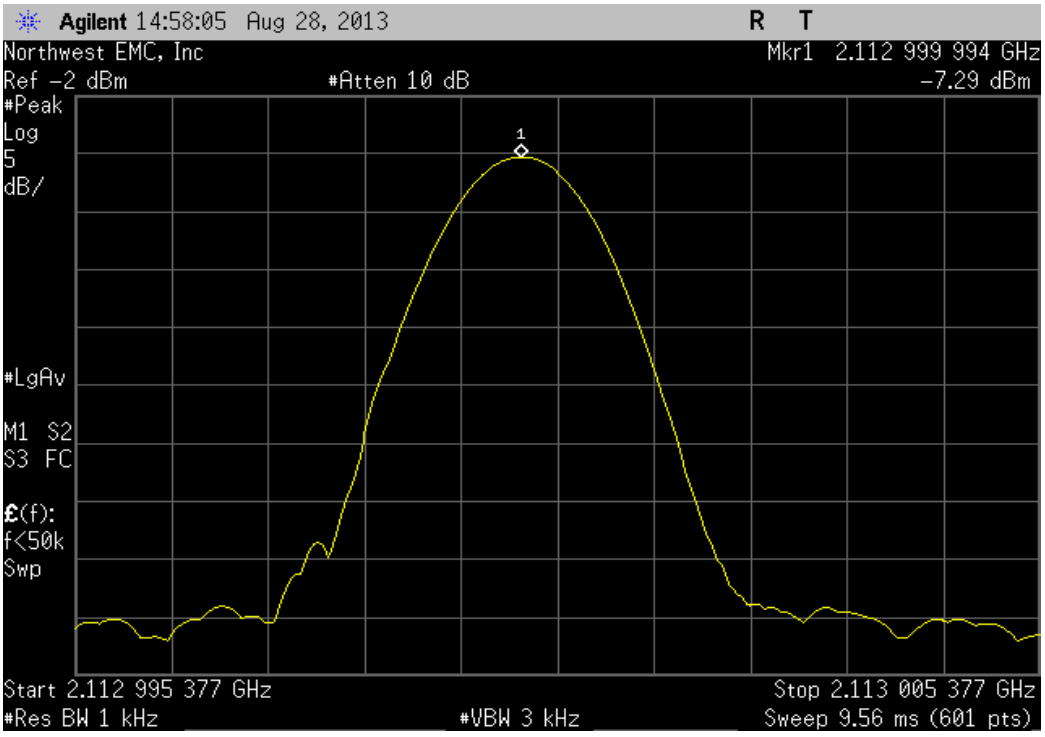


Temperature: -10°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000001	2152	0.0005	1.5	Pass

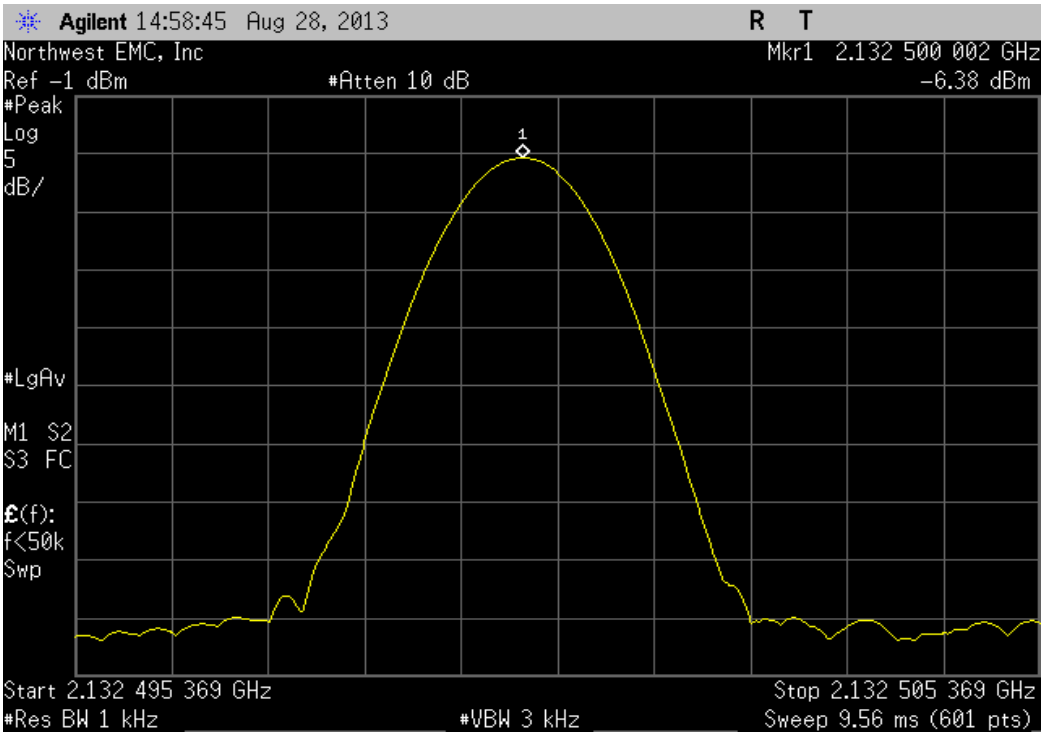


Frequency Stability

Temperature: -20°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2112.999994	2113	0.0028	1.5	Pass

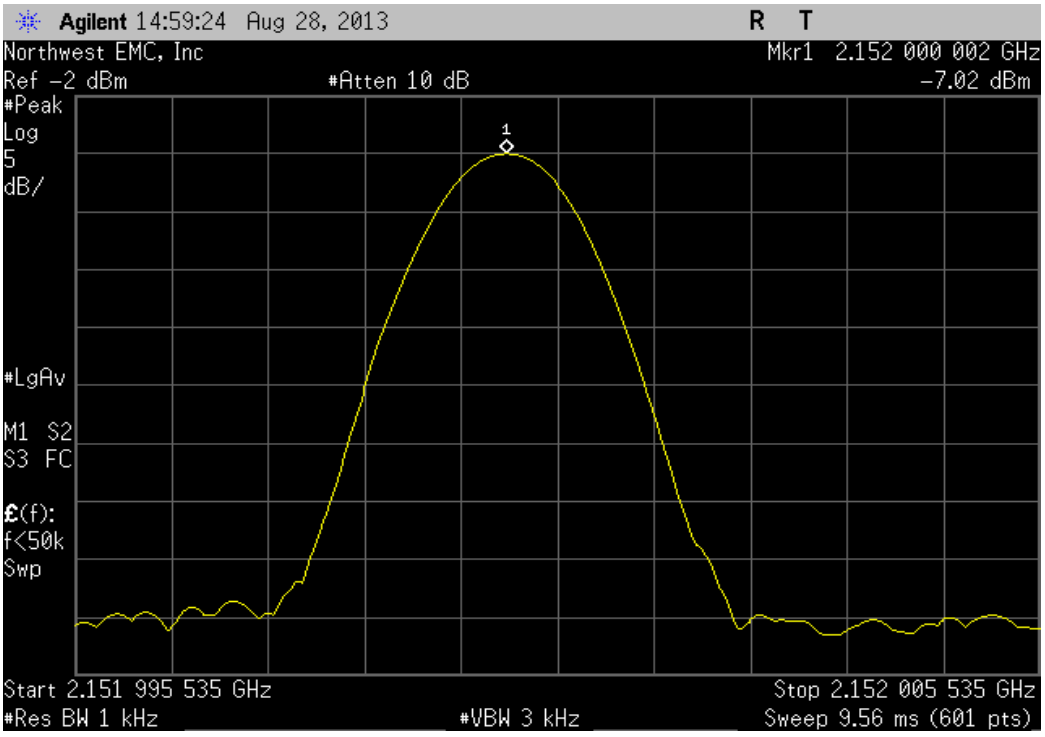


Temperature: -20°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.500002	2132.5	0.0009	1.5	Pass

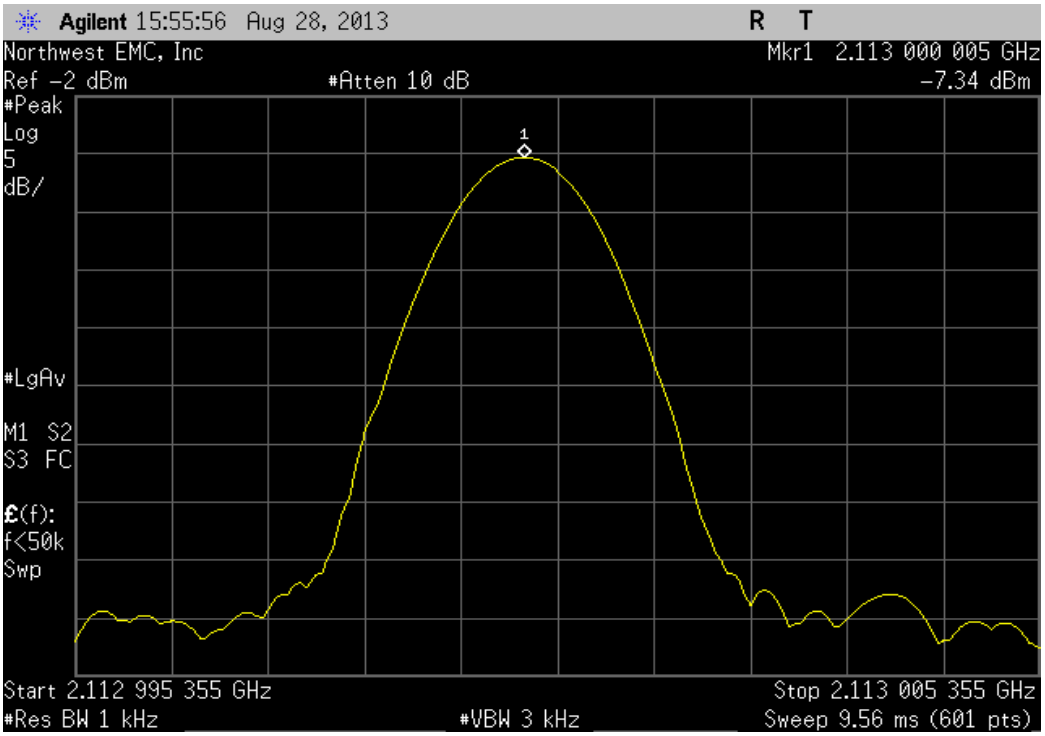


Frequency Stability

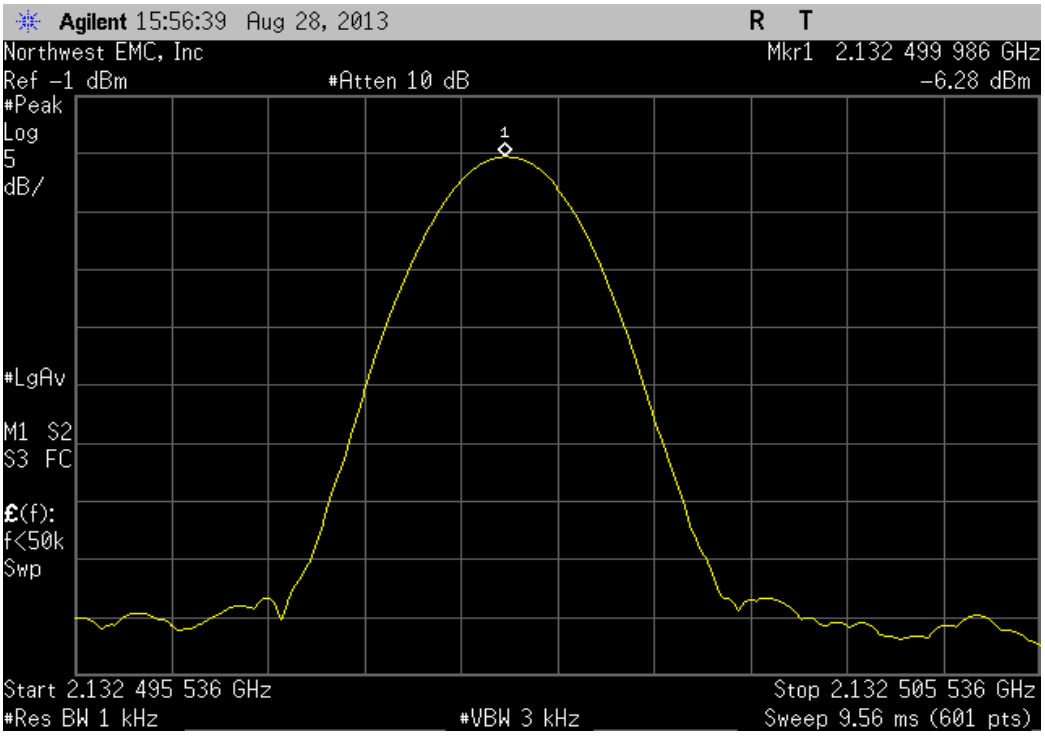
Temperature: -20°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2152.000002	2152	0.0009	1.5	Pass



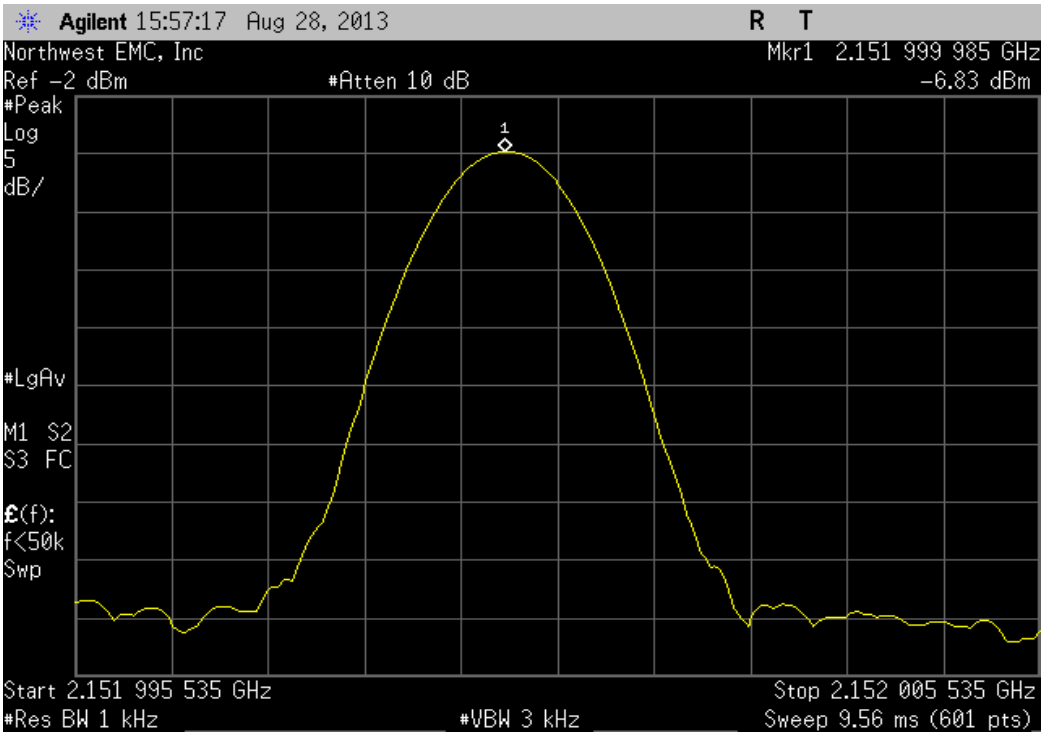
Temperature: -30°, Low Channel, 2113 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2113.000005	2113	0.0024	1.5	Pass



Temperature: -30°, Mid Channel, 2132.5 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2132.499986	2132.5	0.0066	1.5	Pass



Temperature: -30°, High Channel, 2152 MHz						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		2151.999985	2152	0.0070	1.5	Pass



Field Strength of Spurious Emissions

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

MODES OF OPERATION

Transmitting WCDMA, Low, Mid, High Channel: 2113, 2132.5, 2152 MHz and LTE 1.4 MHz, LTE 3 MHz, LTE 5 MHz, LTE 10 MHz, LTE 15 MHz, LTE 20 MHz (see comments for center frequency)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

TECO0003 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	22 GHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	ETS	3115	AJA	5/13/2011	36 mo
Power Sensor	Agilent	N8481A	SQN	8/27/2012	24 mo
Power Meter	Agilent	N1913A	SQL	8/27/2012	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	5/20/2013	12 mo
Low Pass Filter	Micro-Tronics	LPM50004	HGK	5/31/2012	24 mo
High Pass Filter	Micro-Tronics	HPM50111	HGQ	6/1/2012	24 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/5/2012	12 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	MNP	10/5/2012	12 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	8/12/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	7/25/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	5/20/2013	12 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	5/20/2013	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn	MNI	8/12/2013	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	36 mo
Pre-Amplifier	Miteq	AM-1616-1000	PAD	5/20/2013	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	5/20/2013	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/17/2012	12 mo
Spectrum Analyzer	Agilent	N9010A	AFI	1/27/2013	24 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

TEST DESCRIPTION

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

For licensed transmitters, the FCC references TIA/EIA-603 as the measurement procedure standard. TIA/EIA-603 Section 2.2.12 describes a method for measuring radiated spurious emissions that utilizes an antenna substitution method:

At an approved test site, the transmitter is place on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a ½ wave dipole that is successively tuned to each of the highest spurious emissions for emissions below 1 GHz, and a horn antenna for emissions above 1 GHz. A signal generator is connected to the dipole (horn antenna for frequencies above 1 GHz), and its output is adjusted to match the level previously noted for each frequency. The output of the signal generator is recorded, and by factoring in the cable loss to the antenna and its gain; the power (dBm) into an ideal ½ wave dipole antenna is determined for each radiated spurious emission.

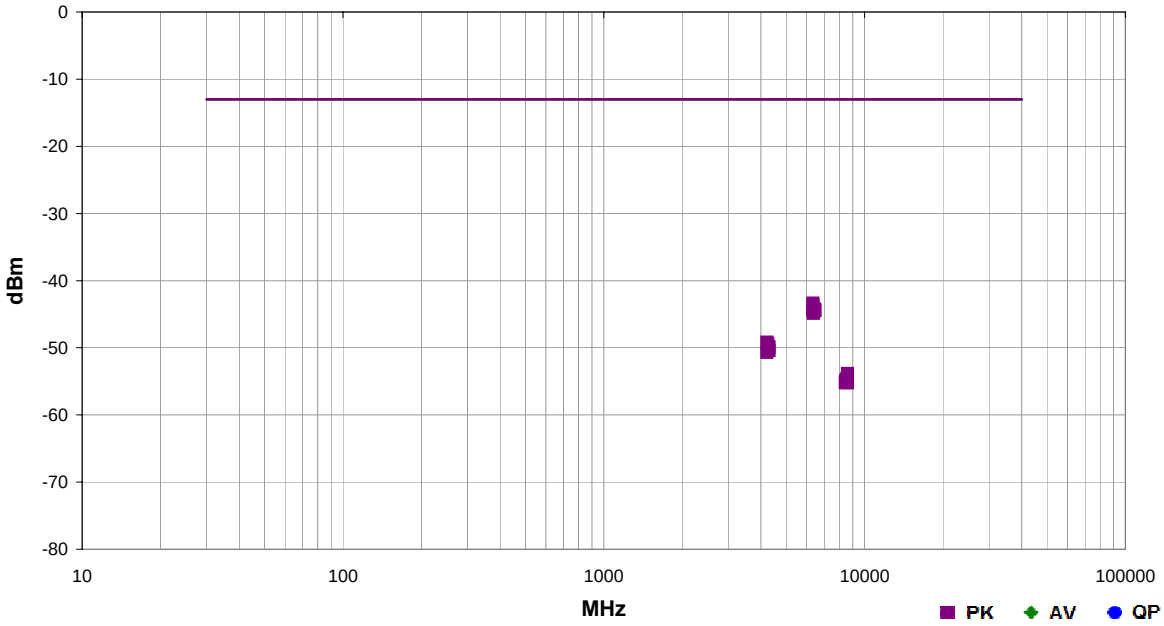
For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

Field Strength of Spurious Emissions

Work Order:	TECO0003	**Date:**	08/29/13	Trevor Buls	
Project:	None	**Temperature:**	23.5 °C		
Job Site:	MN05	**Humidity:**	63.2% RH		
Serial Number:	None	**Barometric Pres.:**	1015.3 mbar	**Tested by:**	Trevor Buls
EUT:	Prism HDM 40W AWS SISO RF Module				
Configuration:	2				
Customer:	TE Connectivity / ADC Telecommunications				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting WCDMA, Low, Mid, High Channel: 2113, 2132.5, 2152 MHz and LTE 1.4 MHz, LTE 3 MHz, LTE 5 MHz, LTE 10 MHz, LTE 15 MHz, LTE 20 MHz (see comments for center frequency)				
Deviations:	None				
Comments:	Customer provided a high wattage terminator. Tested in one position because the EUT is a fixed floorstanding device.				

Test Specifications	**Test Method**
FCC Part 27:2013	ANSI/TIA/EIA-603-C:2004

Run #	9	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
	6346.783	2.9	54.0	Vert	PK	4.60E-08	-43.4	-13.0	-30.4	Low Ch, LTE 10 MHz, 2115 MHz
	6337.558	2.2	175.0	Vert	PK	4.18E-08	-43.8	-13.0	-30.8	Low Ch, WCDMA
	6336.633	2.3	0.0	Horz	PK	3.99E-08	-44.0	-13.0	-31.0	Low Ch, WCDMA
	6341.142	1.0	306.0	Vert	PK	3.82E-08	-44.2	-13.0	-31.2	Low Ch, LTE 1.4 MHz, 2113 MHz
	6398.317	2.9	137.0	Vert	PK	3.81E-08	-44.2	-13.0	-31.2	Mid Ch, WCDMA
	6338.275	1.8	51.0	Vert	PK	3.73E-08	-44.3	-13.0	-31.3	Low Ch, LTE 5 MHz, 2113 MHz
	6457.817	2.4	337.0	Horz	PK	3.71E-08	-44.3	-13.0	-31.3	High Ch, WCDMA
	6337.408	3.0	79.0	Vert	PK	3.64E-08	-44.4	-13.0	-31.4	Low Ch, LTE 3 MHz, 2113 MHz
	6399.675	1.0	195.0	Horz	PK	3.64E-08	-44.4	-13.0	-31.4	Mid Ch, WCDMA
	6455.483	1.0	119.0	Vert	PK	3.53E-08	-44.5	-13.0	-31.5	High Ch, WCDMA
	6362.233	1.0	270.0	Vert	PK	3.43E-08	-44.6	-13.0	-31.6	Low Ch, LTE 20 MHz, 2120 MHz
	6354.667	3.9	58.0	Vert	PK	3.26E-08	-44.9	-13.0	-31.9	Low Ch, LTE 15 MHz, 2117.5 MHz
	4228.000	1.0	73.0	Horz	PK	1.21E-08	-49.2	-13.0	-36.2	Low Ch, WCDMA
	4264.842	3.7	36.0	Horz	PK	1.15E-08	-49.4	-13.0	-36.4	Mid Ch, WCDMA
	4265.058	1.0	136.0	Vert	PK	1.05E-08	-49.8	-13.0	-36.8	Mid Ch, WCDMA
	4305.542	1.0	319.0	Vert	PK	1.03E-08	-49.9	-13.0	-36.9	High Ch, WCDMA
	4305.767	1.0	0.0	Horz	PK	9.14E-09	-50.4	-13.0	-37.4	High Ch, WCDMA
	4227.208	1.0	49.0	Vert	PK	8.56E-09	-50.7	-13.0	-37.7	Low Ch, WCDMA
	8609.042	1.0	355.0	Horz	PK	4.13E-09	-53.8	-13.0	-40.8	High Ch, WCDMA
	8529.900	1.0	226.0	Vert	PK	3.43E-09	-54.7	-13.0	-41.7	Mid Ch, WCDMA
	8454.025	1.0	45.0	Vert	PK	3.23E-09	-54.9	-13.0	-41.9	Low Ch, WCDMA
	8530.008	1.0	351.0	Horz	PK	3.20E-09	-55.0	-13.0	-42.0	Mid Ch, WCDMA
	8450.508	1.0	111.0	Horz	PK	3.01E-09	-55.2	-13.0	-42.2	Low Ch, WCDMA
	8609.742	1.0	326.0	Vert	PK	2.99E-09	-55.2	-13.0	-42.2	High Ch, WCDMA