



**TE Connectivity / ADC Telecommunications
Prism HDM 800 MHz/1900 MHz SISO RF Module
FCC 90I:2014**

Report #: TECO0013.1



Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

Last Date of Test: April 16, 2014
TE Connectivity / ADC Telecommunications
Model: Prism HDM 800 MHz/1900 MHz SISO RF Module

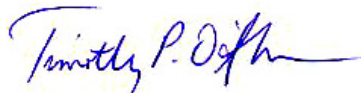
Emissions

Test Description	Specification	Test Method	Pass/Fail
Conducted Output Power	FCC 901:2014	ANSI/TIA/EIA-603-C-2004	Pass
Out of Band Emissions –Conducted	FCC 901:2014	ANSI/TIA/EIA-603-C-2004	Pass
Intermodulation	FCC 901:2014	ANSI/TIA/EIA-603-C-2004	Pass
Frequency Stability	FCC 901:2014	ANSI/TIA/EIA-603-C-2004	Pass
Occupied Bandwidth	FCC 901:2014	ANSI/TIA/EIA-603-C-2004	Pass
Field Strength of Spurious Emissions	FCC 901:2014	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.

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

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.

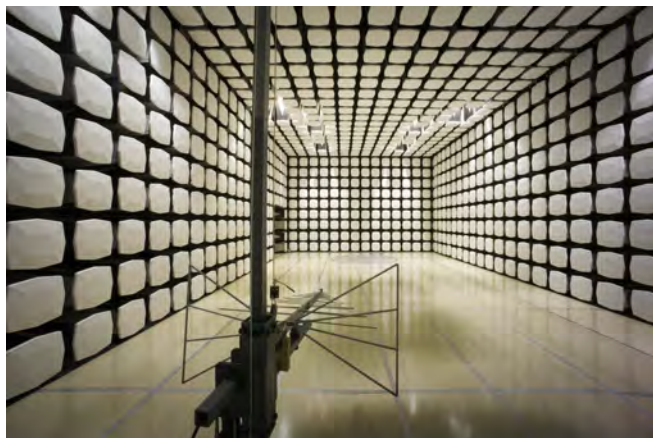
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement 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



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





PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	TE Connectivity / ADC Telecommunications
Address:	1187 Park Place
City, State, Zip:	Shakopee, MN 55379
Test Requested By:	Joshua Wittman
Model:	Prism HDM 800 MHz/1900 MHz SISO RF Module
First Date of Test:	April 09, 2014
Last Date of Test:	April 16, 2014
Receipt Date of Samples:	April 09, 2014
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
Prism HDM 800 MHz/1900 MHz SISO RF Module. 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 90.

Configuration TECO0013- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Prism HDM 800 MHz/1900 MHz SISO RF Module	TE Connectivity / ADC Telecommunications	FWP-441T841MOD	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
RF Signal Generator	Aeroflex	IFR 3413	341006/252
Power Supply	Mean Well	SE-600-48	EB11101765
IO Control Device	TE Connectivity / ADC Telecommunications	SVT-GU-1011	None
30 dB attenuator	Aeroflex	57-30-43	RA434
RF Signal Generator	Aeroflex	IFR 3413	341006/056
30 dB attenuator	Aeroflex	86-30-12 DC -22 GHz	369
Laptop	Lenovo	T500	L3-AFD7K 09/04
Laptop Supply	Lenovo	42T4418	11S42T4418Z1ZGWG19659N

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	> 3m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	AC Mains
Fiber	No	> 3m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	IO Control Device
RF	Yes	0.8m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	30 dB attenuator
RF	Yes	1.8m	No	IO Control Device	RF Signal Generator
AC Power x2	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
RF	Yes	0.8m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	30 dB attenuator
RF	Yes	0.9m	No	IO Control Device	RF Signal Generator
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration TECO0013- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Prism HDM 800 MHz/1900 MHz SISO RF Module	TE Connectivity / ADC Telecommunications	FWP-441T841MOD	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
30 dB attenuator	Aeroflex	57-30-43	NL616
30 dB attenuator	Aeroflex	57-30-43	RA434

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
RF Signal Generator	Aeroflex	IFR 3413	341006/252
Power Supply	Mean Well	SE-600-48	EB11101765
IO Control Device	TE Connectivity / ADC Telecommunications	SVT-GU-1011	None
RF Signal Generator	Aeroflex	IFR 3413	341006/056
Laptop	Lenovo	T500	L3-AFD7K 09/04
Laptop Supply	Lenovo	42T4418	11S42T4418Z1ZGWG19659N

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	> 3m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	AC Mains
Fiber	No	> 3m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	IO Control Device
RF	Yes	0.8m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	30 dB attenuator
RF	Yes	1.8m	No	IO Control Device	RF Signal Generator
AC Power x2	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
RF	Yes	0.8m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	30 dB attenuator
RF	Yes	0.9m	No	IO Control Device	RF Signal Generator
Ground	No	1.3m	No	Prism HDM 800 MHz/1900 MHz SISO RF Module	Ground

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

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/9/2014	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.
2	4/9/2014	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	4/9/2014	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.
4	4/9/2014	Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	4/14/2014	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.
6	4/16/2014	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.

CONDUCTED OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	12
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36
Spectrum Analyzer	Agilent	E4440A	AAX	5/15/2012	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 attenuators were calibrated and added into the reference level offset.

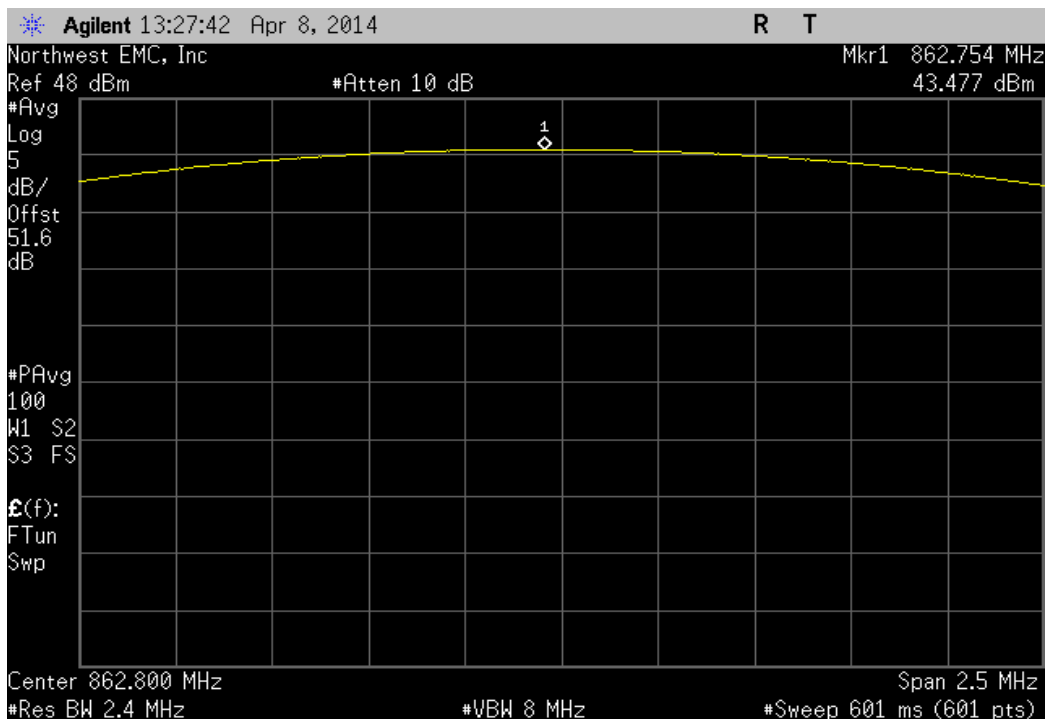


CONDUCTED OUTPUT POWER

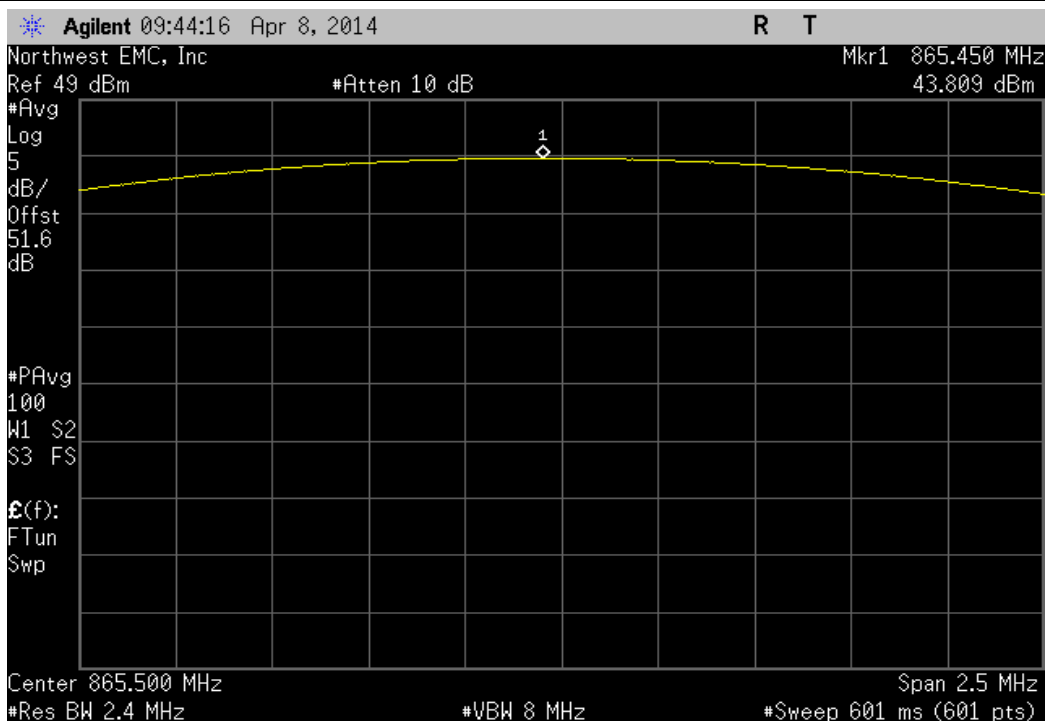
XMit 2013.08.15
PsaTx 2013.10.23

EUT: Prism HDM 800 MHz/1900 MHz SISO RF Module		Work Order: TECO0013	
Serial Number: None		Date: 04/09/14	
Customer: TE Connectivity / ADC Telecommunications		Temperature: 24.2°C	
Attendees: None		Humidity: 21%	
Project: None		Barometric Pres.: 1013.5	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS			
FCC 901:2014		Test Method	
		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 <i>Trevor Buls</i>	
		Value	Limit
		Result	
CDMA			
Low Channel		43.477 dBm	< 1640 W
Mid Channel		43.809 dBm	< 1640 W
High Channel		43.491 dBm	< 1640 W
LTE 1.4 MHz			
Low Channel		43.397 dBm	< 1640 W
Mid Channel		43.742 dBm	< 1640 W
High Channel		43.634 dBm	< 1640 W
LTE 3 MHz			
Low Channel		43.914 dBm	< 1640 W
Mid Channel		43.97 dBm	< 1640 W
High Channel		43.846 dBm	< 1640 W

CDMA, Low Channel						
				Value	Limit	Result
				43.477 dBm	< 1640 W	Pass

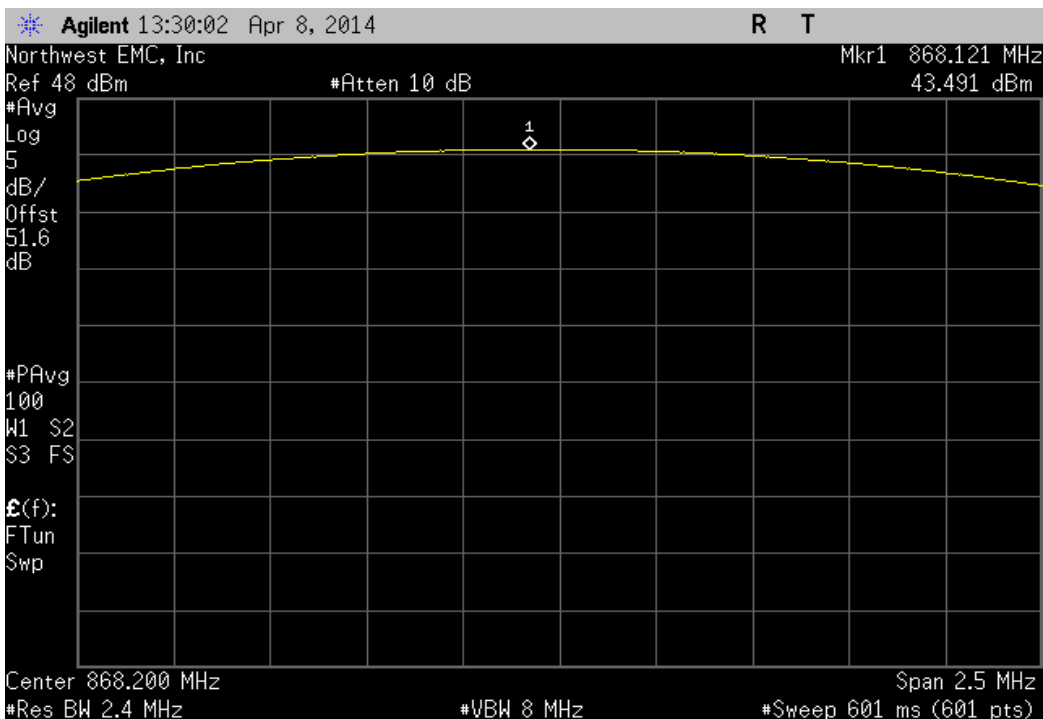


CDMA, Mid Channel						
				Value	Limit	Result
				43.809 dBm	< 1640 W	Pass



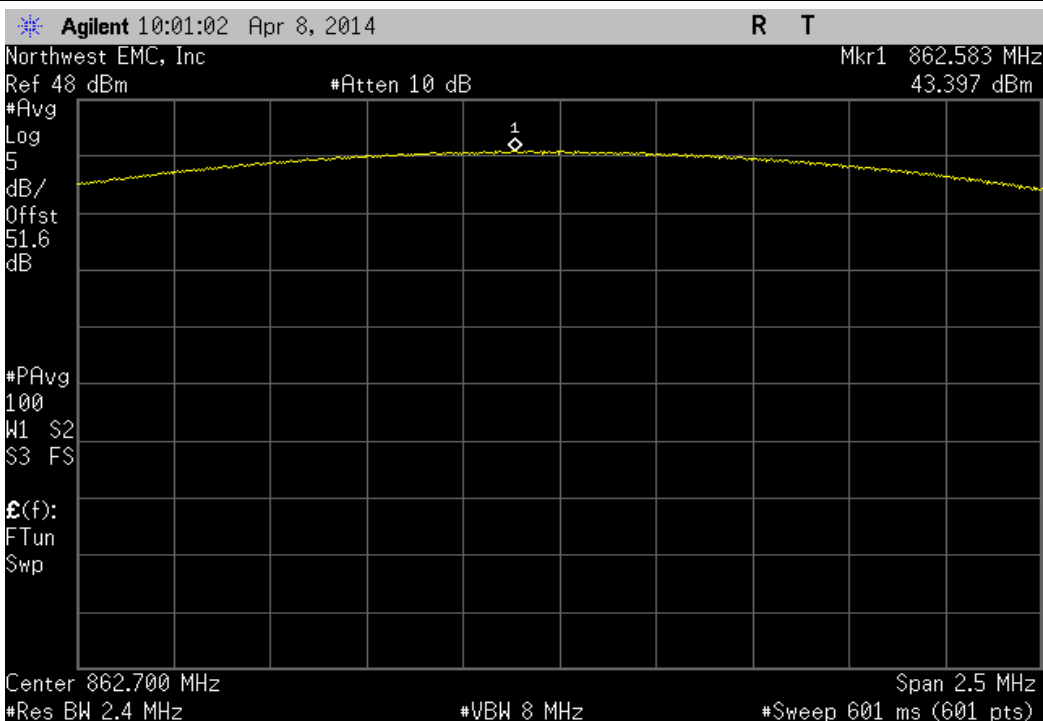
CDMA, High Channel

Value	Limit	Result
43.491 dBm	< 1640 W	Pass



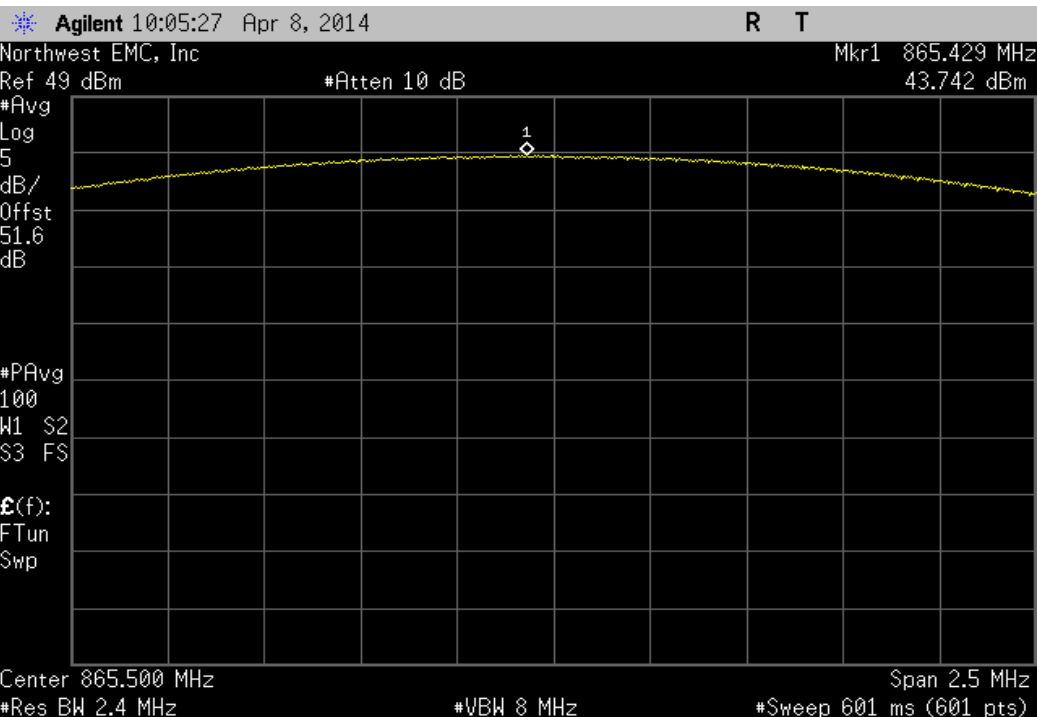
LTE 1.4 MHz, Low Channel

Value	Limit	Result
43.397 dBm	< 1640 W	Pass



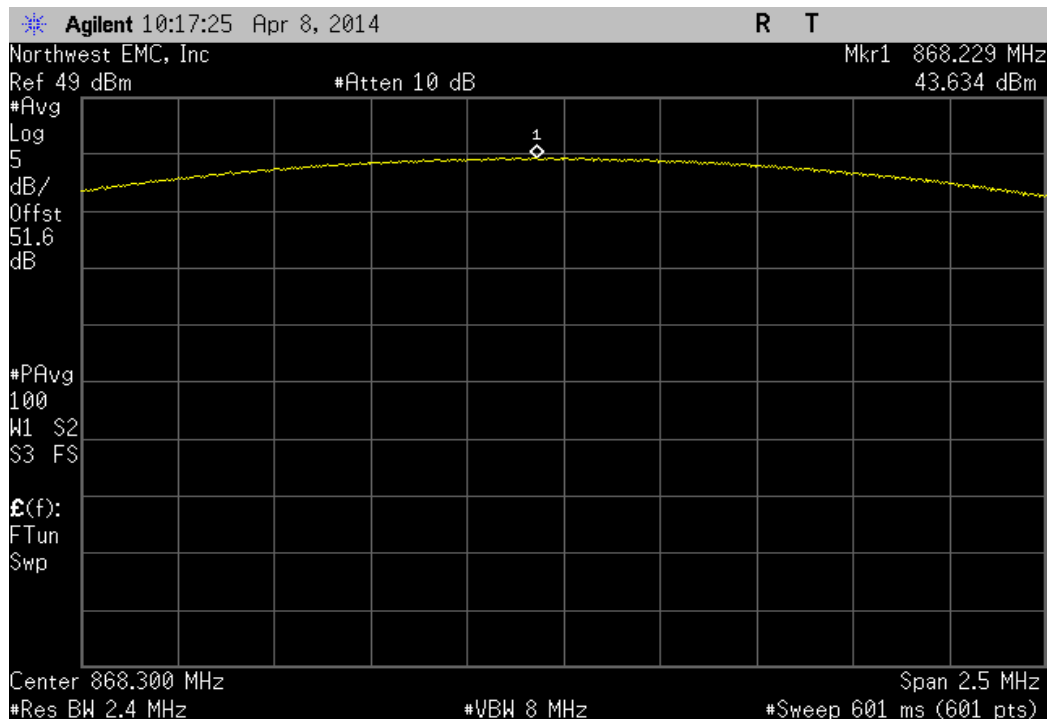
LTE 1.4 MHz, Mid Channel

Value	Limit	Result
43.742 dBm	< 1640 W	Pass



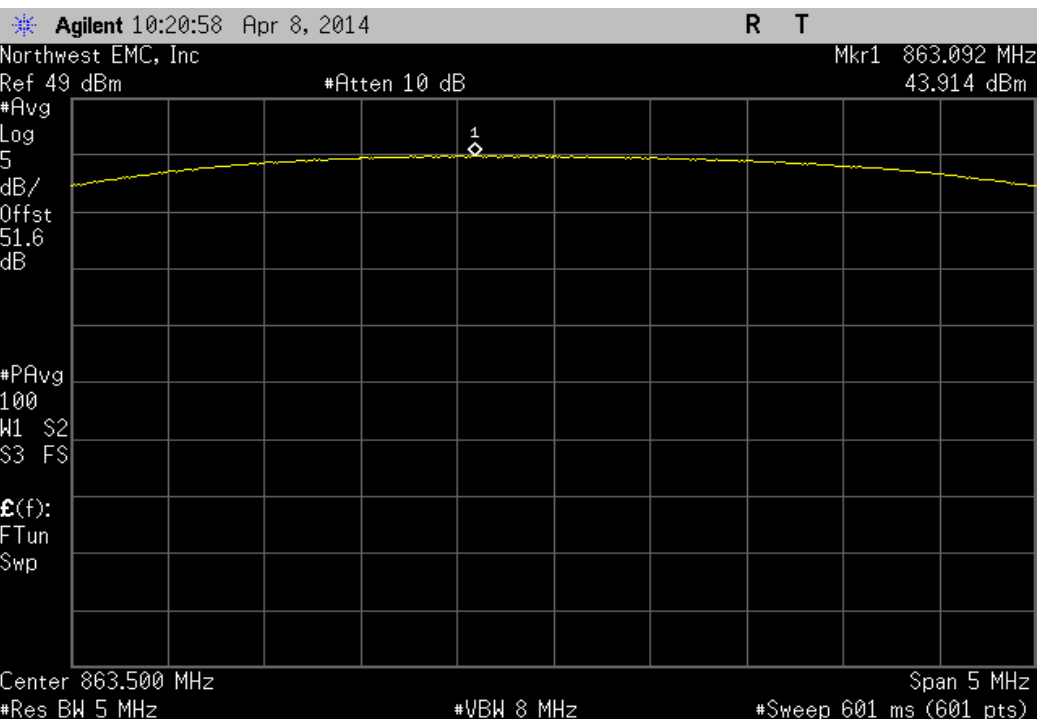
LTE 1.4 MHz, High Channel

Value	Limit	Result
43.634 dBm	< 1640 W	Pass



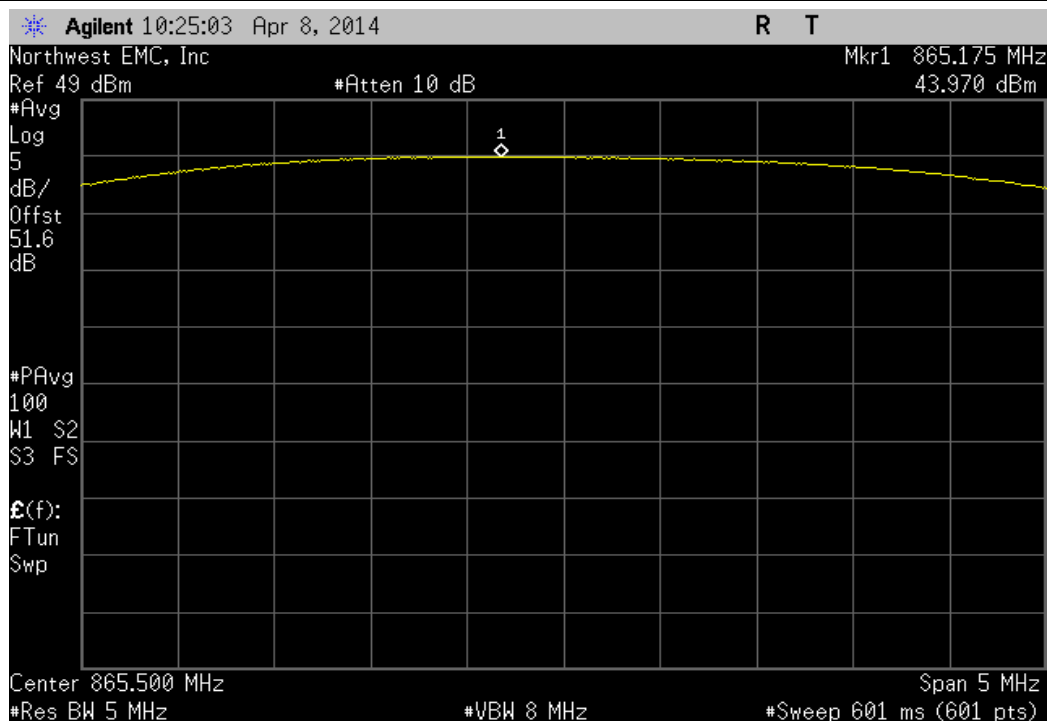
LTE 3 MHz, Low Channel

Value	Limit	Result
43.914 dBm	< 1640 W	Pass



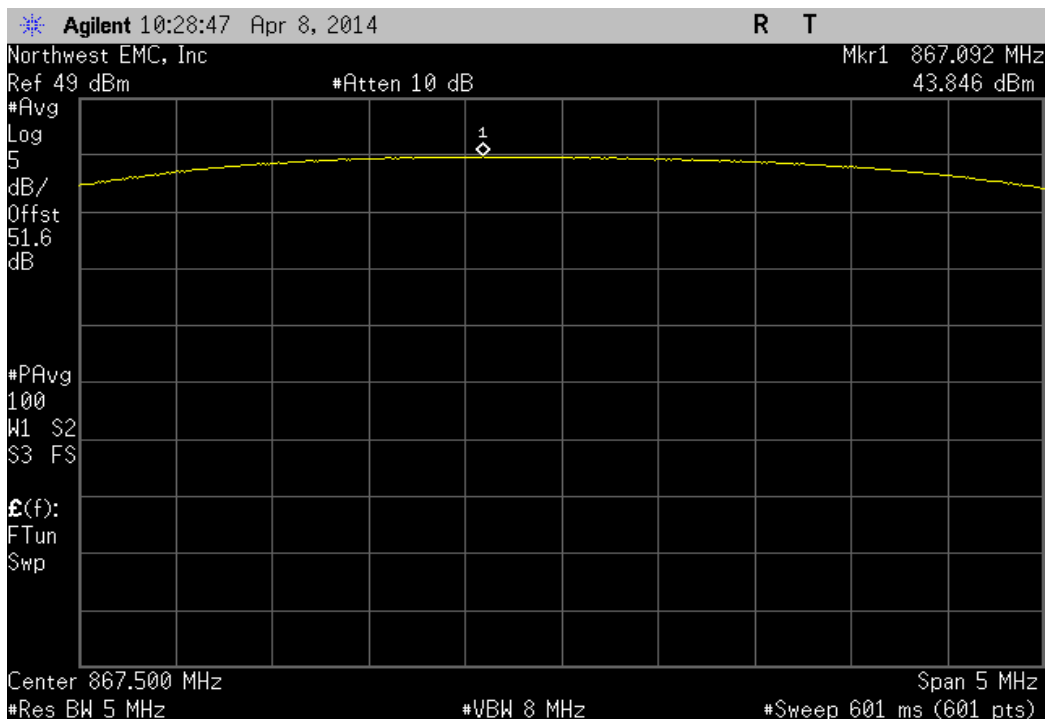
LTE 3 MHz, Mid Channel

Value	Limit	Result
43.97 dBm	< 1640 W	Pass



LTE 3 MHz, High Channel

Value	Limit	Result
43.846 dBm	< 1640 W	Pass



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 0-425 MHz	Micro-Tronics	LPM50003	HGU	10/5/2012	24
High Pass Filter 1.2-18 GHz	Micro-Tronics	HPM50108	HGX	10/5/2012	24
Attenuator	Aeroflex	48-30-34	RCU	7/3/2013	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	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 1 MHz resolution bandwidth and no video filtering were made for each modulation type from 30 MHz to 9 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.

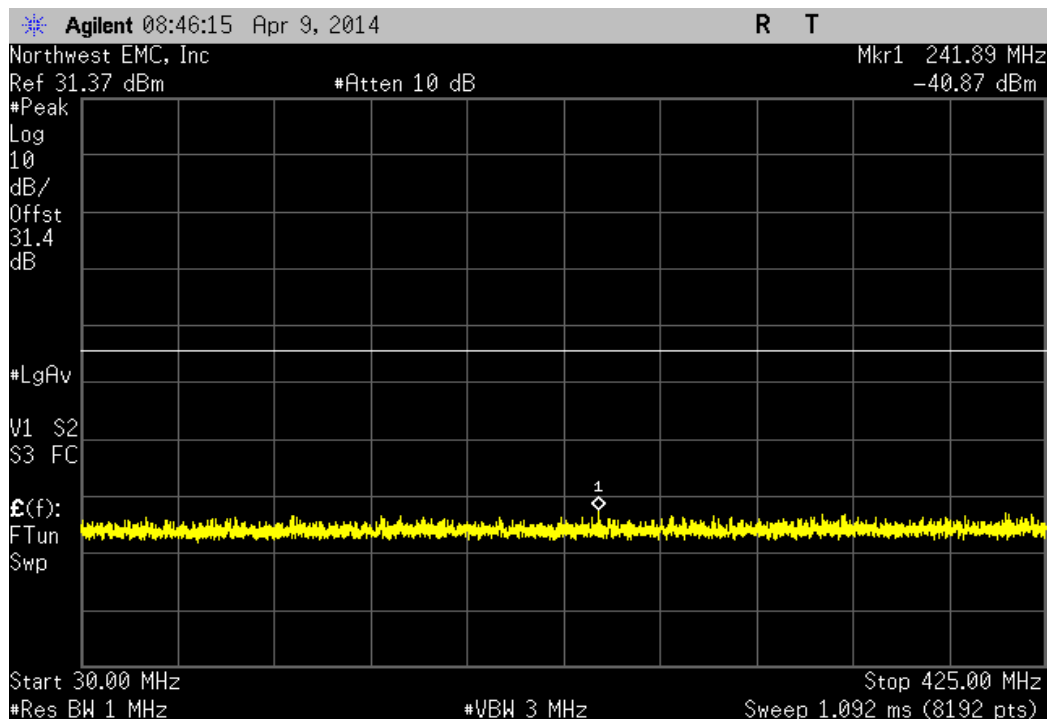


OUT OF BAND EMISSIONS -CONDUCTED

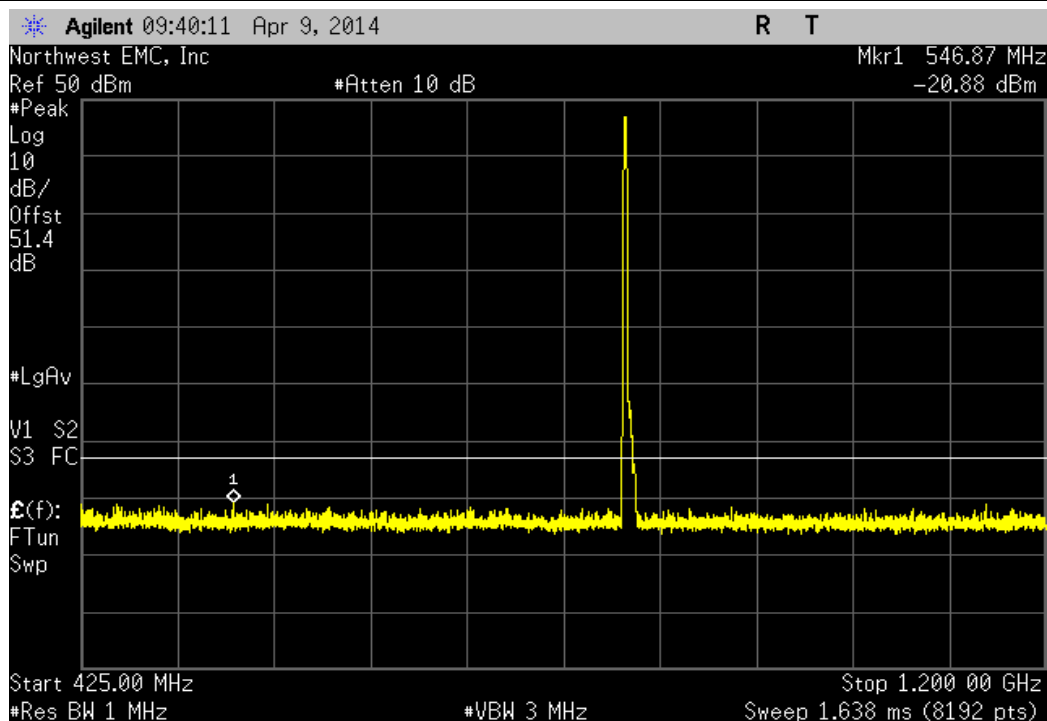
XMit 2013.08.15
PsaTx 2013.10.23

EUT: Prism HDM 800 MHz/1900 MHz SISO RF Module		Work Order: TECO0013	
Serial Number: None		Date: 04/09/14	
Customer: TE Connectivity / ADC Telecommunications		Temperature: 24.2°C	
Attendees: None		Humidity: 21%	
Project: None		Barometric Pres.: 1013.5	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 901:2014		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Frequency Range	Value Limit Result
CDMA			
	Low Channel	30 MHz - 425 MHz	-40.87 dBm ≤ -13 dBm Pass
	Low Channel	425 MHz - 1.2 GHz	-20.88 dBm ≤ -13 dBm Pass
	Low Channel	1.2 GHz - 9 GHz	-37.11 dBm ≤ -13 dBm Pass
	Mid Channel	30 MHz - 425 MHz	-41.32 dBm ≤ -13 dBm Pass
	Mid Channel	425 MHz - 1.2 GHz	-19.7 dBm ≤ -13 dBm Pass
	Mid Channel	1.2 GHz - 9 GHz	-37.6 dBm ≤ -13 dBm Pass
	High Channel	30 MHz - 425 MHz	-39.79 dBm ≤ -13 dBm Pass
	High Channel	425 MHz - 1.2 GHz	-20.56 dBm ≤ -13 dBm Pass
	High Channel	1.2 GHz - 9 GHz	-36.68 dBm ≤ -13 dBm Pass
LTE 1.4 MHz			
	Low Channel	30 MHz - 425 MHz	-38.87 dBm ≤ -13 dBm Pass
	Low Channel	425 MHz - 1.2 GHz	-20.74 dBm ≤ -13 dBm Pass
	Low Channel	1.2 GHz - 9 GHz	-37.56 dBm ≤ -13 dBm Pass
	Mid Channel	30 MHz - 425 MHz	-40.05 dBm ≤ -13 dBm Pass
	Mid Channel	425 MHz - 1.2 GHz	-20.67 dBm ≤ -13 dBm Pass
	Mid Channel	1.2 GHz - 9 GHz	-37.5 dBm ≤ -13 dBm Pass
	High Channel	30 MHz - 425 MHz	-39.37 dBm ≤ -13 dBm Pass
	High Channel	425 MHz - 1.2 GHz	-20.5 dBm ≤ -13 dBm Pass
	High Channel	1.2 GHz - 9 GHz	-37.23 dBm ≤ -13 dBm Pass
LTE 3 MHz			
	Low Channel	30 MHz - 425 MHz	-39.36 dBm ≤ -13 dBm Pass
	Low Channel	425 MHz - 1.2 GHz	-20.73 dBm ≤ -13 dBm Pass
	Low Channel	1.2 GHz - 9 GHz	-37.53 dBm ≤ -13 dBm Pass
	Mid Channel	30 MHz - 425 MHz	-39.69 dBm ≤ -13 dBm Pass
	Mid Channel	425 MHz - 1.2 GHz	-21.37 dBm ≤ -13 dBm Pass
	Mid Channel	1.2 GHz - 9 GHz	-37.63 dBm ≤ -13 dBm Pass
	High Channel	30 MHz - 425 MHz	-39.87 dBm ≤ -13 dBm Pass
	High Channel	425 MHz - 1.2 GHz	-20.63 dBm ≤ -13 dBm Pass
	High Channel	1.2 GHz - 9 GHz	-37.63 dBm ≤ -13 dBm Pass

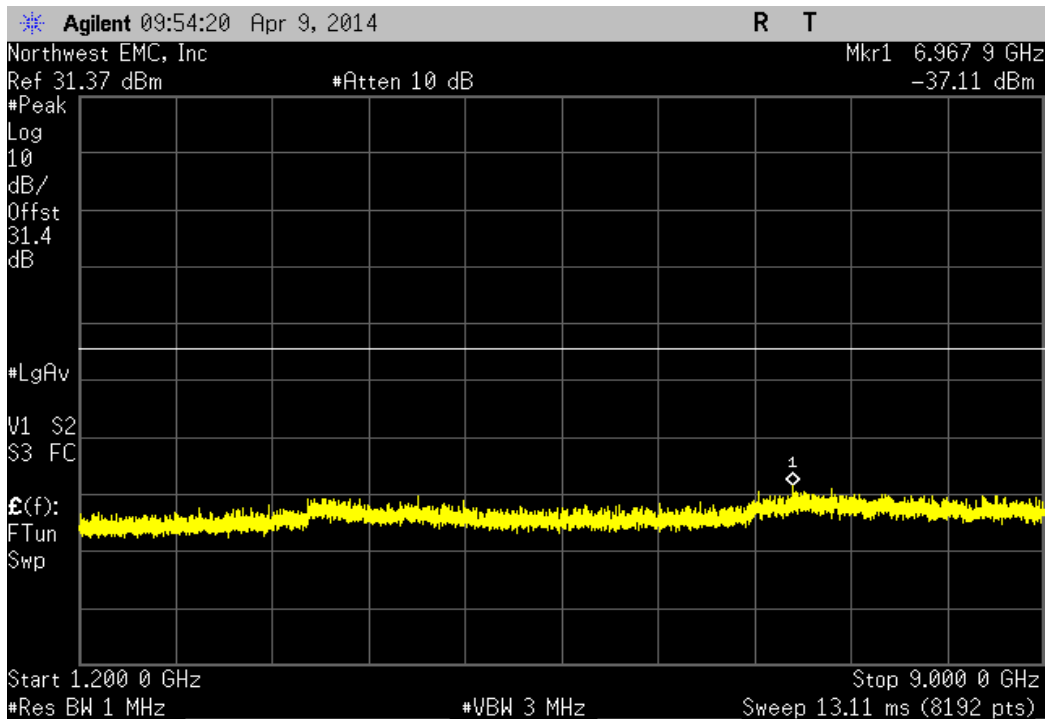
CDMA, Low Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-40.87 dBm	≤ -13 dBm	Pass	



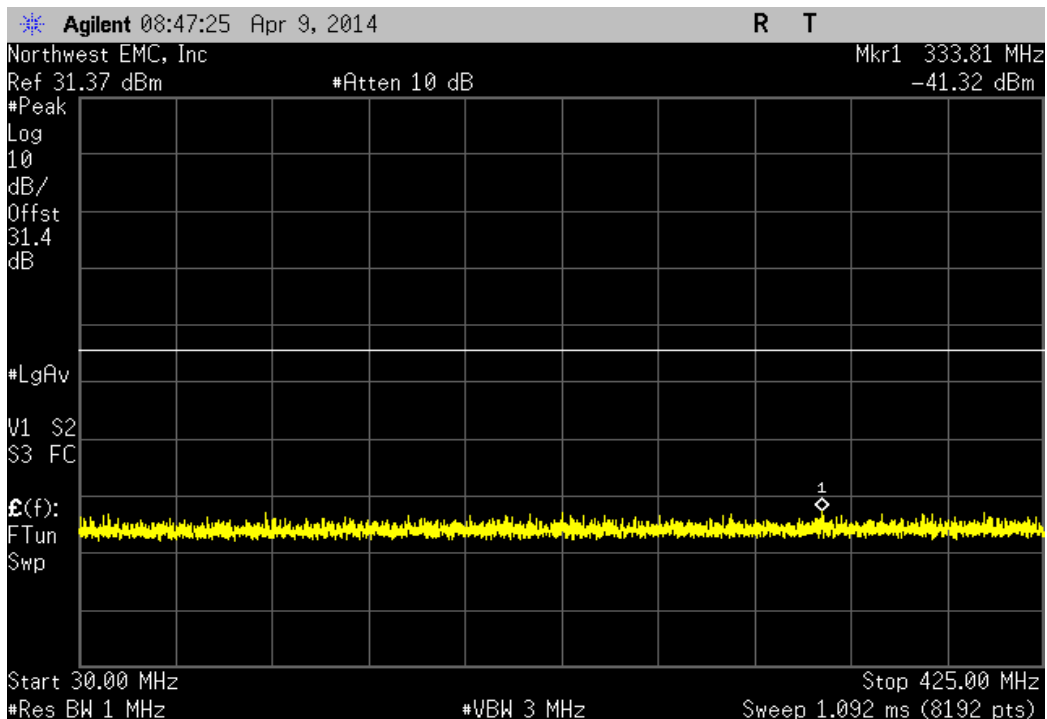
CDMA, Low Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.88 dBm	≤ -13 dBm	Pass	



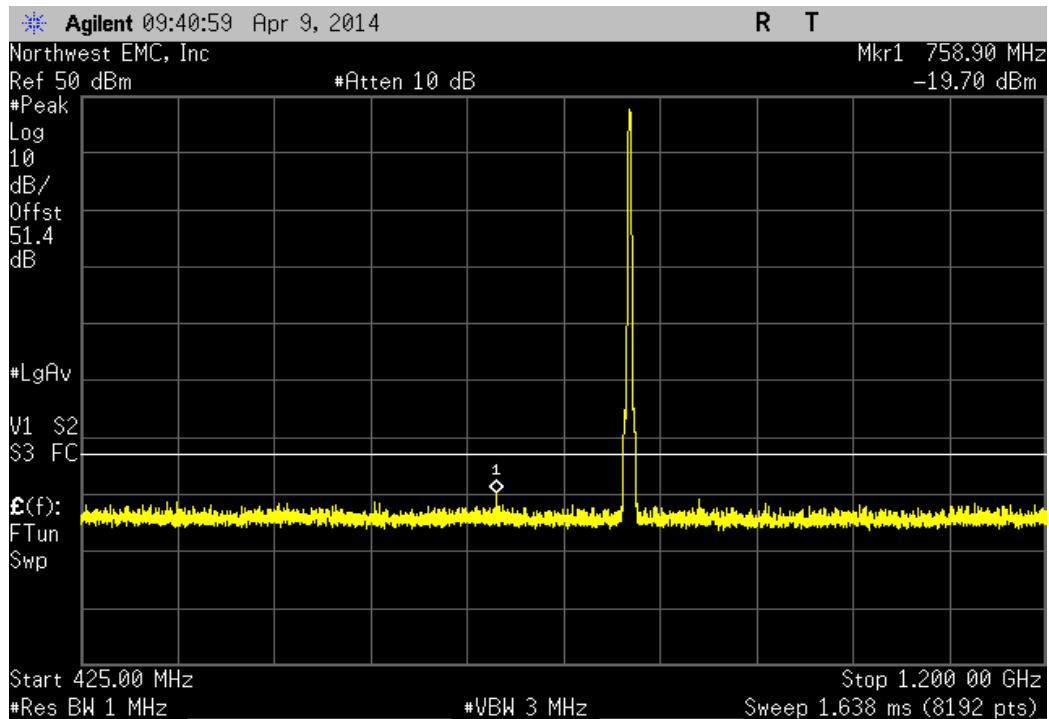
CDMA, Low Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.11 dBm	≤ -13 dBm	Pass	



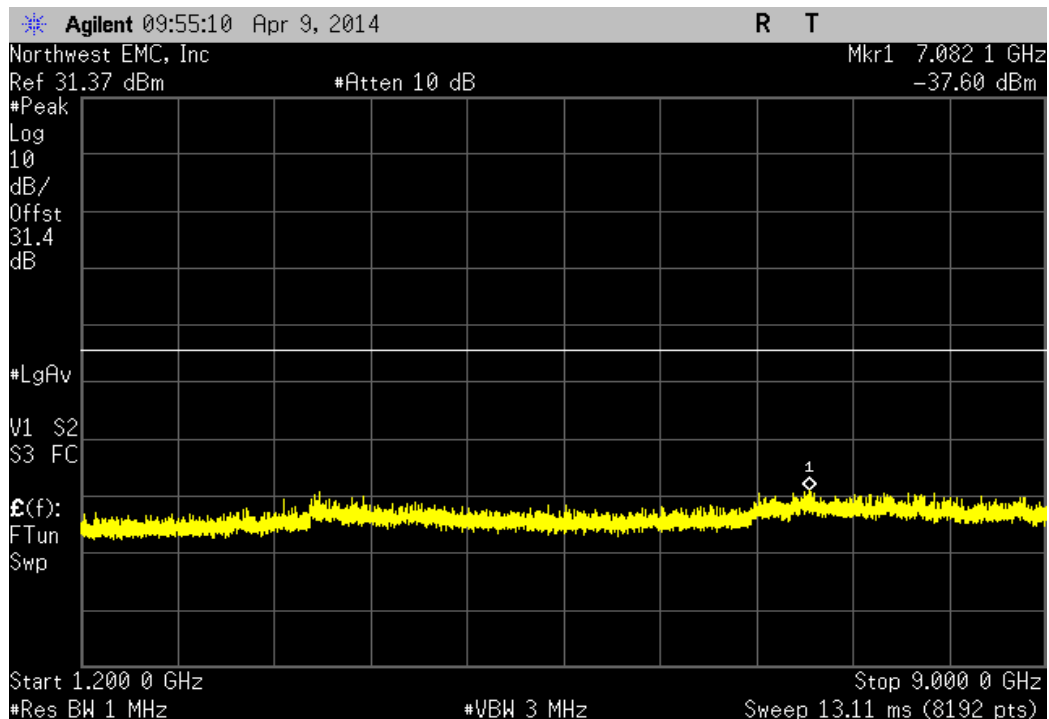
CDMA, Mid Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-41.32 dBm	≤ -13 dBm	Pass	



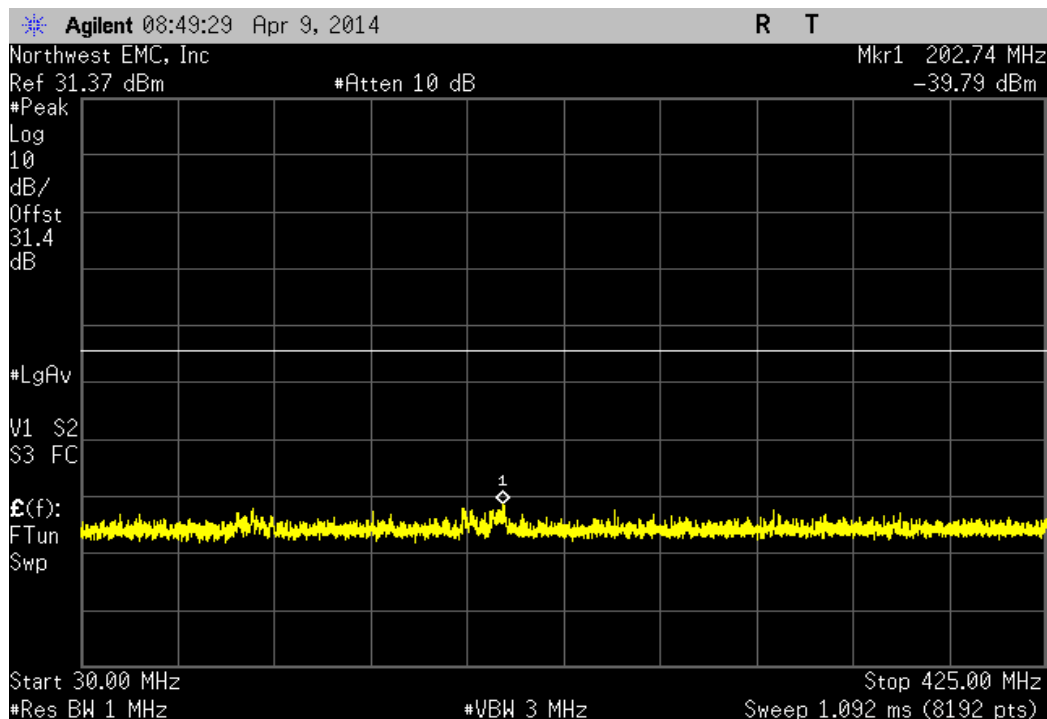
CDMA, Mid Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-19.7 dBm	≤ -13 dBm	Pass	



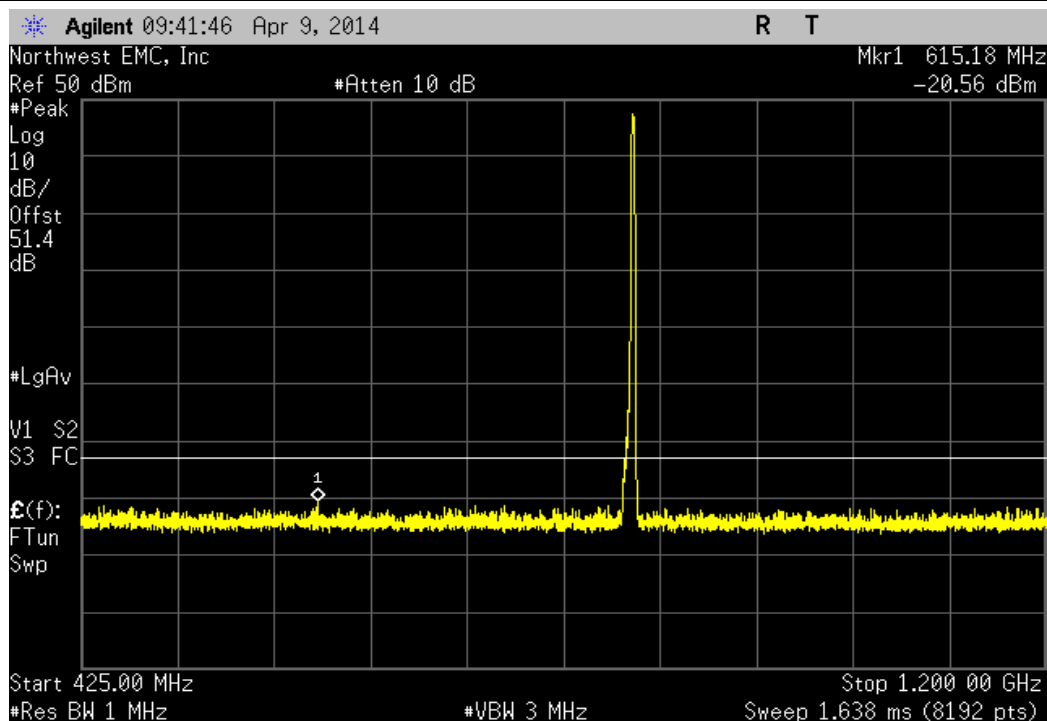
CDMA, Mid Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.6 dBm	≤ -13 dBm	Pass	



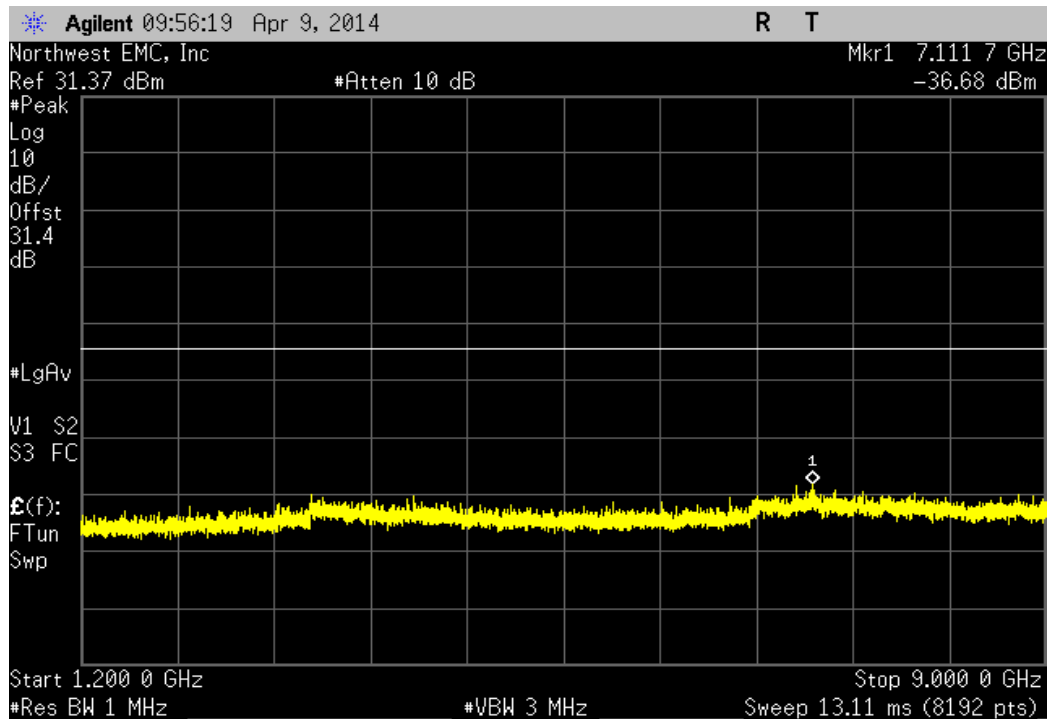
CDMA, High Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-39.79 dBm	≤ -13 dBm	Pass	



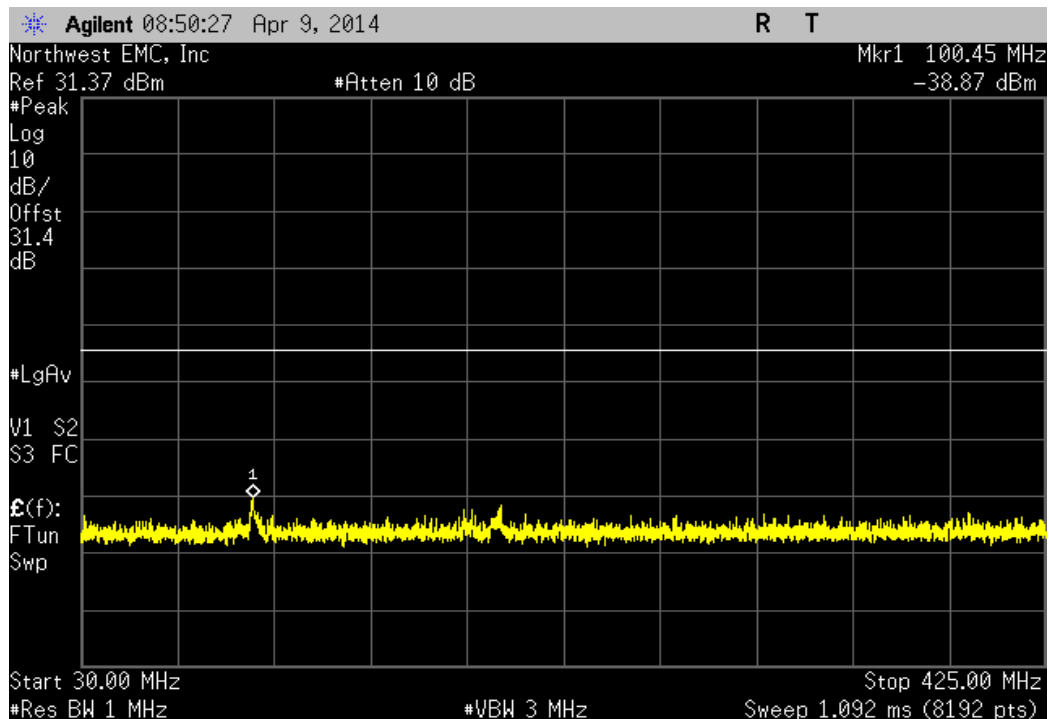
CDMA, High Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.56 dBm	≤ -13 dBm	Pass	



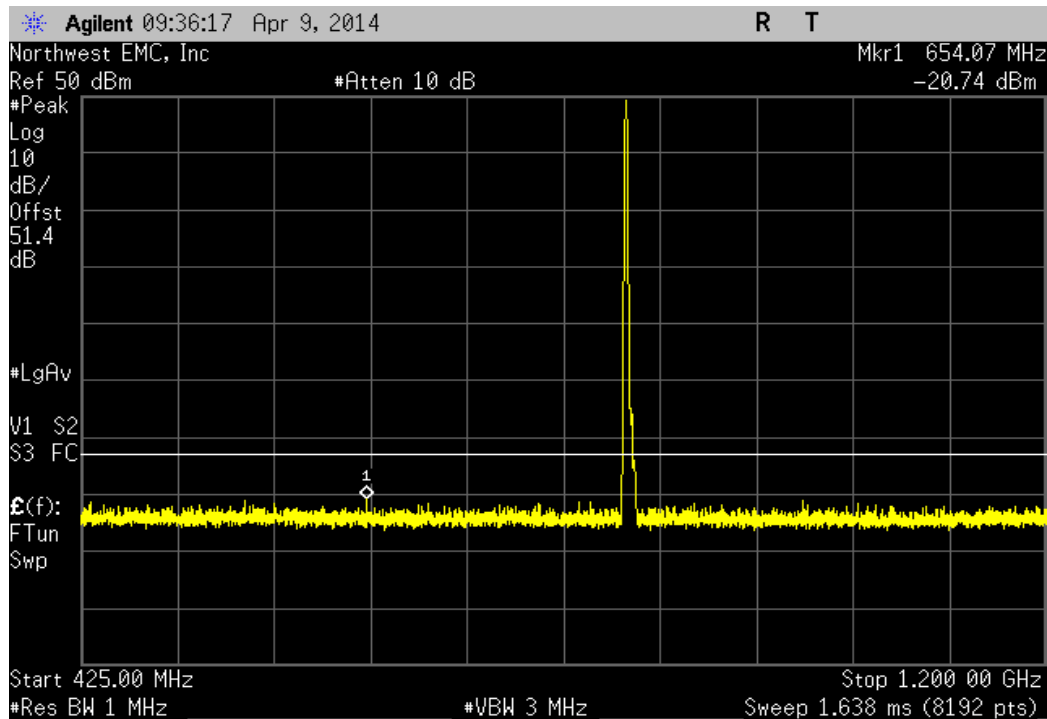
CDMA, High Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-36.68 dBm	≤ -13 dBm	Pass	



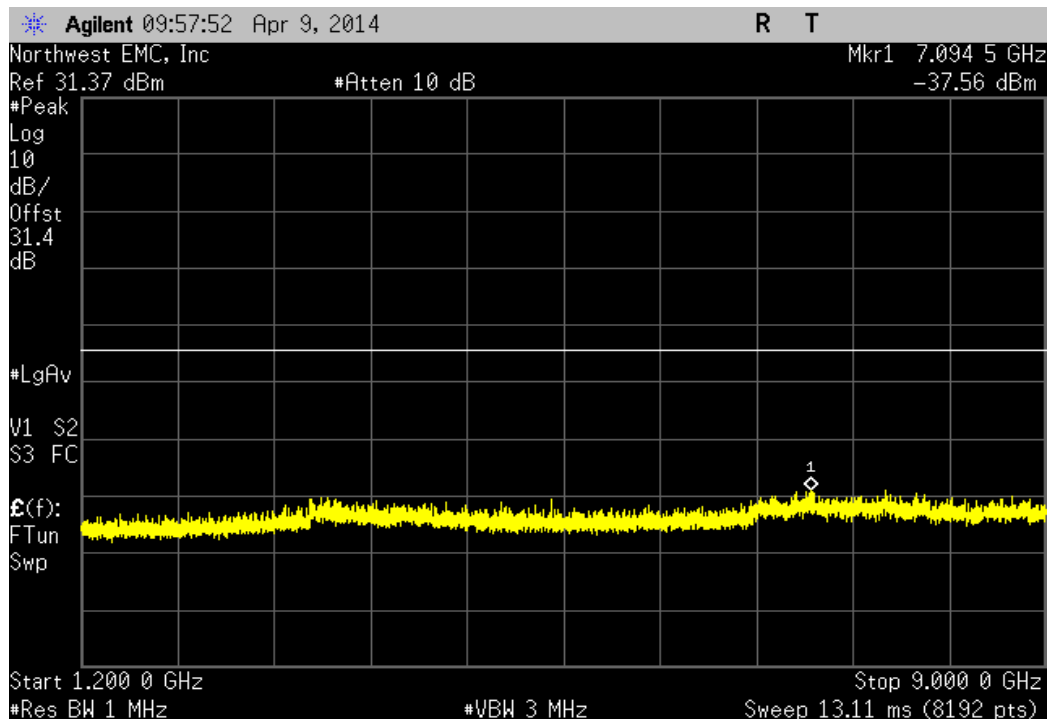
LTE 1.4 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-38.87 dBm	≤ -13 dBm	Pass	



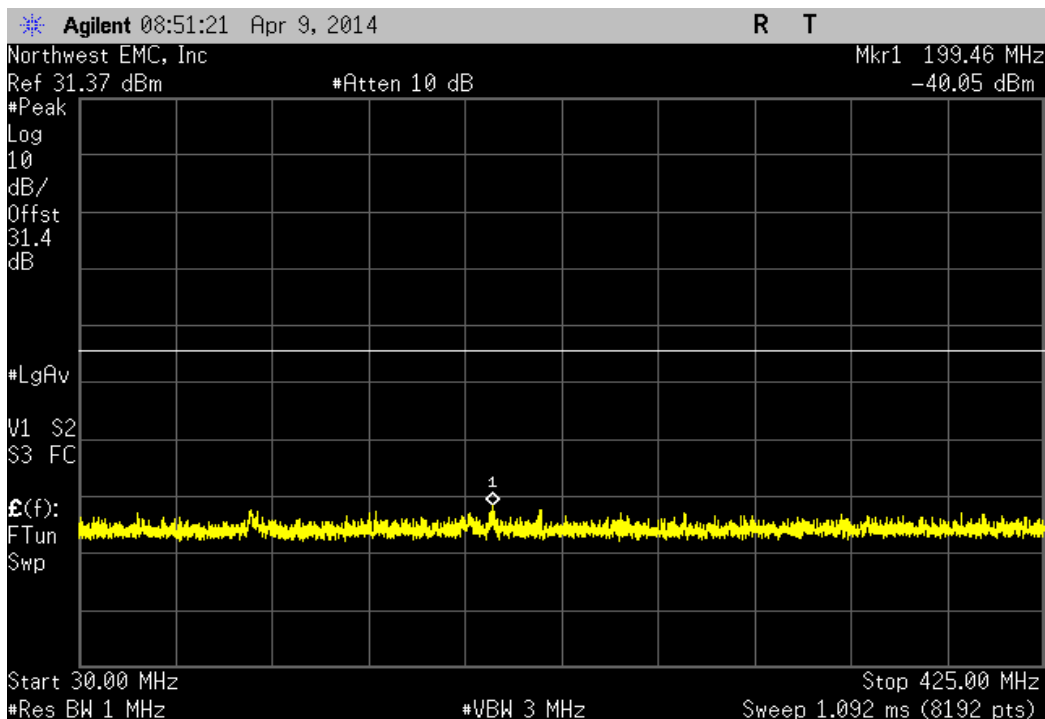
LTE 1.4 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.74 dBm	≤ -13 dBm	Pass	



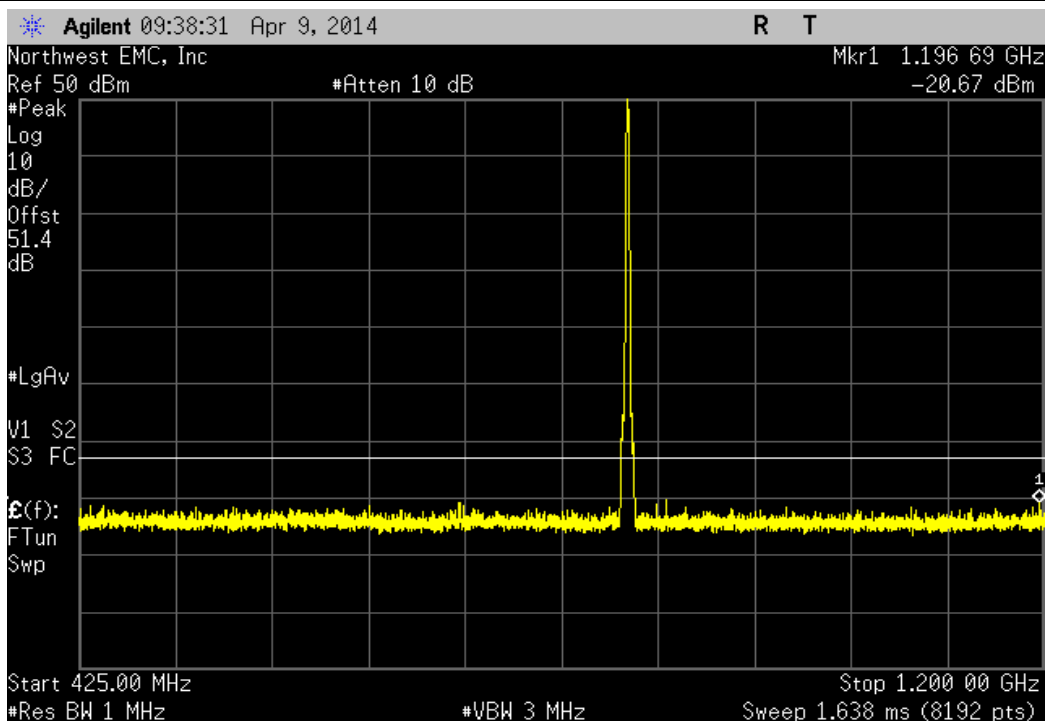
LTE 1.4 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.56 dBm	≤ -13 dBm	Pass	



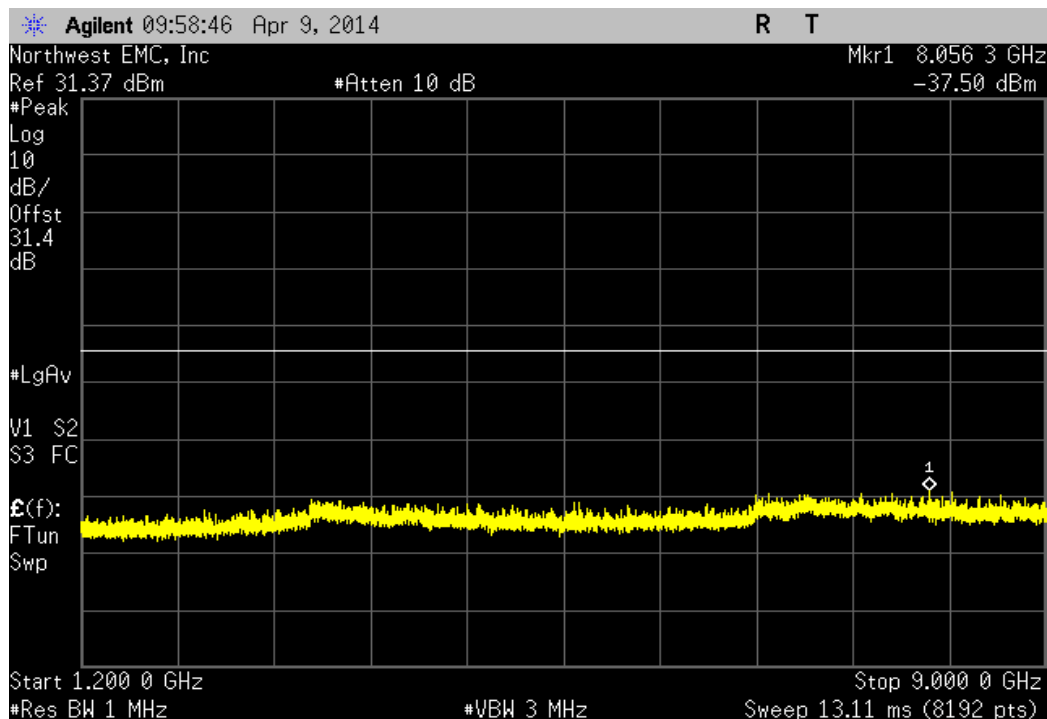
LTE 1.4 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-40.05 dBm	≤ -13 dBm	Pass	



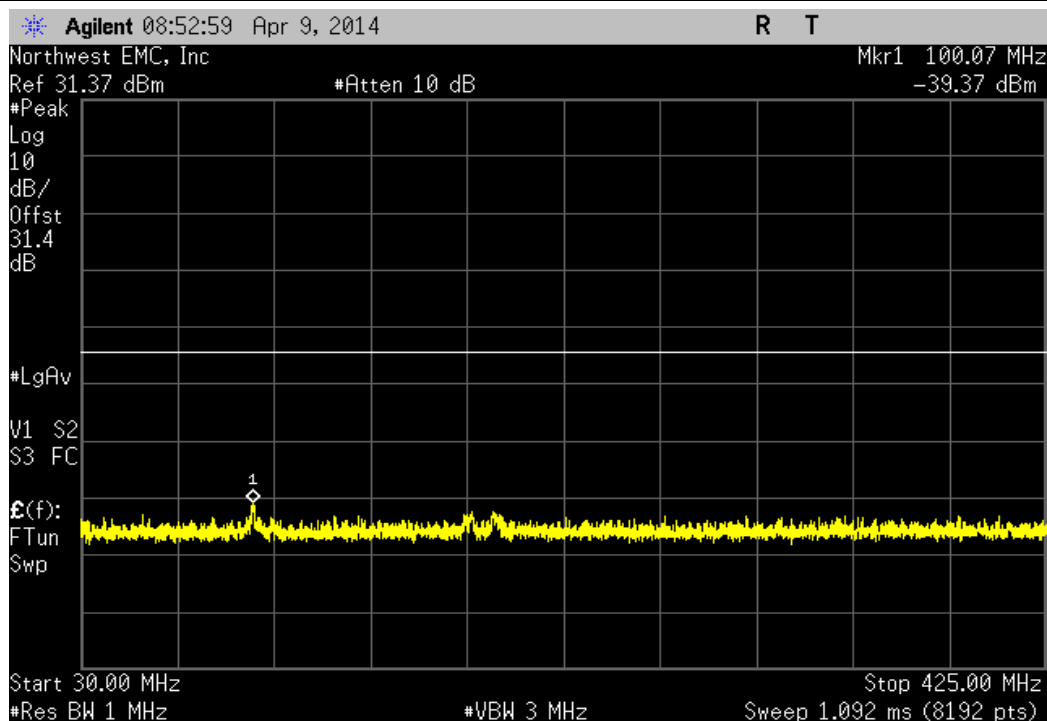
LTE 1.4 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.67 dBm	≤ -13 dBm	Pass	



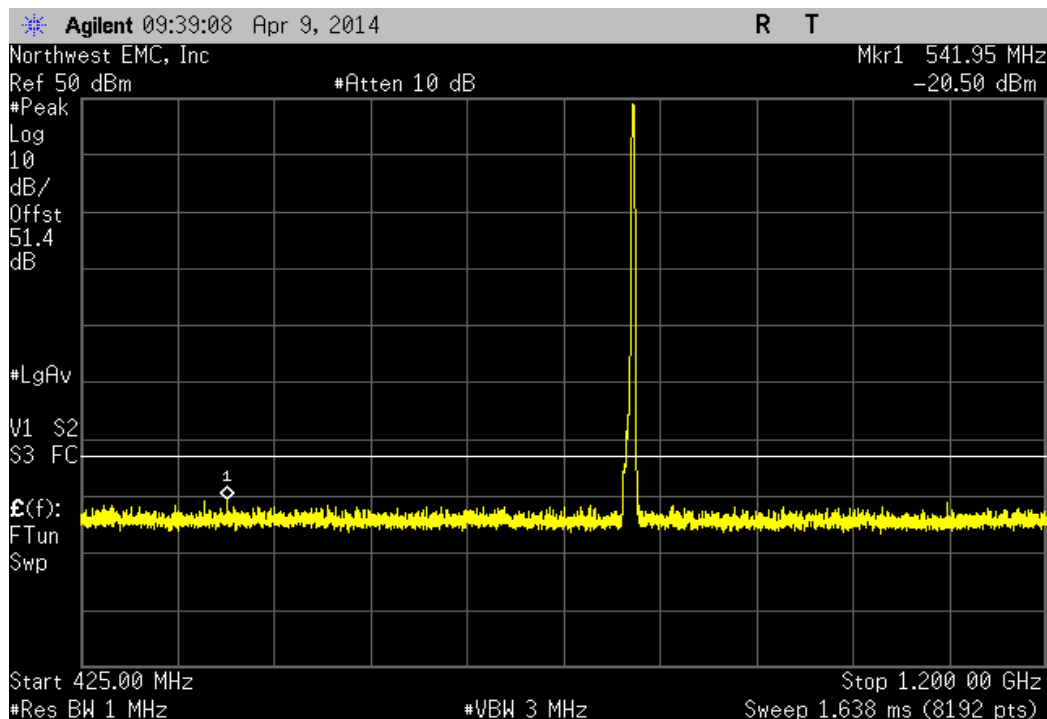
LTE 1.4 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.5 dBm	≤ -13 dBm	Pass	



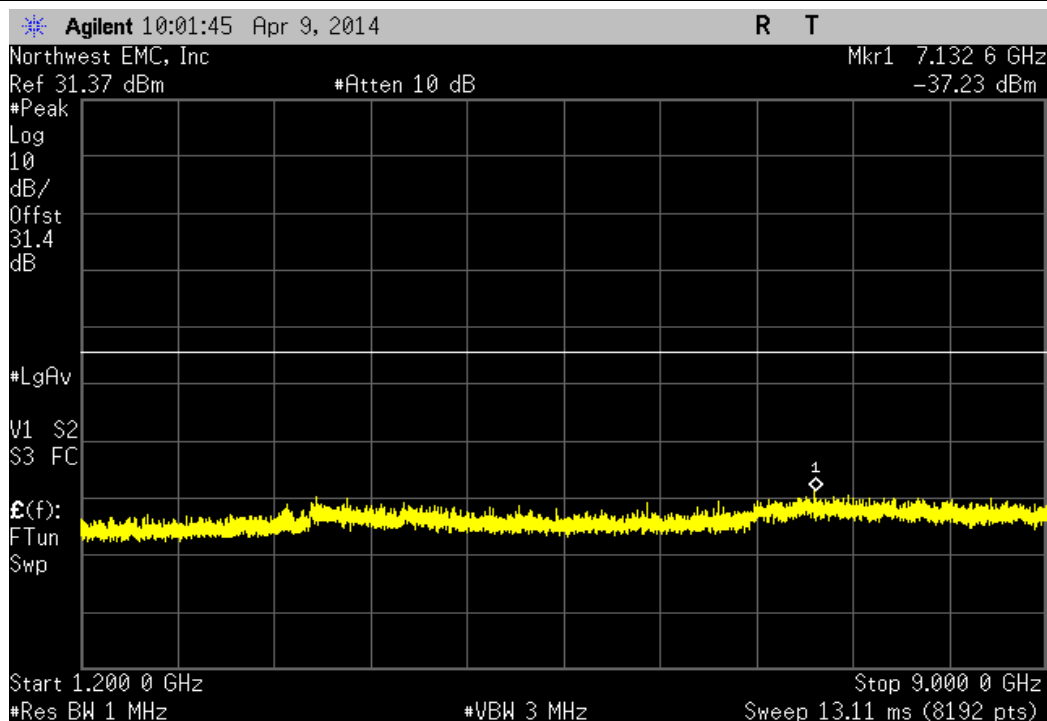
LTE 1.4 MHz, High Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-39.37 dBm	≤ -13 dBm	Pass	



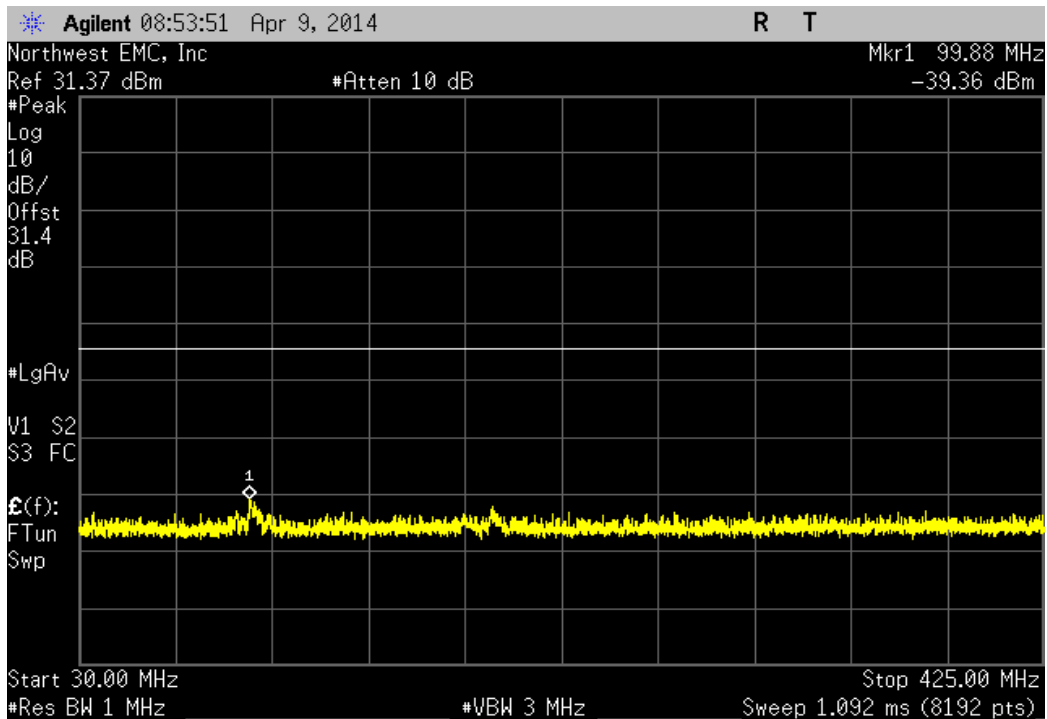
LTE 1.4 MHz, High Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.5 dBm	≤ -13 dBm	Pass	



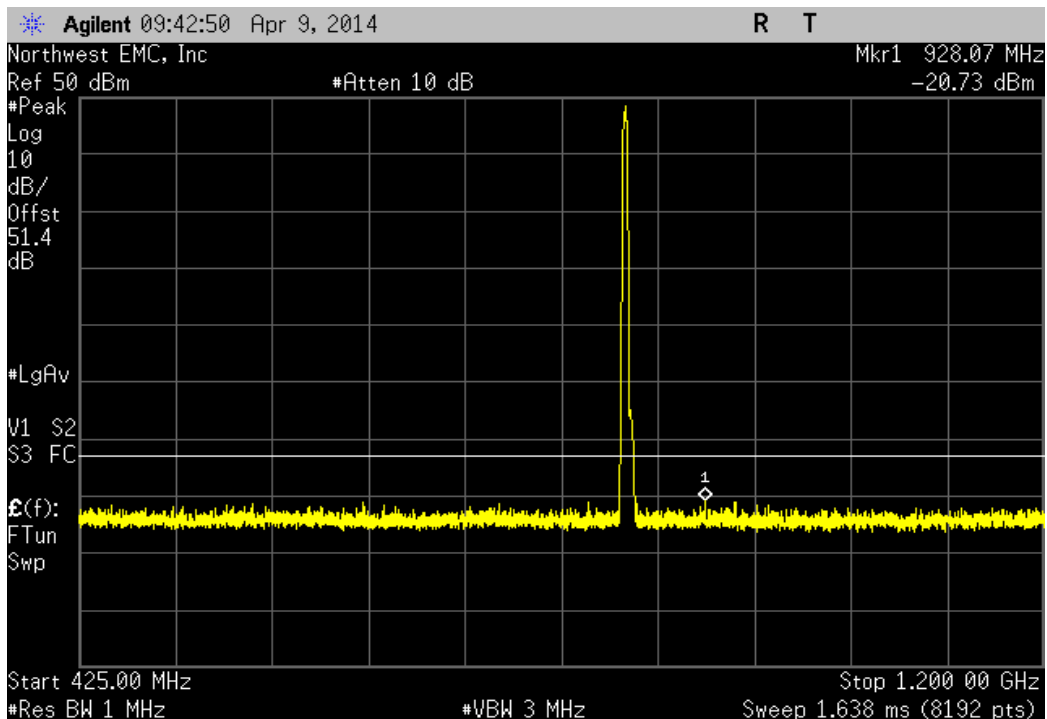
LTE 1.4 MHz, High Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.23 dBm	≤ -13 dBm	Pass	



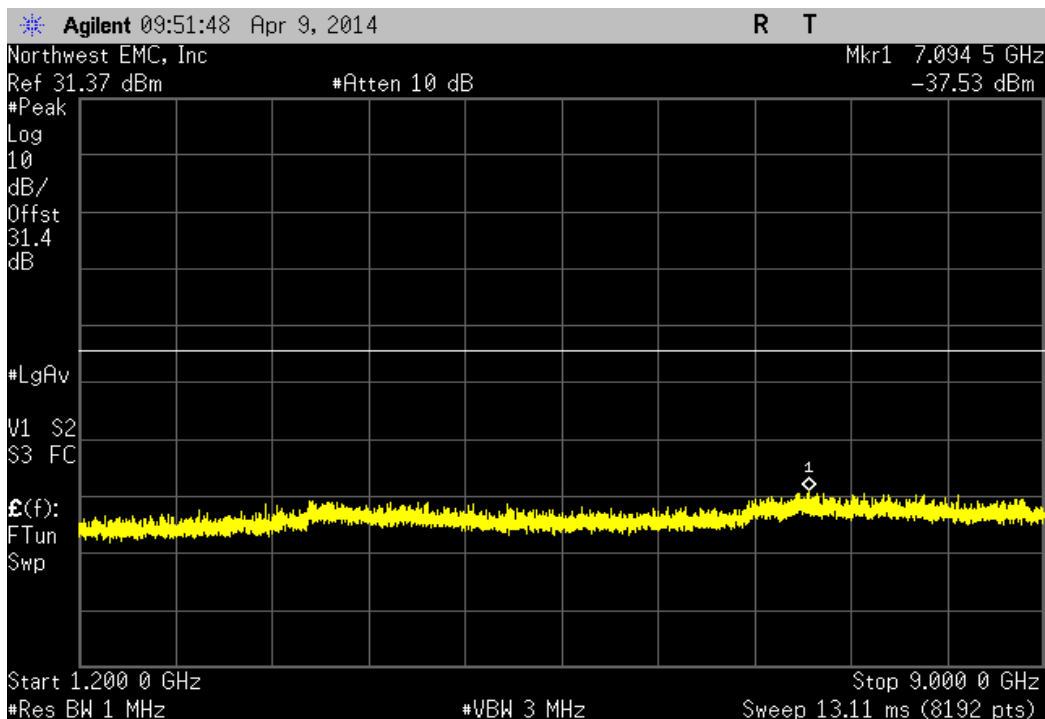
LTE 3 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-39.36 dBm	≤ -13 dBm	Pass	



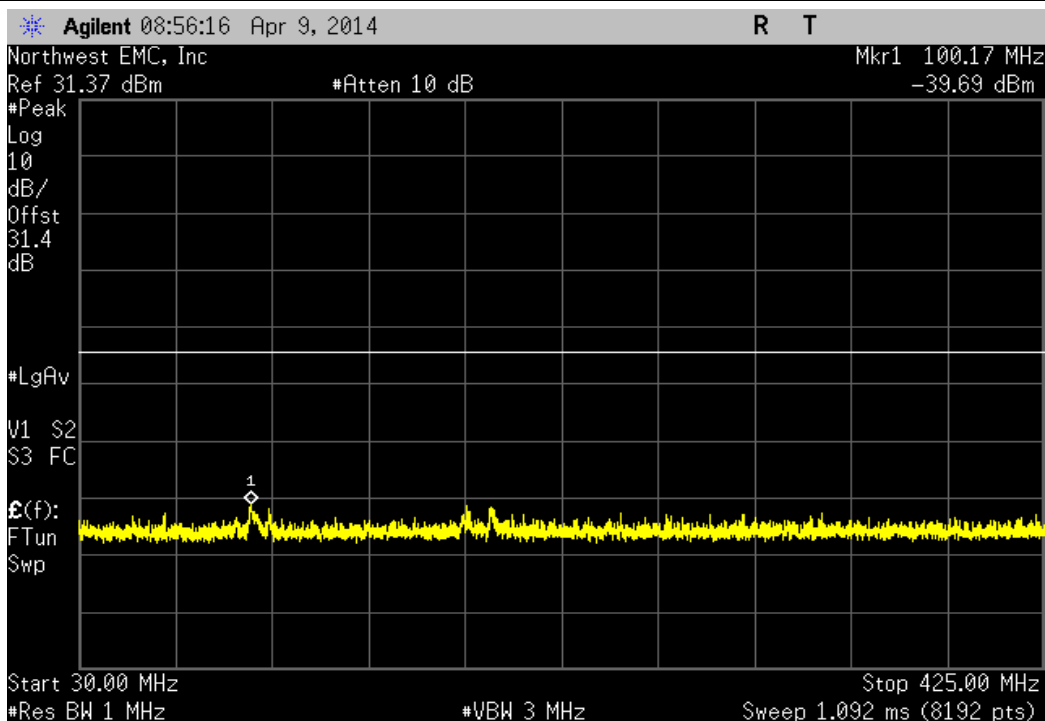
LTE 3 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.73 dBm	≤ -13 dBm	Pass	



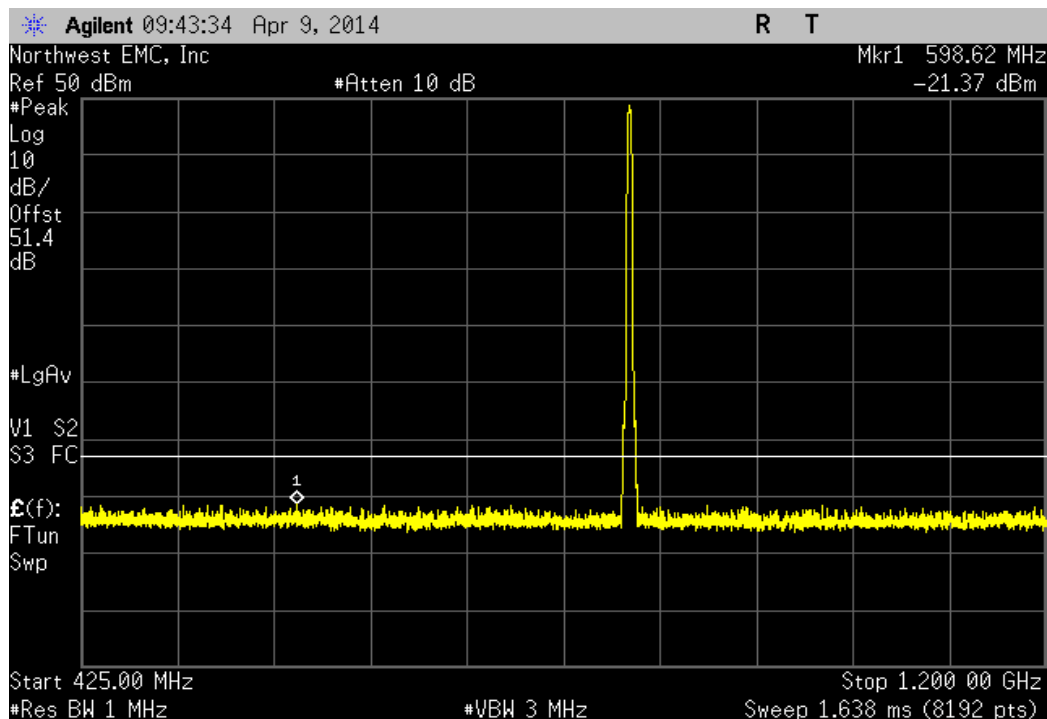
LTE 3 MHz, Low Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.53 dBm	≤ -13 dBm	Pass	



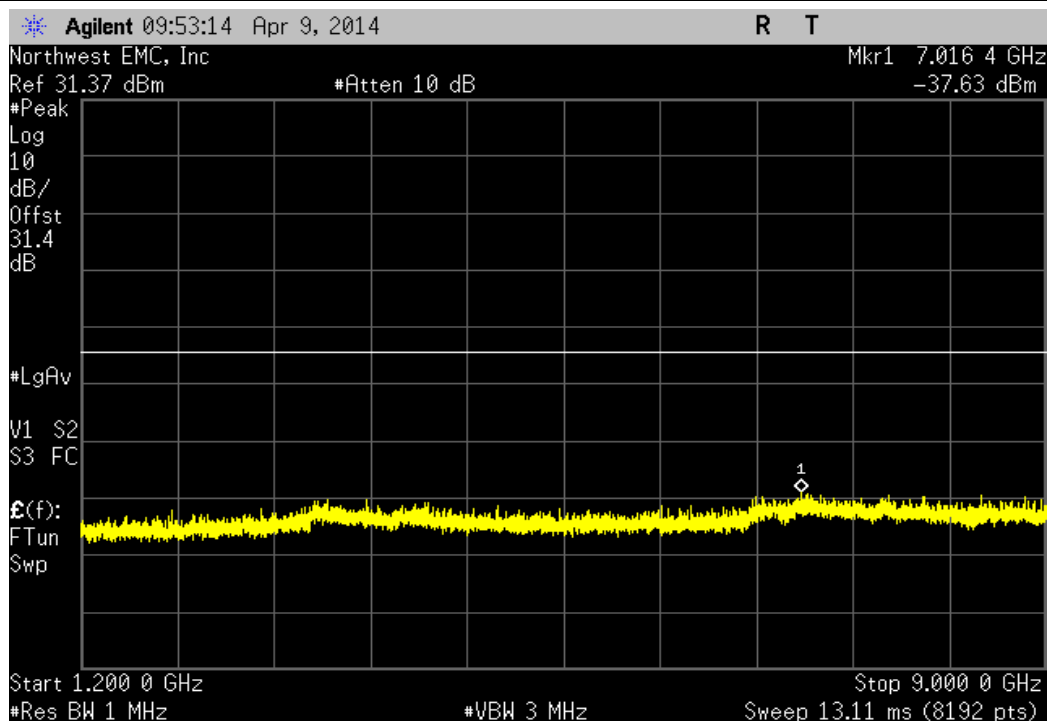
LTE 3 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-39.69 dBm	≤ -13 dBm	Pass	



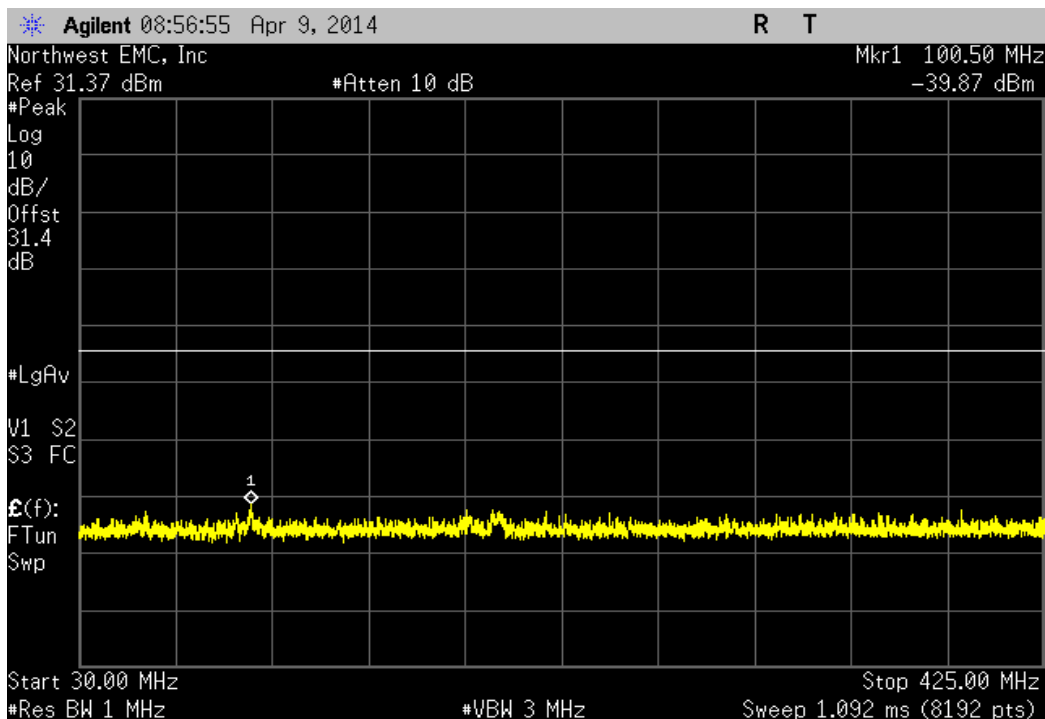
LTE 3 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-21.37 dBm	≤ -13 dBm	Pass	



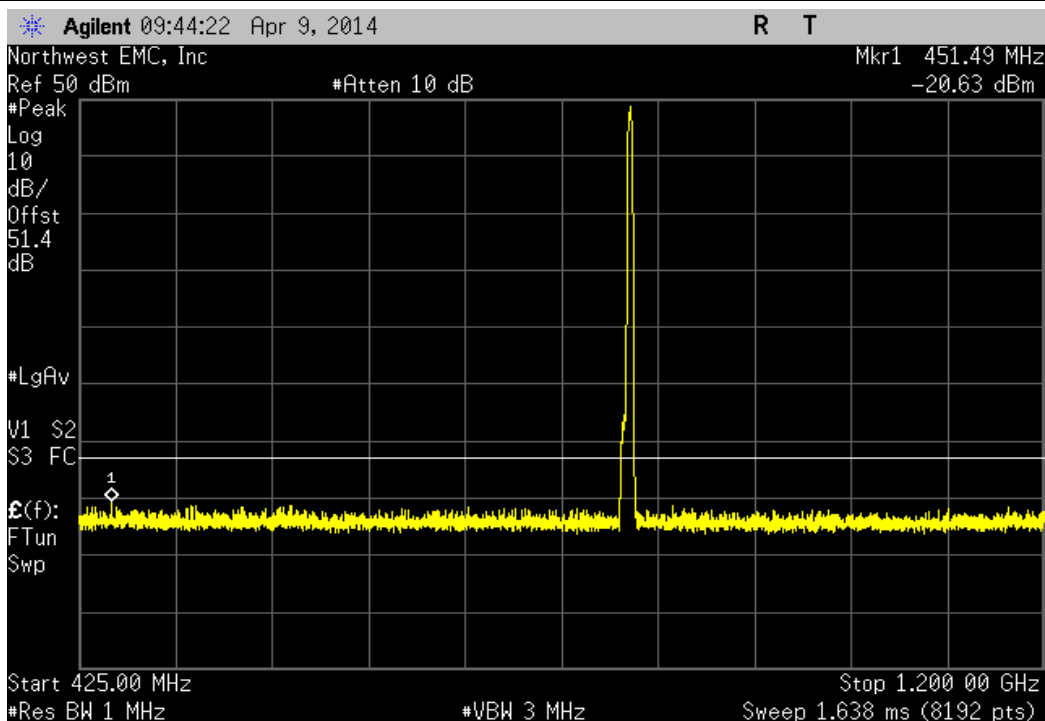
LTE 3 MHz, Mid Channel				
Frequency Range	Value	Limit	Result	
1.2 GHz - 9 GHz	-37.63 dBm	≤ -13 dBm	Pass	



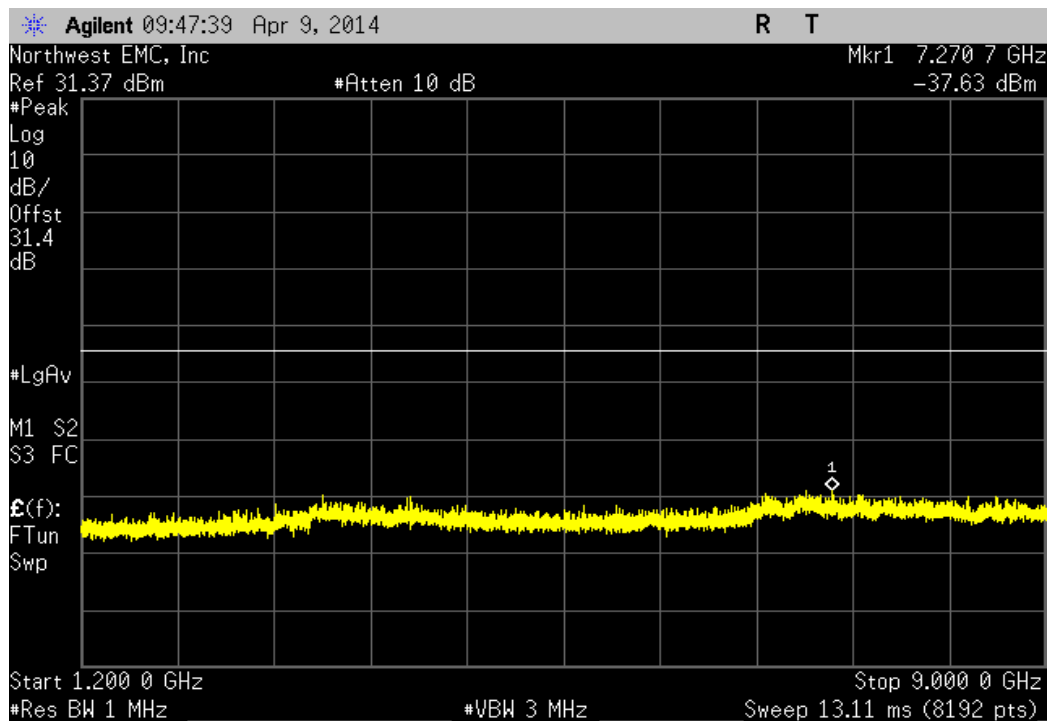
LTE 3 MHz, High Channel				
Frequency Range	Value	Limit	Result	
30 MHz - 425 MHz	-39.87 dBm	≤ -13 dBm	Pass	



LTE 3 MHz, High Channel				
Frequency Range	Value	Limit	Result	
425 MHz - 1.2 GHz	-20.63 dBm	≤ -13 dBm	Pass	



LTE 3 MHz, High Channel				
Frequency Range		Value	Limit	Result
1.2 GHz - 9 GHz		-37.63 dBm	≤ -13 dBm	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
High Pass Filter 1.2-18 GHz	Micro-Tronics	HPM50108	HGX	10/5/2012	24
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	HGU	10/5/2012	24
Power Divider/Combiner	Fairview Microwave Inc (SM electronics)	MP8451-2	IAD	NCR	0
Power Divider/Combiner	Fairview Microwave Inc (SM electronics)	MP8451-2	IAC	NCR	0
Attenuator	Aeroflex	48-30-34	RCU	7/3/2013	12
Attenuator - 20db, 'SMA'	SM Electronics	SA26B-20	RFW	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	12
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 modulated pulse at the bottom of the band, a CW pulse at the bottom of the band, and a CW 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 20 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.

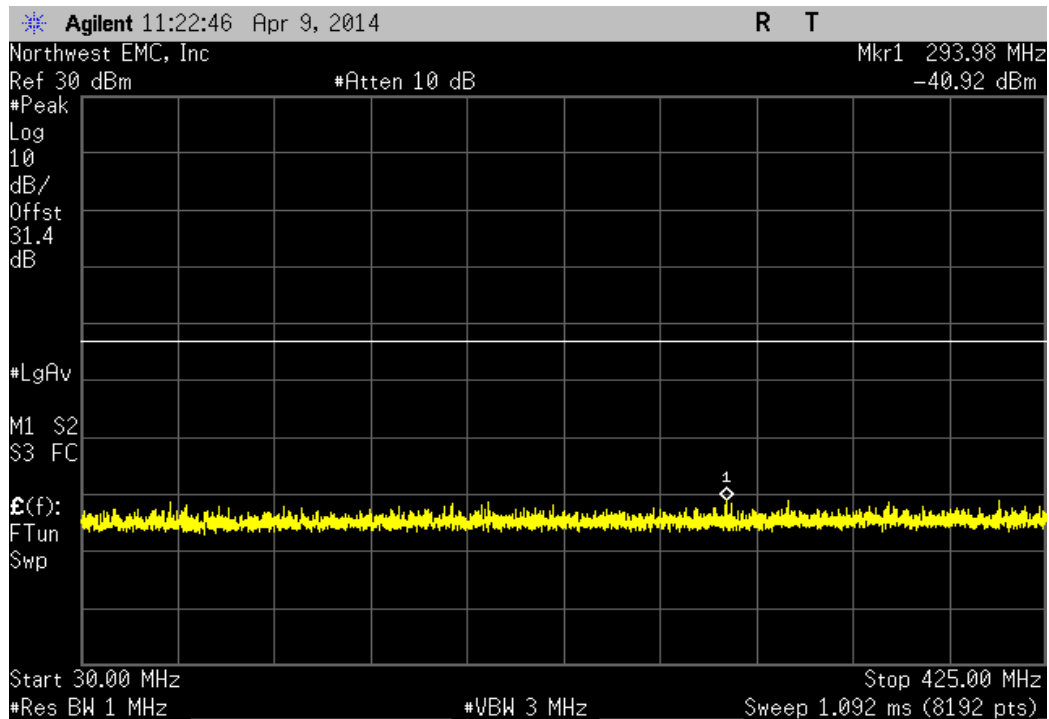


INTERMODULATION

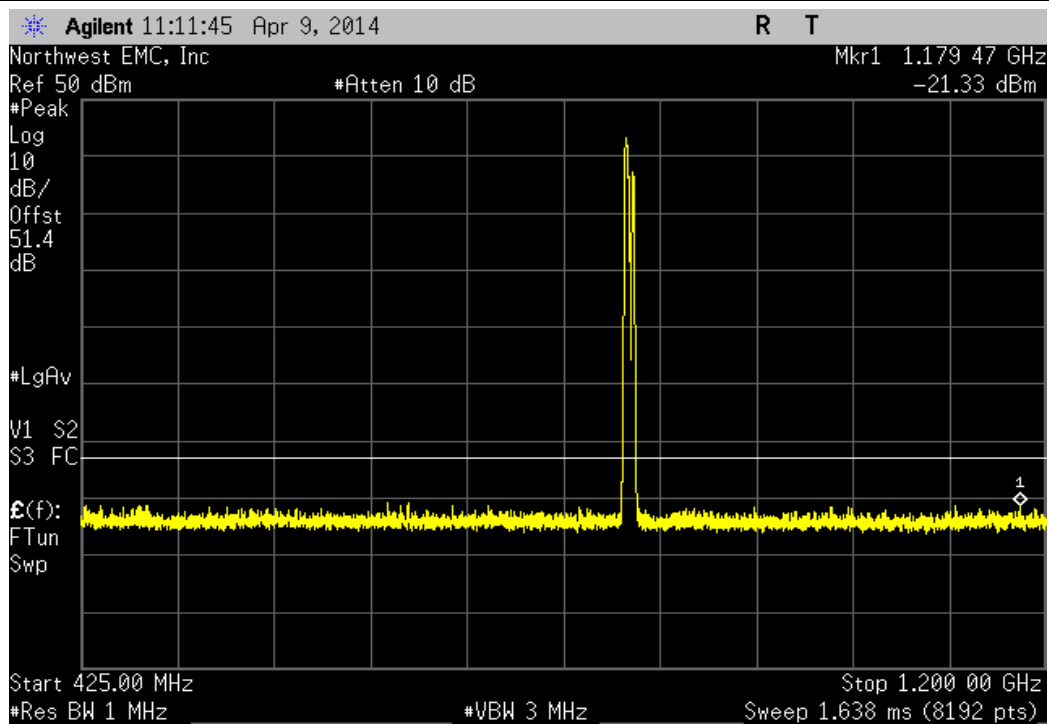
XMit 2013.08.15

EUT: Prism HDM 800 MHz/1900 MHz SISO RF Module		Work Order: TECO0013	
Serial Number: None		Date: 04/09/14	
Customer: TE Connectivity / ADC Telecommunications		Temperature: 24.2°C	
Attendees: None		Humidity: 21%	
Project: None		Barometric Pres.: 1013.5	
Tested by: Trevor Buls		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS			
FCC 901:2014		Test Method	
		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature <i>Trevor Buls</i>	
		Value (dBm)	Limit (dBm) Result
CDMA			
	30 MHz - 425 MHz	-40.92	-13 Pass
	425 MHz - 1.2 GHz	-21.33	-13 Pass
	1.2 GHz - 9 GHz	-36.97	-13 Pass
LTE 1.4 MHZ			
	30 MHz - 425 MHz	-40.43	-13 Pass
	425 MHz - 1.2 GHz	-20.2	-13 Pass
	1.2 GHz - 9 GHz	-37.38	-13 Pass
LTE 3 MHZ			
	30 MHz - 425 MHz	-41.17	-13 Pass
	425 MHz - 1.2 GHz	-21.25	-13 Pass
	1.2 GHz - 9 GHz	-36.8	-13 Pass

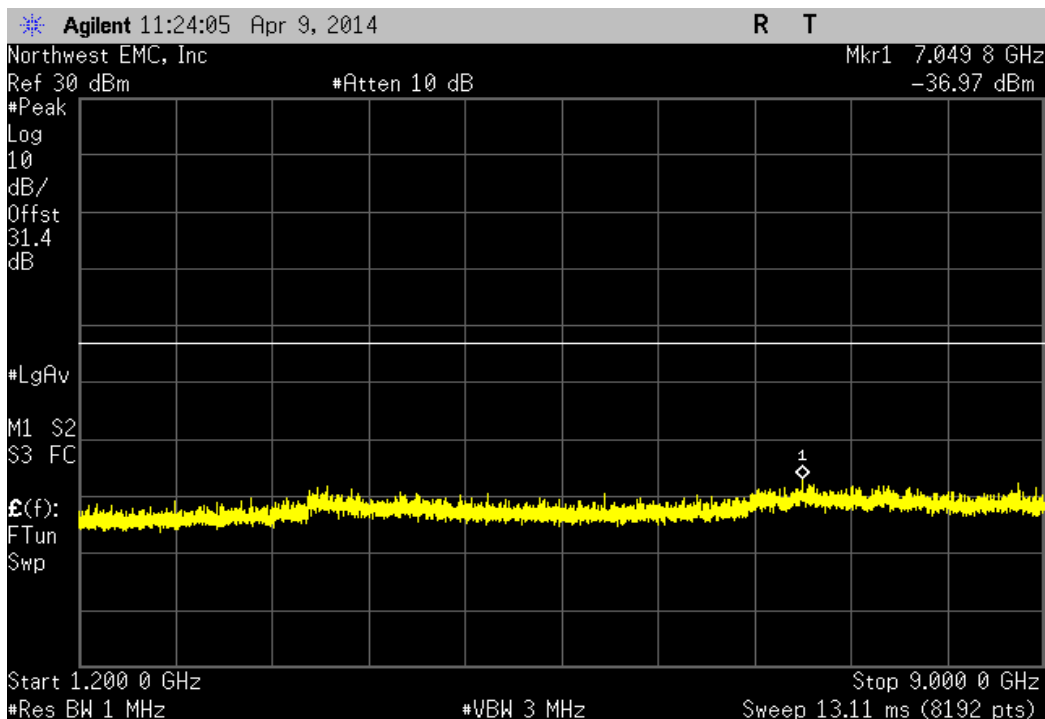
CDMA, 30 MHz - 425 MHz						
				Value (dBm)	Limit (dBm)	Result
				-40.92	-13	Pass



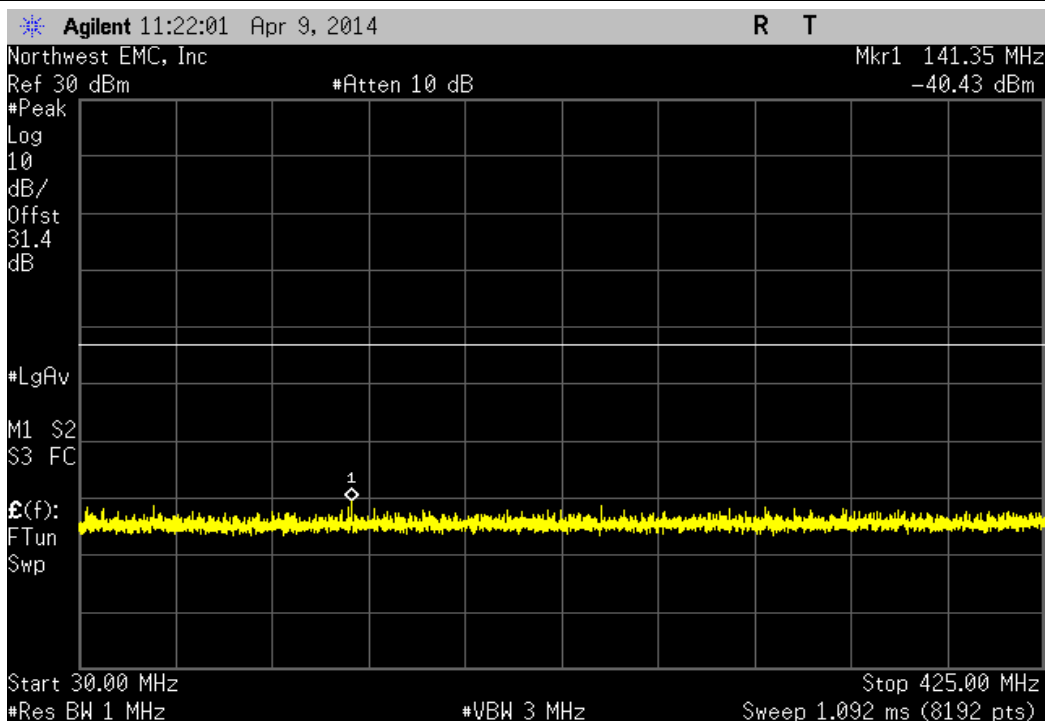
CDMA, 425 MHz - 1.2 GHz						
				Value (dBm)	Limit (dBm)	Result
				-21.33	-13	Pass



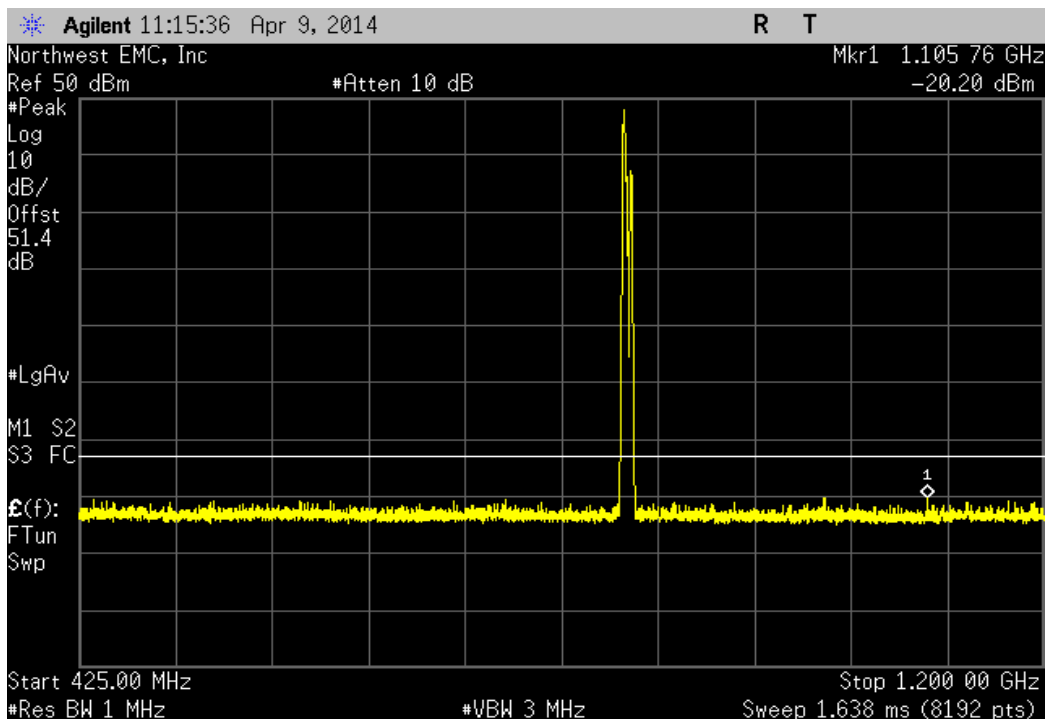
CDMA, 1.2 GHz - 9 GHz						
				Value (dBm)	Limit (dBm)	Result
				-36.97	-13	Pass



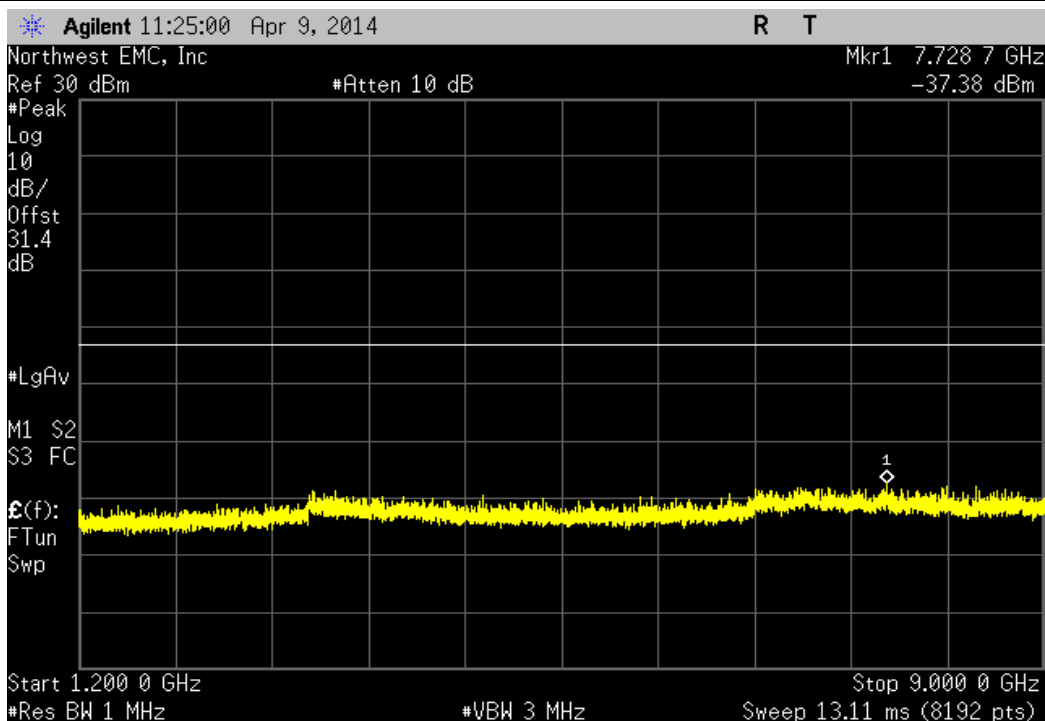
LTE 1.4 MHz, 30 MHz - 425 MHz						
				Value (dBm)	Limit (dBm)	Result
				-40.43	-13	Pass



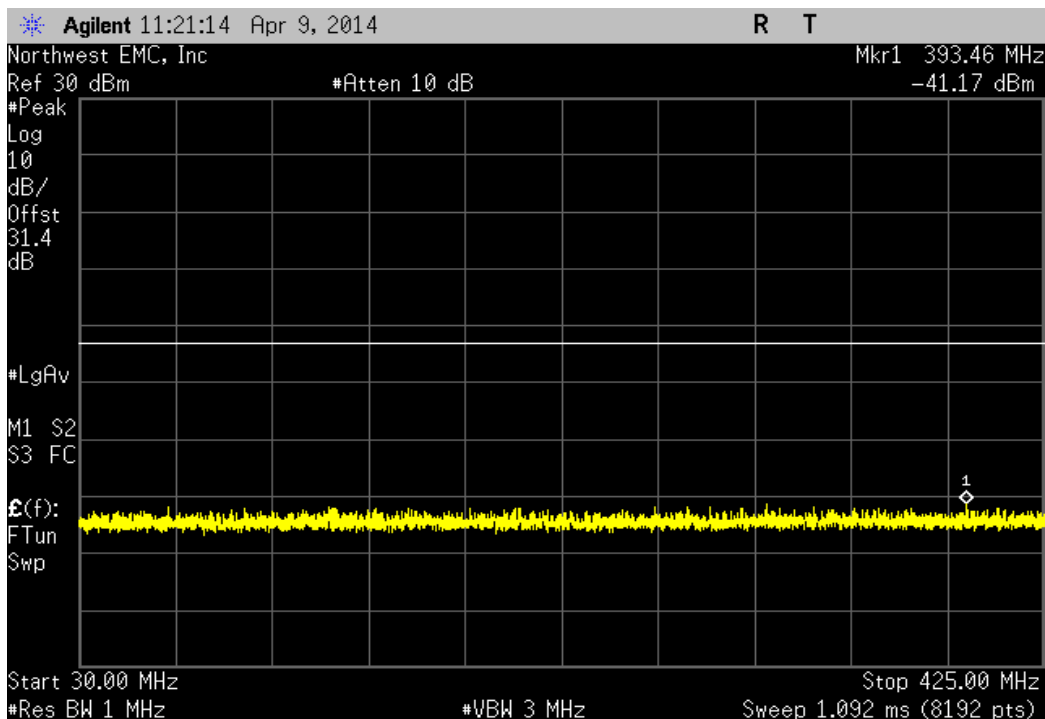
LTE 1.4 MHz, 425 MHz - 1.2 GHz						
				Value (dBm)	Limit (dBm)	Result
				-20.2	-13	Pass



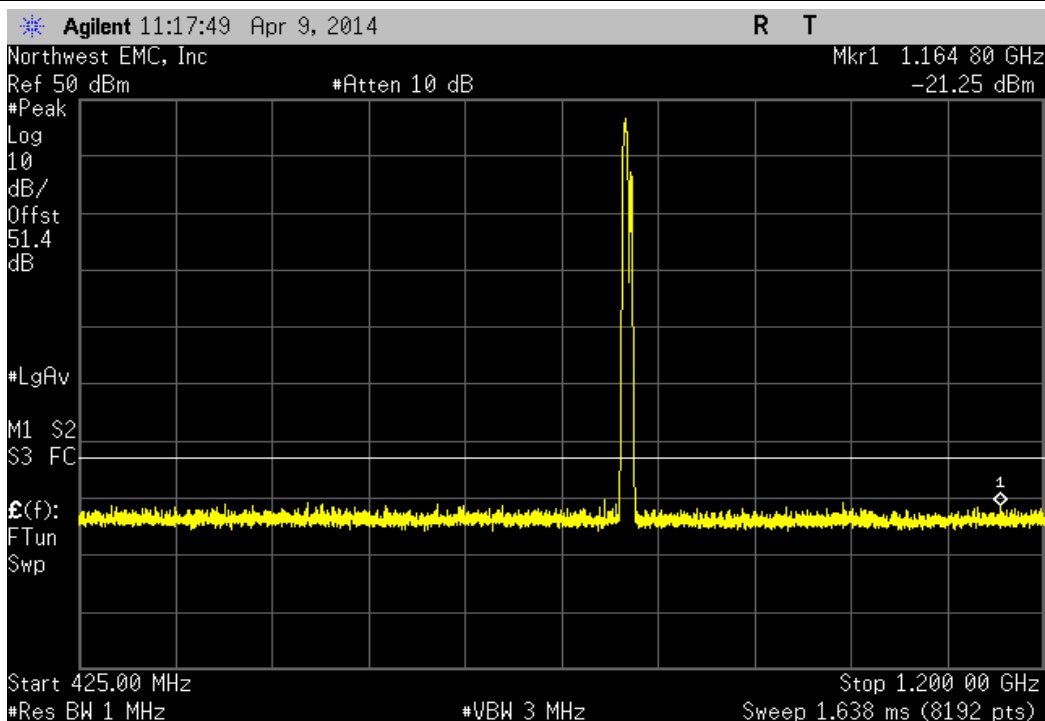
LTE 1.4 MHz, 1.2 GHz - 9 GHz						
				Value (dBm)	Limit (dBm)	Result
				-37.38	-13	Pass



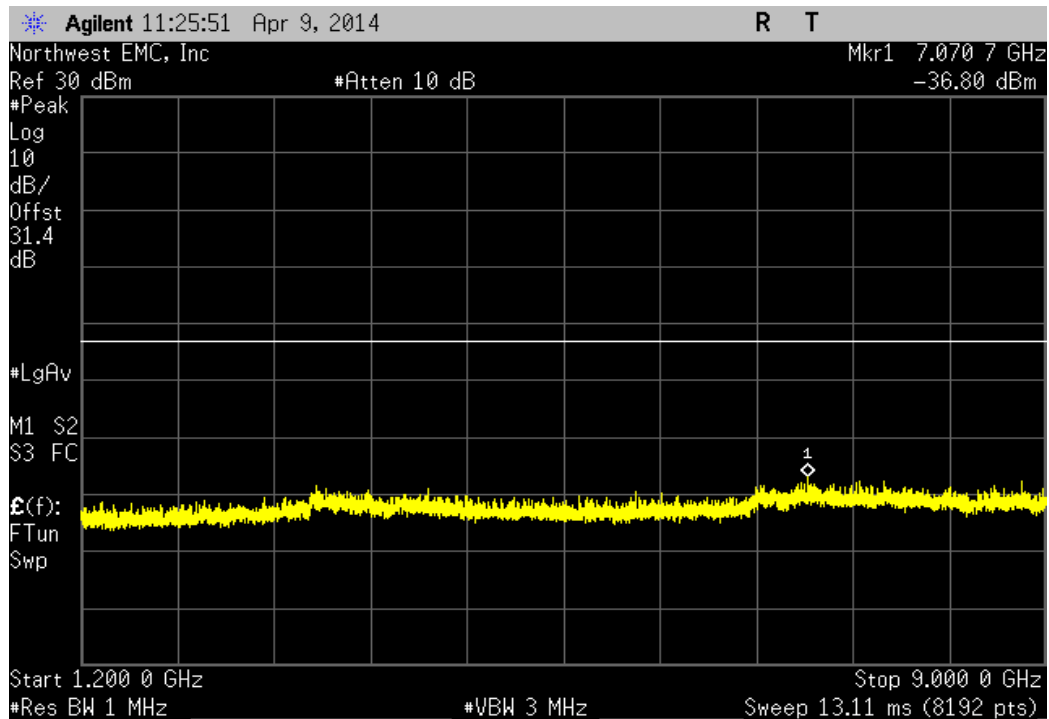
LTE 3 MHz, 30 MHz - 425 MHz						
				Value (dBm)	Limit (dBm)	Result
				-41.17	-13	Pass



LTE 3 MHz, 425 MHz - 1.2 GHz						
				Value (dBm)	Limit (dBm)	Result
				-21.25	-13	Pass



LTE 3 MHz, 1.2 GHz - 9 GHz						
				Value (dBm)	Limit (dBm)	Result
				-36.8	-13	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	117	MNN	1/20/2014	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	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	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.

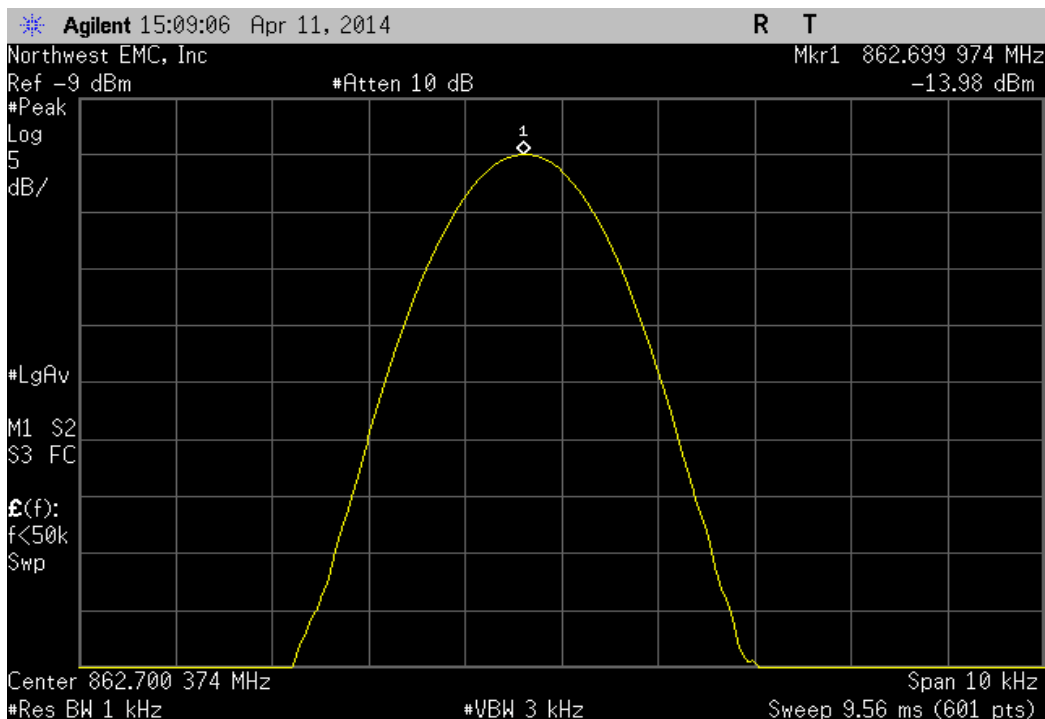


FREQUENCY STABILITY

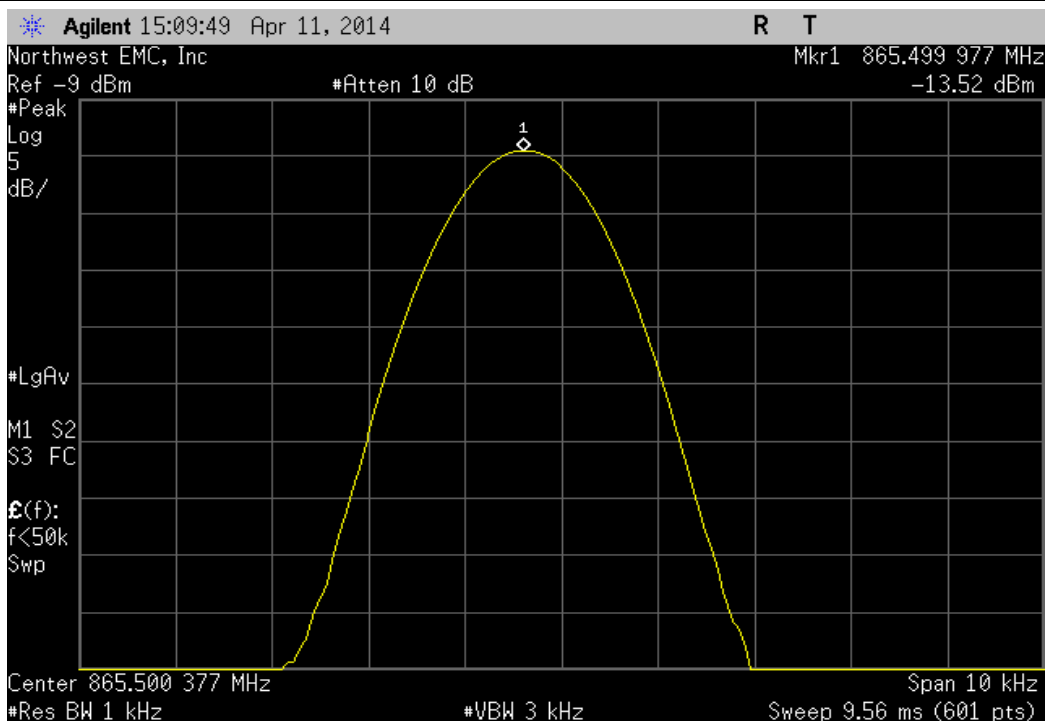
XMit 2013.08.15
PsaTx 2013.10.23

EUT: Prism HDM 800 MHz/1900 MHz SISO RF Module			Work Order: TECO0013			
Serial Number: None			Date: 04/14/14			
Customer: TE Connectivity / ADC Telecommunications			Temperature: 22.8°C			
Attendees: None			Humidity: 16%			
Project: None			Barometric Pres.: 1020.6			
Tested by: Trevor Buls		Power: 110VAC/60Hz	Job Site: MN08			
TEST SPECIFICATIONS		Test Method				
FCC 901:2014		ANSI/TIA/EIA-603-C-2004				
COMMENTS						
Customer provided a high wattage 30 dB attenuator. Voltage range varied from 126.5 to 93.5 VAC						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1	Signature <i>Trevor Buls</i>				
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
Voltage: 115%						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Voltage: 100%						
	Low Channel, 862.7 MHz	862.699991	862.7	0.0104	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Voltage: 85%						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Temperature: +50°						
	Low Channel, 862.7 MHz	862.699971	862.7	0.0336	1	Pass
	Mid Channel, 865.5 MHz	865.499988	865.5	0.0139	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Temperature: +40°						
	Low Channel, 862.7 MHz	862.699976	862.7	0.0278	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Temperature: +30°						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Temperature: +20°						
	Low Channel, 862.7 MHz	862.699971	862.7	0.0336	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199967	868.2	0.0380	1	Pass
Temperature: +10°						
	Low Channel, 862.7 MHz	862.699971	862.7	0.0336	1	Pass
	Mid Channel, 865.5 MHz	865.499972	865.5	0.0324	1	Pass
	High Channel, 868.2 MHz	868.199967	868.2	0.0380	1	Pass
Temperature: 0°						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499972	865.5	0.0324	1	Pass
	High Channel, 868.2 MHz	868.199967	868.2	0.0380	1	Pass
Temperature: -10°						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499977	865.5	0.0266	1	Pass
	High Channel, 868.2 MHz	868.199984	868.2	0.0184	1	Pass
Temperature: -20°						
	Low Channel, 862.7 MHz	862.699971	862.7	0.0336	1	Pass
	Mid Channel, 865.5 MHz	865.499972	865.5	0.0324	1	Pass
	High Channel, 868.2 MHz	868.199967	868.2	0.0380	1	Pass
Temperature: -30°						
	Low Channel, 862.7 MHz	862.699974	862.7	0.0301	1	Pass
	Mid Channel, 865.5 MHz	865.499972	865.5	0.0324	1	Pass
	High Channel, 868.2 MHz	868.199967	868.2	0.0380	1	Pass

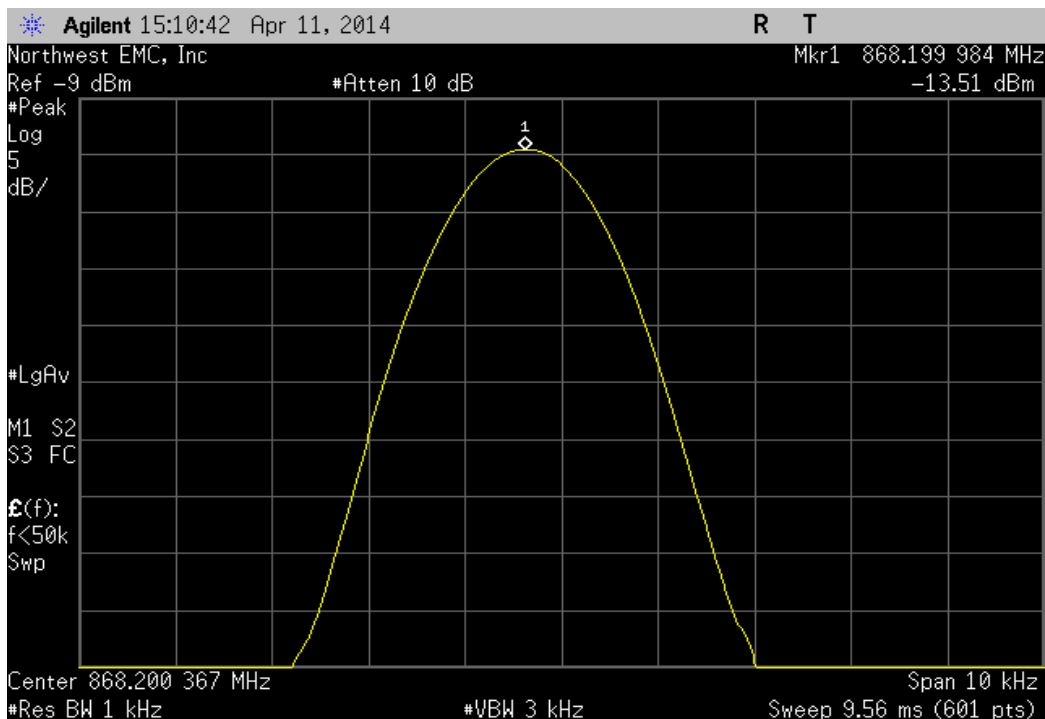
Voltage: 115%, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699974	862.7	0.0301	1	Pass



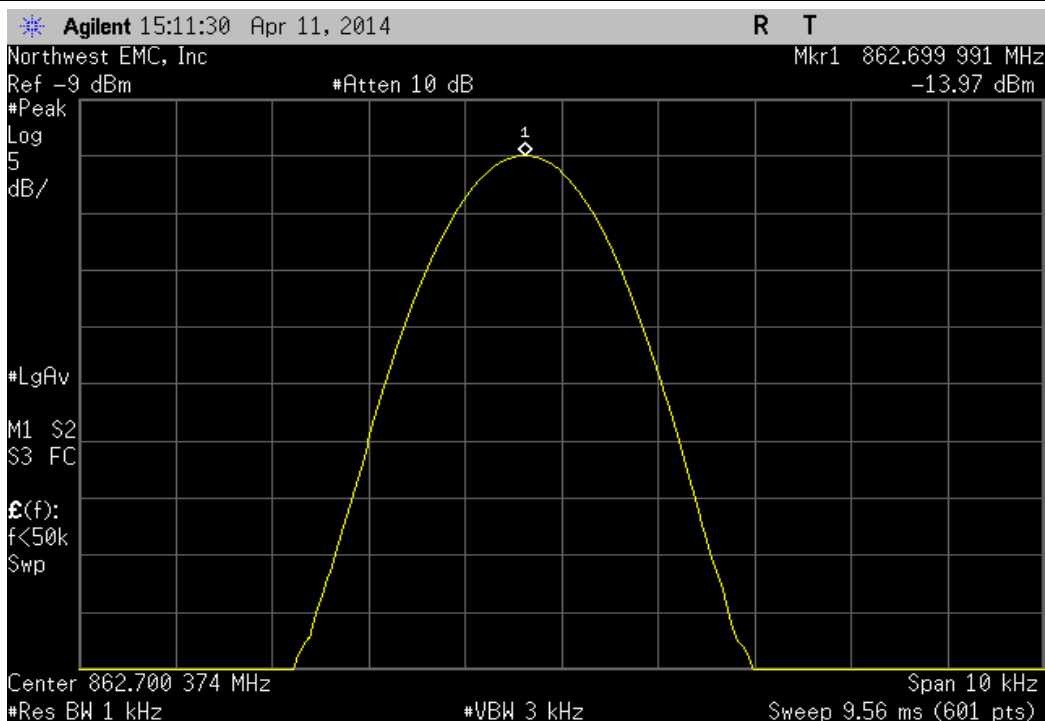
Voltage: 115%, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



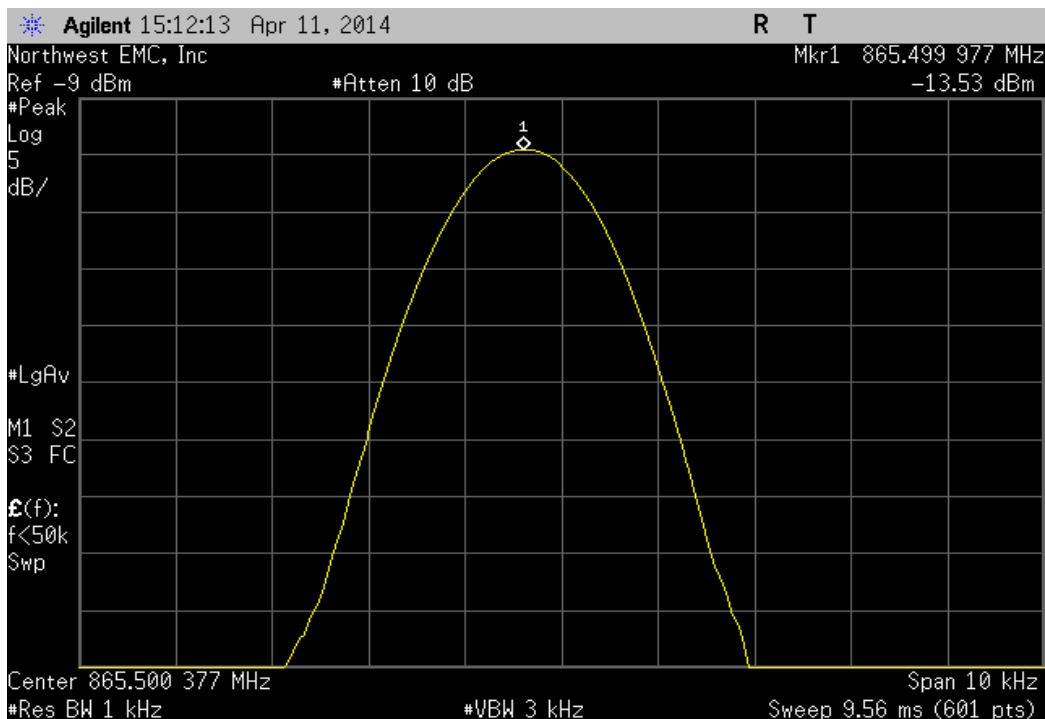
Voltage: 115%, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



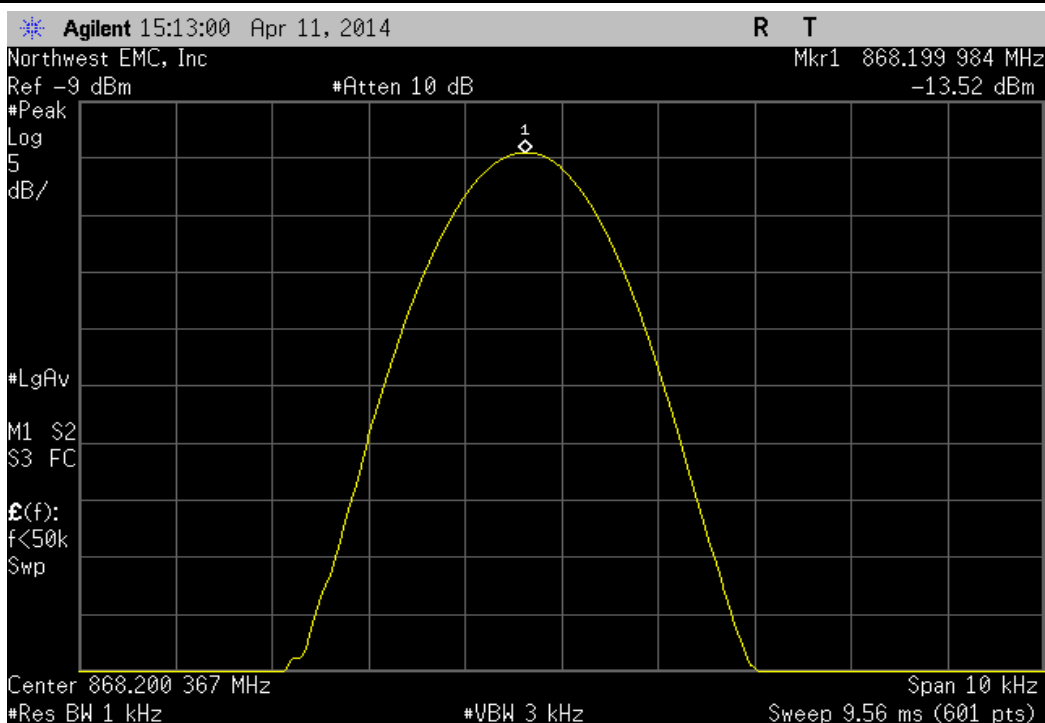
Voltage: 100%, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699991	862.7	0.0104	1	Pass



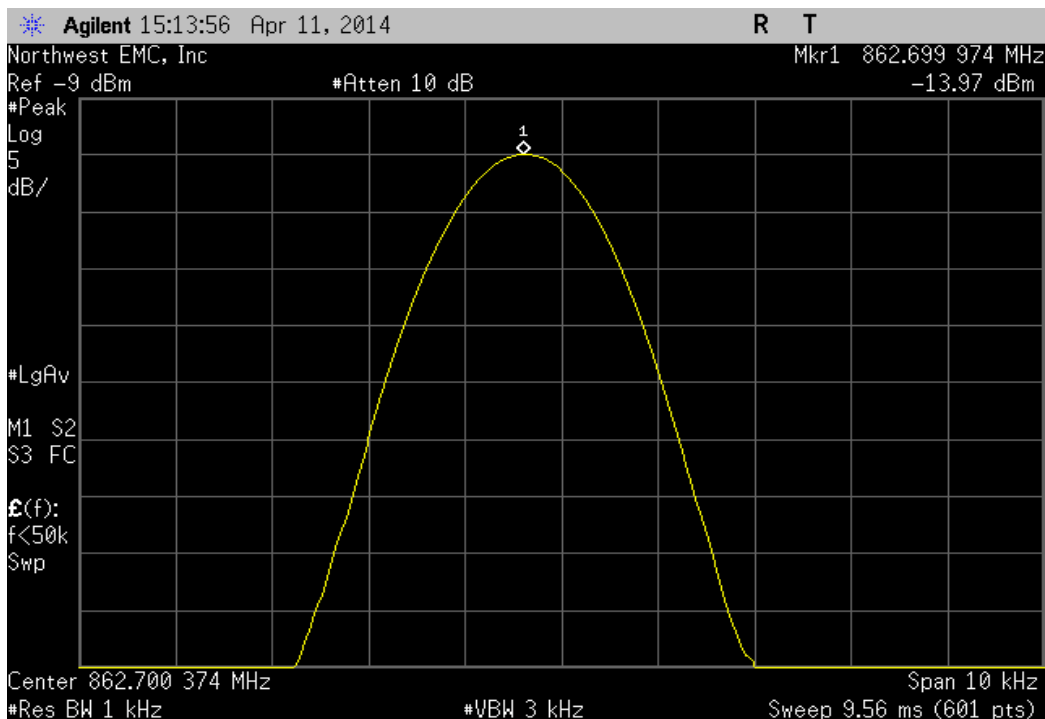
Voltage: 100%, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



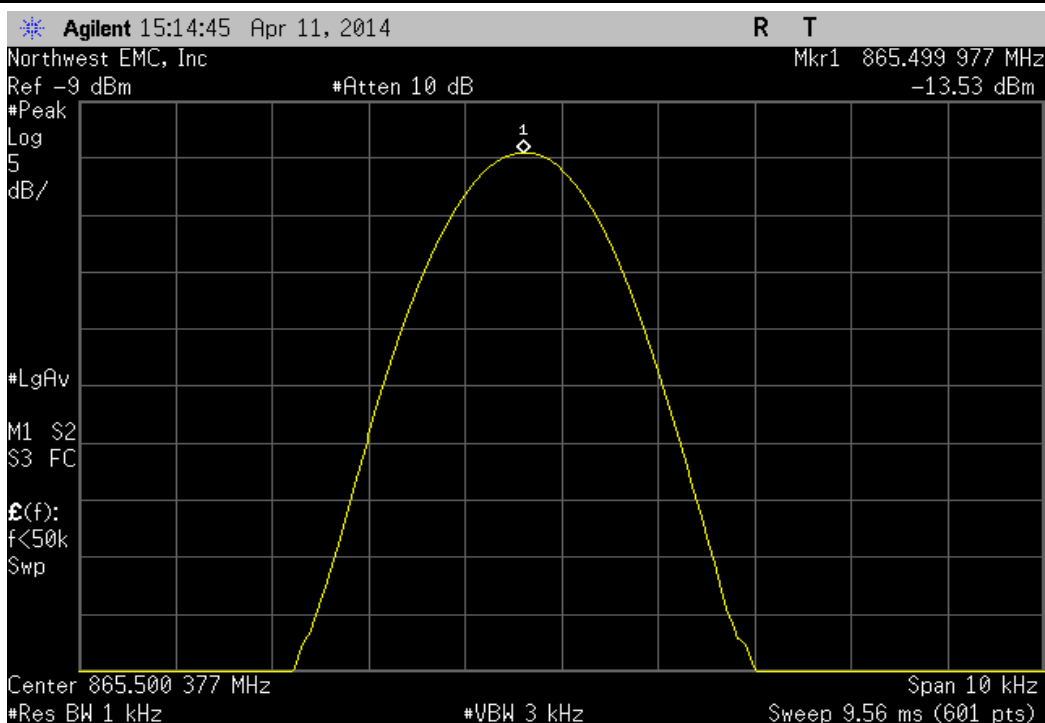
Voltage: 100%, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



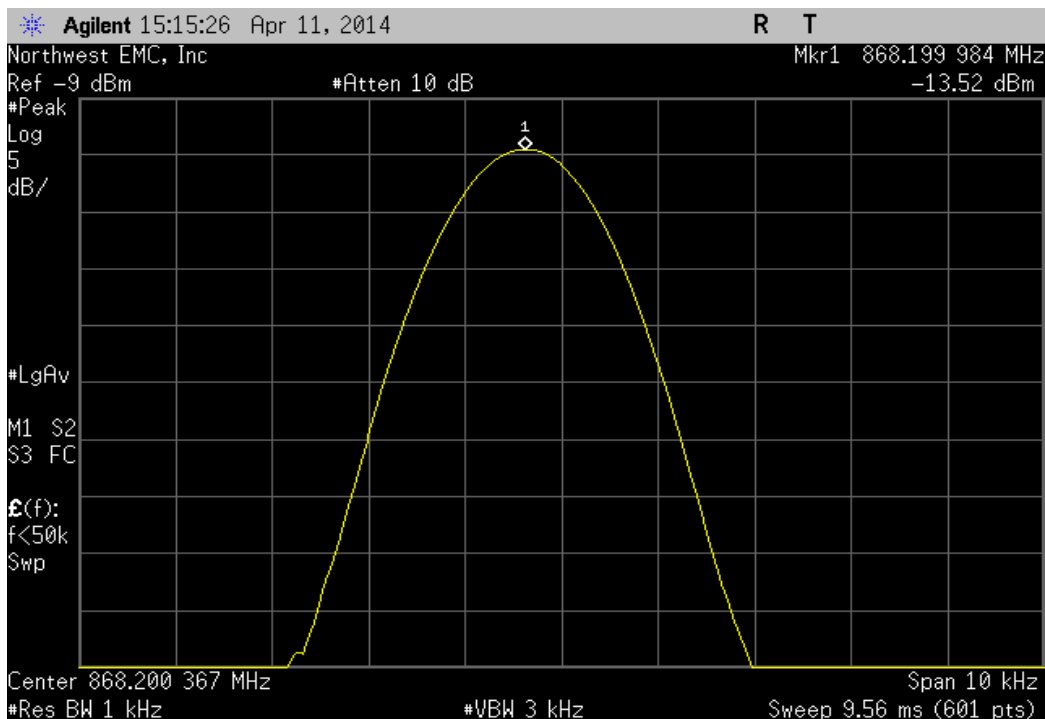
Voltage: 85%, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699974	862.7	0.0301	1	Pass



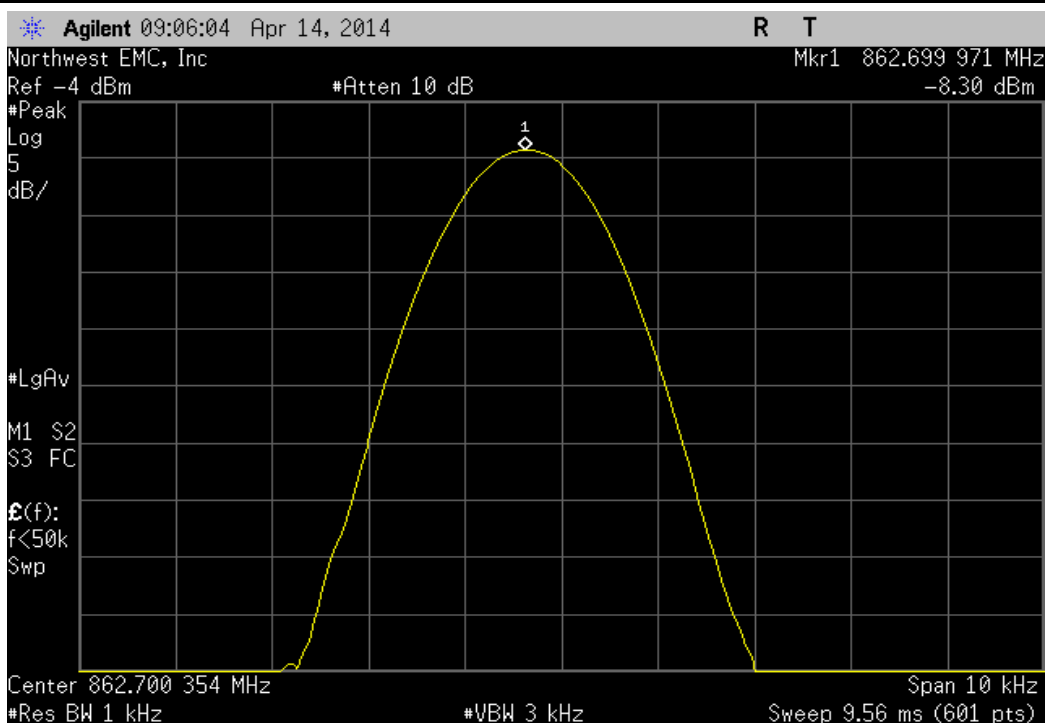
Voltage: 85%, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



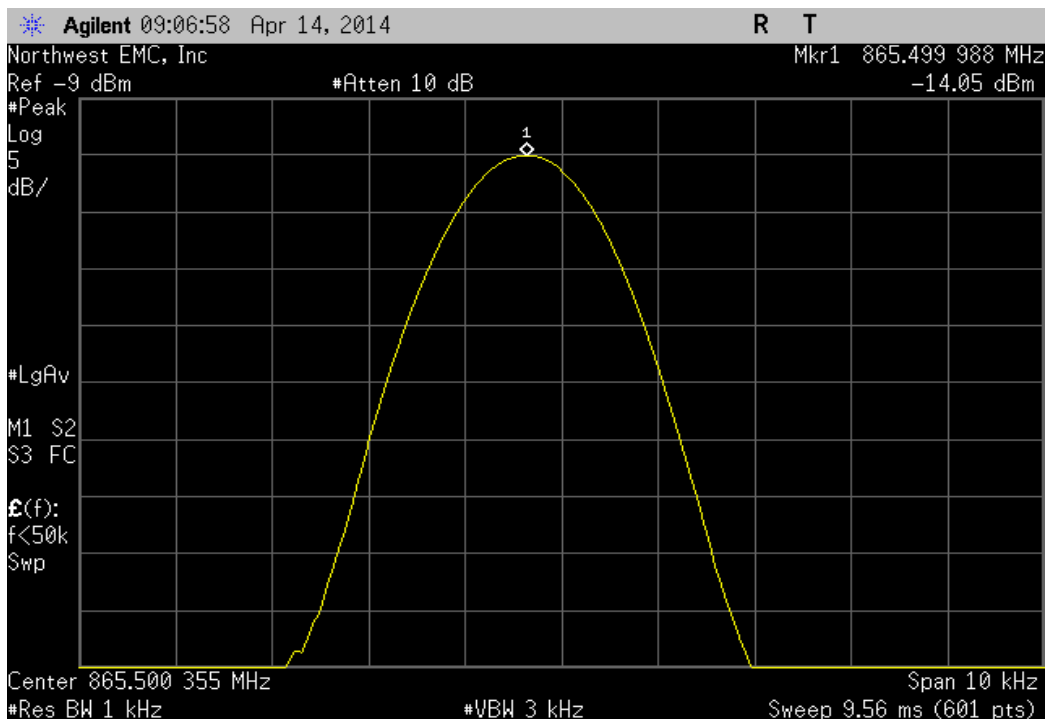
Voltage: 85%, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



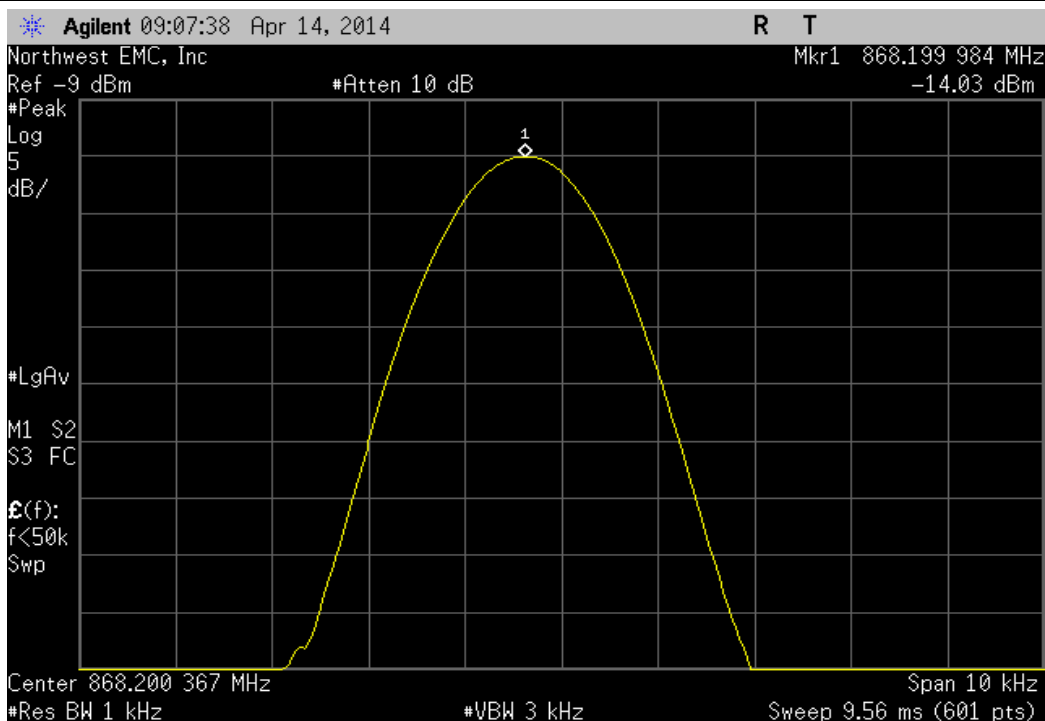
Temperature: +50°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699971	862.7	0.0336	1	Pass



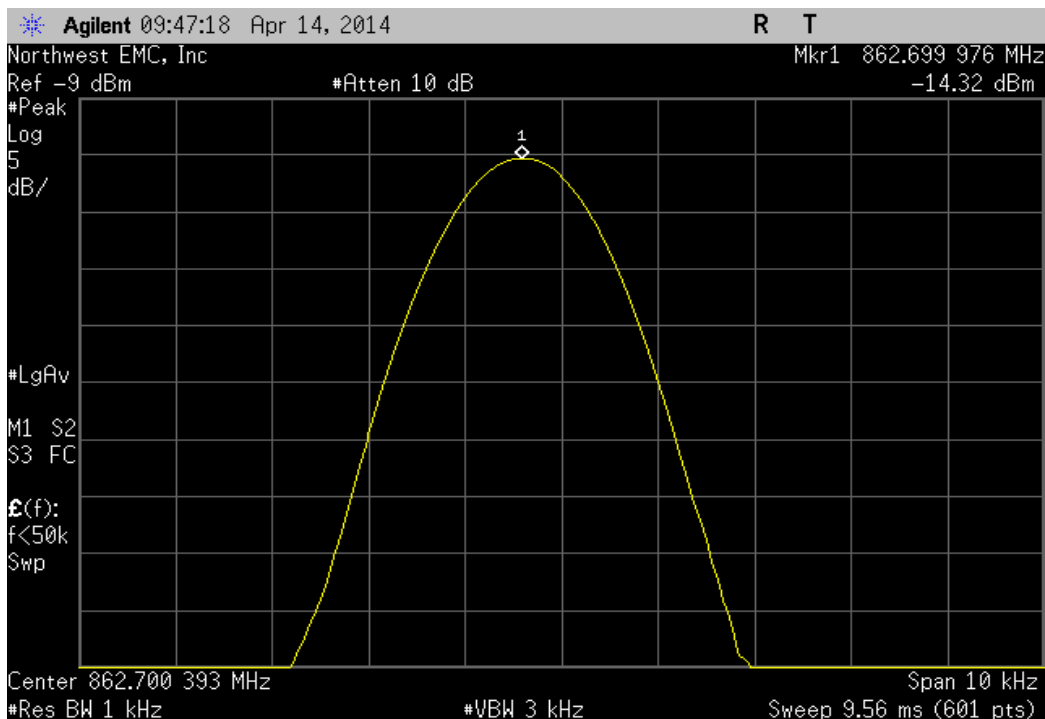
Temperature: +50°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499988	865.5	0.0139	1	Pass



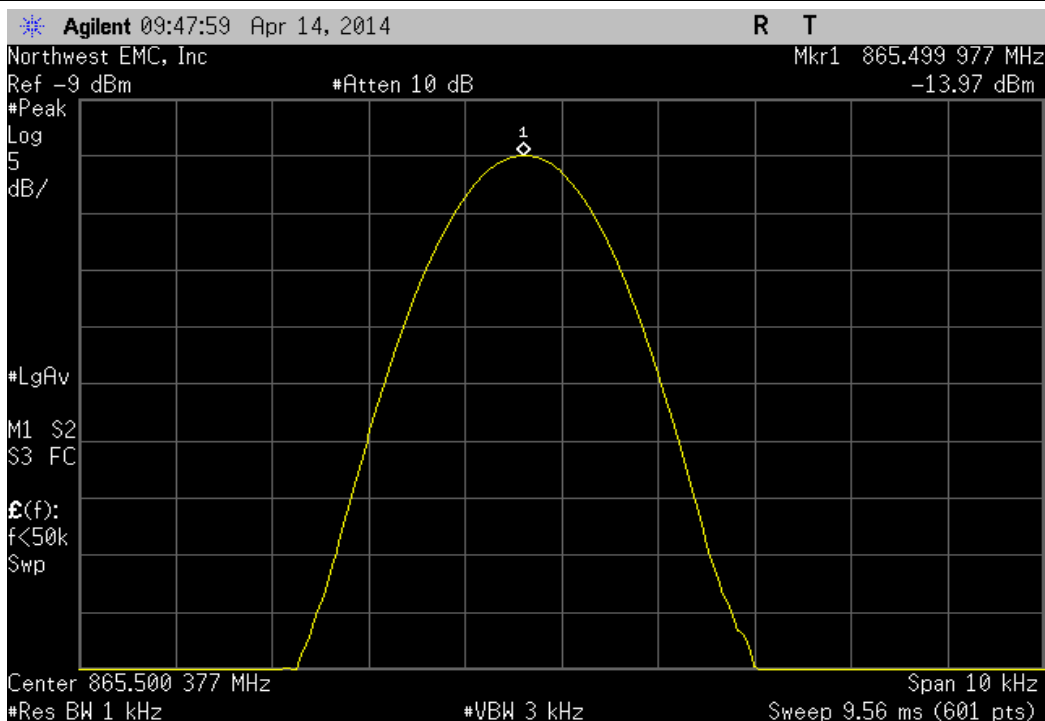
Temperature: +50°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



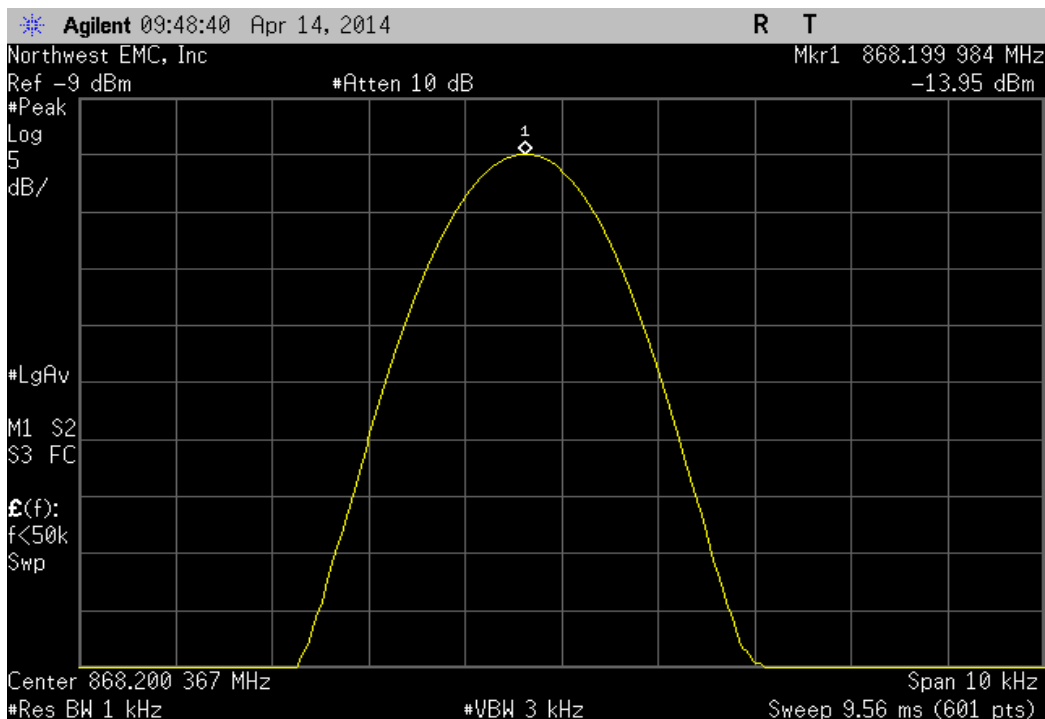
Temperature: +40°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699976	862.7	0.0278	1	Pass



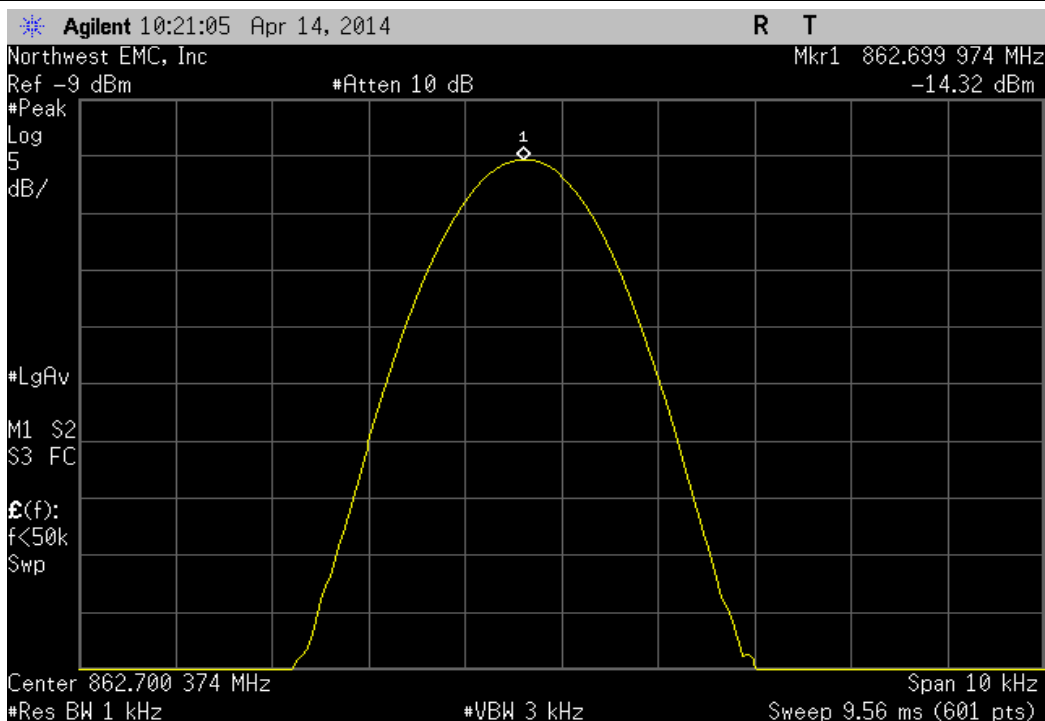
Temperature: +40°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



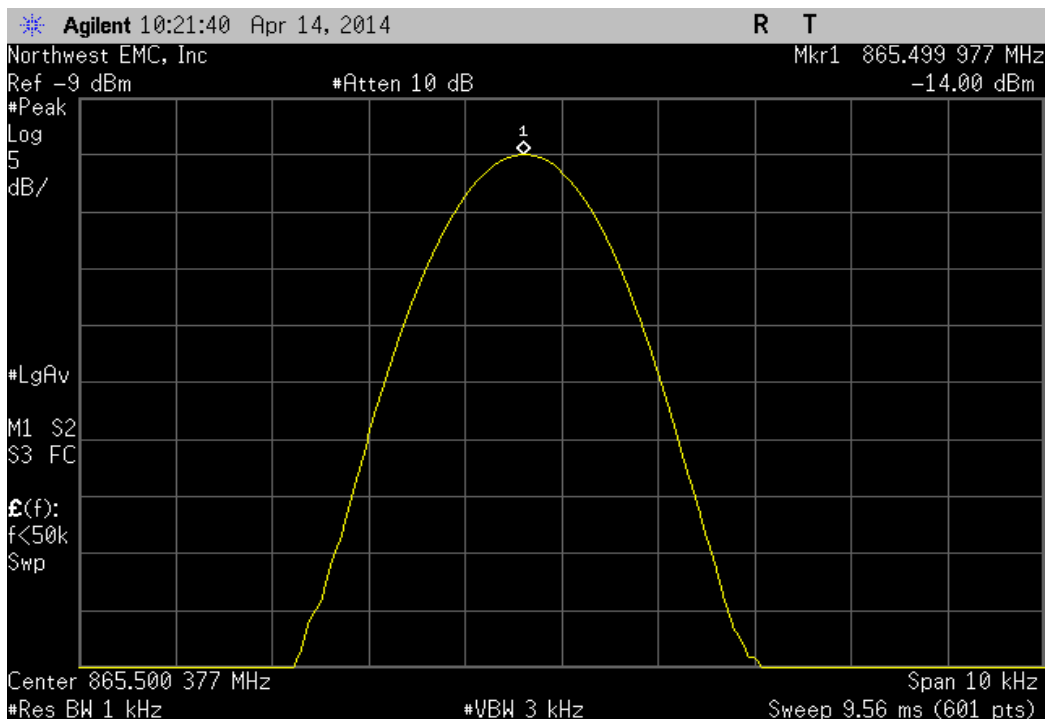
Temperature: +40°, High Channel, 868.2 MHz					
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result	
868.199984	868.2	0.0184	1	Pass	



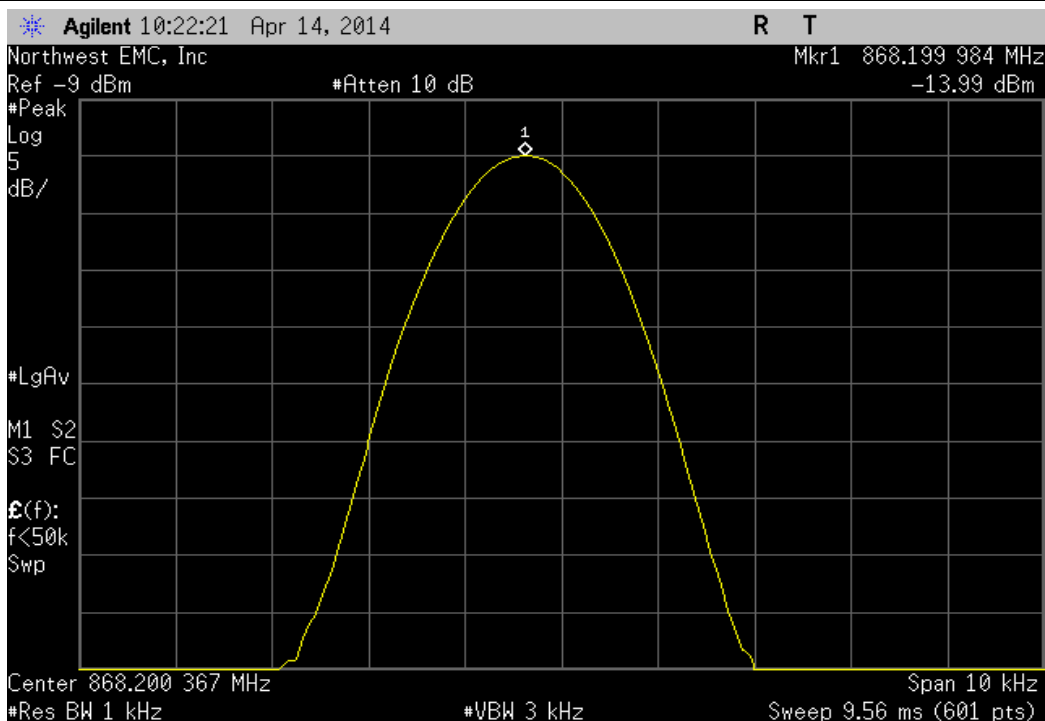
Temperature: +30°, Low Channel, 862.7 MHz					
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result	
862.699974	862.7	0.0301	1	Pass	



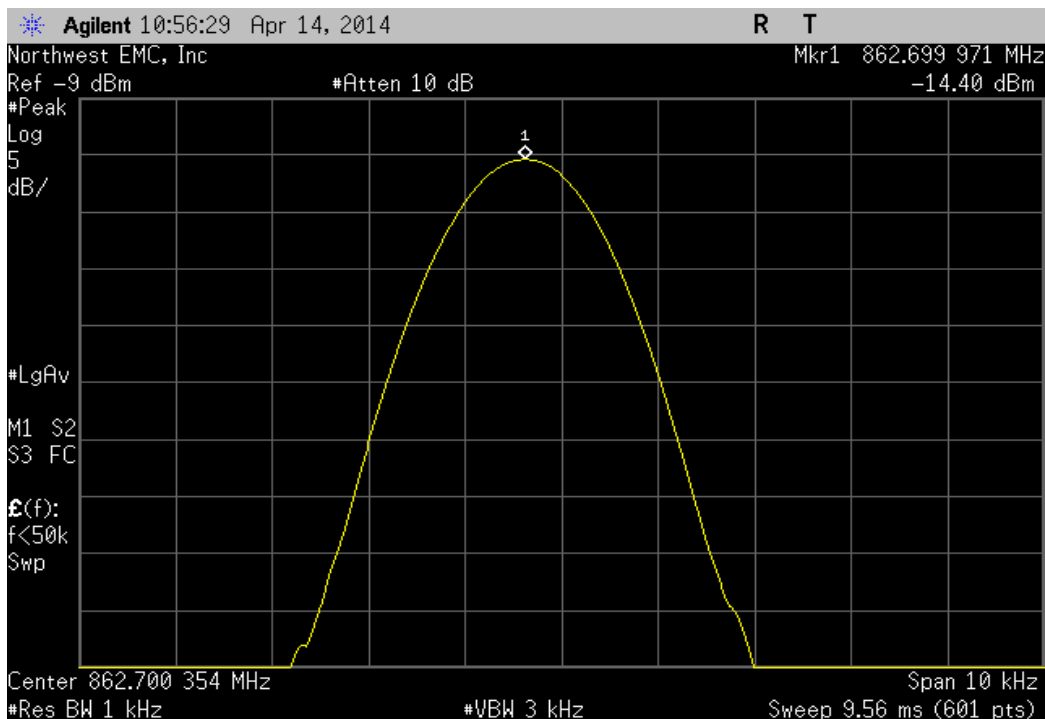
Temperature: +30°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



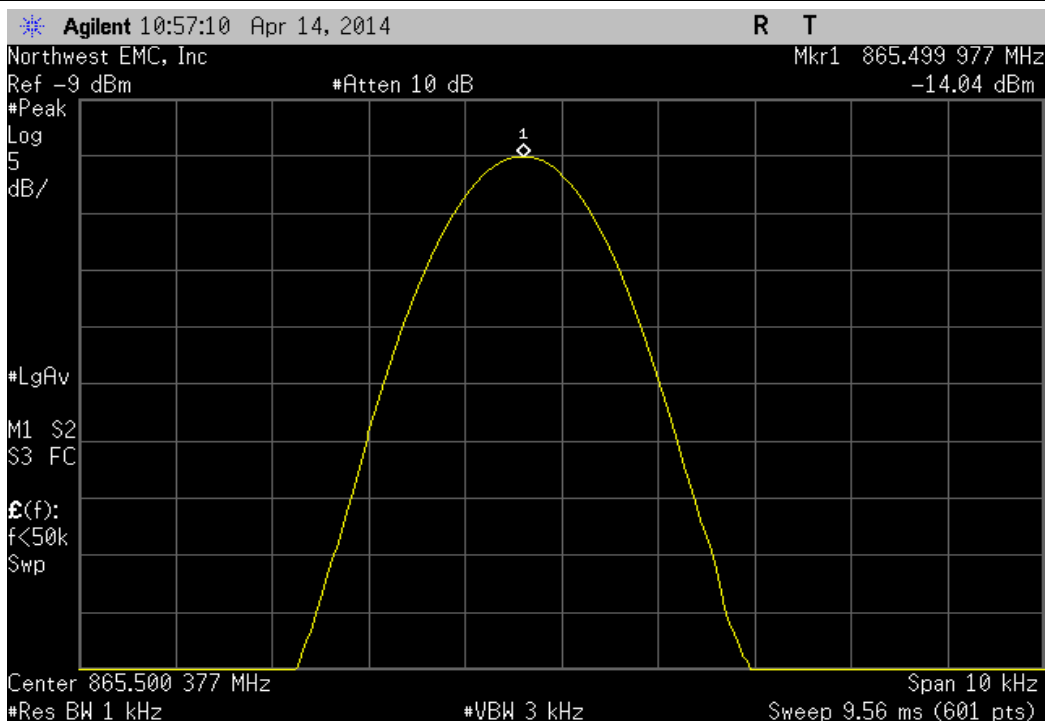
Temperature: +30°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



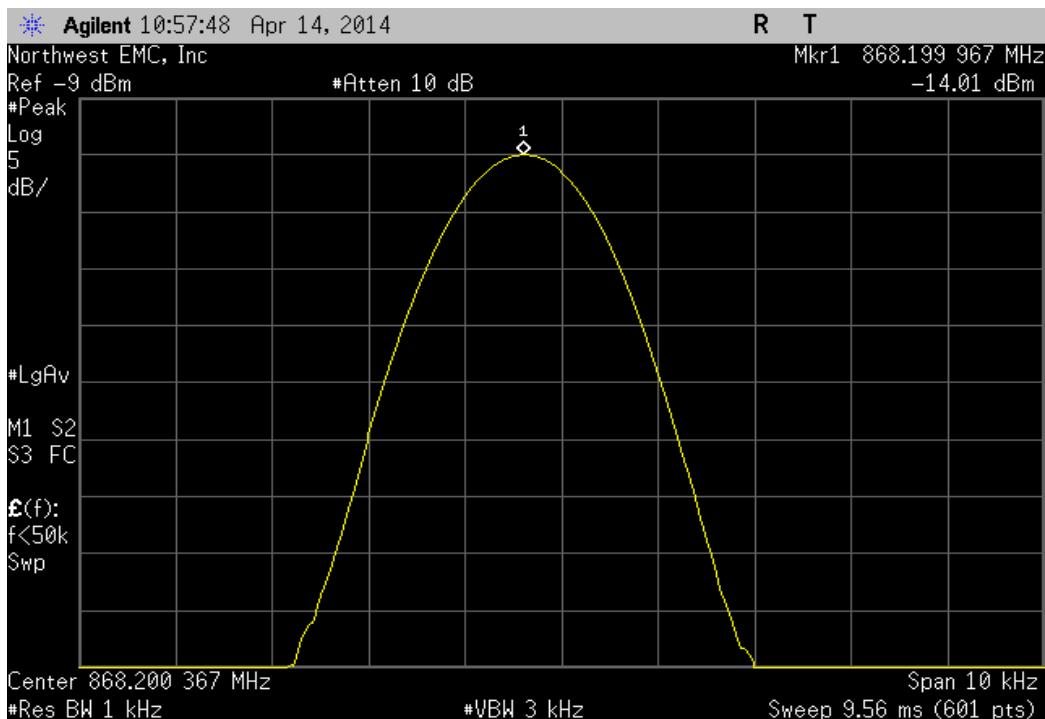
Temperature: +20°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699971	862.7	0.0336	1	Pass



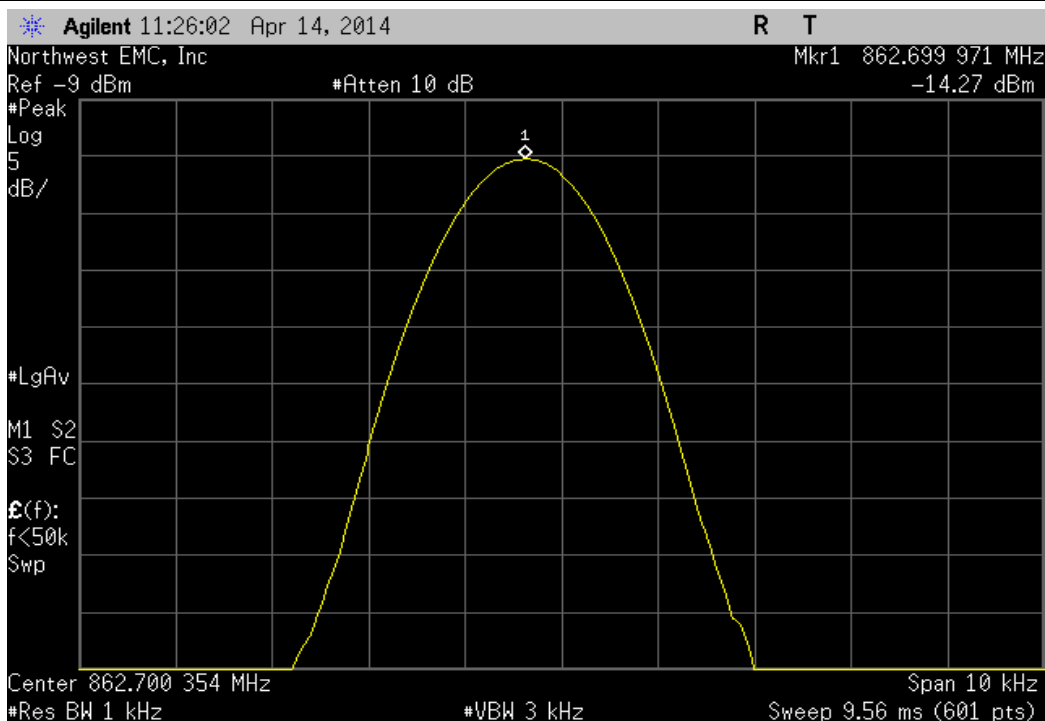
Temperature: +20°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



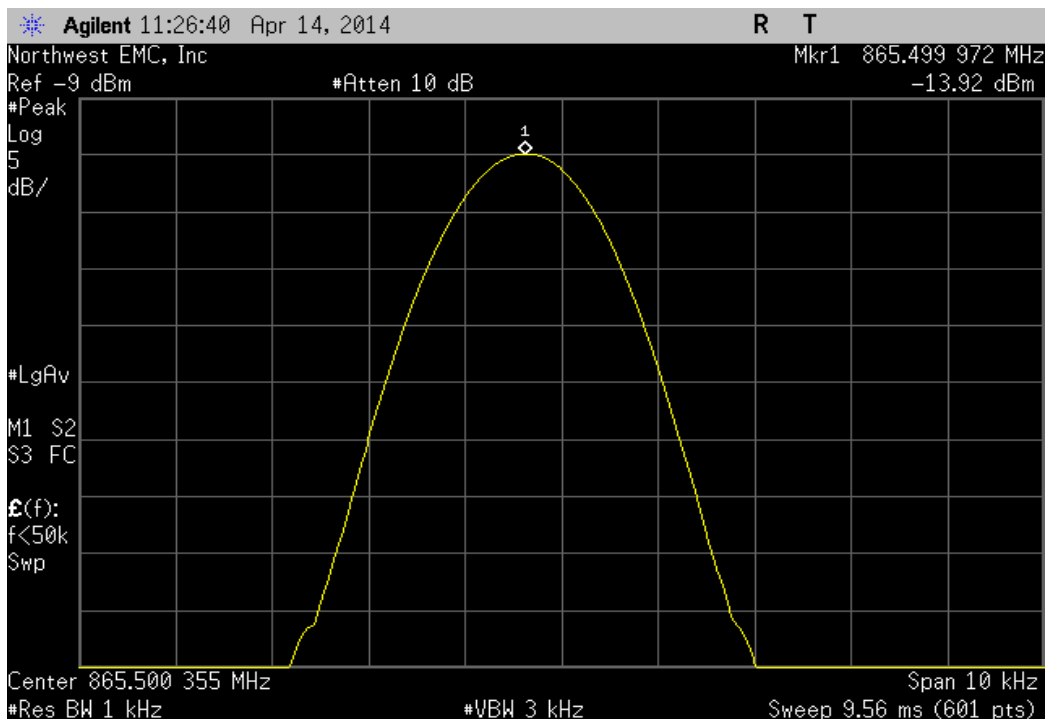
Temperature: +20°, High Channel, 868.2 MHz					
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result	
868.199967	868.2	0.0380	1	Pass	



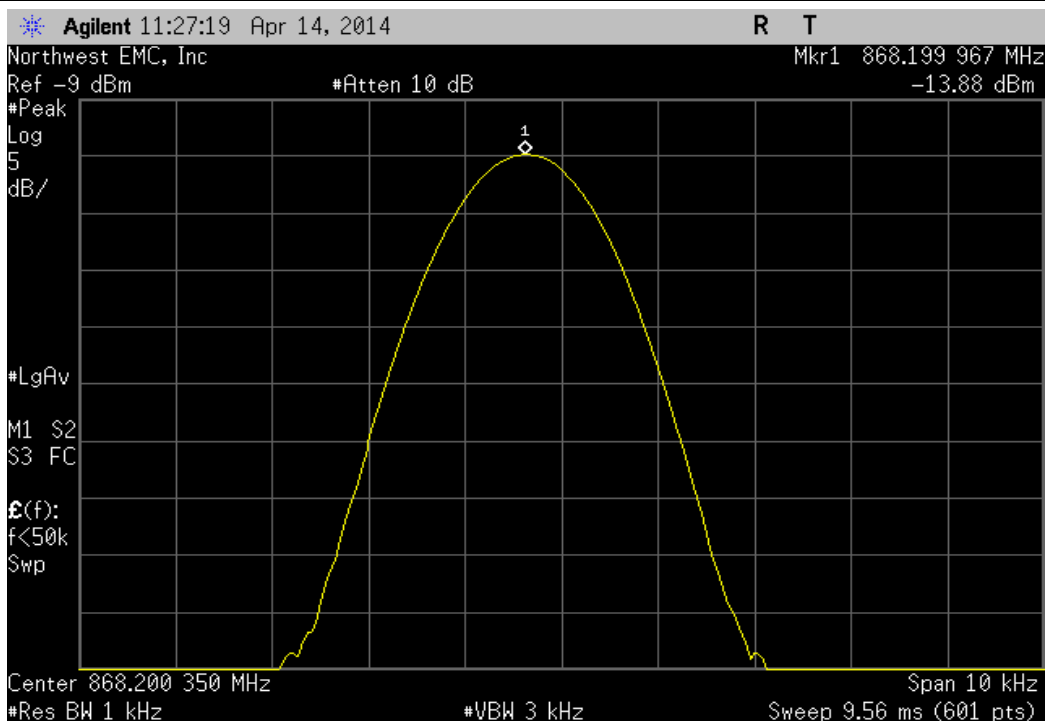
Temperature: +10°, Low Channel, 862.7 MHz					
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result	
862.699971	862.7	0.0336	1	Pass	



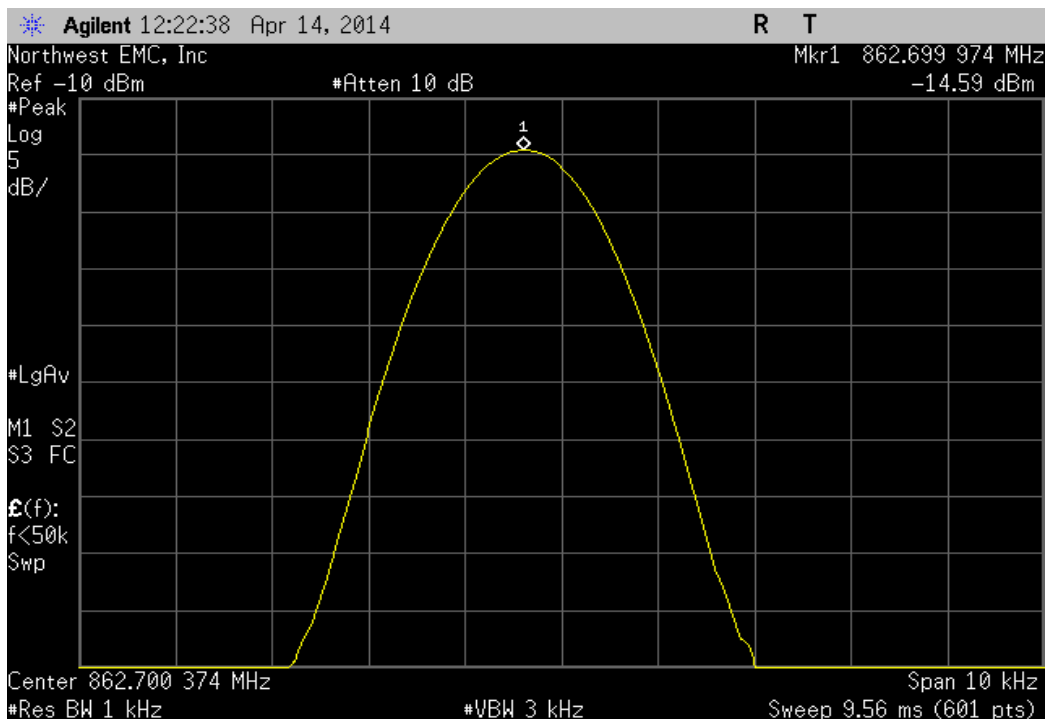
Temperature: +10°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499972	865.5	0.0324	1	Pass



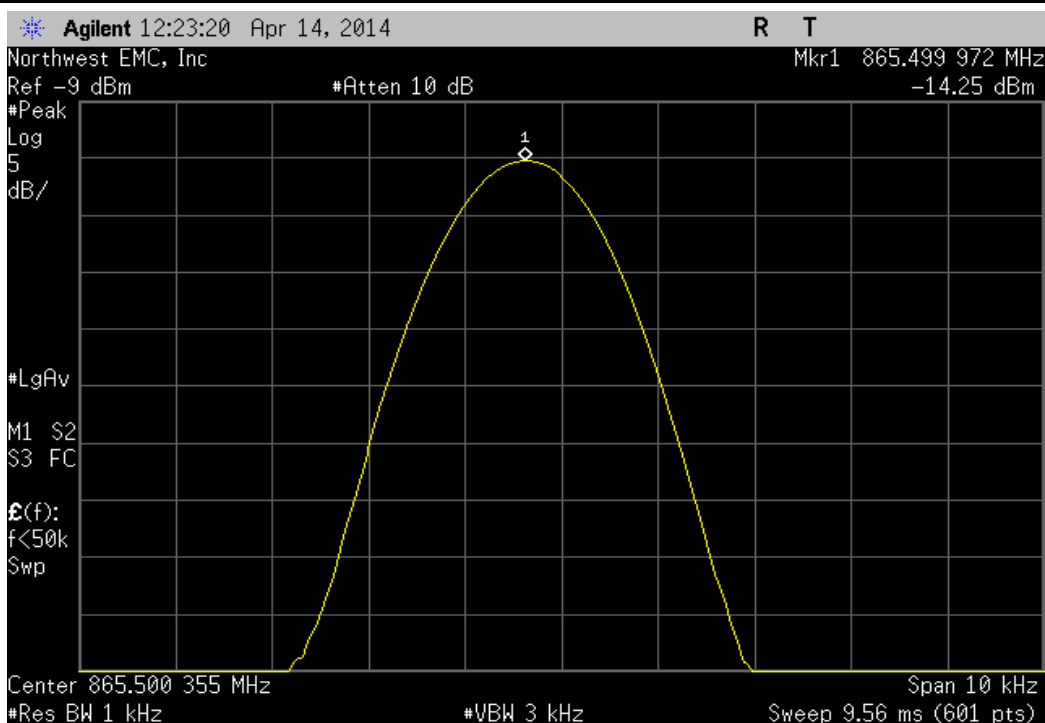
Temperature: +10°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199967	868.2	0.0380	1	Pass



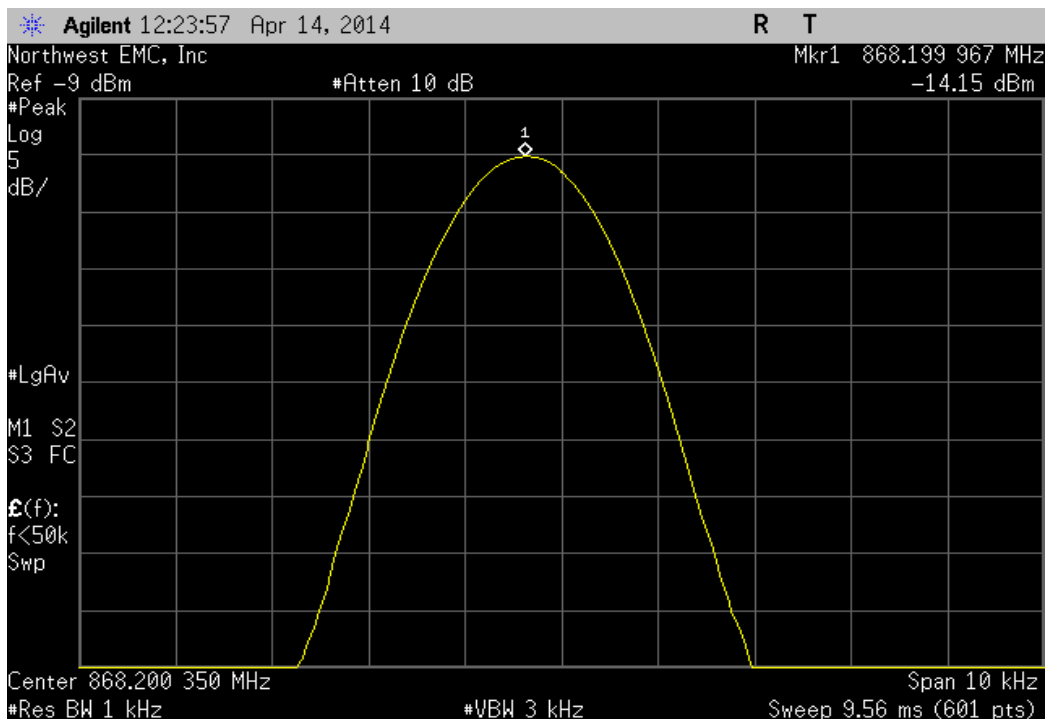
Temperature: 0°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699974	862.7	0.0301	1	Pass



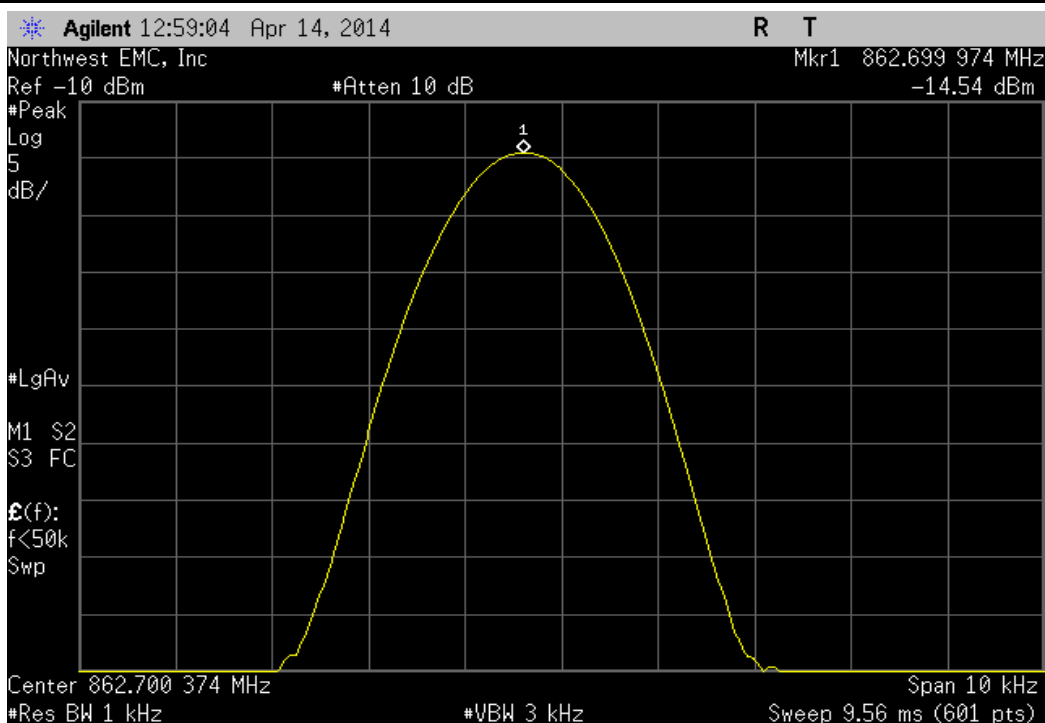
Temperature: 0°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499972	865.5	0.0324	1	Pass



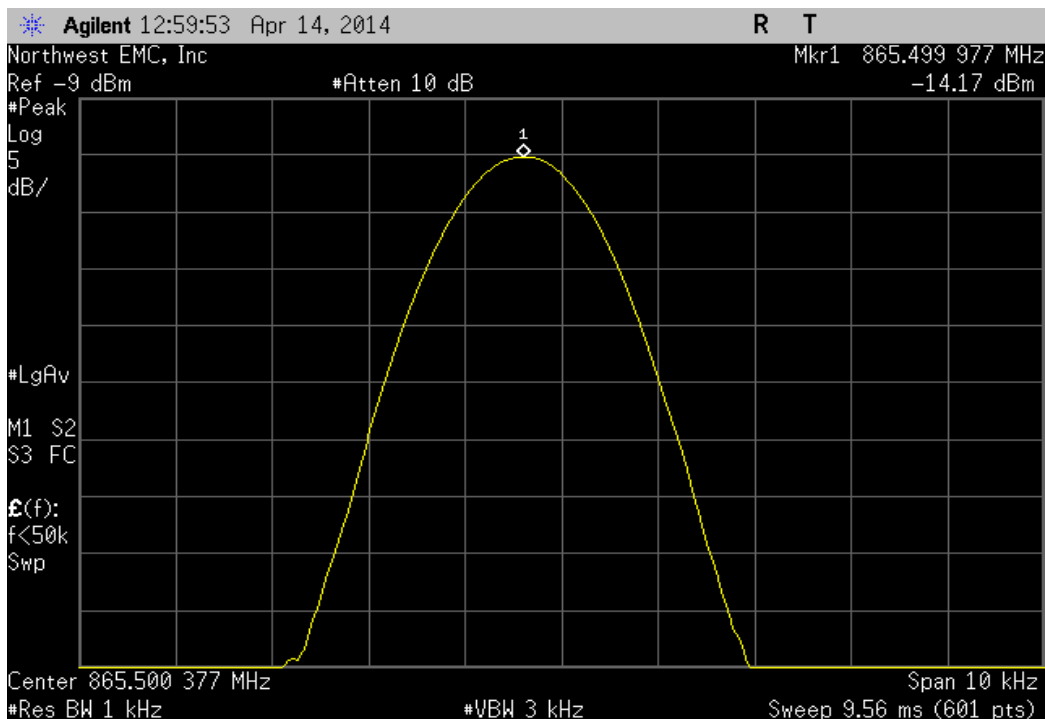
Temperature: 0°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199967	868.2	0.0380	1	Pass



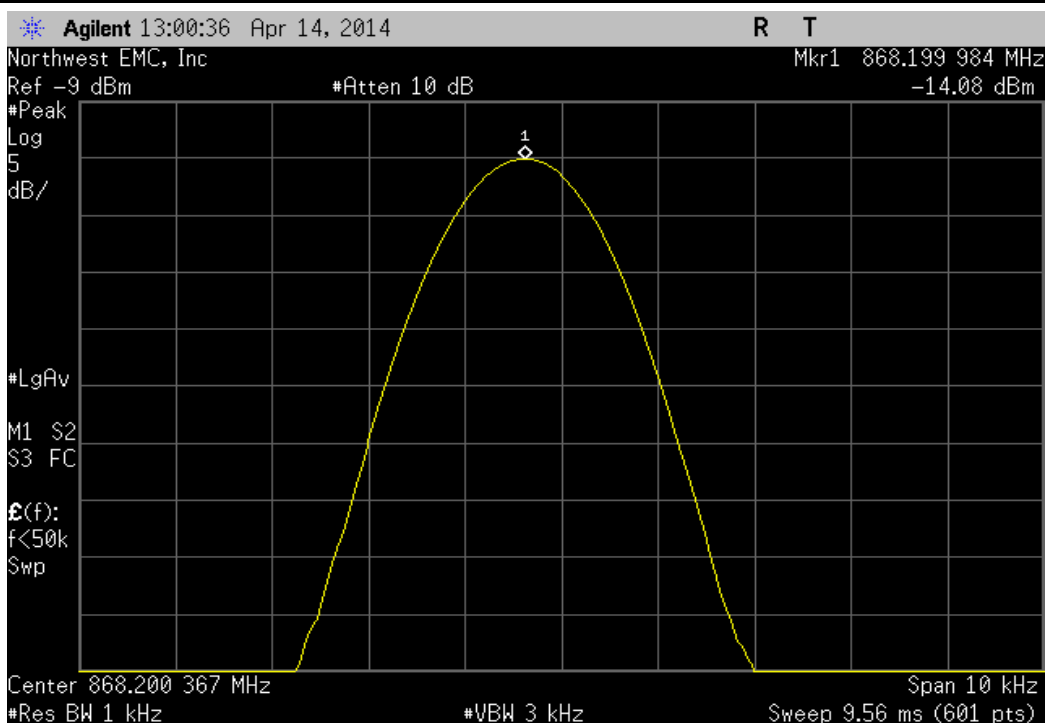
Temperature: -10°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699974	862.7	0.0301	1	Pass



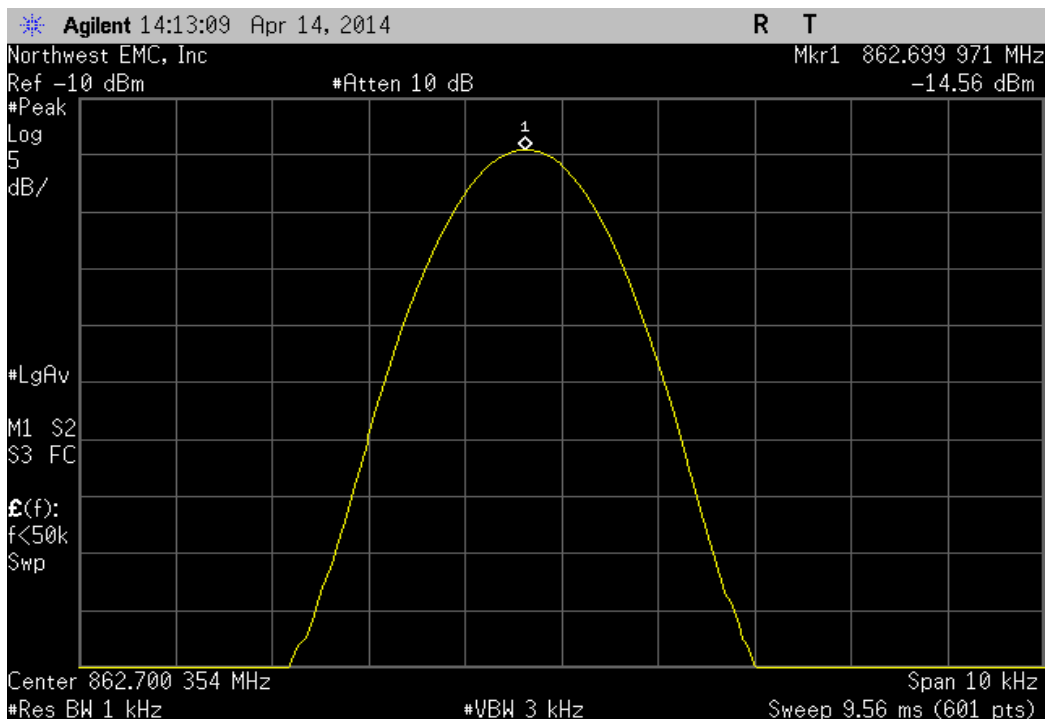
Temperature: -10°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499977	865.5	0.0266	1	Pass



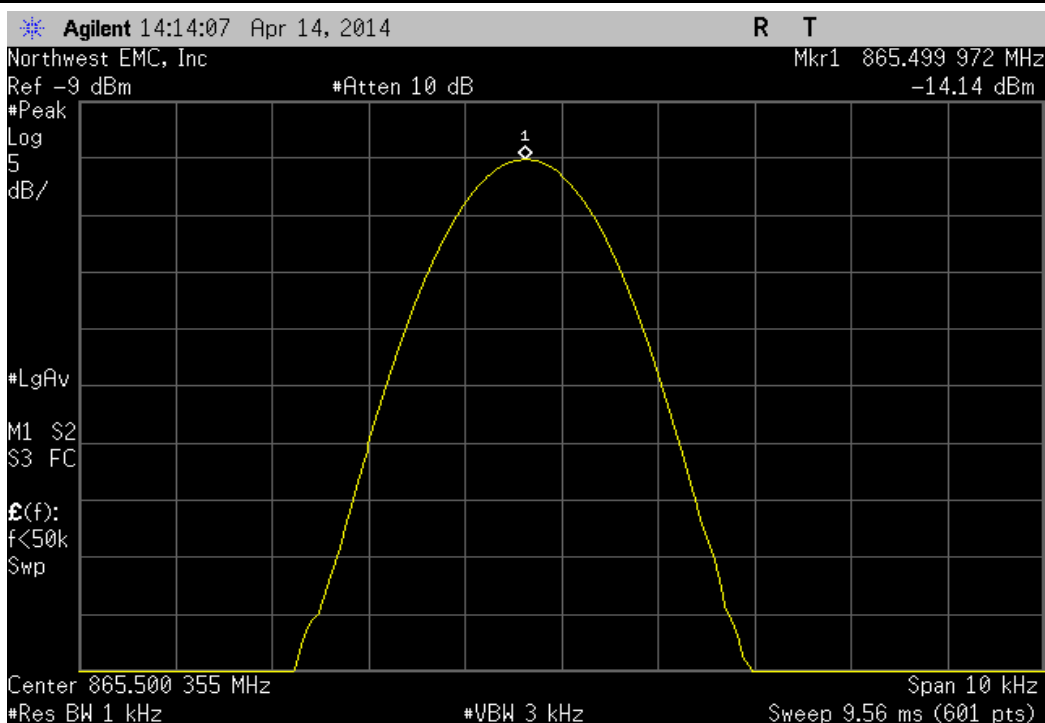
Temperature: -10°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199984	868.2	0.0184	1	Pass



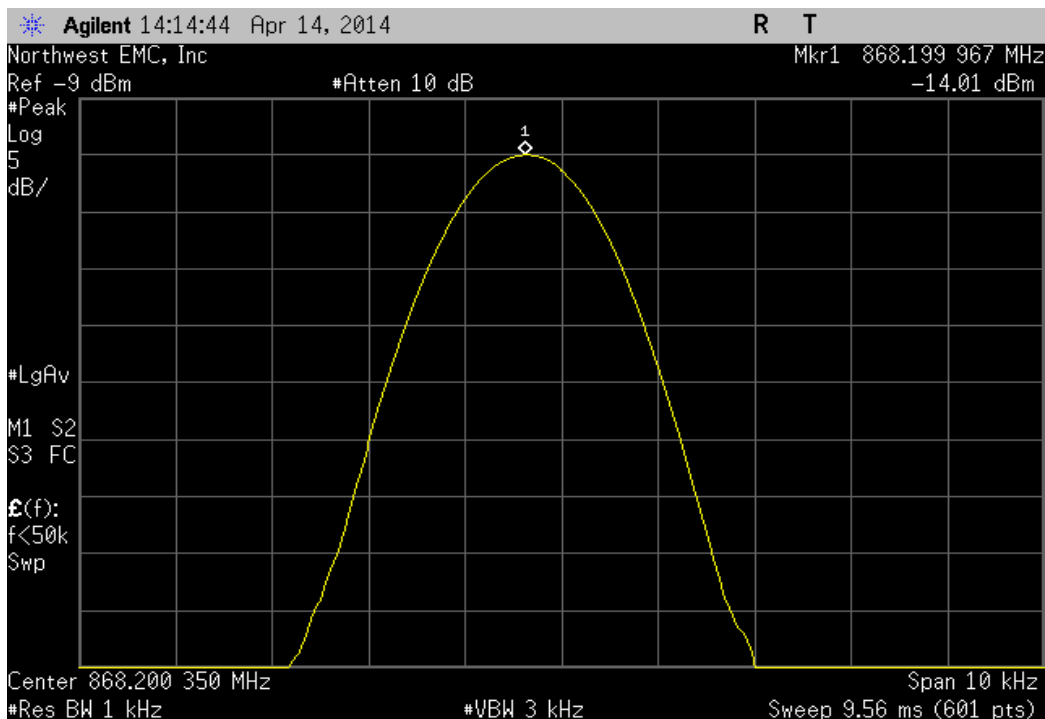
Temperature: -20°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699971	862.7	0.0336	1	Pass



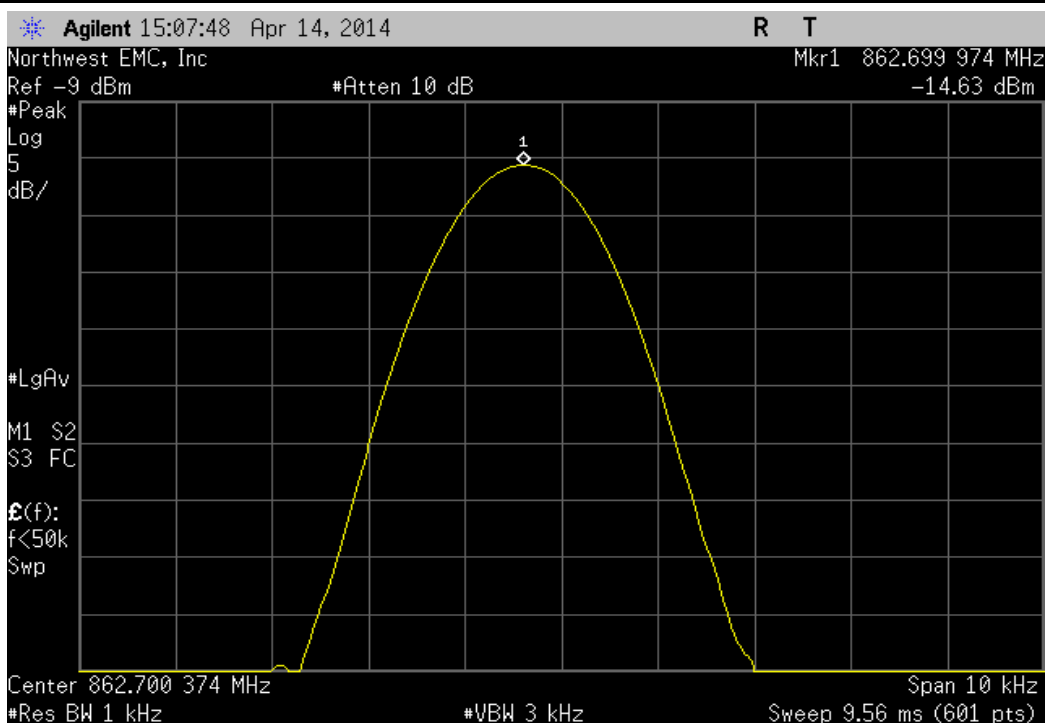
Temperature: -20°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499972	865.5	0.0324	1	Pass



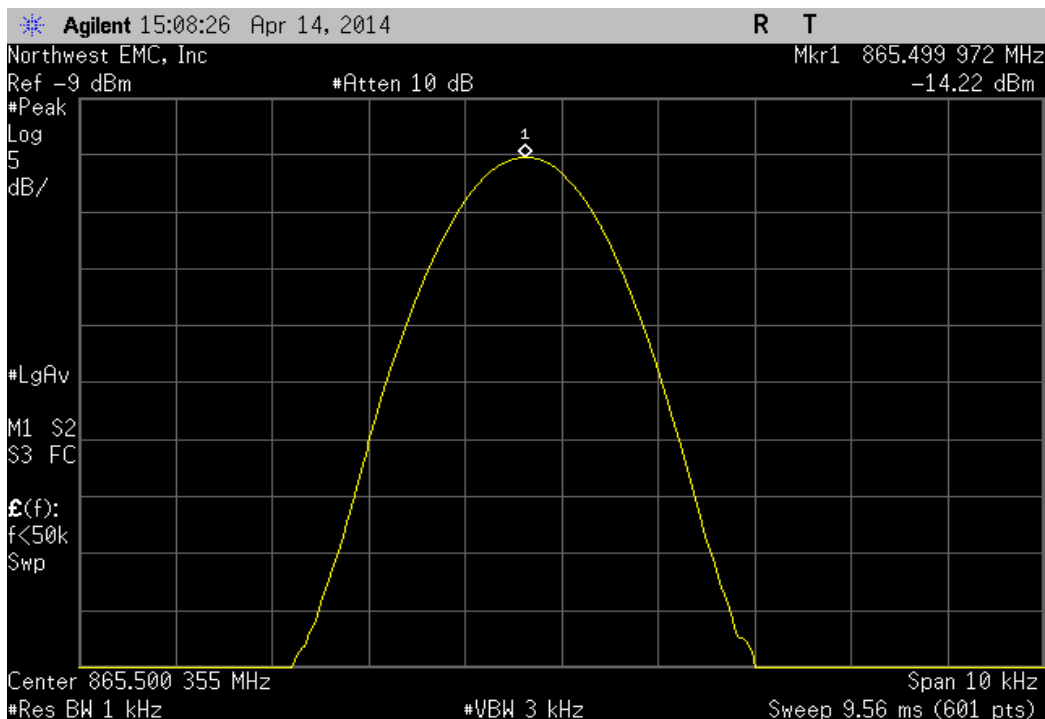
Temperature: -20°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199967	868.2	0.0380	1	Pass



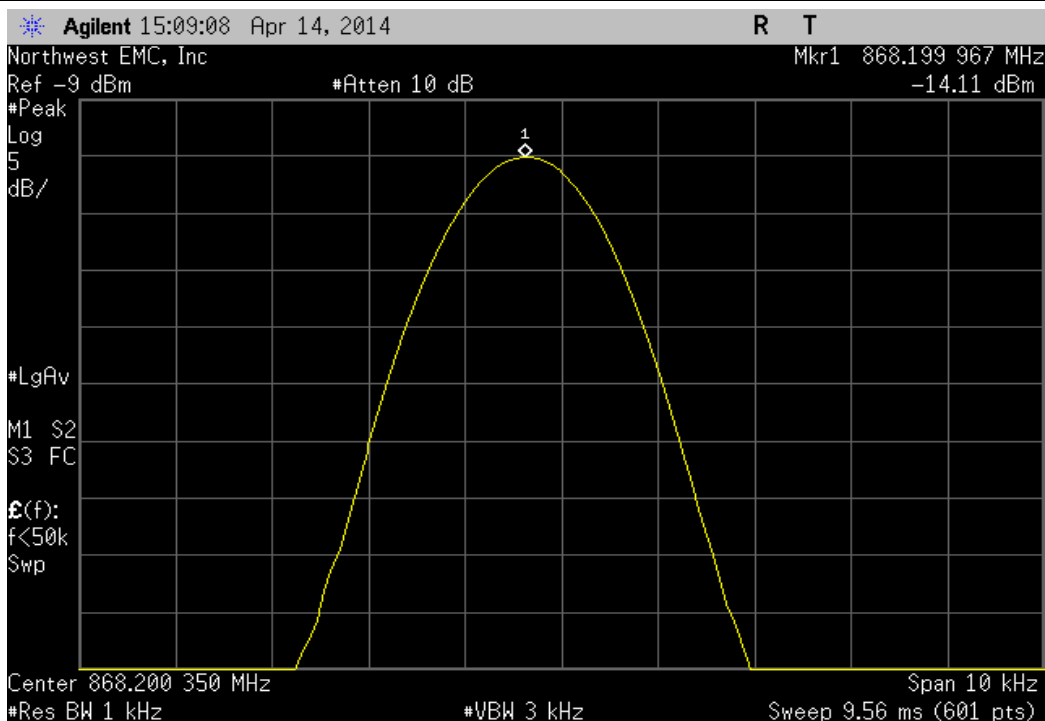
Temperature: -30°, Low Channel, 862.7 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	862.699974	862.7	0.0301	1	Pass



Temperature: -30°, Mid Channel, 865.5 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	865.499972	865.5	0.0324	1	Pass



Temperature: -30°, High Channel, 868.2 MHz					
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	868.199967	868.2	0.0380	1	Pass



OCCUPIED BANDWIDTH (26 dB)

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	4/3/2014	12
40 GHz DC block	Fairview Microwave	SD3379	AMI	9/26/2013	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 occupied 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 26 dB 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.

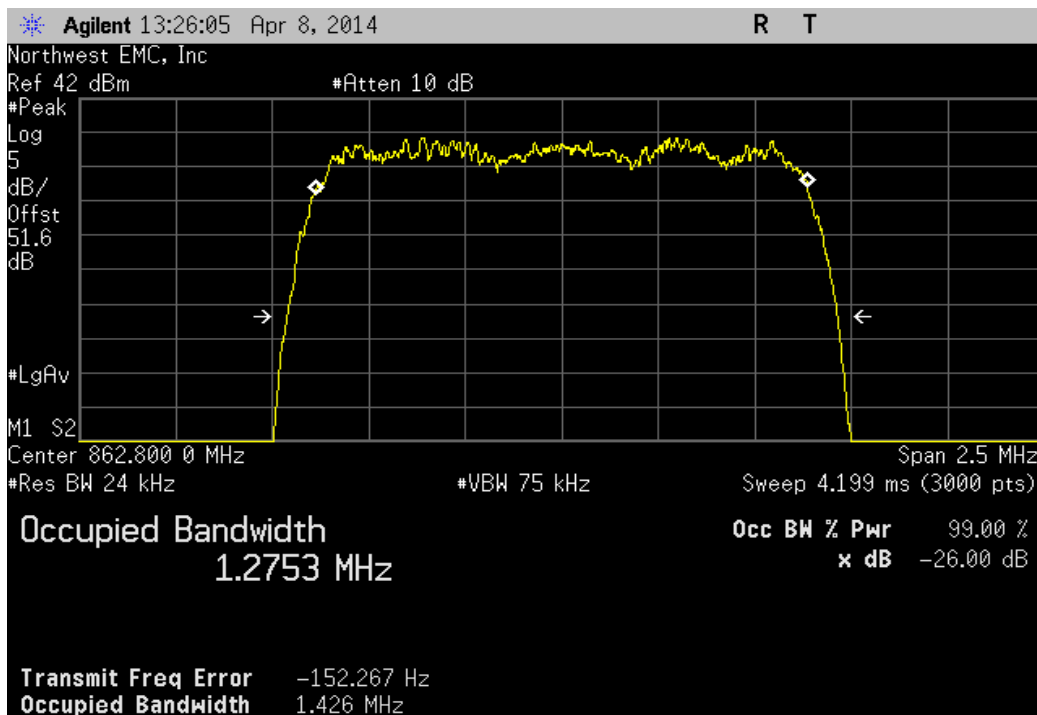


OCCUPIED BANDWIDTH (26 dB)

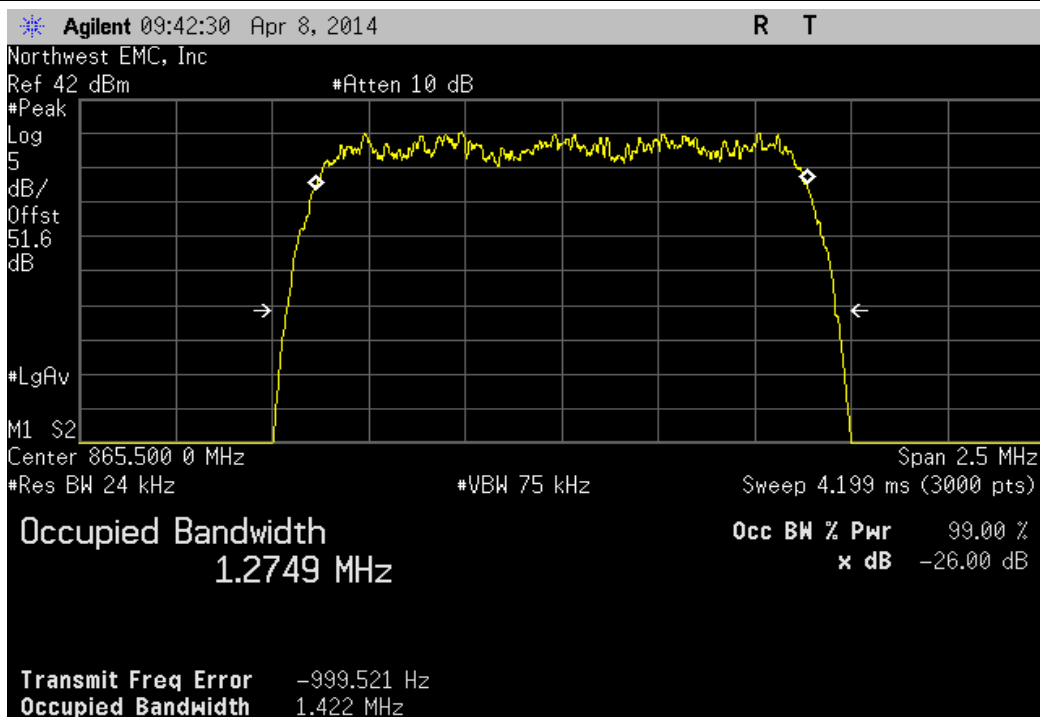
XMit 2013.08.15
PsaTx 2013.10.23

EUT: Prism HDM 800 MHz/1900 MHz SISO RF Module		Work Order: TECO0013		
Serial Number: None		Date: 04/09/14		
Customer: TE Connectivity / ADC Telecommunications		Temperature: 24.2°C		
Attendees: None		Humidity: 21%		
Project: None		Barometric Pres.: 1013.5		
Tested by: Trevor Buls		Power: 110VAC/60Hz		
		Job Site: MN08		
TEST SPECIFICATIONS				
FCC 901:2014		Test Method		
		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 <i>Trevor Buls</i>		
		Value	Limit	Result
CDMA				
	Low Channel	1.426 MHz	N/A	N/A
	Mid Channel	1.422 MHz	N/A	N/A
	High Channel	1.424 MHz	N/A	N/A
LTE 1.4 MHz				
	Low Channel	1.32 MHz	N/A	N/A
	Mid Channel	1.375 MHz	N/A	N/A
	High Channel	1.342 MHz	N/A	N/A
LTE 3 MHz				
	Low Channel	3.027 MHz	N/A	N/A
	Mid Channel	3.032 MHz	N/A	N/A
	High Channel	3.019 MHz	N/A	N/A
Input CDMA				
	Mid Channel	1.416 MHz	N/A	N/A
Input LTE 1.4 MHz				
	Mid Channel	1.317 MHz	N/A	N/A
Input LTE 3 MHz				
	Mid Channel	3.01 MHz	N/A	N/A

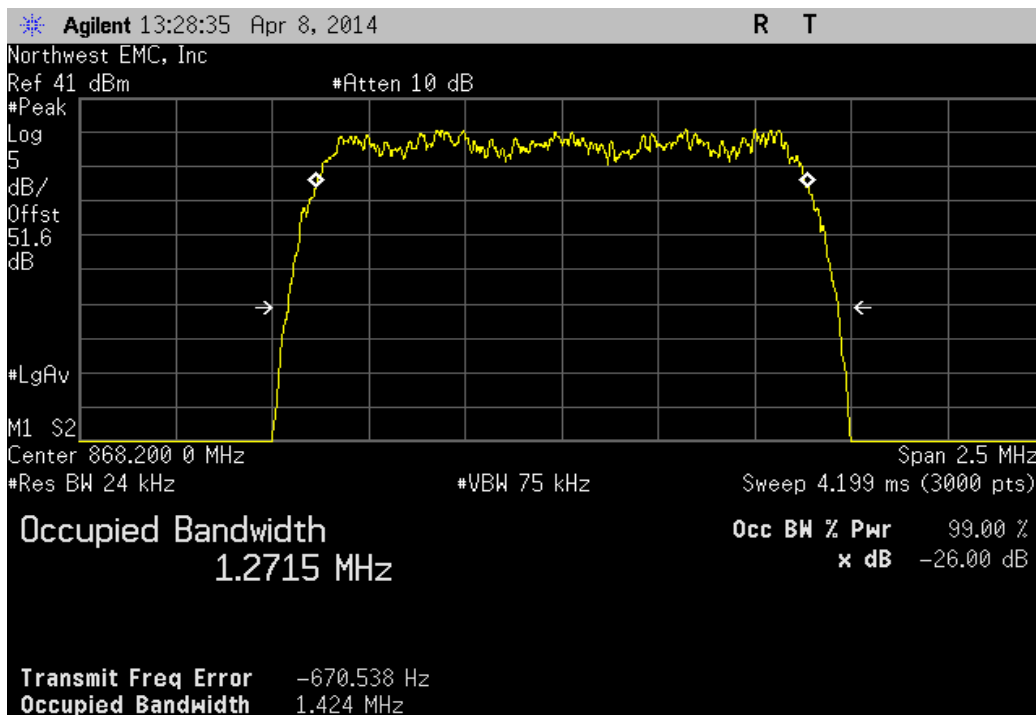
CDMA, Low Channel						
				Value	Limit	Result
				1.426 MHz	N/A	N/A



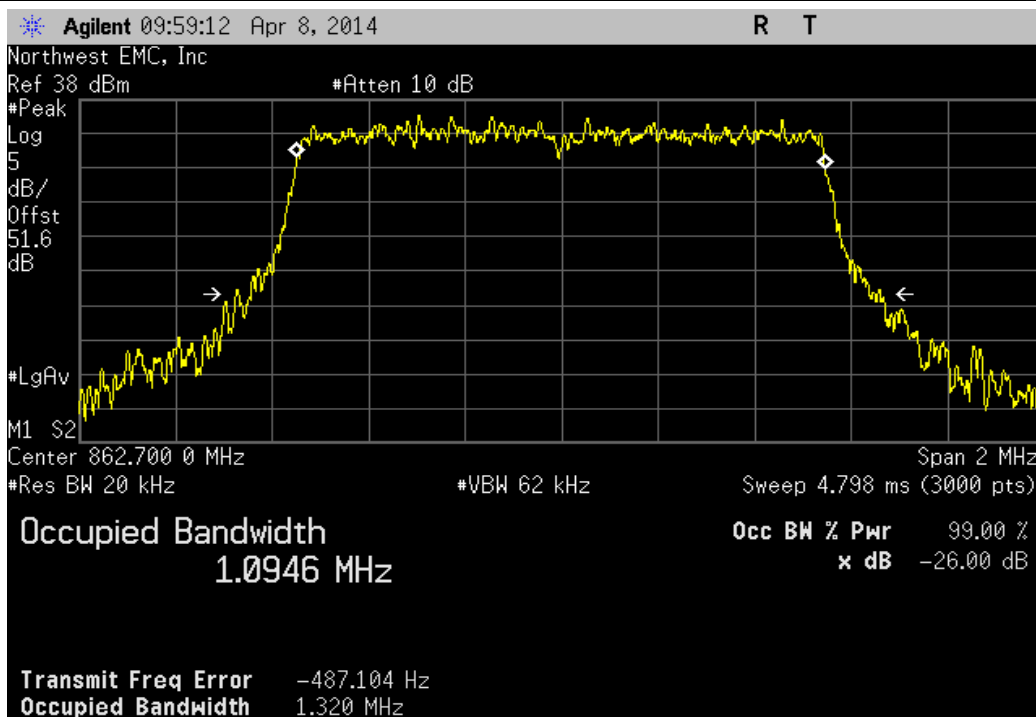
CDMA, Mid Channel						
				Value	Limit	Result
				1.422 MHz	N/A	N/A



CDMA, High Channel						
				Value	Limit	Result
				1.424 MHz	N/A	N/A

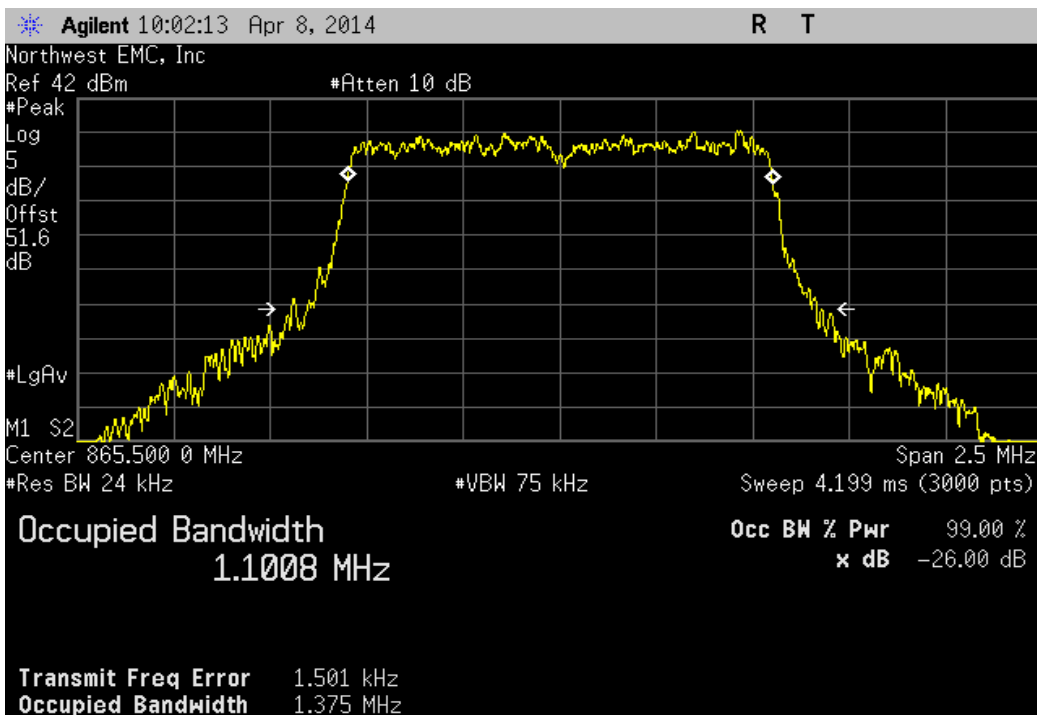


LTE 1.4 MHz, Low Channel						
				Value	Limit	Result
				1.32 MHz	N/A	N/A



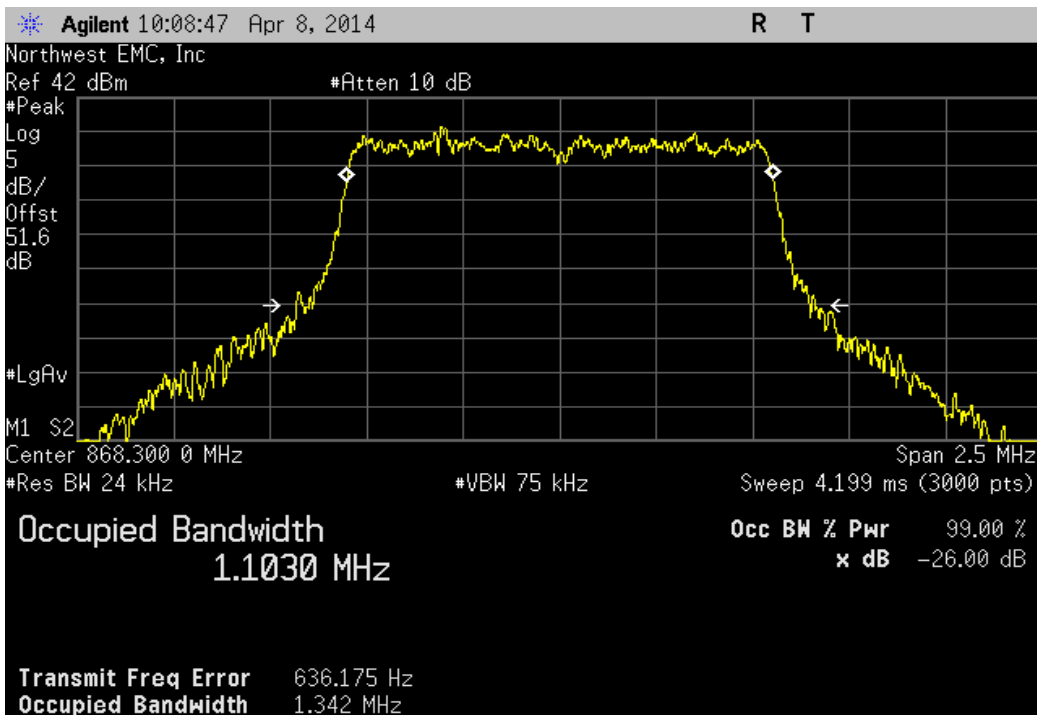
LTE 1.4 MHz, Mid Channel

Value	Limit	Result
1.375 MHz	N/A	N/A



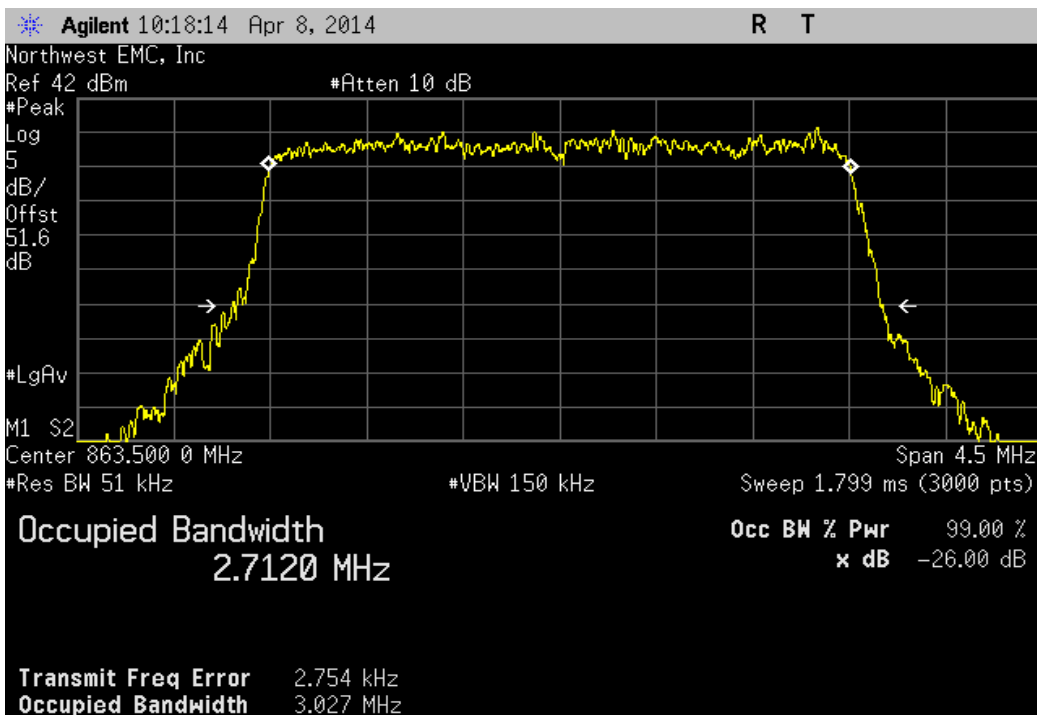
LTE 1.4 MHz, High Channel

Value	Limit	Result
1.342 MHz	N/A	N/A



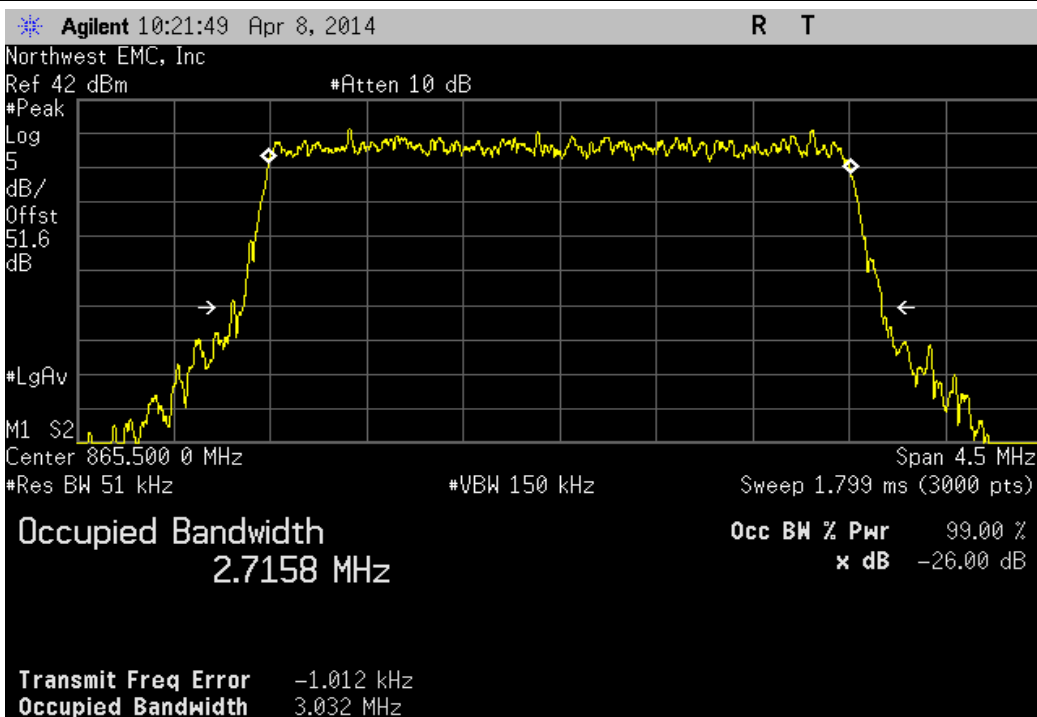
LTE 3 MHz, Low Channel

				Value	Limit	Result
				3.027 MHz	N/A	N/A



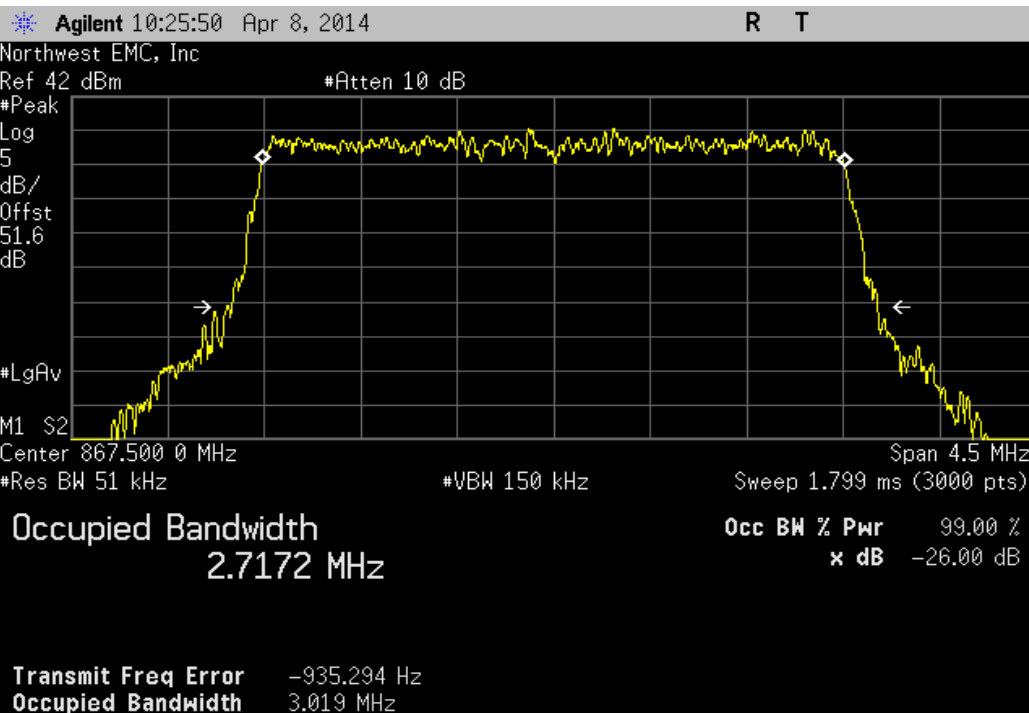
LTE 3 MHz, Mid Channel

				Value	Limit	Result
				3.032 MHz	N/A	N/A



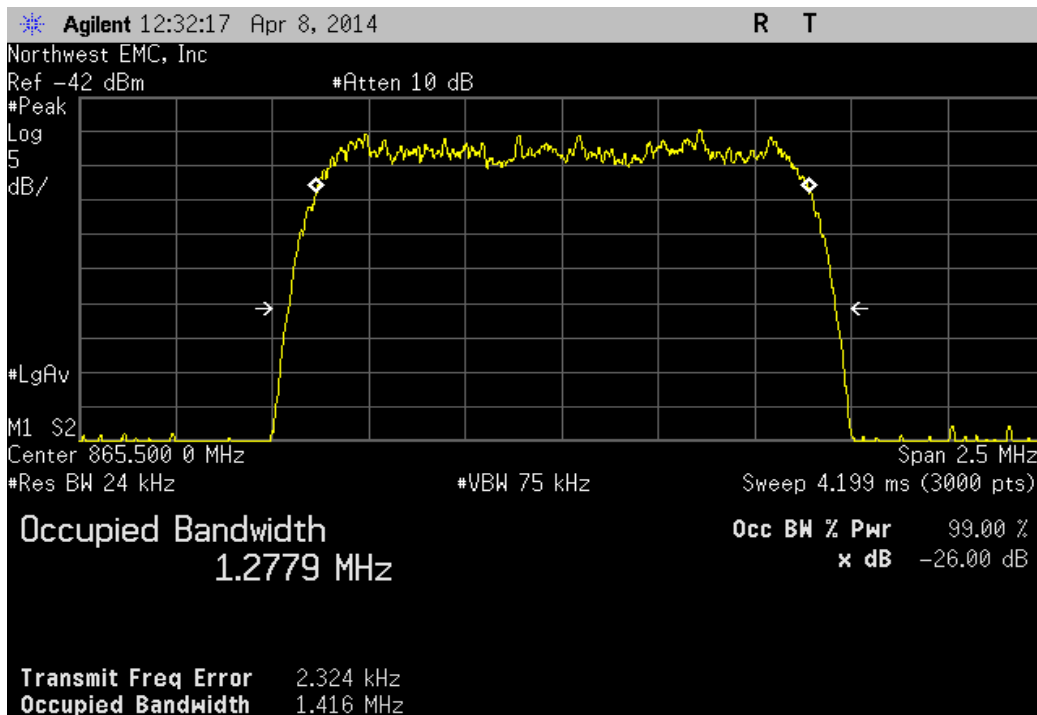
LTE 3 MHz, High Channel

	Value	Limit	Result
	3.019 MHz	N/A	N/A

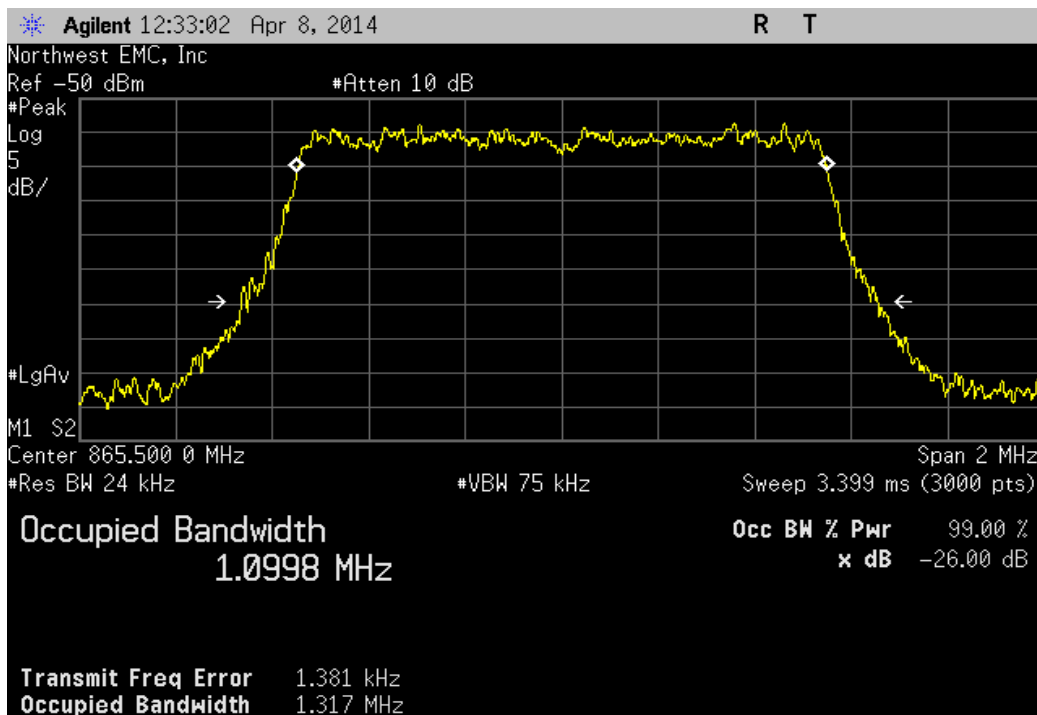


Input CDMA, Mid Channel

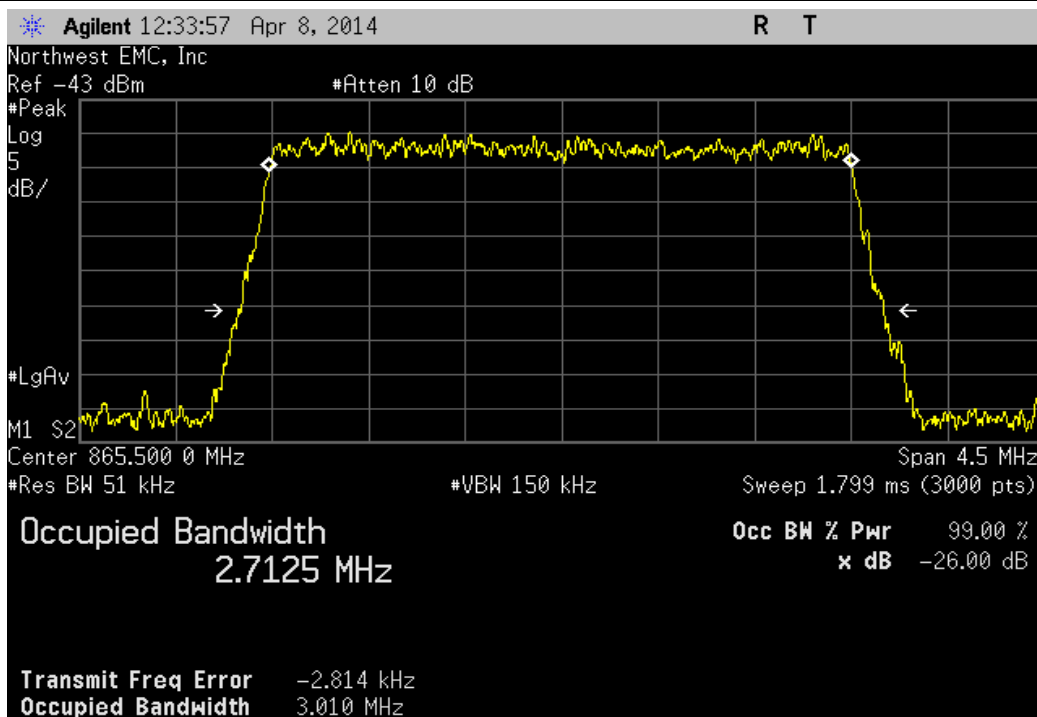
	Value	Limit	Result
	1.416 MHz	N/A	N/A



Input LTE 1.4 MHz, Mid Channel						
				Value	Limit	Result
				1.317 MHz	N/A	N/A



Input LTE 3 MHz, Mid Channel						
				Value	Limit	Result
				3.01 MHz	N/A	N/A



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 Low Mid High CDMA: 862.8, 865.5, 868.2 MHz; LTE 1.4 MHz: 862.7, 865.5, 868.3 MHz; LTE 3 MHz: 863.5, 865.5, 867.5 MHz (see comments)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

TECO0013 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	9 GHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	ETS	3115	AJA	5/13/2011	36 mo
Antenna, Dipole	EMCO	3121C-DB4	ADI	12/21/2012	36 mo
Signal Generator MXG	Agilent	N5183A	TIK	6/7/2012	36 mo
Power Sensor	Agilent	N8481A	SQN	8/27/2012	24 mo
Power Meter	Agilent	N1913A	SQL	8/27/2012	24 mo
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	HGO	5/31/2012	24 mo
High Pass Filter	Micro-Tronics	HPM50108	HGP	5/31/2012	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	5/20/2013	12 mo
Attenuator, 10db, 'SMA'	S.M. Electronics	SA18H-10	REN	5/20/2013	12 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	3/14/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/14/2014	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	3/14/2014	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	3/14/2014	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	36 mo
Pre-Amplifier	Miteq	AM-1616-1000	PAD	3/14/2014	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	3/14/2014	12 mo
Antenna, Bilog	Teseq	CBL 6141B	AYD	12/17/2013	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 placed 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 $\frac{1}{2}$ 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 $\frac{1}{2}$ 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



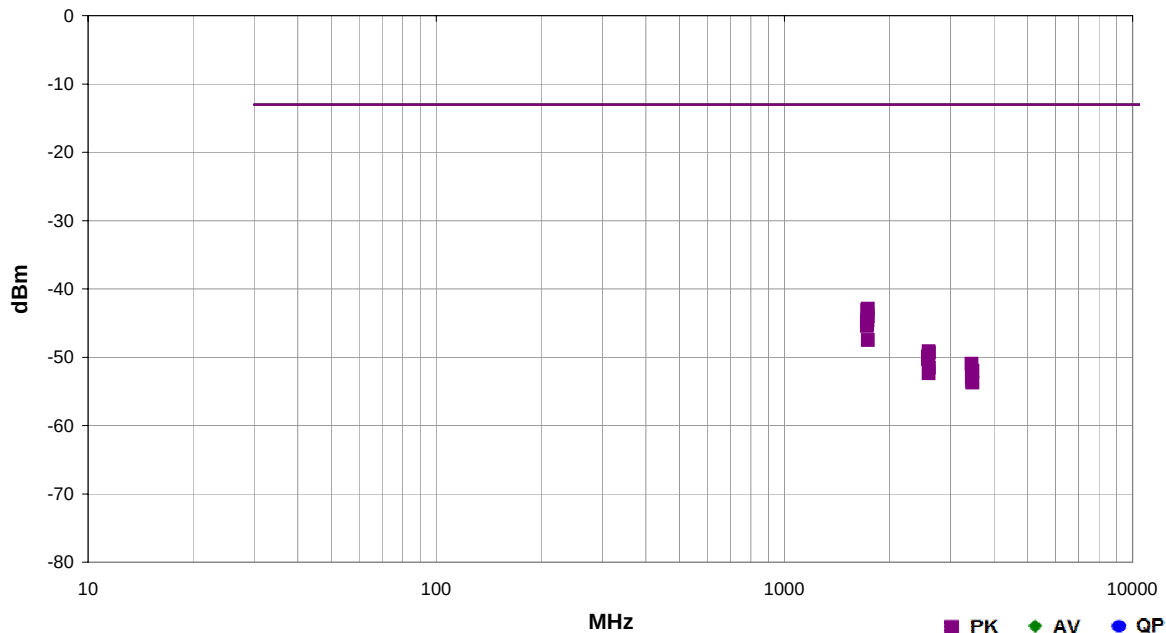
FIELD STRENGTH OF SPURIOUS EMISSIONS

PSA-ESCI 2014.02.19
EmiR5 2014.02.04

Work Order:	TECO0013	Date:	04/16/14	<i>Trevor Buls</i>
Project:	None	Temperature:	22.7 °C	
Job Site:	MN05	Humidity:	15.5% RH	
Serial Number:	None	Barometric Pres.:	1017.6 mbar	
EUT:		Prism HDM 800 MHz/1900 MHz SISO RF Module		
Configuration:	2			
Customer:	TE Connectivity / ADC Telecommunications			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Low Mid High CDMA: 862.8, 865.5, 868.2 MHz; LTE 1.4 MHz: 862.7, 865.5, 868.3 MHz; LTE 3 MHz: 863.5, 865.5, 867.5 MHz (see comments)			
Deviations:	None			
Comments:	Customer provided a high wattage 30 dB attenuator that was used to terminate the antenna output. Tested in normal upright position as device is always a floorstanding system.			

Test Specifications	Test Method
FCC 901:2014	ANSI/TIA/EIA-603-C:2004

Run #	10	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
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Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1736.800	1.0	95.0	Horz	PK	5.14E-08	-42.9	-13.0	-29.9	High Ch, CDMA
1730.717	1.0	96.0	Horz	PK	4.90E-08	-43.1	-13.0	-30.1	Mid Ch, CDMA
1736.217	1.0	124.0	Horz	PK	3.99E-08	-44.0	-13.0	-31.0	High Ch, LTE 1.4MHz
1733.933	1.1	96.0	Horz	PK	3.47E-08	-44.6	-13.0	-31.6	High Ch, LTE 3MHz
1725.367	1.0	341.0	Vert	PK	3.38E-08	-44.7	-13.0	-31.7	Low Ch, CDMA
1731.125	1.0	342.0	Vert	PK	3.02E-08	-45.2	-13.0	-32.2	Mid Ch, CDMA
1725.283	1.0	125.0	Horz	PK	2.87E-08	-45.4	-13.0	-32.4	Low Ch, CDMA
1737.017	1.0	307.0	Vert	PK	1.78E-08	-47.5	-13.0	-34.5	High Ch, CDMA
2596.267	1.0	100.0	Vert	PK	1.22E-08	-49.2	-13.0	-36.2	Mid Ch, CDMA
2604.658	1.0	276.0	Vert	PK	1.16E-08	-49.3	-13.0	-36.3	High Ch, CDMA
2587.967	1.0	35.0	Vert	PK	1.02E-08	-49.9	-13.0	-36.9	Low Ch, CDMA
2587.717	1.0	36.0	Horz	PK	9.33E-09	-50.3	-13.0	-37.3	Low Ch, CDMA
3452.108	1.0	12.0	Vert	PK	7.98E-09	-51.0	-13.0	-38.0	Low Ch, CDMA
2604.042	1.0	168.0	Horz	PK	7.01E-09	-51.5	-13.0	-38.5	High Ch, CDMA
3474.458	1.0	274.0	Vert	PK	6.30E-09	-52.0	-13.0	-39.0	High Ch, CDMA
2596.150	1.0	148.0	Horz	PK	5.82E-09	-52.4	-13.0	-39.4	Mid Ch, CDMA
3462.708	1.0	11.0	Vert	PK	5.51E-09	-52.6	-13.0	-39.6	Mid Ch, CDMA
3453.033	1.3	195.0	Horz	PK	5.03E-09	-53.0	-13.0	-40.0	Low Ch, CDMA
3464.458	2.6	11.0	Horz	PK	4.37E-09	-53.6	-13.0	-40.6	Mid Ch, CDMA
3471.642	1.0	306.0	Horz	PK	4.27E-09	-53.7	-13.0	-40.7	High Ch, CDMA