

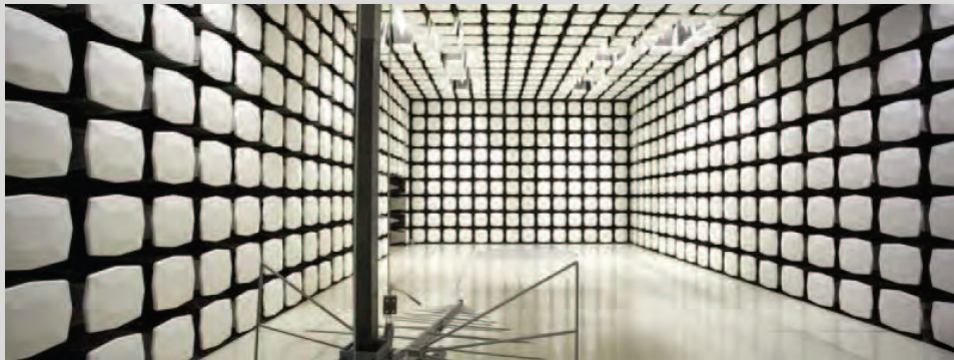


**Radio Design Group, Inc.**

**Base Station Model UV-1G**

**FCC 74H:2013**

**Report #: RDIO0002**



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – [www.nwemc.com](http://www.nwemc.com)

California – Minnesota – Oregon – New York – Washington

# CERTIFICATE OF TEST

**Last Date of Test: October 24, 2013**  
**Radio Design Group, Inc.**  
**Model: Base Station Model UV-1G**

## Emissions

Test Description	Specification	Test Method	Pass/Fail
Output Power	FCC 74H:2013 (FCC 2.1046)	ANSI/TIA/EIA-603-C-2004	Pass
Modulation Characteristics	FCC 74H:2013 (FCC 2.1047)	ANSI/TIA/EIA-603-C-2004	Pass
Occupied Bandwidth	FCC 74H:2013 (FCC 2.1049)	ANSI/TIA/EIA-603-C-2004	Pass
Emission Mask	FCC 74H:2013 (FCC 2.1049)	ANSI/TIA/EIA-603-C-2004	Pass
Spurious Conducted Emission	FCC 74H:2013 (FCC 2.1051)	ANSI/TIA/EIA-603-C-2004	Pass
Spurious Radiated Emissions	FCC 74H:2013 (FCC 2.1053)	ANSI/TIA/EIA-603-C-2004	Pass
Frequency Stability	FCC 74H:2013 (FCC 2.1055)	ANSI/TIA/EIA-603-C-2004	Pass

## Deviations From Test Standards

None

**Approved By:**



Kyle Holgate, Operations Manager



NVLAP Lab Code: 200630-0

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

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

# REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

## Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

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## 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

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## Canada

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

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## 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.

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## 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.

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## Singapore

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

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## Hong Kong

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

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## Vietnam

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

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## Russia

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

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## 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.

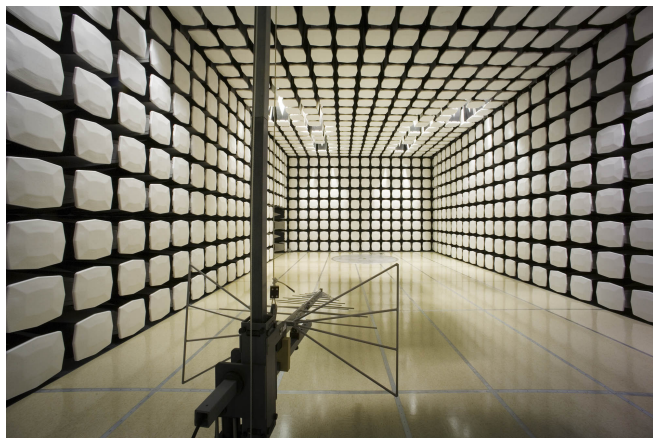
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement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

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
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



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

<b>Company Name:</b>	Radio Design Group, Inc.
<b>Address:</b>	8925 Rogue River Highway
<b>City, State, Zip:</b>	Grants Pass, OR 97527
<b>Test Requested By:</b>	Dennis Haley
<b>Model:</b>	Base Station Model UV-1G
<b>First Date of Test:</b>	October 18, 2013
<b>Last Date of Test:</b>	October 24, 2013
<b>Receipt Date of Samples:</b>	October 18, 2013
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

<b>Functional Description of the EUT (Equipment Under Test):</b>
Wireless Intercom System – Base Station. Transmits on 470-698 MHz at 250 mW using Double Sideband. Communicates with a belt pack.
<b>Testing Objective:</b>
To demonstrate compliance with the requirements of FCC Part 74H.

## Configuration RDIO0002- 1

Software/Firmware Running during test					
Description				Version	
Radio Active Designs UV-1G				1	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Base Station	Radio Design Group, Inc.	UV-1G	None
AC/DC Adapter	OICC NEXERGY	MWA100015A	001260

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC/DC Adaptor	LITE-ON Technologies, Inc.	PA-1900-04	5Z03016001
Remote Laptop	Acer	TravelMate 8200	LXTAX060346090A219EM15

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.8m	No	AC Mains	AC/DC Power Adaptor
DC Power Cable	No	1.8m	PA	AC/DC Power Adaptor	Remote Laptop
Micro USB Cable	No	1.5m	No	Remote Laptop	Base Station
AC Power Cable	No	1.8m	No	AC Mains	AC/DC Power Adapter
DC Power Cable	PA	1.8m	PA	AC/DC Power Adapter	Base Station

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

## Configuration RDIO0002- 2

Software/Firmware Running during test					
Description				Version	
Radio Active Designs UV-1G				1	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Base Station	Radio Design Group, Inc.	UV-1G	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC/DC Adaptor	LITE-ON Technologies, Inc.	PA-1900-04	5Z03016001
Remote Laptop	Acer	TravelMate 8200	LXTAX060346090A219EM15

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Micro USB Cable	No	1.5m	No	Remote Laptop	Base Station
DC Power Leads	No	1.2m	No	Base Station	DC Power Supply
DC Leads	No	.5m	No	DMM	DC Power Supply
AC Power Cable	No	1.2m	No	DC Power Supply	AC Mains

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



## Configuration RDIO0002- 4

Software/Firmware Running during test	
Description	Version
Radio Active Designs UV-1G	1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Base Station	Radio Design Group, Inc.	UV-1G	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC/DC Adaptor	LITE-ON Technologies, Inc.	PA-1900-04	5Z03016001
AC/DC Adapter	OICCNEXERGY	MWA100015A	001260
Laptop PC	Acer	TravelMate 8200	LXTAX060346090A219EM15
USB Mouse	Steelseries	62150	6215001703441203203

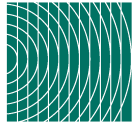
Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Switch	Netgear	FE104	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	No	1.8m	No	AC Mains	AC/DC Power Adaptor
DC Power Leads	No	1.2m	No	Base Station	DC Power Supply
AC Power Cable	No	1.8m	No	AC Mains	AC/DC Power Adapter
DC Power Cable	PA	1.8m	PA	AC/DC Power Adapter	Base Station
XLR x 7	Yes	4.6m	No	Base Station	Unterminated
Ethernet x 4	No	4m	Yes	Base Station	Remote Switch
USB	PA	1.8m	No	Mouse	Laptop PC
USB	Yes	1.4m	No	Keyboard	Laptop PC
Relay Contact	No	1m	No	Base Station	Unterminated
Microphone	No	1.6m	No	Base Station	Terminated w/unknown resistor

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	10/18/2013	Emission Mask	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	10/18/2013	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.
3	10/18/2013	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	10/22/2013	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	10/22/2013	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.
6	10/24/2013	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.
7	10/24/2013	Modulation Characteristics	Modified from delivered configuration.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.



## 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
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24


### TEST DESCRIPTION

Per FCC Part 2.1046, the output power shall be measured at the RF antenna port. The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting on low, mid and high frequencies.



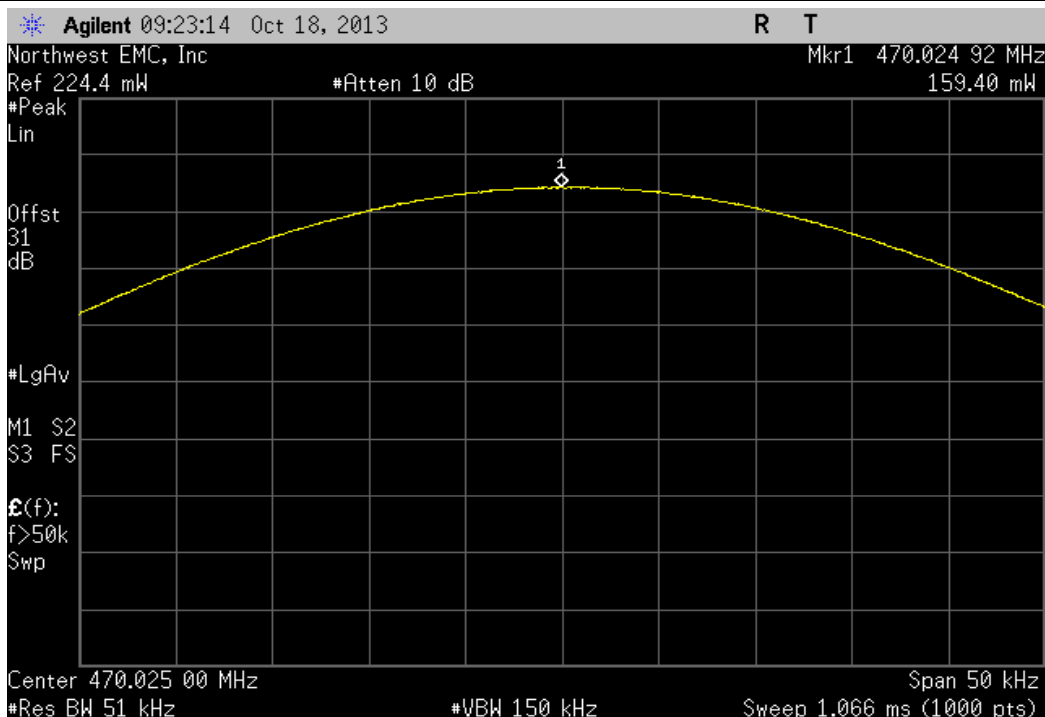
## OUTPUT POWER

XMit 2013.08.15  
PsaTx 2013.07.11

EUT: Base Station Model UV-1G		Work Order: RDIO0002	
Serial Number: None		Date: 10/18/13	
Customer: Radio Design Group, Inc.		Temperature: 22.8°C	
Attendees: Andrew Carpenter		Humidity: 37%	
Project: None		Barometric Pres.: 1020	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 74H:2013		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. A power setting of 250mW was used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
Antenna Port 1			Result
Broadcasting Frequencies			
Low Channel, 470.025 MHz		159.404 mW	< 250 mW
Mid Channel, 584 MHz		147.333 mW	< 250 mW
High Channel, 697.975MHz		152.125 mW	< 250 mW
Antenna Port 2			
Broadcasting Frequencies			
Low Channel, 470.025 MHz		179.639 mW	< 250 mW
Mid Channel, 584 MHz		175.227 mW	< 250 mW
High Channel, 697.975 MHz		154.989 mW	< 250 mW

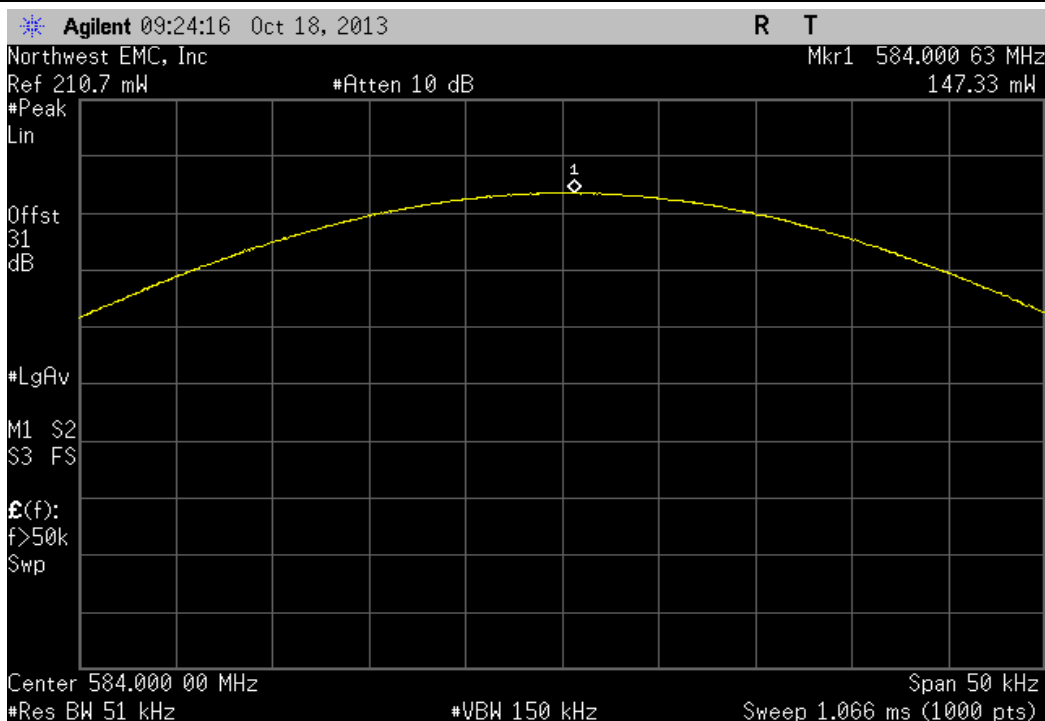
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz

Value	Limit	Result
159.404 mW	< 250 mW	Pass



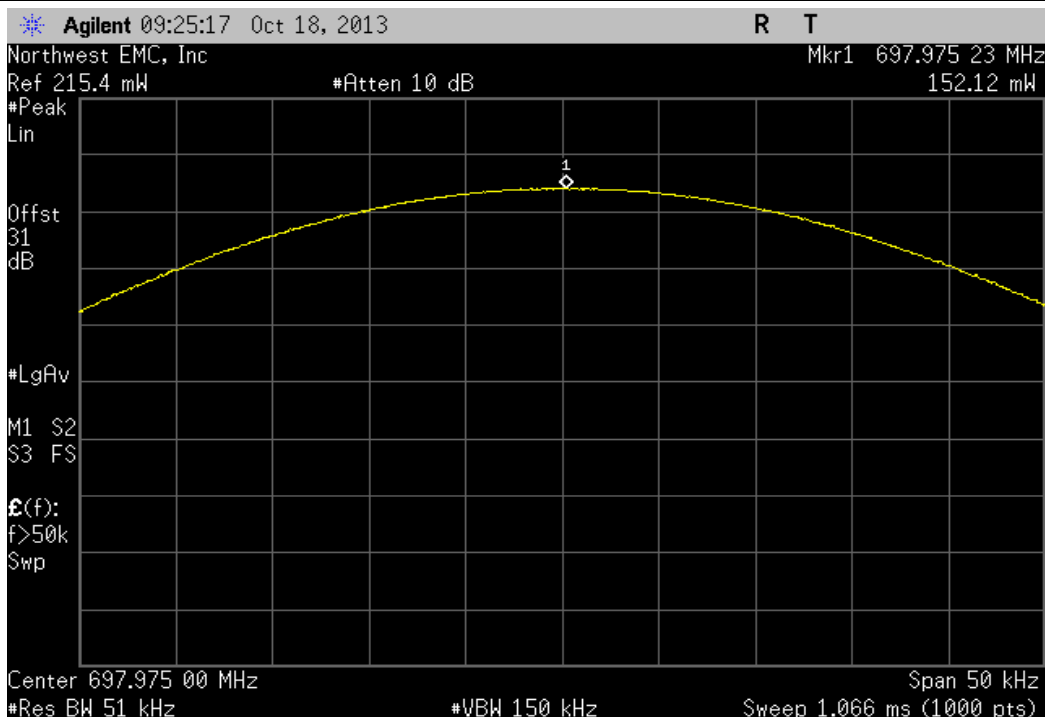
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz

Value	Limit	Result
147.333 mW	< 250 mW	Pass



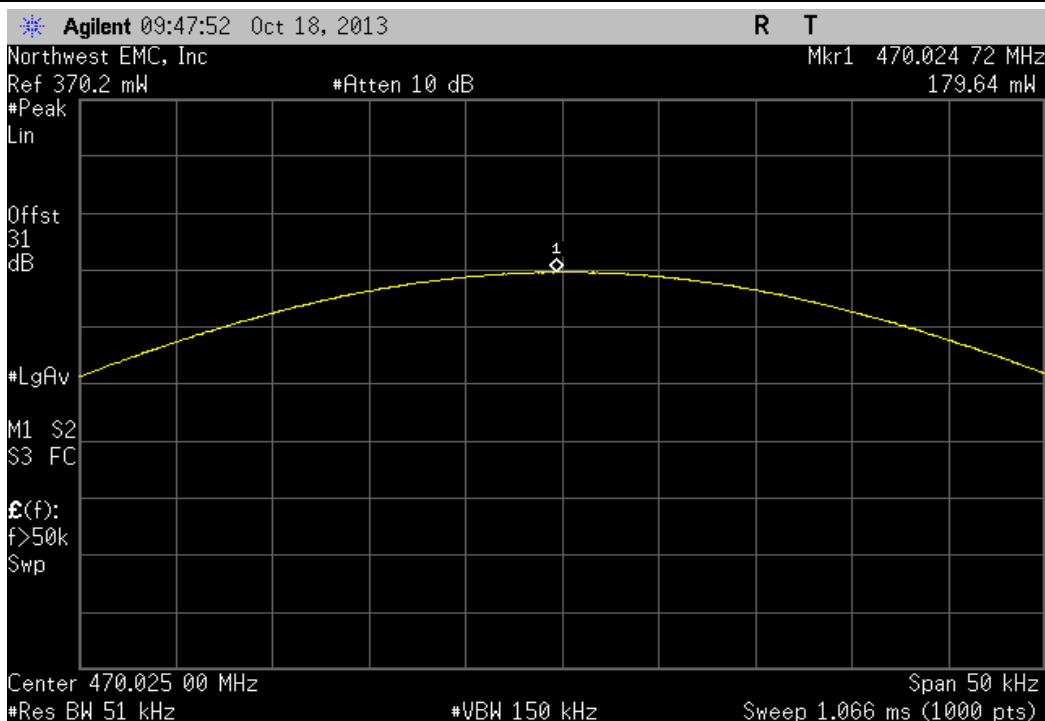
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz

Value	Limit	Result
152.125 mW	< 250 mW	Pass



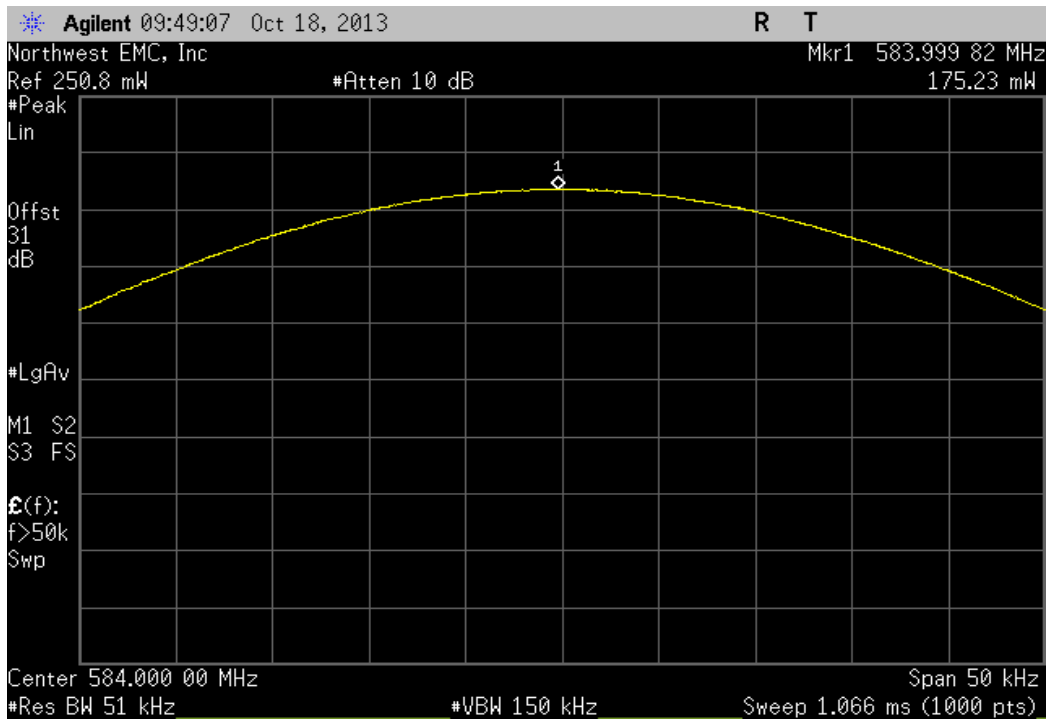
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz

Value	Limit	Result
179.639 mW	< 250 mW	Pass



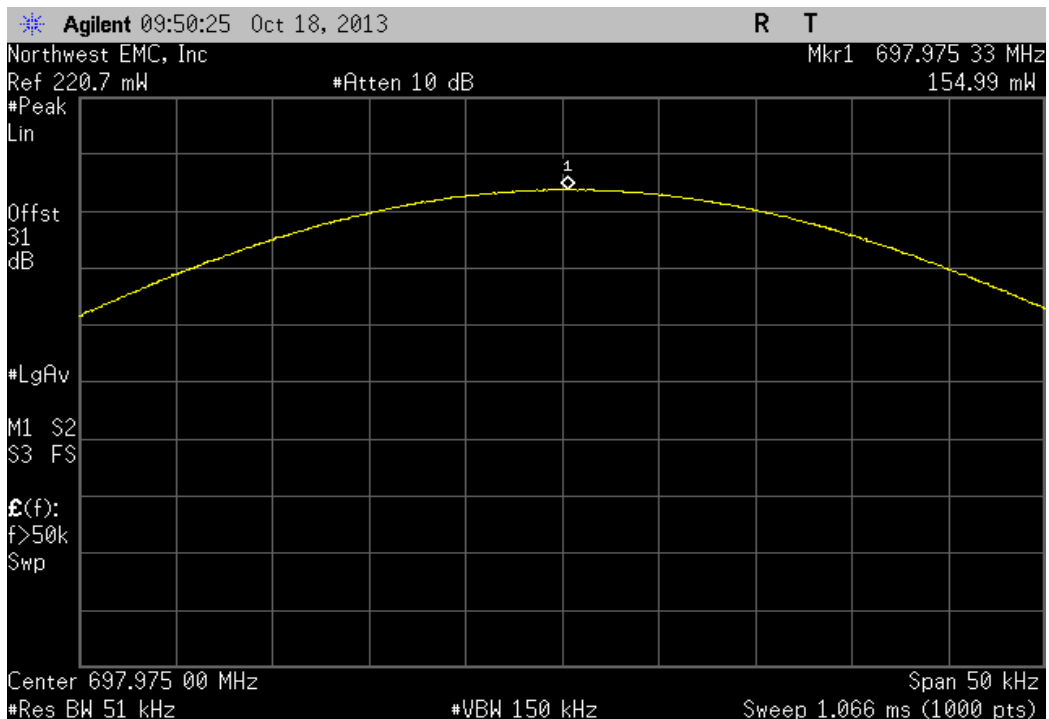
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz

Value	Limit	Result
175.227 mW	< 250 mW	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz

Value	Limit	Result
154.989 mW	< 250 mW	Pass





## MODULATION CHARACTERISTICS

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
Oscilloscope (For REFERENCE ONLY)	Tektronix	TDS 3052	TOF	NCR	0
Waveform Generator	Agilent	33120A	TEC	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24


### TEST DESCRIPTION

Per FCC rule part 2.1047(a) the modulation characteristics of the radio were measured across its rated audio input voltage and frequency ranges.



MODULATION CHARACTERISTICS

XMit 2013.08.15

EUT: Base Station Model UV-1G		Work Order: RDIO0002	
Serial Number: None		Date: 10/24/13	
Customer: Radio Design Group, Inc.		Temperature: 22.8°C	
Attendees: Andrew Carpenter		Humidity: 37%	
Project: None		Barometric Pres.: 1020	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 74H:2013		Test Method	
		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. A 250 mW power setting was used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Deviation (kHz)	Limit
			Result
Antenna Port 1			
Broadcasting Frequency			
Mid Channel, 584 MHz		SEE GRAPH	N/A
Antenna Port 2			
Broadcasting Frequency			
Mid Channel, 584 MHz		SEE GRAPH	N/A

Antenna Port 1, Broadcasting Frequency, Mid Channel, 584 MHz

Deviation

(kHz)

Limit

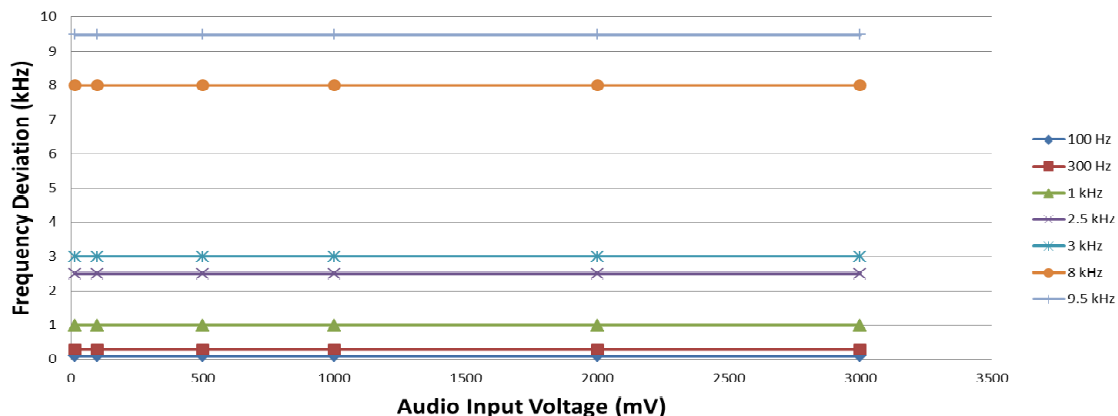
Result

SEE GRAPH

N/A

N/A

**Frequency Deviation Chart**



Audio Input Voltage (mVpp)	100 Hz	300 Hz	1 kHz	2.5 kHz	3 kHz	8 kHz	9.5 kHz
Frequency Deviation (kHz)							
15	0.1	0.3	1	2.5	3	8	9.5
100	0.1	0.3	1	2.5	3	8	9.5
500	0.1	0.3	1	2.5	3	8	9.5
1000	0.1	0.3	1	2.5	3	8	9.5
2000	0.1	0.3	1	2.5	3	8	9.5
3000	0.1	0.3	1	2.5	3	8	9.5

Note that the maximum rated audio input voltage is 3Vpp

Antenna Port 2, Broadcasting Frequency, Mid Channel, 584 MHz

Deviation

(kHz)

Limit

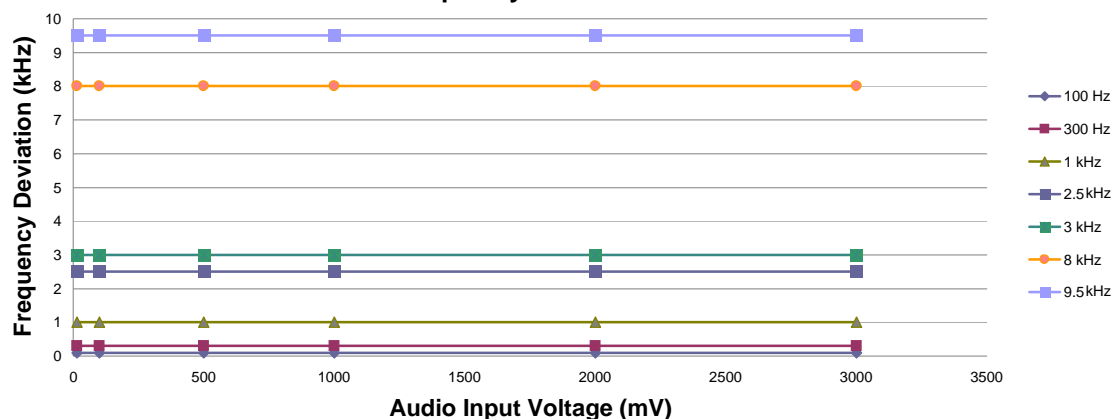
Result

SEE GRAPH

N/A

N/A

**Frequency Deviation Chart**



Audio Input Voltage (mVpp)	100 Hz	300 Hz	1 kHz	2.5 kHz	3 kHz	8 kHz	9.5 kHz
Frequency Deviation (kHz)							
15	0.1	0.3	1	2.5	3	8	9.5
100	0.1	0.3	1	2.5	3	8	9.5
500	0.1	0.3	1	2.5	3	8	9.5
1000	0.1	0.3	1	2.5	3	8	9.5
2000	0.1	0.3	1	2.5	3	8	9.5
3000	0.1	0.3	1	2.5	3	8	9.5

Note that the maximum rated audio input voltage is 3Vpp

## 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
Waveform Generator	Agilent	33120A	TEC	NCR	0
Oscilloscope (For REFERENCE ONLY)	Tektronix	TDS 3052	TOF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24


### TEST DESCRIPTION

Per rule part FCC 74.861(e)(5), the emission bandwidth was determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency with a 2.5kHz tone modulated across the carrier. The points are 26 dB down relative to the maximum level of the modulated carrier. A spectrum analyzer using a peak detector with no video filtering was used with a resolution bandwidth equal to approximately 1-3% percent of the emission bandwidth of the EUT.



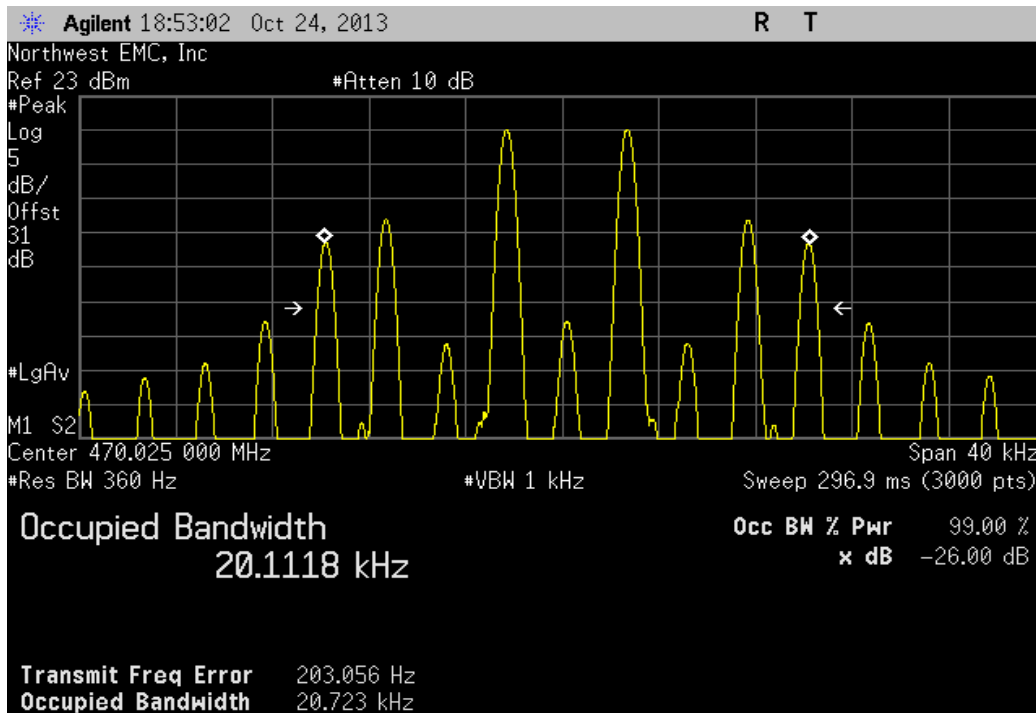
## OCCUPIED BANDWIDTH

XMit 2013.08.15  
PsaTx 2013.07.11

EUT: Base Station Model UV-1G		Work Order: RDIO0002	
Serial Number: None		Date: 10/24/13	
Customer: Radio Design Group, Inc.		Temperature: 22.8°C	
Attendees: Andrew Carpenter		Humidity: 37%	
Project: None		Barometric Pres.: 1020	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 74H:2013		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. A power setting of 250mW was used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
Antenna Port 1			Result
Broadcasting Frequencies			
Low Channel, 470.025 MHz		20.723 kHz	< 200 kHz
Mid Channel, Voltage: 100%		20.74 kHz	< 200 kHz
High Channel, 697.975 MHz		20.788 kHz	< 200 kHz
Antenna Port 2			
Broadcasting Frequencies			
Low Channel, 470.025 MHz		20.716 kHz	< 200 kHz
Mid Channel, 584 MHz		20.713 kHz	< 200 kHz
High Channel, 697.975 MHz		25.292 kHz	< 200 kHz

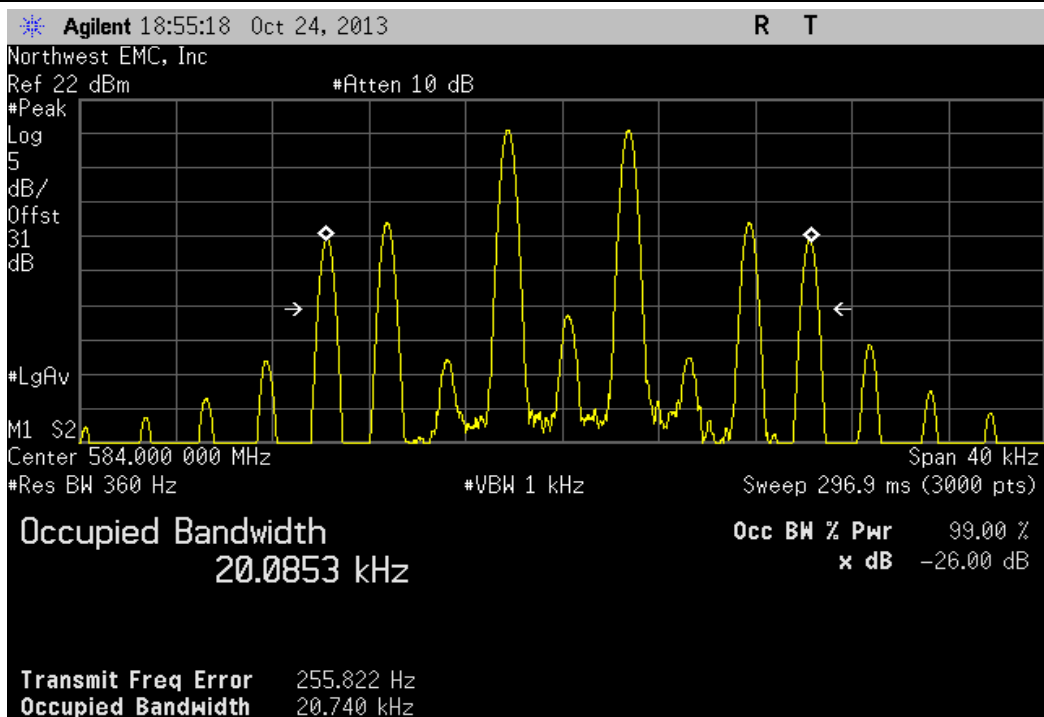
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 100%

				Value	Limit	Result
				20.723 kHz	< 200 kHz	Pass



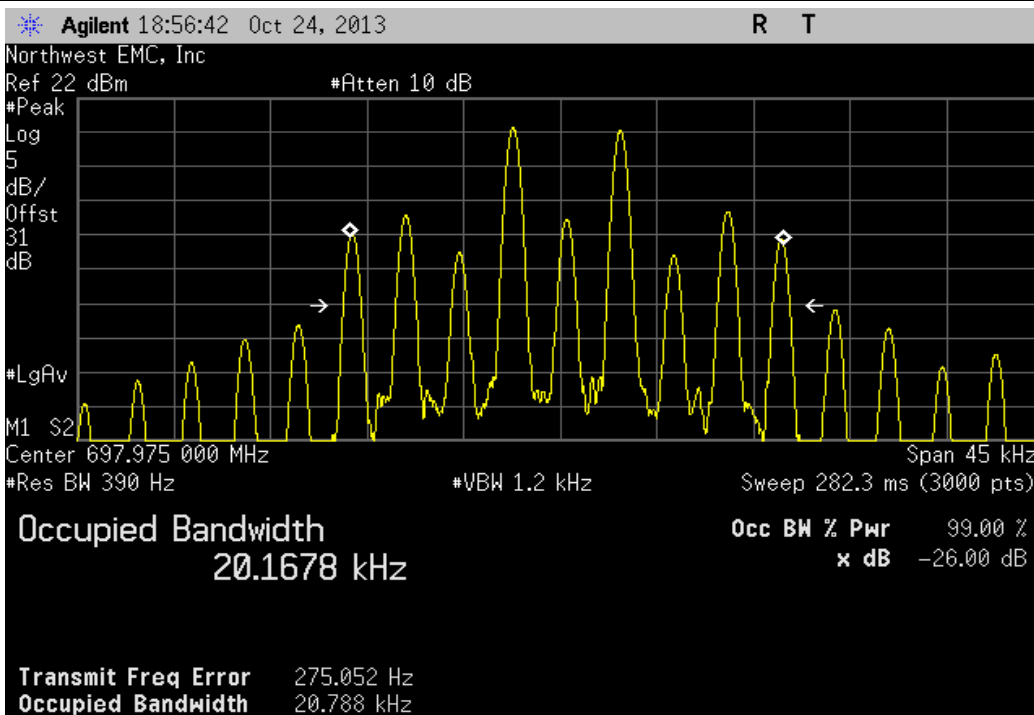
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 100%

				Value	Limit	Result
				20.74 kHz	< 200 kHz	Pass



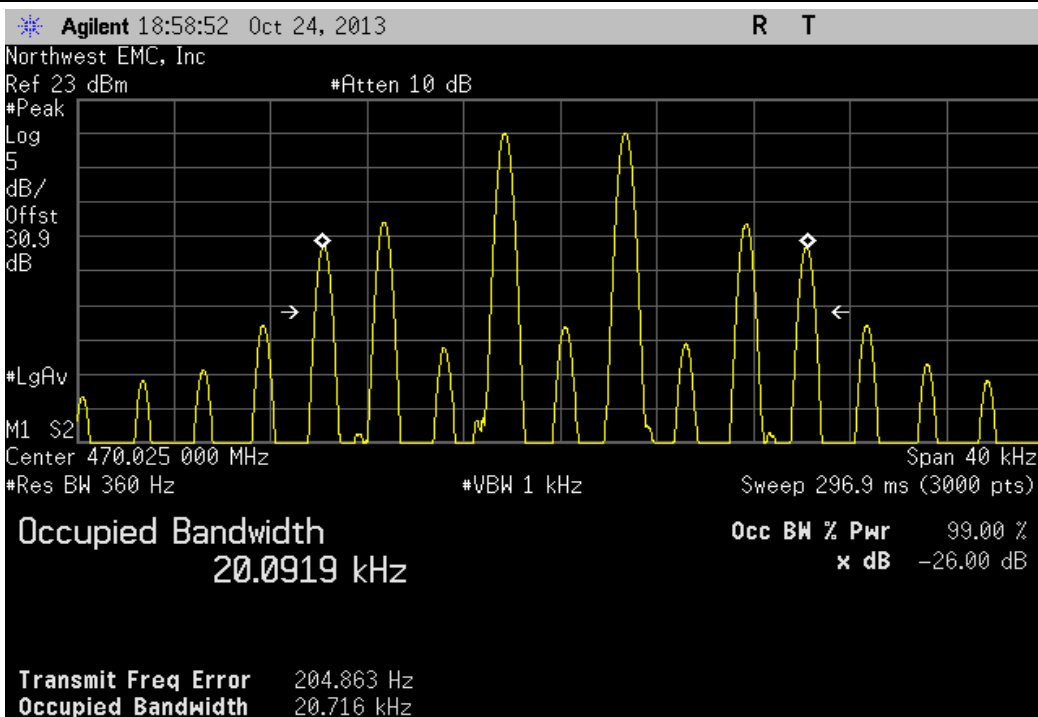
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 100%

				Value	Limit	Result
				20.788 kHz	< 200 kHz	Pass



Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 100%

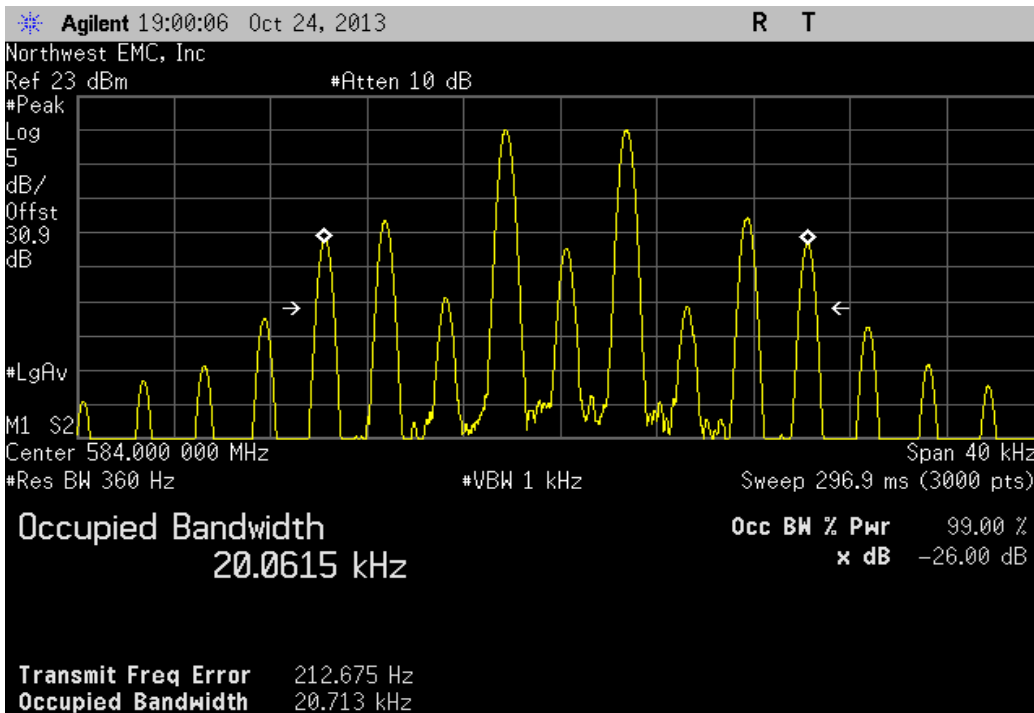
				Value	Limit	Result
				20.716 kHz	< 200 kHz	Pass





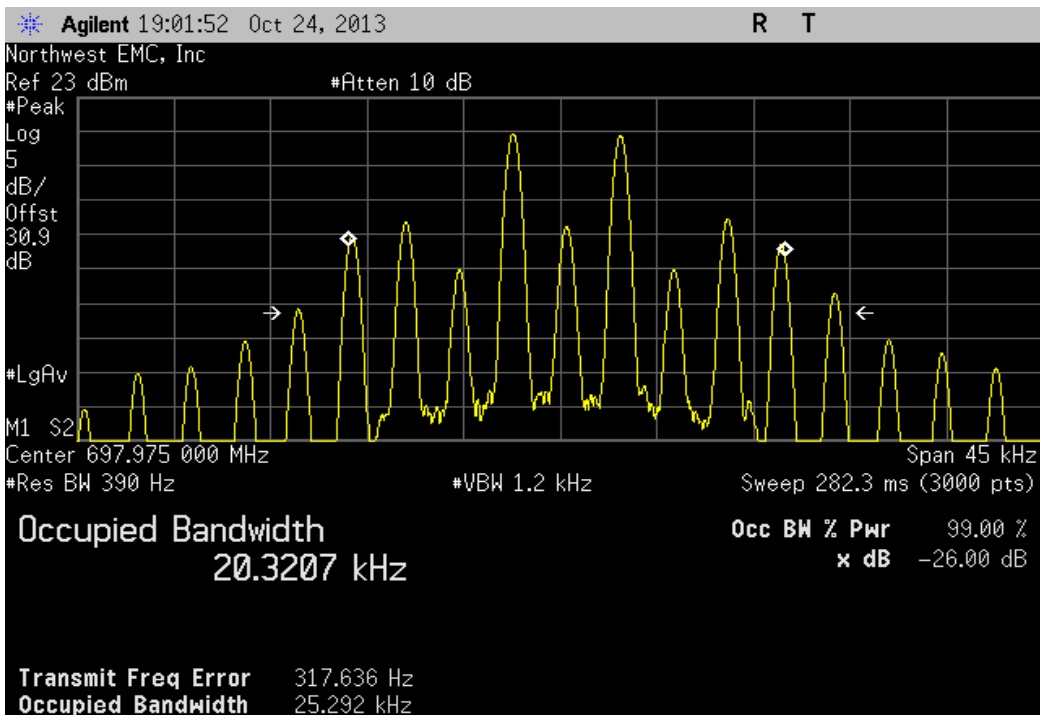
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 100%

	Value	Limit	Result
	20.713 kHz	< 200 kHz	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 100%

	Value	Limit	Result
	25.292 kHz	< 200 kHz	Pass



## EMISSION MASK

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

### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

### TEST DESCRIPTION


Per rule part FCC 74.861(e)(6), the emission mask was measured. Emissions more than 100 - 200kHz away from the center frequency must be attenuated below the transmitter output power by at least 25 dB. This was evaluated by the Occupied Bandwidth measurement according to FCC Part 74H(e)(5). In addition, emissions 200 - 500kHz away from the center frequency must be attenuated below the transmitter output power by at least 35 dB.

A spectrum analyzer was used to measure the emission mask. A spectrum analyzer using a peak detector.



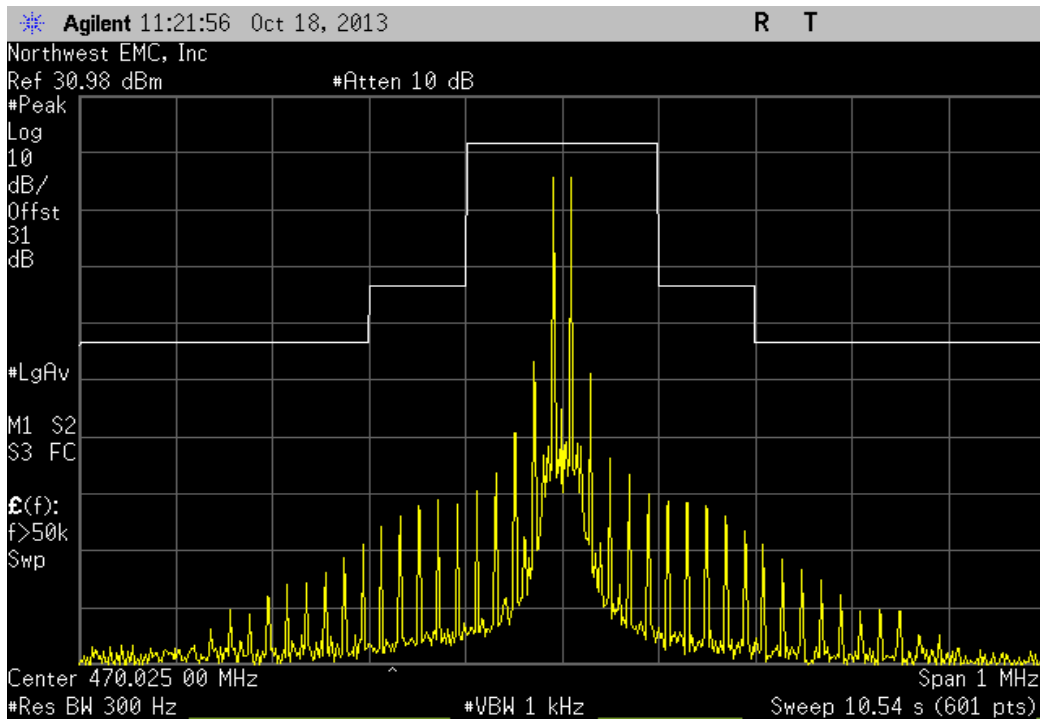
EMISSION MASK

XMit 2013.08.15

EUT: Base Station Model UV-1G		Work Order: RDIO0002	
Serial Number: None		Date: 10/18/13	
Customer: Radio Design Group, Inc.		Temperature: 22.8°C	
Attendees: Andrew Carpenter		Humidity: 37%	
Project: None		Barometric Pres.: 1020	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 74H:2013		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. A power setting of 250mW was used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
Antenna Port 1			Result
Broadcasting Frequencies			
Low Channel, 470.025 MHz		SEE GRAPH	SEE GRAPH
Mid Channel, 584 MHz		SEE GRAPH	SEE GRAPH
High Channel, 697.975 MHz		SEE GRAPH	SEE GRAPH
Antenna Port 2			
Broadcasting Frequencies			
Low Channel, 470.025 MHz		SEE GRAPH	SEE GRAPH
Mid Channel, 584 MHz		SEE GRAPH	SEE GRAPH
High Channel, 697.975 MHz		SEE GRAPH	SEE GRAPH

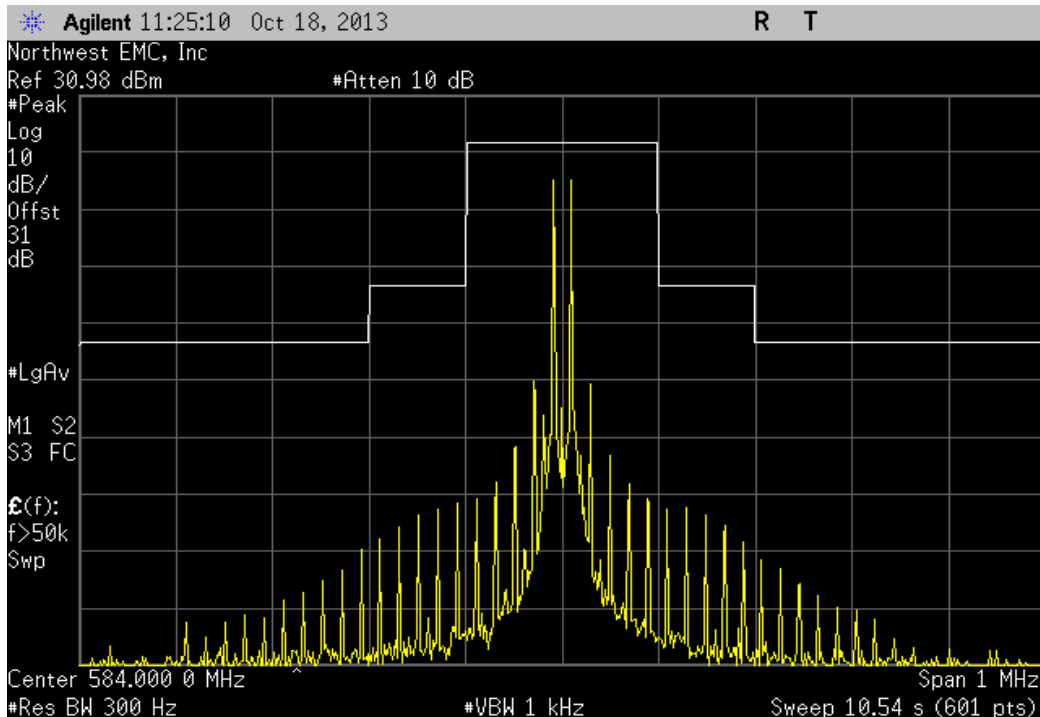
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz

Value	Limit	Result
SEE GRAPH	SEE GRAPH	Pass



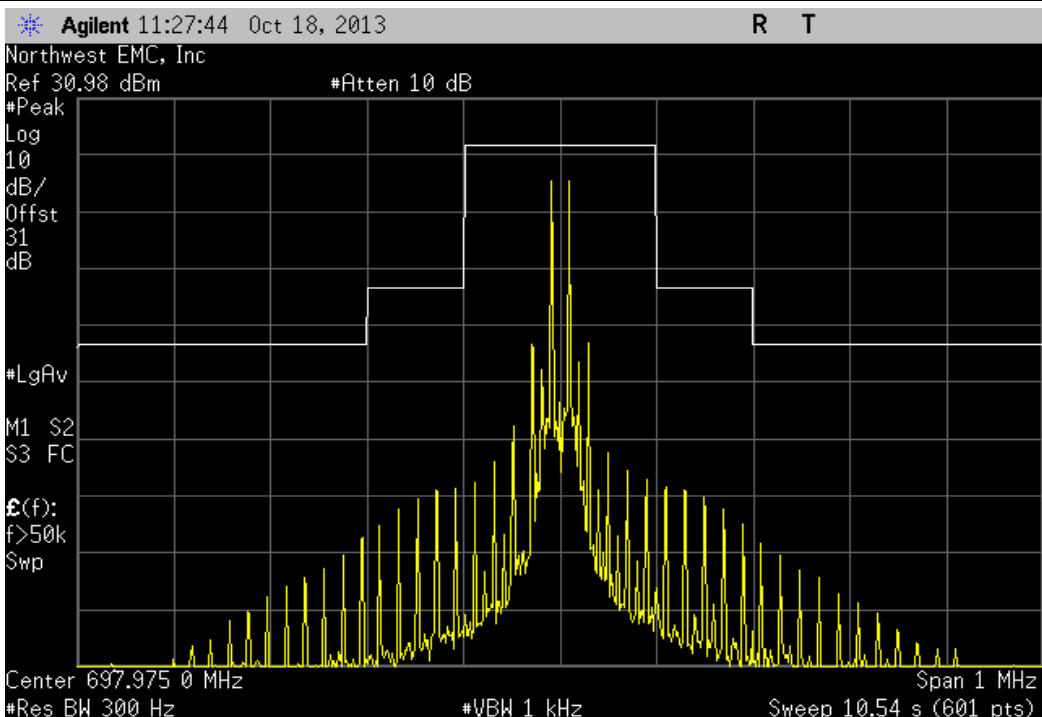
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz

Value	Limit	Result
SEE GRAPH	SEE GRAPH	Pass



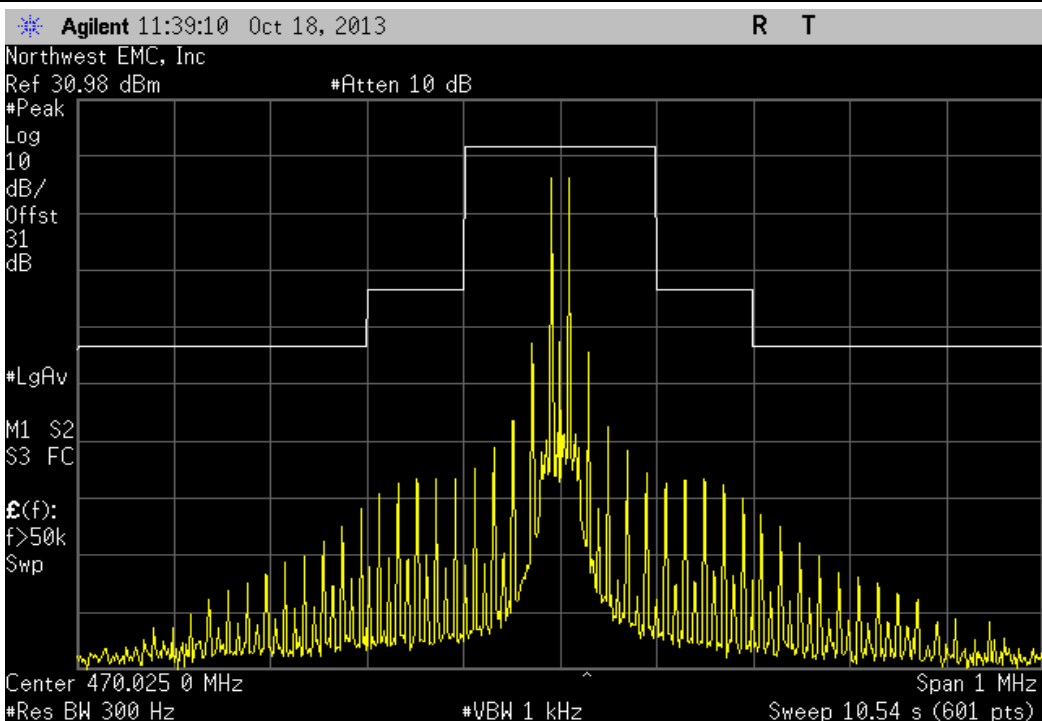
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz

				Value	Limit	Result
				SEE GRAPH	SEE GRAPH	Pass

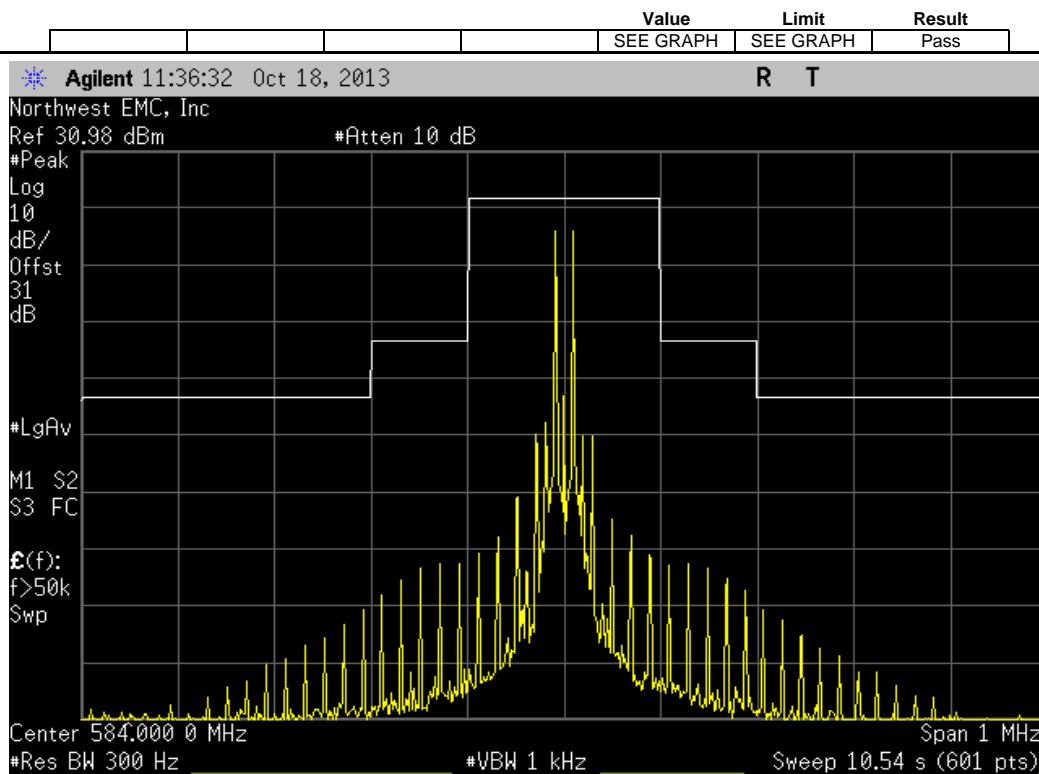


Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz

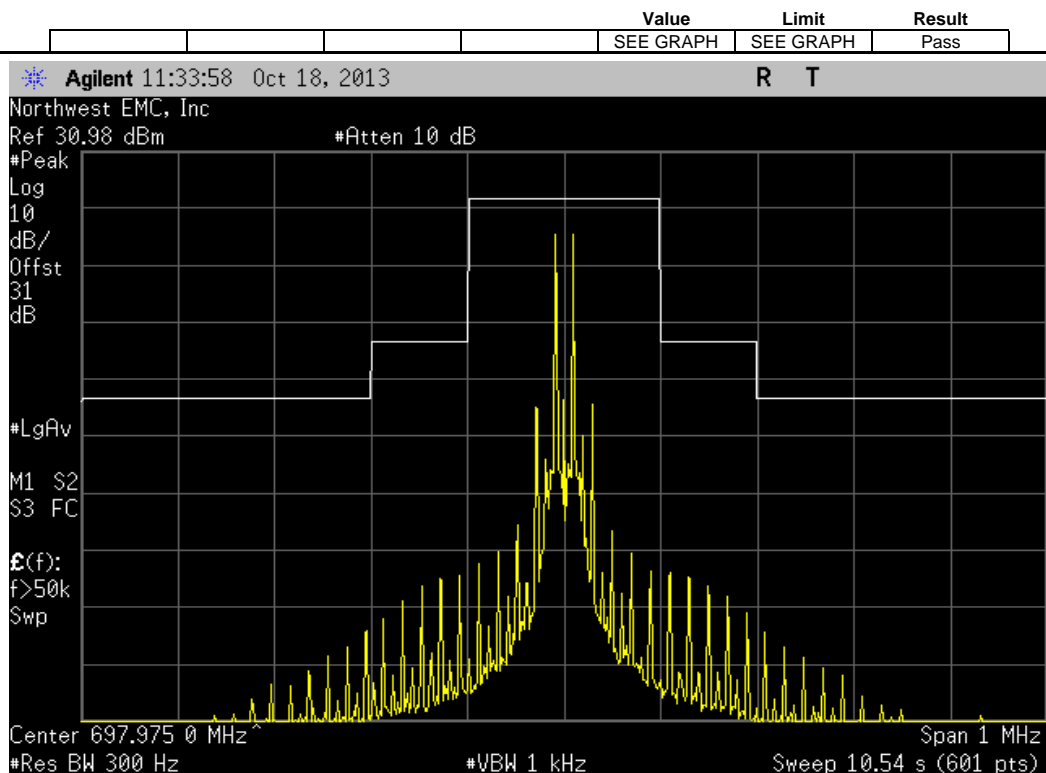
				Value	Limit	Result
				SEE GRAPH	SEE GRAPH	Pass



Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz





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, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

#### TEST DESCRIPTION


The antenna port spurious conducted emissions were measured at the RF output terminal of the EUT with 20dB of external attenuation on the RF input of the spectrum analyzer. Analyzer plots were made from 30 MHz to 12.5 GHz. The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to a limit of -13 dBm.





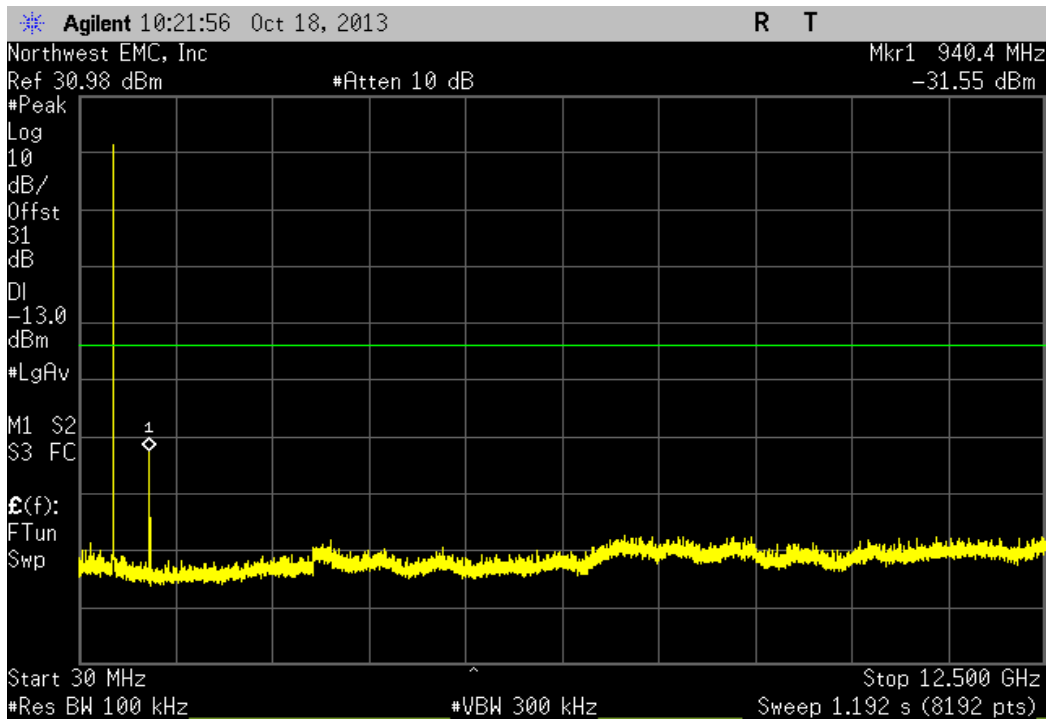
# SPURIOUS CONDUCTED EMISSIONS

XMit 2013.08.15

EUT: Base Station Model UV-1G		Work Order: RDIO0002	
Serial Number: None		Date: 10/18/13	
Customer: Radio Design Group, Inc.		Temperature: 22.8°C	
Attendees: Andrew Carpenter		Humidity: 37%	
Project: None		Barometric Pres.: 1020	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 74H:2013		ANSI/TIA/EIA-603-C-2004	
COMMENTS			
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. A power setting of 250mW was used.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value	Limit
Antenna Port 1			Result
Broadcasting Frequencies			
Low Channel, 470.025 MHz		-31.55 dBm	-13 dBm
Mid Channel, 584 MHz		-45.11 dBm	-13 dBm
High Channel, 697.975 MHz		-40.47 dBm	-13 dBm
Antenna Port 2			
Broadcasting Frequencies			
Low Channel, 470.025 MHz		-32.39 dBm	-13 dBm
Mid Channel, 584 MHz		-44.89 dBm	-13 dBm
High Channel, 697.975 MHz		-42.11 dBm	-13 dBm

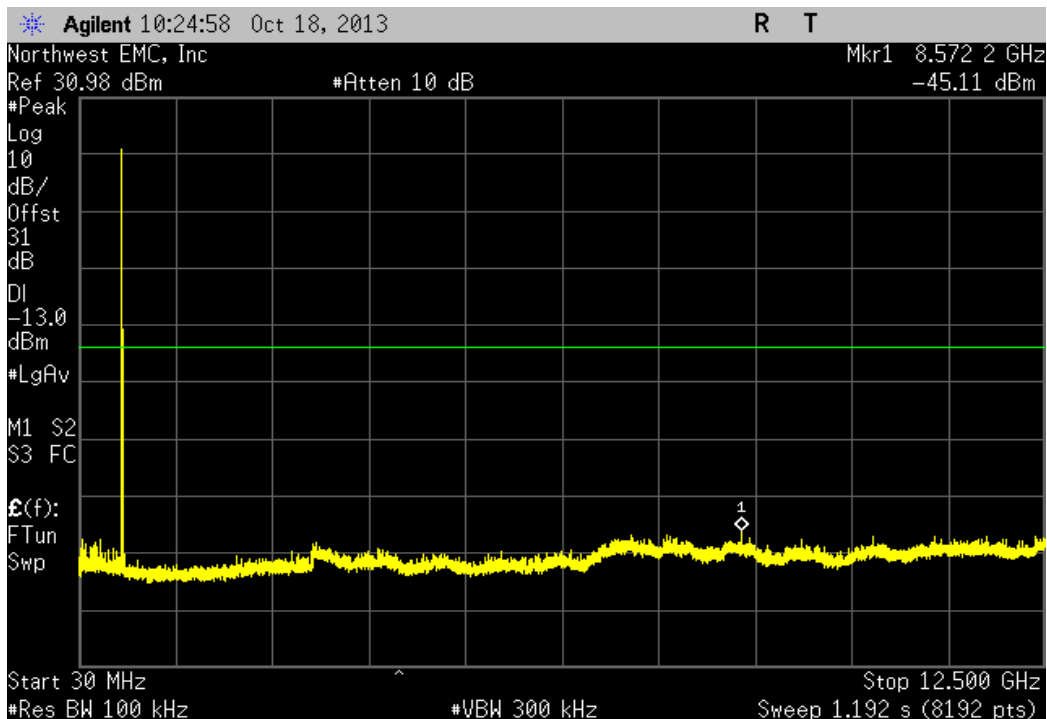
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz

Value	Limit	Result
-31.55 dBm	-13 dBm	Pass



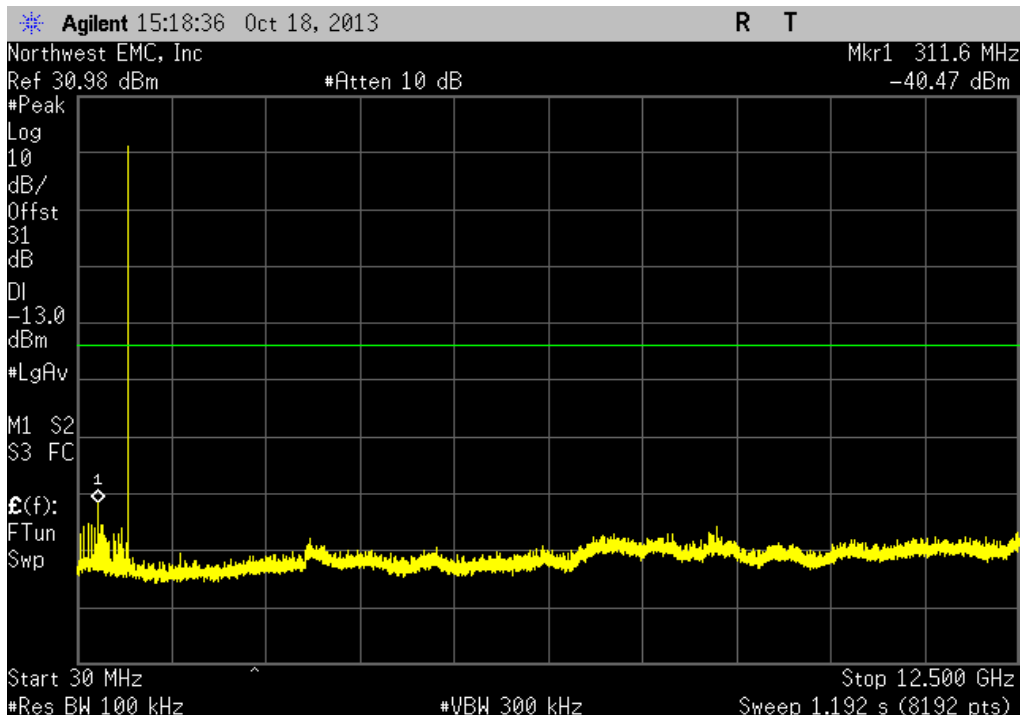
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz

Value	Limit	Result
-45.11 dBm	-13 dBm	Pass



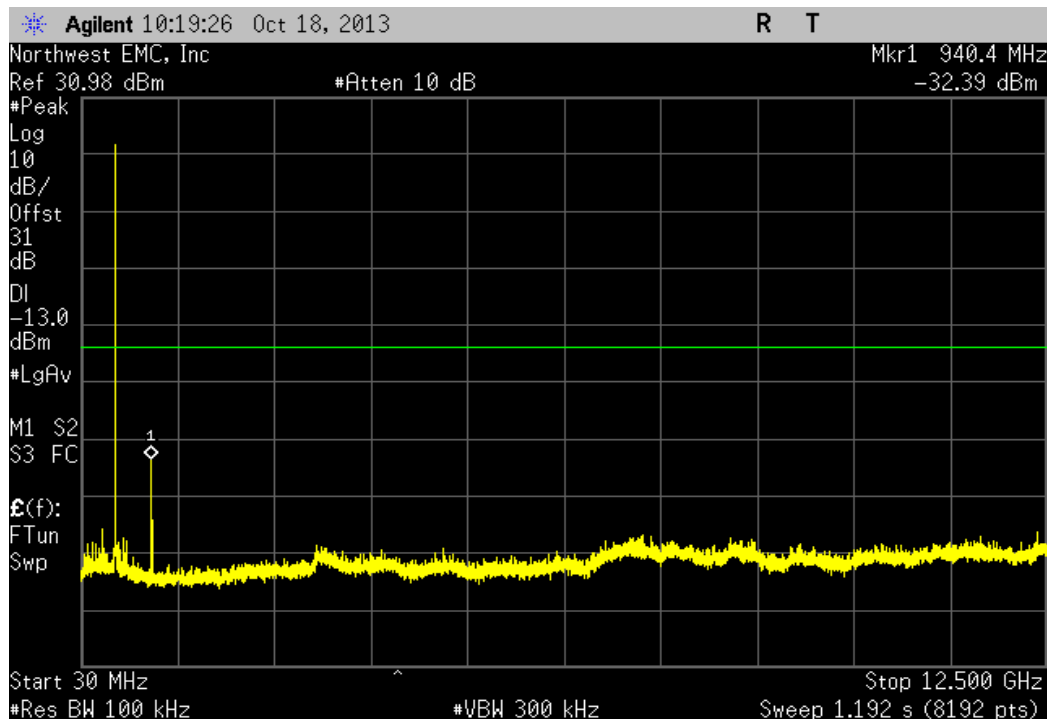
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz

Value	Limit	Result
-40.47 dBm	-13 dBm	Pass



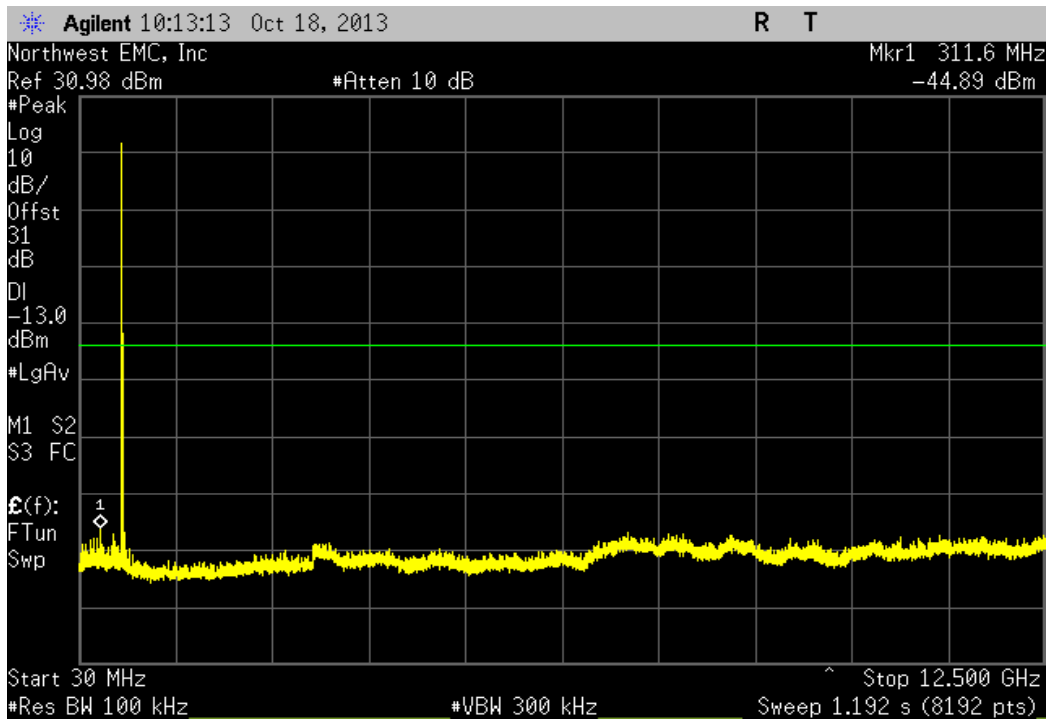
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz

Value	Limit	Result
-32.39 dBm	-13 dBm	Pass



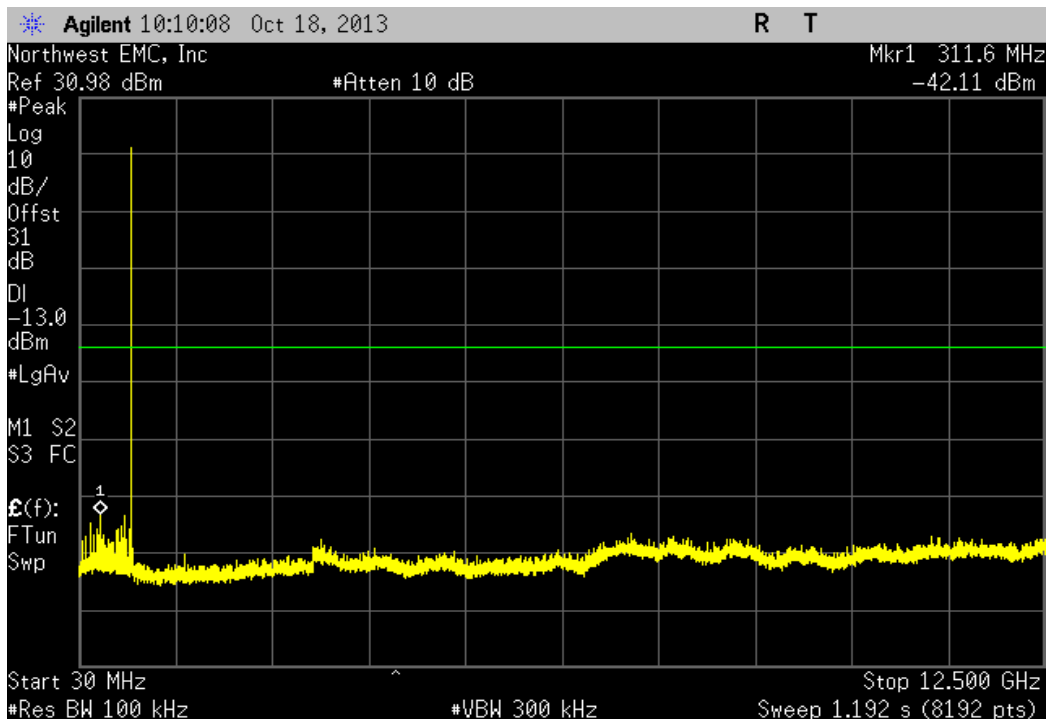
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz

Value	Limit	Result
-44.89 dBm	-13 dBm	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz

Value	Limit	Result
-42.11 dBm	-13 dBm	Pass



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

Tx, Low Ch. 470.025 MHz

Tx, Mid Ch. 584 MHz

Tx, High Ch. 697.975 MHz

## POWER SETTINGS INVESTIGATED

110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

RDIO0002 - 4

## FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	8.2 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
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	9/2/2013	12 mo
Antenna, Dipole	A.H. Systems, Inc.	FCC-4	ADCA	5/17/2013	36
Antenna, Horn	EMCO	3115	AHC	6/20/2012	24
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	3/25/2013	12
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/20/2013	12 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/20/2013	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/20/2013	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo

## MEASUREMENT BANDWIDTHS

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

## TEST DESCRIPTION

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:

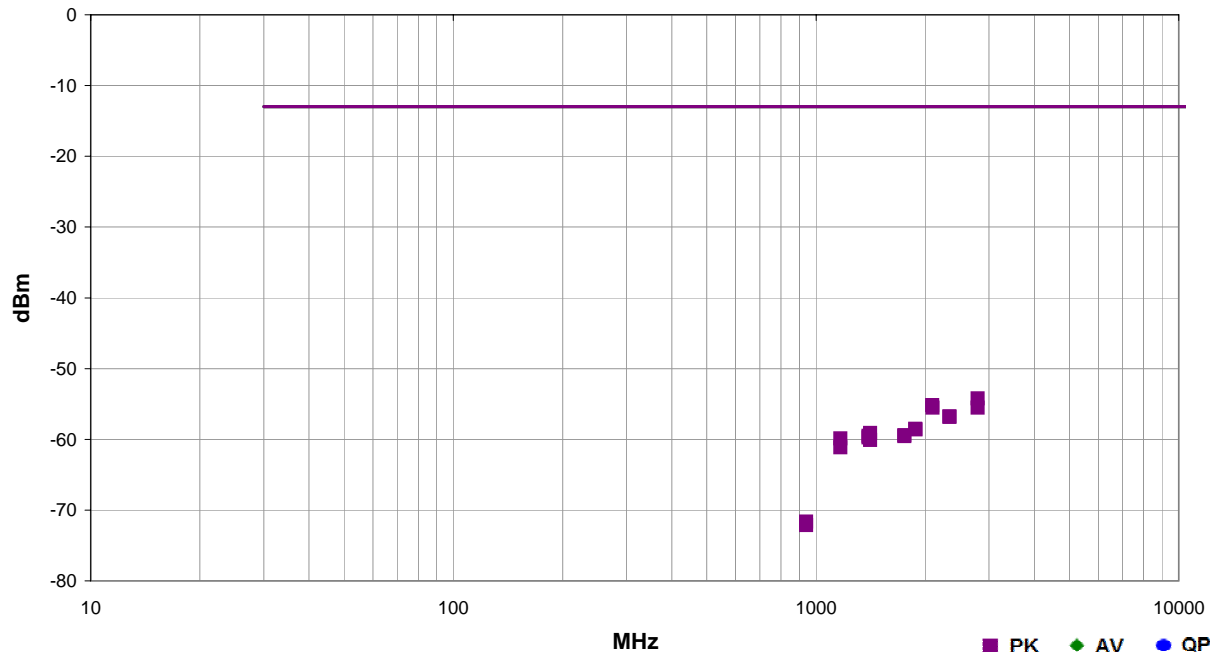
At an approved test site, the transmitter is placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a ½ wave dipole that is successively tuned to each of the highest spurious emissions. 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 dipole 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 final measurements must be made utilizing the substitution method described above.

Work Order:	RDIO0002	Date:	10/22/13	<i>Carl Engholm</i>
Project:	None	Temperature:	23.1 °C	
Job Site:	EV01	Humidity:	43% RH	
Serial Number:	None	Barometric Pres.:	1014 mbar	
EUT: Base Station Model UV-1G				Tested by: Carl Engholm
Configuration: 4				
Customer: Radio Design Group, Inc.				
Attendees: None				
EUT Power: 110VAC/60Hz				
Operating Mode: Transmitting on both antenna ports with 50 Ohm termination				
Deviations: None				
Comments: EUT Horizontal				

Test Specifications	Test Method
FCC 74H:2013	ANSI/TIA/EIA-603-C-2004

Run #	19	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
2790.895	1.0	288.0	Vert	PK	3.78E-09	-54.2	-13.0	-41.2	High Ch (697.975 Mhz), EUT Horz
2094.075	1.0	42.0	Vert	PK	3.05E-09	-55.2	-13.0	-42.2	High Ch (697.975 Mhz), EUT Horz
2791.995	1.8	248.0	Horz	PK	2.81E-09	-55.5	-13.0	-42.5	High Ch (697.975 Mhz), EUT Horz
2094.840	3.0	105.0	Horz	PK	2.79E-09	-55.5	-13.0	-42.5	High Ch (697.975 Mhz), EUT Horz
2336.075	1.0	247.0	Vert	PK	2.11E-09	-56.8	-13.0	-43.8	Mid Ch (584 Mhz), EUT Horz
2336.445	1.0	322.0	Horz	PK	2.06E-09	-56.9	-13.0	-43.9	Mid Ch (584 Mhz), EUT Horz
1879.715	1.2	290.0	Vert	PK	1.41E-09	-58.5	-13.0	-45.5	Low Ch (470.025 Mhz), EUT Horz
1880.560	1.0	132.0	Horz	PK	1.38E-09	-58.6	-13.0	-45.6	Low Ch (470.025 Mhz), EUT Horz
1409.500	1.0	174.0	Horz	PK	1.23E-09	-59.1	-13.0	-46.1	Low Ch (470.025 Mhz), EUT Horz
1753.385	2.0	84.0	Vert	PK	1.14E-09	-59.4	-13.0	-46.4	Mid Ch (584 Mhz), EUT Horz
1395.800	1.0	315.0	Vert	PK	1.12E-09	-59.5	-13.0	-46.5	High Ch (697.975 Mhz), EUT Horz
1752.110	1.0	111.0	Horz	PK	1.11E-09	-59.5	-13.0	-46.5	Mid Ch (584 Mhz), EUT Horz
1395.045	1.0	124.0	Horz	PK	1.07E-09	-59.7	-13.0	-46.7	High Ch (697.975 Mhz), EUT Horz
1167.985	1.0	93.0	Vert	PK	1.03E-09	-59.9	-13.0	-46.9	Mid Ch (584 Mhz), EUT Horz
1410.075	1.8	206.0	Vert	PK	9.78E-10	-60.1	-13.0	-47.1	Low Ch (470.025 Mhz), EUT Horz
1168.280	1.0	357.0	Horz	PK	7.66E-10	-61.2	-13.0	-48.2	Mid Ch (584 Mhz), EUT Horz
939.699	1.0	302.0	Horz	PK	6.83E-11	-71.7	-13.0	-58.7	Low Ch (470.025 Mhz), EUT Horz
940.131	1.0	26.0	Vert	PK	6.10E-11	-72.1	-13.0	-59.1	Low Ch (470.025 Mhz), EUT Horz



## 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
Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	NCR	0
Humidity Temperature Meter	Omegaette	HH311	DTY	3/29/2011	36
DC Power Supply	MPJA	9950 PS	TQA	NCR	0
Multimeter	Tektronix	DMM912	MMH	2/5/2013	24
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	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.

Measurements were made at the edges of the main transmit bands as called out on the data sheets. Testing was done with the carrier unmodulated.

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 (-20 ° to +50° C) and at 10°C intervals.





## FREQUENCY STABILITY

XMIT 2013.08.15  
PsaTx 2013.07.11

EUT: Base Station Model UV-1G		Work Order: RDIO0002
Serial Number: None		Date: 10/22/13
Customer: Radio Design Group, Inc.		Temperature: 22.8°C
Attendees: Andrew Carpenter		Humidity: 42%
Project: None		Barometric Pres.: 1020
Tested by: Brandon Hobbs	Power: 15 VDC	Job Site: EV09

TEST SPECIFICATIONS	Test Method
FCC 74H:2013	ANSI/TIA/EIA-603-C-2004

COMMENTS  
An additional 10 dB attenuator was added for additional equipment protection. All applicable losses from the analyzer to the EUT were accounted for. Power level of 250mW was used.

DEVIATIONS FROM TEST STANDARD  
None

Configuration #	2	Signature 
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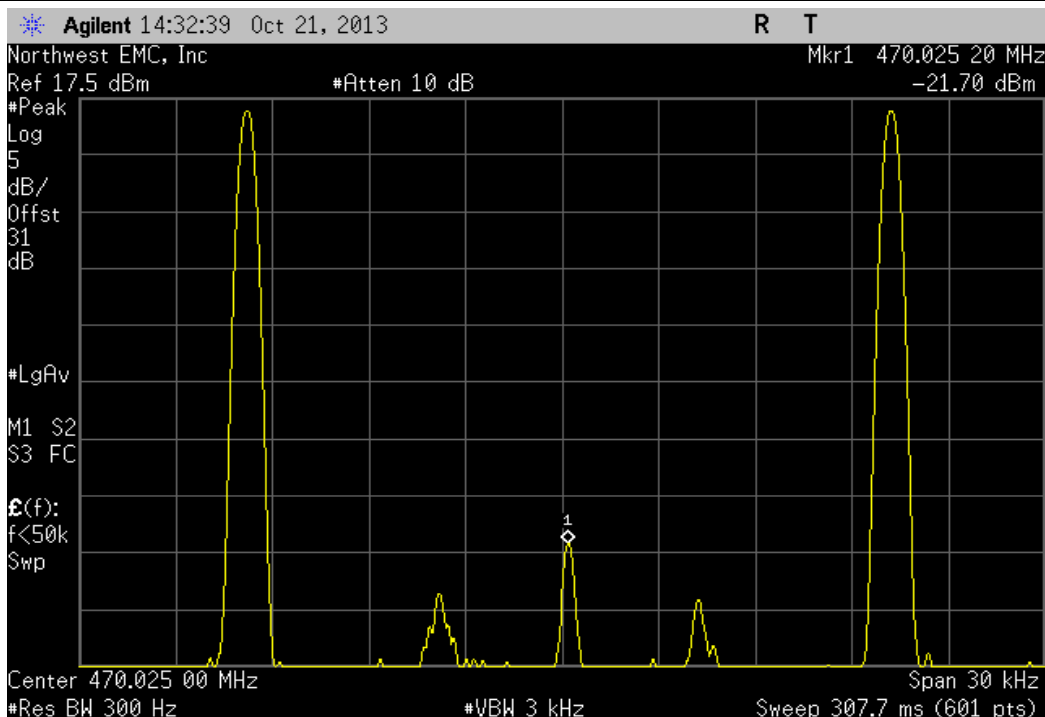
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
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Antenna Port 1					
Broadcasting Frequencies					
Low Channel, 470.025 MHz					
Voltage: 115%	470.0252	470.025	0.4	50	Pass
Voltage: 100%	470.0252	470.025	0.4	50	Pass
Voltage: 85%	470.02515	470.025	0.3	50	Pass
Temperature: +50°	470.0252	470.025	0.4	50	Pass
Temperature: +40°	470.0252	470.025	0.4	50	Pass
Temperature: +30°	470.02525	470.025	0.5	50	Pass
Temperature: +20°	470.0252	470.025	0.4	50	Pass
Temperature: +10°	470.0253	470.025	0.6	50	Pass
Temperature: 0°	470.0253	470.025	0.6	50	Pass
Temperature: -10°	470.02535	470.025	0.7	50	Pass
Temperature: -20°	470.02535	470.025	0.7	50	Pass
Mid Channel, 584 MHz					
Voltage: 115%	584.00025	584	0.4	50	Pass
Voltage: 100%	584.00025	584	0.4	50	Pass
Voltage: 85%	584.0003	584	0.5	50	Pass
Temperature: +50°	584.00025	584	0.4	50	Pass
Temperature: +40°	584.00025	584	0.4	50	Pass
Temperature: +30°	584.00025	584	0.4	50	Pass
Temperature: +20°	584.00025	584	0.4	50	Pass
Temperature: +10°	584.00035	584	0.6	50	Pass
Temperature: 0°	584.0004	584	0.7	50	Pass
Temperature: -10°	584.0004	584	0.7	50	Pass
Temperature: -20°	584.0004	584	0.7	50	Pass
High Channel, 697.975 MHz					
Voltage: 115%	697.97535	697.975	0.5	50	Pass
Voltage: 100%	697.97525	697.975	0.4	50	Pass
Voltage: 85%	697.9753	697.975	0.4	50	Pass
Temperature: +50°	697.97525	697.975	0.4	50	Pass
Temperature: +40°	697.97535	697.975	0.5	50	Pass
Temperature: +30°	697.97535	697.975	0.5	50	Pass
Temperature: +20°	697.97535	697.975	0.5	50	Pass
Temperature: +10°	697.97545	697.975	0.6	50	Pass
Temperature: 0°	697.97545	697.975	0.6	50	Pass
Temperature: -10°	697.9755	697.975	0.7	50	Pass
Temperature: -20°	697.9755	697.975	0.7	50	Pass

Antenna Port 2					
Broadcasting Frequencies					
Low Channel, 470.025 MHz					
Voltage: 115%	470.0252	470.025	0.4	50	Pass
Voltage: 100%	470.0252	470.025	0.4	50	Pass
Voltage: 85%	470.0252	470.025	0.4	50	Pass
Temperature: +50°	470.0252	470.025	0.4	50	Pass
Temperature: +40°	470.0252	470.025	0.4	50	Pass
Temperature: +30°	470.0252	470.025	0.4	50	Pass
Temperature: +20°	470.02525	470.025	0.5	50	Pass
Temperature: +10°	470.0253	470.025	0.6	50	Pass
Temperature: 0°	470.0253	470.025	0.6	50	Pass
Temperature: -10°	470.02535	470.025	0.7	50	Pass
Temperature: -20°	470.02535	470.025	0.7	50	Pass
Mid Channel, 584 MHz					
Voltage: 115%	584.00025	584	0.4	50	Pass
Voltage: 100%	584.00025	584	0.4	50	Pass
Voltage: 85%	584.00025	584	0.4	50	Pass
Temperature: +50°	584.00025	584	0.4	50	Pass
Temperature: +40°	584.00025	584	0.4	50	Pass
Temperature: +30°	584.0003	584	0.5	50	Pass
Temperature: +20°	584.0003	584	0.5	50	Pass
Temperature: +10°	584.00035	584	0.6	50	Pass
Temperature: 0°	584.00035	584	0.6	50	Pass
Temperature: -10°	584.0004	584	0.7	50	Pass
Temperature: -20°	584.0004	584	0.7	50	Pass
High Channel, 697.975 MHz					
Voltage: 115%	697.9753	697.975	0.4	50	Pass
Voltage: 100%	697.9753	697.975	0.4	50	Pass
Voltage: 85%	697.9753	697.975	0.4	50	Pass
Temperature: +50°	697.97525	697.975	0.4	50	Pass
Temperature: +40°	697.9753	697.975	0.4	50	Pass
Temperature: +30°	697.9753	697.975	0.4	50	Pass
Temperature: +20°	697.97535	697.975	0.5	50	Pass
Temperature: +10°	697.97545	697.975	0.6	50	Pass
Temperature: 0°	697.97545	697.975	0.6	50	Pass
Temperature: -10°	697.9755	697.975	0.7	50	Pass
Temperature: -20°	697.9755	697.975	0.7	50	Pass

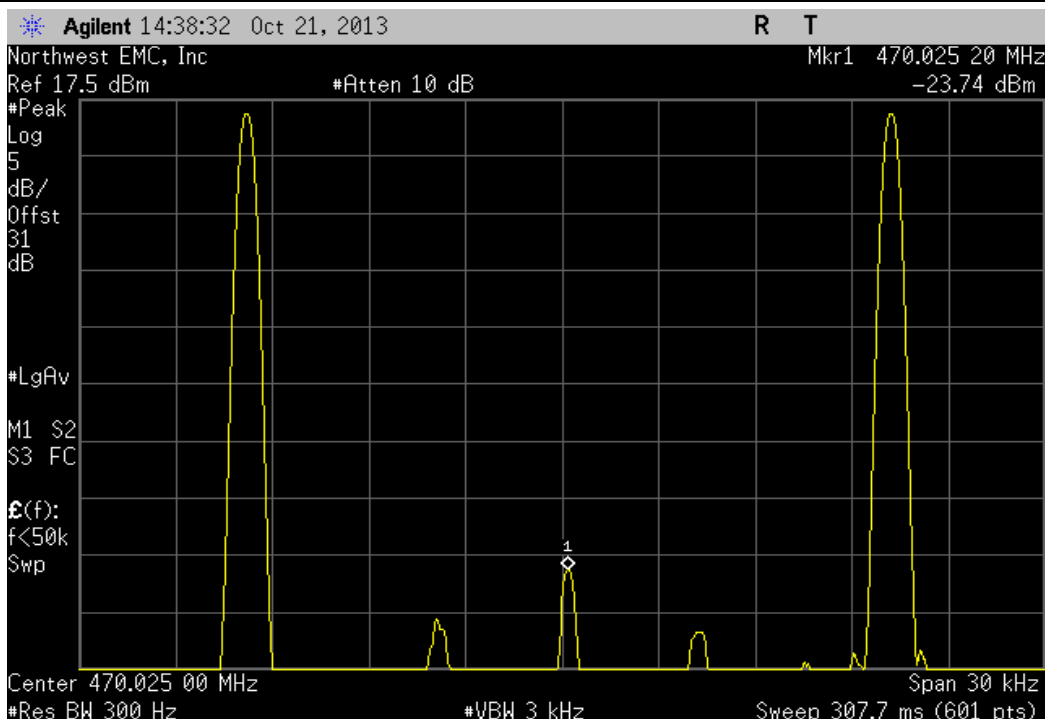
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



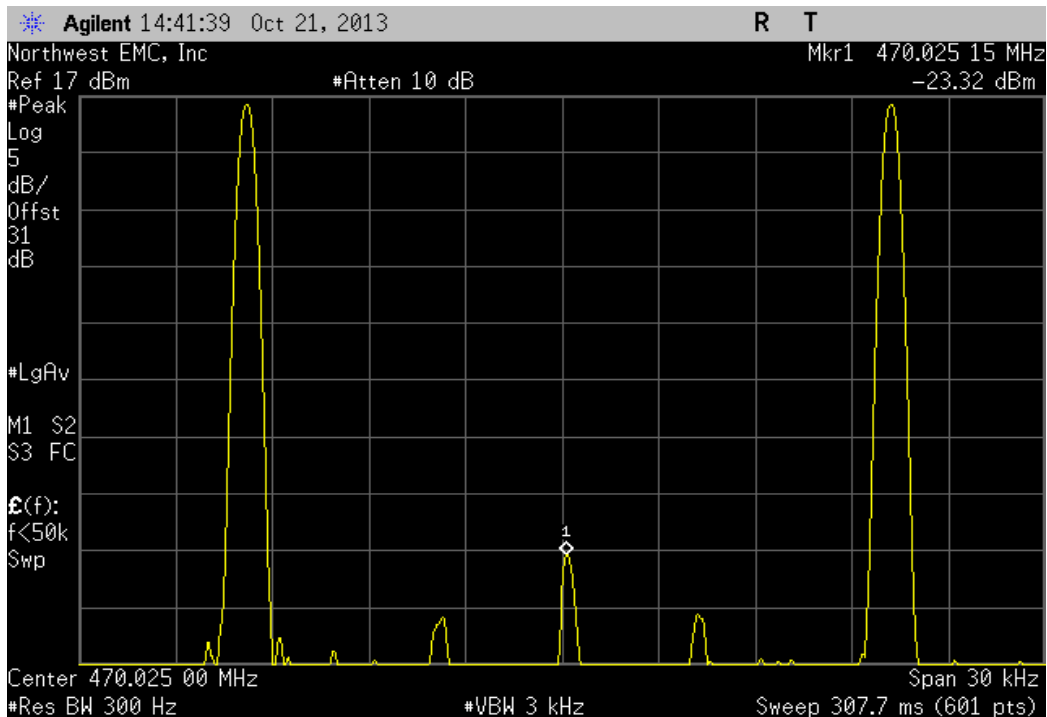
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 100%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



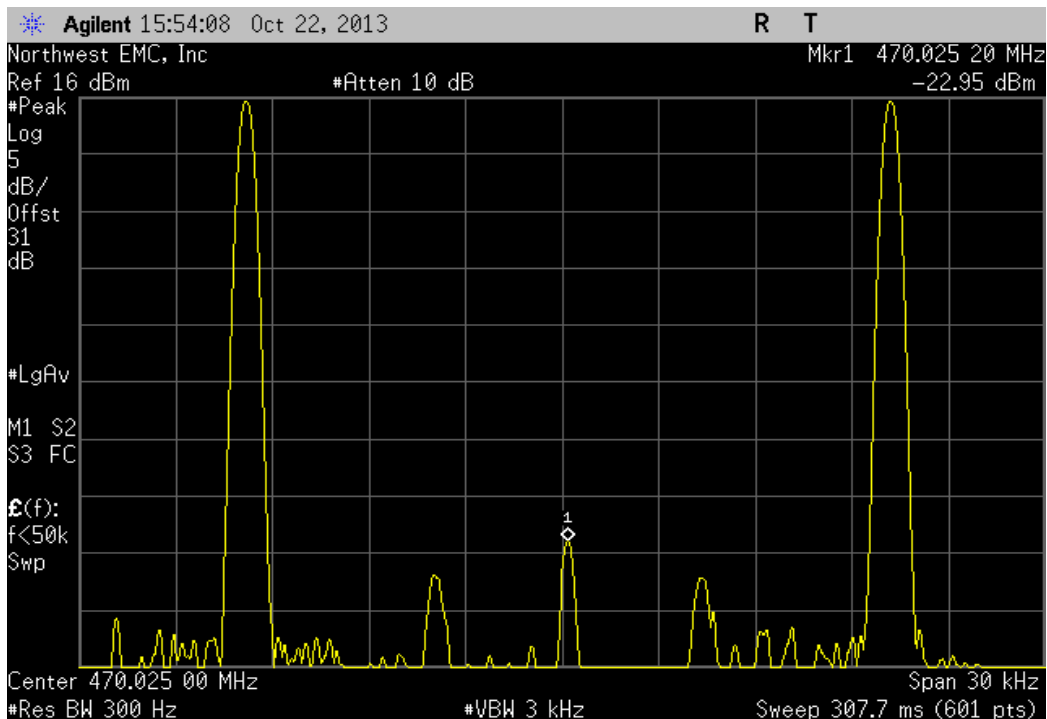
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 85%

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	470.02515	470.025	0.3	50	Pass



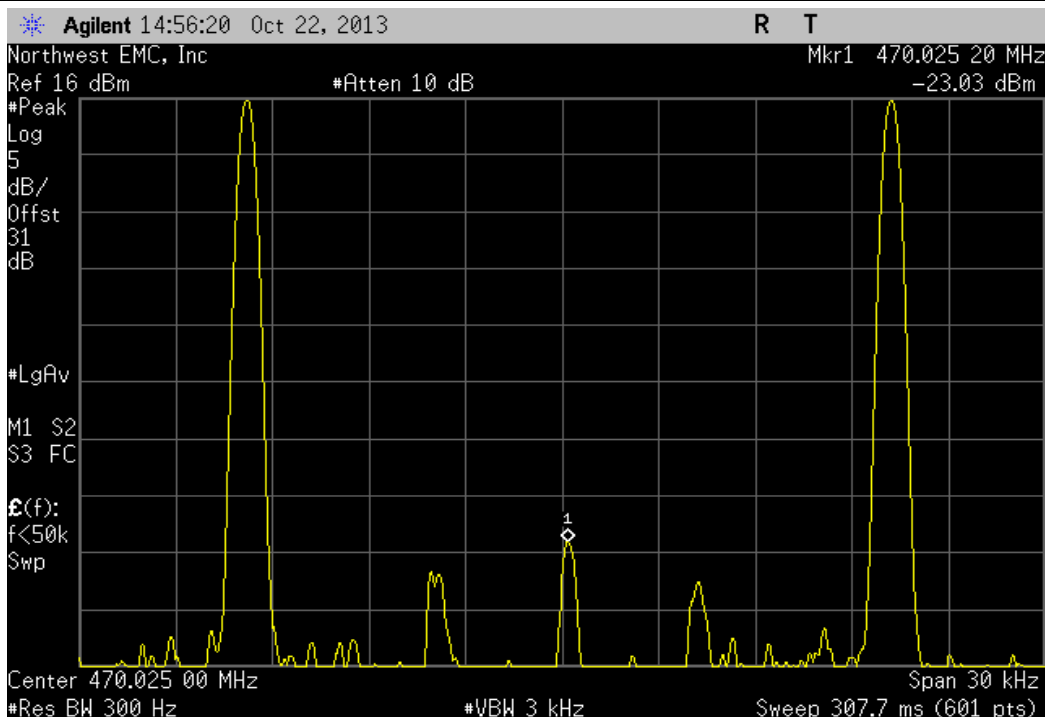
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +50°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	470.0252	470.025	0.4	50	Pass



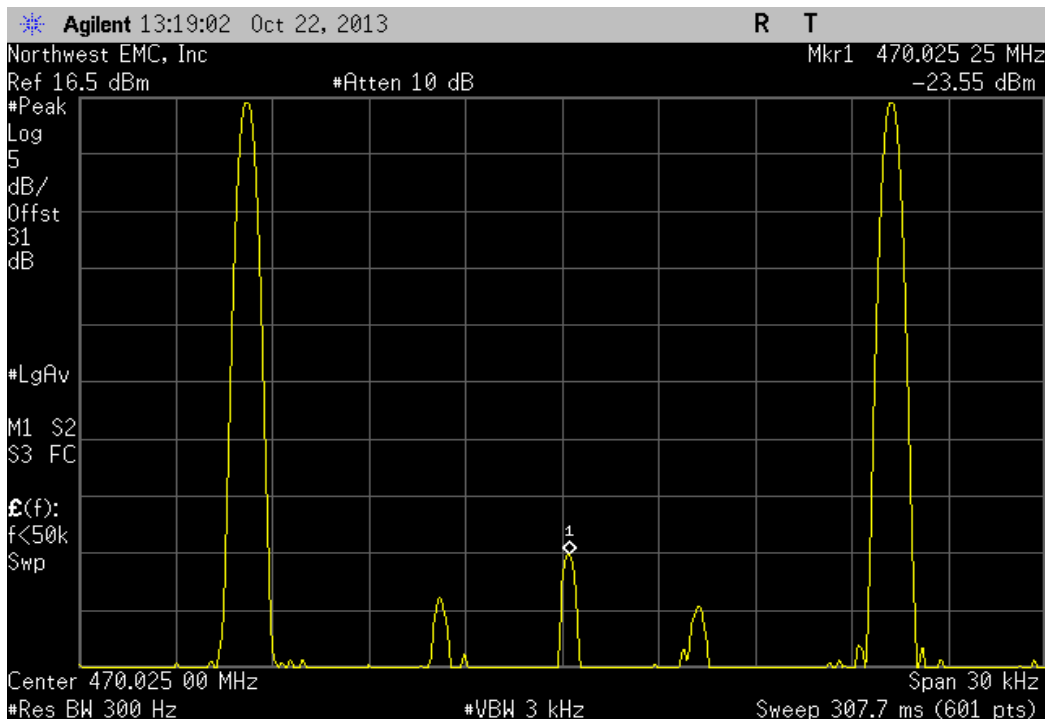
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +40°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



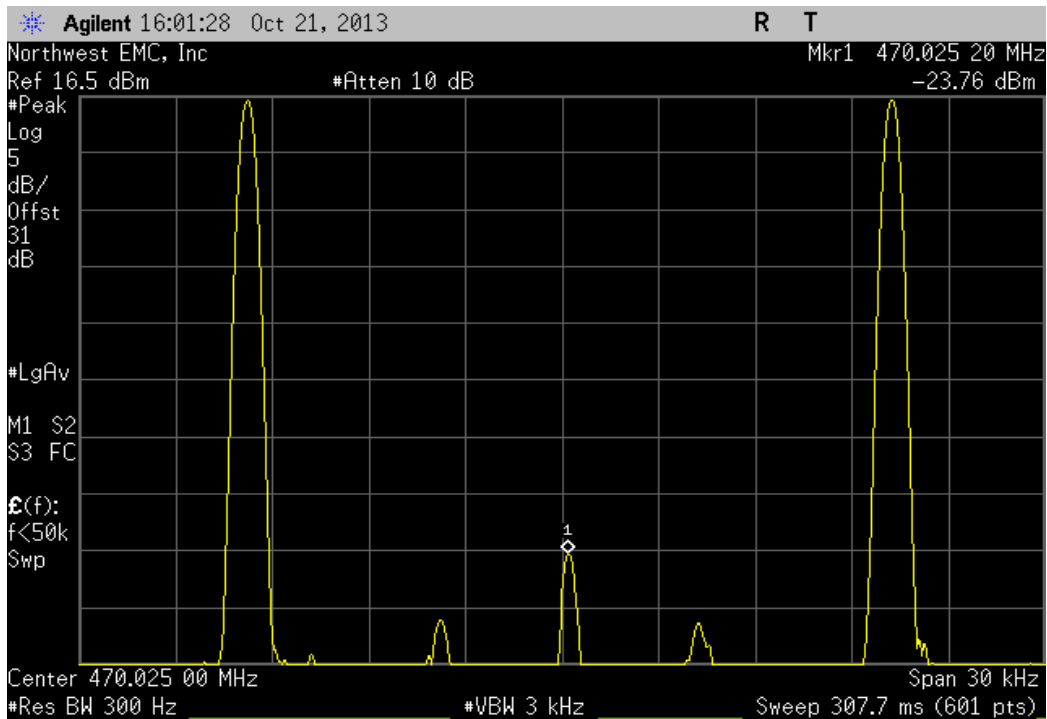
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +30°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02525	470.025	0.5	50	Pass



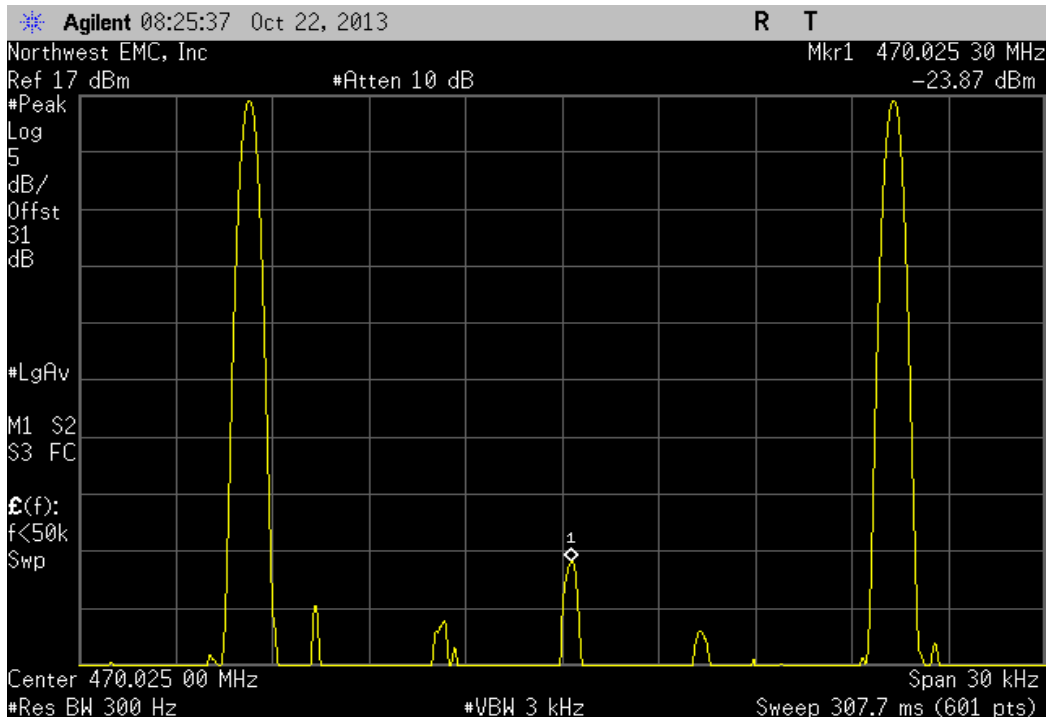
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



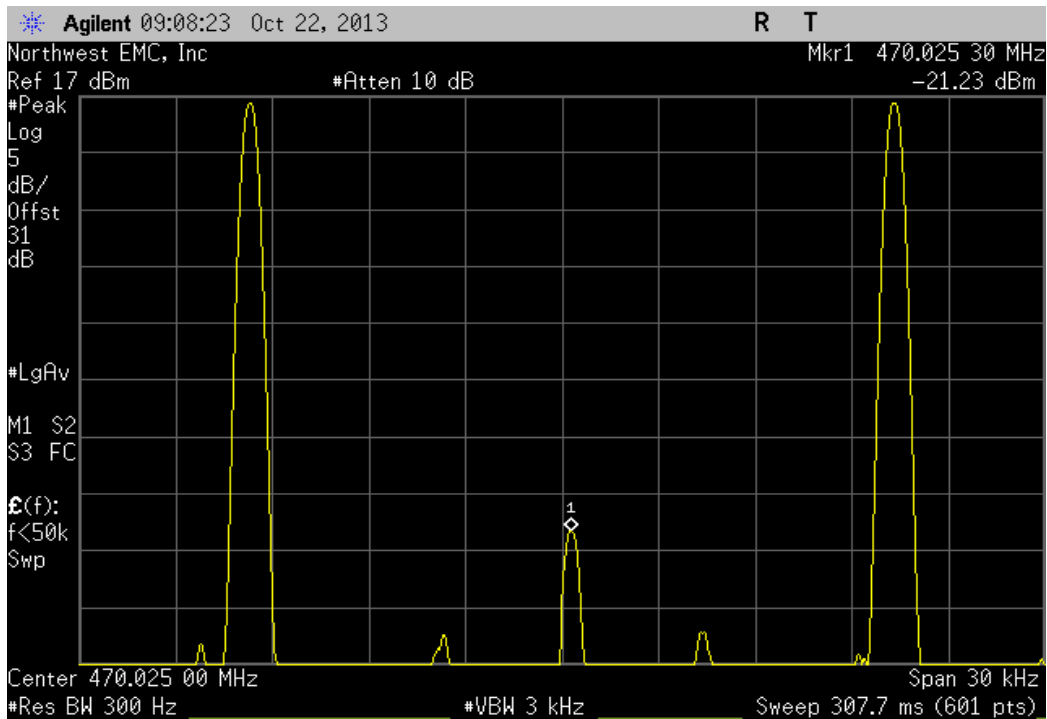
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0253	470.025	0.6	50	Pass



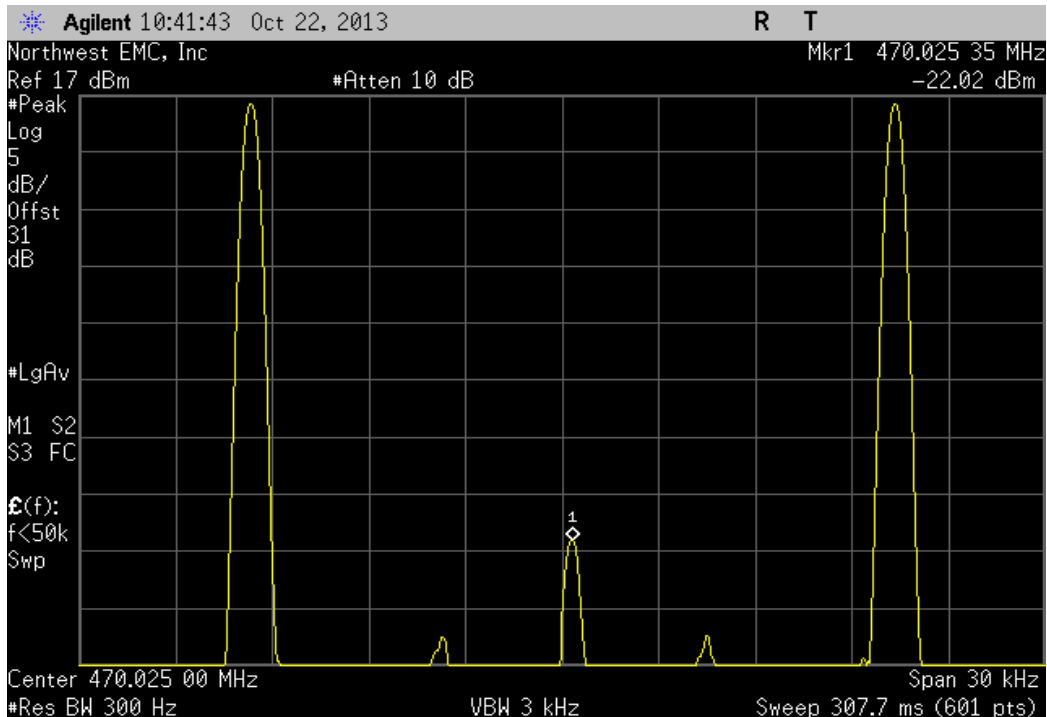
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: 0°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0253	470.025	0.6	50	Pass



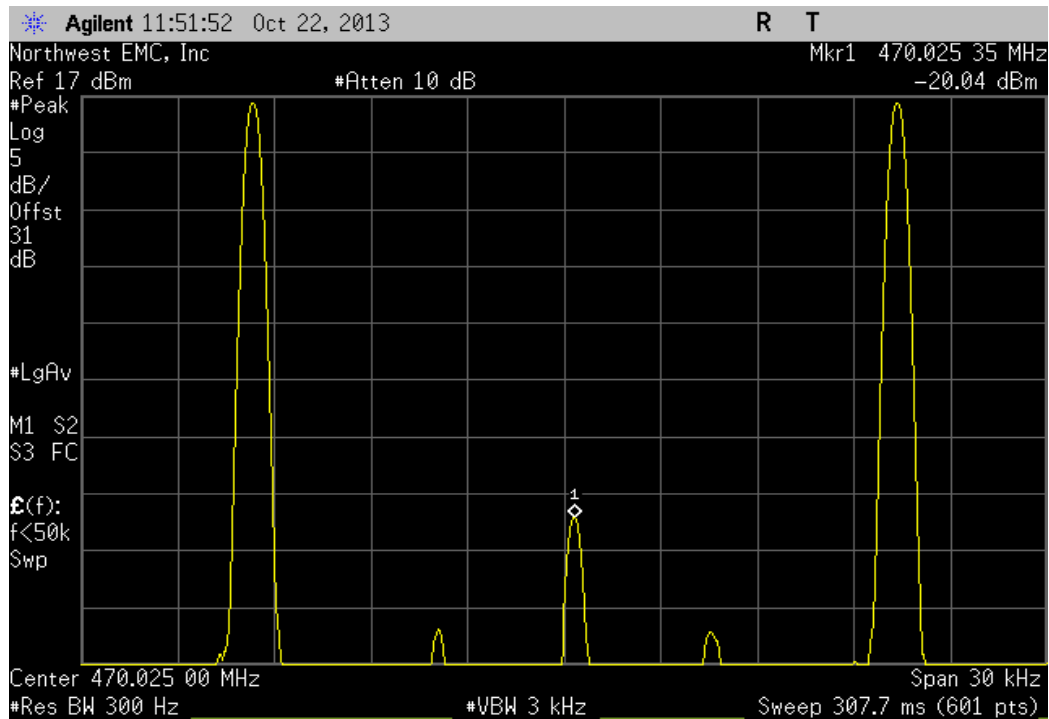
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: -10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02535	470.025	0.7	50	Pass



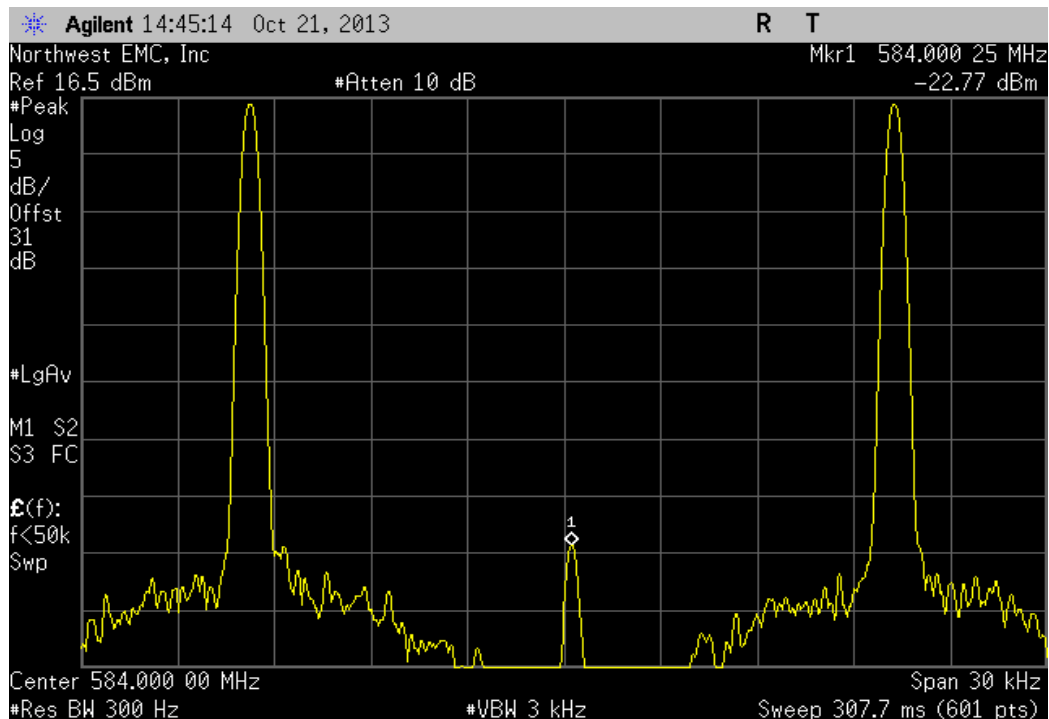
Antenna Port 1, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02535	470.025	0.7	50	Pass



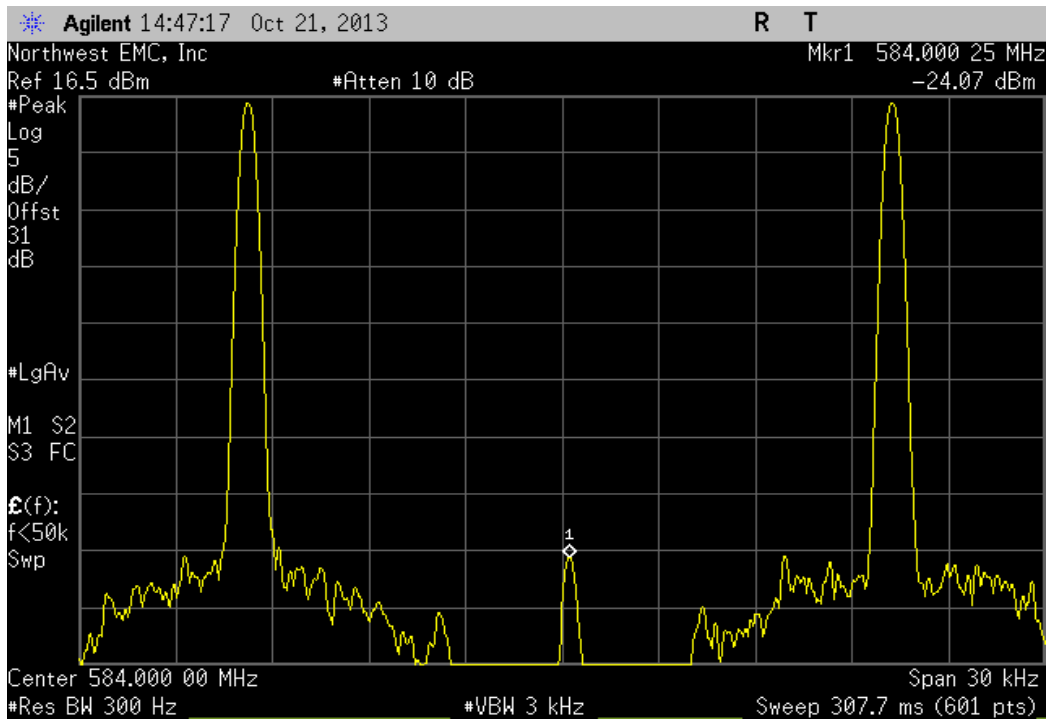
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



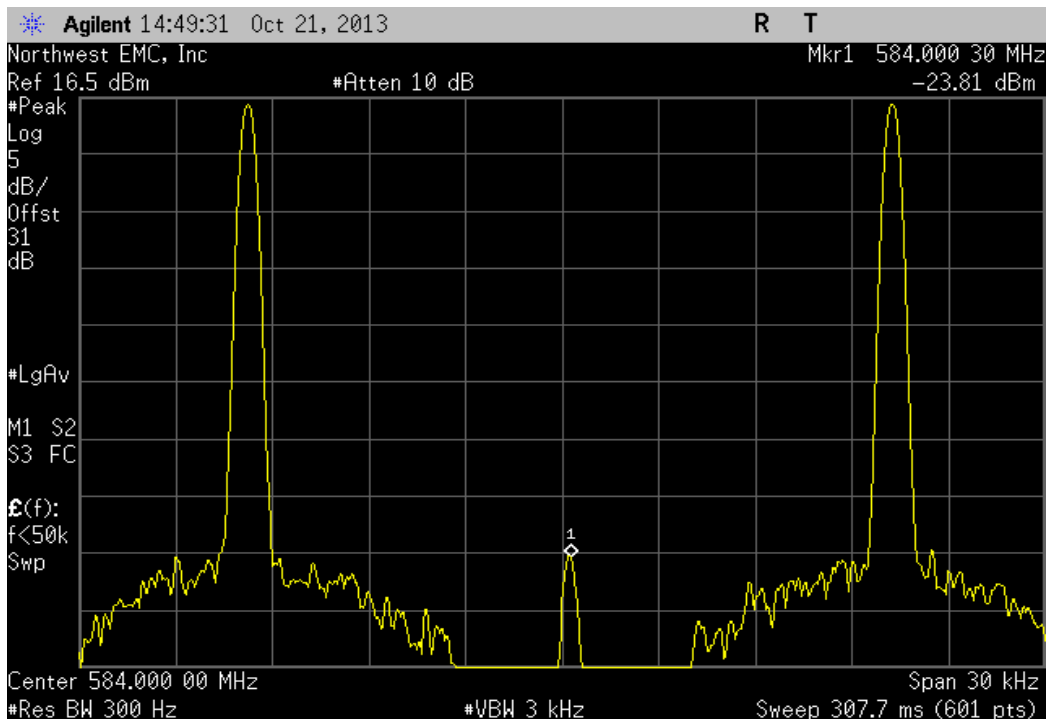
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 100%

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.00025	584	0.4	50	Pass



Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 85%

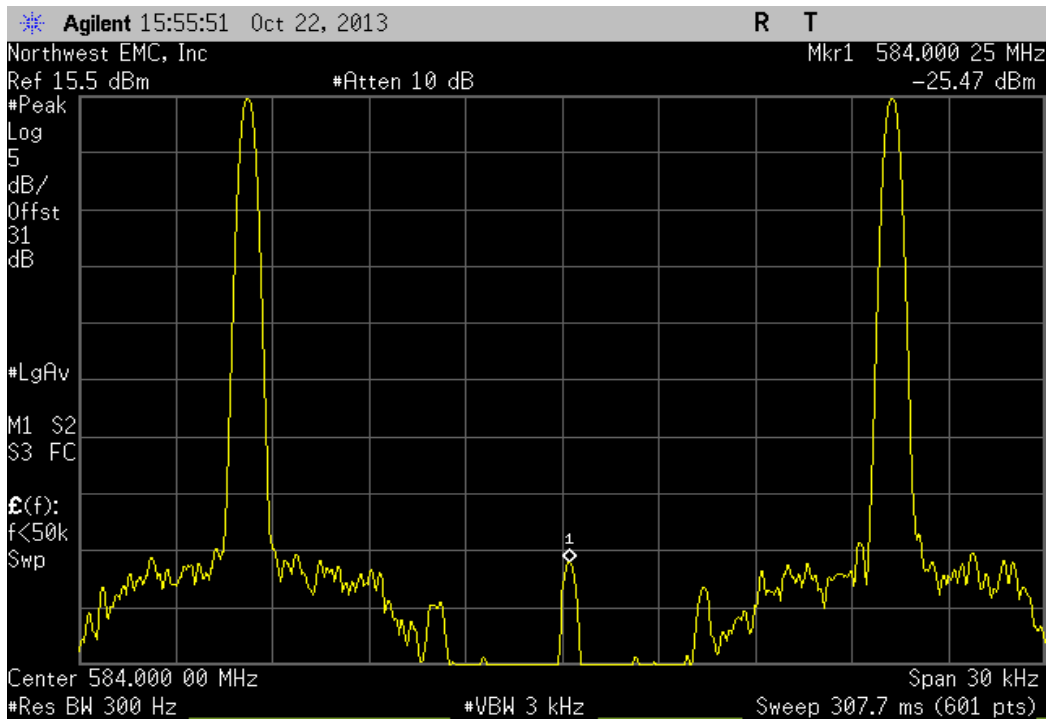
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.0003	584	0.5	50	Pass





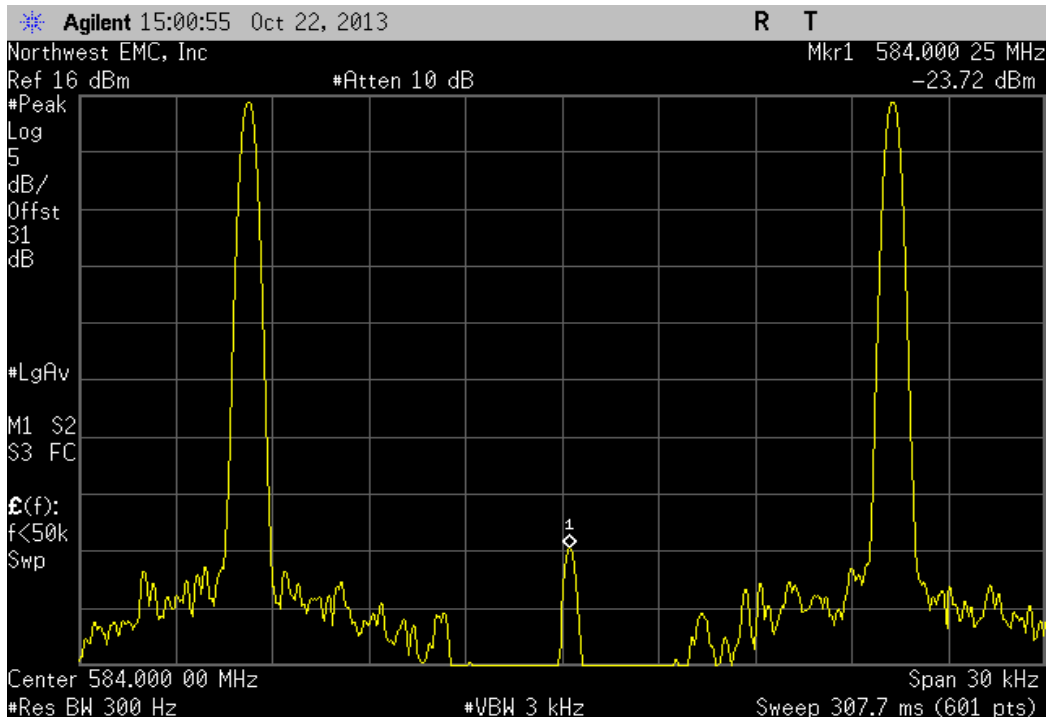
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +50°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



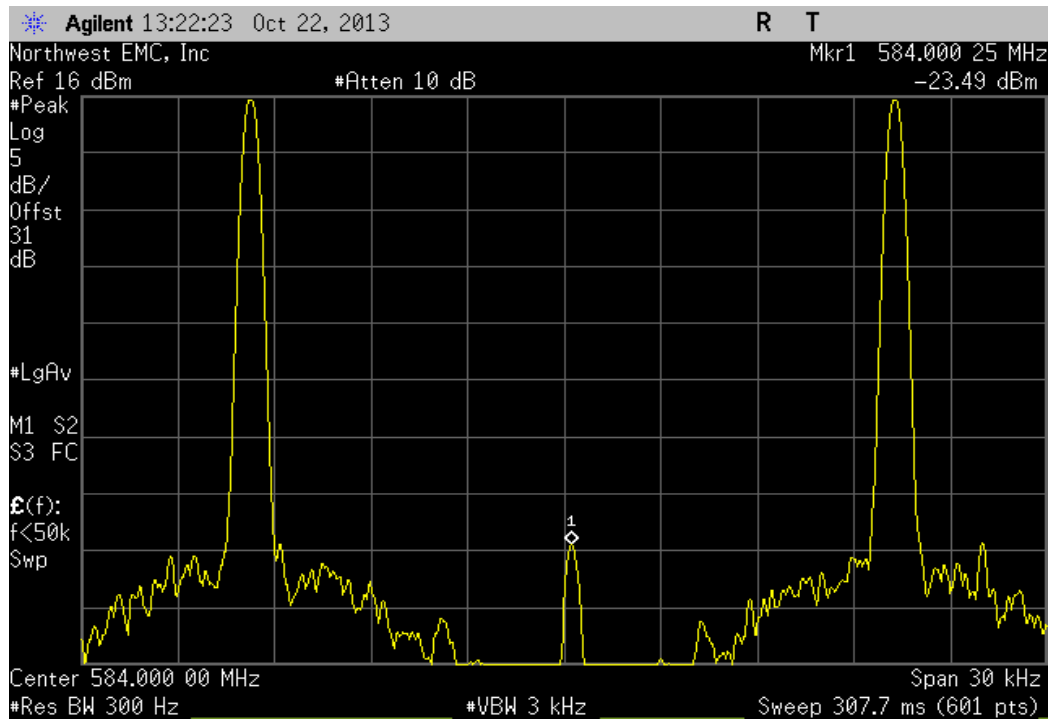
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +40°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



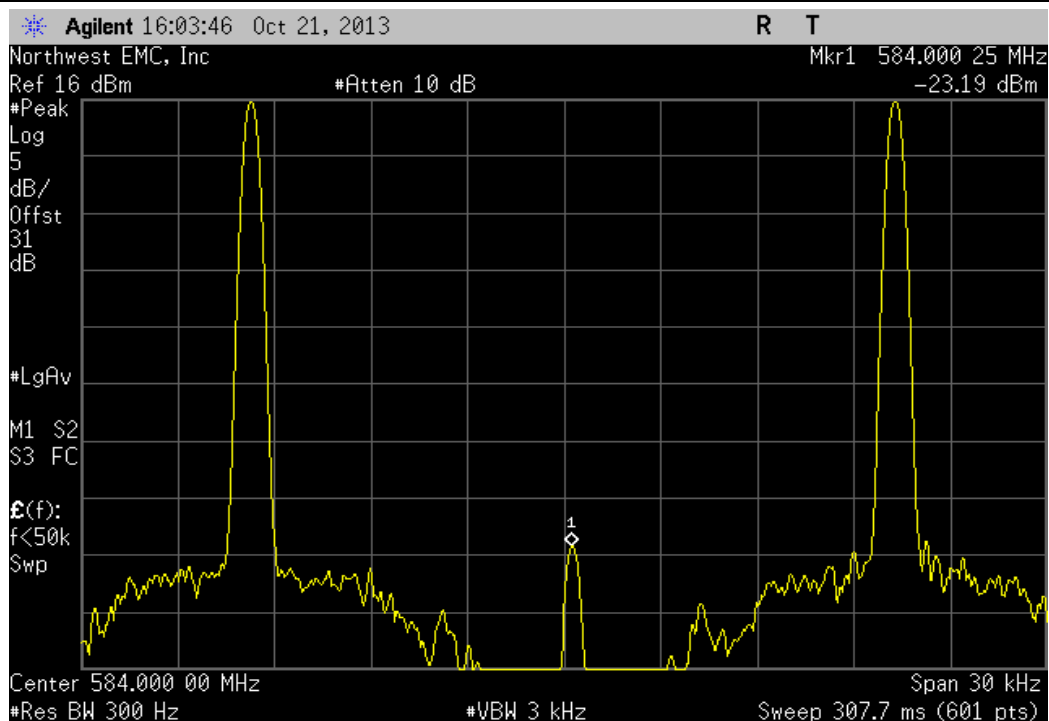
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +30°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.00025	584	0.4	50	Pass



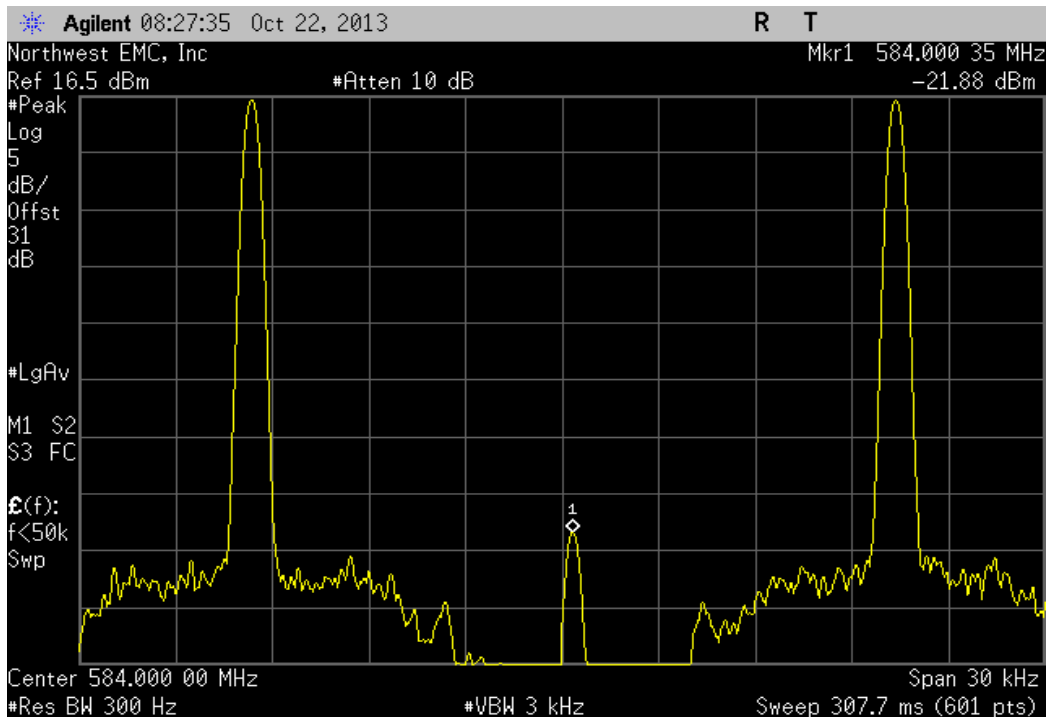
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +20°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.00025	584	0.4	50	Pass



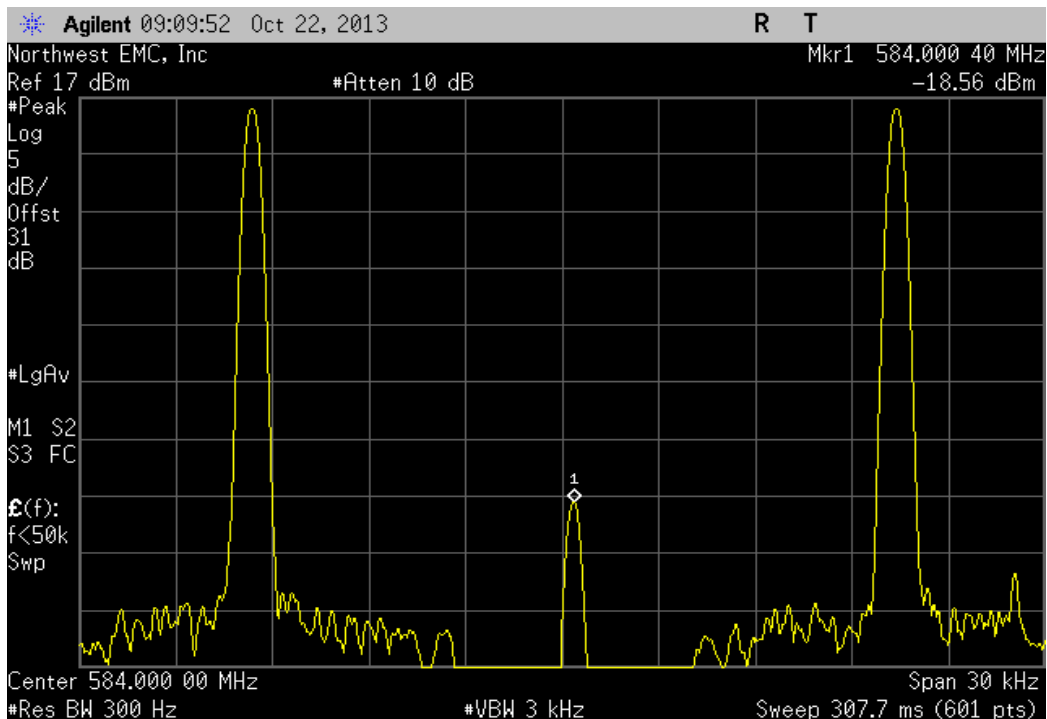
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00035	584	0.6	50	Pass



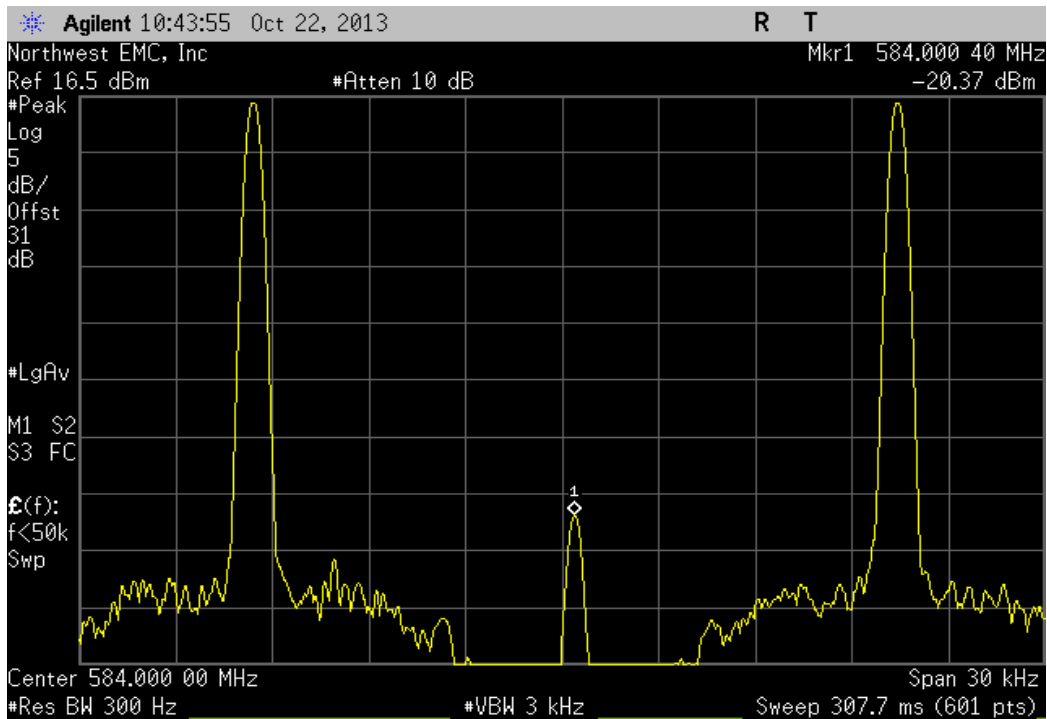
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: 0°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.0004	584	0.7	50	Pass



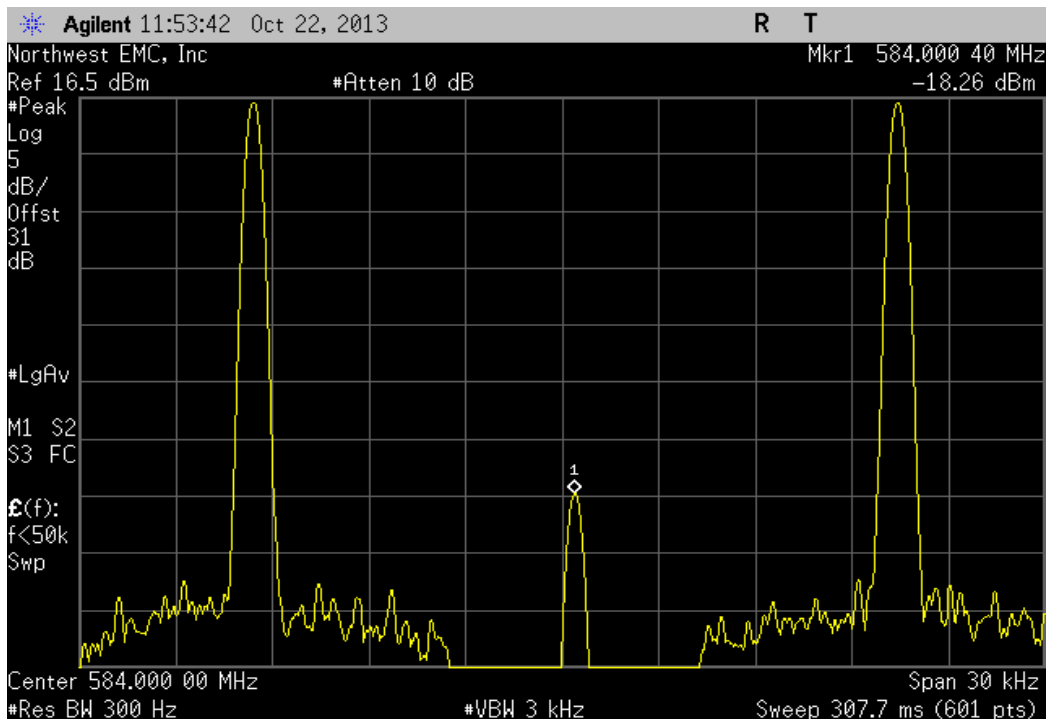
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: -10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.0004	584	0.7	50	Pass



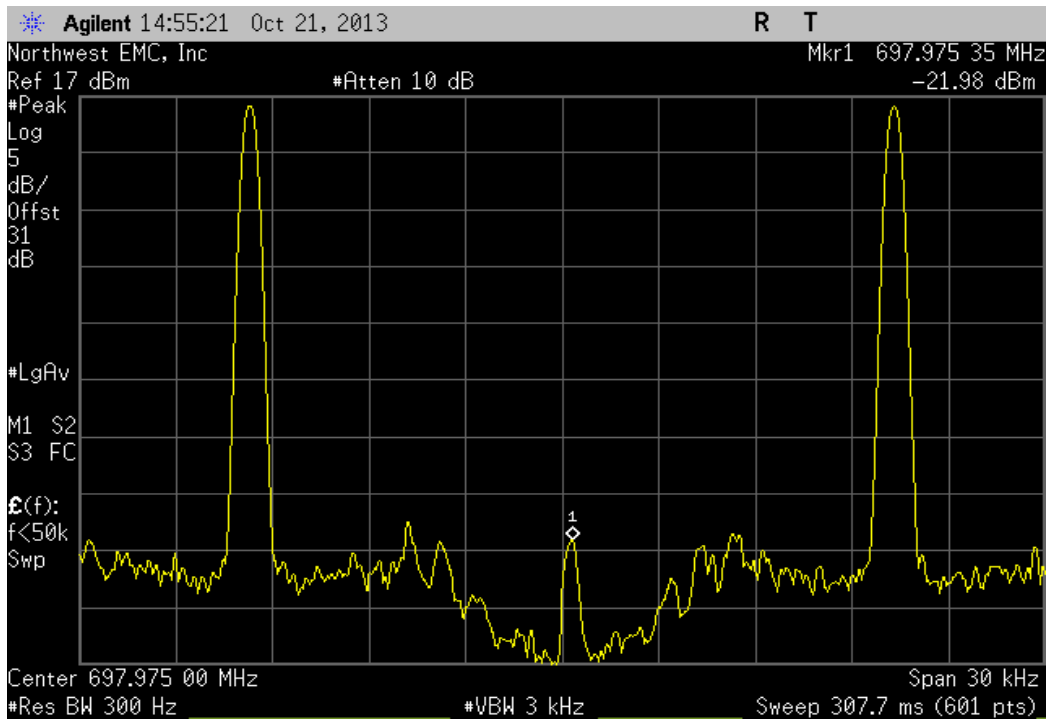
Antenna Port 1, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.0004	584	0.7	50	Pass



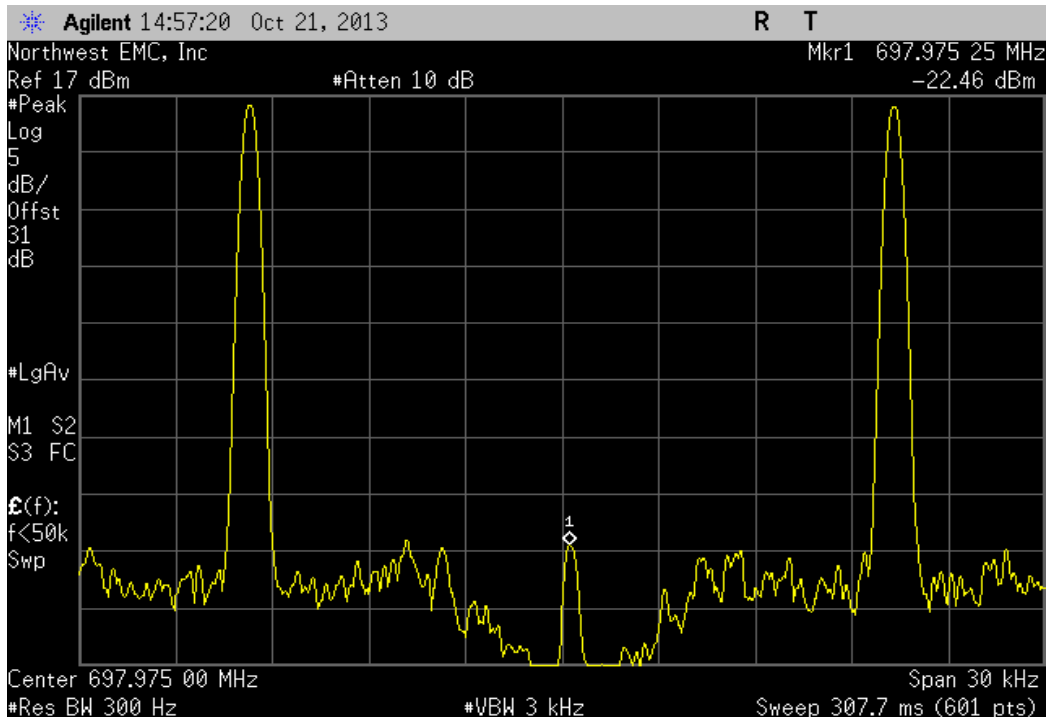
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97535	697.975	0.5	50	Pass



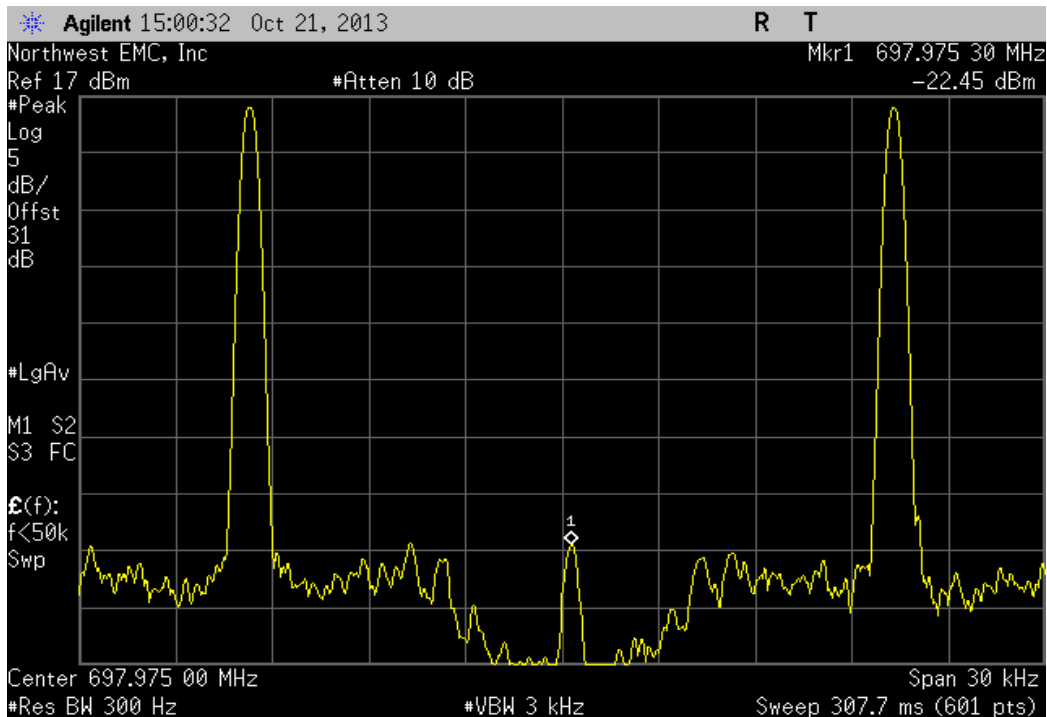
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 100%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97525	697.975	0.4	50	Pass



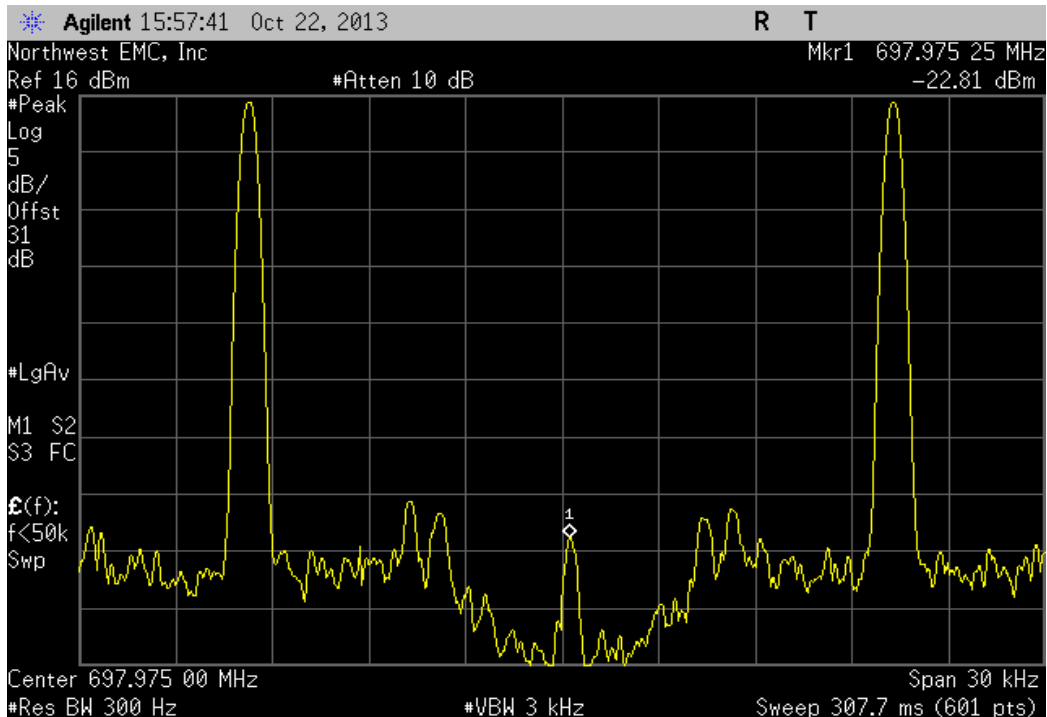
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 85%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



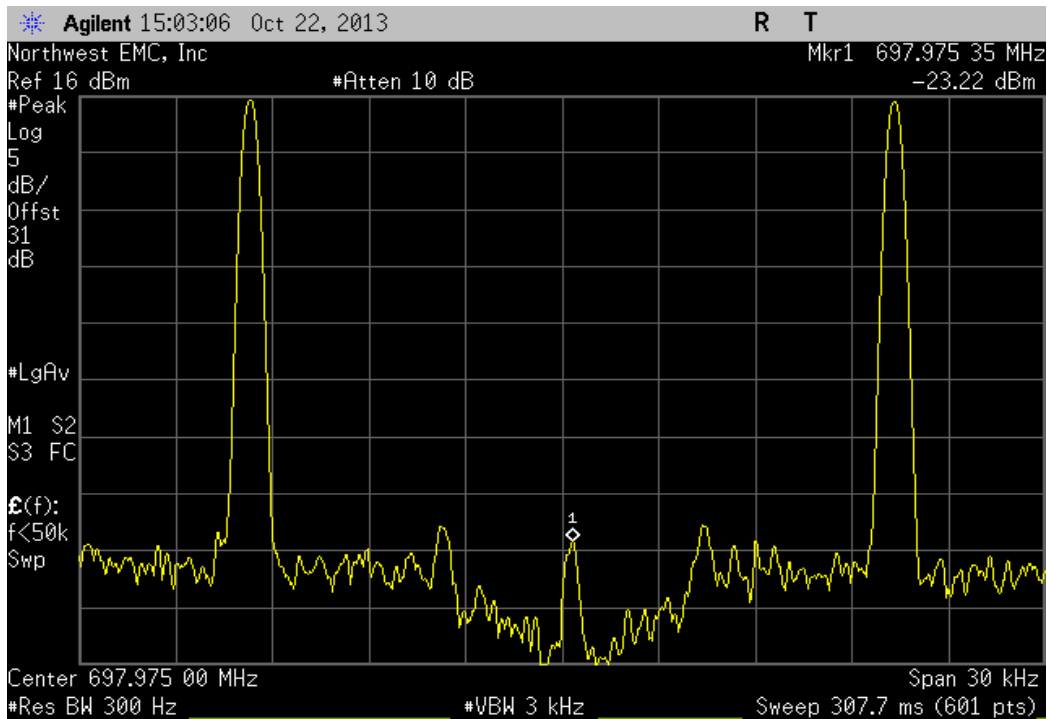
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +50°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97525	697.975	0.4	50	Pass



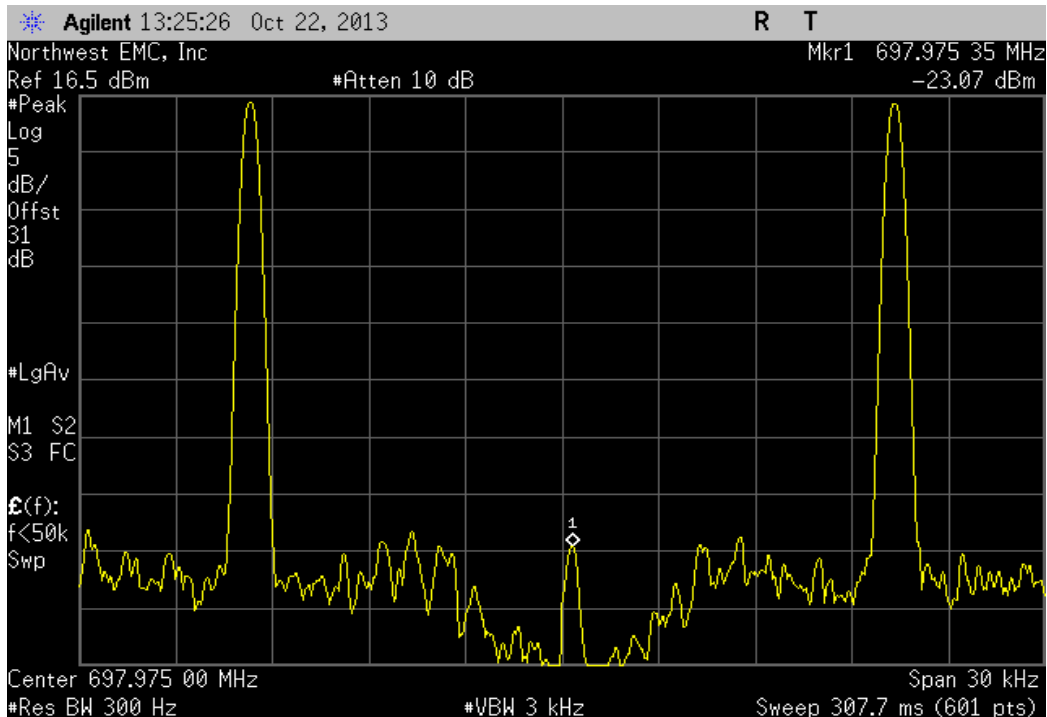
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +40°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97535	697.975	0.5	50	Pass



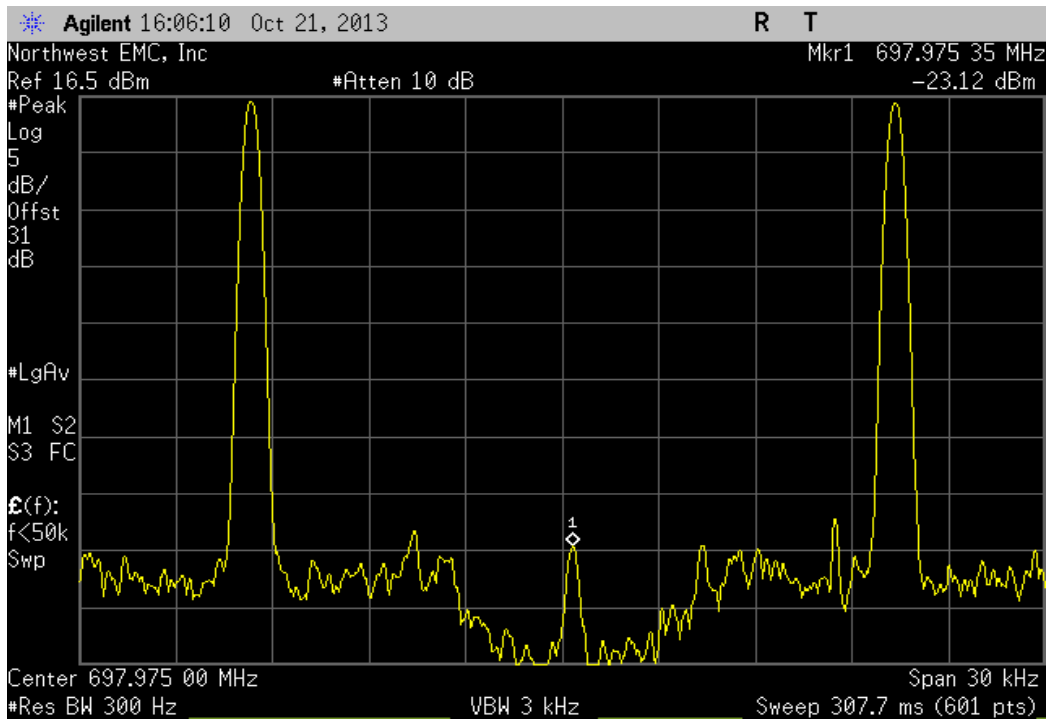
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +30°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97535	697.975	0.5	50	Pass



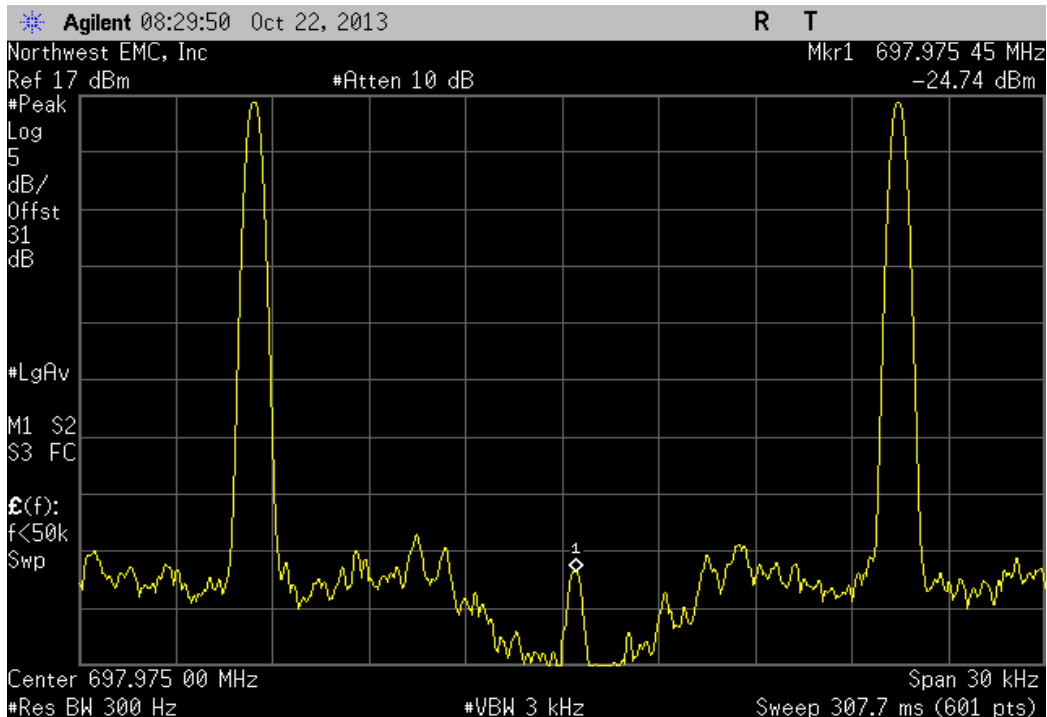
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97535	697.975	0.5	50	Pass



Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +10°

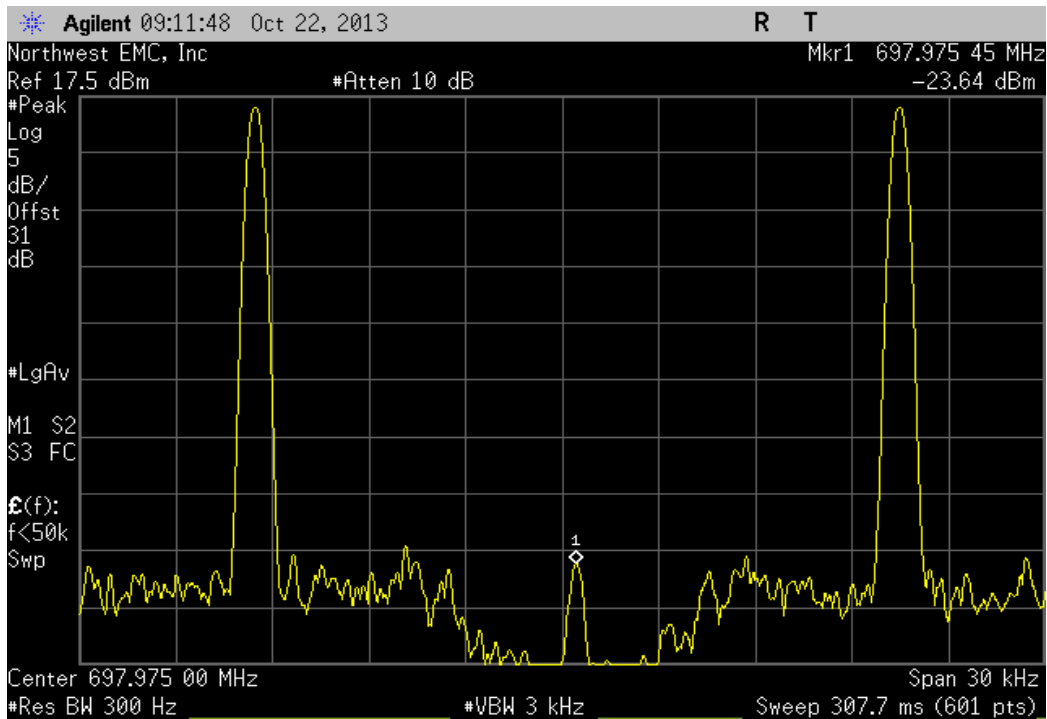
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97545	697.975	0.6	50	Pass





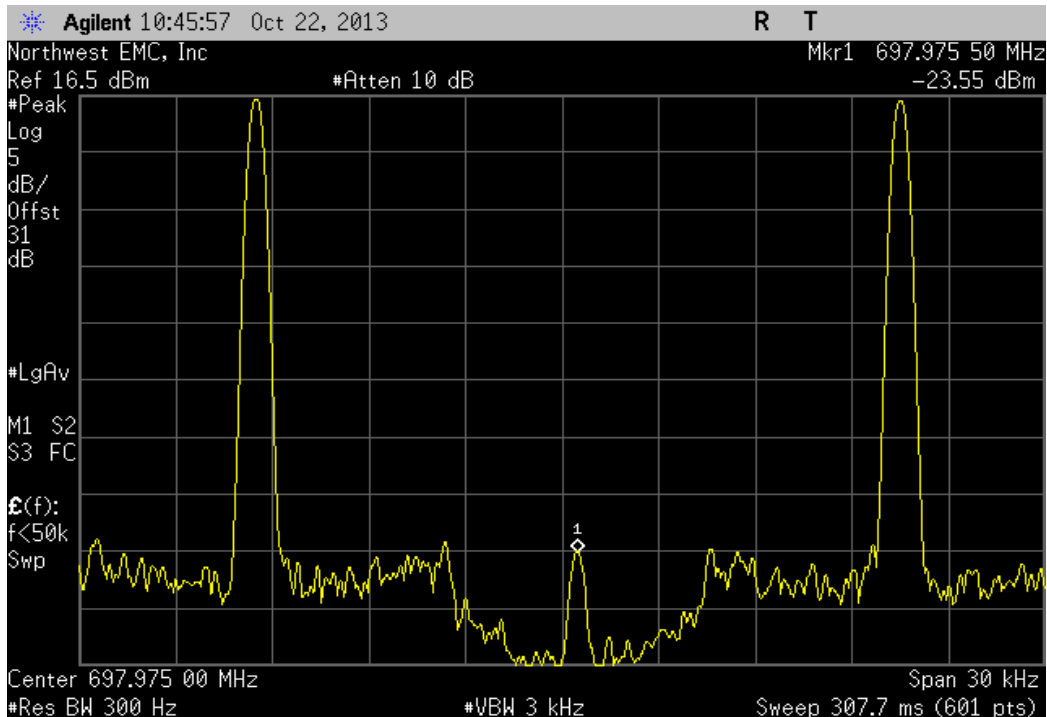
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: 0°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97545	697.975	0.6	50	Pass



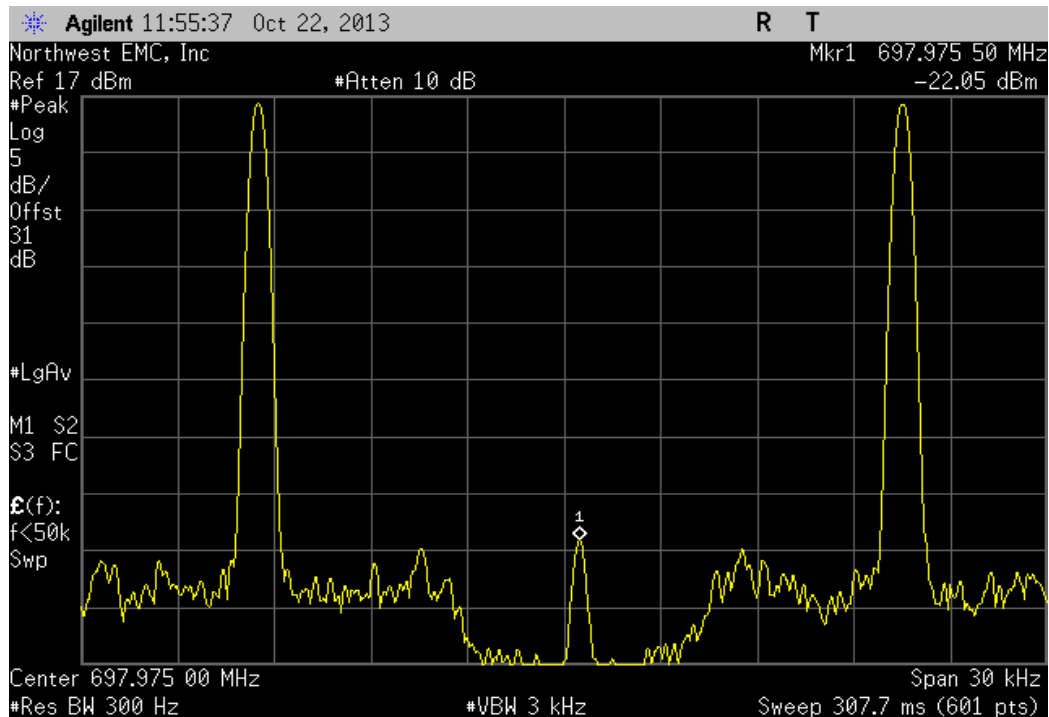
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: -10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9755	697.975	0.7	50	Pass



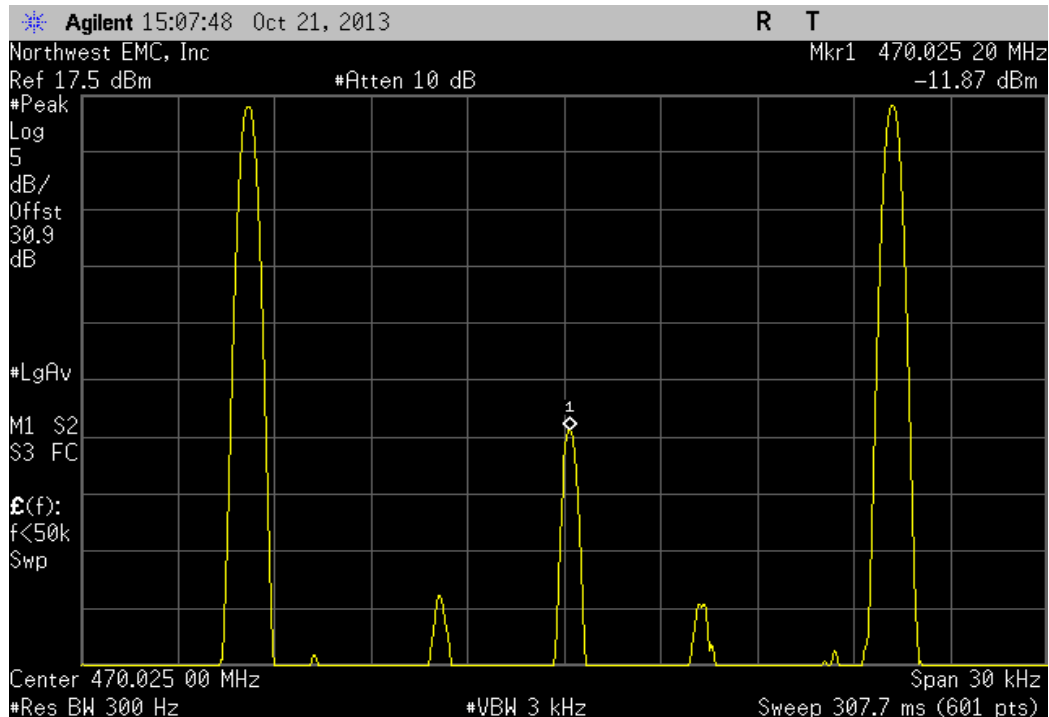
Antenna Port 1, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9755	697.975	0.7	50	Pass



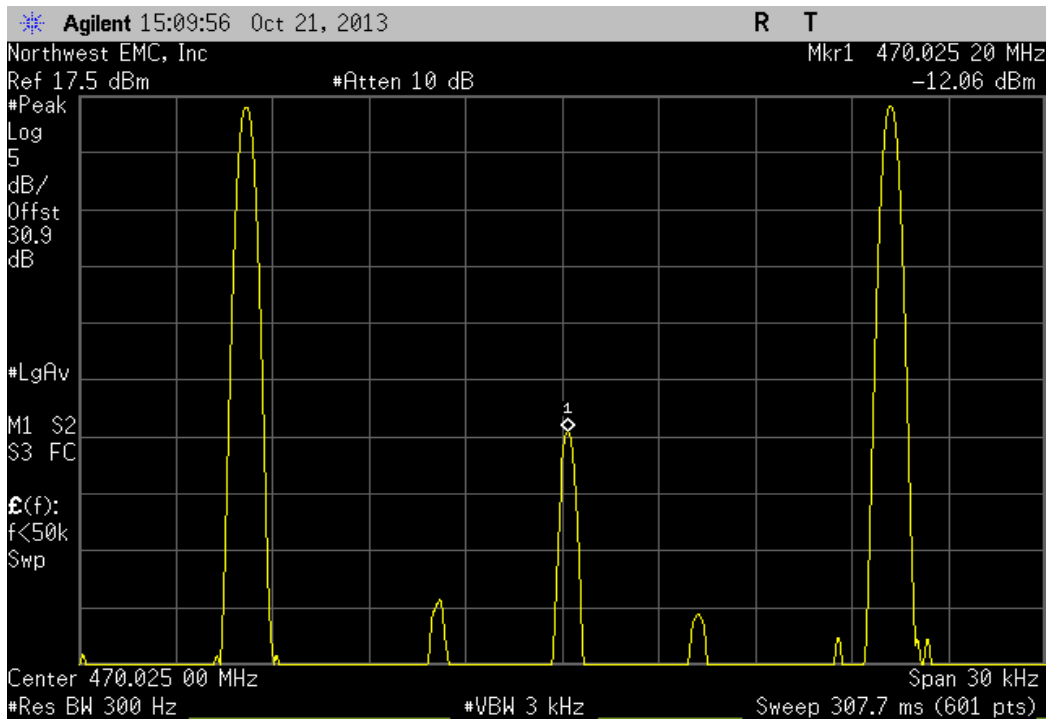
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



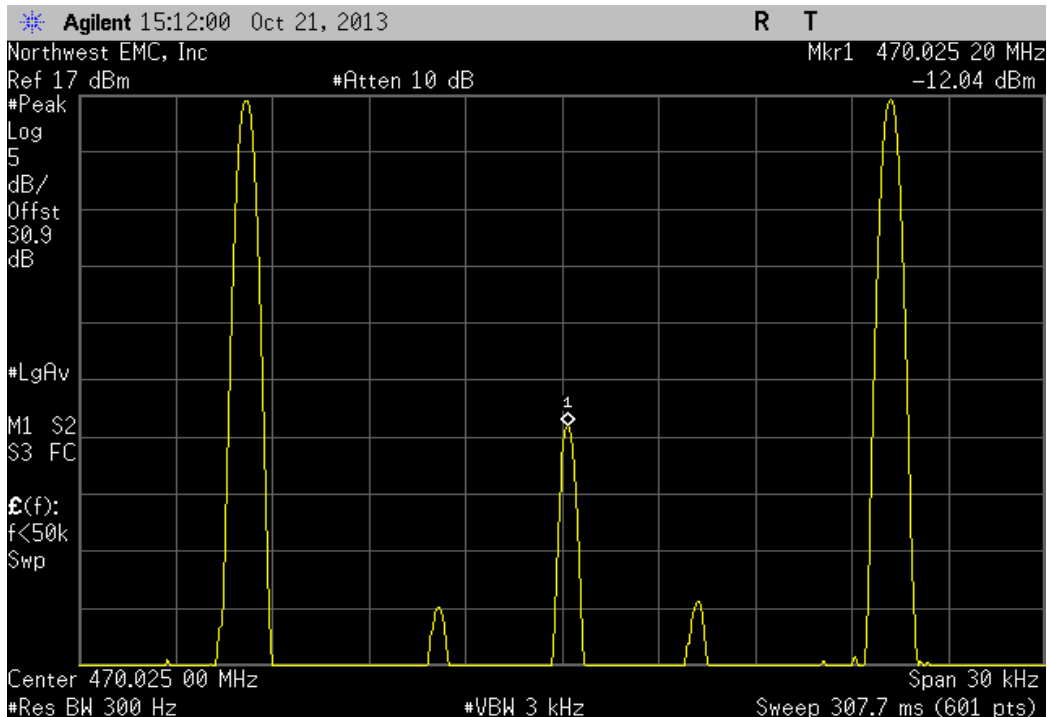
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 100%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



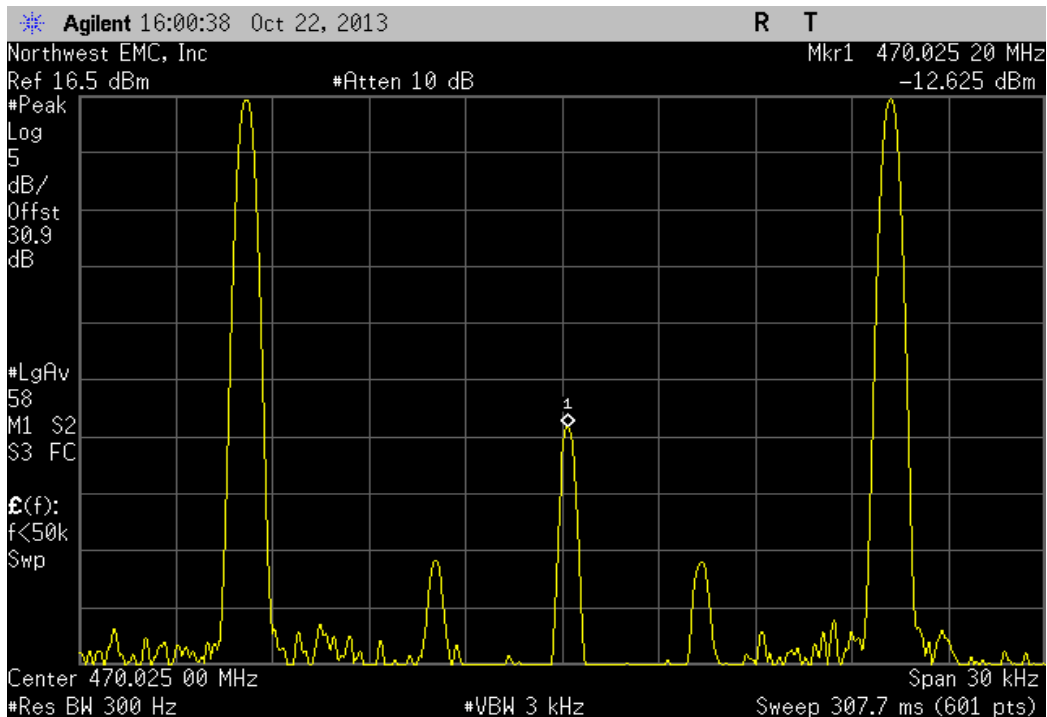
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Voltage: 85%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



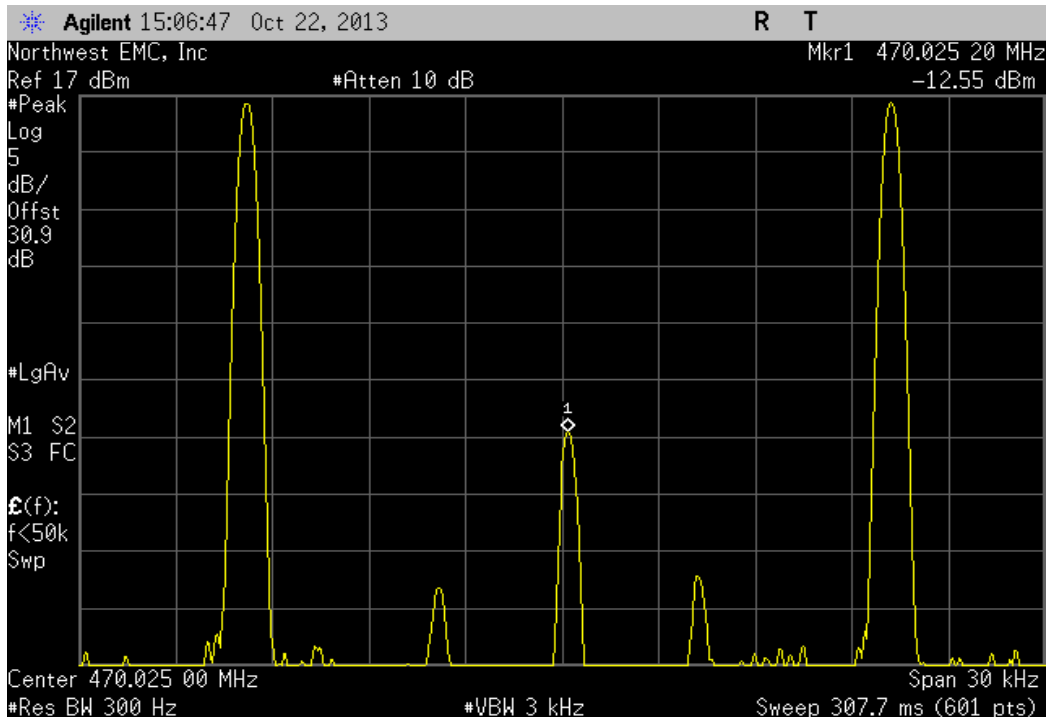
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +50°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



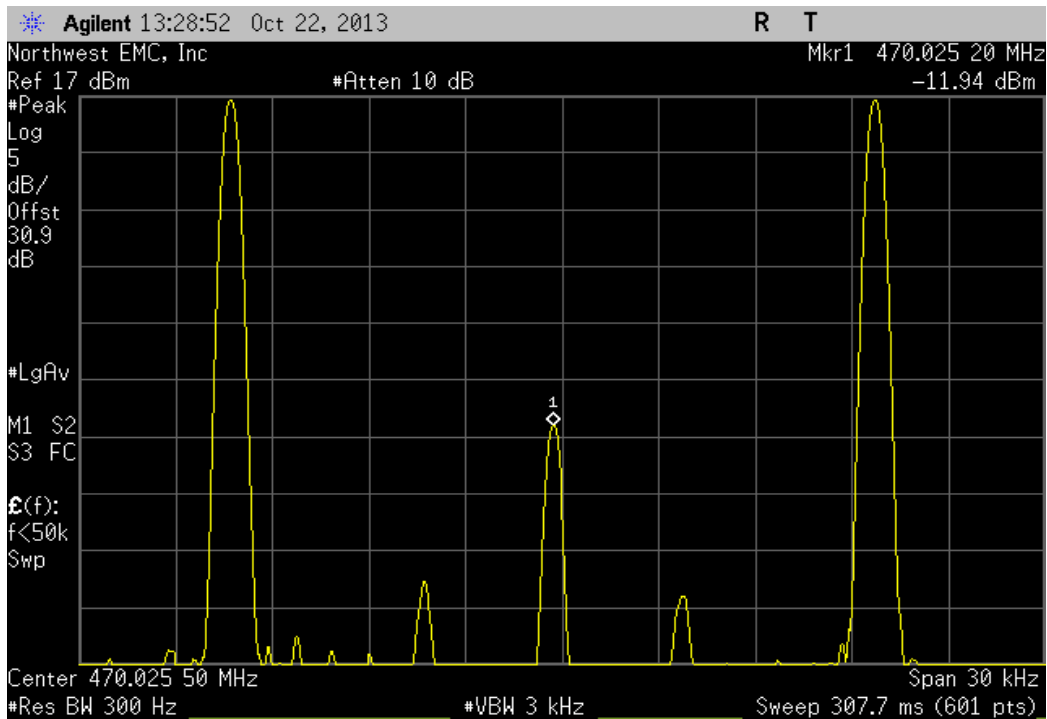
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +40°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



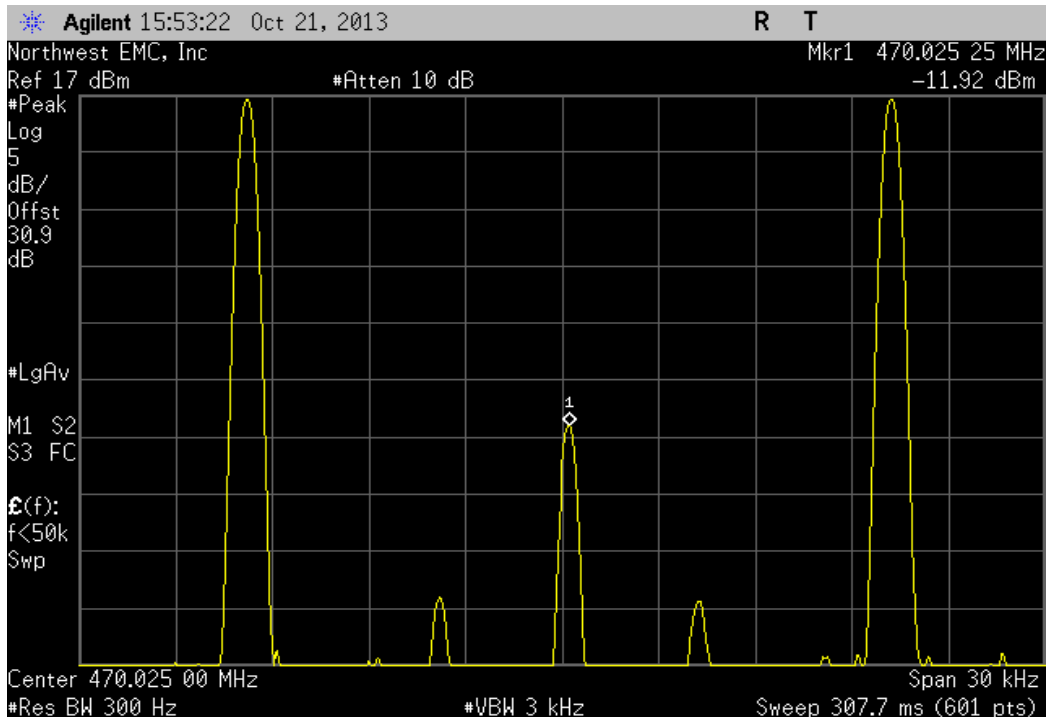
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +30°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0252	470.025	0.4	50	Pass



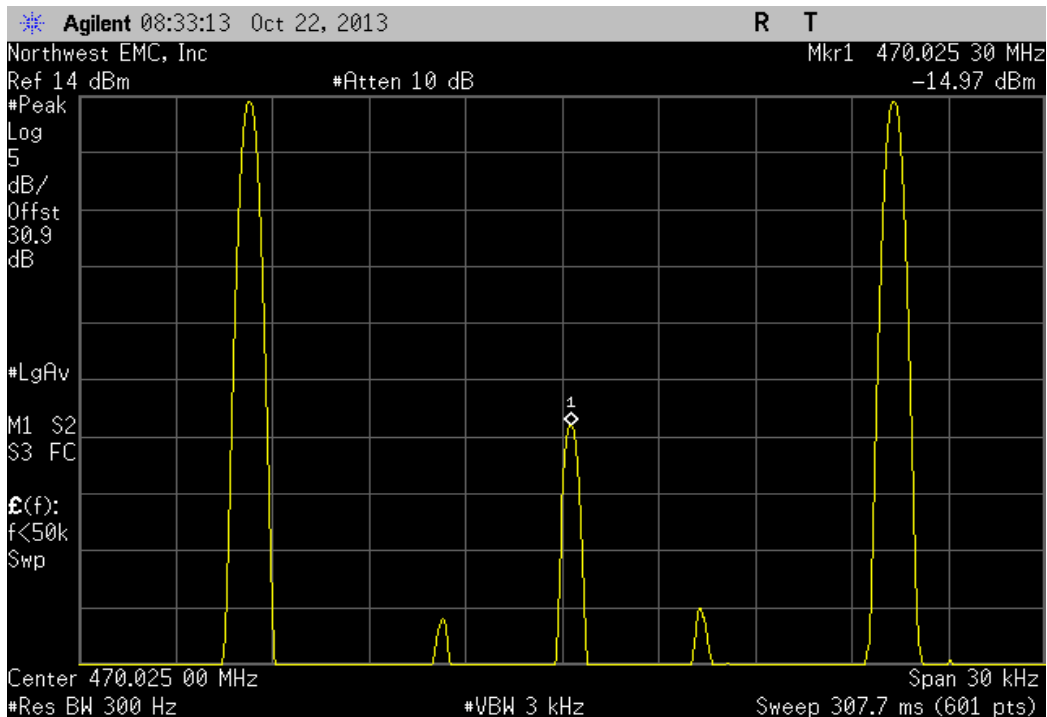
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02525	470.025	0.5	50	Pass



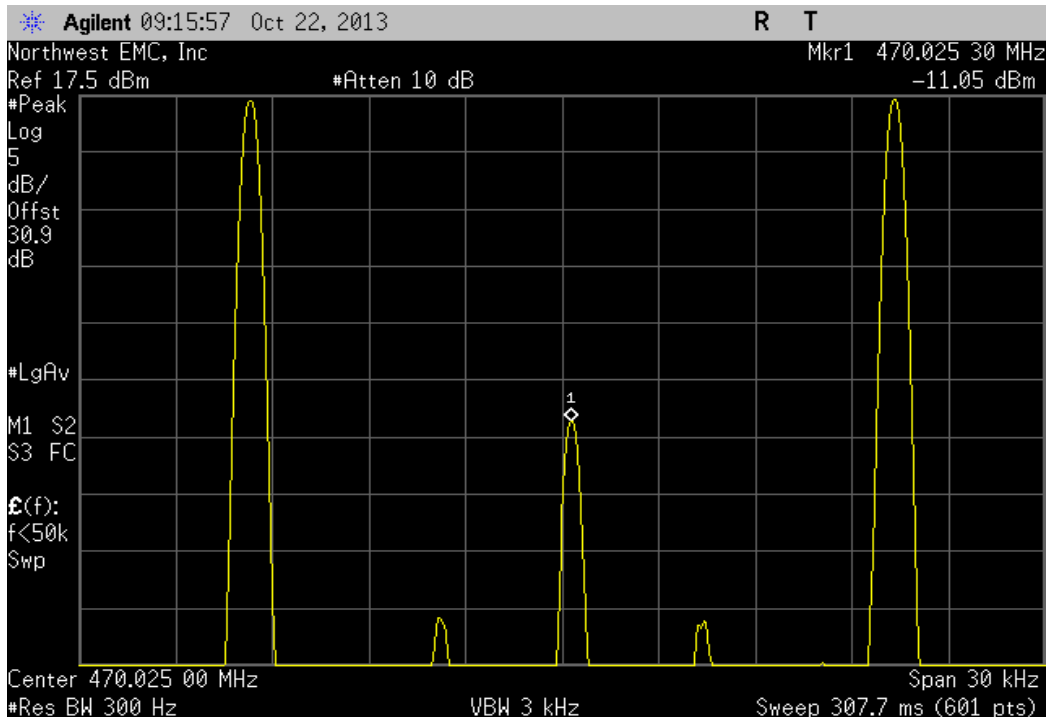
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: +10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0253	470.025	0.6	50	Pass



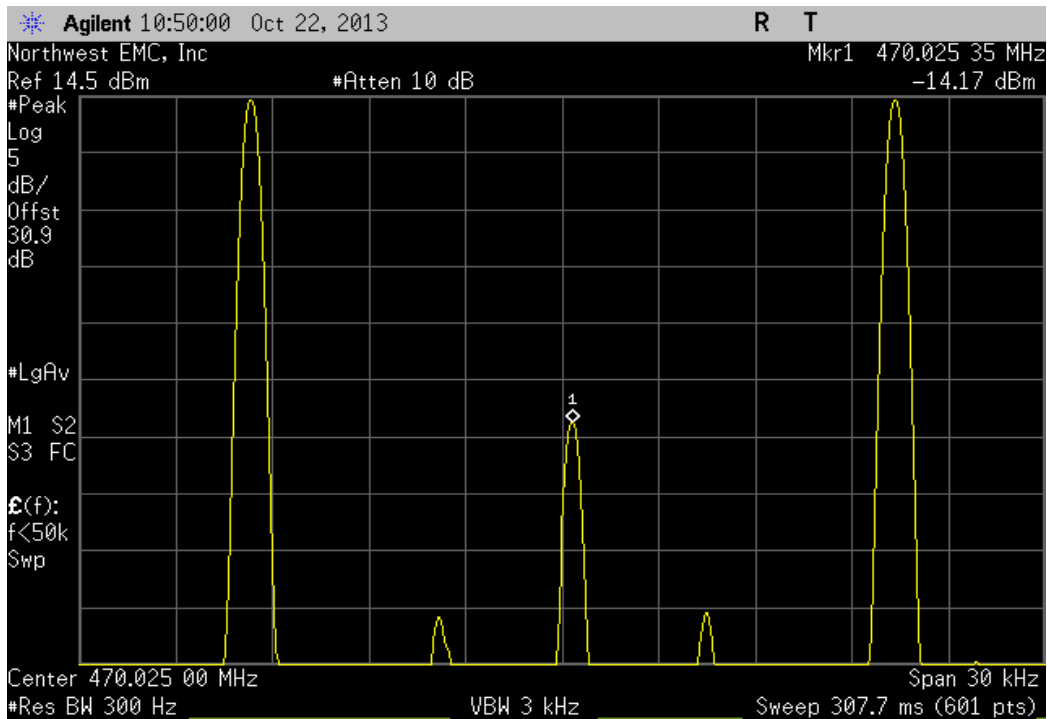
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: 0°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.0253	470.025	0.6	50	Pass



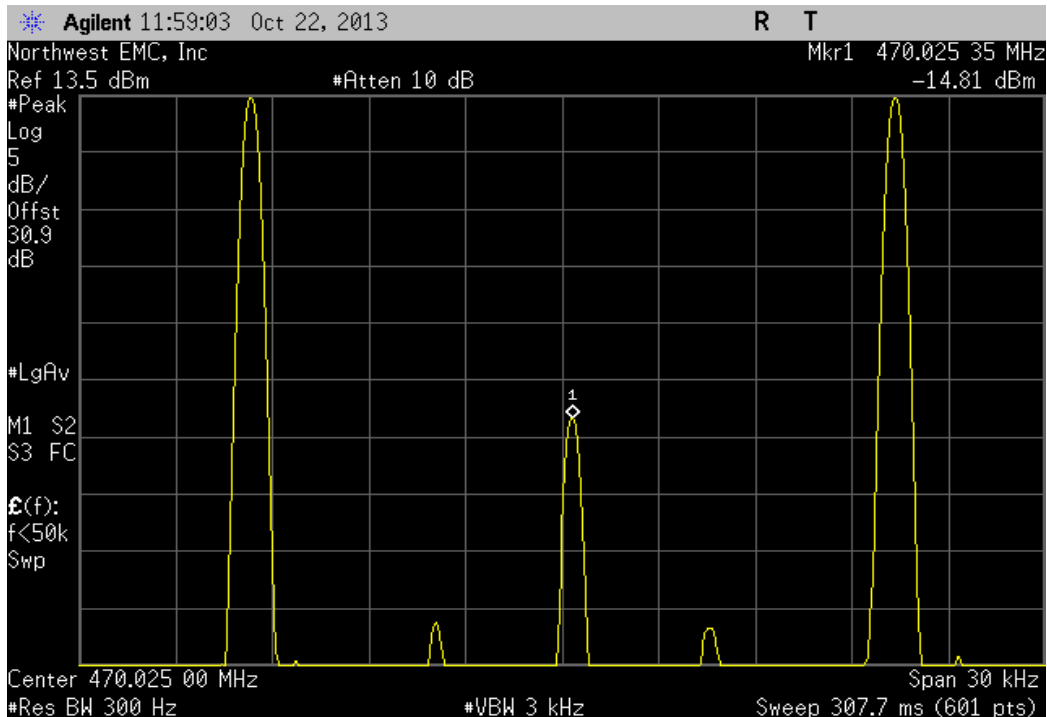
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: -10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02535	470.025	0.7	50	Pass



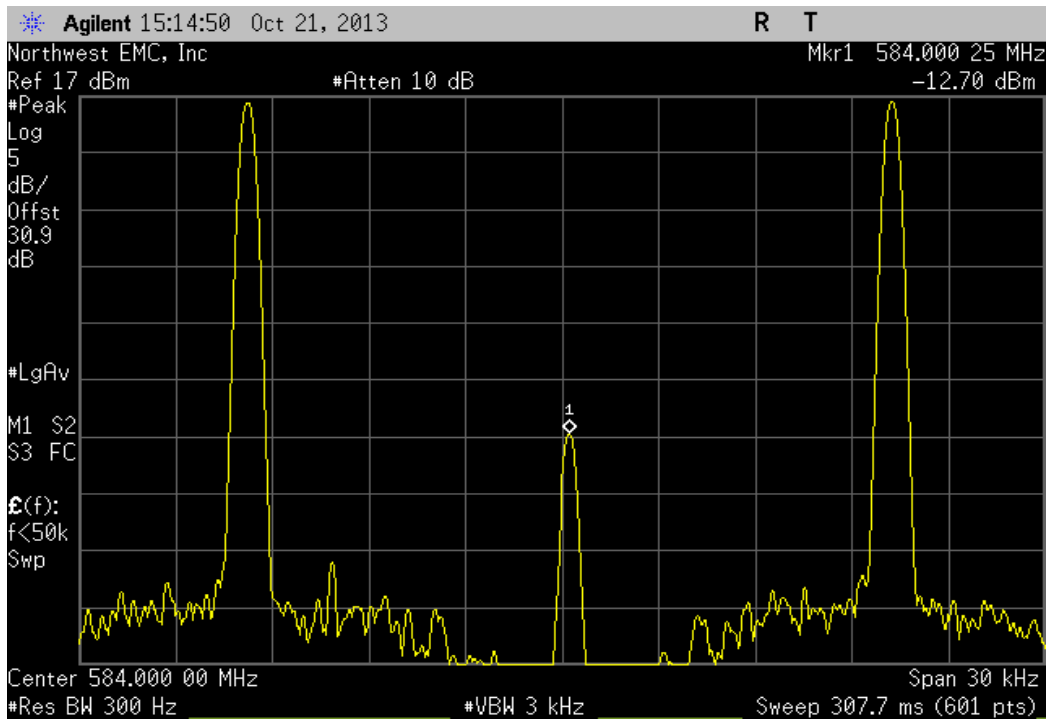
Antenna Port 2, Broadcasting Frequencies, Low Channel, 470.025 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
470.02535	470.025	0.7	50	Pass



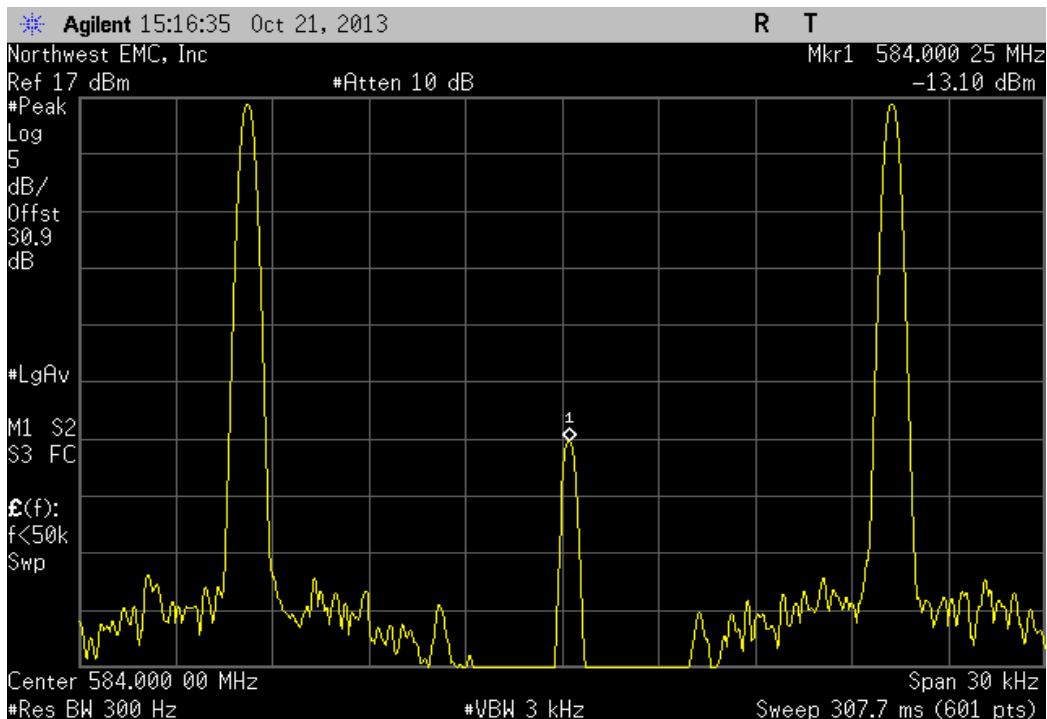
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 100%

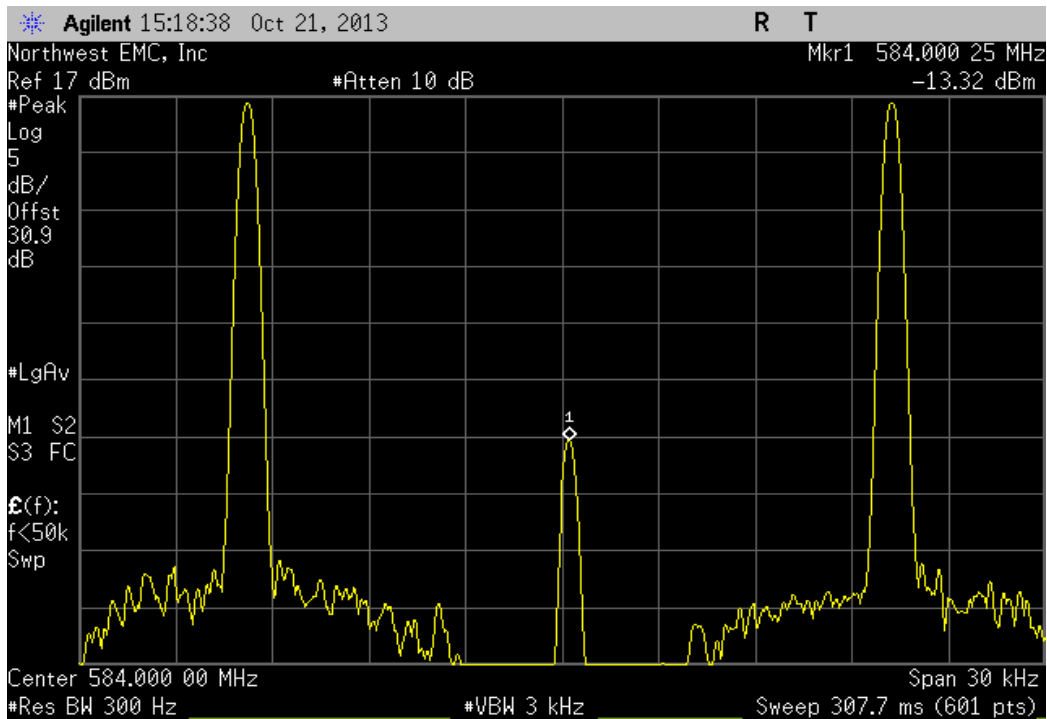
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass





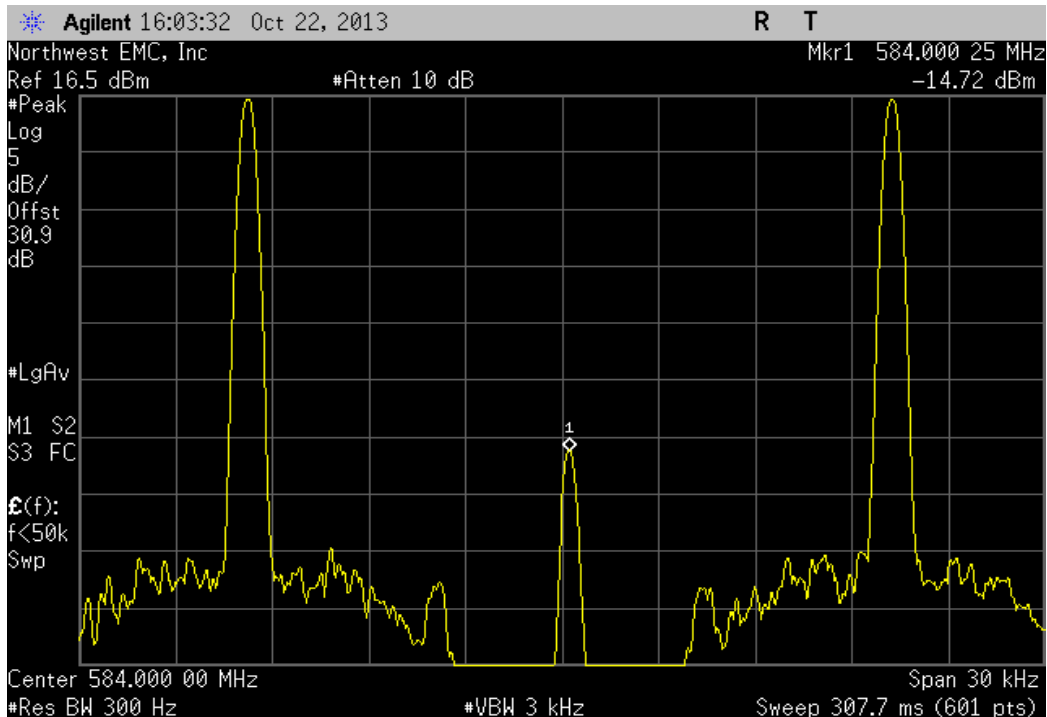
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Voltage: 85%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



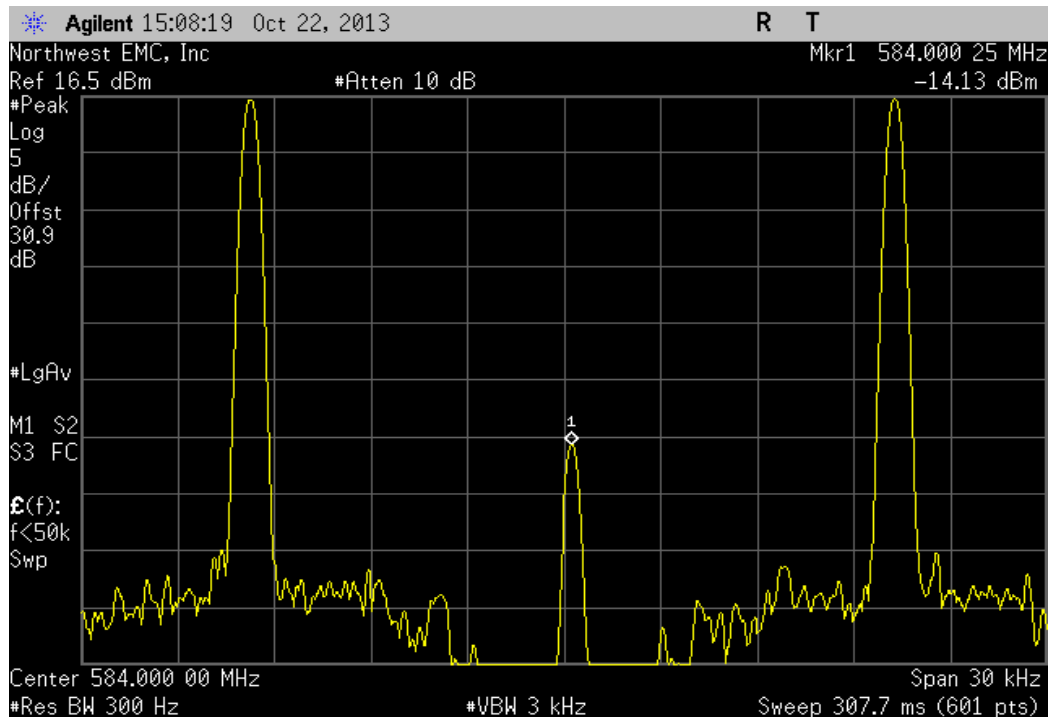
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +50°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00025	584	0.4	50	Pass



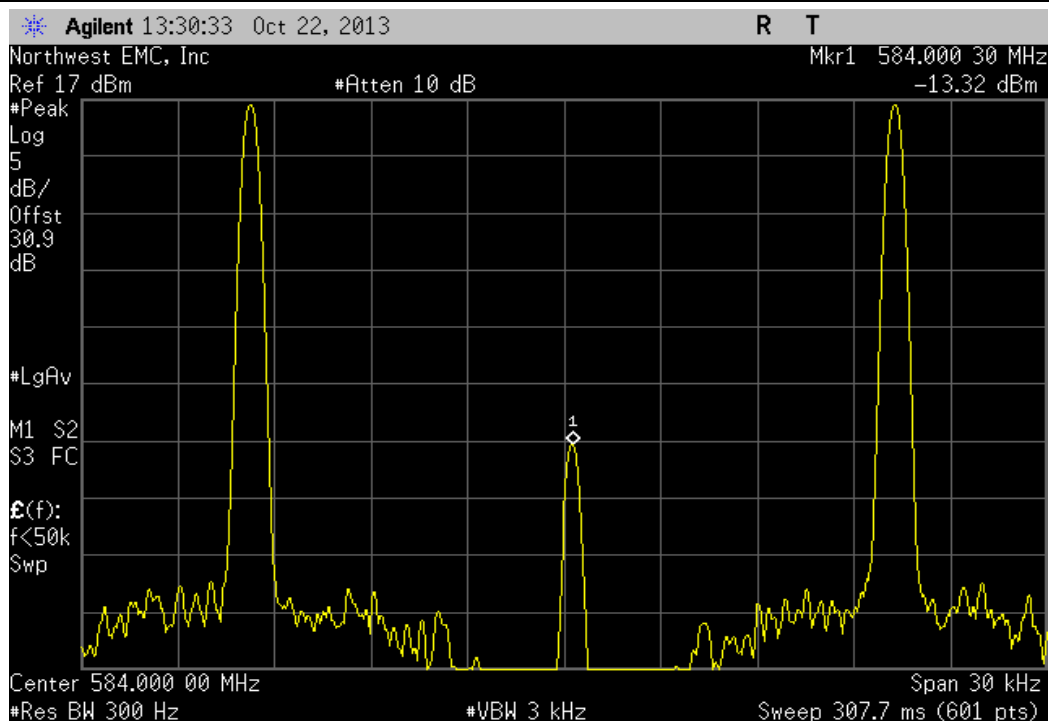
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +40°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.00025	584	0.4	50	Pass



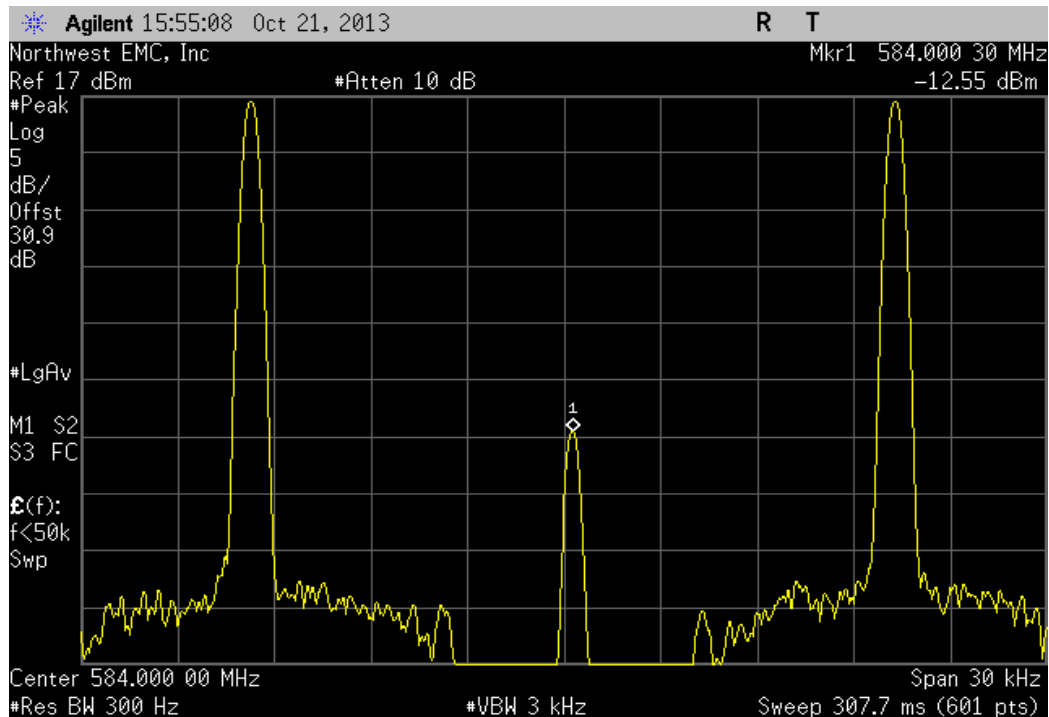
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +30°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.0003	584	0.5	50	Pass



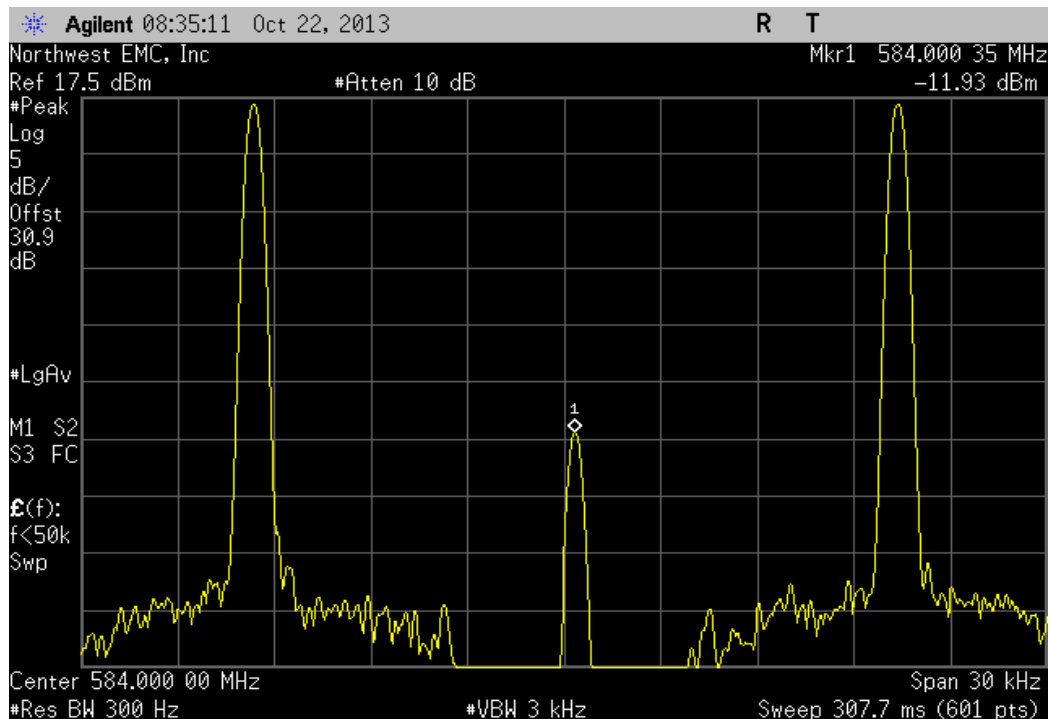
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.0003	584	0.5	50	Pass



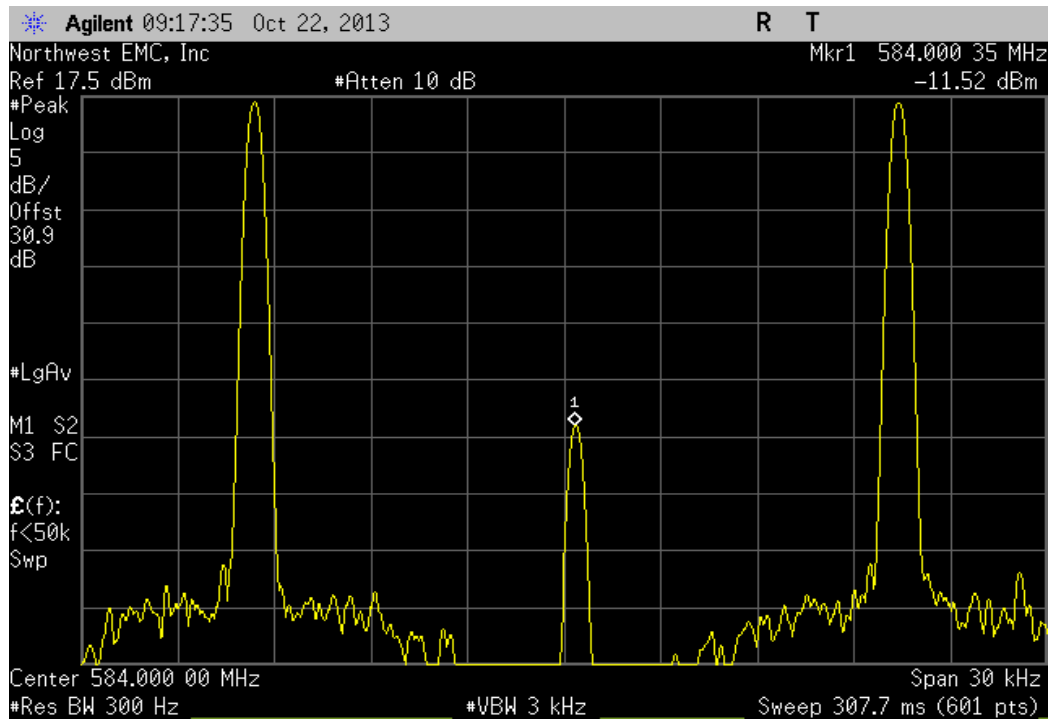
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: +10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.00035	584	0.6	50	Pass



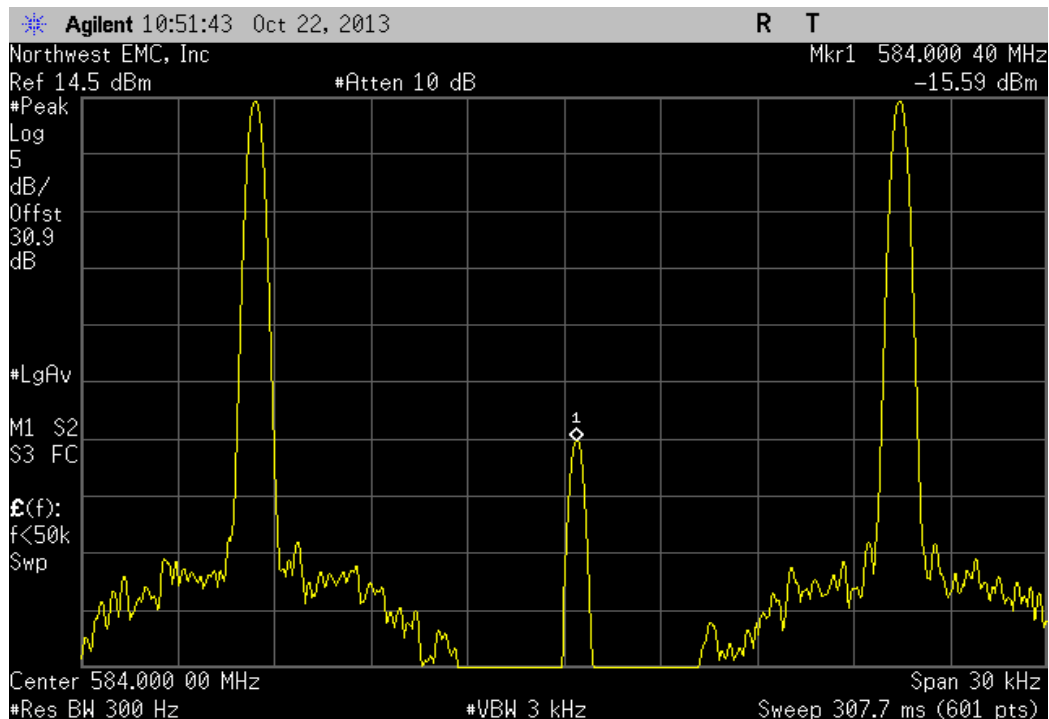
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: 0°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.00035	584	0.6	50	Pass



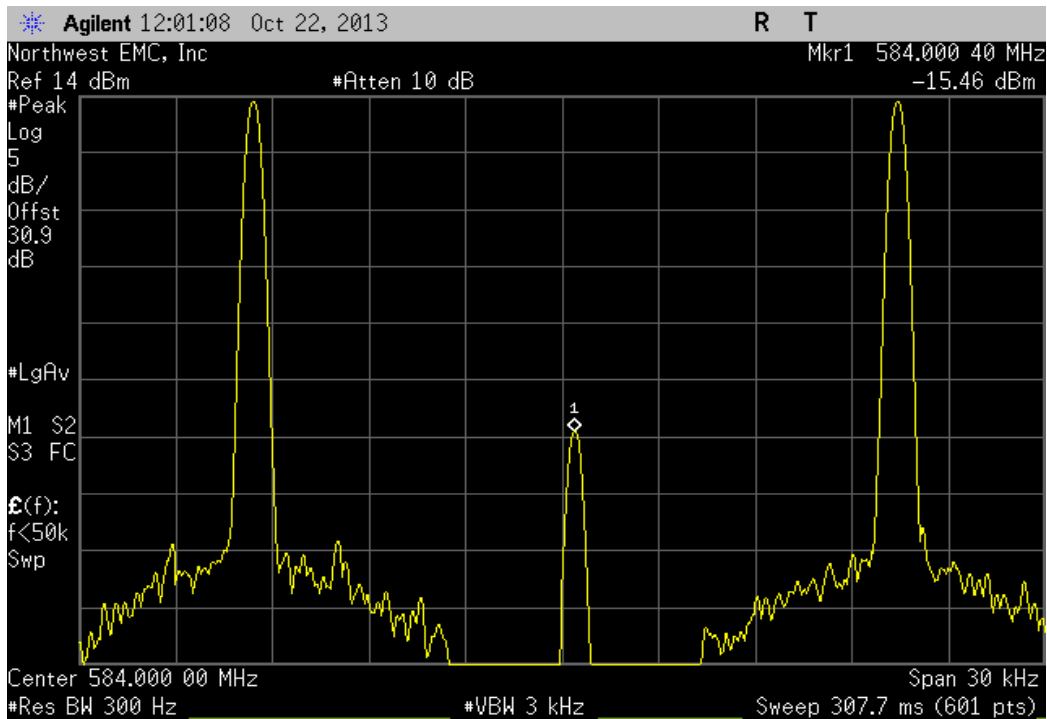
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: -10°

	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
	584.0004	584	0.7	50	Pass



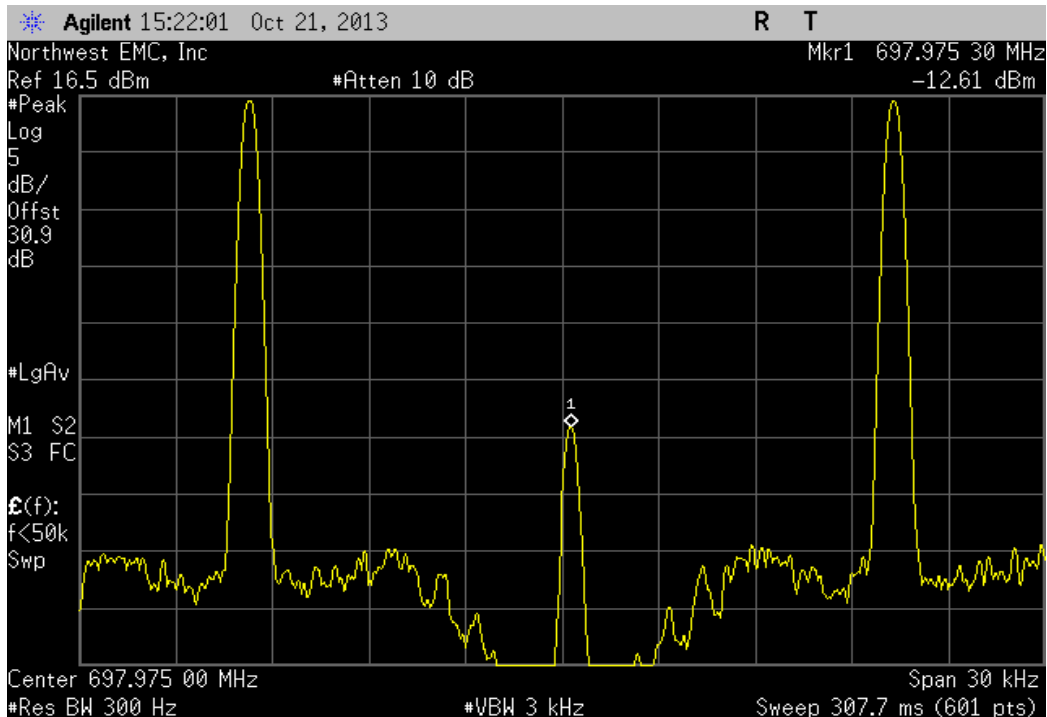
Antenna Port 2, Broadcasting Frequencies, Mid Channel, 584 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
584.0004	584	0.7	50	Pass



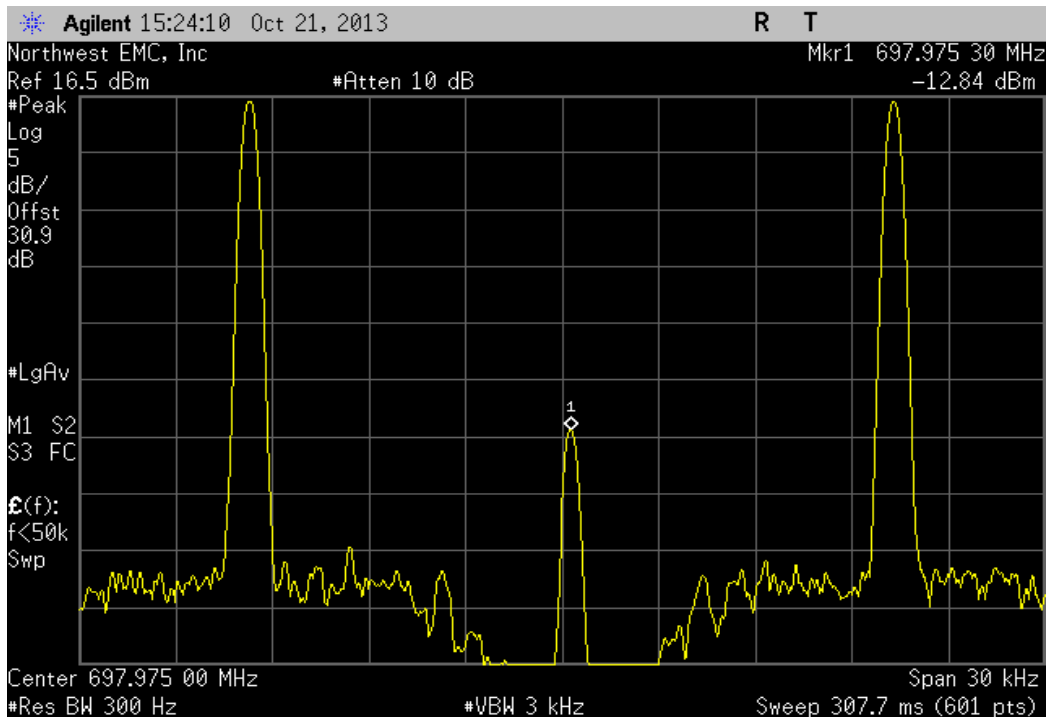
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 115%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



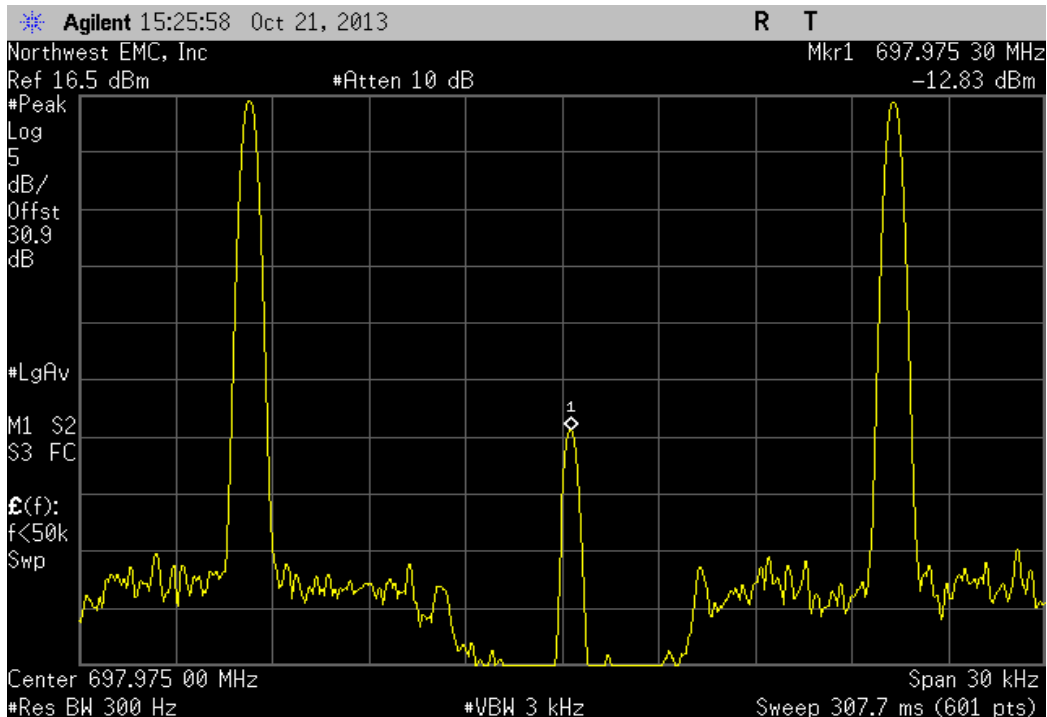
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 100%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



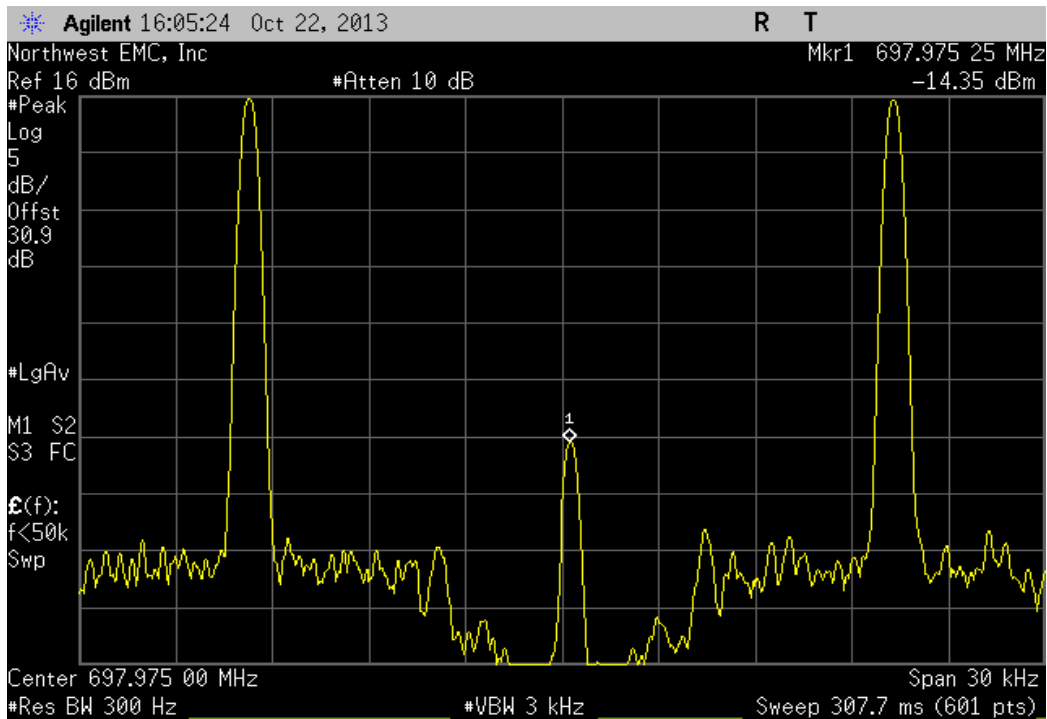
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Voltage: 85%

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



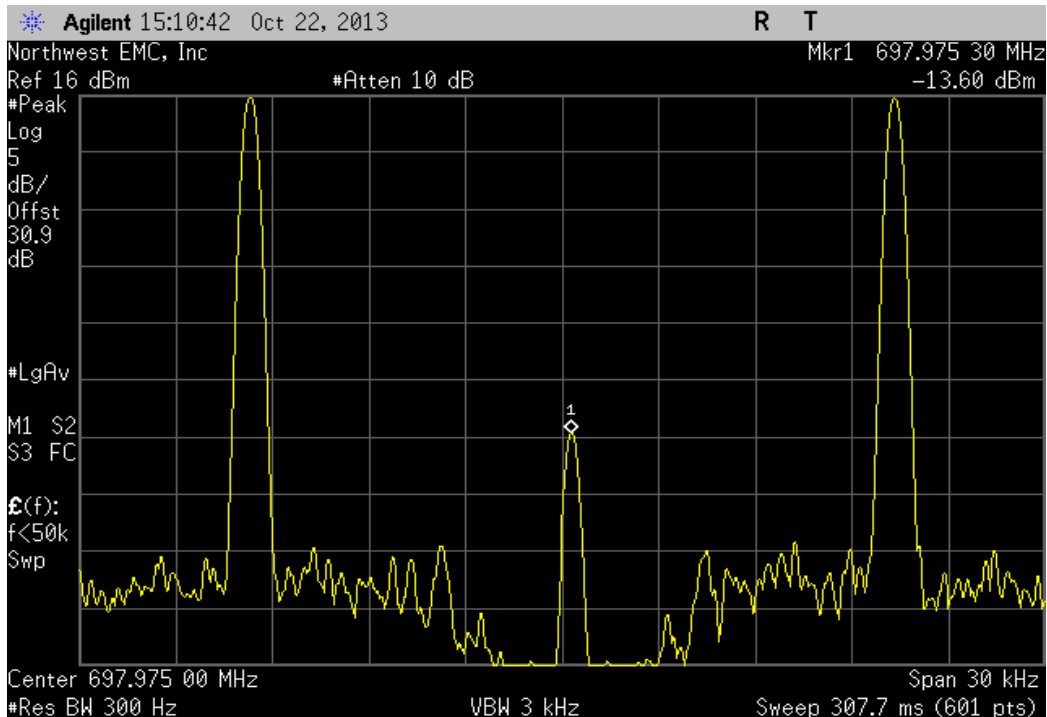
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +50°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97525	697.975	0.4	50	Pass



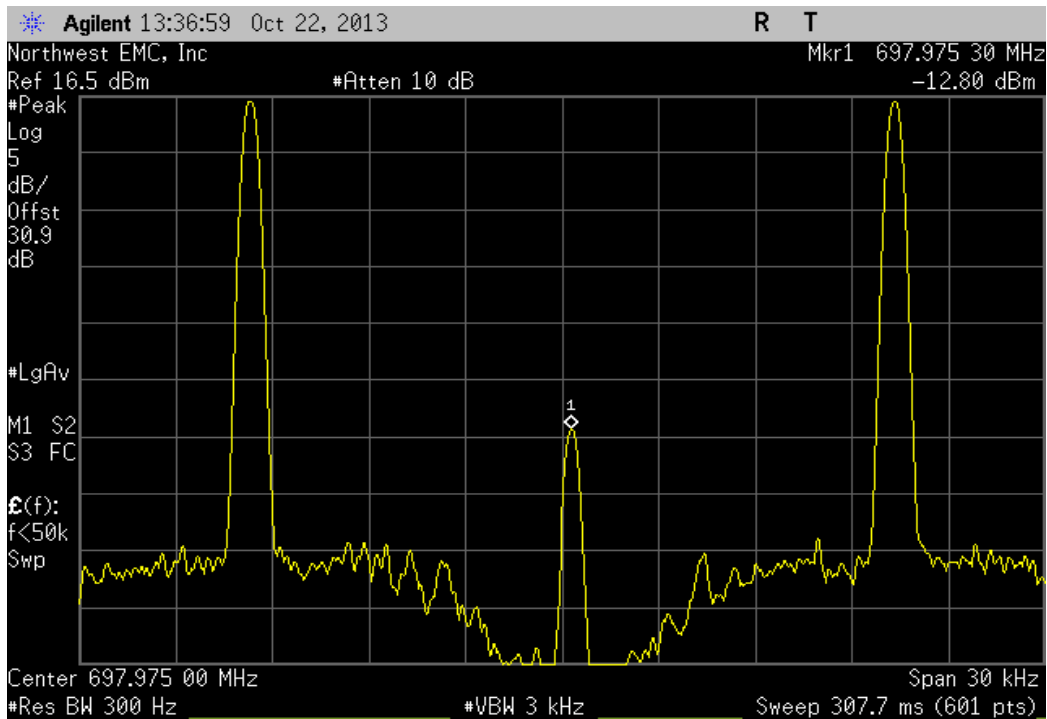
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +40°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



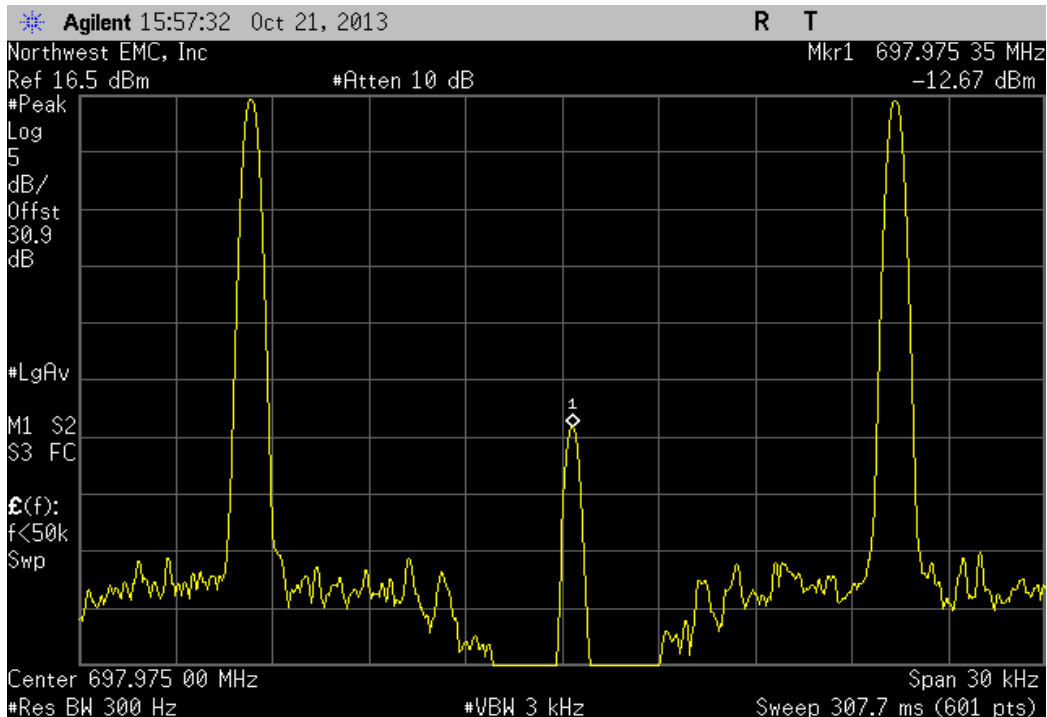
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +30°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9753	697.975	0.4	50	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +20°

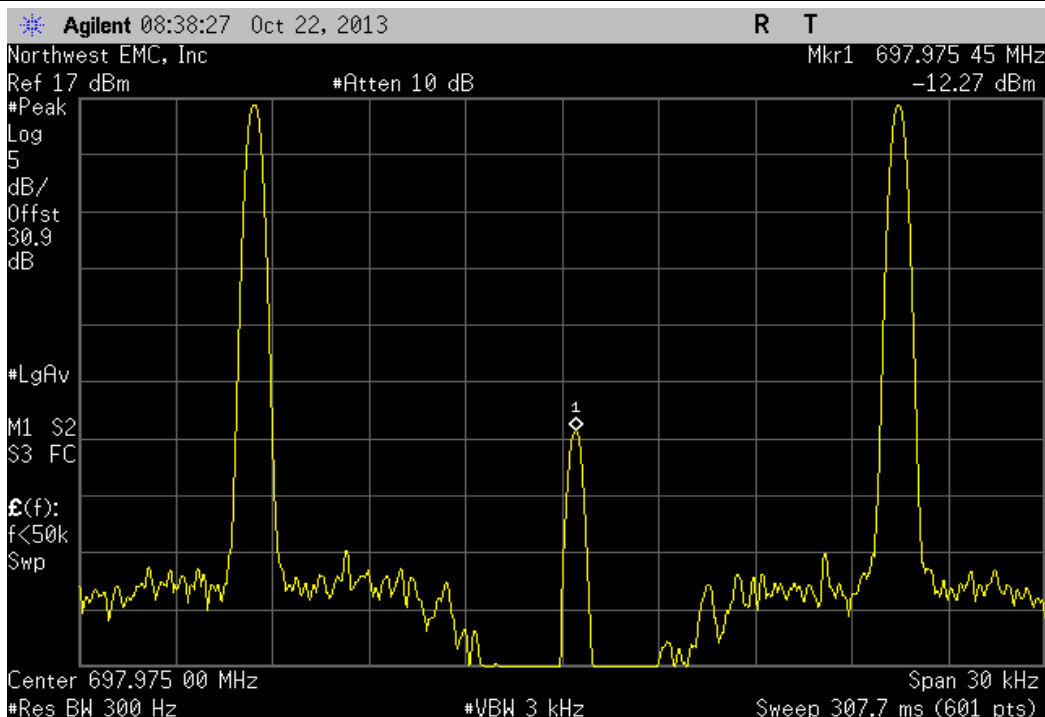
Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97535	697.975	0.5	50	Pass





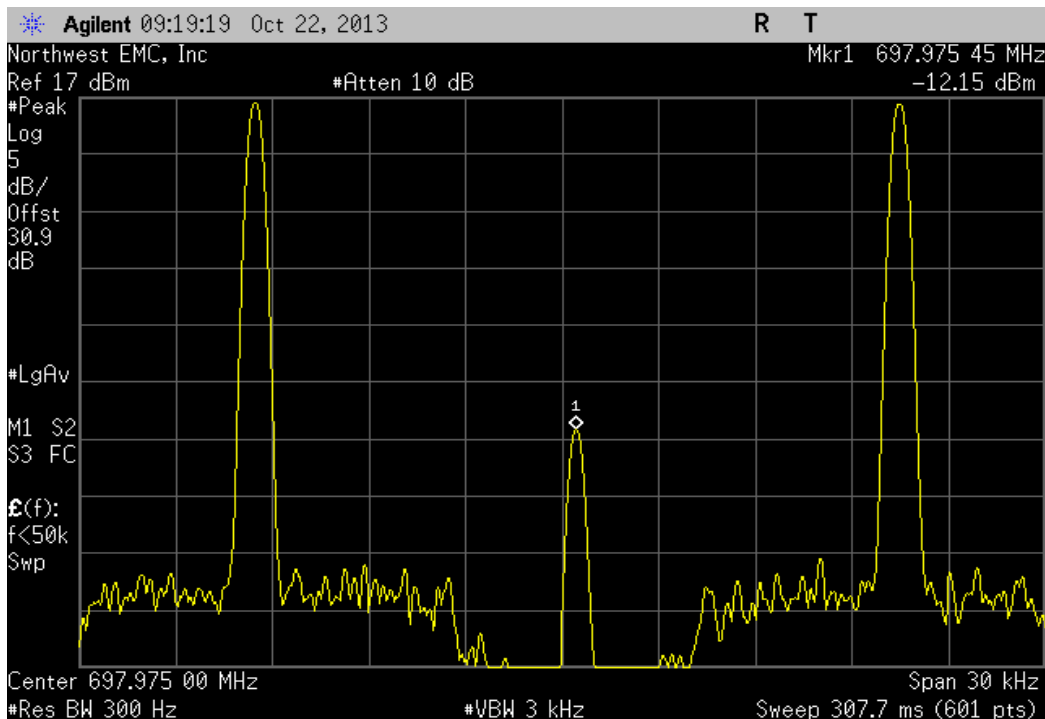
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: +10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97545	697.975	0.6	50	Pass



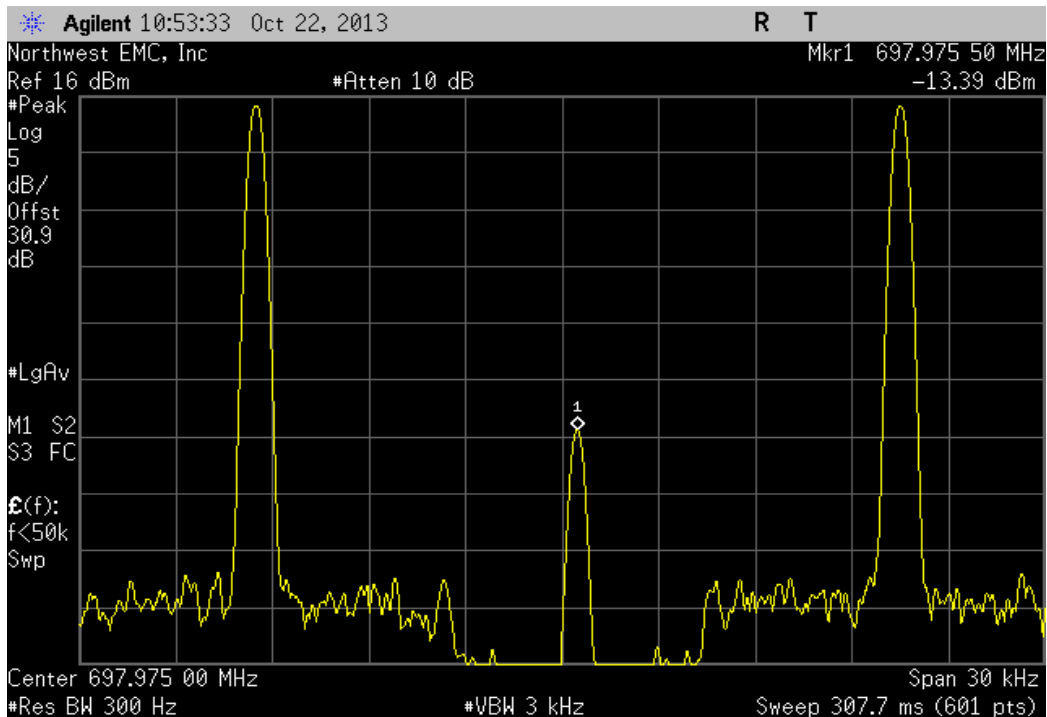
Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: 0°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.97545	697.975	0.6	50	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: -10°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9755	697.975	0.7	50	Pass



Antenna Port 2, Broadcasting Frequencies, High Channel, 697.975 MHz, Temperature: -20°

Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
697.9755	697.975	0.7	50	Pass

