Clarisonic

Smart Profile
FCC 15.209:2014
FCC 15.225:2014

Report #: CLRS0003.2

Report Prepared By Northwest EMC Inc.

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

California – Minnesota – Oregon – New York – Washington

NORTHWEST EMC

WTD 12.5.23

CERTIFICATE OF TEST

Last Date of Test: February 14, 2014
Clarisonic
Model: Smart Profile

Emissions

Test Description	Specification	Test Method	Pass/Fail
Field Strength of Fundamental	FCC 15.225:2014	ANSI C63.10:2009	Pass
Field Strength of Spurious Emissions >30 MHz	FCC 15.209:2014	ANSI C63.10:2009	Pass
Field Strength of Spurious Emissions <30 MHz	FCC 15.209:2014	ANSI C63.10:2009	Pass
Frequency Stability	FCC 15.225:2014	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP

NVLAP Lab Code: 200629-0

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.

NORTHWEST EMC
REV 2012.08.02

REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

NORTHWEST EMC

REV 2012.05.24

ACCREDITATIONS AND AUTHORIZATIONS

United States

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

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

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

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

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Hong Kong

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

Vietnam

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

Russia

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

SCOPE

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

MEASUREMENT UNCERTAINTY

Measurement Uncertainty

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

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

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

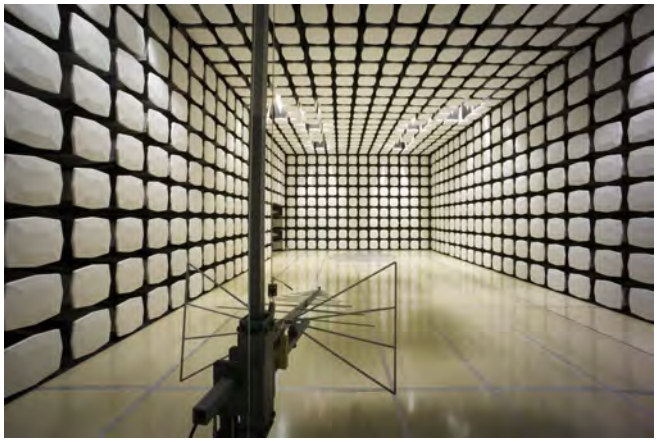
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94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

NORTHWEST EMC

REV 2013.06.28

FACILITIES

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 120th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-*2*	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0



PRODUCT DESCRIPTION

WTD 12.5.23

Client and Equipment Under Test (EUT) Information

Company Name:	Clarisonic
Address:	17275 NE 67th Ct.
City, State, Zip:	Redmond, WA 98052
Test Requested By:	Raj Shah
Model:	Smart Profile
First Date of Test:	February 07, 2014
Last Date of Test:	February 14, 2014
Receipt Date of Samples:	February 07, 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):
Skin Cleansing System

Testing Objective:
To demonstrate compliance to FCC Part 15.225 specifications.

CONFIGURATIONS

WTD 12.5.23

Configuration CLRS0003- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Skin Cleansing System	Clarisonic	Smart Profile	279

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Clarisonic Power Supply	Phihong	PSM03A-050Q-3	PD25012283
Inductive Charger	Clarisonic	Charging Puck	4313B

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Inductive Charger USB Cable	Yes	0.9m	No	DC Power Supply	Inductive Charger
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration CLRS0003- 5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Skin Cleansing System	Clarisonic	Smart Profile	182

CONFIGURATIONS

Configuration CLRS0003- 6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Skin Cleansing System	Clarisonic	Smart Profile	280

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Inductive Charger	Clarisonic	Charging Puck	4313B
Clarisonic Power Supply	Kuantech	KSAP0030500055HU	R0712

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Inductive Charger USB Cable	Yes	0.9m	No	DC Power Supply	Inductive Charger
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

MODIFICATIONS

WTD 12.5.23

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2/7/2014	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	2/7/2014	Field Strength of Spurious Emissions greater than 30 MHz	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	2/7/2014	Field Strength of Spurious Emissions less than 30 MHz	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	2/14/2014	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

FIELD STRENGTH OF FUNDAMENTAL

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

RFID On - 13.56MHz running continuously

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

CLRS0003 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	490 kHz	Stop Frequency	30 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
NC01 Cables	NWEMC	NC01 Mag Field Loop / Near Field Probe cable	NC6	9/16/2013	12 mo
Antenna, Loop	EMCO	6502	AZC	5/31/2013	36 mo
Spectrum Analyzer	Agilent	E4440A	AAW	2/21/2013	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 antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

While scanning, fundamental carrier from the EUT was maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal planes, the EUT and/or associated antenna is positioned in 3 orthogonal planes (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

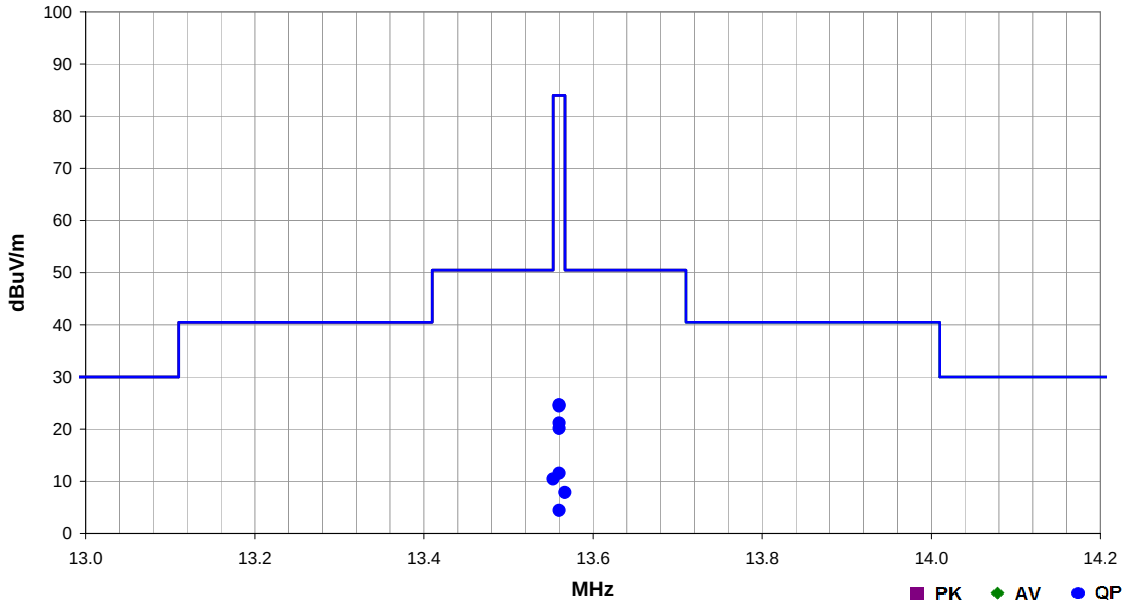
As outlined in 15.209(e) and 15.31(f)(2), measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

FIELD STRENGTH OF FUNDAMENTAL

Work Order:	CLRS0003	**Date:**	02/07/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	NC01	**Humidity:**	14.6% RH		
Serial Number:	279	**Barometric Pres.:**	1013 mbar	**Tested by:**	Matthew Barnes
EUT:	Smart Profile				
Configuration:	1				
Customer:	Clarisonic				
Attendees:	Raj Shah				
EUT Power:	Battery				
Operating Mode:	RFID On - 13.56MHz running continuously				
Deviations:	None				
Comments:	Strength of the Fundamental and Band Edge				

Test Specifications	**Test Method**
FCC 15.225:2014	ANSI C63.10:2009

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



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
13.553	39.3	11.1	1.0	20.0	3.0	0.0	Parallel	QP	-40.0	10.4	50.5	-40.0	EUT On Side, 13.410-13.533MHz BE
13.567	36.7	11.1	1.0	20.0	3.0	0.0	Parallel	QP	-40.0	7.8	50.5	-42.6	EUT On Side, 13.567-13.710MHz BE
13.560	53.5	11.1	1.0	8.0	3.0	0.0	Parallel	QP	-40.0	24.6	84.0	-59.4	EUT On Side
13.410	10.0	11.1	1.0	20.0	3.0	0.0	Parallel	QP	-40.0	-18.9	40.5	-59.4	EUT On Side, 13.110-13.410MHz BE
13.560	53.3	11.1	1.0	0.0	3.0	0.0	Parallel	QP	-40.0	24.4	84.0	-59.6	EUT On End
13.710	9.5	11.1	1.0	20.0	3.0	0.0	Parallel	QP	-40.0	-19.4	40.5	-59.9	EUT On Side, 13.710-14.010MHz BE
13.560	50.0	11.1	1.0	102.0	3.0	0.0	Perp	QP	-40.0	21.1	84.0	-62.9	EUT On End
13.560	49.0	11.1	1.0	117.0	3.0	0.0	Perp	QP	-40.0	20.1	84.0	-63.9	EUT On Side
13.560	40.4	11.1	1.0	274.0	3.0	0.0	Parallel	QP	-40.0	11.5	84.0	-72.5	EUT Face Up
13.560	33.3	11.1	1.0	130.0	3.0	0.0	Perp	QP	-40.0	4.4	84.0	-79.6	EUT Face Up

FIELD STRENGTH OF SPURIOUS EMISSIONS > 30 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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

RFID On - 13.56MHz running continuously

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

CLRS0003 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	150 kHz	Stop Frequency	30 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
NC01 Cables	NWEMC	NC01 Mag Field Loop / Near Field Probe cable	NC6	9/16/2013	12 mo
Antenna, Loop	EMCO	6502	AZC	5/31/2013	36 mo
Spectrum Analyzer	Agilent	E4440A	AAW	2/21/2013	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 antennas to be used with the EUT were tested. The EUT was transmitting while set at the operating channel.

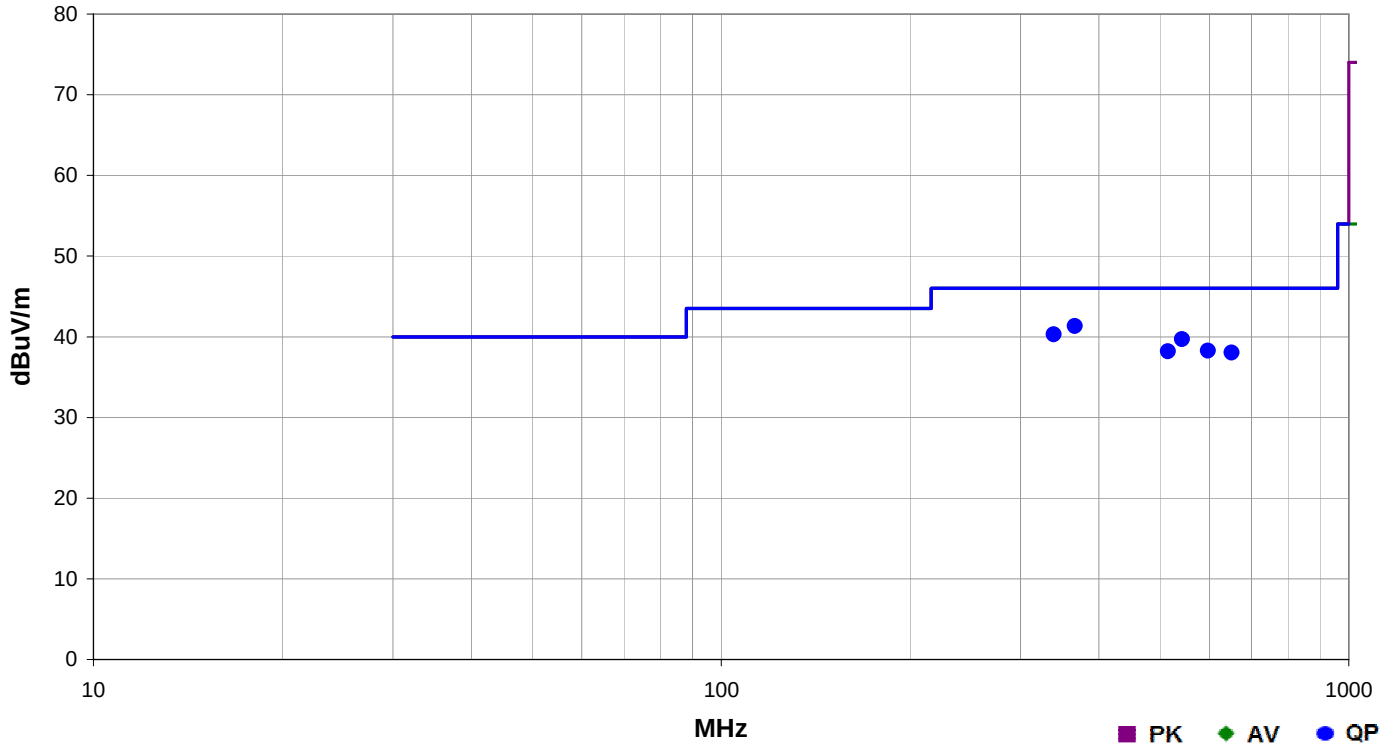
While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009).

FIELD STRENGTH OF SPURIOUS EMISSIONS > 30MHZ

Work Order:	CLRS0003	**Date:**	02/07/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	NC01	**Humidity:**	14.6% RH		
Serial Number:	279	**Barometric Pres.:**	1013 mbar	**Tested by:**	Matthew Barnes
EUT:	Smart Profile				
Configuration:	1				
Customer:	Clarisonic				
Attendees:	Raj Shah				
EUT Power:	Battery				
Operating Mode:	RFID On - 13.56MHz running continuously				
Deviations:	None				
Comments:	EUT Maximized On Side.				

Test Specifications	**Test Method**
FCC 15.209:2014	ANSI C63.10:2009

Run #	5	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
366.117	38.1	3.2	1.0	227.0	3.0	0.0	Horz	QP	0.0	41.3	46.0	-4.7
338.998	38.7	1.6	1.0	221.0	3.0	0.0	Horz	QP	0.0	40.3	46.0	-5.7
542.394	32.7	7.0	1.8	215.0	3.0	0.0	Horz	QP	0.0	39.7	46.0	-6.3
596.630	29.9	8.4	1.5	212.0	3.0	0.0	Horz	QP	0.0	38.3	46.0	-7.7
515.272	31.7	6.5	2.0	208.0	3.0	0.0	Horz	QP	0.0	38.2	46.0	-7.8
650.870	29.4	8.6	1.5	27.0	3.0	0.0	Horz	QP	0.0	38.0	46.0	-8.0

FIELD STRENGTH OF SPURIOUS EMISSIONS < 30 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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

RFID On - 13.56MHz running continuously

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

CLRS0003 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	490 kHz	Stop Frequency	30 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Comb Generator	KJR Enterprises	Harmonic	TCR	NCR	0 mo
Pre-Amplifier	Miteq	AM-1616-1000	PAB	10/24/2013	12 mo
Antenna, Biconilog	EMCO	3142	AXJ	5/16/2012	36 mo
NC01 Cables	N/A	Bilog Cables	NC1	10/24/2013	12 mo
Loop, Mag Field	NWEMC	3m X 3m	AZJ	6/27/2013	36 mo
NC01 Cables	NWEMC	NC01 Mag Field Loop / Near Field Probe cable	NC6	9/16/2013	12 mo
Spectrum Analyzer	Agilent	E4440A	AAW	2/21/2013	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 antennas to be used with the EUT were tested. The EUT was continuously transmitting while set to the channel specified.

While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and orientation in 3 orthogonal planes, the EUT and/or associated antenna is positioned in 3 orthogonal planes (per ANSI C63.10). An active loop antenna was used for this test in order to provide sufficient measurement sensitivity.

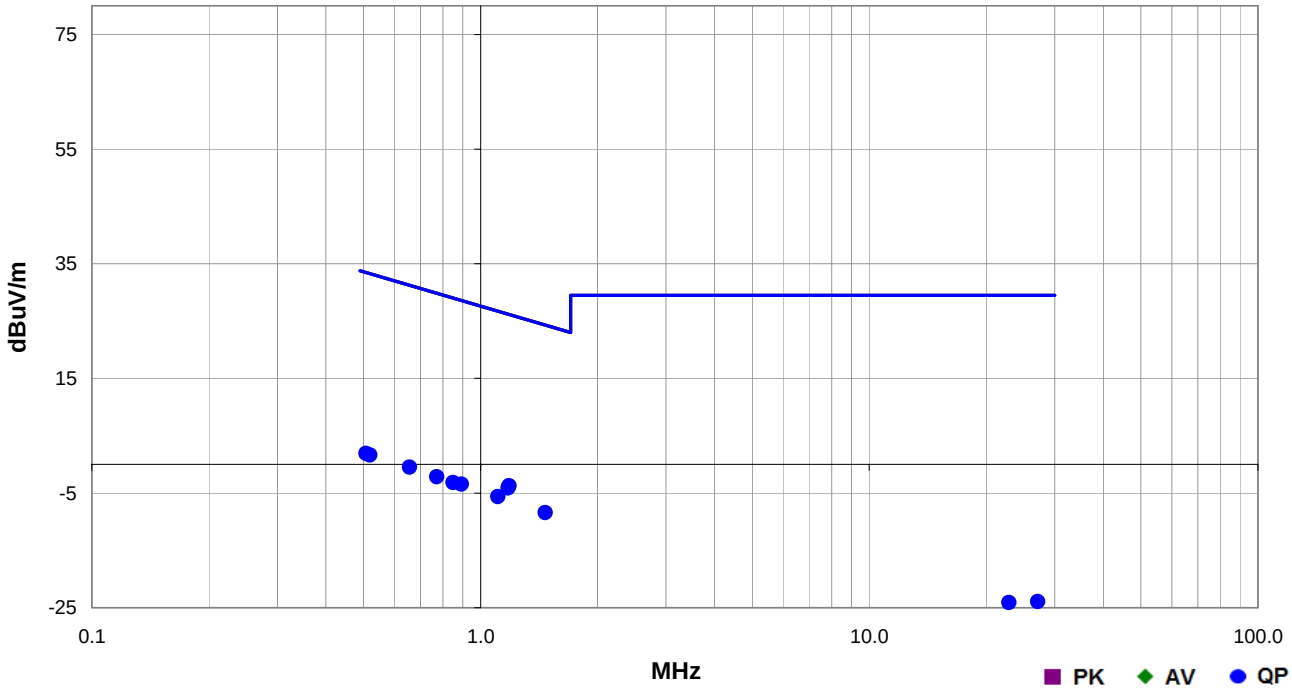
As outlined in 15.209(e) and 15.31(f)(2), measurements may be performed at a distance closer than what is specified with the limit. The limit at the specified distance is shown on the data sheet. Measurements are made at a closer distance and the data is adjusted using a distance correction factor of 40dB/decade for comparison to the limit.

FIELD STRENGTH OF SPURIOUS EMISSIONS < 30 MHZ

Work Order:	CLRS0003	**Date:**	02/07/14		
Project:	None	**Temperature:**	22.6 °C		
Job Site:	NC01	**Humidity:**	14.6% RH		
Serial Number:	279	**Barometric Pres.:**	1013 mbar	**Tested by:**	Matthew Barnes
EUT:	Smart Profile				
Configuration:	1				
Customer:	Clarisonic				
Attendees:	Raj Shah				
EUT Power:	Battery				
Operating Mode:	RFID On - 13.56MHz running continuously				
Deviations:	None				
Comments:	EUT Maximized On Side				

Test Specifications	**Test Method**
FCC 15.209:2014	ANSI C63.10:2009

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



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
1.185	24.9	11.4	1.0	108.0	3.0	0.0	Parallel	QP	-40.0	-3.7	26.2	-29.9
1.178	24.5	11.4	1.0	329.0	3.0	0.0	Perp	QP	-40.0	-4.1	26.2	-30.3
0.508	30.7	11.2	1.0	77.0	3.0	0.0	Perp	QP	-40.0	1.9	33.5	-31.6
0.520	30.4	11.2	1.0	299.0	3.0	0.0	Parallel	QP	-40.0	1.6	33.3	-31.7
0.657	28.3	11.2	1.0	0.0	3.0	0.0	Perp	QP	-40.0	-0.5	31.3	-31.8
0.894	25.2	11.3	1.0	349.0	3.0	0.0	Parallel	QP	-40.0	-3.5	28.6	-32.1
0.772	26.6	11.2	1.0	317.0	3.0	0.0	Parallel	QP	-40.0	-2.2	29.9	-32.1
0.850	25.6	11.2	1.0	214.0	3.0	0.0	Perp	QP	-40.0	-3.2	29.0	-32.2
1.109	23.0	11.4	1.0	252.0	3.0	0.0	Parallel	QP	-40.0	-5.6	26.7	-32.3
1.468	20.1	11.5	1.0	65.0	3.0	0.0	Perp	QP	-40.0	-8.4	24.3	-32.7
27.120	6.1	9.9	1.0	79.0	3.0	0.0	Perp	QP	-40.0	-24.0	29.5	-53.5
22.871	5.4	10.5	1.0	115.0	3.0	0.0	Parallel	QP	-40.0	-24.1	29.5	-53.6

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	Tenney	T6S	TBG	8/23/2013	12
Multimeter	Fluke	111	MMM	3/20/2013	36
Thermometer	Omega	iTHX-W3	DUD	1/7/2013	36
Spectrum Analyzer	Agilent	E4446A	AAT	6/28/2012	24

TEST DESCRIPTION

Variation of Supply Voltage
The primary supply voltage was varied from 2.2V (manufacturer specified end point voltage of batther) to 2.8V (nominal voltage of battery). The EUT can only be battery operated, so a DC lab supply was used to vary the supply voltage.

Variation of Ambient Temperature
Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range of (-20° to +50° C) and at 10°C intervals.

The antenna is integral to the EUT, so a radiated measurement was made using a spectrum analyzer and a near field probe. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

FREQUENCY STABILITY

EUT:	Smart Profile			**Work Order:**	CLRS0003
Serial Number:	182			**Date:**	02/14/14
Customer:	Clarisonic			**Temperature:**	23.3°C
Attendees:	Raj Shah			**Humidity:**	32%
Project:	None			**Barometric Pres.:**	1016
Tested by:	Matthew Barnes	**Power:**	Battery	**Job Site:**	NC05

TEST SPECIFICATIONS	Test Method
FCC 15.225:2014	ANSI C63.10:2009

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

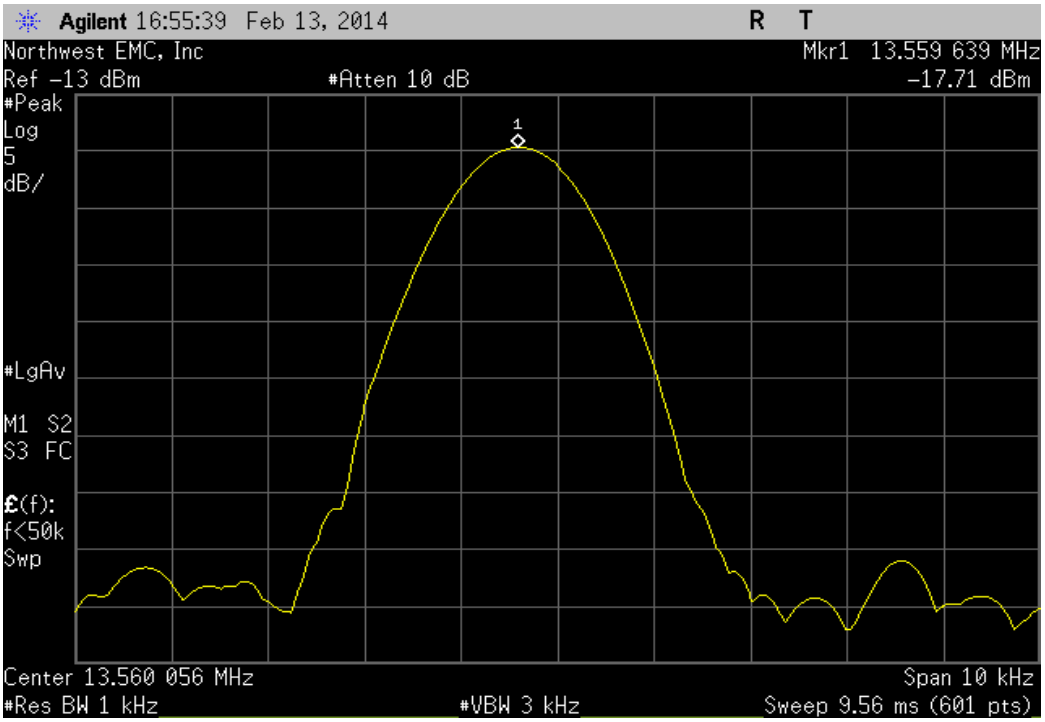
None

Configuration #	5	Signature

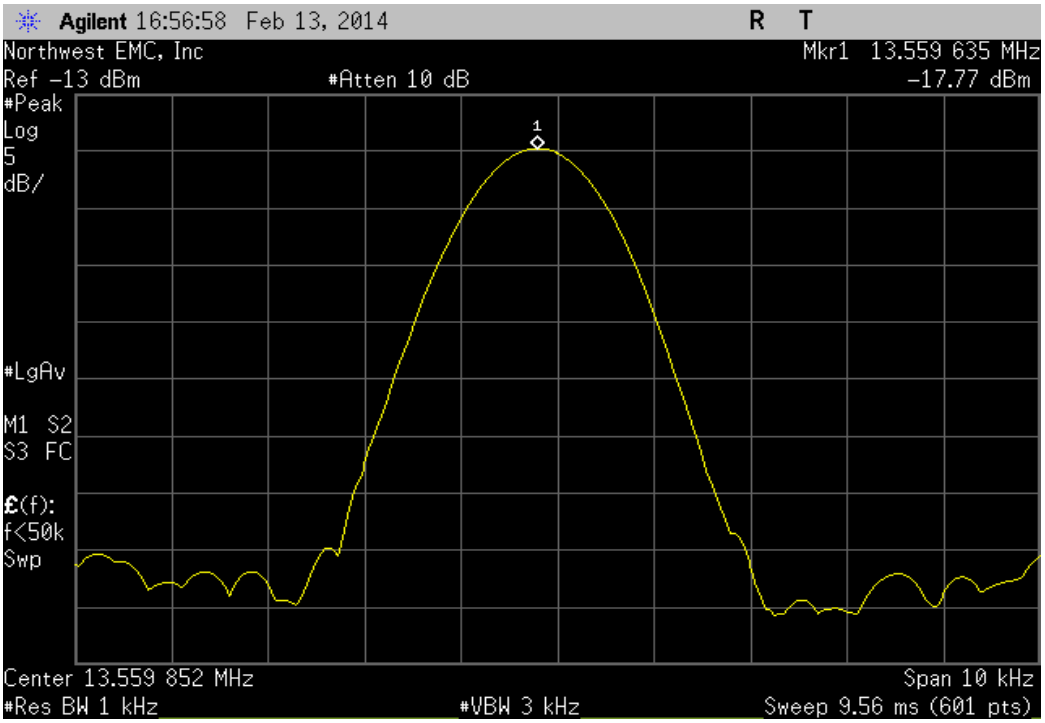
	Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
Voltage: 100% (2.8V)	13.559639	13.56	26.6	100	Pass
Voltage: End Point (2.2V)	13.559635	13.56	26.9	100	Pass
Temperature 50°C (2.8V)	13.559602	13.56	29.4	100	Pass
Temperature 40°C (2.8V)	13.5596	13.56	29.5	100	Pass
Temperature 30°C (2.8V)	13.559621	13.56	28	100	Pass
Temperature 20°C (2.8V)	13.559639	13.56	26.6	100	Pass
Temperature 10°C (2.8V)	13.559639	13.56	26.6	100	Pass
Temperature 0°C (2.8V)	13.559667	13.56	24.6	100	Pass
Temperature -10°C (2.8V)	13.559655	13.56	25.4	100	Pass
Temperature -20°C (2.8V)	13.559621	13.56	28	100	Pass

FREQUENCY STABILITY

Voltage: 100% (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559639	13.56	26.6	100	Pass

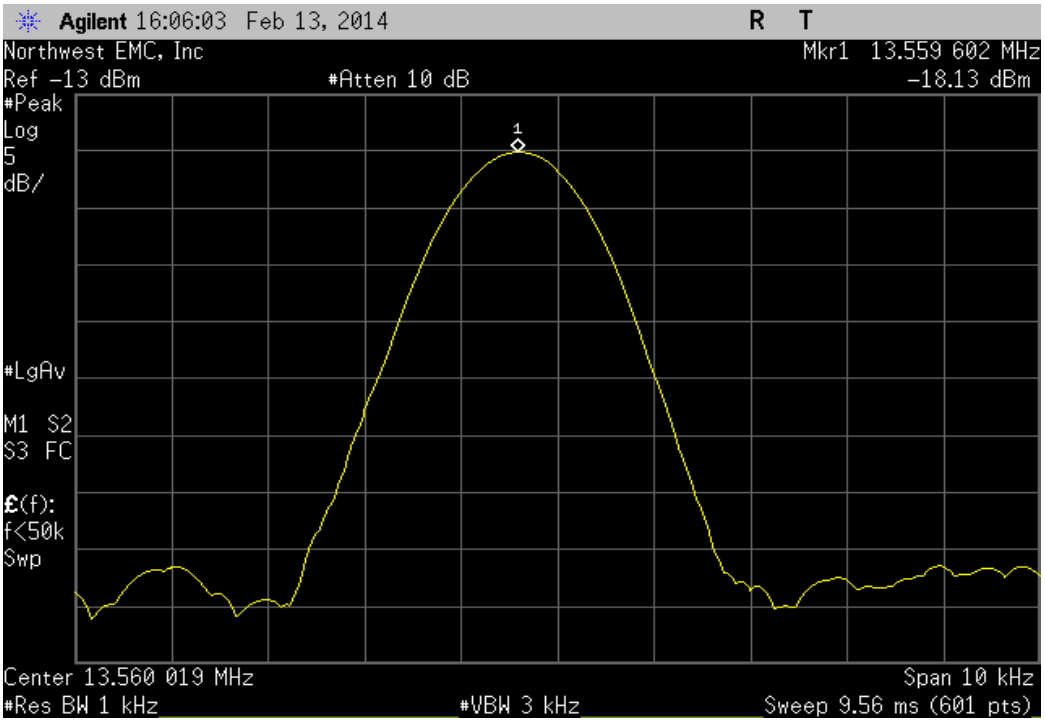


Voltage: End Point (2.2V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559635	13.56	26.9	100	Pass

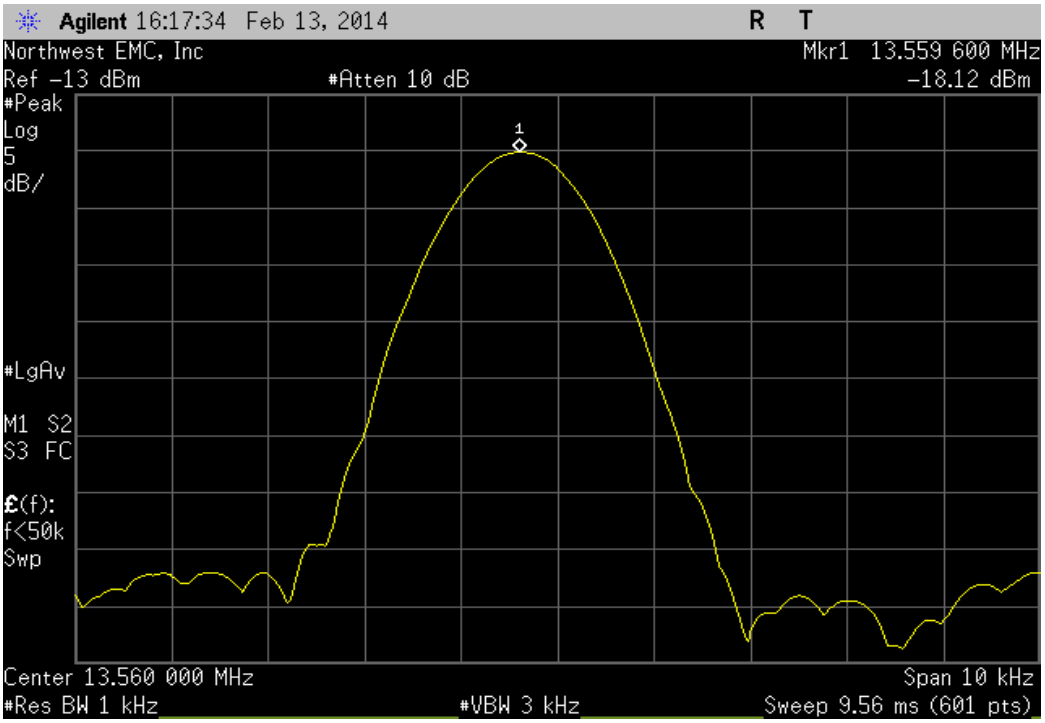


FREQUENCY STABILITY

Temperature 50°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559602	13.56	29.4	100	Pass

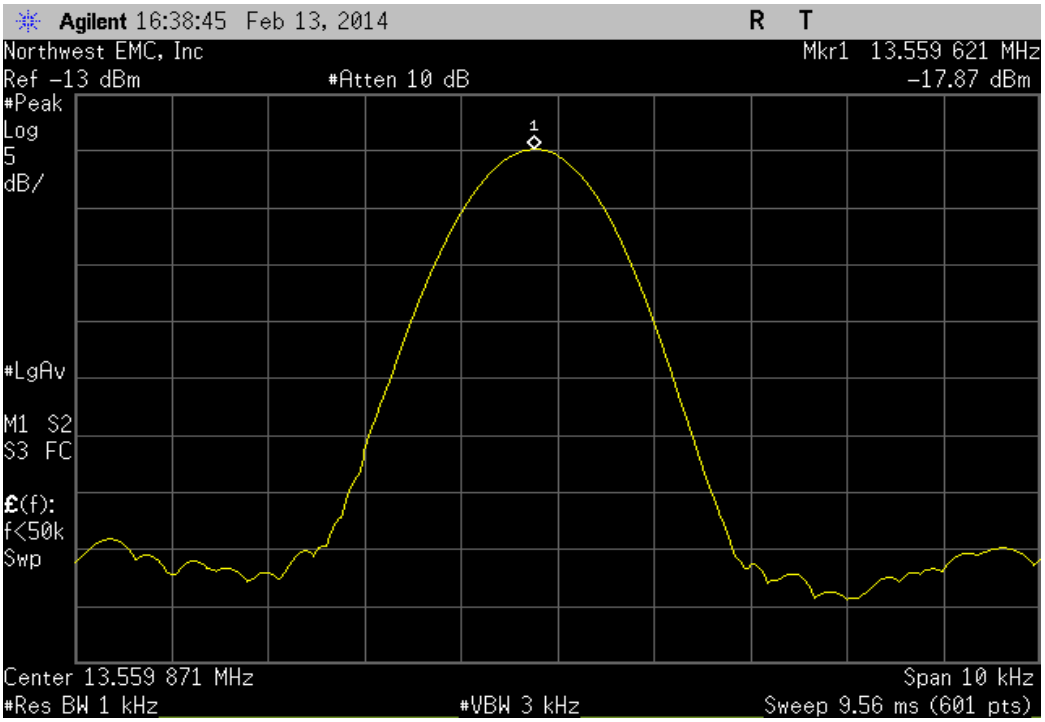


Temperature 40°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.5596	13.56	29.5	100	Pass

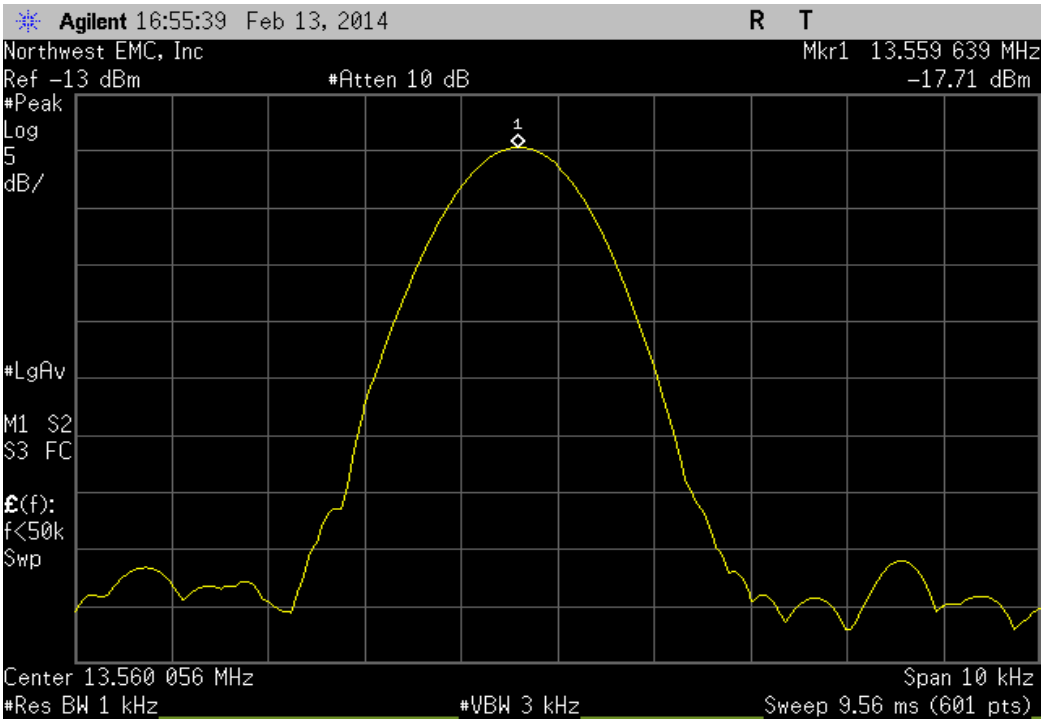


FREQUENCY STABILITY

Temperature 30°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559621	13.56	28	100	Pass

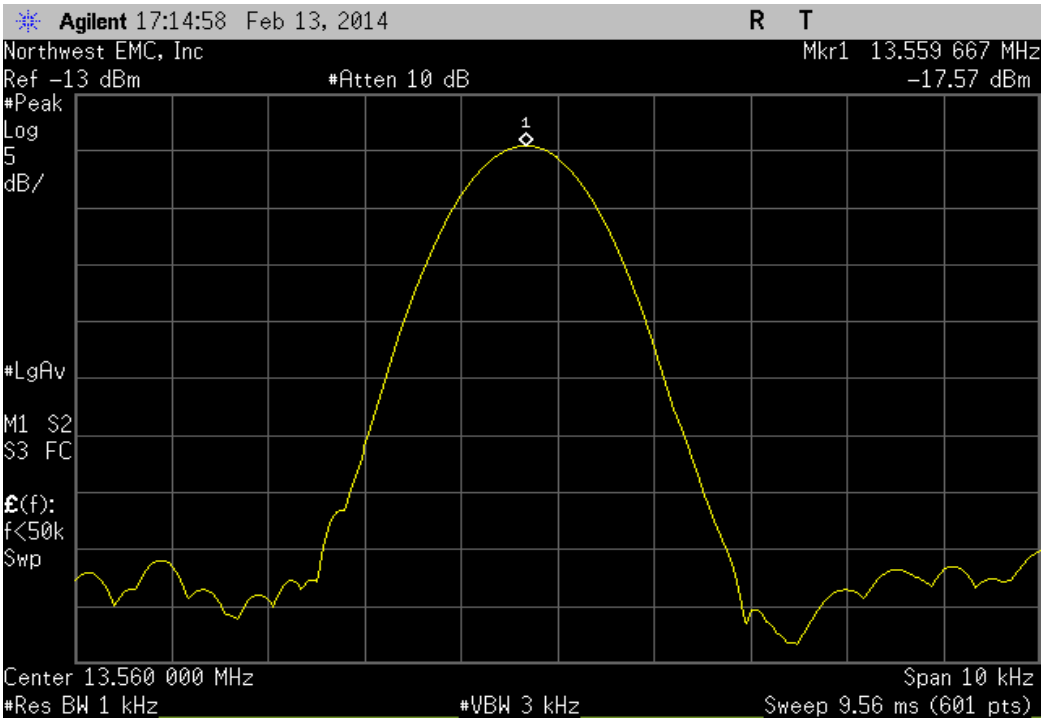


Temperature 20°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559639	13.56	26.6	100	Pass

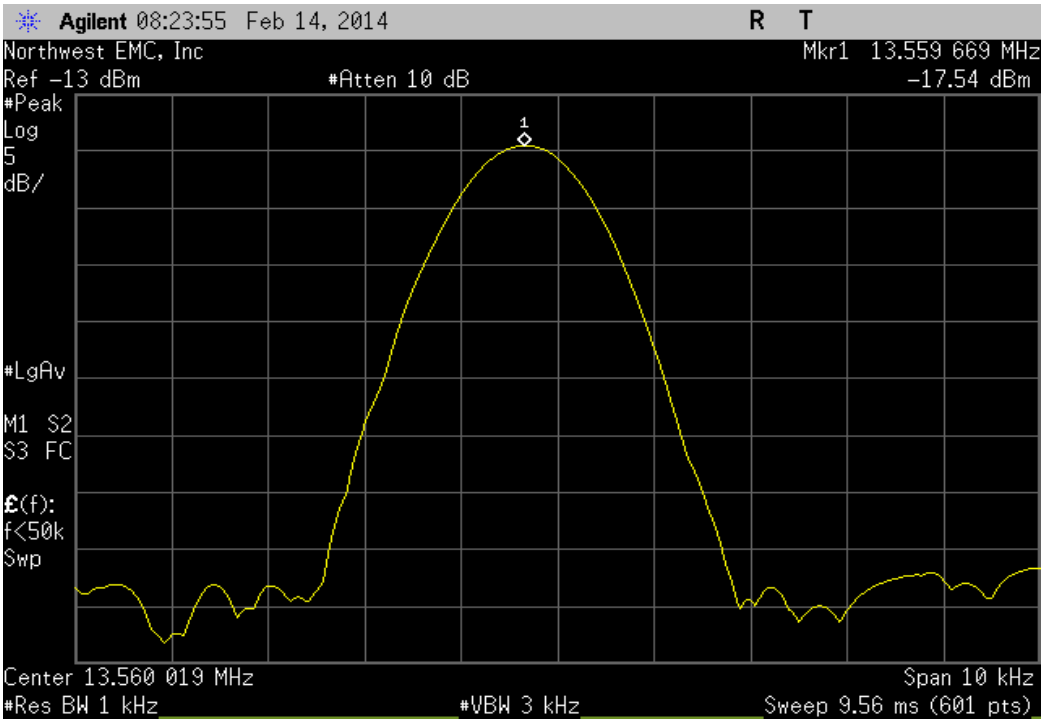


FREQUENCY STABILITY

Temperature 10°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559667	13.56	24.6	100	Pass

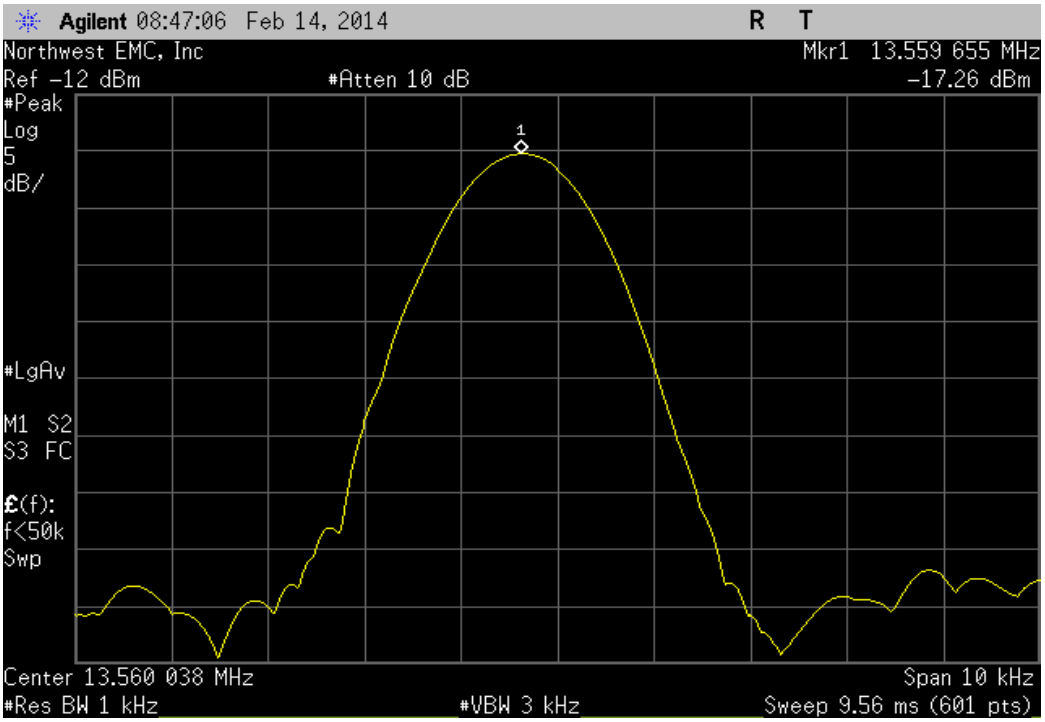


Temperature 0°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559669	13.56	24.4	100	Pass



FREQUENCY STABILITY

Temperature -10°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559655	13.56	25.4	100	Pass



Temperature -20°C (2.8V)						
		Measured Value (MHz)	Assigned Value (MHz)	Error (ppm)	Limit (ppm)	Result
		13.559621	13.56	28	100	Pass