KMW Communications

800MHz iDEN RRH

EMC Test Report

Report No. KMWC0027

Report Prepared By

www.nwemc.com
1-888-EMI-CERT

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: September 7, 2011

KMW Communications

Model: 800MHz iDEN RRH

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Field Strength of Spurious Emissions[1]	FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Conducted Output Power	FCC 90.635:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Occupied Bandwidth[1]	FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Spurious Emissions at the Antenna Terminals[1]	FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Frequency Stability	FCC 90.213:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Emission Mask[1]	FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004	**Pass**

Note 1: See Sprint Nextel's Request for Waiver to Permit the operation of Broadband CDMA Technology in the 817 – 824/862 – 869 MHz band.

Modifications made to the product
See the Modifications section of this report

Test Facility

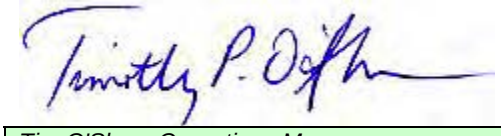
The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
41 Tesla Ave.
Irvine, CA 92618

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834B-1).

Approved By:



Tim O'Shea, Operations Manager

NVLAP Lab Code: 200676-0

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 Number	Description	Date	Page Number
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Accreditations and Authorizations

FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)*

CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

Accreditations and Authorizations

VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. *(Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-3265, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017).

GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

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

Northwest EMC Locations

Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796

Party Requesting the Test

Company Name:	KMW Communications
Address:	1521 E Orangethorpe Ave., Suite #A
City, State, Zip:	Fullerton, CA 92831
Test Requested By:	Joshua Jang
Model:	800MHz iDEN RRH
First Date of Test:	7/18/2011
Last Date of Test:	9/7/2011
Receipt Date of Samples:	7/18/2011
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
CDMA/EVDO Rev A cellular base station transmitting in the 861 – 868.975 MHz band. This corresponds to 3GPP2 Band Class 10 Blocks C + D (Subclass 2 + 3)

Testing Objective:
To demonstrate compliance to FCC Part 90 requirements See Sprint Nextel's Request for Waiver to Permit the operation of Broadband CDMA Technology in the 817 – 824/862 – 869 MHz band

CONFIGURATION 1 KMWC0027

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
800MHz iDEN RRH	KMW Communications	iDen 800	U311210059

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Hewlett Packard	6574A	4S36340150

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
MXA Signal Analyzer	Agilent	N9020A	MY49100579
MXA Signal Analzyer	Agilent	N9020A	MY49100570
MXG Vector Signal Generator	Agilent	N5182	MY49180185
Reliability Analzyer	KMW Communications	COBRA	None
Remote Laptop	Fujitsu	A6030	R7908331

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
RF Cable	Yes	3.0m	No	800MHz iDEN RRH	Load
RF Cable #2	Yes	3.0m	No	800MHz iDEN RRH	Load
Ground Cable	Yes	3.0m	No	800MHz iDEN RRH	Ground
Ground Cable	Yes	3.0m	No	800MHz iDEN RRH	Ground Cable
Optic Cable	No	5.0m	No	COBRA	800MHz iDEN RRH
DC Power Cable	Yes	5.0m	No	800MHz iDEN RRH	HP DC Power Supply
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 1 KMWC0030

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
800MHz iDEN RRH	KMW Communications	iDen 800	U311210059

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
MXA Signal Analyzer	Agilent	N9020A	MY49100579
MXA Signal Analzyer	Agilent	N9020A	MY49100570
MXG Vector Signal Generator	Agilent	N5182	MY49180185
Reliability Analzyer	KMW Communications	COBRA	None
DC Power Supply	Hewlett Packard	6574A	4S36340150
Remote Laptop	Fujitsu	A6030	R7908331

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
RF Cable	Yes	3.0m	No	800MHz iDEN RRH	Load
RF Cable #2	Yes	3.0m	No	800MHz iDEN RRH	Load
Ground Cable	Yes	3.0m	No	800MHz iDEN RRH	Ground
Ground Cable	Yes	3.0m	No	800MHz iDEN RRH	Ground Cable
Optic Cable	No	5.0m	No	COBRA	800MHz iDEN RRH
DC Power Cable	Yes	5.0m	No	800MHz iDEN RRH	HP DC Power Supply
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	7/18/2011	Field Strength of Spurious 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.
2	7/21/2011	Conducted Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	7/20/2011	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	7/20/2011	Spurious Emissions at the Antenna Terminals	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	7/21/2011	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
6	9/7/2011	Emission Mask	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

CONDUCTED OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Agilent	E8257D	TGU	1/26/2011	12
Power Sensor	Agilent	E4412A	SQE	4/21/2010	24
Power Meter	Hewlett Packard	E4418A	SPA	4/21/2010	24
Spectrum Analyzer	Agilent	E4440A	AFG	4/28/2011	12
DC Power Supply	Hewlett Packard	6574A	N/A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	N/A	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	N/A	NCR	N/A

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Cormmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Cormmunications	N/A	NCRA	N/A

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The output power was measured with the EUT set to the parameters called out in the data sheets. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Prior to making the measurements the setup and attenuator was calibrated using a signal generator and a power meter. Measurements were taken with a RMS average detector. The limit was converted from watts to dBm (250 Watts = 54 dBm).

NORTHWEST EMC

CONDUCTED OUTPUT POWER

XMit 2011.08.04
PsaTx 2011.07.05

EUT:	800MHz i-DEN RRH			Work Order:	KMWC0030
Serial Number:	U311210059			Date:	09/12/11
Customer:	KMW Communications			Temperature:	22.86°C
Attendees:	Joshua Jang			Humidity:	52%
Project:	None			Barometric Pres.:	1012.2
Tested by:	Jaemi Suh	Power:	48 VDC	Job Site:	OC11

TEST SPECIFICATIONS	Test Method
FCC 90.635:2011	ANSI/TIA/EIA-603-C-2004

COMMENTS

DEVIATIONS FROM TEST STANDARD

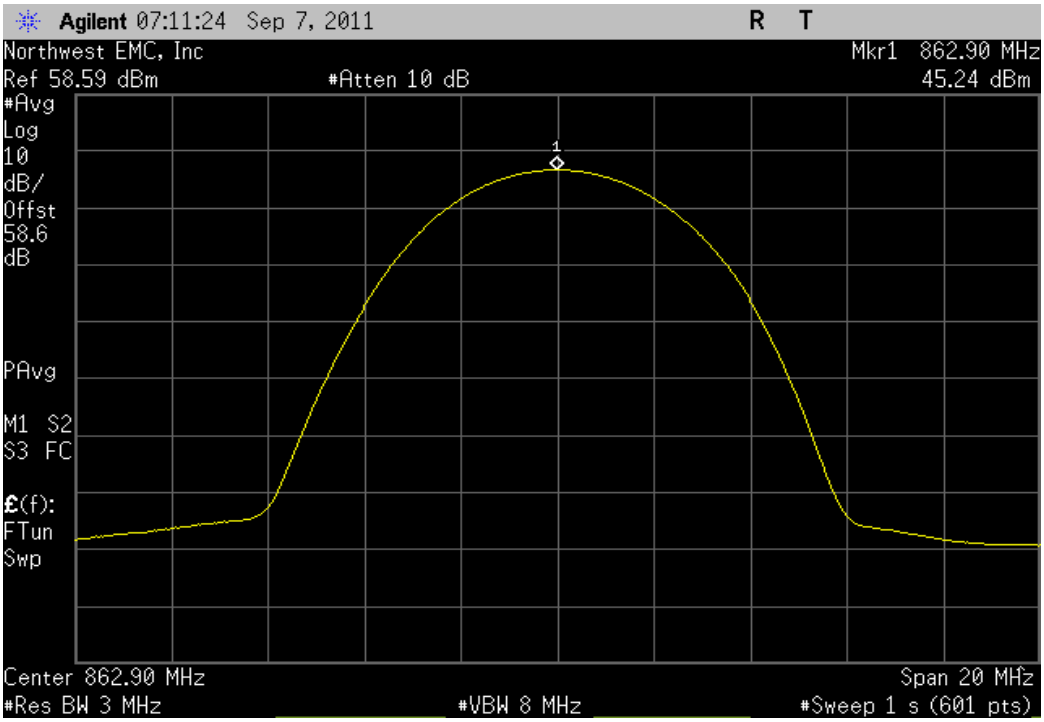
None

Configuration #	1	Signature

		Value	Limit	Result
CDMA				
	Port A			
	Single Carrier, Low Channel, 862.9 MHz	45.24 dBm	54 dBm	Pass
	Single Carrier, High Channel, 867.9 MHz	45.02 dBm	54 dBm	Pass
	Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)	42.96 dBm	54 dBm	Pass
	Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MH	42.22 dBm	54 dBm	Pass
	Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 M	42.83 dBm	54 dBm	Pass
	Port B			
	Single Carrier, Low Channel, 862.9 MHz	44.82 dBm	54 dBm	Pass
	Single Carrier, High Channel, 867.9 MHz	45.18 dBm	54 dBm	Pass
	Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)	42.74 dBm	54 dBm	Pass
	Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MH	42.04 dBm	54 dBm	Pass
	Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 M	42.70 dBm	54 dBm	Pass
EVDO				
	Port A			
	Single Carrier, Low Channel, 862.9 MHz	44.20 dBm	54 dBm	Pass
	Single Carrier, High Channel, 867.9 MHz	44.29 dBm	54 dBm	Pass
	Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)	42.21 dBm	54 dBm	Pass
	Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MH	41.43 dBm	54 dBm	Pass
	Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 M	41.85 dBm	54 dBm	Pass
	Port B			
	Single Carrier, Low Channel, 862.9 MHz	43.88 dBm	54 dBm	Pass
	Single Carrier, High Channel, 867.9 MHz	44.24 dBm	54 dBm	Pass
	Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)	42.21 dBm	54 dBm	Pass
	Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MH	41.20 dBm	54 dBm	Pass
	Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 M	41.85 dBm	54 dBm	Pass

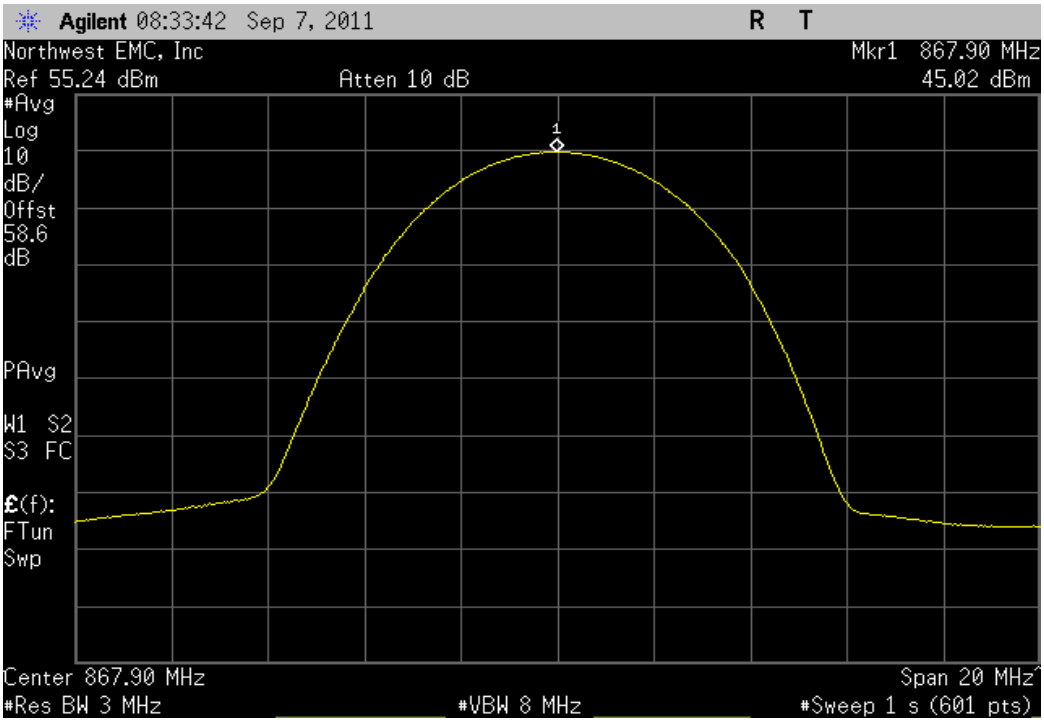
CDMA, Port A, Single Carrier, Low Channel, 862.9 MHz

				Value	Limit	Result
				45.24 dBm	54 dBm	Pass



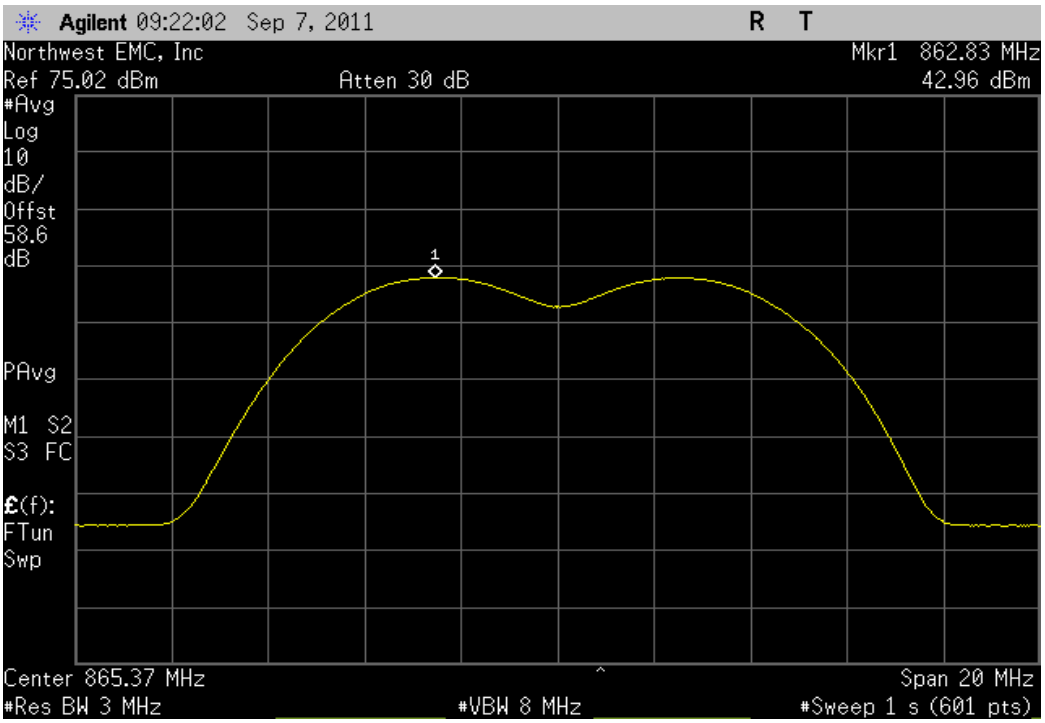
CDMA, Port A, Single Carrier, High Channel, 867.9 MHz

				Value	Limit	Result
				45.02 dBm	54 dBm	Pass



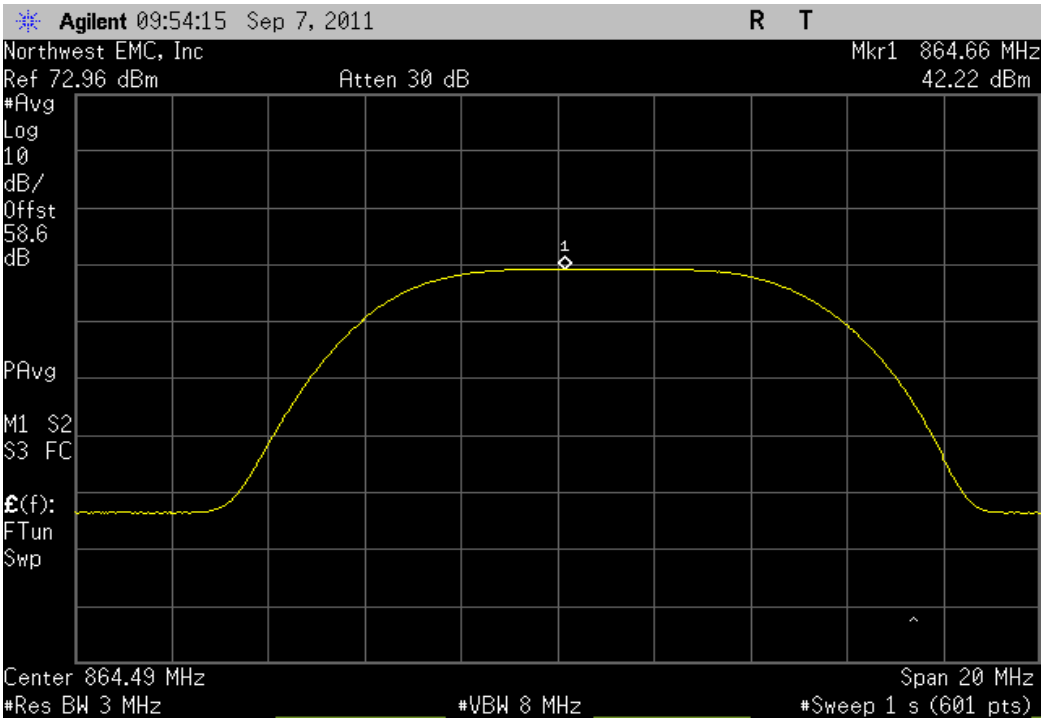
CDMA, Port A, Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)

					Value	Limit	Result
					42.96 dBm	54 dBm	Pass



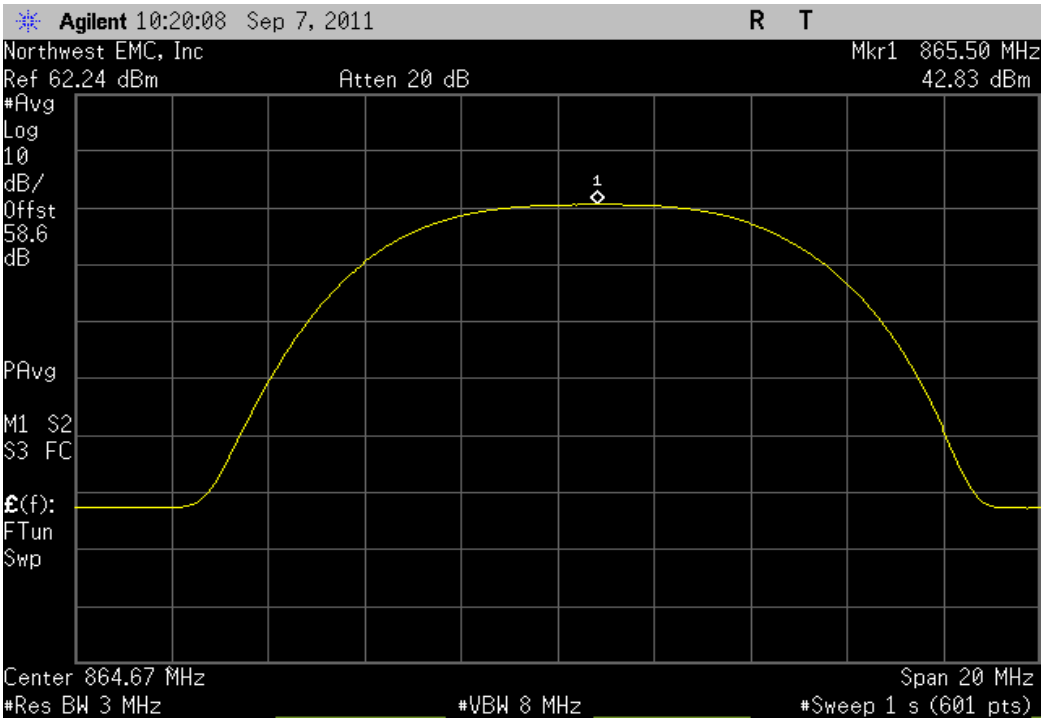
CDMA, Port A, Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MHz)

					Value	Limit	Result
					42.22 dBm	54 dBm	Pass



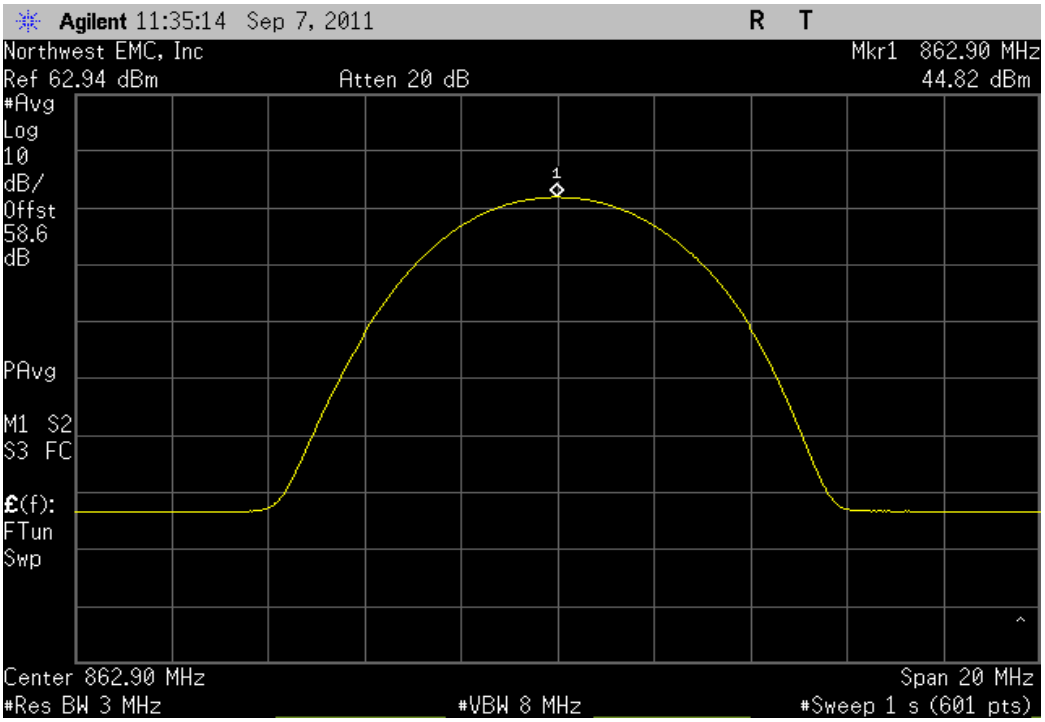
CDMA, Port A, Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)

Value	Limit	Result
42.83 dBm	54 dBm	Pass



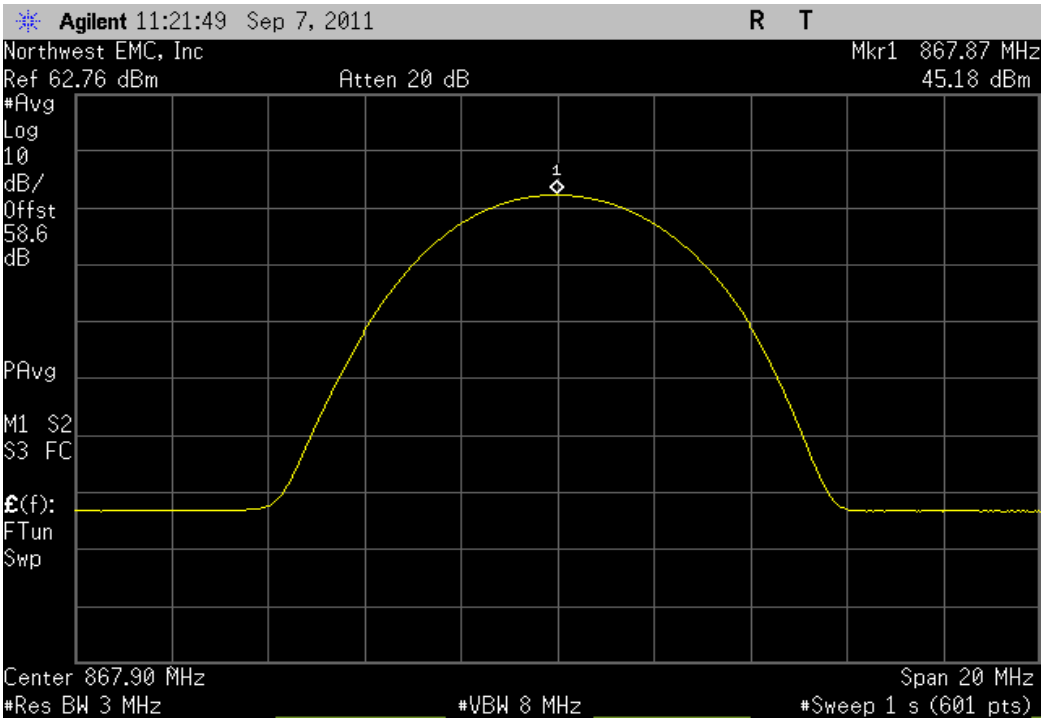
CDMA, Port B, Single Carrier, Low Channel, 862.9 MHz

Value	Limit	Result
44.82 dBm	54 dBm	Pass



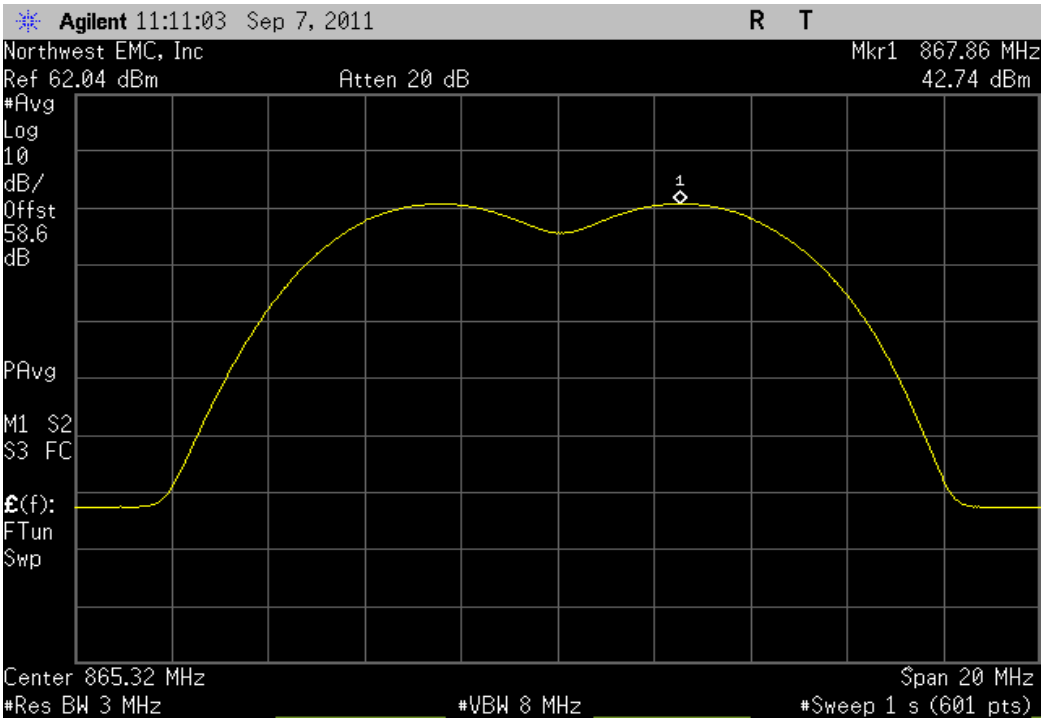
CDMA, Port B, Single Carrier, High Channel, 867.9 MHz

				Value	Limit	Result
				45.18 dBm	54 dBm	Pass



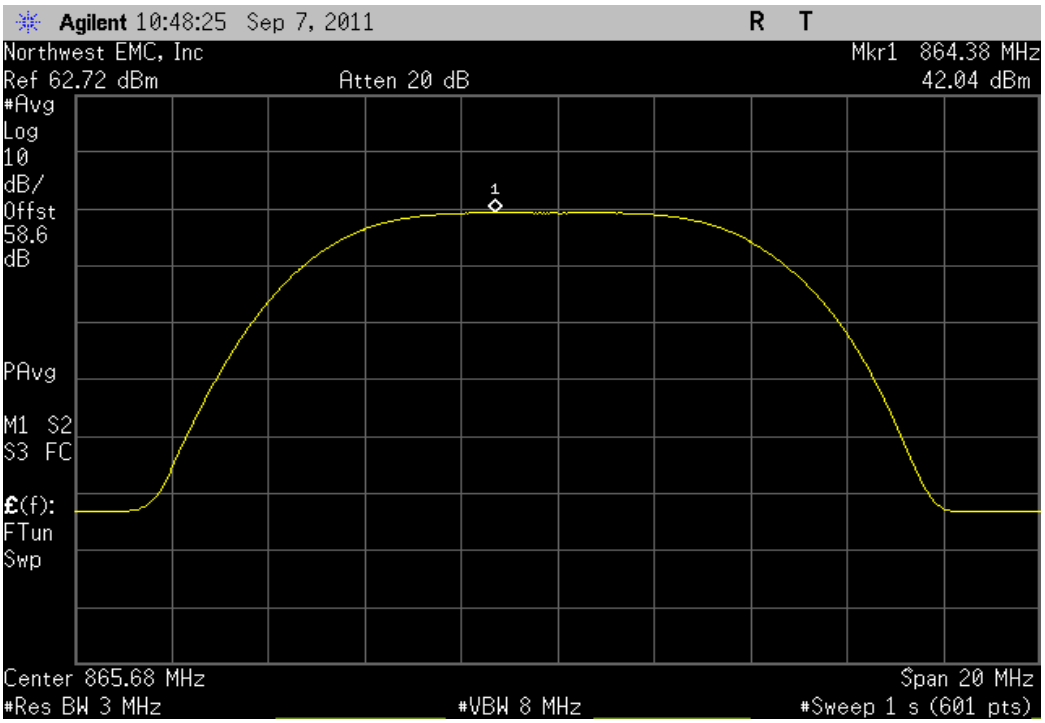
CDMA, Port B, Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)

				Value	Limit	Result
				42.74 dBm	54 dBm	Pass



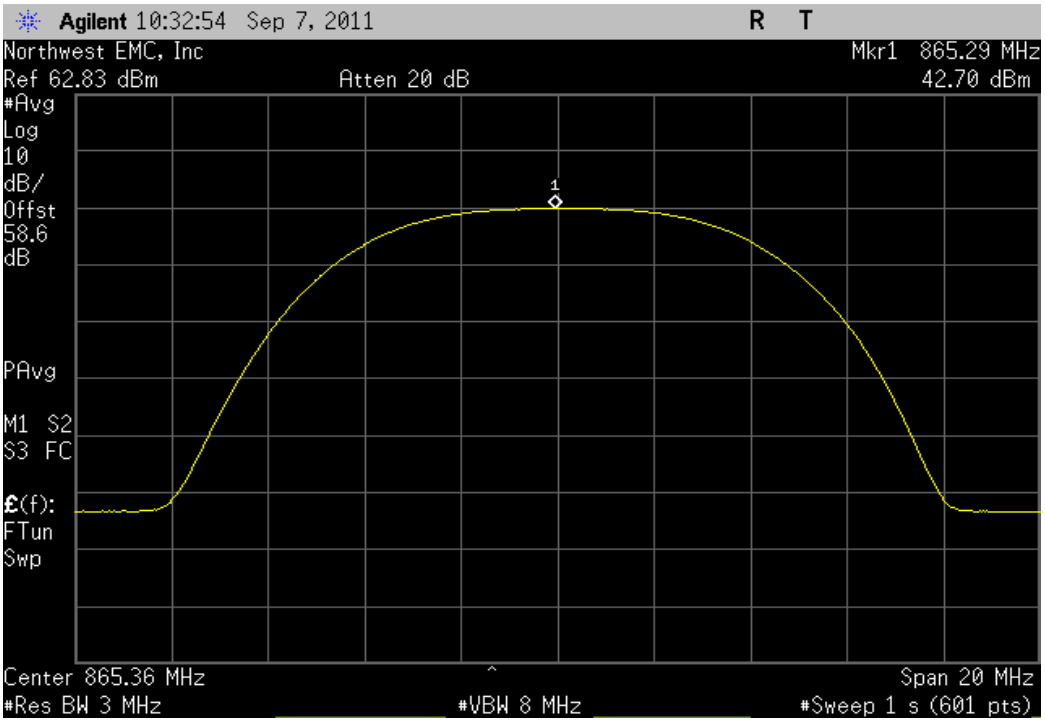
CDMA, Port B, Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MHz)

				Value	Limit	Result
				42.04 dBm	54 dBm	Pass



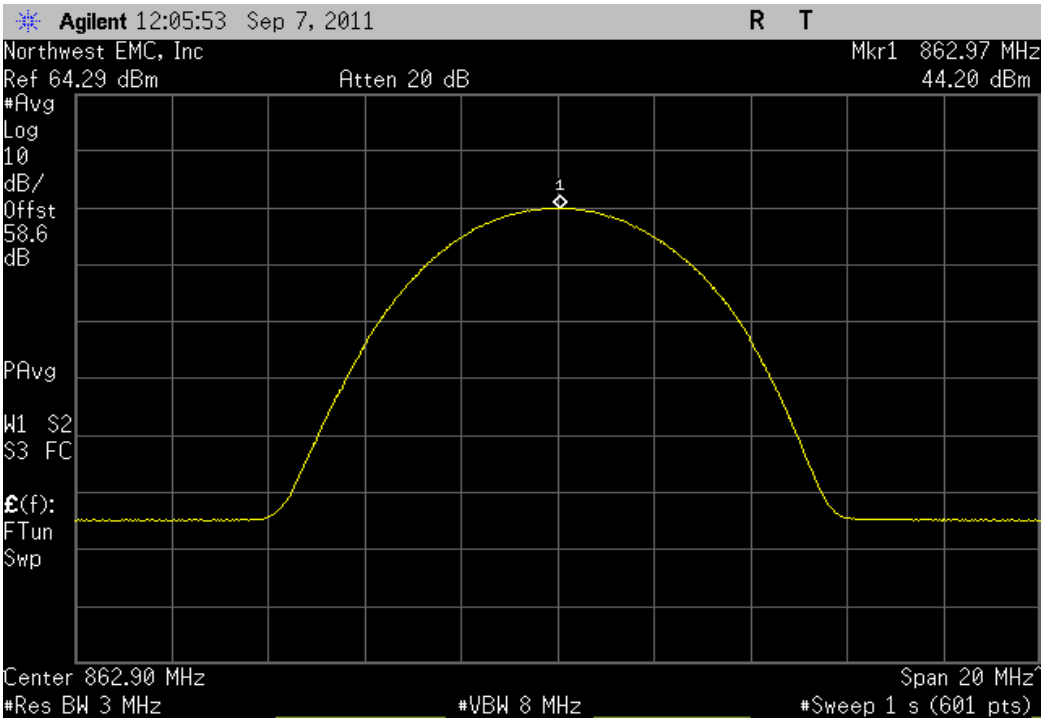
CDMA, Port B, Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)

				Value	Limit	Result
				42.70 dBm	54 dBm	Pass



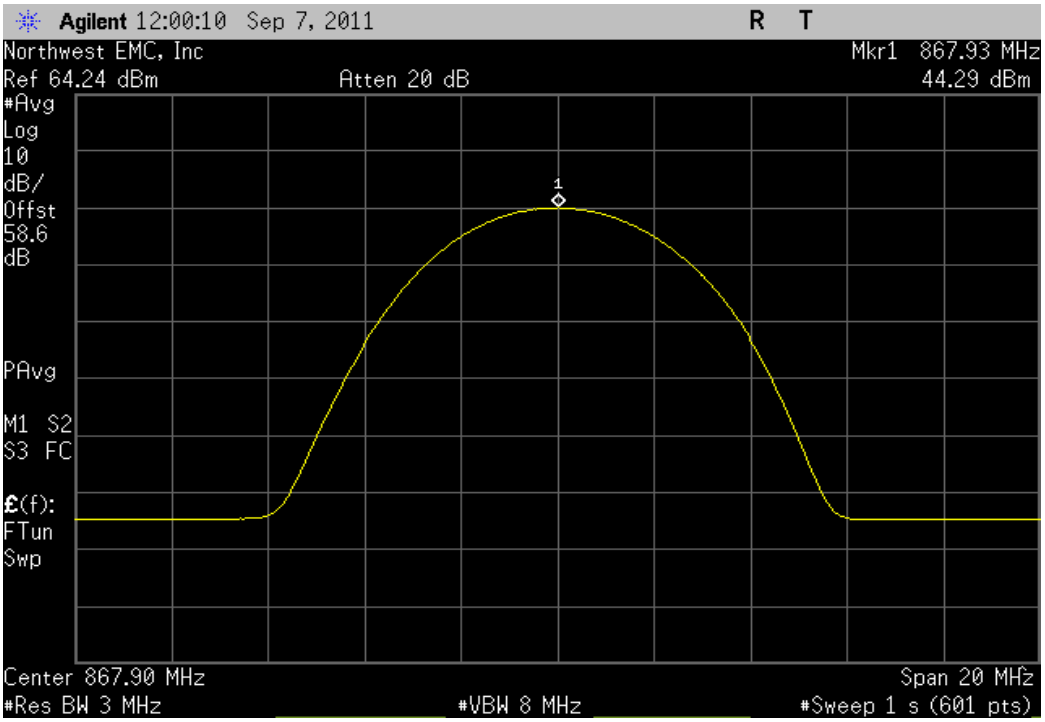
EVDO, Port A, Single Carrier, Low Channel, 862.9 MHz

				Value	Limit	Result
				44.20 dBm	54 dBm	Pass



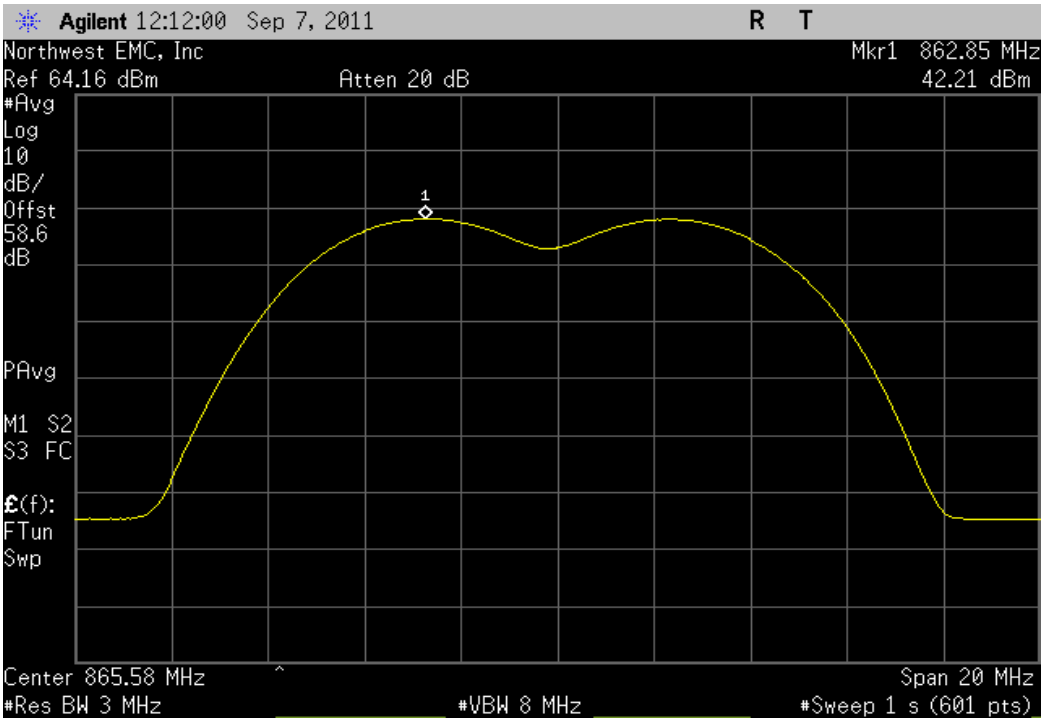
EVDO, Port A, Single Carrier, High Channel, 867.9 MHz

				Value	Limit	Result
				44.29 dBm	54 dBm	Pass



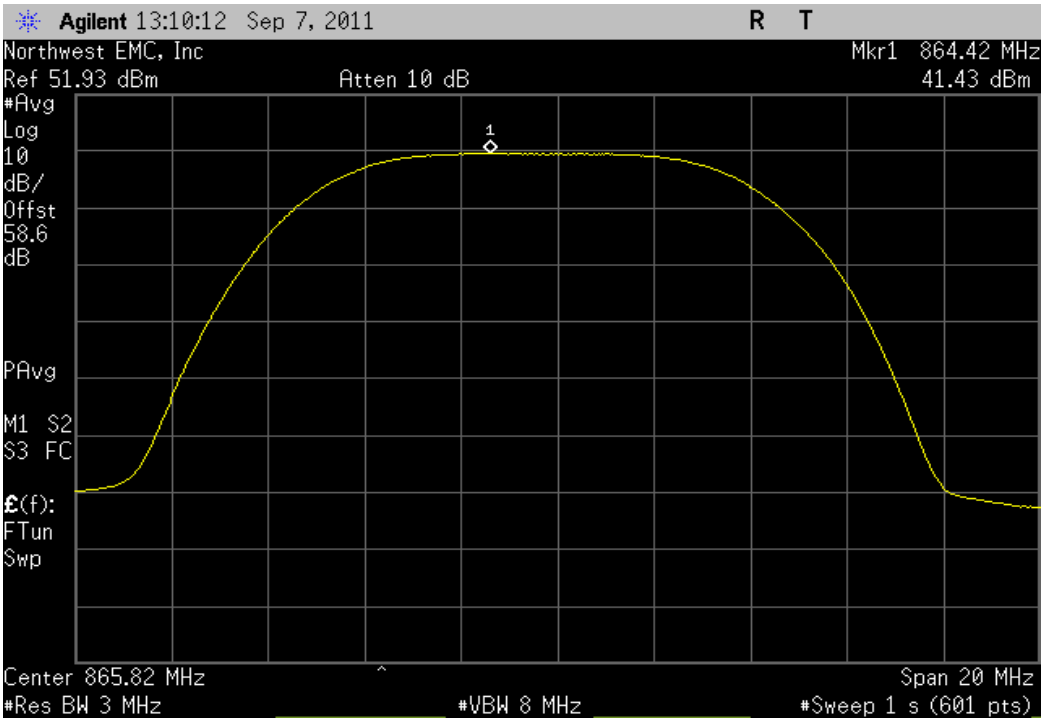
EVDO, Port A, Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)

				Value	Limit	Result
				42.21 dBm	54 dBm	Pass



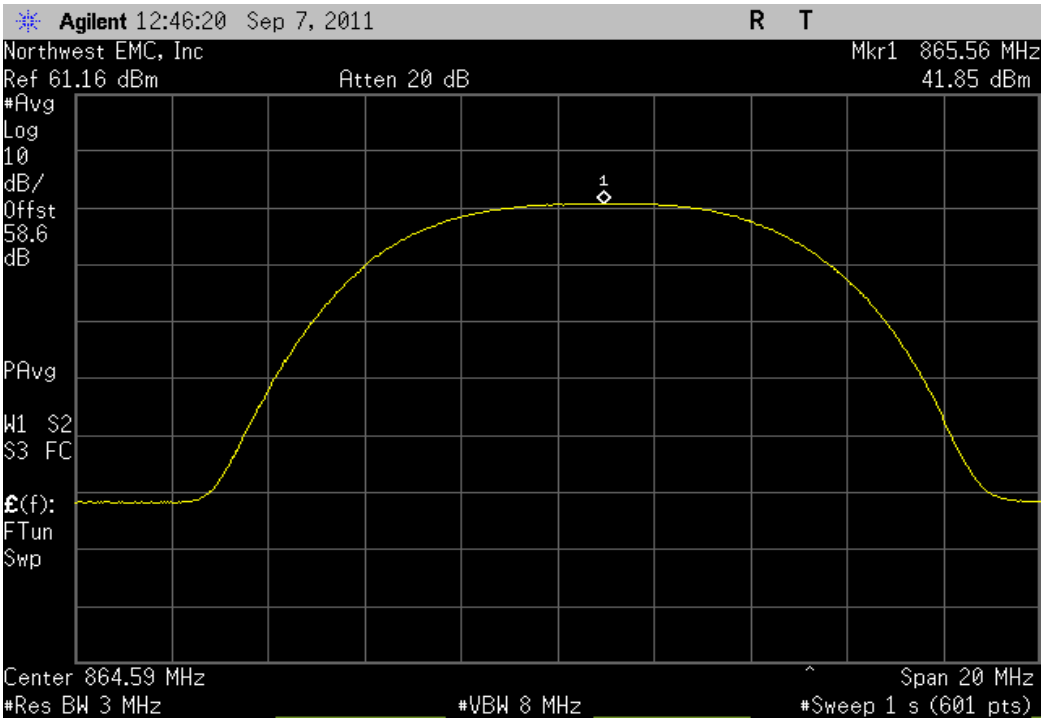
EVDO, Port A, Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MHz)

				Value	Limit	Result
				41.43 dBm	54 dBm	Pass



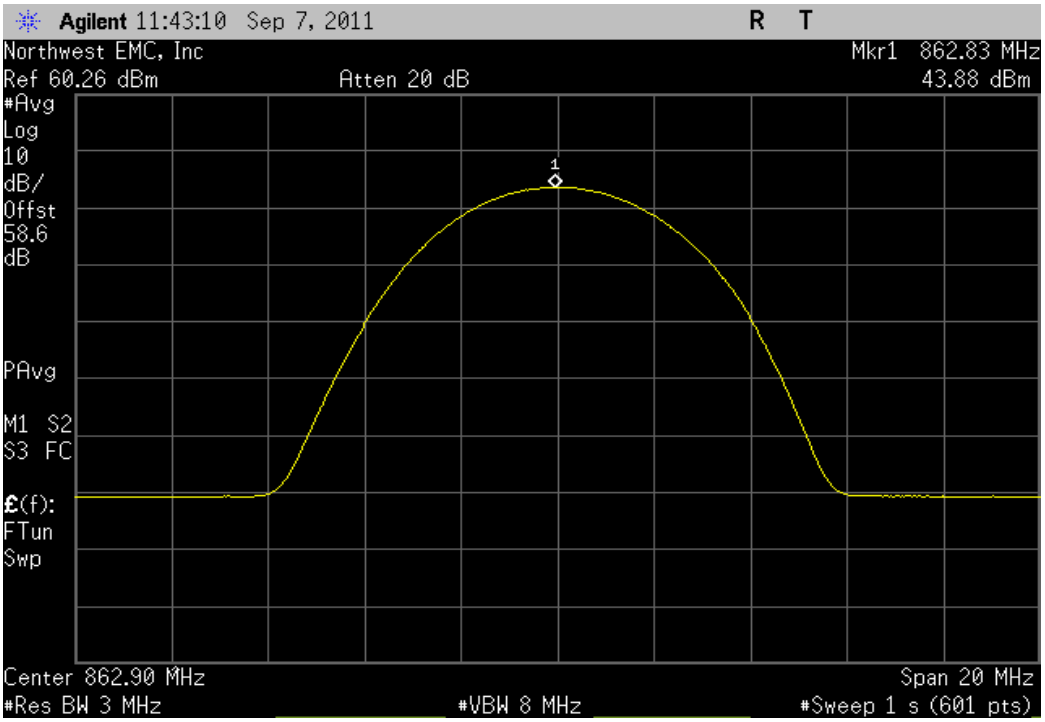
EVDO, Port A, Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)

				Value	Limit	Result
				41.85 dBm	54 dBm	Pass



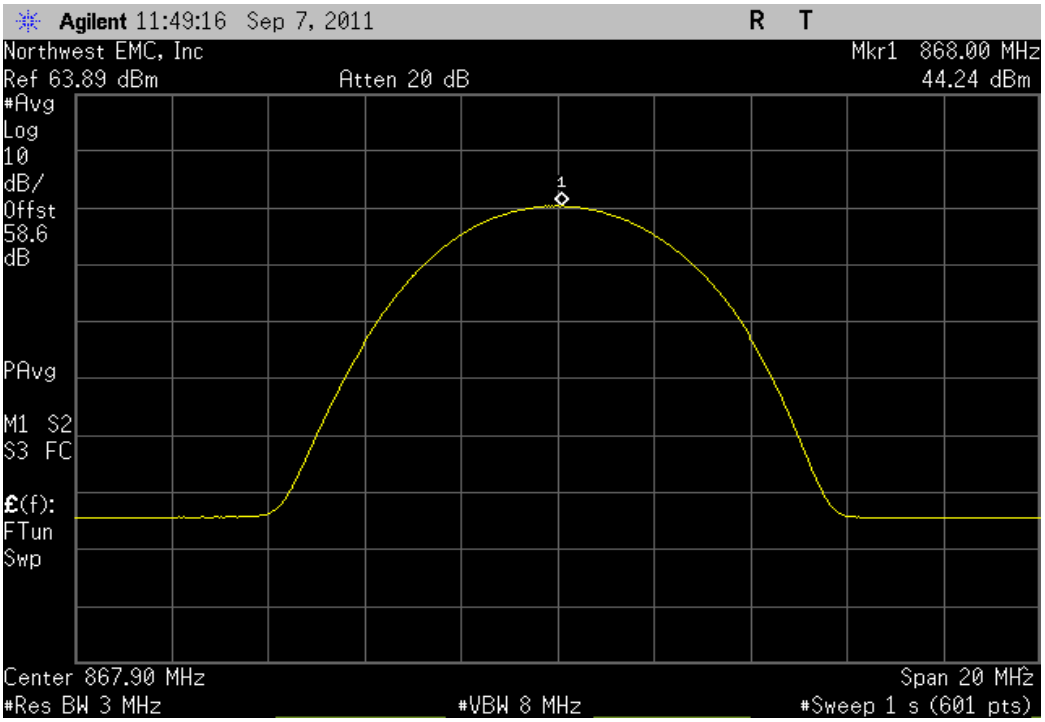
EVDO, Port B, Single Carrier, Low Channel, 862.9 MHz

				Value	Limit	Result
				43.88 dBm	54 dBm	Pass



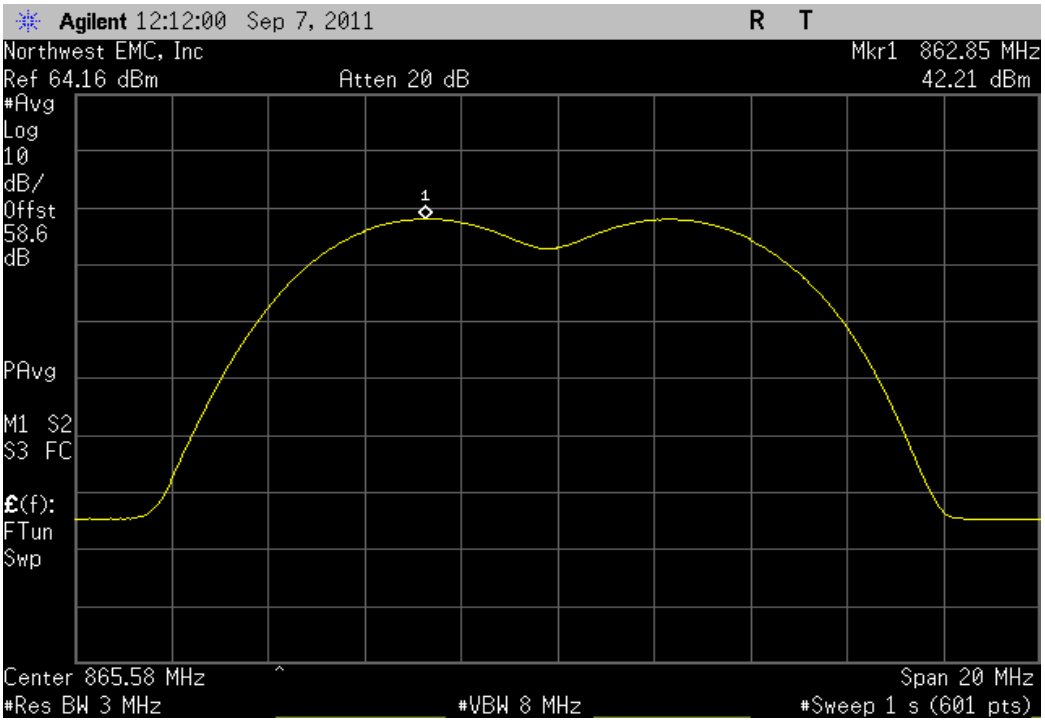
EVDO, Port B, Single Carrier, High Channel, 867.9 MHz

				Value	Limit	Result
				44.24 dBm	54 dBm	Pass



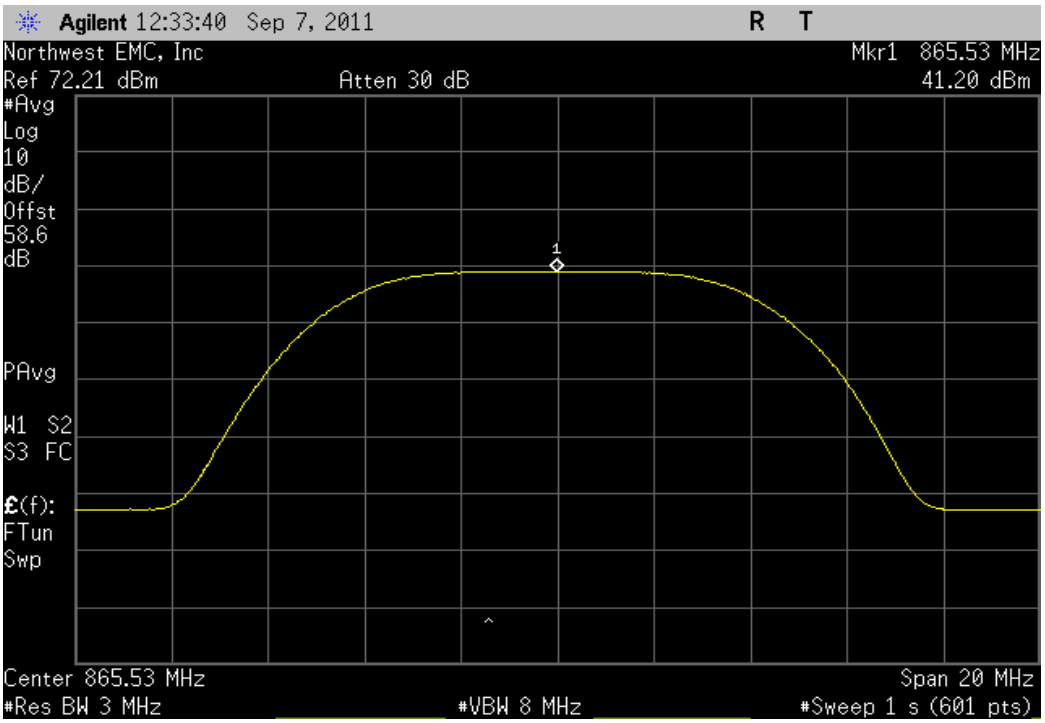
EVDO, Port B, Multi [2FA] Carrier, (862.9 MHz, 867.9 MHz)

				Value	Limit	Result
				42.21 dBm	54 dBm	Pass



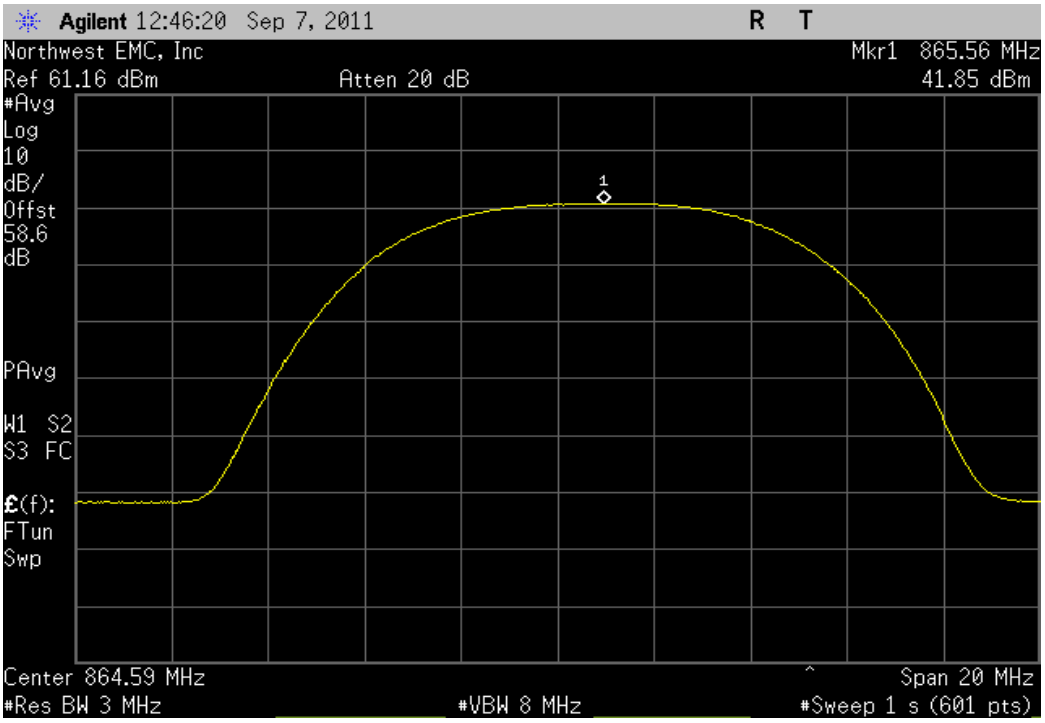
EVDO, Port B, Multi [3FA] Carrier, (862.9 MHz, 865.4 MHz, 867.9 MHz)

				Value	Limit	Result
				41.20 dBm	54 dBm	Pass



EVDO, Port B, Multi [5FA] Carrier, (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)

				Value	Limit	Result
				41.85 dBm	54 dBm	Pass



FREQUENCY STABILITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
MultiMeter	Fluke	79 III	MMD	1/26/2011	24
Power Sensor	Agilent	E4412A	SQE	4/21/2010	24
Power Sensor	Hewlett Packard	8481	SQP	6/7/2010	24
Power Meter	Hewlett Packard	E4418A	SPA	4/21/2010	24
Chamber, Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPHS-32-3.5-SCT/AC	TBE	6/8/2010	24
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12
DC Power Supply	Hewlett Packard	6574A	N/A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	N/A	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	N/A	NCR	N/A

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Corrmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
DC Power Supply	Hewlett Packard	6574A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Corrmunications	N/A	NCRA	N/A

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

Variation of Supply Voltage

The primary supply voltage was varied from 85% to 115% of nominal

Variation of Ambient Temperature

Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30 ° to +50° C) and at 10°C intervals.

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 mid channel of each band to determine frequency stability. If the frequency variation is less than 100 ppm, the EUT will meet the requirement of 15.407(g), that the emissions are maintained within the band of operation.

NORTHWEST EMC

FREQUENCY STABILITY

XMit 2010.07.29

EUT:	800MHz i-DEN RRH			Work Order:	KMWC0027
Serial Number:	U311210059			Date:	07/21/11
Customer:	KMW Communications			Temperature:	22.86°C
Attendees:	Joshua Jang			Humidity:	52%
Project:	None			Barometric Pres.:	1012.2
Tested by:	Jaemi Suh	Power:	48 VDC	Job Site:	OC13

TEST SPECIFICATIONS	TEST METHOD
FCC 90.213:2011	ANSI/TIA/EIA-603-C-2004

COMMENTS

Transmitting CW signal at 865.4 MHz.

DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

Low Channel, 5150 MHz - 5250 MHz Band

Frequency Stability with Variation of DC Voltage (Ambient Temperature = 20° C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
55.2 (115%)	865.400000	865.400228	0.26	1.5
52.8 (110%)	865.400000	865.400222	0.26	1.5
50.4 (105%)	865.400000	865.400222	0.26	1.5
48 (100%)	865.400000	865.400222	0.26	1.5
45.6 (95%)	865.400000	865.400218	0.25	1.5
43.2 (90%)	865.400000	865.400233	0.27	1.5
40.8 (85%)	865.400000	865.400222	0.26	1.5

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 48 VDC)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	865.400000	865.400228	0.26	1.5
40	865.400000	865.400232	0.27	1.5
30	865.400000	865.400223	0.26	1.5
20	865.400000	865.400222	0.26	1.5
10	865.400000	865.400222	0.26	1.5
0	865.400000	865.400227	0.26	1.5
-10	865.400000	865.400232	0.27	1.5
-20	865.400000	865.400222	0.26	1.5
-30	865.400000	865.400228	0.26	1.5

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
Signal Generator	Agilent	E8257D	TGU	1/26/2011	12
Power Sensor	Agilent	E4412A	SQE	4/21/2010	24
Power Meter	Hewlett Packard	E4418A	SPA	4/21/2010	24
Spectrum Analyzer	Agilent	E4440A	AFG	4/28/2011	12
DC Power Supply	Hewlett Packard	6574A	N/A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	N/A	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	N/A	NCR	N/A

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Cormmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Cormmunications	N/A	NCRA	N/A

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The 99% bandwidth was measured utilizing the analyzer's peak detector and measuring the carrier's 26 dB occupied bandwidth based on the peak output power level measured. A plot was taken to show the occupied bandwidth is contained within the allowable transmit band.

A direct connection was made between the EUT and a spectrum analyzer. The resolution bandwidth was approximately equal to 1% of the 20dB bandwidth and the video bandwidth was greater than or equal to the resolution bandwidth.

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

NORTHWEST EMC

OCCUPIED BANDWIDTH

XMit 2011.04.20
PsaTx 2011.06.20

EUT:	800MHz i-DEN RRH	Work Order:	KMWC0027
Serial Number:	U311210059	Date:	07/20/11
Customer:	KMW Communications	Temperature:	22.86°C
Attendees:	Joshua Jang	Humidity:	52%
Project:	None	Barometric Pres.:	1012.2
Tested by:	Jaemi Suh	Power: 48 VDC	Job Site: OC11

TEST SPECIFICATIONS	TEST METHOD
FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004

COMMENTS

Port B.

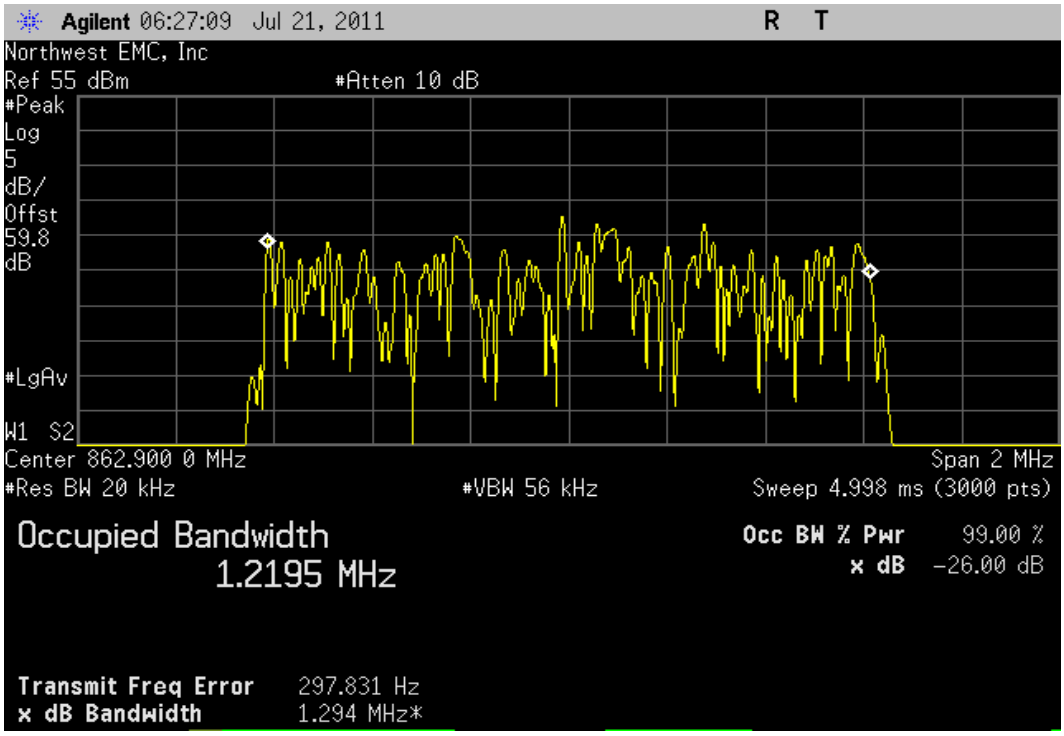
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

	Value	Limit	Result
CDMA Single Carrier			
Low Channel	1.294 MHz	N/A	N/A
Mid Channel	1.298 MHz	N/A	N/A
High Channel	1.296 MHz	N/A	N/A
EVDO Single Carrier			
Low Channel	1.294 MHz	N/A	N/A
Mid Channel	1.296 MHz	N/A	N/A
High Channel	1.293 MHz	N/A	N/A
LTE 1.4 MHz Single Carrier			
Low Channel	1.171 MHz	N/A	N/A
Mid Channel	1.171 MHz	N/A	N/A
High Channel	1.169 MHz	N/A	N/A
LTE 3 MHz Single Carrier			
Low Channel	2.813 MHz	N/A	N/A
Mid Channel	2.804 MHz	N/A	N/A
High Channel	2.811 MHz	N/A	N/A
LTE 5 MHz Single Carrier			
Low Channel	4.671 MHz	N/A	N/A
Mid Channel	4.675 MHz	N/A	N/A
High Channel	4.683 MHz	N/A	N/A

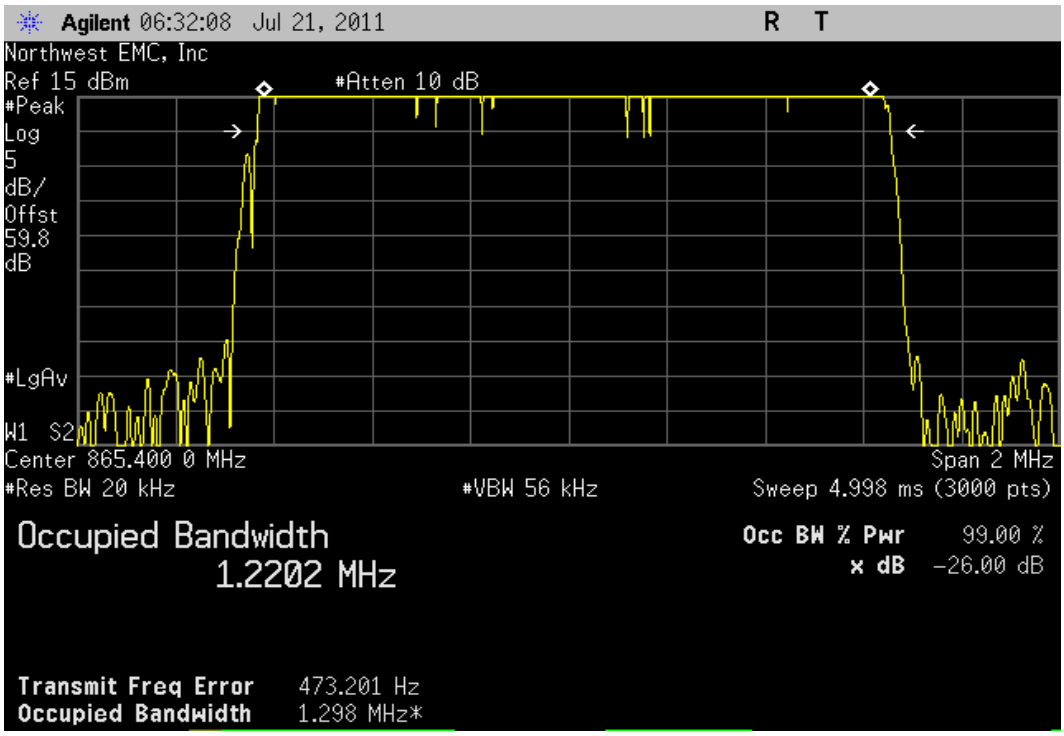
CDMA Single Carrier, Low Channel

				Value	Limit	Result
				1.294 MHz	N/A	N/A



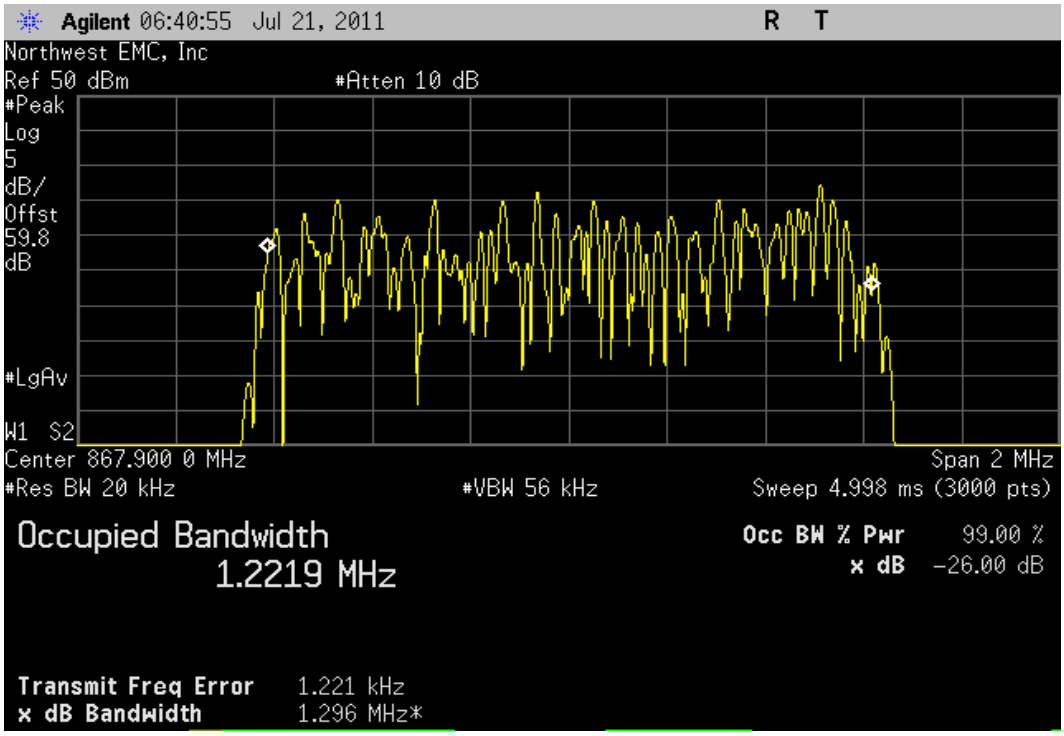
CDMA Single Carrier, Mid Channel

				Value	Limit	Result
				1.298 MHz	N/A	N/A



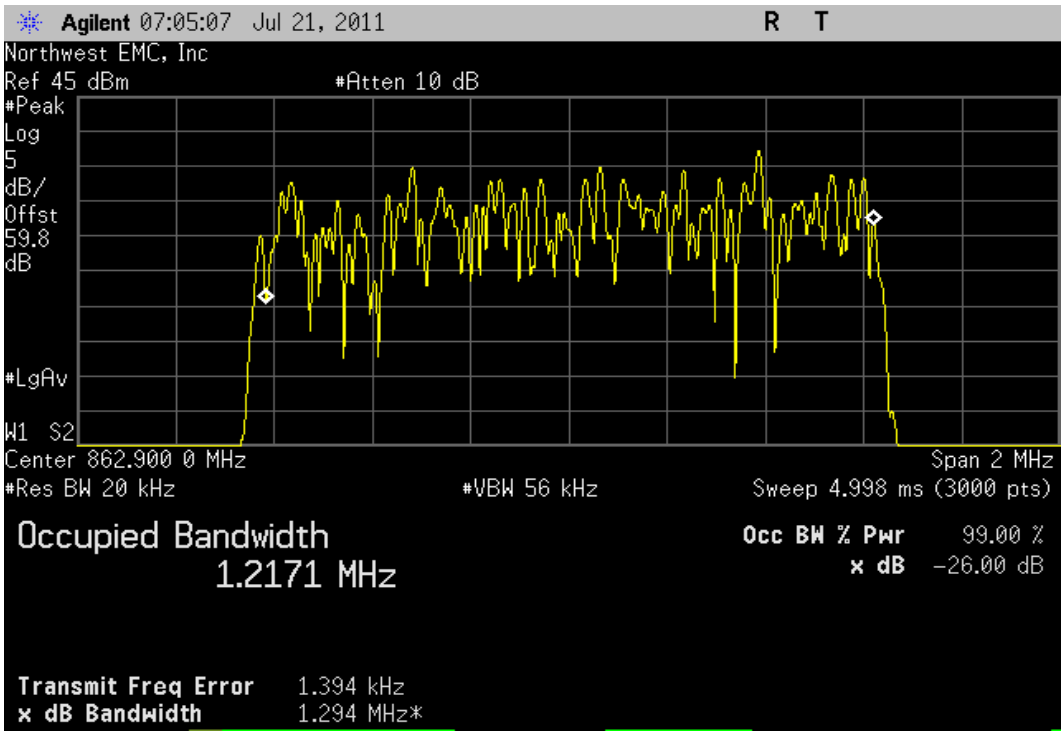
CDMA Single Carrier, High Channel

				Value	Limit	Result
				1.296 MHz	N/A	N/A



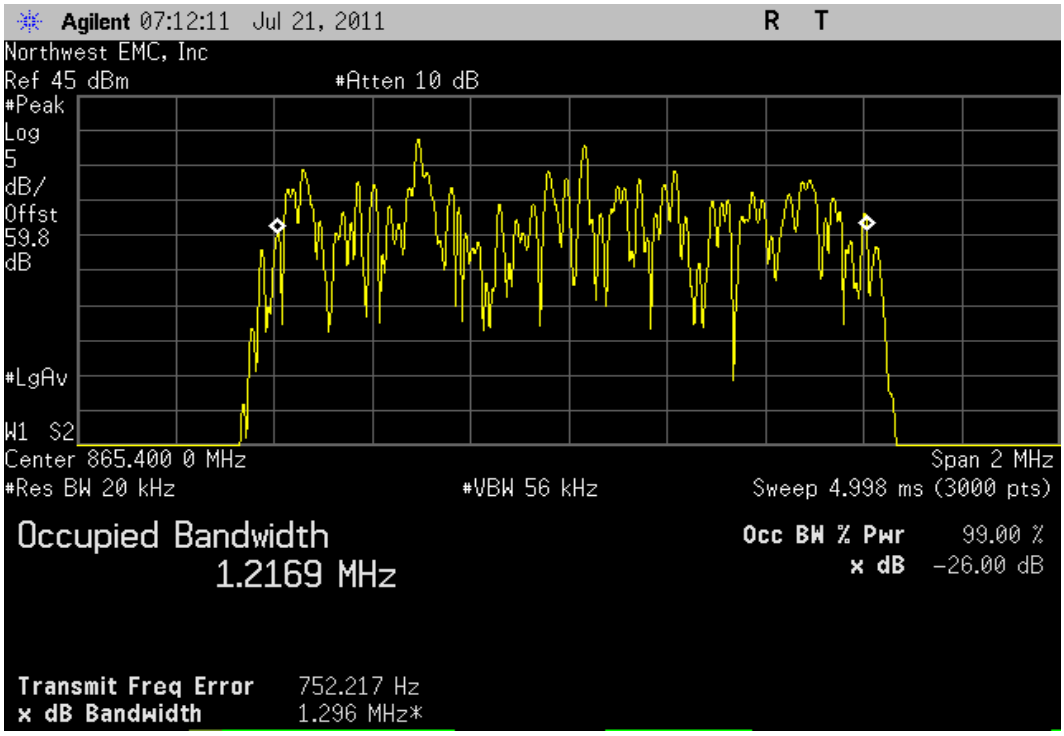
EVDO Single Carrier, Low Channel

				Value	Limit	Result
				1.294 MHz	N/A	N/A



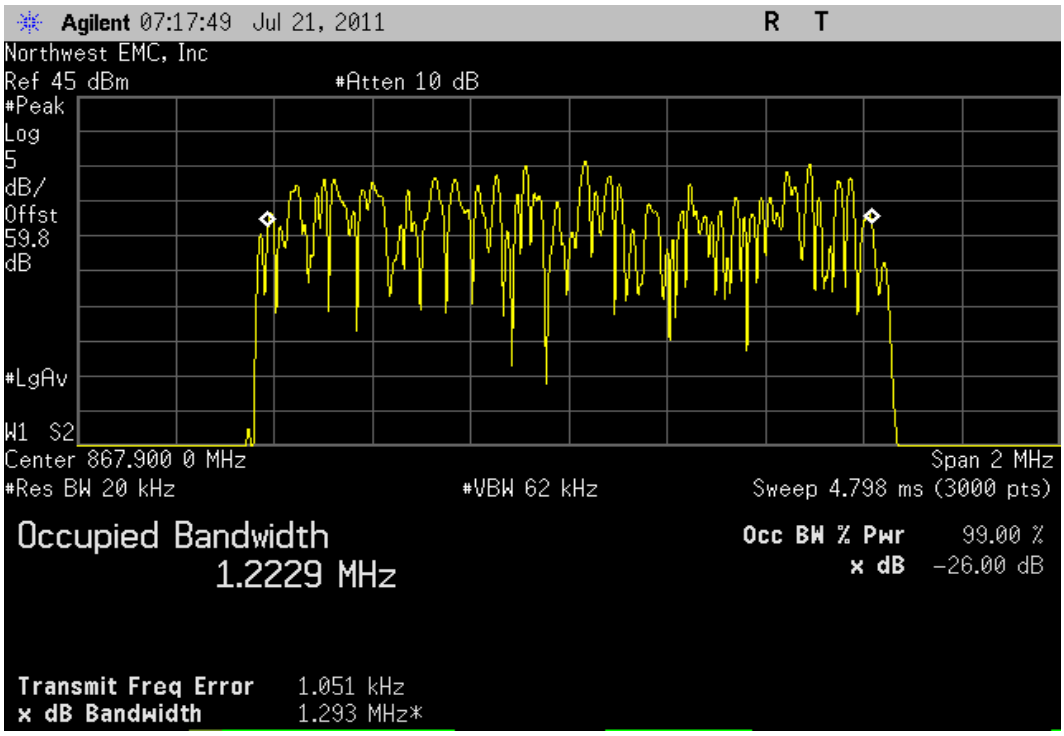
EVDO Single Carrier, Mid Channel

				Value	Limit	Result
				1.296 MHz	N/A	N/A



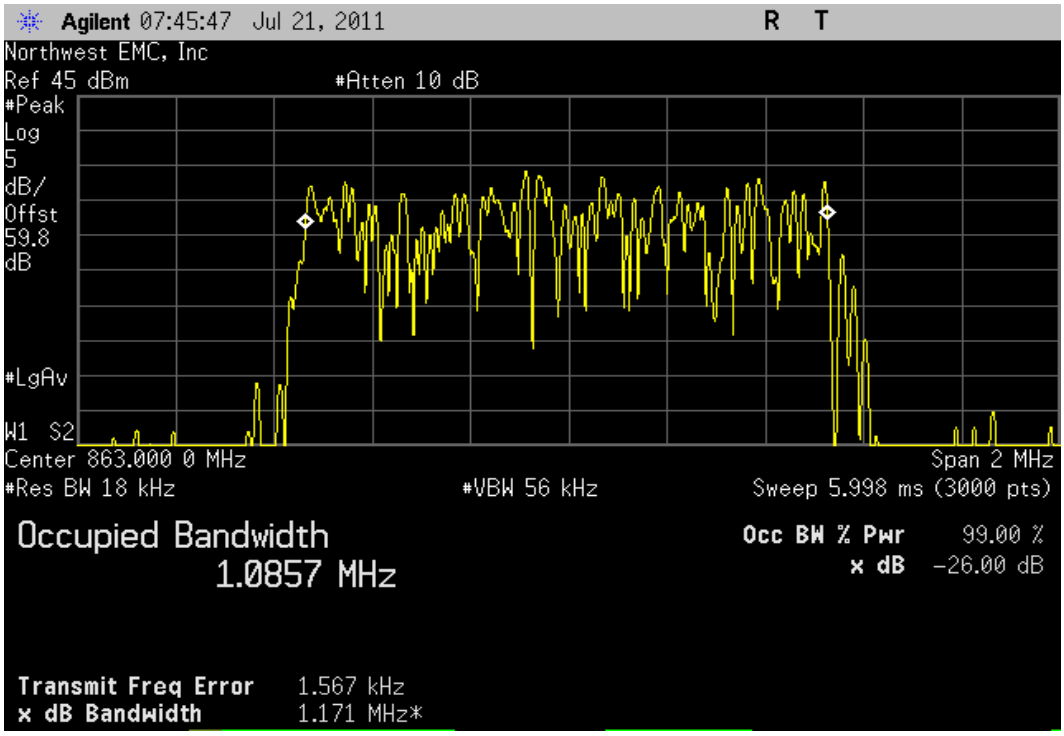
EVDO Single Carrier, High Channel

				Value	Limit	Result
				1.293 MHz	N/A	N/A



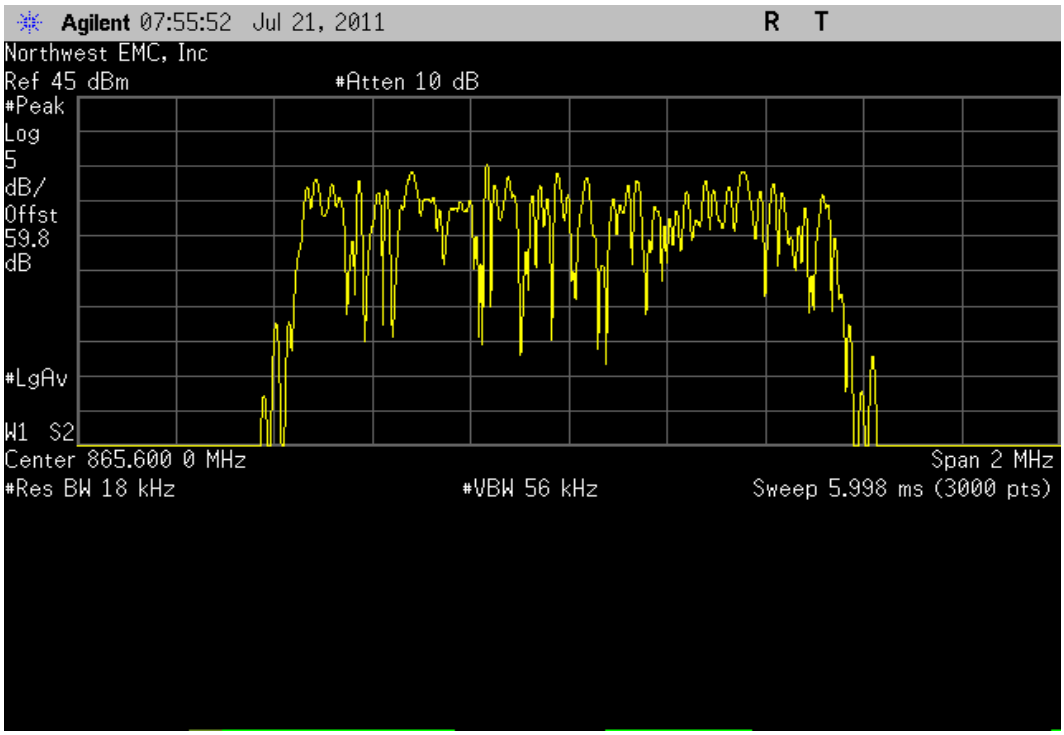
LTE 1.4 MHz Single Carrier, Low Channel

				Value	Limit	Result
				1.171 MHz	N/A	N/A



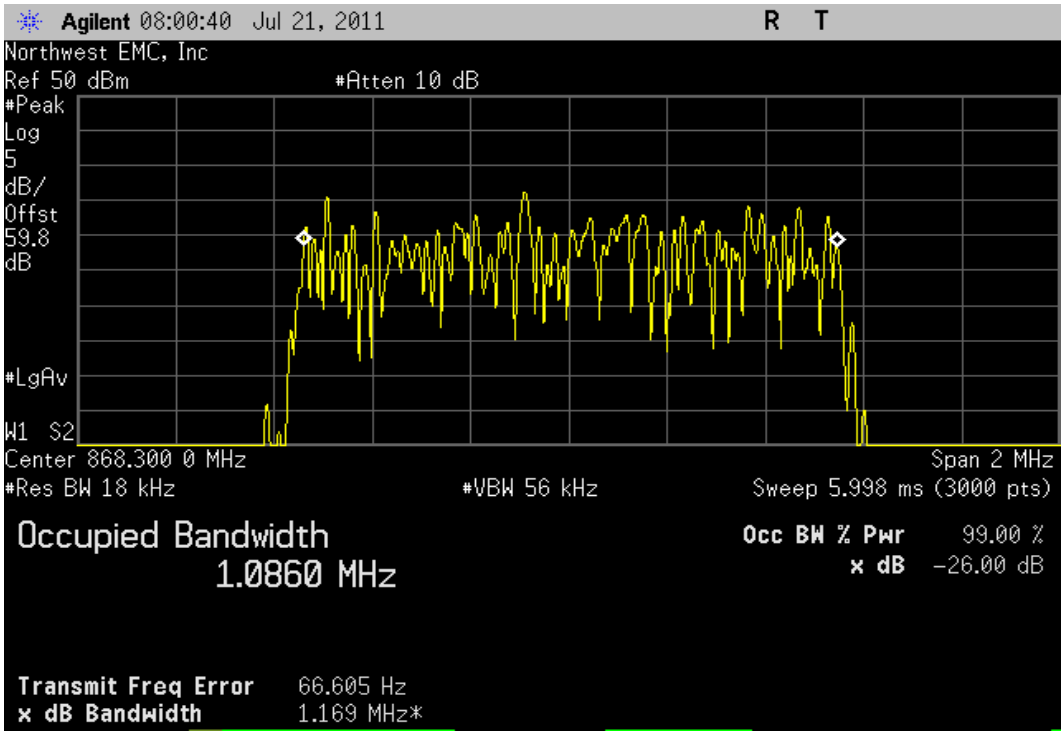
LTE 1.4 MHz Single Carrier, Mid Channel

				Value	Limit	Result
				1.171 MHz	N/A	N/A



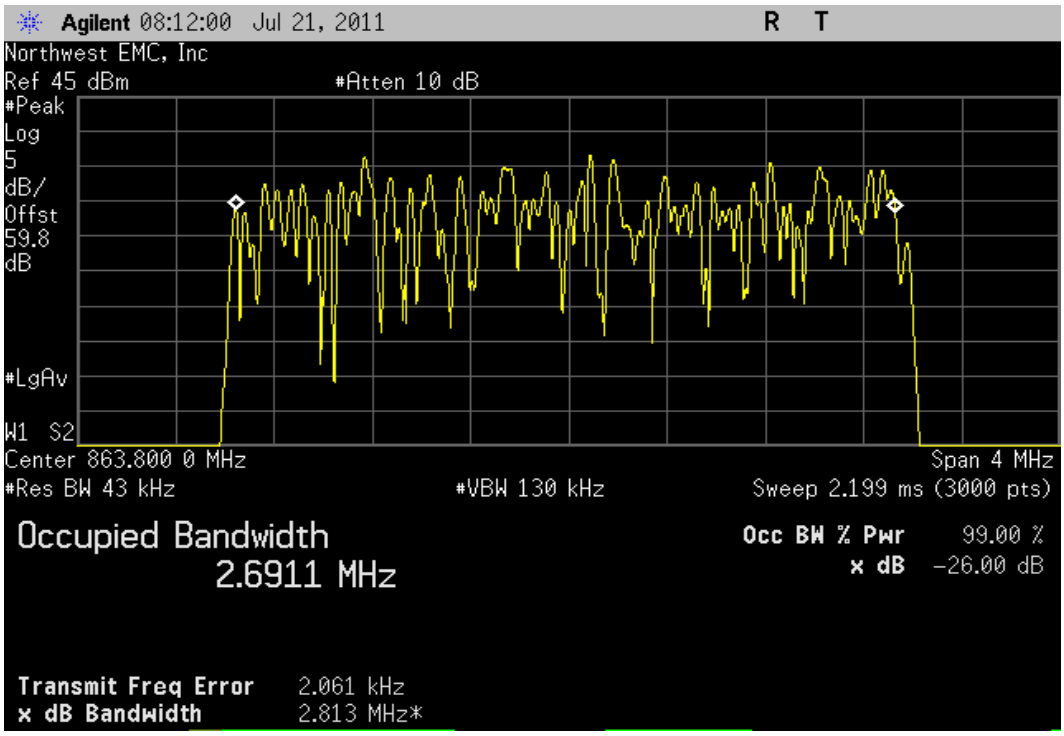
LTE 1.4 MHz Single Carrier, High Channel

				Value	Limit	Result
				1.169 MHz	N/A	N/A



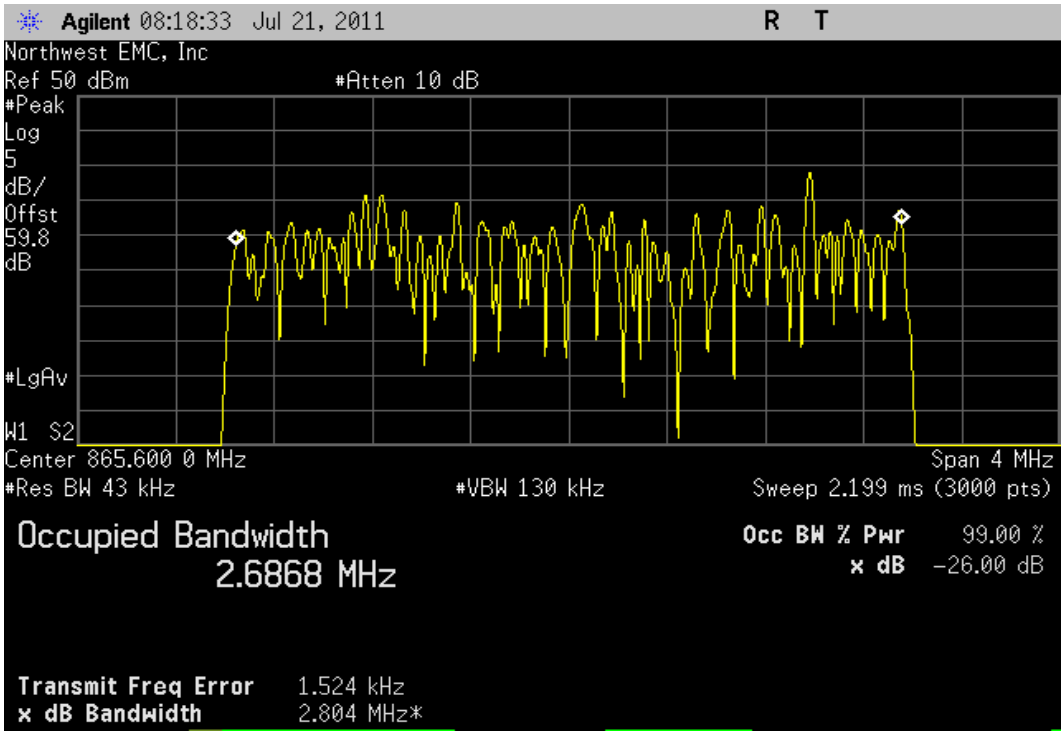
LTE 3 MHz Single Carrier, Low Channel

				Value	Limit	Result
				2.813 MHz	N/A	N/A



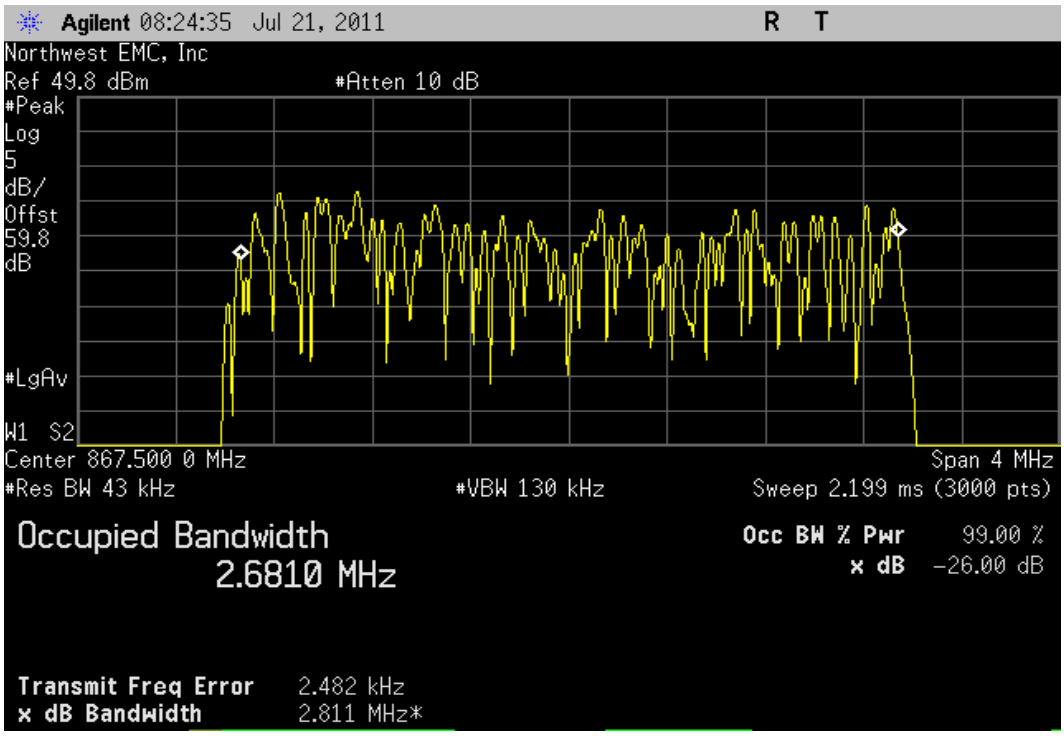
LTE 3 MHz Single Carrier, Mid Channel

				Value	Limit	Result
				2.804 MHz	N/A	N/A



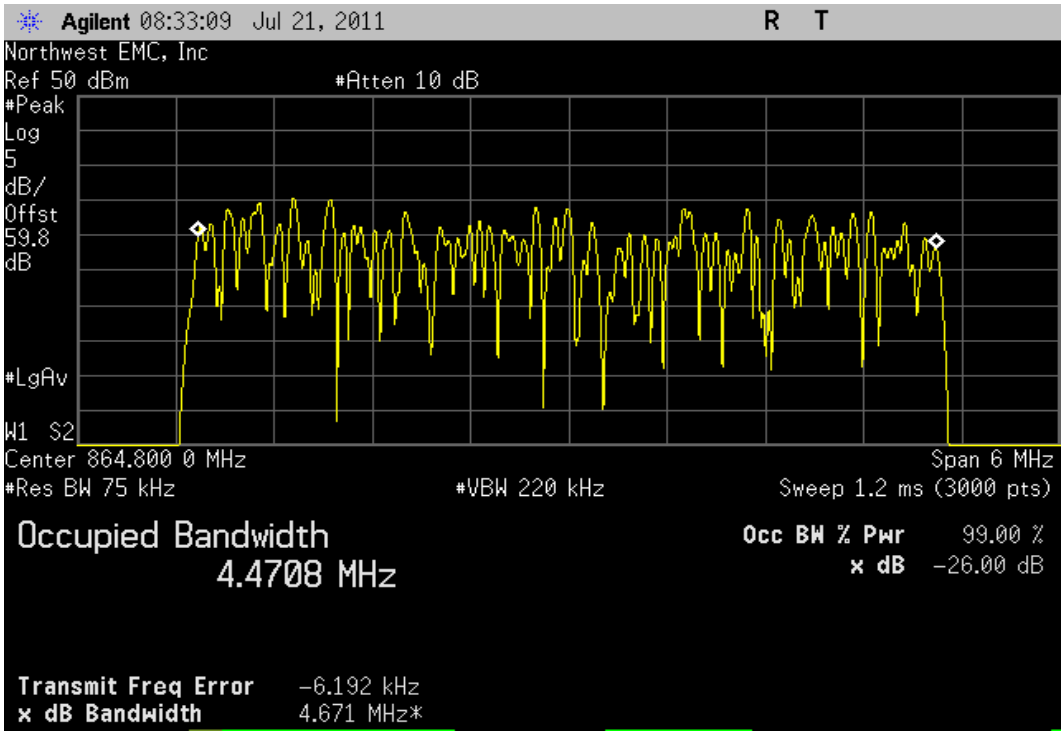
LTE 3 MHz Single Carrier, High Channel

				Value	Limit	Result
				2.811 MHz	N/A	N/A



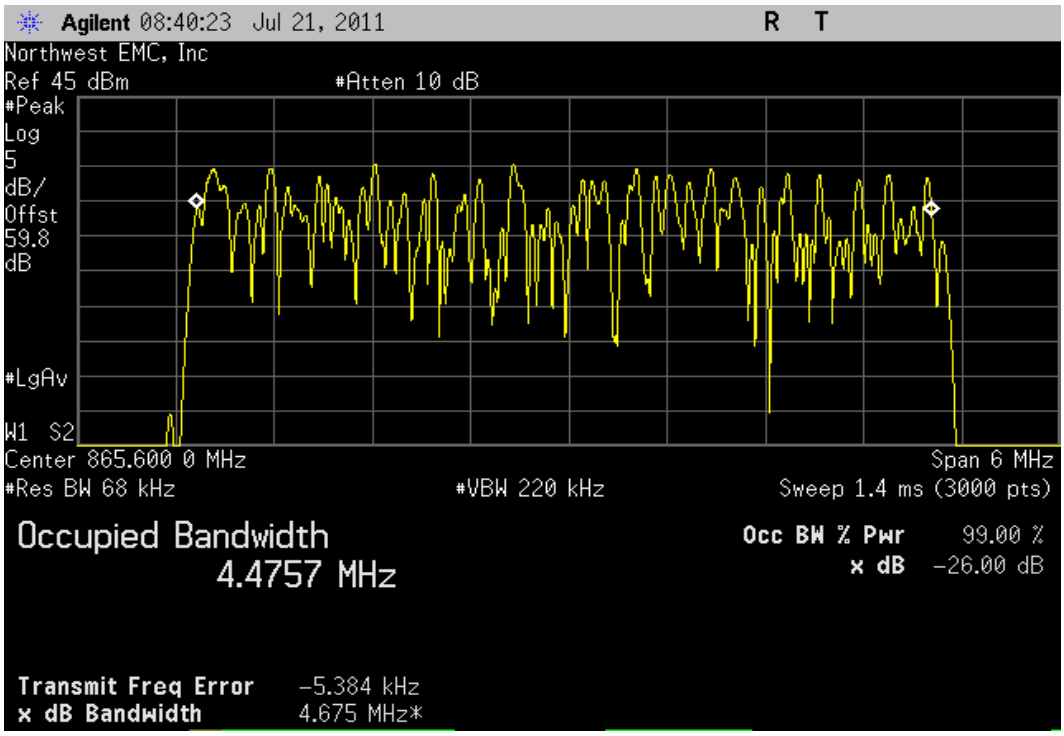
LTE 5 MHz Single Carrier, Low Channel

				Value	Limit	Result
				4.671 MHz	N/A	N/A



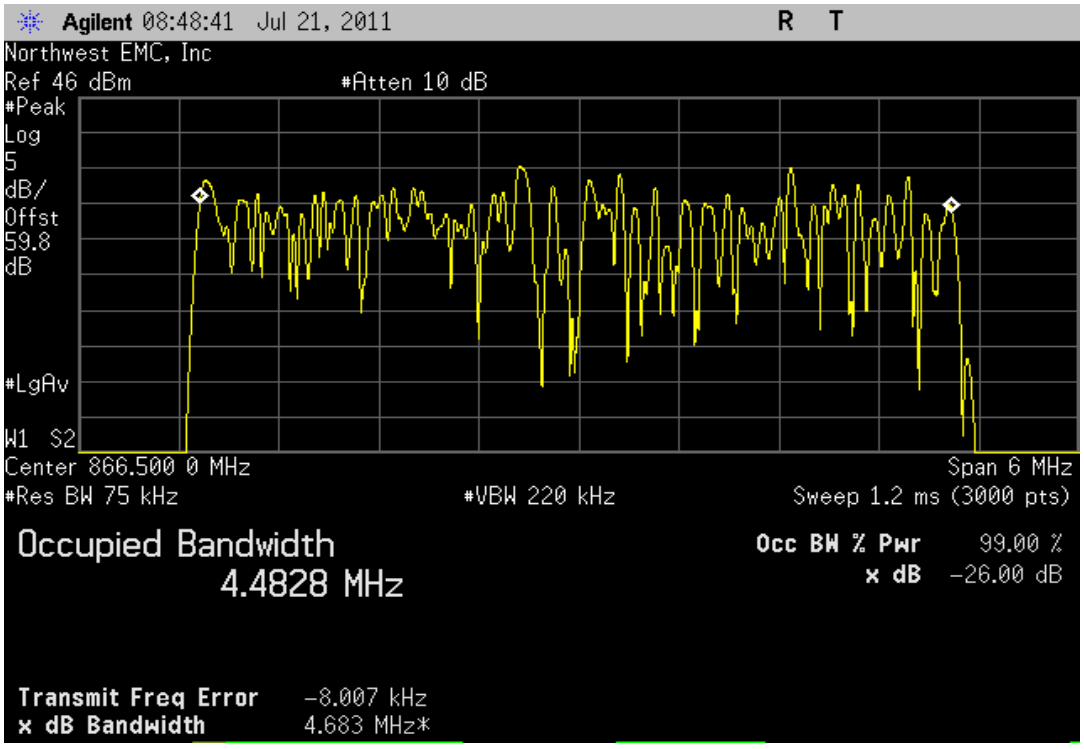
LTE 5 MHz Single Carrier, Mid Channel

				Value	Limit	Result
				4.675 MHz	N/A	N/A



LTE 5 MHz Single Carrier, High Channel

				Value	Limit	Result
				4.683 MHz	N/A	N/A



N/A N/A

SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS

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
Signal Generator	Agilent	E8257D	TGU	1/26/2011	12
Power Sensor	Agilent	E4412A	SQE	4/21/2010	24
Power Meter	Hewlett Packard	E4418A	SPA	4/21/2010	24
Spectrum Analyzer	Agilent	E4440A	AFG	4/28/2011	12
DC Power Supply	Hewlett Packard	6574A	N/A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	N/A	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	N/A	NCR	N/A

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Cormmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Cormmunications	N/A	NCRA	N/A

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the UET with 60dB of external attenuation on the RF input of the spectrum analyzer. Analyzer plots were made for each modulation type. The peak conducted power of spurious emissions, up to the 10^{th} harmonic of the transmit frequency, were investigated to ensure they were less than or equal to -13 dBm.

NORTHWEST EMC

SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS

XMit 2011.04.20
PsaTx 2011.06.20

EUT:	800MHz i-DEN RRH	Work Order:	KMWC0027
Serial Number:	U311210059	Date:	07/20/11
Customer:	KMW Communications	Temperature:	22.86°C
Attendees:	Joshua Jang	Humidity:	52%
Project:	None	Barometric Pres.:	1012.2
Tested by:	Jaemi Suh	Power: 48 VDC	Job Site: OC11

TEST SPECIFICATIONS	TEST METHOD
FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004

COMMENTS

None.

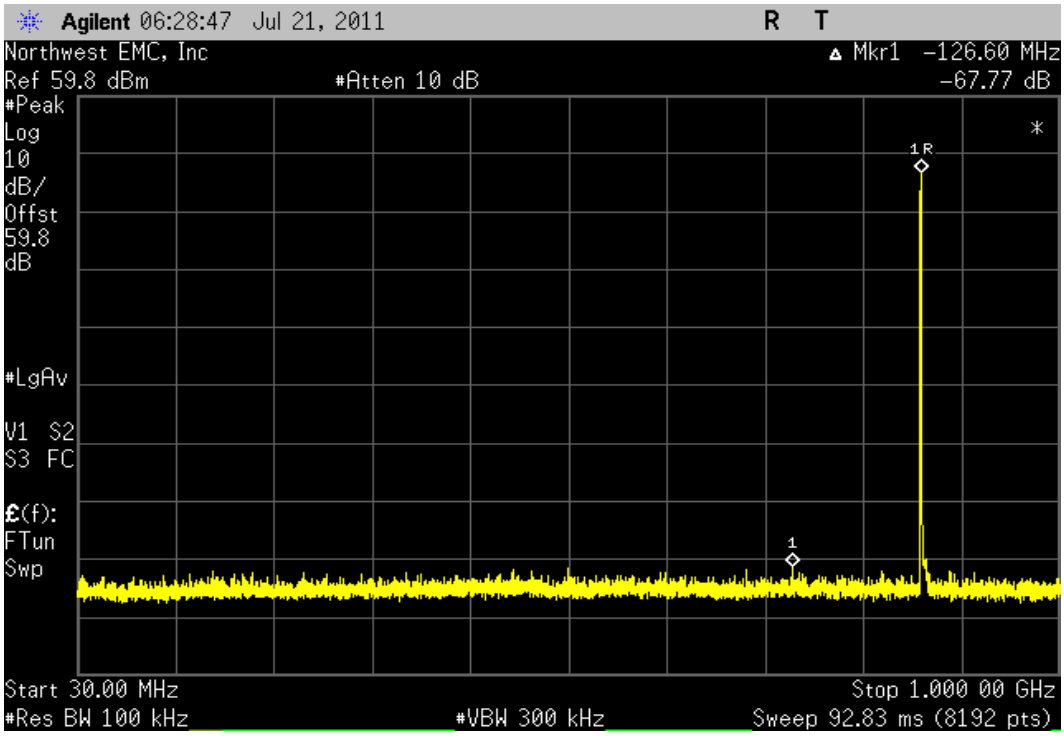
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

		Frequency Range	Value	Limit	Result
CDMA Single Carrier					
	Low Channel	30 MHz - 1 GHz	-67.77 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-64.12 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-67.3 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-63.19 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-68.84 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-64.26 dBc	≤ -13 dBc	Pass
CDMA Multi Carrier [2FA]					
	Low Channel	30 MHz - 1 GHz	-64.36 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-60.38 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-64.93 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-61.35 dBc	≤ -13 dBc	Pass
CDMA Multi Carrier [3FA]					
	Low Channel	30 MHz - 1 GHz	-62.65 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-58.54 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-63.22 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-59.15 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-62.55 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-58.92 dBc	≤ -13 dBc	Pass
CDMA Multi Carrier [5FA]					
	All Channels	30 MHz - 1 GHz	-61.35 dBc	≤ -13 dBc	Pass
	All Channels	1 GHz - 12.5 GHz	-57.18 dBc	≤ -13 dBc	Pass
EVDO Single Carrier					
	Low Channel	30 MHz - 1 GHz	-66.76 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-62.02 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-66.39 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-62.46 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-67.08 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-63.43 dBc	≤ -13 dBc	Pass
EVDO Multi Carrier [2FA]					
	Low Channel	30 MHz - 1 GHz	-64.22 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-60.54 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-65.02 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-61.02 dBc	≤ -13 dBc	Pass
EVDO Multi Carrier [3FA]					
	Low Channel	30 MHz - 1 GHz	-63.87 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-60.2 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-63 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-58.44 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-61.45 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-57.66 dBc	≤ -13 dBc	Pass
EVDO Multi Carrier [5FA]					
	All Channels	30 MHz - 1 GHz	-60.69 dBc	≤ -13 dBc	Pass
	All Channels	1 GHz - 12.5 GHz	-56.76 dBc	≤ -13 dBc	Pass
LTE 1.4 MHz Single Carrier					
	Low Channel	30 MHz - 1 GHz	-66.61 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-62.68 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-67.59 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-63.9 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-67.03 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-63.35 dBc	≤ -13 dBc	Pass
LTE 3 MHz Single Carrier					
	Low Channel	30 MHz - 1 GHz	-63.15 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-59.72 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-63.52 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-59.54 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-64.47 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-60.22 dBc	≤ -13 dBc	Pass
LTE 5 MHz Single Carrier					
	Low Channel	30 MHz - 1 GHz	-60.38 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-57.43 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-62.12 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-58.44 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-61.83 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-57.25 dBc	≤ -13 dBc	Pass
LTE 1.4 MHz Multi Carrier [2FA]					
	Low Channel	30 MHz - 1 GHz	-65.11 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-61.01 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-64.75 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-60.9 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-63.81 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-60.12 dBc	≤ -13 dBc	Pass
	Low(2) Channel	30 MHz - 1 GHz	-64.55 dBc	≤ -13 dBc	Pass
	Low(2) Channel	1 GHz - 12.5 GHz	-60.54 dBc	≤ -13 dBc	Pass
	Mid(2) Channel	30 MHz - 1 GHz	-63.81 dBc	≤ -13 dBc	Pass
	Mid(2) Channel	1 GHz - 12.5 GHz	-59.17 dBc	≤ -13 dBc	Pass
	High(2) Channel	30 MHz - 1 GHz	-65.19 dBc	≤ -13 dBc	Pass
	High(2) Channel	1 GHz - 12.5 GHz	-61.07 dBc	≤ -13 dBc	Pass
LTE 3 MHz Multi Carrier [2FA]					
	Low Channel	30 MHz - 1 GHz	-60.67 dBc	≤ -13 dBc	Pass
	Low Channel	1 GHz - 12.5 GHz	-56.79 dBc	≤ -13 dBc	Pass
	Mid Channel	30 MHz - 1 GHz	-61.18 dBc	≤ -13 dBc	Pass
	Mid Channel	1 GHz - 12.5 GHz	-56.28 dBc	≤ -13 dBc	Pass
	High Channel	30 MHz - 1 GHz	-61.15 dBc	≤ -13 dBc	Pass
	High Channel	1 GHz - 12.5 GHz	-56.95 dBc	≤ -13 dBc	Pass

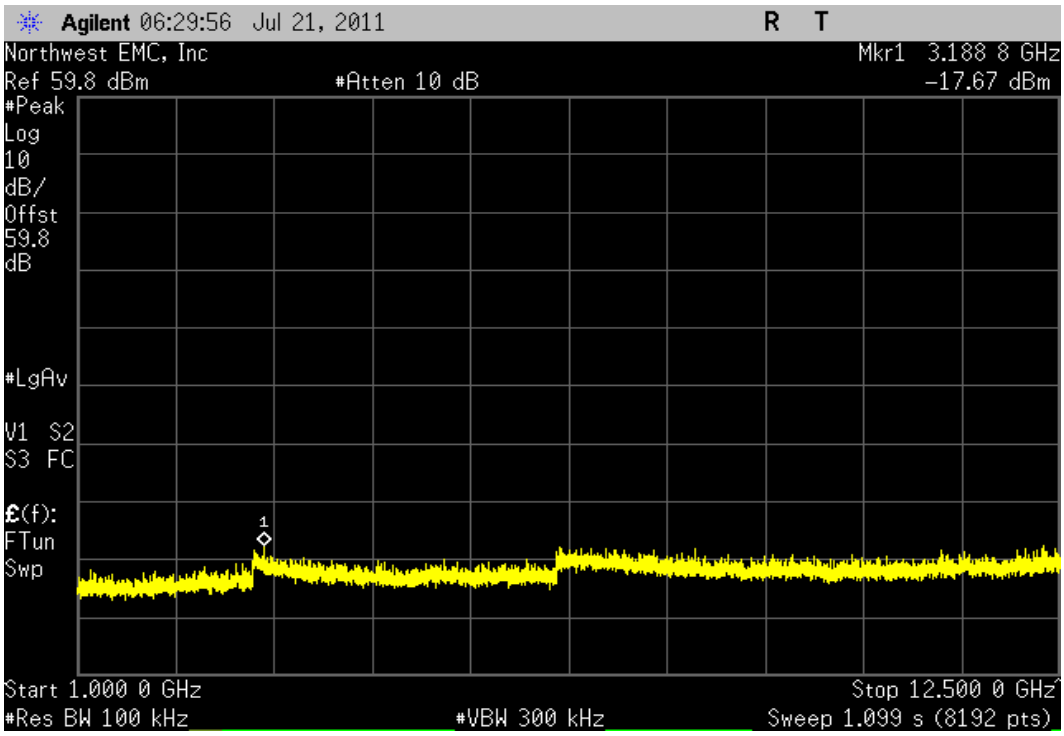
CDMA Single Carrier, Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-67.77 dBc	≤ -13 dBc	Pass



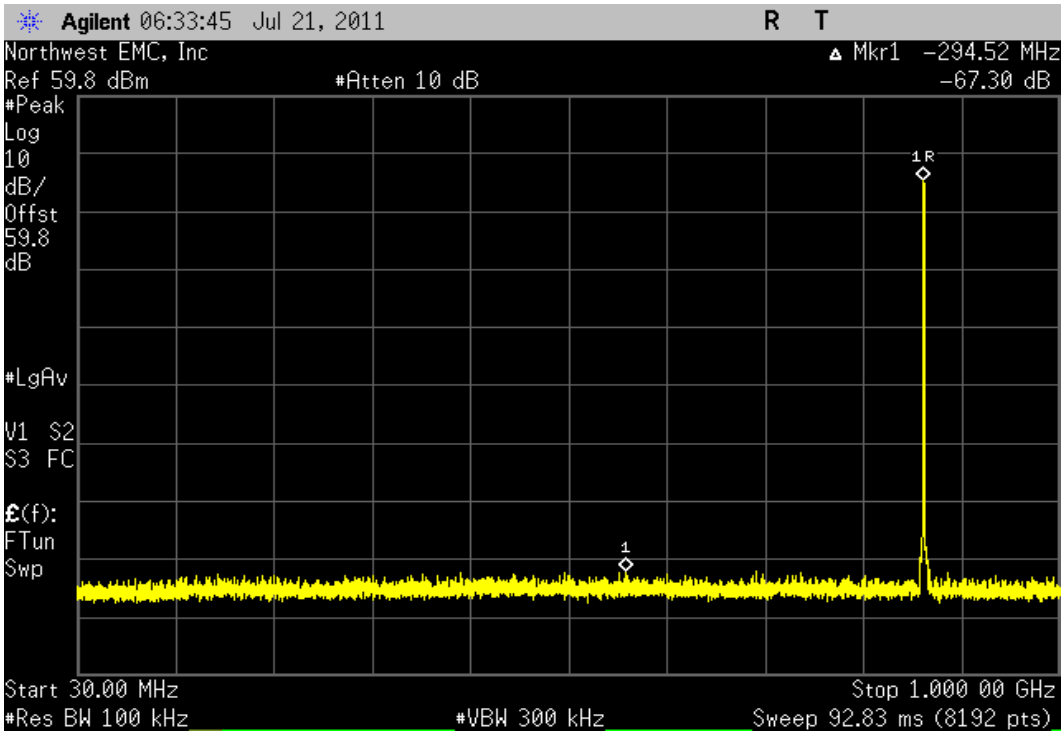
CDMA Single Carrier, Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-64.12 dBc	≤ -13 dBc	Pass



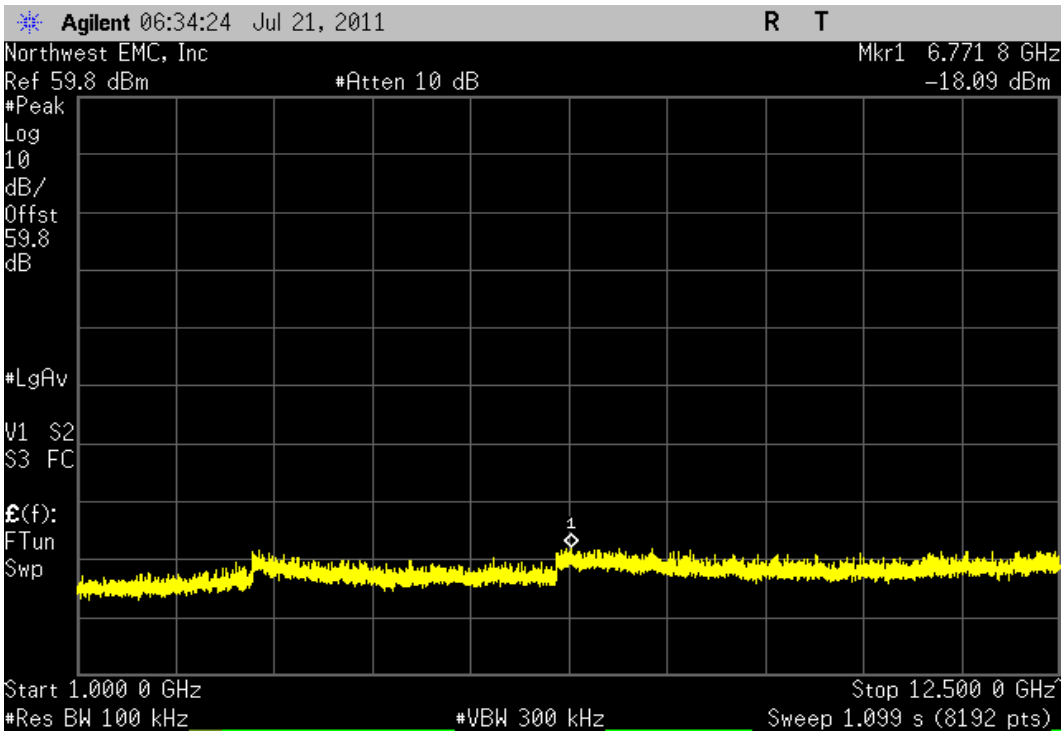
CDMA Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-67.3 dBc	≤ -13 dBc	Pass



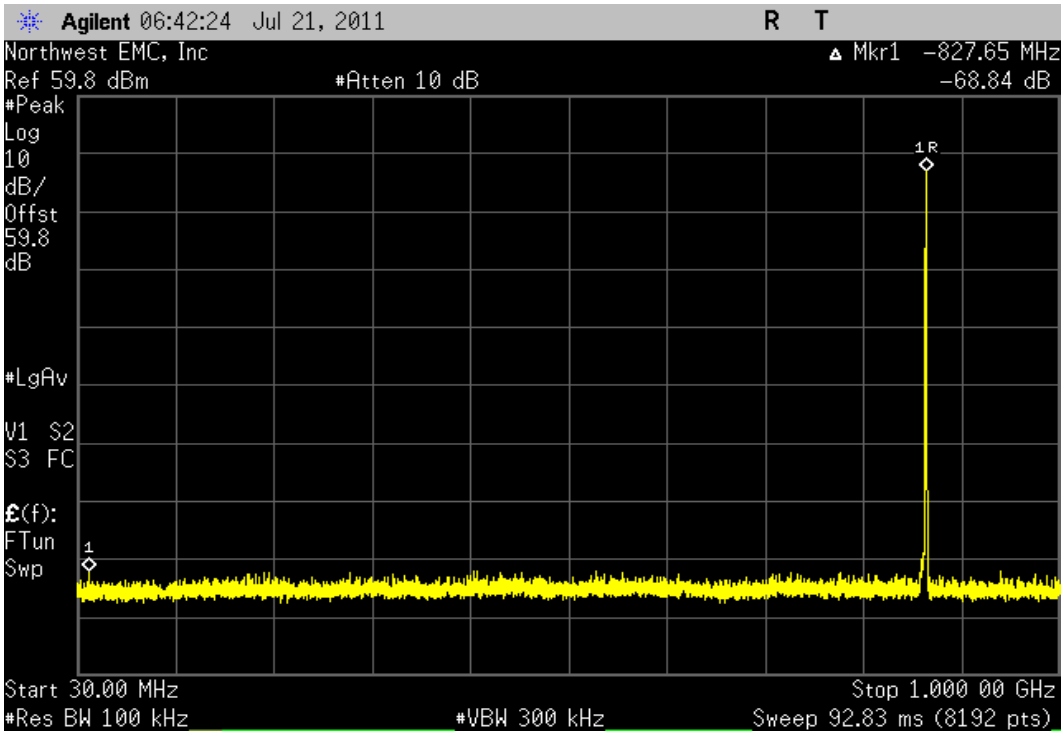
CDMA Single Carrier, Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-63.19 dBc	≤ -13 dBc	Pass



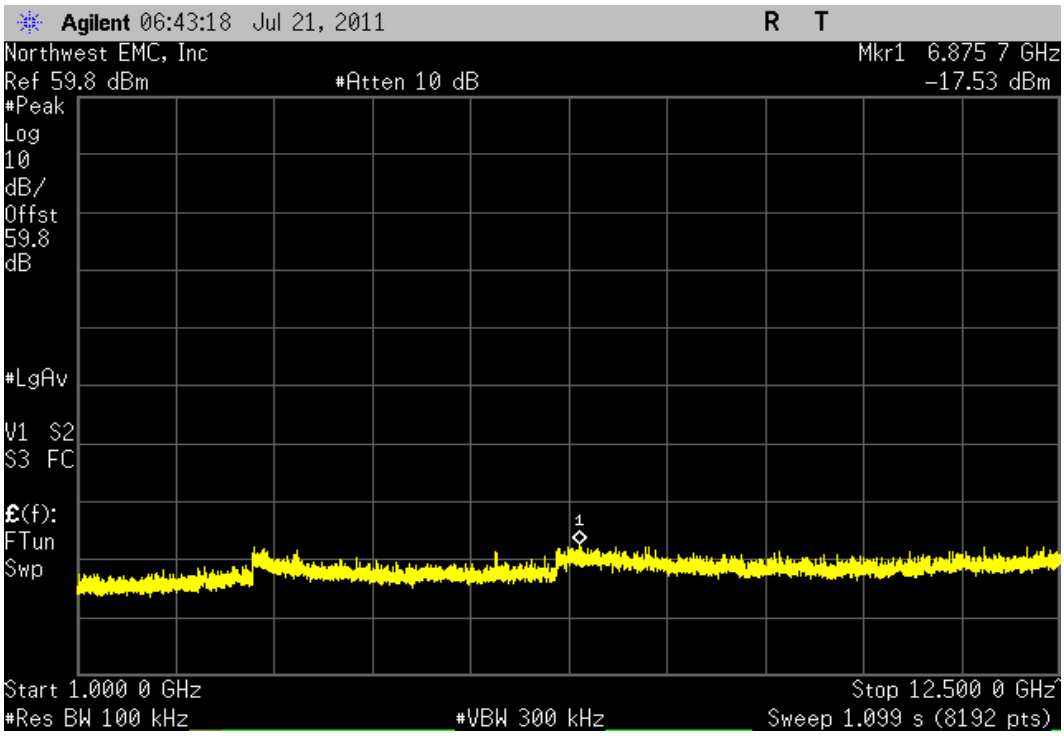
CDMA Single Carrier, High Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-68.84 dBc	≤ -13 dBc	Pass



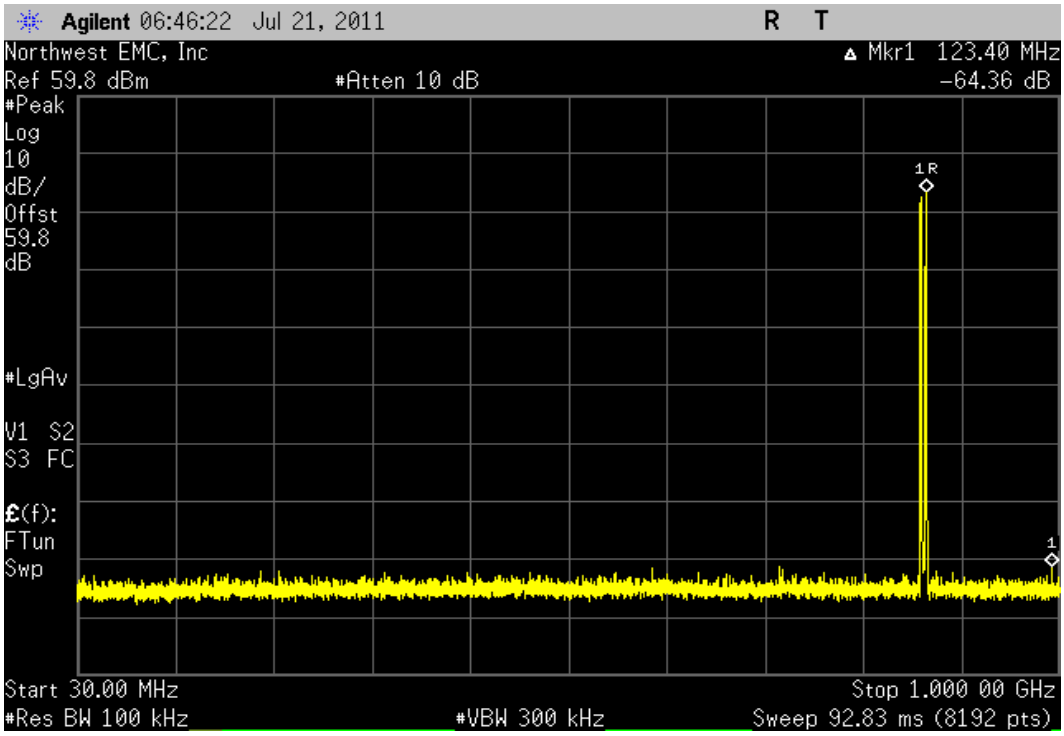
CDMA Single Carrier, High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-64.26 dBc	≤ -13 dBc	Pass



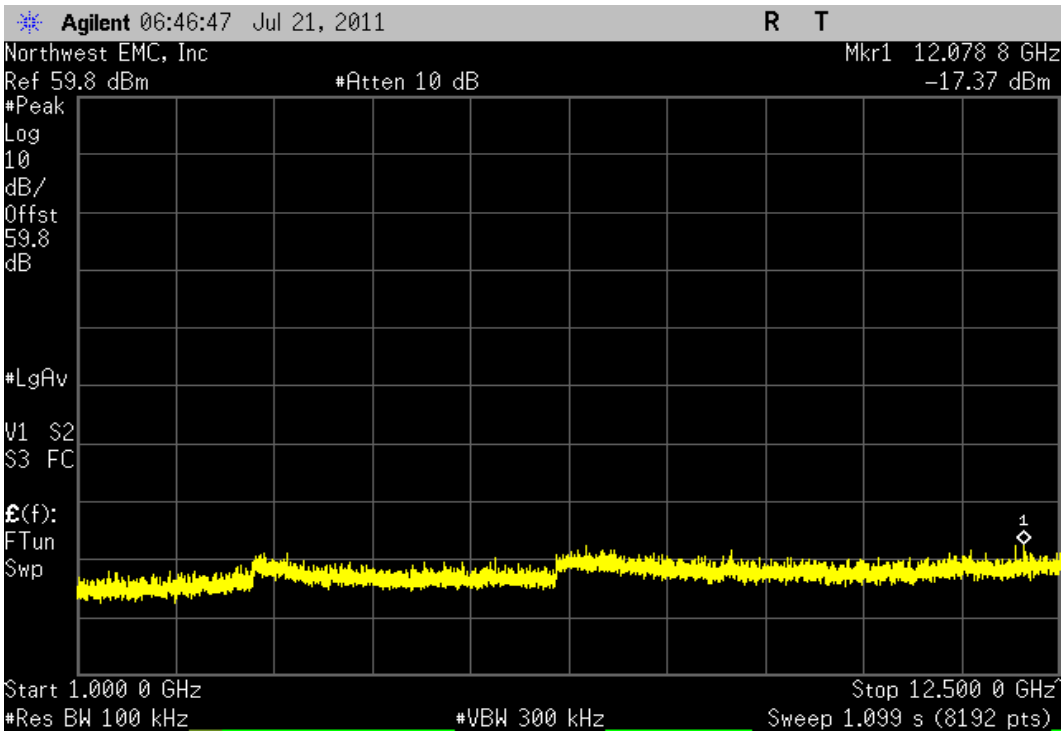
CDMA Multi Carrier [2FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.36 dBc	≤ -13 dBc	Pass



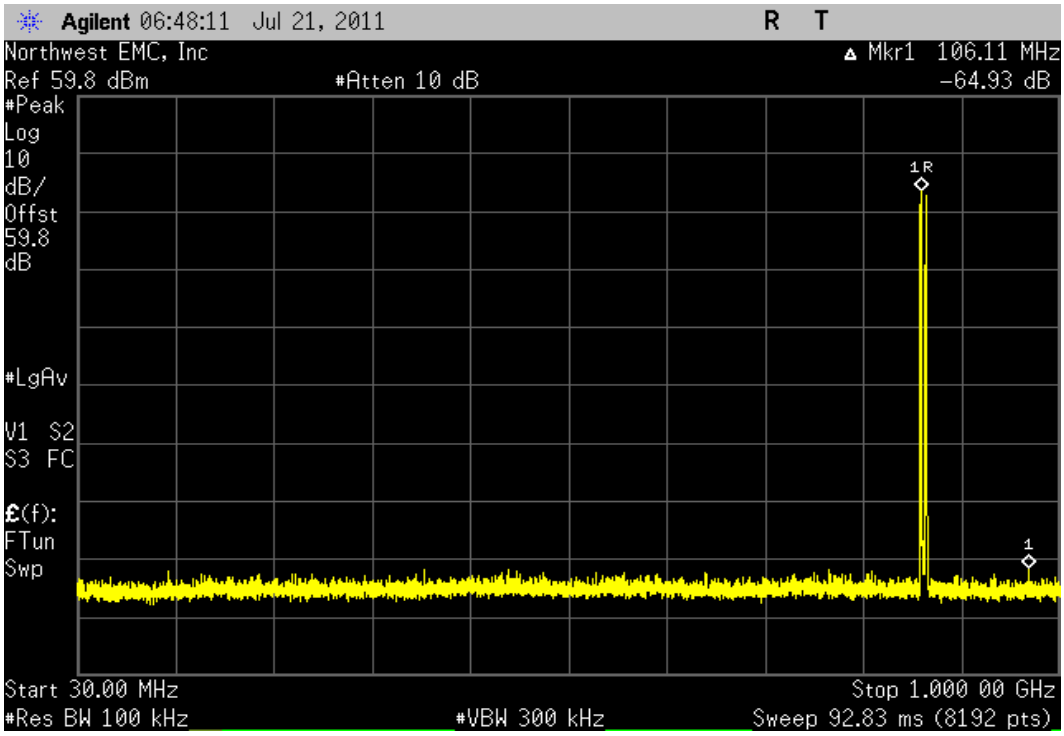
CDMA Multi Carrier [2FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.38 dBc	≤ -13 dBc	Pass



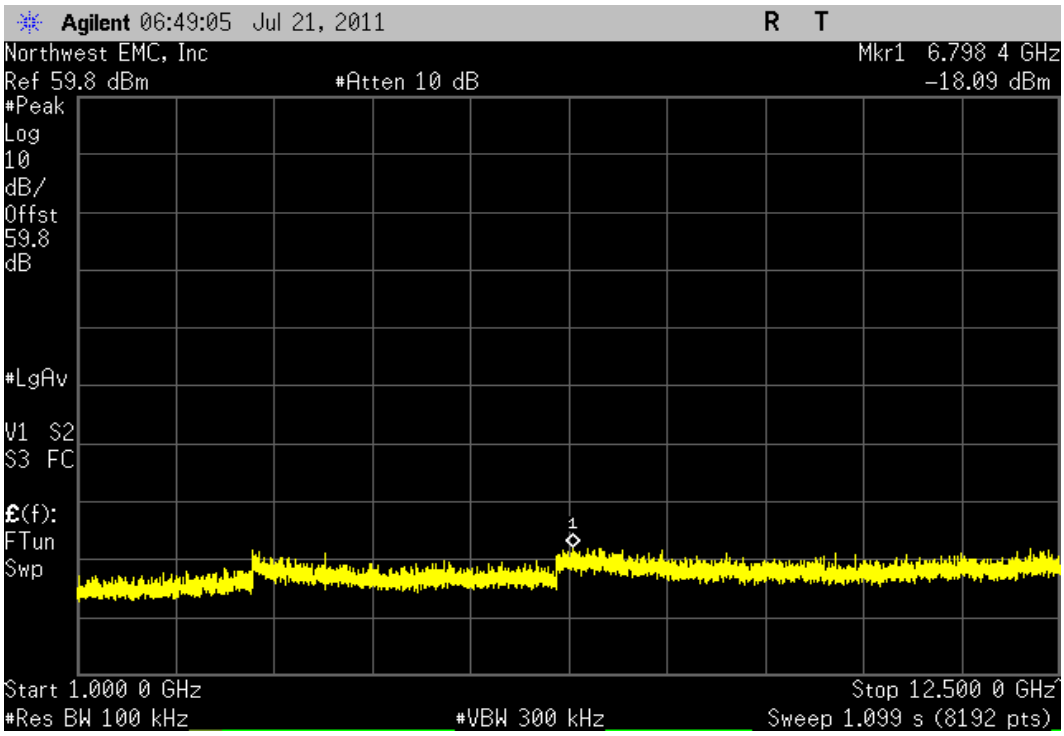
CDMA Multi Carrier [2FA], High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.93 dBc	≤ -13 dBc	Pass



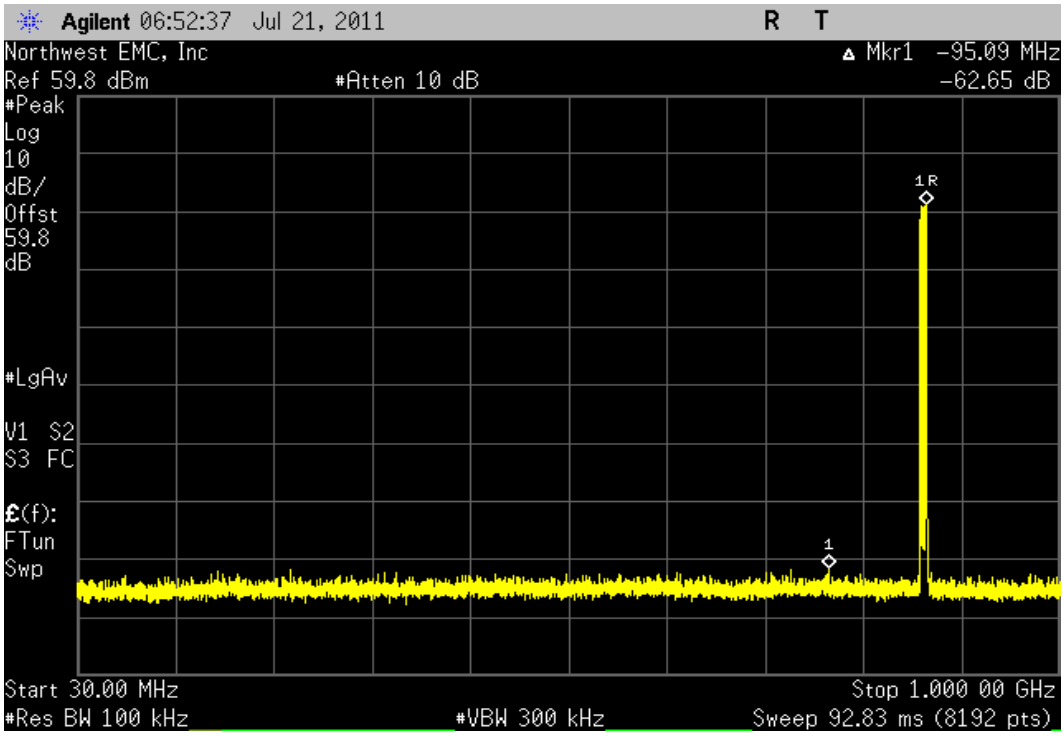
CDMA Multi Carrier [2FA], High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-61.35 dBc	≤ -13 dBc	Pass



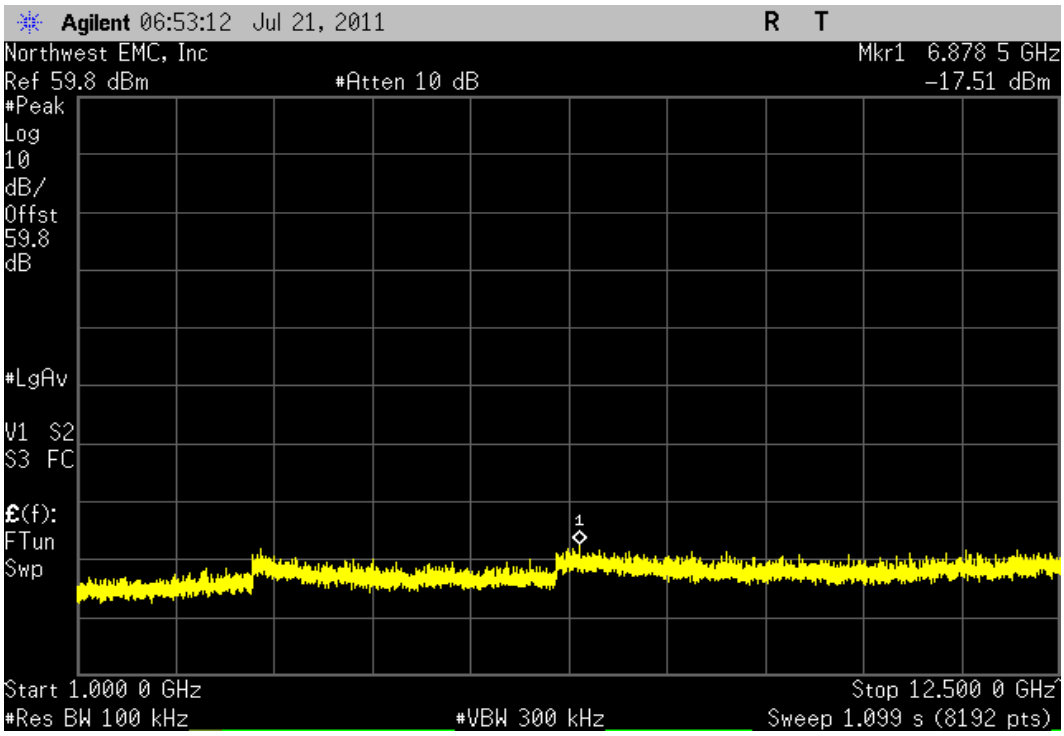
CDMA Multi Carrier [3FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-62.65 dBc	≤ -13 dBc	Pass



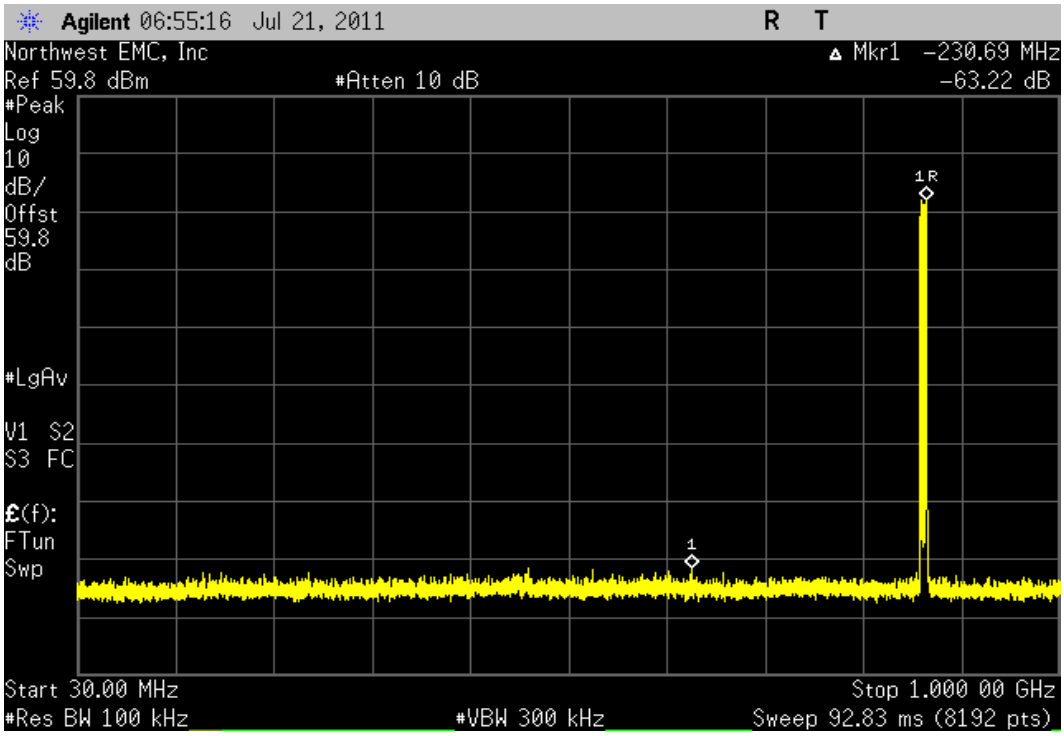
CDMA Multi Carrier [3FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-58.54 dBc	≤ -13 dBc	Pass



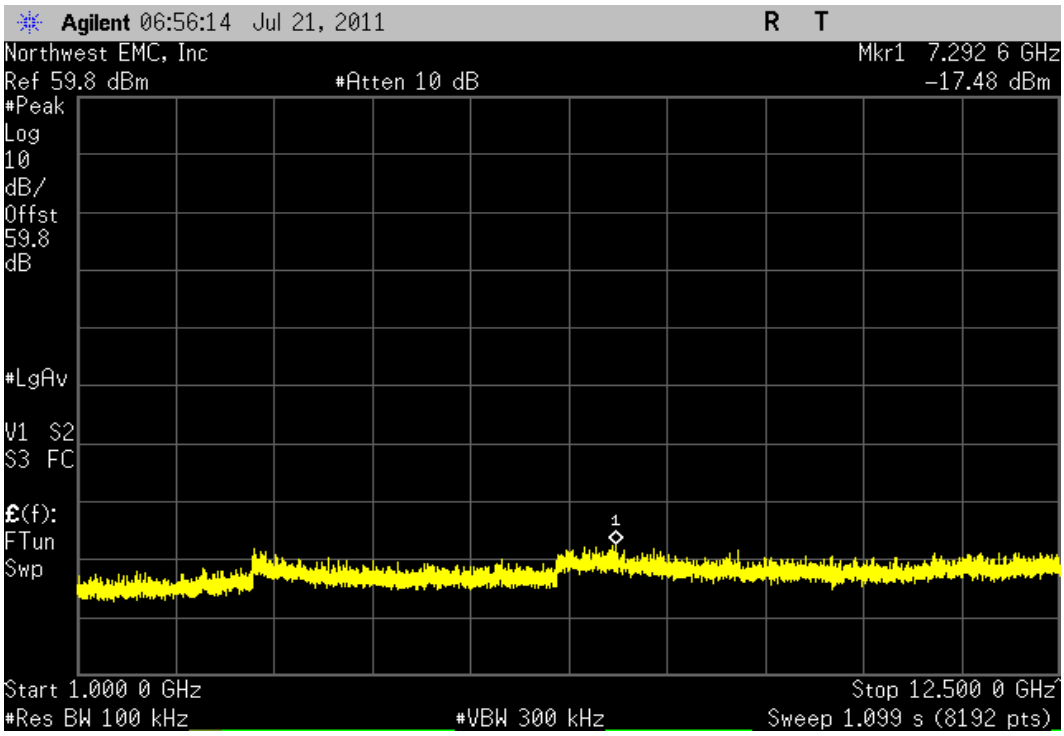
CDMA Multi Carrier [3FA], Mid Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-63.22 dBc	≤ -13 dBc	Pass



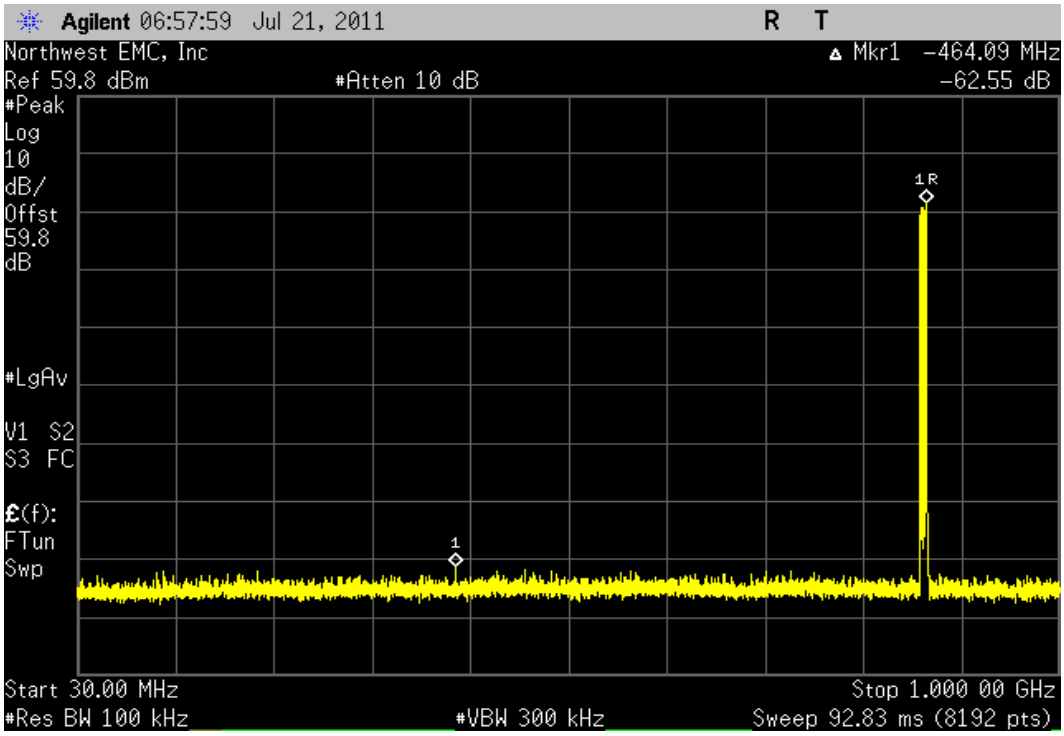
CDMA Multi Carrier [3FA], Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-59.15 dBc	≤ -13 dBc	Pass



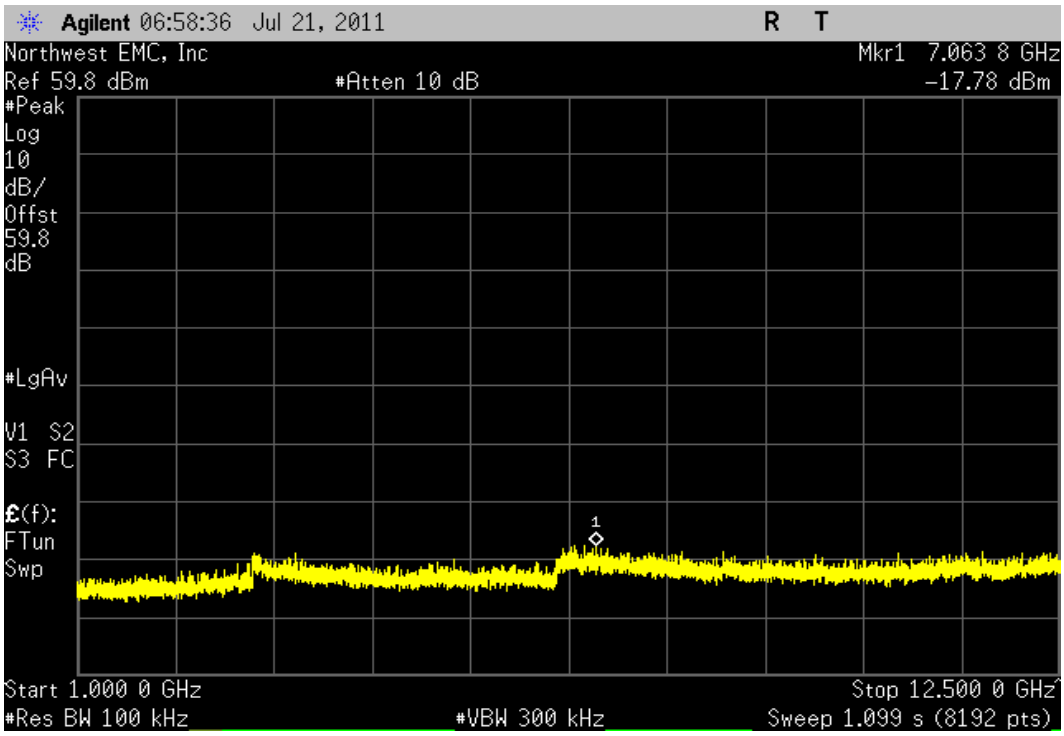
CDMA Multi Carrier [3FA], High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-62.55 dBc	≤ -13 dBc	Pass



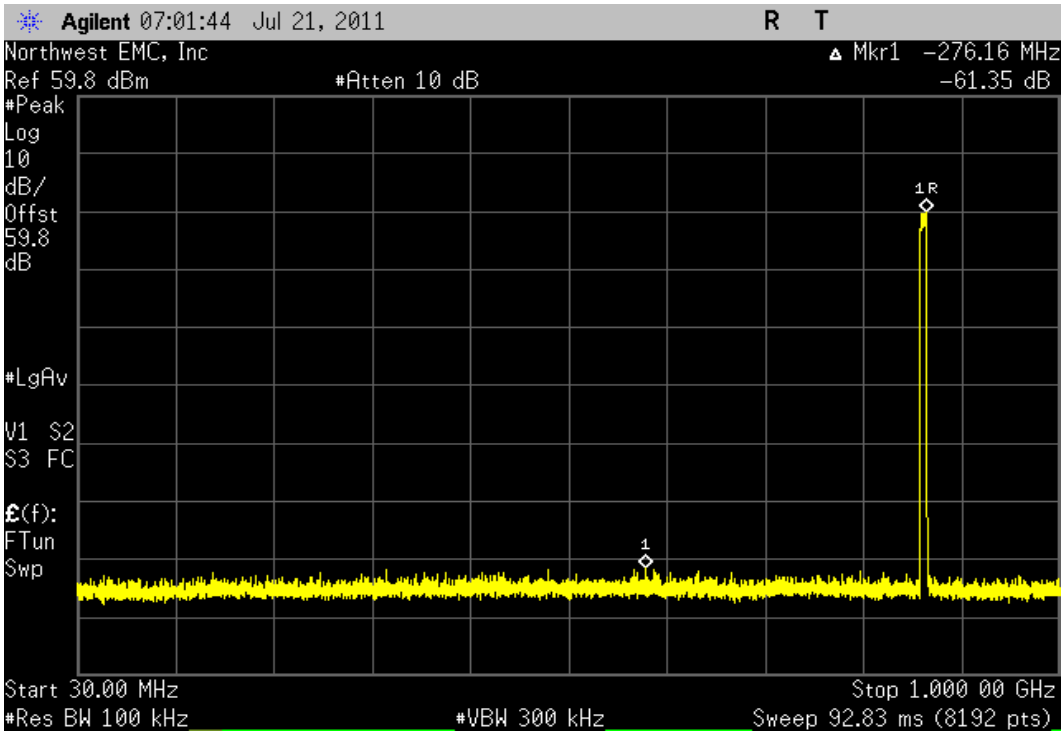
CDMA Multi Carrier [3FA], High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-58.92 dBc	≤ -13 dBc	Pass



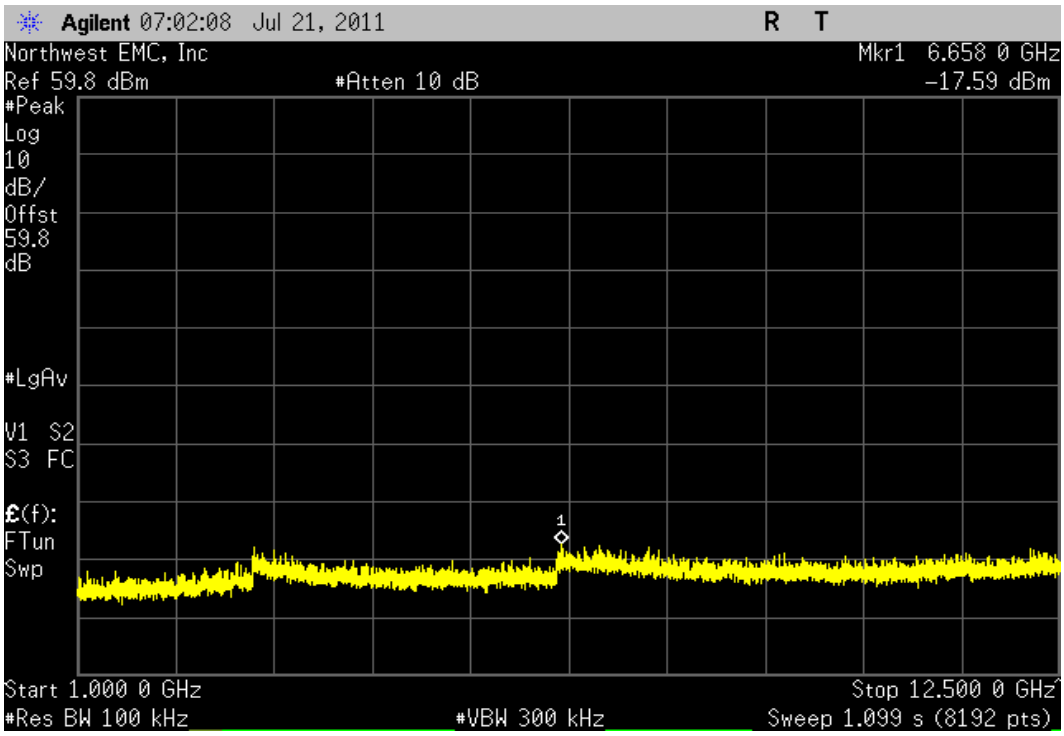
CDMA Multi Carrier [5FA], All Channels

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-61.35 dBc	≤ -13 dBc	Pass



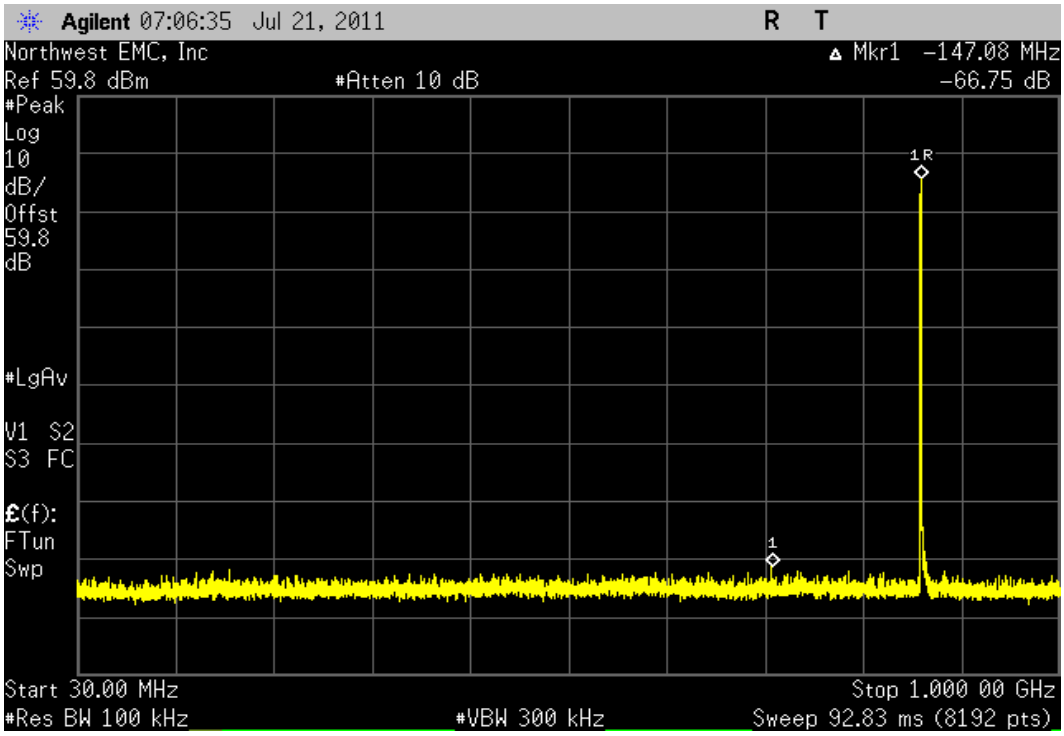
CDMA Multi Carrier [5FA], All Channels

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-57.18 dBc	≤ -13 dBc	Pass



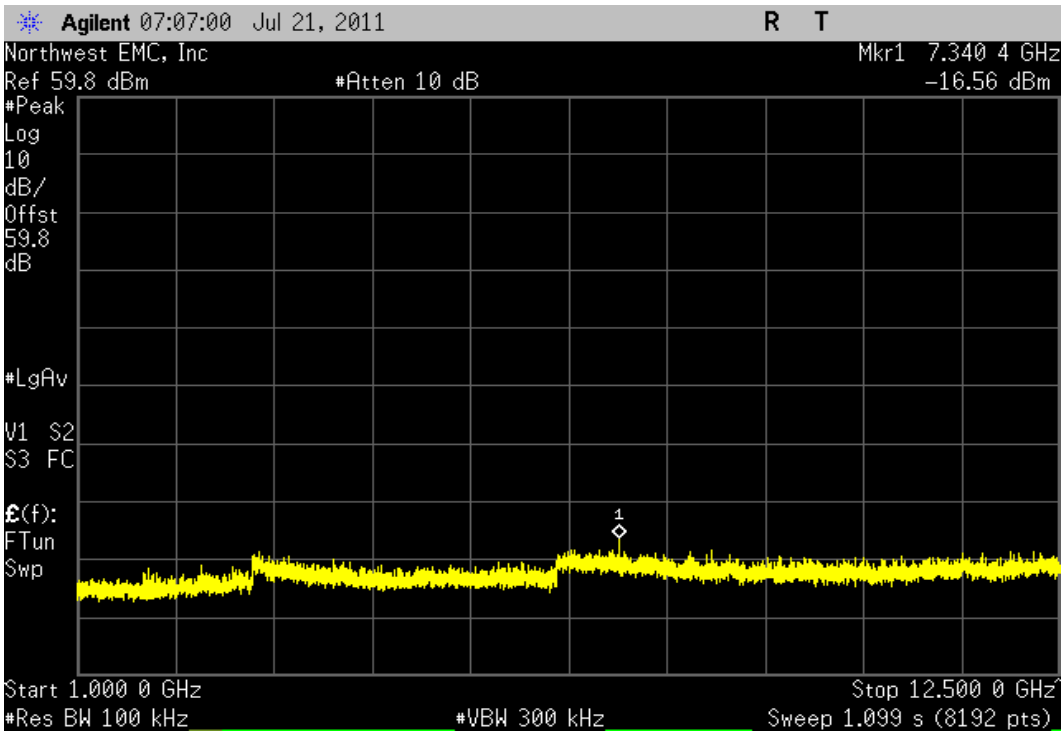
EVDO Single Carrier, Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-66.76 dBc	≤ -13 dBc	Pass



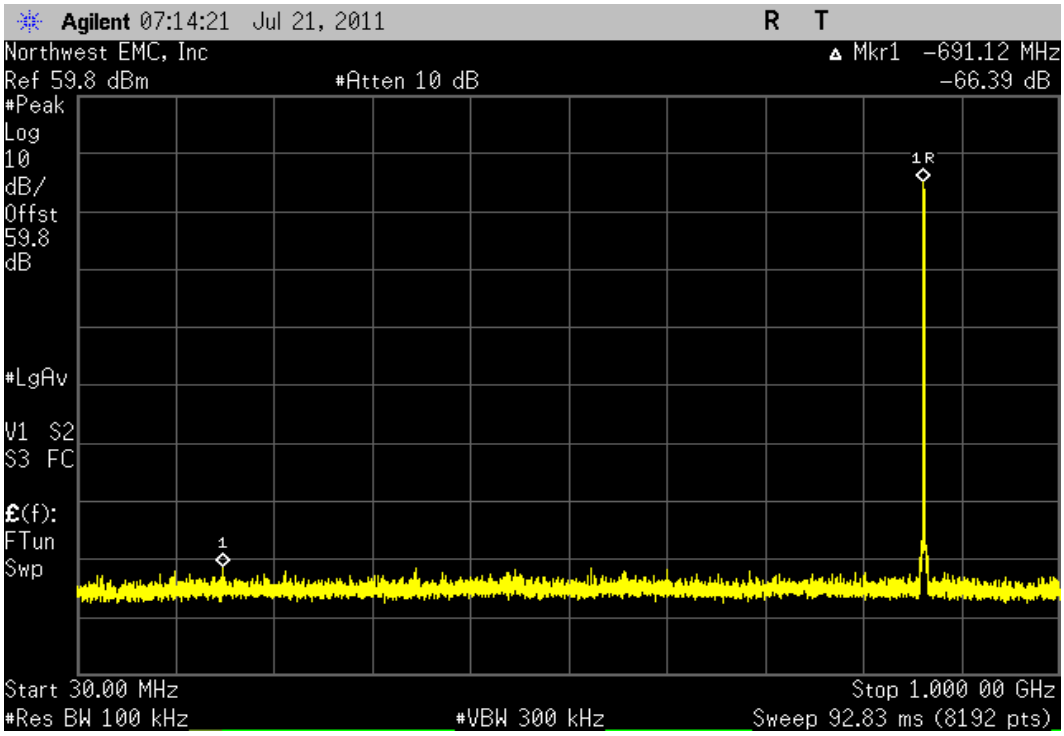
EVDO Single Carrier, Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-62.02 dBc	≤ -13 dBc	Pass



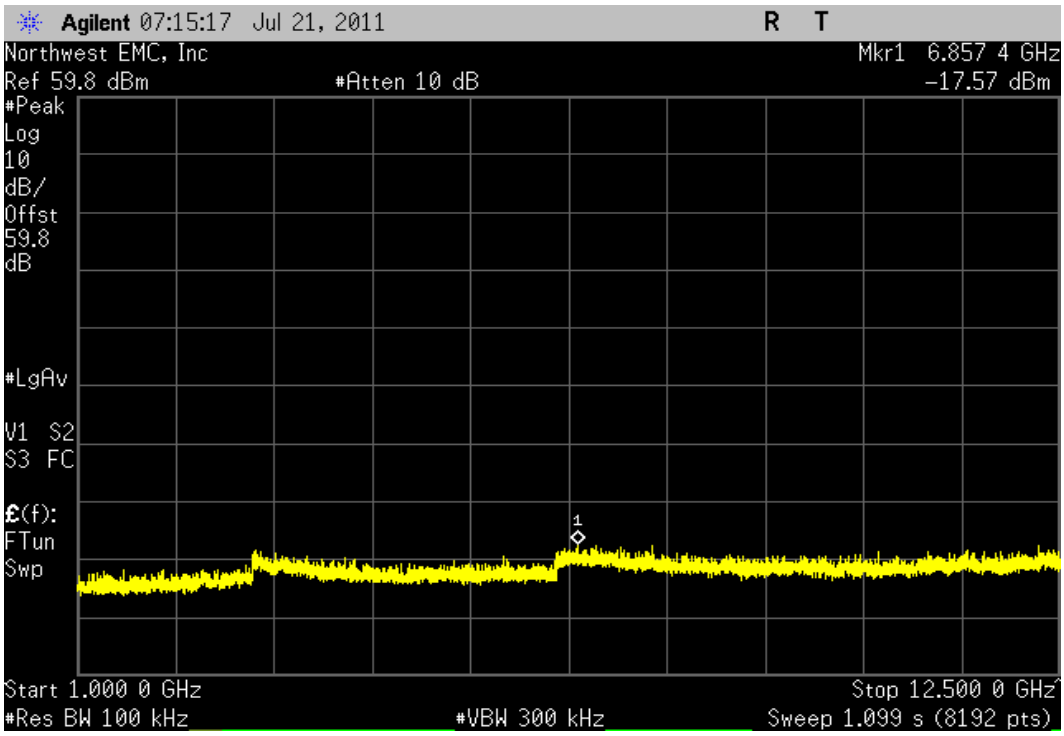
EVDO Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-66.39 dBc	≤ -13 dBc	Pass



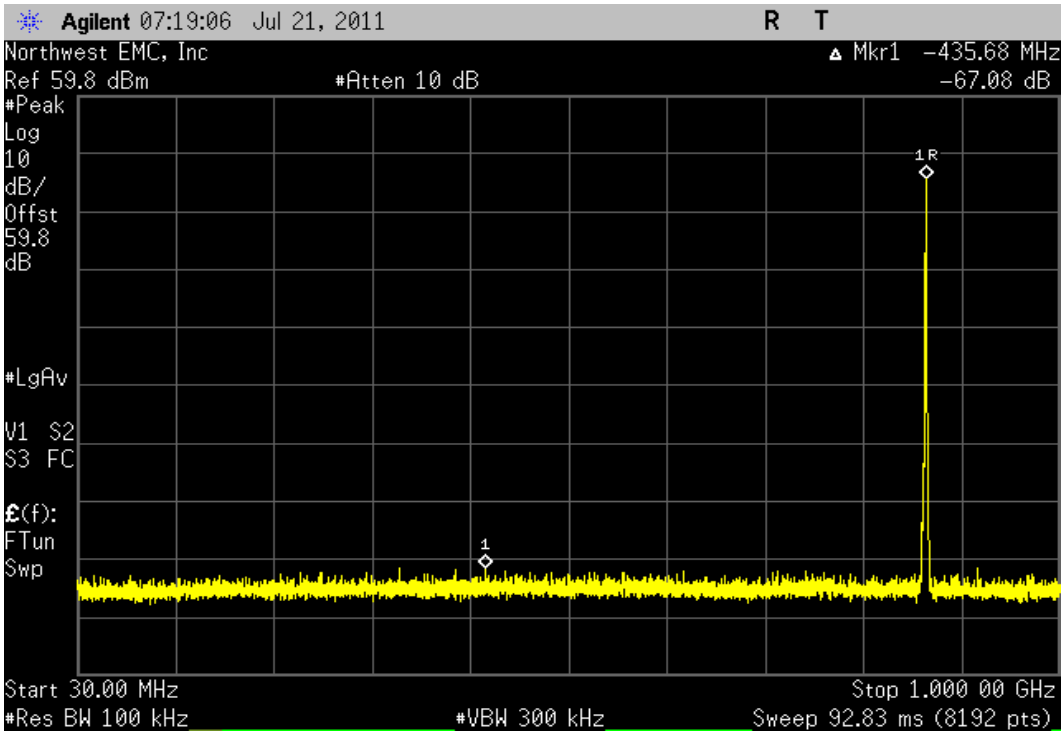
EVDO Single Carrier, Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-62.46 dBc	≤ -13 dBc	Pass



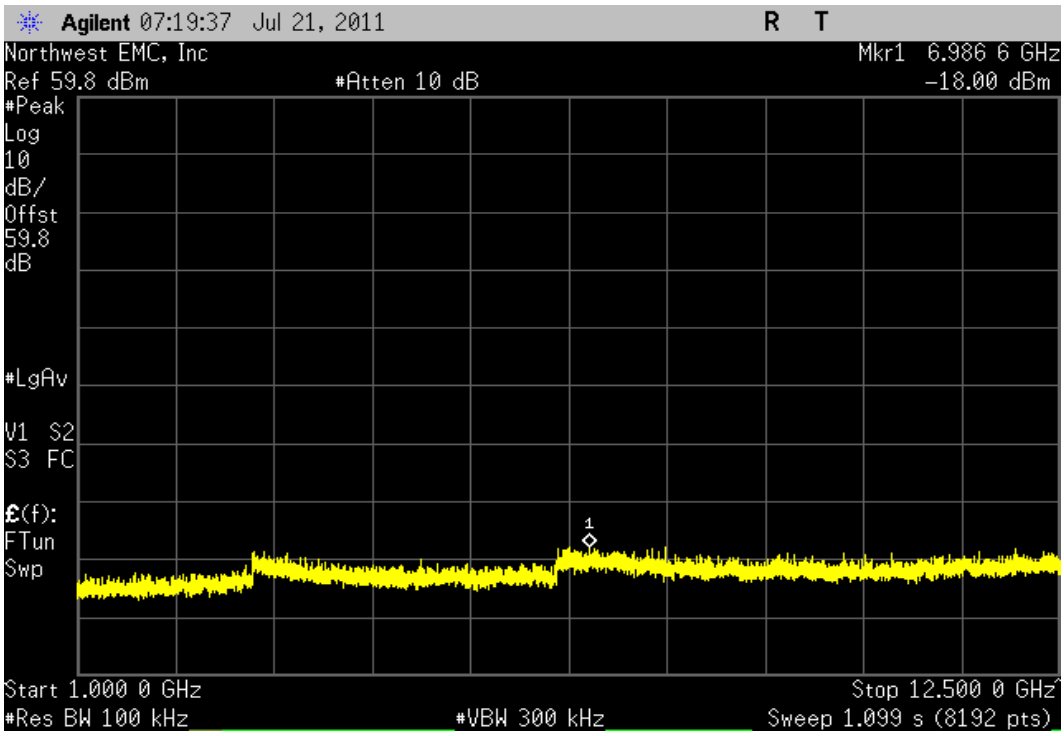
EVDO Single Carrier, High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-67.08 dBc	≤ -13 dBc	Pass



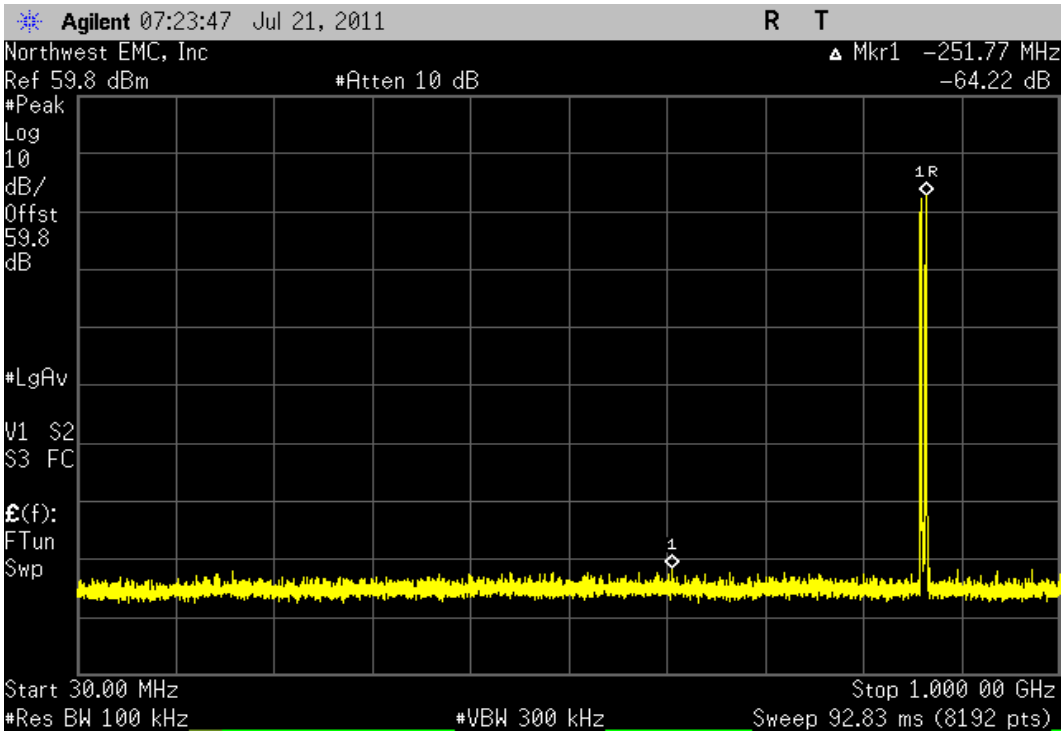
EVDO Single Carrier, High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-63.43 dBc	≤ -13 dBc	Pass



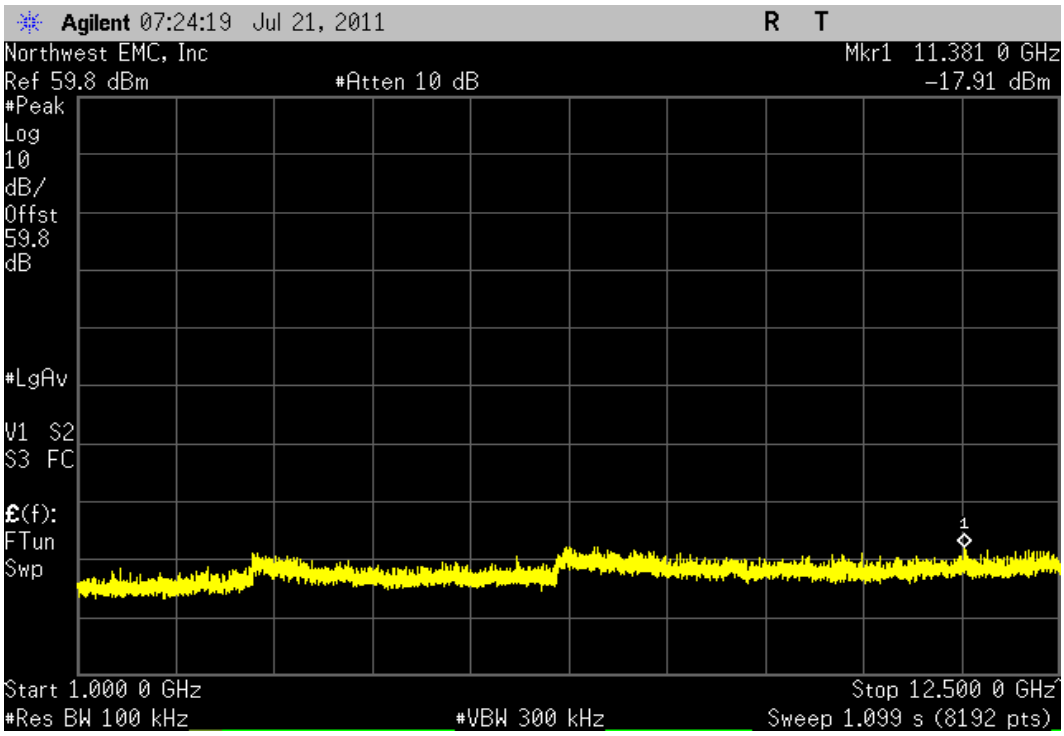
EVDO Multi Carrier [2FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.22 dBc	≤ -13 dBc	Pass



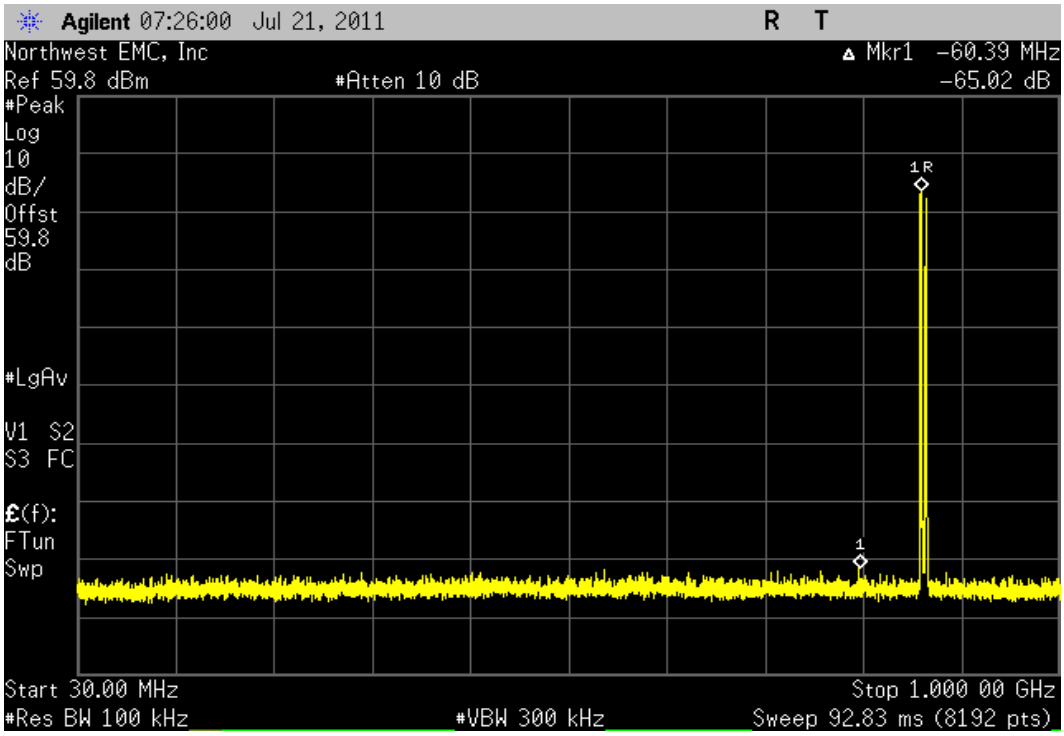
EVDO Multi Carrier [2FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.54 dBc	≤ -13 dBc	Pass



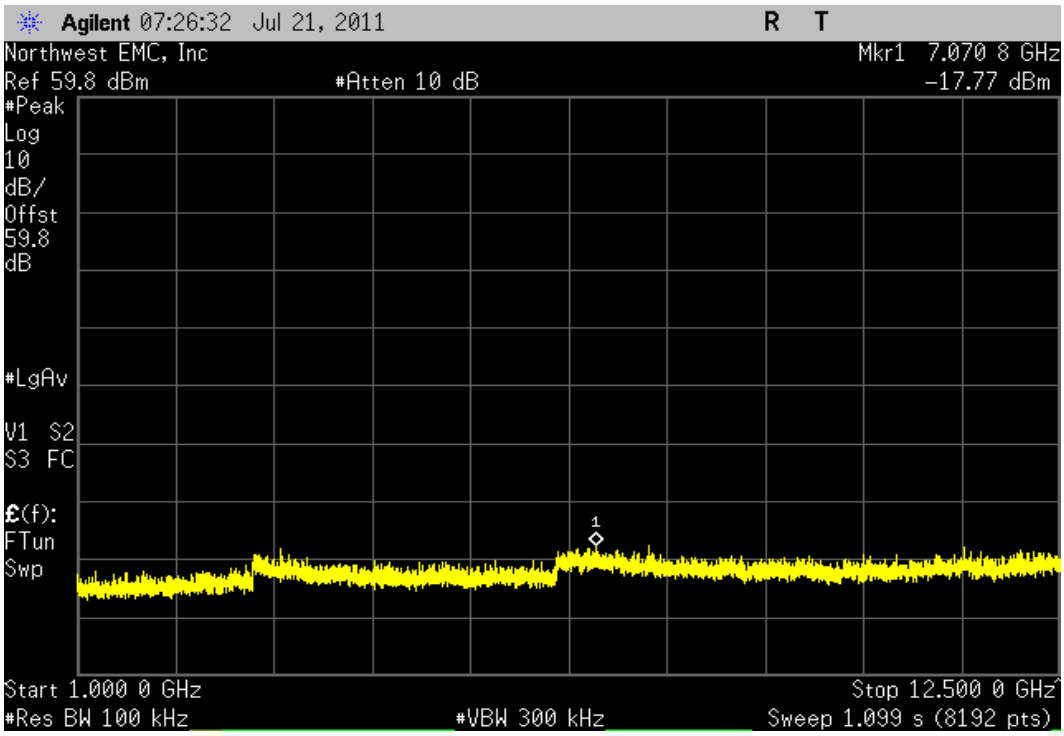
EVDO Multi Carrier [2FA], High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-65.02 dBc	≤ -13 dBc	Pass



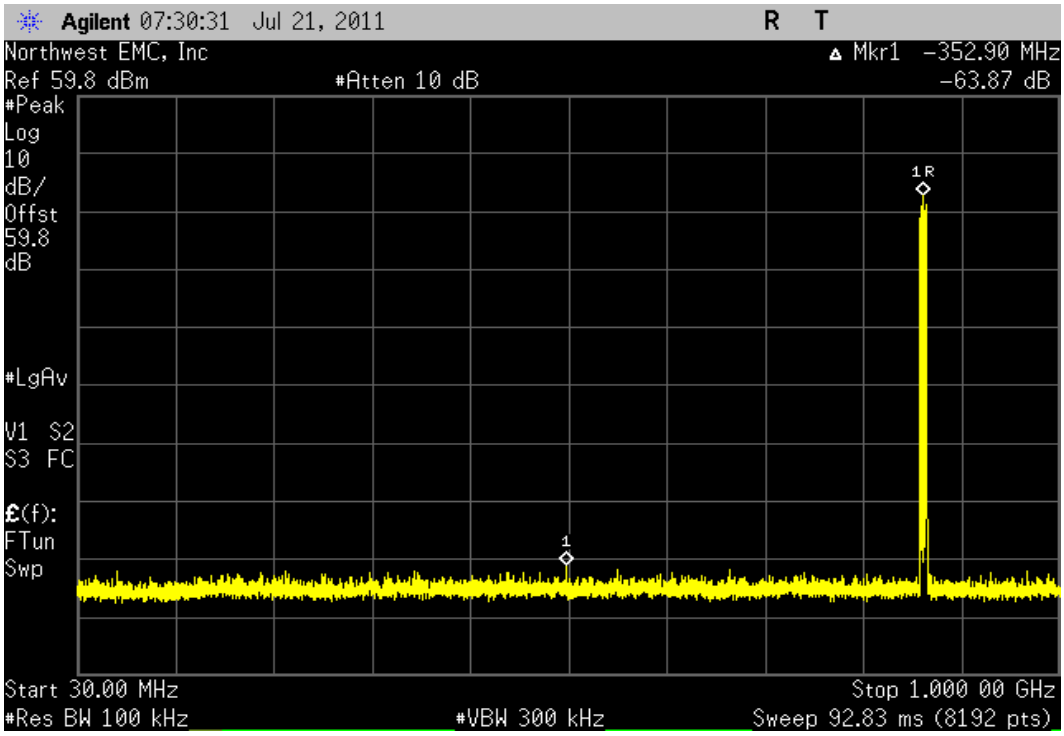
EVDO Multi Carrier [2FA], High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-61.02 dBc	≤ -13 dBc	Pass



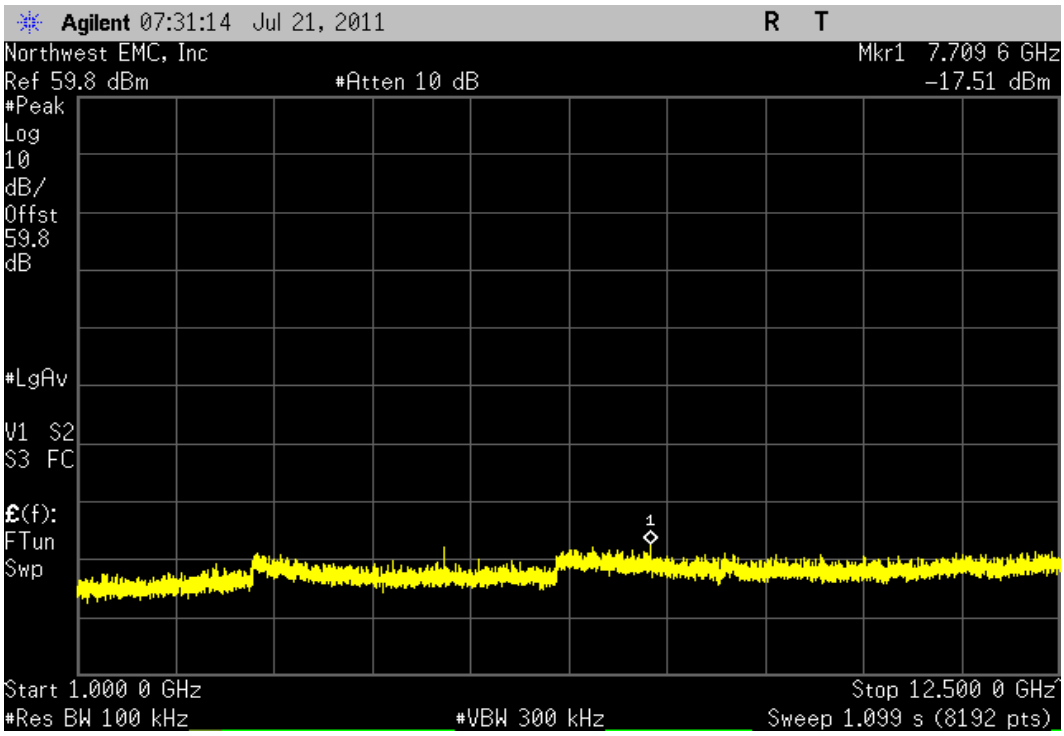
EVDO Multi Carrier [3FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-63.87 dBc	≤ -13 dBc	Pass



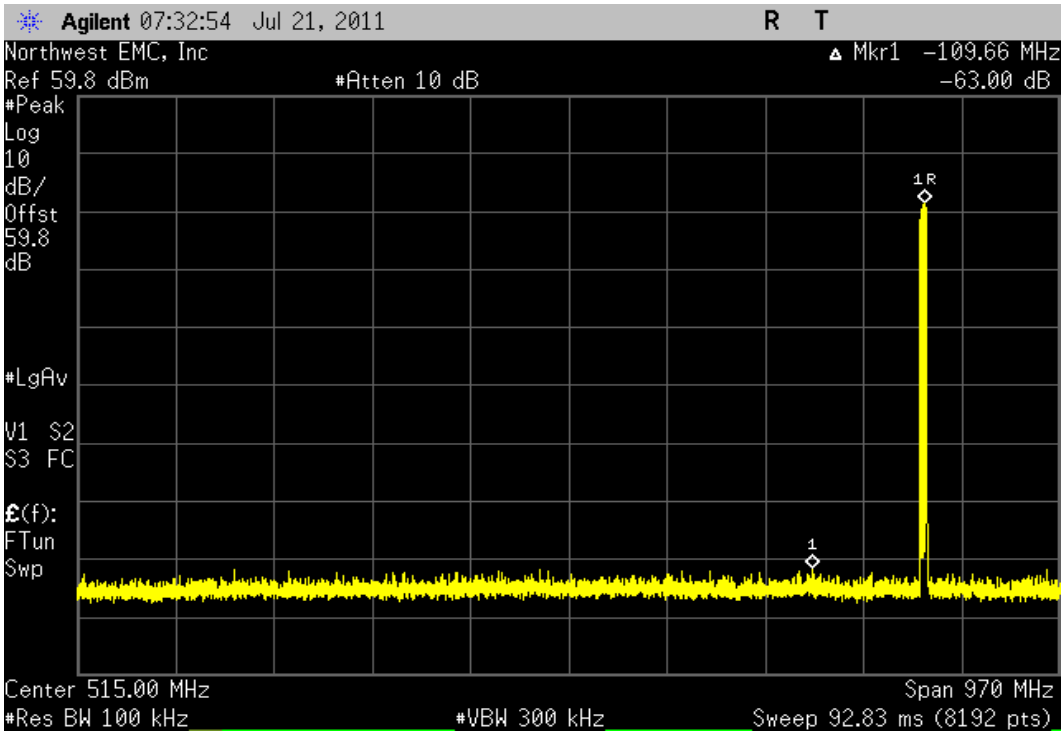
EVDO Multi Carrier [3FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.2 dBc	≤ -13 dBc	Pass



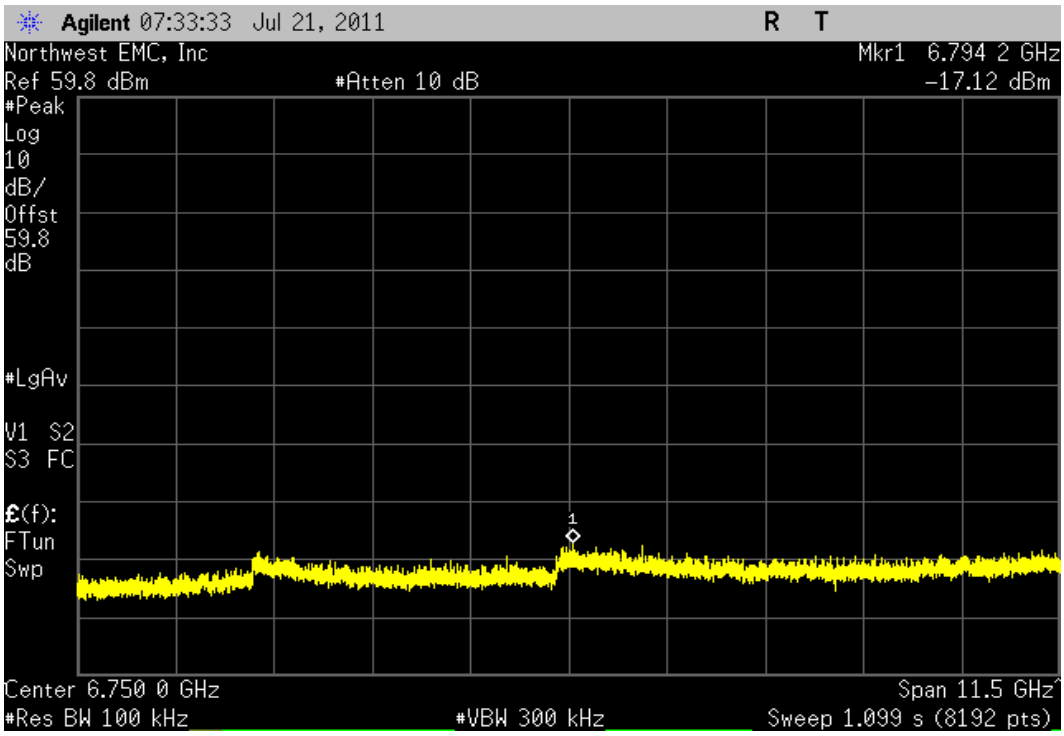
EVDO Multi Carrier [3FA], Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-63 dBc	≤ -13 dBc	Pass



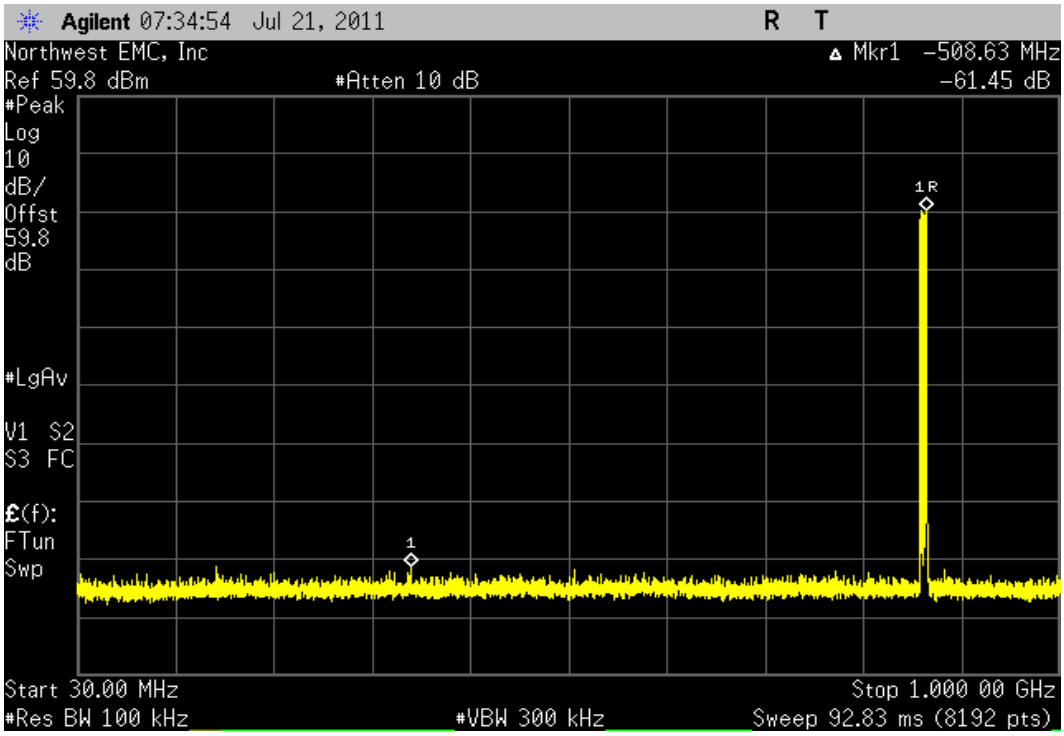
EVDO Multi Carrier [3FA], Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-58.44 dBc	≤ -13 dBc	Pass



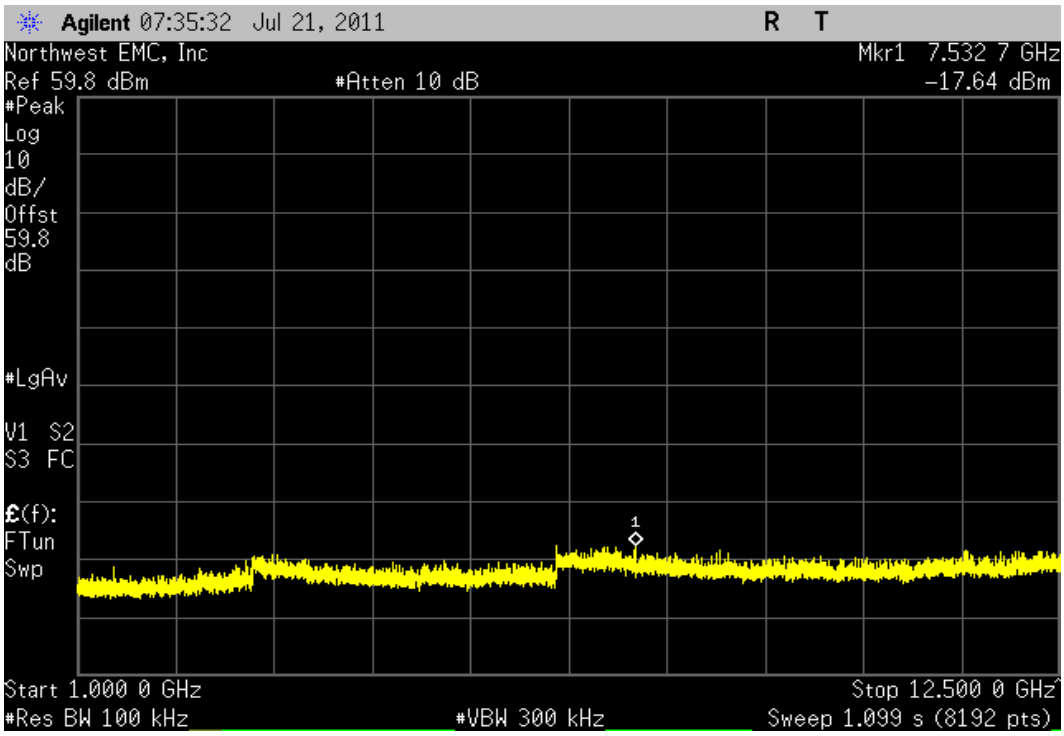
EVDO Multi Carrier [3FA], High Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-61.45 dBc	≤ -13 dBc	Pass



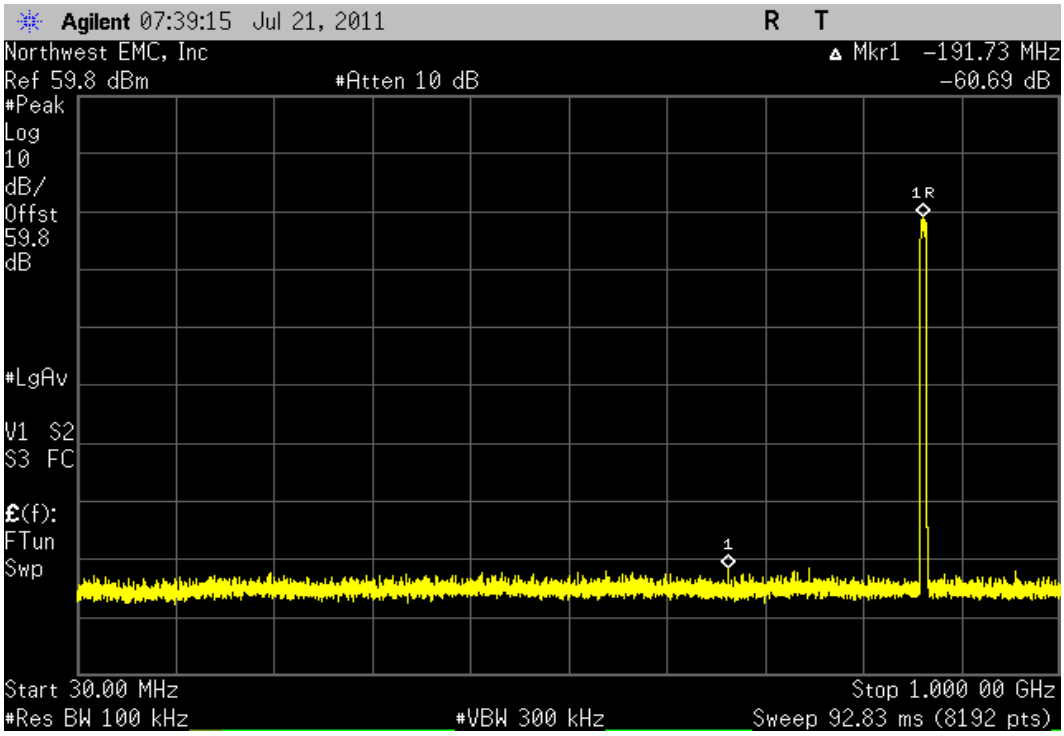
EVDO Multi Carrier [3FA], High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-57.66 dBc	≤ -13 dBc	Pass



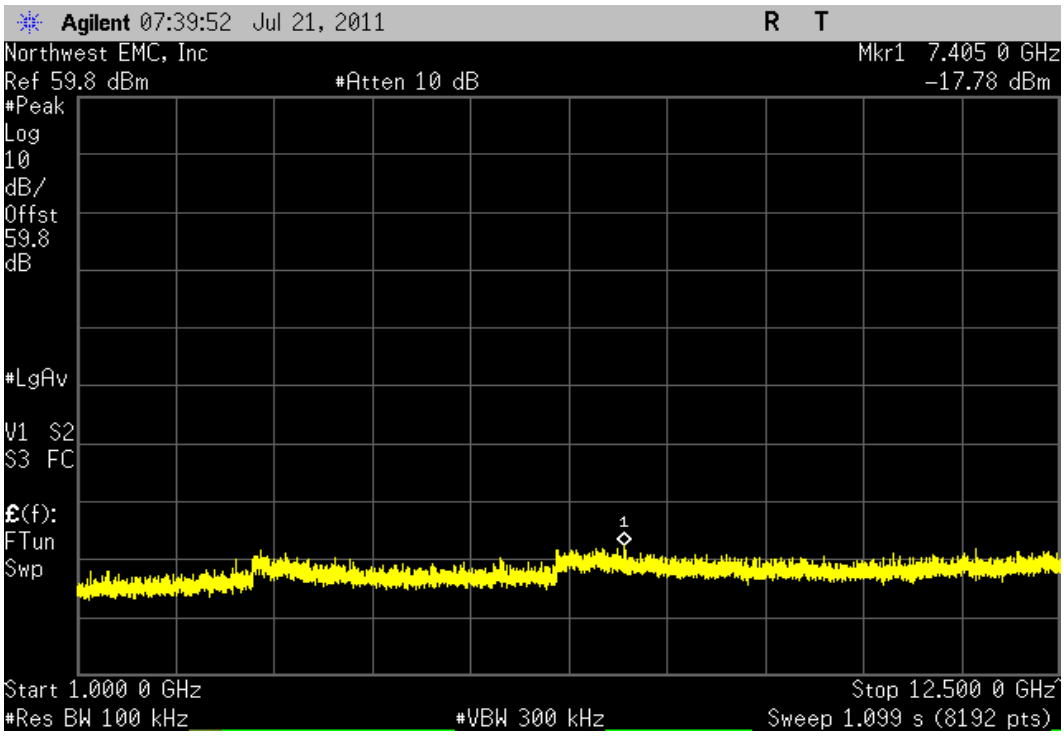
EVDO Multi Carrier [5FA], All Channels

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-60.69 dBc	≤ -13 dBc	Pass



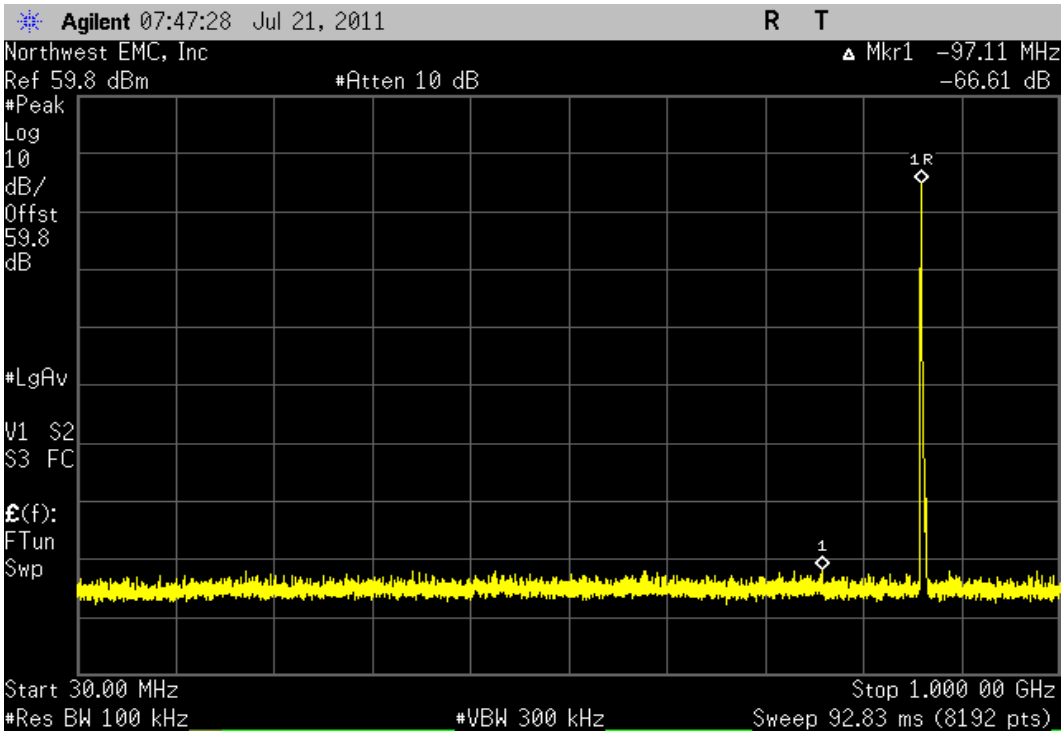
EVDO Multi Carrier [5FA], All Channels

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-56.76 dBc	≤ -13 dBc	Pass



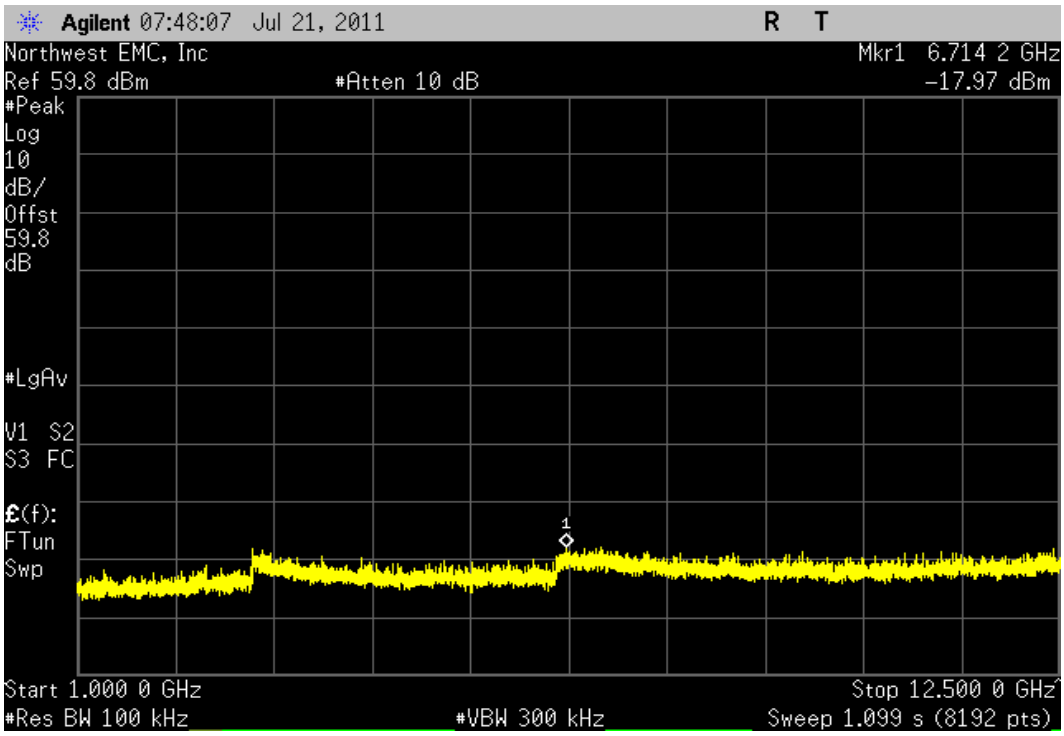
LTE 1.4 MHz Single Carrier, Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-66.61 dBc	≤ -13 dBc	Pass



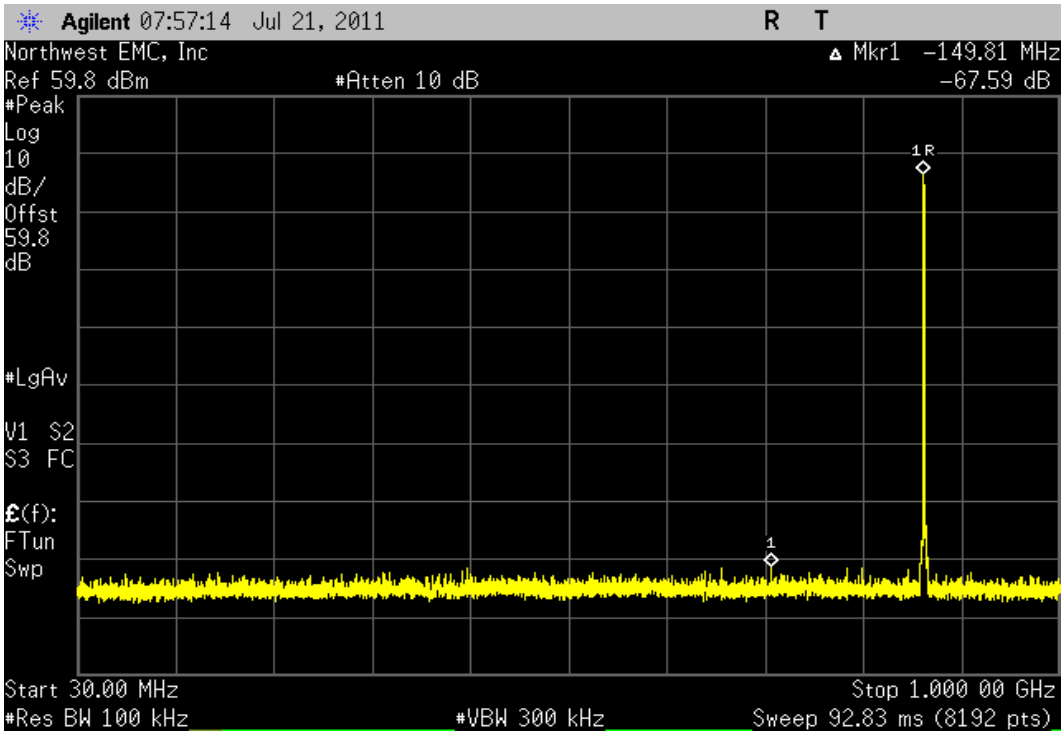
LTE 1.4 MHz Single Carrier, Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-62.68 dBc	≤ -13 dBc	Pass



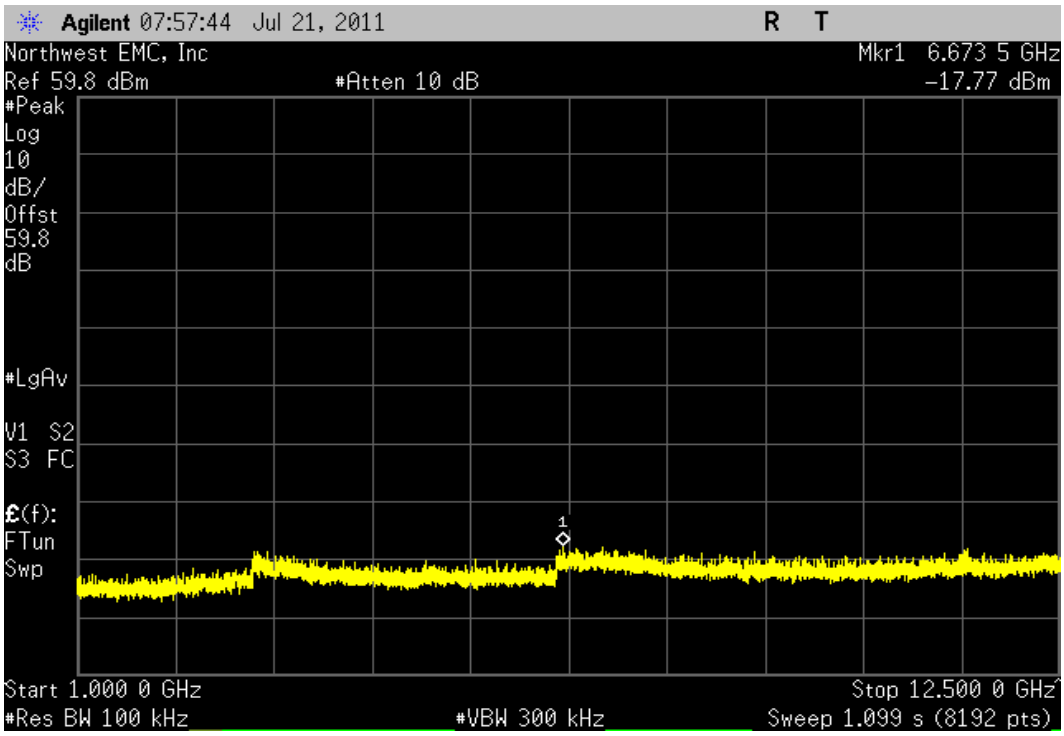
LTE 1.4 MHz Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-67.59 dBc	≤ -13 dBc	Pass



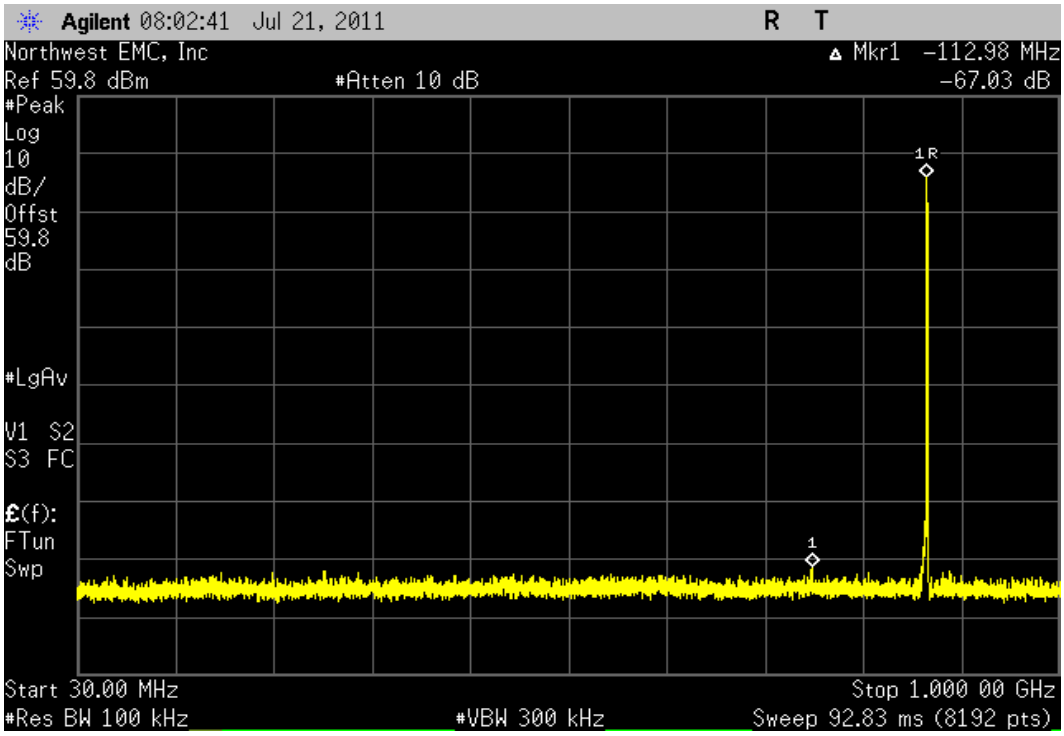
LTE 1.4 MHz Single Carrier, Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-63.9 dBc	≤ -13 dBc	Pass



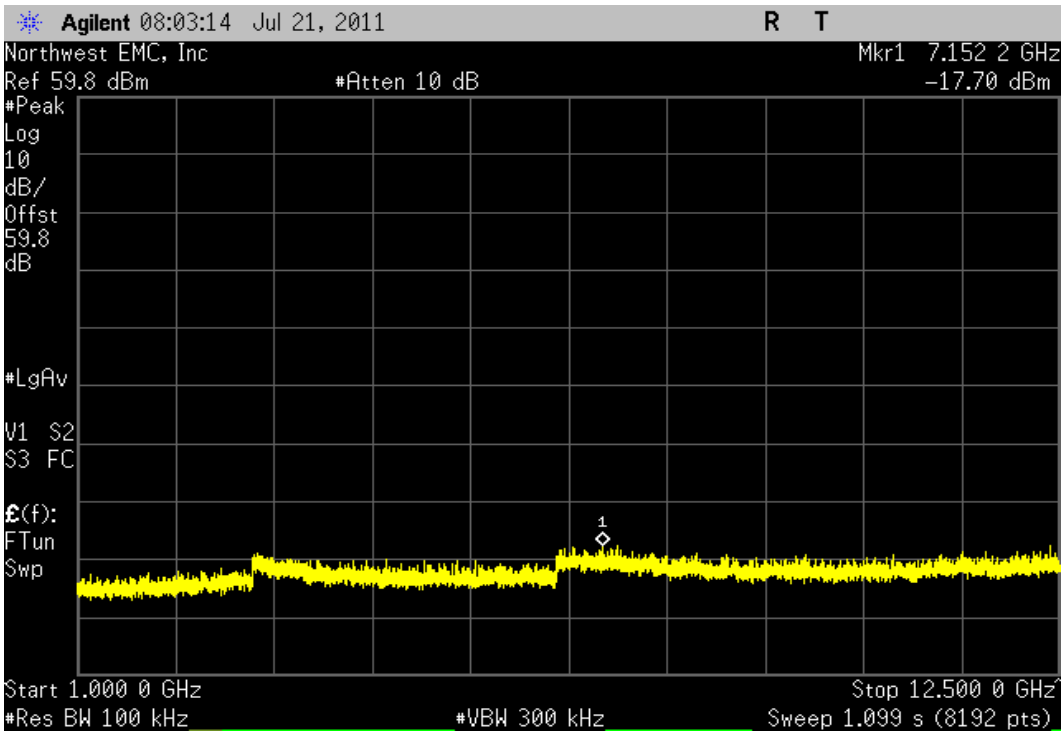
LTE 1.4 MHz Single Carrier, High Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-67.03 dBc	≤ -13 dBc	Pass



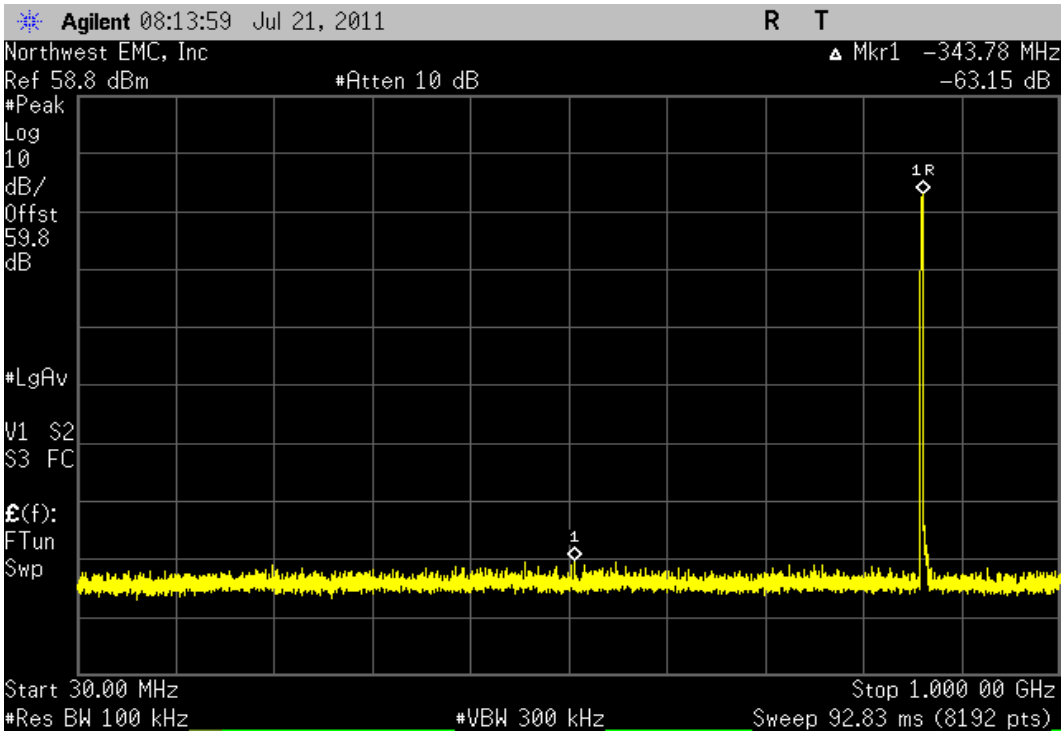
LTE 1.4 MHz Single Carrier, High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-63.35 dBc	≤ -13 dBc	Pass



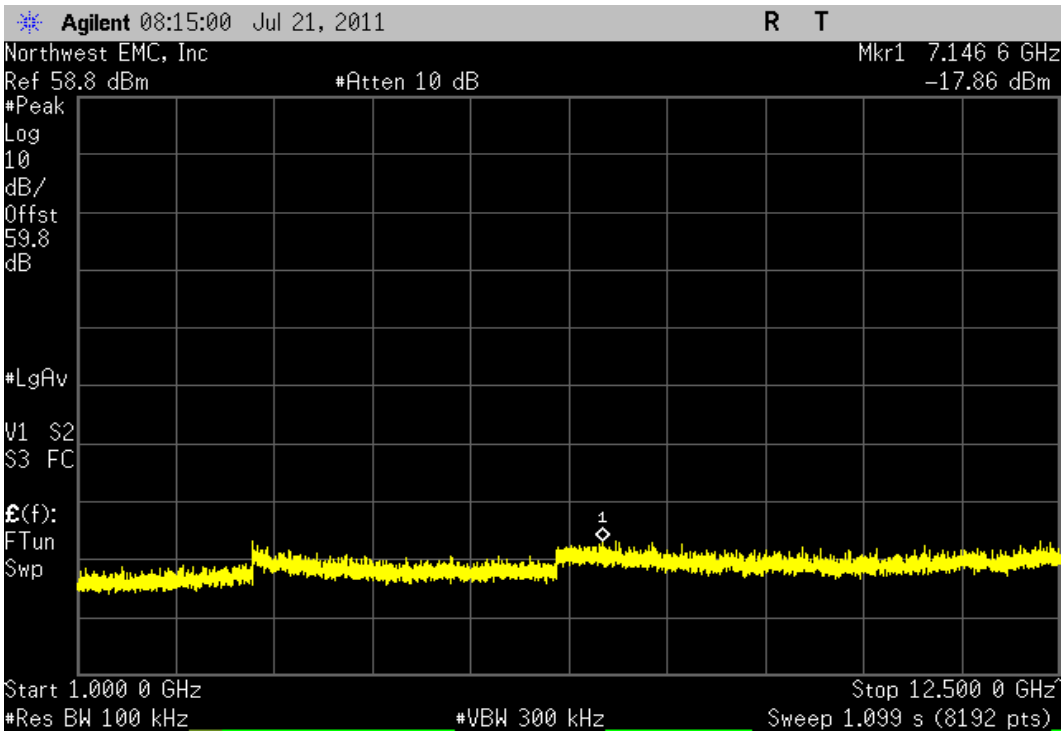
LTE 3 MHz Single Carrier, Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-63.15 dBc	≤ -13 dBc	Pass



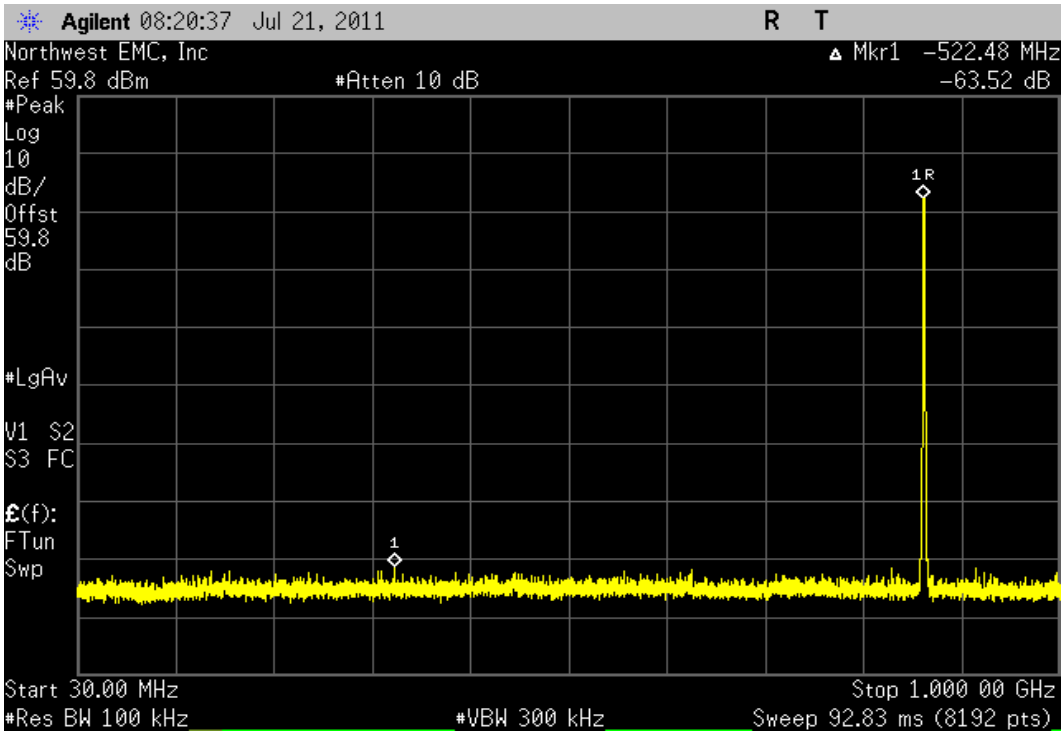
LTE 3 MHz Single Carrier, Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-59.72 dBc	≤ -13 dBc	Pass



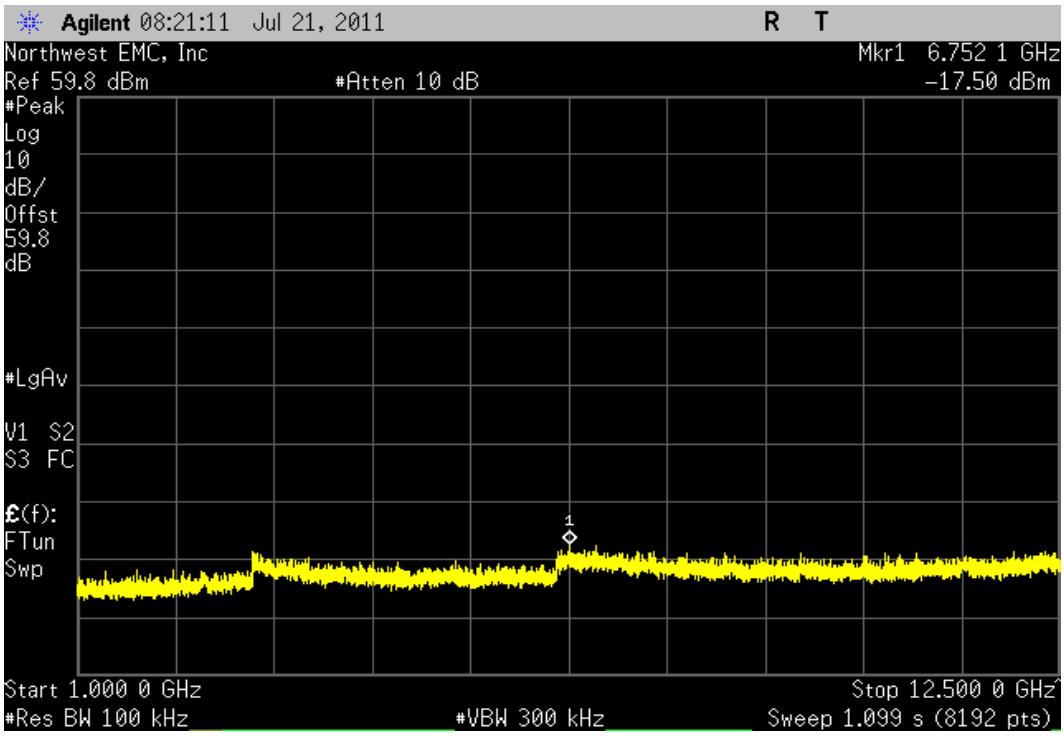
LTE 3 MHz Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-63.52 dBc	≤ -13 dBc	Pass



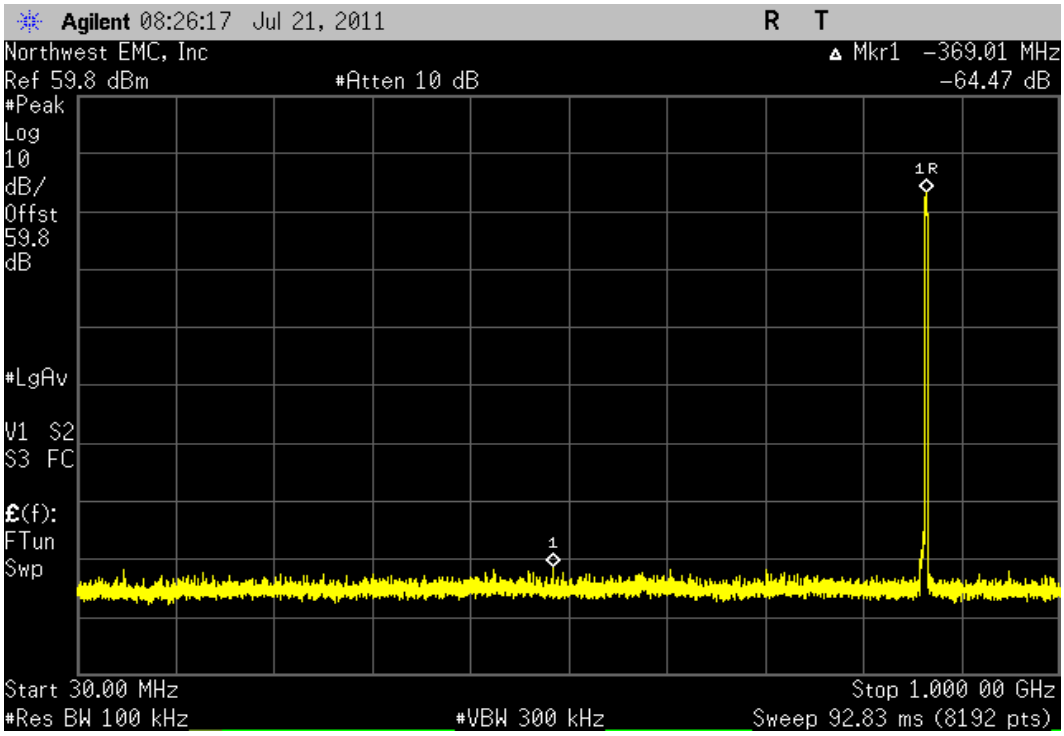
LTE 3 MHz Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	1 GHz - 12.5 GHz		-59.54 dBc	≤ -13 dBc	Pass



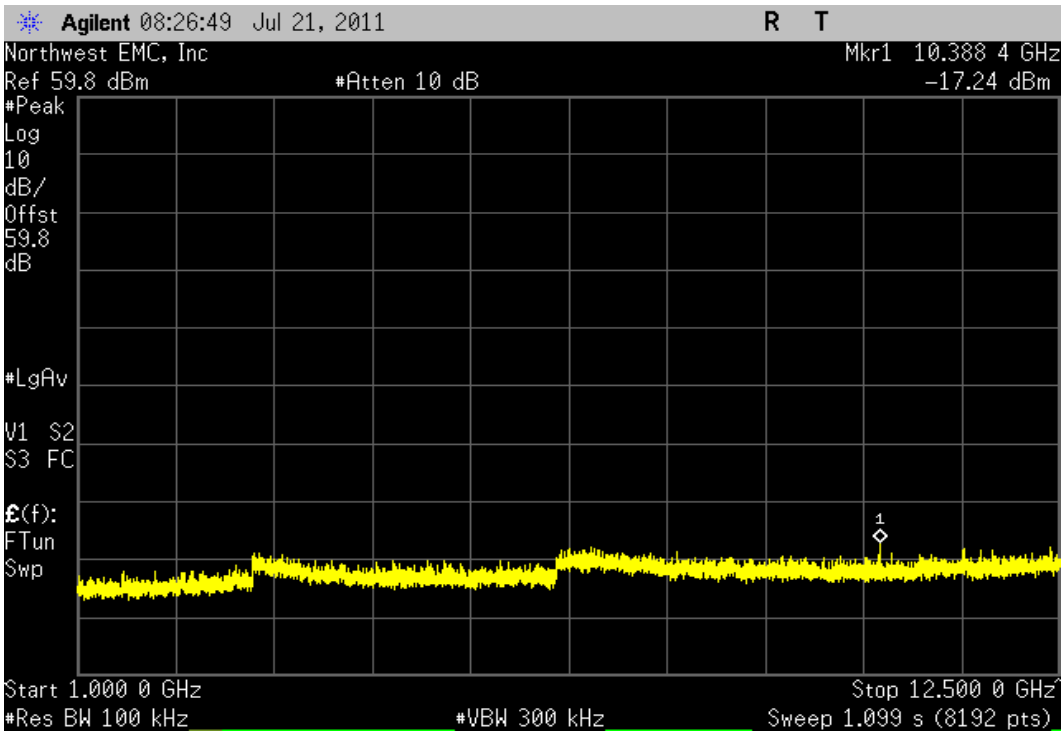
LTE 3 MHz Single Carrier, High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.47 dBc	≤ -13 dBc	Pass



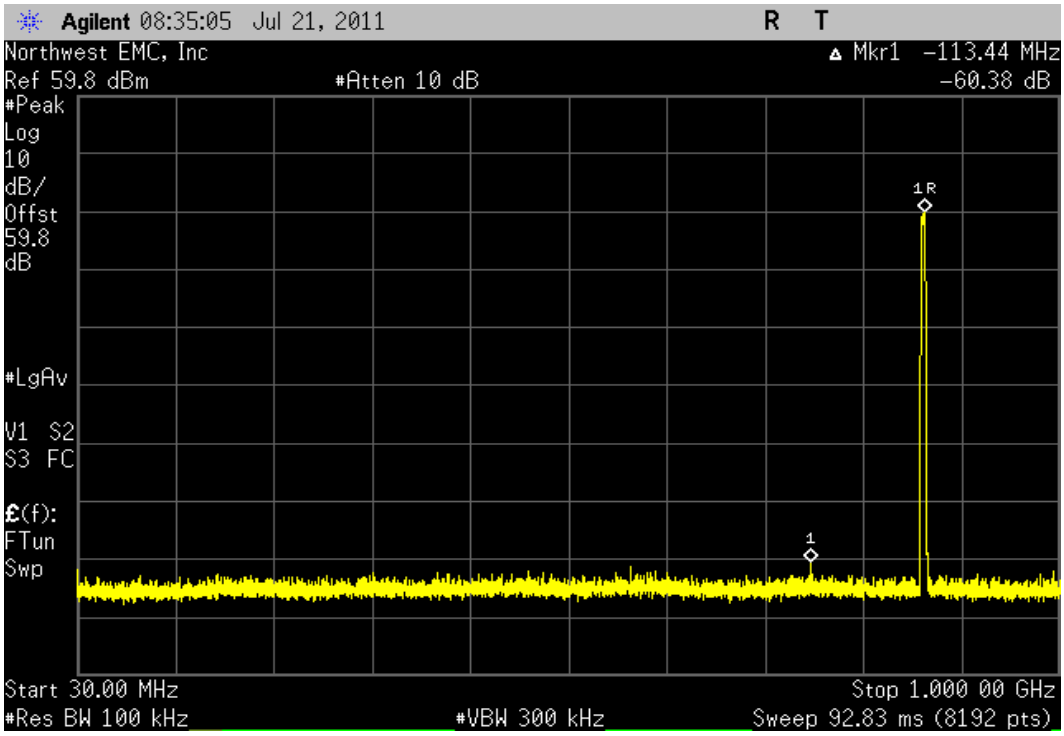
LTE 3 MHz Single Carrier, High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.22 dBc	≤ -13 dBc	Pass



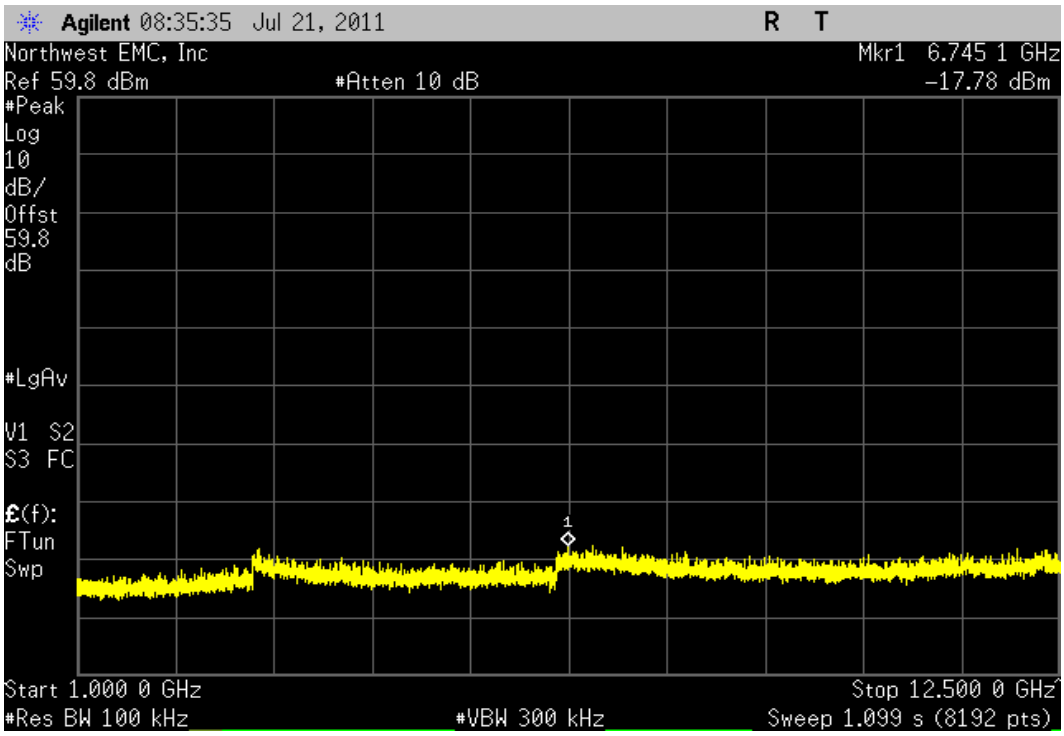
LTE 5 MHz Single Carrier, Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-60.38 dBc	≤ -13 dBc	Pass



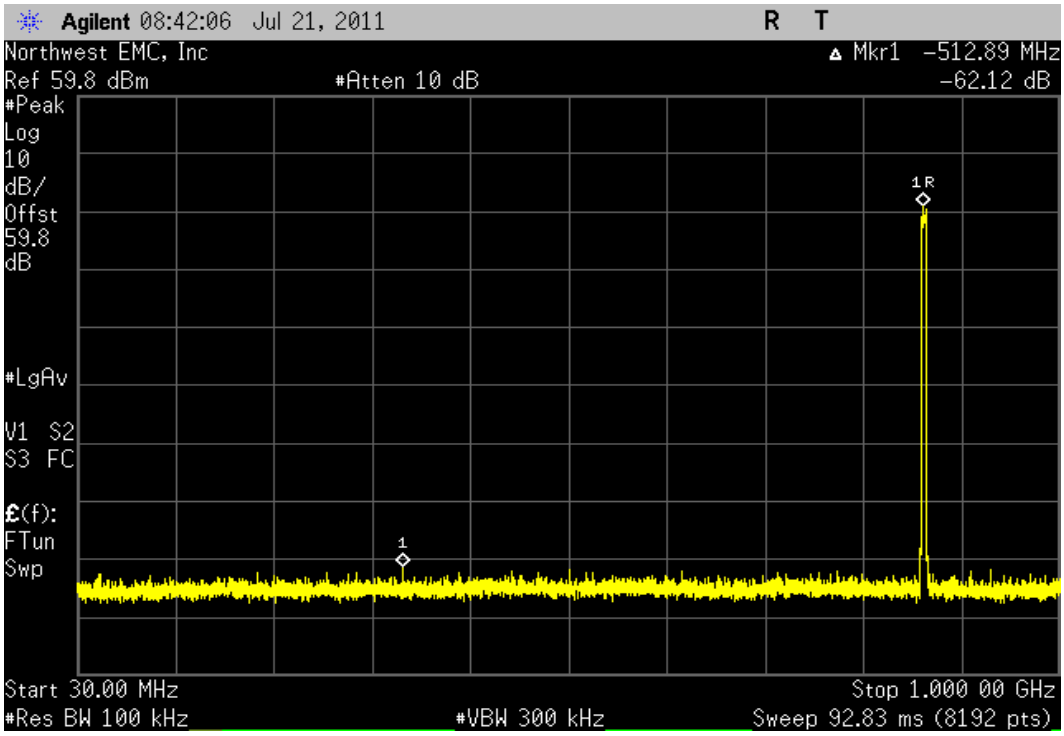
LTE 5 MHz Single Carrier, Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-57.43 dBc	≤ -13 dBc	Pass



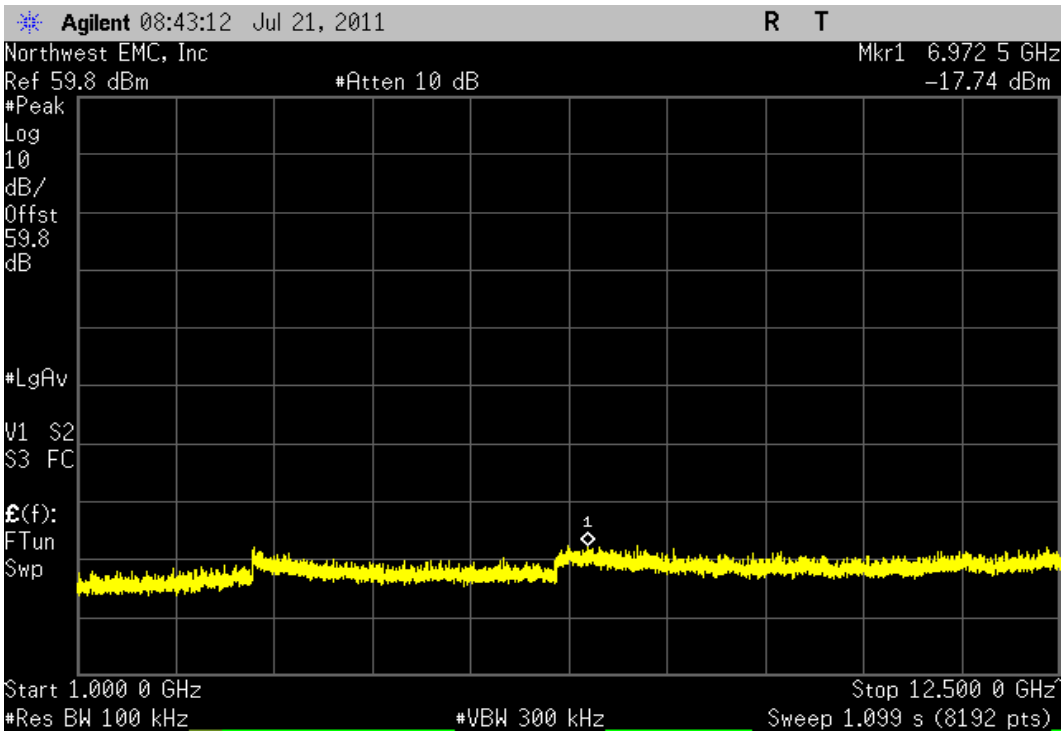
LTE 5 MHz Single Carrier, Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-62.12 dBc	≤ -13 dBc	Pass



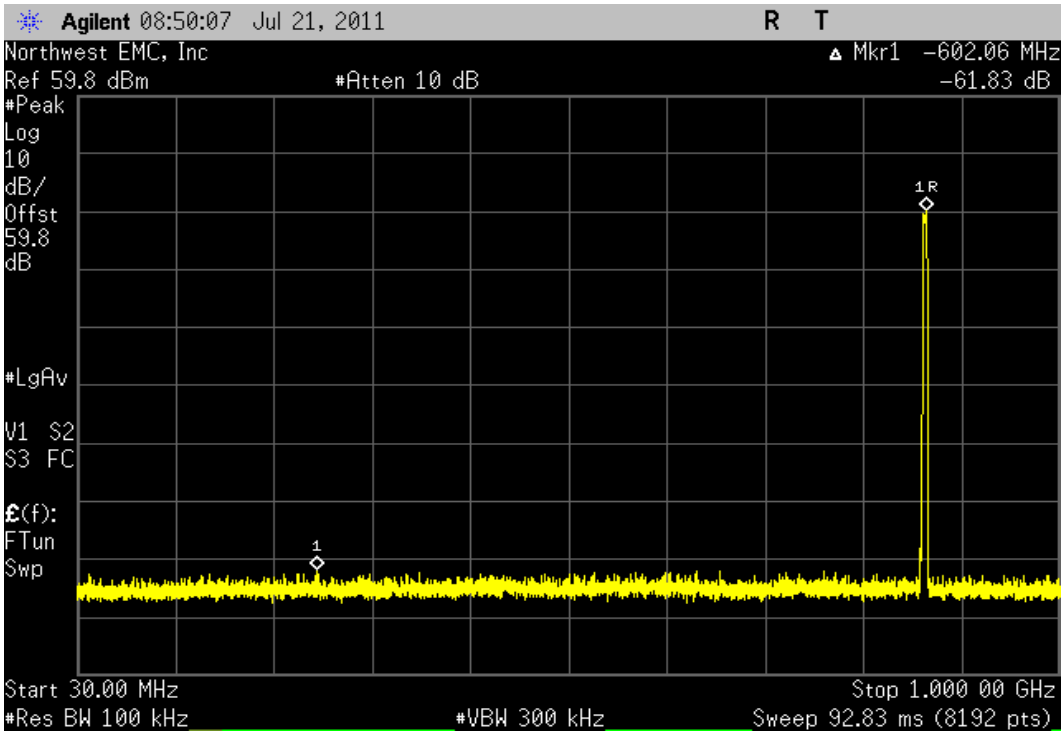
LTE 5 MHz Single Carrier, Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-58.44 dBc	≤ -13 dBc	Pass



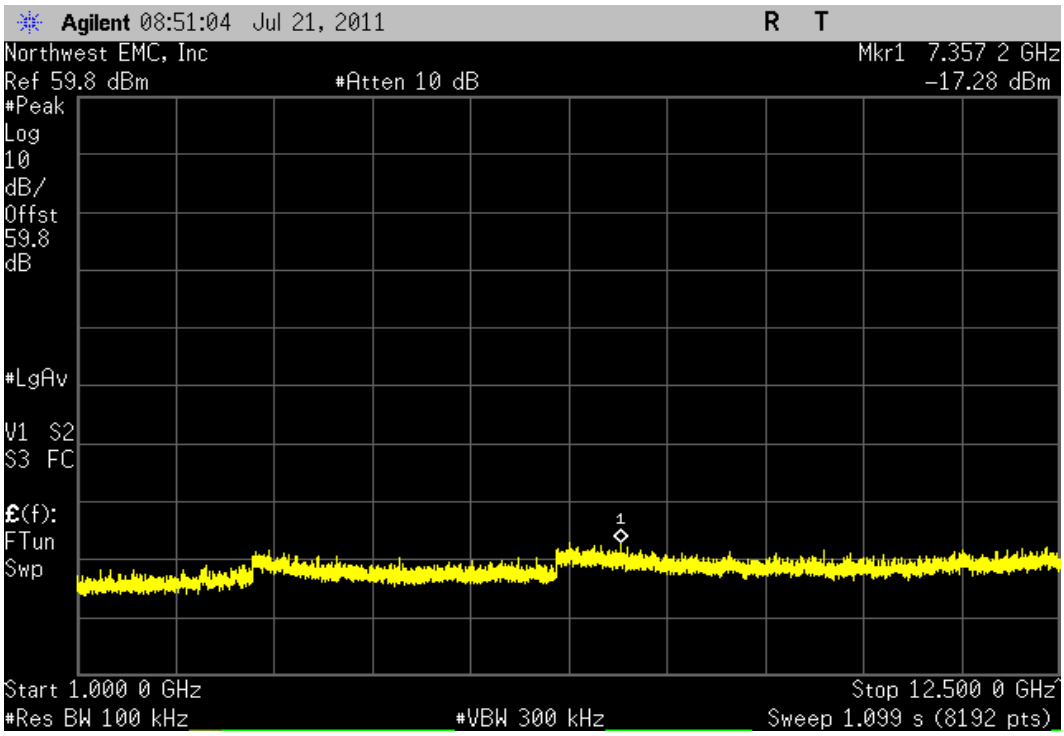
LTE 5 MHz Single Carrier, High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-61.83 dBc	≤ -13 dBc	Pass



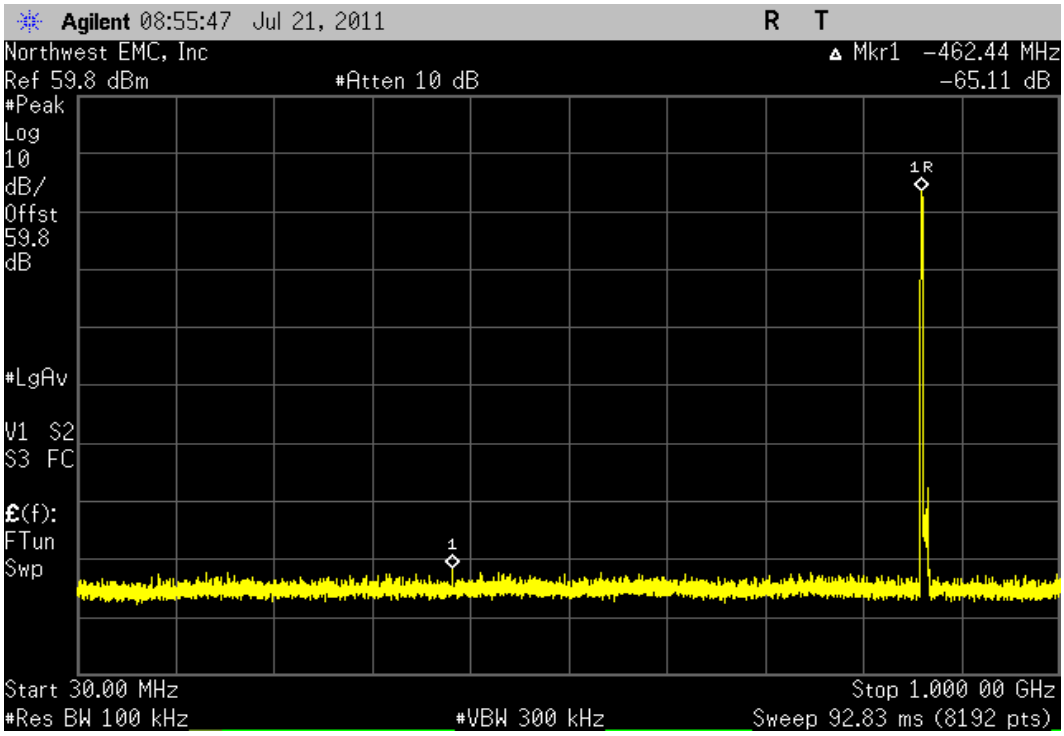
LTE 5 MHz Single Carrier, High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-57.25 dBc	≤ -13 dBc	Pass



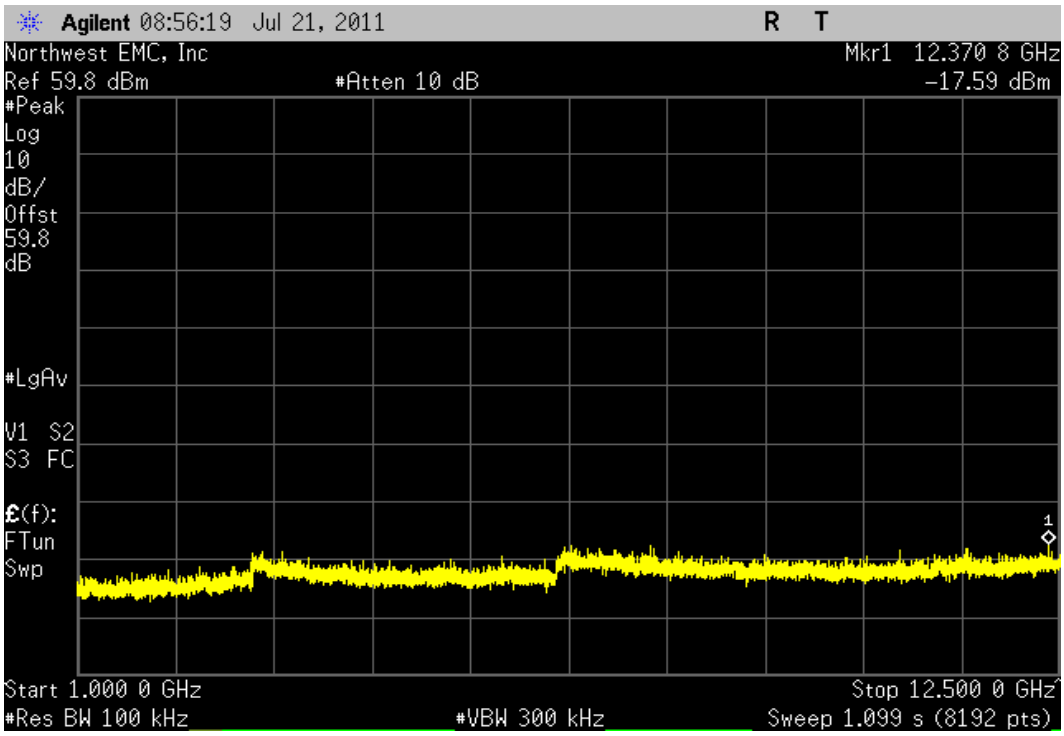
LTE 1.4 MHz Multi Carrier [2FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-65.11 dBc	≤ -13 dBc	Pass



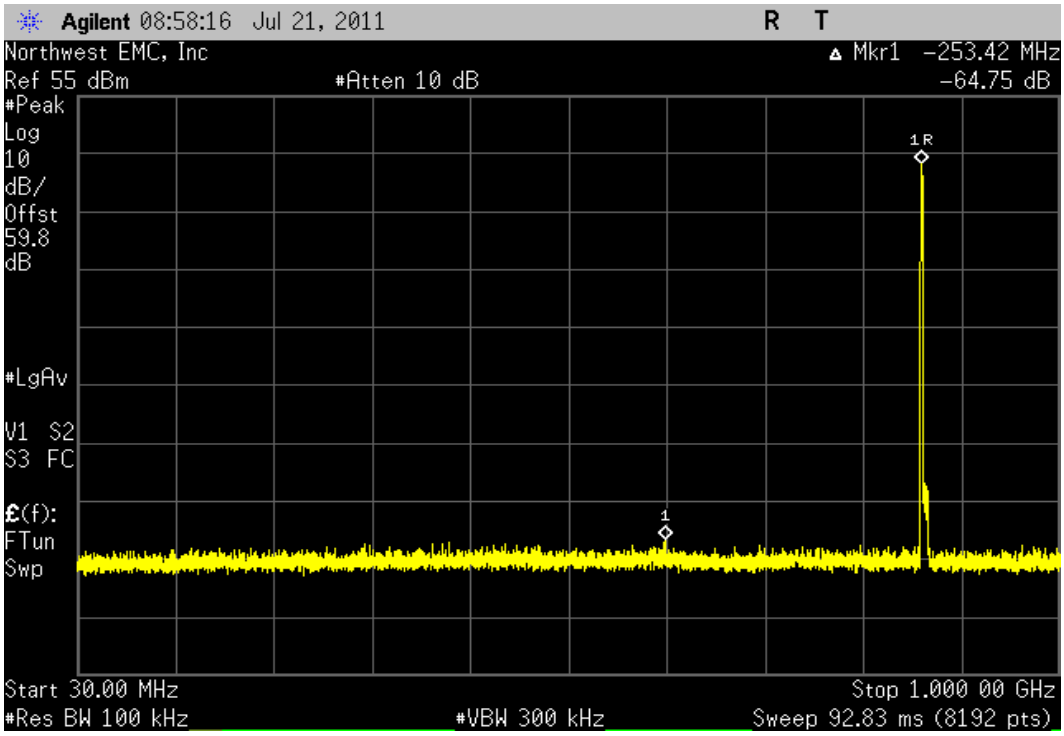
LTE 1.4 MHz Multi Carrier [2FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-61.01 dBc	≤ -13 dBc	Pass



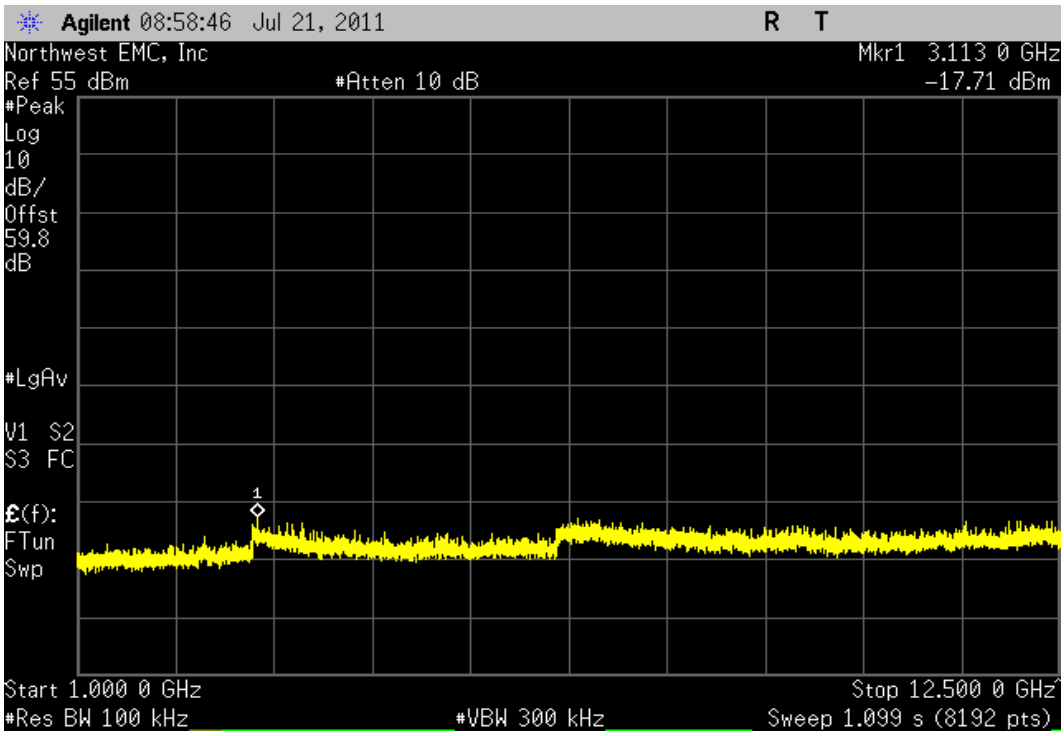
LTE 1.4 MHz Multi Carrier [2FA], Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.75 dBc	≤ -13 dBc	Pass



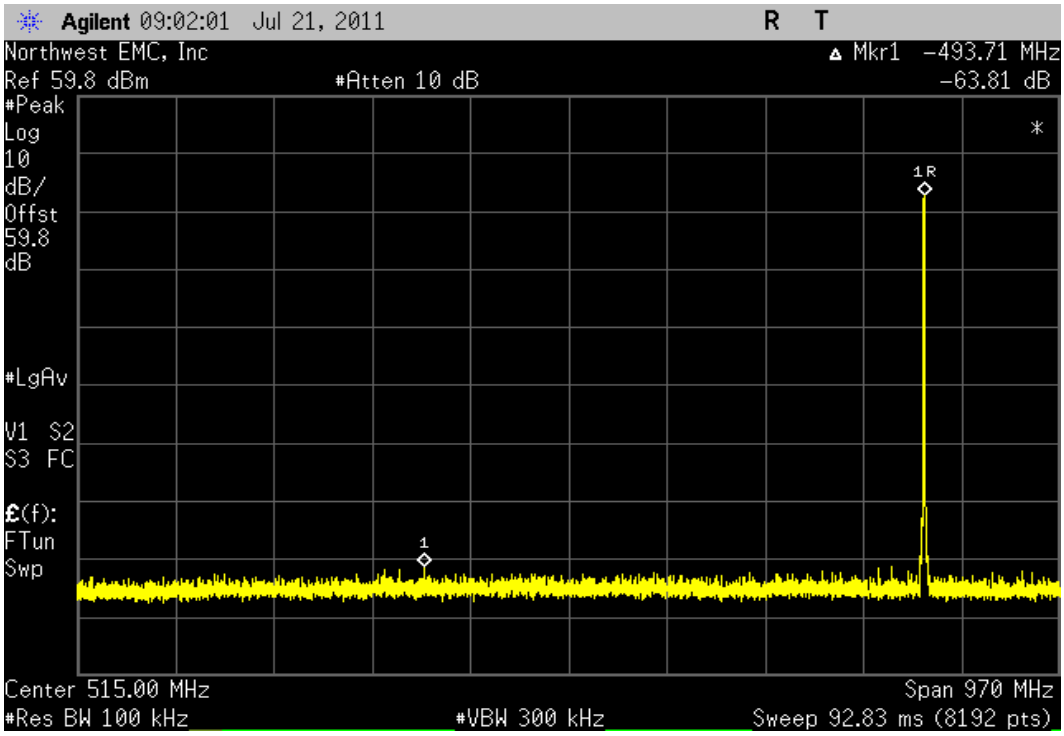
LTE 1.4 MHz Multi Carrier [2FA], Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.9 dBc	≤ -13 dBc	Pass



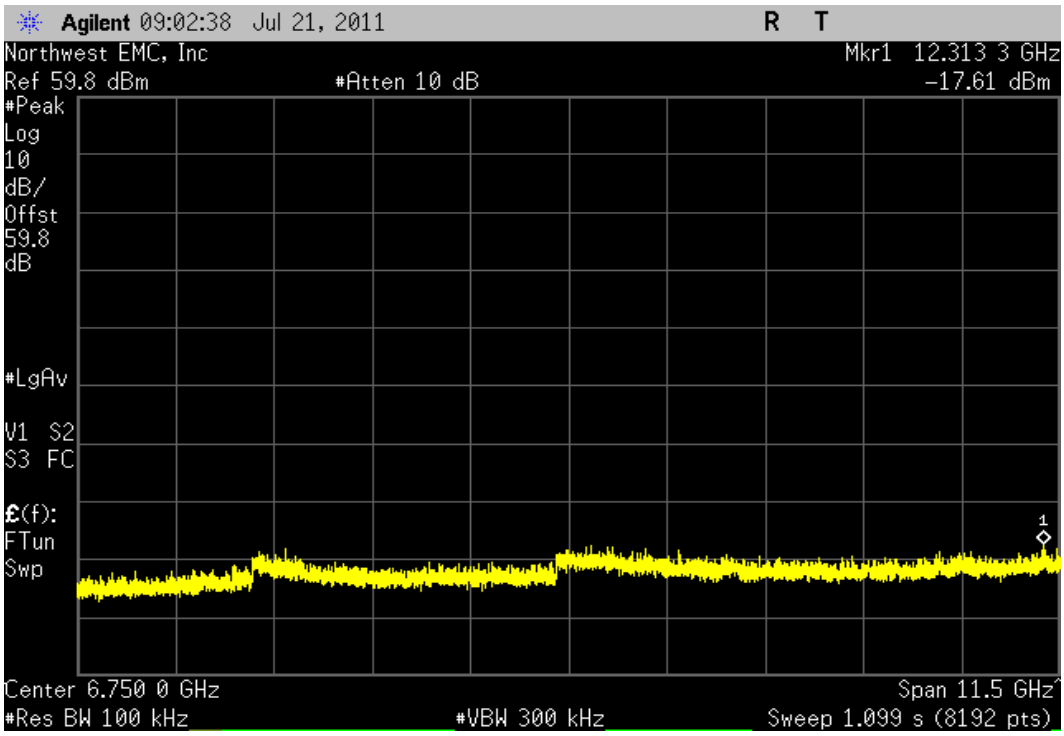
LTE 1.4 MHz Multi Carrier [2FA], High Channel

Frequency Range			Value	Limit	Result
30 MHz - 1 GHz			-63.81 dBc	≤ -13 dBc	Pass



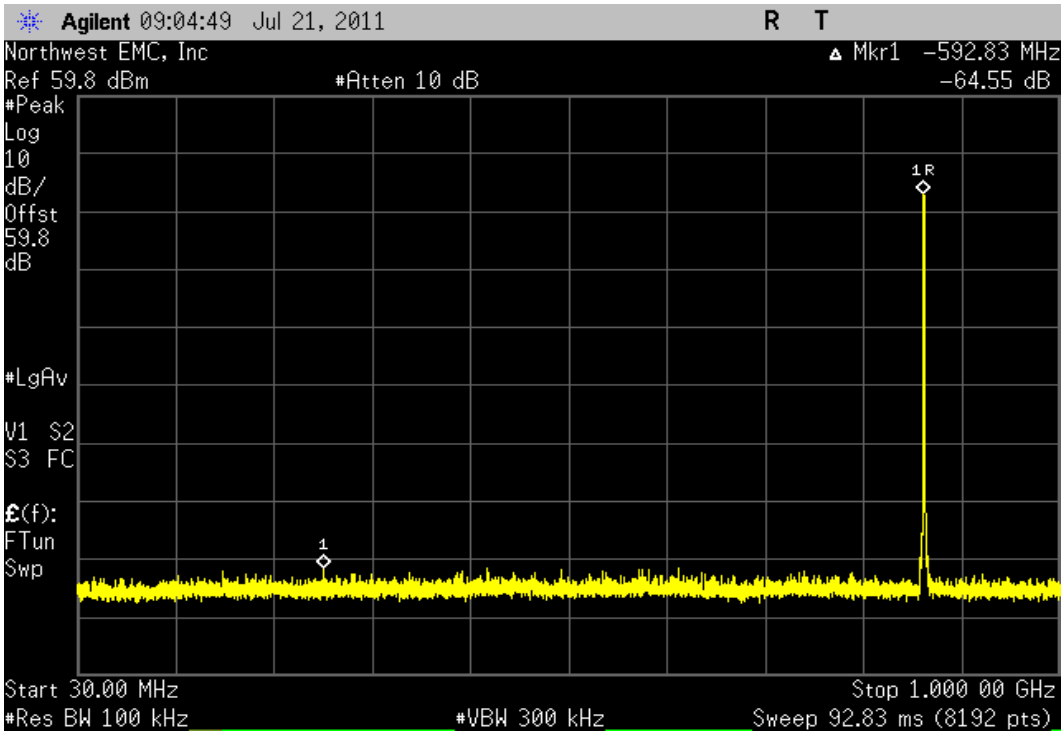
LTE 1.4 MHz Multi Carrier [2FA], High Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.12 dBc	≤ -13 dBc	Pass



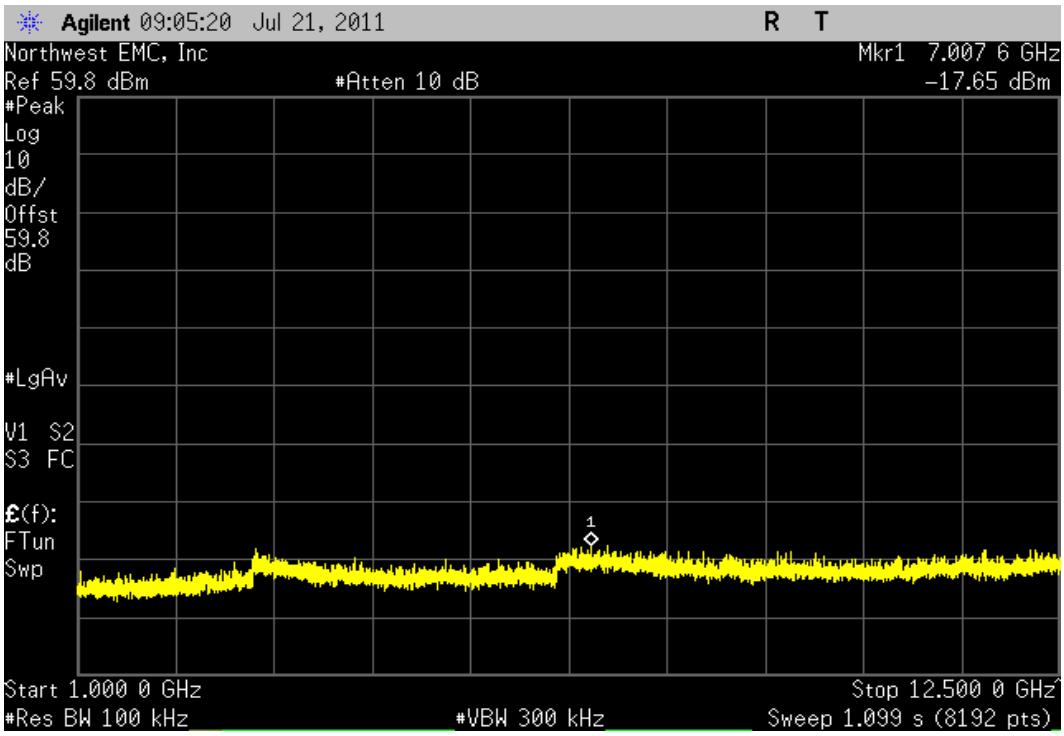
LTE 1.4 MHz Multi Carrier [2FA], Low(2) Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-64.55 dBc	≤ -13 dBc	Pass



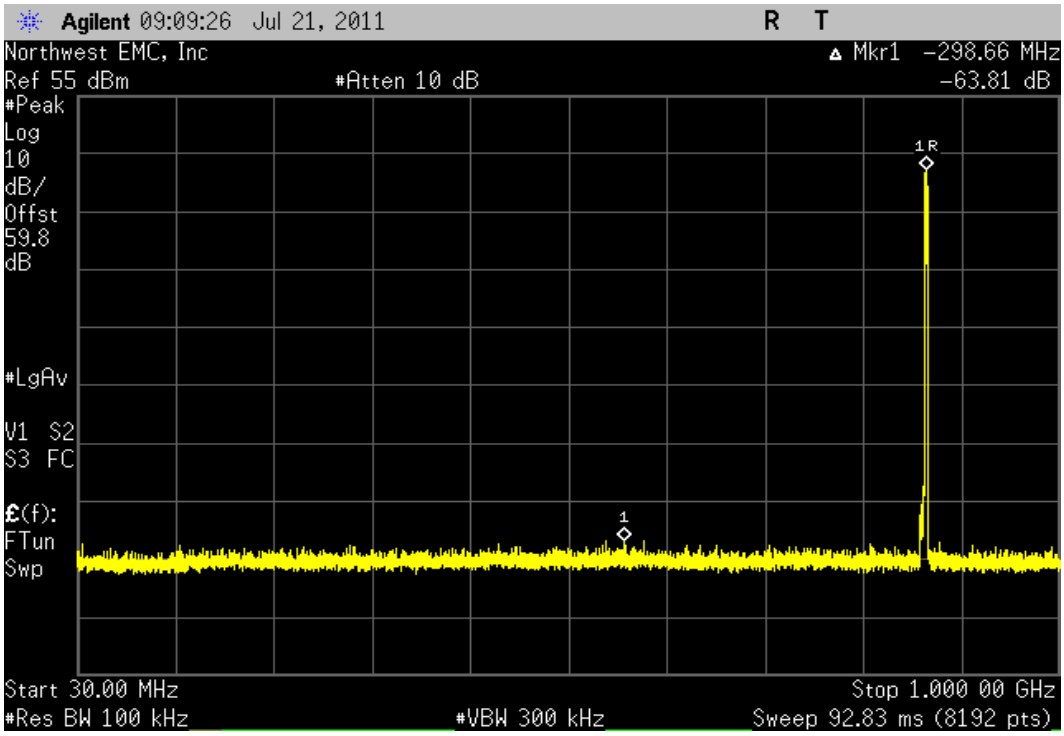
LTE 1.4 MHz Multi Carrier [2FA], Low(2) Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-60.54 dBc	≤ -13 dBc	Pass



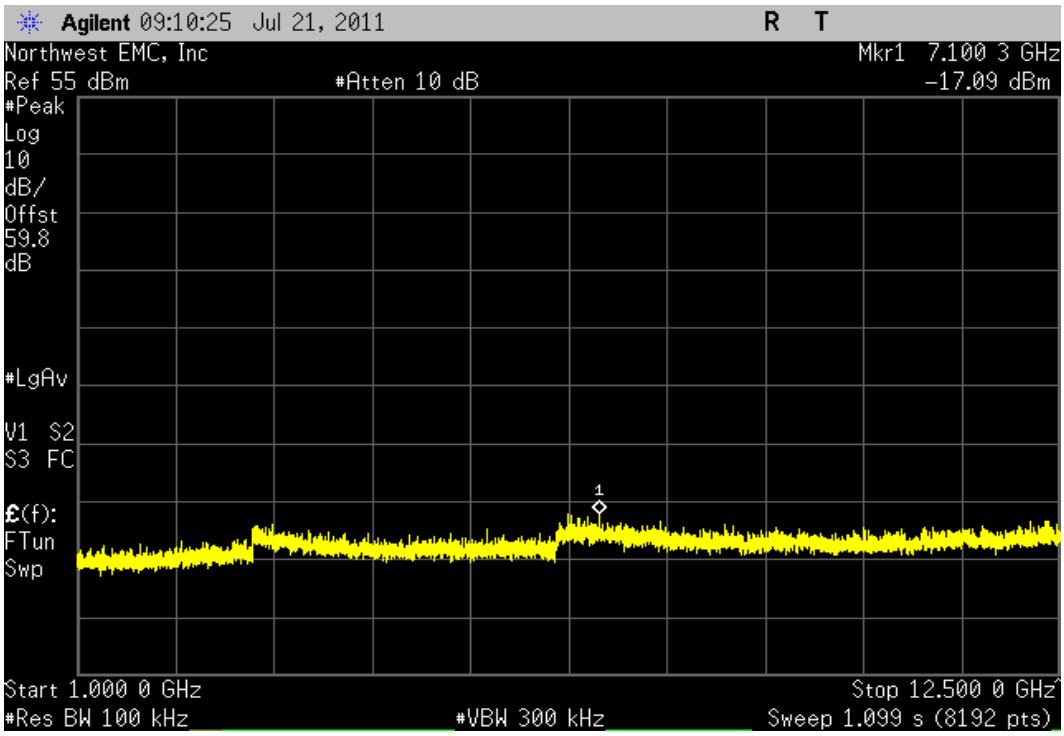
LTE 1.4 MHz Multi Carrier [2FA], Mid(2) Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-63.81 dBc	≤ -13 dBc	Pass



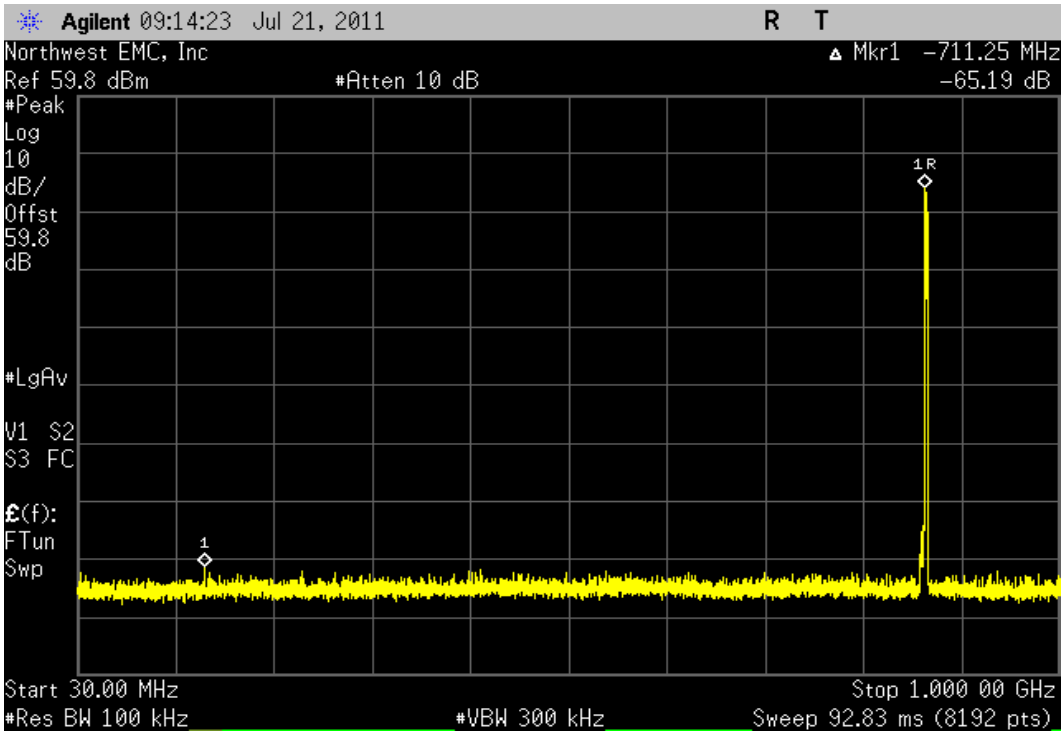
LTE 1.4 MHz Multi Carrier [2FA], Mid(2) Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-59.17 dBc	≤ -13 dBc	Pass



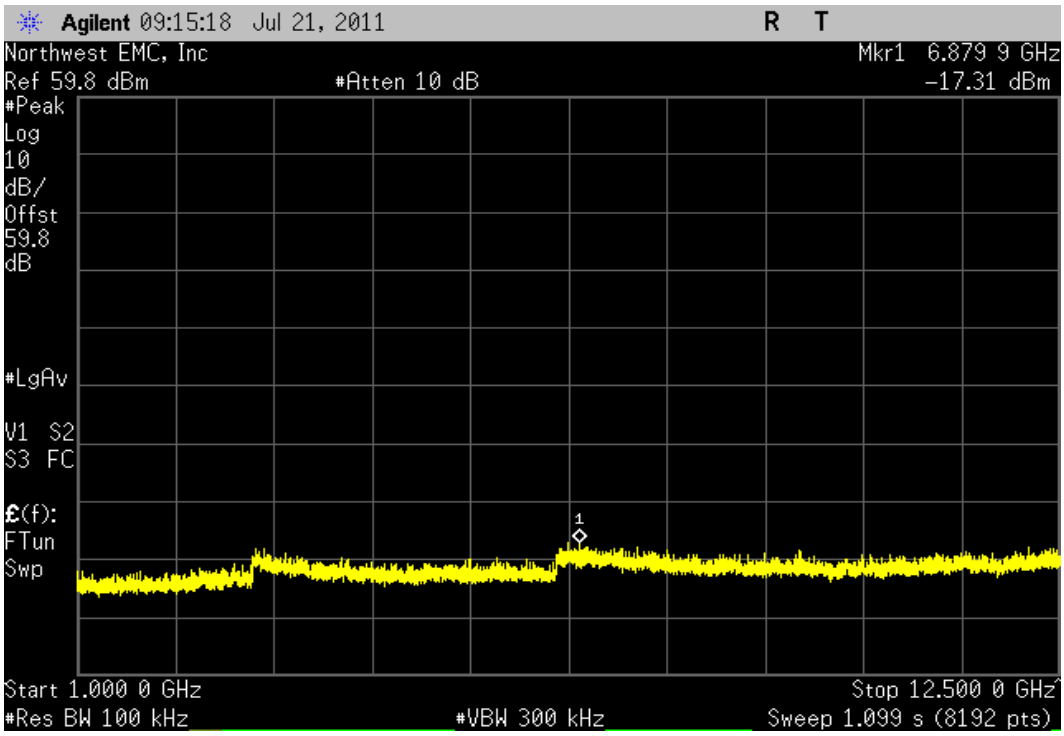
LTE 1.4 MHz Multi Carrier [2FA], High(2) Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-65.19 dBc	≤ -13 dBc	Pass



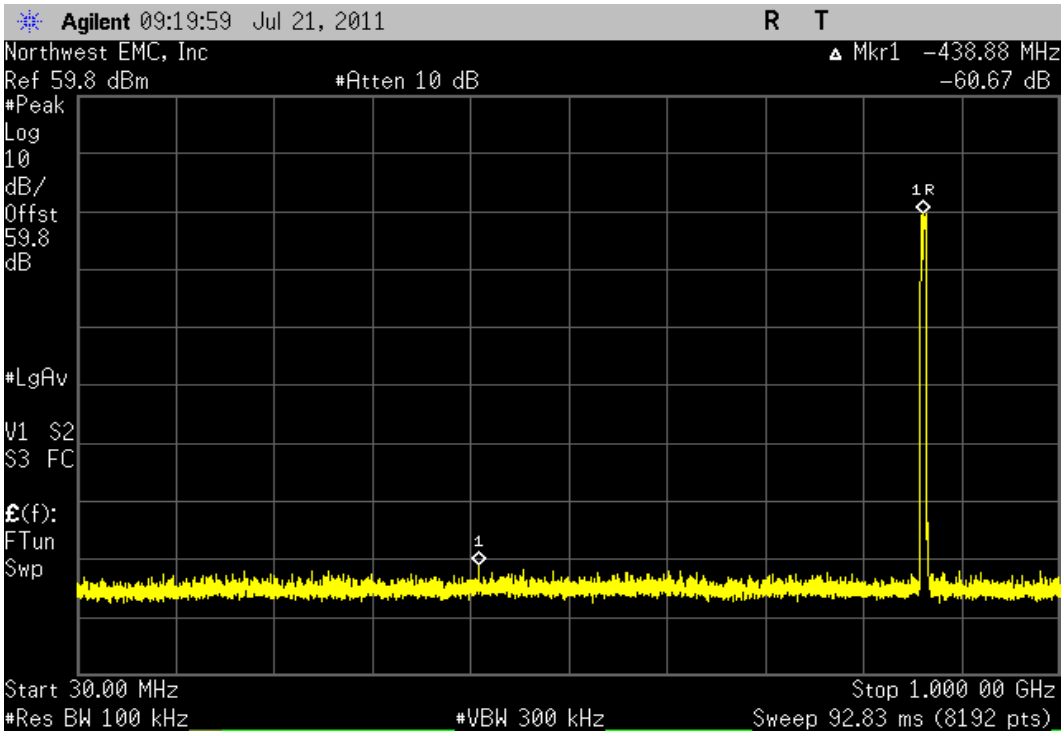
LTE 1.4 MHz Multi Carrier [2FA], High(2) Channel

Frequency Range			Value	Limit	Result
1 GHz - 12.5 GHz			-61.07 dBc	≤ -13 dBc	Pass



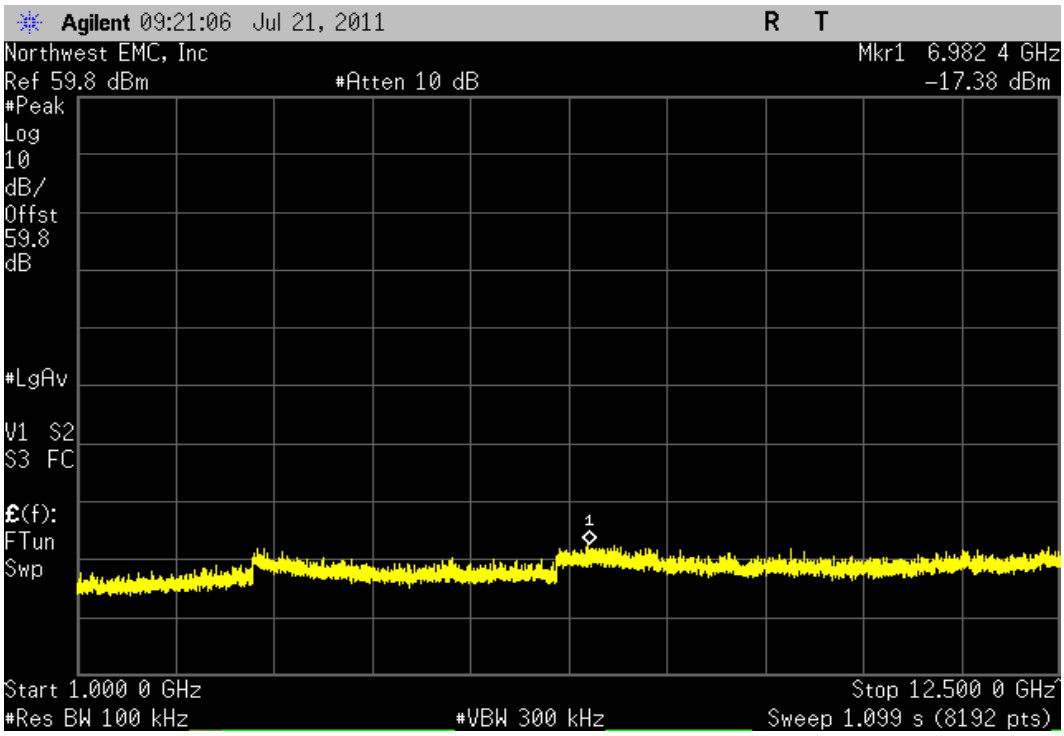
LTE 3 MHz Multi Carrier [2FA], Low Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-60.67 dBc	≤ -13 dBc	Pass



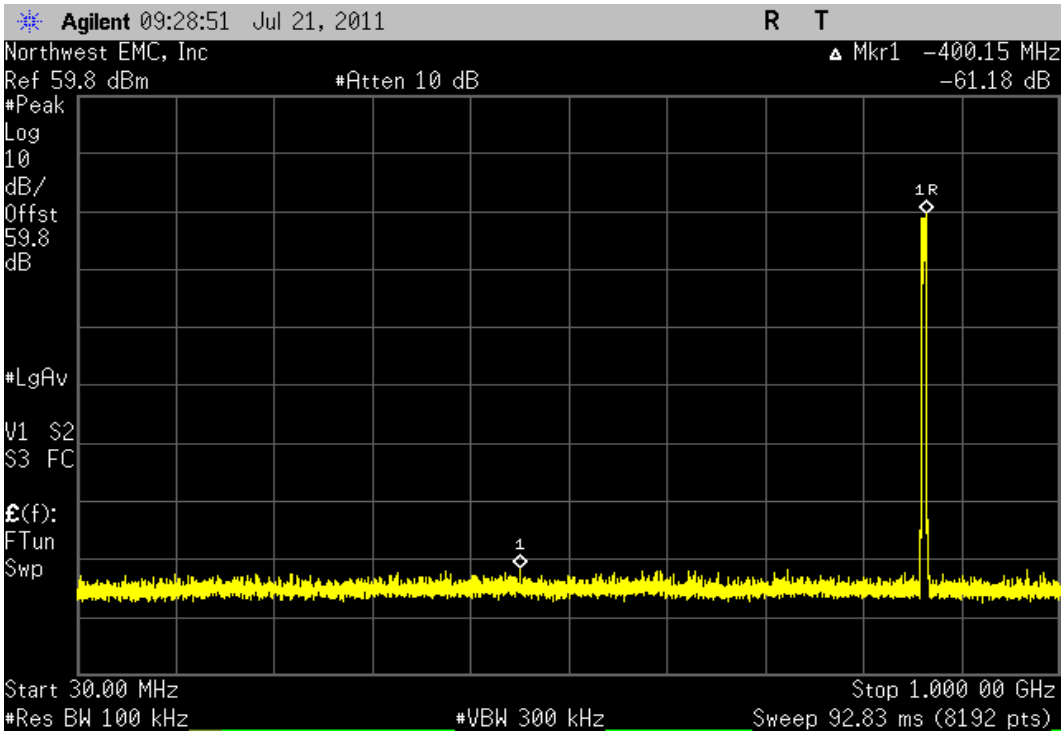
LTE 3 MHz Multi Carrier [2FA], Low Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-56.79 dBc	≤ -13 dBc	Pass



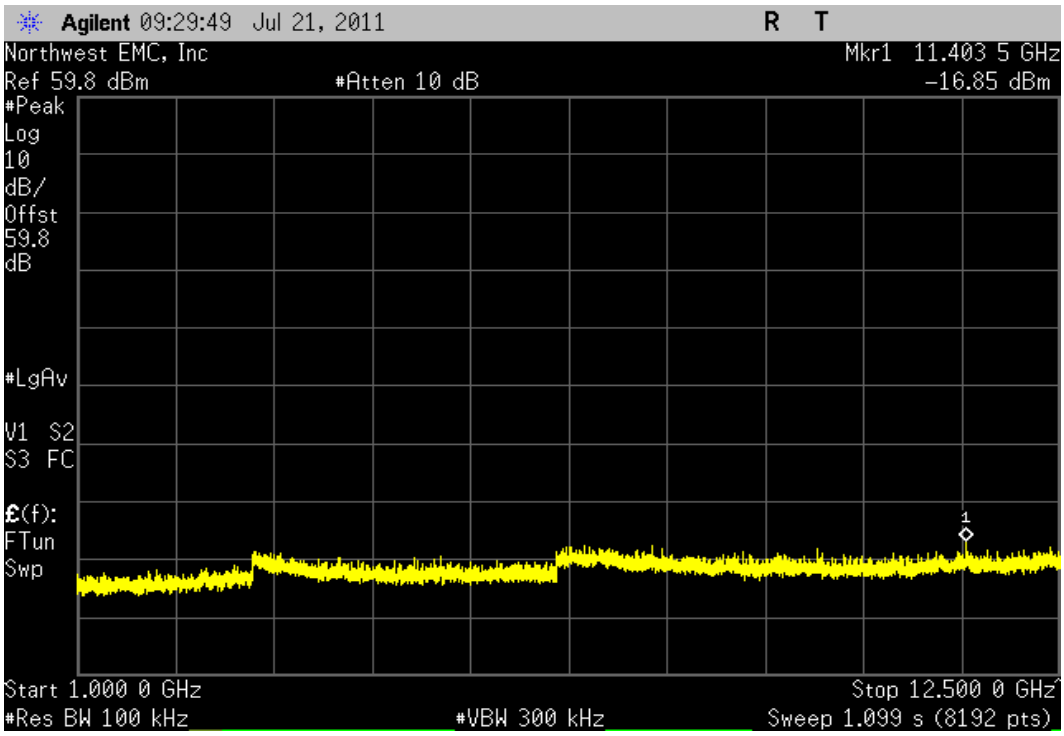
LTE 3 MHz Multi Carrier [2FA], Mid Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-61.18 dBc	≤ -13 dBc	Pass



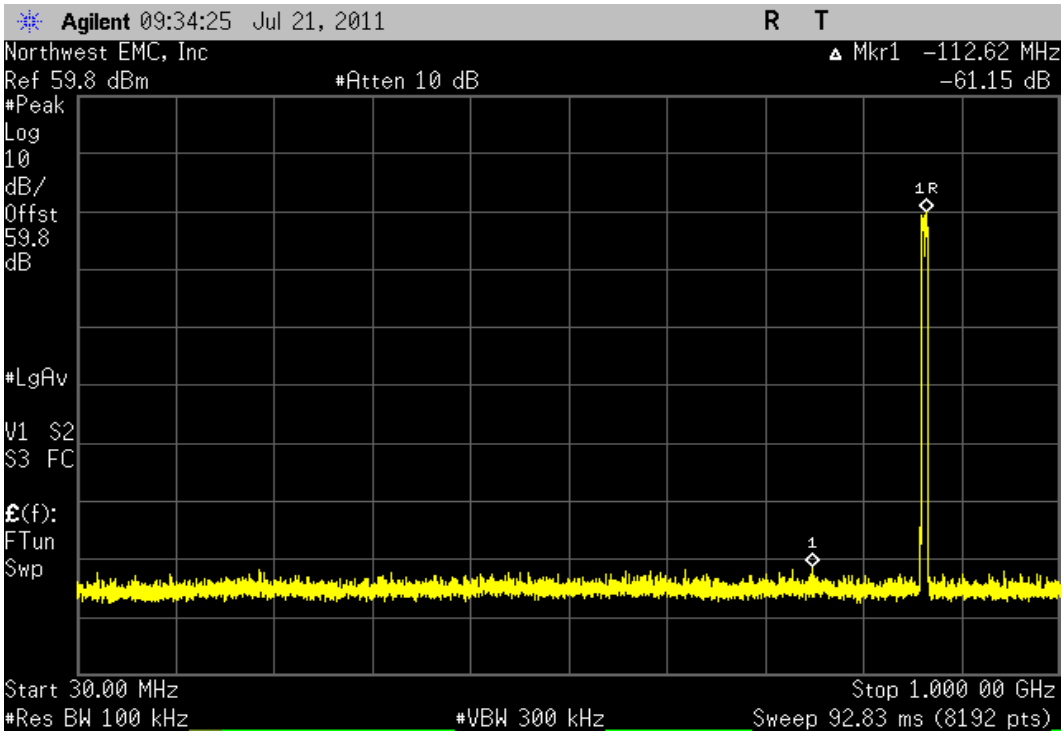
LTE 3 MHz Multi Carrier [2FA], Mid Channel

Frequency Range		Value	Limit	Result
1 GHz - 12.5 GHz		-56.28 dBc	≤ -13 dBc	Pass



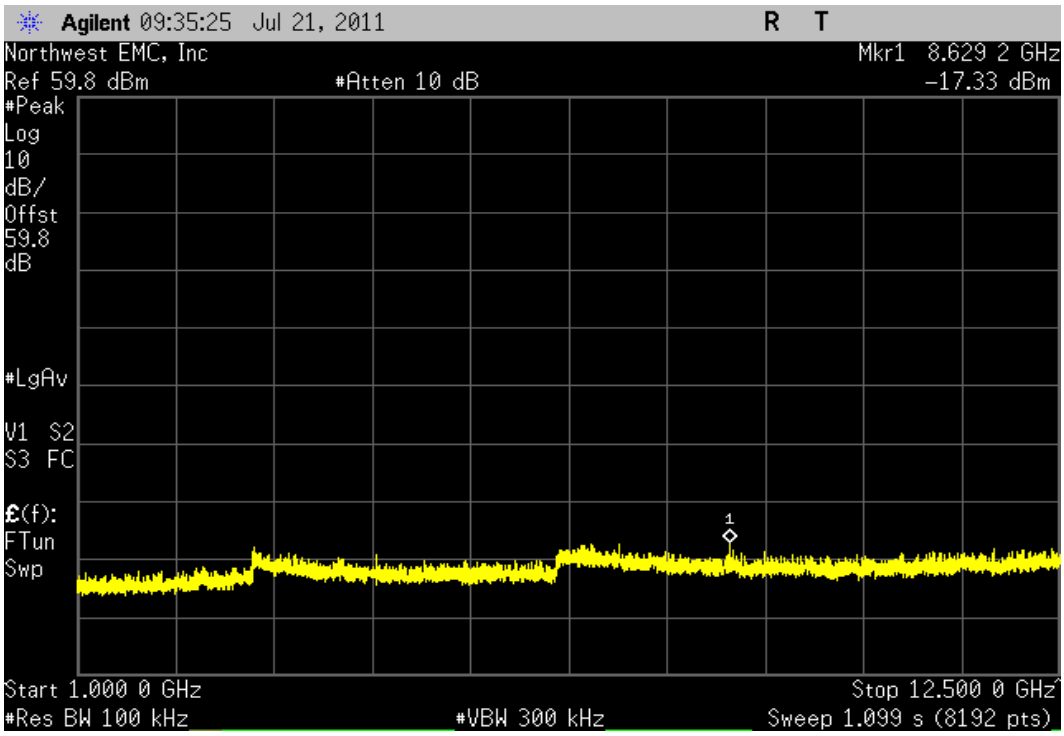
LTE 3 MHz Multi Carrier [2FA], High Channel

Frequency Range			Value	Limit	Result
	30 MHz - 1 GHz		-61.15 dBc	≤ -13 dBc	Pass



LTE 3 MHz Multi Carrier [2FA], High Channel

Frequency Range			Value	Limit	Result
	1 GHz - 12.5 GHz		-56.95 dBc	≤ -13 dBc	Pass



Spurious Radiated Emissions

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

MODES OF OPERATION
CDMA. Single Carrier - 862.9 MHz, 865.4 MHz, 867.9 MHz
CDMA. Multi Carrier (2FA) - (862.9 MHz, 867.9 MHz)
CDMA. Multi Carrier (3FA) - (862.9 MHz, 865.4 MHz, 867.9 MHz)
CDMA. Multi Carrier (5FA) - (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)
EVDO. Single Carrier - 862.9 MHz, 865.4 MHz, 867.9 MHz
EVDO. Multi Carrier (2FA) - (862.9 MHz, 867.9 MHz)
EVDO. Multi Carrier (3FA) - (862.9 MHz, 865.4 MHz, 867.9 MHz)
EVDO. Multi Carrier (5FA) - (862.9 MHz, 864.15 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)
LTE 1.4 MHz. Single Carrier 863 MHz, 865.6 MHz, 868.3 MHz
LTE 3 MHz. Single Carrier - 863.8 MHz, 865.6 MHz, 867.5 MHz
LTE 5 MHz. Single Carrier - 864.8 MHz, 865.6 MHz, 866.5 MHz
LTE 1.4 MHz. Multi Carrier (2FA) - (863 MHz, 864 MHz)
LTE 1.4 MHz. Multi Carrier (2FA) - (864.9 MHz, 866.3MHz)
LTE 1.4 MHz. Multi Carrier (2FA) - (866.9 MHz, 868.3 MHz)
LTE 3 MHz. Multi Carrier (2FA) - (863.8 MHz, 866.8 MHz)
LTE 3 MHz. Multi Carrier (2FA) - (864.1 MHz, 867.1 MHz)
LTE 3 MHz. Multi Carrier (2FA) - (864.5 MHz, 867.5 MHz)

POWER SETTINGS INVESTIGATED
48 VDC

AXIS INVESTIGATED
X Axis, Y- Axis, Z-Axis

WORST CASE AXIS
X-Axis

CONFIGURATIONS INVESTIGATED
KMWC0027 - 1

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	12400 MHz

CLOCKS AND OSCILLATORS
See Modes of Operation.

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
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	11/17/2010	12 mo
Antenna, Horn	ETS	3160-07	AHR	NCR	0 mo
OC 10 Cables	N/A	12-18GHz RE Cables	OCO	6/24/2011	12 mo
.5-1GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HFR	11/30/2010	24 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	6/24/2011	12 mo
Antenna, Horn	ETS	3117	AHQ	4/19/2011	24 mo
OC10 Cables	N/A	1-8GHz RE Cables	OCJ	6/10/2011	12 mo
Antenna, Biconilog	EMCO	3142	AXB	3/28/2011	12 mo
OC10 Cables	N/A	10kHz-1GHz RE Cables	OCH	6/24/2011	12 mo
Pre-Amplifier	Miteq	AM-1064-9079	AOO	6/28/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAY	1/11/2011	12 mo
DC Power Supply	Hewlett Packard	6574A	N/A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	N/A	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	N/A	NCR	N/A

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Corrmmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Corrmmunications	N/A	NCRA	N/A

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

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

The antenna ports were terminated in 50 ohms. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

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

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

NORTHWEST

EMC

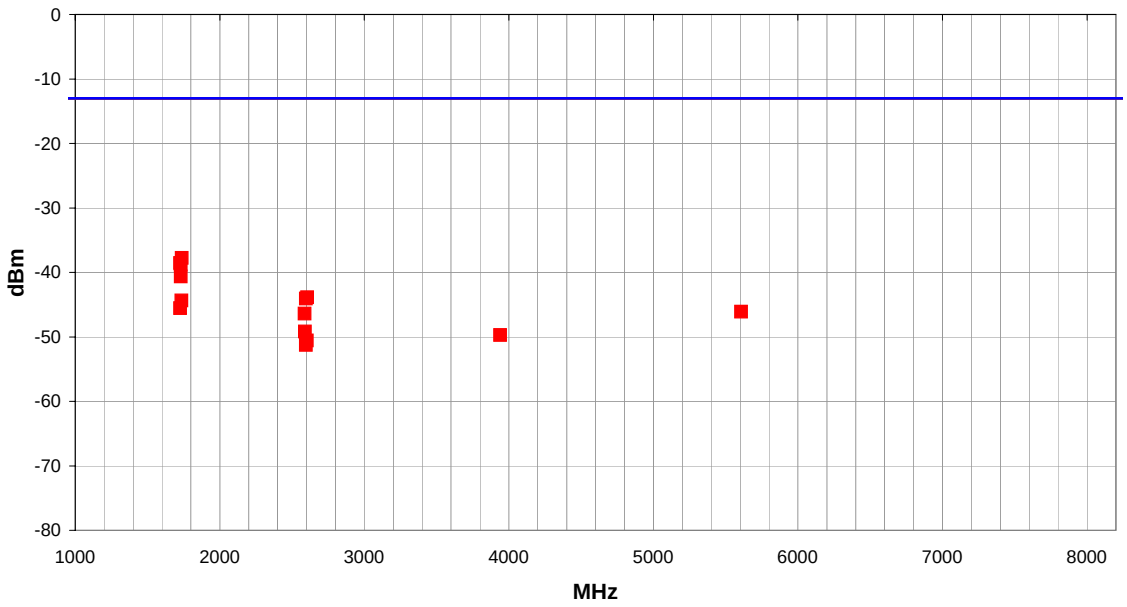
Spurious Radiated Emissions

PSA-ESCI 2011.07.07
PSA-ESCI Version 2011.05.10

Work Order:	KMWC00027	**Date:**	07/18/11		
Project:	None	**Temperature:**	21.53 °C		
Job Site:	OC10	**Humidity:**	51.83		
Serial Number:	U311210059	**Barometric Pres.:**	1018	**Tested by:**	Jaemi Suh
EUT:	800MHz i-DEN RRH				
Configuration:	1				
Customer:	KMW Communications				
Attendees:	Jaemi Suh				
EUT Power:	48 VDC				
Operating Mode:	Output Power = 50W, Single Carrier. See comments for channels.				
Deviations:	None				
Comments:	CDMA Mode. Single Carrier.				

Test Specifications	**Test Method**
FCC 90.691:2011	ANSI C63.10:2009

Run #	43	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)			Antenna Height (meters)	Azimuth (degrees)			Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1736.206			1.2	147.0			Horz	PK	1.67E-07	-37.8	-13.0	-24.8	High Channel, 867.9 MHz
1726.103			1.2	206.0			Horz	PK	1.39E-07	-38.6	-13.0	-25.6	Low Channel, 862.9 MHz
1731.160			1.2	145.0			Horz	PK	1.31E-07	-38.8	-13.0	-25.8	Mid Channel, 865.4 MHz
1730.906			1.2	26.0			Vert	PK	8.65E-08	-40.6	-13.0	-27.6	Mid Channel, 865.4 MHz
2604.127			1.2	133.0			Horz	PK	4.12E-08	-43.9	-13.0	-30.9	High Channel, 867.9 MHz
2596.589			1.2	135.0			Horz	PK	3.92E-08	-44.1	-13.0	-31.1	Mid Channel, 865.4 MHz
1736.113			1.2	15.0			Vert	PK	3.65E-08	-44.4	-13.0	-31.4	High Channel, 867.9 MHz
1726.090			1.2	42.0			Vert	PK	2.77E-08	-45.6	-13.0	-32.6	Low Channel, 862.9 MHz
5608.356			2.6	86.0			Horz	PK	2.46E-08	-46.1	-13.0	-33.1	High Channel, 867.9 MHz
2588.010			1.2	27.0			Vert	PK	2.28E-08	-46.4	-13.0	-33.4	Low Channel, 862.9 MHz
2589.494			1.2	226.0			Horz	PK	1.20E-08	-49.2	-13.0	-36.2	Low Channel, 862.9 MHz
3941.013			1.2	342.0			Vert	PK	1.06E-08	-49.7	-13.0	-36.7	Mid Channel, 865.4 MHz
2603.240			1.2	13.0			Vert	PK	8.80E-09	-50.6	-13.0	-37.6	High Channel, 867.9 MHz
2595.702			1.8	31.0			Vert	PK	7.46E-09	-51.3	-13.0	-38.3	High Channel, 867.9 MHz

NORTHWEST

EMC

Spurious Radiated Emissions

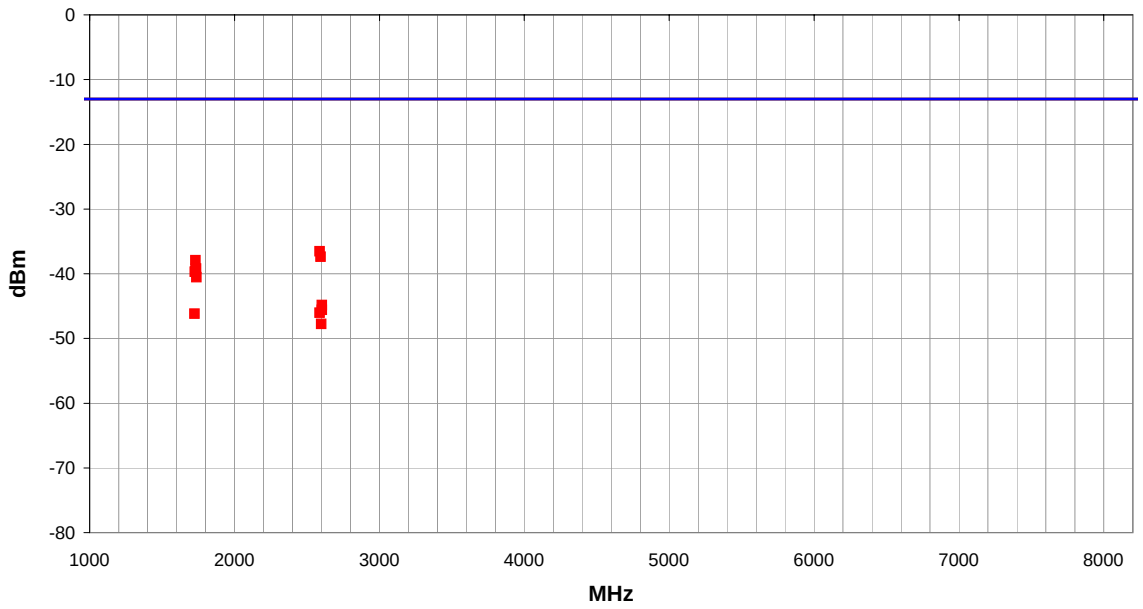
PSA-ESCI 2011.07.07
PSA-ESCI Version 2011.05.10

Work Order:	KMWC00027	**Date:**	07/18/11		
Project:	None	**Temperature:**	22.86 °C		
Job Site:	OC10	**Humidity:**	51.63		
Serial Number:	U311210059	**Barometric Pres.:**	1012.2	**Tested by:**	Jaemi Suh

EUT:	800MHz i-DEN RRH
Configuration:	1
Customer:	KMW Communications
Attendees:	Jaemi Suh
EUT Power:	48 VDC
Operating Mode:	Output Power = 40W, Single Carrier. See comments for channels.
Deviations:	None
Comments:	EVDO Mode. Single Carrier.

Test Specifications	**Test Method**
FCC 90.691:2011	ANSI C63.10:2009

Run #	56	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)			Antenna Height (meters)	Azimuth (degrees)			Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2587.744			1.2	134.0			Horz	PK	2.23E-07	-36.5	-13.0	-23.5	Low Channel, 862.9 MHz
2595.109			1.2	140.0			Horz	PK	1.83E-07	-37.4	-13.0	-24.4	Mid Channel, 865.4 MHz
1730.872			1.3	24.0			Vert	PK	1.61E-07	-37.9	-13.0	-24.9	High Channel, 867.9 MHz
1736.173			1.2	133.0			Horz	PK	1.19E-07	-39.2	-13.0	-26.2	High Channel, 867.9 MHz
1730.819			1.2	129.0			Horz	PK	1.11E-07	-39.5	-13.0	-26.5	Mid Channel, 865.4 MHz
1725.838			1.2	27.0			Vert	PK	1.08E-07	-39.7	-13.0	-26.7	Low Channel, 862.9 MHz
1736.827			1.2	23.0			Vert	PK	8.85E-08	-40.5	-13.0	-27.5	Mid Channel, 865.4 MHz
2603.854			1.2	130.0			Horz	PK	3.27E-08	-44.9	-13.0	-31.9	High Channel, 867.9 MHz
2603.845			1.2	20.0			Vert	PK	2.77E-08	-45.6	-13.0	-32.6	High Channel, 867.9 MHz
2588.730			1.2	28.0			Vert	PK	2.51E-08	-46.0	-13.0	-33.0	Low Channel, 862.9 MHz
1725.418			2.3	112.0			Horz	PK	2.41E-08	-46.2	-13.0	-33.2	Low Channel, 862.9 MHz
2598.289			1.2	1.0			Vert	PK	1.67E-08	-47.8	-13.0	-34.8	Mid Channel, 865.4 MHz

NORTHWEST
EMC

Spurious Radiated Emissions

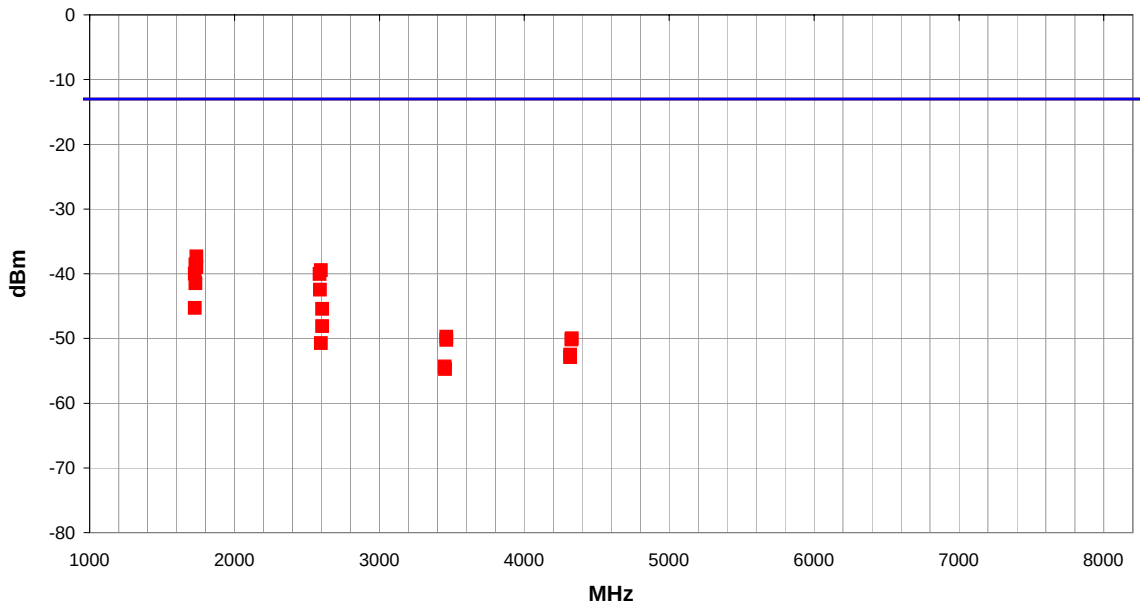
PSA-ESCI 2011.07.07
PSA-ESCI Version 2011.05.10

Work Order:	KMWC00027	**Date:**	07/19/11		
Project:	None	**Temperature:**	22.86 °C		
Job Site:	OC10	**Humidity:**	51.63		
Serial Number:	U311210059	**Barometric Pres.:**	1012.2	**Tested by:**	Jaemi Suh

EUT:	800MHz i-DEN RRH
Configuration:	1
Customer:	KMW Communications
Attendees:	Jaemi Suh
EUT Power:	48 VDC
Operating Mode:	Output Power = 50W, LTE 1.4 MHz, Single Carrier, See Comments for channels.
Deviations:	None
Comments:	LTE. Single Carrier.

Test Specifications	**Test Method**
FCC 90.691:2011	ANSI C63.10:2009

Run #	73	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



Freq (MHz)			Antenna Height (meters)	Azimuth (degrees)			Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1736.586			1.2	22.0			Vert	PK	1.84E-07	-37.3	-13.0	-24.3	High Channel, 868.3 MHz
1731.465			1.2	24.0			Vert	PK	1.39E-07	-38.6	-13.0	-25.6	Mid Channel, 865. 6 MHz
1736.840			1.2	148.0			Horz	PK	1.28E-07	-38.9	-13.0	-25.9	High Channel, 868.3 MHz
2596.720			1.2	24.0			Vert	PK	1.14E-07	-39.4	-13.0	-26.4	Mid Channel, 865. 6 MHz
1725.952			1.2	219.0			Horz	PK	1.00E-07	-40.0	-13.0	-27.0	Low Channel, 863 MHz
2588.624			1.2	139.0			Horz	PK	9.87E-08	-40.1	-13.0	-27.1	Low Channel, 863 MHz
1731.119			1.2	131.0			Horz	PK	7.13E-08	-41.5	-13.0	-28.5	Mid Channel, 865. 6 MHz
2589.184			1.2	36.0			Vert	PK	5.68E-08	-42.5	-13.0	-29.5	Low Channel, 863 MHz
1726.272			1.3	16.0			Vert	PK	2.96E-08	-45.3	-13.0	-32.3	Low Channel, 863 MHz
2604.791			1.2	15.0			Vert	PK	2.86E-08	-45.4	-13.0	-32.4	High Channel, 868.3 MHz
2605.340			1.2	112.0			Horz	PK	1.54E-08	-48.1	-13.0	-35.1	High Channel, 868.3 MHz
3461.713			1.0	293.0			Horz	PK	1.07E-08	-49.7	-13.0	-36.7	Mid Channel, 865. 6 MHz
4328.600			1.2	293.0			Horz	PK	1.00E-08	-50.0	-13.0	-37.0	Mid Channel, 865. 6 MHz
4326.567			1.0	293.0			Vert	PK	9.54E-09	-50.2	-13.0	-37.2	Mid Channel, 865. 6 MHz
3462.053			2.8	337.0			Vert	PK	9.51E-09	-50.2	-13.0	-37.2	Mid Channel, 865. 6 MHz
2596.956			1.2	212.0			Horz	PK	8.45E-09	-50.7	-13.0	-37.7	Mid Channel, 865. 6 MHz
4316.220			1.0	171.0			Horz	PK	5.59E-09	-52.5	-13.0	-39.5	Low Channel, 863 MHz
4316.253			2.8	301.0			Vert	PK	5.10E-09	-52.9	-13.0	-39.9	Low Channel, 863 MHz
3451.433			2.5	103.0			Vert	PK	3.66E-09	-54.4	-13.0	-41.4	Low Channel, 863 MHz
3452.647			1.0	1.0			Horz	PK	3.34E-09	-54.8	-13.0	-41.8	Low Channel, 863 MHz

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
Power Meter	Hewlett Packard	E4418A	SPA	4/21/2010	24
Power Sensor	Agilent	E4412A	SQE	4/21/2010	24
Signal Generator	Agilent	E8257D	TGU	1/26/2011	12
Directional Coupler 800MHz-2500MHz	Fairview Microwave	SMC4030	RGN	6/17/2011	24
Spectrum Analyzer	Agilent	E4440A	AFG	4/28/2011	12

CUSTOMER TEST SET

Description	Manufacturer	Model	Last Cal.	Interval
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Signal Analyzer	Agilent	N9020a	6/20/2011	24
MXA Vector Signal Generator	Agilent	N5182	6/7/2010	24
KMW Cobra Reliability Analyzer	KMW Commmunications	N/A	NCR	N/A
Power Meter	Agilent	E4419B	4/1/2010	24
Power Head	Agilent	E9300H	NCR	N/A
Power Head	Agilent	E9300H	NCR	N/A
DC Power Supply	Hewlett Packard	6574A	NCR	N/A
30 dB Directional Coupler (800-2500 MHz)	Fairview Microwave	SMC4030	NCR	N/A
50 Ohm Termination	Fairview Microwave	ST6NL-150	NCR	N/A
Fujitsu Laptop	Fujitsu	A6030	NCR	N/A
RRH220 Software	KMW Commmunications	N/A	NCRA	N/A

MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

TEST DESCRIPTION

Per the Sprint Nextel's request for Waiver to permit the operation of Broadband CDMA Technology in the 817 - 824/862 - 869 MHz band, this testing was done for CDMA and EVDO operation.

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10(f/6.1) decibels or 50 + 10 Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

NORTHWEST
EMC

EMISSION MASK

XMit 2011.08.04
PsaTx 2011.07.05

EUT:	800MHz iDEN RRH			**Work Order:**	KMWC0030
Serial Number:	U311210059			**Date:**	09/07/11
Customer:	KMW Communications			**Temperature:**	22.86°C
Attendees:	Joshua Jang			**Humidity:**	52%
Project:	None			**Barometric Pres.:**	1012.2
Tested by:	Jaemi Suh	**Power:**	48 VDC	**Job Site:**	OC11

TEST SPECIFICATIONS	TEST METHOD
FCC 90.691:2011	ANSI/TIA/EIA-603-C-2004

COMMENTS

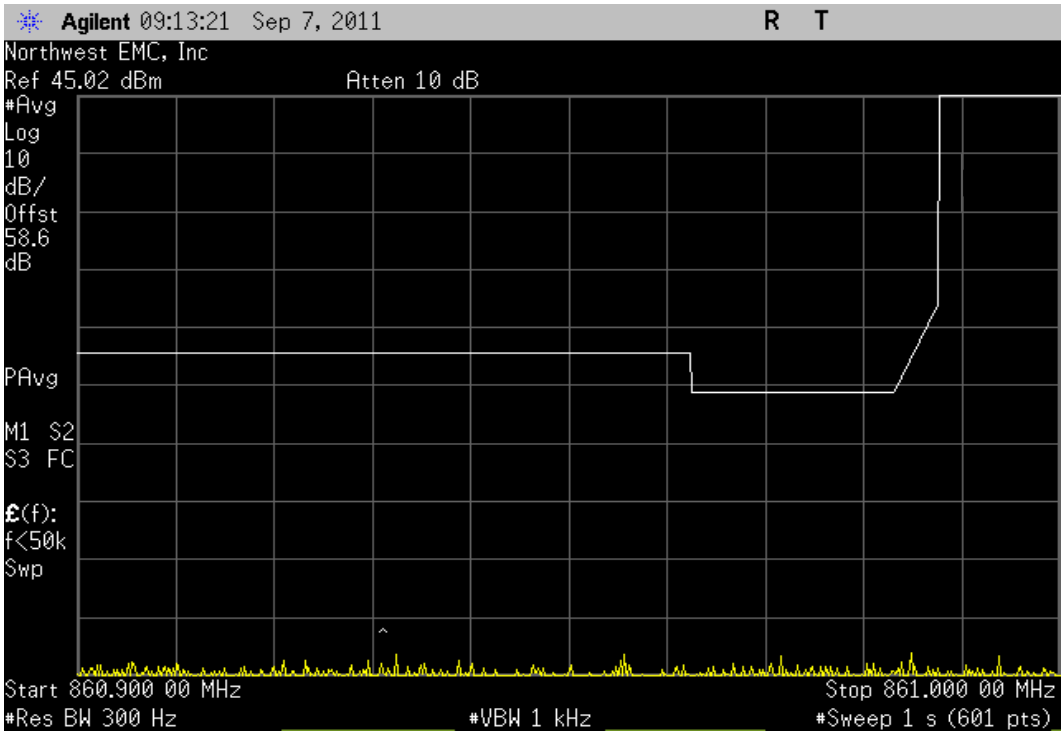
DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature

	Value	Limit	Result
CDMA			
Antenna Port A			
Single Carrier, 862.9 MHz			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Single Carrier, 867.9 MHz			
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Antenna Port B			
Single Carrier, 862.9 MHz			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Single Carrier, 867.9 MHz			
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
EVDO			
Antenna Port A			
Single Carrier, 862.9 MHz			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Single Carrier, 867.9 MHz			
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Antenna Port B			
Single Carrier, 862.9 MHz			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Single Carrier, 867.9 MHz			
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass
Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz)			
Lower Band Edge Zoomed In	N/A	See Graphs	Pass
Lower Band Edge Zoomed Out	N/A	See Graphs	Pass
Upper Band Edge Zoomed In	N/A	See Graphs	Pass
Upper Band Edge Zoomed Out	N/A	See Graphs	Pass

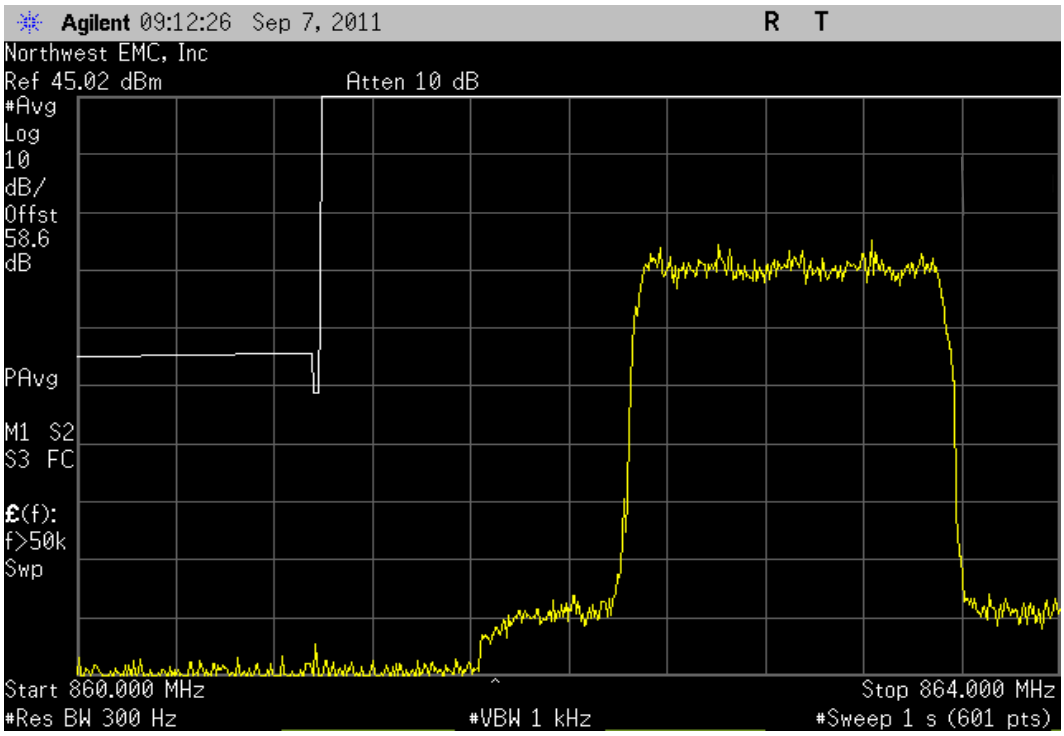
CDMA, Antenna Port A, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



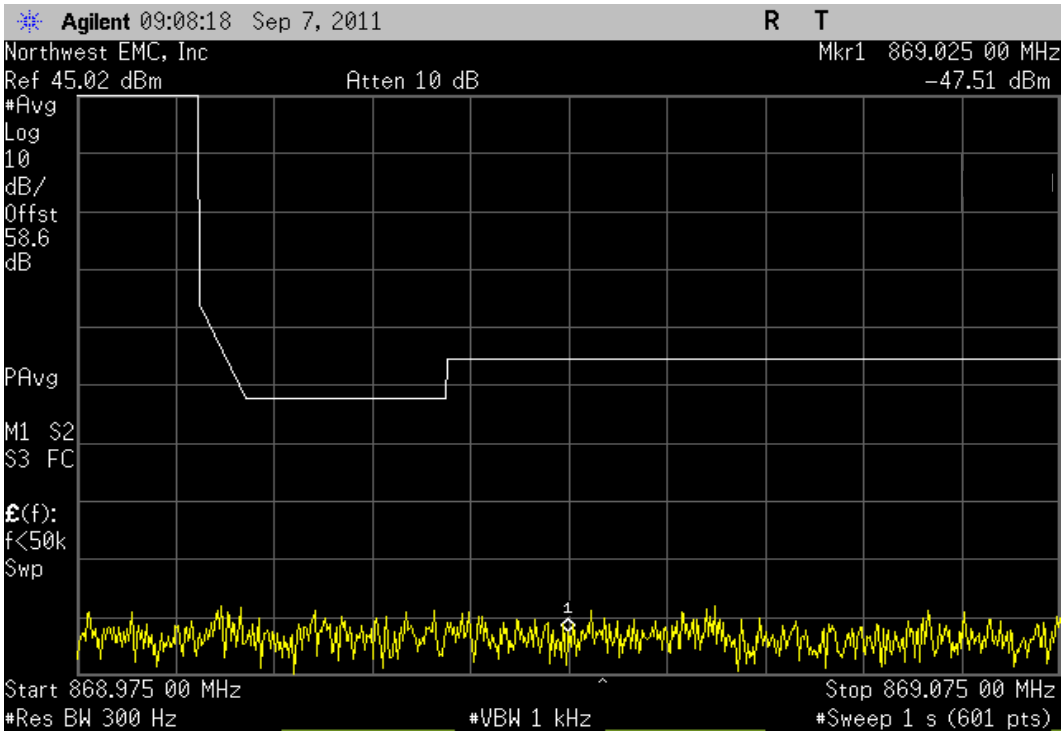
CDMA, Antenna Port A, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



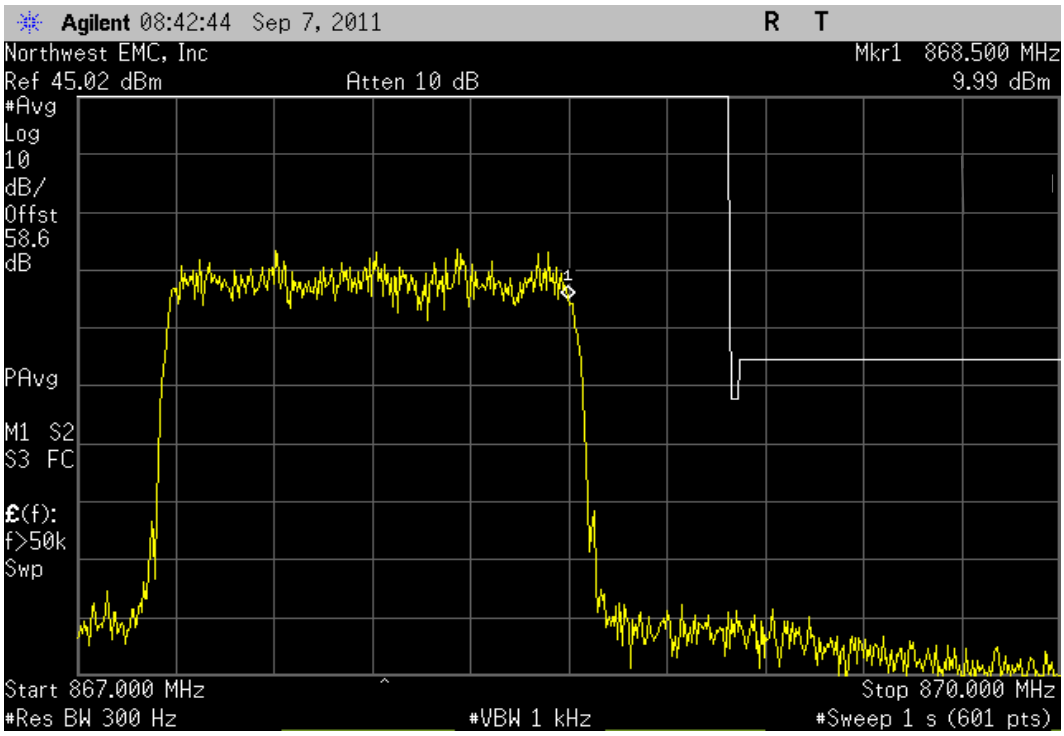
CDMA, Antenna Port A, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



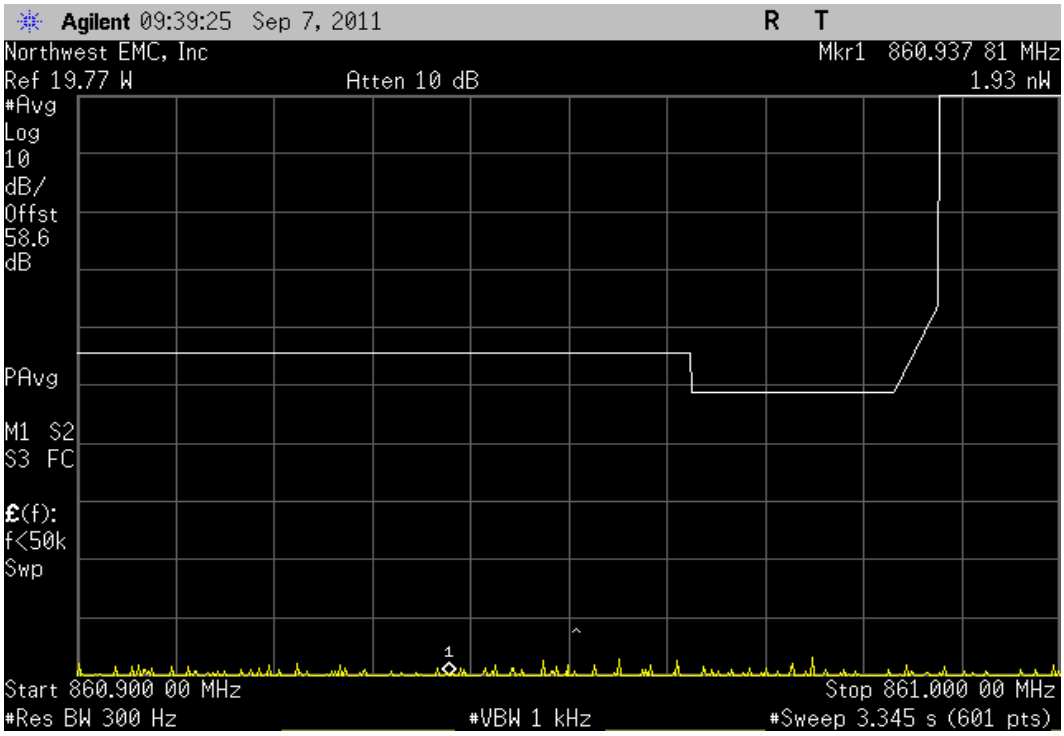
CDMA, Antenna Port A, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



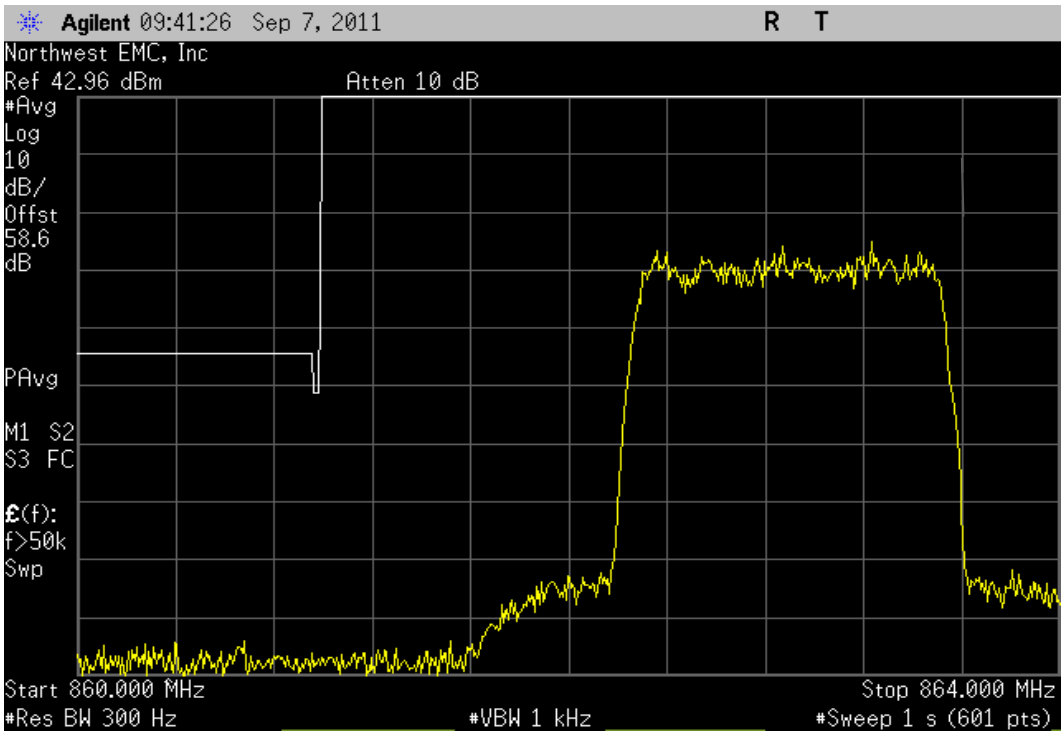
CDMA, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



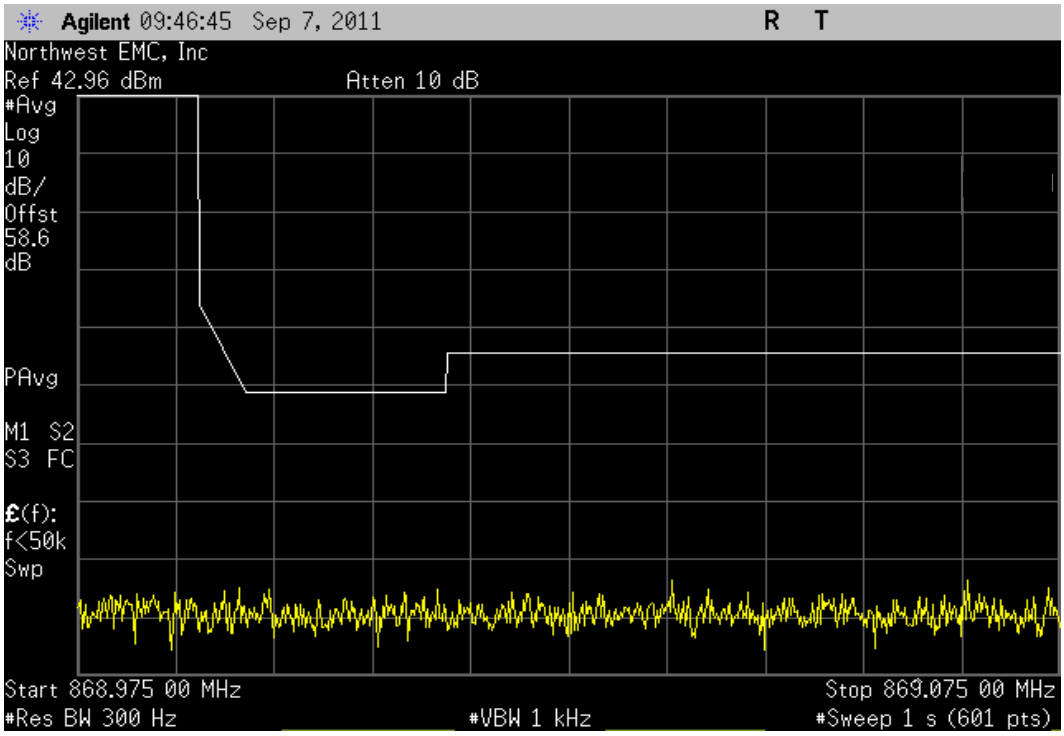
CDMA, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



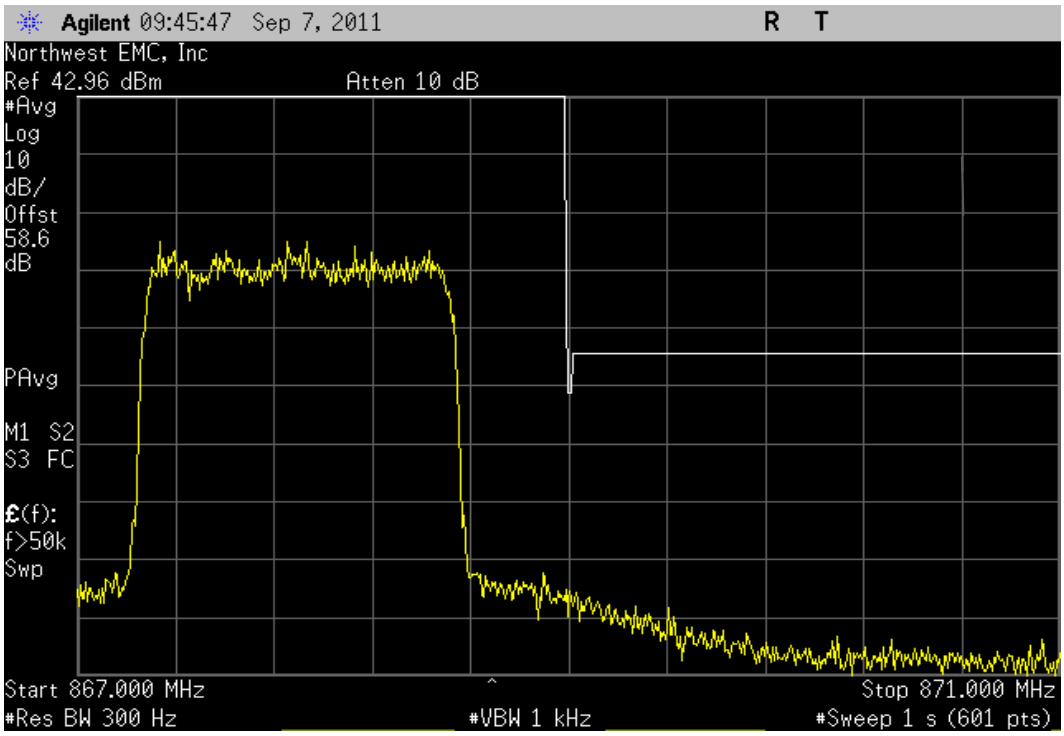
CDMA, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



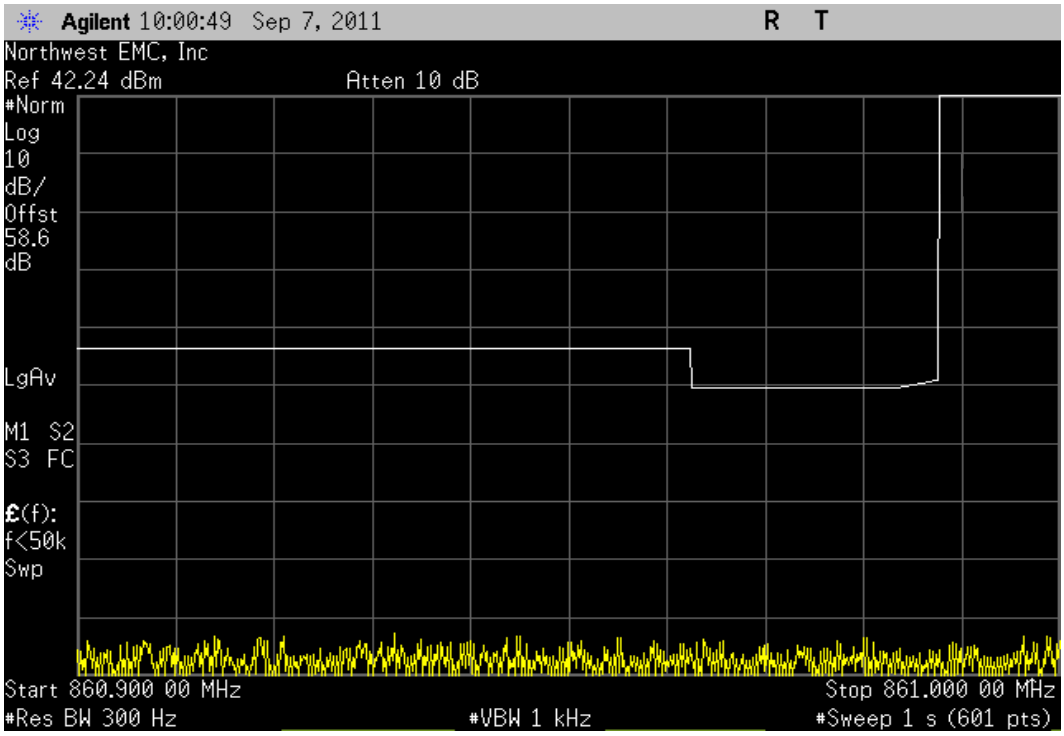
CDMA, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



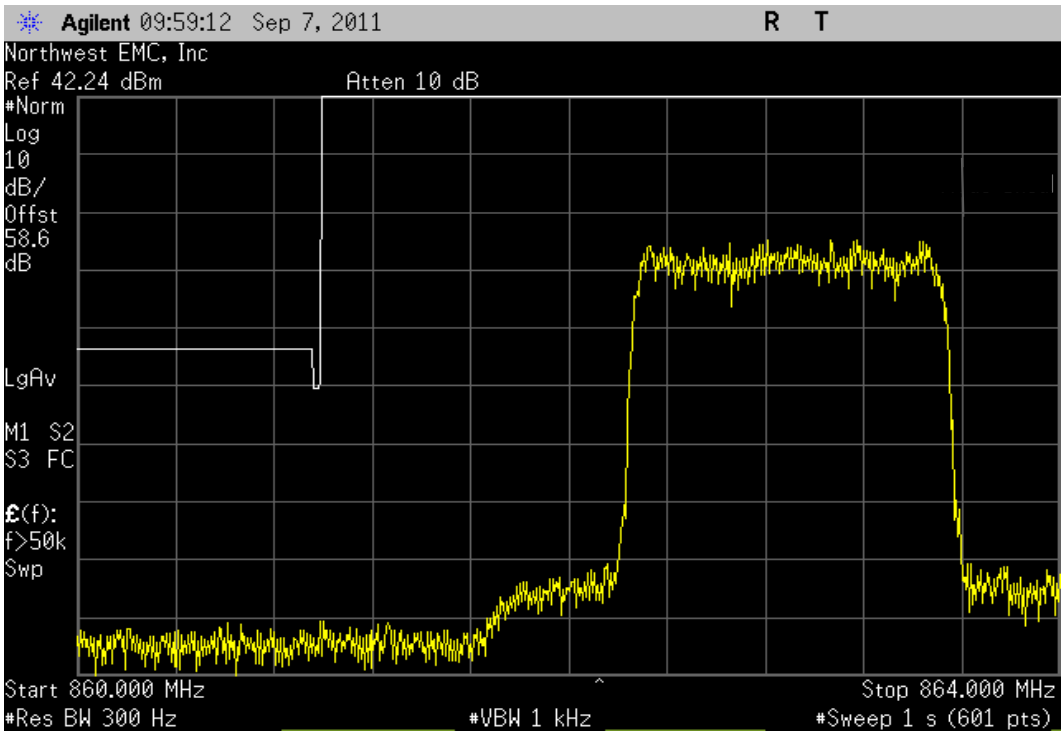
CDMA, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



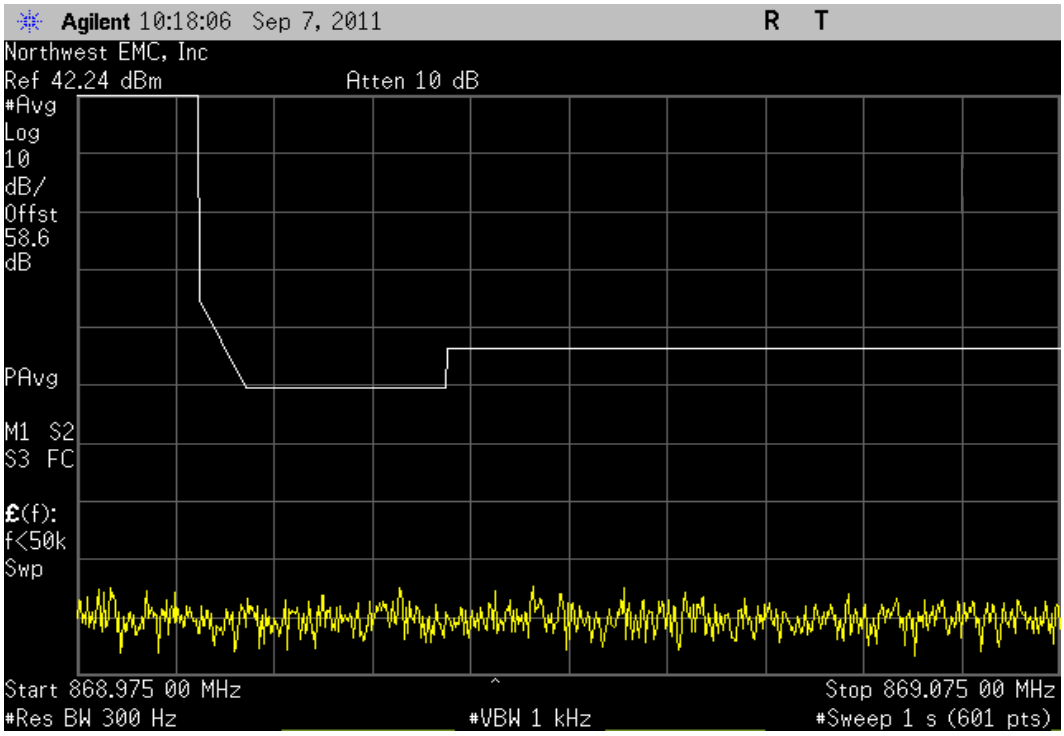
CDMA, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



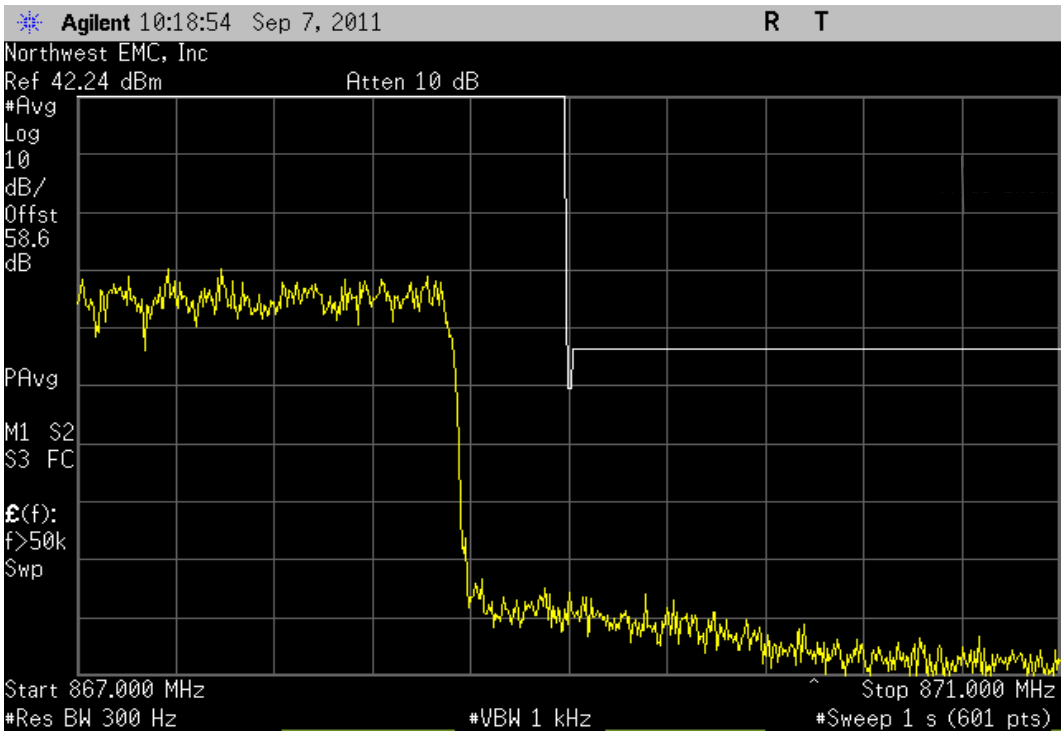
CDMA, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



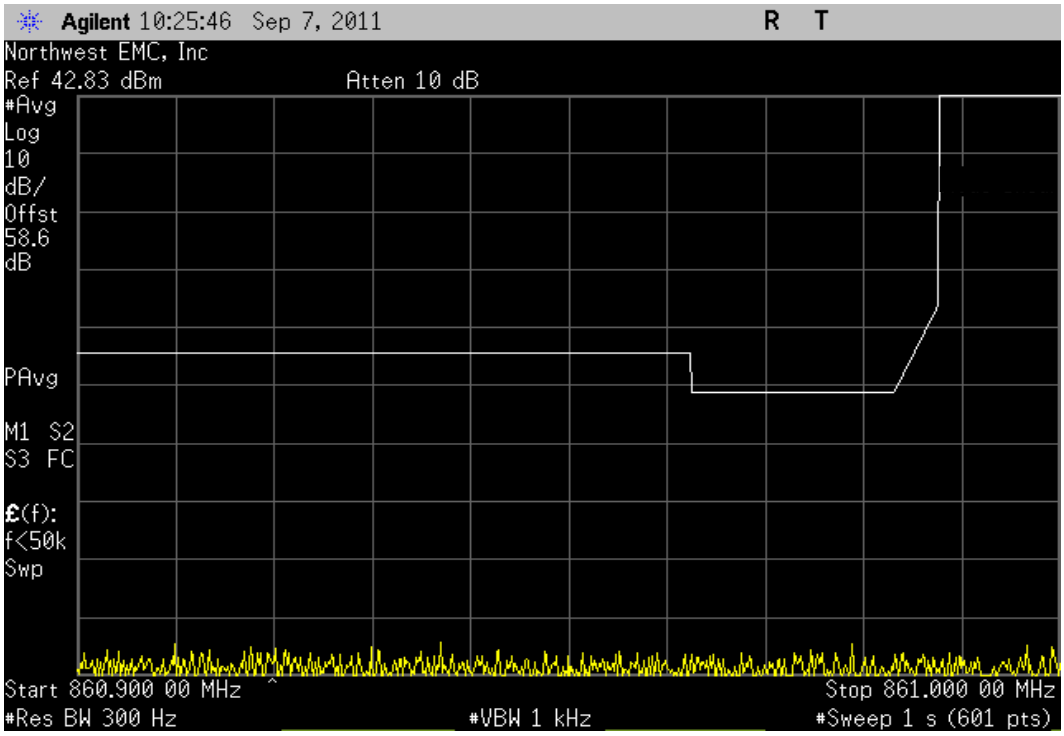
CDMA, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



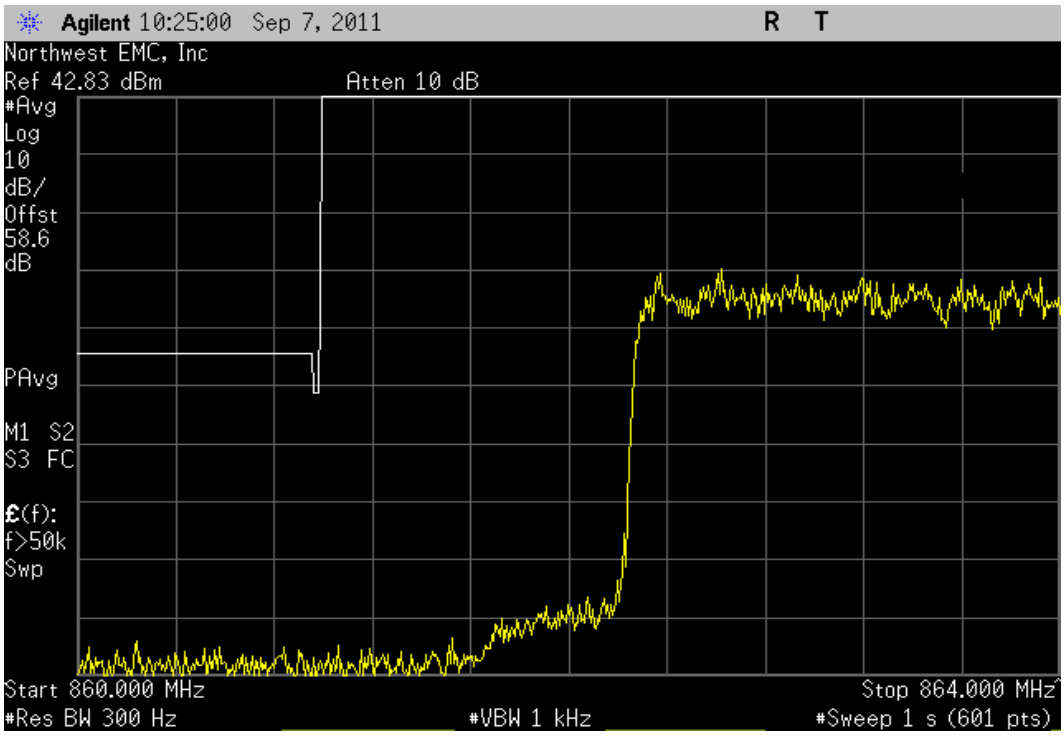
CDMA, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



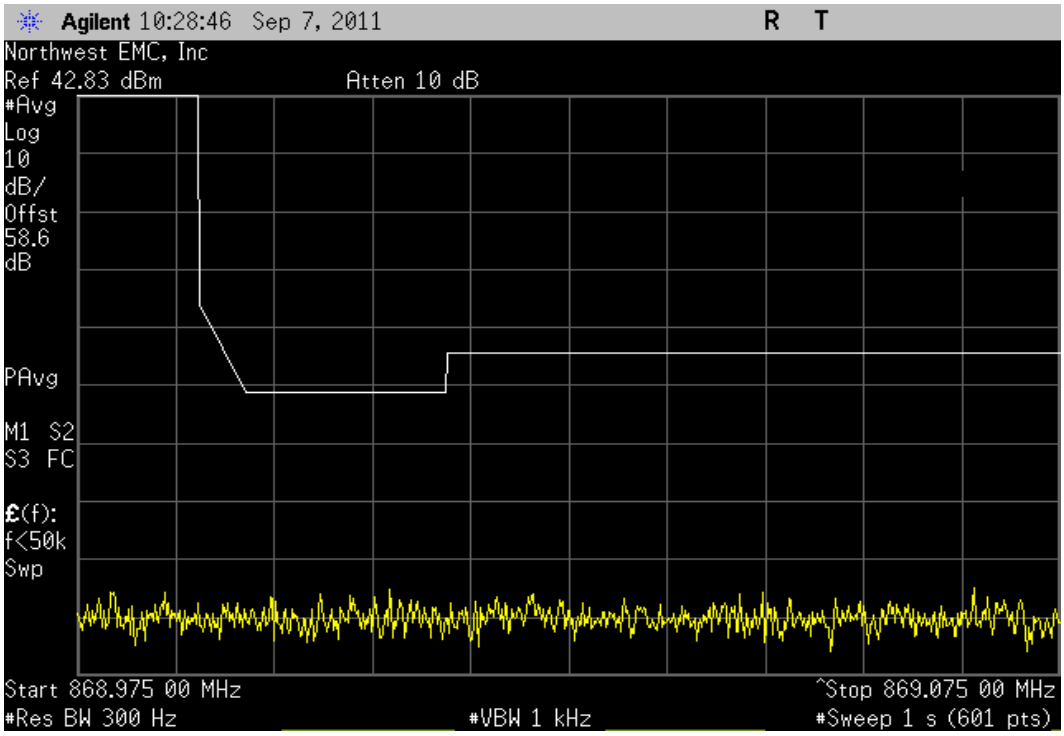
CDMA, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



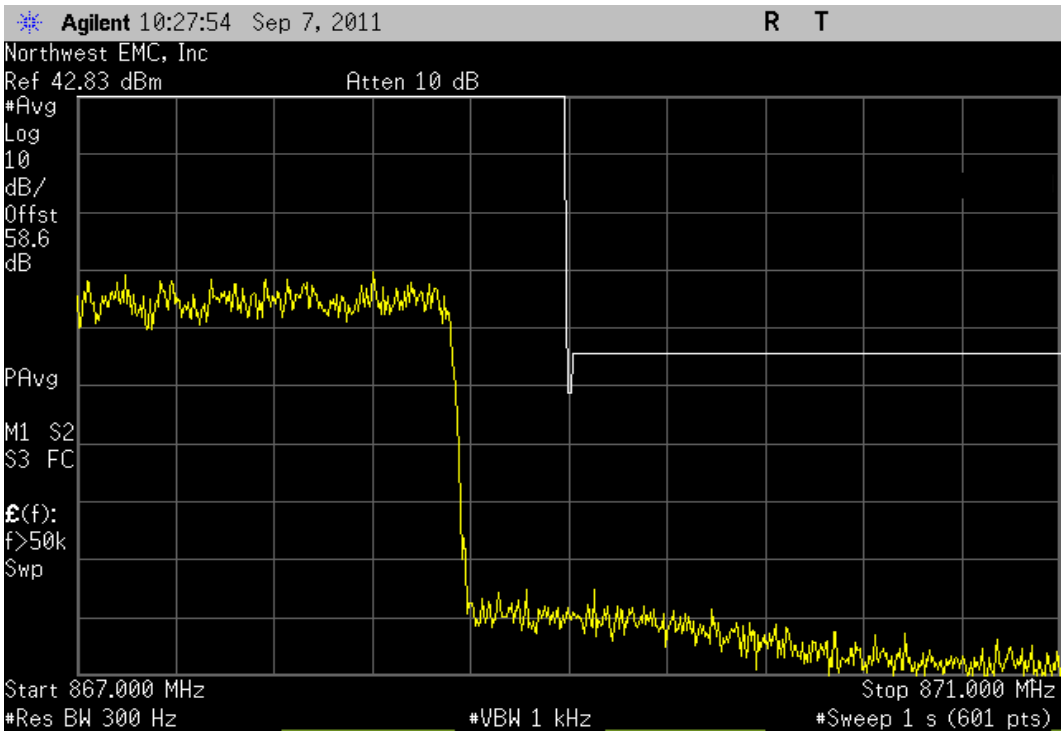
CDMA, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



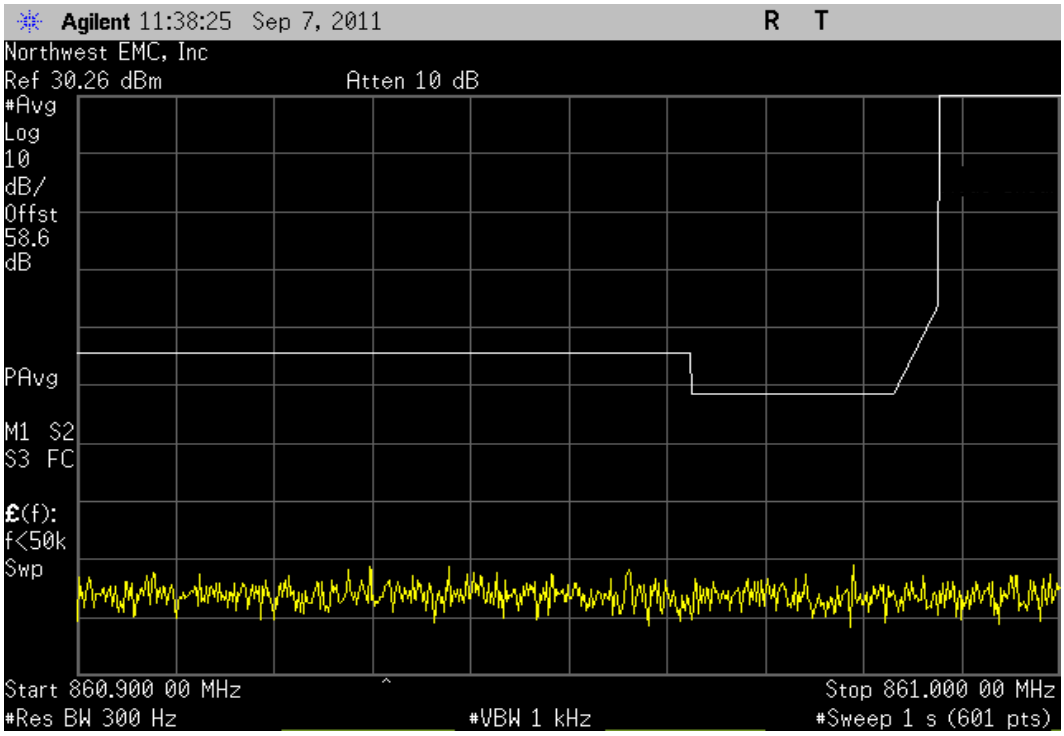
CDMA, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



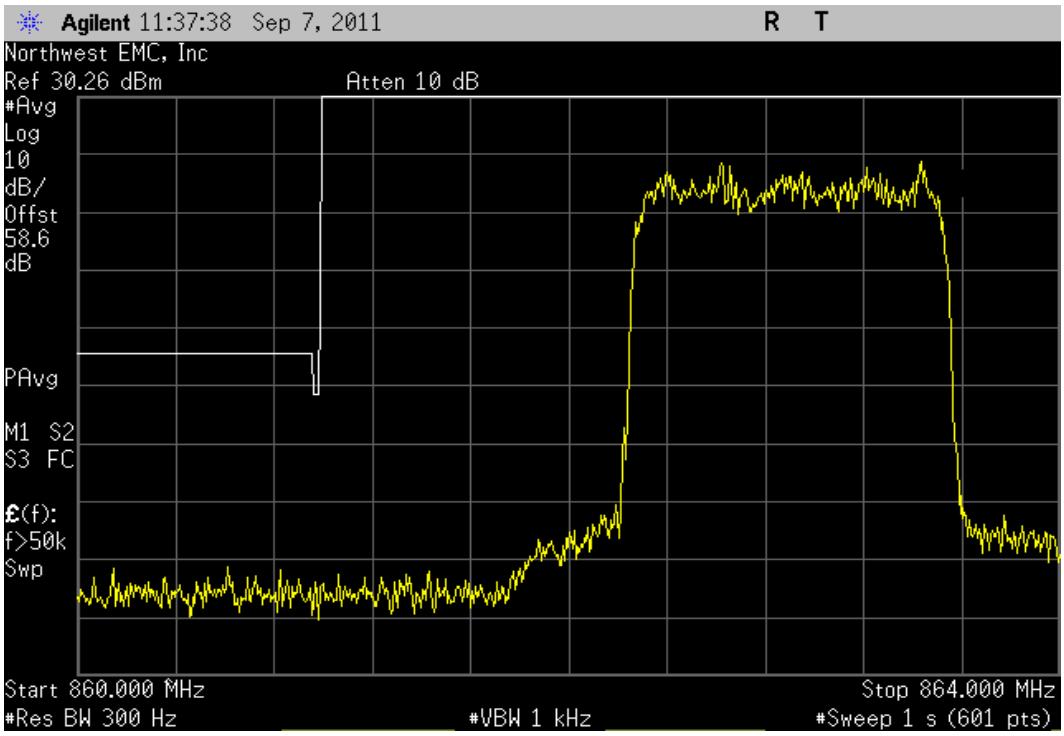
CDMA, Antenna Port B, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



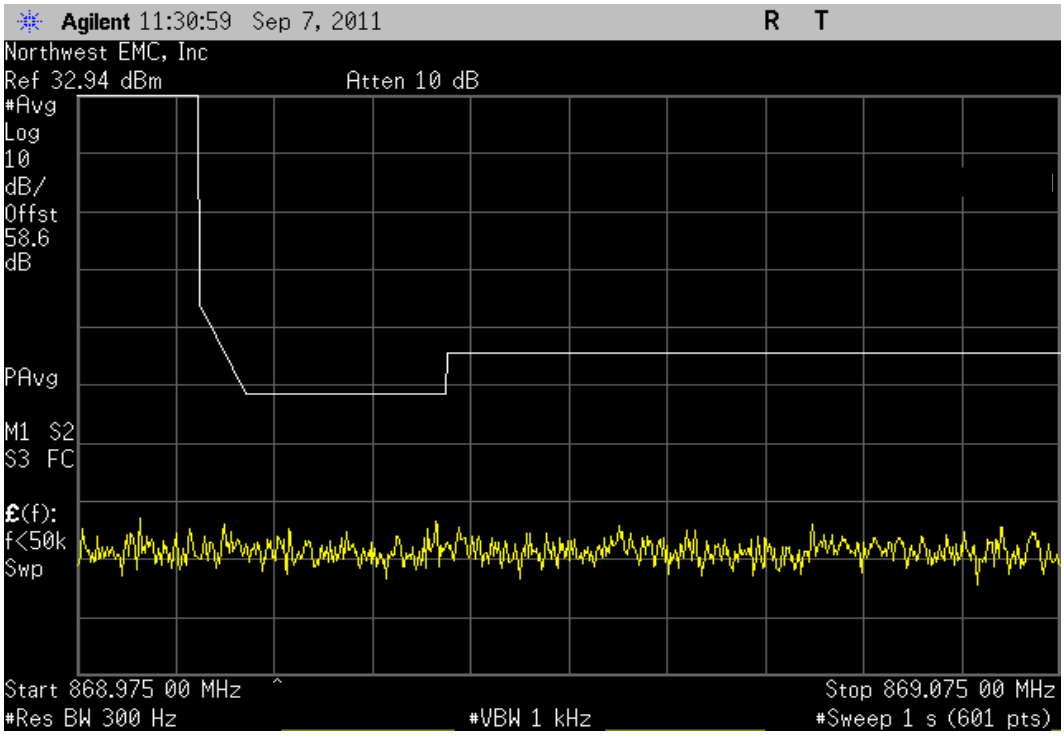
CDMA, Antenna Port B, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



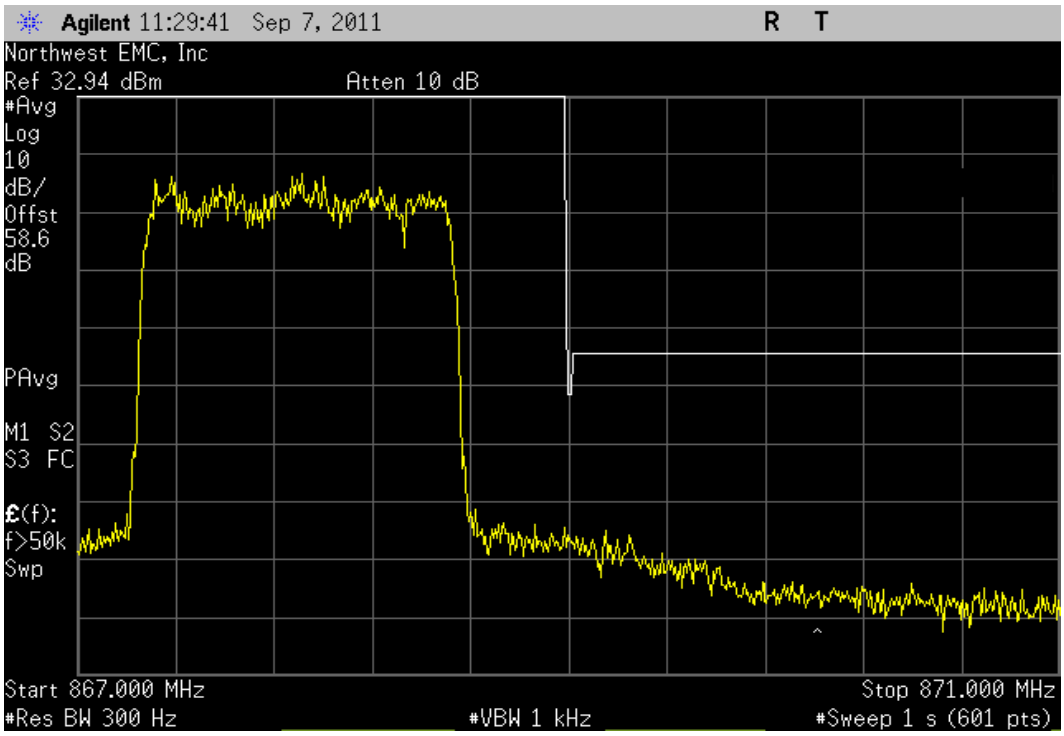
CDMA, Antenna Port B, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



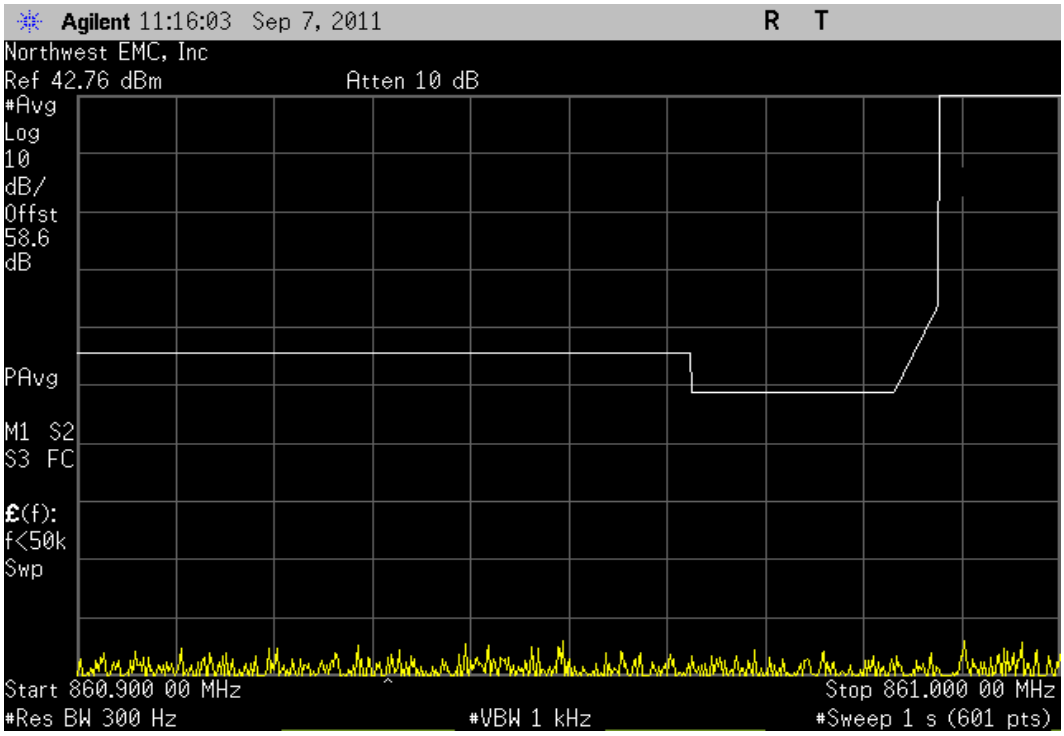
CDMA, Antenna Port B, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



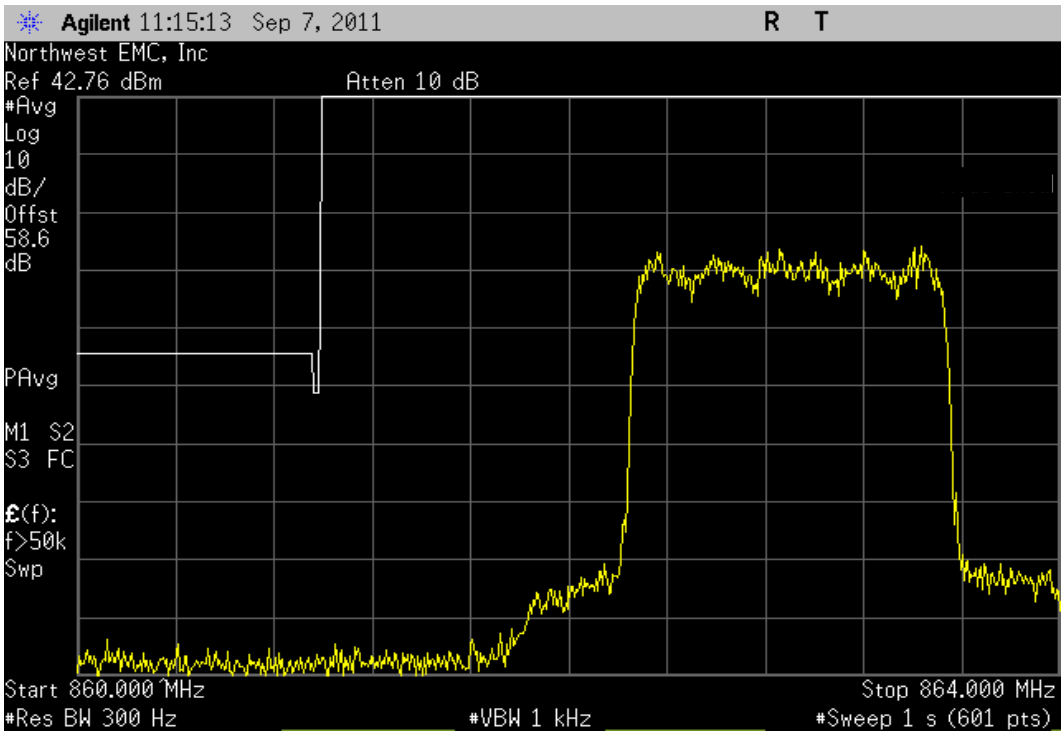
CDMA, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



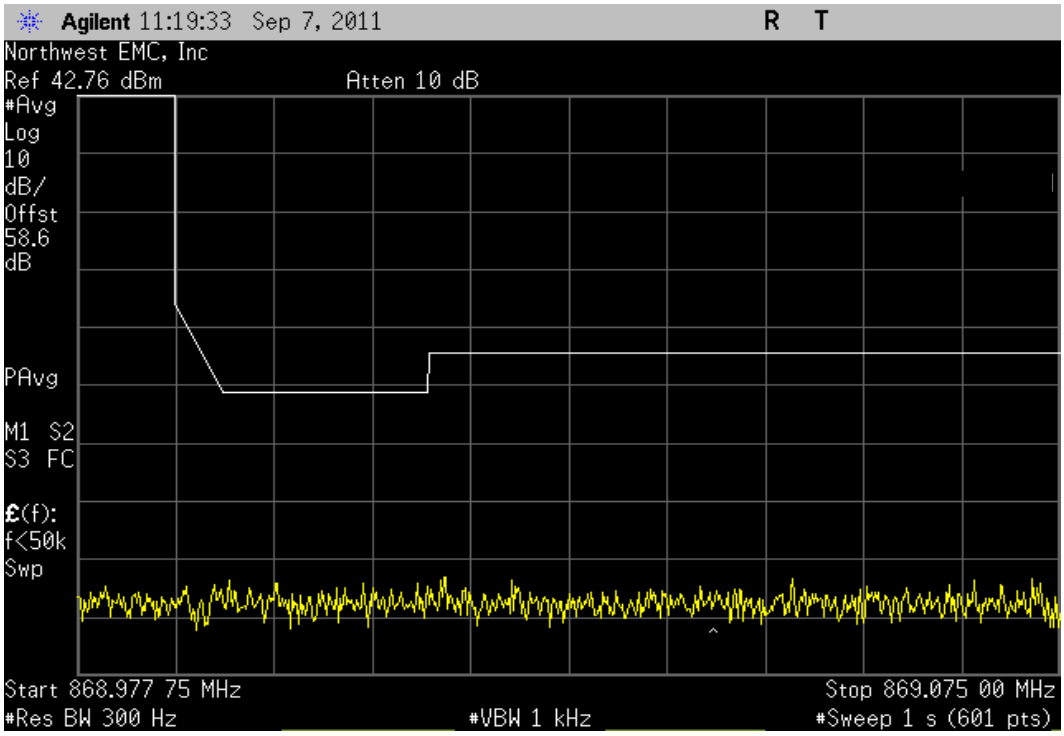
CDMA, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



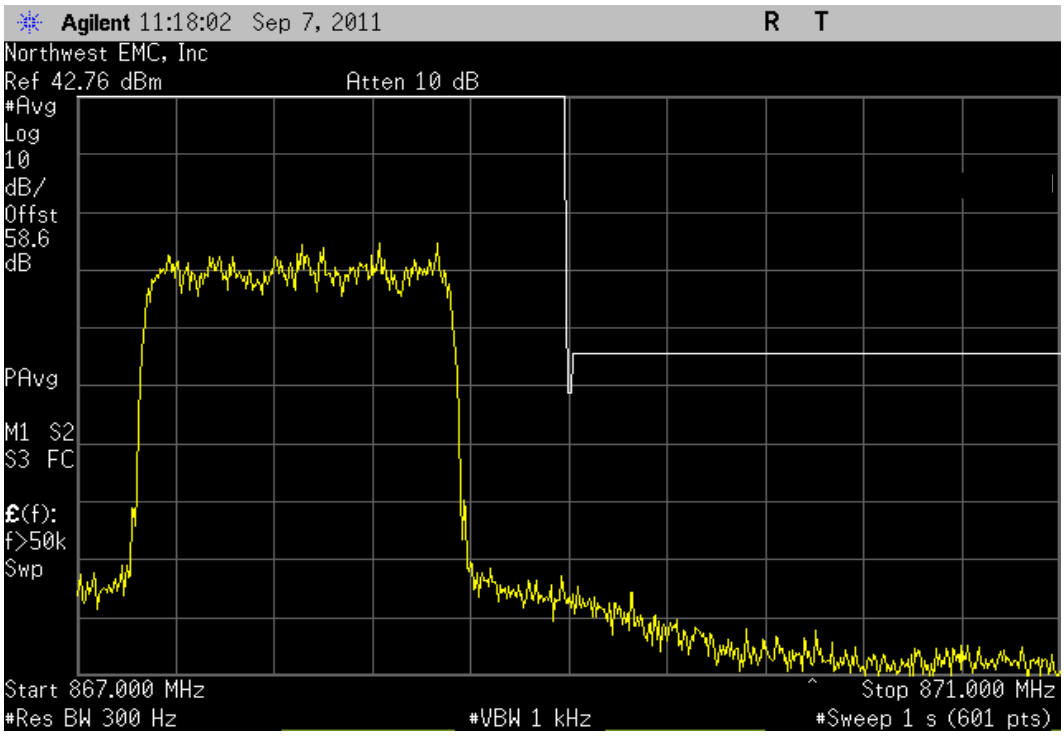
CDMA, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



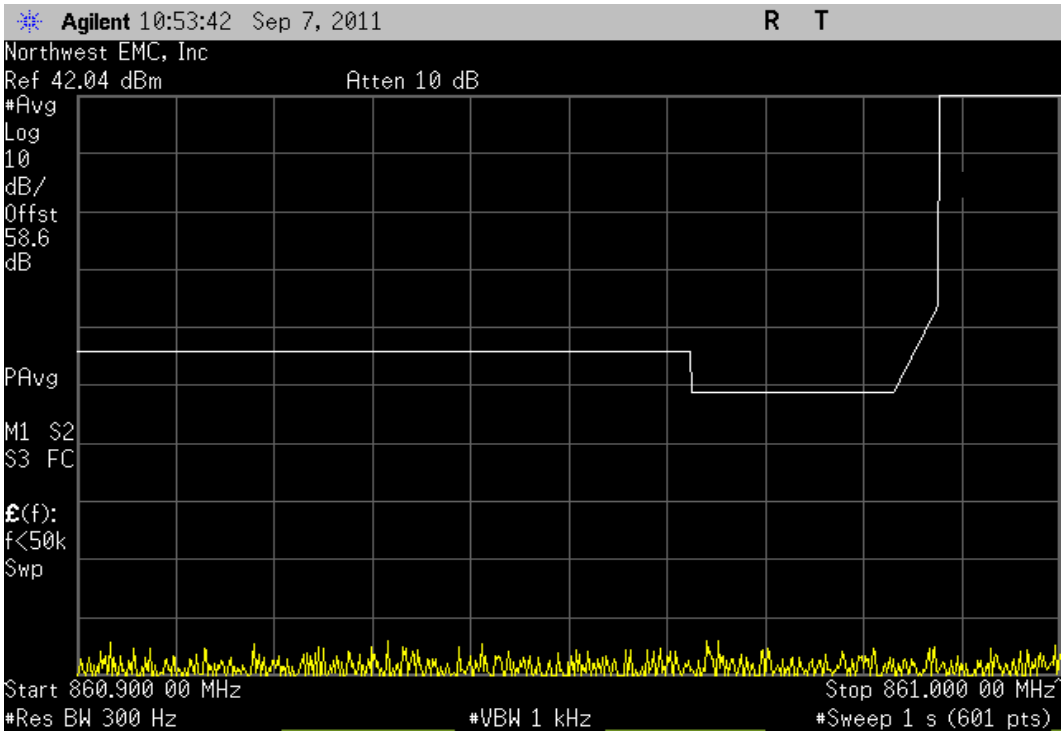
CDMA, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



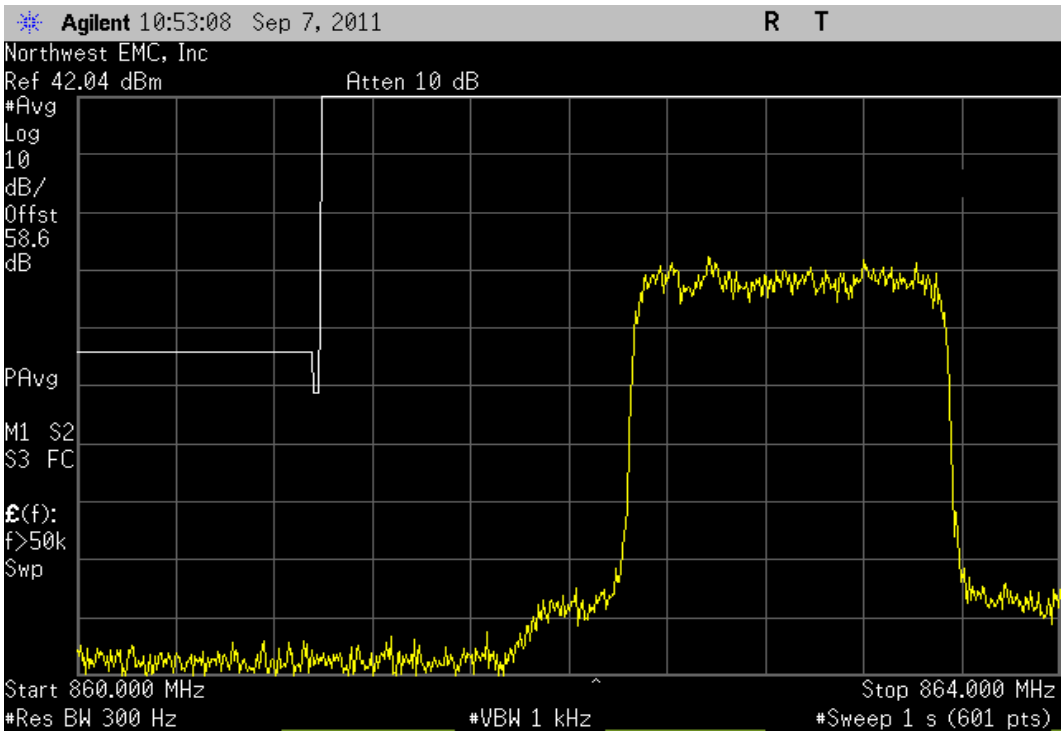
CDMA, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



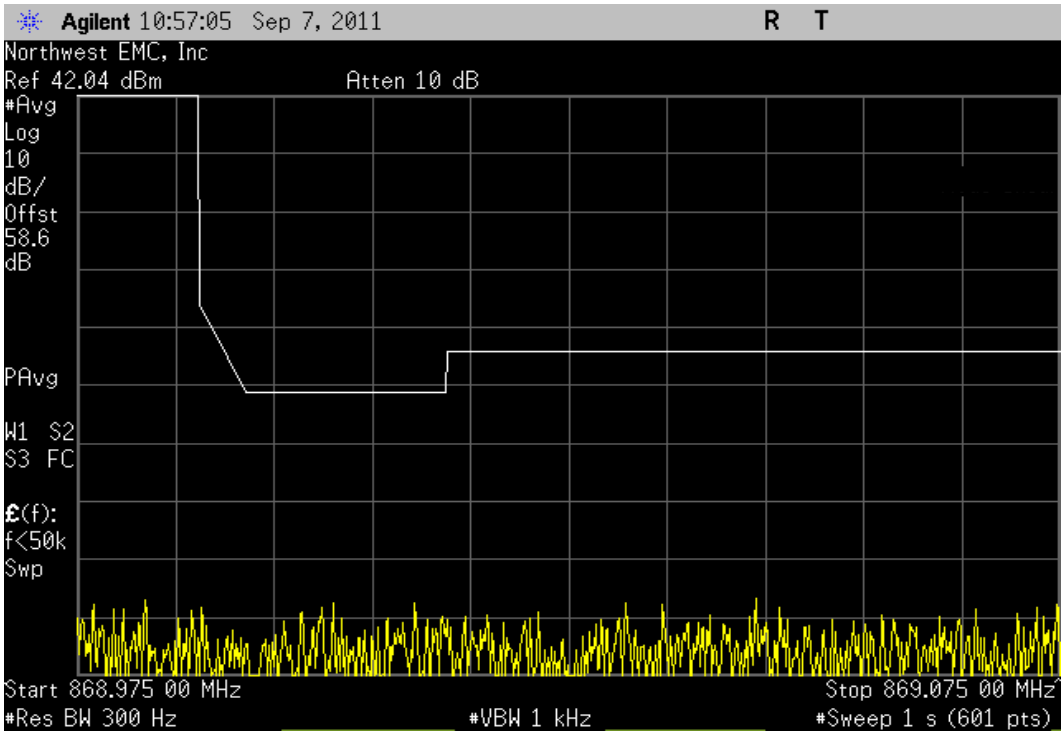
CDMA, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



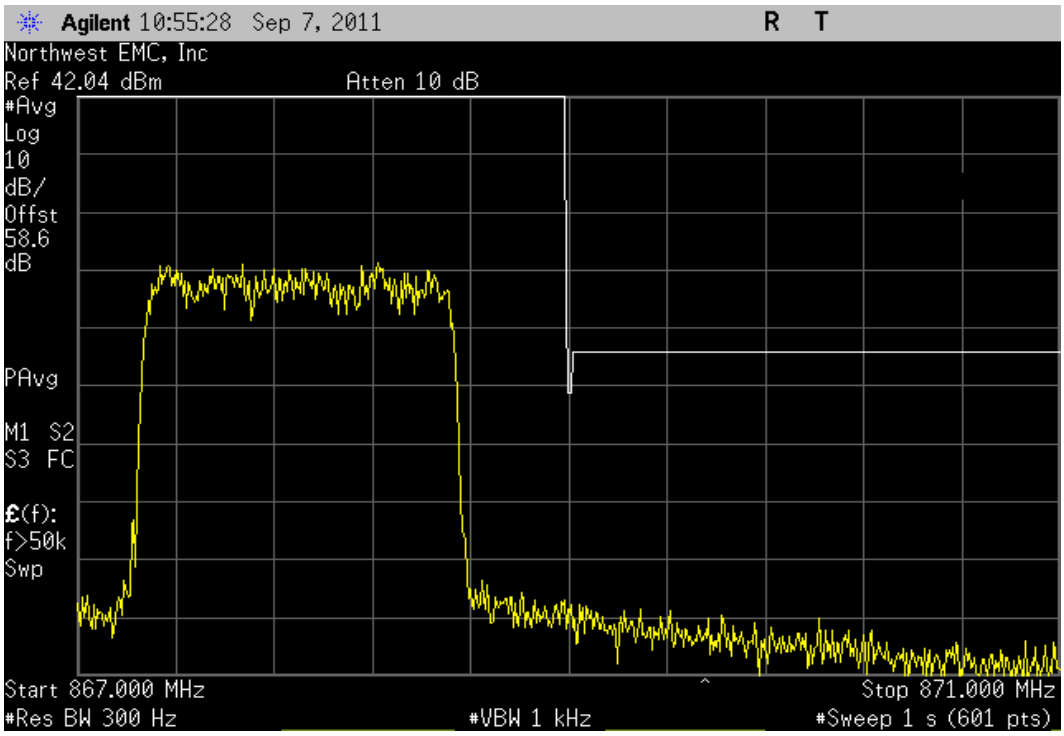
CDMA, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



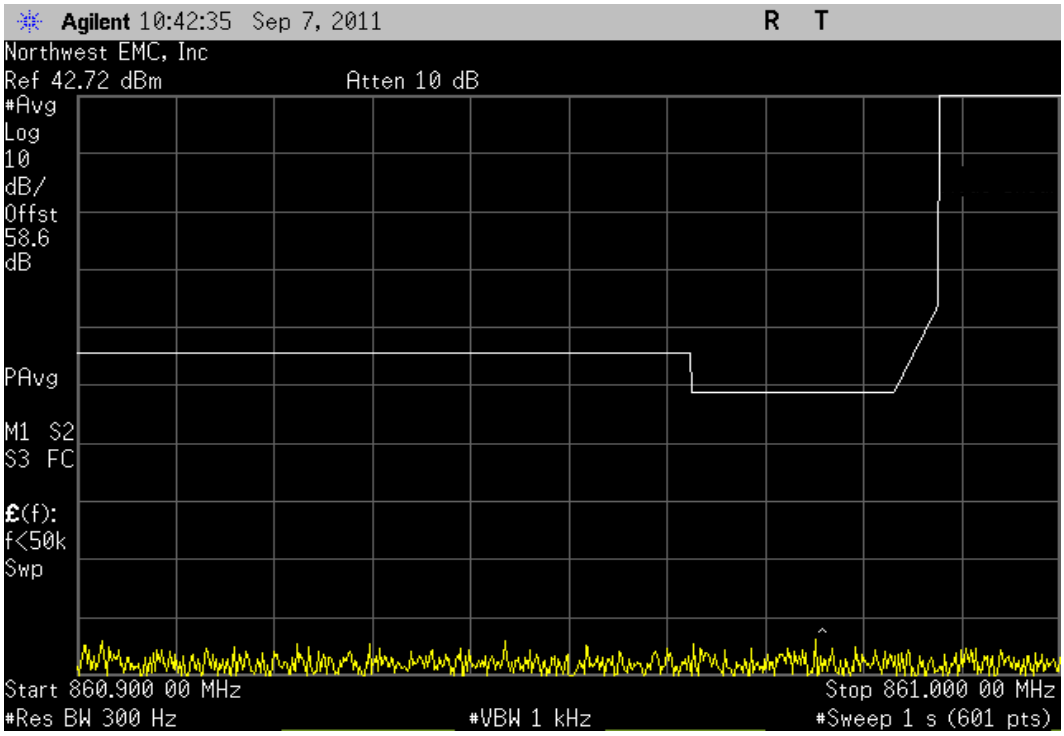
CDMA, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



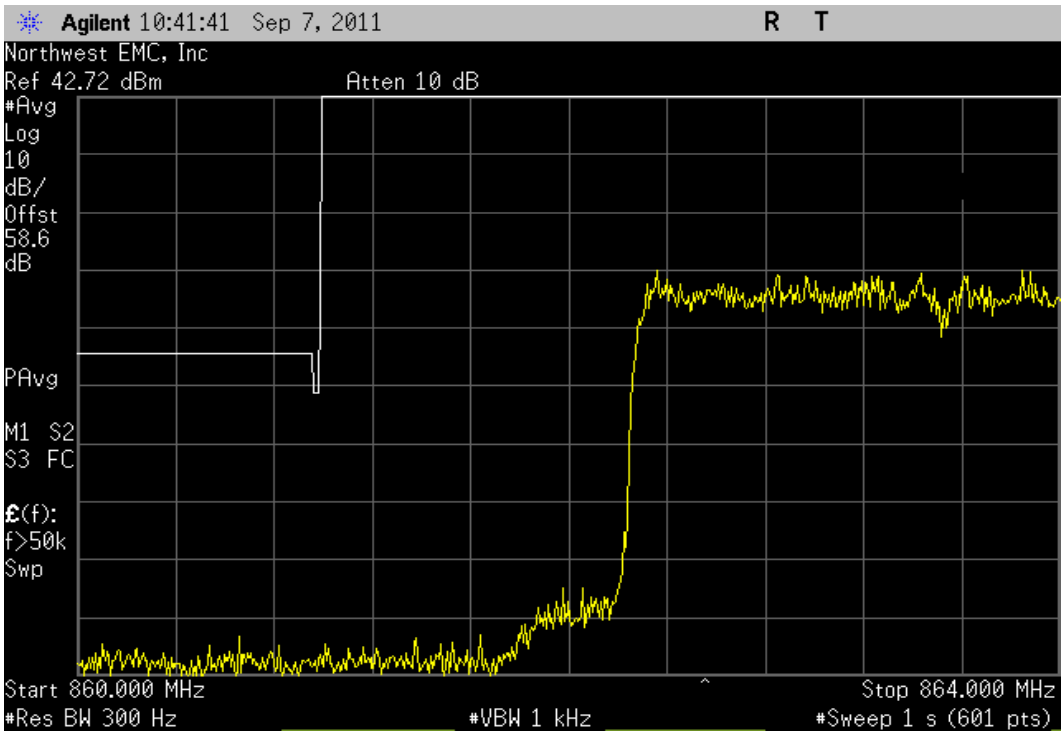
CDMA, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



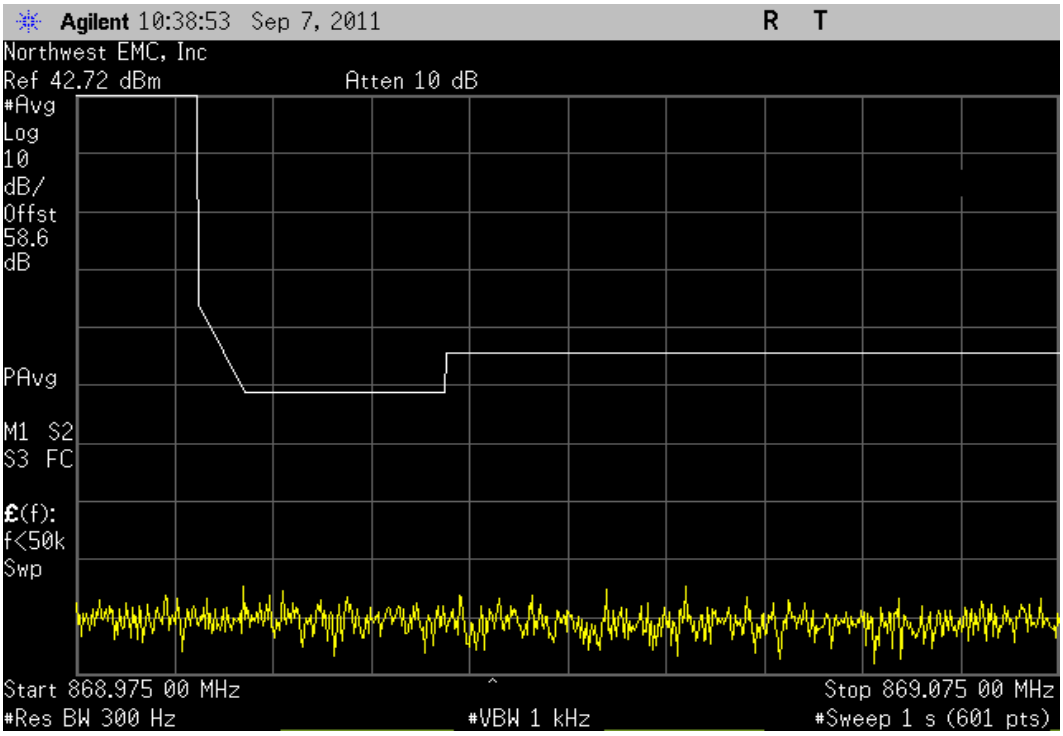
CDMA, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



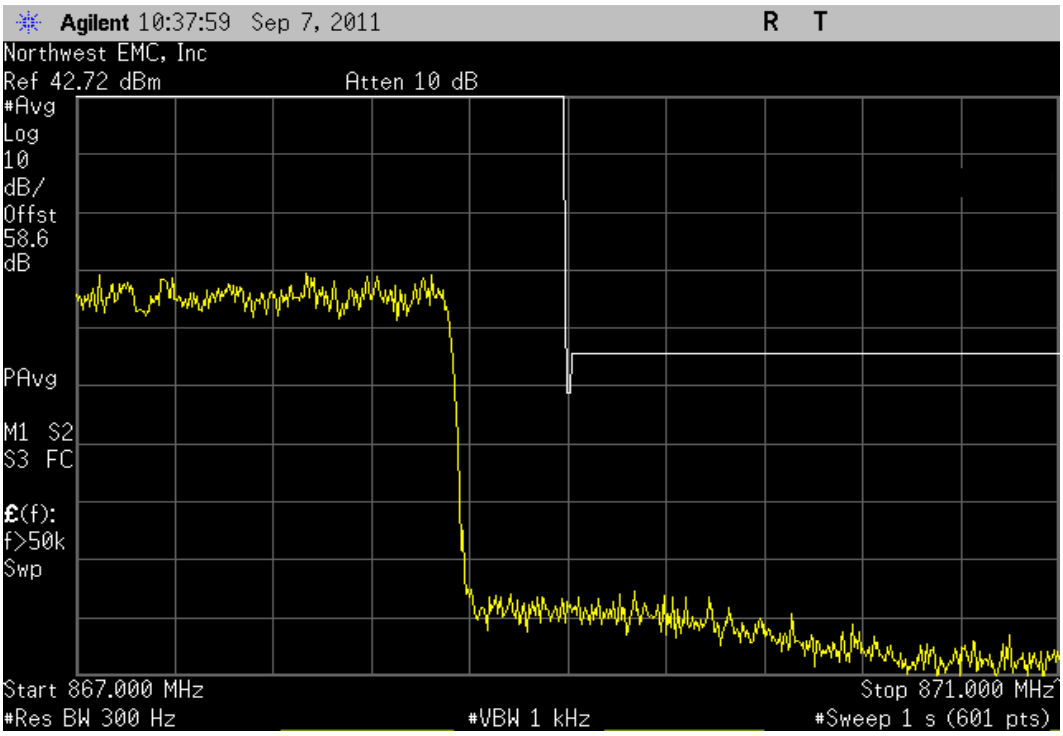
CDMA, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



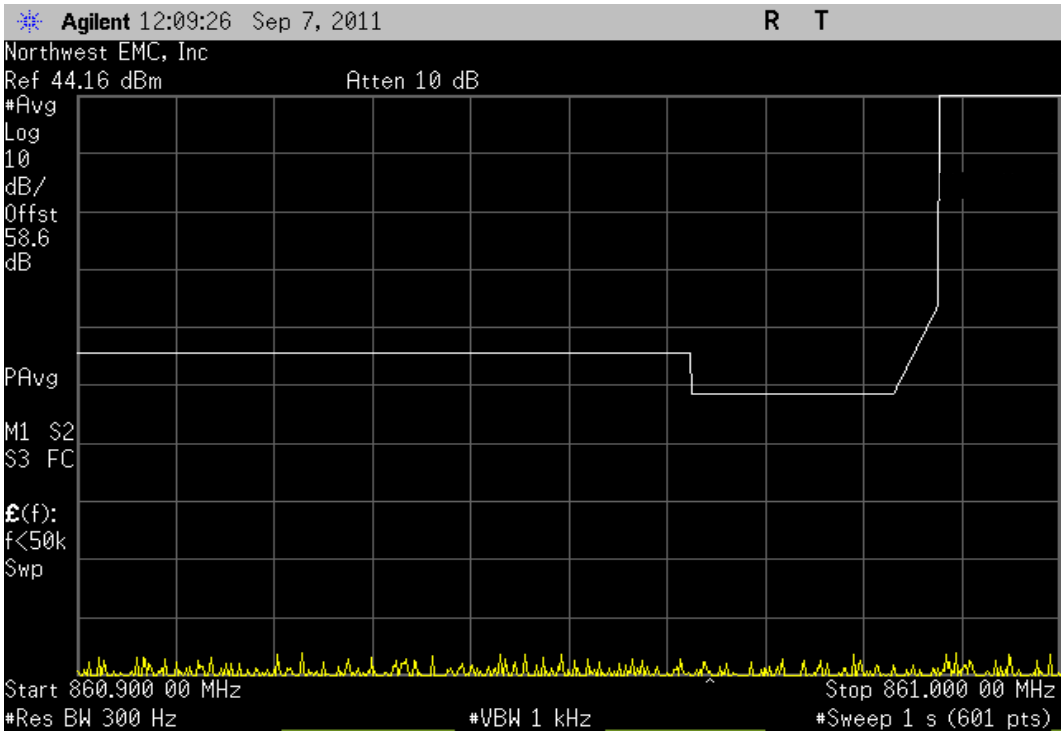
CDMA, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



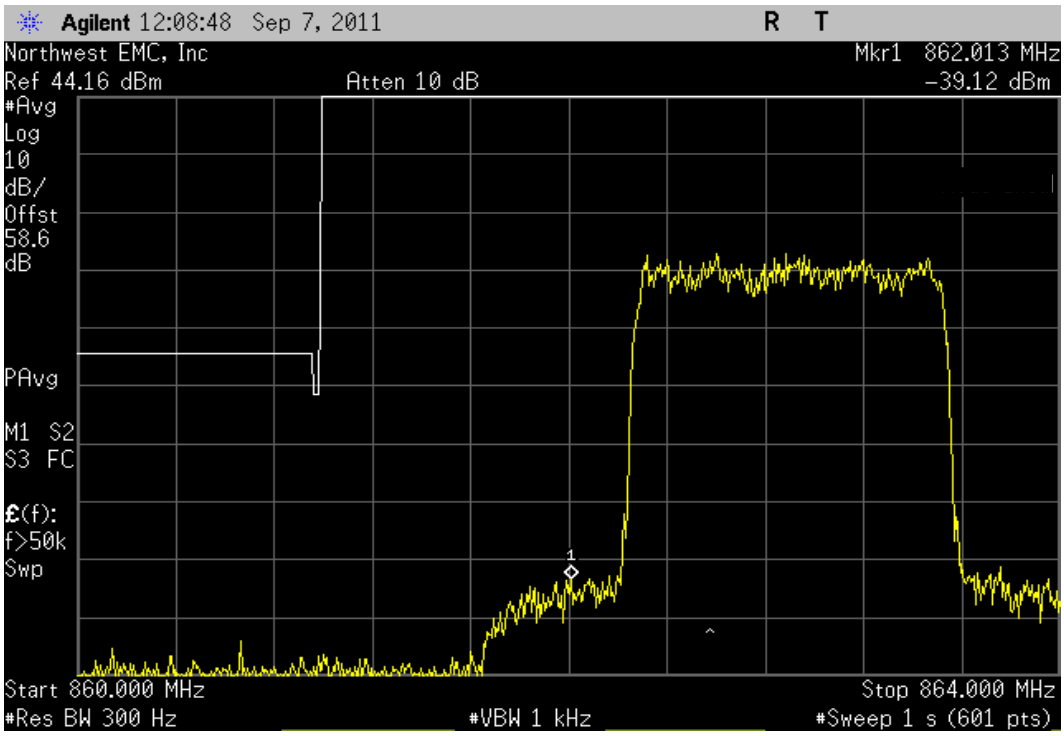
EVDO, Antenna Port A, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



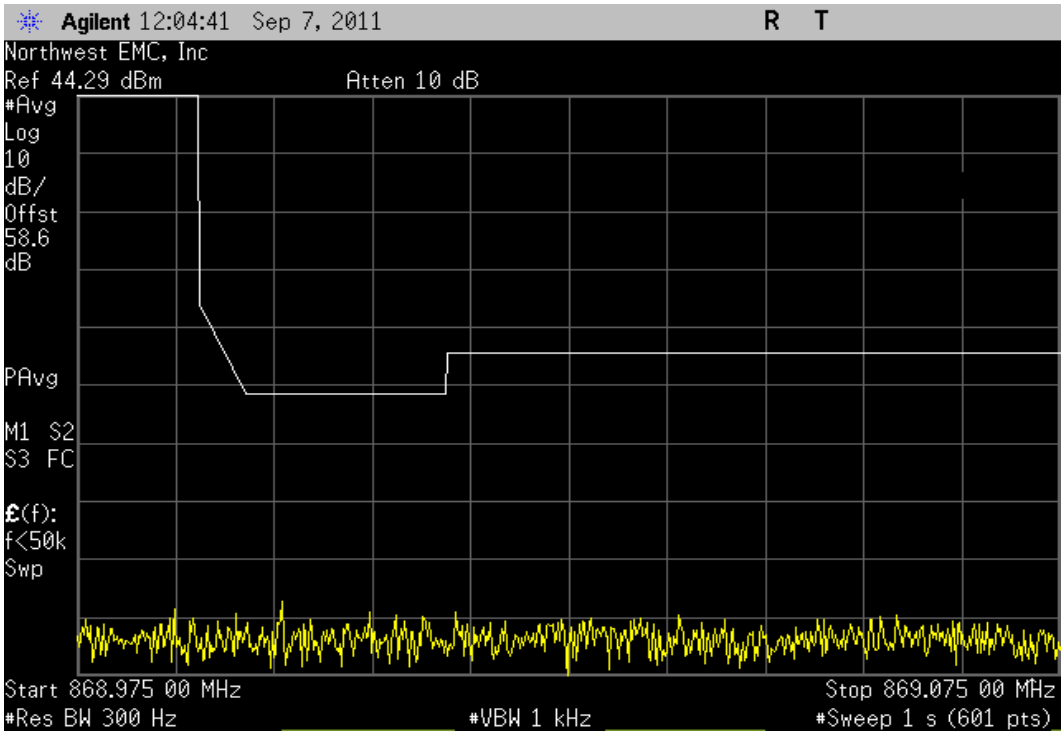
EVDO, Antenna Port A, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



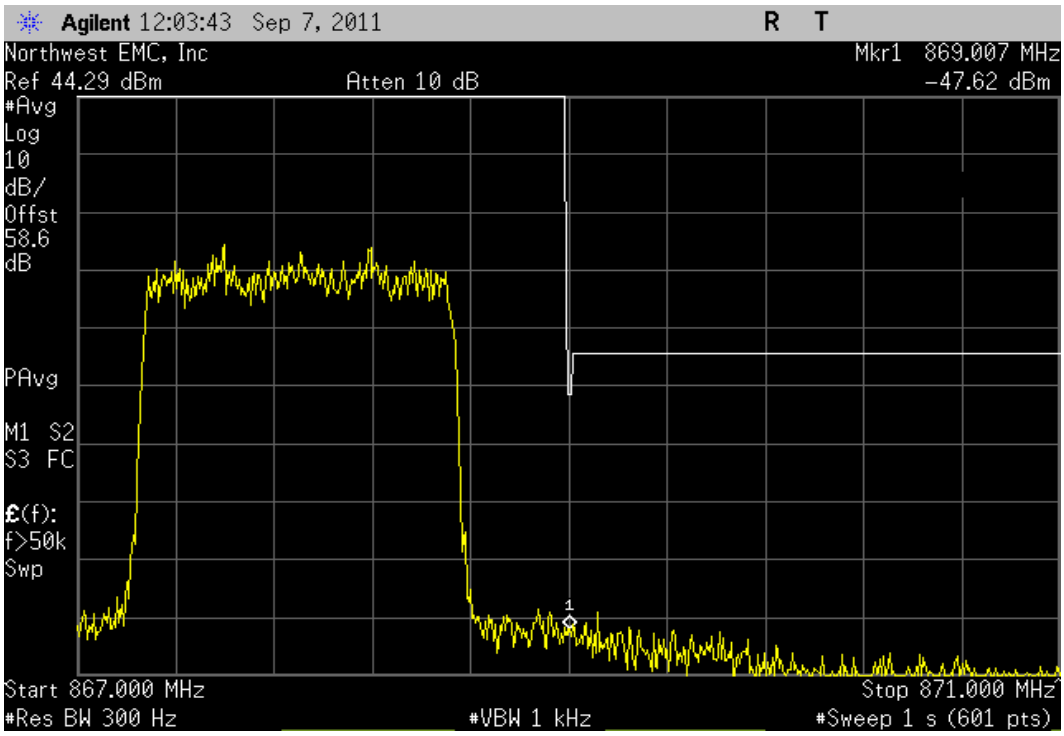
EVDO, Antenna Port A, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



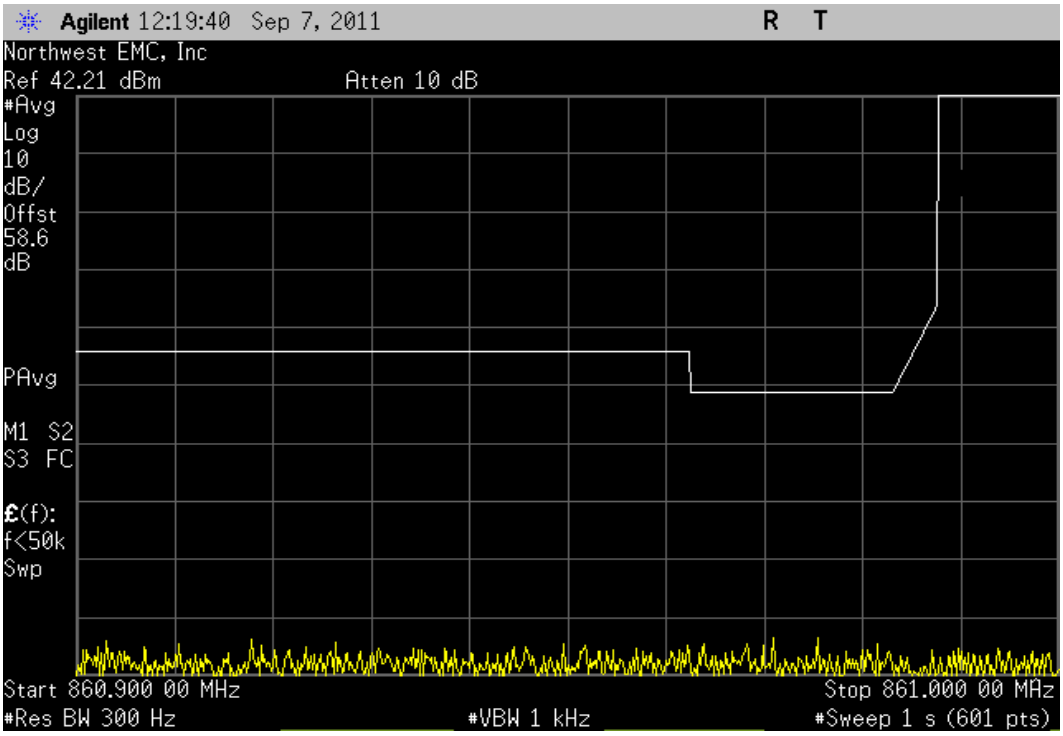
EVDO, Antenna Port A, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



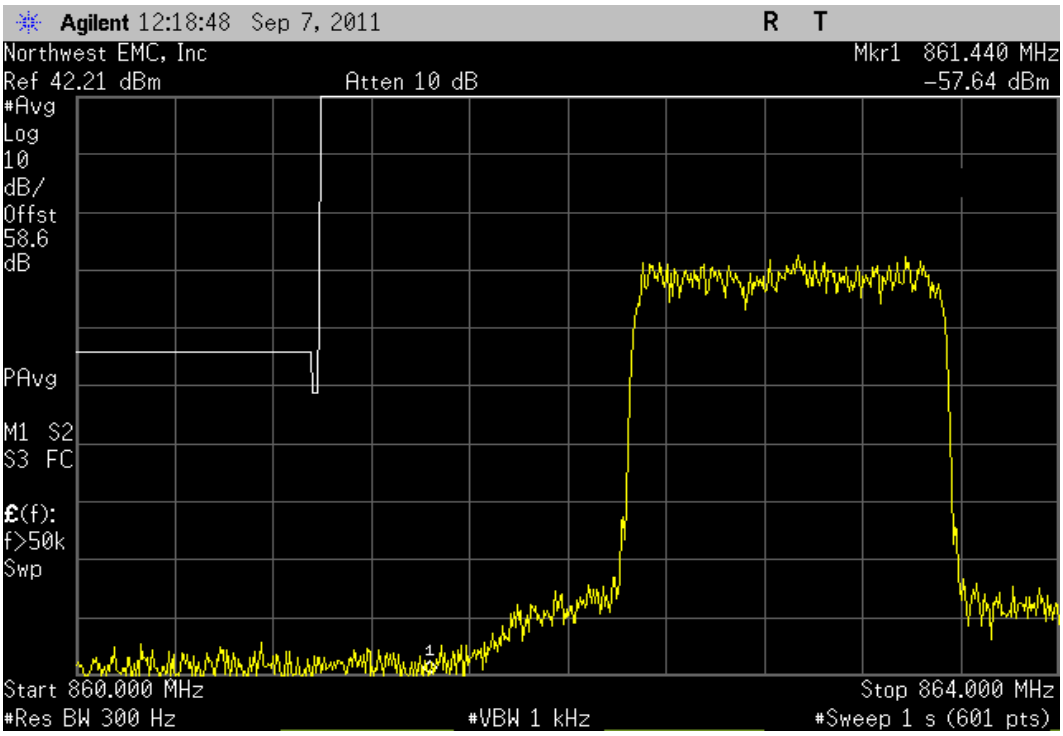
EVDO, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



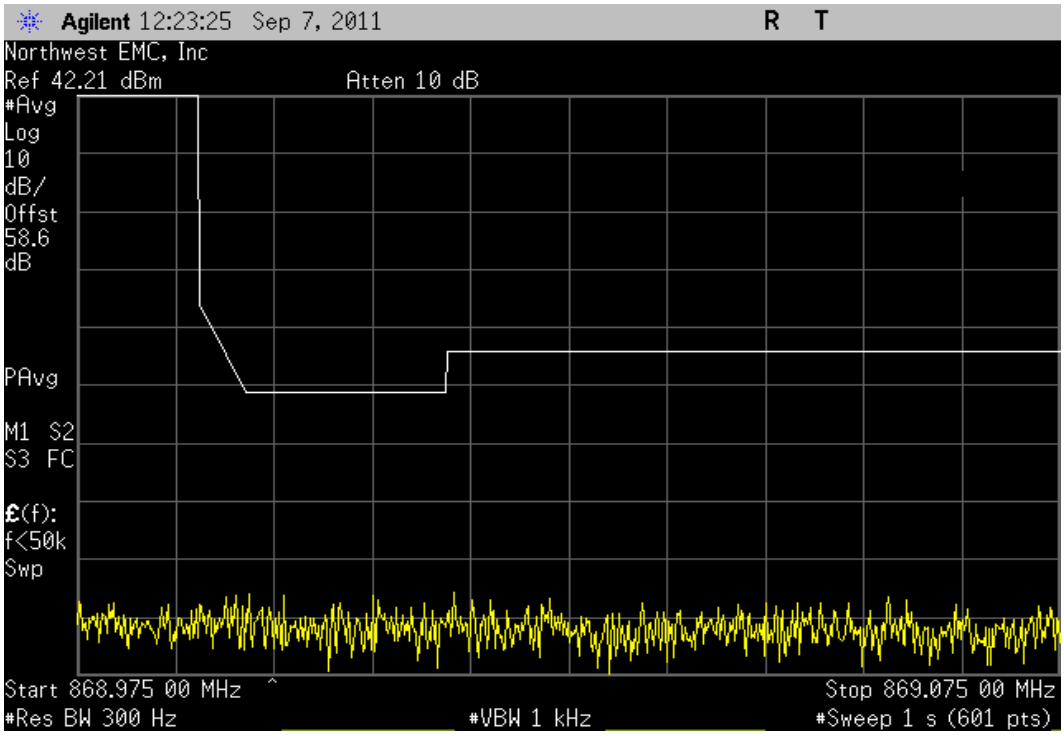
EVDO, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



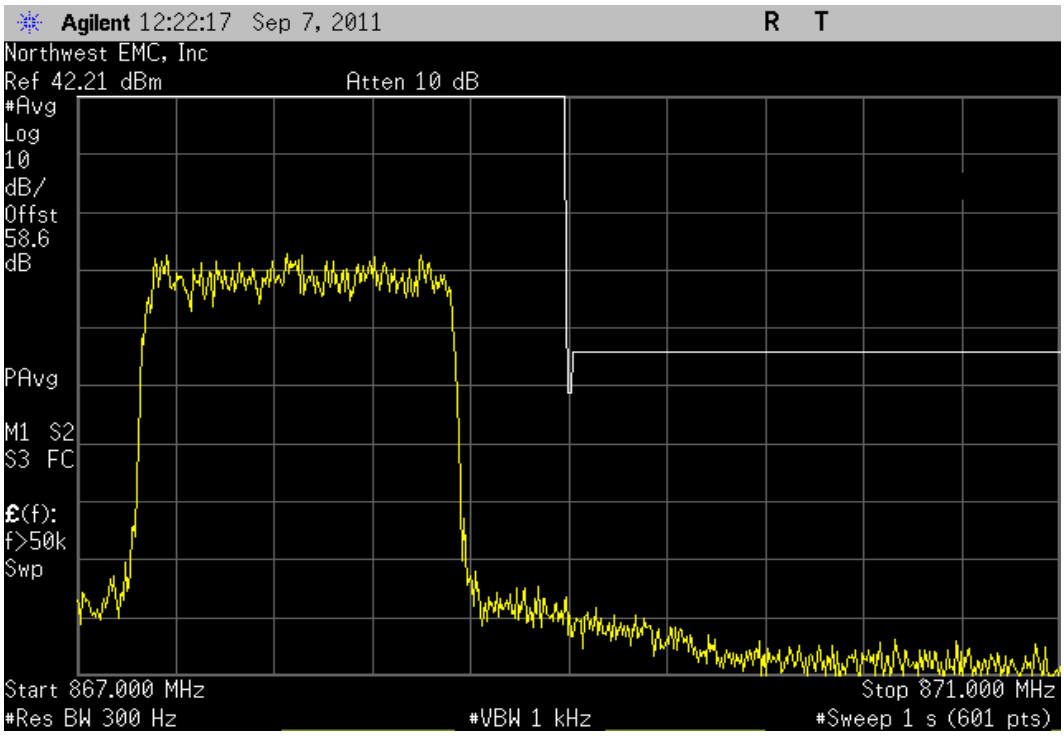
EVDO, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



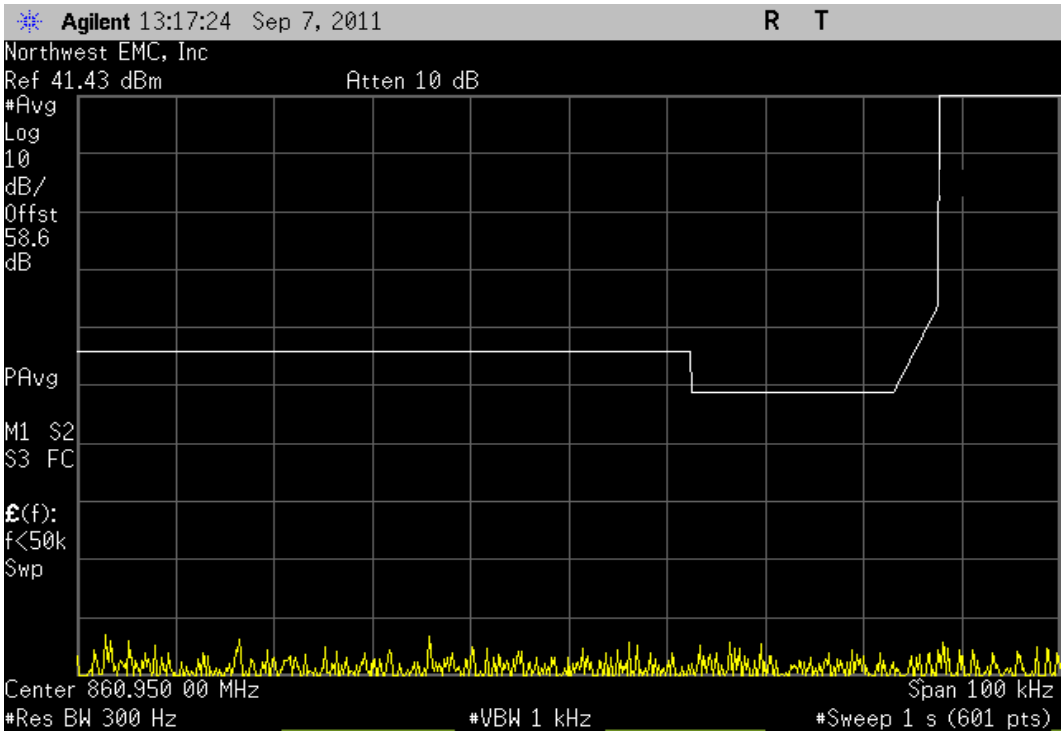
EVDO, Antenna Port A, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



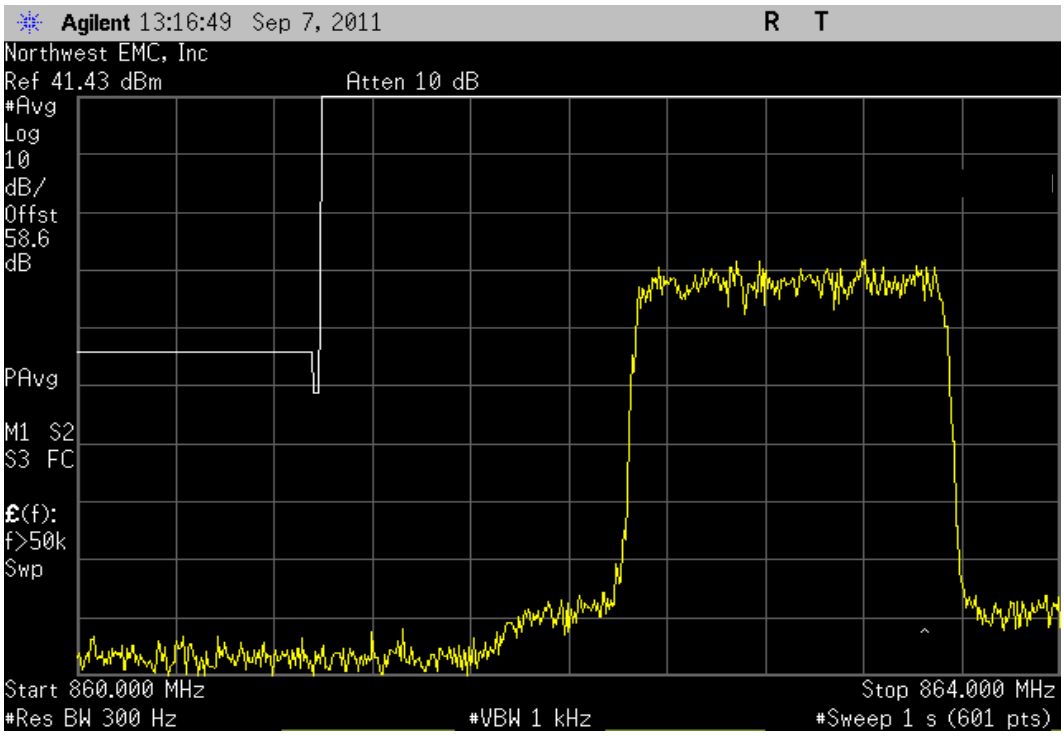
EVDO, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



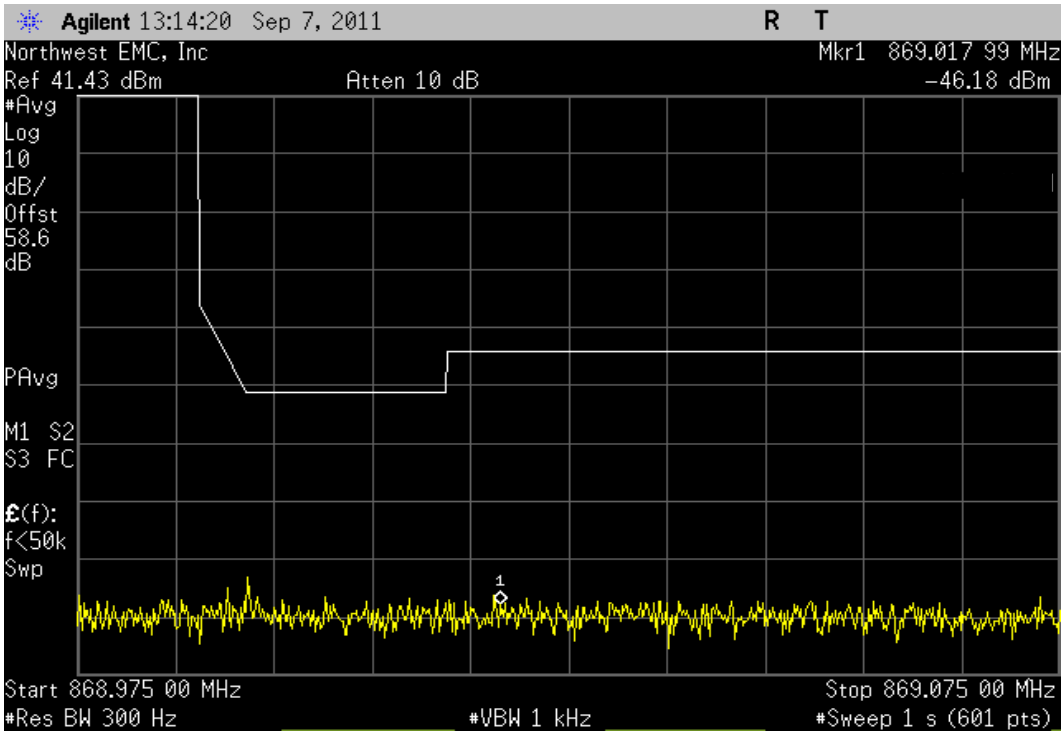
EVDO, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



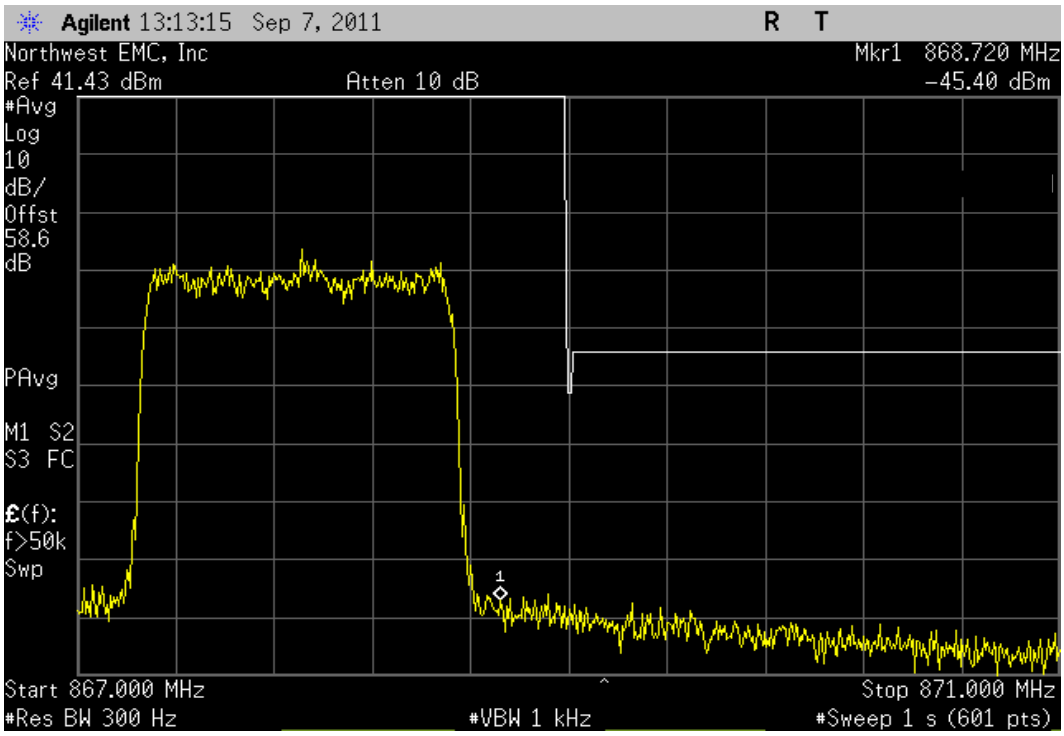
EVDO, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



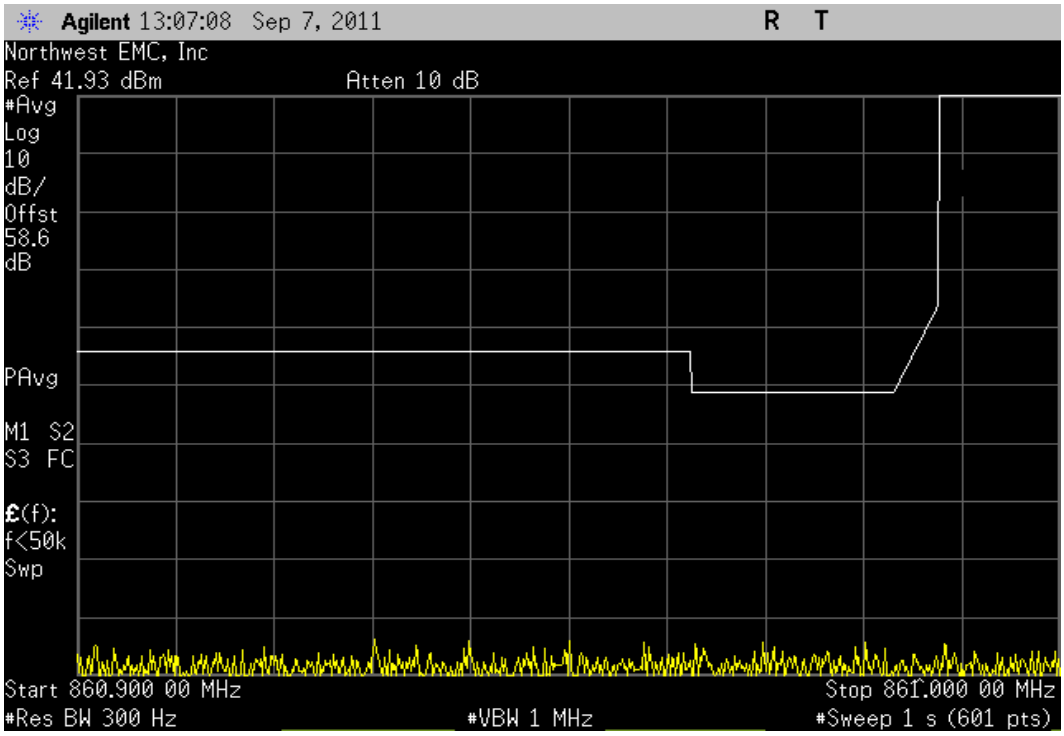
EVDO, Antenna Port A, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



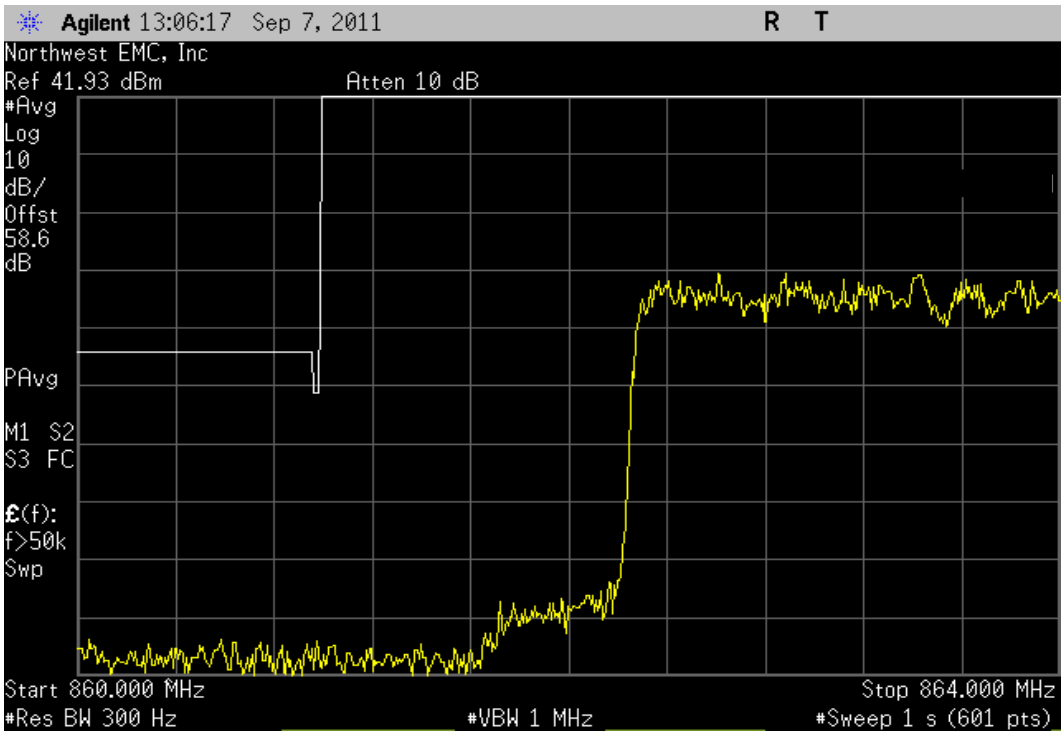
EVDO, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



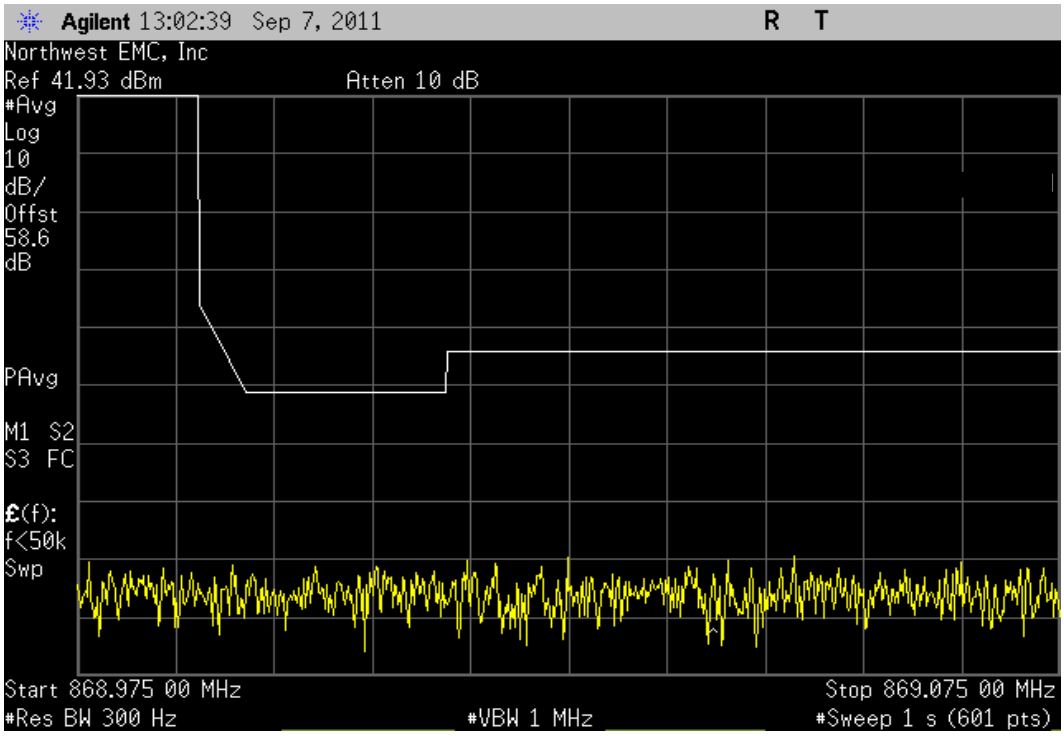
EVDO, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



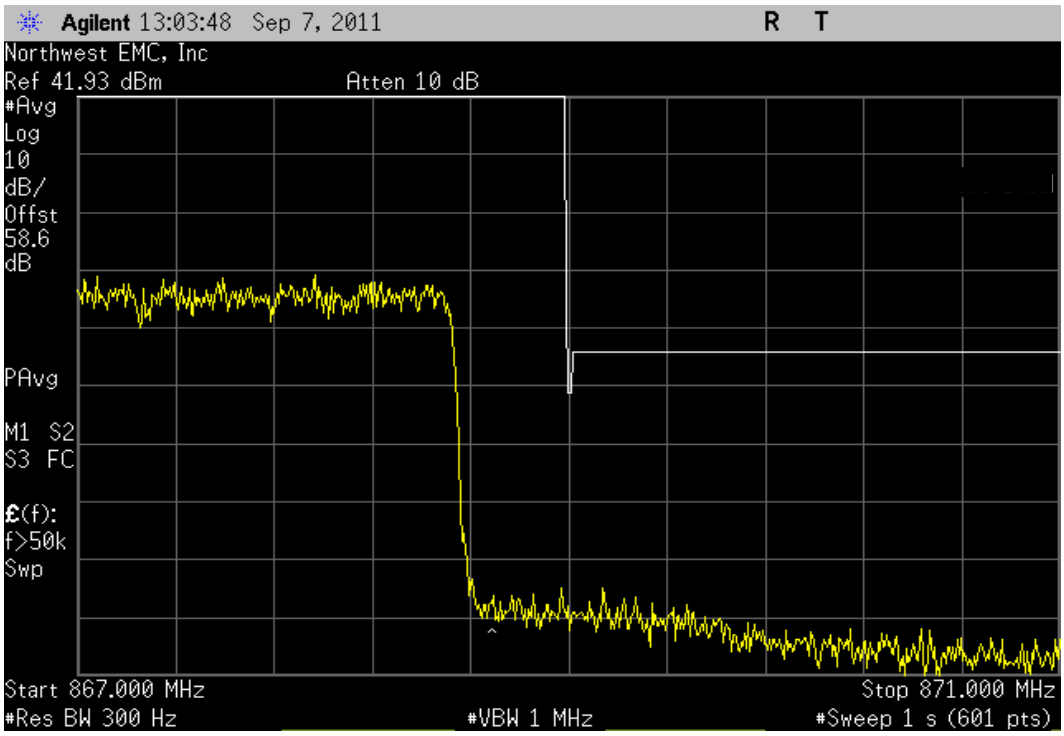
EVDO, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



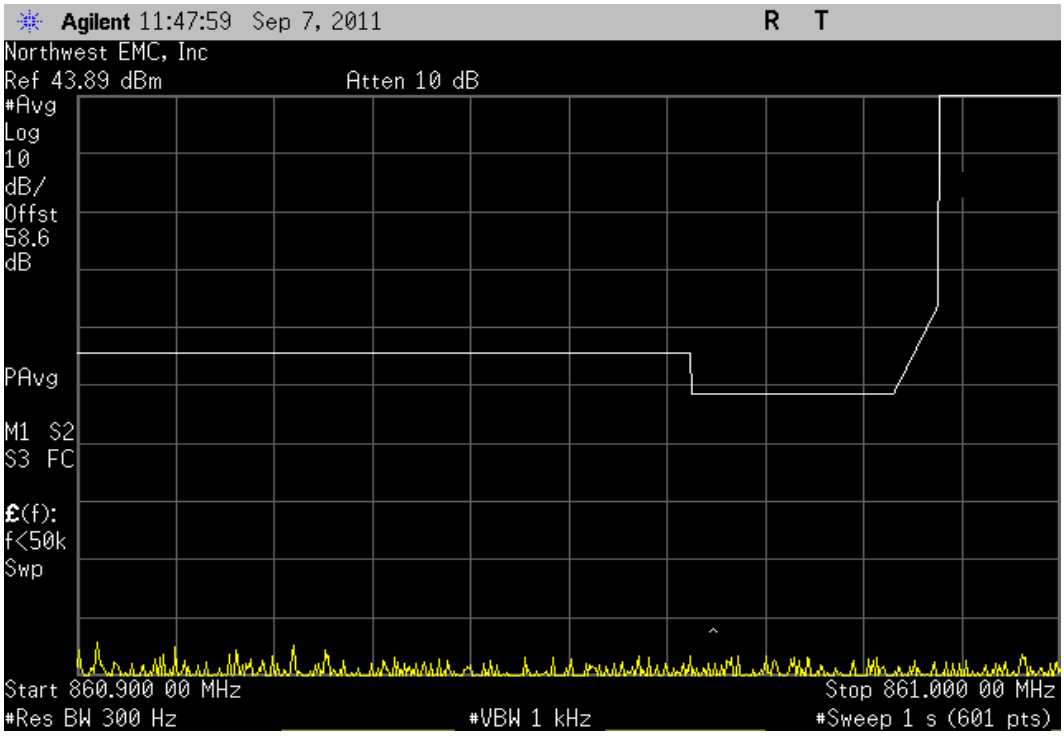
EVDO, Antenna Port A, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



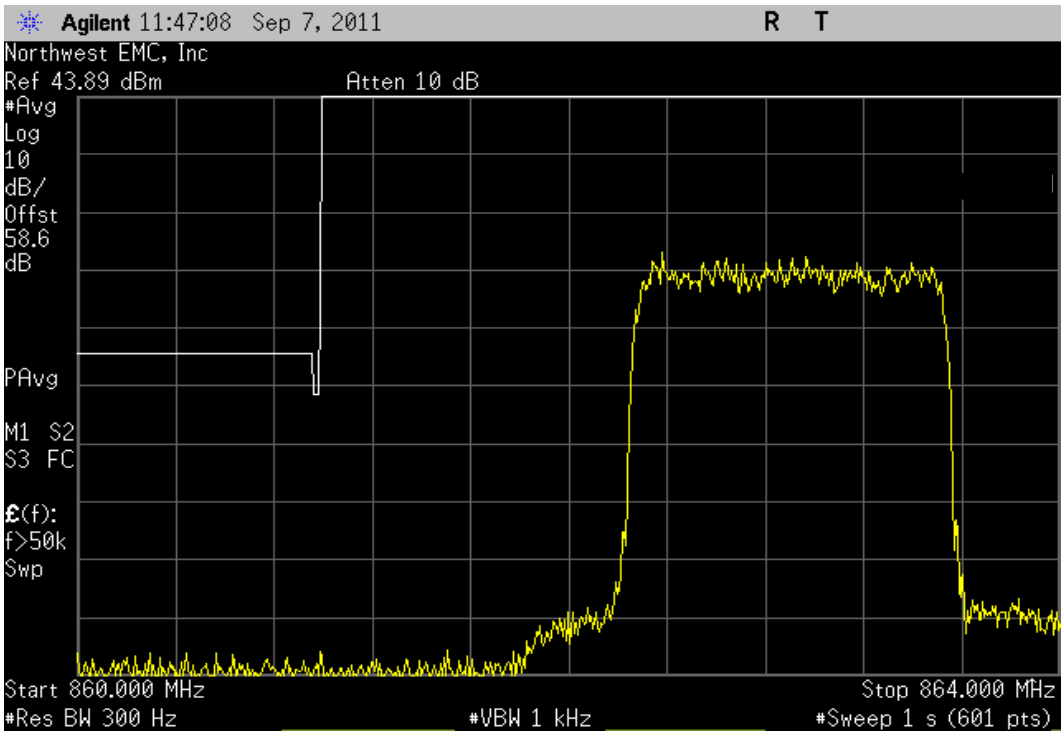
EVDO, Antenna Port B, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



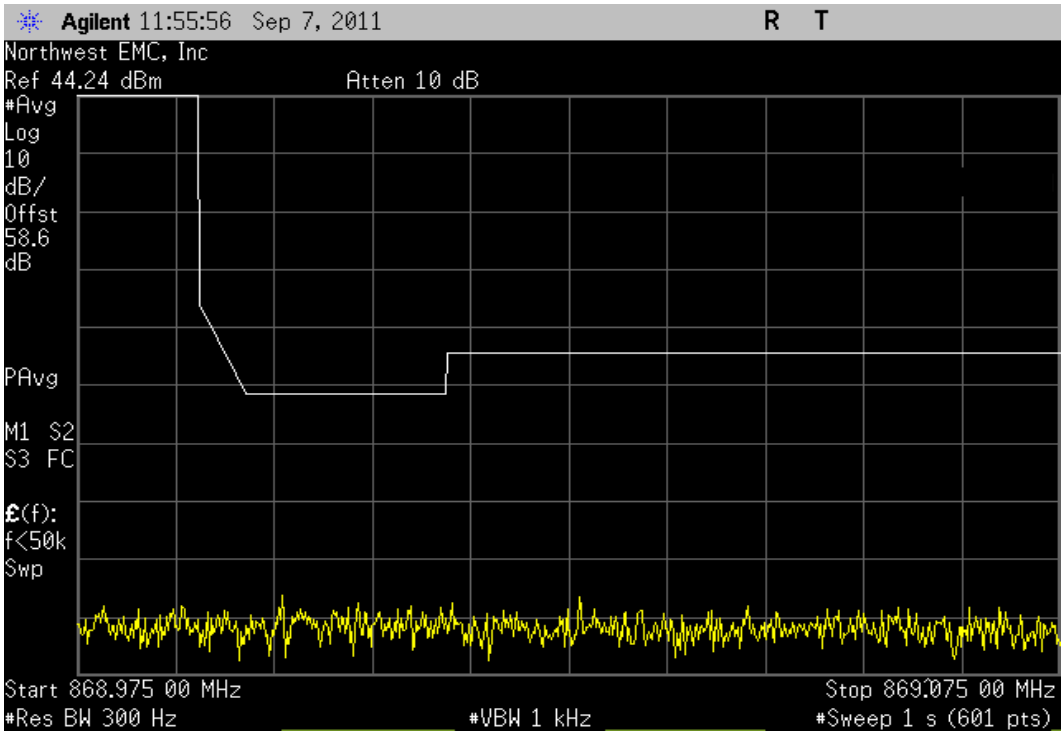
EVDO, Antenna Port B, Single Carrier, 862.9 MHz, Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



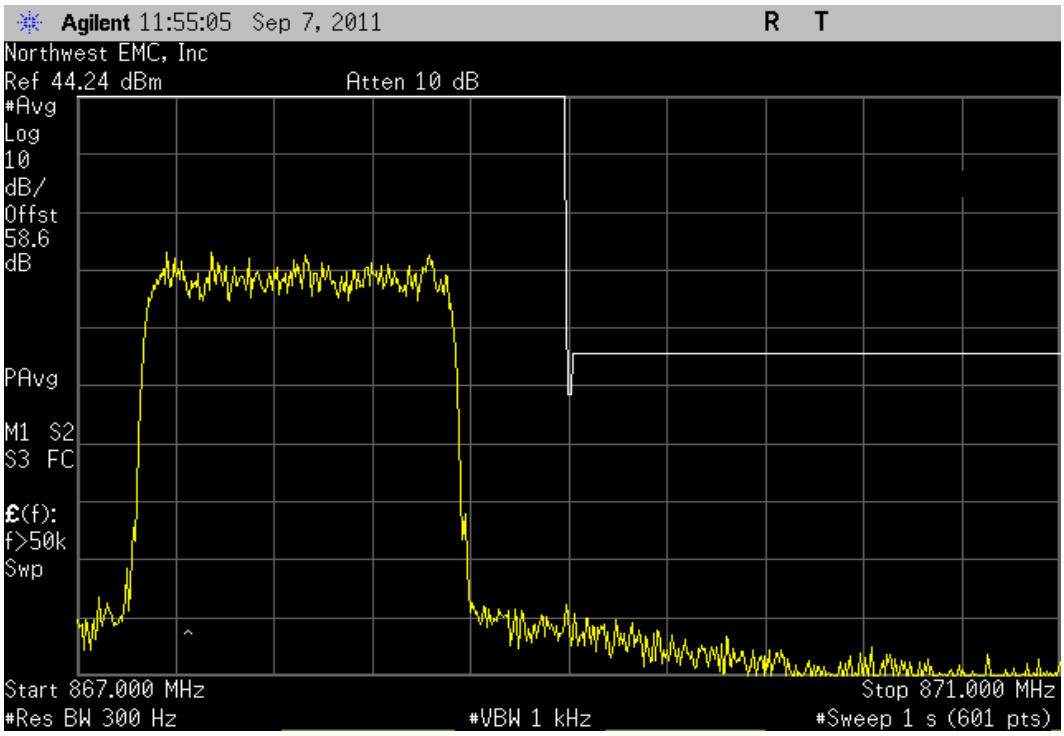
EVDO, Antenna Port B, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



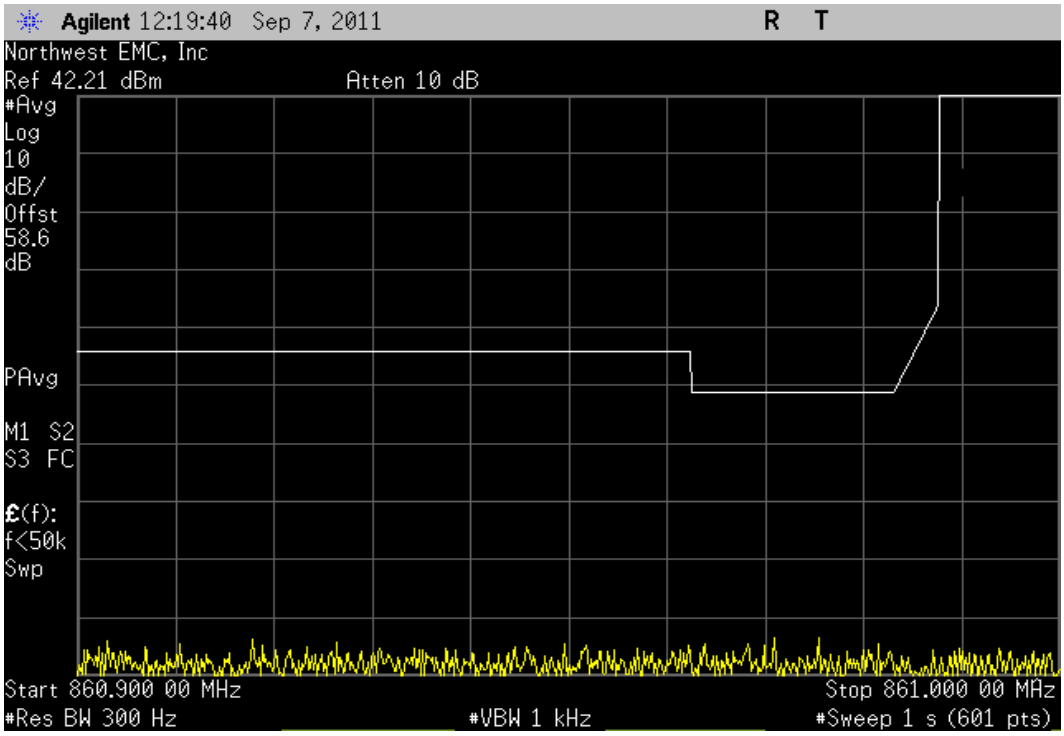
EVDO, Antenna Port B, Single Carrier, 867.9 MHz, Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



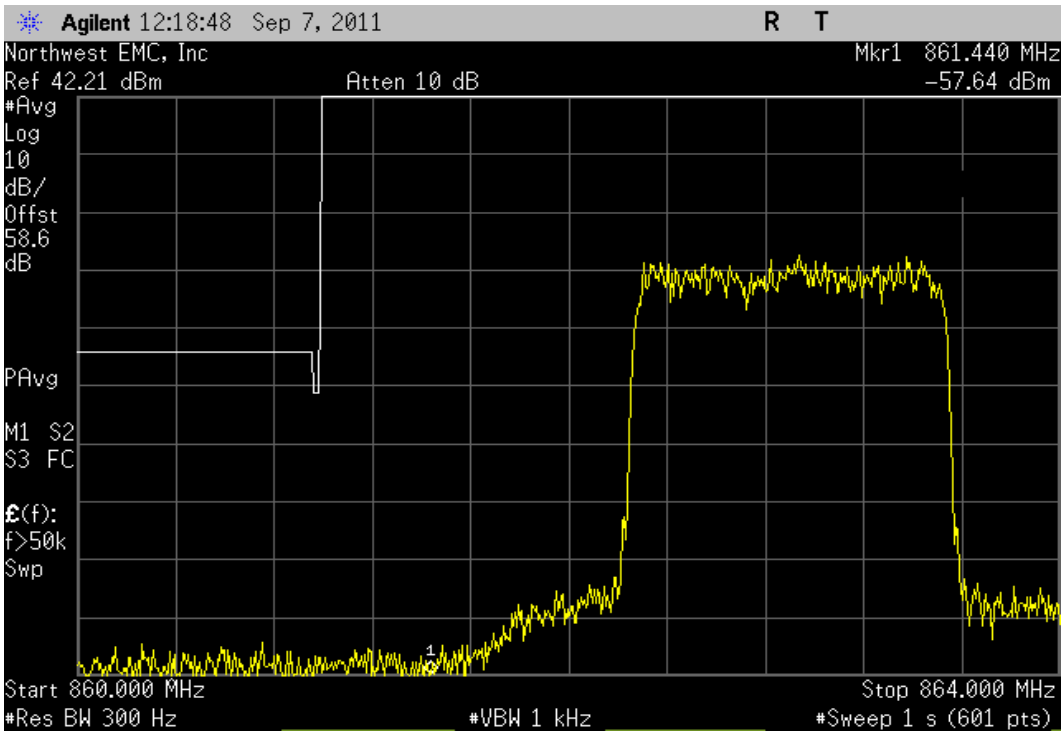
EVDO, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



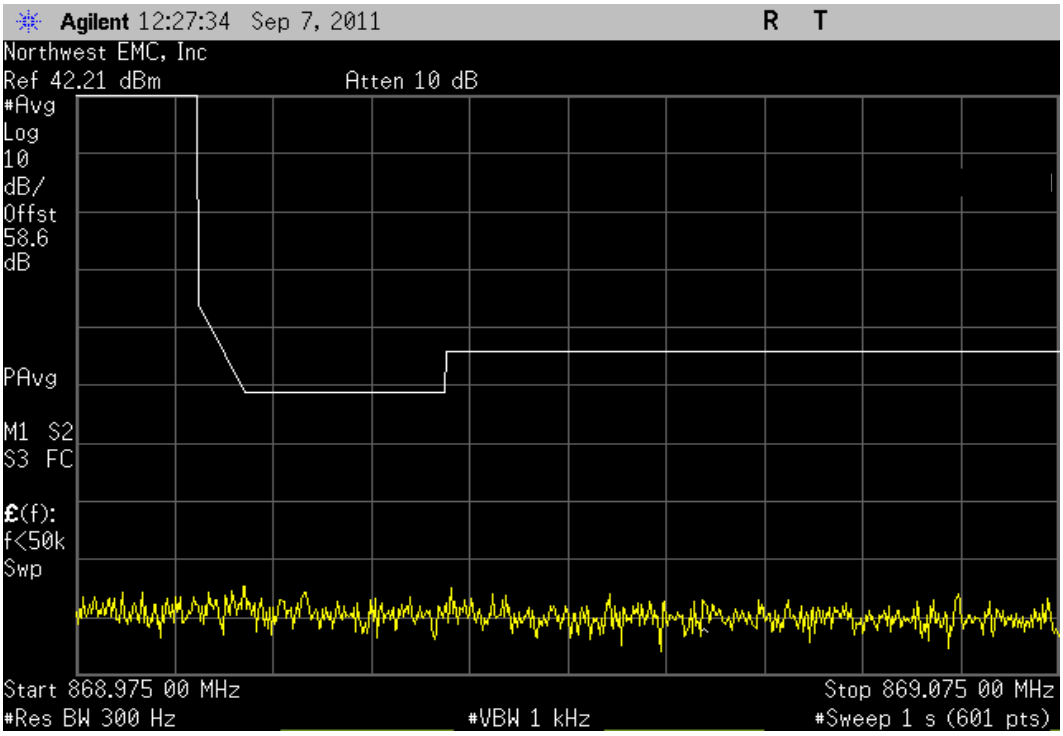
EVDO, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



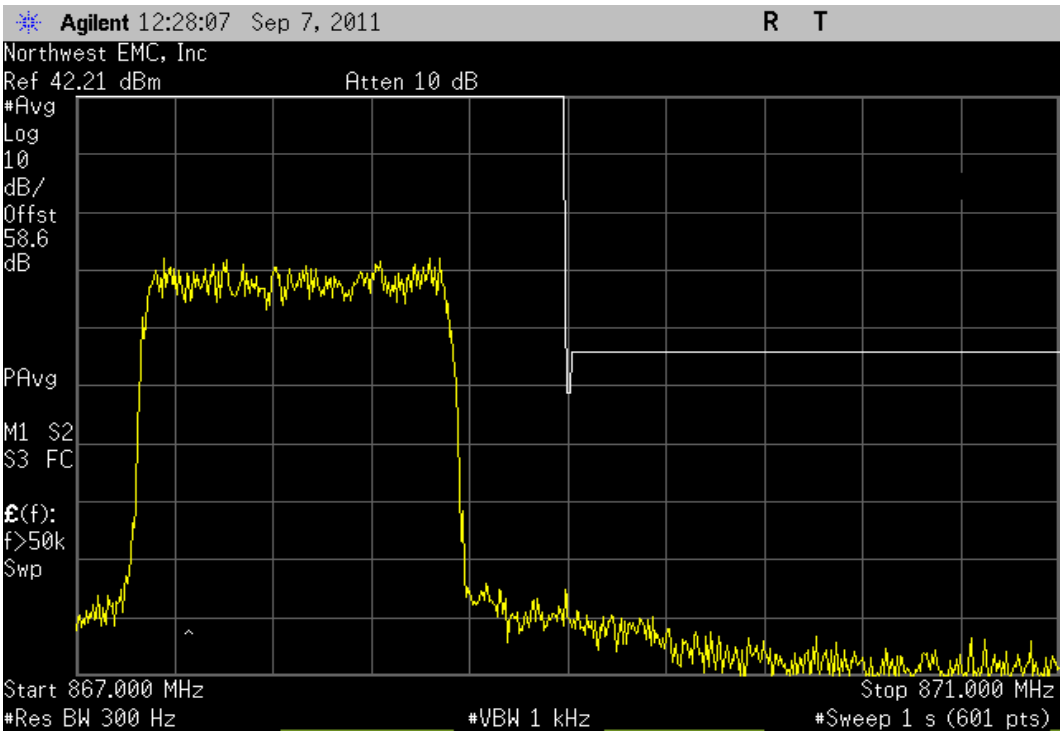
EVDO, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



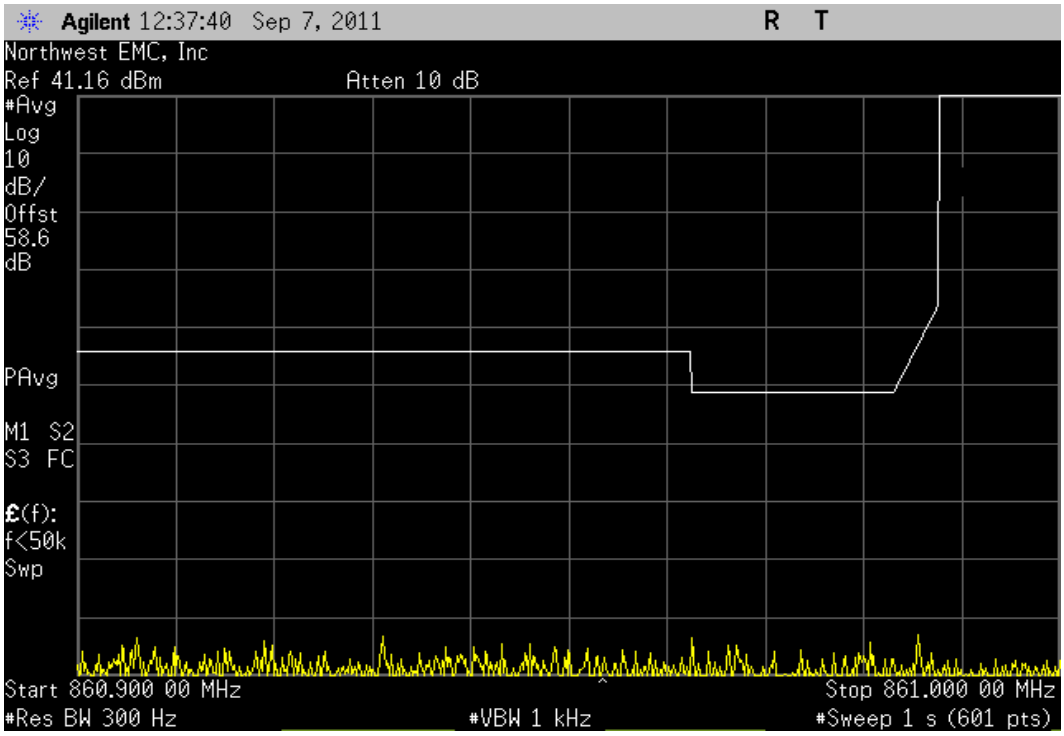
EVDO, Antenna Port B, Multi Carrier [2 FA], (862.9 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



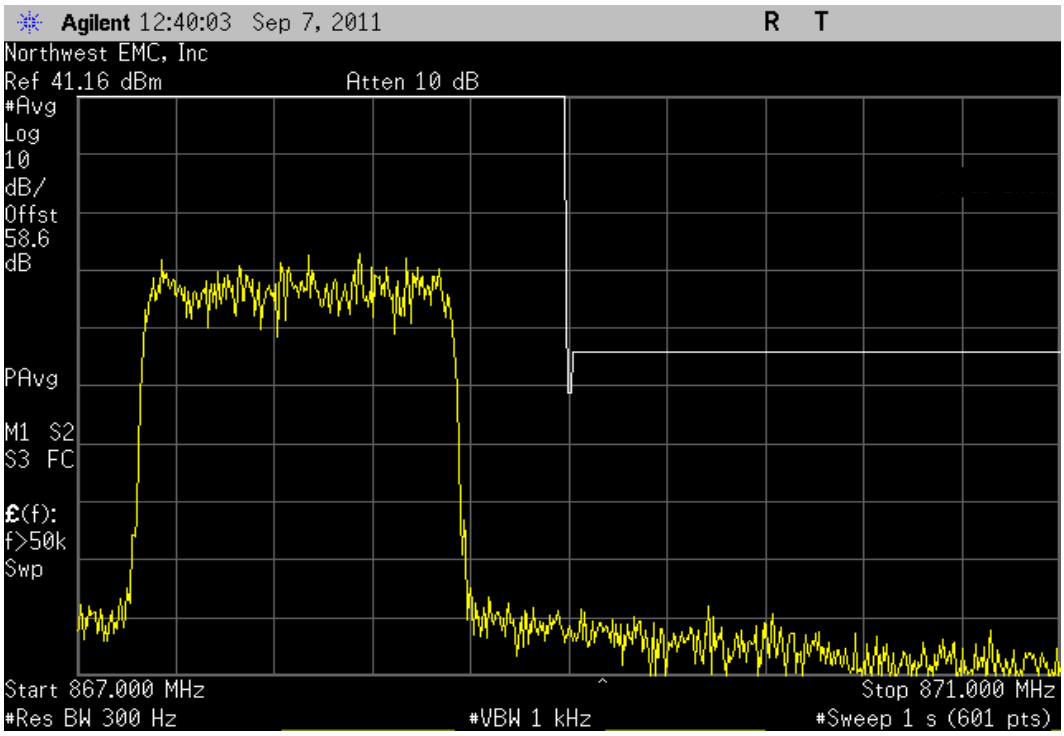
EVDO, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



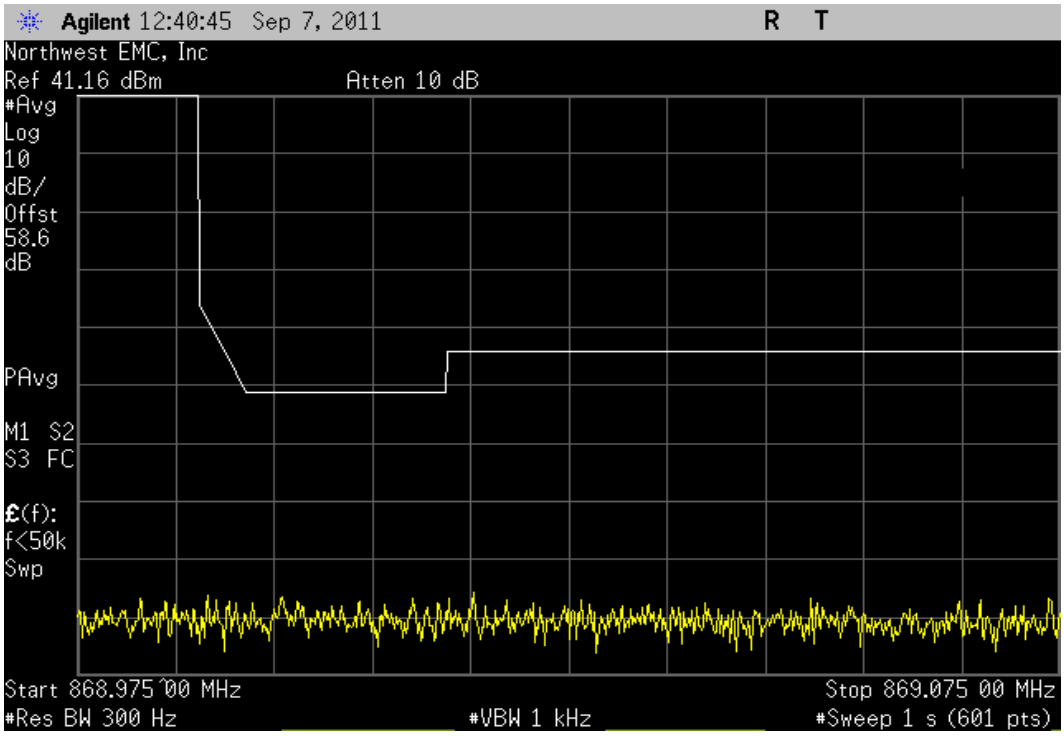
EVDO, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



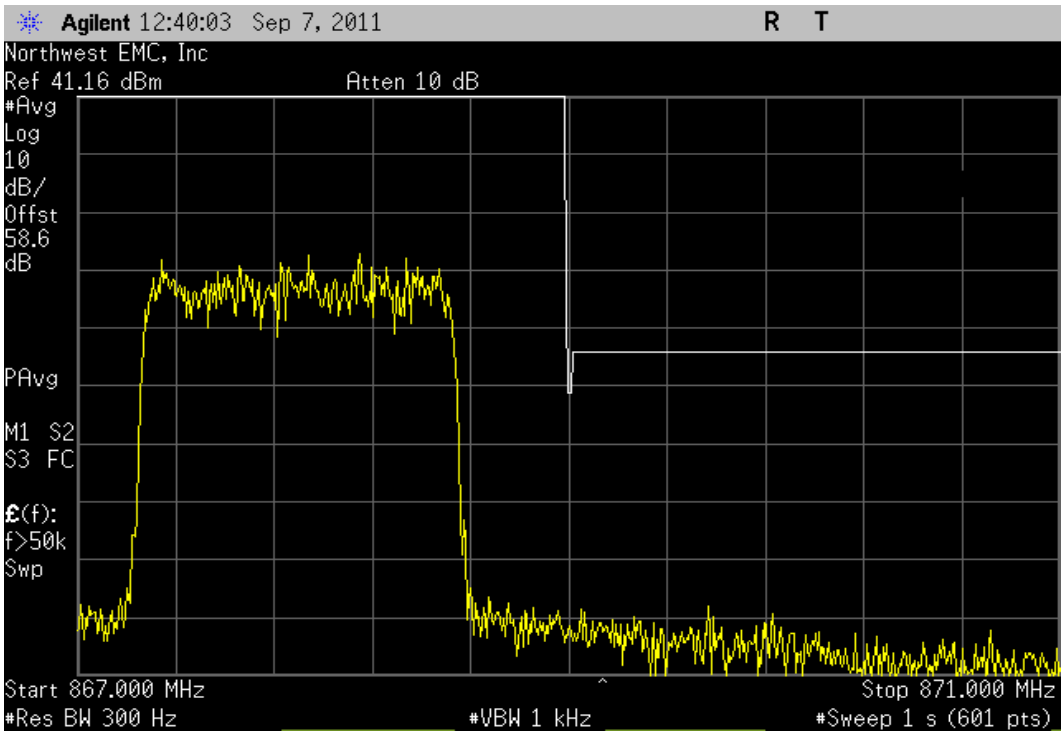
EVDO, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



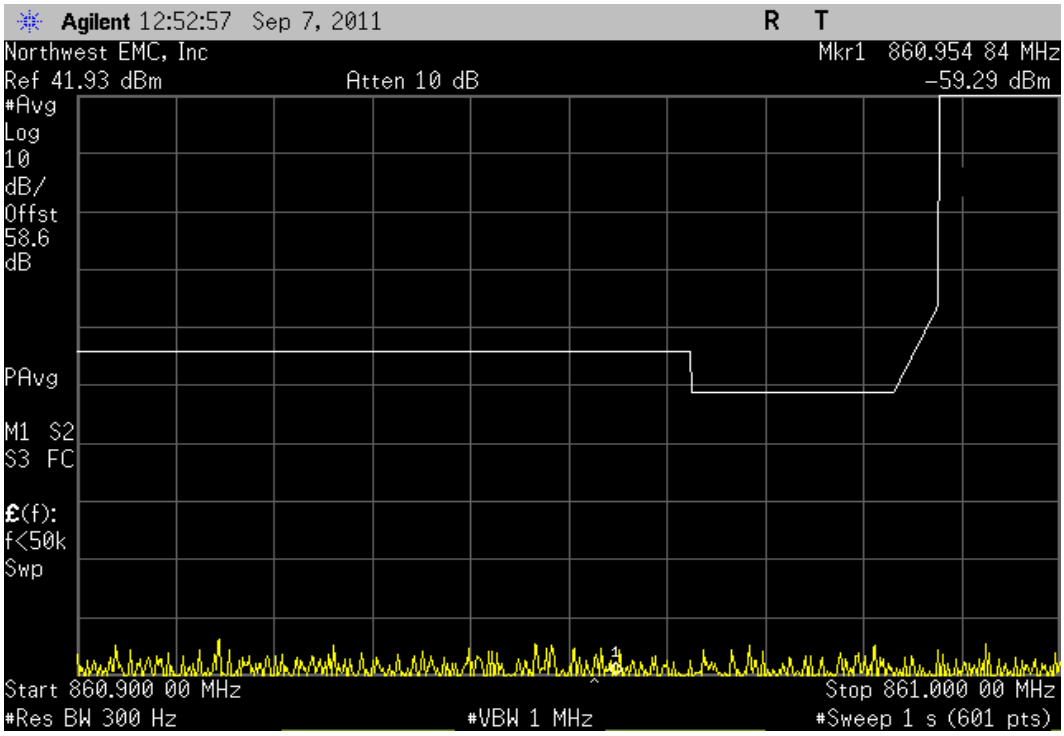
EVDO, Antenna Port B, Multi Carrier [3 FA], (862.9 MHz, 865.4 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



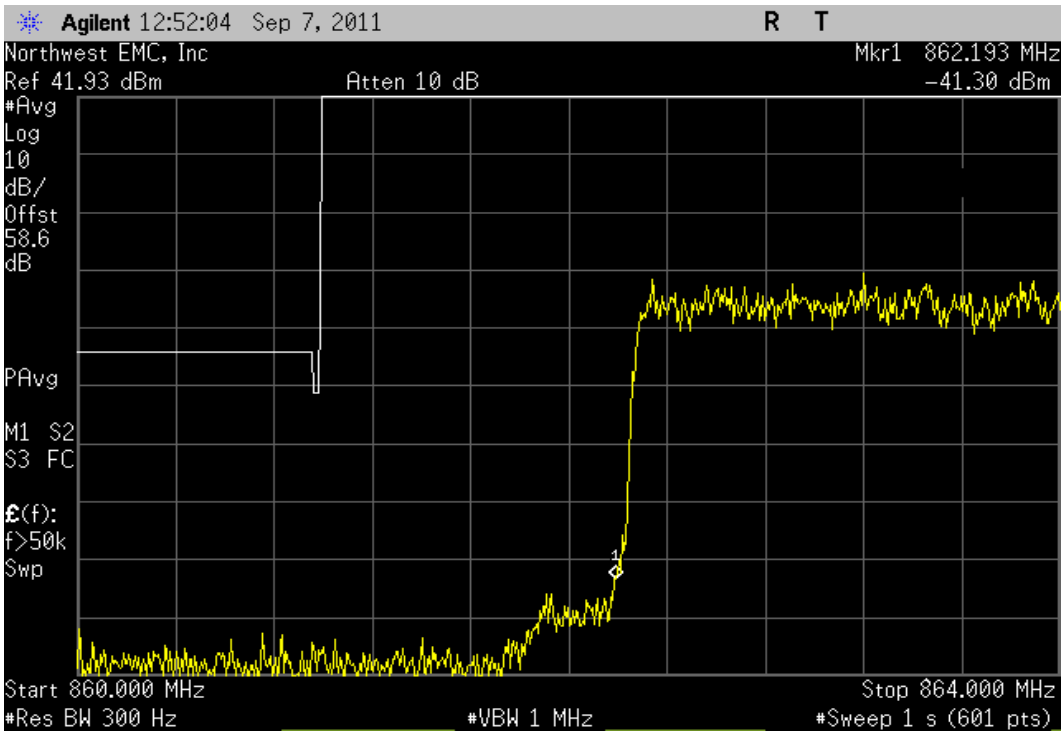
EVDO, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



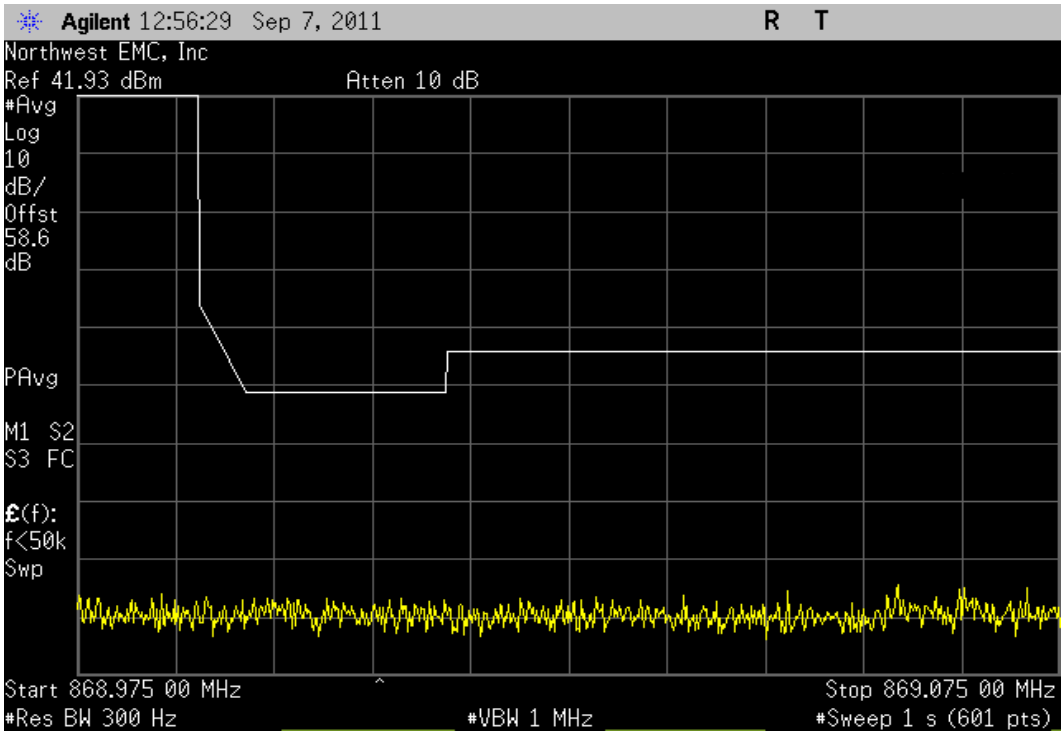
EVDO, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Lower Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass



EVDO, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed In

				Value	Limit	Result
				N/A	See Graphs	Pass



EVDO, Antenna Port B, Multi Carrier [5 FA], (862.9 MHz, 864.16 MHz, 865.4 MHz, 866.65 MHz, 867.9 MHz), Upper Band Edge Zoomed Out

				Value	Limit	Result
				N/A	See Graphs	Pass