

Nextivity, Inc.

ADDENDUM TO TEST REPORT 95128-15B

Provider Specific Consumer Signal Booster
Model: Cel-Fi P34-2/4/5/12

Tested To The Following Standards:

FCC Part 20.21

Report No.: 95128-15C

Reissue Date: August 20, 2014
(Refer to Revision History)



This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Nextivity, Inc.
12230 World Trade Dr.
San Diego, CA 92128

Representative: Michiel Lotter
Customer Reference Number: 001831

DATE OF EQUIPMENT RECEIPT:

DATE(S) OF TESTING:

REPORT PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 95128

December 10, 2013

December 10, 2013 – April 8, 2014

Revision History

April 22, 2014; Original Issue: Testing of the Provider Specific Consumer Signal Booster, Model: Cel-Fi P34-2/4/5/12 to FCC Part 20.21.

June 27, 2014; Addendum A: To add additional information in section 7.7 that was accidentally left out of the report.

July 10, 2014; Addendum B: To replace the summary of results tables in section 7.7 because there was an incorrect limit reference in the Uplink data table.

August 20, 2014; Addendum C: To correct the references to provider specific booster standard.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information



Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 20.21

Test Procedure for Provider Specific Consumer Boosters ANSI 63.26 Measurement Guidance Draft (March 06, 2014)		FCC Part 20.21 Section Correlation		Results
Guidance Sec #	Guidance Description	FCC Sec #	FCC Rule Description	
7.1	Authorized Frequency Band Verification and Authorized CMRS Provider	20.21(a)(4) and 20.21(e)(3)	Self-Monitoring Frequency Bands	Pass
7.2	Maximum Power Measurement	20.21(e)(9)(i)(B) and 20.21(e)(9)(i)(D)	Bidirectional Capabilities Power Limit	Pass
7.3	Maximum Booster Gain Computation	20.21(e)(9)(i)(B) and 20.21(e)(9)(i)(C)(1) 20.21(e)(9)(i)(C)(2)	Bidirectional Capabilities	Pass
7.4	Intermodulation Product	20.21(e)(9)(i)(G)	Intermodulation Limit	Pass
7.5	Out of Band Emissions	20.21(e)(9)(i)(F)	Out of Band Emission	Pass
7.6	Conducted Spurious Emission	2.1051/22/24/271	Conducted Spurious Emission	NA ¹
7.7	Noise Limits	20.21(e)(9)(i)(A)(2) 20.21(e)(9)(i)(I)	Noise Limits Transmit Power Off Mode	Pass
7.8.	Uplink inactivity	20.21(e)(9)(i)(J)	Uplink inactivity	Pass
7.9	Variable Booster Gain	20.21(e)(9)(i)(C)(1)/(2) 20.21(e)(9)(i)(I)	Booster Gain Transmit Power Off Mode	Pass
7.10	Occupied Band Width	2.1049/22/24/27	Occupied Bandwidth	NA ¹
7.11	Oscillation Detection	20.21(e)(9)(ii)(A)	Anti-oscillation	Pass
7.12	Radiated Spurious Emission	2.1053/22/24/27	Radiated Spurious Emission ¹	NA ¹
7.13	Spectrum Block Filtering	20.21(e)(9)(i)(B)	Spectrum block filtering	NA ²
7.14	Out of Band Gain Limits	20.21(e)(9)(i)(E)	Out of Band Gain Limits	Pass
7.15	Frequency Stability	2.1055/22/24/27	Frequency Stability	NA ¹

NA¹ = A different standard applies; see applicable test report.

NA² = Not applicable. See the section in the report for the reason.

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Provider Specific Consumer Signal Booster

Manuf: Nextivity, Inc.
Model: Cel-Fi P34-2/4/5/12CU
Serial: 171341000018

Provider Specific Consumer Signal Booster

Manuf: Nextivity, Inc.
Model: Cel-Fi P34-2/4/5/12NU
Serial: 170931000035

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Power Supply

Manuf: ITE Power Supply
Model: PW173
Serial: None

Signal Generator

Manuf: Agilent
Model: E4433B
Serial: US40052164

Signal Generator

Manuf: Agilent
Model: E4438C
Serial: MY42082260

Signal Generator

Manuf: Anritsu
Model: MT8820A
Serial: 6200250367

FCC PART 20.21

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) CFR 47 Clause 20.21(e)(8) requirements for Wideband Consumer Signal Boosters.

Clause 7.1 Authorized Frequency Band Verification / Authorized CMRS Provider

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.1 Authorized Frequency Band Verification and authorized CMRS Provider**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.
 Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz
 DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Authorized Frequency Band Verification - Summary of Results

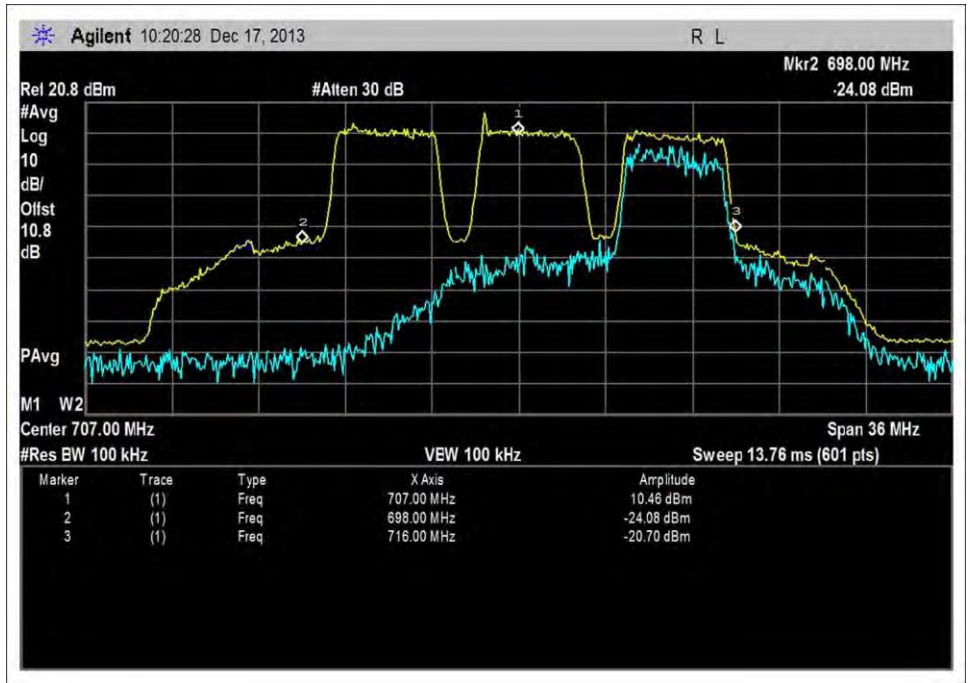
Summary:

Pass, the following plots demonstrate compliance to the following requirement

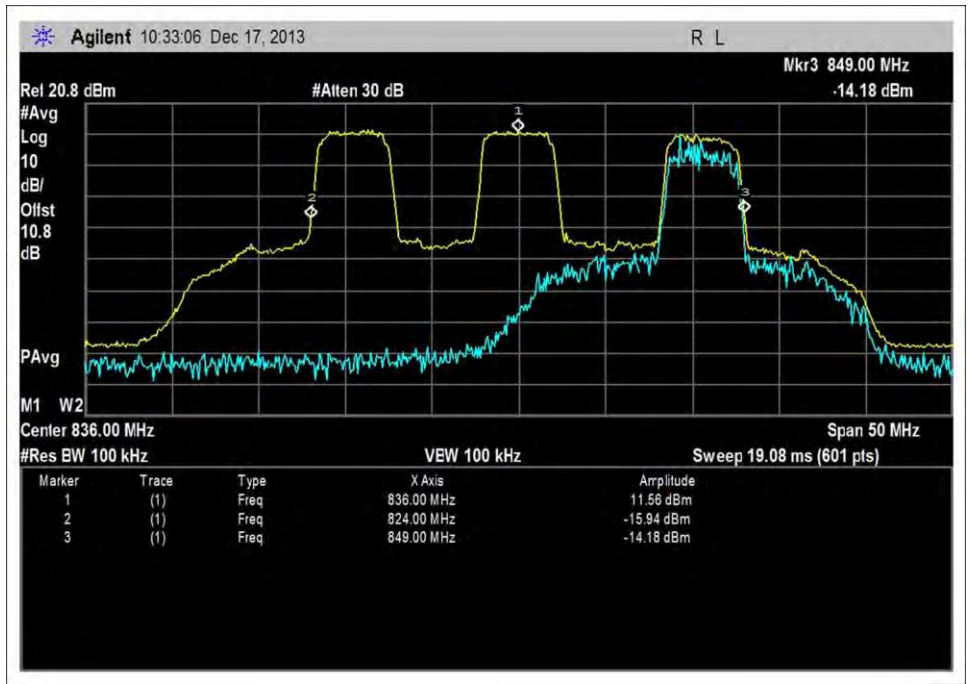
Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.1	Authorized Frequency Band Verification and authorized CMRS Provider	20.21(a)(4) and 20.21(e)(3)	Self-Monitoring Frequency Bands

The plots below demonstrated the relay frequency /channel stays within the authorized operational band of the booster.

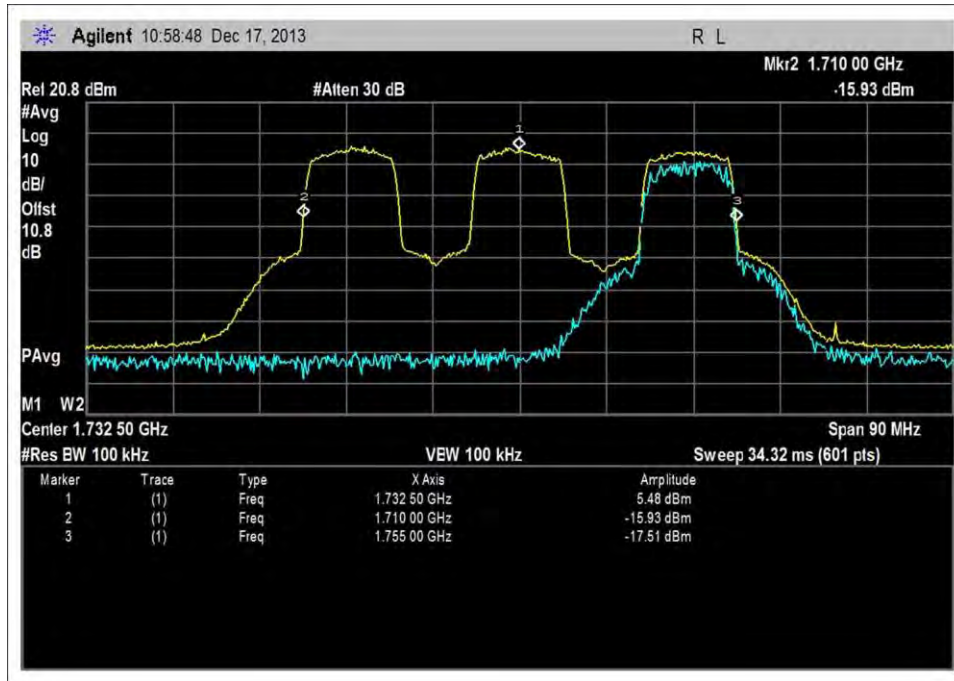
Test Data



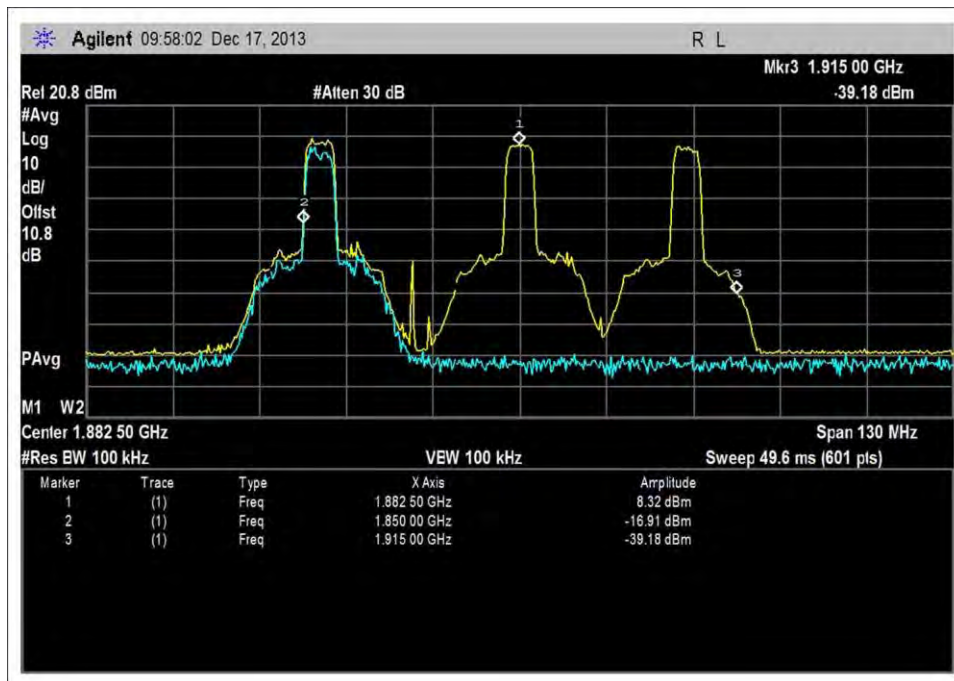
UL_698-716MHz



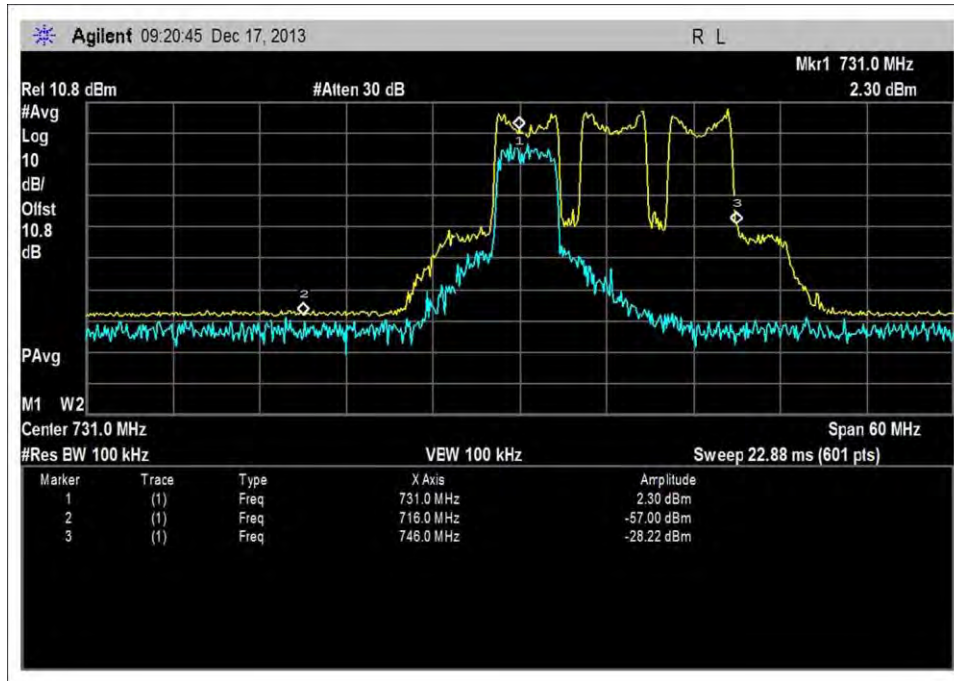
UL_824-849MHz



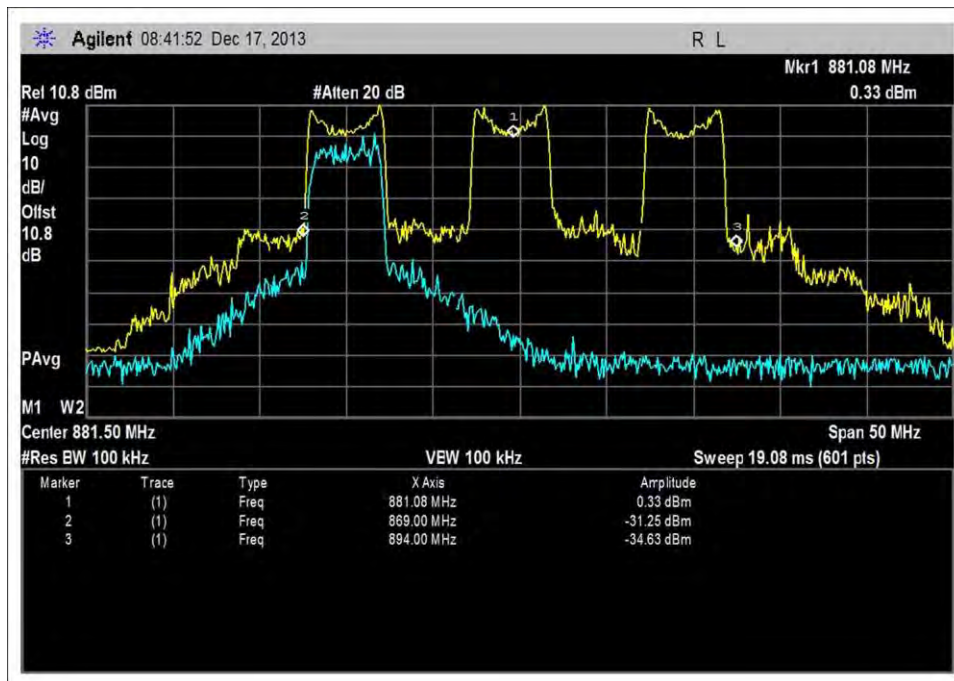
UL_1710-1755MHz



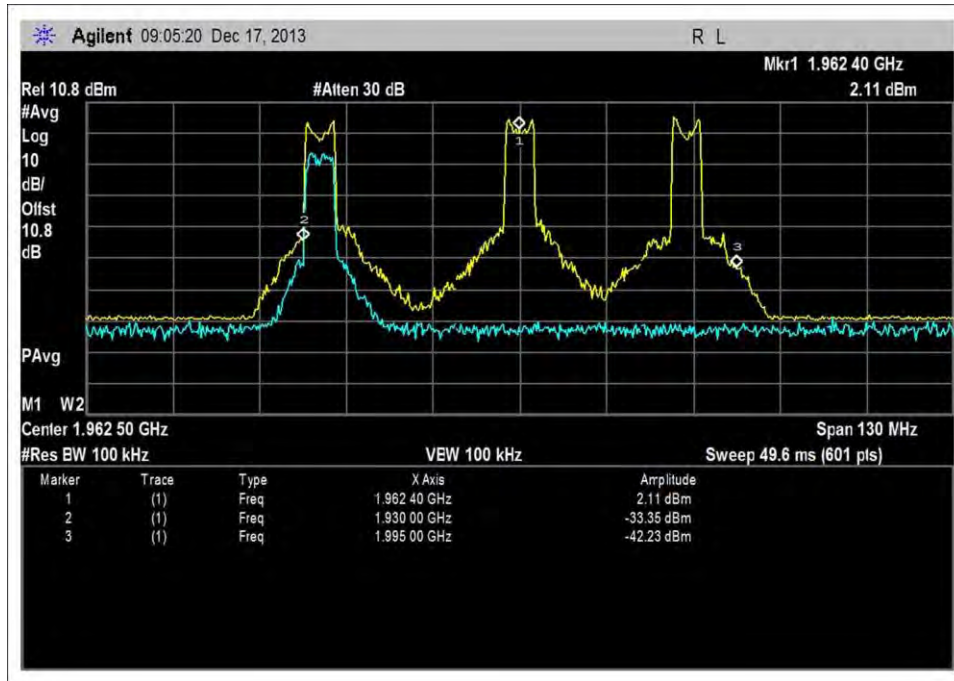
UL_1850-1915MHz



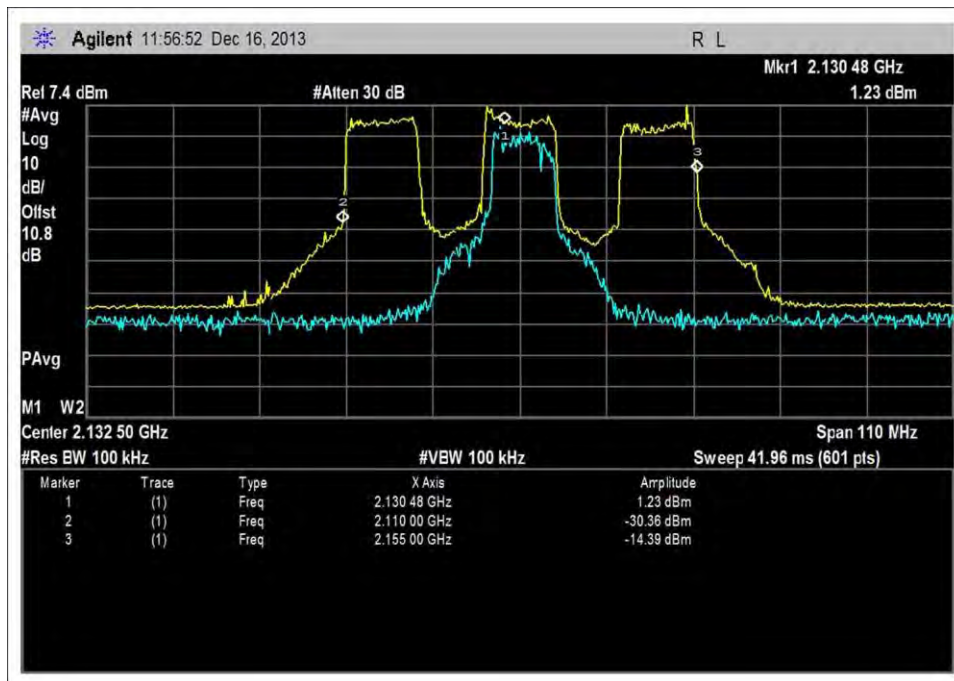
DL_716-746MHz



DL_869-894MHz



DL_1930-1995MHz.



DL_2110-2155MHz

Clause 7.1 Authorized CMRS Provider - Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer:	Nextivity, Inc.		
Specification:	7.1.2 Authorized CMRS Provider		
Work Order #:	94857	Date:	12/12/2013
Test Type:	Conducted Emissions	Time:	09:43:00
Equipment:	Provider Specific Consumer Signal Booster	Sequence#:	2
Manufacturer:	Nextivity, Inc.	Tested By:	E. Wong
Model:	Cel-Fi P34-2/4/5/12		110V 60Hz
S/N:	170931000035, 171341000018		

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Anritsu	MT8820A	6200250367
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10 MHz AWGN, 4.1 MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz.

DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz.

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

The authorized PLMN ID for this device is 410.

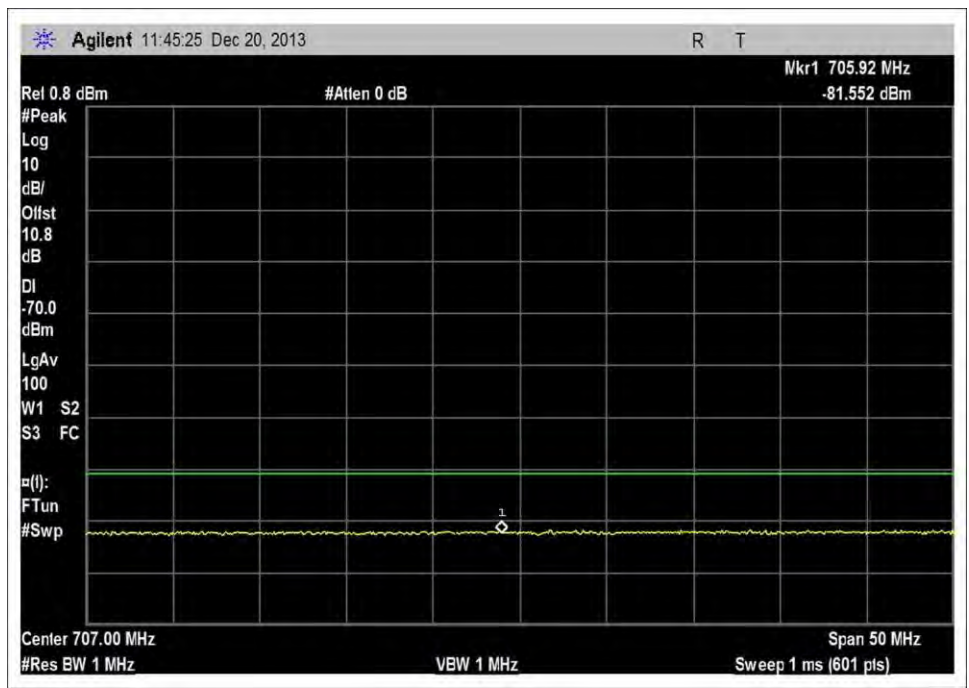
Authorized CMRS Provider - Summary of Results

Summary

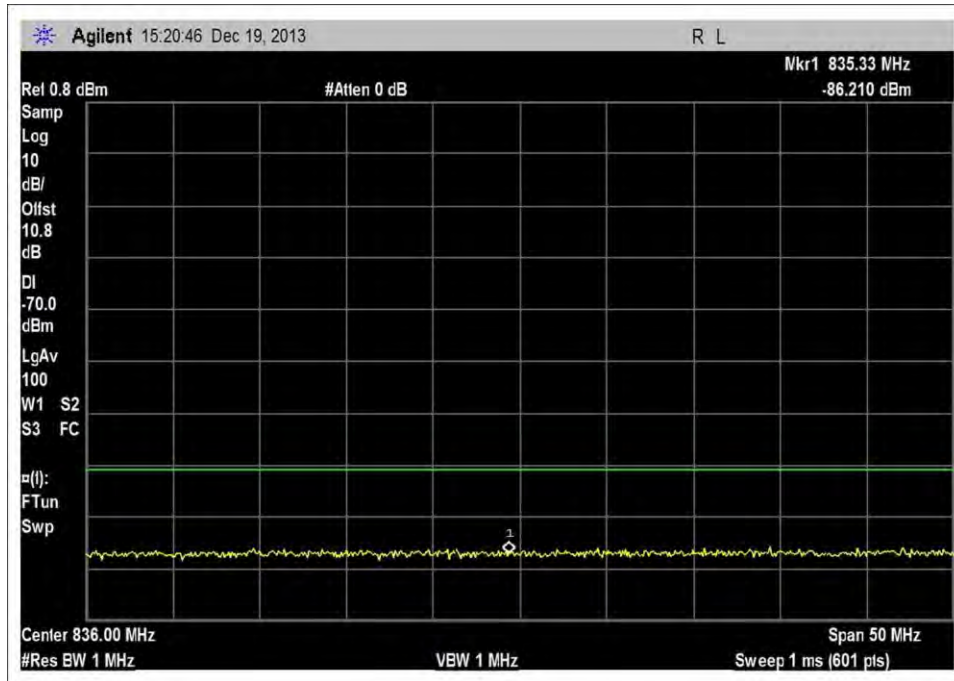
Pass, the following plots demonstrated the device activates the relay channel upon receiving the authorized PLMNID of 410 while rejected 005 and 260, hence meeting the following requirement.

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.1	Authorized Frequency Band Verification and authorized CMRS Provider	20.21(a)(4) and 20.21(e)(3)	Self-Monitoring Frequency Bands

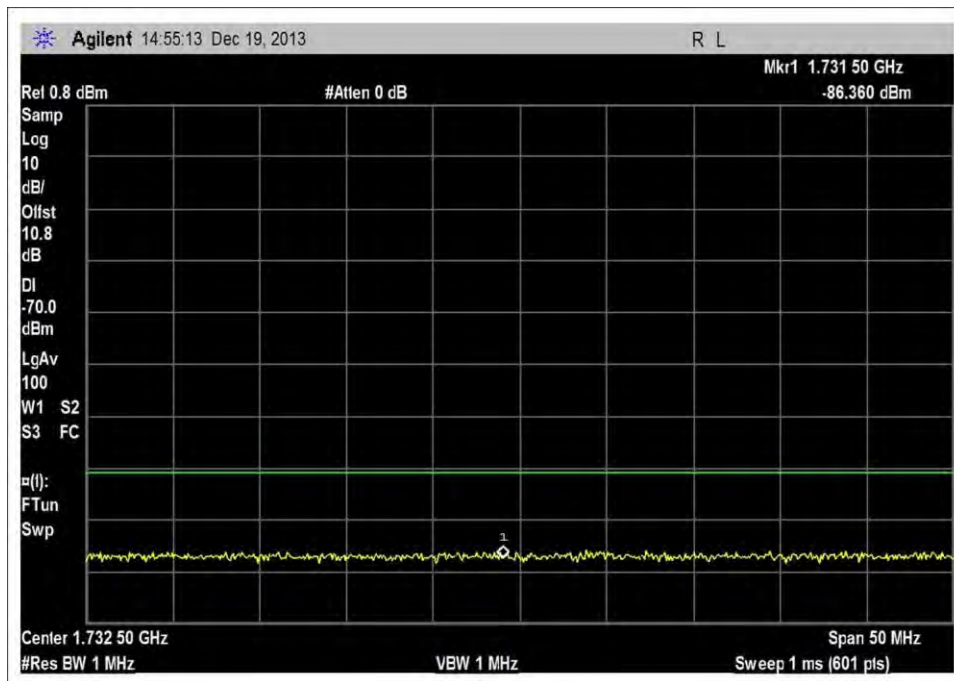
Test Data



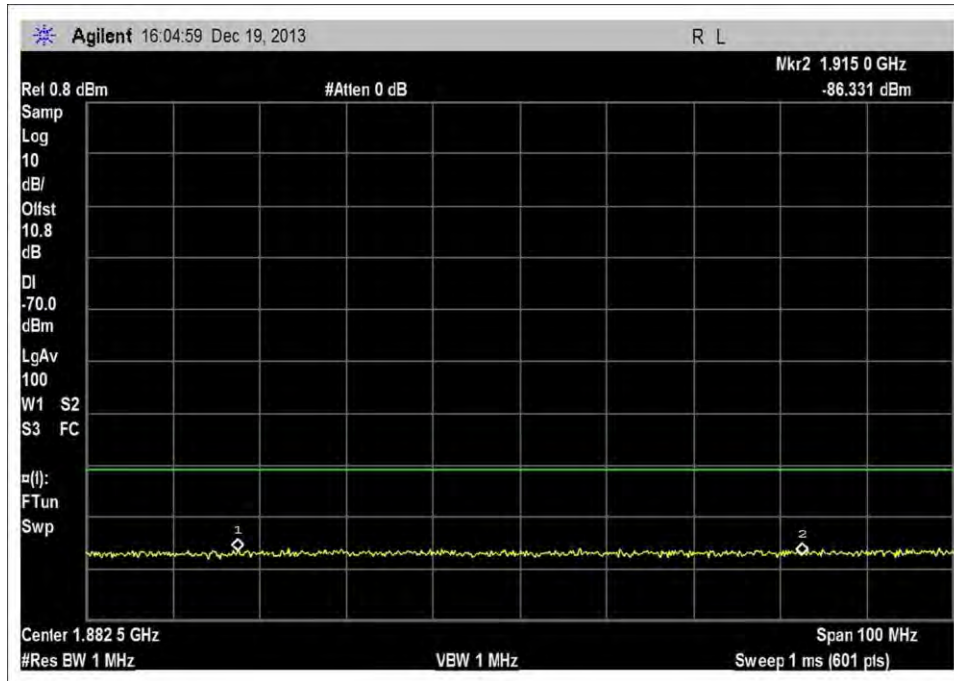
UL_698-716MHz_MNC005



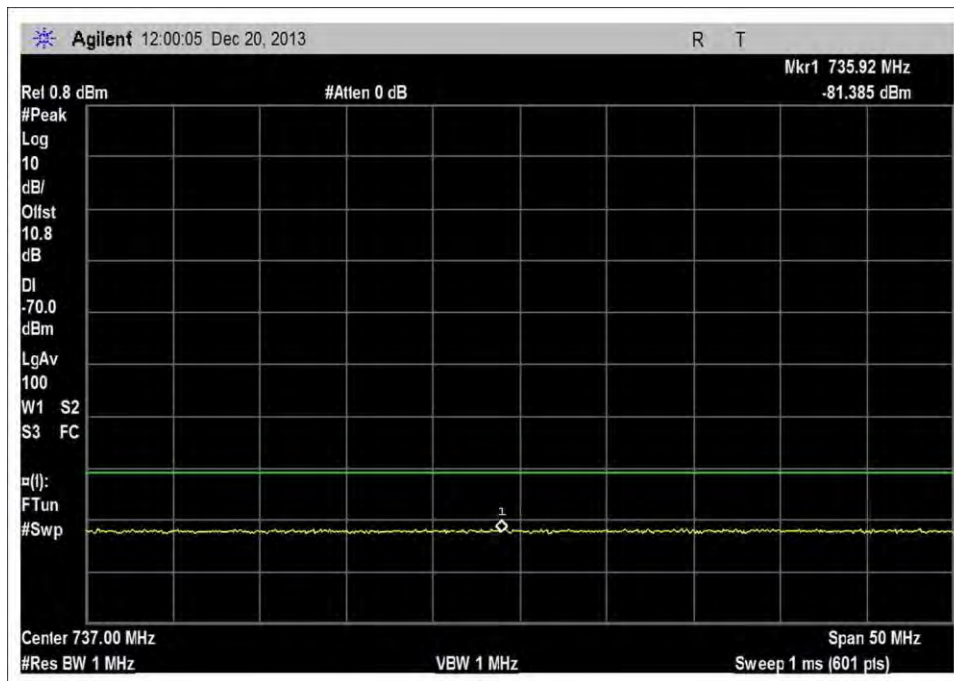
UL_824-849MHz_MNC005



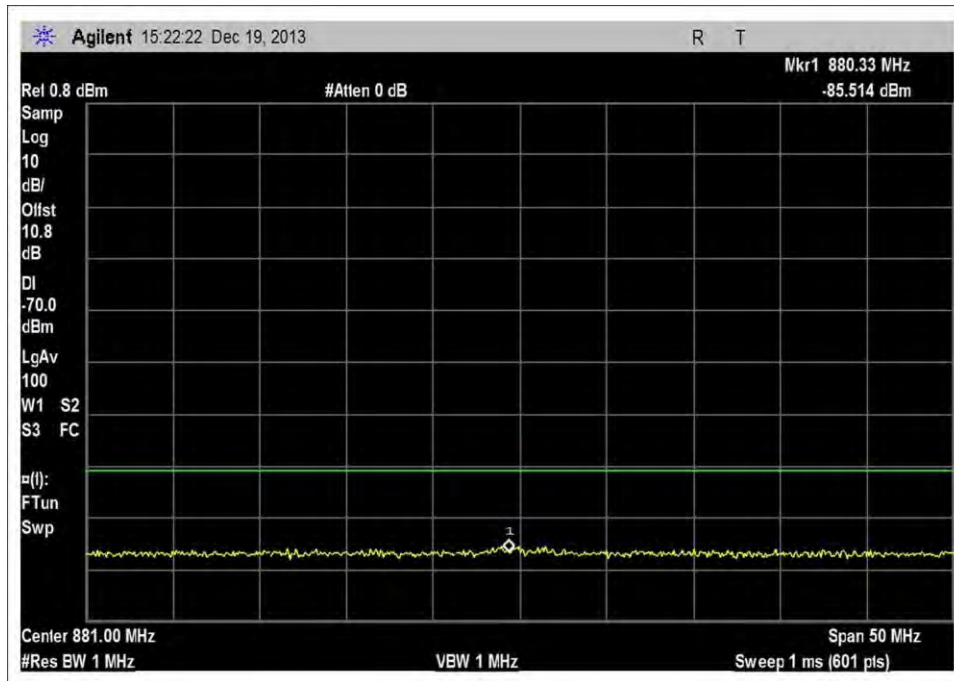
UL_1710-1755MHz_MNC005



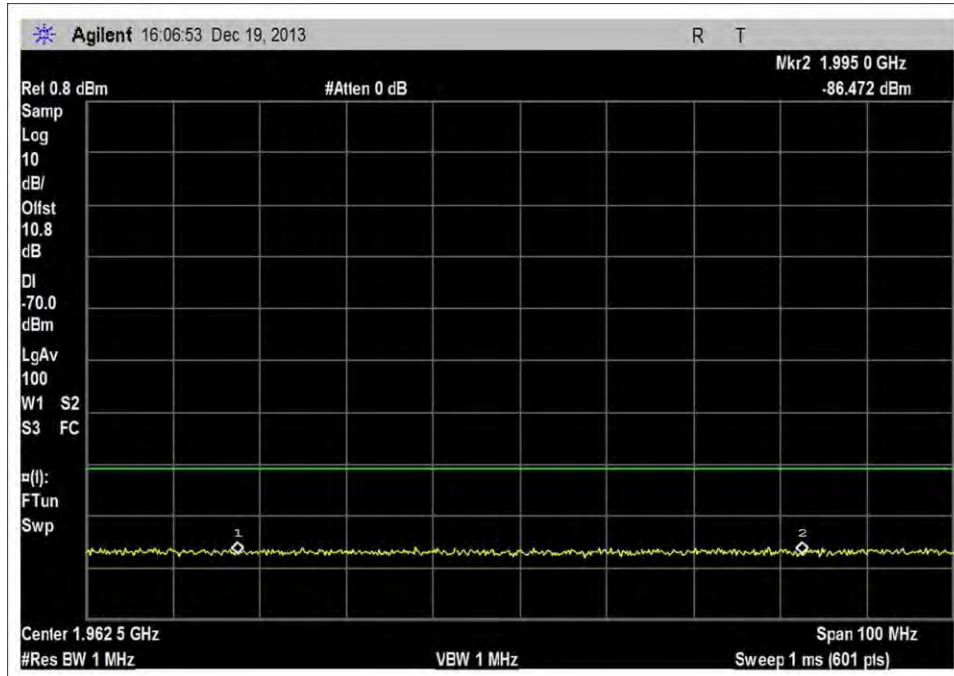
UL_1850-1915MHz_MNC005



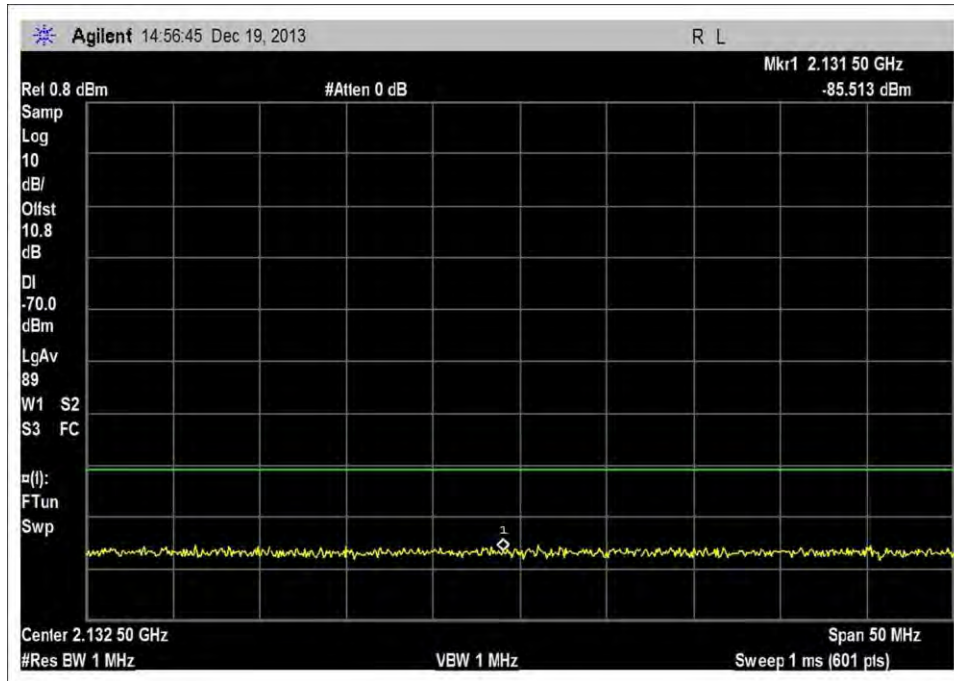
DL_716-746MHz_MNC005



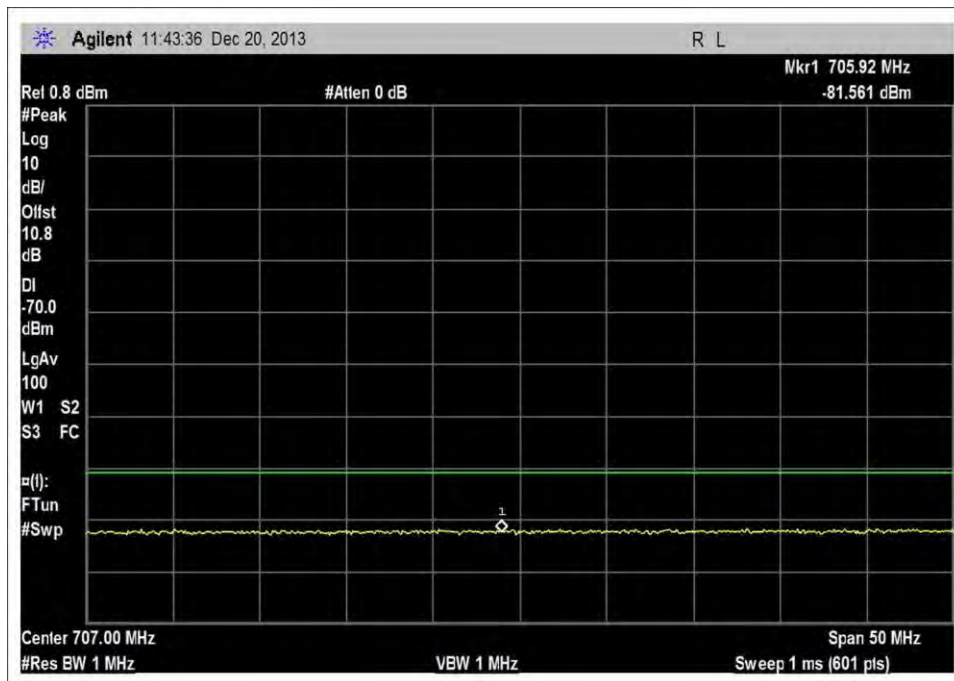
DL_869-894MHz_MNC005



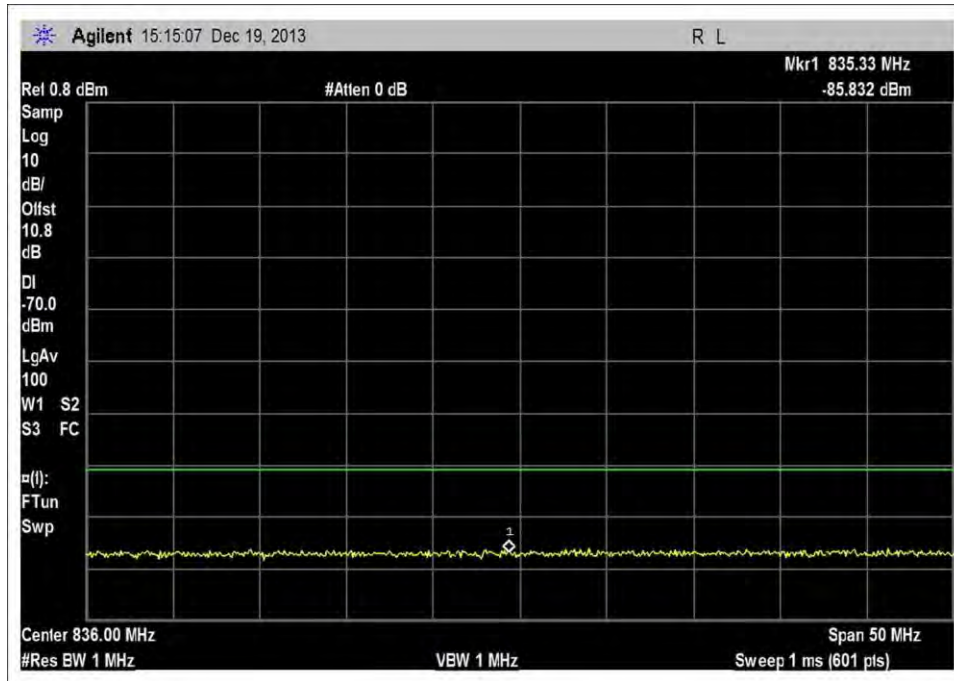
DL_1930-1995MHz_MNC005



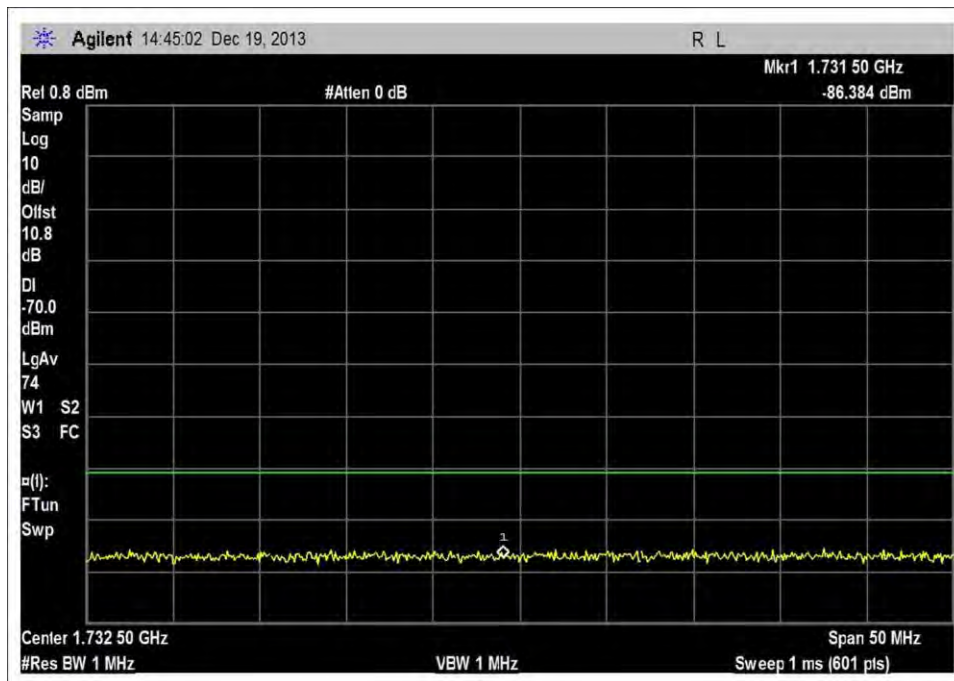
DL_2110-2155MHz_MNC005



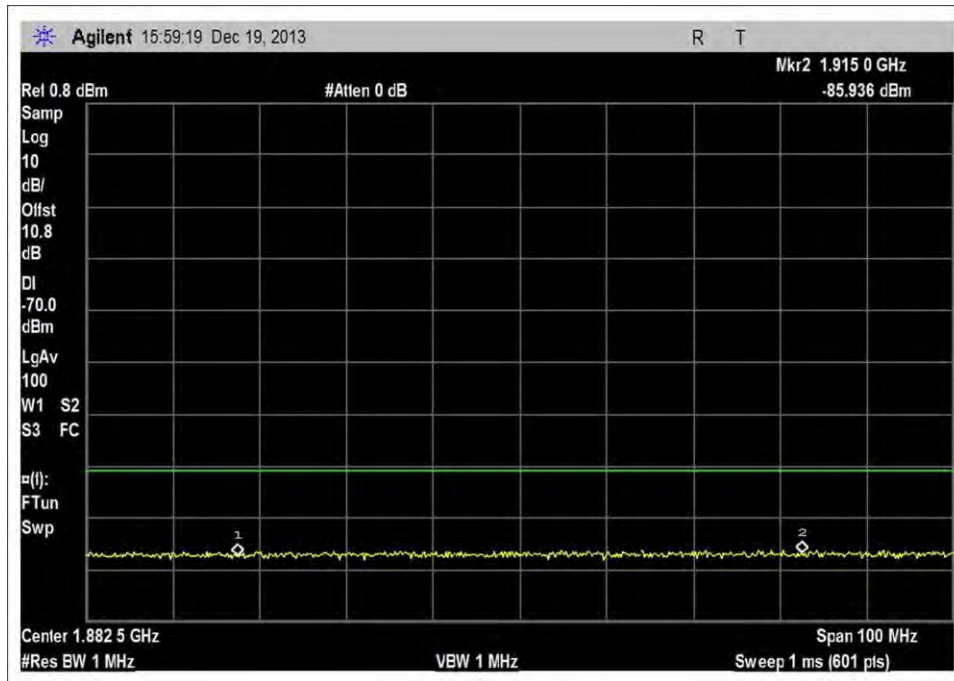
UL_698-716MHz_MNC260



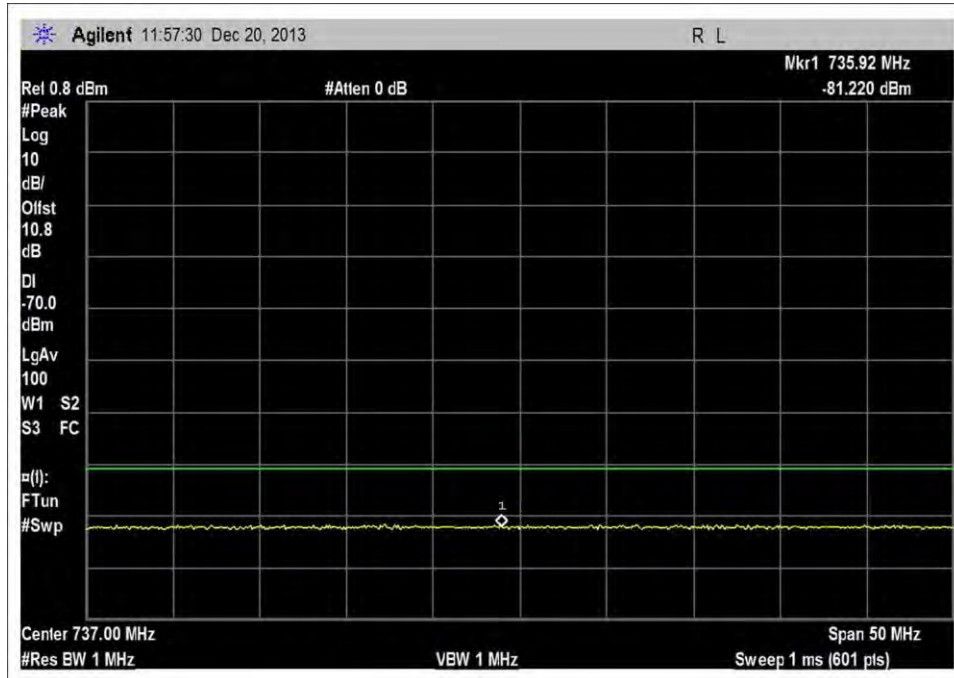
UL_824-849MHz_MNC260



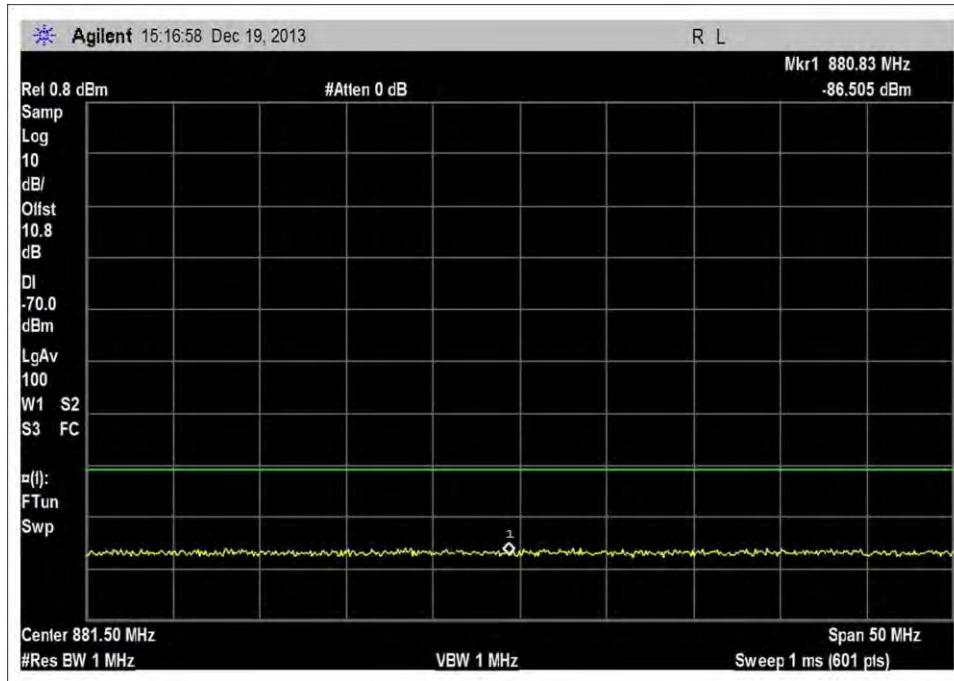
UL_1710-1755MHz_MNC260



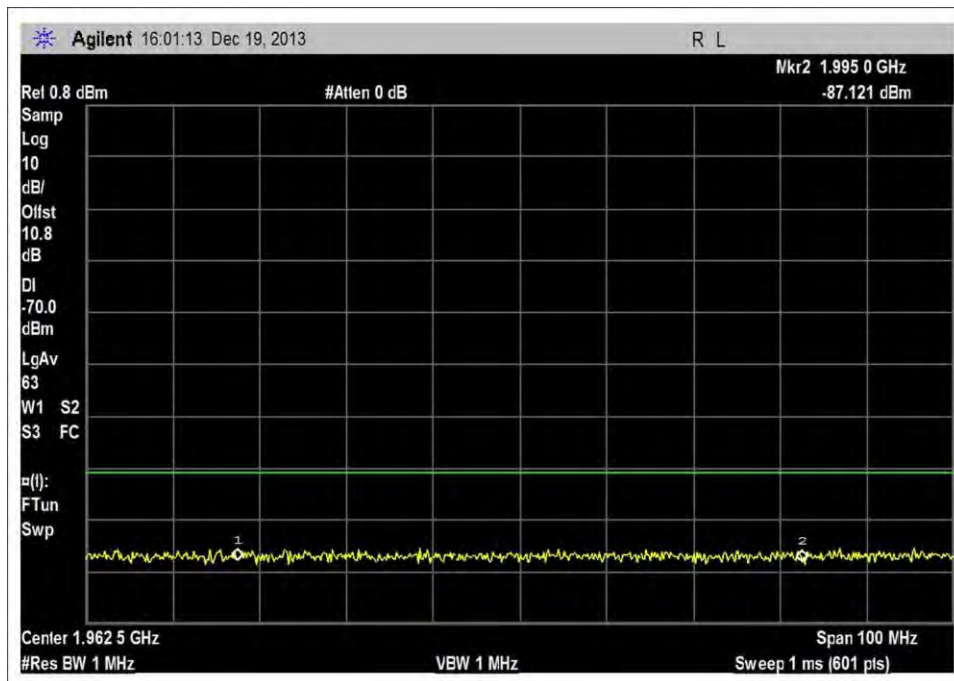
UL_1850-1915MHz_MNC260



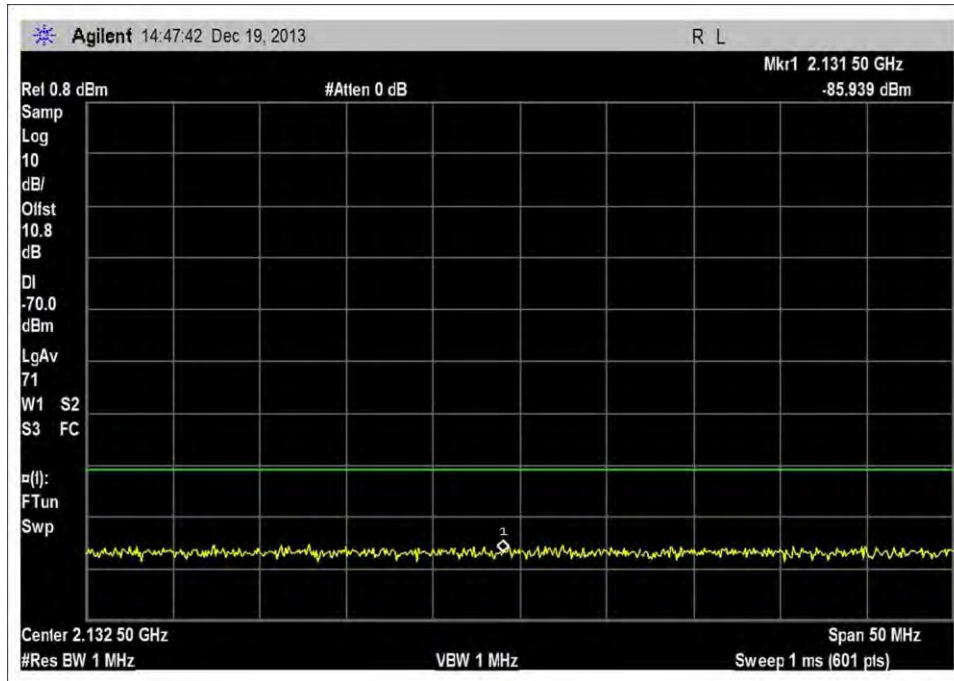
DL_716-746MHz_MNC260



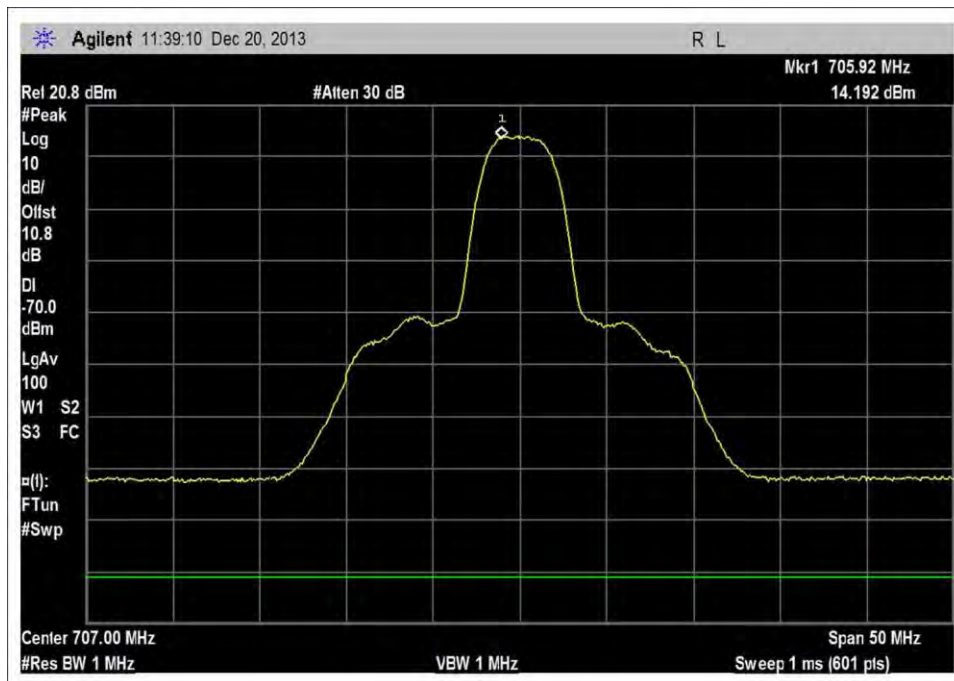
DL_869-894MHz_MNC260



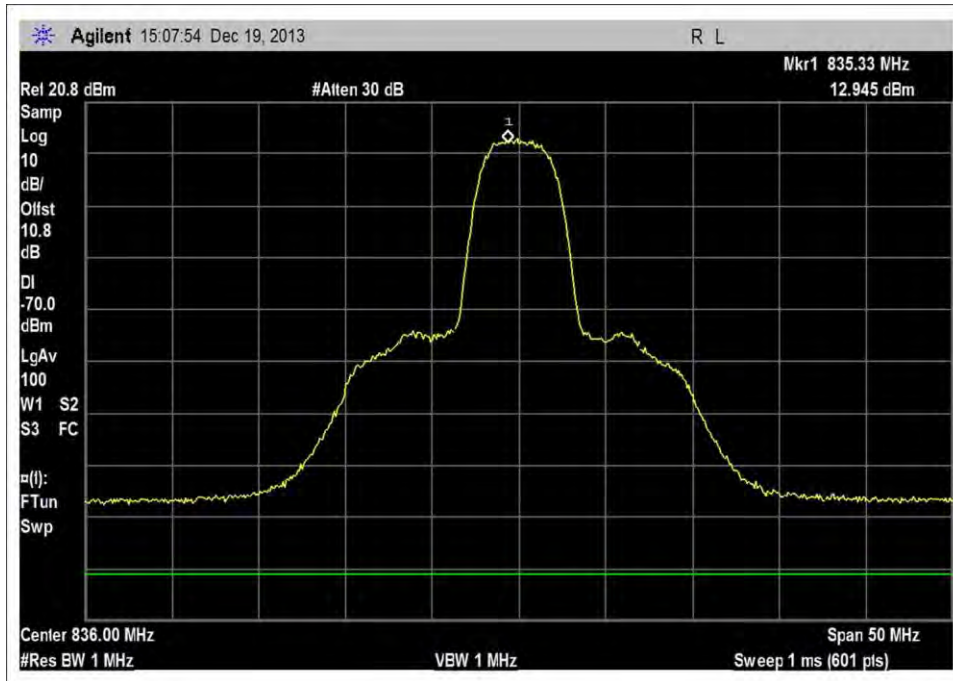
DL_1930-1995MHz_MNC260



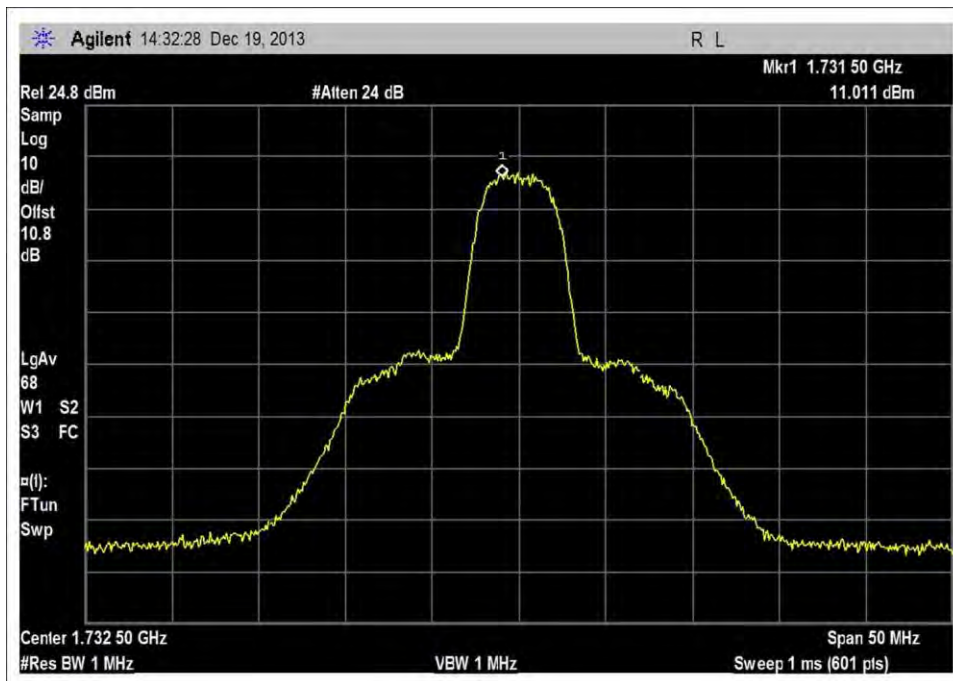
DL_2110-2155MHz_MNC260



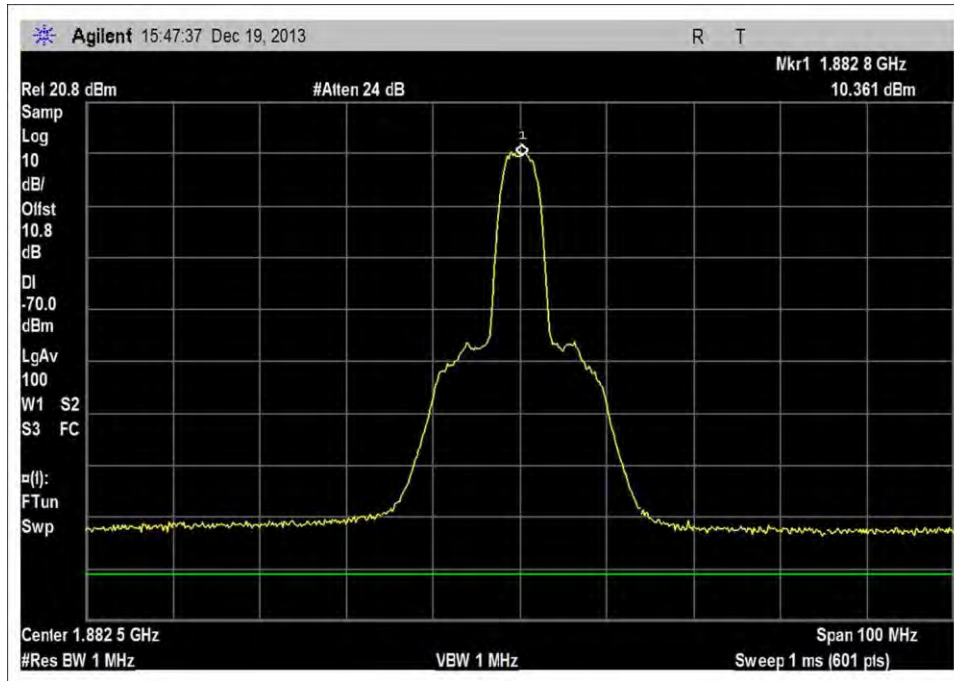
UL_698-716MHz_MNC410



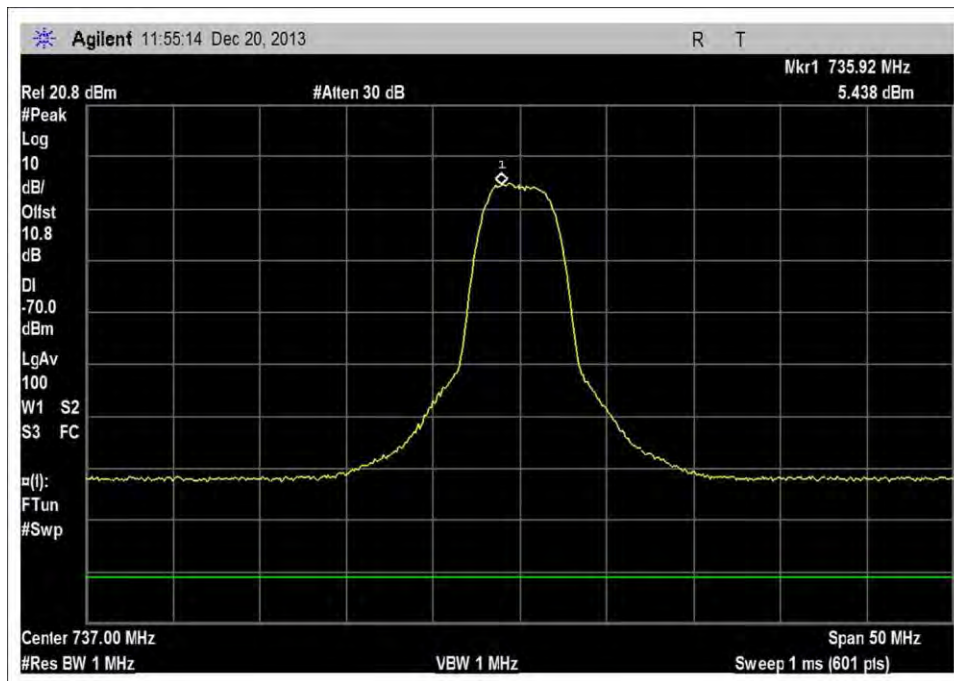
UL_824-849MHz_MNC410



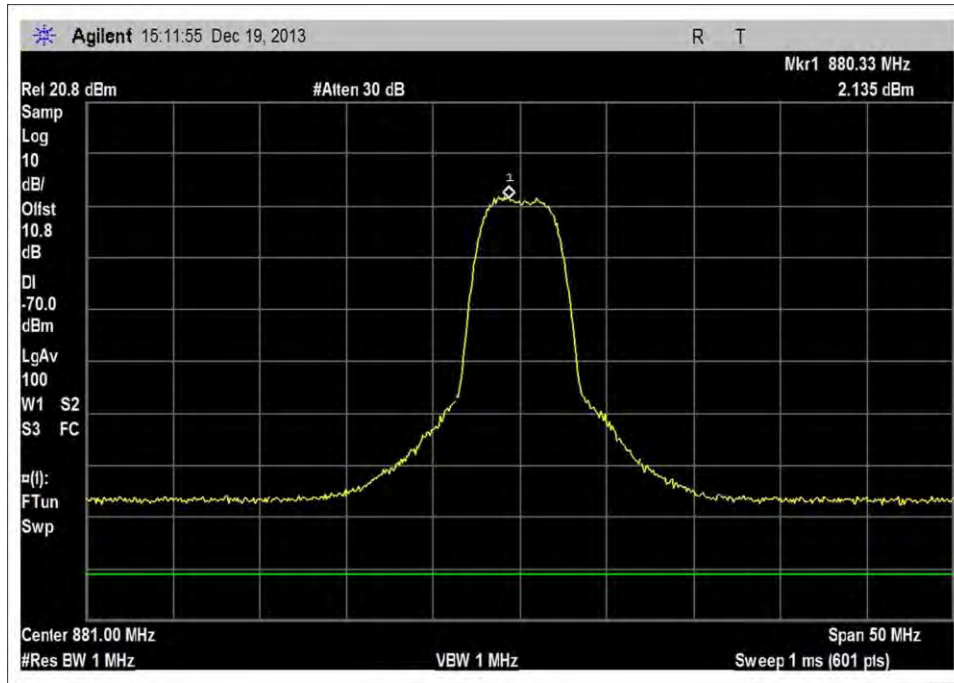
UL_1710-1755MHz_MNC410



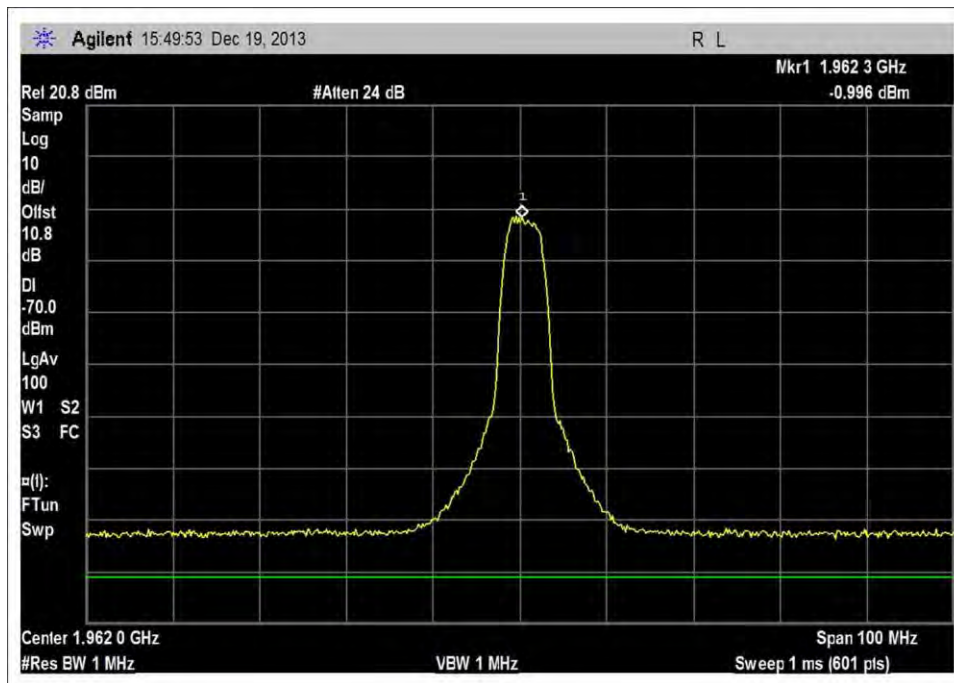
UL_1850-1915MHz_MNC410



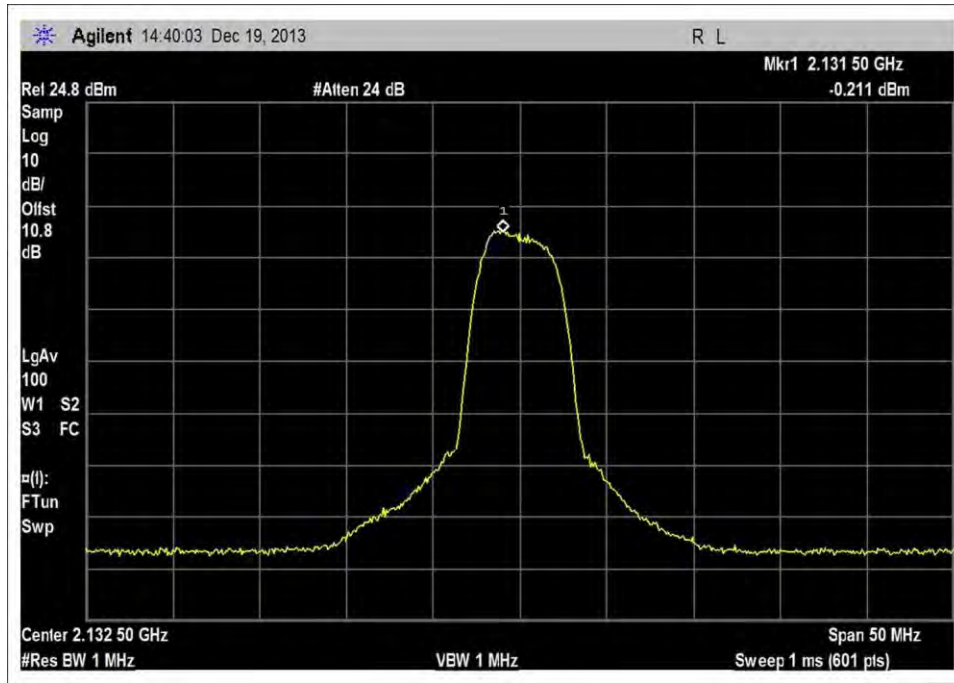
DL_716-746MHz_MNC410



DL_869-894MHz_MNC410



DL_1930-1995MHz_MNC410



DL_2110-2155MHz_MNC410

Clause 7.2 & 7.3 Maximum Power Measurement & Booster Gain Computation

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.2 Maximum Power Measurement
7.3 Maximum Booster Gain Computation**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal
Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUT are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz

DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:

Temperature - 17°C

Relative Humidity - 24%

Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Summary of Results

Summary

The provided test result demonstrates compliance with the requirement listed below

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.2	Maximum Power Measurement	20.21(e)(9)(i)(B) and 20.21(e)(9)(i)(D)	Bidirectional Capabilities Power Limit
7.3	Maximum Booster Gain Computation	20.21(e)(9)(i)(B) and 20.21(e)(9)(i)(C)(1) 20.21(e)(9)(i)(C)(2)	Bidirectional Capabilities

Results

Max Gain/ Max Power: 4.1 MHz AWGN/10MHz LTE				
Frequency		Input(dBm)	Output (dBm)	Gain(dB)
UL 1710-1755		-76.5	21.5	98.0
UL 1850-1915		-76.5	22.1	98.6
UL 824-849		-76.5	21.6	98.1
UL 698-716		-71.8	22.1	93.9
DL 2110-2155		-85.1	12.9	98.0
DL 1930-1995		-89.8	9.8	99.6
DL-869-894		-89.2	10.1	99.3
DL 716-746		-83.3	10.6	93.9
Max transmitter input level: 4.1 MHz AWGN/10MHz LTE				
Frequency		Input(dBm)	Output (dBm)	Gain(dB)
UL 1710-1755		0.0	19.6	19.6
UL 1850-1915		0.0	14.3	14.3
UL 824-849		0.0	19.5	19.5
UL 698-716		0.0	22.0	22.0
DL 2110-2155		-20.0	-3.6	16.4
DL 1930-1995		-20.0	3.6	23.6
DL-869-894		-20.0	3.2	23.2
DL 716-746		-20.0	4.4	24.4

			Limit
UL gain vs DL gain 1700/2100	0.0		9.0
UL gain vs DL gain 1800/1900	-1.0		9.0
UL gain vs DL gain 850/890	-1.2		9.0
UL gain vs DL gain 700/700	0.0		9.0

UL/DL gain is Not applicable in max Transmitter input level.

4.1MHz AWGN					
Frequency	Output Power	Ant Gain	Cable Loss	EIRP(dBm)	Limit(dBm)
UL 1710-1755	21.5	4.0	0.0	25.5	17/30
UL 1850-1915	22.1	5.0	0.0	27.1	17/30
UL 824-849	21.6	1.5	0.0	23.1	17/30
UL 698-716	22.1	2.0	0.0	24.1	17/30
DL 2110-2155	12.9	2.0	0.0	14.9	17
DL1930-1995	9.8	3.0	0.0	12.8	17
DL-869-894	10.1	0.0	0.0	10.1	17
DL 716-746	10.6	0.0	0.0	10.6	17

Clause 7.4 Intermodulation Product

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.4 Intermodulation Product**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12 Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz
 DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

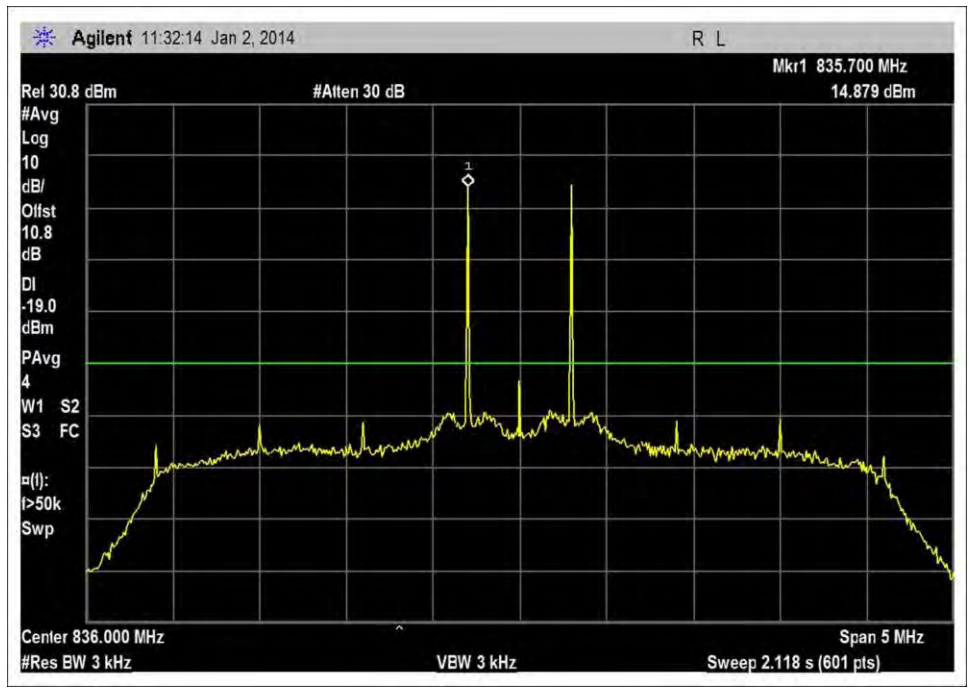
Summary of Results

Summary:

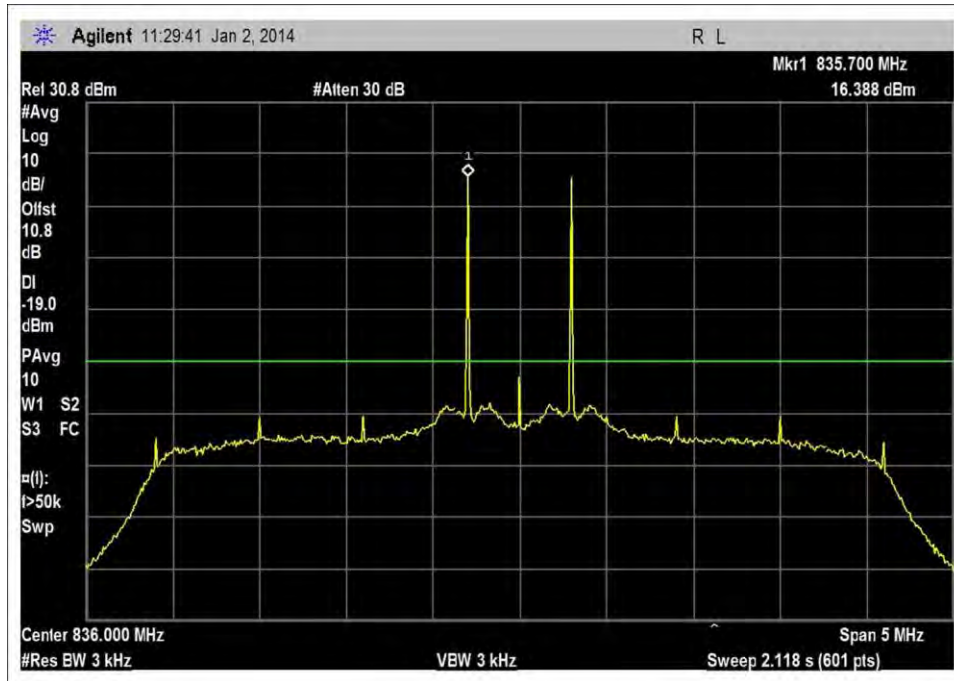
Presented plots demonstrate all measured intermodulation products are below the -19dBm limit, meeting the following requirement.

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.4	Intermodulation Product	20.21(e)(9)(i)(G)	Intermodulation Limit

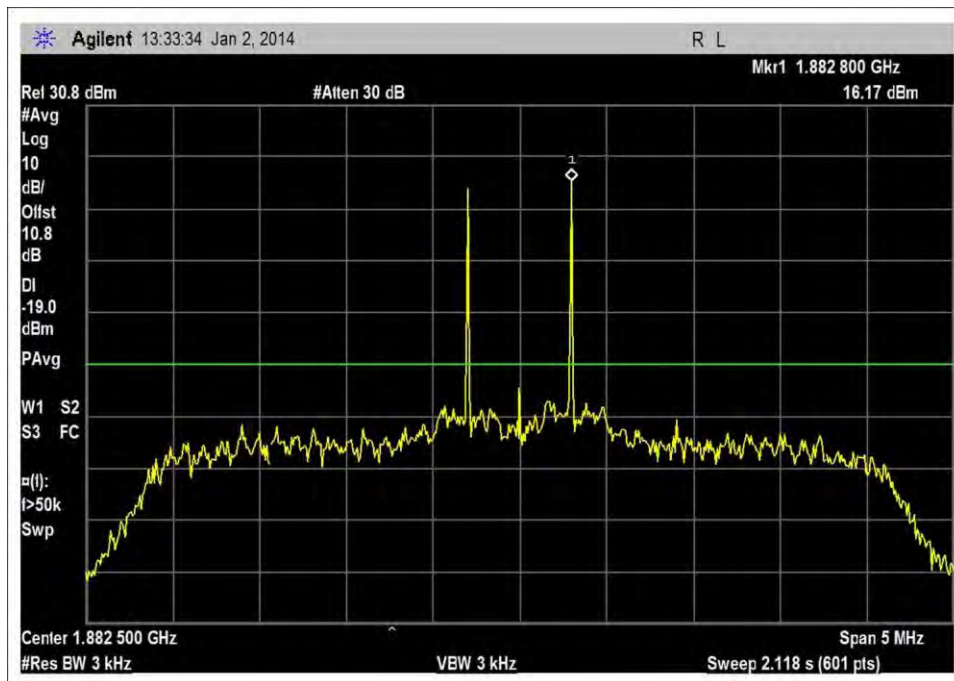
Test Data



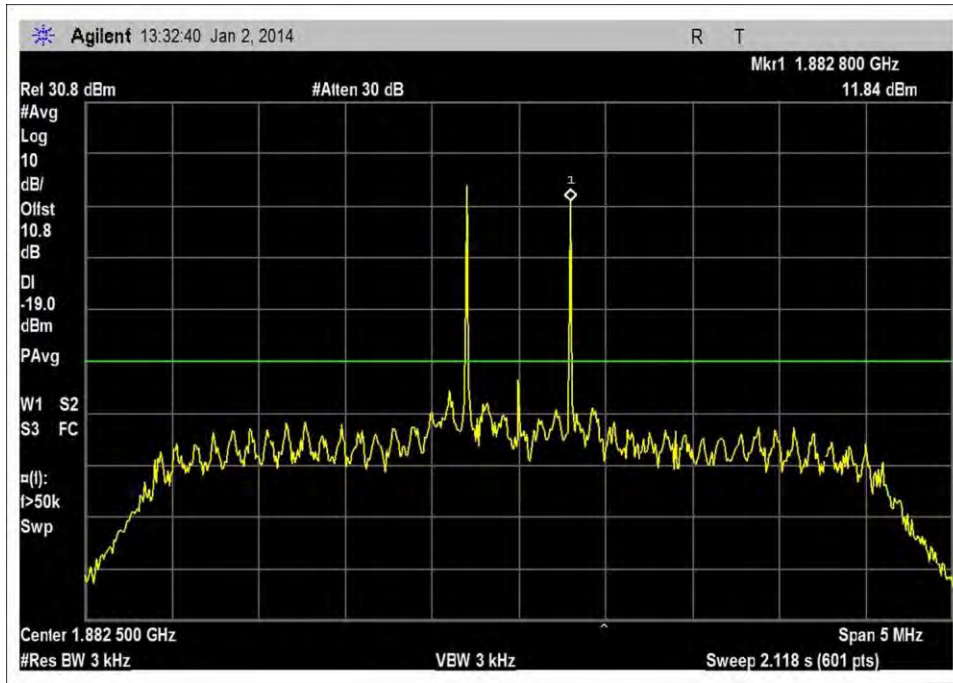
UL_824-849MHz_-50dBm



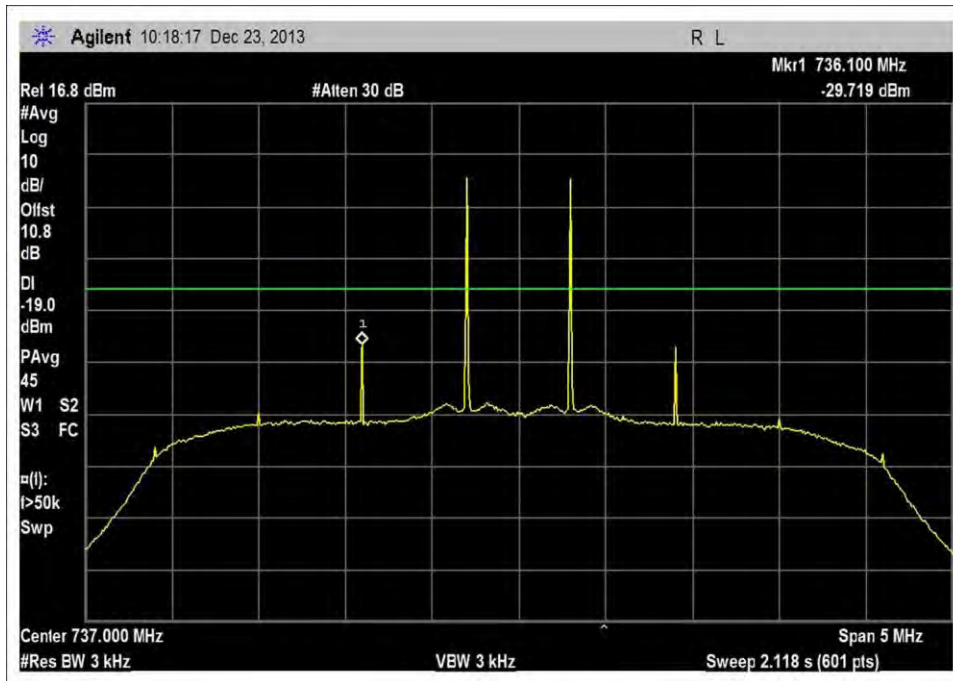
UL_824-849MHz_-60dBm



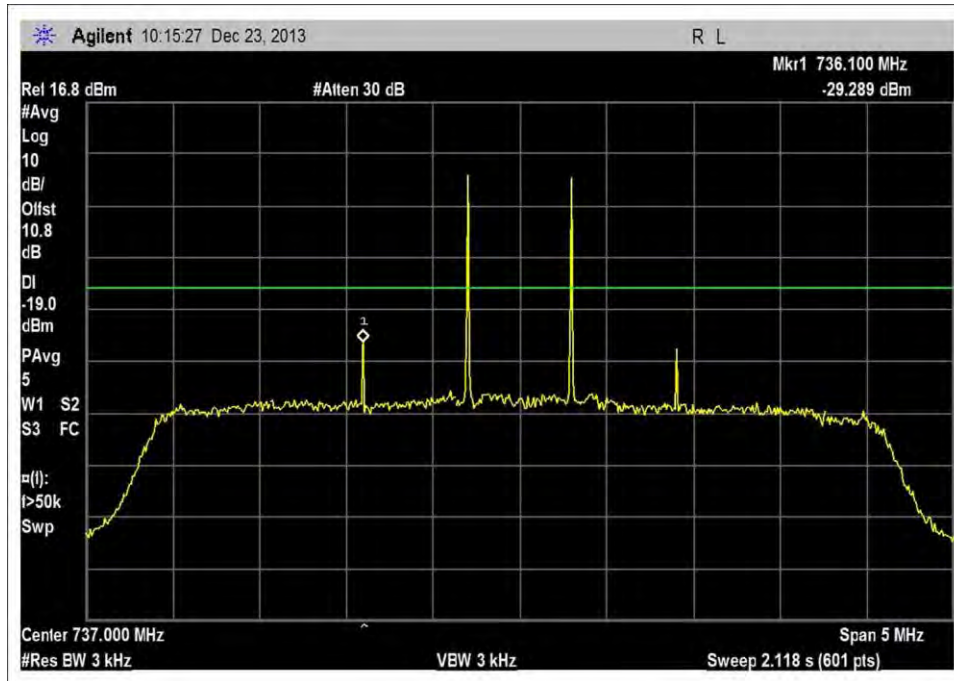
UL_1850-1915MHz_-50dBm



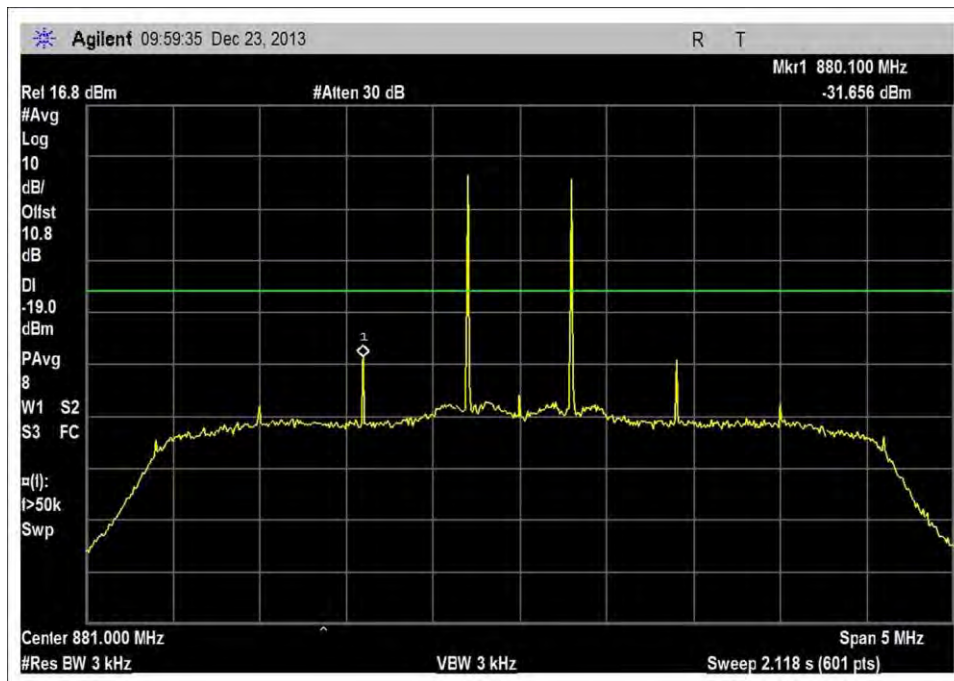
UL_1850-1915MHz_-60dBm



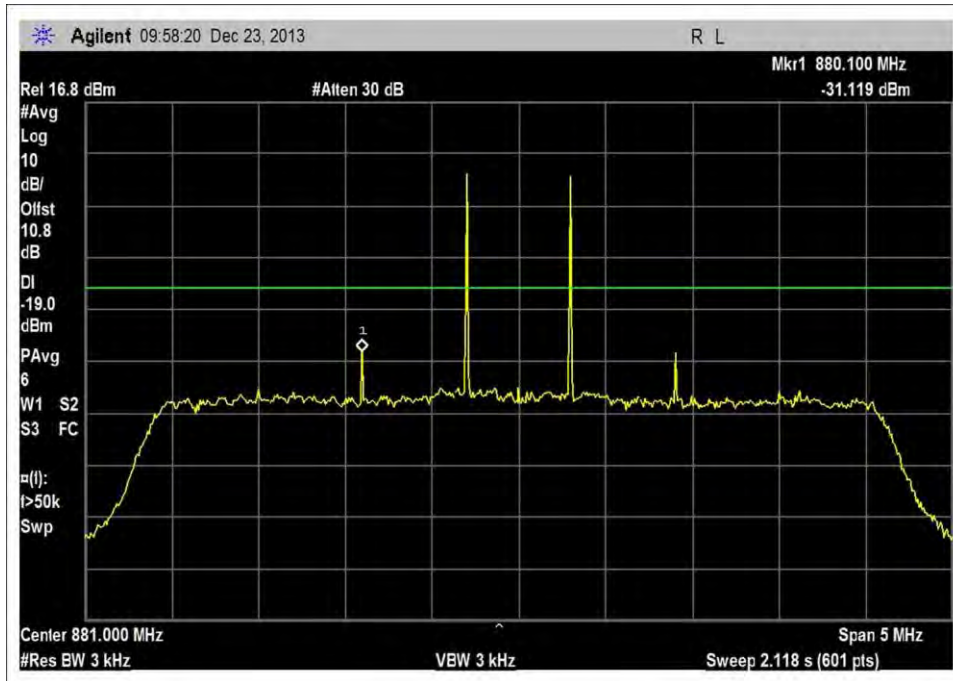
DL_716-746MHz_-75dBm



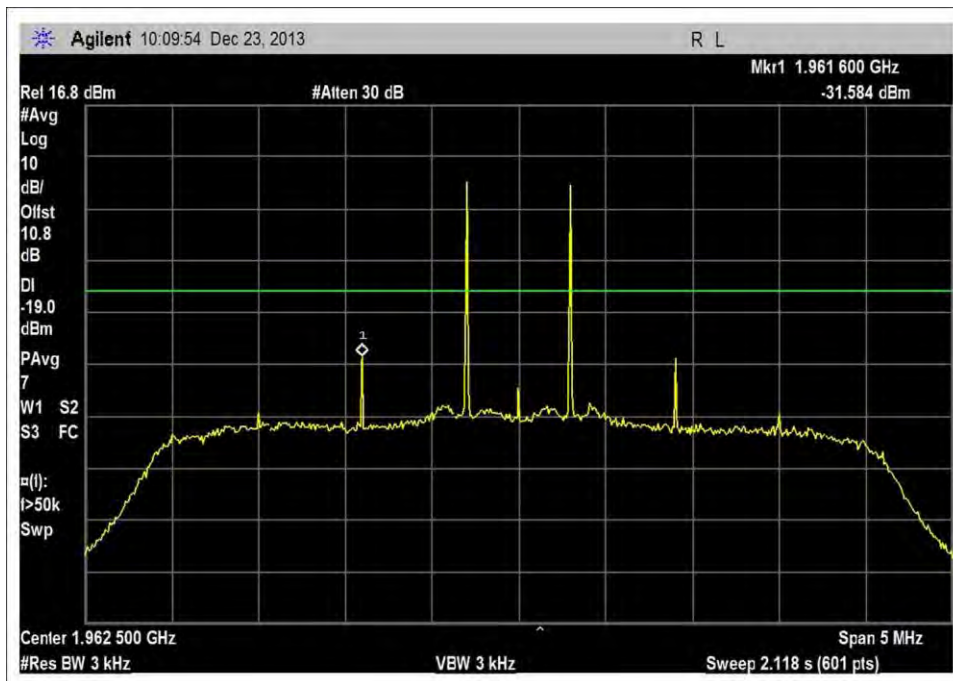
DL_716-746MHz_-85dBm



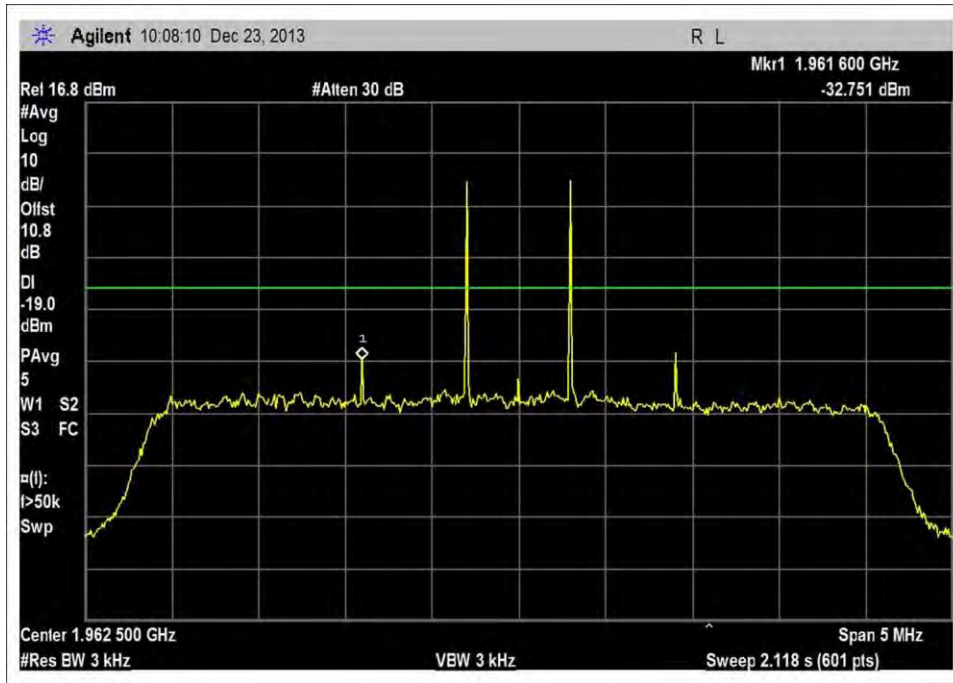
DL_869-894MHz_-75dBm



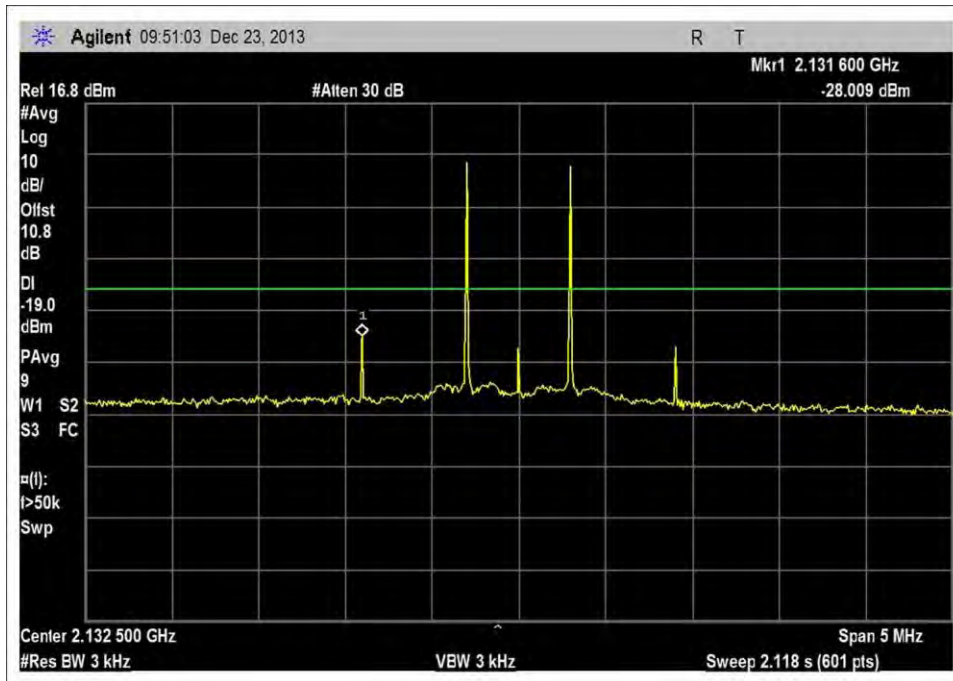
DL_869-894MHz_-85dBm



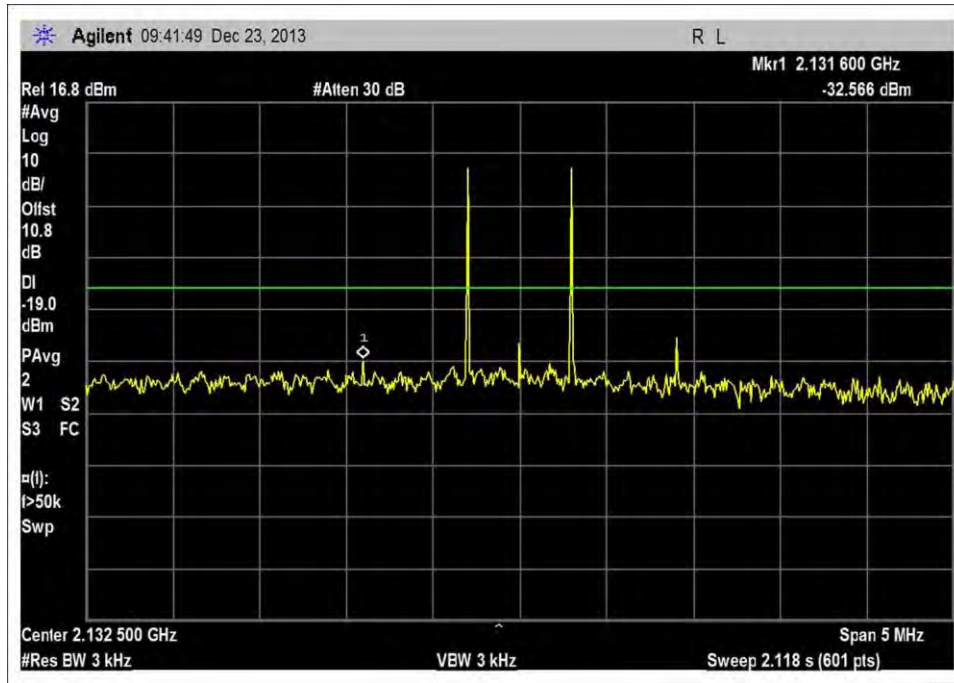
DL_1930-1995MHz_-75dBm



DL_1930-1995MHz_-85dBm



DL_2110-2155MHz_-75dBm



DL_2110-2155MHz_-85dBm

Clause 7.5 Out of Band Emissions

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.5 Out of Band Emissions**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz
 DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

In situation where the emission exceed the -13dBm limit when measured with RBW of 1MHz, additional plots were recorded with RBW of 1-5% of the emission bandwidth to demonstrate compliance within 1MHz of the band edge.

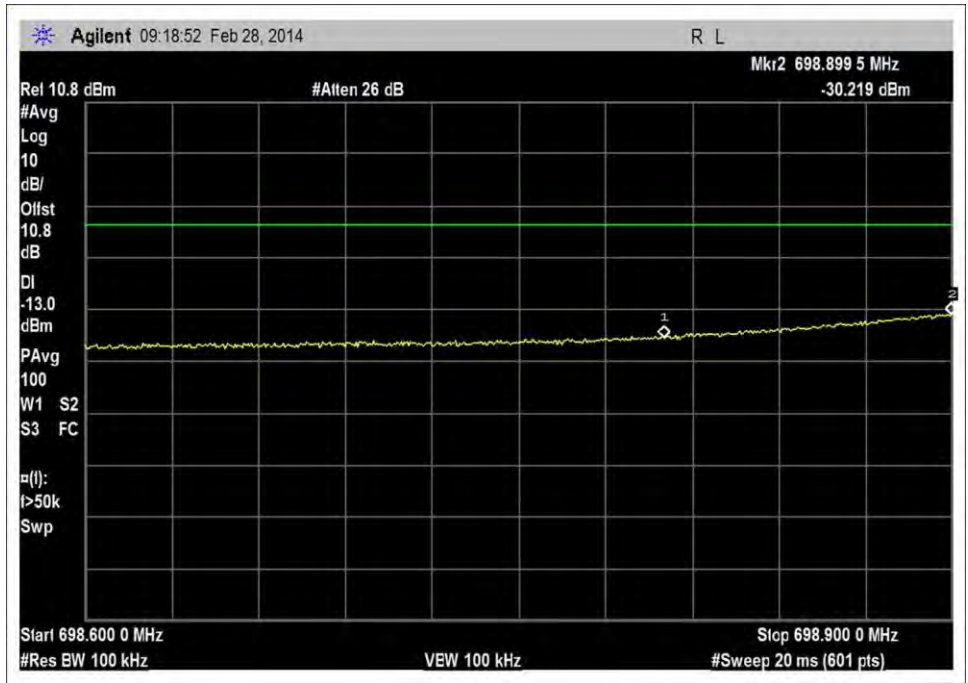
Summary of Results

Summary:
 The results demonstrate compliance to the following requirement.

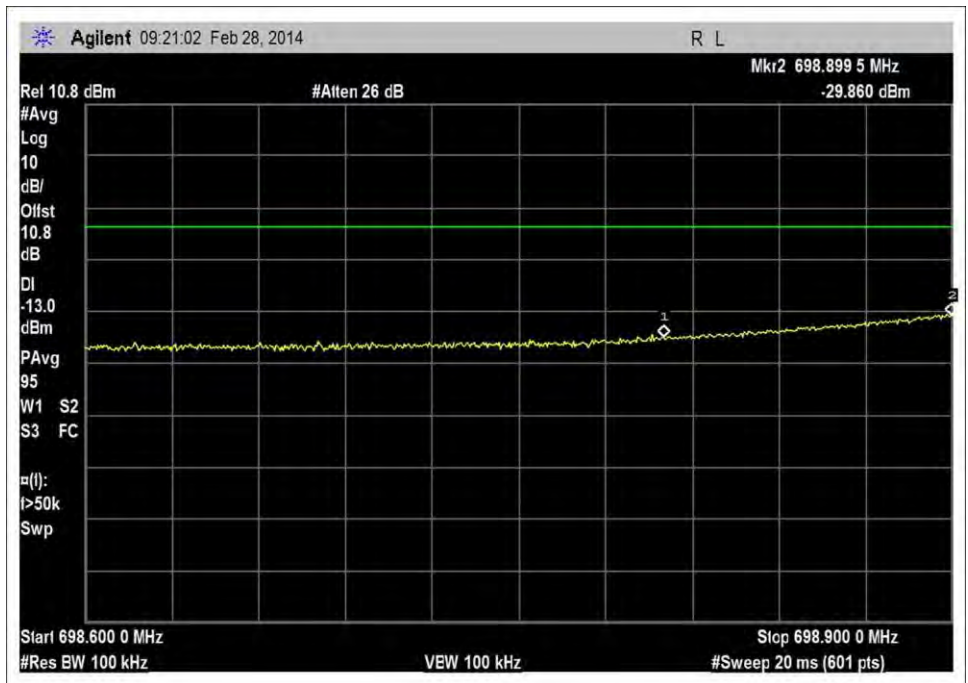
Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.5	Out of Band Emissions	20.21(e)(9)(i)(F)	Out of Band Emission

Frequency	Max OBE	Limit	Margin
	dBm	dBm	dB
UL 1710-1755	-24.7	-13.0	-11.7
UL 1850-1915	-28.2	-13.0	-15.2
UL 824-849	-25.6	-13.0	-12.6
UL 698-716	-26.2	-13.0	-13.2
DL 2110-2155	-23.0	-13.0	-10.0
DL 1930-1995	-47.0	-13.0	-34.0
DL 869-894	-48.0	-13.0	-35.0
DL 716-746	-35.5	-13.0	-22.5

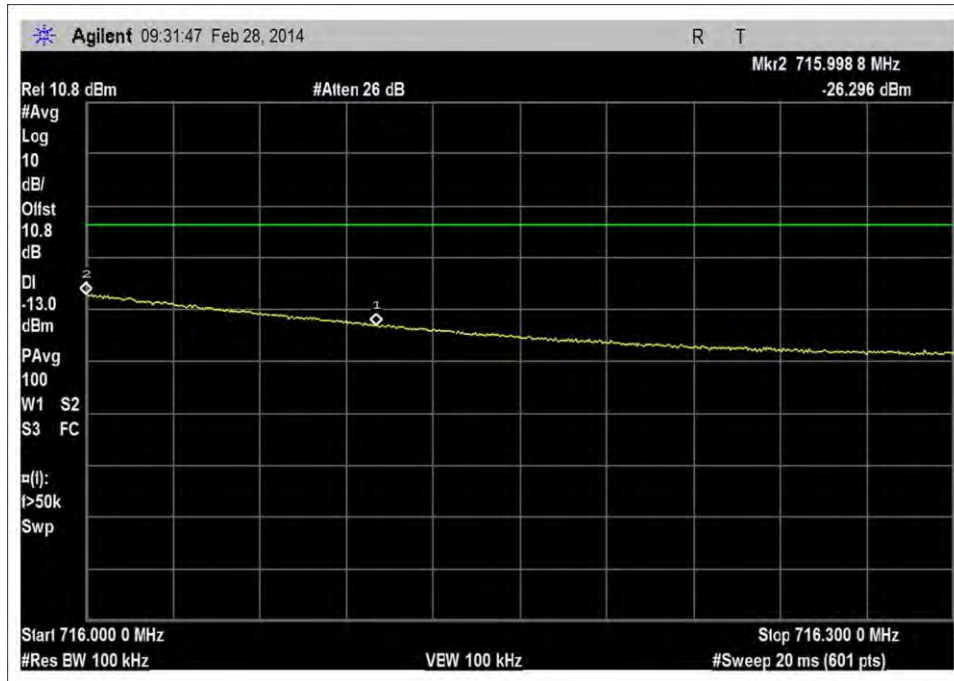
Test Data



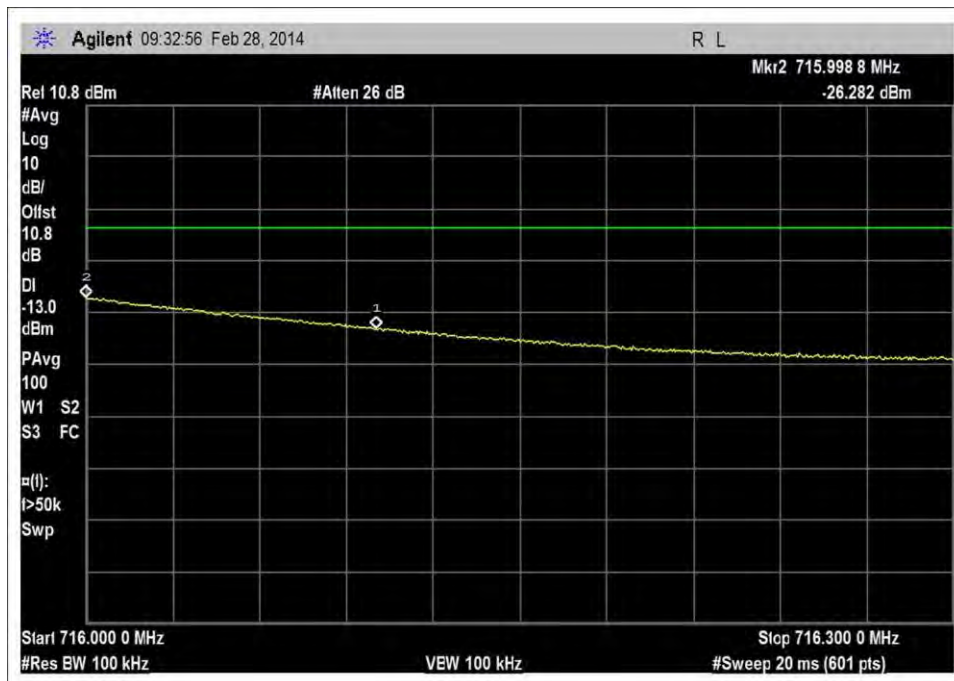
UL_698-716M-Hz_L_RFin -78dBm



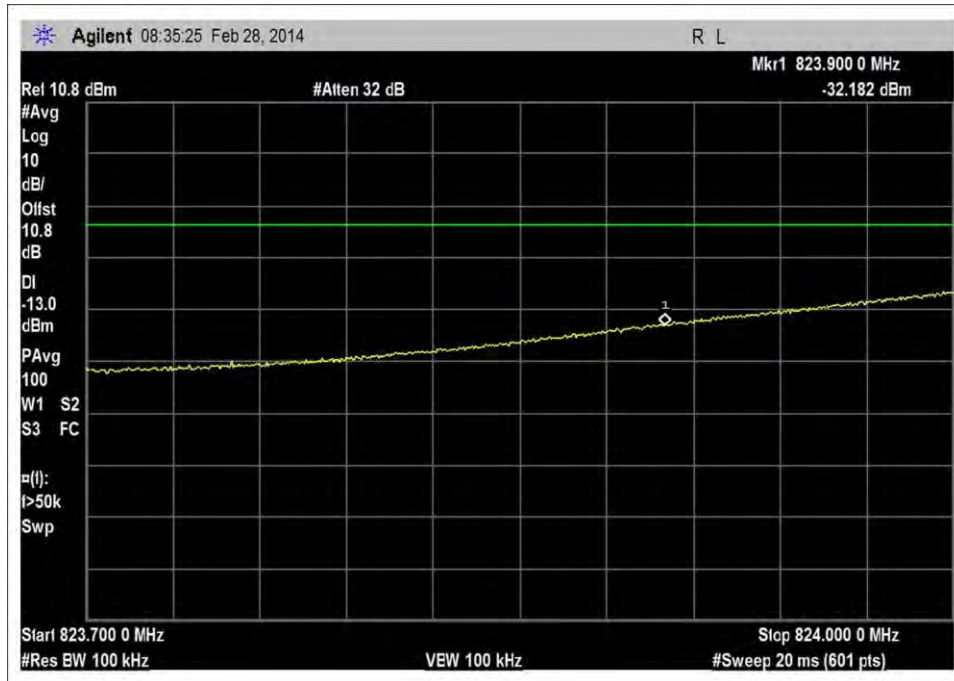
698-716M-Hz_L_RFin_0dBm



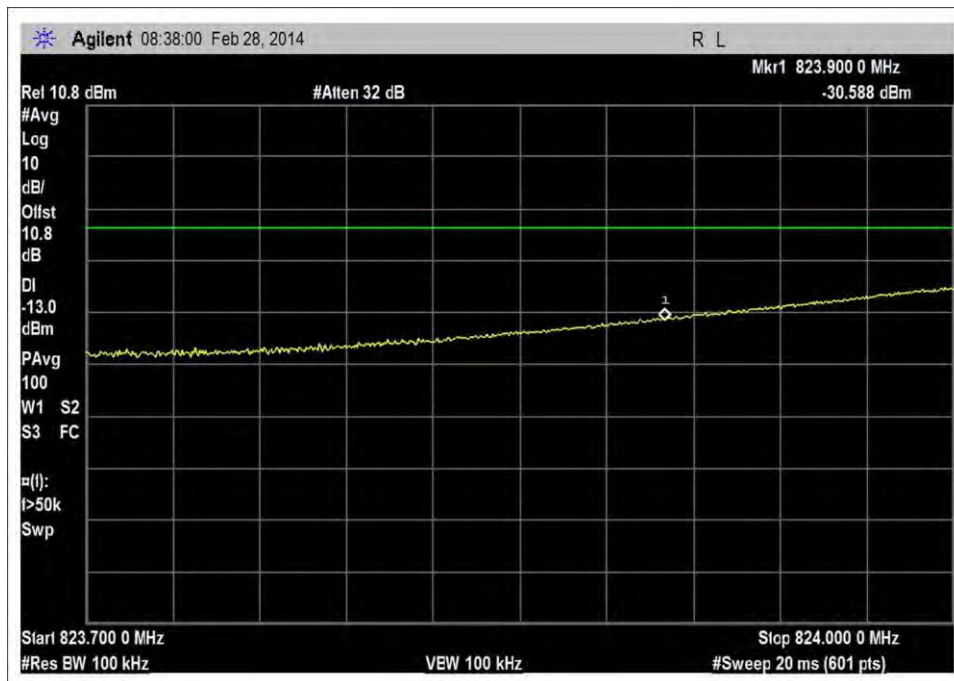
UL_698-716M-Hz_H_RFin -78dBm



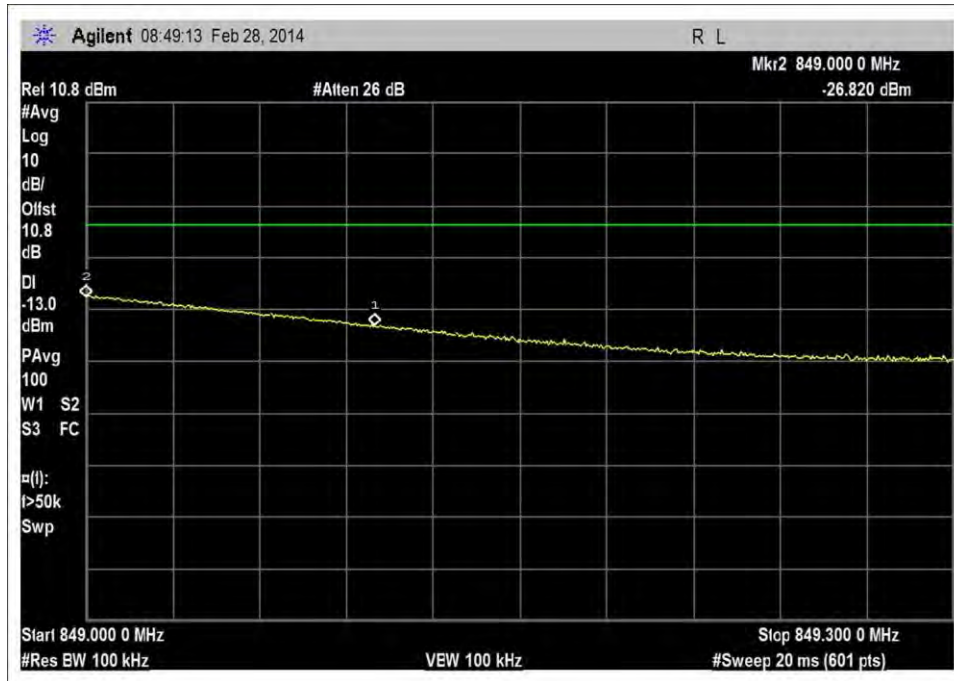
UL_698-716M-Hz_H_RFin _0dBm



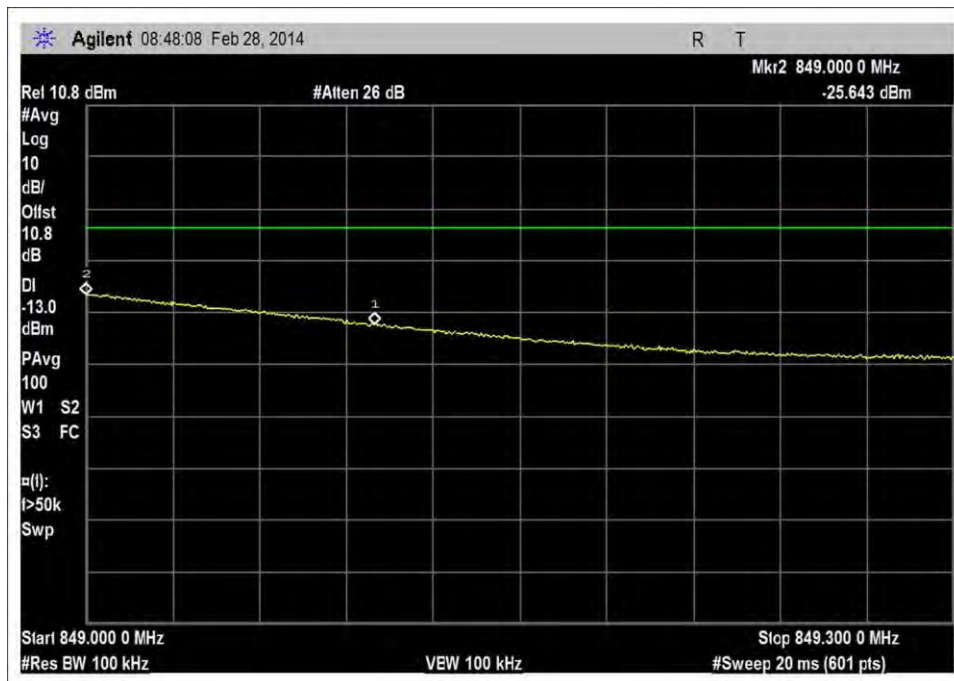
UL_824-849MHz_L_RFin -78dBm



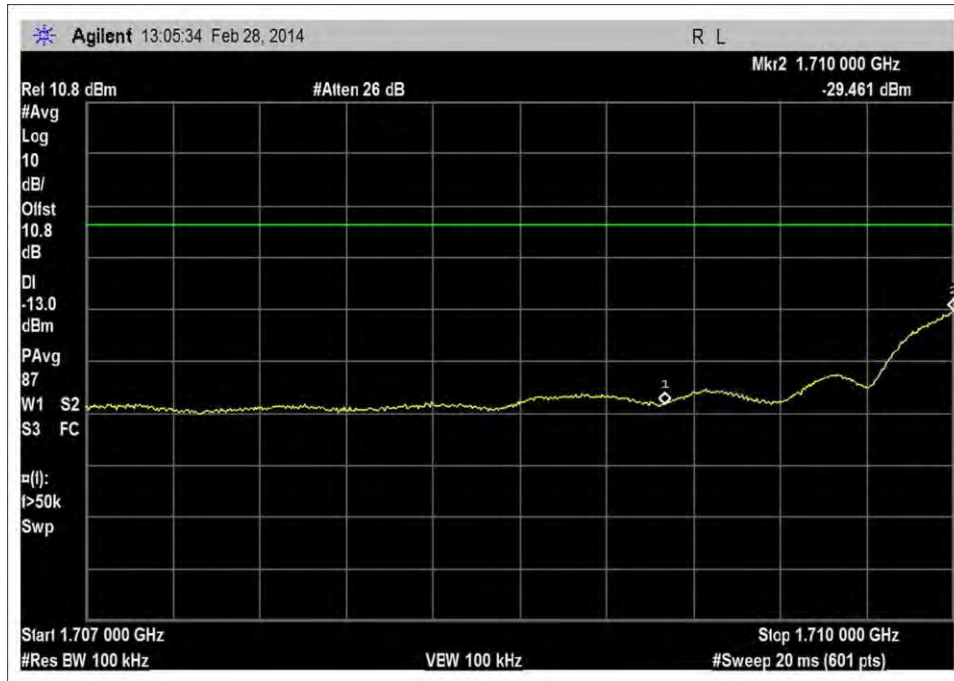
UL_824-849MHz_L_RFin _0dBm



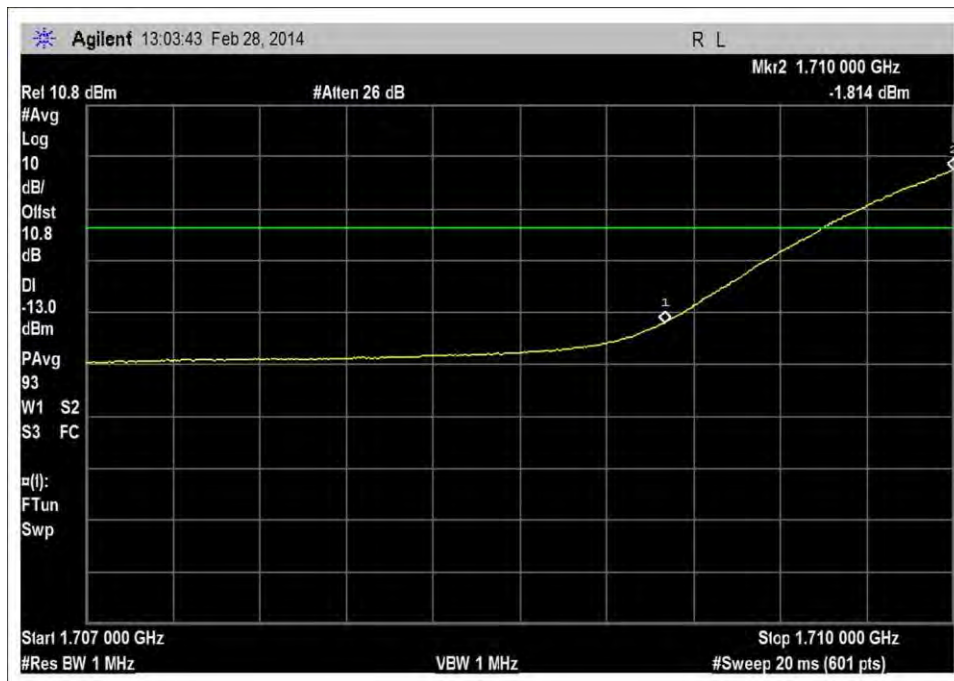
UL_824-849MHz_H_RFin -78dBm



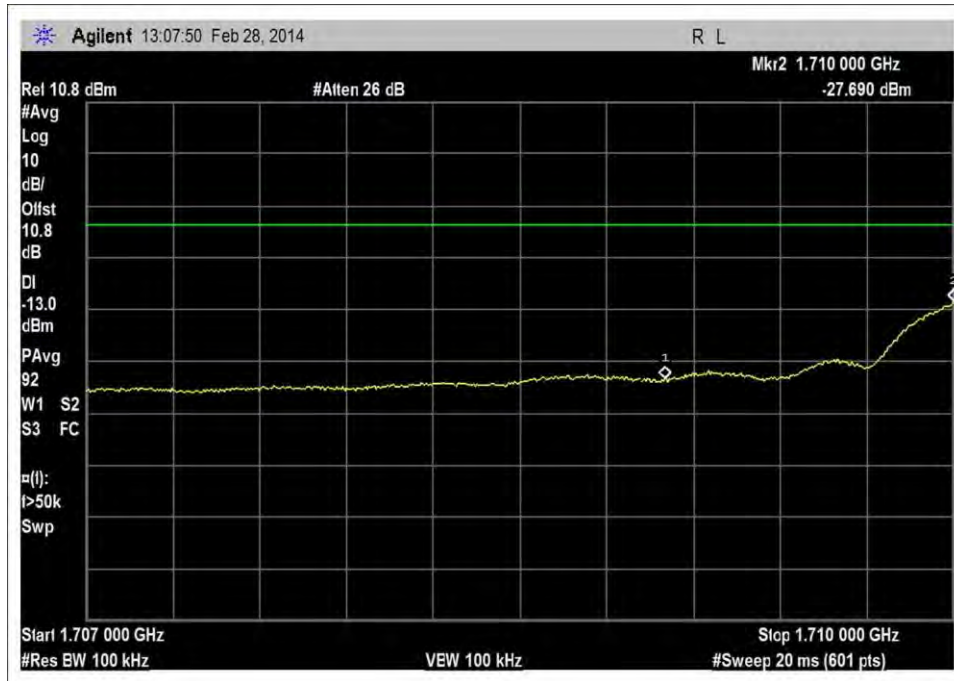
UL_824-849MHz_H_RFin 0dBm



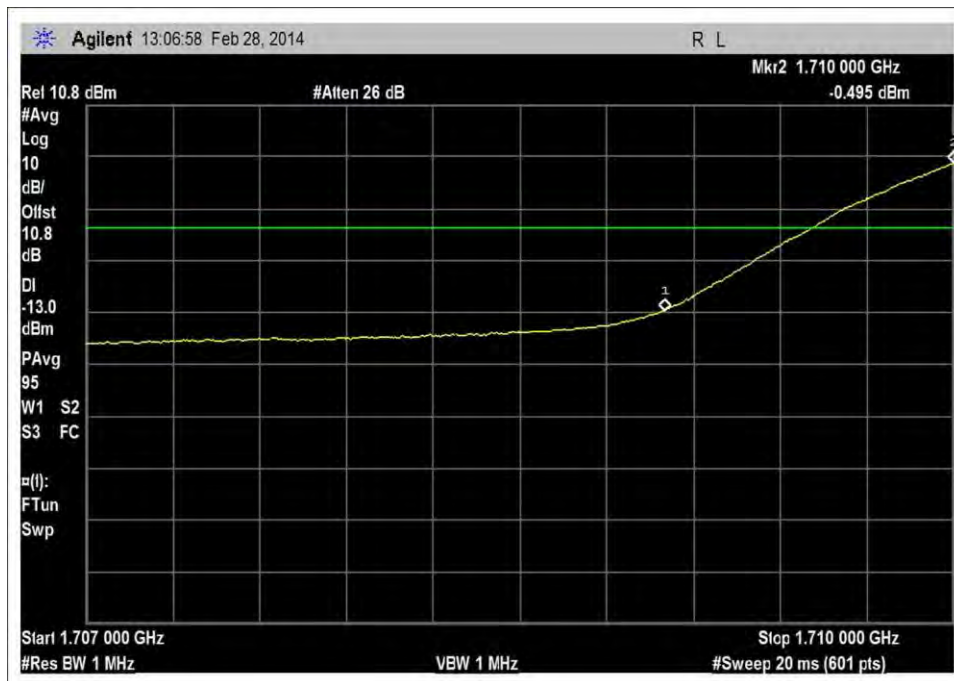
UL_1710-1755MHz_L_RFin -78dBm_rbw=100kHz



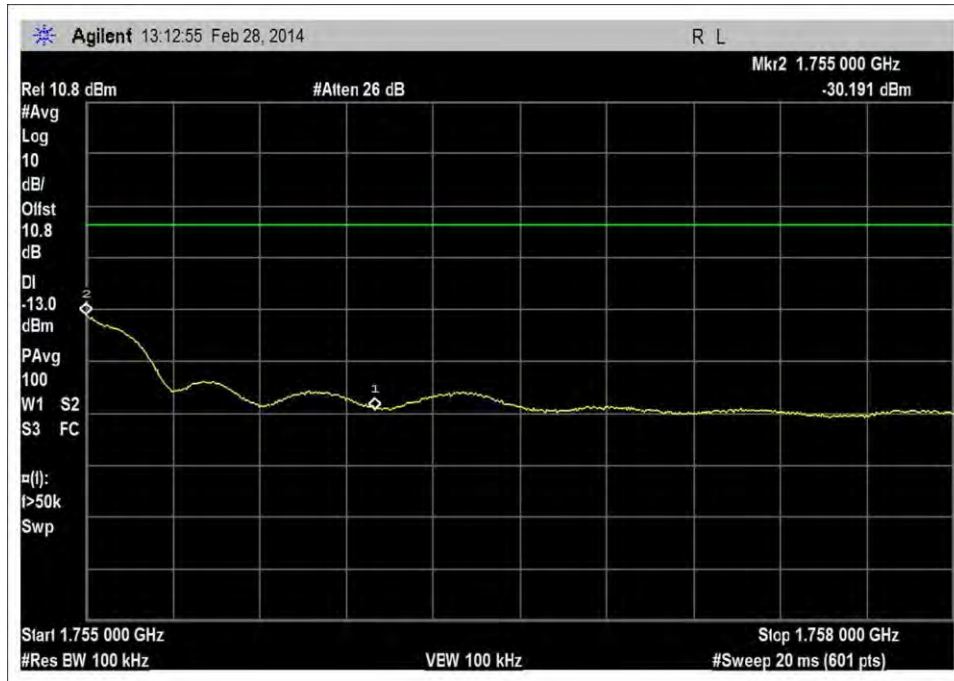
UL_1710-1755MHz_L_RFin -78dBm_rbw=1MHz



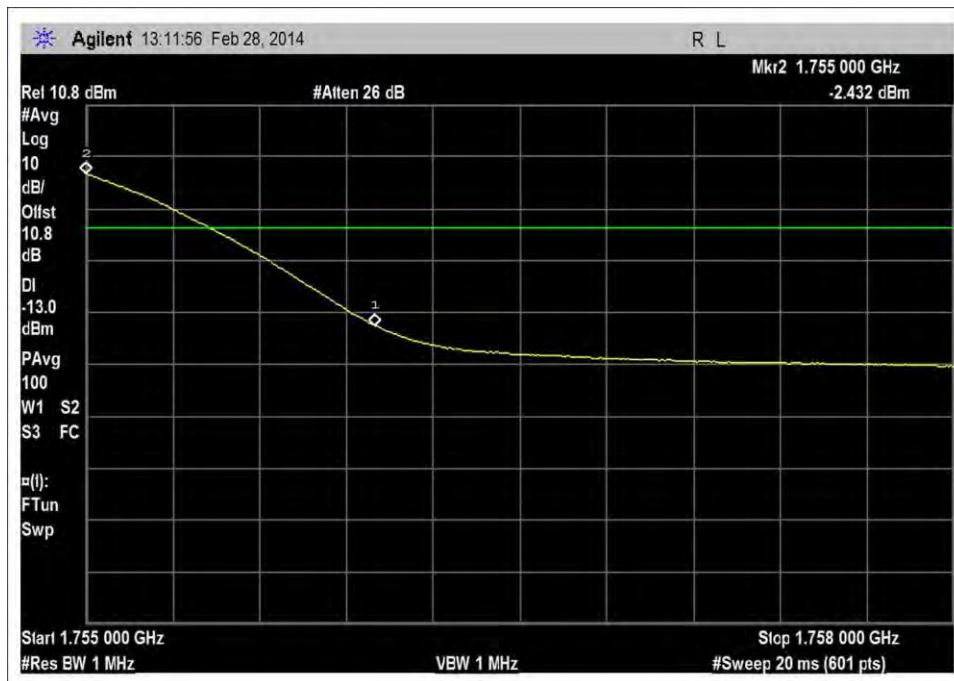
UL_1710-1755MHz_L_RFin_0dBm_rbw=100kHz



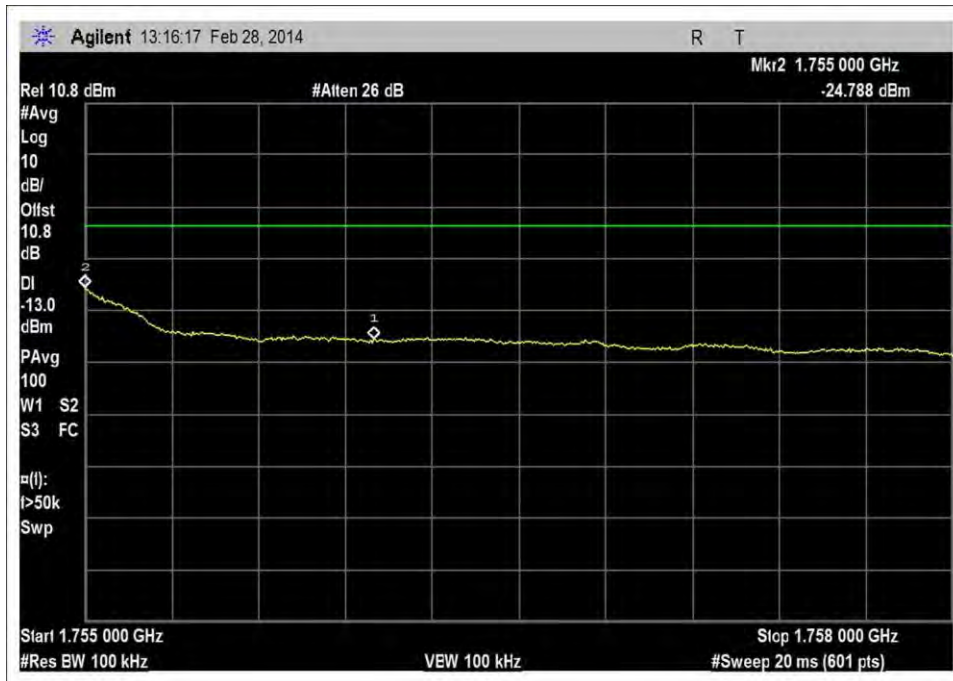
UL_1710-1755MHz_L_RFin_0dBm_rbw=1MHz



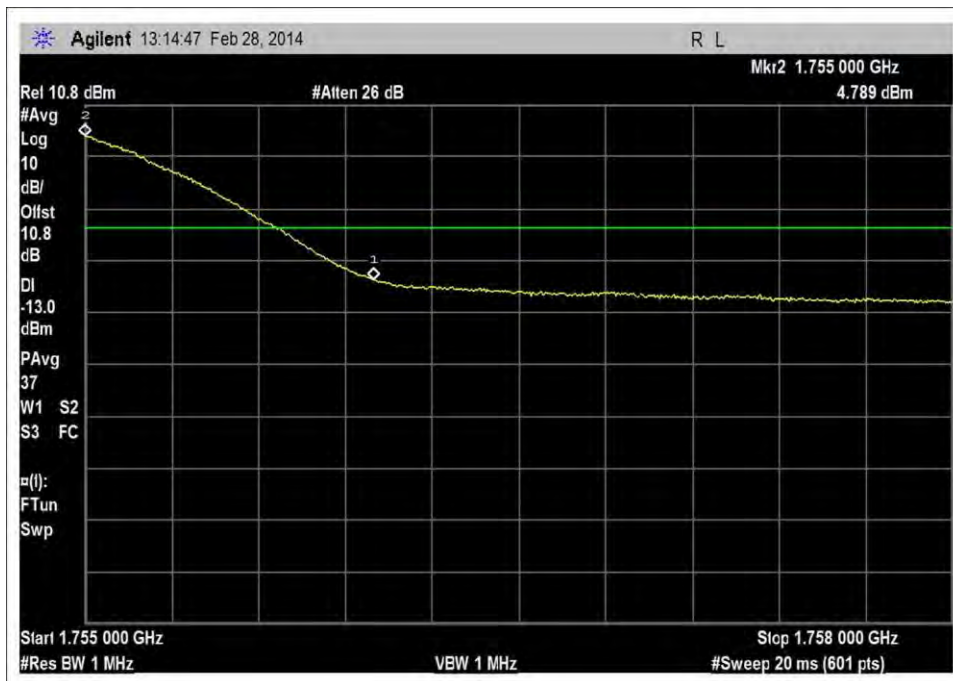
UL_1710-1755MHz_H_RFin -78dBm_rbw=100kHz



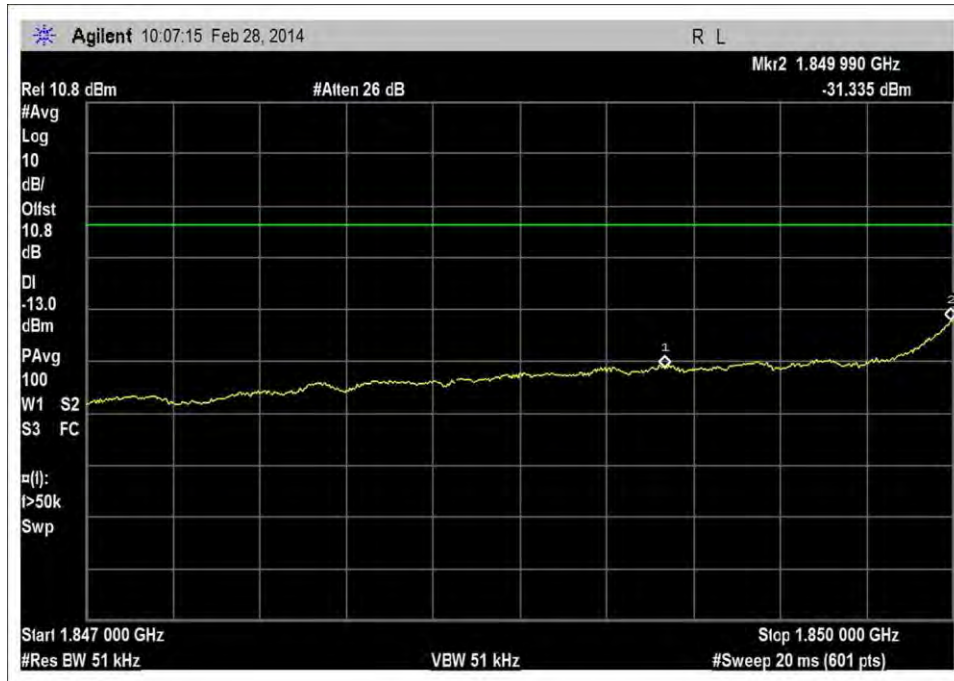
UL_1710-1755MHz_H_RFin -78dBm_rbw=1MHz



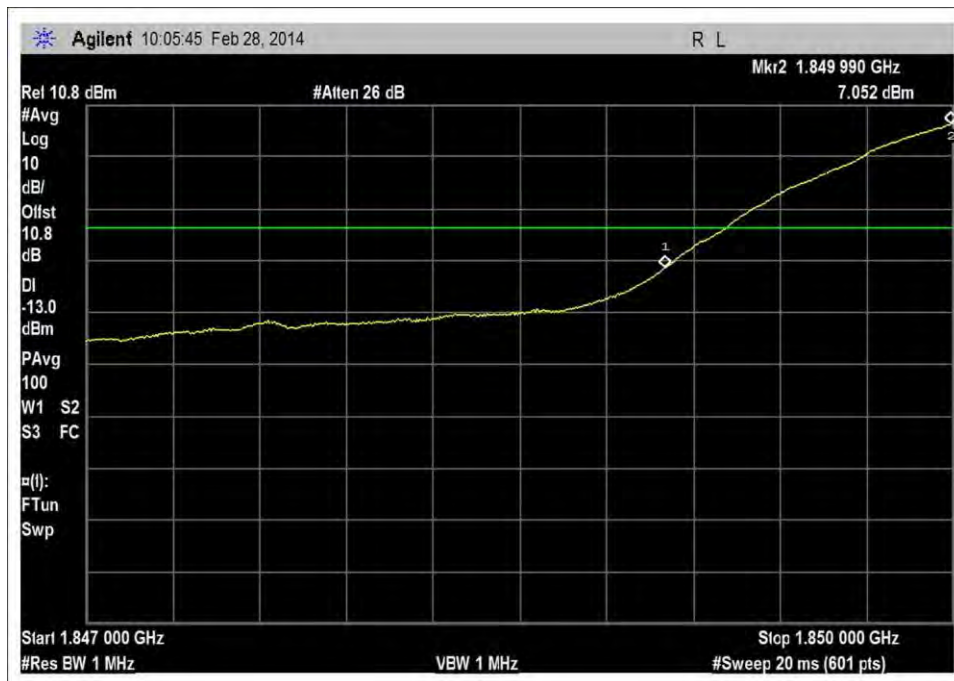
UL_1710-1755MHz_H_RFin_OdBm_rbw=100kHz



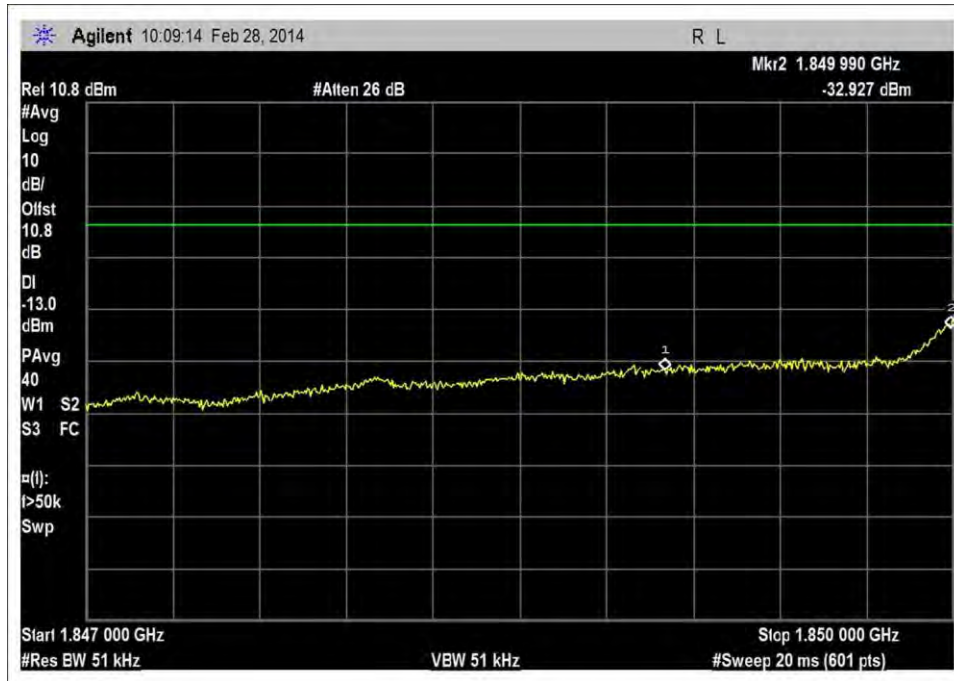
UL_1710-1755MHz_H_RFin_OdBm_rbw=1MHz



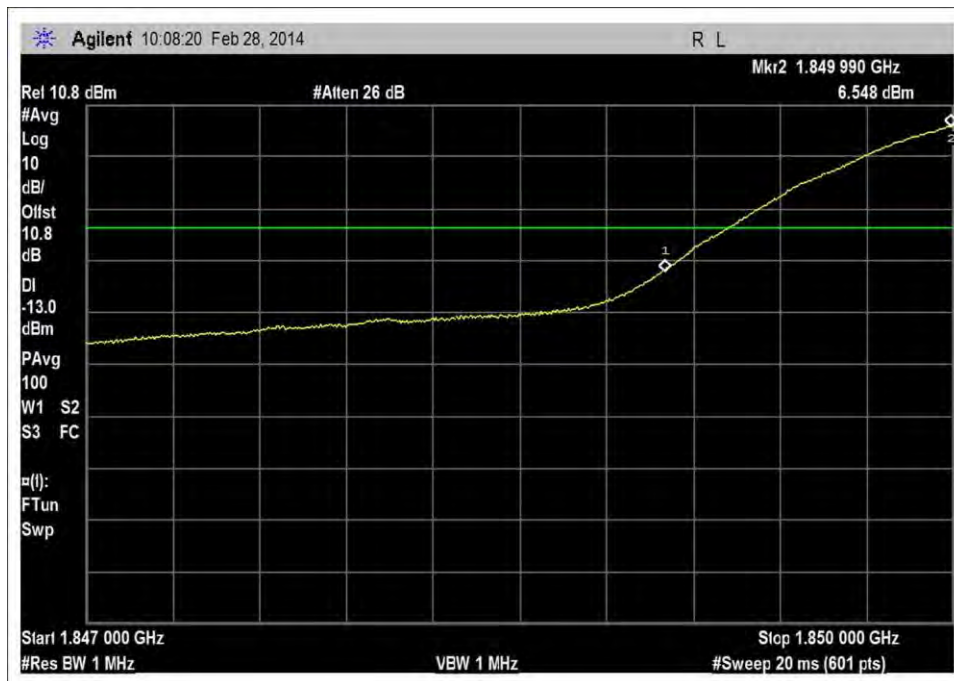
UL_1850-1915MHz_L_RFin -78dBm_rbw=51kHz



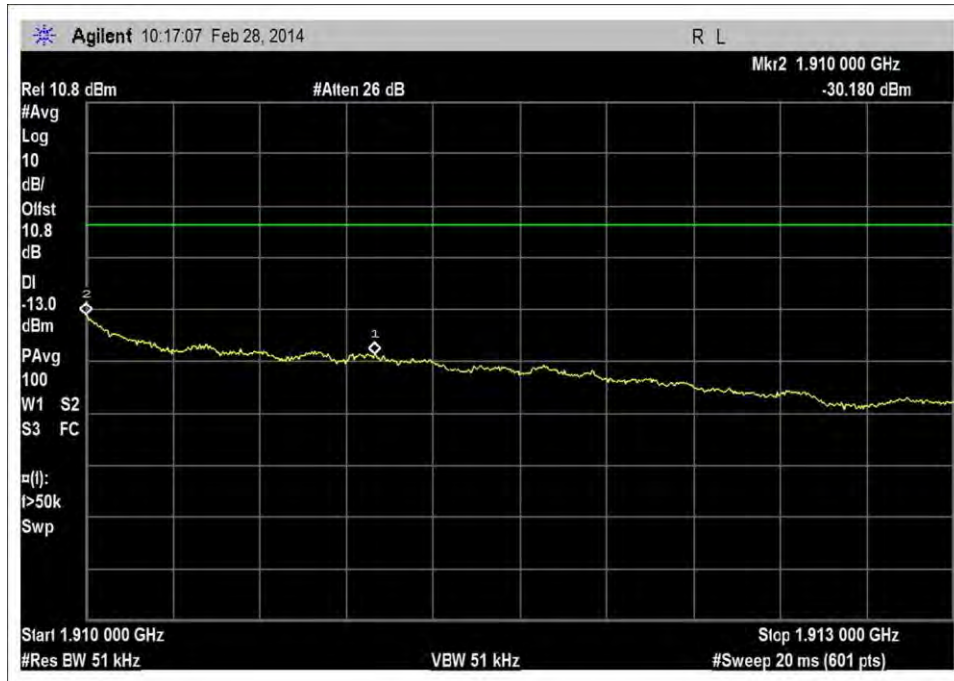
UL_1850-1915MHz_L_RFin -78dBm_rbw=1MHz



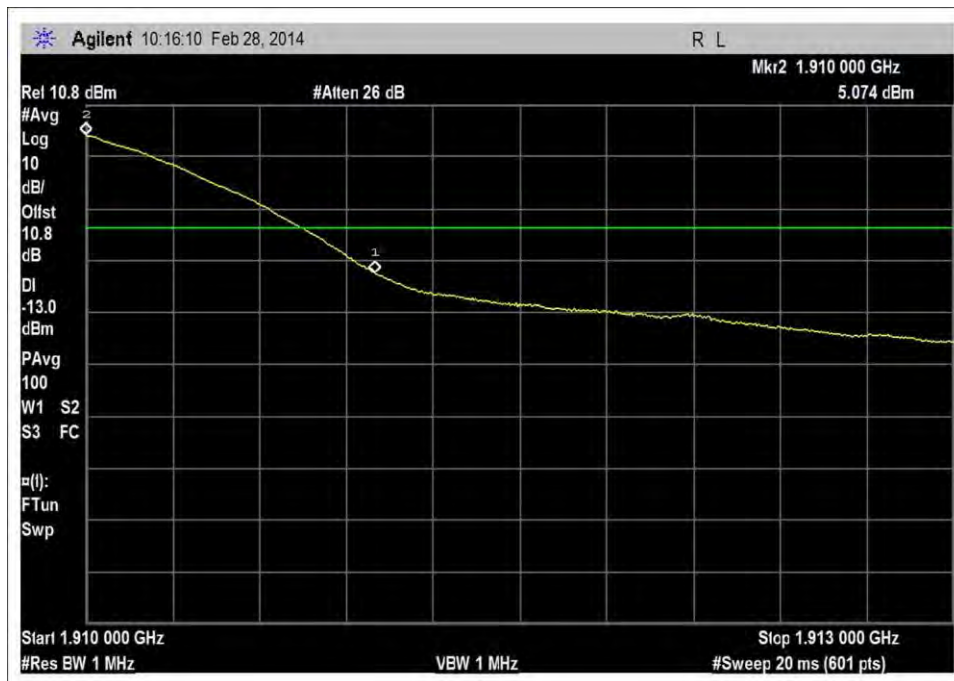
UL_1850-1915MHz_L_RFin OdBm_rbw=51kHz



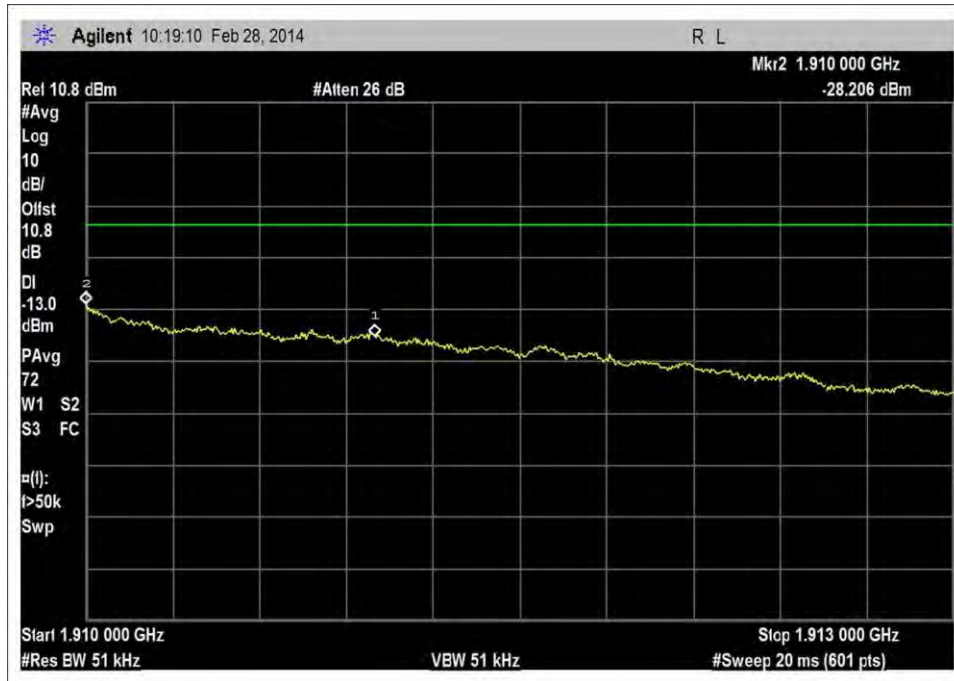
UL_1850-1915MHz_L_RFin OdBm_rbw=1MHz



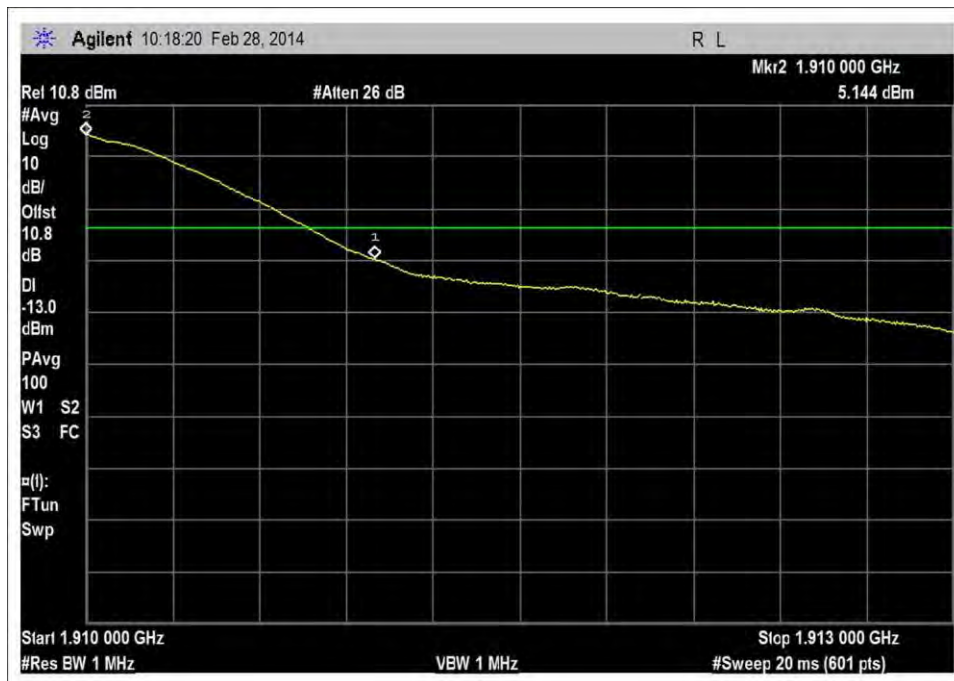
UL_1850-1915MHz_H_RFin -78dBm_rbw=51kHz



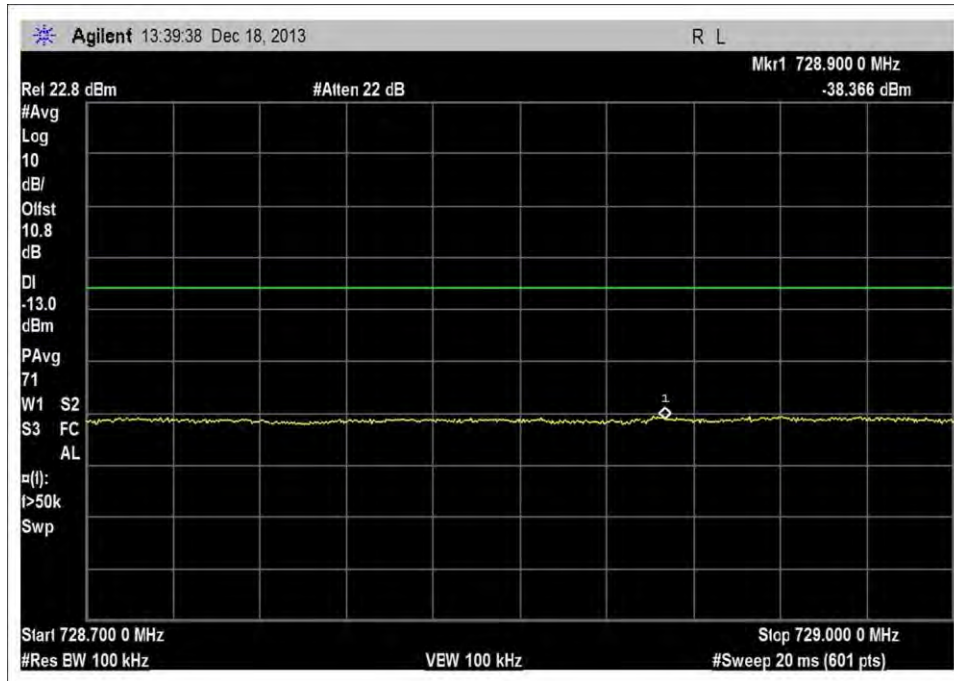
UL_1850-1915MHz_H_RFin -78dBm_rbw=1MHz



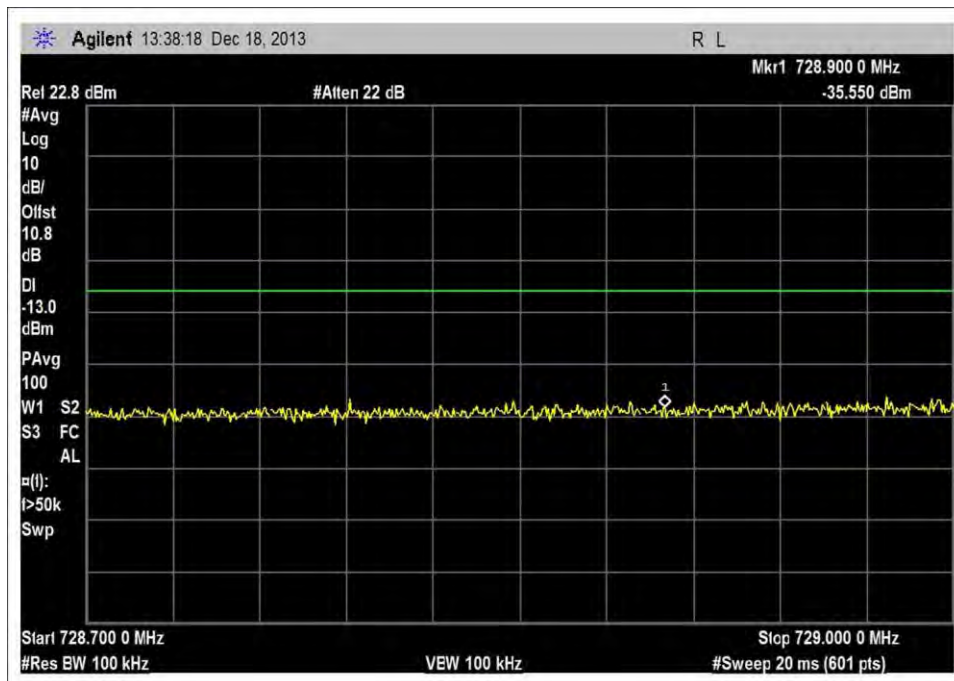
UL_1850-1915MHz_H_RFin_0dBm_rbw=50kHz



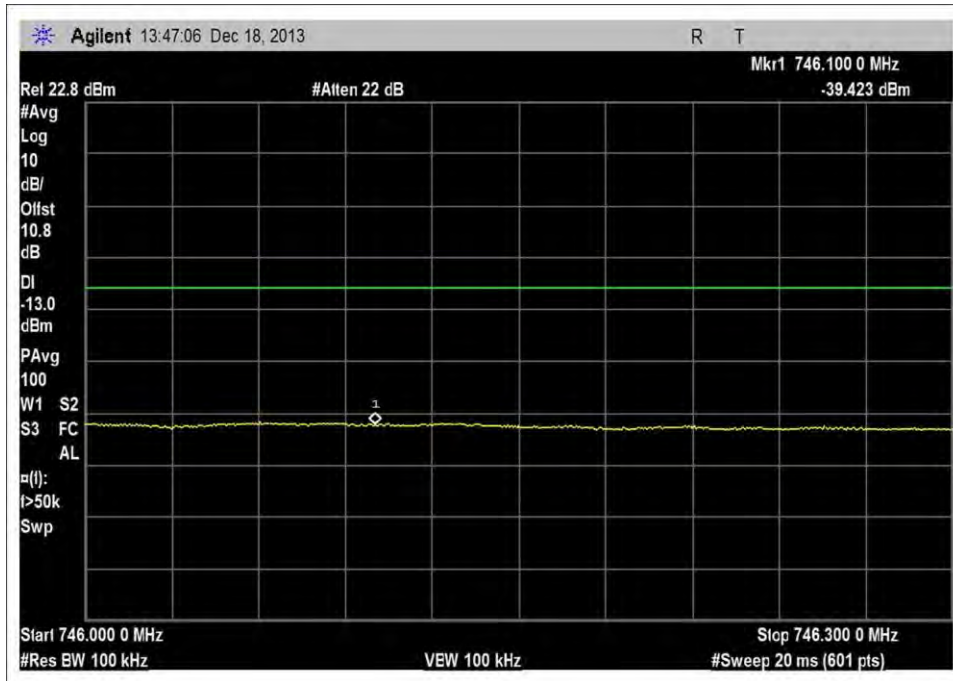
UL_1850-1915MHz_H_RFin_0dBm_rbw=1MHz



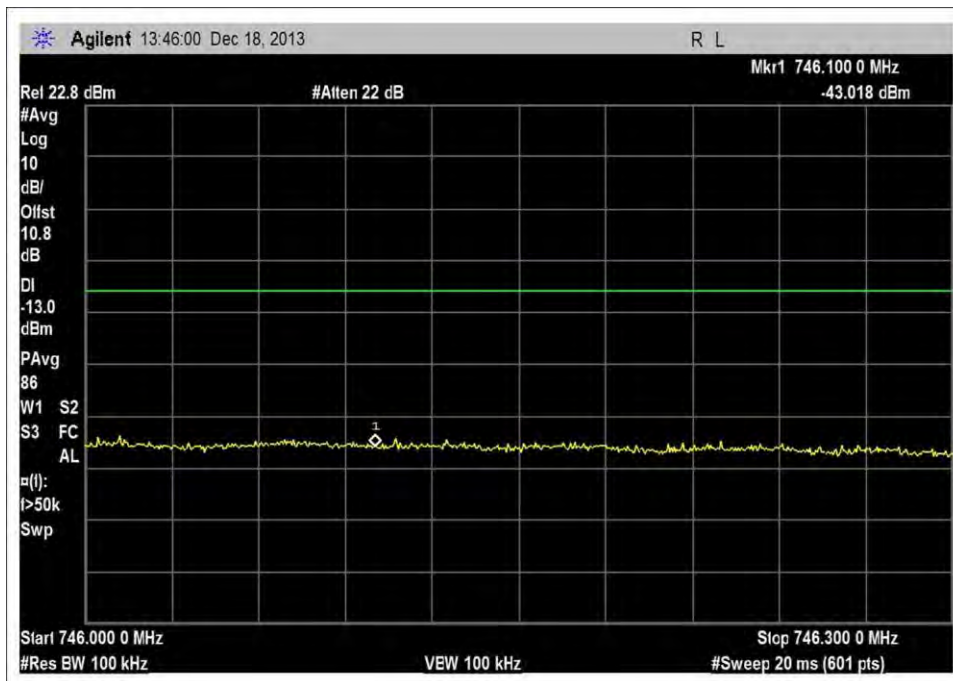
DL_716-746MHz_L_-20dBm



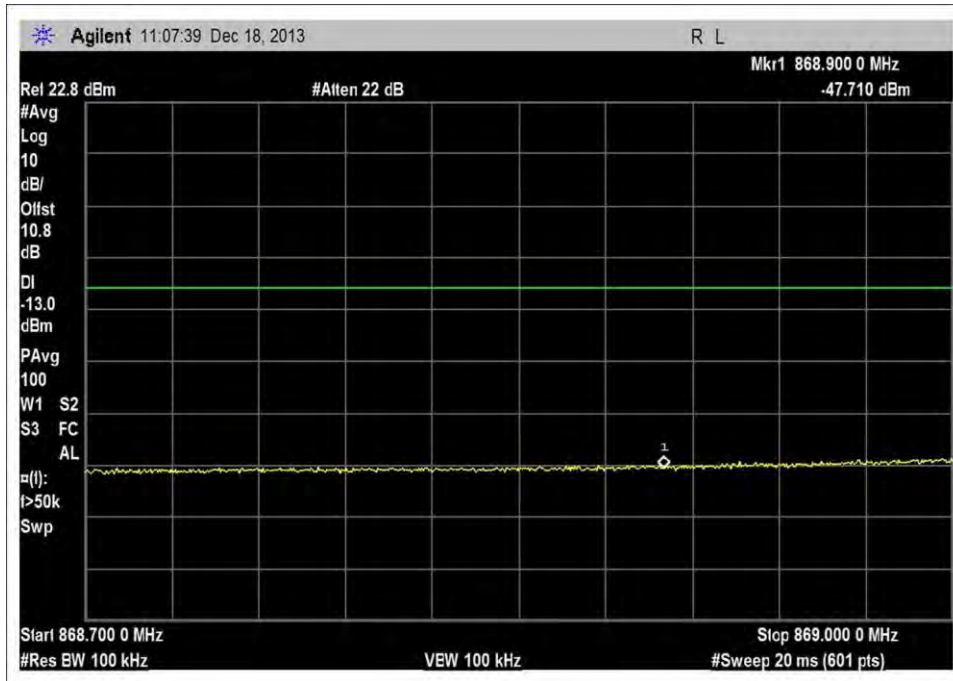
DL_716-746MHz_L_-90dBm



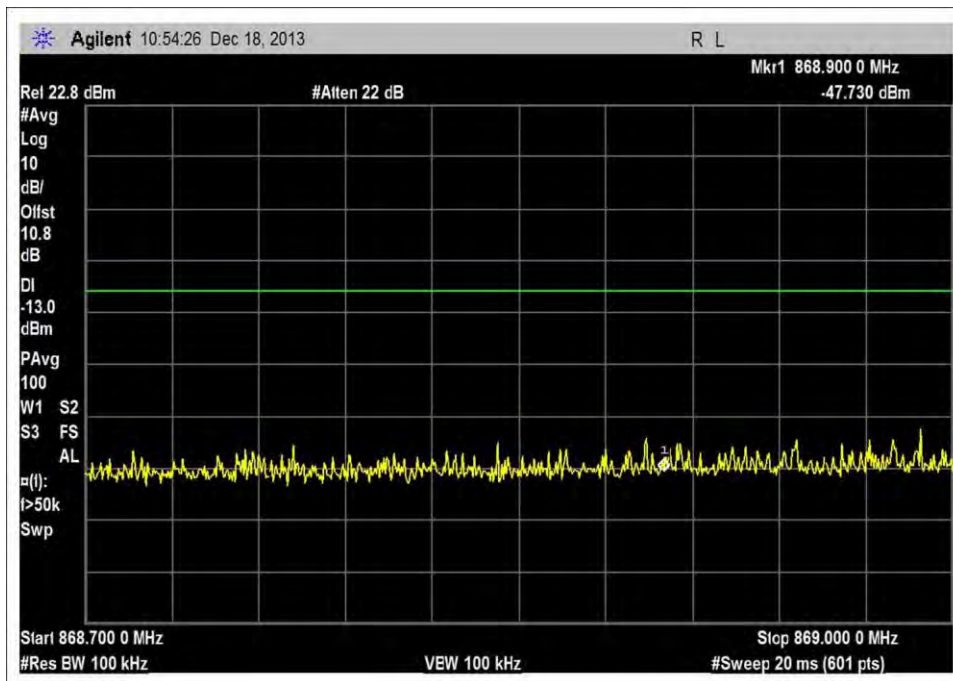
DL_716-746MHz_H_-20dBm



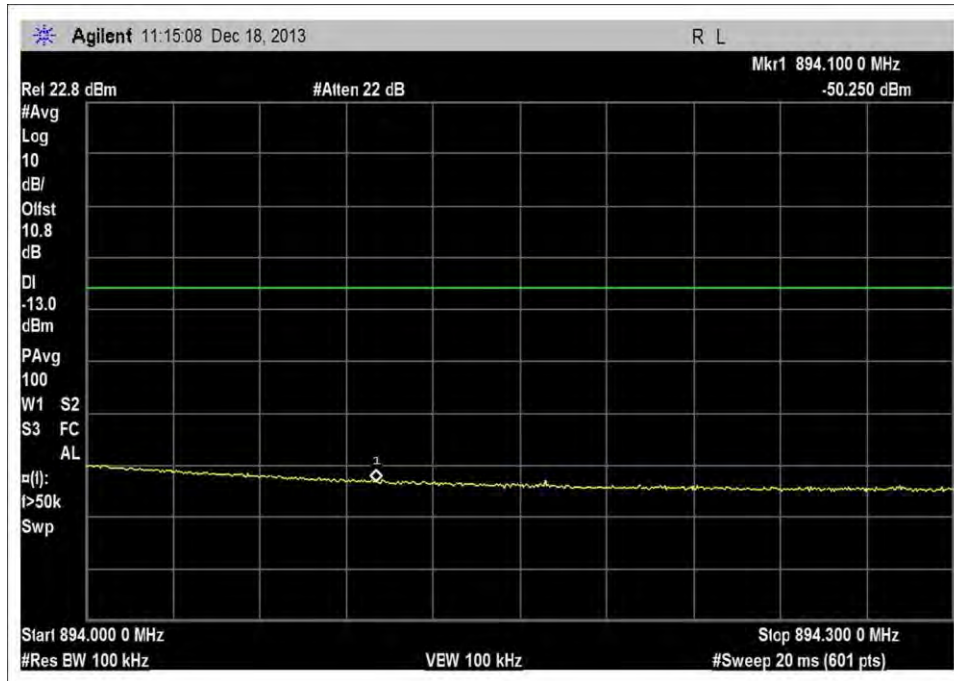
DL_716-746MHz_H_-90dBm



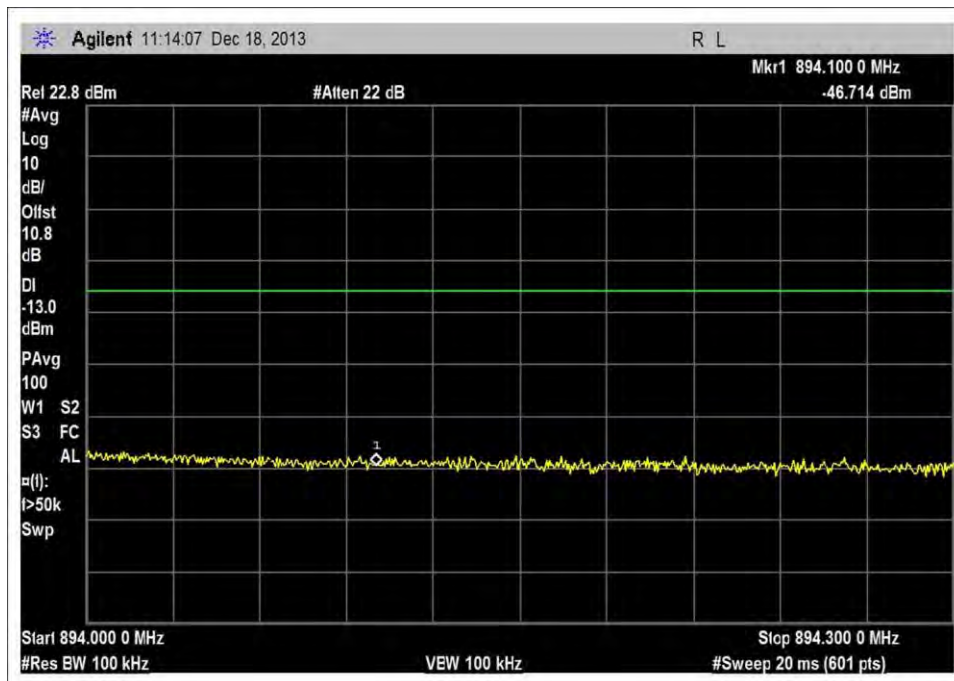
DL_869-894MHz_L_-20dBm



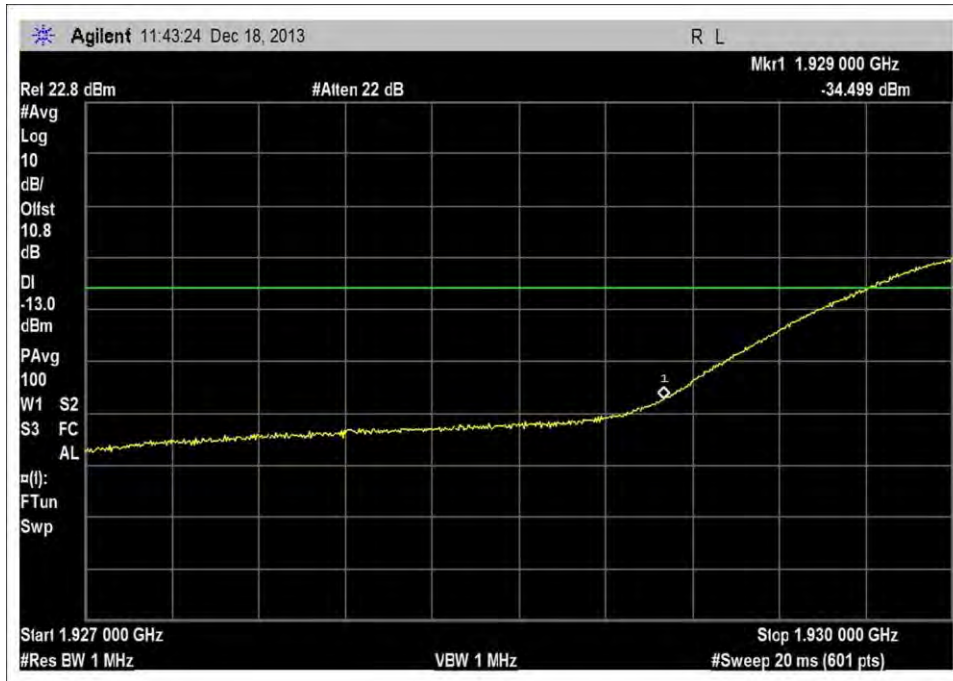
DL_869-894MHz_L_-90dBm



DL_869-894MHz_H_-20dBm



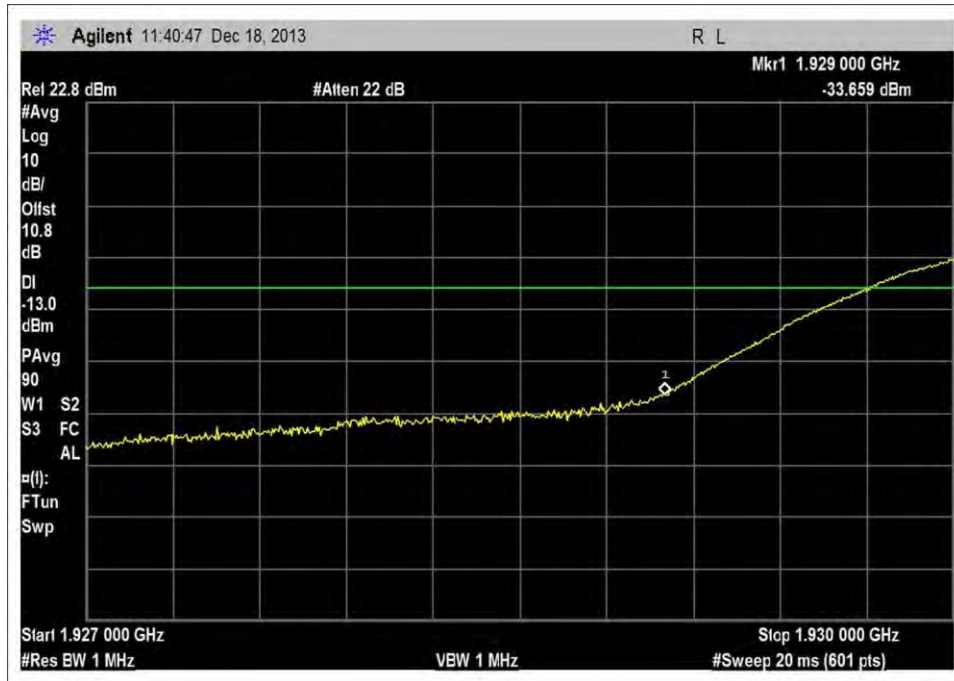
DL_869-894MHz_H_-90dBm



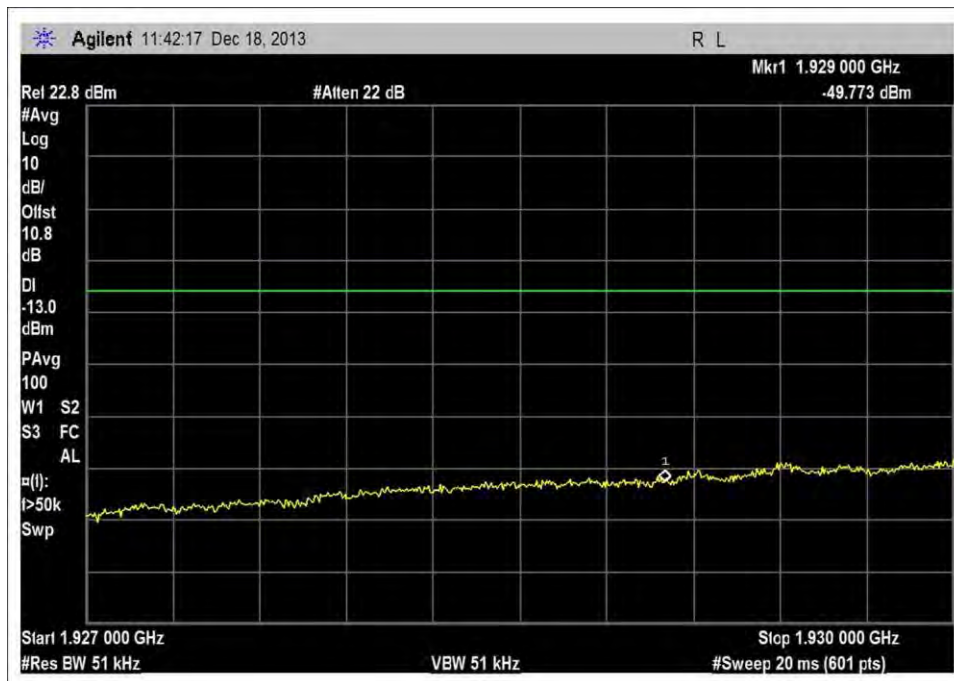
DL_1930-1995MHz_L_-20dBmb



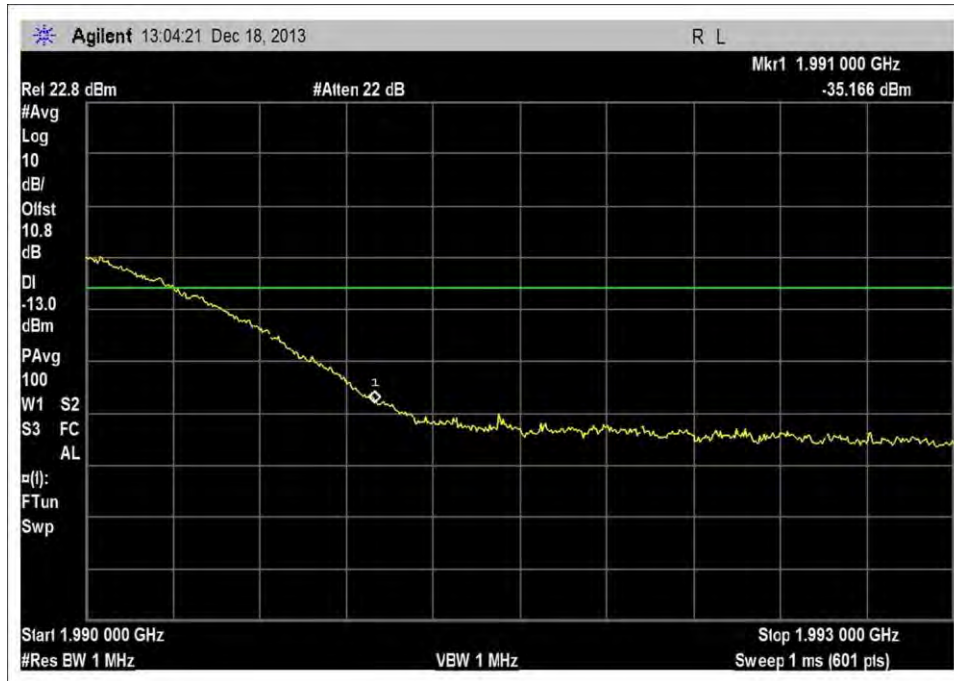
DL_1930-1995MHz_L_-20dBmb_rbw50k



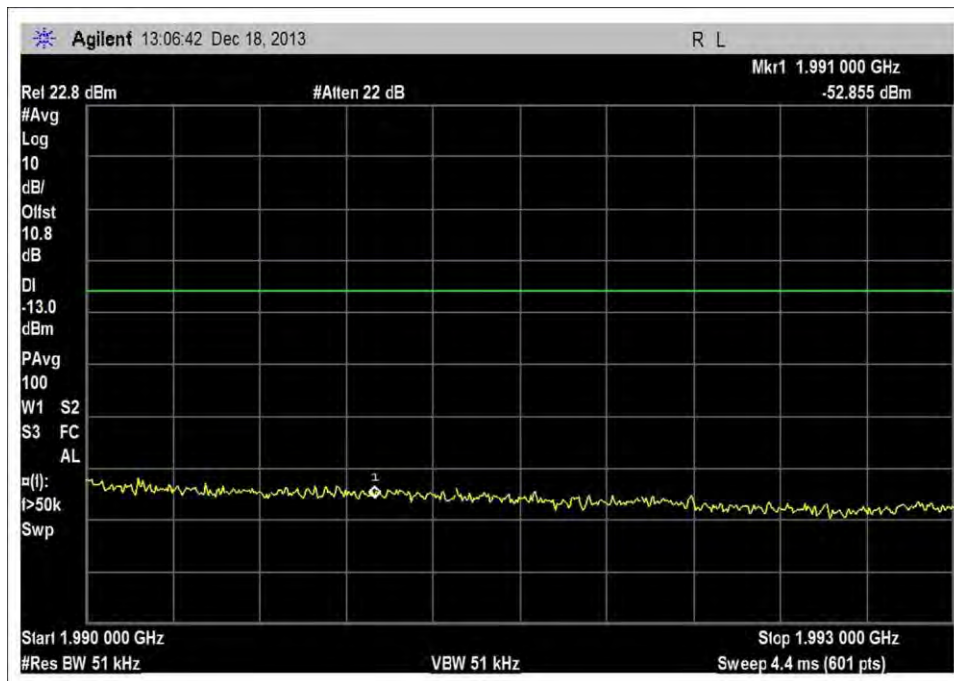
DL_1930-1995MHz_L_-90dBm



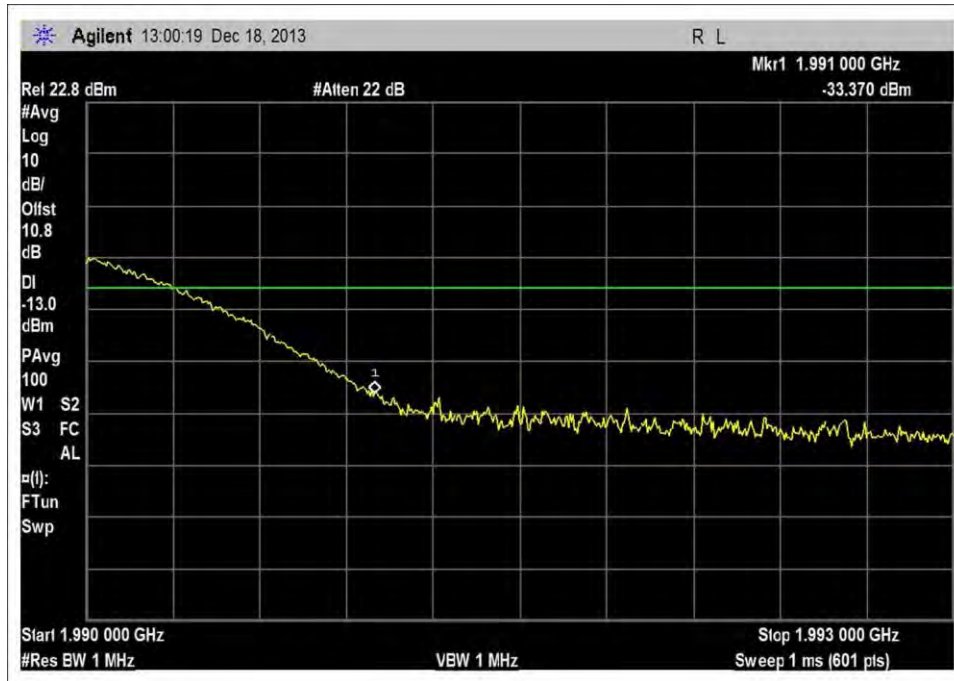
DL_1930-1995MHz_L_-90dBm_rbw50k



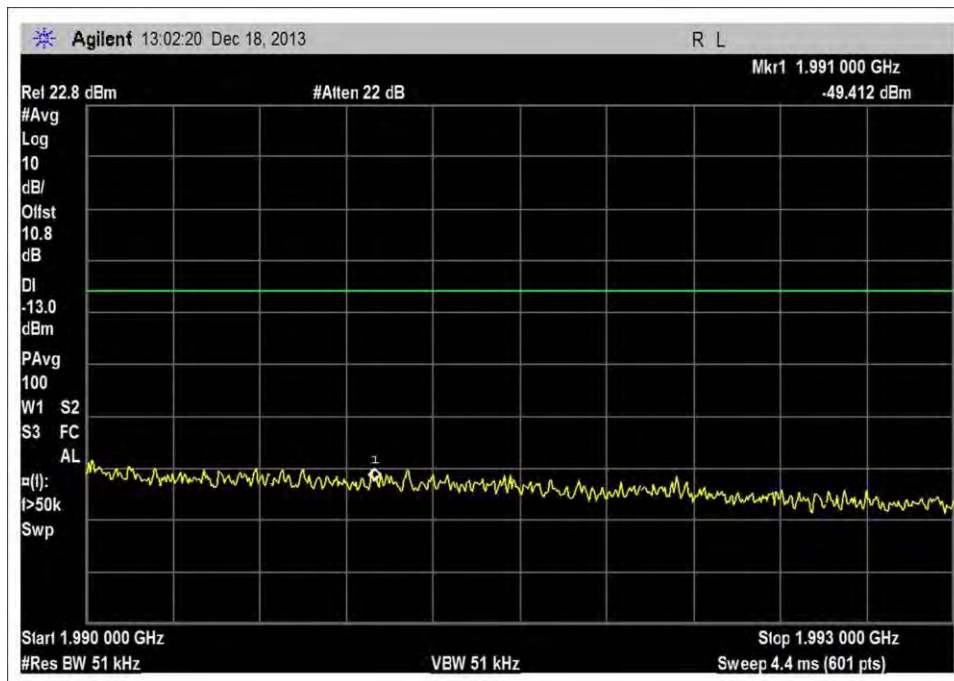
DL_1930-1995MHz_H_-20dBm



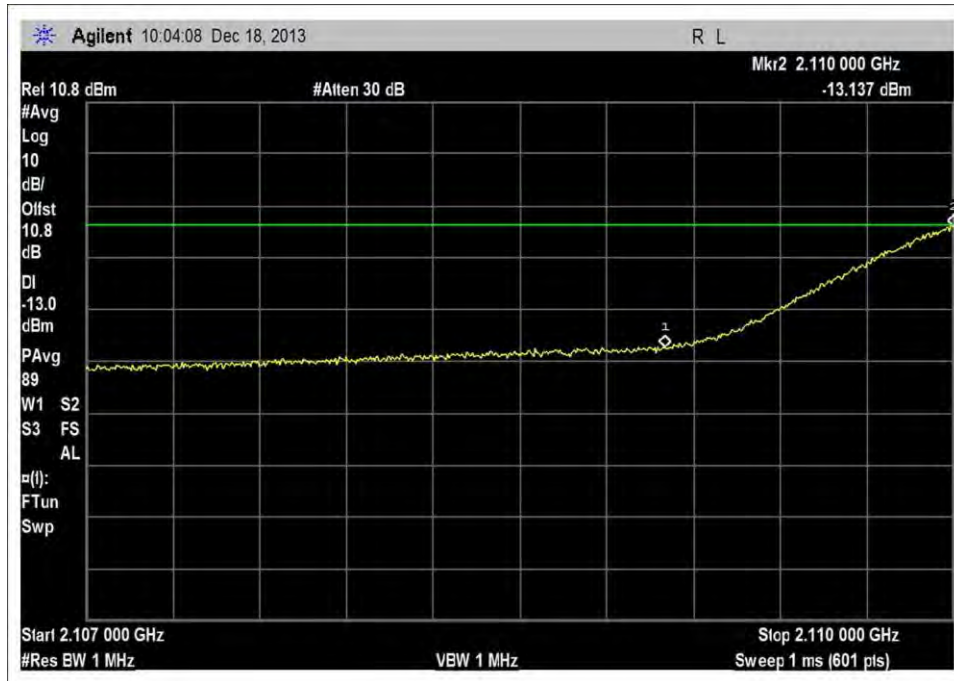
DL_1930-1995MHz_H_-20dBm_rbw51k



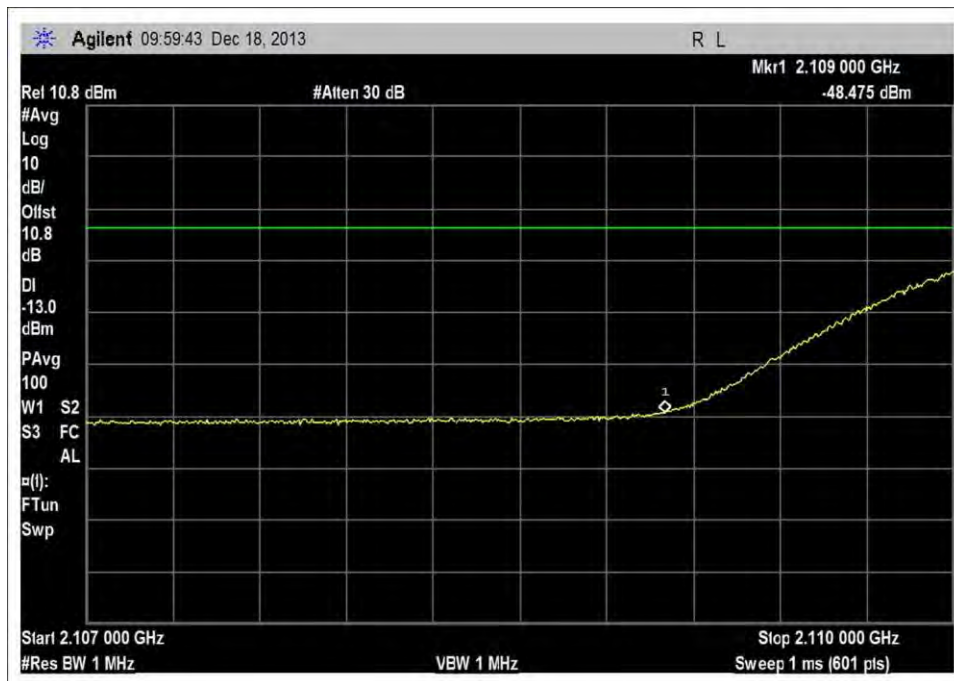
DL_1930-1995MHz_H_-90dBm



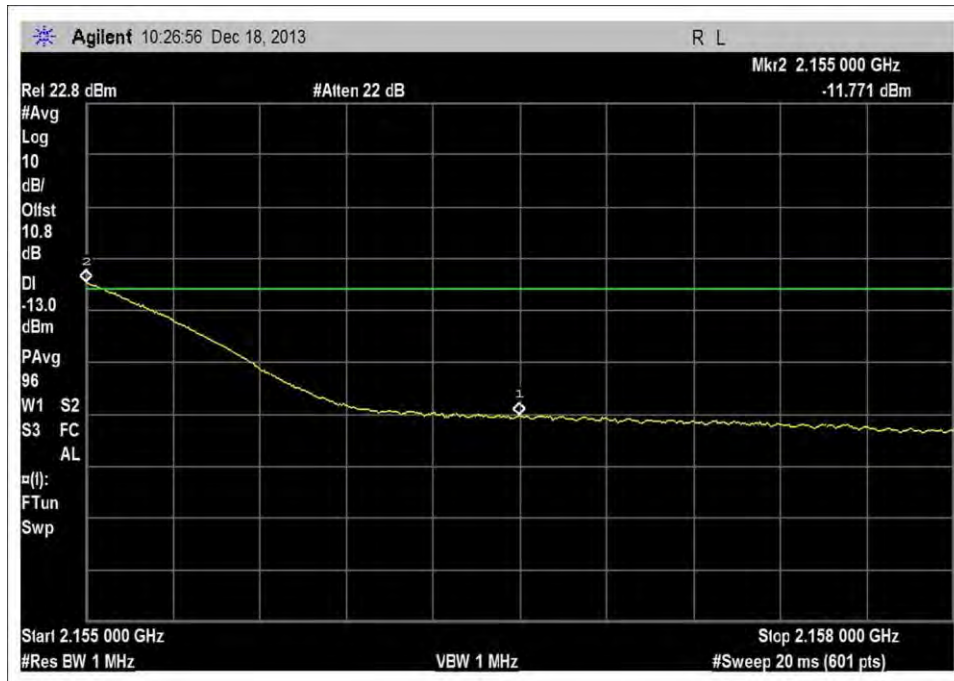
DL_1930-1995MHz_H_-90dBm_rbw51k



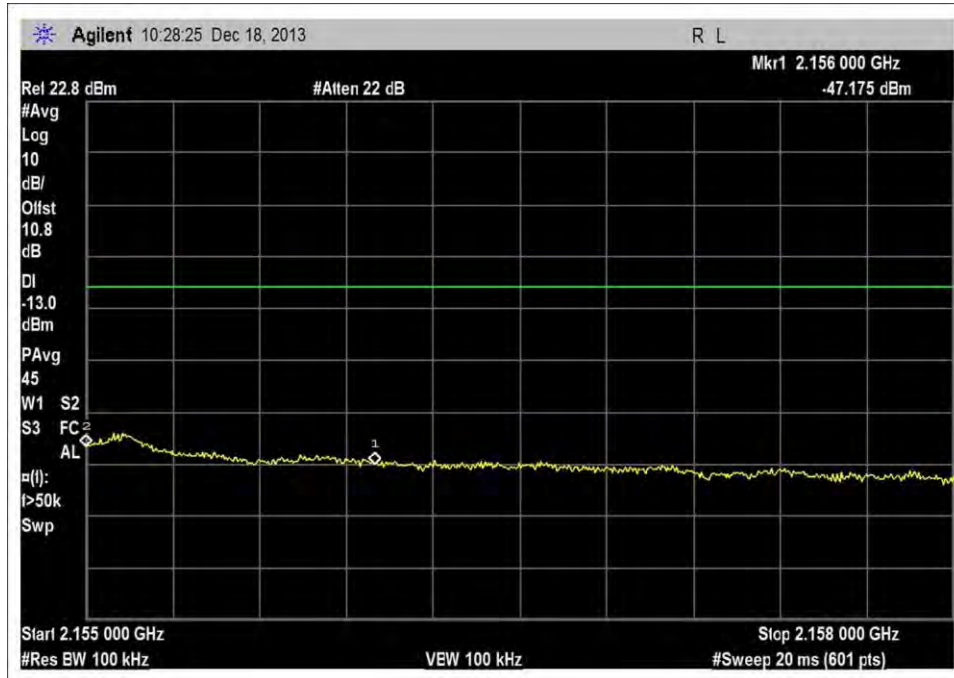
DL_2110-2155MHz_L_-20dBm



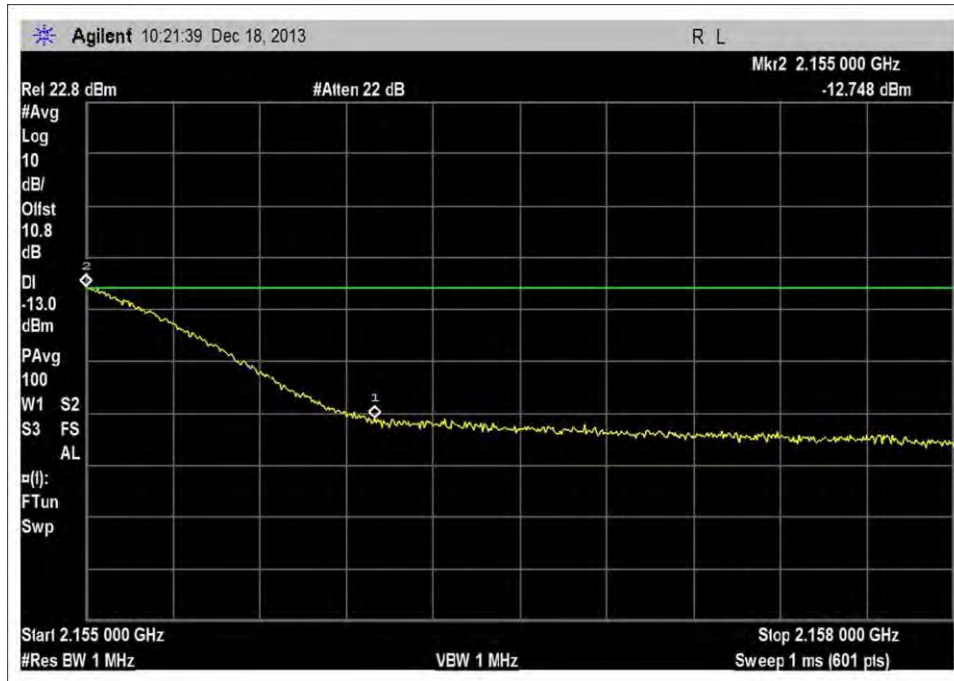
DL_2110-2155MHz_L_-90dBm



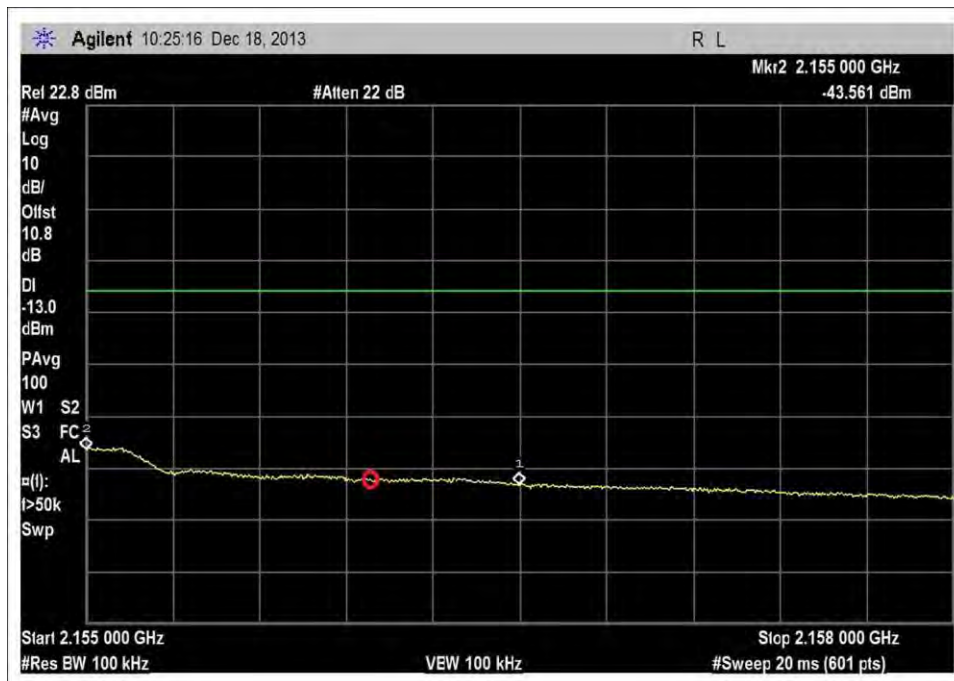
DL_2110-2155MHz_H_-20dBm



DL_2110-2155MHz_H_-20dBm_rbw100kHz



DL_2110-2155MHz_H_-90dBm



DL_2110-2155MHz_H_-90dBm_rbw100kHz

Clause 7.7 Noise limit

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112
Customer: Nextivity, Inc.
Specification: 7.7 Noise Limits
Work Order #: 94857 **Date:** 12/12/2013
Test Type: Conducted Emissions **Time:** 09:43:00
Equipment: Provider Specific Consumer Signal **Sequence#:** 2
Booster
Manufacturer: Nextivity, Inc. **Tested By:** E. Wong
Model: Cel-Fi P34-2/4/5/12 **110V 60Hz**
S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz
 DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Summary of Results

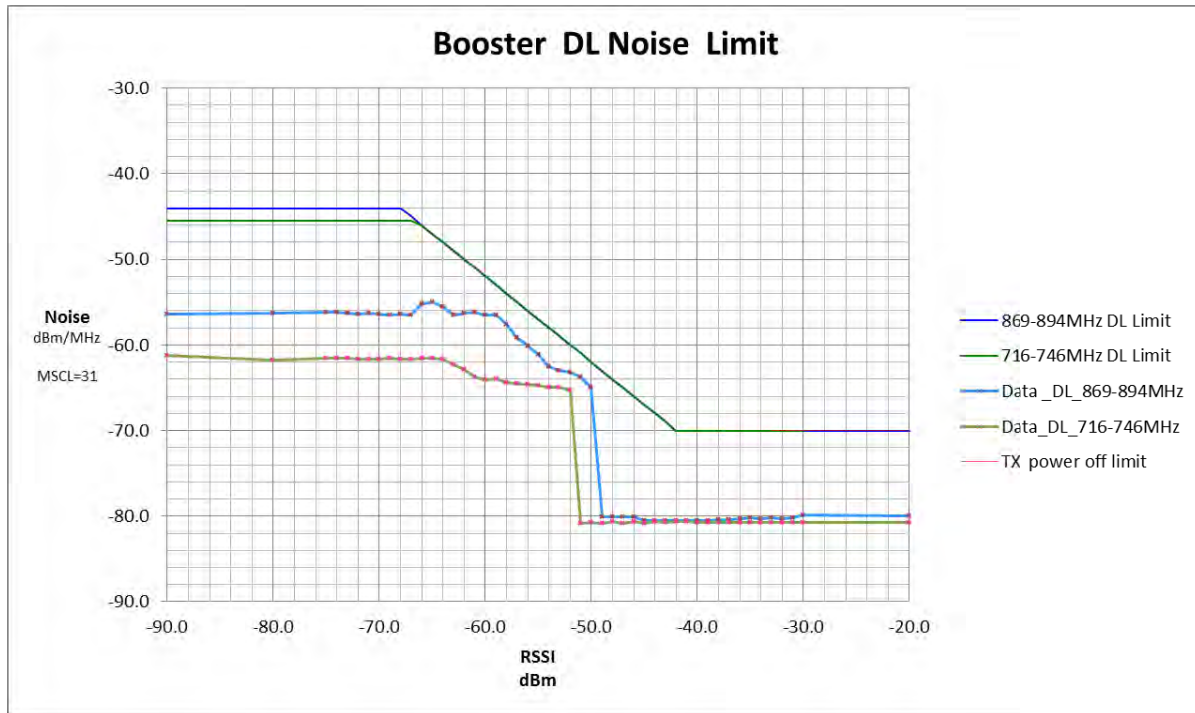
Pass, the measured data demonstrates compliance to

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.7	Noise Limits	20.21(e)(9)(i)(A)(2) 20.21(e)(9)(i)(I)	Noise Limits Transmit Power Off Mode

Results

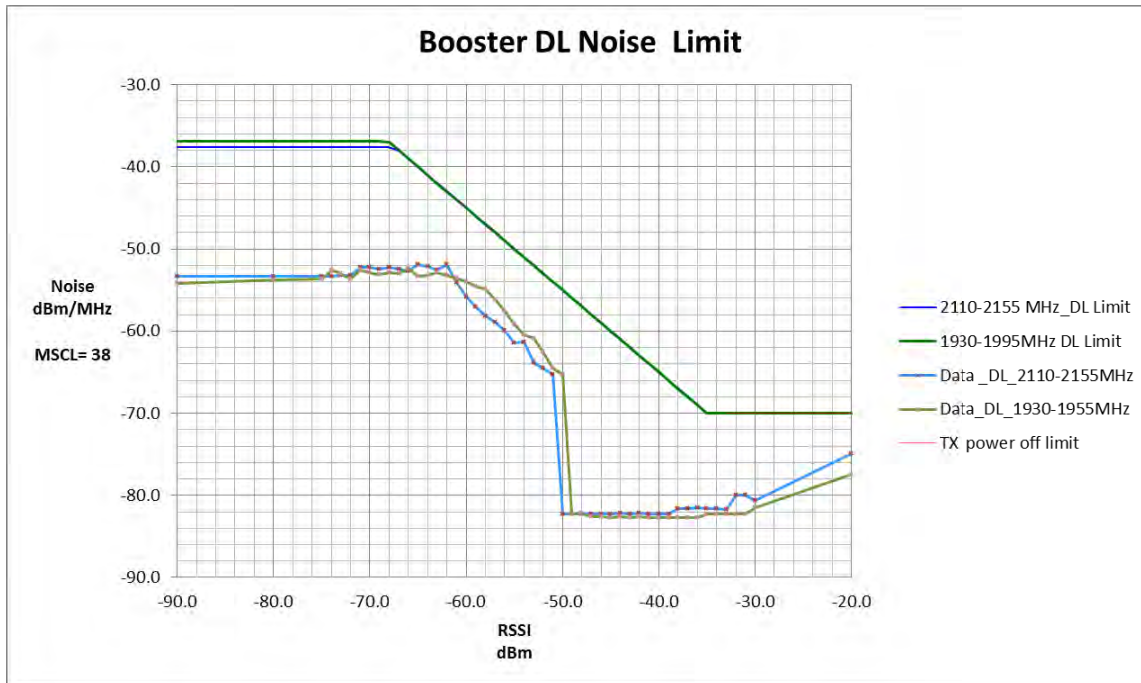
Maximum Noise			
Frequency	Max Noise dBm/MHz	Limit dBm/MHz	Margin dB
UL 1710-1755	-57.6	-37.7	-19.9
UL 1850-1915	-57.1	-37.0	-20.1
UL 824-849	-58.3	-44.1	-14.2
UL 698-716	-62.8	-45.5	-17.3
DL 2110-2155	-63.6	-37.7	-25.9
DL 1930-1995	-63.8	-37.0	-26.8
DL 869-894	-59.6	-44.1	-15.5
DL 716-746	-63.9	-45.5	-18.4

Noise Timing			
Frequency	Noise timing Sec	Limit Sec	Margin Sec
UL 1710-1755	0.6	3.0	-2.4
UL 1850-1915	0.5	3.0	-2.6
UL 824-849	1.2	3.0	-1.8
UL 698-716	1.0	3.0	-2.0
DL 2110-2155	0.6	3.0	-2.4
DL 1930-1995	1.2	3.0	-1.8
DL 869-894	2.1	3.0	-1.0
DL 716-746	0.3	3.0	-2.7



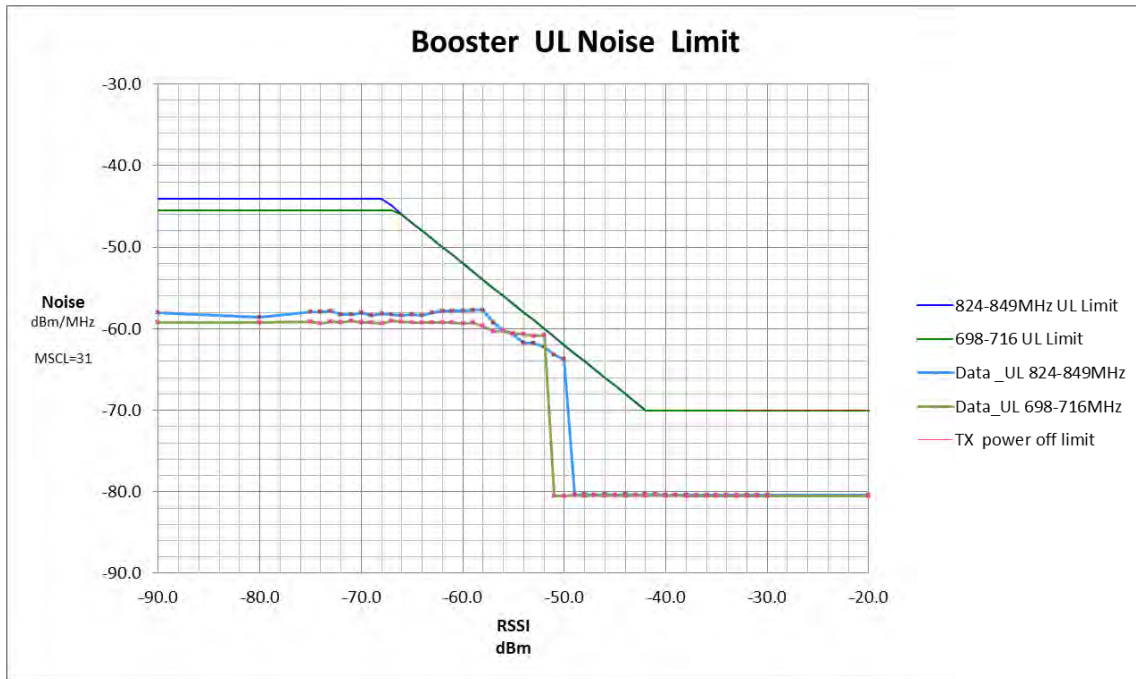
869.0		894.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent	Freq Dependent	TX off	Conditional				
-75.0	-56.2		-44.1		-44.1			-12.1	
-51.0	-63.7	-61.0			-61.0			-2.7	
-50.0	-64.9	-62.0			-62.0			-2.9	
-52.0	-63.2	-60.0			-60.0			-3.2	
-59.0	-56.5	-53.0			-53.0			-3.5	
-30.0	-79.9			-70	-70.0			-9.9	

716.0		746.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent	Freq Dependent	TX off	Conditional				
-90.0	-61.2		-45.5		-45.5			-15.7	
-52.0	-65.3	-60.0			-60.0			-5.3	
-53.0	-65.0	-59.0			-59.0			-6.0	
-54.0	-65.0	-58.0			-58.0			-7.0	
-55.0	-64.7	-57.0			-57.0			-7.7	
-42.0	-80.6			-70	-70.0			-10.6	



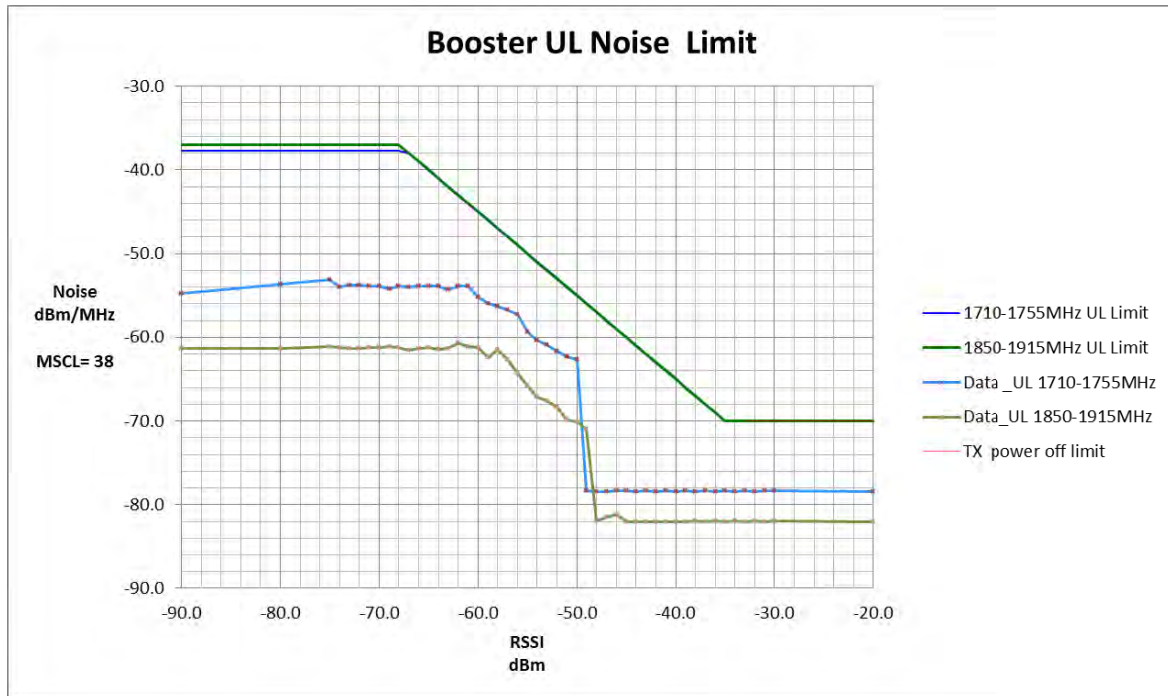
1930.0		1995.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent	Freq Dependent	TX off	Conditional				
-74.0	-52.6		-36.9		-36.9			-15.7	
-58.0	-54.9	-47.0			-47.0			-7.9	
-57.0	-56.2	-48.0			-48.0			-8.2	
-59.0	-54.5	-46.0			-46.0			-8.5	
-56.0	-57.5	-49.0			-49.0			-8.5	
-20.0	-77.5			-70	-70.0			-7.5	

2110.0		2155.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent	Freq Dependent	TX off	Conditional				
-71.0	-52.2		-37.6		-37.6			-14.6	
-62.0	-51.9	-43.0			-43.0			-8.9	
-61.0	-54.1	-44.0			-44.0			-10.1	
-54.0	-61.3	-51.0			-51.0			-10.3	
-63.0	-52.6	-42.0			-42.0			-10.6	
-20.0	-74.9			-70	-70.0			-4.9	



824.0		849.0		MHz			
		Limit				Margin	
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent		TX off	Conditional		
-50.0	-63.7	-62.0			-62.0	-1.7	
-52.0	-62.2	-60.0			-60.0	-2.2	
-51.0	-63.2	-61.0			-61.0	-2.2	
-53.0	-61.8	-59.0			-59.0	-2.8	
-58.0	-57.7	-54.0			-54.0	-3.7	
-42.0	-80.3			-70.0	-70.0	-10.3	

698.0		716.0		MHz			
		Limit				Margin	
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent		TX off	Conditional		
-52.0	-60.8	-60.0			-60.0	-0.8	
-53.0	-60.9	-59.0			-59.0	-1.9	
-54.0	-60.7	-58.0			-58.0	-2.7	
-55.0	-60.6	-57.0			-57.0	-3.6	
-56.0	-60.2	-56.0			-56.0	-4.2	
-41.0	-80.4			-70	-70.0	-10.4	



1850.0		1915.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent		TX off	Conditional				
-36.0	-81.9	-69.0			-69.0		-12.9		
-37.0	-82.0	-68.0			-68.0		-14.0		
-58.0	-61.4	-47.0			-47.0		-14.4		
-57.0	-62.7	-48.0			-48.0		-14.7		
-38.0	-81.9	-67.0			-67.0		-14.9		
-34.0	-81.9			-70	-70.0		-11.9		

1710.0		1755.0		MHz		Limit			Margin
RSSI (dBm)	Measured Noise (dBm/MHz)	RSSI Dependent		TX off	Conditional				
-50.0	-62.7	-55.0			-55.0		-7.7		
-56.0	-57.3	-49.0			-49.0		-8.3		
-51.0	-62.3	-54.0			-54.0		-8.3		
-57.0	-56.7	-48.0			-48.0		-8.7		
-52.0	-61.7	-53.0			-53.0		-8.7		
-35.0	-78.3			-70	-70.0		-8.3		

Clause 7.8 Uplink Inactivity

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**
 Specification: **7.8 Uplink Inactivity**
 Work Order #: **94857** Date: 12/12/2013
 Test Type: **Conducted Emissions** Time: 09:43:00
 Equipment: **Provider Specific Consumer Signal** Sequence#: 2
Booster
 Manufacturer: Nextivity, Inc. Tested By: E. Wong
 Model: Cel-Fi P34-2/4/5/12 110V 60Hz
 S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4433B	US40052164
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915 MHz, 1710-1755MHz

DL = 716-746MHz, 869-894MHz, 1930-1990 MHz, 2110-2155MHz

Test environment conditions:

Temperature - 17°C

Relative Humidity - 24%

Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Summary of Results

Summary:

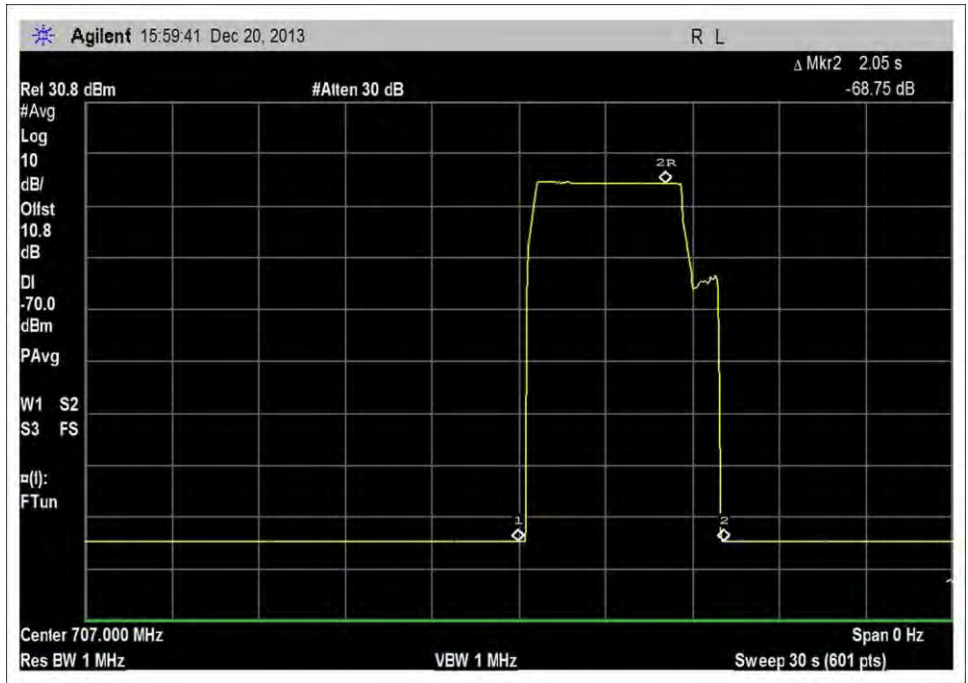
The measured data demonstrate compliance to the following requirement.

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.8	Uplink Inactivity	20.21(e)(9)(i)(J)	Uplink Inactivity

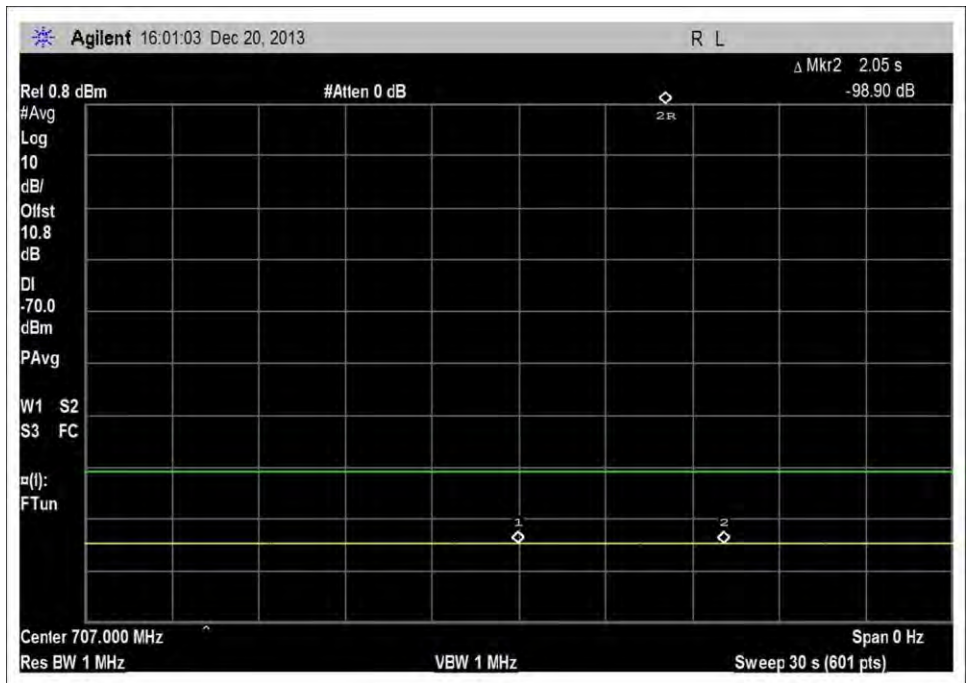
Uplink In-activity			
Frequency	UL Inactive time Sec	Limit Sec	Margin Sec
UL 1710-1755	1.6	5.0	-3.5
UL 1850-1915	1.7	5.0	-3.4
UL 824-849	1.8	5.0	-3.2
UL 698-716	2.1	5.0	-3.0

Measured Noise level in in-active stage

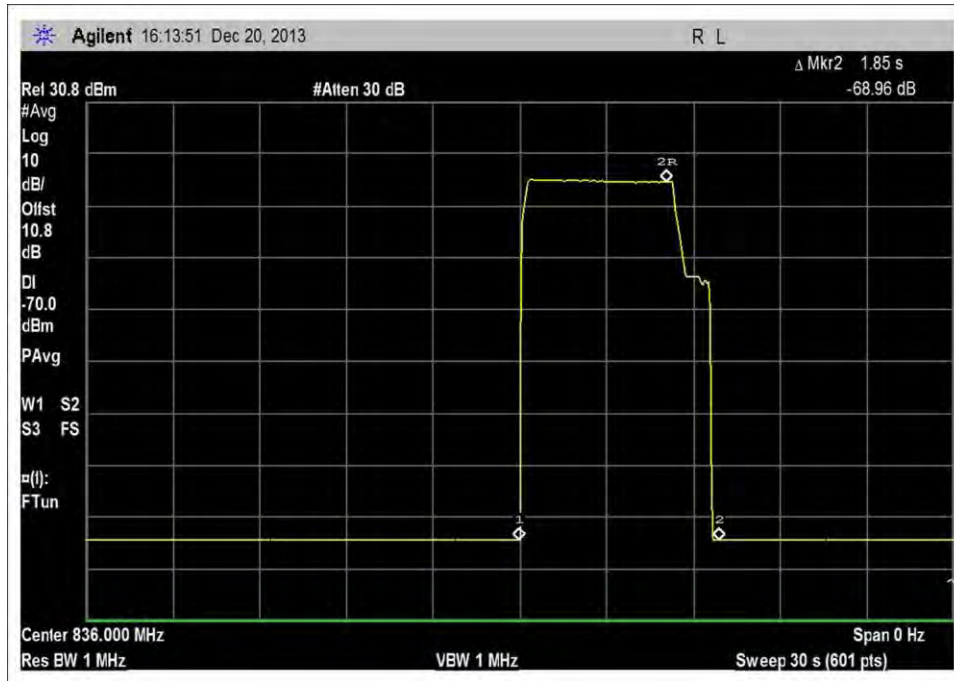
Test Data



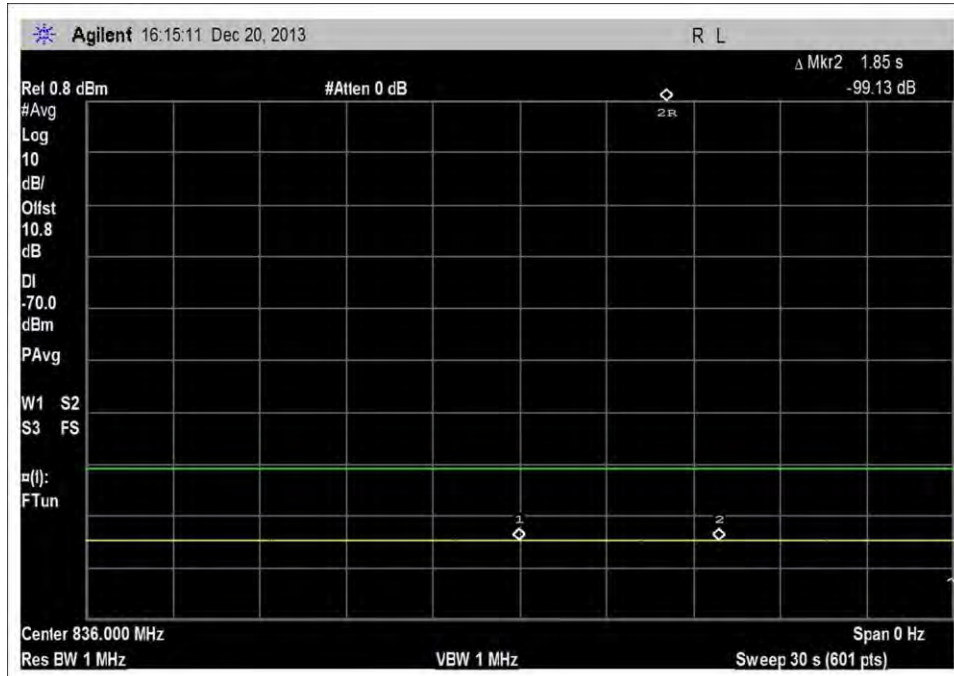
UL_698-716MHz



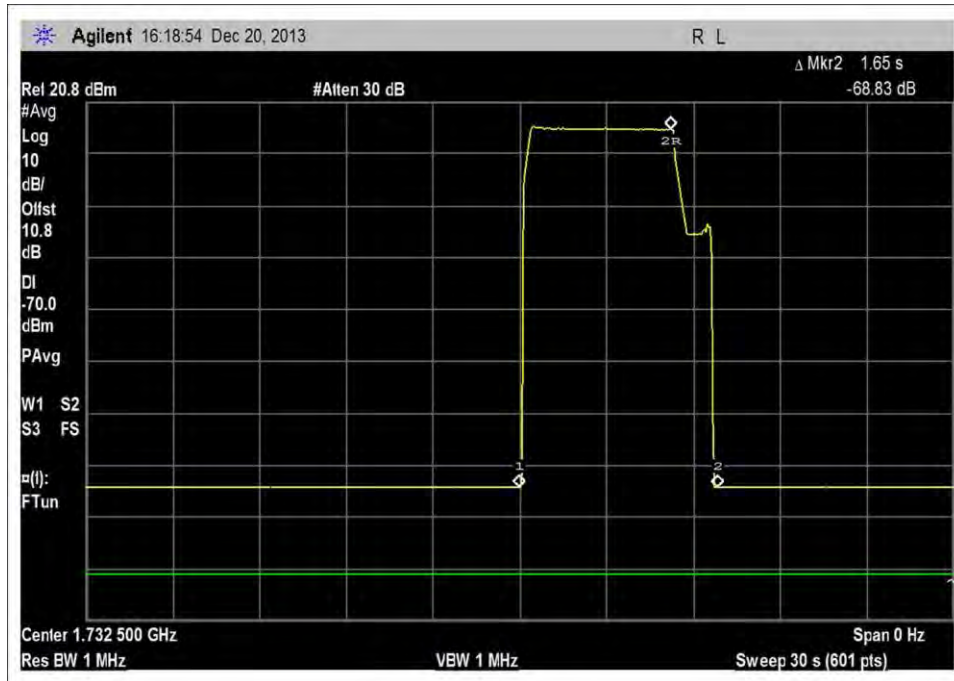
UL_698-716MHz_-70dBm



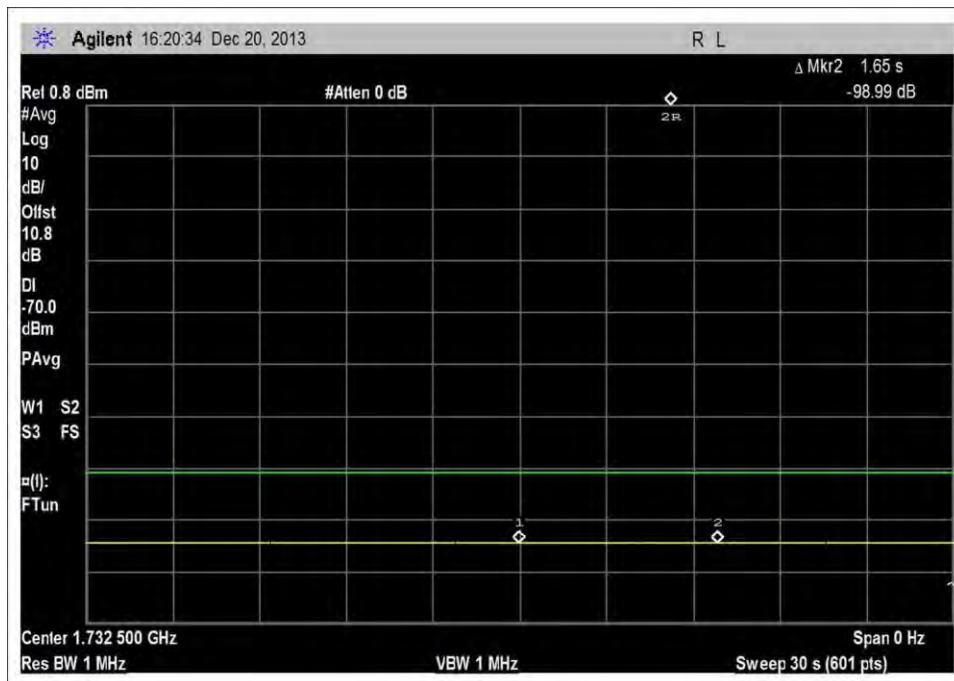
UL_824-849MHz



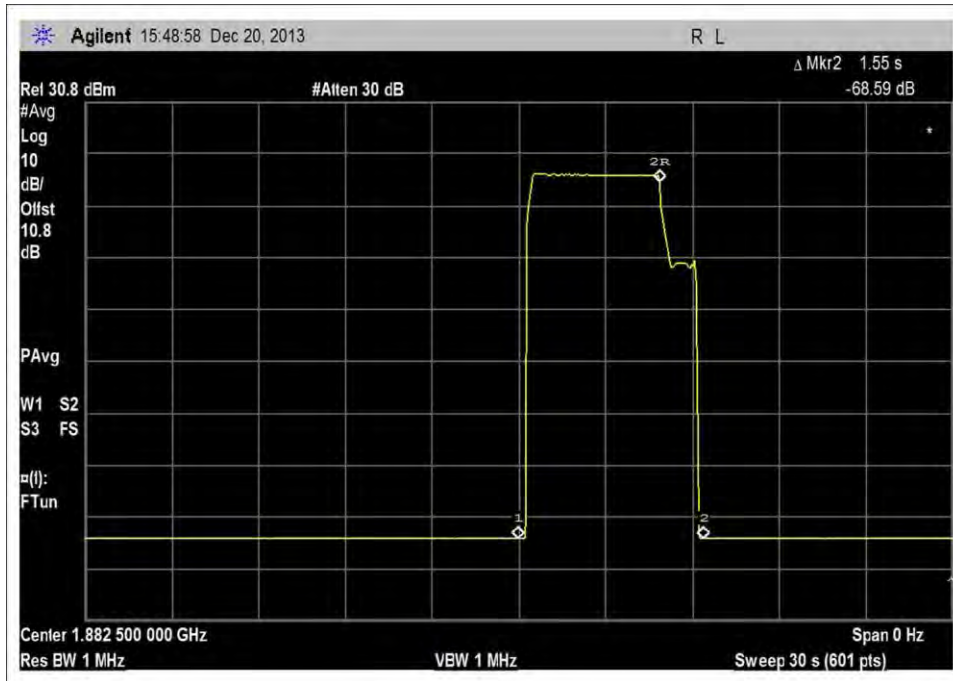
UL_824-849MHz_-70dBm



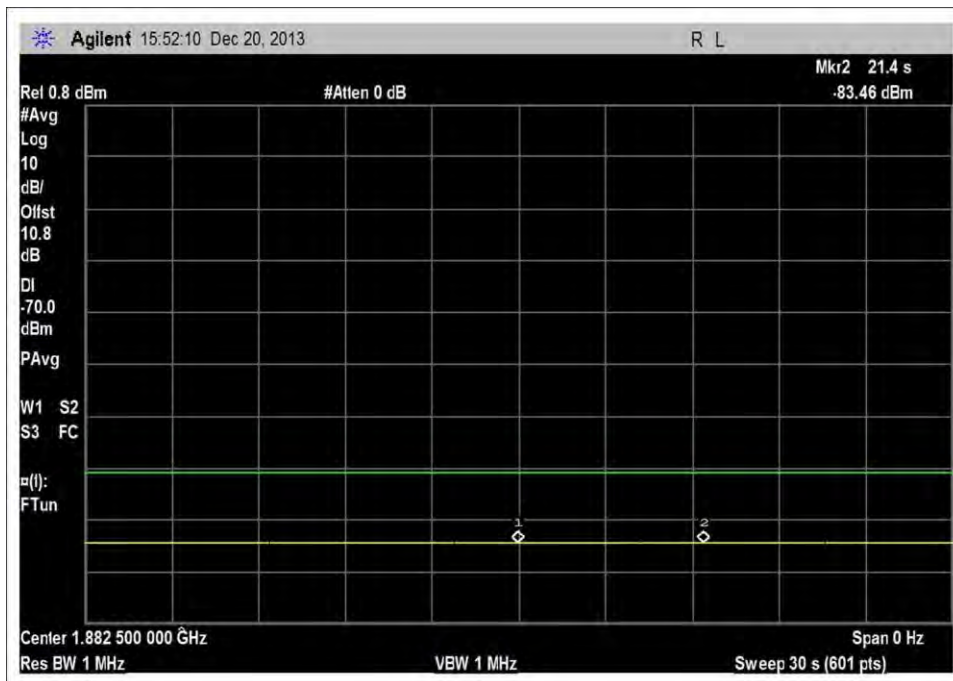
UL_1710-1755MHz



UL_1710-1755MHz_-70dBm



UL_1850-1915MHz



UL_1850-1915MHz_-70dBm

Clause 7.9 Variable Booster Gain

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.9 Variable Booster Gain**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal
Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K- 36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Anritsu	MT8820A	6200250367
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter , Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915 MHz, 1710-1755MHz

DL = 716-746MHz, 869-894MHz, 1930-1990 MHz, 2110-2155MHz

Test environment conditions:

Temperature - 17°C

Relative Humidity - 24%

Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Base Station simulator setting

Total output p0w = -20dBm

CPICH tx power = +30dBm.

Atten 70

ECIO= 10

$BSCL = +40 - (-30) + 70 = 130\text{dB}$

$RSCP = -30 = \text{accrual transmission level } -20 \text{ dBm (RSSI)} - 10 (\text{ECIO})$

$ECIO = \text{Signal power to noise power.}$

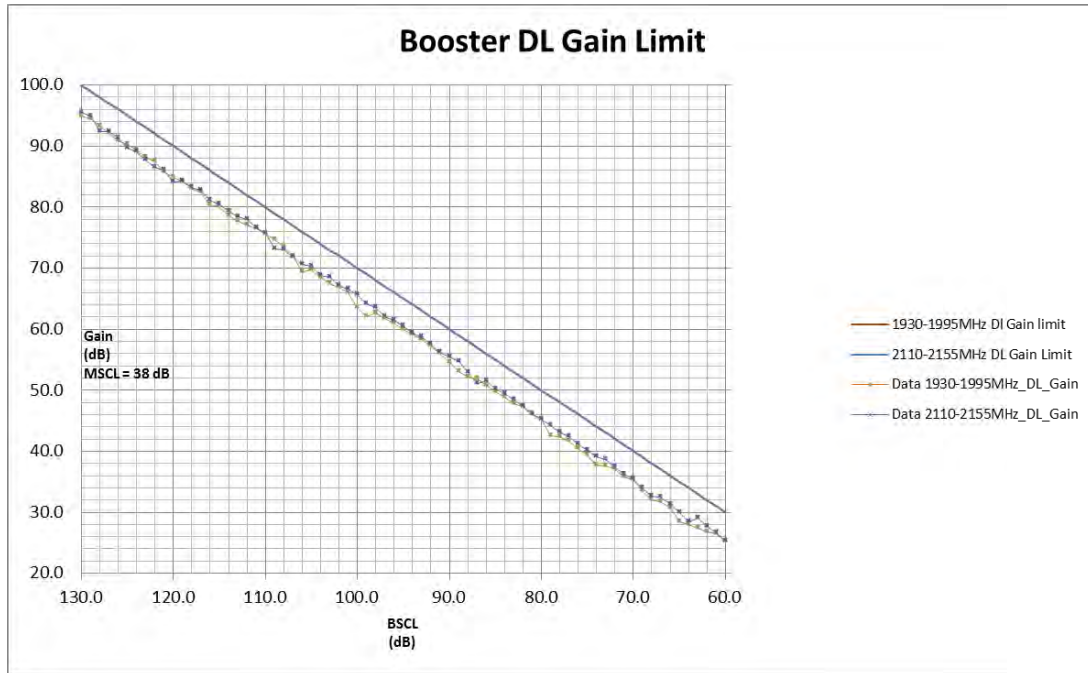
Summary of Results

Summary:

Measured result demonstrates compliance to the following requirement.

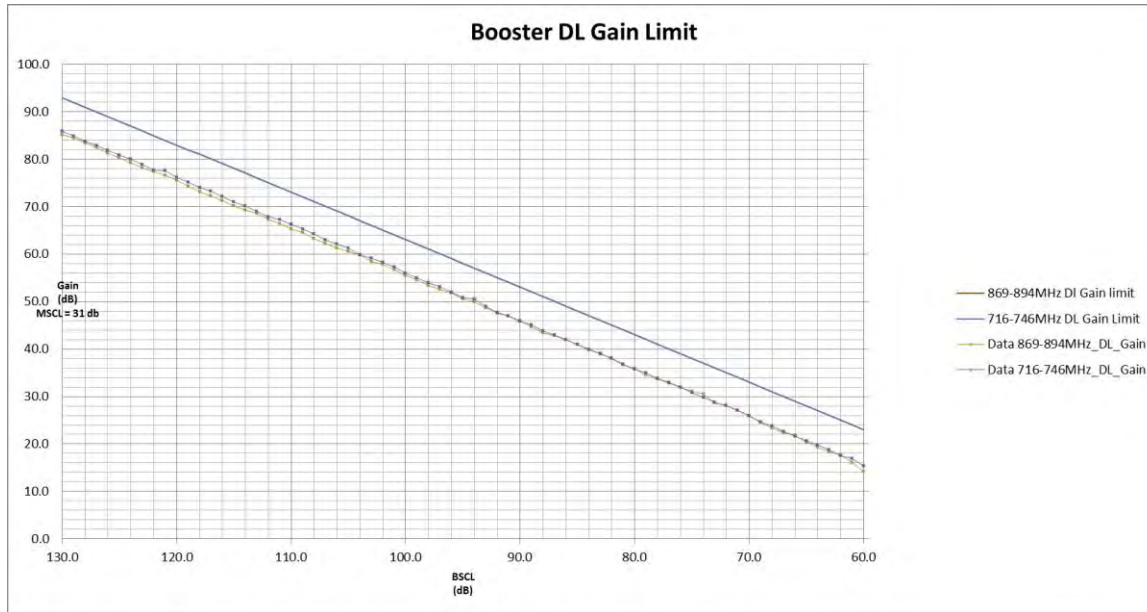
Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.9	Variable Booster Gain	20.21(e)(9)(i)(C)(1)/(2) 20.21(e)(9)(i)(I)	Booster Gain Transmit Power Off Mode

Uplink Gain Timing			
Frequency	UL Gain timing Sec	Limit Sec	Margin Sec
UL 1710-1755	0.8	3.0	-2.2
UL 1850-1915	0.8	3.0	-2.2
UL 824-849	0.6	3.0	-2.4
UL 698-716	0.8	3.0	-2.3



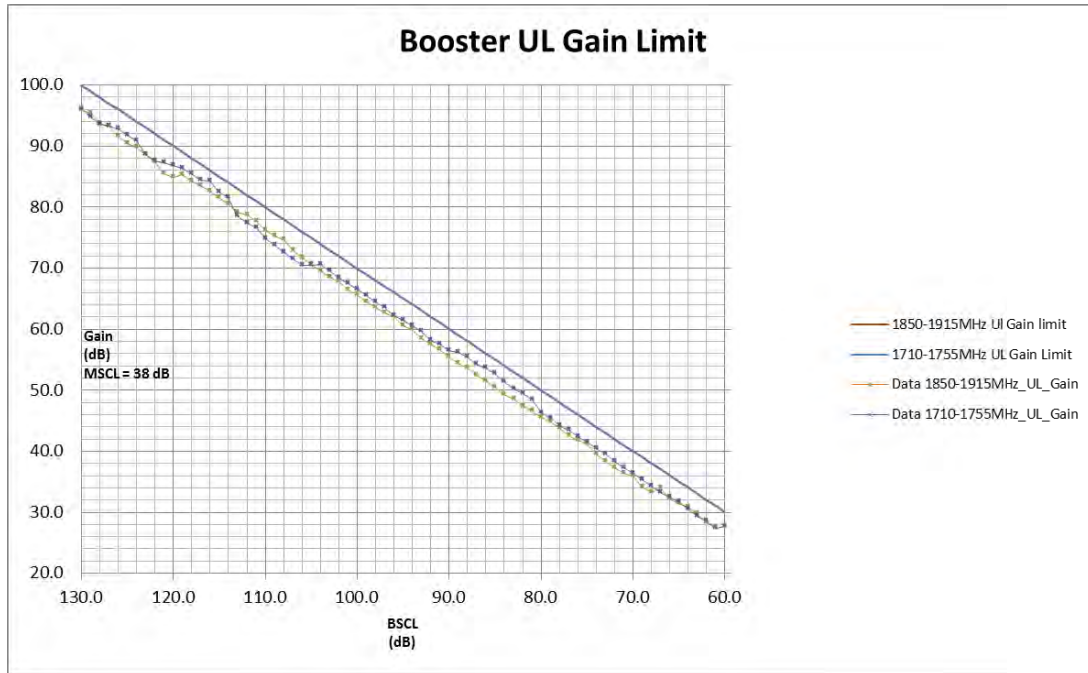
1930.0		-	1995.0		MHz	
RPCH Power	BSCL		Measured	Computed	Limit	Margin
at Ant port(dBm)	dB		Power (dBm)	Gain (dB)	dB	dB
-69.0	109.0		5.7	74.7	79.0	-4.3
-82.0	122.0		5.6	87.6	92.0	-4.4
-89.0	129.0		5.5	94.5	99.0	-4.5
-70.0	110.0		5.5	75.5	80.0	-4.5
-68.0	108.0		5.5	73.5	78.0	-4.5
-21.0	61.0		5.5	26.5	31.0	-4.5

2110.0		-	2155.0		MHz	
RPCH Power	BSCL		Measured	Computed	Limit	Margin
at Ant port(dBm)	dB		Power (dBm)	Gain (dB)	dB	dB
-23.0	63.0		6.0	29.0	33.0	-4.0
-89.0	129.0		5.9	94.9	99.0	-4.1
-72.0	112.0		5.9	77.9	82.0	-4.1
-77.0	117.0		5.8	82.8	87.0	-4.2
-53.0	93.0		5.8	58.8	63.0	-4.2
-70.0	110.0		5.7	75.7	80.0	-4.3



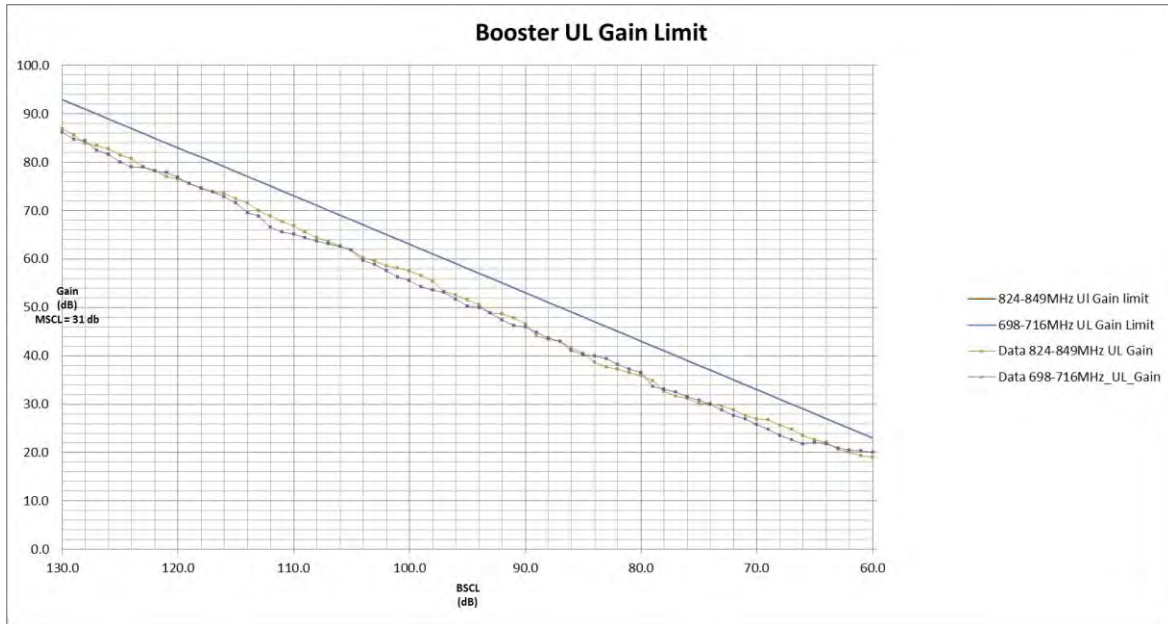
716.0 - 746.0 MHz					
RPCH Power	BSCL	Measured	Computed	Limit	Margin
at Ant port(dBm)	dB	Power (dBm)	Gain (dB)	dB	dB
-54.0	94.0	-3.4	50.6	57.0	-6.4
-81.0	121.0	-3.5	77.6	84.0	-6.5
-71.0	111.0	-3.7	67.3	74.0	-6.7
-77.0	117.0	-3.7	73.3	80.0	-6.7
-69.0	109.0	-3.7	65.3	72.0	-6.7
-62.0	102.0	-3.7	58.3	65.0	-6.7

869.0 - 894.0 MHz					
RPCH Power	BSCL	Measured	Computed	Limit	Margin
at Ant port(dBm)	dB	Power (dBm)	Gain (dB)	dB	dB
-34.0	74.0	-3.5	30.5	37.0	-6.5
-43.0	83.0	-3.9	39.1	46.0	-6.9
-35.0	75.0	-3.9	31.1	38.0	-6.9
-32.0	72.0	-3.9	28.1	35.0	-6.9
-31.0	71.0	-3.9	27.1	34.0	-6.9
-54.0	94.0	-4.0	50.0	57.0	-7.0



1710.0 - 1755.0					
RPCH Power at Ant port(dBm)	BSCL	Measured	Computed	Limit	Margin
	dB	Power (dBm)	Gain (dB)	dB	dB
-76.0	116.0	4.3	84.3	86.0	-1.7
-45.0	85.0	-27.2	52.8	55.0	-2.2
-20.0	60.0	-52.3	27.7	30.0	-2.3
-46.0	86.0	-26.4	53.6	56.0	-2.4
-74.0	114.0	1.5	81.5	84.0	-2.5
-42.0	82.0	-30.5	49.5	52.0	-2.5

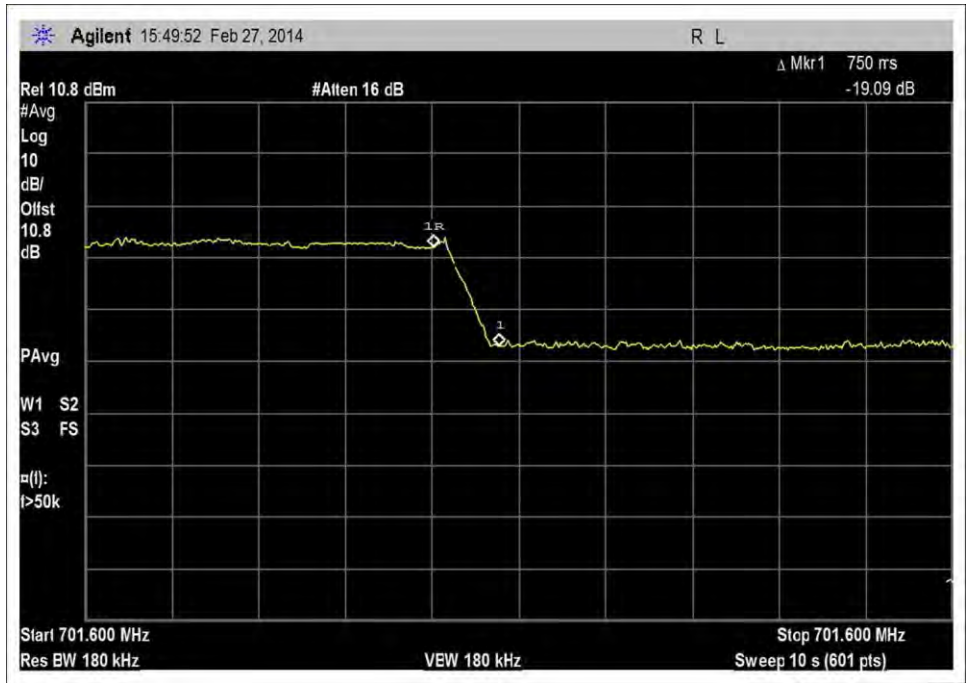
1850.0 - 1915.0					
RPCH Power at Ant port(dBm)	BSCL	Measured	Computed	Limit	Margin
	dB	Power (dBm)	Gain (dB)	dB	dB
-27.0	67.0	-46.0	34.0	37.0	-3.0
-24.0	64.0	-49.2	30.8	34.0	-3.2
-23.0	63.0	-50.2	29.8	33.0	-3.2
-72.0	112.0	-1.3	78.7	82.0	-3.3
-68.0	108.0	-5.3	74.7	78.0	-3.3
-20.0	60.0	-53.4	26.6	30.0	-3.4



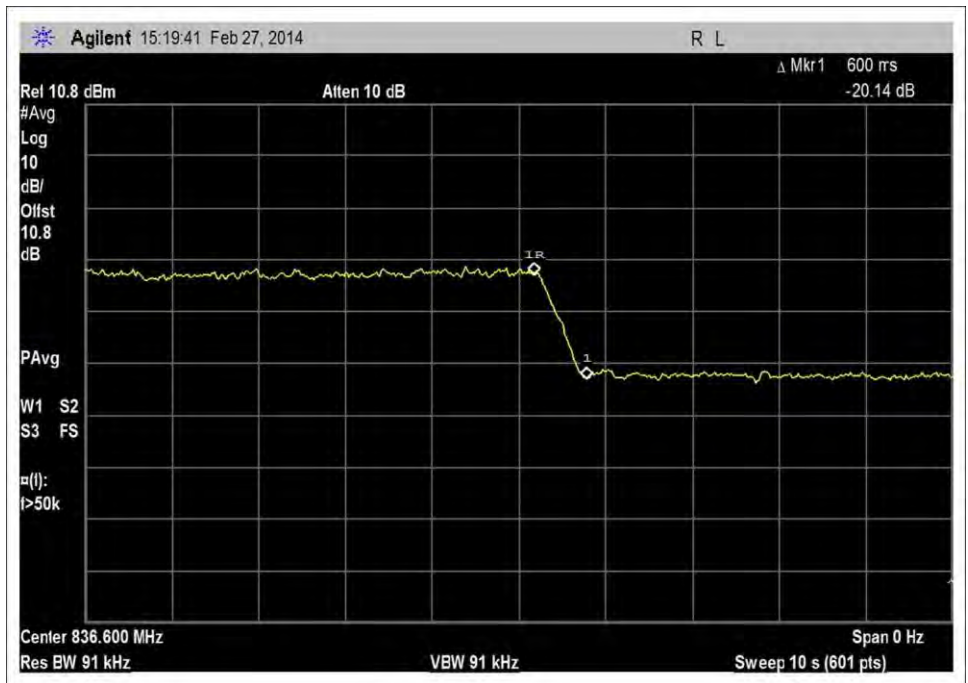
824.0 - 849.0 MHz					
RPCH Power at Ant port(dBm)	BSCL	Measured	Computed	Limit	Margin
	dB	Power (dBm)	Gain (dB)	dB	dB
-20.0	60.0	-61.0	19.0	23.0	-4.0
-21.0	61.0	-60.6	19.4	24.0	-4.6
-24.0	64.0	-58.0	22.0	27.0	-5.0
-22.0	62.0	-60.0	20.0	25.0	-5.0
-29.0	69.0	-53.2	26.8	32.0	-5.2
-27.0	67.0	-55.2	24.8	30.0	-5.2

698.0 - 716.0 MHz					
RPCH Power at Ant port(dBm)	BSCL	Measured	Computed	Limit	Margin
	dB	Power (dBm)	Gain (dB)	dB	dB
-20.0	60.0	-59.9	20.1	23.0	-2.9
-21.0	61.0	-59.6	20.4	24.0	-3.6
-22.0	62.0	-59.5	20.5	25.0	-4.5
-23.0	63.0	-59.1	20.9	26.0	-5.1
-24.0	64.0	-58.2	21.8	27.0	-5.2
-25.0	65.0	-58.0	22.0	28.0	-6.0

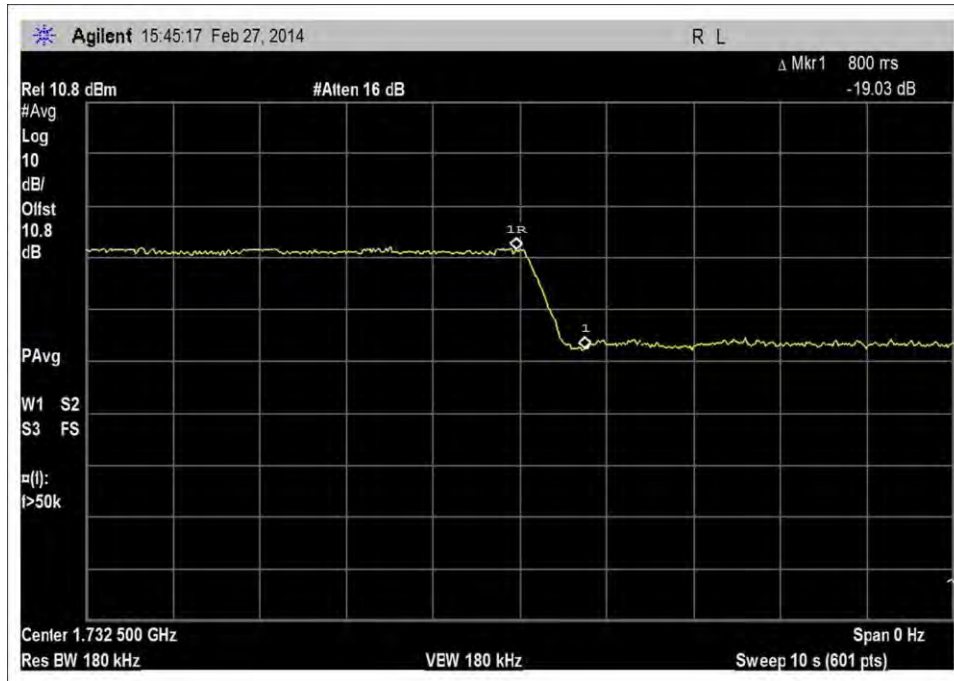
Test Data



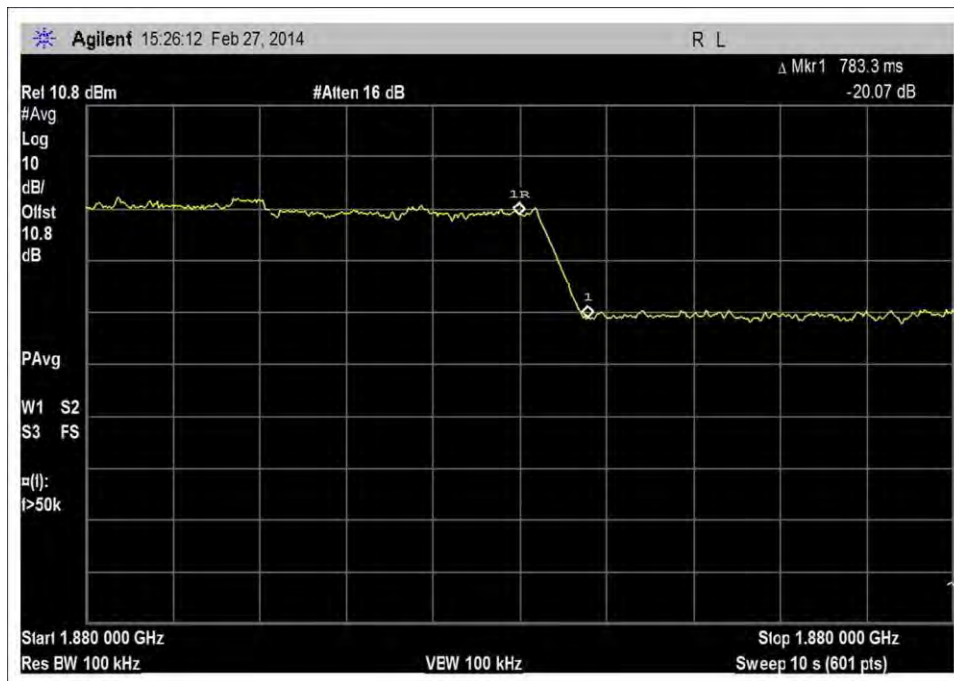
UL_698-716MHz



UL_824-849MHz



UL_1710-1755MHz



UL_1850-1915MHz

Clause 7.11 Oscillation Detection

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112
Customer: Nextivity, Inc.
Specification: 7.11 Oscillation Detection
Work Order #: 94857 **Date:** 12/12/2013
Test Type: Conducted Emissions **Time:** 09:43:00
Equipment: Provider Specific Consumer Signal **Sequence#:** 2
Booster
Manufacturer: Nextivity, Inc. **Tested By:** E. Wong
Model: Cel-Fi P34-2/4/5/12 **110V 60Hz**
S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10 MHz AWGN, 4.1 MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz
 DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Summary of Results

Summary

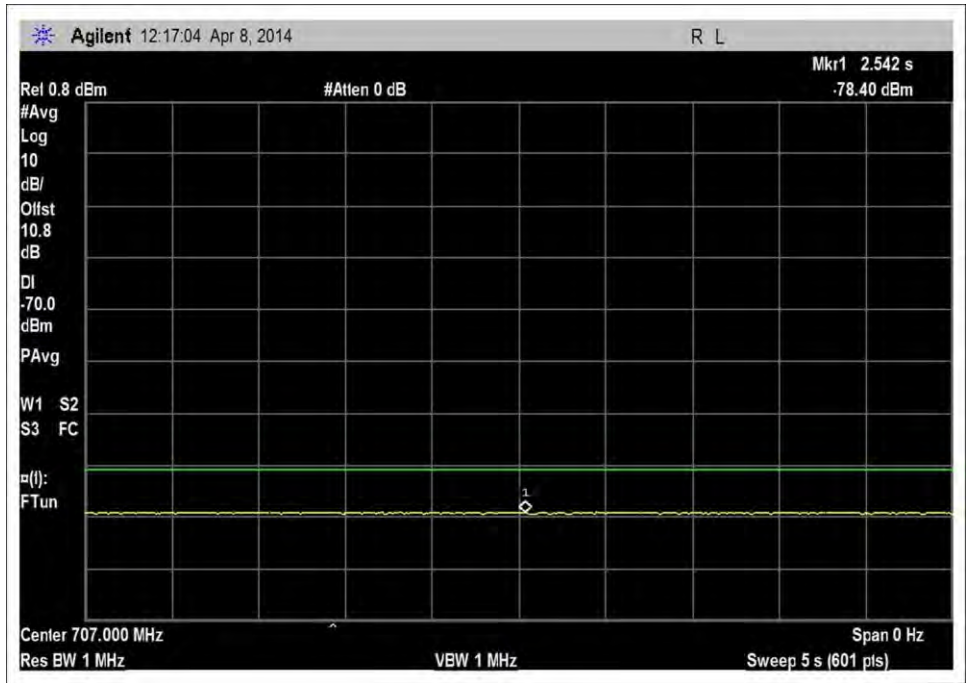
Measured result demonstrates compliance to the following requirement.

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.11	Oscillation Detection	20.21(e)(9)(ii)(A)	Anti-Oscillation

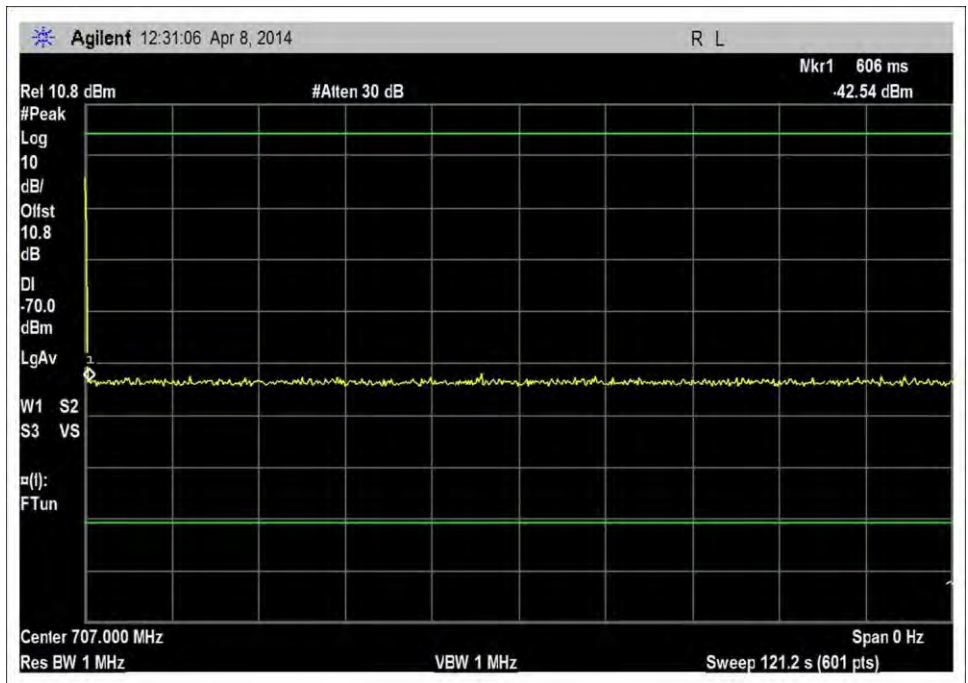
Frequency	Mitigation time Sec	Limit Sec	Margin Sec
UL 1710-1755	0.1667	0.3	-0.13
UL 1850-1915	0.1833	0.3	-0.12
UL 824-849	0.0830	0.3	-0.22
UL 698-716	0.1160	0.3	-0.18
DL 2110-2155	0.1830	1.0	-0.82
DL 1930-1995	0.2170	1.0	-0.78
DL 869-894	0.2660	1.0	-0.73
DL 716-746	0.2250	1.0	-0.78

Frequency	Re-try event	Limit Event	Margin dB
UL 1710-1755	0.0	5.0	-5.0
UL 1850-1915	0.0	5.0	-5.0
UL 824-849	0.0	5.0	-5.0
UL 698-716	0.0	5.0	-5.0
DL 2110-2155	0.0	5.0	-5.0
DL 1930-1995	0.0	5.0	-5.0
DL 869-894	0.0	5.0	-5.0
DL 716-746	0.0	5.0	-5.0

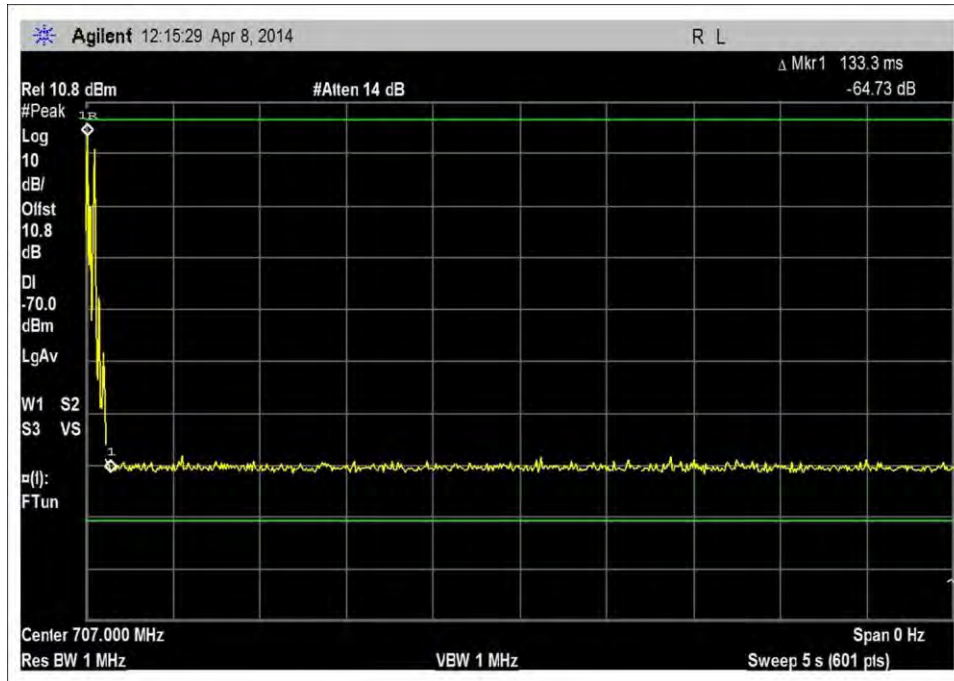
Test Data



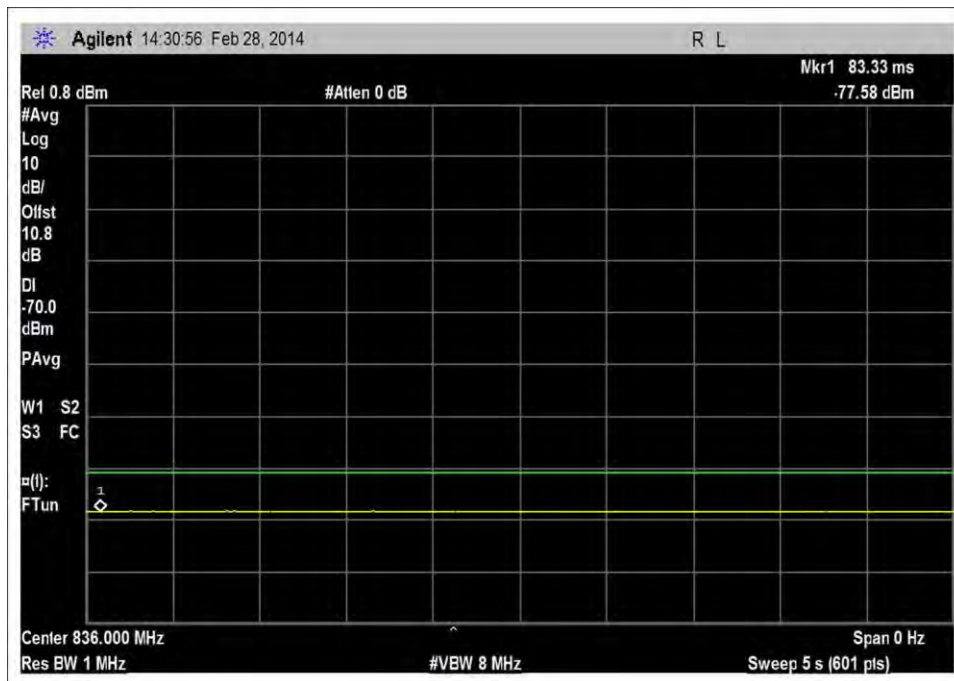
UL_698-716MHz_-70dBm



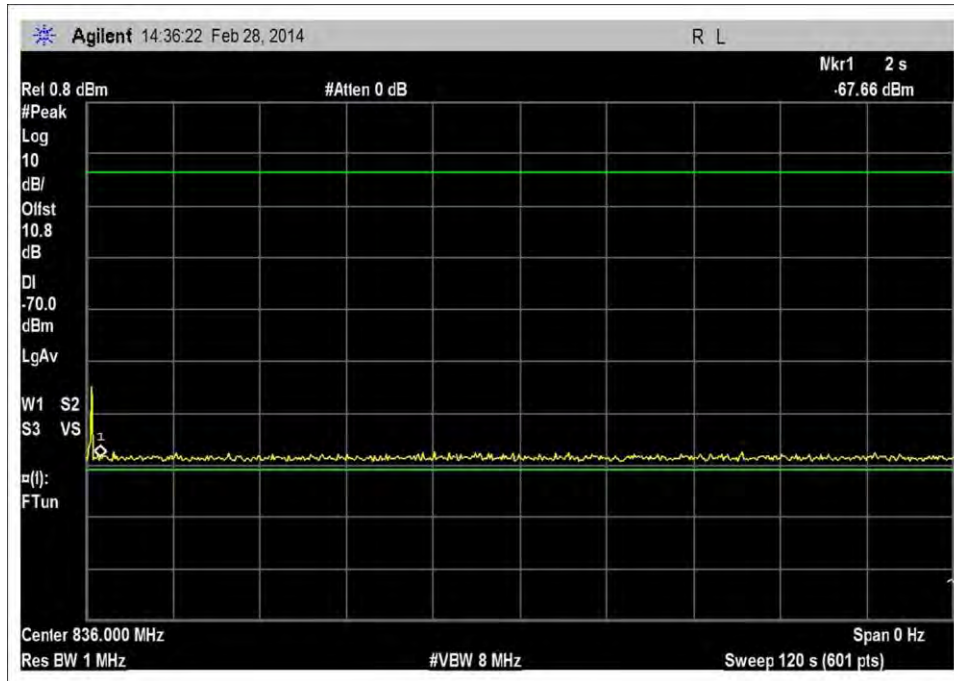
UL_698-716MHz_120s



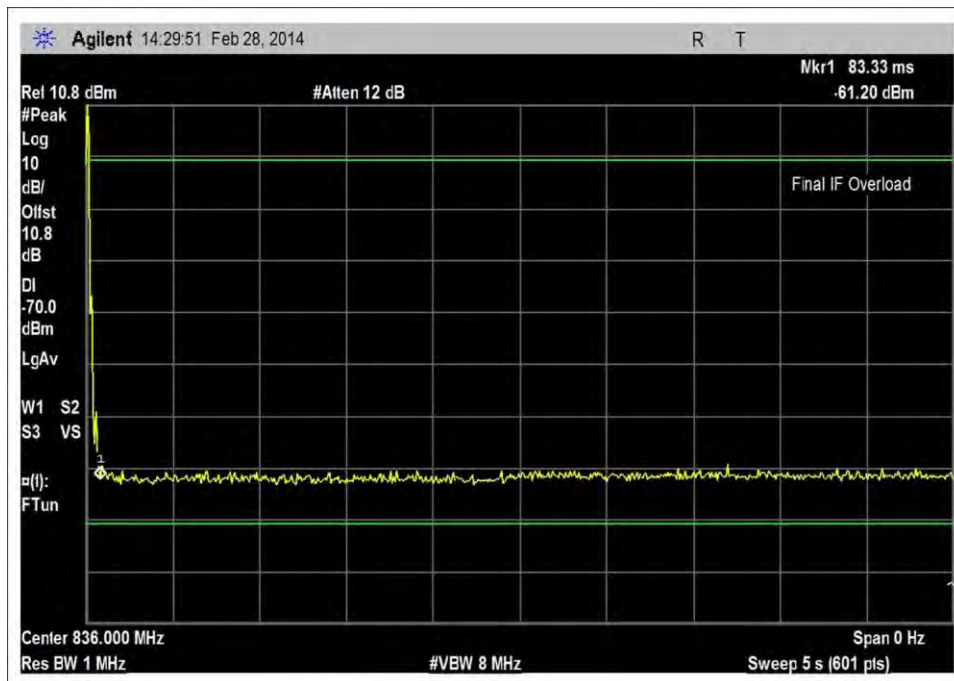
UL_698-716MHz_Single



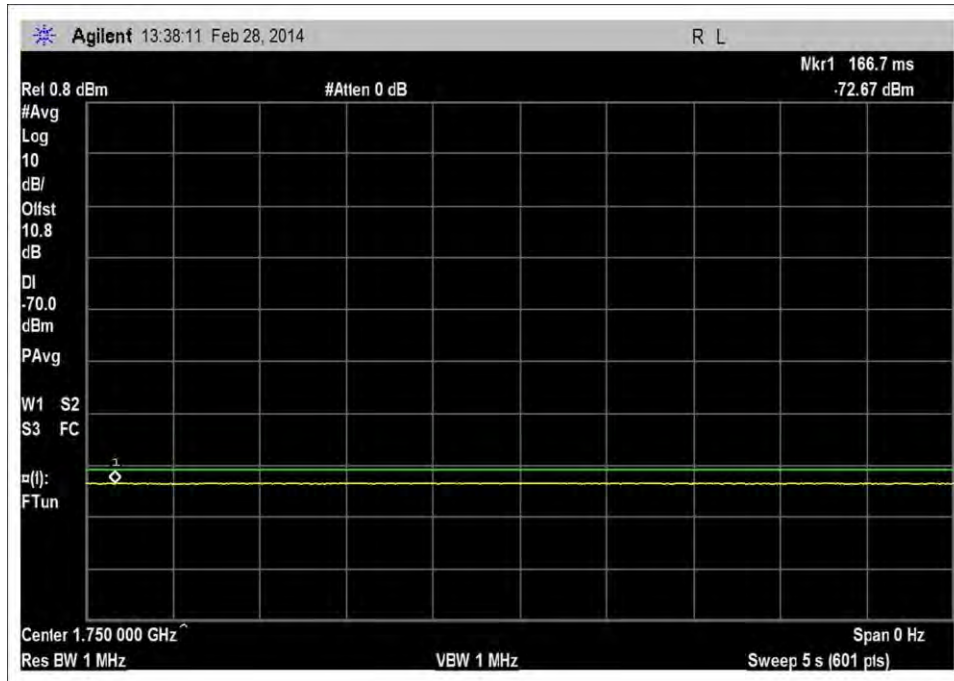
UL_824-849MHz_-70dBm



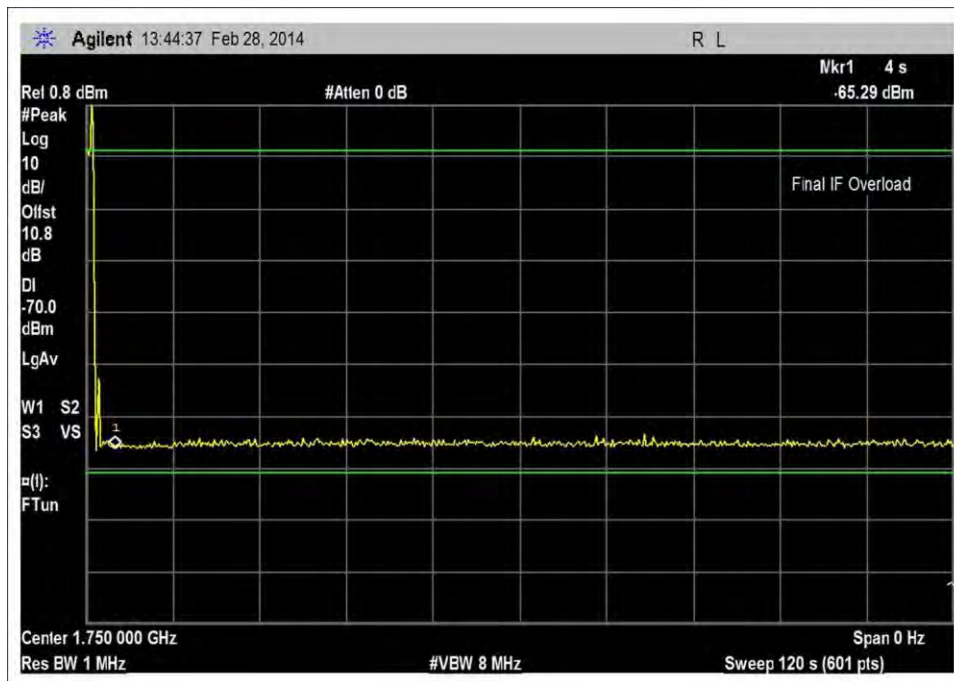
UL_824-849MHz_120s



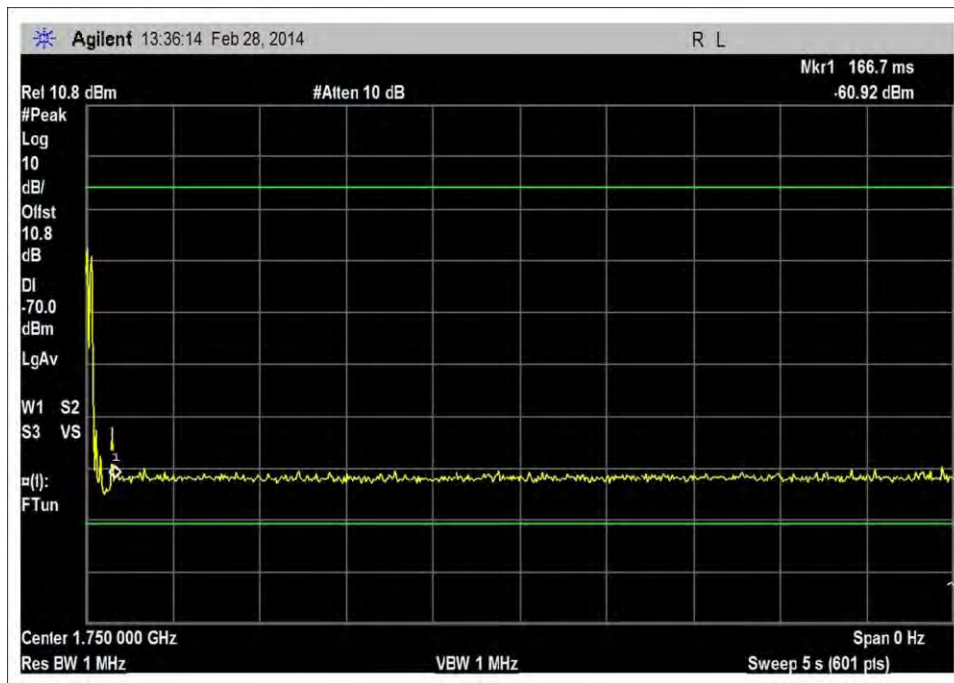
UL_824-849MHz_Single



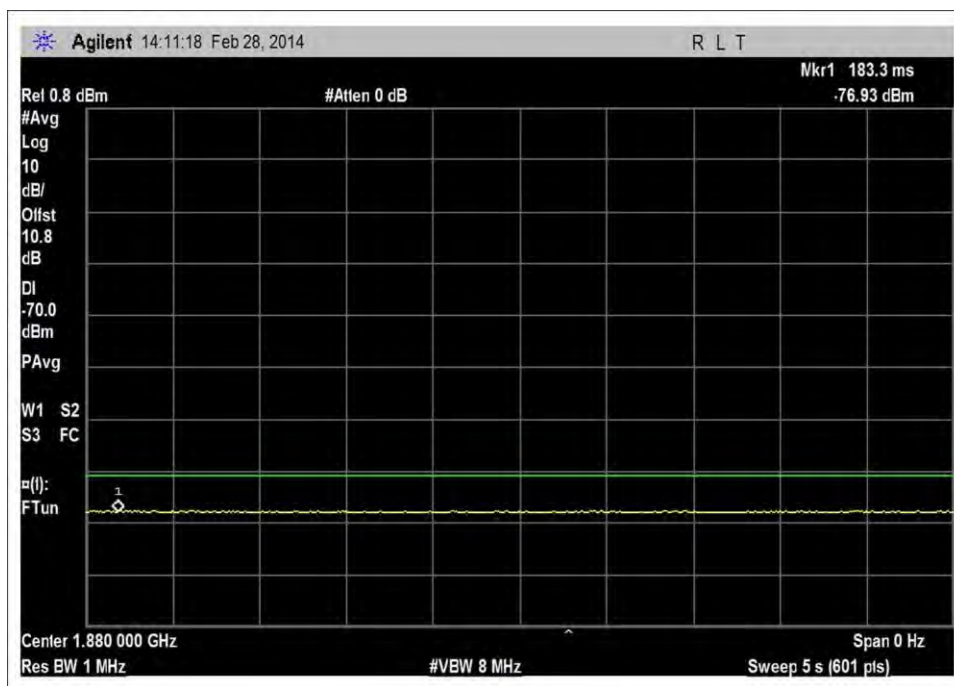
UL_1710-1755MHz_-70dBm



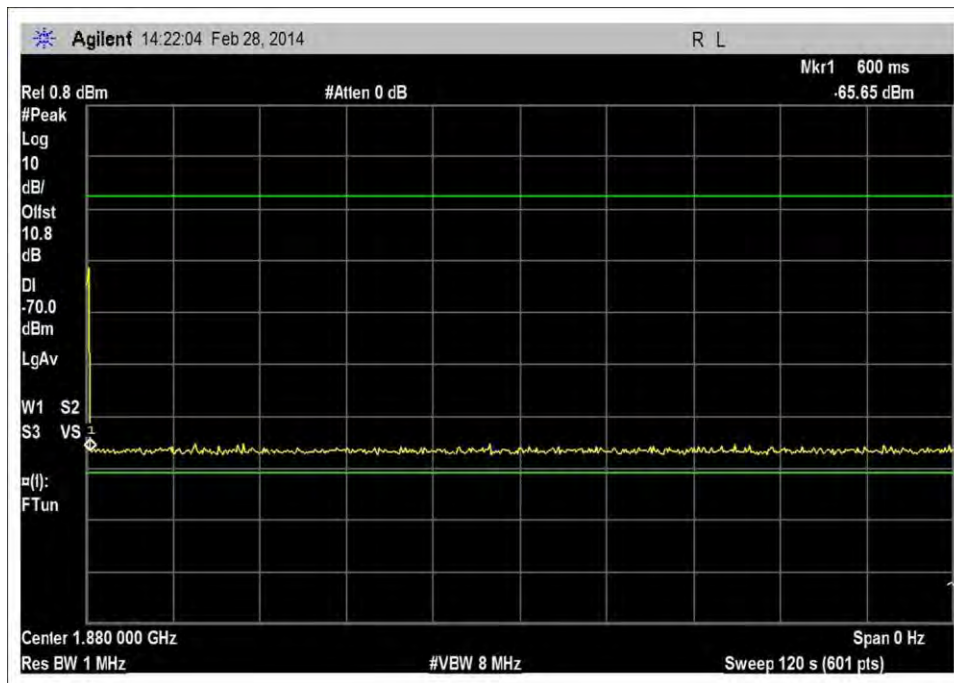
UL_1710-1755MHz_120sec



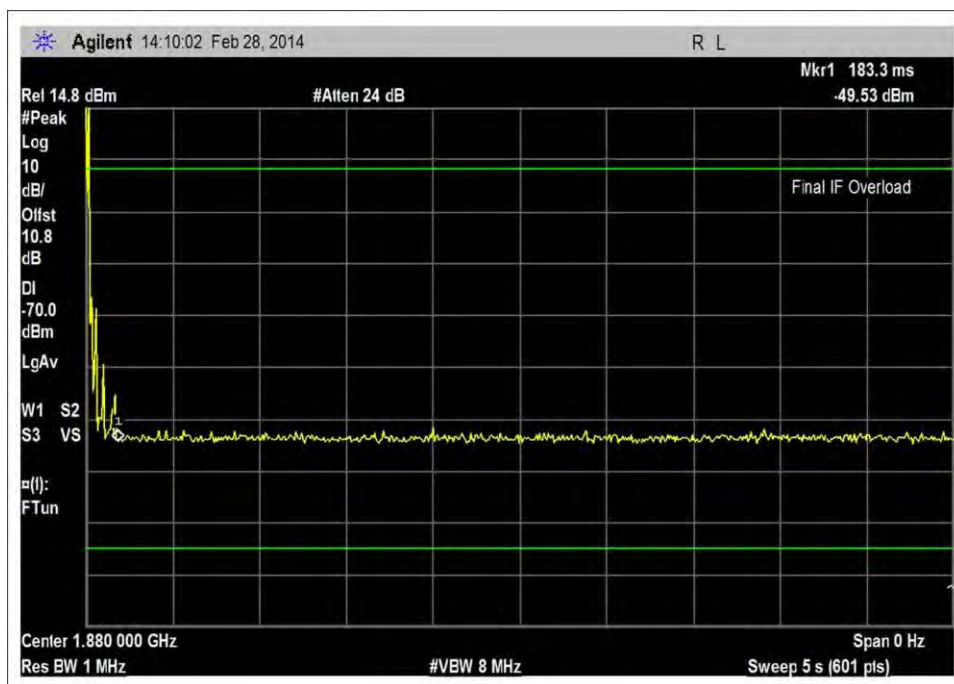
UL_1710-1755MHz_Single



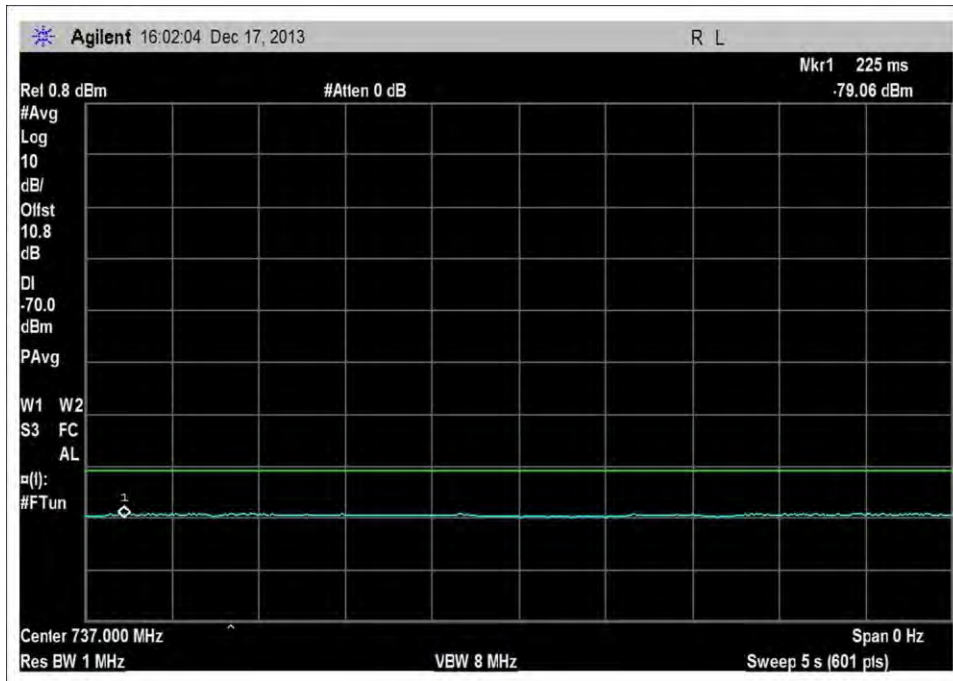
UL_1850-1915MHz_-70dBm



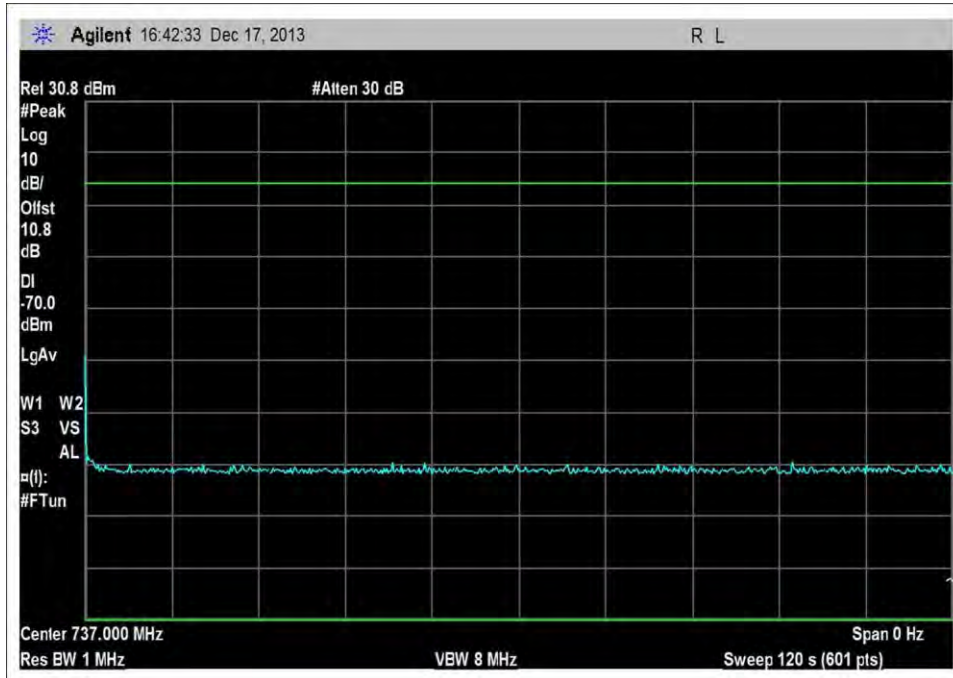
UL_1850-1915MHz_120sec



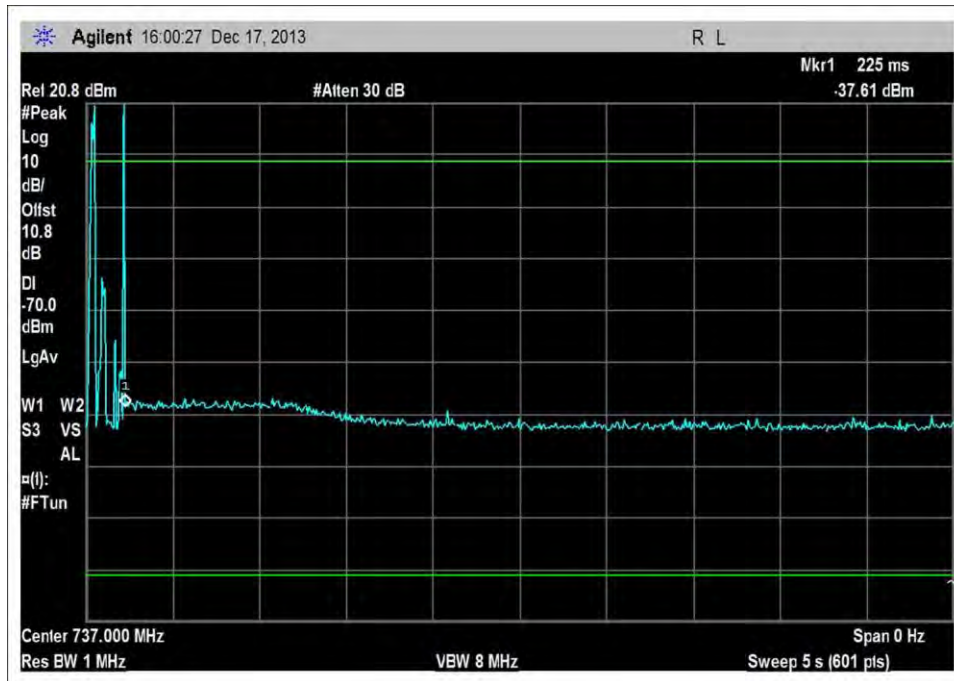
UL_1850-1915MHz_Single



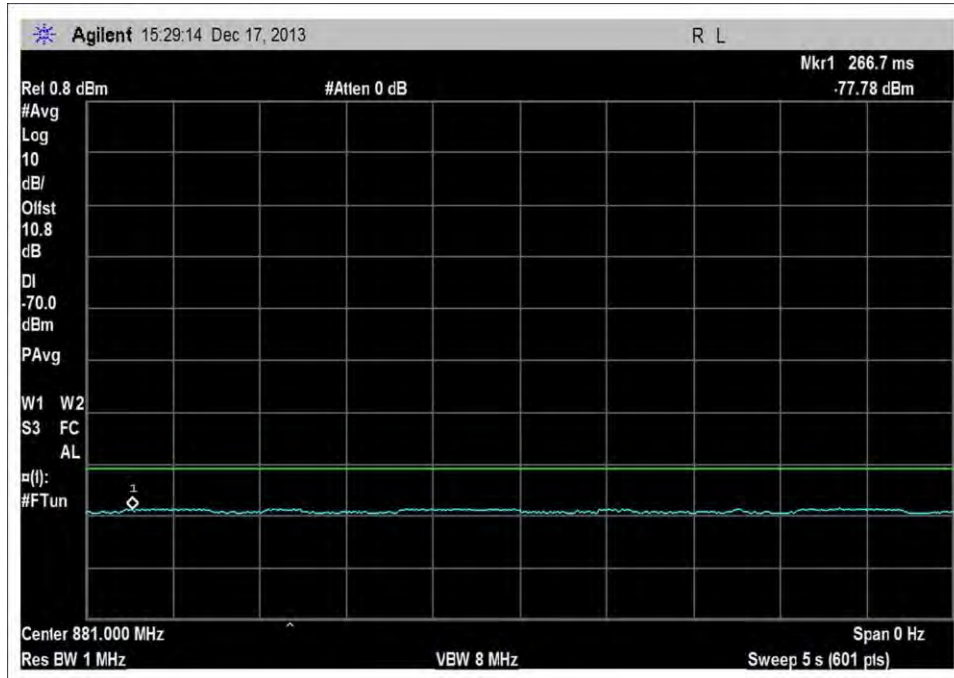
DL_716-746MHz_Single-70dBm



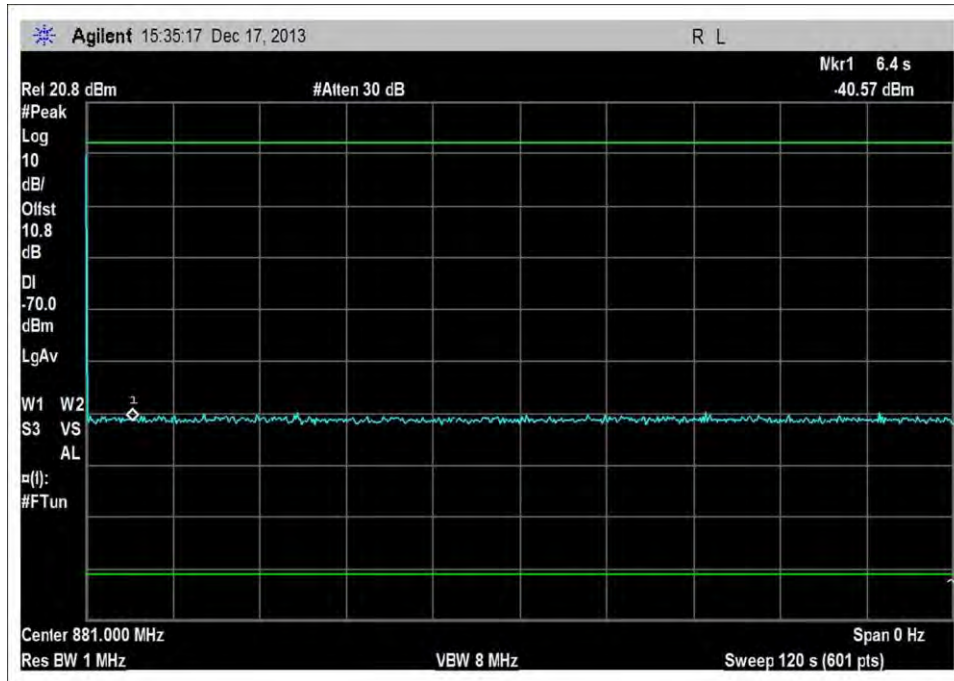
DL_716-746MHz_Single-120sec



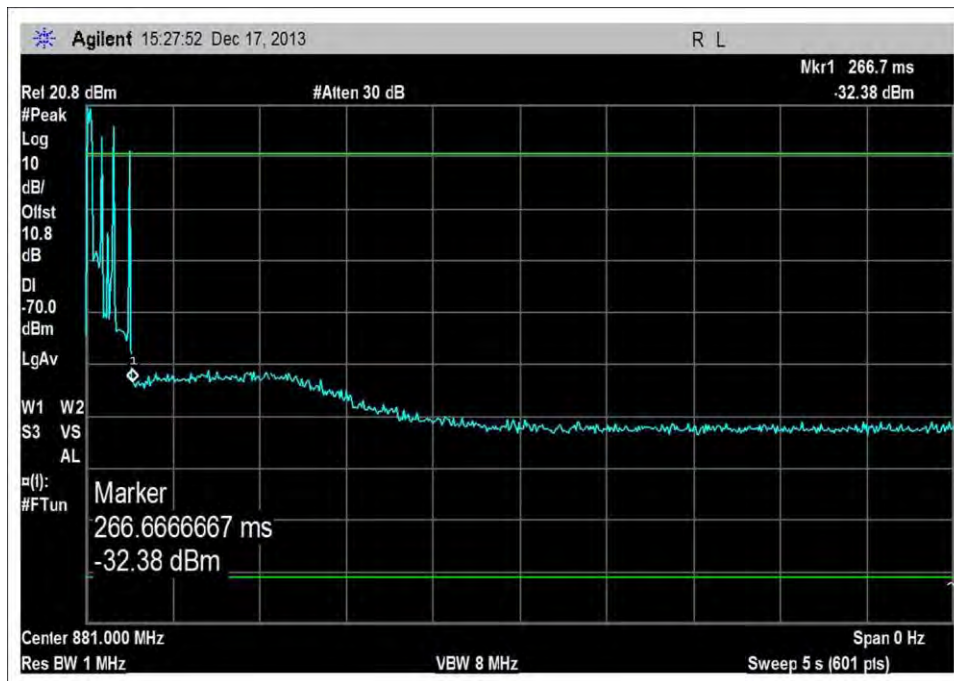
DL_716-746MHz_Single



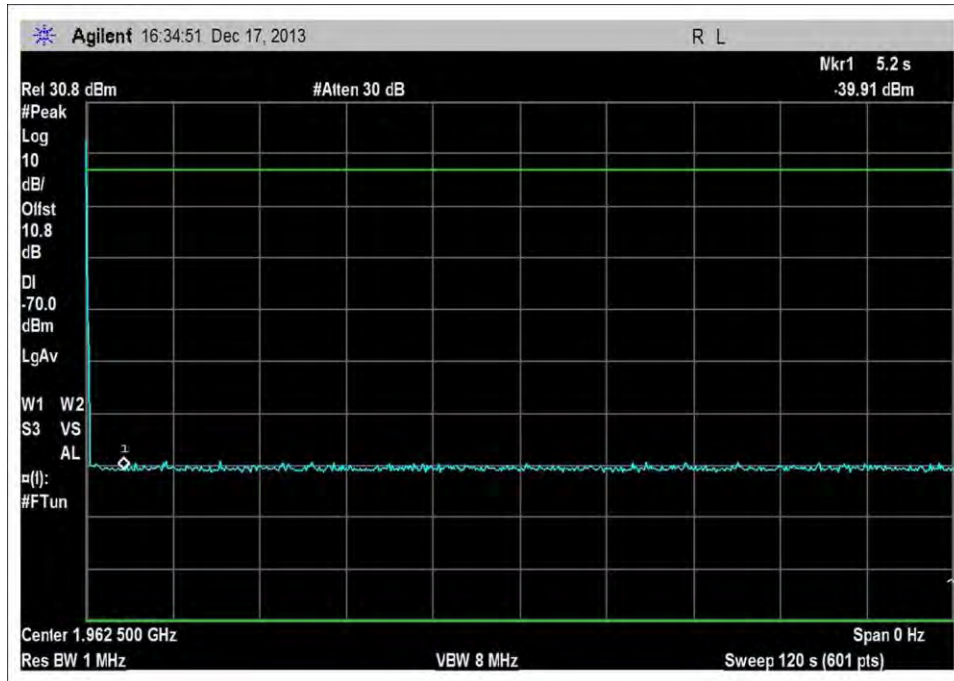
DL_869-894MHz_Single_-70dBm



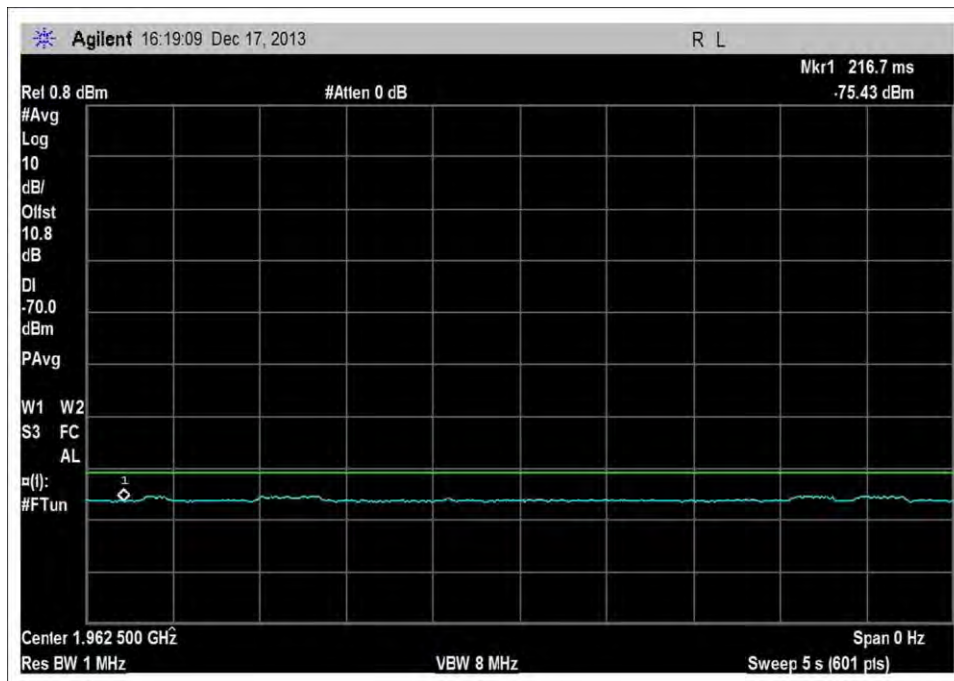
DL_869-894MHz_Single_-120sec



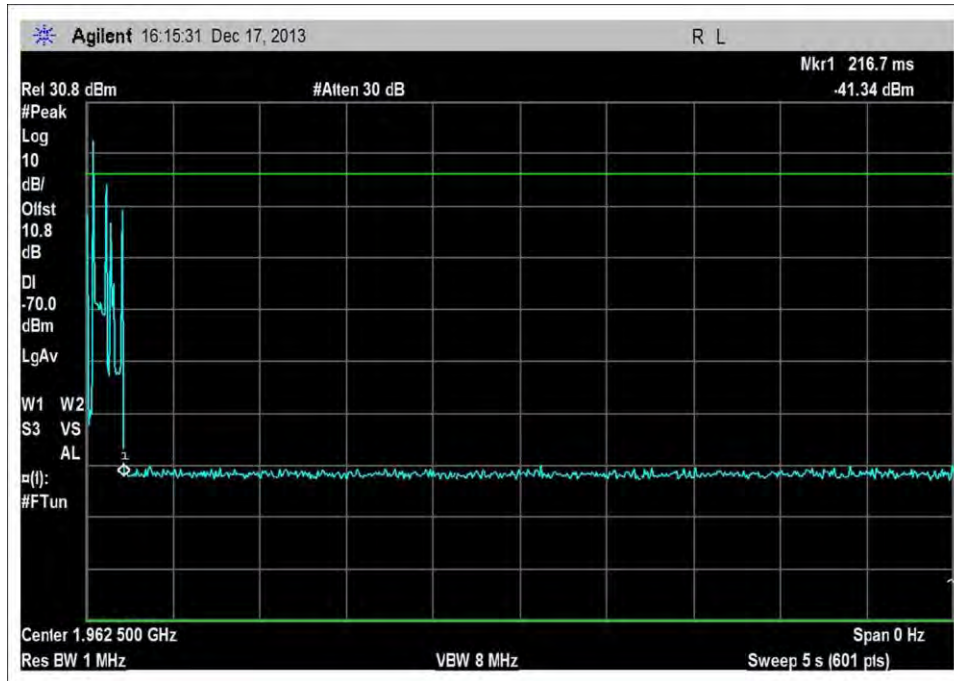
DL_869-894MHz_Single



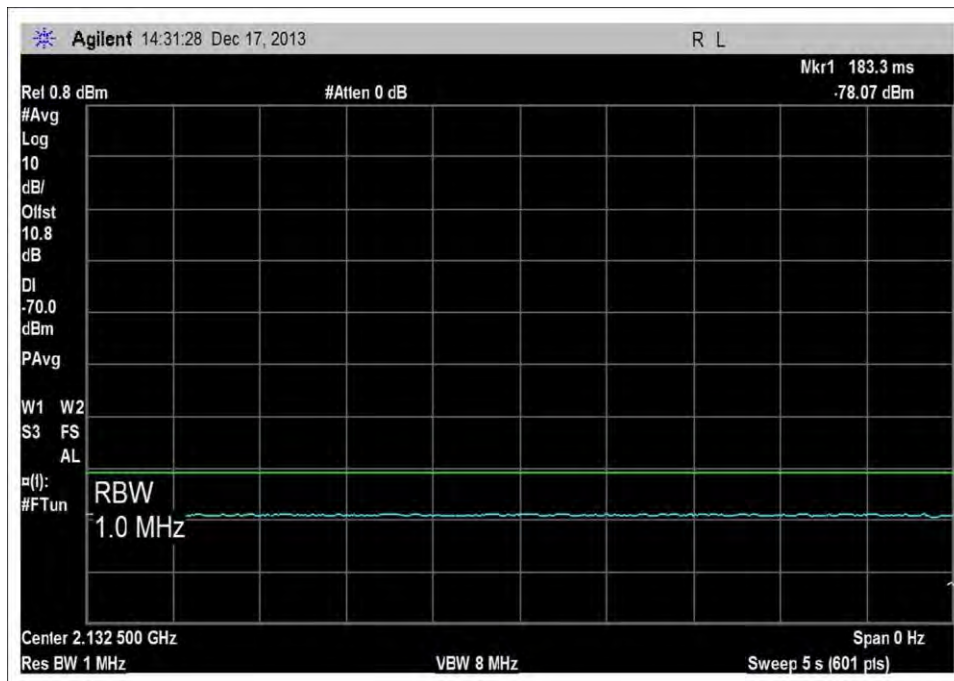
DL_1930-1995MHz_Single_120sec



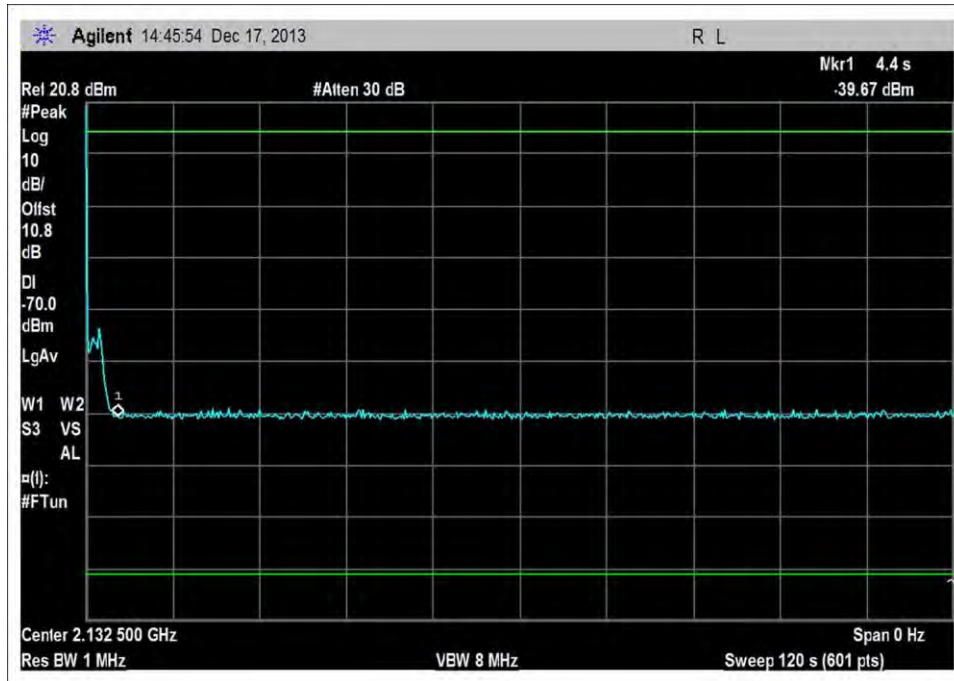
DL_1930-1995MHz_Single-70dBm



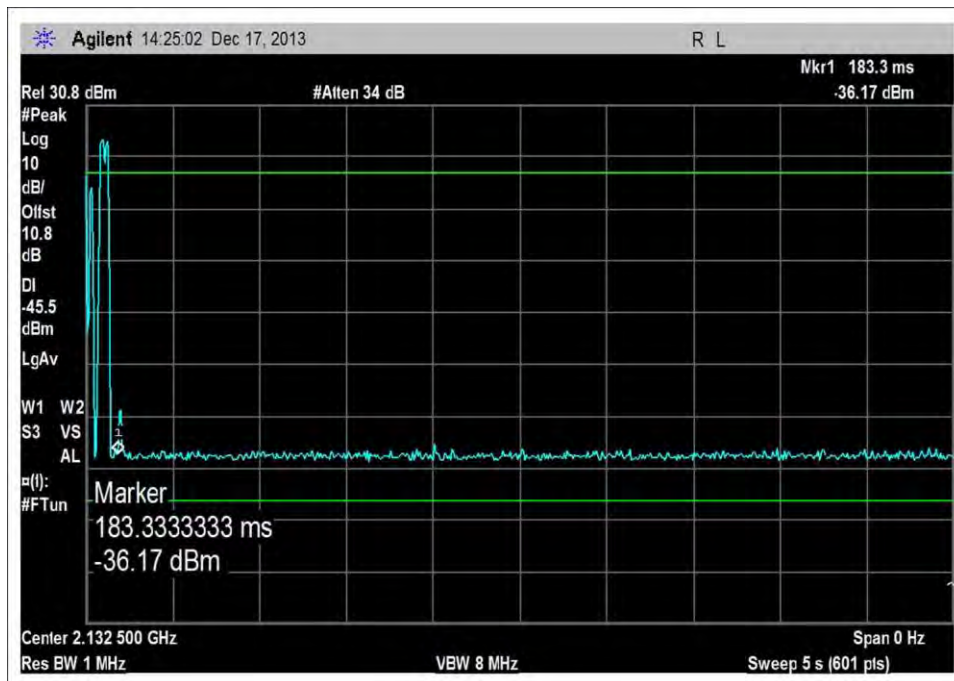
DL_1930-1995MHz_Single



DL_2110-2155MHz_Single_-70dBm



DL_2110-2155MHz_Single_120sec



DL_2110-2155MHz_Single

Clause 7.13 Spectrum Block Filter

Section 7.13 not applicable because the EUT does not utilize spectrum block filtering.

Clause 7.14 Out of Band Gain Limits

Test Conditions / Setup

Test Location: CKC Laboratories • 110 Olinda Place • Brea, CA 92823 • 714-993-6112

Customer: **Nextivity, Inc.**

Specification: **7.14 Out of Band Gain**

Work Order #: **94857** Date: 12/12/2013

Test Type: **Conducted Emissions** Time: 09:43:00

Equipment: **Provider Specific Consumer Signal Booster** Sequence#: 2

Manufacturer: Nextivity, Inc. Tested By: E. Wong

Model: Cel-Fi P34-2/4/5/12 110V 60Hz

S/N: 170931000035, 171341000018

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
T2	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12CU	171341000018
Provider Specific Consumer Signal Booster	Nextivity, Inc.	Cel-Fi P34-2/4/5/12NU	170931000035

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	ITE Power Supply	PW173	NA
Power Supply	ITE Power Supply	PW173	NA
Signal Generator	Agilent	E4438C	MY42082260

Test Conditions / Notes:

The EUT is provider specific signal booster pair consisted of a Network unit (NU) and a Coverage unit (CU) using proprietary 5.8GHz Wireless interface.

The EUT is manufacturer configurable to operate in relay bandwidth of 5MHz, 10MHz, 15MHz and 20MHz within the CMRS band by setting the Spectrum Block Filter, Gain and other operational parameter based on received public land mobile network (PLMN) ID. For testing purposes, only spectrum block filter of 5MHz will be evaluated.

The two EUTs are placed on the test bench, connected via coax cable, combiner and 50 dB attenuators. The unit not under evaluation is placed in shielded enclosure to improve RF isolation. UNII Tx /RX port of NU is connected to UNII TX/RX port of CU.

Evaluation are conducted at Donor power Port band 2, band 12, band 5 and band 4, Server port band 5/4, band 2/12.

Signal: 10MHz AWGN, 4.1MHz AWGN.

UL = 698-716MHz, 824-849MHz, 1850-1915MHz, 1710-1755MHz

DL = 716-746MHz, 869-894MHz, 1930-1990MHz, 2110-2155MHz

Test environment conditions:
 Temperature - 17°C
 Relative Humidity - 24%
 Pressure - 100kPa

Testing is performed in accordance with Provider Specific Booster test procedure 935210 D04 Provider Specific Booster Measurement DR06-41704, dated 03/06/14.

Summary of Results

Summary:

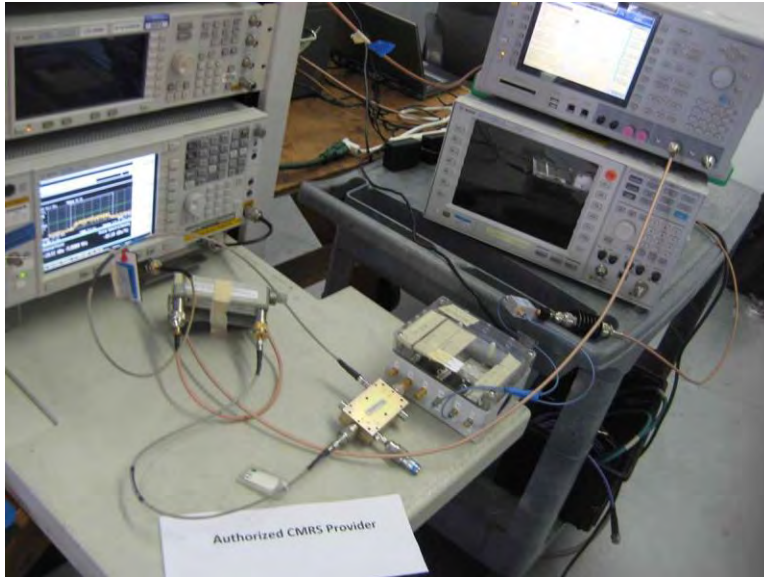
The results demonstrate compliance to the following requirement.

Procedure Sec #	Guidance Description	FCC Sec #	FCC Rule Description
7.14	Out of Band Gain Limits	20.21(e)(9)(i)(E)	Out of Band Gain Limits

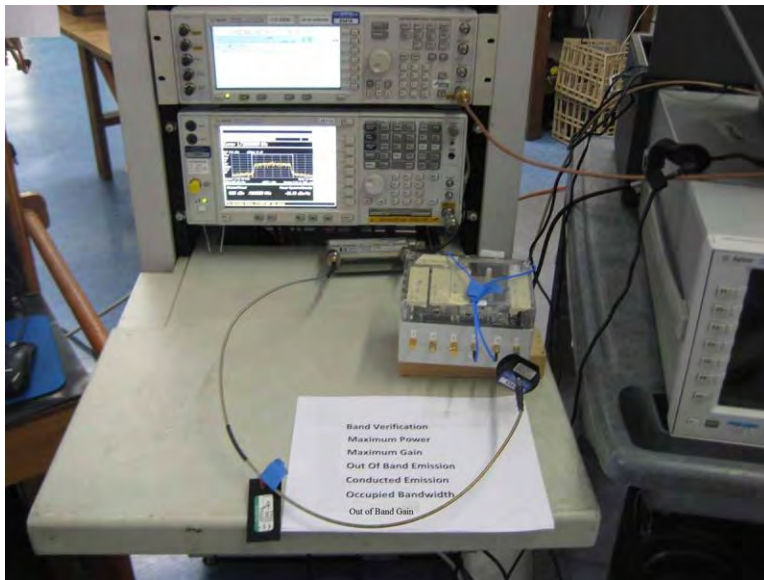
Input (dBm)				
	-1 MHz	-0.2 MHz	0.2MHz	1MHz
UL 1710-1755	-60.4	-63.8	-61.6	-60.6
UL 1850-1915	-61.7	-62.2	-63.0	-63.2
UL 824-849	-58.6	-60.1	-60.2	-58.1
UL 698-716	-59.7	-60.2	-60.8	-60.0
DL 2110-2155	-52.7	-55.7	-53.6	-52.6
DL 1930-1995	-61.0	-61.7	-63.4	-64.3
DL 869-894	-58.3	-58.3	-58.5	-57.9
DL 716-746	-59.5	-58.8	-59.2	-61.1
Output (dBm)				
	-1MHz	-0.2 MHz	0.2MHz	1MHz
UL 1710-1755	-33.4	-34.0	-33.7	-33.6
UL 1850-1915	-36.1	-33.2	-33.7	-36.0
UL 824-849	-37.3	-36.7	-38.1	-36.0
UL 698-716	-36.1	-34.5	-34.9	-33.2
DL 2110-2155	-34.7	-32.1	-30.5	-34.3
DL 1930-1995	-39.1	-33.6	-38.0	-37.9
DL 869-894	-35.3	-33.3	-30.4	-31.5
DL 716-746	-37.7	-34.6	-34.7	-36.6

Gain (dB)				
	-1 MHz	-0.2 MHz	0.2MHz	1MHz
UL 1710-1755	27.0	29.8	27.9	27.0
UL 1850-1915	25.6	29.0	29.3	27.2
UL 824-849	21.3	23.4	22.2	22.1
UL 698-716	23.6	25.7	26.0	26.8
DL 2110-2155	18.0	23.6	23.1	18.3
DL 1930-1995	21.9	28.1	25.3	26.3
DL 869-894	23.0	25.0	28.1	26.4
DL 716-746	21.8	24.2	24.5	24.5
Limit	45.0	60.0	60.0	45.0
Margin (dB)				
UL 1710-1755	-18.0	-30.2	-32.1	-18.1
UL 1850-1915	-19.4	-31.0	-30.7	-17.8
UL 824-849	-23.7	-36.6	-37.8	-22.9
UL 698-716	-21.4	-34.3	-34.0	-18.2
DL 2110-2155	-27.0	-36.5	-36.9	-26.7
DL 1930-1995	-23.1	-31.9	-34.7	-18.7
DL 869-894	-22.0	-35.0	-31.9	-18.6
DL 716-746	-23.2	-35.8	-35.5	-20.5

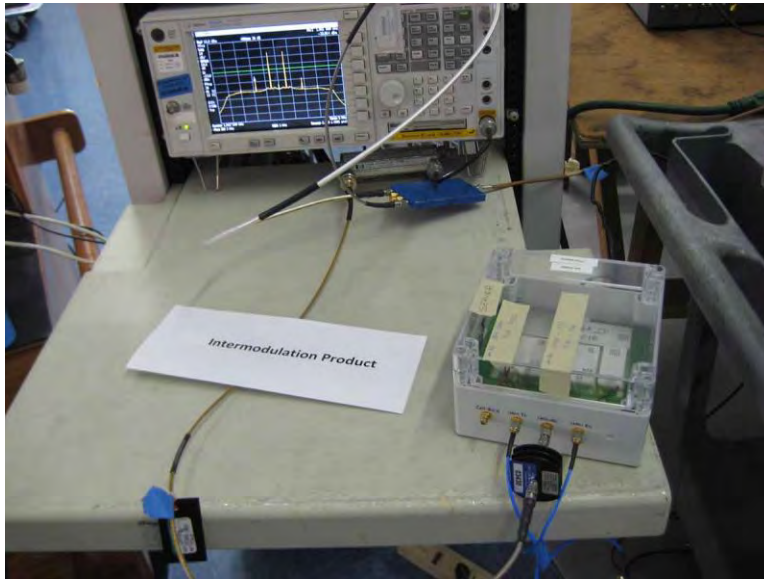
Test Setup Photos



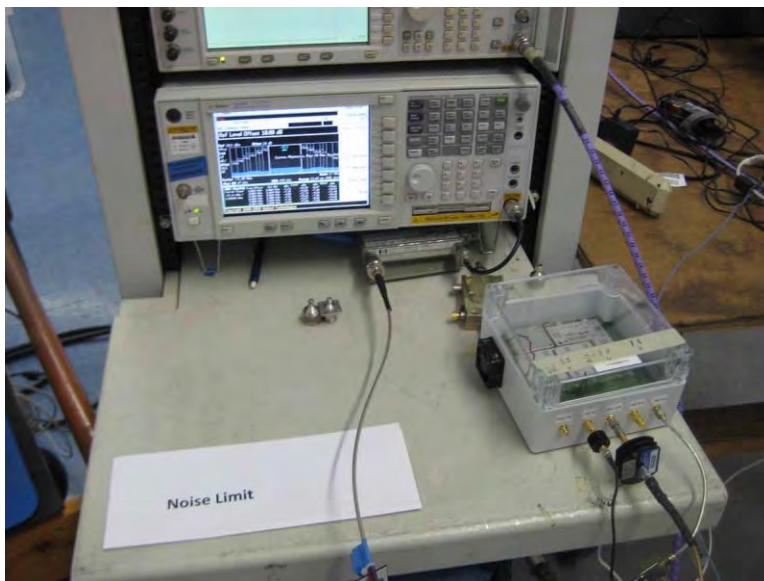
Note: The above test setup photo applies to § 7.1.



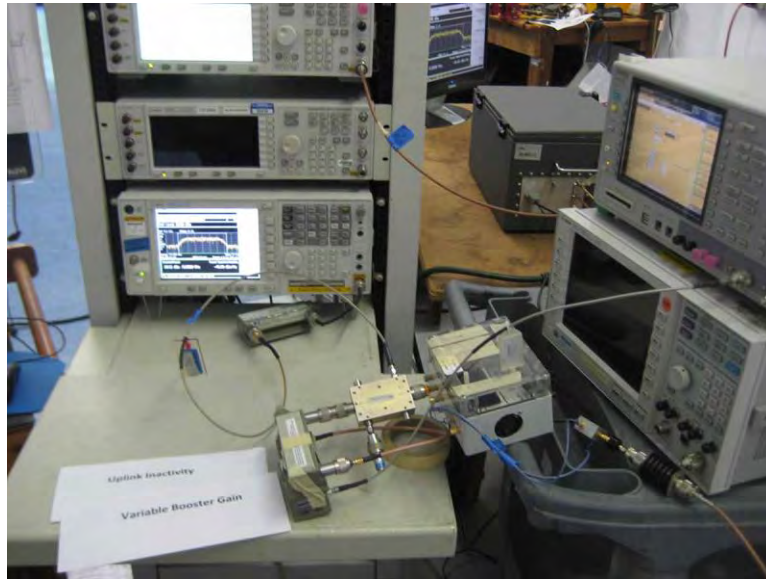
Note: The above test setup photo applies to §§ 7.1, 7.2, 7.3, 7.5, 7.10, and 7.14.



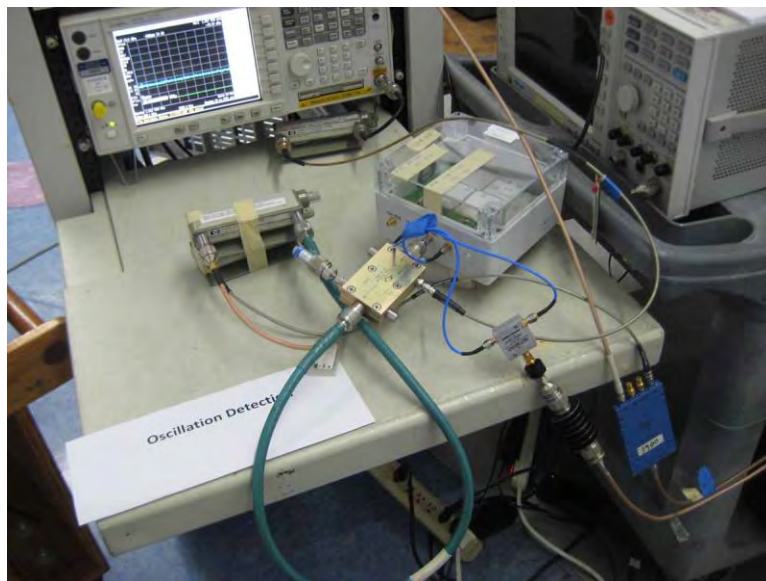
Note: The above test setup photo applies to § 7.4.



Note: The above test setup photo applies to § 7.7.



Note: The above test setup photo applies to §§ 7.8 and 7.9.



Note: The above test setup photo applies to § 7.11.