

SolidRF Communication Co., Ltd

ADDENDUM TO TEST REPORT 95763-13

Signal Booster
Model: SR25652001

Tested To The Following Standards:

FCC Part 20.21

Report No.: 95763-13A

Date of issue: December 8, 2014



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.

TABLE OF CONTENTS

Administrative Information4

 Test Report Information4

 Revision History4

 Report Authorization4

 Test Facility Information5

 Software Versions5

 Site Registration & Accreditation Information5

 Summary of Results6

 Conditions During Testing6

 Equipment Under Test7

 Peripheral Devices7

FCC Part 20.218

 Clause 7.1 Authorized Frequency Band Verification8

 Summary of Results9

 Clause 7.2 Maximum Power18

 Summary of Results19

 Clause 7.3 Maximum Gain22

 Summary of Results23

 Clause 7.4 Intermodulation Product24

 Summary of Results25

 Clause 7.5 Out of Band Emissions36

 Summary of Results37

 Clause 7.7 Noise limit130

 Summary of Results131

 Clause 7.8 Uplink Inactivity147

 Summary of Results148

 Clause 7.9 Booster Gain Limit151

 Summary of Results153

 Clause 7.11 Oscillation Detection159

 Summary of Results160



Exhibit A: Test Setup Photos.....	177
Appendix A: Customer Provided Information	180
Supplemental Information	181
Measurement Uncertainty	181
Emissions Test Details.....	181

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

SolidRF Communication Co., Ltd
E3 Building, Fenghuang Third Industry
China

Representative: Chi Yu

REPORT PREPARED BY:

Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 95763

DATE OF EQUIPMENT RECEIPT:

September 12, 2014

DATE(S) OF TESTING:

September 12 - October 7, 2014

Revision History

Original: Testing of the Signal Booster, SR25652001 to FCC Part 20.21.

Addendum A: To insert into the Summary of results table corrected section correlations for FCC Part 20.21 testing.

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

KDB 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01, July 24, 2014		FCC Part 20.21 Section Correlation		Results
Guidance Sec #	Guidance Description	FCC Sec #	FCC Rule Description	
7.1 A) – k)	Authorized Frequency band Verification test	20.21(e)(3) 20.21(e)(4)	Frequency Bands	Pass
7.2.2 a) - r)	Maximum Power Measurement procedure	20.21(e)(8)(i)(D) 20.21(e)(8)(i)(B)	Power Limit	Pass
7.3 a) – d)	Maximum Booster Gain Computation	20.21(e)(8)(i)(B) 20.21(e)(8)(i)(C)(2)	Bidirectional Capabilities	Pass
7.4 a) – n)	Intermodulation Product	20.21(e)(8)(i)(F)	Intermodulation Limit	Pass
7.5 a) – n)	Out of Band Emissions	20.21(e)(8)(i)(E)	Out of Band Emission	Pass
7.6 a) – m)	Conducted Spurious emission	Part 2.1051/22/24/27	Spurious emission	NA ¹
7.7 a) – g) 7.7 h) – m) 7.7 n) – u)	Noise Limit procedure Variable Noise Variable Noise Timing	20.21(e)(8)(i)(A)(2) 20.21(e)(8)(i)(A)(1) 20.21(e)(8)(i)(H)	Noise Limits Transmit power off mode	Pass
7.8 a) – l)	Uplink inactivity	20.21(e)(8)(i)(I)	Uplink inactivity	Pass
7.9 a) – l) 7.9 m) – s)	Variable Booster gain Variable Uplink Gain Timing	20.21(e)(8)(i)(C) (1) 20.21(e)(8)(i)(H)	Booster Gain Transmit power off mode	Pass
7.10.a) – j)	Occupied Band width	Part 2.1049/22/24/27	Occupied bandwidth	NA ¹
7.11 a) – r)	Anti-Oscillation	20.21(e)(8)(ii)(A)	Anti-Oscillation	Pass
7.12a) – f)	Radiated Spurious emission	Part 2.1053/22/24/27	Spurious emission	NA ¹
7.13 a) – d)	Spectrum block filter	20.21(e)(8)(i)(B) 20.21(e)(3)	Bidirectional Capabilities	NA ²

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

NA² = Not applicable because the EUT does not utilize spectrum block filtering.

Conditions During Testing

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

Summary of Conditions
During testing of section 7.7 Variable Noise a modification occurred: By pass two stage of amplifier in UL/DL path to comply with Transmit Off mode requirement.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Signal Booster

Manuf: SolidRF Communication Co., Ltd
Model: SR25652001
Serial: NA

PERIPHERAL DEVICES

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

Power Supply

Manuf: Generic
Model: MX18W1
Serial: NA

Signal Generator

Manuf: Agilent
Model: E4438C
Serial: MY42081492

Signal Generator

Manuf: Agilent
Model: E4433B
Serial: US40052164

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

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92821 • 714-993-6112

Customer: **SolidRF Communication Co., Ltd**
 Specification: **7.1 Authorized Frequency band Verification test**
 Work Order #: **95763** Date: 9/16/2014
 Test Type: **Conducted Emissions** Time: 08:40:44
 Equipment: **Signal Booster** Sequence#: 1
 Manufacturer: SolidRF Communication Co., Ltd Tested By: E. Wong
 Model: SR25652001 110V 60Hz
 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Signal Booster*	SolidRF Communication Co., Ltd	SR25652001	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Generic	MX18W1	NA
Signal Generator	Agilent	E4438C	MY42081492
Signal Generator	Agilent	E4433B	US40052164

Test Conditions / Notes:

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

UL: 824-849, 1850-1915 MHz, 1710-1755MHz, 698-716MHz, 776-787MHz

DL: 869-894, 1930-1995 MHz, 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max.

Test environment conditions: Temperature: 23.9°C, Relative Humidity: 40%, Atmospheric Pressure: 100kPa

Test procedure:

The test was performed IAW section 7.1 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01 Dated July 24, 2014

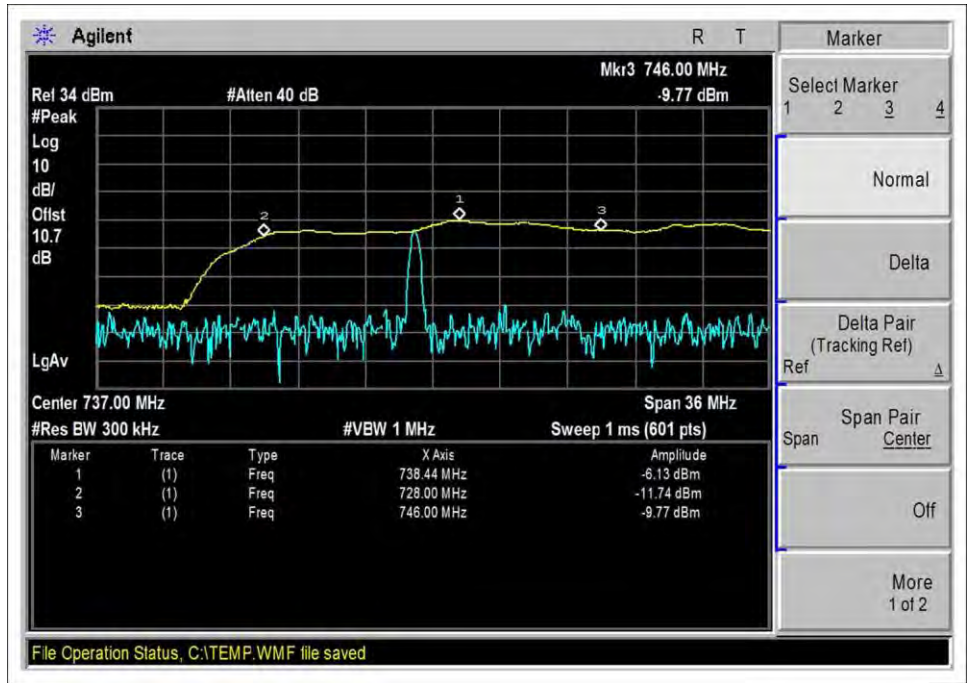
Firmware: Original

Note: RBW set at 300kHz to speed up the sweep, result is identical to RBW of 100kHz. 776-787MHz, 728-746MHz, 746-757MHz, extra plots (zoom) were captured with wider span to show adjacent band, showing the roll of. The markers indicated the operational band under investigation.

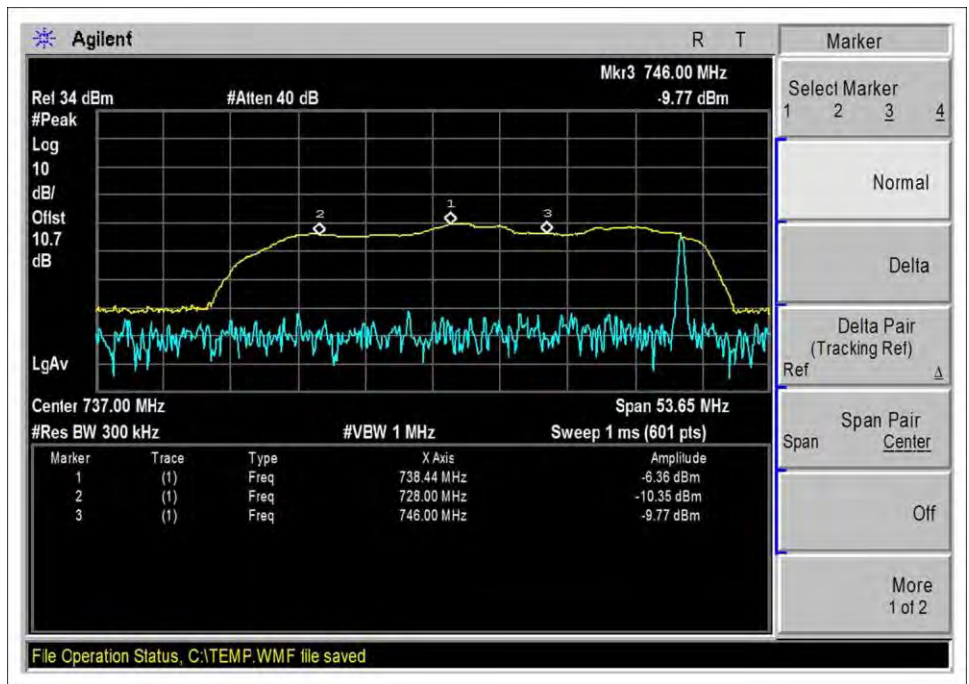
Summary of Results

Pass: The plots below show the device only operates on the CMRS frequency bands authorized for use by the NPS.

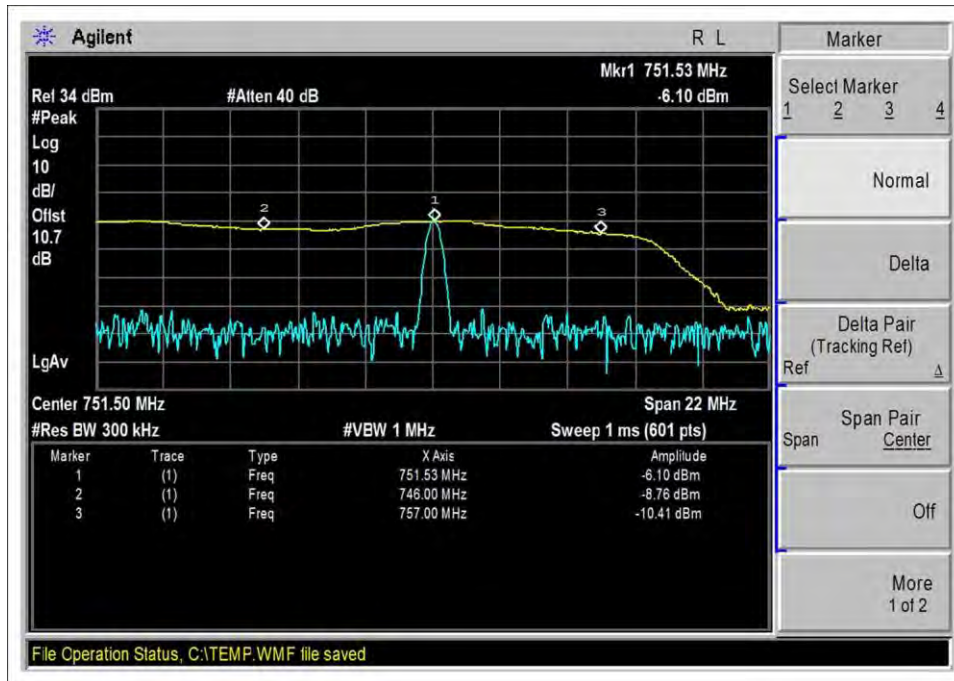
Test Data



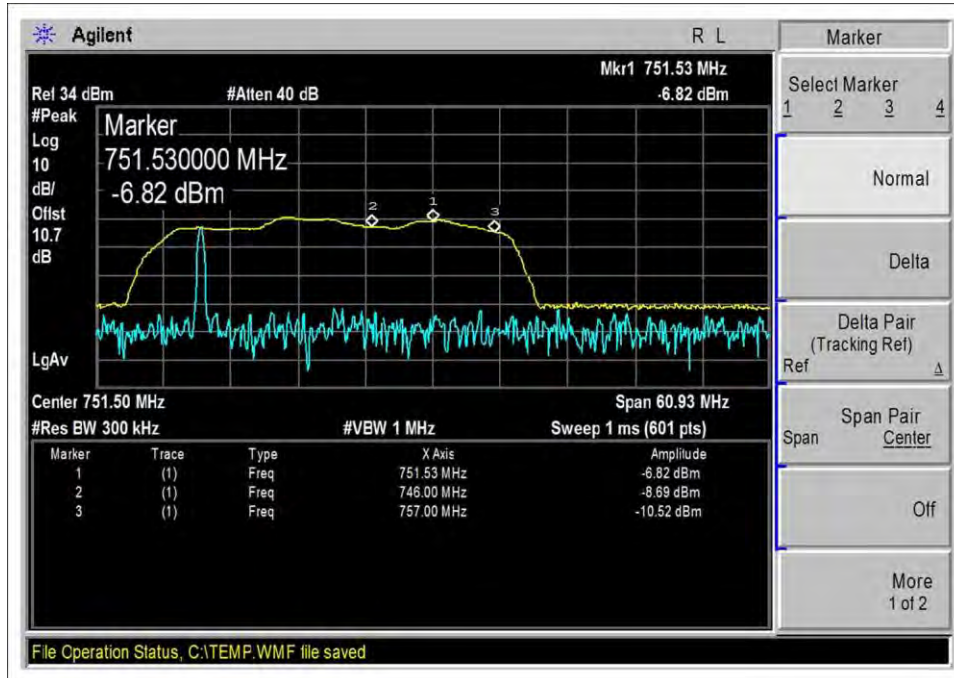
DL_728-746MHz



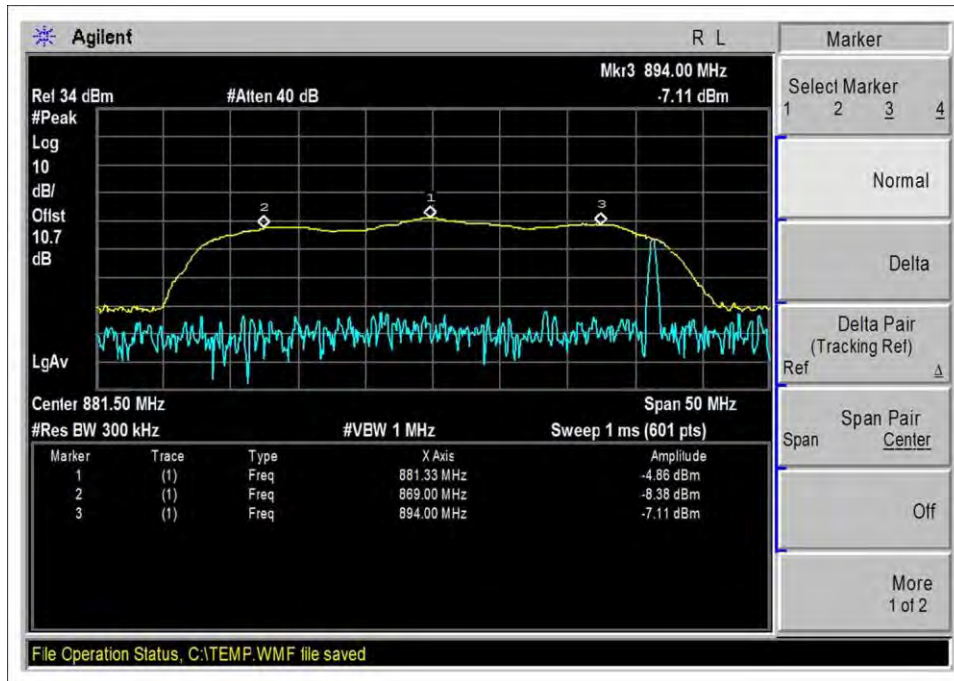
DL_728-746MHz_zoom



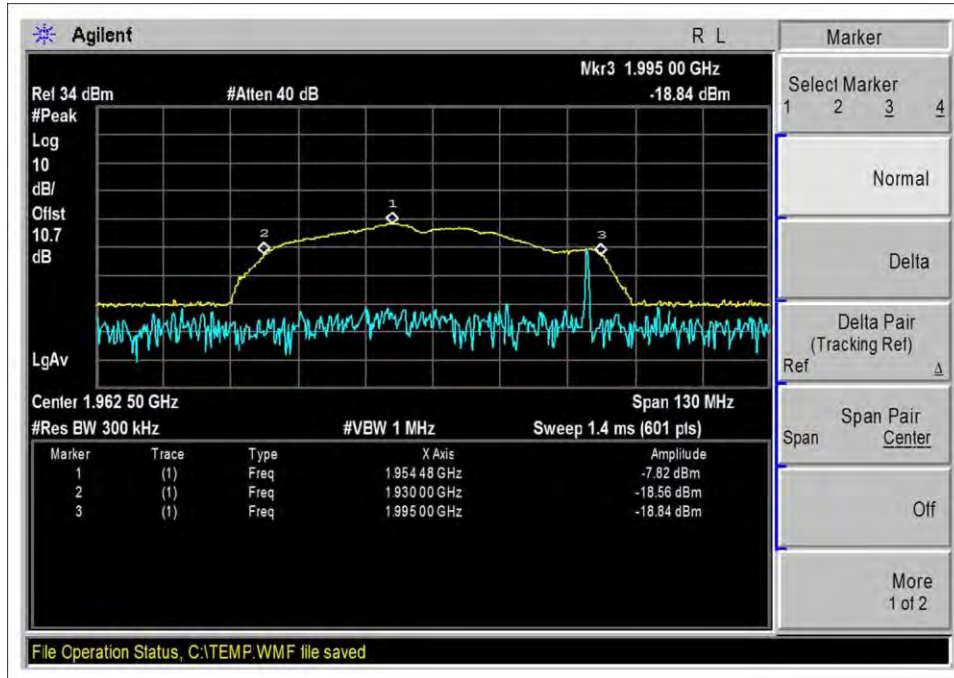
DL_746-757MHz



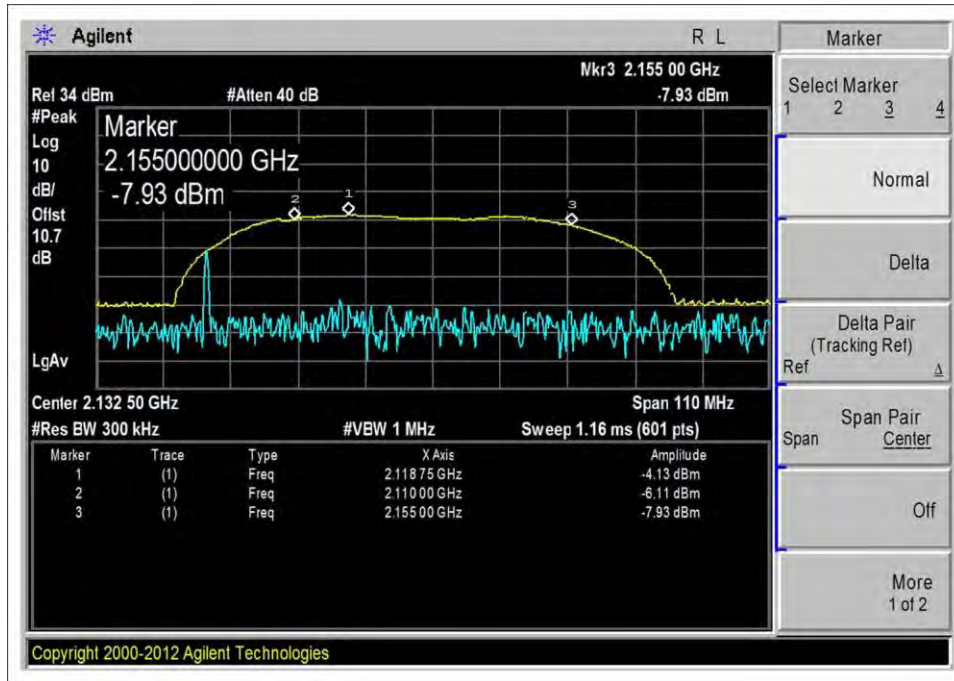
DL_746-757MHz_zoom



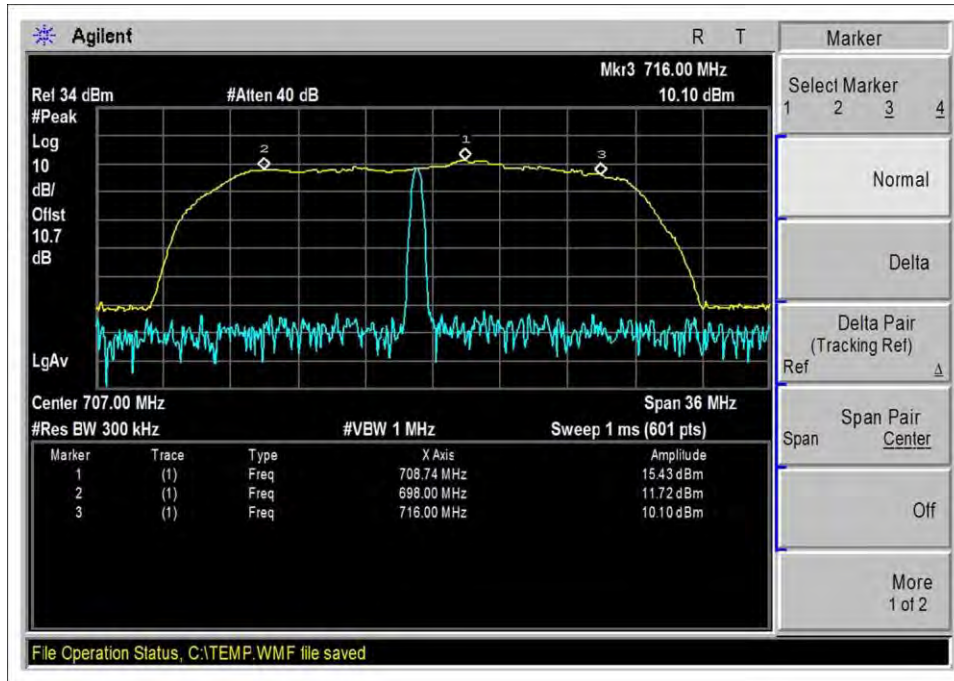
DL_869-894MHz



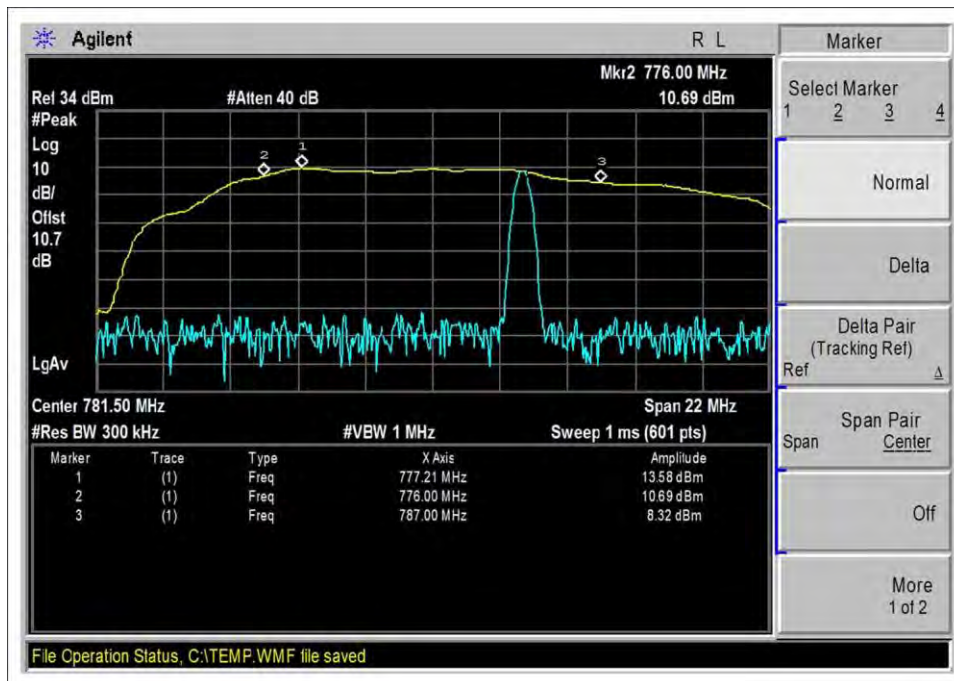
DL_1933-1995MHz



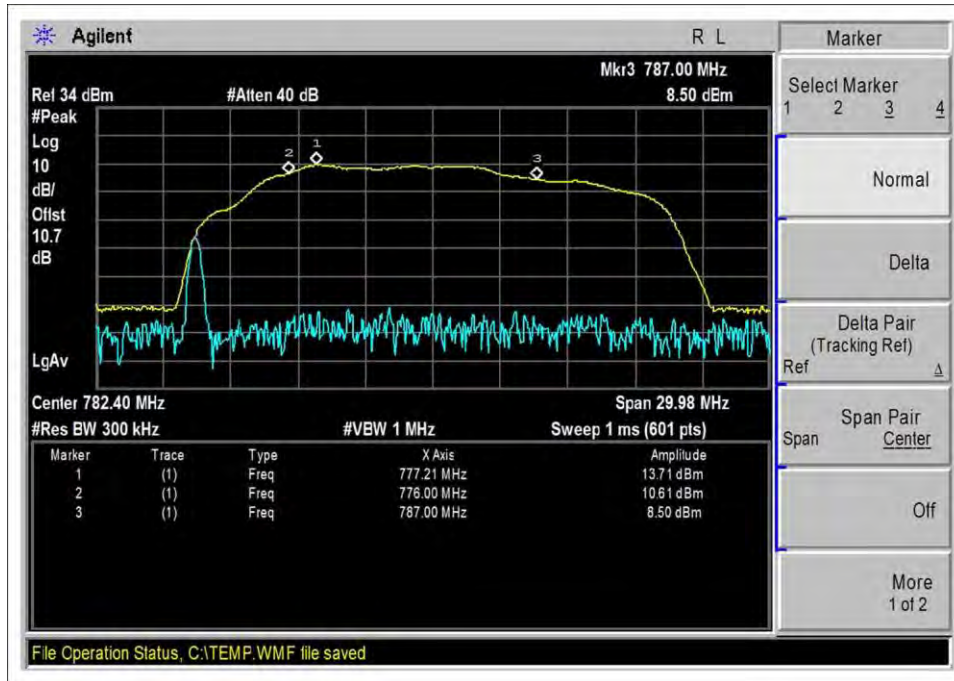
DL_2110-2155MHz



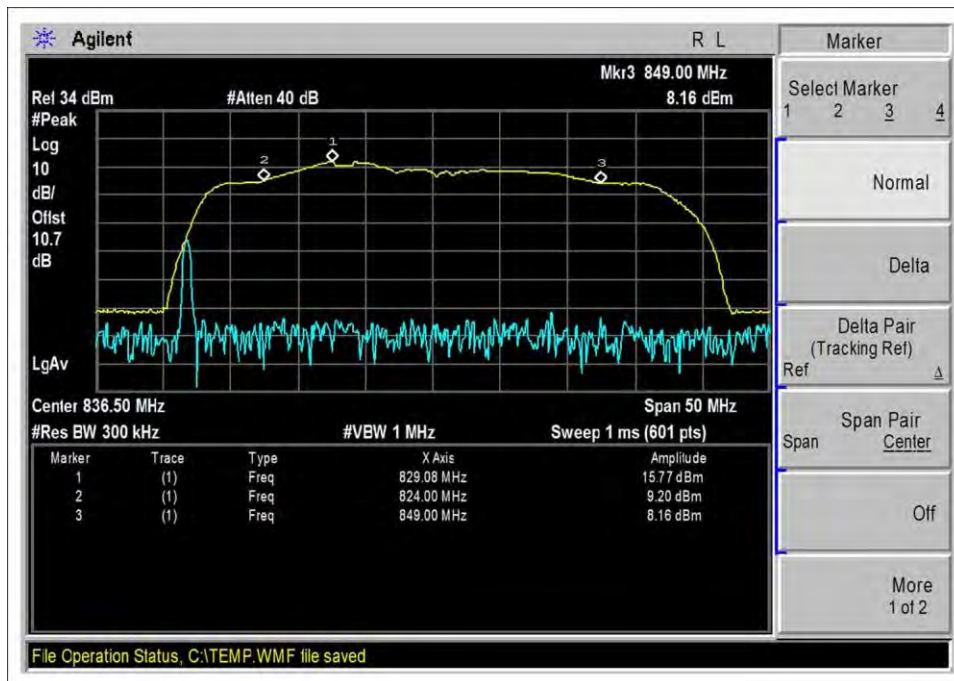
UL_698-716MHz



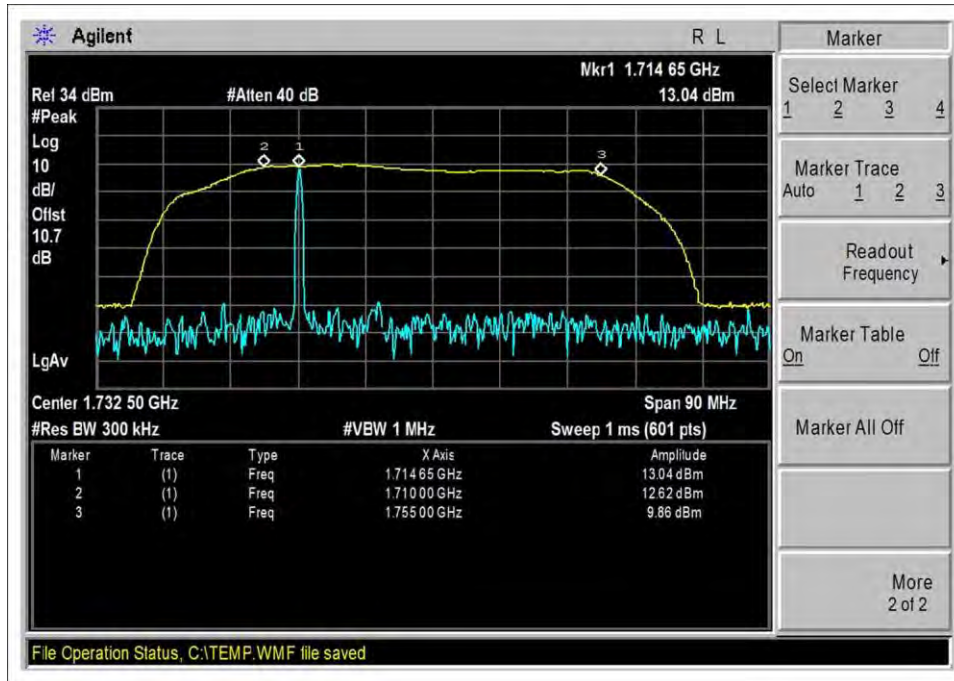
UL_776-787MHz



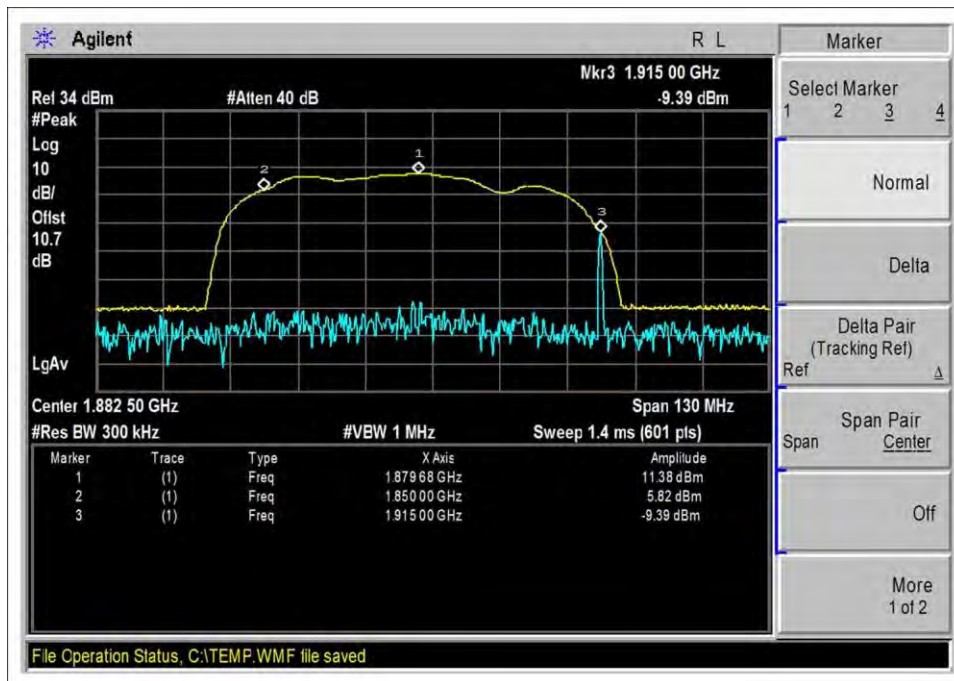
UL_776-787MHz_zoom



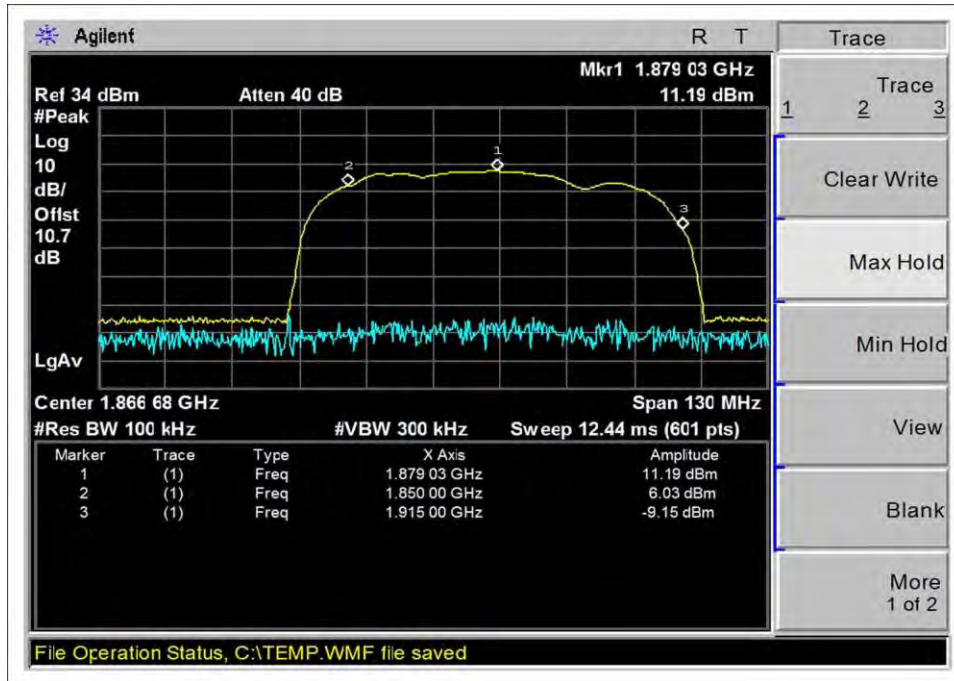
UL_824-849MHz



UL_1710-1755MHz



UL_1850-1915MHz



UL_1850-1915MHz

Clause 7.2 Maximum Power

Test Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92821 • 714-993-6112

Customer: **SolidRF Communication Co., Ltd**
 Specification: **7.2 Maximum Power Measurement procedure**
 Work Order #: **95763** Date: 9/16/2014
 Test Type: **Conducted Emissions** Time: 08:40:44
 Equipment: **Signal Booster** Sequence#: 1
 Manufacturer: SolidRF Communication Co., Ltd Tested By: E. Wong
 Model: SR25652001 110V 60Hz
 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Signal Booster*	SolidRF Communication Co., Ltd	SR25652001	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Generic	MX18W1	NA
Signal Generator	Agilent	E4438C	MY42081492
Signal Generator	Agilent	E4433B	US40052164

Test Conditions / Notes:

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

UL: 824-849, 1850-1915 MHz, 1710-1755MHz, 698-716MHz, 776-787MHz
 DL: 869-894, 1930-1995 MHz, 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max.

Test environment conditions: Temperature: 23.9°C, Relative Humidity: 40%, Atmospheric Pressure: 100kPa

Test procedure:

The test was performed IAW section 7.2 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01 Dated July 24, 2014

Firmware: Original

The booster is to be deployed with antenna kit with the following characteristic./

Frequency	Ant Gain	Cable Loss
UL1710-1755	9.5dBi	2.55dB(30feet)
UL1850-1915	9.5dBi	2.9dB(30feet)
UL824-894	8dBi	1.95dB(30feet)
UL 698-716	7dBi	1.9dB(30feet)
UL777-787	7dBi	1.9dB(30feet)
DL2110-2155	10dBi	1.7-1.9dB(20feet)
DL1930-1995	10dBi	1.8dB(20feet)
DL869-894	7dBi	1.35dB(20feet)
DL:728-746	7dBi	1.3dB(20feet)
DL 746-757	7dBi	1.3dB(20feet)

Summary of Results

Pass: as summarized in table below, Measure EIRP, Gain, and UL/DL gain ratio are within limit.

Frequency	Pre AGC Pulse GSM			Pre AGC 4.1 MHz AWGN		
	Input(dBm)	Output (dBm)	Gain (dB)	Input(dBm)	Output (dBm)	Gain(dB)
UL1710-1755	-54.6	13.6	68.2	-51.3	16.3	67.6
UL1850-1915	-51.4	16.0	67.4	-47.9	19.4	67.3
UL824-894	-46.2	15.7	61.8	-42.3	17.7	60.0
UL 698-716	-45.6	14.7	60.3	-42.8	17.5	60.3
UL776-787	-46.5	15.4	61.9	-40.8	19.3	60.1
DL2110-2155	-69.2	-3.6	65.6	-68.8	-1.5	67.3
DL1930-1995	-74.8	-7.1	67.7	-72.1	-5.4	66.7
DL869-894	-65.9	-2.9	62.9	-63.0	-0.6	62.4
DL:728-746	-66.0	-5.4	60.6	-63.9	-3.9	60.0
DL 746-757	-63.1	-4.3	58.8	-61.7	-2.6	59.1

Pulse GSM

Frequency	Output Power	Ant Gain	Cable Loss	EIRP(dBm)	Limit Min(dBm)	Limit Max(dBm)
UL1710-1755	13.6	9.5	2.55	20.5	17	30
UL1850-1915	16.0	9.5	2.9	22.6	17	30
UL824-894	15.7	8	1.95	21.7	17	30
UL 698-716	14.7	7	1.9	19.8	17	30
UL776-787	15.4	7	1.96	20.4	17	30
DL2110-2155	-3.6	10	1.7	4.7	NA	17
DL1930-1995	-7.1	10	1.8	1.1	NA	17
DL869-894	-2.9	7	1.35	2.7	NA	17
DL:728-746	-5.4	7	1.3	0.3	NA	17
DL 746-757	-4.3	7	1.3	1.4	NA	17
4.1MHz AWGN						
Frequency	Output Power	Ant Gain	Cable Loss	EIRP(dBm)	Limit Min(dBm)	Limit Max (dBm)
UL1710-1755	16.3	9.5	2.55	23.3	17	30
UL1850-1915	19.4	9.5	2.9	26.0	17	30
UL824-894	17.7	8	1.95	23.8	17	30
UL 698-716	17.5	7	1.9	22.6	17	30
UL776-787	19.3	7	1.96	24.4	17	30
DL2110-2155	-1.5	10	1.7	6.8	NA	17
DL1930-1995	-5.4	10	1.8	2.8	NA	17
DL869-894	-0.6	7	1.35	5.1	NA	17
DL:728-746	-3.9	7	1.3	1.8	NA	17
DL 746-757	-2.6	7	1.3	3.1	NA	17

section 5.5 power						
Frequency	Pulse GSM			4.1 MHz AWGN		
	Input(dBm)	Output (dBm)	Gain (dB)	Input(dBm)	Output (dBm)	Gain(dB)
UL1710-1755	-41.0	13.3	54.3	-38.3	16.1	54.4
UL1850-1915	-37.5	16.2	53.7	-35.8	19.6	55.4
UL824-894	-30.3	15.1	45.4	-30.2	17.7	47.9
UL 698-716	-30.9	14.8	45.7	-30.6	17.6	48.2
UL776-787	-29.5	16.1	45.6	-28.3	19.4	47.7
DL2110-2155	-55.2	-3.2	52.0	-53.5	-1.2	52.3
DL1930-1995	-62.4	-7.4	55.0	-59.7	-5.6	54.1
DL869-894	-49.9	-3.4	46.5	-49.0	-0.6	48.5
DL:728-746	-50.1	-5.4	44.7	-46.9	-3.1	43.8
DL 746-757	-47.1	-5.1	42.0	-45.3	-2.7	42.7

Note: The booster went into Transmitter off mode at Max input power of 0dBm (UL) and -20 dBm (DL). Result presented in the above table is at 1 dB below the Transmit off RF input level. This table is for reference only.

Clause 7.3 Maximum Gain

Test Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92821 • 714-993-6112

Customer:	SolidRF Communication Co., Ltd		Date: 9/16/2014
Specification:	7.3 Maximum Booster Gain Computation		Time: 08:40:44
Work Order #:	95763		Sequence#: 1
Test Type:	Conducted Emissions		Tested By: E. Wong
Equipment:	Signal Booster		110V 60Hz
Manufacturer:	SolidRF Communication Co., Ltd		
Model:	SR25652001		
S/N:	NA		

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Signal Booster*	SolidRF Communication Co., Ltd	SR25652001	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Generic	MX18W1	NA
Signal Generator	Agilent	E4438C	MY42081492
Signal Generator	Agilent	E4433B	US40052164

Test Conditions / Notes:

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

UL: 824-849, 1850-1915 MHz, 1710-1755MHz, 698-716MHz, 776-787MHz
 DL: 869-894, 1930-1995 MHz, 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max.

Test environment conditions: Temperature: 23.9°C, Relative Humidity: 40%, Atmospheric Pressure: 100kPa

Test procedure:

The test was performed IAW section 7.3 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01 Dated July 24, 2014

Firmware: Original

Summary of Results

Pass: as summarized in table below.

Pre AGC				Pre AGC			UL Gain limit
Frequency	Input(dBm)	Pulse GSM Output (dBm)	Gain (dB)	4.1 MHz AWGN Input(dBm)	Output (dBm)	Gain(dB)	
UL1710-1755	-54.6	13.6	68.2	-51.3	16.3	67.6	71.3
UL1850-1915	-51.4	16.0	67.4	-47.9	19.4	67.3	72.0
UL824-894	-46.2	15.7	61.8	-42.3	17.7	60.0	64.7
UL 698-716	-45.6	14.7	60.3	-42.8	17.5	60.3	63.6
UL776-787	-46.5	15.4	61.9	-40.8	19.3	60.1	64.6
							DL Gain*
DL2110-2155	-69.2	-3.6	65.6	-68.8	-1.5	67.3	71.3
DL1930-1995	-74.8	-7.1	67.7	-72.1	-5.4	66.7	72.0
DL869-894	-65.9	-2.9	62.9	-63.0	-0.6	62.4	64.7
DL:728-746	-66.0	-5.4	60.6	-63.9	-3.9	60.0	63.6
DL 746-757	-63.1	-4.3	58.8	-61.7	-2.6	59.1	64.6

* Proposed max Down Link Gain limit.

	Pulse GSM	4.1MHz AWGN	Limit (dB)
UL gain vs DL gain 1710/2110	2.6	0.3	9.0
UL gain vs DL gain 1850/1930	-0.3	0.6	9.0
UL gain vs DL gain 824/869	-1.1	-2.4	9.0
UL gain vs DL gain 776/728	-0.3	0.3	9.0
UL gain vs DL gain 776/746	3.1	1.1	9.0

Clause 7.4 Intermodulation Product

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92821 • 714-993-6112

Customer:	SolidRF Communication Co., Ltd		
Specification:	7.4 Intermodulation Product		
Work Order #:	95763	Date:	9/16/2014
Test Type:	Conducted Emissions	Time:	08:40:44
Equipment:	Signal Booster	Sequence#:	1
Manufacturer:	SolidRF Communication Co., Ltd	Tested By:	E. Wong
Model:	SR25652001		110V 60Hz
S/N:	NA		

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
	C00087	Combiner	44000	010914	010916
	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Signal Booster*	SolidRF Communication Co., Ltd	SR25652001	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Generic	MX18W1	NA
Signal Generator	Agilent	E4438C	MY42081492
Signal Generator	Agilent	E4433B	US40052164

Test Conditions / Notes:

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

UL: 824-849, 1850-1915 MHz, 1710-1755MHz, 698-716MHz, 776-787MHz
 DL: 869-894, 1930-1995 MHz, 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max.

Test environment conditions: Temperature: 23.9°C, Relative Humidity: 40%, Atmospheric Pressure: 100kPa

Test procedure:
 The test was performed IAW section 7.4 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01 Dated July 24, 2014

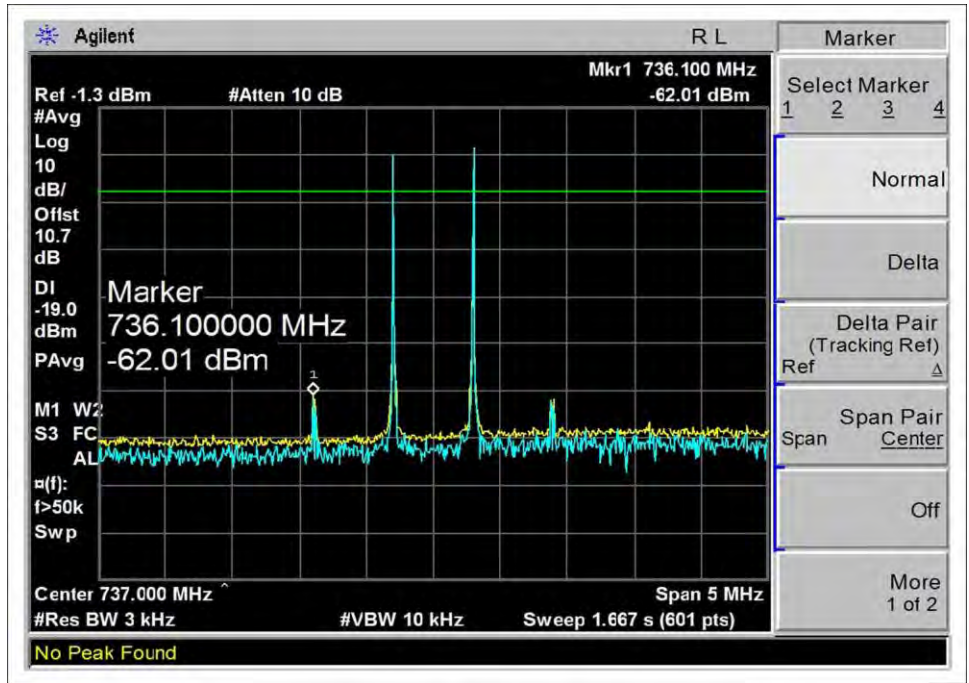
Firmware: Original

Summary of Results

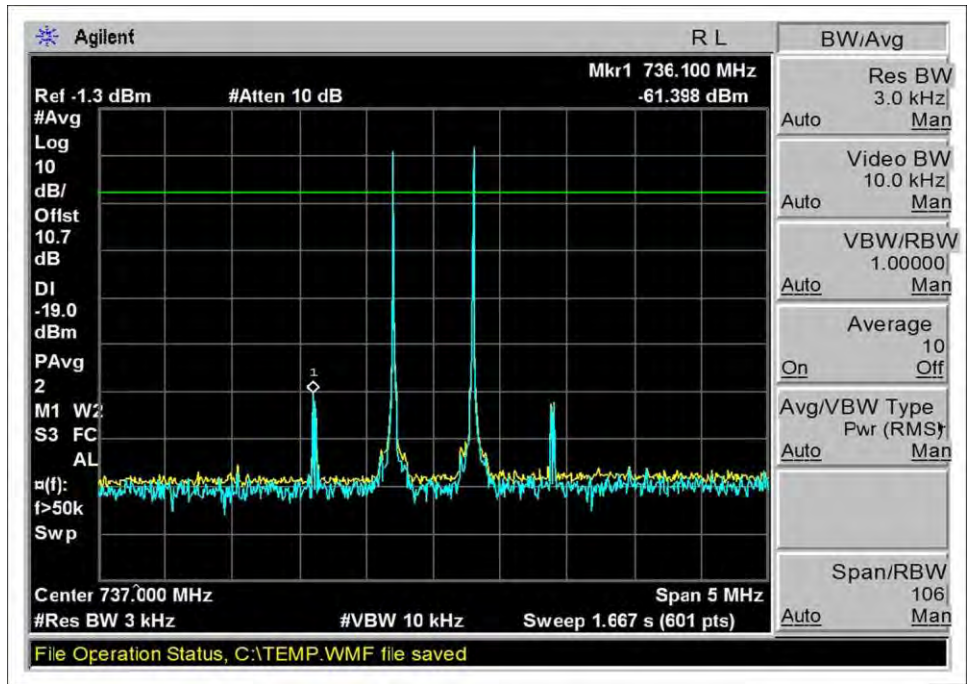
Pass: All intermodulation products are measured below -19dbm limit.

Freq MHz	Max Inter modulation product		Limit dBm
	Pre AGC dBm	AGC+10 dBm	
UL1710-1755	-25.9	-26.2	-19.0
UL1850-1915	-31.1	-31.6	-19.0
UL824-894	-34.2	-32.2	-19.0
UL 698-716	-25.6	-25.5	-19.0
UL776-787	-31.2	-31.0	-19.0
DL2110-2155	-58.8	-58.8	-19.0
DL1930-1995	-66.1	-71.7	-19.0
DL869-894	-55.9	-57.1	-19.0
DL:728-746	-62.0	-61.4	-19.0
DL 746-757	-62.7	-65.4	-19.0

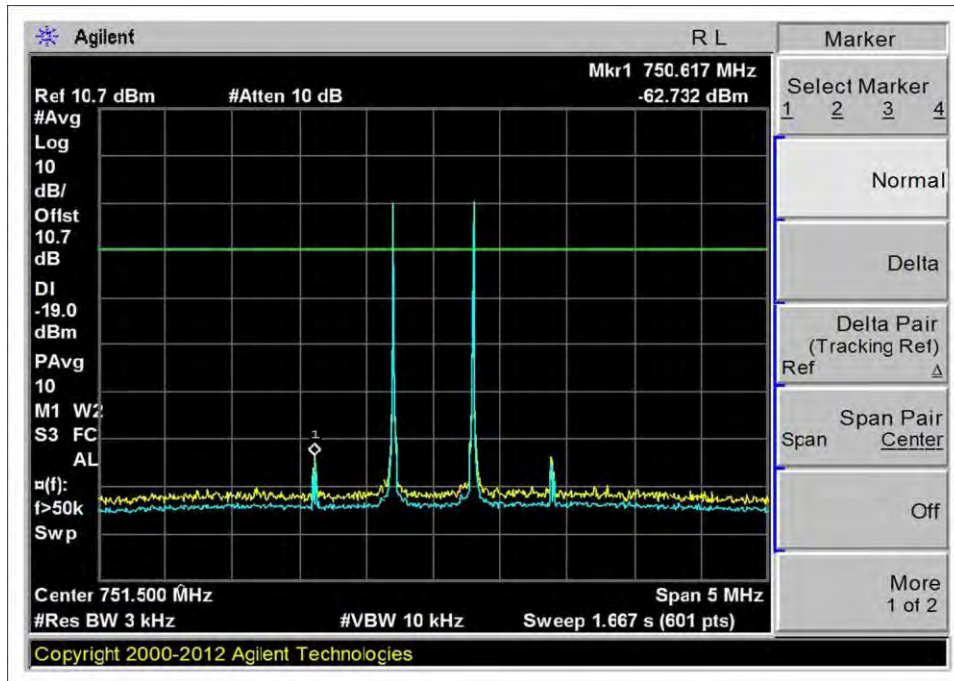
Test Data



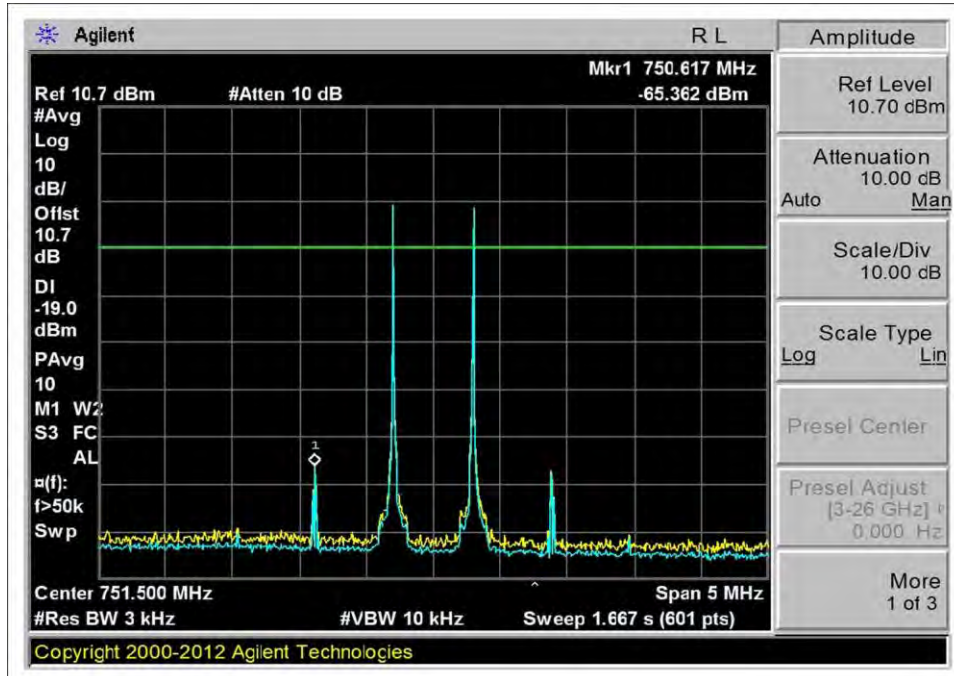
DL_728-746MHz



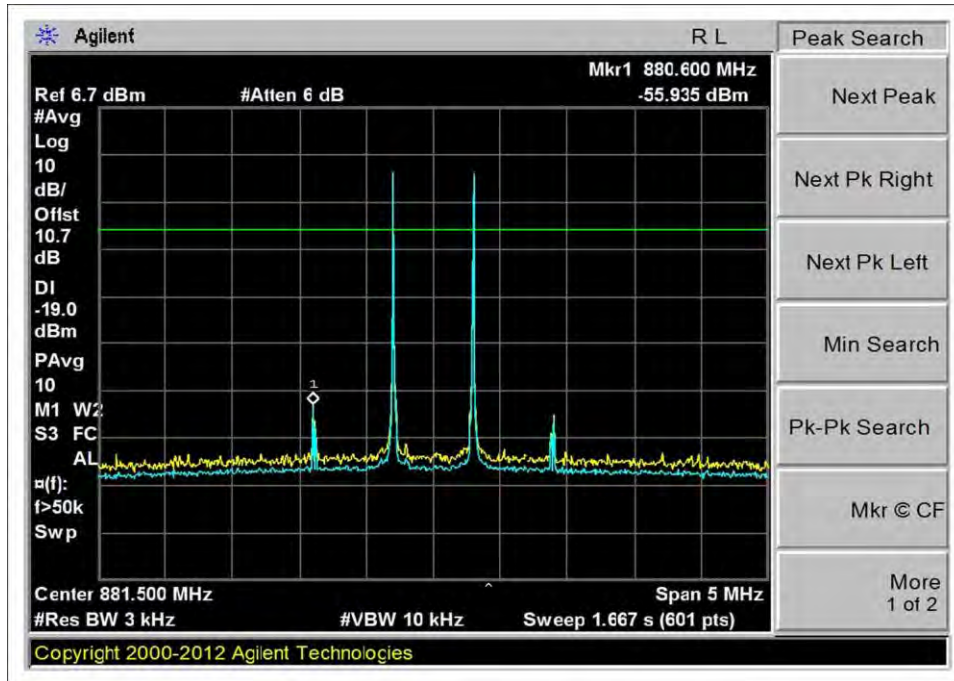
DL_728-746MHz +10dB



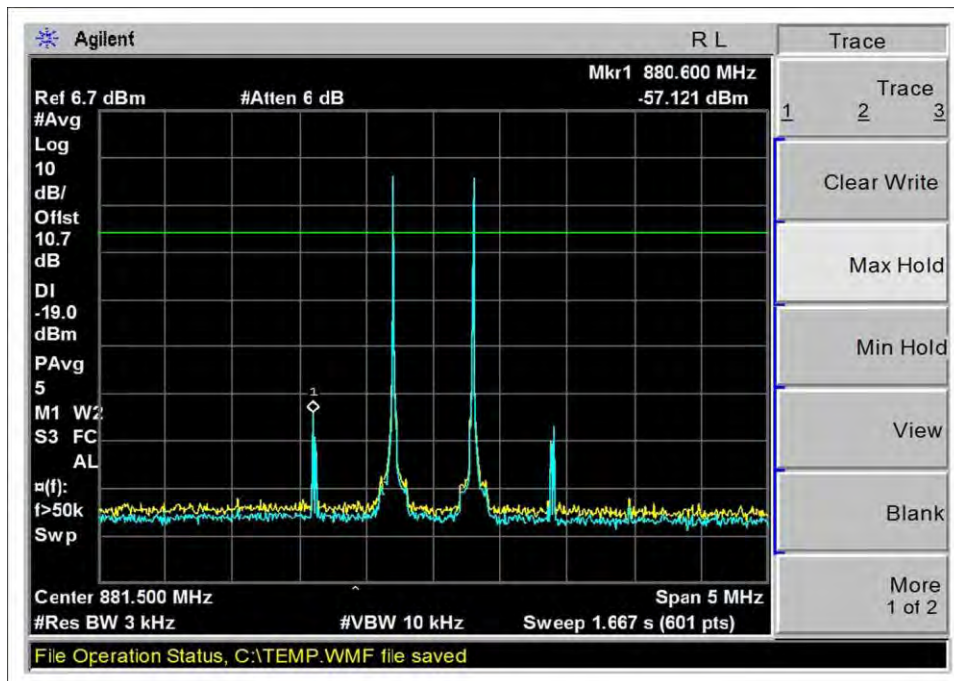
DL_746-757MHz



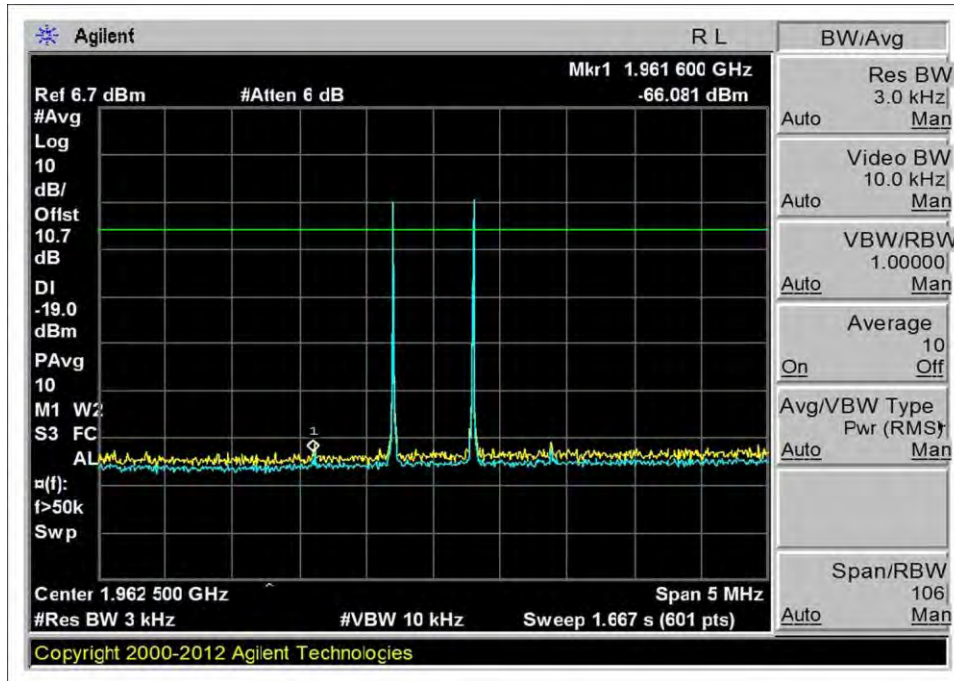
DL_746-757MHz +10dB



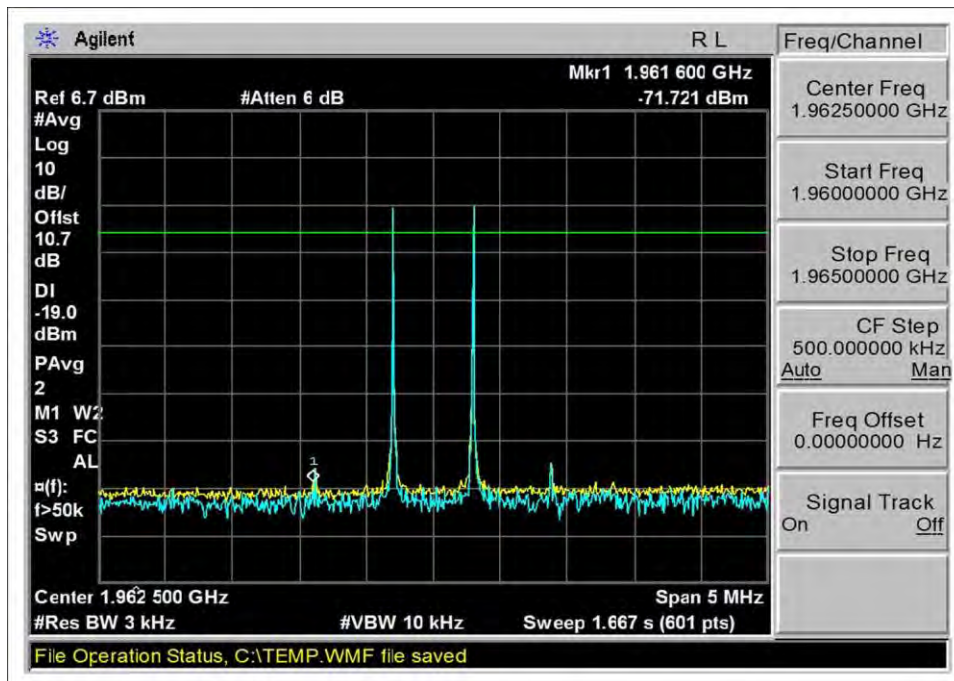
DL_869-894MHz



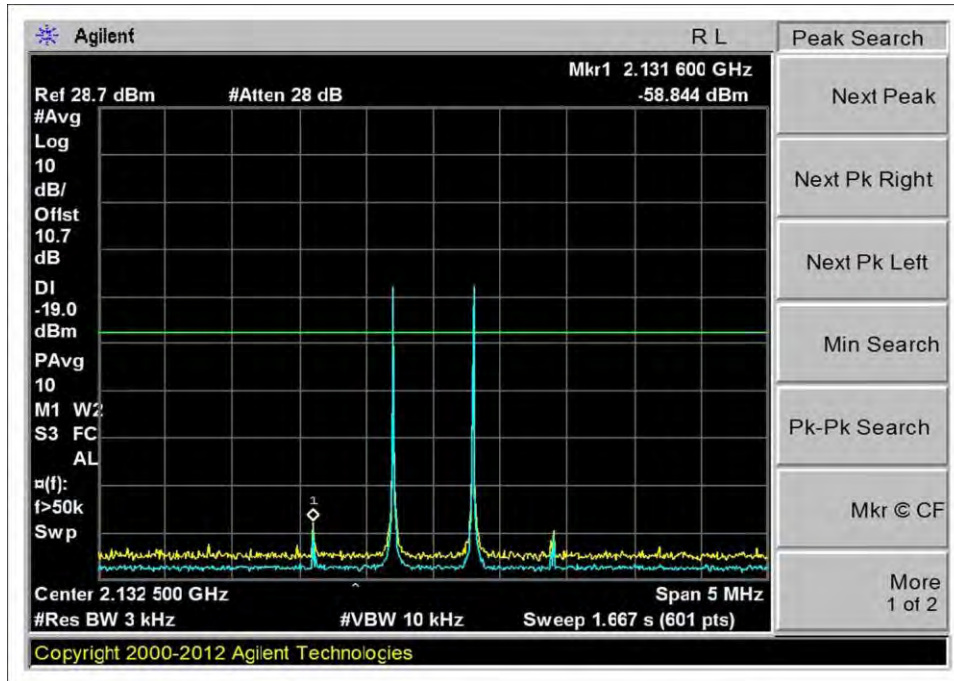
DL_869-894MHz +10dB



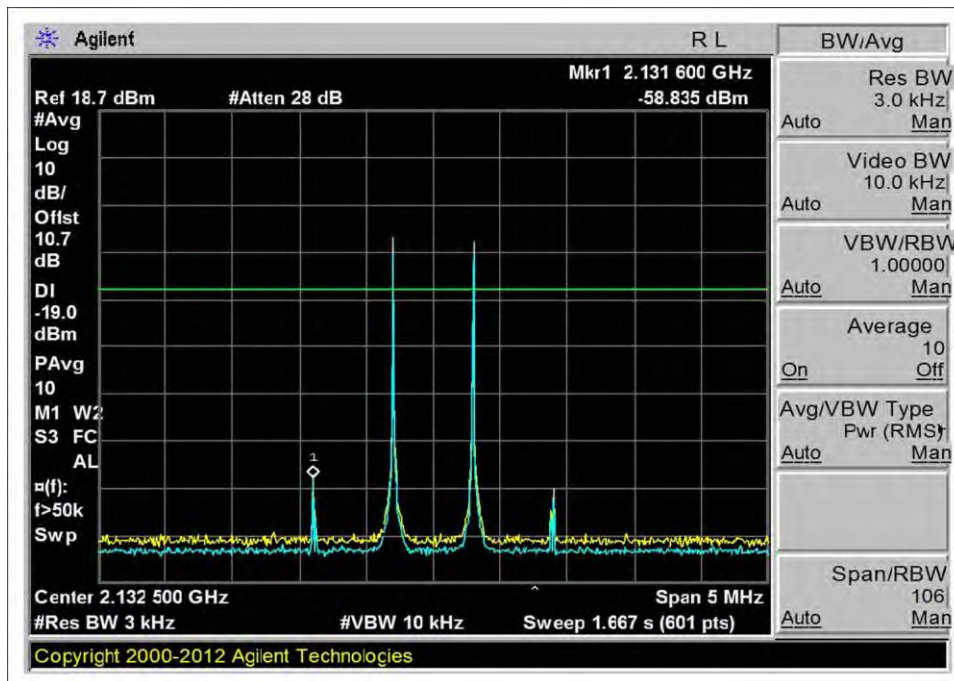
DL_1933-1995MHz



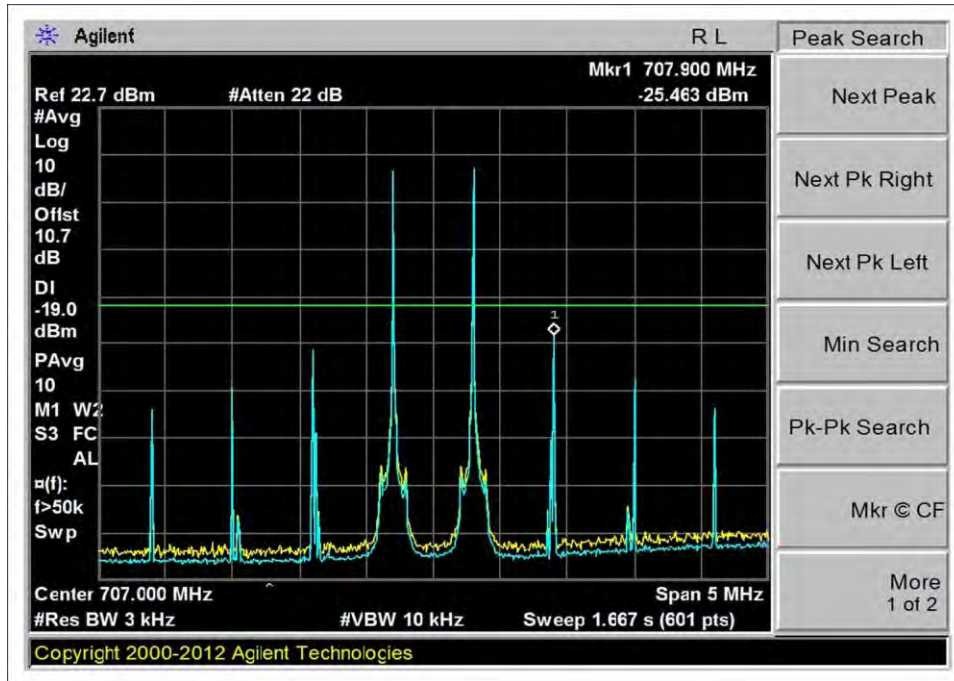
DL_1933-1995MHz +10dB



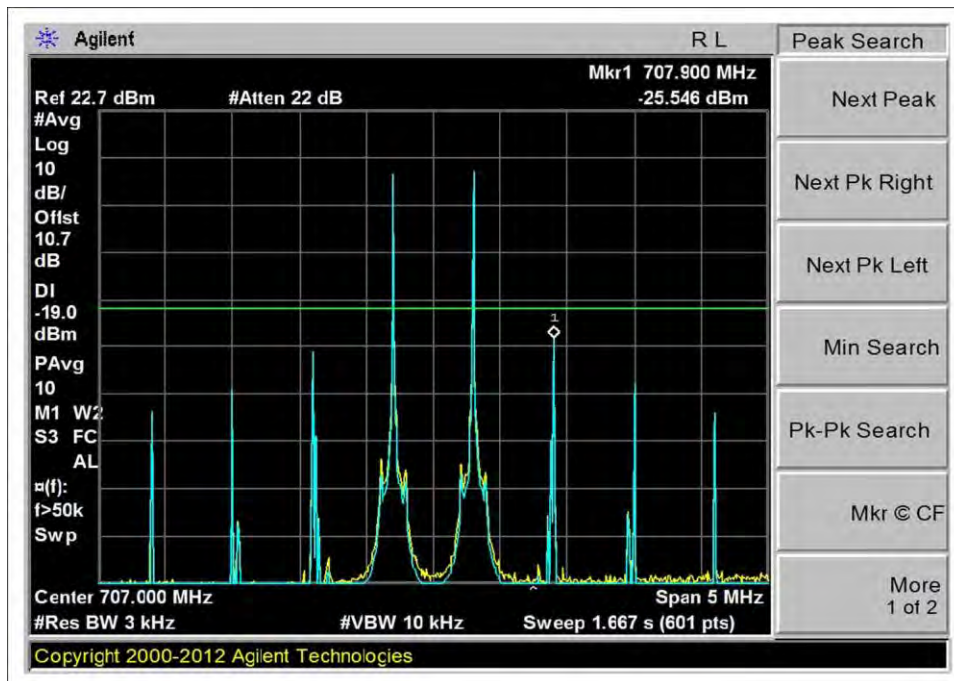
DL_2110-2155MHz



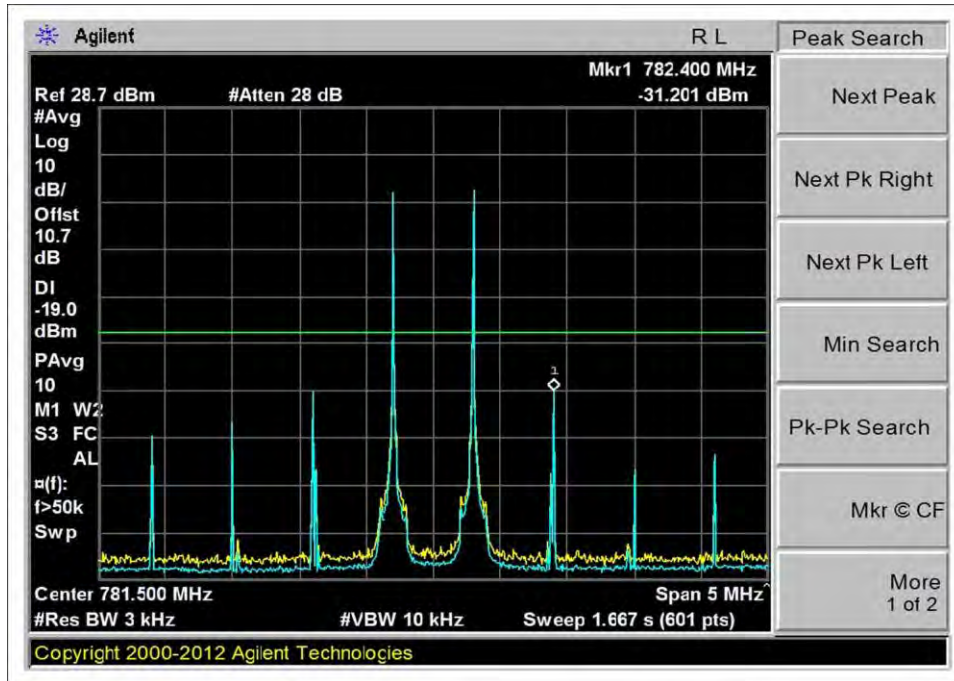
DL_2110-2155MHz +10dB



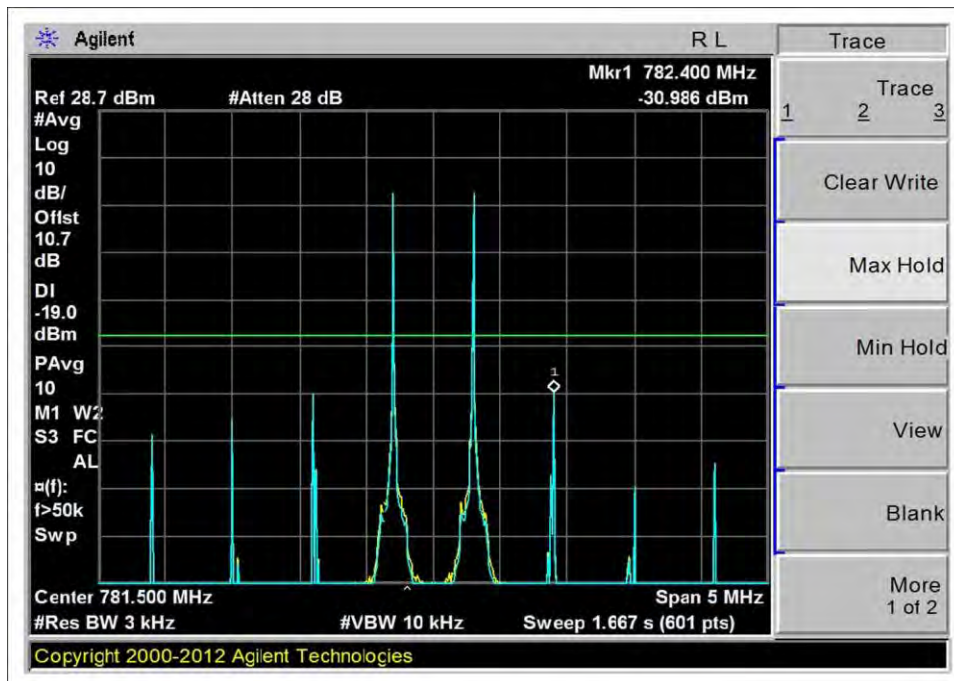
UL_698-716MHz



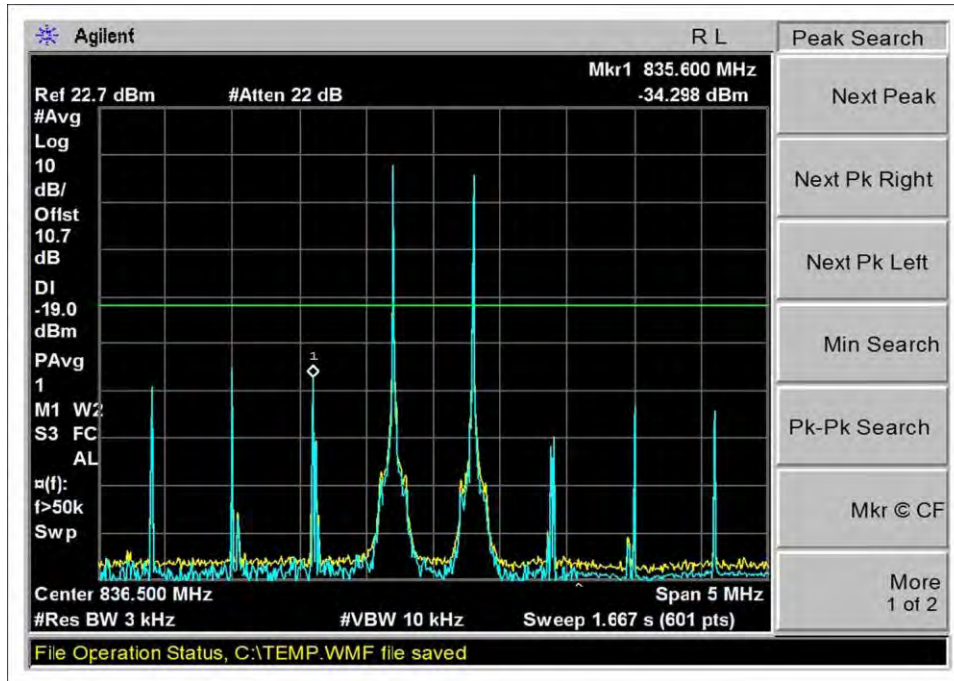
UL_698-716MHz +10dB



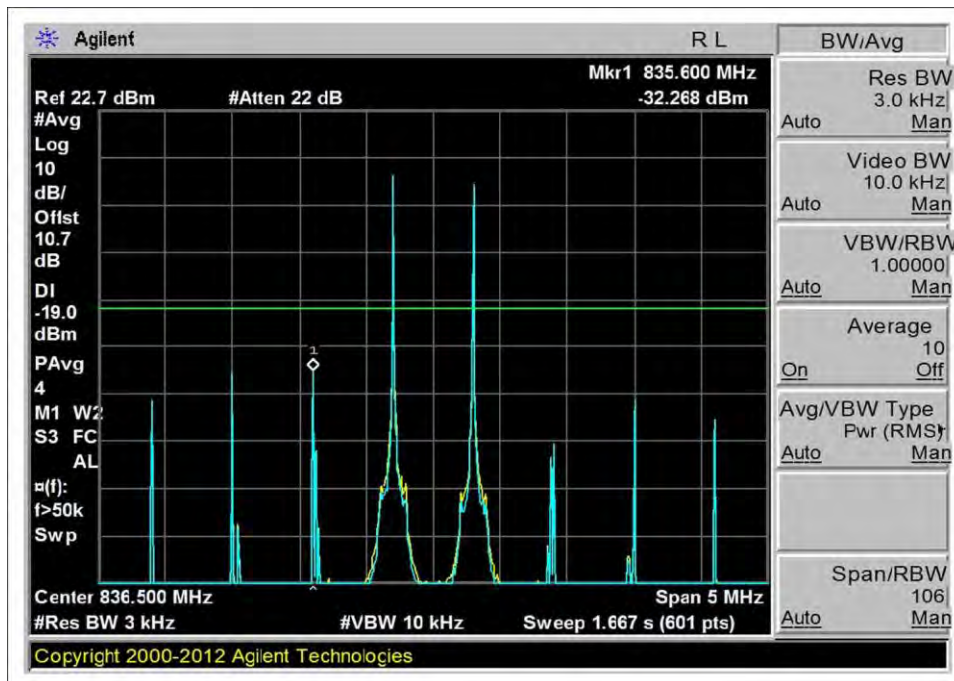
UL_776-787MHz



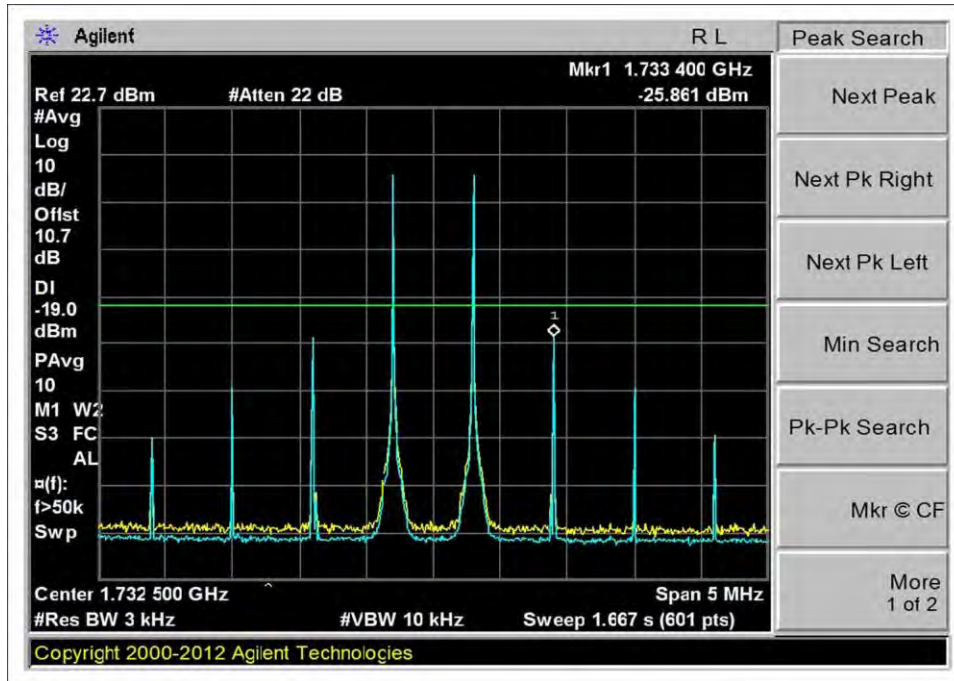
UL_776-787MHz +10dB



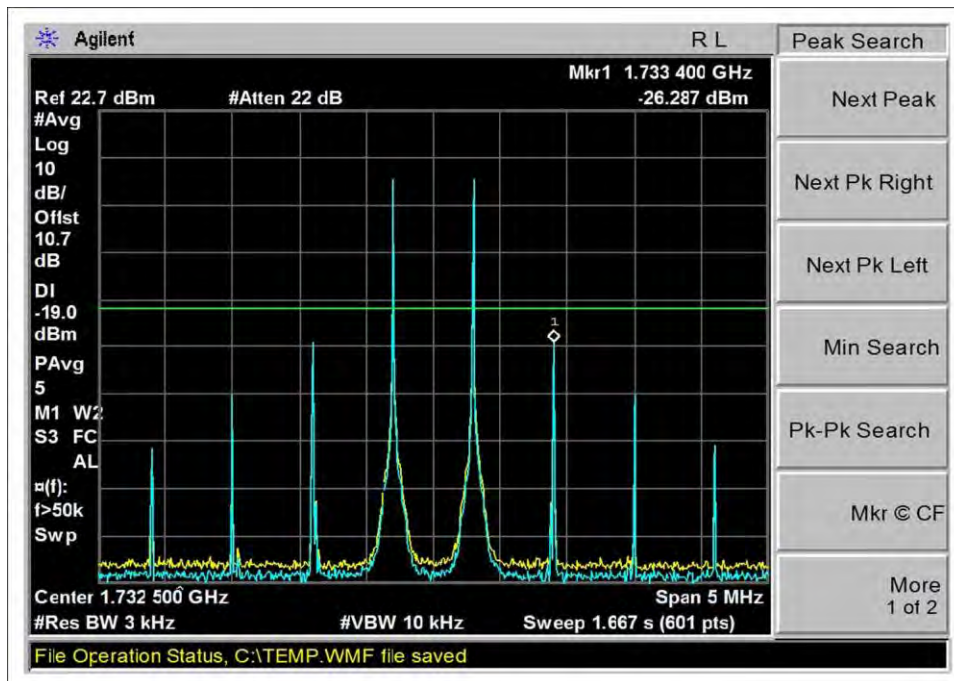
UL_824-849MHz



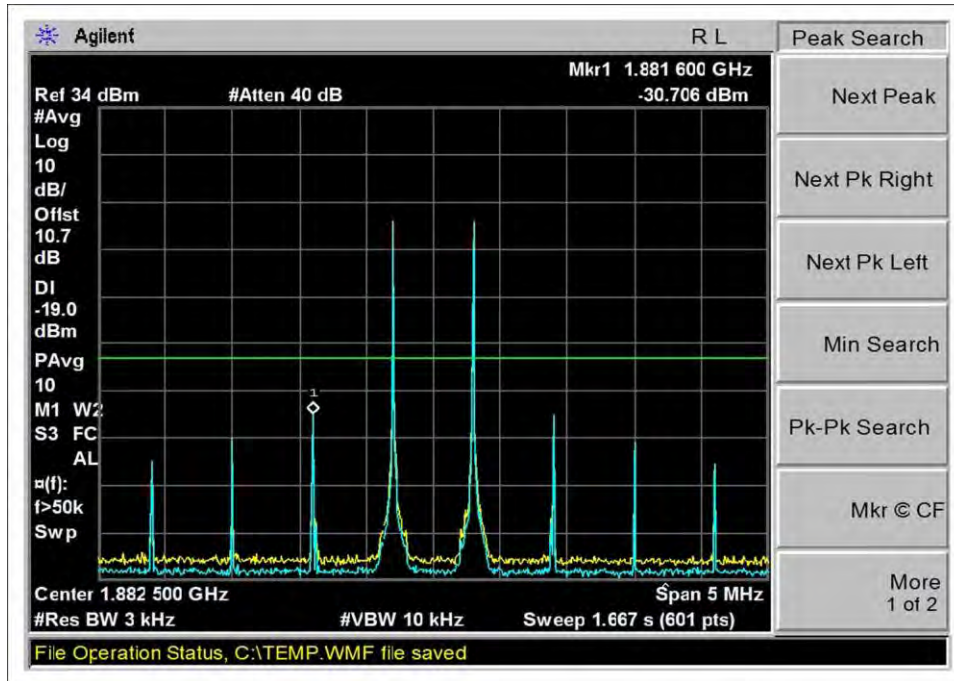
UL_824-849MHz +10dB



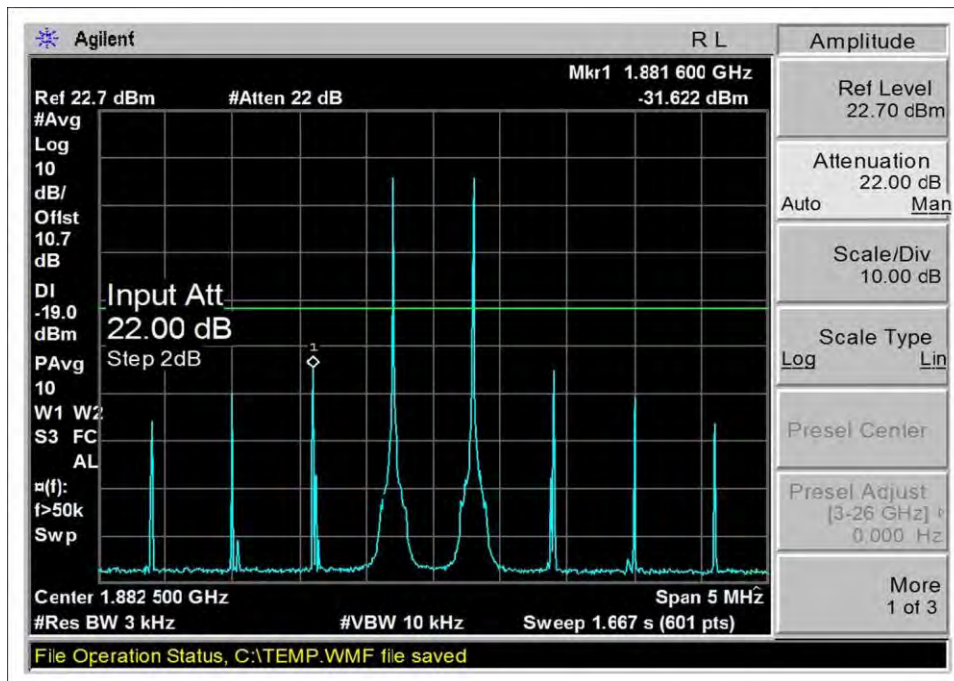
UL_1710-1755MHz



UL_1710-1755MHz +10dB



UL_1850-1915MHz



UL_1850-1915MHz +10dB

Clause 7.5 Out of Band Emissions

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92821 • 714-993-6112

Customer: **SolidRF Communication Co., Ltd**
 Specification: **7.5 Out of Band Emissions**
 Work Order #: **95763** Date: 9/16/2014
 Test Type: **Conducted Emissions** Time: 08:40:44
 Equipment: **Signal Booster** Sequence#: 1
 Manufacturer: SolidRF Communication Co., Ltd Tested By: E. Wong
 Model: SR25652001 110V 60Hz
 S/N: NA

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/14/2013	8/14/2015
	AN03430	Attenuator	75A-10-12	9/5/2013	9/5/2015
	AN02946	Cable	32022-2-2909K-36TC	7/31/2013	7/31/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Signal Booster*	SolidRF Communication Co., Ltd	SR25652001	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	Generic	MX18W1	NA
Signal Generator	Agilent	E4438C	MY42081492
Signal Generator	Agilent	E4433B	US40052164

Test Conditions / Notes:

The EUT is placed on the test bench. Evaluation performed at the Outside (Donor) and Inside (Server) antenna port.

UL: 824-849, 1850-1915 MHz, 1710-1755MHz, 698-716MHz, 776-787MHz
 DL: 869-894, 1930-1995 MHz, 2110-2155MHz, 728-746MHz, 746-757MHz

All adjustable settings on the test sample are set at max.
 Test environment conditions: Temperature: 23.9°C, Relative Humidity: 40%, Atmospheric Pressure: 100kPa
 Test procedure:
 The test was performed IAW section 7.5 of the FCC document: 935210 D03 Wideband Consumer Signal Booster Measurement Guidance v02r01 Dated July 24, 2014

Firmware: Original
 * Additional plots taken at 1dB before shut down.

Lower RBW was used as applicable per rule part, in addition integration power function of the Spectrum Analyzers' Adjacent Channel Power tool was used to show compliance in instances where accuracy can be improved by integrating power measured in smaller RBW and linearly summed into standard bandwidth.

Summary of Results

Pass: as indicated in plots above, all OBE are under the limit of -19dBm.

GSM

Low			
	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-25.9	-76.5	-19.0
UL1850-1915	-28.3	-62.4	-19.0
UL824-894	-39.7	-50.6	-19.0
UL 698-716	-30.4	-53.6	-19.0
UL776-787	-28.2	-51.6	-19.0
		-20dBm	
DL2110-2155	-41.9	-44.6	-19.0
DL1930-1995	-46.6	-55.5	-19.0
DL869-894	-27.2	-50.5	-19.0
DL:728-746	-30.4	-54.2	-19.0
DL 746-757	-28.8	-52.7	-19.0

Hi			
	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-27.0	-76.4	-19.0
UL1850-1915	-29.0	-73.0	-19.0
UL824-894	-38.2	-49.0	-19.0
UL 698-716	-34.3	-53.8	-19.0
UL776-787	-30.5	-51.7	-19.0
		-20dBm	
DL2110-2155	-43.7	-45.7	-19.0
DL1930-1995	-51.5	-56.9	-19.0
DL869-894	-28.0	-51.2	-19.0
DL:728-746	-29.9	-29.5	-19.0
DL 746-757	-29.8	-54.6	-19.0

CDMA

Low

Freq MHz	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-29.2	-71.8	-19.0
UL1850-1915	-37.1	-52.0	-19.0
UL824-894	-32.6	-50.2	-19.0
UL 698-716	-24.8	-56.1	-19.0
UL776-787	-24.1	-54.0	-19.0
		-20dBm	
DL2110-2155	-44.3	-26.2	-19.0
DL1930-1995	-49.7	-37.7	-19.0
DL869-894	-56.7	-53.4	-19.0
DL:728-746	-58.7	-62.3	-19.0
DL 746-757	-57.8	-60.7	-19.0

Hi

Freq MHz	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-34.8	-69.0	-19.0
UL1850-1915	-32.0	-59.2	-19.0
UL824-894	-26.7	-84.3	-19.0
UL 698-716	-32.2	-60.7	-19.0
UL776-787	-30.6	-58.9	-19.0
		-20dBm	
DL2110-2155	-45.7	-26.3	-19.0
DL1930-1995	-52.5	-37.9	-19.0
DL869-894	-54.4	-54.7	-19.0
DL:728-746	-57.9	-61.8	-19.0
DL 746-757	-59.9	-68.4	-19.0

LTE

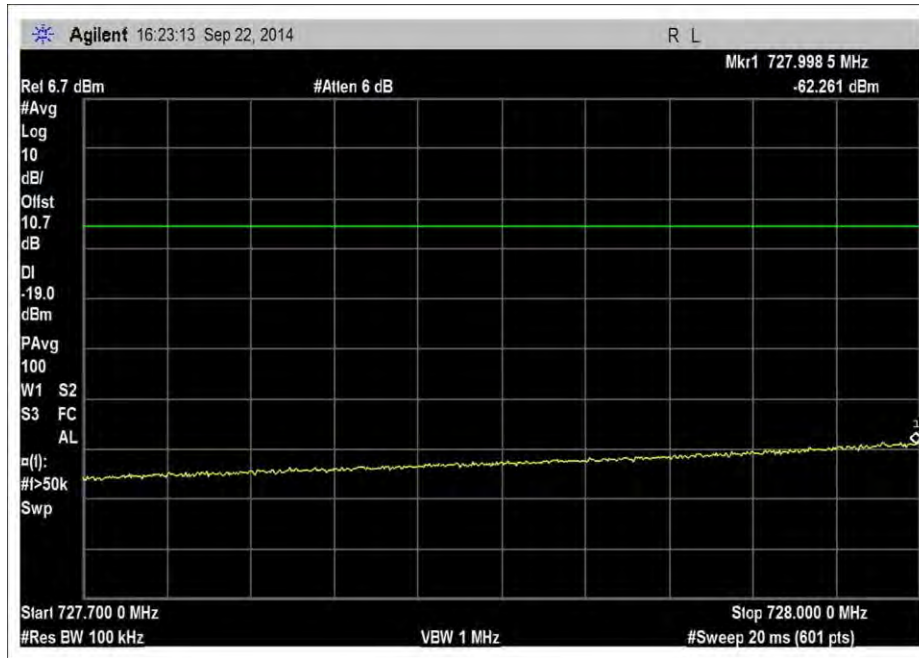
Low

Freq MHz	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-24.5	-71.6	-19.0
UL1850-1915	-29.3	-50.9	-19.0
UL824-894	-33.2	-53.9	-19.0
UL 698-716	-32.2	-57.6	-19.0
UL776-787	-28.4	-57.4	-19.0
		-20dBm	
DL2110-2155	-35.3	-25.1	-19.0
DL1930-1995	-36.1	-35.2	-19.0
DL869-894	-45.9	-57.8	-19.0
DL:728-746	-50.1	-64.0	-19.0

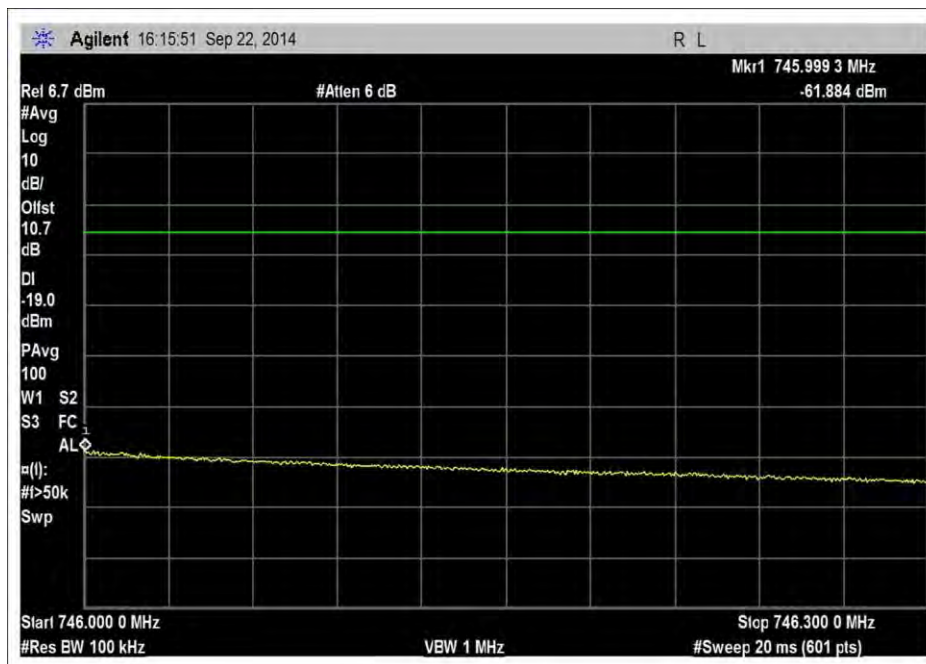
Hi

Freq MHz	Out of Band Emission		
	Pre AGC	Max input	Limit
	dBm	0dBm	dBm
UL1710-1755	-33.5	-70.4	-19.0
UL1850-1915	-30.8	-60.3	-19.0
UL824-894	-32.3	-54.6	-19.0
UL 698-716	-32.2	-45.3	-19.0
UL776-787	-36.0	-56.0	-19.0
		-20dBm	
DL2110-2155	-35.5	-25.8	-19.0
DL1930-1995	-36.5	-35.2	-19.0
DL869-894	-47.6	-44.6	-19.0
DL:728-746	-48.3	-63.0	-19.0

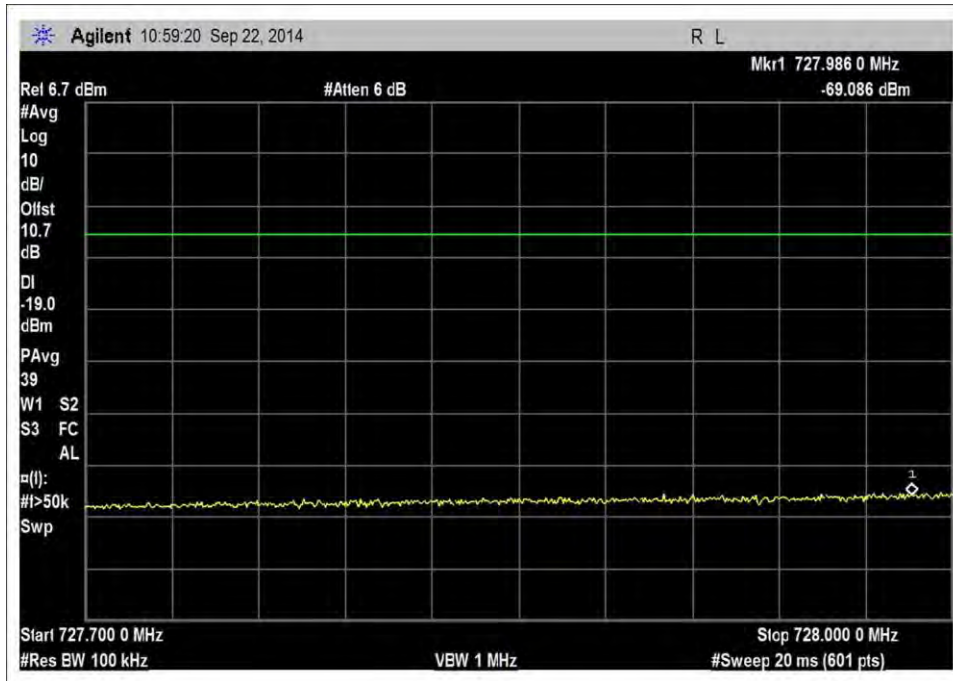
Test Data



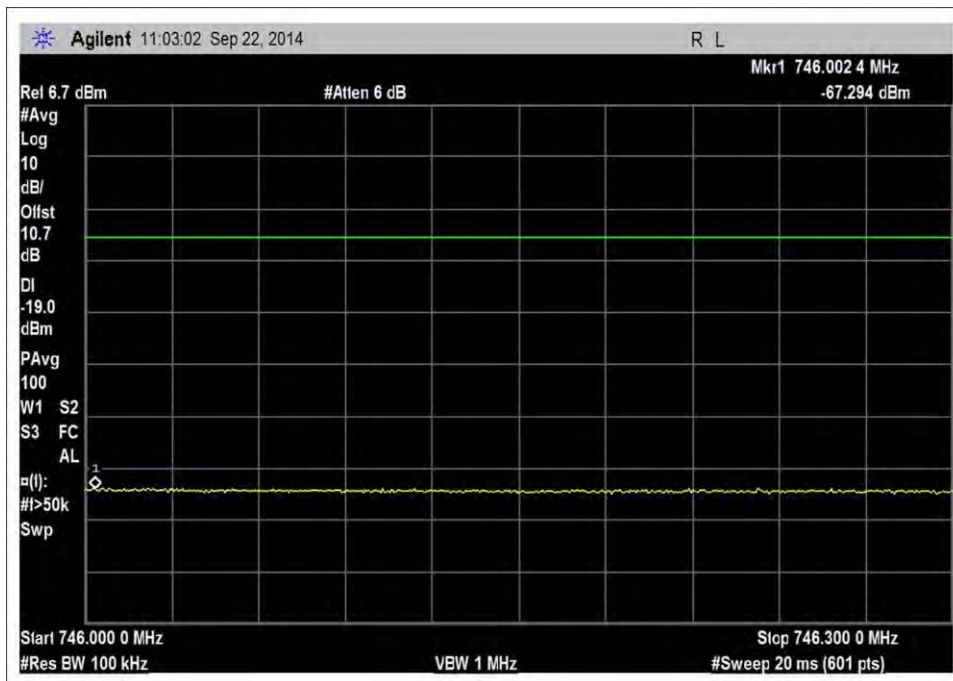
DL_728-746MHz_CDMA_L_-20dBm



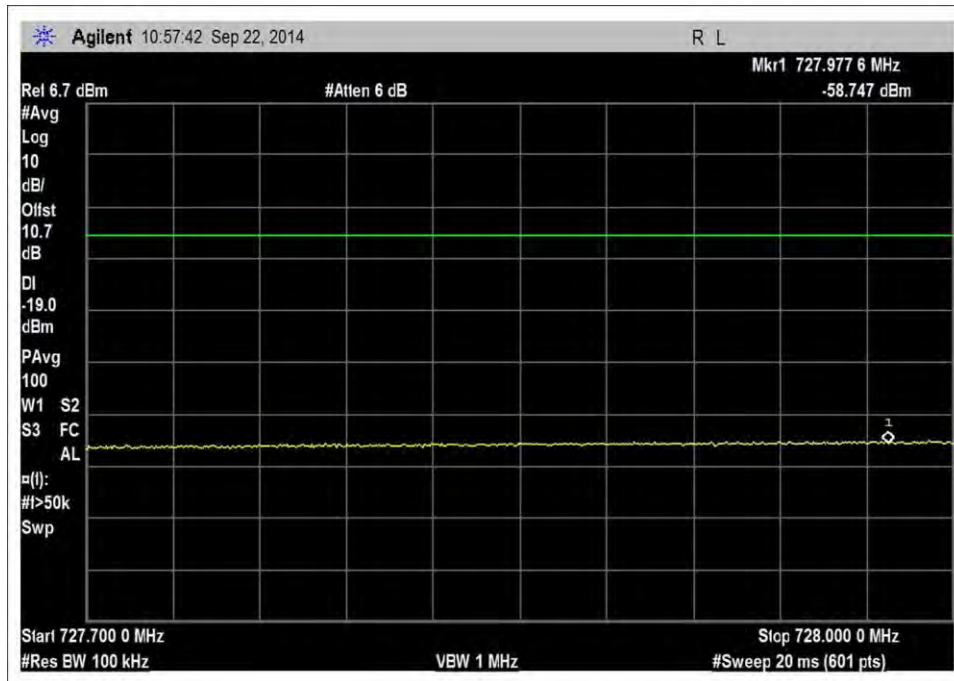
DL_728-746MHz_CDMA_H_-20dBm



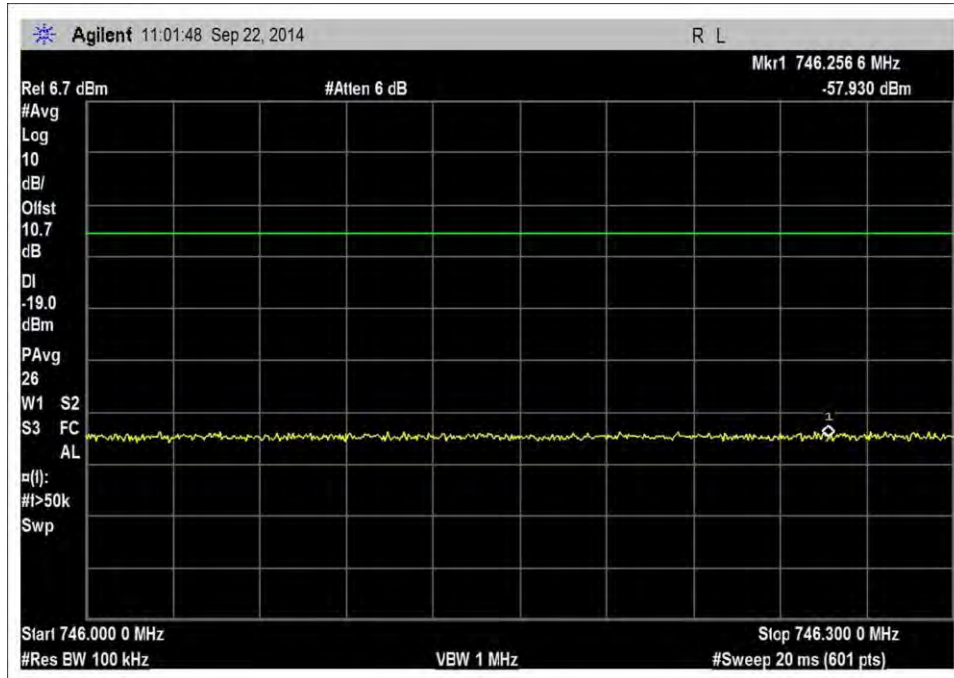
DL_728-746MHz_CDMA_L_-48dBm



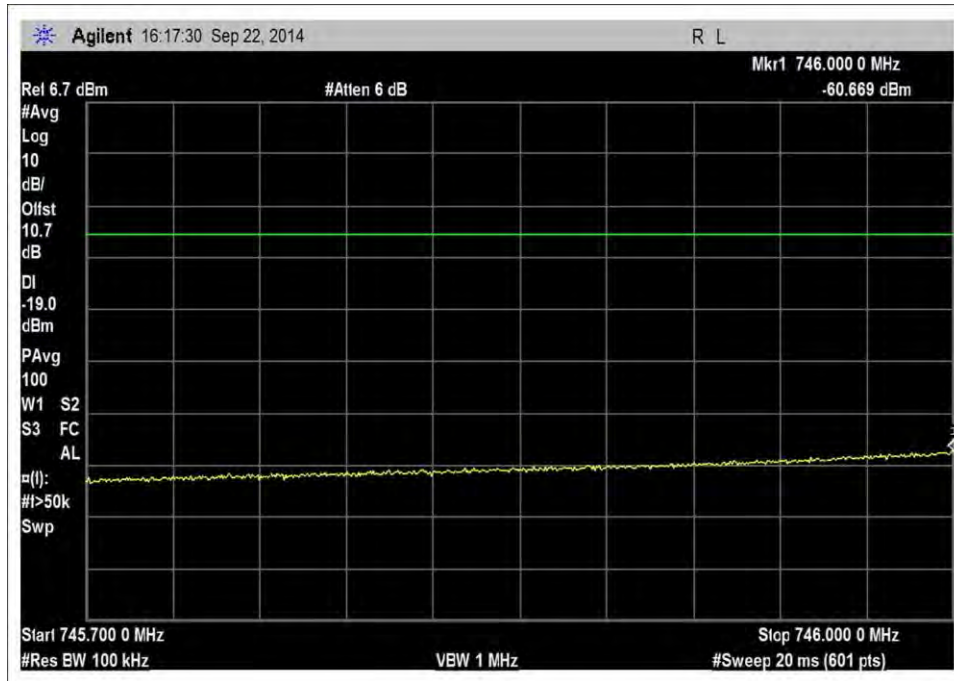
DL_728-746MHz_CDMA_H_-49dBm



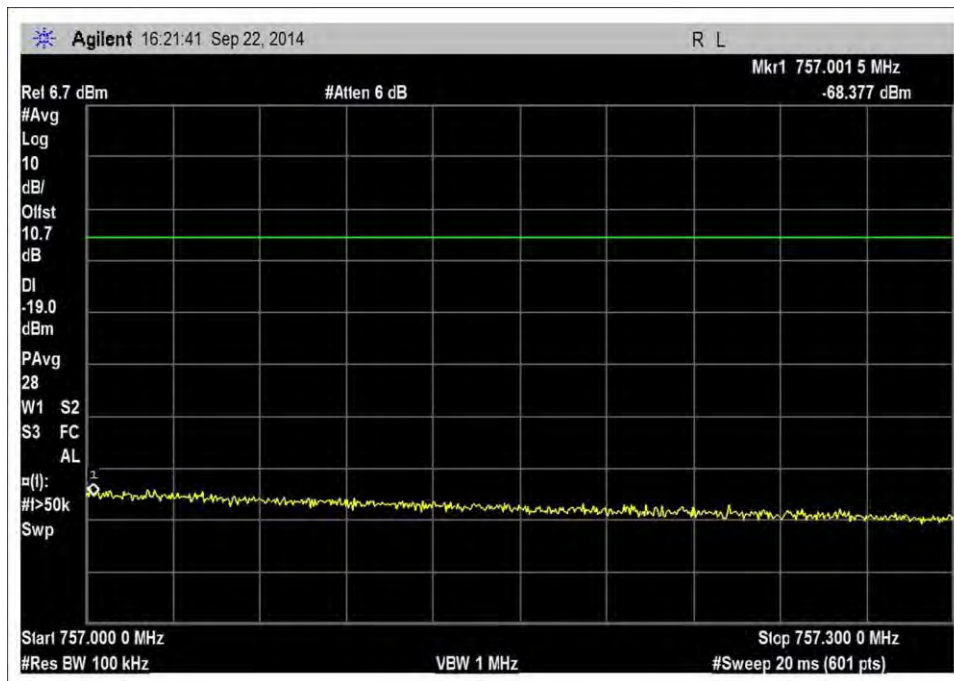
DL_728-746MHz_CDMA_L_pre AGC



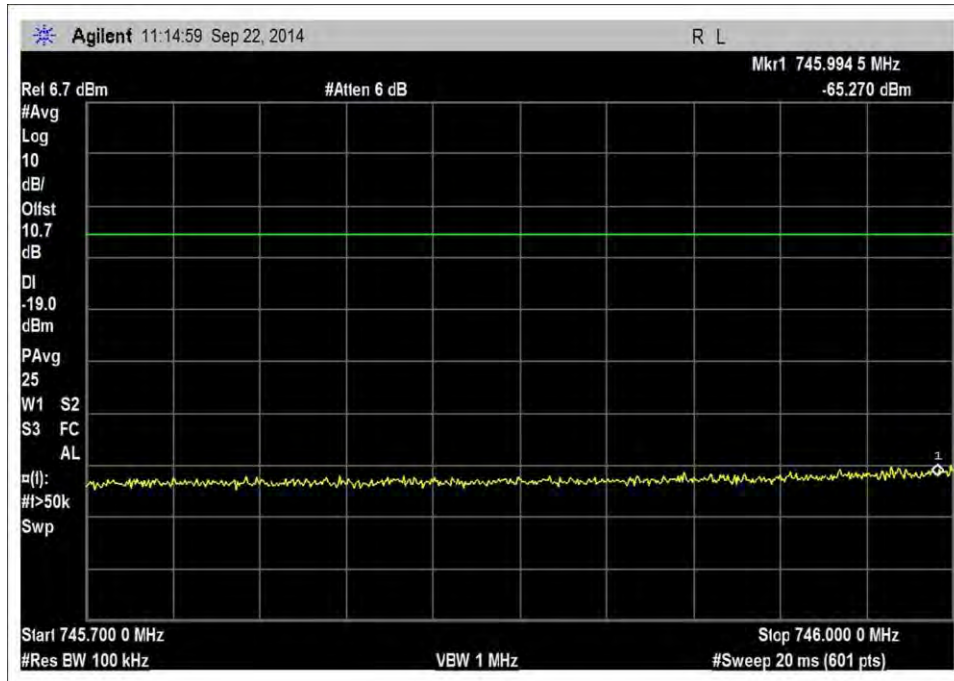
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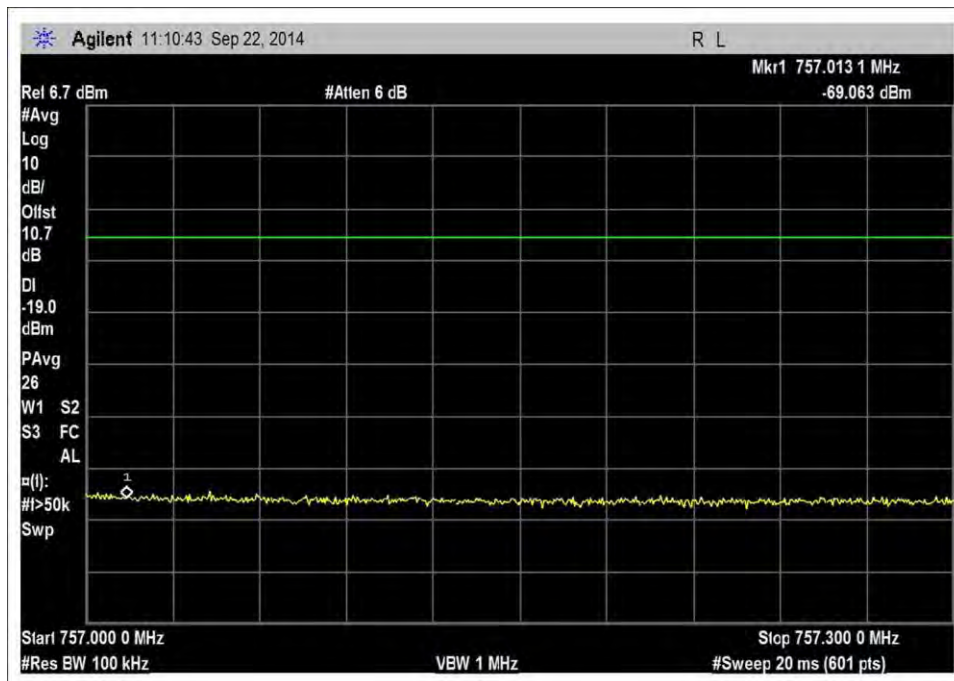
DL_746-757MHz_CDMA_L-20dBm



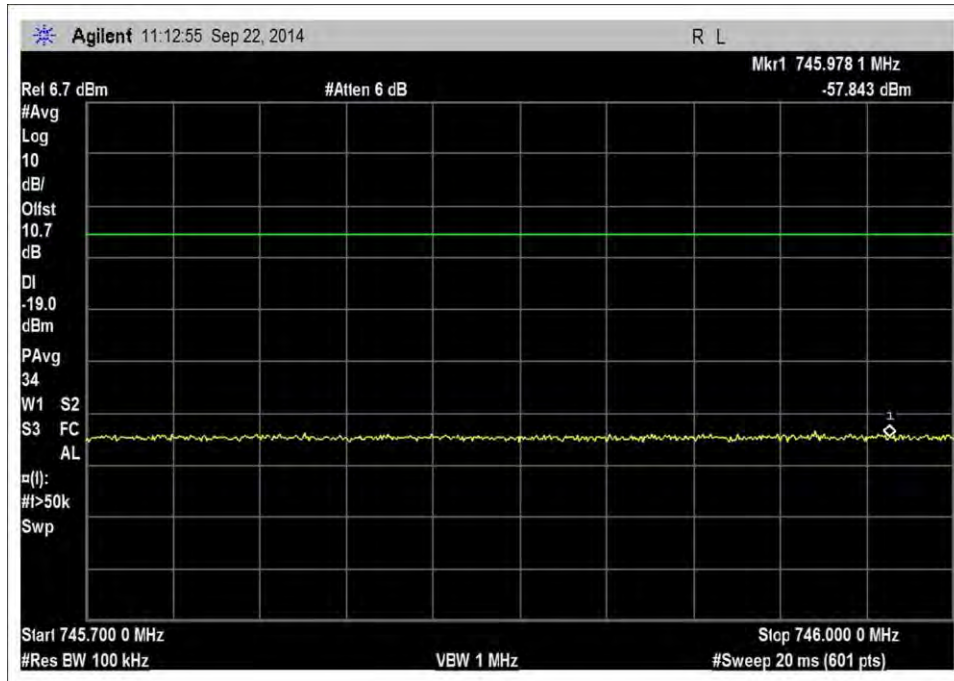
DL_746-757MHz_CDMA_H-20dBm



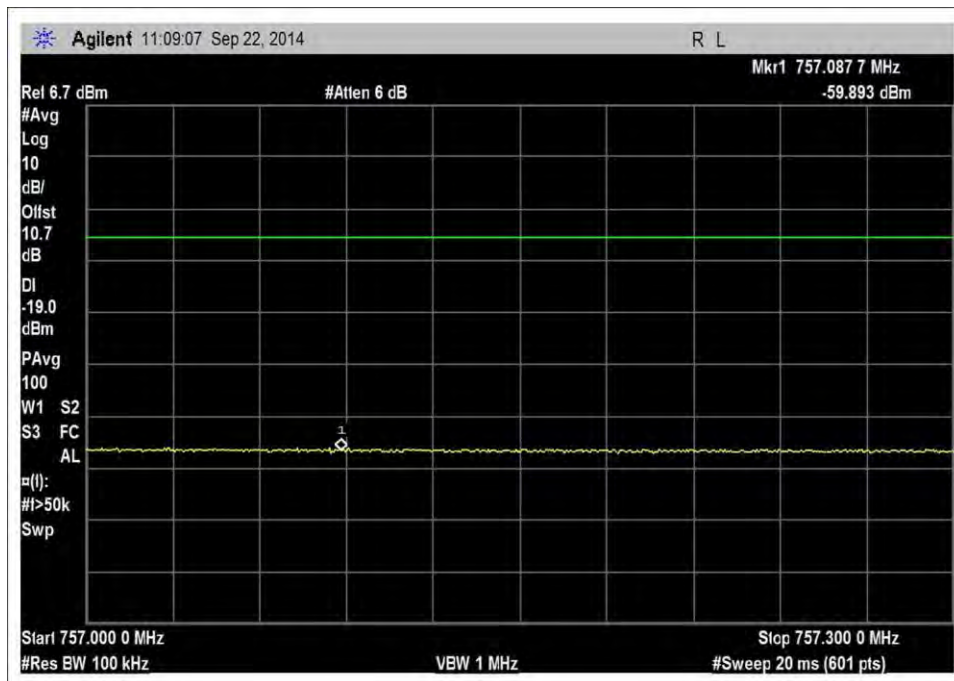
746-757MHz_CDMA_L_-48dBm



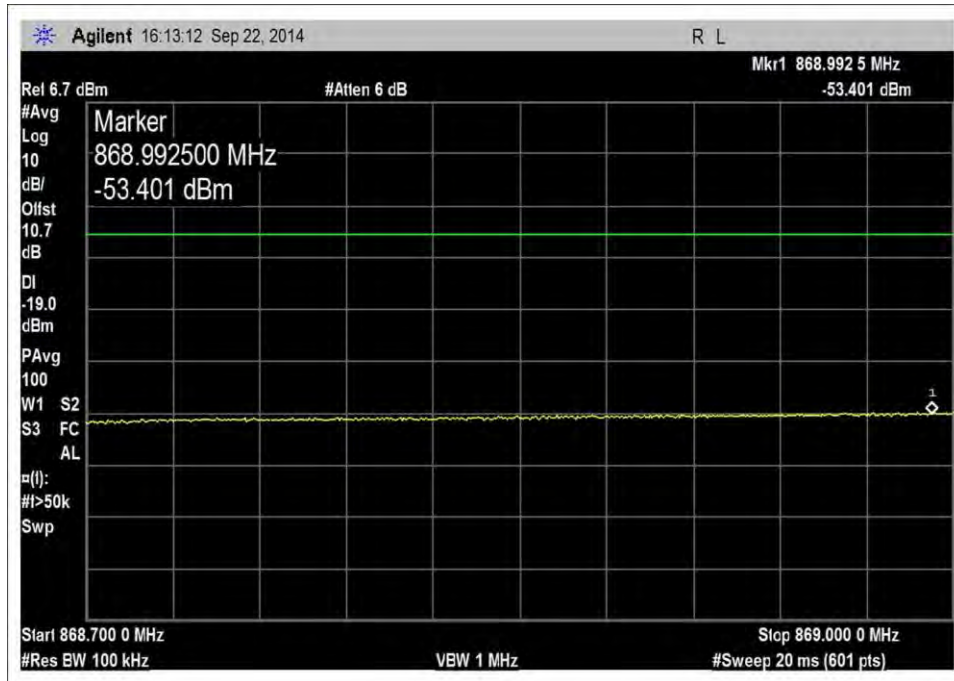
DL_746-757MHz_CDMA_H_-47dBm



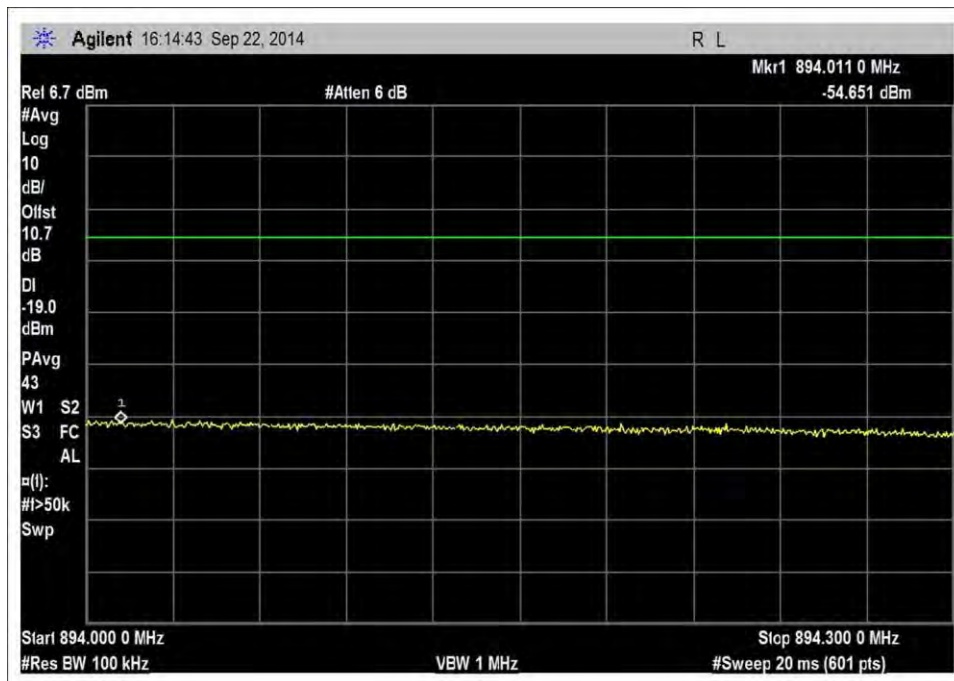
DL_746-757MHz_CDMA_L_pre AGC



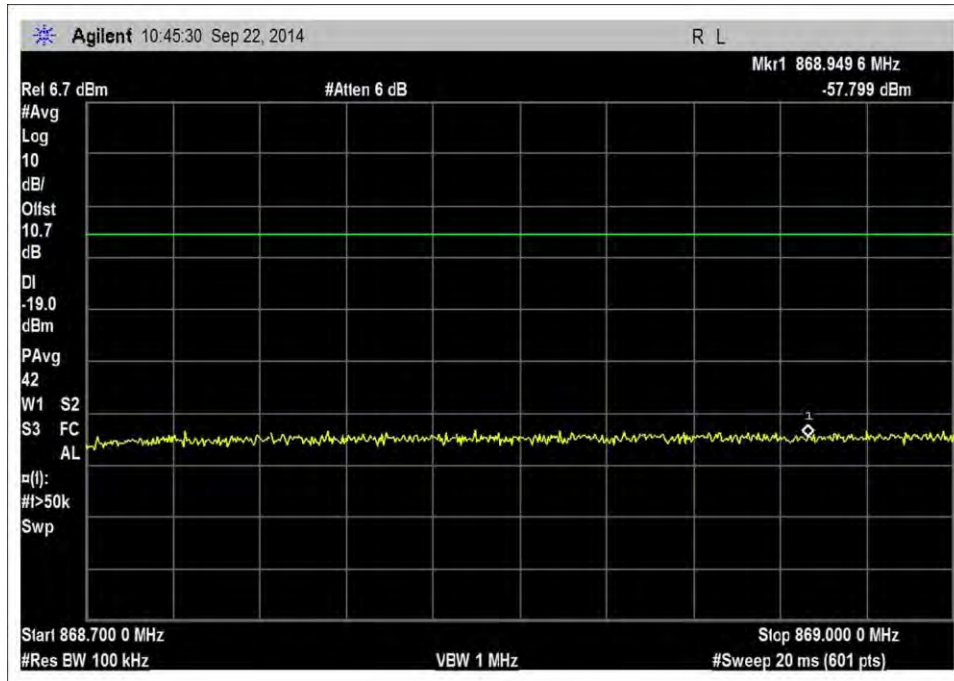
DL_746-757MHz_CDMA_H_pre AGC



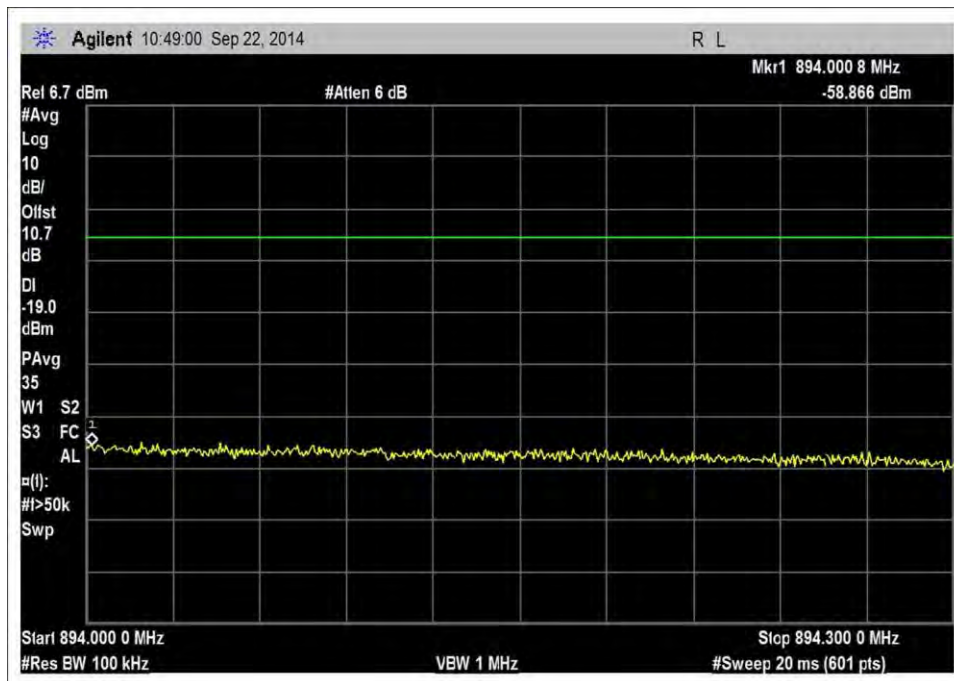
DL_869-894MHz_CDMA_L -20dBm



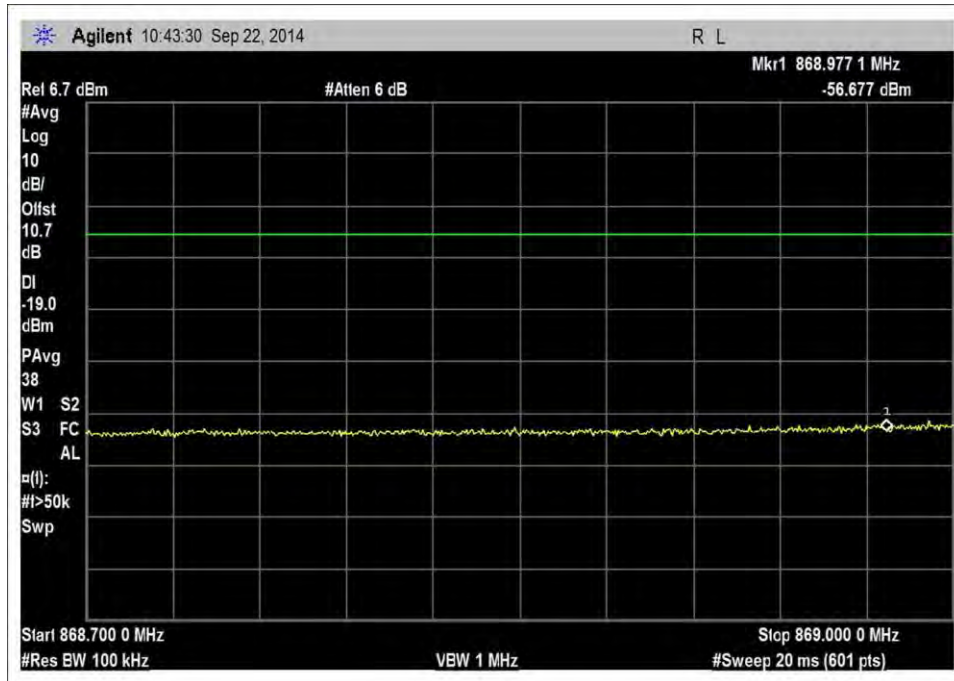
DL_869-894MHz_CDMA_H -20dBm



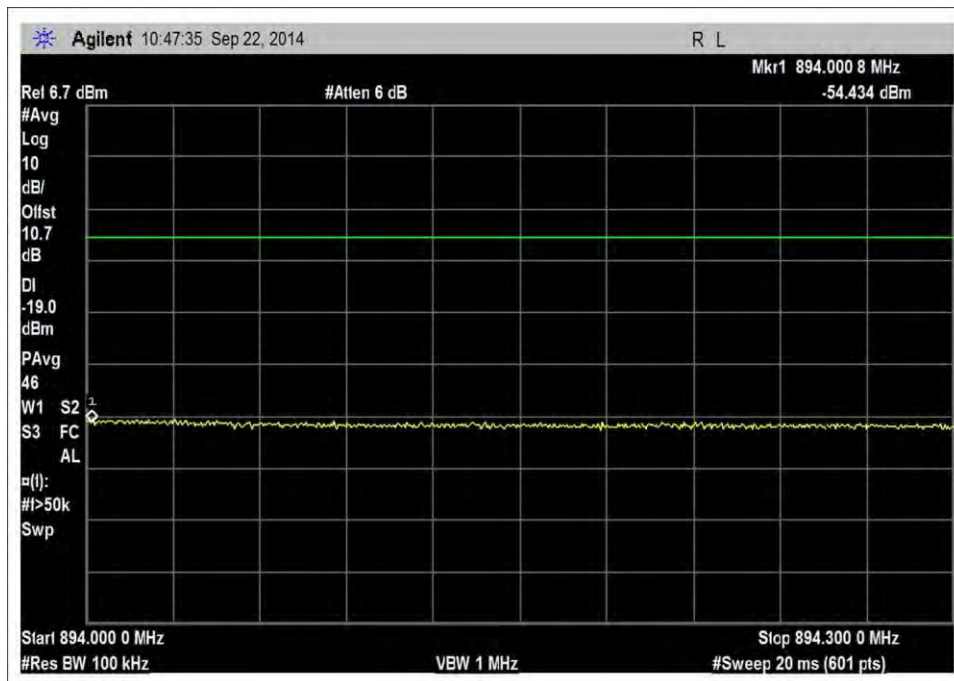
DL_869-894MHz_CDMA_L_-48dBm



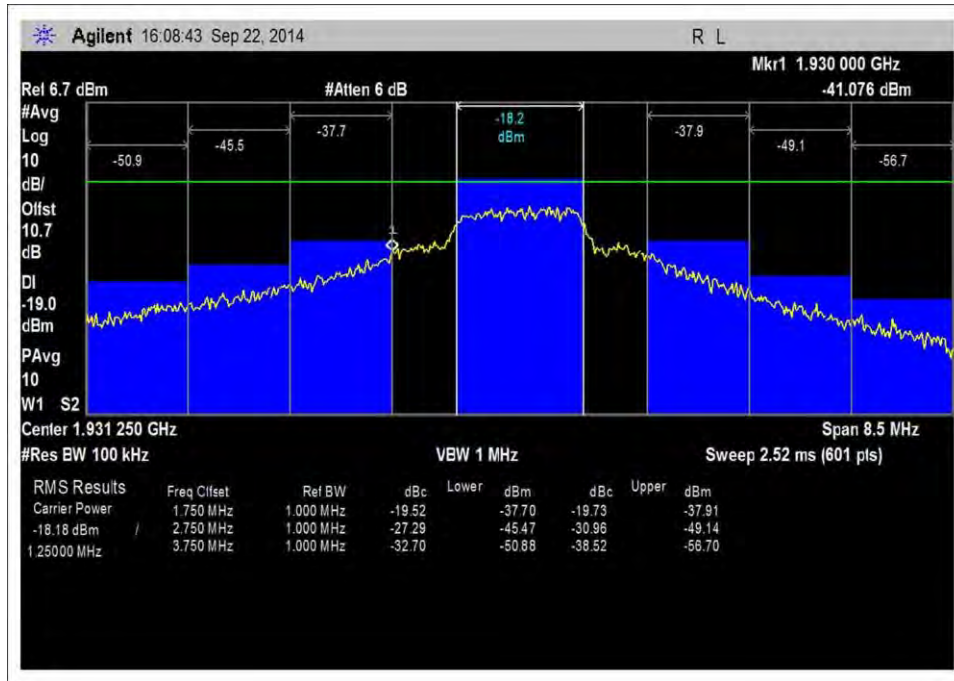
DL_869-894MHz_CDMA_H_-49dBm



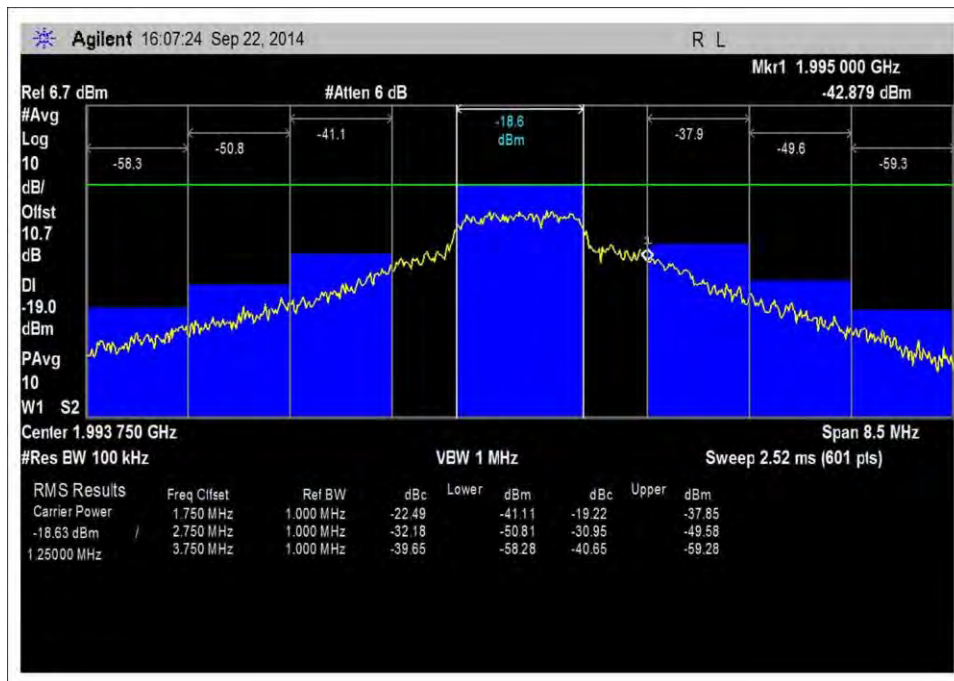
DL_869-894MHz_CDMA_L_pre AGC



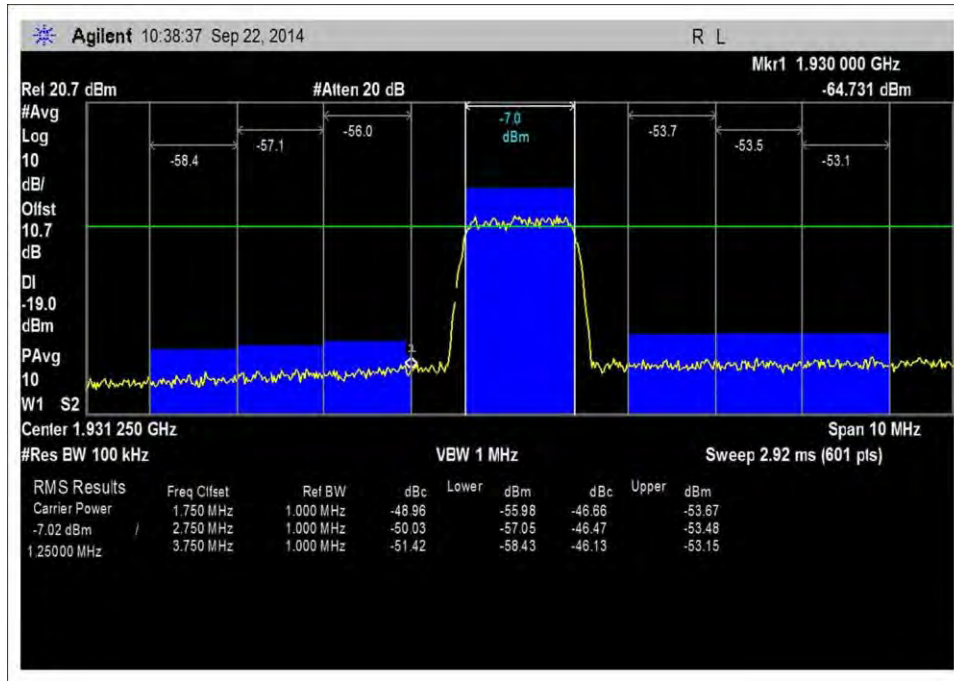
DL_869-894MHz_CDMA_H_pre AGC



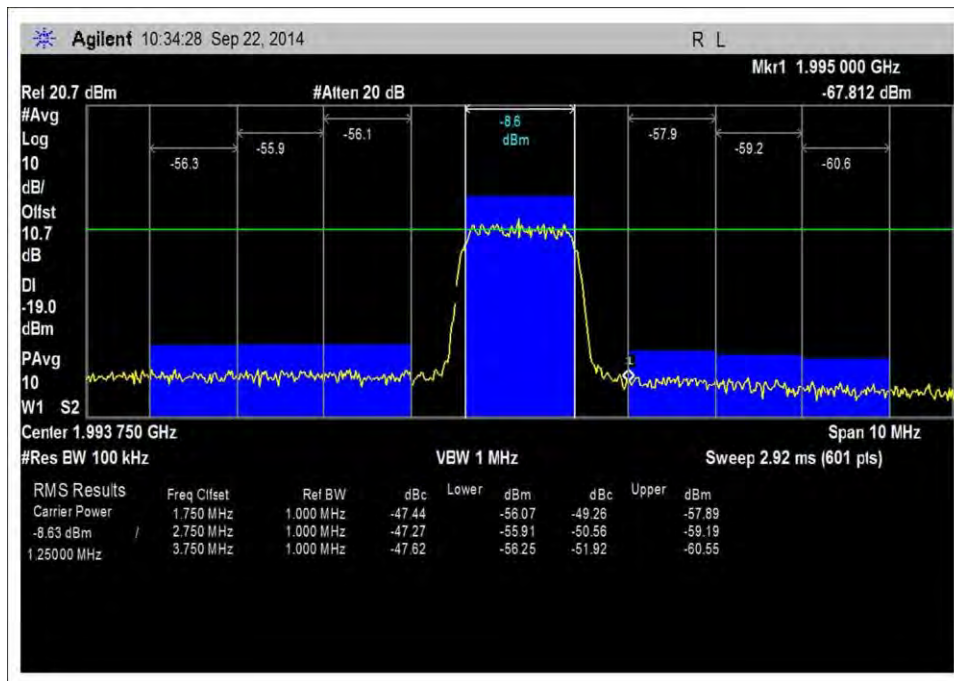
DL_1930-1995MHz_CDMA_L -20dBm



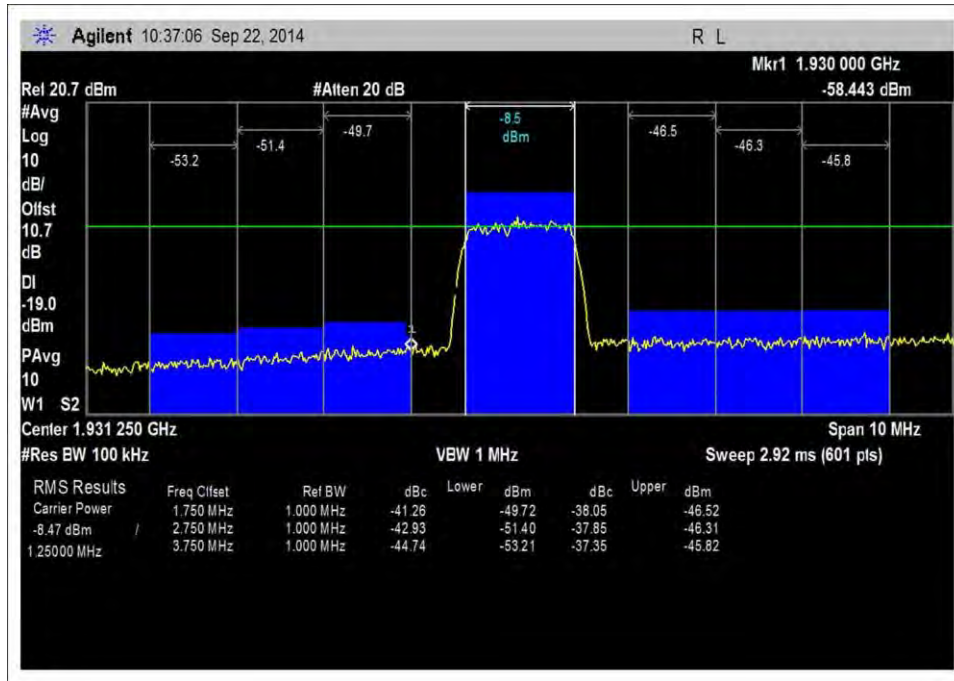
DL_1930-1995MHz_CDMA_H -20dBm



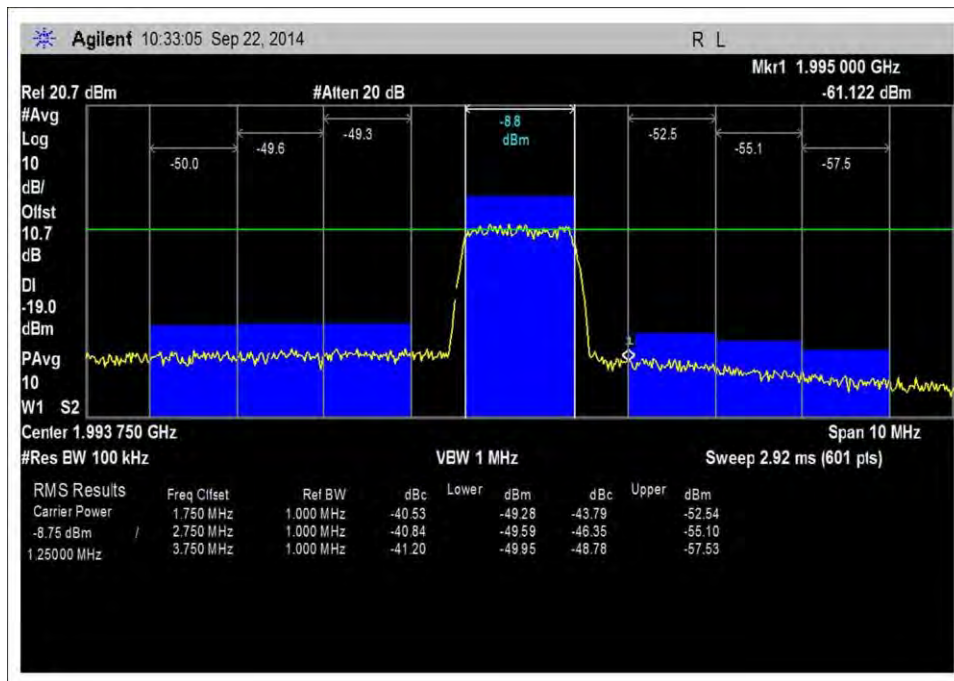
DL_1930-1995MHz_CDMA_L_-55dBm



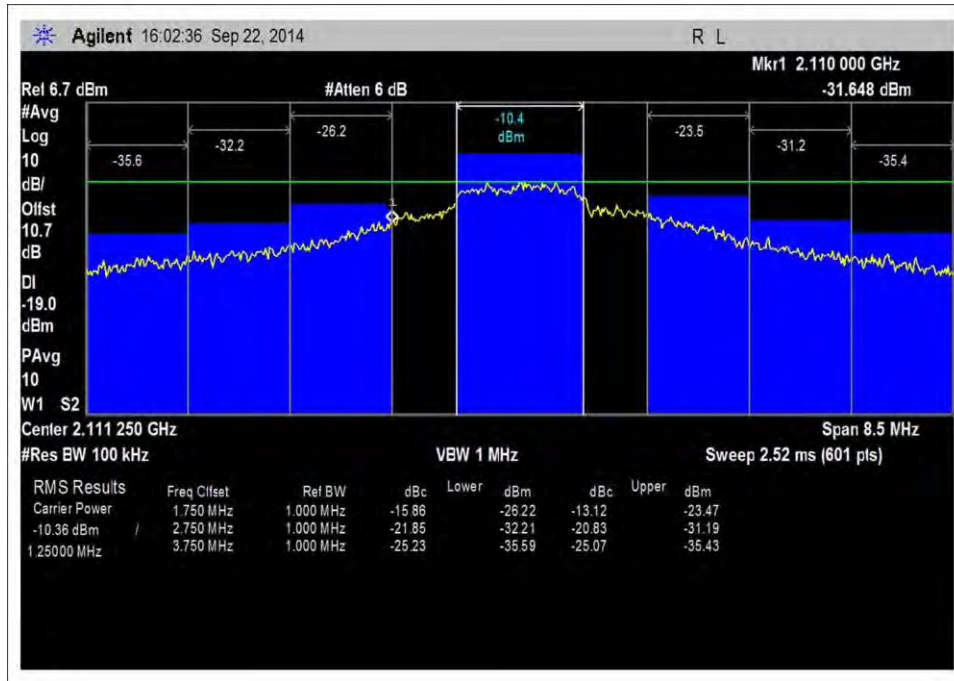
DL_1930-1995MHz_CDMA_H_-53dBm



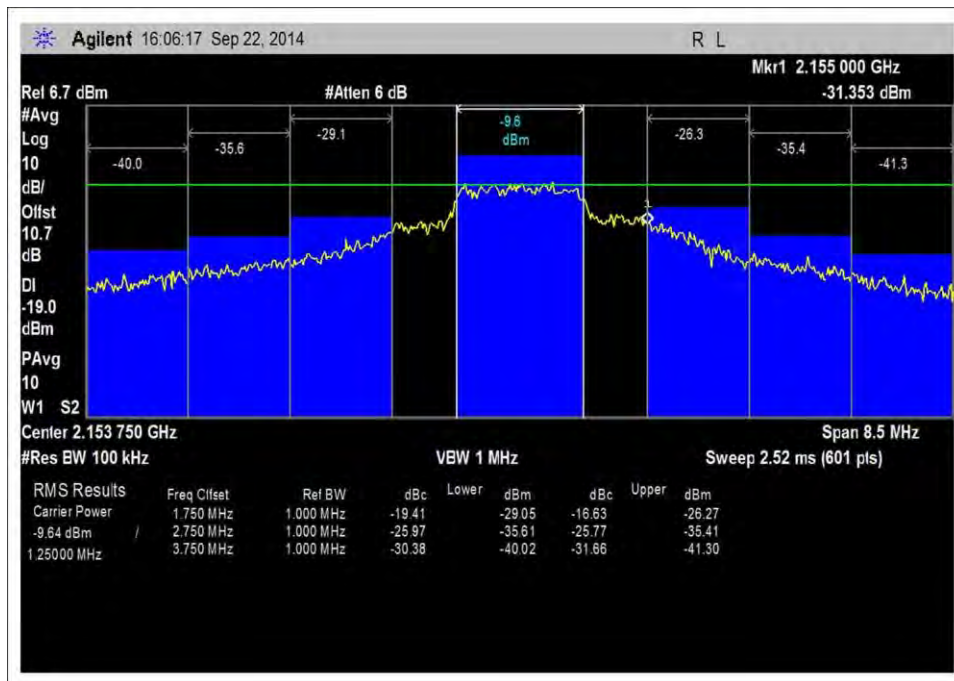
DL_1930-1995MHz_CDMA_L_pre AGC



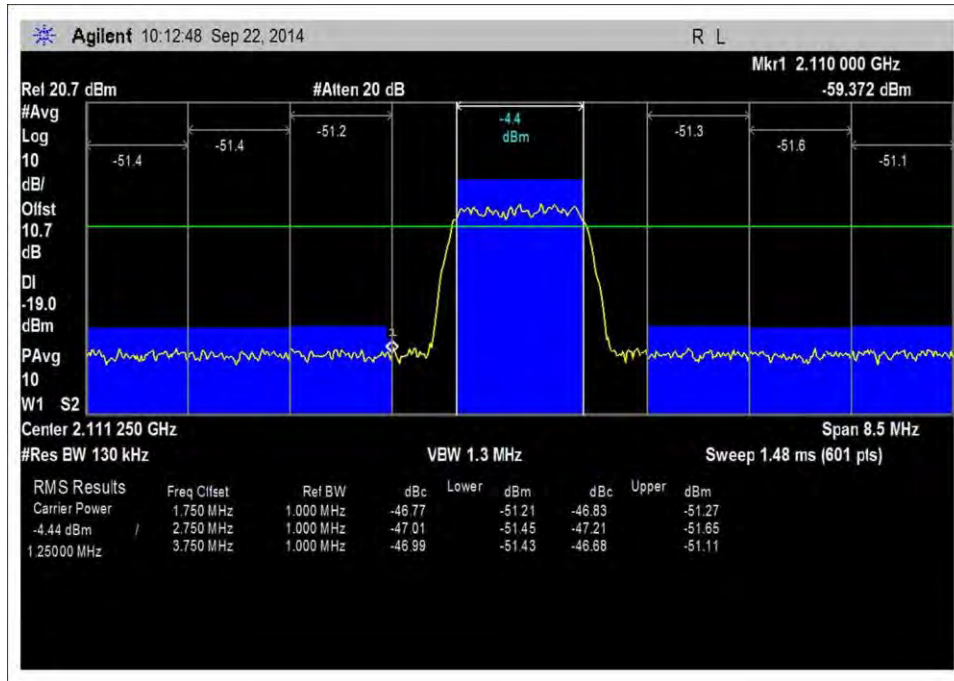
DL_1930-1995MHz_CDMA_H_pre AGC



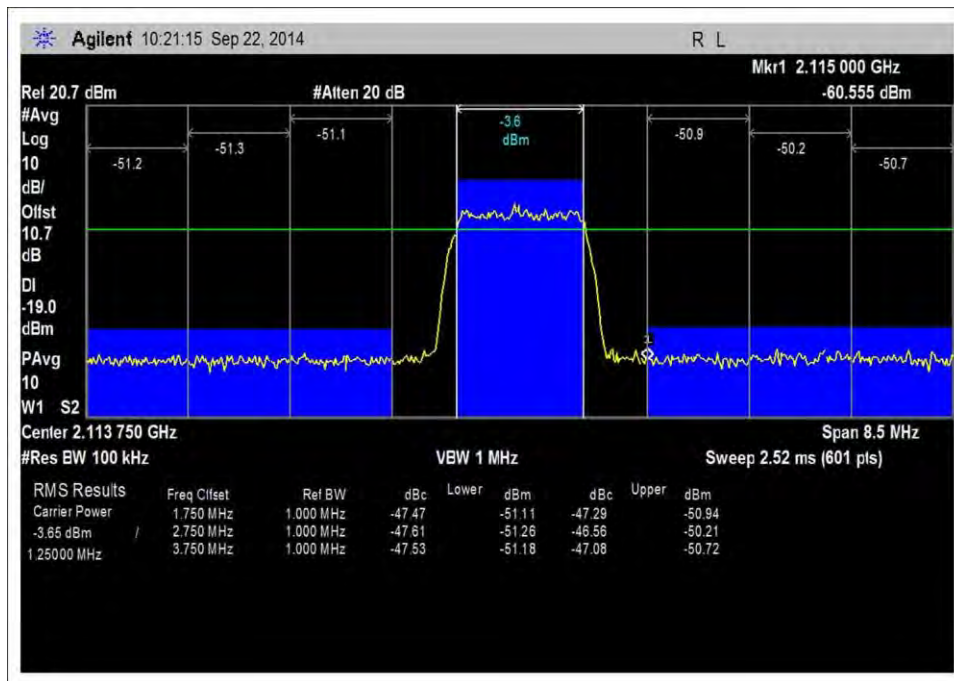
DL_2110-2155MHz_CDMA_L -20dBm



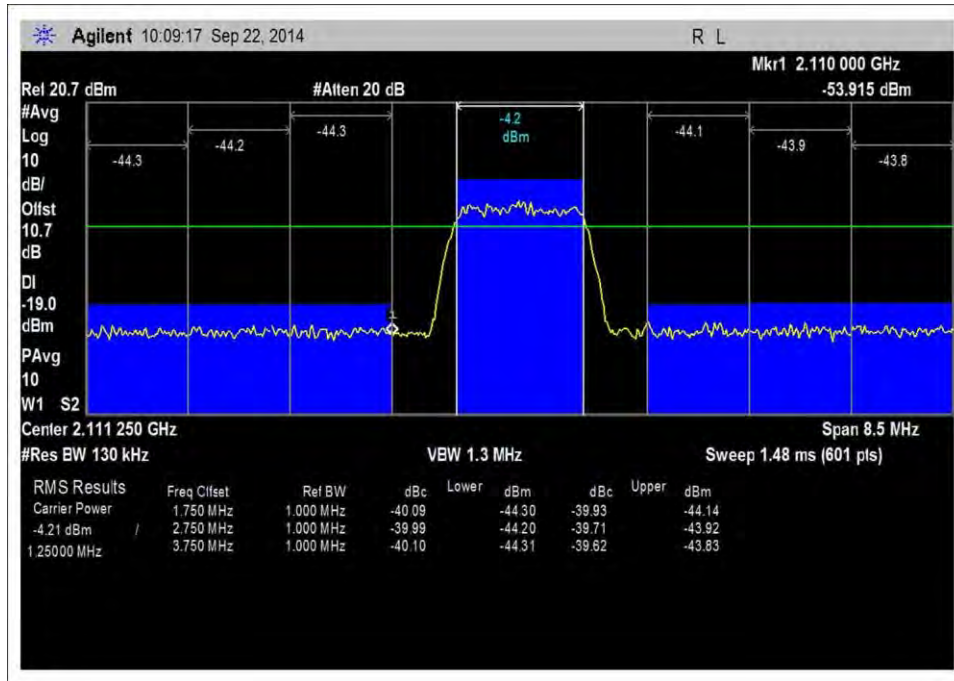
DL_2110-2155MHz_CDMA_H -20dBm



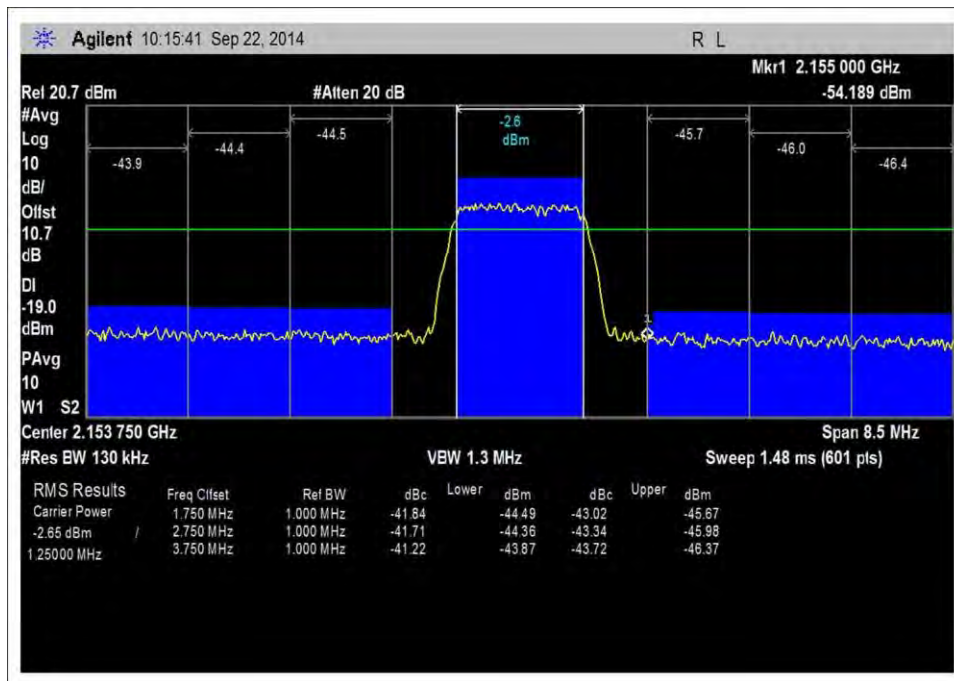
DL_2110-2115MHz_CDMA_L_-57dBm



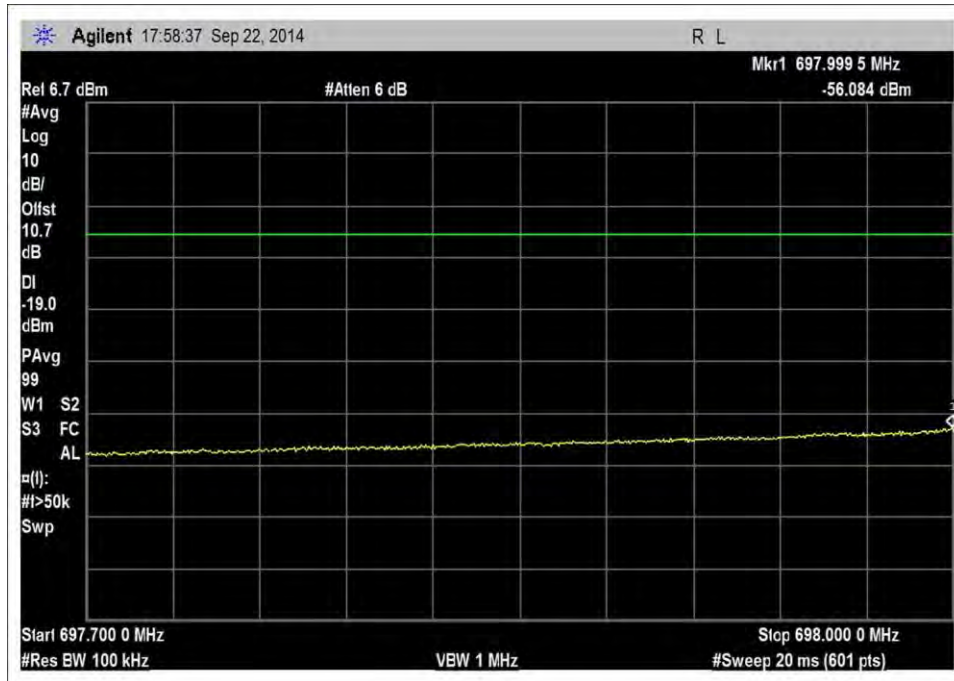
DL_2110-2115MHz_CDMA_H_-57dBm



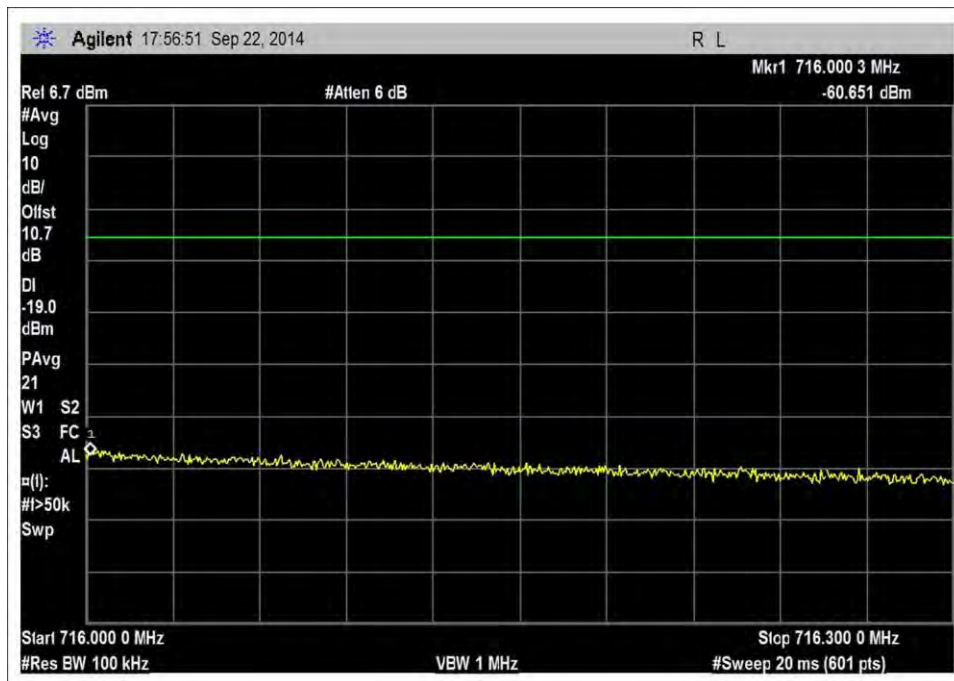
DL_2110-2115MHz_CDMA_L_pre AGC



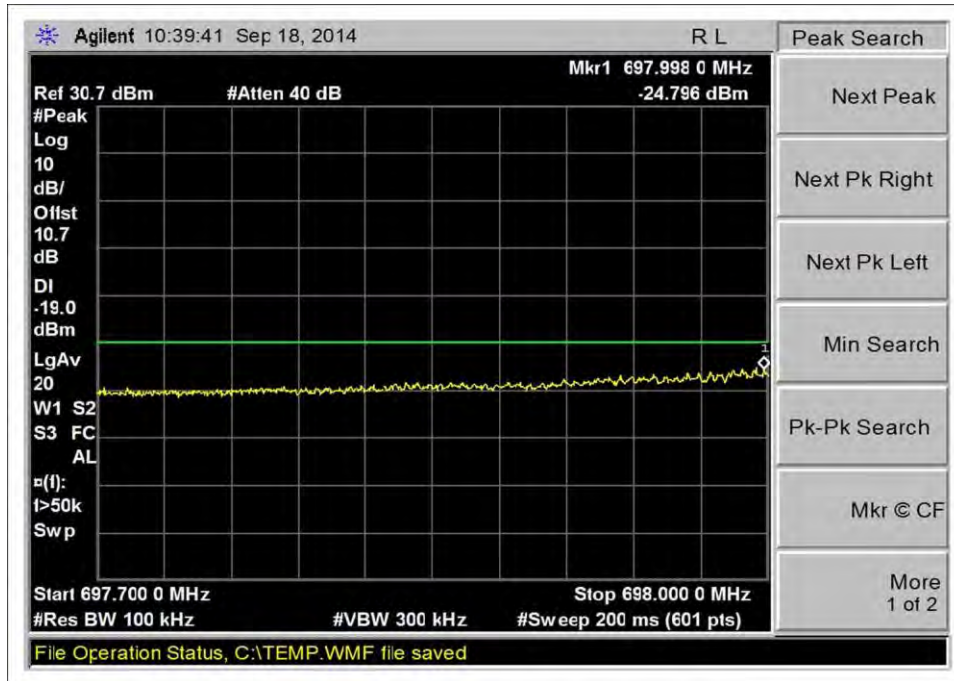
DL_2110-2115MHz_CDMA_H_pre AGC



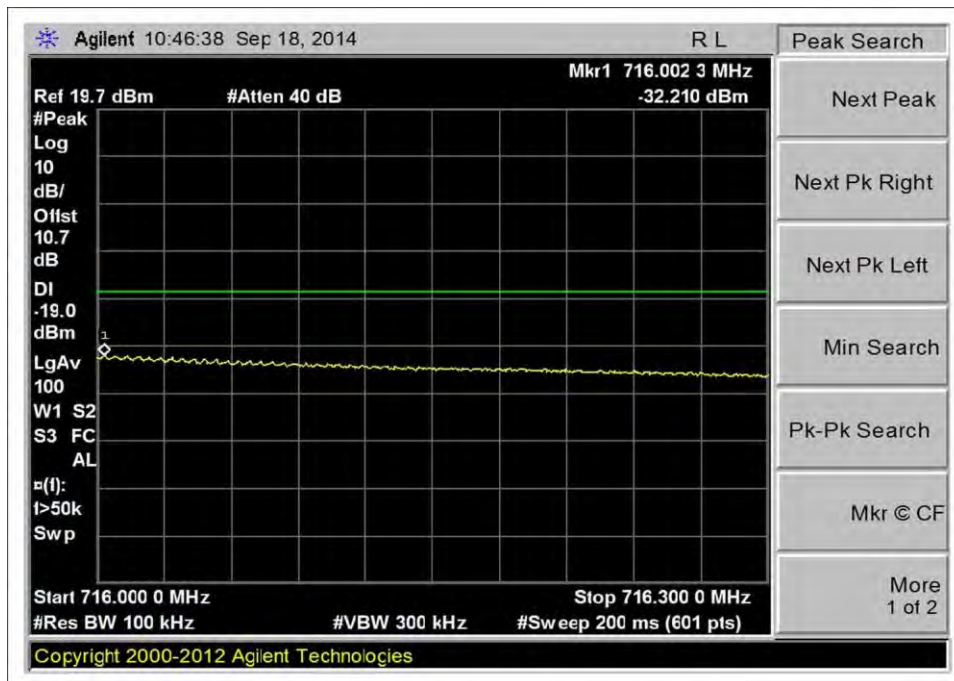
UL_698-716MHz_CDMA_L_OdBm



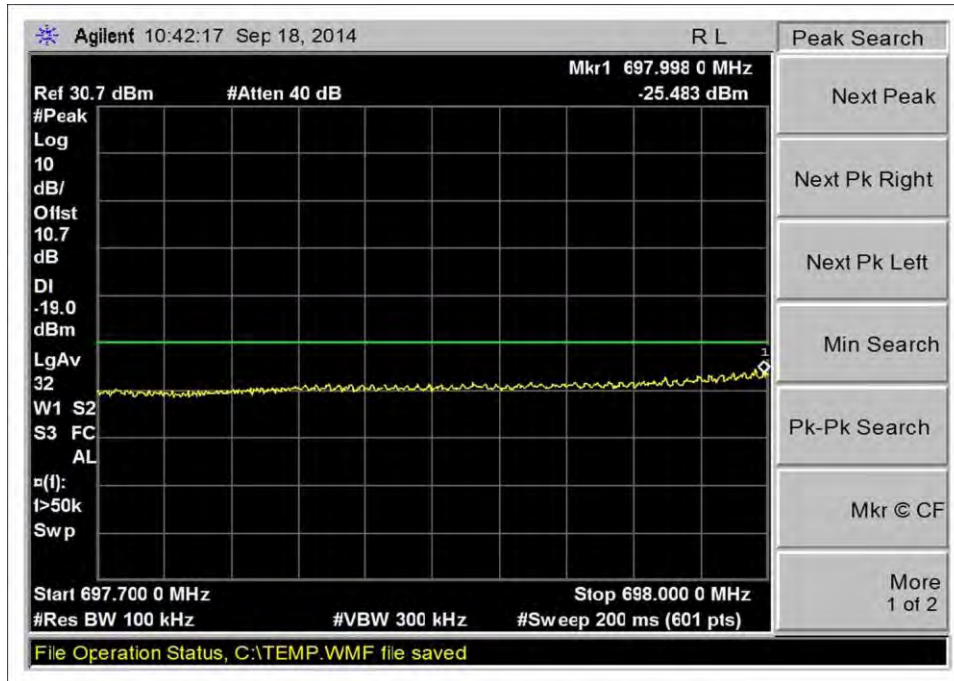
UL_698-716MHz_CDMA_H_OdBm



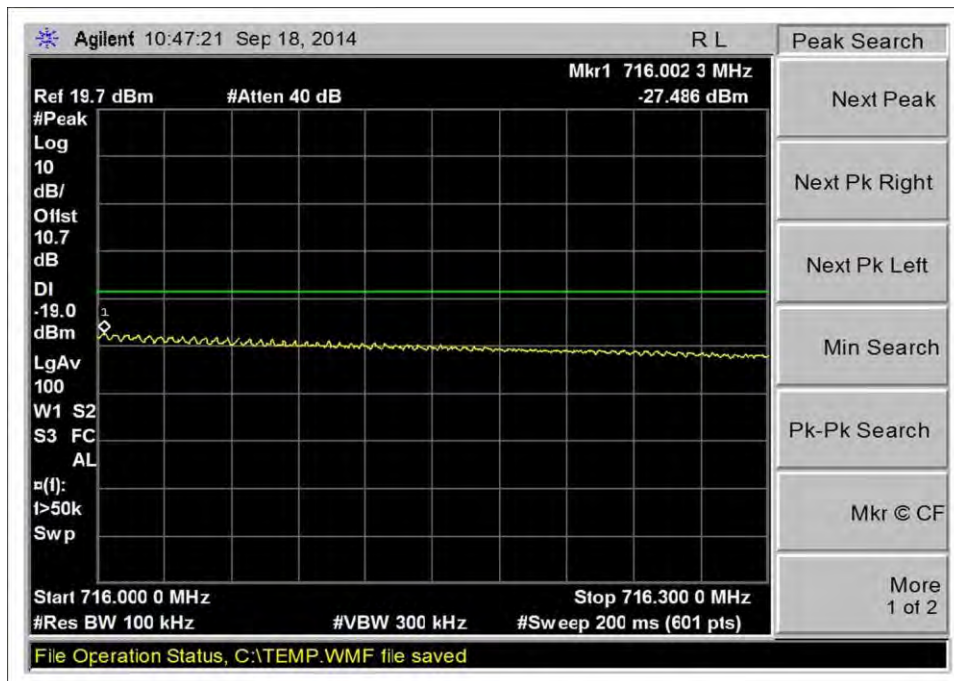
UL_698-716MHz_CDMA_L PreAGC



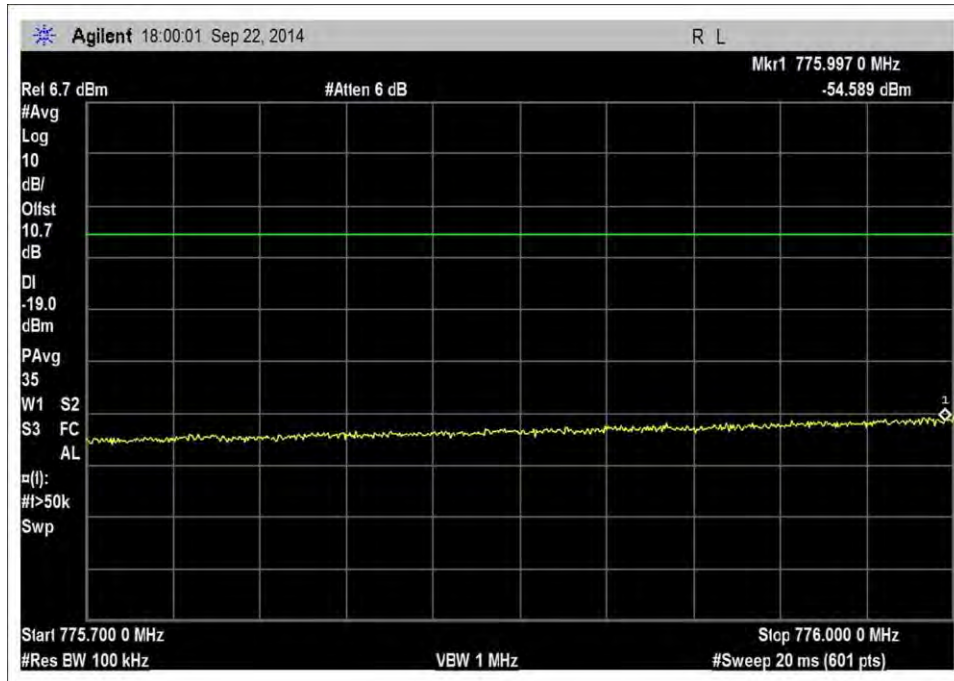
UL_698-716MHz_CDMA_H PreAGC



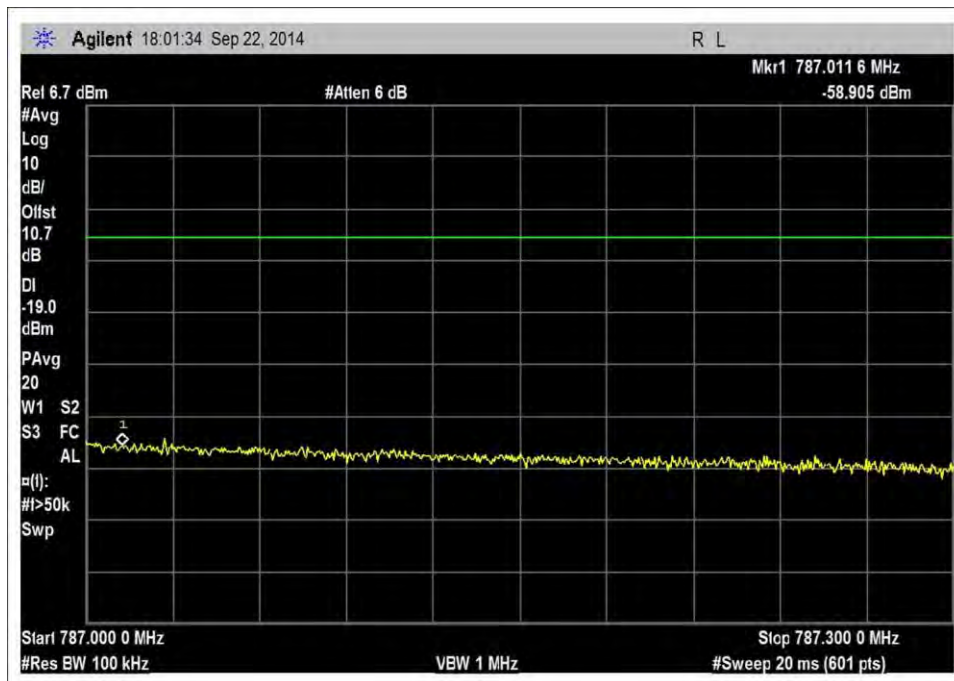
UL_698-716MHz_CDMA_L AGC -325



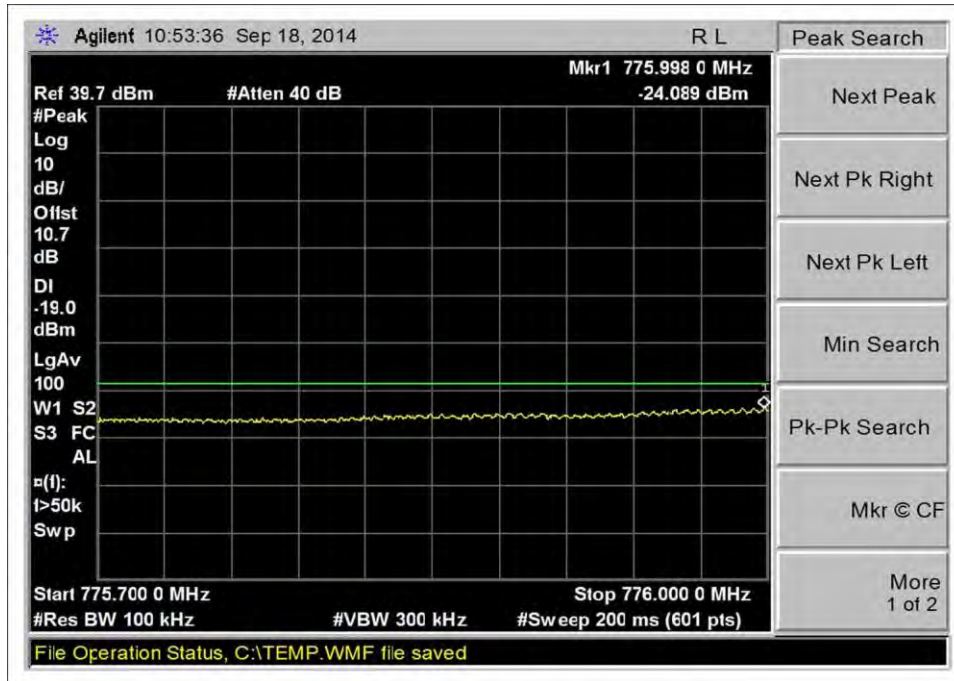
UL_698-716MHz_CDMA_H AGC -32



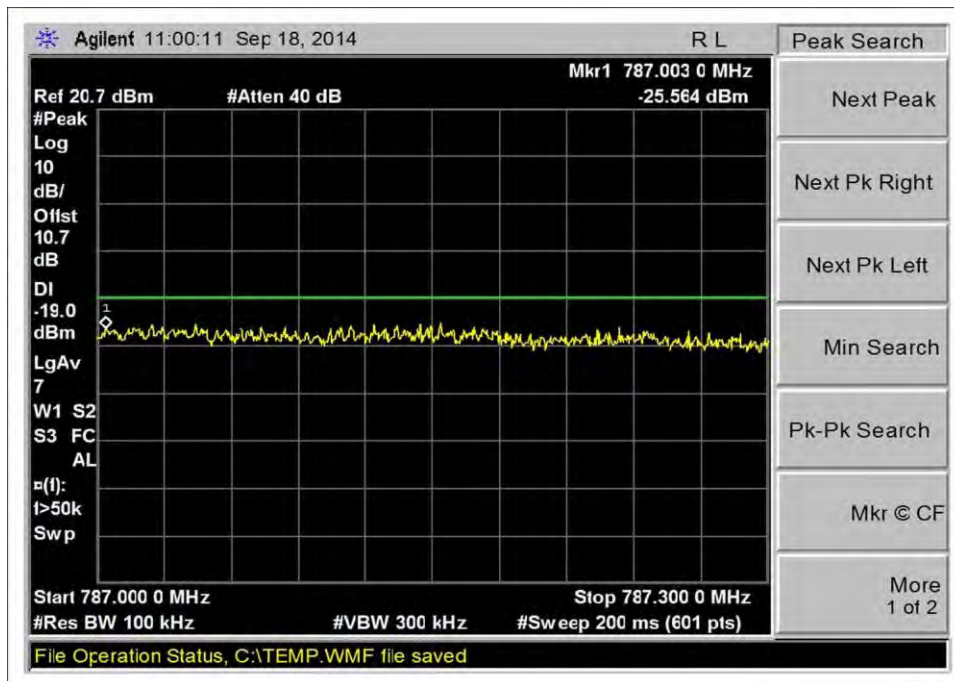
UL_776-787MHz_CDMA_L_OdBm



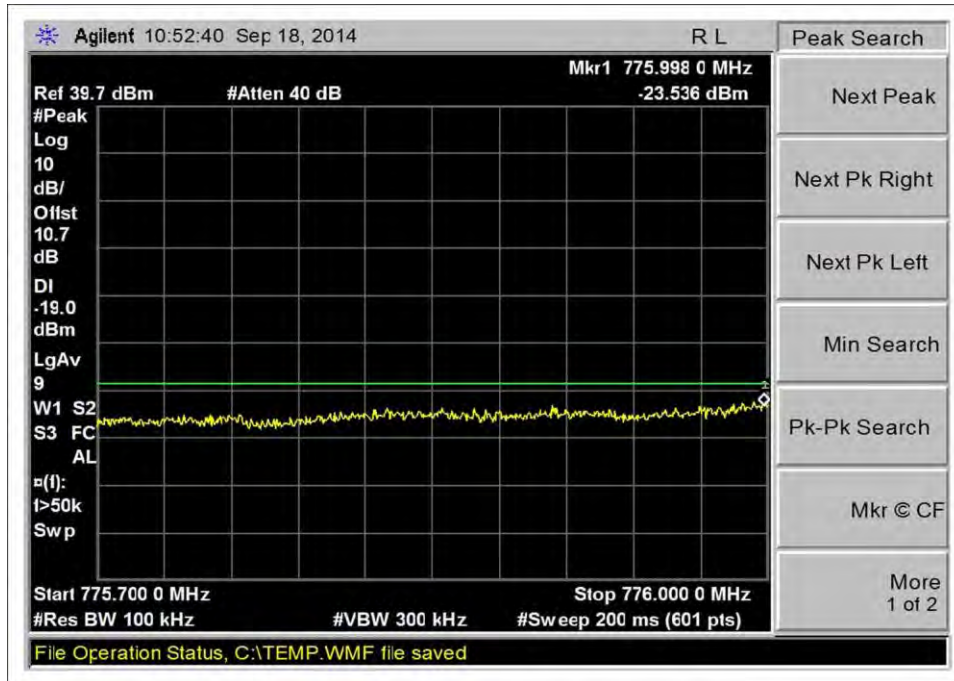
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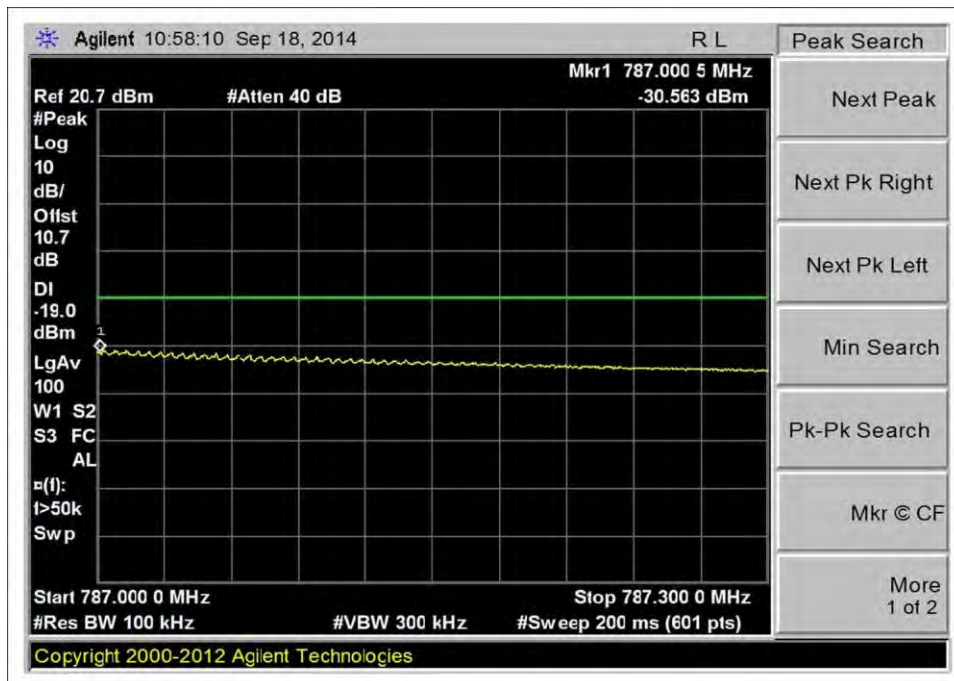
UL_776-787MHz_CDMA_L -29.5



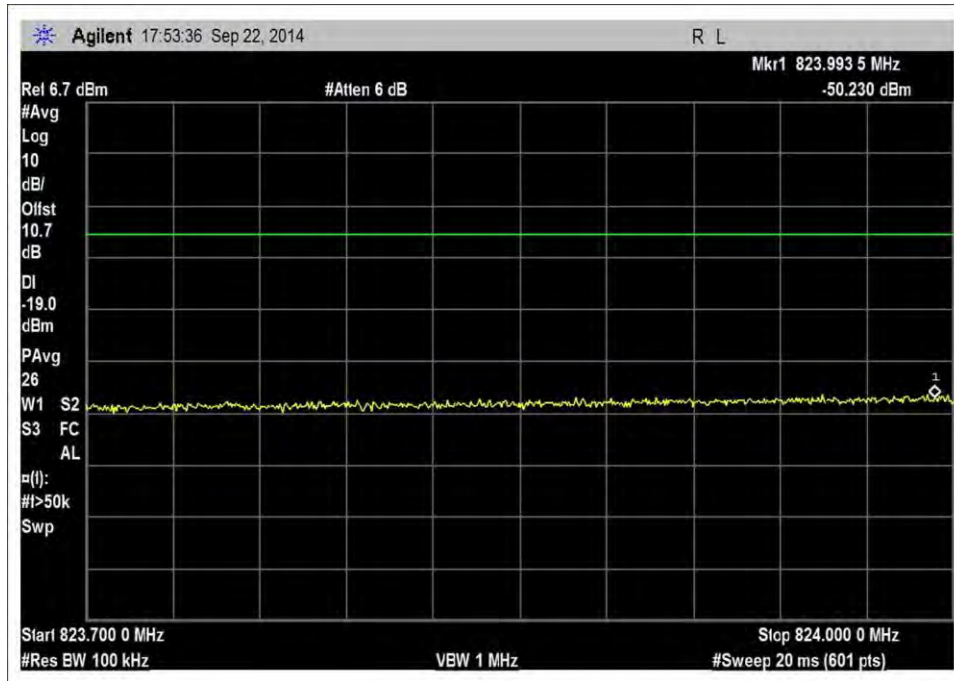
UL_776-787MHz_CDMA_H AGC -265



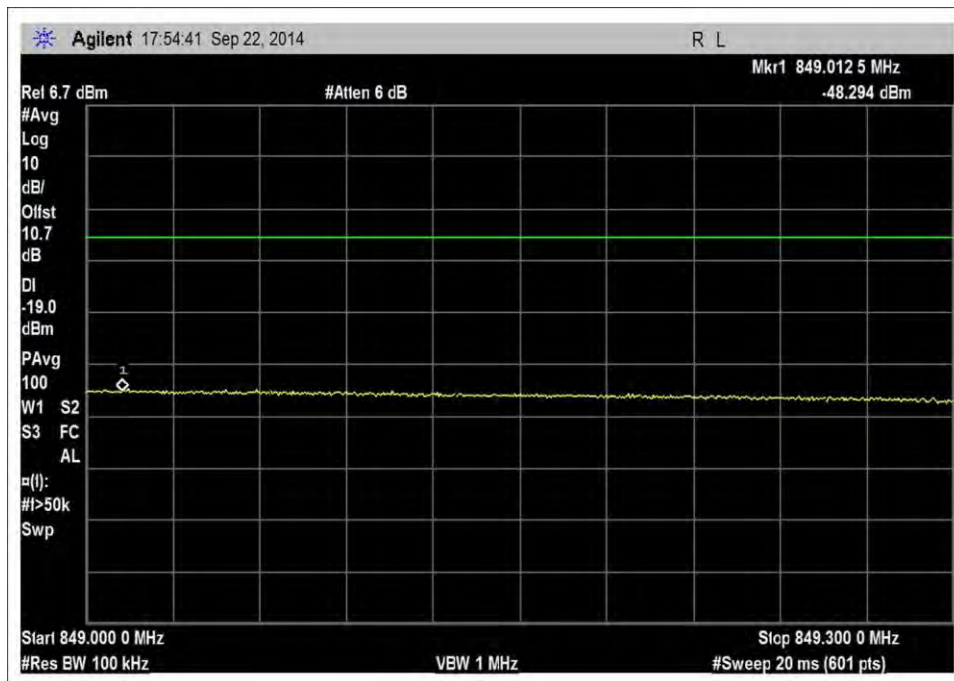
UL_776-787MHz_CDMA_L PreAGC



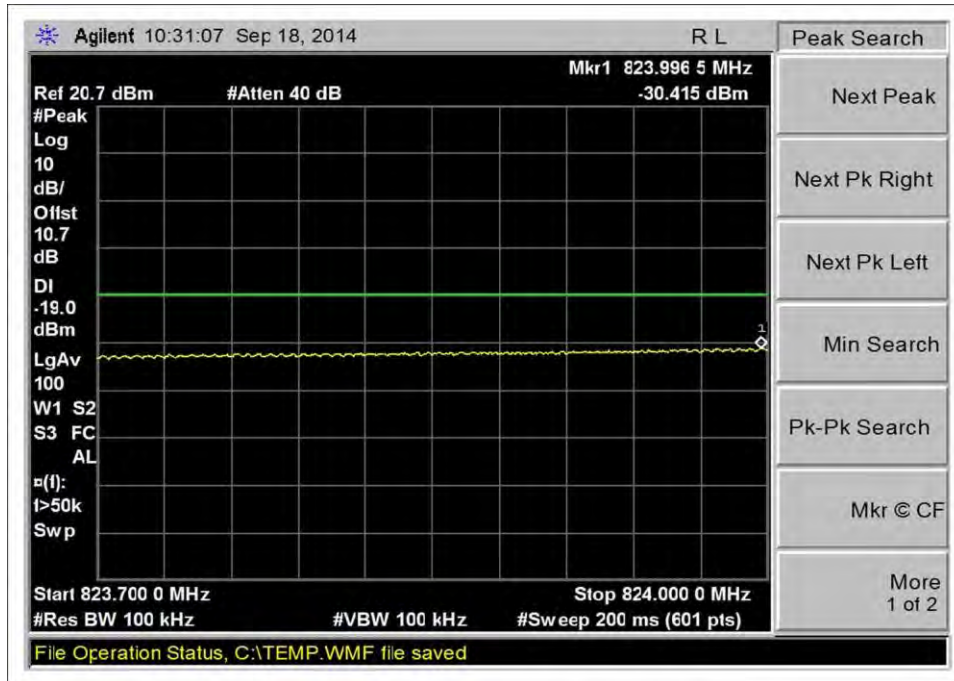
UL_776-787MHz_CDMA_H PreAGC



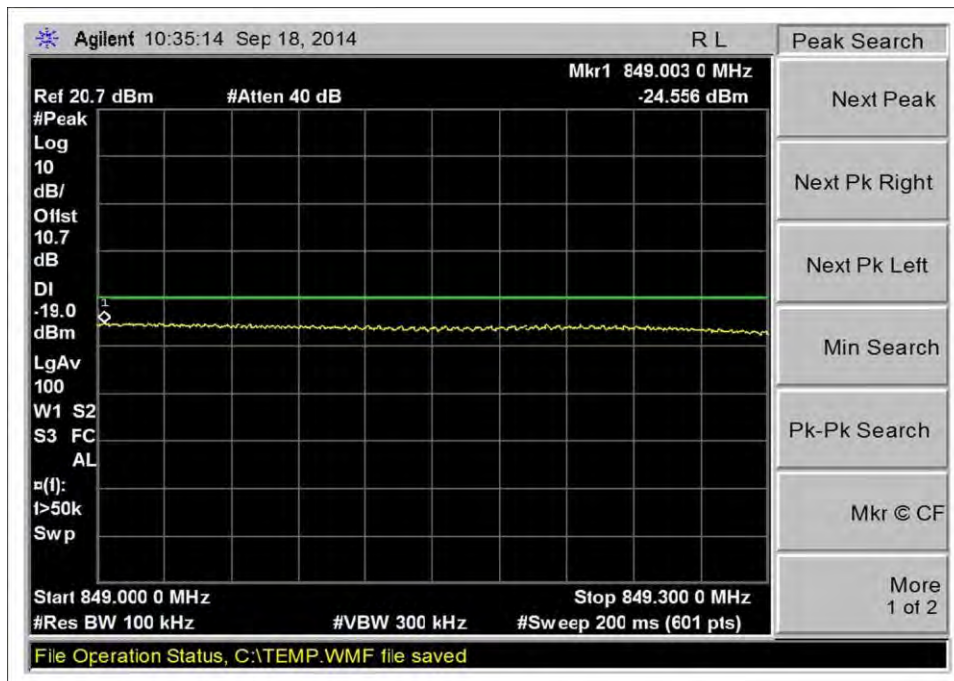
UL_824-849MHz_CDMA_L_0dBm



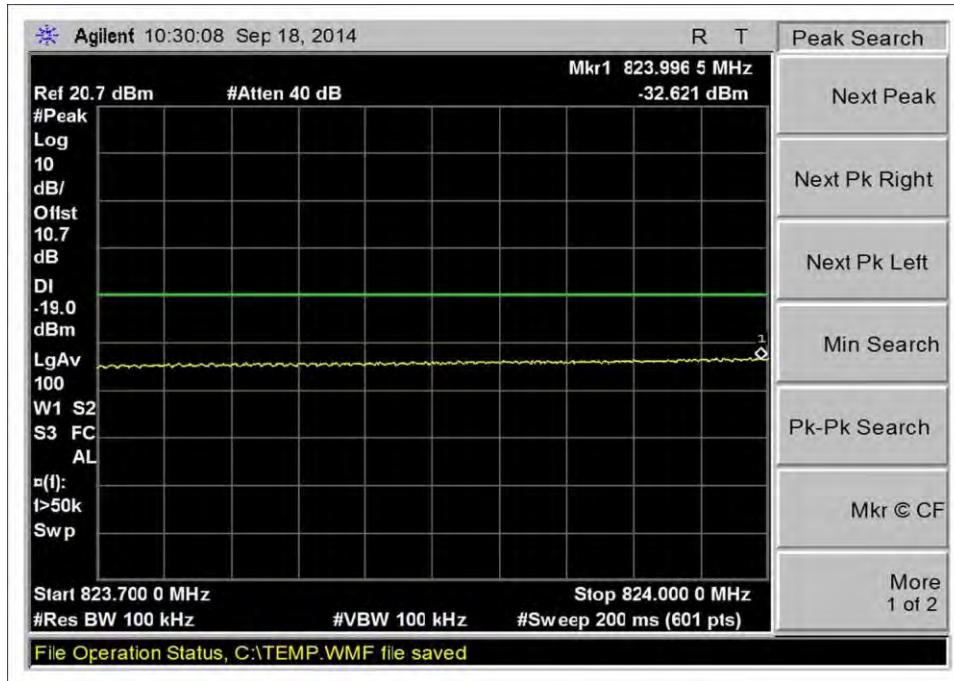
UL_824-849MHz_CDMA_H_0dBm



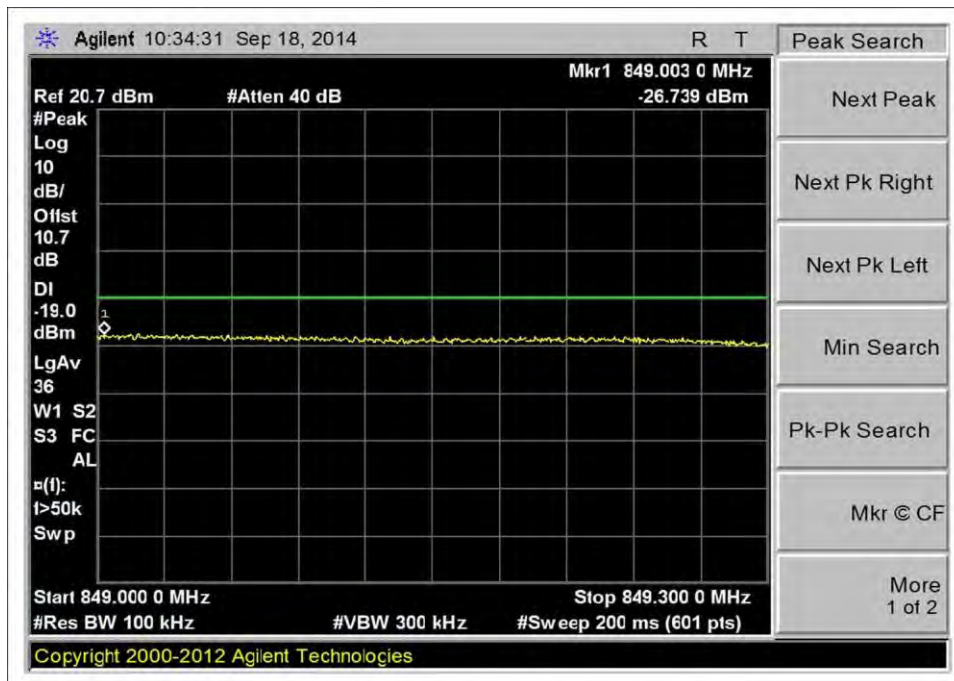
UL_824-849MHz_CDMA_L -29



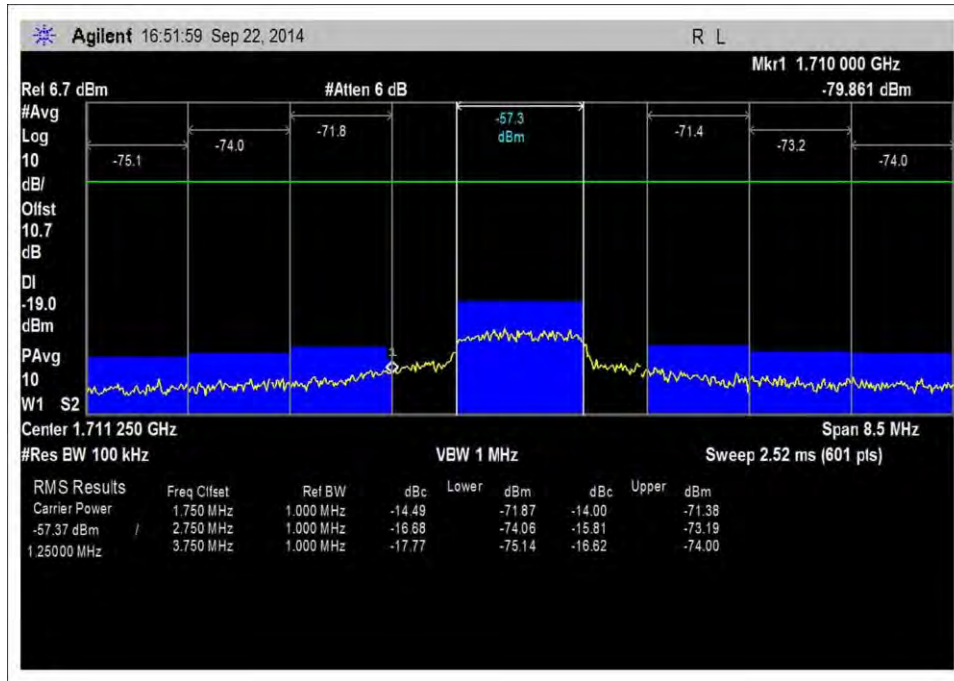
UL_824-849MHz_CDMA_H -255



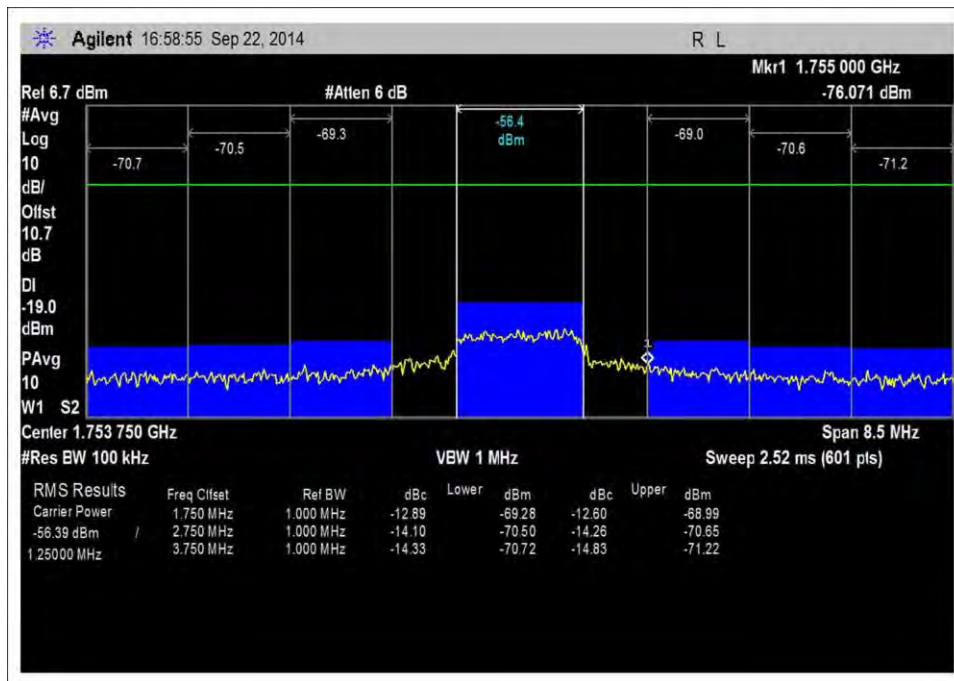
UL_824-849MHz_CDMA_L PreAGC



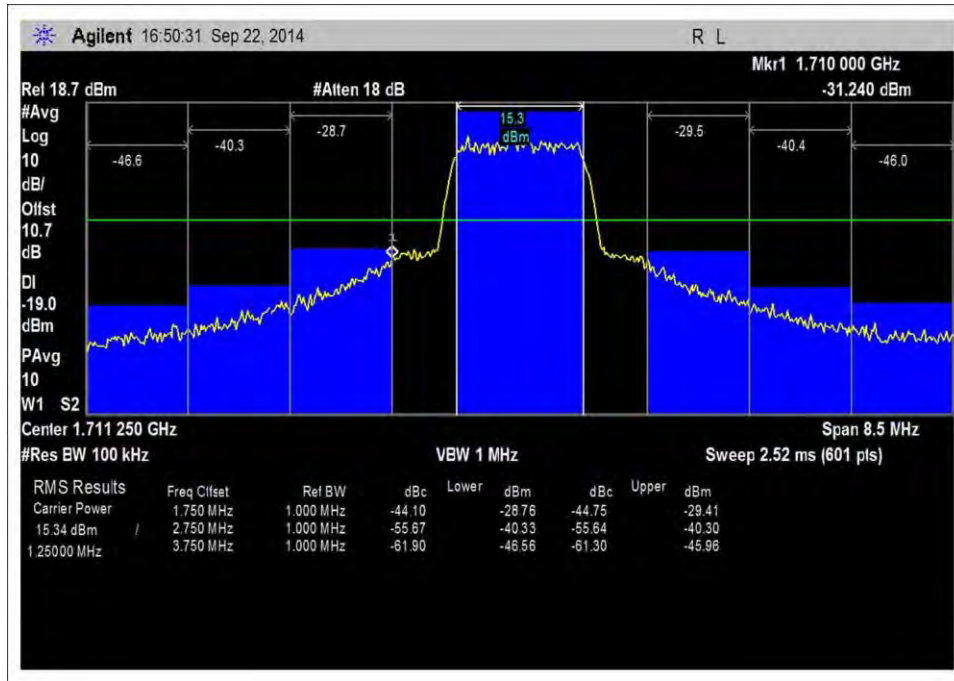
UL_824-849MHz_CDMA_H PreAGC



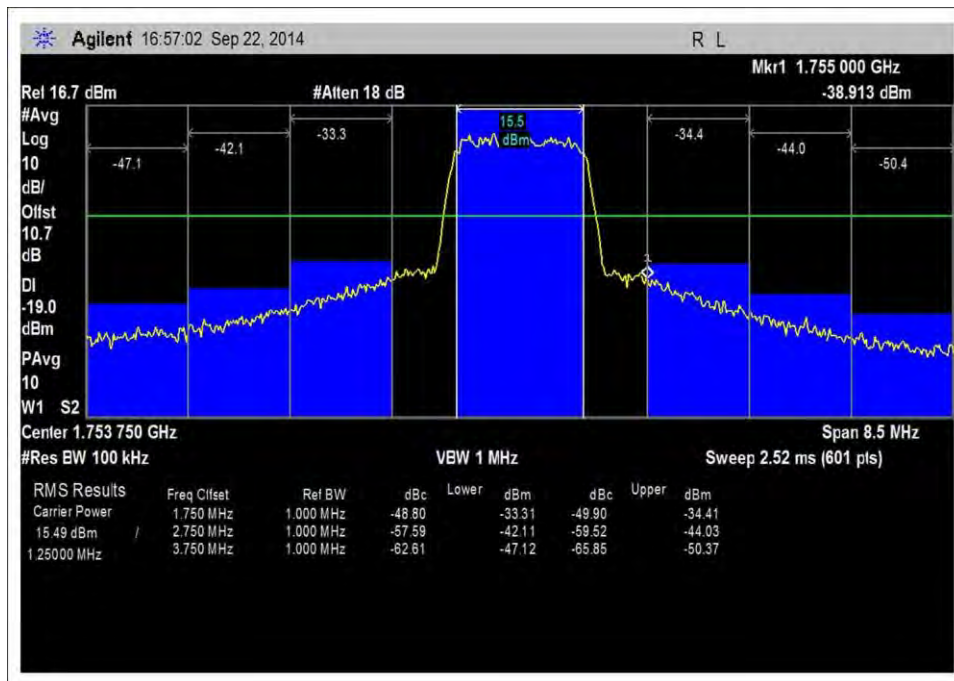
UL_1710-1755MHz_CDMA_L_OdBm



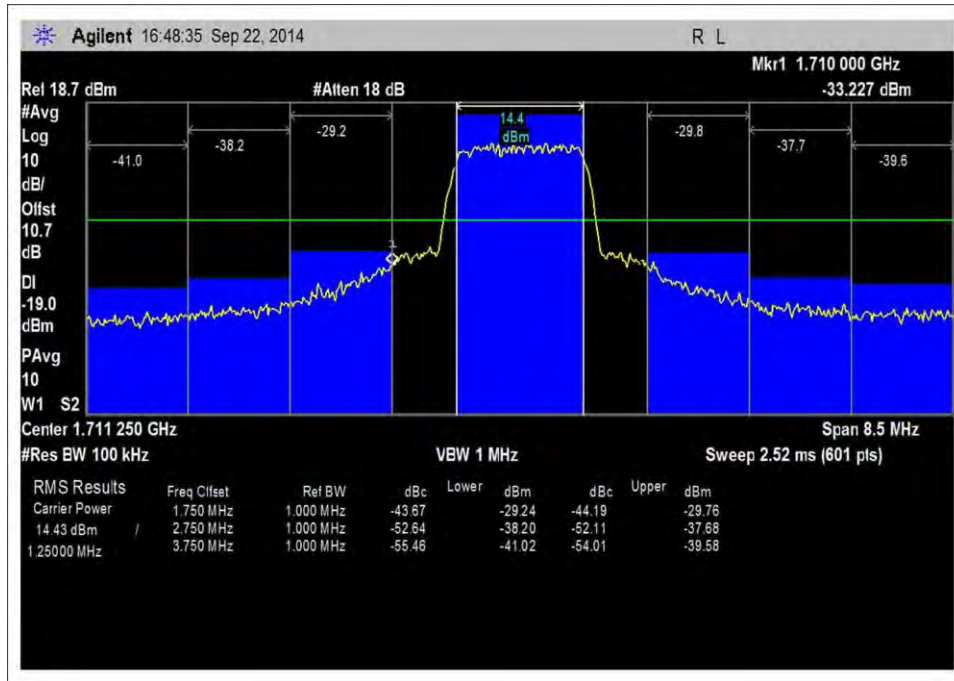
UL_1710-1755MHz_CDMA_H_OdBm



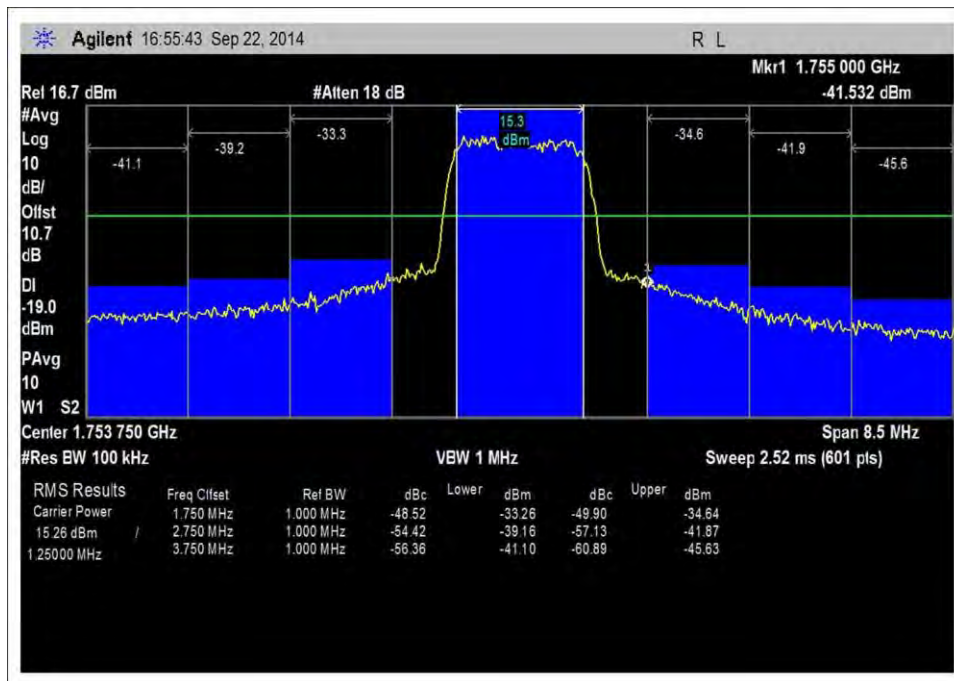
UL_1710-1755MHz_CDMA_L_-41dBm



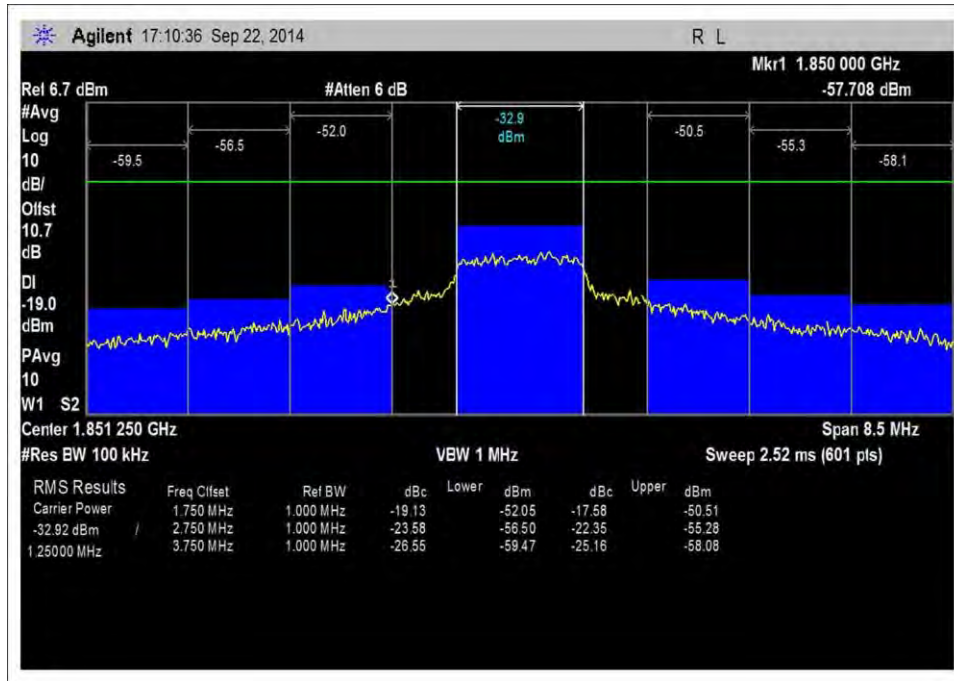
UL_1710-1755MHz_CDMA_H_-39dBm



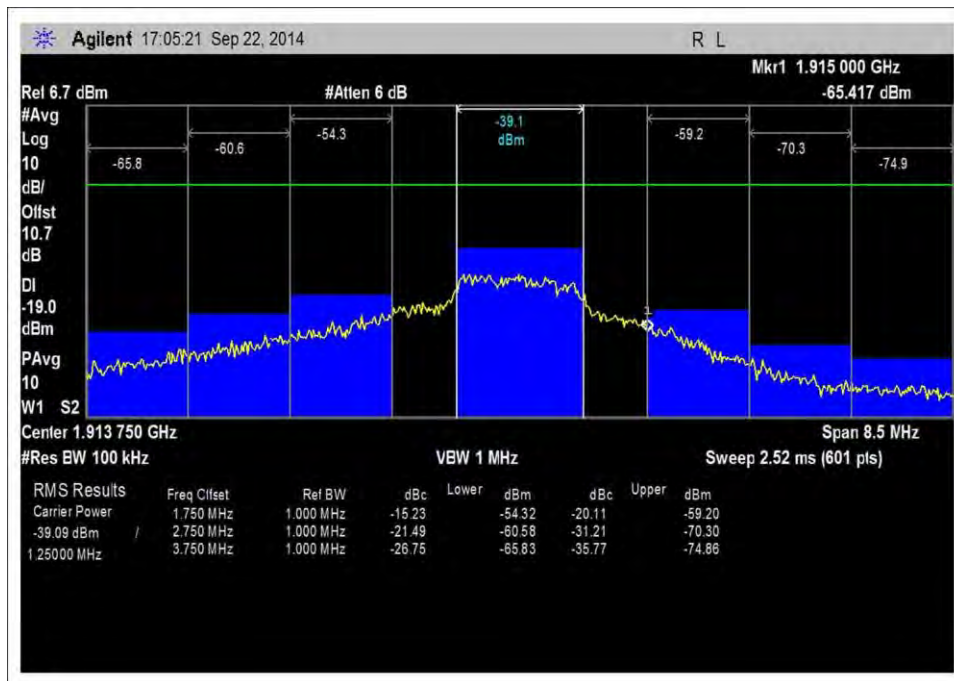
UL_1710-1755MHz_CDMA_L_pre AGC



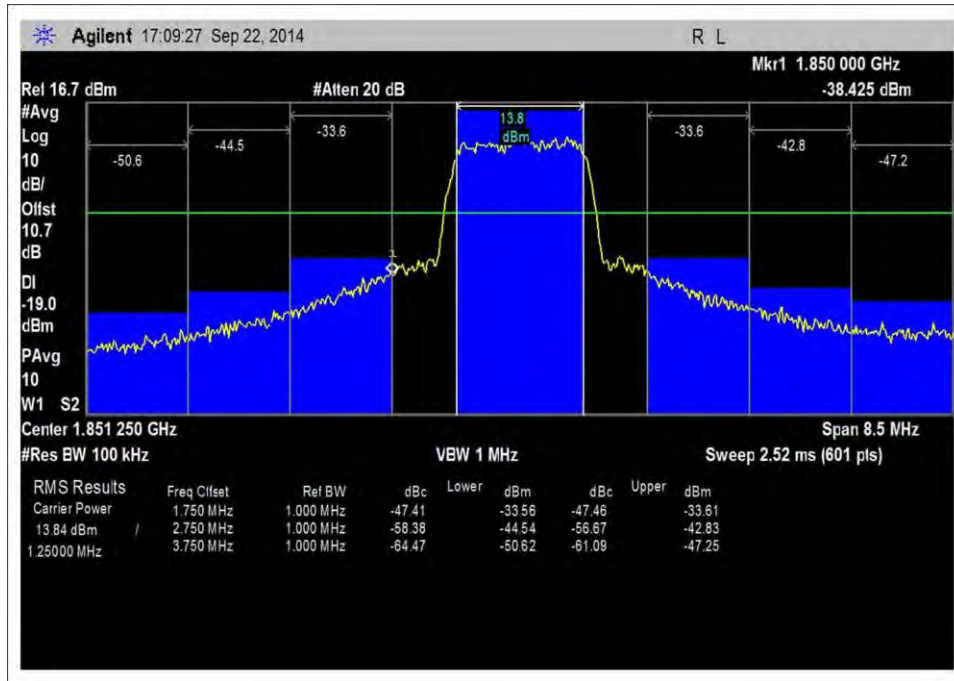
UL_1710-1755MHz_CDMA_H_pre AGC



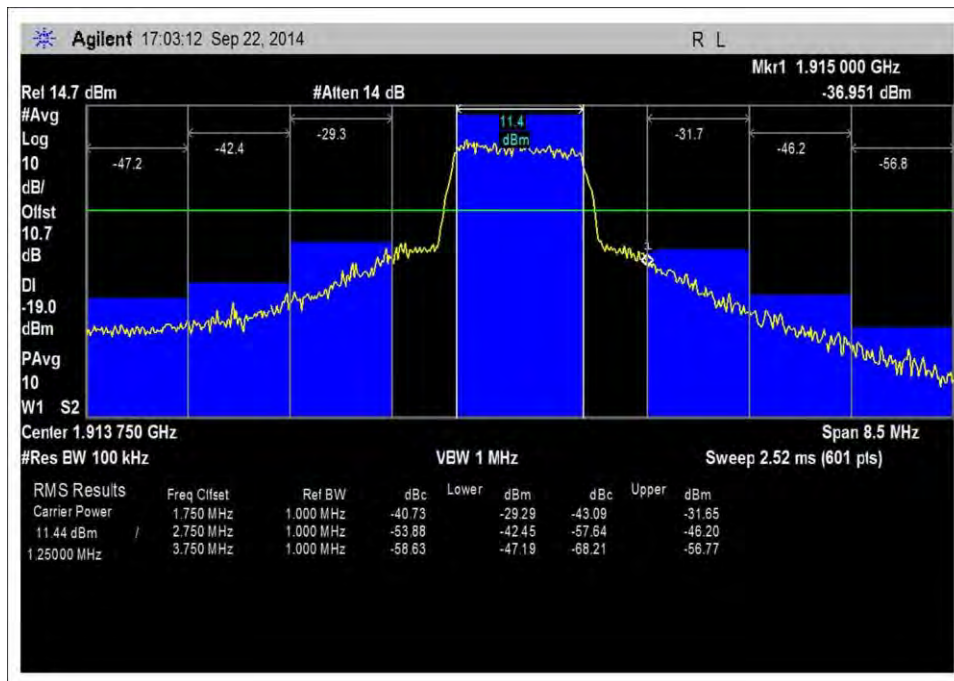
UL_1850-1915MHz_CDMA_L_OdBm



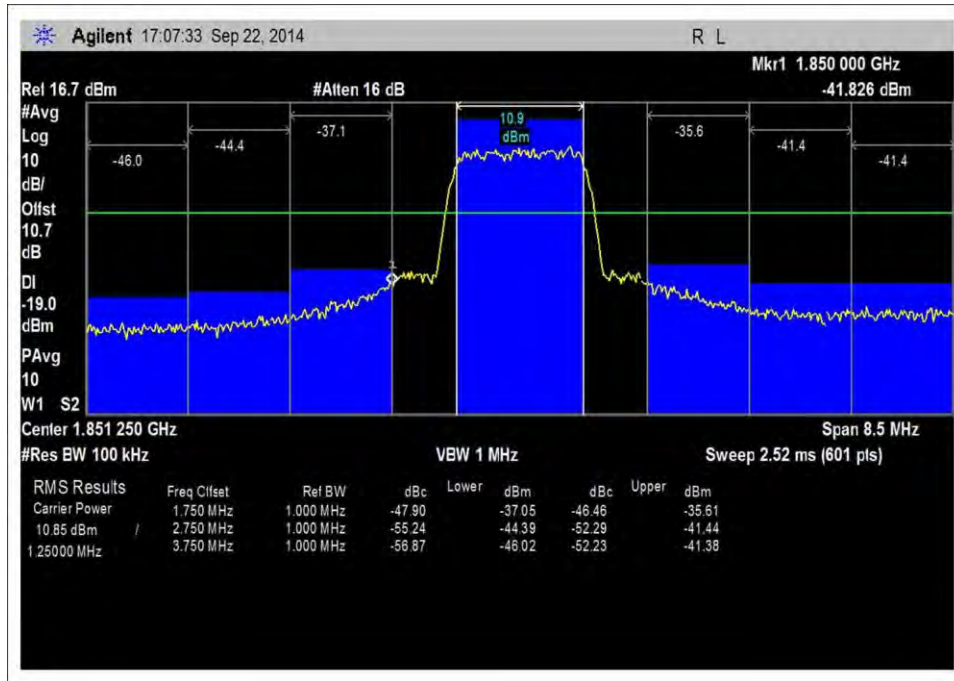
UL_1850-1915MHz_CDMA_H_OdBm



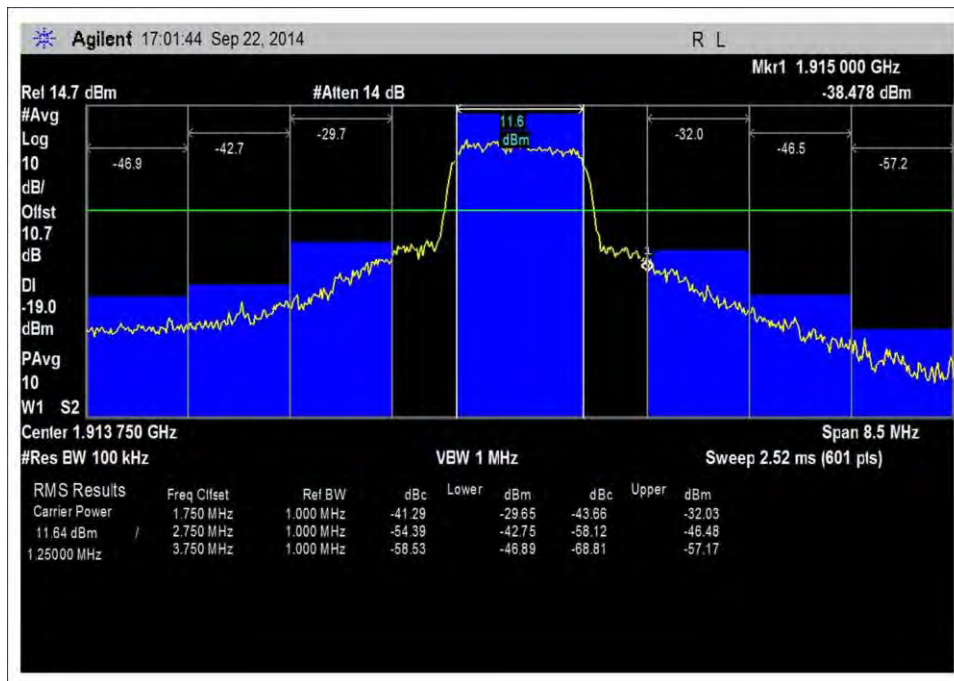
UL_1850-1915MHz_CDMA_L_-38dBm



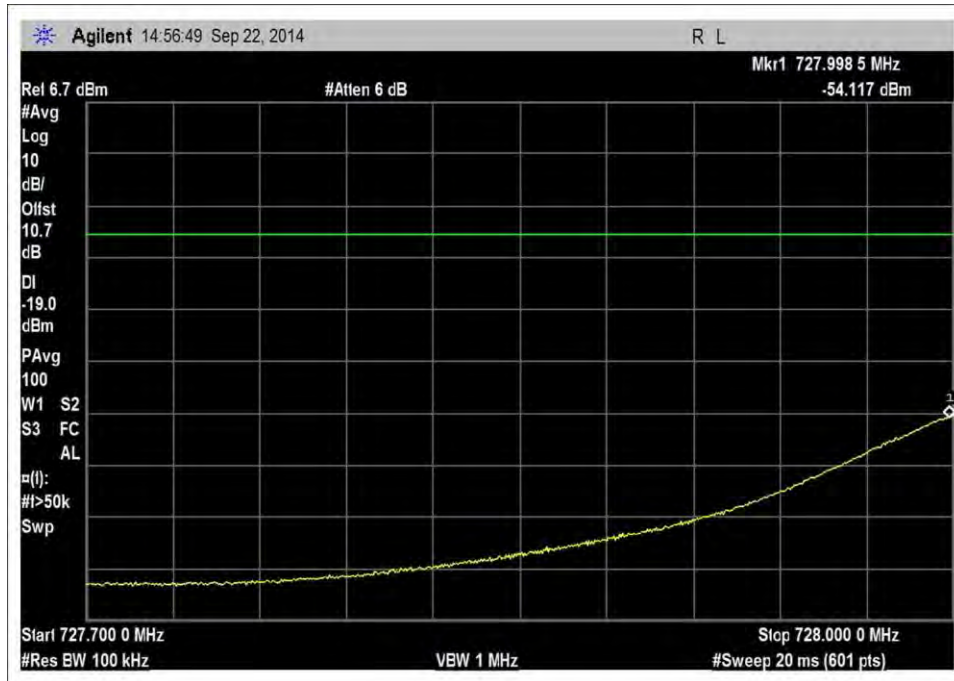
UL_1850-1915MHz_CDMA_H_-36dBm



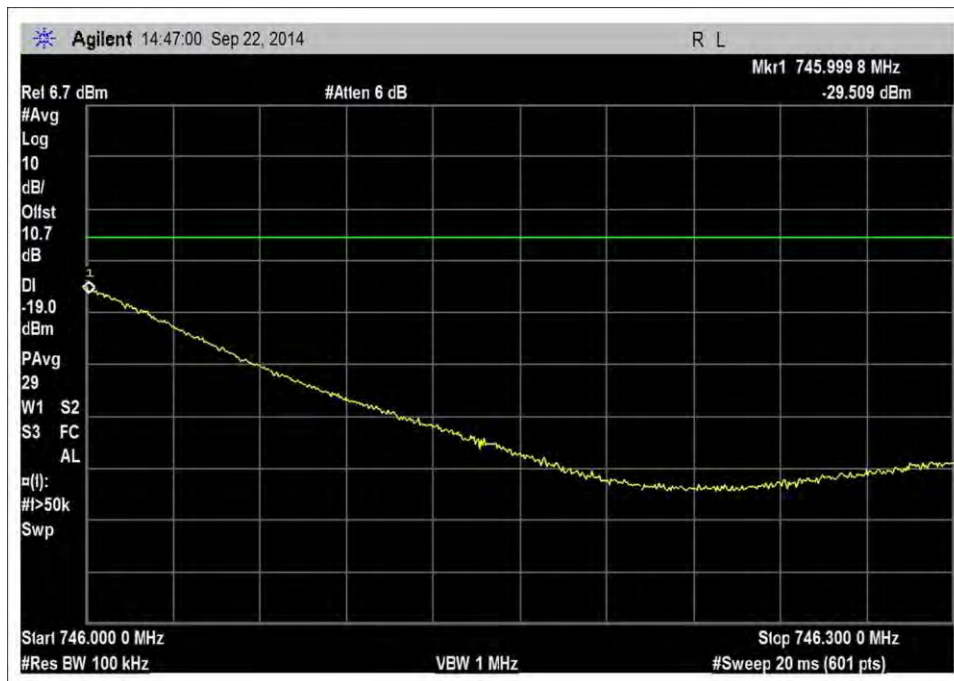
UL_1850-1915MHz_CDMA_L_pre AGC



UL_1850-1915MHz_CDMA_H_pre AGC



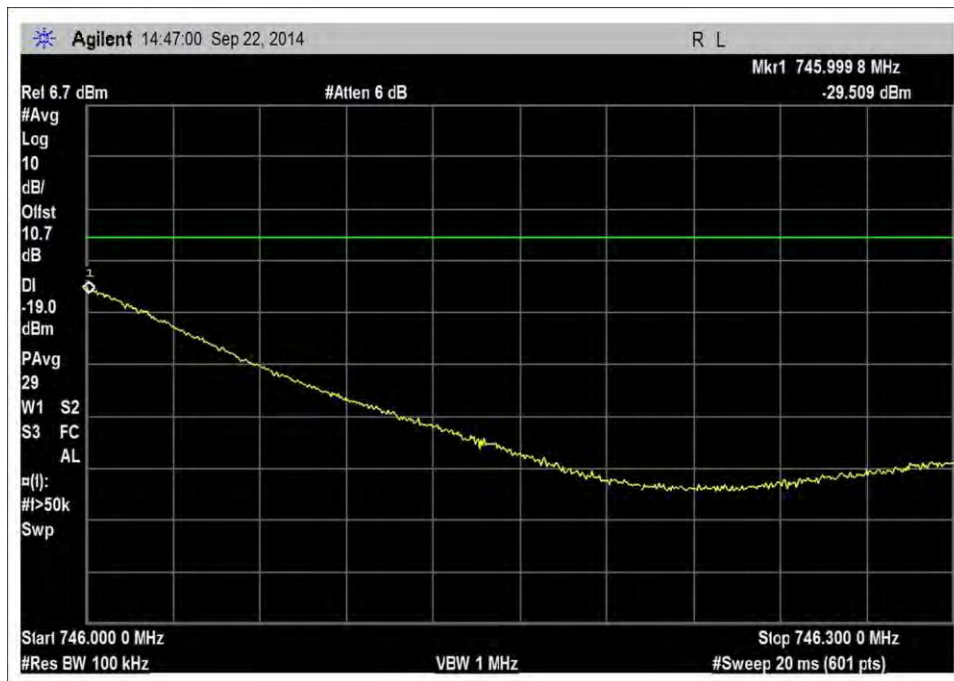
DL_728-746MHz_GSM_L_-20dBm



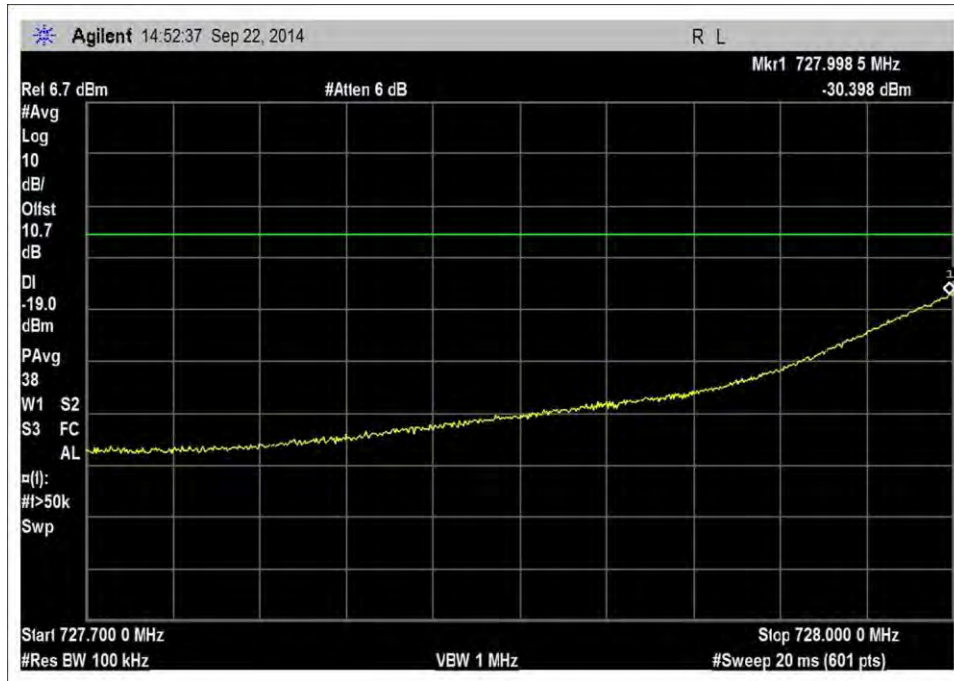
DL_728-746MHz_GSM_H_-20dBm



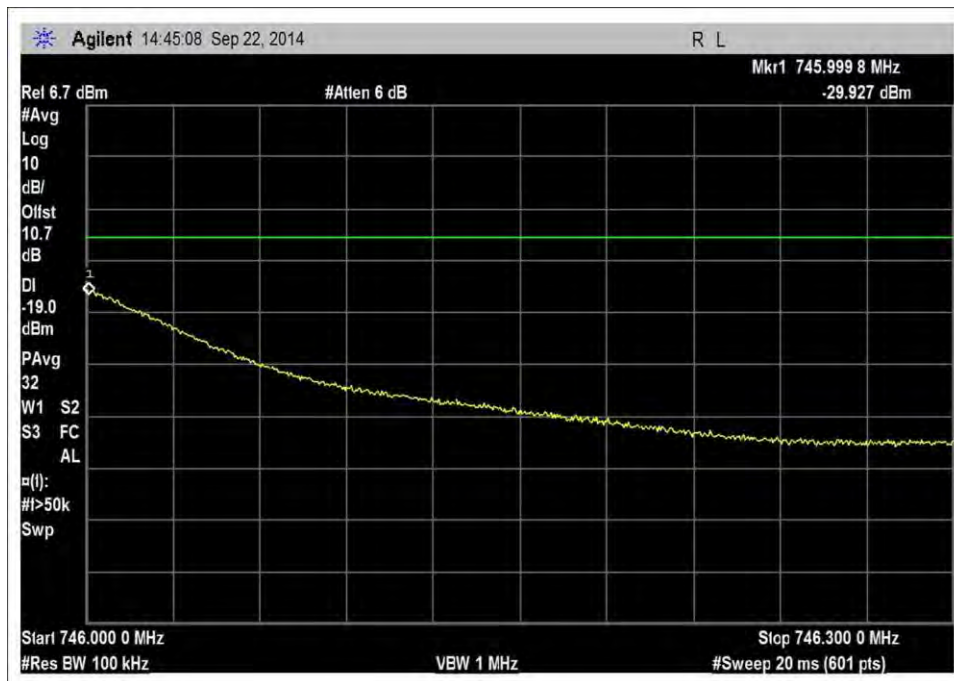
DL_728-746MHz_GSM_L_-45dBm



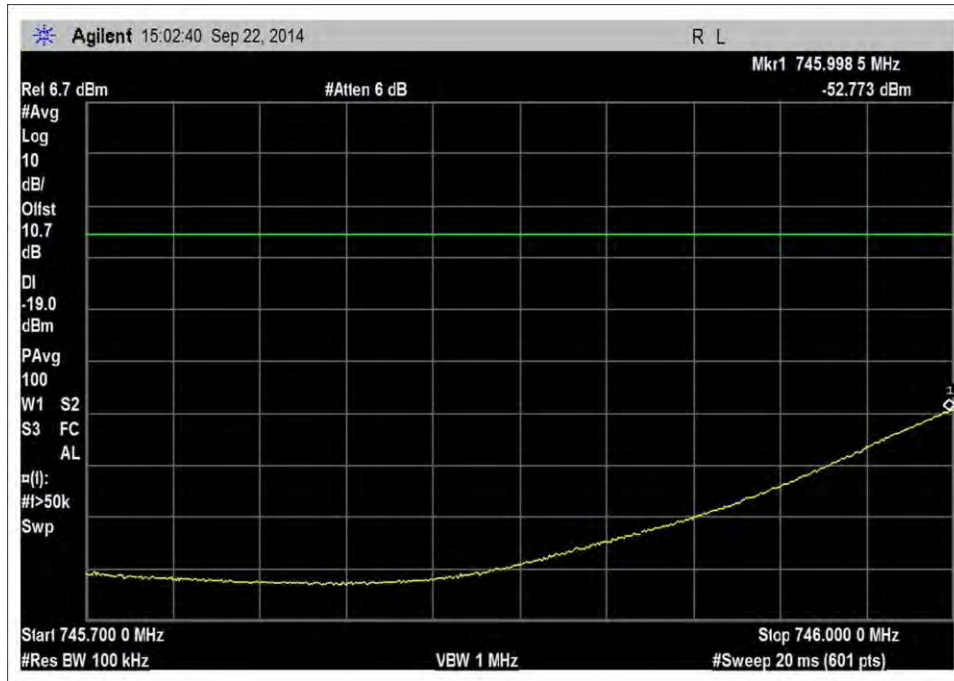
DL_728-746MHz_GSM_H_-48dBm



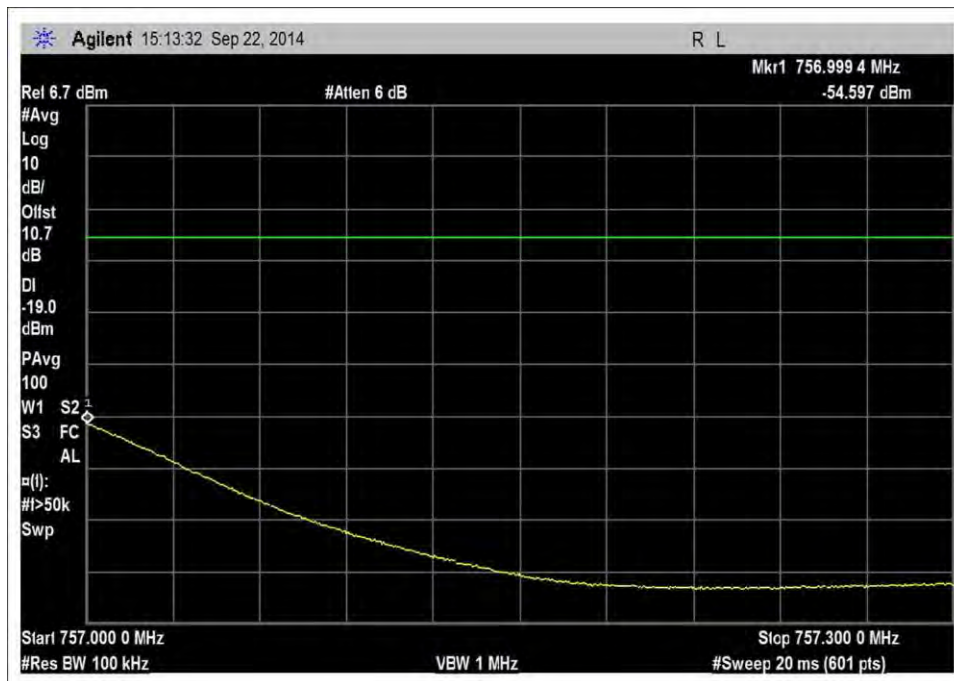
DL_728-746MHz_GSM_L_Pre AGC



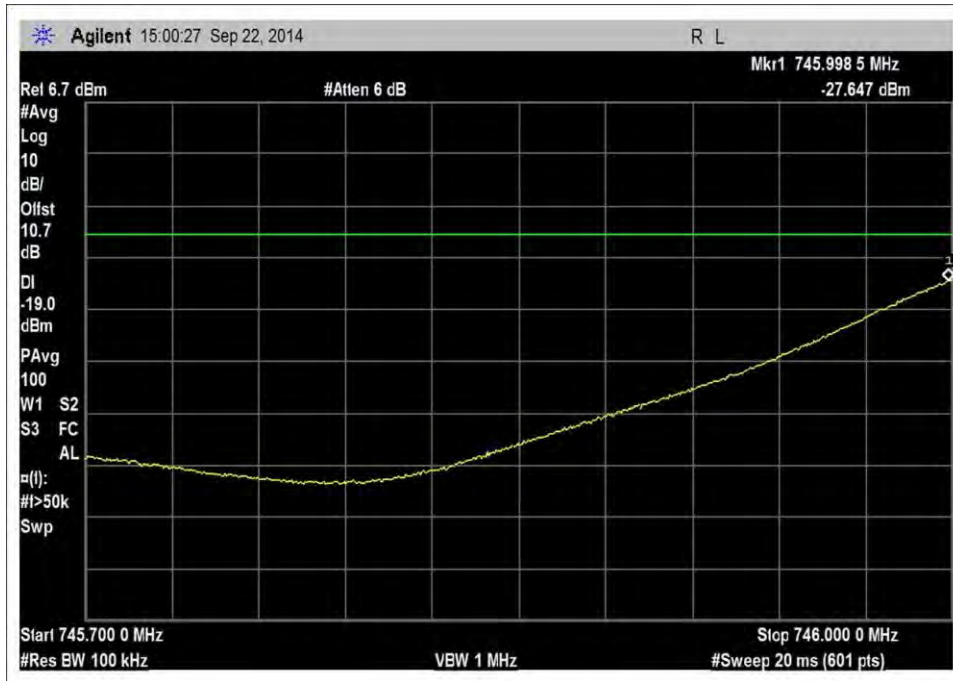
DL_728-746MHz_GSM_H_pre AGC



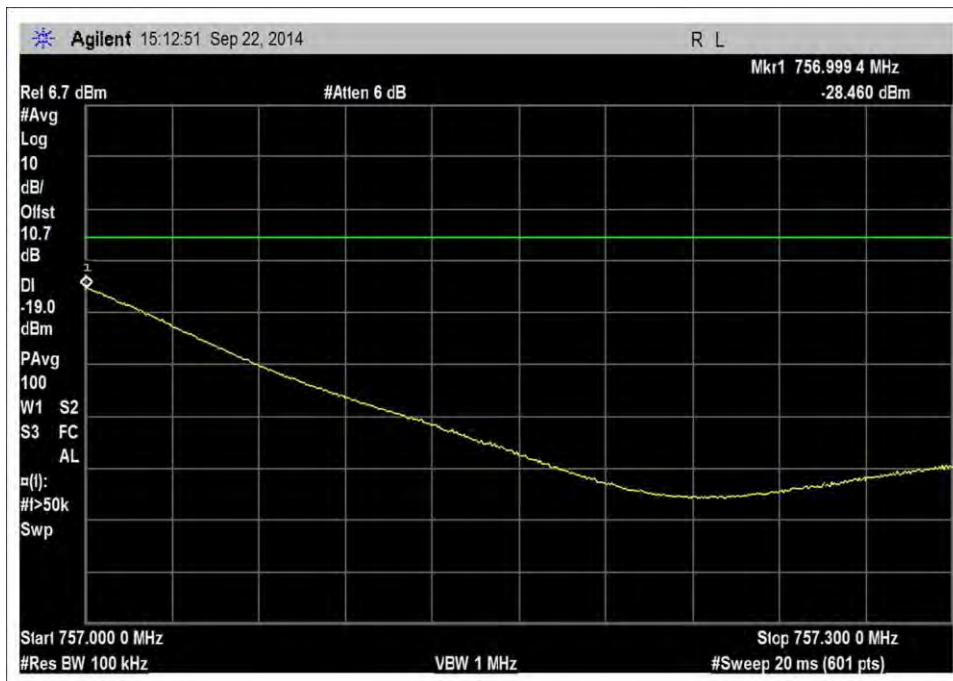
DL_746-757MHz_GSM_L_-20dBm



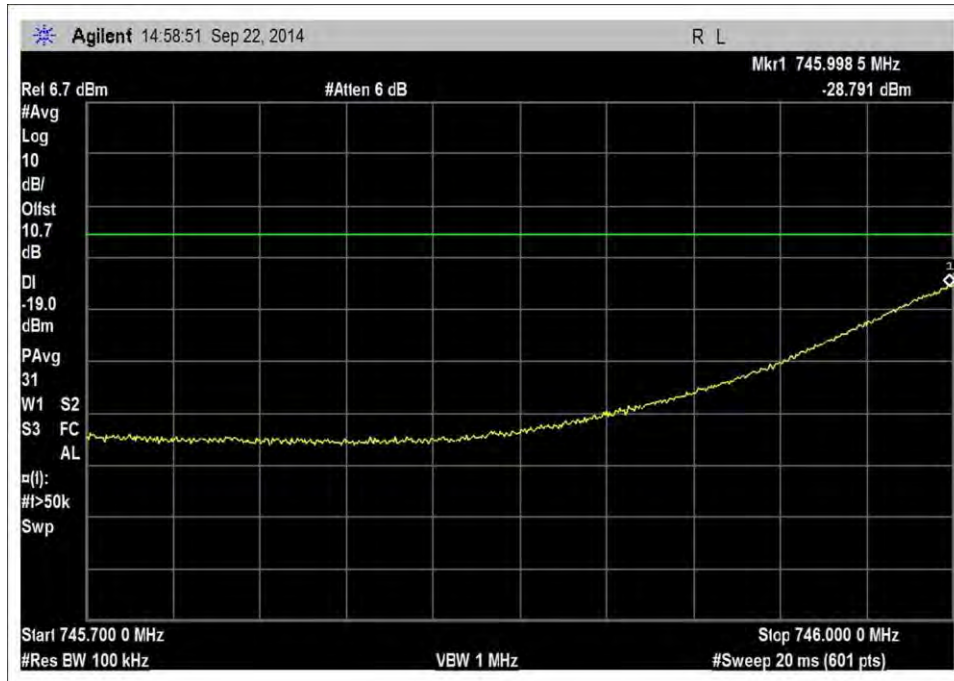
DL_746-757MHz_GSM_H_-20dBm



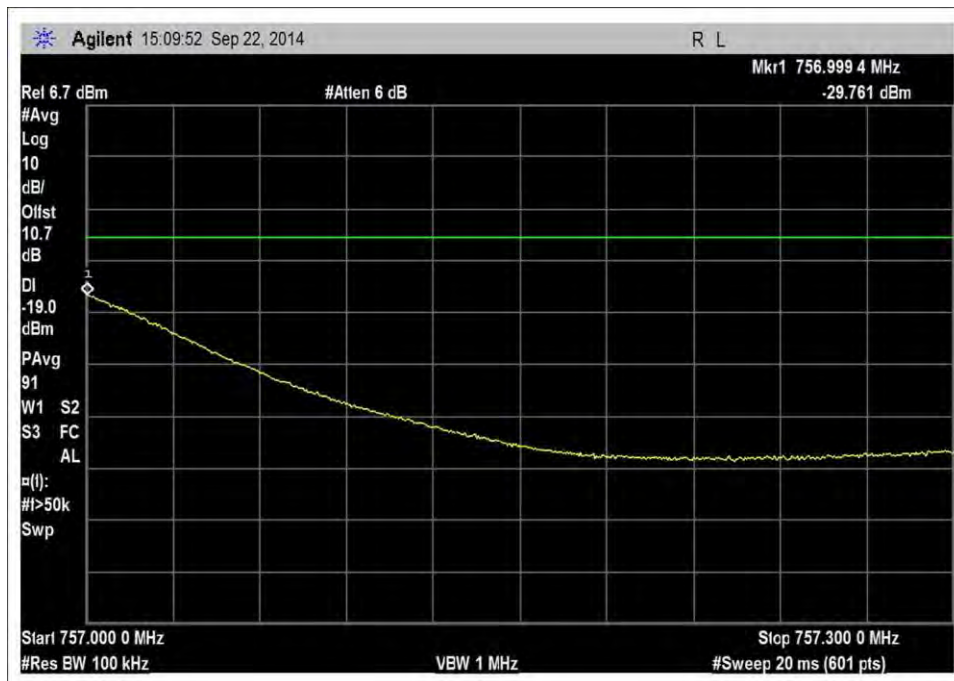
DL_746-757MHz_GSM_L_-48dBm



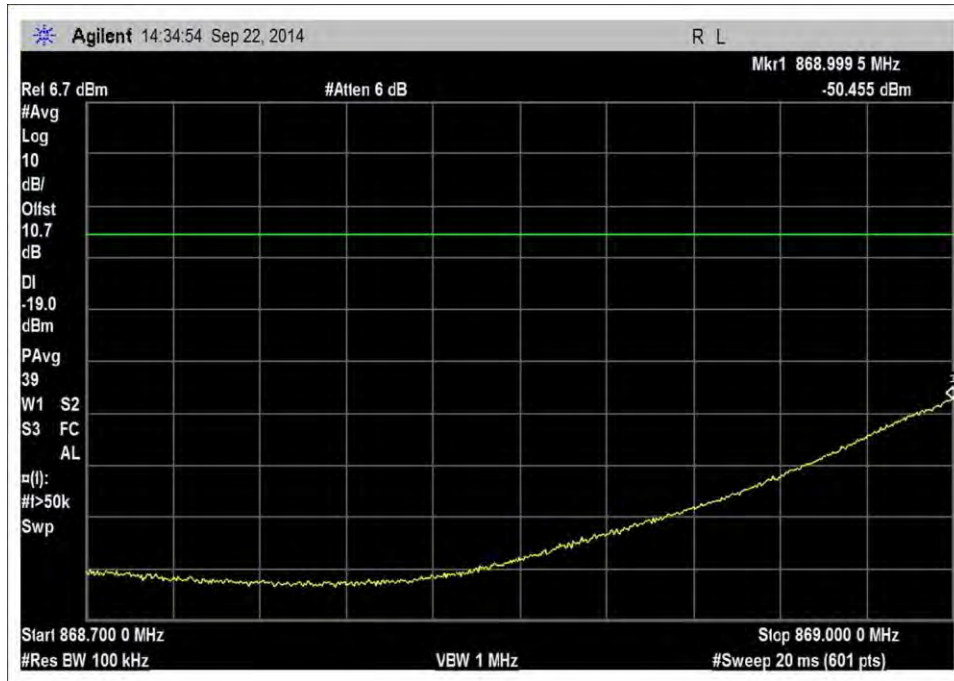
DL_746-757MHz_GSM_H_-44dBm



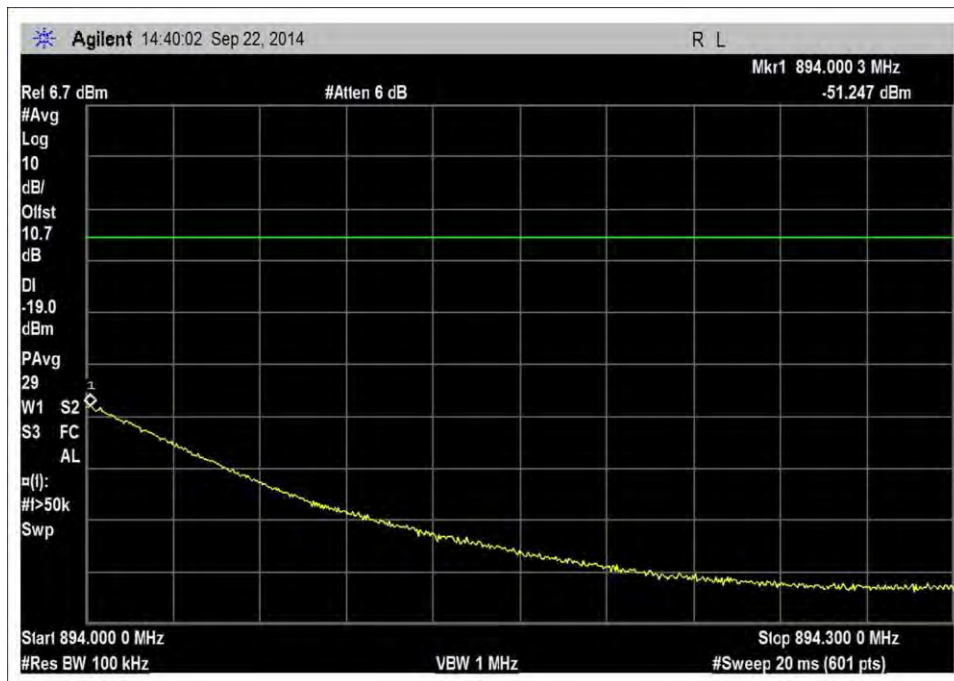
DL_746-757MHz_GSM_L_preAGC



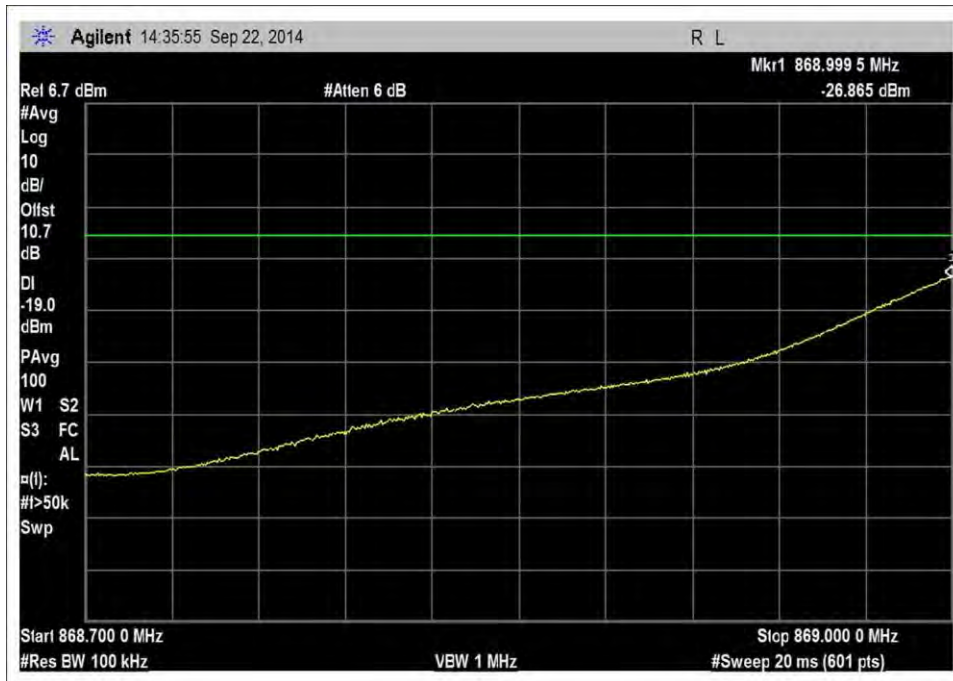
DL_746-757MHz_GSM_H_pre AGC



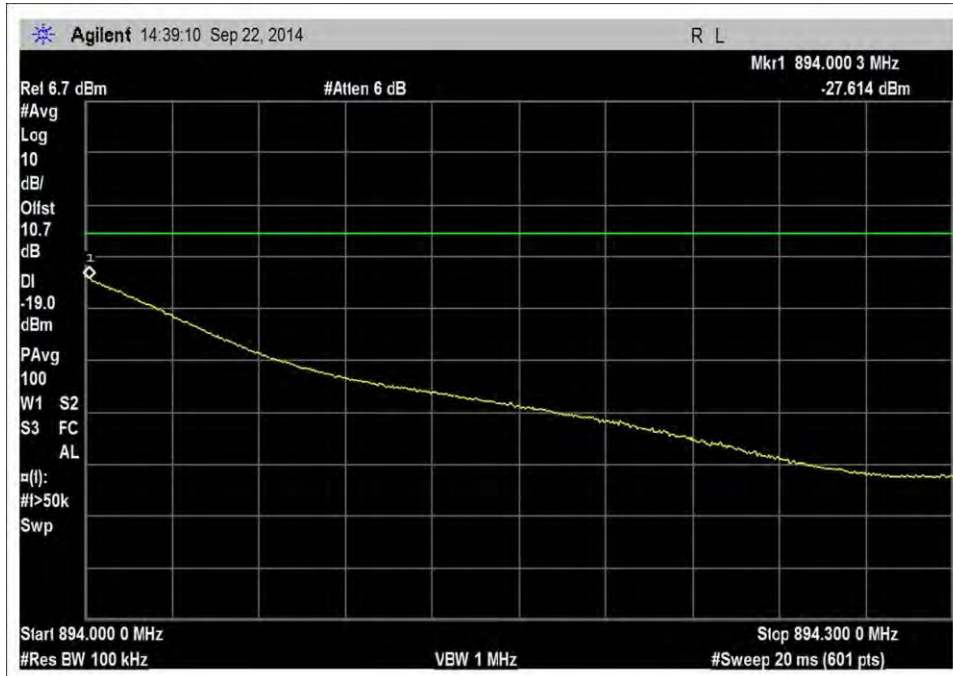
DL_869-894MHz_GSM_L_-20dBm



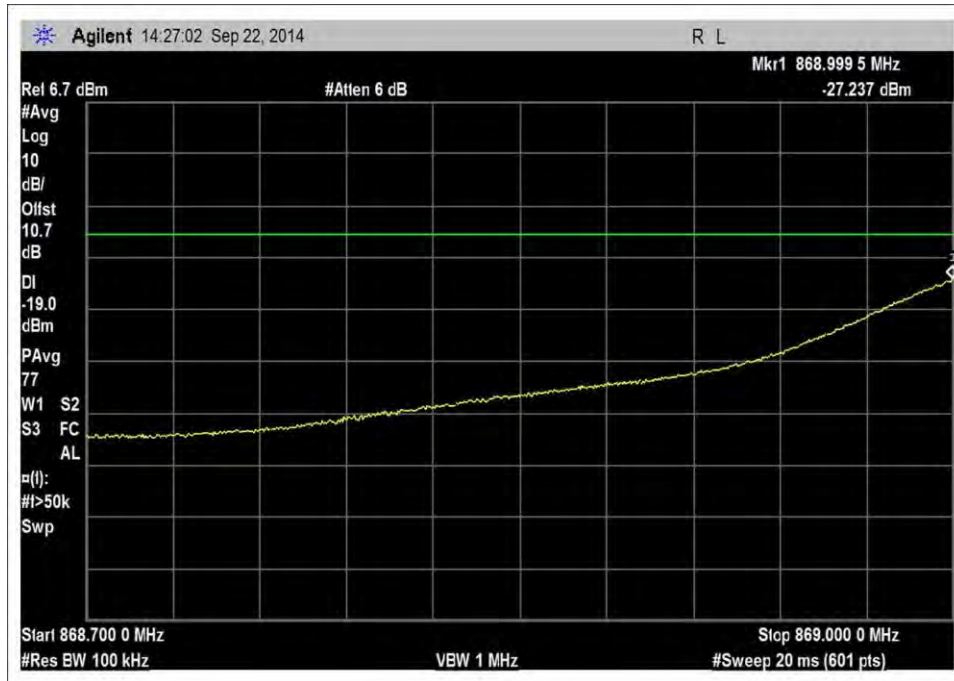
DL_869-894MHz_GSM_H_-20dBm



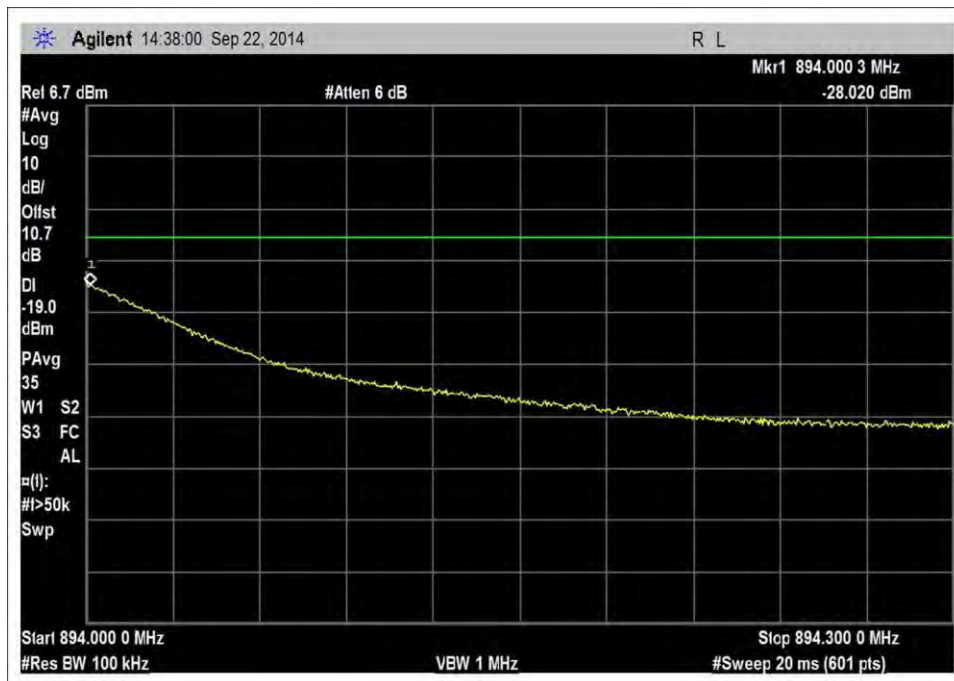
DL_869-894MHz_GSM_L_-47dBm



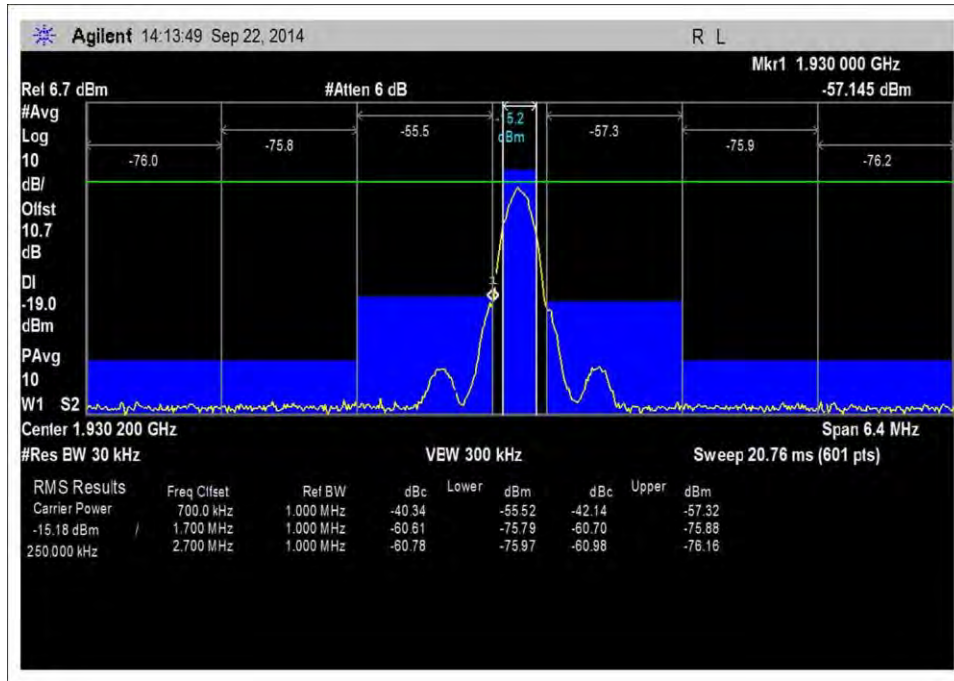
DL_869-894MHz_GSM_H_-48dBm



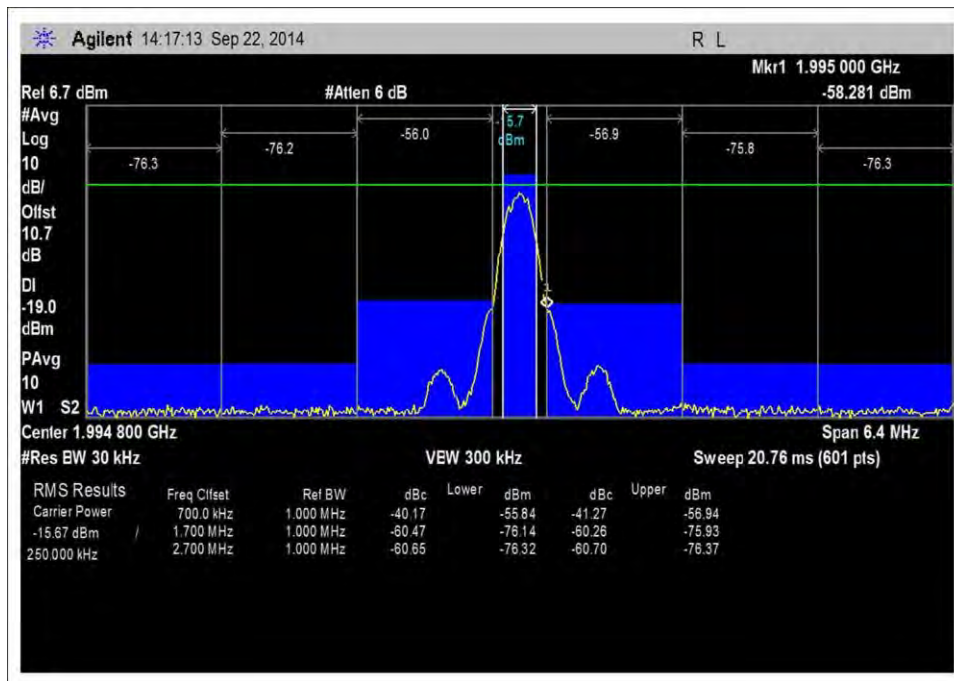
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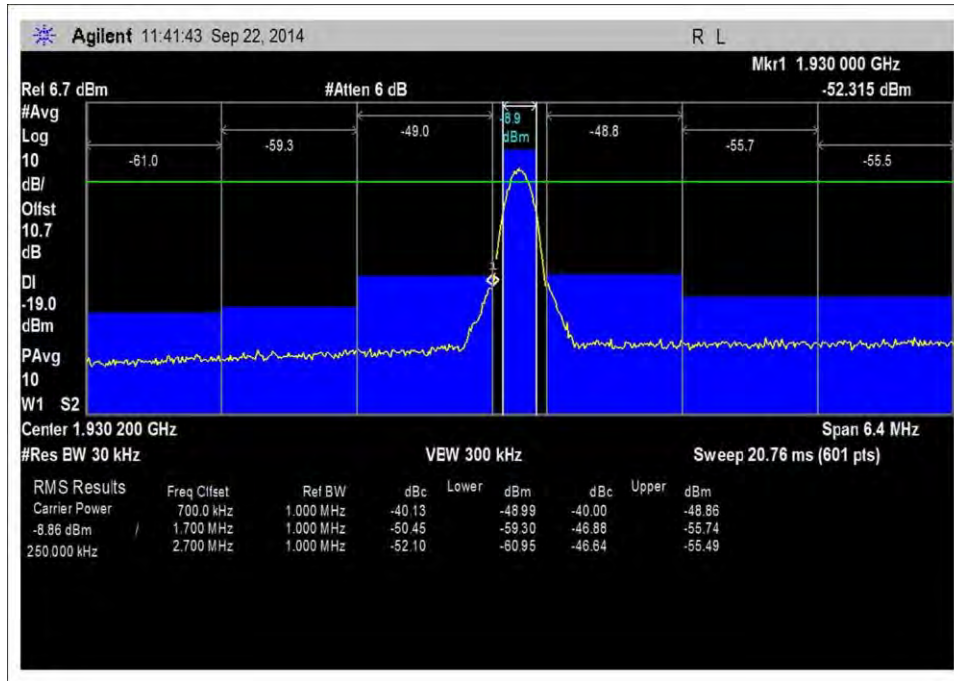
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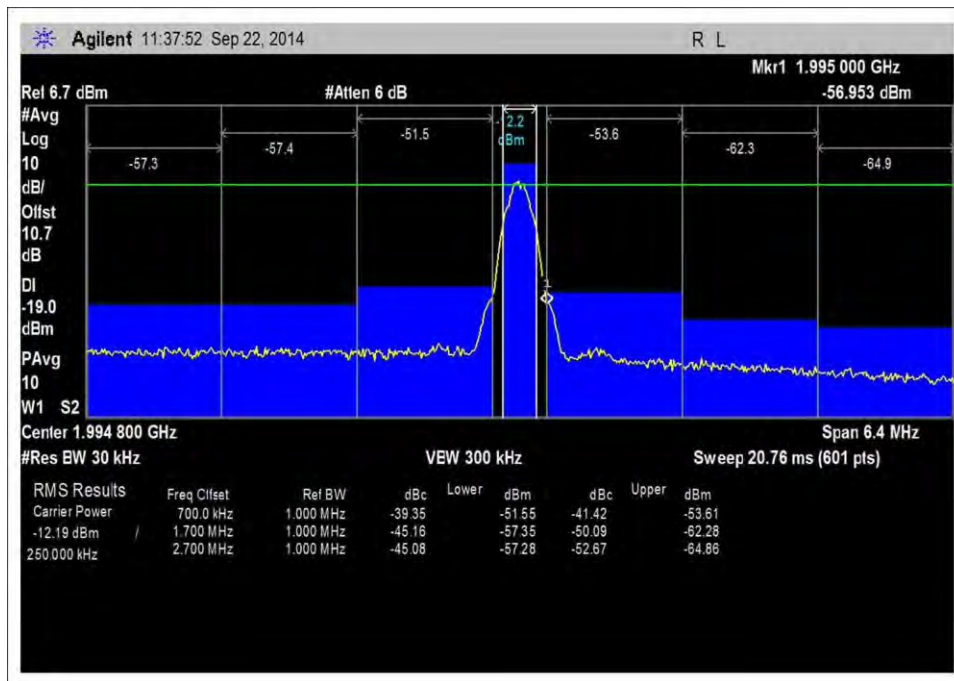
DL_1930-1995MHz_GSM_L_-20dBm



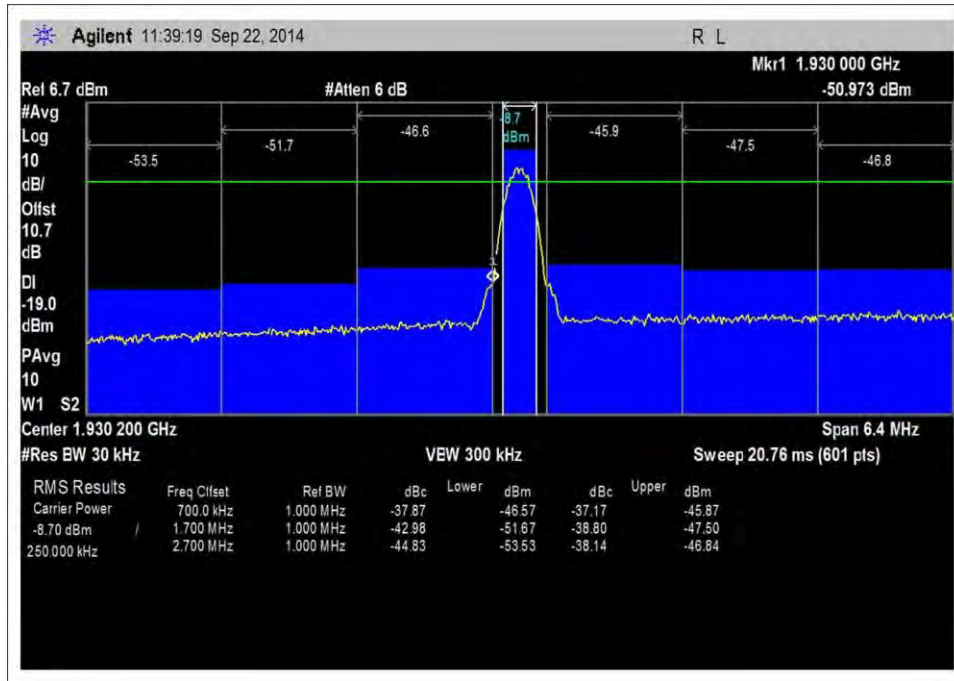
DL_1930-1995MHz_GSM_H_-20dBm



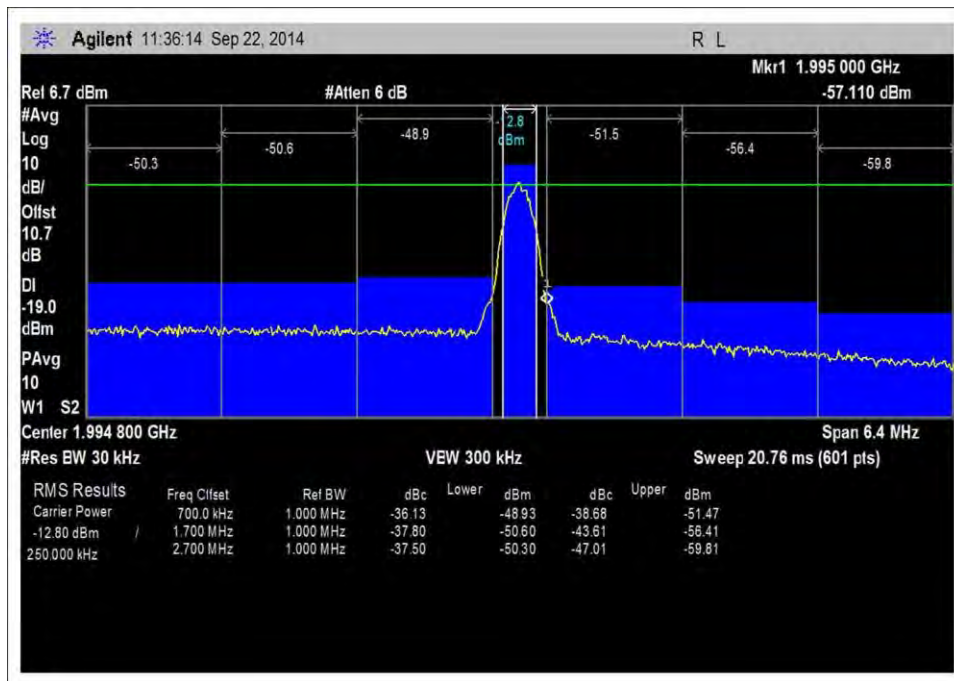
DL_1930-1995MHz_GSM_L_-53dBm



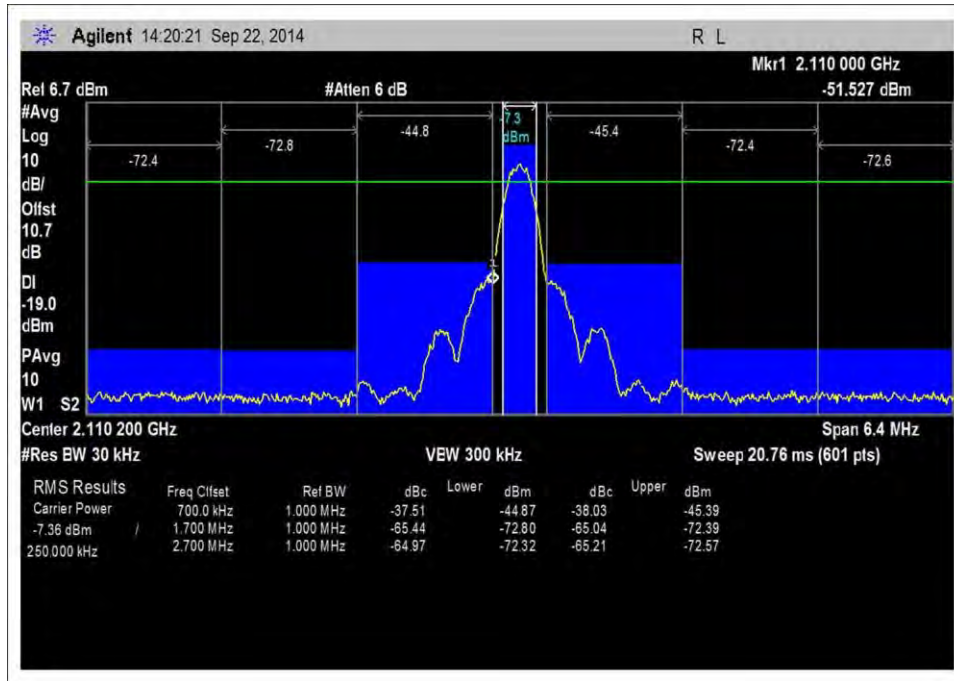
DL_1930-1995MHz_GSM_H_-55dBm



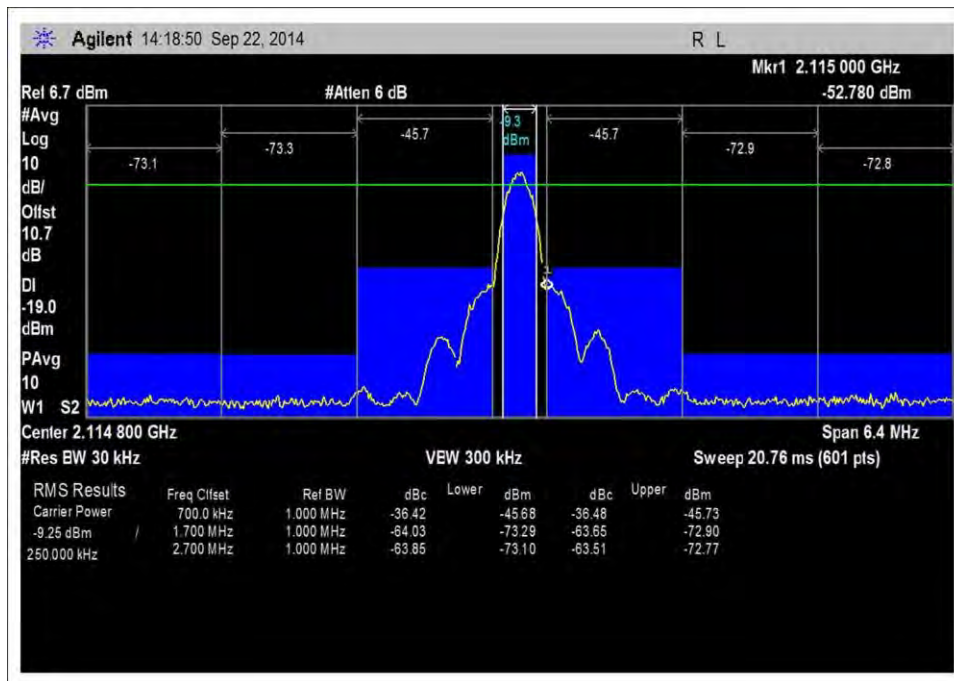
DL_1930-1995MHz_GSM_L_pre AGC



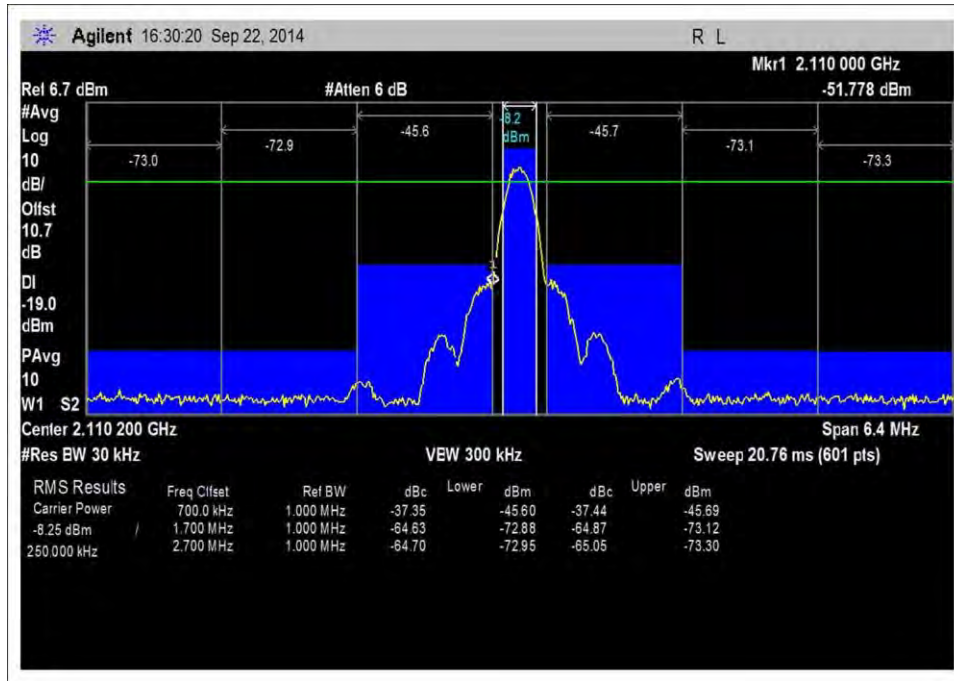
DL_1930-1995MHz_GSM_H_pre AGC



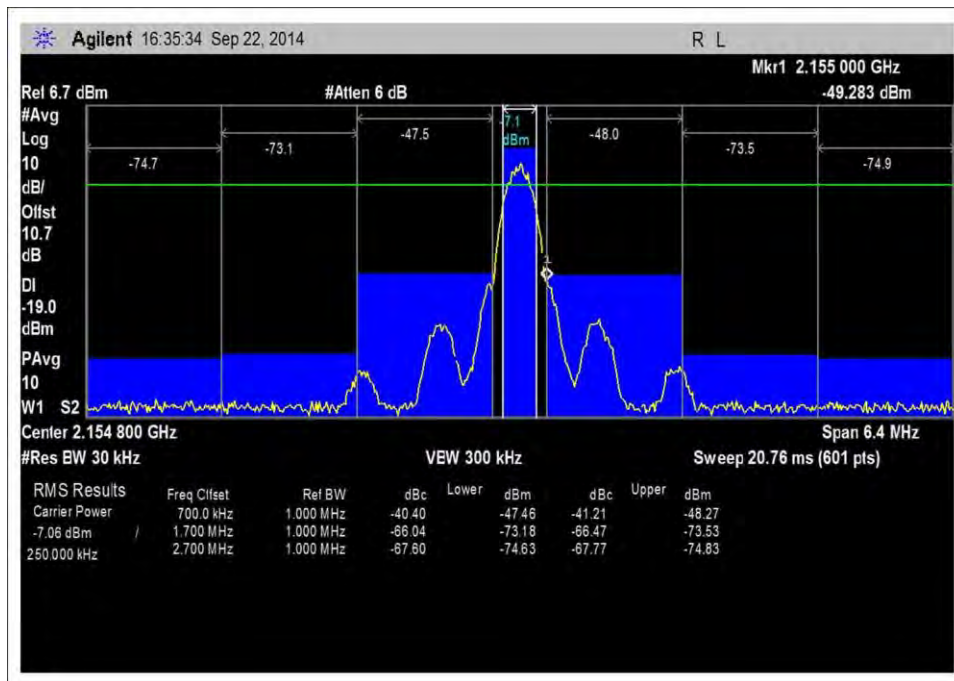
DL_2110-2115MHz_GSM_L_-20dBm



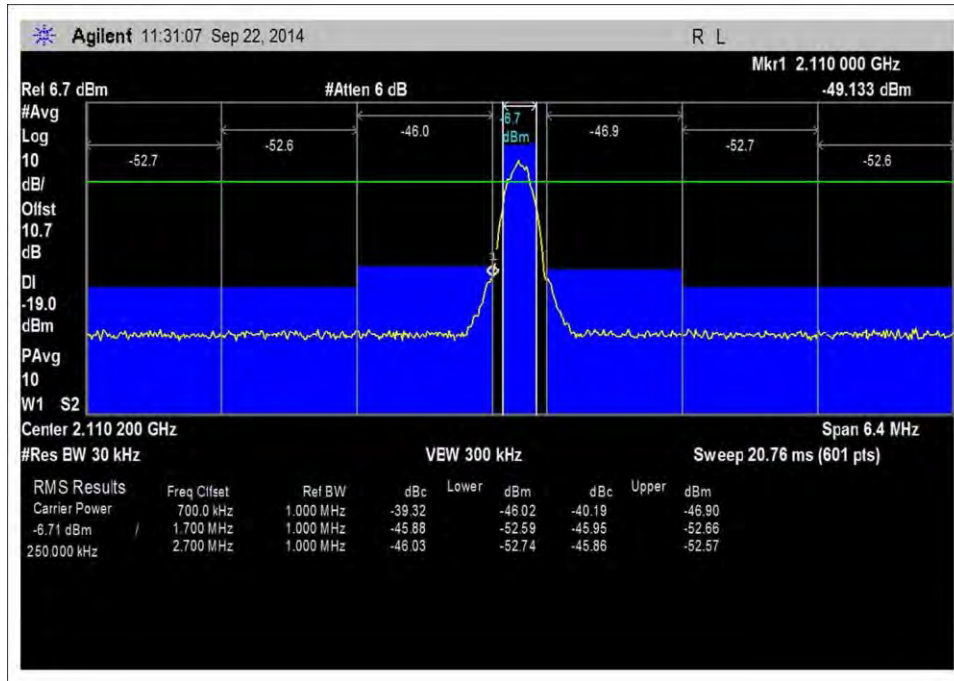
DL_2110-2115MHz_GSM_H_-20dBm



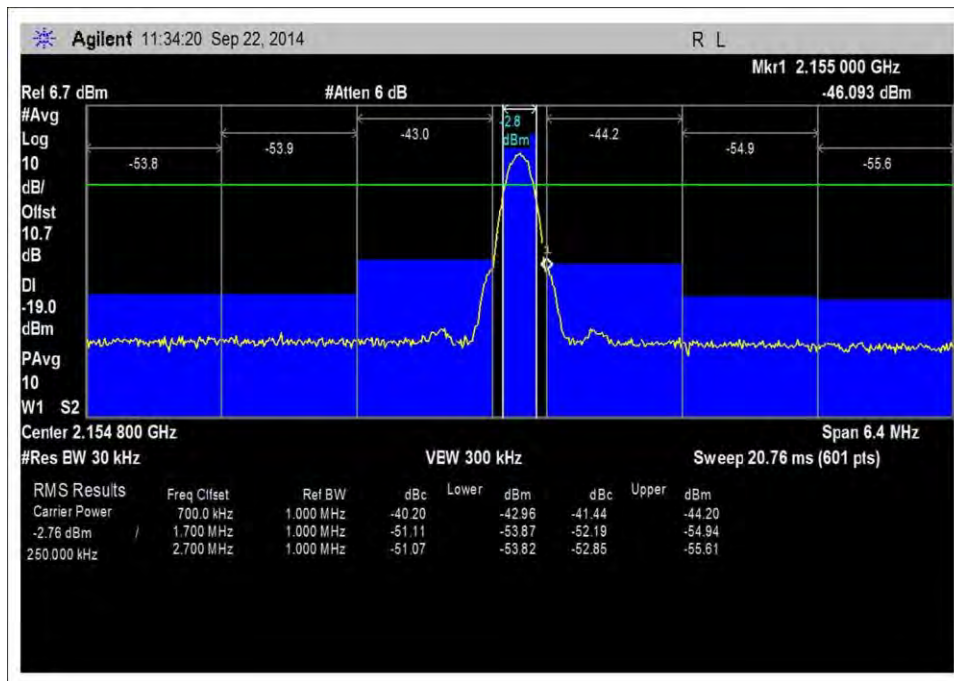
DL_2110-2155MHz_GSM_L -20dBm2



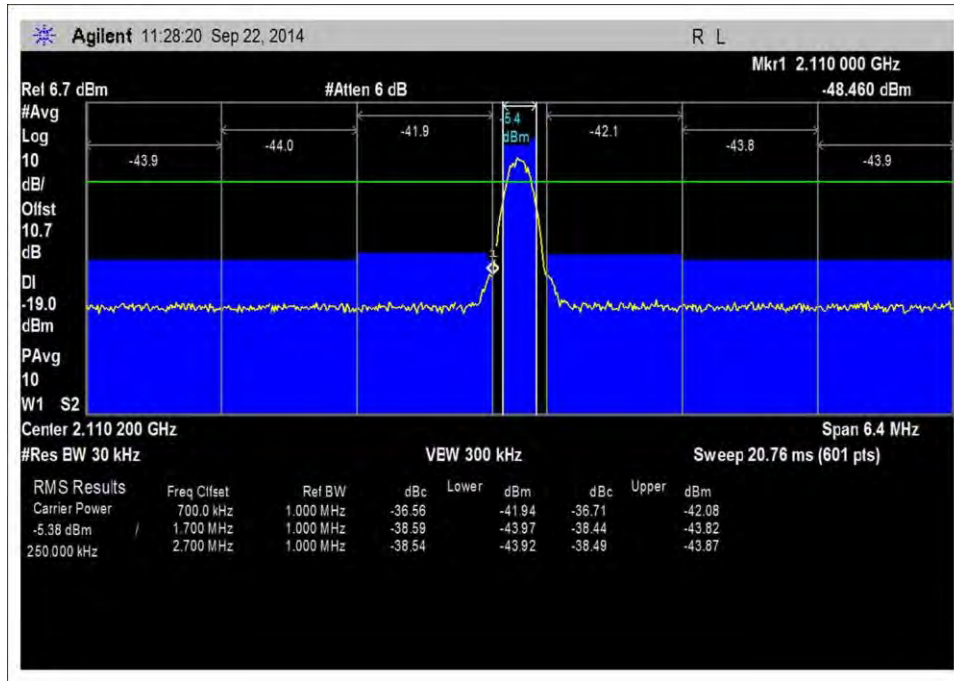
DL_2110-2155MHz_GSM_H -20dBm2



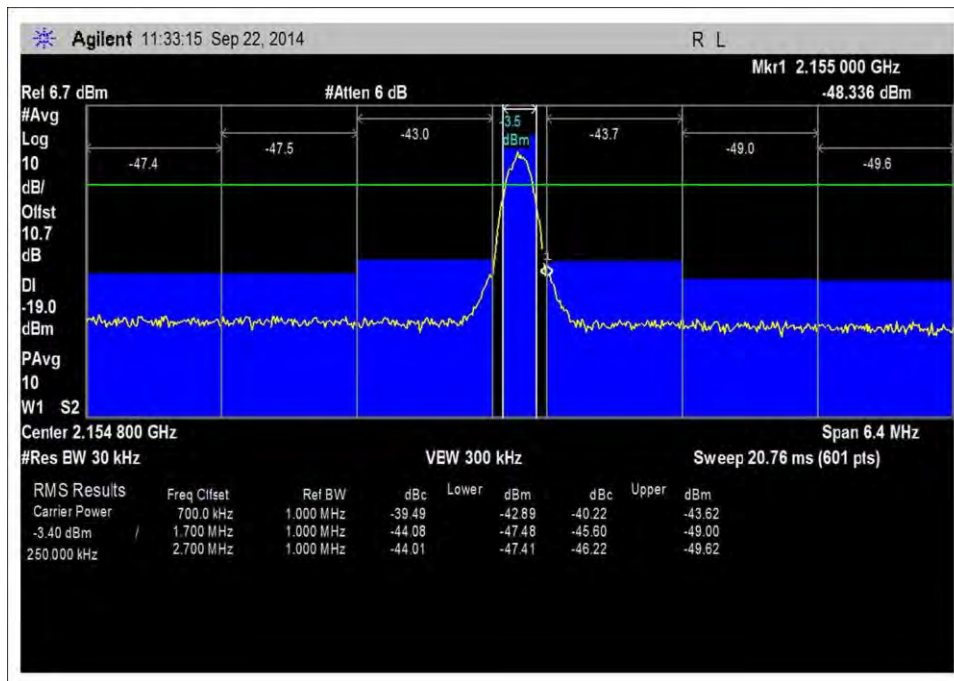
DL_2110-2115MHz_GSM_L_-57dBm



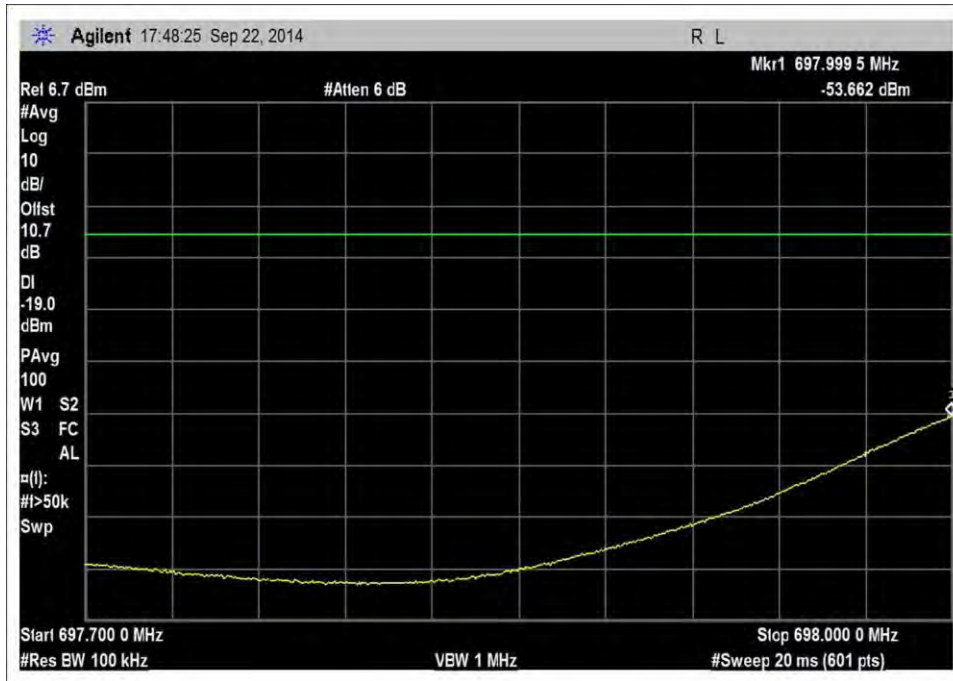
DL_2110-2115MHz_GSM_H_-53dBm



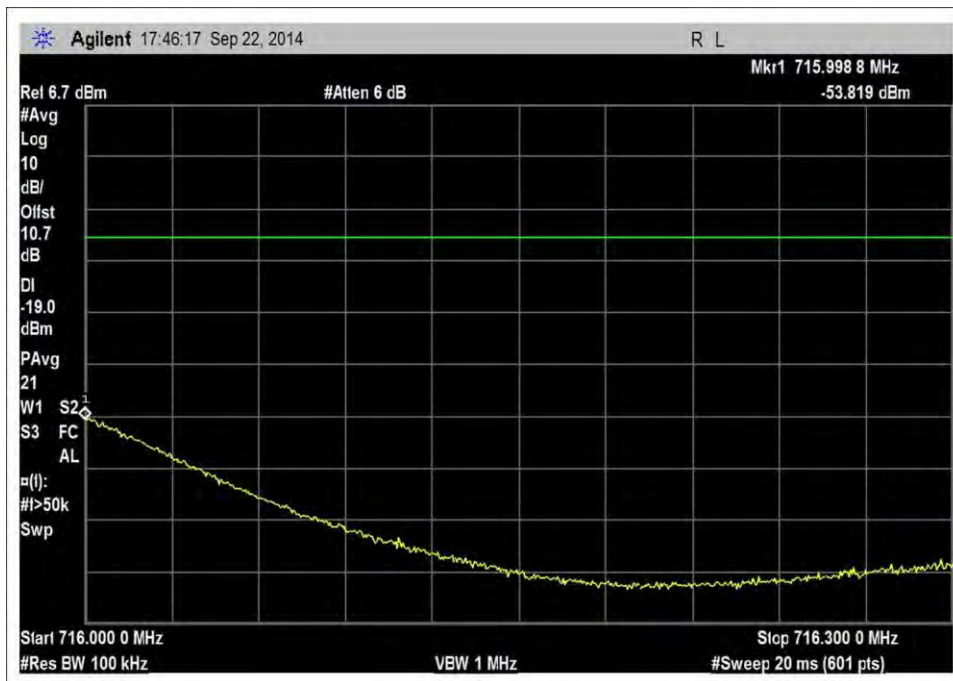
DL_2110-2115MHz_GSM_L_pre AGC



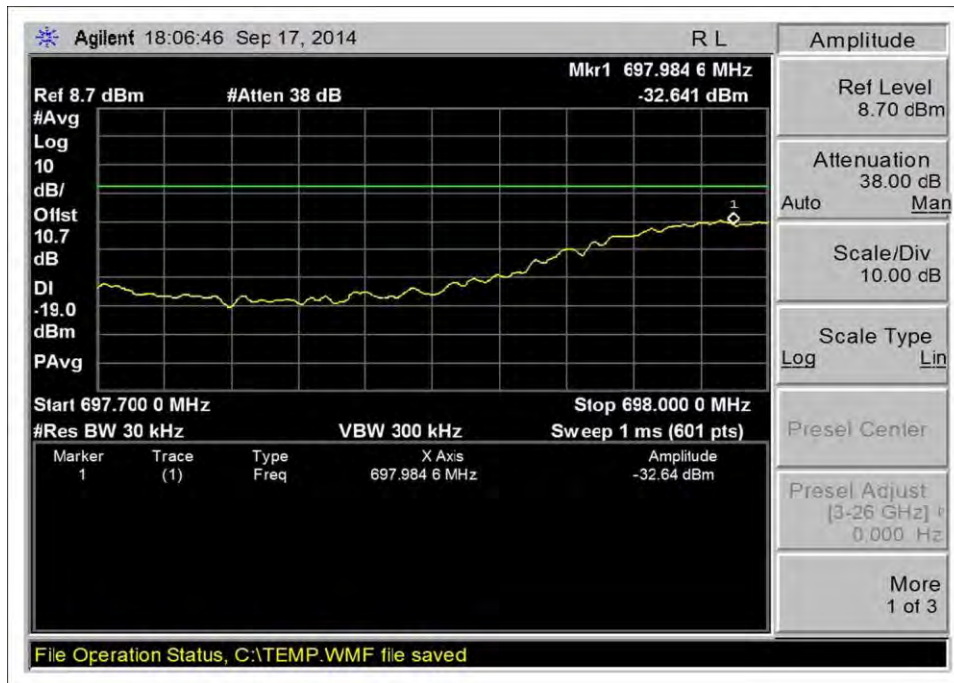
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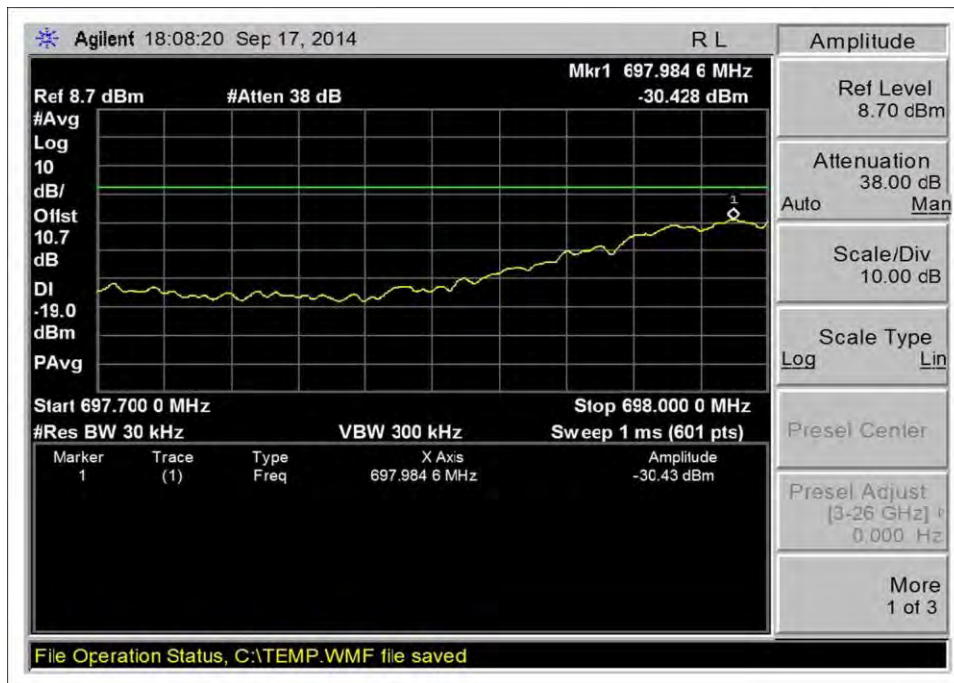
UL_698-716MHz_GSM_L_0dBm



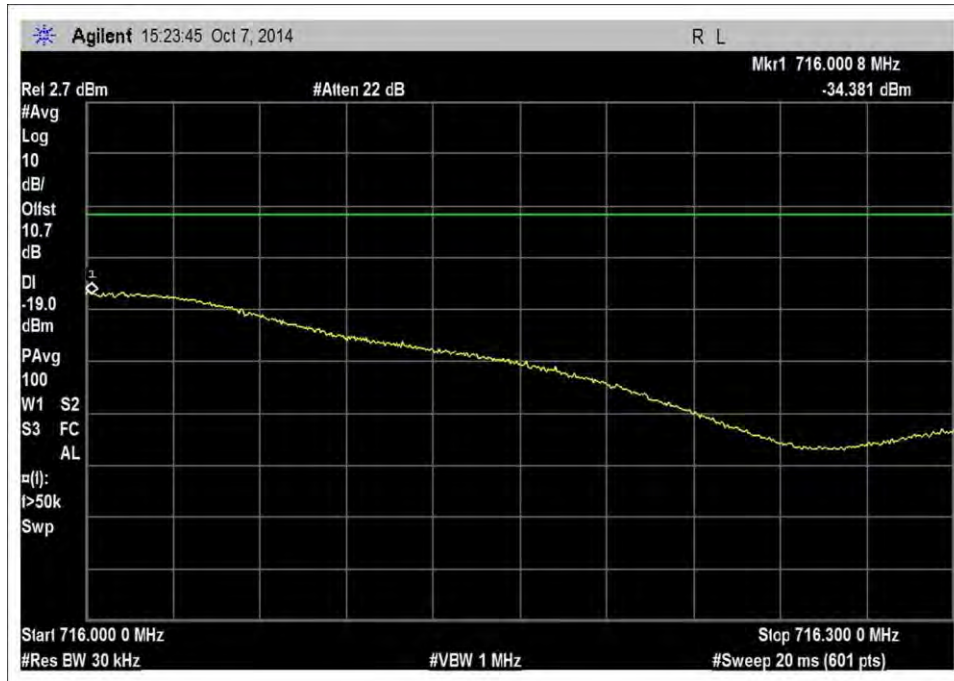
UL_698-716MHz_GSM_H_0dBm



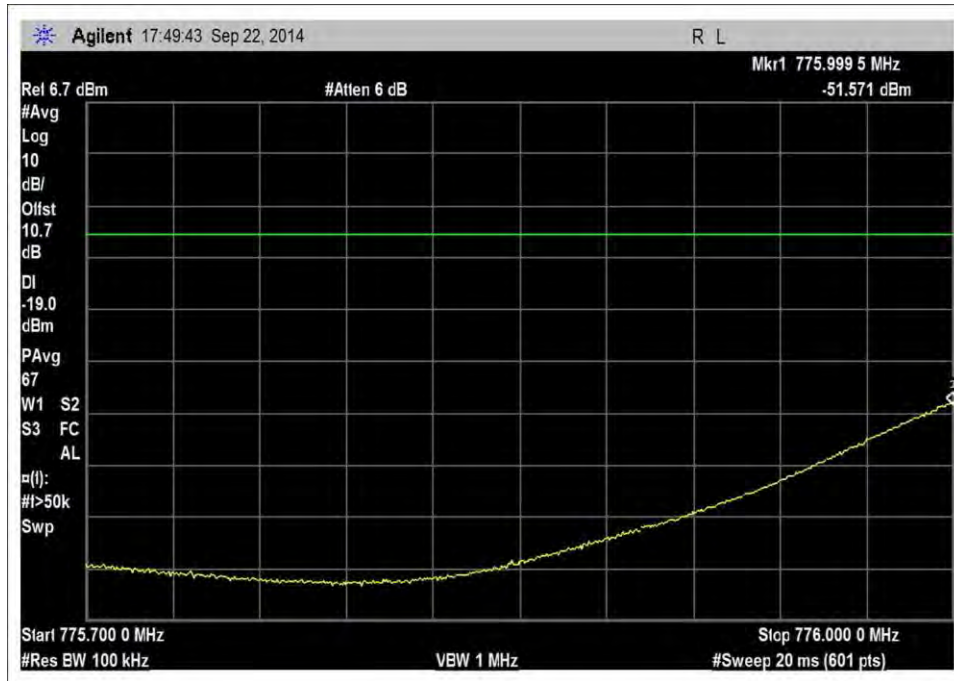
UL_698-716MHz_GSM_L -3dBm



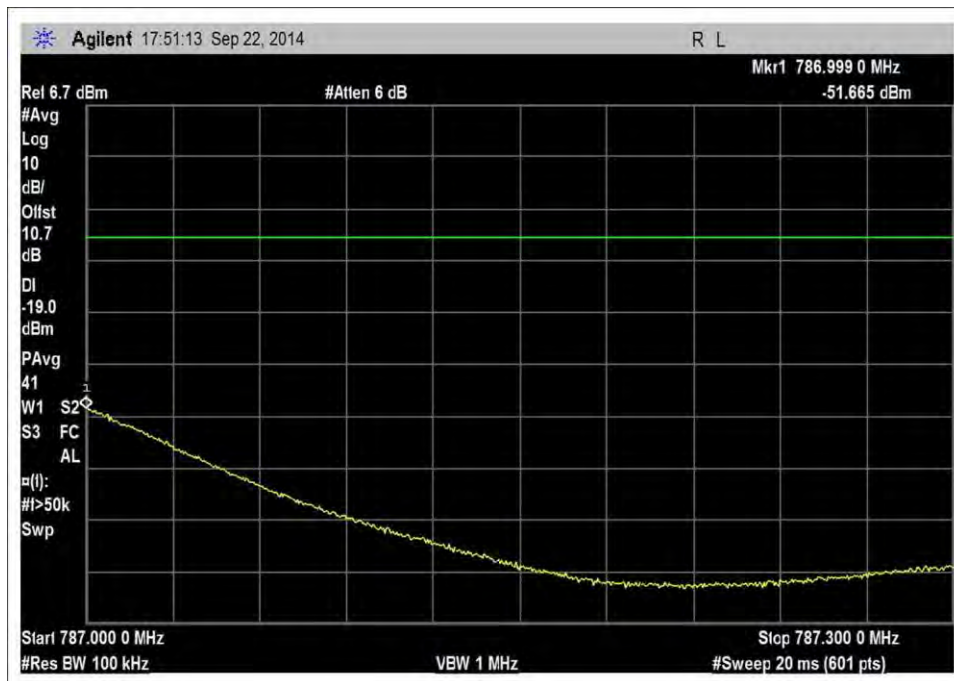
UL_698-716MHz_GSM_L PreAGC



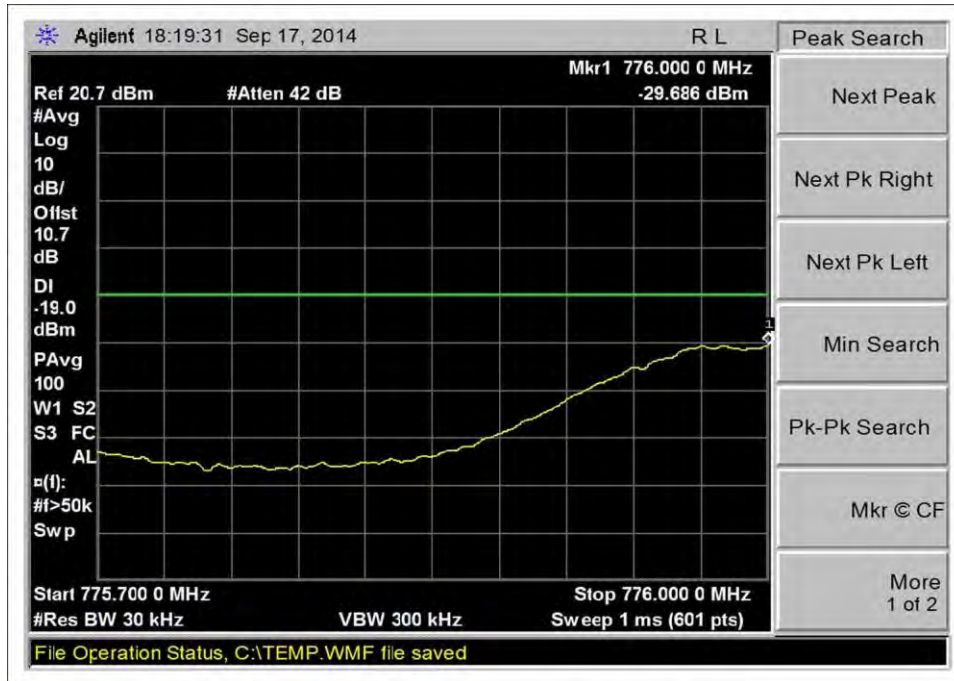
UL_698-716MHz_GSM_H_pre agc



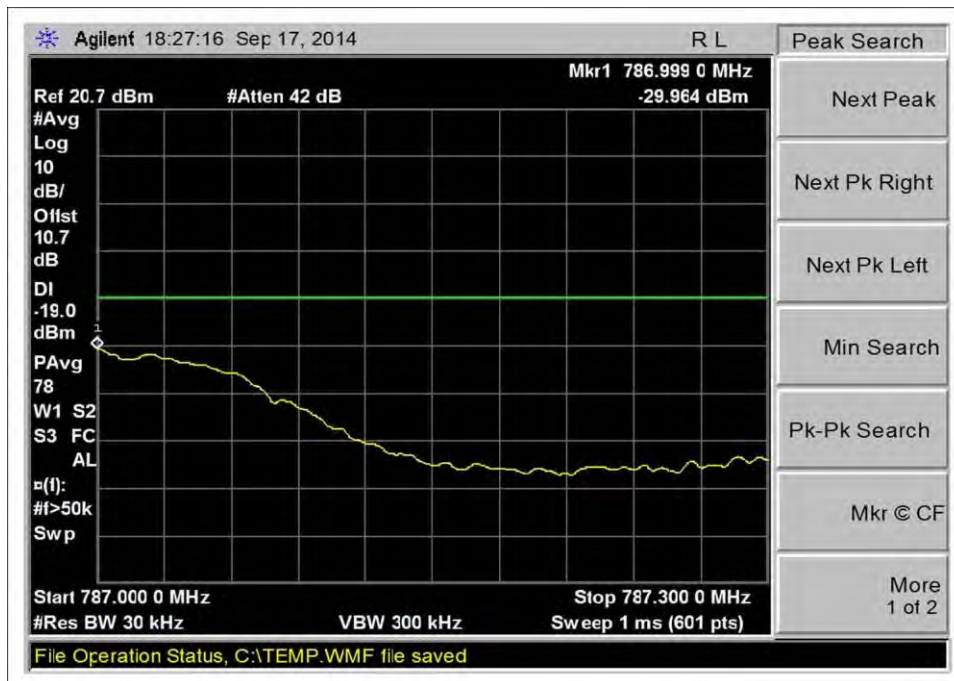
UL_776-787MHz_GSM_L_0dBm



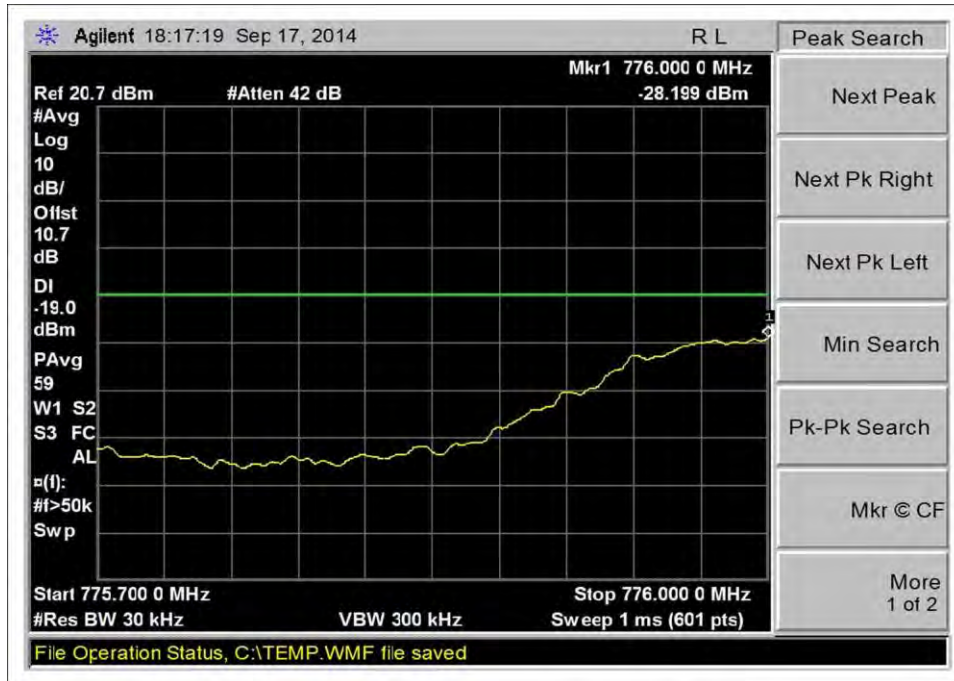
UL_776-787MHz_GSM_H_0dBm



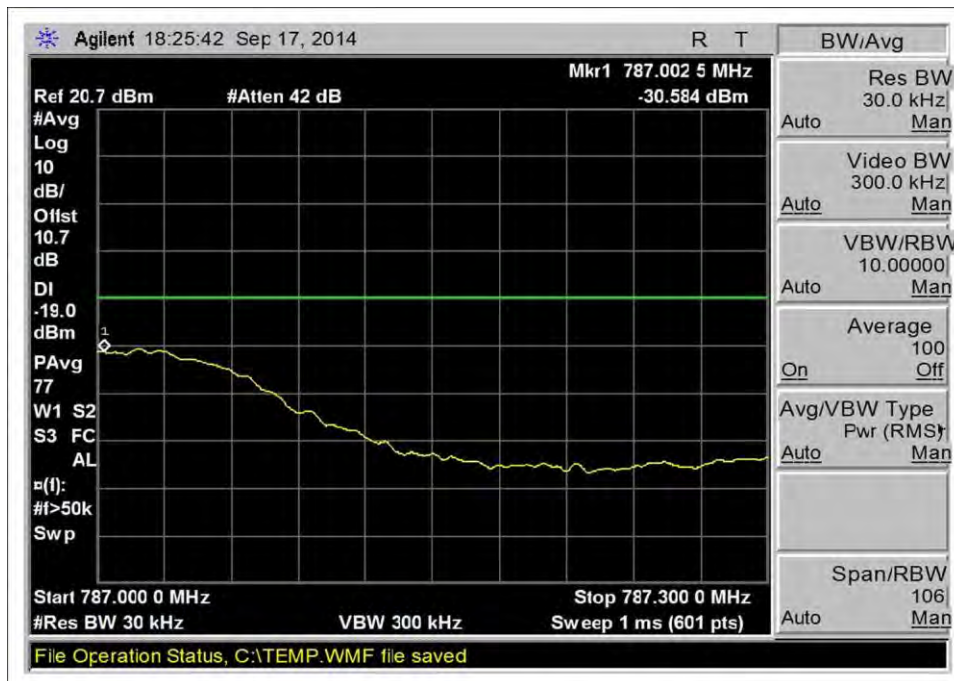
UL_776-787MHz_GSM_L -28.5



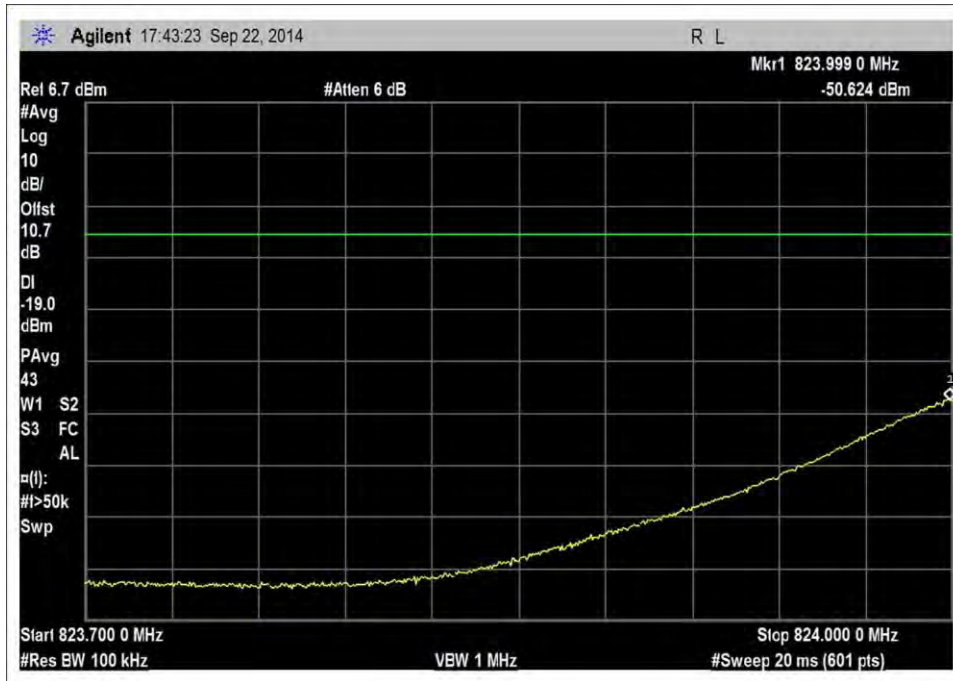
UL_776-787MHz_GSM_H_-29dBm



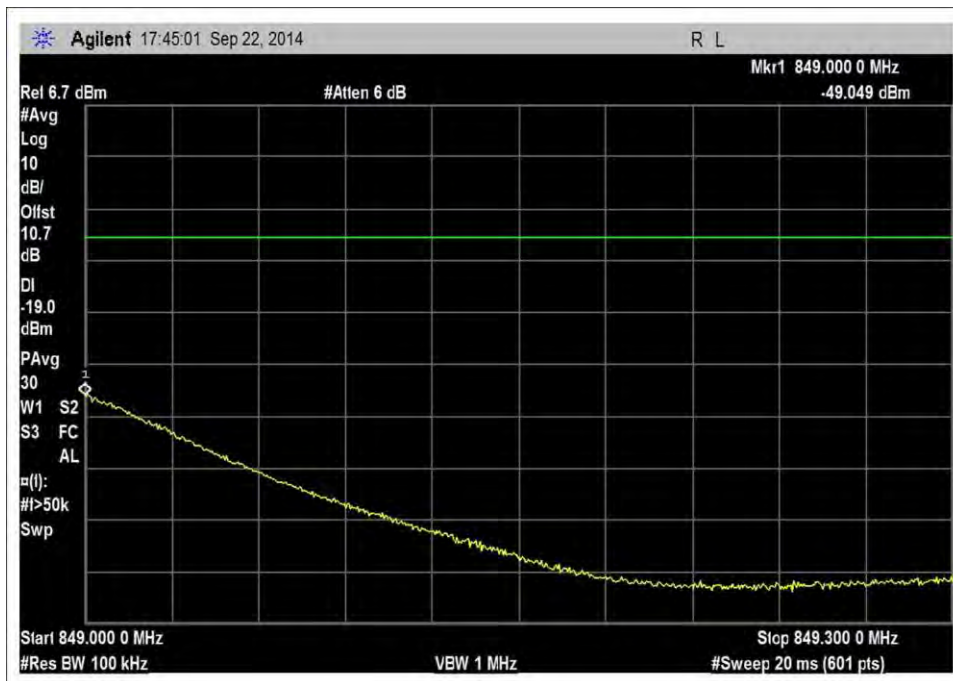
UL_776-787MHz_GSM_L PreAGC



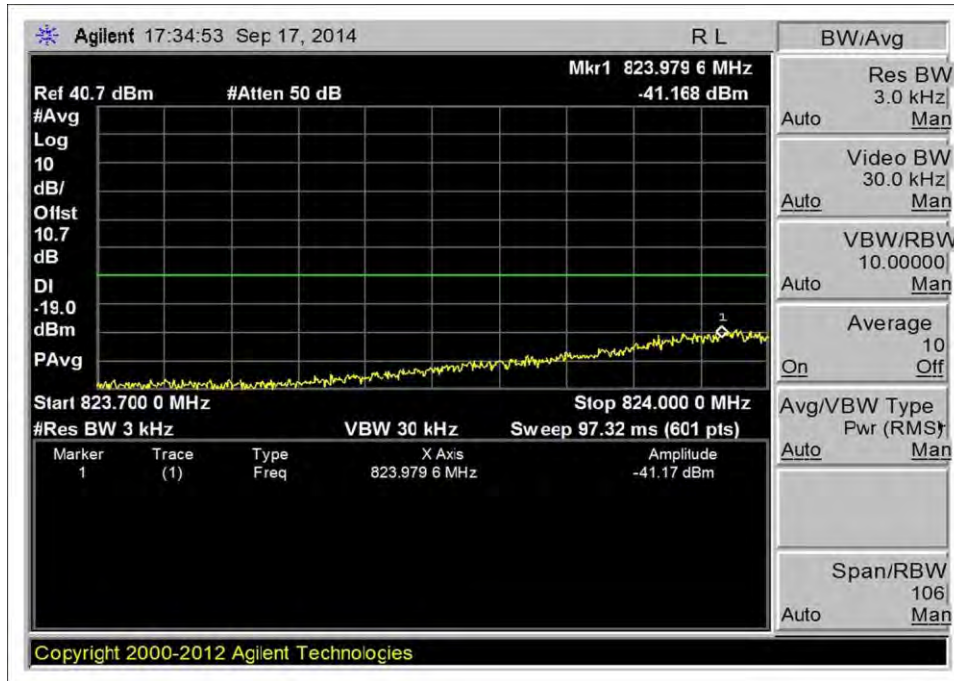
UL_776-787MHz_GSM_H PreAGC



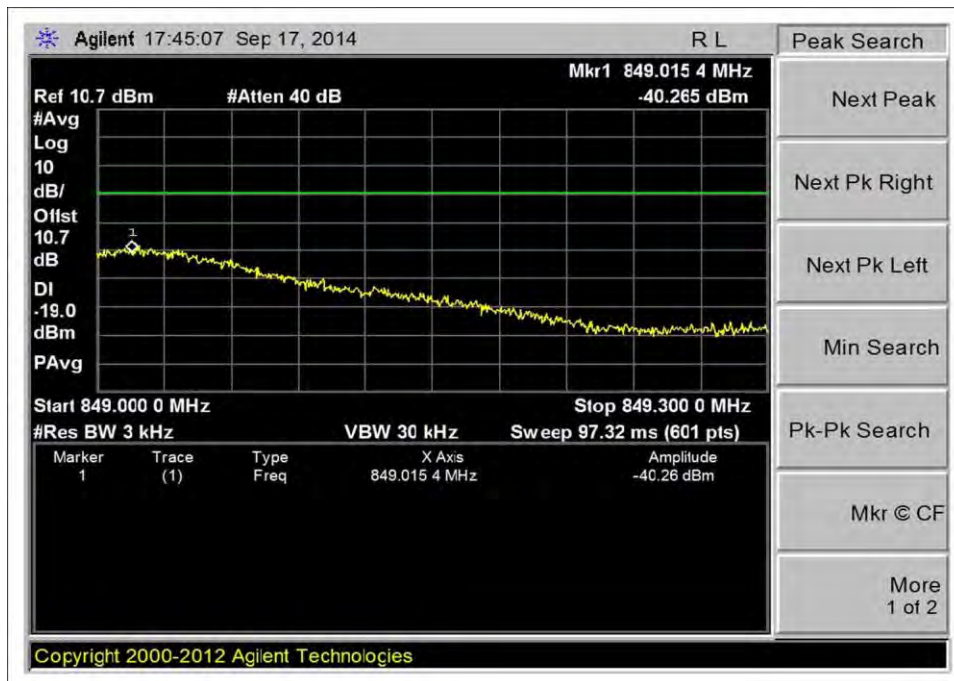
UL_824-849MHz_GSM_L_0dBm



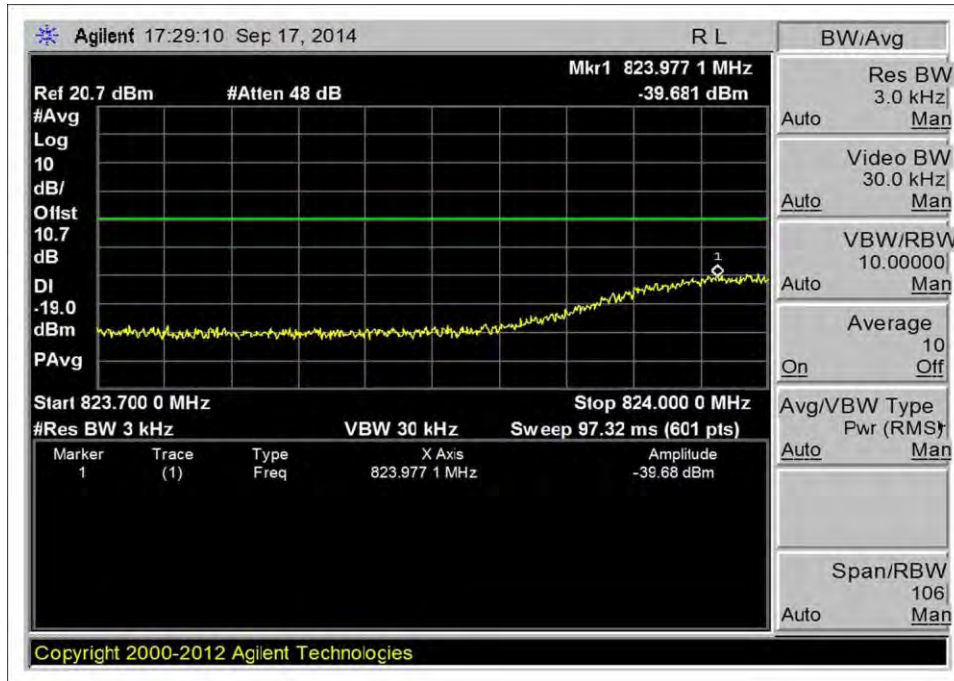
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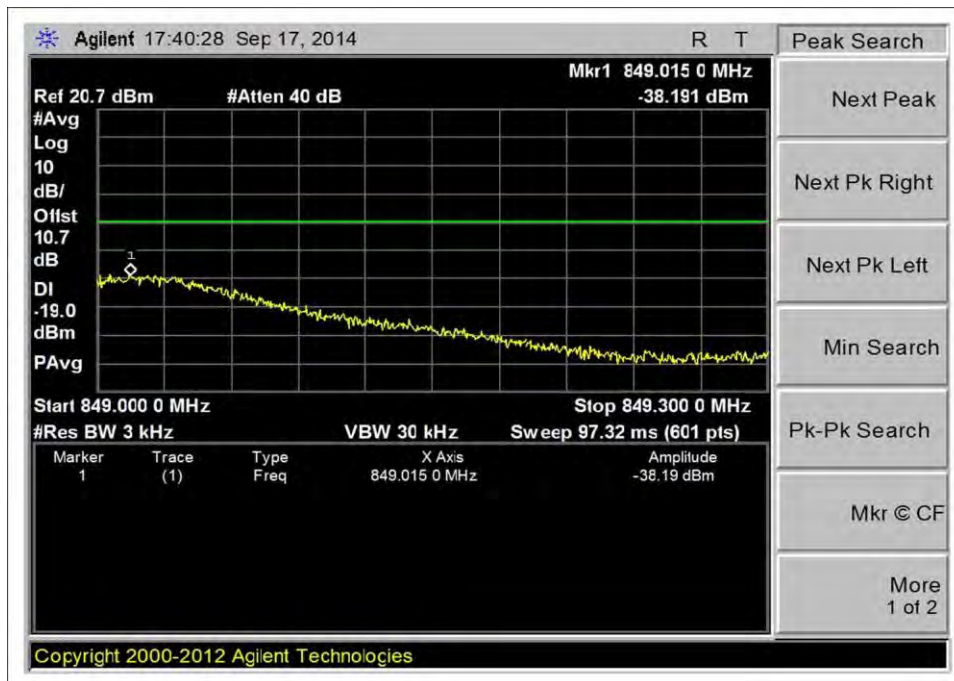
UL_824-849MHz_GSM_L -29dBm



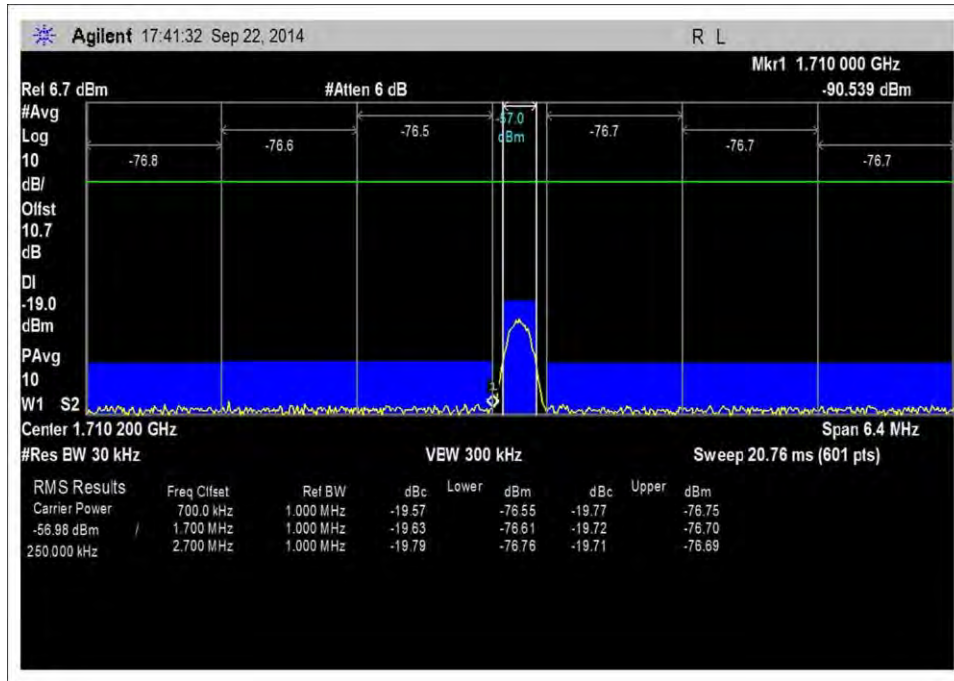
UL_824-849MHz_GSM_H -25dBm



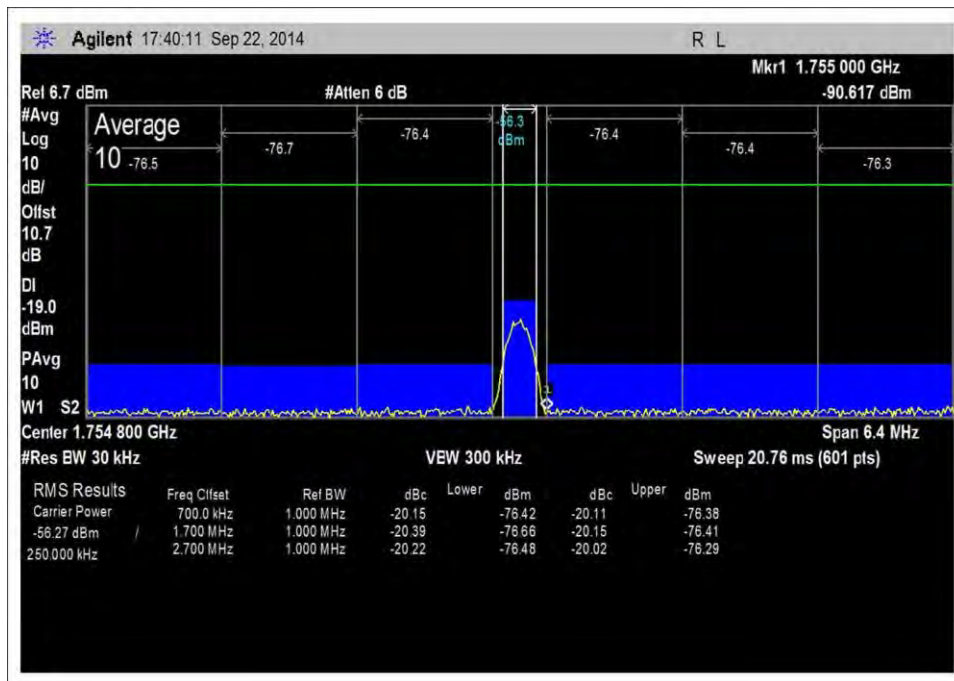
UL_824-849MHz_GSM_L PreAGC



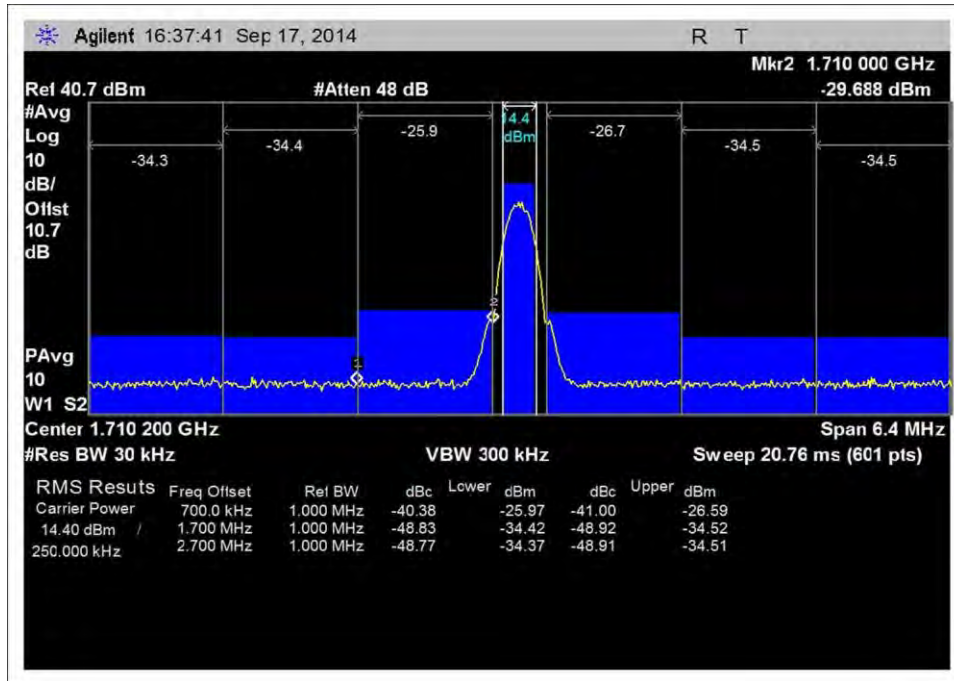
UL_824-849MHz_GSM_H PreAGC



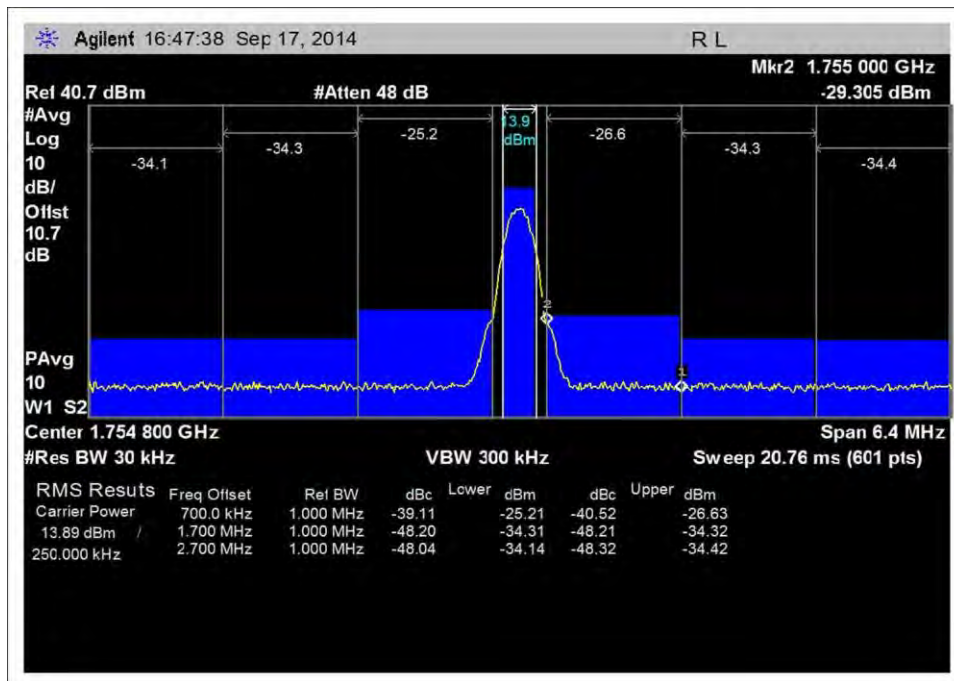
UL_1710-1755MHz_GSM_L_OdBm



UL_1710-1755MHz_GSM_H_OdBm



UL_1710-1755MHz_GSM_L -39dBm



UL_1710-1755MHz_GSM_H -37dBm