

BTI Wireless

TEST REPORT FOR

**850MHz 40W Remote Transmitting Unit
Model: mBSC0850-040-RUMF01**

Tested To The Following Standards:

FCC Part 22H

Report No.: 95179-6

Date of issue: January 13, 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.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

BTI Wireless
6185 Phyllis Dr., Unit D
Cypress, CA 90630

Representative: Raymond Shin
Customer Reference Number: 95179

DATE OF EQUIPMENT RECEIPT:**DATE(S) OF TESTING:****REPORT PREPARED BY:**

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

Project Number: 95179

December 19, 2013

December 19-20, 2013

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.

A handwritten signature in black ink, reading "Steve Behm", is positioned above a horizontal line.

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
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea D	US0060	SL2-IN-E-1146R	3082D-2	100638	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 22H

Description	Test Procedure/Method	Results
RF Power Output	FCC Part 22H § 22.913(a) / 2.1046	Pass
Occupied Bandwidth	FCC Part 22H § 22.915 / 2.1049(I)	Pass
Antenna Conducted Emissions	FCC Part 22H § 22.917(a) / 2.1051	Pass
Field Strength of Radiated Emissions	FCC Part 22H § 22.917(a) / 2.1053	Pass
Bandedge	FCC Part 22H	Pass
Intermodulation	FCC Part 22H	Pass
Out of Band Rejection	FCC Part 22H	Pass

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

The following model has been tested by CKC Laboratories: **850MHz 40W Remote Transmitting Unit, mBSC0850-040-RUMF01**

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they meet the level of testing equivalent to the tested. **mBSC0850-040-RUM**

850MHz 40W Remote Transmitting Unit

Manuf: BTI Wireless

Model: mBSC0850-040-RUMF01

Serial: MBSC0850040RUMF01-11010002

PERIPHERAL DEVICES

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

Attenuator 30db Pad

Manuf: Weinschel

Model: 49-30-43

Serial: KW075

50 ohm Load (2)

Manuf: Generic

Model: NA

Serial: NA

Attenuator 20db Pad

Manuf: Weinschel

Model: 33-20-24

Serial: BJ7479

RF to Fiber Optic Converter

Manuf: BTI Wireless

Model: mBSC9351-HU

Serial: mBSC9351HU-11021029

Cable

Manuf: Pasternack

Model: Sucoflex 104A

Serial: 12237/4A

ESG Vector Signal Generator

Manuf: Agilent

Model: 4438C

Serial: MY45091601

FCC PART 22H

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR requirements for Public Mobile Services, Subpart H – Cellular Radiotelephone Service.

22.913(a) / 2.1046 RF Power Output

Test Conditions / Setup

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

Customer: **BTI Wireless**
 Specification: **RF Output Power**
 Work Order #: **95179** Date: 12/20/2013
 Test Type: **Conducted Emissions** Time: 15:17:27
 Equipment: **850MHz 40W Remote Transmitting Unit** Sequence#: 0
 Manufacturer: BTI Wireless Tested By: Don Nguyen
 Model: mBSC0850-040-RUMF01 110V 60Hz
 S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479

Test Conditions / Notes:

The EUT is placed on the test bench. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator via cable Sucoflex 104A. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-2909K-36TC. TX out and RX in port are terminated to 50 ohm loads.

Per manufacturer, the output frequency is independent of the components used in optical converter.

The EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of $1\pm0.5\text{dB}$ higher than maximum rated output power.

The evaluation is performed at the antenna port.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz, LTE 20MHz

22.913(a) Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

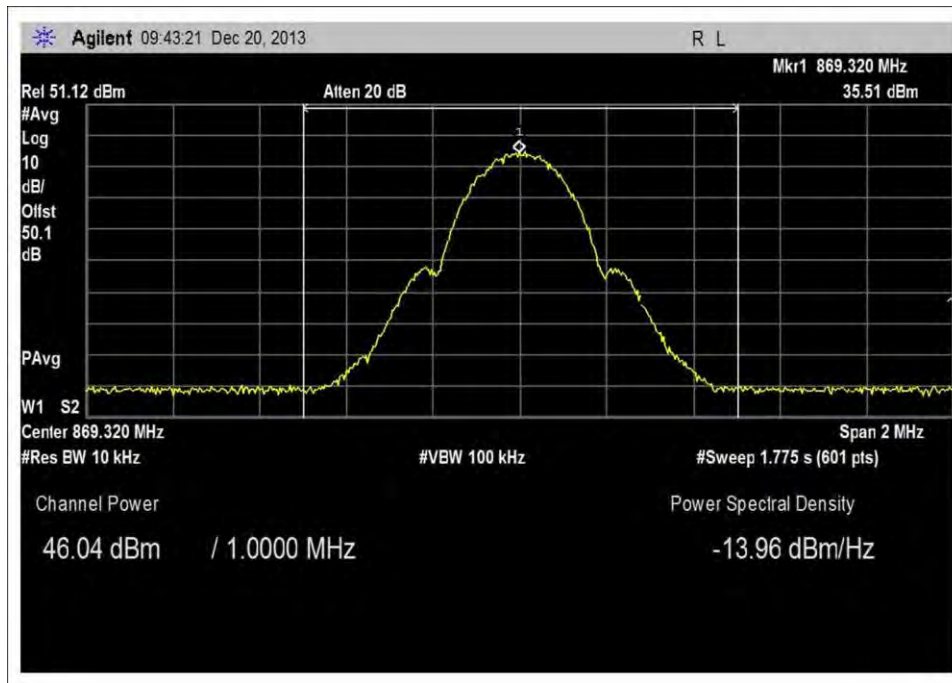
19°C, 63%Relative Humidity

Site D

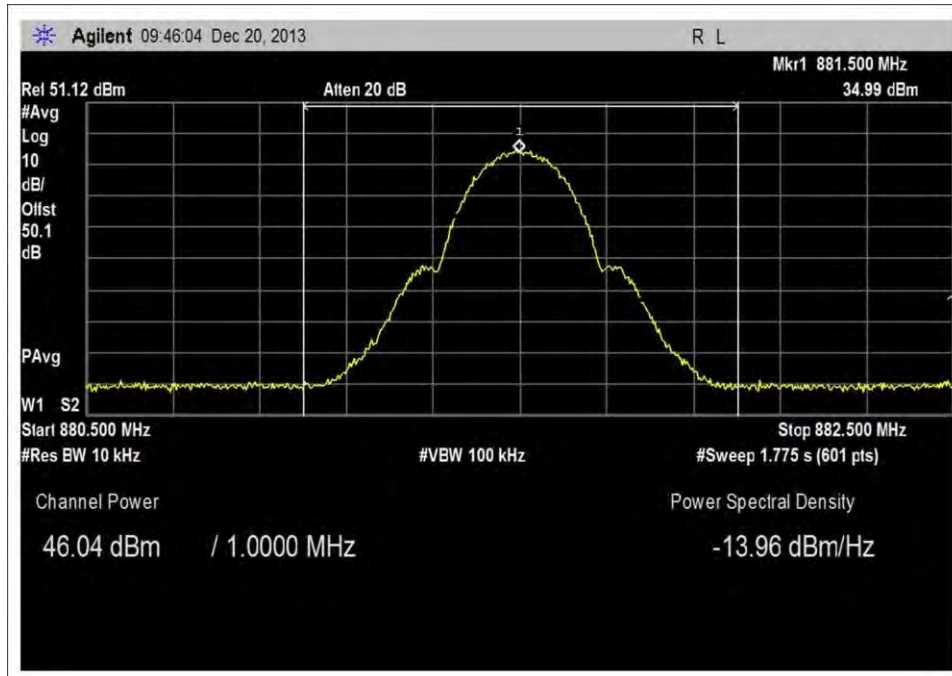
Test Data

40W

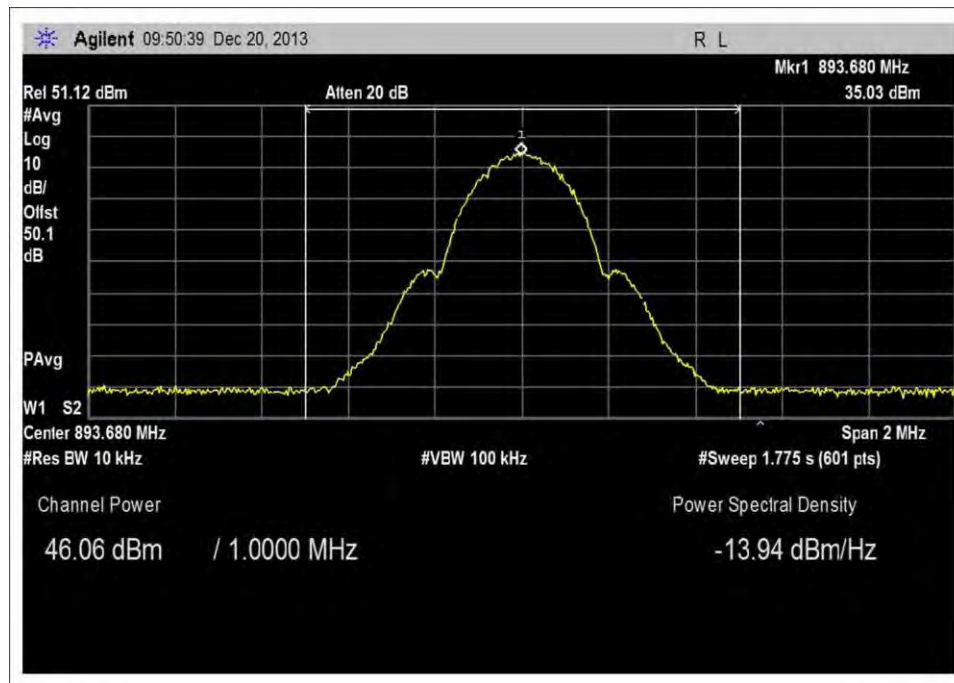
Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
869.32MHz	-1.18	0.8	-1.98	46.04	40.17908108
881.5MHz	-1.84	0.8	-2.64	46.04	40.17908108
893.68MHz	-0.34	0.8	-1.14	46.06	40.3645393
EDGE					
869.3MHz	-1.16	0.8	-1.96	46.02	39.99447498
881.5MHz	-1.7	0.8	-2.5	46.01	39.90249024
893.7MHz	-0.2	0.8	-1	46.03	40.08667176
CDMA (IS95A)					
869.76MHz	-1.3	0.8	-2.1	46.04	40.17908108
881.5MHz	-1.86	0.8	-2.66	46.04	40.17908108
893.24MHz	-0.48	0.8	-1.28	46.03	40.08667176
UMTS (WCDMA 3GPP)					
871.5MHz	-1.6	0.8	-2.4	46.02	39.99447498
881.5MHz	-1.9	0.8	-2.7	46.02	39.99447498
891.5MHz	-0.74	0.8	-1.54	46.04	40.17908108
LTE 1.4MHz					
869.75MHz	-1.24	0.8	-2.04	46.02	39.99447498
881.5MHz	-1.8	0.8	-2.6	46.03	40.08667176
893.25MHz	-0.42	0.8	-1.22	46.03	40.08667176
LTE 5MHz					
871.65MHz	-1.62	0.8	-2.42	46.03	40.08667176
881.5MHz	-1.92	0.8	-2.72	46.03	40.08667176
891.35MHz	-0.76	0.8	-1.56	46.04	40.17908108
LTE 20MHz					
879.25MHz	-1.82	0.8	-2.62	46.03	40.08667176
881.5MHz	-1.76	0.8	-2.56	46.02	39.99447498
883.75MHz	-1.64	0.8	-2.44	46.02	39.99447498



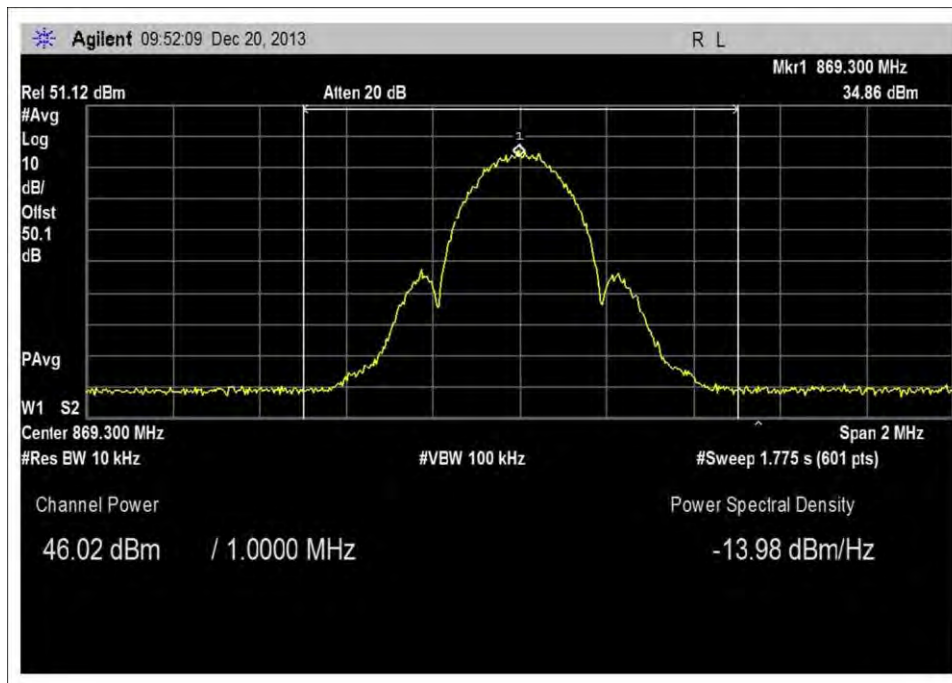
Low Channel, GSM 40W



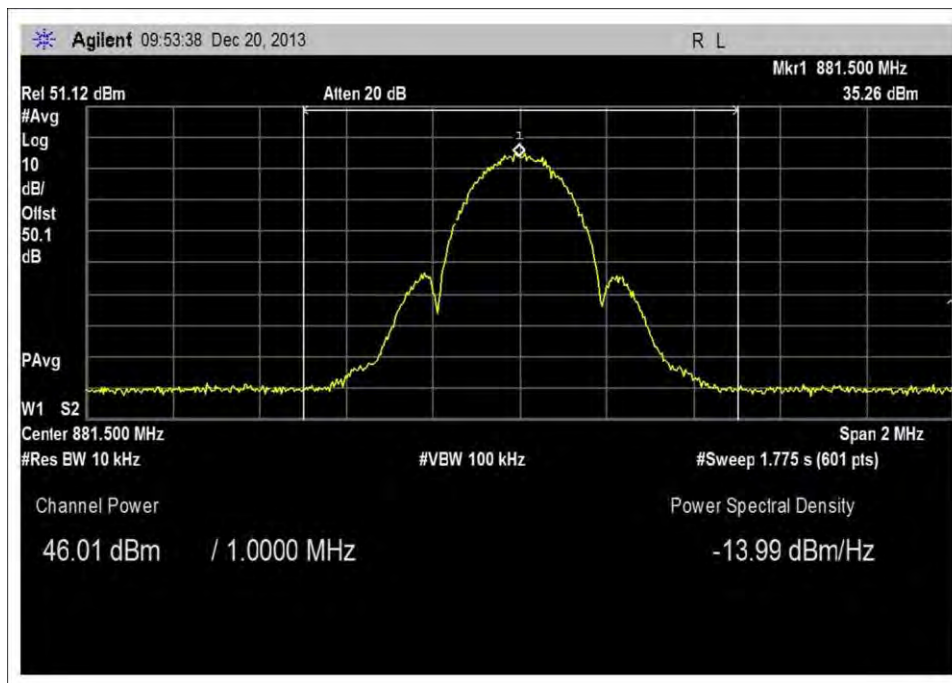
Middle Channel, GSM 40W



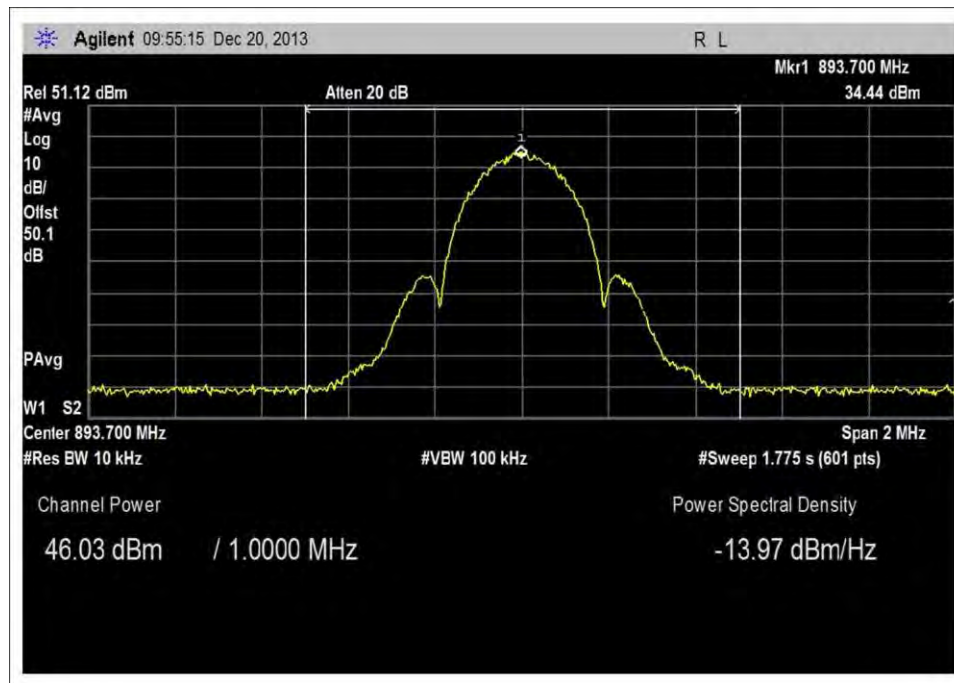
High Channel, GSM 40W



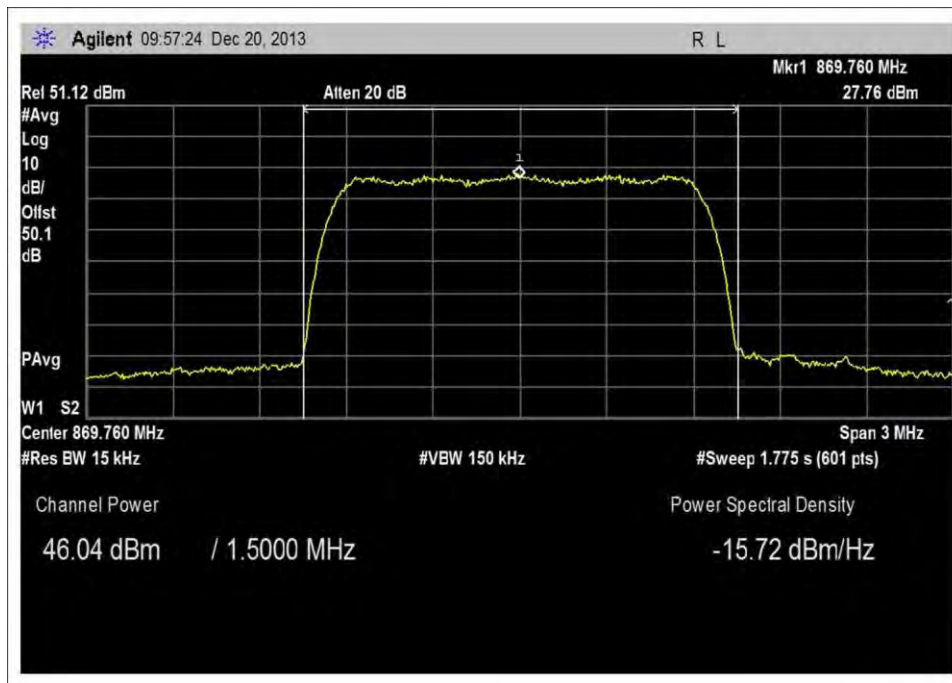
Low Channel, EDGE 40W



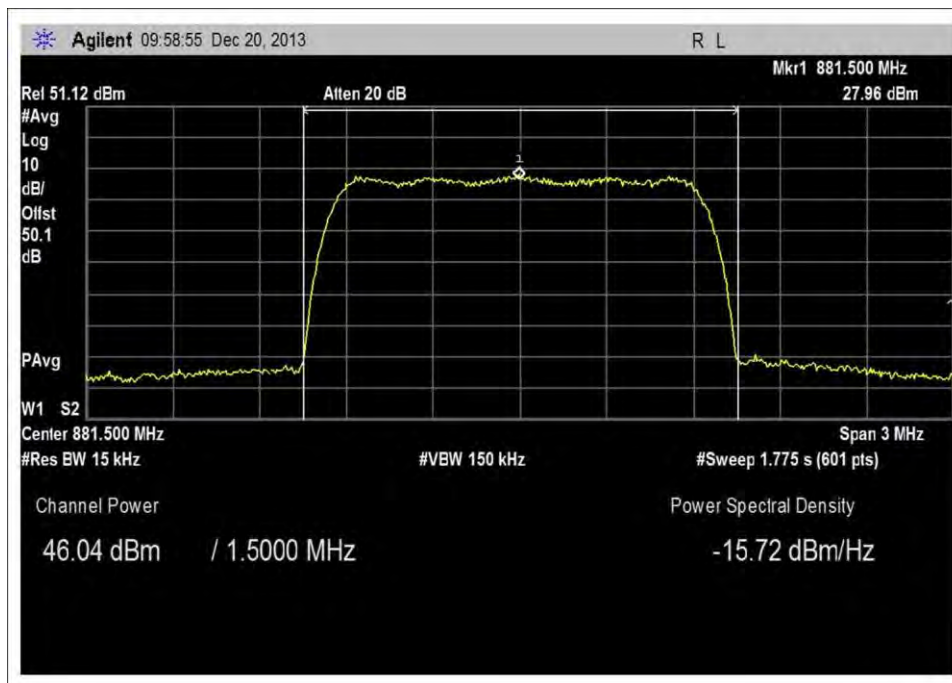
Middle Channel, EDGE 40W



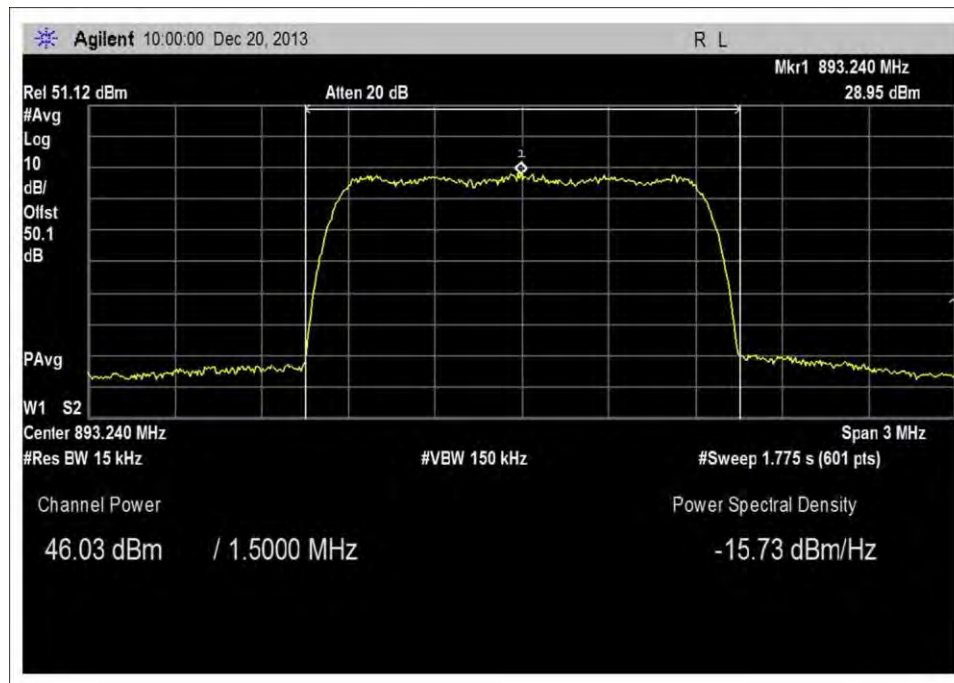
High Channel, EDGE 40W



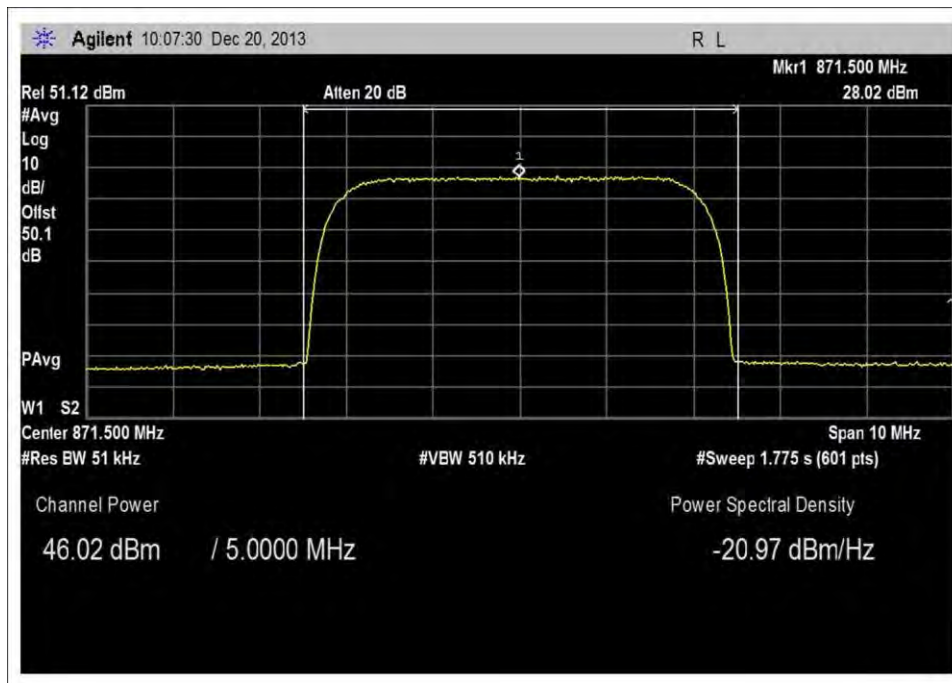
Low Channel, CDMA IS95A 40W



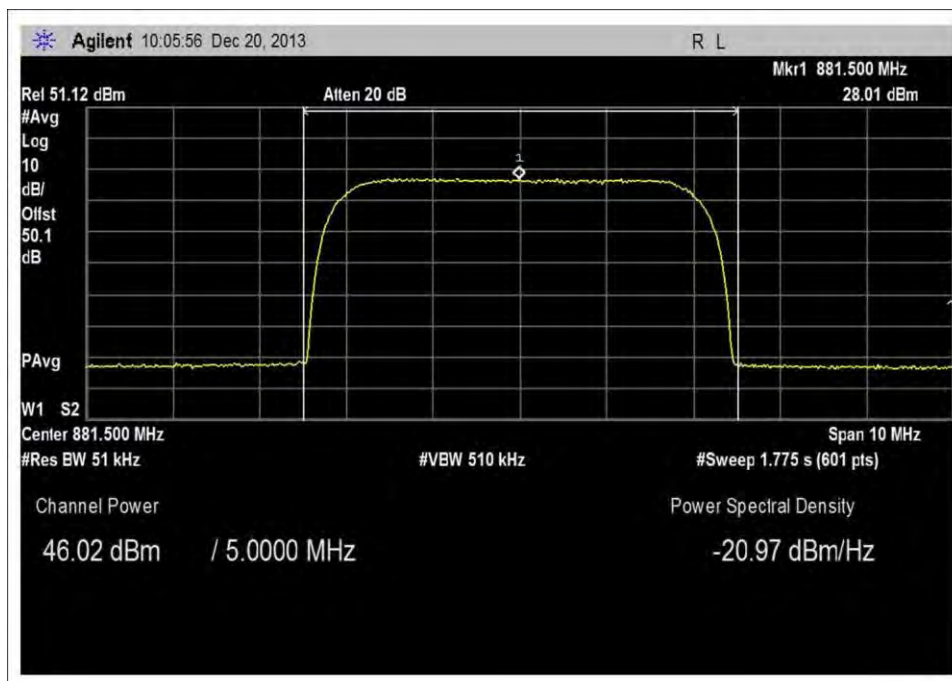
Middle Channel, CDMA IS95A 40W



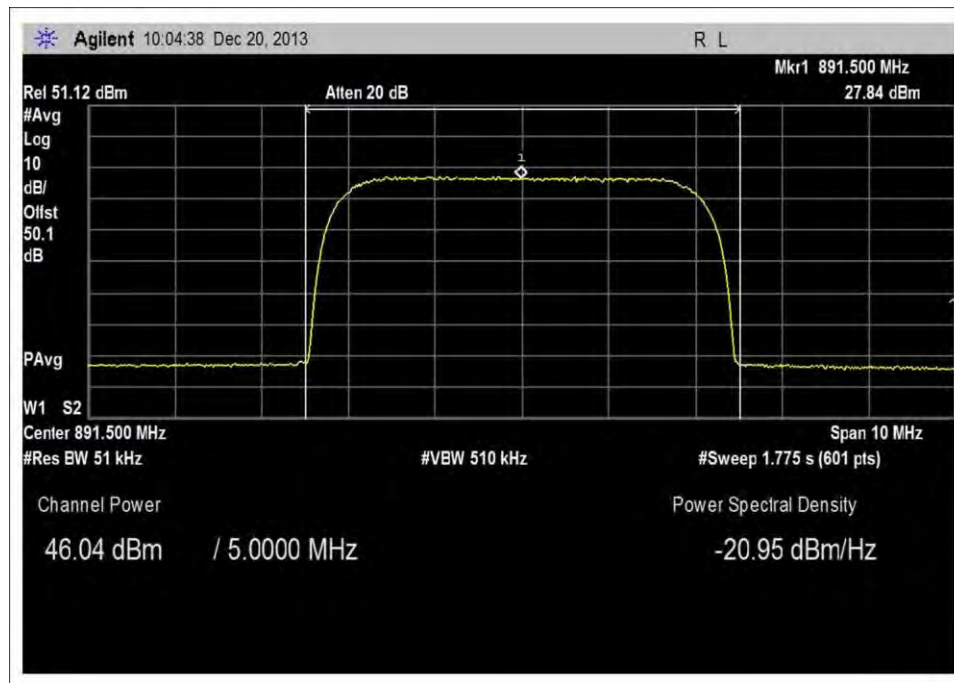
High Channel, CDMA IS95A 40W



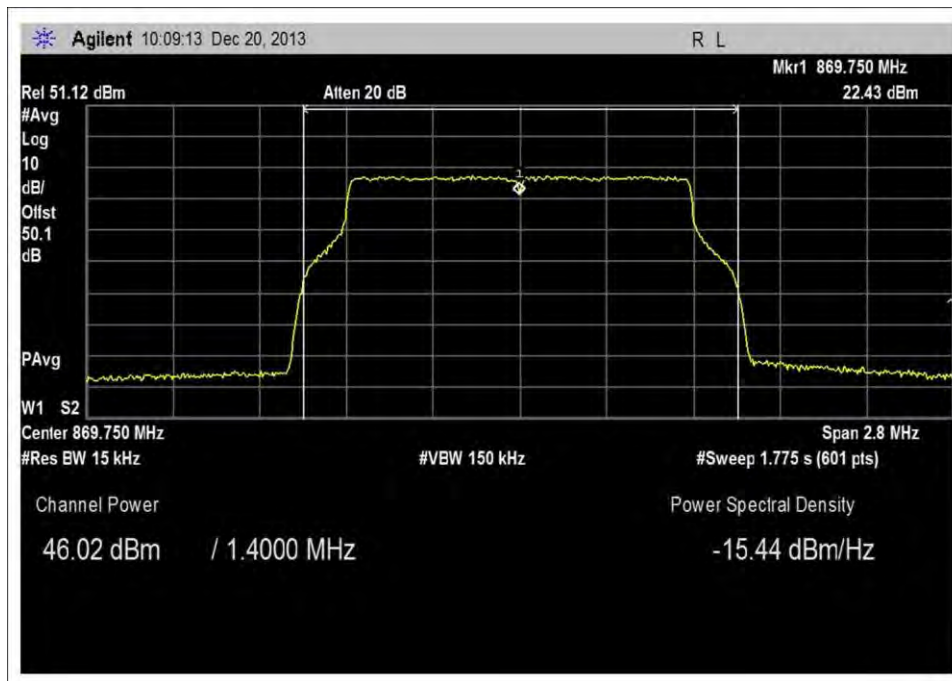
Low Channel, UMTS WCDMA 3GPP 40W



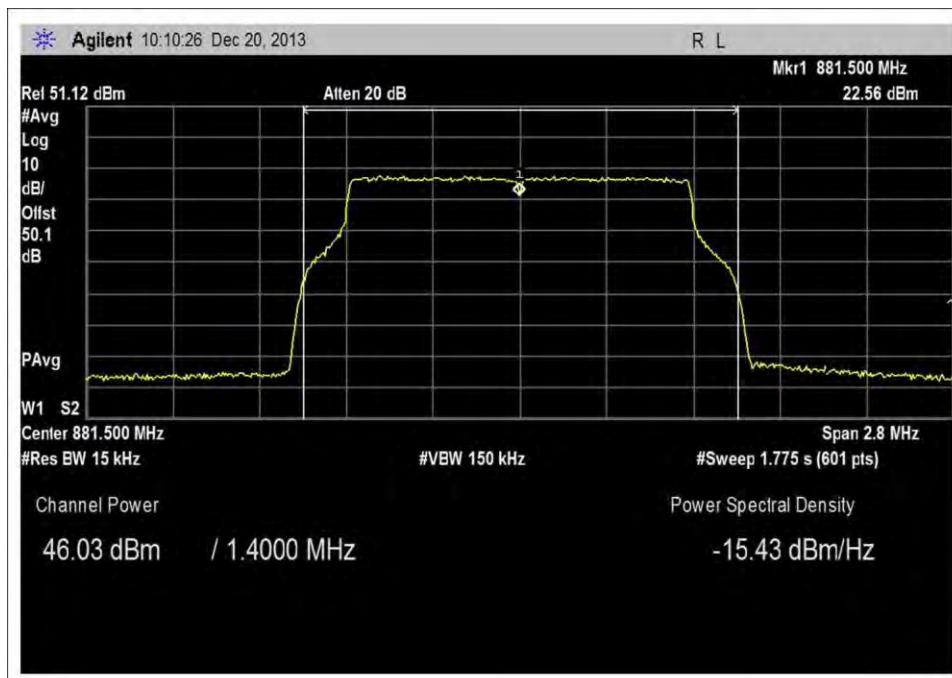
Middle Channel, UMTS WCDMA 3GPP 40W



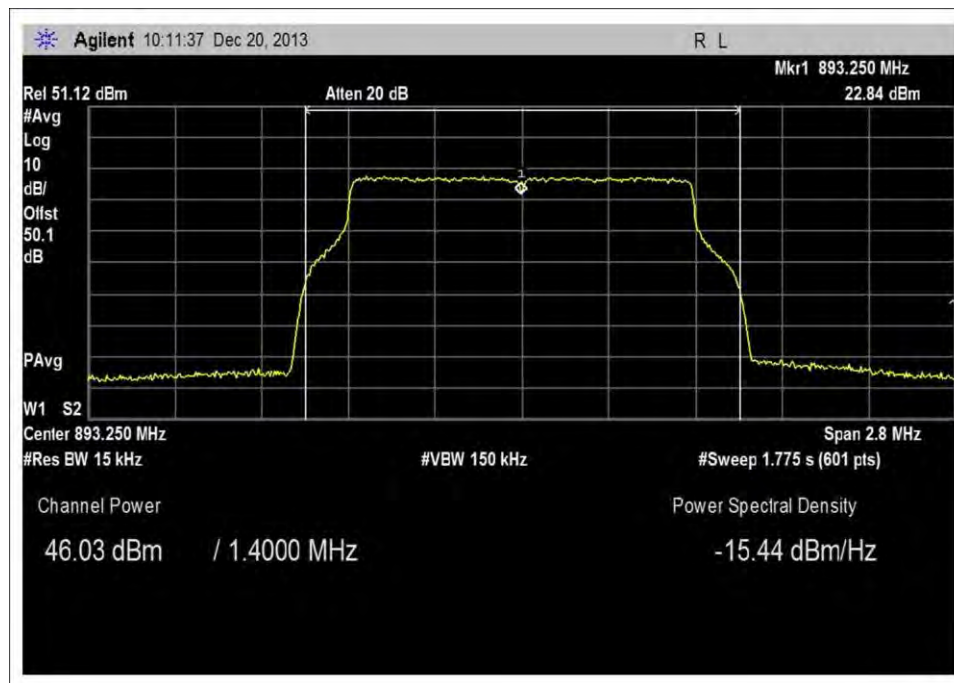
High Channel, UMTS WCDMA 3GPP 40W



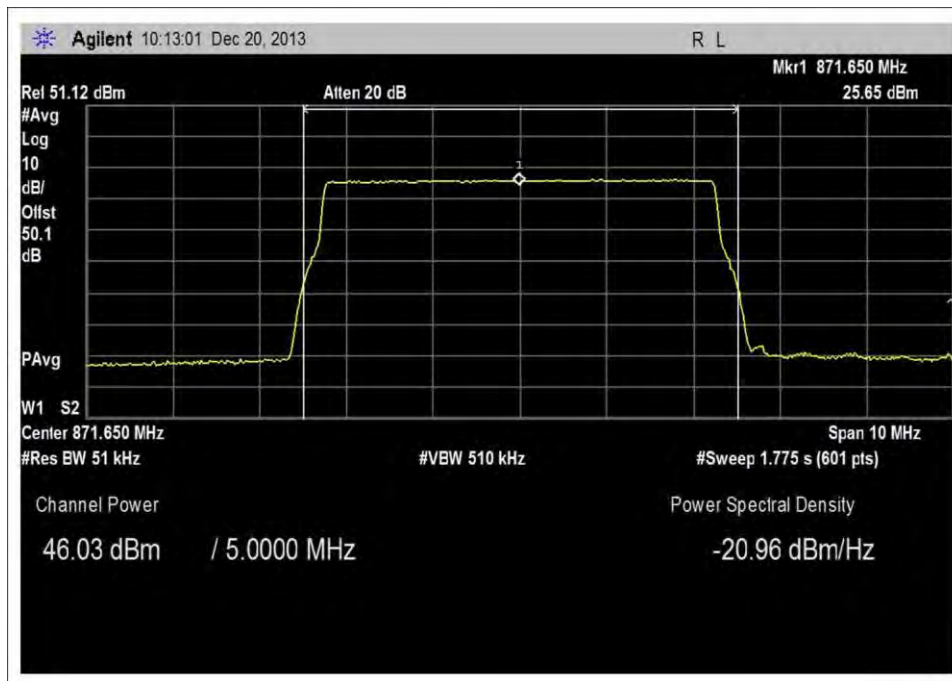
Low Channel, LTE 1.4MHz 40W



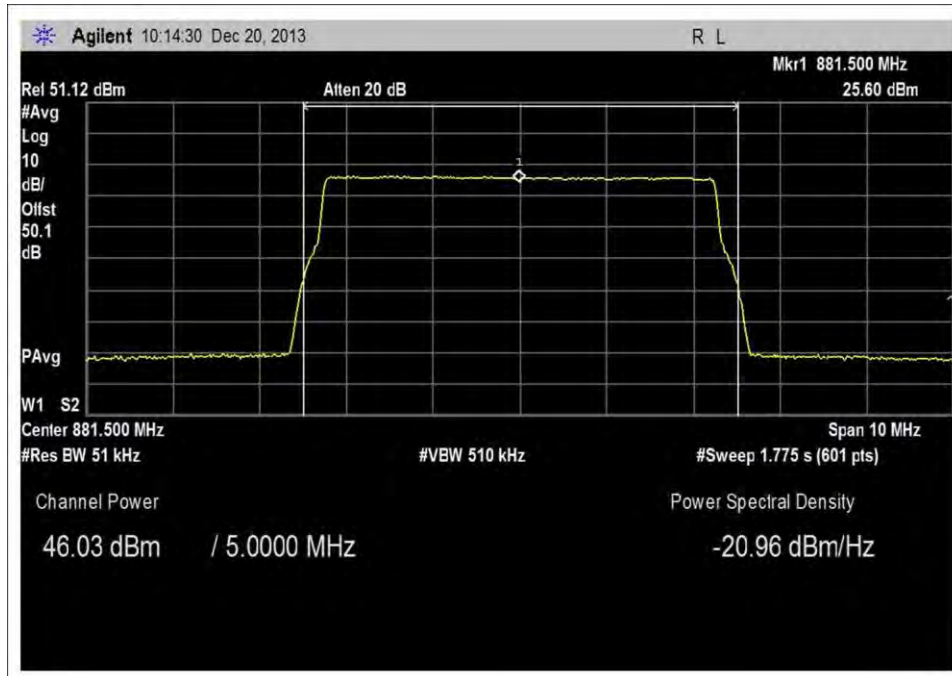
Middle Channel, LTE 1.4MHz 40W



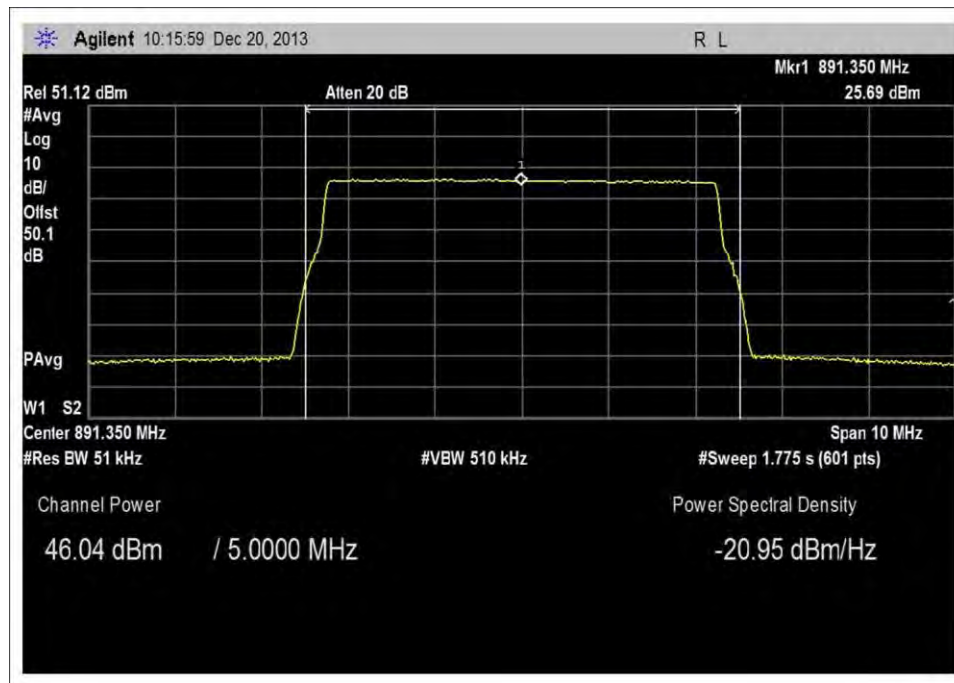
High Channel, LTE 1.4MHz 40W



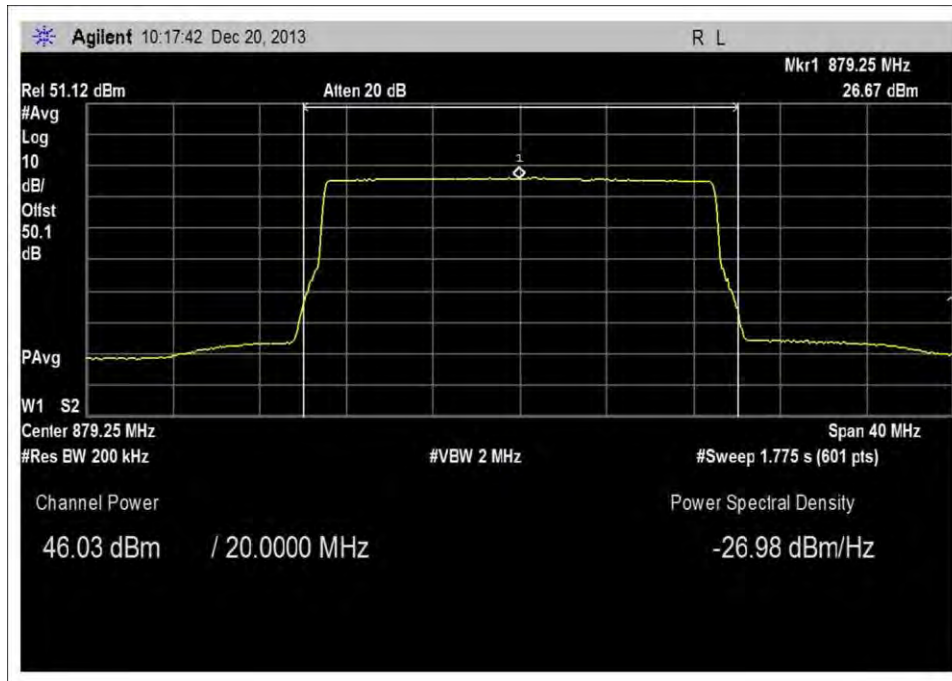
Low Channel, LTE 5MHz 40W



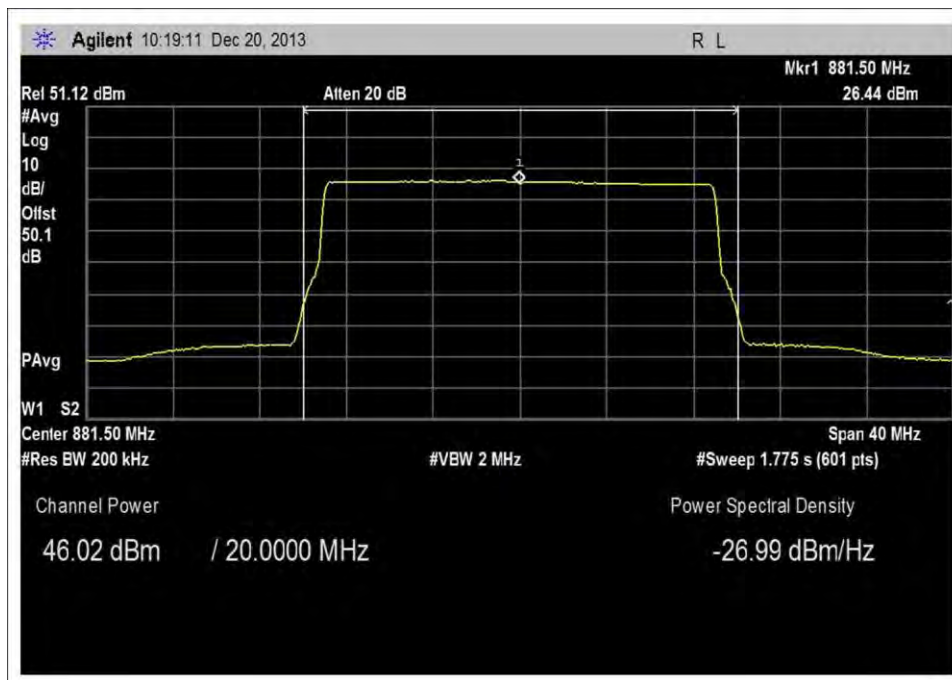
Middle Channel, LTE 5MHz 40W



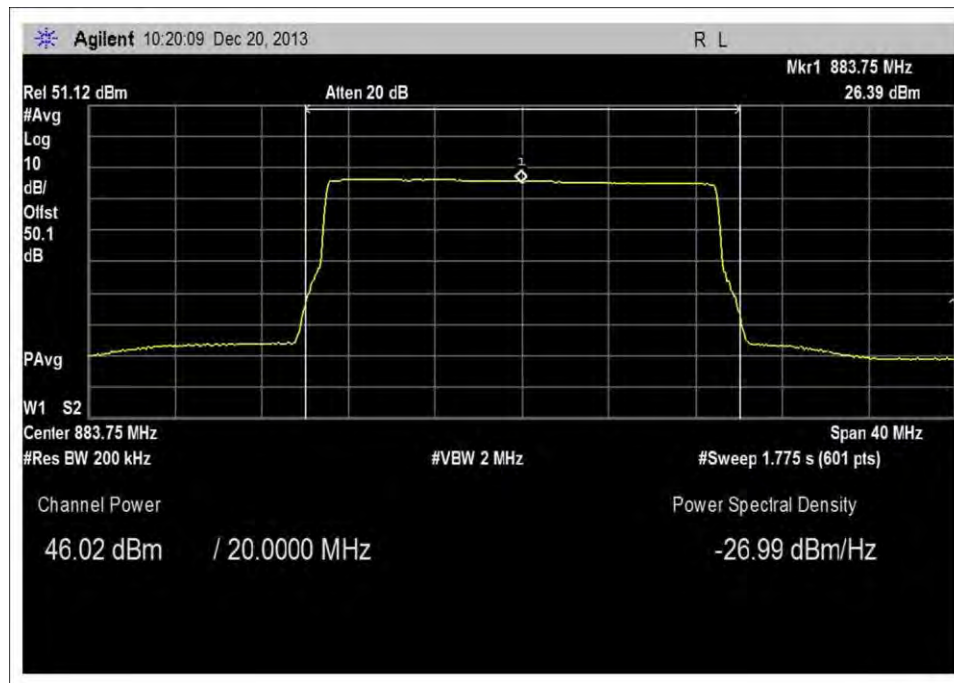
High Channel, LTE 5MHz 40W



Low Channel, LTE 20MHz 40W



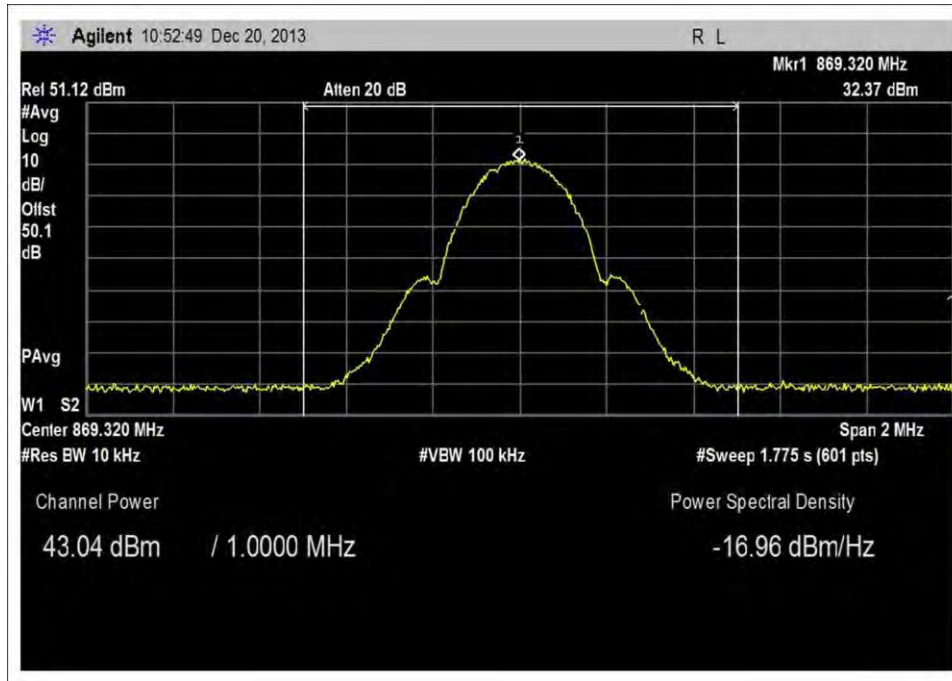
Middle Channel, LTE 20MHz 40W



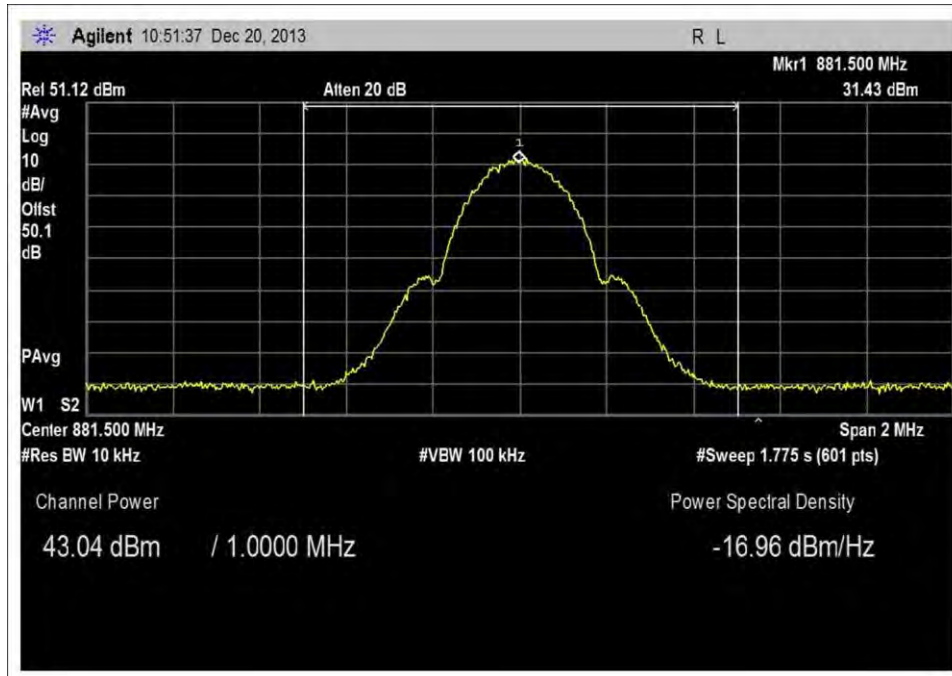
High Channel, LTE 20MHz 40W

20W

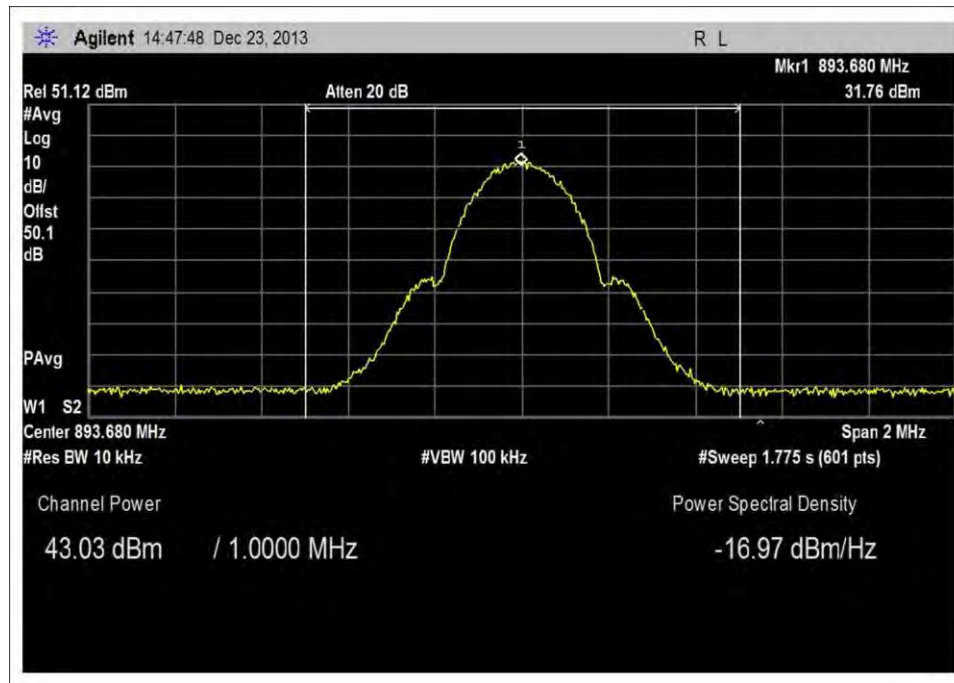
Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
869.32MHz	-4.12	0.8	-4.92	43.04	20.1372425
881.5MHz	-4.74	0.8	-5.54	43.04	20.1372425
893.68MHz	-4.12	0.8	-4.92	43.03	20.09092813
EDGE					
869.3MHz	-4	0.8	-4.8	43.05	20.18366364
881.5MHz	-4.54	0.8	-5.34	43.03	20.09092813
893.7MHz	-3.16	0.8	-3.96	43.02	20.04472027
CDMA (IS95A)					
869.76MHz	-4.1	0.8	-4.9	43.02	20.04472027
881.5MHz	-4.68	0.8	-5.48	43.04	20.1372425
893.24MHz	-3.34	0.8	-4.14	43.03	20.09092813
UMTS (WCMDA 3GPP)					
871.5MHz	-4.42	0.8	-5.22	43.03	20.09092813
881.5MHz	-4.74	0.8	-5.54	43.04	20.1372425
891.5MHz	-3.64	0.8	-4.44	43.04	20.1372425
LTE 1.4MHz					
869.75MHz	-4.16	0.8	-4.96	43.03	20.09092813
881.5MHz	-4.66	0.8	-5.46	43.03	20.09092813
893.25MHz	-3.42	0.8	-4.22	43.03	20.09092813
LTE 5MHz					
871.65MHz	-4.54	0.8	-5.34	43.03	20.09092813
881.5MHz	-4.78	0.8	-5.58	43.03	20.09092813
891.35MHz	-3.76	0.8	-4.56	43.04	20.1372425
LTE 20MHz					
879.25MHz	-4.74	0.8	-5.54	43.02	20.04472027
881.5MHz	-4.68	0.8	-5.48	43.02	20.04472027
883.75MHz	-4.56	0.8	-5.36	43.03	20.09092813



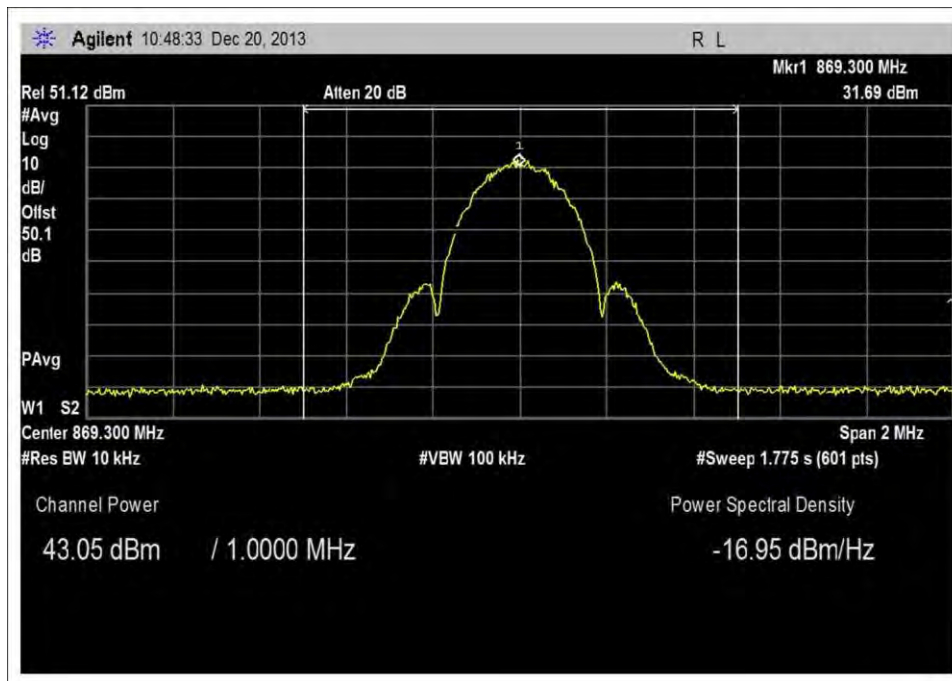
Low Channel, GSM 20W



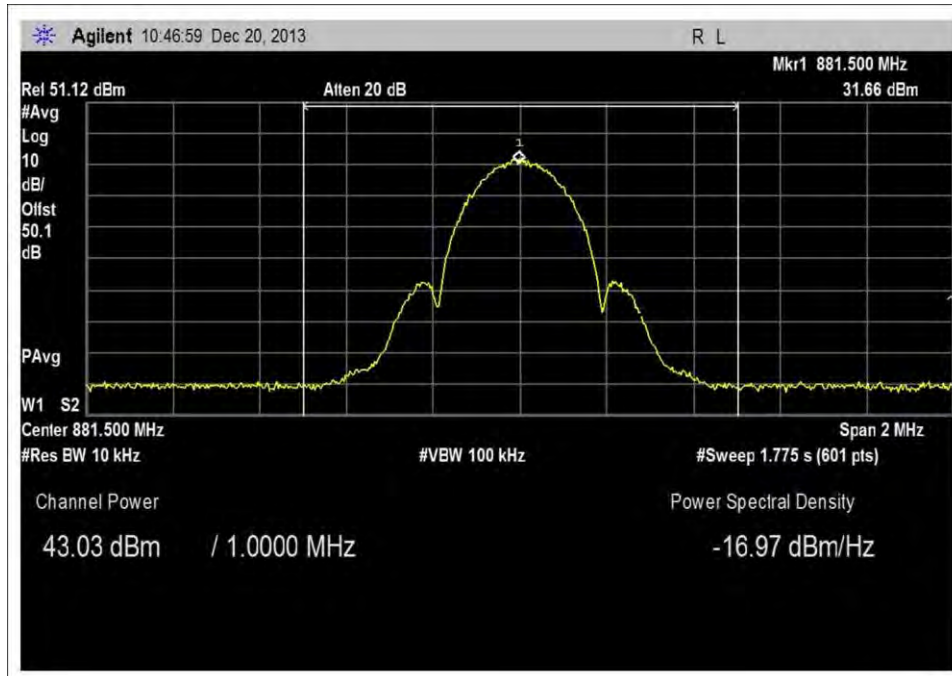
Middle Channel, GSM 20W



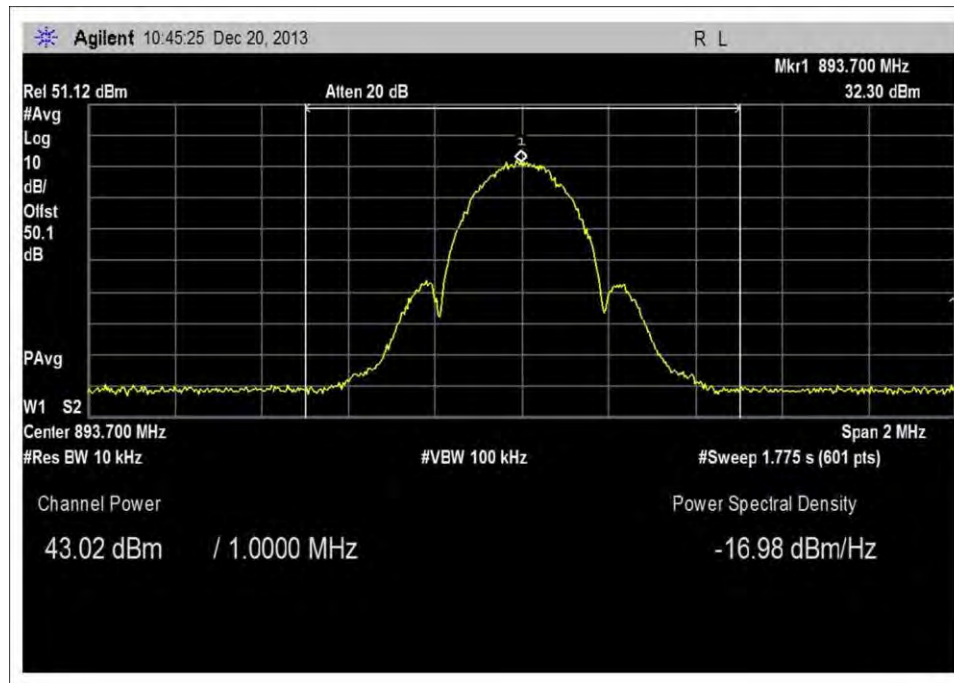
High Channel, GSM 20W



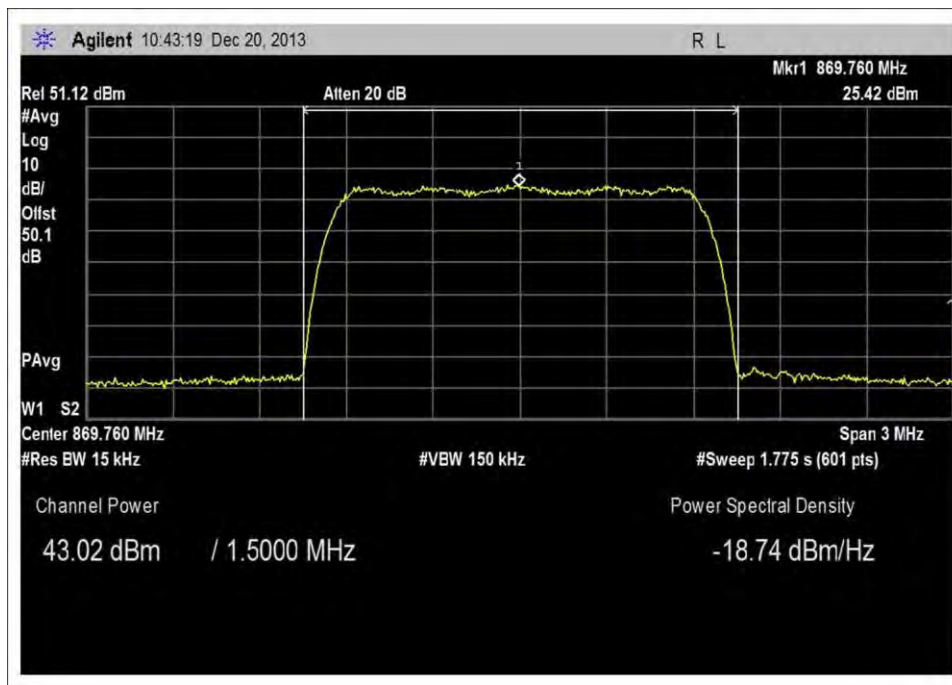
Low Channel, EDGE 20W



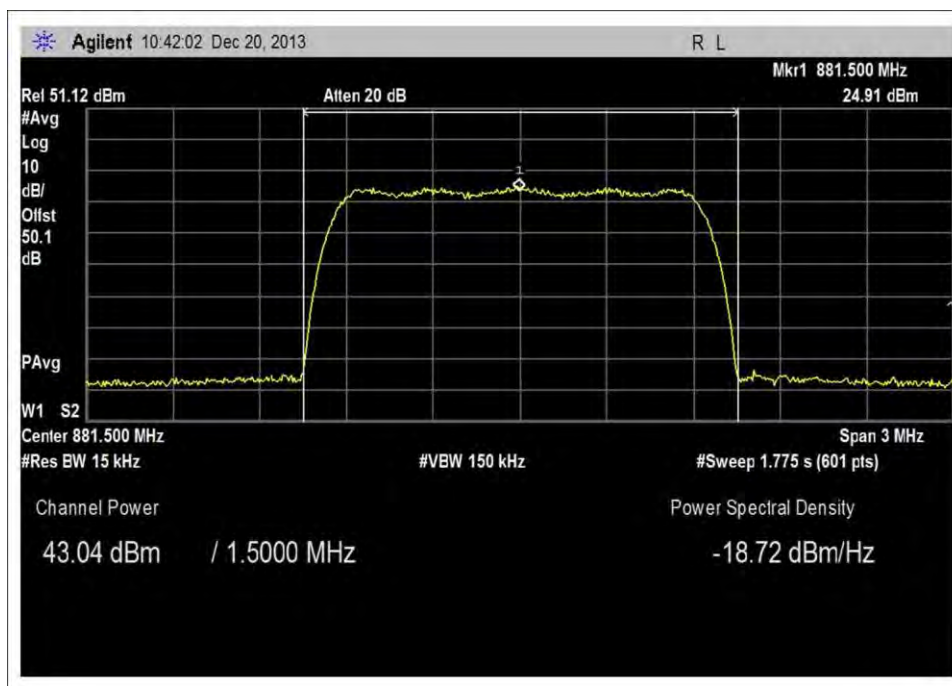
Middle Channel, EDGE 20W



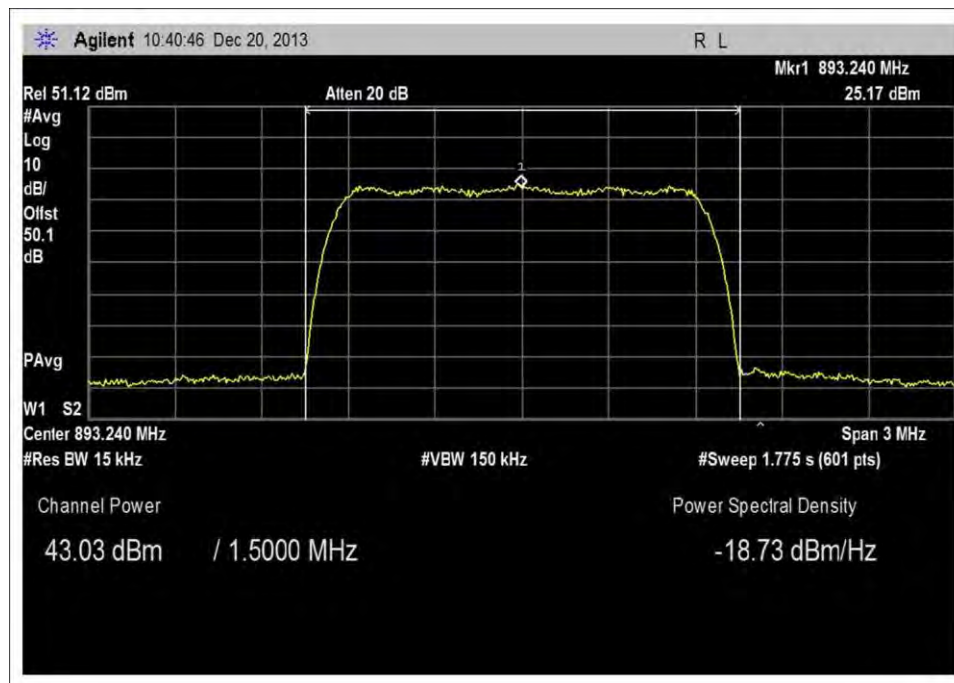
High Channel, EDGE 20W



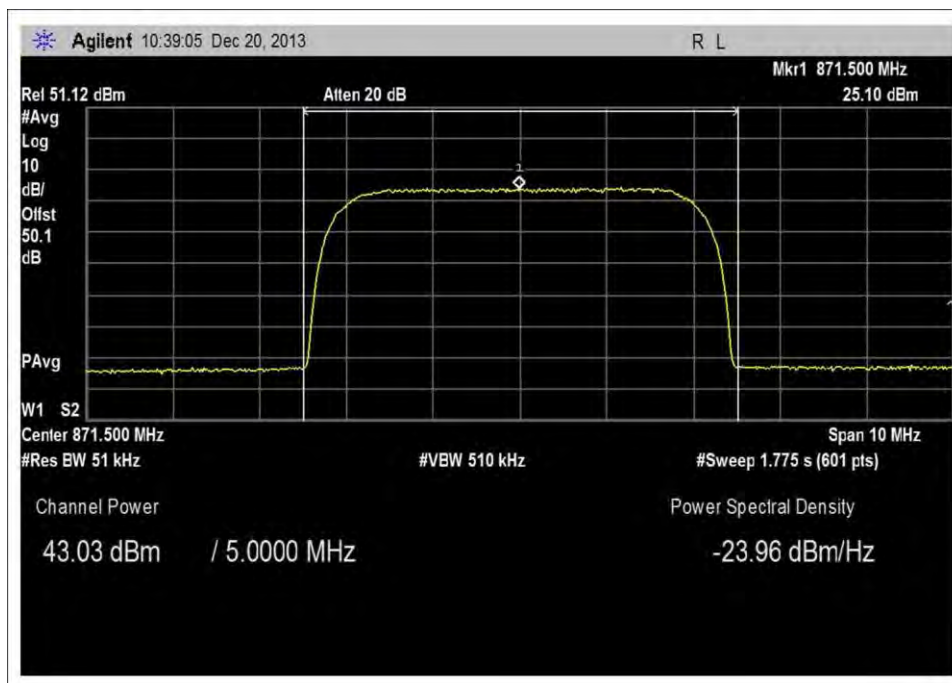
Low Channel, CDMA IS95A 20W



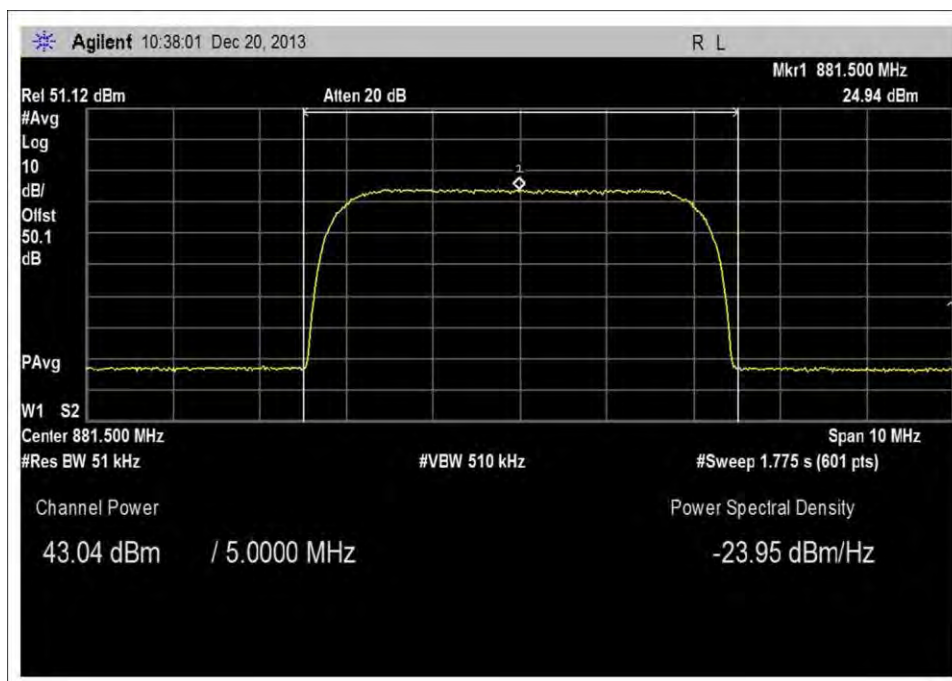
Middle Channel, CDMA IS95A 20W



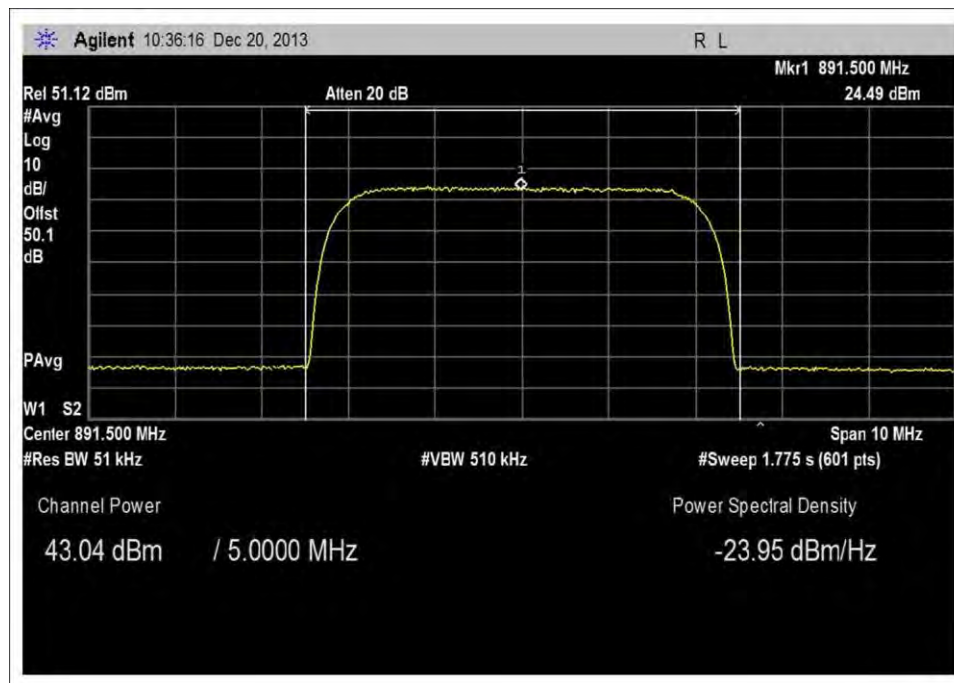
High Channel, CDMA IS95A 20W



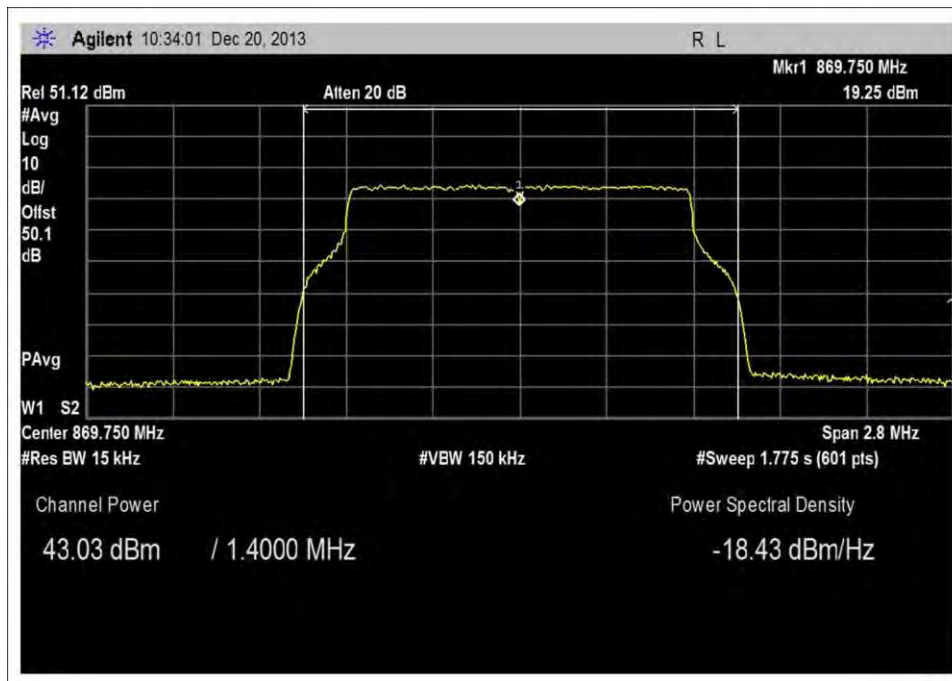
Low Channel, UMTS WCDMA 3GPP 20W



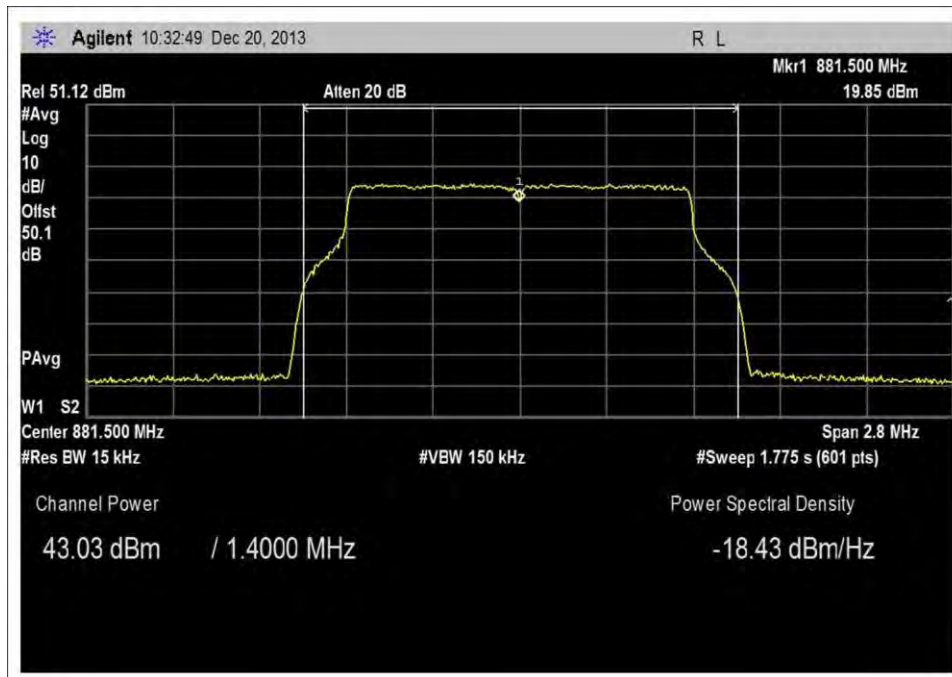
Middle Channel, UMTS WCDMA 3GPP 20W



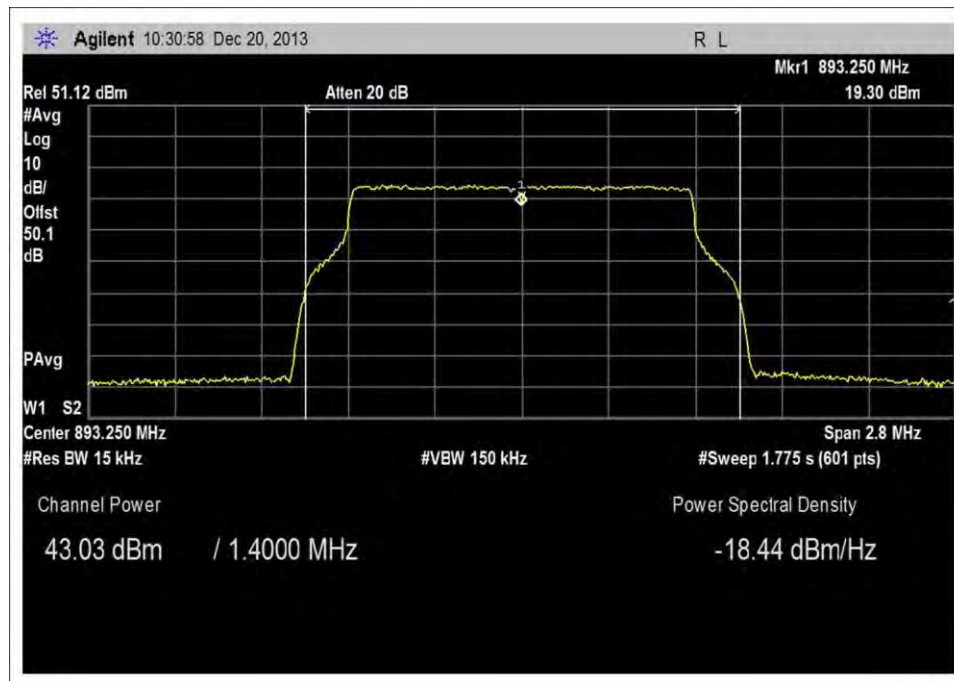
High Channel, UMTS WCDMA 3GPP 20W



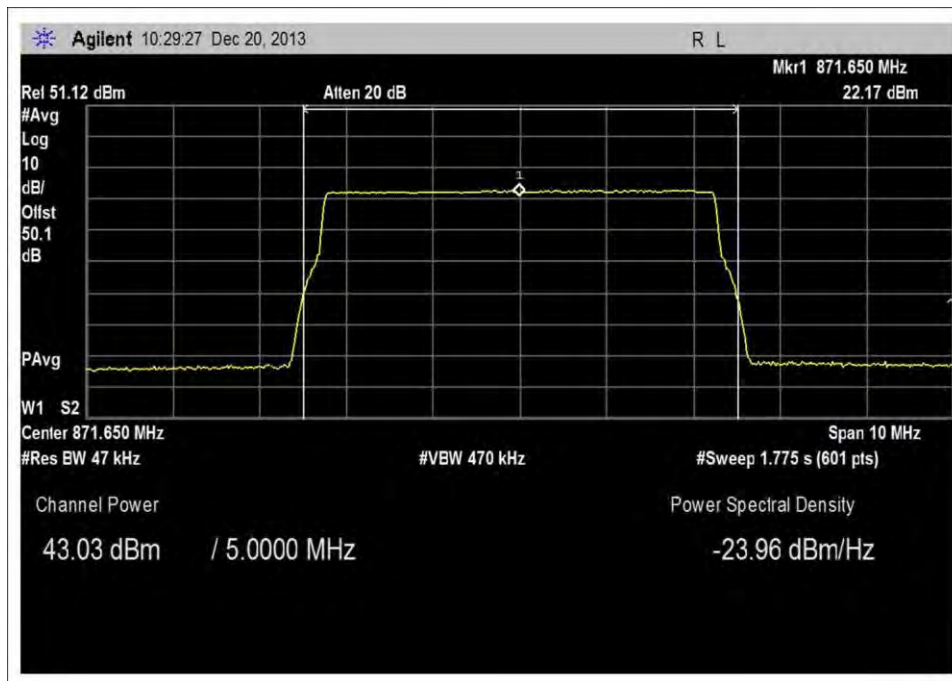
Low Channel, LTE 1.4MHz 20W



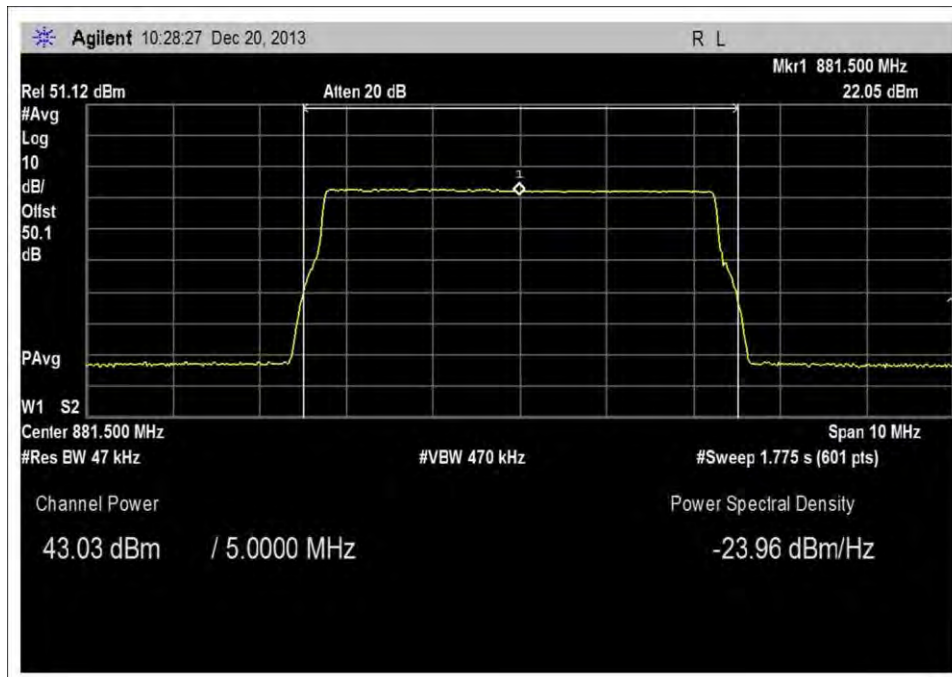
Middle Channel, LTE 1.4MHz 20W



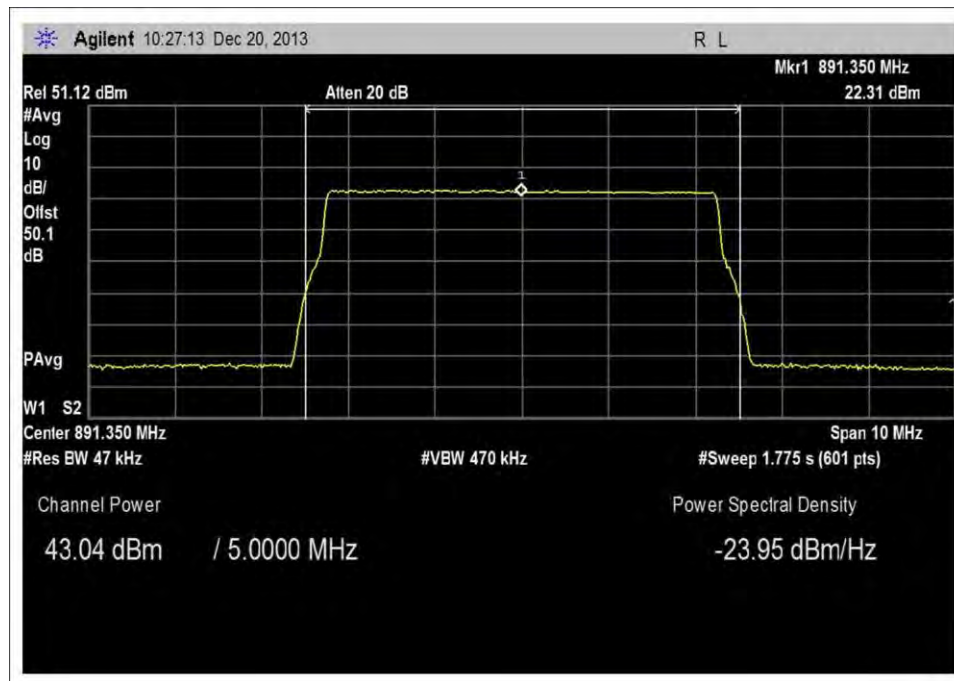
High Channel, LTE 1.4MHz 20W



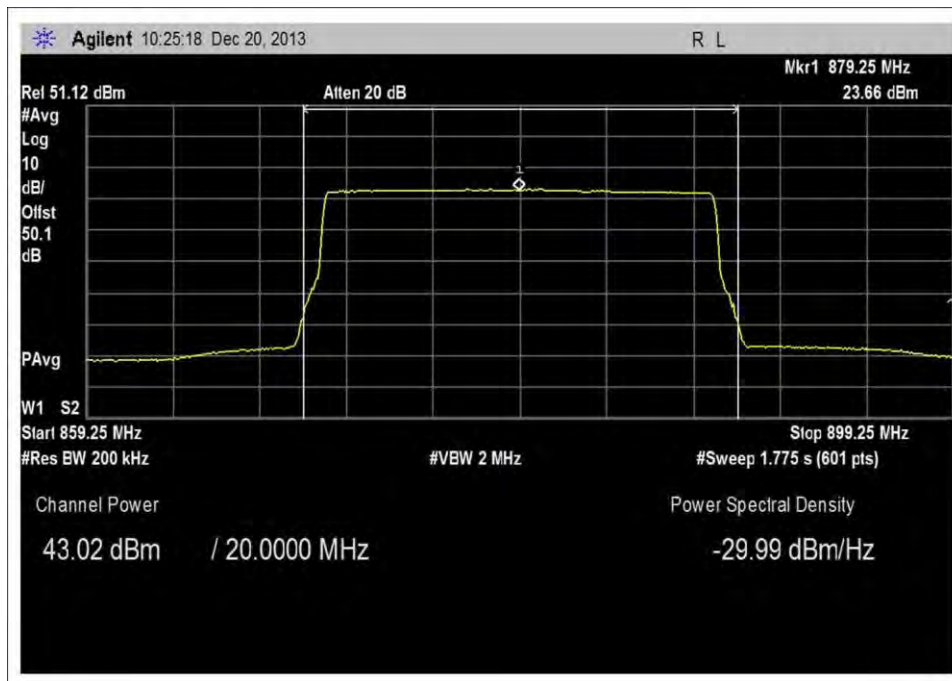
Low Channel, LTE 5MHz 20W



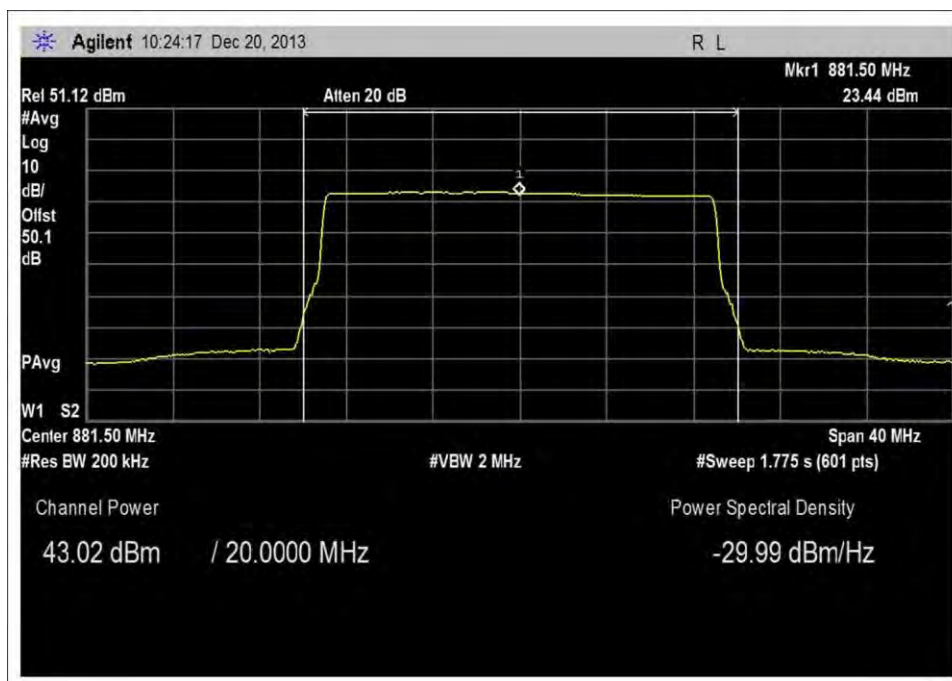
Middle Channel, LTE 5MHz 20W



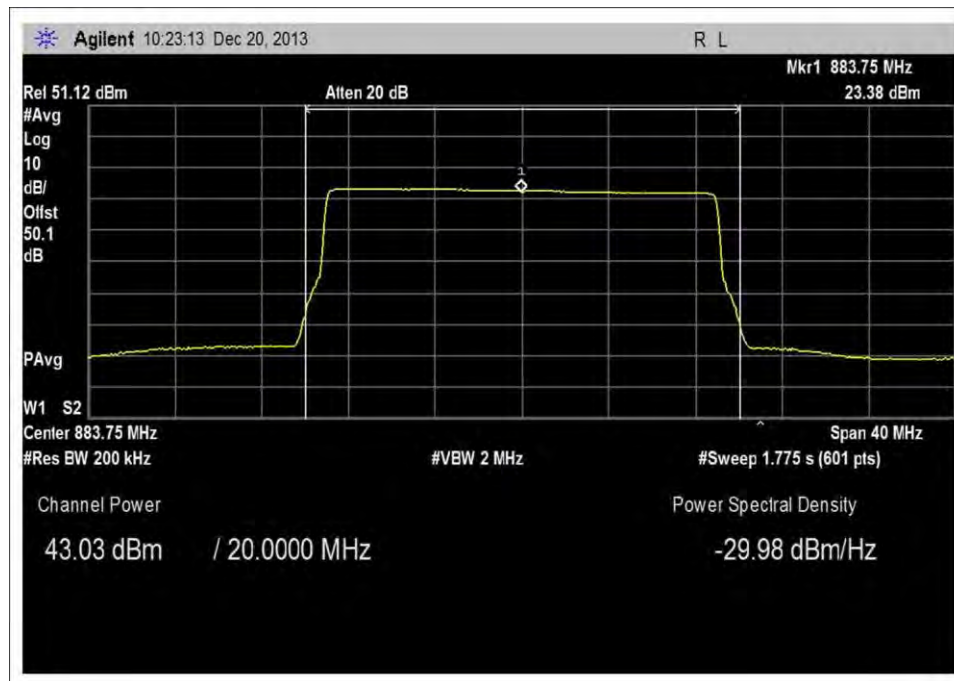
High Channel, LTE 5MHz 20W



Low Channel, LTE 20MHz 20W



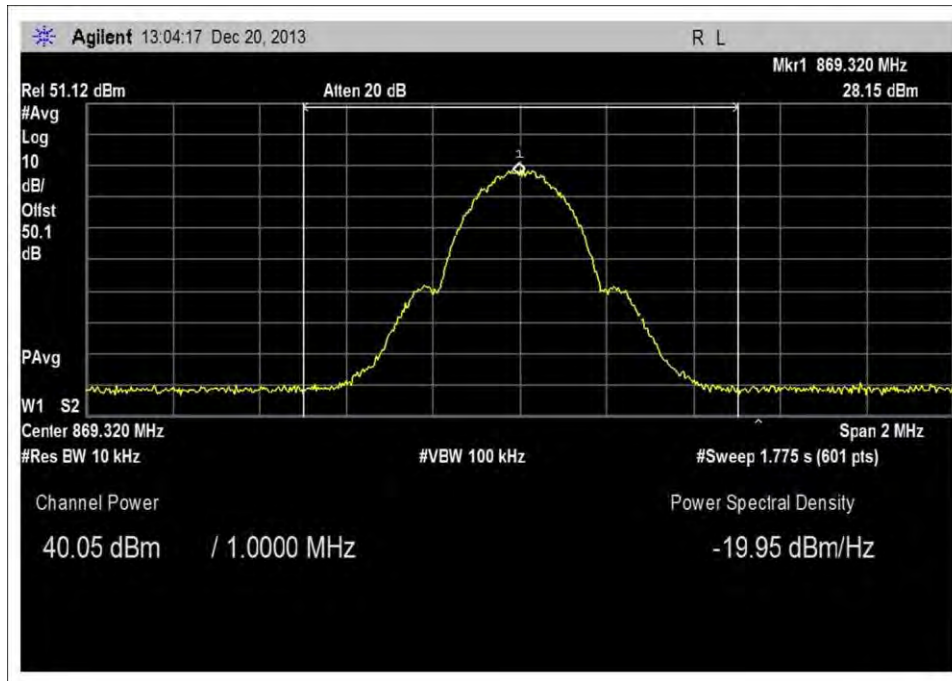
Middle Channel, LTE 20MHz 20W



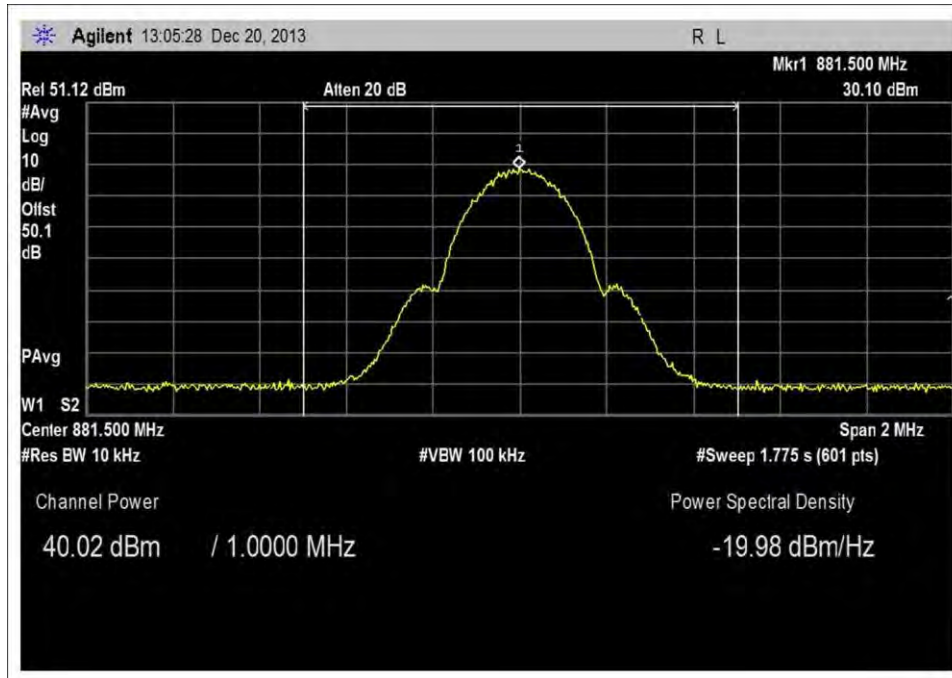
High Channel, LTE 20MHz 20W

10W

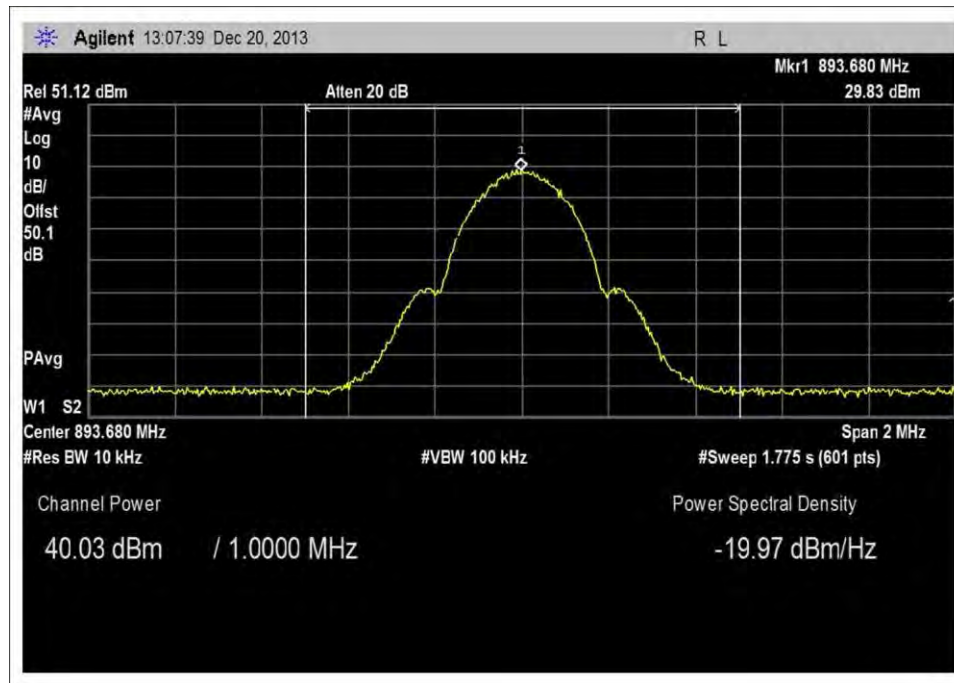
Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
869.32MHz	-6.78	0.8	-7.58	40.05	10.11579454
881.5MHz	-7.44	0.8	-8.24	40.02	10.0461579
893.68MHz	-5.82	0.8	-6.62	40.03	10.06931669
EDGE					
869.3MHz	-6.36	0.8	-7.16	40.03	10.06931669
881.5MHz	-7.02	0.8	-7.82	40.03	10.06931669
893.7MHz	-5.72	0.8	-6.52	40.01	10.02305238
CDMA (IS95A)					
869.76MHz	-6.48	0.8	-7.28	40.04	10.09252886
881.5MHz	-7.08	0.8	-7.88	40.04	10.09252886
893.24MHz	-5.8	0.8	-6.6	40.04	10.09252886
UMTS (WCDMA 3GPP)					
871.5MHz	-6.82	0.8	-7.62	40.03	10.06931669
881.5MHz	-7.12	0.8	-7.92	40.02	10.0461579
891.5MHz	-6.08	0.8	-6.88	40.04	10.09252886
LTE 1.4MHz					
869.75MHz	-6.66	0.8	-7.46	40.03	10.06931669
881.5MHz	-7.2	0.8	-8	40.03	10.06931669
893.25MHz	-5.94	0.8	-6.74	40.03	10.06931669
LTE 5MHz					
871.65MHz	-7.04	0.8	-7.84	40.02	10.0461579
881.5MHz	-7.32	0.8	-8.12	40.02	10.0461579
891.35MHz	-6.28	0.8	-7.08	40.02	10.0461579
LTE 20MHz					
879.25MHz	-7.2	0.8	-8	40.02	10.0461579
881.5MHz	-7.14	0.8	-7.94	40.02	10.0461579
883.75MHz	-7.02	0.8	-7.82	40.02	10.0461579



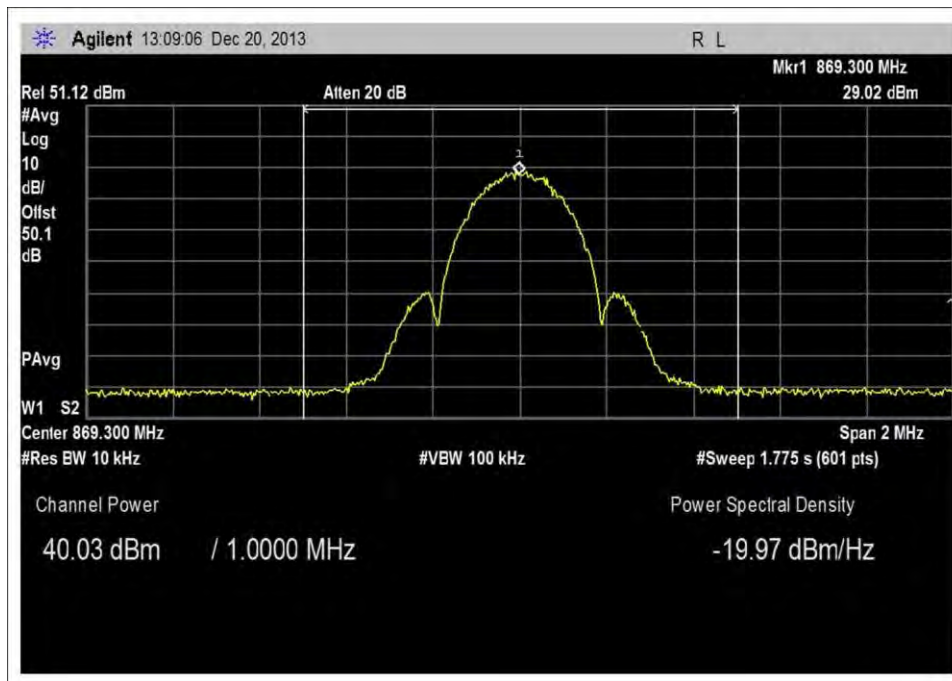
Low Channel, GSM 10W



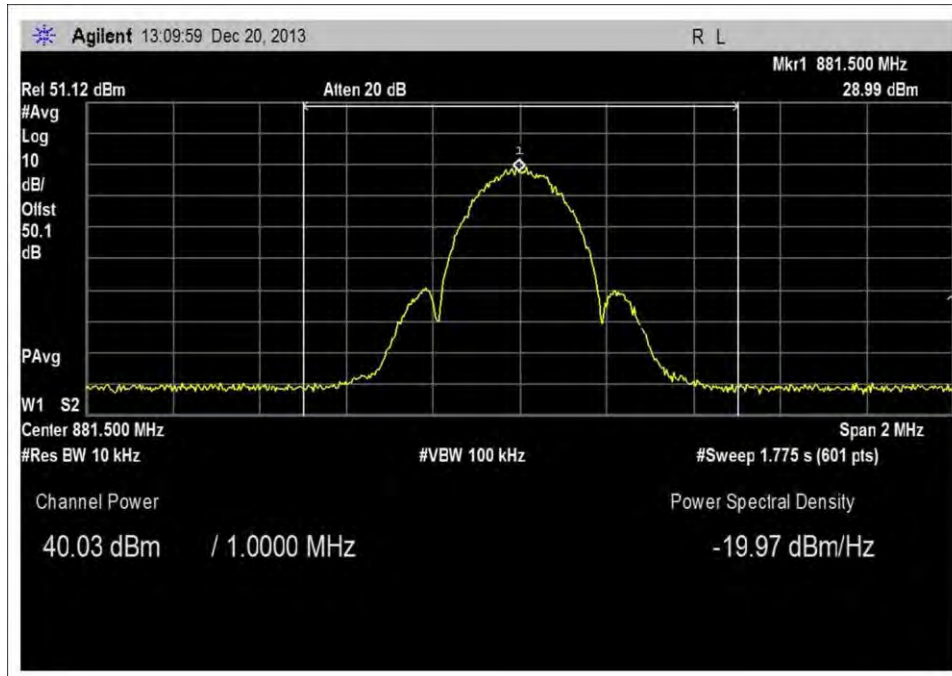
Middle Channel, GSM 10W



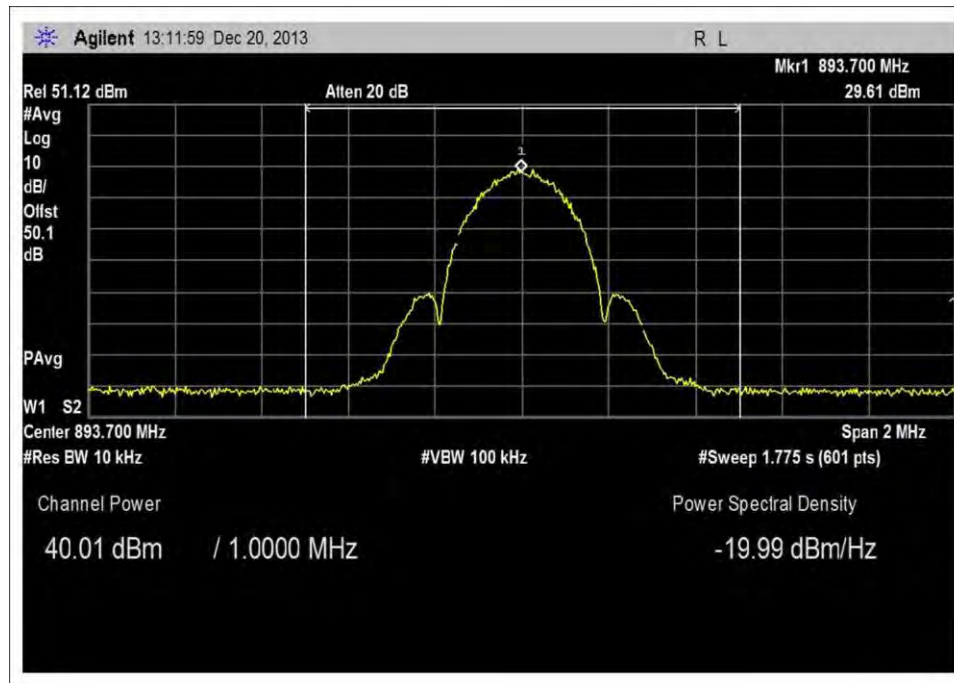
High Channel, GSM 10W



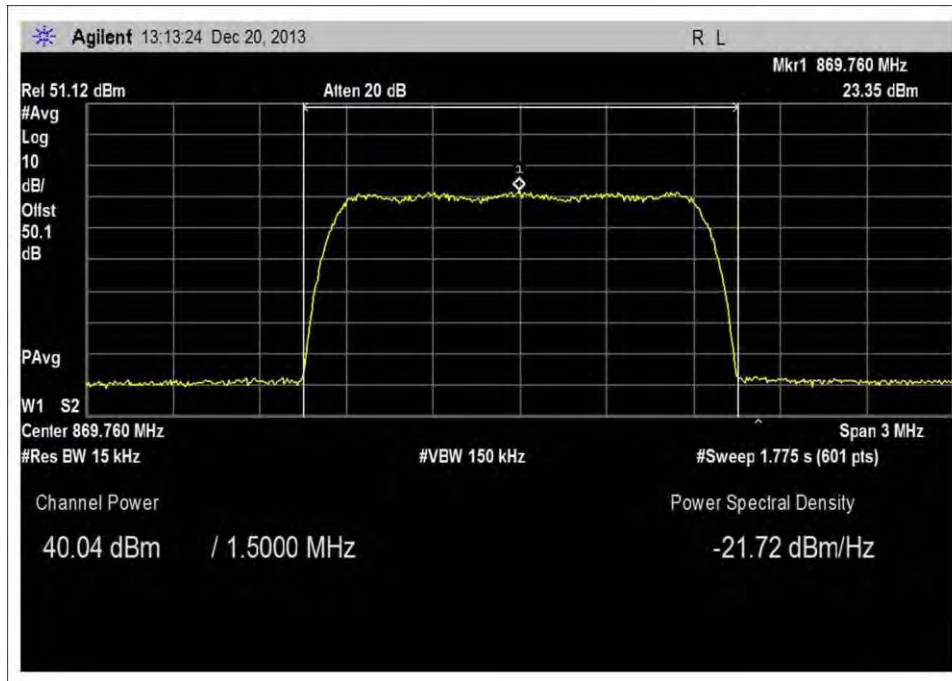
Low Channel, EDGE 10W



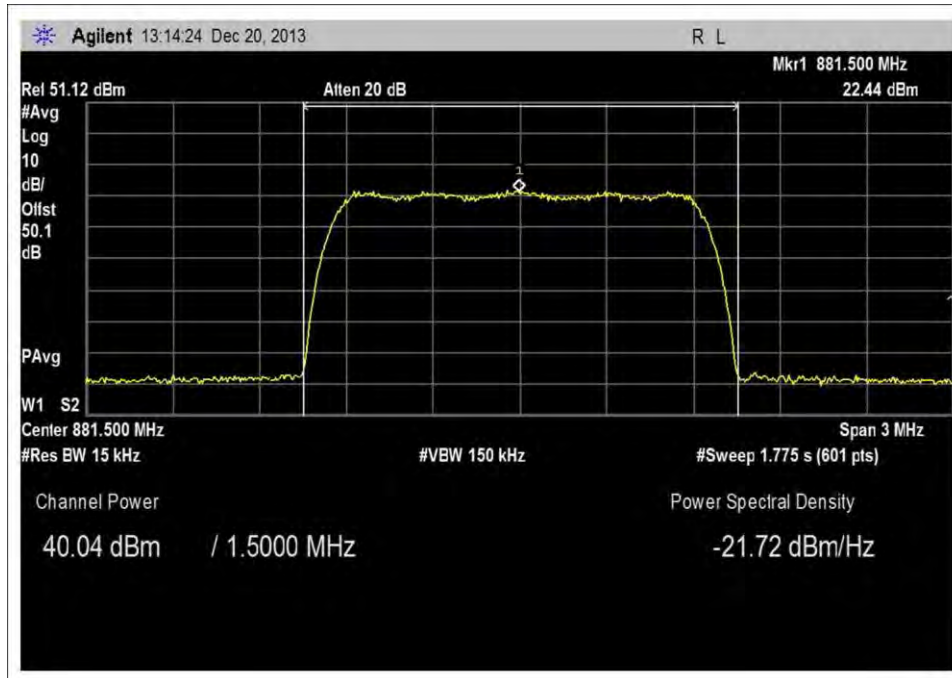
Middle Channel, EDGE 10W



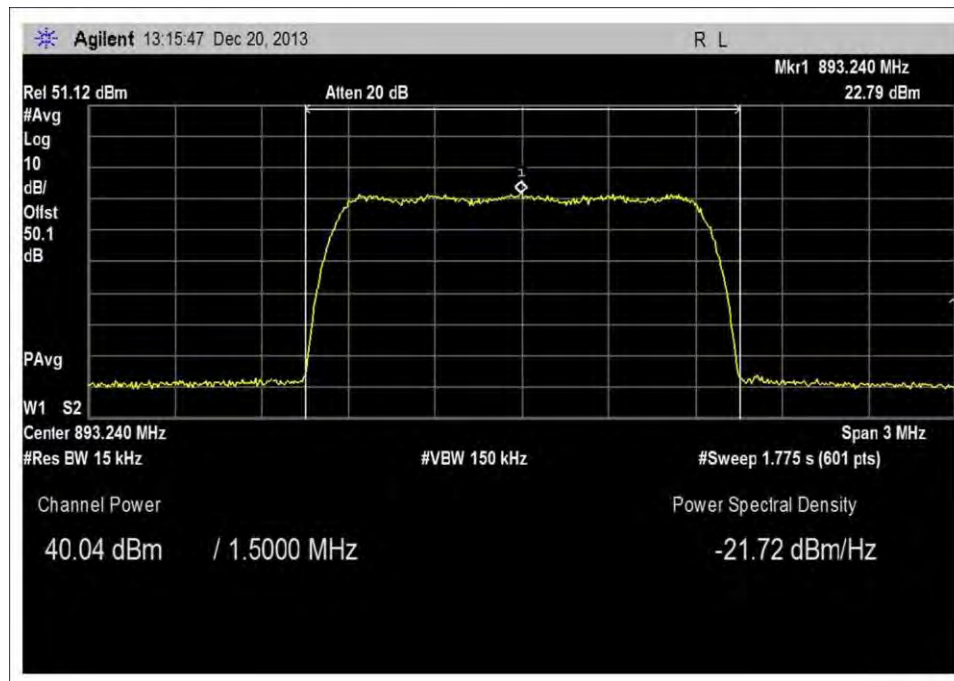
High Channel, EDGE 10W



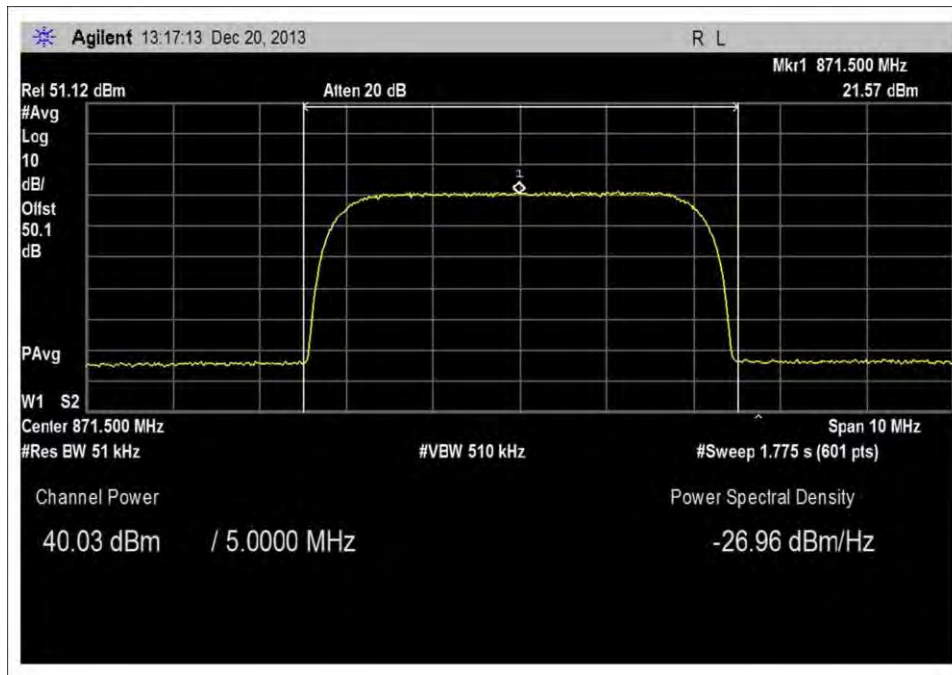
Low Channel, CDMA IS95A 10W



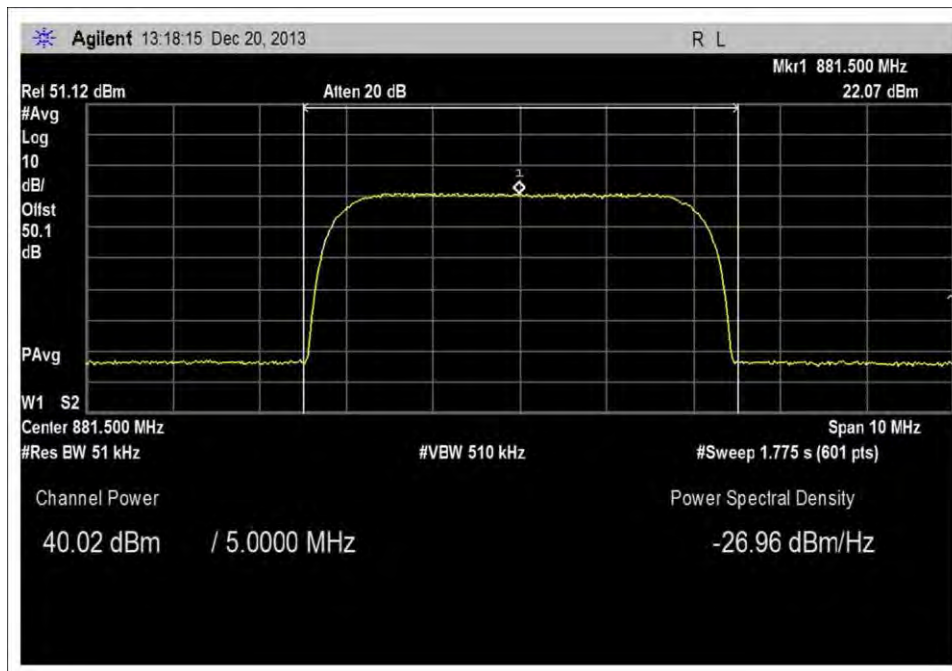
Middle Channel, CDMA IS95A 10W



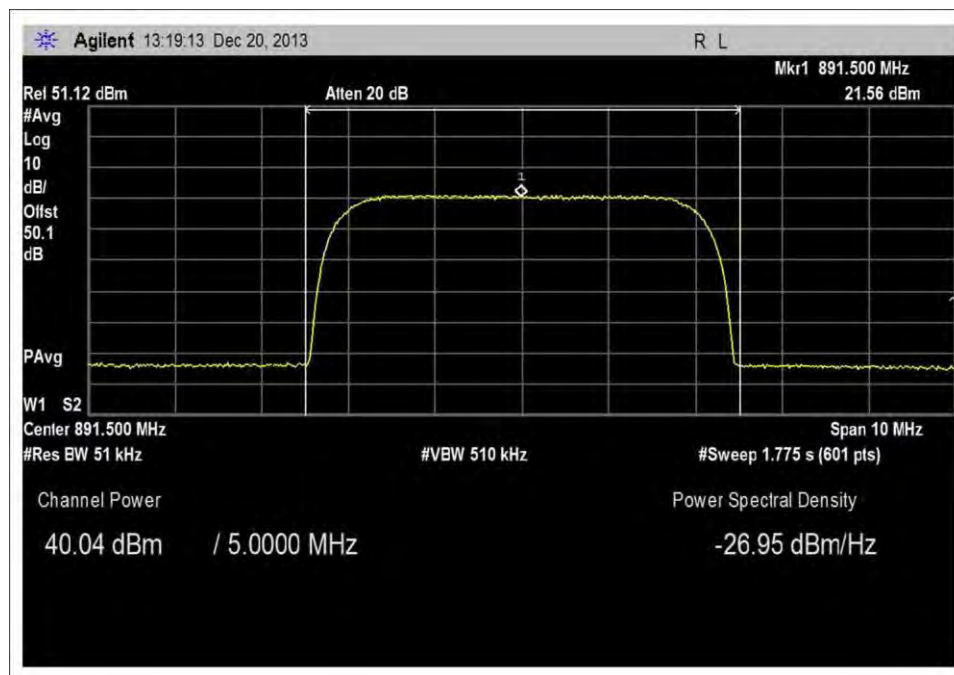
High Channel, CDMA IS95A 10W



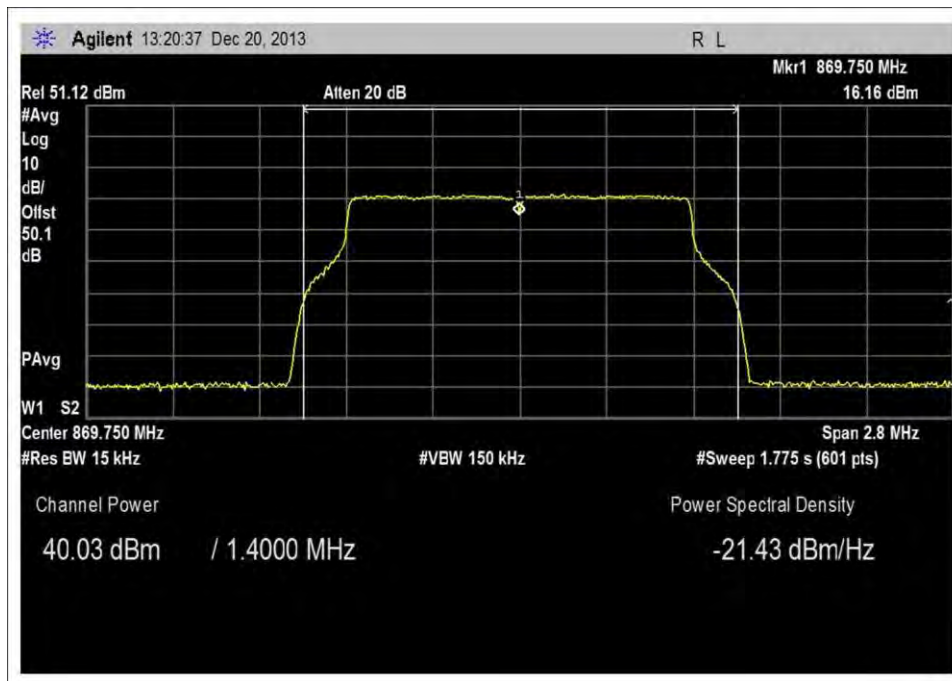
Low Channel, UMTS WCDMA 3GPP 10W



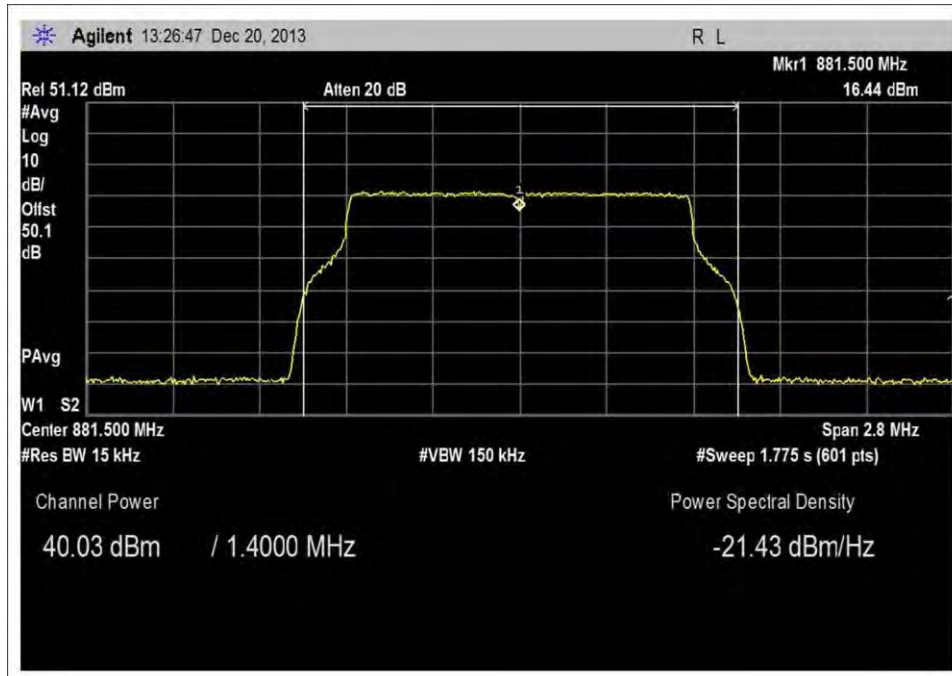
Middle Channel, UMTS WCDMA 3GPP 10W



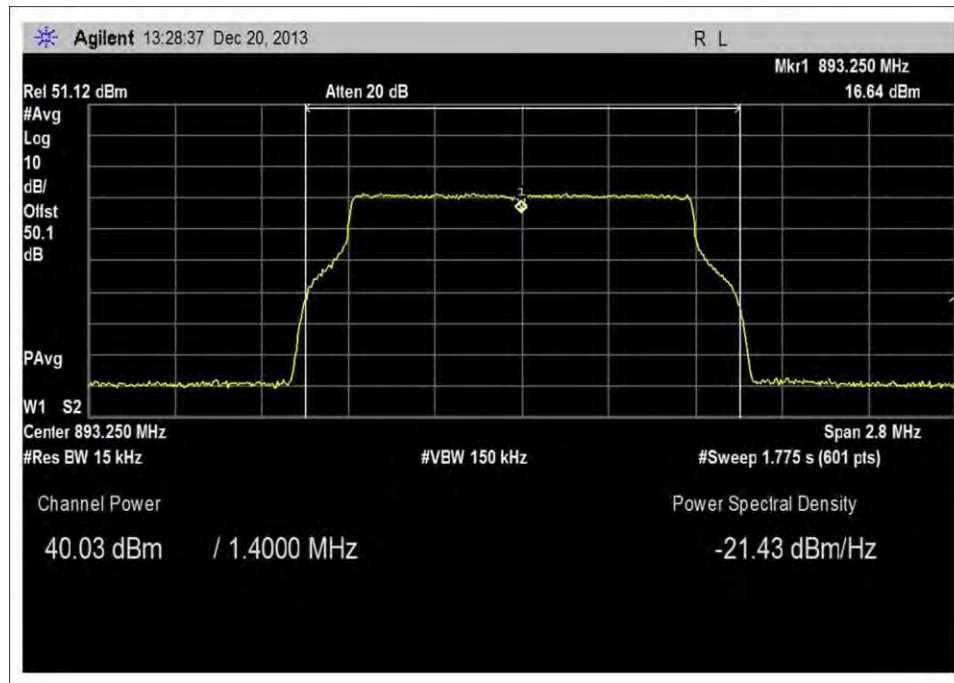
High Channel, UMTS WCDMA 3GPP 10W



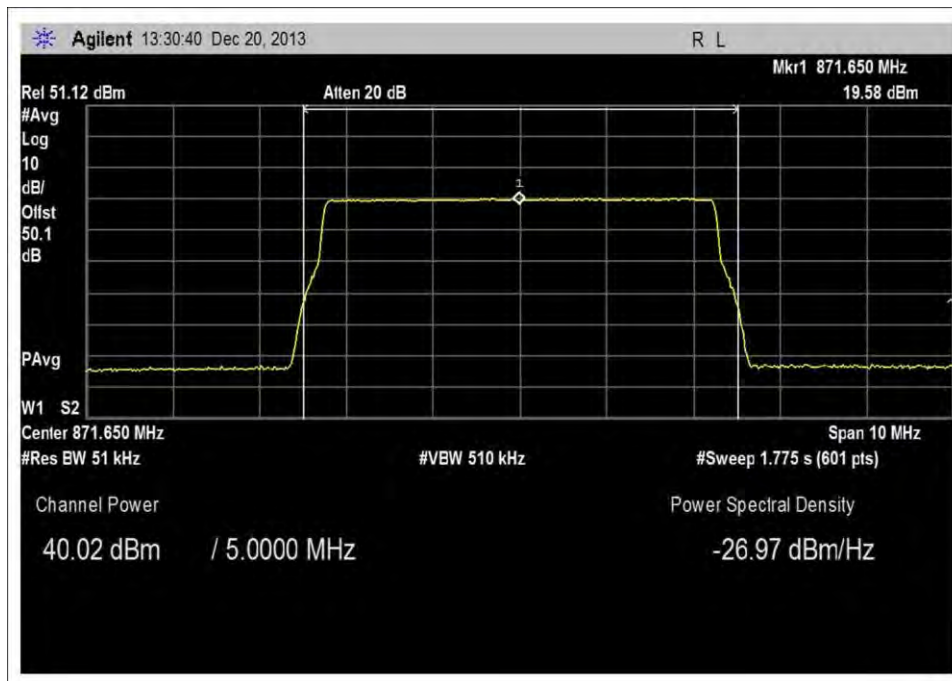
Low Channel, LTE 1.4MHz 10W



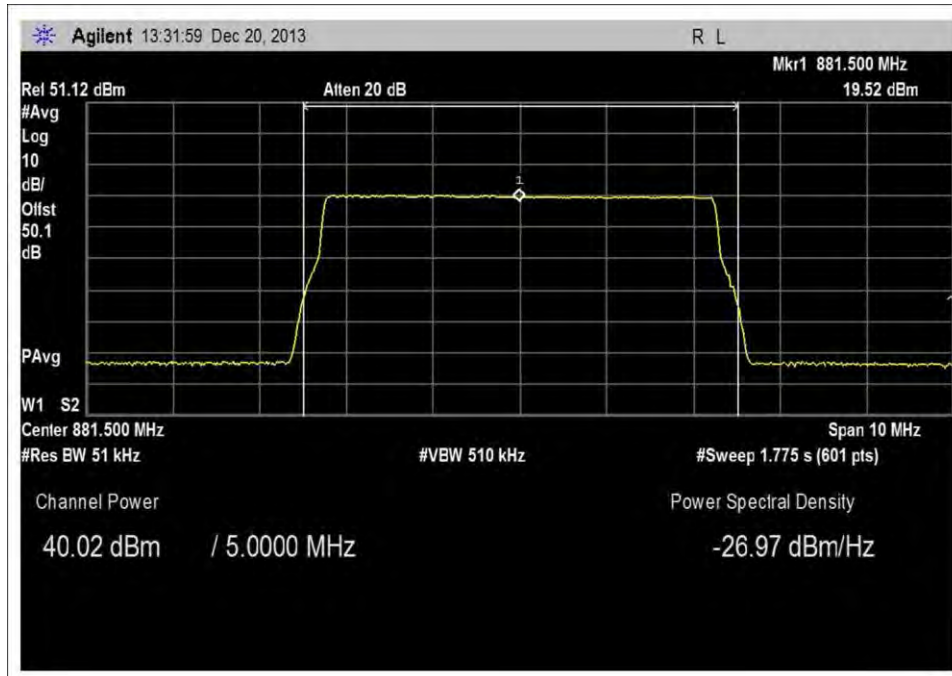
Middle Channel, LTE 1.4MHz 10W



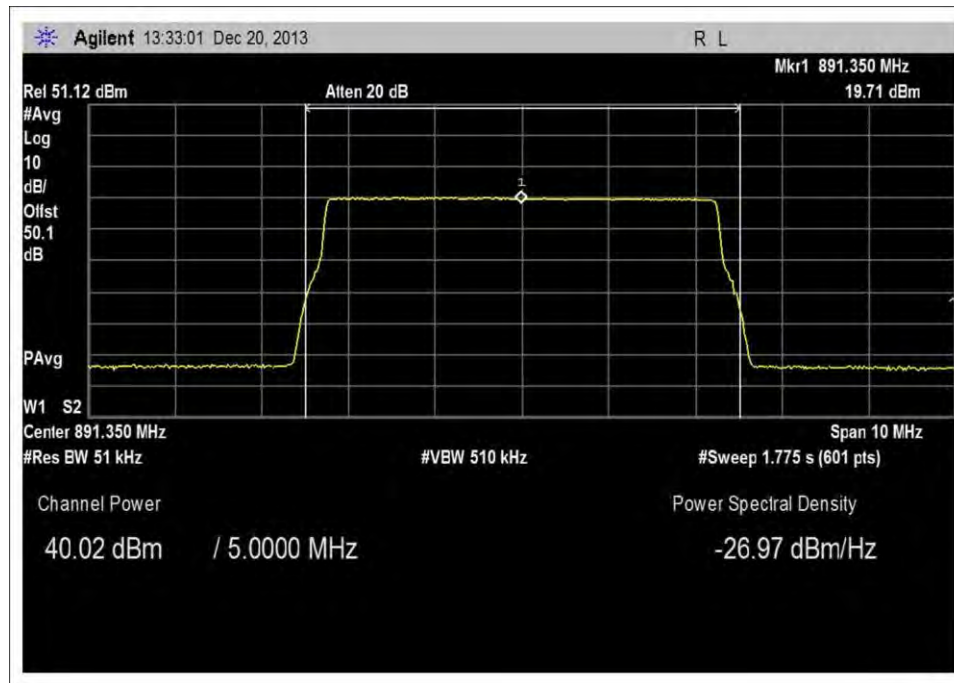
High Channel, LTE 1.4MHz 10W



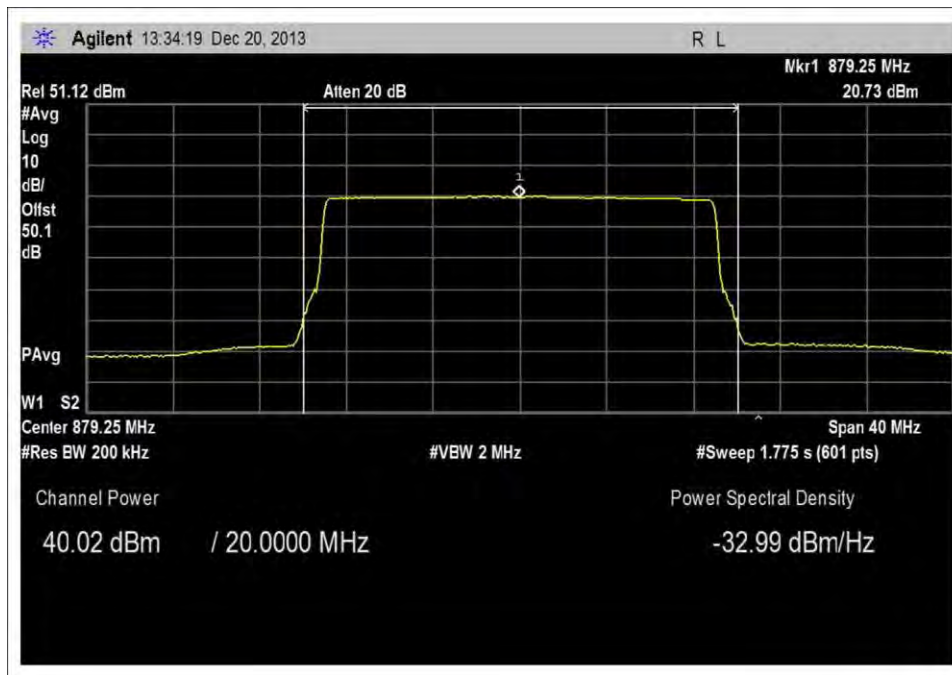
Low Channel, LTE 5MHz 10W



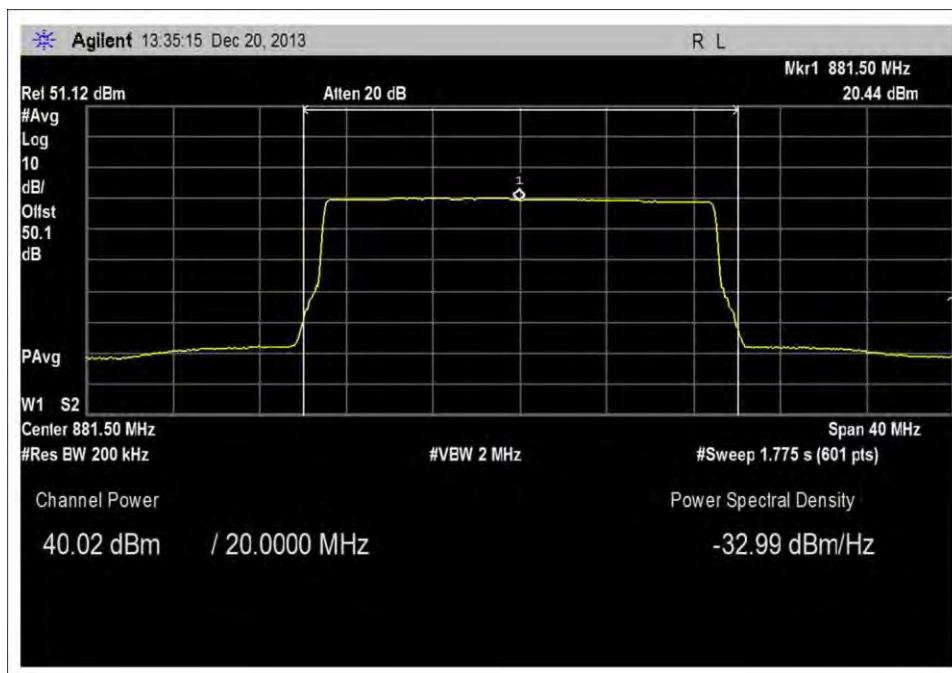
Middle Channel, LTE 5MHz 10W



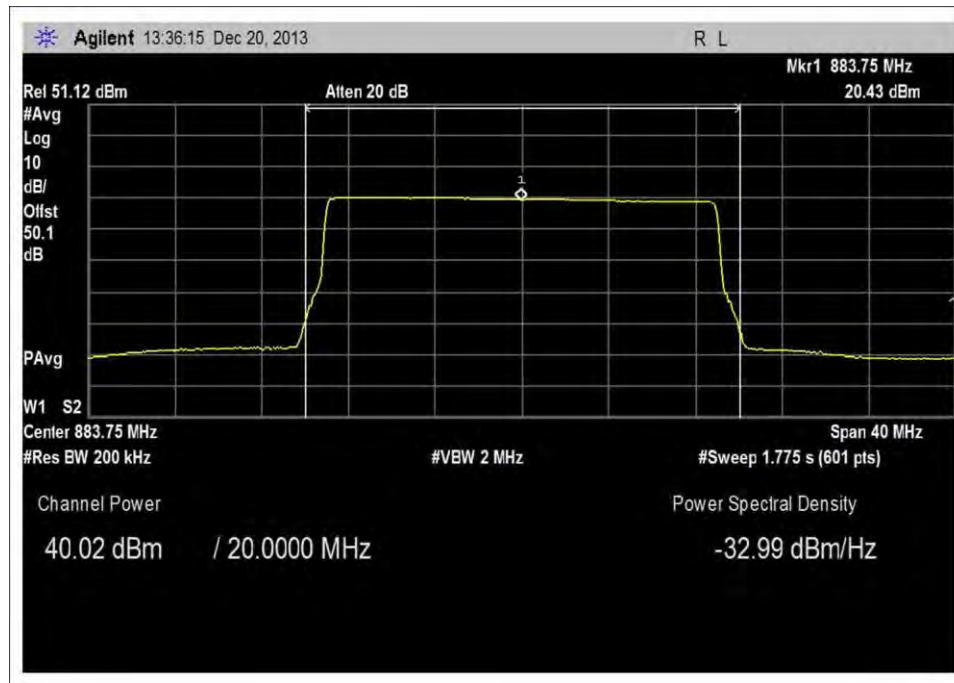
High Channel, LTE 5MHz 10W



Low Channel, LTE 20MHz 10W



Middle Channel, LTE 20MHz 10W



High Channel, LTE 20MHz 10W

Test Setup Photo



22.915 / 2.1049(I) Occupied Bandwidth

Test Conditions / Setup

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

Customer: **BTI Wireless**

Specification: **Input vs Output Plots**

Work Order #: **95179**

Date: 12/20/2013

Test Type: **Conducted Emissions**

Time: 15:17:27

Equipment: **850MHz 40W Remote Transmitting Unit**

Sequence#: 0

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC0850-040-RUMF01

110V 60Hz

S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479

Test Conditions / Notes:

The EUT is placed on the test bench. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator via cable Sucoflex 104A. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-2909K-36TC. TX out and RX in port are terminated to 50 ohm loads.

Per manufacturer, the output frequency is independent of the components used in optical converter.

EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of $1 \pm 0.5\text{dB}$ higher than maximum rated output power.

The evaluation is performed at the antenna port.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz, LTE 20MHz

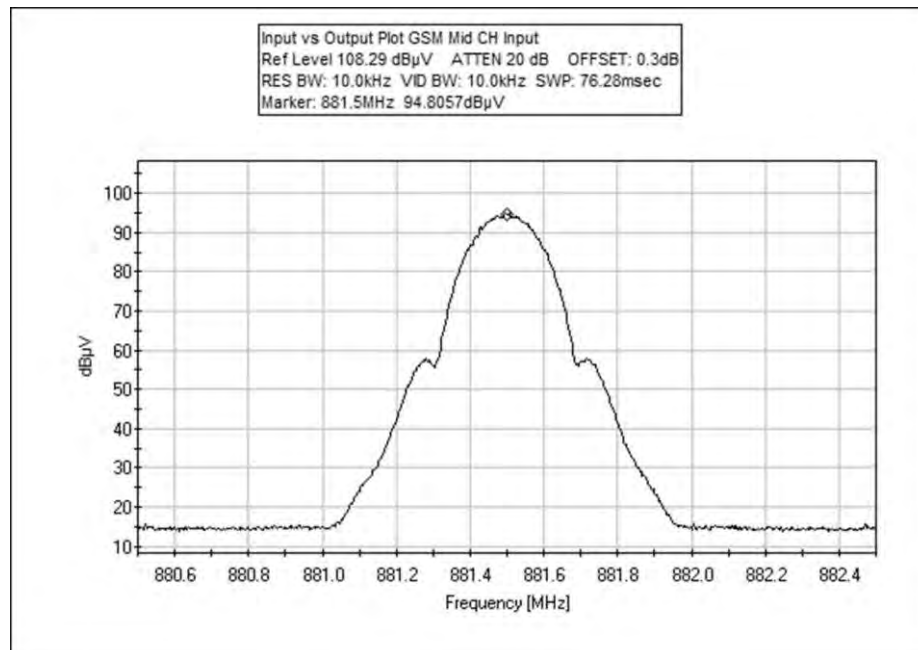
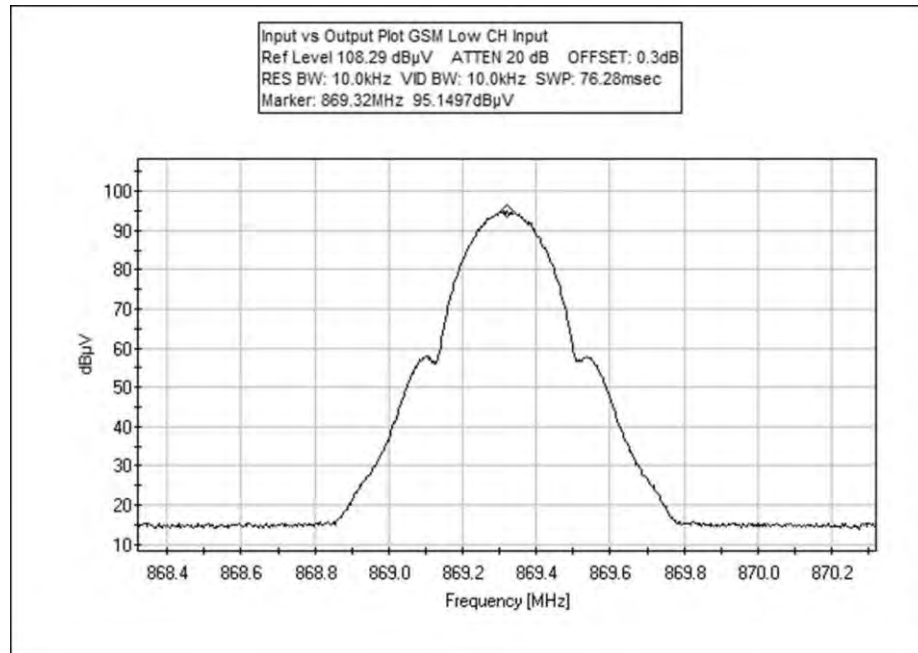
Max Output Power : 40 W

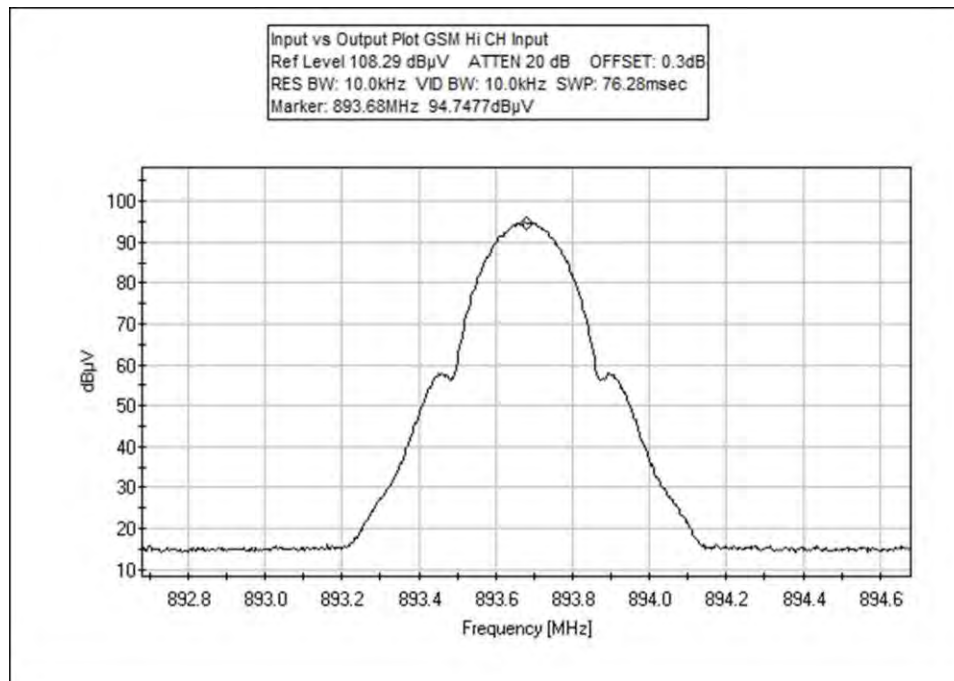
Modulation	Input Power (dbm)
GSM	
869.32MHz	-1.98
881.5MHz	-2.64
893.68MHz	-1.14
EDGE	
869.3MHz	-1.96
881.5MHz	-2.5
893.7MHz	-1
CDMA (IS95A)	
869.76MHz	-2.1
881.5MHz	-2.66
893.24MHz	-1.28
UMTS (WCDMA 3GPP)	
871.5MHz	-2.4
881.5MHz	-2.7
891.5MHz	-1.54
LTE 1.4MHz	
869.75MHz	-2.04
881.5MHz	-2.6
893.25MHz	-1.22
LTE 5MHz	
871.65MHz	-2.42
881.5MHz	-2.72
891.35MHz	-1.56
LTE 20MHz	
879.25MHz	-2.62
881.5MHz	-2.56
883.75MHz	-2.44

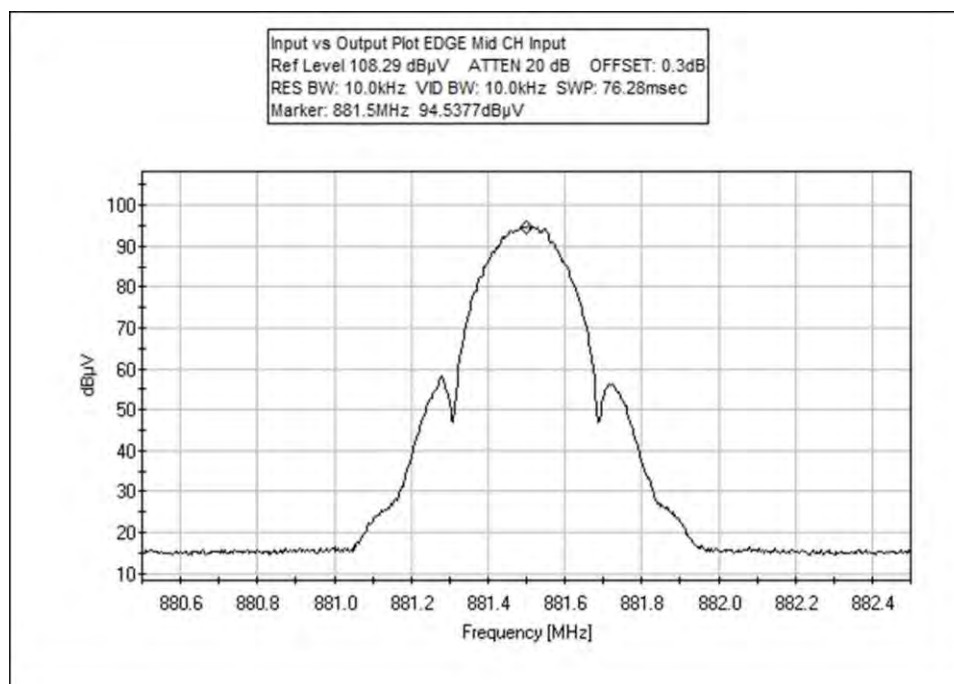
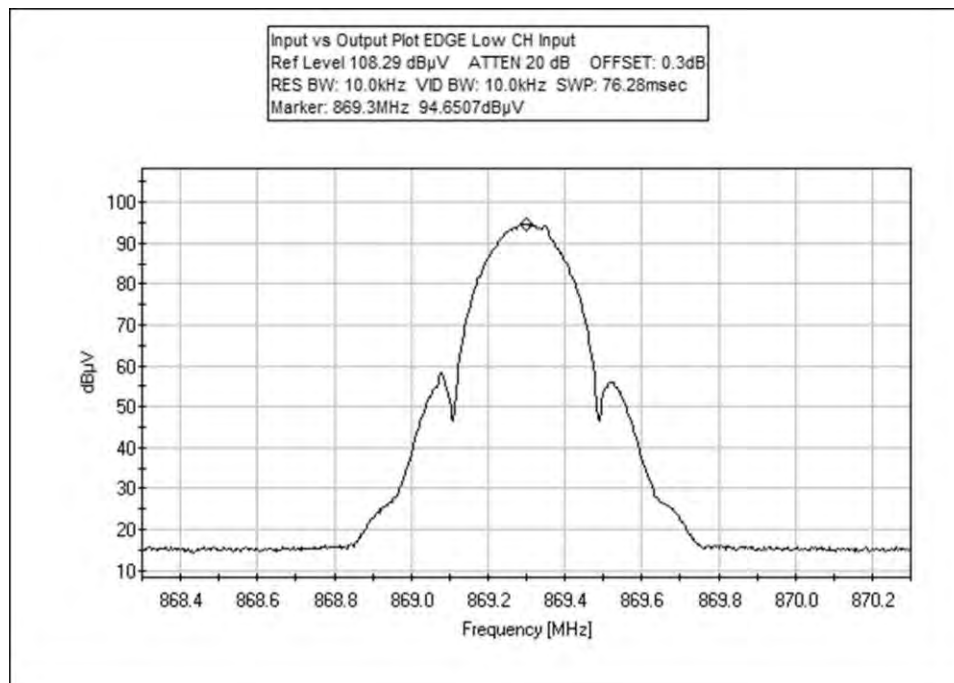
19°C, 63% Relative Humidity

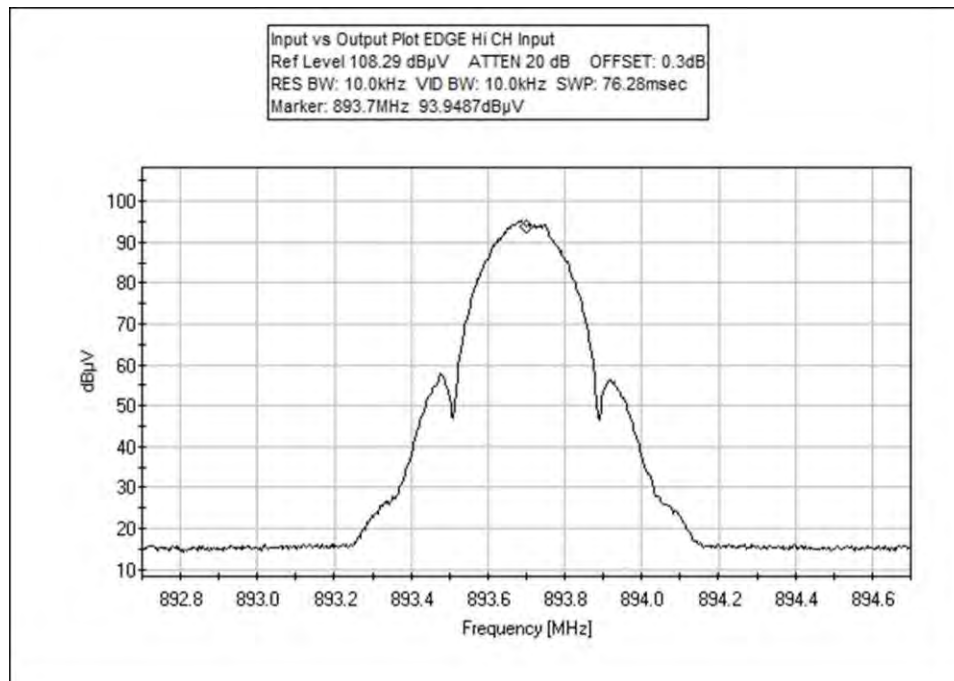
Site D

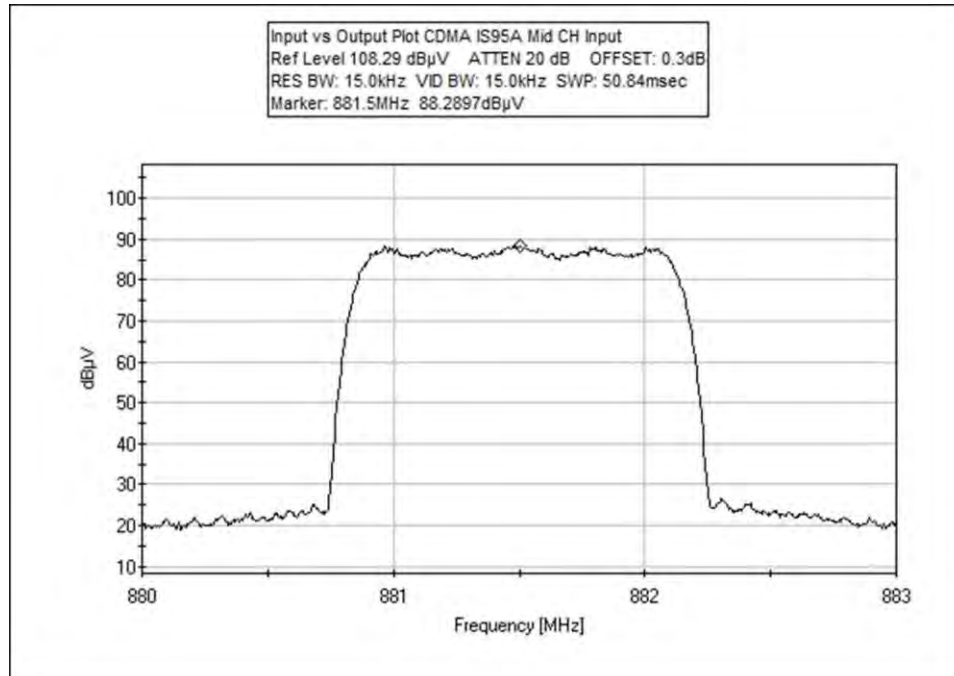
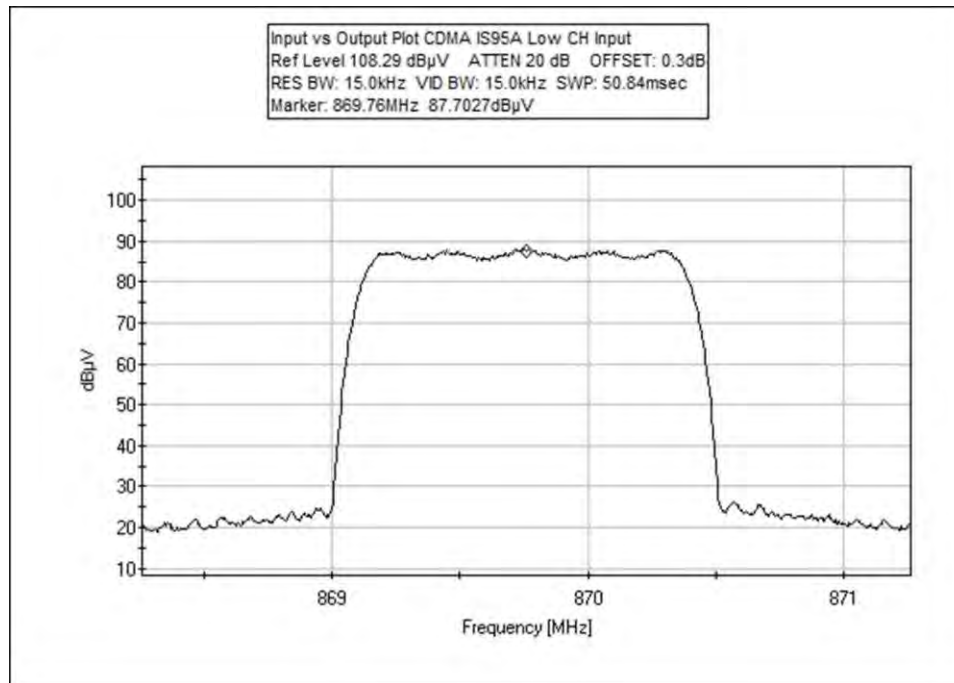
Test Data- Input

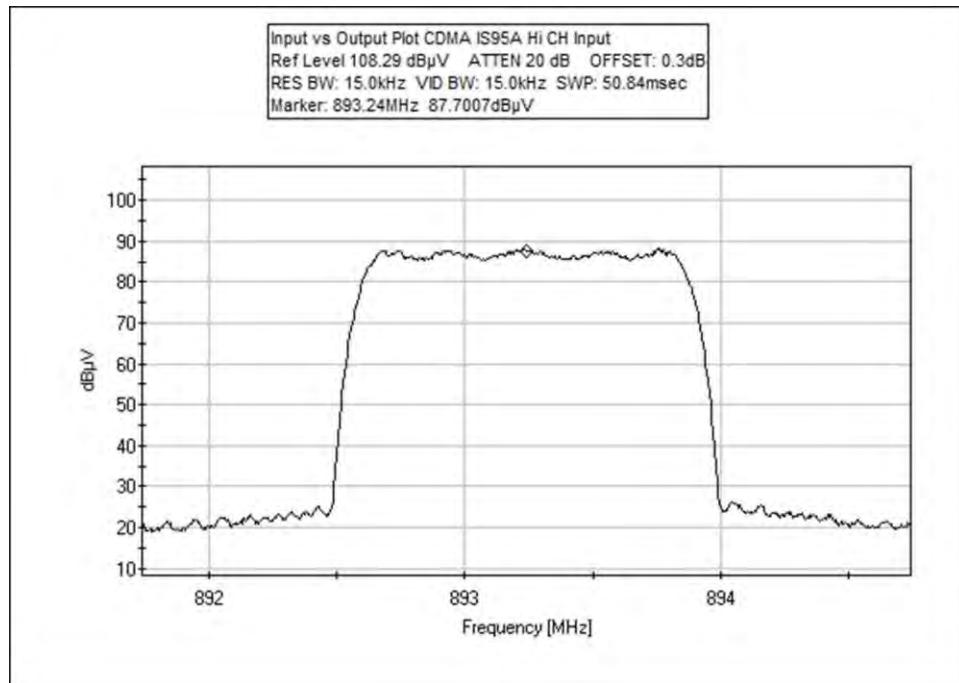


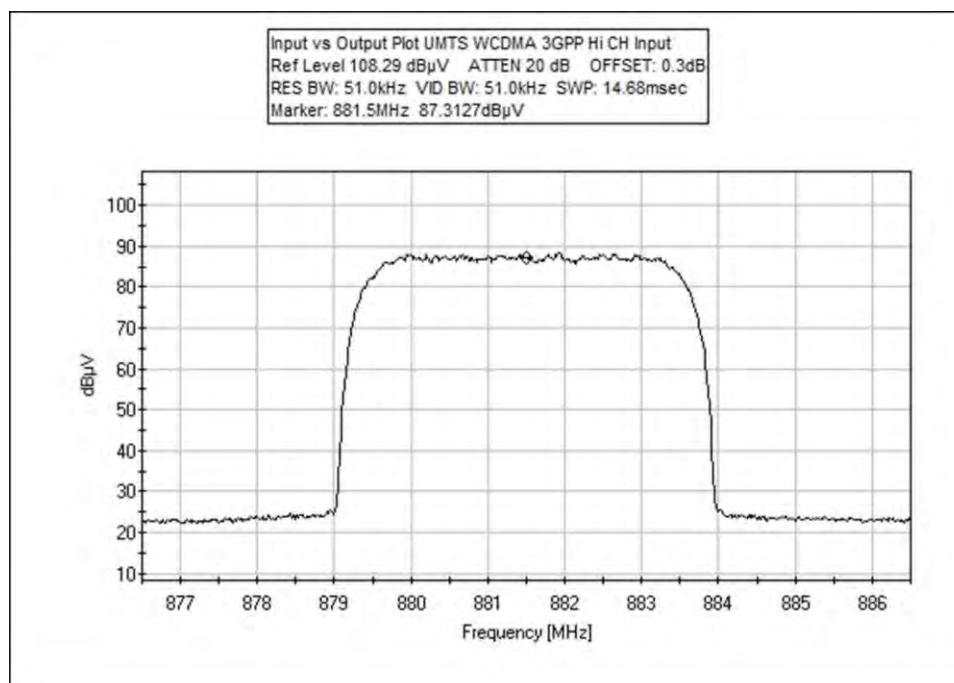
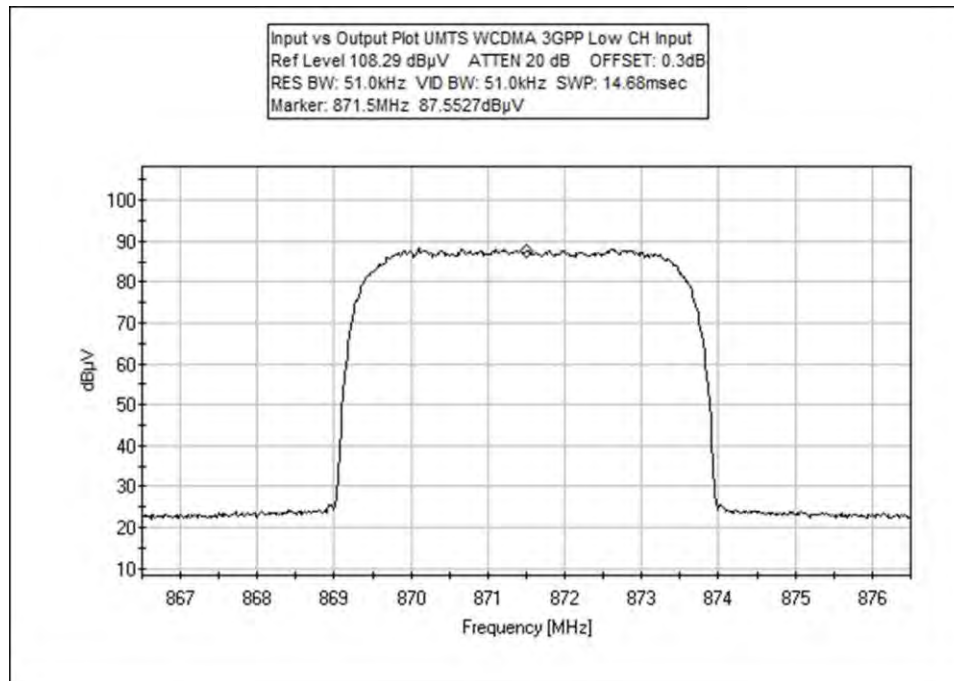


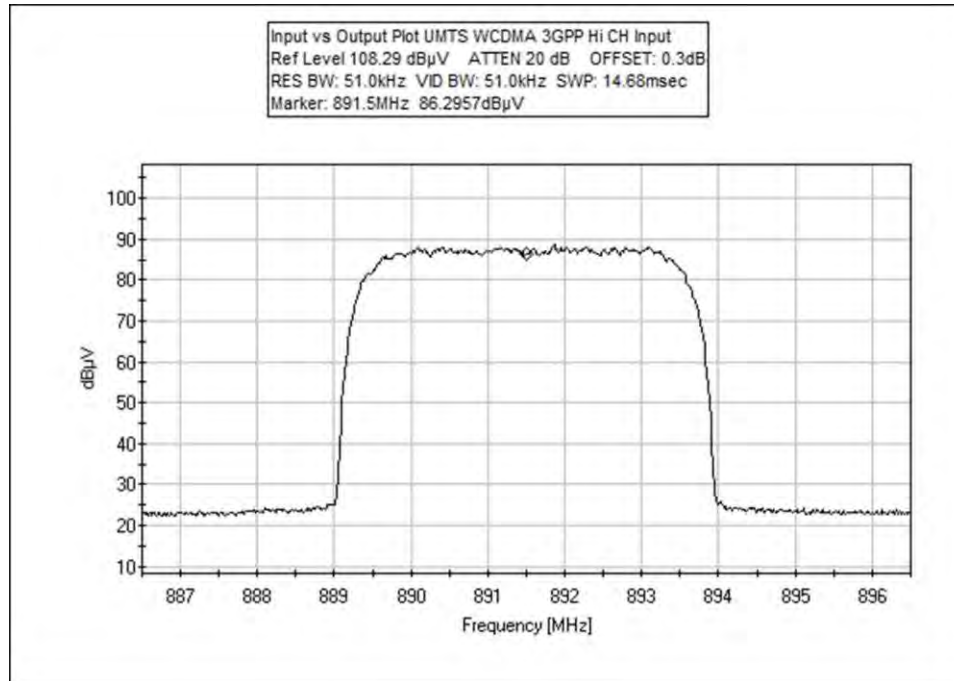


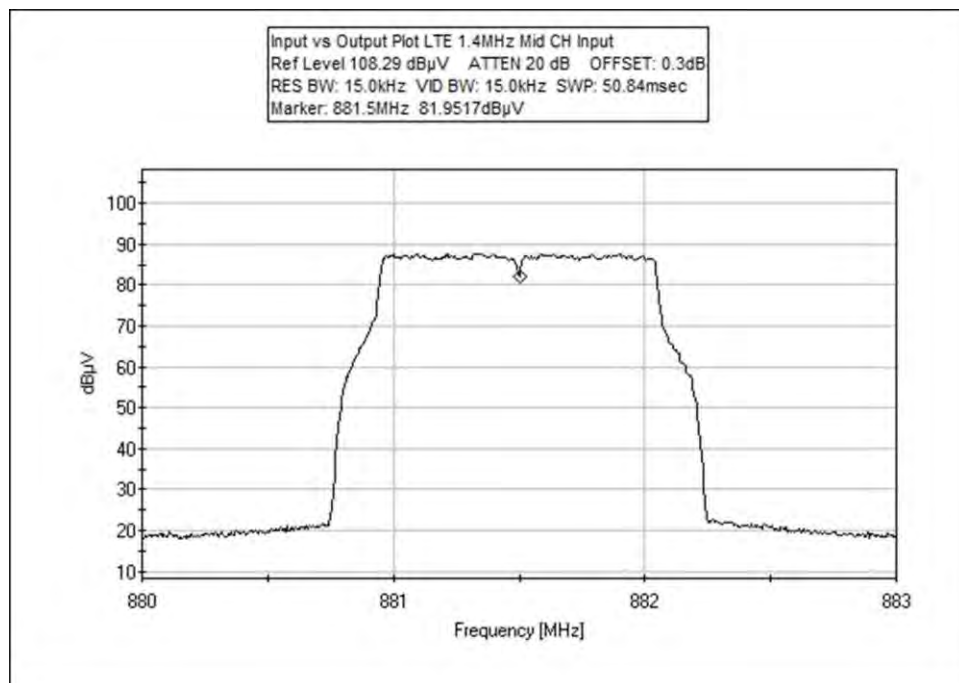
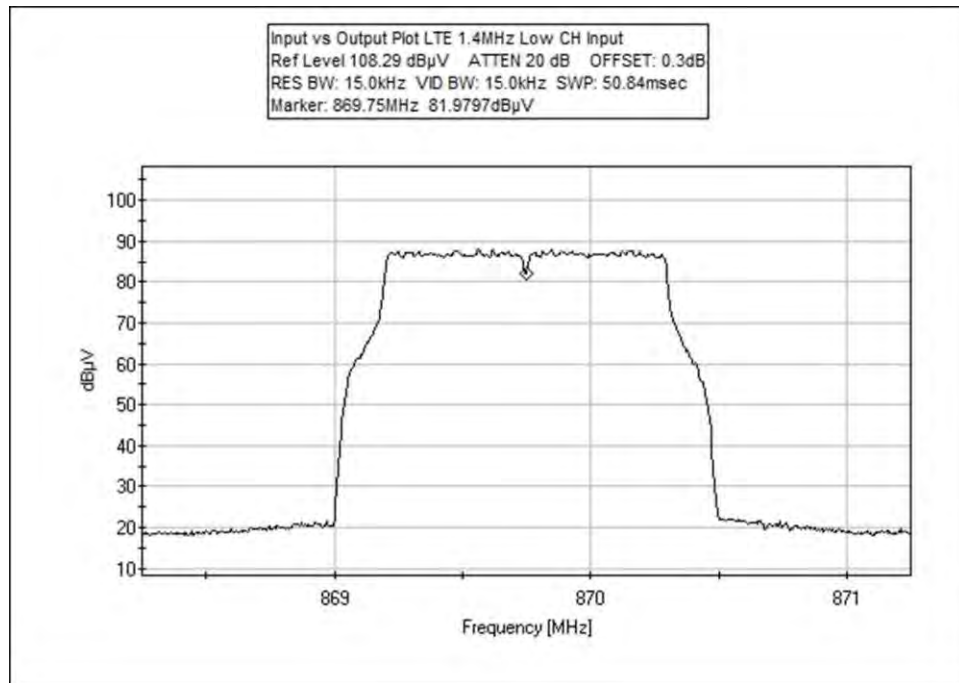


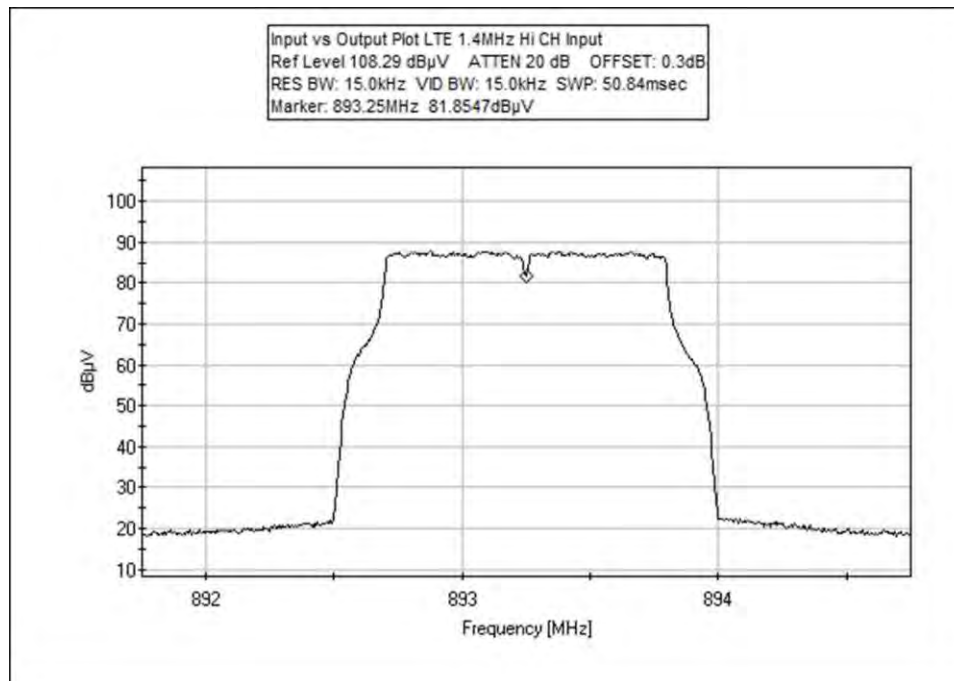


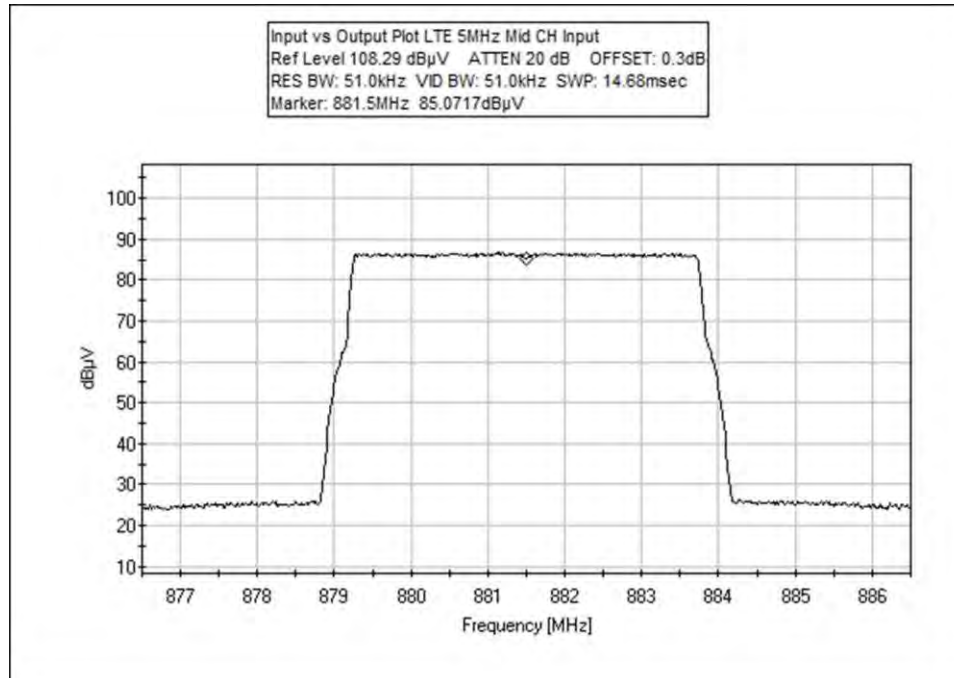
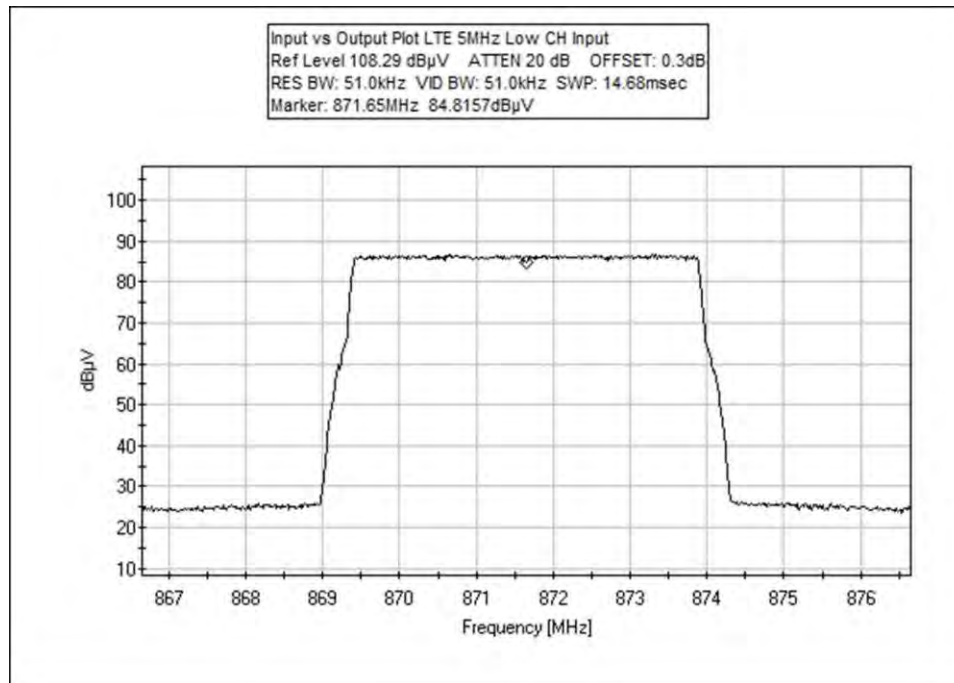


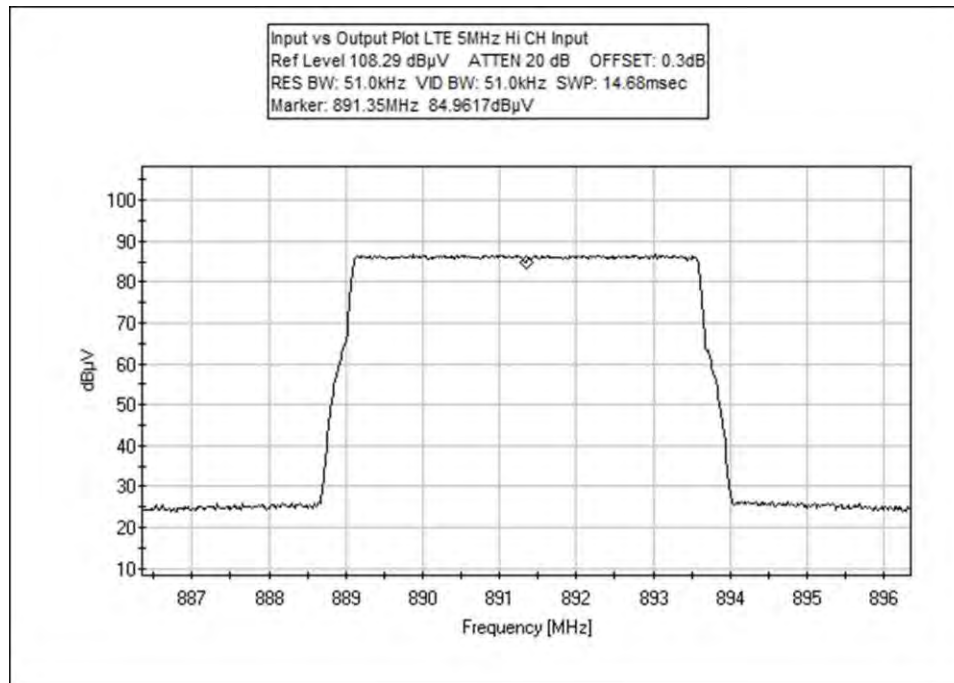


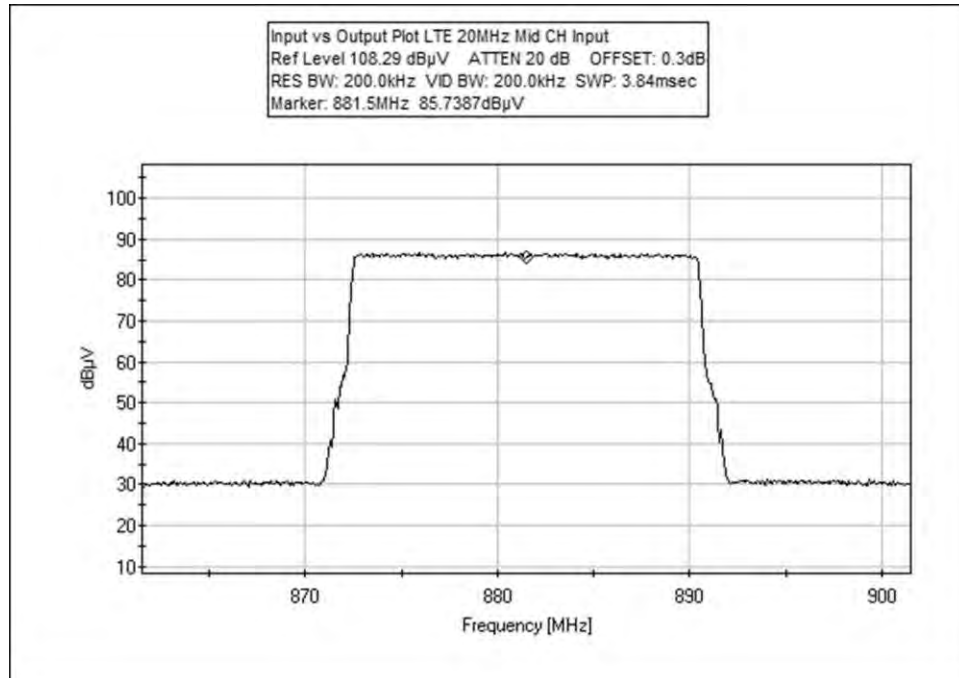
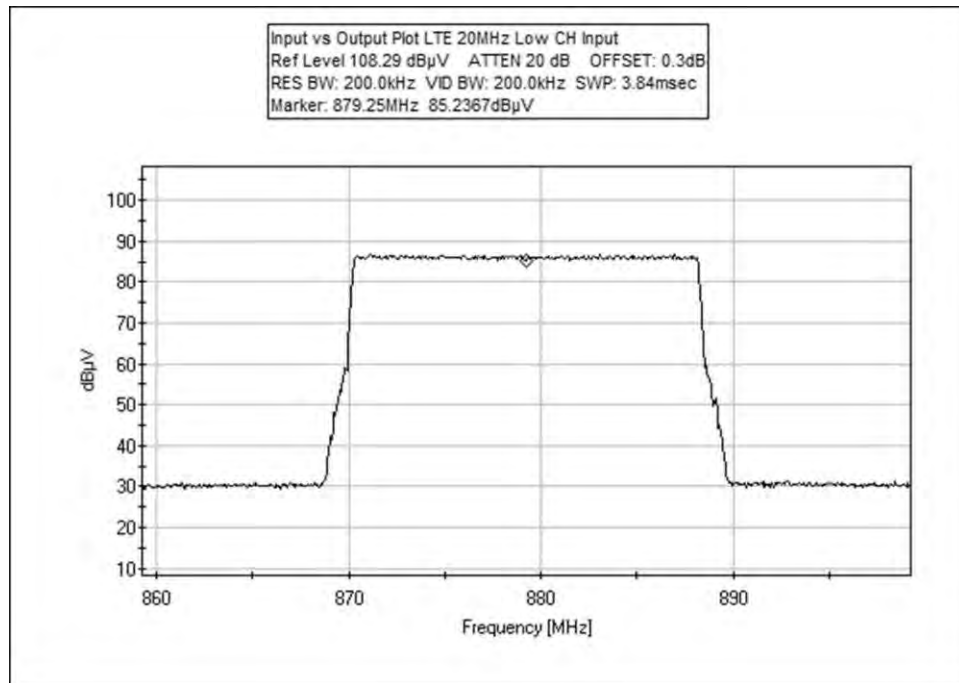


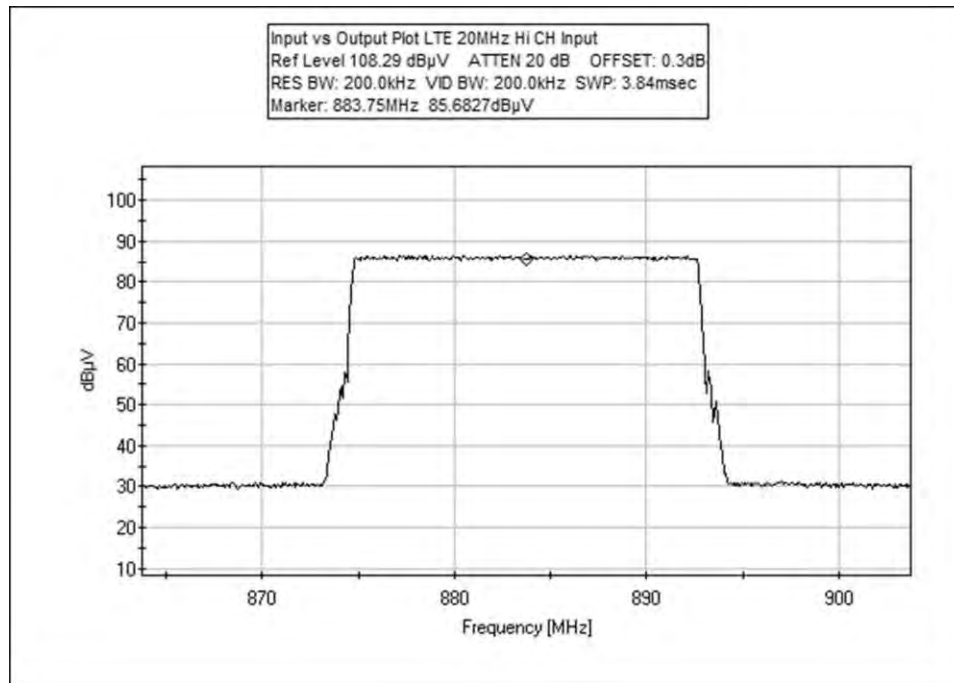




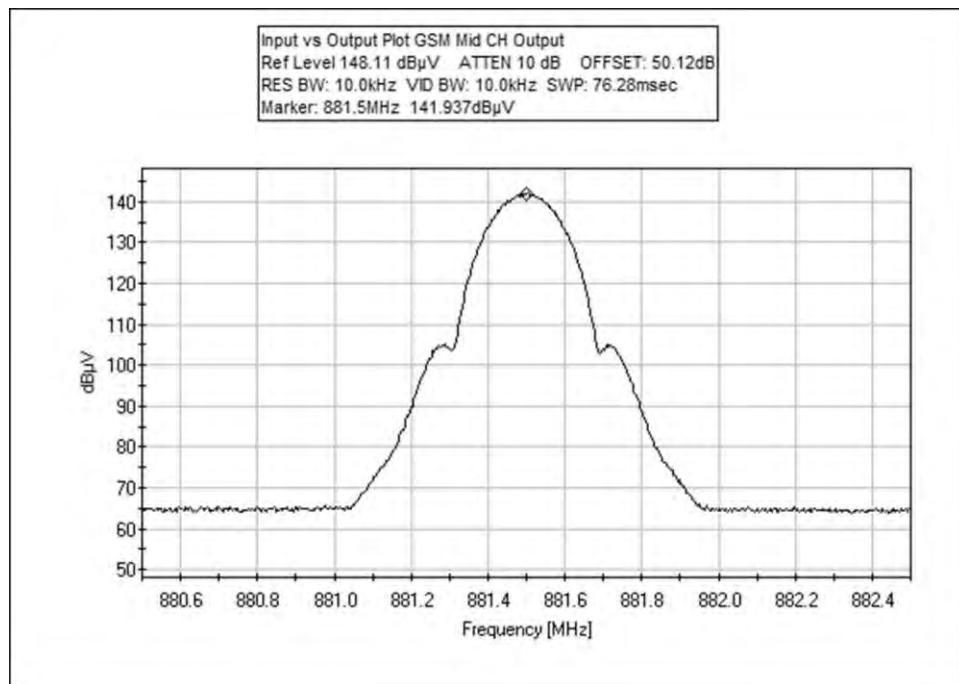
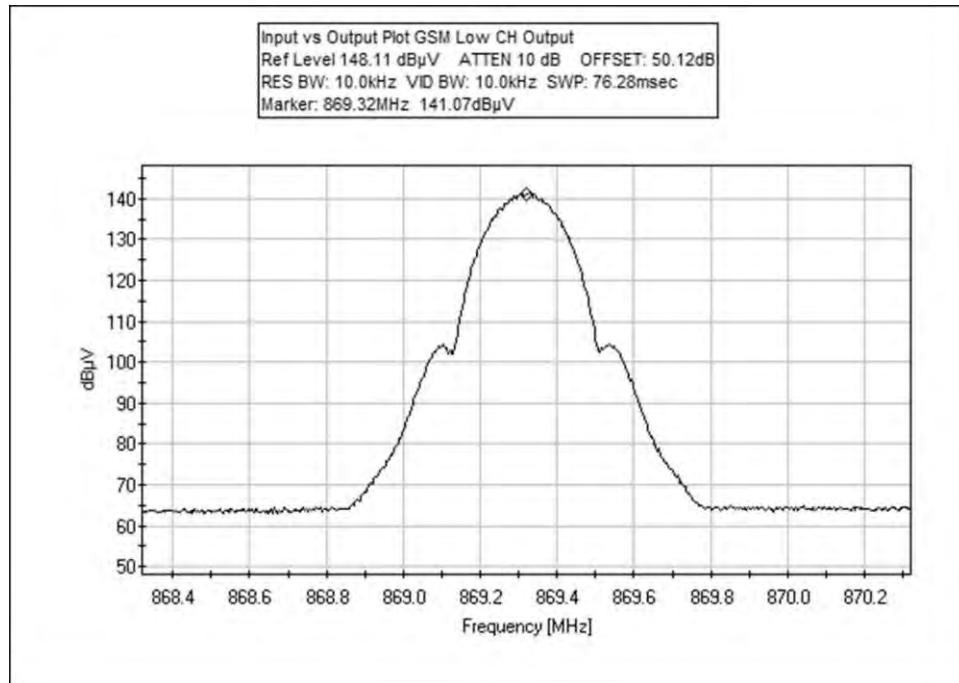


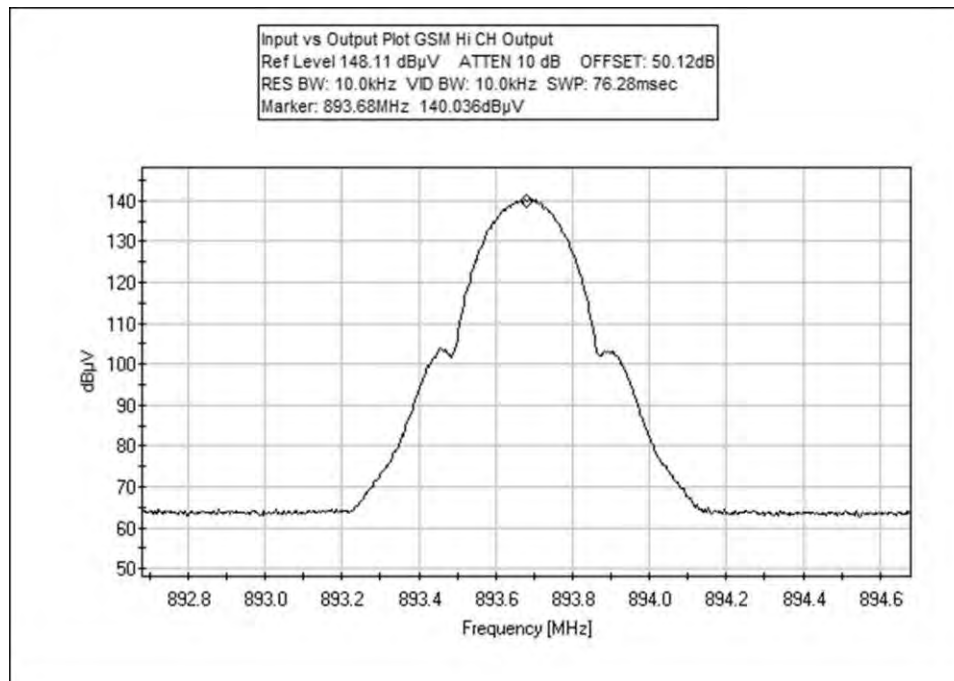


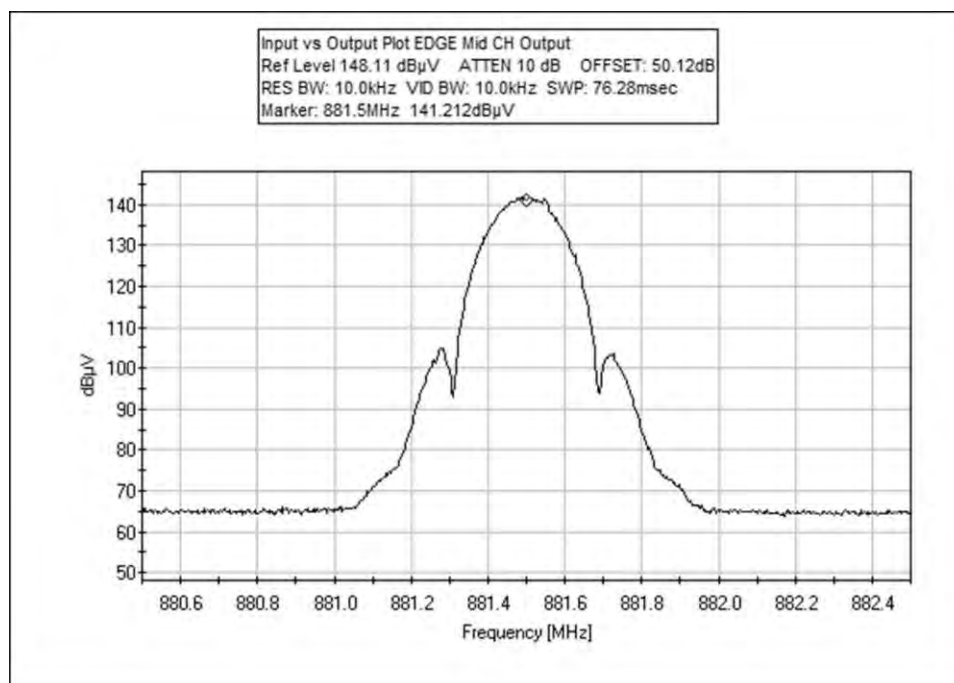
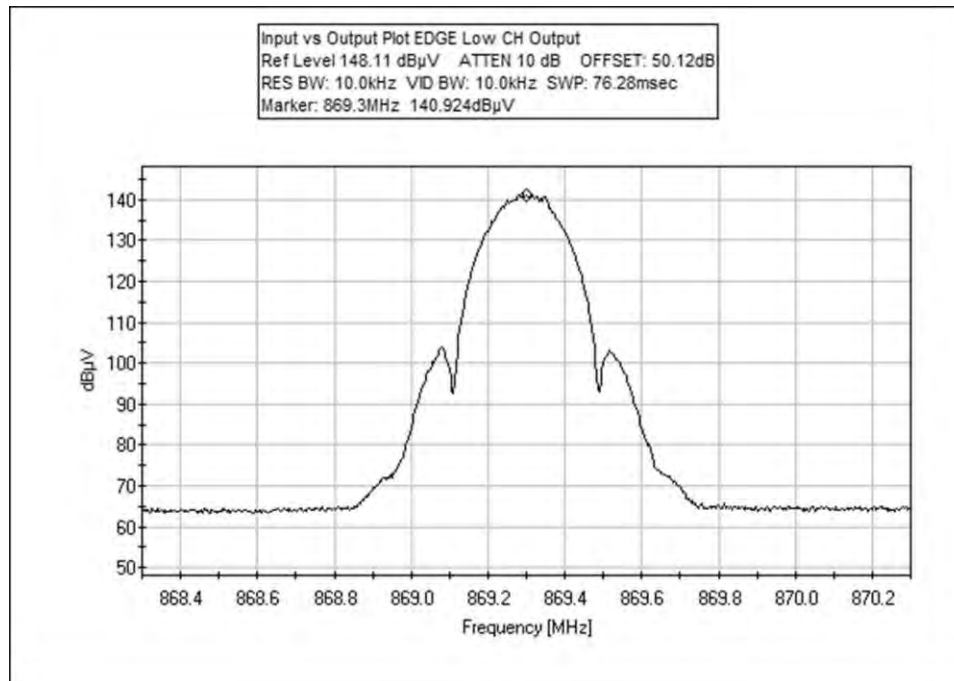


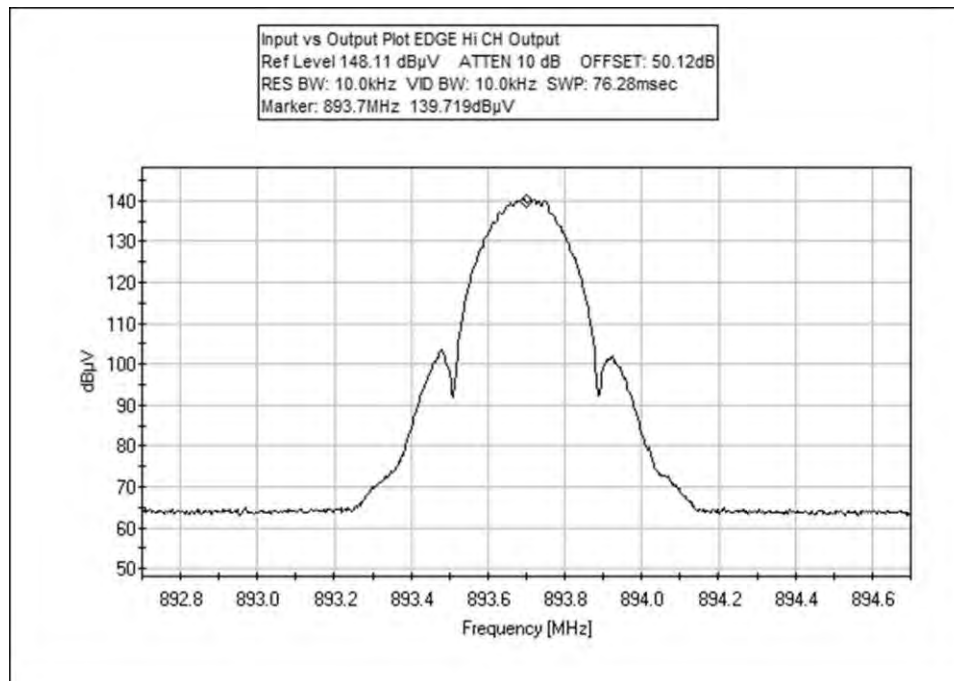


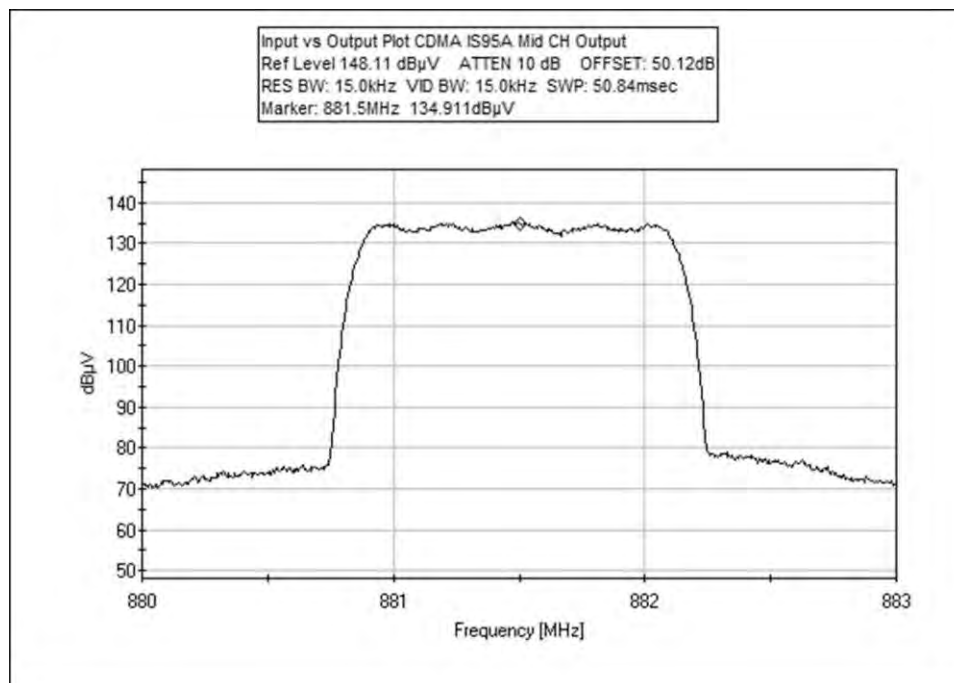
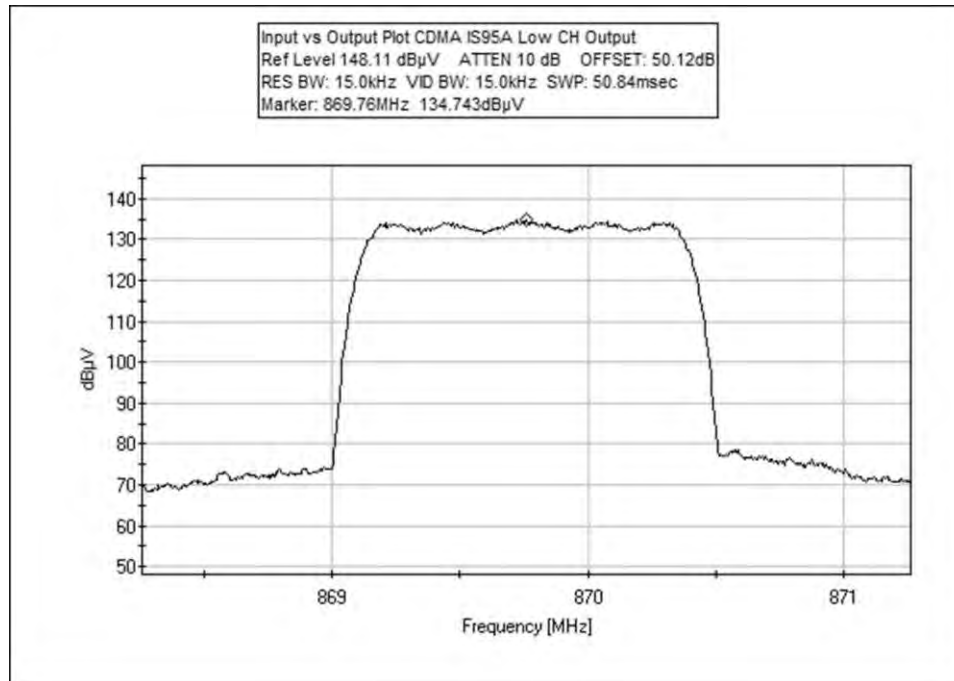
Test Data - Output

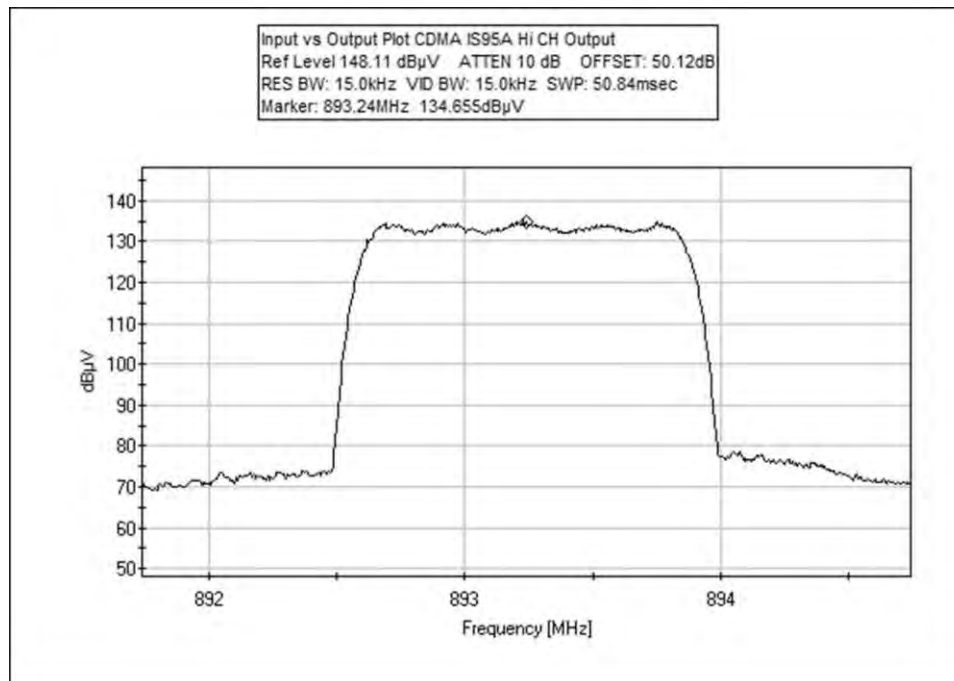


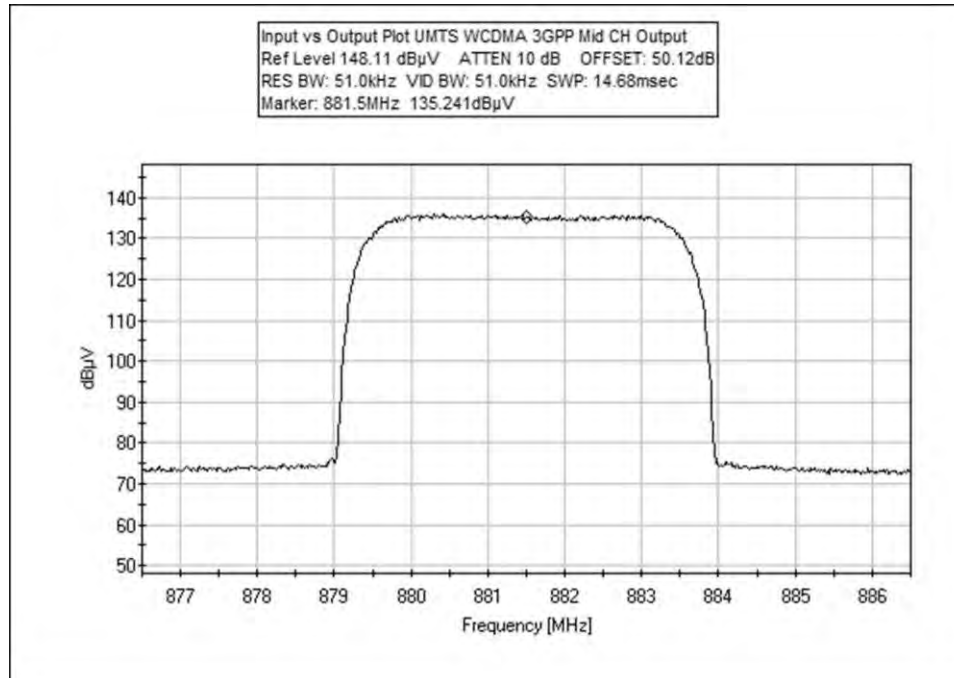
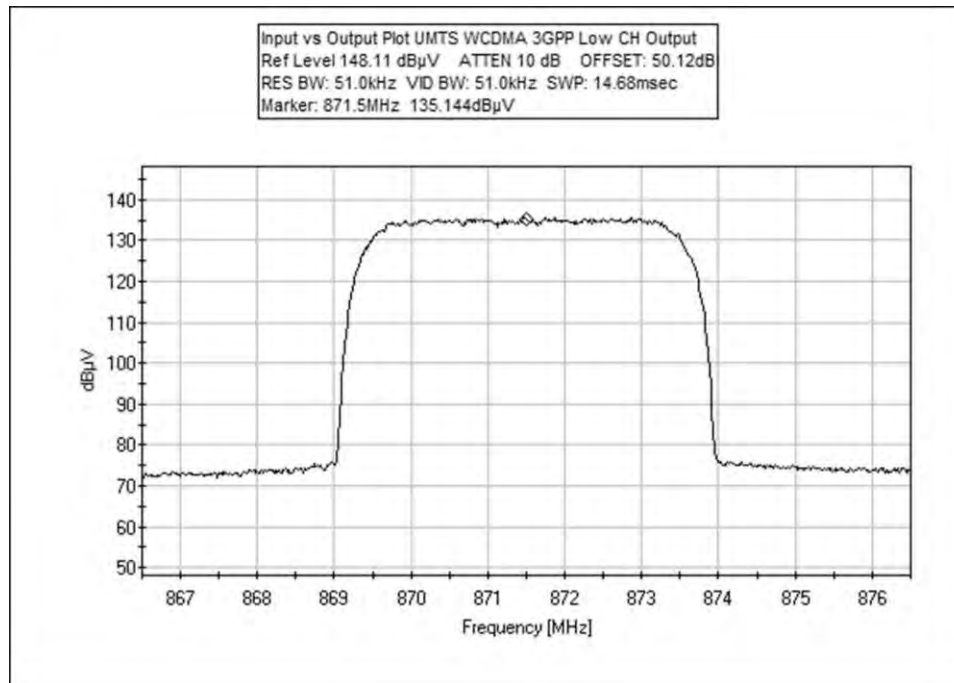


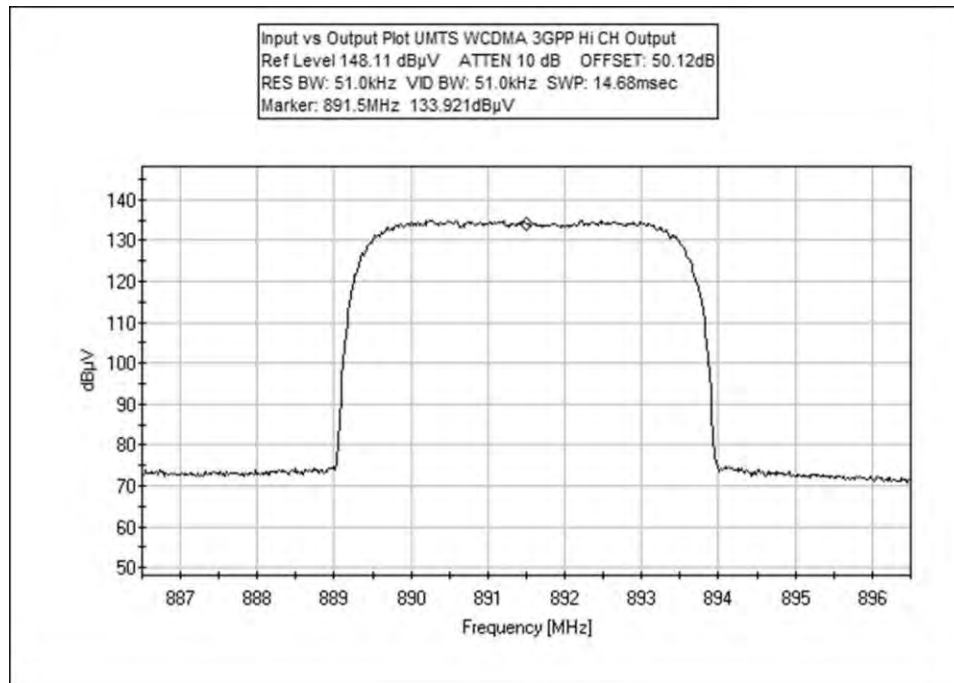


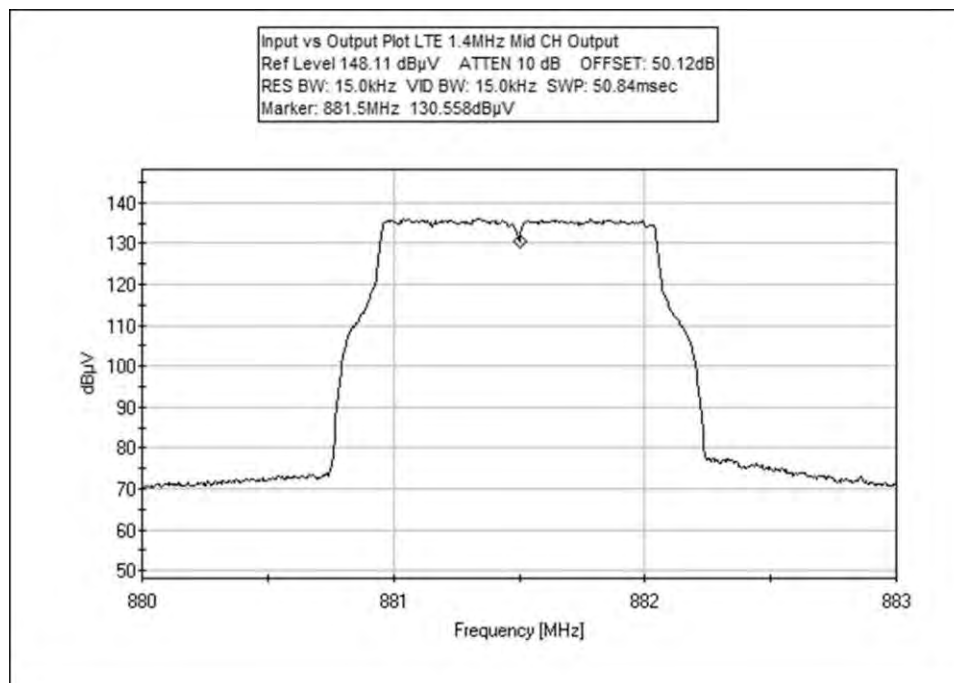
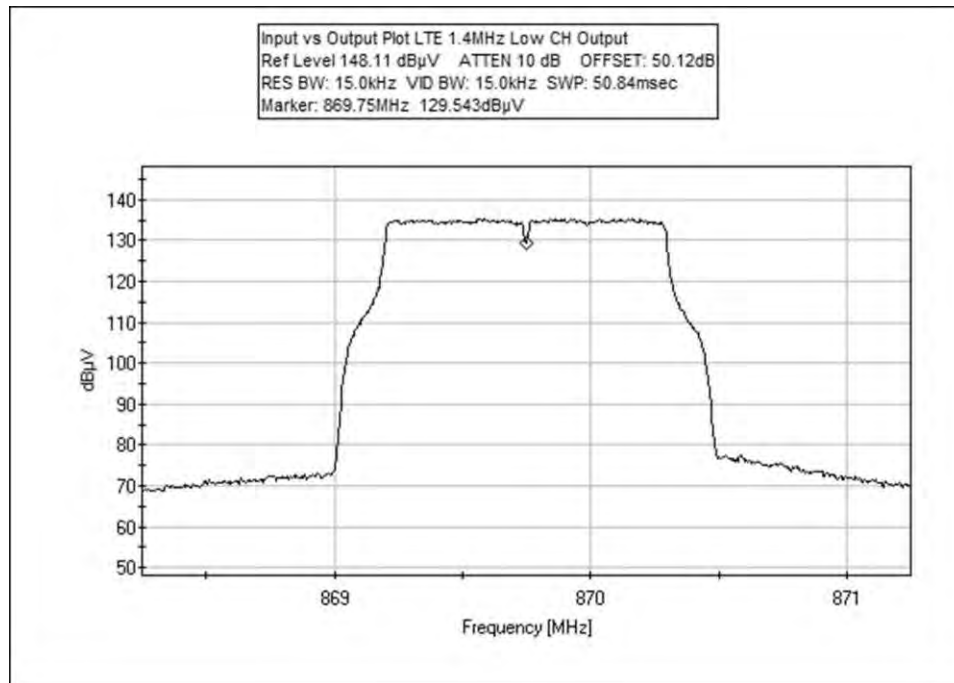


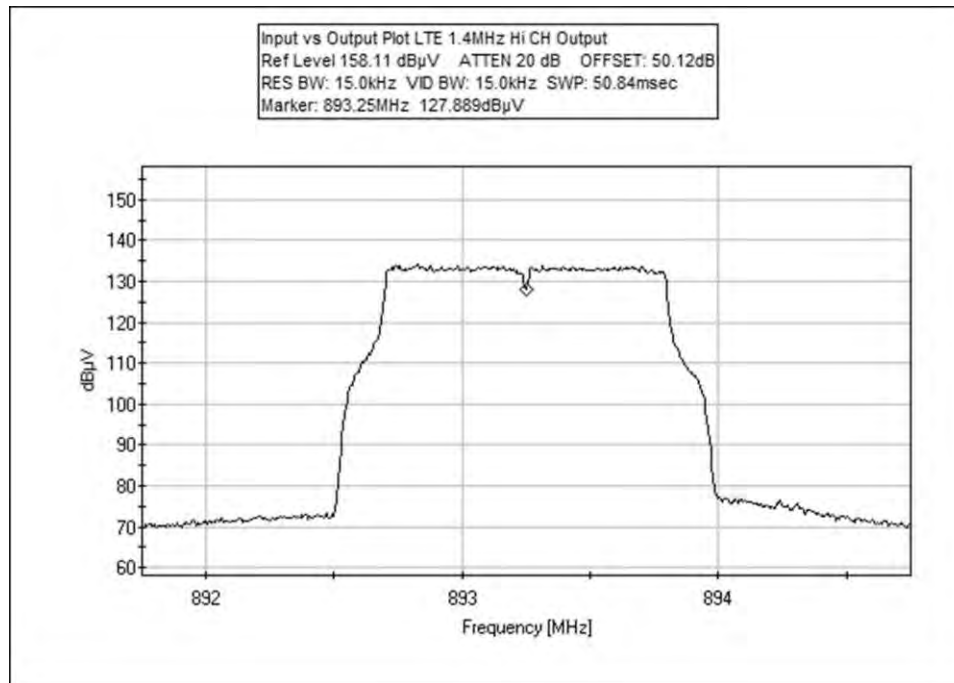


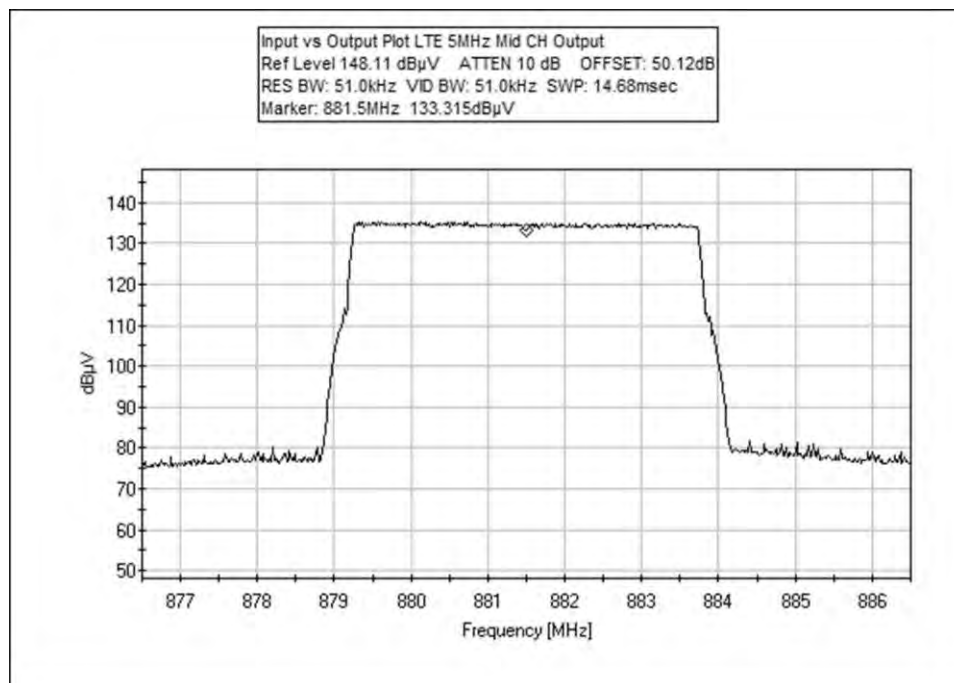
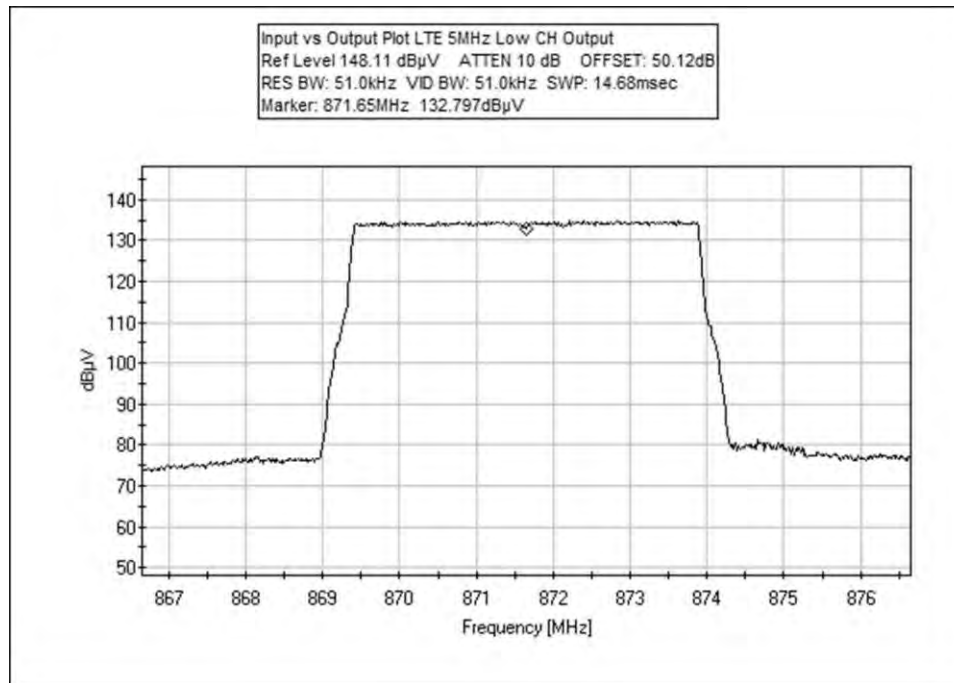


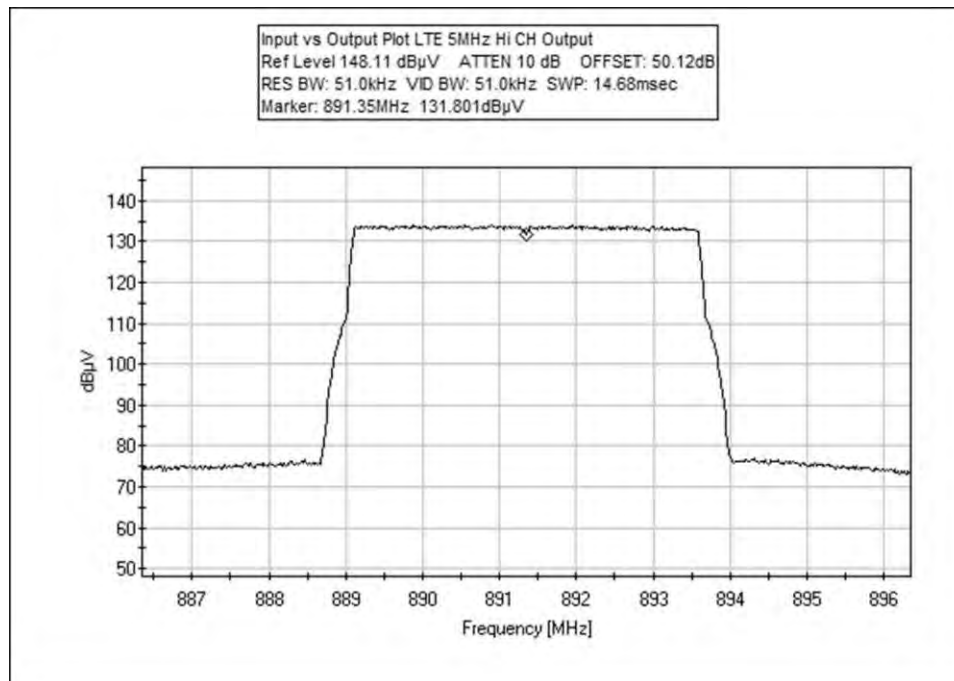


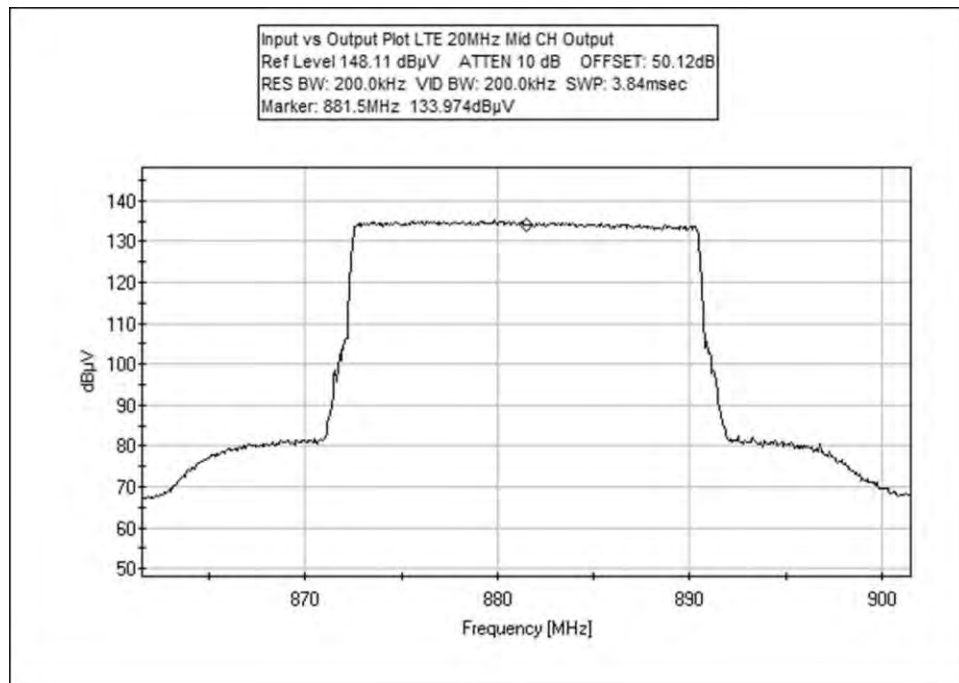
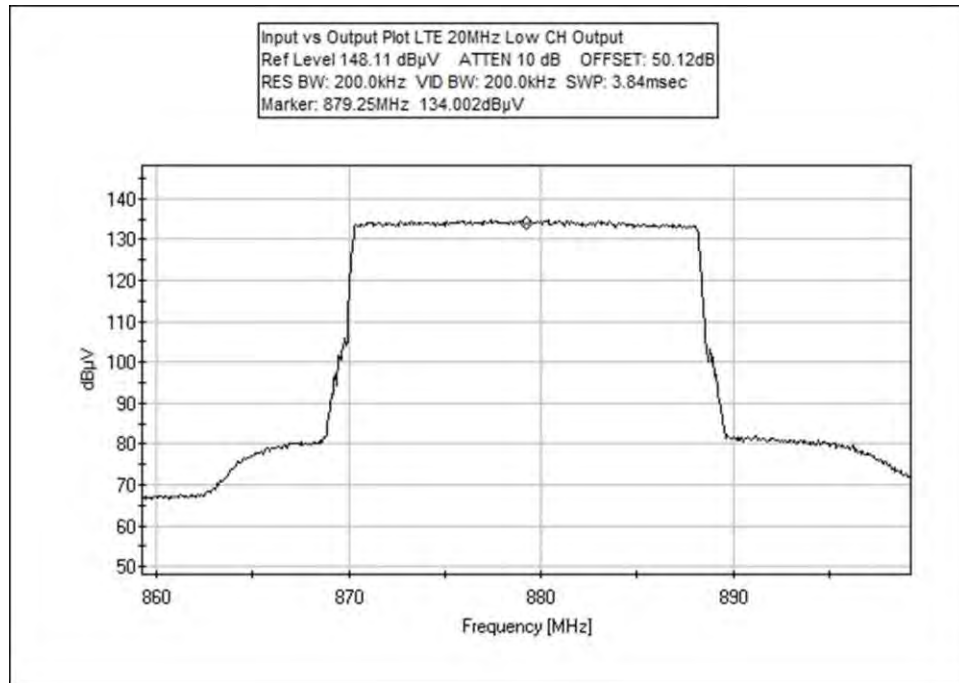


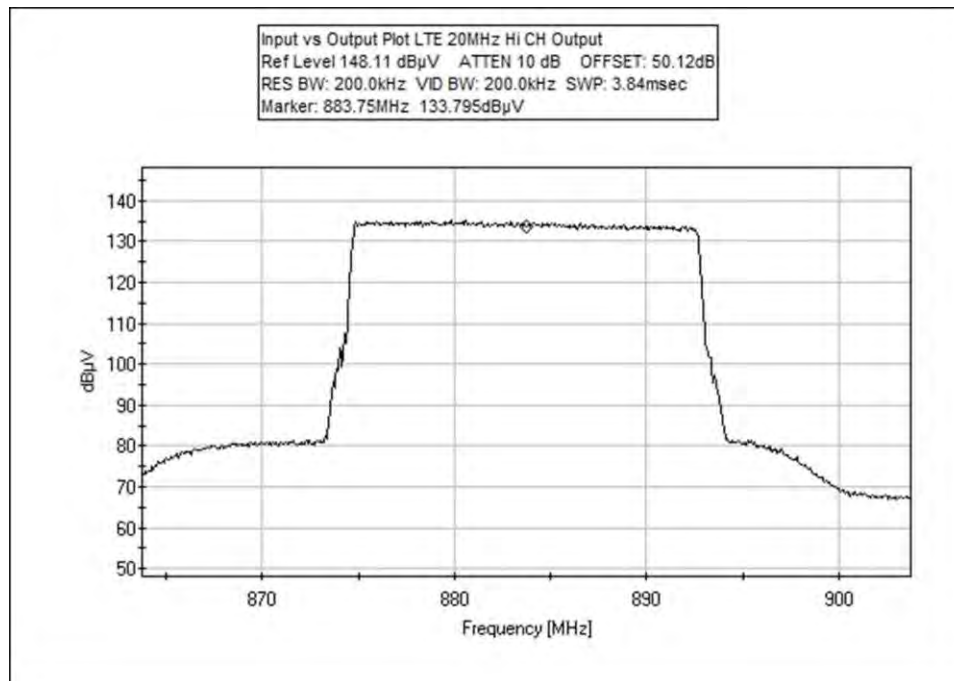












Test Setup Photos



22.917(a) / 2.1051 Antenna Conducted Emissions

Test Data Sheet

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

Customer: **BTI Wireless**

Specification: **FCC Part 22.917(a) Conducted Spurious Emission**

Work Order #: **95179**

Date: 12/20/2013

Test Type: **Conducted Emissions**

Time: 15:17:27

Equipment: **850MHz 40W Remote Transmitting**

Sequence#: 0

Unit

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC0850-040-RUMF01

110V 60Hz

S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015
	AN03169	High Pass Filter	HM1155-11SS	7/30/2013	7/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479

Test Conditions / Notes:

The EUT is placed on the test bench. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator via cable Sucoflex 104A. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. TX out and RX in port are terminated to 50 ohm loads.

Per manufacturer, the output frequency is independent of the components used in optical converter.

EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of $1\text{A} \pm 0.5\text{dB}$ higher than maximum rated output power.

The evaluation is performed at the antenna port.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz, LTE 20MHz

Max Output Power : 40 W

Modulation	Input Power (dbm)
------------	-------------------

GSM

869.32MHz	-1.98
-----------	-------

881.5MHz	-2.64
----------	-------

893.68MHz	-1.14
-----------	-------

EDGE

869.3MHz	-1.96
----------	-------

881.5MHz	-2.5
----------	------

893.7MHz	-1
----------	----

CDMA (IS95A)

869.76MHz	-2.1
-----------	------

881.5MHz	-2.66
----------	-------

893.24MHz	-1.28
-----------	-------

UMTS (WCDMA 3GPP)

871.5MHz	-2.4
----------	------

881.5MHz	-2.7
----------	------

891.5MHz	-1.54
----------	-------

LTE 1.4MHz

869.75MHz	-2.04
-----------	-------

881.5MHz	-2.6
----------	------

893.25MHz	-1.22
-----------	-------

LTE 5MHz

871.65MHz	-2.42
-----------	-------

881.5MHz	-2.72
----------	-------

891.35MHz	-1.56
-----------	-------

LTE 20MHz

879.25MHz	-2.62
-----------	-------

881.5MHz	-2.56
----------	-------

883.75MHz	-2.44
-----------	-------

Frequency range of measurement = 9 kHz- 9GHz.
9kHz -150 kHz; RBW=200 Hz, VBW=200 Hz; 150kHz-30 MHz; RBW=9kHz, VBW=9 kHz; 30MHz-1000 MHz;
RBW=120kHz, VBW=120 kHz, 1000 MHz-9000 MHz; RBW=1 MHz, VBW=1MHz.

19°C, 63% Relative Humidity
Site D

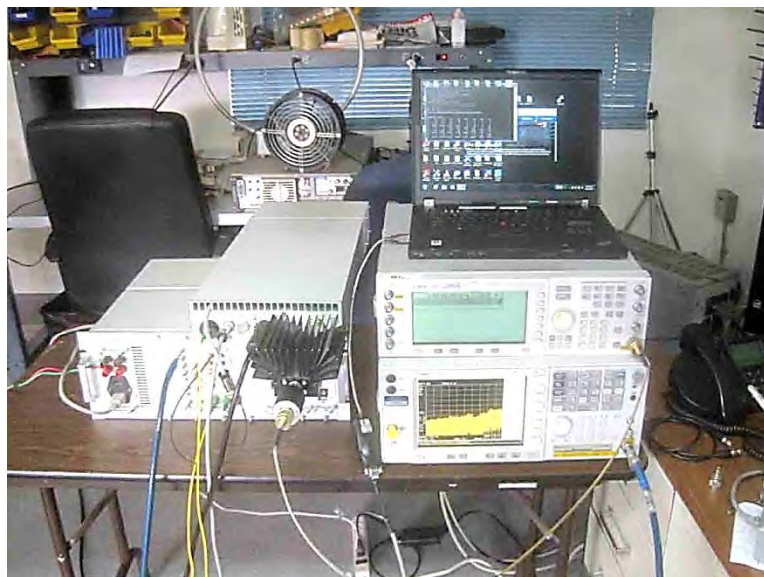
PK= RMS detector. Ave =Trace average 100 traces.

No emission found above 1GHz. Data represents the worst case power settings.

Ext Attn: 0 dB

Measurement Data:		Reading listed by margin.					Test Lead: Ant Port				
#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB		Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	20.650k	33.9	+0.0	+0.0			+0.0	33.9	94.0	-60.1	Ant P
Ave		40W, EDGE, Hi CH, input power= - 1.0dbm									
2	134.900k	31.6	+0.0	+0.0			+0.0	31.6	94.0	-62.4	Ant P
Ave		40W, EDGE, Hi CH, input power= - 1.0dbm									
3	639.400k	24.7	+0.0	+0.0			+0.0	24.7	94.0	-69.3	Ant P
Ave		40W, EDGE, Hi CH, input power= - 1.0dbm									

Test Setup Photos



22.917(a) / 2.1053 Field Strength of Radiated Spurious Emissions

Test Conditions / Setup

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

Customer: **BTI Wireless**

Specification: **FCC Part 22.917(a) Radiated Spurious Emission**

Work Order #: **95179**

Date: 12/23/2013

Test Type: **Maximized Emissions**

Time: 09:16:27

Equipment: **850MHz 40W Remote Transmitting**

Sequence#: 6

Unit

Manufacturer: **BTI Wireless**

Tested By: Don Nguyen

Model: **mBSC0850-040-RUMF01**

S/N: **MBSC0850040RUMF01-11010002**

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014
T1	AN00010	Preamp	8447D	3/29/2012	3/29/2014
T2	AN00851	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
T3	ANP04382	Cable	LDF-50	8/30/2012	8/30/2014
T4	ANP05555	Cable	RG223/U	6/19/2012	6/19/2014
T5	ANP05569	Cable	RG-214/U	6/19/2012	6/19/2014
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015
	AN00787	Preamp	83017A	5/31/2013	5/31/2015
	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
	ANP06360	Cable	L1-PNMNM-48	8/29/2012	8/29/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
50 ohm Load	Generic	NA	NA
Power Sensor	Agilent	E4412A	MY41502826
Power Meter	HP	EPM-441A	GB37170458

Test Conditions / Notes:

The EUT is mounted on metal stand. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator located remotely. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to support power meter via 30db attenuator and 20db attenuator. TX out and RX in port are terminated to 50 ohm loads. Power meter is used to verify output power at antenna port.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz, LTE 20MHz

Highest rating power : 40 W

Frequency range of measurement = 9 kHz- 9GHz.

9kHz -150kHz; RBW=200Hz, VBW=200 Hz; 150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz-1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz-9000 MHz; RBW=1 MHz, VBW=1MHz.

19°C, 63% Relative Humidity

Site D

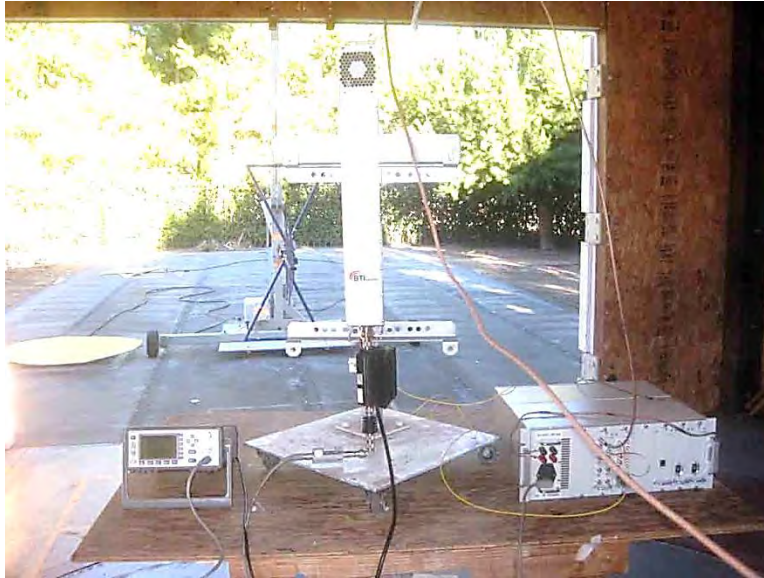
No emission found above 1GHz. Data is presented in the worst case scenario.

Test Data

Operating Frequency: 869-894MHz
 Channels: EDGE, Hi CH
 Highest Measured Output Power: 46.00 (dBm)= 40 (Watts)
 Distance: 3 meters
 Limit: $43+10\log(P)=$ 59.02 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
167.78	-71.32059991	Vert	117.32
167.78	-66.92059991	Horiz	112.92
170.28	-62.52059991	Vert	108.52
170.28	-65.02059991	Vert	111.02
192.68	-67.92059991	Horiz	113.92
192.68	-67.32059991	Vert	113.32
208.28	-67.72059991	Horiz	113.72
208.28	-67.72059991	Vert	113.72

Test Setup Photos



Bandedge

Test Conditions / Setup

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

Customer: **BTI Wireless**
 Specification: **Band Edge Plots**

Work Order #: **95179**

Date: 12/20/2013

Test Type: **Conducted Emissions**

Time: 15:17:27

Equipment: **850MHz 40W Remote Transmitting Unit**

Sequence#: 0

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC0850-040-RUMF01

110V 60Hz

S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479

Test Conditions / Notes:

The EUT is placed on the test bench. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator via cable Sucoflex 104A. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-2909K-36TC. TX out and RX in port are terminated to 50 ohm loads.

Per manufacturer, the output frequency is independent of the components used in optical converter.

EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of $1 \pm 0.5\text{dB}$ higher than maximum rated output power.

The evaluation is performed at the antenna port.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz, LTE 20MHz

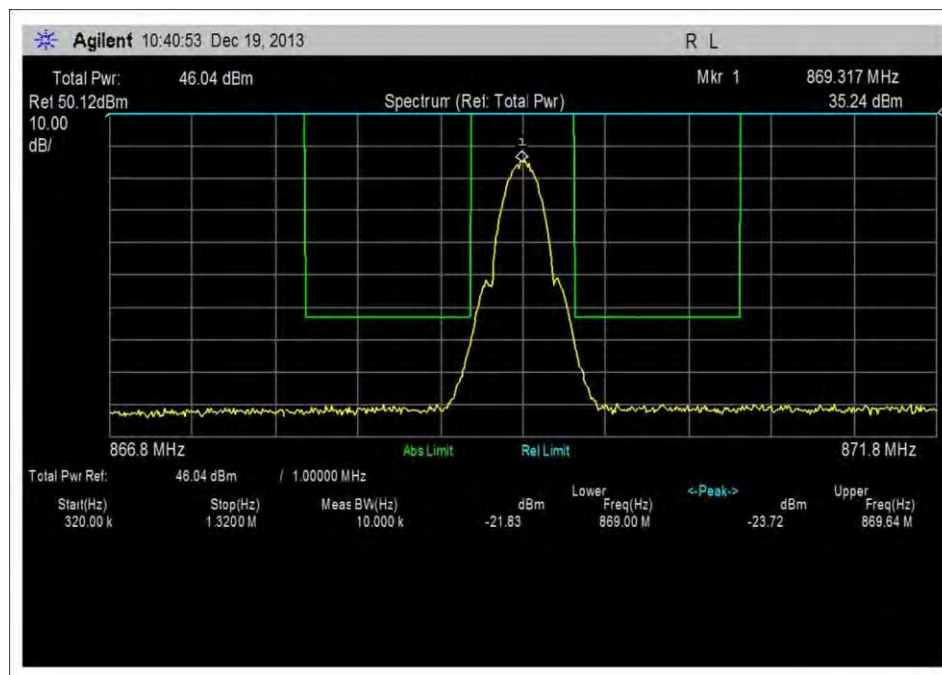
Max Output Power : 40 W

Modulation	Input Power (dbm)
GSM	
869.32MHz	-1.98
881.5MHz	-2.64
893.68MHz	-1.14
EDGE	
869.3MHz	-1.96
881.5MHz	-2.5
893.7MHz	-1
CDMA (IS95A)	
869.76MHz	-2.1
881.5MHz	-2.66
893.24MHz	-1.28
UMTS (WCDMA 3GPP)	
871.5MHz	-2.4
881.5MHz	-2.7
891.5MHz	-1.54
LTE 1.4MHz	
869.75MHz	-2.04
881.5MHz	-2.6
893.25MHz	-1.22
LTE 5MHz	
871.65MHz	-2.42
881.5MHz	-2.72
891.35MHz	-1.56
LTE 20MHz	
879.25MHz	-2.62
881.5MHz	-2.56
883.75MHz	-2.44

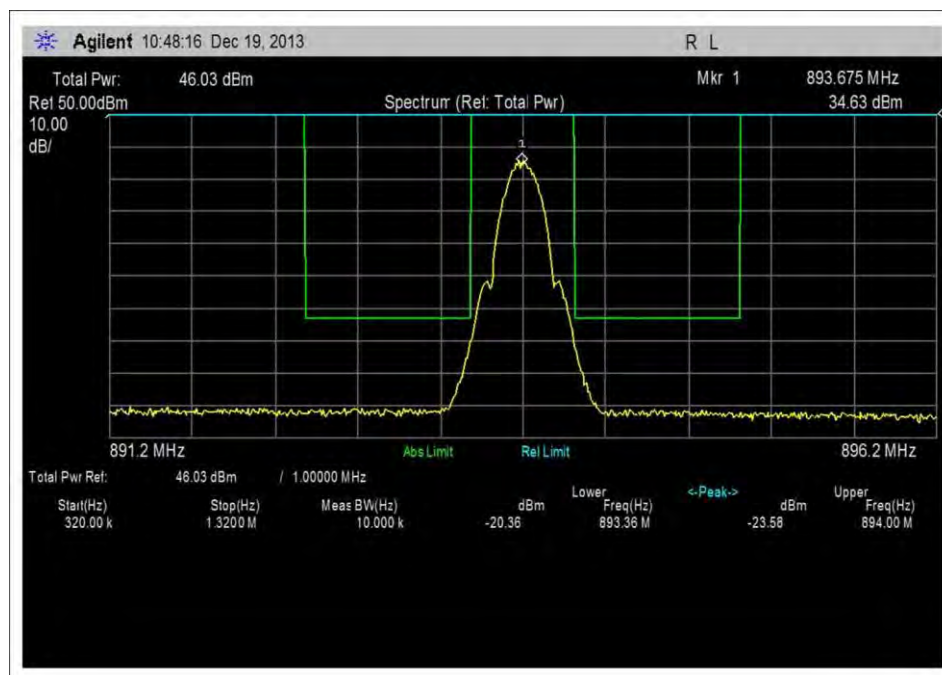
19°C, 63% Relative Humidity

Site D

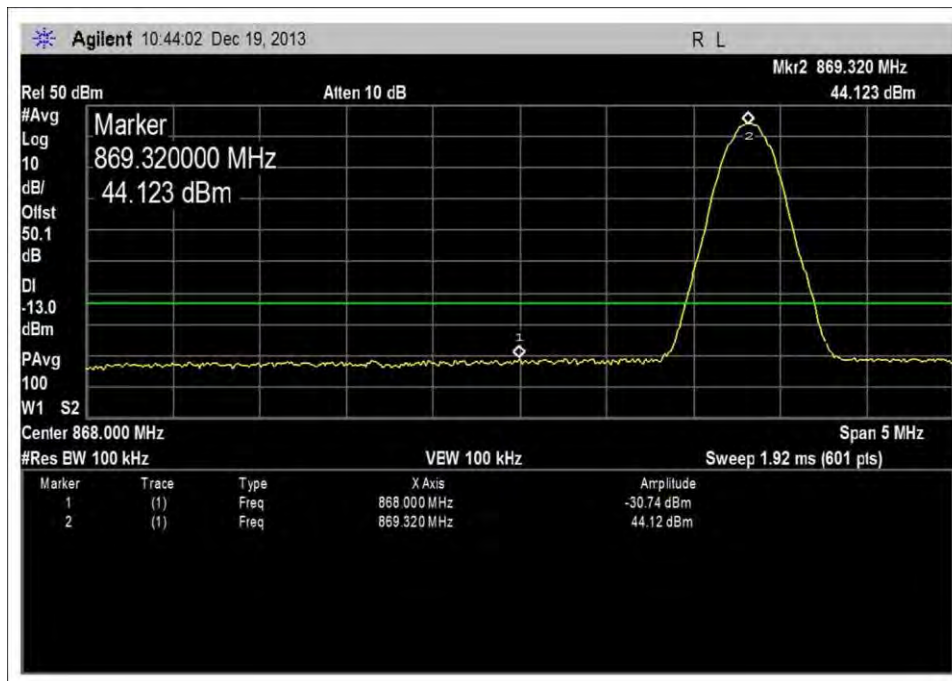
Test Data



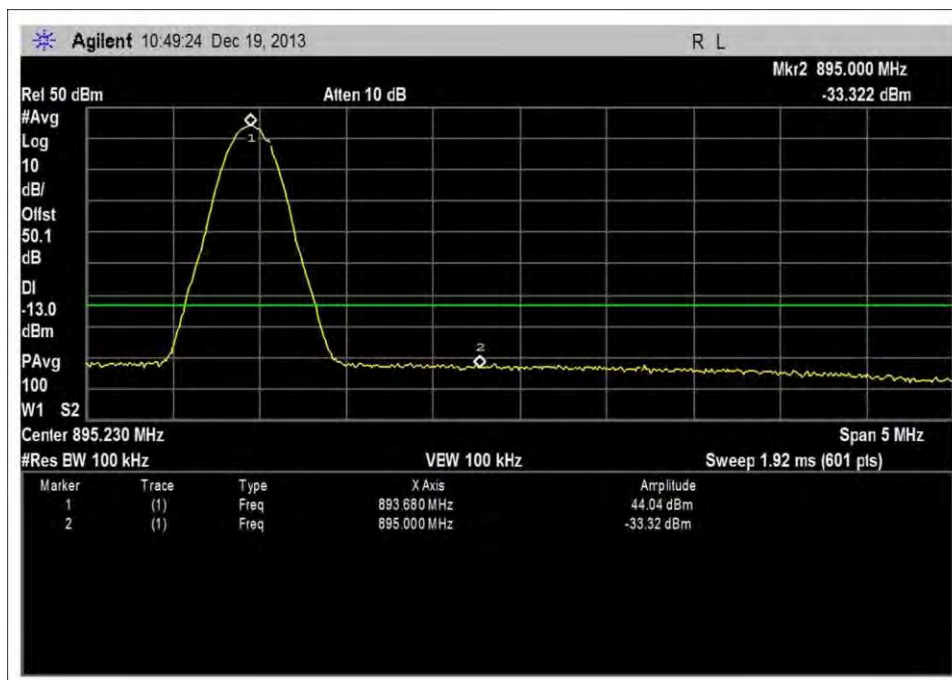
Low Channel, GSM 10kHz



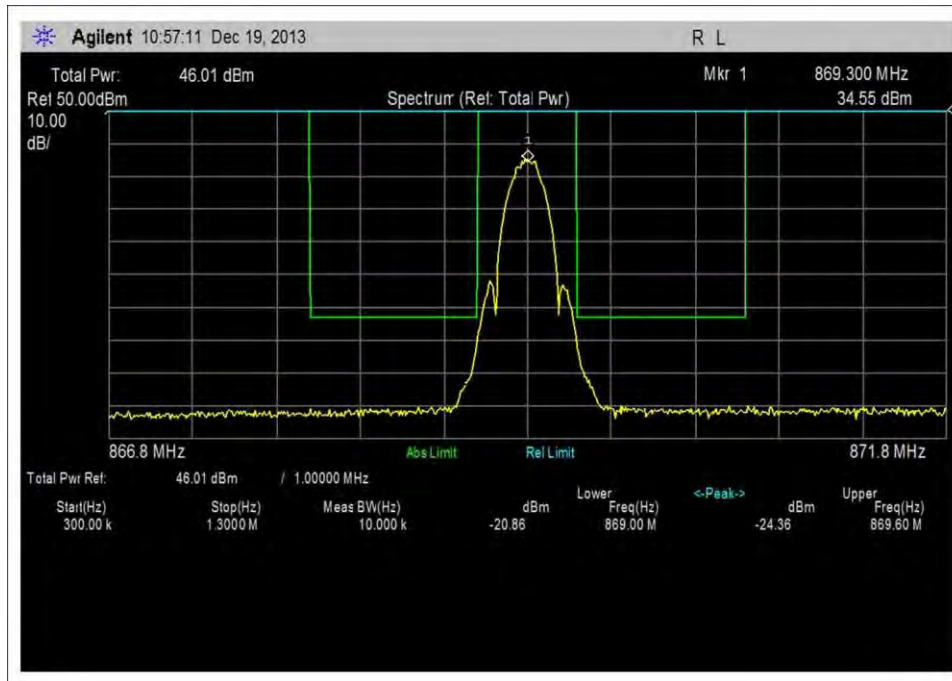
High Channel, GSM 10kHz



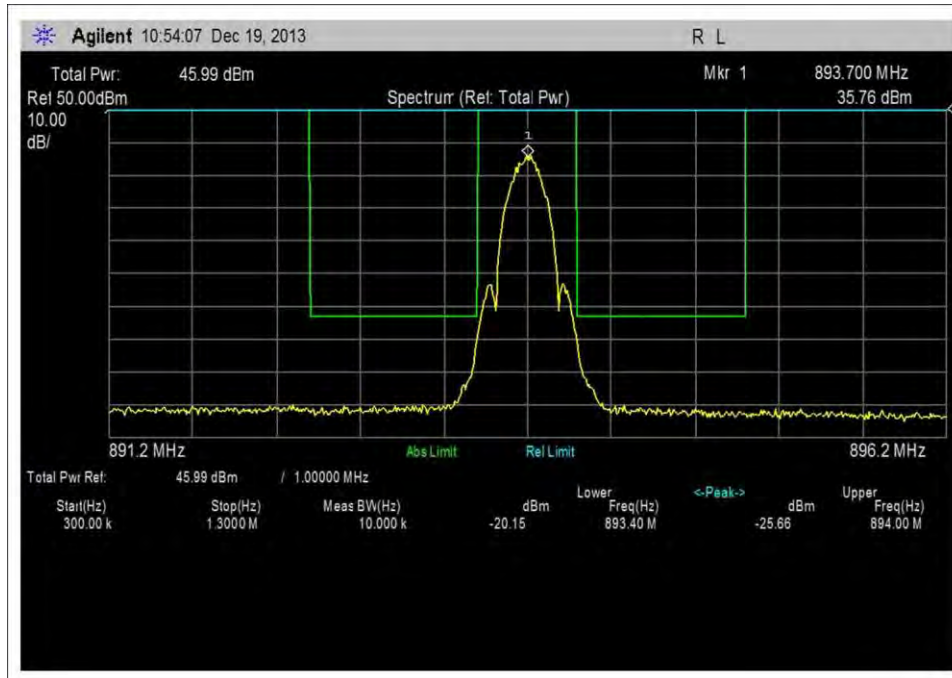
Low Channel, GSM 100kHz



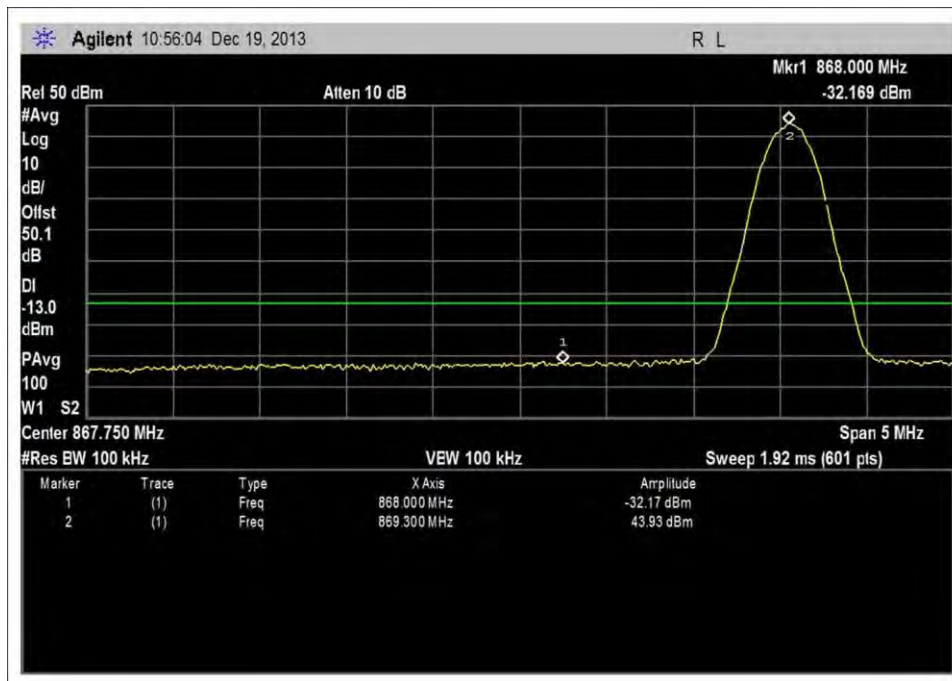
High Channel, GSM 100kHz



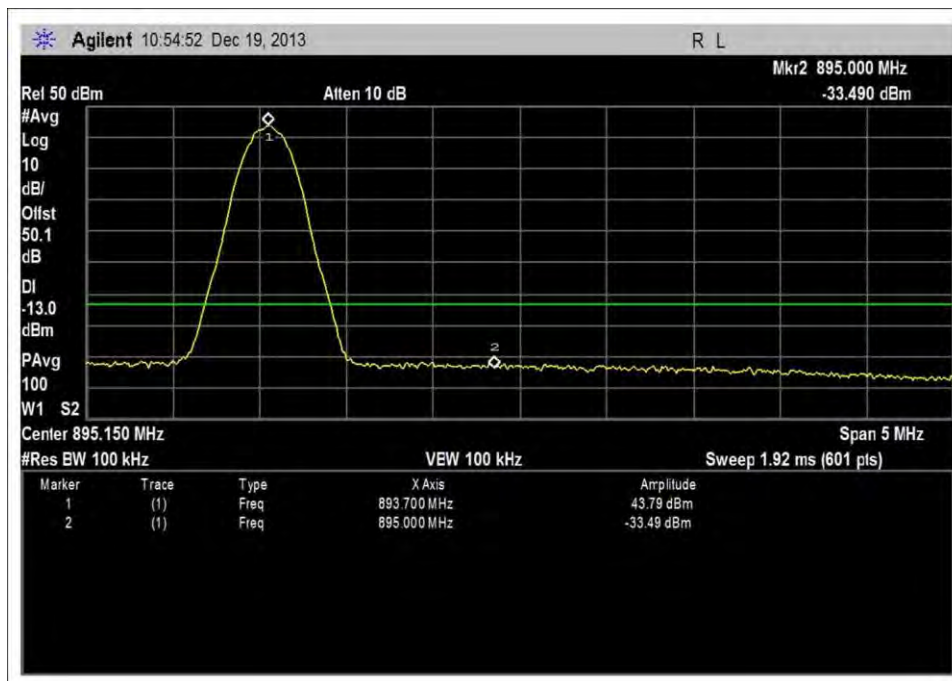
Low Channel, EDGE 10kHz



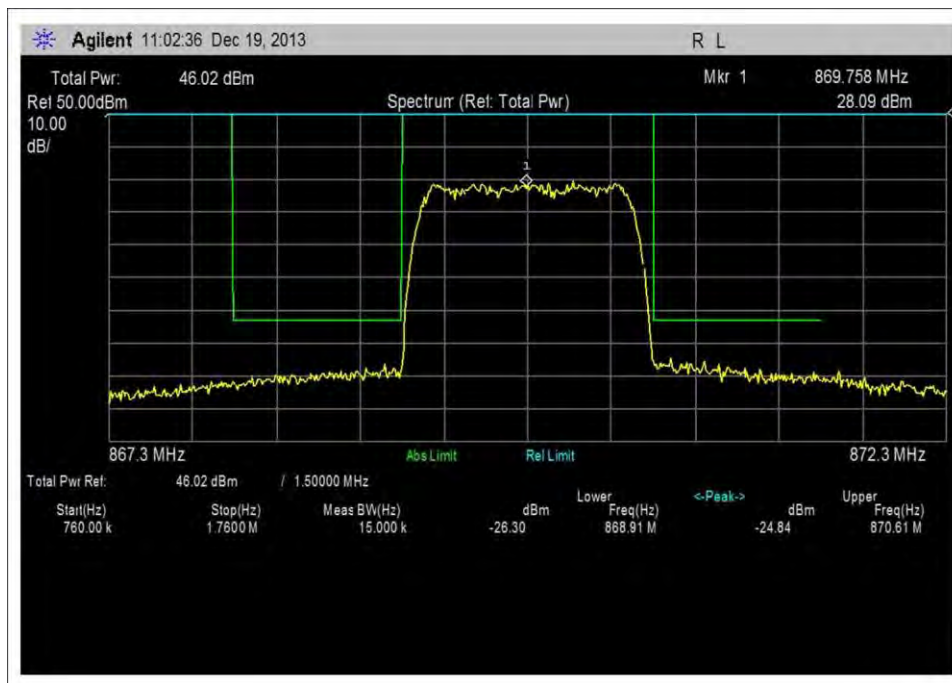
High Channel, EDGE 10kHz



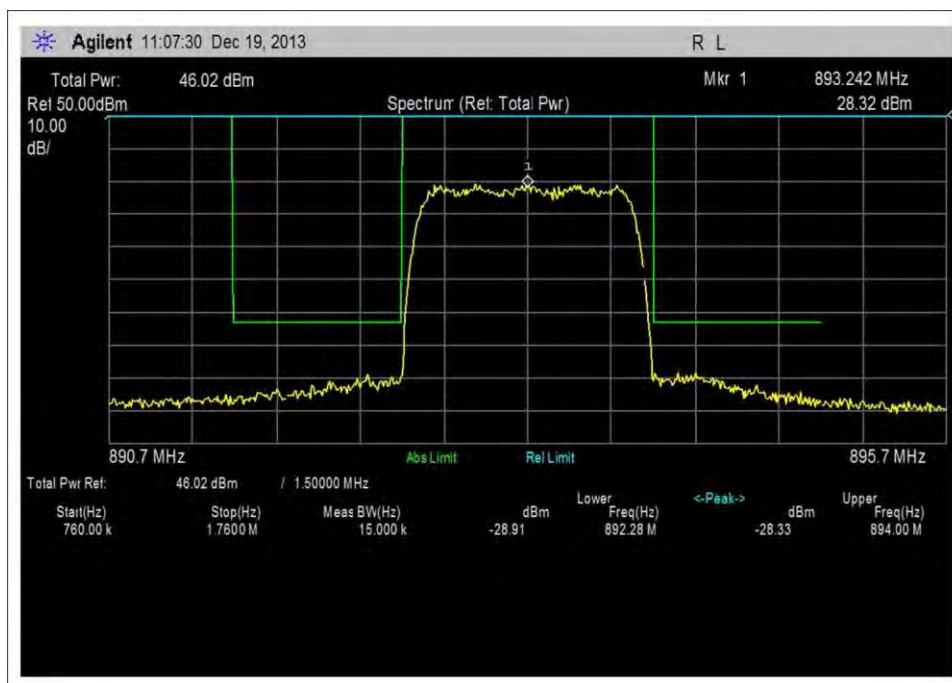
Low Channel, EDGE 100kHz



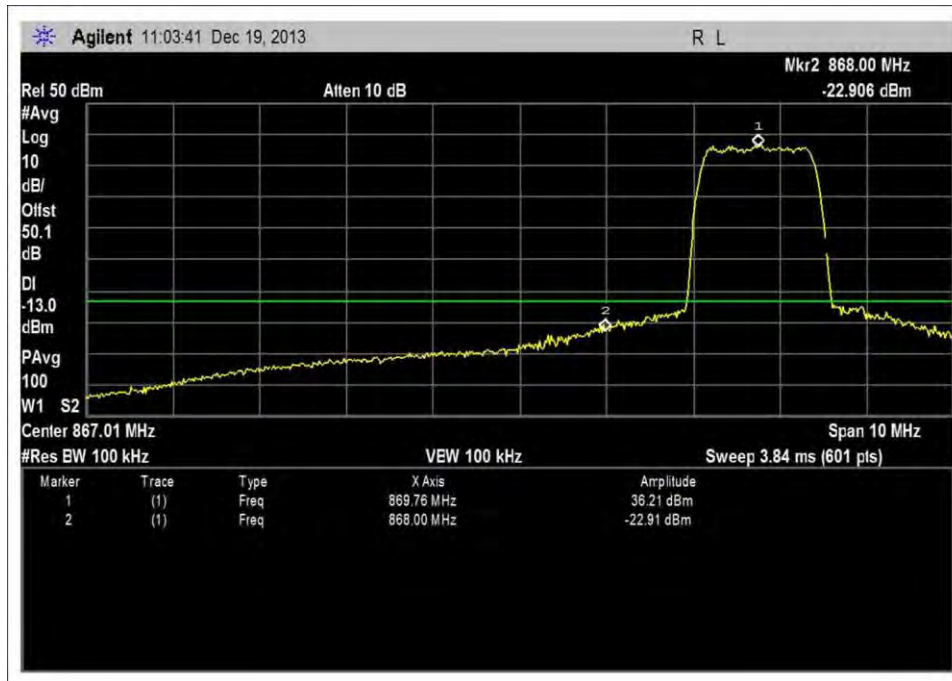
High Channel, EDGE 100kHz



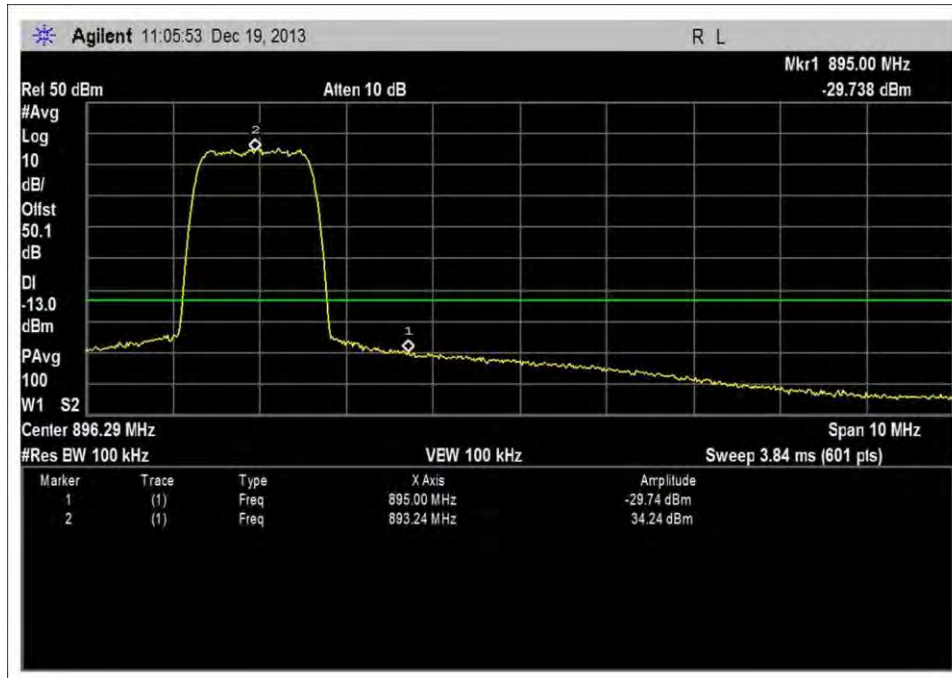
Low Channel, CDMA IS95A 15kHz



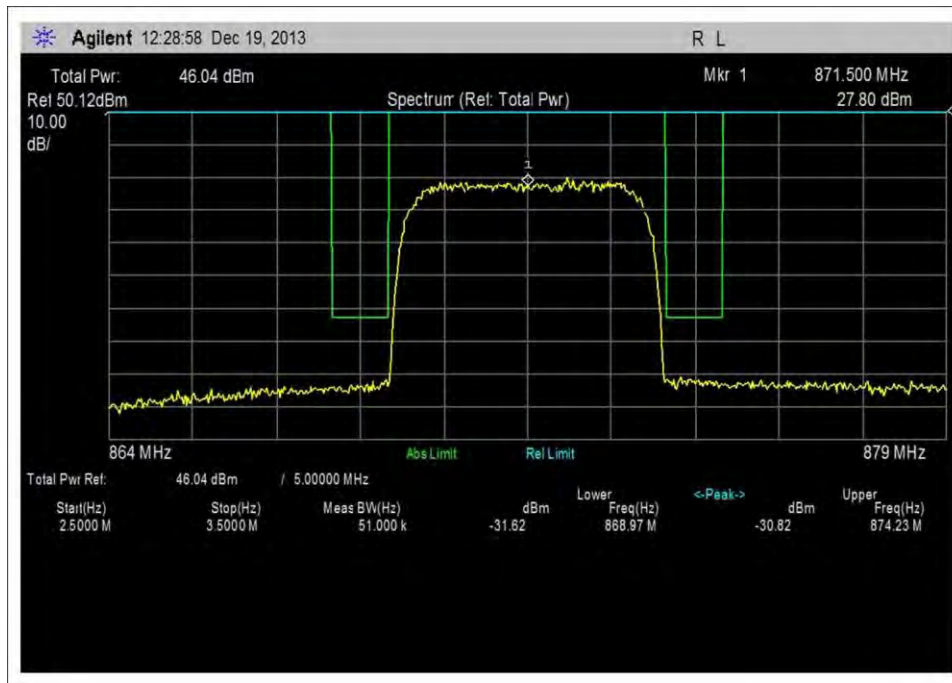
High Channel, CDMA IS95A 15kHz



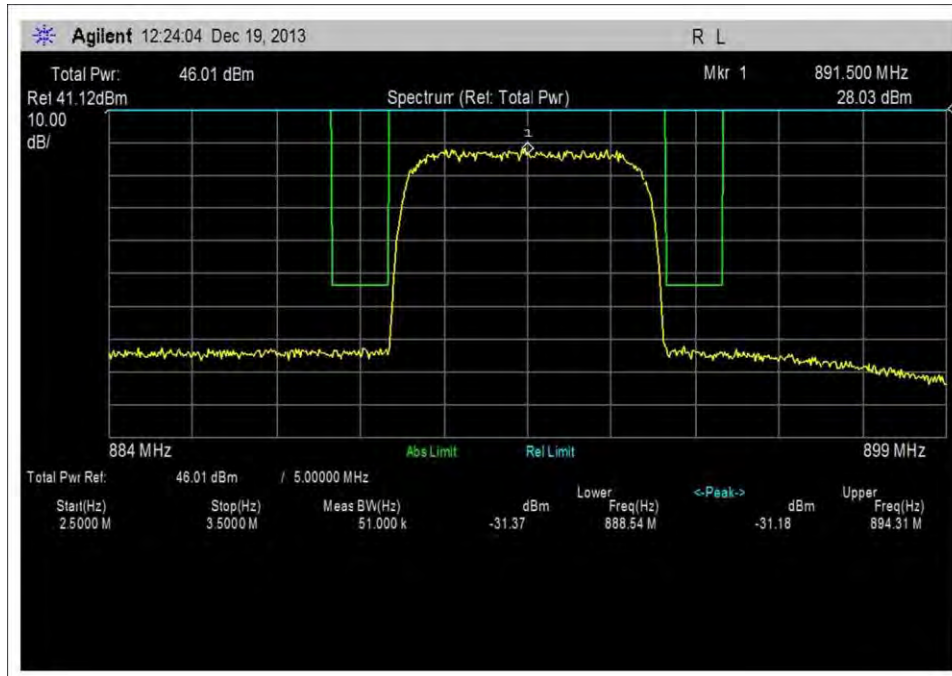
Low Channel, CDMA IS95A 100kHz



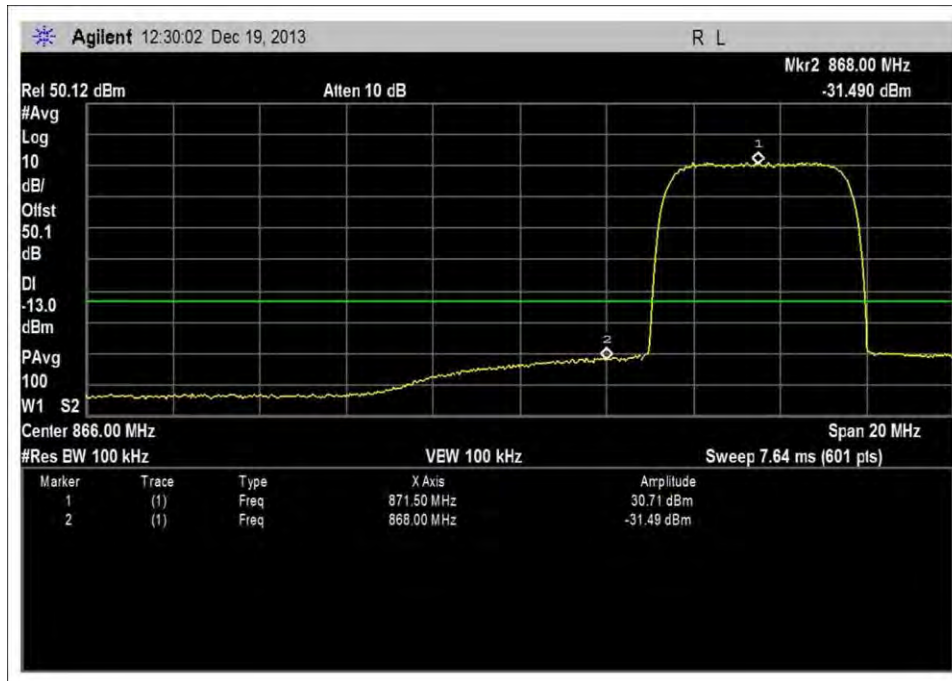
High Channel, CDMA IS95A 100kHz



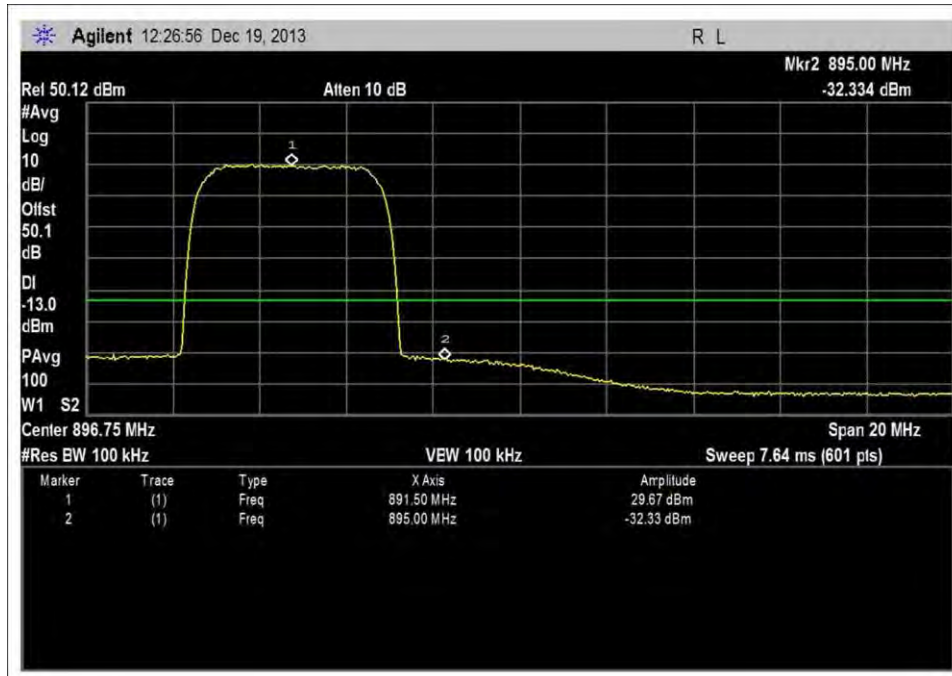
Low Channel, UMTS WCDMA 3GPP 51kHz



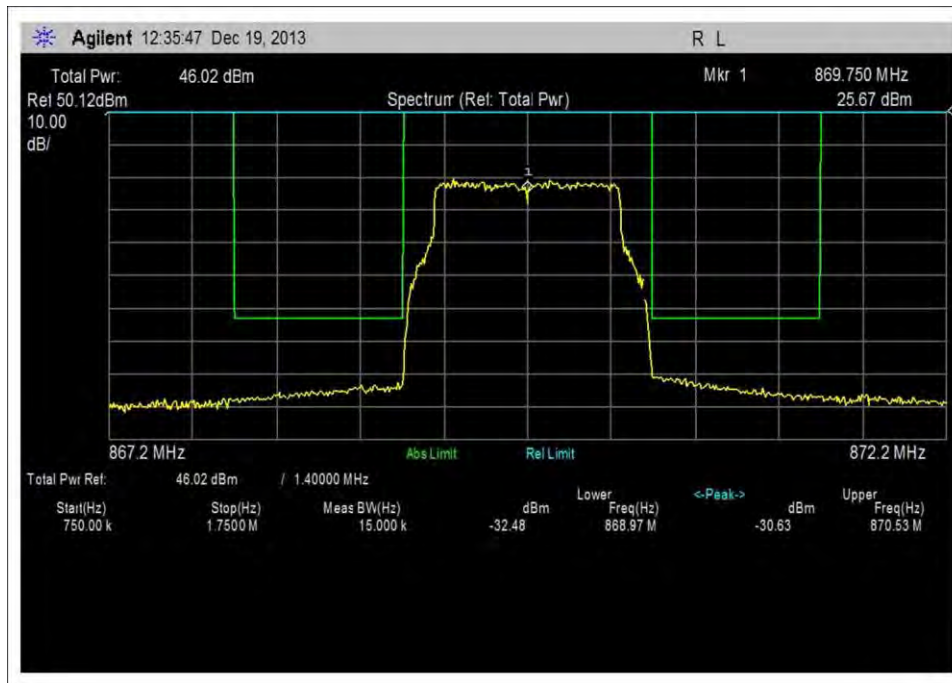
High Channel, UMTS WCDMA 3GPP 51kHz



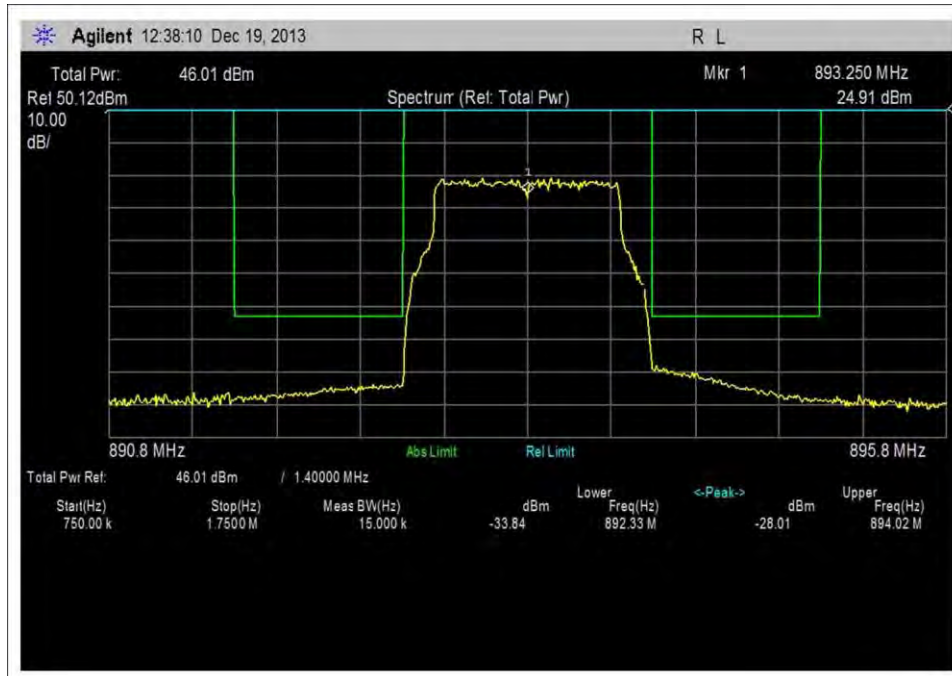
Low Channel, UMTS WCDMA 3GPP 100kHz



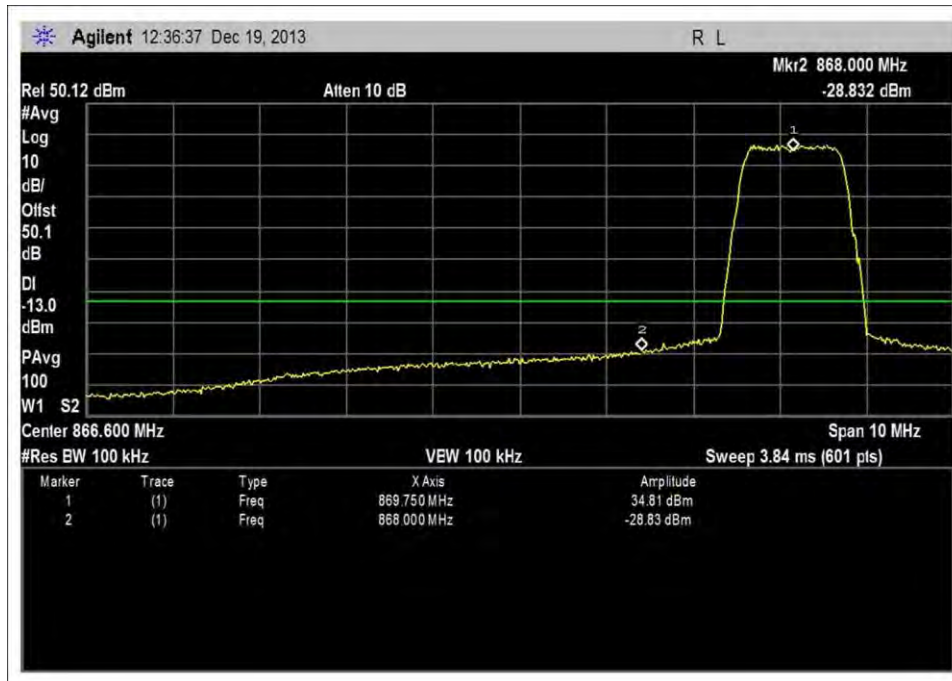
High Channel, UMTS WCDMA 3GPP 100kHz



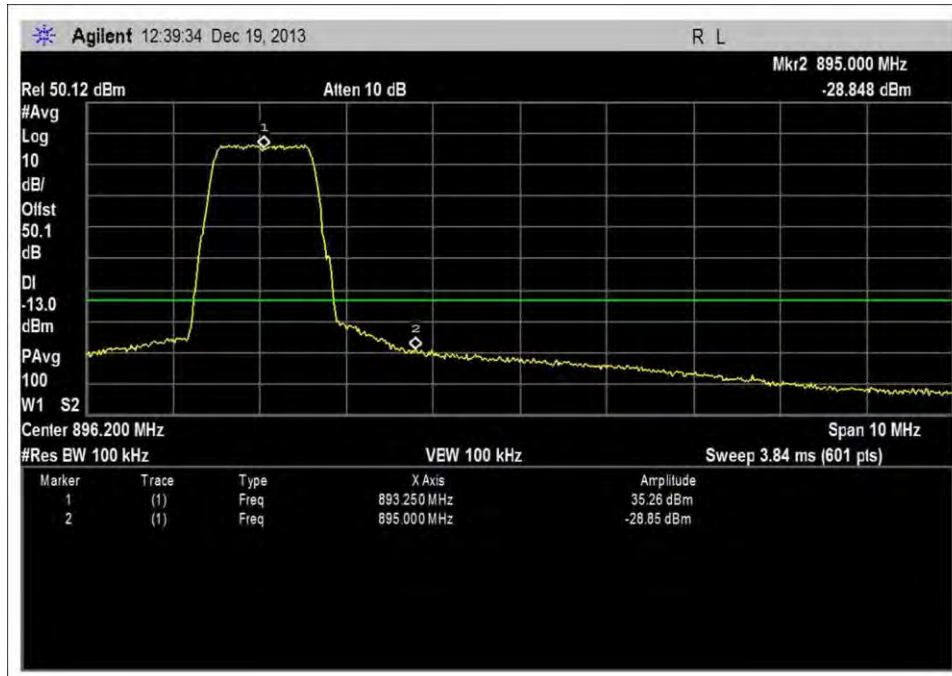
Low Channel, LTE 1.4MHz 15kHz



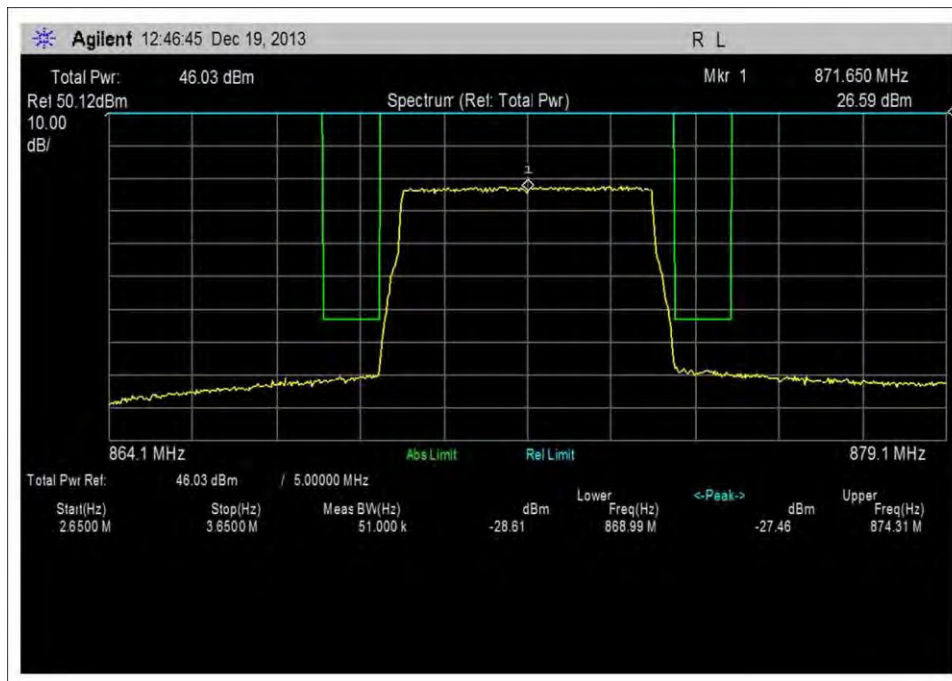
High Channel, LTE 1.4MHz 15kHz



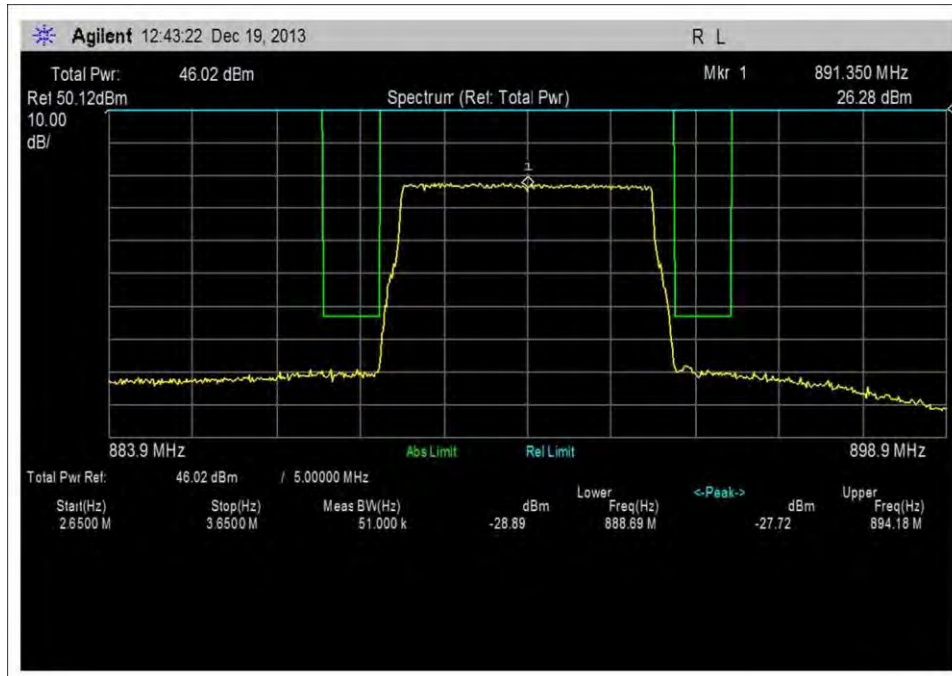
Low Channel, LTE 1.4MHz 100kHz



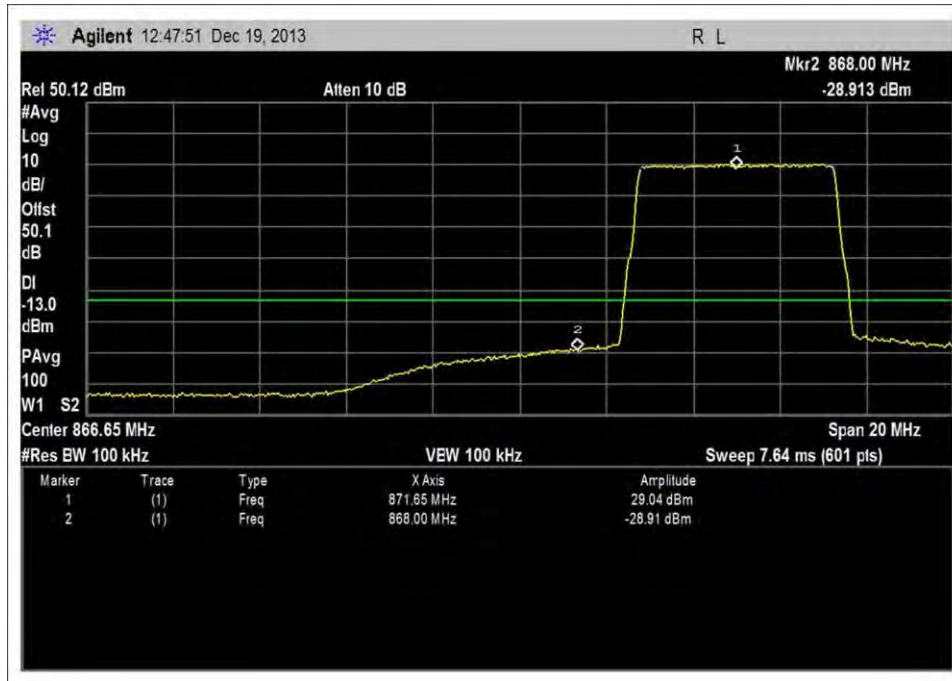
High Channel, LTE 1.4MHz 100kHz



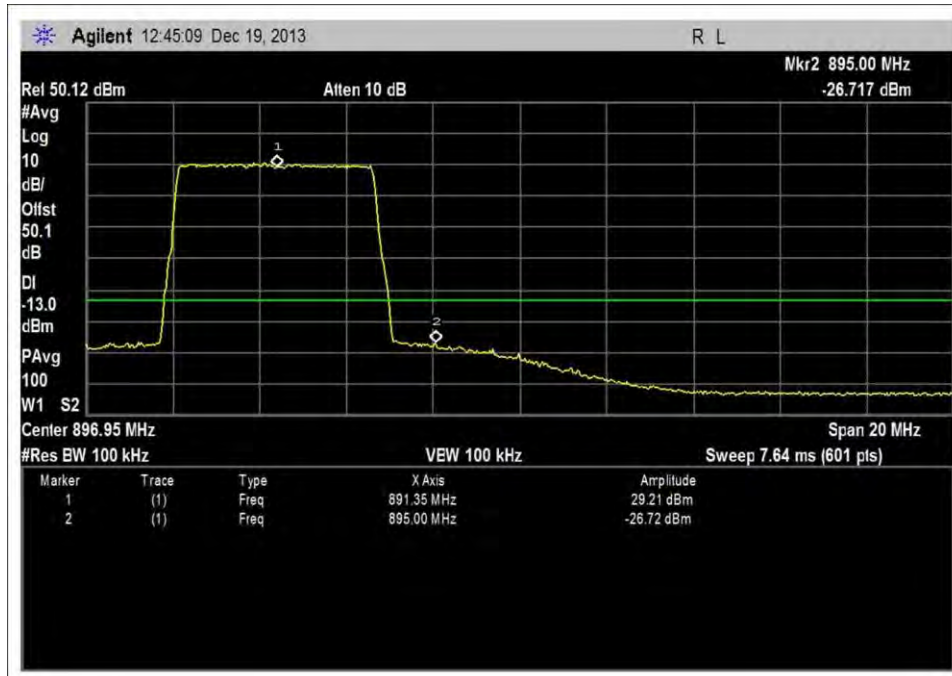
Low Channel, LTE 5MHz 51kHz



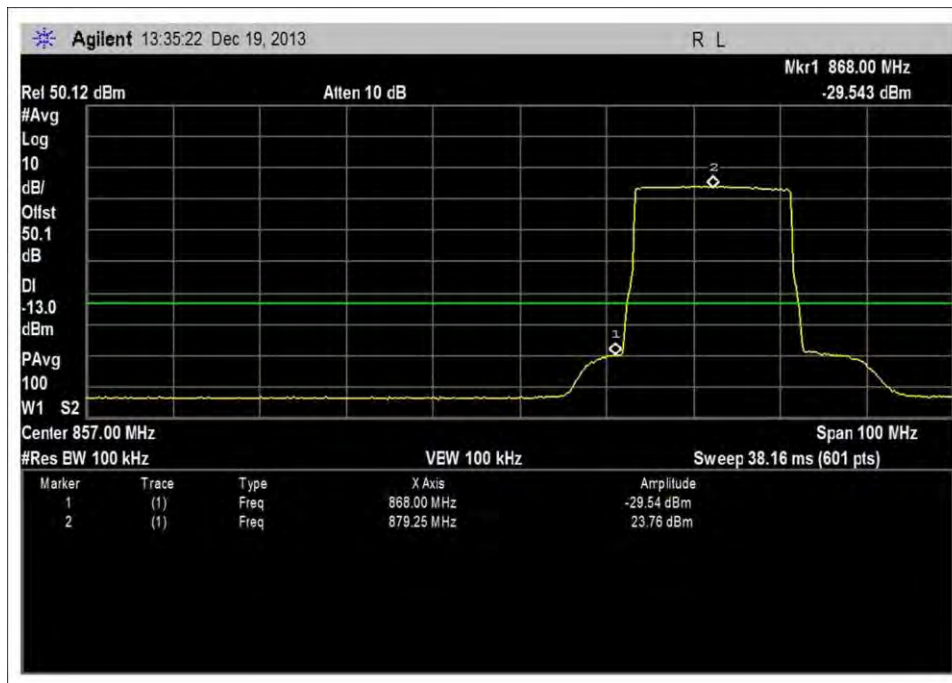
High Channel, LTE 5MHz 51kHz



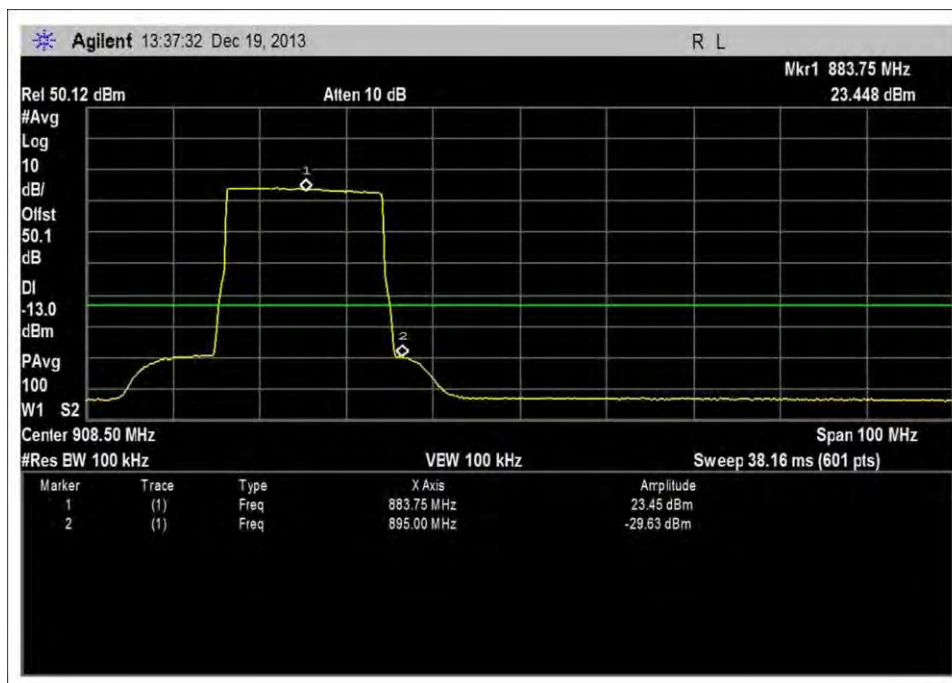
Low Channel, LTE 5MHz 100kHz



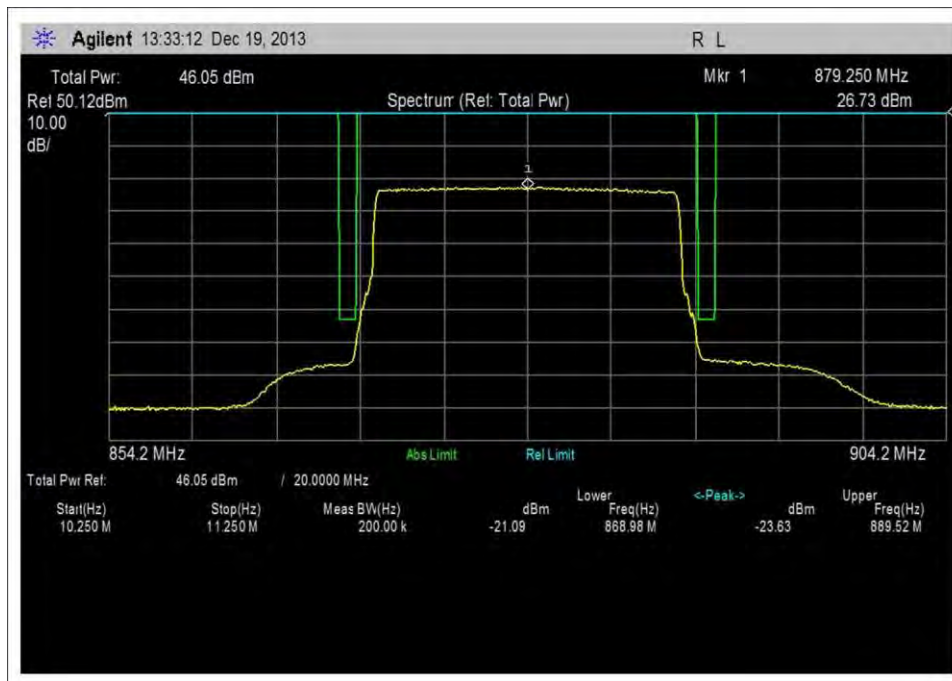
High Channel, LTE 5MHz 100kHz



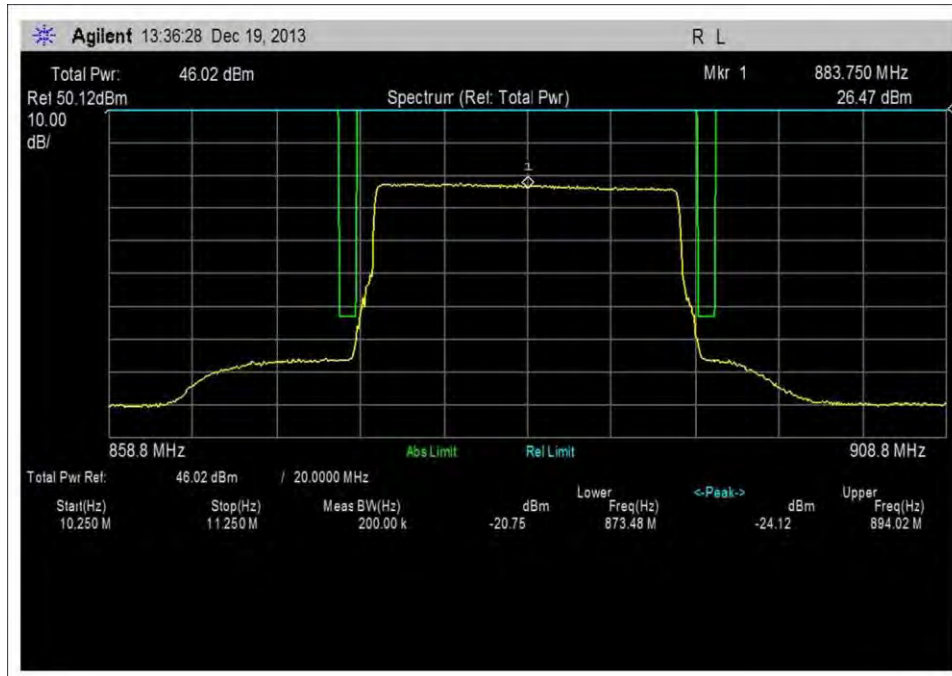
Low Channel, LTE 20MHz 100kHz



High Channel, LTE 20MHz 100kHz



Low Channel, LTE 20MHz 200kHz



High Channel, LTE 20MHz 200kHz

Test Setup Photos



Intermodulation

Test Conditions / Setup

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

Customer: **BTI Wireless**

Specification: **Intermodulation Plots**

Work Order #: **95179**

Date: 12/20/2013

Test Type: **Conducted Emissions**

Time: 15:17:27

Equipment: **850MHz 40W Remote Transmitting Unit**

Sequence#: 0

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC0850-040-RUMF01

110V 60Hz

S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
ESG Vector Signal Generator	Agilent	4438C	MY42082260
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479
Power Divider	Anaren	44000	NA

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In of Fiber Optic Converter is connected to two ESGs via a power divider. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-2909K-36TC. TX out and RX in port are terminated to 50 ohm loads. Per manufacturer, the output frequency is independent of the components used in optical converter.

EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of $1 \pm 0.5\text{dB}$ higher than maximum rated output power.

Freq: 869-894MHz

Signal protocol: GSM, EDGE, CDMA, UMTS WCDMA 3GPP, LTE 1.4MHz, LTE 5MHz (Two signals of LTE 20MHz cannot fit inside this frequency band.)

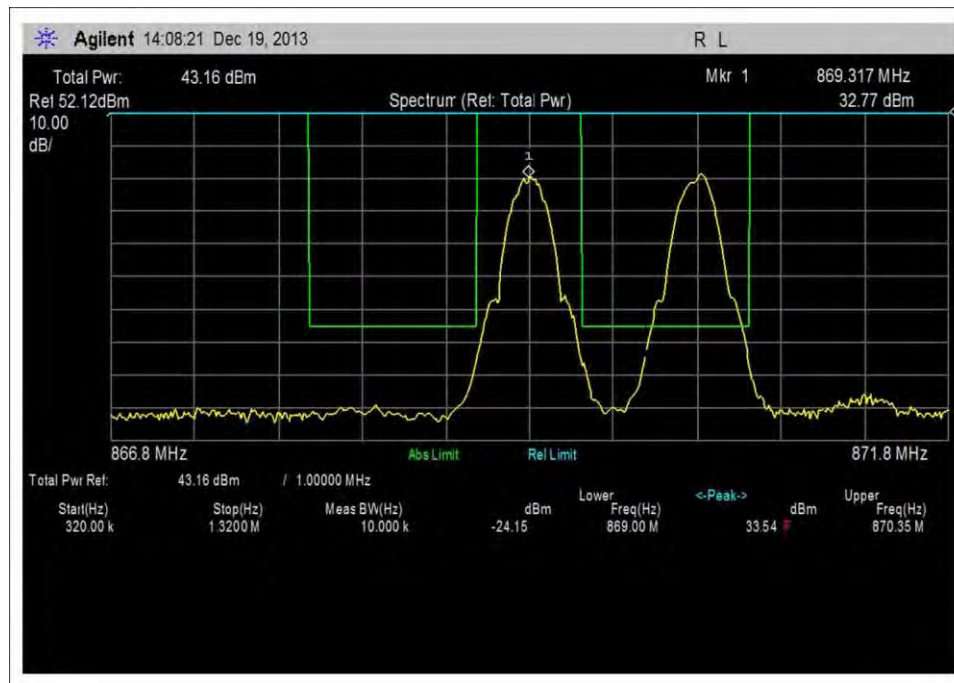
Max Output Power : 40 W

Modulation	Input Power (dbm)
GSM	
869.32MHz	-1.98
881.5MHz	-2.64
893.68MHz	-1.14
EDGE	
869.3MHz	-1.96
881.5MHz	-2.5
893.7MHz	-1
CDMA (IS95A)	
869.76MHz	-2.1
881.5MHz	-2.66
893.24MHz	-1.28
UMTS (WCDMA 3GPP)	
871.5MHz	-2.4
881.5MHz	-2.7
891.5MHz	-1.54
LTE 1.4MHz	
869.75MHz	-2.04
881.5MHz	-2.6
893.25MHz	-1.22
LTE 5MHz	
871.65MHz	-2.42
881.5MHz	-2.72
891.35MHz	-1.56
LTE 20MHz	
879.25MHz	-2.62
881.5MHz	-2.56
883.75MHz	-2.44

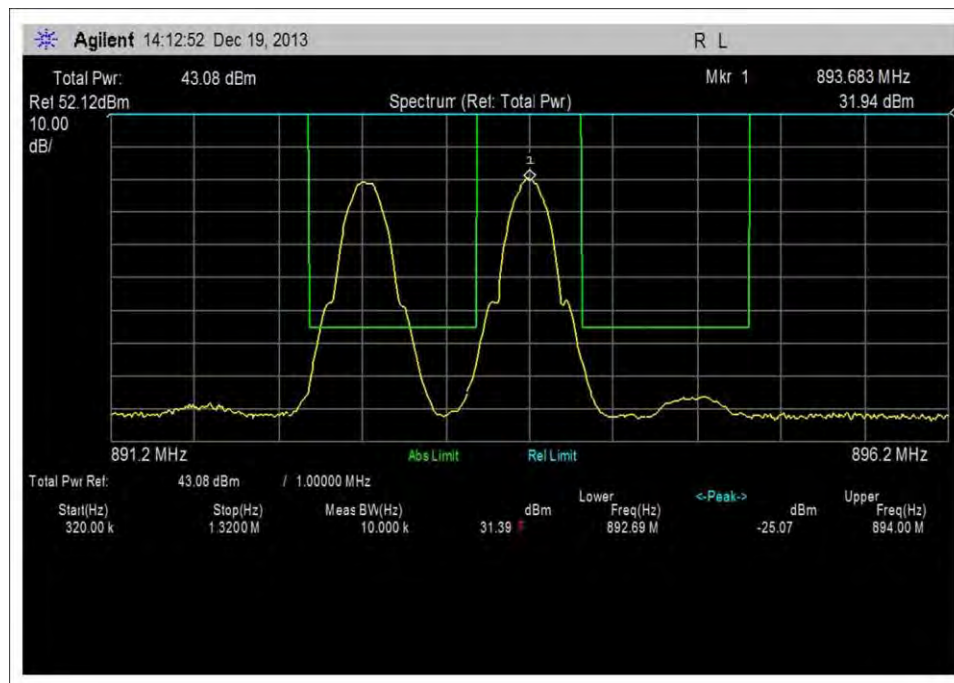
19°C, 63% Relative Humidity

Site D

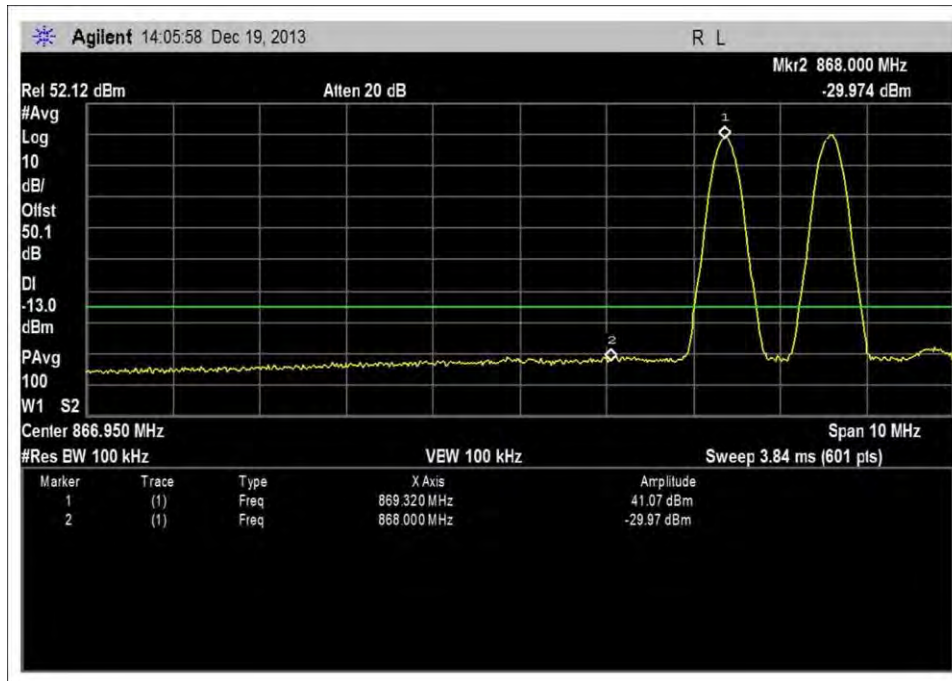
Test Data



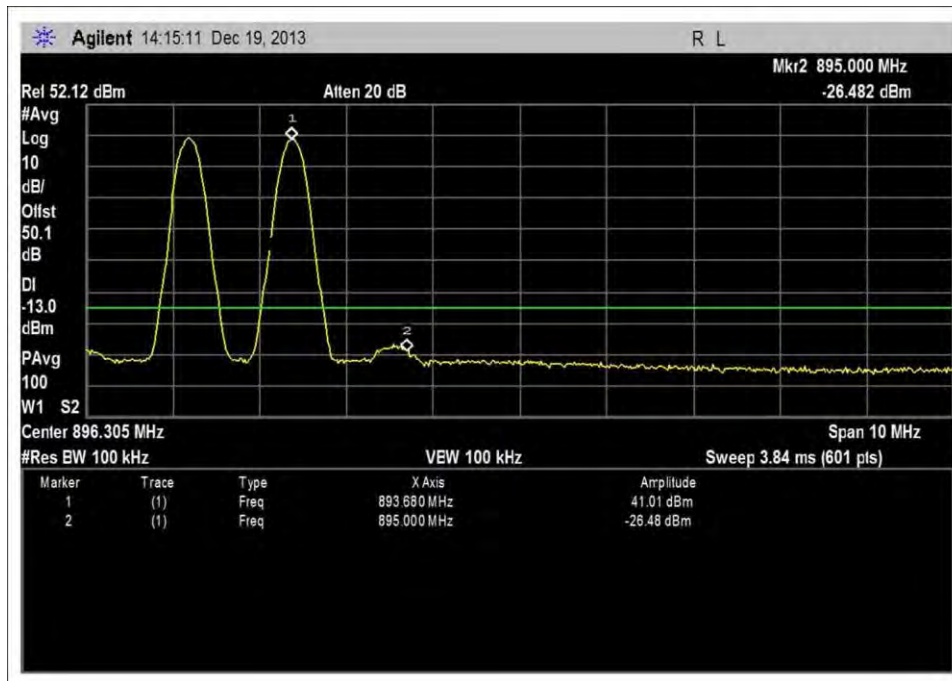
Low Channel, GSM 10kHz



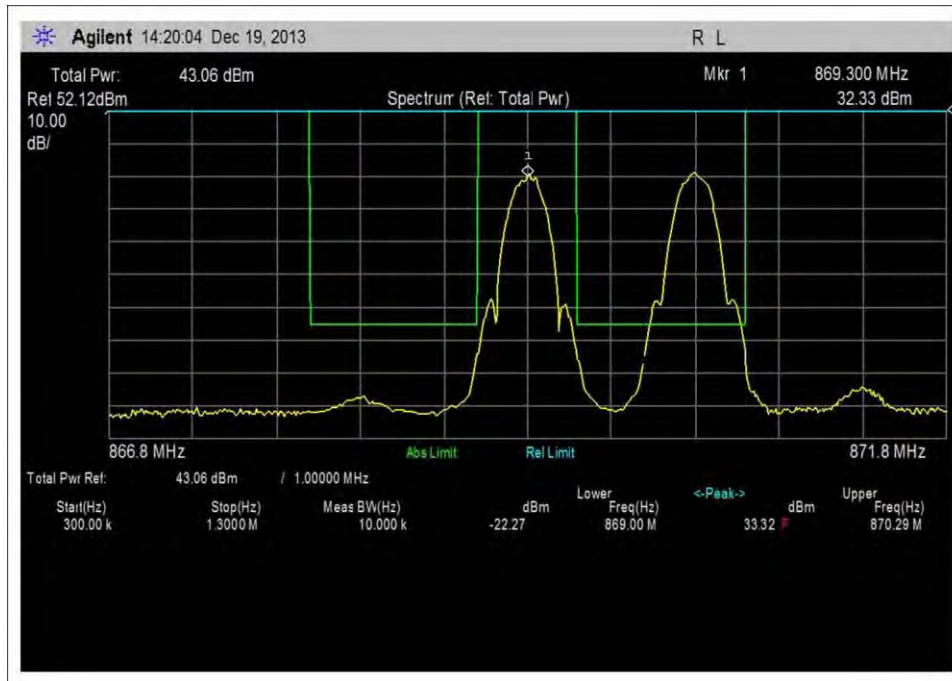
High Channel, GSM 10kHz



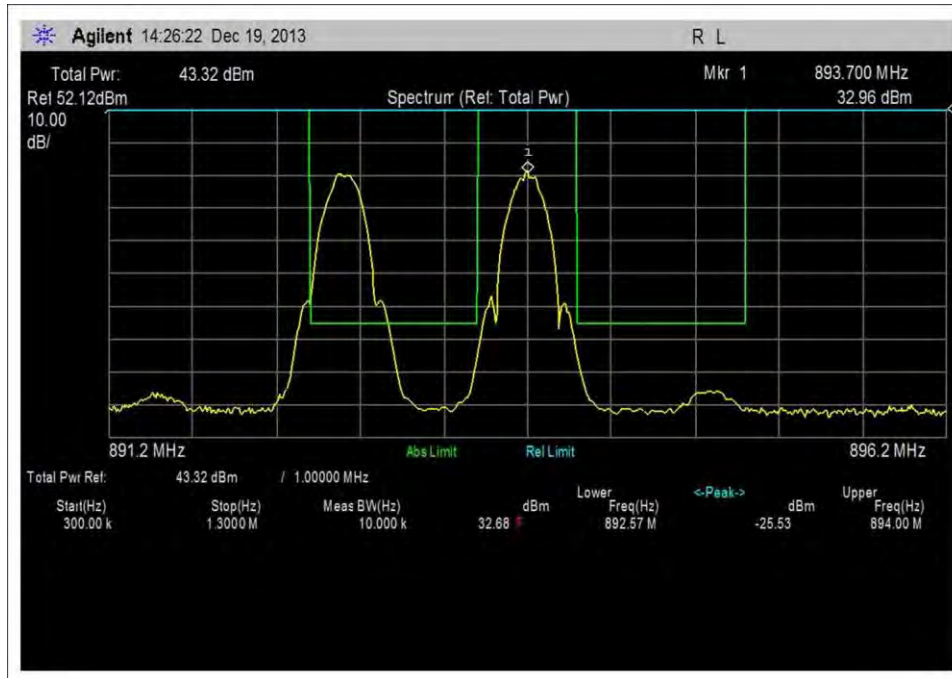
Low Channel, GSM 100kHz



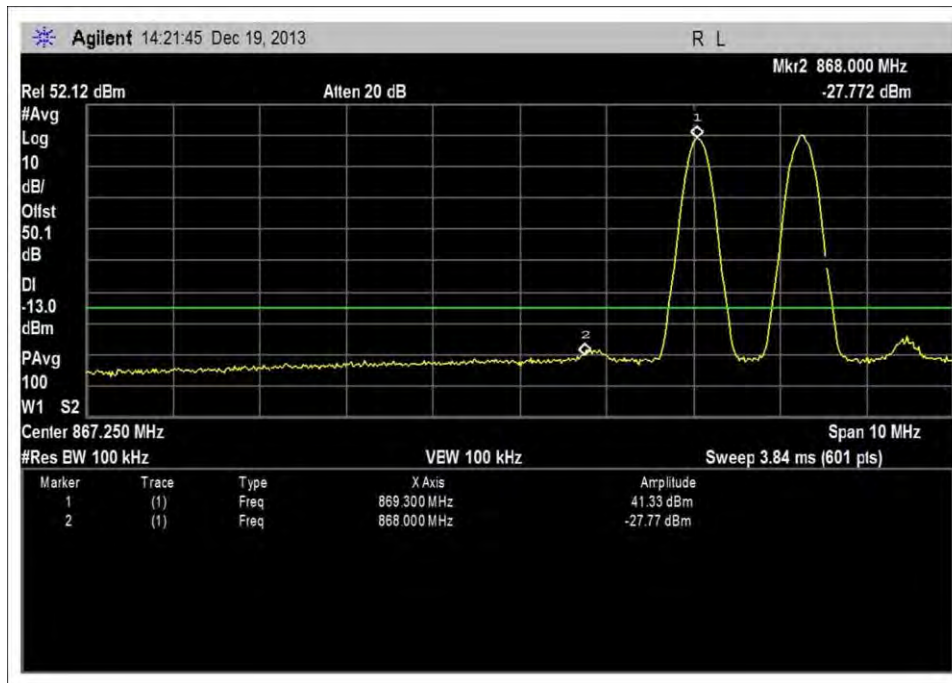
Low Channel, GSM 100kHz



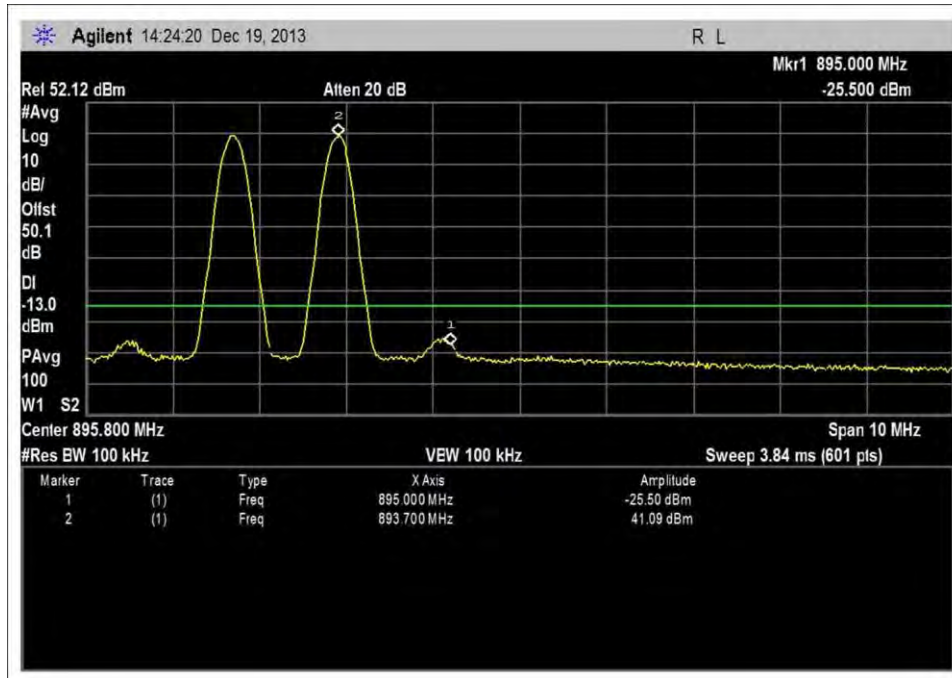
Low Channel, EDGE 10kHz



High Channel, EDGE 10kHz



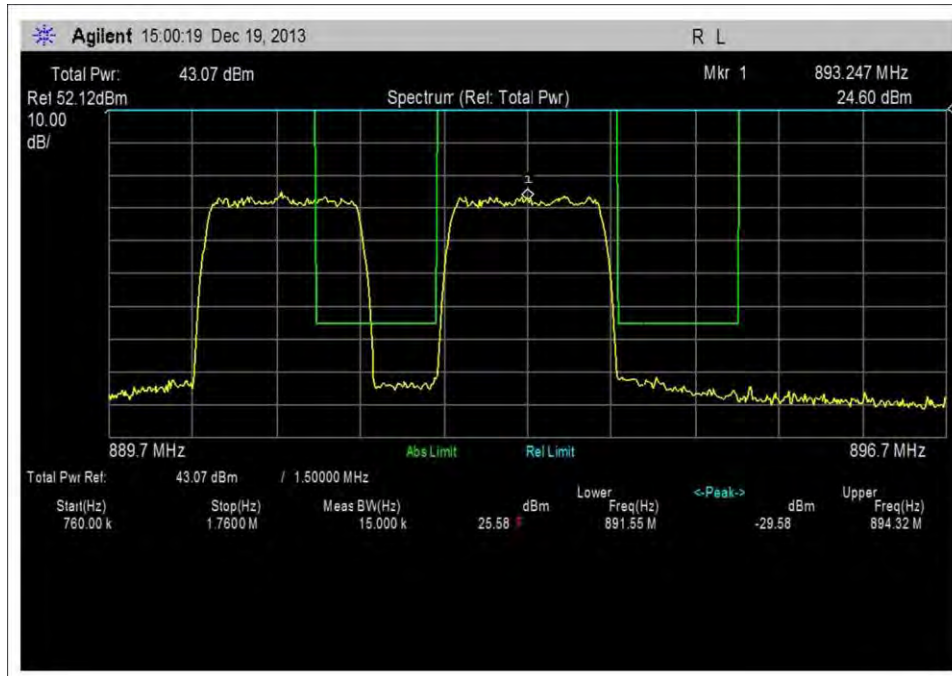
Low Channel, EDGE 100kHz



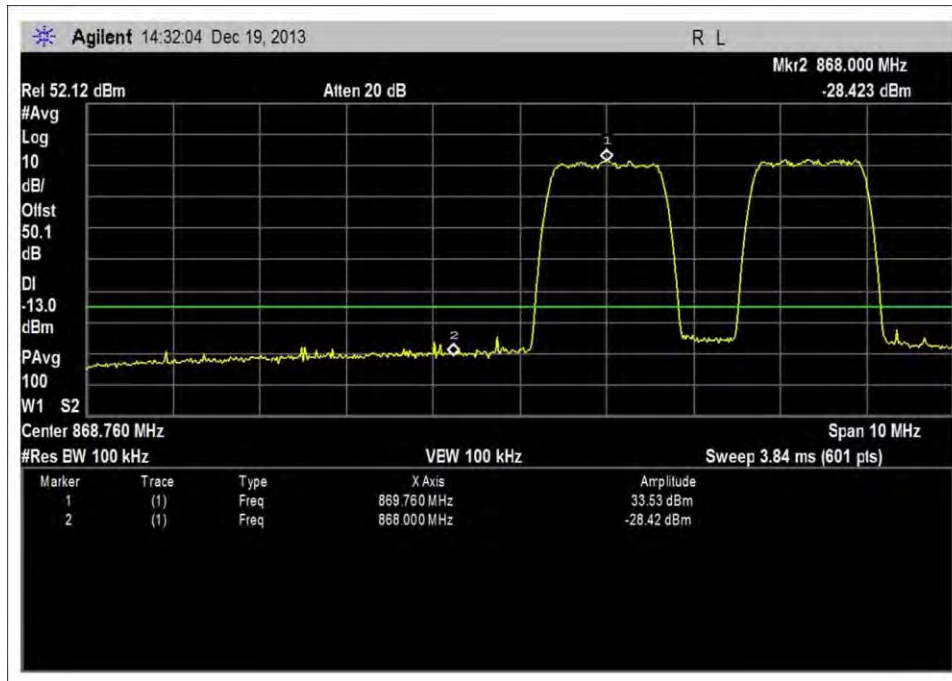
High Channel, EDGE 100kHz



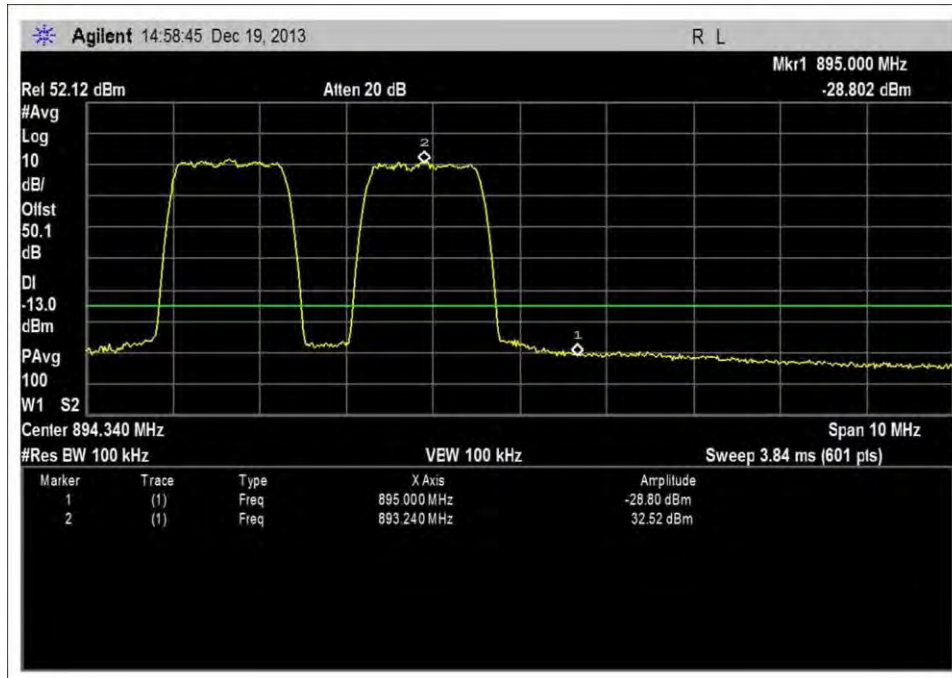
Low Channel, CDMA IS95A 15kHz



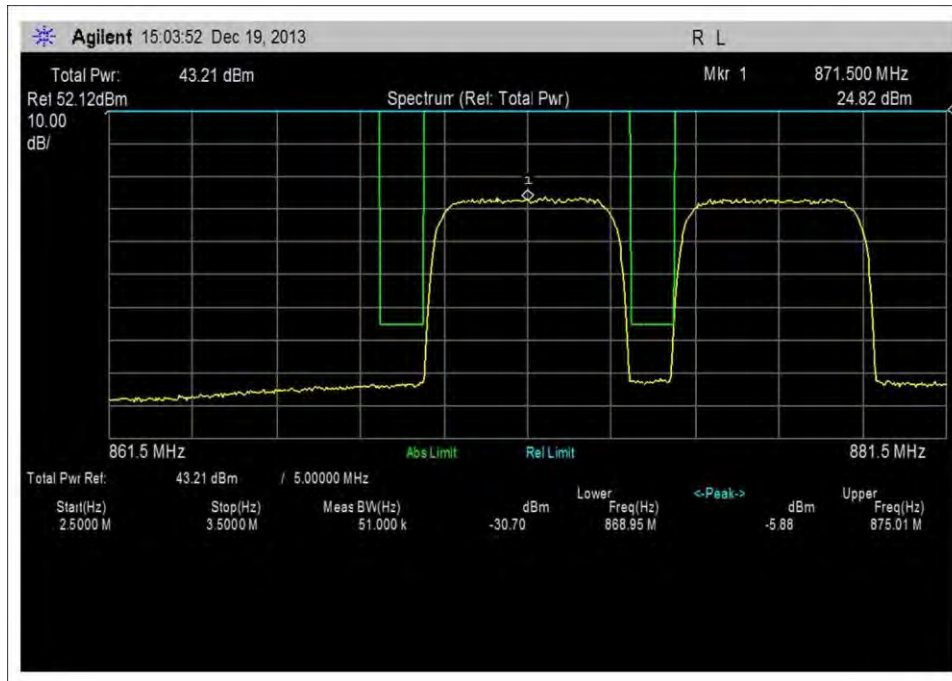
High Channel, CDMA IS95A 15kHz



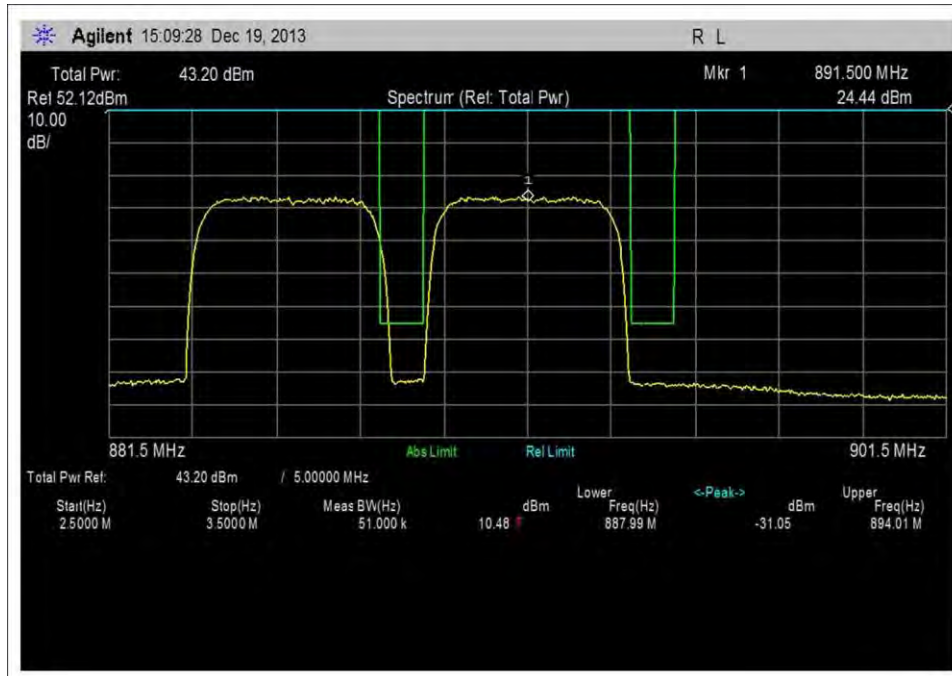
Low Channel, CDMA IS95A 100kHz



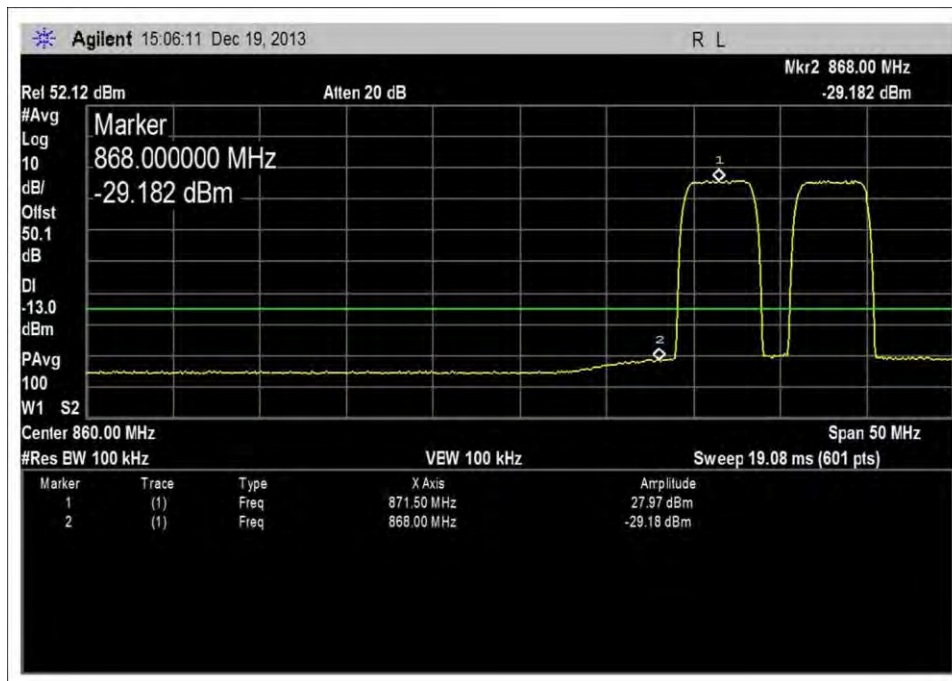
High Channel, CDMA IS95A 100kHz



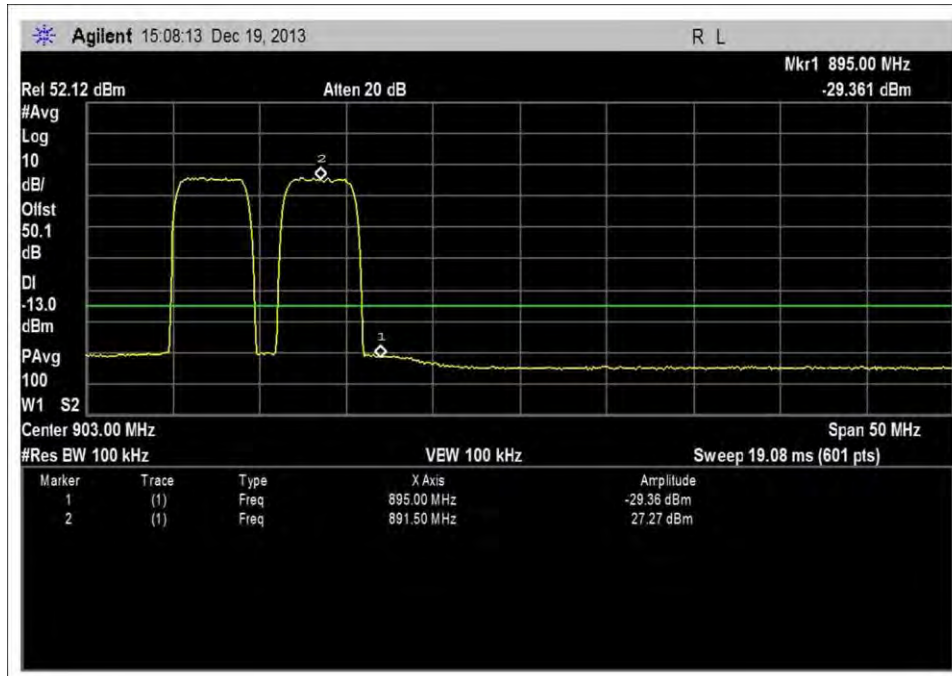
Low Channel, UMTS WCDMA 3GPP 51kHz



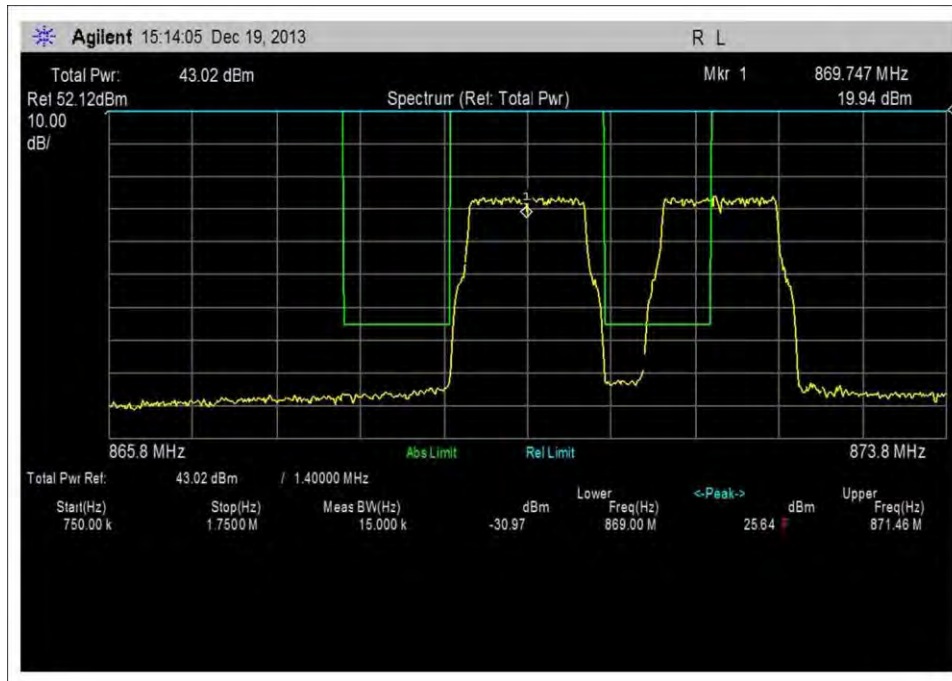
High Channel, UMTS WCDMA 3GPP 51kHz



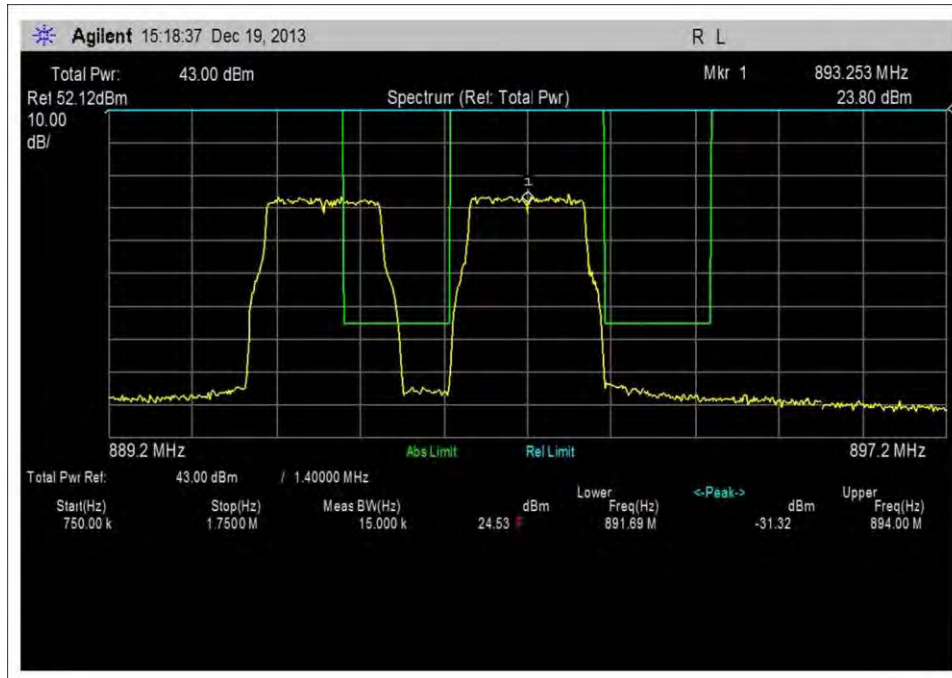
Low Channel, UMTS WCDMA 3GPP 100kHz



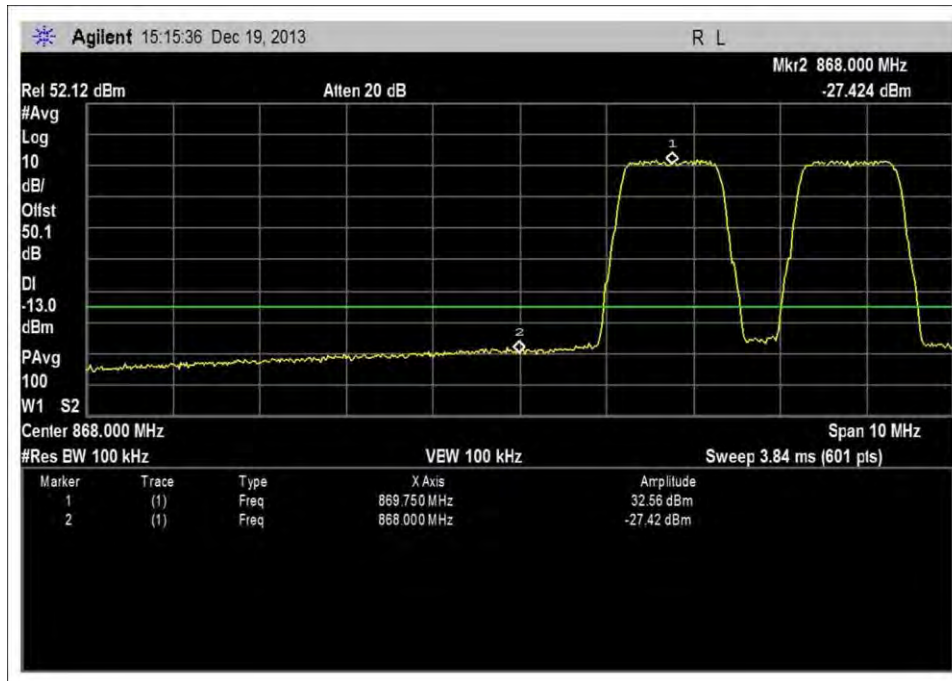
High Channel, UMTS WCDMA 3GPP 100kHz



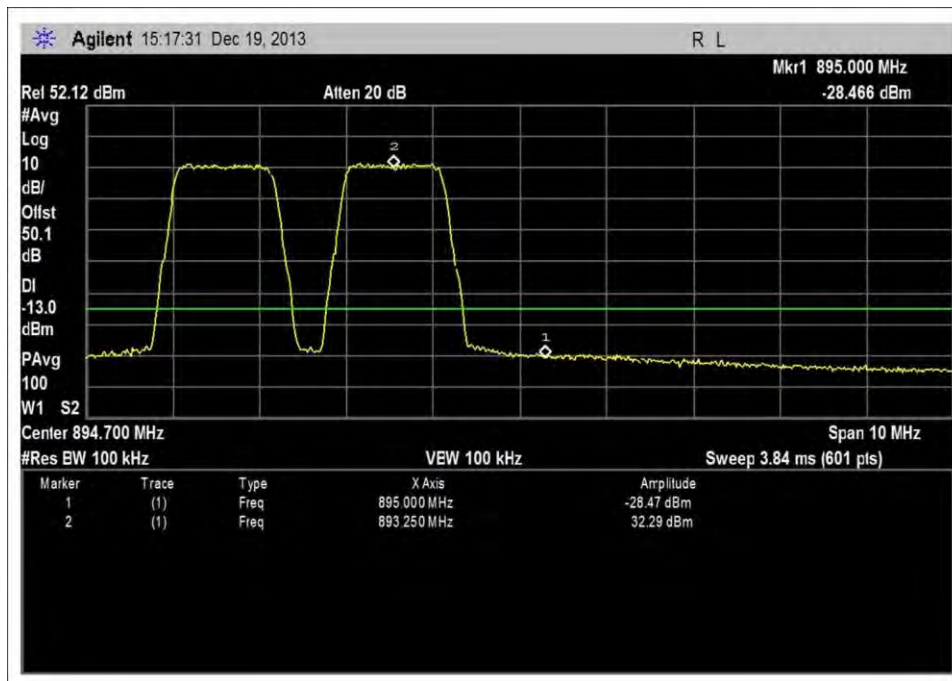
Low Channel, LTE 1.4MHz 15kHz



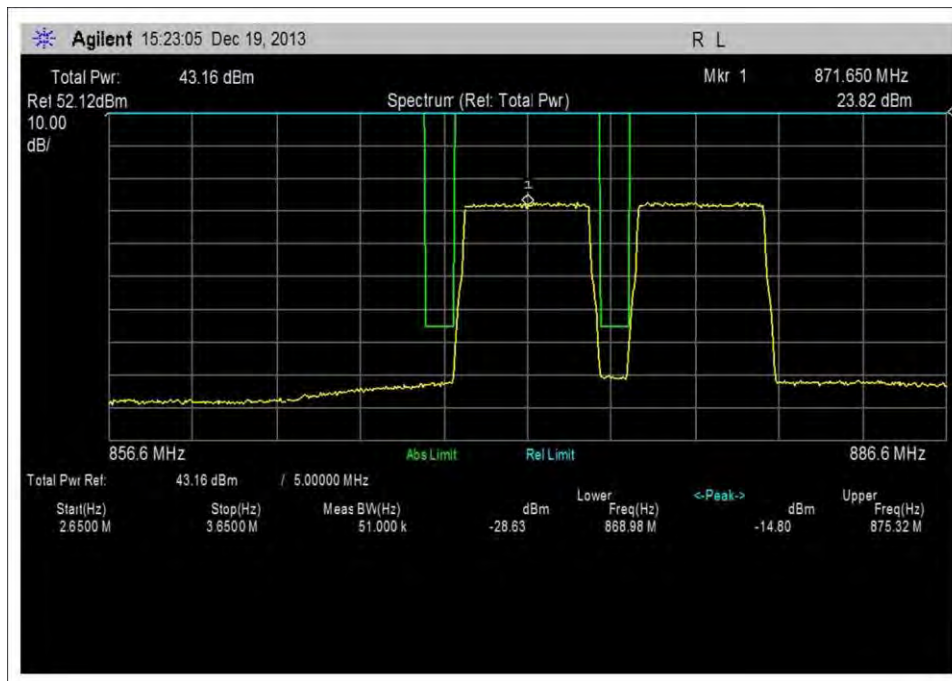
High Channel, LTE 1.4MHz 15kHz



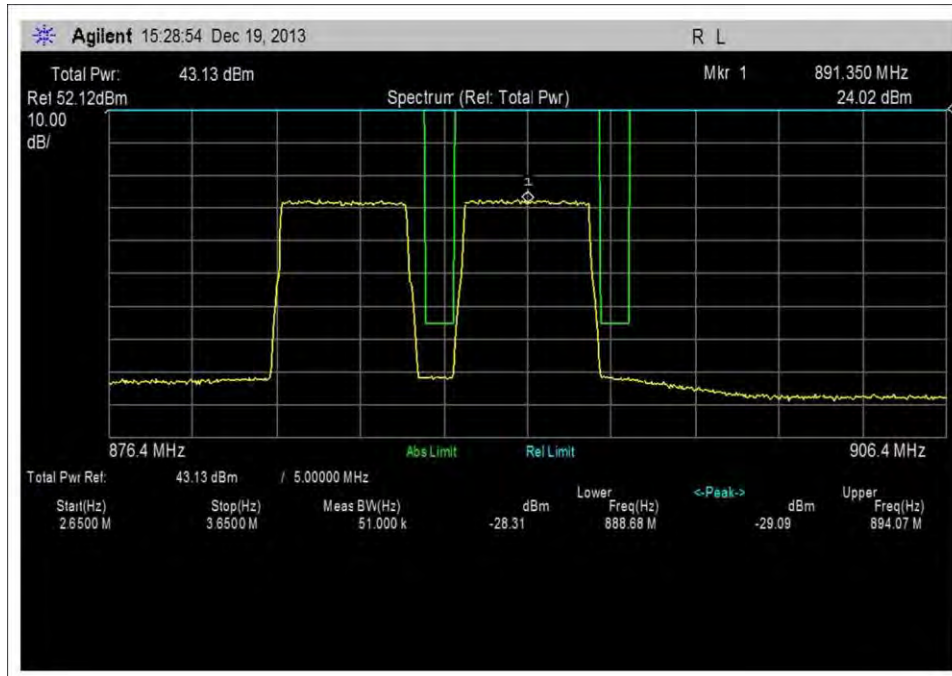
Low Channel, LTE 1.4MHz 100kHz



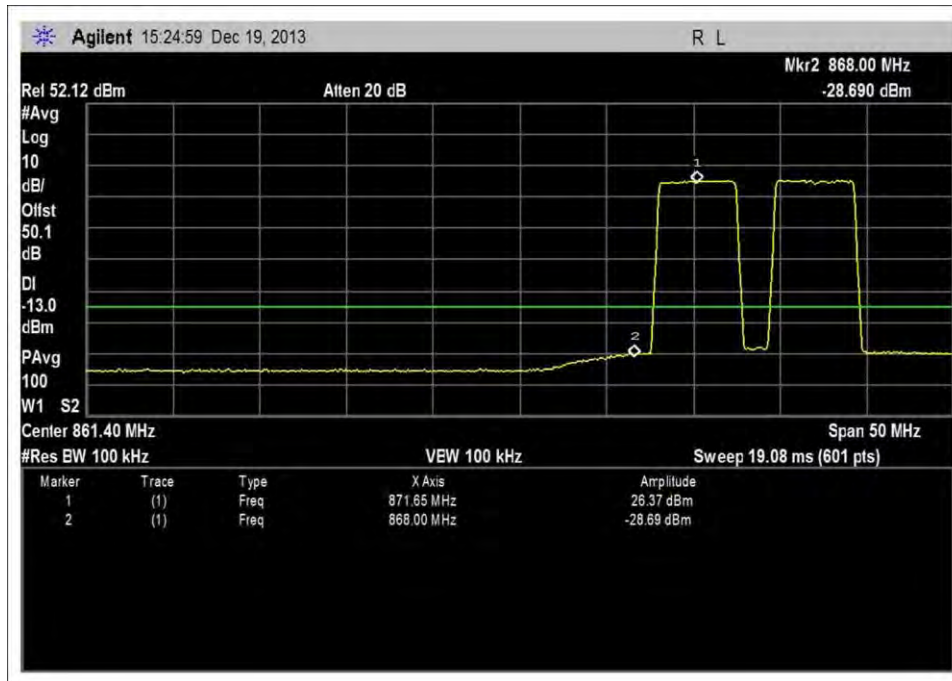
High Channel, LTE 1.4MHz 100kHz



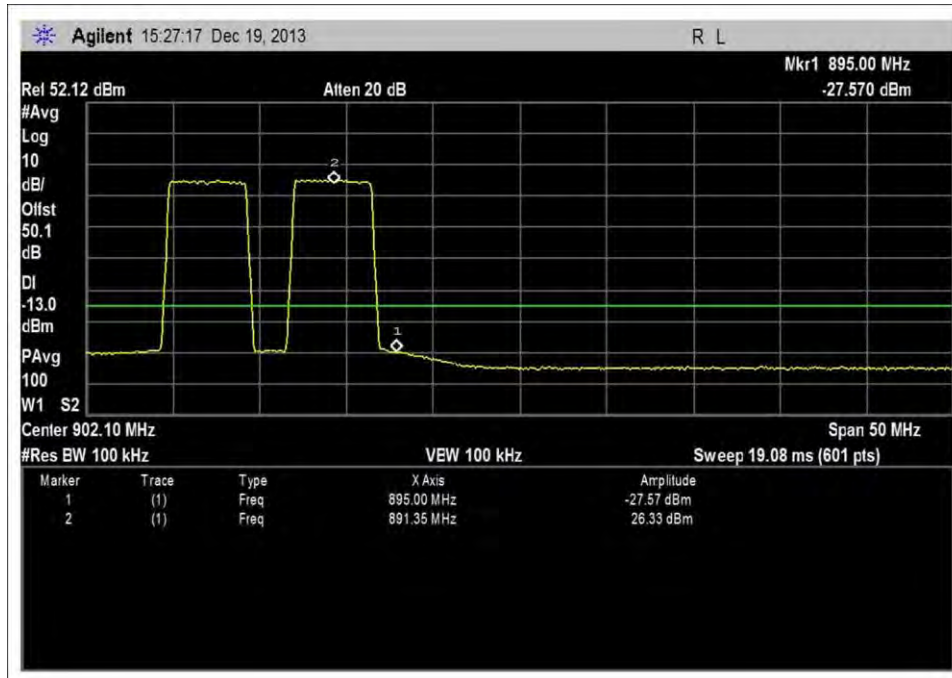
Low Channel, LTE 5MHz 51kHz



High Channel, LTE 5MHz 51kHz

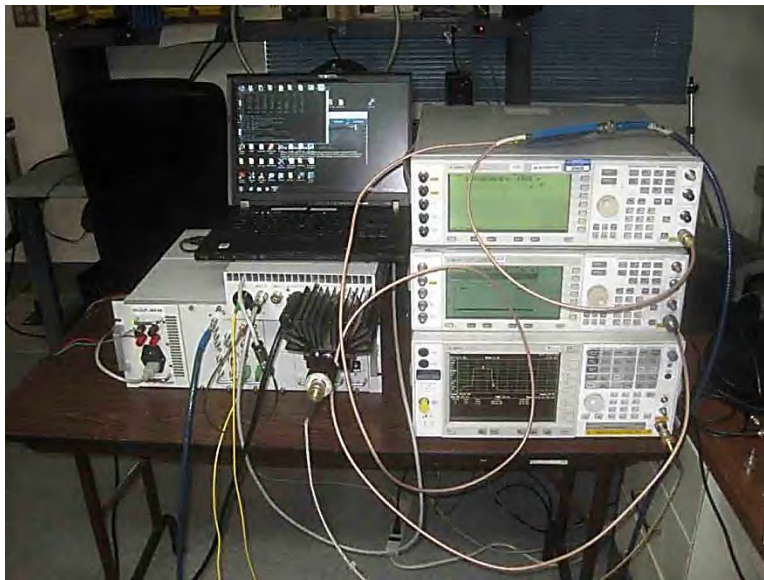


Low Channel, LTE 5MHz 100kHz



High Channel, LTE 5MHz 100kHz

Test Setup Photos



Out of Band Rejection

Test Conditions / Setup

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

Customer: **BTI Wireless**

Specification: **Out of Band Rejection Plots**

Work Order #: **95179**

Date: 12/20/2013

Test Type: **Conducted Emissions**

Time: 15:17:27

Equipment: **850MHz 40W Remote Transmitting Unit**

Sequence#: 0

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC0850-040-RUMF01

110V 60Hz

S/N: MBSC0850040RUMF01-11010002

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02945	Cable	32022-2-2909K-36TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
850MHz 40W Remote Transmitting Unit*	BTI Wireless	mBSC0850-040-RUMF01	MBSC0850040RUMF01-11010002

Support Devices:

Function	Manufacturer	Model #	S/N
Attenuator 30db Pad	Weinschel	49-30-43	KW075
50 ohm Load	Generic	NA	NA
50 ohm Load	Generic	NA	NA
RF to Fiber Optic Converter	BTI Wireless	mBSC9351-HU	mBSC9351HU-11021029
Cable	Pasternack	Sucoflex 104A	12237/4A
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 20db Pad	Weinschel	33-20-24	BJ7479

Test Conditions / Notes:

The EUT is placed on the test bench. RF to Fiber Optic Converter Tx1 In is connected to an ESG Signal generator via cable Sucoflex 104A. Fiber-1 port from the converter is connected to fiber port of EUT. ANT port of the EUT is connected to 30db attenuator and 20db attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-2909K-36TC. TX out and RX in port are terminated to 50 ohm loads. Per manufacturer, the output frequency is independent of the components used in optical converter. EUT is a Fixed Gain Amplifier with fixed output power as set by ALC (Auto Level Control) Threshold level of 1 ± 0.5 dB higher than maximum rated output power.

The evaluation is performed at the antenna port.

Freq: 869-894MHz

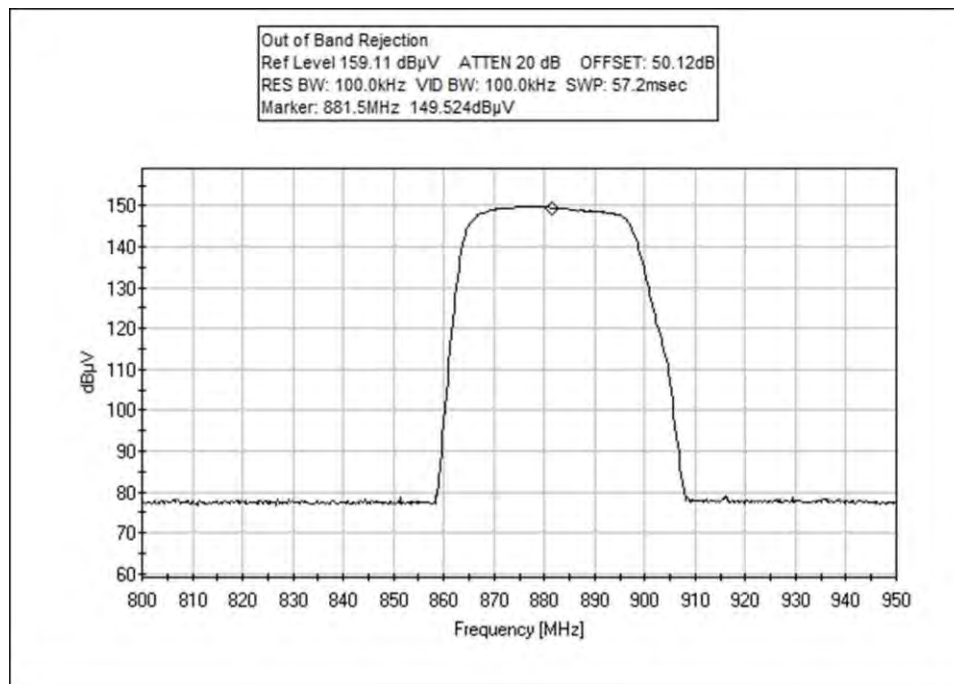
Max Output Power : 40 W

Signal generator is set to sweep from 800 – 950 MHz

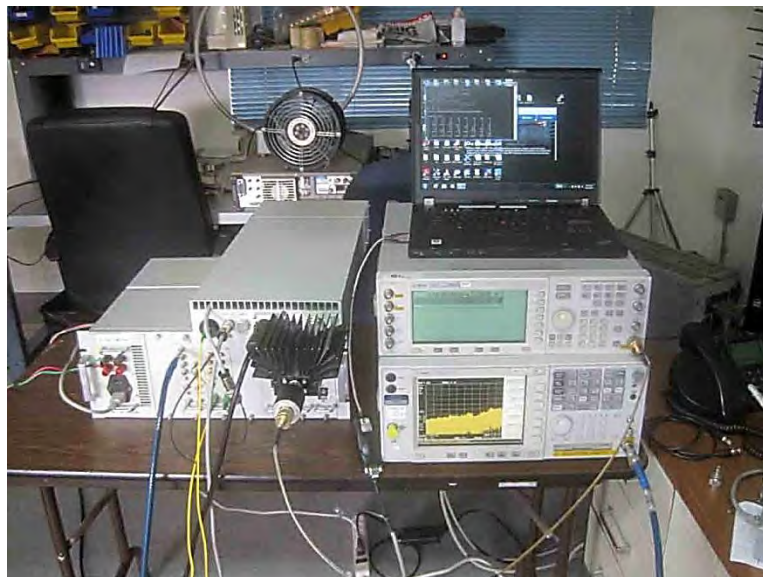
19°C, 63% Relative Humidity

Site D

Test Data



Test Setup Photos



SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k=2$. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBμV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBμV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.