

BTI Wireless

TEST REPORT FOR

**1900MHz 40W Transmitting Remote Unit
Model: mBSC1900-040-RUSSF01**

Tested To The Following Standards:

FCC Part 24E

Report No.: 95157-5

Date of issue: December 17, 2013



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

REPORT PREPARED BY:

Morgan Tramontin
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

REPRESENTATIVE: Raymond Shin
Customer Reference Number: 9913650

Project Number: 95157

DATE OF EQUIPMENT RECEIPT:

November 21, 2013

DATE(S) OF TESTING:

November 21 – December 3, 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 A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147
Brea D	US0060	SL2-IN-E-1146R	3082D-2	100638	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Parts 24E

Description	Test Procedure/Method	Results
RF Power Output	FCC Part 24E § 22.232(a) / 2.1046	Pass
Occupied Bandwidth	FCC Part 24E / 2.1049(I)	Pass
Spurious Emissions at Antenna Terminal	FCC Part 24E § 24.238(a) / 2.1051	Pass
Field Strength of Spurious Radiation	FCC Part 24E § 24.236 & 24.238/ 2.1053	Pass
Band Edge		Pass
Intermodulation		Pass
Out of Band Rejection		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)

The following model has been tested by CKC Laboratories:

1900MHz 40W Transmitting Remote Unit, mBSC1900-040-RUSSF01

The manufacturer states that the following additional model is identical electrically to the one which was tested, or any differences between them does not affect their EMC characteristics, and therefore It meets the level of testing equivalent to the tested model:

1900MHz 40W Transmitting Remote Unit, mBSC1900-040-RU

EQUIPMENT UNDER TEST

1900MHz 40W Transmitting Remote Unit

Manuf: BTI Wireless

Model: mBSC1900-040-RUSSF01

Serial: 10935304010113111101

PERIPHERAL DEVICES

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

ESG Vector Signal Generator

Manuf: Agilent

Model: 4438C

Serial: MY45091601

Attenuator 30db Pad

Manuf: Weinschel

Model: 49-30-43

Serial: KW075

Step Attenuator 110dB pad

Manuf: HP

Model: 8496B

Serial: 1350A01241

50 ohm Load

Manuf: Generic

Model: NA

Serial: NA

Cable

Manuf: Pasternack

Model: Sucoflex 104A

Serial: 12237/4A

FCC PARTS 24E

2.1046 RF Power Output

Test Data

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

Customer: **BTI Wireless**

Specification: **RF Output Power**

Work Order #: **95157**

Date: 11/22/2013

Test Type: **Conducted Emissions**

Time: 14:18:02

Equipment: **1900MHz 40W Transmitting Remote Unit**

Sequence#: 4

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC1900-040-RUSSF01

110V 60Hz

S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Cable	Pasternack	Sucoflex 104A	12237/4A

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to an ESG Signal generator via cable Sucoflex 104A. ANT port is connected to 30db attenuator and 110db step attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port .

Freq: 1930-1990MHz

Signal protocol: GSM, EDGE, CDMA (IS95A), UMTS (WCDMA_3GPP), LTE-TM1.1 1.4MHz, 5MHz, 20MHz

22°C, 45% Relative Humidity

Site A

§24.232 Power and antenna height limit:

(a)(2): Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT

40W

Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
1932.04MHz	-11.22	1.2	-12.42	46.02	39.99447498
1960.00MHz	-12.04	1.2	-13.24	46.03	40.08667176
1987.96MHz	-11.36	1.2	-12.56	45.99	39.71915495
EDGE					
1932.04MHz	-11.24	1.2	-12.44	45.92	39.08408958
1960.00MHz	-11.24	1.2	-12.44	46	39.81071706
1987.96MHz	-11.12	1.2	-12.32	46.06	40.3645393
CDMA (IS95A)					
1932.5MHz	-11.08	1.2	-12.28	46.02	39.99447498
1960.00MHz	-11.44	1.2	-12.64	46.04	40.17908108
1987.5MHz	-11.02	1.2	-12.22	45.99	39.71915495
UMTS (WCDMA 3GPP)					
1933.9MHz	-11.2	1.2	-12.4	46.02	39.99447498
1960.00MHz	-11.62	1.2	-12.82	46	39.81071706
1986.1MHz	-11.14	1.2	-12.34	46.01	39.90249024
LTE 1.4MHz					

1932.40MHz	-11.14	1.2	-12.34	45.99	39.71915495
1960.00MHz	-11.62	1.2	-12.82	46.05	40.27170343
1987.75MHz	-11.02	1.2	-12.22	46.02	39.99447498
LTE 5MHz					
1934.05MHz	-11.3	1.2	-12.5	46.02	39.99447498
1960.00MHz	-11.78	1.2	-12.98	46	39.81071706
1986.11MHz	-11.24	1.2	-12.44	46	39.81071706
LTE 20MHz					
1941.2MHz	-11.76	1.2	-12.96	46	39.81071706
1960.00MHz	-11.76	1.2	-12.96	46.05	40.27170343
1979.5MHz	-11.52	1.2	-12.72	46.01	39.90249024

20W

Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
1932.04MHz	-12.89	1.2	-14.09	42.99	19.90673339
1960.00MHz	-13.04	1.2	-14.24	43.03	20.09092813
1987.96MHz	-13.46	1.2	-14.66	43.04	20.1372425
EDGE					
1932.04MHz	-8.42	1.2	-9.62	42.73	18.74994508
1960.00MHz	-8.02	1.2	-9.22	42.71	18.66379691
1987.96MHz	-7.86	1.2	-9.06	42.71	18.66379691
CDMA (IS95A)					
1932.5MHz	-11.22	1.2	-12.42	43.05	20.18366364
1960.00MHz	-11.34	1.2	-12.54	43.04	20.1372425
1987.5MHz	-10.6	1.2	-11.8	43.04	20.1372425
UMTS (WCDMA 3GPP)					
1933.9MHz	-12.76	1.2	-13.96	43.01	19.9986187
1960.00MHz	-14.18	1.2	-15.38	43.01	19.9986187
1986.1MHz	-13.62	1.2	-14.82	43	19.95262315

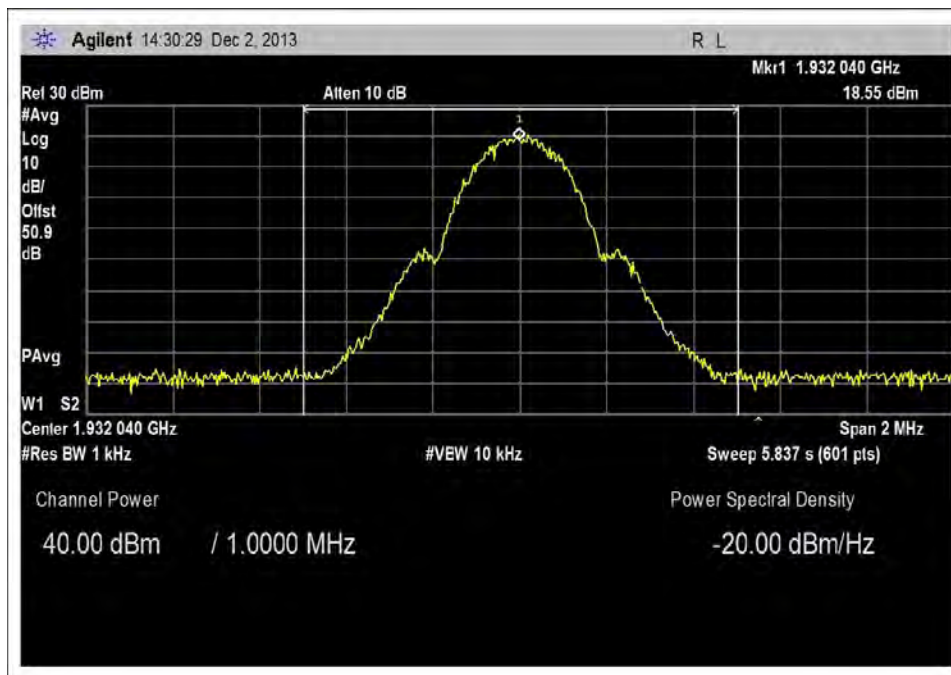
LTE 1.4MHz					
1932.40MHz	-13.34	1.2	-14.54	43.01	19.9986187
1960.00MHz	-13.34	1.2	-14.54	42.98	19.86094917
1987.75MHz	-12.66	1.2	-13.86	42.99	19.90673339
LTE 5MHz					
1934.05MHz	-13.82	1.2	-15.02	43	19.95262315
1960.00MHz	-14.4	1.2	-15.6	42.99	19.90673339
1986.11MHz	-13.78	1.2	-14.98	43	19.95262315
LTE 20MHz					
1941.2MHz	-14.38	1.2	-15.58	42.99	19.90673339
1960.00MHz	-14.38	1.2	-15.58	43.04	20.1372425
1979.5MHz	-14.12	1.2	-15.32	43.01	19.9986187

10W

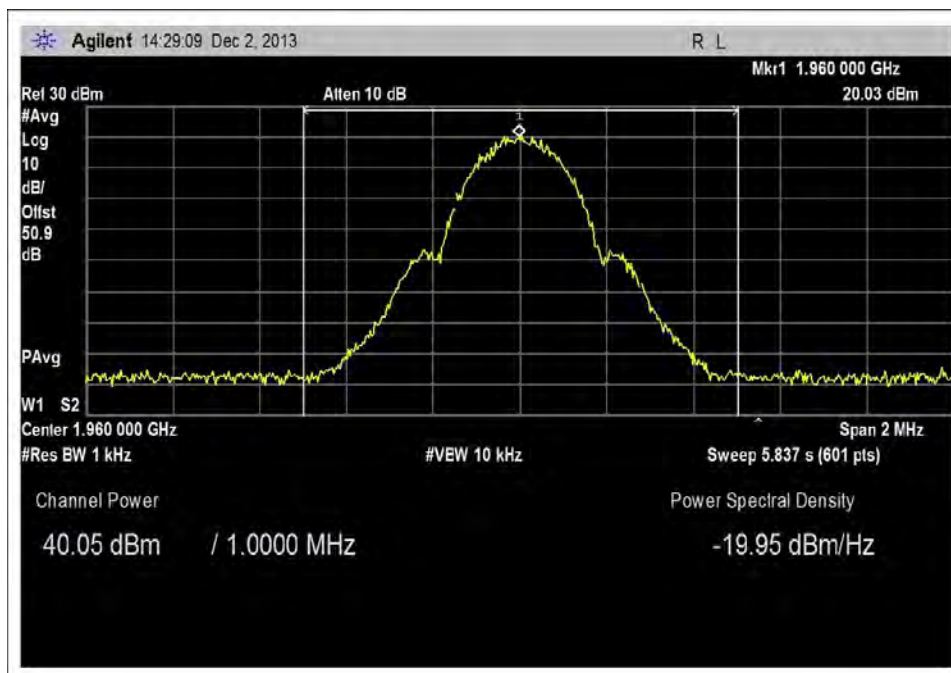
Modulation	Signal Generator Output Power (dbm)	Cable Loss (db)	Input Power (dbm)	Measured Output Power (dbm)	Measured Output Power (W)
GSM					
1932.04MHz	-16.9	1.2	-18.1	40	10
1960.00MHz	-17.64	1.2	-18.84	40.05	10.11579454
1987.96MHz	-16.94	1.2	-18.14	40.03	10.06931669
EDGE					
1932.04MHz	-17.3	1.2	-18.5	39.6	9.120108394
1960.00MHz	-17.3	1.2	-18.5	39.88	9.727472238
1987.96MHz	-17.04	1.2	-18.24	39.88	9.727472238
CDMA (IS95A)					
1932.5MHz	-16.86	1.2	-18.06	39.98	9.954054174
1960.00MHz	-17.02	1.2	-18.22	39.99	9.977000638
1987.5MHz	-16.92	1.2	-18.12	39.96	9.908319449
UMTS (WCDMA 3GPP)					
1933.9MHz	-17.04	1.2	-18.24	40.01	10.02305238
1960.00MHz	-17.62	1.2	-18.82	40	10
1986.1MHz	-16.9	1.2	-18.1	40.05	10.11579454

LTE 1.4MHz					
1932.40MHz	-17.02	1.2	-18.22	39.97	9.931160484
1960.00MHz	-17.02	1.2	-18.22	40.01	10.02305238
1987.75MHz	-16.82	1.2	-18.02	40.01	10.02305238
LTE 5MHz					
1934.05MHz	-17	1.2	-18.2	40.05	10.11579454
1960.00MHz	-17.6	1.2	-18.8	40.04	10.09252886
1986.11MHz	-17	1.2	-18.2	40.01	10.02305238
LTE 20MHz					
1941.2MHz	-17.62	1.2	-18.82	40	10
1960.00MHz	-17.62	1.2	-18.82	40.03	10.06931669
1979.5MHz	-17.48	1.2	-18.68	40.02	10.0461579

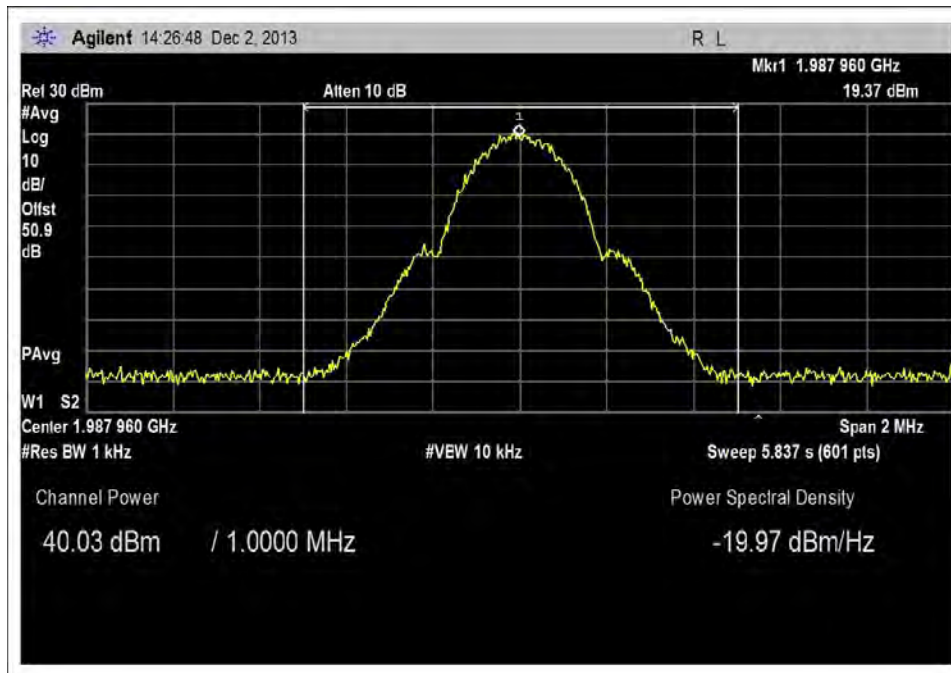
Test Plots



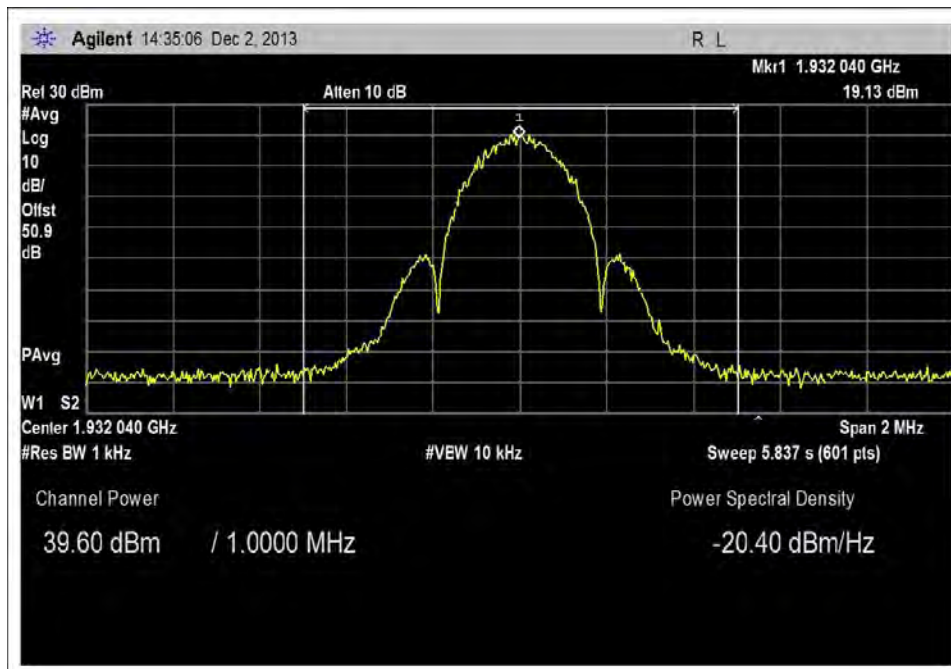
10W, GSM - Low



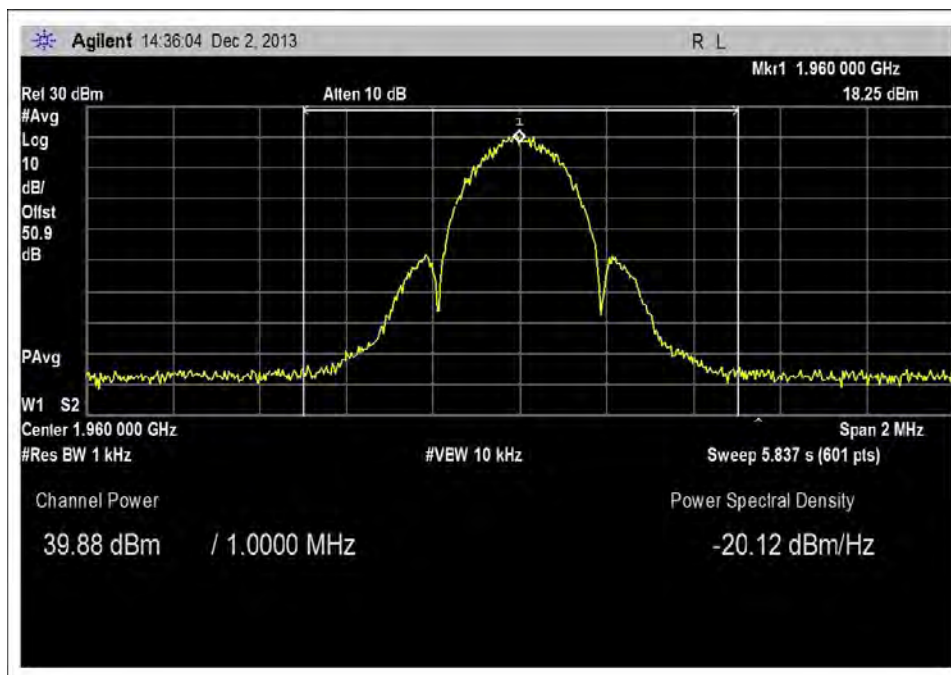
10W, GSM - Middle



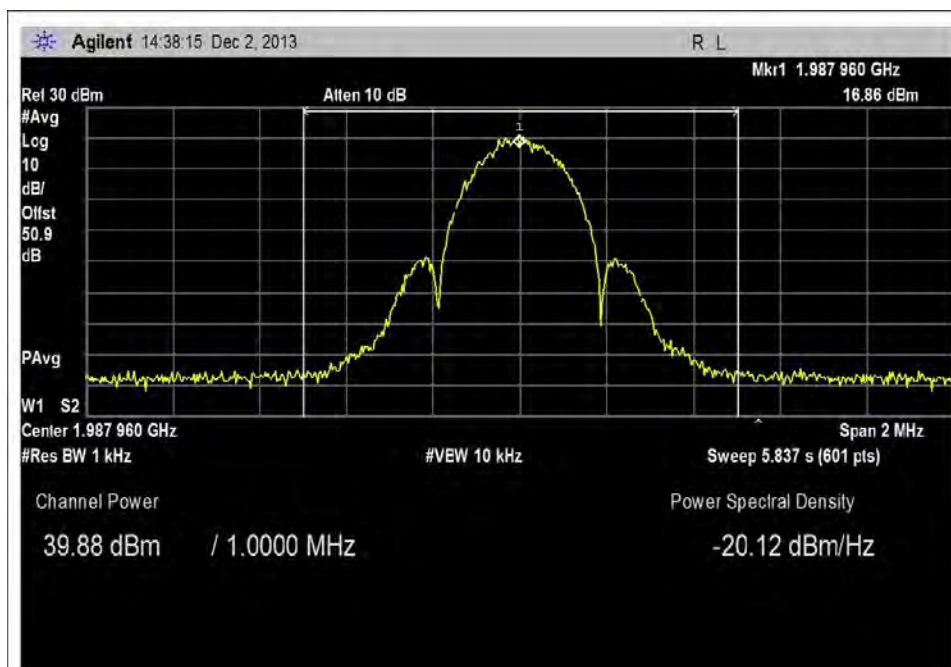
10W, GSM - High



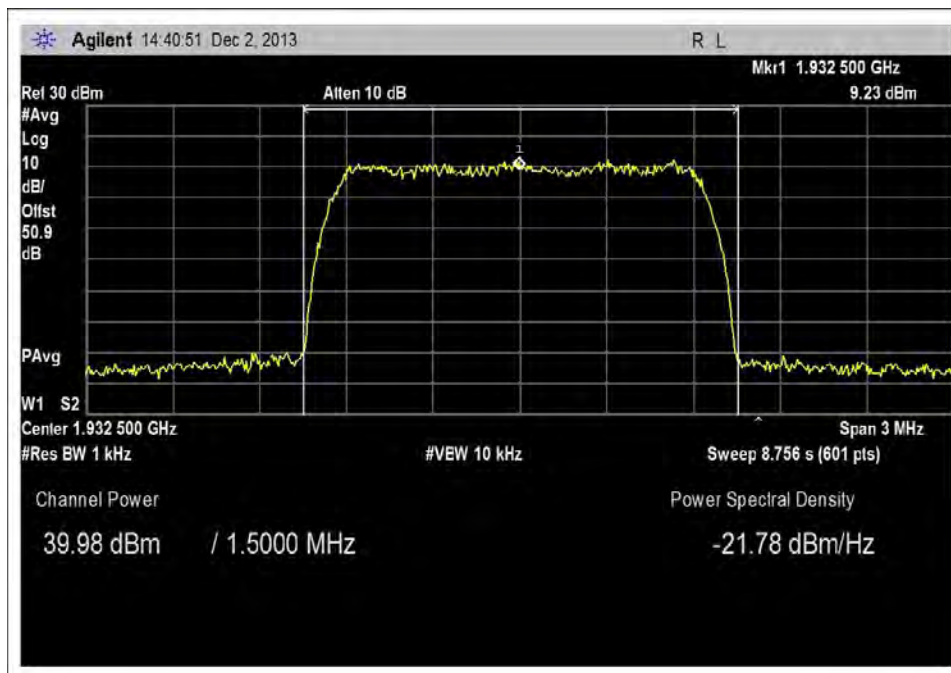
10W, EDGE - Low



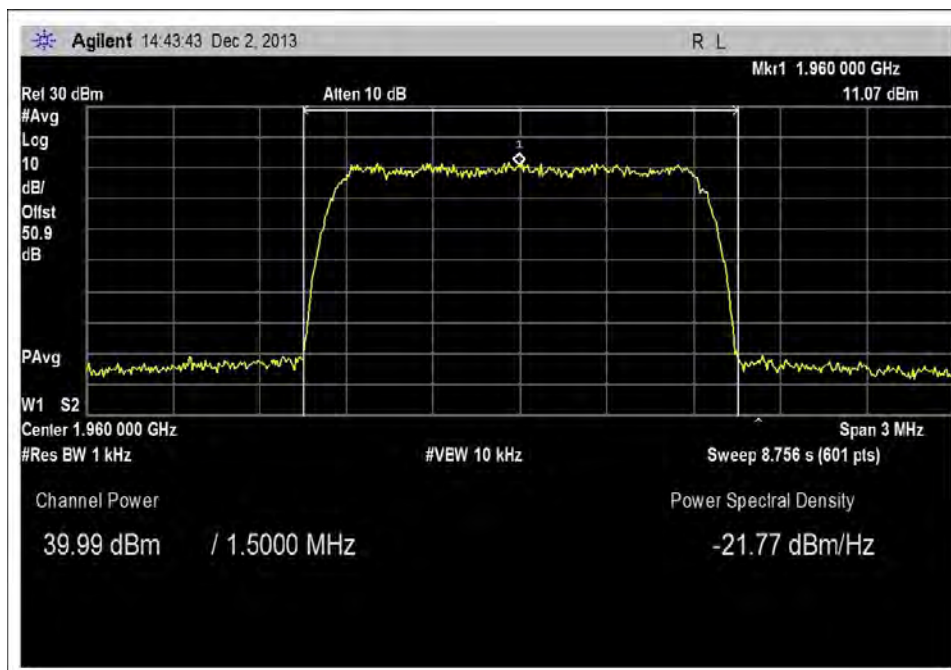
10W, EDGE - Middle



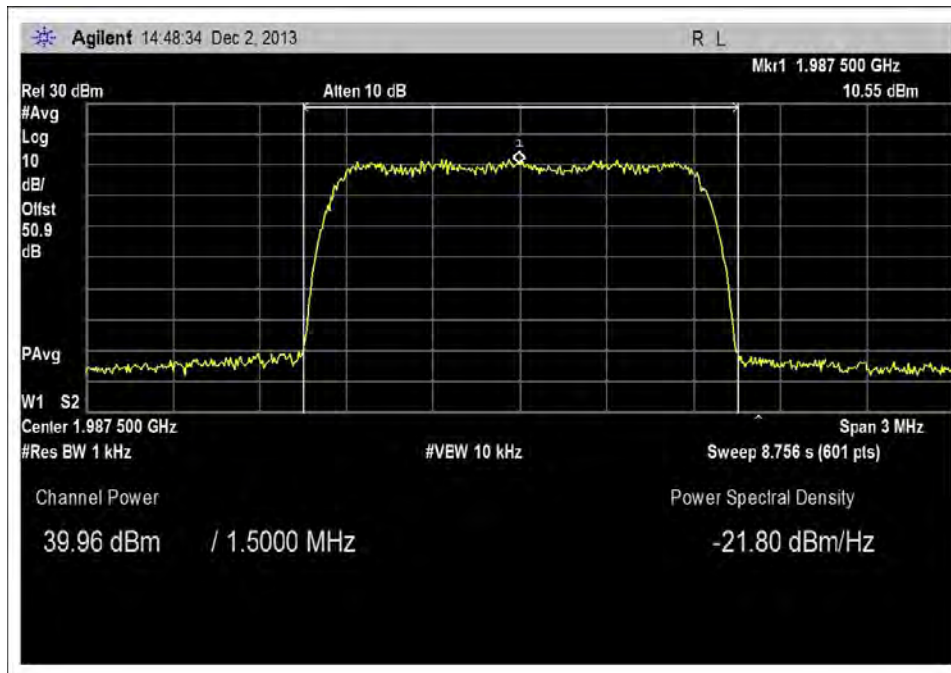
10W, EDGE - High



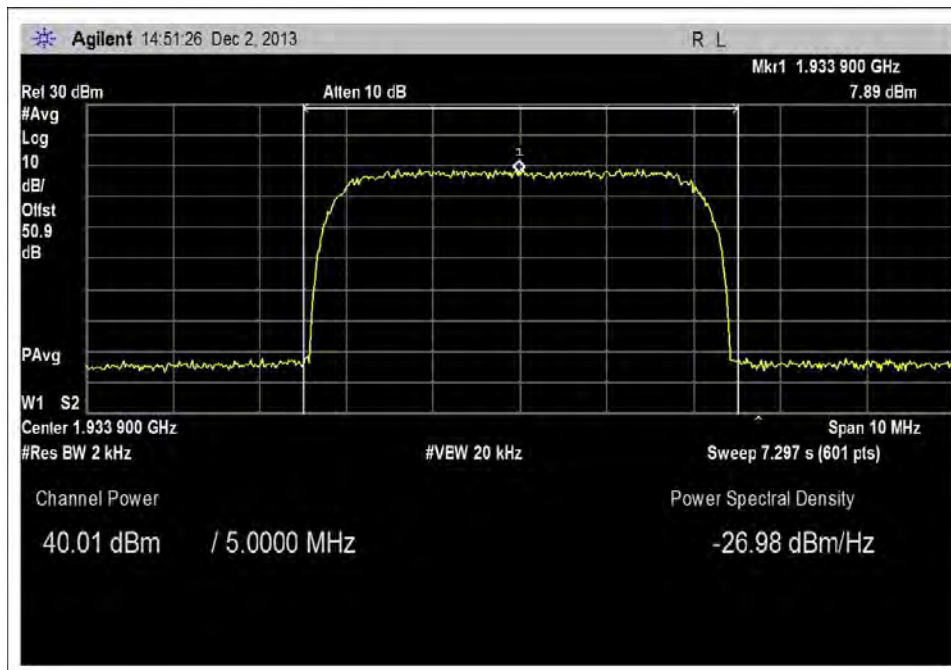
10W, CDMA IS95A - Low



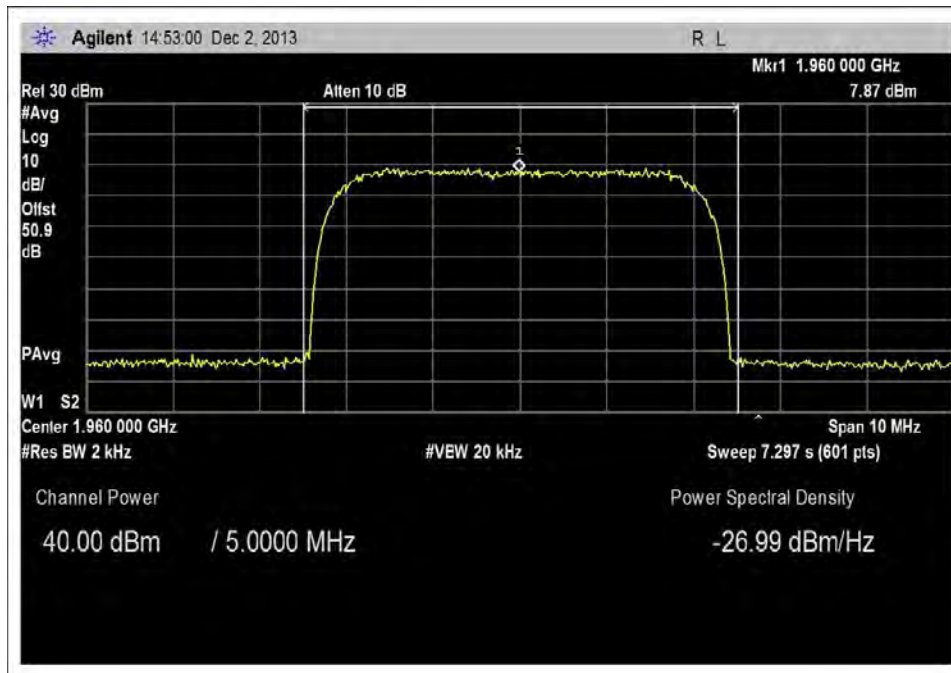
10W, CDMA IS95A - Middle



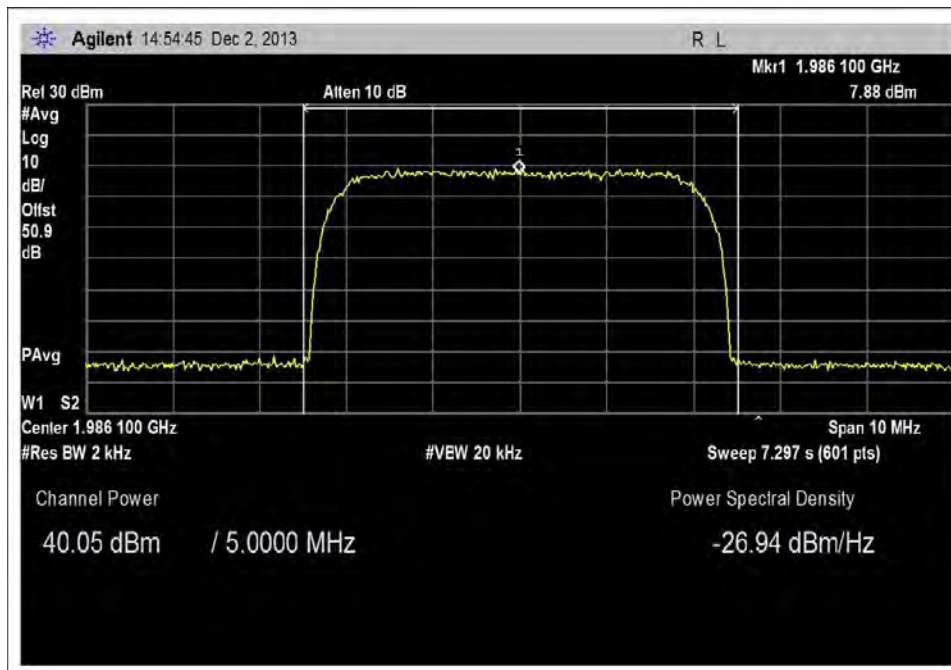
10W, CDMA IS95A - High



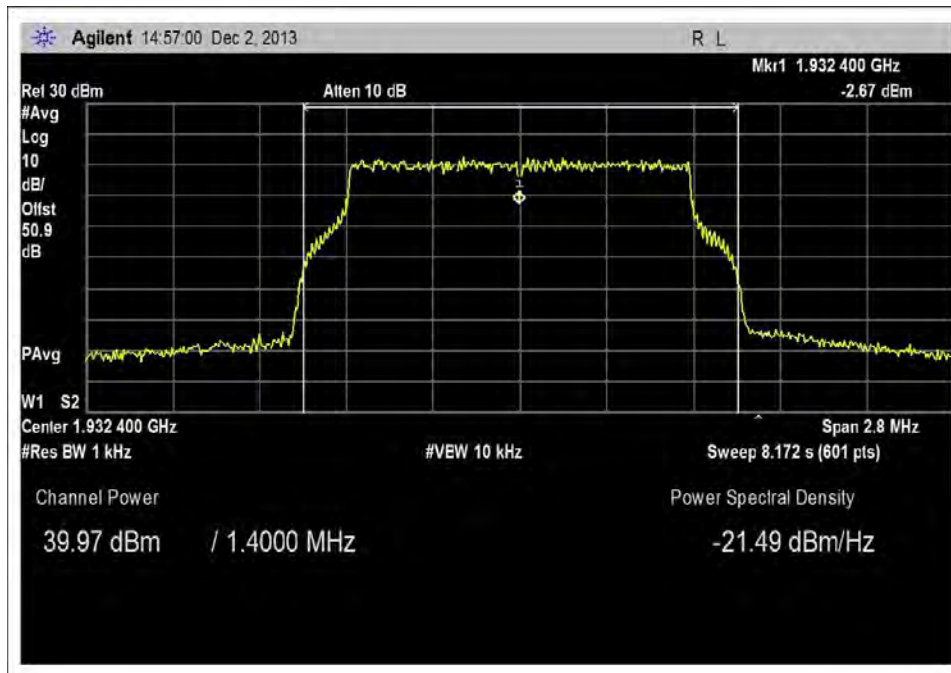
10W, WCDMA - Low



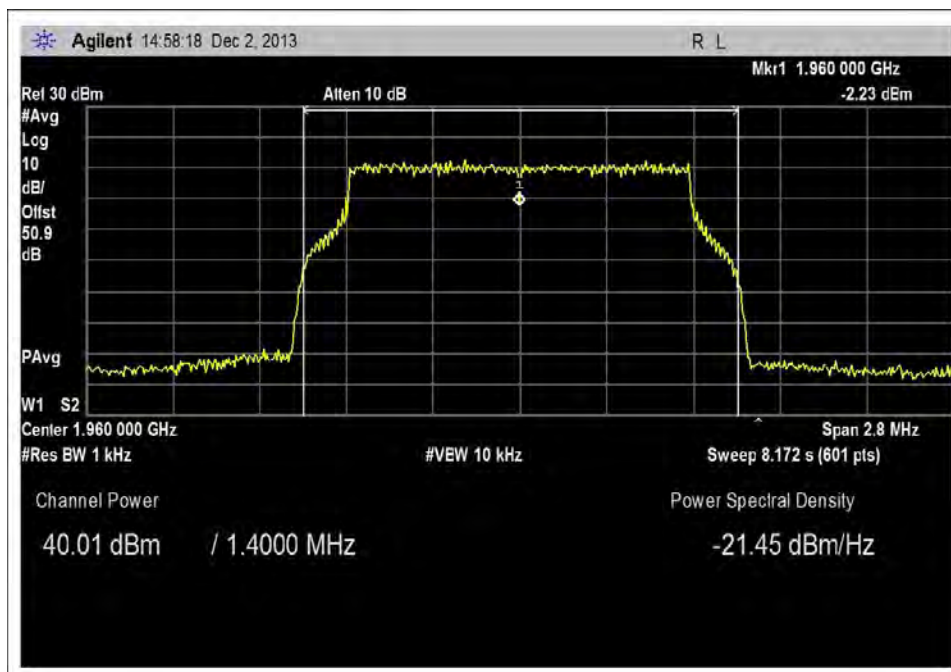
10W, WCDMA - Middle



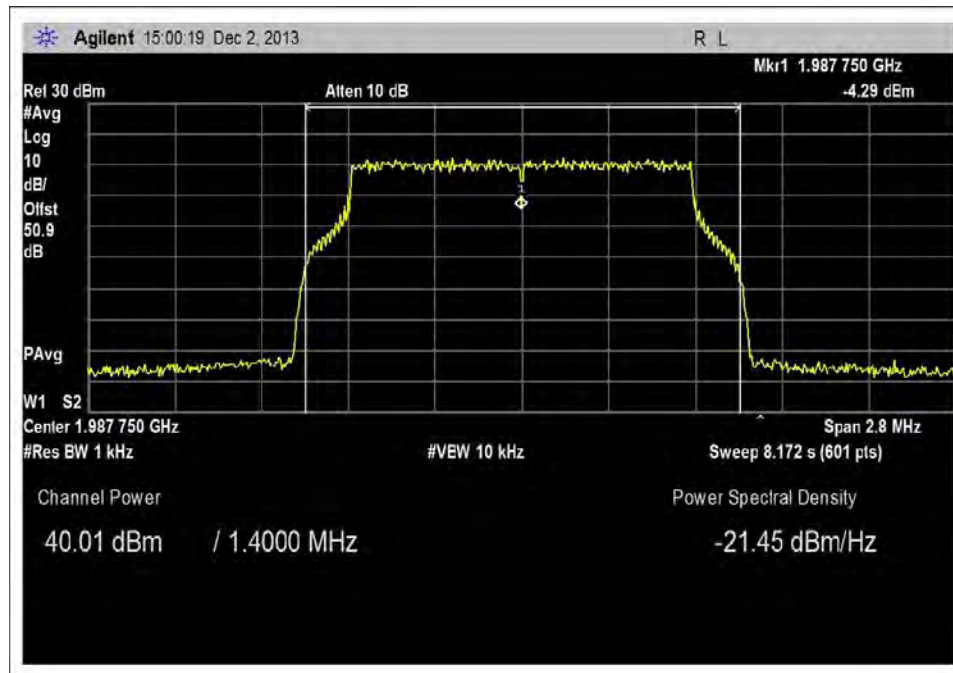
10W, WCDMA - High



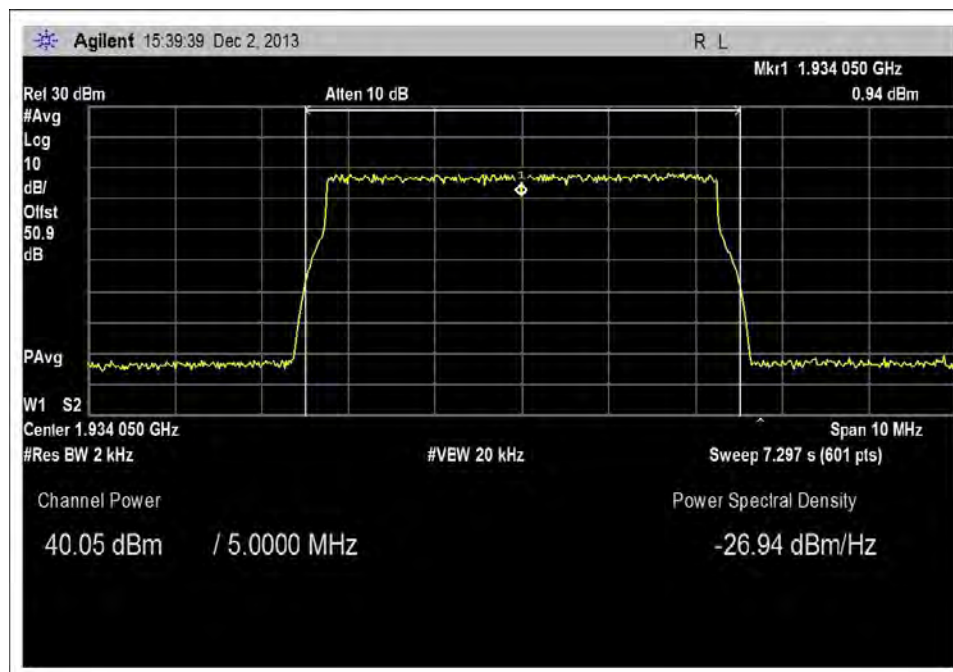
10W, LTE 1.4MHz - Low



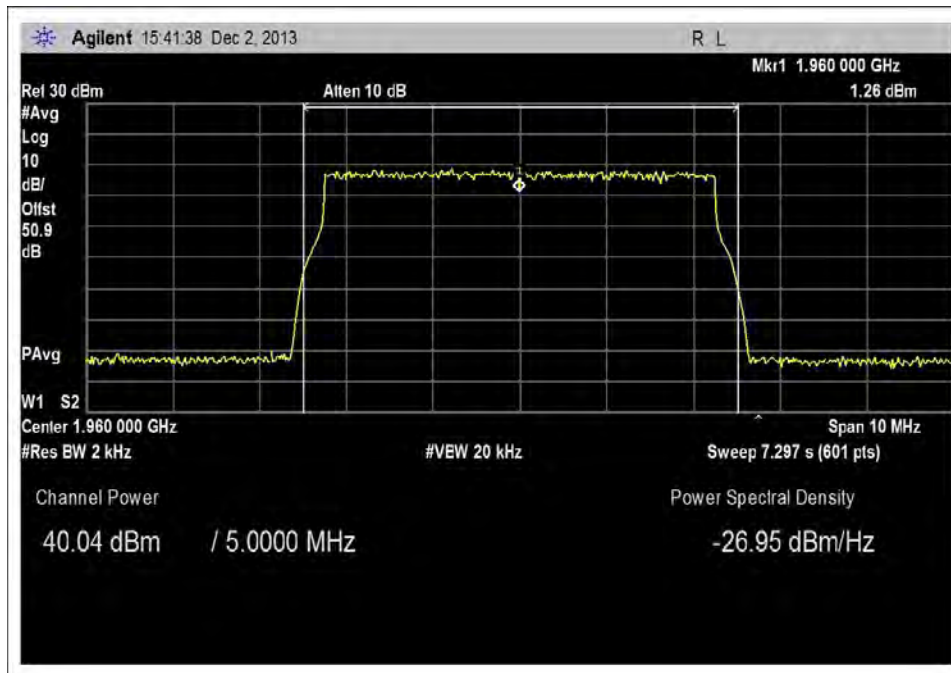
10W, LTE 1.4MHz - Middle



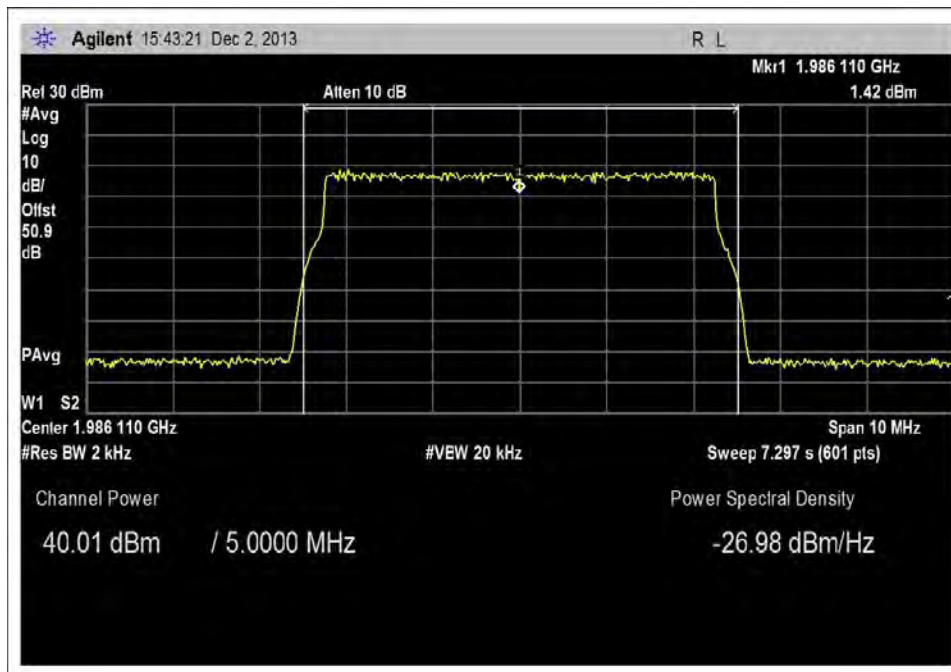
10W, LTE 1.4MHz - High



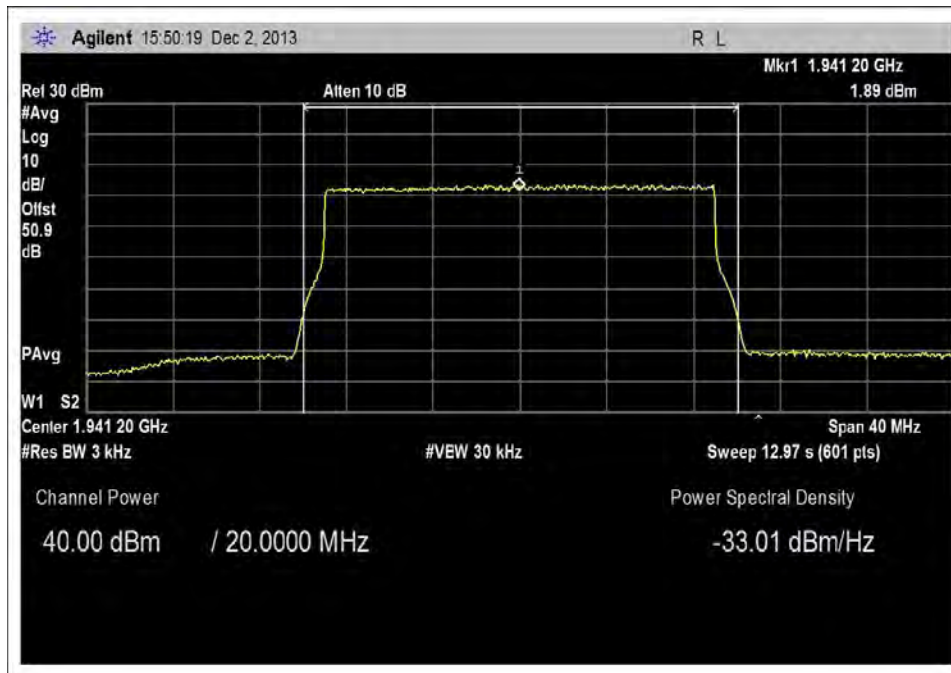
10W, LTE 5MHz - Low



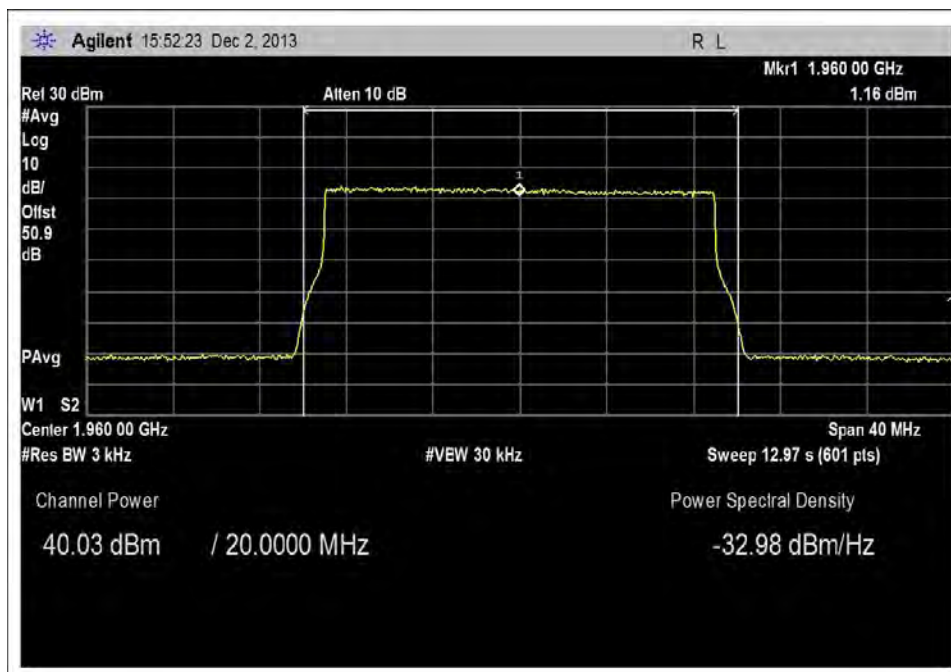
10W, LTE 5MHz - Middle



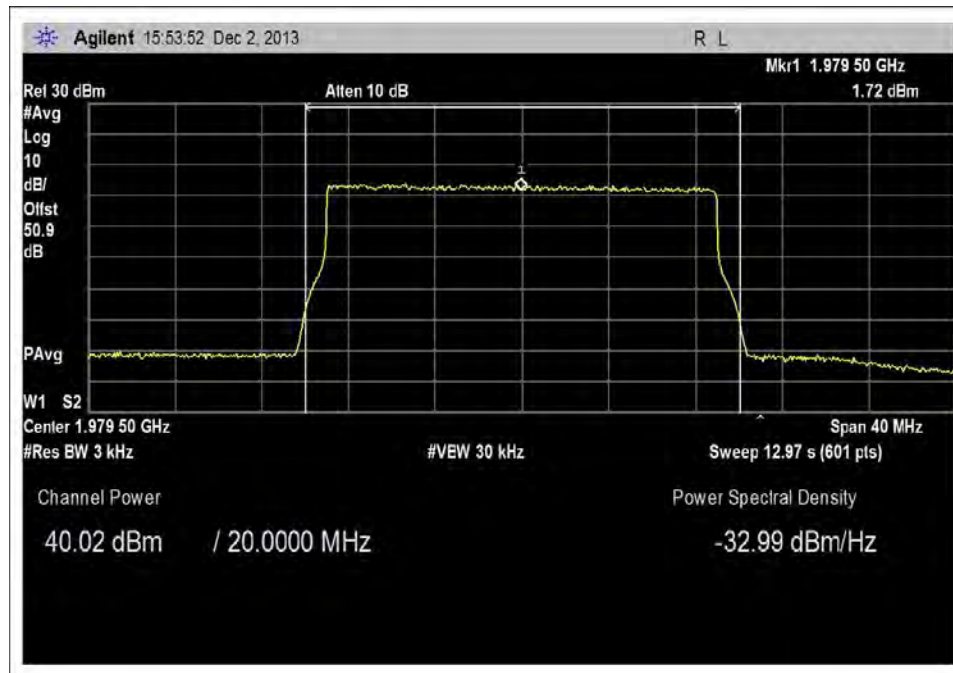
10W, LTE 5MHz - High



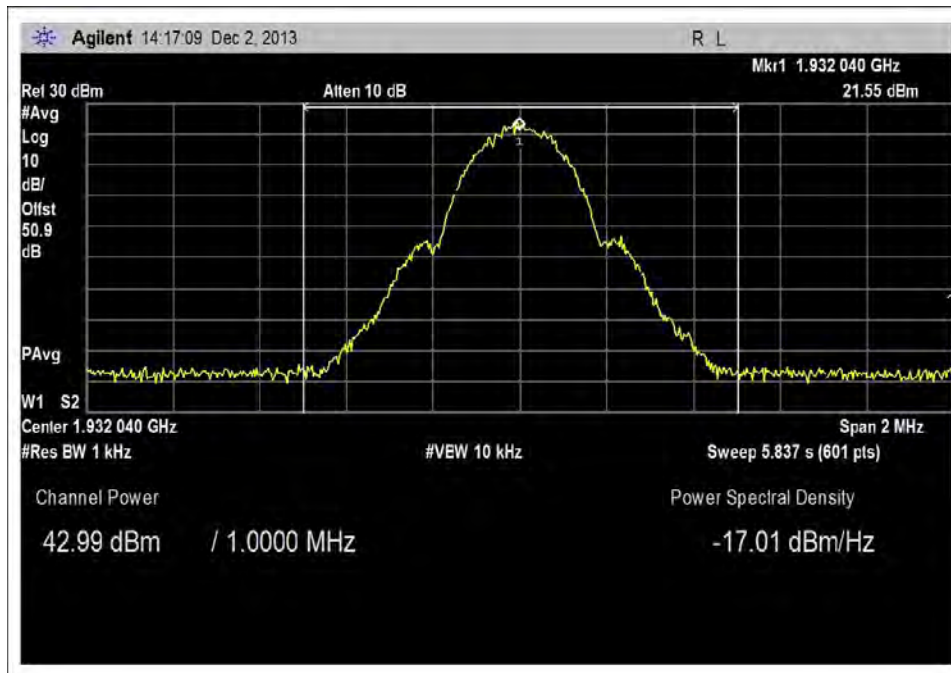
10W, LTE 20MHz - Low



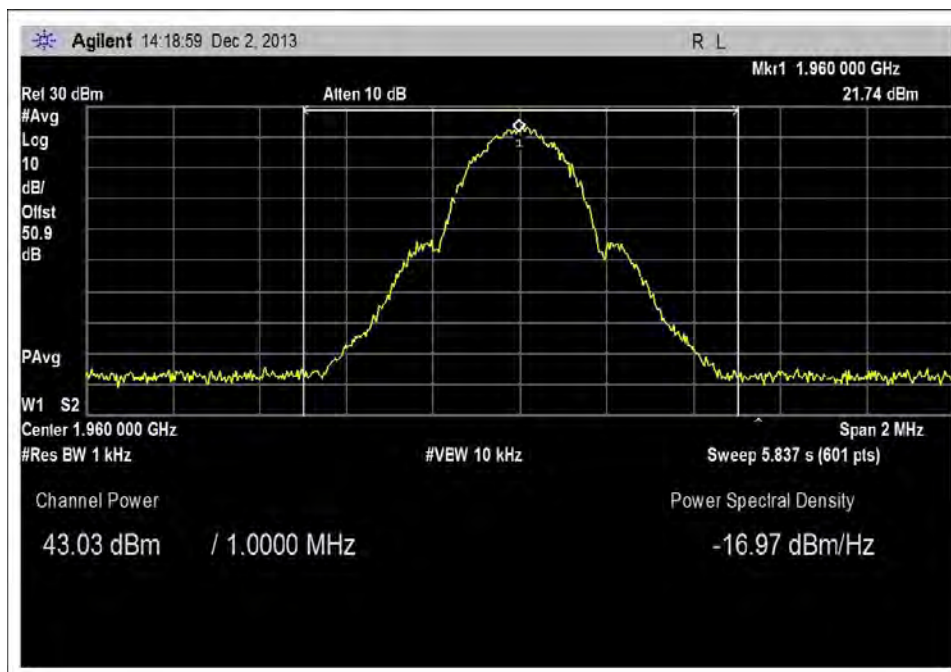
10W, LTE 20MHz - Middle



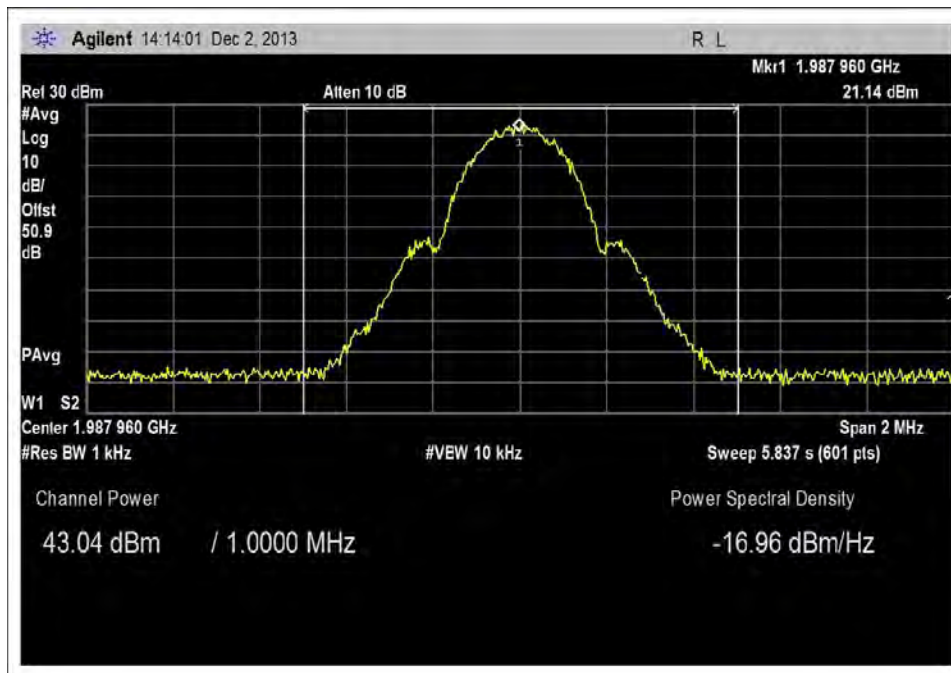
10W, LTE 20MHz - High



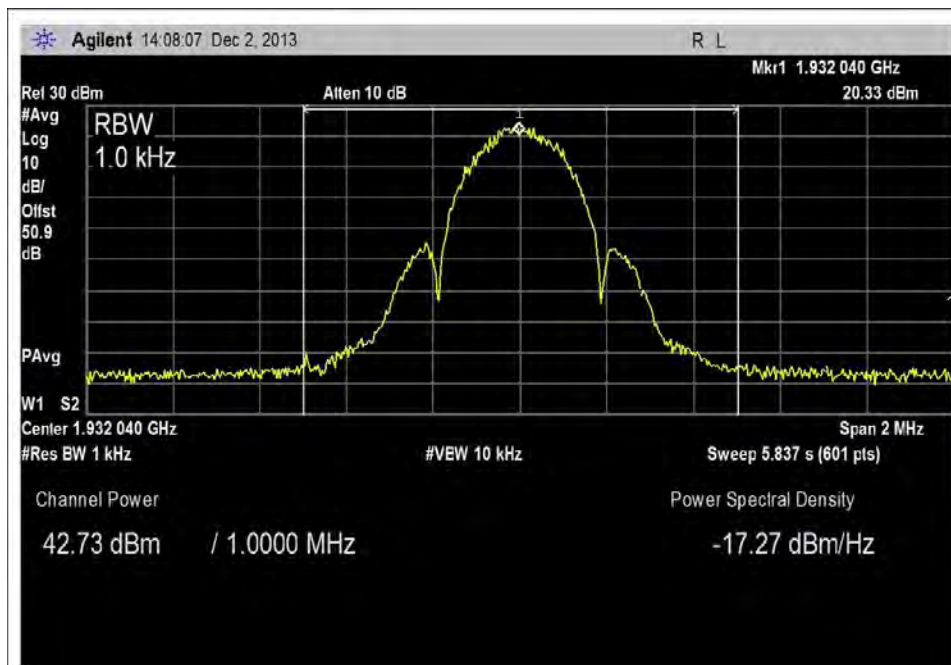
20W, GSM - Low



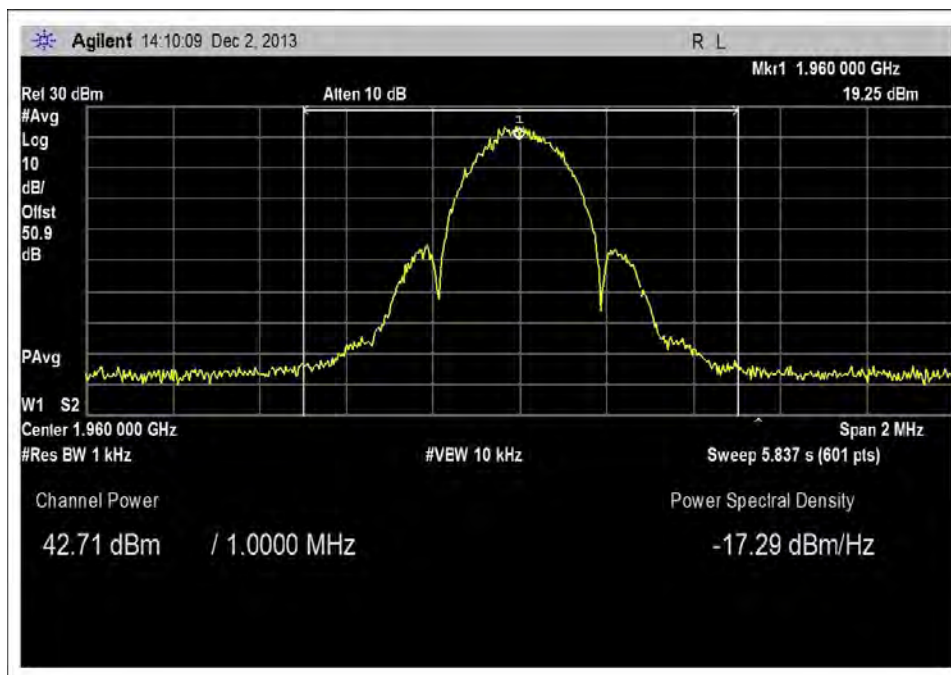
20W, GSM - Middle



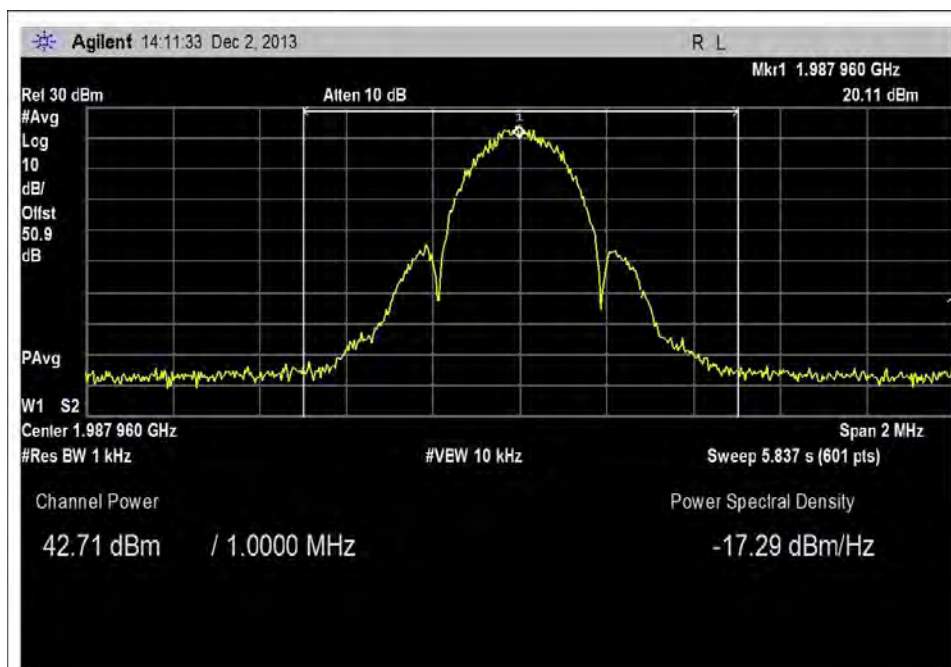
20W, GSM 1MHz - High



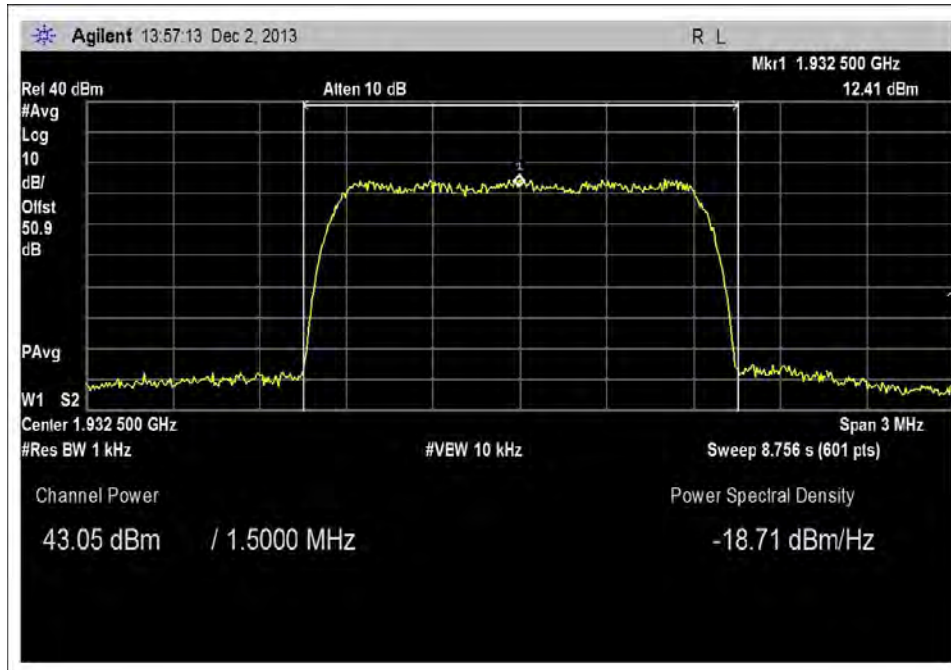
20W, EDGE - Low



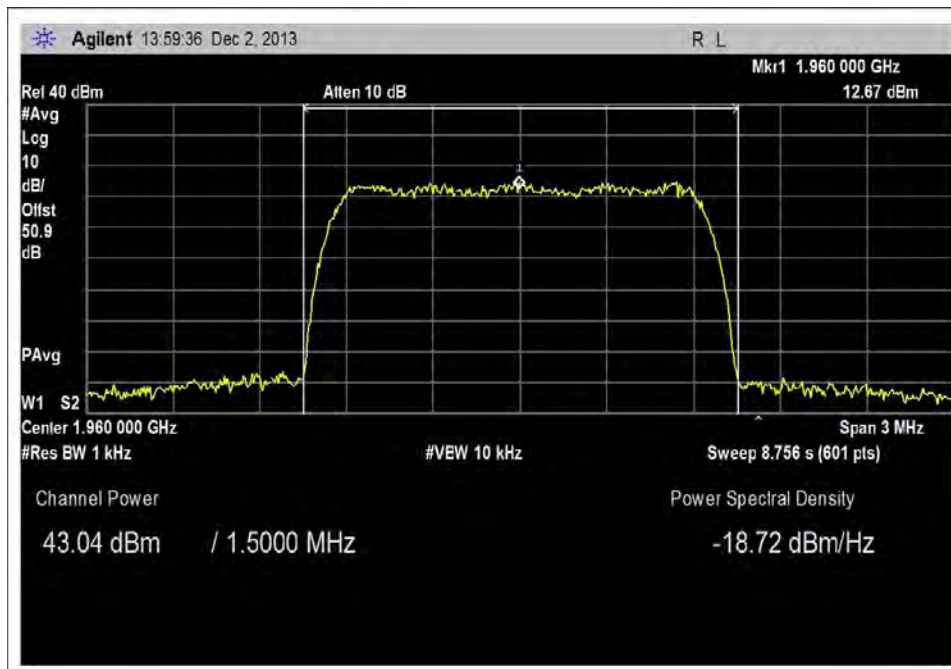
20W, EDGE - Middle



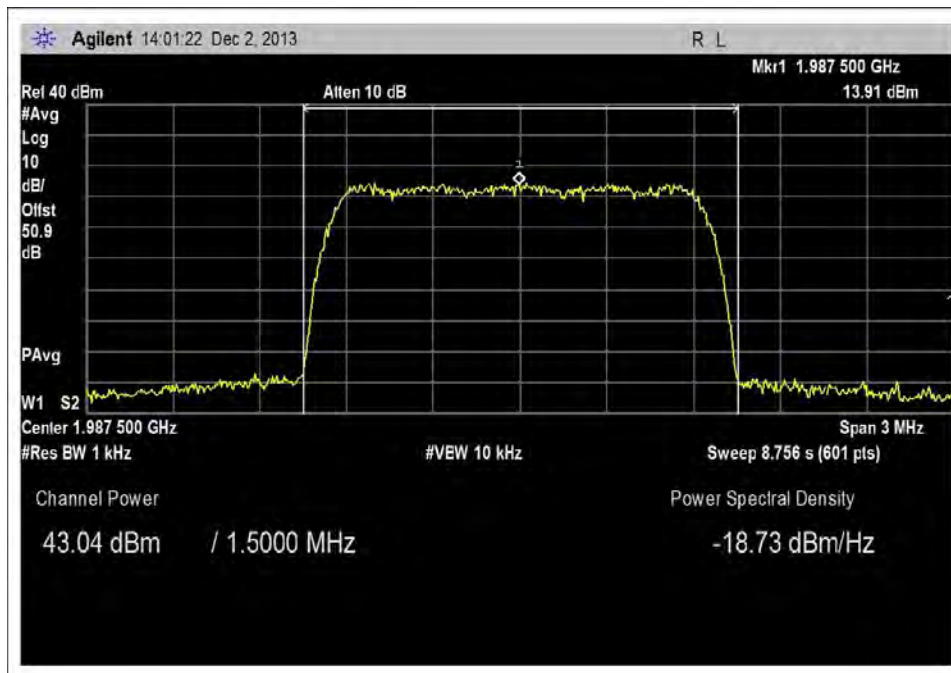
20W, EDGE – High



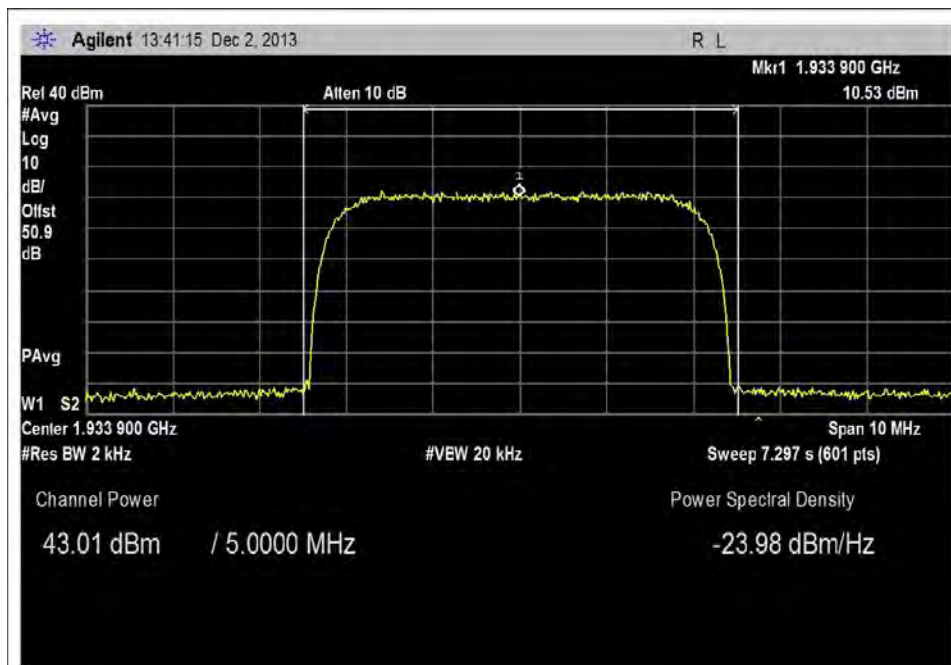
20W, CDMA IS95A - Low



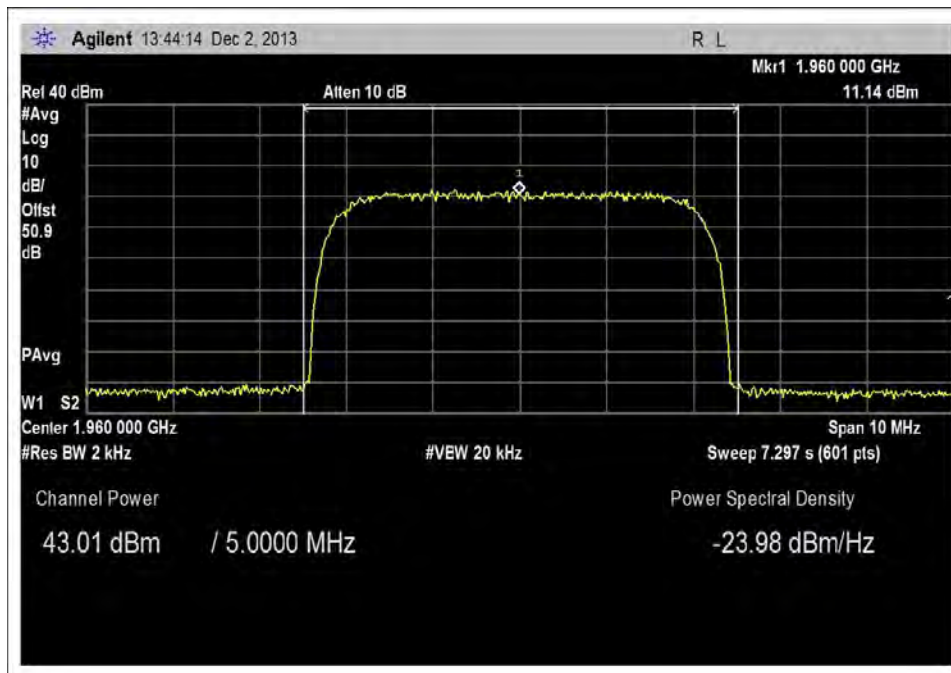
20W, CDMA IS95A - Middle



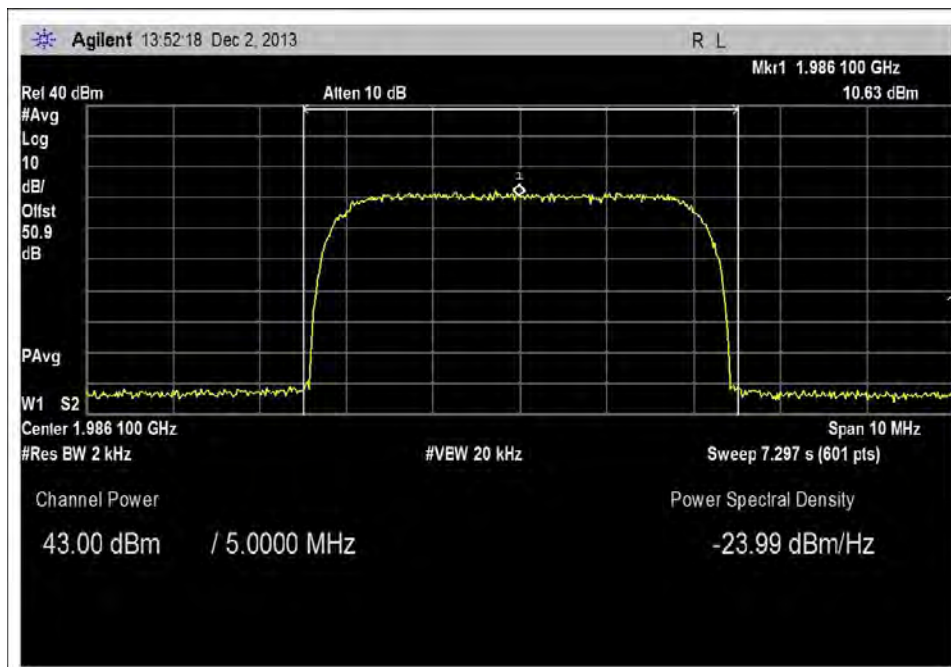
20W, CDMA IS95A - High



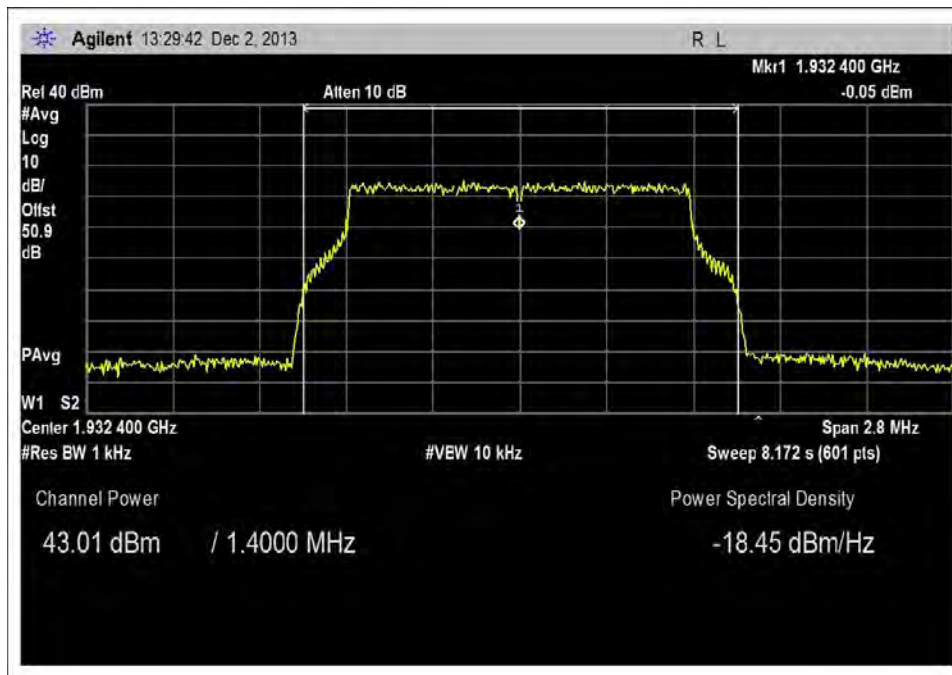
20W, WCDMA - Low



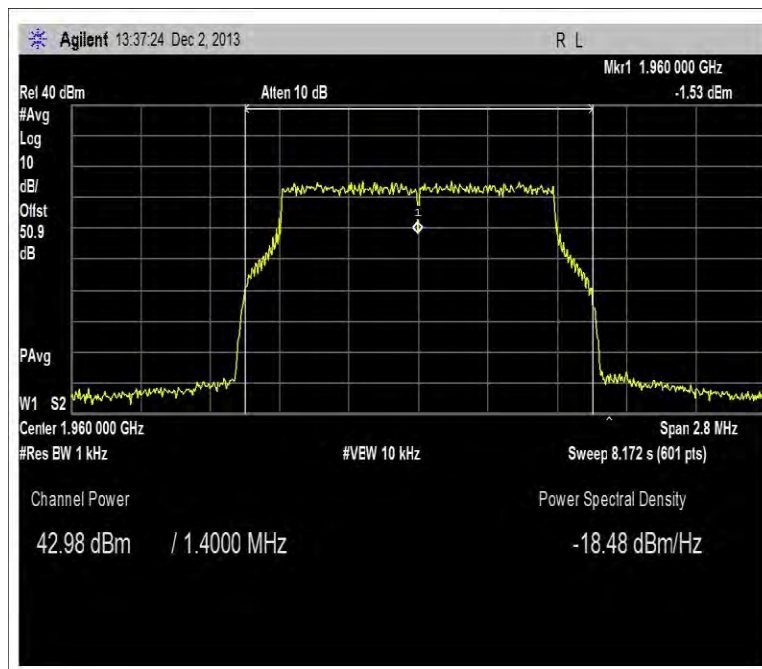
20W, WCDMA - Middle



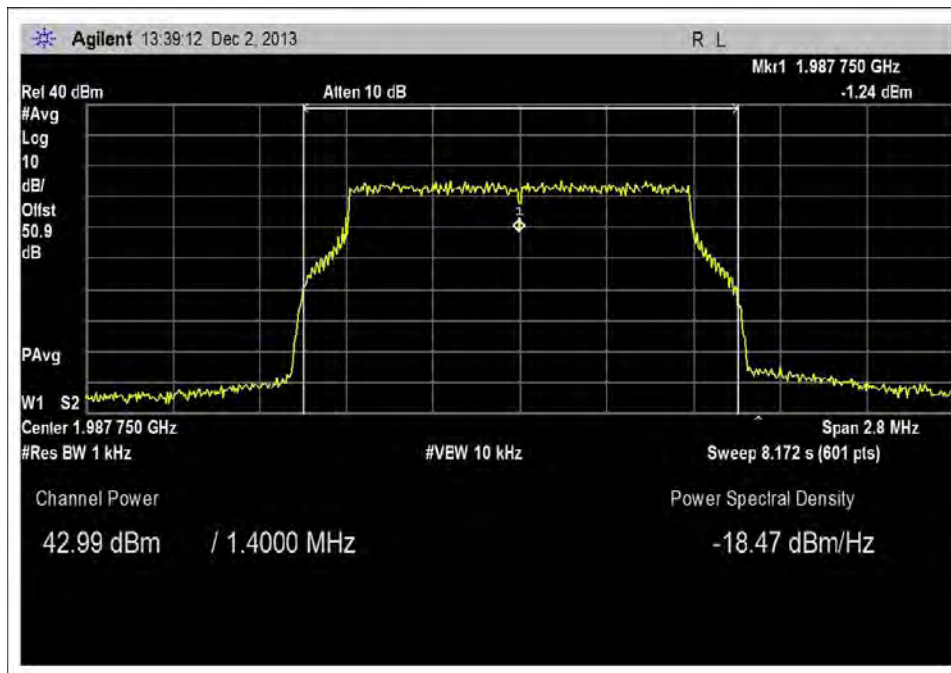
20W, WCDMA - High



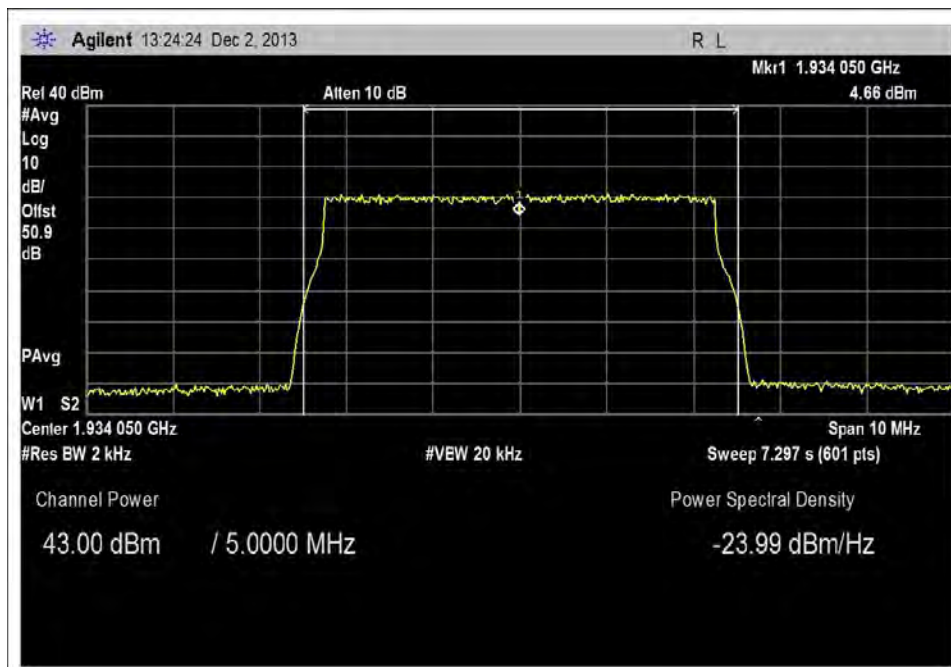
20W, LTE 1.4MHz - Low



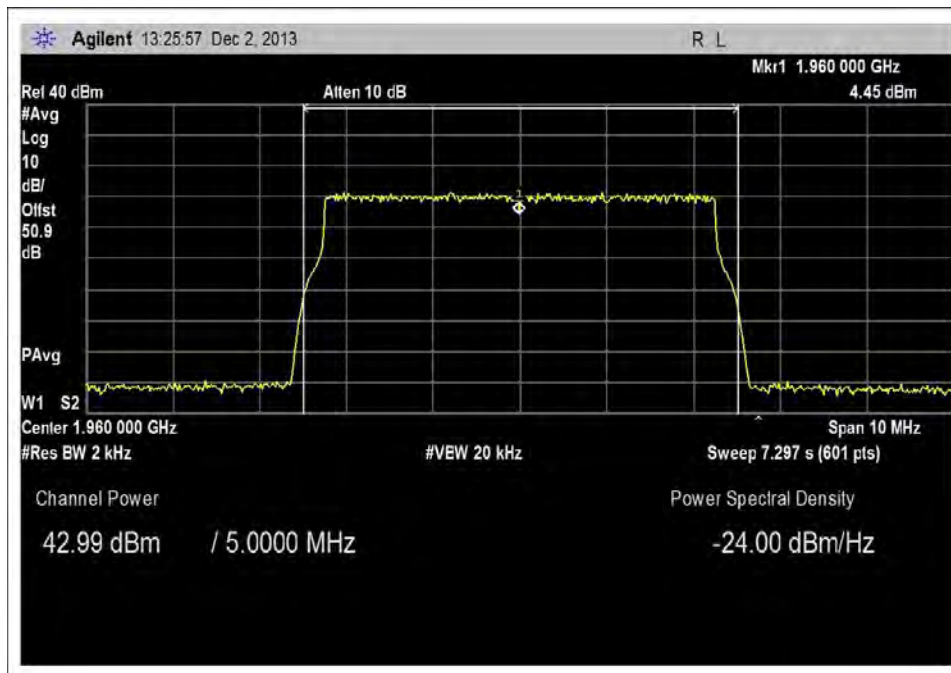
20W, LTE 1.4MHz - Middle



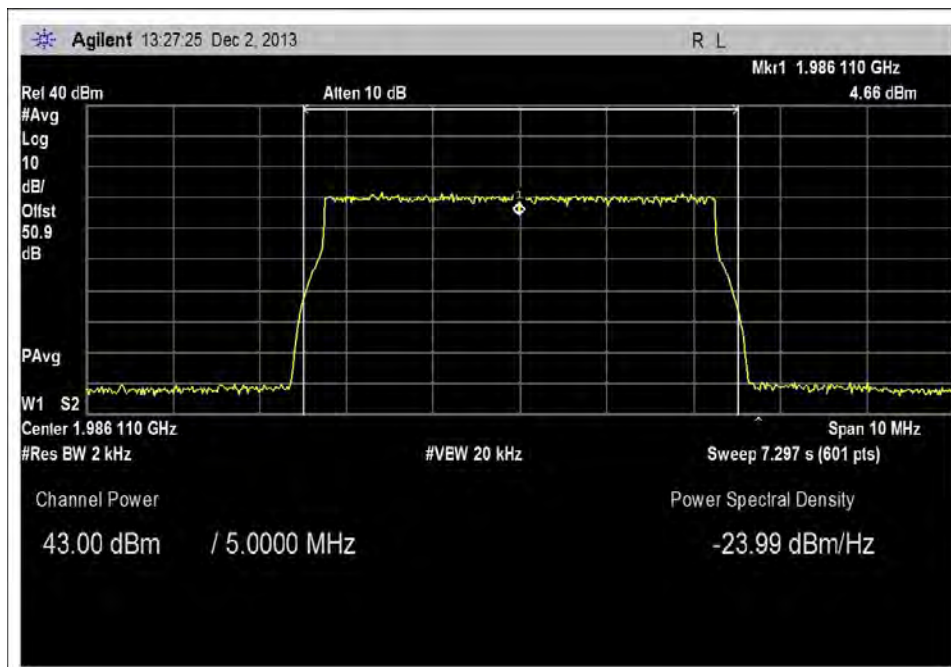
20W, LTE 1.4MHz - High



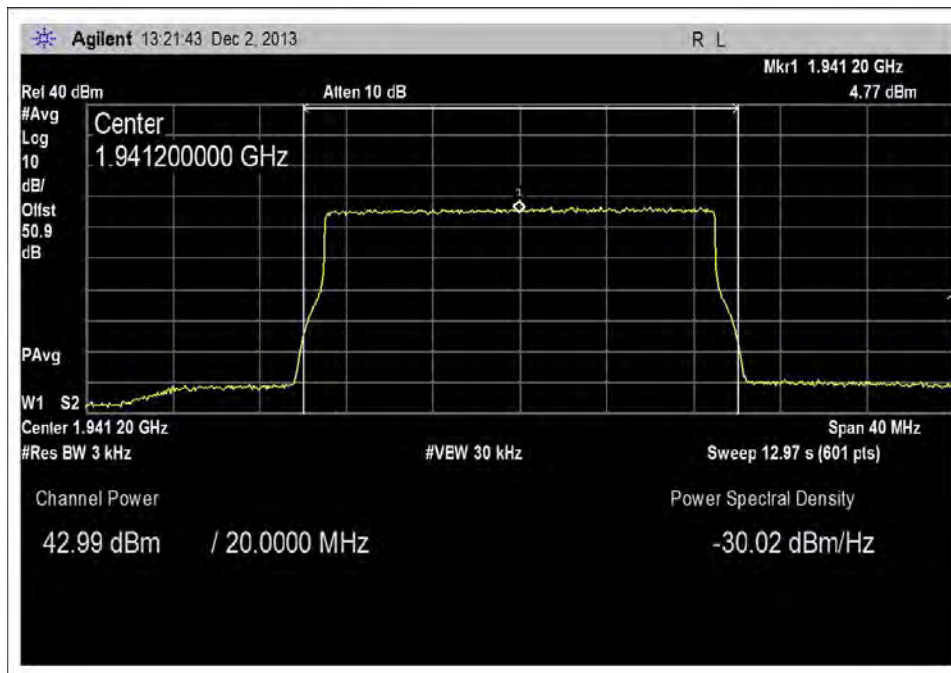
20W, LTE 5MHz - Low



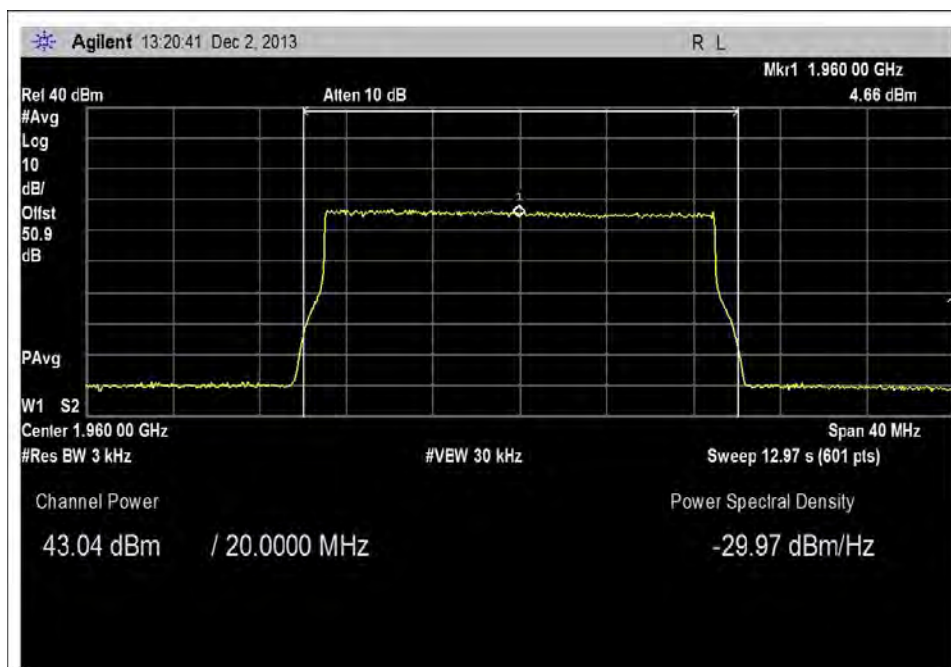
20W, LTE 5MHz - Middle



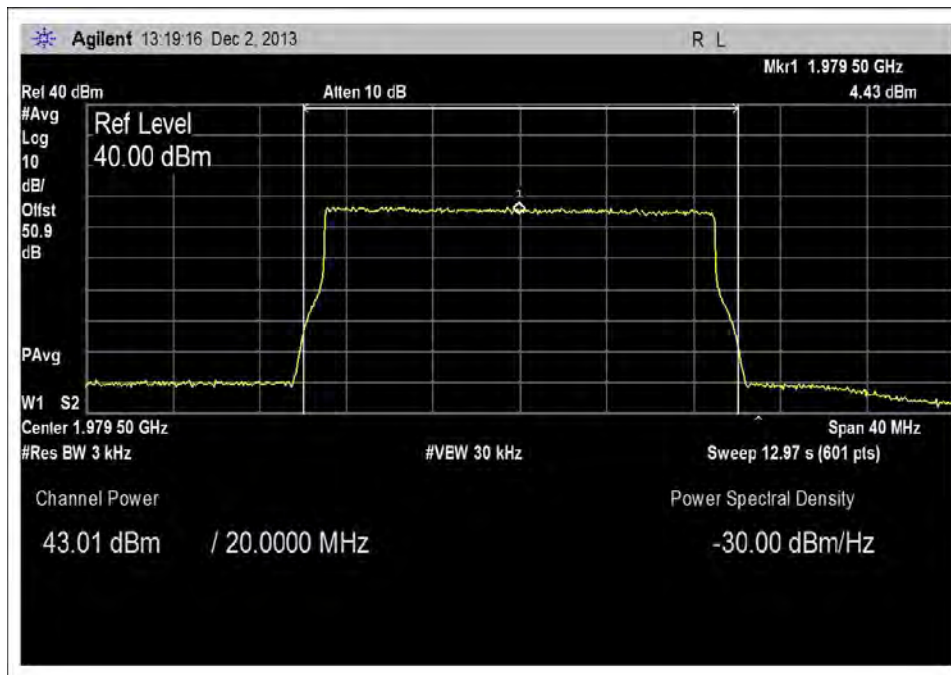
20W, LTE 5MHz - High



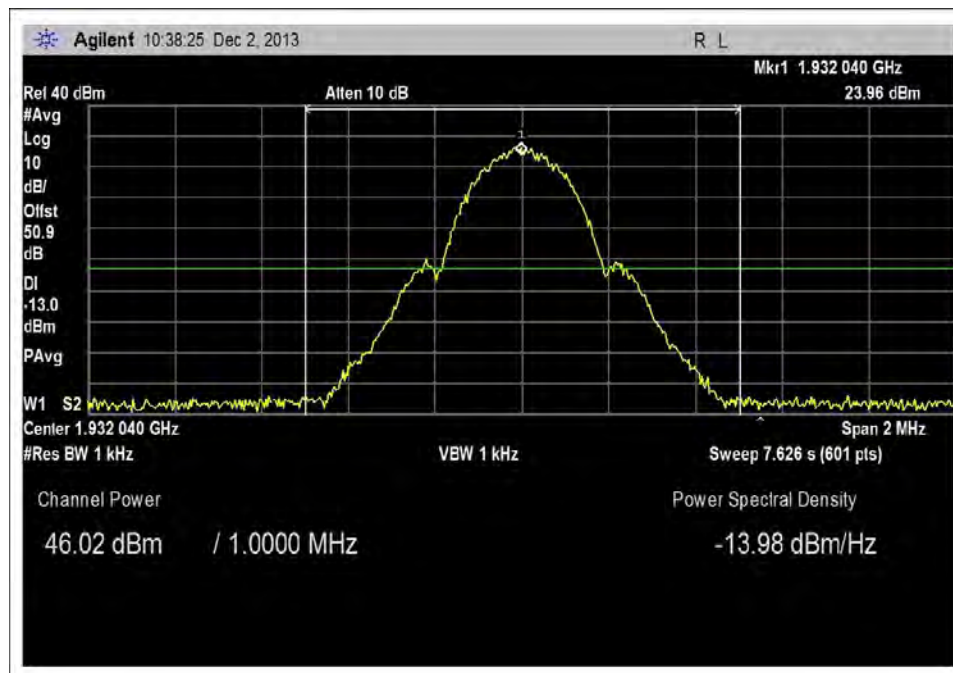
20W, LTE 20MHz - Low



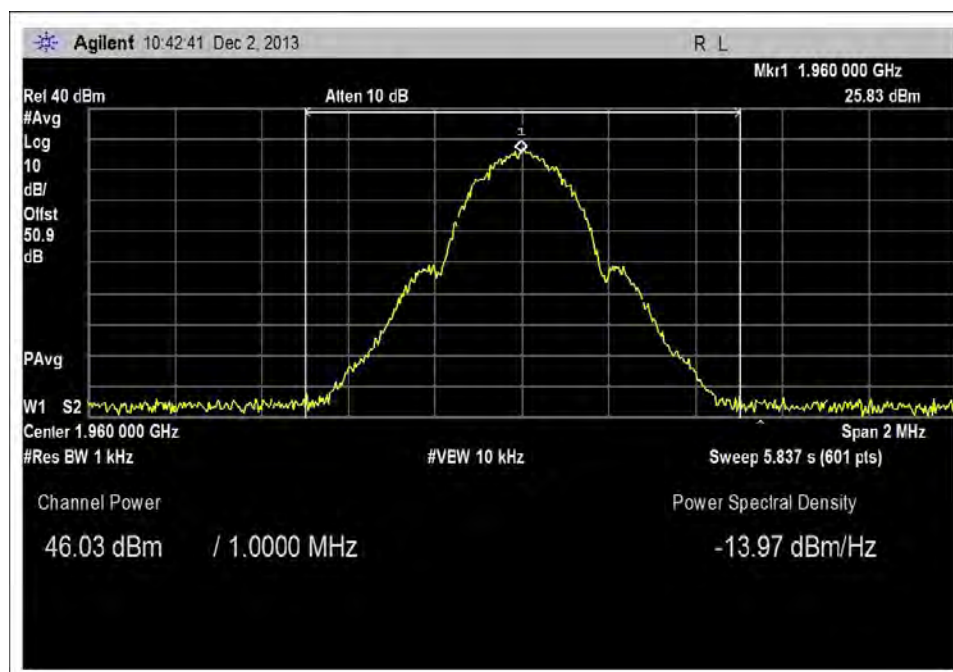
20W, LTE 20MHz - Middle



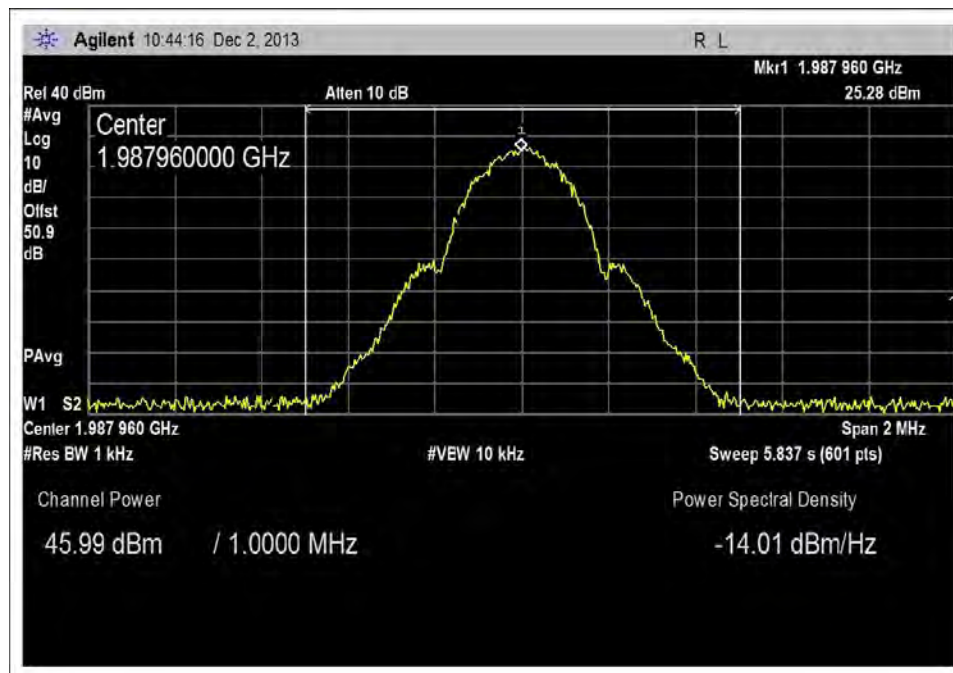
20W, LTE 20MHz - High



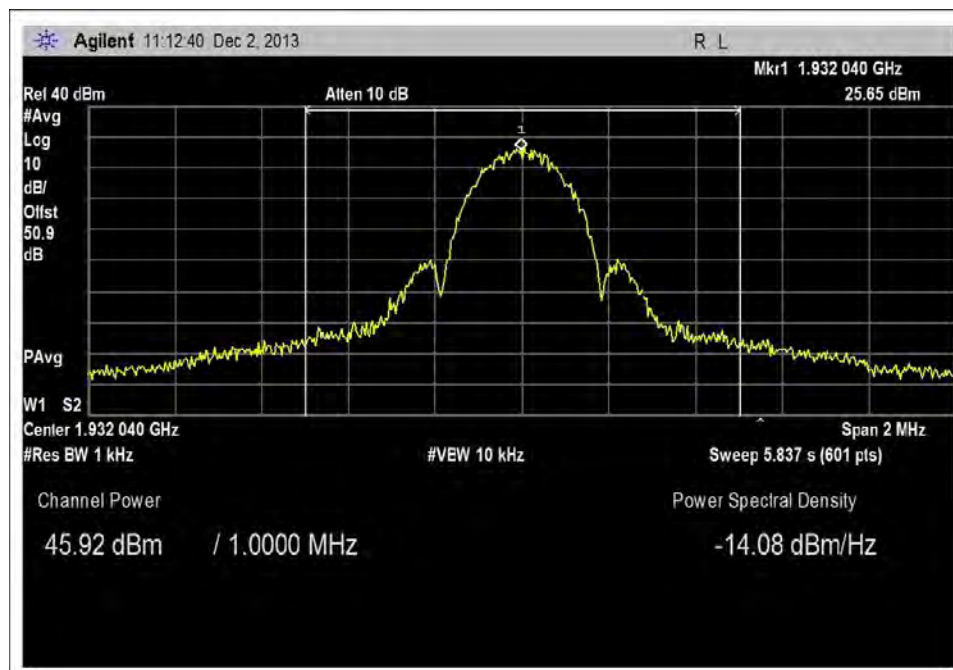
40W, GSM - Low



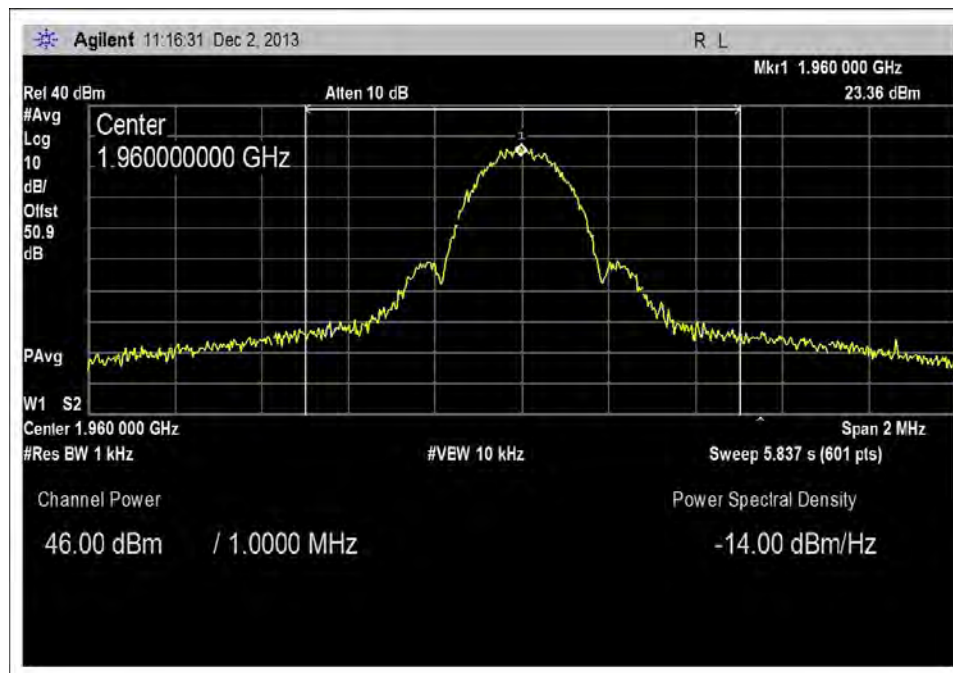
40W, GSM - Middle



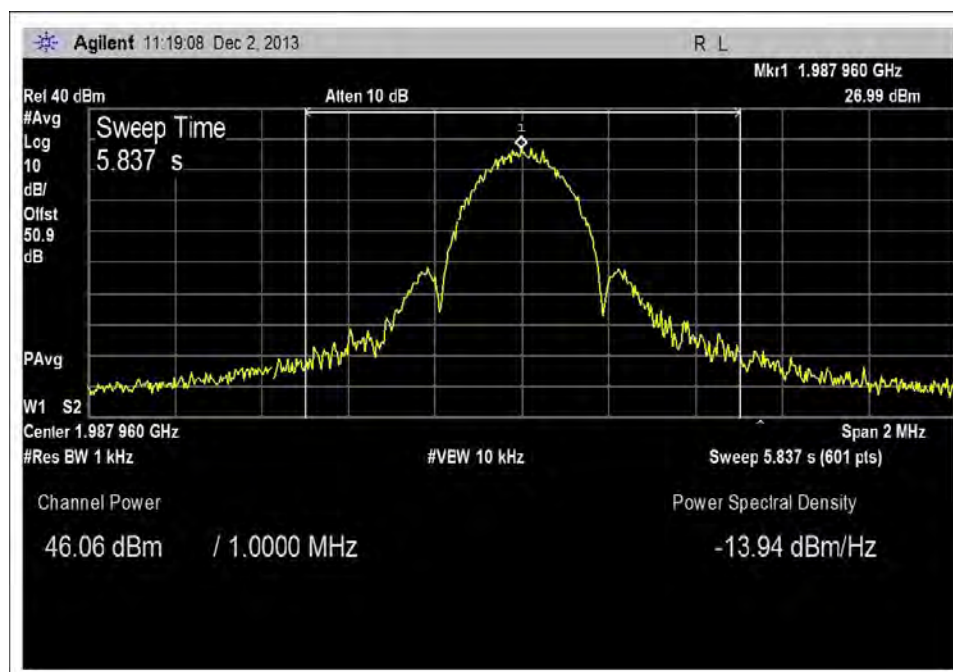
40W, GSM - High



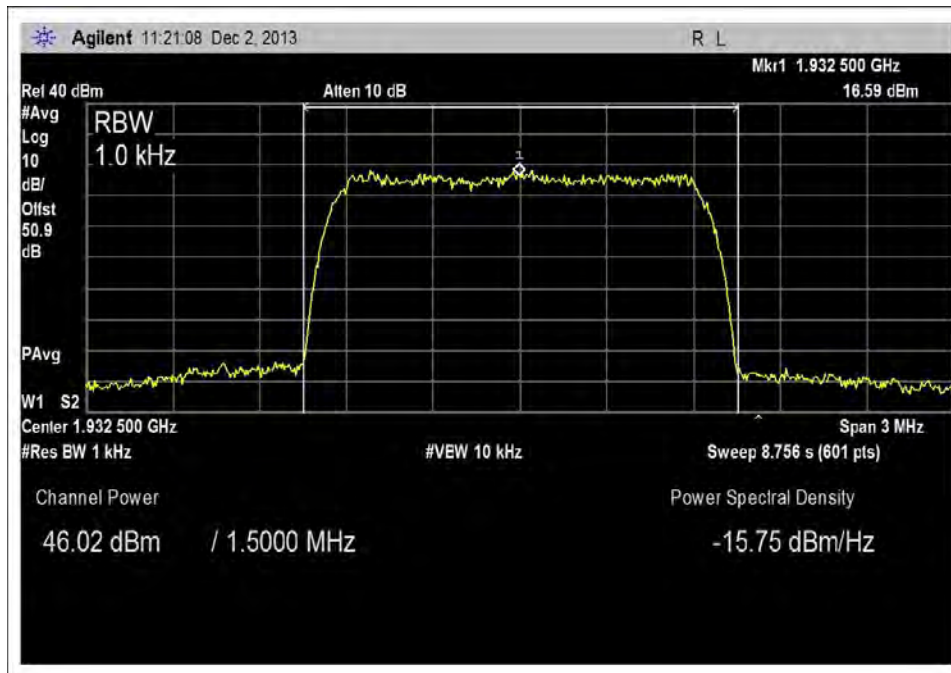
40W, EDGE - Low



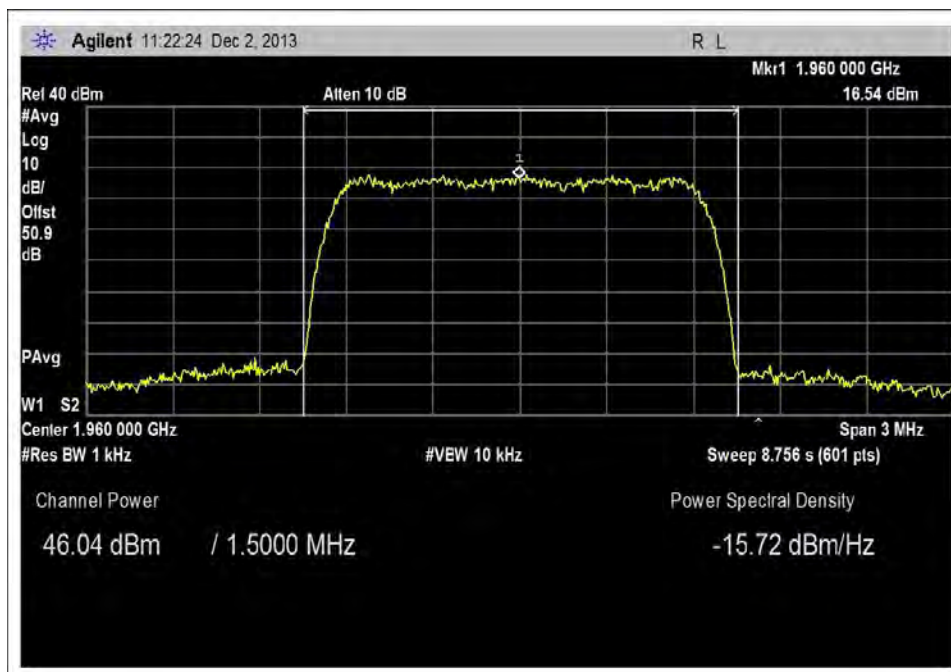
40W, EDGE - Middle



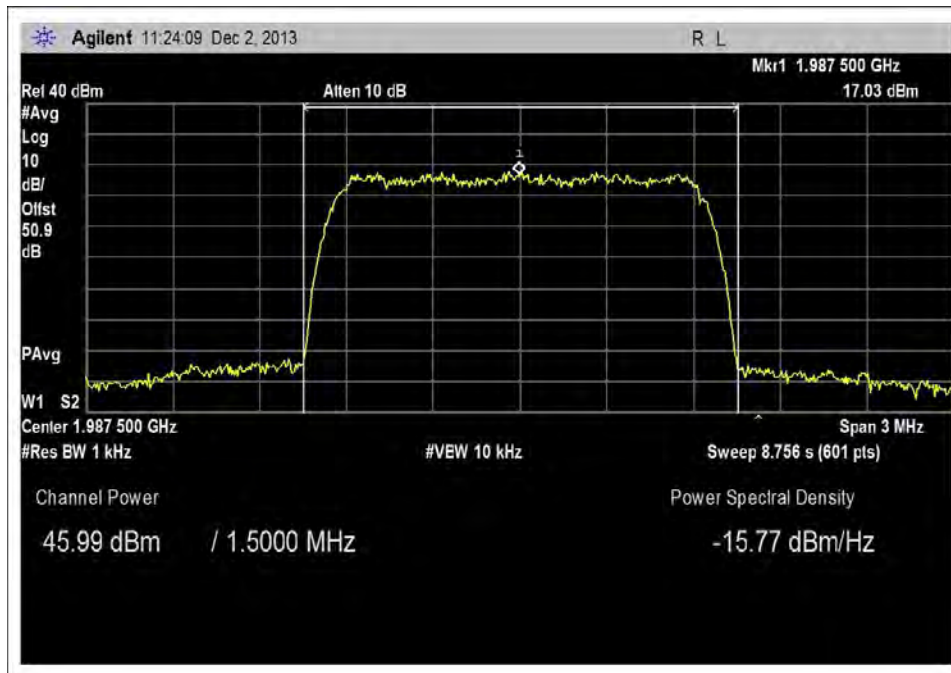
40W, EDGE - High



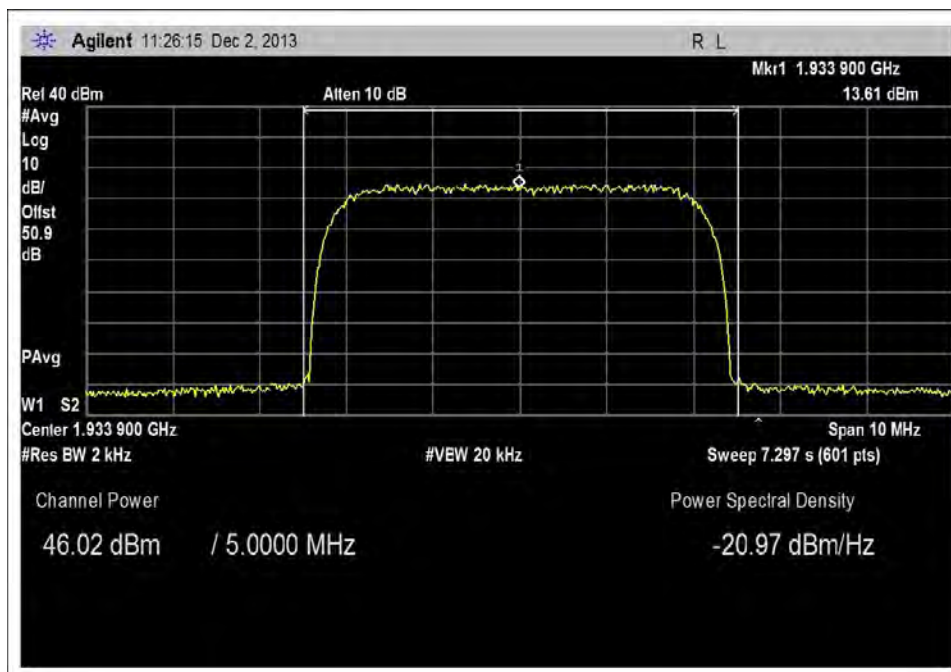
40W, CDMA S95A - Low



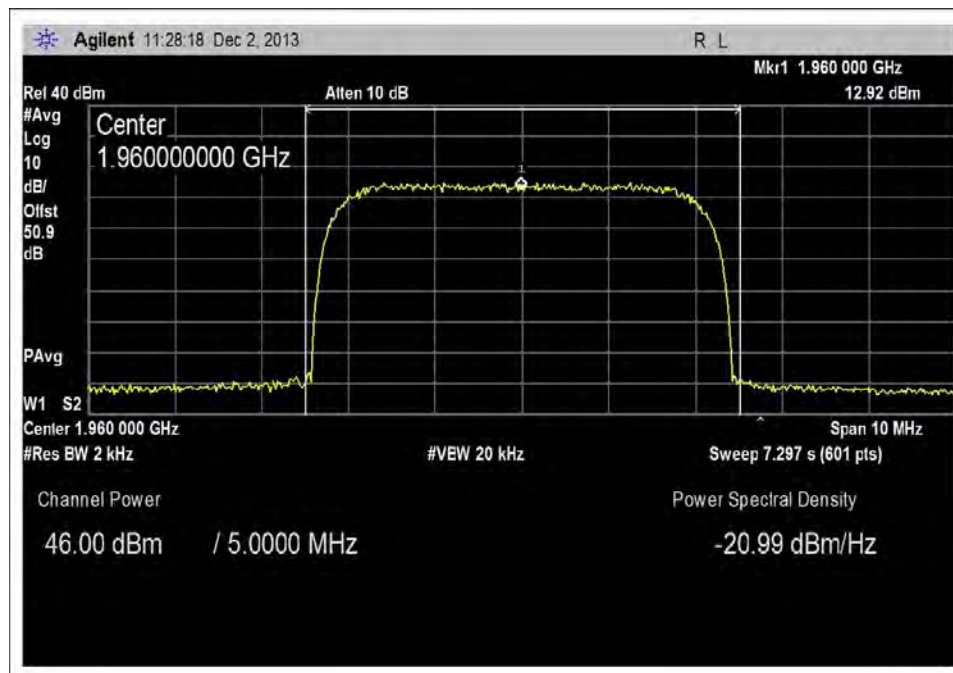
40W, CDMA S95A - Middle



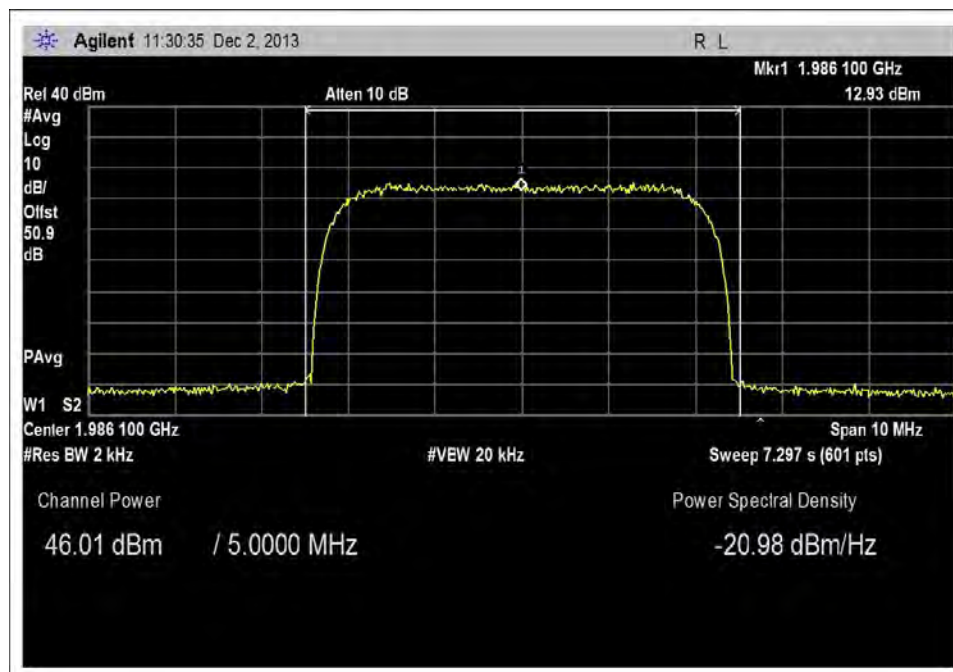
40W, CDMA S95A - High



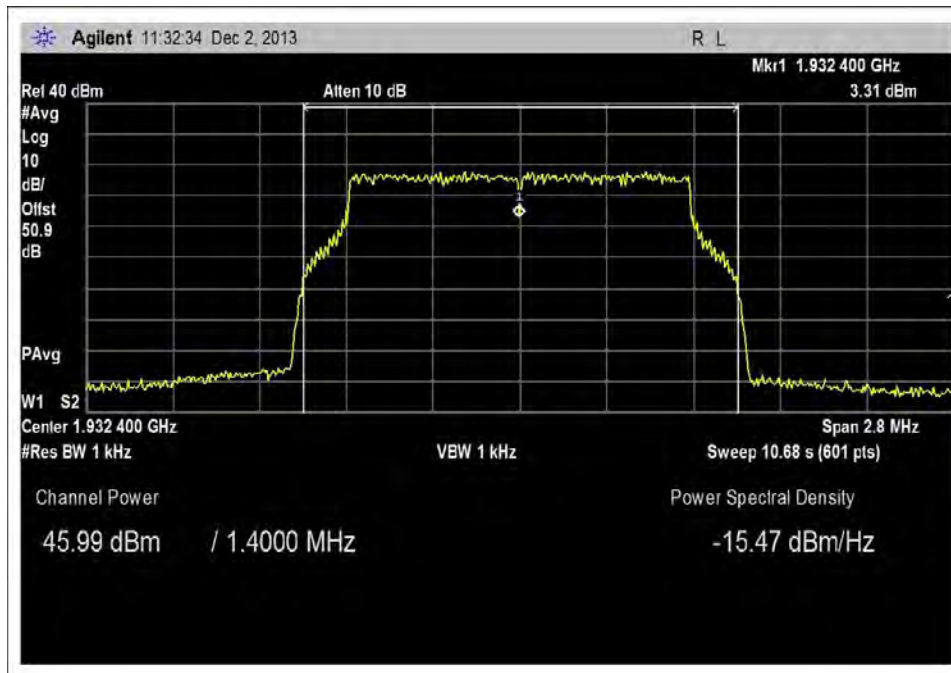
40W, WCDMA - Low



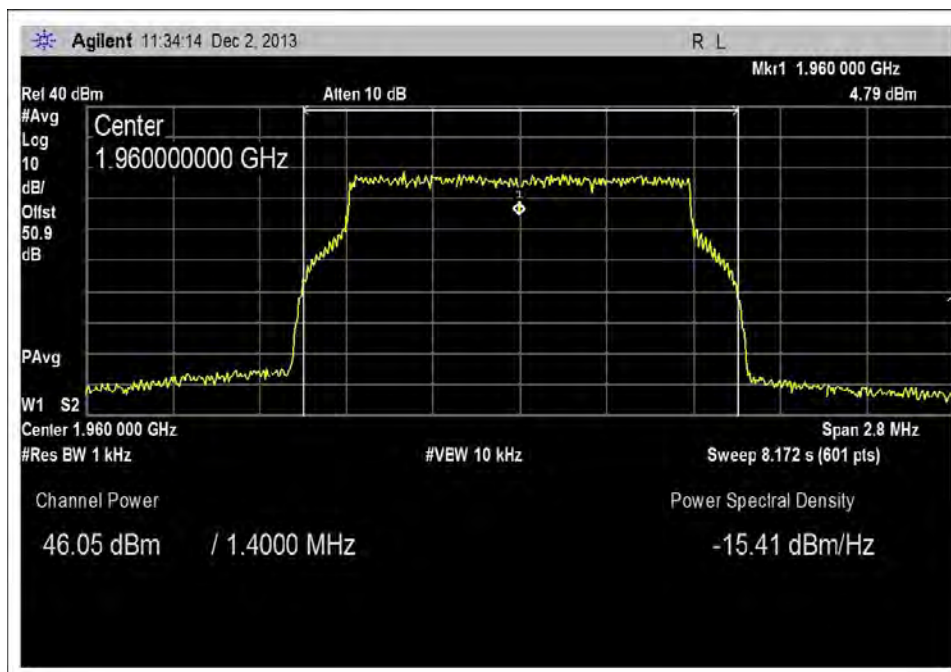
40W, WCDMA - Middle



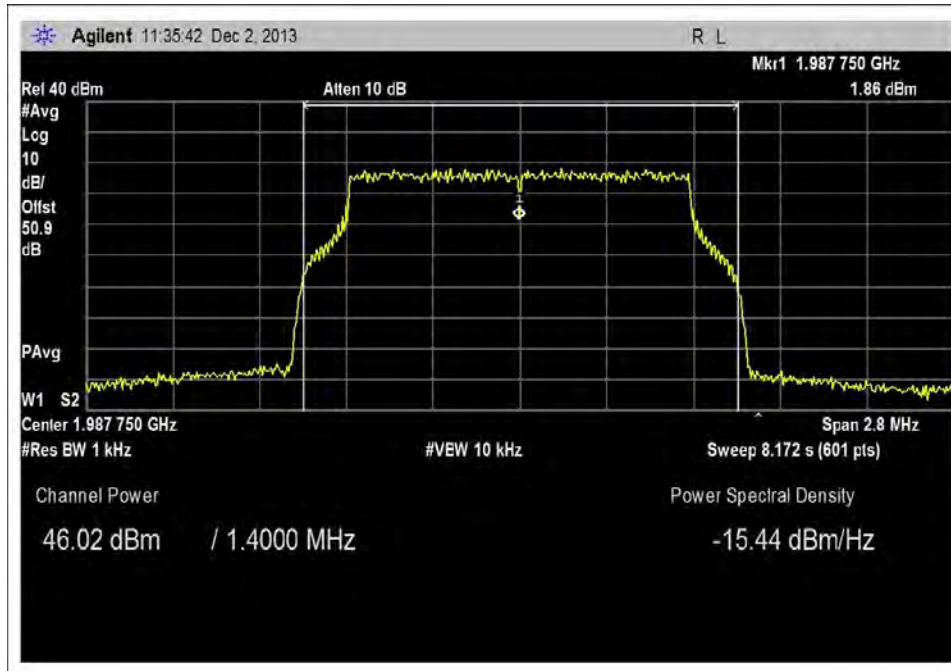
40W, WCDMA - High



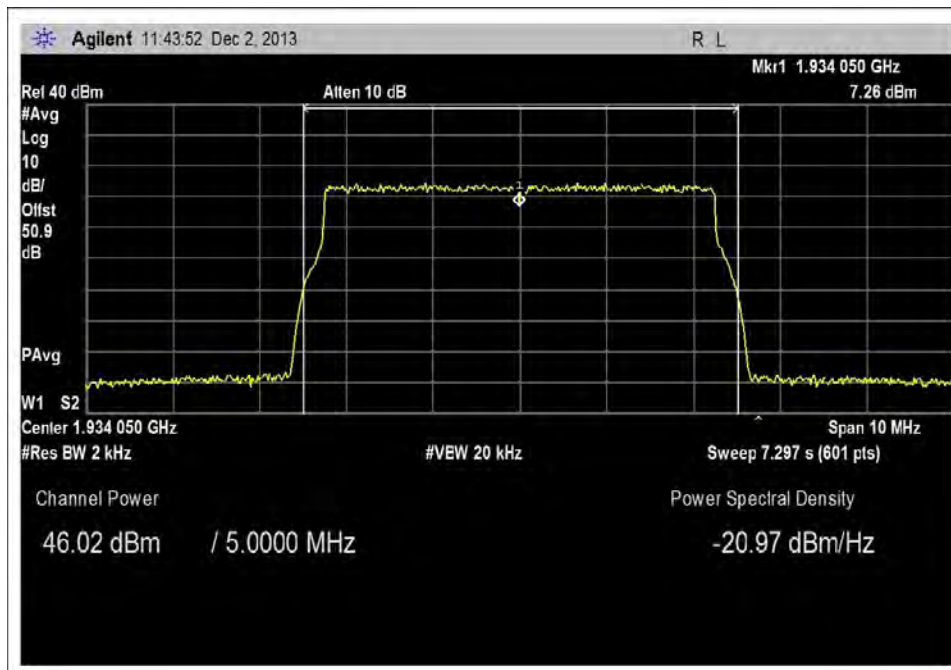
40W, LTE 1.4MHz - Low



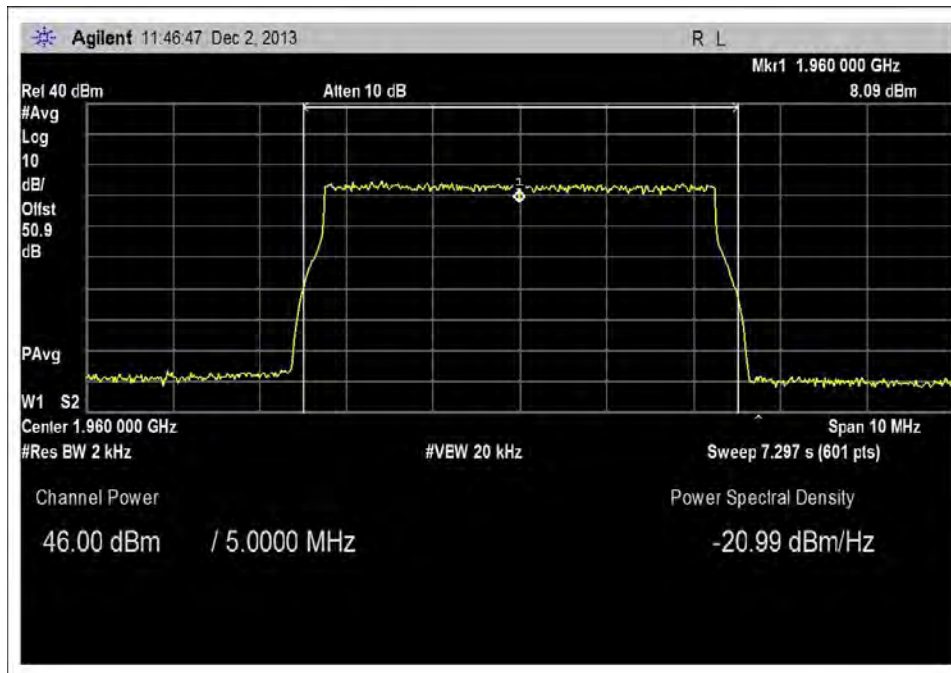
40W, LTE 1.4MHz - Middle



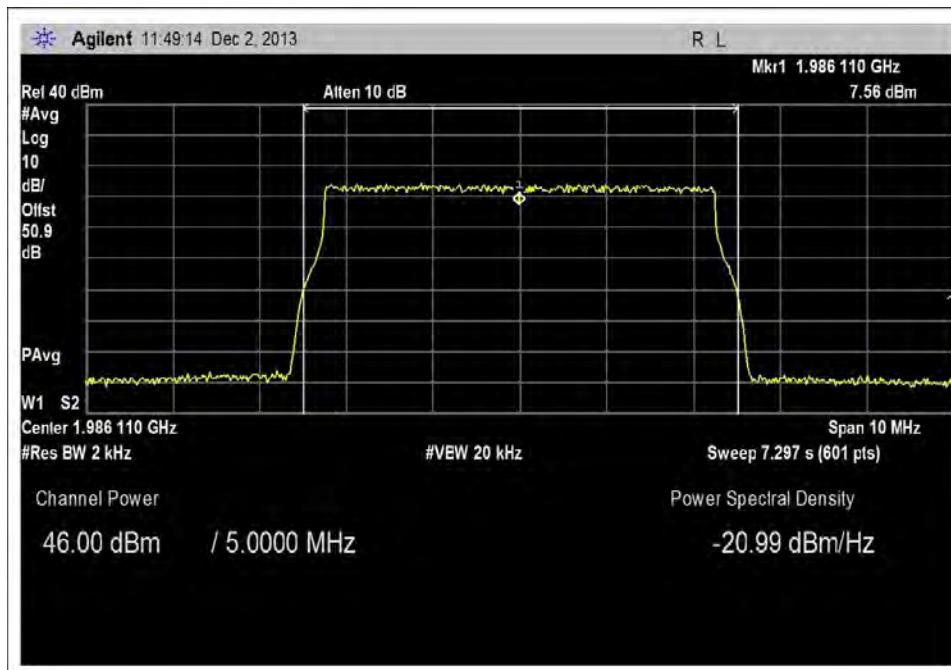
40W, LTE 1.4MHz - High



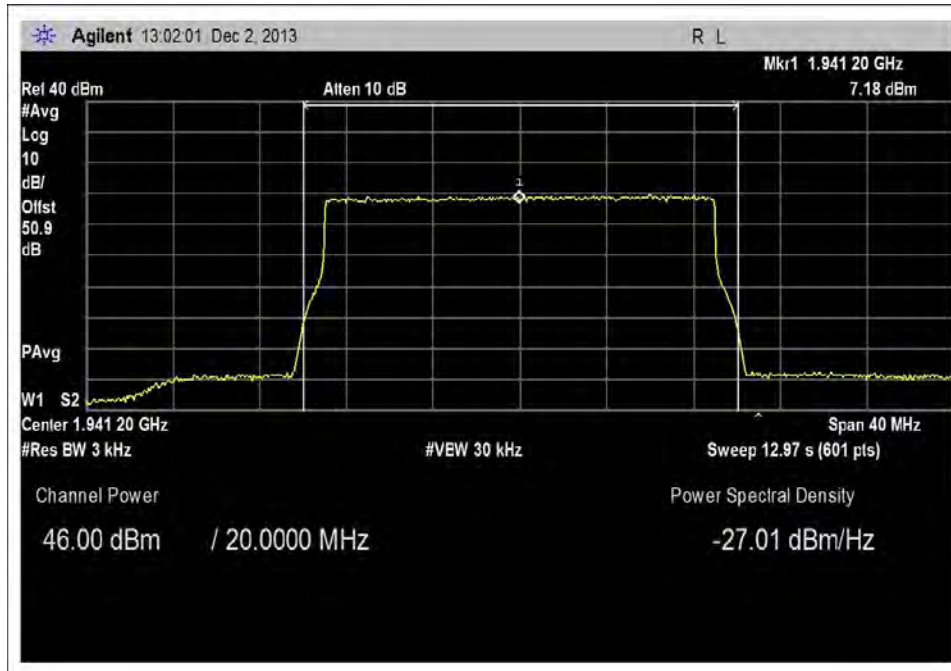
40W, LTE 5MHz - Low



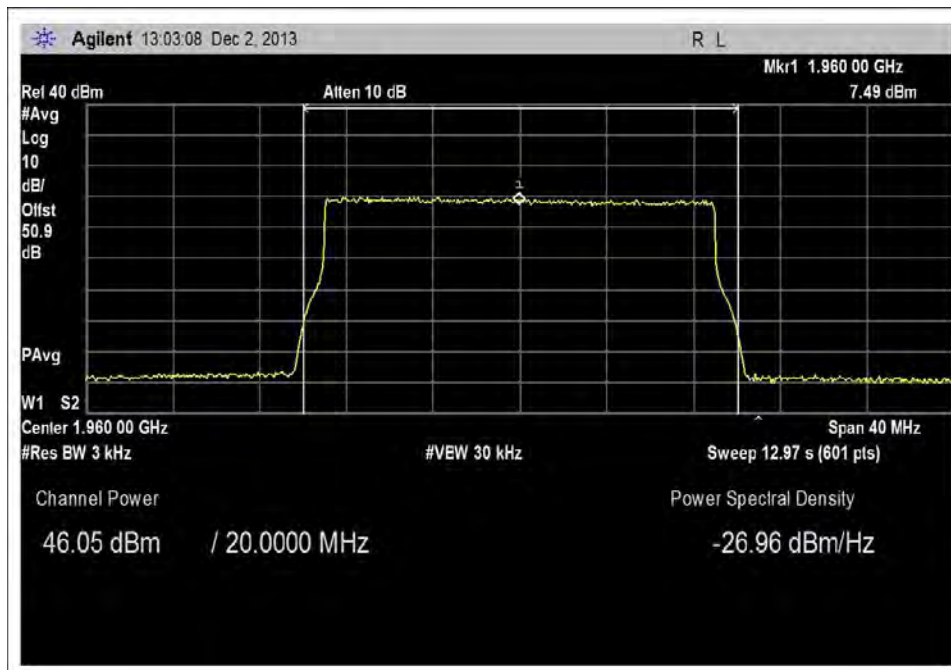
40W, LTE 5MHz - Middle



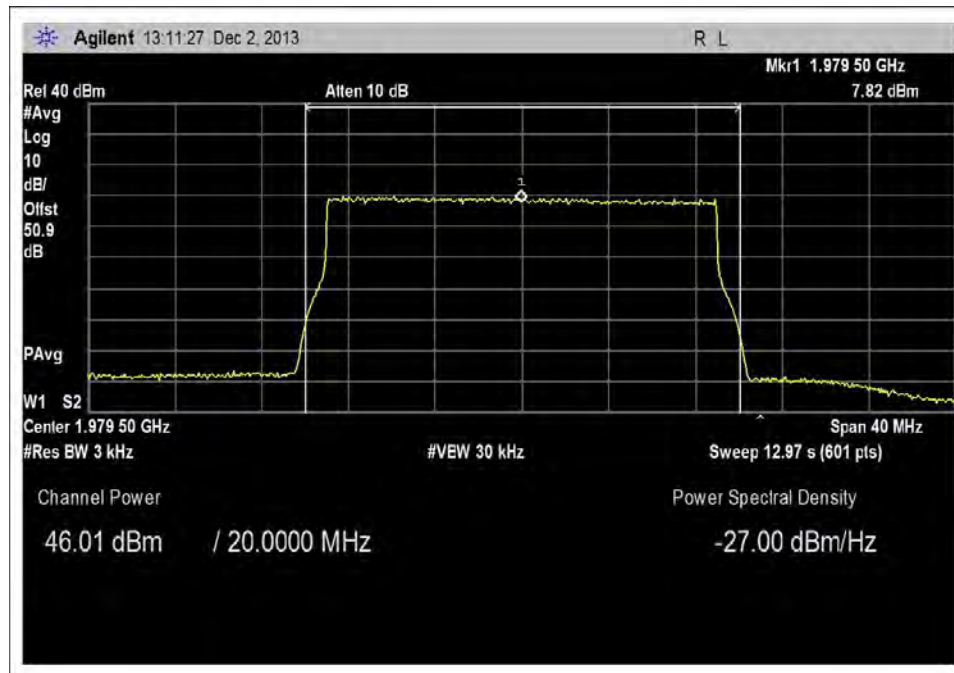
40W, LTE 5MHz - High



40W, LTE 20MHz - Low



40W, LTE 20MHz - Middle



40W, LTE 20MHz - High

Test Setup Photos



Overall Test Setup

2.1049(I) Occupied Bandwidth

Test Data

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 #: **95157**

Date: 11/22/2013

Test Type: **Conducted Emissions**

Time: 14:18:02

Equipment: **1900MHz 40W Transmitting Remote Unit**

Sequence#: 4

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC1900-040-RUSSF01

110V 60Hz

S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Cable	Pasternack	Sucoflex 104A	12237/4A

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to an ESG Signal generator via cable Sucoflex 104A. ANT port is connected to 30db attenuator and 110db step attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port.

Freq: 1930-1990MHz

Signal protocol: GSM, EDGE, CDMA (IS95A), UMTS (WCDMA_3GPP), LTE-TM1.1 1.4MHz, 5MHz, 20MHz

40W

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

GSM

1932.04MHz	-12.42
------------	--------

1960.00MHz	-12.04
------------	--------

1987.96MHz	-11.36
------------	--------

EDGE

1932.04MHz	-11.24
------------	--------

1960.00MHz	-11.24
------------	--------

1987.96MHz	-11.12
------------	--------

CDMA (IS95A)

1932.5MHz	-11.08
-----------	--------

1960.00MHz	-11.44
------------	--------

1987.5MHz	-11.02
-----------	--------

UMTS (WCDMA 3GPP)

1933.9MHz	-11.2
-----------	-------

1960.00MHz	-11.62
------------	--------

1986.1MHz	-11.14
-----------	--------

LTE 1.4MHz

1932.40MHz	-11.14
------------	--------

1960.00MHz	-11.62
------------	--------

1987.75MHz	-11.02
------------	--------

LTE 5MHz

1934.05MHz	-11.3
------------	-------

1960.00MHz	-11.78
------------	--------

1986.11MHz	-11.24
------------	--------

LTE 20MHz

1941.2MHz	-11.76
-----------	--------

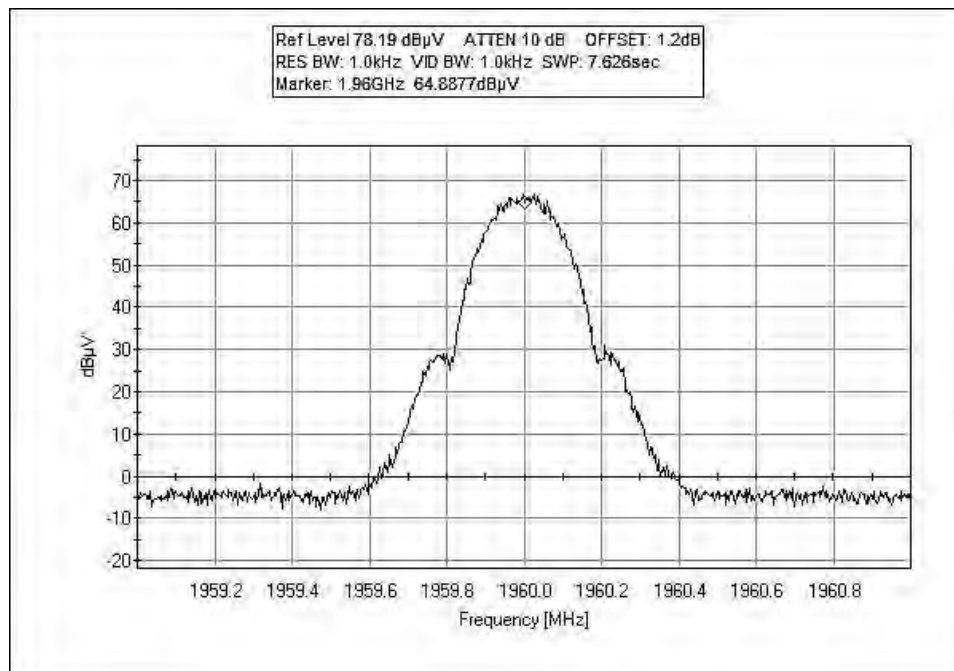
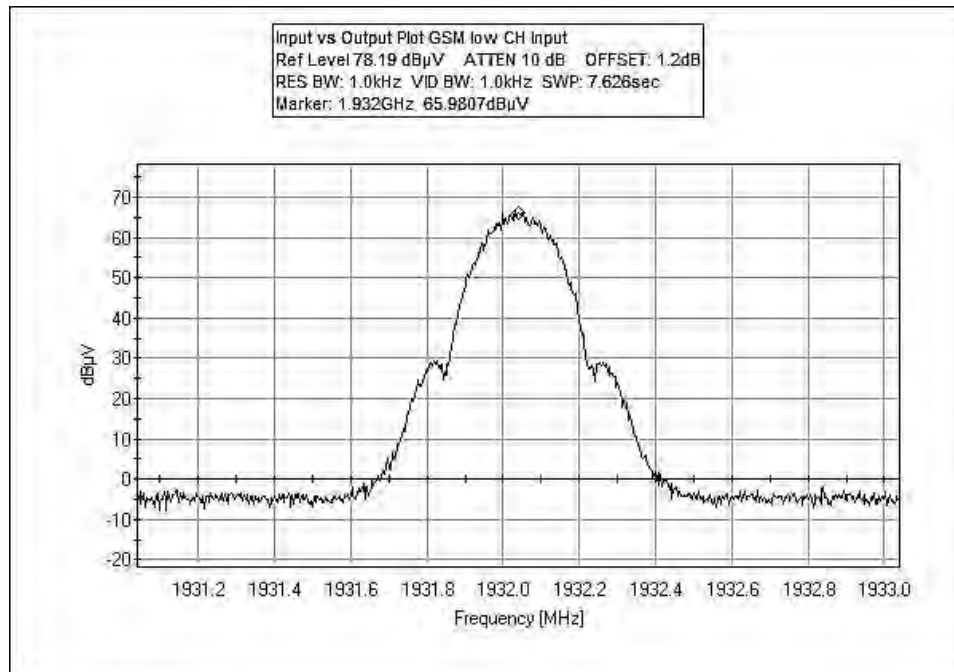
1960.00MHz	-11.76
------------	--------

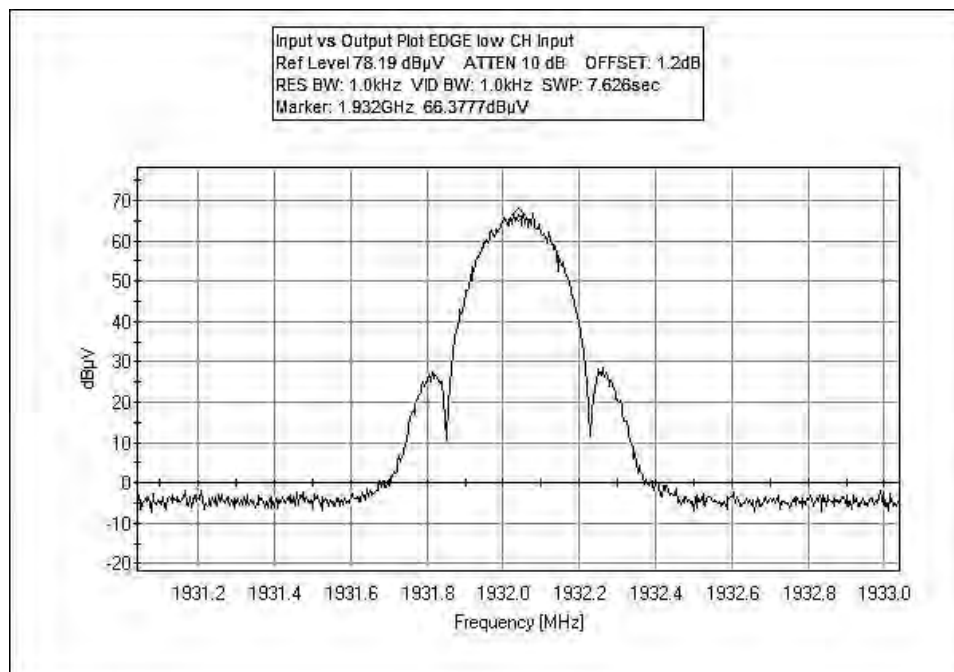
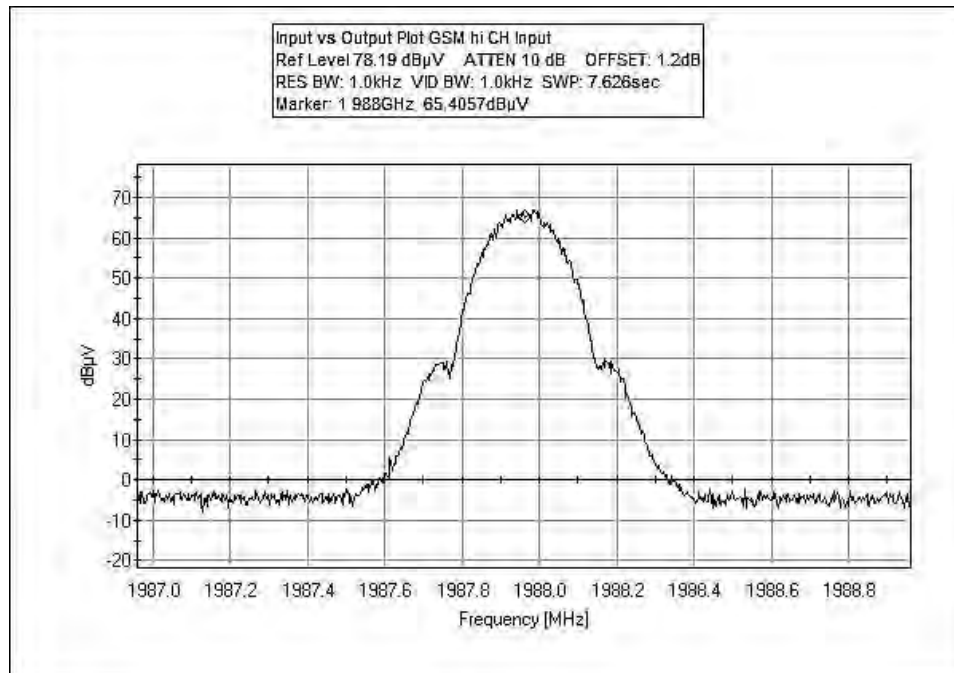
1979.5MHz	-11.52
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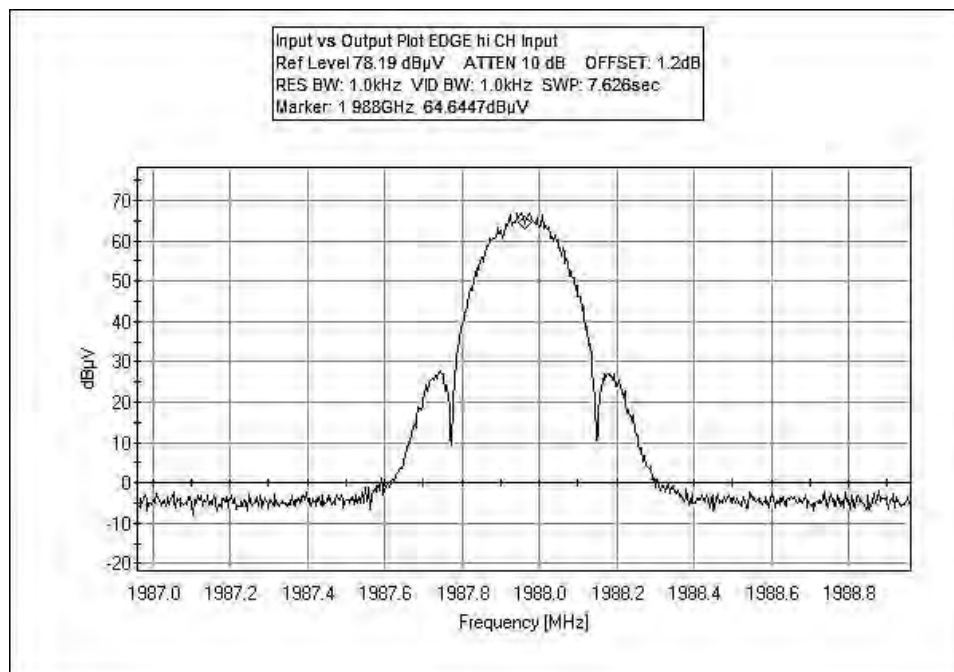
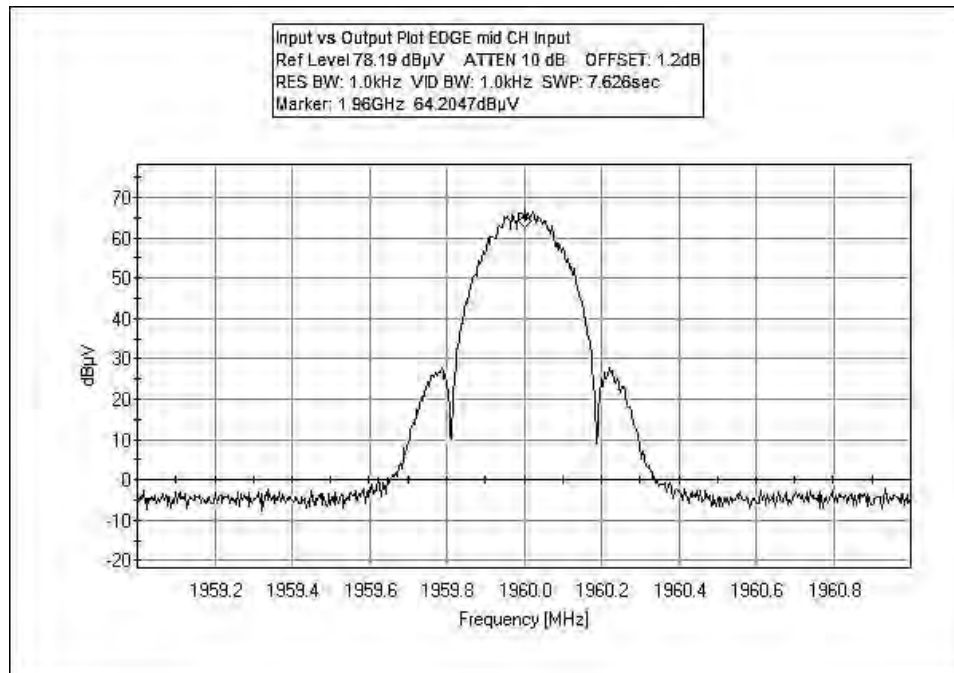
22°C, 45% Relative Humidity

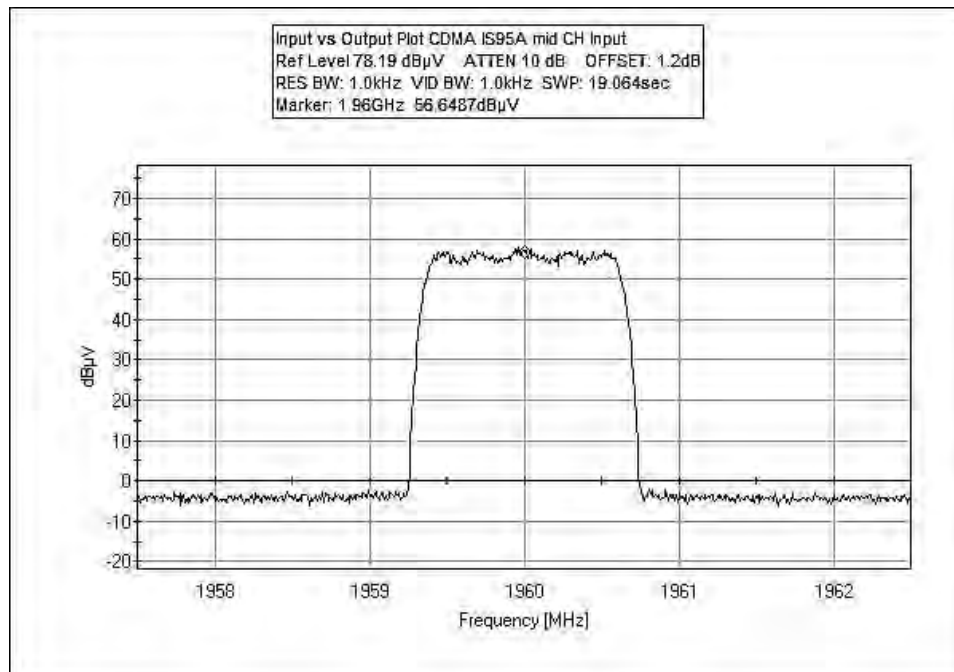
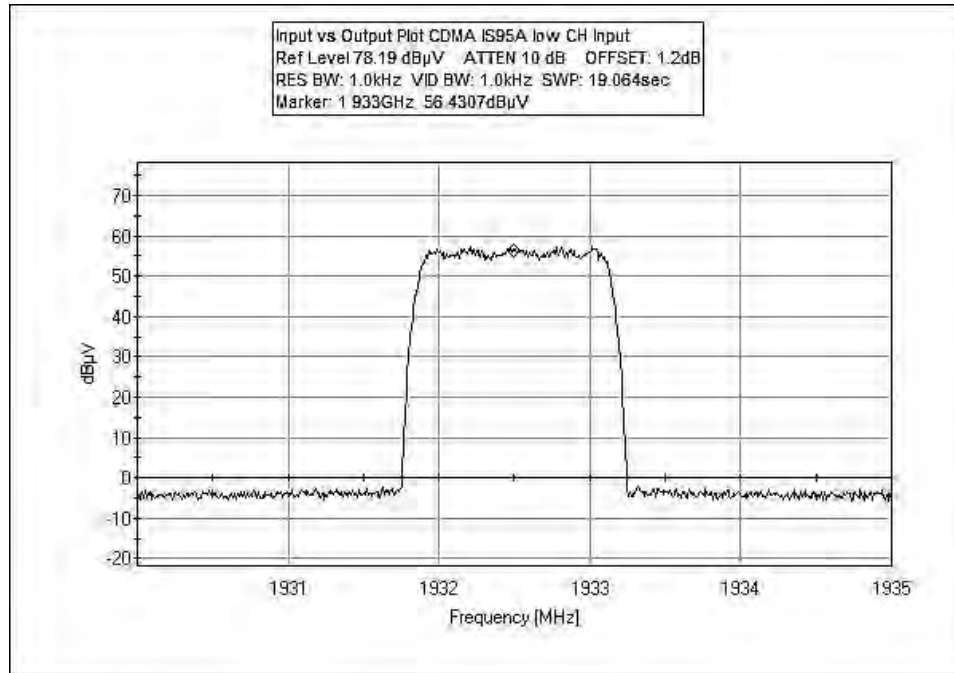
Site A

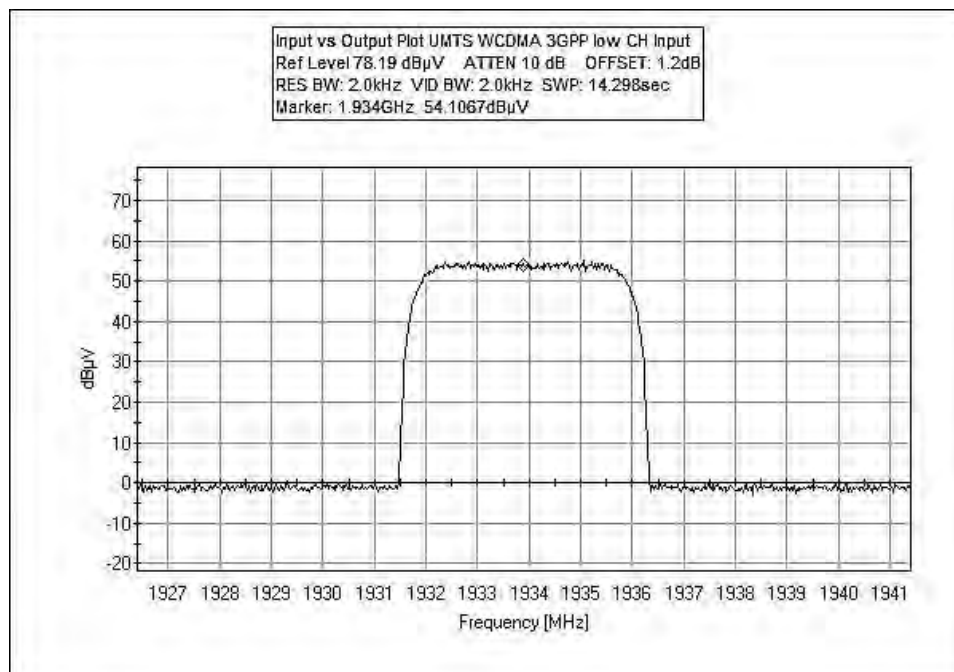
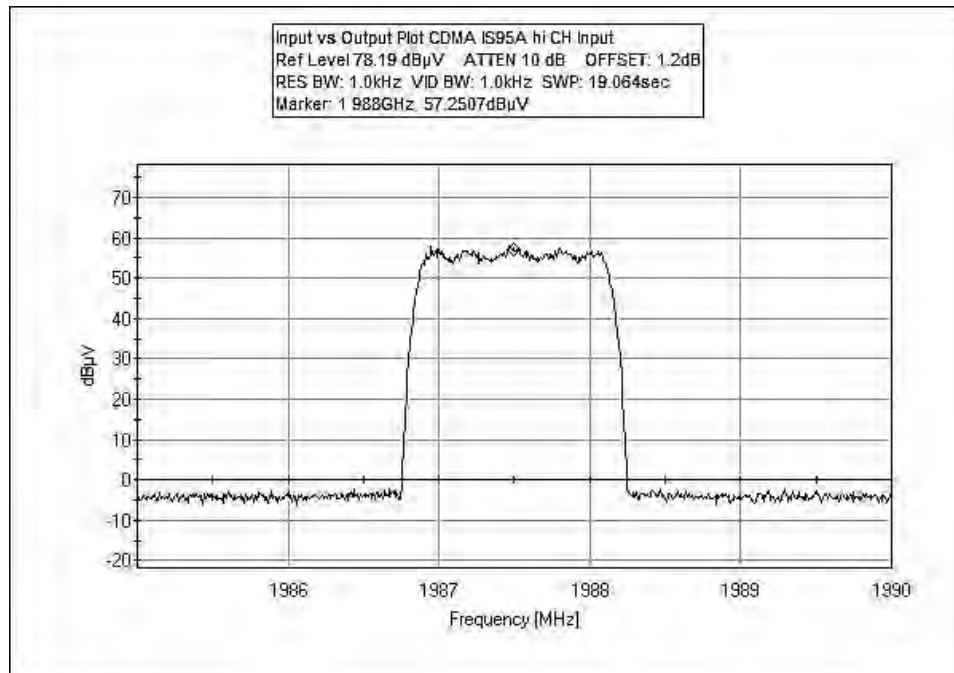
Test Plots

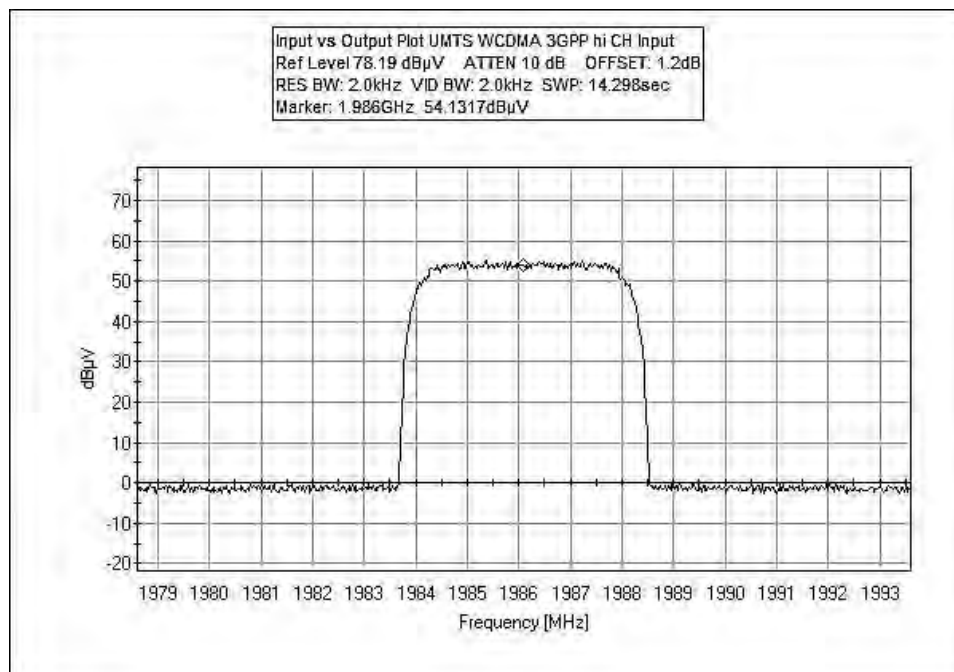
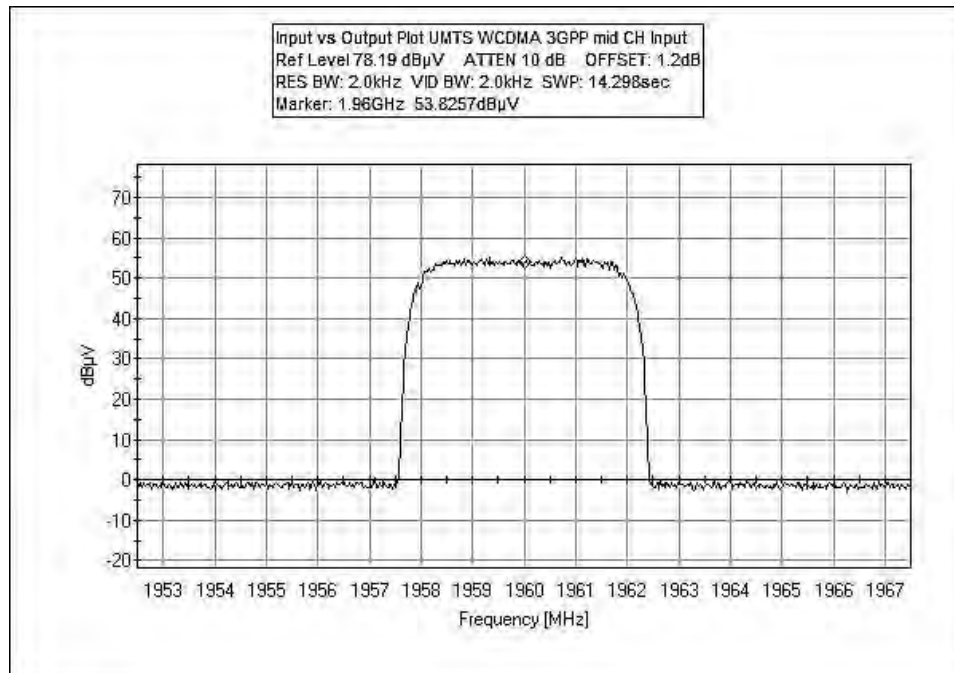


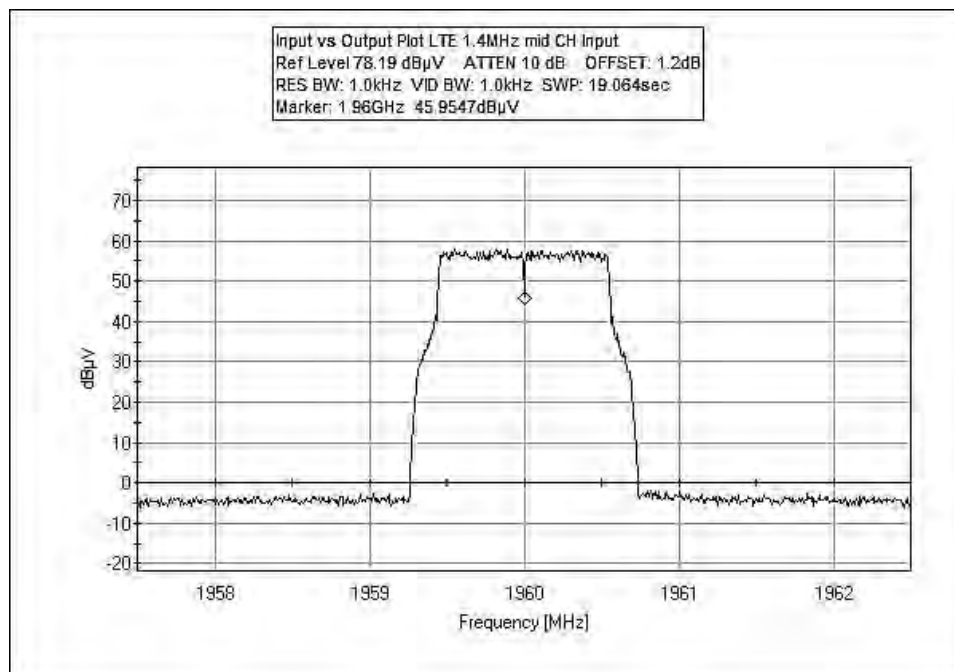
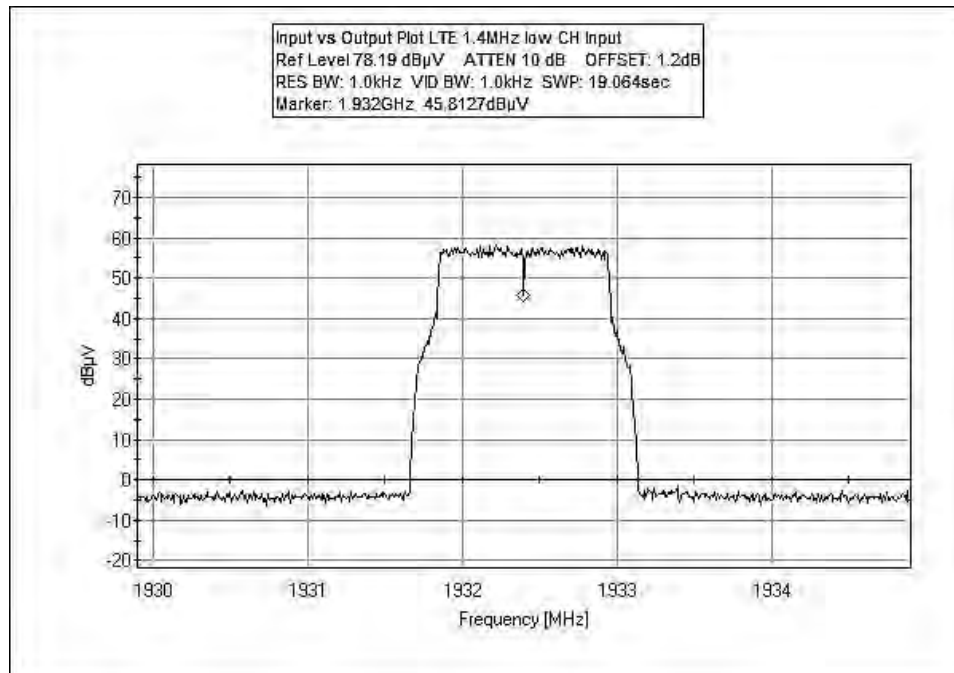


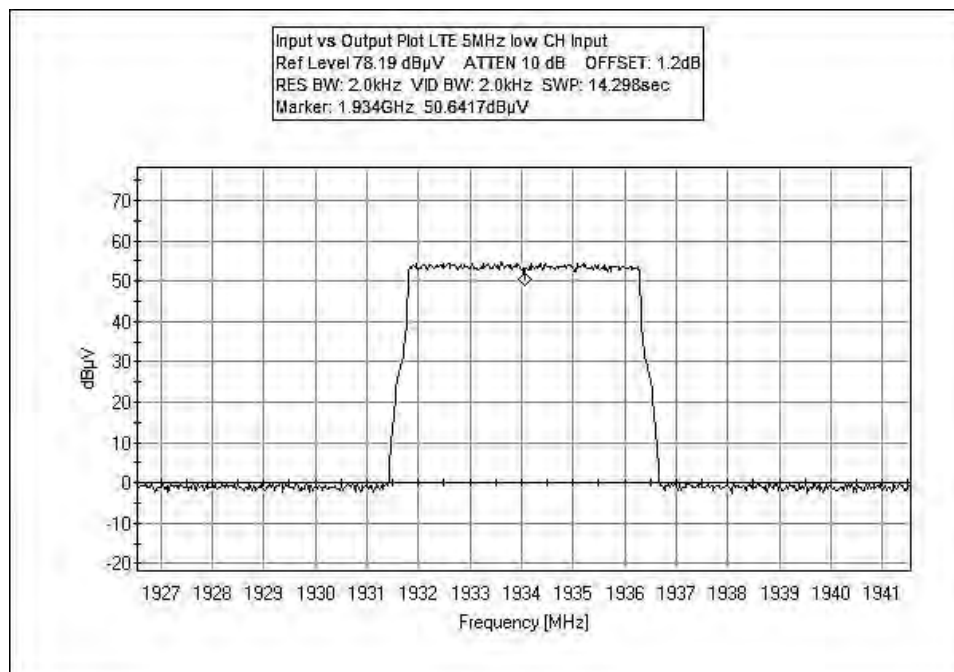
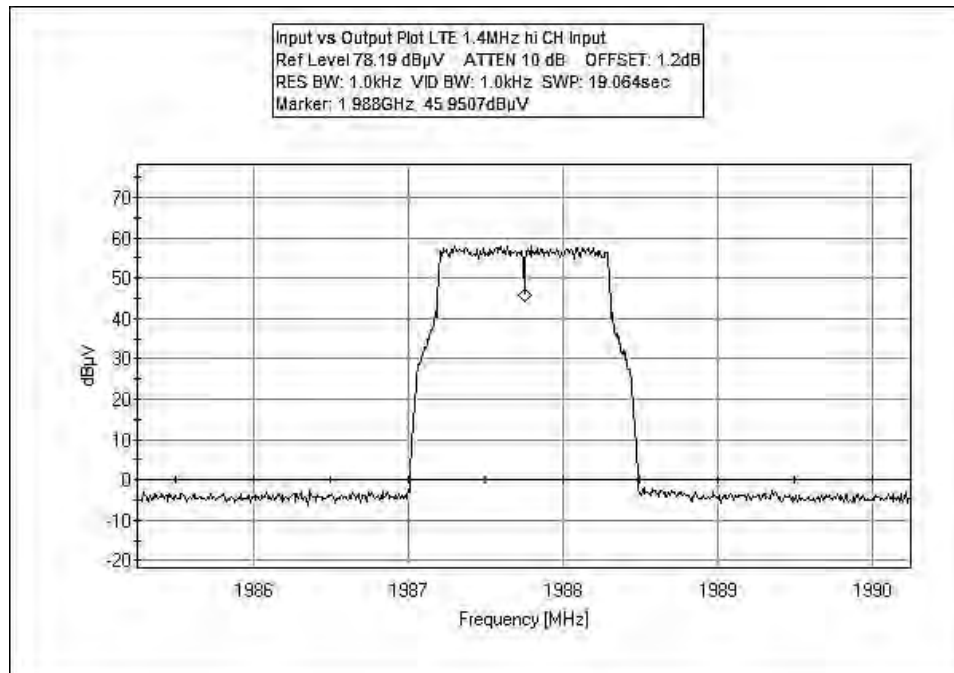


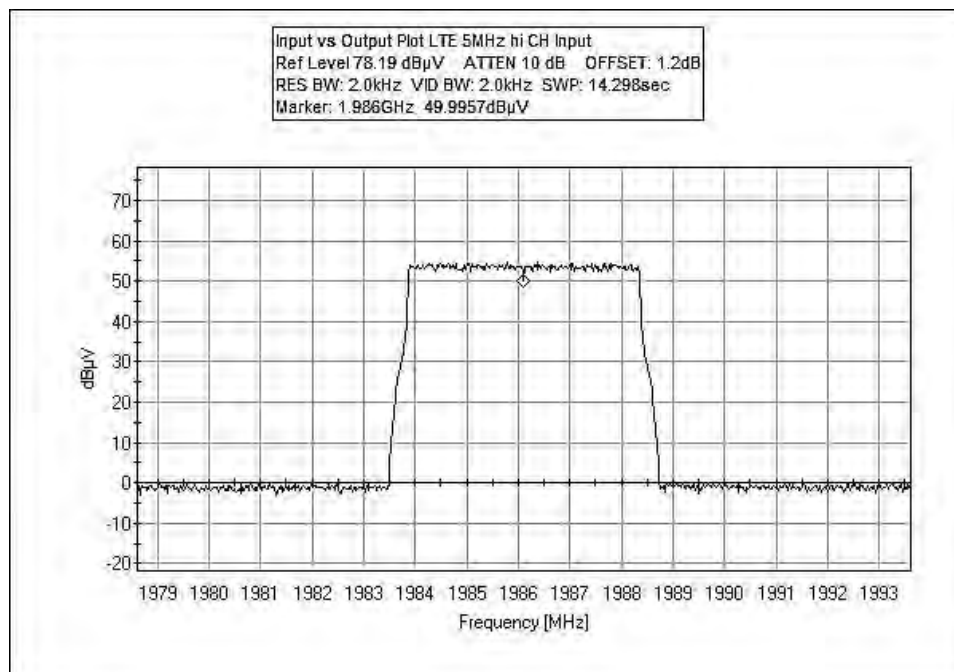
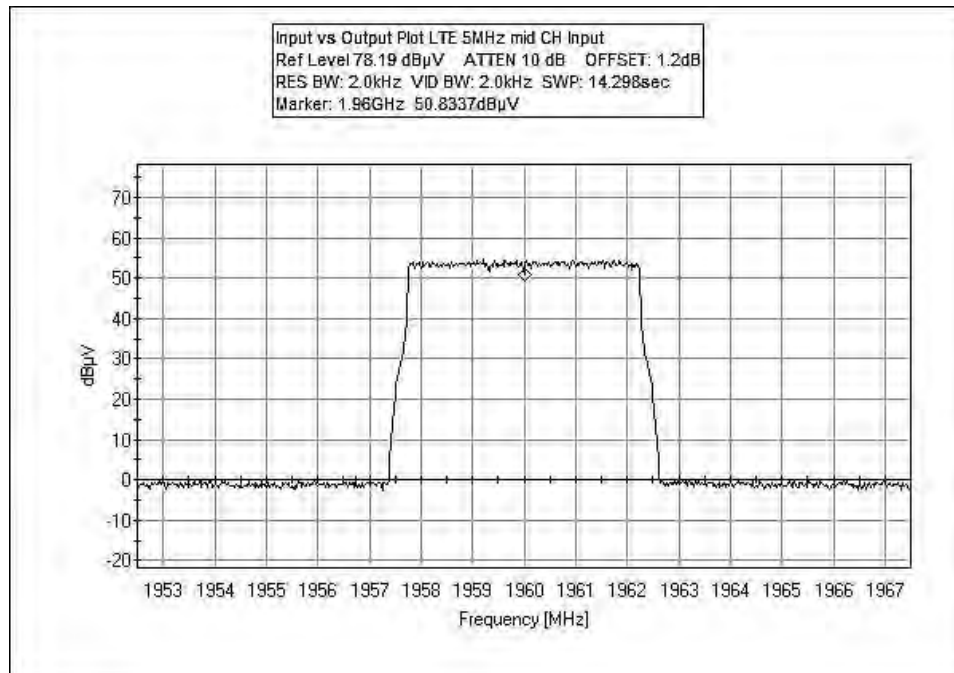


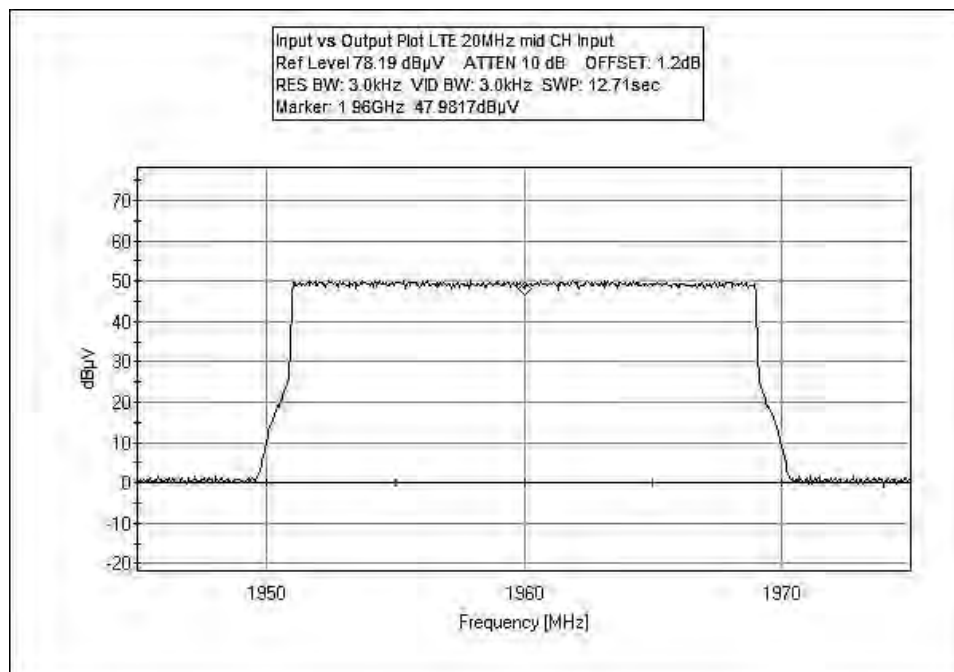
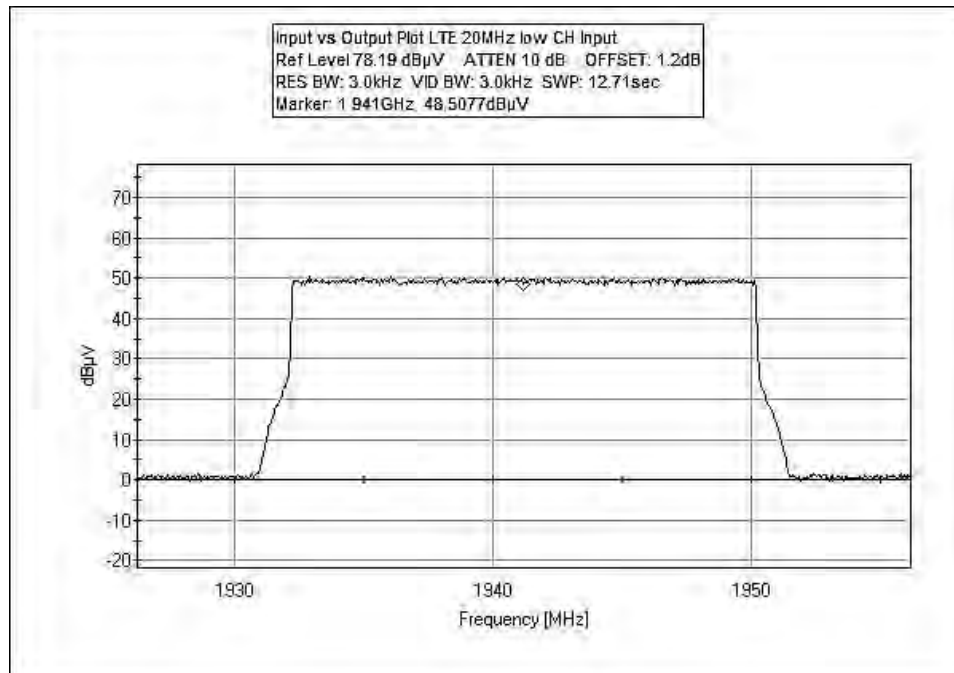


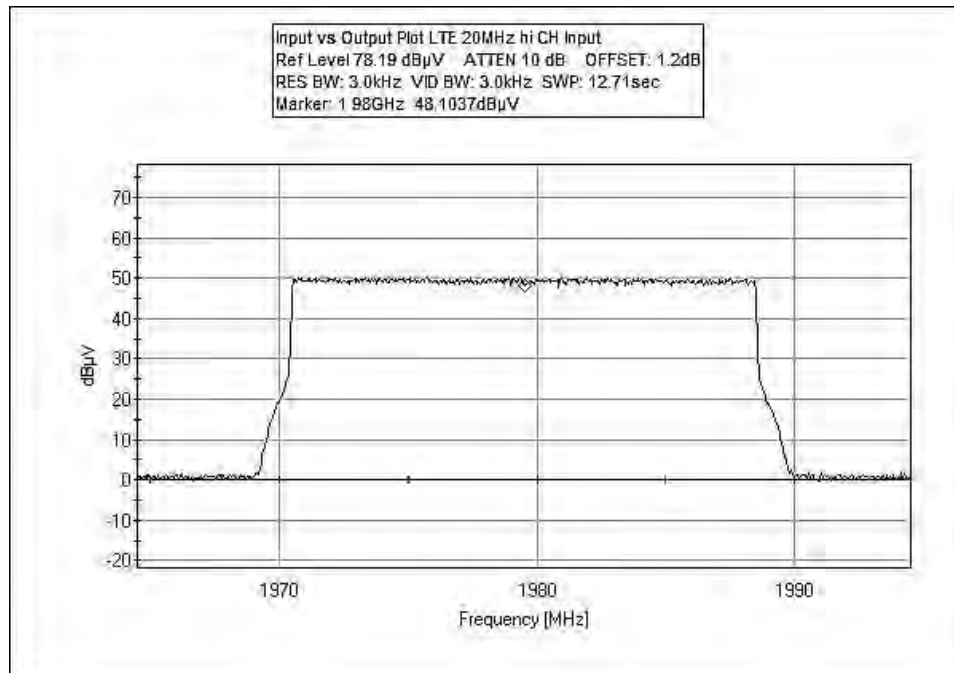


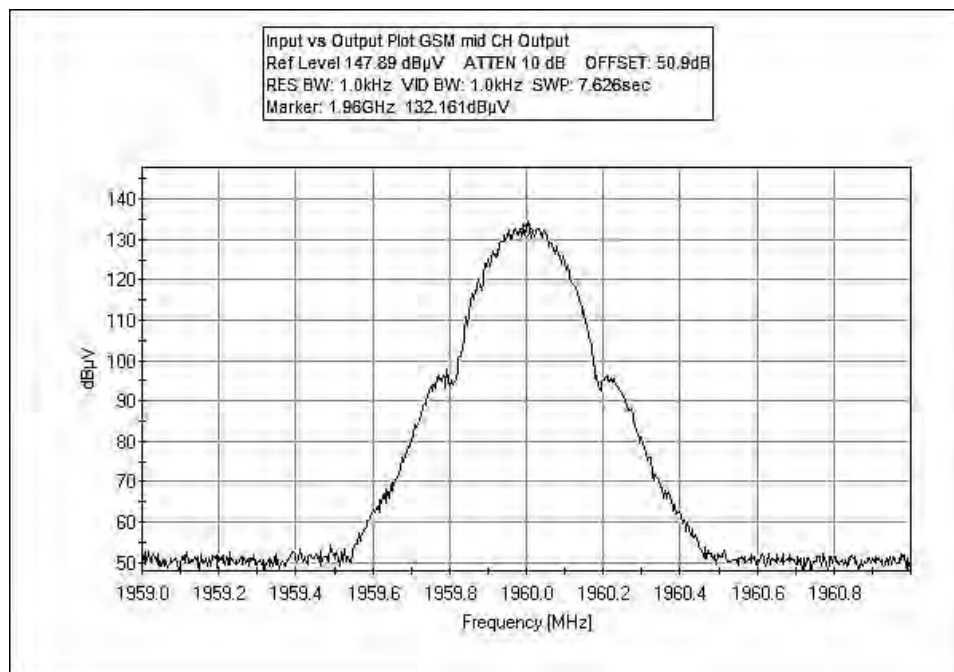
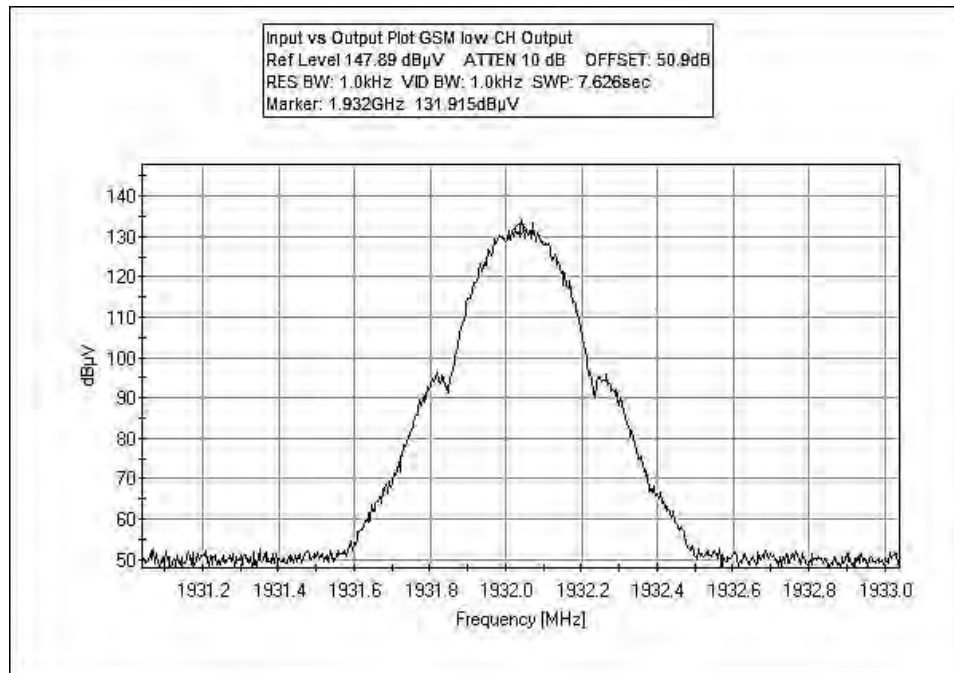


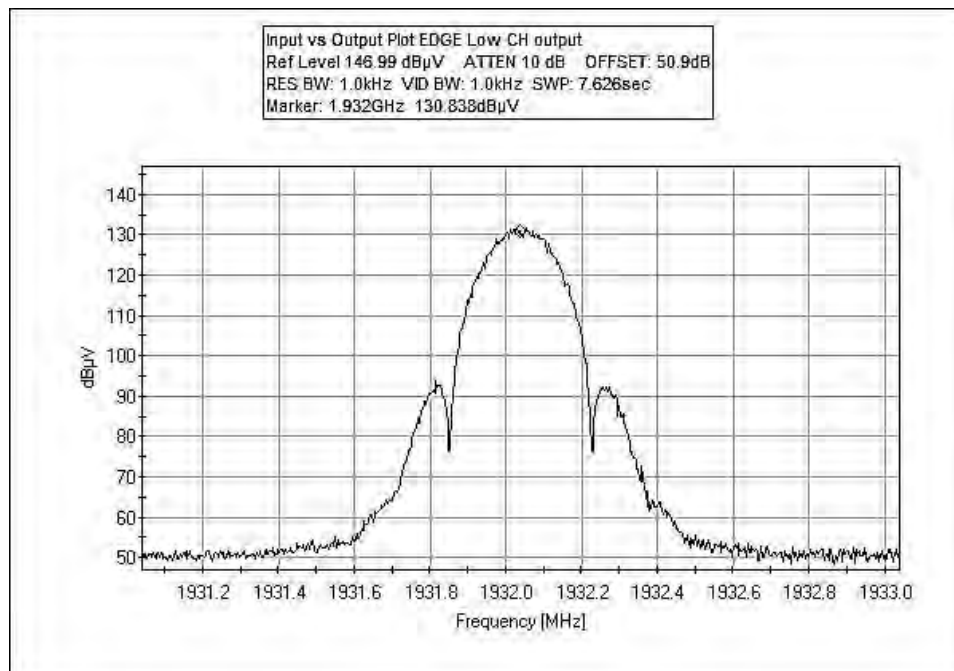
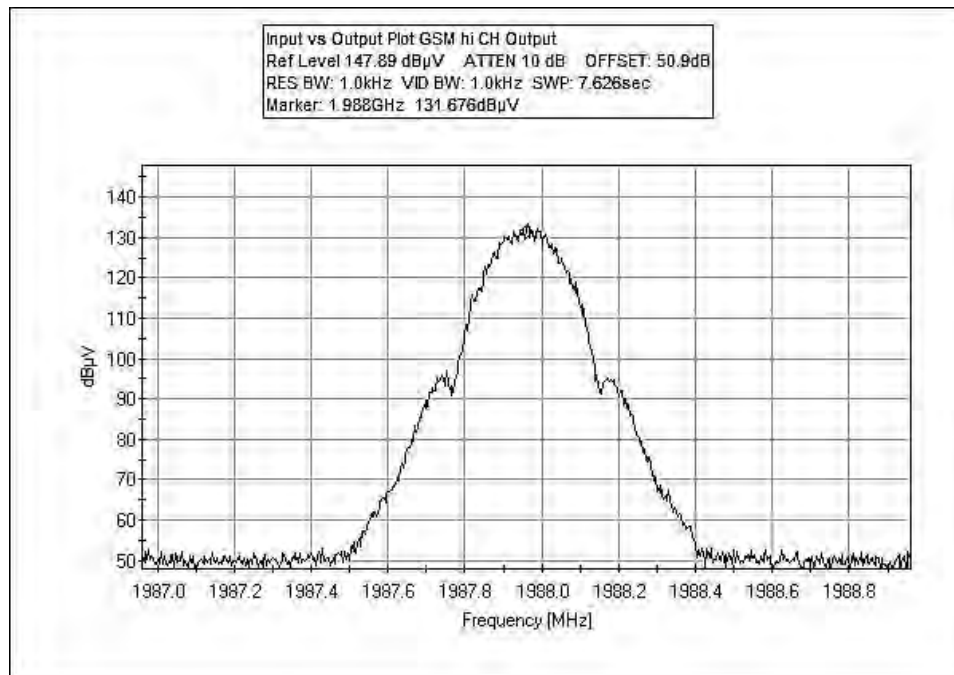


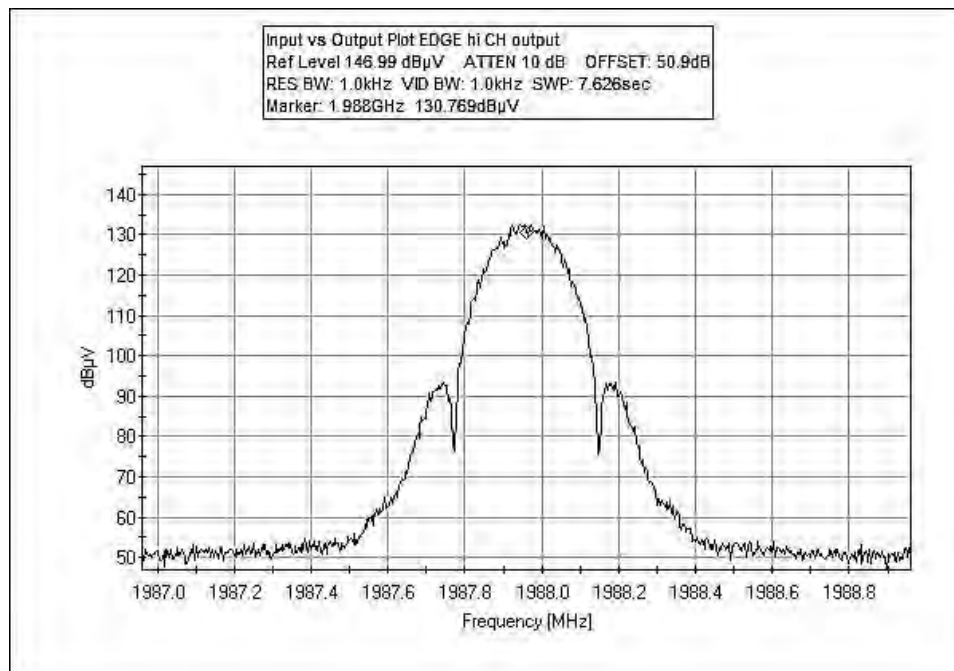
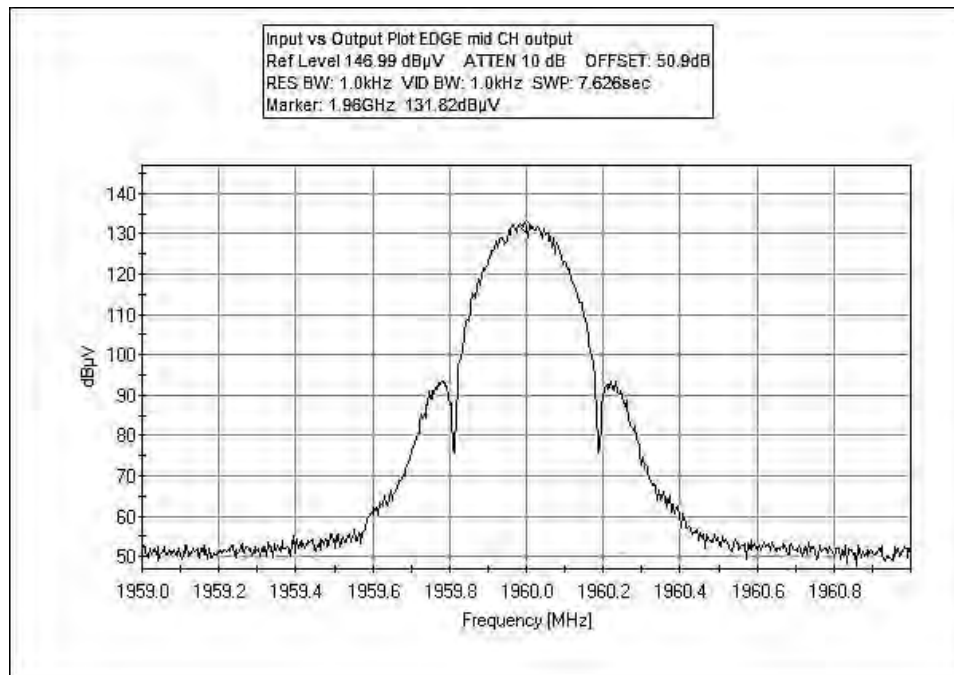


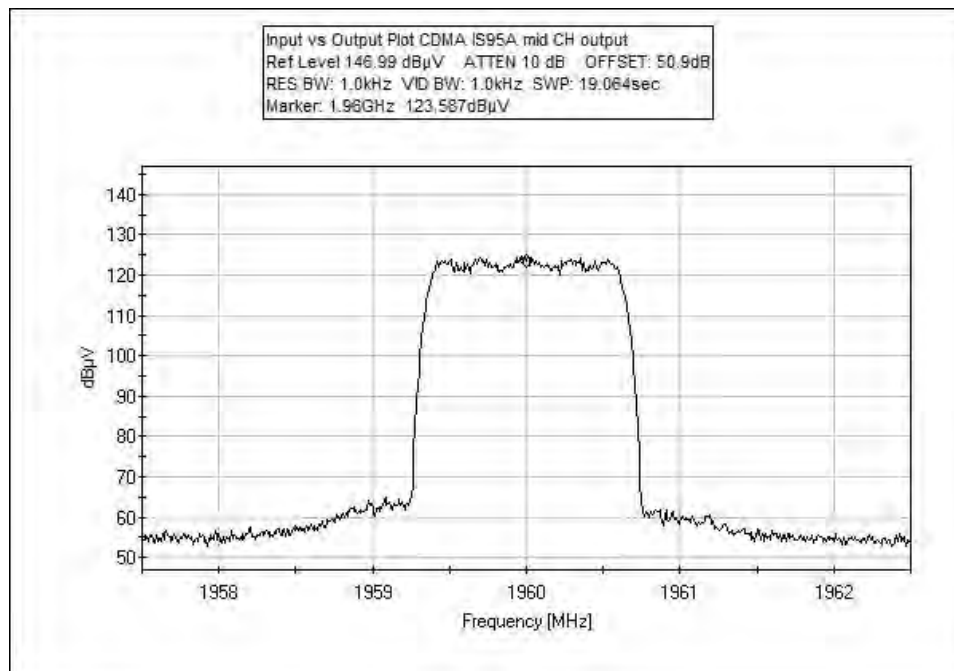
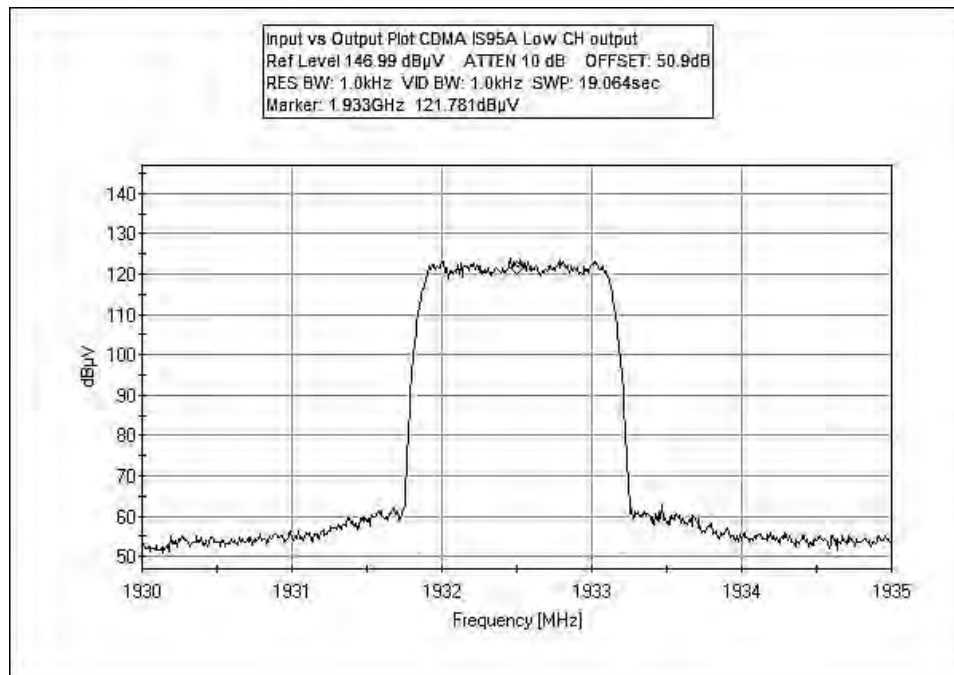


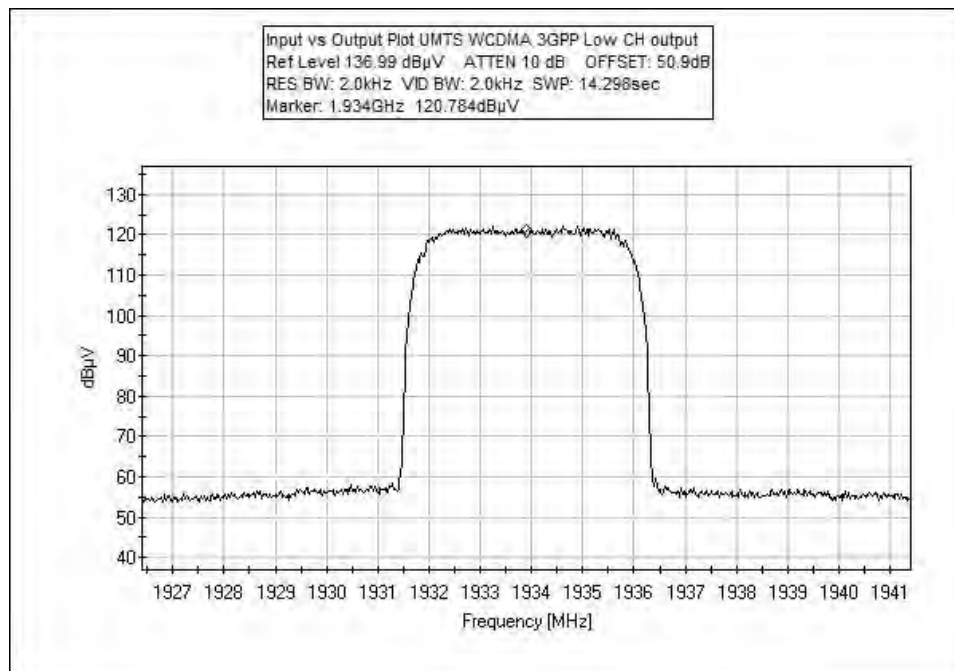
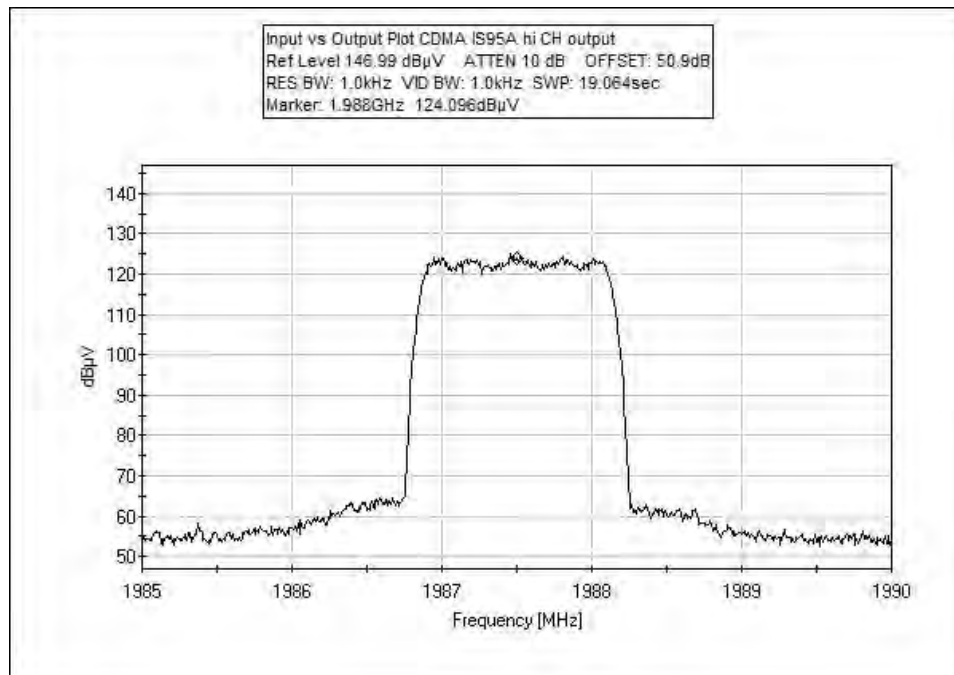


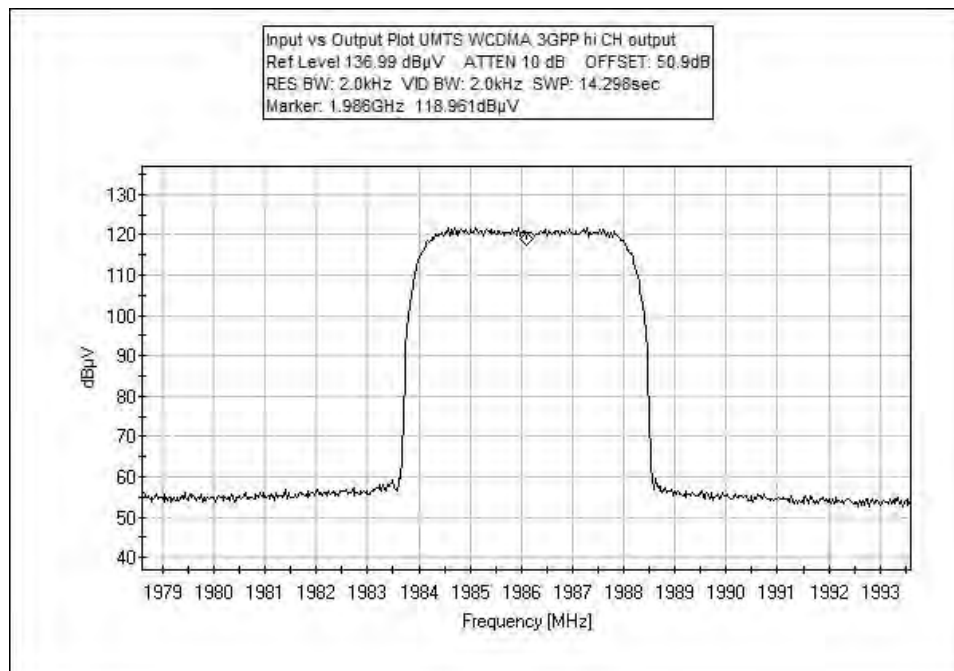
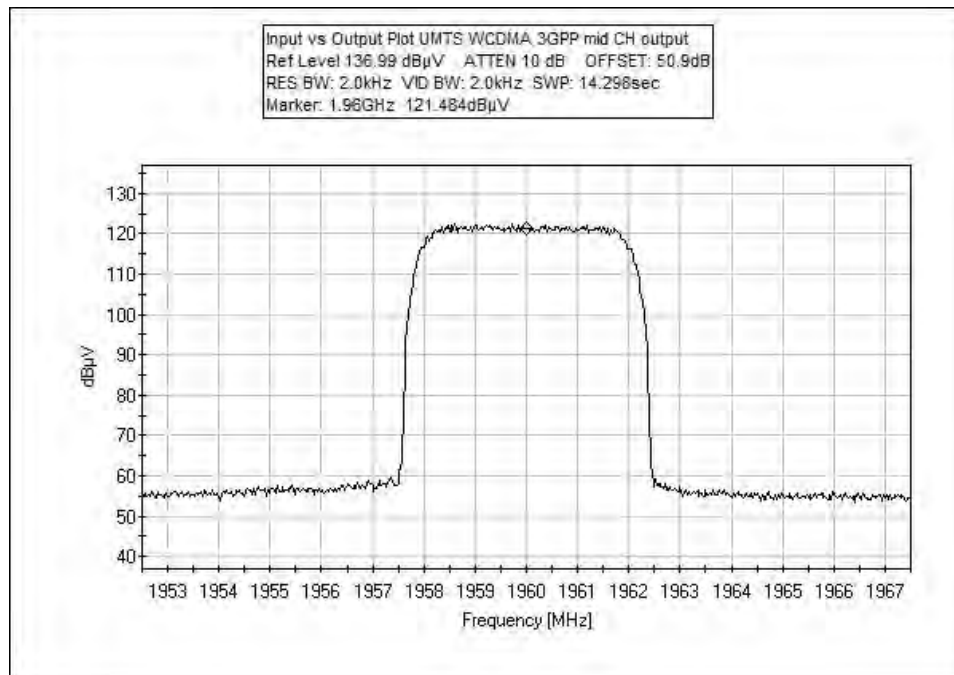


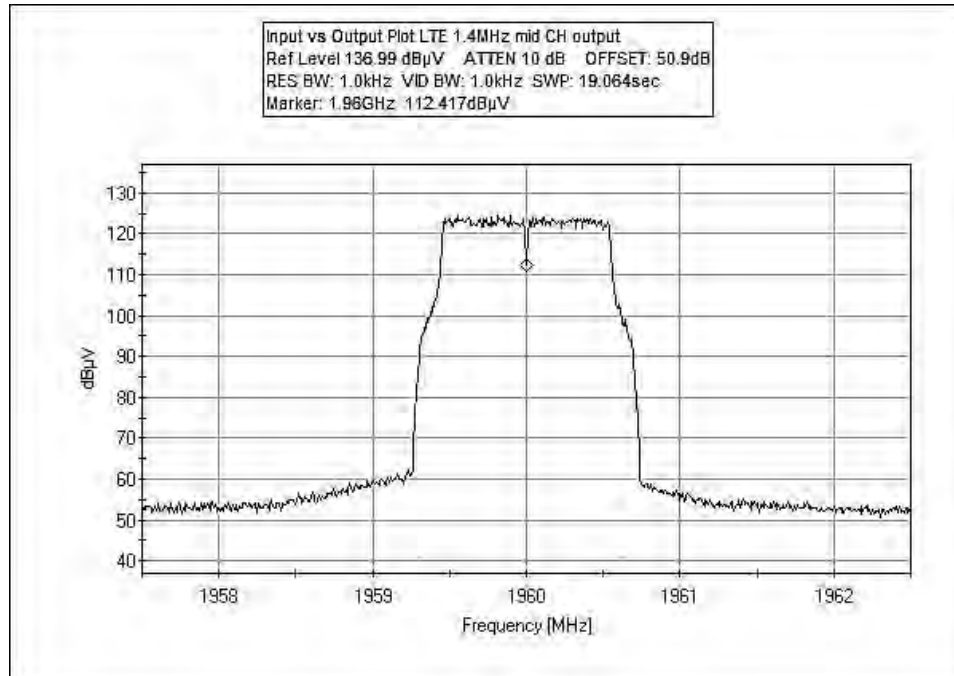
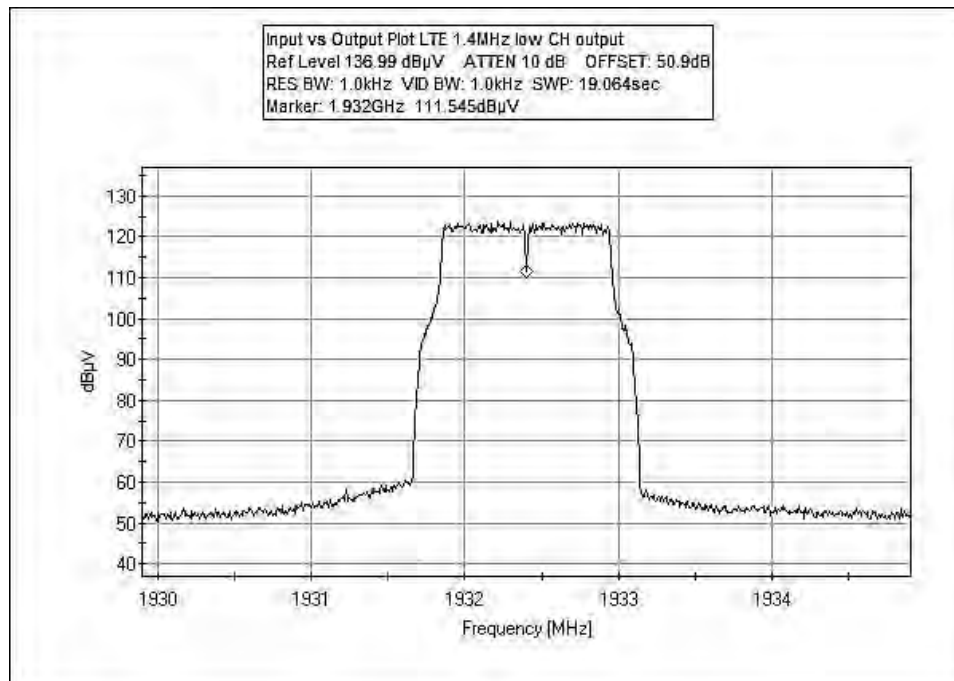


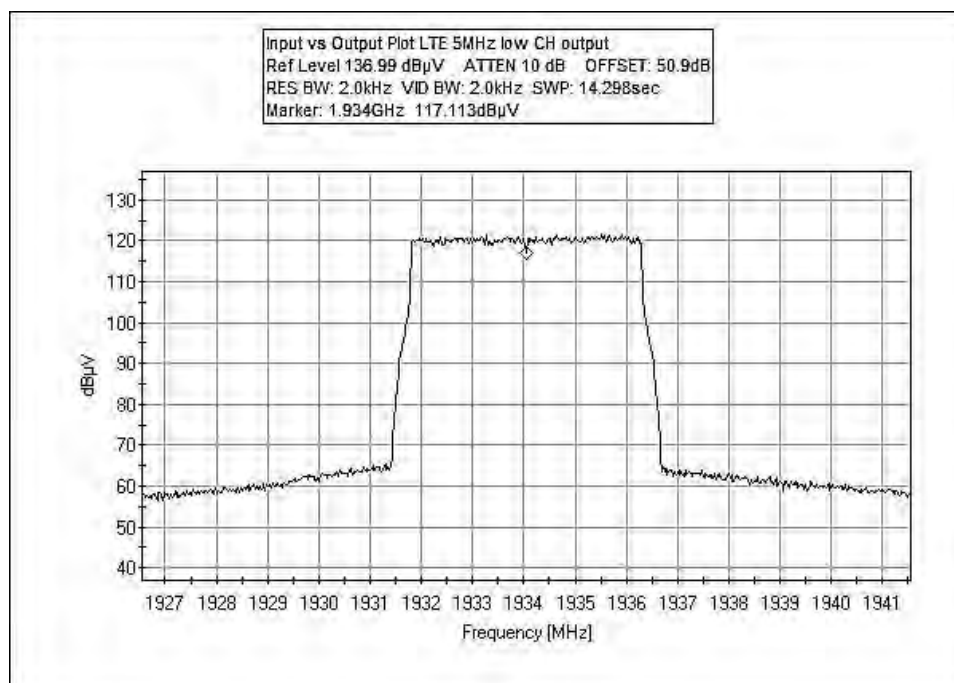
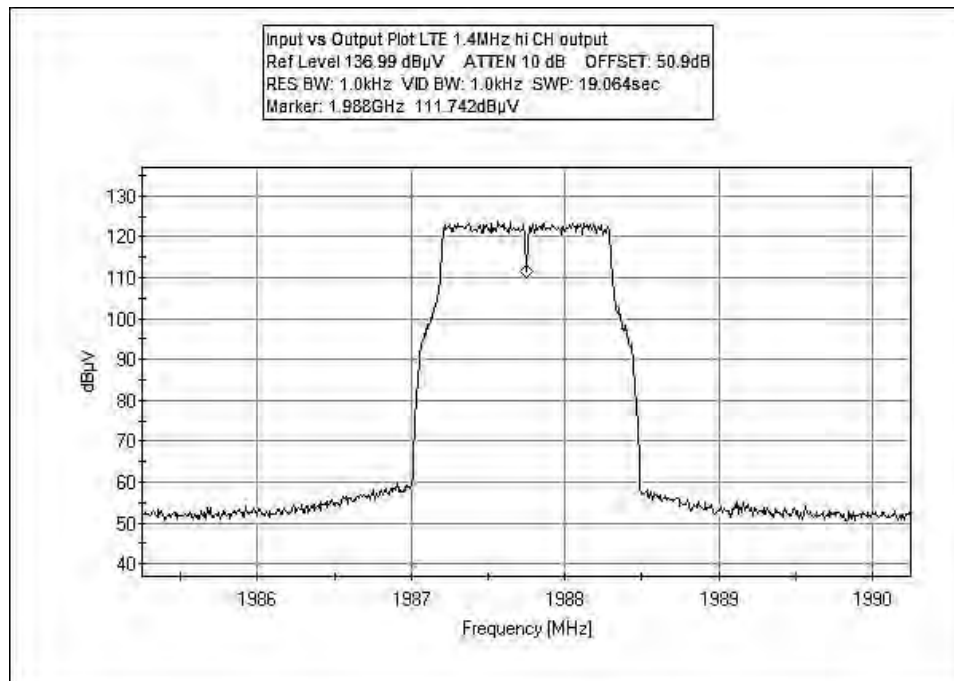


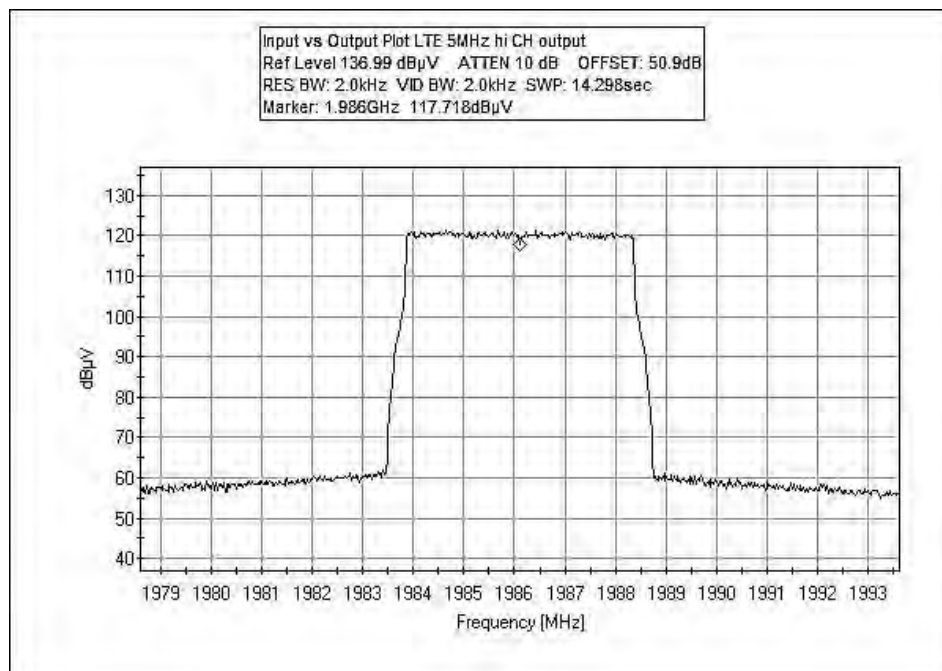
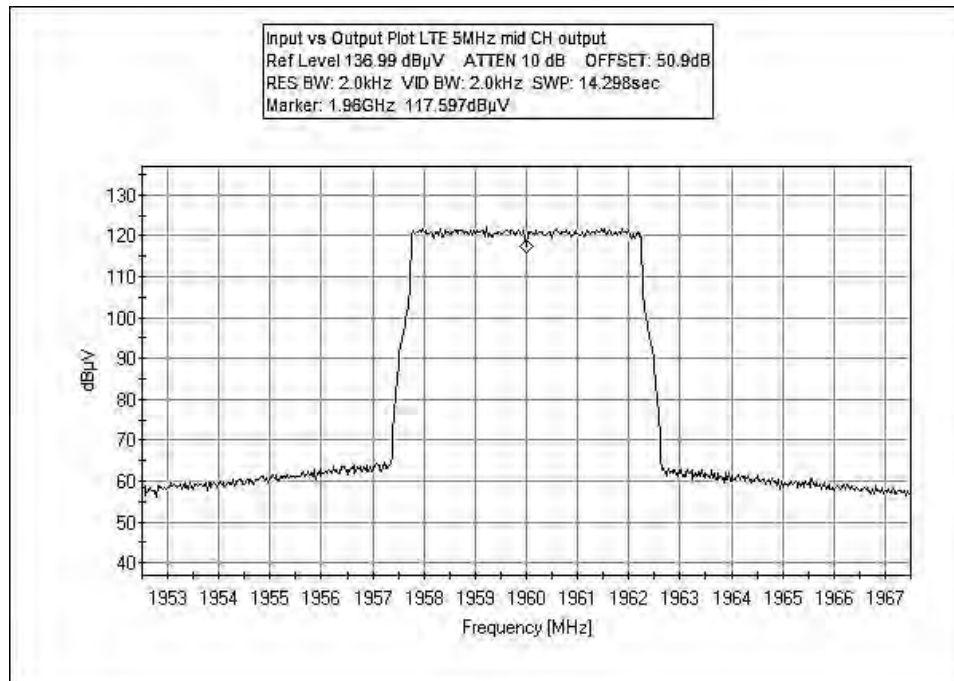


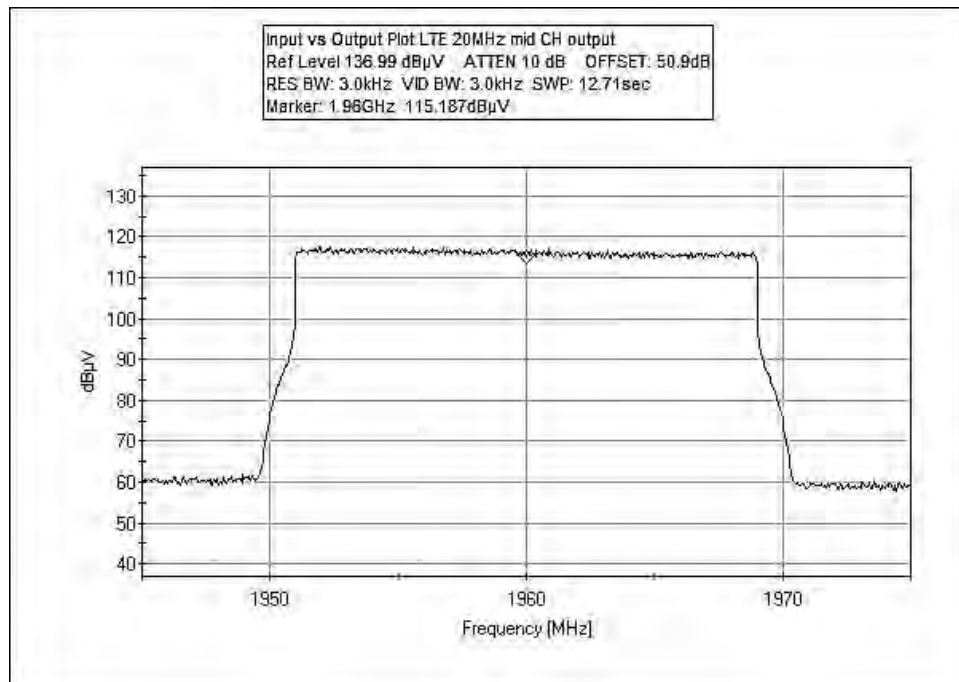
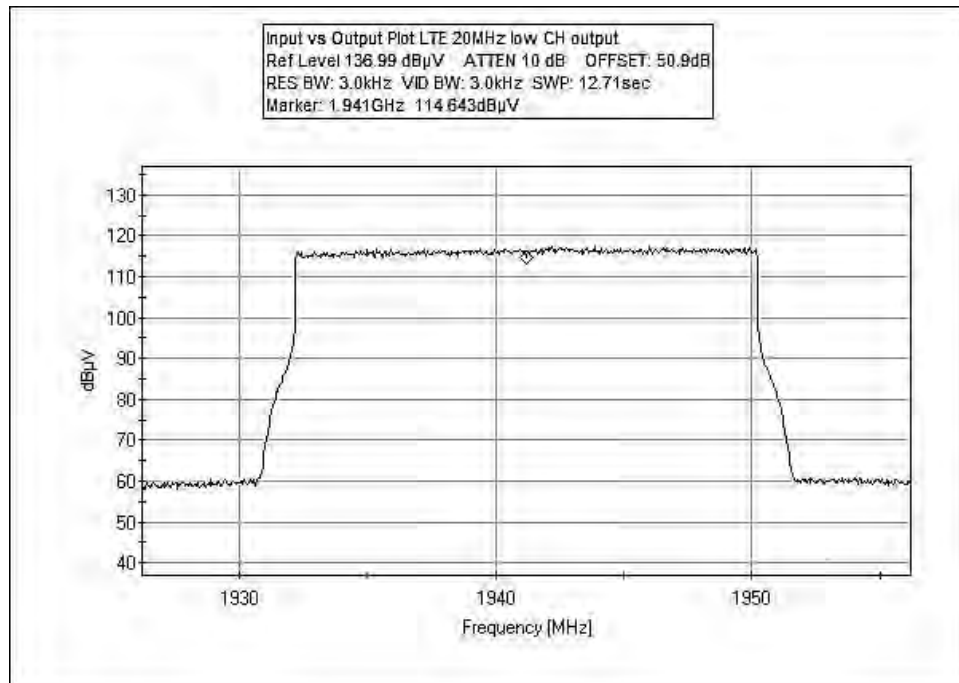


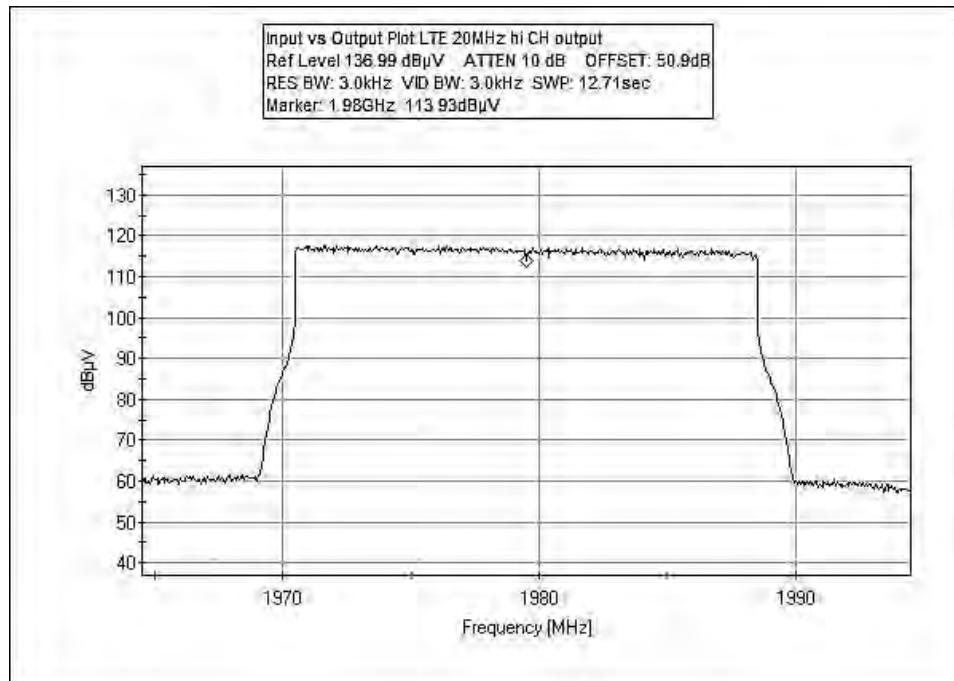












Test Setup Photos



Overall Test Setup

2.1051 Spurious Emissions at Antenna Terminal

Test Data

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

Customer: **BTI Wireless**

Specification: **24.238 (a) Broadband PCS Conducted Spurious Emission**

Work Order #: **95157**

Date: 11/22/2013

Test Type: **Conducted Emissions**

Time: 14:18:02

Equipment: **1900MHz 40W Transmitting Remote Unit**

Sequence#: 4

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC1900-040-RUSSF01

110V 60Hz

S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015
	AN03385	High Pass Filter	11SH10-3000/T10000-O/O	6/5/2013	6/5/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Cable	Pasternack	Sucoflex 104A	12237/4A

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to an ESG Signal generator via cable Sucoflex 104A. ANT port is connected to 30db attenuator and 110db step attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port .

Freq: 1930-1990MHz

Signal protocol: GSM, EDGE, CDMA (IS95A), UMTS (WCDMA_3GPP), LTE-TM1.1 1.4MHz, 5MHz. 20MHz

The RF output power was measured with the following power settings:

40W

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

GSM

1932.04MHz	-12.42
1960.00MHz	-12.04
1987.96MHz	-11.36

EDGE

1932.04MHz	-11.24
1960.00MHz	-11.24
1987.96MHz	-11.12

CDMA (IS95A)

1932.5MHz	-11.08
1960.00MHz	-11.44
1987.5MHz	-11.02

UMTS (WCMDA 3GPP)

1933.9MHz	-11.2
1960.00MHz	-11.62
1986.1MHz	-11.14

LTE 1.4MHz

1932.40MHz	-11.14
1960.00MHz	-11.62
1987.75MHz	-11.02

LTE 5MHz

1934.05MHz	-11.3
1960.00MHz	-11.78
1986.11MHz	-11.24

LTE 20MHz

1941.2MHz	-11.76
1960.00MHz	-11.76
1979.5MHz	-11.52

20W

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

GSM

1932.04MHz	-14.09
1960.00MHz	-14.24
1987.96MHz	-14.66

EDGE

1932.04MHz	-9.62
1960.00MHz	-9.22
1987.96MHz	-9.06

CDMA (IS95A)

1932.5MHz	-12.42
-----------	--------

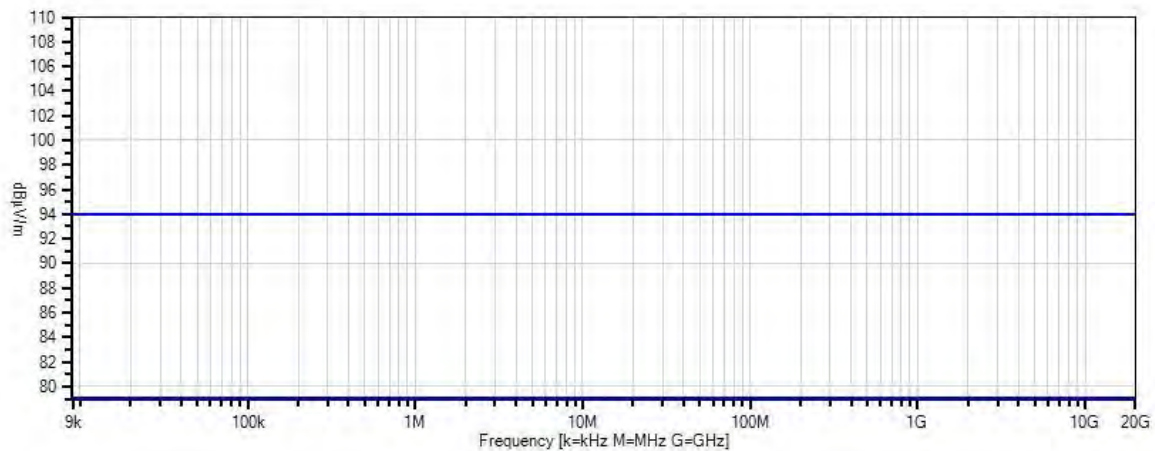
1960.00MHz	-12.54
1987.5MHz	-11.8
UMTS (WCMDA 3GPP)	
1933.9MHz	-13.96
1960.00MHz	-15.38
1986.1MHz	-14.82
LTE 1.4MHz	
1932.40MHz	-14.54
1960.00MHz	-14.54
1987.75MHz	-13.86
LTE 5MHz	
1934.05MHz	-15.02
1960.00MHz	-15.6
1986.11MHz	-14.98
LTE 20MHz	
1941.2MHz	-15.58
1960.00MHz	-15.58
1979.5MHz	-15.32
10W	
Modulation	Input Power (dbm)
GSM	
1932.04MHz	-18.1
1960.00MHz	-18.84
1987.96MHz	-18.14
EDGE	
1932.04MHz	-18.5
1960.00MHz	-18.5
1987.96MHz	-18.24
CDMA (IS95A)	
1932.5MHz	-18.06
1960.00MHz	-18.22
1987.5MHz	-18.12
UMTS (WCMDA 3GPP)	
1933.9MHz	-18.24
1960.00MHz	-18.82
1986.1MHz	-18.1
LTE 1.4MHz	
1932.40MHz	-18.22
1960.00MHz	-18.22
1987.75MHz	-18.02
LTE 5MHz	

1934.05MHz	-18.2
1960.00MHz	-18.8
1986.11MHz	-18.2
LTE 20MHz	
1941.2MHz	-18.82
1960.00MHz	-18.82
1979.5MHz	-18.68
Frequency range of measurement = 9kHz- 20GHz.	
9 kHz -150 kHz;RBW=200 Hz,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-20000 MHz;RBW=1 MHz,VBW=1 MHz.	
22°C, 45% Relative Humidity	
Site A	
No harmonic emission was 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	12.093M	64.1	+0.0	+0.2			+0.0	64.3	94.0	-29.7	Ant P
	Ave								40W, CDMA IS95A, hi CH, input power= -11.02dbm		
^	12.093M	72.6	+0.0	+0.2			+0.0	72.8	94.0	-21.2	Ant P
									40W, CDMA IS95A, hi CH, input power= -11.02dbm		
3	14.937M	60.8	+0.0	+0.2			+0.0	61.0	94.0	-33.0	Ant P
	Ave								40W, CDMA IS95A, hi CH, input power= -11.02dbm		
^	14.937M	68.4	+0.0	+0.2			+0.0	68.6	94.0	-25.4	Ant P
									40W, CDMA IS95A, hi CH, input power= -11.02dbm		
5	11.147M	60.2	+0.0	+0.3			+0.0	60.5	94.0	-33.5	Ant P
	Ave								40W, CDMA IS95A, hi CH, input power= -11.02dbm		
^	11.147M	70.9	+0.0	+0.3			+0.0	71.2	94.0	-22.8	Ant P
									40W, CDMA IS95A, hi CH, input power= -11.02dbm		

CKC Laboratories Inc. Date: 11/22/2013 Time: 14:18:02 BTI Wireless WO#: 95157
 24.238 (a) Broadband PCS Conducted Spurious Emission Test Lead: Ant Port 110V 60Hz Sequence#: 4 Ext
 ATTN: 0 dB



- Sweep Data
- Readings
- Peak Readings
- * QP Readings
- * Average Readings
- ▼ Ambient
- 1 - 24.238 (a) Broadband PCS Conducted Spurious Emission

Test Setup Photos



Overall Test Setup

Field Strength of Spurious Radiation

Test Data

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

Customer: **BTI Wireless**
 Specification: **24.238 (a) Broadband PCS Radiated Spurious Emission**
 Work Order #: **95157** Date: 11/21/2013
 Test Type: **Maximized Emissions** Time: 10:46:03
 Equipment: **1900MHz 40W Transmitting Remote Unit** Sequence#: 6
 Manufacturer: BTI Wireless Tested By: Don Nguyen
 Model: mBSC1900-040-RUSSF01
 S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	AN01995	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
T3	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T4	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T5	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
	AN00787	Preamp	83017A	5/31/2013	5/31/2015
	AN00849	Horn Antenna	3115	4/13/2012	4/13/2014
	ANP05421	Cable	Sucoflex 104A	2/8/2012	2/8/2014
	ANP05988	Cable	LDF1-50	3/12/2012	3/12/2014
	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Power Meter	HP	EPM-441A	GB37170458
Power Sensor	Agilent	E4412A	MY41502826

Test Conditions / Notes:

The EUT is placed on wooden table. Tx In is connected to an ESG located remotely, ANT is connected to a power meter to verify power output. RX out port is terminated to 50 ohm load.

Freq: 1930 - 1990MHz

Signal protocol: LTE 1.4MHz, 5MHz, 20MHz, GSM/EDGE/CDMA/WCDMA

Highest rating power : 40 W

Frequency range of measurement = 9 kHz- 20GHz.

9 kHz -150 kHz;RBW=200 Hz,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-20000 MHz;RBW=1 MHz,VBW=1 MHz.

19°C, 63% Relative Humidity

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

Data is presented in the worst case scenario.

Operating Frequency: 1930-1990MHz
Channels: CDMA IS95A
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
86.75	-59.52059991	Vert	105.52
86.75	-58.42059991	Horiz	104.42
125.35	-58.32059991	Vert	104.32
125.35	-57.72059991	Horiz	103.72
133.40	-59.22059991	Vert	105.22
133.40	-64.92059991	Horiz	110.92
172.80	-63.52059991	Vert	109.52
172.80	-62.62059991	Horiz	108.62
235.40	-62.22059991	Vert	108.22
235.40	-58.62059991	Horiz	104.62

Test Setup Photos



Band Edge

Test Data

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

Customer: **BTI Wireless**
 Specification: **Band Edge Plots**
 Work Order #: **95157** Date: 11/22/2013
 Test Type: **Conducted Emissions** Time: 14:18:02
 Equipment: **1900MHz 40W Transmitting Remote Unit** Sequence#: 4
 Manufacturer: BTI Wireless Tested By: Don Nguyen
 Model: mBSC1900-040-RUSSF01 110V 60Hz
 S/N: 1093530401011311101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	1093530401011311101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Cable	Pasternack	Sucoflex 104A	12237/4A

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to an ESG Signal generator via cable Sucoflex 104A. ANT port is connected to 30db attenuator and 110db step attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port.

Freq: 1930-1990MHz

Signal protocol: GSM, EDGE, CDMA (IS95A), UMTS (WCDMA_3GPP), LTE-TM1.1 1.4MHz, 5MHz. 20MHz

40W

Modulation Input Power (dbm)

GSM

1932.04MHz -12.42

1960.00MHz -12.04

1987.96MHz -11.36

EDGE

1932.04MHz -11.24

1960.00MHz -11.24

1987.96MHz -11.12

CDMA (IS95A)

1932.5MHz -11.08

1960.00MHz -11.44

1987.5MHz -11.02

UMTS (WCMDA 3GPP)

1933.9MHz -11.2

1960.00MHz -11.62

1986.1MHz -11.14

LTE 1.4MHz

1932.40MHz -11.14

1960.00MHz -11.62

1987.75MHz -11.02

LTE 5MHz

1934.05MHz -11.3

1960.00MHz -11.78

1986.11MHz -11.24

LTE 20MHz

1941.2MHz -11.76

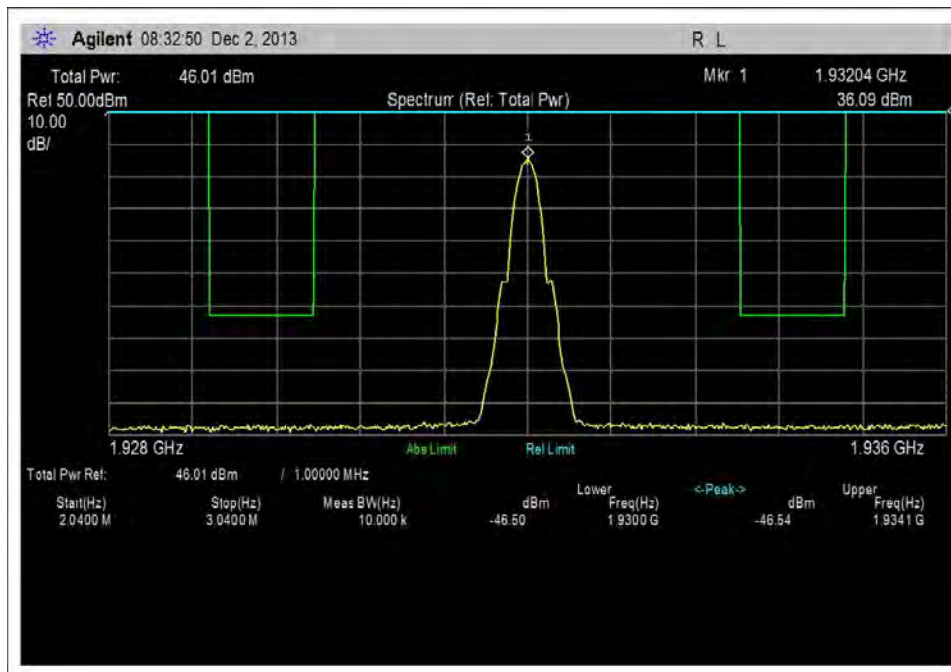
1960.00MHz -11.76

1979.5MHz -11.52

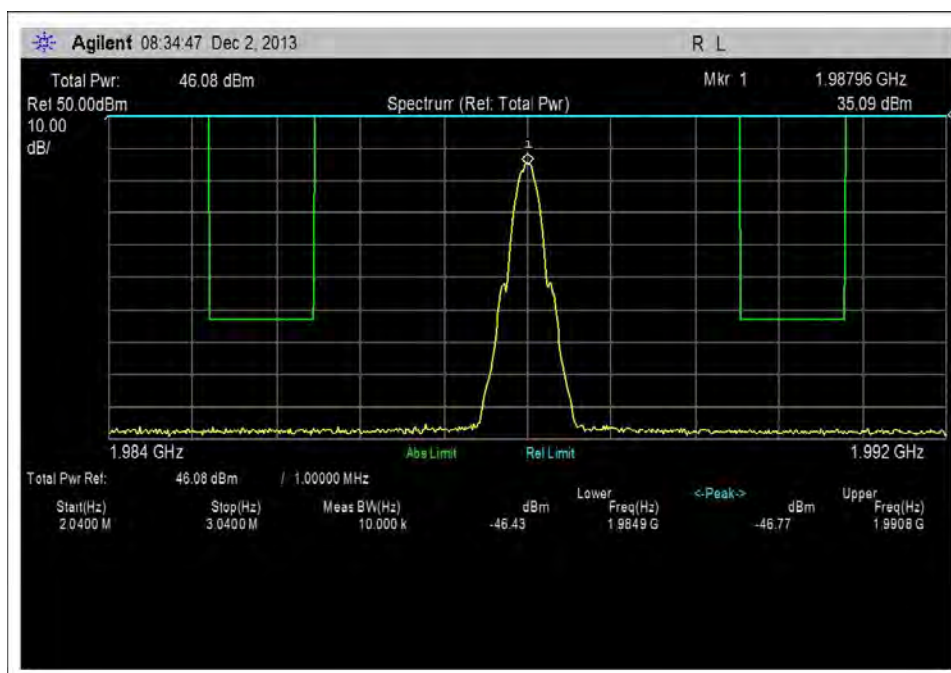
22°C, 45% Relative Humidity

Site A

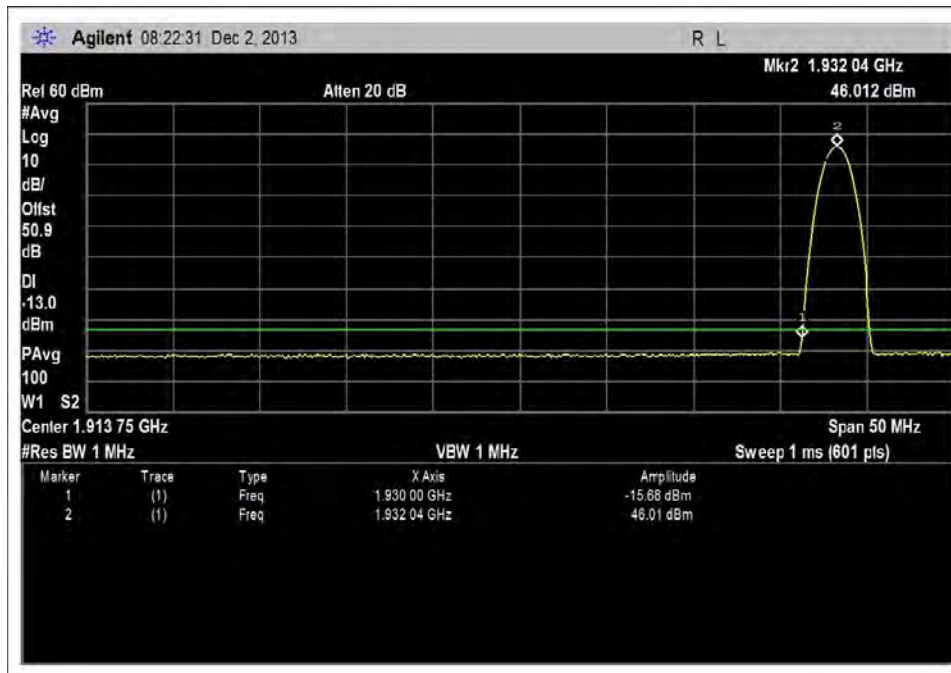
Test Plots



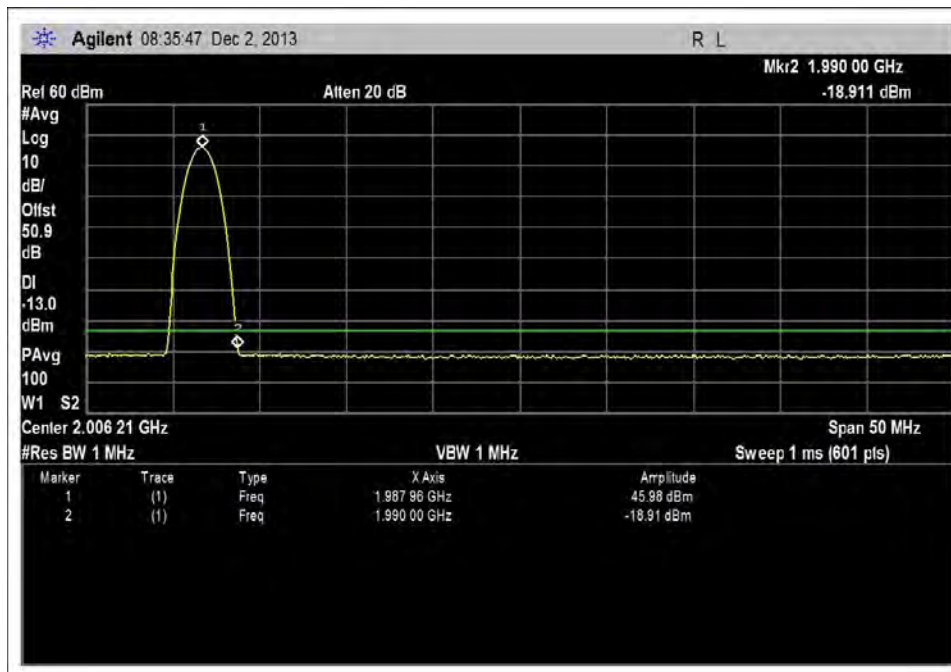
40W, GSM 10kHz – Low



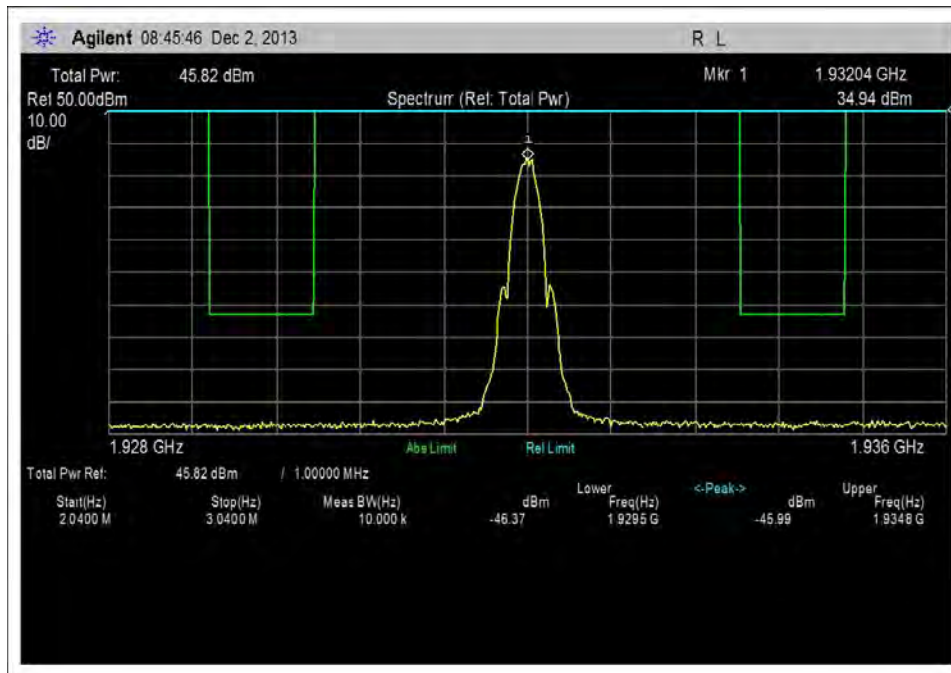
40W, GSM 10kHz – High



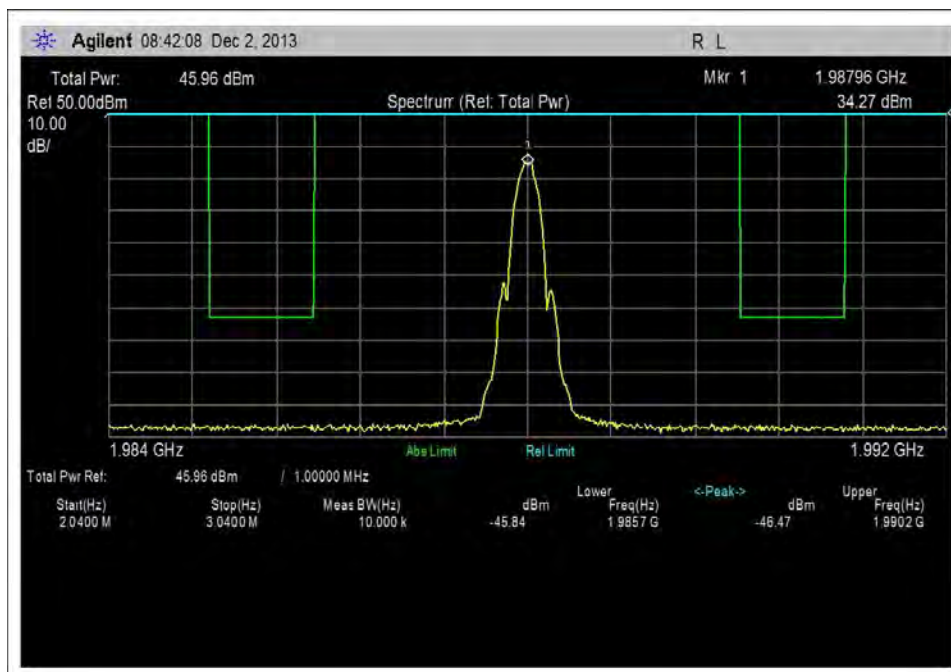
40W, GSM 1MHz - Low



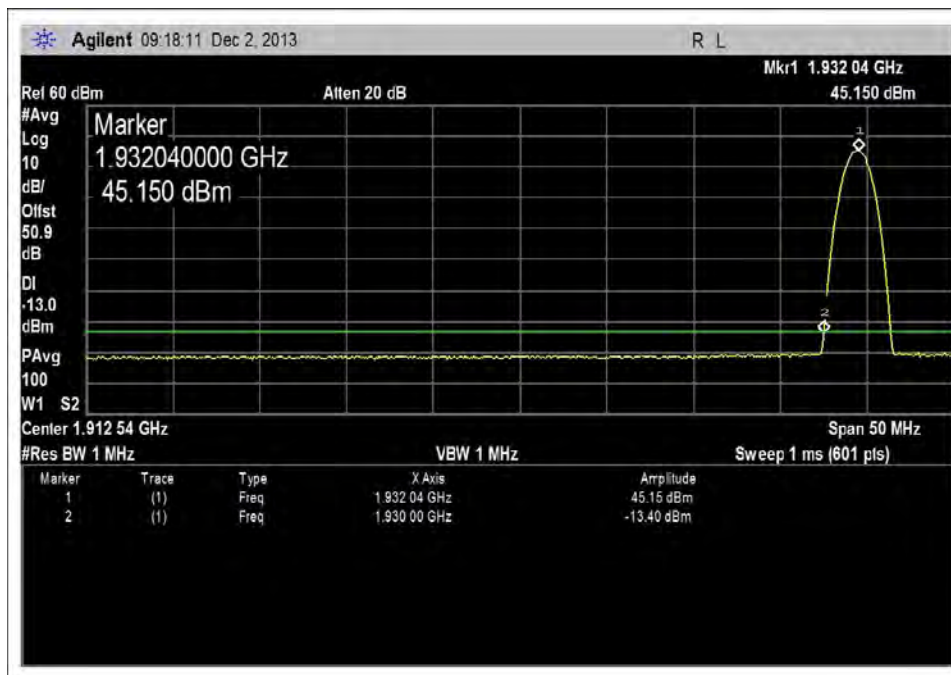
40W, GSM 1MHz - High



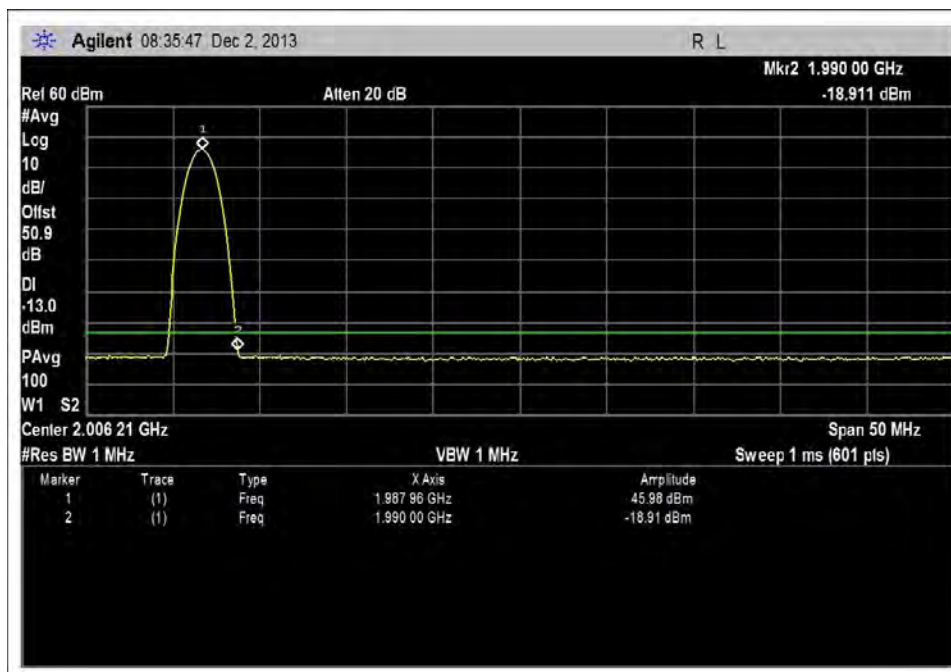
40W, EDGE 10kHz - Low



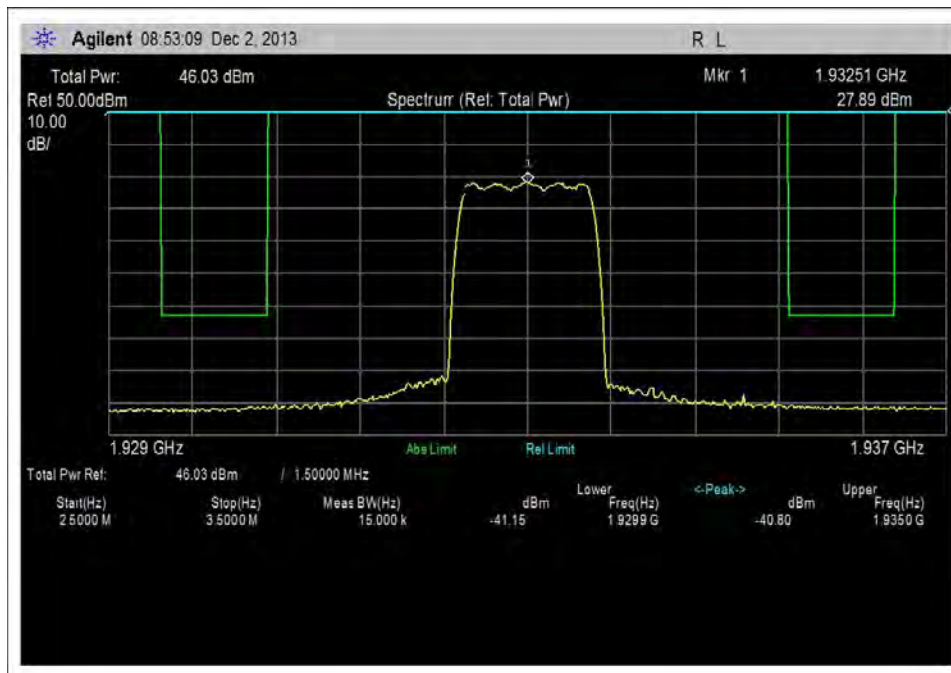
40W, EDGE 10kHz - High



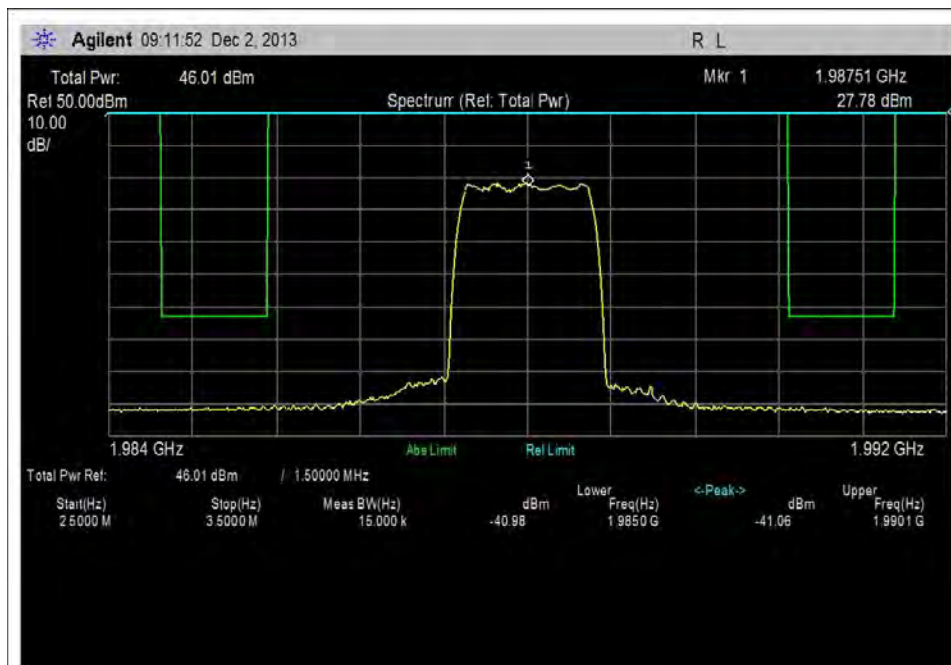
40W, EDGE 1MHz - Low



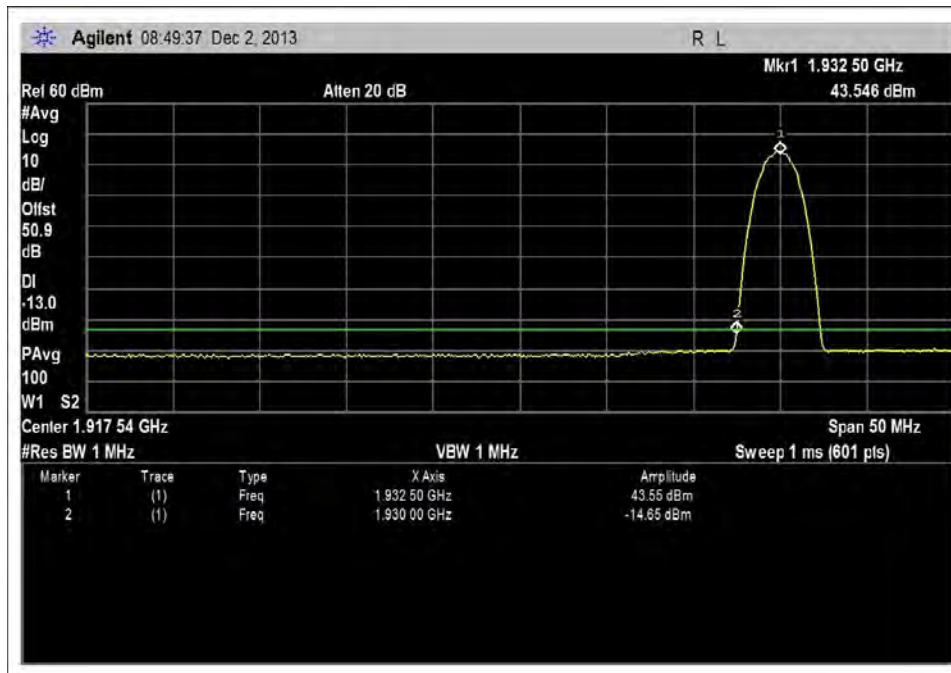
40W, EDGE 1MHz - High



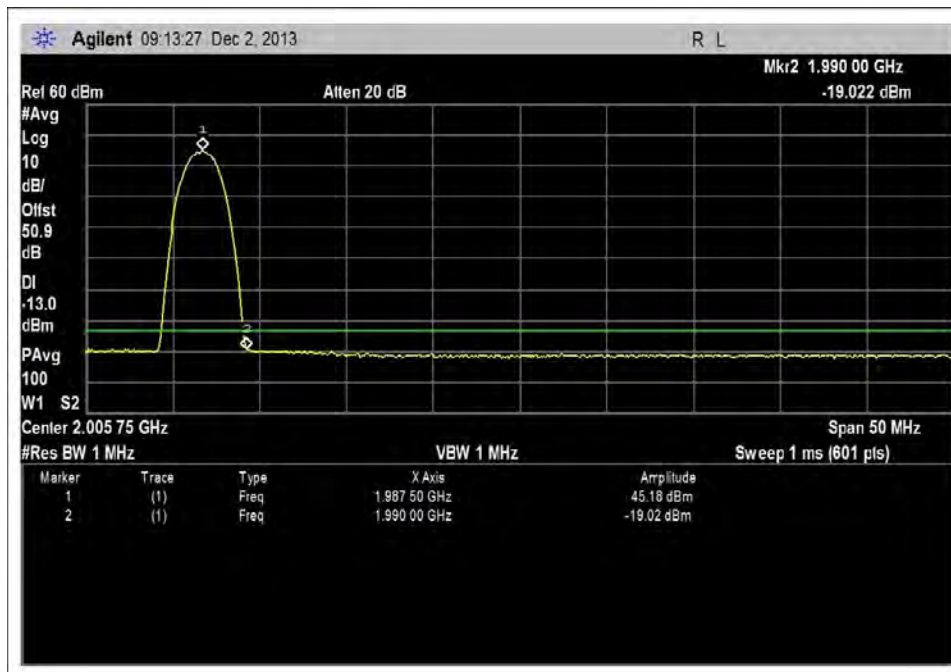
40W, CDMA IS95A 15kHz - Low



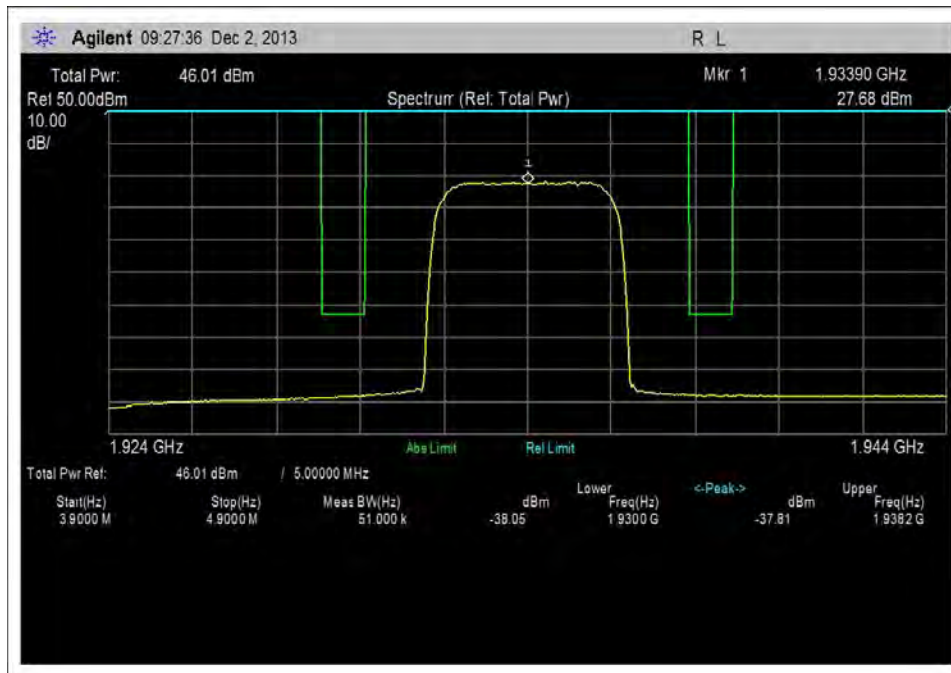
40W, CDMA IS95A 15kHz - High



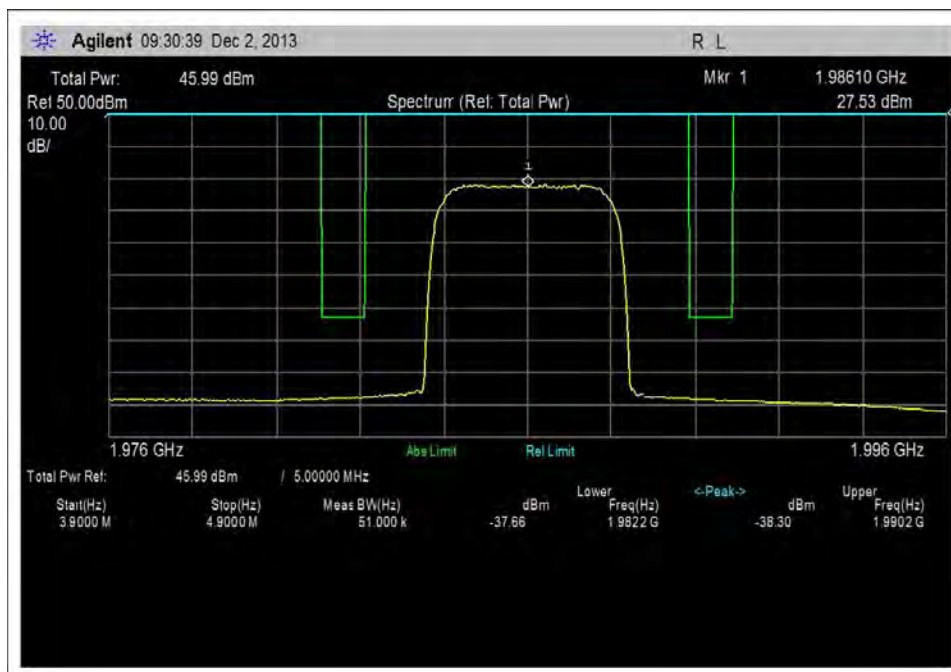
40W, CDMA IS95A 1MHz - Low



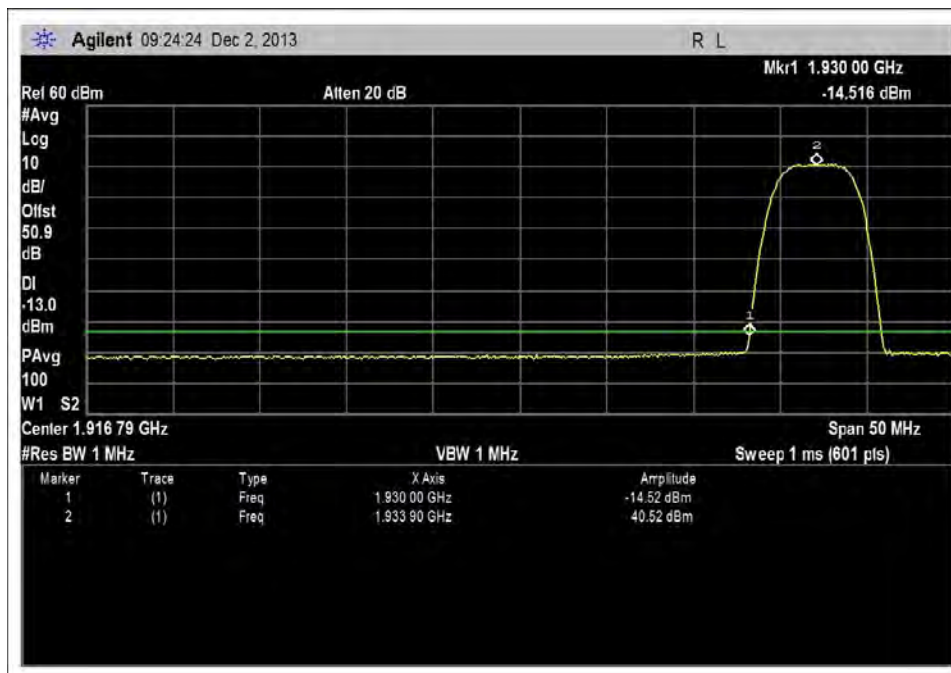
40W, CDMA IS95A 1MHz - High



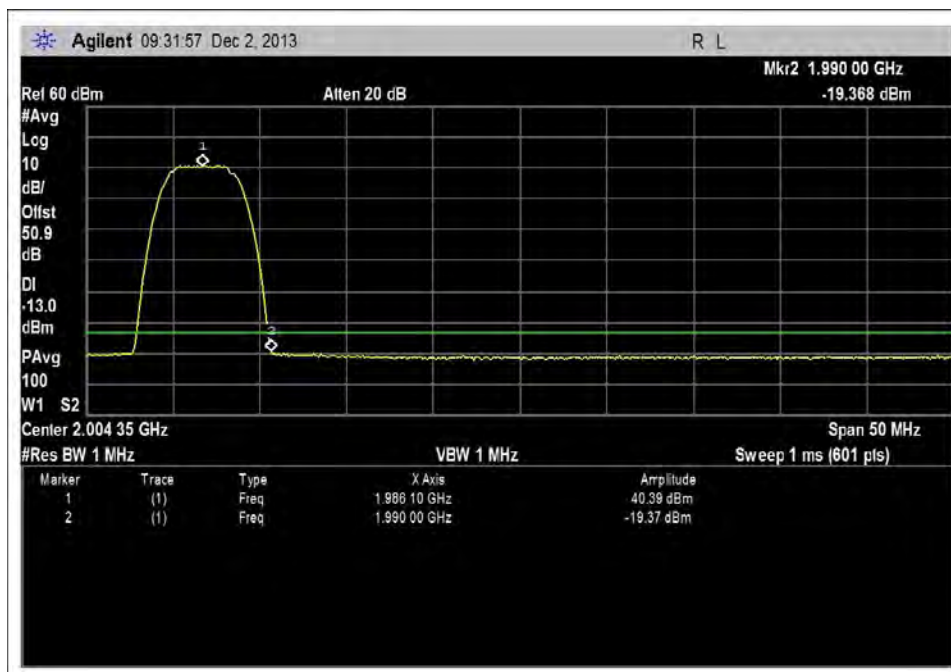
40W, WCDMA 51kHz- Low



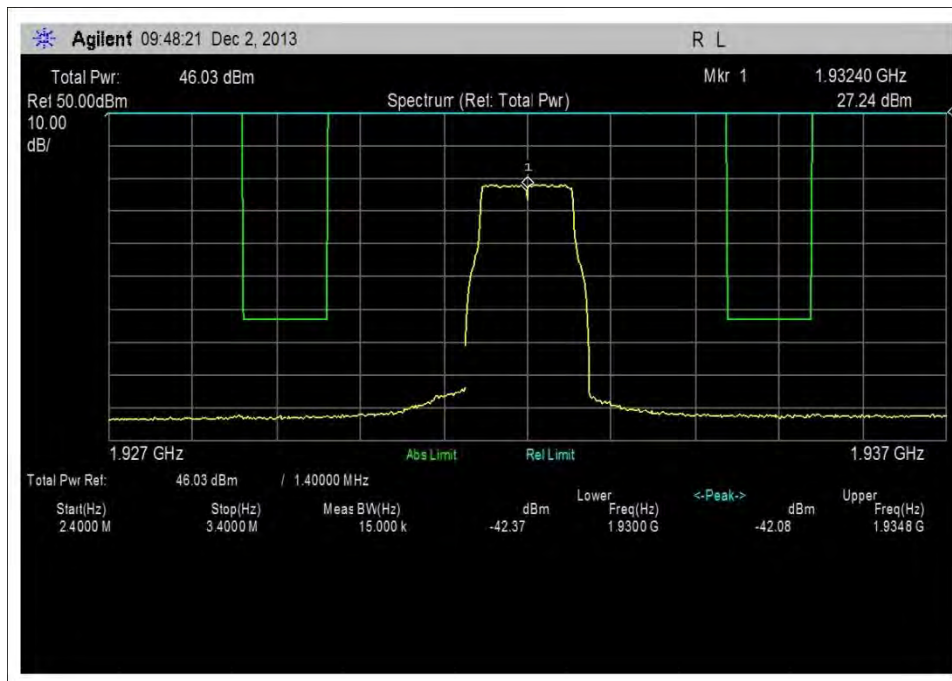
40W, WCDMA 51kHz- High



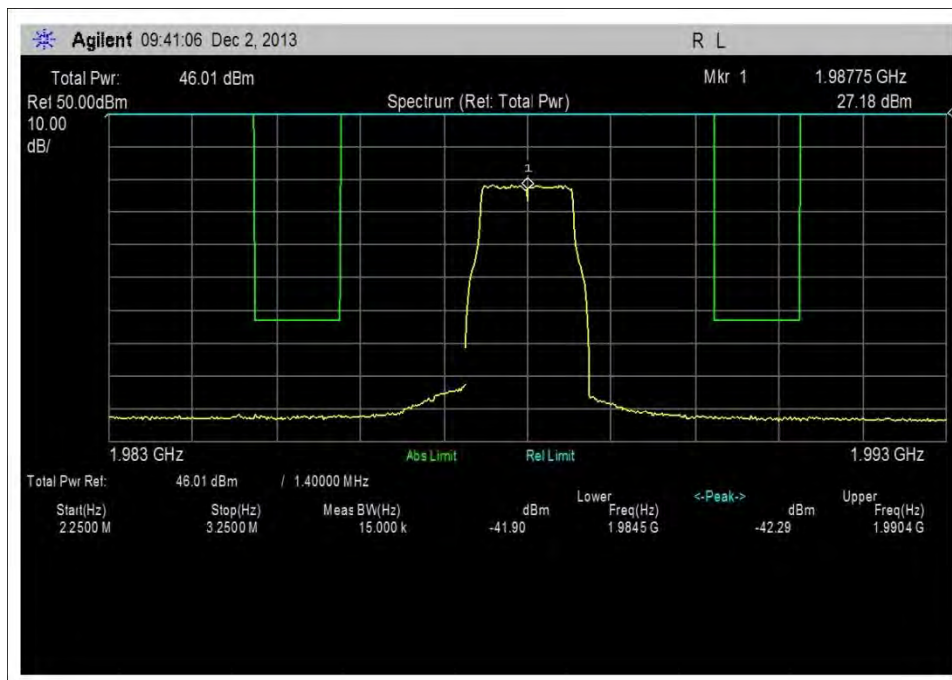
40W, WCDMA 1MHz- Low



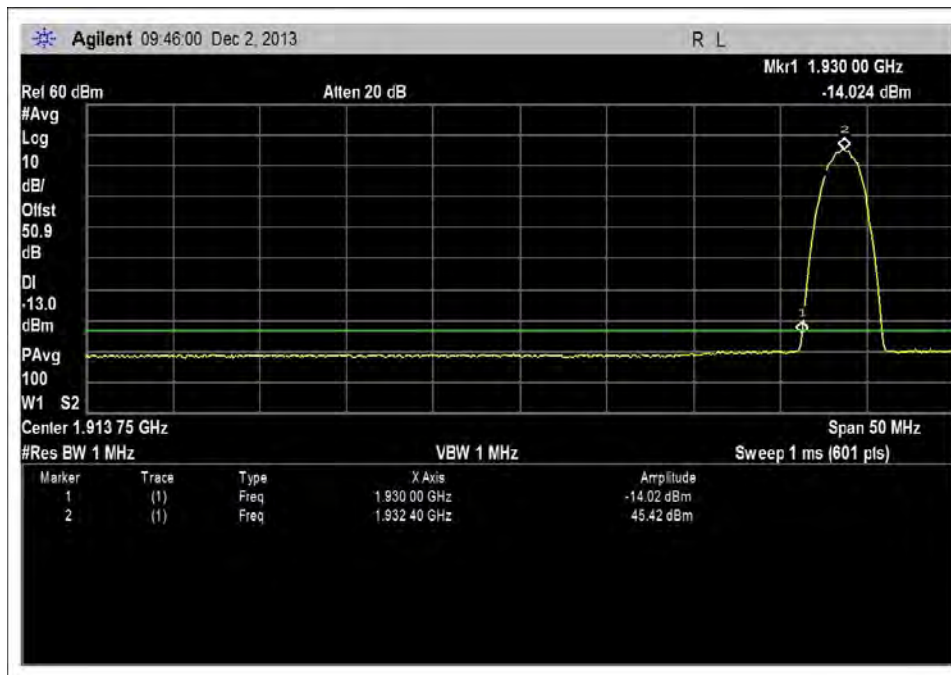
40W, WCDMA 1MHz- High



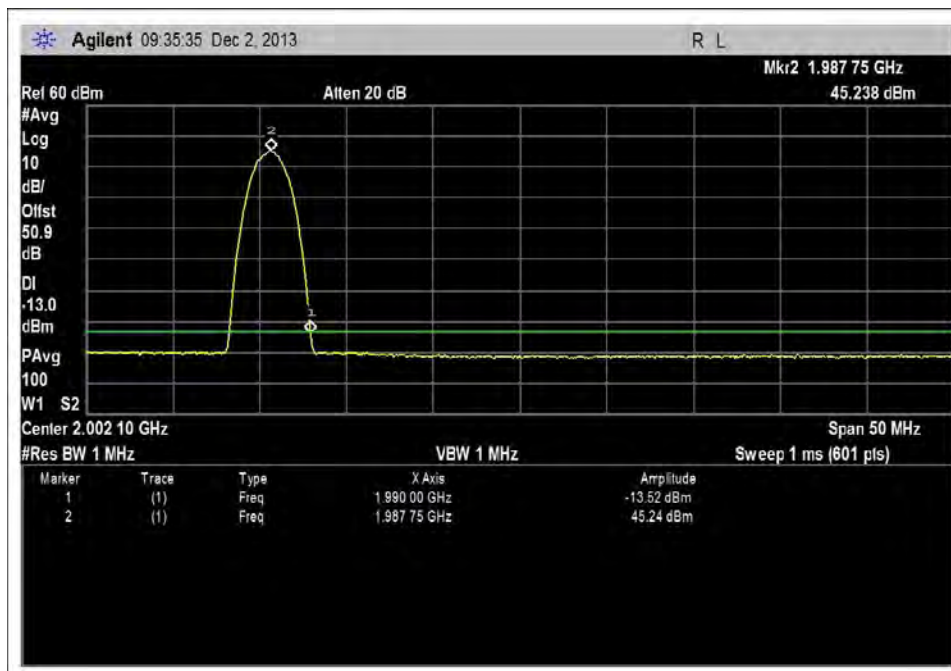
40W, LTE 1.4MHz 15kHz – Low



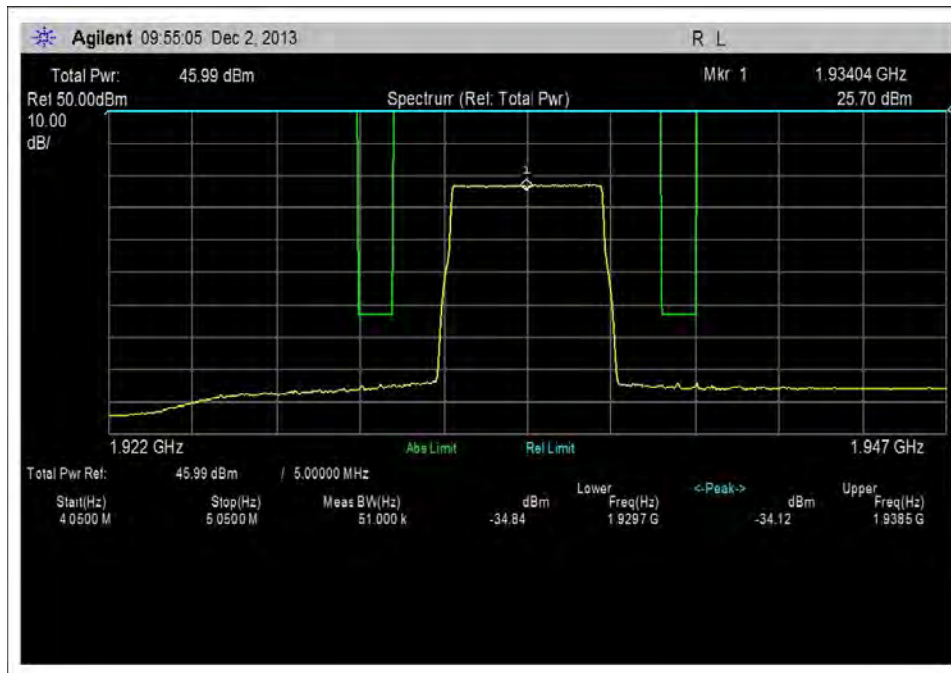
40W, LTE 1.4MHz 15kHz – High



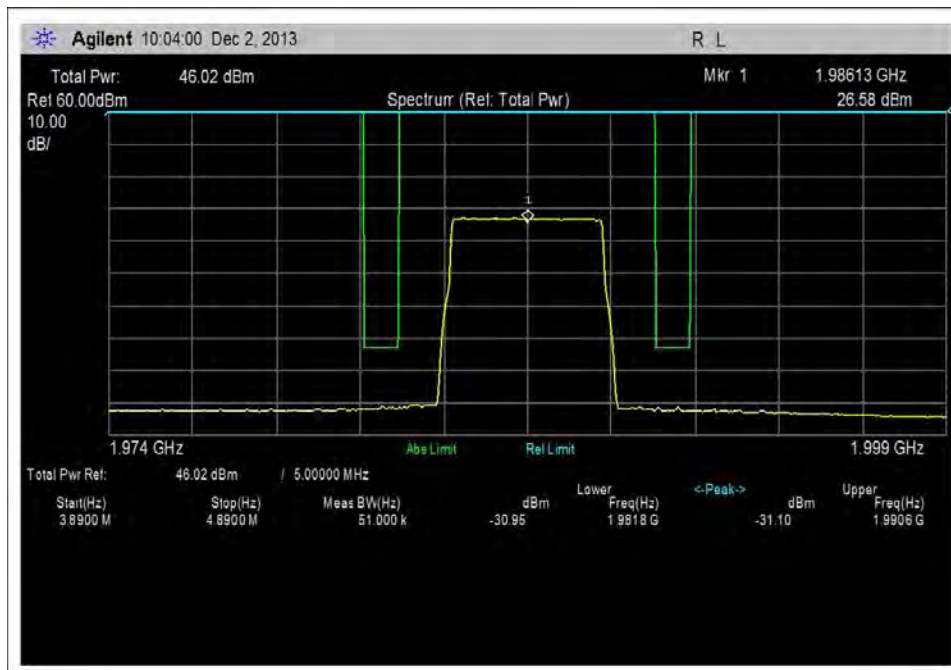
40W, LTE 1.4MHz 1MHz - Low



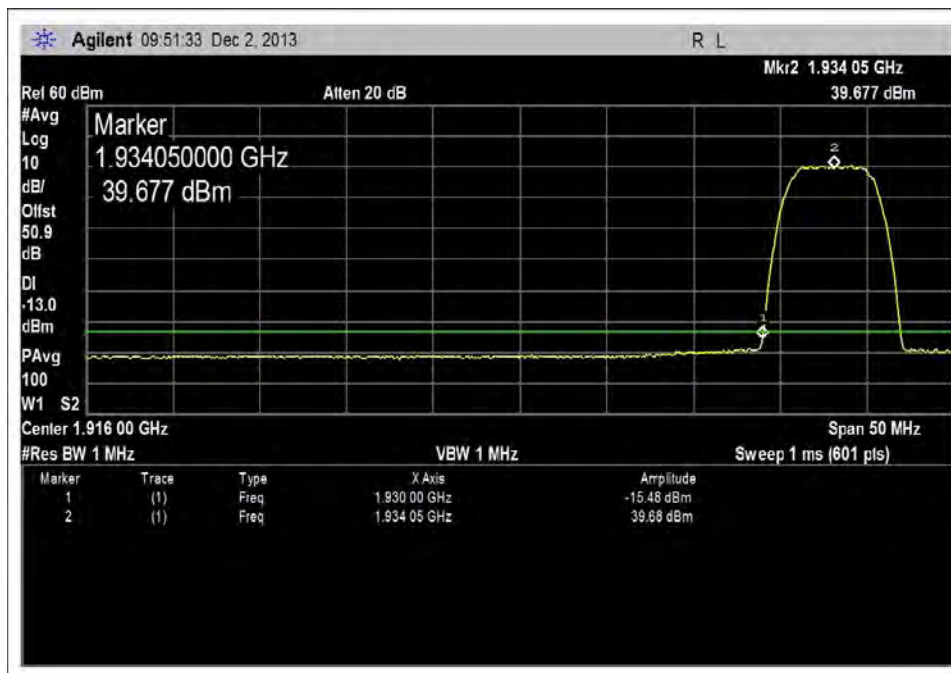
40W, LTE 1.4MHz 1MHz - High



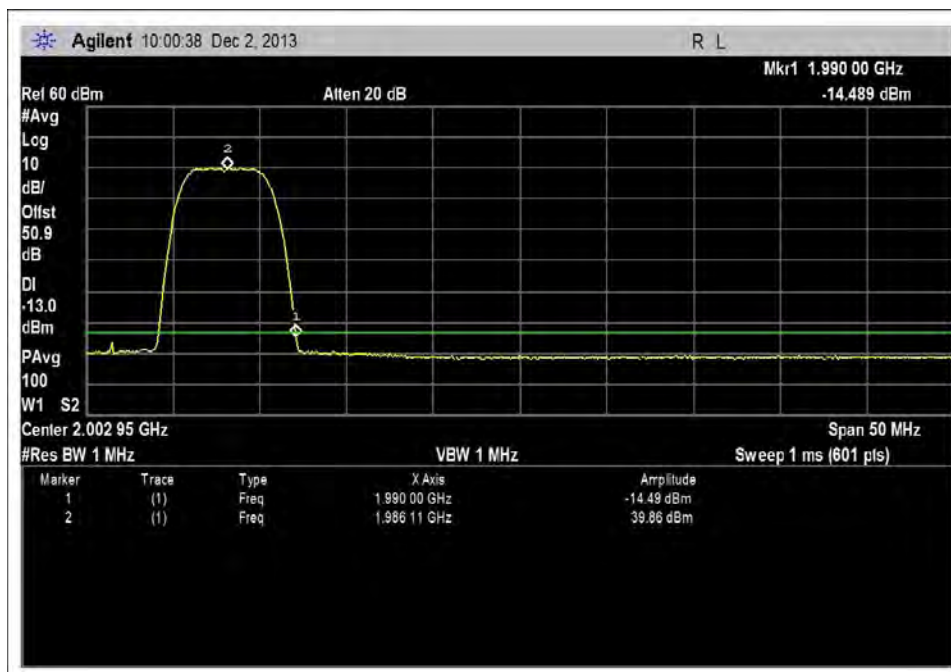
40W, LTE 5MHz 51kHz- Low



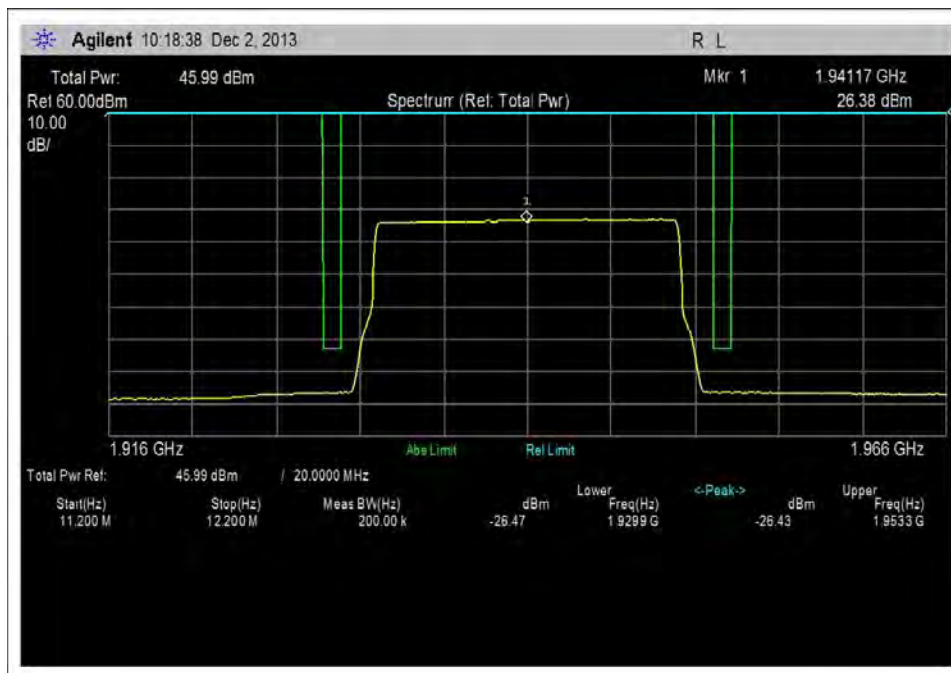
40W, LTE 5MHz 51kHz - High



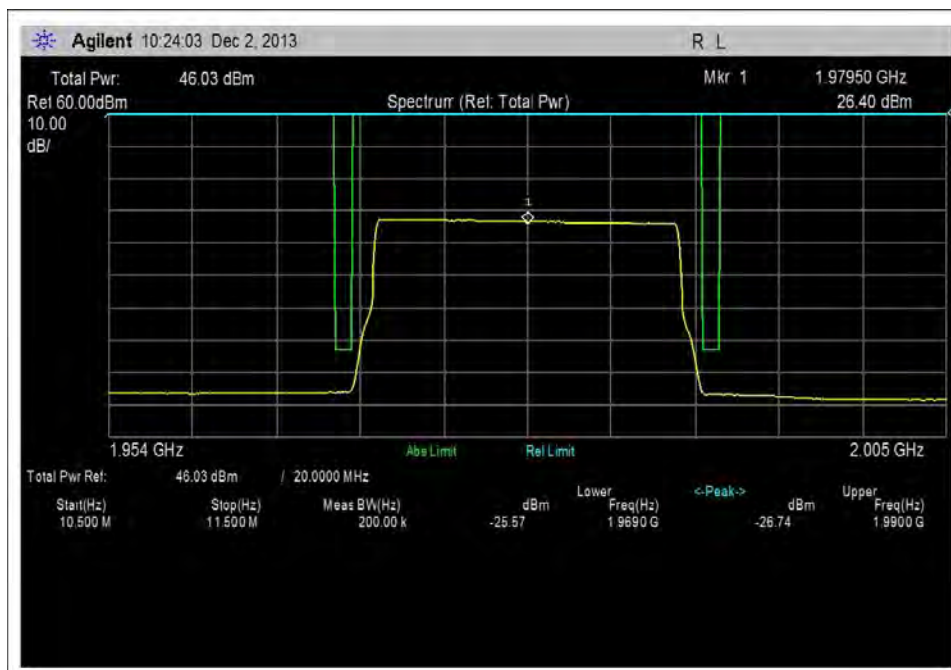
40W, LTE 5MHz 1MHz- Low



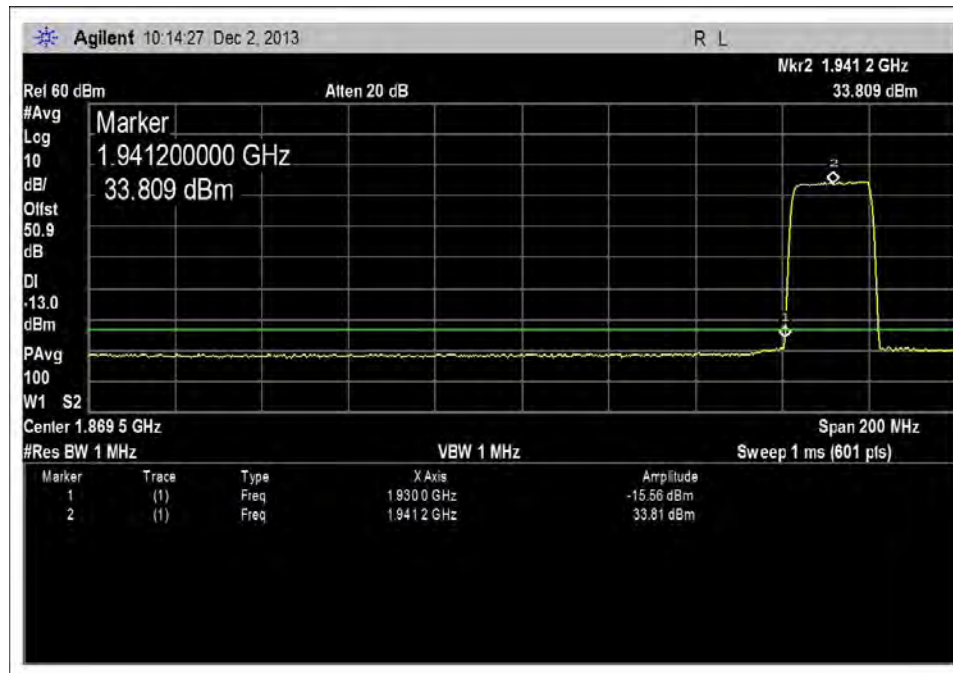
40W, LTE 5MHz 1MHz - High



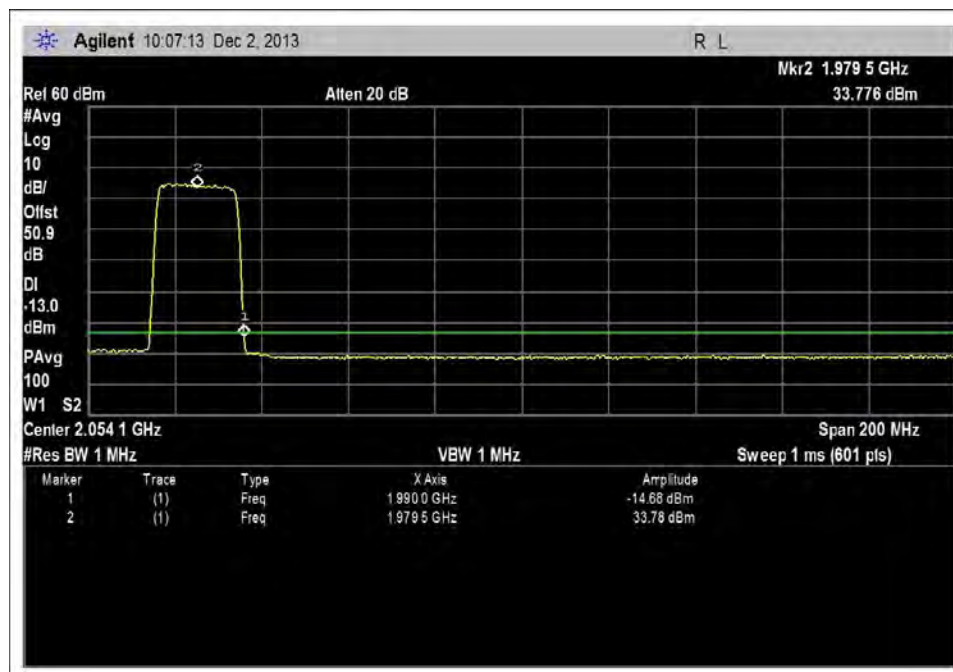
40W, LTE 20MHz 200kHz - Low



40W, LTE 20MHz 200kHz - High



40W, LTE 20MHz 1MHz - Low



40W, LTE 20MHz 1MHz - High

Test Setup Photos



Overall Test Setup

Intermodulation

Test Data

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

Customer: **BTI Wireless**

Specification: **Intermodulation Plots**

Work Order #: **95157**

Date: 11/22/2013

Test Type: **Conducted Emissions**

Time: 14:18:02

Equipment: **1900MHz 40W Transmitting Remote Unit**

Sequence#: 4

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC1900-040-RUSF01

110V 60Hz

S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
ESG Vector Signal Generator	Agilent	4438C	MY42082260
Cable	Huber & Suhner	Sucoflex 104A	12237/4A
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Power Divider	Anaren	44000	NA

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to two ESGs via a power divider. ANT is connected to a spectrum analyzer and attenuators. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port.

Freq: 1930-1990MHz

Signal protocol: GSM, EDGE, CDMA (IS95A), UMTS (WCDMA_3GPP), LTE-TM1.1 1.4MHz, 5MHz, 20MHz

40W

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

GSM

1932.04MHz	-12.42
------------	--------

1960.00MHz	-12.04
------------	--------

1987.96MHz	-11.36
------------	--------

EDGE

1932.04MHz	-11.24
------------	--------

1960.00MHz	-11.24
------------	--------

1987.96MHz	-11.12
------------	--------

CDMA (IS95A)

1932.5MHz	-11.08
-----------	--------

1960.00MHz	-11.44
------------	--------

1987.5MHz	-11.02
-----------	--------

UMTS (WCDMA 3GPP)

1933.9MHz	-11.2
-----------	-------

1960.00MHz	-11.62
------------	--------

1986.1MHz	-11.14
-----------	--------

LTE 1.4MHz

1932.40MHz	-11.14
------------	--------

1960.00MHz	-11.62
------------	--------

1987.75MHz	-11.02
------------	--------

LTE 5MHz

1934.05MHz	-11.3
------------	-------

1960.00MHz	-11.78
------------	--------

1986.11MHz	-11.24
------------	--------

LTE 20MHz

1941.2MHz	-11.76
-----------	--------

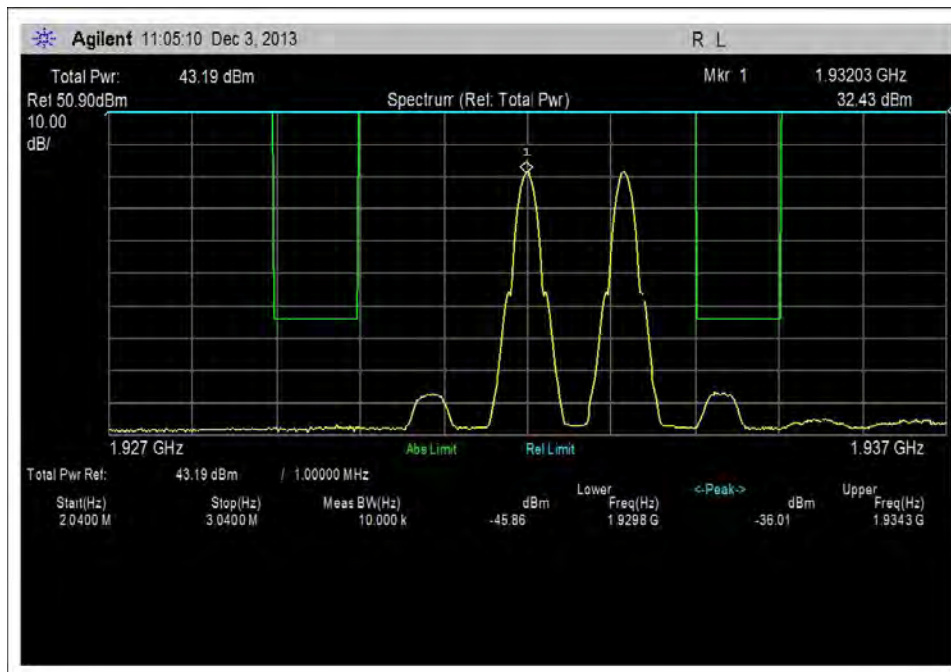
1960.00MHz	-11.76
------------	--------

1979.5MHz	-11.52
-----------	--------

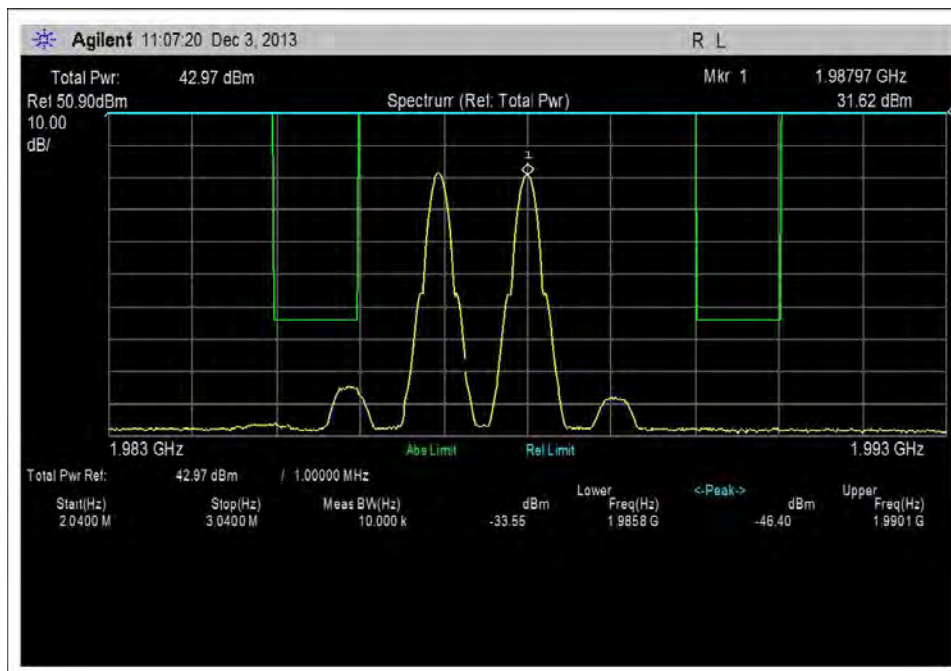
22°C, 45% Relative Humidity

Site A

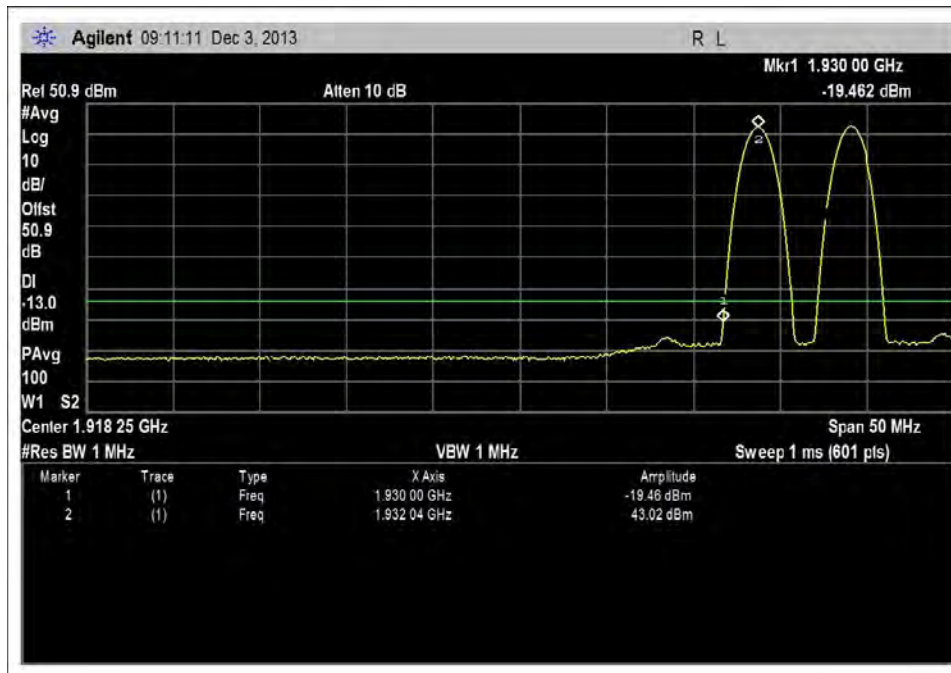
Test Setup Photos



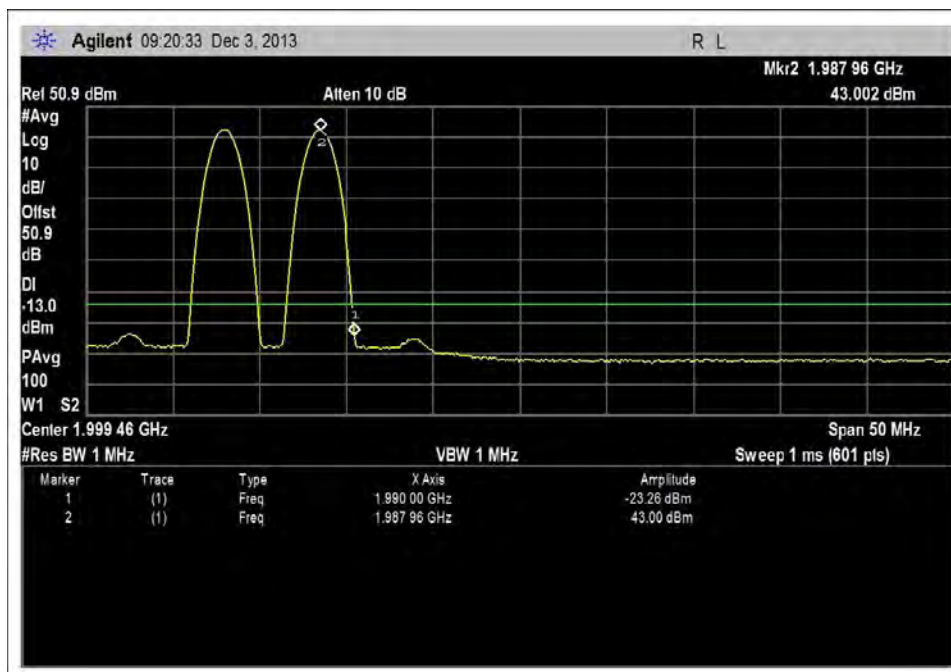
GSM 10kHz - Low



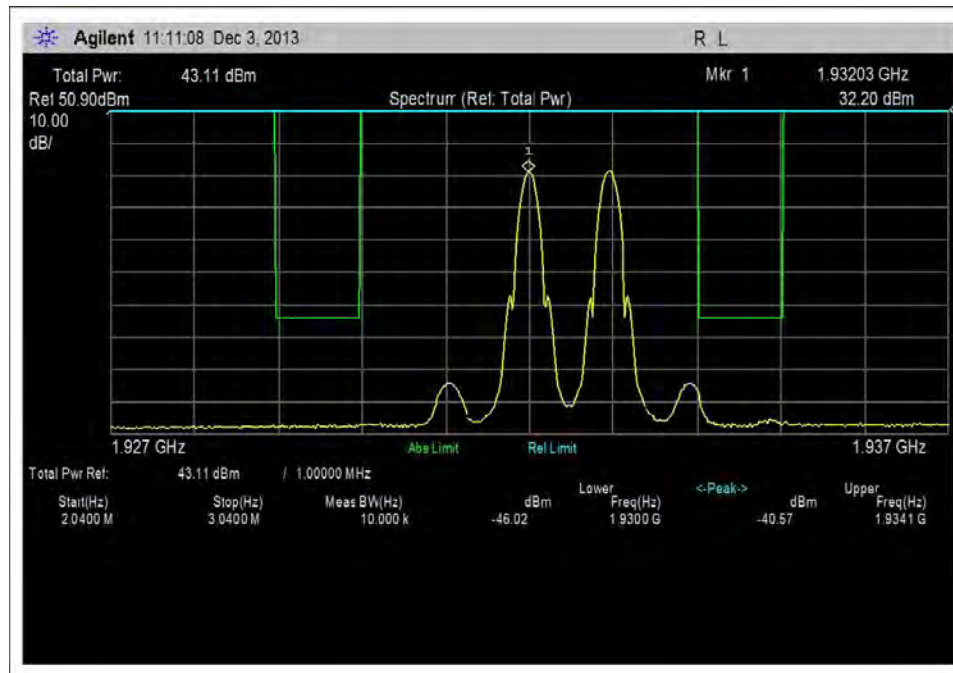
GSM 10kHz - High



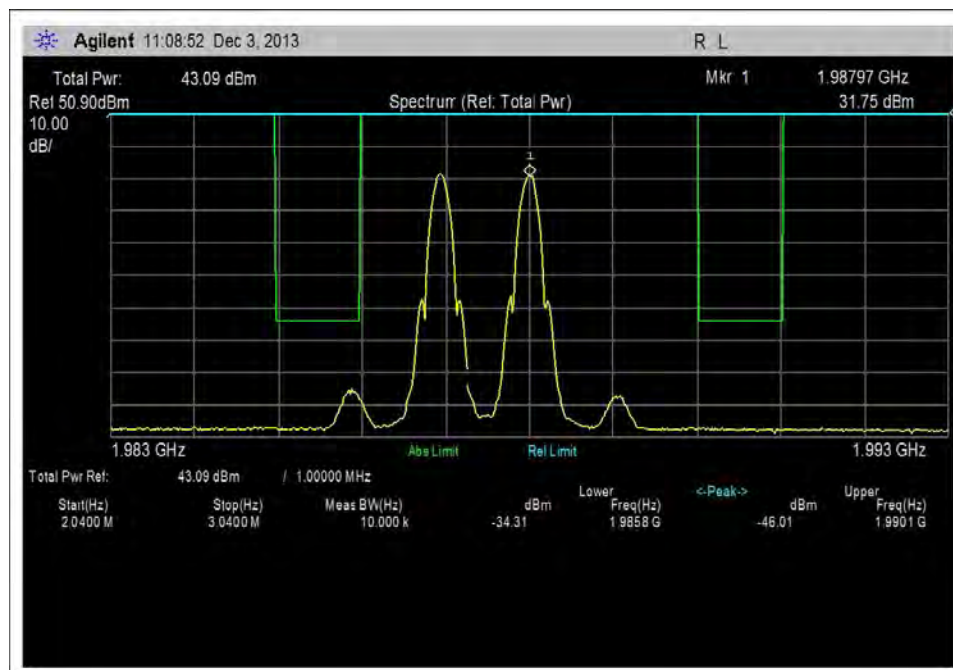
GSM 1MHz - Low



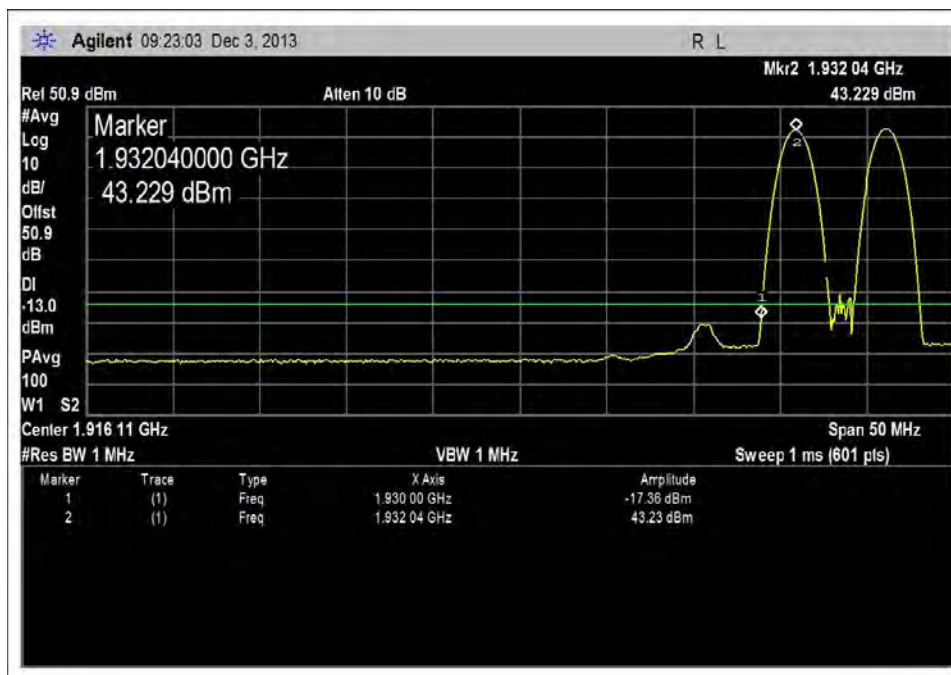
GSM 1MHz - High



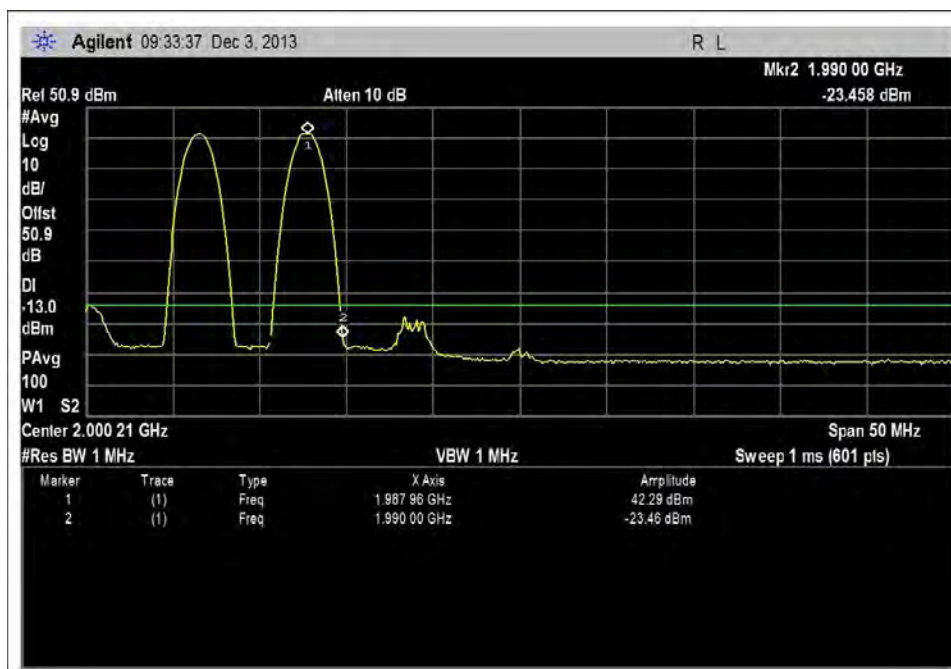
EDGE 10kHz - Low



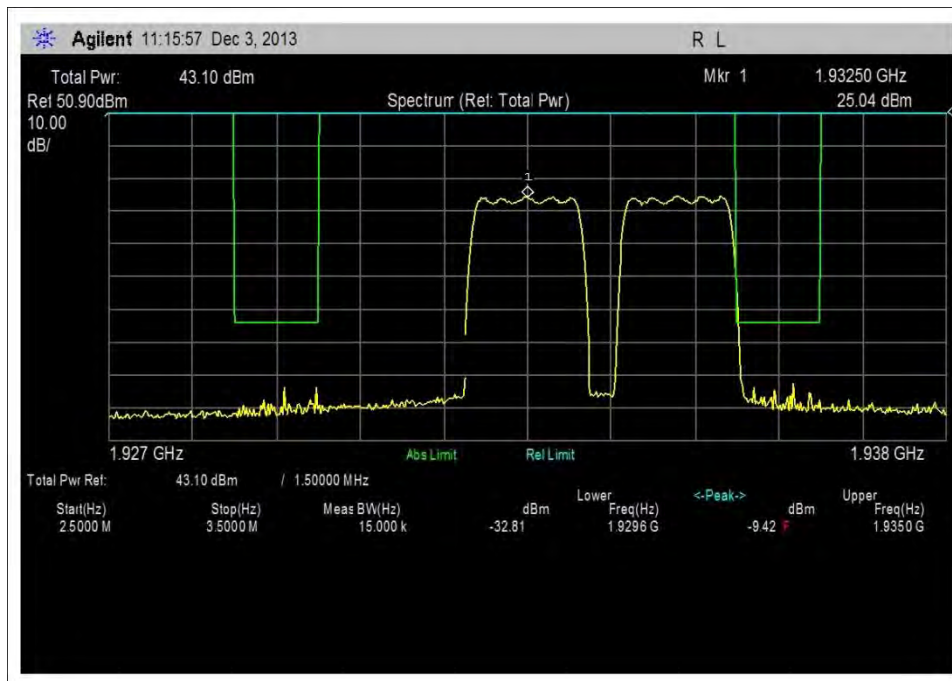
EDGE 10kHz - High



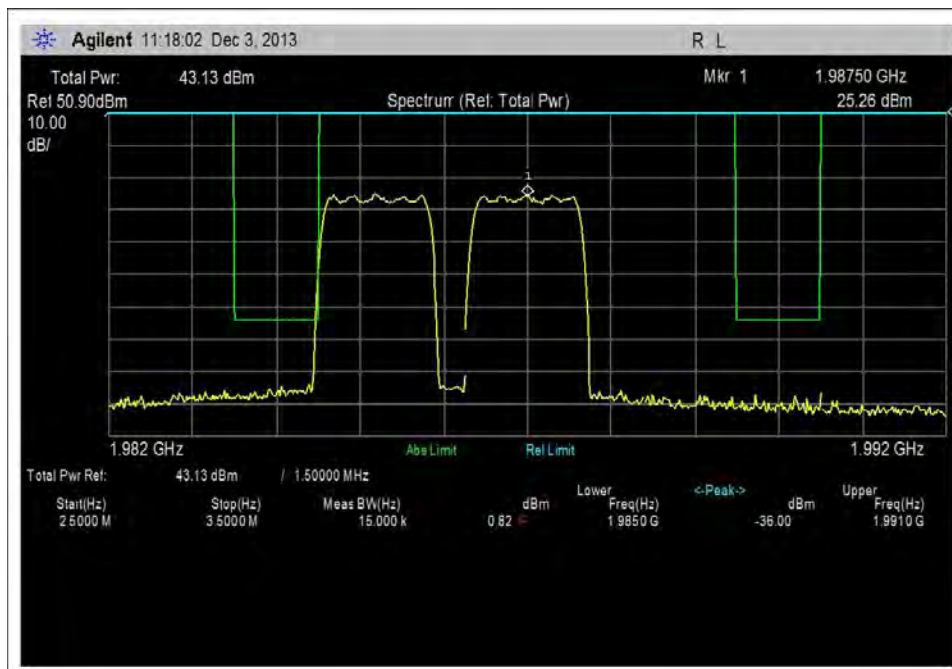
EDGE 1MHz - Low



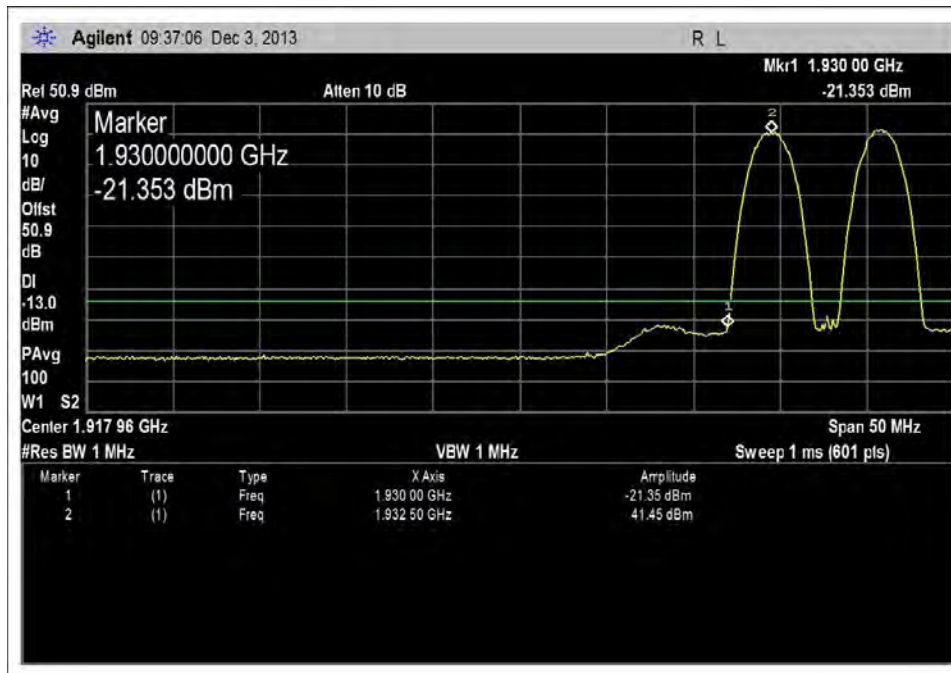
EDGE 1MHz - High



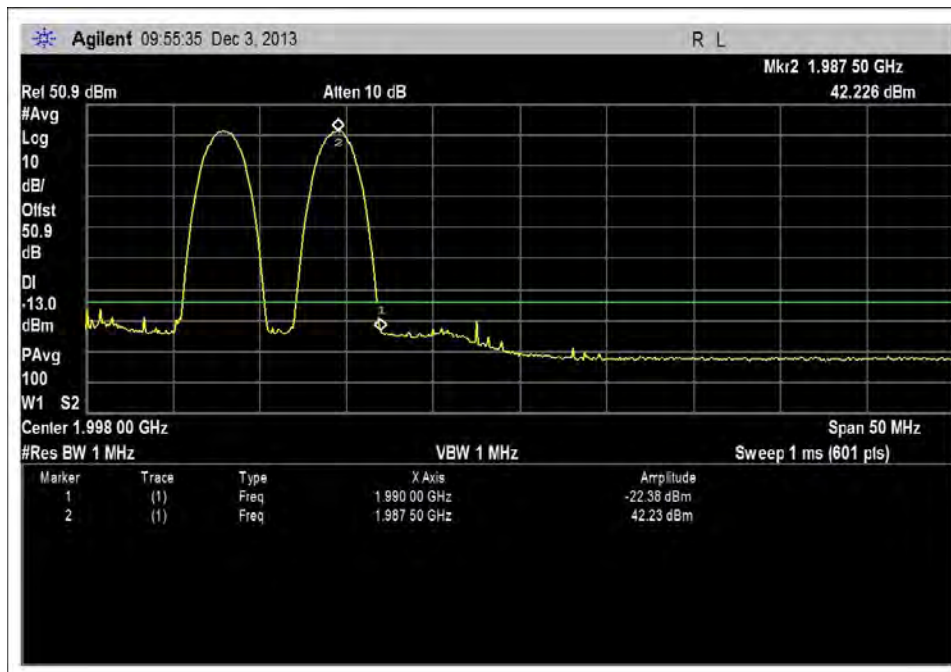
CDMA IS95A 15kHz - Low



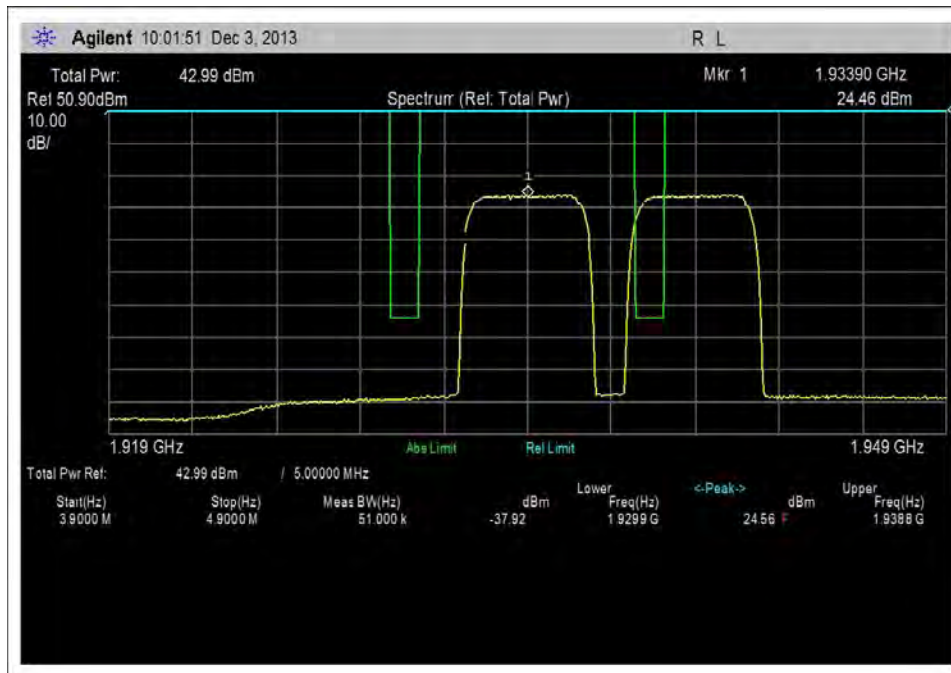
CDMA IS95A 15kHz - High



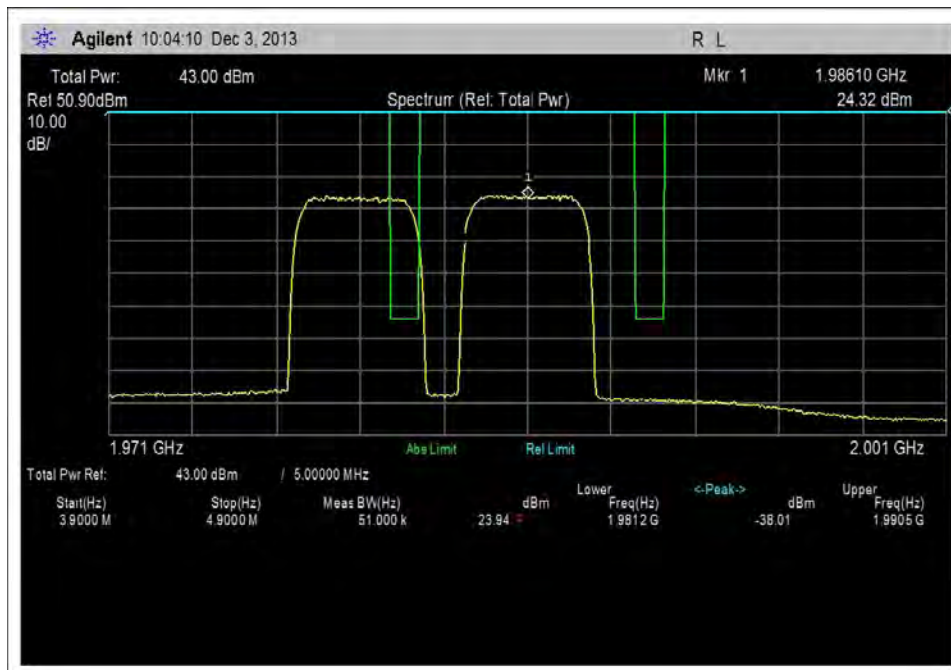
CDMA IS95A 1MHz - Low



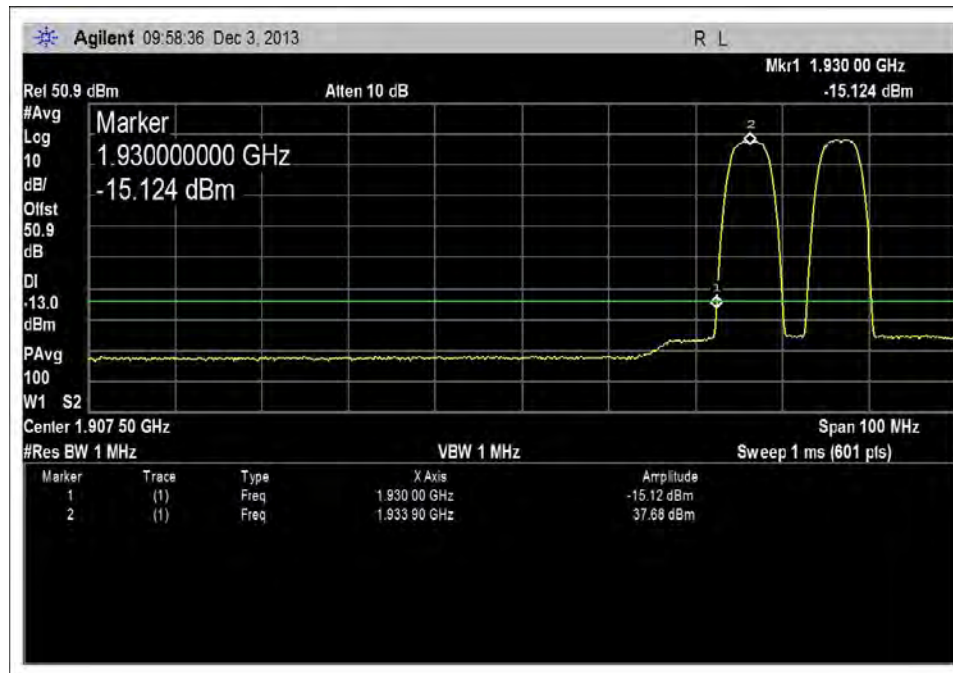
CDMA IS95A 1MHz- High



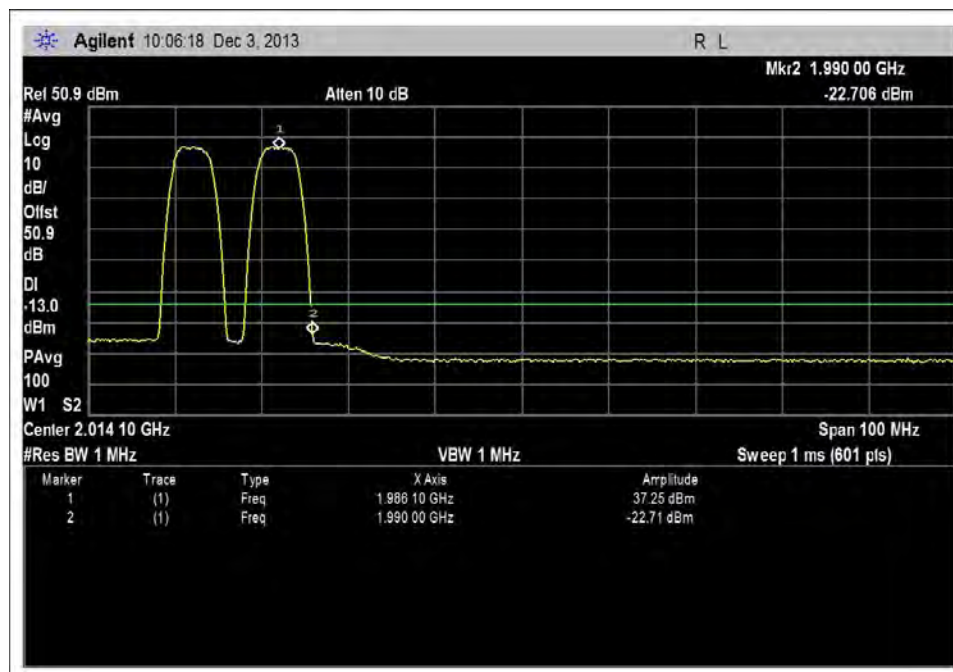
WCDMA 51kHz - Low



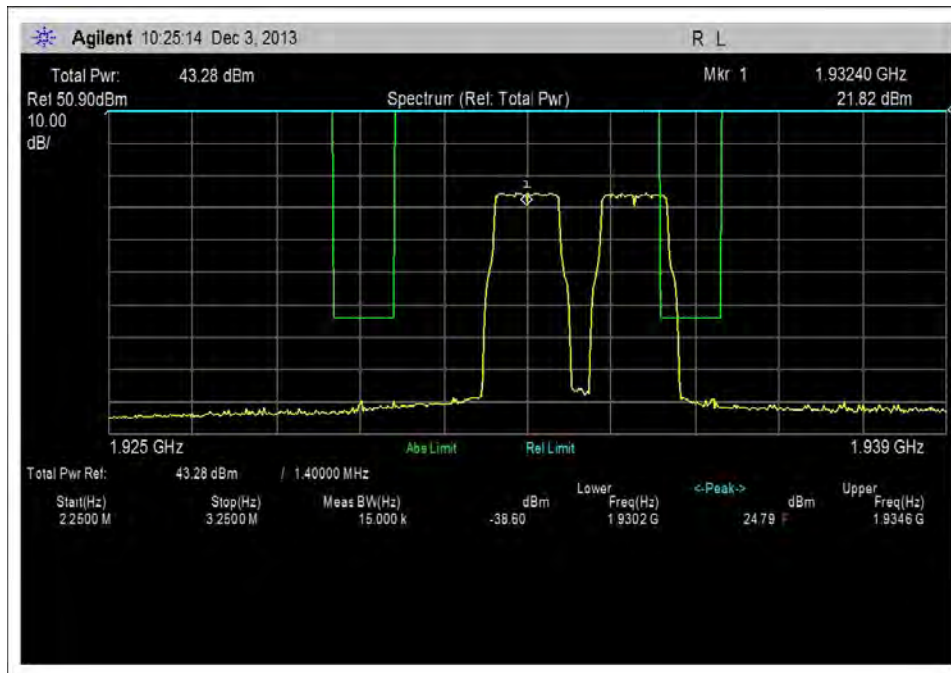
WCDMA 51kHz - High



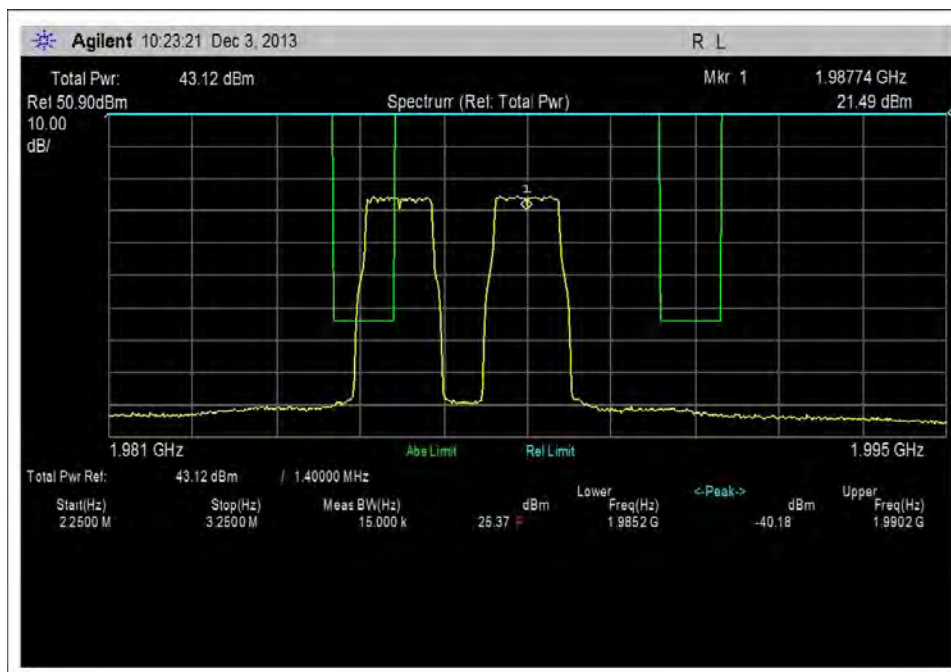
WCDMA 1MHz - Low



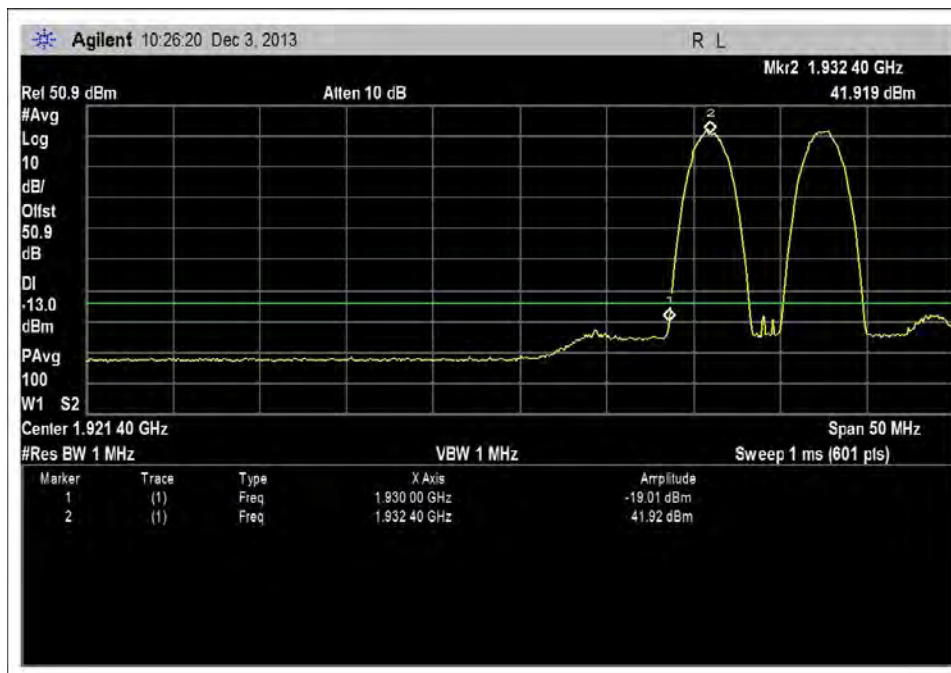
WCDMA 1MHz - High



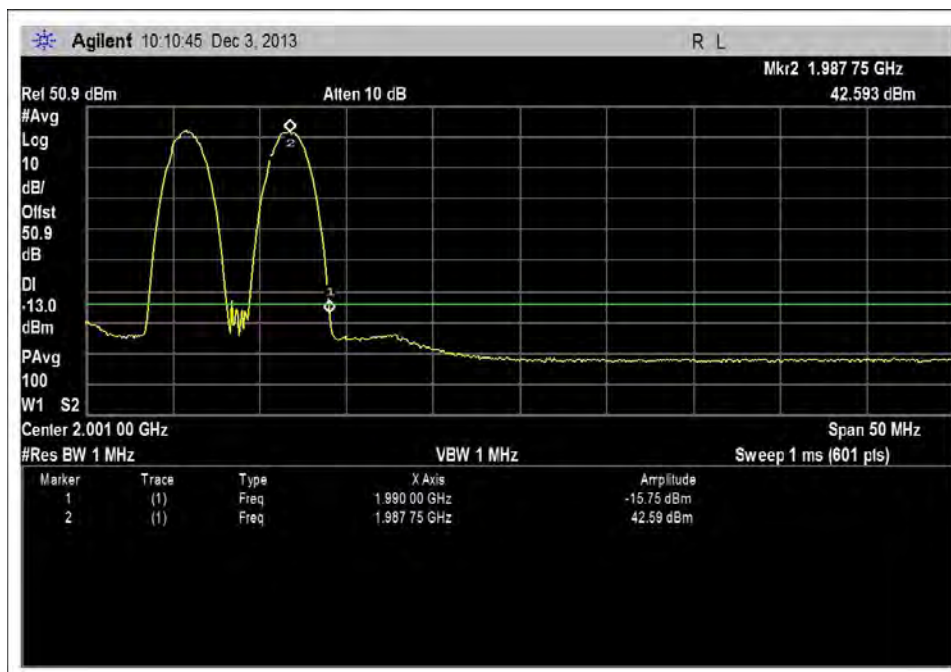
LTE 1.4MHz, 15kHz - Low



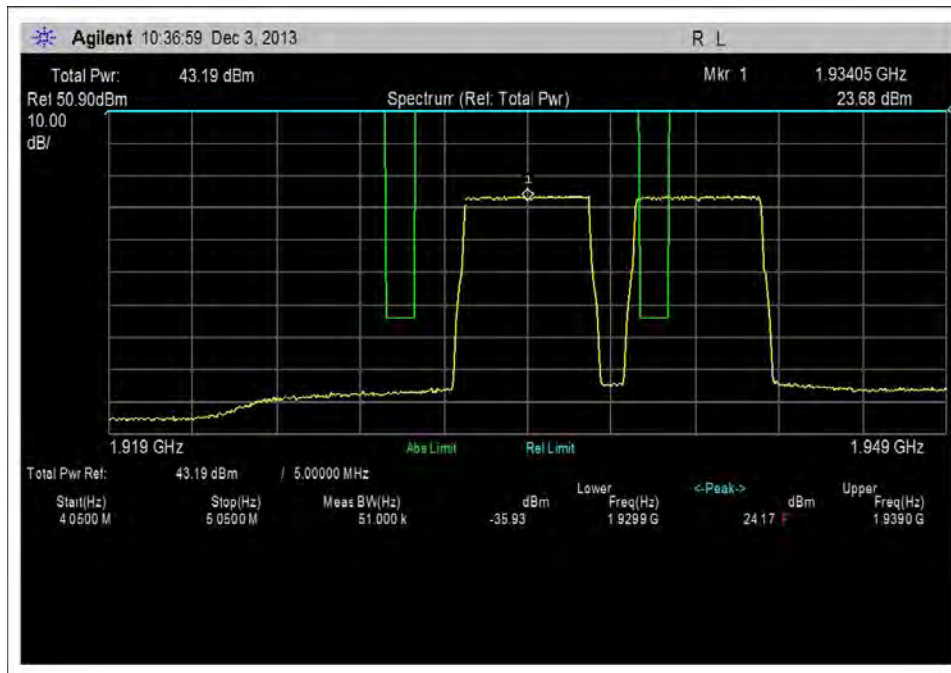
LTE 1.4MHz, 15kHz - High



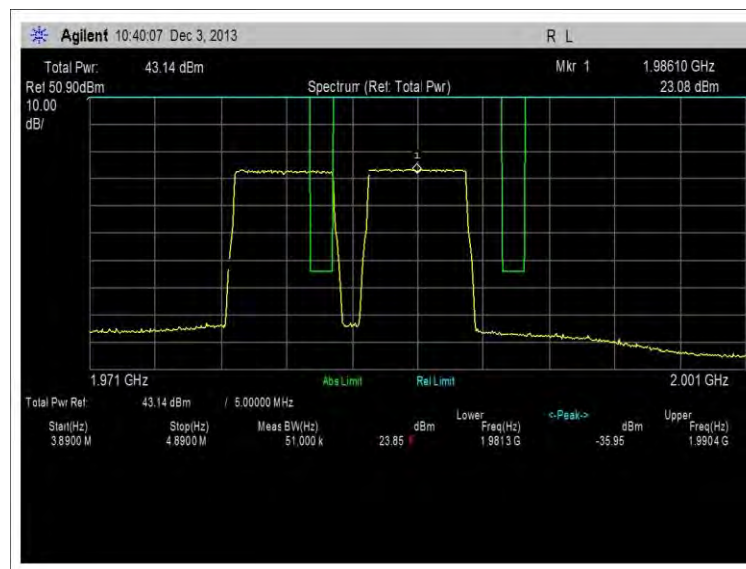
LTE 1.4MHz, 1MHz - Low



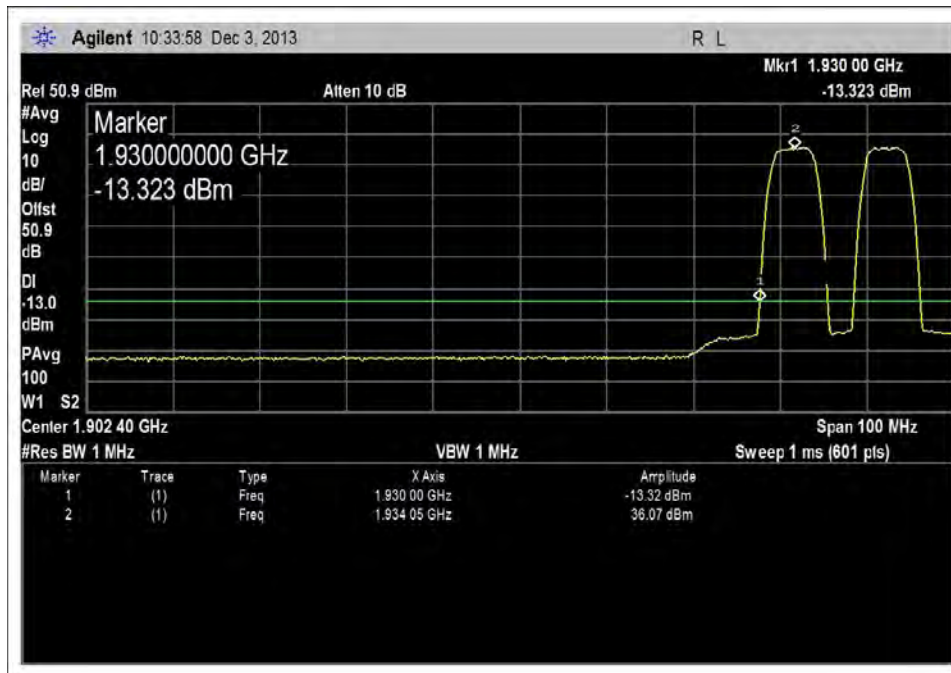
LTE 1.4MHz, 1MHz - High



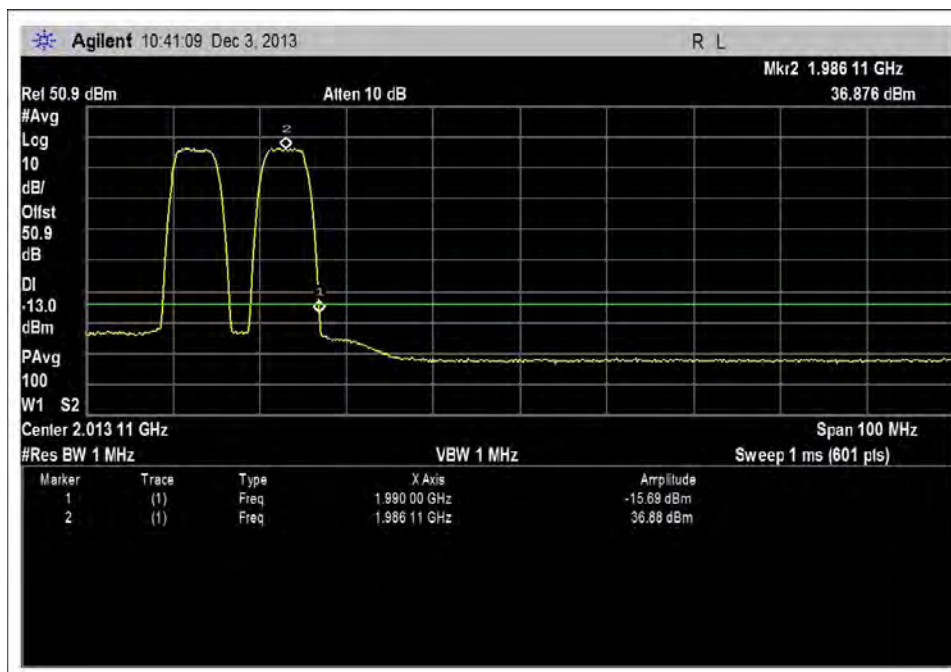
LTE 5MHz, 51kHz - Low



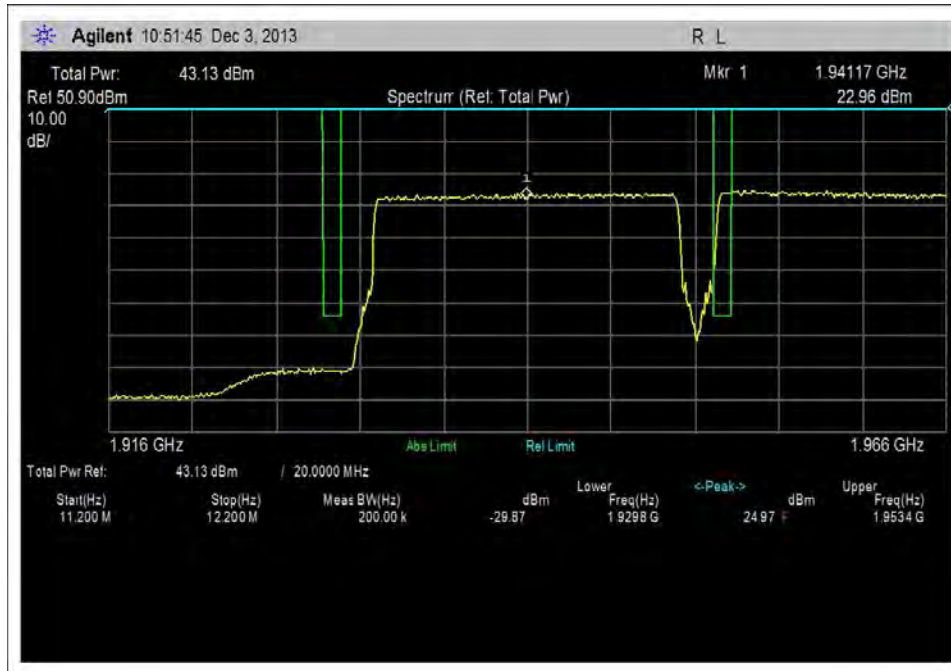
LTE 5MHz, 51kHz - High



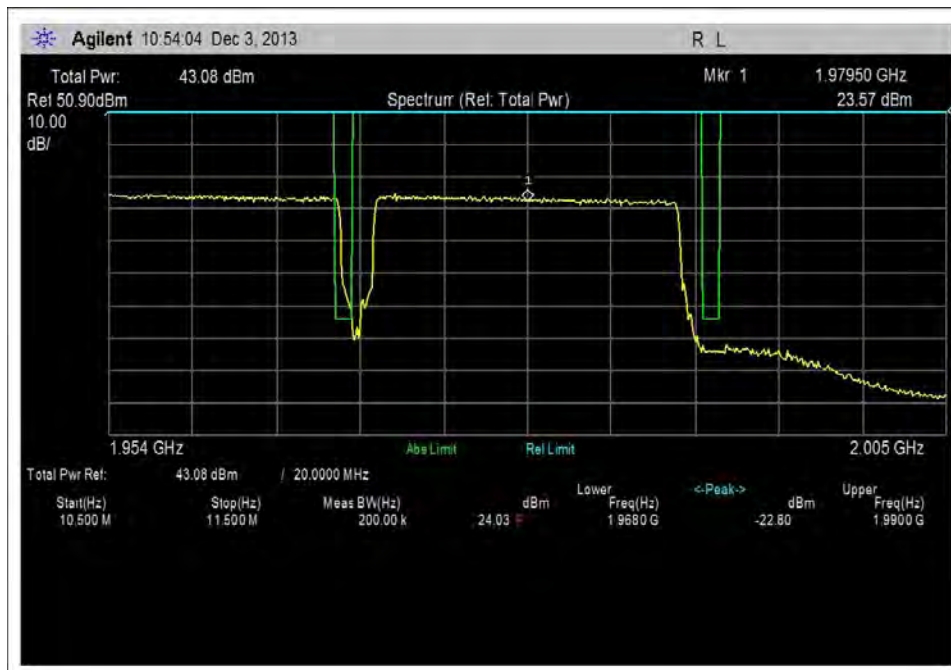
LTE 5MHz 1MHz - Low



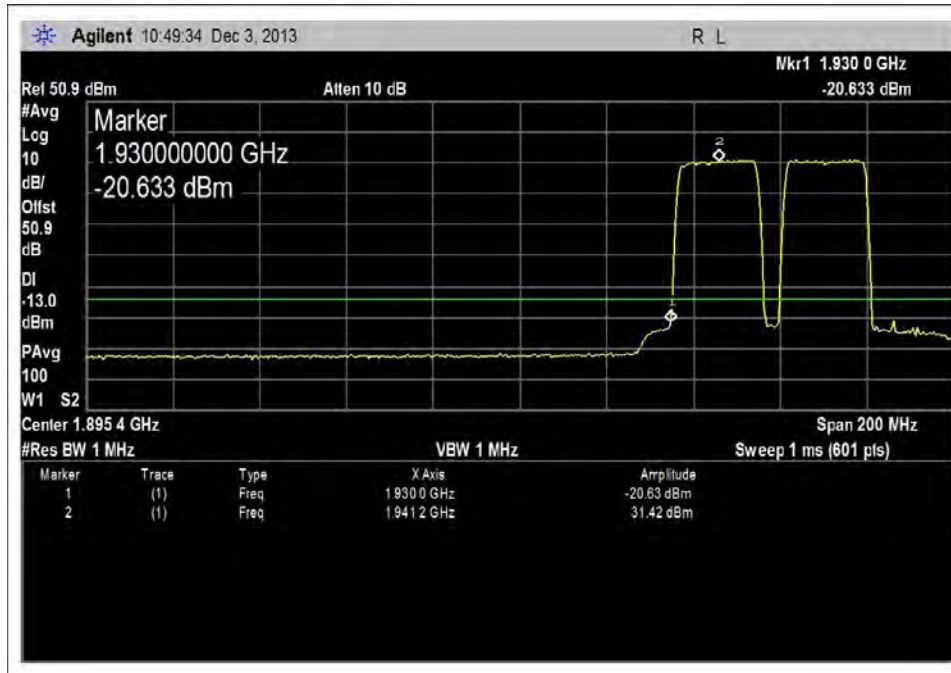
LTE 5MHz 1MHz - High



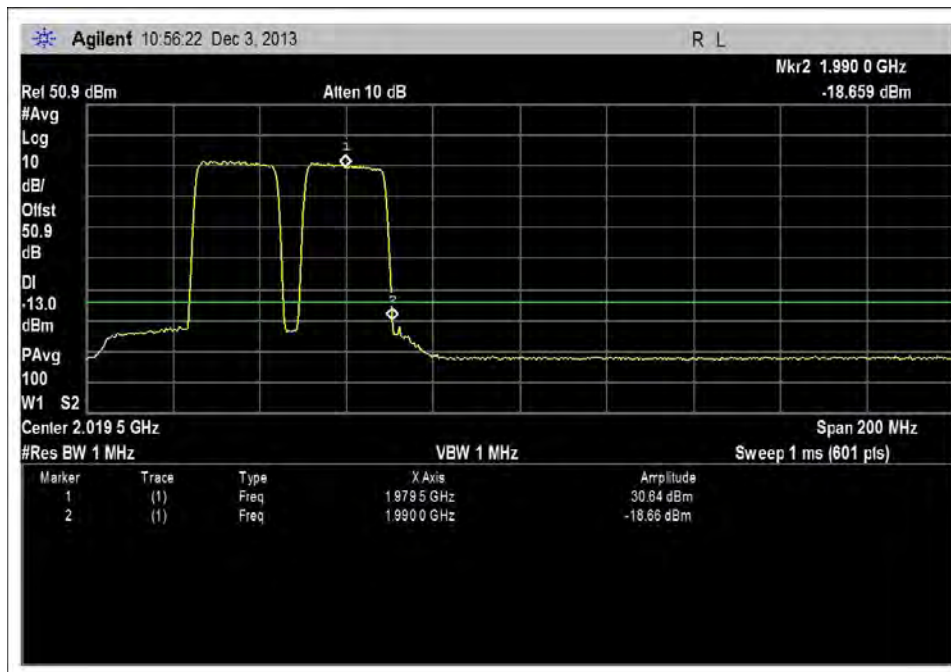
LTE 20MHz, 200kHz - Low



LTE 20MHz, 200kHz - High



LTE 20MHz, 1MHz - Low



LTE 20MHz, 1MHz - High

Test Setup Photos



Overall Test Setup

Out of Band Rejection

Test Data

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

Customer: **BTI Wireless**

Specification: **Out of Band Rejection Plot**

Work Order #: **95157**

Date: 11/22/2013

Test Type: **Conducted Emissions**

Time: 14:18:02

Equipment: **1900MHz 40W Transmitting Remote Unit**

Sequence#: 4

Manufacturer: BTI Wireless

Tested By: Don Nguyen

Model: mBSC1900-040-RUSSF01

110V 60Hz

S/N: 10935304010113111101

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02869	Spectrum Analyzer	E4440A	2/6/2013	2/6/2015
T2	AN03239	Cable	32022-2-29094K-24TC	10/30/2013	10/30/2015

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
1900MHz 40W Transmitting Remote Unit*	BTI Wireless	mBSC1900-040-RUSSF01	10935304010113111101

Support Devices:

Function	Manufacturer	Model #	S/N
ESG Vector Signal Generator	Agilent	4438C	MY45091601
Attenuator 30db Pad	Weinschel	49-30-43	KW075
Step Attenuator 110dB pad	HP	8496B	1350A01241
50 ohm Load	Generic	NA	NA
Cable	Pasternack	Sucoflex 104A	12237/4A

Test Conditions / Notes:

The EUT is placed on the test bench. Tx In is connected to an ESG Signal generator via cable Sucoflex 104A. ANT port is connected to 30db attenuator and 110db step attenuator. A spectrum analyzer is connected to attenuators via cable 32022-2-29094K-24TC. RX out port is terminated to 50 ohm load.

The evaluation is performed at the antenna port.

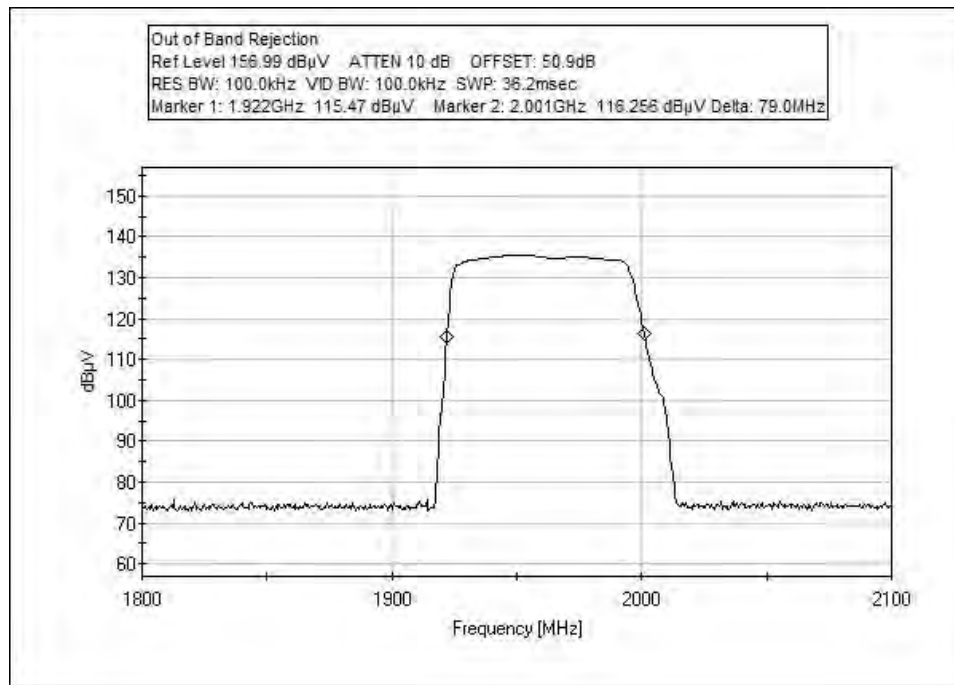
Signal generator is set to sweep from 1930 – 1990 MHz

EUT power setting: 40W

22°C, 45% Relative Humidity

Site A

Test Plot



Test Setup Photos



Overall Test Setup

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.