POWERWAVE TECHNOLOGIES TEST REPORT

FOR THE

POWER AMPLIFIER, SCA 9323-30C

FCC PART 22 AND CANADA RSS-131

COMPLIANCE

DATE OF ISSUE: AUGUST 10, 2004

PREPARED FOR:

Powerwave Technologies
1801 E. St. Andrew Place
Santa Ana, CA 92705

W.O. No.: 82564

PREPARED BY:

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CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: August 2-6, 2004

Report No.: FC04-061

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	August 2-6, 2004
DATE OF RECEIPT:	August 2, 2004
PURPOSE OF TEST:	To demonstrate the compliance of the Power Amplifier, SCA 9323-30C with the requirements for FCC Part 22 and Canada RSS-131 devices.
TEST METHOD:	FCC Part 22 and Canada RSS-131
FREQUENCY RANGE TESTED:	10 kHz-10 GHz
MANUFACTURER:	Powerwave Technologies 1801 E. St. Andrew Place Santa Ana, CA 92705
REPRESENTATIVE:	Greg Butler
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92621

SUMMARY OF RESULTS

As received, the Powerwave Technologies Power Amplifier, SCA 9323-30C was found to be fully compliant with the following standards and specifications:

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 131	5.4	N/A	N/A	External Controls
RSS 131	5.5	47 CFR	1.1307	RF Exposure
RSS 131	6.1	N/A	N/A	Passband Gain and Bandwidth
RSS 131	6.2	47 CFR	22.913	RF Power Output
RSS 131	6.3	TIA/EIA	603	Non-Linearity (Intermodulation Attenuation)
RSS 131	6.4	47 CFR	22.917	Spurious Emissions Limitations
RSS 131	6.5	N/A	N/A	Frequency Stability (Band Translators)
	IC 3172-D		100638	Site File No.

CONDITIONS FOR COMPLIANCE
No modifications to the EUT were necessary to comply.

APPROVALS

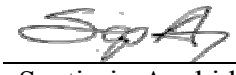
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

Eddie Wong, EMC Engineer



Septimiu Apahidean, EMC Test Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was representative of a production unit

EQUIPMENT UNDER TEST

Power Amplifier
Manuf: Powerwave Technologies
Model: SCA 9323-30C
Serial: NA
FCC ID: E67 (pending)

PERIPHERAL DEVICES

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

DC Power Supply
Manuf: HP
Model: 6032A
Serial: 3542A12326
FCC ID: NA

DC Power Supply
Manuf: HP
Model: E3616A
Serial: KR83503685
FCC ID: NA

Signal Amplifier
Manuf: Mini Circuits
Model: ZHL-1724HLN-SAM
Serial: D020801-06
FCC ID: DoC

Signal Generator
Manuf: Agilent
Model: E4433B
Serial: US40052296
FCC ID: DoC

Power Meter
Manuf: HP
Model: E44`9B
Serial: US39400740
FCC ID: DoC

TEMPERATURE AND HUMIDITY DURING TESTING
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

FCC 2.1033(c)(3) USER'S MANUAL
The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS
GXW & G7W

FCC 2.1033 (c)(5) FREQUENCY RANGE
869 MHz – 894 MHz

FCC 2.1033 (c)(6) OPERATING POWER
30 Watts

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
500 Watts

FCC 2.1033 (c)(8) DC VOLTAGES
The necessary information is contained in a separate document.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE
The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION
The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT
The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS
The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION
GSM and EDGE

FCC 2.1033(c)(14)/2.1046/22.913(a) - RF POWER OUTPUT

22.913 Effective radiated power limits. - The effective radiated power (ERP) of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(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.

Setup

Conducted RF Power
The EUT is placed on the test bench. USB port is connected to support laptop. The Support laptop runs test program to set the Transmitting and receiving channel, power level of the EUT. RF power is measured at the RF output port of the EUT with an Average Power meter. (AGC is adjusted to read +25.5 dBm on the power meter)

The EUT is a RF amplifier. The manufacture does not provide an antenna for sale with the product, hence EIRP is not measured nor calculated. The end user of this product is to exercise proper engineering judgement to select the appropriate antenna to comply with the EIRP limitation set forth by FCC24.23a (a).

The RF power of the EUT was measured at the antenna port.

The EUT is placed on the turn table. RF Input ports is connected to support Signal Generators. The RF Outputs is connected to RF loads and a directional couplers. The RF power of the EUT is monitored at the output of the directional couplers and the RF input signal is adjusted to maintain the output power.

Total RF Power = 30W
The RF power of the EUT was measured at the antenna port.

Result:
Modulation: GSM

869.0MHz	30 Watts
881.5MHz	30 Watts
894.0MHz	30 Watts

Modulation: EDGE

869.0MHz	30 Watts
881.5MHz	30 Watts
894.0MHz	30 Watts

As indicated by the measured result, the EUT fulfills the requirement.

Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
RF Power meter	02082	HP	435B	2445A11881	061704	061706
Power Sensor	02036	HP	8482A	1551A01004	061806	061806

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

FCC 2.1033(c)(14)/2.1047(a) - MODULATION CHARACTERISTICS - AUDIO FREQUENCY RESPONSE

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS– Modulation Limiting Response

Not applicable to this unit.

FCC 2.1033(c)(14)/2.1051/22.917(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Limit line for Spurious Conducted Emission

Required Attenuation = 43+10 Log P dB

Limit line (dBuV) = V_{dBuv} - Attenuation

V_{dBuV} = $20 \text{ Log } \frac{V}{1 \times 10^{-6}}$

= $20\left(\text{Log } V - \text{Log } 1 \times 10^{-6}\right)$

= $20 \text{ Log } V - 20 \text{ Log} 1 \times 10^{-6}$

= $20 \text{ Log } V - 20(-6)$

= $20 \text{ Log } V + 120$

Attenuation = $43 + 10 \text{ Log } P$

= $43 + 10 \text{ Log } \frac{V^2}{R}$

= $43 + 10\left(\text{Log } V^2 - \text{Log } R\right)$

= $43 + 10\left(2 \text{ Log } V - \text{Log } R\right)$

= $43 + 20 \text{ Log } V - 10 \text{ Log } R$

Limit line = V_{dBuv} - Attenuation

= 20 Log V + 120 – (43 + 20 Log V – 10Log R)

= 20 Log V + 120 – 43 – 20 Log V + 10Log R

= 20 Log V + 120 – 43 – 20 Log V + 10Log R

= 120 – 43 + 10 Log 50 Note : R = 50 Ω

= 120 –43 + 16.897

= 94 dBuV at any power level

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Conducted Emissions**	Time:	16:02:38
Equipment:	**Power Amplifier**	Sequence#:	9
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		110V 60Hz
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: GSM, Frequency: 881.5 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1763.000M Ave	85.9					+0.0	85.9	94.0	-8.1	Anten
^	1763.000M	93.4					+0.0	93.4	94.0	-0.6	Anten

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Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Conducted Emissions**	Time:	15:57:32
Equipment:	**Power Amplifier**	Sequence#:	8
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		110V 60Hz
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: GSM, Frequency: 869 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1738.000M Ave	85.6					+0.0	85.6	94.0	-8.4	Anten
^	1738.000M	94.1					+0.0	94.1	94.0	+0.1	Anten

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Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Conducted Emissions**	Time:	16:07:05
Equipment:	**Power Amplifier**	Sequence#:	10
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		110V 60Hz
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: GSM, Frequency: 894 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1788.130M Ave	85.6					+0.0	85.6	94.0	-8.4	Anten
^	1788.130M	94.3					+0.0	94.3	94.0	+0.3	Anten

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Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Conducted Emissions**	Time:	16:12:02
Equipment:	**Power Amplifier**	Sequence#:	11
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		110V 60Hz
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: EDGE, Frequency: 869 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1737.965M Ave	86.1					+0.0	86.1	94.0	-7.9	Anten
^	1737.965M	95.1					+0.0	95.1	94.0	+1.1	Anten

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Conducted Emissions**	Time:	16:14:24
Equipment:	**Power Amplifier**	Sequence#:	12
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		110V 60Hz
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: EDGE, Frequency: 881.5 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1762.940M Ave	85.0					+0.0	85.0	94.0	-9.0	Anten
^	1762.940M	95.0					+0.0	95.0	94.0	+1.0	Anten

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Powerwave Technologies**
Specification: **FCC Part 22.917(a) Conducted Spurious Emissions**
Work Order #: **82564** Date: 08/03/2004
Test Type: **Conducted Emissions** Time: 16:17:11
Equipment: **Power Amplifier** Sequence#: 13
Manufacturer: Powerwave Technologies Tested By: Eddie Wong
Model: SCA 9323-30C 110V 60Hz
S/N: -

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Emissions evaluated at the antenna port. Tx Power: 30 Watts. Modulation: EDGE, Frequency: 894 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Transducer Legend:

Measurement Data: Reading listed by margin. Test Lead: Antenna Terminal

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1787.940M Ave	86.5					+0.0	86.5	94.0	-7.5	Anten
^	1787.940M	95.7					+0.0	95.7	94.0	+1.7	Anten

Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105
1.5 GHz HPF	02116	HP	84300-80037	3643A00027	060603	060605

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

FCC 2.1033(c)(14)/2.1053/22.917(a) - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer:	**Powerwave Technologies**		
Specification:	**FCC Part 22.917(a) Radiated Spurious Emissions**		
Work Order #:	**82564**	Date:	08/03/2004
Test Type:	**Maximized Emissions**	Time:	13:37:13
Equipment:	**Power Amplifier**	Sequence#:	4
Manufacturer:	Powerwave Technologies	Tested By:	Eddie Wong
Model:	SCA 9323-30C		
S/N:	-		

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Amplifier*	Powerwave Technologies	SCA 9323-30C	-

Support Devices:

Function	Manufacturer	Model #	S/N
DC power Supply	HP	6032A	3542A12326
DC power Supply	HP	E3616A	KR83503685
Signal Amplifier	Mini Circuits	ZHL-1724HLN-SAM	D020801-06
Signal Generator	Agilent	E4433B	US40052296
Power Meter	HP	E44`9B	US39400740

Test Conditions / Notes:

The EUT is placed on the wooden table. RF Input port is connected to a remote support signal amplifier and a signal generator. The RF Output is connected to a remote RF load and a directional coupler. The RF power of the EUT is monitored at the output of the directional coupler and the RF input signal is adjusted to maintain the output power. Tx Power : 30 Watts. Modulation: GSM and EDGE, Frequency: 869 MHz, 881.5 MHz and 894 MHz. Frequency range of measurement = 9 kHz - 9 GHz. Frequency 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 - 9000 MHz RBW=1 MHz, VBW=1 MHz. 48VDC (Support power supply: 120VAC, 60 Hz), 24°C, 55% relative humidity.

Operating Frequency: 869 MHz - 894 MHz
Channels: High, Mid and Low GSM
Highest Measured Output Power: 44.77 ERP(dBm)= 30 ERP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 57.77 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
3,475.88	-51.7	Horiz	96.47
3,476.44	-53	Vert	97.77
2,601.00	-54.3	Horiz	99.07
3,526.15	-57.6	Vert	102.37
3,525.75	-60.1	Horiz	104.87
1,763.15	-63.7	Vert	108.47
3,576.10	-48.7	Vert	93.47
3,583.88	-49.1	Horiz	93.87

Operating Frequency: 869 MHz - 894 MHz
Channels: High, Mid and Low EDGE
Highest Measured Output Power: 44.77 ERP(dBm)= 30 ERP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 57.77 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
3,476.00	-50.8	Horiz	95.57
3,476.00	-51.8	Vert	96.57
3,526.00	-51.1	Horiz	95.87
3,526.00	-51.3	Horiz	96.07
3,514.00	-54	Vert	98.77
8,928.00	-38.6	Vert	83.37
3,576.05	-46.9	Horiz	91.67

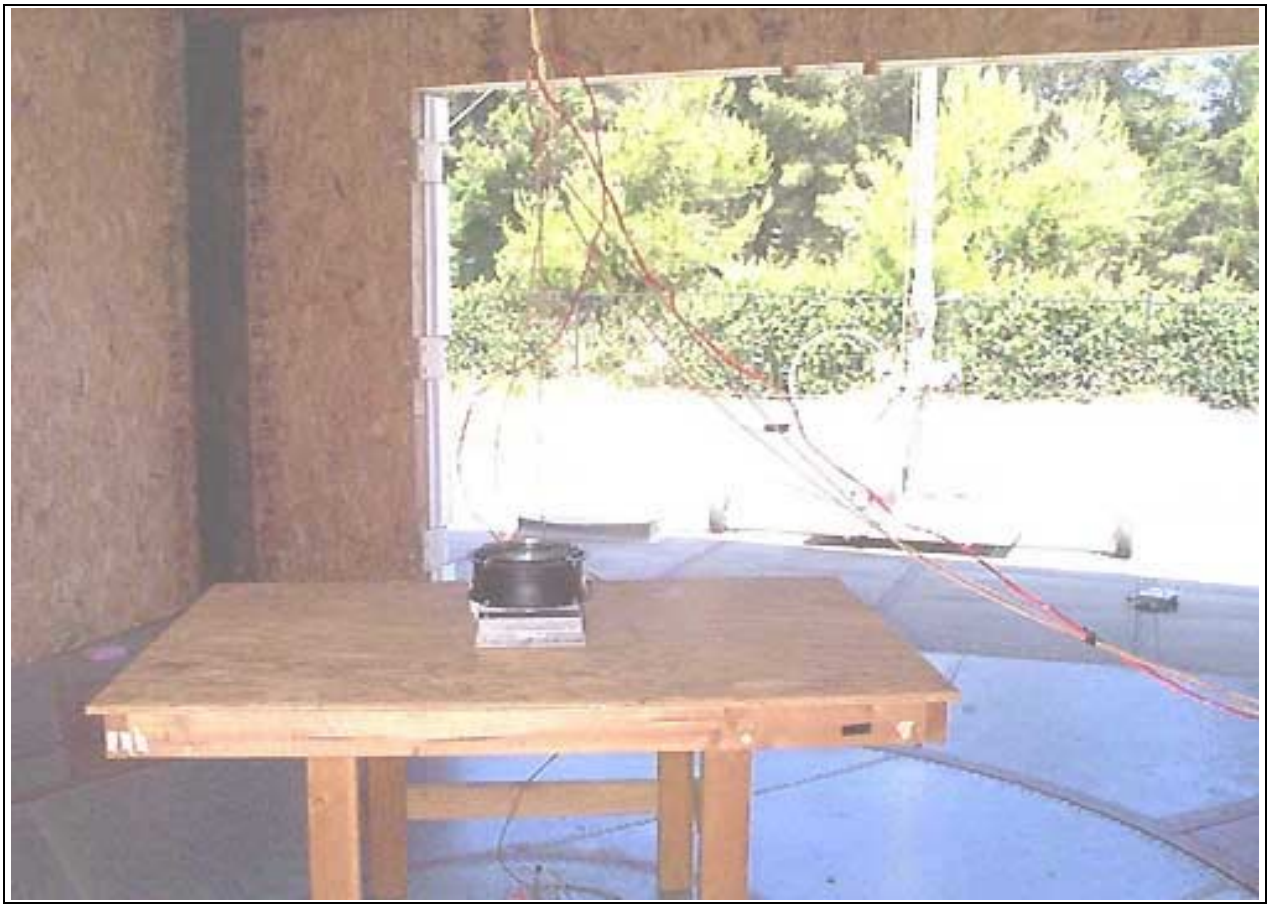
Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033105
30 – 1000MHz						
Bilog Antenna	00851	Schaffner-Chase EMC	CBL6111C	2629	031604	031606
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100203	100204
Antenna cable from bulkhead to antenna	N/A	Pasternack	RG-214/U	Cable #33	032904	032905
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	100603	100604
Pre-amp	00010	HP	8447D	2727A05392	070204	070206
1000-9000MHz						
Antenna cable (Heliax)	NA	Andrew	LDF1-50	Cable#19	101303	101304
Horn Antenna	01646	EMCO	3115	9603-4683	042503	042505
Microwave Pre-amp	00787	HP	83017A	3123A00282	042303	042305
1.5 GHz HPF	02116	HP	84300-80037	3643A00027	060603	060605
9kHz-30 MHz						
Magnetic Loop Antenna	00314	Emco	6502	2014	072804	072806

PHOTOGRAPH SHOWING RADIATED EMISSIONS

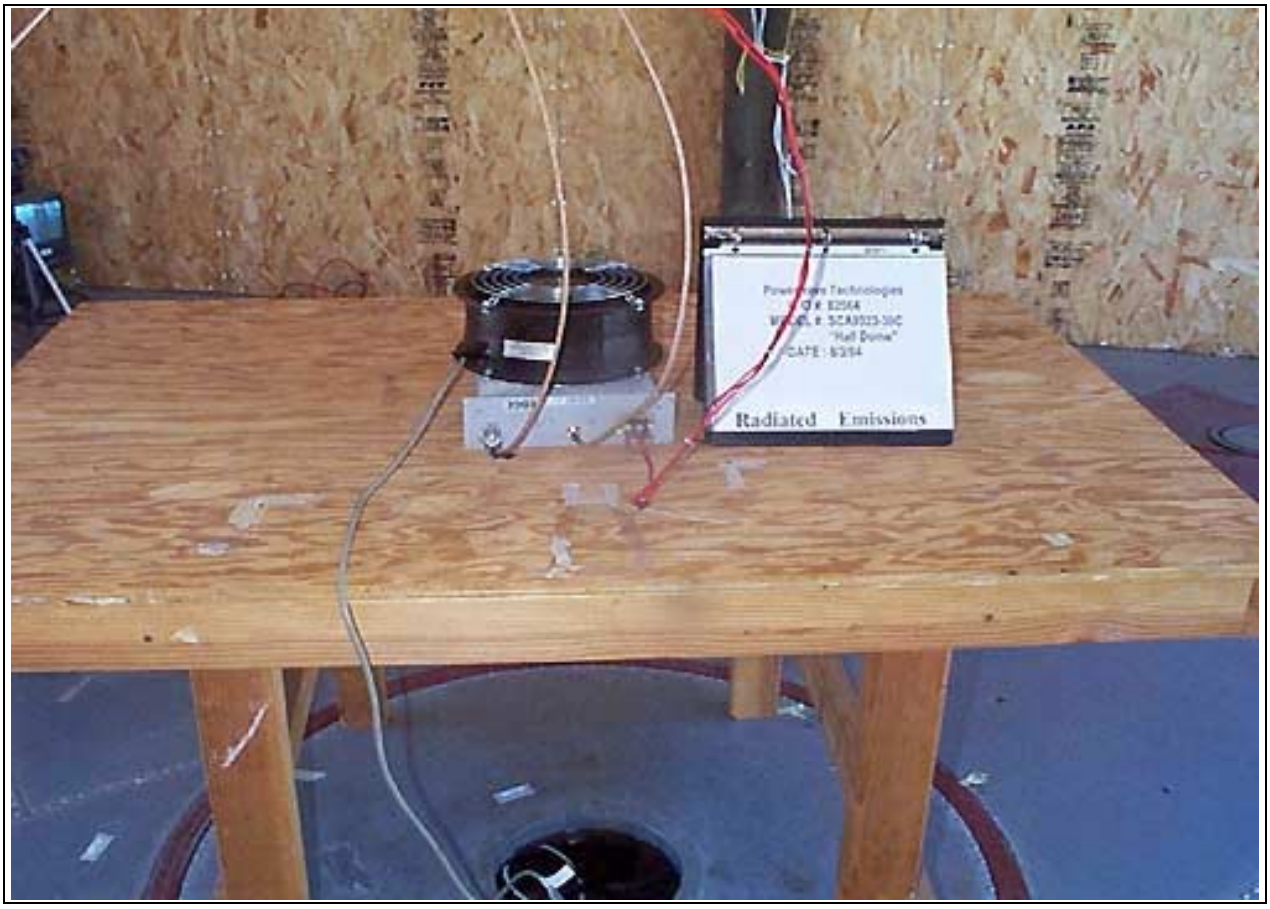
Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



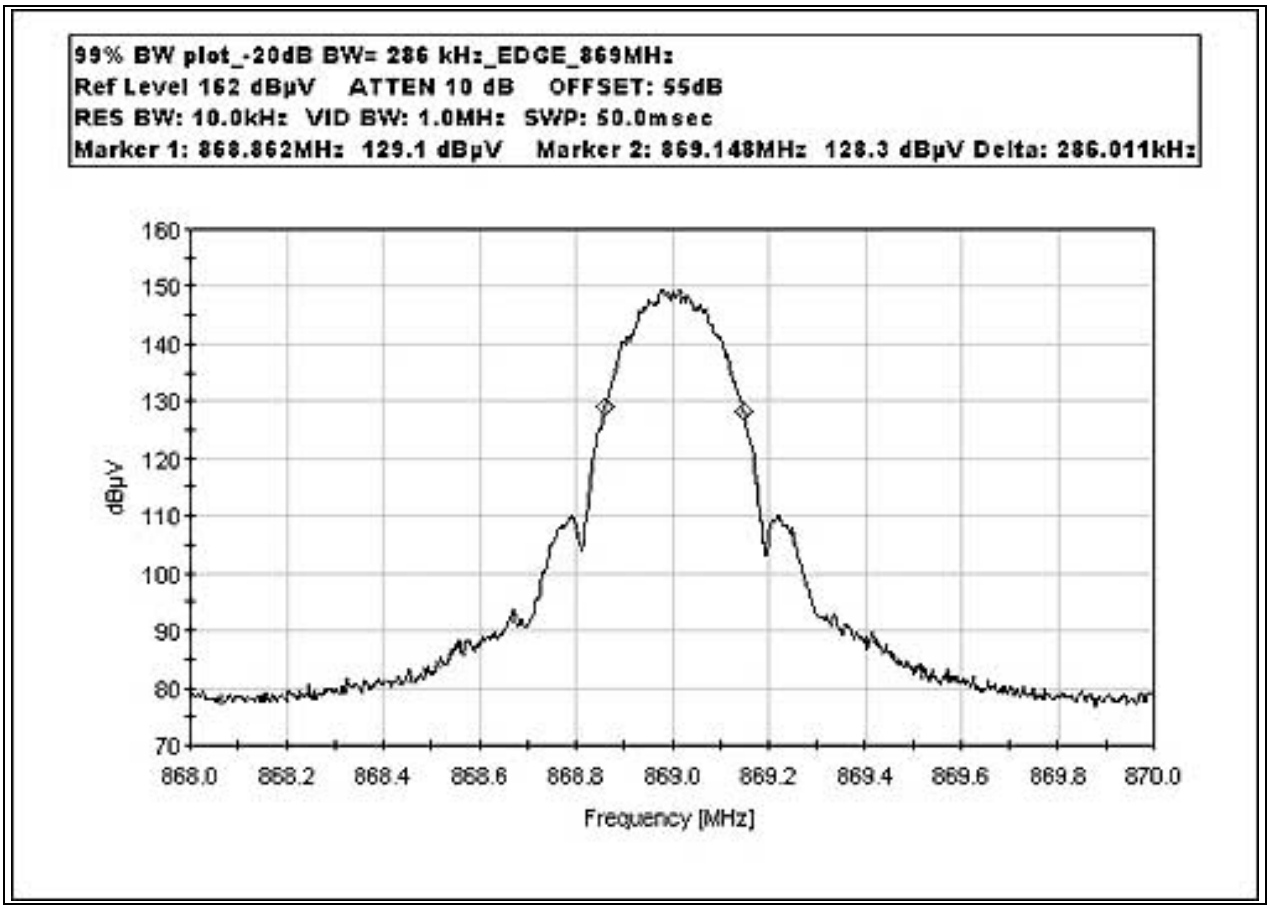
Radiated Emissions - Front View Loop Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS

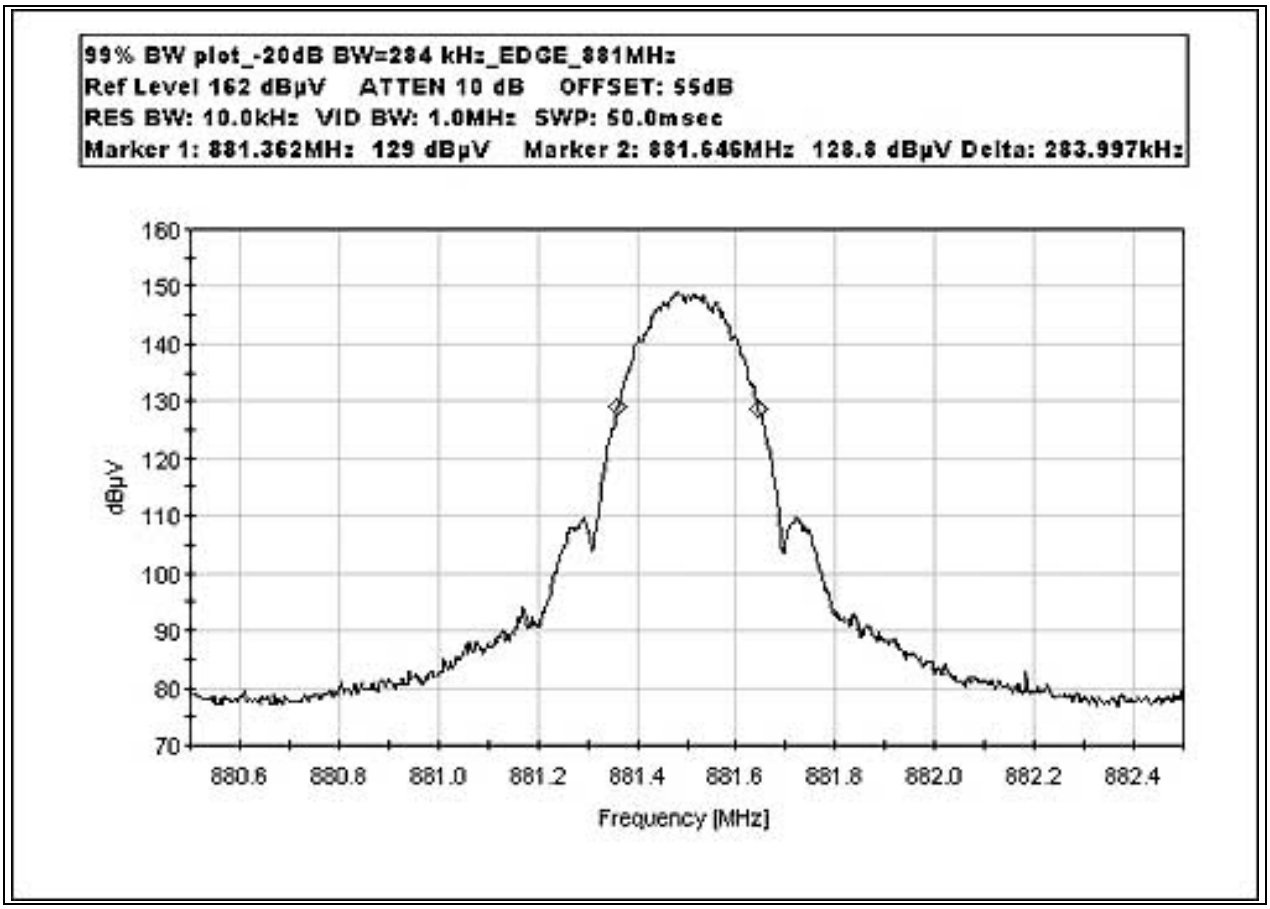


Radiated Emissions - Back View

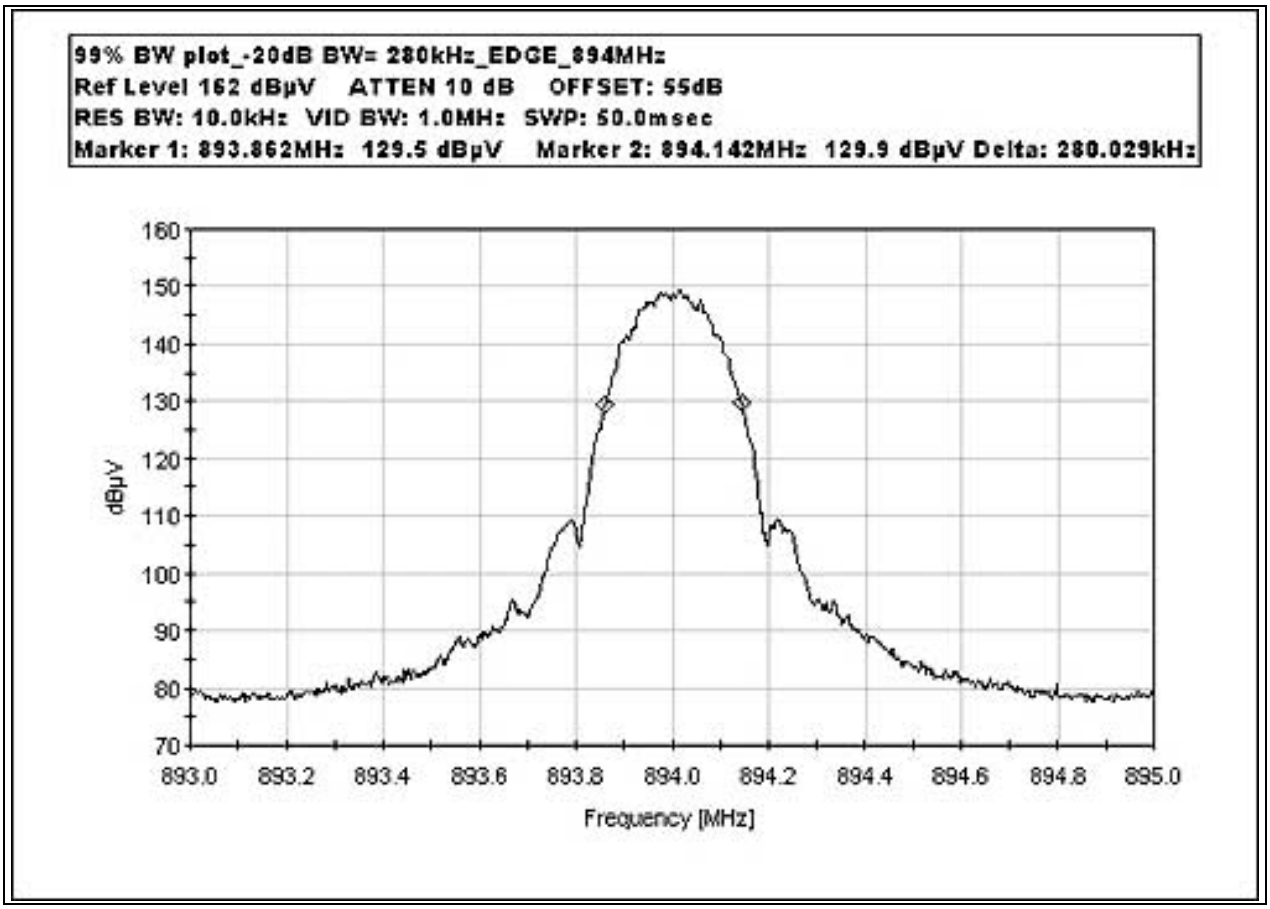
99% BANDWIDTH PLOT EDGE 869 MHz



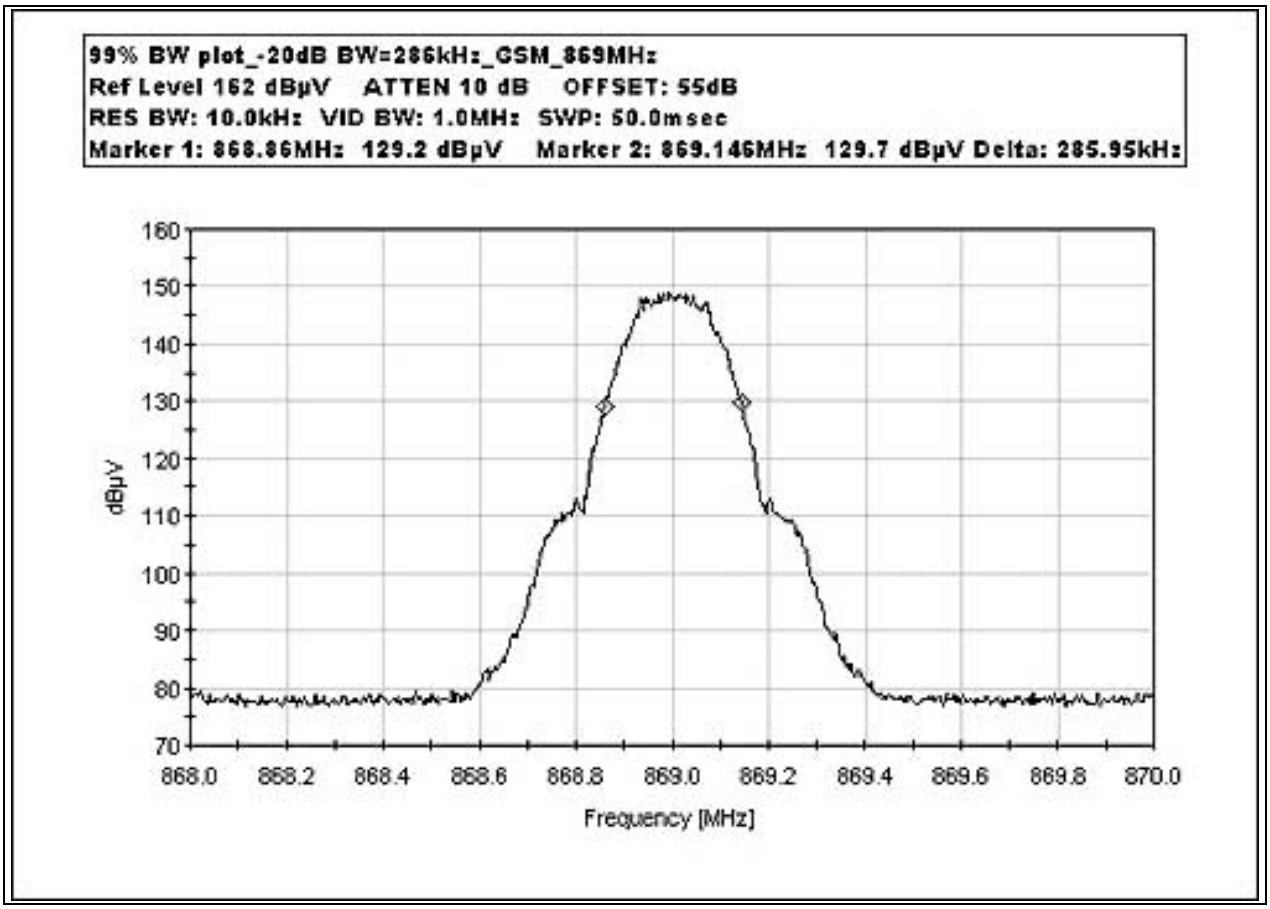
99% BANDWIDTH PLOT EDGE 881 MHz



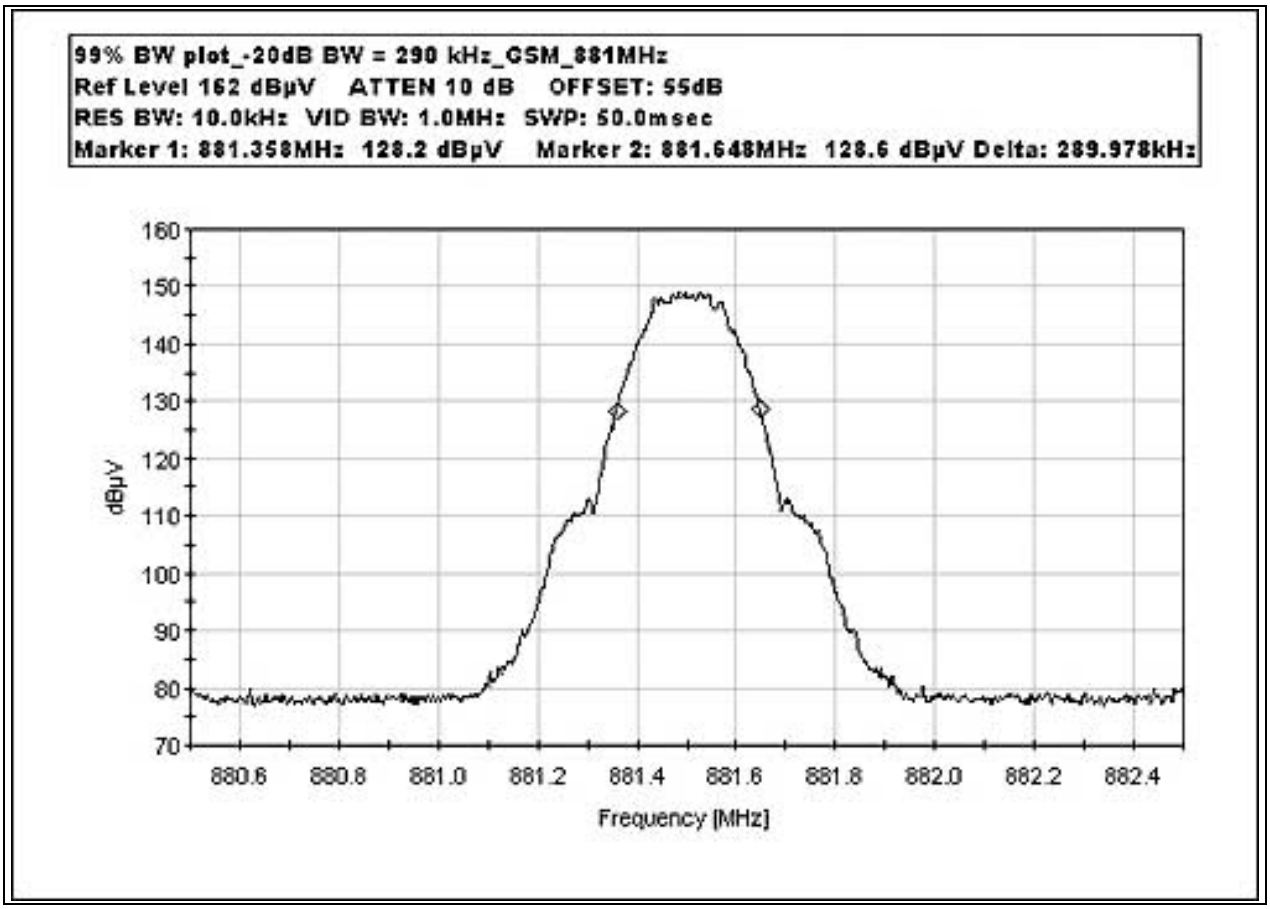
99% BANDWIDTH PLOT EDGE 894 MHz



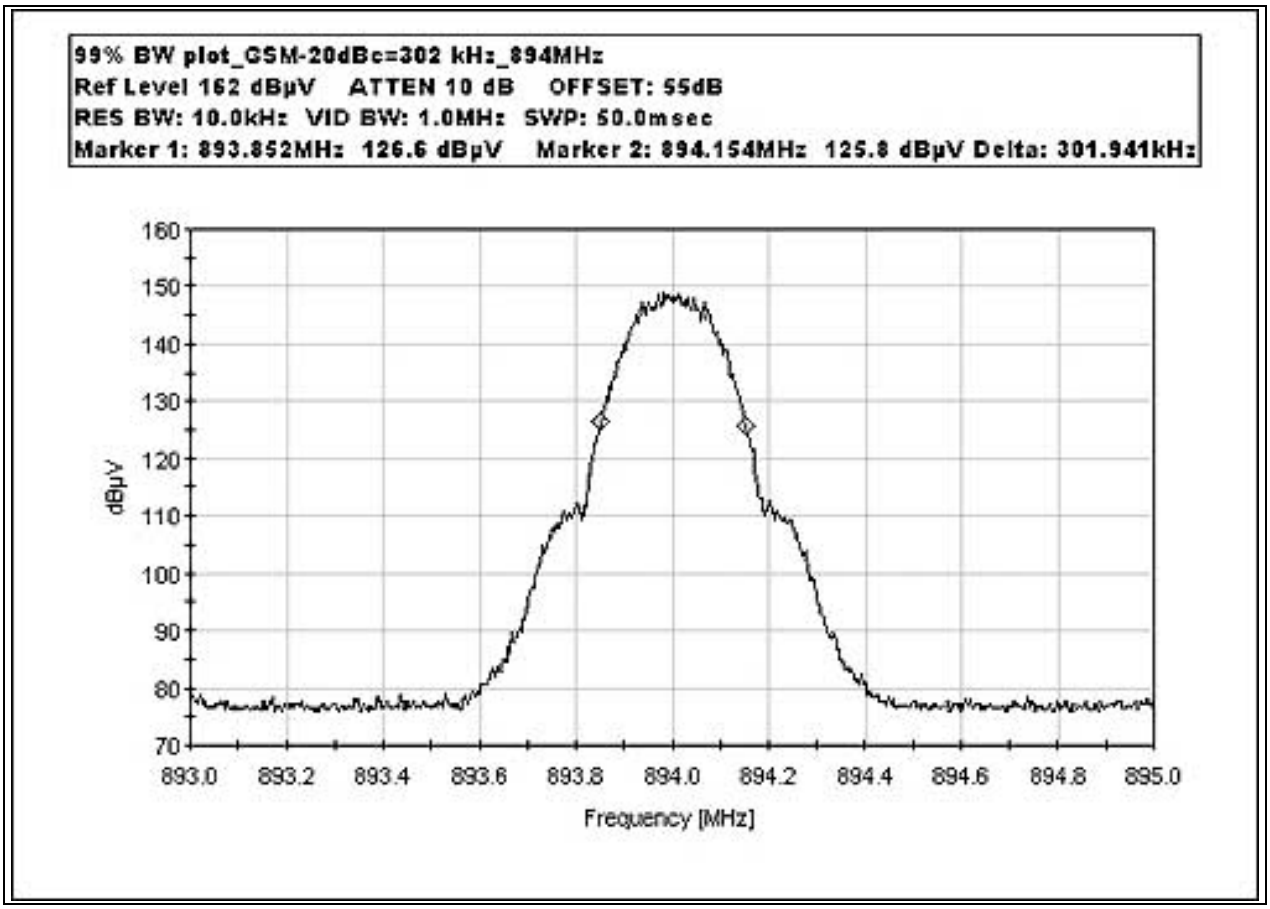
99% BANDWIDTH PLOT GSM 869 MHz



99% BANDWIDTH PLOT GSM 881 MHz



99% BANDWIDTH PLOT GSM 894 MHz

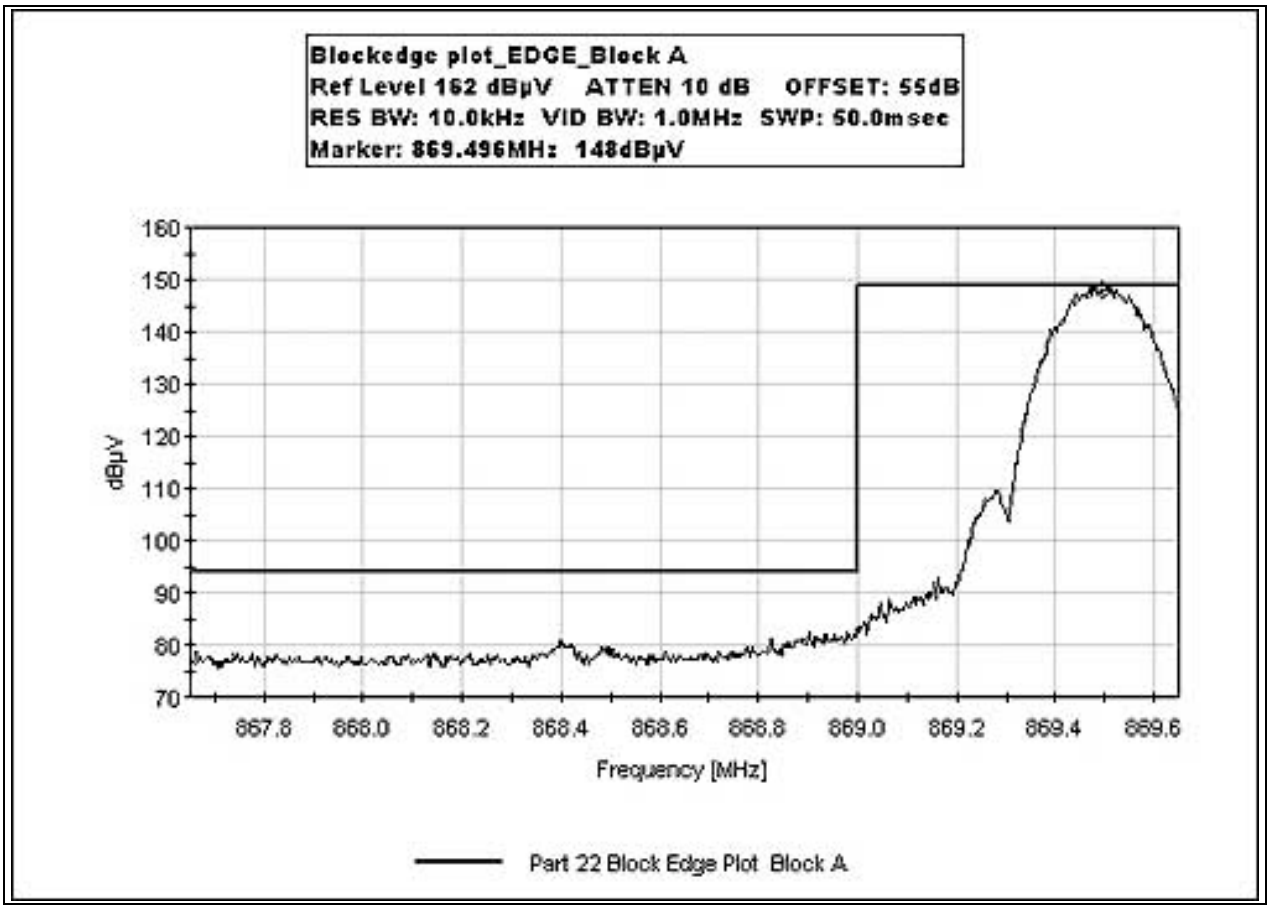


Test Equipment

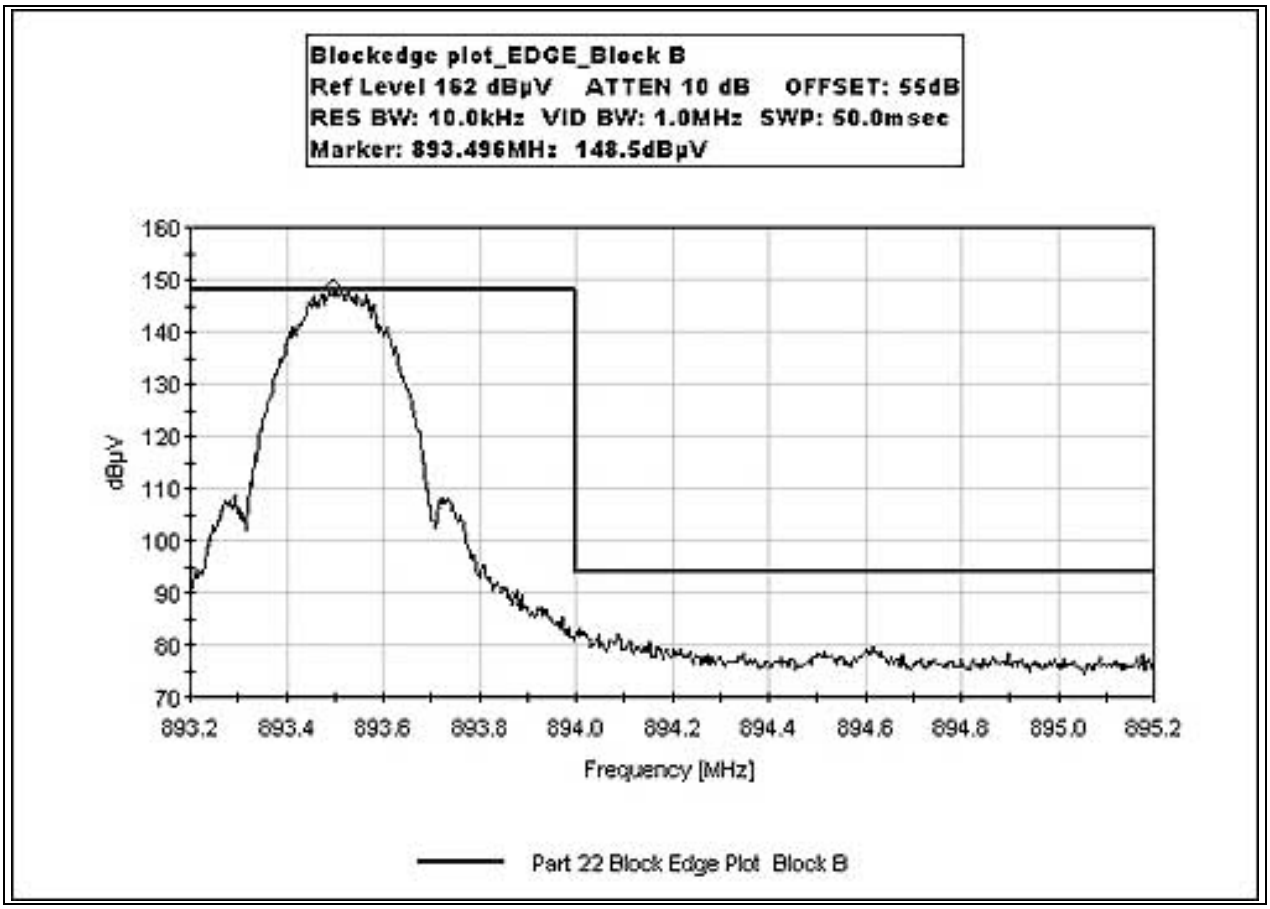
Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

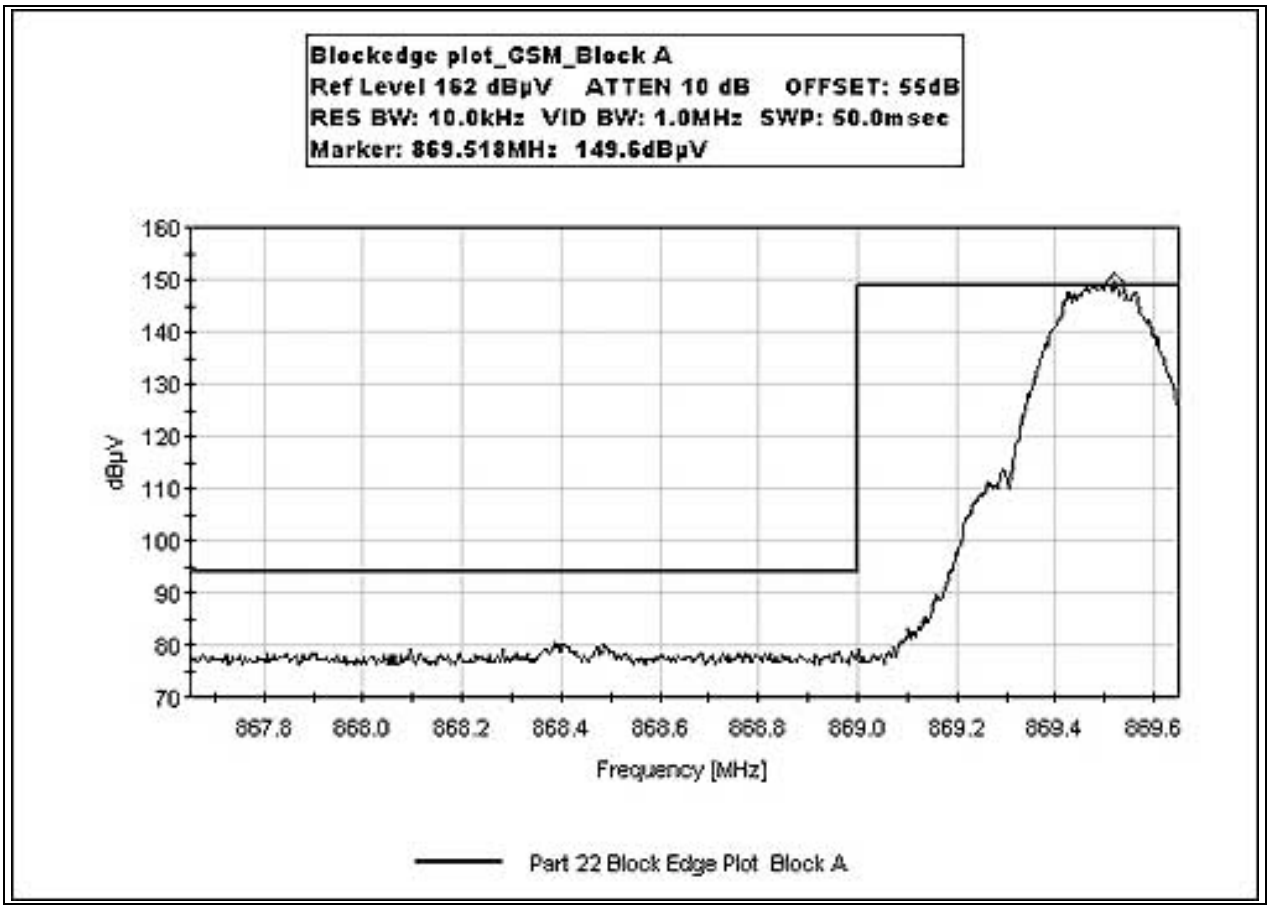
BLOCKEDGE PLOT EDGE BLOCK A



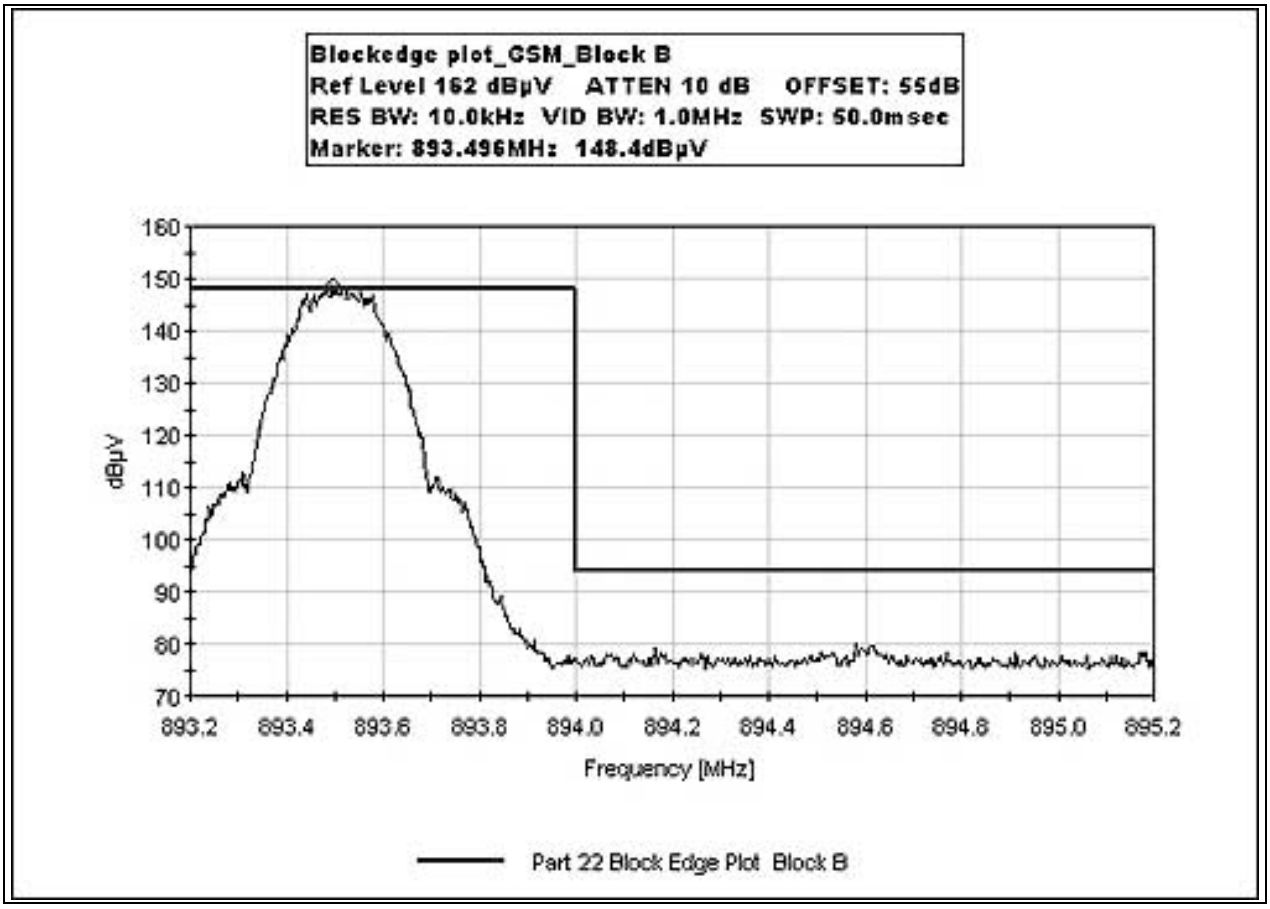
BLOCKEDGE PLOT EDGE BLOCK B



BLOCKEDGE PLOT GSM BLOCK A



BLOCKEDGE PLOT GSM BLOCK B

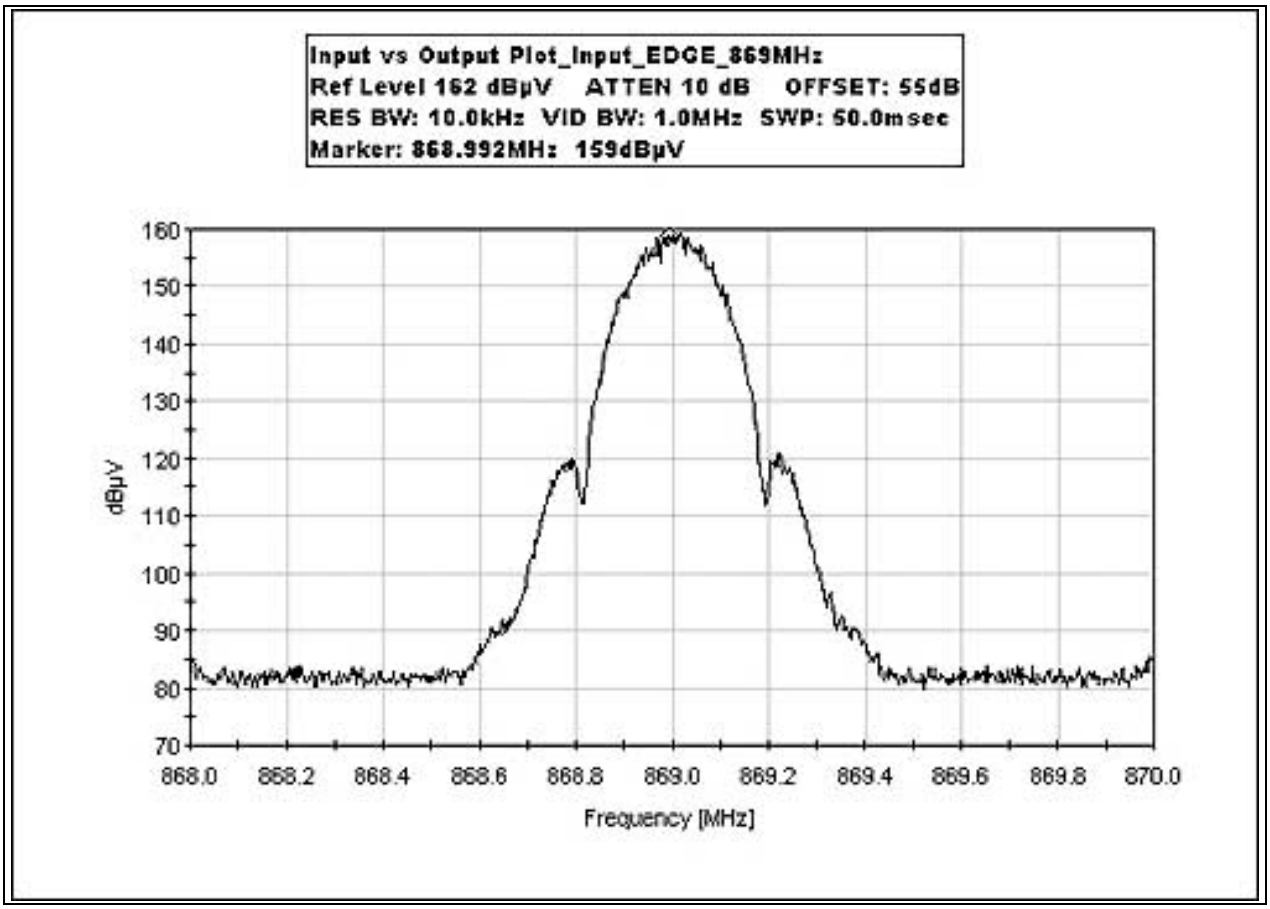


Test Equipment

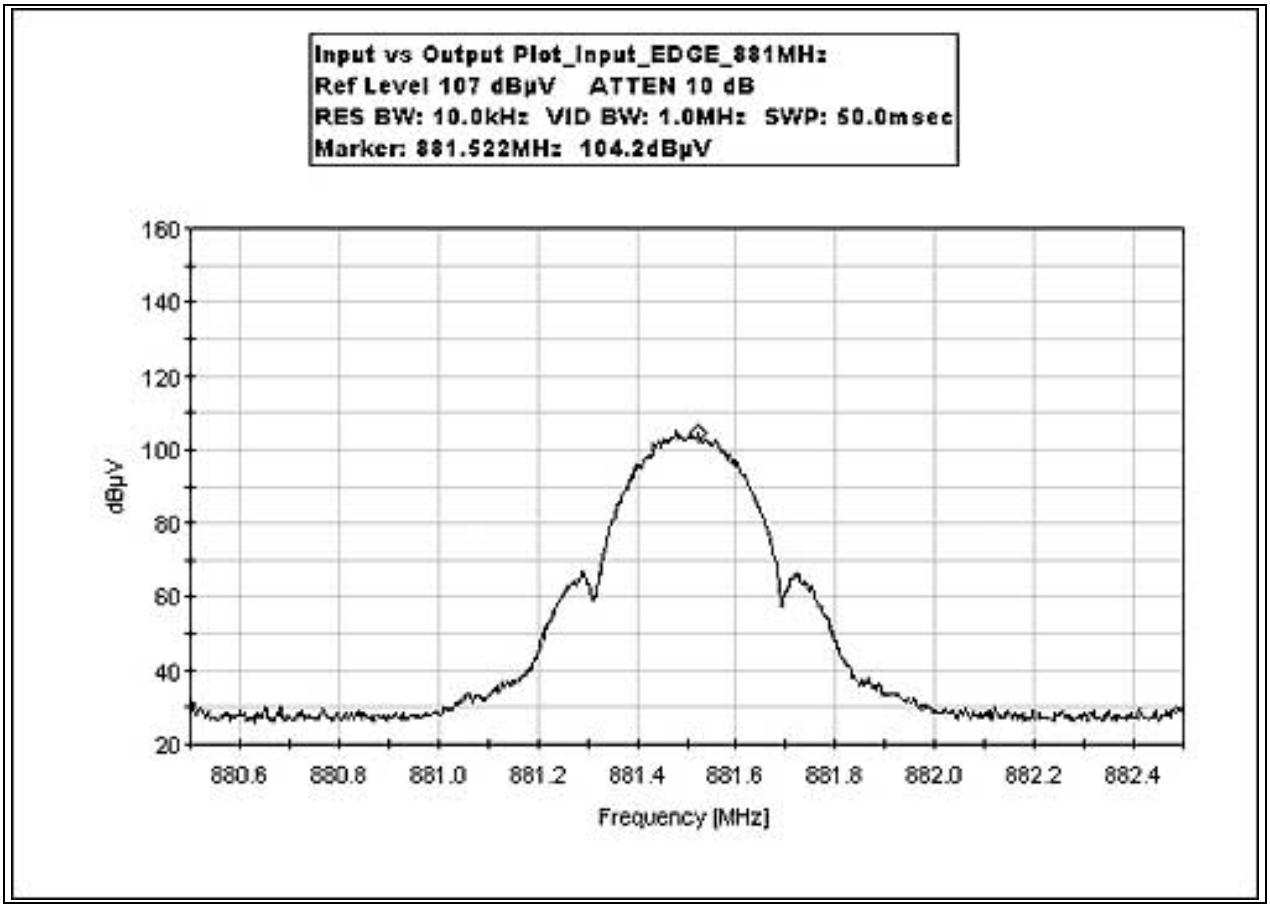
Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00989A	HP	8568A	2049A01287	070204	070206
Spectrum Analyzer Display Section	00034	HP	85662A	2349A06091	070204	070206
Quasi Peak Adapter	00200	HP	85650A	2043A00221	070204	070206

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

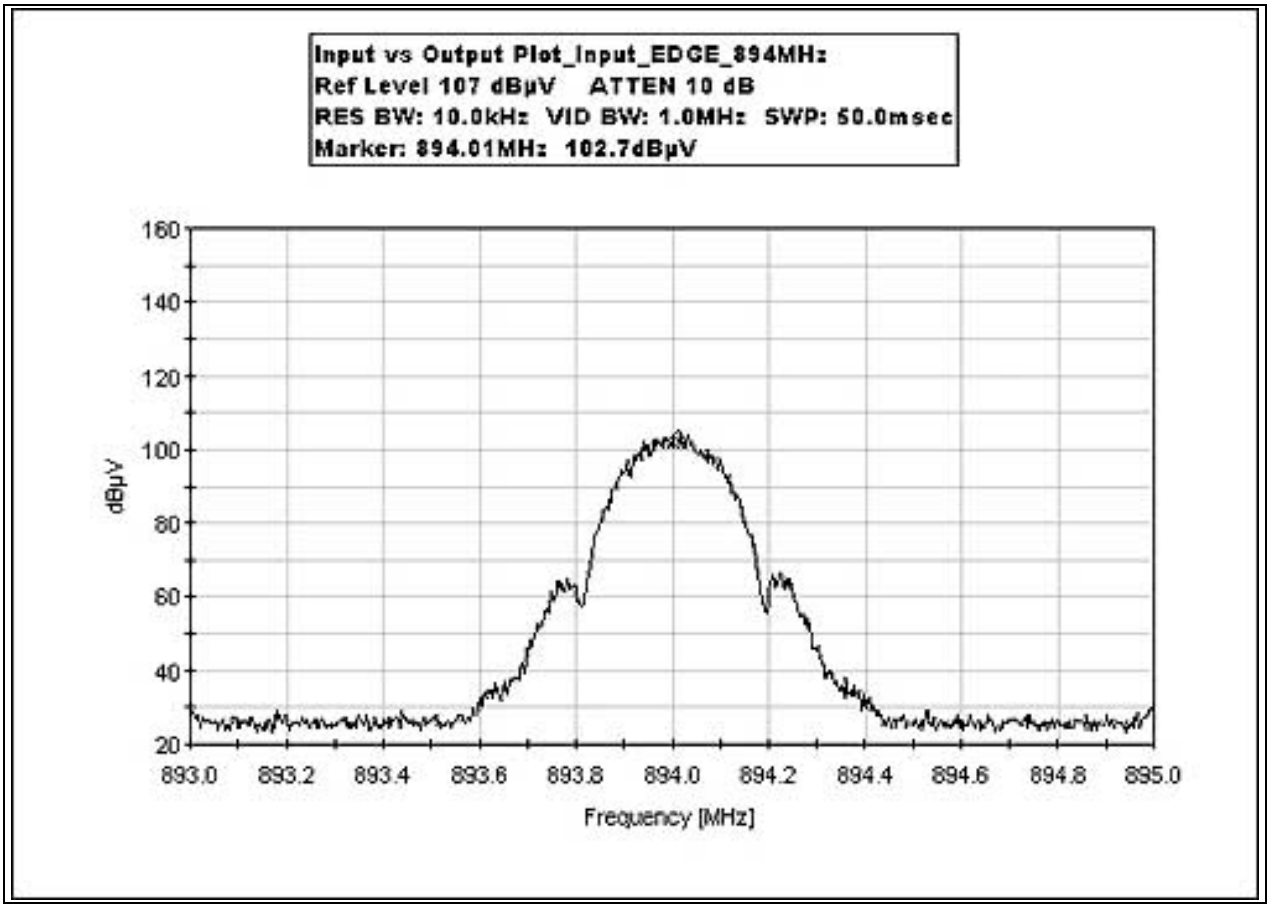
INPUT VS OUTPUT PLOT INPUT EDGE 869 MHz



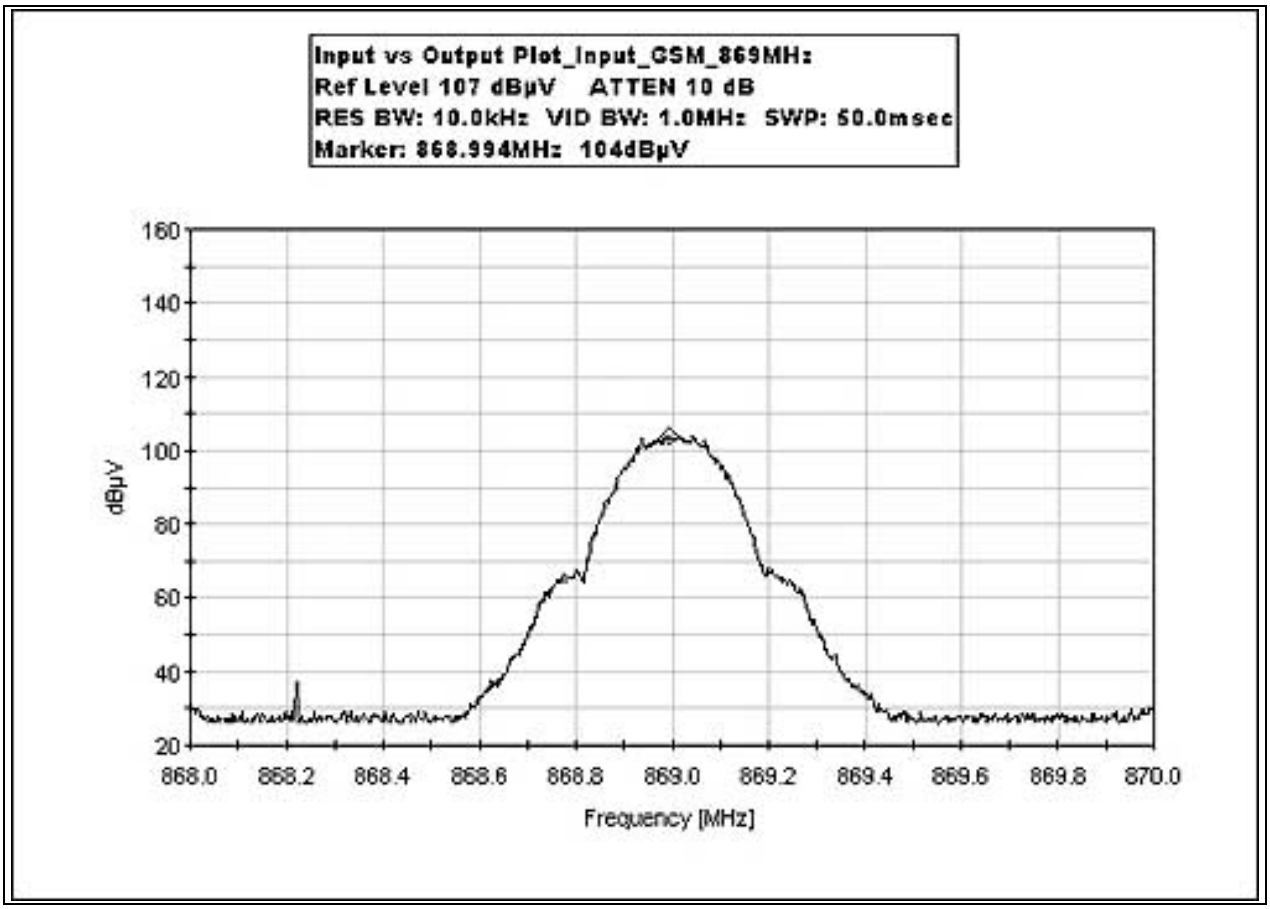
INPUT VS OUTPUT PLOT INPUT EDGE 881 MHz



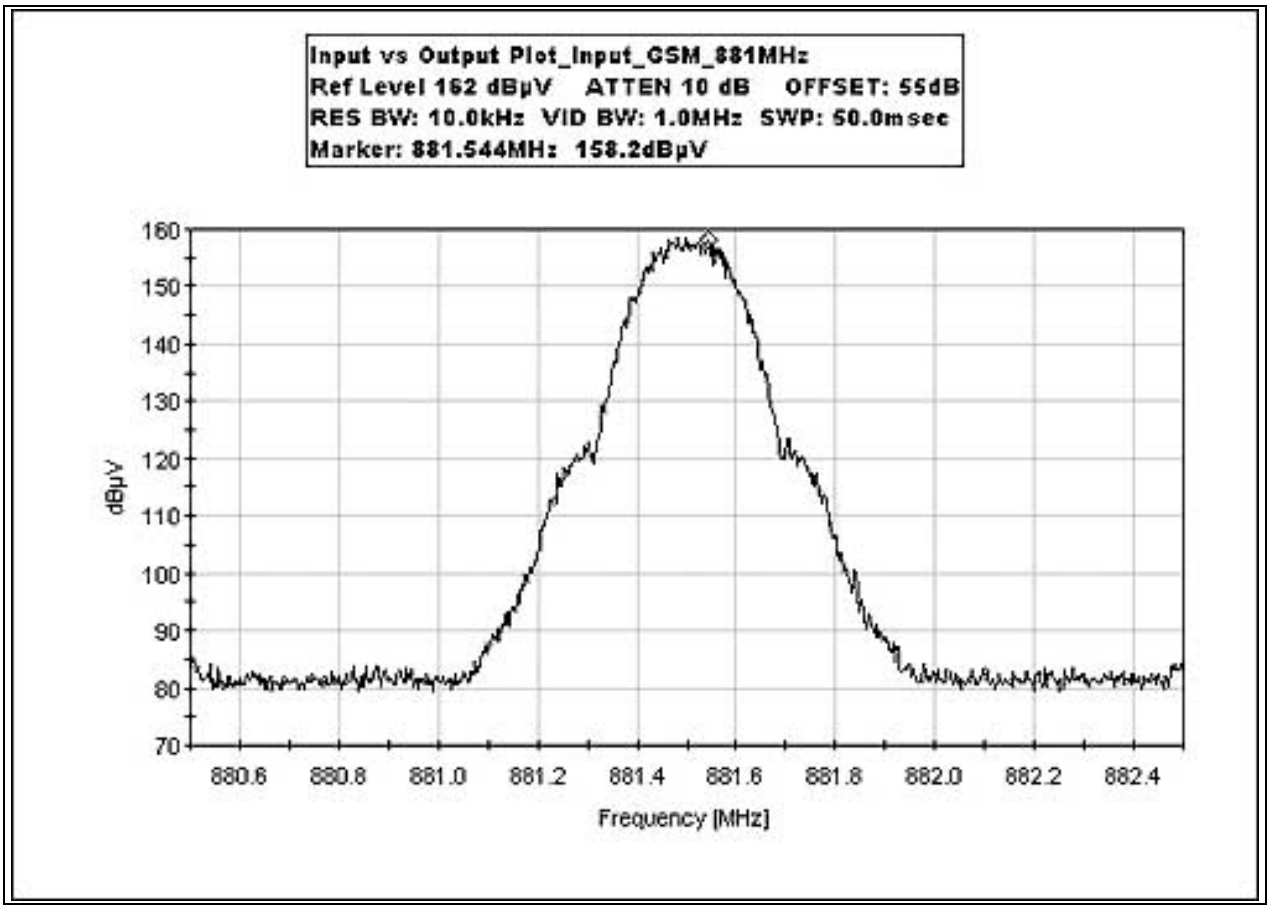
INPUT VS OUTPUT PLOT INPUT EDGE 894 MHz



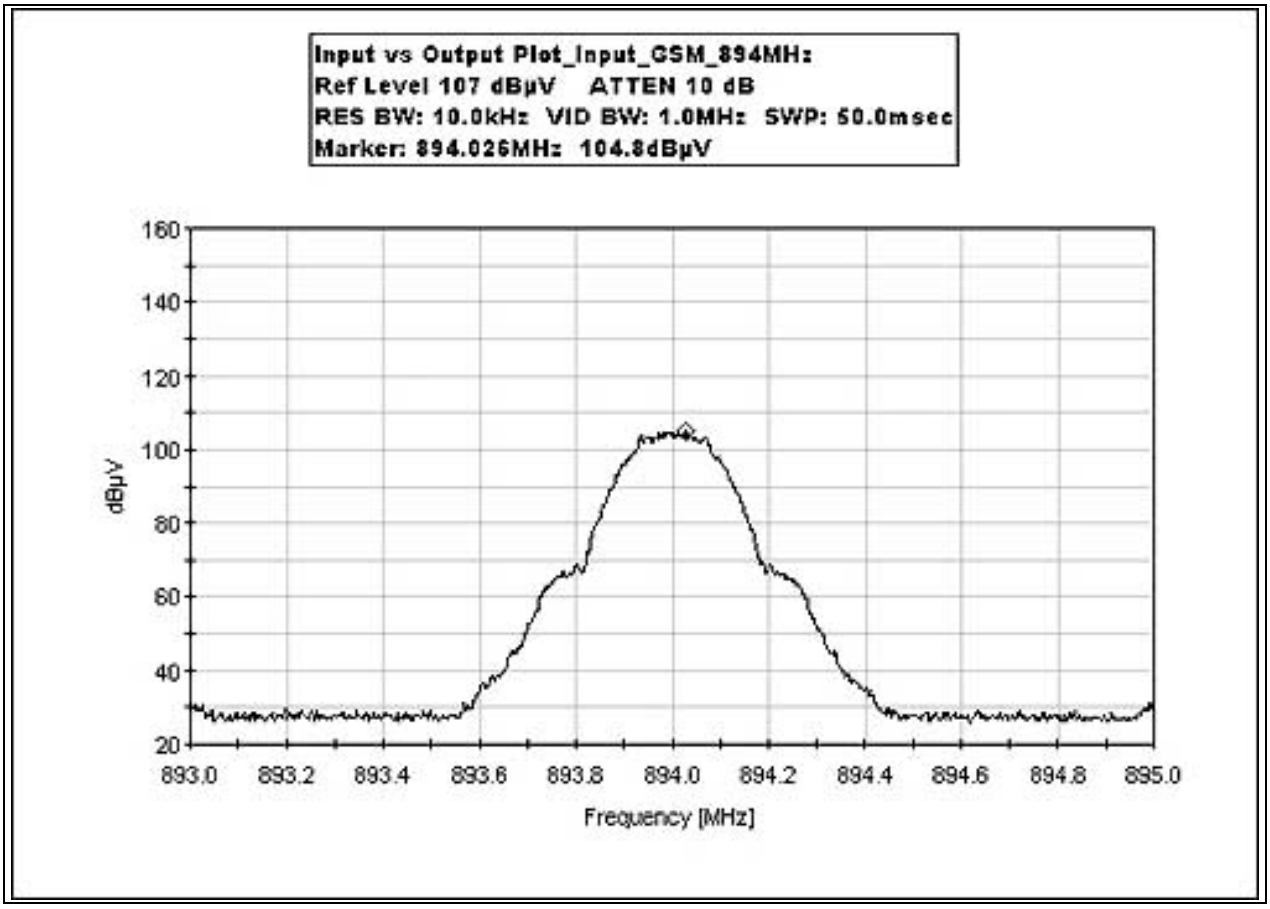
INPUT VS OUTPUT PLOT INPUT GSM 869 MHz



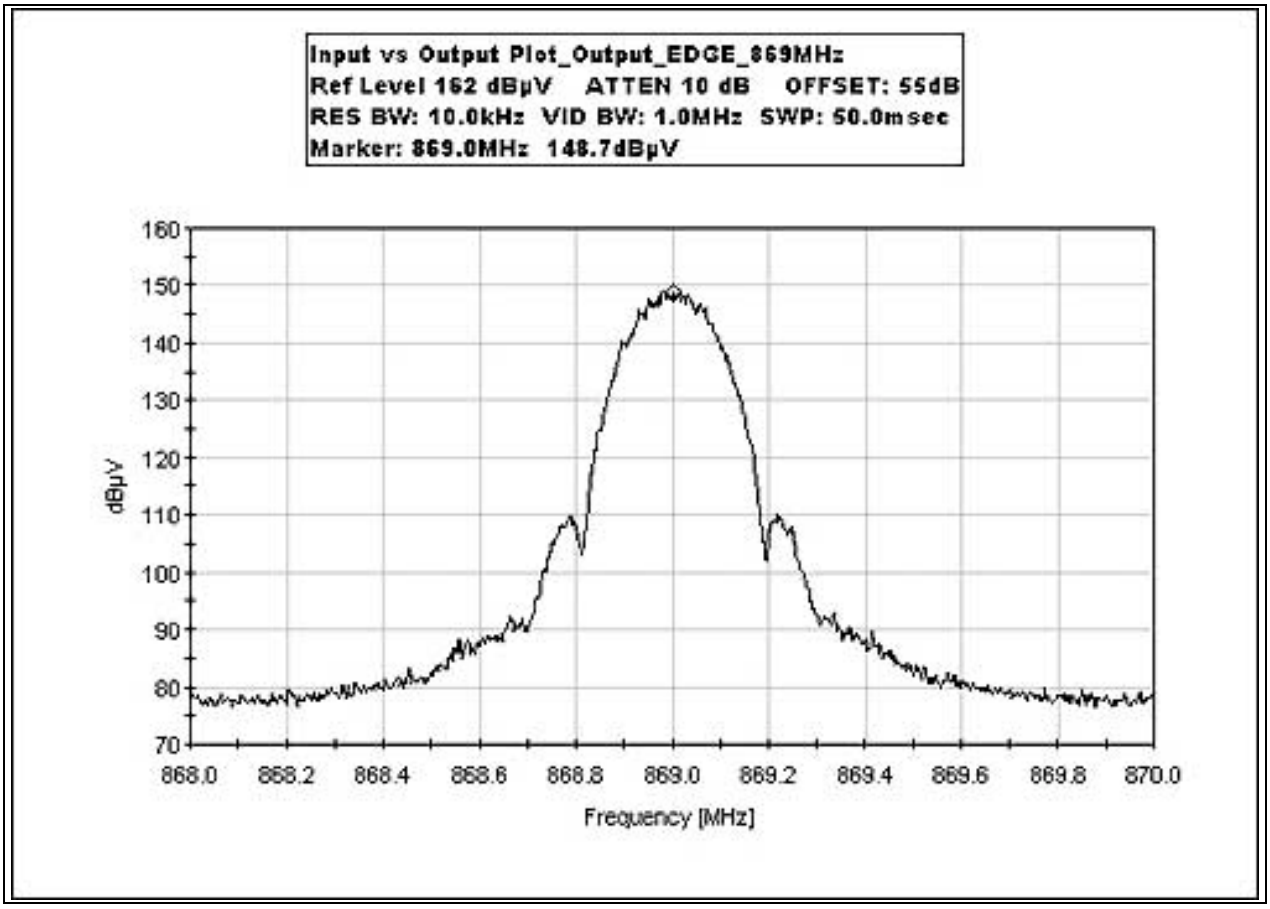
INPUT VS OUTPUT PLOT INPUT GSM 881 MHz



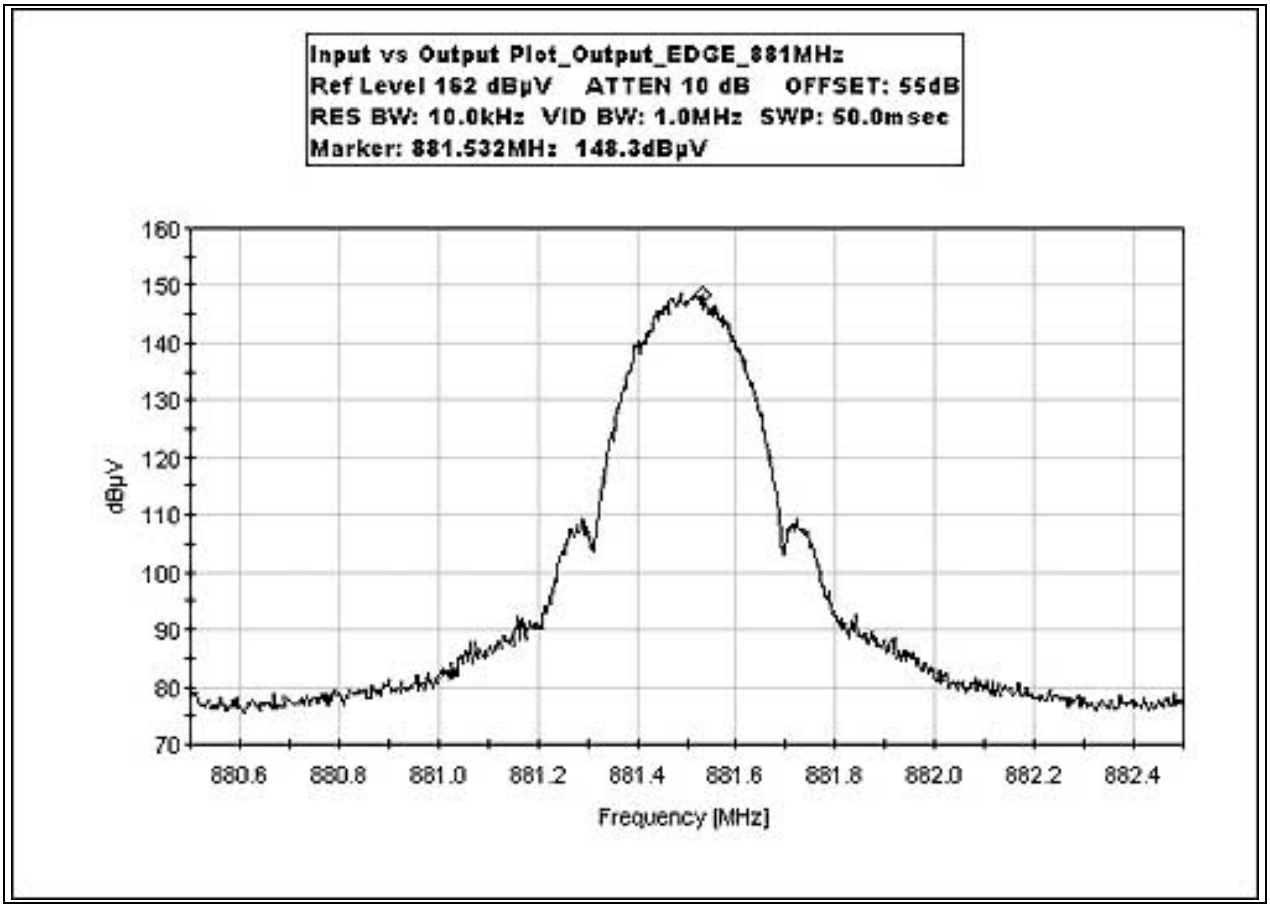
INPUT VS OUTPUT PLOT INPUT GSM 894 MHz



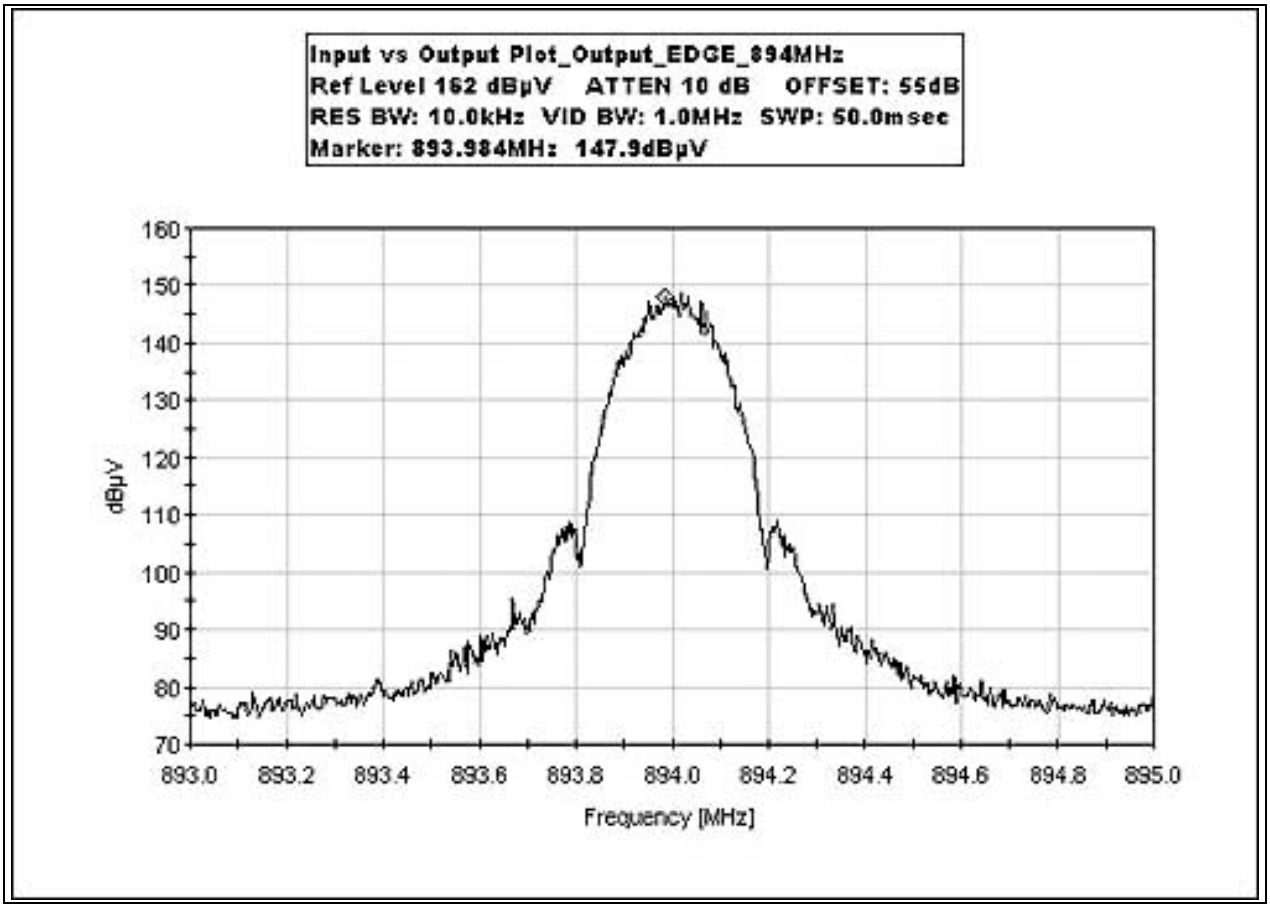
INPUT VS OUTPUT PLOT OUTPUT EDGE 869 MHz



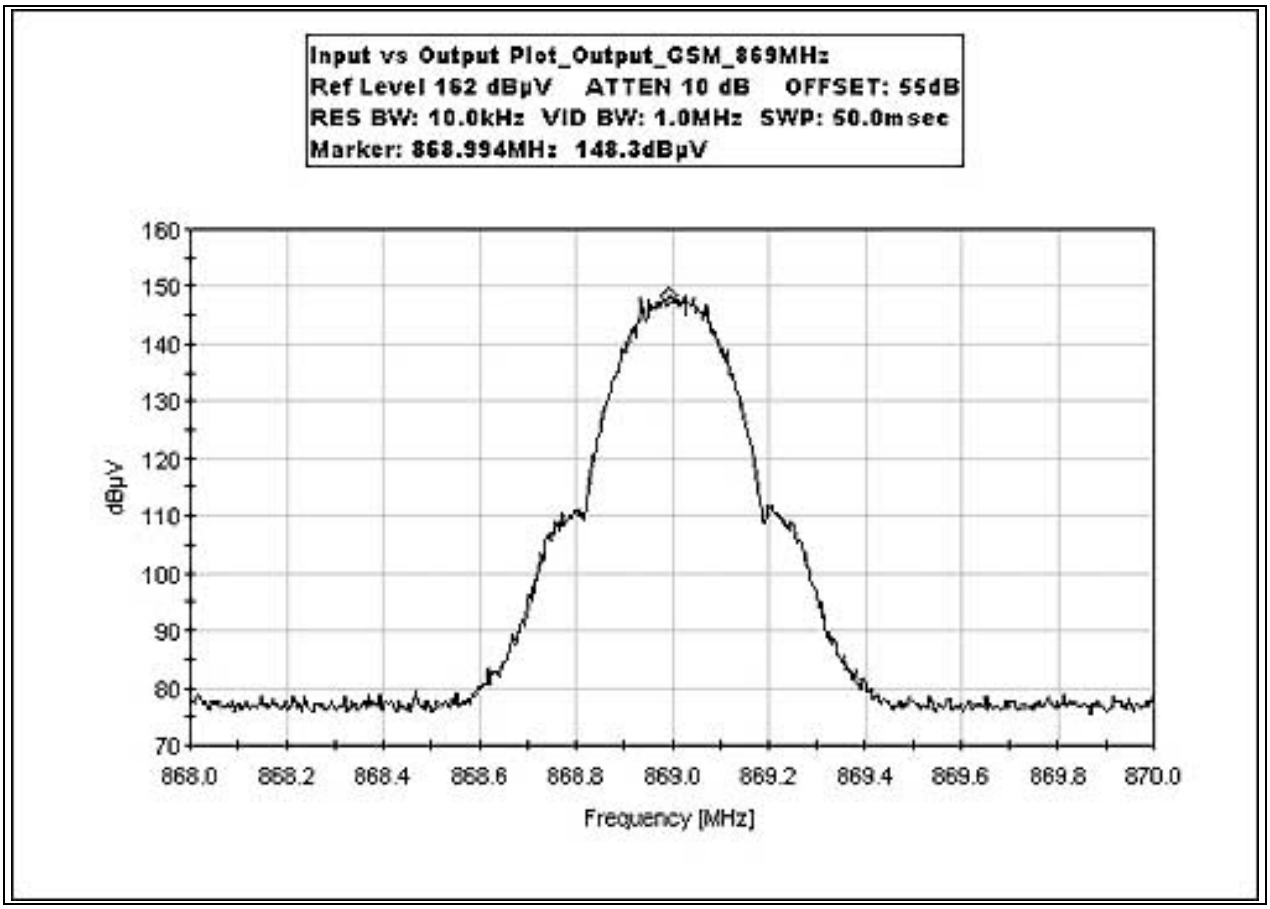
INPUT VS OUTPUT PLOT OUTPUT EDGE 881 MHz



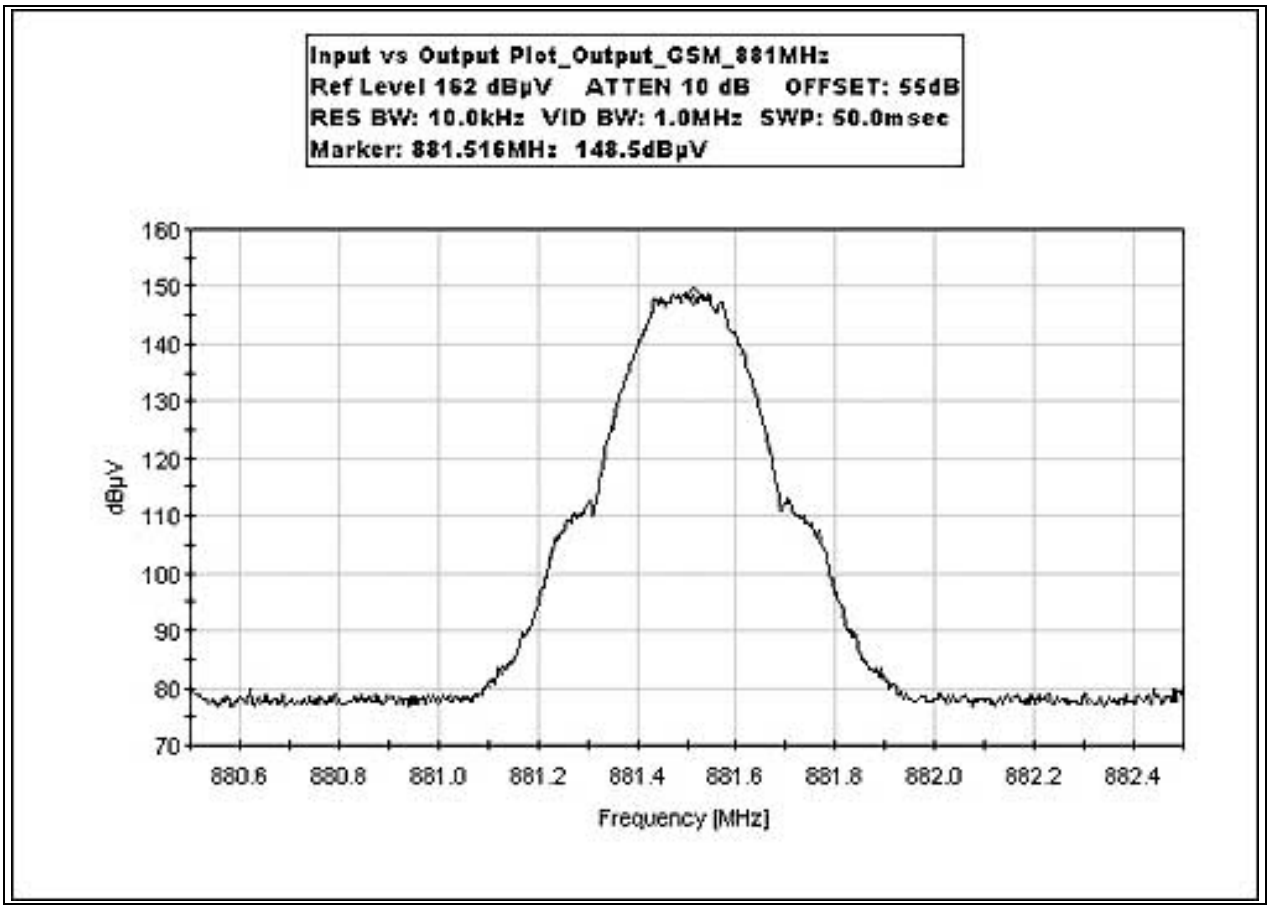
INPUT VS OUTPUT PLOT OUTPUT EDGE 894 MHz



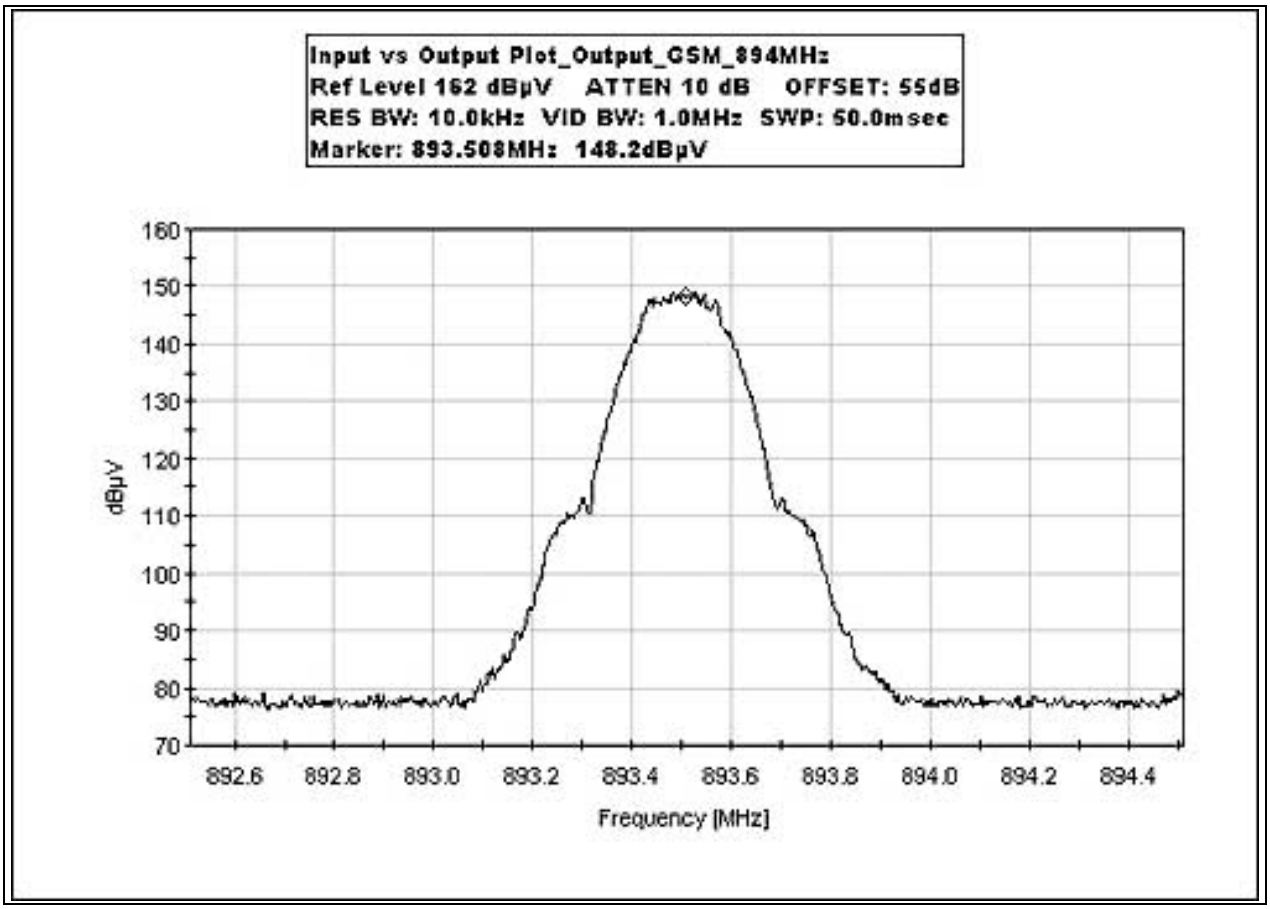
INPUT VS OUTPUT PLOT OUTPUT GSM 869 MHz



INPUT VS OUTPUT PLOT OUTPUT GSM 881 MHz



INPUT VS OUTPUT PLOT OUTPUT GSM 894 MHz



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