POWERWAVE TECHNOLOGIES, INC. TEST REPORT

FOR THE

REPEATER, RH400020/101

FCC PART 22 AND RSS-131

COMPLIANCE

DATE OF ISSUE: AUGUST 17, 2007

PREPARED FOR:

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

P.O. No.: 112376
W.O. No.: 86394

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Date of test: March 27 – August 15, 2007

Report No.: FC07-064

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

DATE OF TEST:	March 27 – August 15, 2007
DATE OF RECEIPT:	March 27, 2007
FREQUENCY RANGE TESTED:	9 kHz-10 GHz
MANUFACTURER:	Powerwave Technologies, Inc. 1801 E. St. Andrew Place Santa Ana, CA 92705
REPRESENTATIVE:	Charolette Yu
TEST LOCATION:	CKC Laboratories, Inc. 110 Olinda Place Brea, CA 92823
TEST METHOD:	FCC Part 22, RSS-131 and RSS GEN
PURPOSE OF TEST:	To demonstrate the compliance of the Repeater, RH400020/101 with the requirements for FCC Part 22 and RSS-131 devices.

APPROVALS:

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:	**TEST PERSONNEL:**
Joyce Walker, Quality Assurance Administrative Manager	Eddie Wong, EMC Engineer

FCC TO CANADA STANDARD CORRELATION MATRIX

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	N/A	N/A	RF Power Output
N/A	N/A	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)
	3172-A		90473	Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit. Wideband Radio Heads (WRH) work as on-frequency amplifiers used to fill out uncovered areas in wireless mobile systems such as base station fringe areas, tunnels, business, convention centers, airports and industrial buildings. It receives, amplifies and transmits signals to/from a base station to/from mobile stations. Operational parameters, such as gain, channel number and power levels are set using a PC running Powerwave OM-Online software which can communicate with the WRHs either locally or remotely via modem.

The following model has been tested by CKC Laboratories: **RH400020/101**

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they meeet the level of testing equivalent to the tested models: **RH400020/211; RH004002/000; RH004002/001; RH004002/011; RH400020/102; RH400020/212; RH004002/002; RH004002/012.**

EQUIPMENT UNDER TEST

Repeater

Manuf:	Powerwave Technologies, Inc.
Model:	RH400020/101
Serial:	NA
FCC ID:	E675JS0091 (pending)
IC ID:	2868C-5JS0091 (pending)

PERIPHERAL DEVICES

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

Optical Converter

Manuf:	Powerwave Technologies, Inc.
Model:	NA
Serial:	42473

Spectrum Analyzer

Manuf:	HP
Model:	8563E
Serial:	NA

Power Meter

Manuf:	Agilent
Model:	E4419B
Serial:	MY40510694

ESG

Manuf:	Agilent
Model:	E4433B
Serial:	US40051840

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
G7W, F9W, GXW

FCC 2.1033 (c)(5) FREQUENCY RANGE
869-894 MHz.

FCC 2.1033 (c)(6) OPERATING POWER
20 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
EDGE, WCDMA, CDMA, GSM

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

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
RF Power meter	02778	HP	EPM-441A	GB37170458	012706	012708
Power Sensor	02777	HP	E4412A	MY41499662	012706	012708

Test Setup Photos

Test Data

22.913(a) RF Power Output:
Effective radiated power limits

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

The EUT is a RF amplifier. The manufacturer does not provide an antenna for sale with the product, hence EIRP is not measured nor calculated. The RF power of the EUT was measured at the antenna port. The measurement satisfies the above requirement by demonstrating the measured power is below 500 watts.

Test Conditions: The EUT is placed on the wooden table. The RF Output port is connected to a power meter. Optical in port is connected to a support optical converter. The support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal is measured at the antenna port.

EDGE	dBm	Watts
869MHz	43	20
882MHz	43	20
894MHz	43	20
WCDMA		
869MHz	43	20
882MHz	43	20
894MHz	43	20
CDMA		
869MHz	43	20
882MHz	43	20
894MHz	43	20
GSM		
869MHz	43	20
882MHz	43	20
894MHz	43	20

Conclusion: As indicated above, each single channel does not exceed the 500 Watt peak power limit.

RSS-131 - RF POWER OUTPUT

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

Test Setup Photos

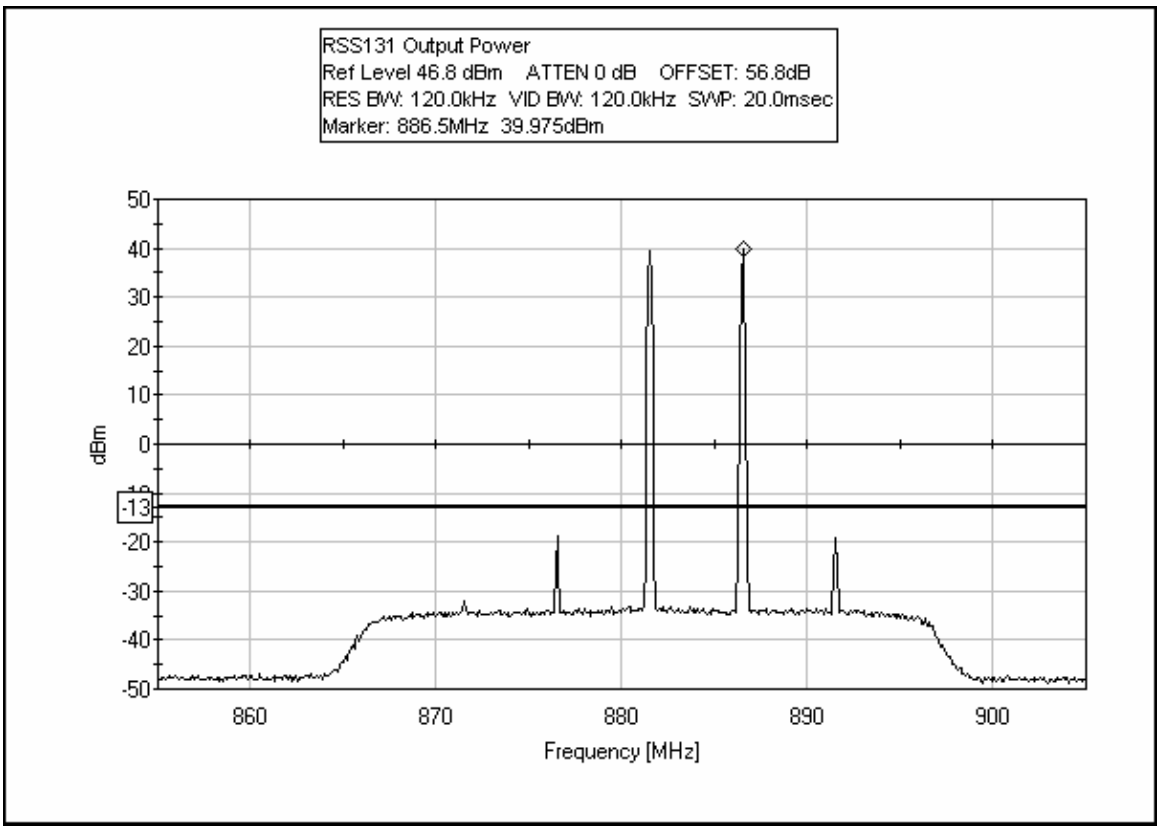
Test Conditions: The EUT is a RF amplifier. The manufacturer does not provide an antenna for sale with the product, hence EIRP is not measured nor calculated. The RF power of the EUT was measured at the antenna port in accordance with **RSS 131, 4.3.1** requirement.

Measured Po1 =+ 40. dBm

P mean = Po1 + 3 dB = **40 + 3 dBm = 43 dBm = 20 W**

Note: With protection circuits, the EUT did not enter inter-modulation mode at designated power level.

4.3 Mean Output power.



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

Test Setup Photos

Limit line for Spurious Conducted Emission

Required Attenuation = 43+10 Log P dB

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

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

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

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

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

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

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 Data Sheets

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emission**		
Work Order #:	**86394**	Date:	4/5/2007
Test Type:	**Conducted Emissions**	Time:	11:47:43
Equipment:	**Repeater**	Sequence#:	4
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 869 MHz. Modulation: EDGE. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2646.000M	83.8	+1.9	+0.6			+0.0	86.3	94.0	-7.7	Anten
2	3476.017M	73.7	+2.2	+0.6			+0.0	76.5	94.0	-17.5	Anten
3	1738.300M	71.6	+1.4	+0.6			+0.0	73.6	94.0	-20.4	Anten

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

Customer: **Powerwave Technologies, Inc.**
Specification: **FCC Part 22.917(a) Conducted Spurious Emission**
Work Order #: **86394** Date: 4/5/2007
Test Type: **Conducted Emissions** Time: 12:01:52
Equipment: **Repeater** Sequence#: 5
Manufacturer: Powerwave Technologies, Inc. Tested By: E. Wong
Model: RH400020/101 110V 60Hz
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 881.5 MHz. Modulation: EDGE. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2646.000M	74.9	+1.9	+0.6			+0.0	77.4	94.0	-16.6	Anten
2	1773.000M	73.6	+1.5	+0.5			+0.0	75.6	94.0	-18.4	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emission**		
Work Order #:	**86394**	Date:	4/5/2007
Test Type:	**Conducted Emissions**	Time:	13:28:43
Equipment:	**Repeater**	Sequence#:	6
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 894 MHz. Modulation: EDGE. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1773.000M	75.1	+1.5	+0.5			+0.0	77.1	94.0	-16.9	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emission**		
Work Order #:	**86394**	Date:	4/5/2007
Test Type:	**Conducted Emissions**	Time:	13:30:44
Equipment:	**Repeater**	Sequence#:	7
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 869 MHz. Modulation: WCDMA. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1741.950M	53.7	+1.4	+0.6			+0.0	55.7	94.0	-38.3	Anten
2	2614.700M	48.5	+1.9	+0.6			+0.0	51.0	94.0	-43.0	Anten

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Customer: **Powerwave Technologies, Inc.**
Specification: **FCC Part 22.917(a) Conducted Spurious Emission**
Work Order #: **86394** Date: 4/5/2007
Test Type: **Conducted Emissions** Time: 13:49:41
Equipment: **Repeater** Sequence#: 8
Manufacturer: Powerwave Technologies, Inc. Tested By: E. Wong
Model: RH400020/101 110V 60Hz
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 882MHz. Modulation: WCDMA. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1762.750M	51.0	+1.5	+0.5			+0.0	53.0	94.0	-41.0	Anten
2	2644.750M	24.0	+1.9	+0.6			+0.0	26.5	94.0	-67.5	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emission**		
Work Order #:	**86394**	Date:	4/5/2007
Test Type:	**Conducted Emissions**	Time:	14:00:10
Equipment:	**Repeater**	Sequence#:	9
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts, Frequency = 894MHz. Modulation: WCDMA. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=SMA-cable_W_05204-021609-26GHz	T2=HPF_AN02116_1.5GHz_062707

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1779.850M	49.7	+1.5	+0.5			+0.0	51.7	94.0	-42.3	Anten
2	2673.850M	42.9	+1.9	+0.6			+0.0	45.4	94.0	-48.6	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**86394**	Date:	8/15/2007
Test Type:	**Conducted Emissions**	Time:	10:01:50
Equipment:	**Repeater**	Sequence#:	10
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 869MHz. Modulation: GSM 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2613.016M	54.6	+1.4	+0.7			+0.0	56.7	94.0	-37.3	Anten
2	1742.014M	53.4	+1.1	+0.7			+0.0	55.2	94.0	-38.8	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**86394**	Date:	8/15/2007
Test Type:	**Conducted Emissions**	Time:	10:05:19
Equipment:	**Repeater**	Sequence#:	11
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 882MHz. Modulation: GSM 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2624.004M	55.1	+1.4	+0.7			+0.0	57.2	94.0	-36.8	Anten
2	1753.002M	52.5	+1.1	+0.7			+0.0	54.3	94.0	-39.7	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**86394**	Date:	8/15/2007
Test Type:	**Conducted Emissions**	Time:	10:09:25
Equipment:	**Repeater**	Sequence#:	12
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 894MHz. Modulation: GSM 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1784.000M	53.8	+1.2	+0.7			+0.0	55.7	94.0	-38.3	Anten
2	2676.000M	52.3	+1.4	+0.5			+0.0	54.2	94.0	-39.8	Anten

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

Customer: **Powerwave Technologies, Inc.**
Specification: **FCC Part 22.917(a) Conducted Spurious Emissions**
Work Order #: **86394** Date: 8/15/2007
Test Type: **Conducted Emissions** Time: 10:14:57
Equipment: **Repeater** Sequence#: 13
Manufacturer: Powerwave Technologies, Inc. Tested By: E. Wong
Model: RH400020/101 110V 60Hz
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 869MHz. Modulation: CDMA 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	3478.133M	56.8	+1.7	+0.3			+0.0	58.8	94.0	-35.2	Anten
2	2607.350M	55.6	+1.4	+0.7			+0.0	57.7	94.0	-36.3	Anten
3	1736.567M	53.6	+1.1	+0.7			+0.0	55.4	94.0	-38.6	Anten

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Conducted Spurious Emissions**		
Work Order #:	**86394**	Date:	8/15/2007
Test Type:	**Conducted Emissions**	Time:	10:21:29
Equipment:	**Repeater**	Sequence#:	14
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 882MHz. Modulation: CDMA 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	1764.000M	53.8	+1.1	+0.7			+0.0	55.6	94.0	-38.4	Anten

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

Customer: **Powerwave Technologies, Inc.**
Specification: **FCC Part 22.917(a) Conducted Spurious Emissions**
Work Order #: **86394** Date: 8/15/2007
Test Type: **Conducted Emissions** Time: 10:31:05
Equipment: **Repeater** Sequence#: 15
Manufacturer: Powerwave Technologies, Inc. Tested By: E. Wong
Model: RH400020/101 110V 60Hz
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Cable Big Blue	12237/4A	11/28/2005	11/28/2007	P05421
1.5 GHz HPF	3643A00027	06/09/2007	06/09/2009	02116

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter . Optical in port is connected to a support Optical converter. Support optical converter receives the RF signal, converts the signal to optic and sends it to the EUT. The EUT decode the optical signal, and generates a RF signal. RF signal measured at the antenna port. Power = 20 watts. Frequency = 894MHz. Modulation: CDMA 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Transducer Legend:

T1=CABLE_bigblue_ ANP5421 112807	T2=1.5GHz HPF 02116 060909

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2676.500M	54.8	+1.4	+0.5			+0.0	56.7	94.0	-37.3	Anten
2	1784.330M	52.8	+1.2	+0.7			+0.0	54.7	94.0	-39.3	Anten

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

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**FCC Part 22.917(a) Radiated Spurious Emission**		
Work Order #:	**86394**	Date:	4/5/2007
Test Type:	**Radiated Scan**	Time:	08:41:25
Equipment:	**Repeater**	Sequence#:	1
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		
S/N:	NA		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Loop Antenna	2014	06/14/2006	06/14/2008	00314
1.5 GHz HPF	3643A00027	06/27/2005	06/27/2007	02116
Bilog Antenna	2451	02/02/2006	02/02/2008	01995
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Pre amp to SA Cable	Cable #10	05/16/2005	05/16/2007	P05050
Cable	Cable15	01/05/2007	01/05/2009	P05198
Pre Amp	1937A02548	06/01/2006	06/01/2008	00309
Horn Antenna	6246	06/29/2006	06/29/2008	00849
24" SMA Cable	1-40GHz_white	02/16/2007	02/16/2009	P05204
Microwave Pre-amp	3123A00281	07/19/2006	07/19/2008	00786
Heliax Antenna Cable	P5565	09/18/2006	09/18/2008	P05565

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. Power = 20 watts. Frequency = 869 MHz, 881.5 MHz and 894 MHz . Modulation: EDGE. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

Test Setup Photos

Test Data

Operating Frequency: 869-894 MHz
Channels: Low, Mid and High
Highest Measured Output Power: 43.01 ERP(dBm)= 20 ERP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 56.01 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
1,738.02	-59.5	Vert	102.51
3,476.02	-55.6	Vert	98.61
4,345.02	-52.3	Vert	95.31
1,763.02	-59.6	Horiz	102.61
2,644.52	-56.3	Horiz	99.31
1,778.80	-60.4	Vert	103.41
5,363.99	-50.2	Horiz	93.21

INPUT PLOTS

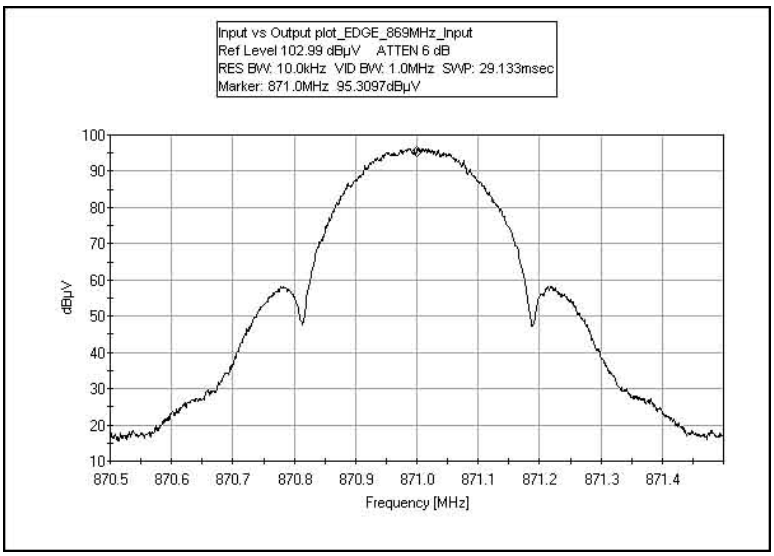
Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

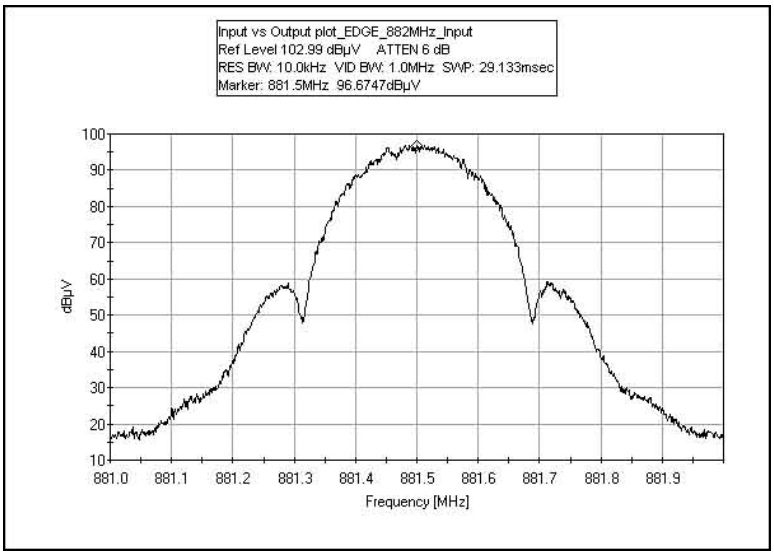
Test Conditions: The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port. Input plot: RF signal measured at the RF input port of the RF to optical converter,

Test Setup Photos

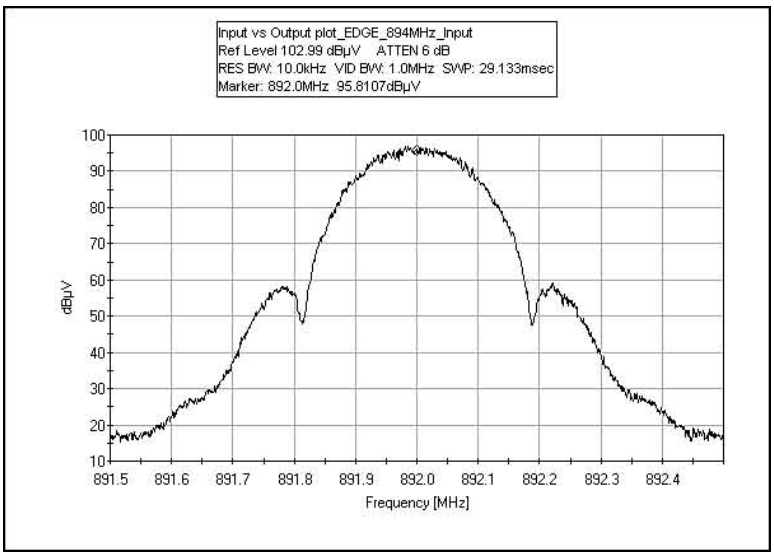
INPUT PLOT - EDGE 869MHz



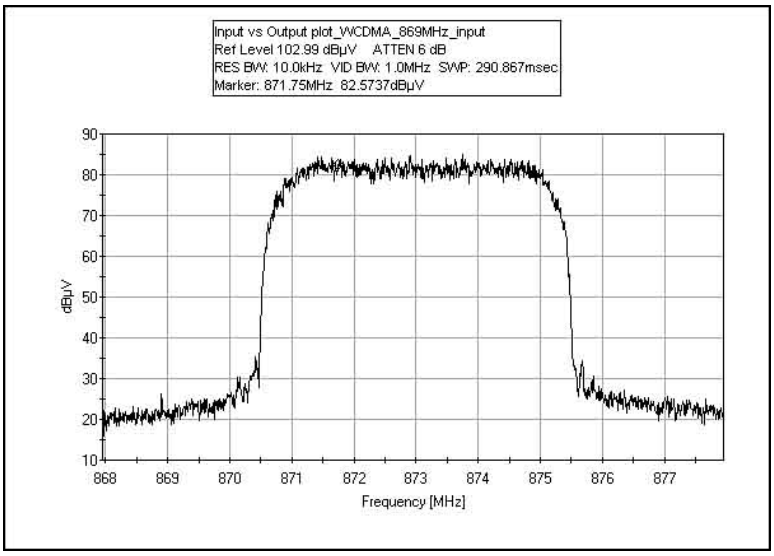
INPUT PLOT - EDGE 882MHz



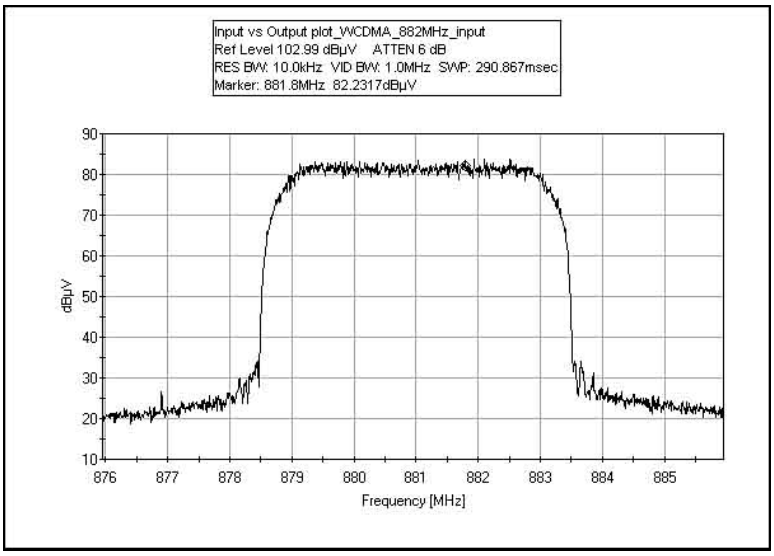
INPUT PLOT - EDGE 894MHz



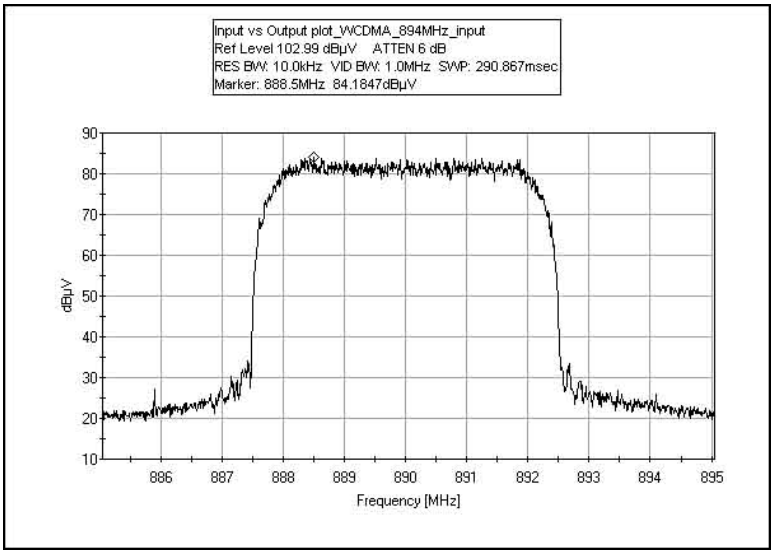
INPUT PLOT - WCDMA 869MHz



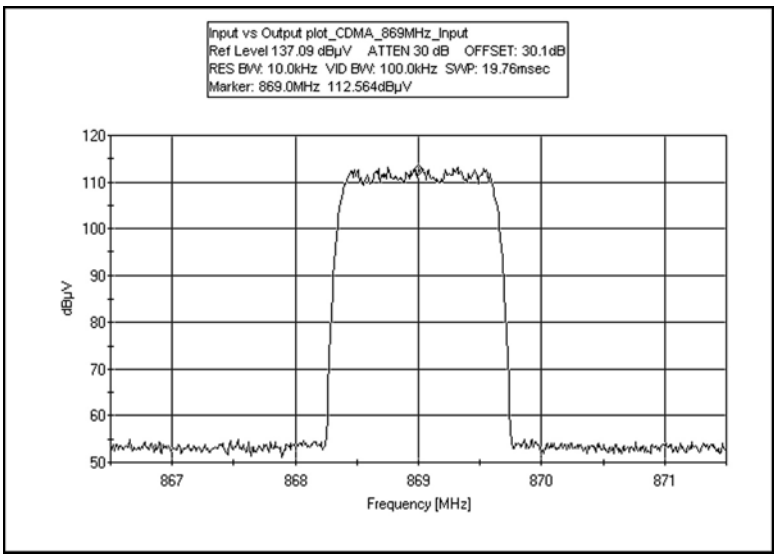
INPUT PLOT - WCDMA 882MHz



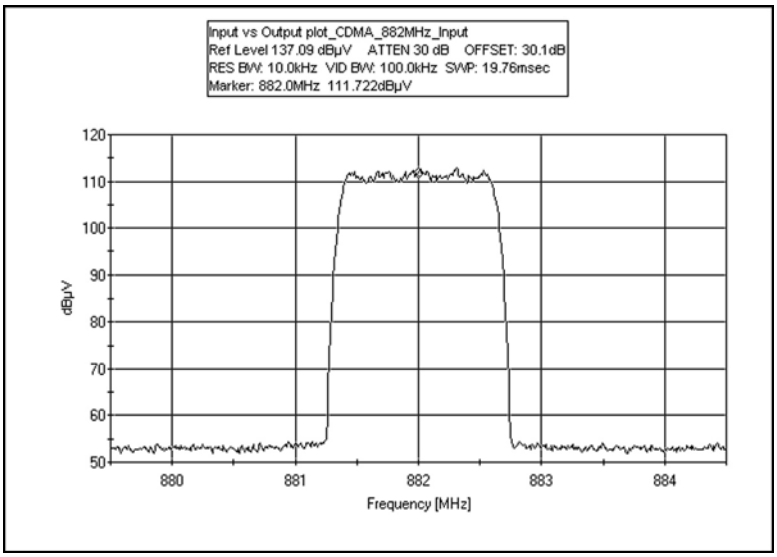
INPUT PLOT - WCDMA 894MHz



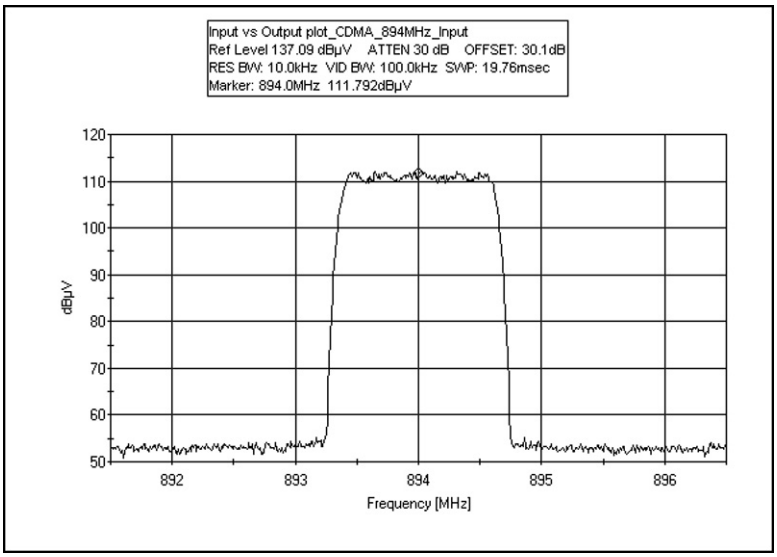
INPUT PLOT - CDMA 869MHz



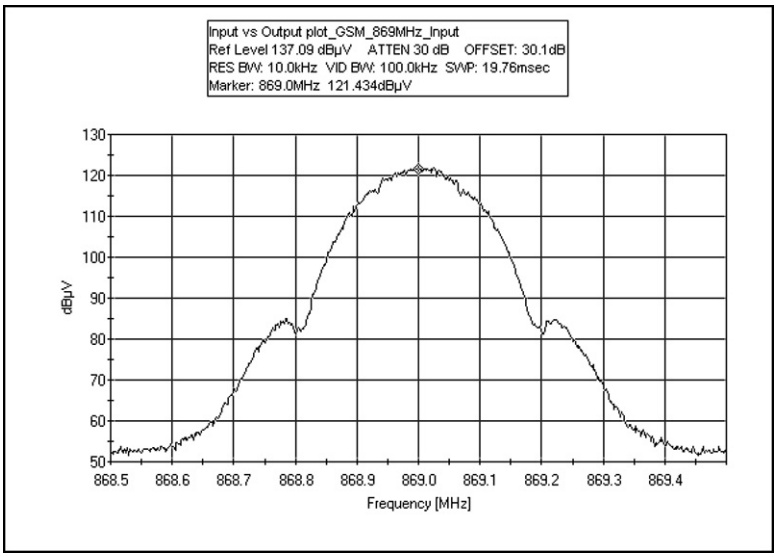
INPUT PLOT - CDMA 882MHz



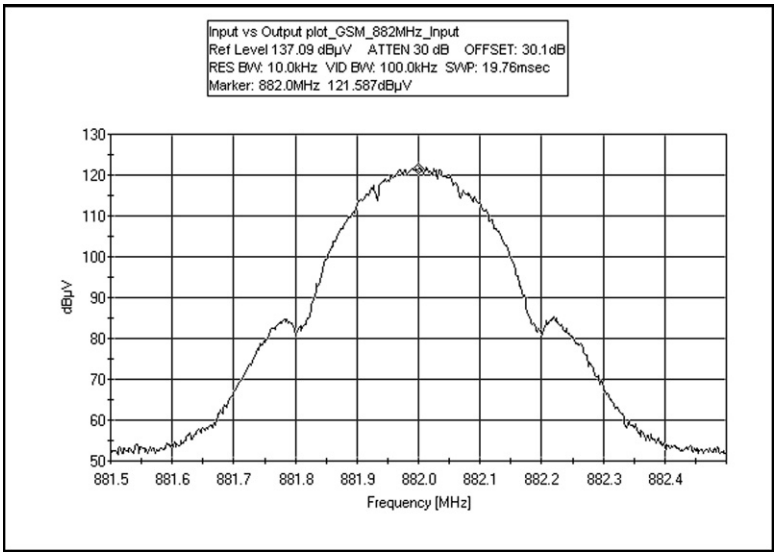
INPUT PLOT - CDMA 894MHz



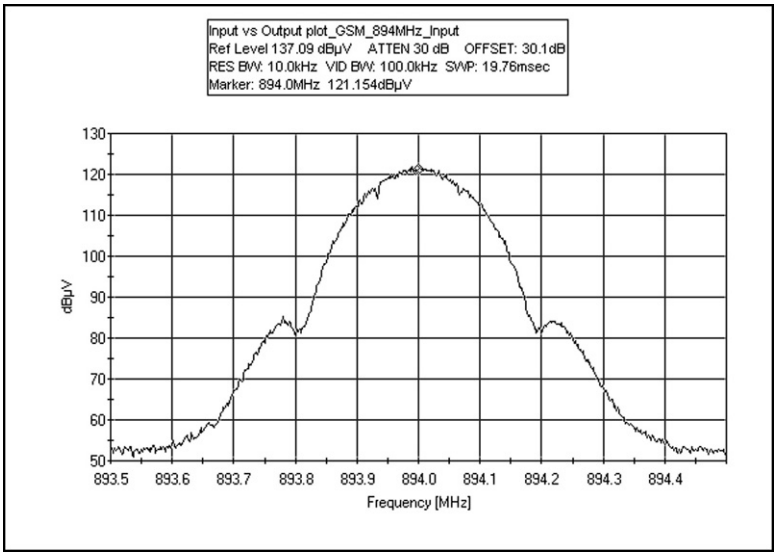
INPUT PLOT - GSM 869MHz



INPUT PLOT - GSM 882MHz



INPUT PLOT - GSM 894MHz



OUTPUT PLOTS

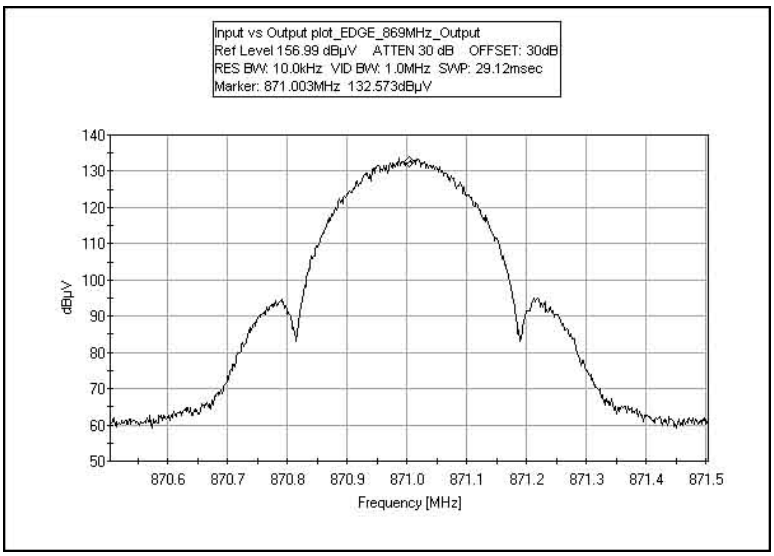
Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

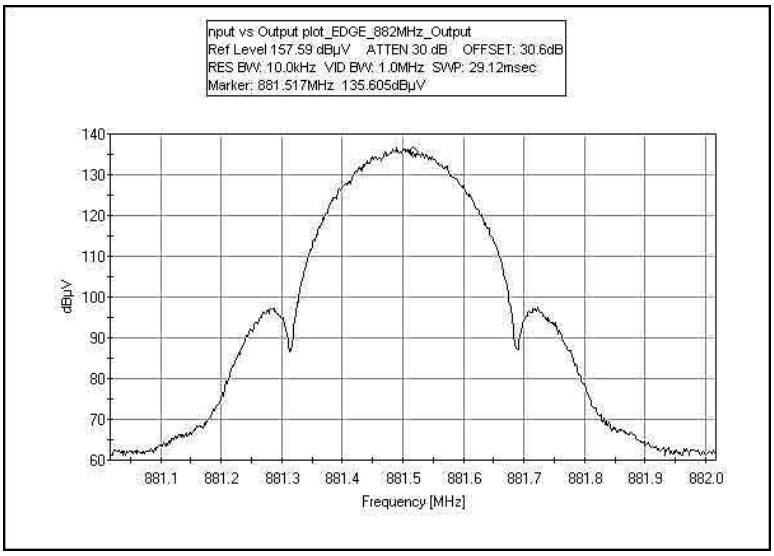
Test Conditions: The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port.

Test Setup Photos

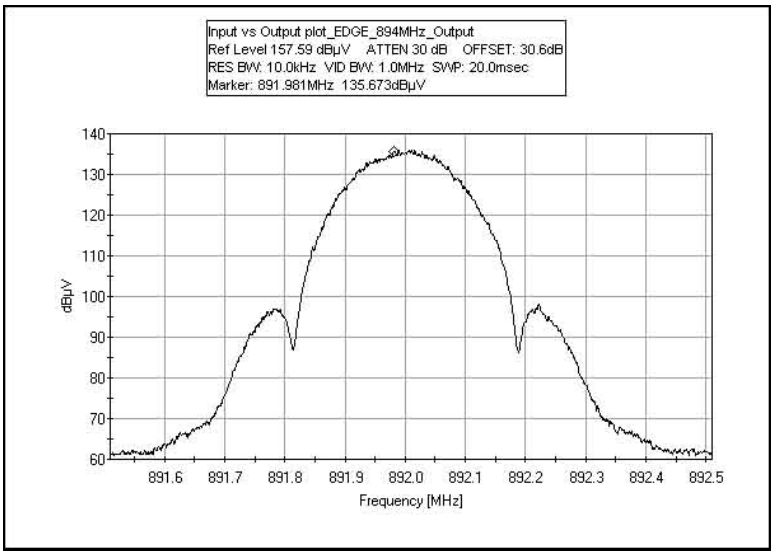
OUTPUT PLOT - EDGE 869MHz



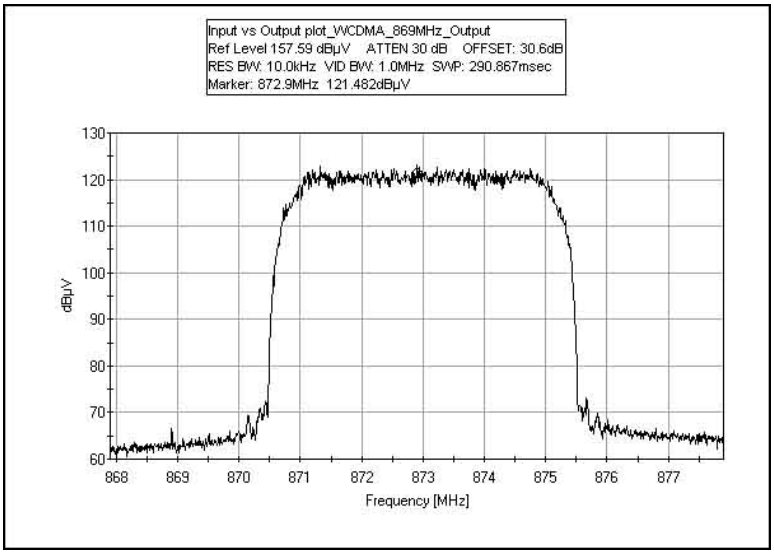
OUTPUT PLOT - EDGE 882MHz



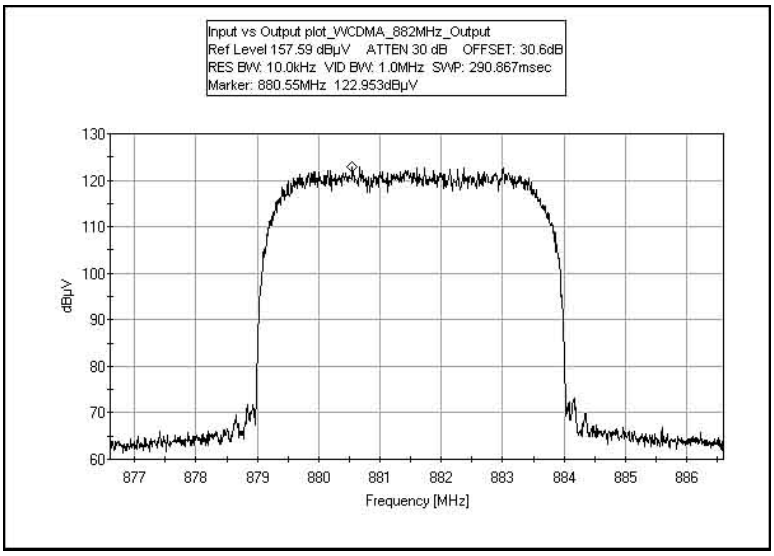
OUTPUT PLOT - EDGE 894MHz



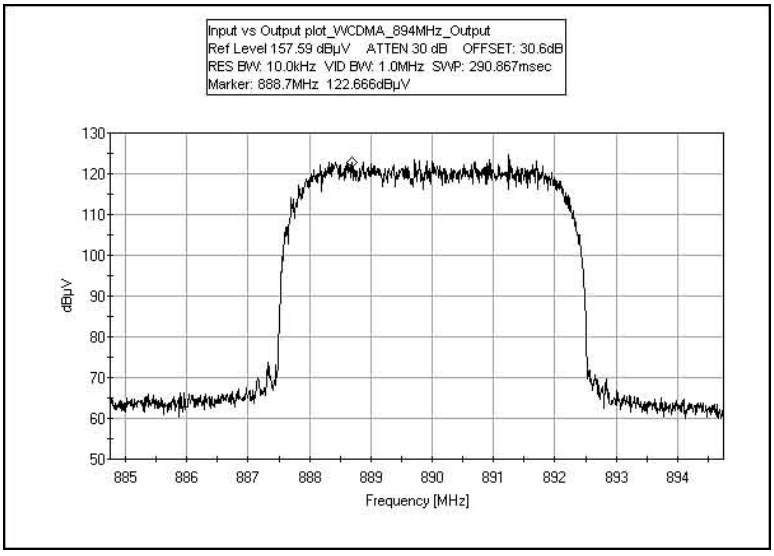
OUTPUT PLOT - WCDMA 869MHz



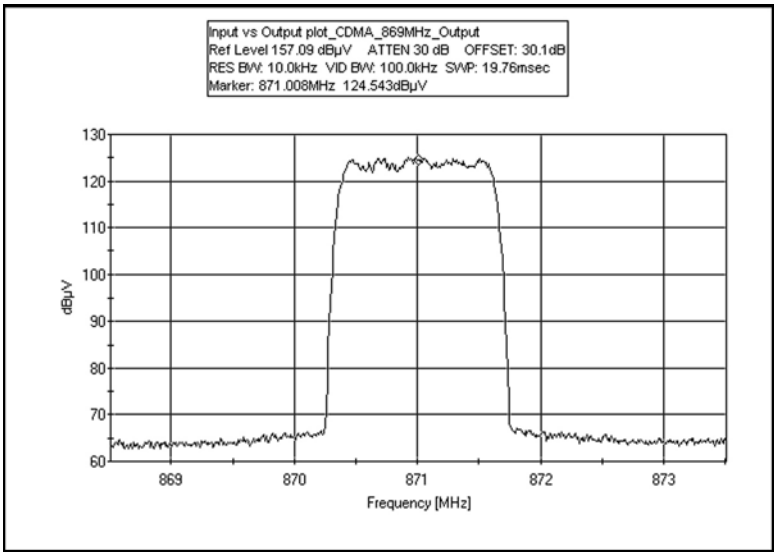
OUTPUT PLOT - WCDMA 882MHz



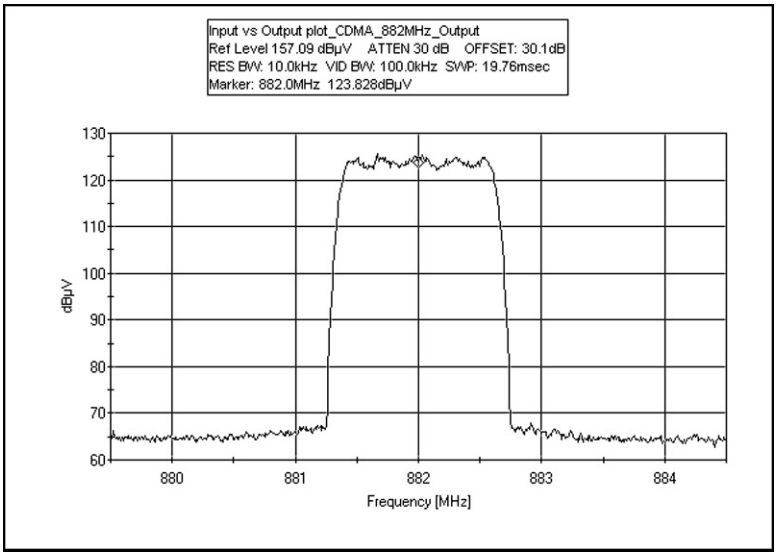
OUTPUT PLOT - WCDMA 894MHz



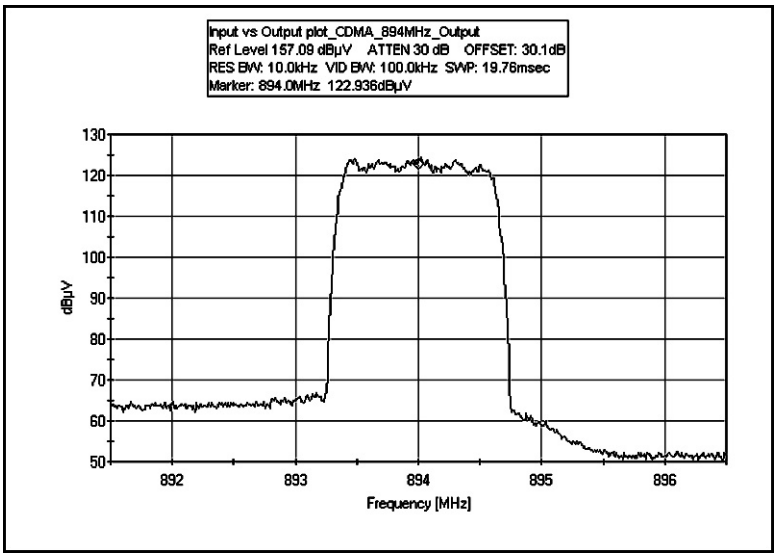
OUTPUT PLOT - CDMA 869MHz



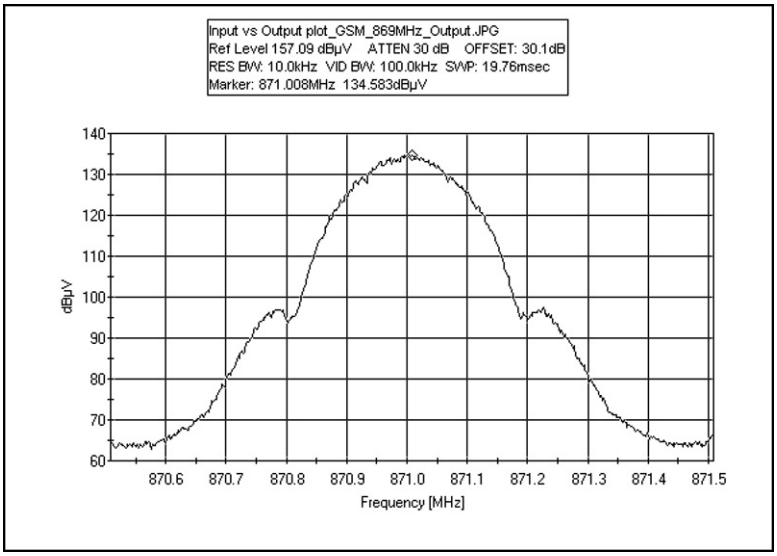
OUTPUT PLOT - CDMA 882MHz



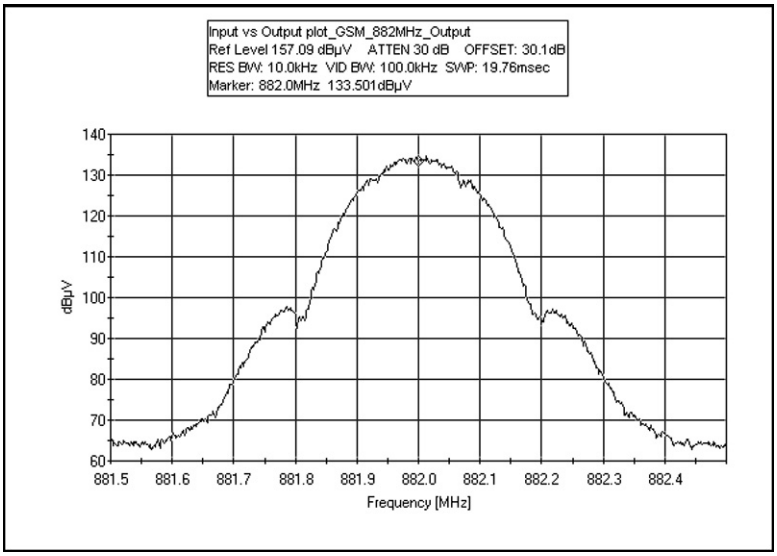
OUTPUT PLOT - CDMA 894MHz



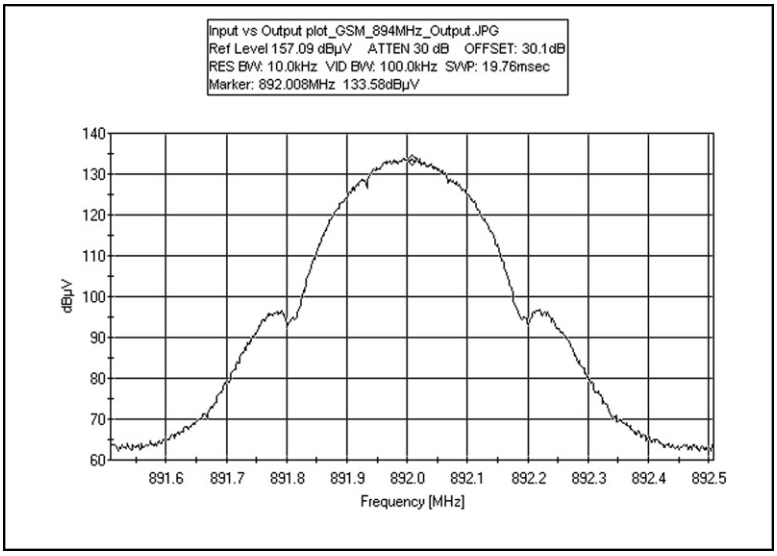
OUTPUT PLOT - GSM 869MHz



OUTPUT PLOT - GSM 882MHz



OUTPUT PLOT - GSM 894MHz



BLOCKEDGE

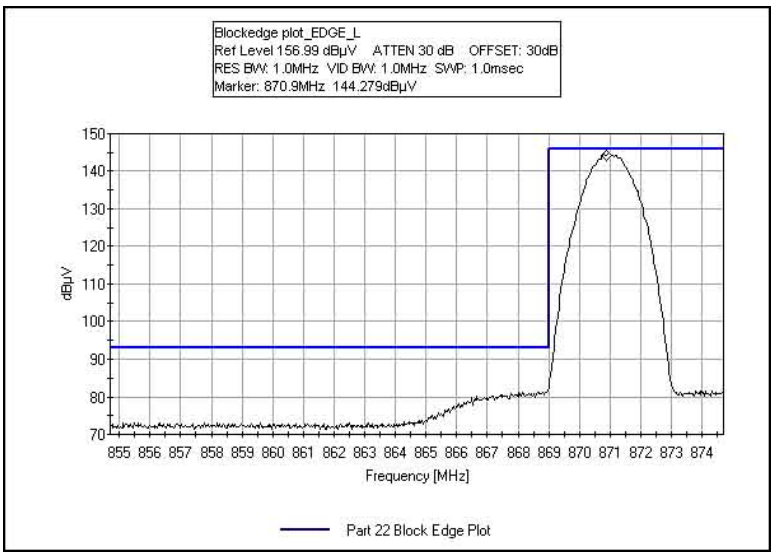
Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

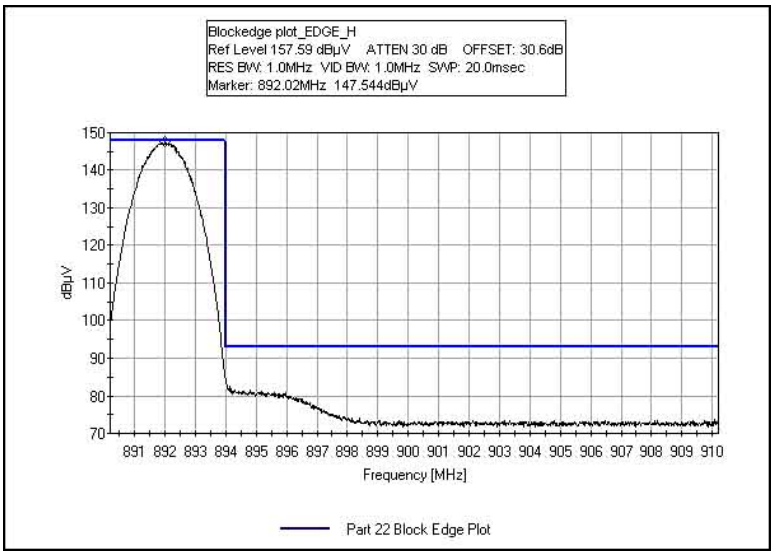
Test Conditions: The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port.

Test Setup Photos

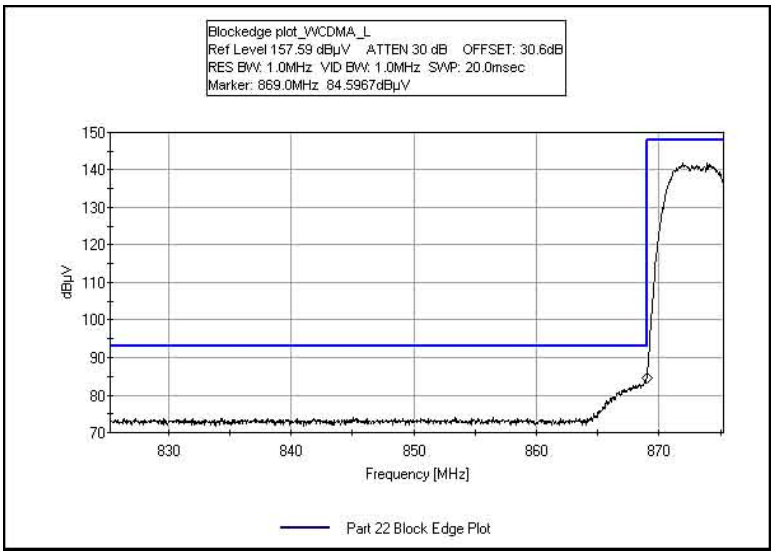
BLOCKEDGE - EDGE LOW



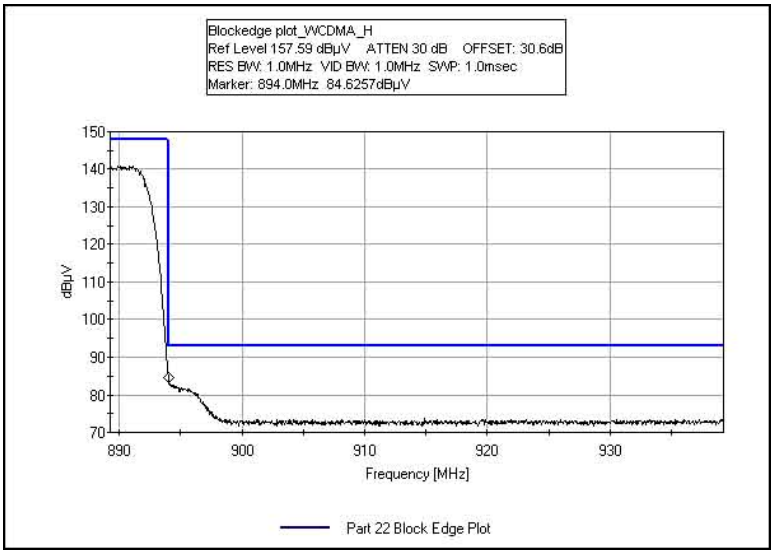
BLOCKEDGE - EDGE HIGH



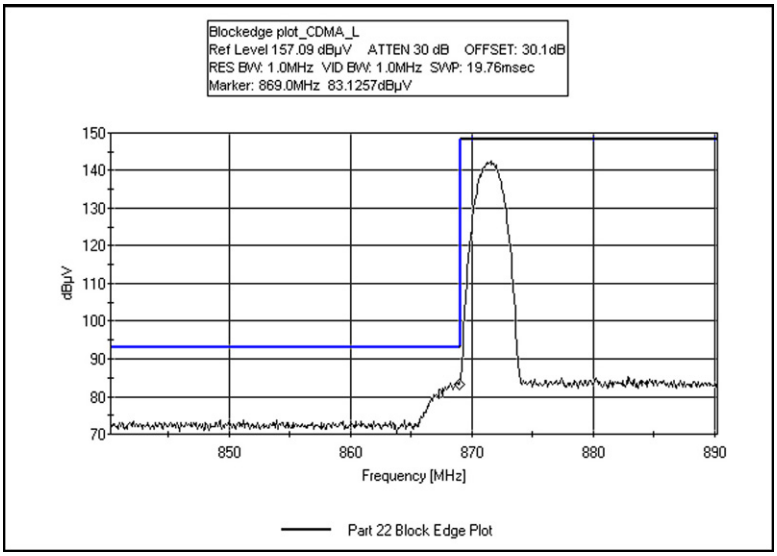
BLOCKEDGE - WCDMA LOW



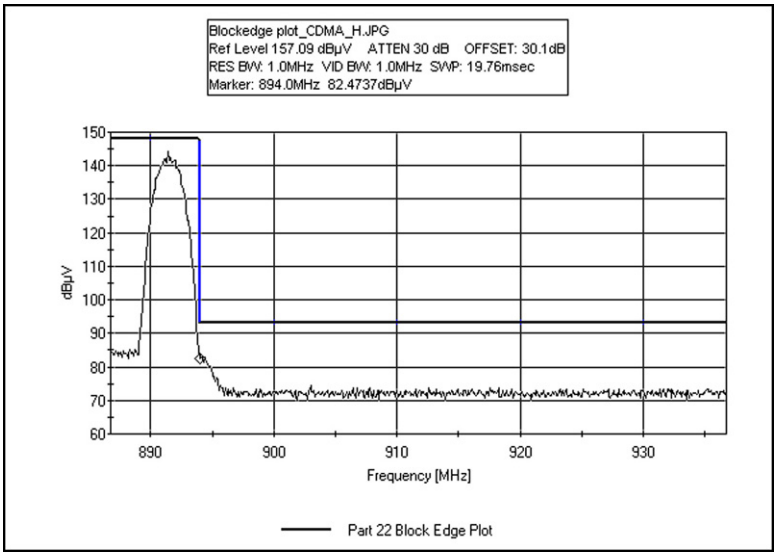
BLOCKEDGE - WCDMA HIGH



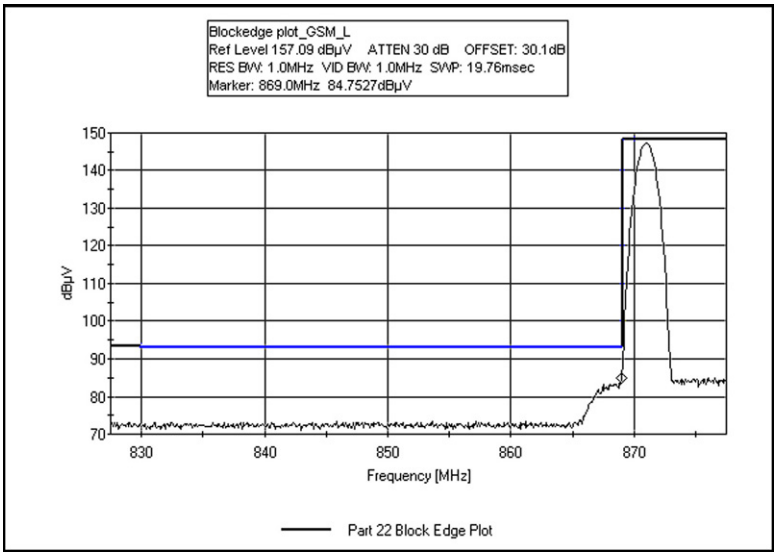
BLOCKEDGE - CDMA LOW



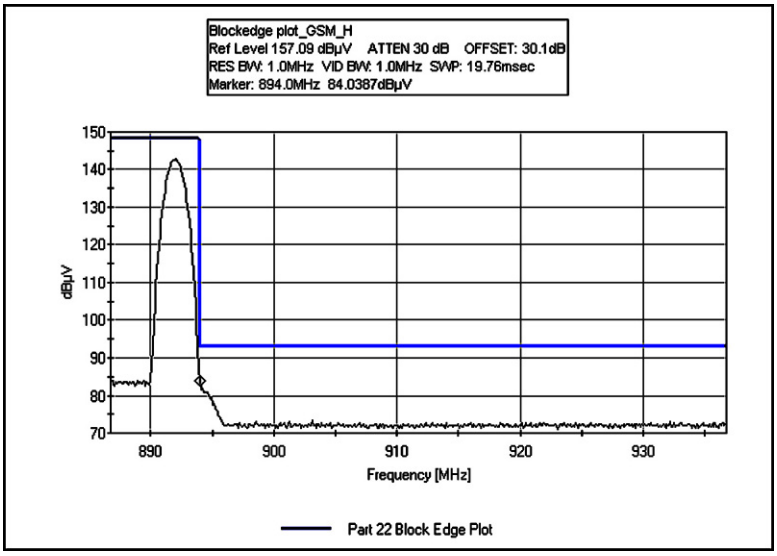
BLOCKEDGE - CDMA HIGH



BLOCKEDGE - GSM LOW



BLOCKEDGE - GSM HIGH



INTERMODULATION

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

Test Setup Photos

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

Customer:	**Powerwave Technologies, Inc.**		
Specification:	**Part 22 Intermodulation**		
Work Order #:	**86394**	Date:	4/4/2007
Test Type:	**Conducted Emissions**	Time:	14:48:25
Equipment:	**Repeater**	Sequence#:	2
Manufacturer:	Powerwave Technologies, Inc.	Tested By:	E. Wong
Model:	RH400020/101		110V 60Hz
S/N:	NA		

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

Function	Manufacturer	Model #	S/N
Repeater*	Powerwave Technologies, Inc.	RH400020/101	NA

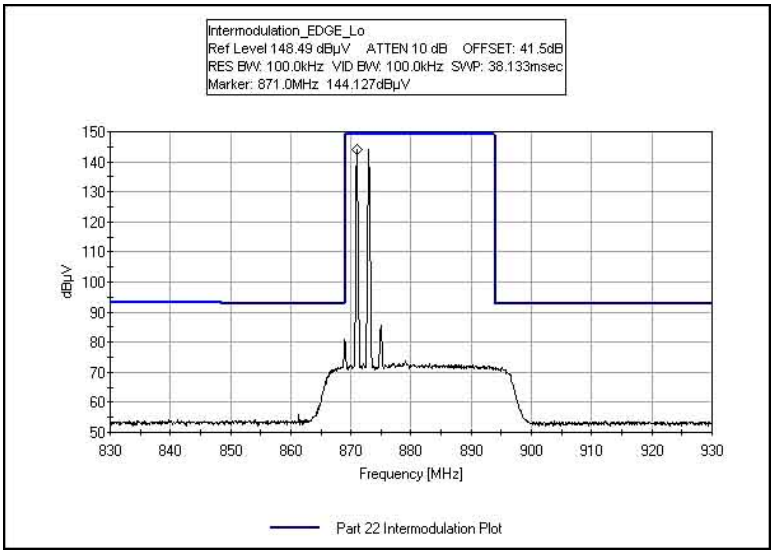
Support Devices:

Function	Manufacturer	Model #	S/N
Optical Converter	Powerwave Technologies, Inc.	NA	42473
Spectrum Analyzer	HP	8563E	NA
Power Meter	Agilent	E4419B	MY40510694
ESG	Agilent	E4433B	US40051840

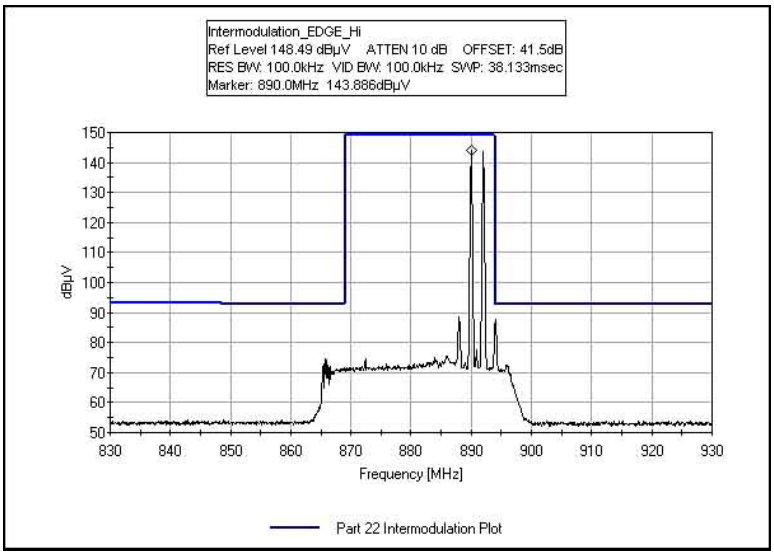
Test Conditions / Notes:

The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives a RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. Power = 20 watts. Frequency = 869 MHz, Modulation: EDGE. 18°C, 53% relative humidity. Frequency range of measurement = 9 kHz - 10 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 - 10,000 MHz RBW=1 MHz, VBW=1 MHz.

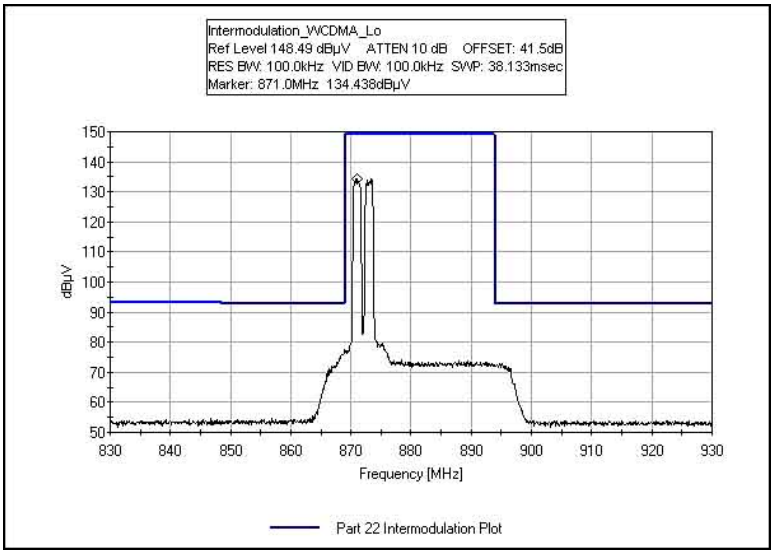
INTERMODULATION - EDGE LOW



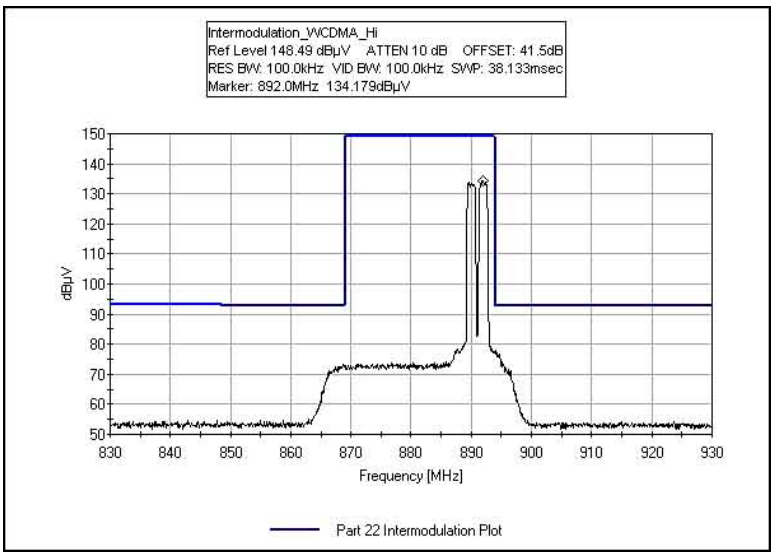
INTERMODULATION - EDGE HIGH



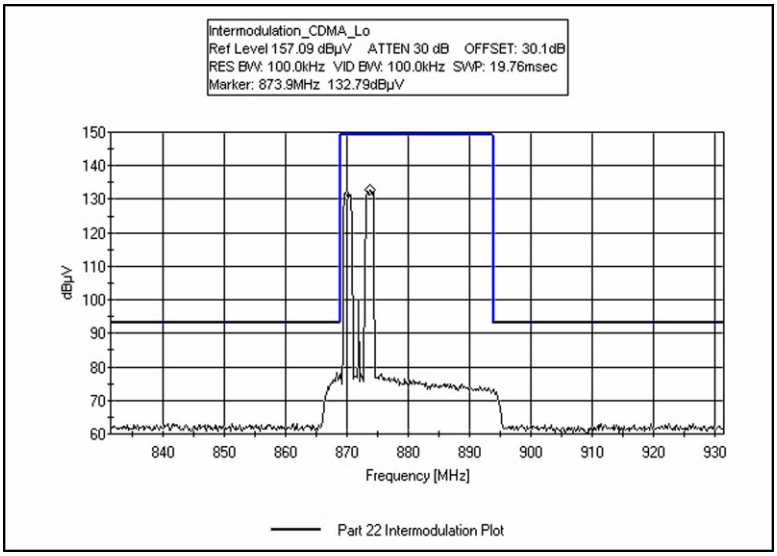
INTERMODULATION - WCDMA LOW



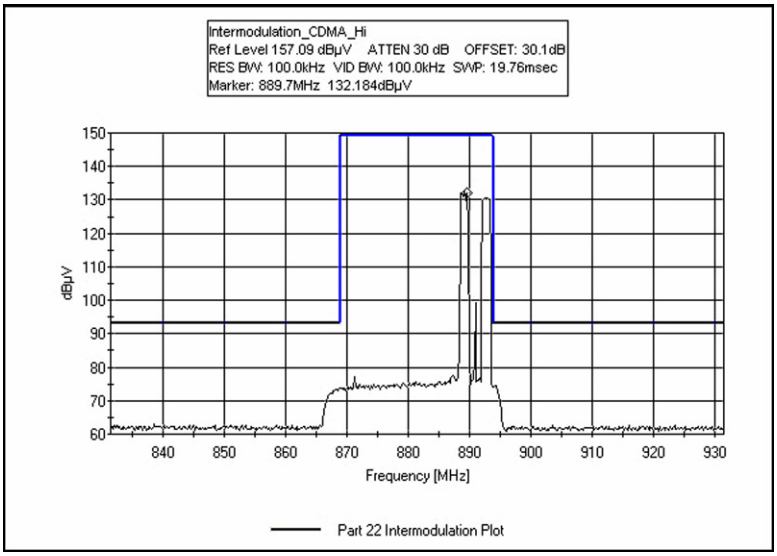
INTERMODULATION - WCDMA HIGH



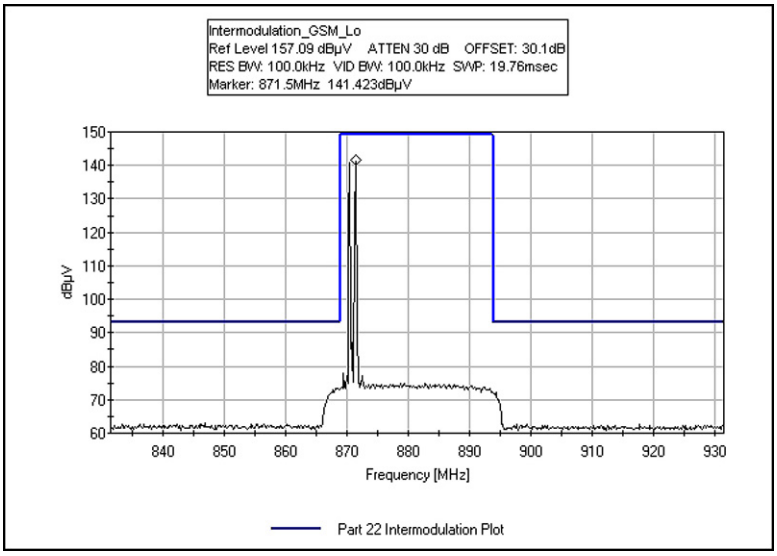
INTERMODULATION - CDMA LOW



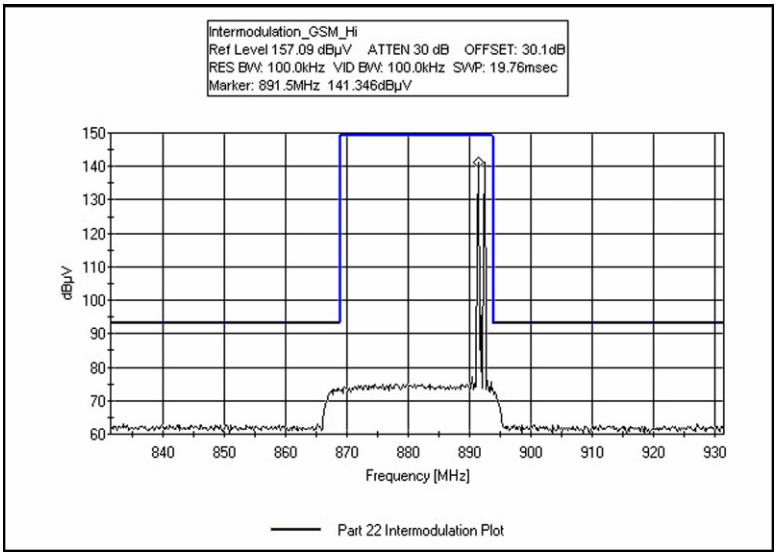
INTERMODULATION - CDMA HIGH



INTERMODULATION - GSM LOW



INTERMODULATION - GSM HIGH



99% BANDWIDTH

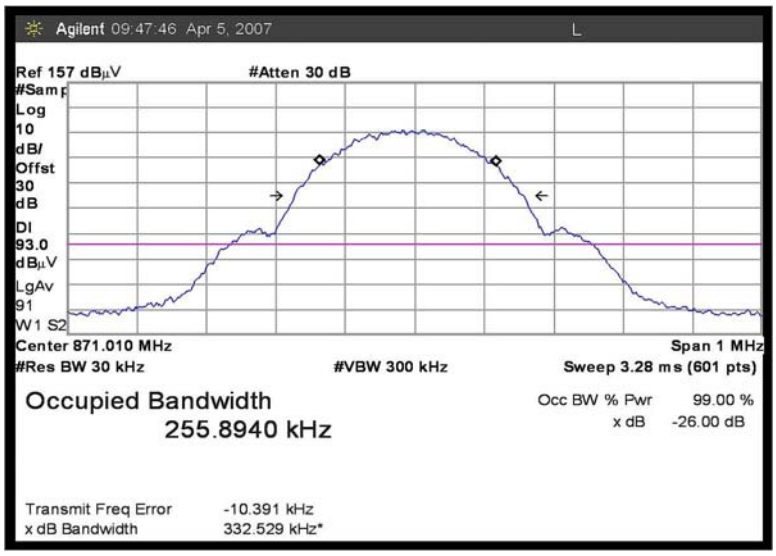
Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

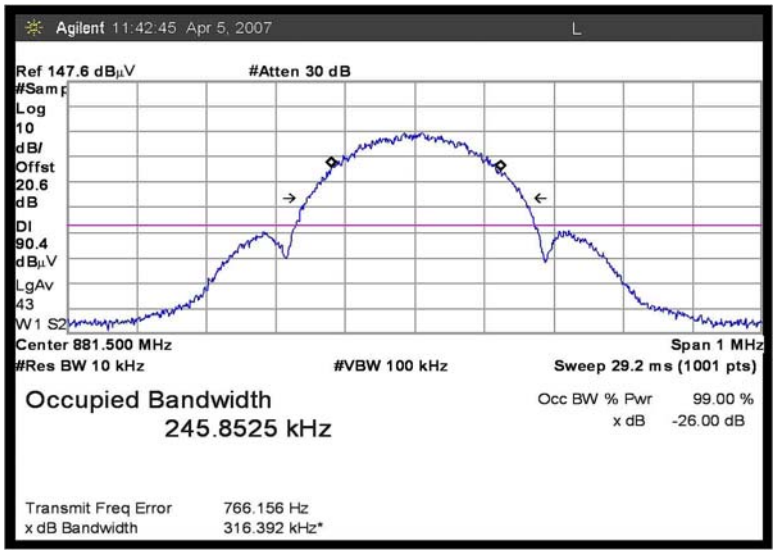
Test Conditions: The EUT is placed on the wooden table. The RF Output port is connected to a remote power meter. Optical in port is connected to a support optical converter. Support optical converter receives RF signal, converts the signal to optic and sends it to the EUT. The EUT decodes the optical signal and generates a RF signal. RF signal measured at the antenna port.

Test Setup Photos

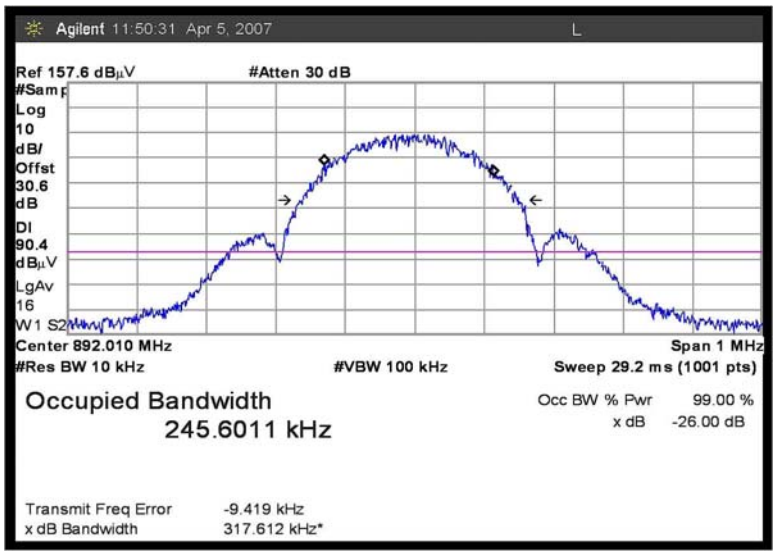
99% BANDWIDTH - EDGE 869MHz



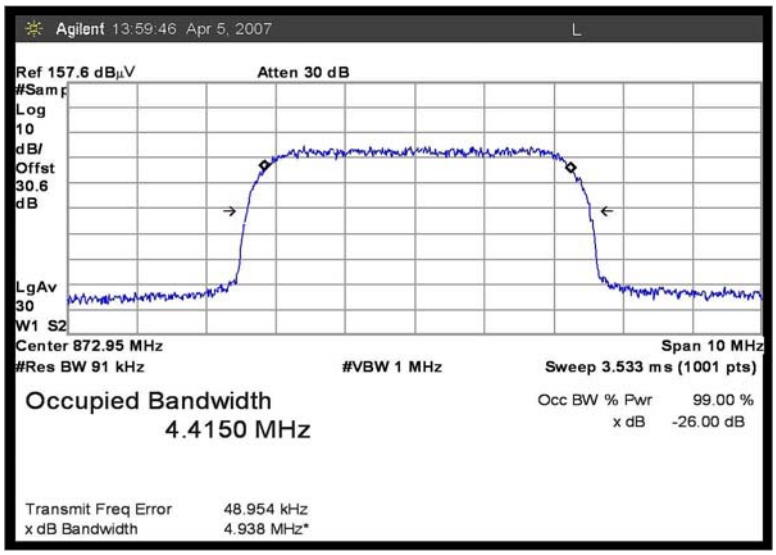
99% BANDWIDTH - EDGE 882MHz



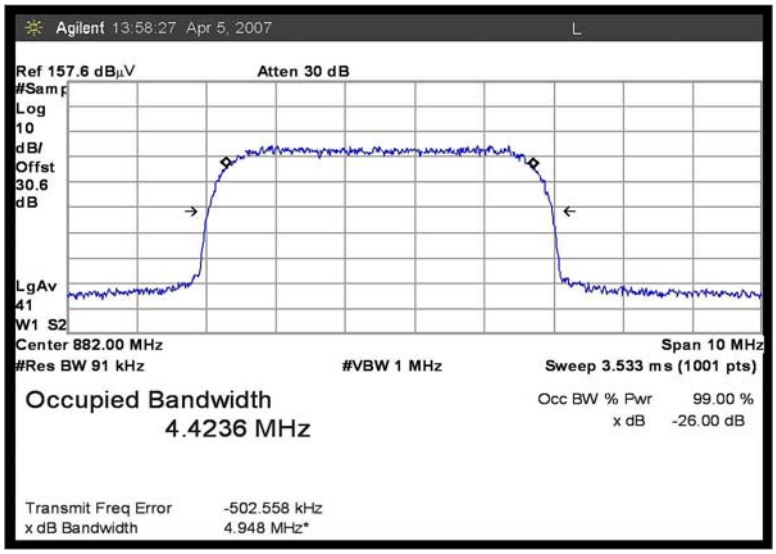
99% BANDWIDTH - EDGE 894MHz



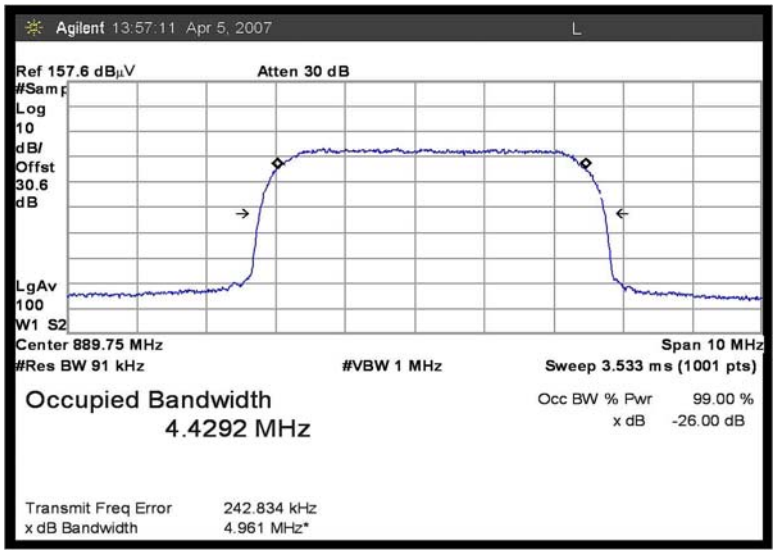
99% BANDWIDTH - WCDMA 869MHz



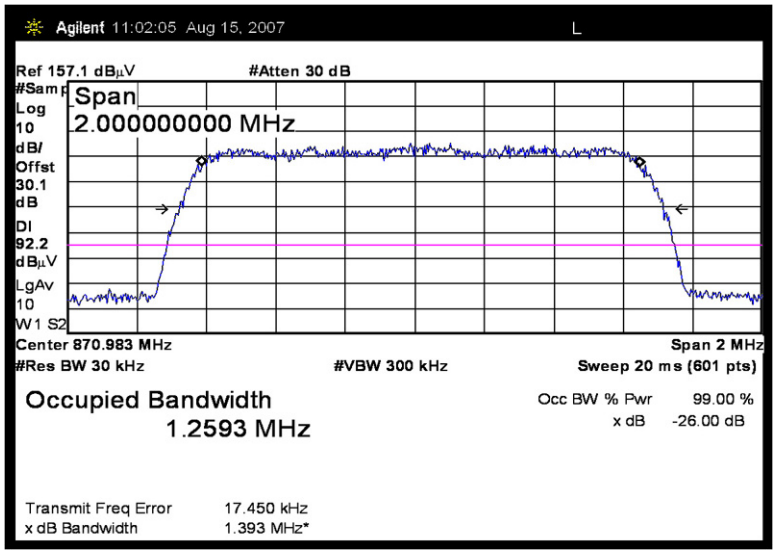
99% BANDWIDTH - WCDMA 882MHz



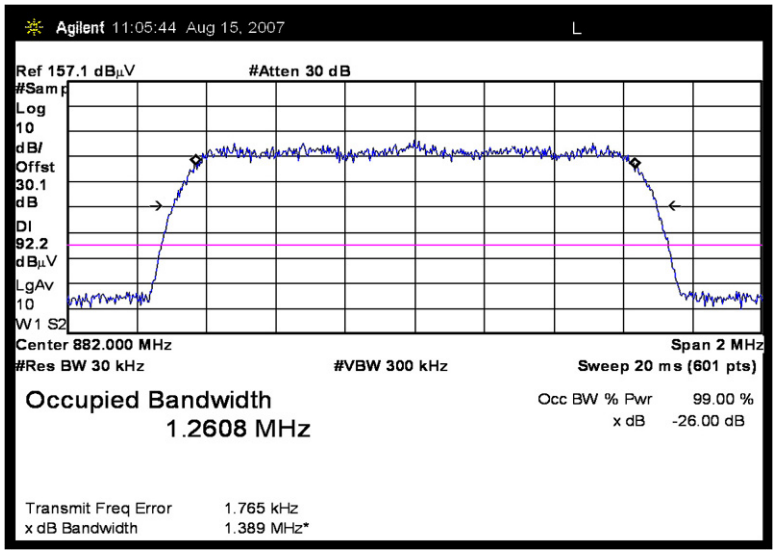
99% BANDWIDTH - WCDMA 894MHz



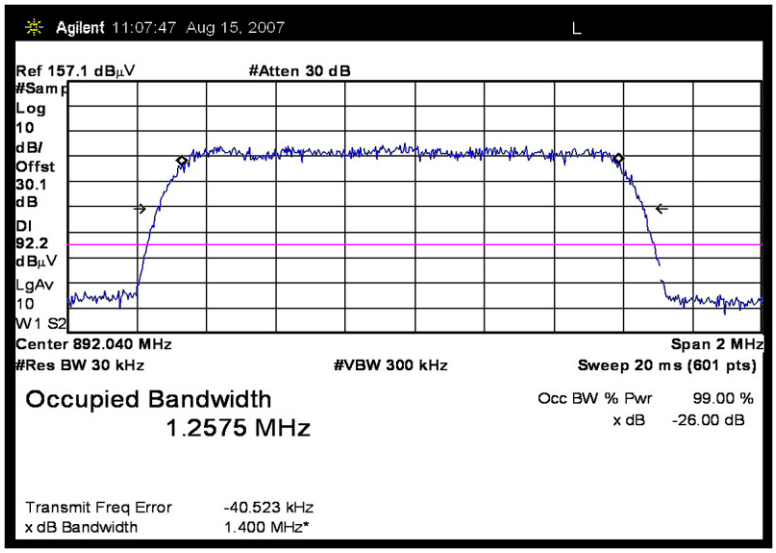
99% BANDWIDTH - CDMA 869MHz



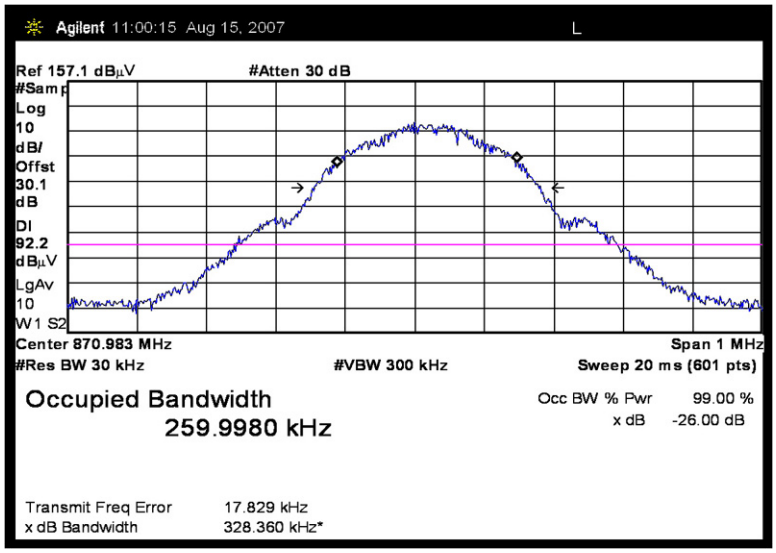
99% BANDWIDTH - CDMA 882MHz



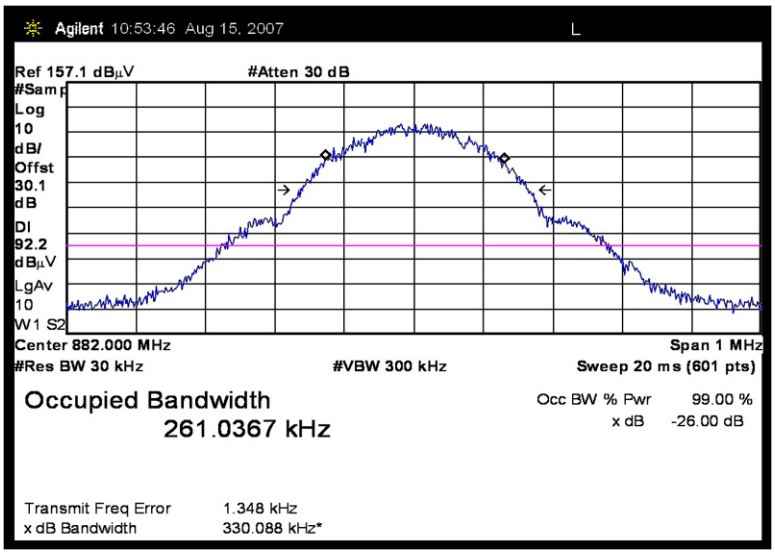
99% BANDWIDTH - CDMA 894MHz



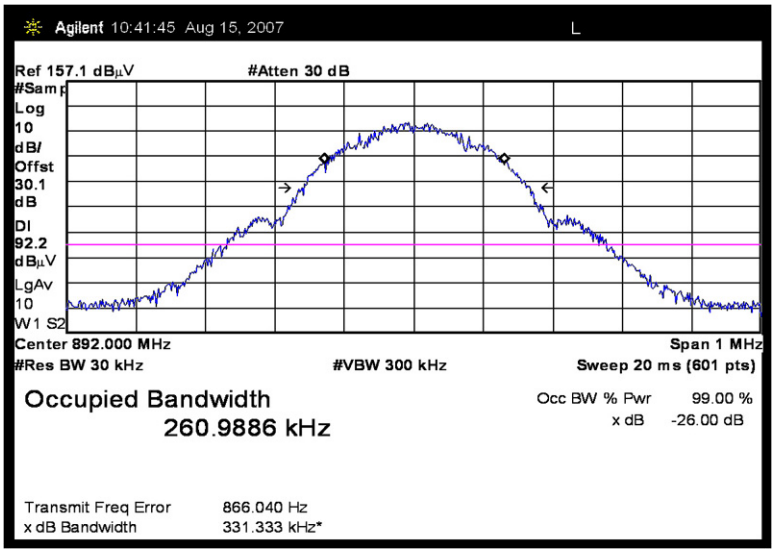
99% BANDWIDTH - GSM 869MHz



99% BANDWIDTH - GSM 882MHz



99% BANDWIDTH - GSM 894MHz

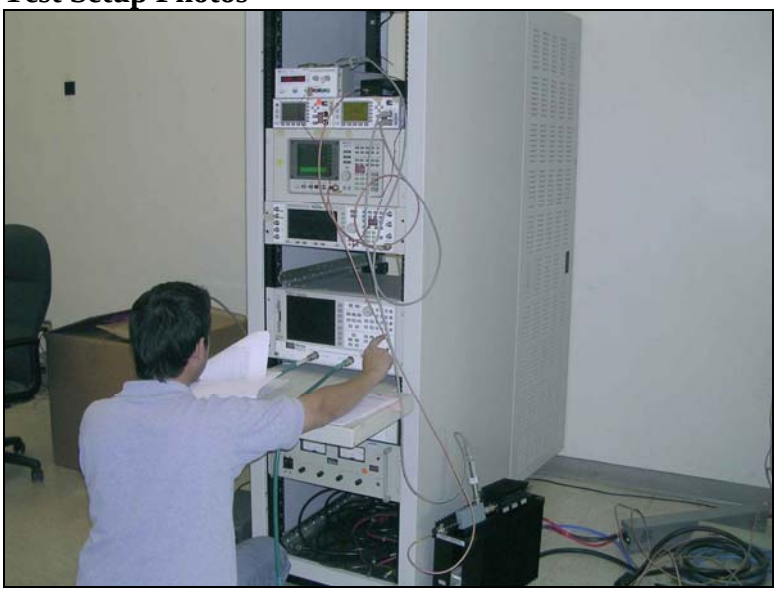


RSS-131 Amplifier Gain and Bandwidth

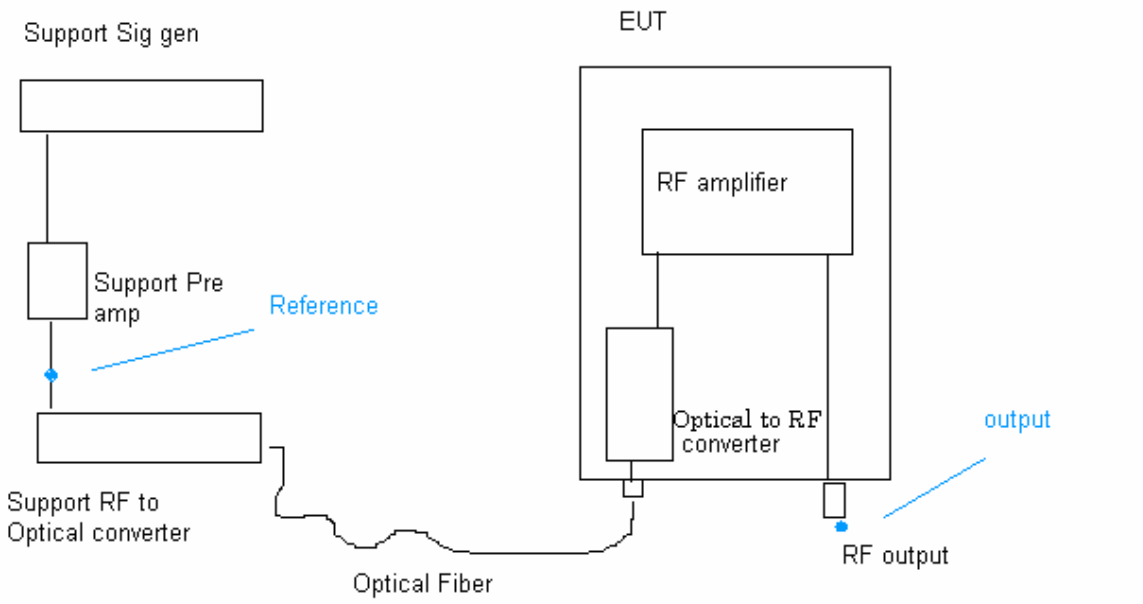
Test Equipment

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Network analyzer	PWAV	HP	8753E	Us38432770	052006	052008
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407
Signal Generator	02227	Marconi	2024	112282/515	081805	081807

Test Setup Photos



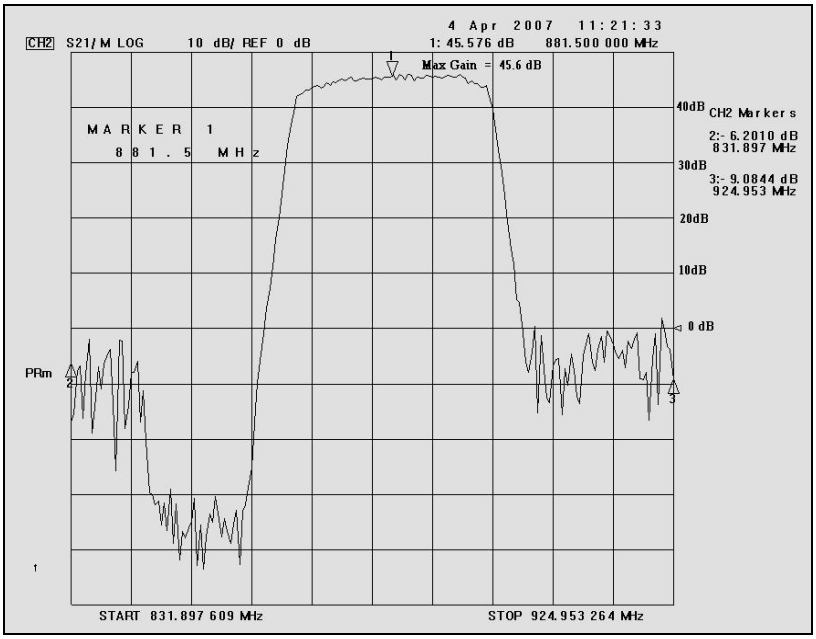
Setup



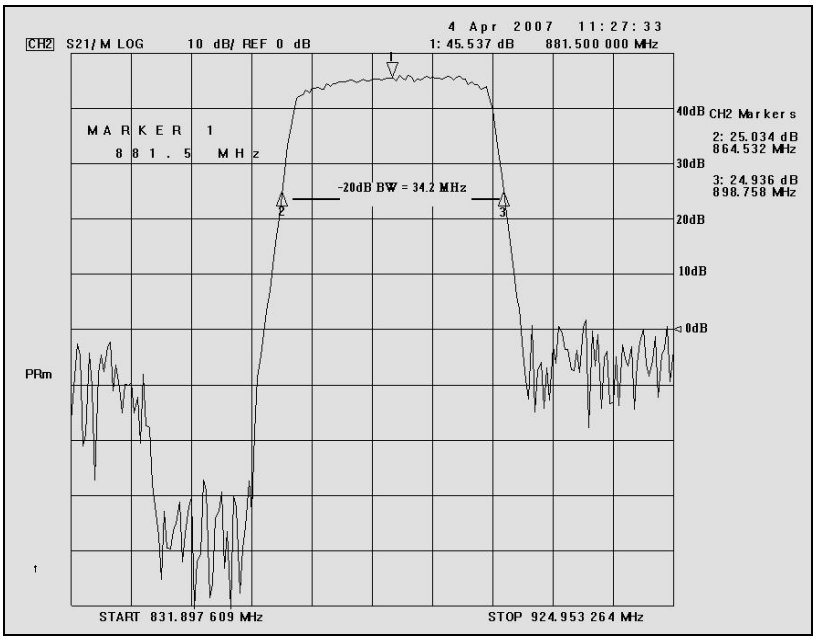
Measured gain = Output – Reference (dB)

The nominal bandwidth and nominal pass band gain (dB) of the RF enhancer or translator shall be stated by the manufacturer or equipment certification applicant and indicated in the test report.

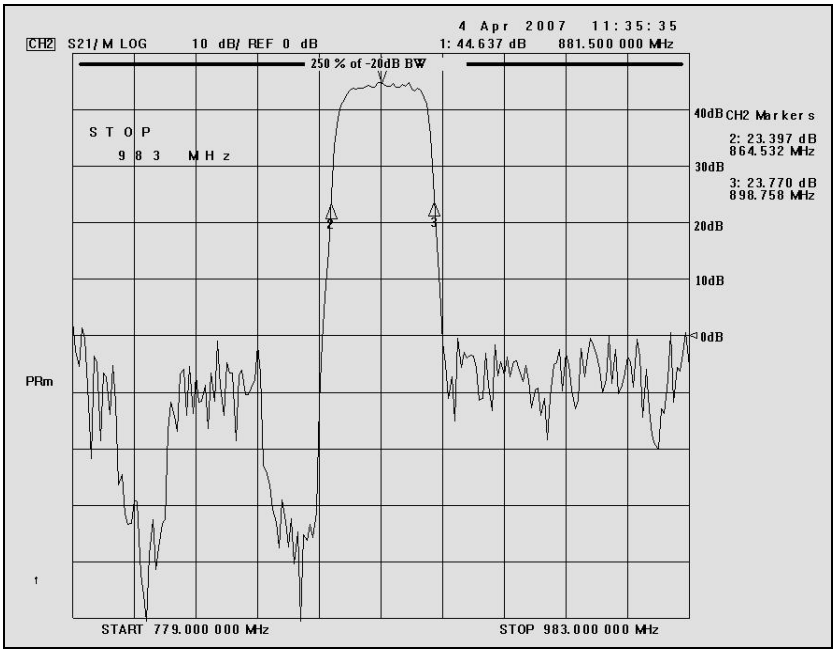
Manufacturer stated gain = 45 - 70 dB



The internal control is adjusted to the nominal gain for which equipment certification is sought.
Maximum measured gain = 45.6 dB



With the aid of a Vector Network analyzer, the -20 dB Bandwidth is measured.



The gain-versus-frequency response of the amplifier from the mid band Fo of the pass band up to at least fo + - 250% of the 20dB Bandwidth.

Minimum standard:
The pass band gain response shall not exceed the nominal gain by more than 1 dB. The 20 dB bandwidth shall not exceed the nominal bandwidth that is stated by the manufacturer.

Outside of the 20dB bandwidth the gain shall not exceed that at the 20dB point.