



WILSON ELECTRONICS TEST REPORT
FOR THE
IDEN 900 MHZ AMPLIFIER, 274106
FCC PART 90 AND RSS-131 ISSUE 2: 2003
COMPLIANCE

DATE OF ISSUE: APRIL 25, 2007

PREPARED FOR:

Wilson Electronics
3301 East Deseret Drive
St. George, UT 84790

P.O. No.: IDN274106-1
W.O. No.: 86003

PREPARED BY:

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

Date of test: January 16 – April 25, 2007

Report No.: FC07-026

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TABLE OF CONTENTS

Administrative Information	3
Approvals.....	3
FCC to Canada Standard Correlation Matrix.....	4
Conditions for Compliance.....	4
Equipment Under Test (EUT) Description.....	5
Equipment Under Test.....	5
Peripheral Devices	5
Temperature and Humidity During Testing.....	6
FCC 2.1033(c)(3) User's Manual	6
FCC 2.1033(c)(4) Type of Emissions.....	6
FCC 2.1033(c)(5) Frequency Range.....	6
FCC 2.1033(c)(6) Operating Power.....	6
FCC 2.1033(c)(7) Maximum Power Rating	6
FCC 2.1033(c)(8) DC Voltages	6
FCC 2.1033(c)(9) Tune-Up Procedure	6
FCC 2.1033(c)(10) Schematics and Circuitry Description.....	6
FCC 2.1033(c)(11) Label and Placement	6
FCC 2.1033(c)(12) Submittal Photos	6
FCC 2.1033(c)(13) Modulation Information	6
FCC 2.1033(c)(14)/2.1046/90.635 Power Output	7
RSS-131 Power Output.....	9
FCC 2.1033(c)(14)/2.1049(i) - Occupied Bandwidth.....	12
Input Plots	14
Output Plots	18
FCC 2.1033(c)(14)/2.1051/90.210 - Spurious Emissions at Antenna Terminal.....	22
FCC 2.1033(c)(14)/2.1053/90.210 - Field Strength of Spurious Radiation	36
FCC 90.210(j) - Intermodulation Attenuation	38
Out of Band Amplification	42
RSS-131 6.1 Pass Band Gain.....	44
RSS-131 6.1 Pass Band Width.....	46

ADMINISTRATIVE INFORMATION

DATE OF TEST: January 16 – April 25, 2007

DATE OF RECEIPT: January 16, 2007

FREQUENCY RANGE TESTED: 9 kHz-10 GHz

MANUFACTURER: Wilson Electronics
3301 East Deseret Drive
St. George, UT 84790

REPRESENTATIVE: Riki Kline

TEST LOCATION: CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

TEST METHOD: FCC Part 90, RSS GEN and RSS-131 Issue 2: 2003

PURPOSE OF TEST: To demonstrate the compliance of the iDEN 900 MHz Amplifier, 274106 with the requirements for FCC Part 90 and RSS-131 devices.

APPROVALS:

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Randy Clark, EMC Engineer



Mike Wilkinson, EMC Engineer/Lab Manager

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	47 CFR	90.205	RF Power Output
RSS 131	6.3	TIA/EIA	603	Non-Linearity (Intermodulation Attenuation)
RSS 131	6.4	47 CFR	90.210	Spurious Emissions Limitations
RSS 131	6.5	N/A	N/A	Frequency Stability (Band Translators)
	3082A-1		784962	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. The EUT is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. The amplifier is connected to an external antenna mounted outside the building, and to an internal antenna located inside the building. This combination of antennas and amplifier enables cell phones located inside the building to communicate with distant cell sites with increased power and sensitivity. Power for the amplifier is obtained from an AC power adapter. The amplifier automatically adjusts its gain which varies from 30 dB to 60 dB. The uplink frequency band is 896-901 MHz, and the downlink frequency band is 935-940 MHz.

EQUIPMENT UNDER TEST

iDEN 900 MHz Amplifier

Manuf: Wilson Electronics
Model: 274106
Serial: 2741069910001
FCC ID: PWO274106SB (pending)
IC ID: 4726A-274106SB

PERIPHERAL DEVICES

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

EUT Power Supply

Manuf: I.T.E Power Supply
Model: HK-B118-A06
Serial: 0106C

Signal Generator

Manuf: Agilent
Model: E4431B
Serial: US38440201

Combiner

Manuf: Motorola
Model: NA
Serial: NA

Signal Generator

Manuf: Agilent
Model: E4436B
Serial: US39260137



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

DXW and F1D

FCC 2.1033 (c)(5) FREQUENCY RANGE

Downlink 935 MHz – 940 MHz, Uplink 896 MHz – 901 MHz

FCC 2.1033 (c)(6) OPERATING POWER

Downlink 0.095 Watts, Uplink 0.123 Watts

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

90.635 Power Limitations for mobile equipment: 100 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

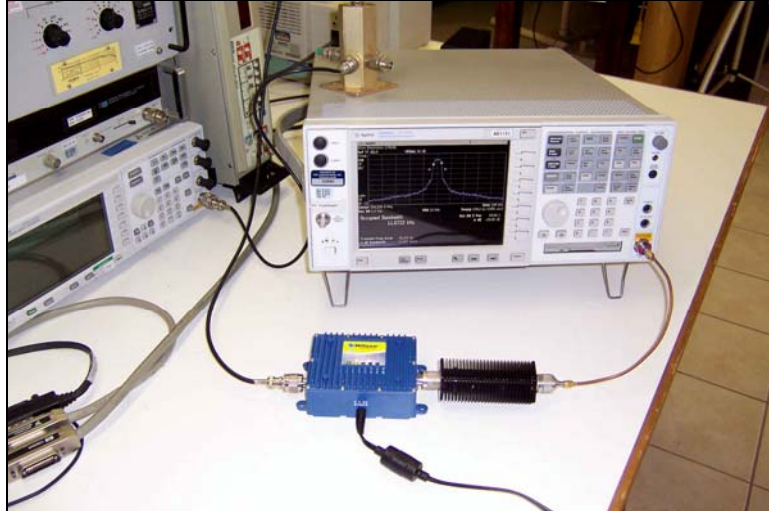
The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION

iDEN

FCC 2.1033(c)(14)/2.1046/90.635 RF POWER OUTPUT

Test Setup Photos



Test Data Sheets

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J)**
 Work Order #: **86003**
 Test Type: **Antenna Conducted**
 Equipment: **iDEN 900 MHz Amplifier**
 Manufacturer: Wilson Electronics
 Model: 274106
 S/N: 2741069910001

Date: 4/18/2007
 Time: 12:59:02
 Sequence#: 1
 Tested By: Randal Clark
 120V 60Hz

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Bird 30dB Attenuator	9949	05/20/2005	05/20/2007	P01572

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201
Signal Generator	Agilent	E4436B	US39260137
Combiner	Motorola	None	None

Test Conditions / Notes:

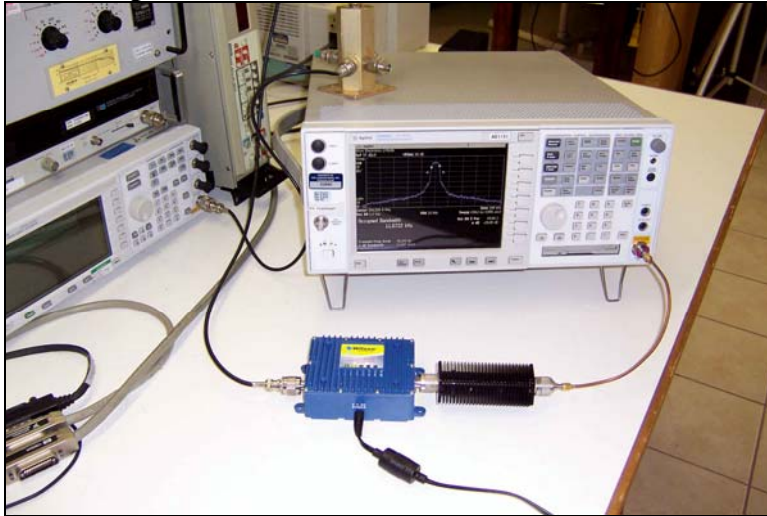
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Uplink and Downlink. Channel Tested: Low, Mid and High. Frequency Range Investigated: Carrier Bandwidth Settings: RBW = VBW = 300kHz Temperature: 70°F, Relative Humidity: 19%.

Measurement Data

<i>Frequency (MHz)</i>	<i>Power Output (dBm)</i>	<i>Power Output (Watts)</i>	<i>Limit Check</i>
<i>Uplink</i>			
896.0125	20.9	0.123	Pass
898.500	20.5	0.112	Pass
900.9875	19.5	0.089	Pass
<i>Downlink</i>			
935.0125	19.6	0.091	Pass
937.500	19.8	0.095	Pass
939.9875	16.6	0.046	Pass

RSS-131 POWER OUTPUT

Test Setup Photos



Test Data Sheets

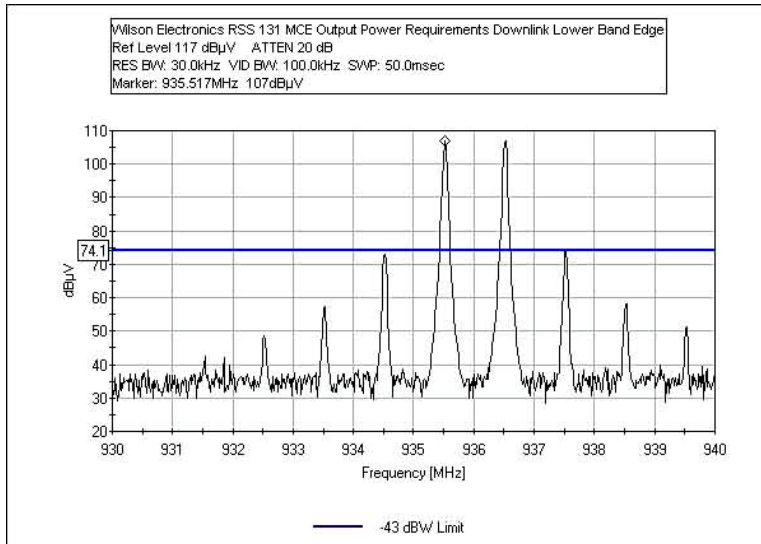
EUT is an In-Building Wireless IDEN 60dB Amplifier for the 896 to 940 MHz bands.
 Uplink frequency range 896 - 901MHz.
 Downlink frequency range 935 - 940MHz.

Setup: Two Signal generators are connected to a signal combiner. The output of the signal combine is connected to the Indoor./Outdoor antenna port of the EUT. The mean power (p mean) is evaluated at the Outdoor/Indoor antenna port of the EUT with a spectrum analyzer via a directional coupler. Coupling Loss: 19.9dB for uplink and downlink bands.

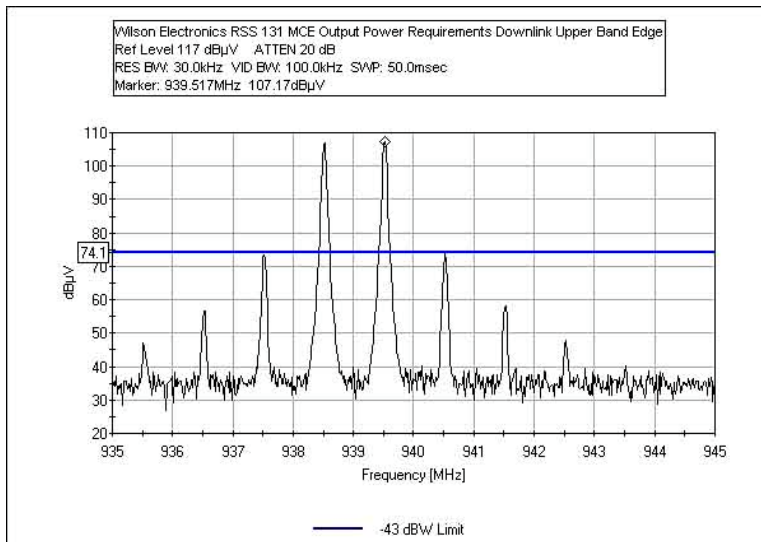
Injection Frequencies (MHz)	Highest Measured Output Power (P dBm)	Mean Output Power (P + 3dB dBm)	Mean Output Power (Watts)
Uplink			
896.0125 & 896.3	19.1	22.1	0.162
900.9875 & 900.7	19.1	22.1	0.162
Downlink			
935.0125 & 935.3	19.9	22.9	0.194
939.9875 & 939.7	19.9	22.9	0.194

Test Plots

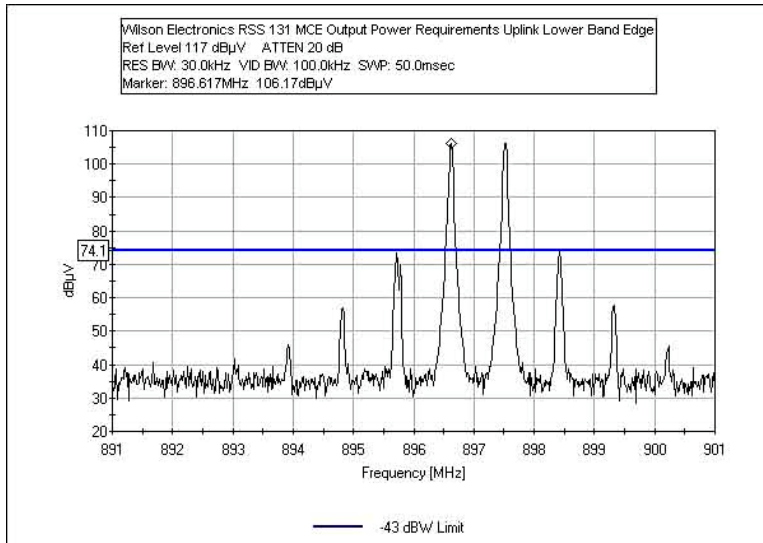
RSS-131 MCE OUTPUT POWER – DOWNLINK LOWER BAND EDGE



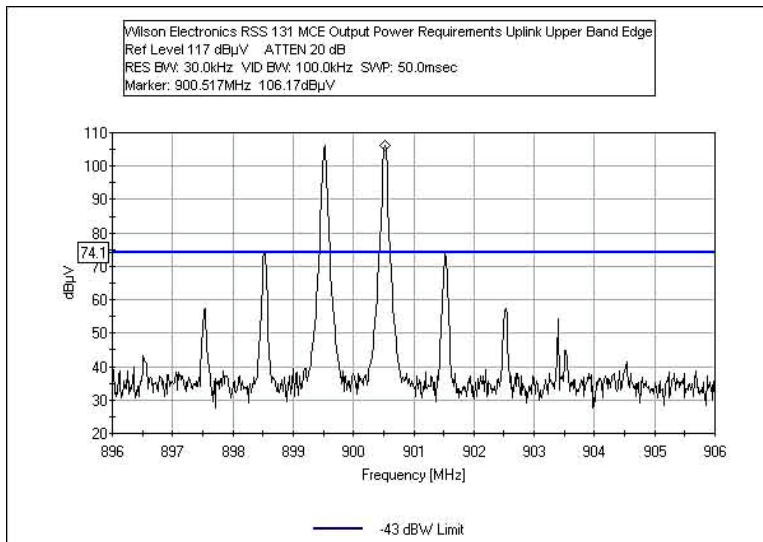
RSS-131 MCE OUTPUT POWER – DOWNLINK UPPER BAND EDGE



RSS-131 MCE OUTPUT POWER – UPLINK LOWER BAND EDGE



RSS-131 MCE OUTPUT POWER – UPLINK UPPER BAND EDGE



FCC 2.1033(c)(14)/2.1049(i)- OCCUPIED BANDWIDTH

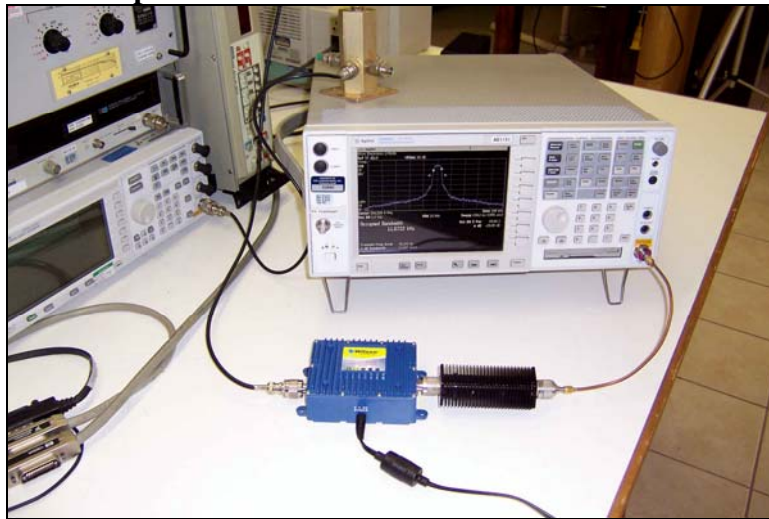
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Test Conditions

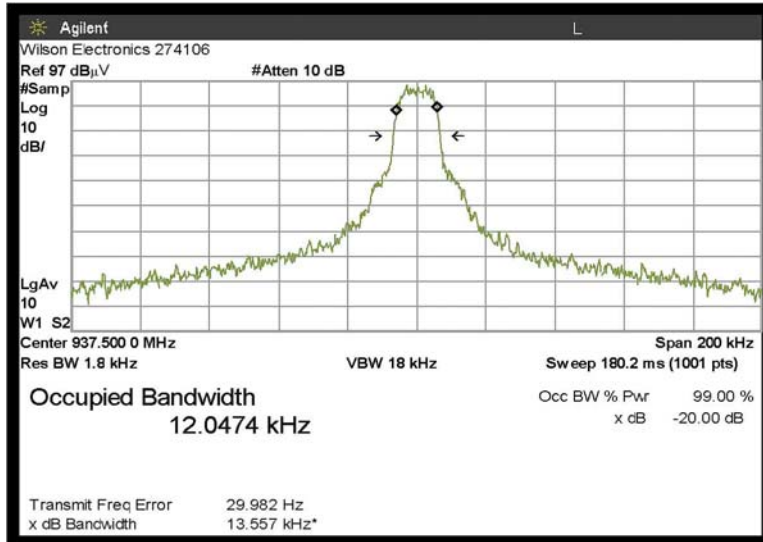
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

Test Setup Photos

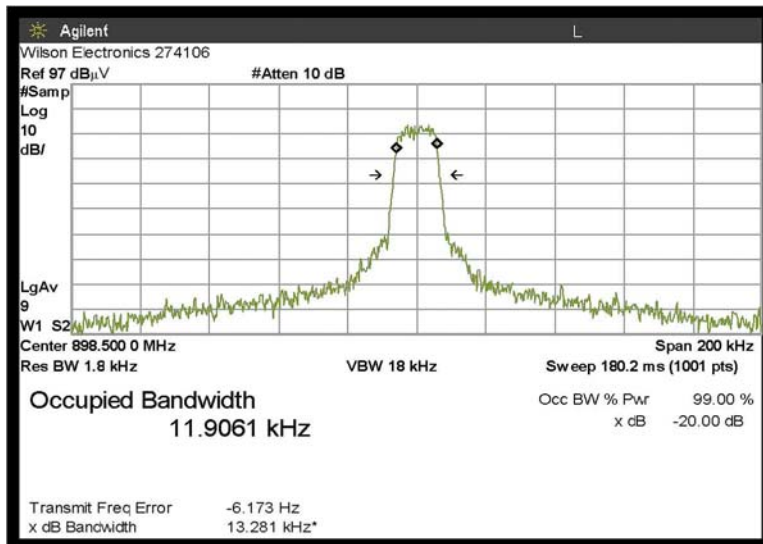


Test Plots

OCCUPIED BANDWIDTH - DOWNLINK



OCCUPIED BANDWIDTH - UPLINK



INPUT PLOTS

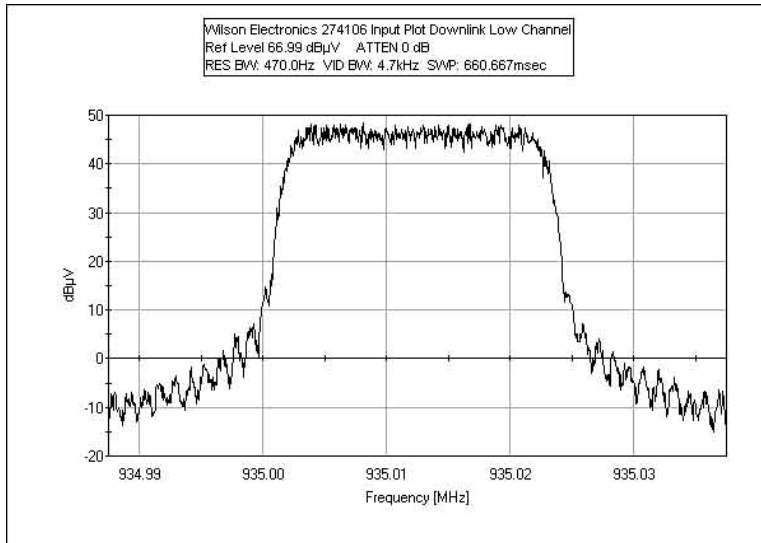
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406

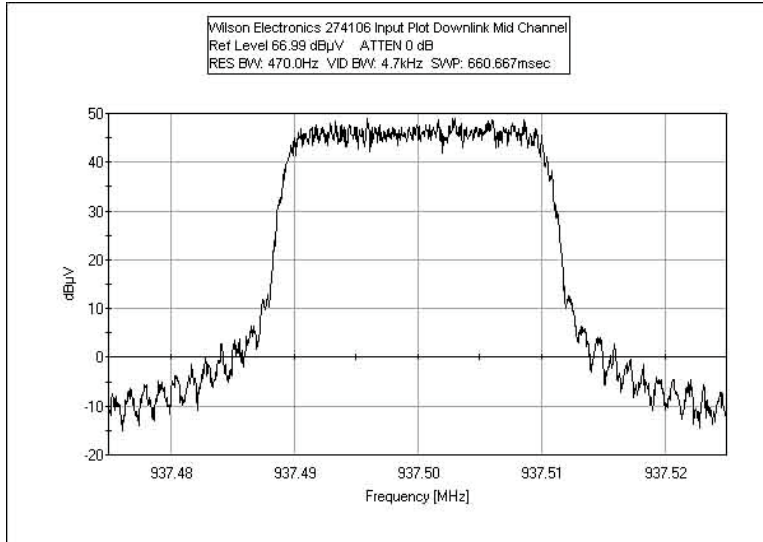
Test Conditions

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Temperature: 71°F, Relative Humidity: 11%.

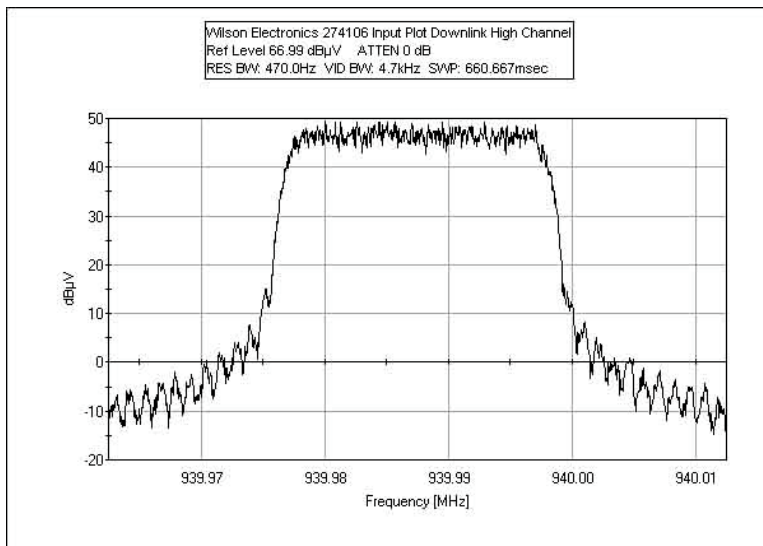
INPUT PLOT - DOWNLINK LOW CHANNEL



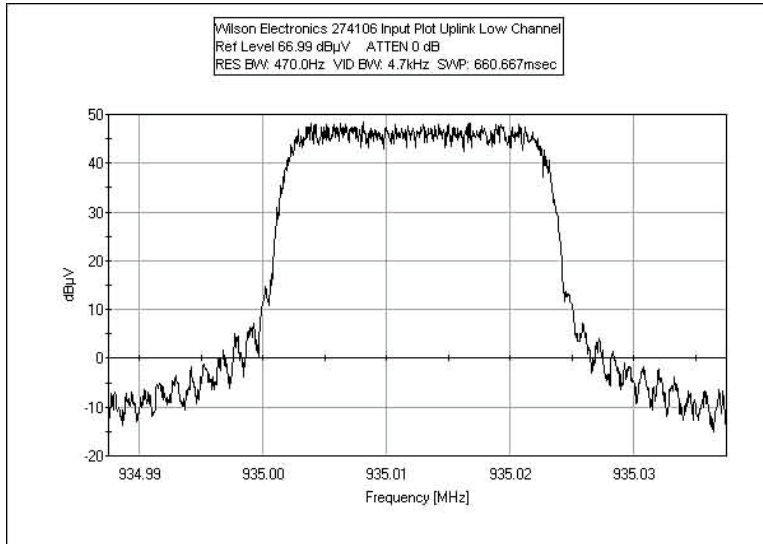
INPUT PLOT - DOWNLINK MID CHANNEL



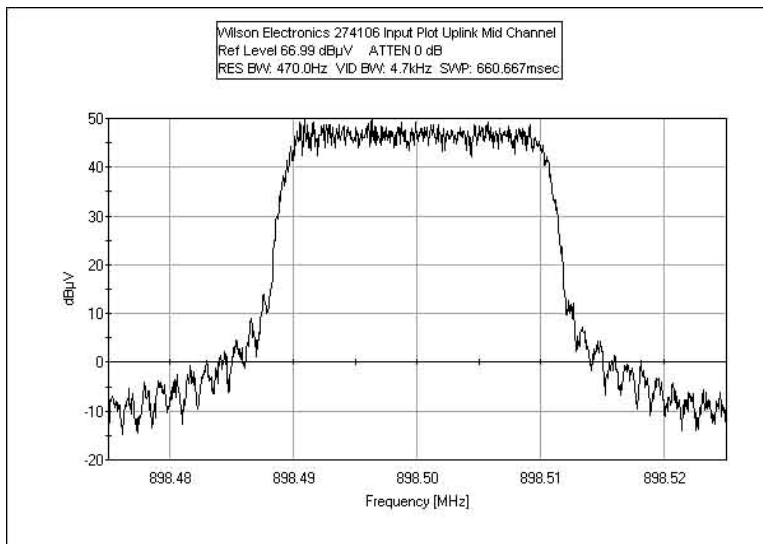
INPUT PLOT - DOWNLINK HIGH CHANNEL



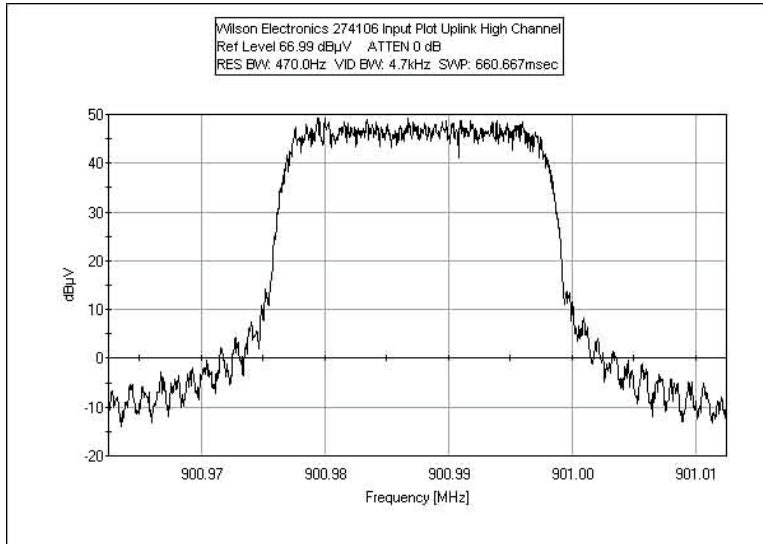
INPUT PLOT - UPLINK LOW CHANNEL



INPUT PLOT - UPLINK MID CHANNEL



INPUT PLOT - UPLINK HIGH CHANNEL



OUTPUT PLOTS

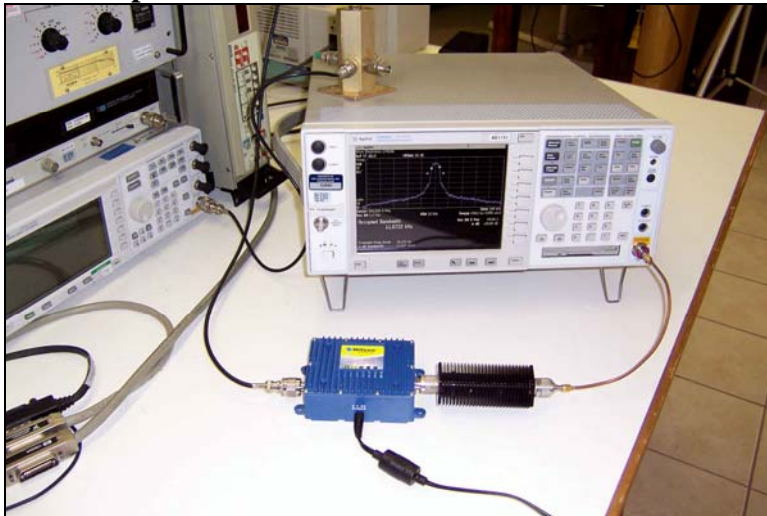
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Test Conditions

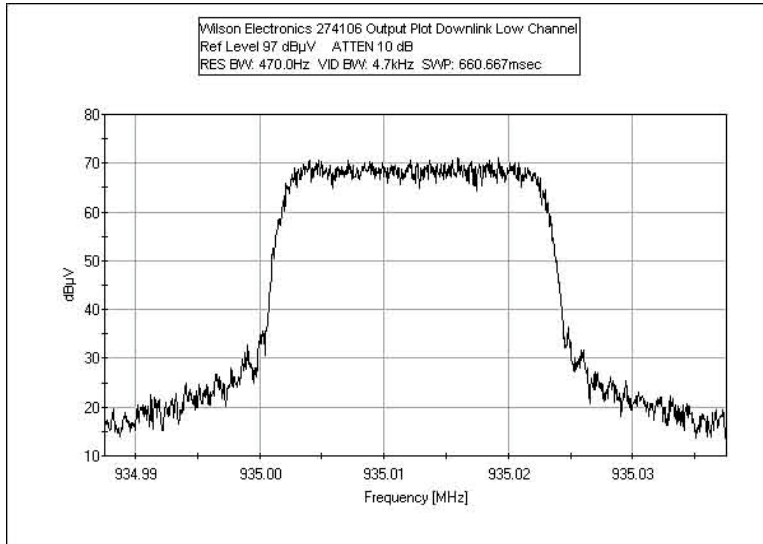
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Temperature: 71°F, Relative Humidity: 11%.

Test Setup Photos

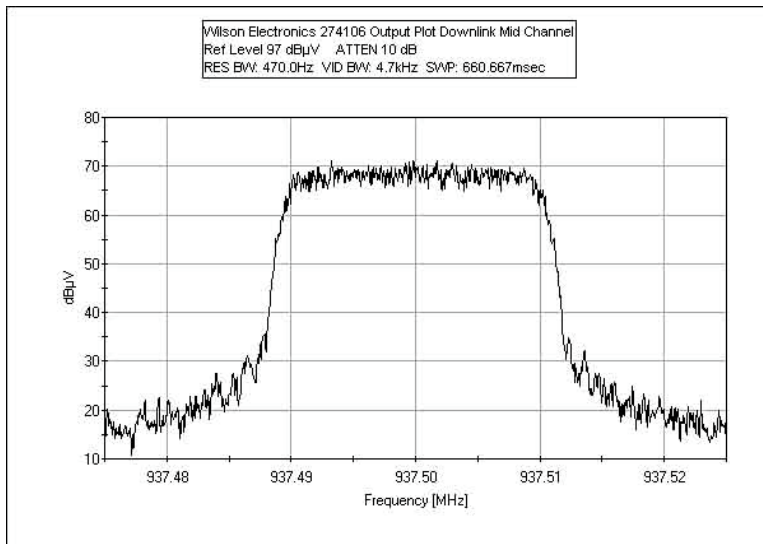


Test Plots

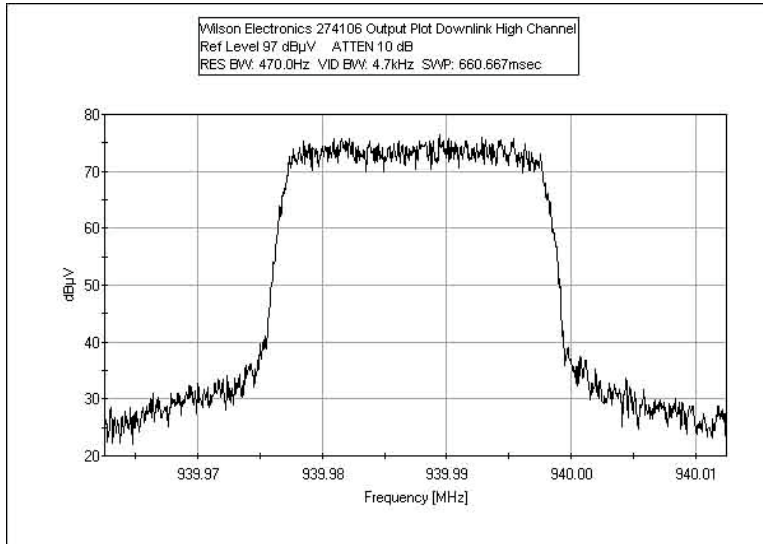
OUTPUT PLOT - DOWNLINK LOW CHANNEL



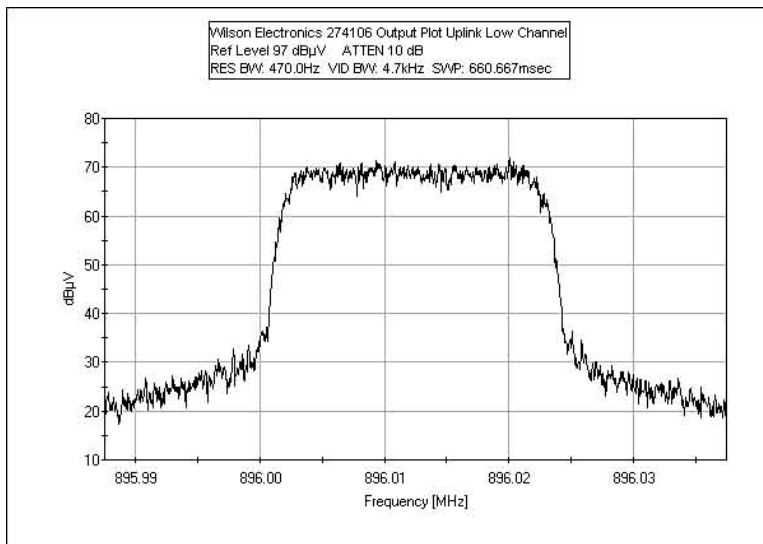
OUTPUT PLOT - DOWNLINK MID CHANNEL



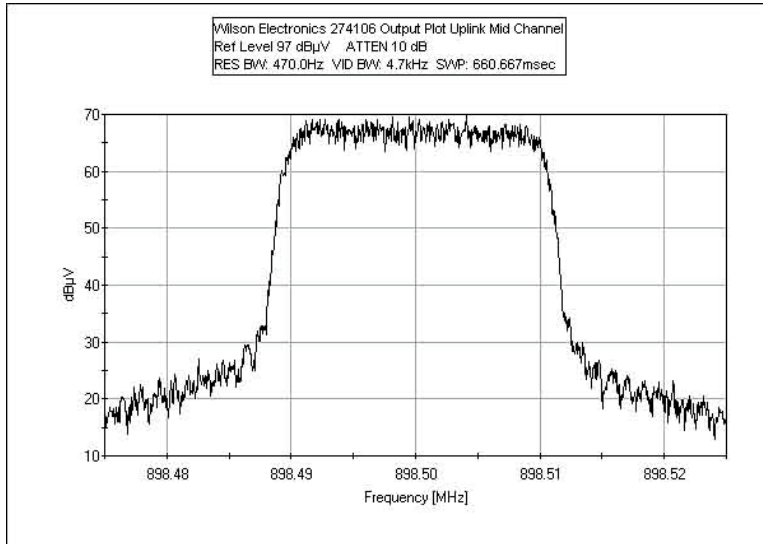
OUTPUT PLOT - DOWNLINK HIGH CHANNEL



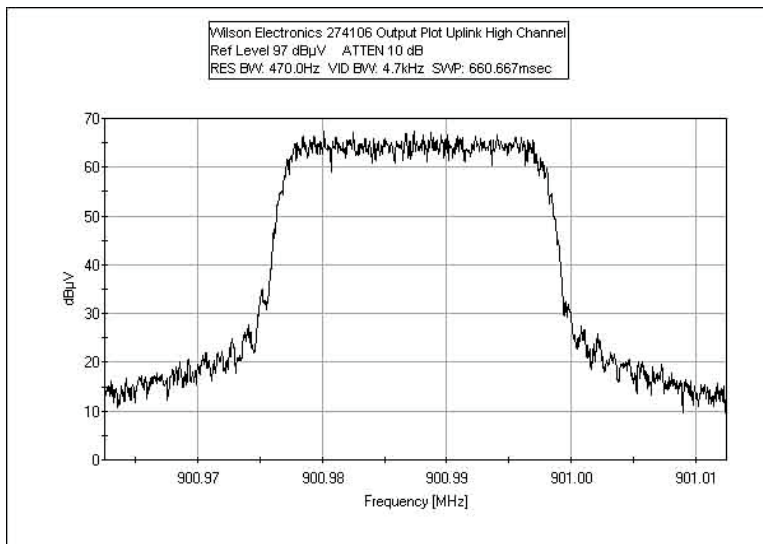
OUTPUT PLOT - UPLINK LOW CHANNEL



OUTPUT PLOT - UPLINK MID CHANNEL

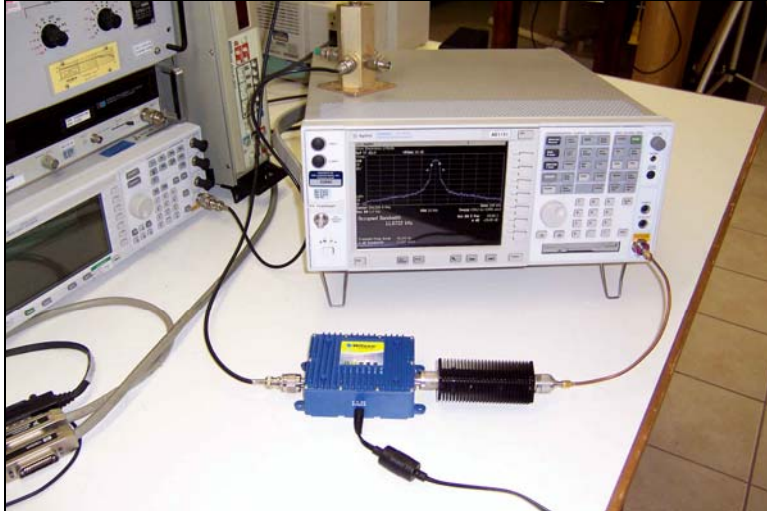


OUTPUT PLOT - UPLINK HIGH CHANNEL



FCC 2.1033(c)(14)/2.1051/90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Setup Photos



Test Data

**47 CFR 90.210(j)
Calculation of Spurious Emissions Mask**

Carrier Frequency:	896.013	MHz
Authorized Bandwidth:	13.6	kHz
Peak Power Output:	20.0000	dBm
Peak Power Output:	0.1000	Watts

Calculation of Attenuation Requirements:

P is the peak unmodulated carrier output power in Watts, and fd is the displacement frequency from the center of the authorized bandwidth in kHz.

NOTE: Only the endpoints are calculated. The limit line is linearly interpolated between the two points on a LOG - Linear scale.

90.210(j)(1)

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 2.5 kHz, but no more than 6.25 kHz: At least 53 log (fd/2.5) dB

$$F(fd) = 53 * \text{LOG}(fd/2.5)$$

F(6.25) =	0.0	dBc
F(9.5) =	21.1	dBc

90.210(j)(2)

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 6.25 kHz, but no more than 9.5 kHz: At least 103 log (fd/3.9) dB

$$F(fd) = 103 * \text{LOG}(fd/3.9)$$

F(6.25) =	21.1	dBc
F(9.5) =	39.8	dBc

90.210(j)(3)

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 9.5 kHz: At least 157 log (fd/5.3) dB, or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation

Attenuation:

Point	fd (kHz)	157*LOG(fd/5.3)	50+10LOG(P)	70
1	9.5	39.8	40.0	70
2	9.5	40.0	40.0	70

Point 2 is when 157LOG(fd/5.3) is equal to the lesser of 50+10LOG(P) or 70dB



Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Uplink Mid Channel**
 Work Order #: **86003**
 Test Type: **Antenna Conducted**
 Equipment: **iDEN 900 MHz Amplifier**
 Manufacturer: Wilson Electronics
 Model: 274106
 S/N: 2741069910001

Date: 1/18/2007
 Time: 10:03:09
 Sequence#: 3
 Tested By: Randal Clark
 120V 60Hz

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Uplink. Channel Tested: Mid. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

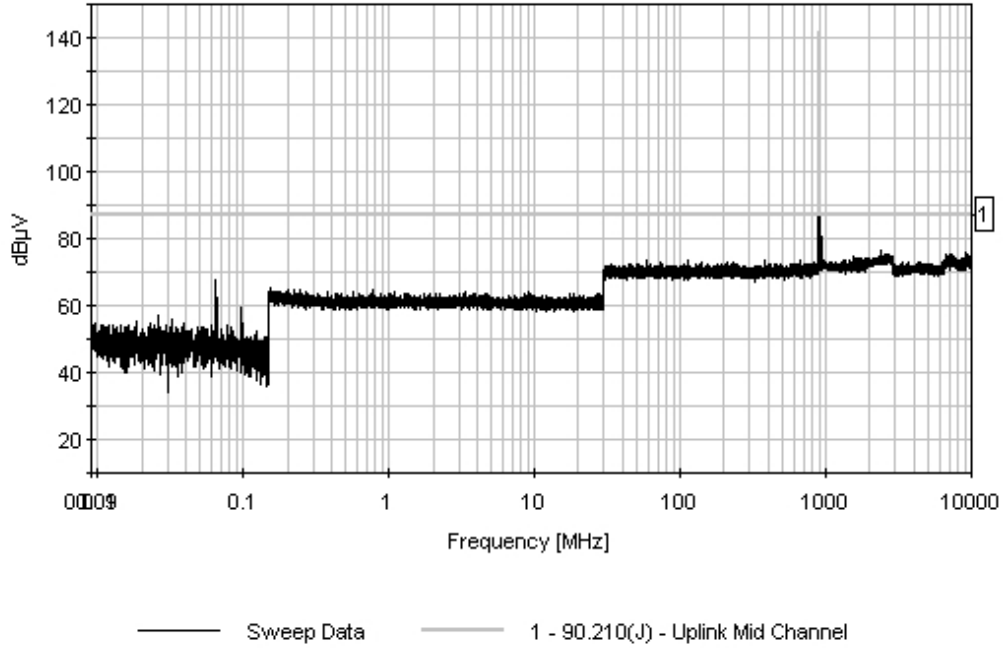
Transducer Legend:

T1=ATT ANP01681	T2=ATT P01350-113006
-----------------	----------------------

Measurement Data: Reading listed by margin. Test Lead: RF Output Uplink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	898.504M	121.7	+9.7	+10.2	+0.0	141.6	141.6	0.0	RF Ou
2	1796.987M	58.5	+10.2	+10.1	+0.0	78.8	87.0	-8.2	RF Ou
3	4492.479M	56.7	+10.5	+10.4	+0.0	77.6	87.0	-9.4	RF Ou
4	5390.999M	52.5	+10.3	+10.2	+0.0	73.0	87.0	-14.0	RF Ou
5	871.341M	40.2	+9.7	+10.2	+0.0	60.1	87.0	-26.9	RF Ou
^	871.341M	107.2	+9.7	+10.2	+0.0	127.1	87.0	+40.1	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 10:03:09 Wilson Electronics W/O#: 86003
90.210(J) - Uplink Mid Channel Test Lead: RF Output Uplink 120V 60Hz Sequence#: 3
Wilson Electronics M/N 274106 Uplink Mid Channel





Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Uplink Low Channel**
 Work Order #: **86003** Date: 1/18/2007
 Test Type: **Antenna Conducted** Time: 09:45:59
 Equipment: **iDEN 900 MHz Amplifier** Sequence#: 2
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 274106 120V 60Hz
 S/N: 2741069910001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Uplink. Channel Tested: Low. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

Transducer Legend:

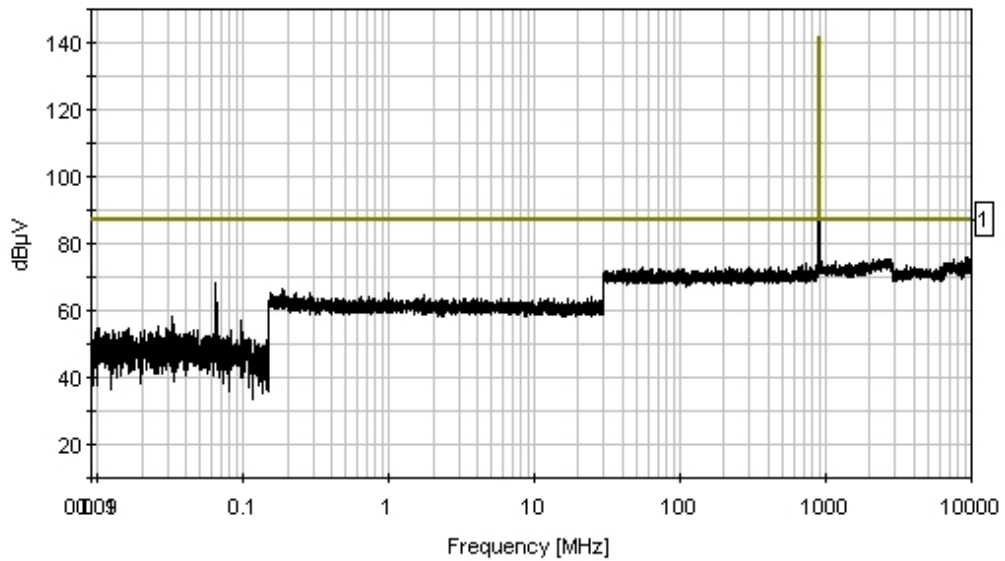
T1=ATT ANP01681	T2=ATT P01350-113006
-----------------	----------------------

Measurement Data: Reading listed by margin. Test Lead: RF Output Uplink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	896.014M	121.8	+9.7	+10.2	+0.0	141.7	141.7	0.0	RF Ou
Carrier									
2	1792.030M	59.2	+10.2	+10.1	+0.0	79.5	87.0	-7.5	RF Ou
3	2688.046M	58.0	+10.2	+10.1	+0.0	78.3	87.0	-8.7	RF Ou
4	4480.078M	54.8	+10.5	+10.4	+0.0	75.7	87.0	-11.3	RF Ou
5	9856.175M	50.0	+10.8	+10.4	+0.0	71.2	87.0	-15.8	RF Ou

6	5376.094M	50.7	+10.3	+10.2	+0.0	71.2	87.0	-15.8	RF Ou
7	870.282M Ave	32.8	+9.7	+10.2	+0.0	52.7	87.0	-34.3	RF Ou
^	870.282M	104.8	+9.7	+10.2	+0.0	124.7	87.0	+37.7	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 09:45:59 Wilson Electronics WWO#: 86003
 90.210(J) - Uplink Low Channel Test Lead: RF Output Uplink 120V 60Hz Sequence#: 2
 Wilson Electronics M/N 274106 Uplink Low Channel



— Sweep Data — 1 - 90.210(J) - Uplink Low Channel



Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Uplink High Channel**
 Work Order #: **86003**
 Test Type: **Antenna Conducted**
 Equipment: **iDEN 900 MHz Amplifier**
 Manufacturer: Wilson Electronics
 Model: 274106
 S/N: 2741069910001

Date: 1/18/2007
 Time: 10:13:56
 Sequence#: 4
 Tested By: Randal Clark
 120V 60Hz

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Uplink. Channel Tested: High. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

Transducer Legend:

T1=ATT ANP01681	T2=ATT P01350-113006
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Measurement Data:

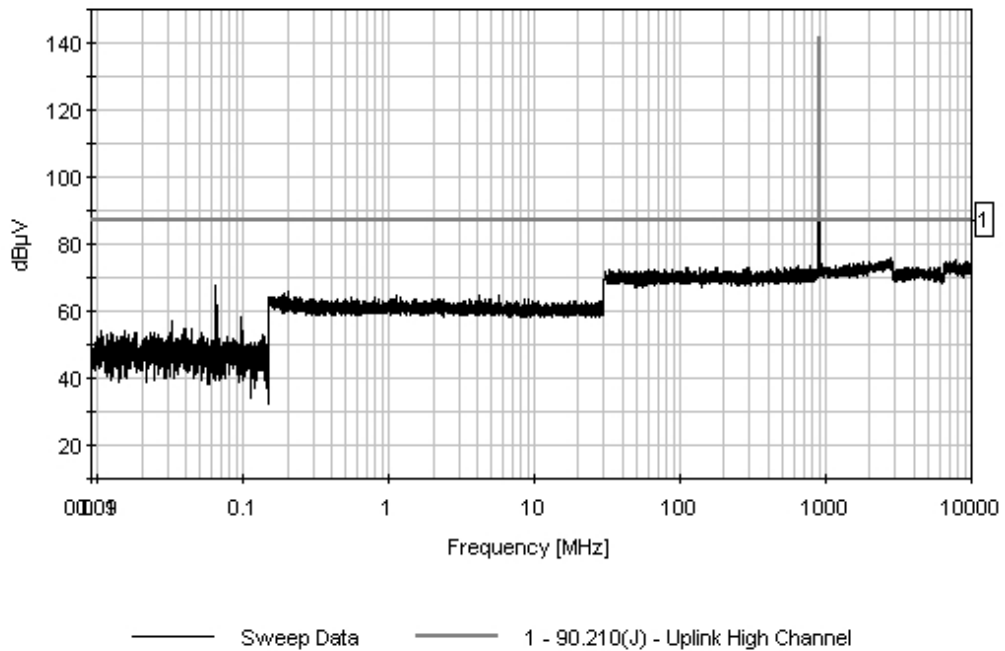
Reading listed by margin.

Test Lead: RF Output Uplink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	900.983M	121.3	+9.7	+10.2	+0.0	141.2	141.2	0.0	RF Ou
							Carrier		
2	4504.936M	57.7	+10.5	+10.4	+0.0	78.6	87.0	-8.4	RF Ou
3	1801.947M	56.3	+10.2	+10.1	+0.0	76.6	87.0	-10.4	RF Ou
4	5405.933M	52.7	+10.3	+10.2	+0.0	73.2	87.0	-13.8	RF Ou

5	3603.942M	51.8	+10.5	+10.3	+0.0	72.6	87.0	-14.4	RF Ou
6	876.102M Ave	36.8	+9.7	+10.2	+0.0	56.7	87.0	-30.3	RF Ou
^	876.102M	101.2	+9.7	+10.2	+0.0	121.1	87.0	+34.1	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 10:13:56 Wilson Electronics WO#: 86003
 90.210(J) - Uplink High Channel Test Lead: RF Output Uplink 120V 60Hz Sequence#: 4
 Wilson Electronics M/N 274106 Uplink High Channel





Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Downlink Low Channel**
 Work Order #: **86003** Date: 1/18/2007
 Test Type: **Antenna Conducted** Time: 11:04:11
 Equipment: **iDEN 900 MHz Amplifier** Sequence#: 5
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 274106 120V 60Hz
 S/N: 2741069910001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Downlink Channel Tested: Low. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

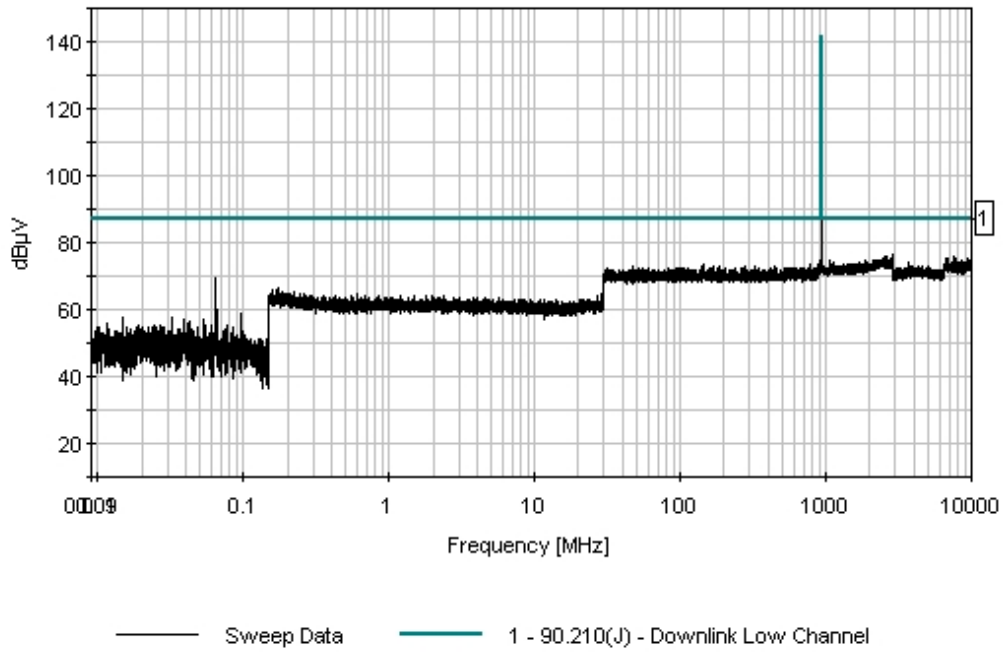
Transducer Legend:

T1=ATT ANP01681	T2=ATT P01350-113006
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Measurement Data: Reading listed by margin. Test Lead: RF Output Downlink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	935.009M	121.0	+9.7	+10.2	+0.0	140.9	140.9	0.0	RF Ou
Carrier									
2	2805.031M	56.5	+10.2	+10.2	+0.0	76.9	87.0	-10.1	RF Ou
3	3740.064M	54.0	+10.3	+10.4	+0.0	74.7	87.0	-12.3	RF Ou
4	1870.042M	53.3	+10.2	+10.1	+0.0	73.6	87.0	-13.4	RF Ou
5	6545.090M	52.8	+10.5	+10.2	+0.0	73.5	87.0	-13.5	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 11:04:11 Wilson Electronics W/O#: 86003
 90.210(J) - Downlink Low Channel Test Lead: RF Output Downlink 120V 60Hz Sequence#: 5
 Wilson Electronics MN 274106 Downlink Low Channel





Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Downlink Mid Channel**
 Work Order #: **86003** Date: 1/18/2007
 Test Type: **Antenna Conducted** Time: 11:28:32
 Equipment: **iDEN 900 MHz Amplifier** Sequence#: 6
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 274106 120V 60Hz
 S/N: 2741069910001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Downlink. Channel Tested: Mid. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

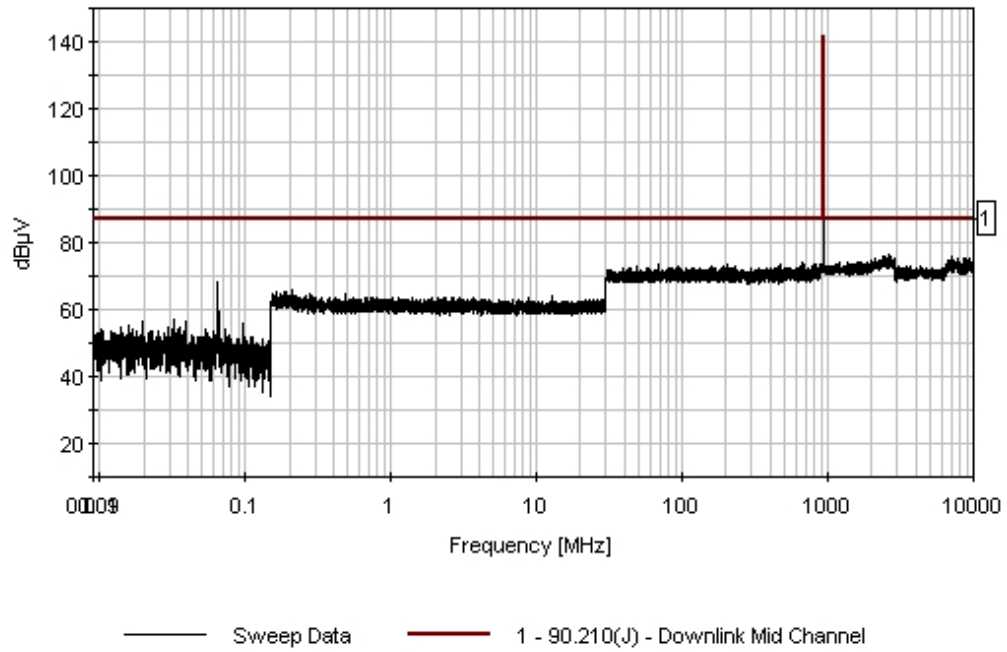
Transducer Legend:

T1=ATT ANP01681	T2=ATT P01350-113006
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Measurement Data: Reading listed by margin. Test Lead: RF Output Downlink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	937.495M	120.8	+9.7	+10.2	+0.0	140.7	140.7	0.0	RF Ou
2	1875.014M	57.2	+10.2	+10.1	+0.0	77.5	87.0	-9.5	RF Ou
3	3750.011M	54.5	+10.3	+10.4	+0.0	75.2	87.0	-11.8	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 11:28:32 Wilson Electronics W/O#: 86003
 90.210(J) - Downlink Mid Channel Test Lead: RF Output Downlink 120V 60Hz Sequence#: 6
 Wilson Electronics M/N 274106 Downlink Mid Channel





Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **90.210(J) - Downlink High Channel**
 Work Order #: **86003** Date: 1/18/2007
 Test Type: **Antenna Conducted** Time: 11:38:02
 Equipment: **iDEN 900 MHz Amplifier** Sequence#: 7
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 274106 120V 60Hz
 S/N: 2741069910001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Frequency Band Tested: Downlink. Channel Tested: High. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz. Temperature: 71°F, Relative Humidity:11%.

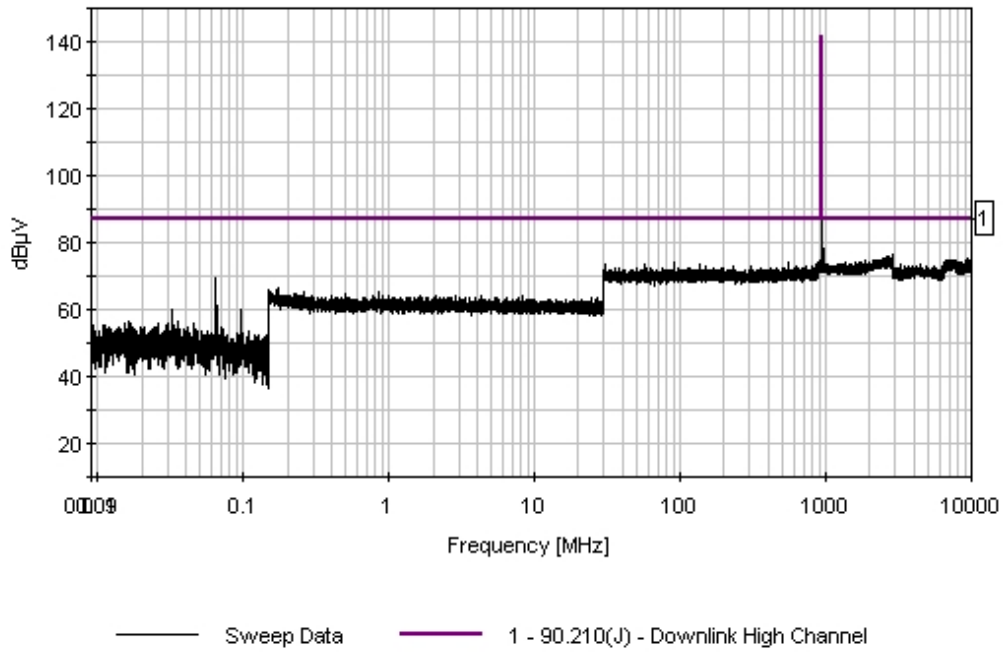
Transducer Legend:

T1=ATT ANP01681	T2=ATT P01350-113006
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Measurement Data: Reading listed by margin. Test Lead: RF Output Downlink

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	939.987M	120.8	+9.7	+10.2	+0.0	140.7	140.7	0.0	RF Ou
2	1879.974M	59.5	+10.2	+10.1	+0.0	79.8	87.0	-7.2	RF Ou
3	3759.947M	54.2	+10.3	+10.4	+0.0	74.9	87.0	-12.1	RF Ou

CKC Laboratories, Inc. Date: 1/18/2007 Time: 11:38:02 Wilson Electronics WO#: 86003
 90.210(J) - Downlink High Channel Test Lead: RF Output Downlink 120V 60Hz Sequence#: 7
 Wilson Electronics MN 274106 Downlink High Channel



FCC 2.1033(c)(14)/2.1053/90.210 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Setup Photos





Test Data Sheets

Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 90.210**
 Work Order #: **86003** Date: 1/17/2007
 Test Type: **Maximized Emissions** Time: 08:23:47
 Equipment: **iDEN 900 MHz Amplifier** Sequence#: 8
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 274106
 S/N: 2741069910001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Chase CBL6111C Bilog	2456	06/07/2005	06/07/2007	01991
EMCO 3115 Horn Antenna	9307-4085	04/29/2005	04/29/2007	00656
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226
HP 8447D Preamp	1937A02604	03/11/2005	03/11/2007	00099
Cable, Pasternack 36"	NA	02/08/2005	02/08/2007	P05202
Cable, Pasternack 48"	NA	02/08/2005	02/08/2007	P05203
Cable, Andrews Hardline HF-005-20	NA	05/27/2005	05/27/2007	P04275

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910001

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a matched termination. Frequency Band Tested: Uplink and Downlink. Channel Tested: Low, Middle and High. Frequency Range Investigated: 9 kHz – 10 GHz. Bandwidth Settings: <250% of ABW or Fc<30MHz, RBW = 300Hz, VBW = 1kHz >250% of ABW, RBW = 100kHz, VBW = 300kHz Temperature: 63°F, Relative Humidity: 14%.
No EUT emissions detected within 20dB of the limit.

Transducer Legend:

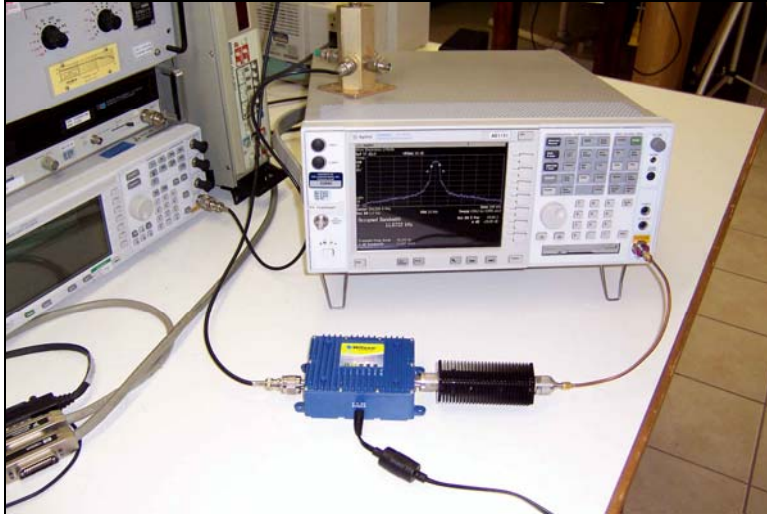
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Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant

FCC 90.210(j) - INTERMODULATION ATTENUATION

Test Setup Photos



Test Location:	CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)		
Customer:	Wilson Electronics		
Specification:	90.210(j) Out of Band Spurs		
Work Order #:	86003	Date:	4/17/2007
Test Type:	Antenna Conducted	Time:	10:36:53
Equipment:	iDEN 900 MHz Amplifier	Sequence#:	9
Manufacturer:	Wilson Electronics	Tested By:	Randal Clark
Model:	274106		120V 60Hz
S/N:	2741069910000		

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Bird 30dB Attenuator	9949	05/20/2005	05/20/2007	P01572

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
iDEN 900 MHz Amplifier*	Wilson Electronics	274106	2741069910000

Support Devices:

Function	Manufacturer	Model #	S/N
EUT Power Supply	I.T.E Power Supply	HK-B118-A06	0106C
Combiner	Motorola	None	None
Signal Generator	Agilent	E4436B	US39260137
Signal Generator	Agilent	E4431B	US38440201

Test Conditions / Notes:

This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Signal generator output is fed through a combiner prior to input to the EUT. Power output is set such that the Intermodulation Attenuation products are compliant. Frequencies used: Block edge ± 12.5 kHz and ± 300 kHz. Intermodulation test performed using two tone method. Signal generators are not framed. Frequency Band Tested: Uplink and Downlink. Channel Tested: Intermodulation Attenuation. Frequency Range Investigated: 9 kHz to 10 GHz. Bandwidth Settings: RBW = 10kHz, VBW = 10kHz. Temperature: 71°F, Relative Humidity: 11%. **Except for indicated measurements, no intermodulation emissions detected within 20dB of the limit.**

Transducer Legend:

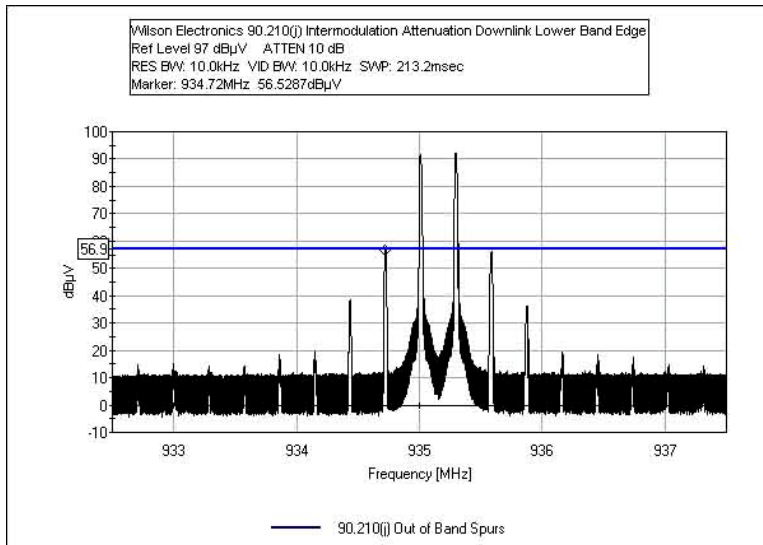
T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Lead: RF Output Downlink

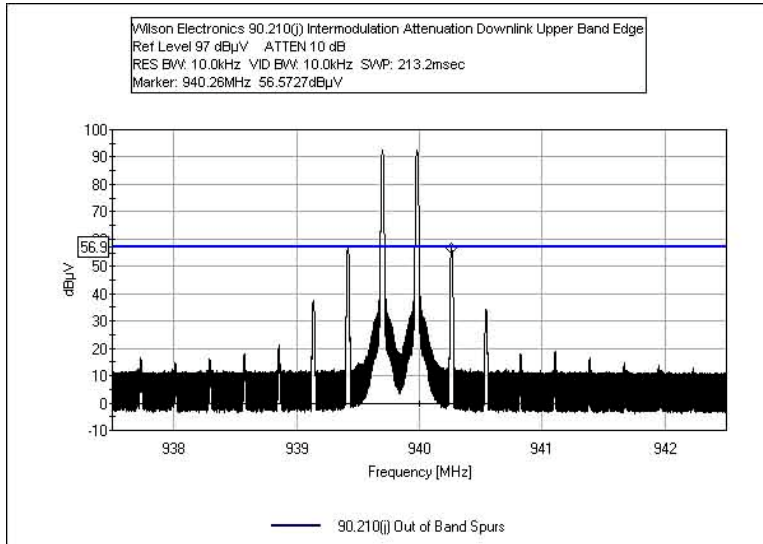
#	Freq MHz	Rdng dB μ V	T1 dB	Reading listed by margin.			Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	940.260M	56.6	+30.1				+0.0	86.7	87.0	-0.3	RF Ou
2	934.720M	56.5	+30.1				+0.0	86.6	87.0	-0.4	RF Ou
3	895.722M	56.4	+30.2				+0.0	86.6	87.0	-0.4	RF Ou
4	901.260M	56.3	+30.2				+0.0	86.5	87.0	-0.5	RF Ou

Test Plots

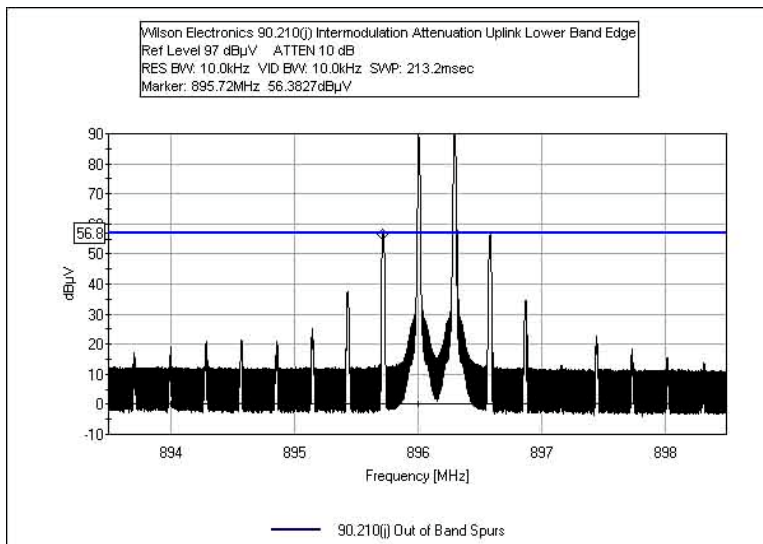
**FCC 90.210(j) INTERMODULATION ATTENUATION –
DOWNLINK LOWER BAND EDGE**



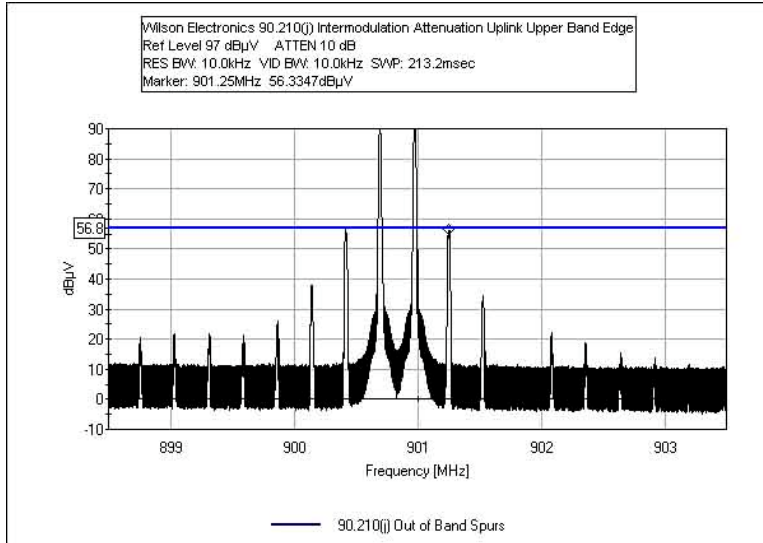
FCC 90.210(j) INTERMODULATION ATTENUATION – DOWNLINK UPPER BAND EDGE



FCC 90.210(j) INTERMODULATION ATTENUATION - UPLINK



FCC 90.210(j) INTERMODULATION ATTENUATION – UPLINK UPPER BAND EDGE



OUT OF BAND AMPLIFICATION

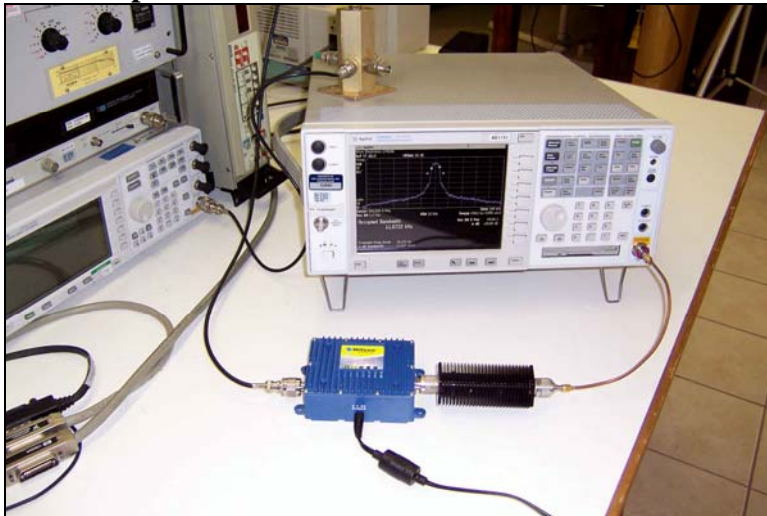
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Test Conditions

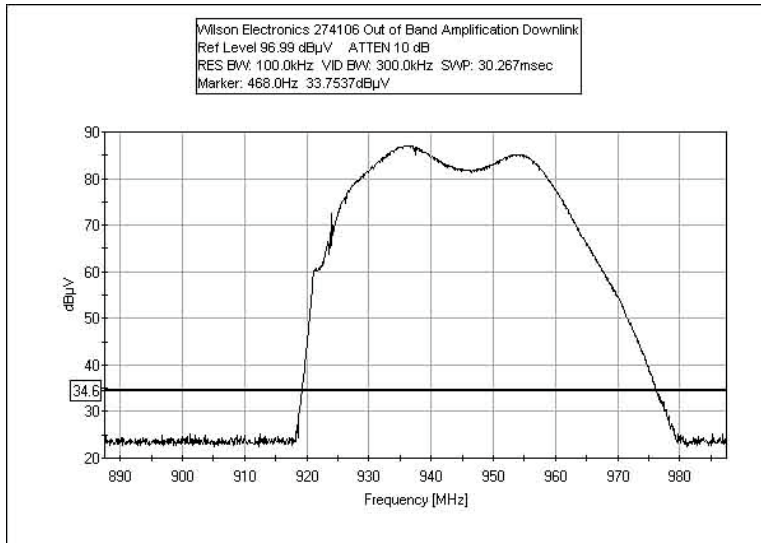
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Temperature: 71°F, Relative Humidity: 11%.

Test Setup Photos

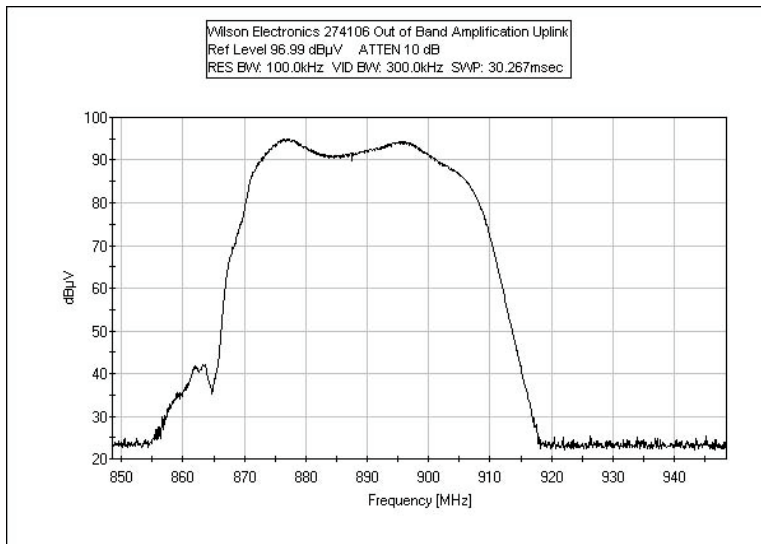


Test Plots

OUT OF BAND AMPLIFICATION - DOWNLINK



OUT OF BAND AMPLIFICATION - UPLINK



RSS-131 6.1 PASS BAND GAIN

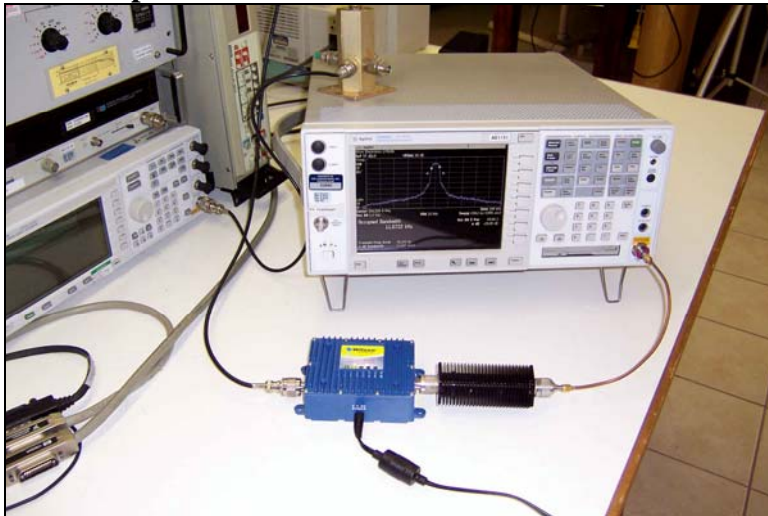
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Test Conditions

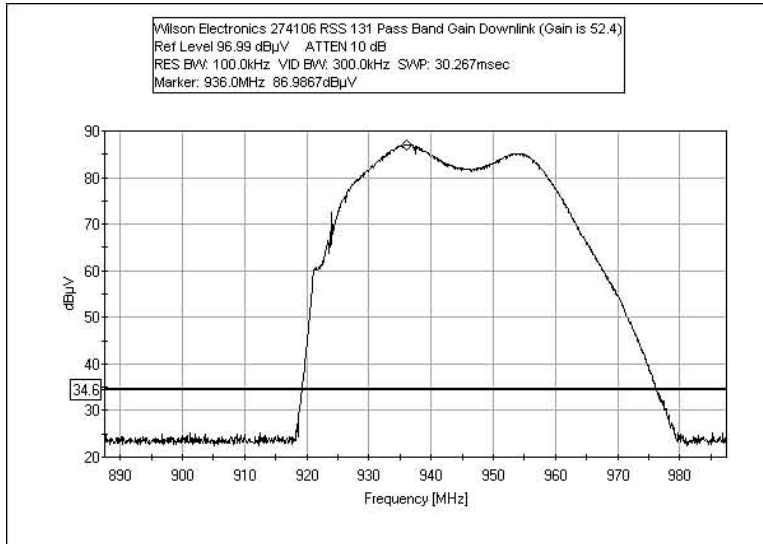
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Temperature: 71°F, Relative Humidity: 11%.

Test Setup Photos

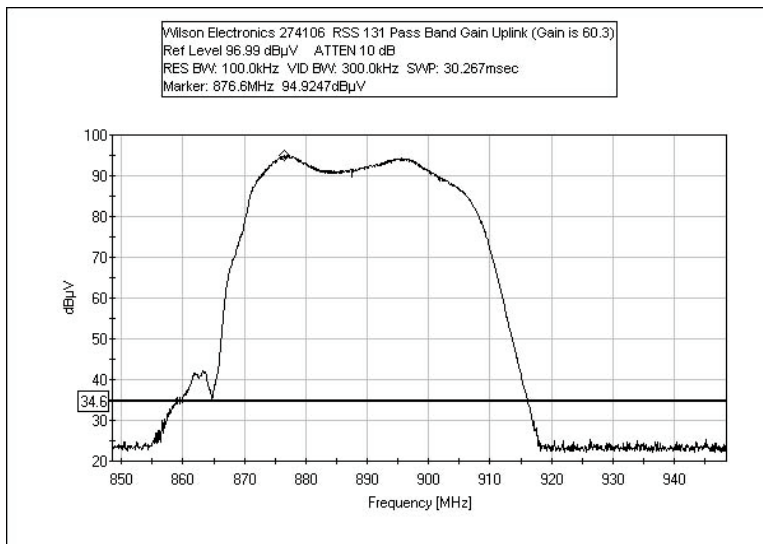


Test Plots

RSS-131 6.1 PASS BAND GAIN - DOWNLINK



RSS-131 6.1 PASS BAND GAIN - UPLINK



RSS-131 6.1 PASS BAND WIDTH

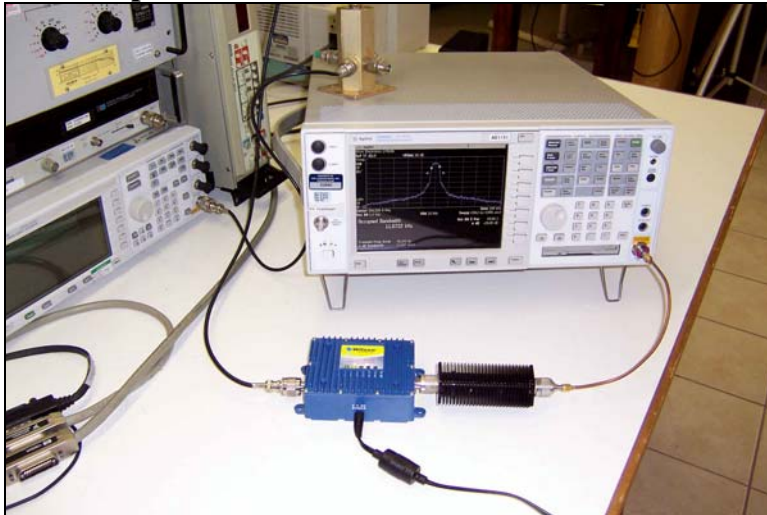
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8564E SA	3623A00539	10/27/2006	10/27/2008	01406
Weinschel 33-10-33 Attenuator	AH5409	05/23/2005	05/23/2007	P01681
HP 8491A 10dB Attenuator	2708A47453	11/30/2006	11/30/2008	P01350

Test Conditions

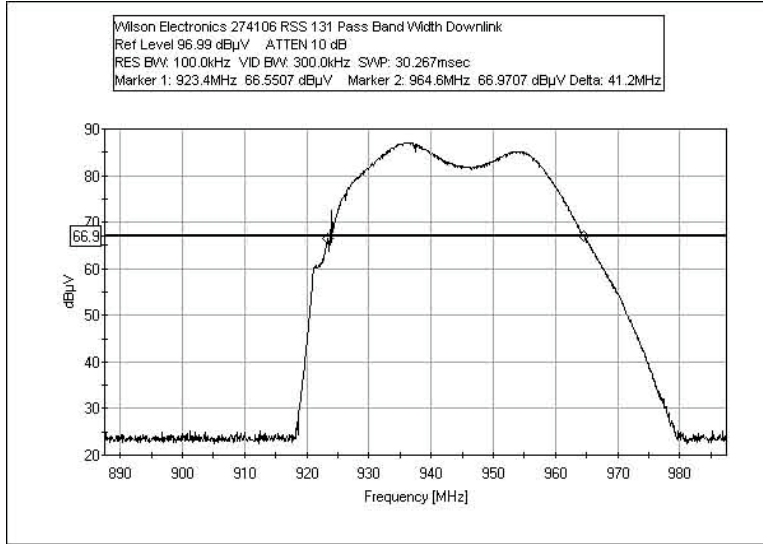
This is a wireless, in-building, 900 MHz bi-directional amplifier for enhancing the range of iDEN cell phones. Uplink band is 896-901 MHz. Downlink band is 935-940 MHz. Equipment is connected directly to a spectrum analyzer through suitable attenuation. Temperature: 71°F, Relative Humidity: 11%.

Test Setup Photos



Test Plots

RSS-131 6.1 PASS BAND WIDTH - DOWNLINK



RSS-131 6.1 PASS BAND WIDTH - UPLINK

