



ADDENDUM TO WILSON ELECTRONICS TEST REPORT FC04-022

FOR THE

DUAL BAND BIDIRECTIONAL AMPLIFIER, 811201

FCC PART 24E AND RSS 131

COMPLIANCE

DATE OF ISSUE: MAY 13, 2004

PREPARED FOR:

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

P.O. No.: PW0819D
W.O. No.: 81935

PREPARED BY:

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

Date of test: March 1-12, 2004

Report No.: FC04-022A

This report contains a total of 99 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc. The results in this report apply only to the items tested, as identified herein.

TABLE OF CONTENTS

Administrative Information.....	3
Summary of Results.....	4
Conditions for Compliance	4
Approvals	4
Equipment Under Test (EUT) Description.....	5
Equipment Under Test.....	5
Peripheral Devices.....	5
Measurement Uncertainty.....	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)/2.1046/24.232 - RF Power Output	7
FCC 2.1033(c)(14)/2.1047(b) - Audio Frequency Response.....	9
FCC 2.1033(c)(14)/2.1047(b) - Modulation Limiting Response	9
FCC 2.1033(c)(14)/2.1049(i) - Occupied Bandwidth.....	10
FCC 2.1033(c)(14)/2.1051/24.238 - Spurious Emissions at Antenna Terminal.....	16
FCC 2.1051 - Block Edge	67
FCC 2.1033(c)(14)/2.1053/24.238 - Field Strength of Spurious Radiation.....	72
Intermodulation Attenuation.....	75
Input Downlink	84
Input Uplink	87
Output Downlink.....	90
Output Uplink.....	93
RSS 131 Downlink Passband Gain.....	96
RSS 131 Uplink Passband Gain.....	97
RSS 131 Uplink 20dB Passbandwidth.....	98
RSS 131 Downlink 20dB Passbandwidth.....	99

ADMINISTRATIVE INFORMATION

DATE OF TEST: March 1-12, 2004

DATE OF RECEIPT: March 1, 2004

PURPOSE OF TEST: To demonstrate the compliance of the Dual Band Bidirectional Amplifier, 811201 with the requirements for FCC Part 24E and RSS 131 devices.
Addendum A is to revise the data sheets on pages 20, 43 and 58.

TEST METHOD: FCC Part 24E, RSS 131 and TIA/EIA 603

FREQUENCY RANGE TESTED: 30 MHz-20 GHz

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

REPRESENTATIVE: Patrick Cook

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

SUMMARY OF RESULTS

As received, the Wilson Electronics Dual Band Bidirectional Amplifier, 811201 was found to be fully compliant with the following standards and specifications:

United States

➤ FCC Part 24E using:

➤ TIA/EIA 603

FCC Site No. 90477

Canada

RSS 131 using:

➤ FCC Part 24E

➤ TIA/EIA 603

Industry of Canada File No. IC 3082-B

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

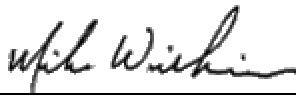
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

A handwritten signature in black ink, appearing to read "Joyce Walker".

Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:

A handwritten signature in black ink, appearing to read "Mike Wilkinson".

Mike Wilkinson, Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit

EQUIPMENT UNDER TEST

Amplifier Power Supply

Manuf: Wilson Electronics
Model: JOD-48U-36
Serial: NA
FCC ID: NA

Dual Band Bidirectional Amplifier

Manuf: Wilson Electronics
Model: 811201
Serial: DD1-008900
FCC ID: pending

PERIPHERAL DEVICES

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

Signal Generator (2)

Manuf: HP
Model: E4432B
Serial: US40052283 & US38330168
FCC ID: DoC

Preamp Driver

Manuf: Wilson Electronics
Model: Prototype
Serial: NA
FCC ID: DoC

Preamp

Manuf: Mini-Circuits
Model: ZHL-42-SMA
Serial: D030204-#19
FCC ID: DoC

RF Combiner

Manuf: Motorola
Model: NA
Serial: P1314
FCC ID: DoC

MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

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

F9W, GXW, G7W

FCC 2.1033 (c)(5) FREQUENCY RANGE

1930-1990MHz Downlink, 1850-1910MHz Uplink

FCC 2.1033 (c)(6) OPERATING POWER

17.78 mW Downlink, 1.83 Watts Uplink

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

2 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

CDMA, EDGE, GSM

FCC 2.1033(c)(14)/2.1046/24.232 - RF POWER OUTPUT

Test Conditions: EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz

RF Power Output Test:

Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal.

Uplink Output Ratings:

CDMA and TDMA (EDGE & GSM) formats: 2Watts EIRP

Downlink Output Ratings:

All: 10mW

RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.

Downlink – Conducted Power

<i>Frequency (MHz)</i>	<i>Modulation</i>	<i>Power Output (milliWatts)</i>
1931.25	CDMA	7.76
1960.0	CDMA	15.85
1988.75	CDMA	14.45
1930.28	GSM	10.00
1960.0	GSM	17.78
1989.72	GSM	12.59
1930.28	EDGE	7.76
1960.0	EDGE	11.48
1989.72	EDGE	13.18

Uplink – Conducted Power

<i>Frequency (MHz)</i>	<i>Modulation</i>	<i>Power Output (Watts)</i>
1851.25	CDMA	.525
1880.0	CDMA	.479
1908.75	CDMA	.162
1850.28	GSM	.537
1880.0	GSM	.537
1909.72	GSM	.158
1850.28	EDGE	.562
1880.0	EDGE	.513
1909.72	EDGE	.102

Note: Uplink input power to the Amplifier was limited to 18.5 dBm

Uplink – EIRP Power

<i>Frequency (MHz)</i>	<i>Modulation</i>	<i>Power Output (Watts)</i>
1851.25	CDMA	1.71
1880.0	CDMA	1.56
1908.75	CDMA	.527
1850.28	GSM	1.75
1880.0	GSM	1.75
1909.72	GSM	.515
1850.28	EDGE	1.83
1880.0	EDGE	1.67
1909.72	EDGE	.332

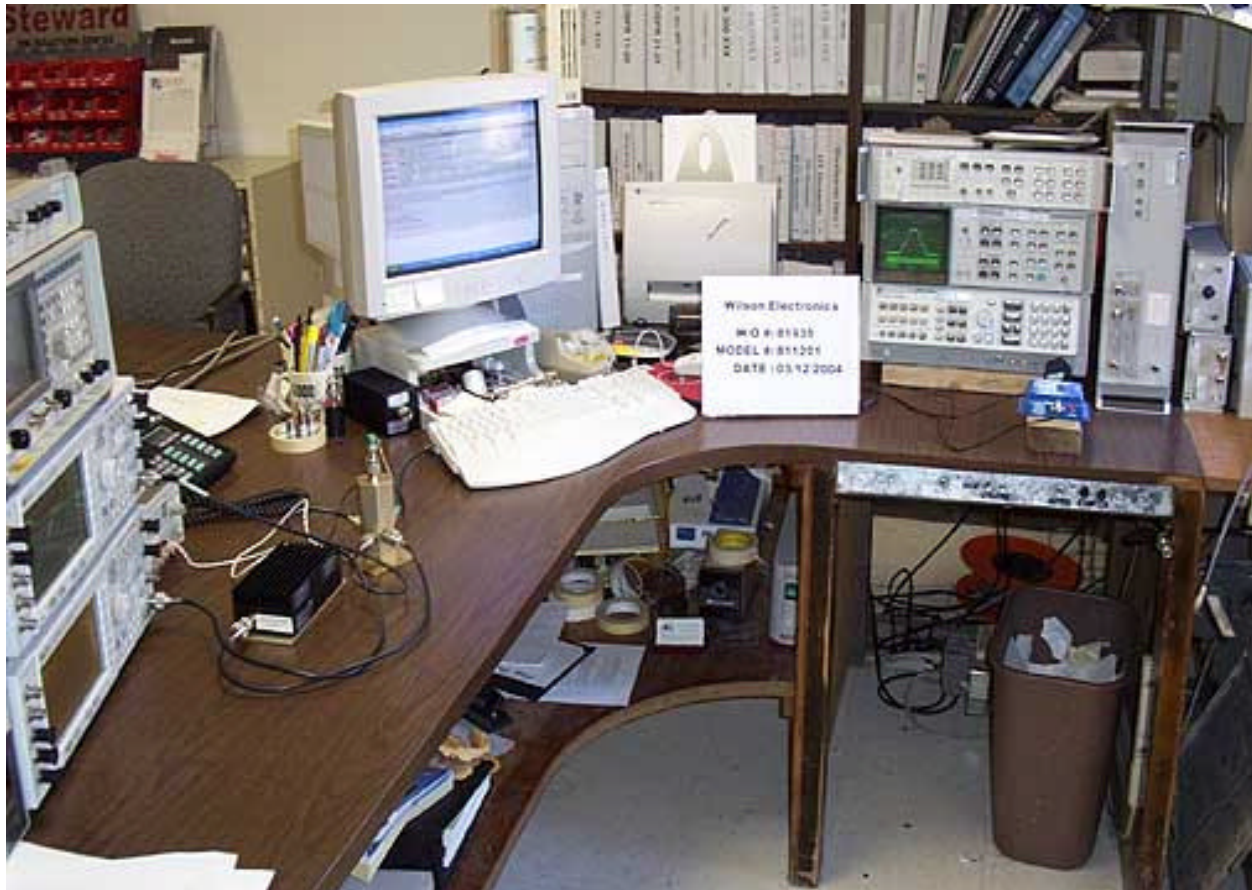
Note: Uplink input power to the Amplifier was limited to 18.5 dBm.

Note: EIRP calculated using a 5.12 dBi gain antenna.

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-	9724	05/08/2003	05/08/2005	P01577
MFN-30				

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



This photo represents all direct connect test setups: RF power, spurious emissions at antenna terminal, occupied bandwidth, band edge, intermodulation attenuation, output, input and RSS 131.

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

Not applicable to this unit.

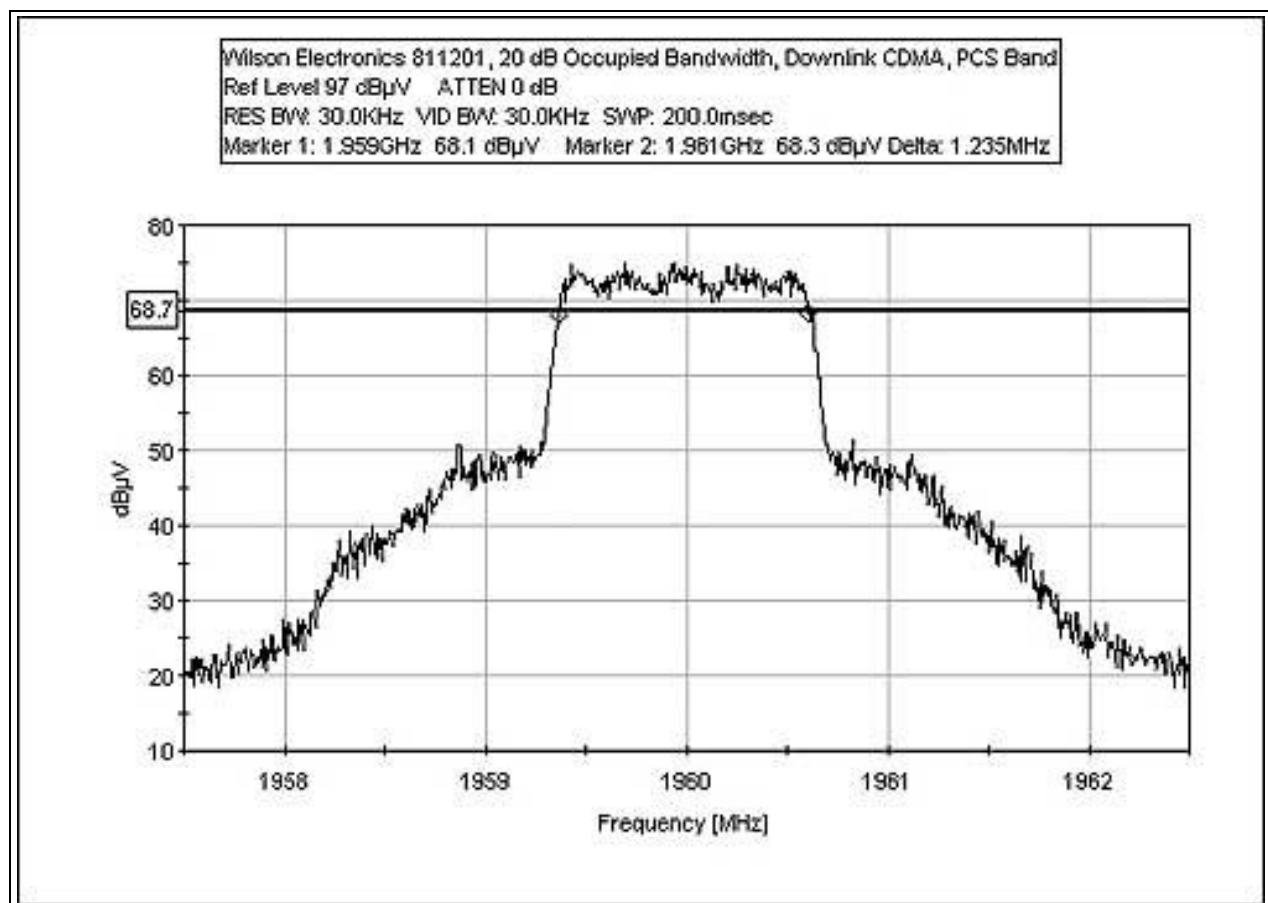
**FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS- Modulation
Limiting Response**

Not applicable to this unit.

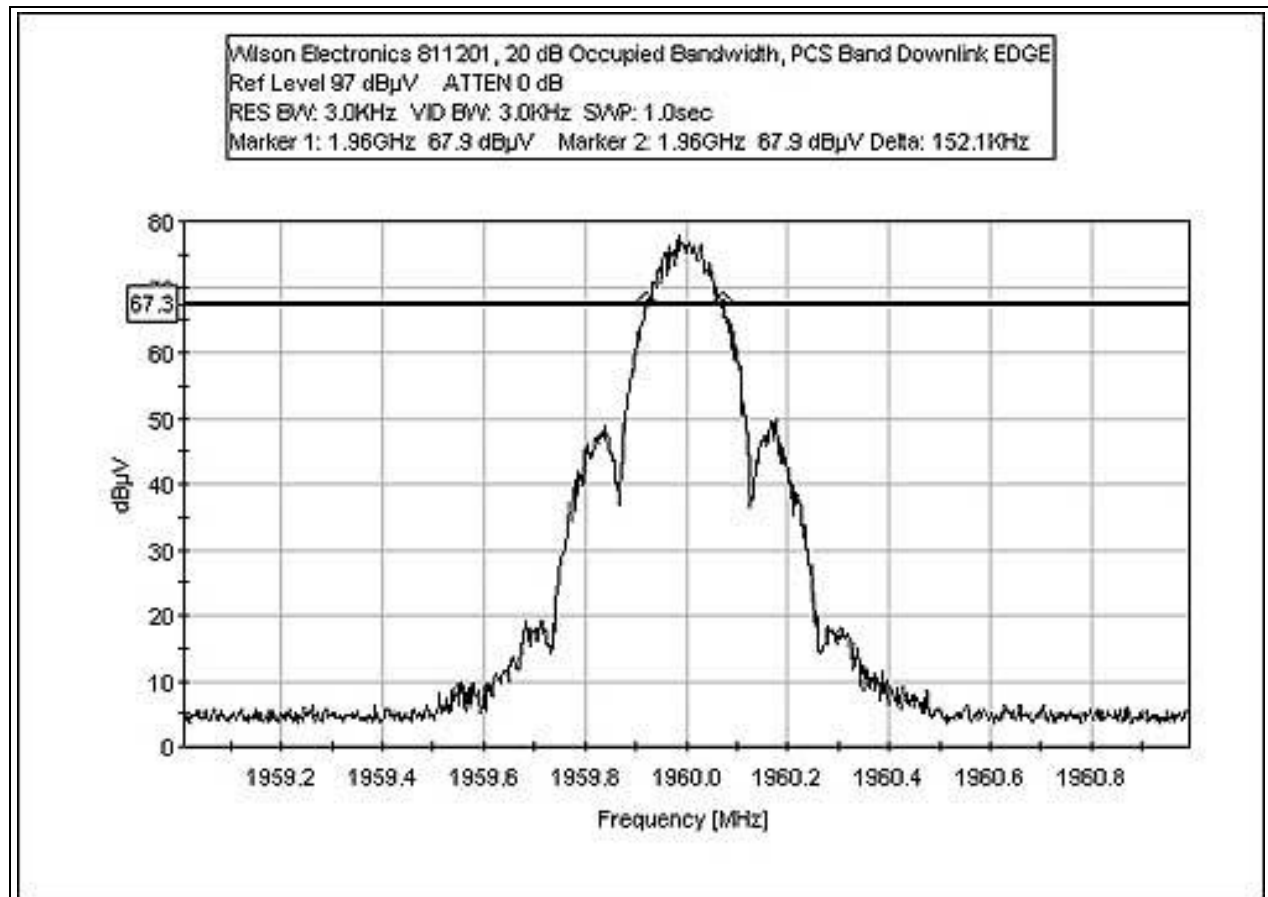
FCC 2.1033(c)(14)/2.1049(i)- OCCUPIED BANDWIDTH

Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.

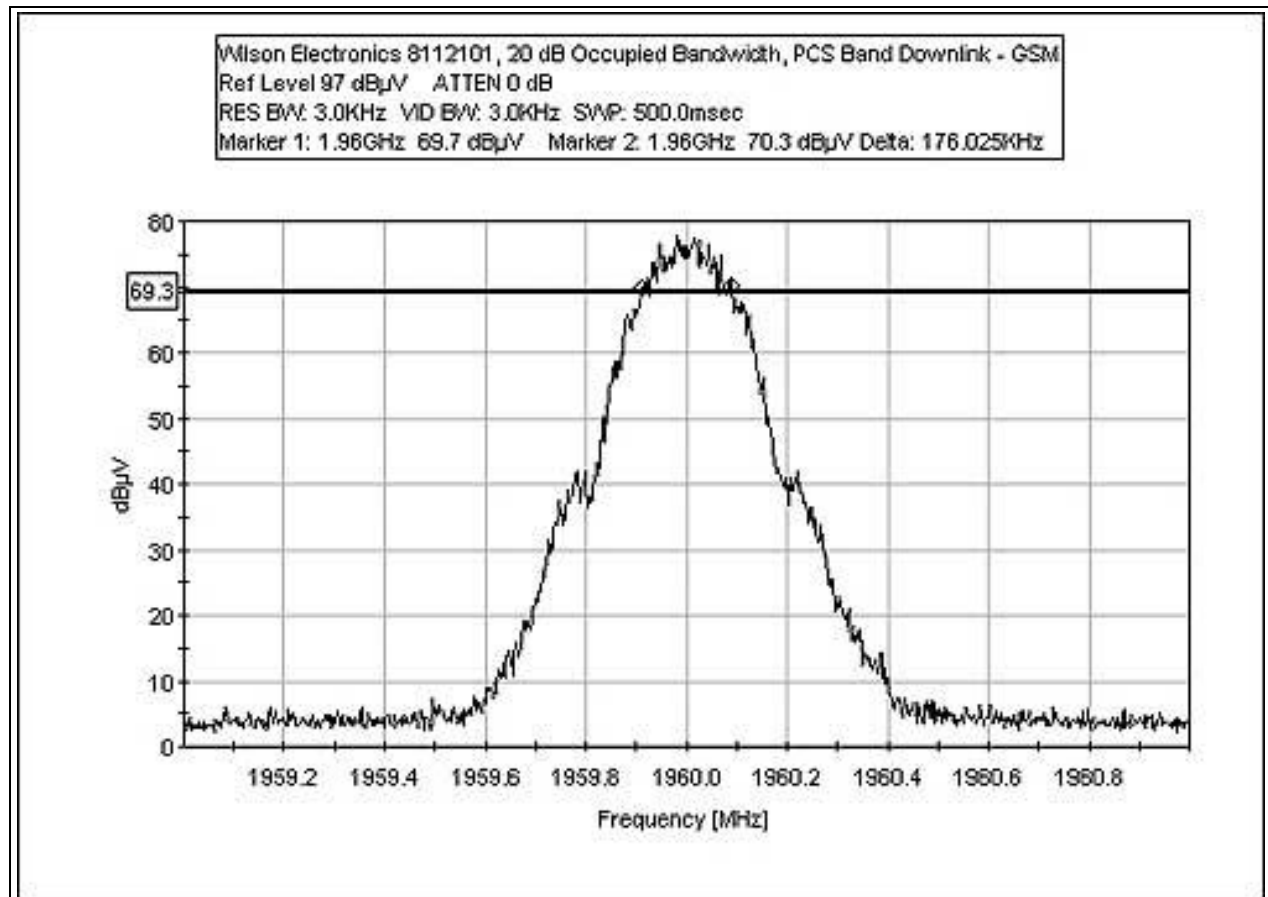
FCC 2.1049 Downlink 20dB Occupied Bandwidth PCS Band CDMA



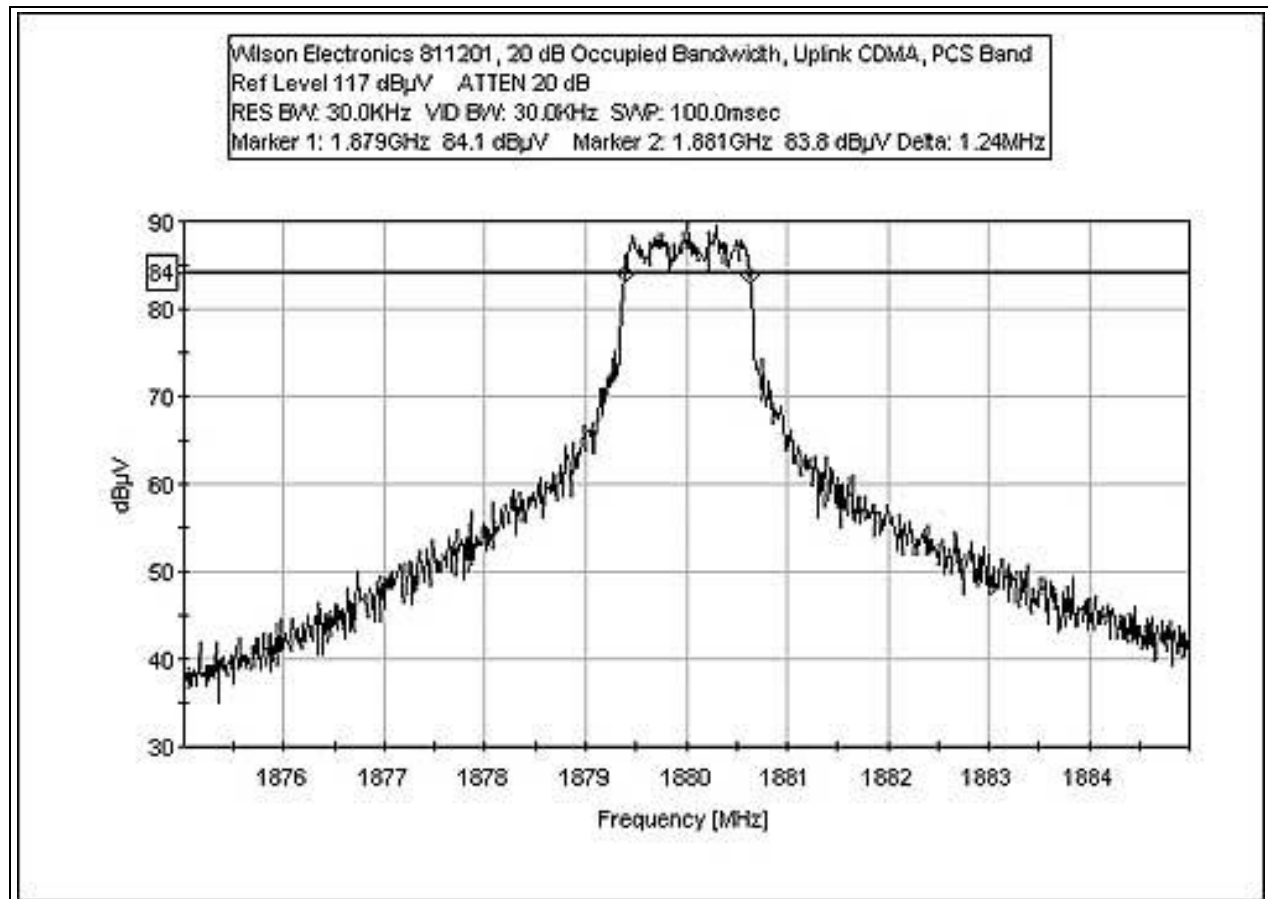
FCC 2.1049 Downlink 20dB Occupied Bandwidth PCS Band Edge



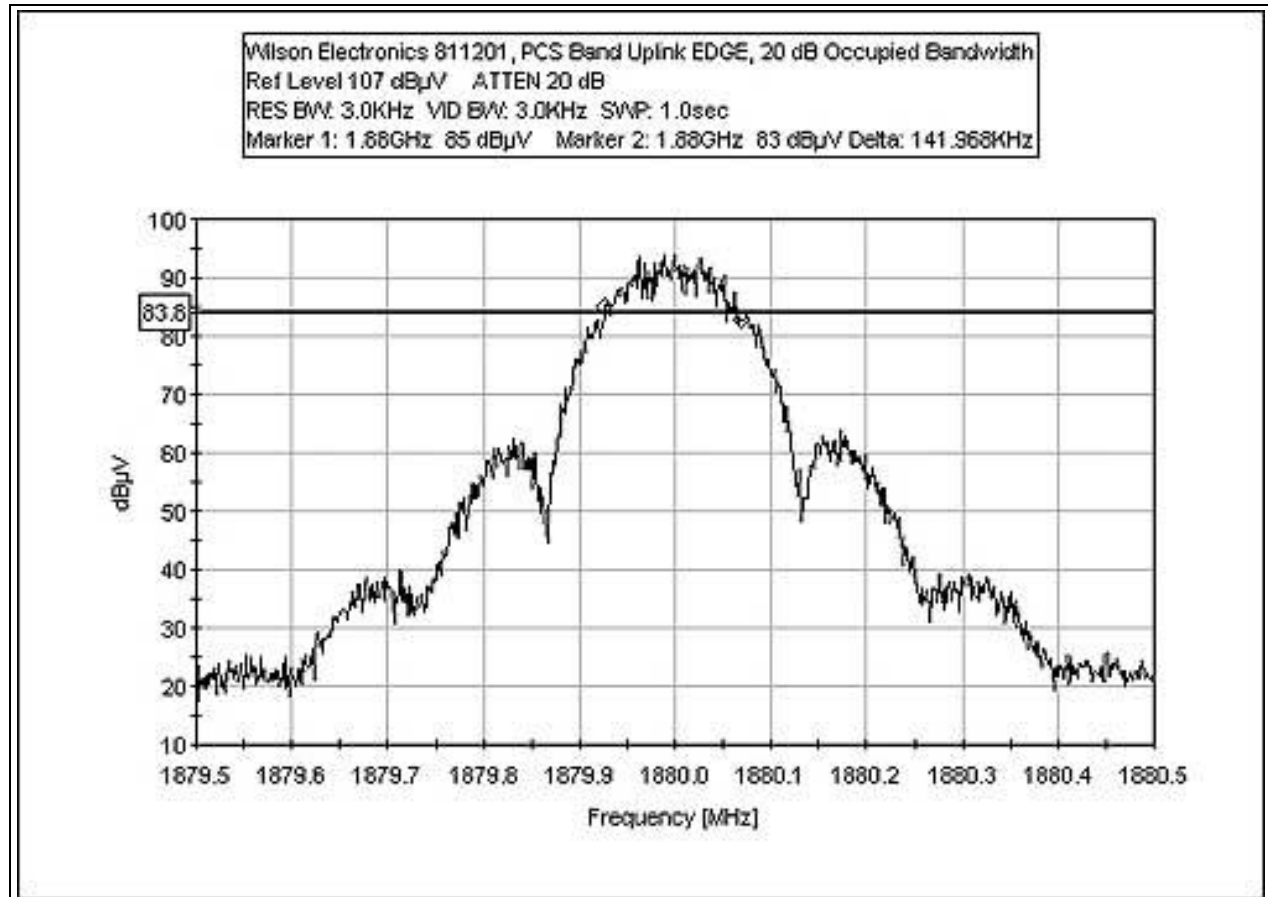
FCC 2.1049 Downlink 20dB Occupied Bandwidth PCS Band GSM



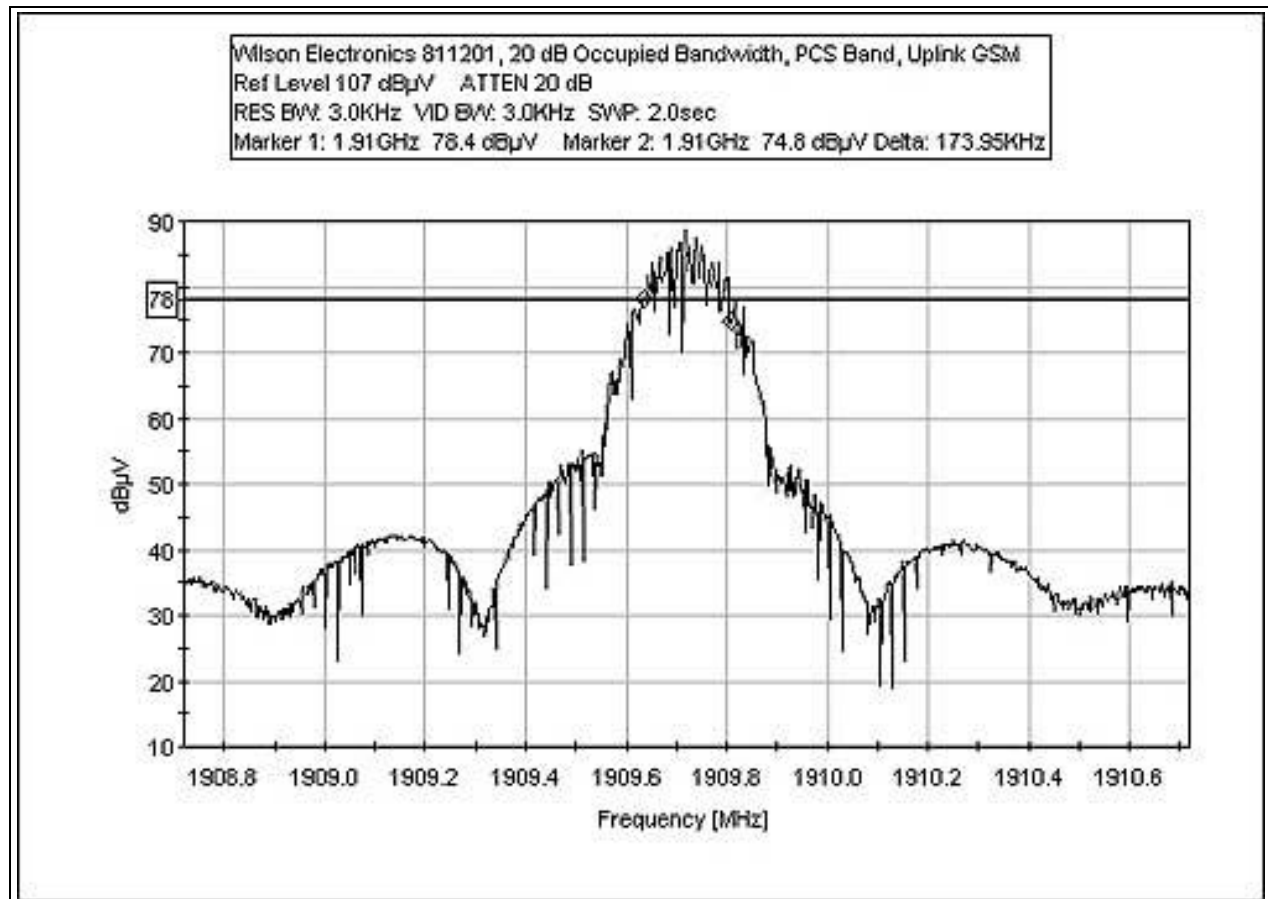
FCC 2.1049 Uplink 20dB Occupied Bandwidth PCS Band CDMA



FCC 2.1049 Uplink 20dB Occupied Bandwidth PCS Band EDGE



FCC 2.1049 Uplink 20dB Occupied Bandwidth PCS Band GSM



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

FCC 2.1033(c)(14)/2.1051/24.238 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **81936** Date: 03/09/2004
 Test Type: **Antenna Terminals** Time: 10:50:09
 Equipment: **Dual Band Bidirectional Amplifier** Sequence#: 44
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 811201
 S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-	9724	05/08/2003	05/08/2005	P01577
MFN-30				

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output of 18.5 dBm is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink Low - 1931.25 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1931.245M	85.6	+30.3				+0.0	115.9	117.0	-1.1	None
									Fundamental		
2	3862.690M	34.8	+29.7				+0.0	64.5	94.0	-29.5	None

3	9655.775M	37.1	+24.2	+0.0	61.3	94.0	-32.7	None
4	7724.310M	33.4	+25.2	+0.0	58.6	94.0	-35.4	None
5	56.400M	26.8	+30.5	+0.0	57.3	94.0	-36.7	None
6	15451.970M	38.0	+17.4	+0.0	55.4	94.0	-38.6	None
7	13520.080M	37.8	+17.6	+0.0	55.4	94.0	-38.6	None
8	5793.350M	27.5	+27.8	+0.0	55.3	94.0	-38.7	None
9	11586.890M	33.4	+20.4	+0.0	53.8	94.0	-40.2	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 10:54:46

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 45

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output of 18.5 dBm is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink Mid - 1960 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1960.035M	88.7	+30.3				+0.0	119.0	117.0	+2.0	None
									Fundamental		
2	3920.030M	39.4	+29.6				+0.0	69.0	94.0	-25.0	None
3	19601.820M	46.4	+22.1				+0.0	68.5	94.0	-25.5	None

4	9799.845M	44.4	+23.7	+0.0	68.1	94.0	-25.9	None
5	17641.880M	39.7	+22.5	+0.0	62.2	94.0	-31.8	None
6	7837.671M	36.3	+24.9	+0.0	61.2	94.0	-32.8	None
7	11759.800M	40.1	+20.1	+0.0	60.2	94.0	-33.8	None
8	15678.570M	41.2	+18.2	+0.0	59.4	94.0	-34.6	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **81936** Date: 03/10/2004
 Test Type: **Antenna Terminals** Time: 12:21:38
 Equipment: **Dual Band Bidirectional Amplifier** Sequence#: 46
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 811201 S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990 MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink Mid - 1988.75 MHz. Frequency Range Investigated: 30 MHz to 20 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by order taken.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	88754.000M	87.7	+30.3				+0.0	118.0	117.0	+1.0	None
									Fundamental		
2	3977.502M	51.4	+29.6				+0.0	81.0	94.0	-13.0	None
3	5966.254M	36.9	+27.8				+0.0	64.7	94.0	-29.3	None
4	7955.033M	38.0	+24.5				+0.0	62.5	94.0	-31.5	None
5	11932.510M	44.4	+19.9				+0.0	64.3	94.0	-29.7	None
6	13921.250M	41.1	+17.1				+0.0	58.2	94.0	-35.8	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 16:50:23

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 62

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink Low - 1930.28 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1930.355M	85.6	+30.3				+0.0	115.9	117.0	-1.1	None
									Fundamental		
2	3860.606M	26.3	+29.7				+0.0	56.0	94.0	-38.0	None
3	9651.321M	30.7	+24.2				+0.0	54.9	94.0	-39.1	None

4	17372.420M	32.0	+22.6	+0.0	54.6	94.0	-39.4	None
5	7720.522M	28.2	+25.2	+0.0	53.4	94.0	-40.6	None
6	5789.889M	24.8	+27.8	+0.0	52.6	94.0	-41.4	None
7	11581.680M	30.0	+20.4	+0.0	50.4	94.0	-43.6	None
8	15442.210M	32.0	+17.4	+0.0	49.4	94.0	-44.6	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/12/2004

Test Type: **Antenna Terminals**

Time: 07:23:15

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 63

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink Mid- 1960 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1960.020M	87.3	+30.3				+0.0	117.6	117.0	+0.6	None
									Fundamental		
2	3920.080M	38.3	+29.6				+0.0	67.9	94.0	-26.1	None
3	5879.460M	37.2	+27.8				+0.0	65.0	94.0	-29.0	None
4	9799.860M	38.7	+23.7				+0.0	62.4	94.0	-31.6	None

5	17640.240M	39.4	+22.5	+0.0	61.9	94.0	-32.1	None
6	13719.840M	42.8	+17.4	+0.0	60.2	94.0	-33.8	None
7	7844.000M	35.2	+24.9	+0.0	60.1	94.0	-33.9	None
8	15683.580M	40.9	+18.3	+0.0	59.2	94.0	-34.8	None
9	11760.100M	37.5	+20.1	+0.0	57.6	94.0	-36.4	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/12/2004

Test Type: **Antenna Terminals**

Time: 07:26:31

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 64

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE Frequencies Tested: Downlink High 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.680M	87.9	+30.3				+0.0	118.2	117.0	+1.2	None
									Fundamental		
2	3979.400M	37.1	+29.6				+0.0	66.7	94.0	-27.3	None
3	5969.120M	34.5	+27.8				+0.0	62.3	94.0	-31.7	None

4	17906.100M	38.8	+22.5	+0.0	61.3	94.0	-32.7	None
5	9948.699M	37.4	+23.2	+0.0	60.6	94.0	-33.4	None
6	7959.020M	35.6	+24.5	+0.0	60.1	94.0	-33.9	None
7	15917.360M	40.4	+19.1	+0.0	59.5	94.0	-34.5	None
8	13923.080M	40.1	+17.1	+0.0	57.2	94.0	-36.8	None
9	11938.020M	36.0	+19.9	+0.0	55.9	94.0	-38.1	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **81936** Date: 03/10/2004
 Test Type: **Antenna Terminals** Time: 11:41:46
 Equipment: **Dual Band Bidirectional Amplifier** Sequence#: 50
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 811201
 S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink Low - 1930.28 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1930.272M	86.7	+30.3				+0.0	117.0	117.0	+0.0	None
									Fundamental		
2	3860.552M	50.9	+29.7				+0.0	80.6	94.0	-13.4	None
3	9651.524M	52.0	+24.2				+0.0	76.2	94.0	-17.8	None

4	11581.560M	54.0	+20.4	+0.0	74.4	94.0	-19.6	None
5	19303.400M	45.1	+22.2	+0.0	67.3	94.0	-26.7	None
6	17373.680M	40.0	+22.6	+0.0	62.6	94.0	-31.4	None
7	7720.920M	37.0	+25.2	+0.0	62.2	94.0	-31.8	None
8	15442.180M	41.6	+17.4	+0.0	59.0	94.0	-35.0	None
9	13512.400M	40.6	+17.7	+0.0	58.3	94.0	-35.7	None
10	5788.490M	30.4	+27.8	+0.0	58.2	94.0	-35.8	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/10/2004

Test Type: **Antenna Terminals**

Time: 11:48:09

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 51

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink Mid - 1960 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1960.025M	89.2	+30.3				+0.0	119.5	117.0	+2.5	None
									Fundamental		
2	3920.020M	47.2	+29.6				+0.0	76.8	94.0	-17.2	None
3	9799.790M	50.9	+23.7				+0.0	74.6	94.0	-19.4	None
4	11759.920M	50.4	+20.1				+0.0	70.5	94.0	-23.5	None

5	5882.207M	37.3	+27.8	+0.0	65.1	94.0	-28.9	None
6	17639.650M	40.8	+22.5	+0.0	63.3	94.0	-30.7	None
7	15680.500M	43.0	+18.2	+0.0	61.2	94.0	-32.8	None
8	13719.970M	42.2	+17.4	+0.0	59.6	94.0	-34.4	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/10/2004

Test Type: **Antenna Terminals**

Time: 12:21:38

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 52

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink Mid - 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.710M	87.7	+30.3				+0.0	118.0	117.0	+1.0	None
									Fundamental		
2	3979.390M	51.4	+29.6				+0.0	81.0	94.0	-13.0	None
3	15917.930M	47.4	+19.1				+0.0	66.5	94.0	-27.5	None
4	17907.520M	43.2	+22.5				+0.0	65.7	94.0	-28.3	None

5	5966.693M	36.9	+27.8	+0.0	64.7	94.0	-29.3	None
6	11937.900M	44.4	+19.9	+0.0	64.3	94.0	-29.7	None
7	7958.590M	38.0	+24.5	+0.0	62.5	94.0	-31.5	None
8	3950.639M	30.0	+29.6	+0.0	59.6	94.0	-34.4	None
9	13926.300M	41.1	+17.1	+0.0	58.2	94.0	-35.8	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/08/2004

Test Type: **Antenna Terminals**

Time: 16:55:42

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 41

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output of 18.5 dBm is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Uplink Low - 1851.25 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1851.230M	103.9	+30.3				+0.0	134.2	140.0	-5.8	None
									Fundamental		
2	9255.210M	47.8	+24.9				+0.0	72.7	94.0	-21.3	None
3	16660.290M	47.6	+21.6				+0.0	69.2	94.0	-24.8	None
4	7406.540M	42.7	+26.1				+0.0	68.8	94.0	-25.2	None

5	5555.290M	40.7	+27.9	+0.0	68.6	94.0	-25.4	None
6	3702.480M	37.7	+29.7	+0.0	67.4	94.0	-26.6	None
7	14809.040M	51.0	+16.0	+0.0	67.0	94.0	-27.0	None
8	11099.000M	45.9	+21.1	+0.0	67.0	94.0	-27.0	None
9	12962.030M	48.0	+18.4	+0.0	66.4	94.0	-27.6	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 08:24:31

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 42

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output of 18.5 dBm is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Uplink Mid - 1880 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1880.020M	103.5	+30.3				+0.0	133.8	140.0	-6.2	None
									Fundamental		
2	822.600M	32.1	+30.4				+0.0	62.5	94.0	-31.5	None
3	9404.760M	35.3	+24.8				+0.0	60.1	94.0	-33.9	None
4	7520.020M	33.4	+25.8				+0.0	59.2	94.0	-34.8	None

5	13159.300M	39.4	+18.1	+0.0	57.5	94.0	-36.5	None
6	16916.080M	35.0	+22.4	+0.0	57.4	94.0	-36.6	None
7	3760.020M	27.7	+29.7	+0.0	57.4	94.0	-36.6	None
8	15036.080M	40.2	+15.9	+0.0	56.1	94.0	-37.9	None
9	11275.500M	35.1	+20.9	+0.0	56.0	94.0	-38.0	None
10	5640.020M	27.7	+27.9	+0.0	55.6	94.0	-38.4	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 08:31:50

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 43

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output of 18.5 dBm is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Uplink High - 1908.75 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1908.790M	98.8	+30.3				+0.0	129.1	140.0	-10.9	None
									Fundamental		
2	19087.900M	44.9	+22.2				+0.0	67.1	94.0	-26.9	None
3	17186.550M	38.8	+22.7				+0.0	61.5	94.0	-32.5	None
4	7630.520M	35.3	+25.5				+0.0	60.8	94.0	-33.2	None

5	9537.030M	35.3	+24.6	+0.0	59.9	94.0	-34.1	None
6	179.600M	29.1	+30.4	+0.0	59.5	94.0	-34.5	None
7	3813.660M	29.3	+29.7	+0.0	59.0	94.0	-35.0	None
8	15260.880M	39.7	+16.8	+0.0	56.5	94.0	-37.5	None
9	11444.140M	35.3	+20.6	+0.0	55.9	94.0	-38.1	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 13:58:52

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 59

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink Low - 1850.28 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1850.358M	104.2	+30.3				+0.0	134.5	140.0	-5.5	None
									Fundamental		
2	7400.996M	29.0	+26.1				+0.0	55.1	94.0	-38.9	None
3	3700.260M	25.3	+29.7				+0.0	55.0	94.0	-39.0	None
4	18502.630M	32.2	+22.3				+0.0	54.5	94.0	-39.5	None

5	16651.770M	32.7	+21.6	+0.0	54.3	94.0	-39.7	None
6	12952.680M	32.6	+18.4	+0.0	51.0	94.0	-43.0	None
7	11101.420M	28.4	+21.1	+0.0	49.5	94.0	-44.5	None
8	14802.290M	32.1	+16.0	+0.0	48.1	94.0	-45.9	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 14:04:53

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 60

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink Mid - 1880 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1880.076M	103.8	+30.3				+0.0	134.1	140.0	-5.9	None
									Fundamental		
2	18799.830M	36.7	+22.3				+0.0	59.0	94.0	-35.0	None
3	16920.510M	32.8	+22.4				+0.0	55.2	94.0	-38.8	None
4	7519.262M	28.9	+25.8				+0.0	54.7	94.0	-39.3	None

5	3760.215M	24.5	+29.7	+0.0	54.2	94.0	-39.8	None
6	9399.102M	28.6	+24.8	+0.0	53.4	94.0	-40.6	None
7	5640.843M	25.0	+27.9	+0.0	52.9	94.0	-41.1	None
8	11280.950M	29.5	+20.9	+0.0	50.4	94.0	-43.6	None
9	13160.750M	31.7	+18.1	+0.0	49.8	94.0	-44.2	None
10	15039.420M	32.4	+15.9	+0.0	48.3	94.0	-45.7	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **81936** Date: 03/11/2004
 Test Type: **Antenna Terminals** Time: 10:39:28
 Equipment: **Dual Band Bidirectional Amplifier** Sequence#: 61
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 811201 S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes: EUT is a bidirectional amplifier for the 1850 to 1990 MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE Frequencies Tested: Uplink High - 1909.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by frequency. Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1909.786M	98.7	+30.3				+0.0	129.0	140.0	-11.0	None
									Fundamental		
2	1910.150M	35.9	+30.3				+0.0	66.2	94.0	-27.8	None
3	3820.275M	33.2	+29.7				+0.0	62.9	94.0	-31.1	None
4	5729.189M	34.4	+27.9				+0.0	62.3	94.0	-31.7	None
5	7638.985M	37.7	+25.5				+0.0	63.2	94.0	-30.8	None
6	9547.892M	38.2	+24.5				+0.0	62.7	94.0	-31.3	None
7	11457.340M	38.0	+20.6				+0.0	58.6	94.0	-35.4	None
8	15278.110M	43.4	+16.8				+0.0	60.2	94.0	-33.8	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 10:29:43

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 56

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink Low - 1850.28 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1850.280M	104.0	+30.3				+0.0	134.3	140.0	-5.7	None
									Fundamental		
2	7401.220M	38.1	+26.1				+0.0	64.2	94.0	-29.8	None
3	9251.536M	38.4	+24.9				+0.0	63.3	94.0	-30.7	None
4	3700.700M	32.6	+29.7				+0.0	62.3	94.0	-31.7	None

5	5549.860M	33.9	+27.9	+0.0	61.8	94.0	-32.2	None
6	12951.230M	42.0	+18.4	+0.0	60.4	94.0	-33.6	None
7	11100.730M	37.9	+21.1	+0.0	59.0	94.0	-35.0	None
8	14802.540M	42.1	+16.0	+0.0	58.1	94.0	-35.9	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 10:34:14

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 57

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink Mid - 1880 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1880.072M	104.0	+30.3				+0.0	134.3	140.0	-5.7	None
									Fundamental		
2	16920.420M	42.4	+22.4				+0.0	64.8	94.0	-29.2	None
3	3760.994M	34.1	+29.7				+0.0	63.8	94.0	-30.2	None
4	9400.314M	38.6	+24.8				+0.0	63.4	94.0	-30.6	None

5	5639.629M	34.2	+27.9	+0.0	62.1	94.0	-31.9	None
6	7520.371M	34.1	+25.8	+0.0	59.9	94.0	-34.1	None
7	13160.170M	41.7	+18.1	+0.0	59.8	94.0	-34.2	None
8	11279.570M	38.1	+20.9	+0.0	59.0	94.0	-35.0	None
9	15039.300M	41.6	+15.9	+0.0	57.5	94.0	-36.5	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Uplink**

Work Order #: **81936**

Date: 03/11/2004

Test Type: **Antenna Terminals**

Time: 10:39:28

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 58

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Preamp Driver	Wilson Electronics	Prototype	N/A

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink High - 1909.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1909.786M	98.7	+30.3				+0.0	129.0	140.0	-11.0	None
									Fundamental		
2	19096.550M	45.9	+22.2				+0.0	68.1	94.0	-25.9	None
3	17187.800M	41.8	+22.7				+0.0	64.5	94.0	-29.5	None
4	3820.300M	33.7	+29.7				+0.0	63.4	94.0	-30.6	None

5	7638.985M	37.7	+25.5	+0.0	63.2	94.0	-30.8	None
6	9547.892M	38.2	+24.5	+0.0	62.7	94.0	-31.3	None
7	5729.114M	33.9	+27.9	+0.0	61.8	94.0	-32.2	None
8	15278.110M	43.4	+16.8	+0.0	60.2	94.0	-33.8	None
9	11457.340M	38.0	+20.6	+0.0	58.6	94.0	-35.4	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 12:29:46

Equipment: **Bidirectional Amplifier Repeater**

Sequence#: 47

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 801101

S/N: AV3-009920

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	801101	AV3-009920
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink 1931.25 MHz 1933.75 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1933.760M	61.0	+30.3				+0.0	91.3	117.0	-25.7	None
									Fundamental		
2	1931.270M	59.4	+30.3				+0.0	89.7	117.0	-27.3	None
									Fundamental		
3	5842.520M	21.2	+27.8				+0.0	49.0	94.0	-45.0	None
4	7802.240M	21.2	+25.0				+0.0	46.2	94.0	-47.8	None

5	1929.430M	14.7	+30.3	+0.0	45.0	94.0	-49.0	None
6	3895.760M	15.2	+29.6	+0.0	44.8	94.0	-49.2	None
7	1930.460M	14.2	+30.3	+0.0	44.5	117.0	-72.5	None
8	11728.320M	20.8	+0.0	+0.0	20.8	94.0	-73.2	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 12:42:11

Equipment: **Bidirectional Amplifier Repeater**

Sequence#: 48

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 801101

S/N: AV3-009920

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	801101	AV3-009920
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink 1931.25 MHz 1988.75 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.400M	61.3	+30.3				+0.0	91.6	117.0	-25.4	None
									Fundamental		
2	1931.500M	60.6	+30.3				+0.0	90.9	117.0	-26.1	None
									Fundamental		
3	5967.280M	21.1	+27.8				+0.0	48.9	94.0	-45.1	None
4	5961.510M	20.8	+27.8				+0.0	48.6	94.0	-45.4	None

5	5966.310M	20.8	+27.8	+0.0	48.6	94.0	-45.4	None
6	1990.220M	15.2	+30.3	+0.0	45.5	94.0	-48.5	None
7	1990.370M	14.2	+30.3	+0.0	44.5	94.0	-49.5	None
8	9941.529M	20.9	+23.2	+0.0	44.1	94.0	-49.9	None
9	3977.840M	14.2	+29.6	+0.0	43.8	94.0	-50.2	None
10	1991.000M	13.4	+30.3	+0.0	43.7	94.0	-50.3	None
11	1929.410M	13.2	+30.3	+0.0	43.5	94.0	-50.5	None
12	1989.810M	22.9	+30.3	+0.0	53.2	117.0	-63.8	None
13	1989.870M	19.4	+30.3	+0.0	49.7	117.0	-67.3	None
14	1930.190M	17.6	+30.3	+0.0	47.9	117.0	-69.1	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81936**

Date: 03/09/2004

Test Type: **Antenna Terminals**

Time: 13:02:29

Equipment: **Bidirectional Amplifier Repeater**

Sequence#: 49

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 801101

S/N: AV3-009920

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	801101	AV3-009920
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink 186.25MHz 198.75 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1988.760M	66.1	+30.3				+0.0	96.4	117.0	-20.6	None
									Fundamental		
2	1986.250M	62.3	+30.3				+0.0	92.6	117.0	-24.4	None
									Fundamental		
3	1991.550M	23.3	+30.3				+0.0	53.6	94.0	-40.4	None
4	5963.150M	20.7	+27.8				+0.0	48.5	94.0	-45.5	None

5	3975.220M	16.3	+29.6	+0.0	45.9	94.0	-48.1	None
6	7950.580M	20.0	+24.5	+0.0	44.5	94.0	-49.5	None
7	9945.369M	20.0	+23.2	+0.0	43.2	94.0	-50.8	None
8	1989.910M	21.7	+30.3	+0.0	52.0	117.0	-65.0	None
9	11936.300M	20.8	+0.0	+0.0	20.8	94.0	-73.2	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81935**

Date: 03/12/2004

Test Type: **Antenna Terminals**

Time: 07:41:56

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 65

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink 1930.28 MHz 1931.12 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1930.310M	74.6	+30.3				+0.0	104.9	117.0	-12.1	None
									Fundamental		
2	1931.150M	73.7	+30.3				+0.0	104.0	117.0	-13.0	None
									Fundamental		
3	1929.500M	32.9	+30.3				+0.0	63.2	94.0	-30.8	None

4	1928.650M	18.4	+30.3	+0.0	48.7	94.0	-45.3	None
5	3858.500M	16.2	+29.7	+0.0	45.9	94.0	-48.1	None
6	3861.430M	16.2	+29.7	+0.0	45.9	94.0	-48.1	None
7	3861.430M	15.1	+29.7	+0.0	44.8	94.0	-49.2	None
8	1928.030M	14.4	+30.3	+0.0	44.7	94.0	-49.3	None
9	5788.200M	16.0	+27.8	+0.0	43.8	94.0	-50.2	None
10	5785.730M	15.2	+27.8	+0.0	43.0	94.0	-51.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81935**

Date: 03/12/2004

Test Type: **Antenna Terminals**

Time: 07:42:11

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 66

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink 1988.88 MHz 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz. **No readings were found within 20 dB of the limit.**

Transducer Legend:

--

Measurement Data:

Reading listed by margin.

Test Distance: None

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

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81935**

Date: 03/12/2004

Test Type: **Antenna Terminals**

Time: 07:57:53

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 67

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink 1930.28 MHz 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.900M	78.1	+30.3				+0.0	108.4	117.0	-8.6	None
									Fundamental		
2	1930.600M	73.9	+30.3				+0.0	104.2	117.0	-12.8	None
									Fundamental		
3	1993.200M	16.4	+30.3				+0.0	46.7	94.0	-47.3	None

4	1887.300M	16.0	+30.3	+0.0	46.3	94.0	-47.7	None
5	7719.505M	21.0	+25.2	+0.0	46.2	94.0	-47.8	None
6	2001.300M	15.9	+30.3	+0.0	46.2	94.0	-47.8	None
7	3946.900M	16.5	+29.6	+0.0	46.1	94.0	-47.9	None
8	1914.000M	15.7	+30.3	+0.0	46.0	94.0	-48.0	None
9	2019.700M	15.6	+30.3	+0.0	45.9	94.0	-48.1	None
10	1917.100M	15.6	+30.3	+0.0	45.9	94.0	-48.1	None
11	1924.900M	15.2	+30.3	+0.0	45.5	94.0	-48.5	None
12	3860.160M	15.0	+29.7	+0.0	44.7	94.0	-49.3	None
13	7929.900M	20.1	+24.6	+0.0	44.7	94.0	-49.3	None
14	5791.590M	15.2	+27.8	+0.0	43.0	94.0	-51.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **81935** Date: 03/10/2004
 Test Type: **Antenna Terminals** Time: 12:48:41
 Equipment: **Dual Band Bidirectional Amplifier** Sequence#: 53
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 811201
 S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink 1930.28 MHz 1931.12 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1930.340M	75.0	+30.3				+0.0	105.3	117.0	-11.7	None
									Fundamental		
2	1931.190M	72.8	+30.3				+0.0	103.1	117.0	-13.9	None
									Fundamental		
3	1929.994M	28.2	+30.3				+0.0	58.5	94.0	-35.5	None

4	7723.008M	20.8	+25.2	+0.0	46.0	94.0	-48.0	None
5	3861.378M	16.3	+29.7	+0.0	46.0	94.0	-48.0	None
6	1930.069M	38.4	+30.3	+0.0	68.7	117.0	-48.3	None
7	7720.624M	20.3	+25.2	+0.0	45.5	94.0	-48.5	None
8	1929.349M	15.1	+30.3	+0.0	45.4	94.0	-48.6	None
9	5792.528M	14.9	+27.8	+0.0	42.7	94.0	-51.3	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81935**

Date: 03/10/2004

Test Type: **Antenna Terminals**

Time: 12:56:43

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 54

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink 1988.88 MHz 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.700M	80.2	+30.3				+0.0	110.5	117.0	-6.5	None
									Fundamental		
2	1988.875M	78.7	+30.3				+0.0	109.0	117.0	-8.0	None
									Fundamental		
3	3979.330M	30.9	+29.6				+0.0	60.5	94.0	-33.5	None

4	3977.950M	29.3	+29.6	+0.0	58.9	94.0	-35.1	None
5	1989.924M	43.2	+30.3	+0.0	73.5	117.0	-43.5	None
6	5967.530M	21.4	+27.8	+0.0	49.2	94.0	-44.8	None
7	1990.094M	16.2	+30.3	+0.0	46.5	94.0	-47.5	None
8	7959.010M	19.9	+24.5	+0.0	44.4	94.0	-49.6	None
9	2018.730M	14.1	+30.3	+0.0	44.4	94.0	-49.6	None
10	1990.539M	13.6	+30.3	+0.0	43.9	94.0	-50.1	None
11	1989.999M	34.7	+30.3	+0.0	65.0	117.0	-52.0	None

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **24.238 Downlink**

Work Order #: **81935**

Date: 03/10/2004

Test Type: **Antenna Terminals**

Time: 13:06:18

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 55

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
Preamplifier	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink 1930.28 MHz 1989.72 MHz. Frequency Range Investigated: 30 MHz to 20 GHz. 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 20000MHz - RBW=VBW=100kHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

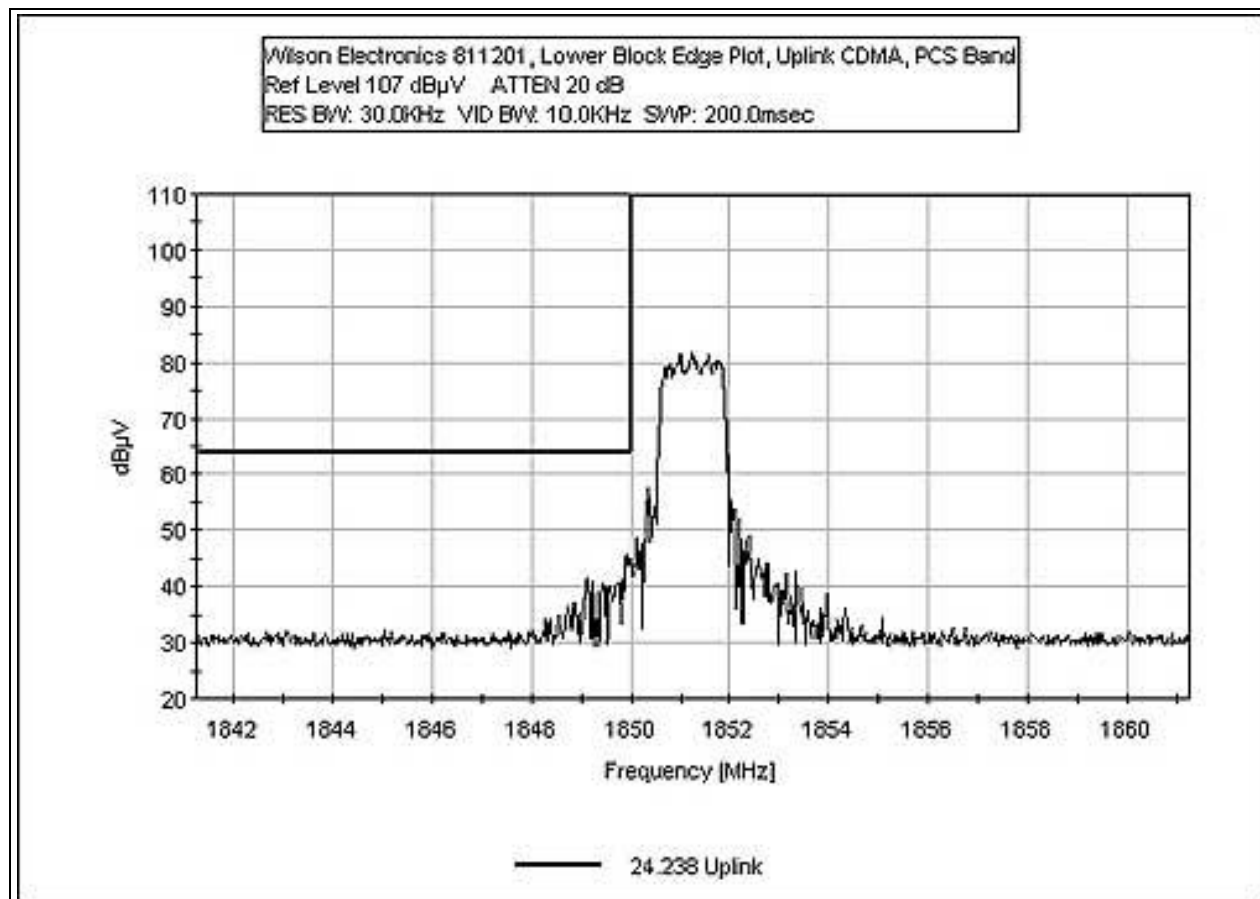
Reading listed by margin.

Test Distance: None

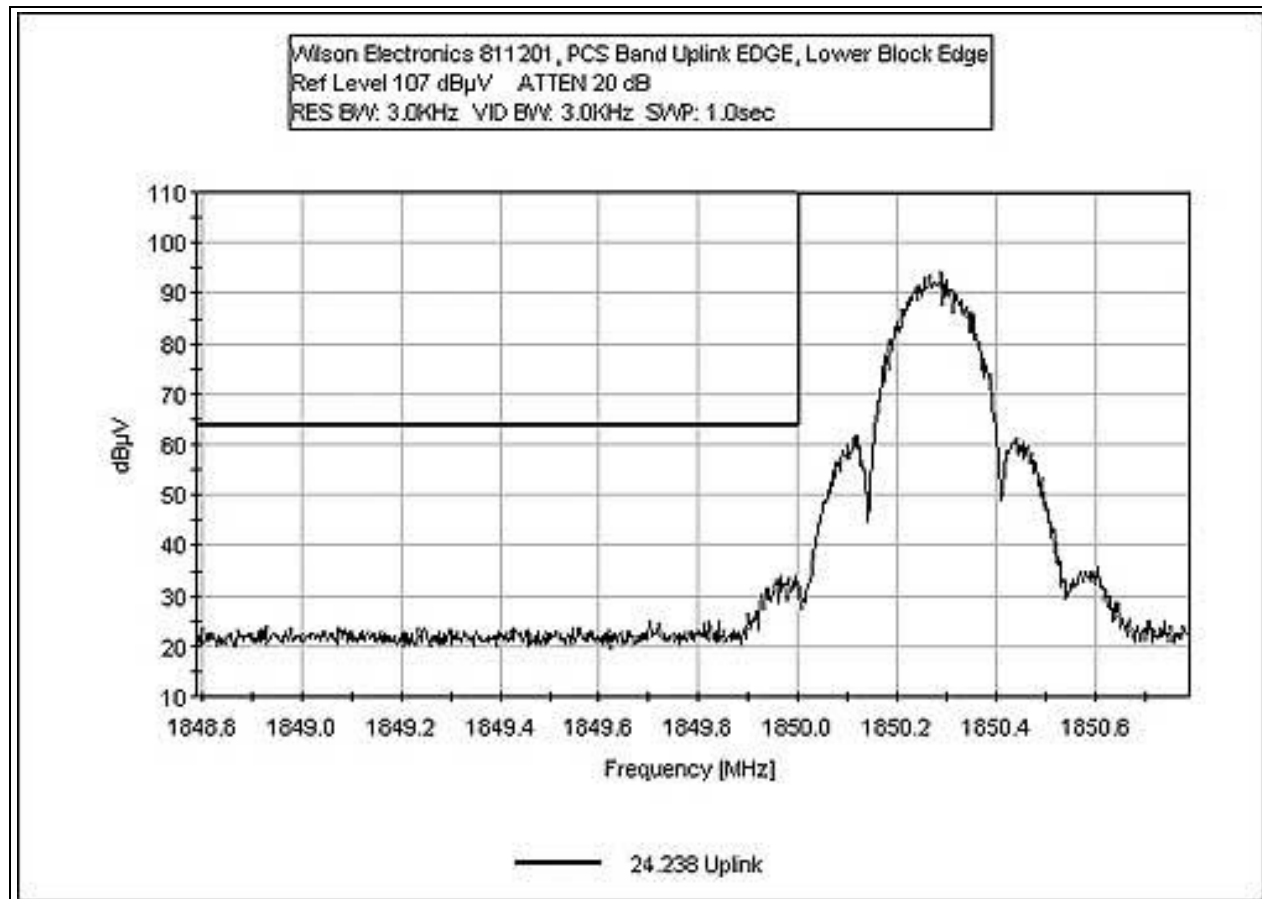
#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	1989.900M	74.6	+30.3				+0.0	104.9	117.0	-12.1	None
2	1930.600M	74.1	+30.3				+0.0	104.4	117.0	-12.6	None
3	1930.300M	51.3	+30.3				+0.0	81.6	117.0	-35.4	None

4	1990.300M	24.5	+30.3	+0.0	54.8	94.0	-39.2	None
5	3979.300M	21.2	+29.6	+0.0	50.8	94.0	-43.2	None
6	5966.770M	21.4	+27.8	+0.0	49.2	94.0	-44.8	None
7	3860.675M	15.9	+29.7	+0.0	45.6	94.0	-48.4	None
8	2002.600M	15.2	+30.3	+0.0	45.5	94.0	-48.5	None
9	2033.500M	14.0	+30.3	+0.0	44.3	94.0	-49.7	None
10	1896.900M	13.2	+30.3	+0.0	43.5	94.0	-50.5	None
11	1929.700M	12.8	+30.3	+0.0	43.1	94.0	-50.9	None
12	5790.955M	0.7	+27.8	+0.0	28.5	94.0	-65.5	None

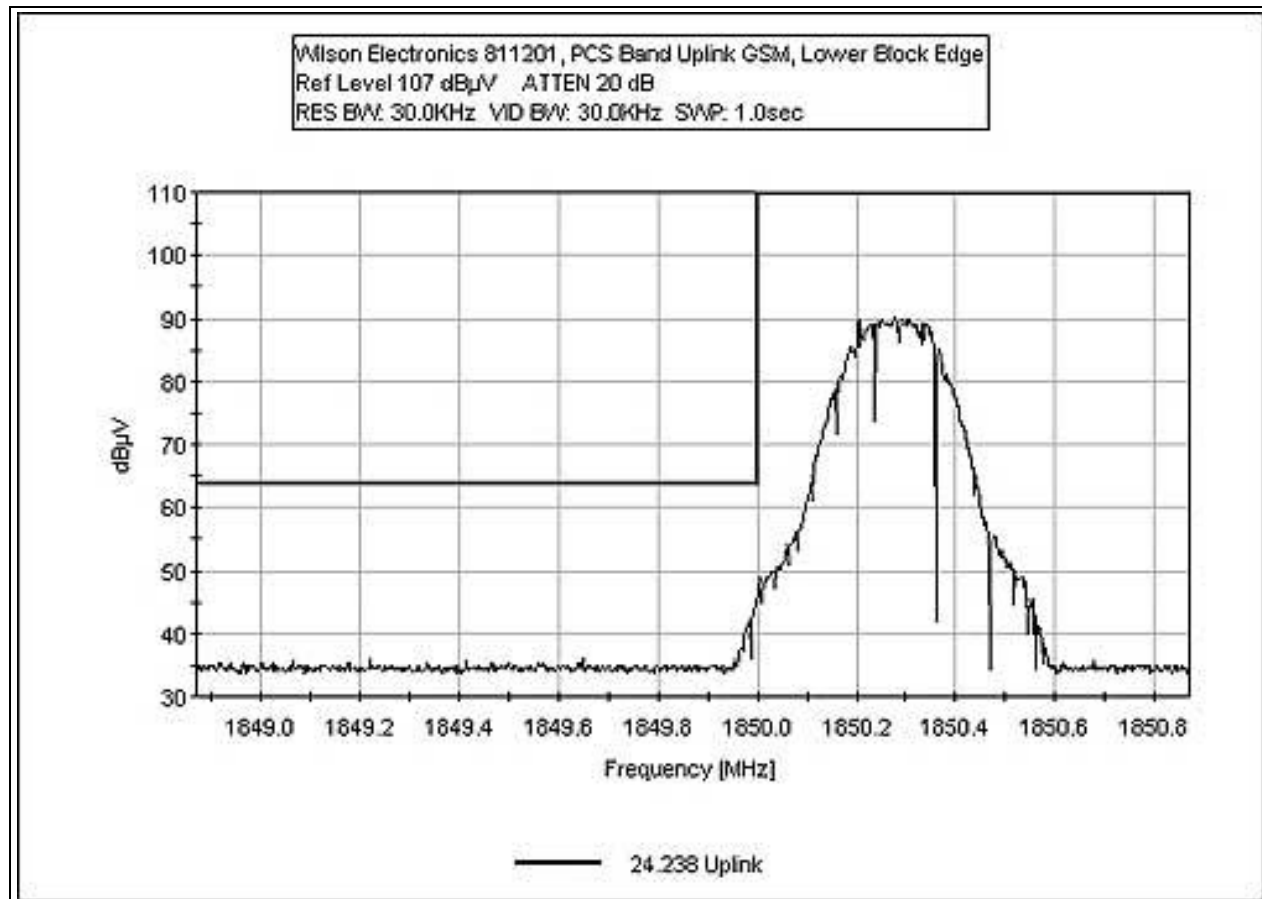
FCC 2.1051 Uplink Lower Block Edge PCS Band CDMA



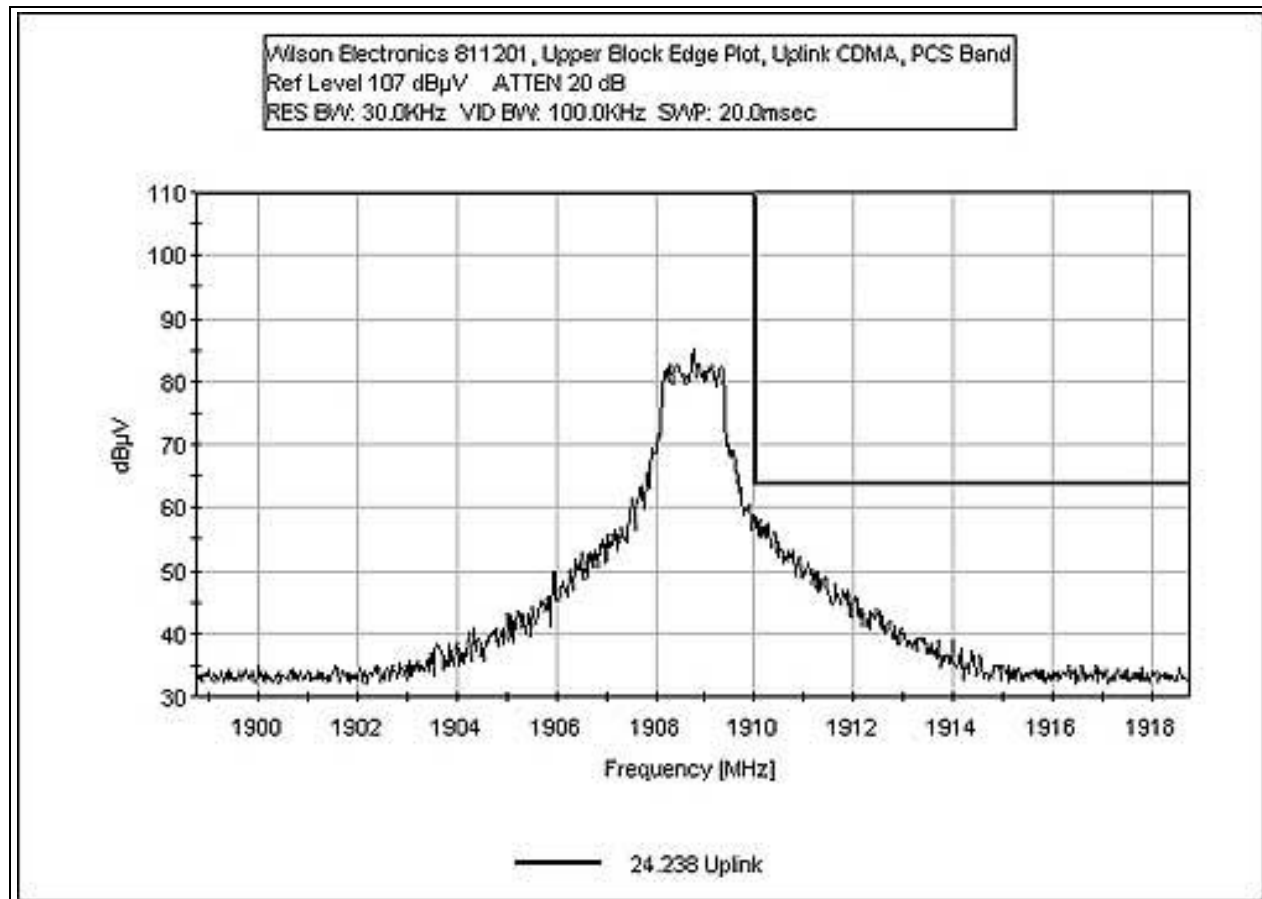
FCC 2.1051 Uplink Lower Block Edge PCS Band EDGE



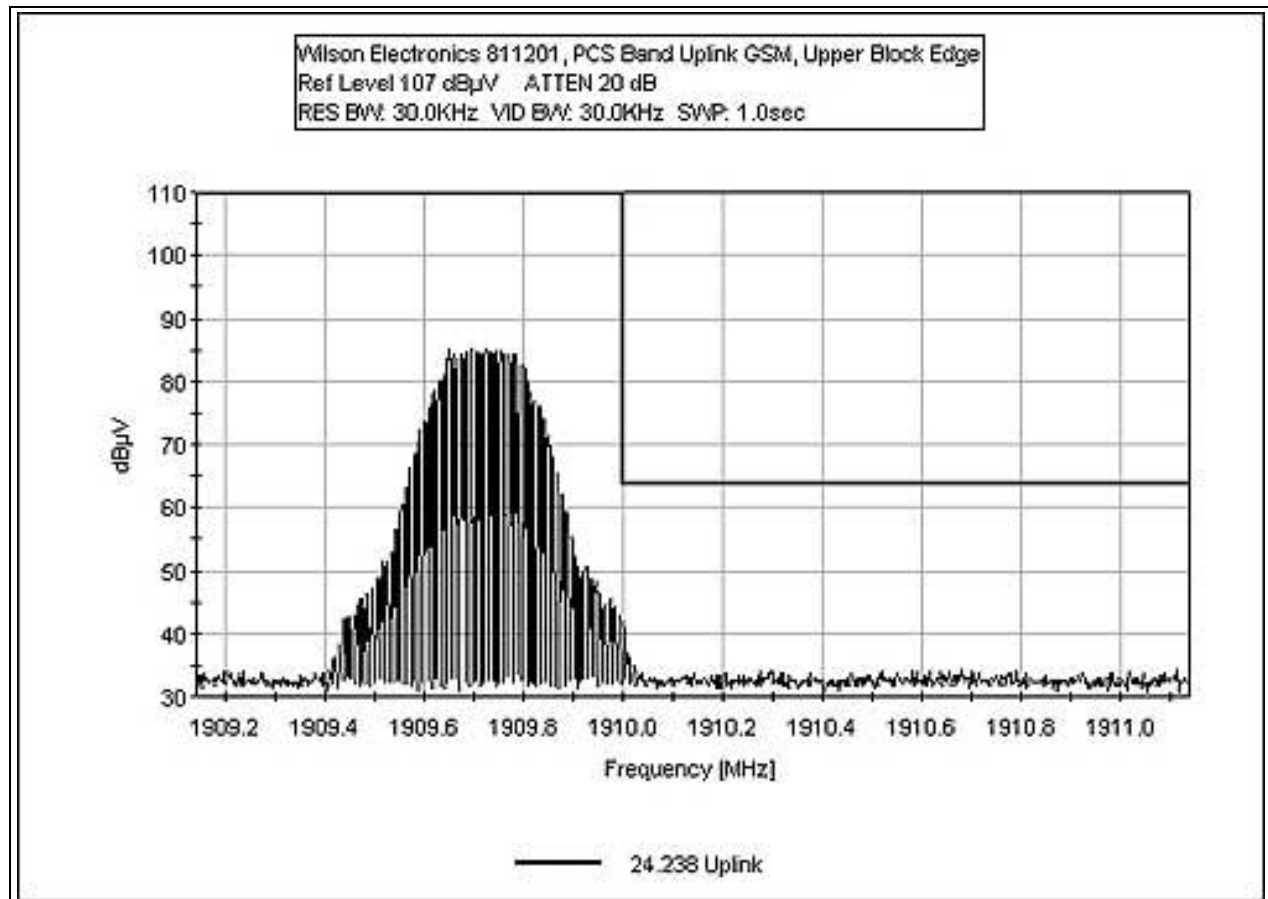
FCC 2.1051 Uplink Lower Block Edge PCS Band GSM



FCC 2.1051 Uplink Upper Block Edge PCS Band CDMA



FCC 2.1051 Uplink Upper Block Edge PCS Band GSM



FCC 2.1033(c)(14)/2.1053/24.238 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **FCC 22.917**

Work Order #: **81935**

Date: 03/12/2004

Test Type: **Maximized Emissions**

Time: 13:55:30

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 70

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
EMCO 3115 Horn Antenna	9006-3413	04/15/2003	04/25/2005	327
ARA MWH-1826/B Horn Antenna	1005	07/01/2003	07/01/2004	02046

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
RF Combiner	Motorola	None	P1314
Preamp	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Radiated Intermodulation /Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output per channel is provided at the antenna terminals. The internal ALC of the amplifier limits the combined maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Test setup is in accordance with TIA/EIA 603. Two input frequency configurations were investigated as follows, 1930.28 & 1931.12 MHz and then 1988.88 & 1989.72 MHz. Data represents measured worst case and represents all modulation types. Amplifier Gain: 10dB. Input Modulation: GSM. Frequencies Tested: Downlink. Frequency Range Investigated: 30 MHz to 20 GHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 10000 MHz - RBW=VBW=1MHz. **No EUT Emissions detected within 20dBc of the limit.**

Transducer Legend:

Measurement Data: Reading listed by margin.

Test Distance: 3 Meters

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

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **FCC 22.917**

Work Order #: **81935**

Date: 03/12/2004

Test Type: **Maximized Emissions**

Time: 14:23:10

Equipment: **Dual Band Bidirectional Amplifier**

Sequence#: 71

Manufacturer: Wilson Electronics

Tested By: Mike Wilkinson

Model: 811201

S/N: DD1-008900

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
EMCO 3115 Horn Antenna	9006-3413	04/15/2003	04/25/2005	327
ARA MWH-1826/B Horn Antenna	1005	07/01/2003	07/01/2004	02046

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Dual Band Bidirectional Amplifier*	Wilson Electronics	811201	DD1-008900

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
RF Combiner	Motorola	None	P1314
Preamp	Mini-Circuits	ZHL-42-SMA	D030204-#19

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Radiated Intermodulation /Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output per channel is provided at the antenna terminals. The internal ALC of the amplifier limits the combined maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Test setup is in accordance with TIA/EIA 603. Two input frequency configurations were investigated as follows, 1850.28 & 1851.12 MHz and then 1908.88 & 1989.72 MHz. Data represents measured worst case and represents all modulation types. Amplifier Gain: 10dB. Input Modulation: EDGE. Frequencies Tested: Uplink. Frequency Range Investigated: 30 MHz to 20 GHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 10000 MHz - RBW=VBW=1MHz. **No EUT Emissions detected within 20dBc of the limit**

Transducer Legend:

--

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

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

PHOTOGRAPH SHOWING RADIATED EMISSIONS

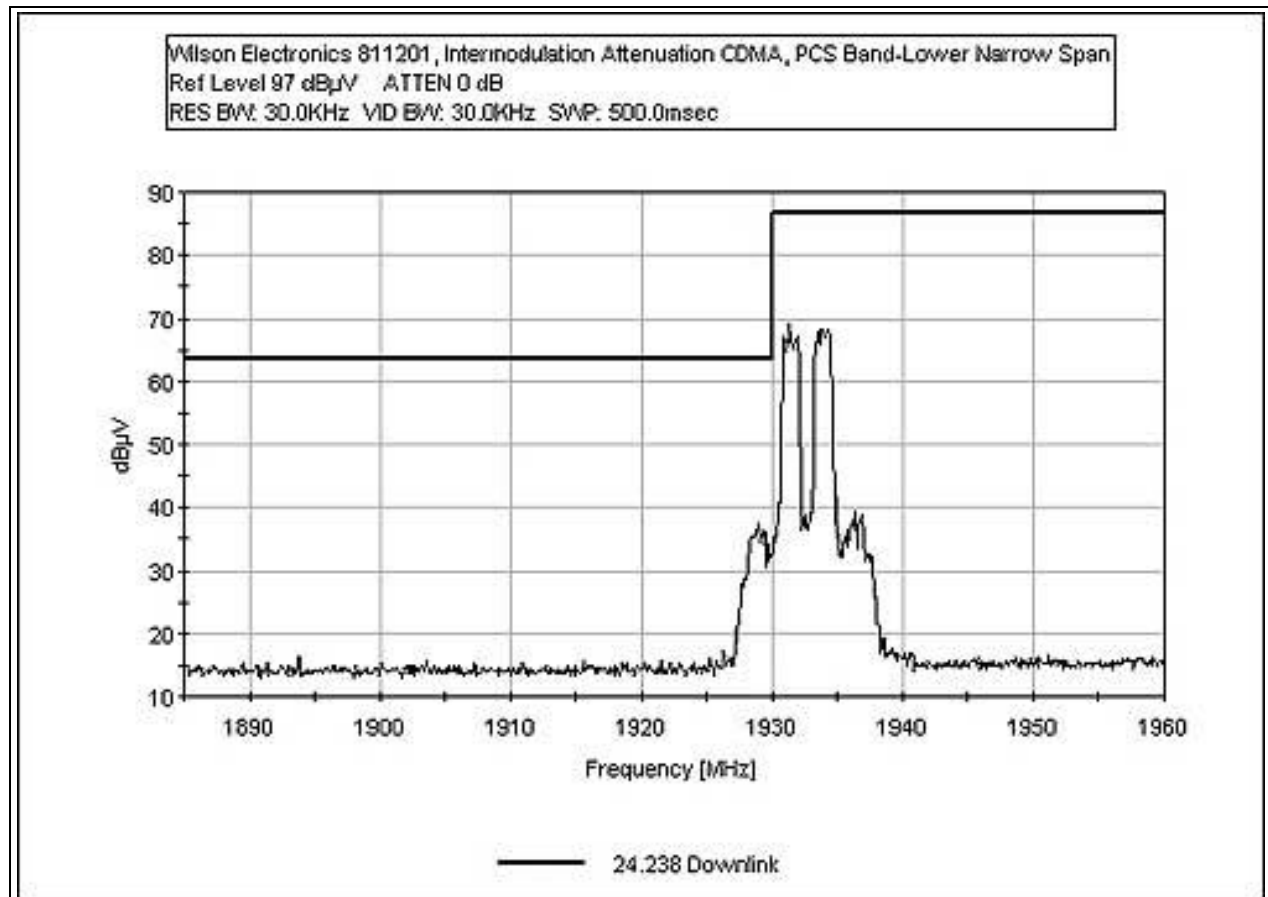


Radiated Emissions - Front View

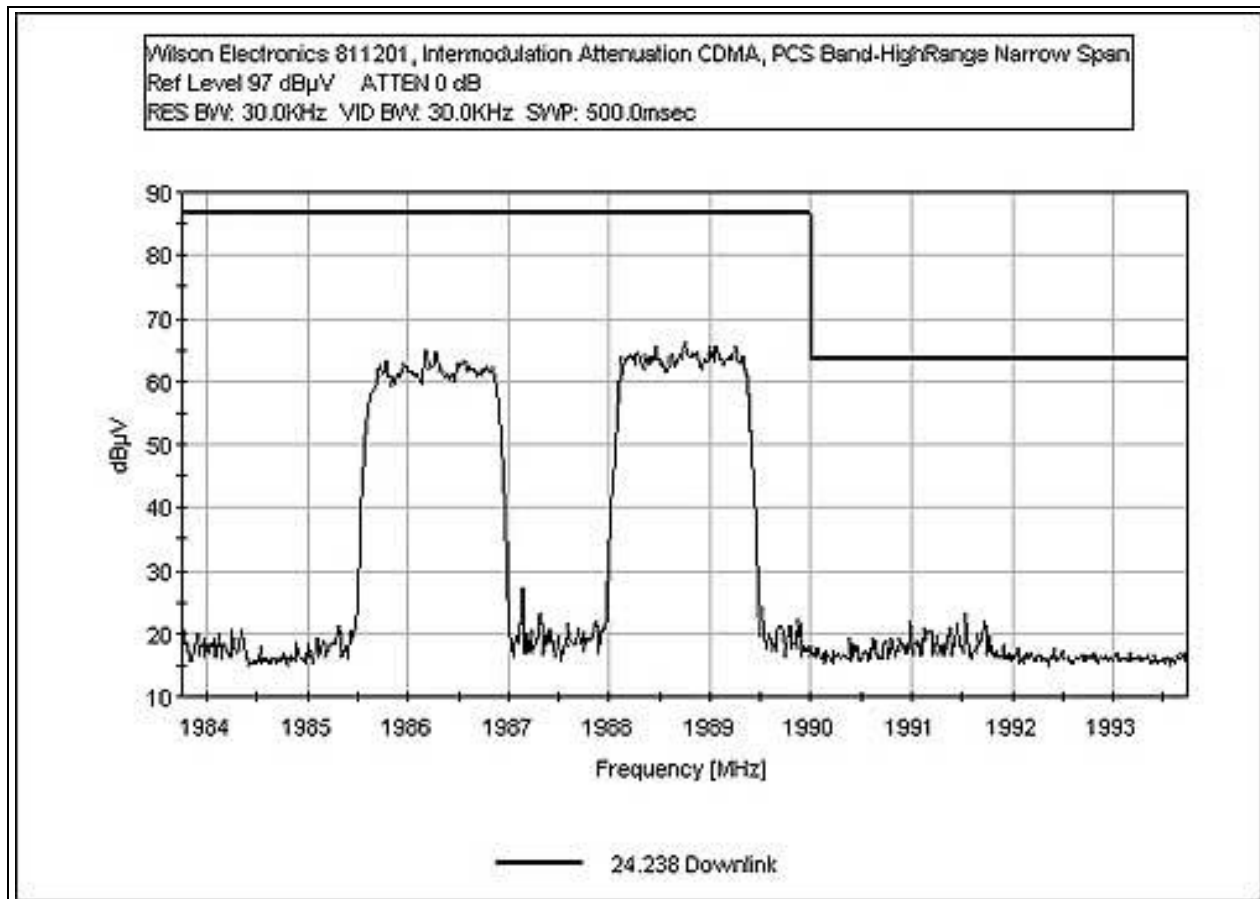


Radiated Emissions - Back View

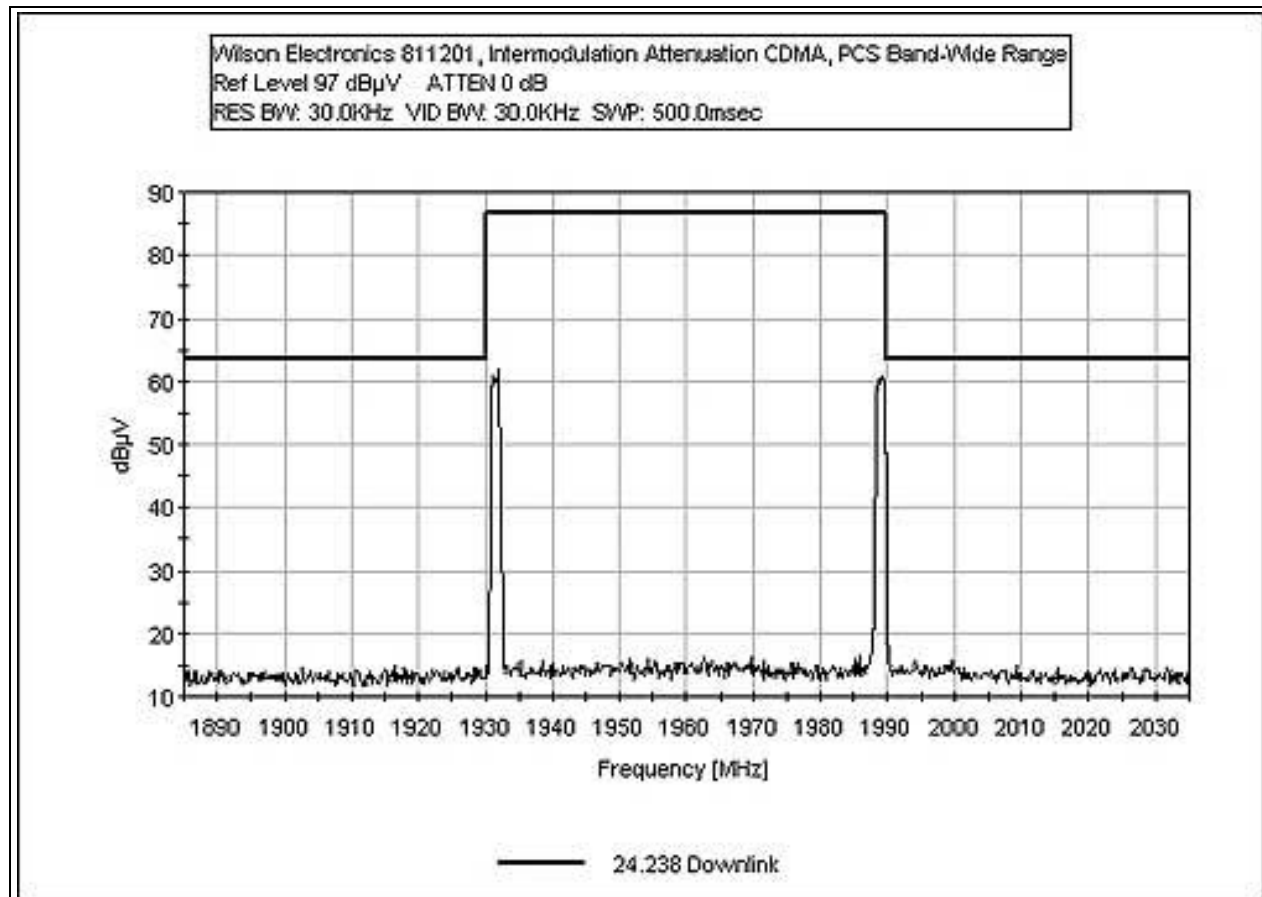
Intermodulation Attenuation Downlink PCS Band CDMA Lower Narrow Span



Intermodulation Attenuation Downlink PCS Band CDMA High Range Narrow Span

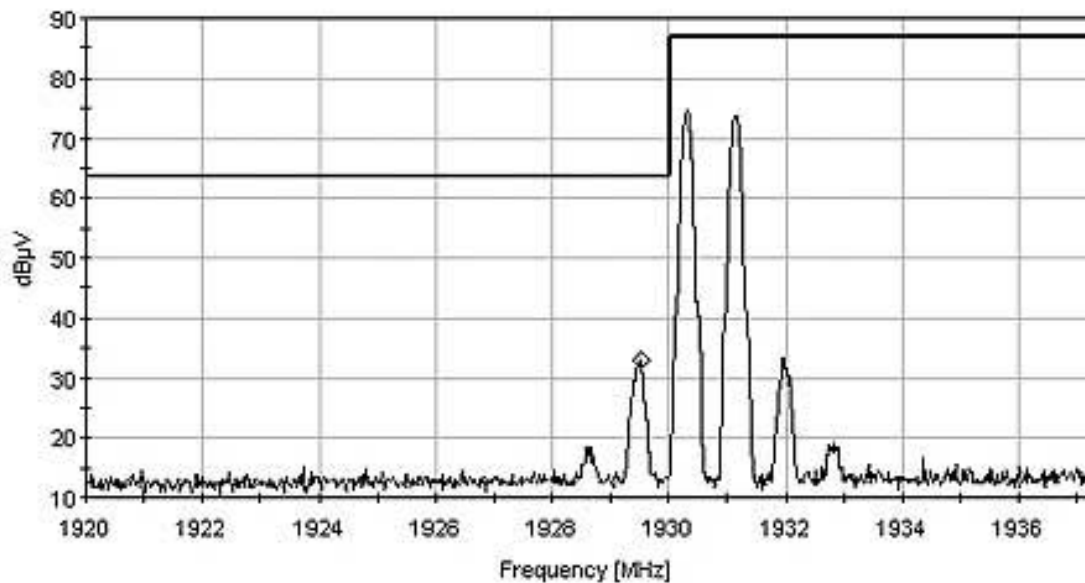


Intermodulation Attenuation Downlink PCS Band CDMA Wide Range



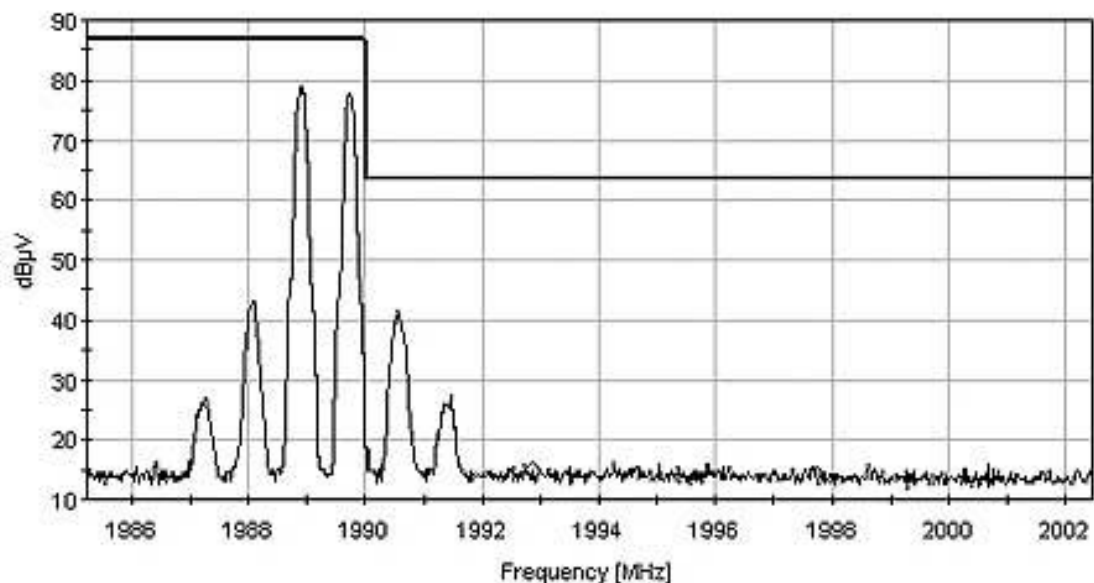
Intermodulation Attenuation Downlink PCS Band EDGE Low Range Narrow Span

Wilson Electronics 811201, Intermodulation Attenuation, PCS Band Downlink - EDGE- Low Range, Narrow Span
Ref Level 97 dB μ V ATTN 0 dB
RES BW: 30.0KHz VID BW: 30.0KHz SWP: 1.0sec
Marker: 1.93GHz 32.9dB μ V

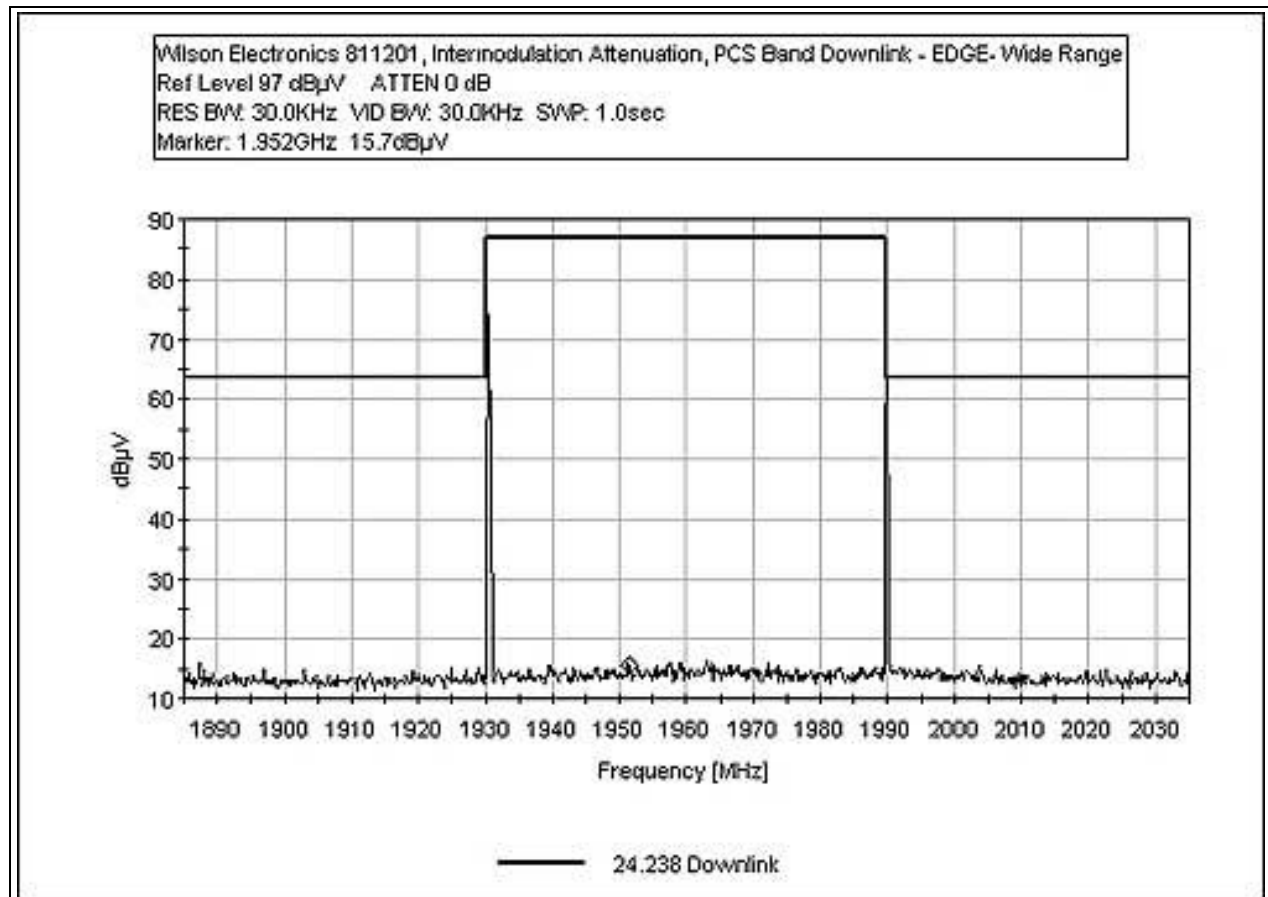


Intermodulation Attenuation Downlink PCS Band EDGE High Range Narrow Span

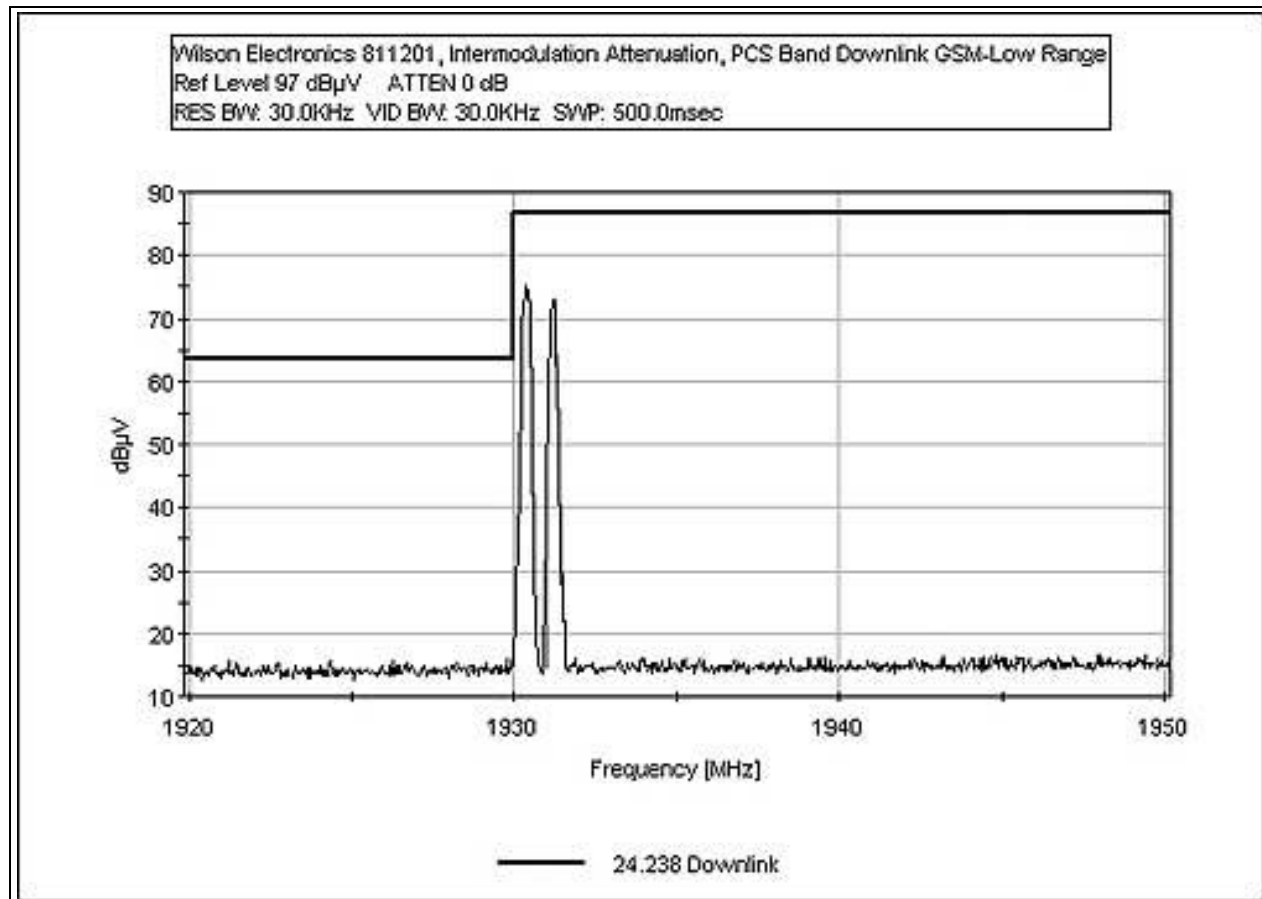
Wilson Electronics 811201, Intermodulation Attenuation, PCS Band Downlink - EDGE- High Range, Narrow Span
Ref Level 97 dB μ V ATTN 0 dB
RES BW: 30.0kHz VID BW: 30.0kHz SWP: 1.0sec
Marker: 1.993GHz 14.9dB μ V



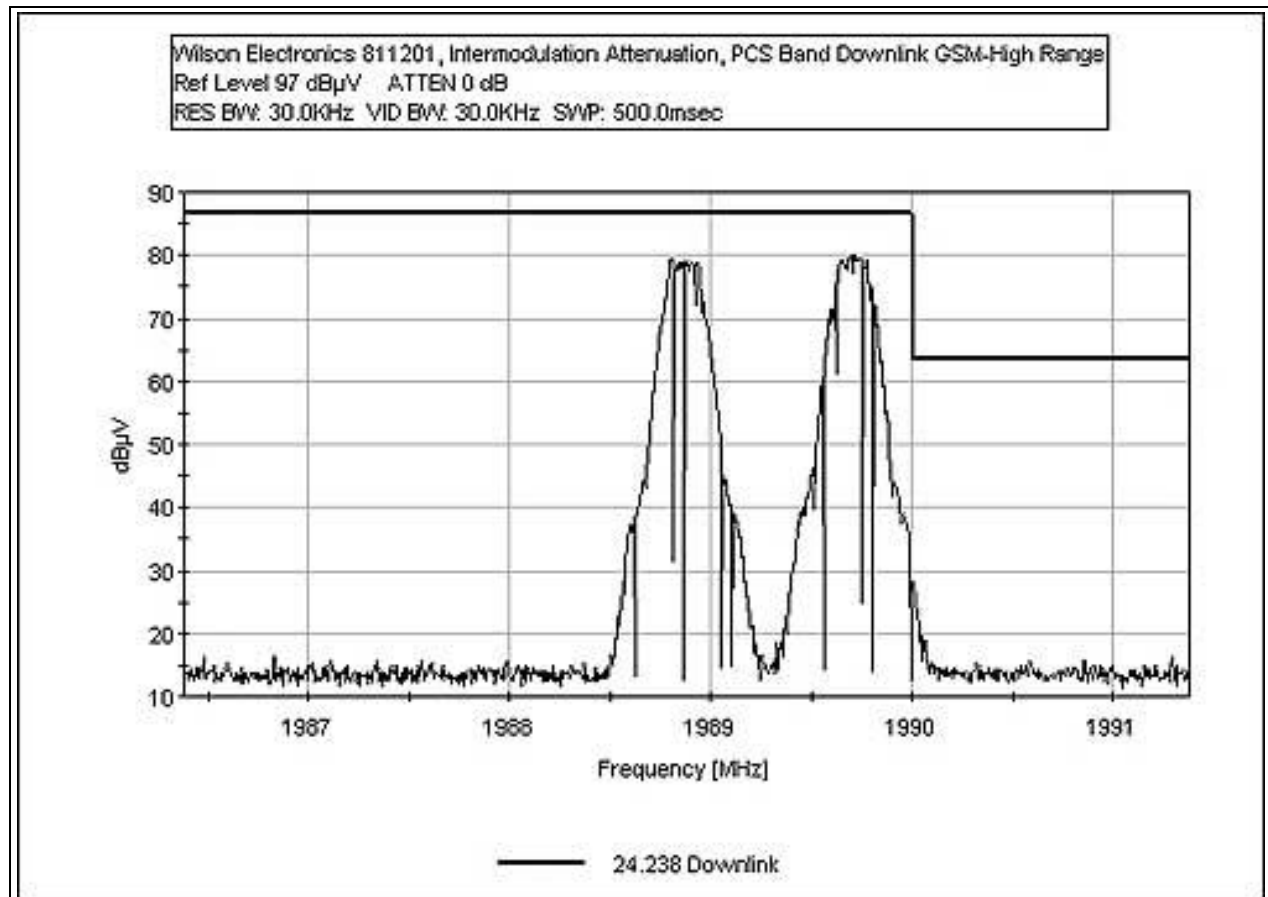
Intermodulation Attenuation Downlink PCS Band EDGE Wide Range



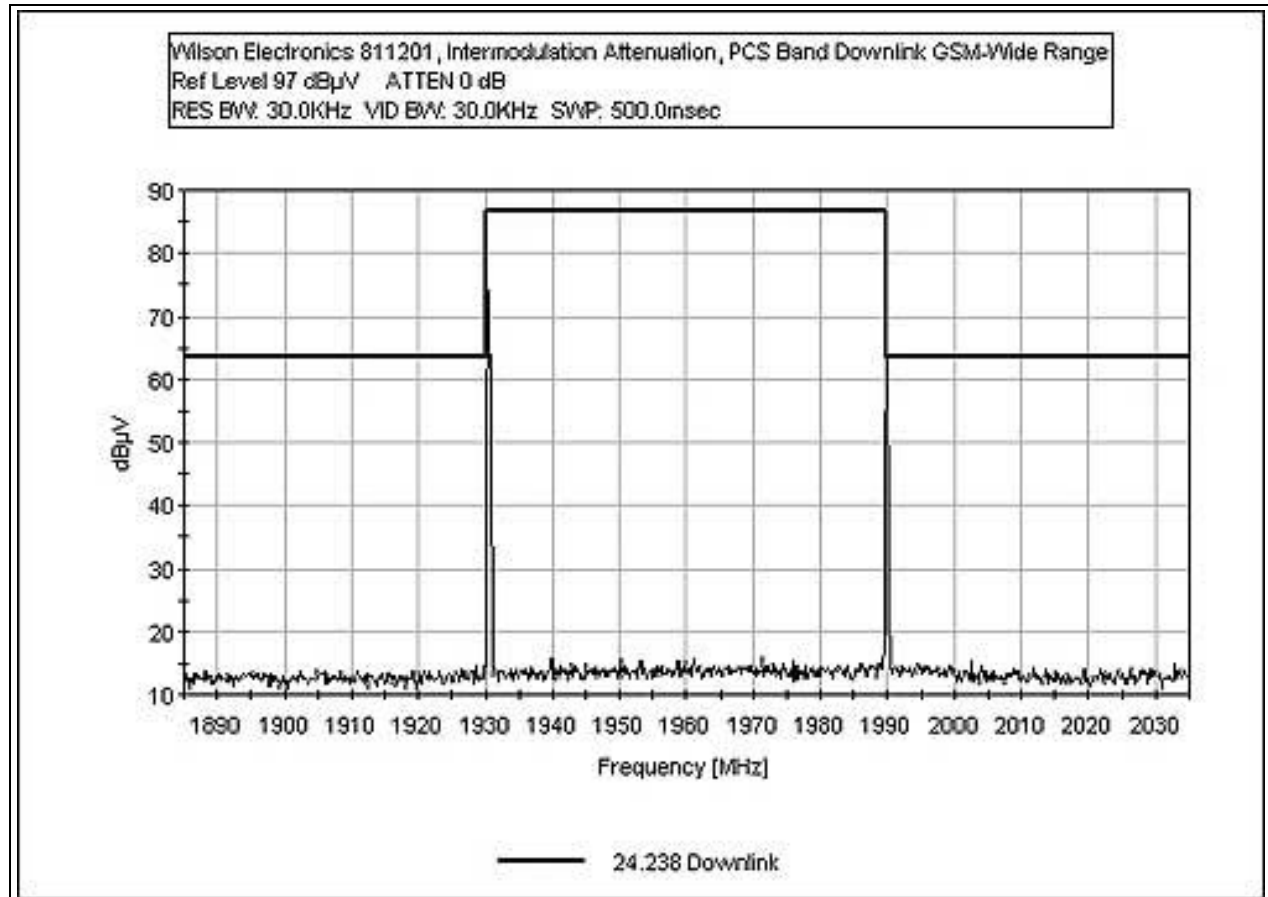
Intermodulation Attenuation Downlink PCS Band GSM Low Range



Intermodulation Attenuation Downlink PCS Band GSM High Range

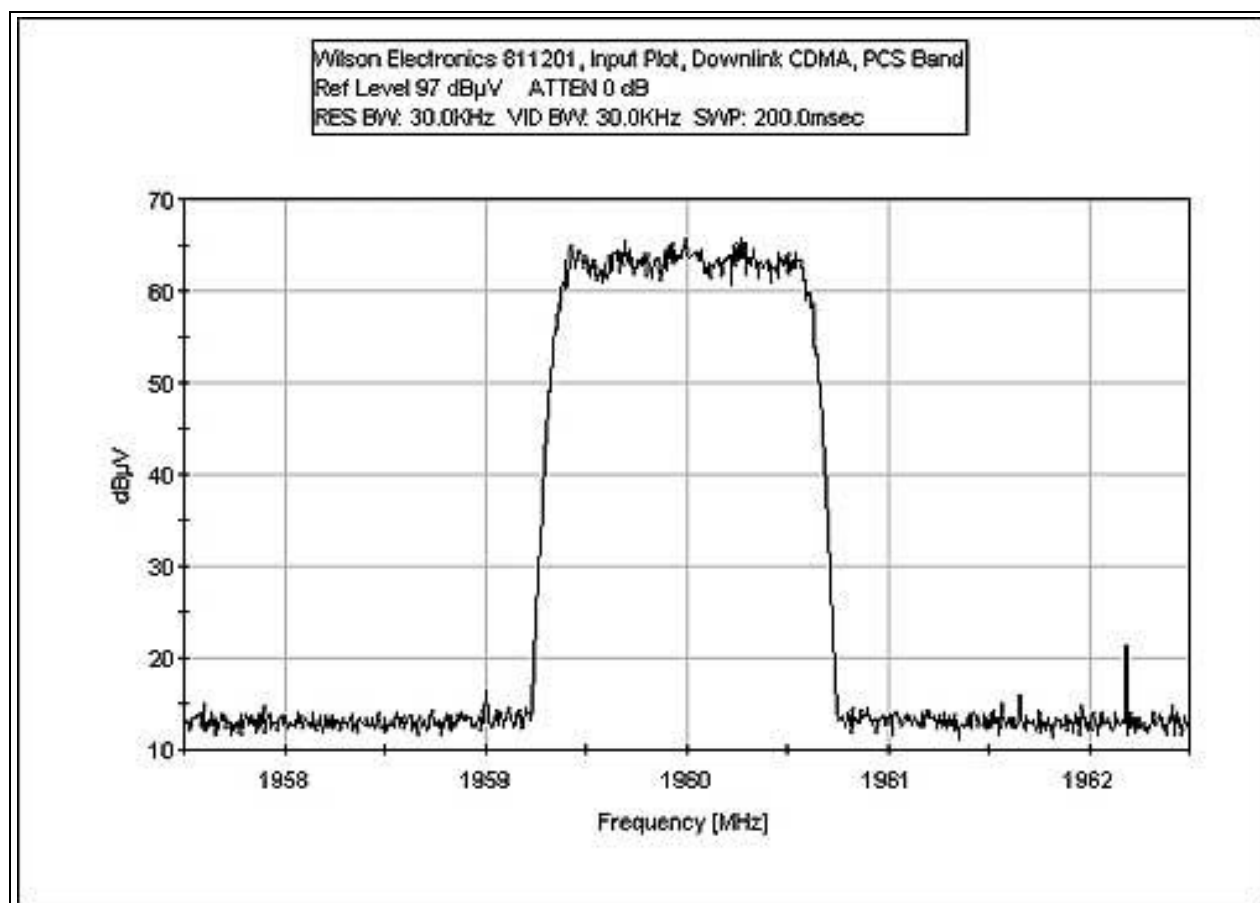


Intermodulation Attenuation Downlink PCS Band GSM Wide Range

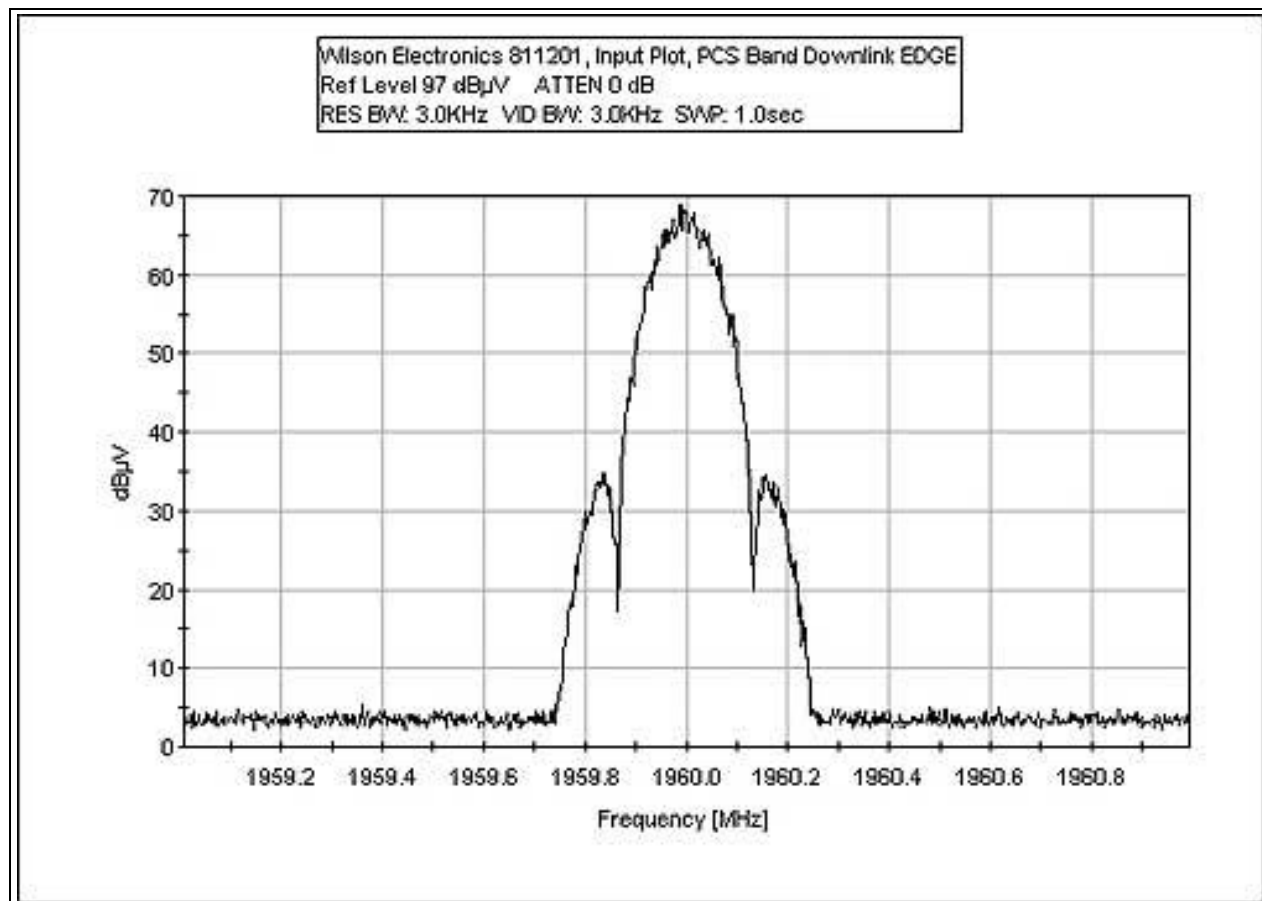


Input Downlink PCS Band CDMA

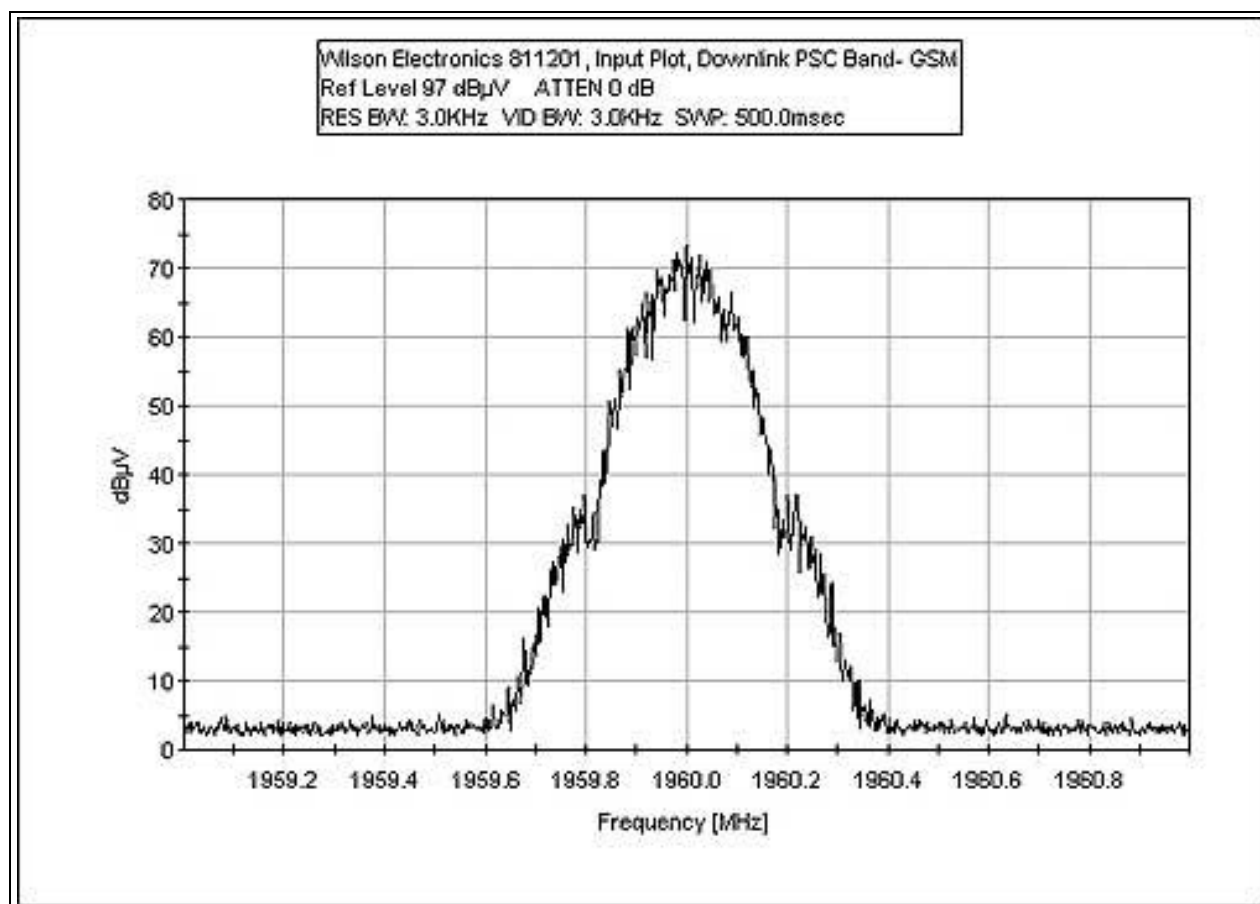
Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



Input Downlink PCS Band EDGE

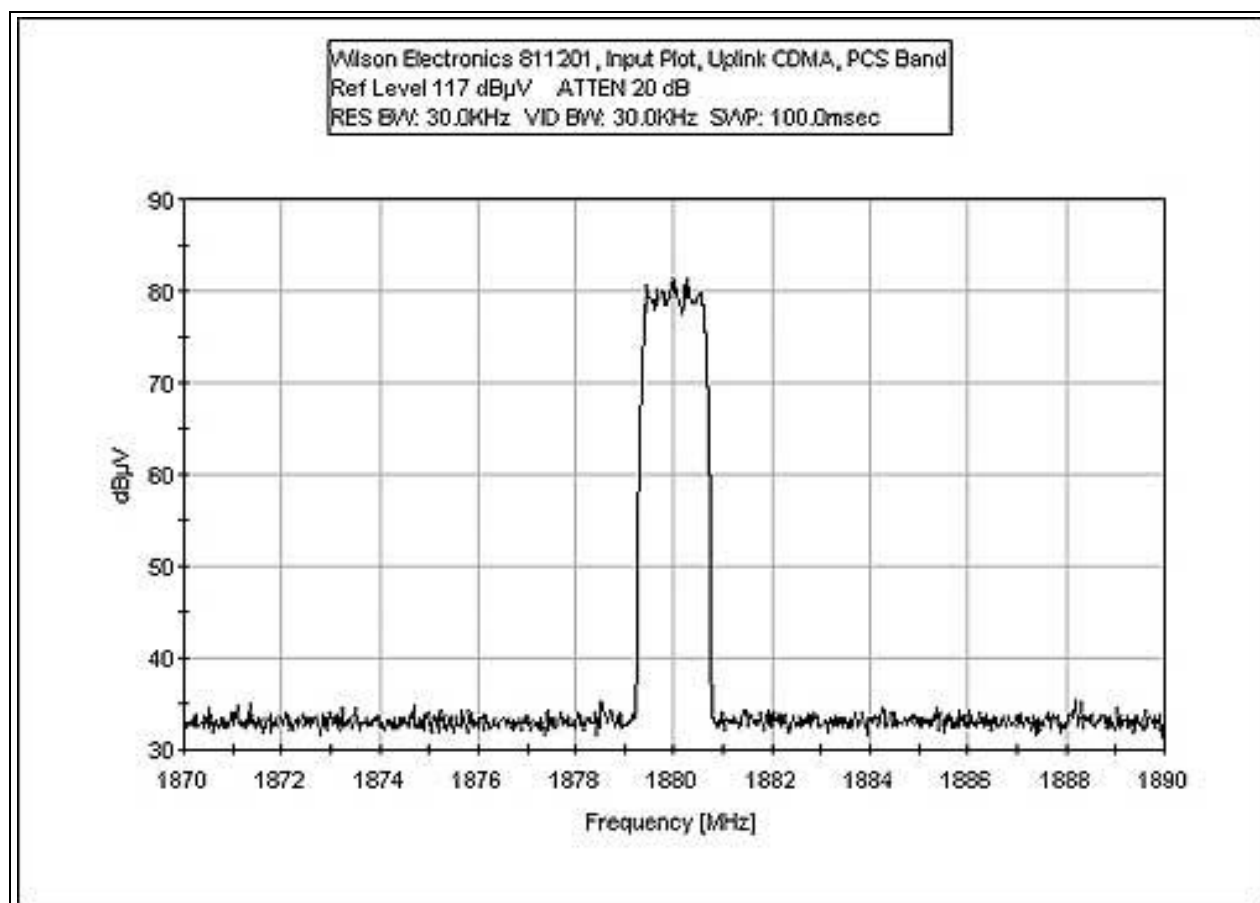


Input Downlink PCS Band GSM

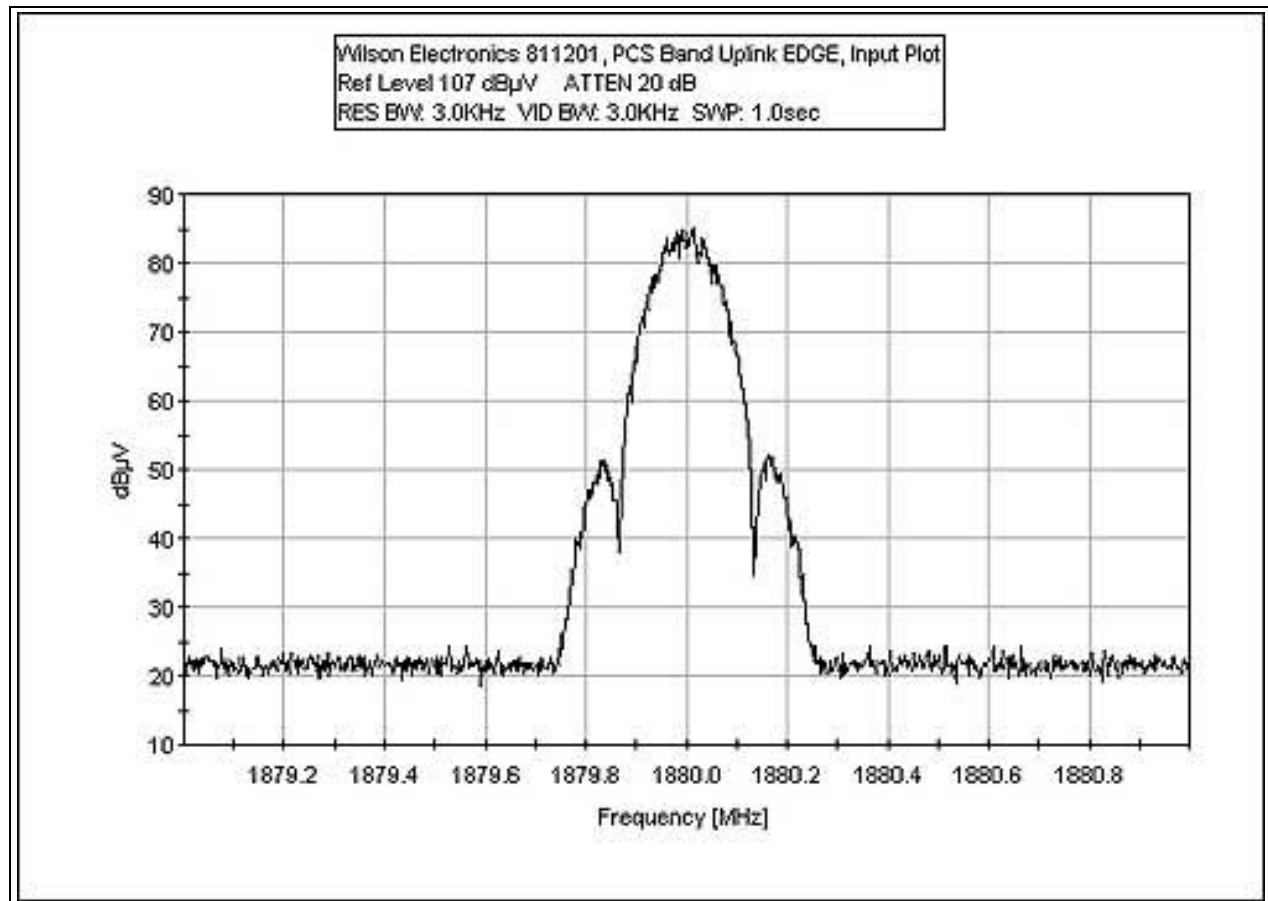


Input Uplink PCS Band CDMA

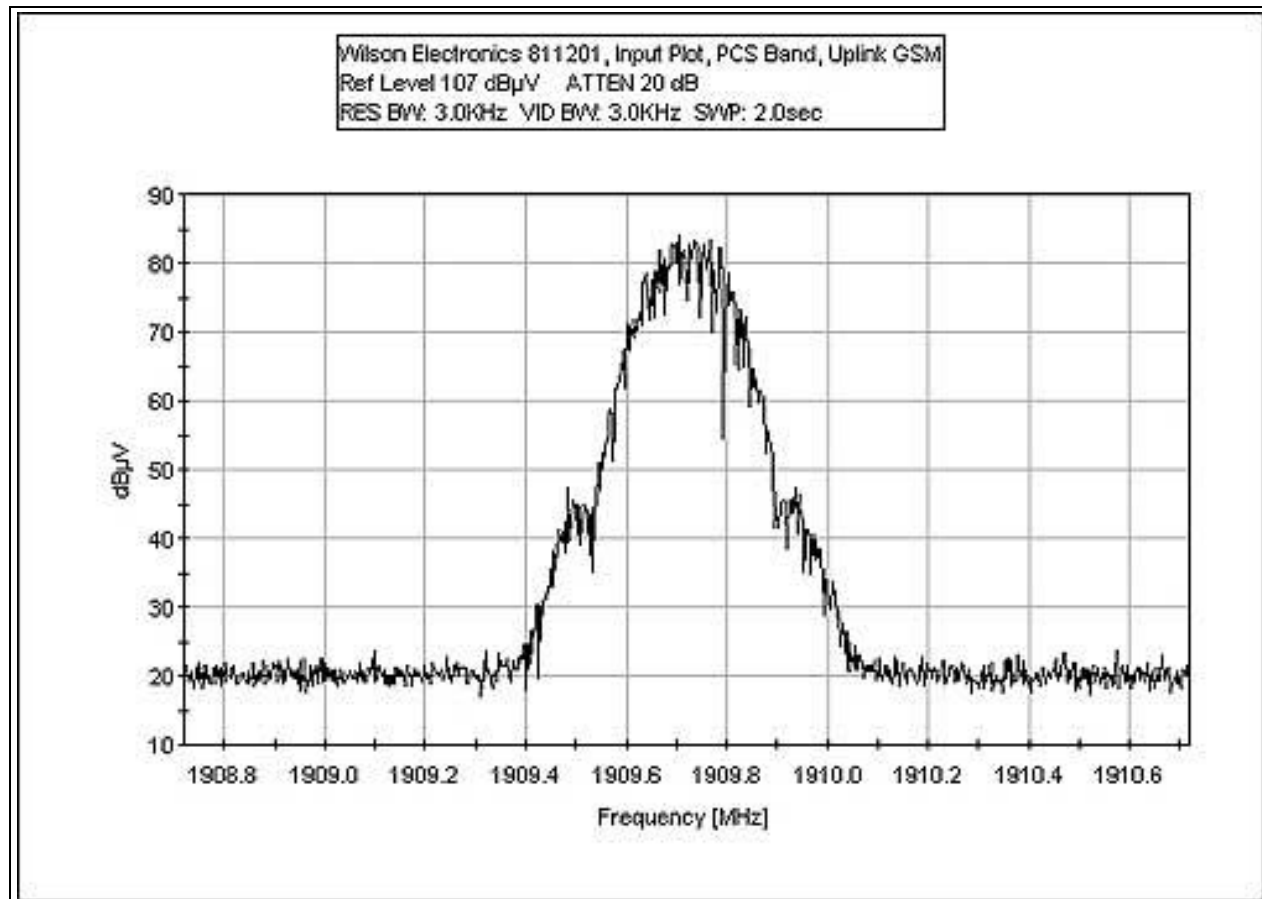
Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



Input Uplink PCS Band EDGE



Input Uplink PCS Band GSM

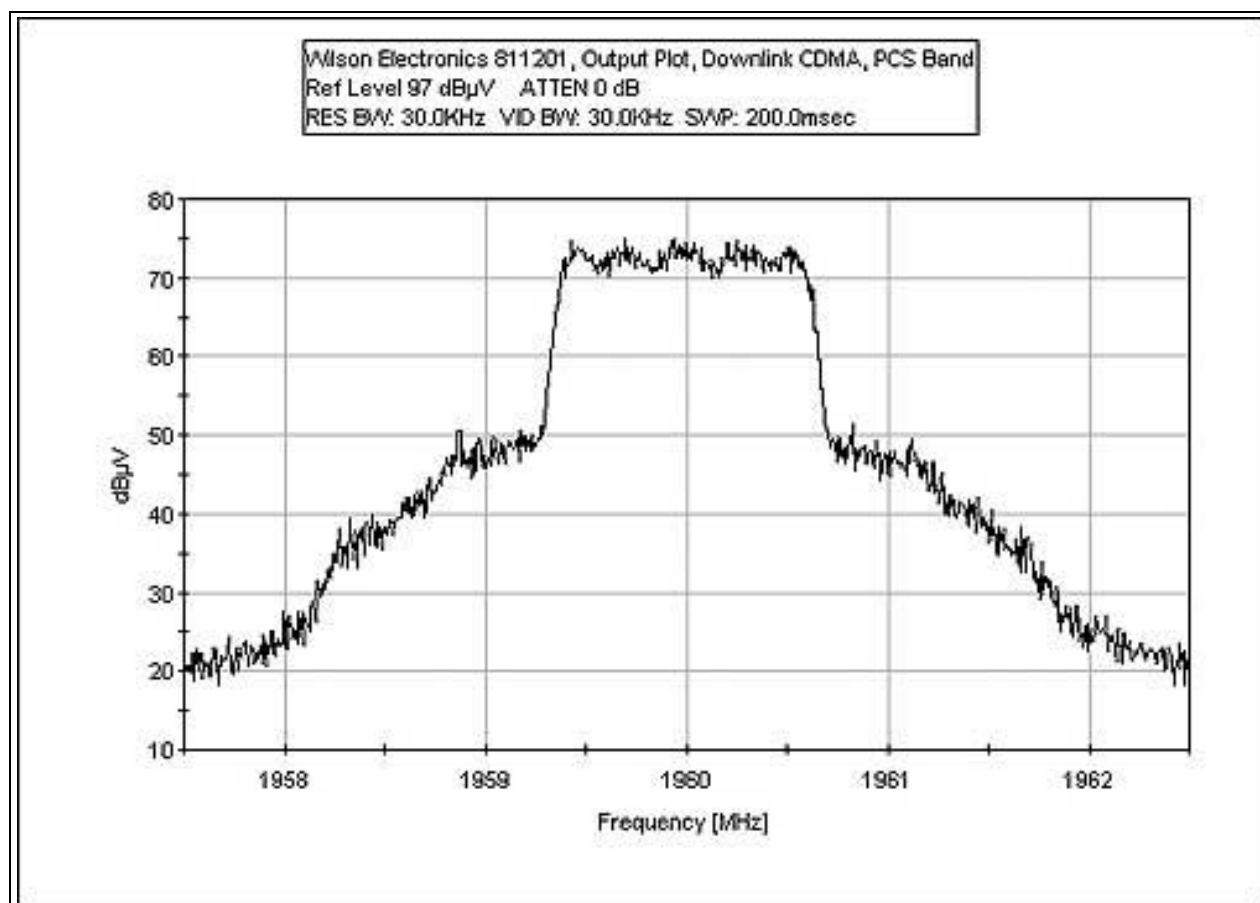


Test Equipment:

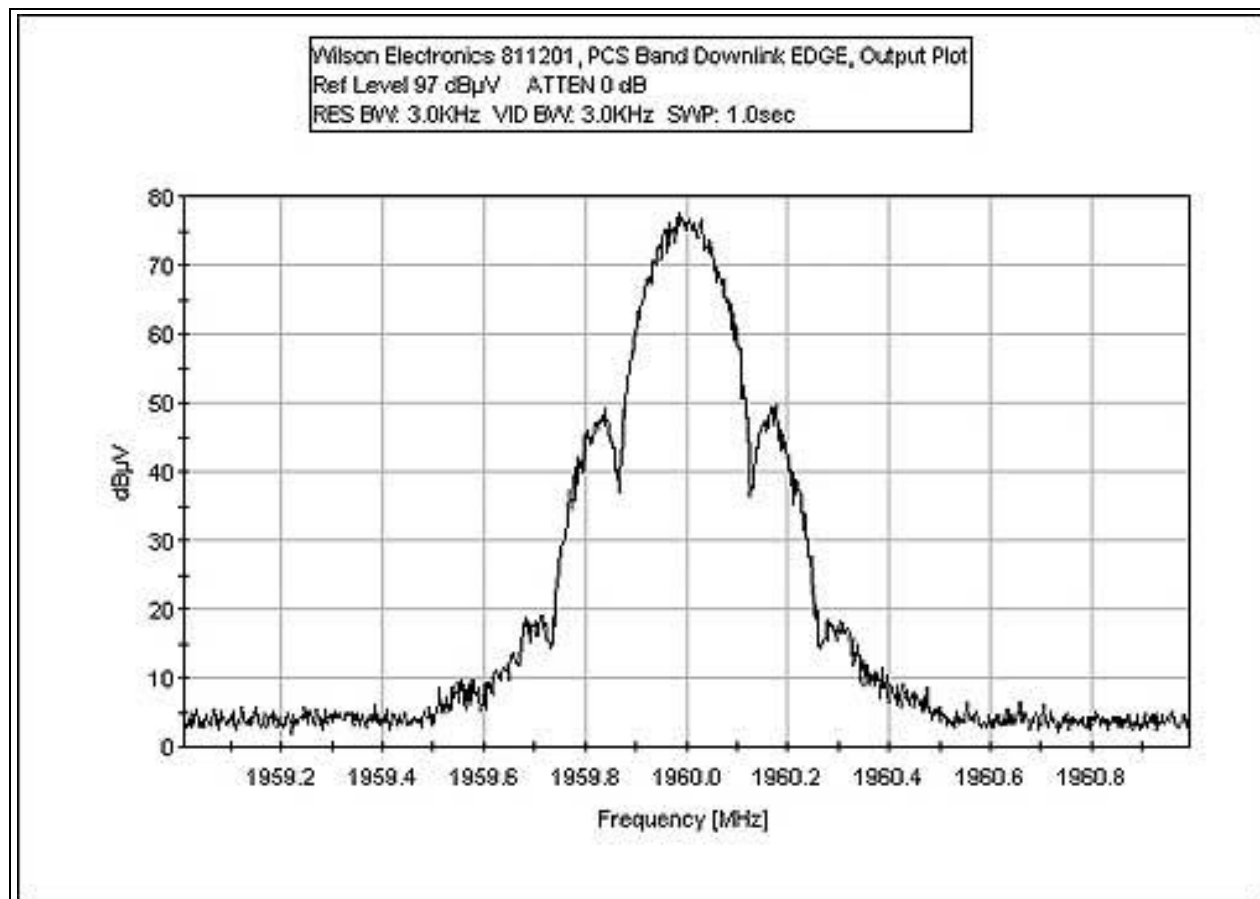
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-	9724	05/08/2003	05/08/2005	P01577
MFN-30				

Output Downlink PCS Band CDMA

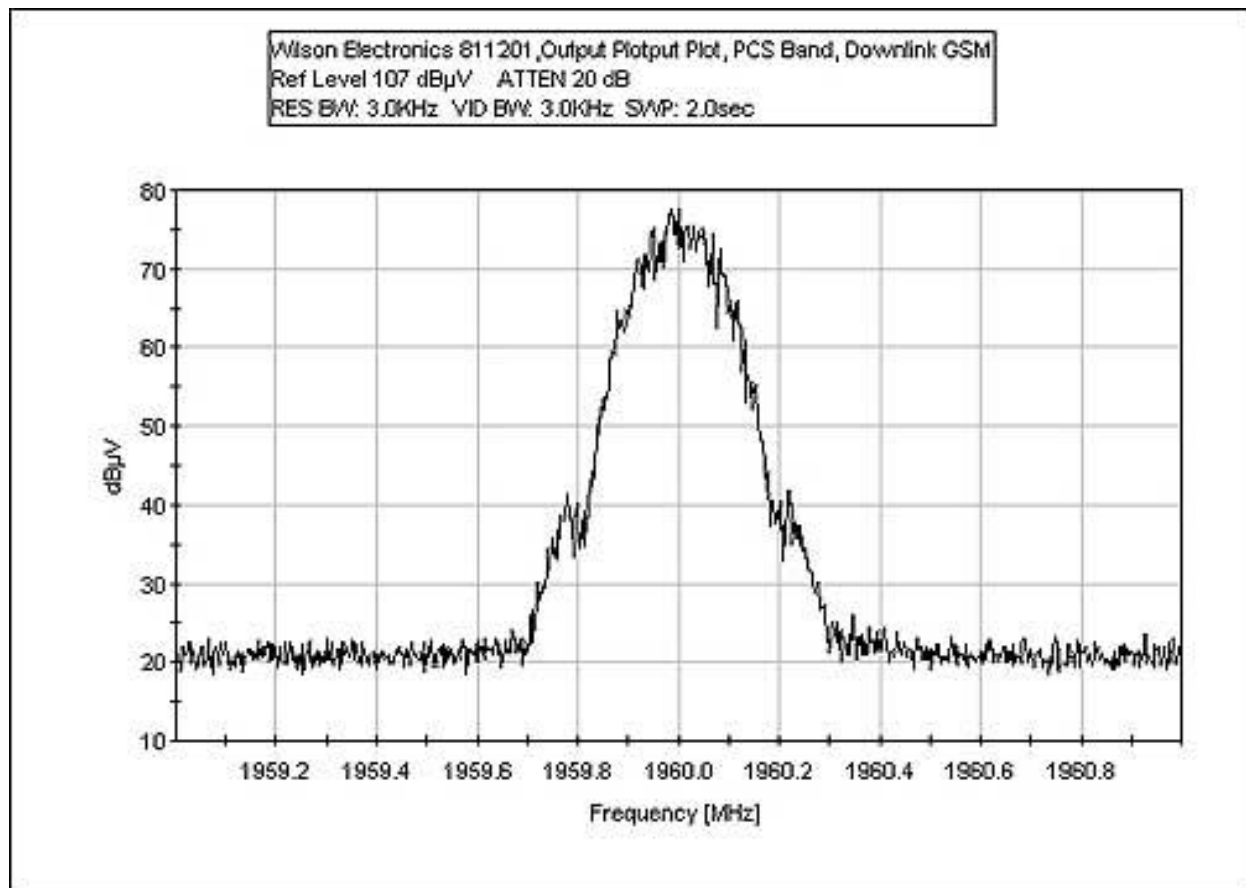
Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



Output Downlink PCS Band EDGE

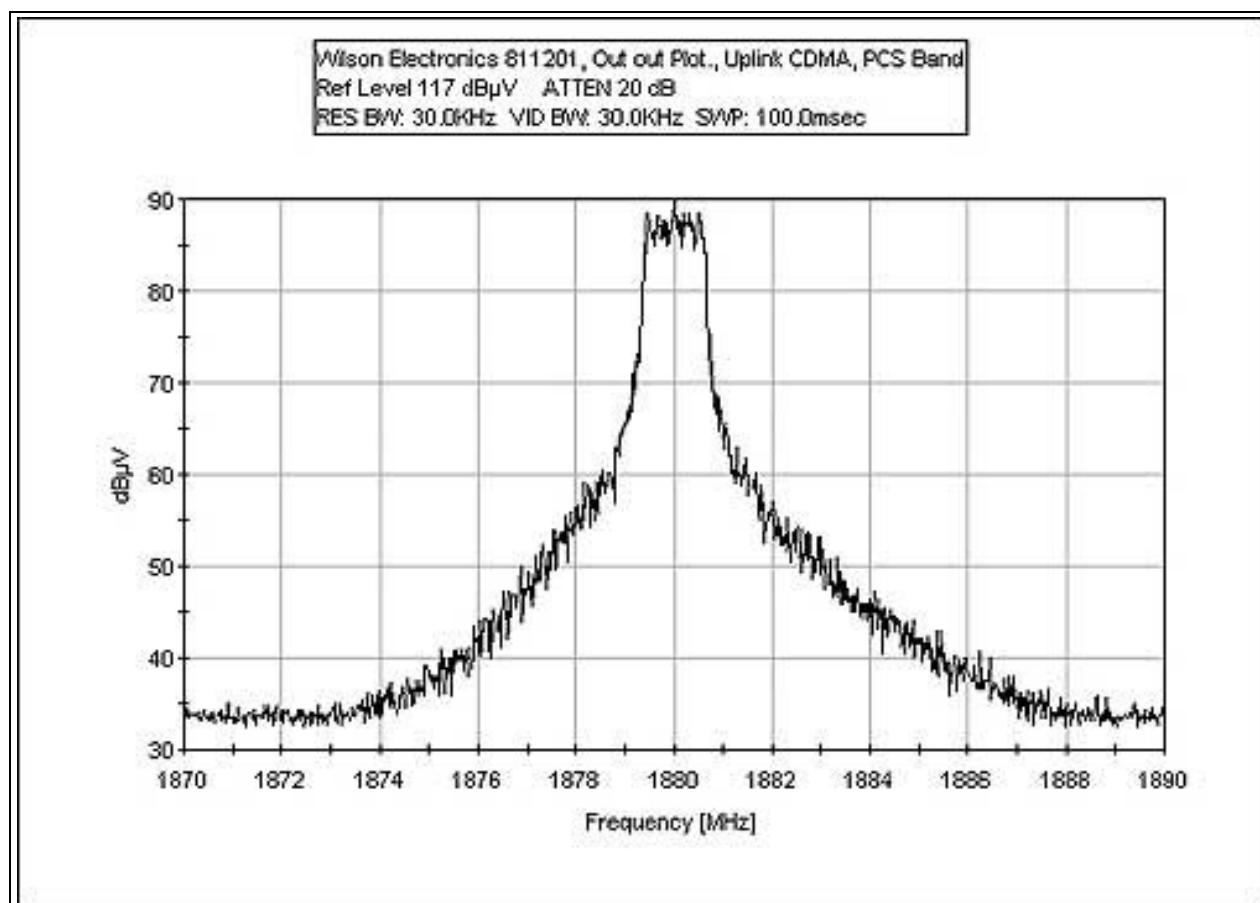


Output Downlink PCS Band GSM

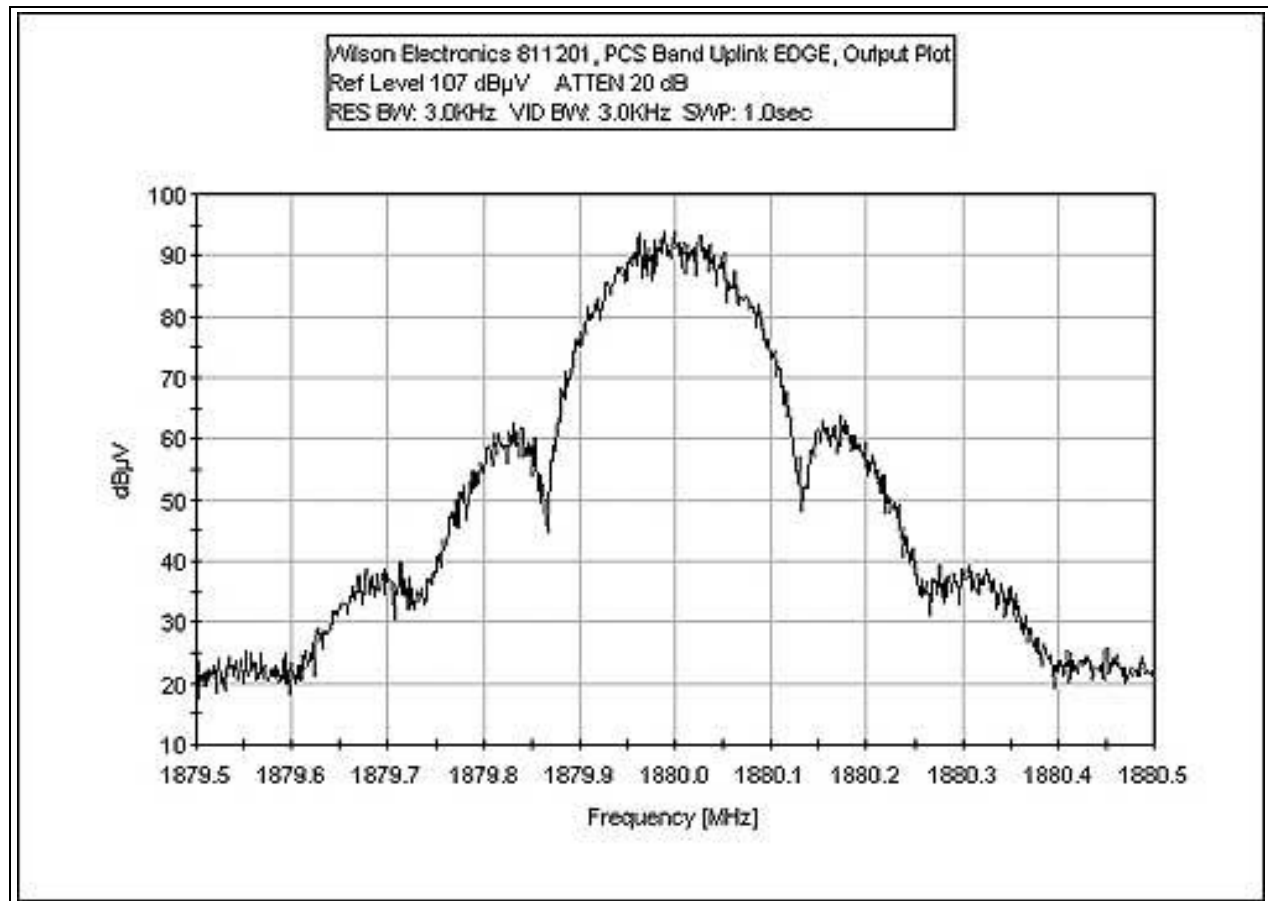


Output Uplink PCS Band CDMA

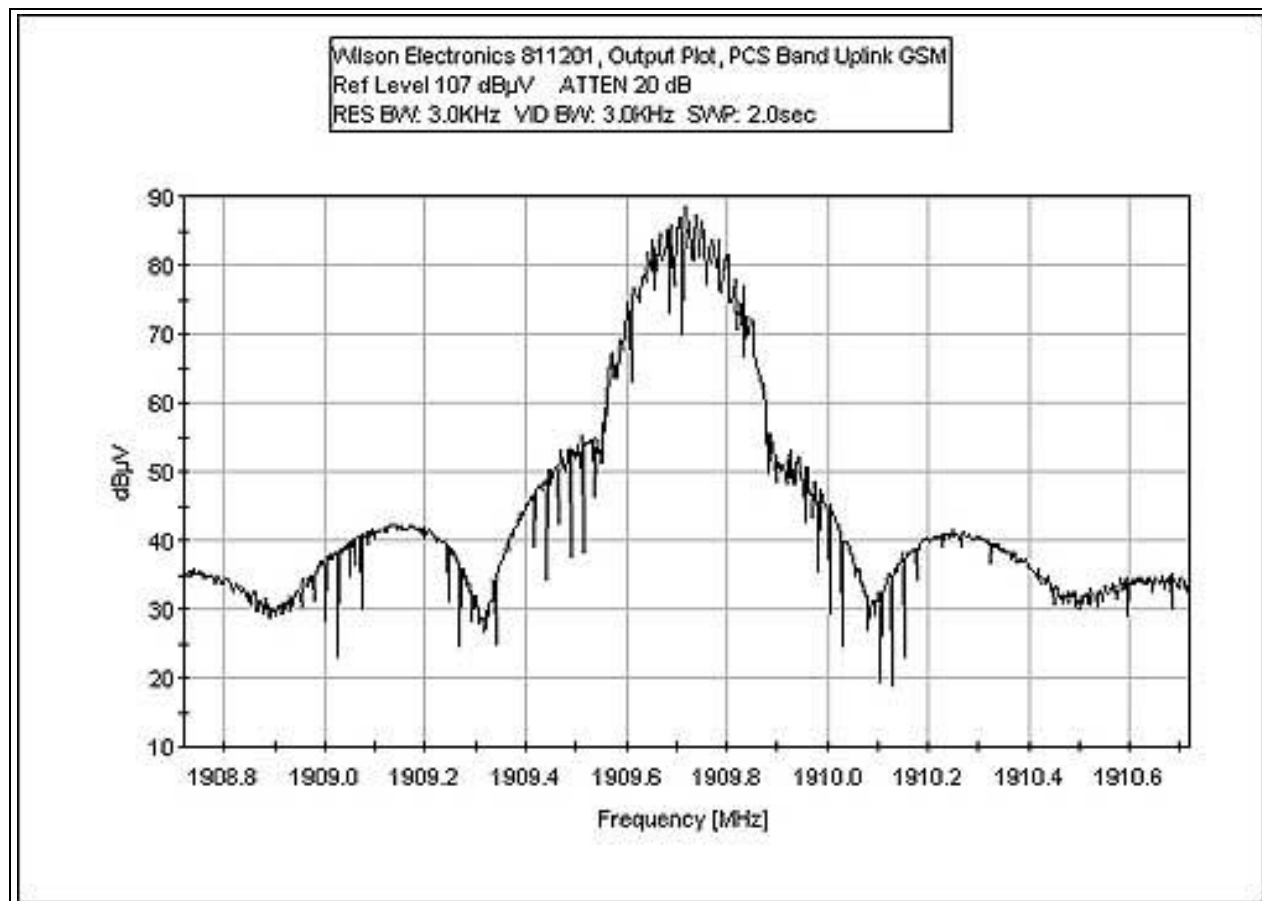
Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



Output Uplink PCS Band EDGE



Output Uplink PCS Band GSM

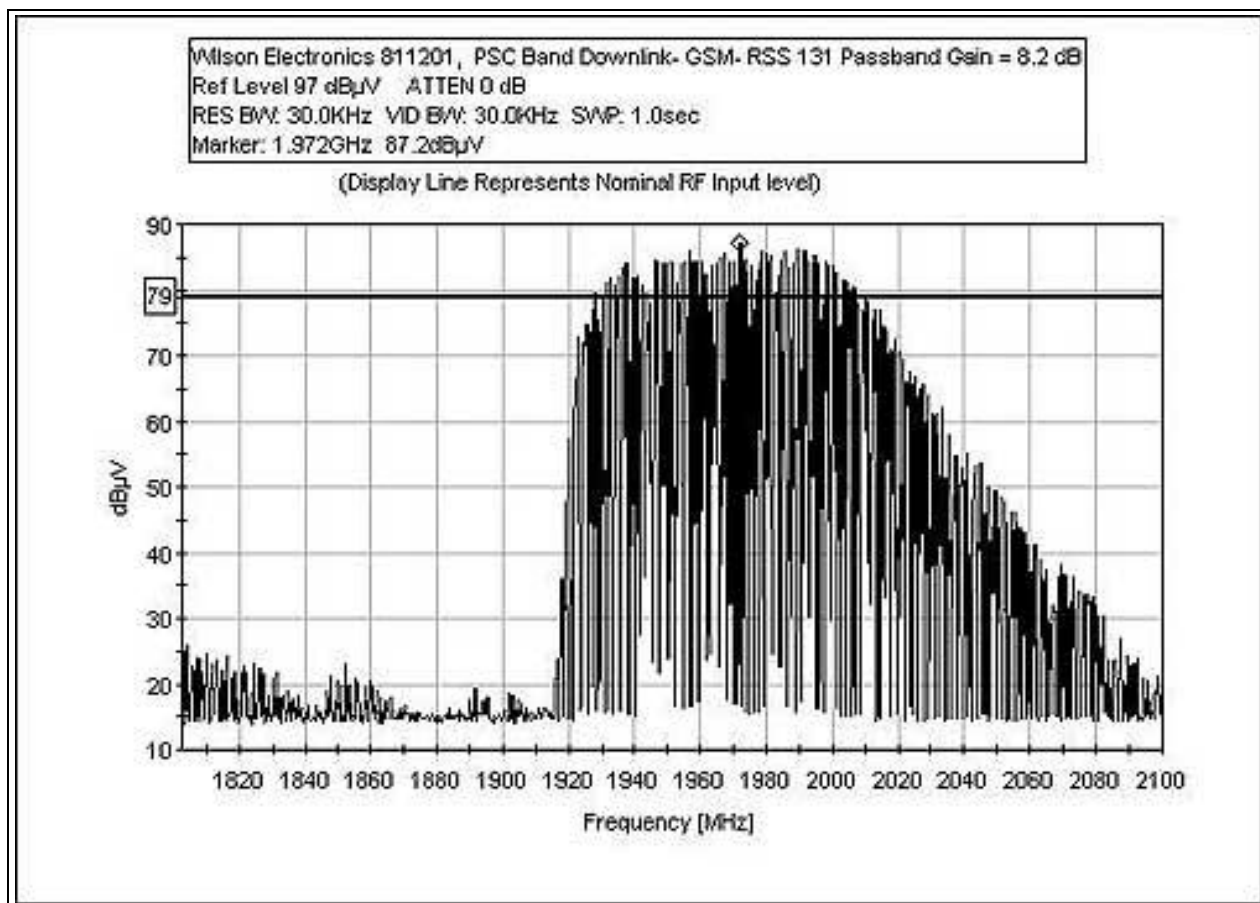


Test Equipment:

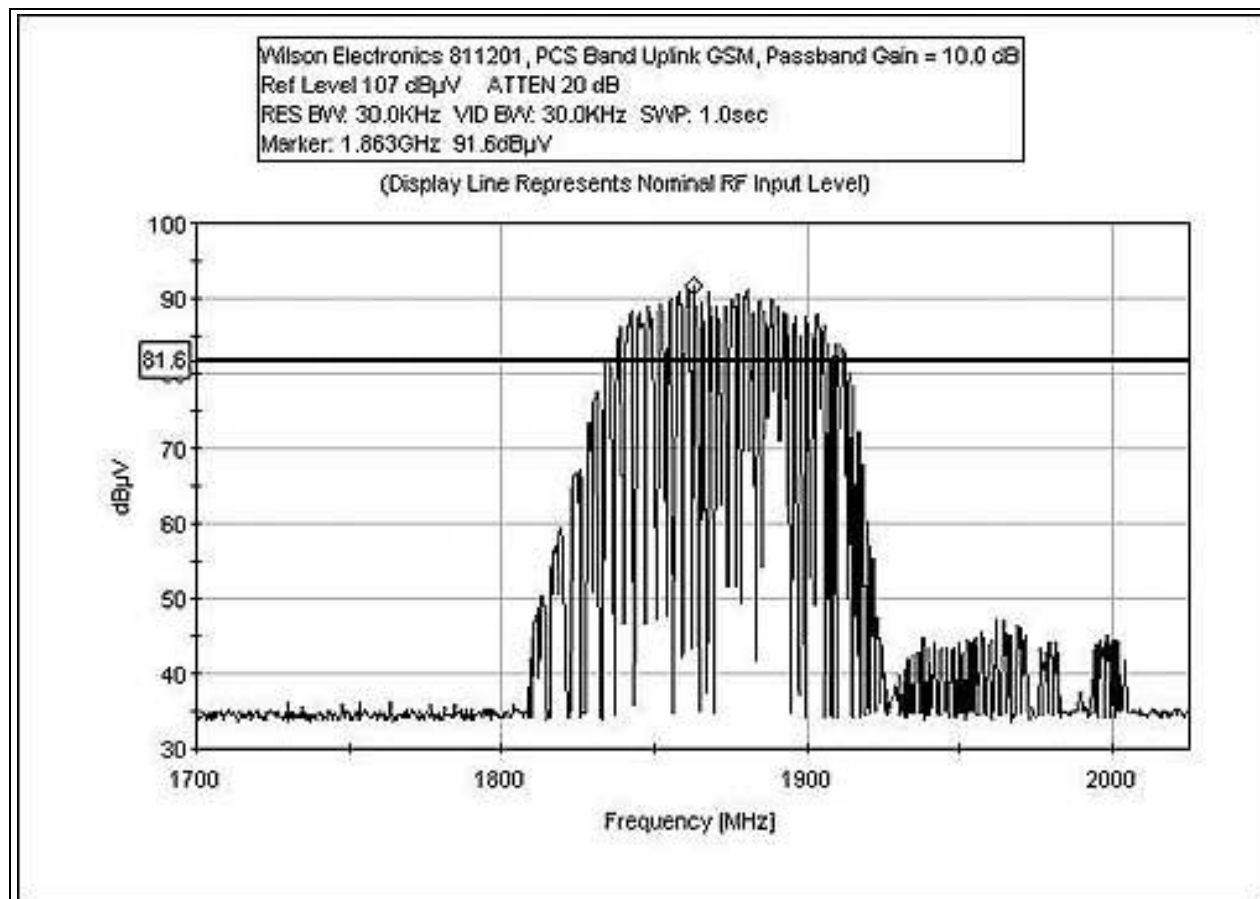
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-	9724	05/08/2003	05/08/2005	P01577
MFN-30				

RSS 131 Downlink Passband Gain

Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



RSS 131 Uplink Passband Gain

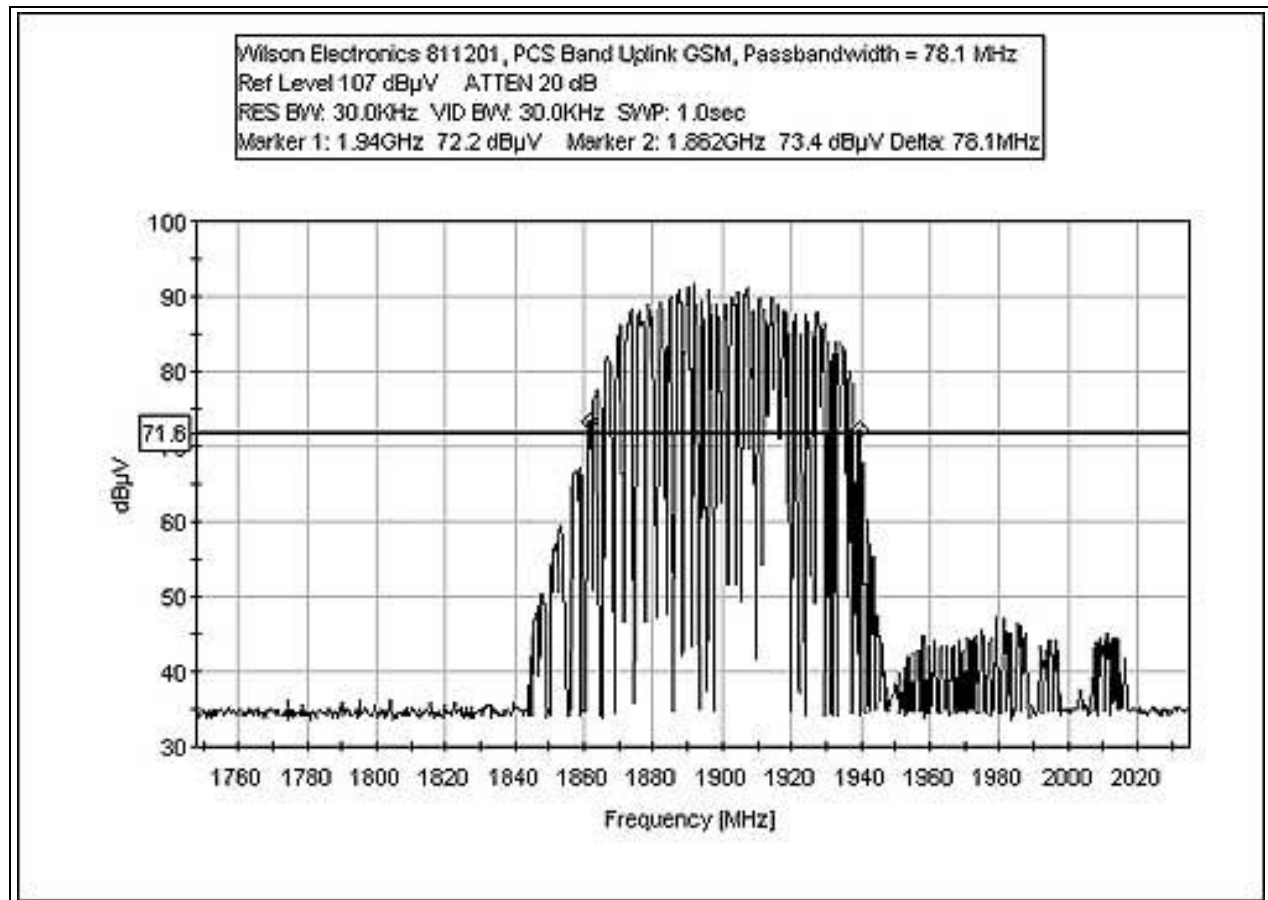


Test Equipment:

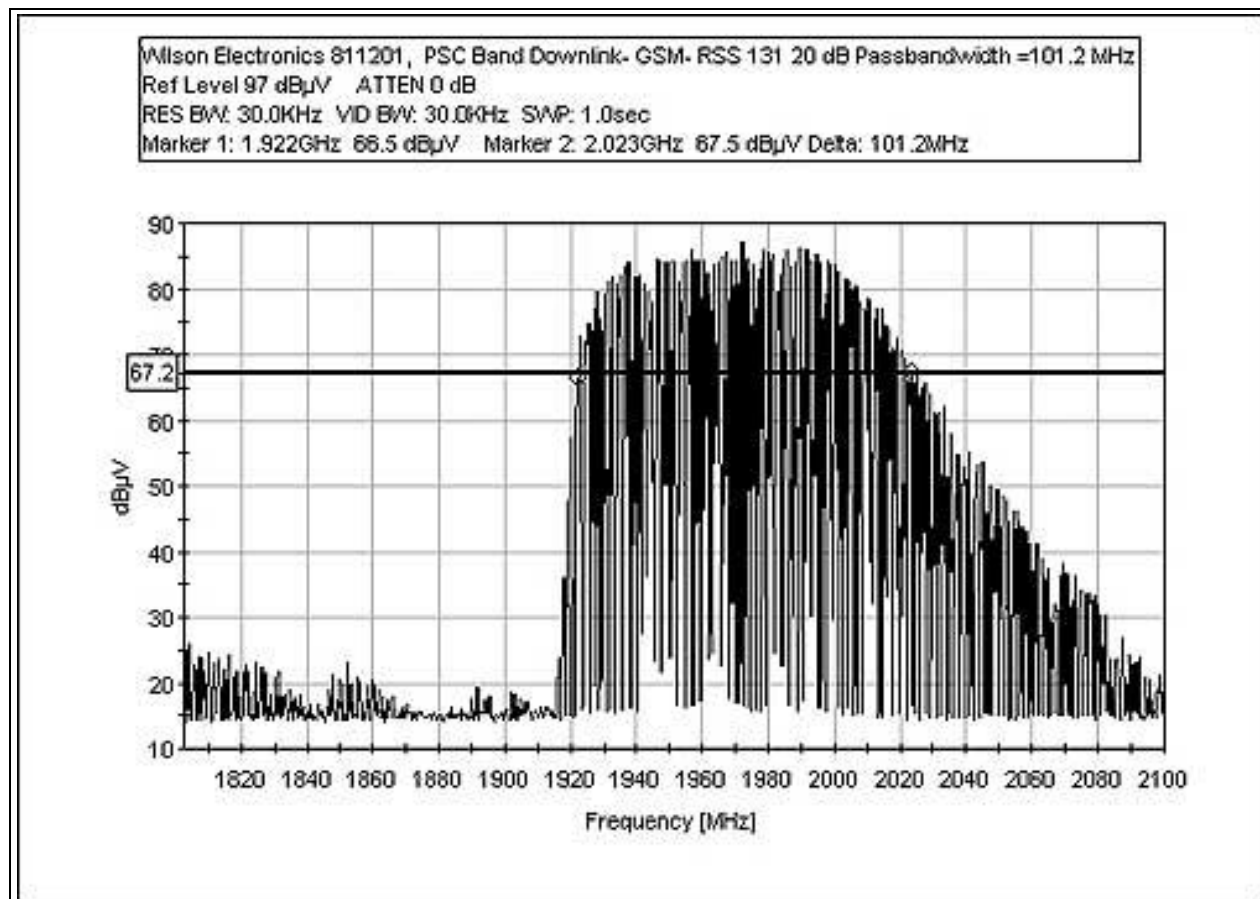
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577

RSS 131 Uplink 20dB Passbandwidth

Test Conditions: Only one signal is input to the amplifier. The input from the signal generator is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Minimum RF output power of 0.00 Watts is achieved with a 0.00 Watt RF input signal. RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation.



RSS 131 Downlink 20dB Passbandwidth



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA	2403A08241	02/26/2003	02/26/2005	00489
Display				
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
Bird Attenuator, 25A-MFN-30	9724	05/08/2003	05/08/2005	P01577