



**ADDENDUM TO WILSON ELECTRONICS TEST REPORT FC08-063**

**FOR THE**

**DIRECT CONNECTION CELLULAR/PCS AMPLIFIER  
W/ GPS BYPASS, 2B1401**

**FCC PART 24 AND RSS 131 ISSUE 2**

**TESTING**

**DATE OF ISSUE: JULY 16, 2008**

**PREPARED FOR:**

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

P.O. No.: PO2B1401-1  
W.O. No.: 88034

**PREPARED BY:**

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

Date of test: May 22 - June 23, 2008

**Report No.: FC08-063A**

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**ADMINISTRATIVE INFORMATION**

**DATE OF TEST:** May 22 - June 23, 2008

**DATE OF RECEIPT:** May 22, 2008

**REPRESENTATIVE:** Riki Kline

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

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

**FREQUENCY RANGE TESTED:** 9 kHz-20 GHz

**TEST METHOD:** FCC Part 24, RSS 131 Issue 2 (2003) and RSS GEN Issue 2

**PURPOSE OF TEST:**

**Original Report:** To perform the testing of the Direct Connection Cellular/PCS Amplifier w/ GPS Bypass, 2B1401 with the requirements for FCC Part 24 and RSS 131 devices.

**Addendum A:** To correct the frequency range tested on page 25 and convert the field strength of spurious radiation data with no new testing.

**APPROVALS**

**QUALITY ASSURANCE:**

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Steve Behm, Director of Engineering Services

**TEST PERSONNEL:**

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Mike Wilkinson, Senior EMC Engineer/Lab Manager

### SUMMARY OF RESULTS

Test	Specification	Results
RF Output Power	FCC 2.1033(c)(14)/2.1046/24.232 RSS 131 Section 6.2	Pass
Occupied Bandwidth	FCC 2.1033(c)(14)/2.1049(i)	Pass
Spurious Emissions at Antenna Terminal	FCC 2.1033(c)(14)/2.1051/24.238	Pass
Field Strength of Spurious Radiation	FCC 2.1033(c)(14)/2.1051/24.238	Pass
Intermodulation Attenuation	FCC 2.1051	Pass
Out of Band Rejection	FCC 2.1051	Pass
Block Edge	FCC 2.1051/2.1053	Pass
Input Plots		Pass
Output Plots		Pass
Passband Bandwidth	RSS 131 Section 6.1	Pass
Passband Gain	RSS 131 Section 6.1	Pass

### CONDITIONS DURING TESTING

No modifications to the EUT were necessary during testing.



## EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

## EQUIPMENT UNDER TEST

### Direct Connection Cellular/PCS Amplifier w/ GPS Bypass

Manuf: Wilson Electronics  
Model: 2B1401  
Serial: 811401A1011128467  
FCC ID: PWO2B1401SA  
IC: 4726A-2B1401SA

### DC Power Supply

Manuf: Jentec  
Model: AH1812-B  
Serial: None

## PERIPHERAL DEVICES

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

### Signal Generator

Manuf: Agilent  
Model: E4437B  
Serial: MY41000126

### Signal Generator

Manuf: Gigatronics  
Model: 1026  
Serial: 281701

### DC Power Supply

Manuf: Topward Electric Instruments  
Co., Ltd.  
Model: TPS-2000  
Serial: 920027

**TEMPERATURE AND HUMIDITY DURING TESTING**

The temperature during testing was within +15°C and + 35°C.  
The relative humidity was between 20% and 75%.

**FCC 2.1033(c)(3) USER'S MANUAL**

The necessary information is contained in a separate document.

**FCC 2.1033 (c)(4) TYPE OF EMISSIONS**

GXW, G7W, F9W

**FCC 2.1033 (c)(5) FREQUENCY RANGE**

Downlink 1930-1990 MHz, Uplink 1850-1910 MHz.

**FCC 2.1033 (c)(6) OPERATING POWER**

Downlink 22.9 mW, Uplink 933 mW.

**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, WCDMA. The base interface CDMA2000 and WCDMA modulation types tested are intended to additionally demonstrate compliance with 1xEVDO and HSPA extensions. Reference: FCC KDB Publication 935210.



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

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **FCC 24.232 Mobil**  
 Work Order #: **88034** Date: 5/28/2008  
 Test Type: **Maximized Emissions** Time: 09:24:49  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 2  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011135889

***Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigatronics	1026	281701

***Test Conditions / Notes:***

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Reported power levels indicate the maximum compliant power output is reported as the maximum output power just measured at an input level just below that which will cause the EUT to automatically attenuate the input signal level. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%. GSM/EDGE RBW = 1MHz CDMA RBW = 3 MHz WCDMA RBW = 10 MHz VBW = 3 x RBW. Combined cable and attenuator insertion loss accounted for in the measurements were: 10.1 to 10.2 dB for the frequency range of 824 to 894 MHz. 10.3 dB for the frequency range of 1850 to 1990 MHz. Reported power levels are not corrected to EIRP.

**Test Setup Photos**





**Test Data**

<b>Uplink</b>	<b>Part</b>	<b>Frequency</b>	<b>dBm</b>	<b>mW</b>
GSM Low	24	1850.29	27.3	537
GSM Mid	24	1880.00	26.8	489
GSM High	24	1909.72	26.6	457
EDGE Low	24	1850.30	27.8	603
EDGE Mid	24	1880.00	27.8	603
EDGE High	24	1909.73	27.6	575
CDMA Low	24	1853.80	29.6	912
CDMA Mid	24	1880.00	28.2	661
CDMA High	24	1906.23	27.9	617
WCDMA Low	24	1859.00	29.4	871
WCDMA Mid	24	1880.00	29.1	813
WCDMA High	24	1900.83	29.7	933

<b>Downlink</b>	<b>Part</b>	<b>Frequency</b>	<b>dBm</b>	<b>mW</b>
GSM Low	24	1930.28	9.3	8.51
GSM Mid	24	1960.00	9.6	9.12
GSM High	24	1989.72	8.5	7.08
EDGE Low	24	1930.28	9.4	8.71
EDGE Mid	24	1960.00	12.3	17.0
EDGE High	24	1989.72	11.1	12.9
CDMA Low	24	1931.25	11.7	14.8
CDMA Mid	24	1960.00	13.6	22.9
CDMA High	24	1988.75	12.1	16.2
WCDMA Low	24	1934.50	11.0	12.6
WCDMA Mid	24	1960.00	11.9	15.5
WCDMA High	24	1985.50	10.6	11.5



## RSS 131 SECTION 6.2 OUTPUT POWER

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **RSS 131**  
 Work Order #: **88034** Date: 6/2/2008  
 Test Type: **Maximized Emissions** Time: 13:35:00  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 7  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011128467

### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz	NA	01/15/2008	01/15/2010	AN03008
Astrolab				
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatronics	1026	281701
4 way Splitter	Motorola	None	CKC P1314
Var Attenuator	HP	8494B	CKC 2475

### Test Conditions / Notes:

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signals are CW for Multi-Carrier Operation in accordance with RSS 131. RBW=100 kHz. Combined cable and attenuator insertion loss accounted for in the measurements were: 10.1 to 10.2 dB for the frequency range of 824 to 894 MHz. 10.3 dB for the frequency range of 1850 to 1990 Mhz. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%.

<b>Band</b>	<b>Frequency (MHz)</b>	<b>Power (dBm)</b>	<b>Po+3dB (dBm)</b>	<b>Pmean (mW)</b>
Downlink 1900 MHz	1931.02	7.17	10.17	10.40
Downlink 1900 MHz	1931.50	7.08	10.08	10.19
Downlink 1900 MHz	1960.01	7.66	10.66	11.64
Downlink 1900 MHz	1960.49	7.67	10.67	11.67
Downlink 1900 MHz	1988.01	7.90	10.90	12.30
Downlink 1900 MHz	1988.49	7.90	10.90	12.30



Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **RSS 131**  
 Work Order #: **88034** Date: 6/2/2008  
 Test Type: **Maximized Emissions** Time: 09:31:50  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 6  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011128467

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatronics	1026	281701
4 way Splitter	Motorola	None	CKC P1314
Var Attenuator	HP	8494B	CKC 2475

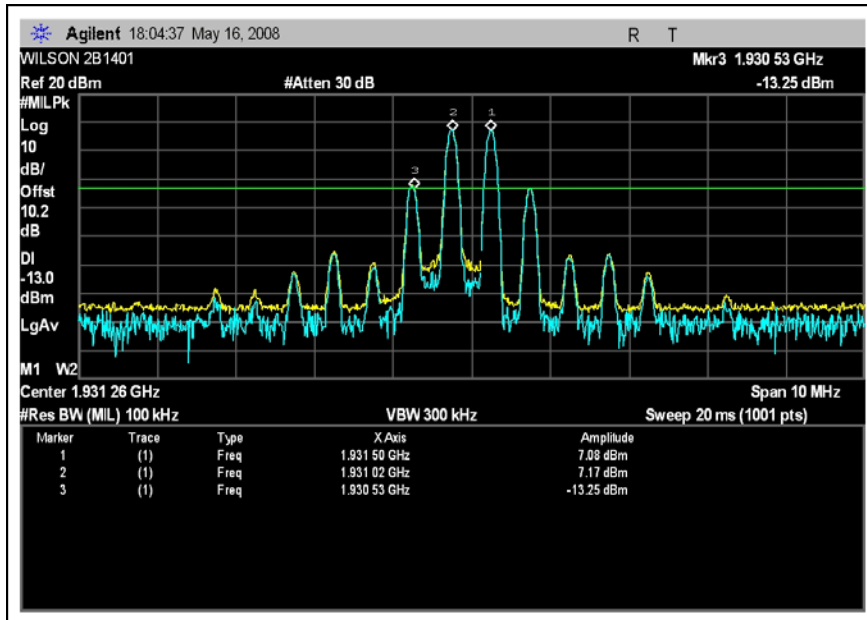
**Test Conditions / Notes:**

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. The input power level is increased until a 2 dB increase in input level results in a 1 dB increase in output level (i.e. compression begins). Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%. GSM/EDGE RBW = 1MHz CDMA RBW = 3 MHz WCDMA RBW = 10 MHz VBW = 3 x RBW. Combined cable and attenuator insertion loss accounted for in the measurements were: 10.1 to 10.2 dB for the frequency range of 824 to 894 MHz. 10.3 dB for the frequency range of 1850 to 1990 MHz.

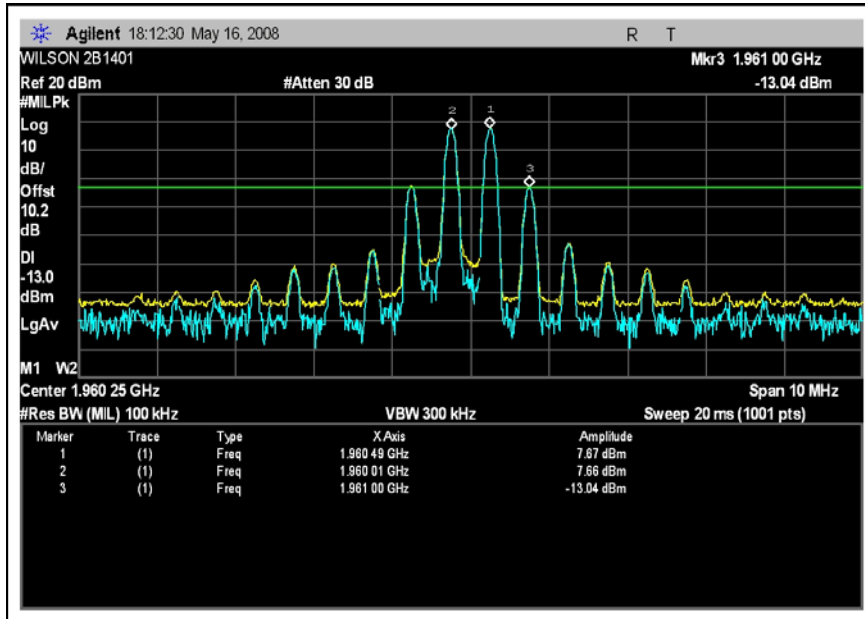
Uplink	RSS131	Frequency	dBm	mW
GSM Low	6.2	1850.29	29.6	912
GSM Mid	6.2	1880.00	28.1	646
GSM High	6.2	1909.72	29.5	891
EDGE Low	6.2	1850.30	29.3	851
EDGE Mid	6.2	1880.00	25.6	363
EDGE High	6.2	1909.73	24.5	282
CDMA Low	6.2	1853.80	29.4	871
CDMA Mid	6.2	1880.00	30.1	1023
CDMA High	6.2	1906.23	30.2	1047
WCDMA Low	6.2	1859.00	31.3	1348
WCDMA Mid	6.2	1880.00	30.5	1122
WCDMA High	6.2	1900.83	30.9	1230

### Test Plots

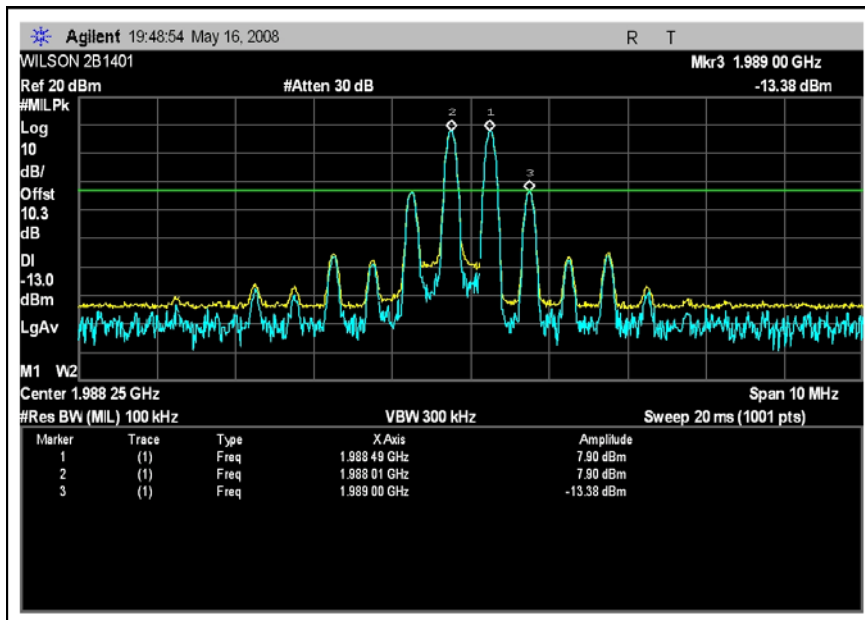
#### RSS 131 SECTION 6.2 OUTPUT POWER - LOW CHANNEL



### RSS 131 SECTION 6.2 OUTPUT POWER - MIDDLE CHANNEL



### RSS 131 SECTION 6.2 OUTPUT POWER - HIGH CHANNEL



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

***1900 MHz OBW Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatrinics	1026	281701

***Test Conditions / Notes:***

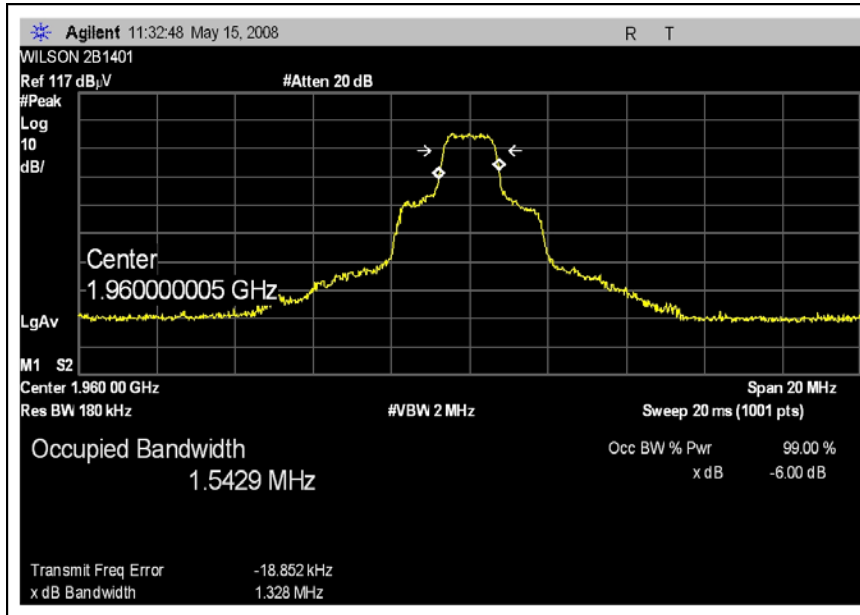
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: Carrier Mid Channel. Temperature: 21°C, Relative Humidity: 30%.

**Test Setup Photos**

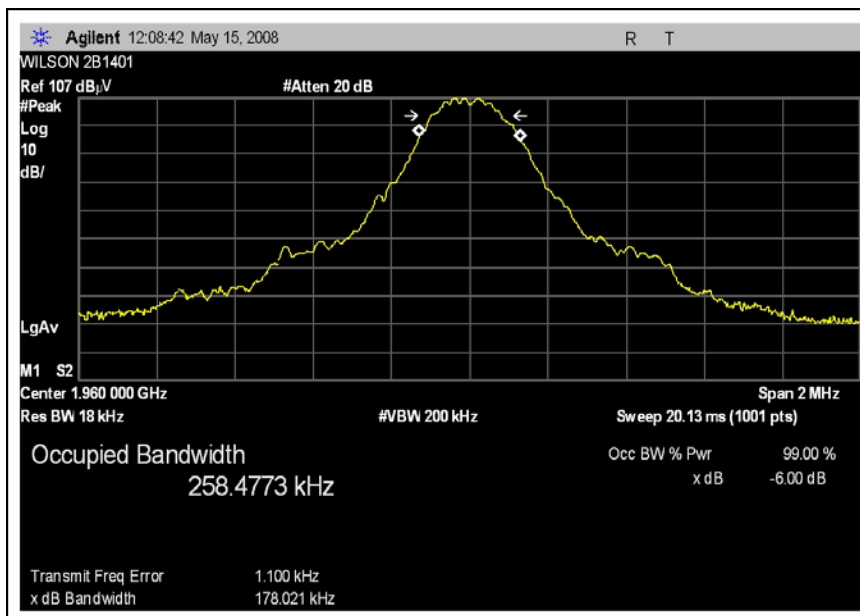


## Test Plots

### 99% BANDWIDTH DOWNLINK - CDMA

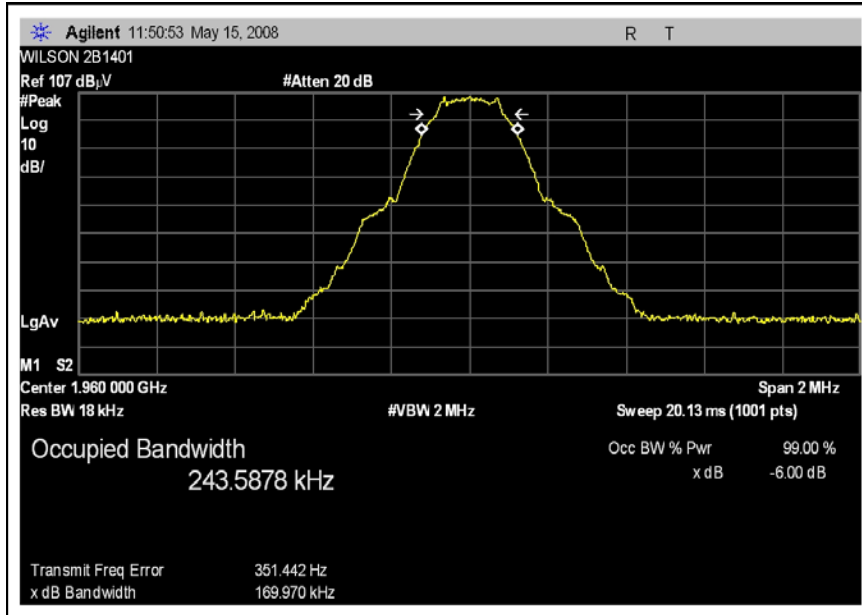


### 99% BANDWIDTH DOWNLINK - EDGE

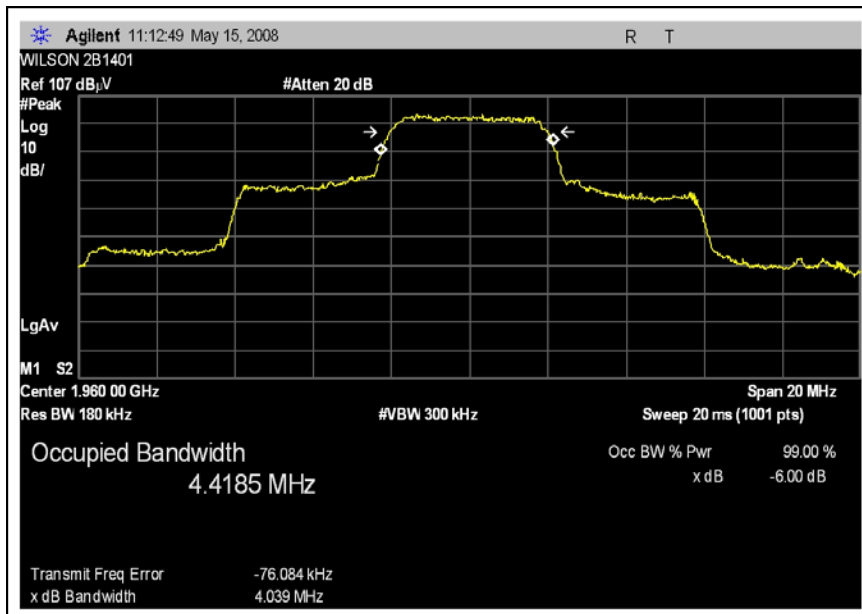




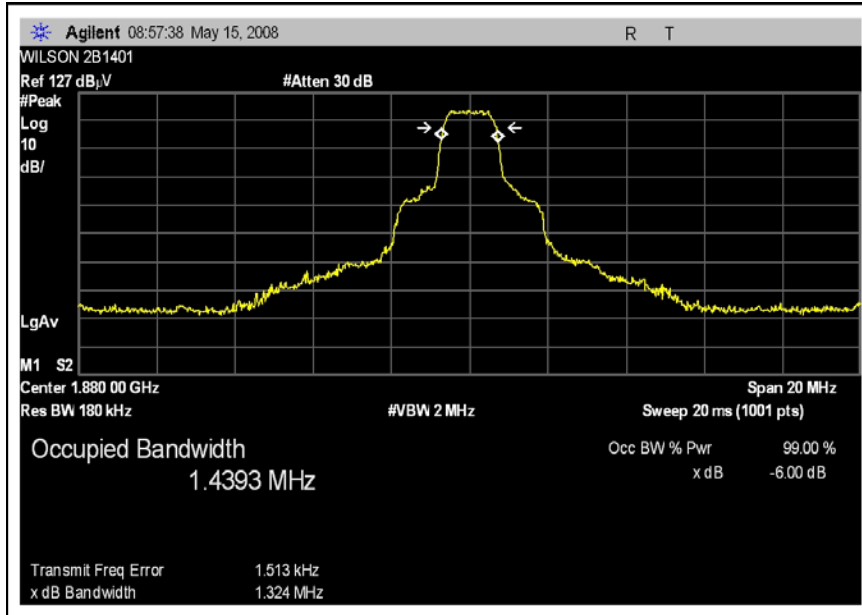
### 99% BANDWIDTH DOWNLINK - GSM



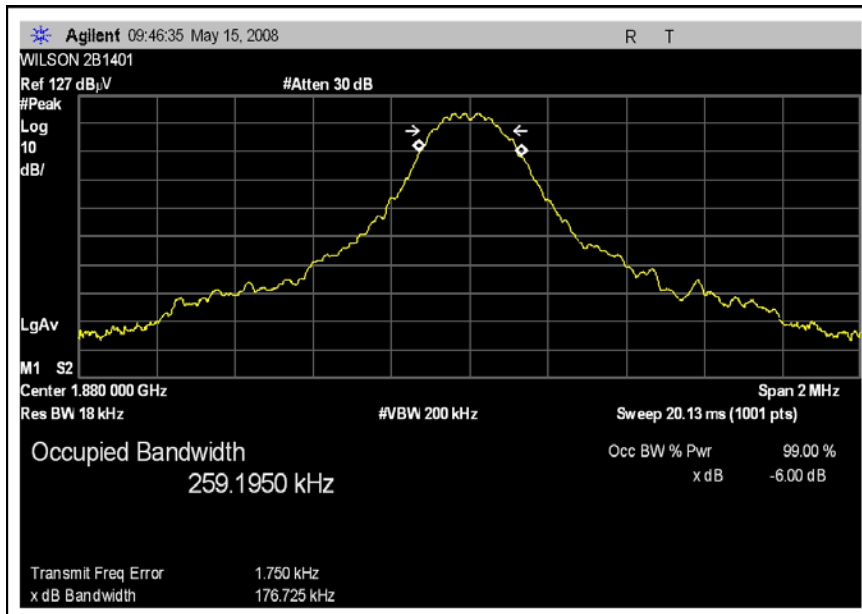
### 99% BANDWIDTH DOWNLINK - WCDMA



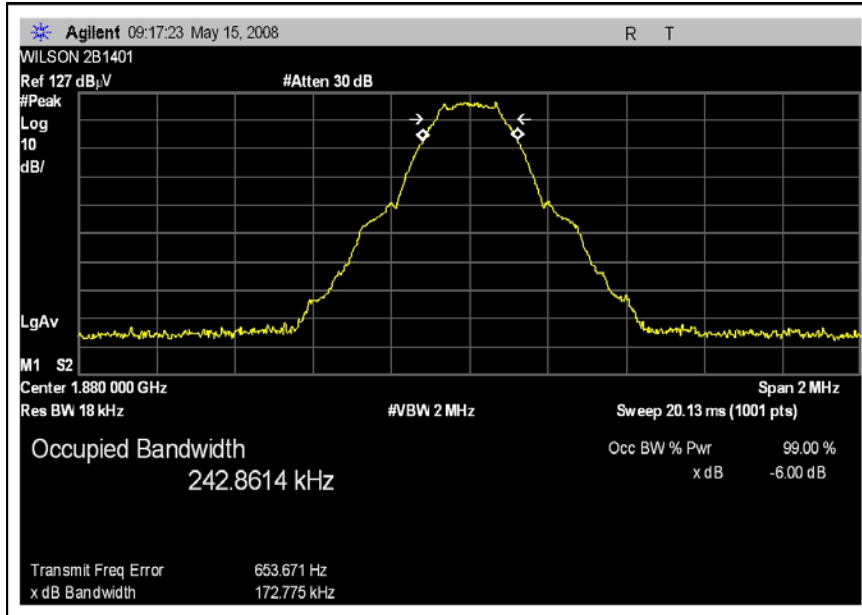
### 99% BANDWIDTH UPLINK - CDMA



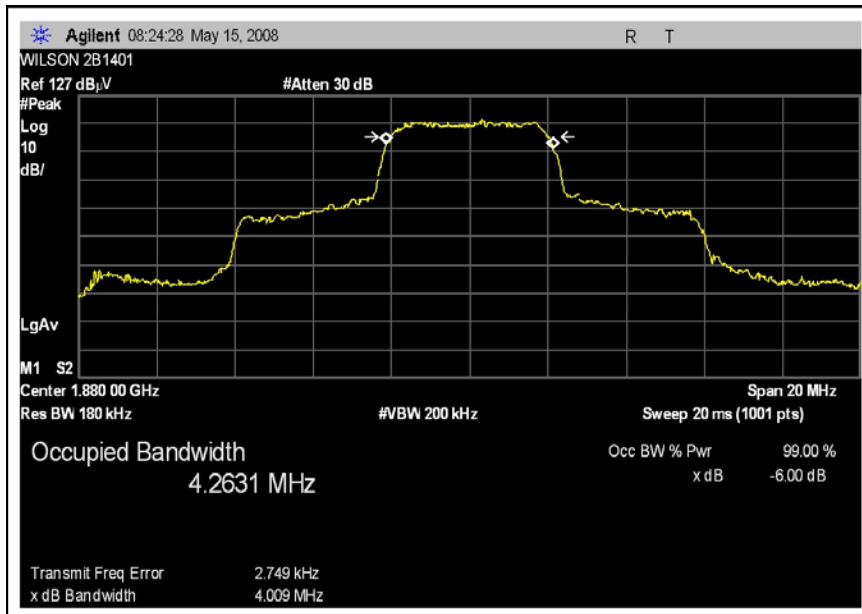
### 99% BANDWIDTH UPLINK - EDGE



### 99% BANDWIDTH UPLINK - GSM



### 99% BANDWIDTH UPLINK - WCDMA



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

**Test Setup Photos**



**Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **FCC 24.238**  
 Work Order #: **88034** Date: 6/16/2008  
 Test Type: **Maximized Emissions** Time: 16:45:02  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 4  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011128467

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigatronics	1026	281701

**Test Conditions / Notes:**

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 22.3°C, Relative Humidity: 35%. GSM/EDGE RBW = 1MHz CDMA RBW = 3 MHz WCDMA RBW = 10 MHz VBW = 3 x RBW.

**Transducer Legend:**

T1=ATT 10d B AN02139 T2=CAB-AN03008-40GHZ-2FT

#	Freq MHz	Rdng dBμV	Reading listed by margin.				Test Distance: None				
			T1 dB	T2 dB	dB		Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	811.120M	68.6	+10.0	+0.5			+0.0	79.1	94.0	-14.9	None
									UL-HIGH CH- WCDMA		
2	709.250M	67.6	+10.0	+0.5			+0.0	78.1	94.0	-15.9	None
									UL-LOW CH- WCDMA		
3	819.470M	67.2	+10.0	+0.5			+0.0	77.7	94.0	-16.3	None
									UL-HIGH CH- GSM		
4	880.300M	67.0	+10.0	+0.6			+0.0	77.6	94.0	-16.4	None
									DL-MID CH- WCDMA		
5	735.000M	67.0	+10.0	+0.5			+0.0	77.5	94.0	-16.5	None
									UL-MID CH- WCDMA		
6	869.000M	66.8	+10.0	+0.5			+0.0	77.3	94.0	-16.7	None
									DL-LOW CH- WCDMA		
7	760.030M	66.0	+10.0	+0.5			+0.0	76.5	94.0	-17.5	None
									UL-MID CH- EDGE		
8	817.510M	65.8	+10.0	+0.5			+0.0	76.3	94.0	-17.7	None
									UL-HIGH CH- CDMA		
9	956.800M	65.5	+10.0	+0.6			+0.0	76.1	94.0	-17.9	None
									DL-HIGH CH- WCDMA		
10	920.200M	65.5	+10.0	+0.5			+0.0	76.0	94.0	-18.0	None
									DL-MID CH- WCDMA		
11	971.200M	65.4	+10.0	+0.5			+0.0	75.9	94.0	-18.1	None
									DL-HIGH CH- WCDMA		
12	803.500M	65.1	+10.0	+0.6			+0.0	75.7	94.0	-18.3	None
									DL-LOW CH- WCDMA		

13	3760.030M	65.2	+10.0	+0.5	+0.0	75.7	94.0	-18.3	None
							UL-MID CH-GSM		
14	716.680M	64.0	+10.0	+0.6	+0.0	74.6	94.0	-19.4	None
							UL-HIGH CH-WCDMA		
15	615.000M	63.6	+10.0	+0.6	+0.0	74.2	94.0	-19.8	None
							UL-MID CH-WCDMA		
16	819.470M	63.4	+10.0	+0.5	+0.0	73.9	94.0	-20.1	None
							UL-HIGH CH-EDGE		
17	5563.750M	63.3	+10.0	+0.6	+0.0	73.9	94.0	-20.1	None
							UL-LOW CH-WCDMA		
18	3702.500M	61.2	+10.0	+0.5	+0.0	71.7	94.0	-22.3	None
							UL-LOW CH-CDMA		
19	3760.000M	60.8	+10.0	+0.5	+0.0	71.3	94.0	-22.7	None
							UL-MID CH-CDMA		
20	5880.000M	60.6	+10.0	+0.6	+0.0	71.2	94.0	-22.8	None
							DL-MID CH-EDGE		
21	3862.700M	60.6	+10.0	+0.5	+0.0	71.1	94.0	-22.9	None
							DL-LOW CH-CDMA		
22	5966.560M	60.4	+10.0	+0.6	+0.0	71.0	94.0	-23.0	None
							DL-HIGH CH-CDMA		
23	5880.075M	59.5	+10.0	+0.6	+0.0	70.1	94.0	-23.9	None
							DL-MID CH-GSM		
24	5880.400M	59.0	+10.0	+0.6	+0.0	69.6	94.0	-24.4	None
							DL-MID CH-CDMA		
25	3920.300M	59.0	+10.0	+0.5	+0.0	69.5	94.0	-24.5	None
							DL-MID CH-CDMA		
26	5790.810M	58.8	+10.0	+0.6	+0.0	69.4	94.0	-24.6	None
							DL-LOW CH-EDGE		
27	700.590M	58.7	+10.0	+0.5	+0.0	69.2	94.0	-24.8	None
							UL-LOW CH-EDGE		
28	3700.575M	58.6	+10.0	+0.5	+0.0	69.1	94.0	-24.9	None
							UL-LOW CH-GSM		
29	7958.935M	58.0	+10.1	+0.7	+0.0	68.8	94.0	-25.2	None
							DL-HIGH CH-EDGE		
30	5969.215M	58.1	+10.0	+0.6	+0.0	68.7	94.0	-25.3	None
							DL-HIGH CH-EDGE		

31	5640.000M	58.1	+10.0	+0.6	+0.0	68.7	94.0	-25.3	None
							UL-MID CH-CDMA		
32	3977.710M	57.8	+10.0	+0.5	+0.0	68.3	94.0	-25.7	None
							DL-HIGH CH-CDMA		
33	5726.260M	57.7	+10.0	+0.6	+0.0	68.3	94.0	-25.7	None
							UL-HIGH CH-CDMA		
34	5794.150M	57.4	+10.0	+0.6	+0.0	68.0	94.0	-26.0	None
							DL-LOW CH-CDMA		
35	5553.750M	57.3	+10.0	+0.6	+0.0	67.9	94.0	-26.1	None
							UL-LOW CH-CDMA		
36	5969.235M	55.8	+10.0	+0.6	+0.0	66.4	94.0	-27.6	None
							DL-HIGH CH-GSM		
37	5640.045M	55.6	+10.0	+0.6	+0.0	66.2	94.0	-27.8	None
							UL-MID CH-GSM		
38	3860.610M	55.4	+10.0	+0.5	+0.0	65.9	94.0	-28.1	None
							DL-LOW CH-EDGE		
39	3920.000M	55.3	+10.0	+0.5	+0.0	65.8	94.0	-28.2	None
							DL-MID CH-EDGE		
40	3979.490M	55.1	+10.0	+0.5	+0.0	65.6	94.0	-28.4	None
							DL-HIGH CH-GSM		
41	3860.610M	55.0	+10.0	+0.5	+0.0	65.5	94.0	-28.5	None
							DL-LOW CH-GSM		
42	3920.050M	54.5	+10.0	+0.5	+0.0	65.0	94.0	-29.0	None
							DL-MID CH-GSM		
43	5790.915M	54.2	+10.0	+0.6	+0.0	64.8	94.0	-29.2	None
							DL-LOW CH-GSM		
44	5729.205M	53.7	+10.0	+0.6	+0.0	64.3	94.0	-29.7	None
							UL-HIGH CH-EDGE		
45	5640.045M	53.4	+10.0	+0.6	+0.0	64.0	94.0	-30.0	None
							UL-MID CH-EDGE		
46	5550.885M	53.3	+10.0	+0.6	+0.0	63.9	94.0	-30.1	None
							UL-LOW CH-EDGE		
47	5550.855M	53.3	+10.0	+0.6	+0.0	63.9	94.0	-30.1	None
							UL-LOW CH-GSM		
48	5729.205M	52.9	+10.0	+0.6	+0.0	63.5	94.0	-30.5	None
							UL-HIGH CH-GSM		

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

**Test Setup Photos**







**Test Data Sheets**

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **24.238**  
 Work Order #: **88034** Date: 6/23/2008  
 Test Type: **Maximized Emissions** Time: 15:20:53  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 14  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011128467

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099
3M SITE CABLE 20GHZ	NA	03/06/2008	03/06/2010	SITED3M1
Andrews Hardline (25')	CKC 1012	04/23/2007	04/23/2009	P01012
EMCO 3115 Horn Antenna	9307-4085	03/17/2007	03/17/2009	00656
ARA MWH-1826/B Horn Antenna	1005	11/26/2006	11/26/2008	02046
HP 8449B Preamp	3008A00301	12/13/2006	12/13/2008	2010
Mag Loop Antenna	1074	5/1/2007	5/1/2009	00226

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467
DC Power Supply	Jentec	AH1812-B	None

**Support Devices:**

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigatronics	1026	281701

**Test Conditions / Notes:**

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT RF output ports are terminated in 50 Ohms. An input level just below that which will cause the EUT to automatically attenuate the input signal level was applied to the inputs. Modulation is CW (worst case). Uplink & Downlink Paths tested as noted in the data. Low, Mid and High channels tested as noted in the data. Frequency Range Investigated: 8 to 20000 MHz. Temperature: 22.3°C, Relative Humidity: 35%. RBW=100 kHz VBW 300 kHz.

Operating Frequency: 1850-1910 MHz and 1930-1990 MHz

Channels: Low, Mid and High

Highest Measured Output Power: 29.70 ERP(dBm)= 0.933 ERP(Watts)

Distance: 3 meters

Limit:  $43+10\text{Log}(P)$  42.70 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
11,279.99	-47.5	Vert	77.20
11,279.99	-47.6	Horiz	77.30
9,400.00	-49.1	Vert	78.80
3,700.56	-49.9	Vert	79.60
9,400.00	-51.7	Horiz	81.40
5,640.00	-51.9	Horiz	81.60
7,520.00	-52.9	Vert	82.60
5,550.84	-53.9	Horiz	83.60
3,860.56	-54	Horiz	83.70
7,721.12	-54.1	Vert	83.80
7,721.12	-54.5	Horiz	84.20
5,640.00	-55.2	Vert	84.90
3,760.00	-55.4	Horiz	85.10
7,401.12	-55.4	Horiz	85.10
7,401.12	-55.7	Vert	85.40
3,860.56	-56.6	Vert	86.30
7,520.00	-57.3	Horiz	87.00
3,700.56	-57.6	Horiz	87.30
3,920.00	-58.7	Vert	88.40
3,920.00	-59.4	Horiz	89.10
3,979.44	-60.4	Horiz	90.10
3,979.43	-60.5	Vert	90.20
5,969.15	-61.2	Vert	90.90
5,880.00	-61.6	Vert	91.30
5,969.15	-61.7	Horiz	91.40
5,880.00	-62.1	Horiz	91.80
5,550.84	-62.3	Vert	92.00
5,790.84	-62.3	Horiz	92.00
3,760.00	-62.6	Vert	92.30
5,669.72	-63	Horiz	92.70
5,669.72	-63.5	Vert	93.20
3,789.72	-65.2	Vert	94.90
3,789.72	-65.8	Horiz	95.50



**FCC 2.1051 – INTERMODULATION ATTENUATION**

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209 966-5240

Customer: **Wilson Electronics**  
 Specification: **24.238**  
 Work Order #: **88034** Date: 6/3/2008  
 Test Type: **Maximized Emissions** Time: 13:27:41  
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 7  
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson  
 Model: 2B1401  
 S/N: 811401A1011128467

***Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz	NA	01/15/2008	01/15/2010	AN03008
Astrolab Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigatronics	1026	281701

***Test Conditions / Notes:***

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Combined cable and attenuator insertion loss accounted for in the measurements were: 10.1 to 10.2 dB for the frequency range of 824 to 894 MHz. 10.3 dB for the frequency range of 1850 to 1990 MHz. Frequency Range Investigated: 9kHz - 20 GHz. Temperature: 22.3°C, Relative Humidity: 35%. RBW=100kHz.

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

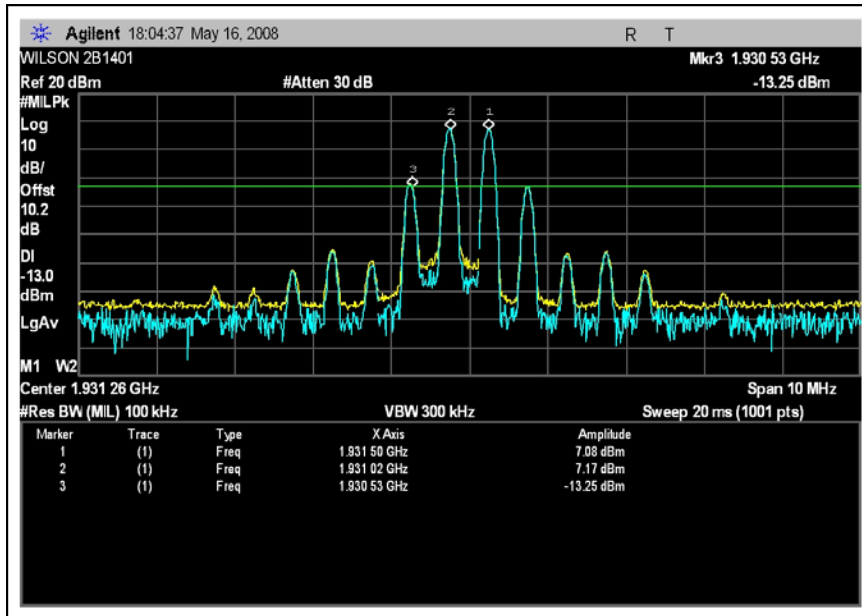
#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.				Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	1961.000M	-13.1					+0.0	-13.1	-13.0	-0.1	None
									DL-MID CH		
2	1930.530M	-13.3					+0.0	-13.3	-13.0	-0.3	None
									DL-LOW CH		
3	1989.000M	-13.4					+0.0	-13.4	-13.0	-0.4	None
									DL-HIGH CH		

**Test Setup Photos**

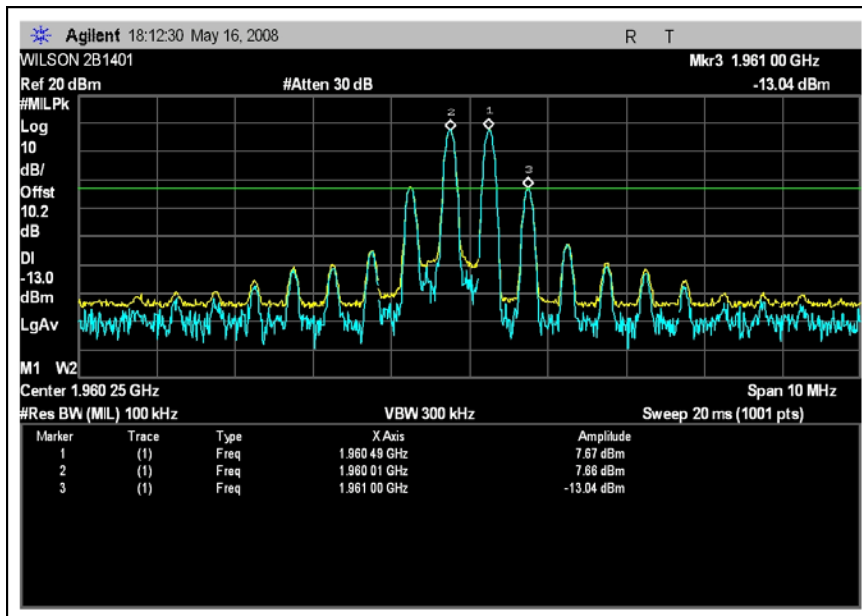


## Test Plots

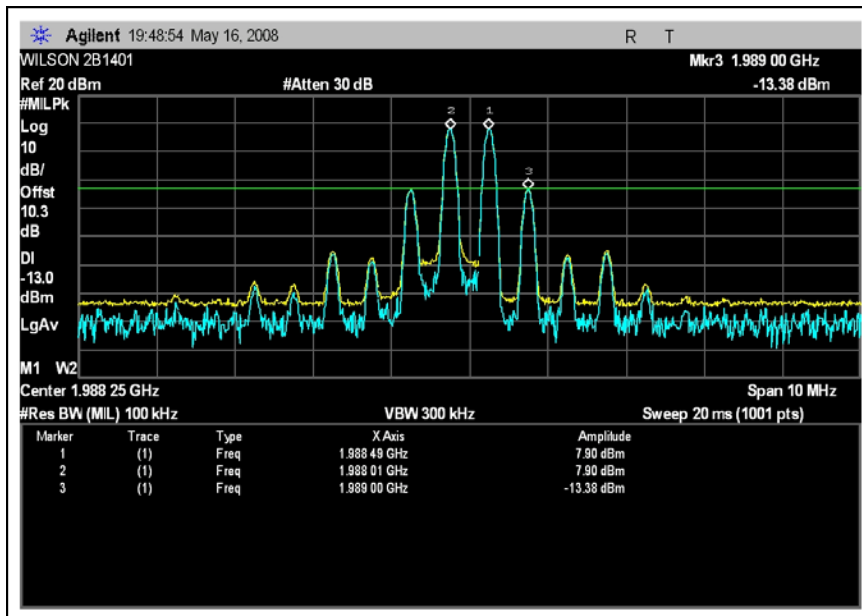
### FCC 24.238 INTERMODULATION ATTENUATION DOWNLINK - LOW CHANNEL



### FCC 24.238 INTERMODULATION ATTENUATION DOWNLINK - MIDDLE CHANNEL



**FCC 24.238 INTERMODULATION ATTENUATION DOWNLINK  
- HIGH CHANNEL**



**FCC 2.1051 – OUT OF BAND REJECTION**

***1900 MHz OOBG Plots Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatronics	1026	281701

***Test Conditions / Notes:***

This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Temperature: 22.3°C, Relative Humidity: 35%. RBW=100kHz. Signal generator input signal used is CW and is swept to provide out of band and passband spectrum characteristics.. Frequency Range Investigated: See provide plots (frequency spectrum investigated up to three times the indicated span).

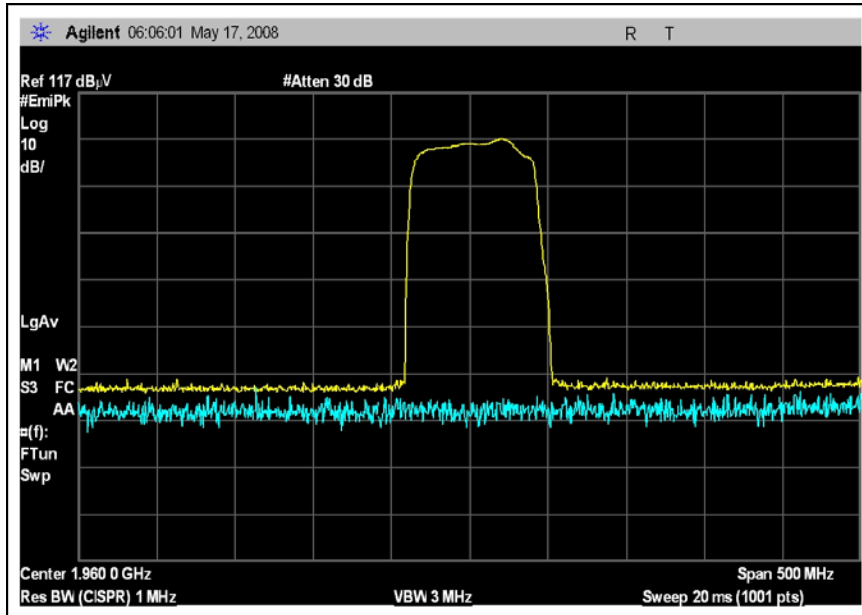
**Test Setup Photos**



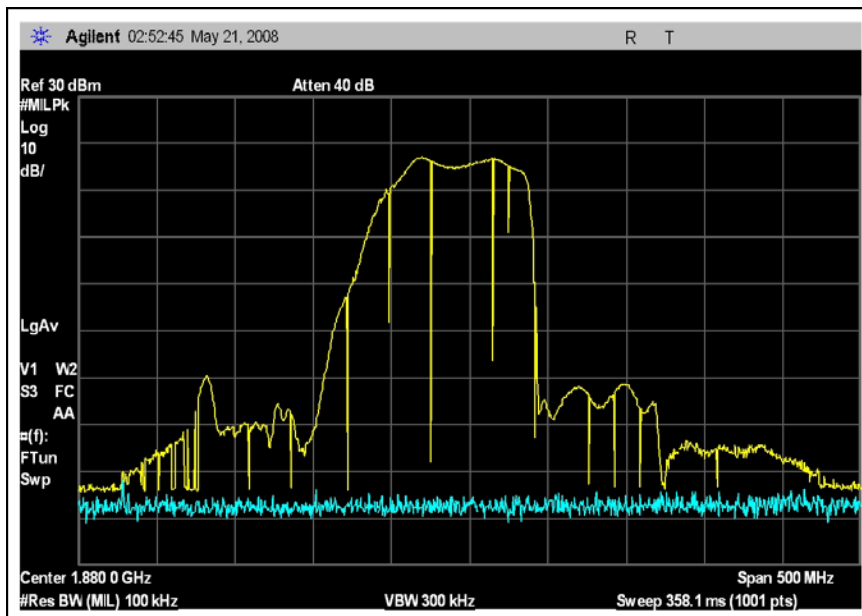


## Test Plots

### OUT OF BAND REJECTION DOWNLINK



### OUT OF BAND REJECTION UPLINK





**FCC 2.1051/2.1053 - BLOCK EDGE**

***1900 MHz BAND EDGE Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatronics	1026	281701

***Test Conditions / Notes:***

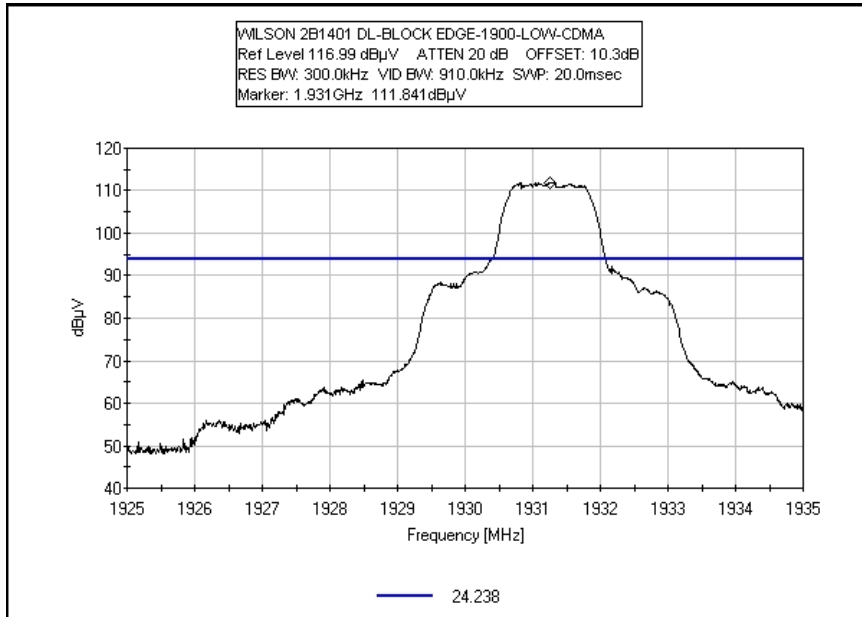
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: Carrier Mid Channel. Temperature: 21°C, Relative Humidity: 30%.

**Test Setup Photos**

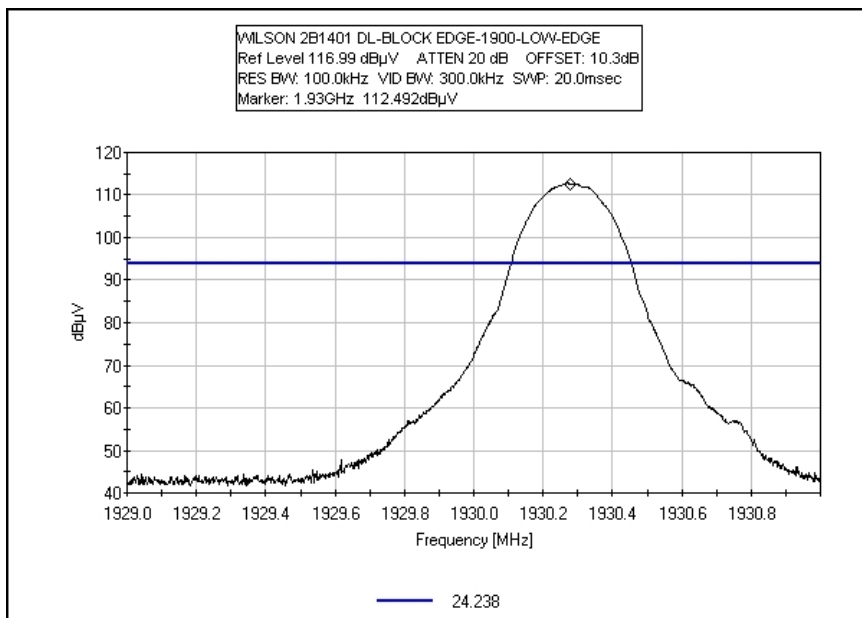


## Test Plots

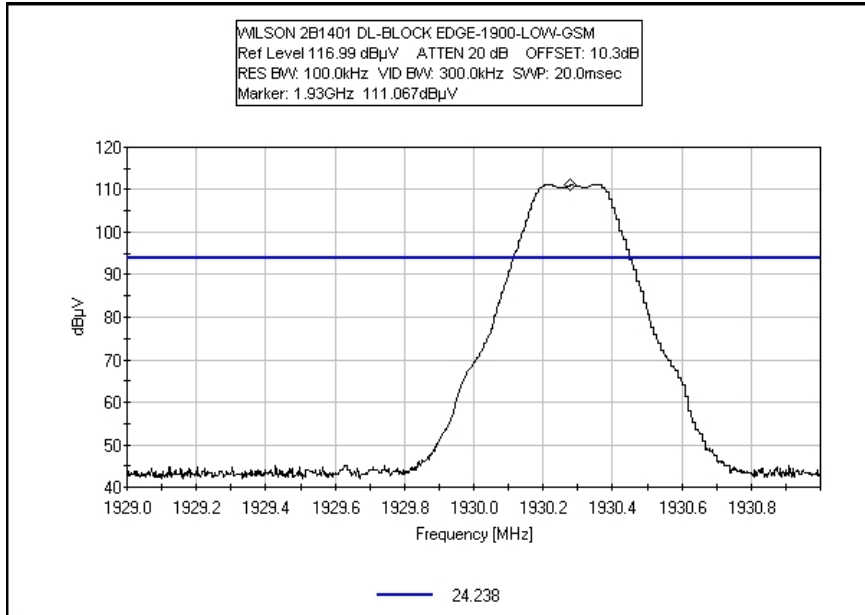
### BLOCK EDGE DOWNLINK - CDMA LOW CHANNEL



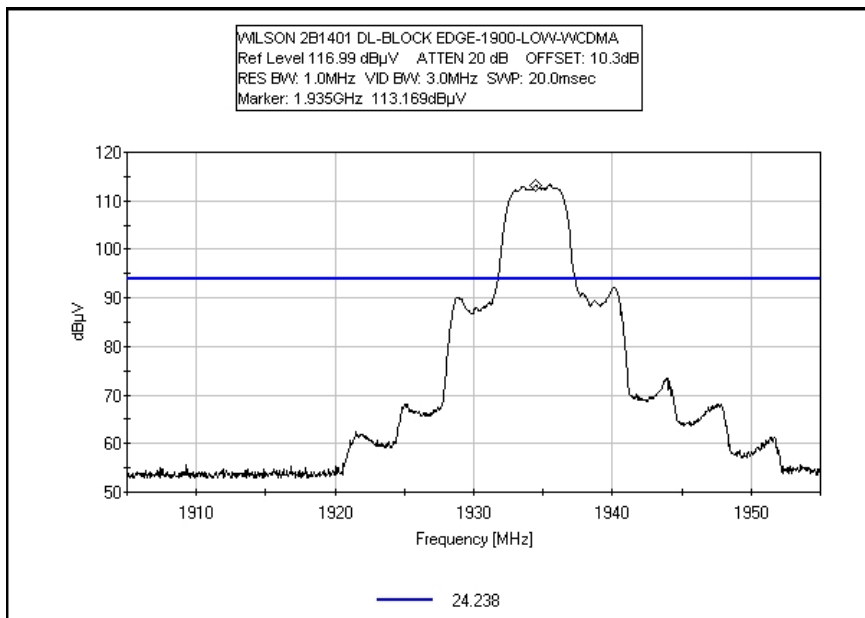
### BLOCK EDGE DOWNLINK - EDGE LOW CHANNEL



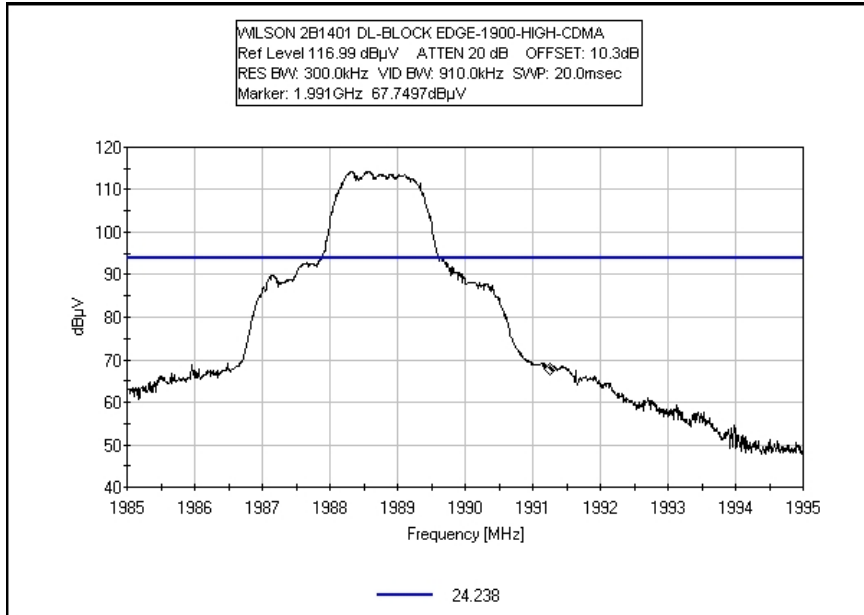
### BLOCK EDGE DOWNLINK - GSM LOW CHANNEL



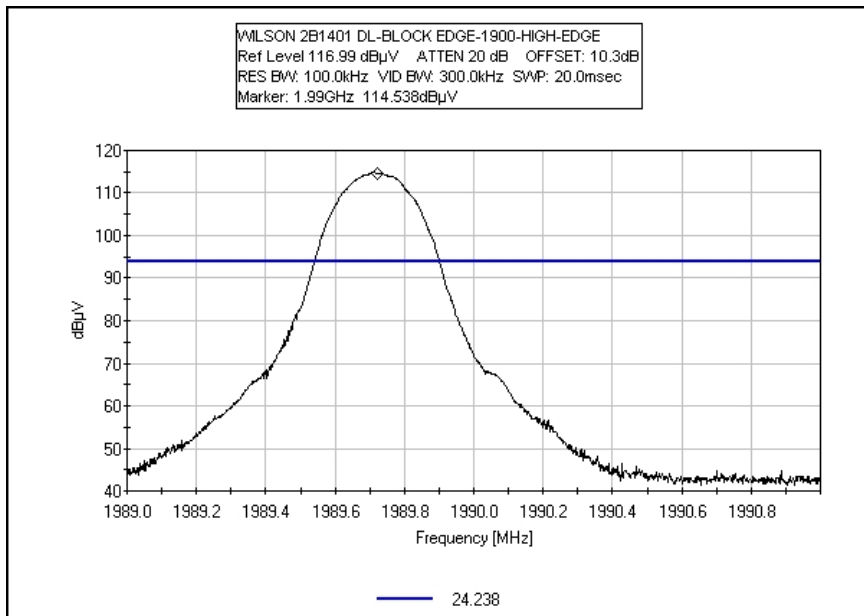
### BLOCK EDGE DOWNLINK - WCDMA LOW CHANNEL



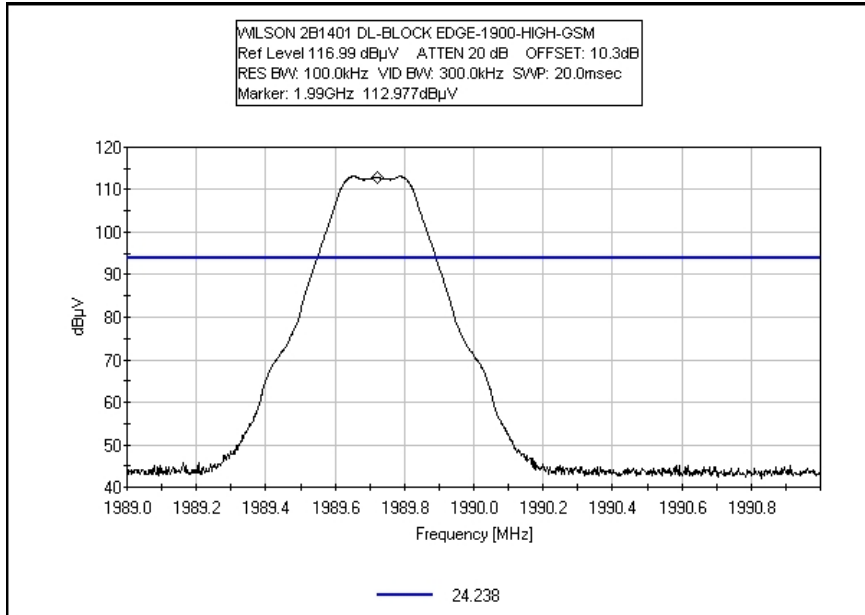
### BLOCK EDGE DOWNLINK - CDMA HIGH CHANNEL



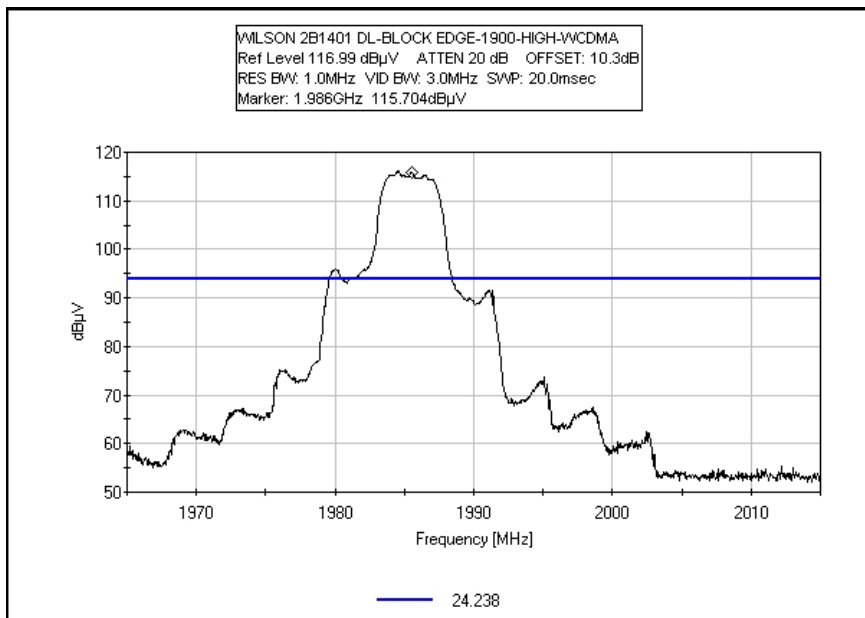
### BLOCK EDGE DOWNLINK - EDGE HIGH CHANNEL



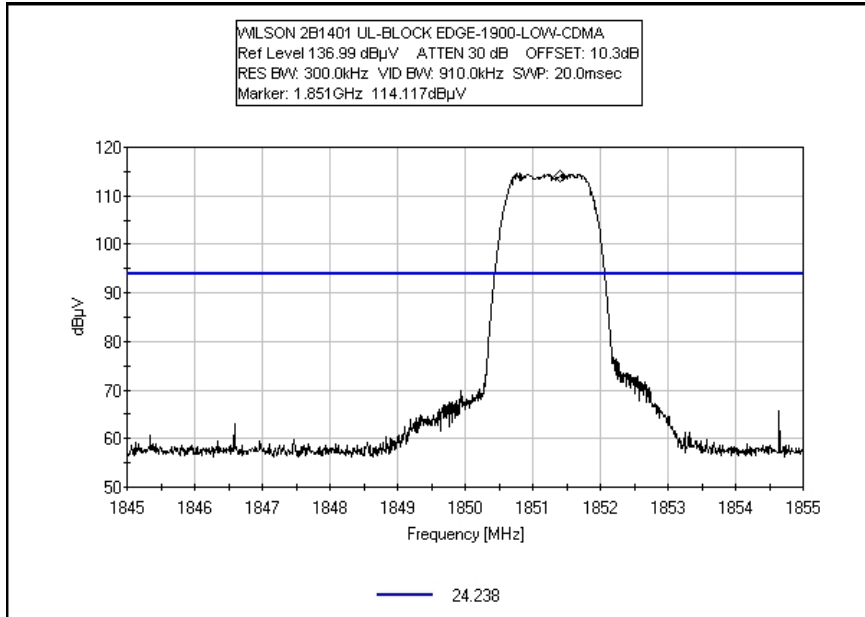
### BLOCK EDGE DOWNLINK - GSM HIGH CHANNEL



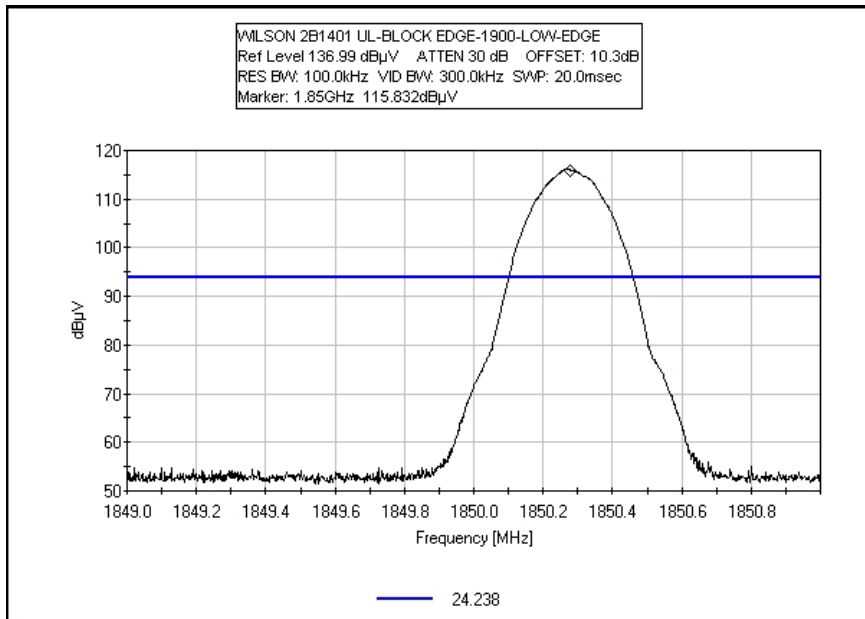
### BLOCK EDGE DOWNLINK - WCDMA HIGH CHANNEL



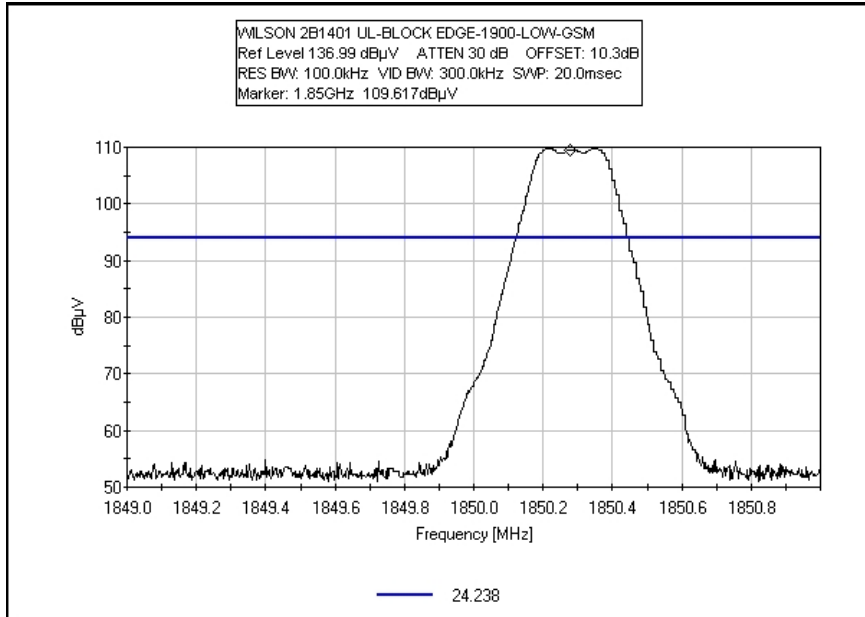
### BLOCK EDGE UPLINK - CDMA LOW CHANNEL



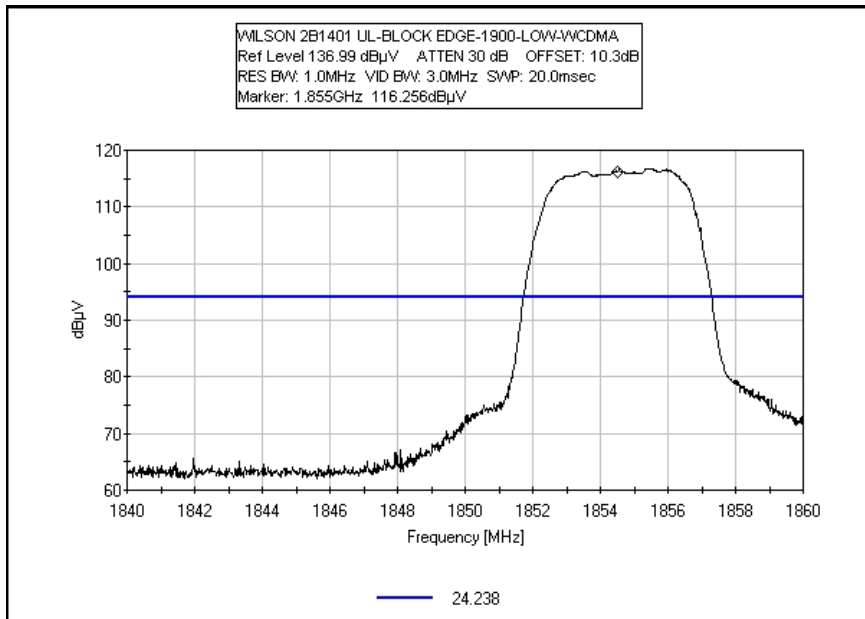
### BLOCK EDGE UPLINK - EDGE LOW CHANNEL



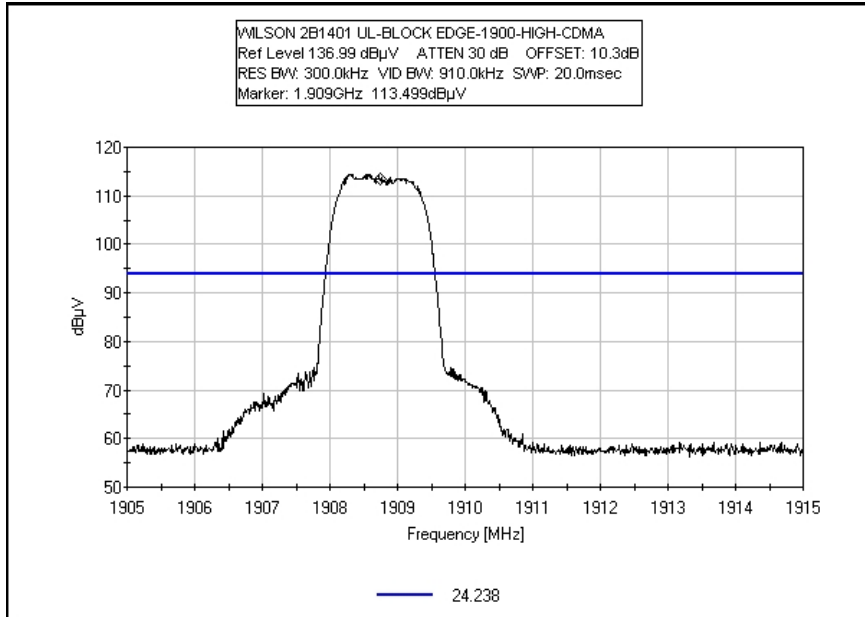
### BLOCK EDGE UPLINK - GSM LOW CHANNEL



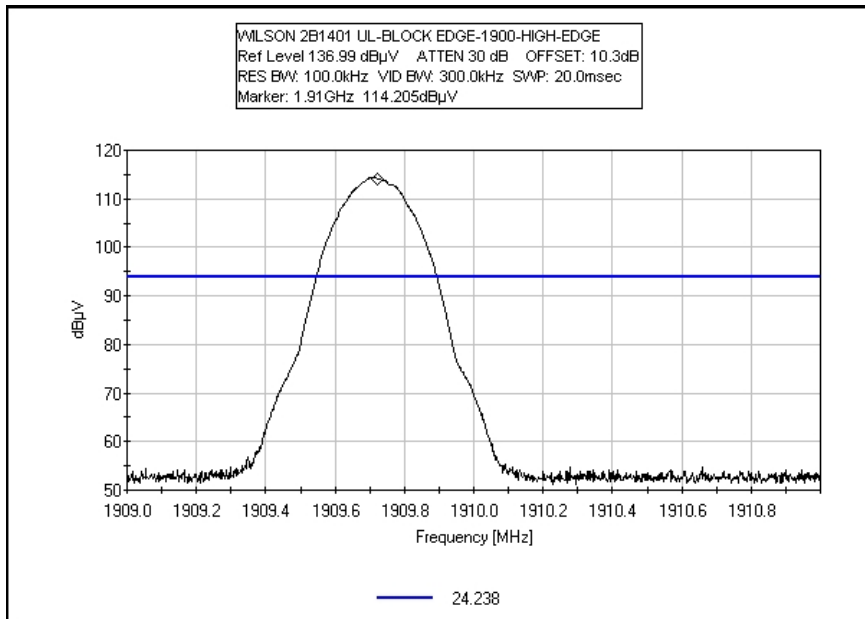
### BLOCK EDGE UPLINK - WCDMA LOW CHANNEL



### BLOCK EDGE UPLINK - CDMA HIGH CHANNEL

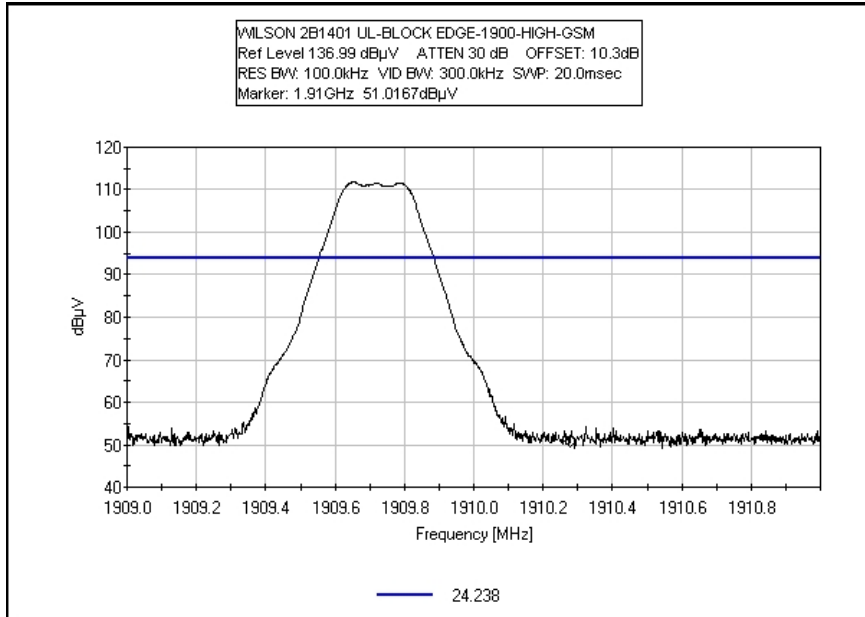


### BLOCK EDGE UPLINK - EDGE HIGH CHANNEL

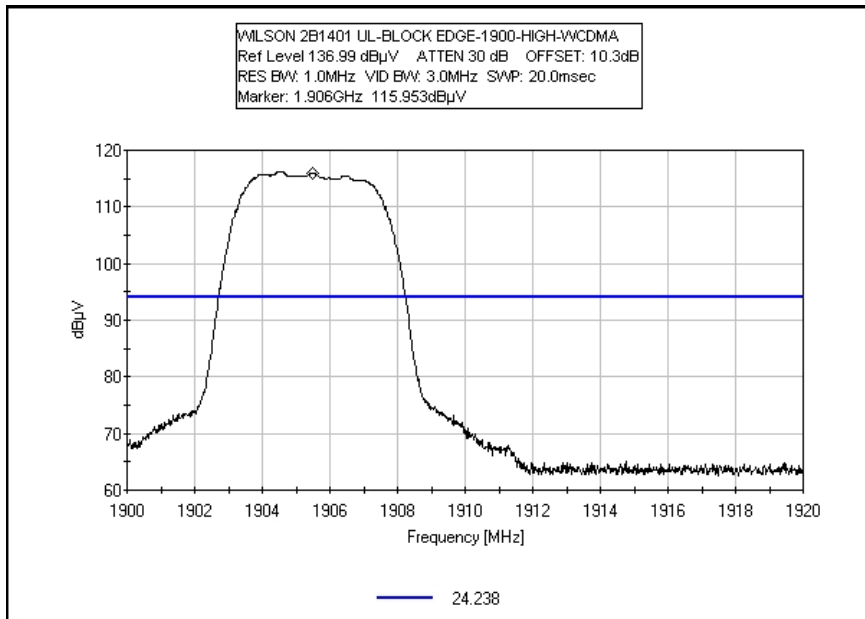




### BLOCK EDGE UPLINK - GSM HIGH CHANNEL



### BLOCK EDGE UPLINK - WCDMA HIGH CHANNEL



## INPUT PLOTS

### ***1900 MHz INPUT PLOTS Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

### ***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatrinics	1026	281701

### ***Test Conditions / Notes:***

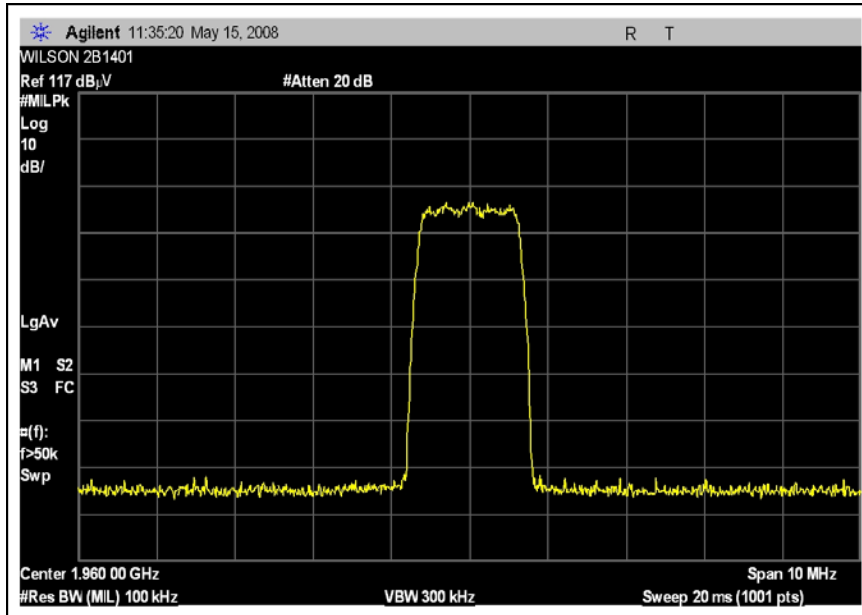
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. Input and output plots do not provide information regarding amplifier gain and the signal levels used vary significantly. For output plots, EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. For input plots, signal generator is connected directly to spectrum analyzer without external attenuation. The signal generator level is adjusted to provide appropriate display of input signal spectral characteristics. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%.

## **Test Setup Photos**

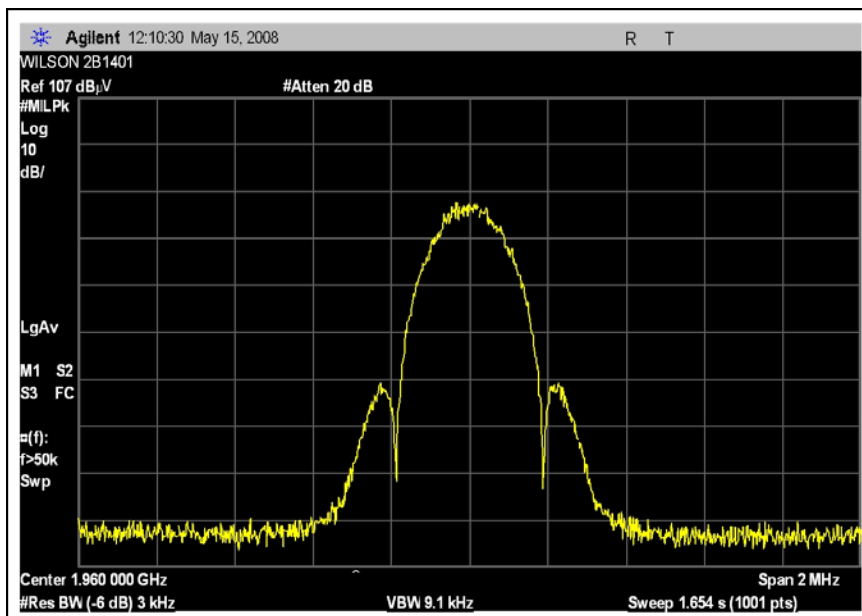


## Test Plots

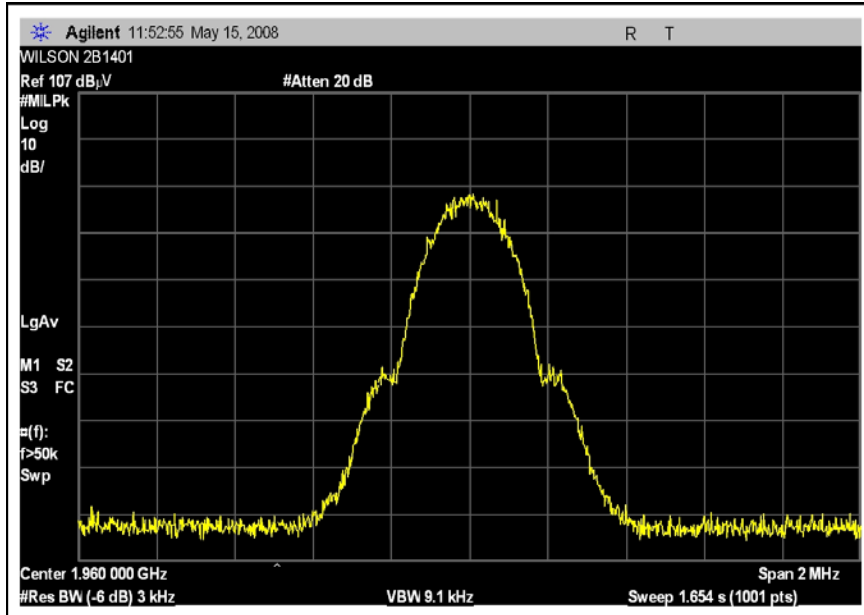
### INPUT PLOT DOWNLINK - CDMA



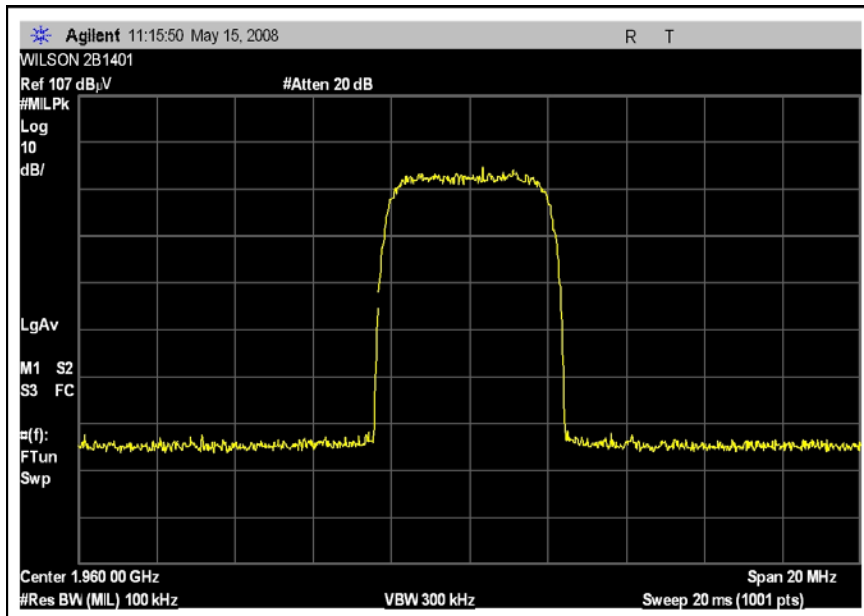
### INPUT PLOT DOWNLINK - EDGE



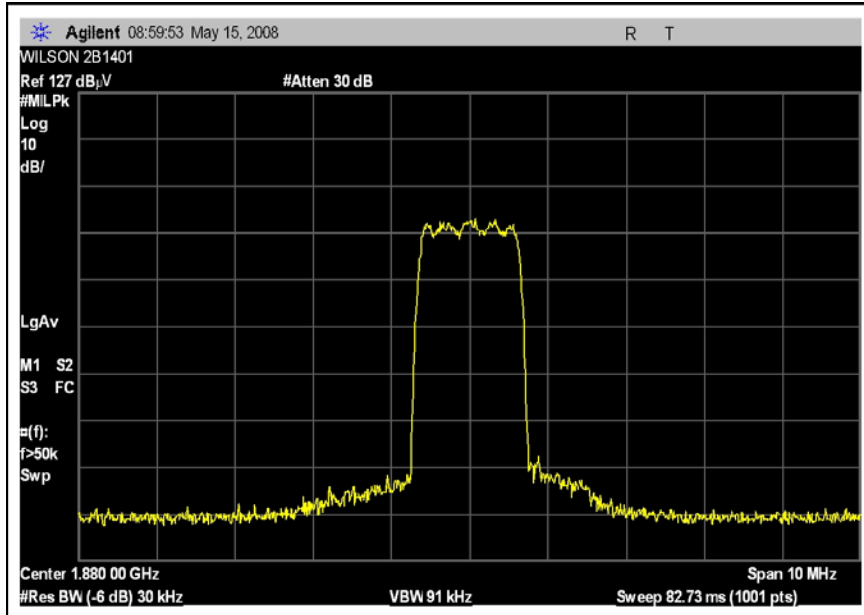
### INPUT PLOT DOWNLINK - GSM



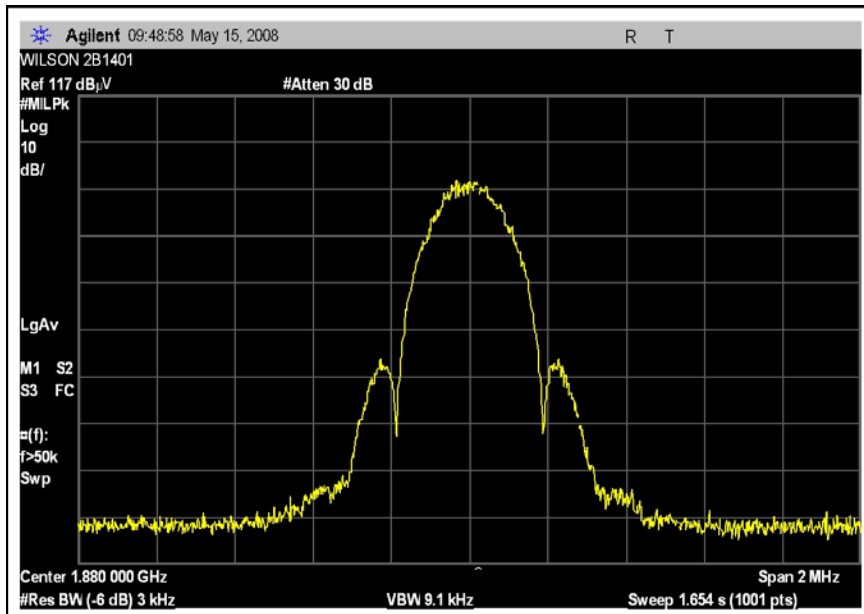
### INPUT PLOT DOWNLINK - WCDMA



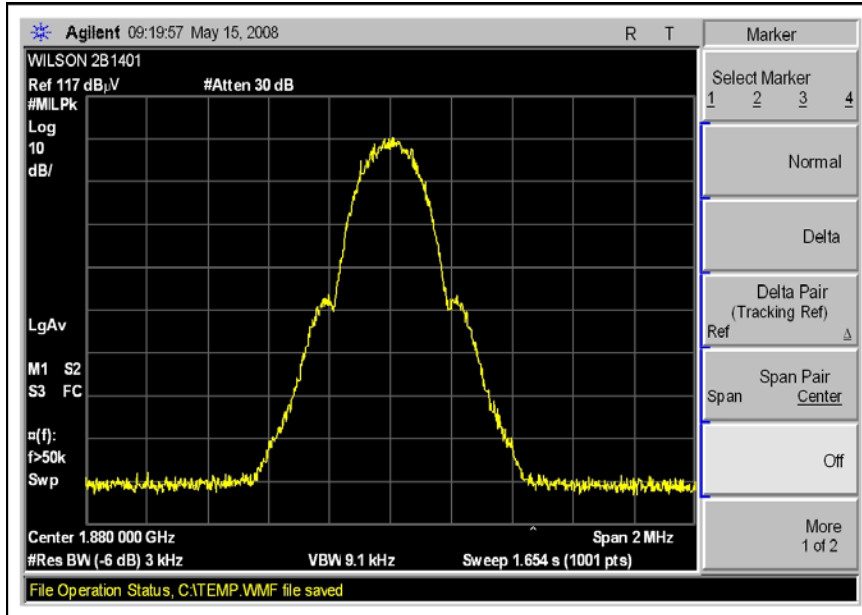
### INPUT PLOT UPLINK - CDMA



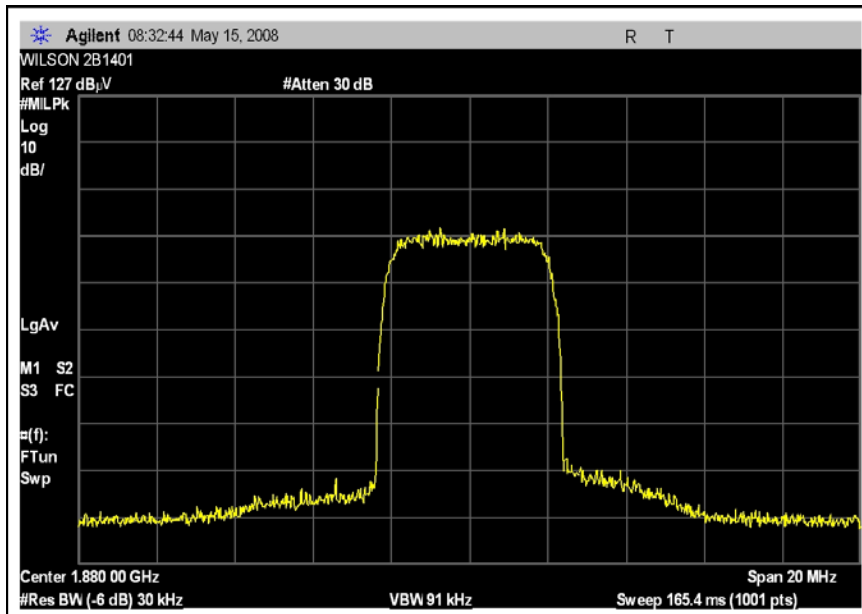
### INPUT PLOT UPLINK - EDGE



### INPUT PLOT UPLINK - GSM



### INPUT PLOT UPLINK - WCDMA



## OUTPUT PLOTS

### ***1900 MHz INPUT & OUTPUT PLOTS Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Cellular/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

### ***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatrinics	1026	281701

### ***Test Conditions / Notes:***

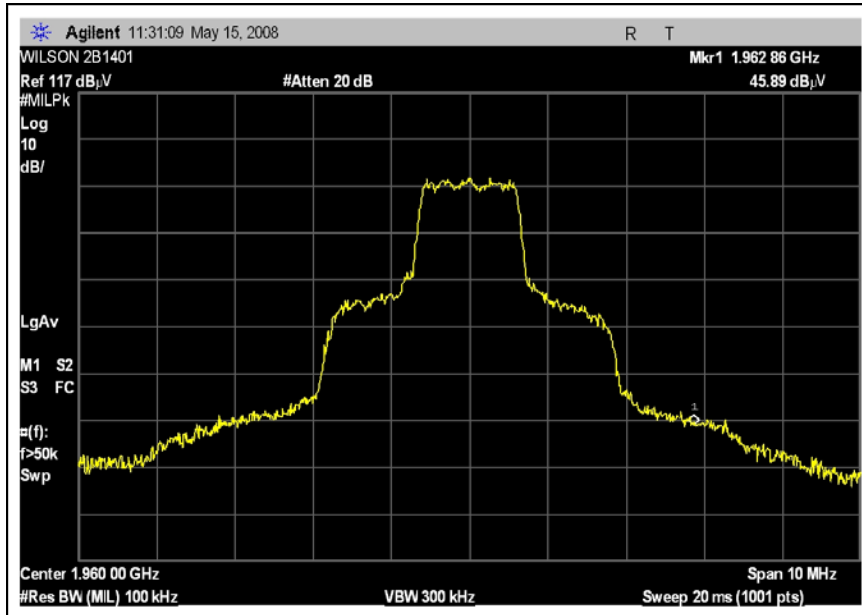
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. Input and output plots do not provide information regarding amplifier gain and the signal levels used vary significantly. For output plots, EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. For input plots, signal generator is connected directly to spectrum analyzer without external attenuation. The signal generator level is adjusted to provide appropriate display of input signal spectral characteristics. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%.

## **Test Setup Photos**

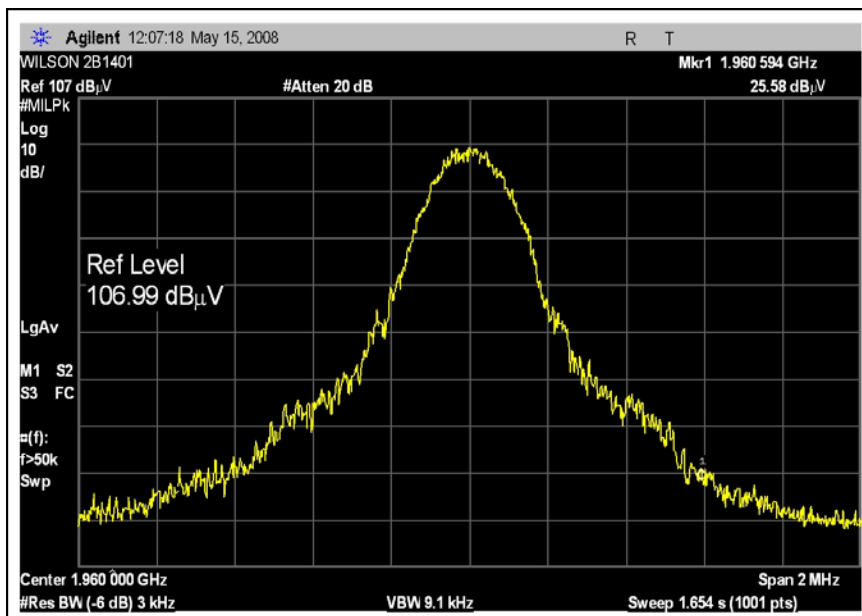


## Test Plots

### OUTPUT PLOT DOWNLINK - CDMA

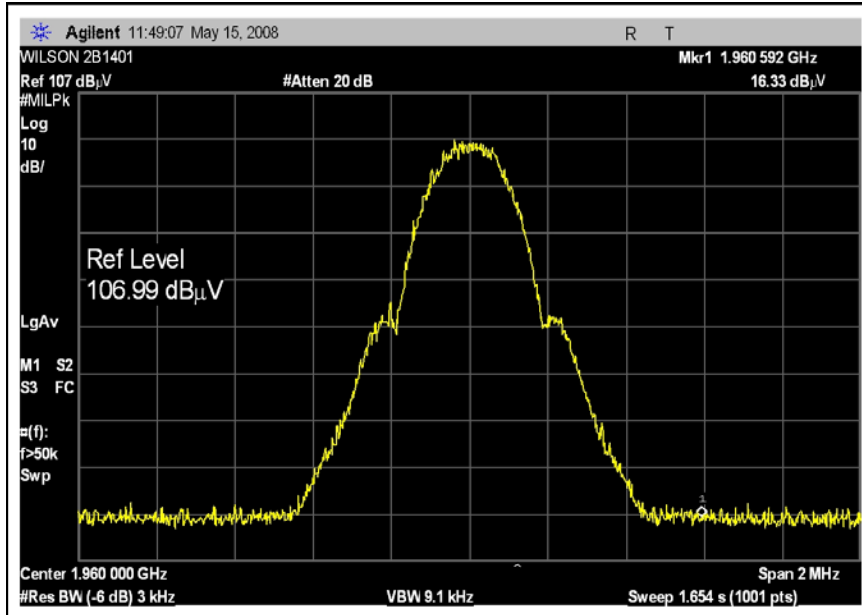


### OUTPUT PLOT DOWNLINK - EDGE

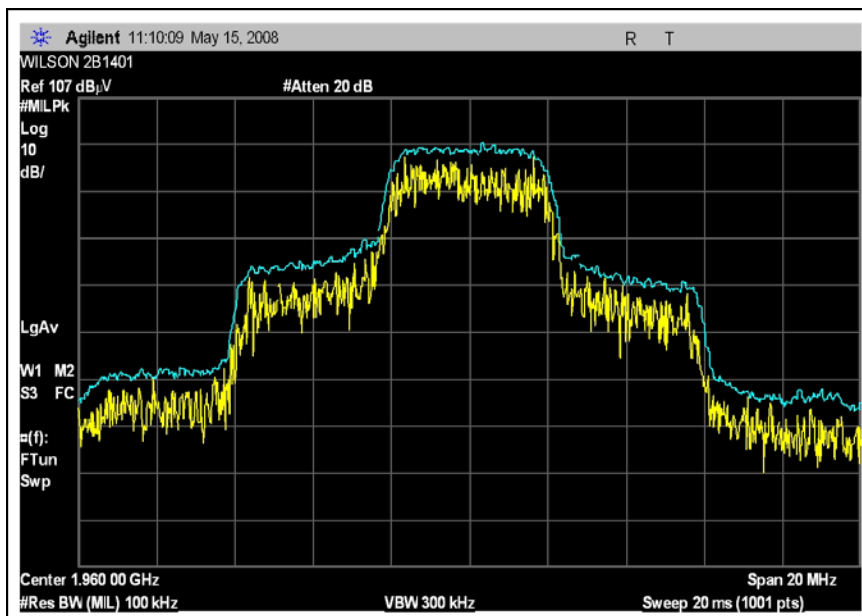




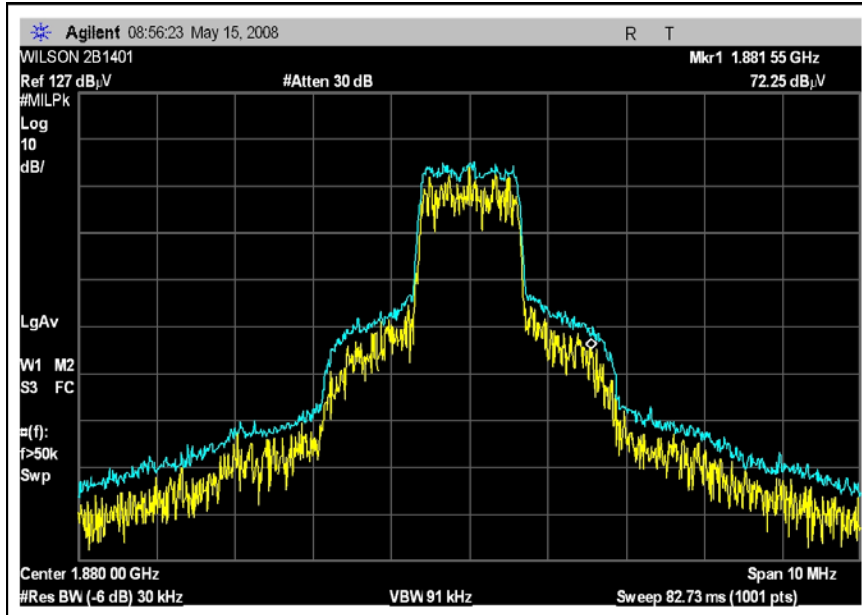
### OUTPUT PLOT DOWNLINK - GSM



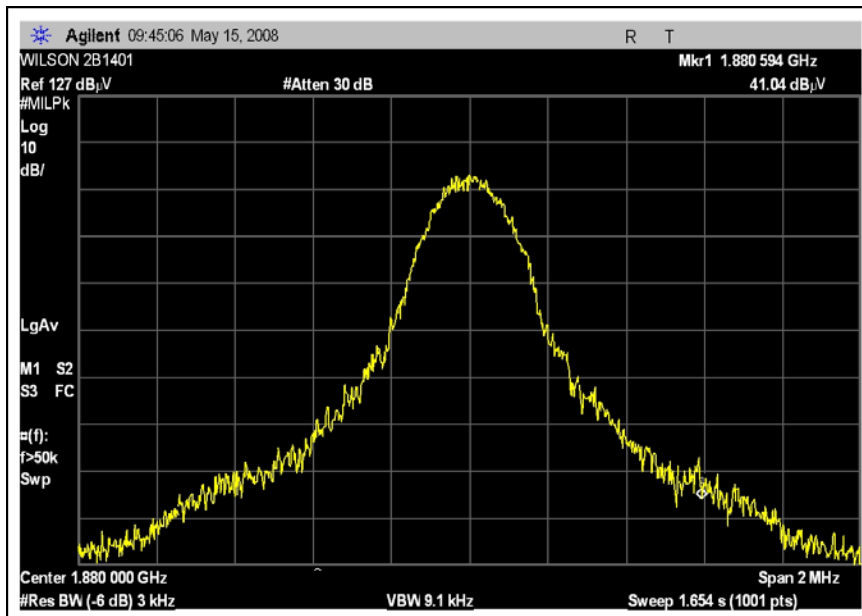
### OUTPUT PLOT DOWNLINK - WCDMA



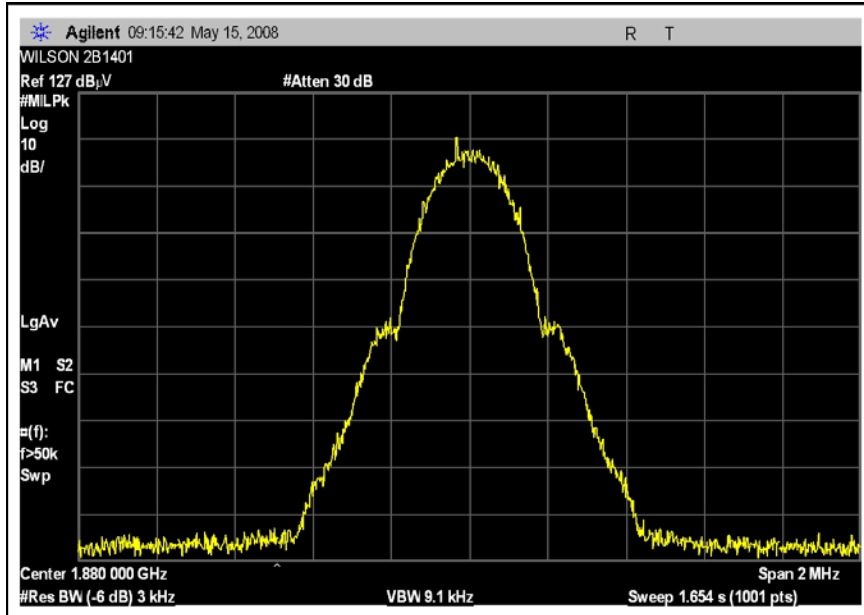
### OUTPUT PLOT UPLINK - CDMA



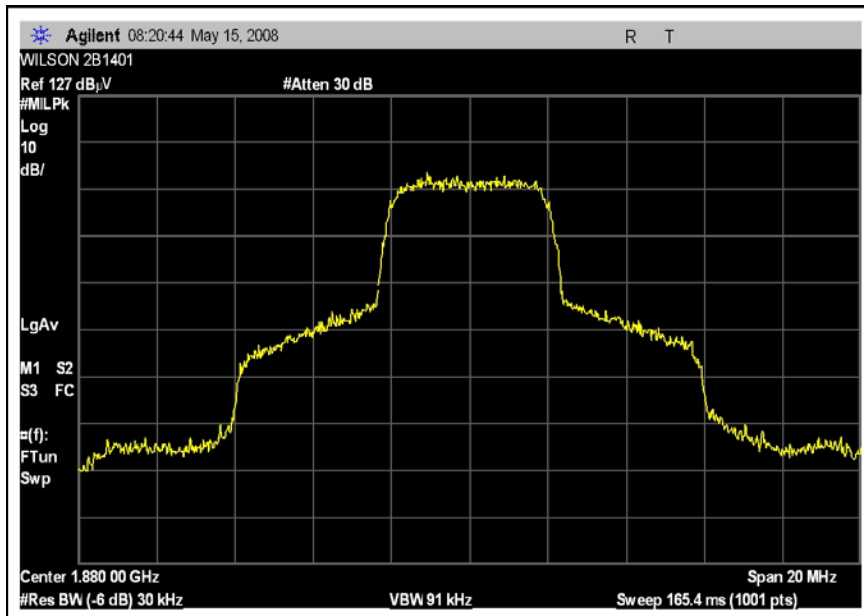
### OUTPUT PLOT UPLINK - EDGE



### OUTPUT PLOT UPLINK - GSM



### OUTPUT PLOT UPLINK - WCDMA



**RSS 131 SECTION 6.1 PASSBAND BANDWIDTH**

***RSS131 Passband Bandwidth Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatrinics	1026	281701

***Test Conditions / Notes:***

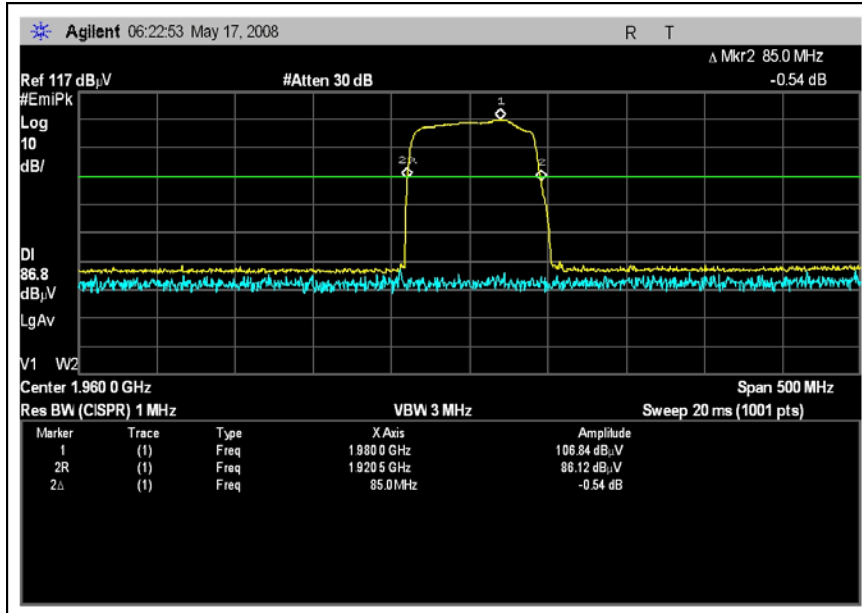
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Temperature: 22.3°C, Relative Humidity: 35%. RBW=100kHz. Signal generator input signal used is CW and is swept to provide amplification and bandwidth plots. Amplifier Gain is measured from the maximum output level to the input signal level. The input signal level is adjusted 3dB below the point at which the amplifier attenuates an input signal in the midband of the amplifier path. Passbandwidth is measured 20dBc from the maximum output level using the same settings as listed above. Frequency Range Investigated: See provide plots (frequency spectrum investigated up to three times the indicated span).

### Test Setup Photos

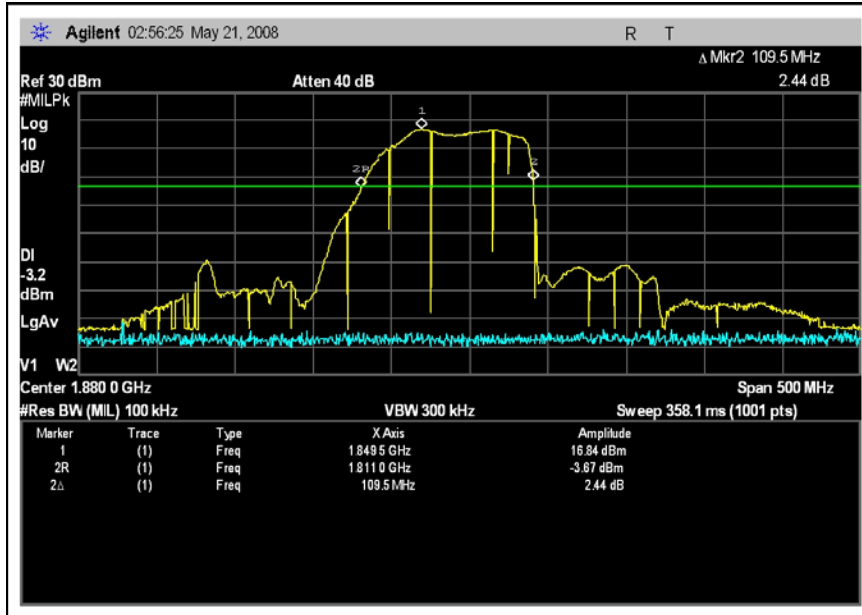


### Test Plots

#### RSS 131 PASSBAND BANDWIDTH DOWNLINK



### RSS 131 PASSBAND BANDWIDTH UPLINK



**RSS 131 SECTION 6.1 PASSBAND GAIN**

***RSS131 Passband Gain Test Equipment:***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

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

Function	Manufacturer	Model #	S/N
Direct Connection Celluar/PCS Amplifier w/ GPS Bypass*	Wilson Electronics	2B1401	811401A1011128467

***Support Devices:***

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027
Signal Generator	Agilent	E4437B	MY41000126
Signal Generator	Gigaatrinics	1026	281701

***Test Conditions / Notes:***

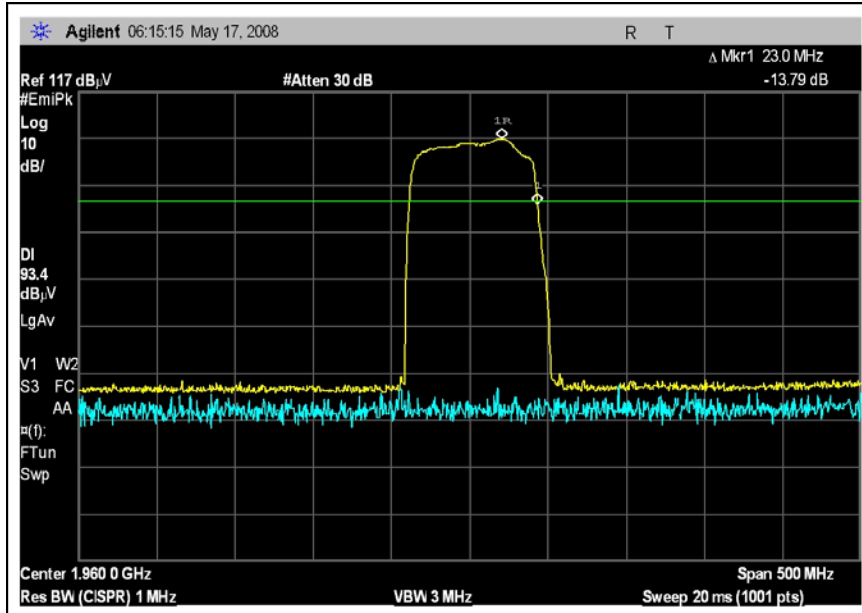
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the downlink direction. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Temperature: 22.3°C, Relative Humidity: 35%. RBW=100kHz. Signal generator input signal used is CW and is swept to provide amplification and bandwidth plots. Amplifier Gain is measured from the maximum output level to the input signal level. The input signal level is adjusted 3dB below the point at which the amplifier attenuates an input signal in the midband of the amplifier path. Passbandwidth is measured 20dBc from the maximum output level using the same settings as listed above. Frequency Range Investigated: See provide plots (frequency spectrum investigated up to three times the indicated span).

**Test Setup Photos**



**Test Plots**

**RSS 131 PASSBAND GAIN DOWNLINK**





## RSS 131 PASSBAND GAIN UPLINK

