



ADDENDUM TO WILSON ELECTRONICS TEST REPORT FC08-062

FOR THE

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

FCC PART 22 AND RSS 131 ISSUE 2

TESTING

DATE OF ISSUE: JULY 15, 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.: FC08-062A

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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 22, 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 22 and RSS 131 devices.

Addendum A: To correct the frequency range on page 26 and convert the field strength of spurious radiation data with no new testing.

APPROVALS

QUALITY ASSURANCE:

Steve Behm, Director of Engineering Services

TEST PERSONNEL:

Mike Wilkinson, Senior EMC Engineer/Lab Manager

SUMMARY OF RESULTS

| Test | Specification | Results |
|--|--|---------|
| RF Output Power | FCC 2.1033(c)(14)/2.1046/22.913 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)/2.1051/22.917 | Pass |
| Field Strength of Spurious Radiation | FCC 2.1033(c)(14)/2.1051/22.917 | 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 869-894 MHz, Uplink 824-849 MHz.

FCC 2.1033 (c)(6) OPERATING POWER

Downlink 10.72 mW, Uplink 2238 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)/2.1046/22.913 - RF POWER OUTPUT

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

Customer: **Wilson Electronics**
 Specification: **FCC 22.913**
 Work Order #: **88034** Date: 5/27/2008
 Test Type: **Maximized Emissions** Time: 13:48:16
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 1
 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 ERP.

Test Data

| Uplink | Part | Frequency | dBm | mW |
|---------------|-------------|------------------|------------|-----------|
| GSM Low | 22 | 824.85 | 31.5 | 1412 |
| GSM Mid | 22 | 836.50 | 32.6 | 1819 |
| GSM High | 22 | 848.17 | 32.6 | 1778 |
| EDGE Low | 22 | 824.82 | 32.2 | 1659 |
| EDGE Mid | 22 | 836.50 | 32.5 | 1778 |
| EDGE High | 22 | 848.73 | 33.1 | 2041 |
| CDMA Low | 22 | 825.27 | 31.6 | 1445 |
| CDMA Mid | 22 | 836.50 | 31.8 | 1413 |
| CDMA High | 22 | 845.27 | 33 | 2000 |
| WCDMA Low | 22 | 838.50 | 32.3 | 1698 |
| WCDMA Mid | 22 | 836.50 | 33 | 2000 |
| WCDMA High | 22 | 840.17 | 33.5 | 2238 |

| Downlink | Part | Frequency | dBm | Mw |
|-----------------|-------------|------------------|------------|-----------|
| GSM Low | 22 | 869.28 | 7.4 | 5.49 |
| GSM Mid | 22 | 881.50 | 8.7 | 7.41 |
| GSM High | 22 | 893.72 | 7.6 | 5.75 |
| EDGE Low | 22 | 869.28 | 7.5 | 5.62 |
| EDGE Mid | 22 | 881.50 | 9.1 | 8.13 |
| EDGE High | 22 | 893.72 | 8.7 | 7.41 |
| CDMA Low | 22 | 870.25 | 9.2 | 8.31 |
| CDMA Mid | 22 | 881.50 | 9.6 | 9.12 |
| CDMA High | 22 | 892.75 | 9.7 | 9.33 |
| WCDMA Low | 22 | 873.50 | 10.3 | 10.72 |
| WCDMA Mid | 22 | 881.50 | 9.5 | 8.92 |
| WCDMA High | 22 | 889.50 | 9.8 | 9.55 |

Test Setup Photos





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 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 |
| 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%.

| Band | Frequency (MHz) | Power (dBm) | Po+3dB (dBm) | Pmean (mW) |
|------------------|------------------------|--------------------|---------------------|-------------------|
| Downlink 800 MHz | 868.99 | 6.35 | 9.35 | 8.60 |
| Downlink 800 MHz | 869.49 | 6.36 | 9.36 | 8.63 |
| Downlink 800 MHz | 881.01 | 7.05 | 10.05 | 10.12 |
| Downlink 800 MHz | 881.49 | 6.96 | 9.96 | 9.90 |
| Downlink 800 MHz | 892.01 | 6.11 | 9.11 | 8.15 |
| Downlink 800 MHz | 892.49 | 6.25 | 9.25 | 8.41 |



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: 08:55:21
 Equipment: **Direct Connection Cellular/PCS** Sequence#: 5
Amplifier w/ GPS Bypass
 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 |
| 4 way Splitter | Motorola | None | CKC P1314 |
| Var Attenuator | HP | 8494B | CKC 2475 |

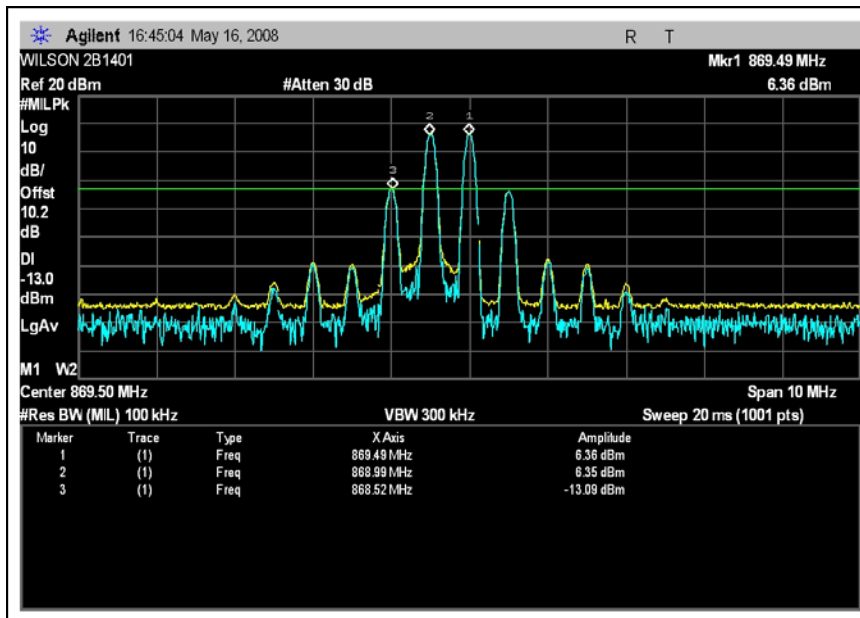
Test Conditions / Notes:

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.

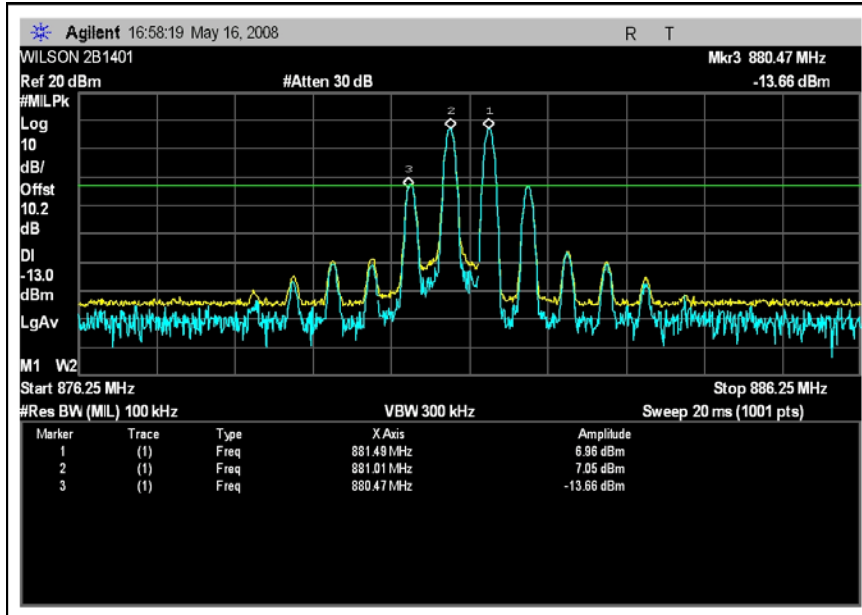
| Uplink | RSS131 | Frequency | dBm | mW |
|------------|--------|-----------|------|------|
| GSM Low | 6.2 | 824.85 | 33.0 | 2089 |
| GSM Mid | 6.2 | 836.50 | 33.9 | 2754 |
| GSM High | 6.2 | 848.17 | 34.3 | 2691 |
| EDGE Low | 6.2 | 824.82 | 33.9 | 2454 |
| EDGE Mid | 6.2 | 836.50 | 34.4 | 2754 |
| EDGE High | 6.2 | 848.73 | 34.7 | 2951 |
| CDMA Low | 6.2 | 825.27 | 33.6 | 2290 |
| CDMA Mid | 6.2 | 836.50 | 34.0 | 2511 |
| CDMA High | 6.2 | 845.27 | 34.2 | 2630 |
| WCDMA Low | 6.2 | 838.50 | 33.4 | 2187 |
| WCDMA Mid | 6.2 | 836.50 | 34.5 | 2818 |
| WCDMA High | 6.2 | 840.17 | 34.4 | 2754 |

Test Plots

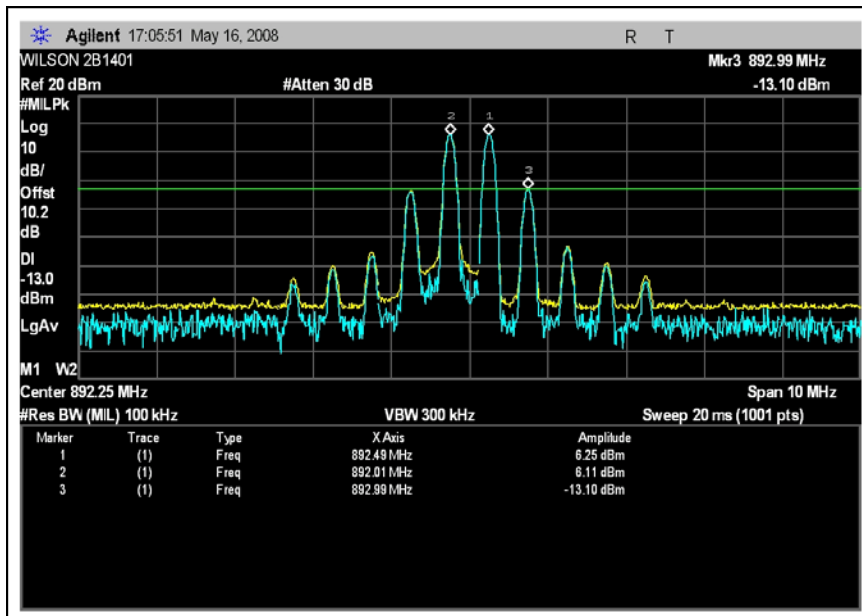
RSS 131 SECTION 6.2 OUTPUT POWER - LOW CHANNEL



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

800 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 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:

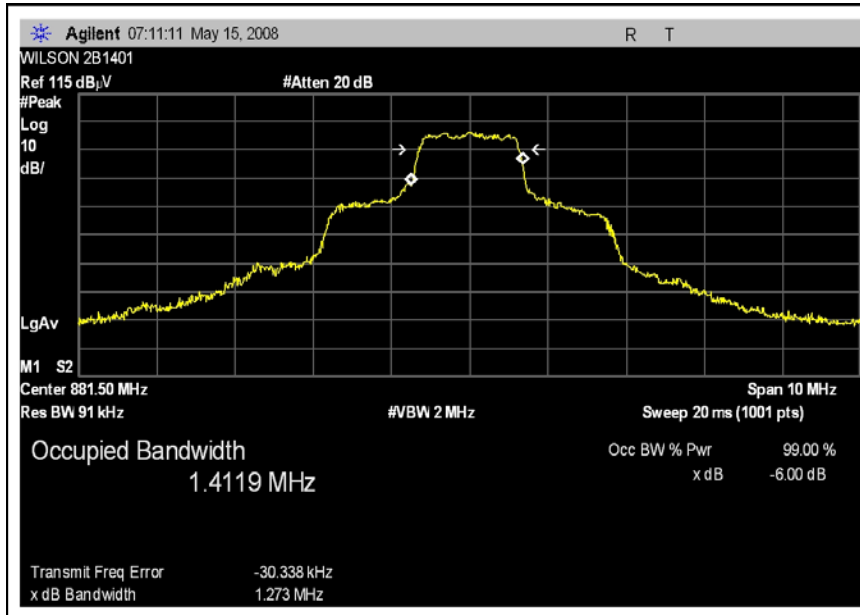
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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: Carrier Mid Channel. Temperature: 21°C, Relative Humidity: 30%.

Test Setup Photos

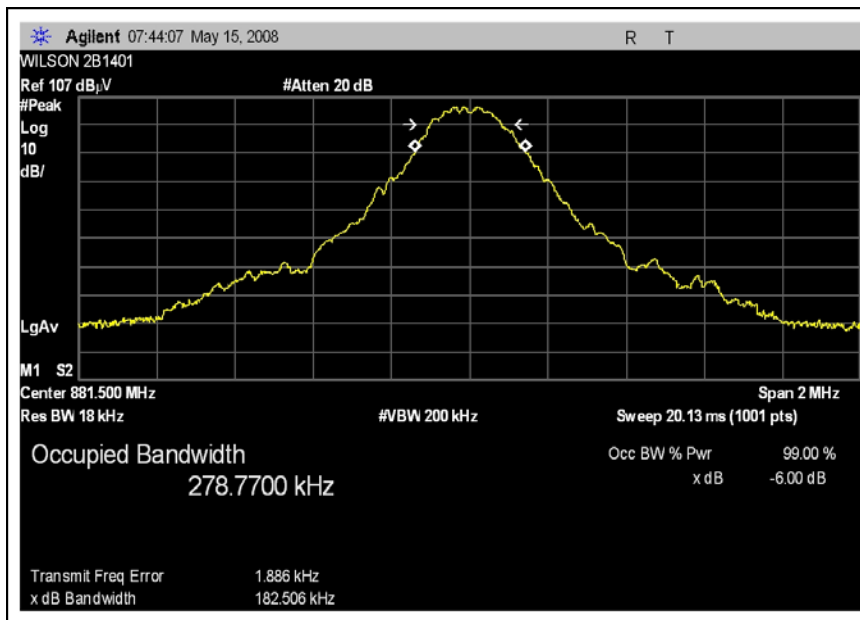


Test Plots

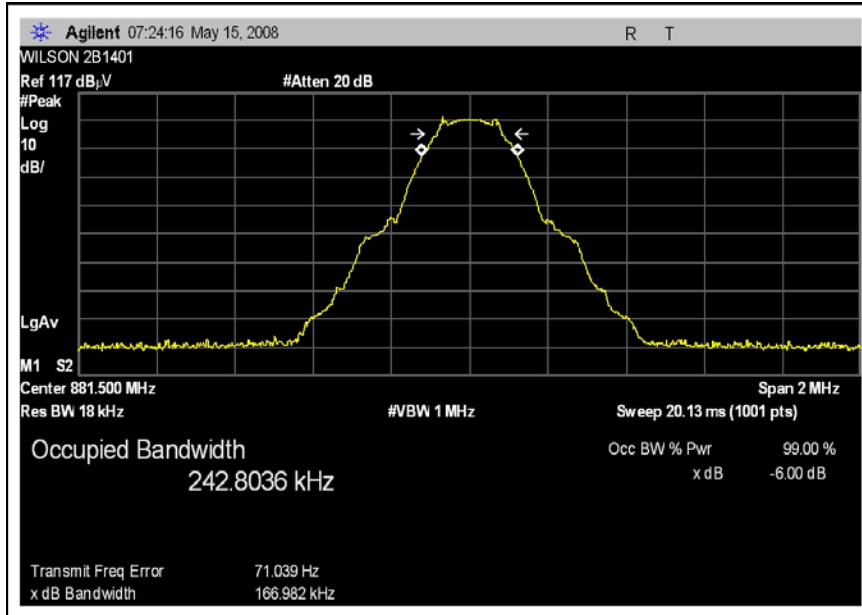
99% BANDWIDTH DOWNLINK - CDMA



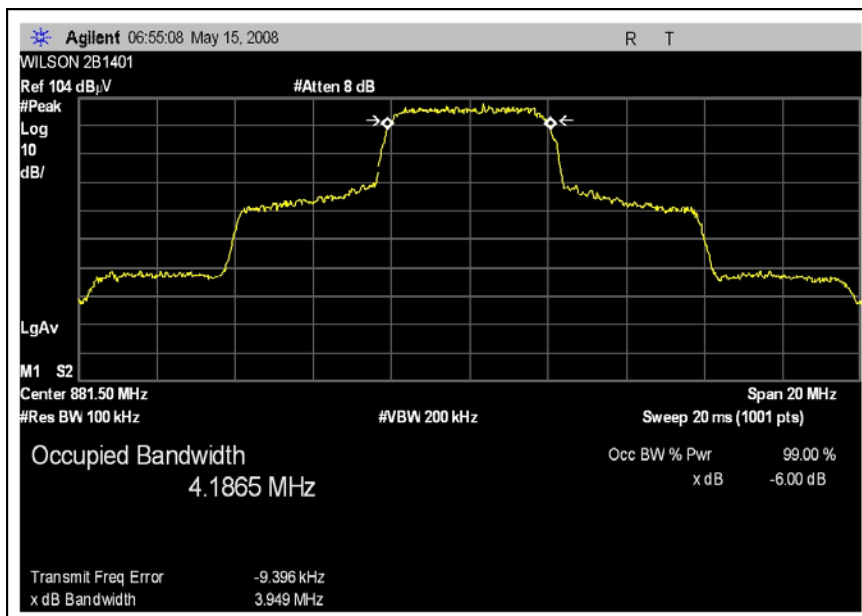
99% BANDWIDTH DOWNLINK - EDGE



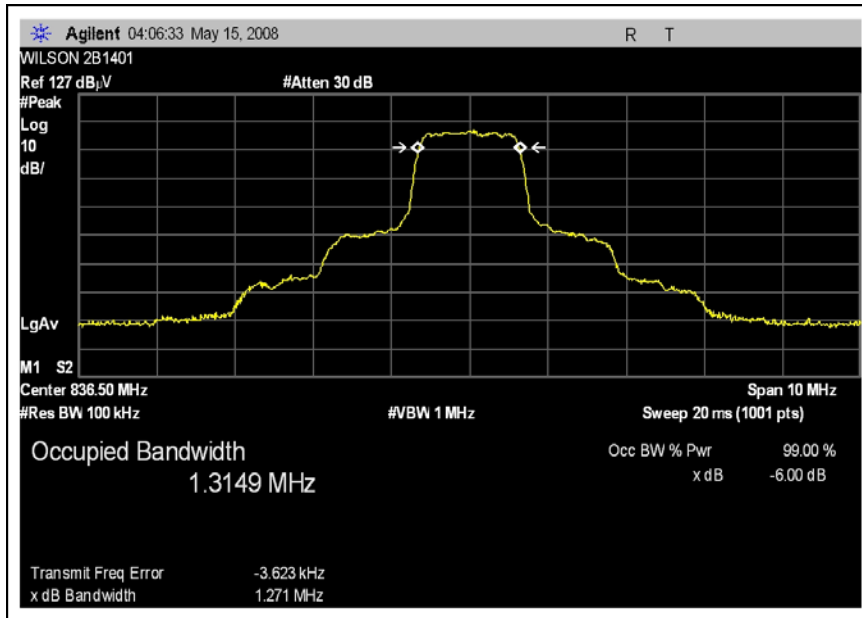
99% BANDWIDTH DOWNLINK - GSM



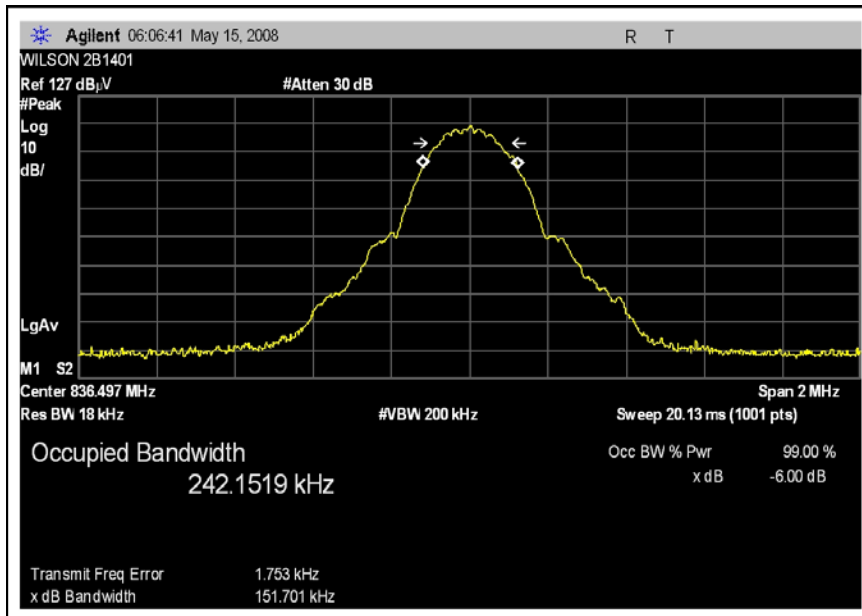
99% BANDWIDTH DOWNLINK - WCDMA



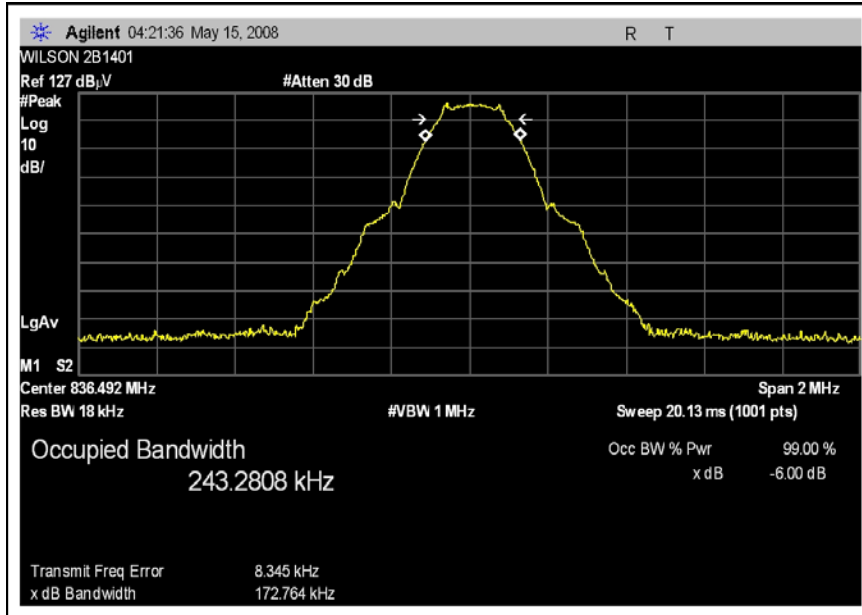
99% BANDWIDTH UPLINK - CDMA



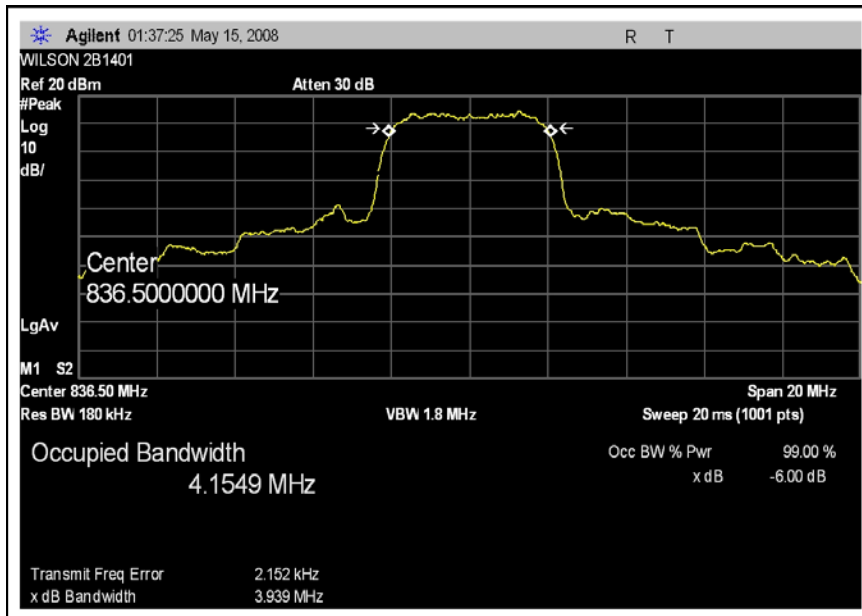
99% BANDWIDTH UPLINK - EDGE



99% BANDWIDTH UPLINK - GSM



99% BANDWIDTH UPLINK - WCDMA



FCC 2.1033(c)(14)/2.1051/22.917 - 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 22.917**
 Work Order #: **88034** Date: 6/16/2008
 Test Type: **Maximized Emissions** Time: 16:42:53
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 3
 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. 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 |
|----------------------|--------------------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | T2 dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|----|-------------|--------------|----------|----------|----|----|---------------|--------------|----------------------|--------------|--------------|
| 1 | 2678.550M | 66.8 | +9.9 | +0.4 | | | +0.0 | 77.1 | 94.0 | -16.9 | None |
| | | | | | | | | | DL-HIGH CH- CDMA | | |
| 2 | 3314.000M | 65.3 | +10.0 | +0.5 | | | +0.0 | 75.8 | 94.0 | -18.2 | None |
| | | | | | | | | | UL-LOW CH- WCDMA | | |
| 3 | 3378.000M | 64.5 | +10.0 | +0.5 | | | +0.0 | 75.0 | 94.0 | -19.0 | None |
| | | | | | | | | | UL-HIGH CH- WCDMA | | |
| 4 | 3346.000M | 64.4 | +10.0 | +0.5 | | | +0.0 | 74.9 | 94.0 | -19.1 | None |
| | | | | | | | | | UL-MID CH- WCDMA | | |
| 5 | 1741.000M | 64.6 | +9.9 | +0.4 | | | +0.0 | 74.9 | 94.0 | -19.1 | None |
| | | | | | | | | | DL-LOW CH- CDMA | | |
| 6 | 2533.500M | 64.2 | +9.9 | +0.4 | | | +0.0 | 74.5 | 94.0 | -19.5 | None |
| | | | | | | | | | UL-HIGH CH- WCDMA | | |
| 7 | 3570.400M | 63.7 | +10.0 | +0.5 | | | +0.0 | 74.2 | 94.0 | -19.8 | None |
| | | | | | | | | | DL-HIGH CH- CDMA | | |
| 8 | 1673.000M | 63.8 | +9.9 | +0.4 | | | +0.0 | 74.1 | 94.0 | -19.9 | None |
| | | | | | | | | | UL-MID CH- WCDMA | | |
| 9 | 1657.000M | 63.7 | +9.9 | +0.4 | | | +0.0 | 74.0 | 94.0 | -20.0 | None |
| | | | | | | | | | UL-LOW CH- WCDMA | | |
| 10 | 2485.500M | 63.5 | +9.9 | +0.4 | | | +0.0 | 73.8 | 94.0 | -20.2 | None |
| | | | | | | | | | UL-LOW CH- WCDMA | | |

| | | | | | | | | | |
|----|-----------|------|-------|------|------|------|------------------|-------|------|
| 11 | 2509.500M | 63.3 | +9.9 | +0.4 | +0.0 | 73.6 | 94.0 | -20.4 | None |
| | | | | | | | UL-MID CH-WCDMA | | |
| 12 | 1689.000M | 63.2 | +9.9 | +0.4 | +0.0 | 73.5 | 94.0 | -20.5 | None |
| | | | | | | | UL-HIGH CH-WCDMA | | |
| 13 | 1763.000M | 62.4 | +9.9 | +0.4 | +0.0 | 72.7 | 94.0 | -21.3 | None |
| | | | | | | | DL-MID CH-CDMA | | |
| 14 | 2644.500M | 61.8 | +9.9 | +0.4 | +0.0 | 72.1 | 94.0 | -21.9 | None |
| | | | | | | | DL-MID CH-CDMA | | |
| 15 | 1784.400M | 60.4 | +9.9 | +0.4 | +0.0 | 70.7 | 94.0 | -23.3 | None |
| | | | | | | | DL-HIGH CH-CDMA | | |
| 16 | 3526.000M | 60.1 | +10.0 | +0.5 | +0.0 | 70.6 | 94.0 | -23.4 | None |
| | | | | | | | DL-MID CH-CDMA | | |
| 17 | 3482.000M | 59.9 | +10.0 | +0.5 | +0.0 | 70.4 | 94.0 | -23.6 | None |
| | | | | | | | DL-LOW CH-CDMA | | |
| 18 | 4407.500M | 59.6 | +10.0 | +0.5 | +0.0 | 70.1 | 94.0 | -23.9 | None |
| | | | | | | | DL-MID CH-CDMA | | |
| 19 | 2668.000M | 59.5 | +9.9 | +0.4 | +0.0 | 69.8 | 94.0 | -24.2 | None |
| | | | | | | | DL-HIGH CH-WCDMA | | |
| 20 | 2646.450M | 59.5 | +9.9 | +0.4 | +0.0 | 69.8 | 94.0 | -24.2 | None |
| | | | | | | | DL-MID CH-WCDMA | | |
| 21 | 4463.150M | 59.2 | +10.0 | +0.5 | +0.0 | 69.7 | 94.0 | -24.3 | None |
| | | | | | | | DL-HIGH CH-CDMA | | |
| 22 | 3346.000M | 59.1 | +10.0 | +0.5 | +0.0 | 69.6 | 94.0 | -24.4 | None |
| | | | | | | | UL-MID CH-CDMA | | |
| 23 | 3391.000M | 58.6 | +10.0 | +0.5 | +0.0 | 69.1 | 94.0 | -24.9 | None |
| | | | | | | | UL-HIGH CH-HIGH | | |
| 24 | 2543.250M | 58.1 | +9.9 | +0.4 | +0.0 | 68.4 | 94.0 | -25.6 | None |
| | | | | | | | UL-HIGH CH-HIGH | | |
| 25 | 2475.750M | 57.6 | +9.9 | +0.4 | +0.0 | 67.9 | 94.0 | -26.1 | None |
| | | | | | | | UL-LOW H-CDMA | | |
| 26 | 1673.000M | 57.1 | +9.9 | +0.4 | +0.0 | 67.4 | 94.0 | -26.6 | None |
| | | | | | | | UL-MID CH-CDMA | | |

| | | | | | | | | | |
|----|-----------|------|-------|------|------|------|------------------|-------|------|
| 27 | 2475.750M | 57.0 | +9.9 | +0.4 | +0.0 | 67.3 | 94.0 | -26.7 | None |
| | | | | | | | UL-LOW H-CDMA | | |
| 28 | 4352.500M | 56.8 | +10.0 | +0.5 | +0.0 | 67.3 | 94.0 | -26.7 | None |
| | | | | | | | DL-LOW CH-CDMA | | |
| 29 | 1650.500M | 56.8 | +9.9 | +0.4 | +0.0 | 67.1 | 94.0 | -26.9 | None |
| | | | | | | | UL-LOW H-CDMA | | |
| 30 | 2509.500M | 56.4 | +9.9 | +0.4 | +0.0 | 66.7 | 94.0 | -27.3 | None |
| | | | | | | | UL-MID CH-CDMA | | |
| 31 | 3523.550M | 56.1 | +10.0 | +0.5 | +0.0 | 66.6 | 94.0 | -27.4 | None |
| | | | | | | | DL-MID CH-WCDMA | | |
| 32 | 1695.500M | 56.1 | +9.9 | +0.4 | +0.0 | 66.4 | 94.0 | -27.6 | None |
| | | | | | | | UL-HIGH CH-HIGH | | |
| 33 | 3561.450M | 55.5 | +10.0 | +0.5 | +0.0 | 66.0 | 94.0 | -28.0 | None |
| | | | | | | | DL-HIGH CH-WCDMA | | |
| 34 | 3297.120M | 54.8 | +10.0 | +0.5 | +0.0 | 65.3 | 94.0 | -28.7 | None |
| | | | | | | | UL-LOW CH-GSM | | |
| 35 | 3495.450M | 54.5 | +10.0 | +0.5 | +0.0 | 65.0 | 94.0 | -29.0 | None |
| | | | | | | | DL-LOW CH-WCDMA | | |
| 36 | 3346.000M | 53.7 | +10.0 | +0.5 | +0.0 | 64.2 | 94.0 | -29.8 | None |
| | | | | | | | UL-MID CH-EDGE | | |
| 37 | 3394.880M | 53.5 | +10.0 | +0.5 | +0.0 | 64.0 | 94.0 | -30.0 | None |
| | | | | | | | UL-HIGH CH-EDGE | | |
| 38 | 2472.840M | 53.7 | +9.9 | +0.4 | +0.0 | 64.0 | 94.0 | -30.0 | None |
| | | | | | | | UL-LOW CH-GSM | | |
| 39 | 3346.000M | 53.3 | +10.0 | +0.5 | +0.0 | 63.8 | 94.0 | -30.2 | None |
| | | | | | | | UL-MID CH-GSM | | |
| 40 | 4243.600M | 53.2 | +10.0 | +0.5 | +0.0 | 63.7 | 94.0 | -30.3 | None |
| | | | | | | | UL-HIGH CH-GSM | | |
| 41 | 1777.650M | 53.3 | +9.9 | +0.4 | +0.0 | 63.6 | 94.0 | -30.4 | None |
| | | | | | | | DL-HIGH CH-WCDMA | | |
| 42 | 2509.500M | 53.2 | +9.9 | +0.4 | +0.0 | 63.5 | 94.0 | -30.5 | None |
| | | | | | | | UL-MID CH-EDGE | | |
| 43 | 3370.440M | 53.0 | +10.0 | +0.5 | +0.0 | 63.5 | 94.0 | -30.5 | None |
| | | | | | | | UL-LOW CH-EDGE | | |

| | | | | | | | | | |
|----|-----------|------|-------|------|------|------|---------------------|-------|------|
| 44 | 1763.100M | 53.2 | +9.9 | +0.4 | +0.0 | 63.5 | 94.0 | -30.5 | None |
| | | | | | | | DL-MID CH- WCDMA | | |
| 45 | 1747.050M | 52.8 | +9.9 | +0.4 | +0.0 | 63.1 | 94.0 | -30.9 | None |
| | | | | | | | DL-LOW CH- WCDMA | | |
| 46 | 2509.500M | 52.7 | +9.9 | +0.4 | +0.0 | 63.0 | 94.0 | -31.0 | None |
| | | | | | | | UL-MID CH-GSM | | |
| 47 | 2521.720M | 52.6 | +9.9 | +0.4 | +0.0 | 62.9 | 94.0 | -31.1 | None |
| | | | | | | | UL-LOW CH- EDGE | | |
| 48 | 1673.000M | 52.5 | +9.9 | +0.4 | +0.0 | 62.8 | 94.0 | -31.2 | None |
| | | | | | | | UL-MID CH- EDGE | | |
| 49 | 1697.440M | 52.4 | +9.9 | +0.4 | +0.0 | 62.7 | 94.0 | -31.3 | None |
| | | | | | | | UL-HIGH CH- GSM | | |
| 50 | 1697.440M | 52.3 | +9.9 | +0.4 | +0.0 | 62.6 | 94.0 | -31.4 | None |
| | | | | | | | UL-HIGH CH- EDGE | | |
| 51 | 1673.000M | 52.2 | +9.9 | +0.4 | +0.0 | 62.5 | 94.0 | -31.5 | None |
| | | | | | | | UL-MID CH-GSM | | |
| 52 | 1738.560M | 52.2 | +9.9 | +0.4 | +0.0 | 62.5 | 94.0 | -31.5 | None |
| | | | | | | | DL-LOW CH-GSM | | |
| 53 | 1648.560M | 52.2 | +9.9 | +0.3 | +0.0 | 62.4 | 94.0 | -31.6 | None |
| | | | | | | | UL-LOW CH-GSM | | |
| 54 | 2546.160M | 51.6 | +9.9 | +0.4 | +0.0 | 61.9 | 94.0 | -32.1 | None |
| | | | | | | | UL-HIGH CH- EDGE | | |
| 55 | 2546.160M | 51.6 | +9.9 | +0.4 | +0.0 | 61.9 | 94.0 | -32.1 | None |
| | | | | | | | UL-HIGH CH- GSM | | |
| 56 | 1673.000M | 51.3 | +9.9 | +0.4 | +0.0 | 61.6 | 94.0 | -32.4 | None |
| | | | | | | | UL-LOW CH- EDGE | | |
| 57 | 2620.550M | 50.1 | +9.9 | +0.4 | +0.0 | 60.4 | 94.0 | -33.6 | None |
| | | | | | | | DL-LOW CH- WCDMA | | |
| 58 | 3477.120M | 48.6 | +10.0 | +0.5 | +0.0 | 59.1 | 94.0 | -34.9 | None |
| | | | | | | | DL-LOW CH-GSM | | |
| 59 | 2611.500M | 44.7 | +9.9 | +0.4 | +0.0 | 55.0 | 94.0 | -39.0 | None |
| | | | | | | | DL-LOW CH- CDMA | | |
| 60 | 2607.840M | 44.1 | +9.9 | +0.4 | +0.0 | 54.4 | 94.0 | -39.6 | None |
| | | | | | | | DL-LOW CH-GSM | | |

FCC 2.1033(c)(14)/2.1053/22.917 - 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: **FCC 22.917**
 Work Order #: **88034** Date: 6/23/2008
 Test Type: **Maximized Emissions** Time: 14:50:41
 Equipment: **Direct Connection Cellular/PCS Amplifier w/ GPS Bypass** Sequence#: 13
 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: 824-849 MHz and 869-894 MHz

Channels: Low, Mid and High

Highest Measured Output Power: 33.50 ERP(dBm)= 2.238 ERP(Watts)

Distance: 3 meters

Limit: $43+10\text{Log}(P)$ 46.50 dBc

| Freq. (MHz) | Reference Level (dBm) | Antenna Polarity (H/V) | dBc |
|-------------|-----------------------|------------------------|--------|
| 2,681.16 | -41 | Horiz | 74.50 |
| 3,345.99 | -44 | Vert | 77.50 |
| 3,394.89 | -47.5 | Vert | 81.00 |
| 2,681.16 | -48.4 | Vert | 81.90 |
| 4,182.49 | -49.8 | Vert | 83.30 |
| 4,243.62 | -50.6 | Vert | 84.10 |
| 2,644.50 | -51.1 | Horiz | 84.60 |
| 3,345.99 | -52.8 | Horiz | 86.30 |
| 3,394.89 | -55.4 | Horiz | 88.90 |
| 2,644.49 | -56.3 | Vert | 89.80 |
| 5,855.49 | -56.6 | Vert | 90.10 |
| 2,509.49 | -56.6 | Vert | 90.10 |
| 1,697.45 | -56.7 | Vert | 90.20 |
| 3,525.99 | -57.1 | Horiz | 90.60 |
| 3,477.13 | -57.3 | Horiz | 90.80 |
| 5,855.49 | -57.3 | Horiz | 90.80 |
| 2,509.49 | -57.5 | Horiz | 91.00 |
| 5,018.99 | -58.1 | Vert | 91.60 |
| 3,477.13 | -58.5 | Vert | 92.00 |
| 1,697.45 | -58.6 | Horiz | 92.10 |
| 5,018.99 | -58.8 | Horiz | 92.30 |
| 4,243.62 | -59 | Horiz | 92.50 |
| 1,673.00 | -59.4 | Horiz | 92.90 |
| 3,297.12 | -59.4 | Vert | 92.90 |
| 1,673.00 | -59.7 | Vert | 93.20 |
| 4,182.49 | -60.4 | Horiz | 93.90 |
| 3,526.01 | -60.8 | Vert | 94.30 |
| 5,092.34 | -61.7 | Horiz | 95.20 |
| 5,092.34 | -62.4 | Vert | 95.90 |
| 1,787.43 | -63.1 | Vert | 96.60 |
| 3,297.11 | -63.1 | Horiz | 96.60 |
| 1,787.45 | -63.3 | Horiz | 96.80 |
| 2,546.17 | -64 | Horiz | 97.50 |
| 2,607.85 | -64.3 | Horiz | 97.80 |
| 2,472.84 | -64.5 | Horiz | 98.00 |
| 2,607.86 | -66.7 | Vert | 100.20 |
| 2,546.17 | -68.2 | Vert | 101.70 |
| 2,472.84 | -68.8 | Vert | 102.30 |
| 1,738.57 | -72.6 | Horiz | 106.10 |
| 1,648.56 | -74.5 | Vert | 108.00 |



FCC 2.1051 – INTERMODULATION ATTENUATION

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

Customer: **Wilson Electronics**
 Specification: **FCC 22.917**
 Work Order #: **88034** Date: 6/3/2008
 Test Type: **Maximized Emissions** Time: 13:02:24
 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 | 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

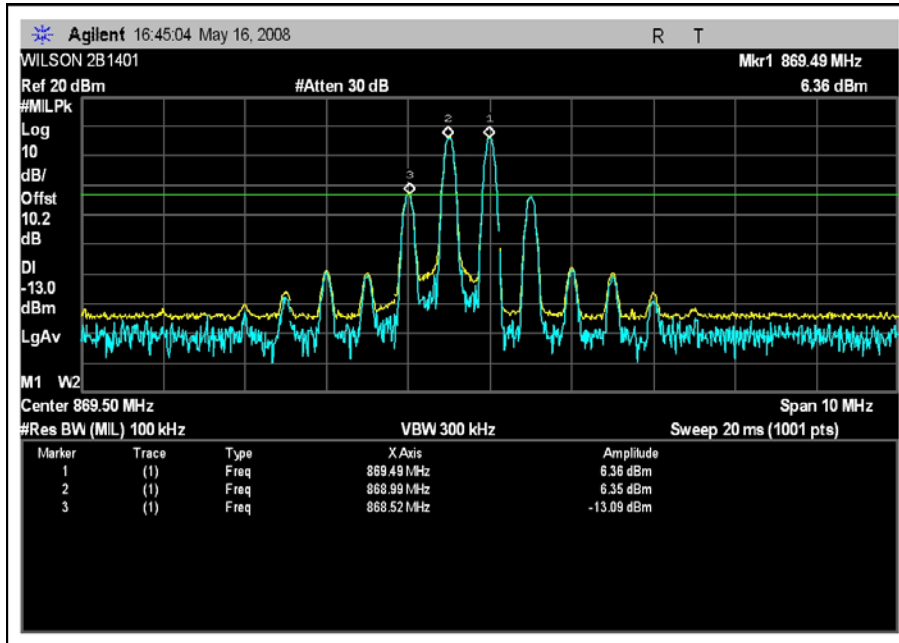
| # | Freq MHz | Rdng dB μ V | dB | dB | dB | dB | Dist Table | Corr dBm | Spec dBm | Margin dB | Polar Ant |
|---|-------------|--------------------|----|----|----|----|---------------|-------------|-------------|--------------|--------------|
| 1 | 892.990M | -13.1 | | | | | +0.0 | -13.1 | -13.0 | -0.1 | None |
| | | | | | | | | | DL-HIGH CH | | |
| 2 | 868.520M | -13.1 | | | | | +0.0 | -13.1 | -13.0 | -0.1 | None |
| | | | | | | | | | DL-LOW CH | | |
| 3 | 880.470M | -13.7 | | | | | +0.0 | -13.7 | -13.0 | -0.7 | None |
| | | | | | | | | | DL-MID CH | | |

Test Setup Photos

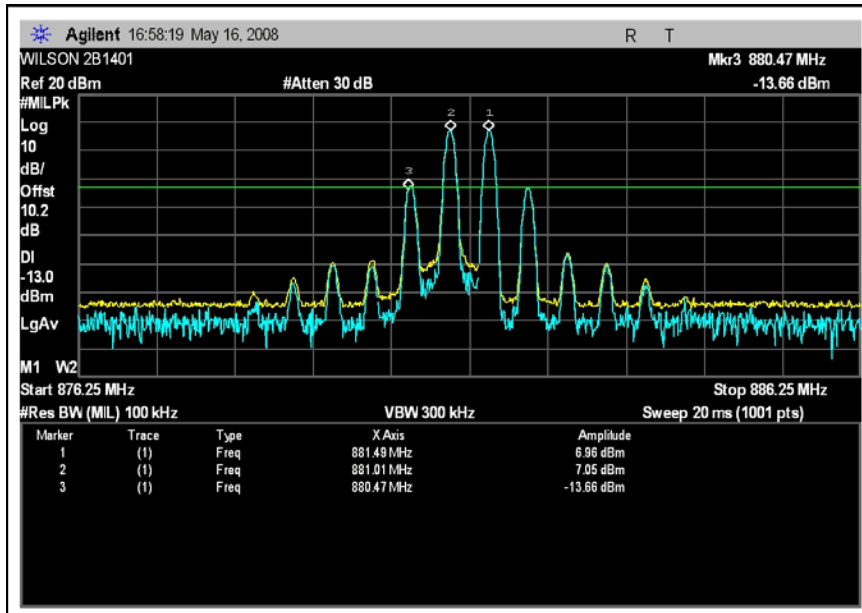


Test Plots

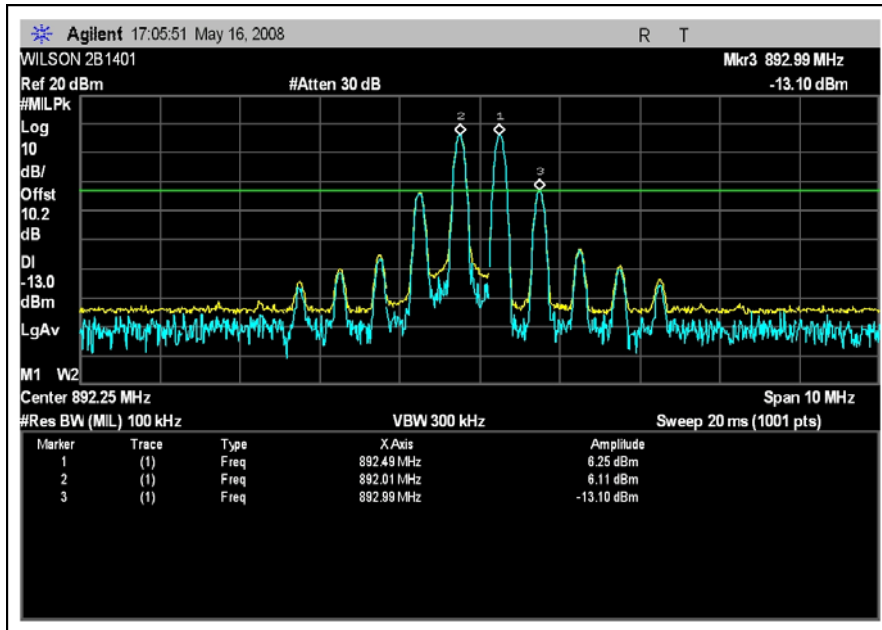
FCC 22.917 INTERMODULATION DOWNLINK - LOW CHANNEL



FCC 22.917 INTERMODULATION DOWNLINK - MIDDLE CHANNEL



FCC 22.917 INTERMODULATION DOWNLINK - HIGH CHANNEL



FCC 2.1051 – OUT OF BAND REJECTION

800 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 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:

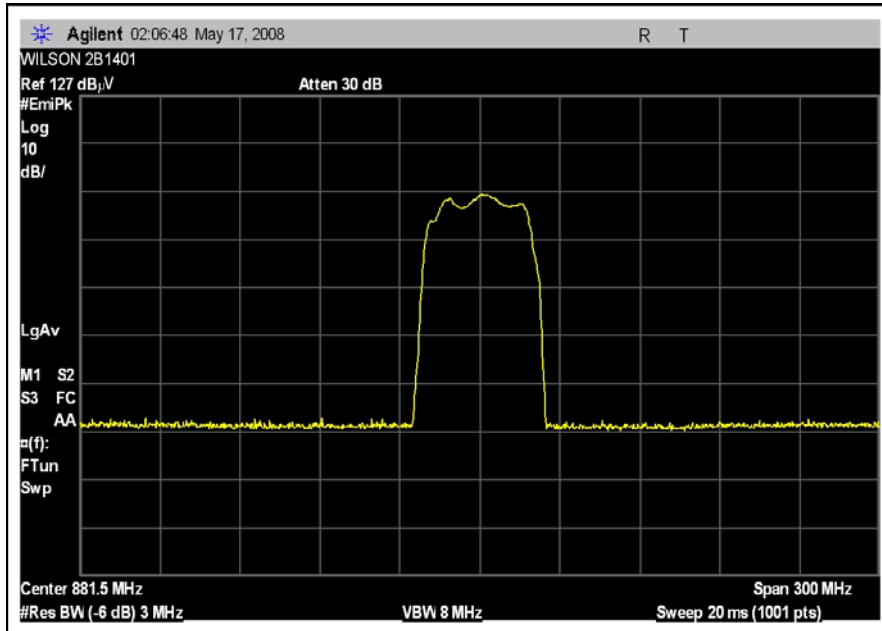
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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. 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

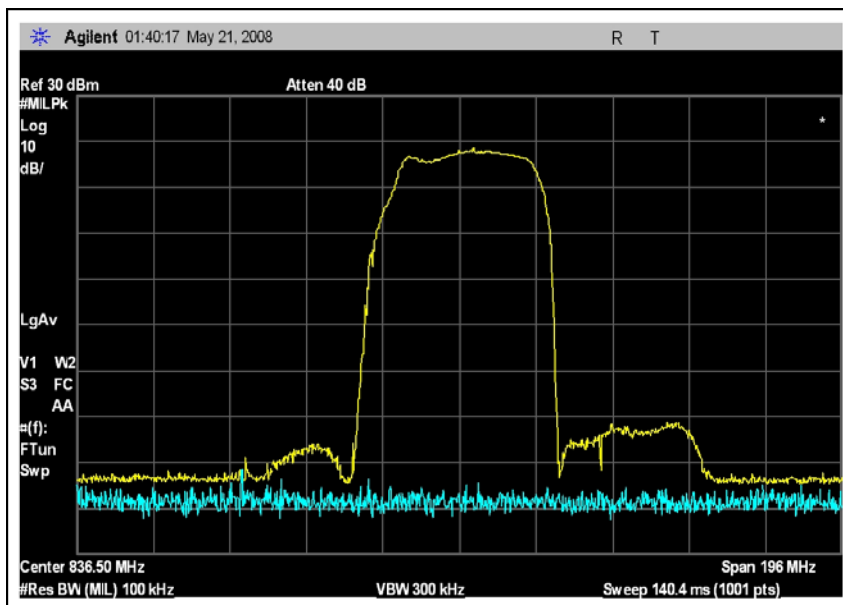


Test Plots

OUT OF BAND REJECTION DOWNLINK



OUT OF BAND REJECTION UPLINK



FCC 2.1051/2.1053 - BLOCK EDGE

800 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 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:

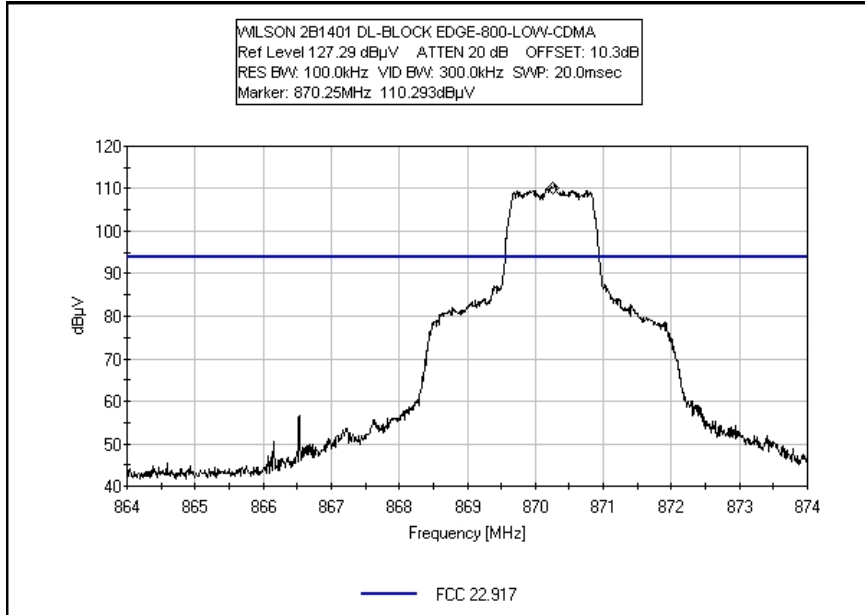
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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: Carrier Mid Channel. Temperature: 21°C, Relative Humidity: 30%.

Test Setup Photos

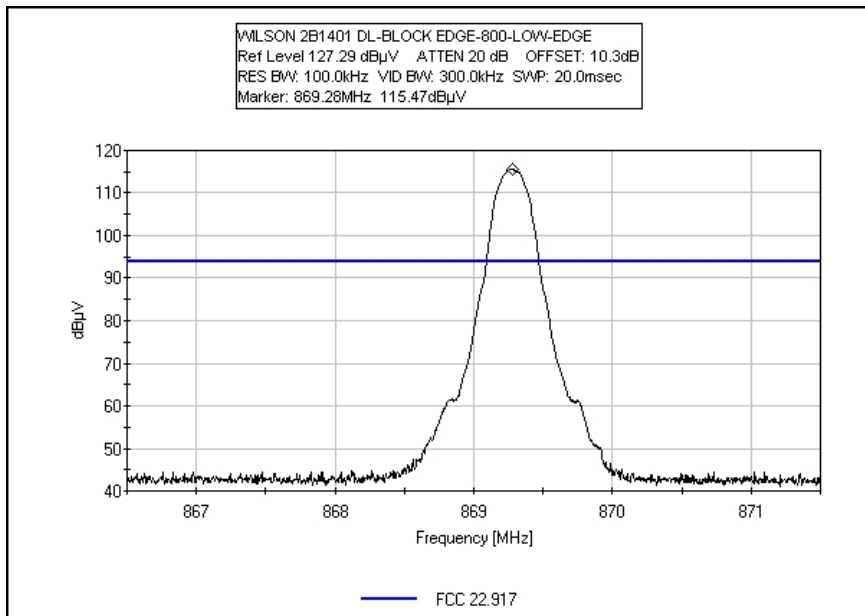


Test Plots

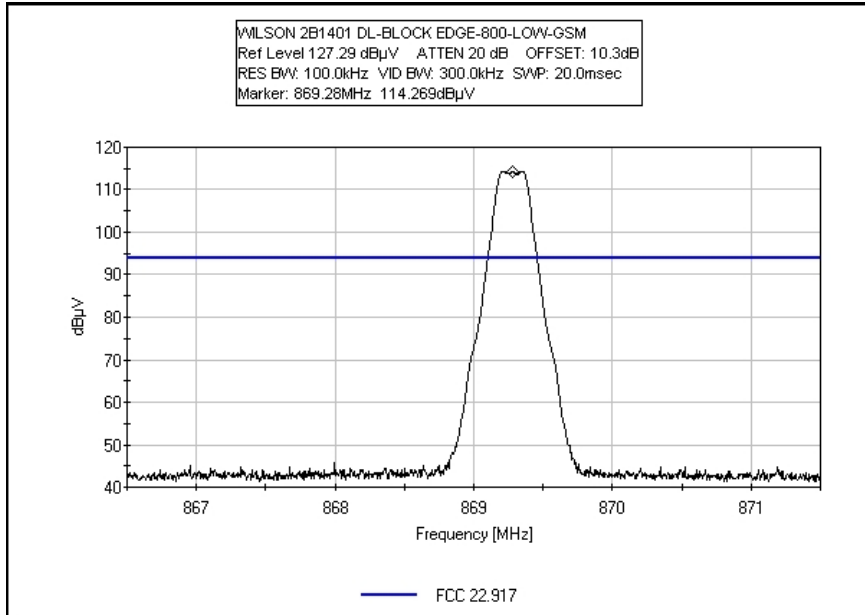
BLOCK EDGE DOWNLINK - CDMA LOW CHANNEL



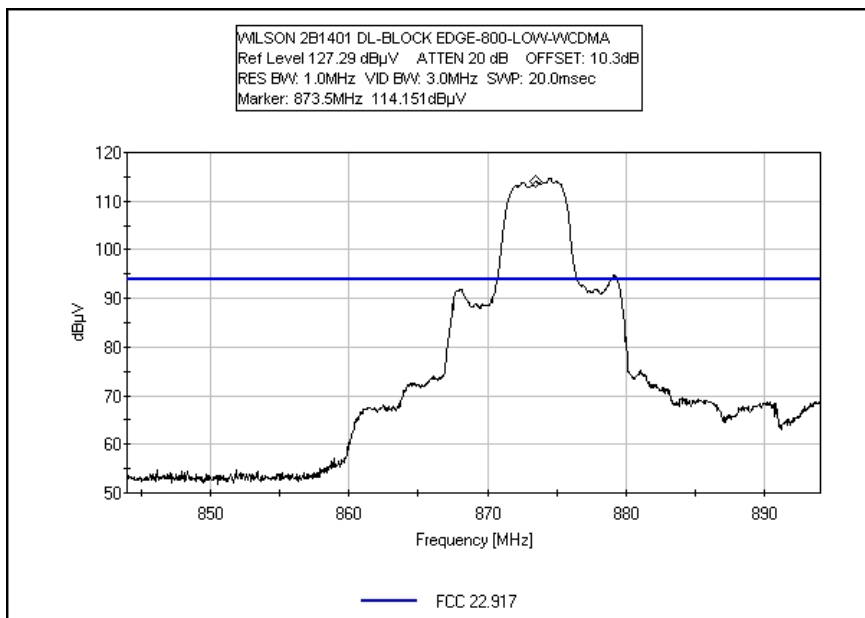
BLOCK EDGE DOWNLINK - EDGE LOW CHANNEL



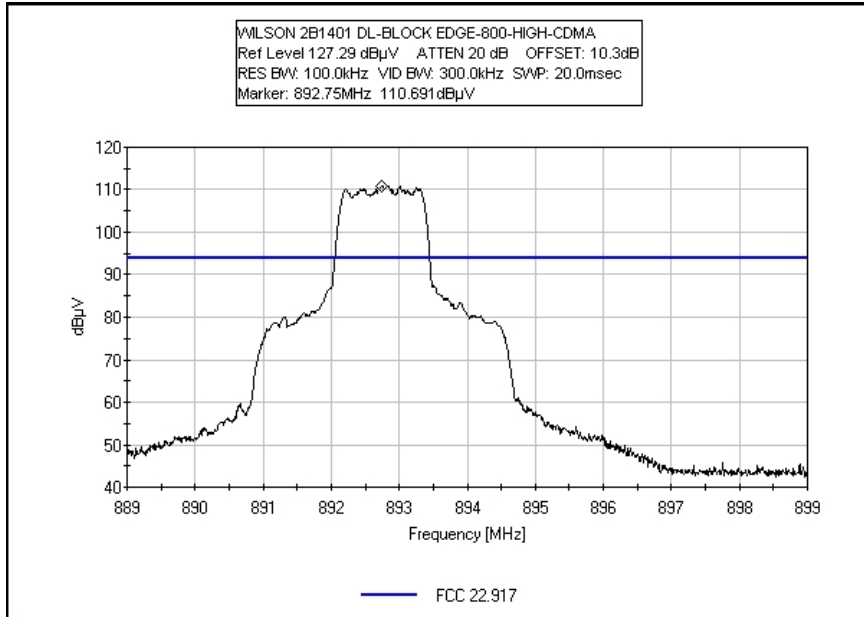
BLOCK EDGE DOWNLINK - GSM LOW CHANNEL



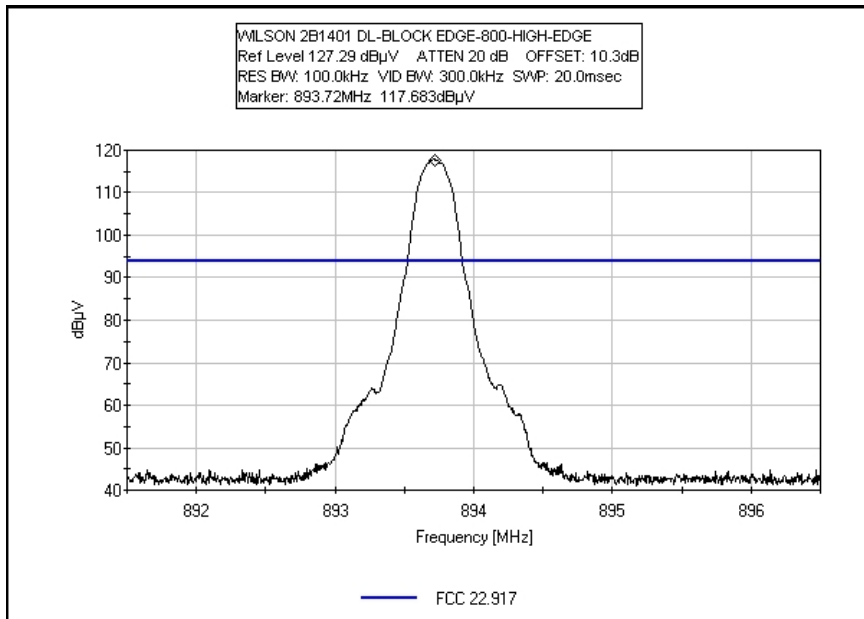
BLOCK EDGE DOWNLINK - WCDMA LOW CHANNEL



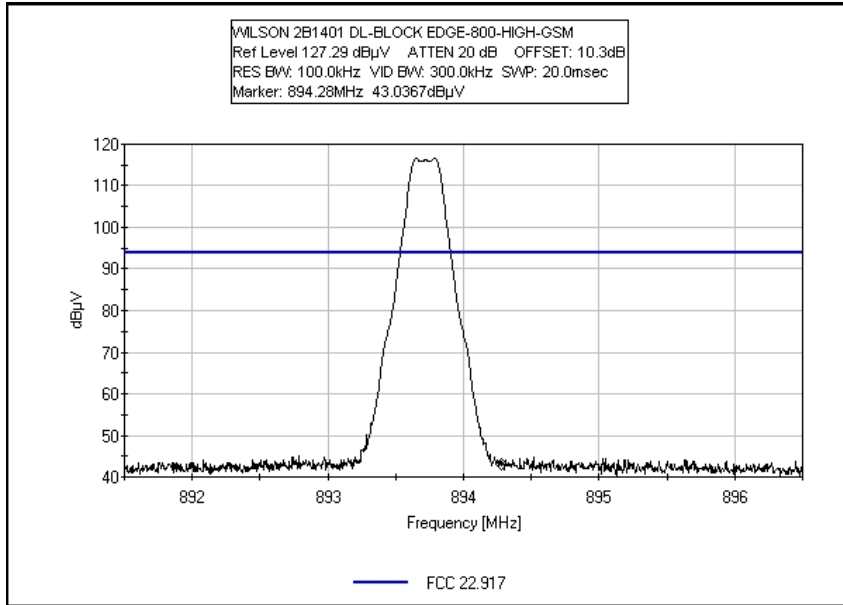
BLOCK EDGE DOWNLINK - CDMA HIGH CHANNEL



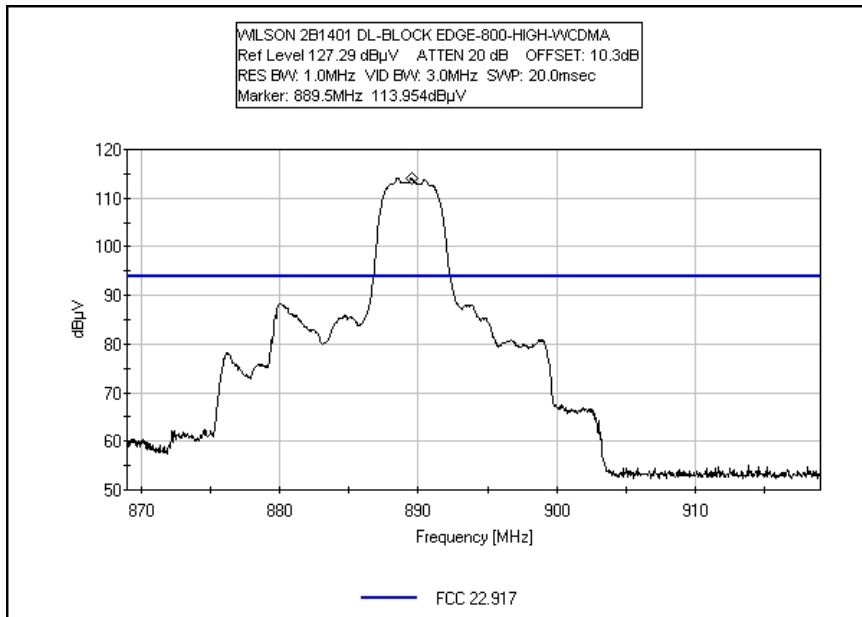
BLOCK EDGE DOWNLINK - EDGE HIGH CHANNEL



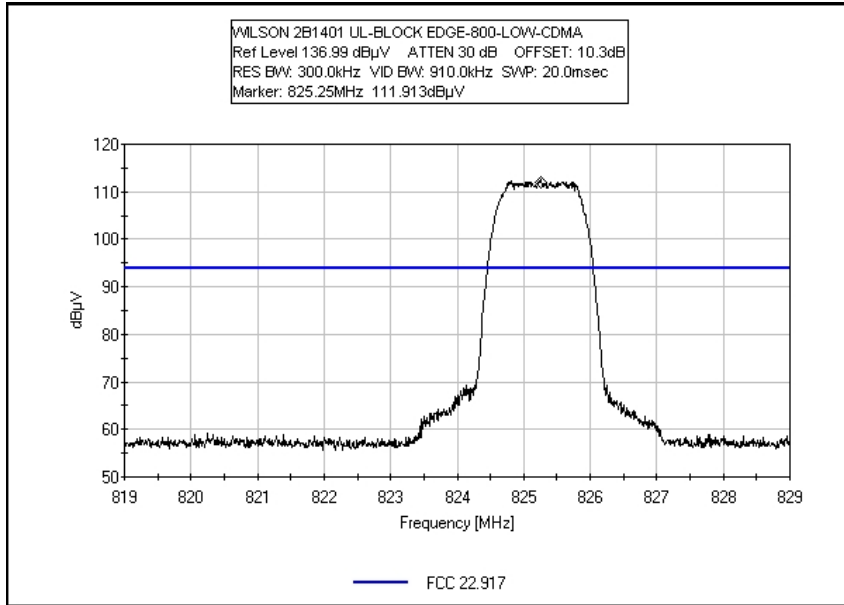
BLOCK EDGE DOWNLINK - GSM HIGH CHANNEL



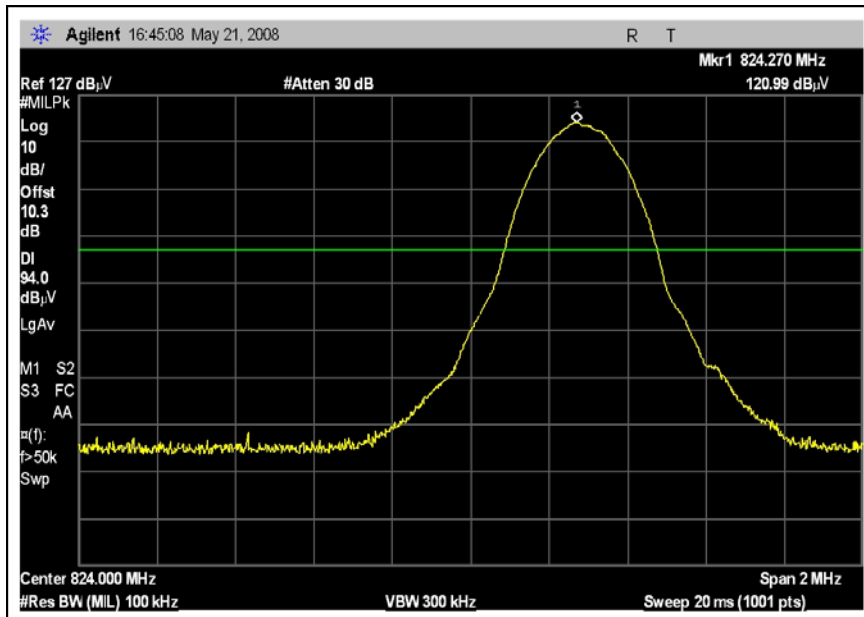
BLOCK EDGE DOWNLINK - WCDMA HIGH CHANNEL



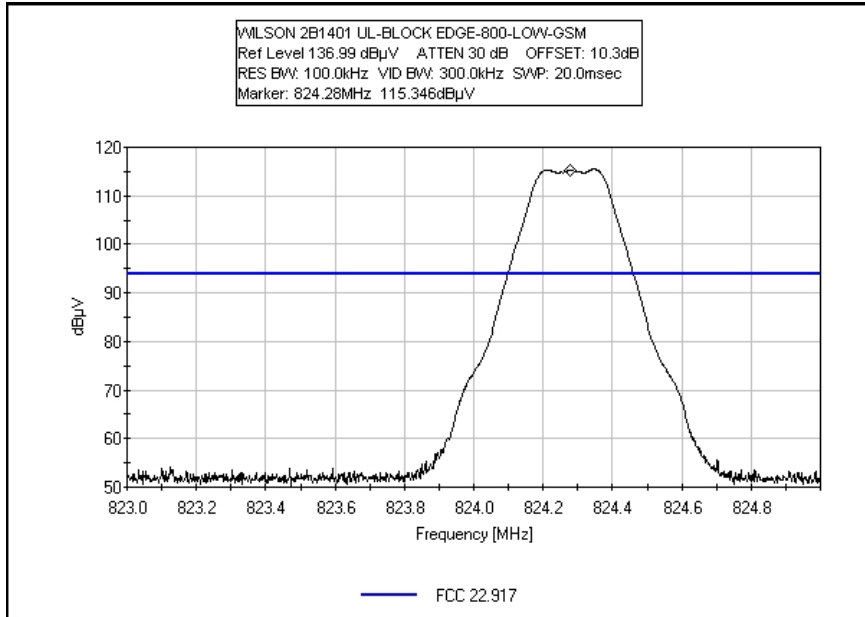
BLOCK EDGE UPLINK - CDMA LOW CHANNEL



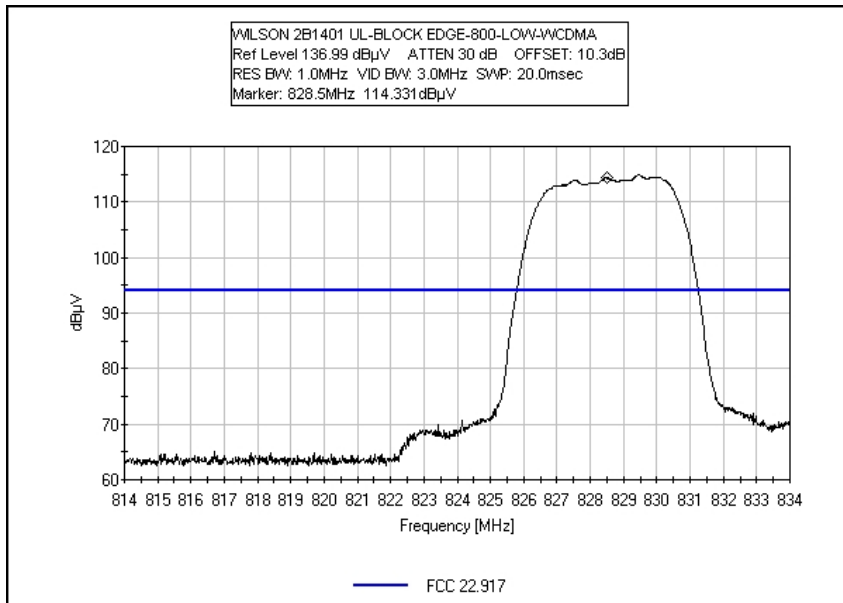
BLOCK EDGE UPLINK - EDGE LOW CHANNEL



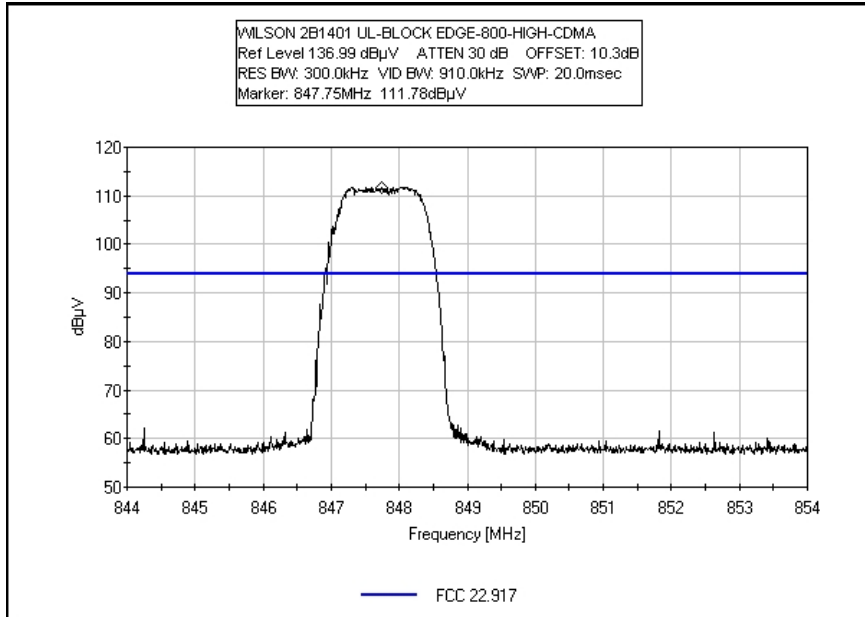
BLOCK EDGE UPLINK - GSM LOW CHANNEL



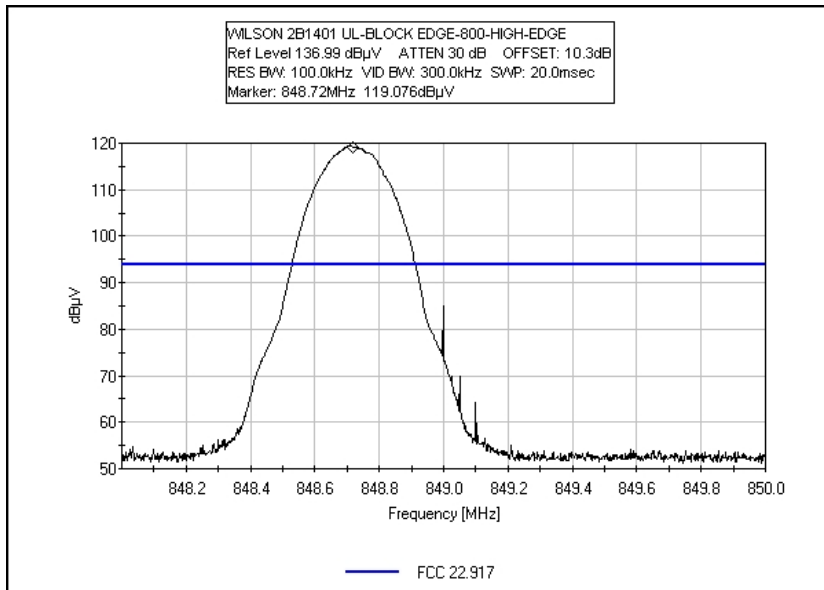
BLOCK EDGE UPLINK - WCDMA LOW CHANNEL



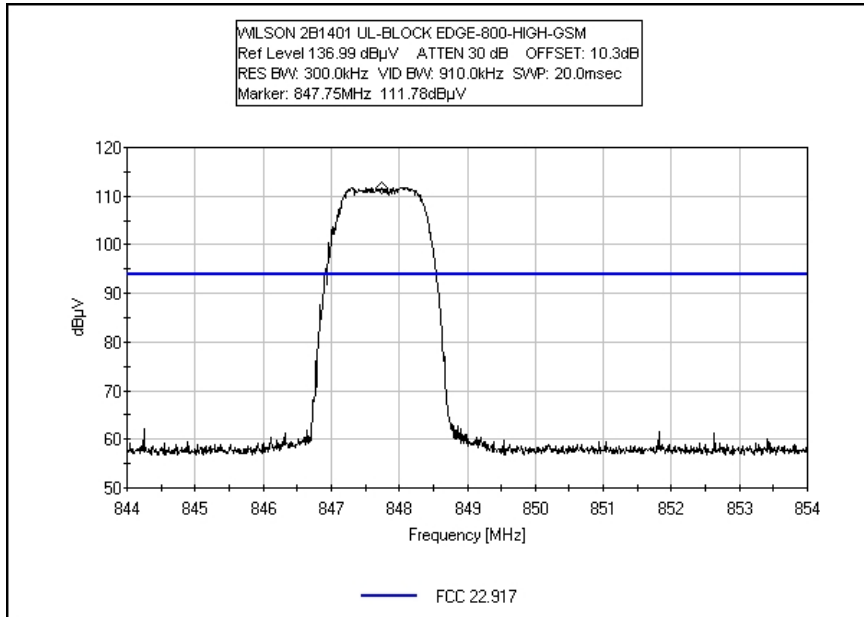
BLOCK EDGE UPLINK - CDMA HIGH CHANNEL



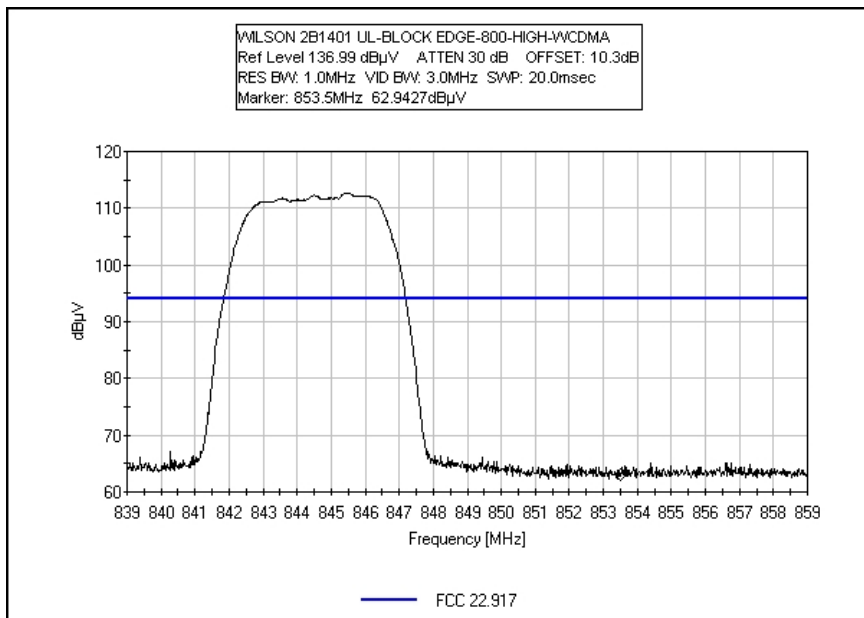
BLOCK EDGE UPLINK - EDGE HIGH CHANNEL



BLOCK EDGE UPLINK - GSM HIGH CHANNEL



BLOCK EDGE UPLINK - WCDMA HIGH CHANNEL



INPUT PLOTS

800MHz 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 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:

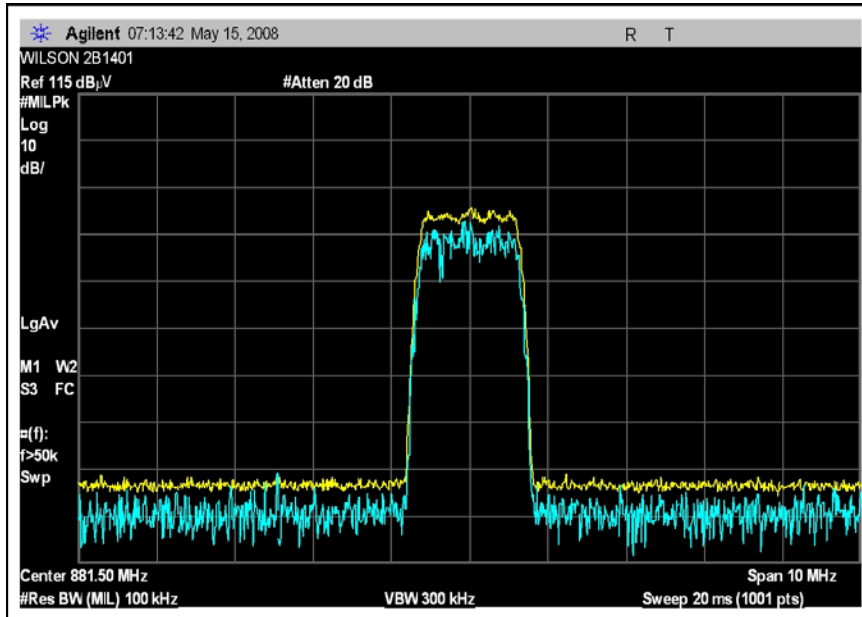
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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. 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

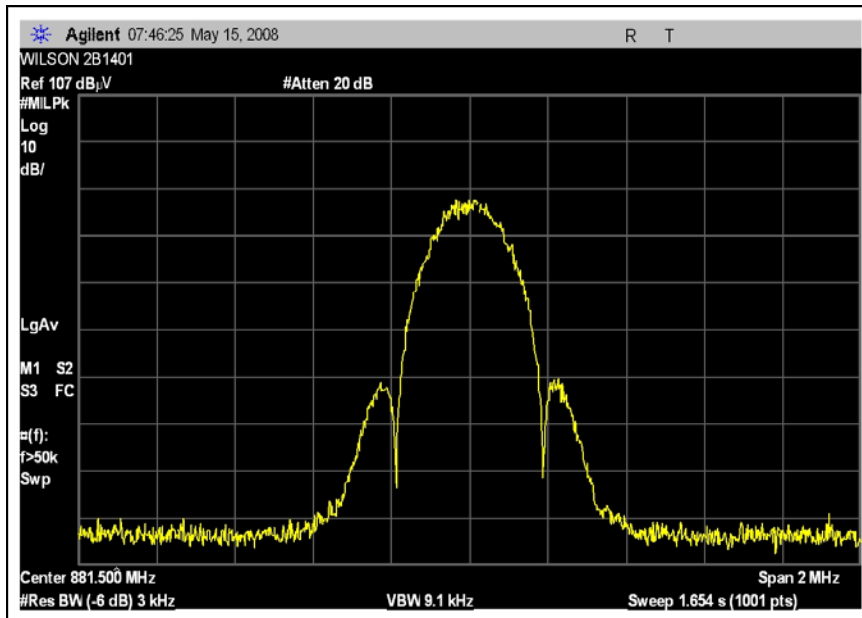


Test Plots

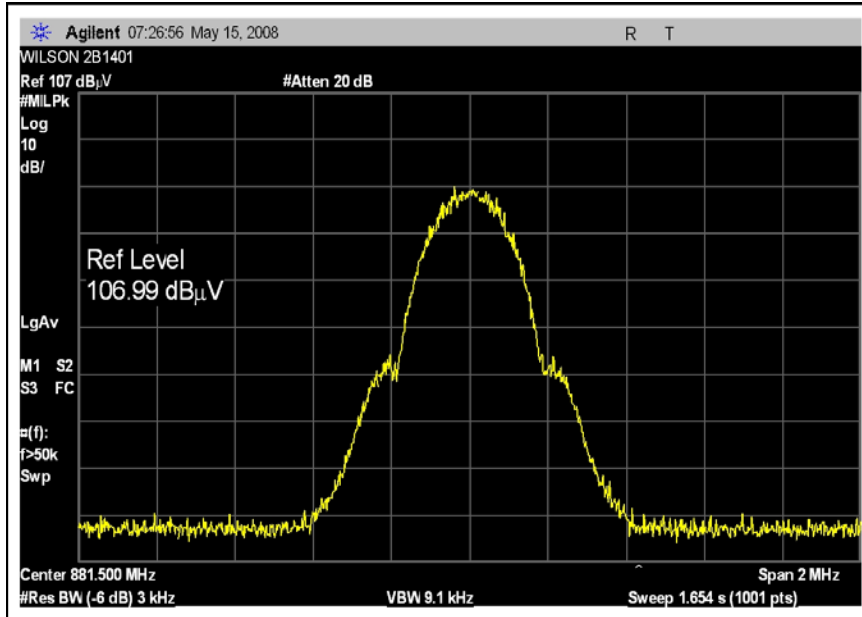
INPUT PLOT DOWNLINK CDMA



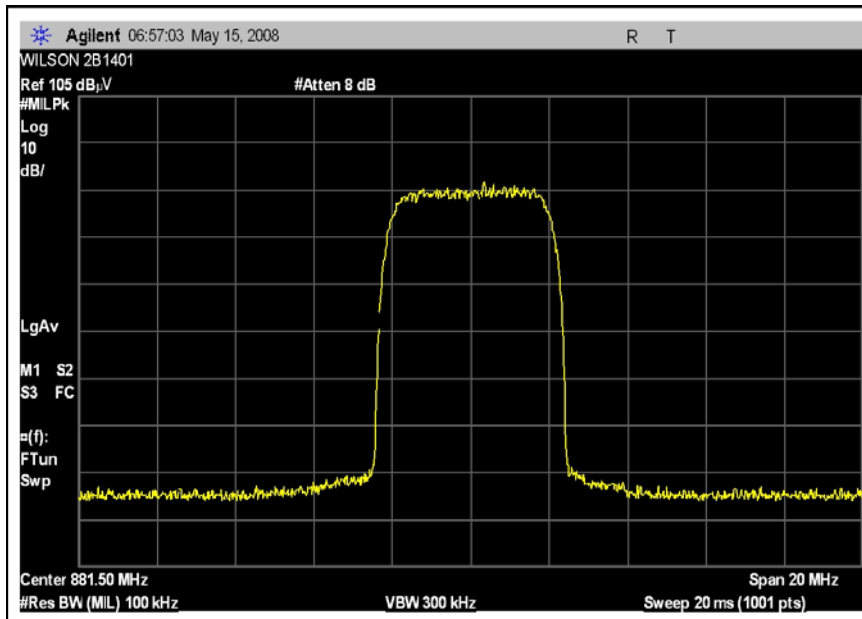
INPUT PLOT DOWNLINK EDGE



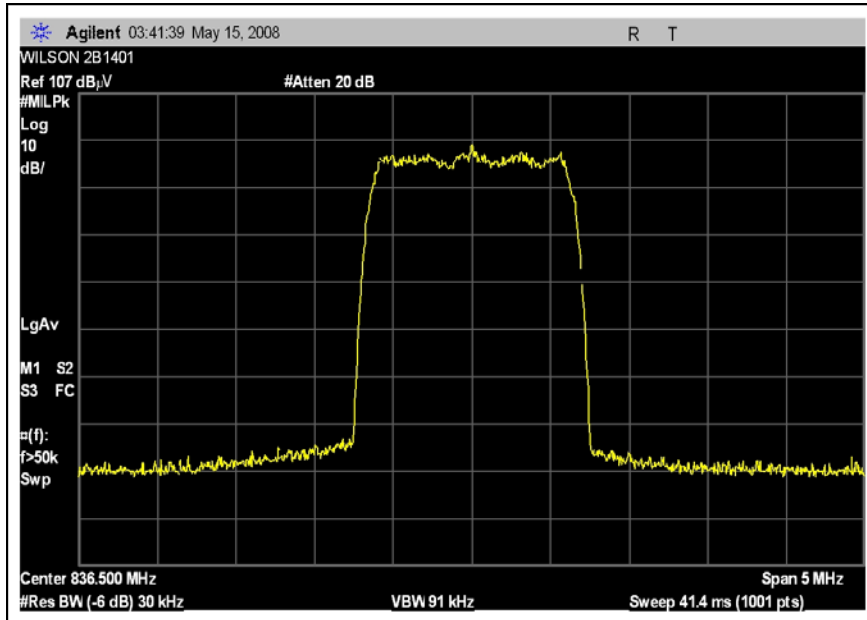
INPUT PLOT DOWNLINK GSM



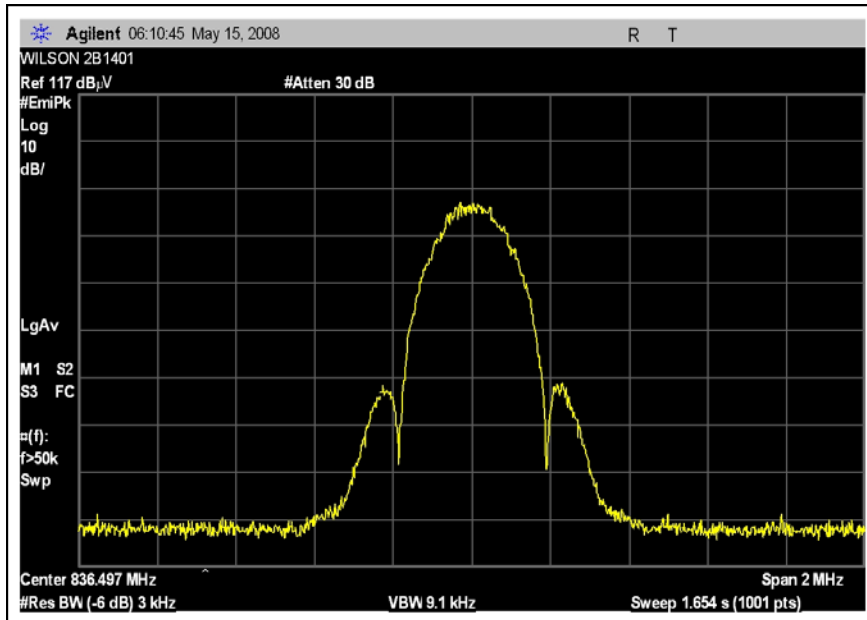
INPUT PLOT DOWNLINK WCDMA



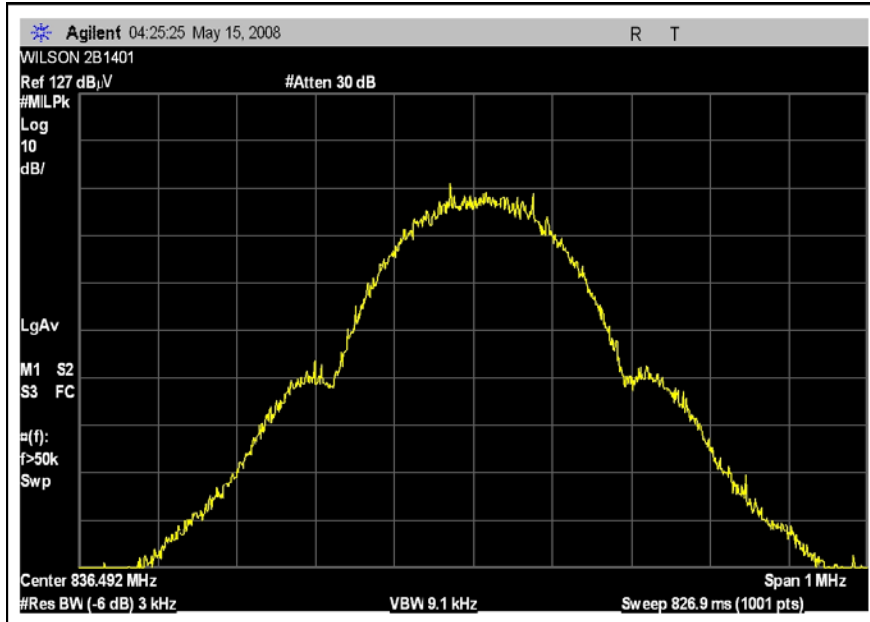
INPUT PLOT UPLINK CDMA



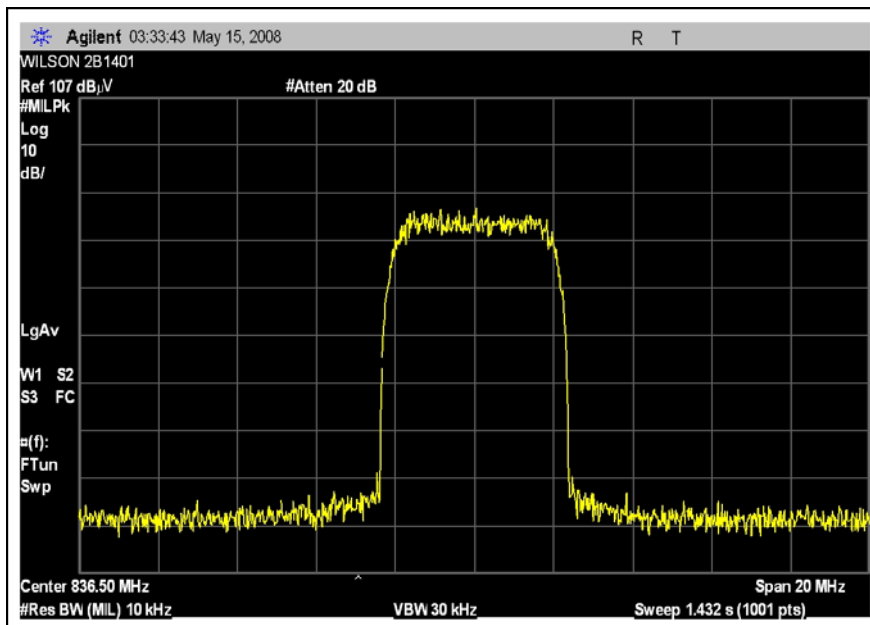
INPUT PLOT UPLINK EDGE



INPUT PLOT UPLINK GSM



INPUT PLOT UPLINK WCDMA



OUTPUT PLOTS

800MHz 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 | Gigatronics | 1026 | 281701 |

Test Conditions / Notes:

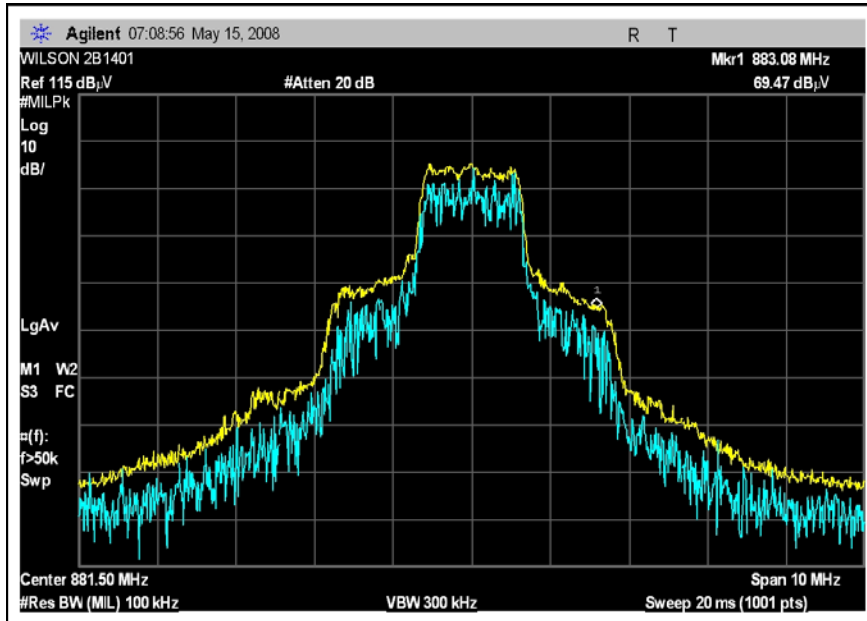
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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. 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

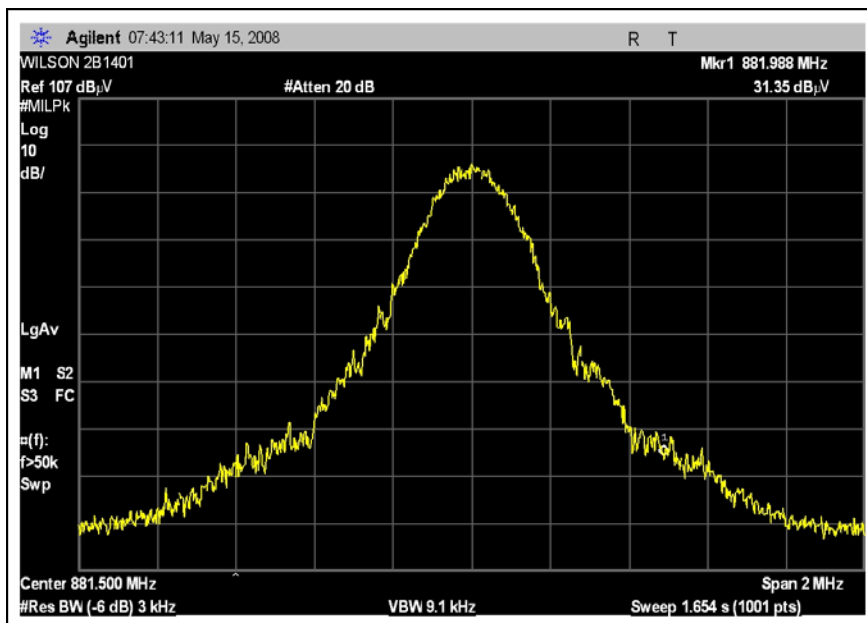


Test Plots

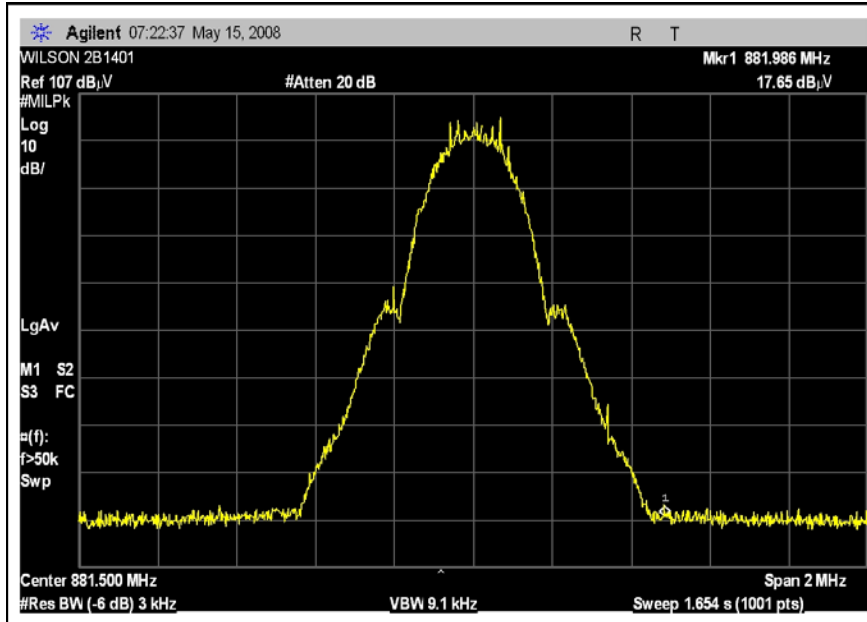
OUTPUT PLOT DOWNLINK CDMA



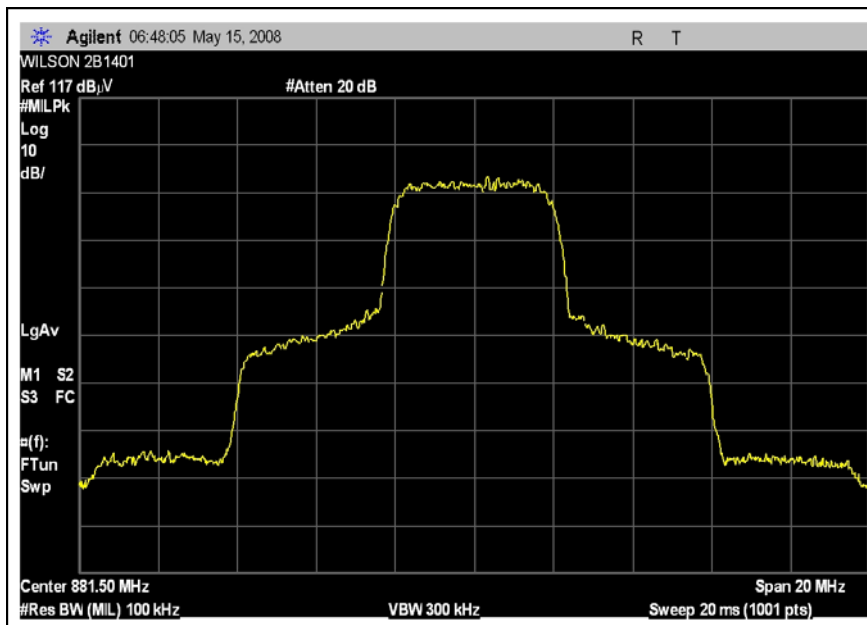
OUTPUT PLOT DOWNLINK EDGE



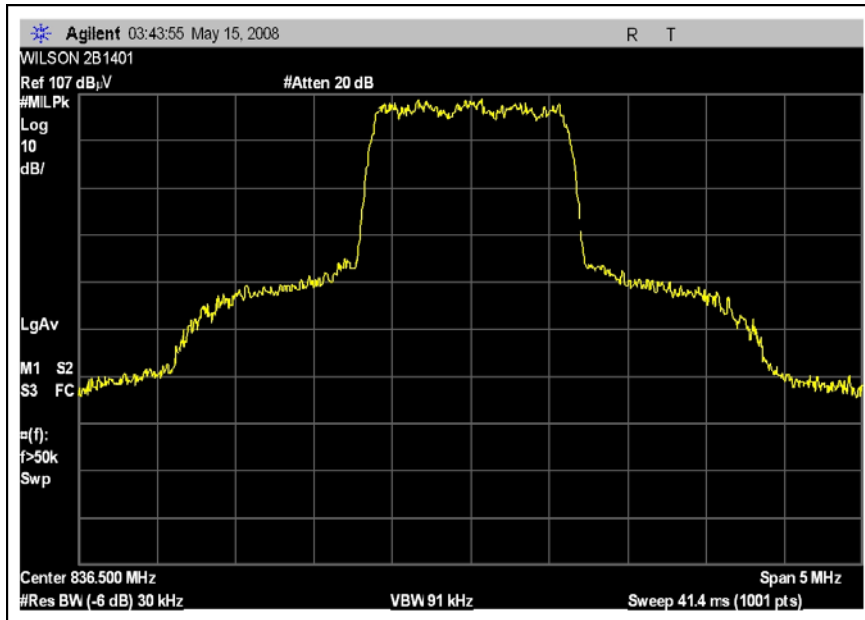
OUTPUT PLOT DOWNLINK GSM



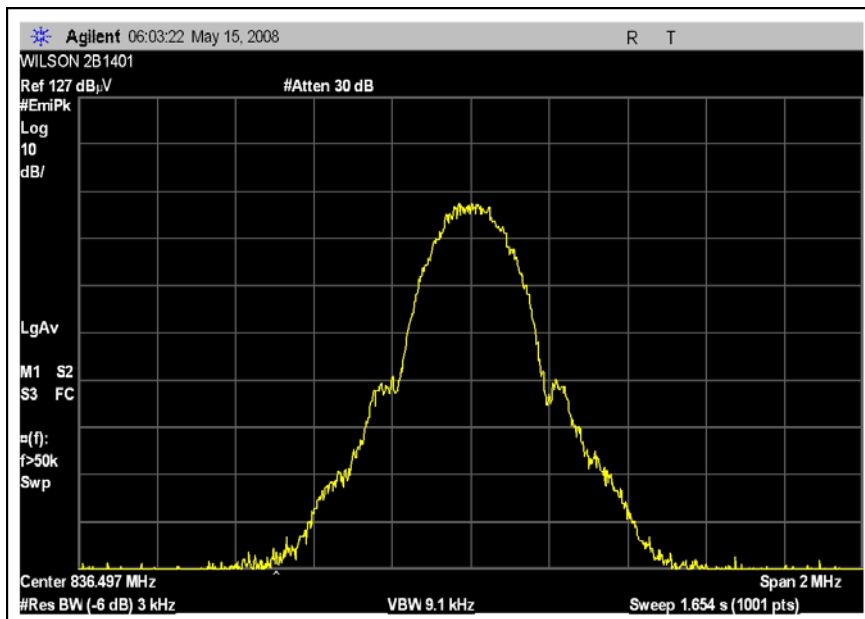
OUTPUT PLOT DOWNLINK WCDMA



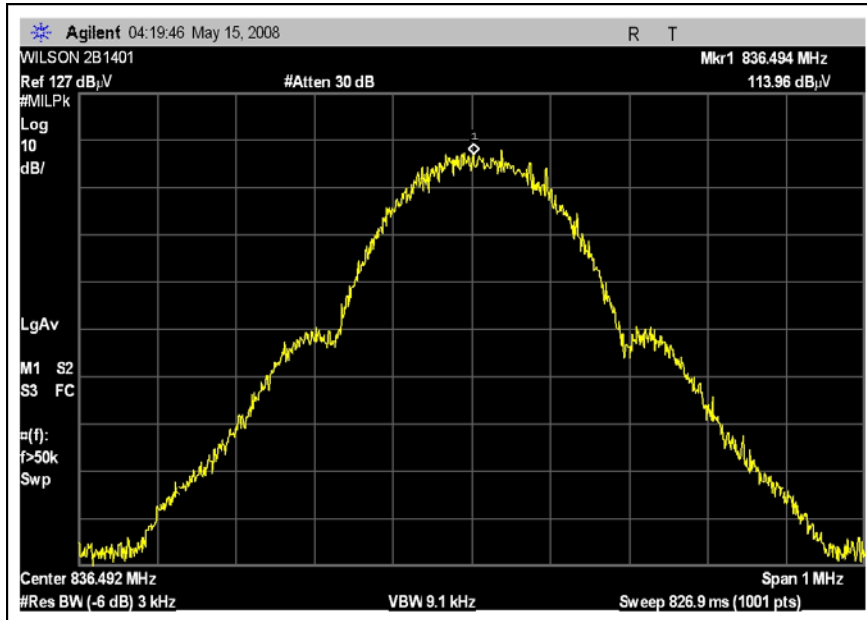
OUTPUT PLOT UPLINK CDMA



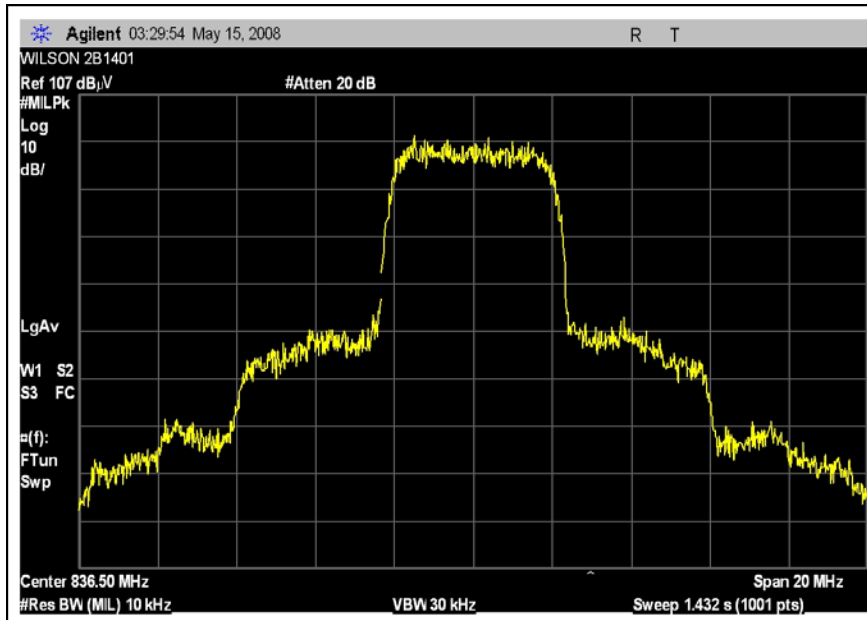
OUTPUT PLOT UPLINK EDGE



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 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:

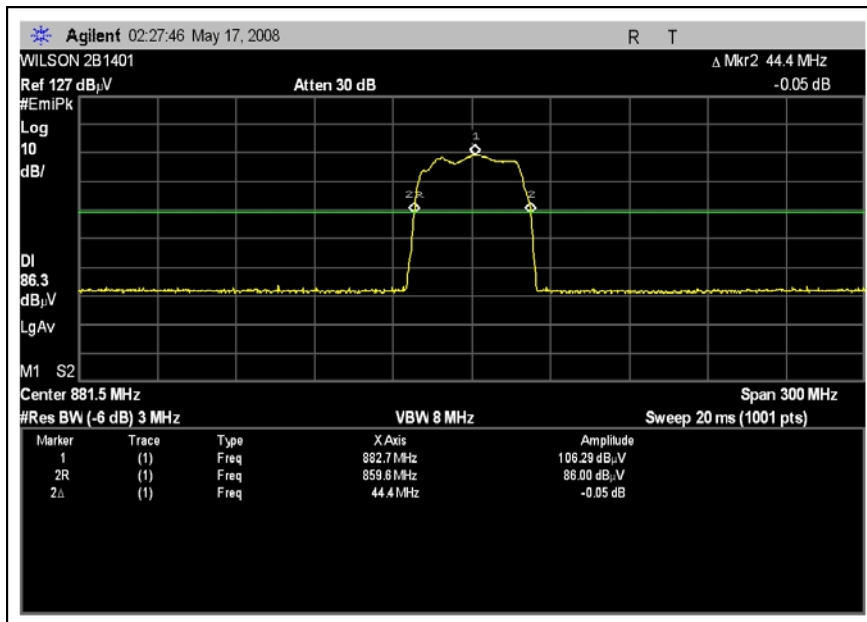
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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. 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

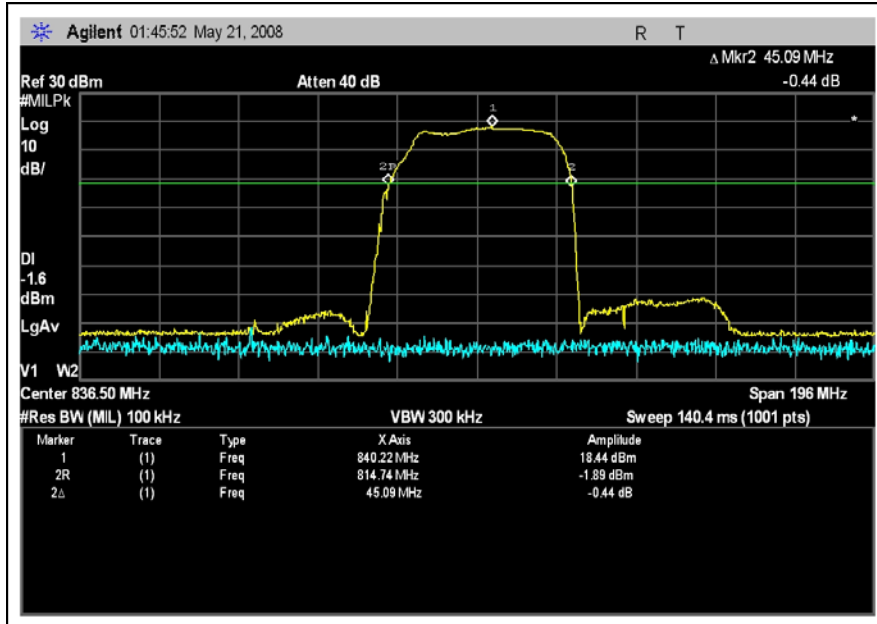


Test Plots

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 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:

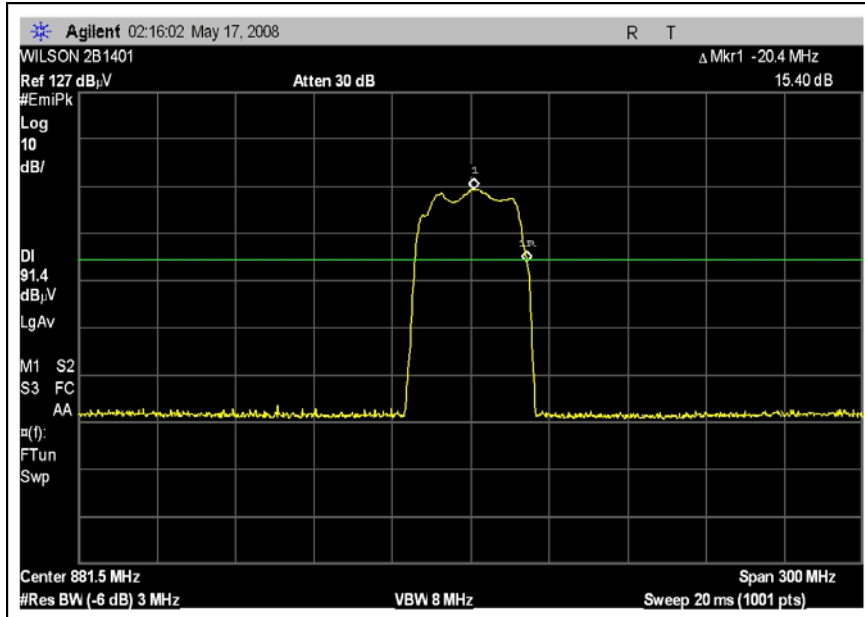
This is a direct-connect, dual-band bi-directional amplifier for enhancing the range of cell phones, and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. A "GPS Bypass" is also included that amplifies GPS signals (1.575 GHz), but only in the 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. 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

