



TESTING
CERT #803.01, 803.02, 803.05, 803.06

ADDENDUM TO WILSON ELECTRONICS TEST REPORT FC08-108

FOR THE

**SIGNAL BOOST IN-BUILDING WIRELESS
CELLULAR/PCS AMPLIFIERS 271247-50 & 271247-75**

FCC PART 24E AND RSS-131

TESTING

DATE OF ISSUE: FEBRUARY 13, 2009

PREPARED FOR:

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

P.O. No.: 271247-1
W.O. No.: 88636

PREPARED BY:

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

Date of test: October 13 - November 9, 2008

Report No.: FC08-108A

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ADMINISTRATIVE INFORMATION

DATE OF TEST: October 13 - November 9, 2008

DATE OF RECEIPT: October 13, 2008

REPRESENTATIVE: Riki Kline

MANUFACTURER:
Wilson Electronics
3301 East 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 24E and RSS-131

PURPOSE OF TEST:

Original Report: To perform the testing of the Signal Boost In-Building Wireless Cellular/PCS Amplifiers 271247-50 & 271247-75 with the requirements for FCC Part 24E and RSS-131 devices.

Addendum A: To correct the bandwidth settings on page 35 with no new testing.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

TEST PERSONNEL:

Mike Wilkinson, Senior EMC Engineer/Lab Manager

SUMMARY OF RESULTS

| Test | Specification | Results |
|--|---|---------|
| RF Power Output | FCC 2.1046/Part 24.232 RSS-131 Section 6.2 | Pass |
| Occupied Bandwidth | FCC 2.1049 | Pass |
| Spurious Emissions at Antenna Terminal | FCC 2.1051/Part 24.238 | Pass |
| Spurious Emissions Field Strength | FCC 2.1053/Part 24.238 | Pass |
| Block Edge | FCC 2.1031/2.1053 | Pass |
| Input and Output Plots | | Pass |
| Intermodulation Attenuation | FCC 2.1051 | Pass |
| Out of Band Rejection | FCC 2.1051 | Pass |
| Passband Gain and Bandwidth | RSS-131 | Pass |
| Site File No. | FCC 90477 IC3082-A | |

CONDITIONS DURING TESTING

No modifications to the EUT were necessary during testing. The customer declares the uplink circuitry is identical in both the 271247-75 and 271247-50 versions of the EUT. Therefore, only one version of the uplink was tested.



EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit. These are wireless, in-building, dual-band bi-directional amplifiers for enhancing the range of cell phones. A 75 ohm F-type connector connects the amplifiers to a 75 ohm coaxial cable feeding an outside antenna. There are two models with the only difference being the impedance of the connection for the inside antenna. The first model (271247-50) provides a 50 ohm TNC connector enabling a 50 ohm coaxial cable to be connected between the amplifier and an inside antenna. The second model (271247-75) provides a 75 ohm F-type connector enabling a 75 ohm coaxial cable to be connected between the amplifier and an inside antenna. Both models allow the direct mounting of an appropriate small antenna on the amplifier itself. The 75 ohm inside antenna connection is achieved by the addition of a passive 50:75 ohm RF transformer. Other than the addition of the transformer and change in connector, the 75 ohm model is identical to the 50 ohm model.

EQUIPMENT UNDER TEST

Signal Boost In-Building Wireless Cellular/PCS Amplifier

Manuf: Wilson Electronics
Model: 271247-50
Serial: 80124799021181716
FCC ID: PWO271247ASB
IC: 4726A-271247ASB

Signal Boost In-Building Wireless Cellular/PCS Amplifier

Manuf: Wilson Electronics
Model: 271247-75
Serial: 8012659901118715
FCC ID: PWO271247ASB
IC: 4726A-271247ASB

PERIPHERAL DEVICES

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

Signal Generator

Manuf: Agilent
Model: E4437B
Serial: MY41000126

Signal Generator

Manuf: Agilent
Model: E4437B
Serial: US39260577

Power Supply

Manuf: Wilson
Model: HK-B18-A06
Serial: NA

Splitter, 4-Way

Manuf: Motorola
Model: NA
Serial: ANP01314

Step Attenuator

Manuf: HP
Model: 8494B
Serial: AN02475

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

1850-1910 MHz for uplink path and 1930-1990 MHz for downlink path

FCC 2.1033 (c)(6) OPERATING POWER

2511.88 mW uplink and 11.74 mW downlink

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

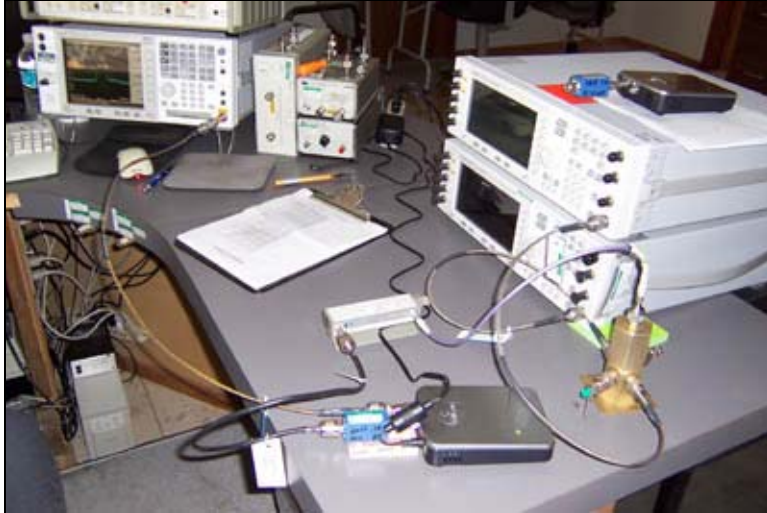
The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION

CDMA, EDGE, GSM and WCDMA. The base interface CDMA2000 and WCDMA modulation types tested are intended to additionally demonstrate compliance with EVDO and HSPA extensions. Reference: FCC KDB Publication 935210.

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

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 24.232 Mobil**
 Work Order #: **88636** Date: 10/31/2008
 Test Type: **Maximized Emissions** Time: 09:07:22
 Equipment: **Signal Boost In-Building Wireless Cellular/PCS Amplifier** Sequence#: 4
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 271247-50 & 271247-75
 S/N: 80124799021181716 & 8012659901118715

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 08/07/2008 | 08/07/2010 | 02660 |
| Wilson 50-75 Ohm Adapter | None | 10/14/2008 | 10/14/2010 | C00013 |
| Cable 3' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03012 |
| HP 8491A 10dB Attenuator | 2708A47453 | 11/30/2006 | 11/30/2008 | P01350 |
| 10 dB 10W Attenuator | None | 11/30/2006 | 11/30/2008 | P02229 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---|--------------------|-----------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|------------|------------|
| Signal Generator | Agilent | E4437B | MY41000126 |
| Signal Generator | Agilent | E4437B | US39260577 |
| Power Supply | Wilson | HK-B18-A06 | None |
| Step Attenuator | HP | 8494B | AN02475 |
| Splitter, 4-Way | Motorola | None | ANP01314 |

Test Conditions / Notes:

This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. 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 measured at an input level just below that which will cause the EUT to fail harmonic, intermodulation or band edge limits, whichever results in the lowest power output for each modulation and channel setting. 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. Reported power levels are not corrected to ERP.

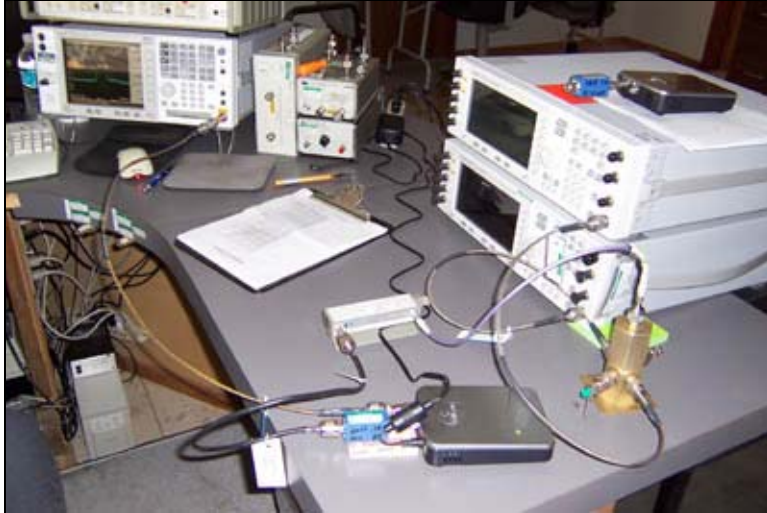
| Uplink-50 | Part | Frequency | dBm | mW |
|------------|------|-----------|------|---------|
| GSM Low | 24 | 1850.29 | 16.9 | 48.97 |
| GSM Mid | 24 | 1880.00 | 29.3 | 851.13 |
| GSM High | 24 | 1909.72 | 16.6 | 45.70 |
| EDGE Low | 24 | 1850.30 | 17.4 | 54.95 |
| EDGE Mid | 24 | 1880.00 | 27.6 | 575.43 |
| EDGE High | 24 | 1909.73 | 17.3 | 53.70 |
| CDMA Low | 24 | 1853.80 | 26.6 | 457.08 |
| CDMA Mid | 24 | 1880.00 | 30.9 | 1230.26 |
| CDMA High | 24 | 1906.23 | 25.3 | 388.84 |
| WCDMA Low | 24 | 1859.00 | 28.1 | 645.65 |
| WCDMA Mid | 24 | 1880.00 | 34.0 | 2511.88 |
| WCDMA High | 24 | 1900.83 | 26.3 | 426.57 |

| Downlink-50 | Part | Frequency | dBm | mW |
|-------------|------|-----------|------|-------|
| GSM Low | 24 | 1930.28 | -0.2 | 0.95 |
| GSM Mid | 24 | 1960.00 | 5.5 | 3.54 |
| GSM High | 24 | 1989.72 | 4.7 | 2.95 |
| EDGE Low | 24 | 1930.28 | 0.6 | 1.14 |
| EDGE Mid | 24 | 1960.00 | 6.2 | 4.16 |
| EDGE High | 24 | 1989.72 | 4.6 | 2.88 |
| CDMA Low | 24 | 1931.25 | 4.7 | 2.95 |
| CDMA Mid | 24 | 1960.00 | 6.4 | 4.36 |
| CDMA High | 24 | 1988.75 | 7.9 | 6.19 |
| WCDMA Low | 24 | 1934.50 | 7.6 | 4.75 |
| WCDMA Mid | 24 | 1960.00 | 10.7 | 11.74 |
| WCDMA High | 24 | 1985.50 | 4.7 | 2.95 |

| Downlink-75 | Part | Frequency | dBm | mW |
|--------------------|-------------|------------------|------------|-----------|
| GSM Mid | 24 | 1960.00 | 7.6 | 5.75 |
| EDGE Mid | 24 | 1960.00 | 7.6 | 5.75 |
| CDMA Mid | 24 | 1960.00 | 8.1 | 6.45 |
| WCDMA Mid | 24 | 1960.00 | 8.2 | 6.60 |

RSS-131 SECTION 6.2 - RF POWER OUTPUT

Test Setup Photos



Test Data

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

Customer: **Wilson Electronics**

Specification: **RSS 131**

Work Order #: **88636** Date: 11/3/2008

Test Type: **Maximized Emissions** Time: 15:18:04

Equipment: **Signal Boost In-Building Wireless Cellular/PCS Amplifier** Sequence#: 1

Manufacturer: Wilson Electronics Tested By: Mike Wilkinson

Model: 271247-50 & 271247-75

S/N: 80124799021181716 & 8012659901118715

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 08/07/2008 | 08/07/2010 | 02660 |
| Wilson 50-75 Ohm Adapter | None | 10/14/2008 | 10/14/2010 | C00013 |
| Cable 3' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03012 |
| HP 8491A 10dB Attenuator | 2708A47453 | 11/30/2006 | 11/30/2008 | P01350 |
| 10 dB 10W Attenuator | None | 11/30/2006 | 11/30/2008 | P02229 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---|--------------------|-----------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|------------|------------|
| Signal Generator | Agilent | E4437B | MY41000126 |
| Signal Generator | Agilent | E4437B | US39260577 |
| Power Supply | Wilson | HK-B18-A06 | None |
| Step Attenuator | HP | 8494B | AN02475 |
| Splitter, 4-Way | Motorola | None | ANP01314 |

Test Conditions / Notes:

This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. 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. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%. Input signals are CW for Multi-Carrier Operation in accordance with RSS 131. Fundamental output power was measured at the point which the intermodulation product reached -13dBm. RBW=100 kHz.

-50

| Band | Frequency (MHz) | Power (dBm) | Po+3dB (dBm) | Pmean (mW) |
|-------------------|-----------------|-------------|--------------|------------|
| Downlink 1900 MHz | 1960.000 | 1.25 | 4.25 | 2.66 |
| Downlink 1900 MHz | 1960.495 | 1.20 | 4.20 | 2.63 |
| Downlink 1900 MHz | 1931.000 | 0.78 | 3.78 | 2.38 |
| Downlink 1900 MHz | 1931.495 | 0.76 | 3.76 | 2.37 |
| Downlink 1900 MHz | 1988.000 | 2.15 | 5.15 | 3.27 |
| Downlink 1900 MHz | 1988.498 | 1.60 | 4.60 | 2.88 |

-75

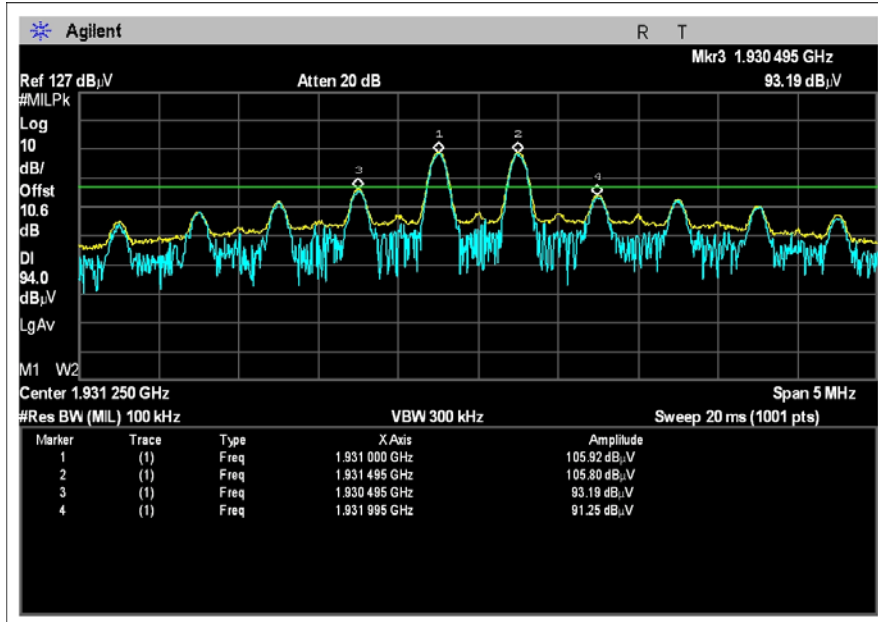
| Band | Frequency (MHz) | Power (dBm) | Po+3dB (dBm) | Pmean (mW) |
|-------------------|-----------------|-------------|--------------|------------|
| Downlink 1900 MHz | 1931.000 | 0.99 | 3.99 | 2.51 |
| Downlink 1900 MHz | 1931.500 | 0.98 | 3.98 | 2.50 |
| Downlink 1900 MHz | 1960.000 | 1.71 | 4.71 | 2.95 |
| Downlink 1900 MHz | 1960.500 | 1.78 | 4.78 | 3.00 |
| Downlink 1900 MHz | 1988.000 | 1.67 | 4.67 | 2.93 |
| Downlink 1900 MHz | 1999.495 | 1.91 | 4.91 | 3.09 |

-50

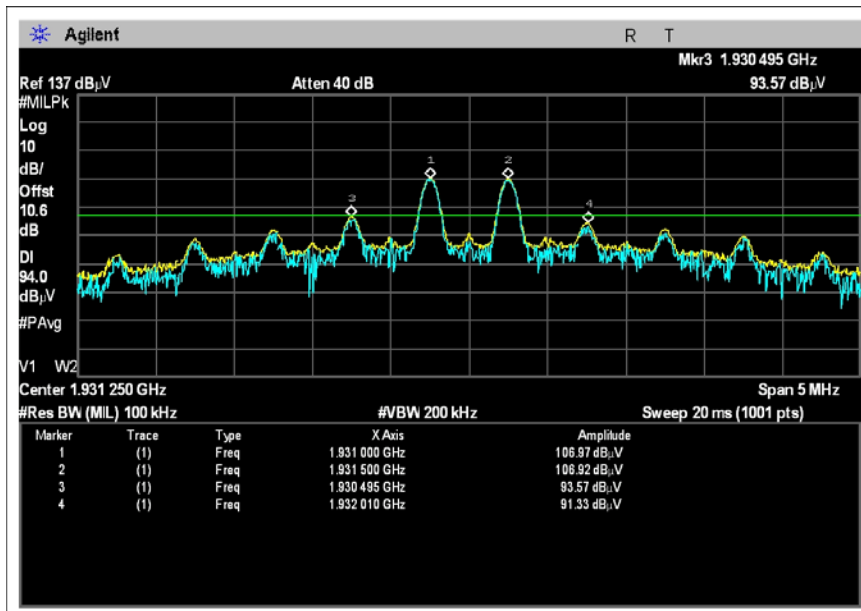
| Band | Frequency (MHz) | Power (dBm) | Po+3dB (dBm) | Pmean (mW) |
|-----------------|-----------------|-------------|--------------|------------|
| Uplink 1900 MHz | 1850.99 | 16.45 | 19.45 | 88.10 |
| Uplink 1900 MHz | 1851.49 | 16.00 | 19.00 | 79.43 |
| Uplink 1900 MHz | 1880.00 | 18.30 | 21.30 | 134.89 |
| Uplink 1900 MHz | 1880.50 | 18.28 | 21.28 | 134.27 |
| Uplink 1900 MHz | 1908.00 | 17.46 | 20.46 | 111.17 |
| Uplink 1900 MHz | 1908.50 | 17.36 | 20.36 | 108.64 |

Test Plots

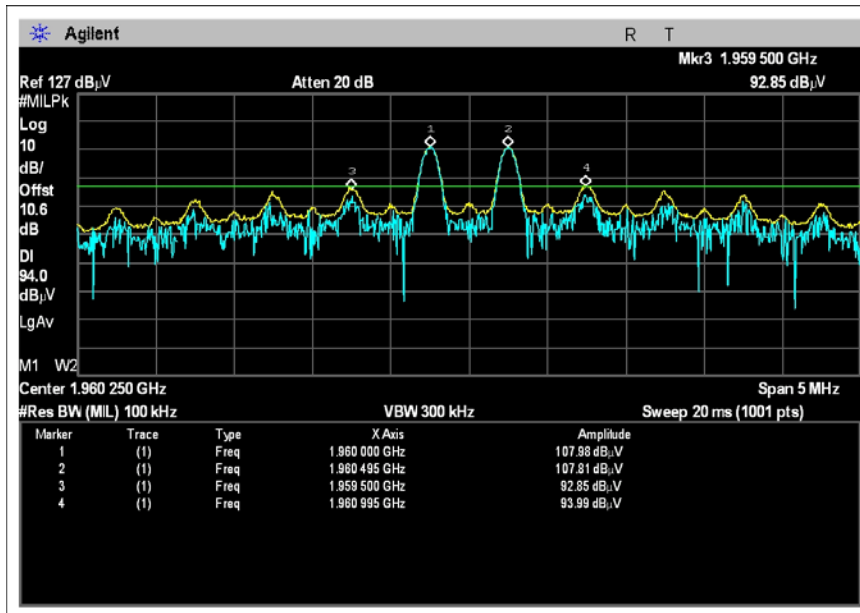
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – LOW CHANNEL 50



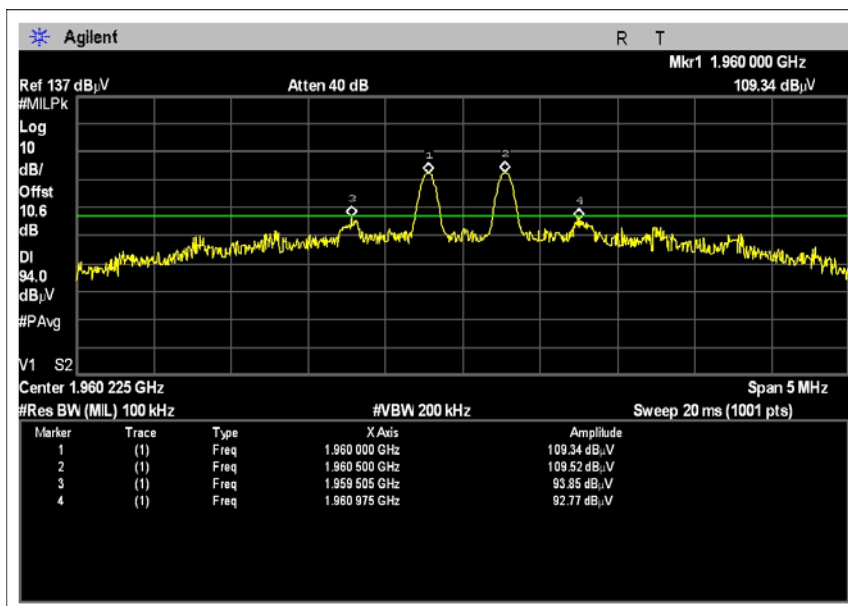
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – LOW CHANNEL 75



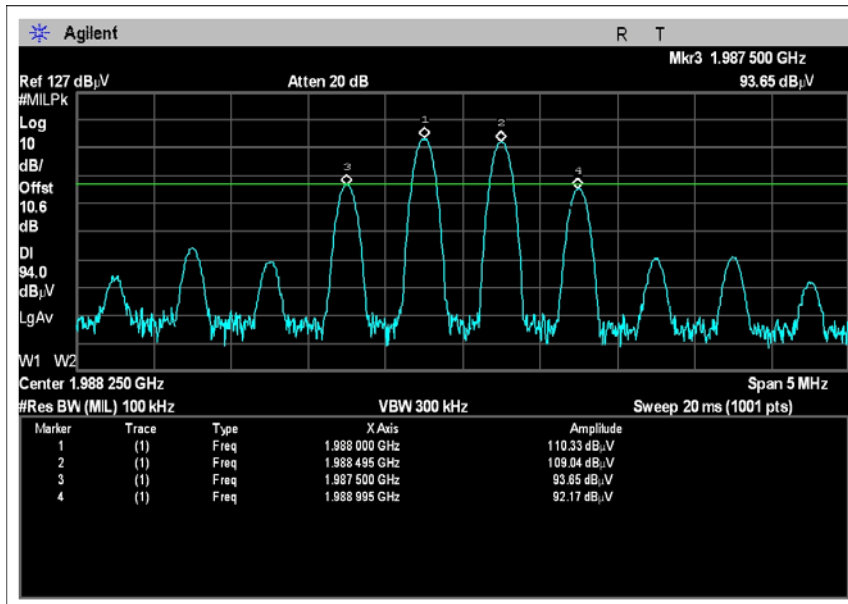
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – MID CHANNEL 50



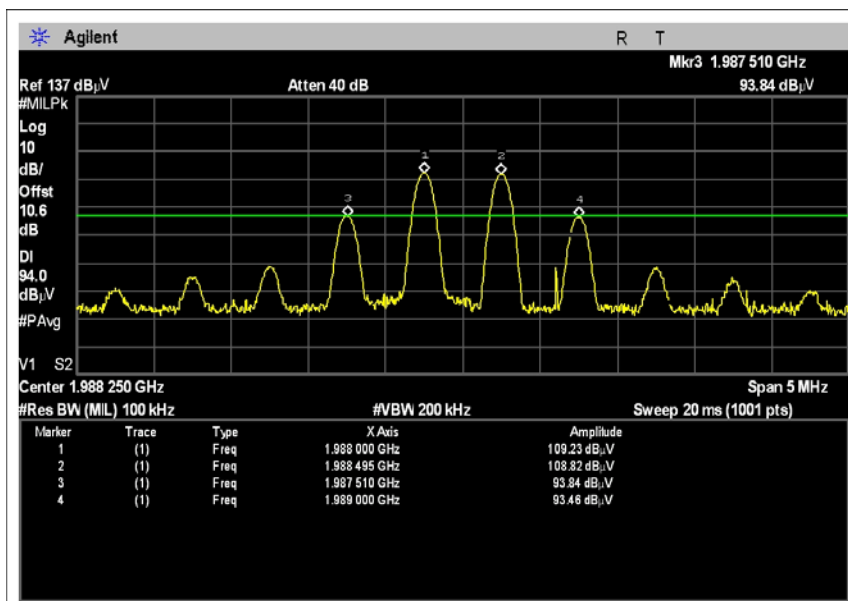
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – MID CHANNEL 75



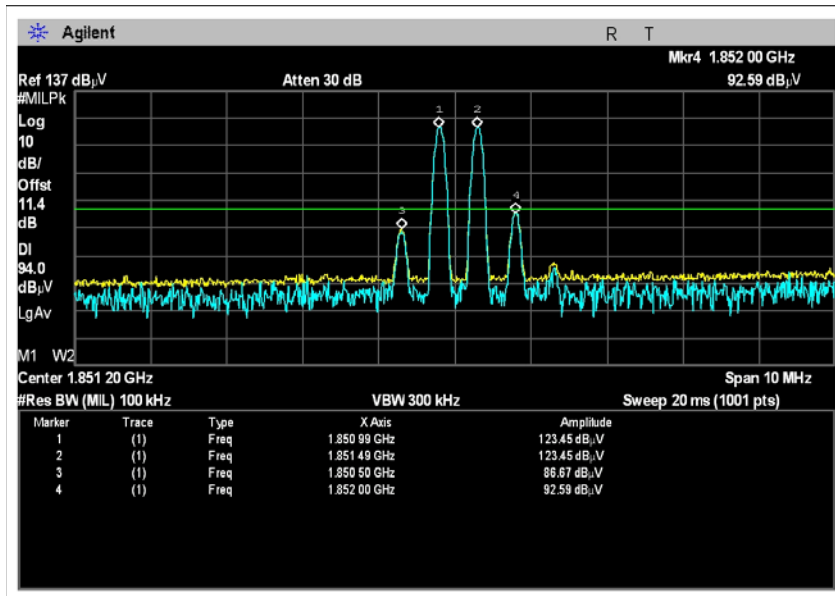
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – HIGH CHANNEL 50



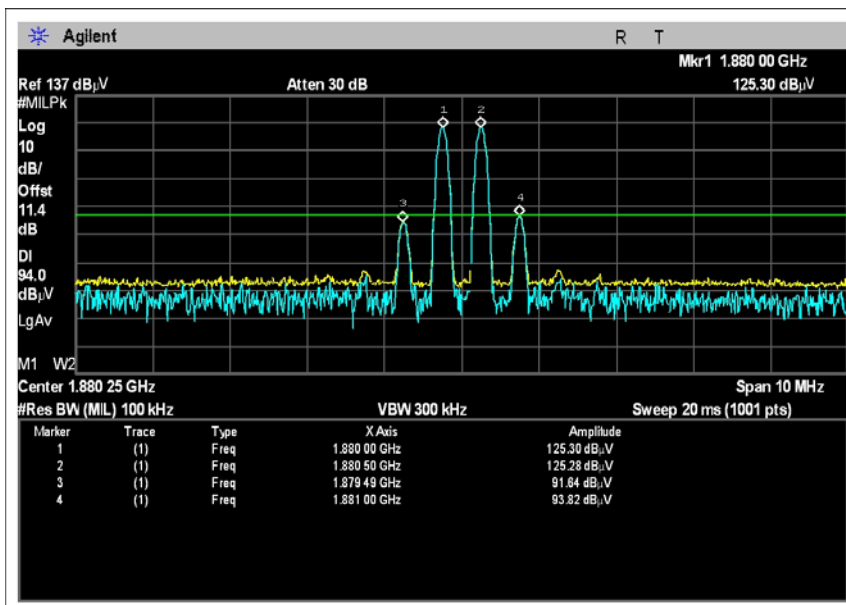
RSS-131 SECTION 6.2 OUTPUT POWER DOWNLINK – HIGH CHANNEL 75



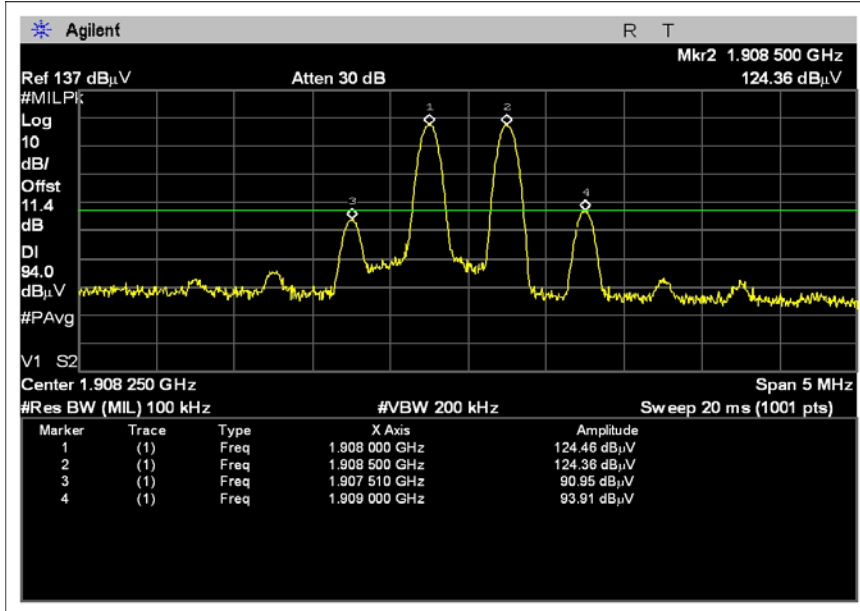
**RSS-131 SECTION 6.2 OUTPUT POWER UPLINK –
LOW CHANNEL 50**



**RSS-131 SECTION 6.2 OUTPUT POWER UPLINK –
MID CHANNEL 50**



RSS-131 SECTION 6.2 OUTPUT POWER UPLINK – HIGH CHANNEL 50



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

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 08/07/2008 | 08/07/2010 | 02660 |
| Wilson 50-75 Ohm Adapter | None | 10/14/2008 | 10/14/2010 | C00013 |
| Cable 3' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03012 |
| HP 8491A 10dB Attenuator | 2708A47453 | 11/30/2006 | 11/30/2008 | P01350 |
| 10 dB 10W Attenuator | None | 11/30/2006 | 11/30/2008 | P02229 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---|--------------------|-----------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|------------|------------|
| Signal Generator | Agilent | E4437B | MY41000126 |
| Signal Generator | Agilent | E4437B | US39260577 |
| Power Supply | Wilson | HK-B18-A06 | None |
| Step Attenuator | HP | 8494B | AN02475 |
| Splitter, 4-Way | Motorola | None | ANP01314 |

Test Conditions / Notes:

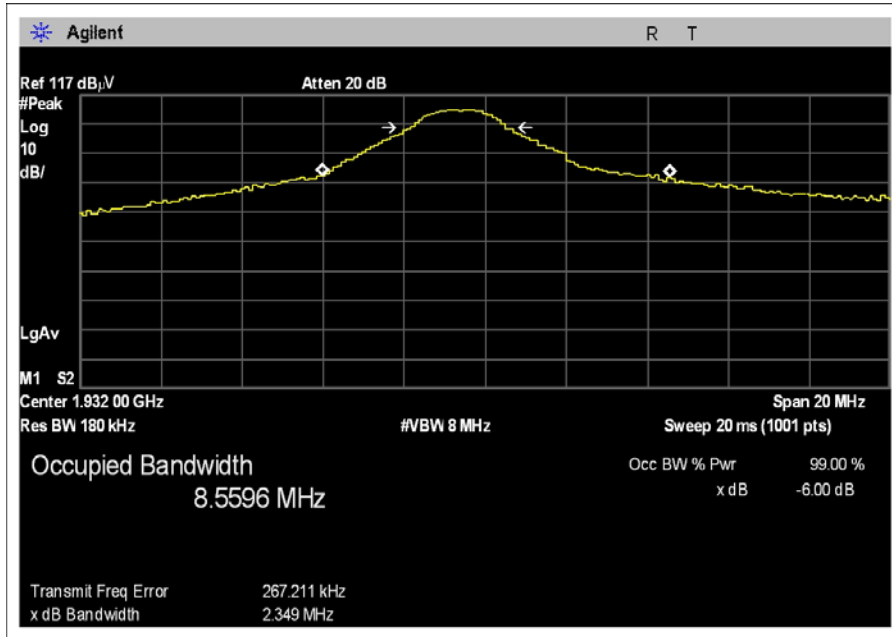
This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Reported power levels indicate the maximum compliant power output measured at an input level just below that which will cause the EUT to fail harmonic, intermodulation or band edge limits, whichever results in the lowest power output for each modulation and channel setting. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%.

Test Setup Photos

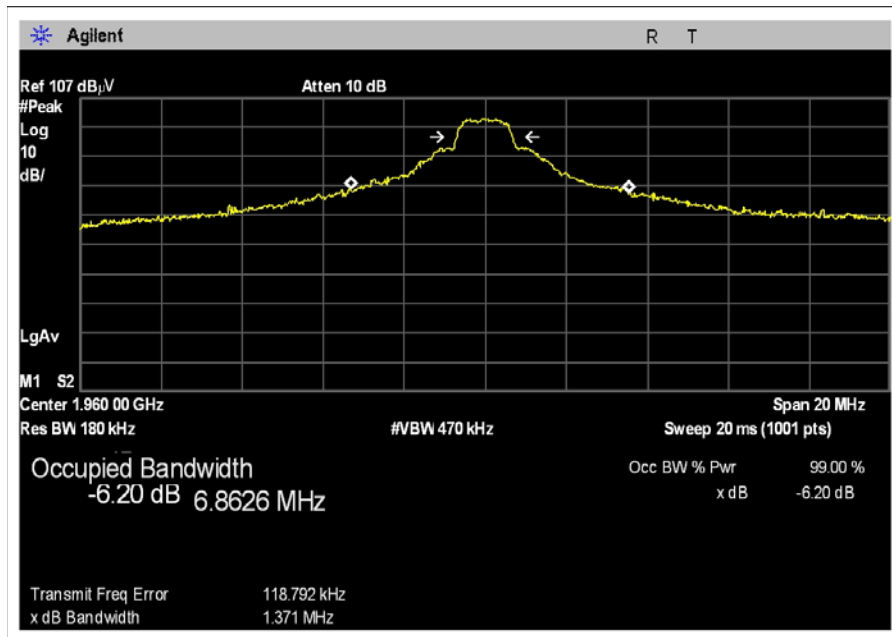


Test Plots

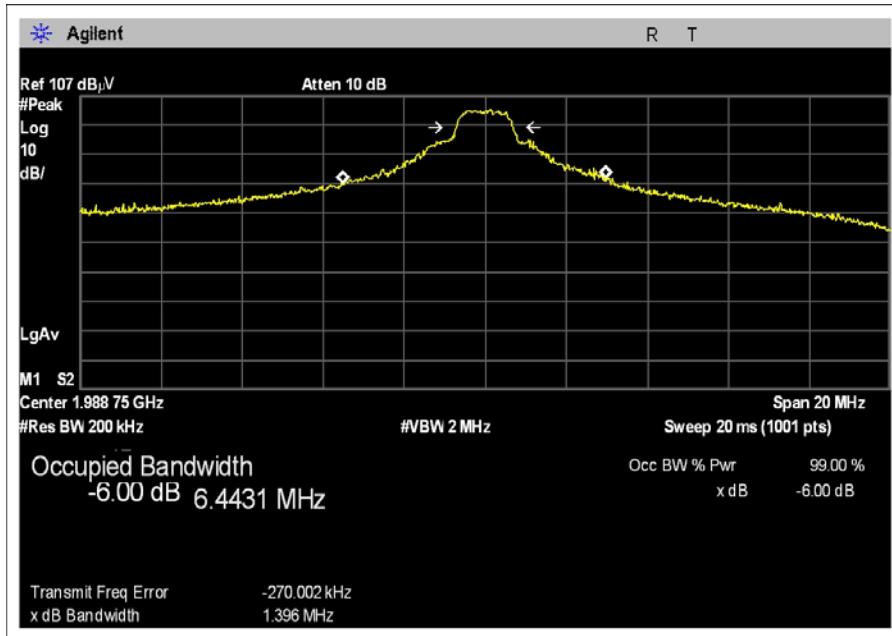
OCCUPIED BANDWIDTH DOWNLINK - CDMA LOW CHANNEL



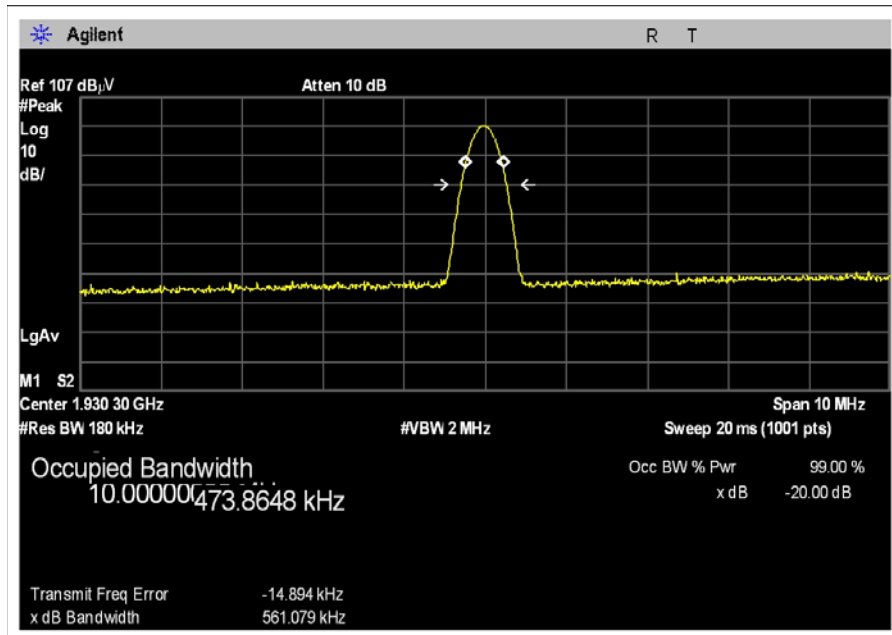
OCCUPIED BANDWIDTH DOWNLINK - CDMA MID CHANNEL



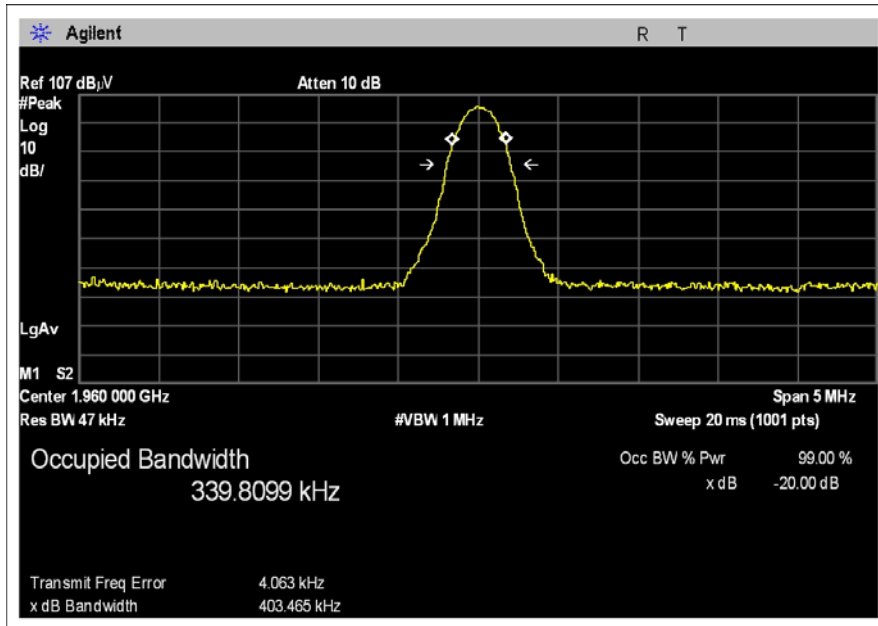
OCCUPIED BANDWIDTH DOWNLINK - CDMA HIGH CHANNEL



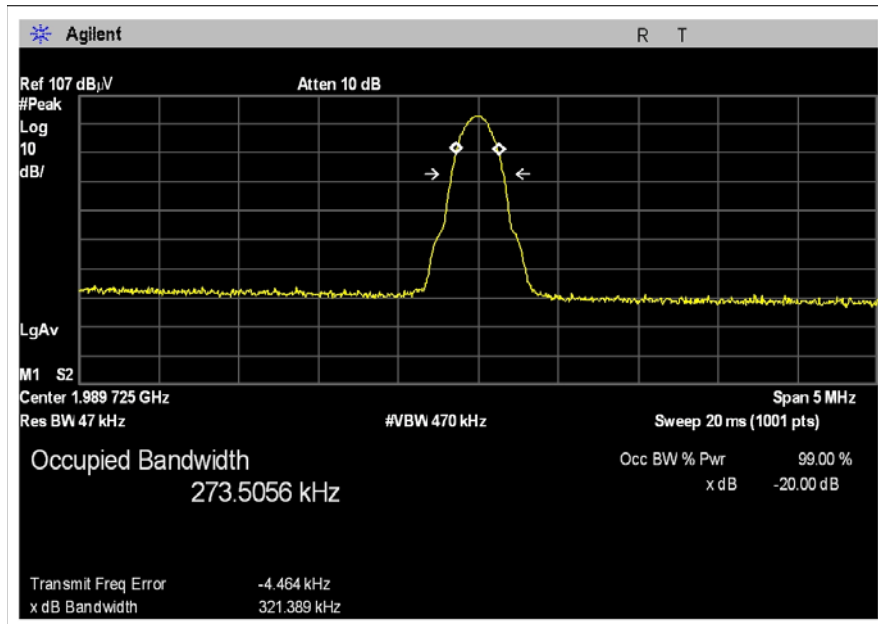
OCCUPIED BANDWIDTH DOWNLINK - EDGE LOW CHANNEL



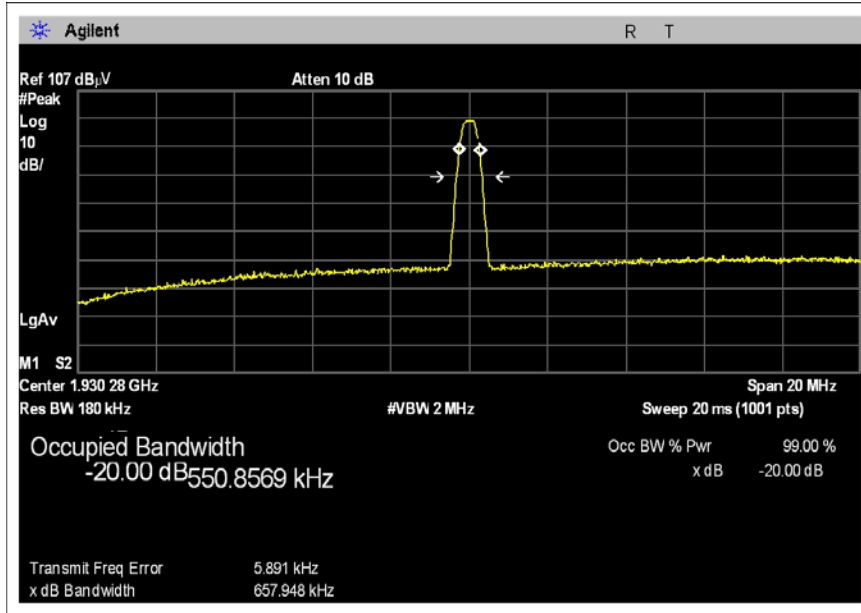
OCCUPIED BANDWIDTH DOWNLINK - EDGE MID CHANNEL



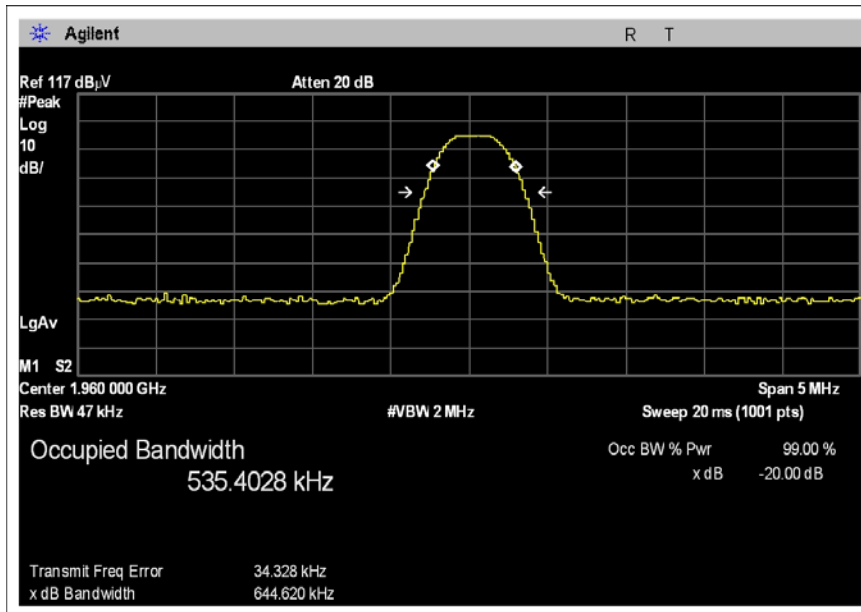
OCCUPIED BANDWIDTH DOWNLINK - EDGE HIGH CHANNEL



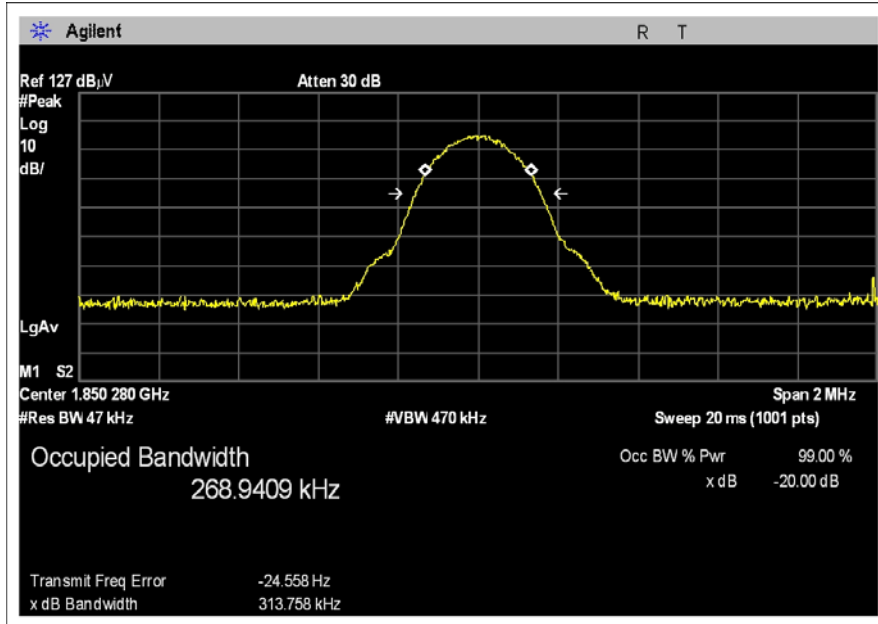
OCCUPIED BANDWIDTH DOWNLINK - GSM LOW CHANNEL



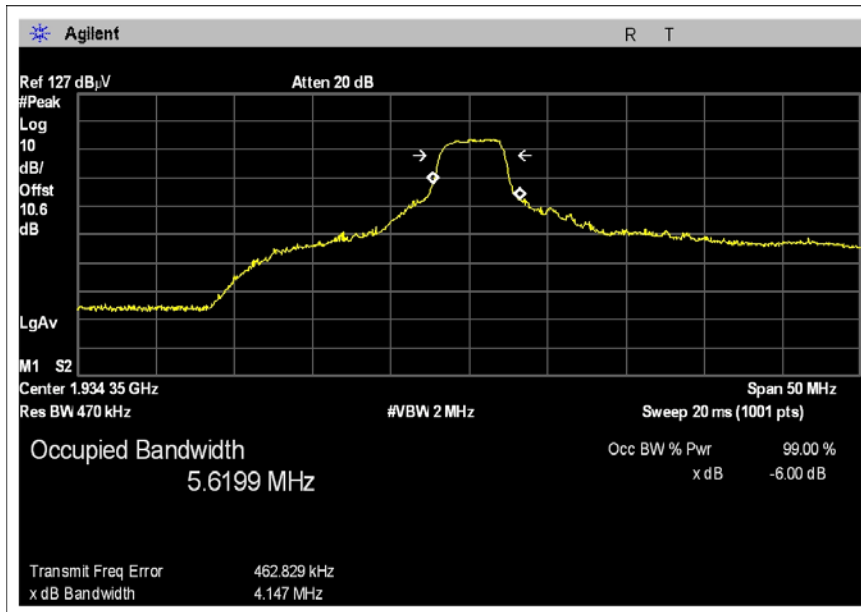
OCCUPIED BANDWIDTH DOWNLINK - GSM MID CHANNEL



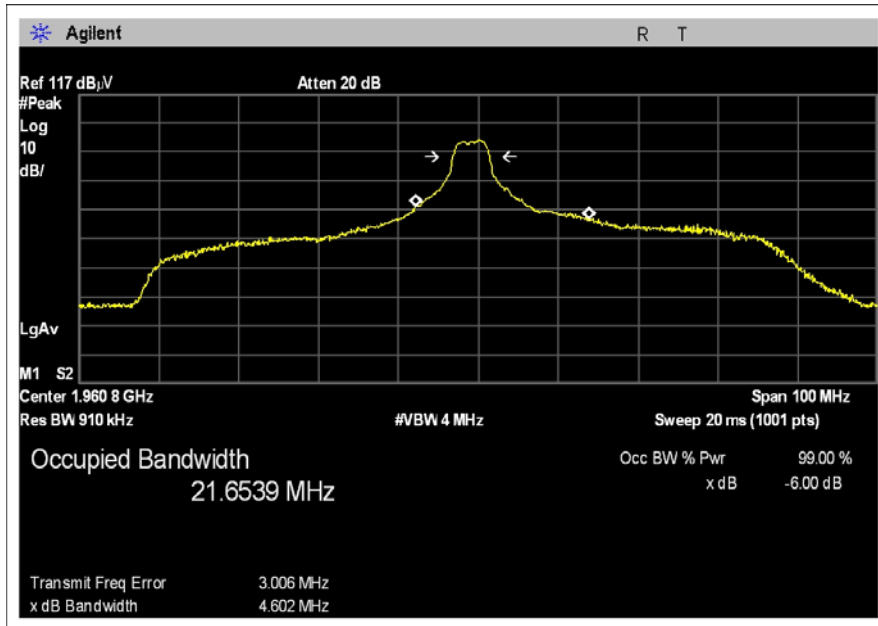
OCCUPIED BANDWIDTH DOWNLINK - GSM HIGH CHANNEL



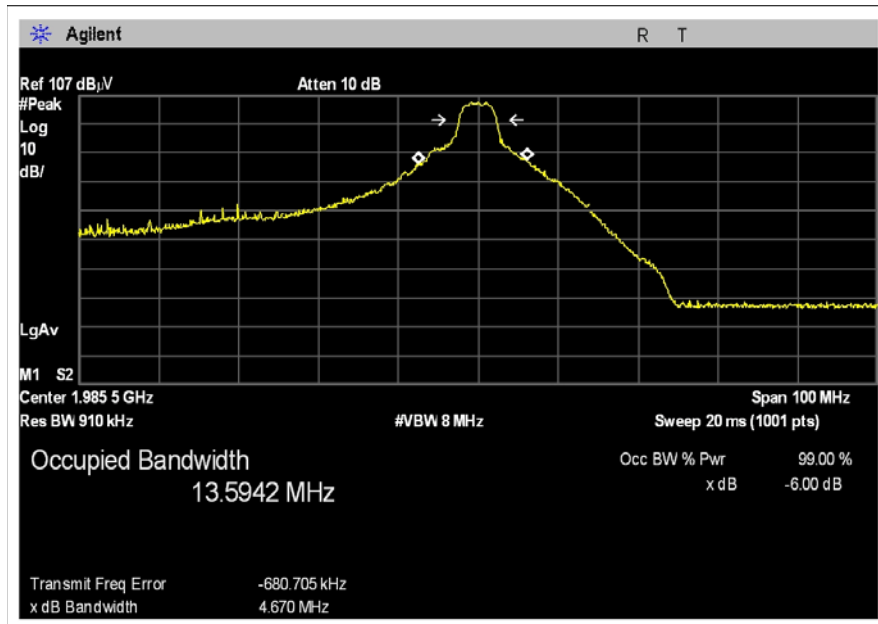
OCCUPIED BANDWIDTH DOWNLINK - WCDMA LOW CHANNEL



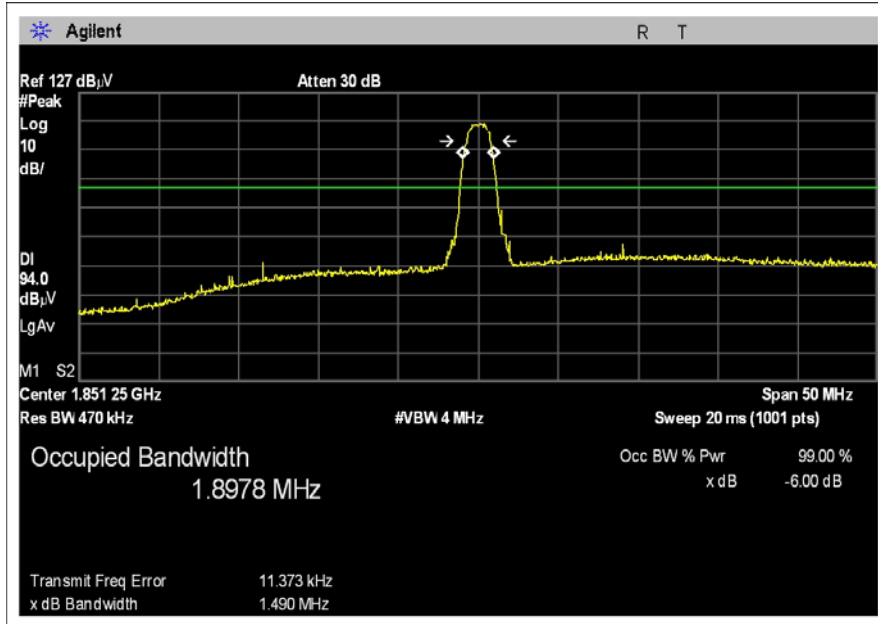
OCCUPIED BANDWIDTH DOWNLINK - WCDMA MID CHANNEL



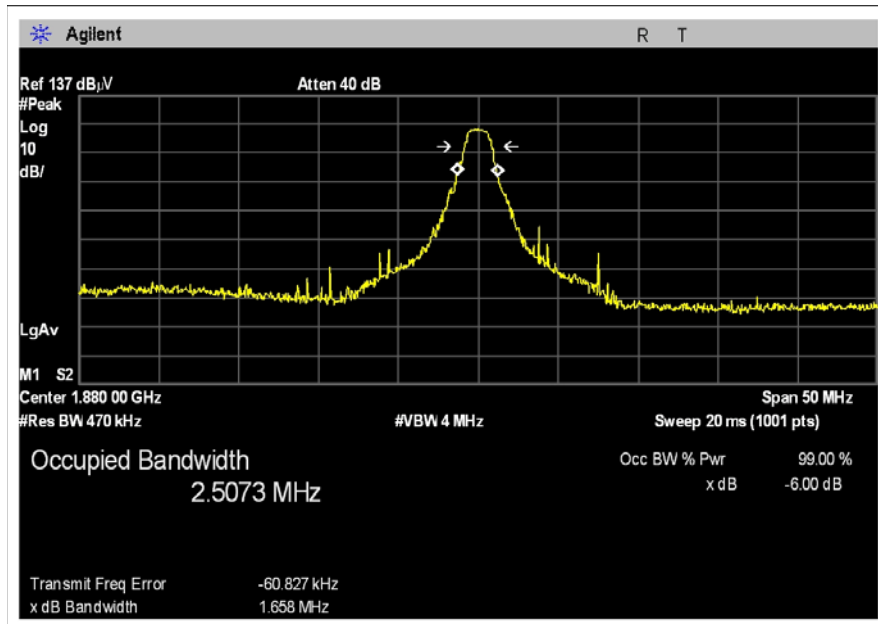
OCCUPIED BANDWIDTH DOWNLINK - WCDMA HIGH CHANNEL



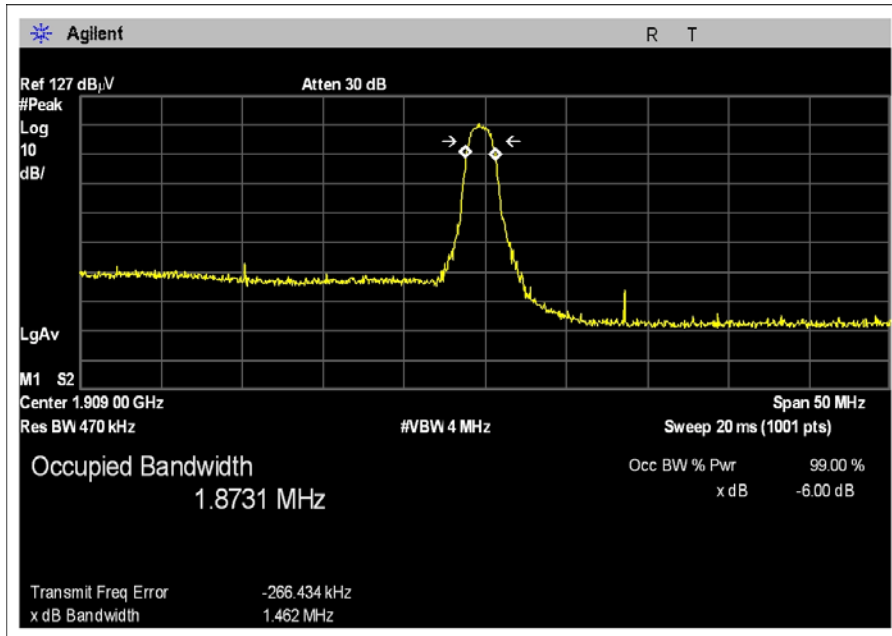
OCCUPIED BANDWIDTH UPLINK - CDMA LOW CHANNEL



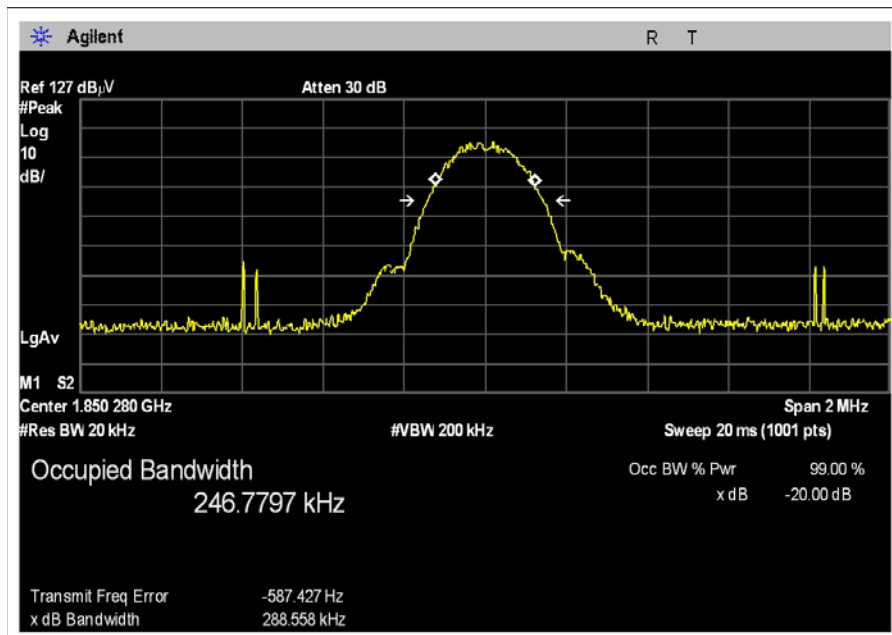
OCCUPIED BANDWIDTH UPLINK - CDMA MID CHANNEL



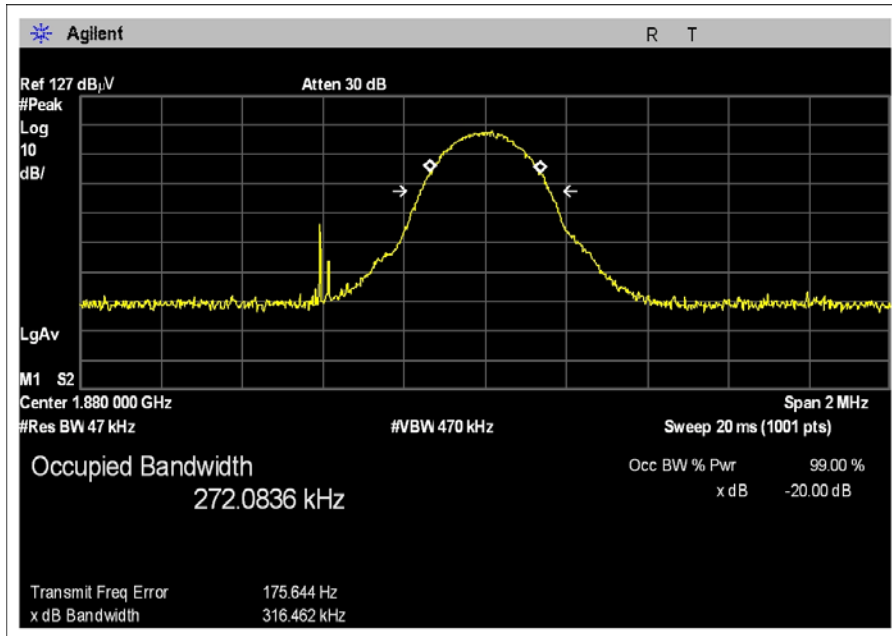
OCCUPIED BANDWIDTH UPLINK - CDMA HIGH CHANNEL



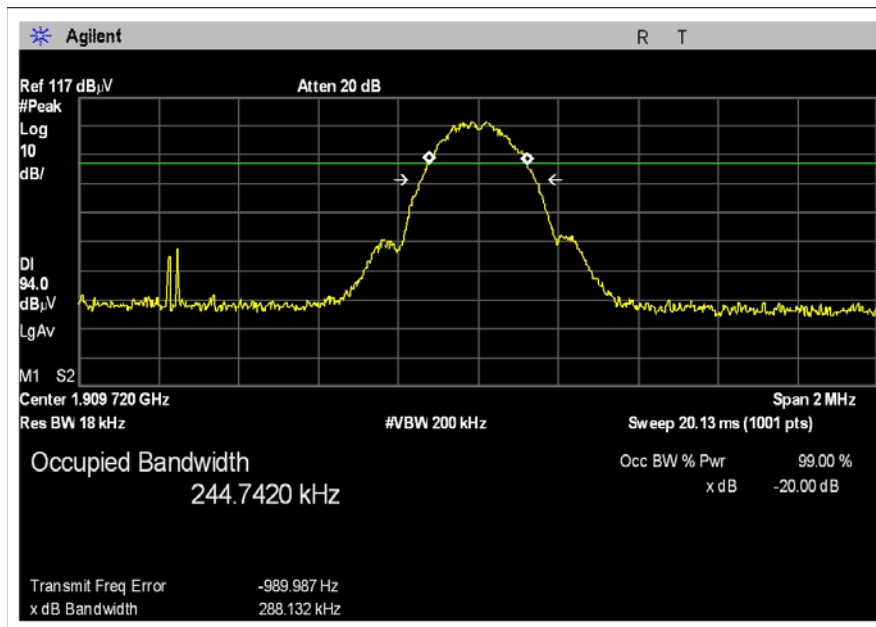
OCCUPIED BANDWIDTH UPLINK - EDGE LOW CHANNEL



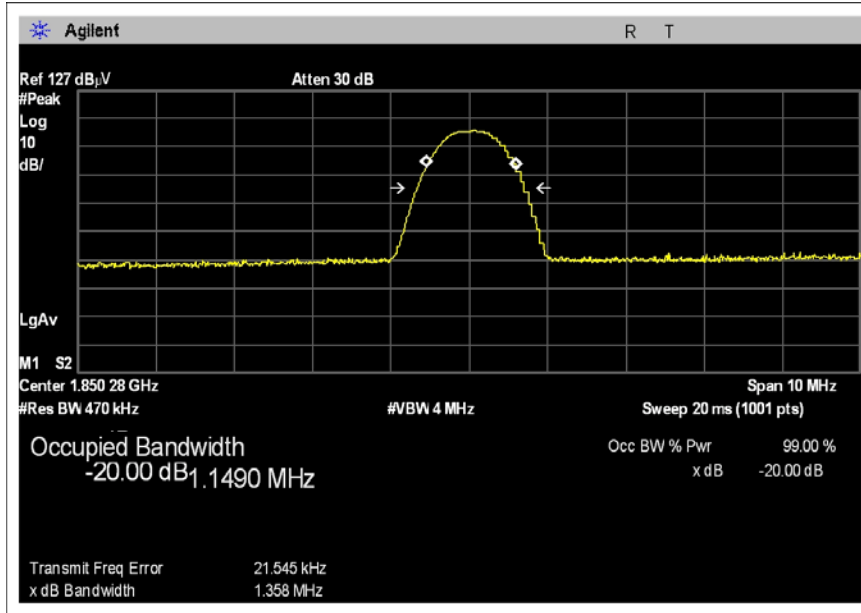
OCCUPIED BANDWIDTH UPLINK - EDGE MID CHANNEL



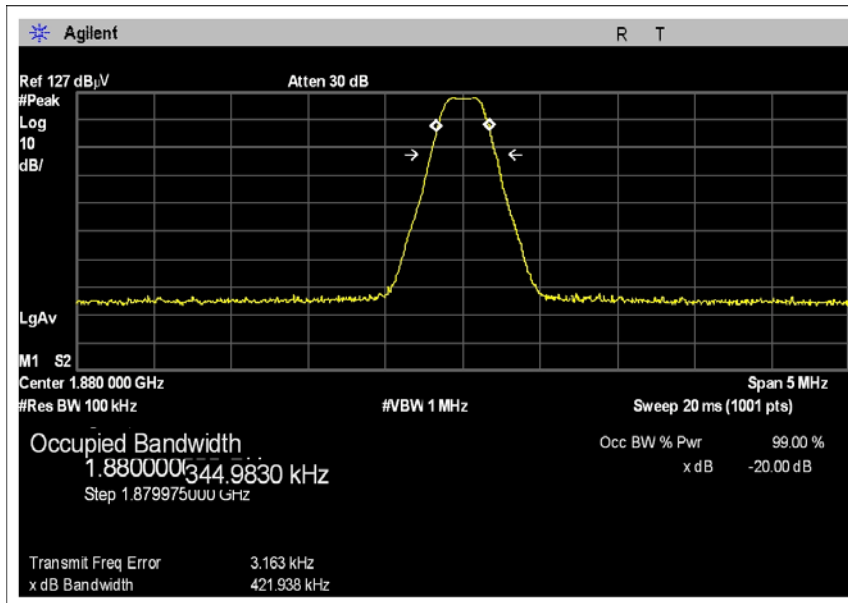
OCCUPIED BANDWIDTH UPLINK - EDGE HIGH CHANNEL



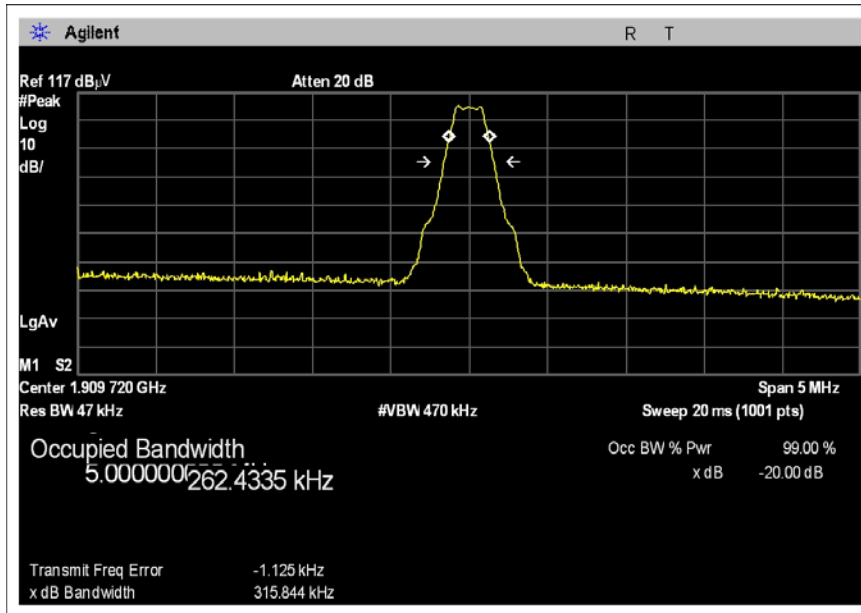
OCCUPIED BANDWIDTH UPLINK - GSM LOW CHANNEL



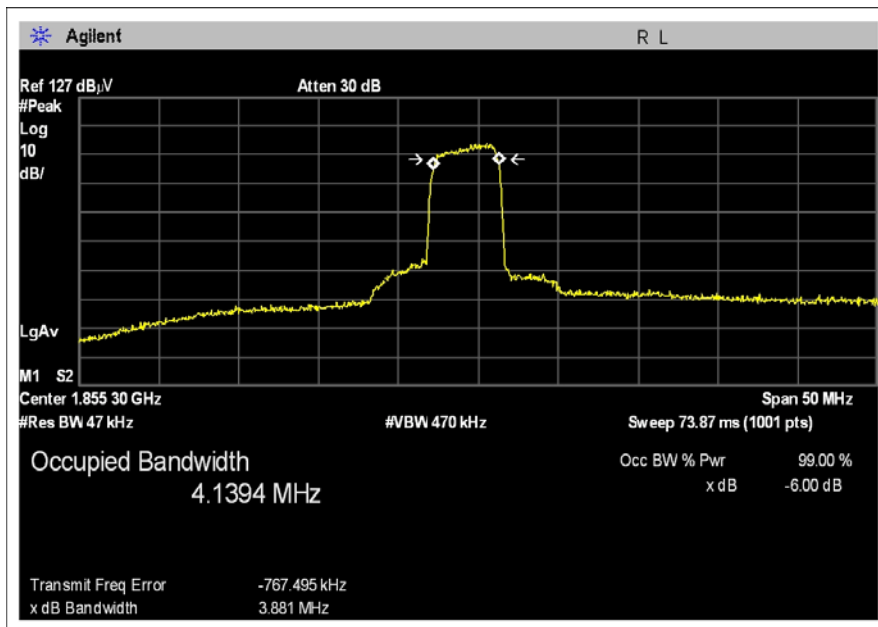
OCCUPIED BANDWIDTH UPLINK - GSM MID CHANNEL



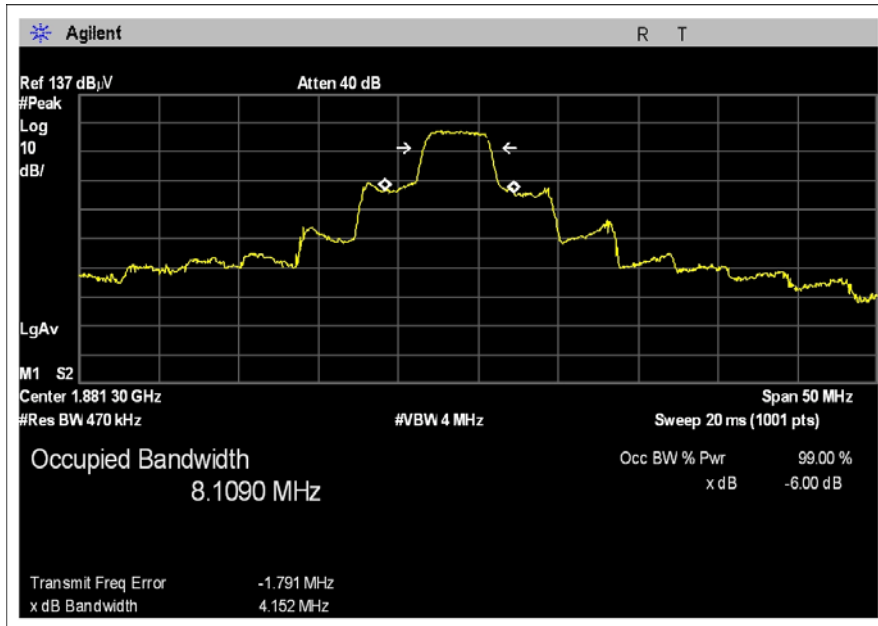
OCCUPIED BANDWIDTH UPLINK - GSM HIGH CHANNEL



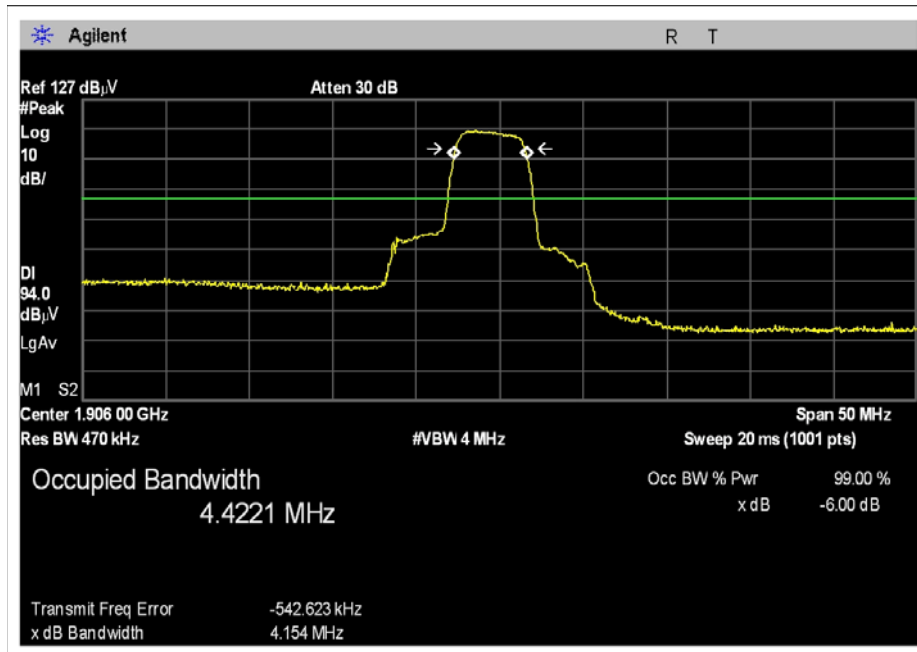
OCCUPIED BANDWIDTH UPLINK - WCDMA LOW CHANNEL



OCCUPIED BANDWIDTH UPLINK - WCDMA MID CHANNEL

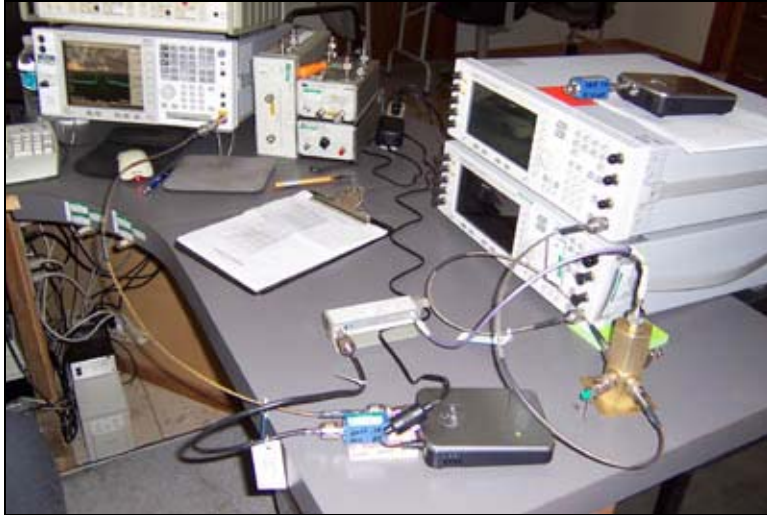


OCCUPIED BANDWIDTH UPLINK - WCDMA HIGH CHANNEL



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 #: **88636** Date: 10/31/2008
 Test Type: **Maximized Emissions** Time: 09:06:11
 Equipment: **Signal Boost In-Building Wireless Cellular/PCS Amplifier** Sequence#: 5
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 271247-50
 S/N: 80124799021181716

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 |
|---|--------------------|-----------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|------------|------------|
| Signal Generator | Agilent | E4437B | MY41000126 |
| Signal Generator | Agilent | E4437B | US39260577 |
| Power Supply | Wilson | HK-B18-A06 | None |
| Splitter, 4-Way | Motorola | None | ANP01314 |
| Step Attenuator | HP | 8494B | AN02475 |

Test Conditions / Notes:

This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. 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 measured at an input level just below that which will cause the EUT to fail harmonic, intermodulation or band edge limits, whichever results in the lowest power output for each modulation and channel setting. Combined cable, 75 Ohm adapter and attenuator insertion loss accounted for in the measurements were: 10.6 dB for the frequency range of 869 to 894 MHz & 1930 to 1990 MHz. 11.4 dB for the frequency range of 842 to 849 MHz & 1850 to 1910 MHz. Frequency Range Investigated: 9 kHz to 10000 MHz. 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:

| |
|--|
| |
|--|

Measurement Data:

Reading listed by margin.

Test Distance: None

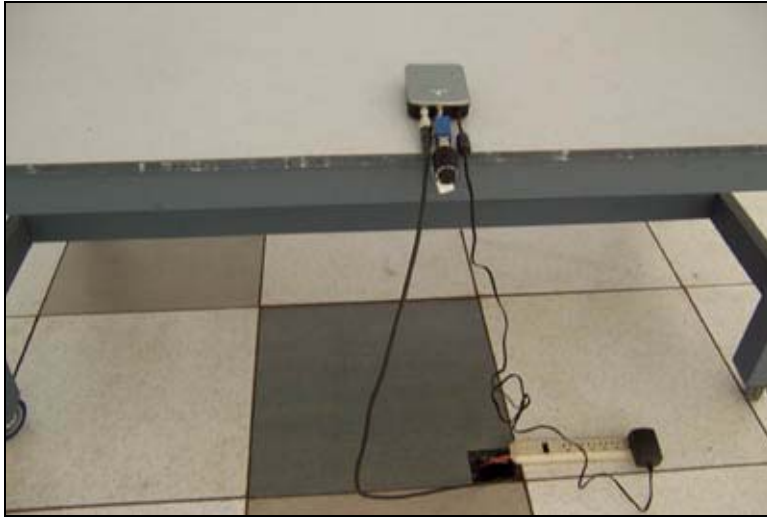
| # | Freq MHz | Rdng dBμV | dB | | | | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|----|-----------|-----------|----|--|--|--|------------|-----------|------------------|-----------|-----------|
| 1 | 3762.000M | 91.0 | | | | | +0.0 | 91.0 | 94.0 | -3.0 | None |
| | | | | | | | | | UL-MID CH-WCDMA | | |
| 2 | 3760.000M | 83.5 | | | | | +0.0 | 83.5 | 94.0 | -10.5 | None |
| | | | | | | | | | UL-MID CH-CDMA | | |
| 3 | 3809.600M | 80.7 | | | | | +0.0 | 80.7 | 94.0 | -13.3 | None |
| | | | | | | | | | UL-HIGH CH-WCDMA | | |
| 4 | 3714.400M | 78.9 | | | | | +0.0 | 78.9 | 94.0 | -15.1 | None |
| | | | | | | | | | UL-LOW CH-WCDMA | | |
| 5 | 3760.040M | 77.4 | | | | | +0.0 | 77.4 | 94.0 | -16.6 | None |
| | | | | | | | | | UL-MID-EDGE | | |
| 6 | 3700.490M | 76.6 | | | | | +0.0 | 76.6 | 94.0 | -17.4 | None |
| | | | | | | | | | UL-LOW-EDGE | | |
| 7 | 3817.530M | 75.5 | | | | | +0.0 | 75.5 | 94.0 | -18.5 | None |
| | | | | | | | | | UL-HIGH CH-CDMA | | |
| 8 | 3760.080M | 75.1 | | | | | +0.0 | 75.1 | 94.0 | -18.9 | None |
| | | | | | | | | | UL-MID-GSM | | |
| 9 | 3702.400M | 72.8 | | | | | +0.0 | 72.8 | 94.0 | -21.2 | None |
| | | | | | | | | | UL-LOW CH-CDMA | | |
| 10 | 3700.700M | 68.1 | | | | | +0.0 | 68.1 | 94.0 | -25.9 | None |
| | | | | | | | | | UL-LOW CH-GSM | | |

| | | | | | | | |
|----|-----------|------|------|------|----------------------|-------|------|
| 11 | 3971.600M | 67.9 | +0.0 | 67.9 | 94.0 | -26.1 | None |
| | | | | | DL-HIGH CH- WCDMA | | |
| 12 | 3819.335M | 65.8 | +0.0 | 65.8 | 94.0 | -28.2 | None |
| | | | | | UL-HIGH-GSM | | |
| 13 | 3819.460M | 64.5 | +0.0 | 64.5 | 94.0 | -29.5 | None |
| | | | | | UL-HIGH-EDGE | | |
| 14 | 3919.750M | 58.5 | +0.0 | 58.5 | 94.0 | -35.5 | None |
| | | | | | DL-MID CH-GSM | | |
| 15 | 3868.400M | 58.0 | +0.0 | 58.0 | 94.0 | -36.0 | None |
| | | | | | DL-LOW CH- WCDMA | | |
| 16 | 3977.880M | 57.1 | +0.0 | 57.1 | 94.0 | -36.9 | None |
| | | | | | DL-HIGH CH- CDMA | | |
| 17 | 3919.540M | 55.2 | +0.0 | 55.2 | 94.0 | -38.8 | None |
| | | | | | DL-MID CH- CDMA | | |
| 18 | 3979.462M | 52.7 | +0.0 | 52.7 | 94.0 | -41.3 | None |
| | | | | | DL-HIGH CH- EDGE | | |
| 19 | 3979.304M | 52.4 | +0.0 | 52.4 | 94.0 | -41.6 | None |
| | | | | | DL-HIGH CH- GSM | | |
| 20 | 3862.210M | 52.3 | +0.0 | 52.3 | 94.0 | -41.7 | None |
| | | | | | DL-LOW CH- CDMA | | |
| 21 | 3920.020M | 52.0 | +0.0 | 52.0 | 94.0 | -42.0 | None |
| | | | | | DL-MID CH- EDGE | | |
| 22 | 3860.340M | 49.9 | +0.0 | 49.9 | 94.0 | -44.1 | None |
| | | | | | DL-LOW CH-GSM | | |
| 23 | 3920.200M | 46.8 | +0.0 | 46.8 | 94.0 | -47.2 | None |
| | | | | | DL-MID CH- WCDMA | | |
| 24 | 3919.947M | 45.8 | +0.0 | 45.8 | 94.0 | -48.2 | None |
| | | | | | DL-LOW CH- EDGE | | |

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 #: **88636** Date: 11/6/2008
 Test Type: **Radiated Scan** Time: 13:17:18
 Equipment: **Signal Boost In-Building Wireless Cellular/PCS Amplifier** Sequence#: 8
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 271247-50
 S/N: 80124799021181716

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------|------------|------------------|--------------|---------|
| Spectrum Analyzer HP 8593EM | 3624A00159 | 03/23/2007 | 03/23/2009 | 02111 |
| Bilog Antenna | 2455 | 04/27/2007 | 04/27/2009 | 01992 |
| Site A 10 meter cable set | | 05/11/2007 | 05/11/2009 | MA10M |
| HP-8447D Preamp | 2727A05444 | 06/20/2008 | 06/20/2010 | 00062 |
| EMCO 3115 Horn Antenna | 9307-4085 | 03/17/2007 | 03/17/2009 | 00656 |
| HP 8449B Preamp | 3008A00301 | 12/13/2006 | 12/13/2008 | 2010 |
| Cable 2' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03008 |
| Cable 2' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03011 |
| Cable 12' 40 GHz Astrolab | NA | 07/03/2008 | 07/03/2010 | AN05769 |
| ARA MWH-1826/B Horn Antenna | 1005 | 11/26/2006 | 11/26/2008 | 02046 |
| EMCO Loop Antenna | 1074 | 05/01/2007 | 05/01/2009 | 00226 |



Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---|--------------------|------------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |
| Power Supply | Wilson | HK-B18-A06 | None |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|----------|--------------|---------|-----|
|----------|--------------|---------|-----|

Test Conditions / Notes:

This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. 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. An input level just below that which will cause the EUT to fail harmonic, intermodulation or band edge limits, whichever results in the lowest power output for each modulation and channel setting was applied to the inputs. EUT RF output ports are terminated in 50 Ohms. Modulation for all readings is CW (worst case). Frequency Range Investigated: 9 kHz to 20000 MHz. Frequencies 9kHz-1000MHz were measured at 10 meters distance. Frequencies 1000-10000MHz were measured at 3 meters distance. Uplink & Downlink Paths tested as noted in the data. Low, Mid and High channels tested as noted in the data. Temperature: 22.3°C, Relative Humidity: 35%. RBW = 9 kHz 9 kHz-30 MHz, RBW = 1.0 MHz 30-1000 MHz RBW = 120kHz VBW = 3 x RBW, 1-2 GHz RBW = 1MHz.

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

Channels: Low, Mid and High

Highest Measured Output Power: 34.00 ERP(dBm)= 2.51188 ERP(Watts)

Distance: 3 meters

Limit: $43+10\text{Log}(P)$ 47.00 dBc

| Freq. (MHz) | Reference Level (dBm) | Antenna Polarity (H/V) | dBc |
|-------------|-----------------------|------------------------|-------|
| 3,817.01 | -50.9 | Horiz | 84.90 |
| 3,702.01 | -51.2 | Horiz | 85.20 |
| 3,977.01 | -51.9 | Horiz | 85.90 |
| 3,920.01 | -52.3 | Horiz | 86.30 |
| 3,977.01 | -52.4 | Vert | 86.40 |
| 3,862.01 | -52.6 | Horiz | 86.60 |
| 3,702.01 | -53 | Vert | 87.00 |
| 3,760.01 | -53.3 | Horiz | 87.30 |
| 3,817.01 | -53.4 | Vert | 87.40 |
| 3,862.01 | -53.5 | Vert | 87.50 |
| 3,920.01 | -54.2 | Vert | 88.20 |
| 3,760.01 | -55.3 | Vert | 89.30 |

FCC 2.1051/2.1053- BLOCK EDGE

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 08/07/2008 | 08/07/2010 | 02660 |
| Wilson 50-75 Ohm Adapter | None | 10/14/2008 | 10/14/2010 | C00013 |
| Cable 3' 40 GHz Astrolab | NA | 01/15/2008 | 01/15/2010 | AN03012 |
| HP 8491A 10dB Attenuator | 2708A47453 | 11/30/2006 | 11/30/2008 | P01350 |
| 10 dB 10W Attenuator | None | 11/30/2006 | 11/30/2008 | P02229 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---|--------------------|-----------|-------------------|
| Signal Boost In-Building Wireless Cellular/PCS Amplifier* | Wilson Electronics | 271247-50 | 80124799021181716 |

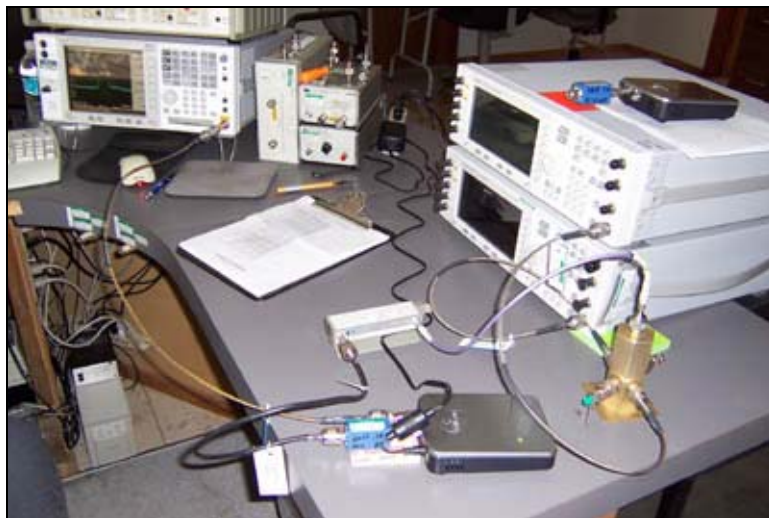
Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|------------|------------|
| Signal Generator | Agilent | E4437B | MY41000126 |
| Signal Generator | Agilent | E4437B | US39260577 |
| Power Supply | Wilson | HK-B18-A06 | None |
| Step Attenuator | HP | 8494B | AN02475 |
| Splitter, 4-Way | Motorola | None | ANP01314 |

Test Conditions / Notes:

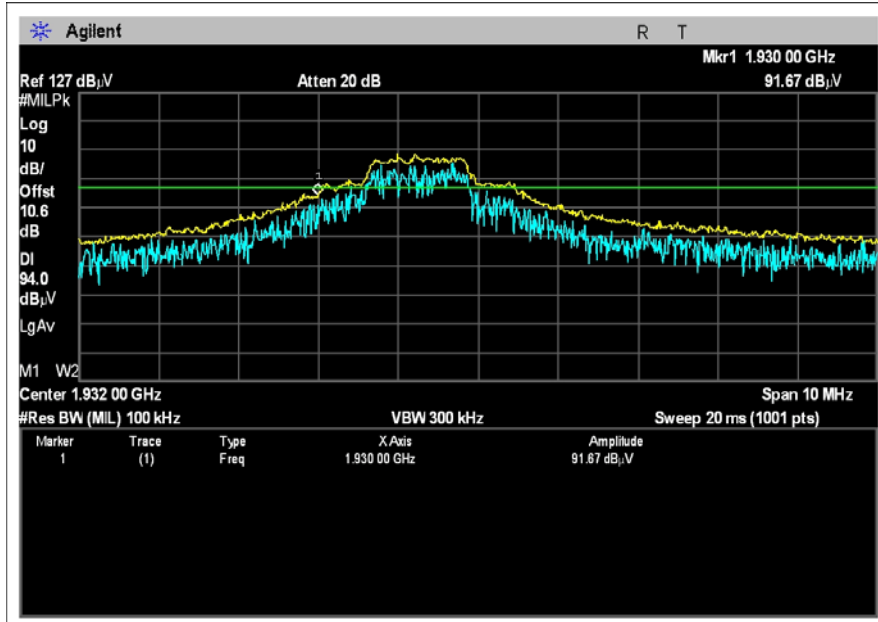
This is an in-building, dual-band bi-directional amplifier for enhancing the range of cell phones in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Reported power levels indicate the maximum compliant power output measured at an input level just below that which will cause the EUT to fail harmonic, intermodulation or band edge limits, whichever results in the lowest power output for each modulation and channel setting. Frequency Range Investigated: Carrier. Temperature: 22.3°C, Relative Humidity: 35%.

Test Setup Photos

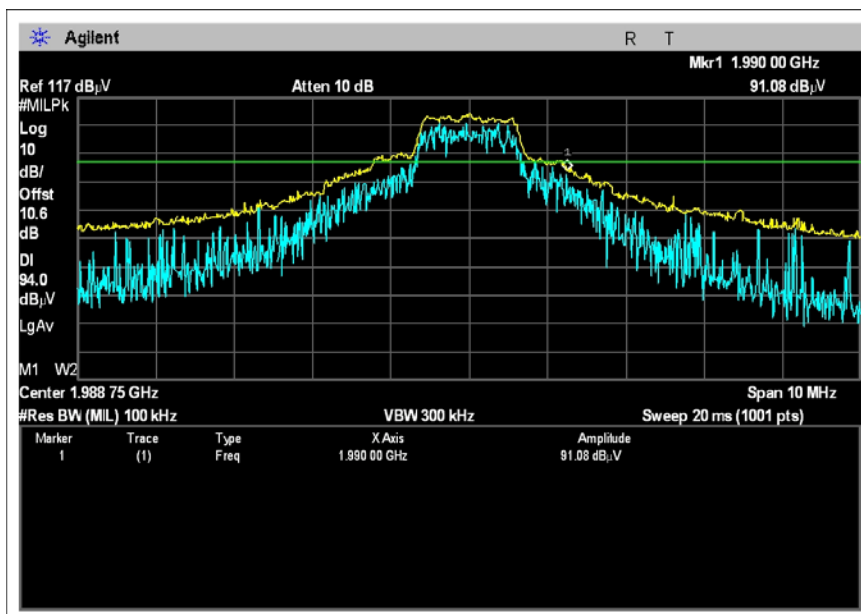


Test Plots

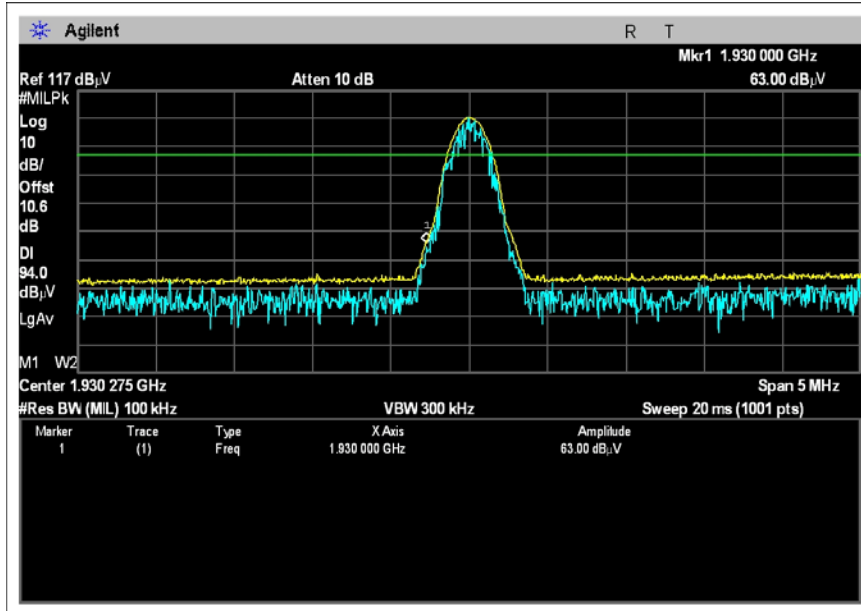
BLOCK EDGE DOWNLINK - CDMA LOW CHANNEL



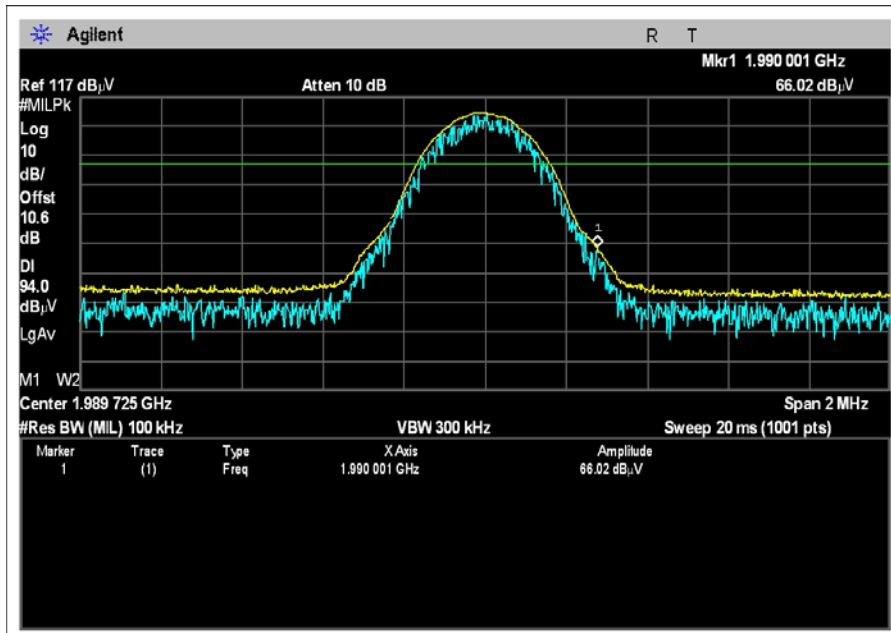
BLOCK EDGE DOWNLINK - CDMA HIGH CHANNEL



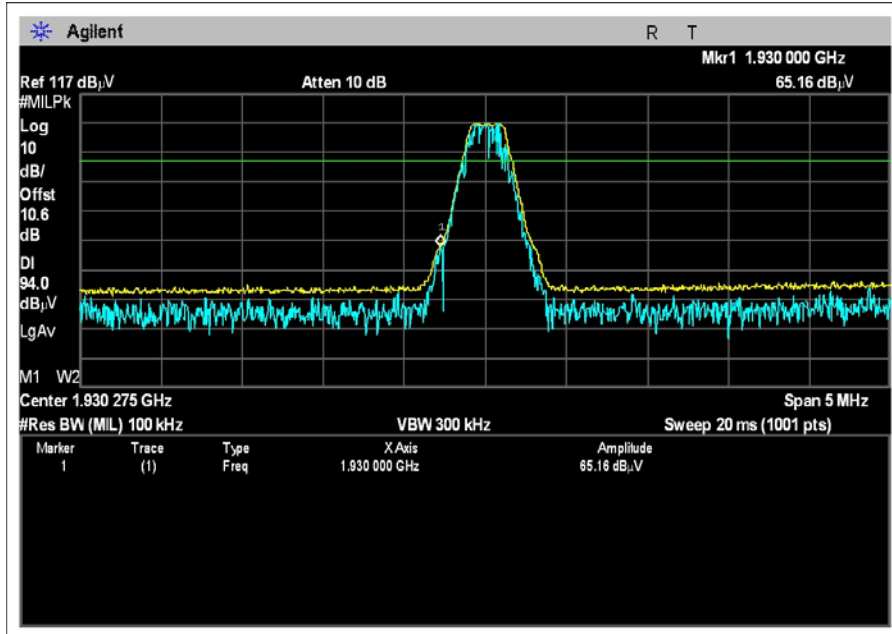
BLOCK EDGE DOWNLINK - EDGE LOW CHANNEL



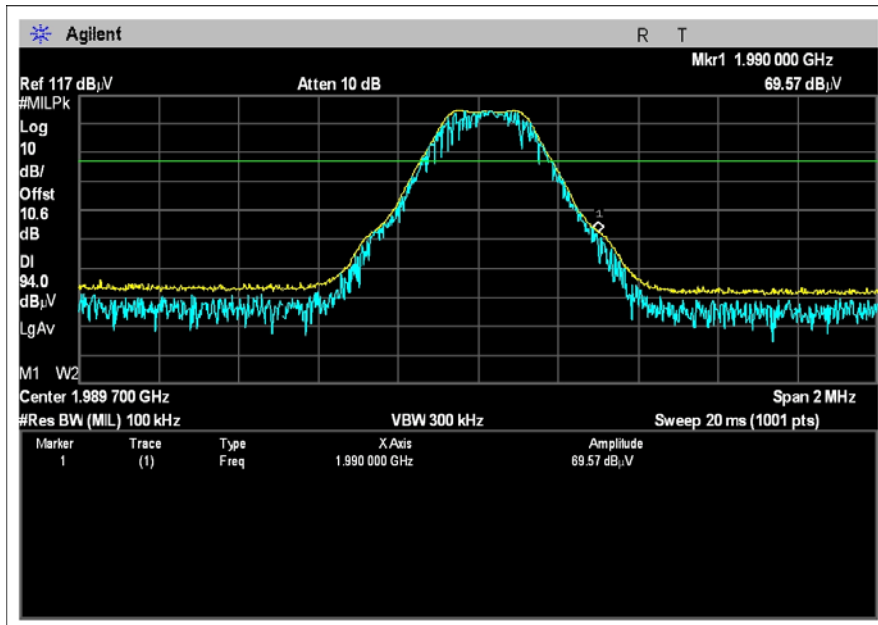
BLOCK EDGE DOWNLINK - EDGE HIGH CHANNEL



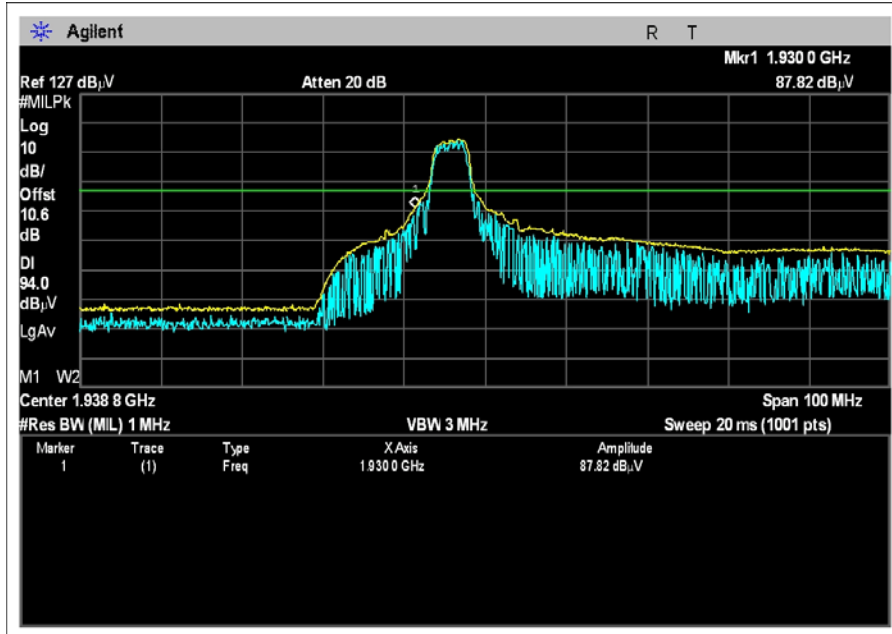
BLOCK EDGE DOWNLINK - GSM LOW CHANNEL



BLOCK EDGE DOWNLINK - GSM HIGH CHANNEL



BLOCK EDGE DOWNLINK - WCDMA LOW CHANNEL



BLOCK EDGE DOWNLINK - WCDMA HIGH CHANNEL

