



WILSON ELECTRONICS TEST REPORT

FOR THE

**MOBILE WIRELESS DUAL BAND CELLULAR/
PCS SMART TECHNOLOGY AMPLIFIER, 801201**

FCC PART 24 & RSS-131

COMPLIANCE

DATE OF ISSUE: APRIL 4, 2005

PREPARED FOR:

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

P.O. No.: DBW801201-1
W.O. No.: 83305

PREPARED BY:

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

Date of test: March 21-31, 2005

Report No.: FC05-017

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ADMINISTRATIVE INFORMATION

DATE OF TEST: March 21-31, 2005

DATE OF RECEIPT: March 21, 2005

FREQUENCY RANGE TESTED: 30MHz-20GHz

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

REPRESENTATIVE: Riki Kline

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

TEST METHOD: FCC Part 24, TIA/EIA 603 & RSS-131

PURPOSE OF TEST: To demonstrate the compliance of the Mobile Wireless Dual Band Cellular/PCS Smart Technology Amplifier, 801201 with the requirements for FCC Part 24 & RSS-131 devices.

FCC TO CANADA STANDARD CORRELATION MATRIX

| Canadian Standard | Canadian Section | FCC Standard | FCC Section | Test Description |
|-------------------|------------------|--------------|-------------|---------------------------------------------|
| RSS-131 | 5.4 | N/A | N/A | External Controls |
| RSS-131 | 5.5 | 47 CFR | 1.1307 | RF Exposure |
| RSS-131 | 6.1 | N/A | N/A | Passband Gain and Bandwidth |
| RSS-131 | 6.2 | 47 CFR | 24.232 | RF Power Output |
| RSS-131 | 6.3 | TIA/EIA | 603 | Non-Linearity (Intermodulation Attenuation) |
| RSS-131 | 6.4 | 47 CFR | 24.238 | Spurious Emissions Limitations |
| RSS-131 | 6.5 | N/A | N/A | Frequency Stability (Band Translators) |
| IC 3082-D | | 784962 | | Site Filing No. |

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

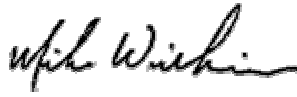
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Mike Wilkinson, Lab Manager



EQUIPMENT UNDER TEST (EUT) DESCRIPTION

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

The following equipment name has been used during testing by CKC Laboratories:

In Vehicle Wireless Dual Band Smart Amplifier

Since the time of testing the manufacturer has chosen to use the following equipment name in its place. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets:

Mobile Wireless Dual Band Cellular/PCS Smart Technology Amplifier

EQUIPMENT UNDER TEST

Mobile Wireless Dual Band Cellular/PCS Smart Technology Amplifier

Manuf: Wilson Electronics
Model: 801201
Serial: 8012010000006
FCC ID: PWO8012SM (pending)

PERIPHERAL DEVICES

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

Signal Generator

Manuf: HP
Model: E4433B
Serial: US38440697
FCC ID: DoC

DC Power Supply

Manuf: Topward
Model: TPS-2000
Serial: 920035
FCC ID: NA

Signal Generator

Manuf: HP
Model: E4432B
Serial: MY41000298
FCC ID: DoC

Load

Manuf: JFW
Model: 50T-022
Serial: P04243
FCC ID: DoC



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, G7X, F9W

FCC 2.1033 (c)(5) FREQUENCY RANGE

Downlink 1930-1990MHz, Uplink 1850-1910MHz

FCC 2.1033 (c)(6) OPERATING POWER

Downlink, 8.31 mWatts (EIRP), Uplink, 1.862 Watts (EIRP)

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

Downlink 15 mW, Uplink 2 Watts EIRP

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

GSM, EDGE, CDMA



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

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

RF Power Output Test:

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

Uplink Output Ratings:

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

Downlink Output Ratings:

All: 15mW

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

Downlink – Conducted Power

| <i>Frequency (MHz)</i> | <i>Modulation</i> | <i>Power Output (milliWatts)</i> |
|------------------------|-------------------|----------------------------------|
| 1931.25 | CDMA | 6.60 |
| 1960.0 | CDMA | 9.77 |
| 1988.75 | CDMA | 8.71 |
| 1930.28 | GSM | 6.30 |
| 1960.0 | GSM | 9.77 |
| 1989.72 | GSM | 8.51 |
| 1930.28 | EDGE | 6.30 |
| 1960.0 | EDGE | 9.12 |
| 1989.72 | EDGE | 8.51 |

Downlink – EIRP Power

| <i>Frequency (MHz)</i> | <i>Modulation</i> | <i>Power Output (milliWatts)</i> |
|------------------------|-------------------|----------------------------------|
| 1931.25 | CDMA | 5.62 |
| 1960.0 | CDMA | 8.31 |
| 1988.75 | CDMA | 7.41 |
| 1930.28 | GSM | 5.37 |
| 1960.0 | GSM | 8.31 |
| 1989.72 | GSM | 7.24 |
| 1930.3 | EDGE | 5.37 |
| 1960.0 | EDGE | 7.76 |
| 1989.7 | EDGE | 6.91 |

Note: Downlink EIRP calculated using 3.2 dBi gain antenna – 3.9 dB coax loss = -0.7 dBi as declared by Wilson Electronics.

Uplink – Conducted Power

| <i>Frequency (MHz)</i> | <i>Modulation</i> | <i>Power Output (Watts)</i> |
|------------------------|-------------------|-----------------------------|
| 1851.25 | CDMA | .776 |
| 1880.0 | CDMA | 1.122 |
| 1908.75 | CDMA | .363 |
| 1850.28 | GSM | .547 |
| 1880.0 | GSM | .933 |
| 1909.72 | GSM | .363 |
| 1850.28 | EDGE | .912 |
| 1880.0 | EDGE | 1.071 |
| 1909.72 | EDGE | .363 |

Uplink – EIRP Power

| Frequency (MHz) | Modulation | Power Output (Watts) |
|-----------------|------------|----------------------|
| 1851.25 | CDMA | 1.288 |
| 1880.0 | CDMA | 1.862 |
| 1908.75 | CDMA | .602 |
| 1850.28 | GSM | .954 |
| 1880.0 | GSM | 1.548 |
| 1909.72 | GSM | .602 |
| 1850.28 | EDGE | 1.513 |
| 1880.0 | EDGE | 1.778 |
| 1909.72 | EDGE | .602 |

Note: Uplink EIRP calculated using 5.12 dBi gain antenna – 3.9 dB coax loss = 2.2 dBi as declared by Wilson Electronics.

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 | | 05/09/2003 | 05/09/2005 | P01572 |
| 25-A-MFN-30 | | | | |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP



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

Not applicable to this unit.

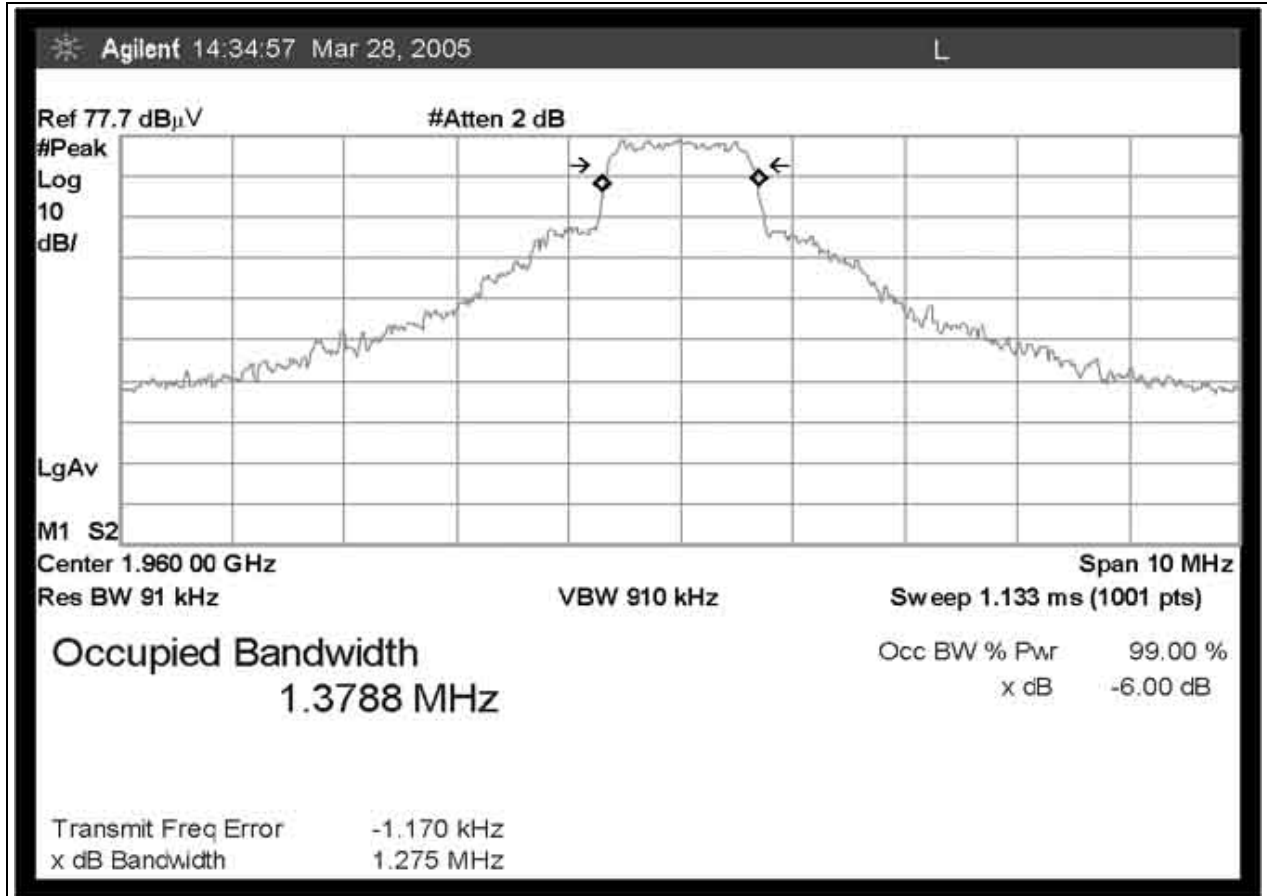
**FCC 2.1033(c)(14)/2.1047(b) MODULATION CHARACTERISTICS- Modulation
Limiting Response**

Not applicable to this unit.

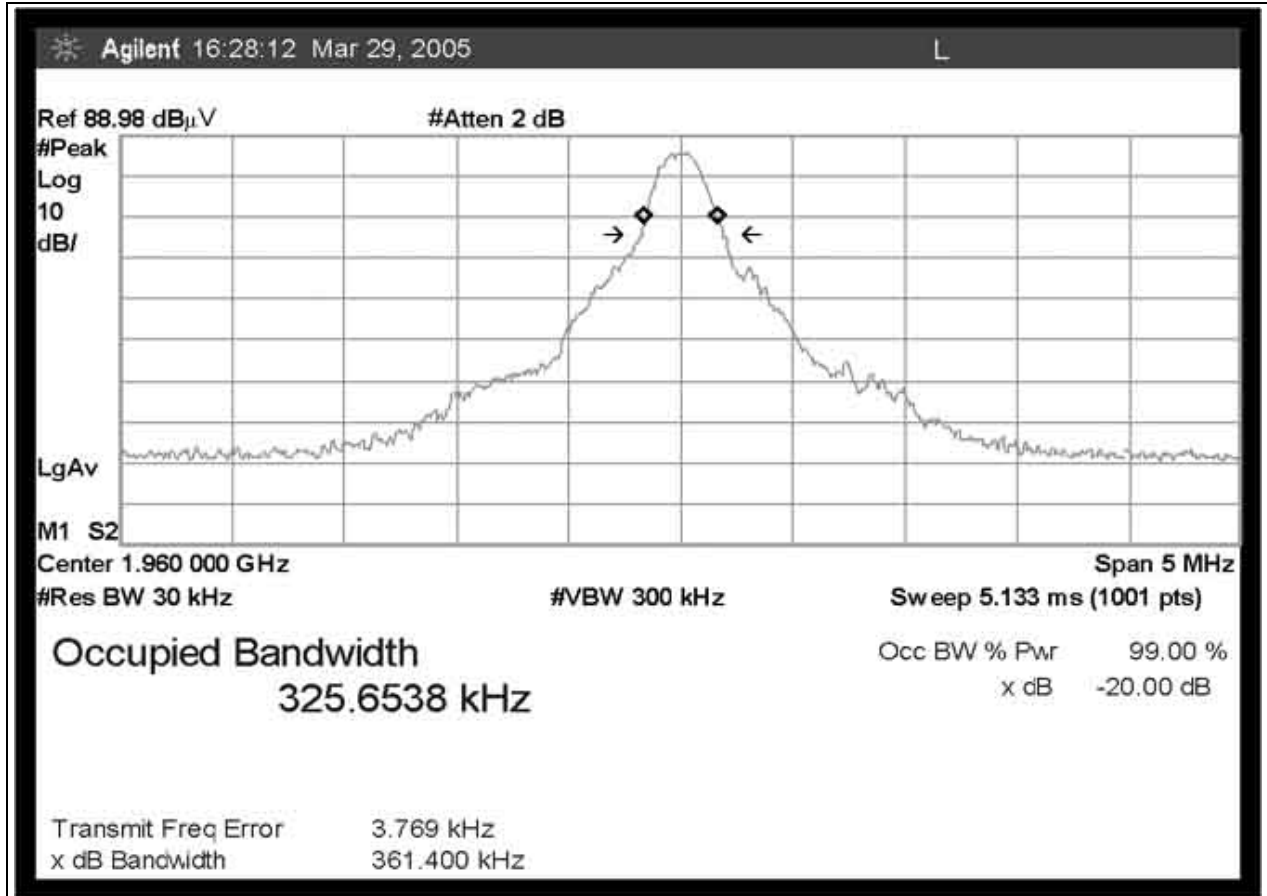
FCC 2.1033(c)(14)/2.1049(i)- OCCUPIED BANDWIDTH

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

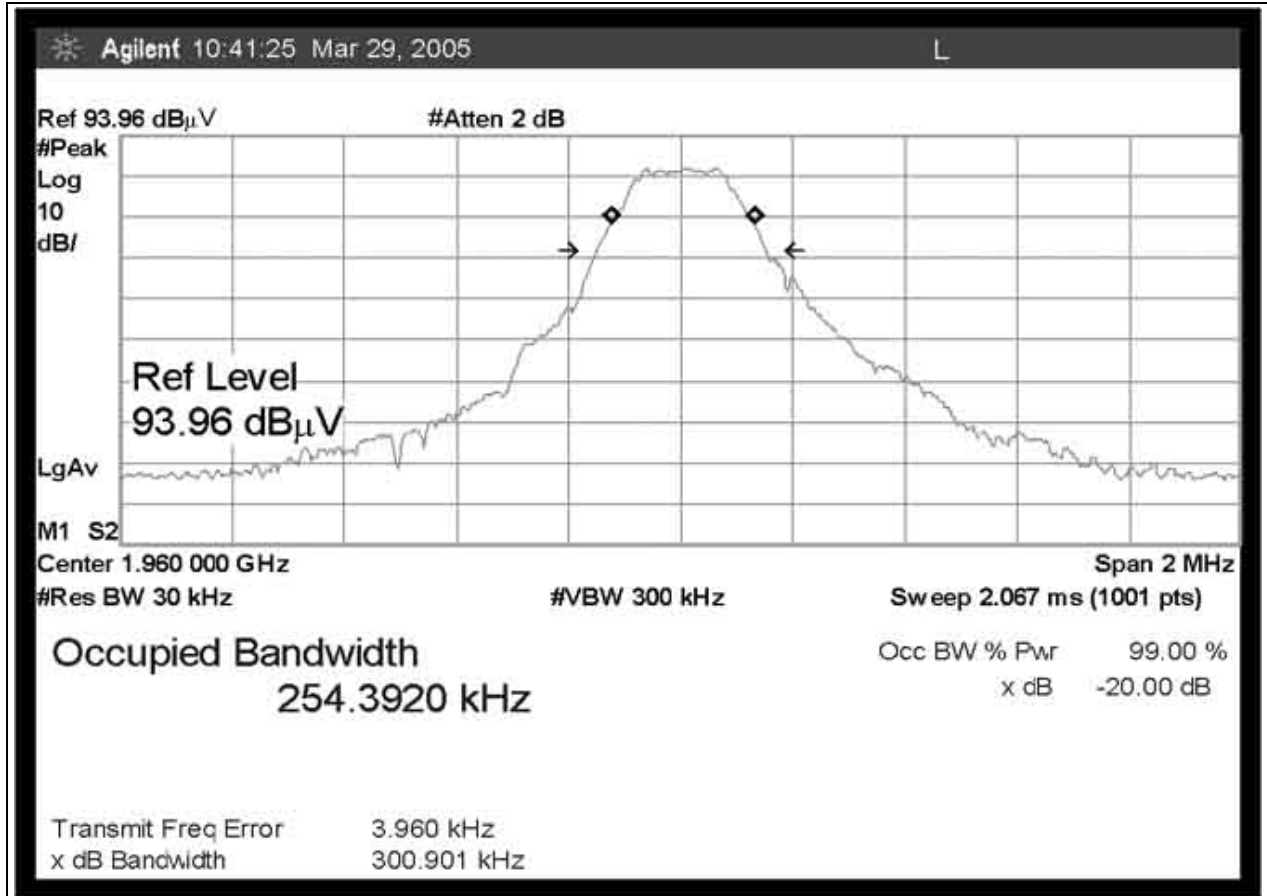
FCC 2.1049 DOWNLINK OCCUPIED BANDWIDTH CDMA - PCS BAND



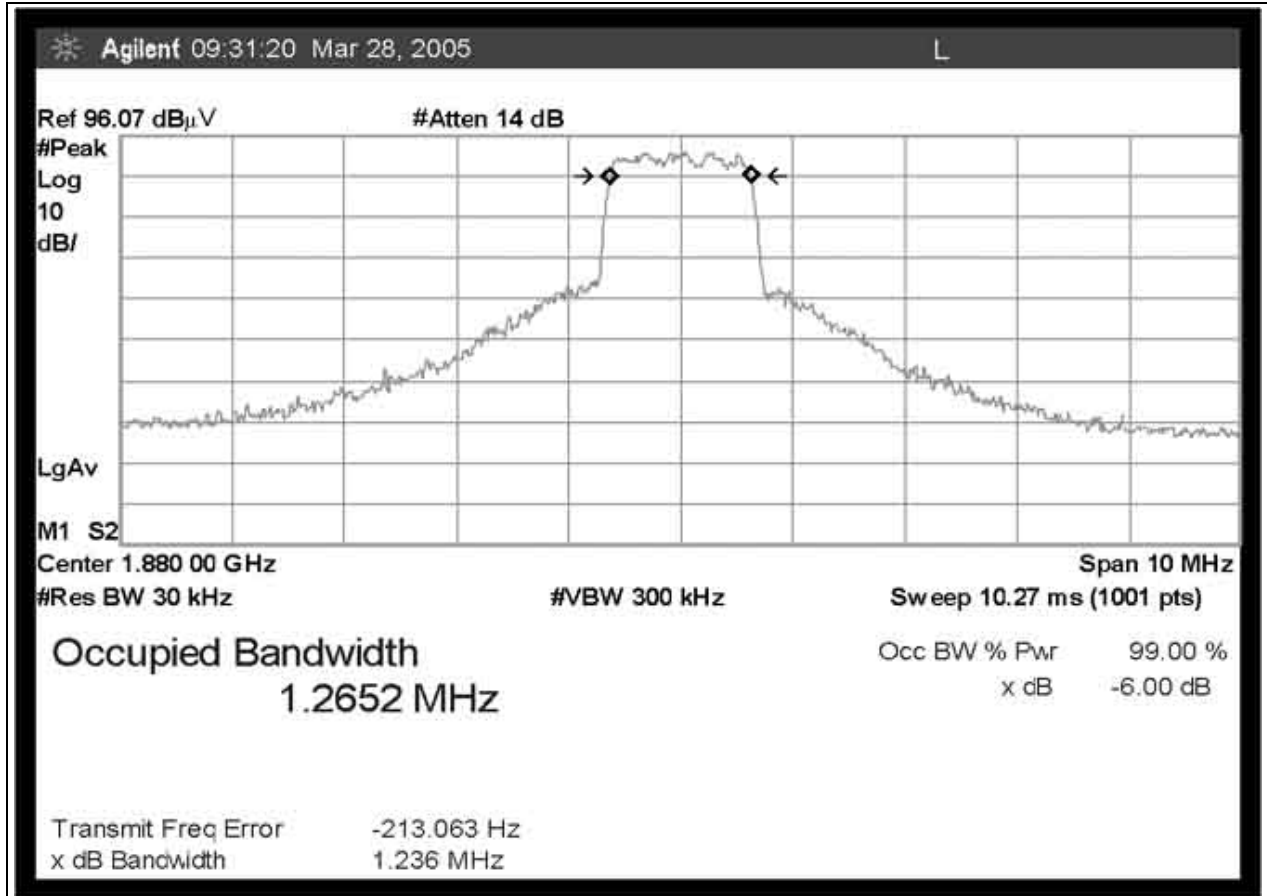
FCC 2.1049 DOWNLINK OCCUPIED BANDWIDTH EDGE - PCS BAND



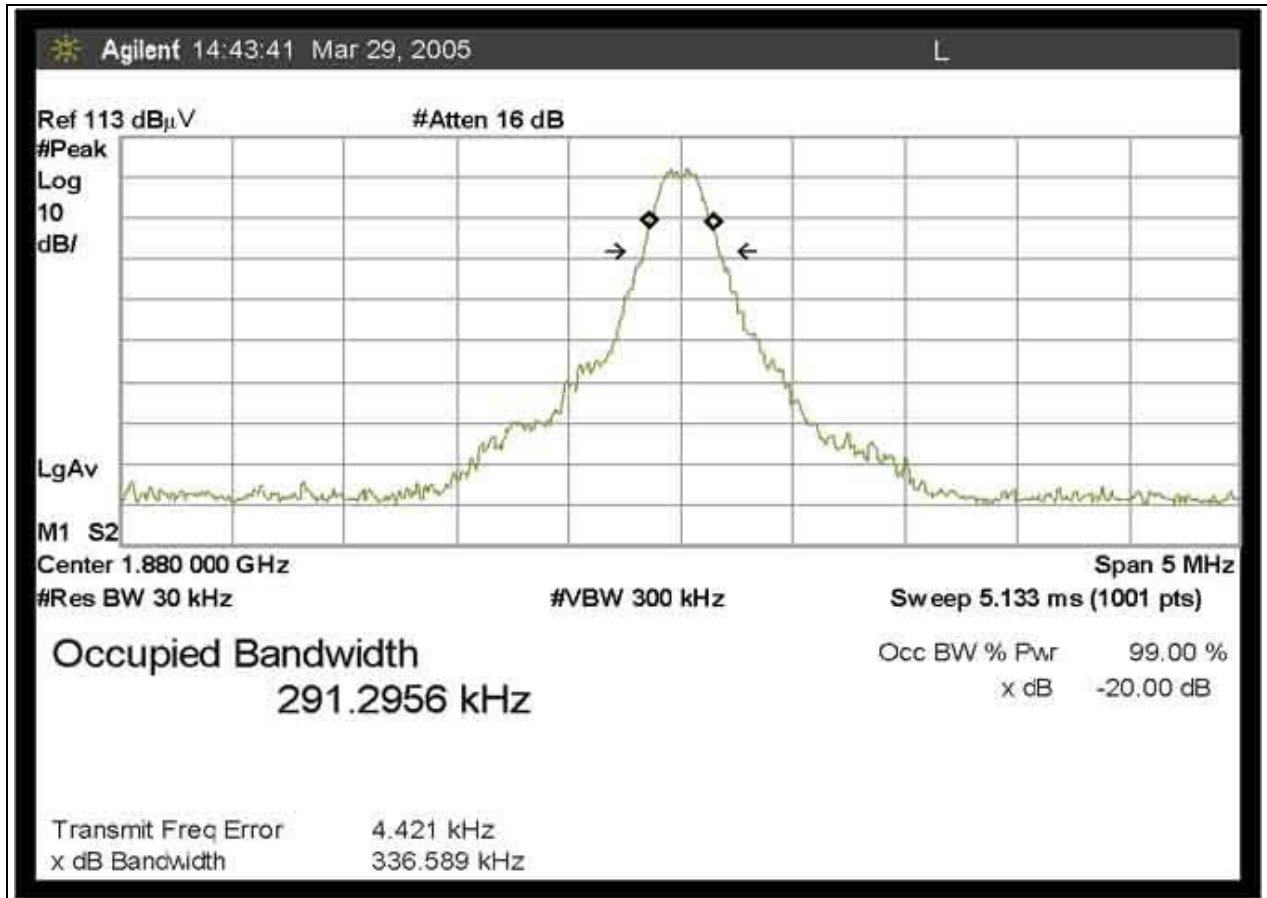
FCC 2.1049 DOWNLINK OCCUPIED BANDWIDTH GSM - PCS BAND



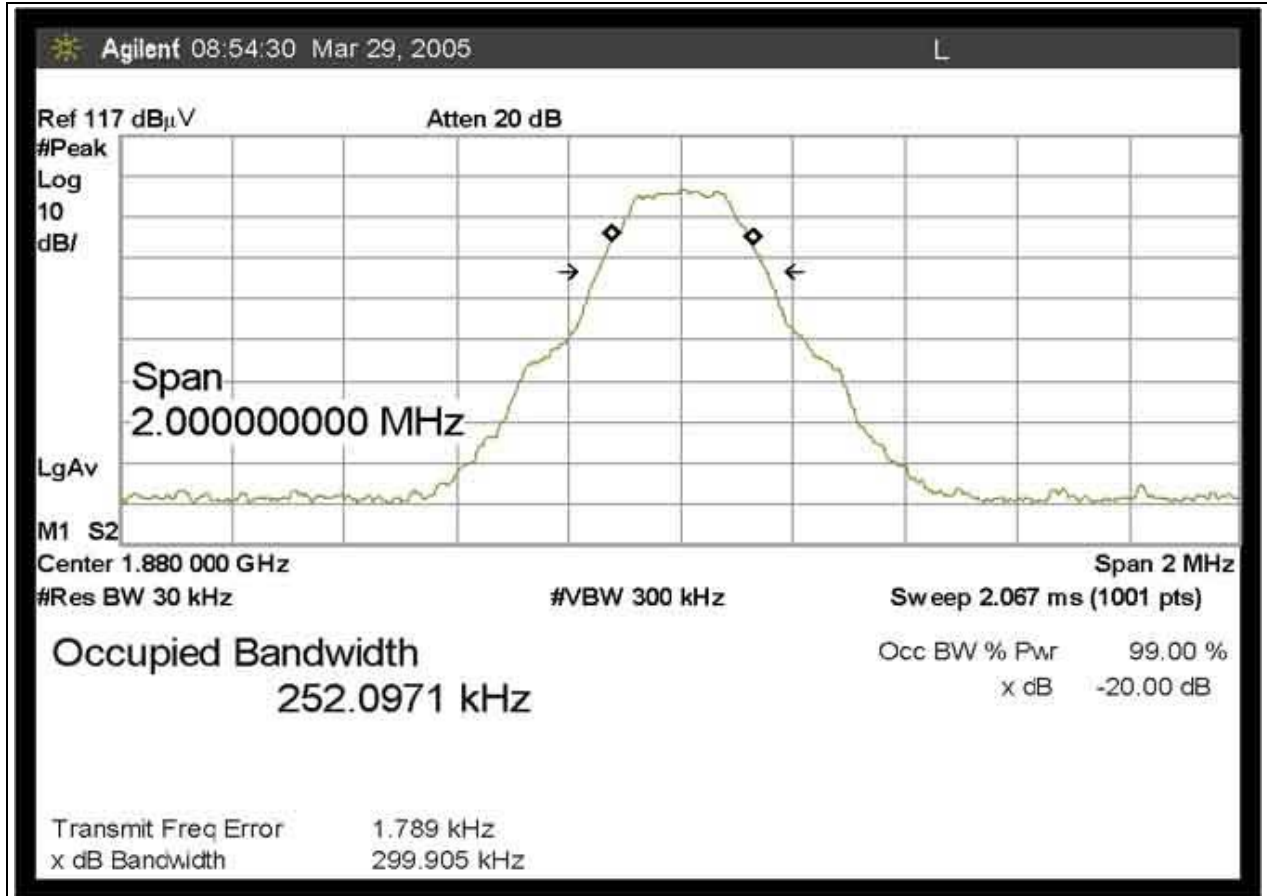
FCC 2.1049 UPLINK OCCUPIED BANDWIDTH CDMA - PCS BAND



FCC 2.1049 UPLINK OCCUPIED BANDWIDTH EDGE - PCS BAND



FCC 2.1049 UPLINK OCCUPIED BANDWIDTH GSM - PCS BAND



Test Equipment:

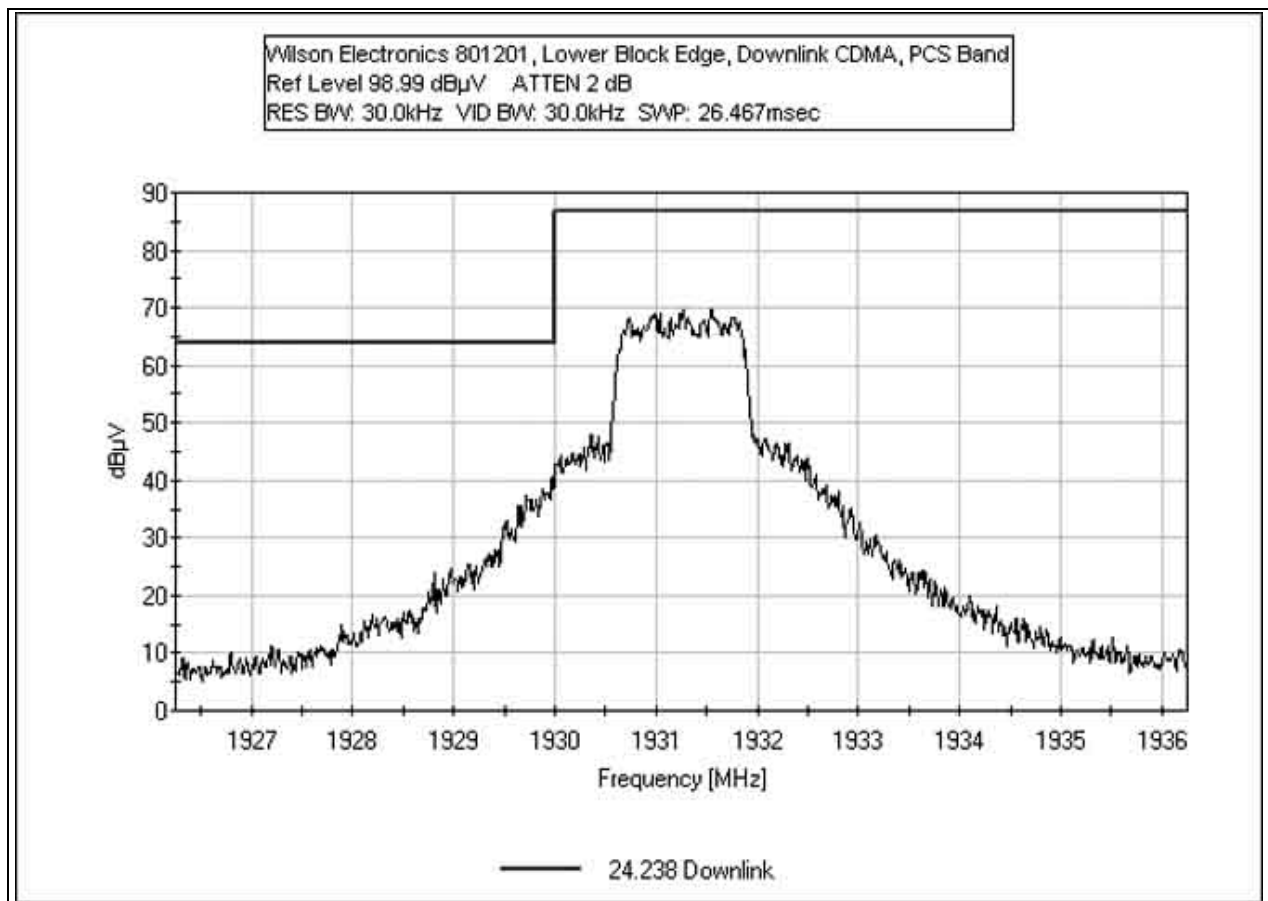
| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

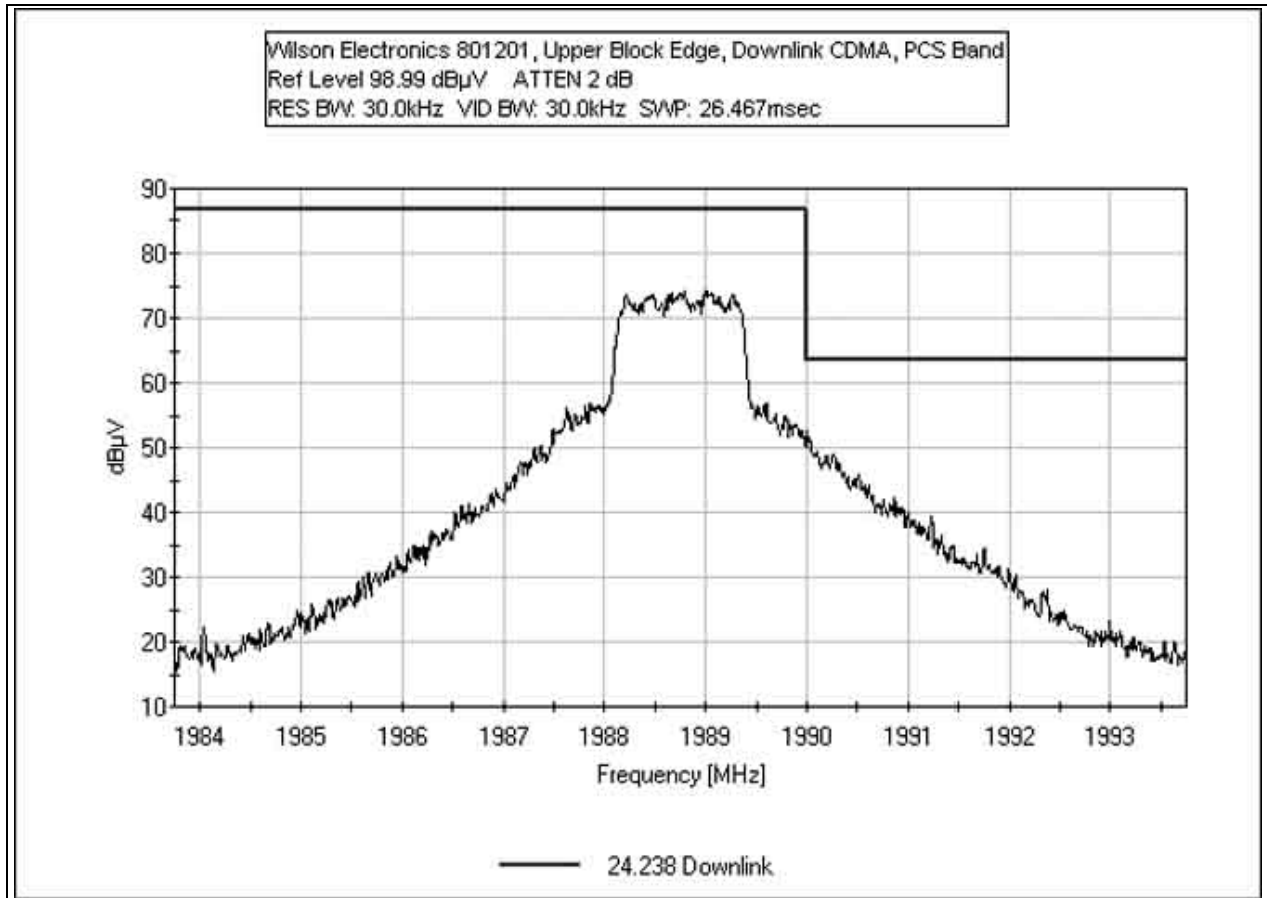


FCC 2.1051 DOWNLINK LOWER BLOCK EDGE CDMA - PCS BAND

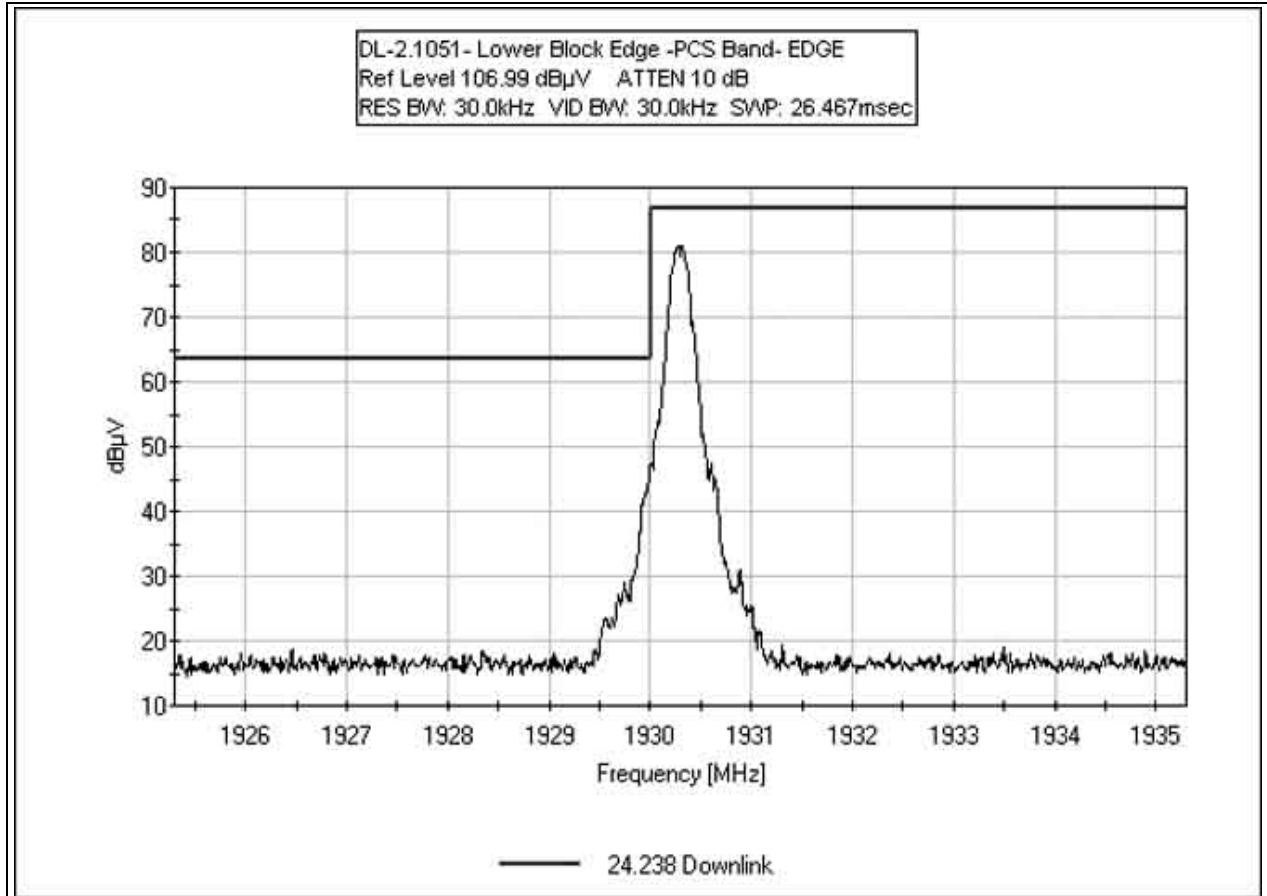
Test Conditions: EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal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



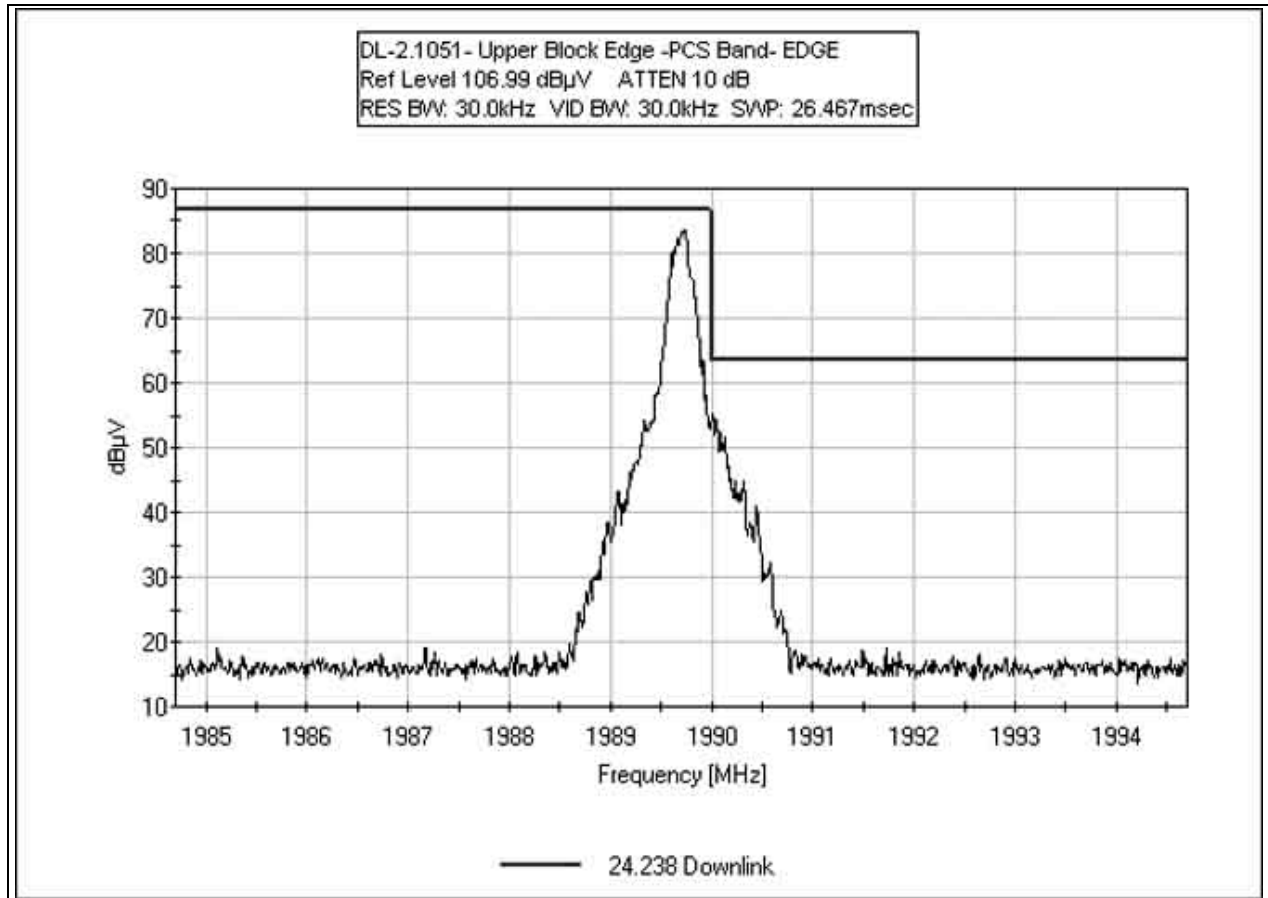
FCC 2.1051 DOWNLINK UPPER BLOCK EDGE CDMA - PCS BAND



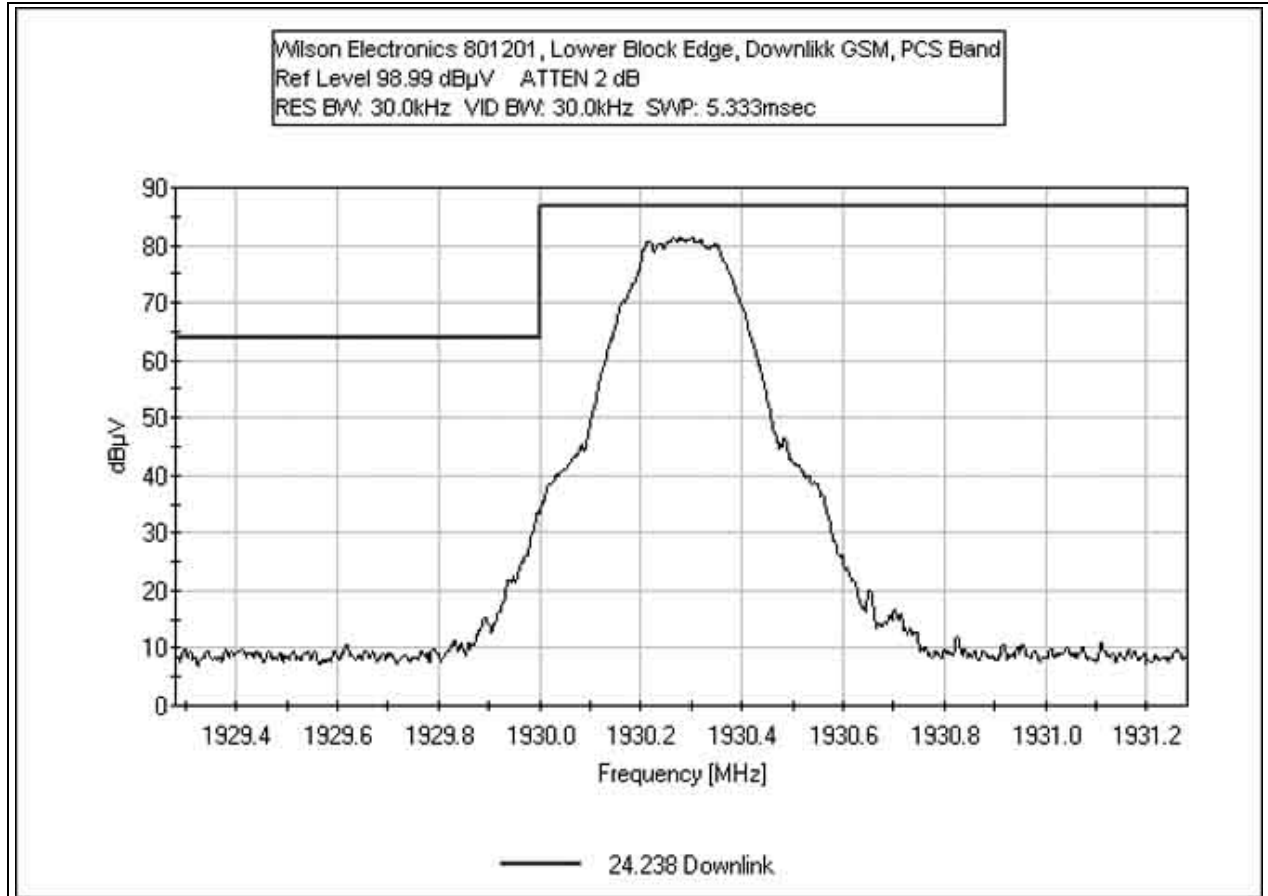
FCC 2.1051 DOWNLINK LOWER BLOCK EDGE EDGE - PCS BAND



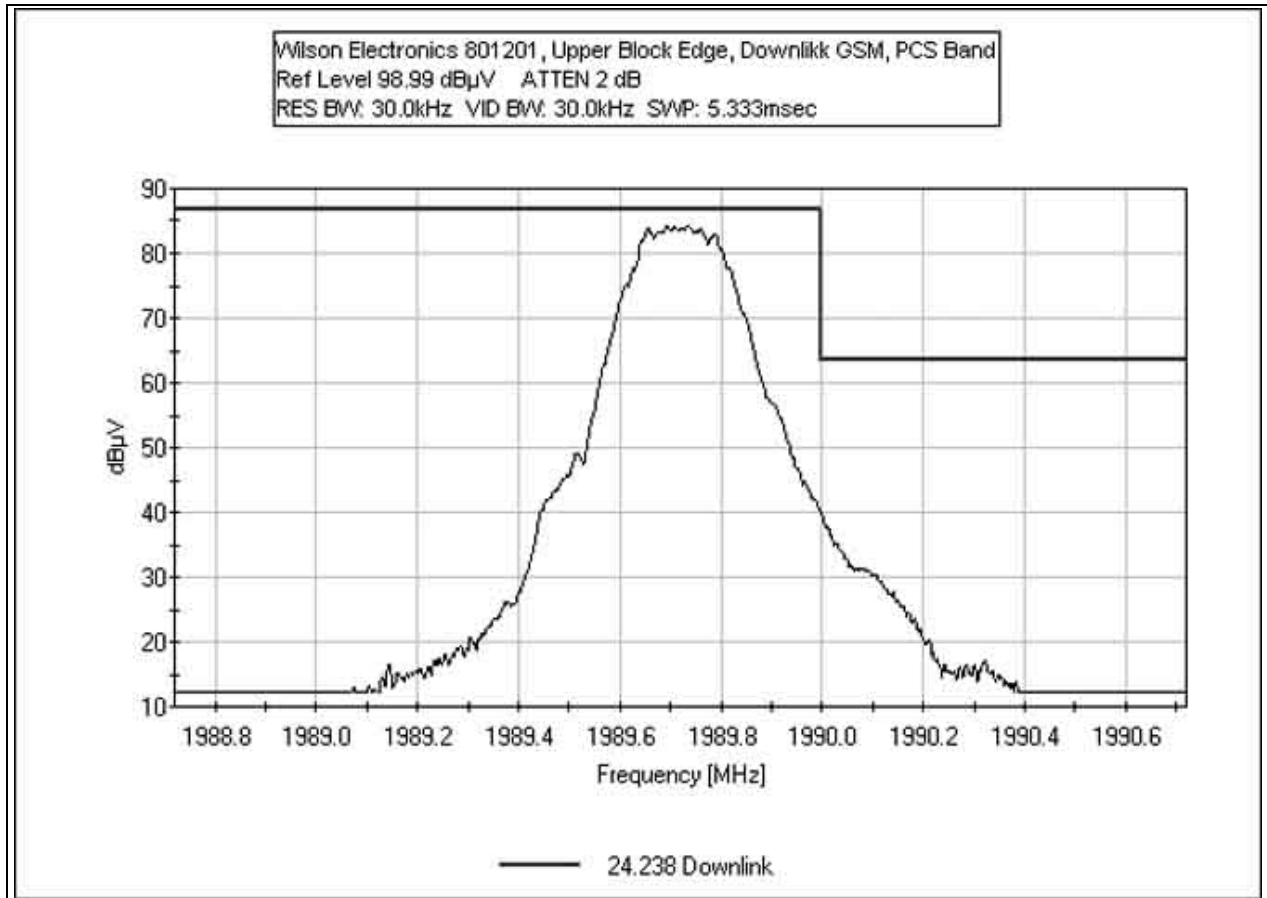
FCC 2.1051 DOWNLINK UPPER BLOCK EDGE EDGE - PCS BAND



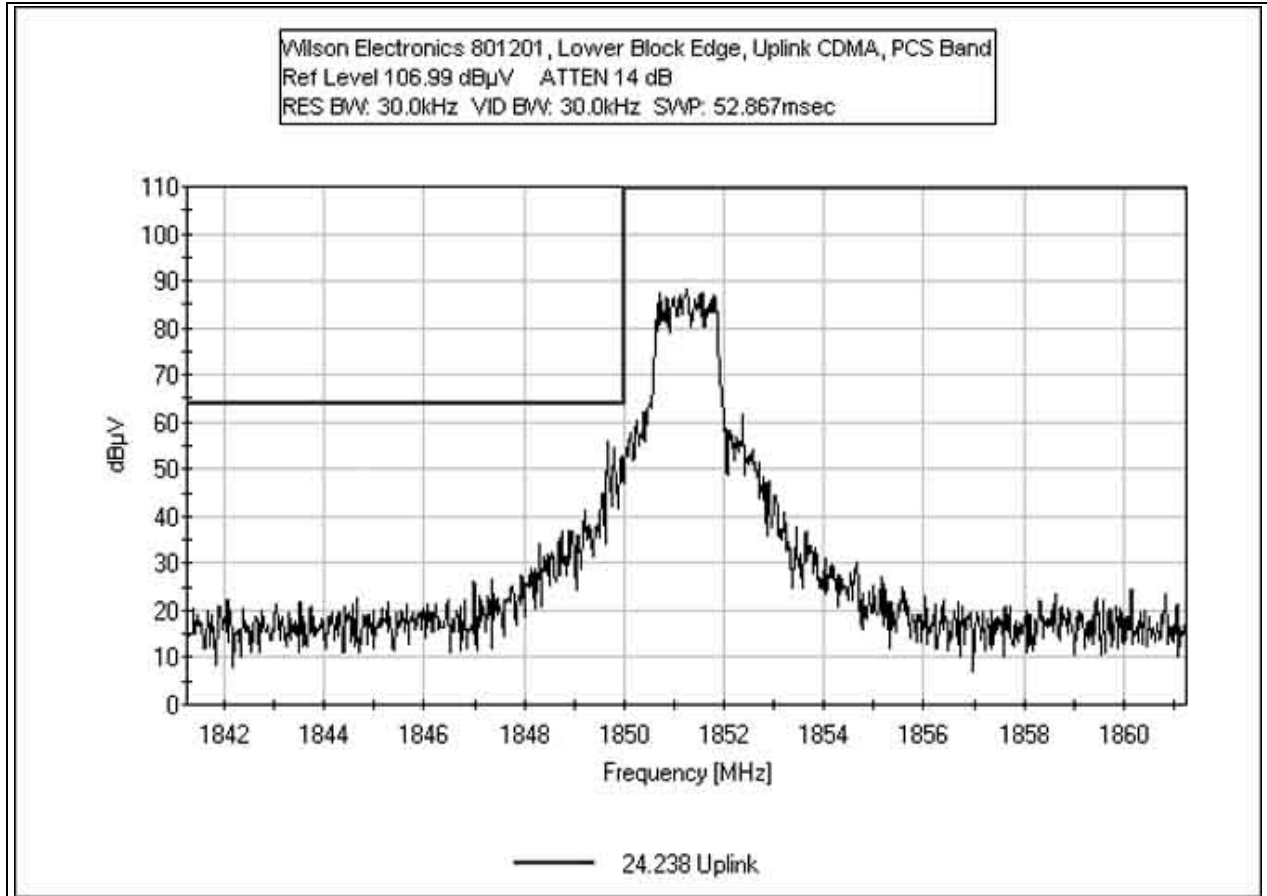
FCC 2.1051 DOWNLINK LOWER BLOCK EDGE GSM - PCS BAND



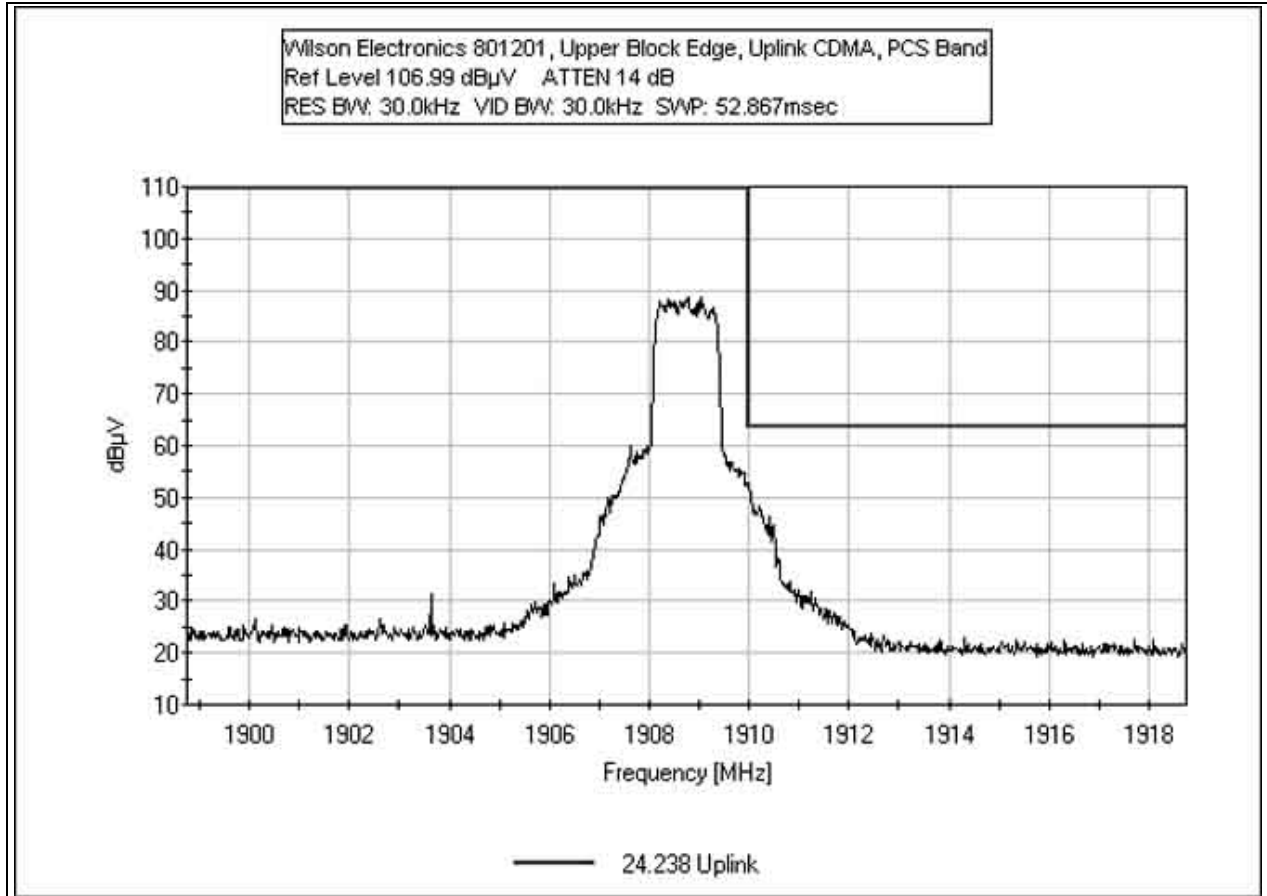
FCC 2.1051 DOWNLINK UPPER BLOCK EDGE GSM - PCS BAND



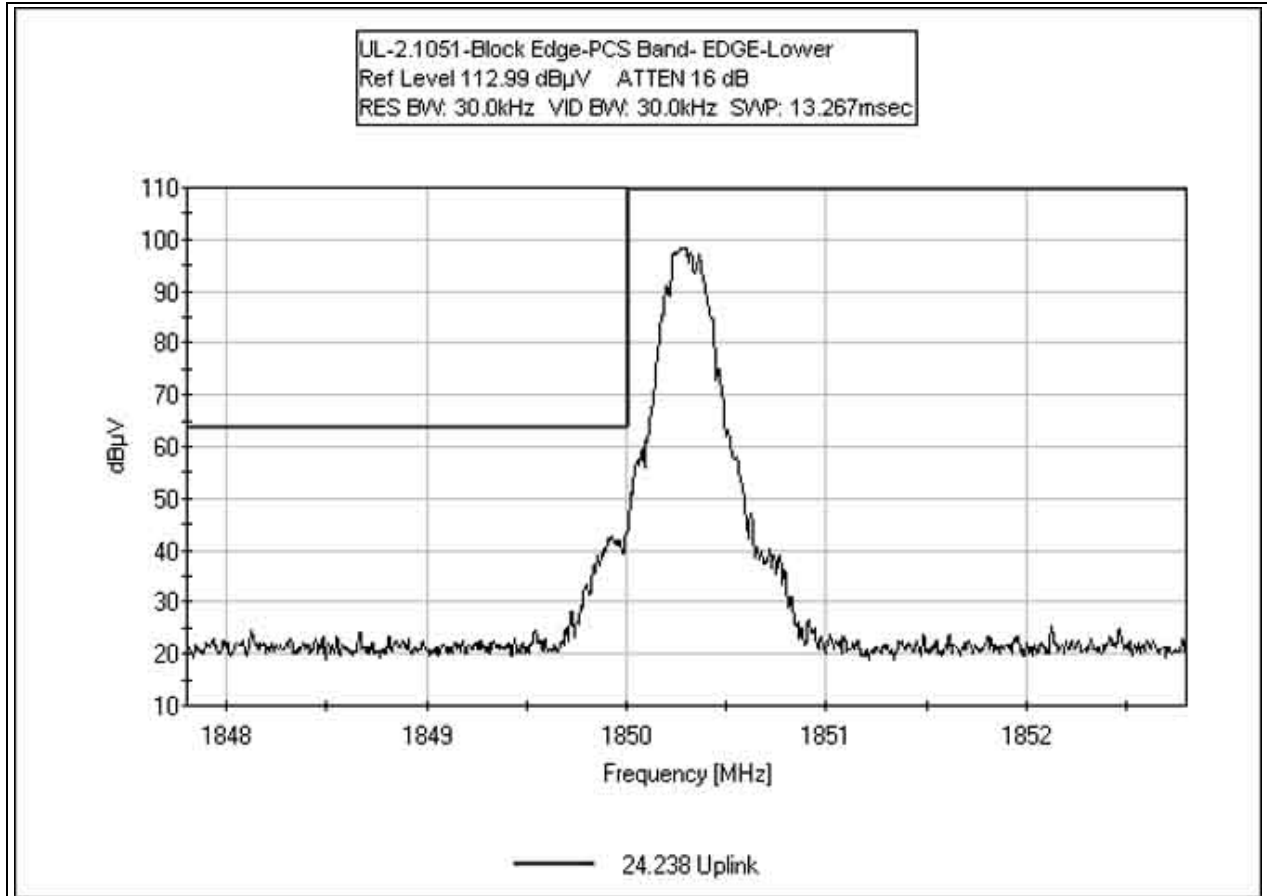
FCC 2.1051 UPLINK LOWER BLOCK EDGE CDMA - PCS BAND



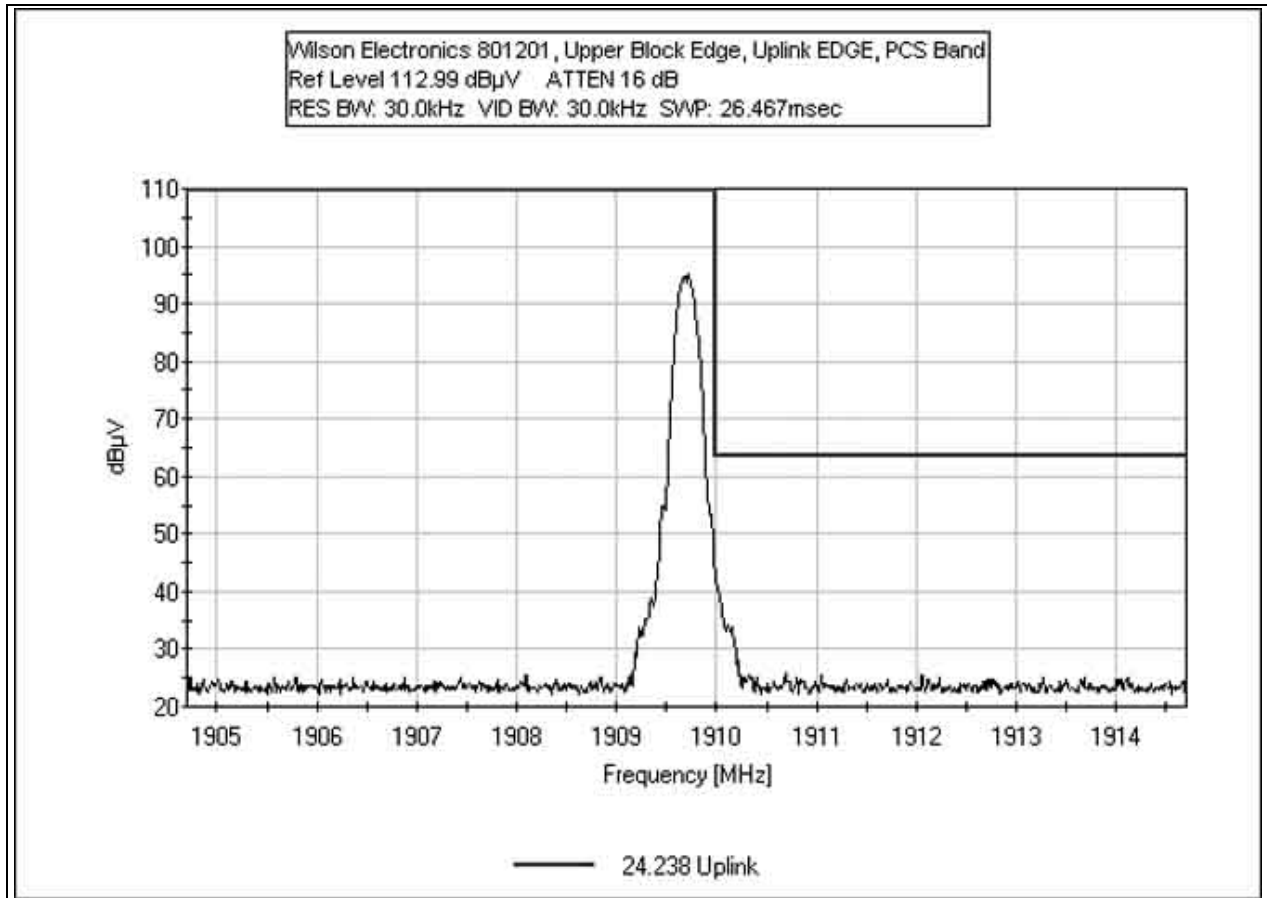
FCC 2.1051 UPLINK UPPER BLOCK EDGE CDMA - PCS BAND



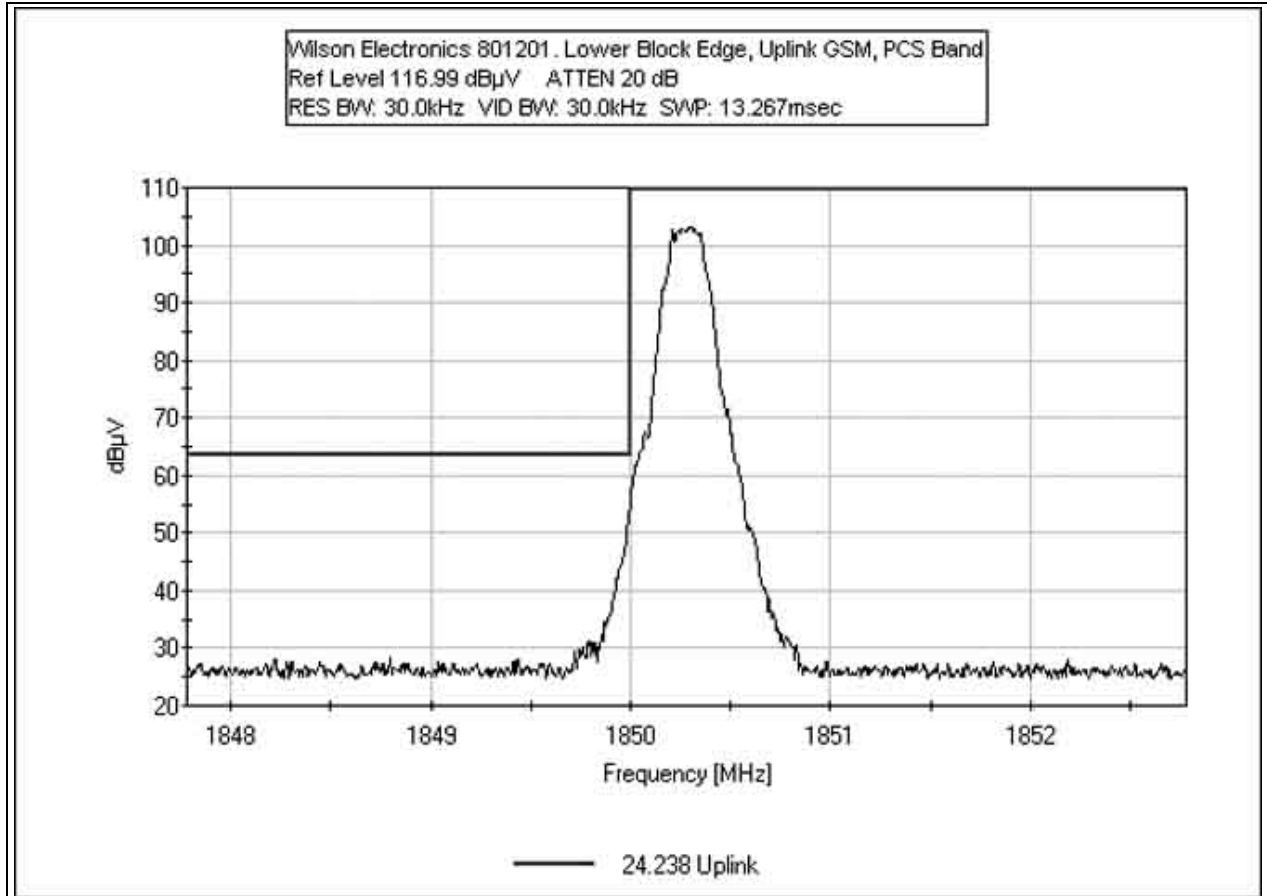
FCC 2.1051 UPLINK LOWER BLOCK EDGE EDGE - PCS BAND



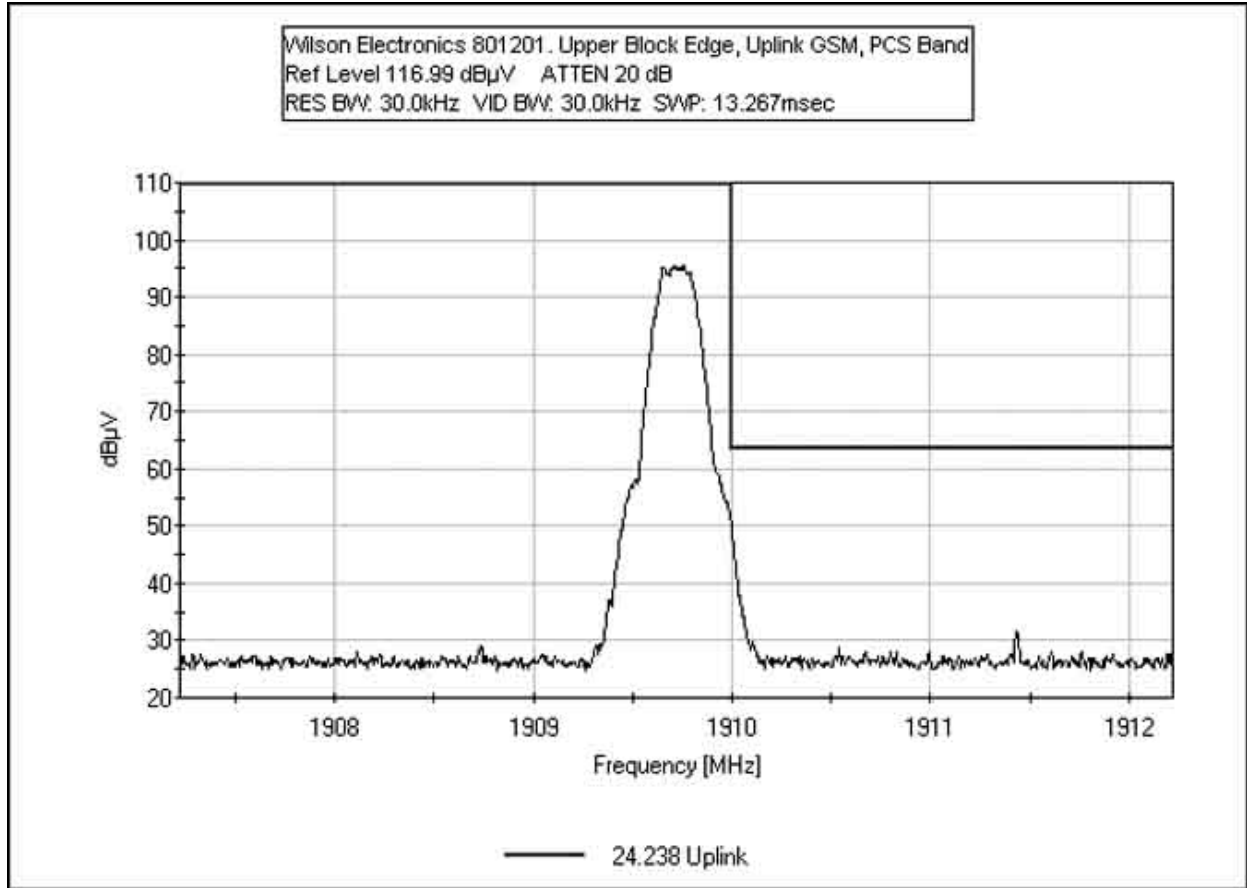
FCC 2.1051 UPLINK UPPER BLOCK EDGE EDGE - PCS BAND



FCC 2.1051 UPLINK LOWER BLOCK EDGE GSM - PCS BAND



FCC 2.1051 UPLINK UPPER BLOCK EDGE GSM - PCS BAND



Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP





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

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|-------------------------------------------------|---------------------|------------------|-------------------|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS | 30MHz | 1000MHz | 10 kHz |
| RADIATED EMISSIONS | 1000MHz | 20GHz | 100 kHz |

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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 15:23:53
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 52
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink Mid - 1960.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBµV | T1 dB | dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1960.020M | 86.6 | +30.3 | | | | +0.0 | 116.9 | 117.0 | -0.1 | None |
| Fundamental | | | | | | | | | | | |

| | | | | | | | | |
|---|-----------|------|-------|------|------|------|-------|------|
| 2 | 3920.150M | 35.8 | +29.6 | +0.0 | 65.4 | 94.0 | -28.6 | None |
| 3 | 7840.000M | 28.1 | +24.9 | +0.0 | 53.0 | 94.0 | -41.0 | None |
| 4 | 5880.170M | 21.3 | +27.8 | +0.0 | 49.1 | 94.0 | -44.9 | None |
| 5 | 9800.020M | 16.1 | +23.7 | +0.0 | 39.8 | 94.0 | -54.2 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 15:15:14
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 51
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1931.250M | 84.9 | +30.3 | | | | +0.0 | 115.2 | 117.0 | -1.8 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1929.990M | 44.4 | +30.3 | | | | +0.0 | 74.7 | 94.0 | -19.3 | None |
| 3 | 3862.790M | 28.1 | +29.7 | | | | +0.0 | 57.8 | 94.0 | -36.2 | None |
| 4 | 7725.290M | 16.7 | +25.2 | | | | +0.0 | 41.9 | 94.0 | -52.1 | None |
| 5 | 5794.040M | 12.5 | +27.8 | | | | +0.0 | 40.3 | 94.0 | -53.7 | None |
| 6 | 9656.540M | 15.2 | +24.2 | | | | +0.0 | 39.4 | 94.0 | -54.6 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 15:29:55
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 53
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1988.690M | 86.1 | +30.3 | | | | +0.0 | 116.4 | 117.0 | -0.6 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3977.470M | 33.1 | +29.6 | | | | +0.0 | 62.7 | 94.0 | -31.3 | None |
| 3 | 5966.510M | 20.7 | +27.8 | | | | +0.0 | 48.5 | 94.0 | -45.5 | None |
| 4 | 7954.960M | 23.1 | +24.5 | | | | +0.0 | 47.6 | 94.0 | -46.4 | None |
| 5 | 11932.620M | 18.1 | +19.9 | | | | +0.0 | 38.0 | 94.0 | -56.0 | None |
| 6 | 9943.650M | 14.3 | +23.2 | | | | +0.0 | 37.5 | 94.0 | -56.5 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/30/2005
 Test Type: **Antenna Terminals** Time: 08:07:37
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 70
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink Low - 1930.3MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1930.320M | 84.7 | +30.3 | | | | +0.0 | 115.0 | 117.0 | -2.0 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1929.980M | 58.3 | +30.3 | | | | +0.0 | 88.6 | 94.0 | -5.4 | None |
| 3 | 3860.510M | 43.7 | +29.7 | | | | +0.0 | 73.4 | 94.0 | -20.6 | None |
| 4 | 5790.950M | 34.2 | +27.8 | | | | +0.0 | 62.0 | 94.0 | -32.0 | None |
| 5 | 7721.270M | 34.9 | +25.2 | | | | +0.0 | 60.1 | 94.0 | -33.9 | None |
| 6 | 9651.670M | 25.3 | +24.2 | | | | +0.0 | 49.5 | 94.0 | -44.5 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/30/2005
 Test Type: **Antenna Terminals** Time: 08:14:46
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 71
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink Mid - 1960.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1960.040M | 86.3 | +30.3 | | | | +0.0 | 116.6 | 117.0 | -0.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3920.000M | 44.4 | +29.6 | | | | +0.0 | 74.0 | 94.0 | -20.0 | None |
| 3 | 7840.190M | 47.2 | +24.9 | | | | +0.0 | 72.1 | 94.0 | -21.9 | None |
| 4 | 5879.820M | 35.8 | +27.8 | | | | +0.0 | 63.6 | 94.0 | -30.4 | None |
| 5 | 9800.230M | 30.6 | +23.7 | | | | +0.0 | 54.3 | 94.0 | -39.7 | None |
| 6 | 11760.270M | 26.1 | +20.1 | | | | +0.0 | 46.2 | 94.0 | -47.8 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/30/2005
 Test Type: **Antenna Terminals** Time: 08:23:26
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 72
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink High - 1989.7MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|------------|-----------|-------|----|----|----|------------|-----------|-----------|-----------|-----------|
| 1 | 1989.720M | 86.0 | +30.3 | | | | +0.0 | 116.3 | 117.0 | -0.7 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1990.090M | 59.6 | +30.3 | | | | +0.0 | 89.9 | 94.0 | -4.1 | None |
| 3 | 3979.570M | 40.3 | +29.6 | | | | +0.0 | 69.9 | 94.0 | -24.1 | None |
| 4 | 7958.820M | 35.1 | +24.5 | | | | +0.0 | 59.6 | 94.0 | -34.4 | None |
| 5 | 5969.140M | 27.6 | +27.8 | | | | +0.0 | 55.4 | 94.0 | -38.6 | None |
| 6 | 9948.520M | 24.6 | +23.2 | | | | +0.0 | 47.8 | 94.0 | -46.2 | None |
| 7 | 11938.220M | 23.1 | +19.9 | | | | +0.0 | 43.0 | 94.0 | -51.0 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 11:11:57
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 60
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1930.282M | 84.7 | +30.3 | | | | +0.0 | 115.0 | 117.0 | -2.0 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3860.700M | 46.6 | +29.7 | | | | +0.0 | 76.3 | 94.0 | -17.7 | None |
| 3 | 1929.998M | 35.2 | +30.3 | | | | +0.0 | 65.5 | 94.0 | -28.5 | None |
| 4 | 5790.640M | 30.0 | +27.8 | | | | +0.0 | 57.8 | 94.0 | -36.2 | None |
| 5 | 7721.376M | 27.1 | +25.2 | | | | +0.0 | 52.3 | 94.0 | -41.7 | None |
| 6 | 9651.654M | 14.7 | +24.2 | | | | +0.0 | 38.9 | 94.0 | -55.1 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 11:17:23
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 61
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink Mid - 1960.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1959.934M | 86.6 | +30.3 | | | | +0.0 | 116.9 | 117.0 | -0.1 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3920.132M | 39.4 | +29.6 | | | | +0.0 | 69.0 | 94.0 | -25.0 | None |
| 3 | 7840.286M | 41.7 | +24.9 | | | | +0.0 | 66.6 | 94.0 | -27.4 | None |
| 4 | 5879.796M | 35.7 | +27.8 | | | | +0.0 | 63.5 | 94.0 | -30.5 | None |
| 5 | 9799.710M | 21.7 | +23.7 | | | | +0.0 | 45.4 | 94.0 | -48.6 | None |
| 6 | 11759.290M | 16.9 | +20.1 | | | | +0.0 | 37.0 | 94.0 | -57.0 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 11:24:30
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 62
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1989.736M | 86.0 | +30.3 | | | | +0.0 | 116.3 | 117.0 | -0.7 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1990.002M | 36.1 | +30.3 | | | | +0.0 | 66.4 | 94.0 | -27.6 | None |
| 3 | 3979.584M | 34.1 | +29.6 | | | | +0.0 | 63.7 | 94.0 | -30.3 | None |
| 4 | 7959.164M | 35.0 | +24.5 | | | | +0.0 | 59.5 | 94.0 | -34.5 | None |
| 5 | 5968.956M | 29.4 | +27.8 | | | | +0.0 | 57.2 | 94.0 | -36.8 | None |
| 6 | 9949.446M | 18.5 | +23.2 | | | | +0.0 | 41.7 | 94.0 | -52.3 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 10:38:56
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 48
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Uplink Mid - 1880.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1880.040M | 107.2 | +30.3 | | | | +0.0 | 137.5 | 140.0 | -2.5 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3760.120M | 28.1 | +29.7 | | | | +0.0 | 57.8 | 94.0 | -36.2 | None |
| 3 | 7520.200M | 28.6 | +25.8 | | | | +0.0 | 54.4 | 94.0 | -39.6 | None |
| 4 | 9400.240M | 28.9 | +24.8 | | | | +0.0 | 53.7 | 94.0 | -40.3 | None |
| 5 | 5640.160M | 24.0 | +27.9 | | | | +0.0 | 51.9 | 94.0 | -42.1 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 10:30:04
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 47
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBµV | T1 dB | dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1851.110M | 105.6 | +30.3 | | | | +0.0 | 135.9 | 140.0 | -4.1 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1849.970M | 58.3 | +30.3 | | | | +0.0 | 88.6 | 94.0 | -5.4 | None |
| 3 | 1847.150M | 29.2 | +30.3 | | | | +0.0 | 59.5 | 94.0 | -34.5 | None |
| 4 | 3702.220M | 28.5 | +29.7 | | | | +0.0 | 58.2 | 94.0 | -35.8 | None |
| 5 | 7404.620M | 25.2 | +26.1 | | | | +0.0 | 51.3 | 94.0 | -42.7 | None |
| 6 | 5549.370M | 19.4 | +27.9 | | | | +0.0 | 47.3 | 94.0 | -46.7 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 10:45:46
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 49
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1908.830M | 102.3 | +30.3 | | | | +0.0 | 132.6 | 140.0 | -7.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1910.030M | 47.7 | +30.3 | | | | +0.0 | 78.0 | 94.0 | -16.0 | None |
| 3 | 3818.740M | 29.6 | +29.7 | | | | +0.0 | 59.3 | 94.0 | -34.7 | None |
| 4 | 7636.400M | 29.1 | +25.5 | | | | +0.0 | 54.6 | 94.0 | -39.4 | None |
| 5 | 9545.230M | 28.5 | +24.5 | | | | +0.0 | 53.0 | 94.0 | -41.0 | None |
| 6 | 11454.060M | 29.1 | +20.6 | | | | +0.0 | 49.7 | 94.0 | -44.3 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 15:25:23
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 65
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink Low - 1850.3MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1850.290M | 106.3 | +30.3 | | | | +0.0 | 136.6 | 140.0 | -3.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1849.995M | 45.6 | +30.3 | | | | +0.0 | 75.9 | 94.0 | -18.1 | None |
| 3 | 3700.650M | 31.0 | +29.7 | | | | +0.0 | 60.7 | 94.0 | -33.3 | None |
| 4 | 7401.300M | 31.1 | +26.1 | | | | +0.0 | 57.2 | 94.0 | -36.8 | None |
| 5 | 5550.975M | 26.3 | +27.9 | | | | +0.0 | 54.2 | 94.0 | -39.8 | None |
| 6 | 9251.625M | 29.2 | +24.9 | | | | +0.0 | 54.1 | 94.0 | -39.9 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 15:31:01
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 66
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink Mid - 1880.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1880.025M | 107.0 | +30.3 | | | | +0.0 | 137.3 | 140.0 | -2.7 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3760.050M | 30.7 | +29.7 | | | | +0.0 | 60.4 | 94.0 | -33.6 | None |
| 3 | 7520.100M | 30.1 | +25.8 | | | | +0.0 | 55.9 | 94.0 | -38.1 | None |
| 4 | 11280.150M | 33.6 | +20.9 | | | | +0.0 | 54.5 | 94.0 | -39.5 | None |
| 5 | 5640.075M | 26.4 | +27.9 | | | | +0.0 | 54.3 | 94.0 | -39.7 | None |
| 6 | 9400.125M | 29.1 | +24.8 | | | | +0.0 | 53.9 | 94.0 | -40.1 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 15:36:37
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 67
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink High - 1909.7MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1909.690M | 102.3 | +30.3 | | | | +0.0 | 132.6 | 140.0 | -7.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1910.005M | 42.5 | +30.3 | | | | +0.0 | 72.8 | 94.0 | -21.2 | None |
| 3 | 3819.430M | 25.6 | +29.7 | | | | +0.0 | 55.3 | 94.0 | -38.7 | None |
| 4 | 7638.910M | 27.8 | +25.5 | | | | +0.0 | 53.3 | 94.0 | -40.7 | None |
| 5 | 5729.045M | 25.1 | +27.9 | | | | +0.0 | 53.0 | 94.0 | -41.0 | None |
| 6 | 9548.625M | 25.0 | +24.5 | | | | +0.0 | 49.5 | 94.0 | -44.5 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 09:38:51
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 56
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink Mid - 1880.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1879.990M | 106.4 | +30.3 | | | | +0.0 | 136.7 | 140.0 | -3.3 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 3759.980M | 32.9 | +29.7 | | | | +0.0 | 62.6 | 94.0 | -31.4 | None |
| 3 | 7519.960M | 33.5 | +25.8 | | | | +0.0 | 59.3 | 94.0 | -34.7 | None |
| 4 | 9399.950M | 33.6 | +24.8 | | | | +0.0 | 58.4 | 94.0 | -35.6 | None |
| 5 | 5639.970M | 28.9 | +27.9 | | | | +0.0 | 56.8 | 94.0 | -37.2 | None |
| 6 | 11279.940M | 34.2 | +20.9 | | | | +0.0 | 55.1 | 94.0 | -38.9 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 09:26:46
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 55
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

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

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-------------|--------------|----------|----|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1850.225M | 104.3 | +30.3 | | | | +0.0 | 134.6 | 140.0 | -5.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1849.985M | 51.6 | +30.3 | | | | +0.0 | 81.9 | 94.0 | -12.1 | None |
| 3 | 7401.070M | 38.8 | +26.1 | | | | +0.0 | 64.9 | 94.0 | -29.1 | None |
| 4 | 3700.520M | 34.0 | +29.7 | | | | +0.0 | 63.7 | 94.0 | -30.3 | None |
| 5 | 5550.730M | 35.7 | +27.9 | | | | +0.0 | 63.6 | 94.0 | -30.4 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 09:44:08
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 57
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 | | 05/09/2003 | 05/09/2005 | P01572 |
| 25-A-MFN-30 | | | | |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Spurious Emissions Test: One signal is input to the amplifier. The input signal is set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink High - 1880.0MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|------------|-----------|-------|----|----|----|------------|-----------|-----------|-----------|-----------|
| 1 | 1909.710M | 102.3 | +30.3 | | | | +0.0 | 132.6 | 140.0 | -7.4 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1910.020M | 44.2 | +30.3 | | | | +0.0 | 74.5 | 94.0 | -19.5 | None |
| 3 | 3819.490M | 32.8 | +29.7 | | | | +0.0 | 62.5 | 94.0 | -31.5 | None |
| 4 | 7638.980M | 35.0 | +25.5 | | | | +0.0 | 60.5 | 94.0 | -33.5 | None |
| 5 | 9548.725M | 35.1 | +24.5 | | | | +0.0 | 59.6 | 94.0 | -34.4 | None |
| 6 | 5729.235M | 31.0 | +27.9 | | | | +0.0 | 58.9 | 94.0 | -35.1 | None |
| 7 | 19097.450M | 33.8 | +22.2 | | | | +0.0 | 56.0 | 94.0 | -38.0 | None |



FCC 2.1051 - INTERMODULATION ATTENUATION

| ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|-------------------------------------------------|---------------------|------------------|-------------------|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| RADIATED EMISSIONS | 30MHz | 1000MHz | 10 kHz |
| RADIATED EMISSIONS | 1000MHz | 20GHz | 100 kHz |

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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 15:48:54
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 54
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 | | 05/09/2003 | 05/09/2005 | P01572 |
| 25-A-MFN-30 | | | | |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Three signals are input to the amplifier through a combining network. The first two input signals are provided by the HP E4432B ESG. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Downlink 1931.25MHz, 1933.75MHz, 1988.75MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBµV | T1 dB | dB | dB | dB | Dist Table | Corr dBµV | Spec dBµV | Margin dB | Polar Ant |
|-------------|-----------|-----------|-------|----|----|----|------------|-----------|-----------|-----------|-----------|
| 1 | 1934.200M | 69.8 | +30.3 | | | | +0.0 | 100.1 | 117.0 | -16.9 | None |
| Fundamental | | | | | | | | | | | |

| | | | | | | | | |
|----|-----------|------|-------|------|------|-------------|-------|------|
| 2 | 1988.600M | 69.0 | +30.3 | +0.0 | 99.3 | 117.0 | -17.7 | None |
| | | | | | | Fundamental | | |
| 3 | 1931.800M | 66.2 | +30.3 | +0.0 | 96.5 | 117.0 | -20.5 | None |
| | | | | | | Fundamental | | |
| 4 | 1929.200M | 42.3 | +30.3 | +0.0 | 72.6 | 94.0 | -21.4 | None |
| 5 | 1991.400M | 39.8 | +30.3 | +0.0 | 70.1 | 94.0 | -23.9 | None |
| 6 | 3868.400M | 26.0 | +29.7 | +0.0 | 55.7 | 94.0 | -38.3 | None |
| 7 | 3977.450M | 23.9 | +29.6 | +0.0 | 53.5 | 94.0 | -40.5 | None |
| 8 | 1936.800M | 44.0 | +30.3 | +0.0 | 74.3 | 117.0 | -42.7 | None |
| 9 | 1986.000M | 42.7 | +30.3 | +0.0 | 73.0 | 117.0 | -44.0 | None |
| 10 | 5966.350M | 18.2 | +27.8 | +0.0 | 46.0 | 94.0 | -48.0 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/30/2005
 Test Type: **Antenna Terminals** Time: 08:36:04
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 73
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink 1930.3MHz, 1930.9MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-------------|--------------|----------|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1930.920M | 81.7 | +30.3 | | | +0.0 | 112.0 | 117.0 | -5.0 | None |
| | | | | | | | | Fundamental | | |
| 2 | 1930.300M | 81.0 | +30.3 | | | +0.0 | 111.3 | 117.0 | -5.7 | None |
| | | | | | | | | Fundamental | | |
| 3 | 1929.980M | 46.0 | +30.3 | | | +0.0 | 76.3 | 94.0 | -17.7 | None |
| 4 | 3860.640M | 42.6 | +29.7 | | | +0.0 | 72.3 | 94.0 | -21.7 | None |
| 5 | 3861.860M | 41.9 | +29.7 | | | +0.0 | 71.6 | 94.0 | -22.4 | None |

| | | | | | | | | |
|----|-----------|------|-------|------|------|-------|-------|------|
| 6 | 1931.160M | 49.7 | +30.3 | +0.0 | 80.0 | 117.0 | -37.0 | None |
| 7 | 5792.720M | 26.5 | +27.8 | +0.0 | 54.3 | 94.0 | -39.7 | None |
| 8 | 5790.820M | 25.9 | +27.8 | +0.0 | 53.7 | 94.0 | -40.3 | None |
| 9 | 7720.860M | 24.2 | +25.2 | +0.0 | 49.4 | 94.0 | -44.6 | None |
| 10 | 9655.420M | 22.5 | +24.2 | +0.0 | 46.7 | 94.0 | -47.3 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/30/2005
 Test Type: **Antenna Terminals** Time: 08:43:07
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 74
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Downlink 1989.1MHz, 1989.7MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

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

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

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



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 12:03:44
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 63
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 801201000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|--------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 801201000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink 1930.28MHz, 1930.81MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-----------|-----------|-------|----|----|----|------------|-----------|-------------|-----------|-----------|
| 1 | 1930.270M | 80.2 | +30.3 | | | | +0.0 | 110.5 | 117.0 | -6.5 | None |
| | | | | | | | | | Fundamental | | |
| 2 | 1930.830M | 78.1 | +30.3 | | | | +0.0 | 108.4 | 117.0 | -8.6 | None |
| | | | | | | | | | Fundamental | | |
| 3 | 3860.690M | 36.5 | +29.7 | | | | +0.0 | 66.2 | 94.0 | -27.8 | None |
| 4 | 1929.980M | 27.9 | +30.3 | | | | +0.0 | 58.2 | 94.0 | -35.8 | None |
| 5 | 3861.610M | 26.5 | +29.7 | | | | +0.0 | 56.2 | 94.0 | -37.8 | None |
| 6 | 5790.840M | 18.4 | +27.8 | | | | +0.0 | 46.2 | 94.0 | -47.8 | None |
| 7 | 9651.960M | 9.9 | +24.2 | | | | +0.0 | 34.1 | 94.0 | -59.9 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Downlink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 13:01:07
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 64
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Downlink 1989.16MHz, 1989.72MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-------------|--------------|----------|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1989.170M | 83.5 | +30.3 | | | +0.0 | 113.8 | 117.0 | -3.2 | None |
| 2 | 1989.720M | 82.7 | +30.3 | | | +0.0 | 113.0 | 117.0 | -4.0 | None |
| 3 | 1990.010M | 39.1 | +30.3 | | | +0.0 | 69.4 | 94.0 | -24.6 | None |
| 4 | 3979.490M | 37.5 | +29.6 | | | +0.0 | 67.1 | 94.0 | -26.9 | None |
| 5 | 3978.180M | 36.8 | +29.6 | | | +0.0 | 66.4 | 94.0 | -27.6 | None |

| | | | | | | | | |
|----|-----------|------|-------|------|------|------|-------|------|
| 6 | 5967.300M | 24.2 | +27.8 | +0.0 | 52.0 | 94.0 | -42.0 | None |
| 7 | 5969.330M | 22.9 | +27.8 | +0.0 | 50.7 | 94.0 | -43.3 | None |
| 8 | 7956.630M | 21.3 | +24.5 | +0.0 | 45.8 | 94.0 | -48.2 | None |
| 9 | 7959.150M | 19.5 | +24.5 | +0.0 | 44.0 | 94.0 | -50.0 | None |
| 10 | 9948.600M | 11.0 | +23.2 | +0.0 | 34.2 | 94.0 | -59.8 | None |



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

Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/28/2005
 Test Type: **Antenna Terminals** Time: 16:17:38
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 50
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 25-A-MFN-30 | | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Three signals are input to the amplifier through a combining network. The first two input signals are provided by the HP E4432B ESG. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: CDMA. Frequencies Tested: Uplink 1851.25MHz, 1853.75MHz, 1908.75MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

| |
|-------------|
| T1=Pad 30dB |
|-------------|

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-------------|--------------|----------|----|----|---------------|--------------|--------------|--------------|--------------|
| 1 | 1848.500M | 37.5 | +30.3 | | | +0.0 | 67.8 | 94.0 | -26.2 | None |
| 2 | 1853.800M | 80.5 | +30.3 | | | +0.0 | 110.8 | 140.0 | -29.2 | None |
| | | | | | | | | | Fundamental | |
| 3 | 1911.000M | 33.7 | +30.3 | | | +0.0 | 64.0 | 94.0 | -30.0 | None |
| 4 | 1851.500M | 79.2 | +30.3 | | | +0.0 | 109.5 | 140.0 | -30.5 | None |
| | | | | | | | | | Fundamental | |
| 5 | 1908.500M | 78.4 | +30.3 | | | +0.0 | 108.7 | 140.0 | -31.3 | None |
| | | | | | | | | | Fundamental | |

| | | | | | | | | |
|----|-----------|------|-------|------|------|-------|-------|------|
| 6 | 1831.600M | 13.4 | +30.3 | +0.0 | 43.7 | 94.0 | -50.3 | None |
| 7 | 3705.400M | 10.9 | +29.7 | +0.0 | 40.6 | 94.0 | -53.4 | None |
| 8 | 3817.900M | 10.4 | +29.7 | +0.0 | 40.1 | 94.0 | -53.9 | None |
| 9 | 1906.000M | 35.5 | +30.3 | +0.0 | 65.8 | 140.0 | -74.2 | None |
| 10 | 1856.200M | 34.5 | +30.3 | +0.0 | 64.8 | 140.0 | -75.2 | None |
| 11 | 1876.000M | 22.7 | +30.3 | +0.0 | 53.0 | 140.0 | -87.0 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 15:52:03
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 68
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink 1850.3MHz, 1850.9MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-----------|-----------|-------|----|----|----|------------|-----------|-------------|-----------|-----------|
| 1 | 1850.925M | 103.0 | +30.3 | | | | +0.0 | 133.3 | 140.0 | -6.7 | None |
| | | | | | | | | | Fundamental | | |
| 2 | 1849.995M | 56.8 | +30.3 | | | | +0.0 | 87.1 | 94.0 | -6.9 | None |
| 3 | 1850.285M | 102.5 | +30.3 | | | | +0.0 | 132.8 | 140.0 | -7.2 | None |
| | | | | | | | | | Fundamental | | |
| 4 | 3701.180M | 24.8 | +29.7 | | | | +0.0 | 54.5 | 94.0 | -39.5 | None |
| 5 | 5551.770M | 21.7 | +27.9 | | | | +0.0 | 49.6 | 94.0 | -44.4 | None |
| 6 | 7402.360M | 23.0 | +26.1 | | | | +0.0 | 49.1 | 94.0 | -44.9 | None |
| 7 | 9252.950M | 21.2 | +24.9 | | | | +0.0 | 46.1 | 94.0 | -47.9 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 16:13:35
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 69
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: EDGE. Frequencies Tested: Uplink 1909.1MHz, 1909.7MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|-------------|-----------|-----------|-------|----|----|----|------------|-----------|-----------|-----------|-----------|
| 1 | 1909.130M | 97.4 | +30.3 | | | | +0.0 | 127.7 | 140.0 | -12.3 | None |
| Fundamental | | | | | | | | | | | |
| 2 | 1909.720M | 95.8 | +30.3 | | | | +0.0 | 126.1 | 140.0 | -13.9 | None |
| Fundamental | | | | | | | | | | | |
| 3 | 1910.010M | 49.6 | +30.3 | | | | +0.0 | 79.9 | 94.0 | -14.1 | None |
| 4 | 3818.800M | 31.1 | +29.7 | | | | +0.0 | 60.8 | 94.0 | -33.2 | None |
| 5 | 5728.470M | 29.5 | +27.9 | | | | +0.0 | 57.4 | 94.0 | -36.6 | None |
| 6 | 7637.870M | 28.8 | +25.5 | | | | +0.0 | 54.3 | 94.0 | -39.7 | None |
| 7 | 9547.220M | 28.7 | +24.5 | | | | +0.0 | 53.2 | 94.0 | -40.8 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 10:11:59
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 58
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink 1850.28MHz, 1850.81MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

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

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|------------|-----------|-------|----|----|----|------------|-----------|-------------|-----------|-----------|
| 1 | 1850.330M | 98.4 | +30.3 | | | | +0.0 | 128.7 | 140.0 | -11.3 | None |
| | | | | | | | | | Fundamental | | |
| 2 | 1850.820M | 98.0 | +30.3 | | | | +0.0 | 128.3 | 140.0 | -11.7 | None |
| | | | | | | | | | Fundamental | | |
| 3 | 1849.990M | 47.7 | +30.3 | | | | +0.0 | 78.0 | 94.0 | -16.0 | None |
| 4 | 3701.120M | 33.6 | +29.7 | | | | +0.0 | 63.3 | 94.0 | -30.7 | None |
| 5 | 7402.240M | 34.8 | +26.1 | | | | +0.0 | 60.9 | 94.0 | -33.1 | None |
| 6 | 9252.800M | 33.5 | +24.9 | | | | +0.0 | 58.4 | 94.0 | -35.6 | None |
| 7 | 11103.360M | 34.8 | +21.1 | | | | +0.0 | 55.9 | 94.0 | -38.1 | None |



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238 Uplink**
 Work Order #: **83305** Date: 03/29/2005
 Test Type: **Antenna Terminals** Time: 10:21:33
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 59
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201 S/N: 801201000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|--------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 801201000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Intermodulation Attenuation and Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output is provided at the antenna terminals. The internal ALC of the amplifier limits the maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Input Modulation: GSM. Frequencies Tested: Uplink 1909.16MHz, 1909.72MHz. Frequency Range Investigated: 30MHz to 20GHz.

Transducer Legend:

T1=Pad 30dB

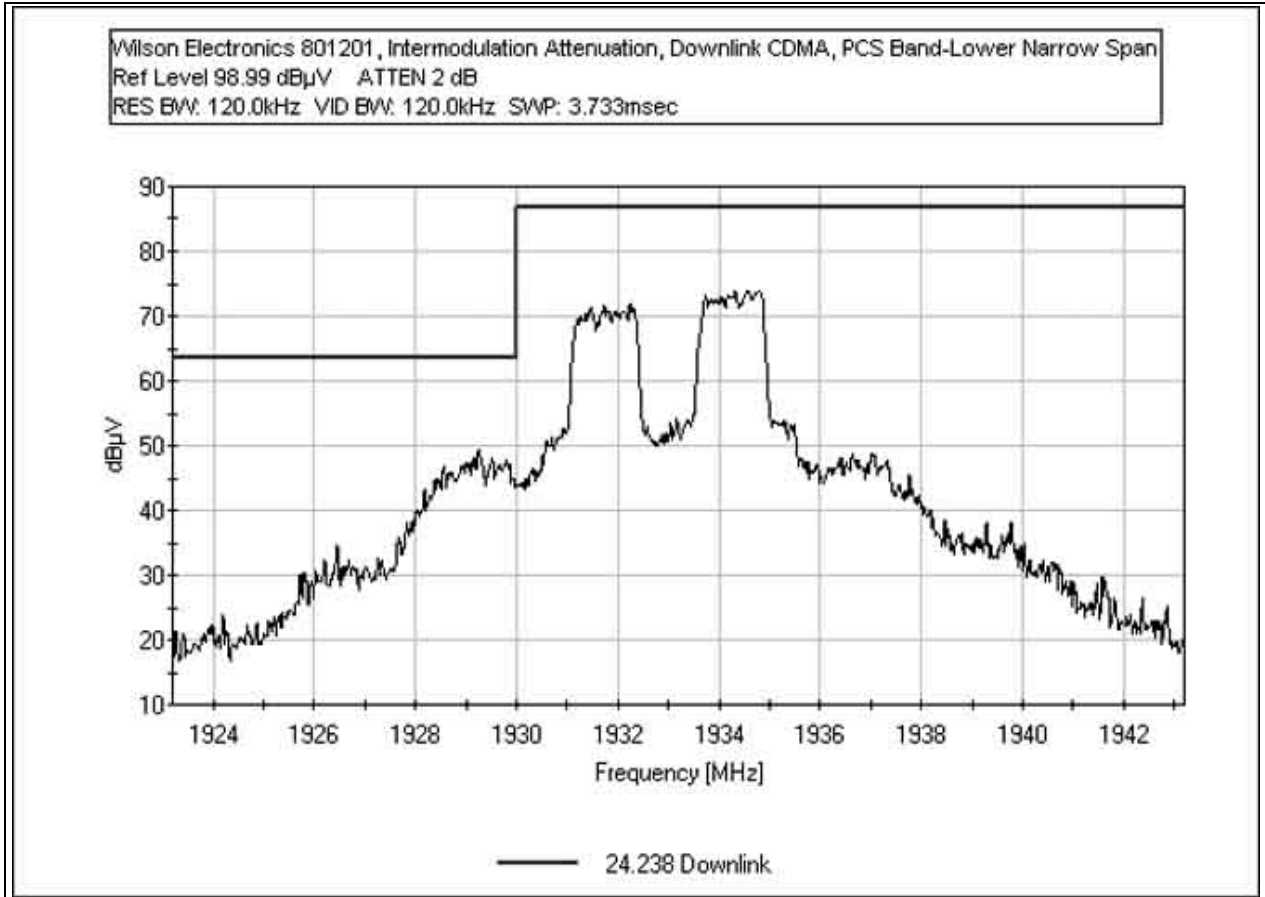
Measurement Data:

Reading listed by margin.

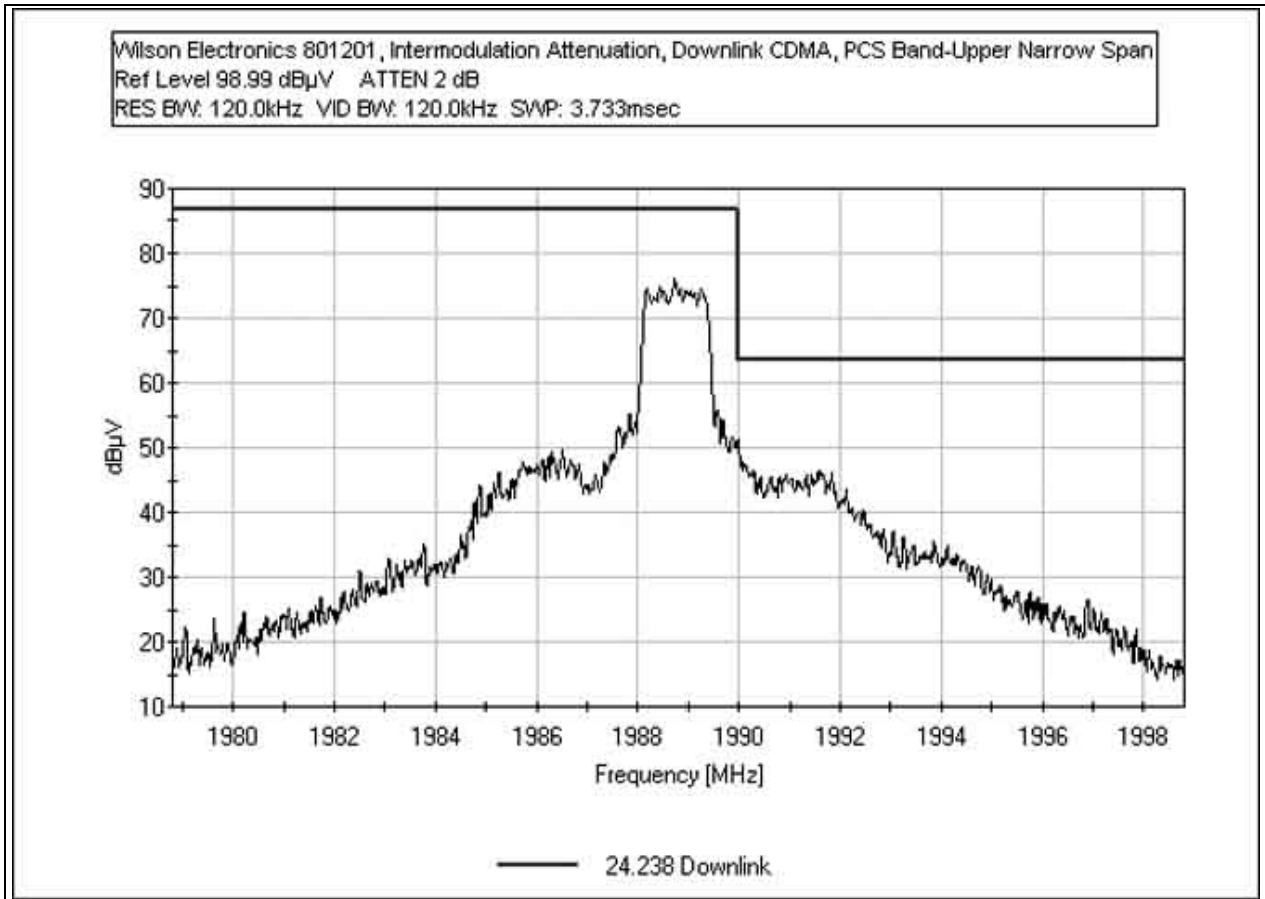
Test Distance: None

| # | Freq MHz | Rdng dBμV | T1 dB | dB | dB | dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|---|-----------|-----------|-------|----|----|----|------------|-----------|-------------|-----------|-----------|
| 1 | 1909.170M | 95.7 | +30.3 | | | | +0.0 | 126.0 | 140.0 | -14.0 | None |
| | | | | | | | | | Fundamental | | |
| 2 | 1909.740M | 93.3 | +30.3 | | | | +0.0 | 123.6 | 140.0 | -16.4 | None |
| | | | | | | | | | Fundamental | | |
| 3 | 1910.010M | 42.6 | +30.3 | | | | +0.0 | 72.9 | 94.0 | -21.1 | None |
| 4 | 3818.860M | 33.5 | +29.7 | | | | +0.0 | 63.2 | 94.0 | -30.8 | None |
| 5 | 5728.290M | 33.8 | +27.9 | | | | +0.0 | 61.7 | 94.0 | -32.3 | None |
| 6 | 7637.720M | 36.1 | +25.5 | | | | +0.0 | 61.6 | 94.0 | -32.4 | None |
| 7 | 9547.150M | 35.1 | +24.5 | | | | +0.0 | 59.6 | 94.0 | -34.4 | None |

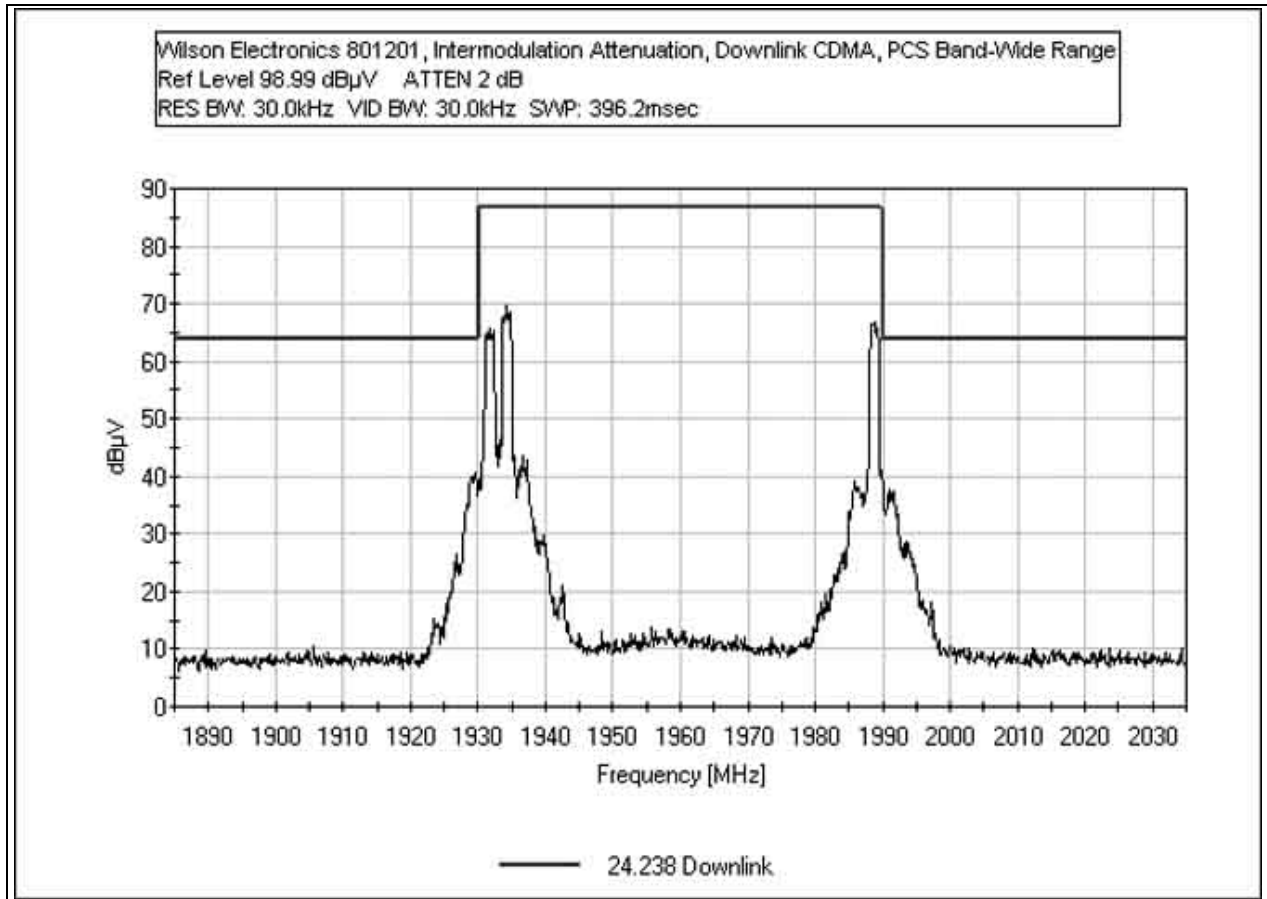
**INTERMODULATION ATTENUATION DOWNLINK CDMA - PCS BAND
LOWER NARROW SPAN**



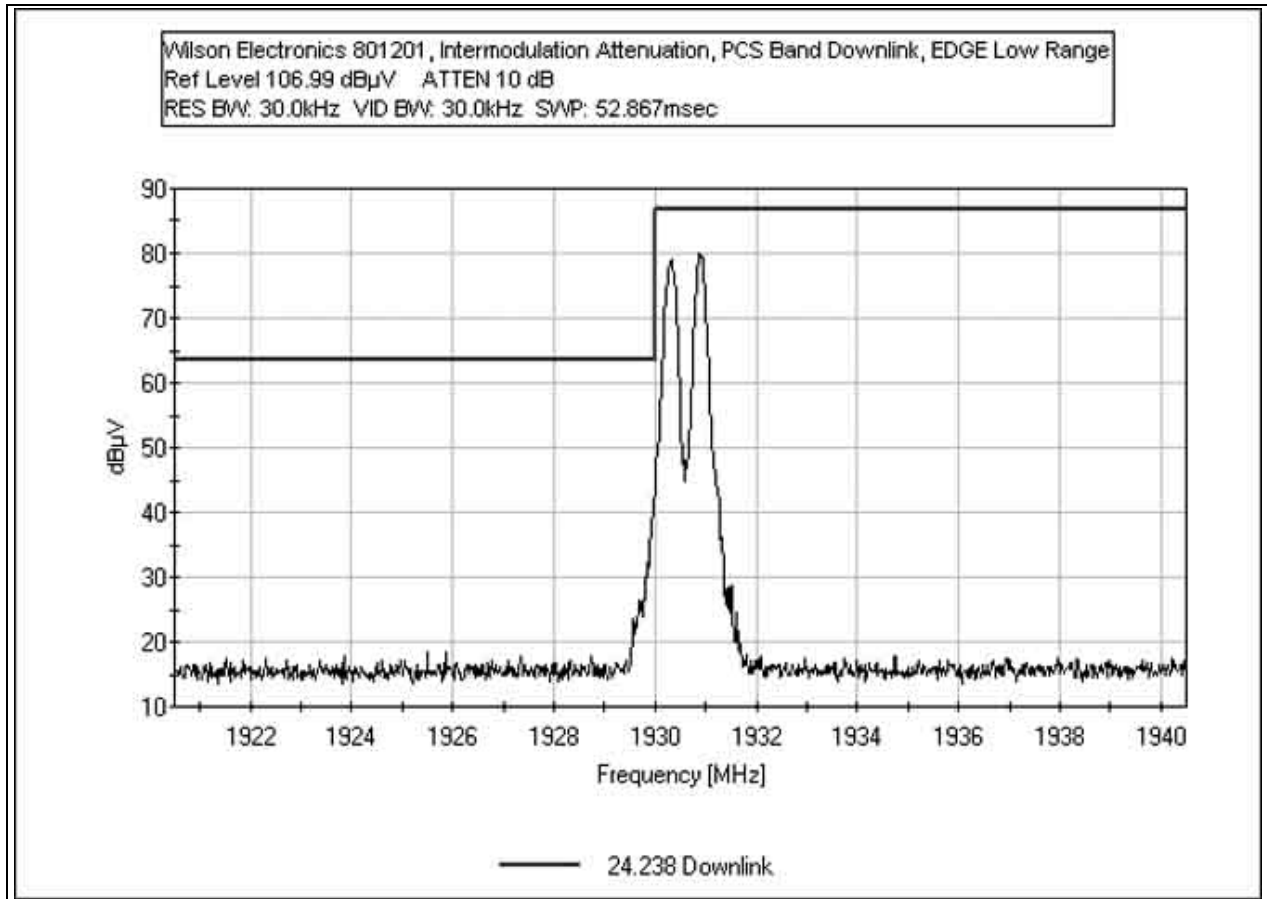
**INTERMODULATION ATTENUATION DOWNLINK CDMA - PCS BAND
UPPER NARROW SPAN**



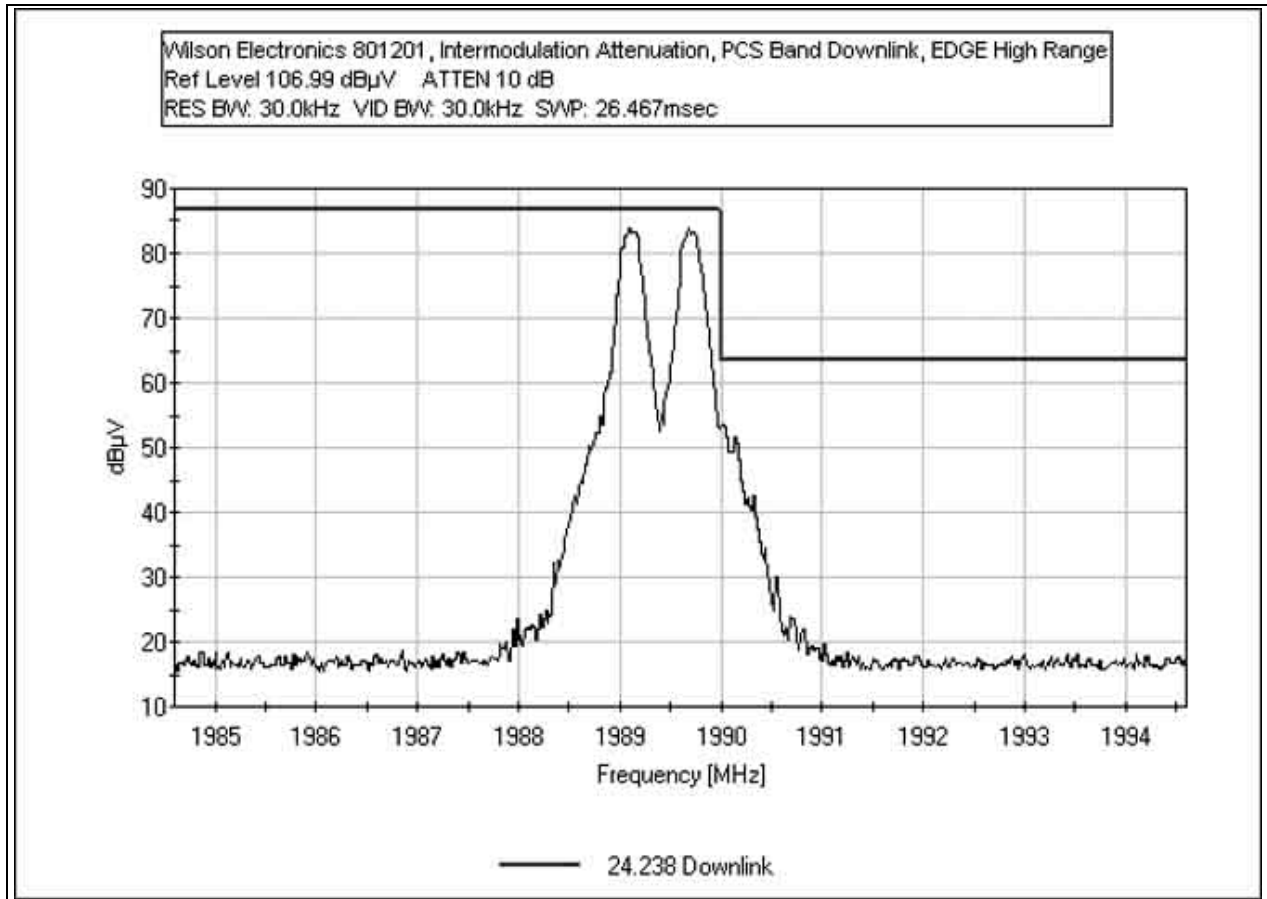
INTERMODULATION ATTENUATION DOWNLINK CDMA - PCS BAND WIDE RANGE



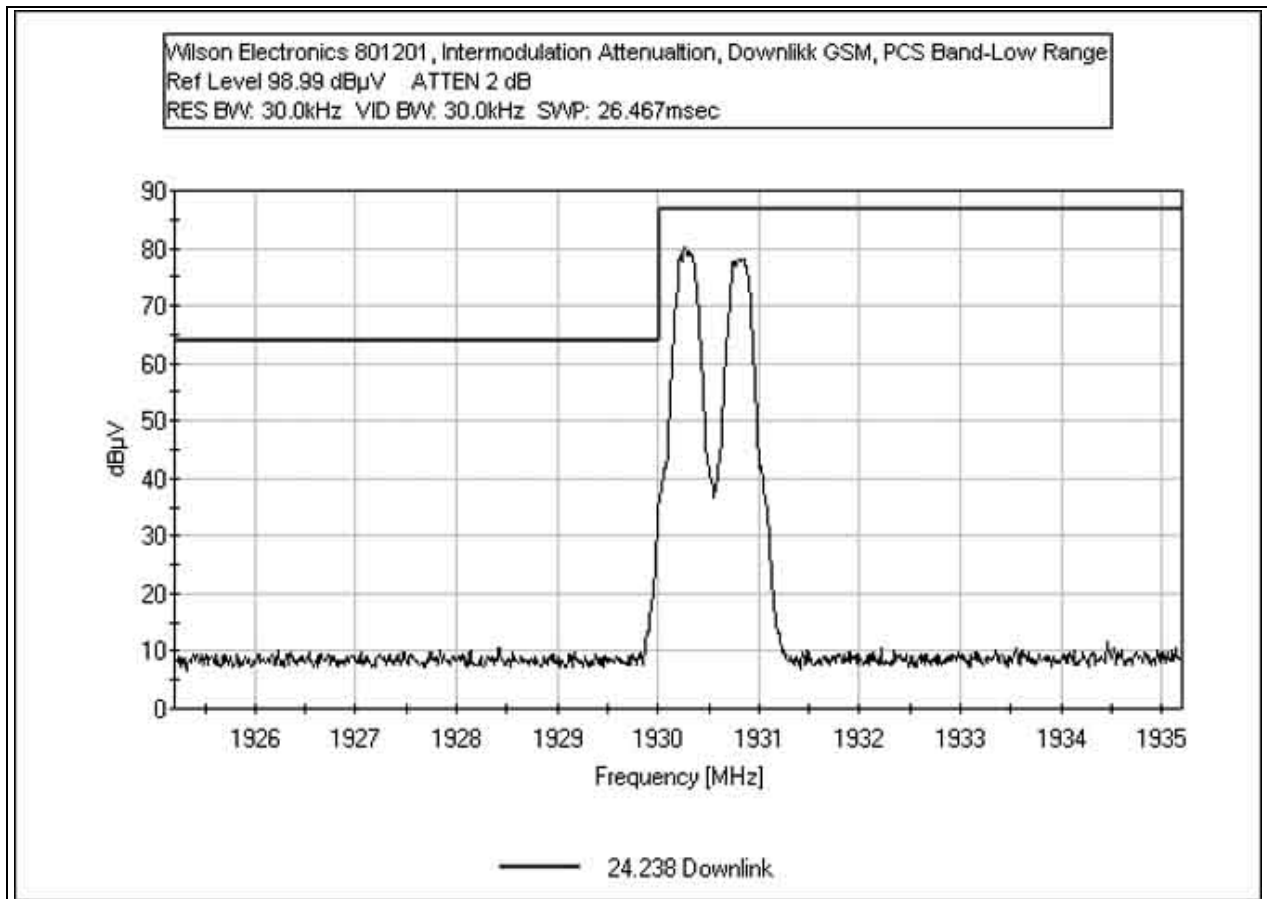
**INTERMODULATION ATTENUATION DOWNLINK EDGE - PCS BAND
LOW RANGE**



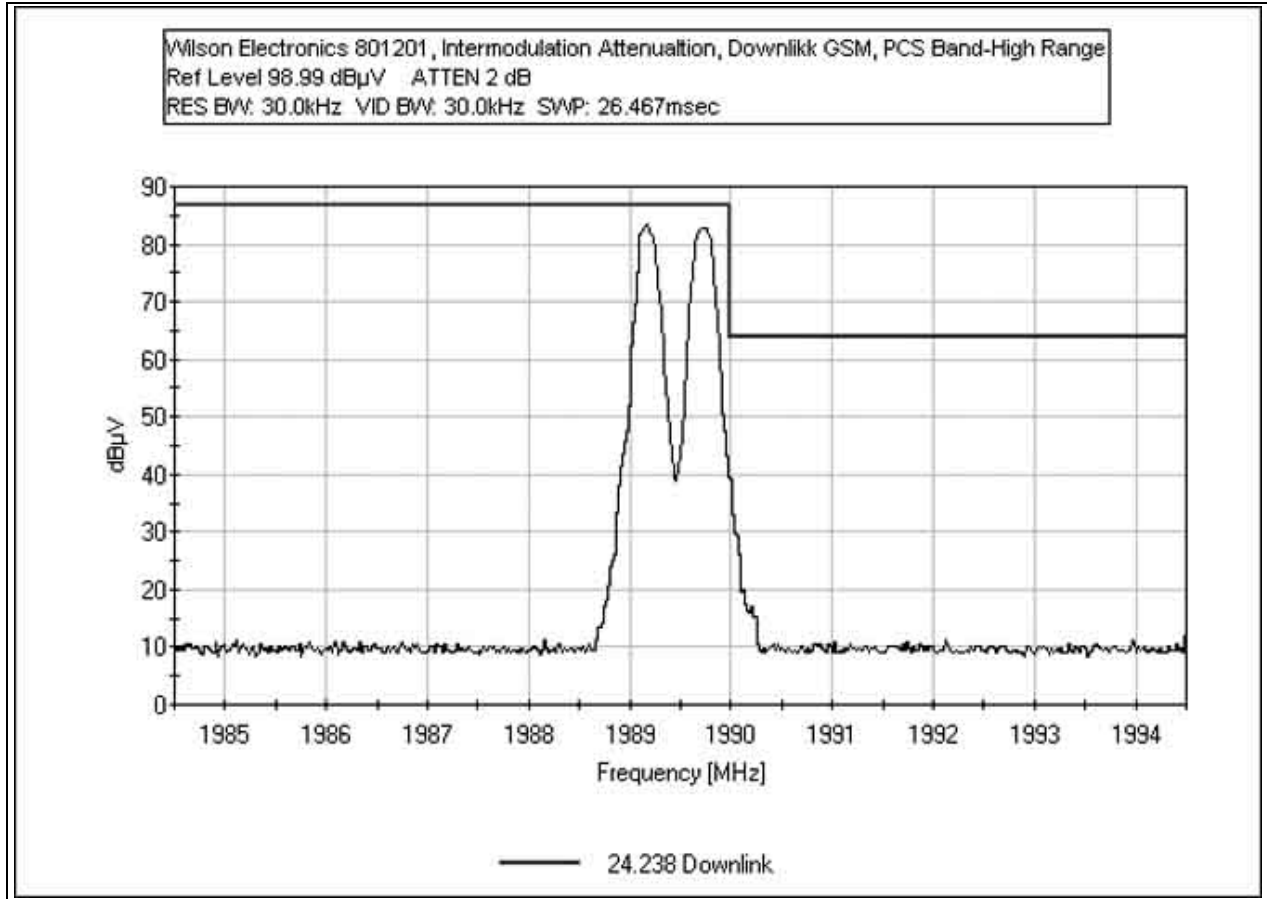
**INTERMODULATION ATTENUATION DOWNLINK EDGE - PCS BAND
HIGH RANGE**



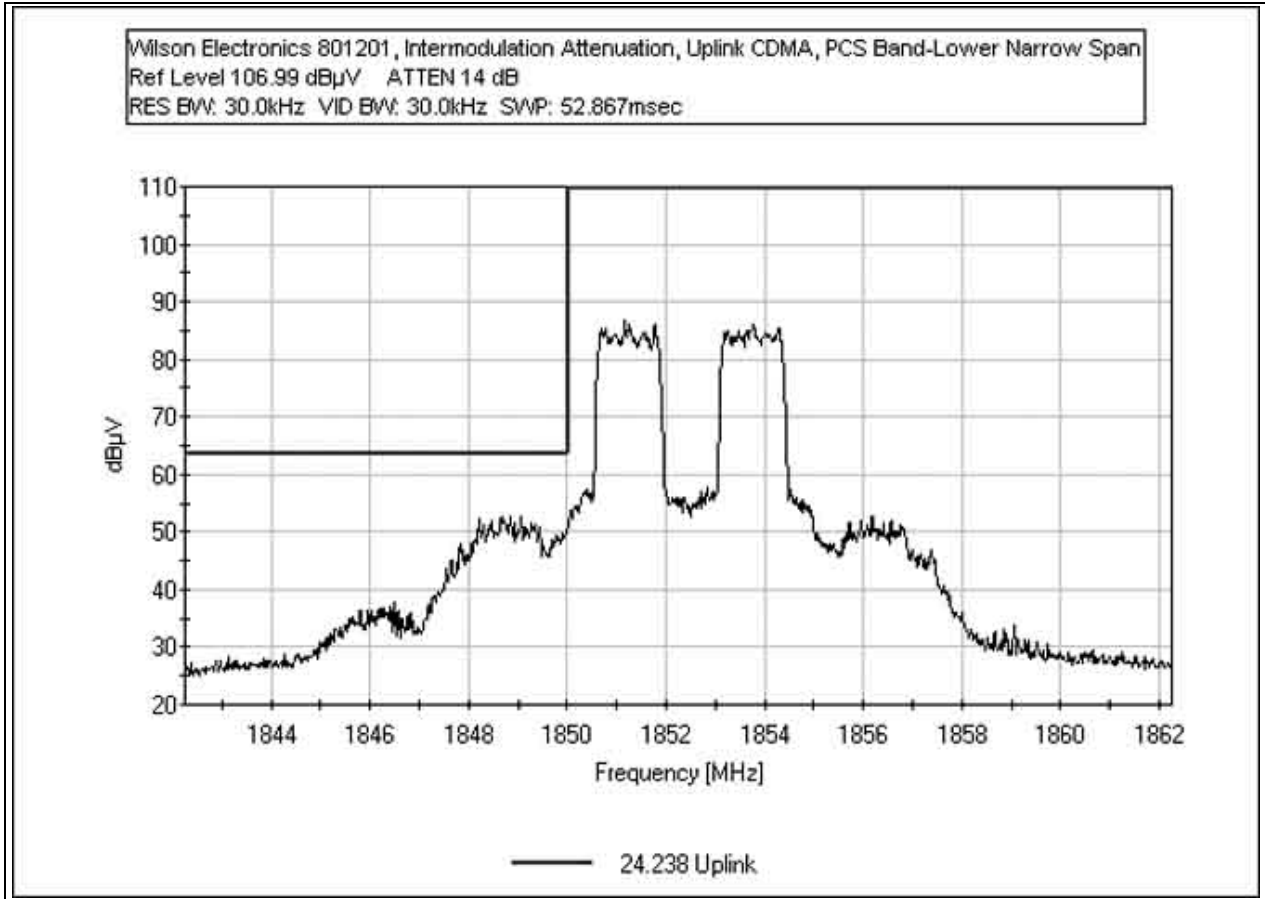
INTERMODULATION ATTENUATION DOWNLINK GSM - PCS BAND LOW RANGE



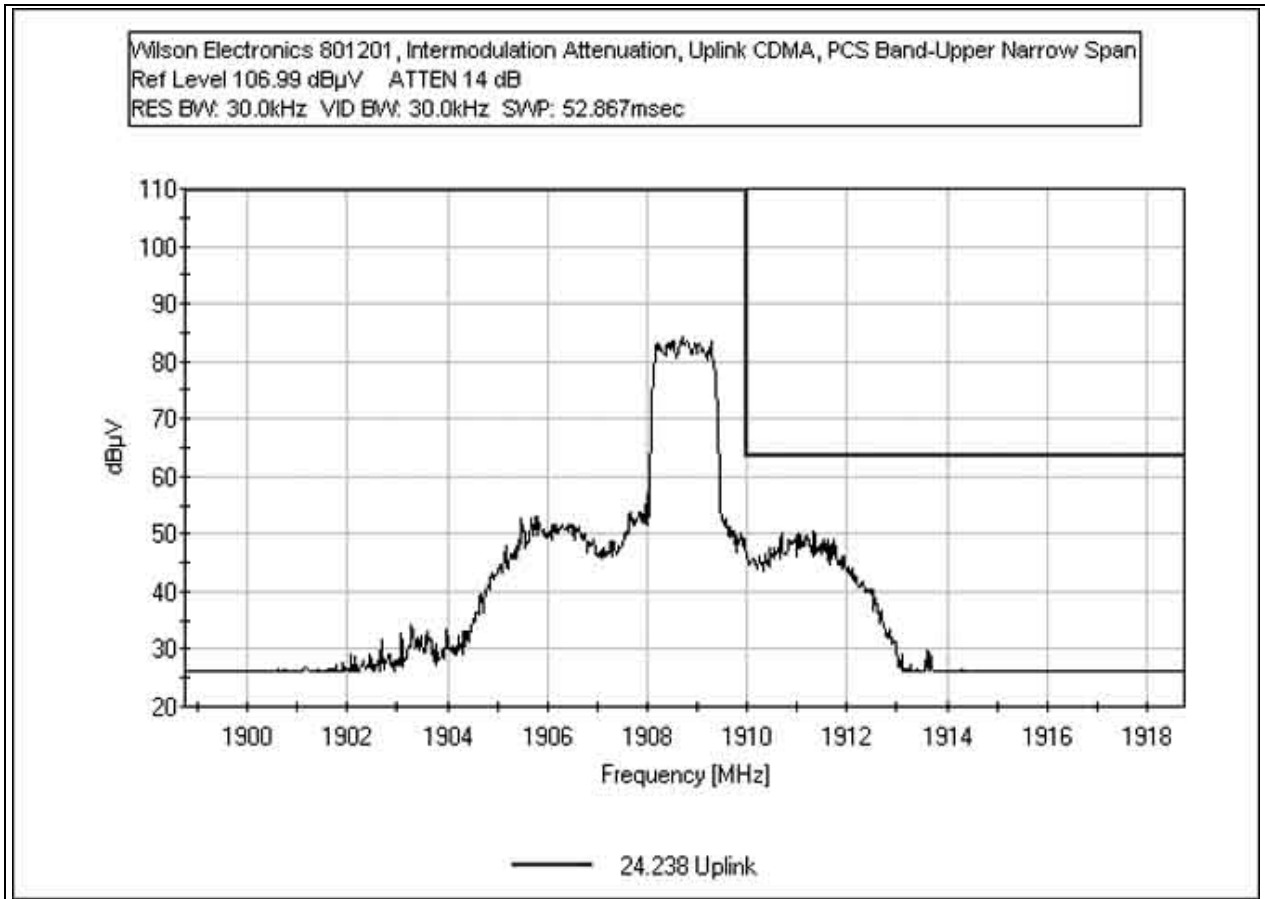
INTERMODULATION ATTENUATION DOWNLINK GSM - PCS BAND HIGH RANGE



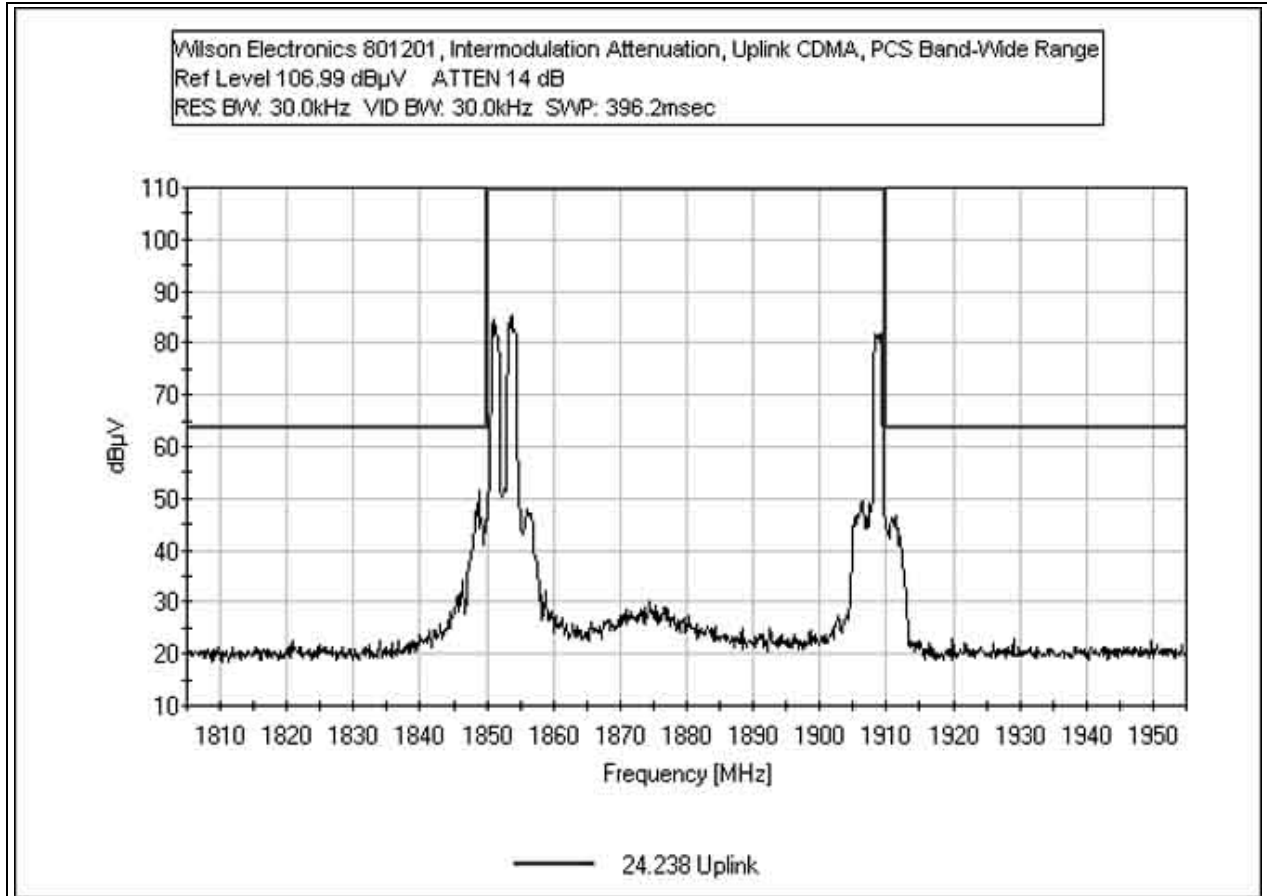
**INTERMODULATION ATTENUATION UPLINK CDMA - PCS BAND
LOWER NARROW SPAN**



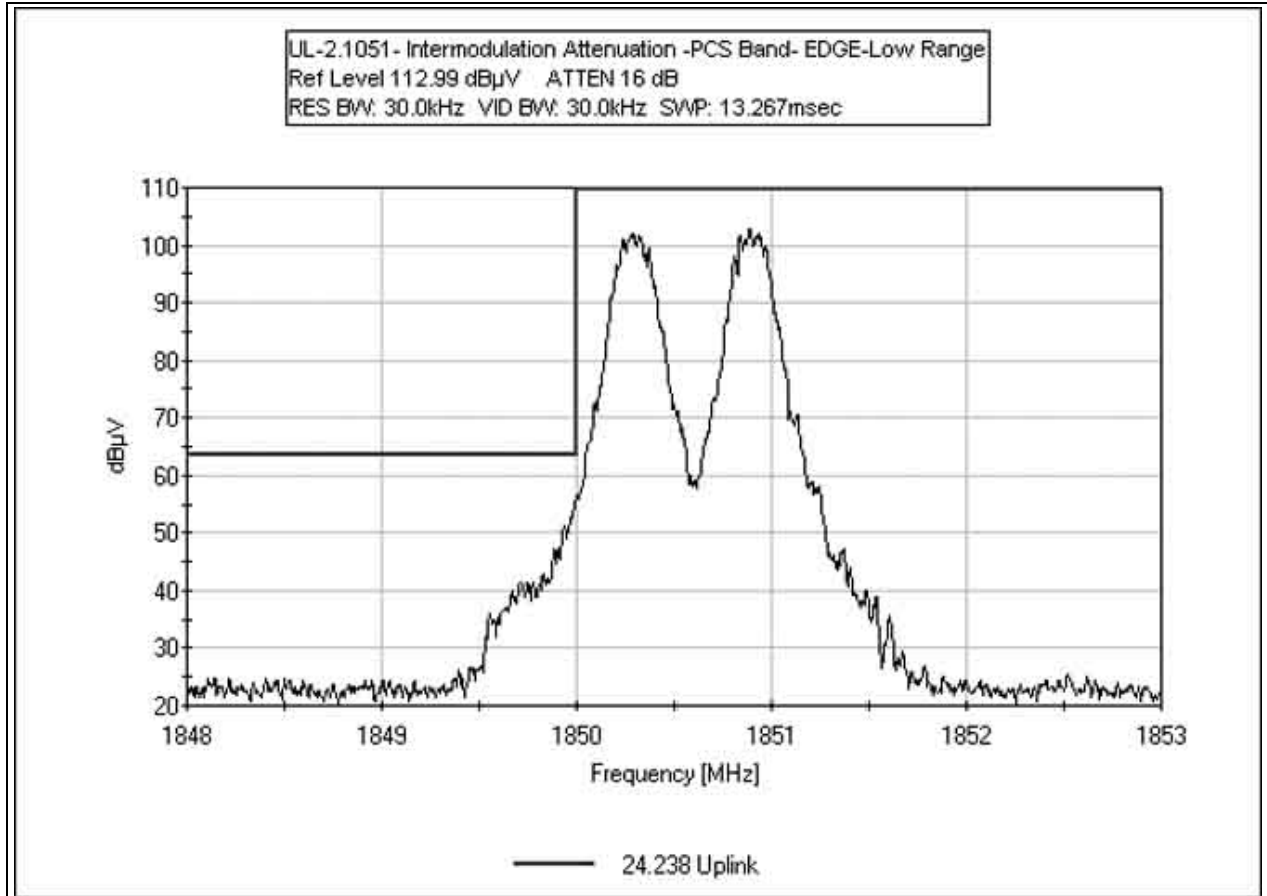
**INTERMODULATION ATTENUATION UPLINK CDMA - PCS BAND
UPPER NARROW SPAN**



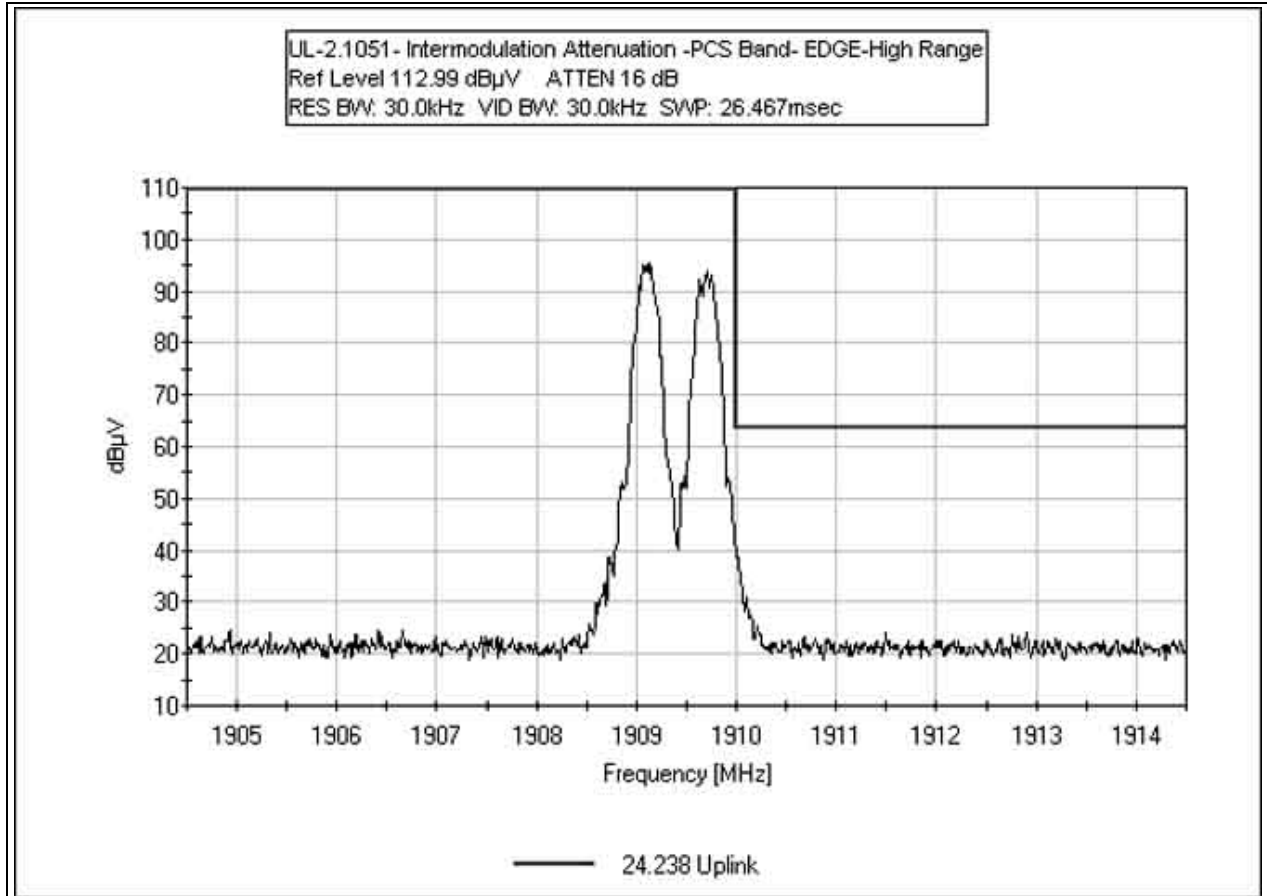
INTERMODULATION ATTENUATION UPLINK CDMA - PCS BAND WIDE RANGE



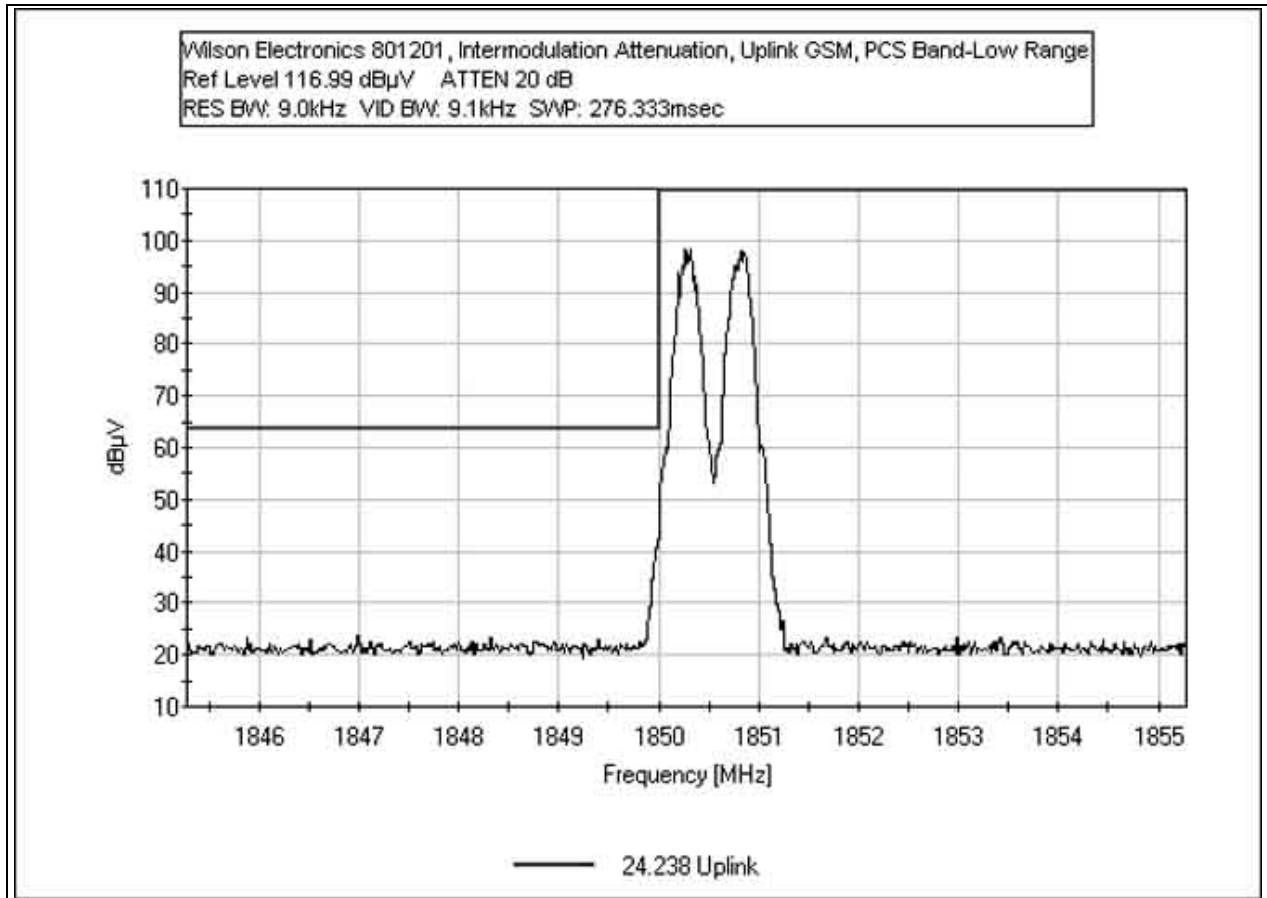
INTERMODULATION ATTENUATION UPLINK EDGE - PCS BAND LOW RANGE



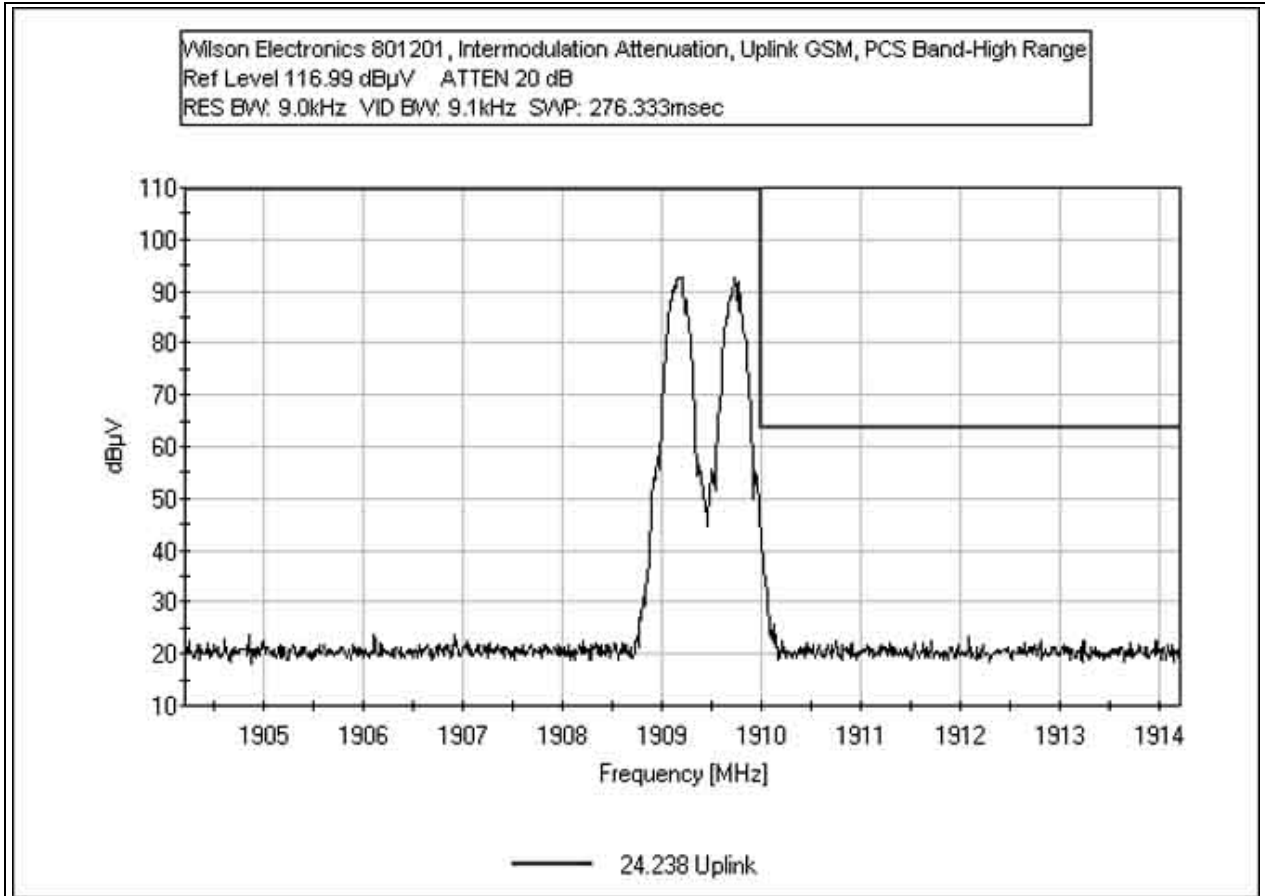
INTERMODULATION ATTENUATION UPLINK EDGE - PCS BAND HIGH RANGE



INTERMODULATION ATTENUATION UPLINK GSM - PCS BAND LOW RANGE



INTERMODULATION ATTENUATION UPLINK GSM - PCS BAND HIGH RANGE



PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP





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

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **Wilson Electronics**
 Specification: **24.238**
 Work Order #: **83305** Date: 03/31/2005
 Test Type: **Antenna Terminals** Time: 10:10:20
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 88
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| HP 8447D Preamp | 1937A02604 | 03/11/2005 | 03/11/2007 | 00099 |
| Chase CBL6111C Bilog | 2456 | 06/26/2003 | 06/26/2005 | 01991 |
| EMCO 3115 Horn Antenna | 9006-3413 | 03/08/2005 | 03/08/2007 | 327 |
| HP 8449B Preamp | 3008A00301 | 12/14/2004 | 12/14/2006 | 2010 |
| ARA MWH-1826/B Horn Antenna | 1005 | 11/05/2004 | 11/05/2006 | 02046 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |
| Signal Generator | HP | E4432B | MY41000298 |
| Load | JFW | 50T-022 | P04243 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Radiated Intermodulation /Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output per channel is provided at the antenna terminals. The internal ALC of the amplifier limits the combined maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Test setup is in accordance with TIA/EIA 603. Signal generators were remotely located under the ground plane. Two input frequency configurations were investigated as follows, 1930.28 & 1930.84MHz and then 1989.16 & 1989.72MHz. Data represents measured worst case and represents all modulation types. Input Modulation:GSM. Frequencies Tested: Downlink Frequency Range Investigated: 30MHz to 10GHz. Measurement Bandwidth Settings: 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 10000MHz - RBW=VBW=1MHz. **No EUT Emissions detected within 20dBc of the limit.**

Transducer Legend:

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

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

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



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

Customer: **Wilson Electronics**
 Specification: **24.238**
 Work Order #: **83305** Date: 03/31/2005
 Test Type: **Antenna Terminals** Time: 10:04:08
 Equipment: **In Vehicle Wireless Dual Band Smart Amplifier** Sequence#: 87
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 801201
 S/N: 8012010000006

Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| HP 8447D Preamp | 1937A02604 | 03/11/2005 | 03/11/2007 | 00099 |
| Chase CBL6111C Bilog | 2456 | 06/26/2003 | 06/26/2005 | 01991 |
| EMCO 3115 Horn Antenna | 9006-3413 | 03/08/2005 | 03/08/2007 | 327 |
| HP 8449B Preamp | 3008A00301 | 12/14/2004 | 12/14/2006 | 2010 |
| ARA MWH-1826/B Horn Antenna | 1005 | 11/05/2004 | 11/05/2006 | 02046 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------------------|--------------------|---------|---------------|
| In Vehicle Wireless Dual Band Smart Amplifier* | Wilson Electronics | 801201 | 8012010000006 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|------------------|--------------|----------|------------|
| Signal Generator | HP | E4433B | US38440697 |
| DC Power Supply | Topward | TPS-2000 | 920035 |
| Signal Generator | HP | E4432B | MY41000298 |
| Load | JFW | 50T-022 | P04243 |

Test Conditions / Notes:

EUT is a bidirectional amplifier for the 1850 to 1990MHz band. Uplink frequency range 1850 - 1910MHz. Downlink frequency range 1930 - 1990MHz. Radiated Intermodulation /Spurious Emissions Test: Two signals are input to the amplifier through a combining network. The input signals are set such that the maximum output per channel is provided at the antenna terminals. The internal ALC of the amplifier limits the combined maximum power output to a factory set level. Power output is continuously variable and directly proportional to the supplied RF input. Test setup is in accordance with TIA/EIA 603. Signal generators were remotely located under the ground plane. Two input frequency configurations were investigated as follows, 1850.28 & 1850.84MHz and then 1909.16 & 1909.72MHz. Data represents measured worst case and represents all modulation types. Input Modulation:GSM. Frequencies Tested: Uplink. Frequency Range Investigated: 30MHz to 10GHz. Measurement Bandwidth Settings: 10MHz to 1000MHz - RBW=VBW=10kHz, 1000MHz to 10000MHz - RBW=VBW=1MHz. **No EUT Emissions detected within 20dBc of the limit.**

Transducer Legend:

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

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

| # | Freq MHz | Rdng dB μ V | dB | dB | dB | dB | Dist Table | Corr dB μ V/m | Spec dB μ V/m | Margin dB | Polar Ant |
|---|----------|-----------------|----|----|----|----|------------|-------------------|-------------------|-----------|-----------|
| | | | | | | | | | | | |

PHOTOGRAPH SHOWING RADIATED EMISSIONS



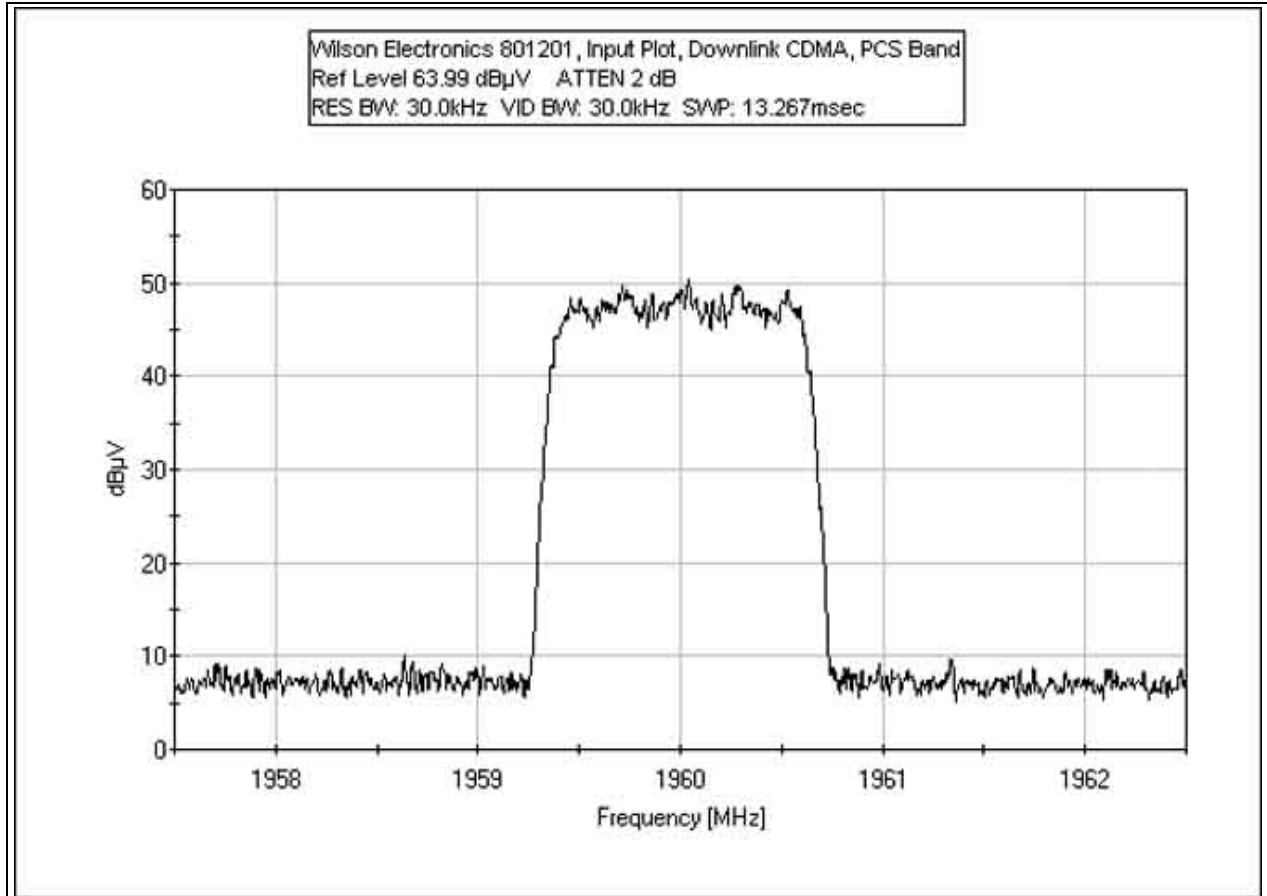
Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

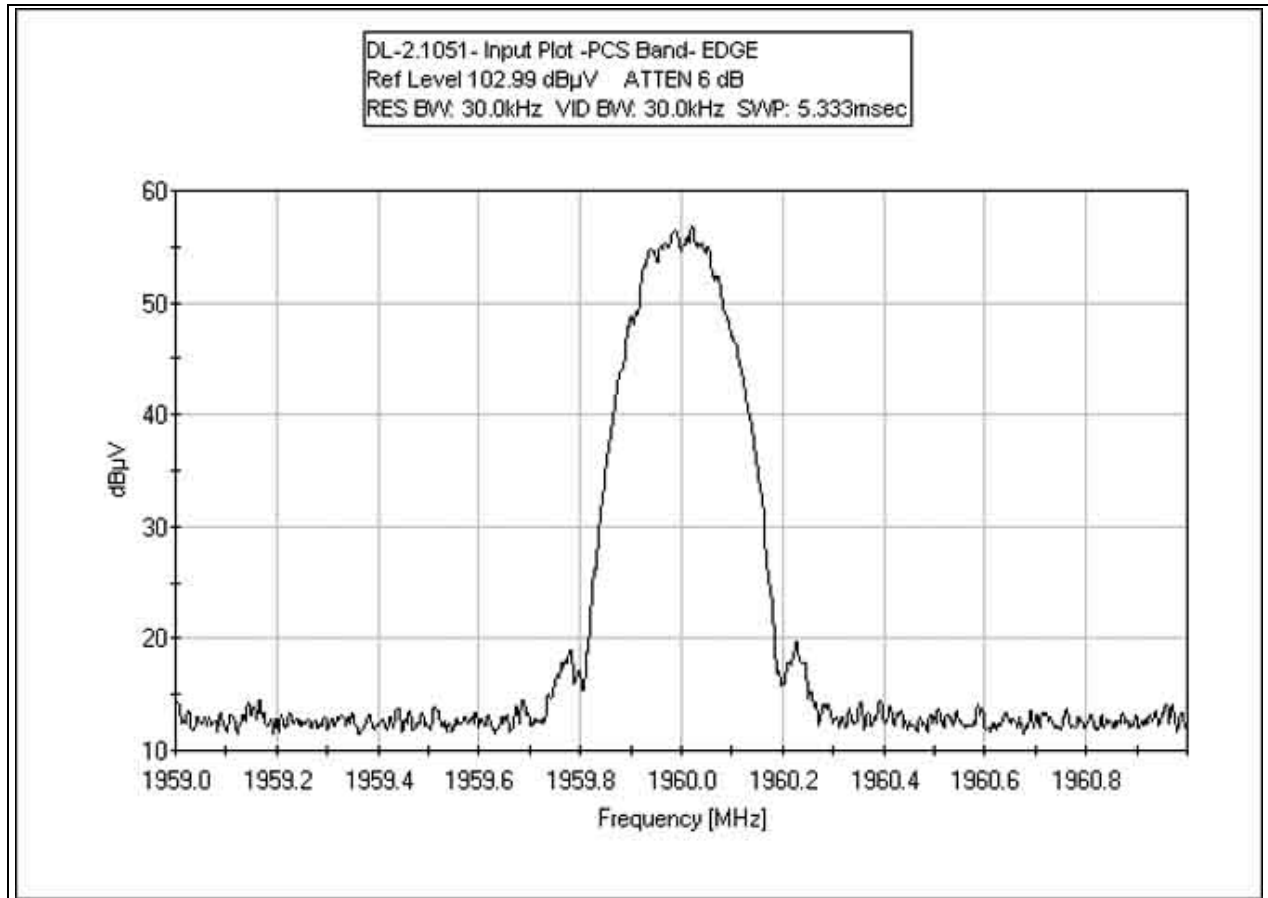


Radiated Emissions - Back View

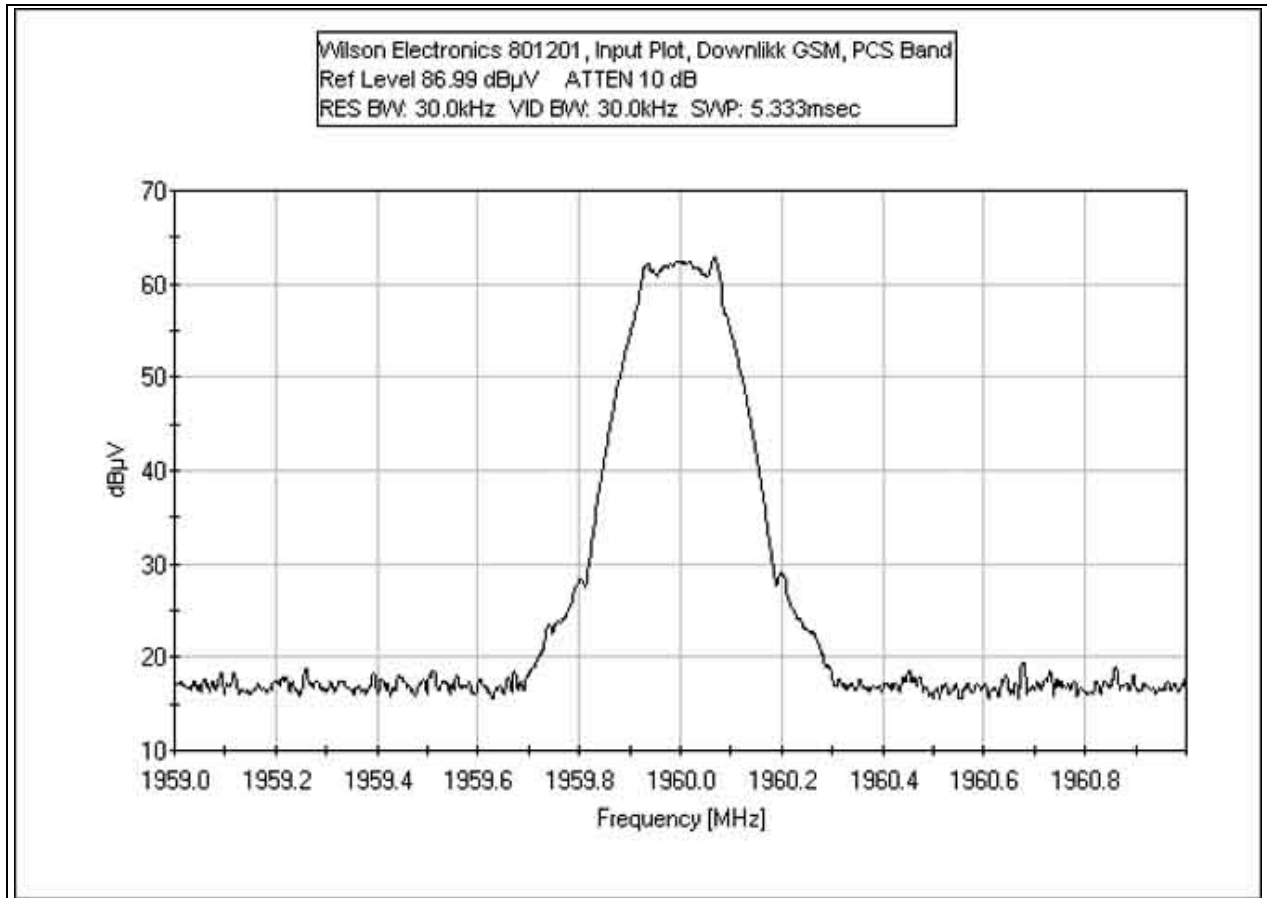
INPUT DOWNLINK CDMA



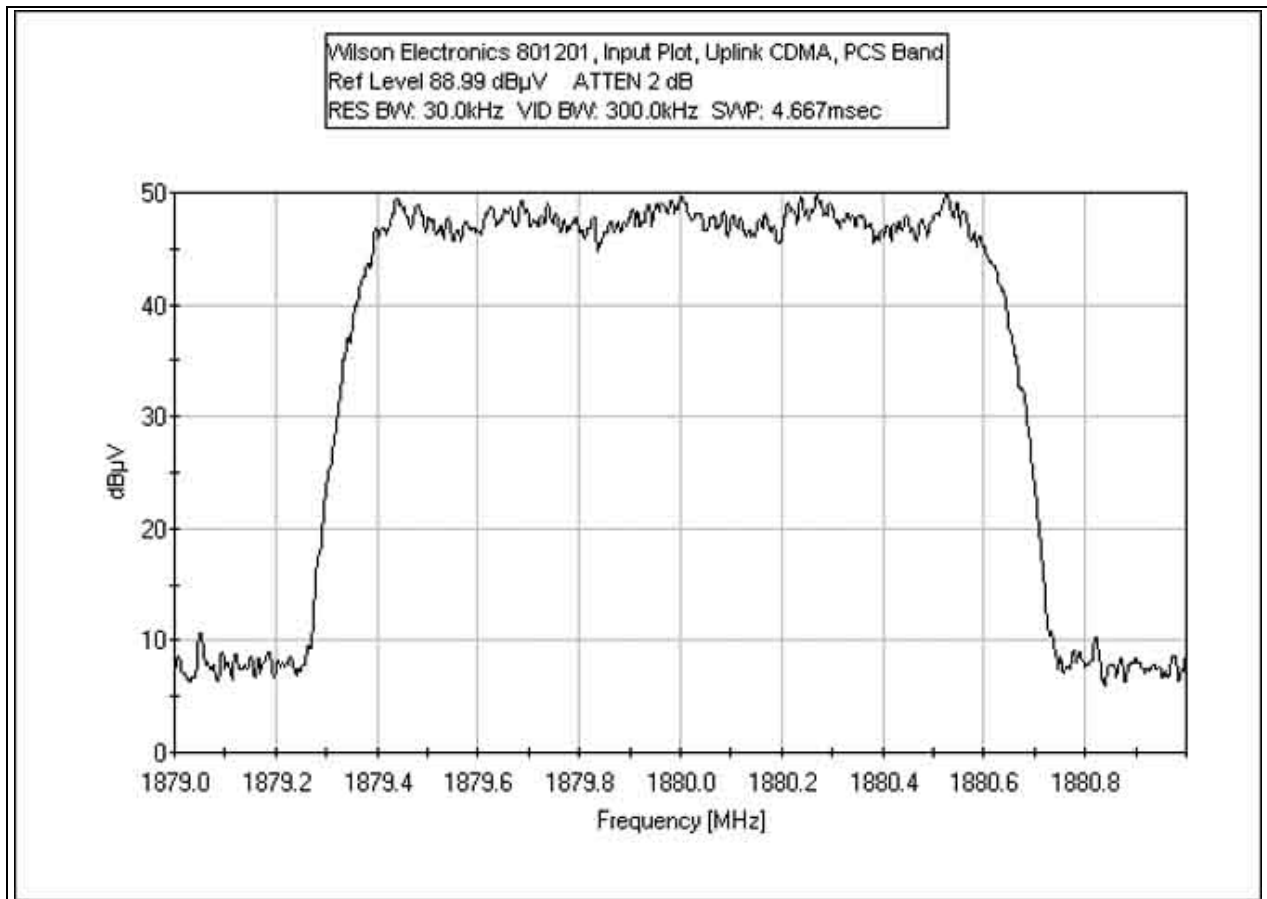
INPUT DOWNLINK EDGE



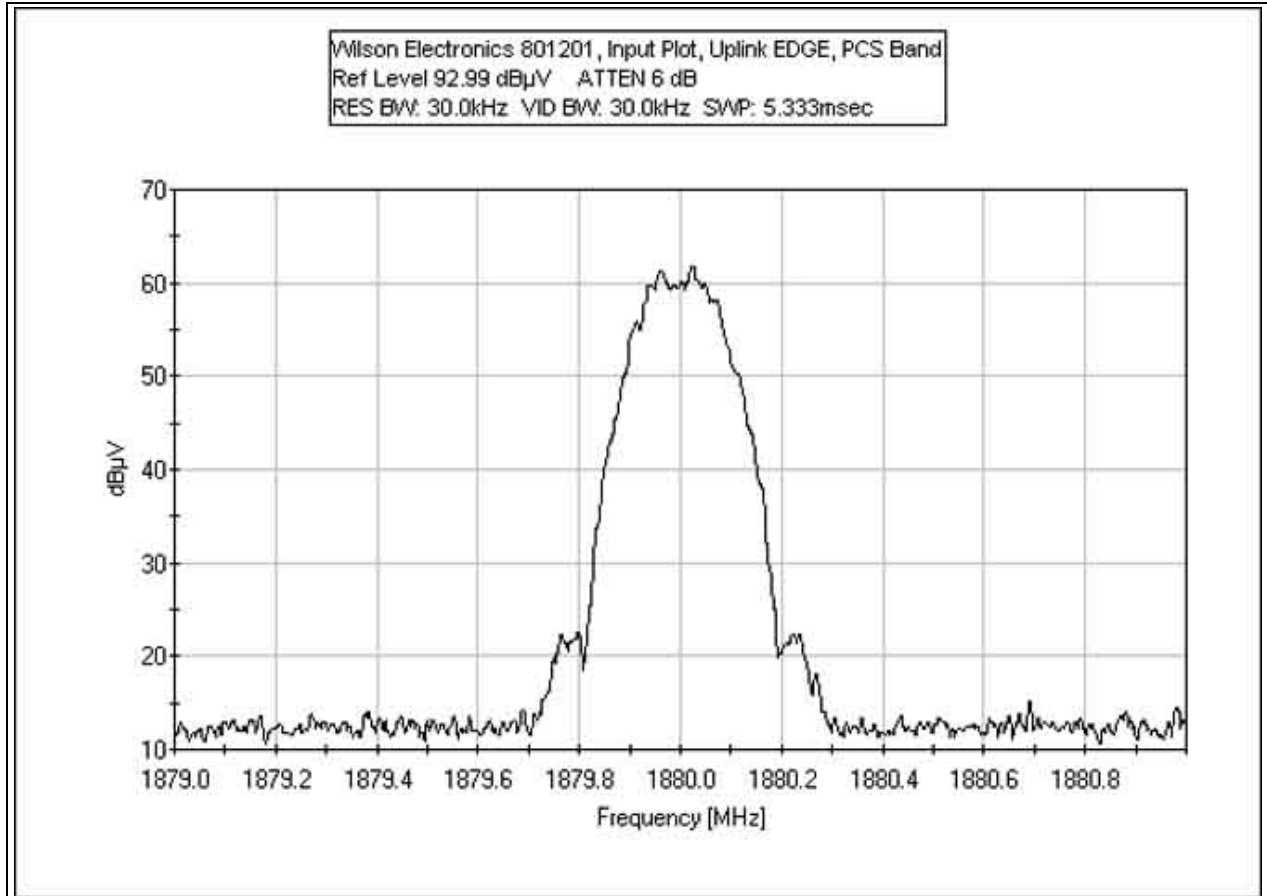
INPUT DOWNLINK GSM



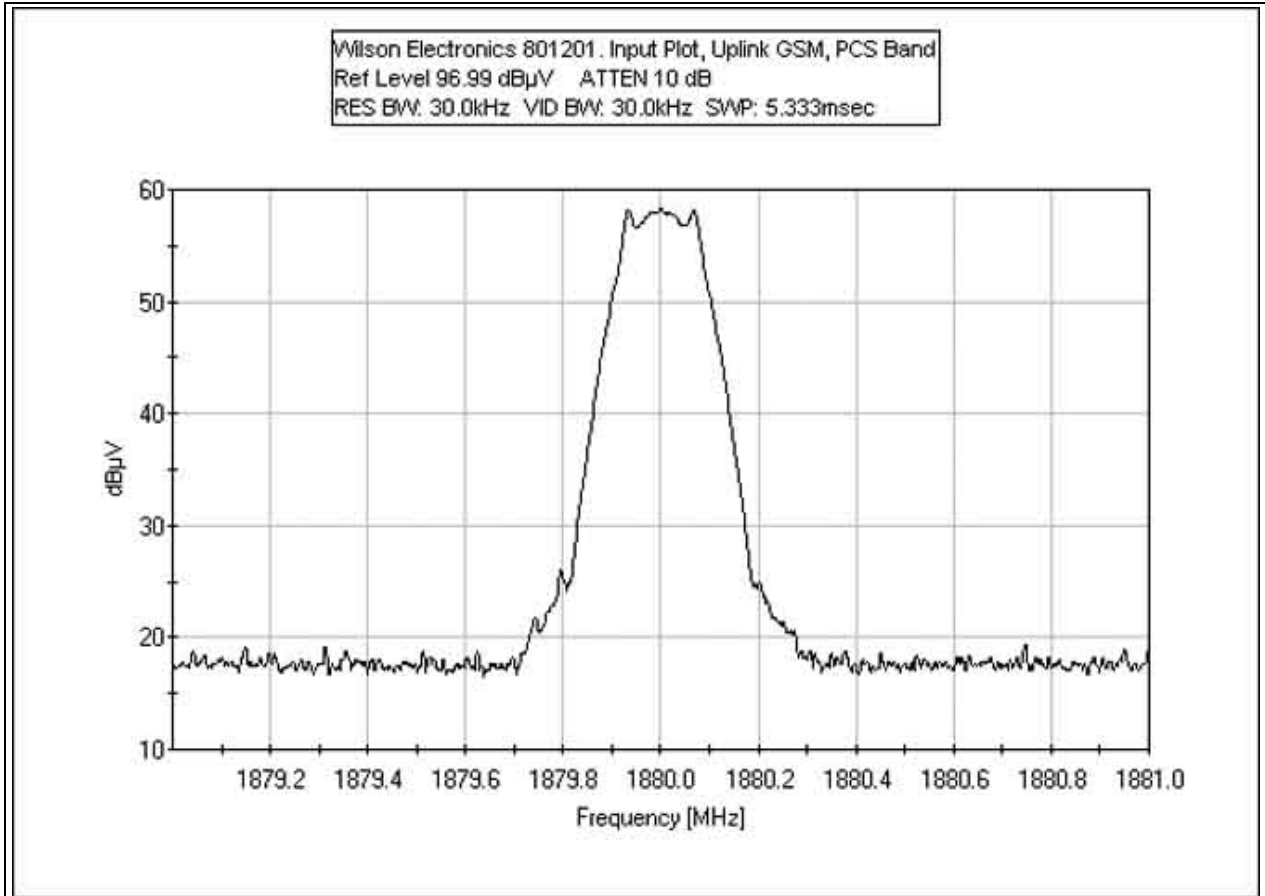
INPUT UPLINK CDMA



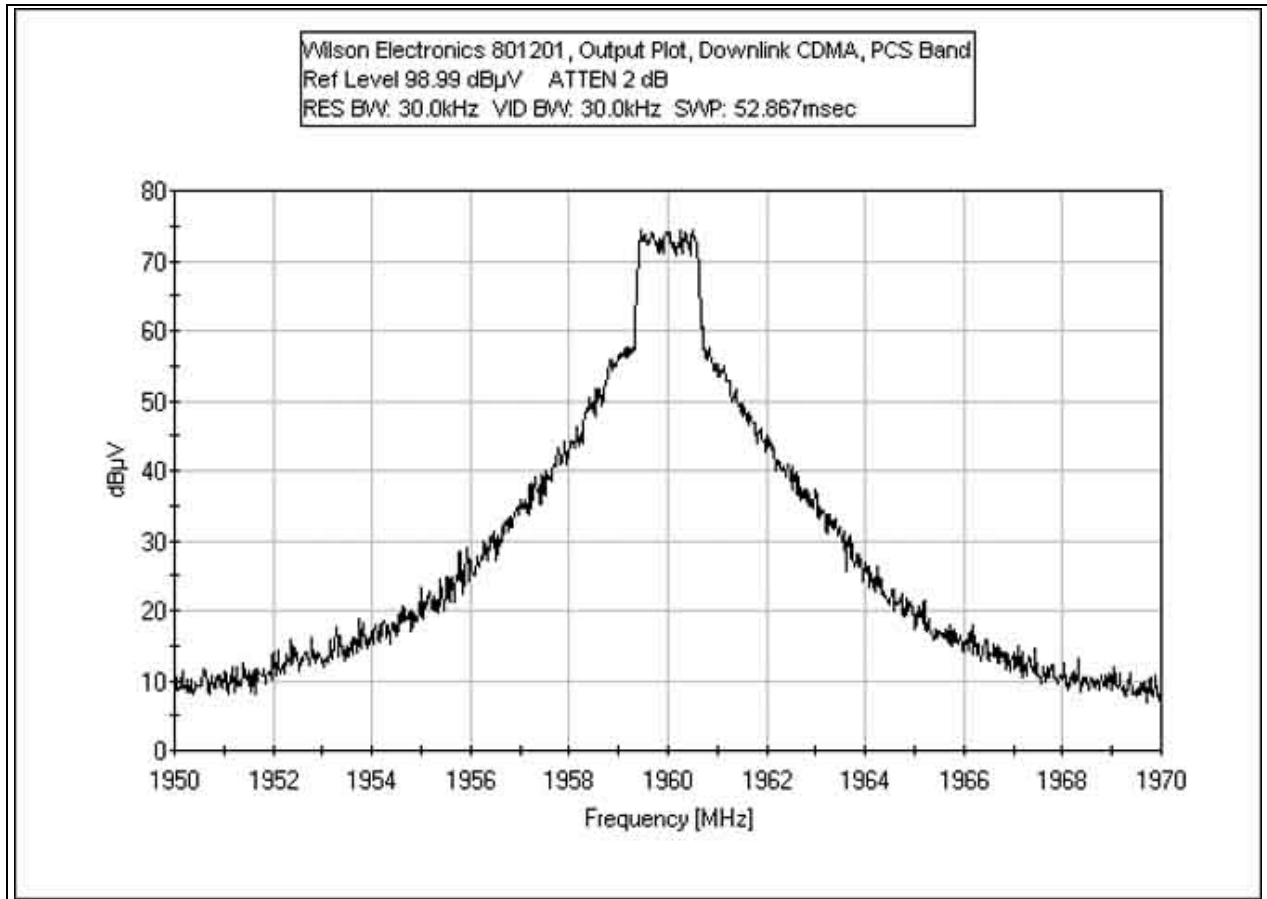
INPUT UPLINK EDGE



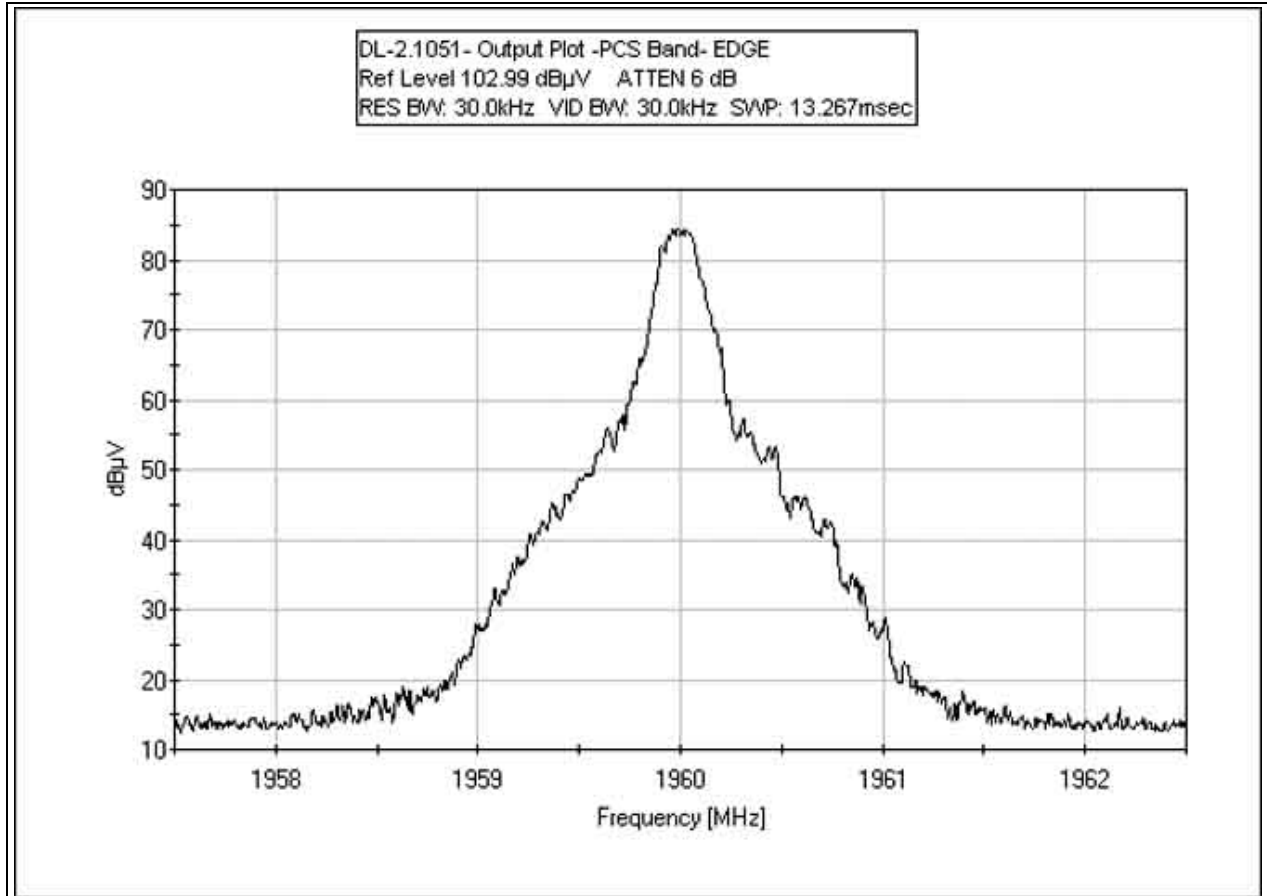
INPUT UPLINK GSM



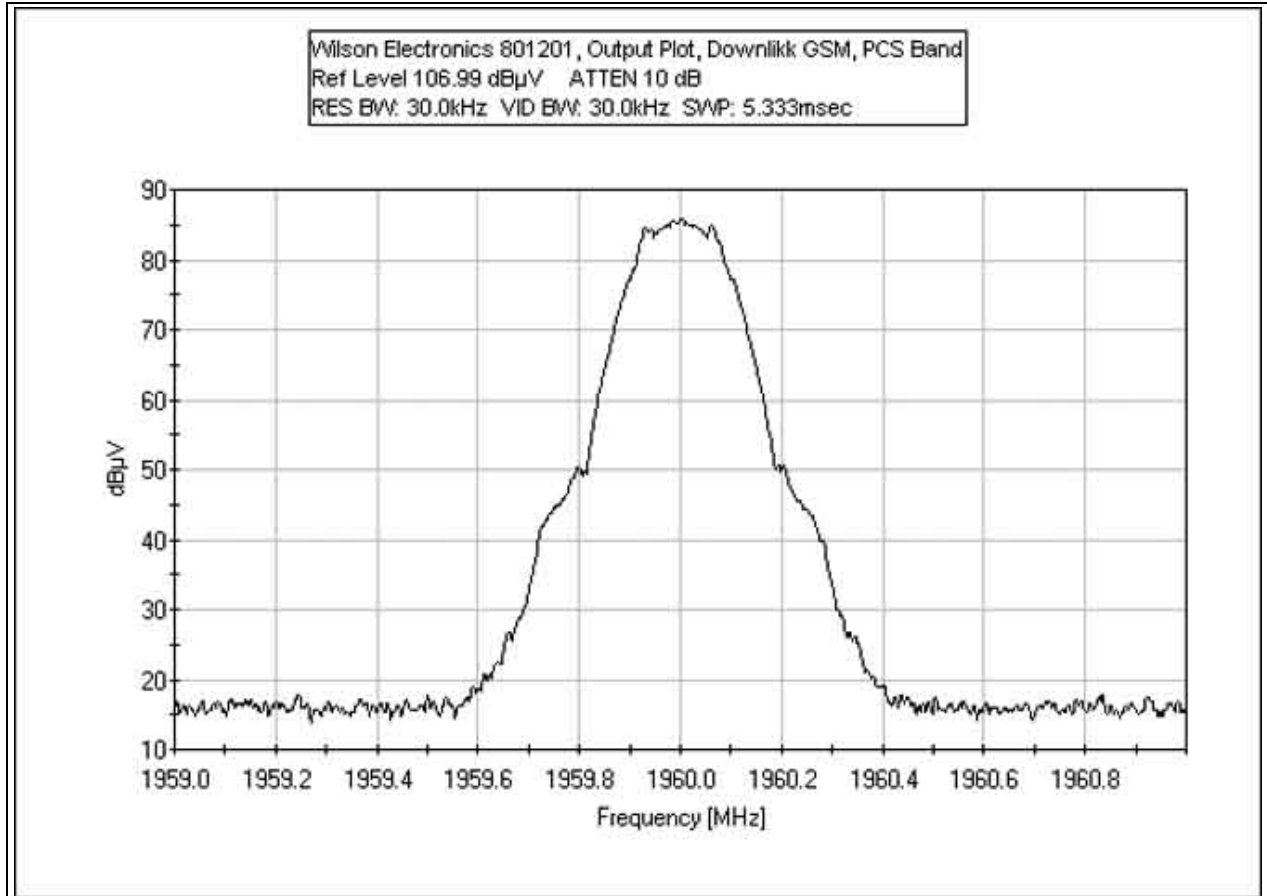
OUTPUT DOWNLINK CDMA



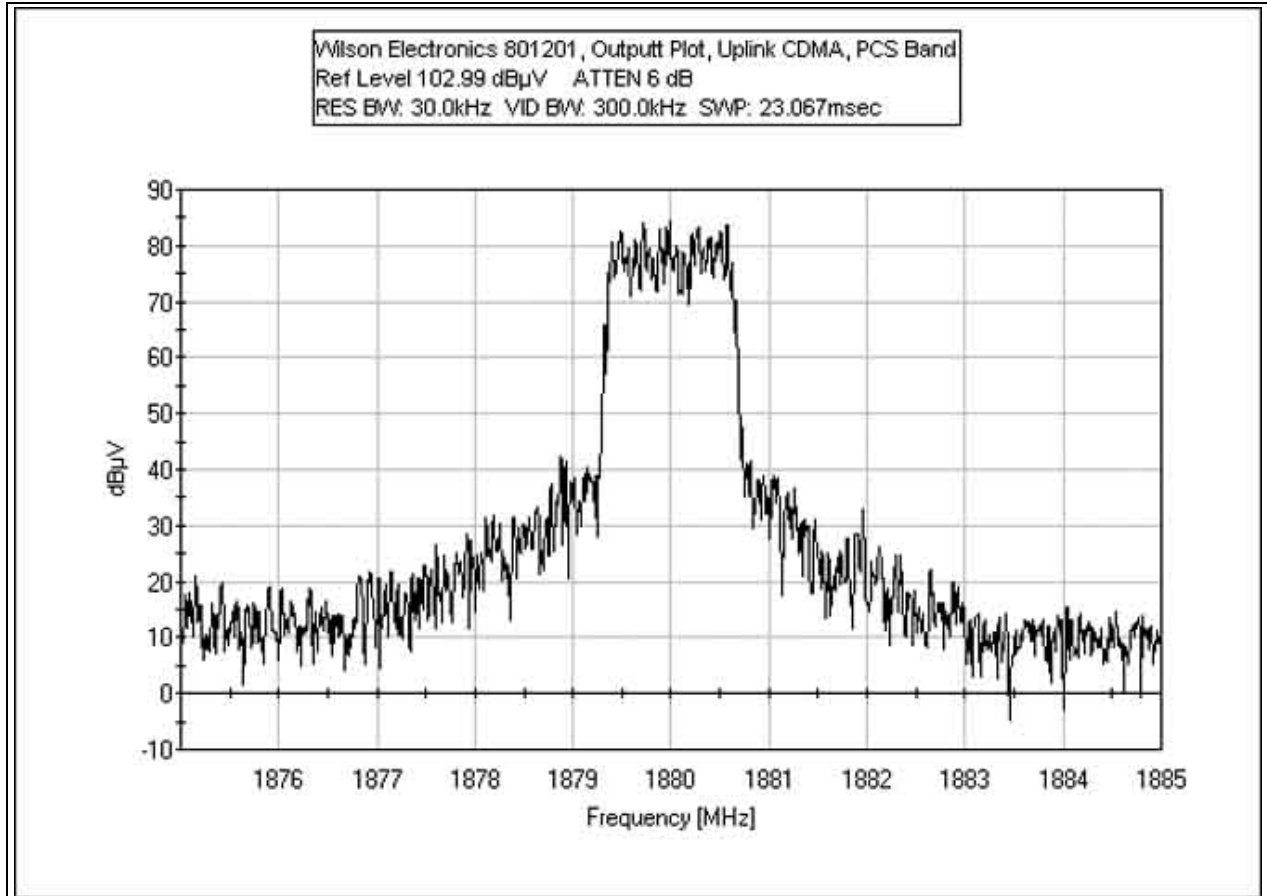
OUTPUT DOWNLINK EDGE



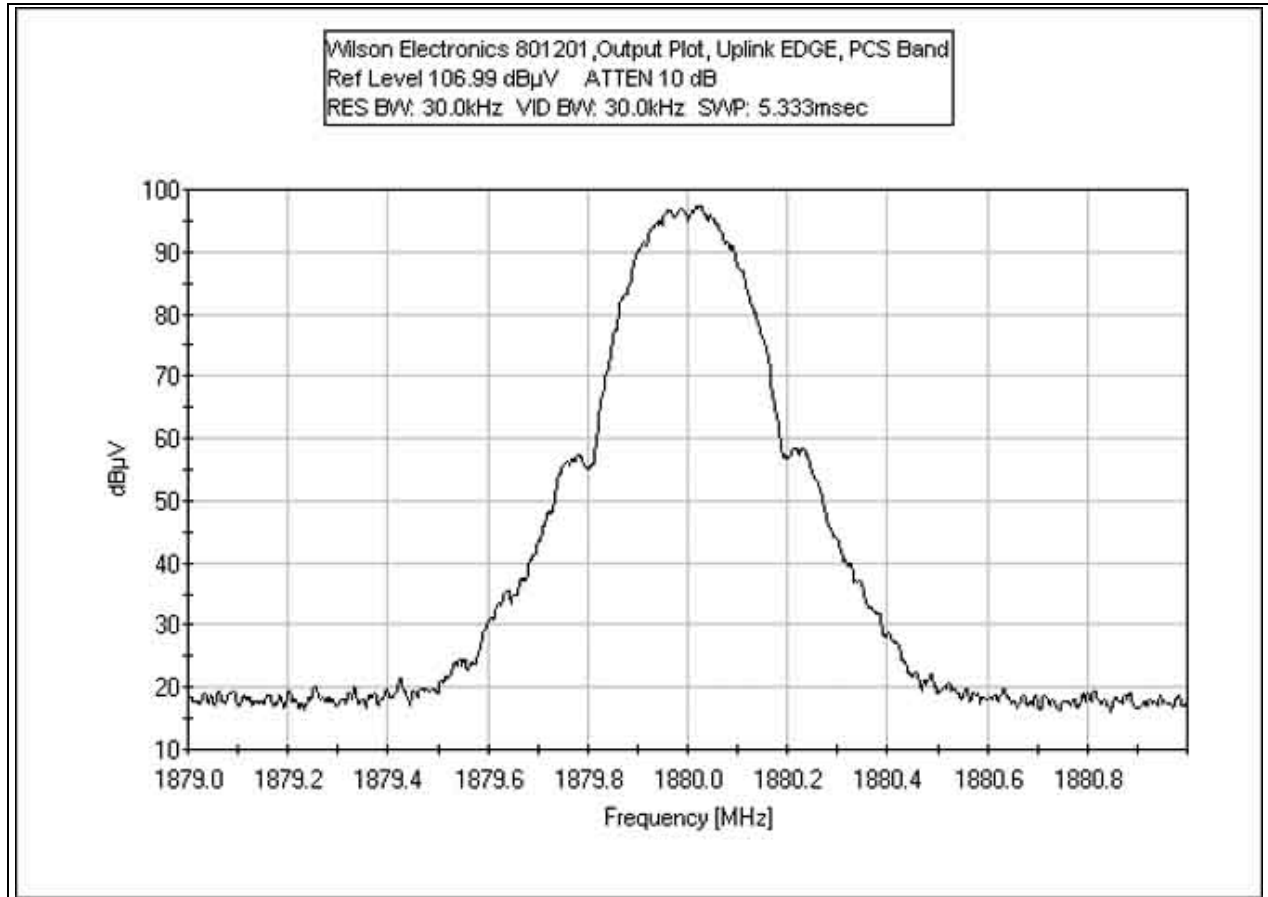
OUTPUT DOWNLINK GSM



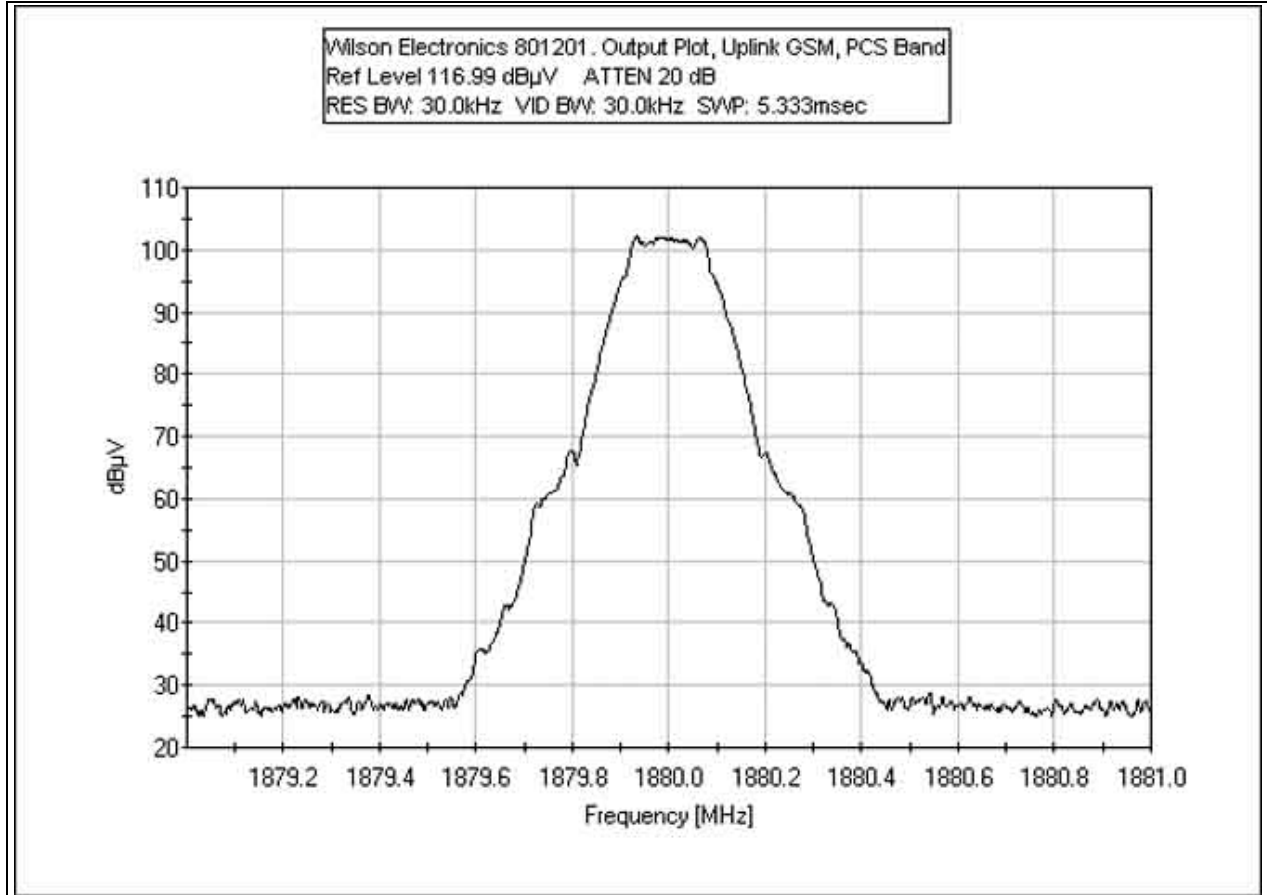
OUTPUT UPLINK CDMA



OUTPUT UPLINK EDGE



OUTPUT UPLINK GSM



Test Equipment:

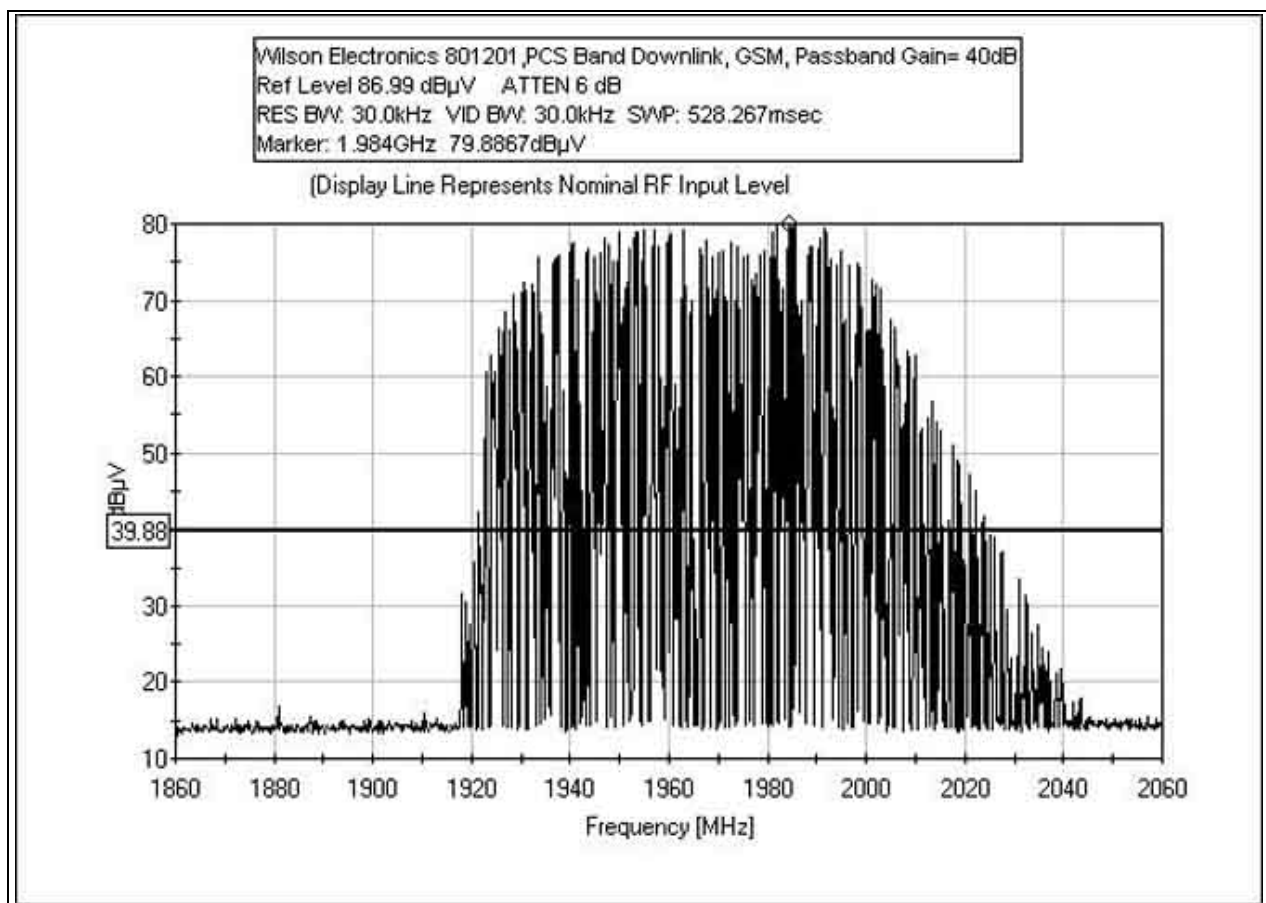
| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

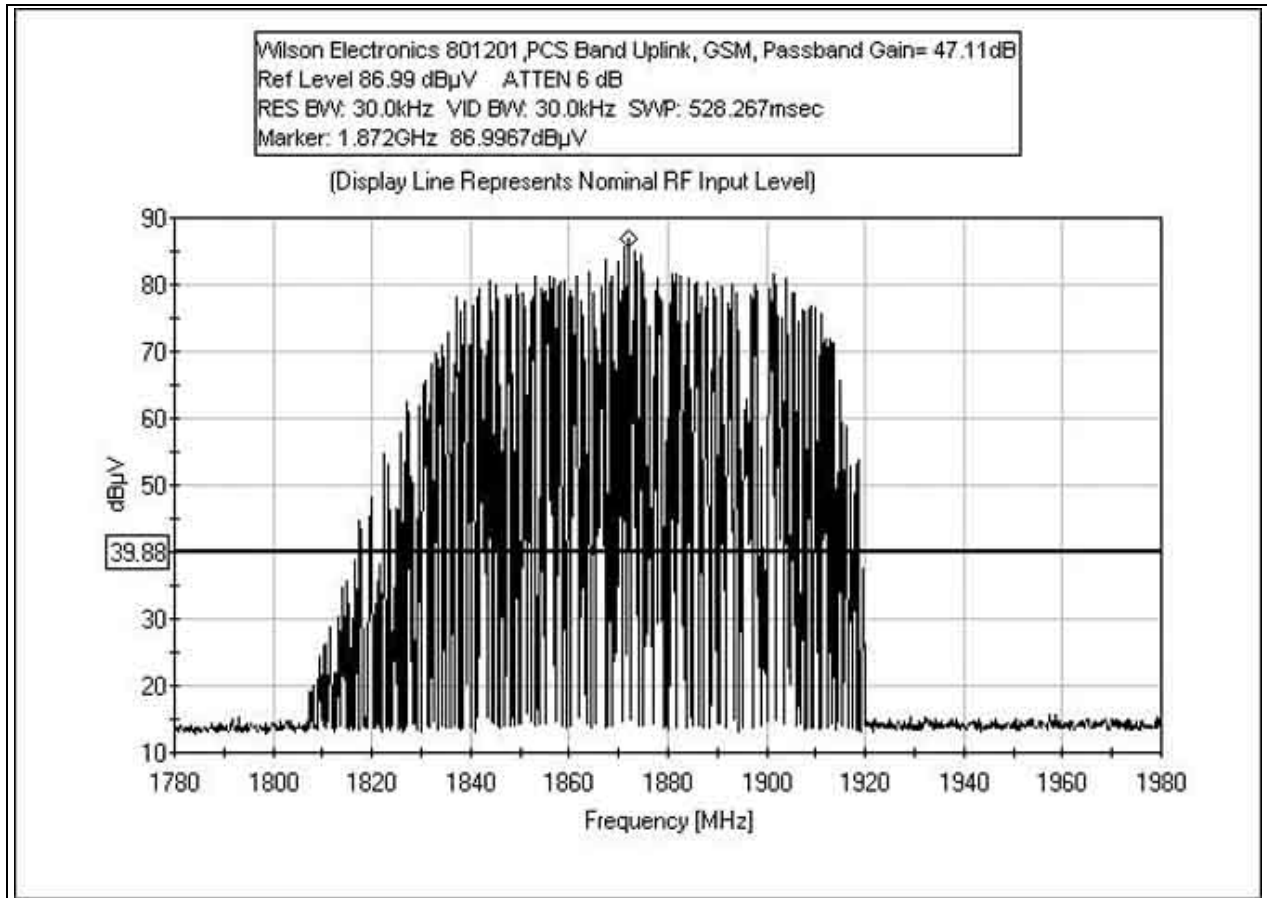


RSS-131 DOWNLINK PASSBAND GAIN GSM

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



RSS-131 UPLINK PASSBAND GAIN GSM



Test Equipment:

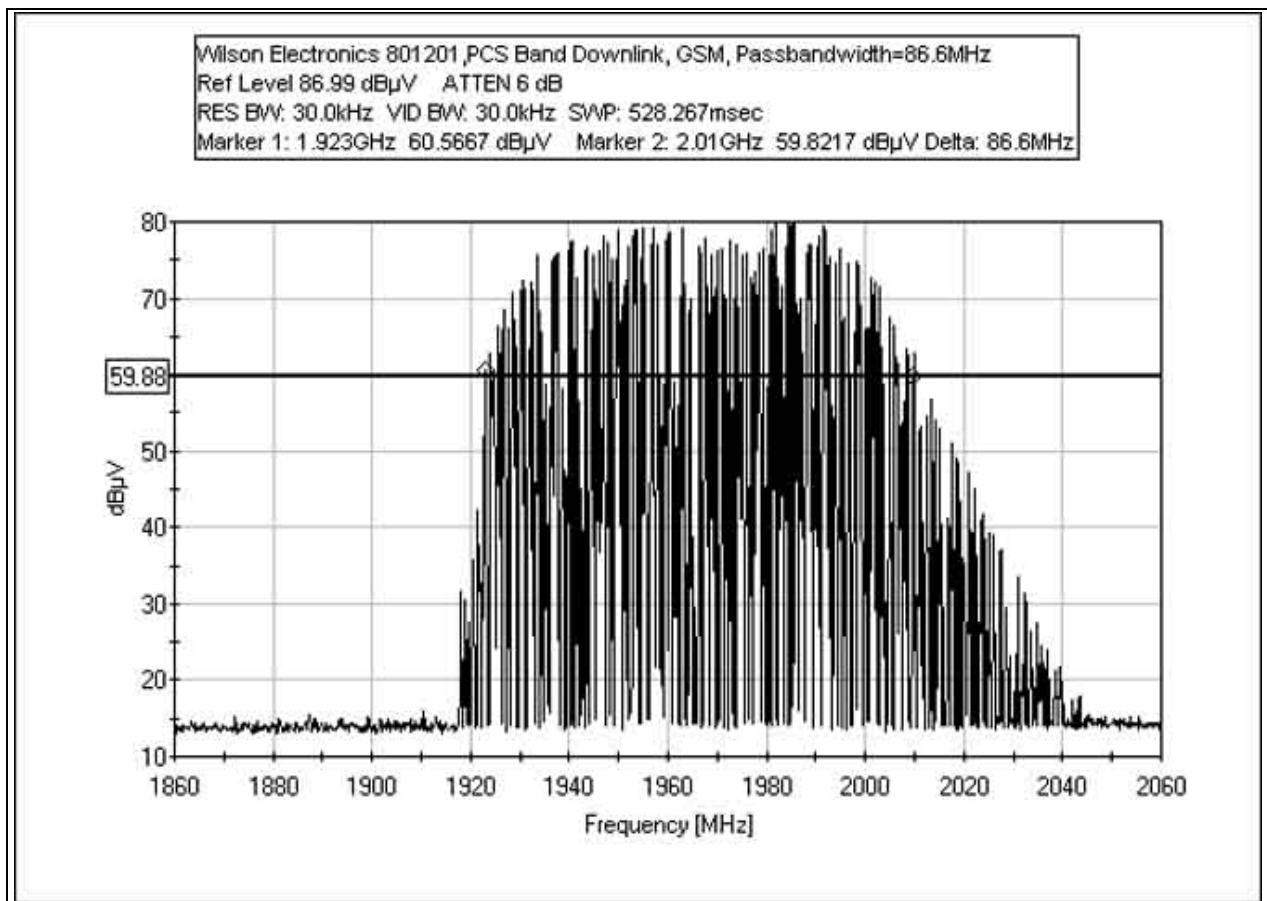
| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|--------------------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 25-A-MFN-30 | 9949 | 05/09/2003 | 05/09/2005 | P01572 |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

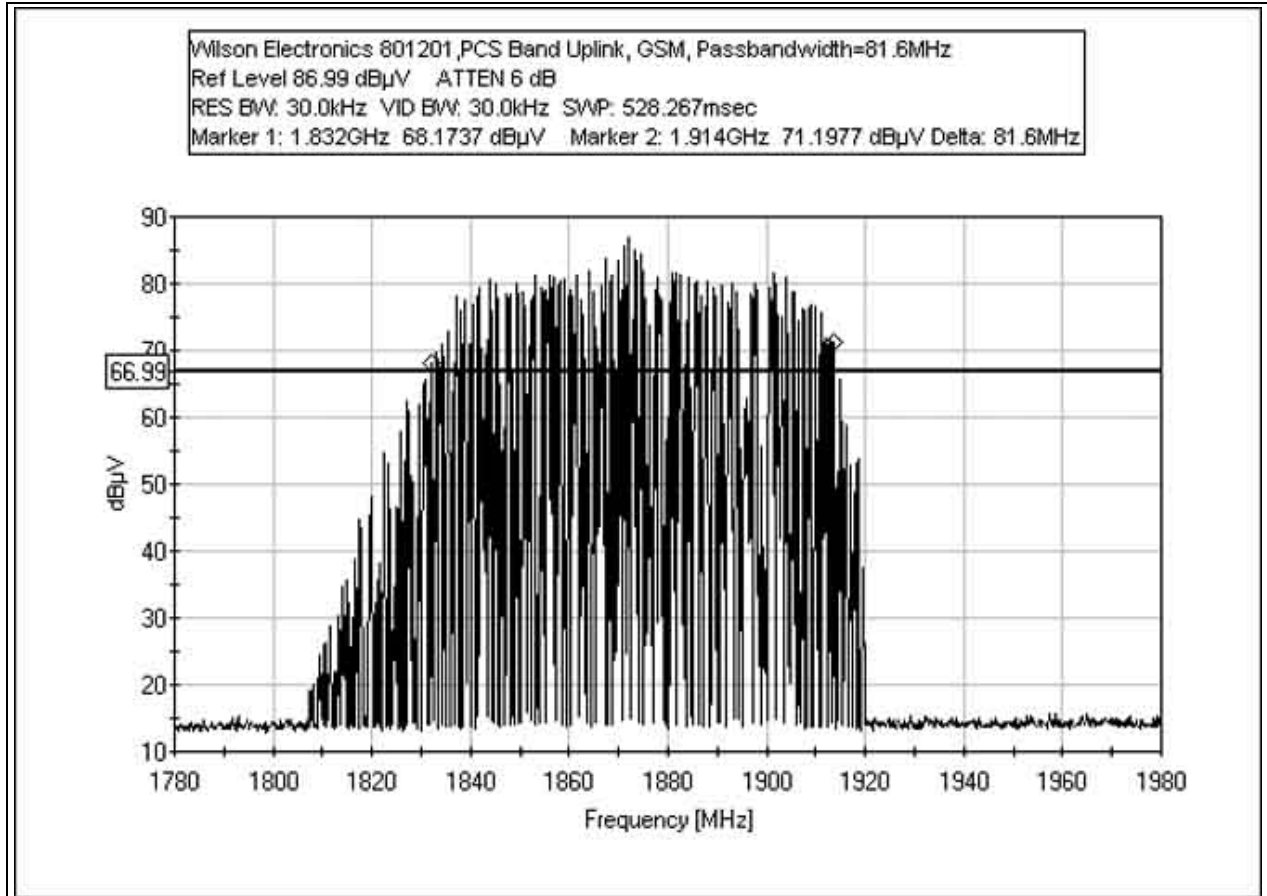


RSS-131 DOWNLINK PASSBANDWIDTH GSM

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



RSS-131 UPLINK PASSBANDWIDTH GSM



Test Equipment:

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|----------------------------|------------|------------------|--------------|---------|
| Agilent E4446A SA | US44300407 | 01/12/2005 | 01/12/2007 | 02660 |
| Attenuator 30dB, Bird 9949 | | 05/09/2003 | 05/09/2005 | P01572 |
| 25-A-MFN-30 | | | | |

PHOTOGRAPH SHOWING DIRECT CONNECT TEST SETUP

