



ADDENDUM TO FC03-071A

FOR THE

IDEN BI-DIRECTIONAL AMPLIFIER DIRECT CONNECT, 814001

FCC PART 90 & RSS 131

COMPLIANCE

DATE OF ISSUE: MARCH 8, 2004

PREPARED FOR:

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

P.O. No.: BD800NDS-FCC-10-2
W.O. No.: 81210

PREPARED BY:

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

Date of test: October 27-31, 2003

Report No.: FC03-071B

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ADMINISTRATIVE INFORMATION

DATE OF TEST: October 27-31, 2003

DATE OF RECEIPT: October 27, 2003

PURPOSE OF TEST: To demonstrate the compliance of the IDEN Bi-Directional Amplifier Direct Connect, 814001 with the requirements for FCC Part 90 & RSS 131 devices.
Addendum A is to revise the MPE calculations.
Addendum B is to remove the MPE calculations so it will be a separate file to the FCC.

TEST METHOD: FCC Part 90 & RSS 131

FREQUENCY RANGE TESTED: 30 MHz - 9 GHz

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

REPRESENTATIVE: Patrick Cook

TEST LOCATION: CKC Laboratories, Inc.
480 Los Viboras Road, Hollister, CA 95023
1120 Fulton Place, Fremont, CA 94539

SUMMARY OF RESULTS

As received, the Wilson Electronics IDEN Bi-Directional Amplifier Direct Connect, 814001 was found to be fully compliant with the following standards and specifications:

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	90.205	RF Power Output
RSS 131	6.3	TIA/EIA	603	Non-Linearity (Intermodulation Attenuation)
RSS 131	6.4	47 CFR	90.210	Spurious Emissions Limitations
RSS 131	6.5	N/A	N/A	Frequency Stability (Band Translators)
IC 3171-B		90479		Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply. Conducted emissions not required for this device.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Matthew Pettersen, EMC Test Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit

The following model was tested by CKC Laboratories : **BD800N-DC**

Since the time of testing the manufacturer has chosen to use the following model 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: **814001**

EQUIPMENT UNDER TEST

AC-DC Adapter

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

IDEN Bi-Directional Amplifier Direct Connect

Manuf: Wilson Electronics
Model: 814001
Serial: 5957
FCC ID: Pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral devices.

Signal Generator

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

MEASUREMENT UNCERTAINTY

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

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

TEMPERATURE AND HUMIDITY DURING TESTING

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

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

The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS

GXW

FCC 2.1033 (c)(5) FREQUENCY RANGE

Transmit Side: 806-821 MHz, Receive Side 851-866 MHz.

FCC 2.1033 (c)(6) OPERATING POWER

Transmit Site Maximum: 3 Watts, Receive Side Maximum: 10 mWatts.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING

100 Watts.

FCC 2.1033 (c)(8) DC VOLTAGES

TX: DC 5 V, current 300 mA-1.5A, RX: DC 3.6V, current 50 mA.

FCC 2.1033 (c)(9) TUNE-UP PROCEDURE

Not applicable because it is factory set.

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

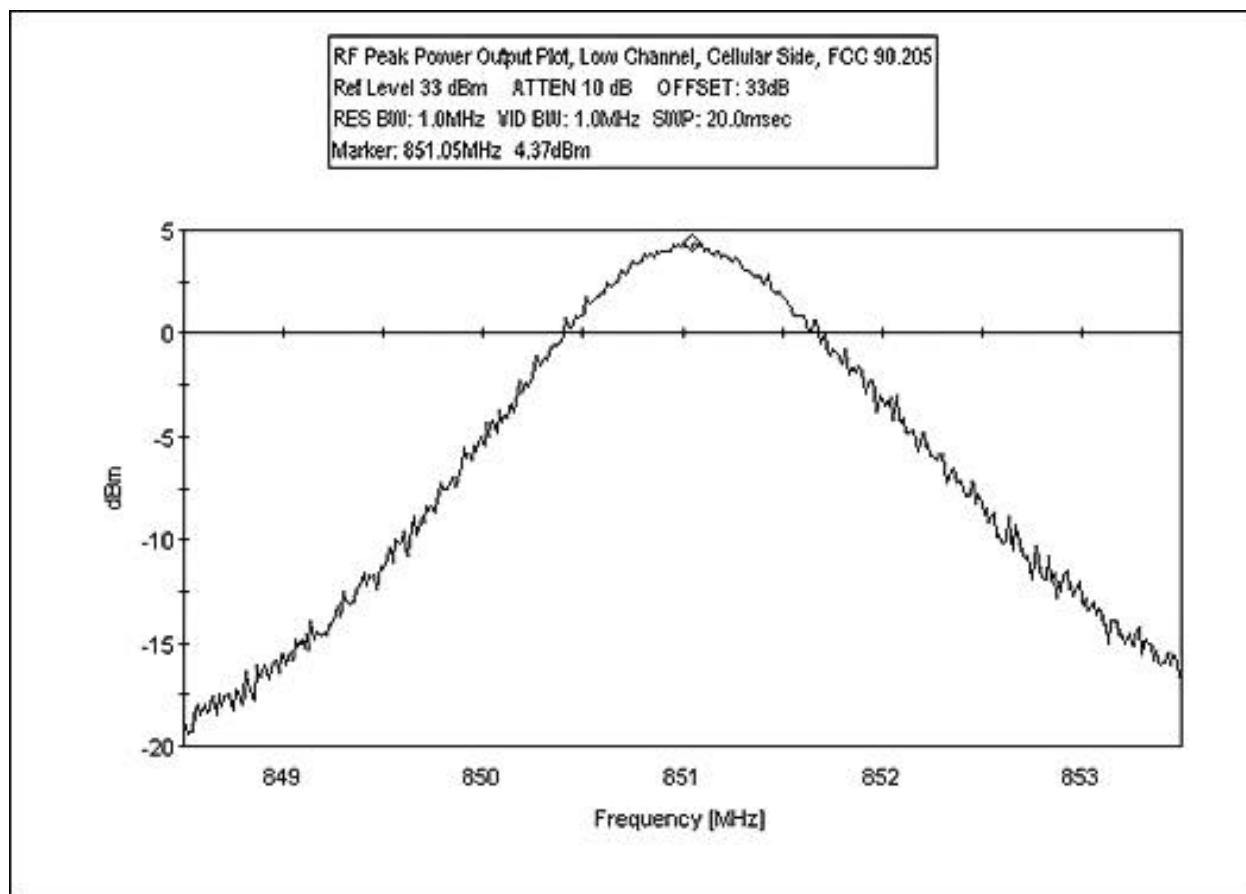
Not applicable.

FCC 2.1033(c)(14)/2.1046/90.205 - RF POWER OUTPUT

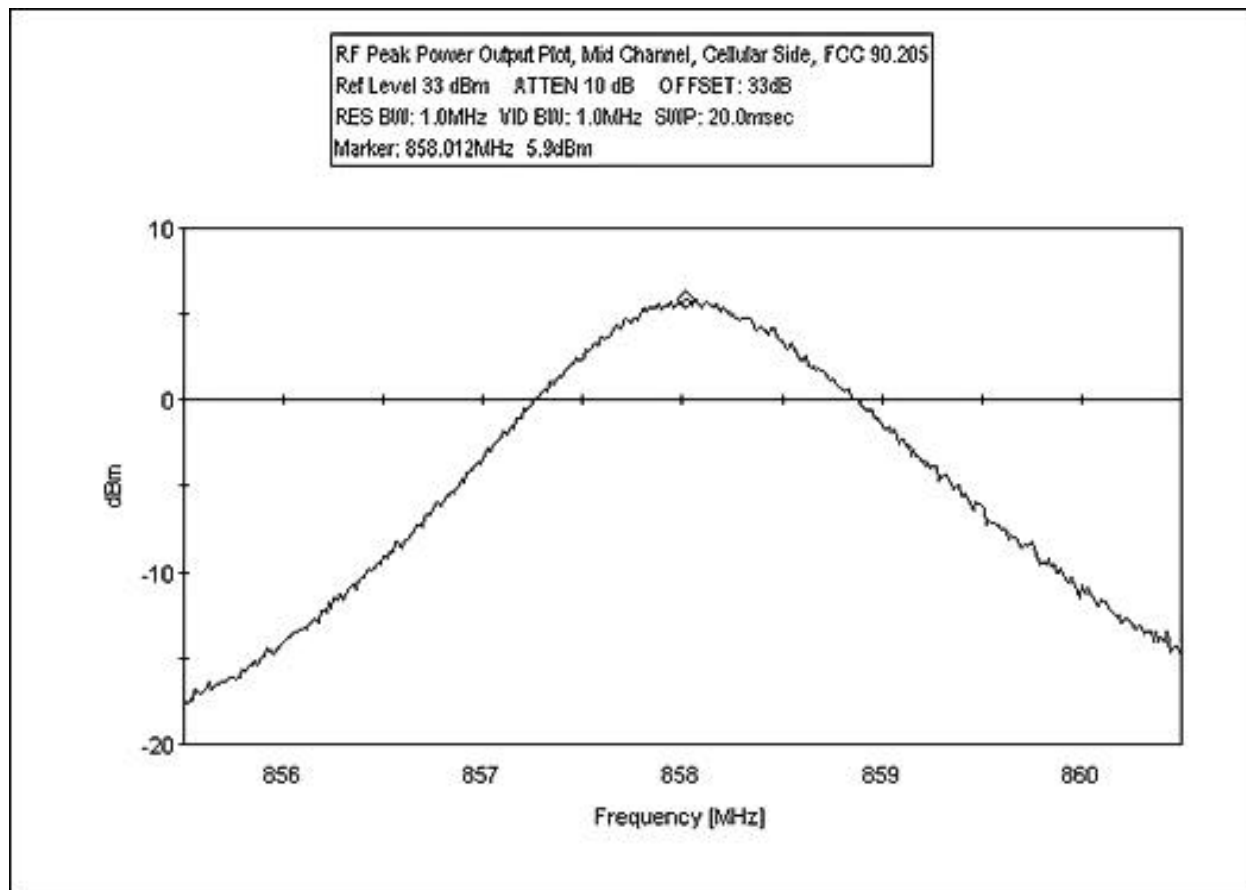
ANT SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler, which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

CELL SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to the antenna side of the amplifier (EUT). The cell side of the amplifier (EUT) is under test. The cell side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

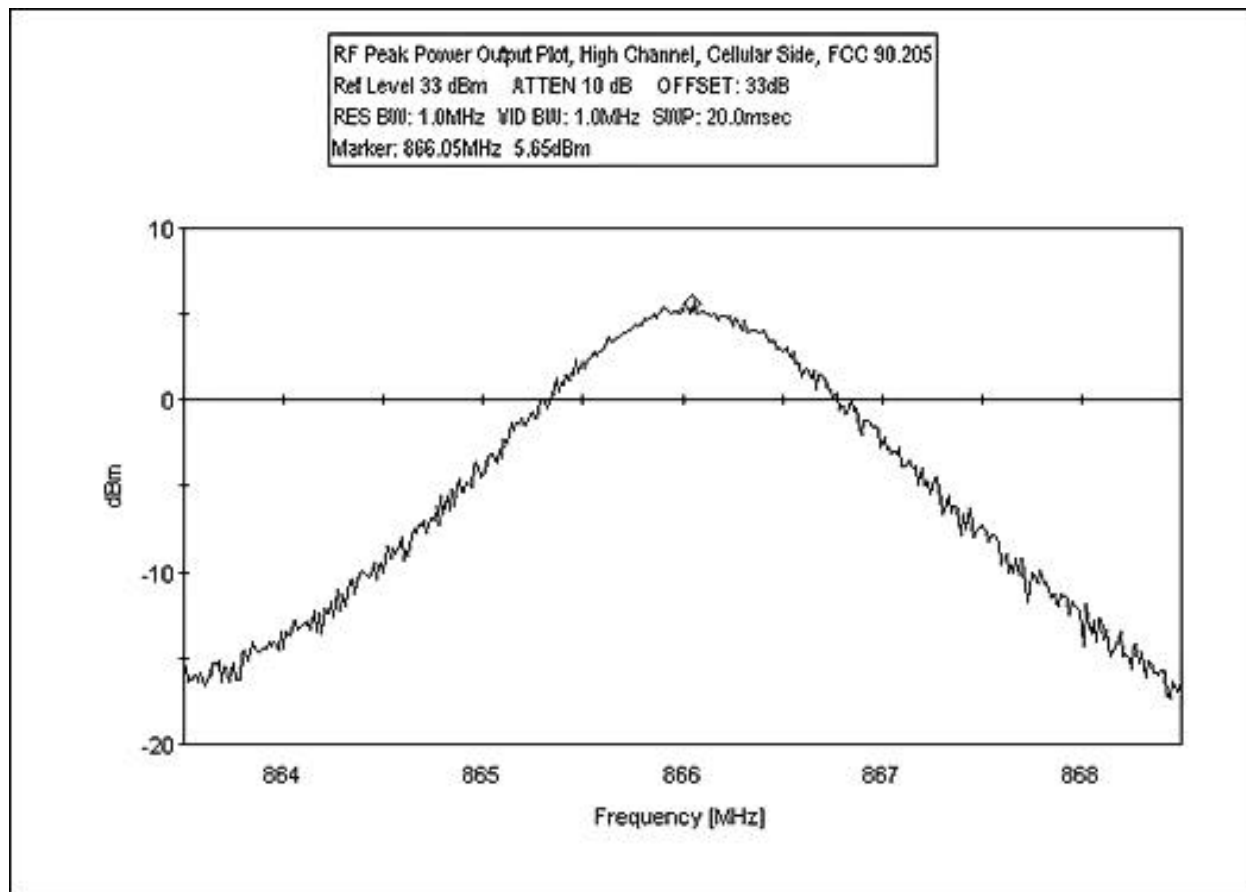
LOW CHANNEL CELLULAR SIDE



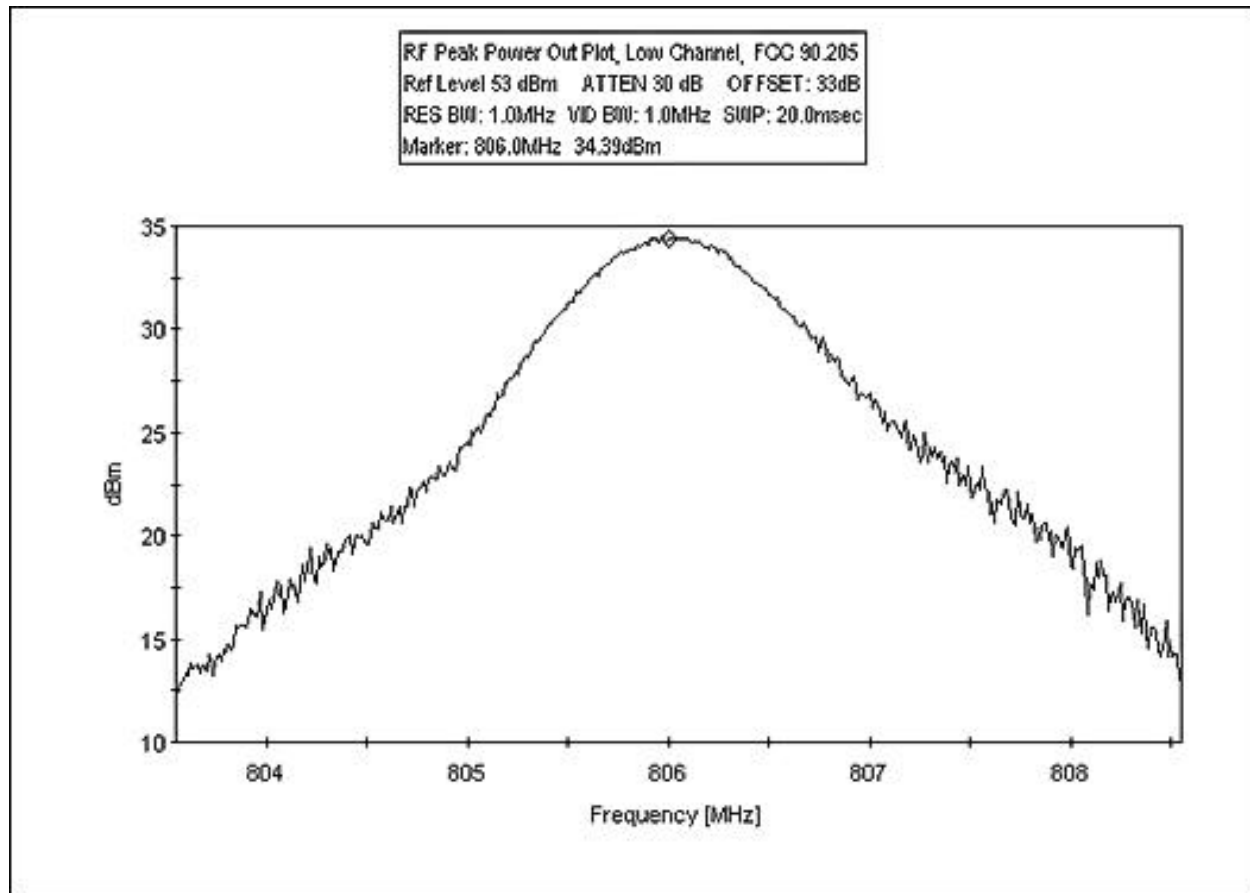
FCC 90.205 PEAK POWER OUTPUT, MID CHANNEL CELLULAR SIDE



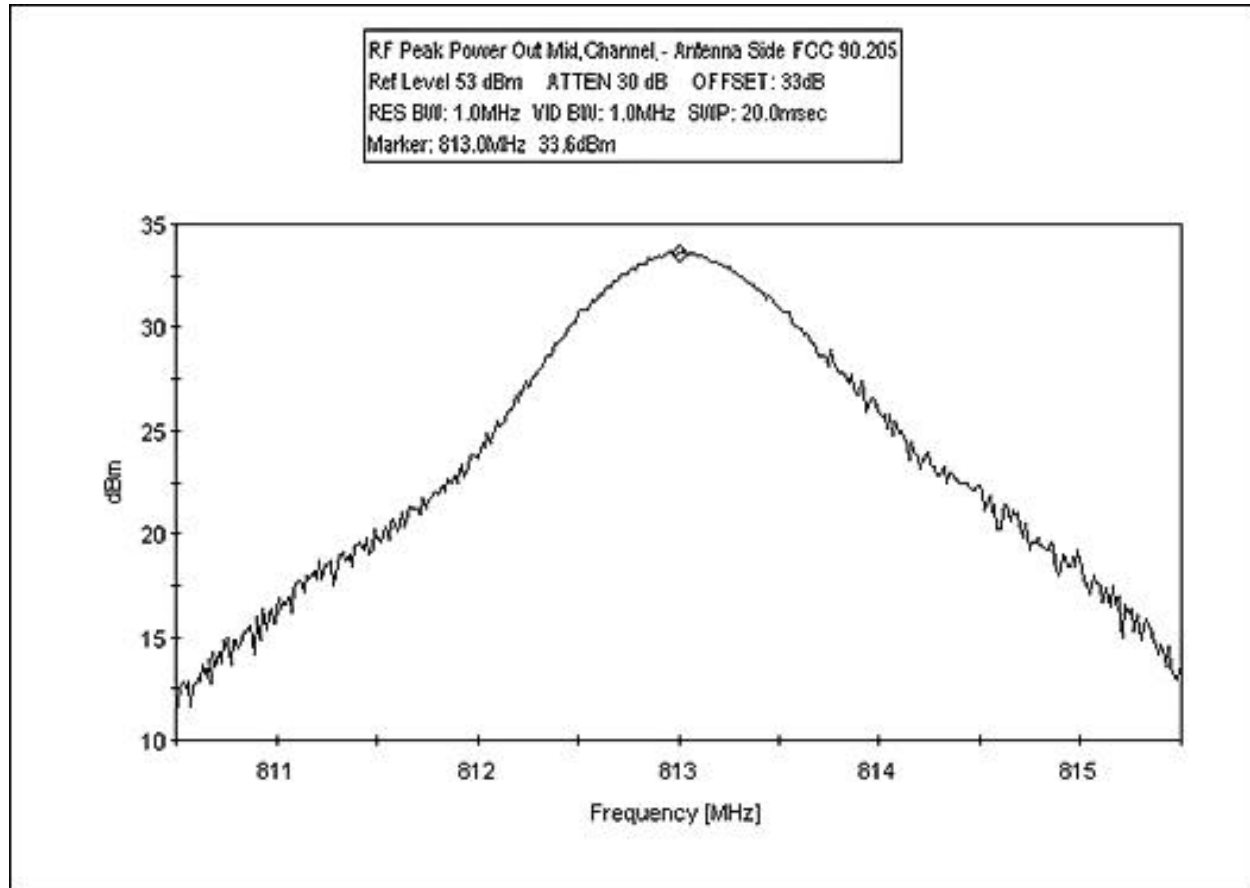
FCC 90.205 PEAK POWER OUTPUT, HIGH CHANNEL CELLULAR SIDE



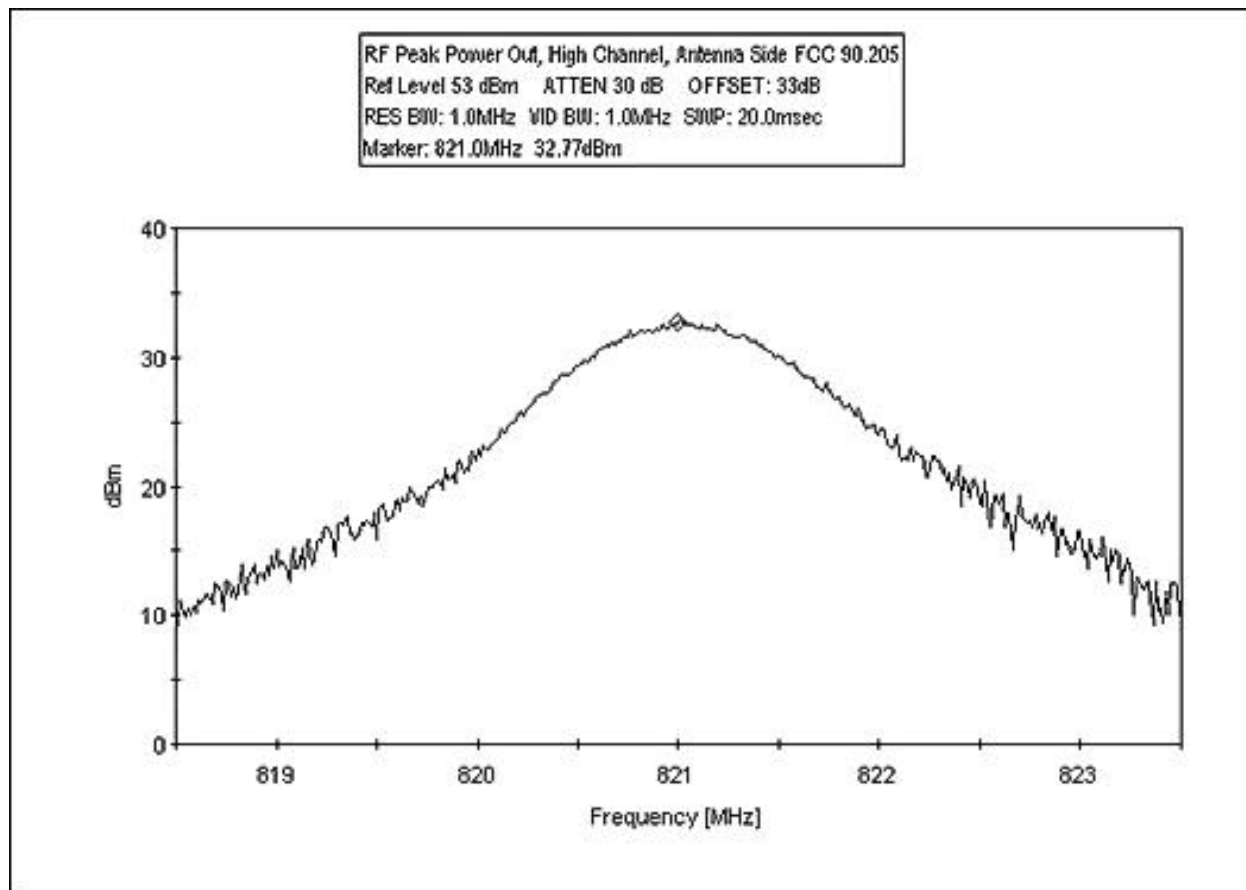
FCC 90.205 PEAK POWER OUTPUT, LOW CHANNEL ANTENNA SIDE



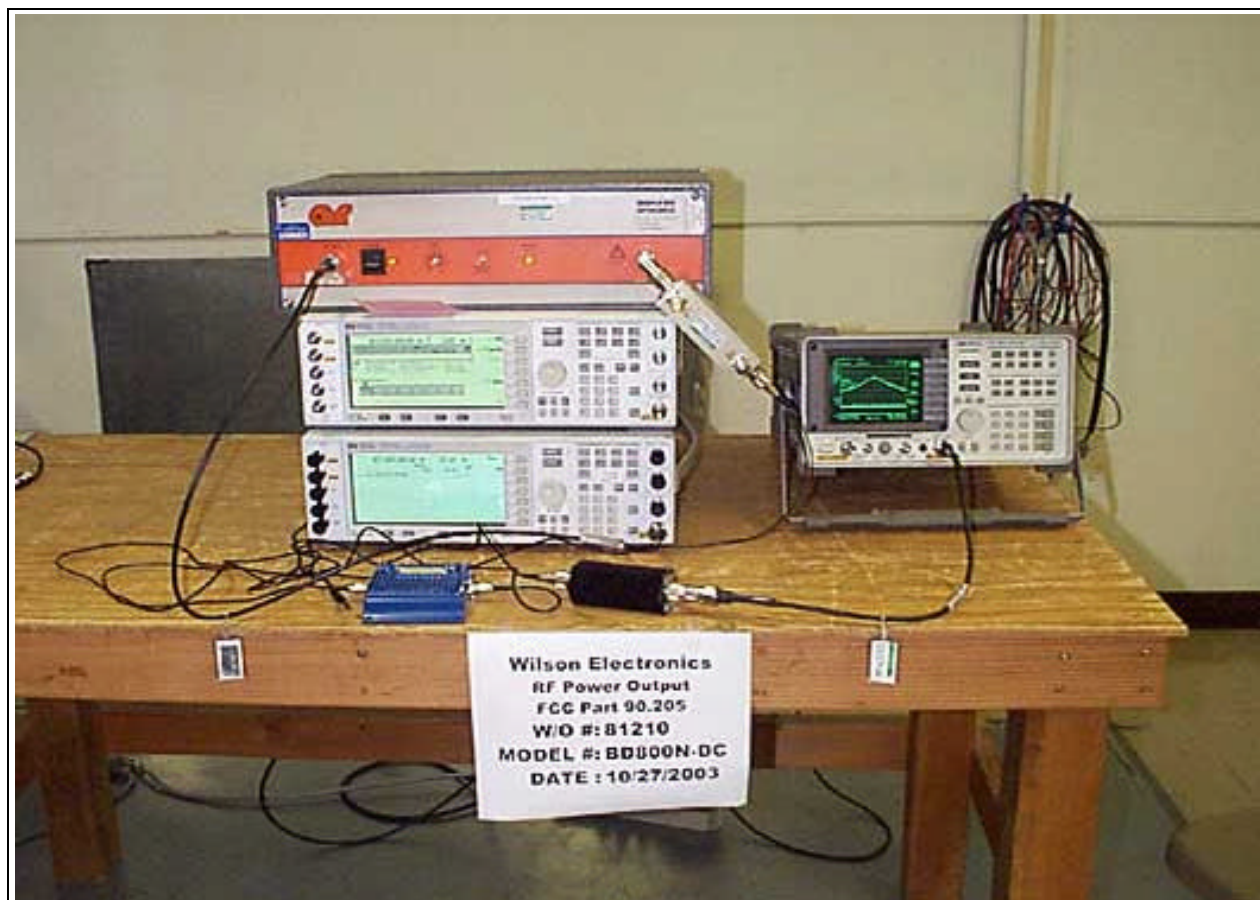
FCC 90.205 PEAK POWER OUTPUT, MID CHANNEL ANTENNA SIDE



FCC 90.205 PEAK POWER OUTPUT, HIGH CHANNEL ANTENNA SIDE



FCC 90.205 RF POWER OUTPUT



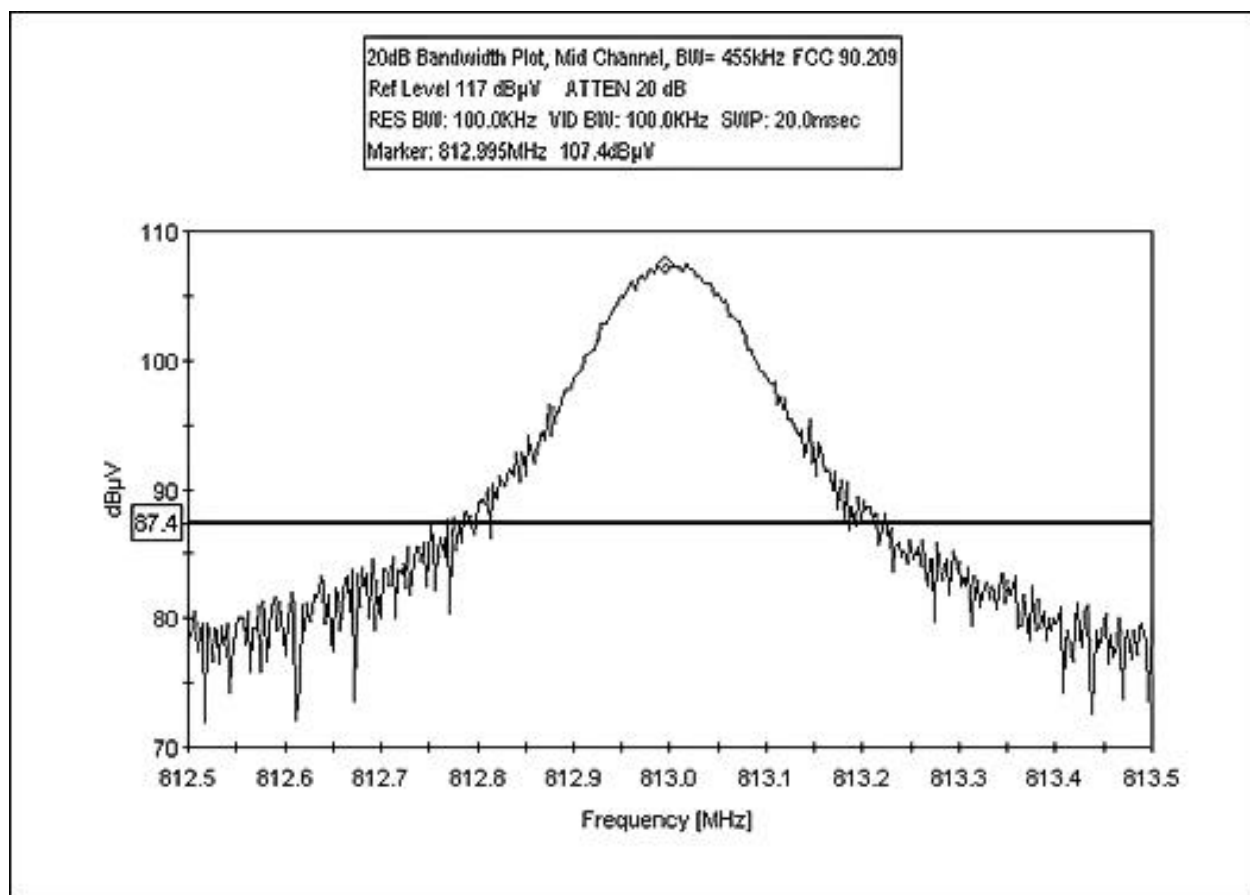
Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

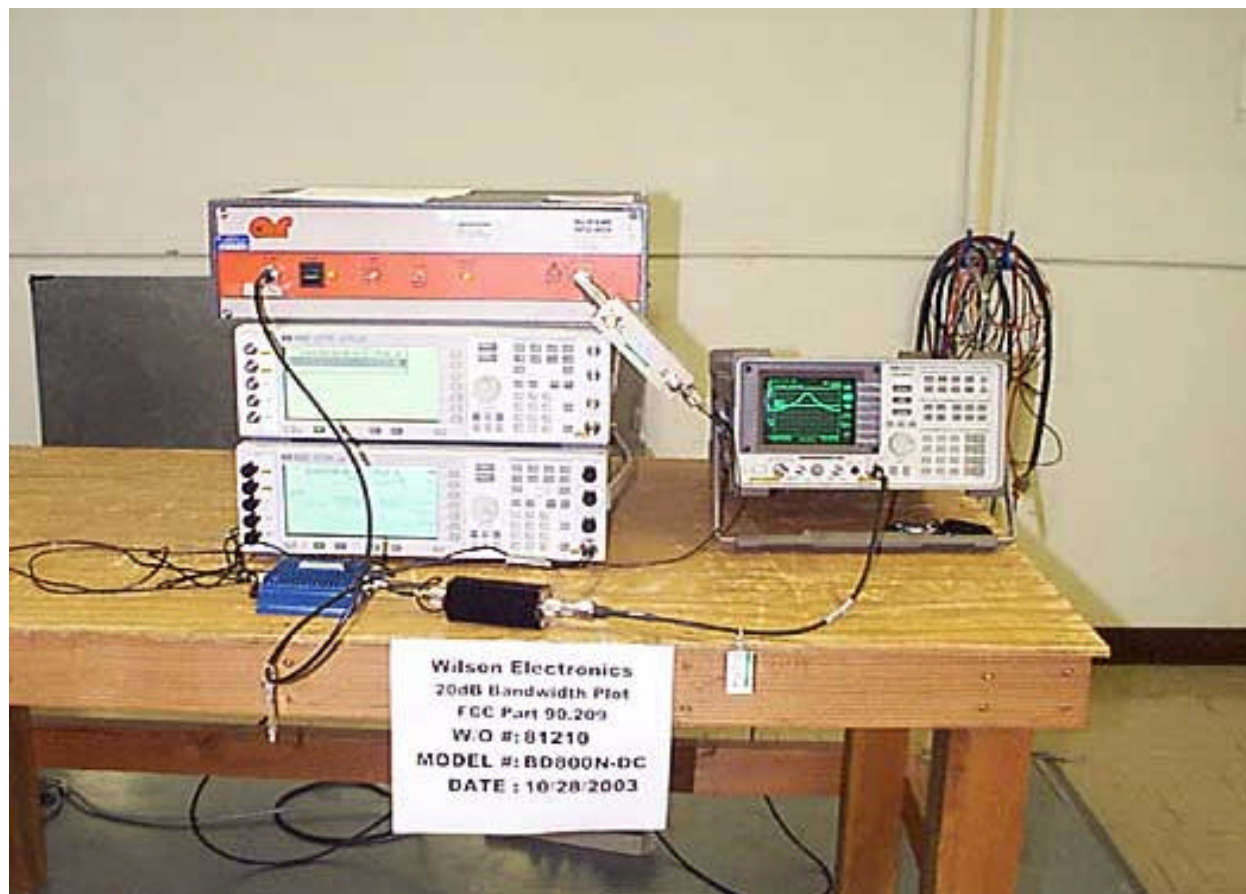
FCC 2.1033(c)(14)/2.1049(i)/90.210- OCCUPIED BANDWIDTH

ANT SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler, which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

CELL SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to the antenna side of the amplifier (EUT). The cell side of the amplifier (EUT) is under test. The cell side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.



FCC 90.209 20 dB BANDWIDTH



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

FCC 2.1033(c)(14)/2.1051/90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINAL

Bandwidth settings used: RBW=1 MHz, VBW=1 MHz.

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA. 94538 • 510-249-1170

Customer: **Wilson Electronics**
 Specification: **TEST 90.210 Spurious Emissions**
 Work Order #: **81210** Date: 10/28/2003
 Test Type: **Spurious Emissions Antenna Terminals** Time: 11:43:20 AM
 Equipment: **Direct Connect Bidirectional Linear Amplifier** Sequence#: 1
 Manufacturer: Wilson Electronics Tested By: Matthew Pettersen
 Model: BD800N-DC
 S/N: 5957

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5957

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Spurious Emissions 30 MHz - 812.95 MHz.

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	802.504M	49.6	+30.4				+0.0	80.0	94.0	-14.0	Direc
2	799.919M	46.1	+30.4				+0.0	76.5	94.0	-17.5	Direc

3	798.178M	42.3	+30.4	+0.0	72.7	94.0	-21.3	Direc
4	795.382M	41.0	+30.4	+0.0	71.4	94.0	-22.6	Direc
5	791.399M	35.1	+30.4	+0.0	65.5	94.0	-28.5	Direc
6	736.362M	33.7	+30.4	+0.0	64.1	94.0	-29.9	Direc
7	607.340M	33.6	+30.4	+0.0	64.0	94.0	-30.0	Direc
8	305.287M	33.1	+30.5	+0.0	63.6	94.0	-30.4	Direc
9	167.343M	33.0	+30.5	+0.0	63.5	94.0	-30.5	Direc
10	414.258M	33.2	+30.3	+0.0	63.5	94.0	-30.5	Direc
11	88.446M	32.9	+30.5	+0.0	63.4	94.0	-30.6	Direc
12	684.031M	33.0	+30.4	+0.0	63.4	94.0	-30.6	Direc
13	138.270M	32.8	+30.5	+0.0	63.3	94.0	-30.7	Direc
14	257.568M	32.9	+30.4	+0.0	63.3	94.0	-30.7	Direc
15	357.417M	32.9	+30.4	+0.0	63.3	94.0	-30.7	Direc
16	216.565M	32.8	+30.4	+0.0	63.2	94.0	-30.8	Direc
17	587.591M	32.8	+30.4	+0.0	63.2	94.0	-30.8	Direc
18	506.288M	32.7	+30.4	+0.0	63.1	94.0	-30.9	Direc
19	528.443M	32.7	+30.4	+0.0	63.1	94.0	-30.9	Direc
20	314.109M	32.5	+30.5	+0.0	63.0	94.0	-31.0	Direc
21	633.305M	32.6	+30.4	+0.0	63.0	94.0	-31.0	Direc
22	68.195M	32.4	+30.5	+0.0	62.9	94.0	-31.1	Direc
23	470.098M	32.5	+30.4	+0.0	62.9	94.0	-31.1	Direc
24	30.702M	32.3	+30.5	+0.0	62.8	94.0	-31.2	Direc

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA, 94538 • 510-249-1170

Customer: **Wilson Electronics**
 Specification: **TEST 90.210 Spurious Emissions**
 Work Order #: **81210** Date: 10/28/2003
 Test Type: **Spurious Emissions Antenna Terminals** Time: 11:53:53 AM
 Equipment: **Direct Connect Bidirectional Linear Amplifier** Sequence#: 2
 Manufacturer: Wilson Electronics Tested By: Matthew Pettersen
 Model: BD800N-DC
 S/N: 5957

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5957

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Spurious Emissions 813.05 MHz – 9 GHz.

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	819.266M	56.3	+30.4				+0.0	86.7	94.0	-7.3	Direc
2	1625.961M	51.8	+30.2				+0.0	82.0	94.0	-12.0	Direc
3	820.669M	50.3	+30.4				+0.0	80.7	94.0	-13.3	Direc
4	2438.989M	40.0	+30.1				+0.0	70.1	94.0	-23.9	Direc
5	825.481M	37.3	+30.4				+0.0	67.7	94.0	-26.3	Direc

6	6556.768M	40.2	+27.2	+0.0	67.4	94.0	-26.6	Direc
7	6601.078M	40.1	+27.2	+0.0	67.3	94.0	-26.7	Direc
8	6715.464M	40.1	+27.2	+0.0	67.3	94.0	-26.7	Direc
9	6861.829M	40.2	+27.1	+0.0	67.3	94.0	-26.7	Direc
10	6510.051M	40.0	+27.2	+0.0	67.2	94.0	-26.8	Direc
11	7794.256M	42.2	+25.0	+0.0	67.2	94.0	-26.8	Direc
12	6813.810M	40.0	+27.1	+0.0	67.1	94.0	-26.9	Direc
13	6840.576M	40.0	+27.1	+0.0	67.1	94.0	-26.9	Direc
14	6929.498M	39.9	+27.1	+0.0	67.0	94.0	-27.0	Direc
15	7562.278M	41.3	+25.7	+0.0	67.0	94.0	-27.0	Direc
16	6615.514M	39.7	+27.2	+0.0	66.9	94.0	-27.1	Direc
17	6738.321M	39.7	+27.2	+0.0	66.9	94.0	-27.1	Direc
18	6991.553M	39.8	+27.1	+0.0	66.9	94.0	-27.1	Direc
19	7056.214M	39.9	+27.0	+0.0	66.9	94.0	-27.1	Direc
20	6681.579M	39.6	+27.2	+0.0	66.8	94.0	-27.2	Direc
21	6974.610M	39.7	+27.1	+0.0	66.8	94.0	-27.2	Direc
22	8183.929M	42.8	+24.0	+0.0	66.8	94.0	-27.2	Direc
23	7373.506M	40.5	+26.2	+0.0	66.7	94.0	-27.3	Direc
24	7042.980M	39.6	+27.0	+0.0	66.6	94.0	-27.4	Direc
25	7139.121M	39.7	+26.8	+0.0	66.5	94.0	-27.5	Direc
26	8219.718M	42.5	+24.0	+0.0	66.5	94.0	-27.5	Direc
27	2310.368M	36.2	+30.2	+0.0	66.4	94.0	-27.6	Direc
28	2337.636M	36.2	+30.2	+0.0	66.4	94.0	-27.6	Direc
29	7122.781M	39.6	+26.8	+0.0	66.4	94.0	-27.6	Direc
30	7406.689M	40.3	+26.1	+0.0	66.4	94.0	-27.6	Direc

31	7700.723M	41.1	+25.3	+0.0	66.4	94.0	-27.6	Direc
32	7912.251M	41.7	+24.7	+0.0	66.4	94.0	-27.6	Direc
33	7222.529M	39.7	+26.6	+0.0	66.3	94.0	-27.7	Direc
34	7296.113M	39.9	+26.4	+0.0	66.3	94.0	-27.7	Direc
35	7631.751M	40.8	+25.5	+0.0	66.3	94.0	-27.7	Direc
36	7746.136M	41.2	+25.1	+0.0	66.3	94.0	-27.7	Direc
37	7892.802M	41.6	+24.7	+0.0	66.3	94.0	-27.7	Direc
38	7938.917M	41.7	+24.6	+0.0	66.3	94.0	-27.7	Direc
39	1805.809M	35.9	+30.3	+0.0	66.2	94.0	-27.8	Direc
40	7193.056M	39.6	+26.6	+0.0	66.2	94.0	-27.8	Direc
41	7515.360M	40.3	+25.9	+0.0	66.2	94.0	-27.8	Direc
42	2866.957M	36.5	+29.6	+0.0	66.1	94.0	-27.9	Direc
43	7294.609M	39.7	+26.4	+0.0	66.1	94.0	-27.9	Direc
44	7852.802M	41.3	+24.8	+0.0	66.1	94.0	-27.9	Direc
45	8923.968M	41.1	+24.9	+0.0	66.0	94.0	-28.0	Direc
46	7494.508M	40.0	+25.9	+0.0	65.9	94.0	-28.1	Direc
47	7665.936M	40.5	+25.4	+0.0	65.9	94.0	-28.1	Direc
48	7997.765M	41.5	+24.4	+0.0	65.9	94.0	-28.1	Direc
49	8975.896M	40.8	+25.1	+0.0	65.9	94.0	-28.1	Direc

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA, 94538 • 510-249-1170

Customer: **Wilson Electronics**

Specification: **FCC 90.210 Spurious Emissions**

Work Order #: **81210**

Date: 10/29/2003

Test Type: **Spurious Emissions Antenna**

Time: 16:01:12

Terminals

Equipment: **Direct Connect Bidirectional Linear Amplifier**

Sequence#: 1

Manufacturer: Wilson Electronics

Tested By: Matthew Pettersen

Model: BD800N-DC

S/N: 5956

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5956

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Spurious Emissions 30 MHz - 857.95 MHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	856.900M	44.6	+30.3				+0.0	74.9	94.0	-19.1	Direc
2	450.850M	33.7	+30.4				+0.0	64.1	94.0	-29.9	Direc
3	312.003M	33.5	+30.5				+0.0	64.0	94.0	-30.0	Direc
4	354.810M	33.6	+30.4				+0.0	64.0	94.0	-30.0	Direc
5	678.818M	33.6	+30.4				+0.0	64.0	94.0	-30.0	Direc

6	773.855M	33.5	+30.4	+0.0	63.9	94.0	-30.1	Direc
7	495.661M	33.4	+30.4	+0.0	63.8	94.0	-30.2	Direc
8	515.310M	33.3	+30.4	+0.0	63.7	94.0	-30.3	Direc
9	609.846M	33.1	+30.4	+0.0	63.5	94.0	-30.5	Direc
10	661.375M	33.0	+30.4	+0.0	63.4	94.0	-30.6	Direc
11	717.114M	33.0	+30.4	+0.0	63.4	94.0	-30.6	Direc
12	167.042M	32.8	+30.5	+0.0	63.3	94.0	-30.7	Direc
13	211.352M	32.9	+30.4	+0.0	63.3	94.0	-30.7	Direc
14	283.532M	32.8	+30.5	+0.0	63.3	94.0	-30.7	Direc
15	424.985M	33.0	+30.3	+0.0	63.3	94.0	-30.7	Direc
16	580.172M	32.9	+30.4	+0.0	63.3	94.0	-30.7	Direc
17	831.298M	32.9	+30.4	+0.0	63.3	94.0	-30.7	Direc
18	246.941M	32.7	+30.4	+0.0	63.1	94.0	-30.9	Direc
19	72.807M	32.5	+30.5	+0.0	63.0	94.0	-31.0	Direc
20	53.960M	32.4	+30.5	+0.0	62.9	94.0	-31.1	Direc
21	144.085M	32.3	+30.5	+0.0	62.8	94.0	-31.2	Direc

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA, 94538 • 510-249-1170

Customer: **Wilson Electronics**
 Specification: **FCC 90.210 Spurious Emissions**
 Work Order #: **81210** Date: 10/29/2003
 Test Type: **Spurious Emissions Antenna Terminals** Time: 4:35:26 PM
 Equipment: **Direct Connect Bidirectional Linear Amplifier** Sequence#: 2
 Manufacturer: Wilson Electronics Tested By: Matthew Pettersen
 Model: BD800N-DC
 S/N: 5956

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5956

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Spurious Emissions 858.05 MHz – 3 GHz.

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	2573.926M	47.1	+30.0				+0.0	77.1	94.0	-16.9	Direc
2	1715.985M	44.5	+30.2				+0.0	74.7	94.0	-19.3	Direc
3	2440.192M	36.7	+30.1				+0.0	66.8	94.0	-27.2	Direc
4	2328.613M	36.3	+30.2				+0.0	66.5	94.0	-27.5	Direc
5	2468.663M	36.1	+30.1				+0.0	66.2	94.0	-27.8	Direc

6	1978.439M	35.8	+30.3	+0.0	66.1	94.0	-27.9	Direc
7	2040.193M	35.8	+30.3	+0.0	66.1	94.0	-27.9	Direc
8	1442.403M	35.7	+30.2	+0.0	65.9	94.0	-28.1	Direc
9	2285.806M	35.7	+30.2	+0.0	65.9	94.0	-28.1	Direc
10	1439.496M	35.6	+30.2	+0.0	65.8	94.0	-28.2	Direc
11	1650.321M	35.6	+30.2	+0.0	65.8	94.0	-28.2	Direc
12	1809.618M	35.5	+30.3	+0.0	65.8	94.0	-28.2	Direc
13	2171.622M	35.6	+30.2	+0.0	65.8	94.0	-28.2	Direc
14	1782.150M	35.4	+30.3	+0.0	65.7	94.0	-28.3	Direc
15	1958.590M	35.4	+30.3	+0.0	65.7	94.0	-28.3	Direc
16	2078.087M	35.4	+30.3	+0.0	65.7	94.0	-28.3	Direc
17	2143.652M	35.5	+30.2	+0.0	65.7	94.0	-28.3	Direc
18	1400.699M	35.4	+30.2	+0.0	65.6	94.0	-28.4	Direc
19	1597.690M	35.4	+30.2	+0.0	65.6	94.0	-28.4	Direc
20	2085.206M	35.3	+30.3	+0.0	65.6	94.0	-28.4	Direc
21	2279.992M	35.3	+30.2	+0.0	65.5	94.0	-28.5	Direc
22	1503.957M	35.1	+30.2	+0.0	65.3	94.0	-28.7	Direc
23	1903.352M	35.0	+30.3	+0.0	65.3	94.0	-28.7	Direc
24	1561.199M	35.0	+30.2	+0.0	65.2	94.0	-28.8	Direc
25	1630.272M	35.0	+30.2	+0.0	65.2	94.0	-28.8	Direc
26	1854.430M	34.9	+30.3	+0.0	65.2	94.0	-28.8	Direc
27	1359.697M	34.9	+30.2	+0.0	65.1	94.0	-28.9	Direc
28	2205.506M	34.9	+30.2	+0.0	65.1	94.0	-28.9	Direc
29	2487.310M	34.9	+30.1	+0.0	65.0	94.0	-29.0	Direc
30	2903.448M	35.5	+29.5	+0.0	65.0	94.0	-29.0	Direc

31	1723.404M	34.7	+30.2	+0.0	64.9	94.0	-29.1	Direc
32	2606.006M	35.0	+29.9	+0.0	64.9	94.0	-29.1	Direc
33	2719.489M	35.1	+29.8	+0.0	64.9	94.0	-29.1	Direc
34	2807.609M	35.2	+29.7	+0.0	64.9	94.0	-29.1	Direc
35	2853.824M	35.3	+29.6	+0.0	64.9	94.0	-29.1	Direc
36	2756.281M	35.1	+29.7	+0.0	64.8	94.0	-29.2	Direc
37	2982.275M	35.4	+29.4	+0.0	64.8	94.0	-29.2	Direc
38	1282.003M	34.5	+30.2	+0.0	64.7	94.0	-29.3	Direc
39	2557.485M	34.7	+30.0	+0.0	64.7	94.0	-29.3	Direc
40	2681.494M	34.9	+29.8	+0.0	64.7	94.0	-29.3	Direc
41	2364.002M	34.4	+30.2	+0.0	64.6	94.0	-29.4	Direc
42	2777.233M	34.9	+29.7	+0.0	64.6	94.0	-29.4	Direc
43	1247.317M	34.3	+30.2	+0.0	64.5	94.0	-29.5	Direc
44	2963.599M	35.1	+29.4	+0.0	64.5	94.0	-29.5	Direc
45	1113.583M	34.0	+30.3	+0.0	64.3	94.0	-29.7	Direc
46	1181.352M	34.0	+30.3	+0.0	64.3	94.0	-29.7	Direc
47	1075.990M	33.9	+30.3	+0.0	64.2	94.0	-29.8	Direc
48	1221.853M	33.9	+30.3	+0.0	64.2	94.0	-29.8	Direc
49	1151.478M	33.7	+30.3	+0.0	64.0	94.0	-30.0	Direc

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA, 94538 • 510-249-1170

Customer: **Wilson Electronics**

Specification: **FCC 90.210 Spurious Emissions**

Work Order #: **81210**

Date: 10/30/2003

Test Type: **Spurious Emissions Antenna
Terminals**

Time: 8:40:43 AM

Equipment: **Direct Connect Bidirectional Linear
Amplifier**

Sequence#: 3

Manufacturer: Wilson Electronics

Tested By: Matthew Pettersen

Model: BD800N-DC

S/N: 5956

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5956

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Spurious Emissions 3 GHz – 9 GHz.

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	6595.575M	40.6	+27.2				+0.0	67.8	94.0	-26.2	Direc
2	3432.179M	37.9	+29.7				+0.0	67.6	94.0	-26.4	Direc
3	6736.527M	40.4	+27.2				+0.0	67.6	94.0	-26.4	Direc
4	6642.492M	40.2	+27.2				+0.0	67.4	94.0	-26.6	Direc
5	6678.482M	40.0	+27.2				+0.0	67.2	94.0	-26.8	Direc

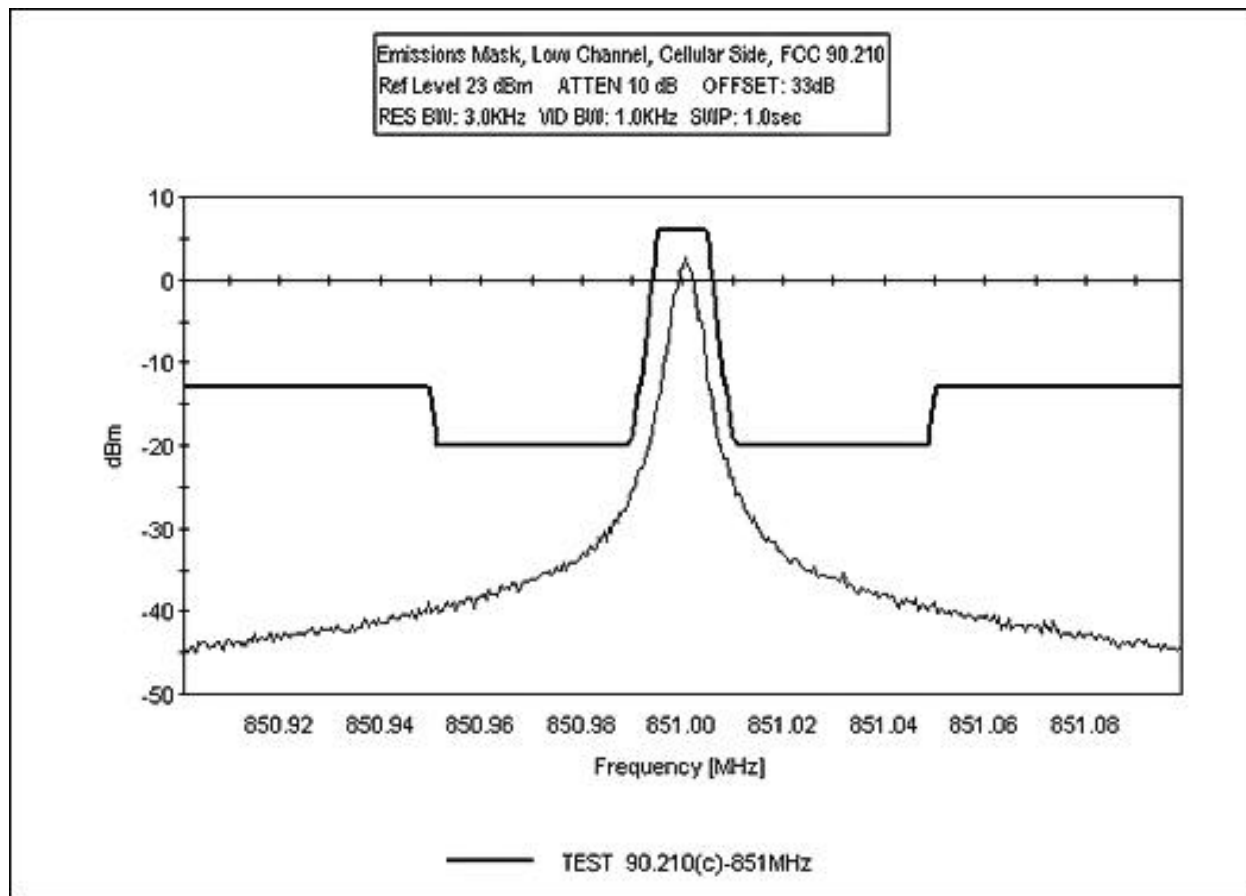
6	6511.867M	39.9	+27.2	+0.0	67.1	94.0	-26.9	Direc
7	6567.506M	39.9	+27.2	+0.0	67.1	94.0	-26.9	Direc
8	6694.021M	39.9	+27.2	+0.0	67.1	94.0	-26.9	Direc
9	6975.925M	40.0	+27.1	+0.0	67.1	94.0	-26.9	Direc
10	6787.053M	39.9	+27.1	+0.0	67.0	94.0	-27.0	Direc
11	6854.521M	39.9	+27.1	+0.0	67.0	94.0	-27.0	Direc
12	6829.659M	39.7	+27.1	+0.0	66.8	94.0	-27.2	Direc
13	6941.238M	39.5	+27.1	+0.0	66.6	94.0	-27.4	Direc
14	7048.105M	39.6	+27.0	+0.0	66.6	94.0	-27.4	Direc
15	7745.847M	41.4	+25.2	+0.0	66.6	94.0	-27.4	Direc
16	7963.089M	42.1	+24.5	+0.0	66.6	94.0	-27.4	Direc
17	6891.514M	39.4	+27.1	+0.0	66.5	94.0	-27.5	Direc
18	7129.608M	39.6	+26.8	+0.0	66.4	94.0	-27.6	Direc
19	7775.521M	41.3	+25.1	+0.0	66.4	94.0	-27.6	Direc
20	7864.944M	41.6	+24.8	+0.0	66.4	94.0	-27.6	Direc
21	7681.485M	41.0	+25.3	+0.0	66.3	94.0	-27.7	Direc
22	7152.766M	39.5	+26.7	+0.0	66.2	94.0	-27.8	Direc
23	7317.678M	39.9	+26.3	+0.0	66.2	94.0	-27.8	Direc
24	7518.379M	40.4	+25.8	+0.0	66.2	94.0	-27.8	Direc
25	7848.503M	41.4	+24.8	+0.0	66.2	94.0	-27.8	Direc
26	8165.896M	42.1	+24.1	+0.0	66.2	94.0	-27.8	Direc
27	7050.711M	39.1	+27.0	+0.0	66.1	94.0	-27.9	Direc
28	7174.521M	39.4	+26.7	+0.0	66.1	94.0	-27.9	Direc
29	7212.014M	39.5	+26.6	+0.0	66.1	94.0	-27.9	Direc
30	7340.134M	39.8	+26.3	+0.0	66.1	94.0	-27.9	Direc

31	7552.765M	40.4	+25.7	+0.0	66.1	94.0	-27.9	Direc
32	7254.019M	39.5	+26.5	+0.0	66.0	94.0	-28.0	Direc
33	7431.161M	39.9	+26.1	+0.0	66.0	94.0	-28.0	Direc
34	7917.675M	41.4	+24.6	+0.0	66.0	94.0	-28.0	Direc
35	7605.195M	40.3	+25.6	+0.0	65.9	94.0	-28.1	Direc
36	7643.290M	40.4	+25.5	+0.0	65.9	94.0	-28.1	Direc
37	7978.327M	41.4	+24.5	+0.0	65.9	94.0	-28.1	Direc
38	7404.495M	39.7	+26.1	+0.0	65.8	94.0	-28.2	Direc
39	7725.897M	40.6	+25.2	+0.0	65.8	94.0	-28.2	Direc
40	8099.630M	41.6	+24.2	+0.0	65.8	94.0	-28.2	Direc
41	8975.909M	40.6	+25.1	+0.0	65.7	94.0	-28.3	Direc
42	7477.577M	39.6	+26.0	+0.0	65.6	94.0	-28.4	Direc
43	8743.229M	41.3	+24.3	+0.0	65.6	94.0	-28.4	Direc
44	8819.118M	41.0	+24.6	+0.0	65.6	94.0	-28.4	Direc
45	8865.133M	40.9	+24.7	+0.0	65.6	94.0	-28.4	Direc
46	8067.148M	41.2	+24.3	+0.0	65.5	94.0	-28.5	Direc
47	8322.084M	41.8	+23.7	+0.0	65.5	94.0	-28.5	Direc
48	8895.909M	40.7	+24.8	+0.0	65.5	94.0	-28.5	Direc
49	8958.766M	40.4	+25.1	+0.0	65.5	94.0	-28.5	Direc
50	8258.325M	41.5	+23.9	+0.0	65.4	94.0	-28.6	Direc

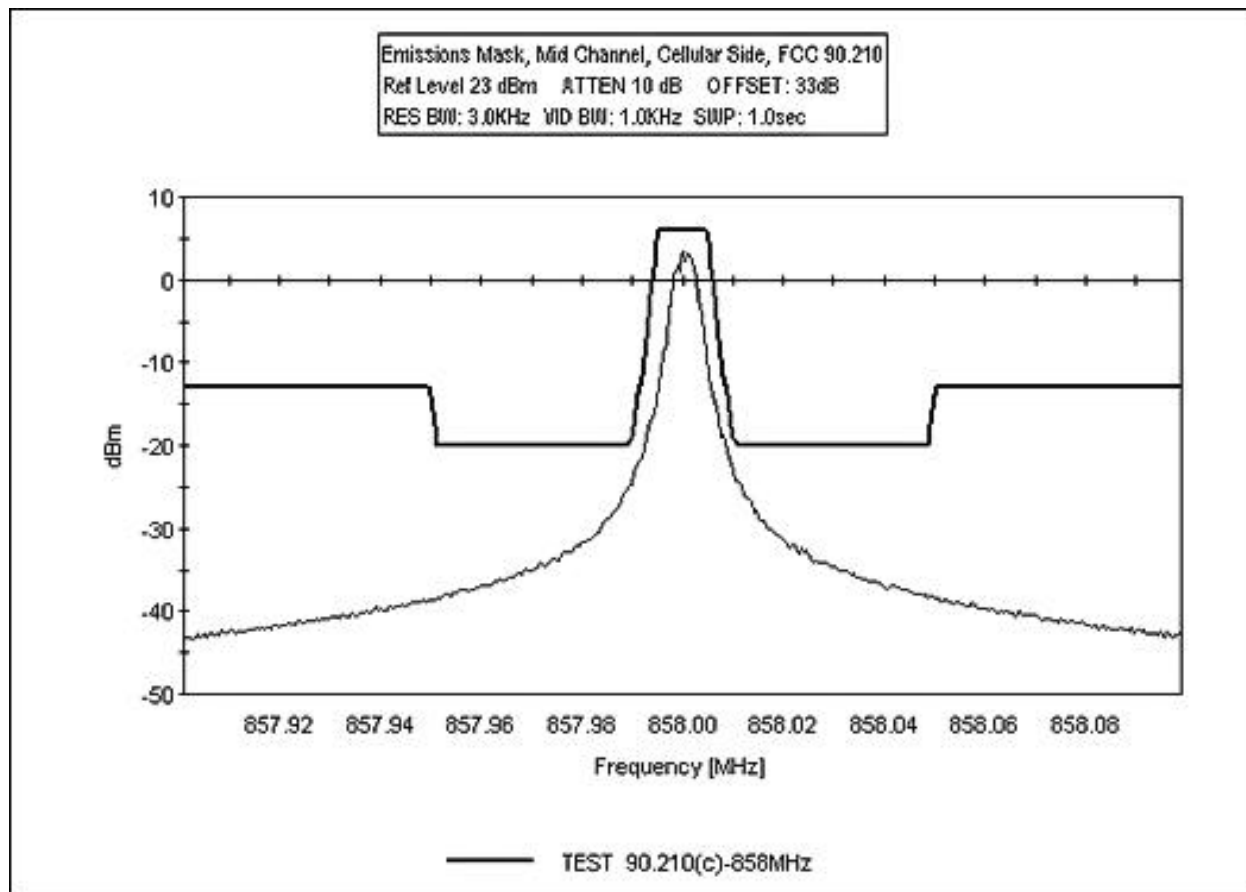
FCC 90.210 SPURIOUS EMISSIONS ANTENNA TERMINALS



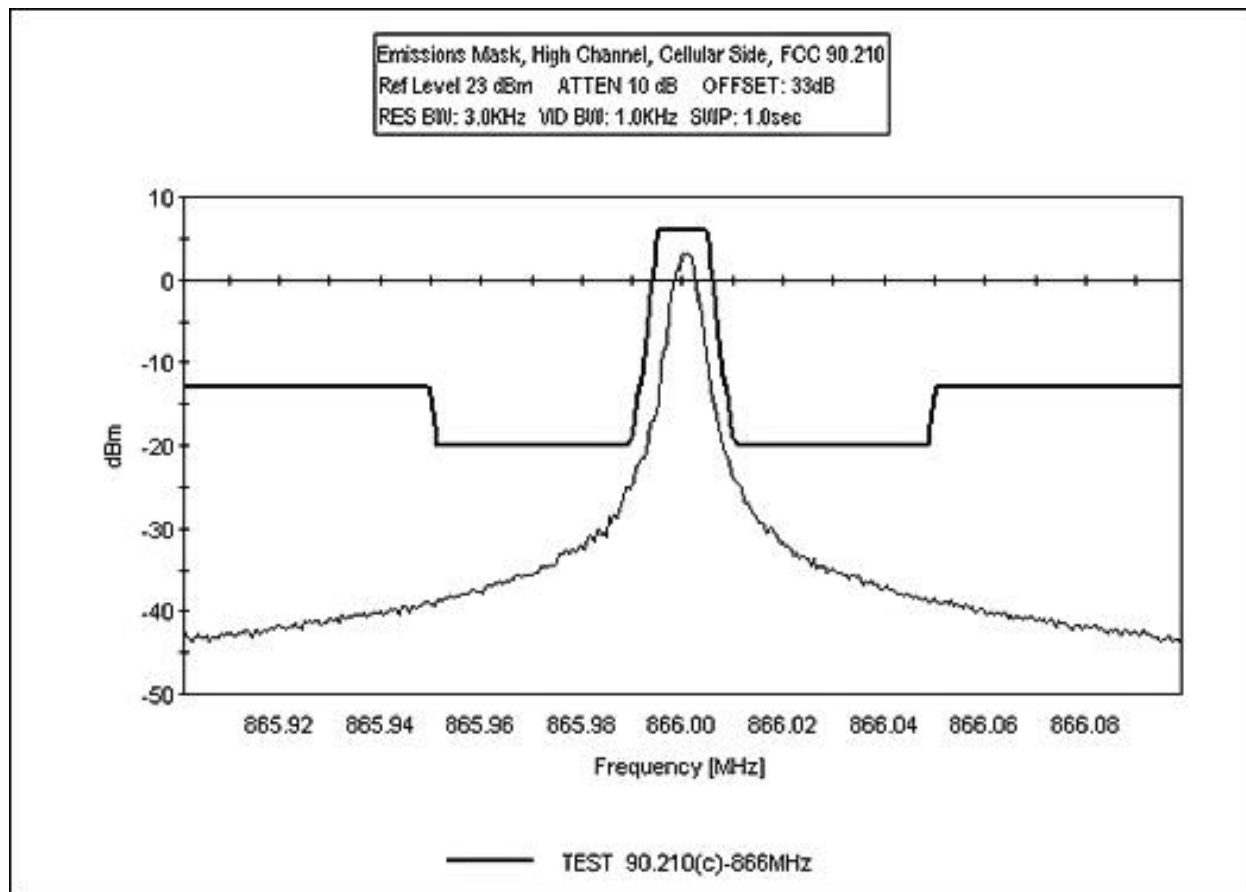
FCC 90.210 EMISSIONS MASK, LOW CHANNEL CELLULAR SIDE



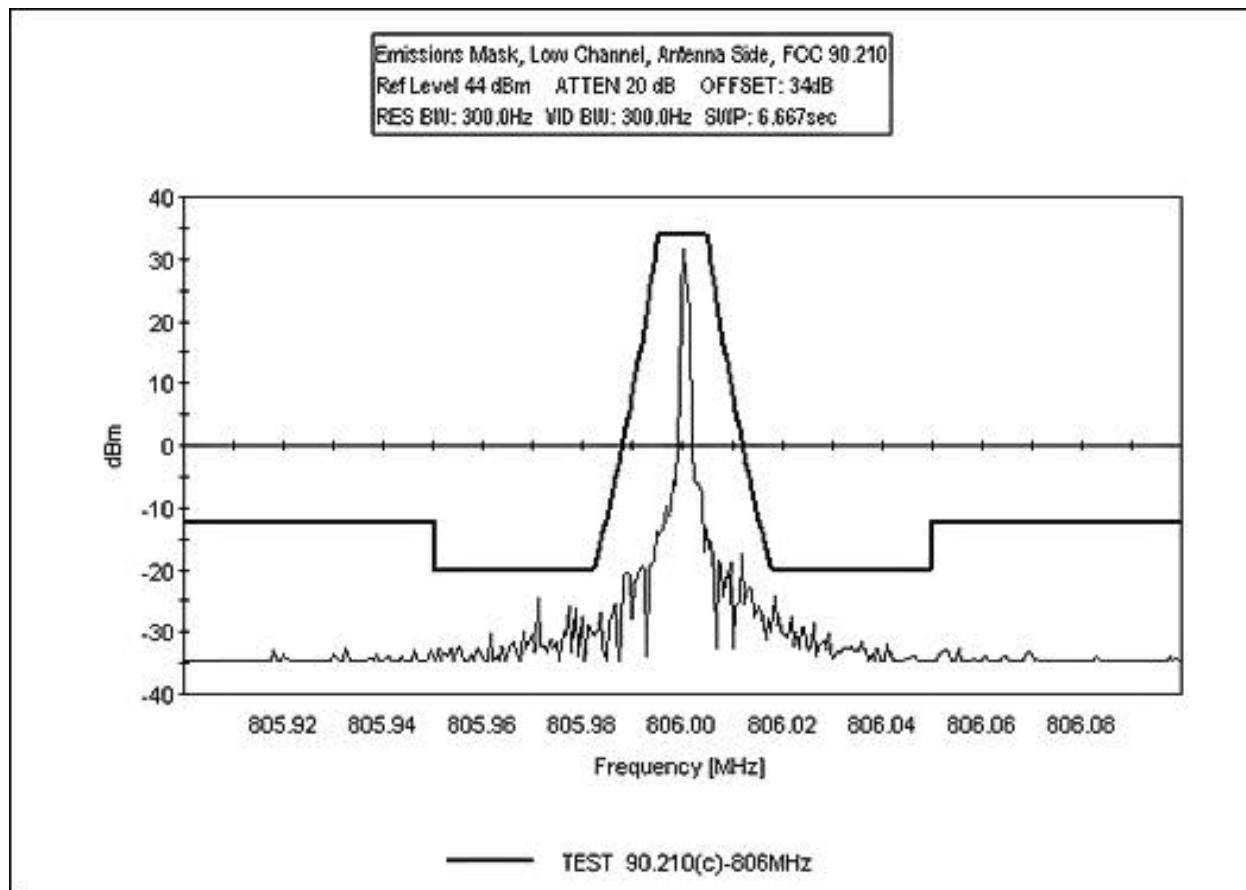
FCC 90.210 EMISSIONS MASK, MID CHANNEL CELLULAR SIDE



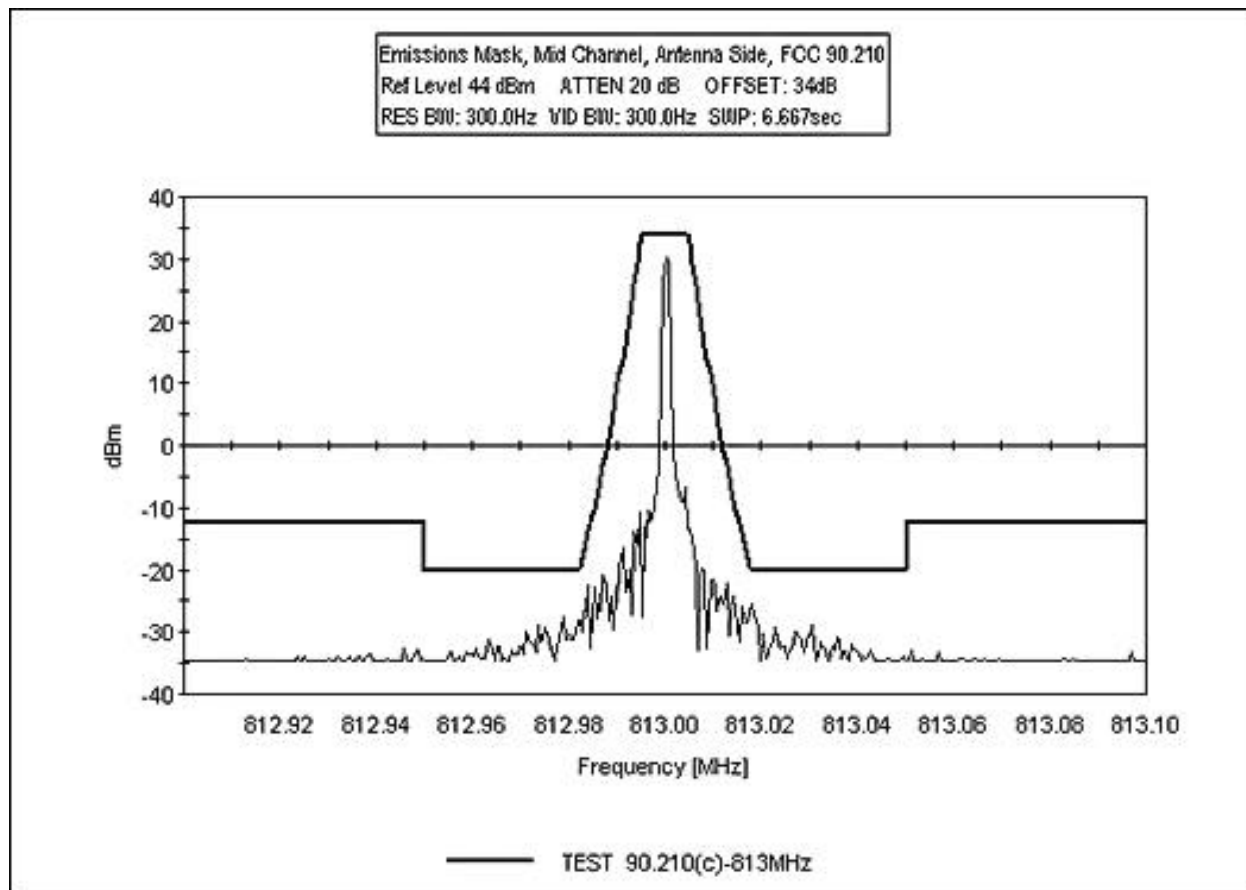
FCC 90.210 EMISSIONS MASK, HIGH CHANNEL CELLULAR SIDE



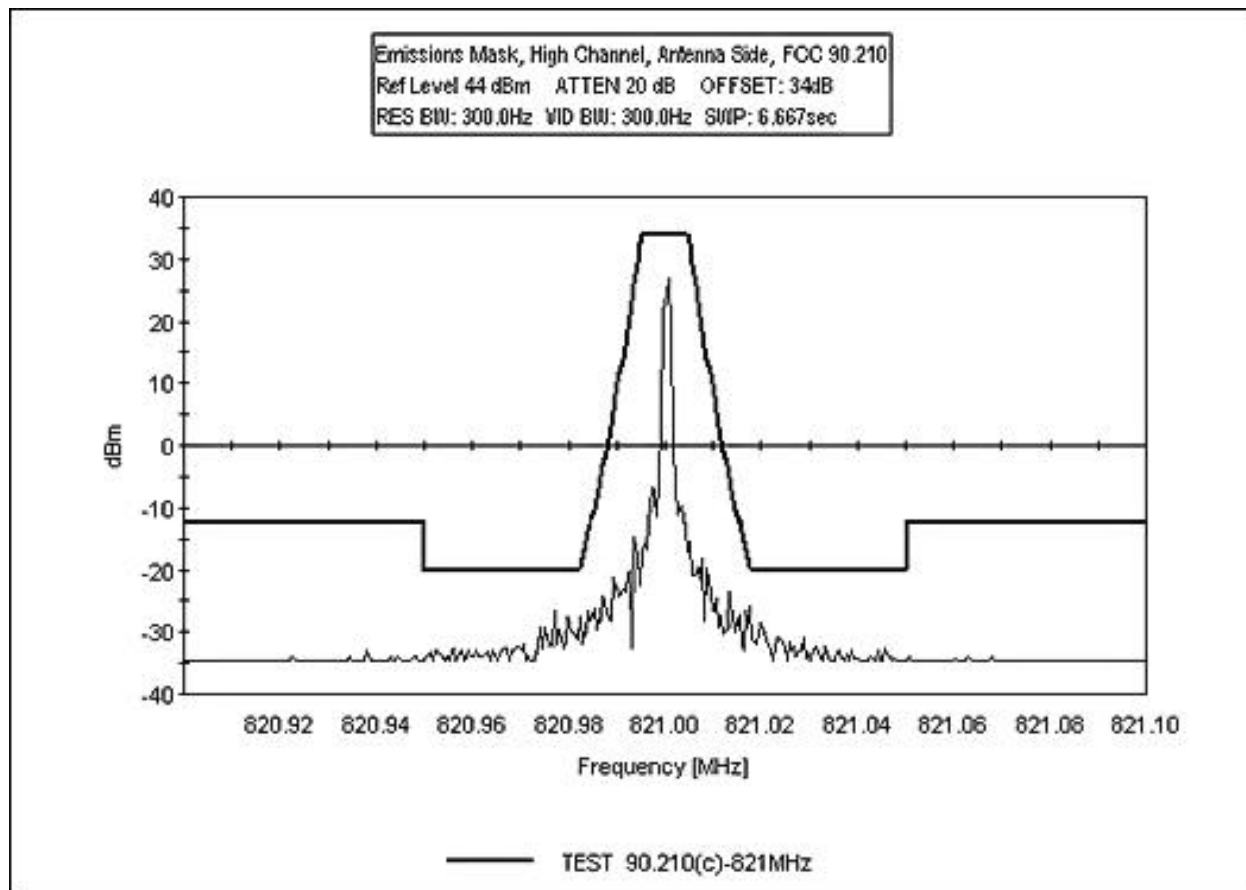
FCC 90.210 EMISSIONS MASK, LOW CHANNEL ANTENNA SIDE



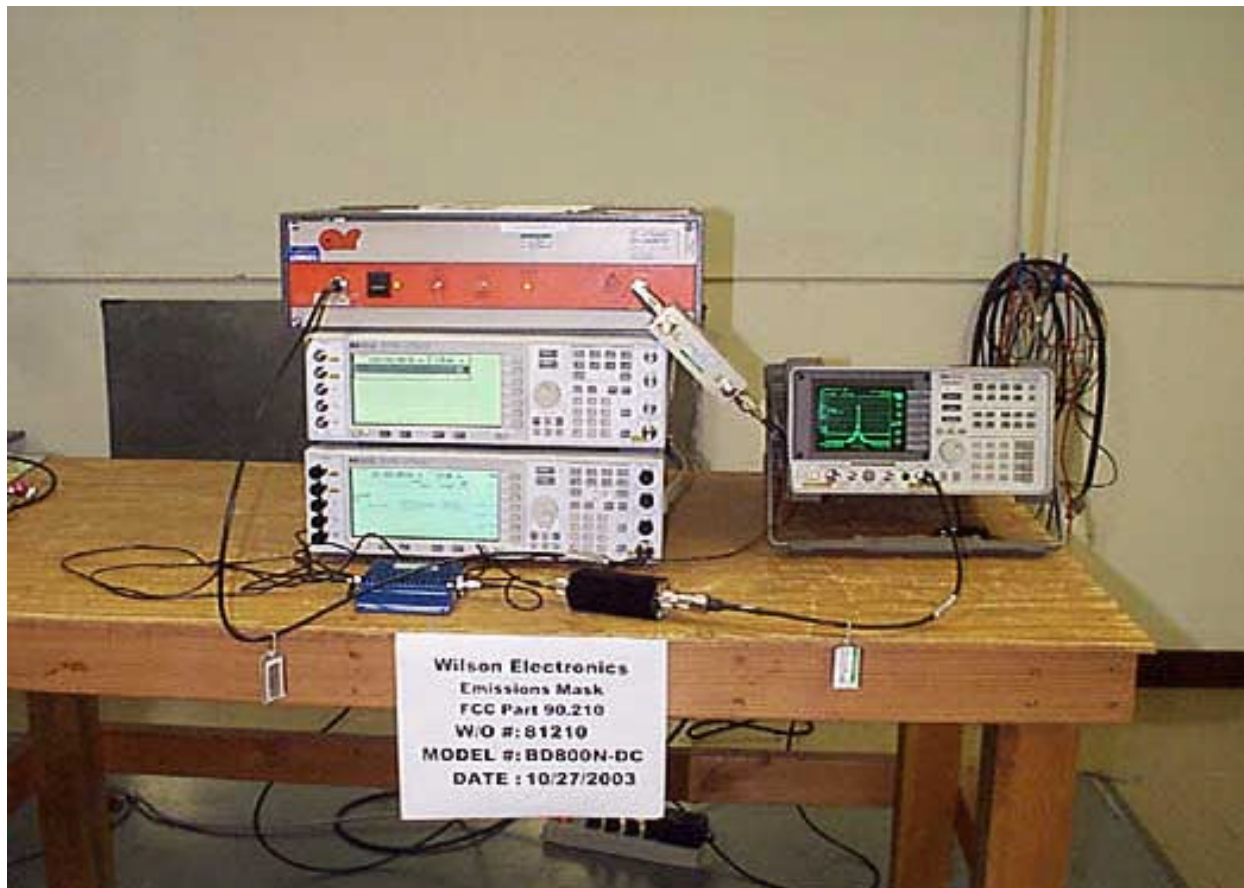
FCC 90.210 EMISSIONS MASK, MID CHANNEL ANTENNA SIDE



FCC 90.210 EMISSIONS MASK, HIGH CHANNEL ANTENNA SIDE



FCC 90.210 EMISSIONS MASK



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

FCC 2.1051- INTERMODULATION ATTENUATION

Bandwidth settings used: RBW=1 MHz, VBW=1 MHz.

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA. 94538 • 510-249-1170

Customer: **Wilson Electronics**
 Specification: **FCC 2.1051 Intermodulation Attenuation Low Edge**
 Work Order #: **81210** Date: 10/30/2003
 Test Type: **Spurious Emissions Antenna** Time: 16:19:40
Terminals
 Equipment: **Direct Connect Bidirectional Linear Amplifier** Sequence#: 1
 Manufacturer: Wilson Electronics Tested By: Matthew Pettersen
 Model: BD800N-DC
 S/N: 5956

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Signal Generator E4432B	US38330168	10/03/2003	10/03/2004	0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5956

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Intermodulation Attenuation. Two Signal Method.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	865.150M	62.1	+30.3				+0.0	92.4	94.0	-1.6	Direc
									Low Frequency Edge		
2	844.100M	59.9	+30.4				+0.0	90.3	94.0	-3.7	Direc
									Low Frequency Edge		

3	874.500M	59.9	+30.3	+0.0	90.2	94.0 High Frequency Edge	-3.8	Direc
4	850.200M	59.7	+30.3	+0.0	90.0	94.0 High Frequency Edge	-4.0	Direc
5	872.200M	47.2	+30.3	+0.0	77.5	94.0 Low Frequency Edge	-16.5	Direc
6	842.200M	44.1	+30.4	+0.0	74.5	94.0 High Frequency Edge	-19.5	Direc
7	882.500M	41.4	+30.3	+0.0	71.6	94.0 High Frequency Edge	-22.4	Direc

Test Location: CKC Laboratories, Inc. • 1100 Fulton Place • Fremont, CA, 94538 • 510-249-1170

Customer: **Wilson Electronics**

Specification: **FCC 2.1051 Intermodulation Attenuation Low Edge**

Work Order #: **81210**

Date: 10/30/2003

Test Type: **Spurious Emissions Antenna**

Time: 16:19:40

Terminals

Equipment: **Direct Connect Bidirectional Linear Amplifier**

Sequence#: 1

Manufacturer: Wilson Electronics

Tested By: Matthew Pettersen

Model: BD800N-DC

S/N: 5956

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Signal Generator E4432B	US38330168	10/03/2003	10/03/2004	0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AC-DC Adapter	Wilson Electronics	JOD-48U-36	none
Direct Connect Bidirectional Linear Amplifier*	Wilson Electronics	BD800N-DC	5956

Support Devices:

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

Test Conditions / Notes:

The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer. Intermodulation Attenuation. Two Signal Method.

Transducer Legend:

T1=Pad 30dB

Measurement Data:

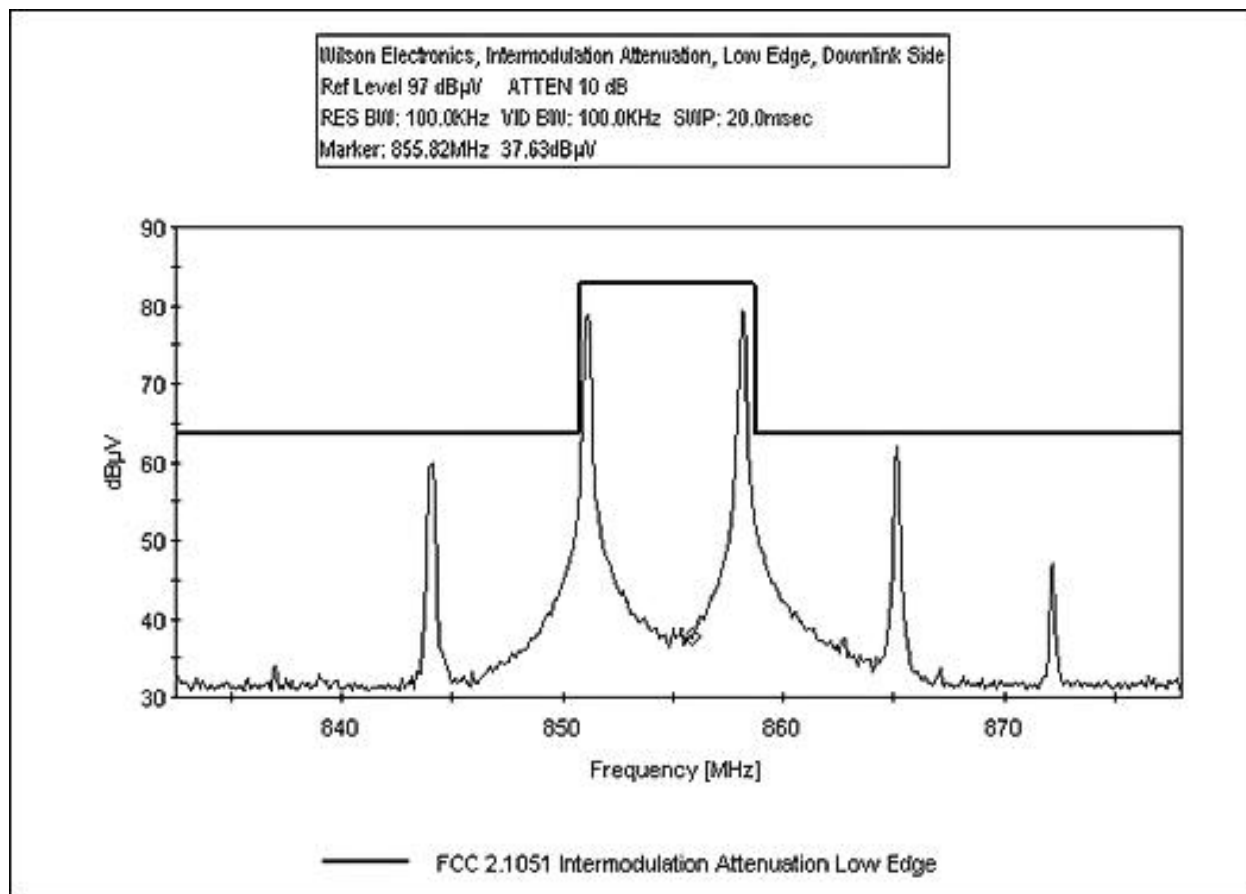
Reading listed by margin.

Test Distance: None

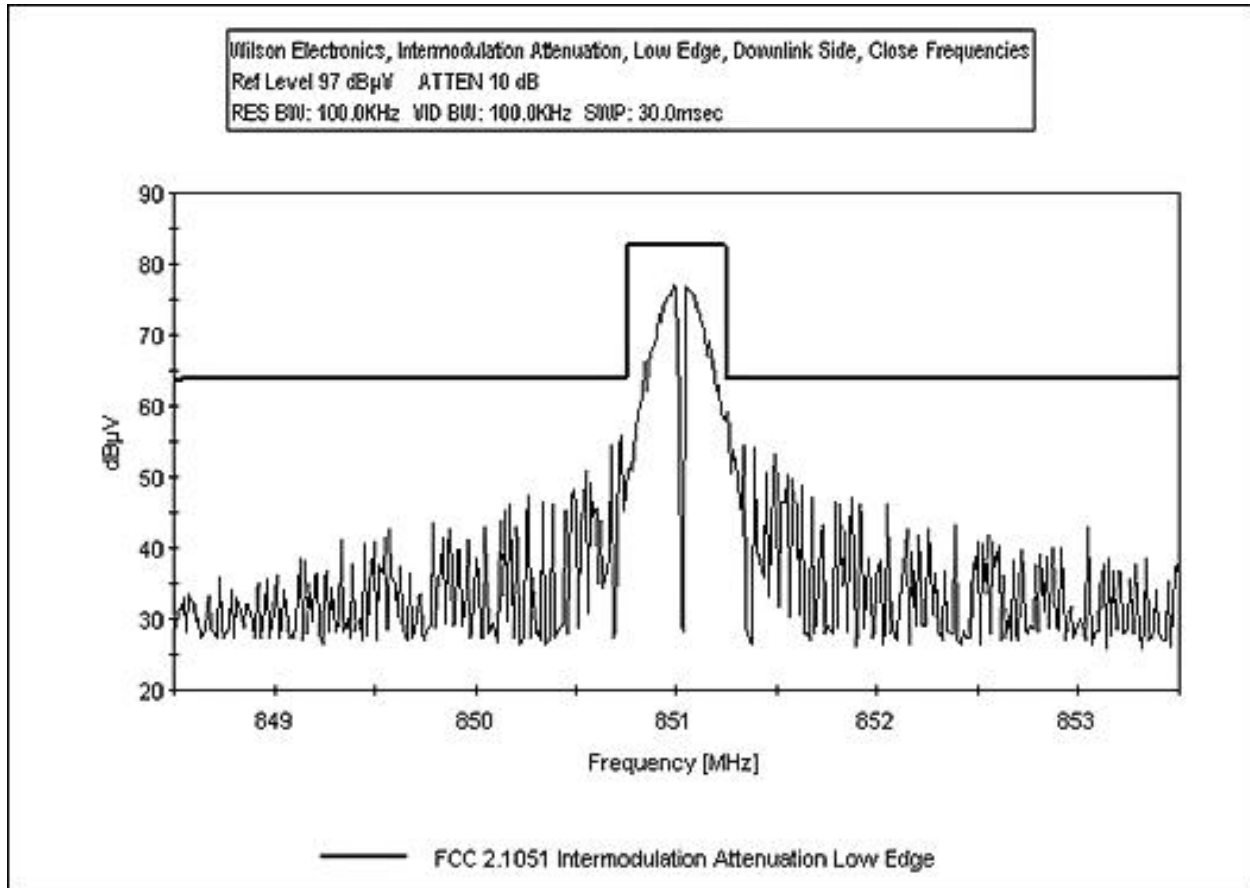
#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	865.150M	62.1	+30.3				+0.0	92.4	94.0	-1.6	Direc
									Low Frequency Edge		
2	844.100M	59.9	+30.4				+0.0	90.3	94.0	-3.7	Direc
									Low Frequency Edge		
3	874.500M	59.9	+30.3				+0.0	90.2	94.0	-3.8	Direc
									High Frequency Edge		
4	850.200M	59.7	+30.3				+0.0	90.0	94.0	-4.0	Direc
									High Frequency Edge		

5	872.200M	47.2	+30.3	+0.0	77.5	94.0	-16.5	Direc
						Low Frequency		
						Edge		
6	842.200M	44.1	+30.4	+0.0	74.5	94.0	-19.5	Direc
						High Frequency		
						Edge		
7	882.500M	41.4	+30.3	+0.0	71.6	94.0	-22.4	Direc
						High Frequency		
						Edge		

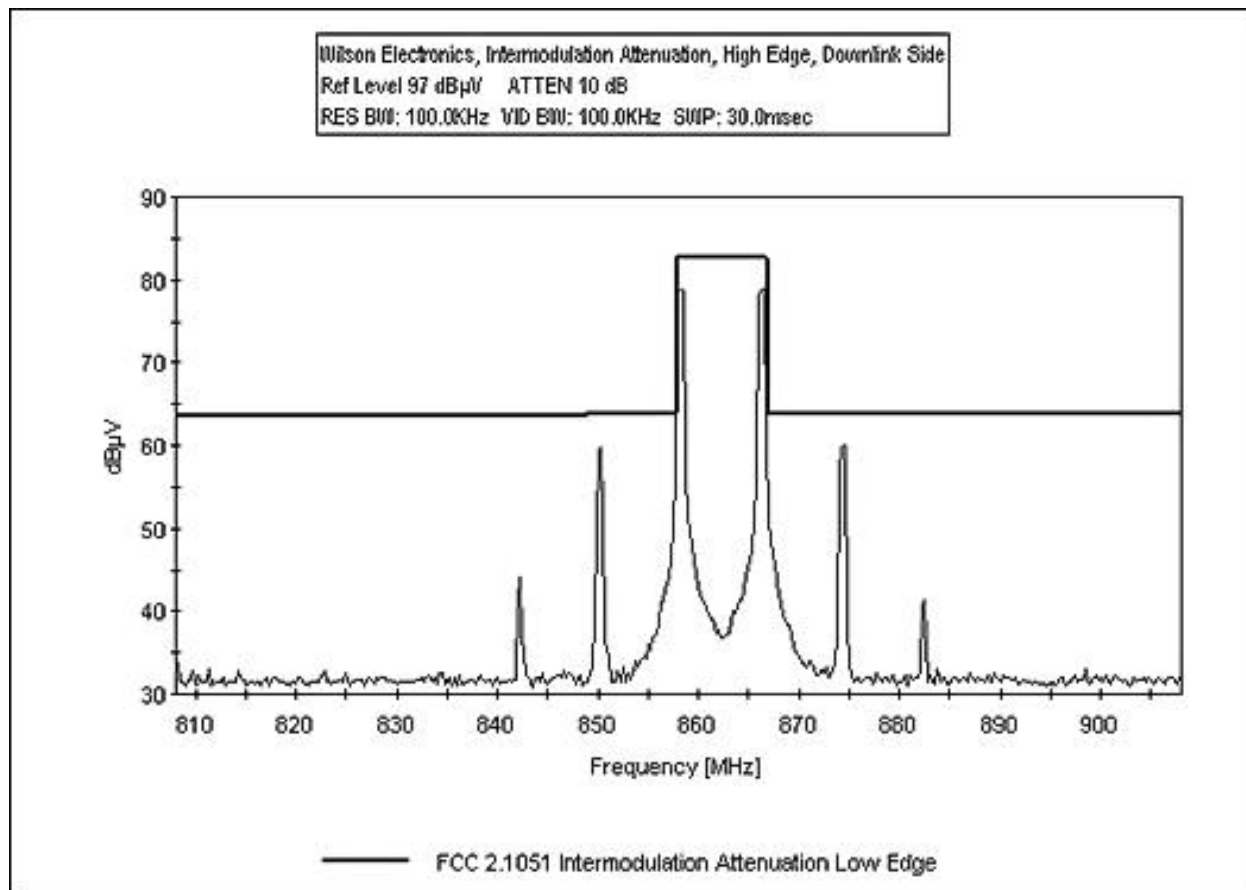
FCC 2.1051 INTERMODULATION ATTENUATION, LOW EDGE, DOWNLINK SIDE



FCC 2.1051 INTERMODULATION ATTENUATION, LOW EDGE, DOWNLINK SIDE



FCC 2.1051 INTERMODULATION ATTENUATION, HIGH EDGE, DOWNLINK SIDE



FCC 2.1051 INTERMODULATION ATTENUATION



FCC 2.1033(c)(14)/2.1053/90.210 - FIELD STRENGTH OF SPURIOUS RADIATION

Bandwidth settings used: RBW=1 MHz, VBW=1 MHz.

Whip Antenna

Operating Frequency: 806-821 MHz

Channels: 806 MHz, 813 MHz & 821 MHz

Highest Measured Output Power: 33.80 EIRP(dBm)= 2.4 EIRP(Watts)

Distance: 3 meters

Limit: $43+10\log(P)$ 46.80 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
5,642.00	-19.7	Horiz	53.50
4,030.02	-21.60	Horiz	55.40
4,836.35	-24.20	Vert	58.00
3,224.02	-25.40	Horiz	59.20
2,418.04	-26.10	Horiz	59.90
3,223.63	-27.20	Vert	61.00
7,254.00	-27.30	Horiz	61.10
7,253.96	-27.40	Vert	61.20
987.31	-32.00	Vert	65.80
1,612.00	-32.80	Horiz	66.60
2,417.99	-35.30	Vert	69.10
801.52	-36.30	Vert	70.10
1,612.04	-37.30	Vert	71.10
624.77	-37.80	Horiz	71.60
443.53	-42.00	Horiz	75.80
727.34	-44.30	Horiz	78.10
889.26	-45.90	Horiz	79.70
703.53	-50.20	Horiz	84.00
908.51	-50.80	Horiz	84.60
280.81	-57.80	Vert	91.60
434.55	-58.30	Horiz	92.10
208.75	-58.90	Vert	92.70
140.94	-59.50	Vert	93.30
202.52	-59.80	Vert	93.60
164.56	-60.20	Vert	94.00
77.33	-65.50	Vert	99.30
53.04	-69.80	Vert	103.60
3,251.10	-24.30	Horiz	58.10
2,438.05	-26.50	Horiz	60.30

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
1.626.48	-33.30	Horiz	67.10
994.29	-34.20	Horiz	68.00
2.438.97	-37.60	Vert	71.40
1.626.02	-39.00	Vert	72.80
631.79	-39.80	Horiz	73.60
445.99	-46.80	Horiz	80.60
905.20	-53.60	Horiz	87.40
34.53	-54.90	Vert	88.70
803.93	-55.20	Horiz	89.00
811.09	-56.60	Horiz	90.40
397.04	-57.10	Horiz	90.90
30.04	-57.30	Vert	91.10
3.251.97	-59.10	Vert	92.90
318.29	-60.60	Horiz	94.40
4.064.97	-61.90	Vert	95.70
157.54	-62.50	Vert	96.30
283.28	-63.80	Horiz	97.60
86.75	-66.20	Vert	100.00
126.20	-68.10	Vert	101.90
74.85	-68.60	Vert	102.40
4.925.94	-26.00	Vert	59.80
2.462.94	-26.50	Vert	60.30
2.462.76	-27.60	Horiz	61.40
3.283.94	-28.30	Vert	62.10
3.284.06	-28.50	Horiz	62.30
821.99	-30.10	Vert	63.90
1.642.98	-31.10	Horiz	64.90
4.925.94	-33.50	Vert	67.30
1.642.38	-34.50	Vert	68.30
639.77	-36.20	Horiz	70.00
825.48	-37.40	Vert	71.20
8.209.94	-37.60	Vert	71.40
899.77	-39.90	Horiz	73.70
458.48	-41.00	Horiz	74.80
5.747.06	-41.20	Horiz	75.00
635.23	-46.00	Horiz	79.80
42.55	-49.30	Vert	83.10
728.82	-52.70	Horiz	86.50
295.83	-56.50	Vert	90.30
149.55	-56.50	Vert	90.30
409.59	-56.90	Horiz	90.70
223.82	-56.90	Vert	90.70
31.80	-57.30	Vert	91.10
217.58	-60.20	Vert	94.00
447.51	-61.80	Horiz	95.60
110.07	-62.00	Vert	95.80
114.54	-64.00	Vert	97.80
67.84	-73.40	Vert	107.20
57.35	-78.10	Vert	111.90

Whip Antenna

Operating Frequency: 806-821 MHz

Channels: 806 MHz, 813 MHz & 821 MHz

Highest Measured Output Power: 34.47 EIRP(dBm)= 2.8 EIRP(Watts)

Distance: 3 meters

Limit: $43+10\log(P)$ 47.47 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
2,418.00	-21.6	Horiz	56.07
822.77	-27.50	Horiz	61.97
1,612.02	-27.90	Horiz	62.37
5,641.99	-28.30	Horiz	62.77
3,224.00	-28.80	Horiz	63.27
2,418.00	-28.90	Vert	63.37
1,611.85	-30.60	Vert	65.07
4,030.00	-32.40	Vert	66.87
5,642.00	-32.60	Vert	67.07
3,224.00	-32.70	Vert	67.17
833.48	-40.80	Horiz	75.27
183.40	-53.40	Vert	87.87
778.87	-55.20	Horiz	89.67
320.99	-63.80	Horiz	98.27
278.49	-64.60	Horiz	99.07
43.94	-65.50	Vert	99.97
76.66	-69.30	Vert	103.77
256.87	-72.20	Vert	106.67
111.05	-72.50	Vert	106.97
2,438.91	-24.00	Horiz	58.47
4,877.43	-24.80	Horiz	59.27
8,943.03	-25.10	Horiz	59.57
5,690.57	-26.30	Vert	60.77
2,439.70	-27.10	Vert	61.57
1,626.05	-27.50	Horiz	61.97
3,251.57	-27.90	Vert	62.37
6,504.03	-28.40	Horiz	62.87
3,252.25	-29.20	Horiz	63.67
1,626.36	-30.60	Vert	65.07
450.51	-31.10	Horiz	65.57
34.52	-38.60	Vert	73.07
48.29	-48.30	Horiz	82.77
602.00	-52.40	Horiz	86.87
401.72	-57.30	Horiz	91.77
780.20	-58.50	Horiz	92.97
231.56	-59.80	Horiz	94.27
31.54	-61.90	Vert	96.37
43.37	-65.10	Vert	99.57
678.22	-66.00	Horiz	100.47

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
533.77	-67.10	Horiz	101.57
37.43	-69.40	Vert	103.87
4,926.01	-26.20	Vert	60.67
3,284.77	-26.70	Vert	61.17
3,284.68	-26.80	Horiz	61.27
2,463.73	-27.10	Vert	61.57
2,463.06	-28.30	Horiz	62.77
824.00	-29.80	Horiz	64.27
899.81	-30.30	Horiz	64.77
5,746.99	-30.30	Vert	64.77
1,642.03	-32.30	Horiz	66.77
1,642.06	-34.20	Vert	68.67
900.77	-35.40	Horiz	69.87
913.18	-38.60	Horiz	73.07
31.82	-42.60	Vert	77.07
42.57	-44.00	Vert	78.47
712.52	-44.40	Horiz	78.87
879.99	-46.00	Horiz	80.47
869.01	-46.30	Horiz	80.77
37.99	-46.90	Vert	81.37
493.50	-49.70	Horiz	84.17
58.75	-51.00	Vert	85.47
947.01	-56.70	Horiz	91.17
782.71	-56.90	Horiz	91.37
394.31	-59.40	Horiz	93.87
101.50	-62.10	Horiz	96.57
293.77	-67.90	Horiz	102.37
85.21	-76.20	Vert	110.67

Uplink Cellular Side

Operating Frequency: 851 MHz - 866 MHz

Channels: 851 MHz, 858 MHz & 866 MHz

Highest Measured Output Power: 7.78 EIRP(dBm)= 0.006 EIRP(Watts)

Distance: 3 meters

Limit: $43+10\log(P)$ 20.78 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
1,702.20	-22.1	Horiz	29.88
8,510.01	-22.60	Horiz	30.38
5,957.01	-23.30	Horiz	31.08
5,106.01	-24.20	Horiz	31.98
2,553.03	-25.70	Vert	33.48
3,404.02	-28.10	Vert	35.88
3,404.01	-29.50	Horiz	37.28
3,403.95	-13.50	Horiz	21.28
1,701.99	-31.50	Vert	39.28
2,553.12	-32.80	Horiz	40.58
2,553.12	-17.90	Horiz	25.68
850.84	-44.80	Horiz	52.58
781.77	-46.40	Horiz	54.18
941.25	-49.60	Horiz	57.38
778.50	-49.80	Horiz	57.58
199.56	-57.00	Vert	64.78
204.61	-60.20	Vert	67.98
480.88	-73.70	Horiz	81.48
103.00	-76.30	Vert	84.08
187.00	-77.80	Vert	85.58
97.20	-78.70	Vert	86.48
6,006.12	-19.30	Horiz	27.08
3,431.85	-21.00	Horiz	28.78
1,715.96	-23.60	Horiz	31.38
2,574.00	-23.80	Horiz	31.58
1,715.96	-24.50	Vert	32.28
4,290.03	-26.50	Vert	34.28
2,574.01	-32.40	Vert	40.18
2,574.01	-18.40	Vert	26.18
3,432.03	-32.90	Vert	40.68
3,432.03	-17.30	Vert	25.08
975.03	-51.00	Horiz	58.78
778.51	-52.90	Horiz	60.68
86.94	-60.90	Vert	68.68
200.12	-61.30	Vert	69.08
187.25	-66.80	Horiz	74.58
48.02	-68.30	Vert	76.08
396.43	-71.10	Horiz	78.88
858.30	-80.20	Horiz	87.98

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
6,061.99	-19.40	Horiz	27.18
2,597.77	-19.80	Vert	27.58
1,732.26	-21.40	Vert	29.18
5,195.98	-23.70	Horiz	31.48
1,732.09	-23.70	Horiz	31.48
2,598.09	-25.80	Horiz	33.58
6,927.96	-27.50	Vert	35.28
7,793.96	-28.50	Vert	36.28
3,464.02	-32.30	Vert	40.08
3,464.02	-15.60	Vert	23.38
3,463.98	-33.10	Horiz	40.88
3,463.98	-18.50	Horiz	26.28
870.12	-51.90	Horiz	59.68
72.70	-60.80	Vert	68.58
313.50	-62.70	Horiz	70.48
264.54	-66.30	Vert	74.08
55.28	-75.70	Vert	83.48
813.53	-81.00	Horiz	88.78
781.78	-101.70	Horiz	109.48

Test Conditions : The EUT is a Direct Connect Bidirectional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator which is connected to the spectrum analyzer.

Spurious Emissions Field Strength 30MHz - 9GHz.

Low 806 MHz, Mid 813 MHz and High 821 MHz, downlink side, Whip antenna.

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368
Ant., Bilog, Chase CBL6111C	2630	10/04/2002	10/04/2004	852
QP Adapter HP-85650A	2043A00188	10/08/2002	10/08/2004	1508
Preamp, HP-8447F	2944A03850	03/05/2003	03/05/2004	501
Cable, H-B 3M Rad., .01-1000MHz	rad_cab_3M_03_hol-b.01-1000MHz	08/04/2003	08/04/2005	0
S.A., Display HP-85662A	2542A10641	03/11/2003	03/11/2004	1377
S.A., RF Section HP-8568B	2601A02378	03/11/2003	03/11/2004	1377
Cable, H-B 3M Rad. 1-13.5GHz	Hol-B 3-m rad cable-01-1GHz-13.5GHz	10/02/2002	10/02/2004	0
Preamp, HP-83017A	3123A00283	05/13/2003	05/13/2005	785
Cable, HF, 2-ft, 1-18GHz	hol-hf-002-01	10/02/2002	10/02/2004	0
Ant., Horn, Emco 3115	9307-5655	02/26/2003	02/26/2004	2157

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View Uplink Side

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View Uplink Side

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View Downlink Side - Whip Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View Downlink Side - Whip Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View Downlink Side - Yagi Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS

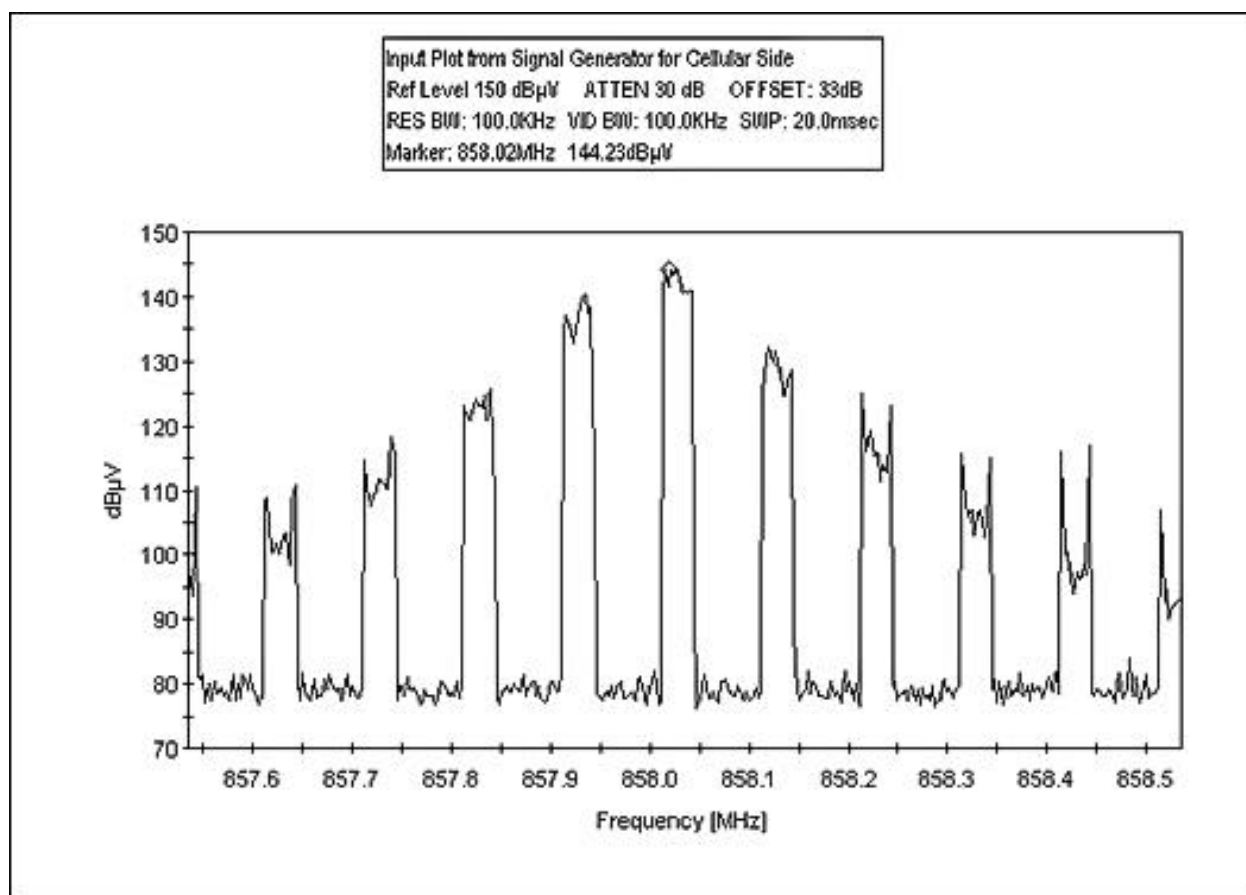


Radiated Emissions - Back View Downlink Side - Yagi Antenna

INPUT PLOT FROM SIGNAL GENERATOR FOR CELLULAR SIDE

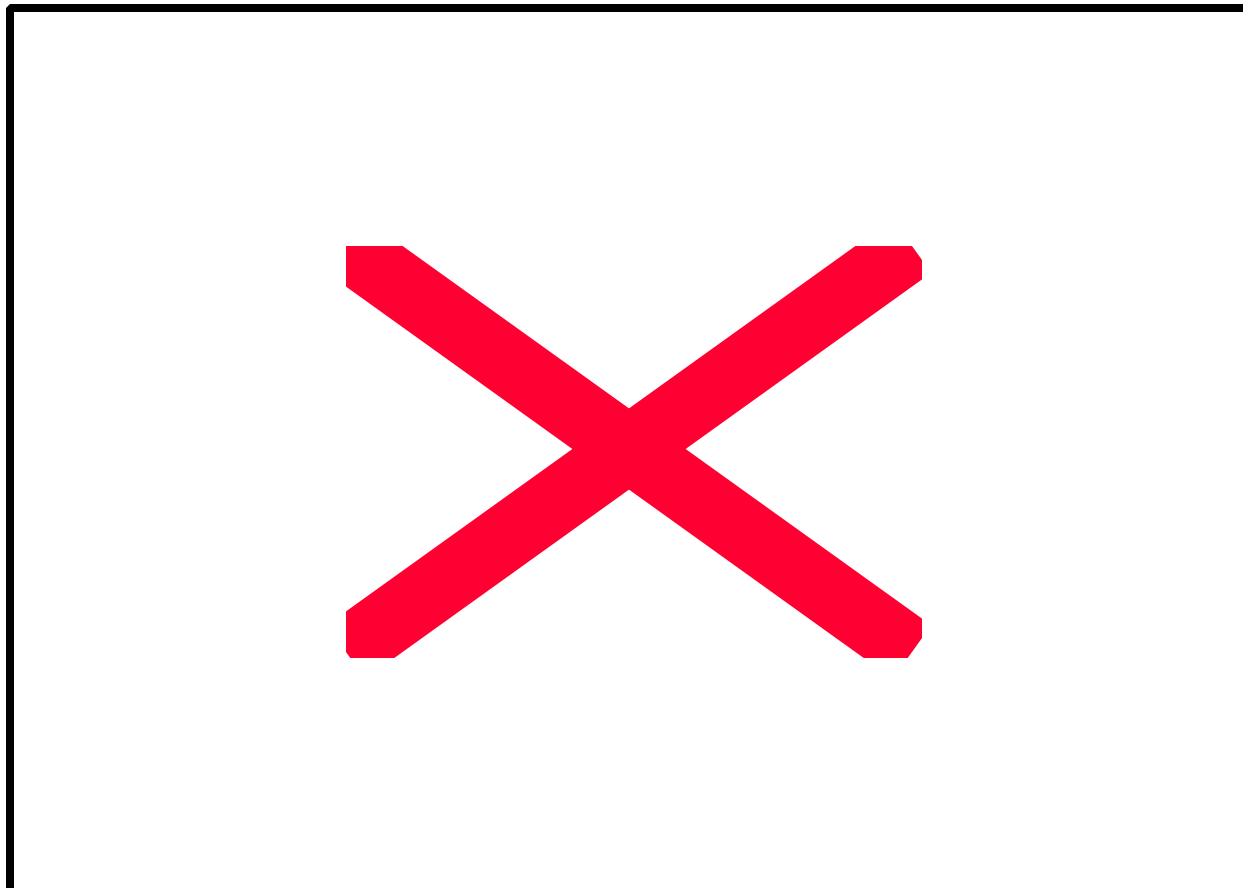
ANT SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler, which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

CELL SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to the antenna side of the amplifier (EUT). The cell side of the amplifier (EUT) is under test. The cell side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.



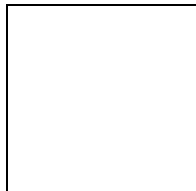
Note: The absolute levels were not corrected for attenuation.

INPUT PLOT FROM SIGNAL GENERATOR FOR ANTENNA SIDE



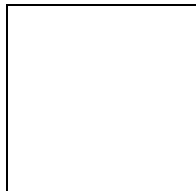
Note: The absolute levels were not corrected for attenuation.

OUTPUT PLOT, MID CHANNEL ON CELLULAR SIDE



Note: The absolute levels were not corrected for attenuation.

OUTPUT PLOT, MID CHANNEL ON ANTENNA SIDE



Note: The absolute levels were not corrected for attenuation.

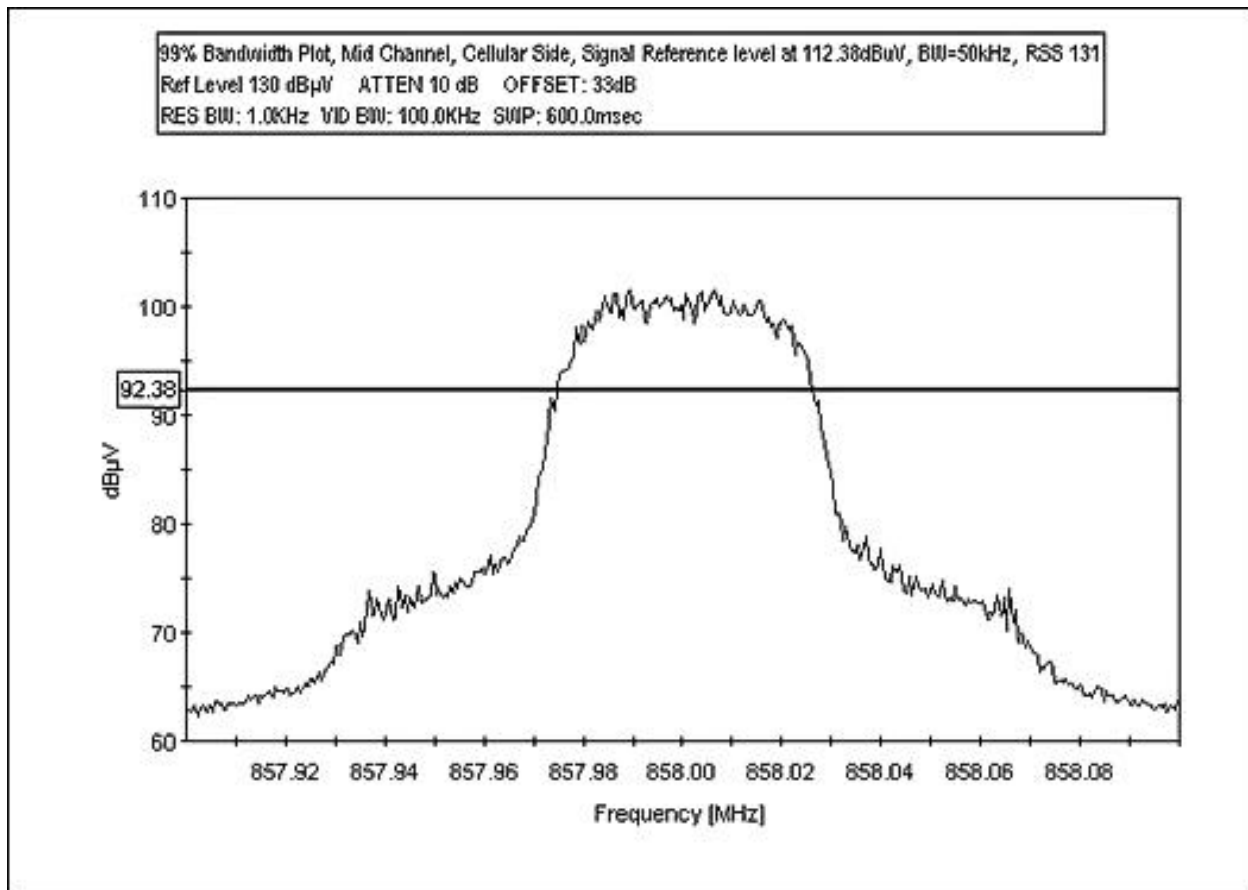
Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

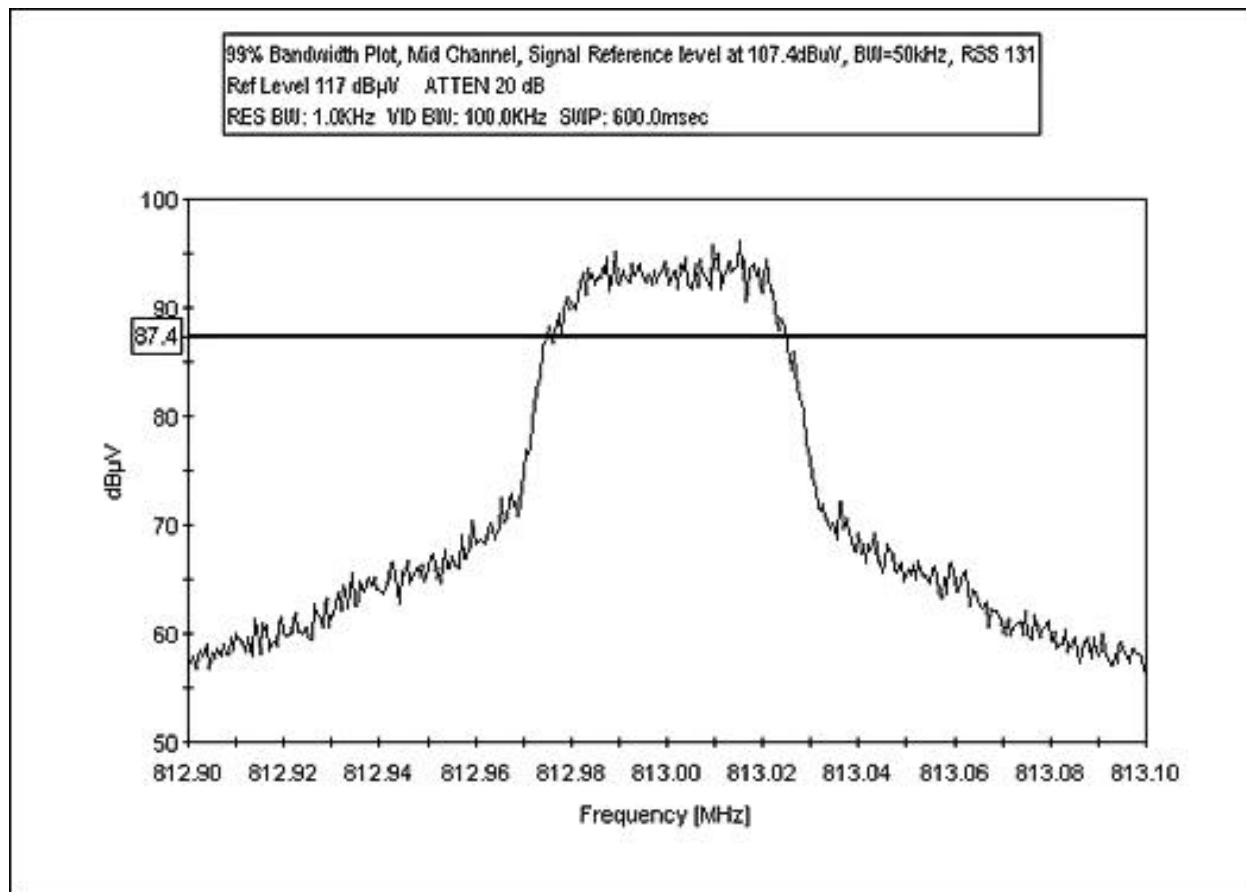
RSS 131 99% BANDWIDTH PLOT, CELLULAR SIDE

ANT SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler, which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

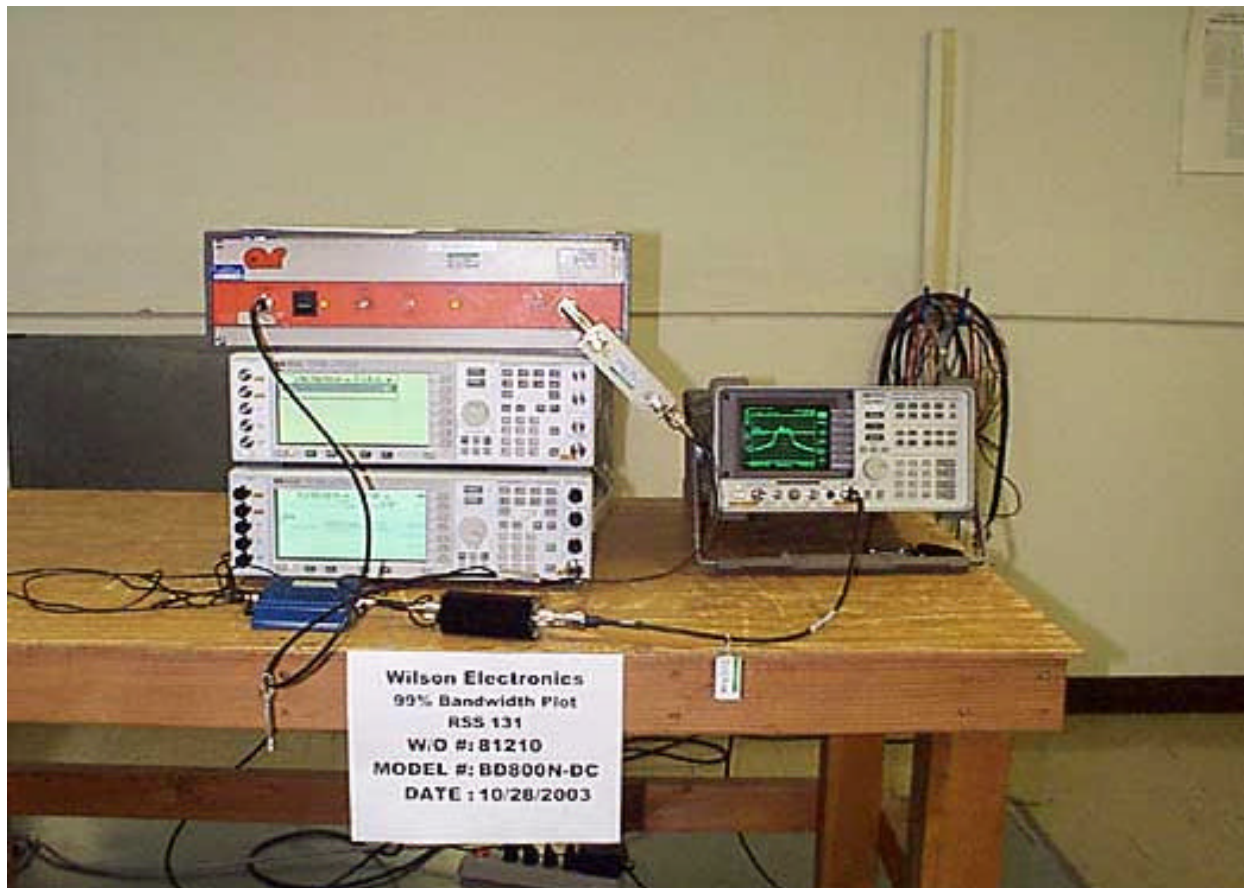
CELL SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to the antenna side of the amplifier (EUT). The cell side of the amplifier (EUT) is under test. The cell side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.



RSS 131 99% BANDWIDTH PLOT, ANTENNA SIDE



RSS 131 99% BANDWIDTH



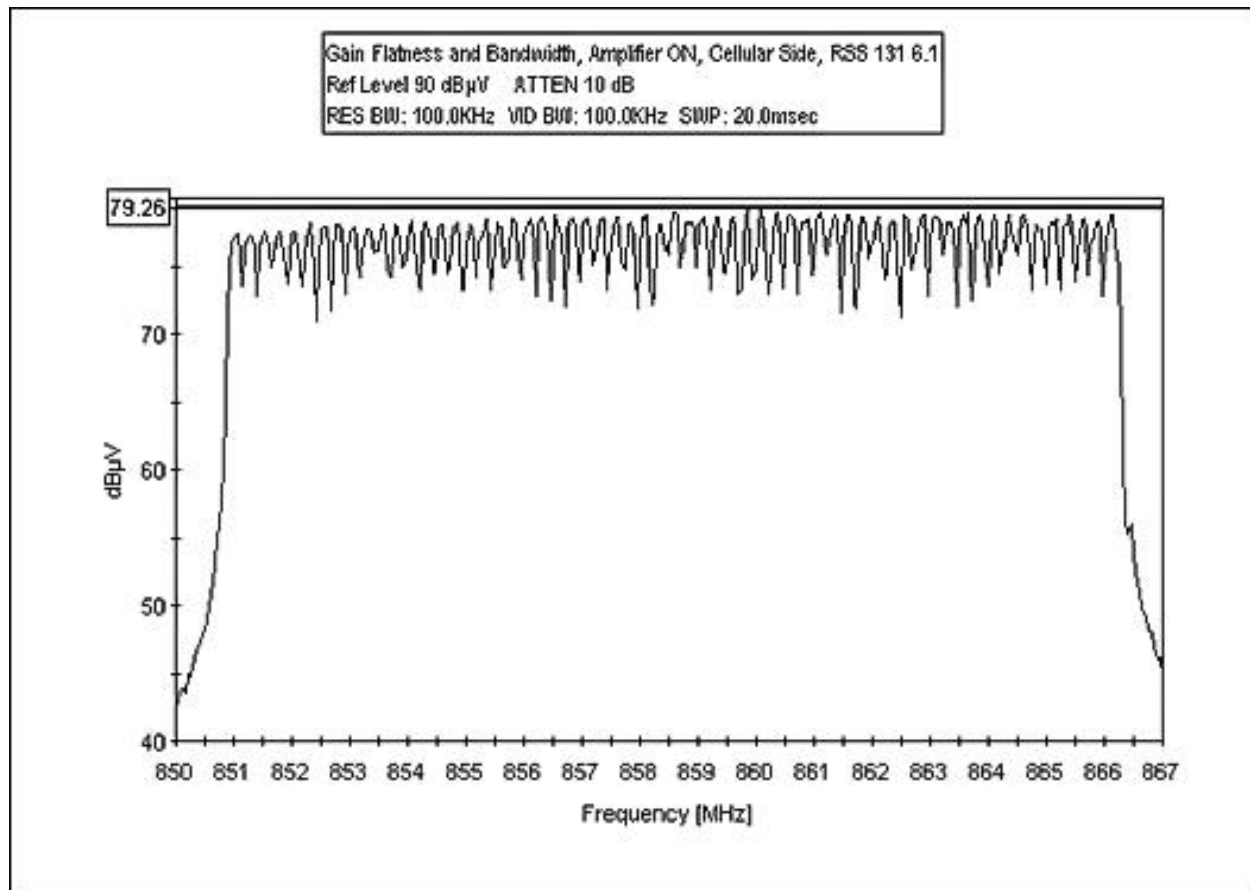
Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368

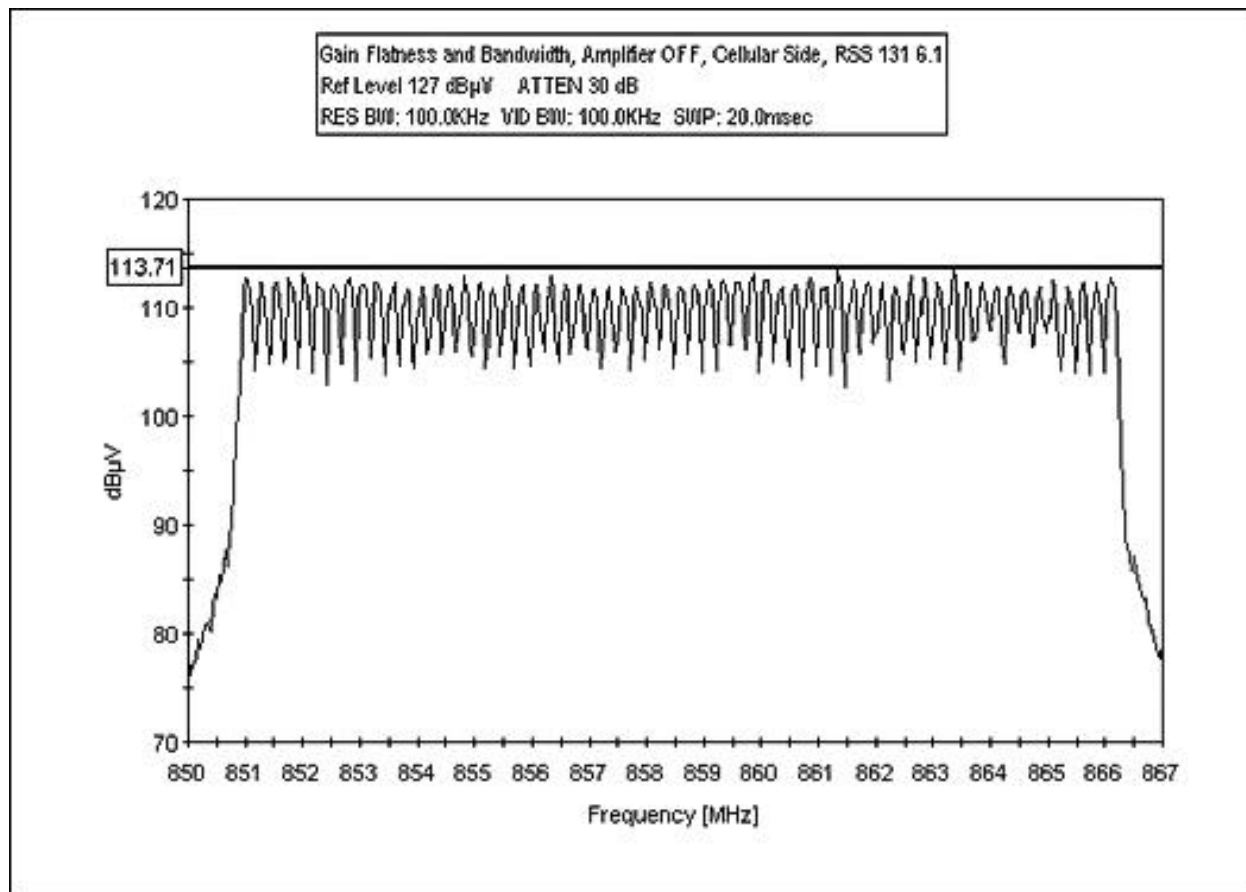
RSS 131 GAIN FLATNESS AND BANDWIDTH, AMPLIFIER ON CELLULAR SIDE

ANT SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to an amplifier (test equipment). The output of the amplifier (test equipment) is connected to a directional coupler, which is connected to the cellular phone side of the amplifier (EUT). The antenna side of the amplifier (EUT) is under test. The antenna side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.

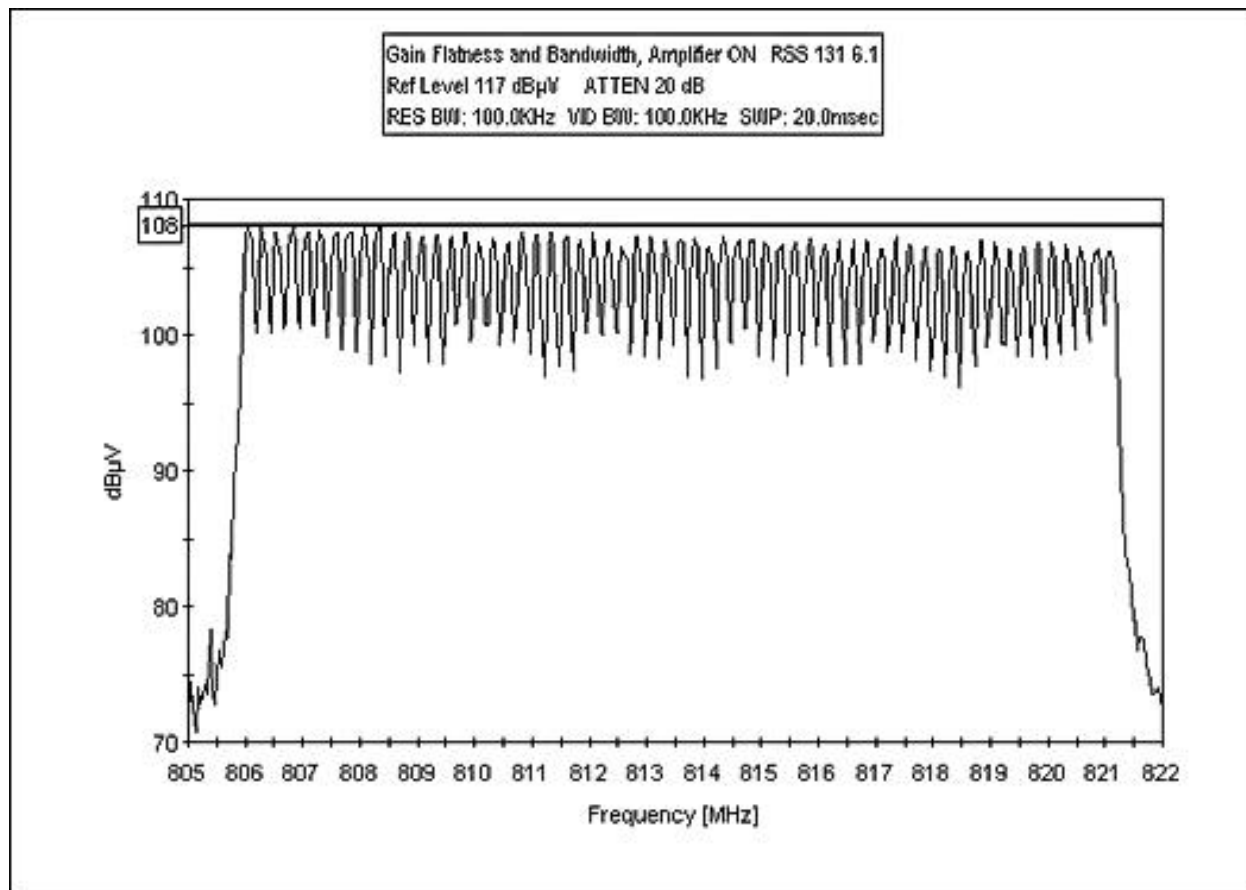
CELL SIDE of EUT: The EUT is a Direct Connect Bi-directional Linear Amplifier. An AC Adapter is connected to and is providing power to the unit. A signal generator is connected to the antenna side of the amplifier (EUT). The cell side of the amplifier (EUT) is under test. The cell side of the amplifier (EUT) is connected to an attenuator, which is connected to the spectrum analyzer.



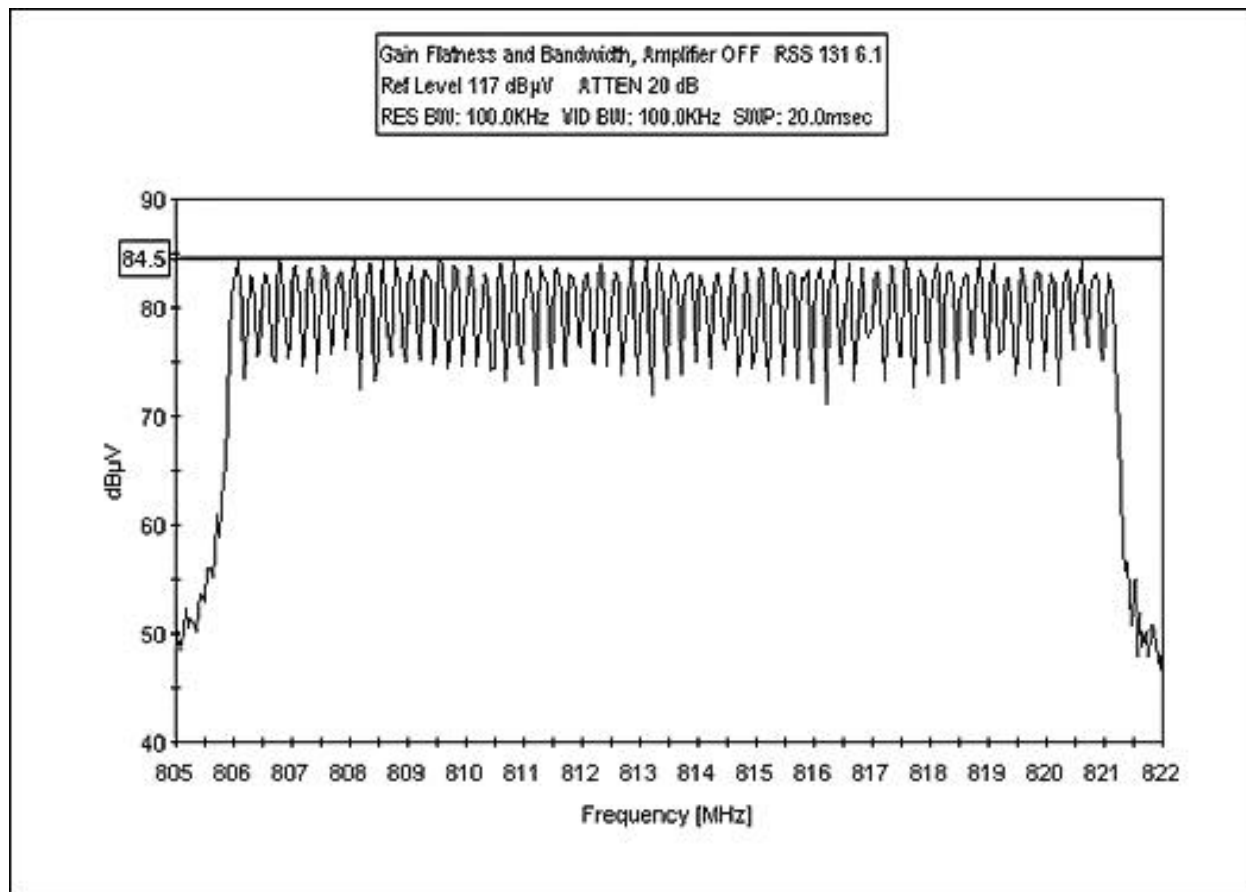
RSS 131 GAIN FLATNESS AND BANDWIDTH, AMPLIFIER OFF, CELLULAR SIDE



RSS 131 GAIN FLATNESS AND BANDWIDTH, AMPLIFIER ON



RSS 131 GAIN FLATNESS AND BANDWIDTH, AMPLIFIER OFF



RSS 131 GAIN FLATNESS AND BANDWIDTH



Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP Spectrum Analyzer 8596E	3346A00209	01/19/2003	01/19/2004	784
Bird Attenuator 25-A-MFN-30	9724	05/08/2003	05/08/2005	0
Directional Coupler	3804	10/16/2003	10/16/2004	744
AR Amplifier 30W1000M7	18694	07/16/2003	07/16/2004	1368