WILSON ELECTRONICS TEST REPORT

FOR THE

BIDIRECTIONAL AMPLIFIER REPEATER, 804004

FCC PART 90 AND RSS 131

COMPLIANCE

DATE OF ISSUE: FEBRUARY 4, 2004

PREPARED FOR:

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

PREPARED BY:

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

W.O. No.: 81776

Date of test: January 15-30, 2004

Report No.: FC04-011

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ADMINISTRATIVE INFORMATION

DATE OF TEST:	January 15-30, 2004
DATE OF RECEIPT:	January 15, 2004
PURPOSE OF TEST:	To demonstrate the compliance of the Bidirectional Amplifier Repeater, 804004 with the requirements for FCC Part 90 and RSS 131 devices.
TEST METHOD:	FCC Part 90 and RSS 131
FREQUENCY RANGE TESTED:	30 MHz - 10 GHz
MANUFACTURER:	Wilson Electronics 3301 East Deseret Drive St. George, UT 84790
REPRESENTATIVE:	Patrick Cook
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the Wilson Electronics Bidirectional Amplifier Repeater, 804004 was found to be fully compliant with the following standards and specifications:

United States
- FCC Part 90

Canada
RSS-131 using:
- FCC Part 90

COMPARISON 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	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)

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:

Randy Clark, EMC Engineer

Mike Wilkinson, Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit

EQUIPMENT UNDER TEST

Bidirectional Amplifier Repeater
Manuf: Wilson Electronics
Model: 804004
Serial: NB6-008903
FCC ID: pending

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

PERIPHERAL DEVICES

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

Signal Generator
Manuf: HP
Model: E4432B
Serial: US40052283
FCC ID: DoC

Signal Generator
Manuf: HP
Model: E4432B
Serial: US38330168
FCC ID: DoC

RF Combiner
Manuf: Motorola
Model: NA
Serial: P1314
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
Downlink 851-866 MHz, Uplink 806-821 MHz.

FCC 2.1033 (c)(6) OPERATING POWER
Downlink 10.8 mW, Uplink 1.89 Watts.

FCC 2.1033 (c)(7) MAXIMUM POWER RATING
Subject to secondary licensing.

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
iDEN

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

Test Conditions: EUT is a bi-directional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz.

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.

RF power output of the amplifier is routed to a spectrum analyzer through suitable attenuation. RBW=VBW=300kHz

Downlink

Frequency (MHz)	*Modulation*	*Power Output (milliWatts)*
851	iDEN	10.3
866	iDEN	10.8

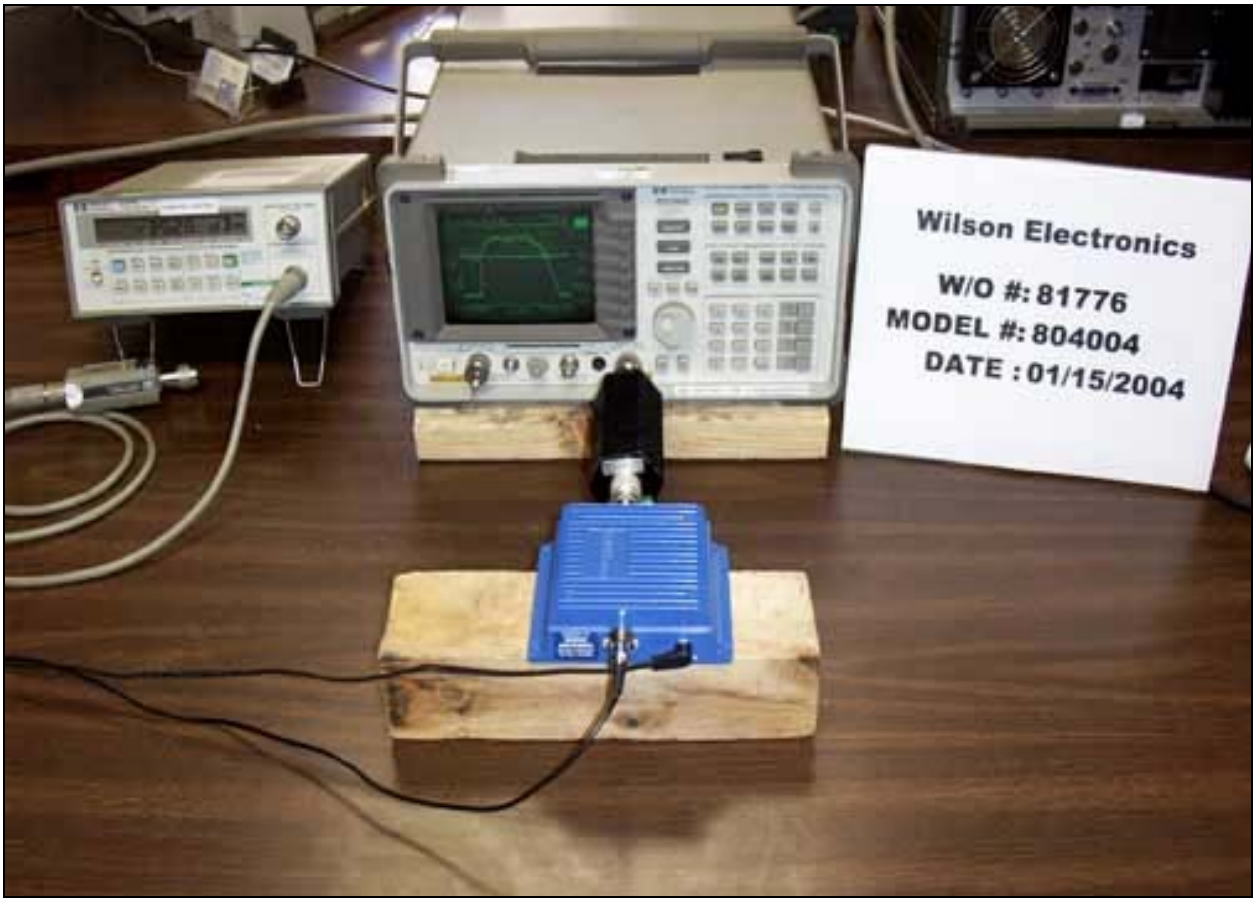
Uplink

Frequency (MHz)	*Modulation*	*Power Output (Watts)*
806	iDEN	1.89
821	iDEN	1.66

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

DIRECT CONNECT TEST SETUP



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

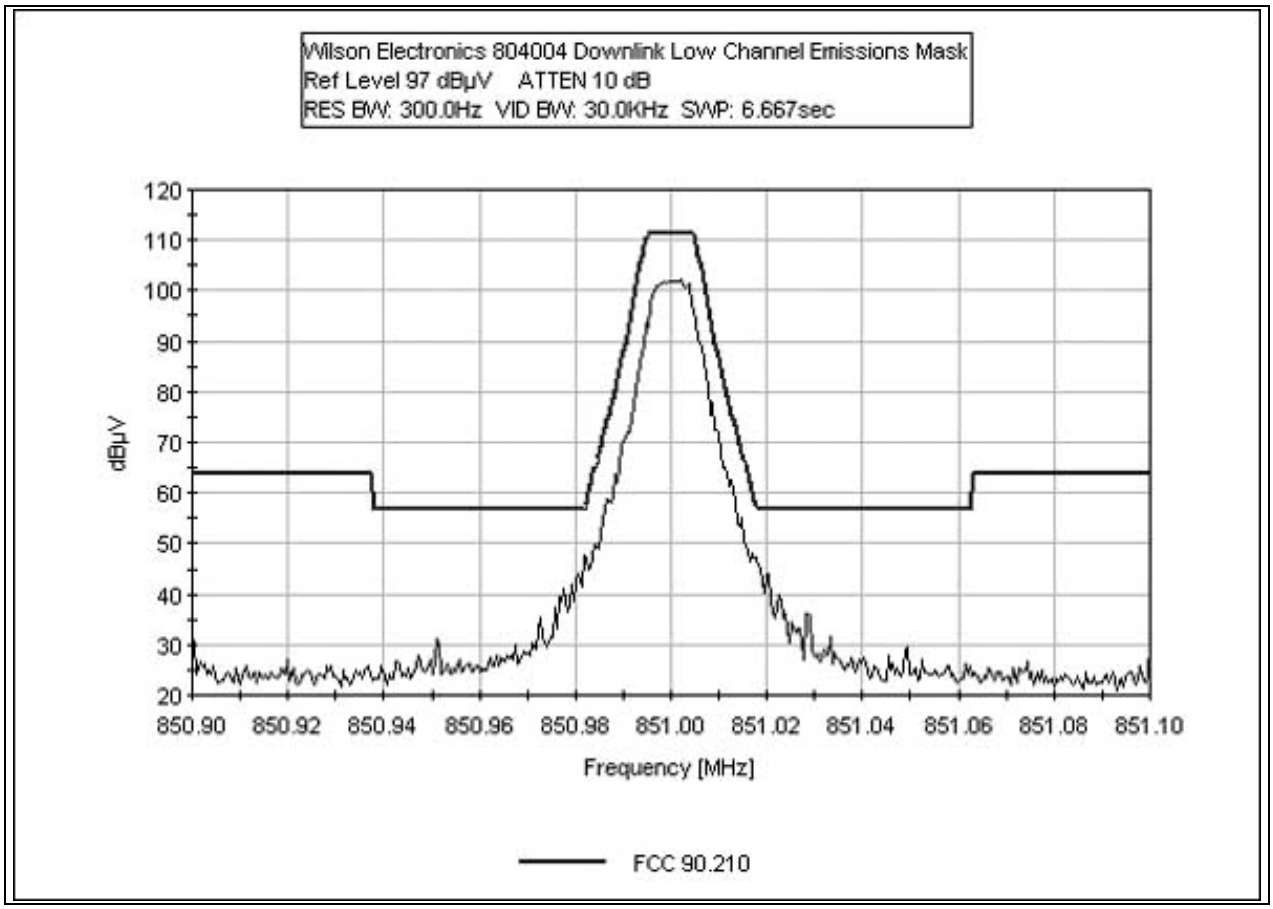
Not applicable to this unit.

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

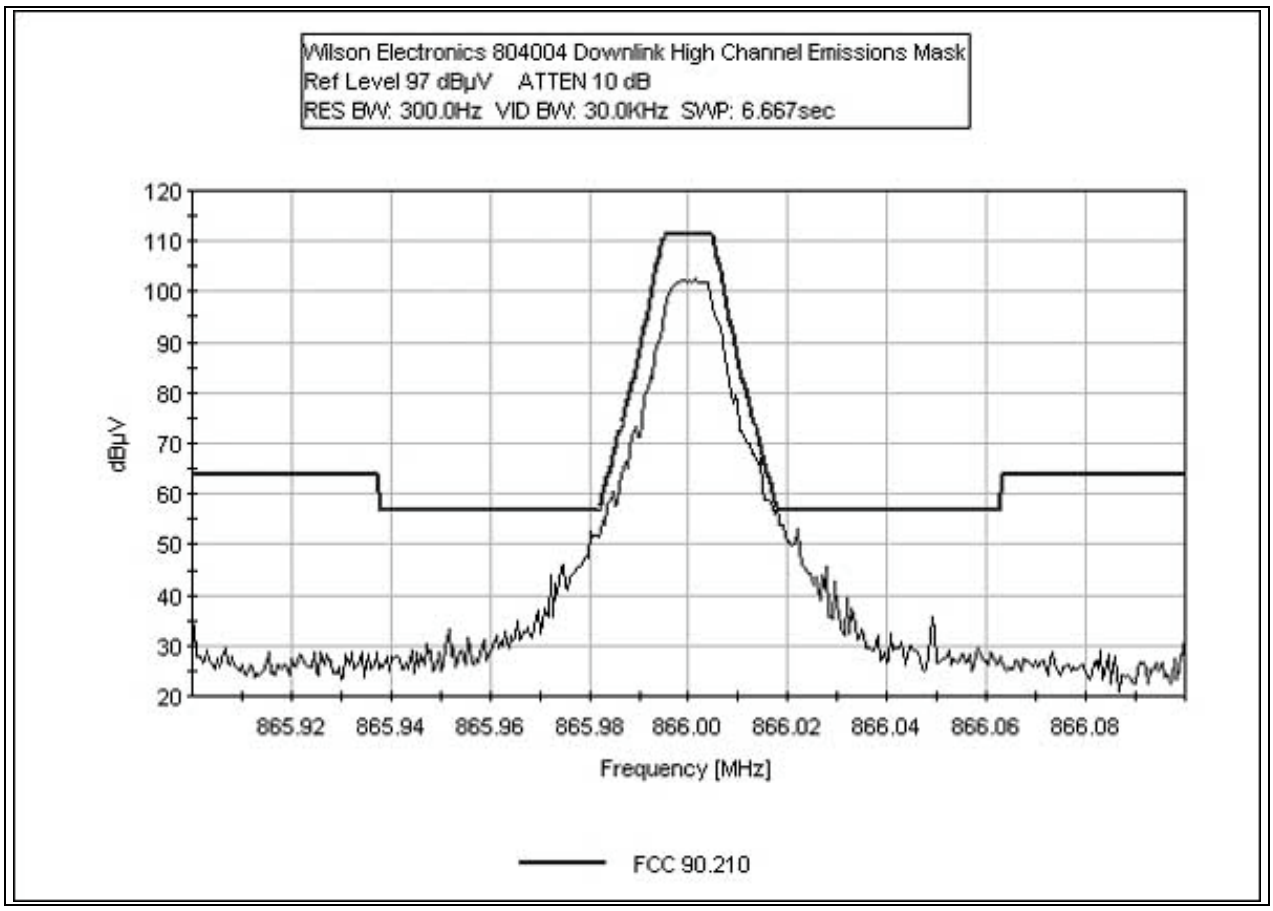
Not applicable to this unit.

FCC 2.1033(c)(14)/2.1049(i)/90.210- EMISSIONS MASK LOW CHANNEL

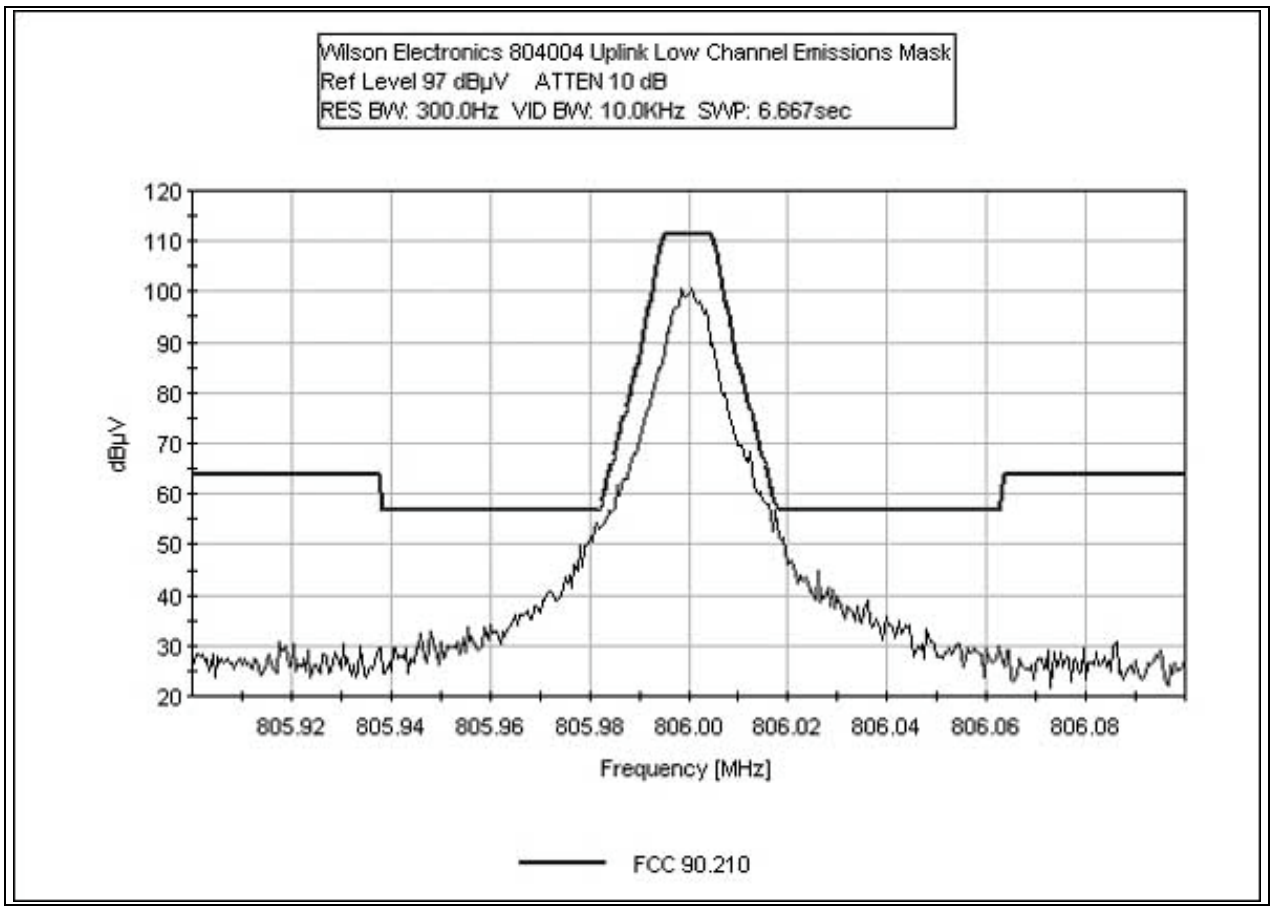
Test Conditions: EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz.



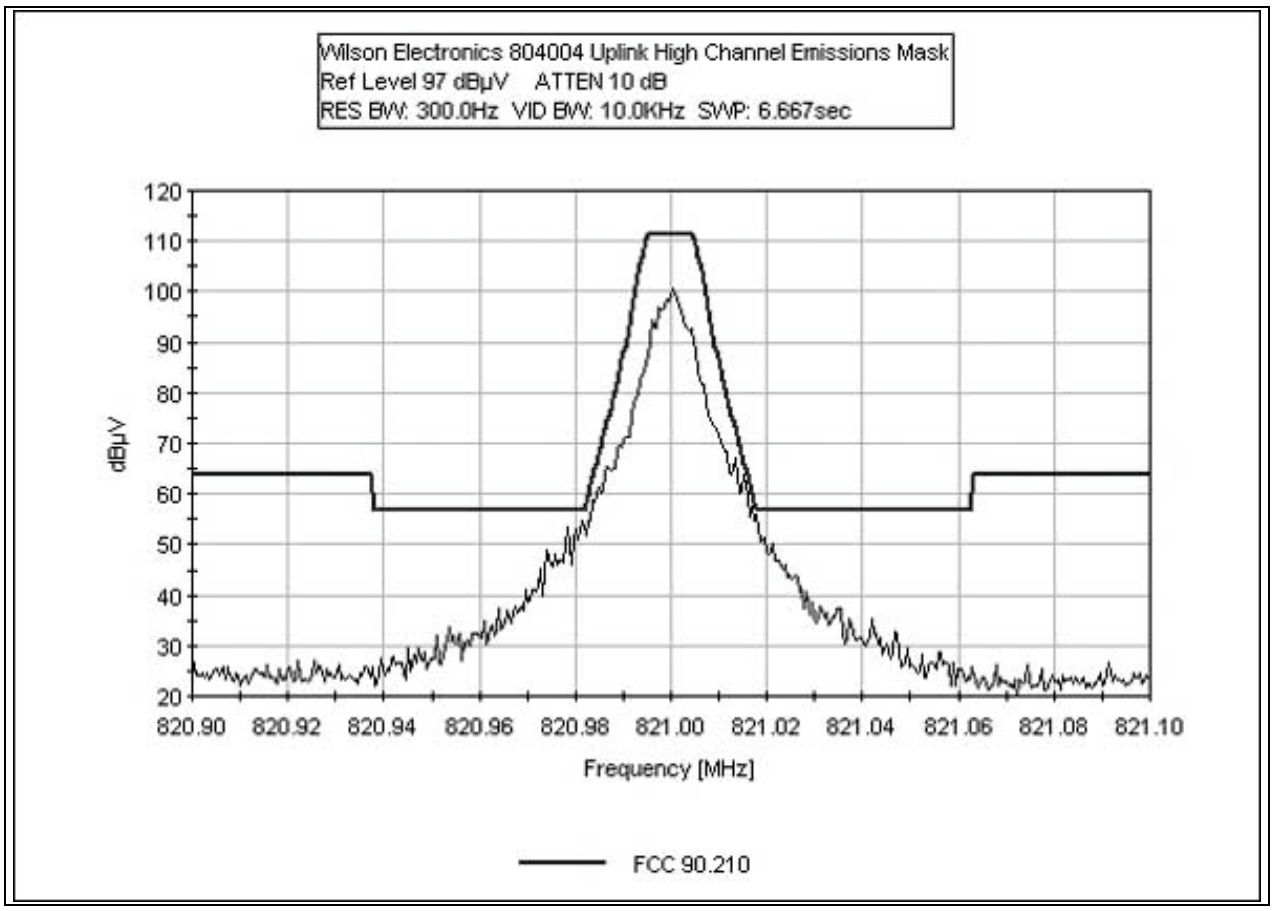
FCC 90.210 - DOWNLINK EMISSIONS MASK HIGH CHANNEL



FCC 90.210 - UPLINK EMISSIONS MASK LOW CHANNEL



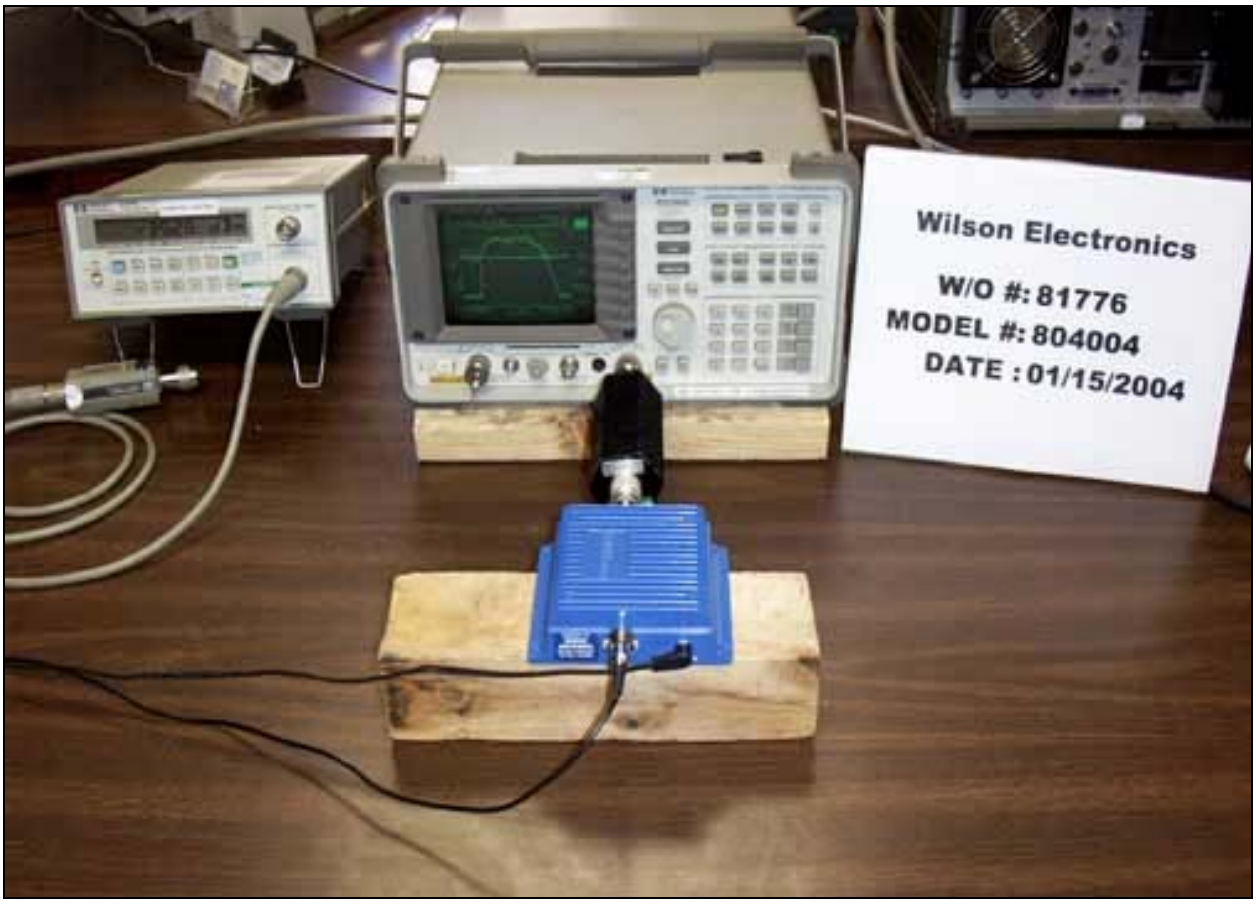
FCC 90.210 - UPLINK EMISSIONS MASK HIGH CHANNEL



Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

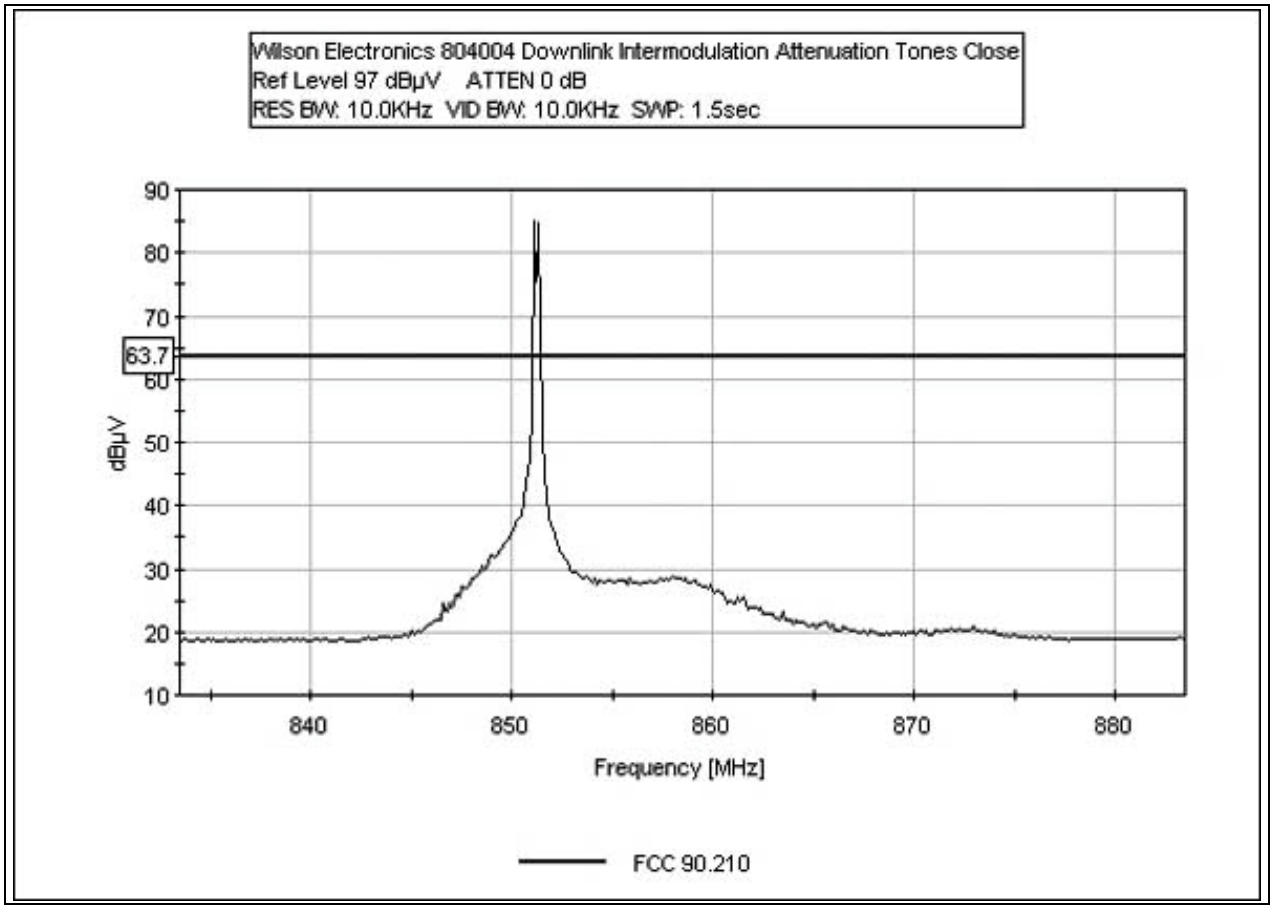
DIRECT CONNECT TEST SETUP



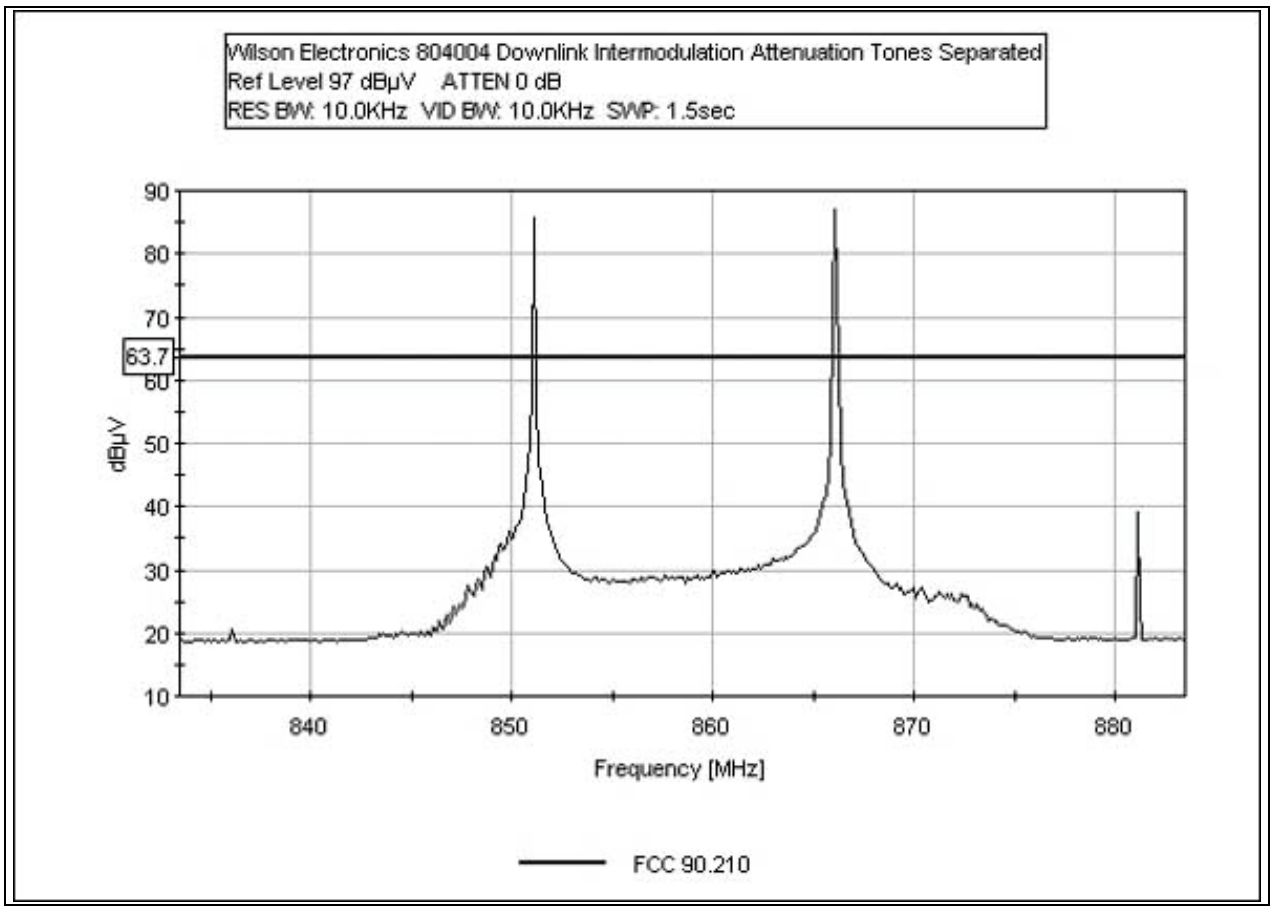
FCC 2.1051 - INTERMODULATION ATTENUATION DOWNLINK TONES CLOSE

Test Condutuions: 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.

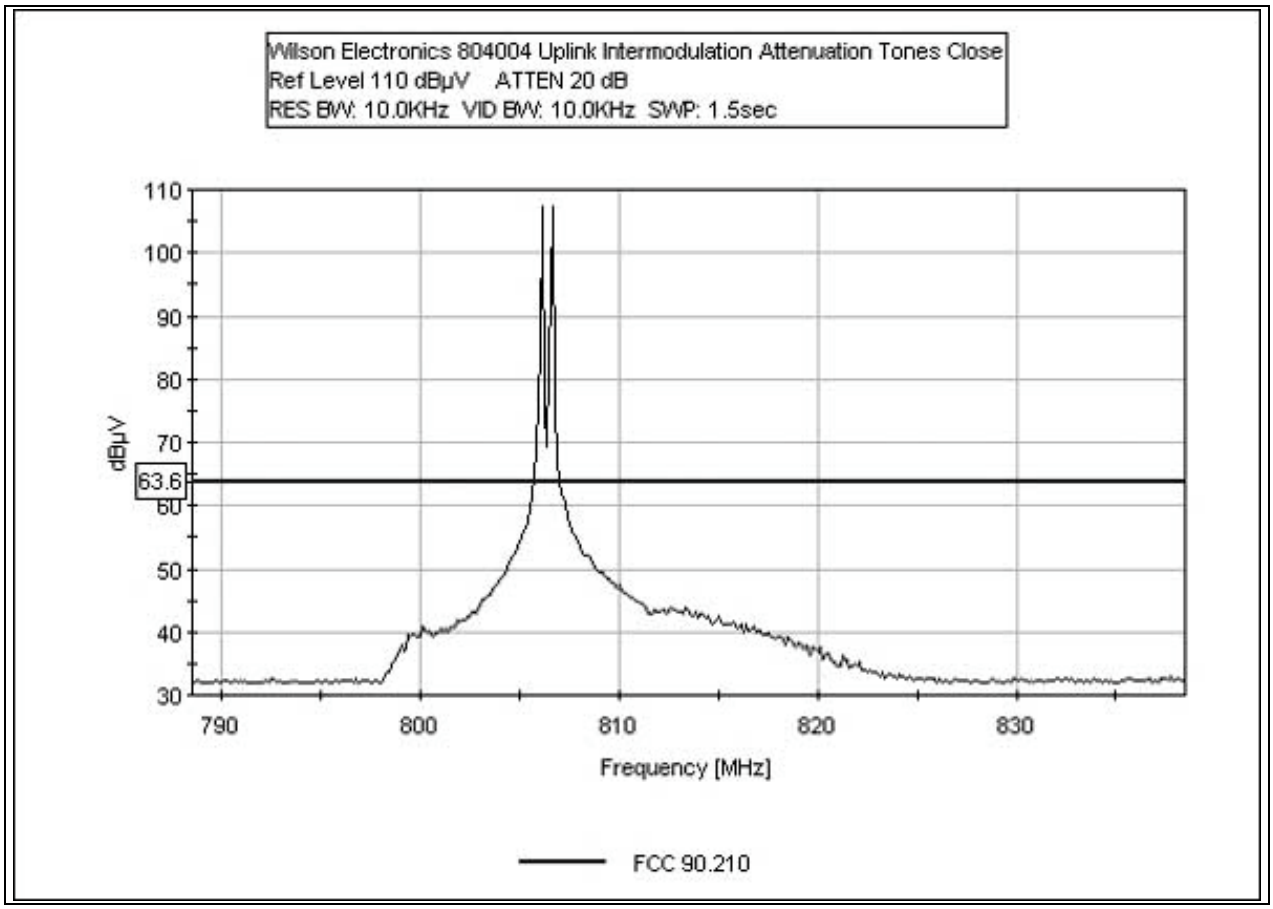
The tabular data taken from the supplied plots are located in the spurious emissions data tables.



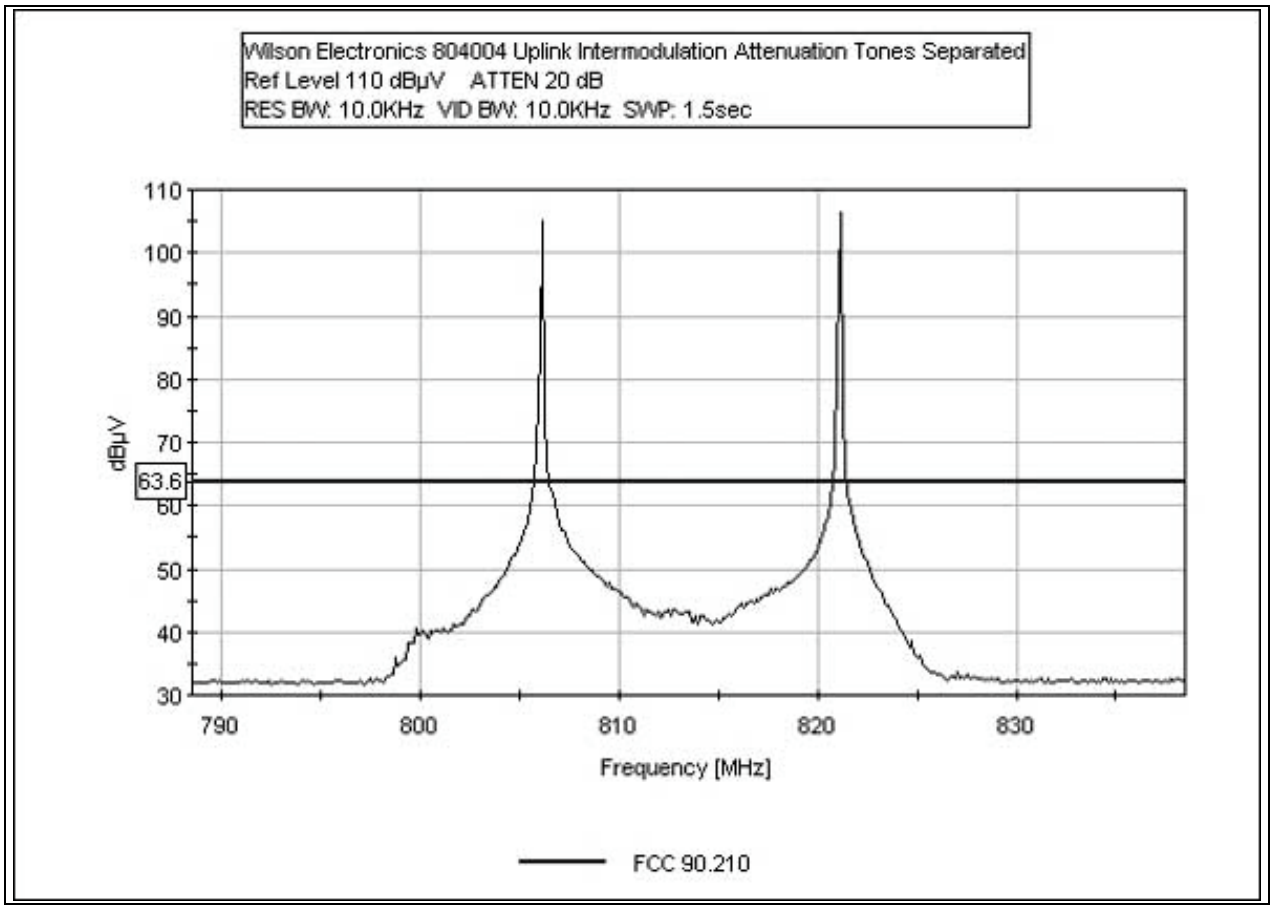
FCC 2.1051 - INTERMODULATION ATTENUATION DOWNLINK TONES SEPARATED



FCC 2.1051 - INTERMODULATION ATTENUATION UPLINK TONES CLOSE



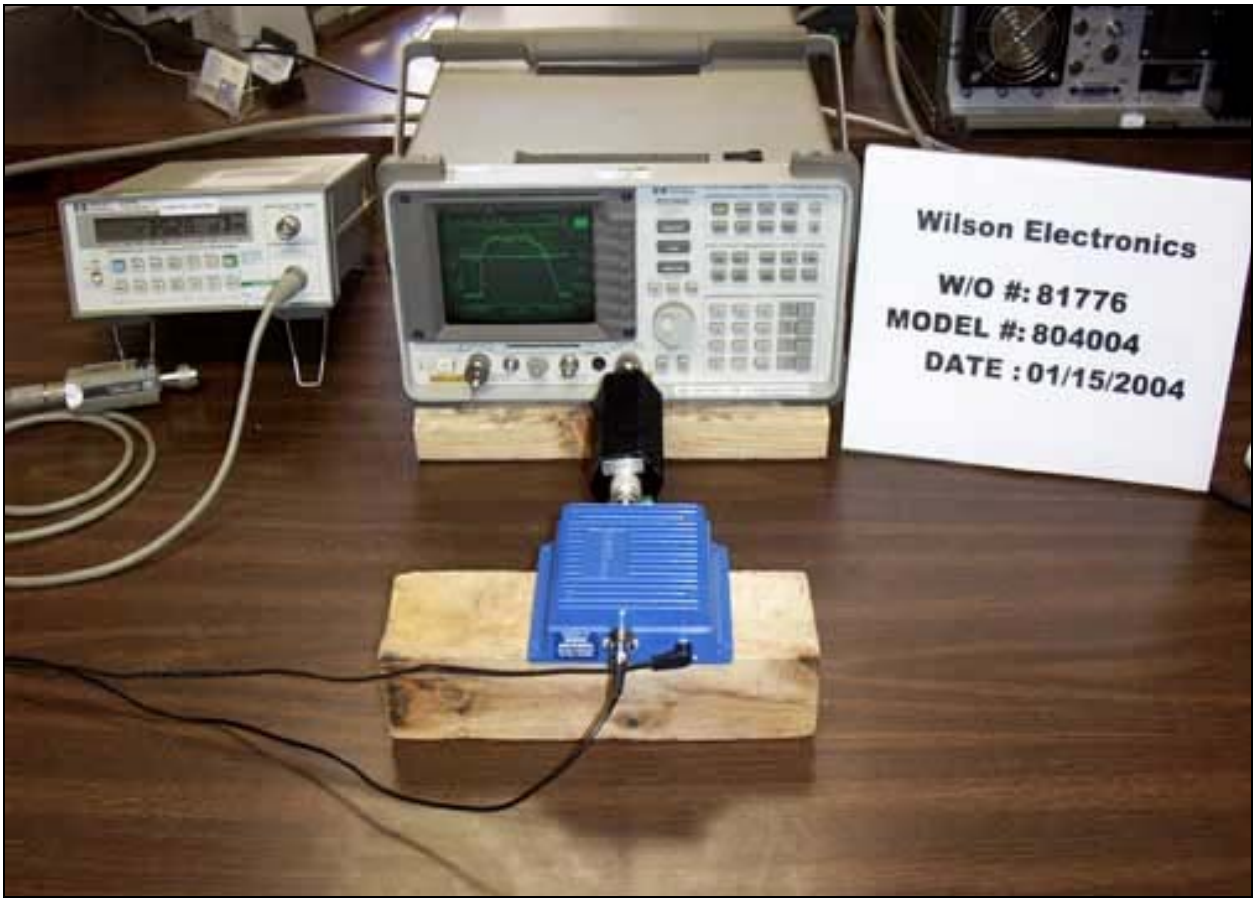
FCC 2.1051 - INTERMODULATION ATTENUATION UPLINK TONES SEPARATED



Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

DIRECT CONNECT TEST SETUP



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

Bandwidth settings used: 300 Hz.

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

Customer:	**Wilson Electronics**		
Specification:	**FCC 90.210**		
Work Order #:	**81776**	Date:	01/15/2004
Test Type:	**RF Port Conducted**	Time:	1:58:16 PM
Equipment:	**Bidirectional Amplifier Repeater**	Sequence#:	4
Manufacturer:	Wilson Electronics	Tested By:	Randal Clark
Model:	804004		12VDC
S/N:	NB6-008903		

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

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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 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. Amplifier Gain: 60dB Input Modulation: iDEN. Frequencies Tested: Downlink. Frequency Range Investigated: 30 MHz to 10 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Lead: RF Output

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	851.000M	86.8	+30.3				+0.0	117.1	94.0 Fundamental	+23.1	RF Ou
2	2551.566M	36.5	+30.0				+0.0	66.5	94.0	-27.5	RF Ou
3	1740.412M	31.3	+30.3				+0.0	61.6	94.0	-32.4	RF Ou
4	6977.660M	32.4	+27.1				+0.0	59.5	94.0	-34.5	RF Ou
5	3264.995M	29.6	+29.6				+0.0	59.2	94.0	-34.8	RF Ou

6	9024.706M	33.8	+25.2	+0.0	59.0	94.0	-35.0	RF Ou
7	311.215M	25.8	+30.5	+0.0	56.3	94.0	-37.7	RF Ou
8	77.075M	25.7	+30.5	+0.0	56.2	94.0	-37.8	RF Ou
9	106.823M	25.5	+30.5	+0.0	56.0	94.0	-38.0	RF Ou
10	286.814M	25.1	+30.5	+0.0	55.6	94.0	-38.4	RF Ou
11	983.892M	24.9	+30.4	+0.0	55.3	94.0	-38.7	RF Ou
12	45.360M	24.4	+30.5	+0.0	54.9	94.0	-39.1	RF Ou

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

Customer: **Wilson Electronics**
Specification: **FCC 90.210**
Work Order #: **81776** Date: 01/27/2004
Test Type: **RF Port Conducted** Time: 15:28:22
Equipment: **Bidirectional Amplifier Repeater** Sequence#: 6
Manufacturer: Wilson Electronics Tested By: Randal Clark
Model: 804004 12VDC
S/N: NB6-008903

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

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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 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. Amplifier Gain: 60dB Input Modulation: iDEN. Frequencies Tested: Downlink. Frequency Range Investigated: 30 MHz to 10 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Lead: RF Output

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	850.986M	62.9	+30.3				+0.0	93.2	94.0	-0.8	RF Ou
2	851.016M	60.2	+30.3				+0.0	90.5	94.0	-3.5	RF Ou
3	851.015M	58.7	+30.3				+0.0	89.0	94.0	-5.0	RF Ou
4	850.984M	58.3	+30.3				+0.0	88.6	94.0	-5.4	RF Ou
5	851.019M	52.2	+30.3				+0.0	82.5	94.0	-11.5	RF Ou
6	879.921M	41.5	+30.3				+0.0	71.8	94.0	-22.2	RF Ou
7	851.000M	87.0	+30.3				+0.0	117.3	141.8 Fundamental	-24.5	RF Ou
8	866.000M	86.3	+30.3				+0.0	116.6	141.8 Fundamental	-25.2	RF Ou

9	2551.566M	34.8	+30.0	+0.0	64.8	94.0	-29.2	RF Ou
10	2896.551M	32.2	+29.5	+0.0	61.7	94.0	-32.3	RF Ou
11	1710.874M	31.2	+30.2	+0.0	61.4	94.0	-32.6	RF Ou
12	6774.027M	32.5	+27.1	+0.0	59.6	94.0	-34.4	RF Ou
13	3806.198M	29.6	+29.7	+0.0	59.3	94.0	-34.7	RF Ou
14	5190.669M	30.5	+28.1	+0.0	58.6	94.0	-35.4	RF Ou
15	91.121M	25.9	+30.5	+0.0	56.4	94.0	-37.6	RF Ou
16	150.245M	25.7	+30.5	+0.0	56.2	94.0	-37.8	RF Ou
17	372.756M	25.6	+30.3	+0.0	55.9	94.0	-38.1	RF Ou
18	45.596M	25.3	+30.5	+0.0	55.8	94.0	-38.2	RF Ou
19	209.527M	25.3	+30.4	+0.0	55.7	94.0	-38.3	RF Ou
20	982.902M	24.9	+30.4	+0.0	55.3	94.0	-38.7	RF Ou

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

Customer:	**Wilson Electronics**		
Specification:	**FCC 90.210**		
Work Order #:	**81776**	Date:	01/15/2004
Test Type:	**RF Port Conducted**	Time:	11:41:20 AM
Equipment:	**Bidirectional Amplifier Repeater**	Sequence#:	1
Manufacturer:	Wilson Electronics	Tested By:	Randal Clark
Model:	804004		12VDC
S/N:	NB6-008903		

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

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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 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. Amplifier Gain: 60dB, Input Modulation: iDEN. Frequencies Tested: Uplink. Frequency Range Investigated: 30 MHz to 10 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Lead: RF Output

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	806.000M	108.1	+30.4				+0.0	138.5	141.8 Fundamental	-3.3	RF Ou
2	6538.241M	52.7	+27.2				+0.0	79.9	94.0	-14.1	RF Ou
3	2917.672M	50.0	+29.5				+0.0	79.5	94.0	-14.5	RF Ou
4	1612.415M	48.6	+30.2				+0.0	78.8	94.0	-15.2	RF Ou
5	3214.651M	47.3	+29.6				+0.0	76.9	94.0	-17.1	RF Ou
6	157.419M	42.7	+30.5				+0.0	73.2	94.0	-20.8	RF Ou
7	278.039M	42.5	+30.5				+0.0	73.0	94.0	-21.0	RF Ou

8	352.846M	42.6	+30.4	+0.0	73.0	94.0	-21.0	RF Ou
9	982.850M	42.6	+30.4	+0.0	73.0	94.0	-21.0	RF Ou
10	64.191M	42.1	+30.5	+0.0	72.6	94.0	-21.4	RF Ou
11	50.735M	42.0	+30.5	+0.0	72.5	94.0	-21.5	RF Ou

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

Customer: **Wilson Electronics**
Specification: **FCC 90.210**
Work Order #: **81776** Date: 01/15/2004
Test Type: **RF Port Conducted** Time: 13:33:03
Equipment: **Bidirectional Amplifier Repeater** Sequence#: 2
Manufacturer: Wilson Electronics Tested By: Randal Clark
Model: 804004 12VDC
S/N: NB6-008903

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

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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 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. Amplifier Gain: 60dB, Input Modulation: iDEN. Frequencies Tested: Uplink. Frequency Range Investigated: 30 MHz to 10 GHz.

Transducer Legend:

T1=Pad 30dB

Measurement Data: Reading listed by margin. Test Lead: RF Output

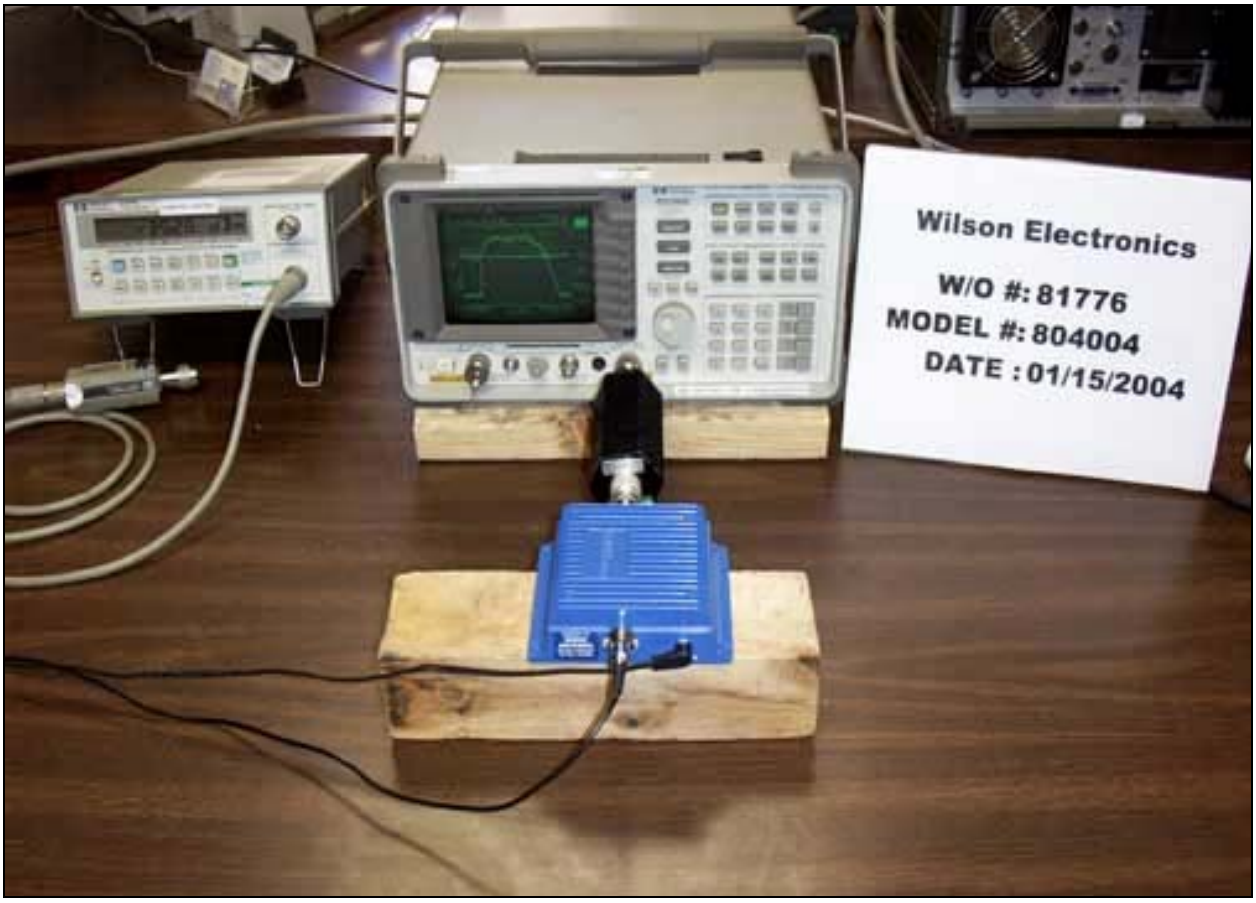
#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	806.000M	108.0	+30.4				+0.0	138.4	141.8 Fundamental	-3.4	RF Ou
2	821.000M	107.3	+30.4				+0.0	137.7	141.8 Fundamental	-4.1	RF Ou
3	6634.699M	52.4	+27.2				+0.0	79.6	94.0	-14.4	RF Ou
4	2914.152M	49.8	+29.5				+0.0	79.3	94.0	-14.7	RF Ou
5	1641.953M	49.0	+30.2				+0.0	79.2	94.0	-14.8	RF Ou
6	3359.391M	46.3	+29.7				+0.0	76.0	94.0	-18.0	RF Ou
7	327.505M	43.2	+30.4				+0.0	73.6	94.0	-20.4	RF Ou
8	263.189M	42.9	+30.4				+0.0	73.3	94.0	-20.7	RF Ou

9	989.522M	42.8	+30.4		+0.0	73.2	94.0	-20.8	RF Ou
10	77.392M	42.5	+30.5		+0.0	73.0	94.0	-21.0	RF Ou
11	99.460M	42.4	+30.5		+0.0	72.9	94.0	-21.1	RF Ou
12	50.735M	42.2	+30.5		+0.0	72.7	94.0	-21.3	RF Ou

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

DIRECT CONNECT TEST SETUP



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

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

Customer:	**Wilson Electronics**		
Specification:	**FCC 90.210**		
Work Order #:	**81776**	Date:	01/27/2004
Test Type:	**Maximized Emissions**	Time:	10:04:26 AM
Equipment:	**Bidirectional Amplifier Repeater**	Sequence#:	7
Manufacturer:	Wilson Electronics	Tested By:	Mike Wilkinson
Model:	804004		
S/N:	NB6-008903		

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2004	00099
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
EMCO 3115 Horn Antenna	9006-3413	04/15/2003	04/25/2005	327

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

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
RF Combiner	Motorola	None	P1314

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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. Two input frequency configurations were investigated as follows, 851 & 851.250 MHz and then 851 & 866 MHz. Amplifier Gain: 50dB Input Modulation: iDEN. Frequencies Tested: Downlink. Frequency Range Investigated: 30 MHz to 10 GHz. Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 10000 MHz - 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	Rdng					Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant

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

Customer: **Wilson Electronics**
Specification: **FCC 90.210**
Work Order #: **81776** Date: 01/30/2004
Test Type: **Maximized Emissions** Time: 15:16:54
Equipment: **Bidirectional Amplifier Repeater** Sequence#: 6
Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
Model: 804004
S/N: NB6-008903

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2004	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2004	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2004	00478
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2004	00099
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2004	2010
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	01991
EMCO 3115 Horn Antenna	9006-3413	04/15/2003	04/25/2005	327

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

Function	Manufacturer	Model #	S/N
Amplifier Power Supply	Wilson Electronics	JOD-48U-36	NA
Bidirectional Amplifier Repeater*	Wilson Electronics	804004	NB6-008903

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	HP	E4432B	US40052283
Signal Generator	HP	E4432B	US38330168
RF Combiner	Motorola	None	P1314

Test Conditions / Notes:

EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz. 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. Two input frequency configurations were investigated as follows, 806 & 806.250 MHz and then 806 & 821 MHz. Amplifier Gain: 50dB, Input Modulation: iDEN. Frequencies Tested: Uplink. Frequency Range Investigated: 30 MHz to 10 GHz Measurement Bandwidth Settings: 10 MHz to 1000 MHz - RBW=VBW=10kHz, 1000 MHz to 10000 MHz - 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	Rdng					Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

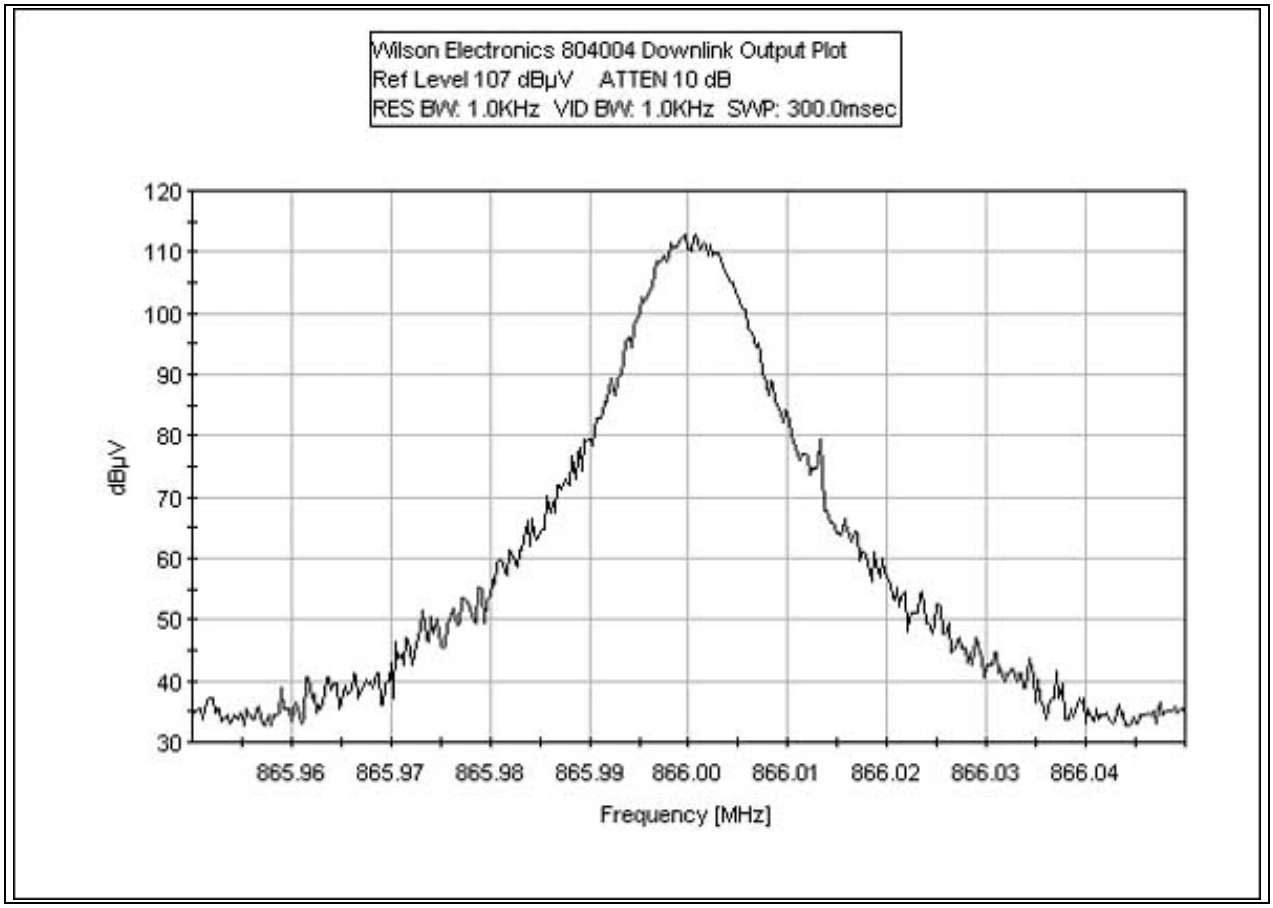
PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

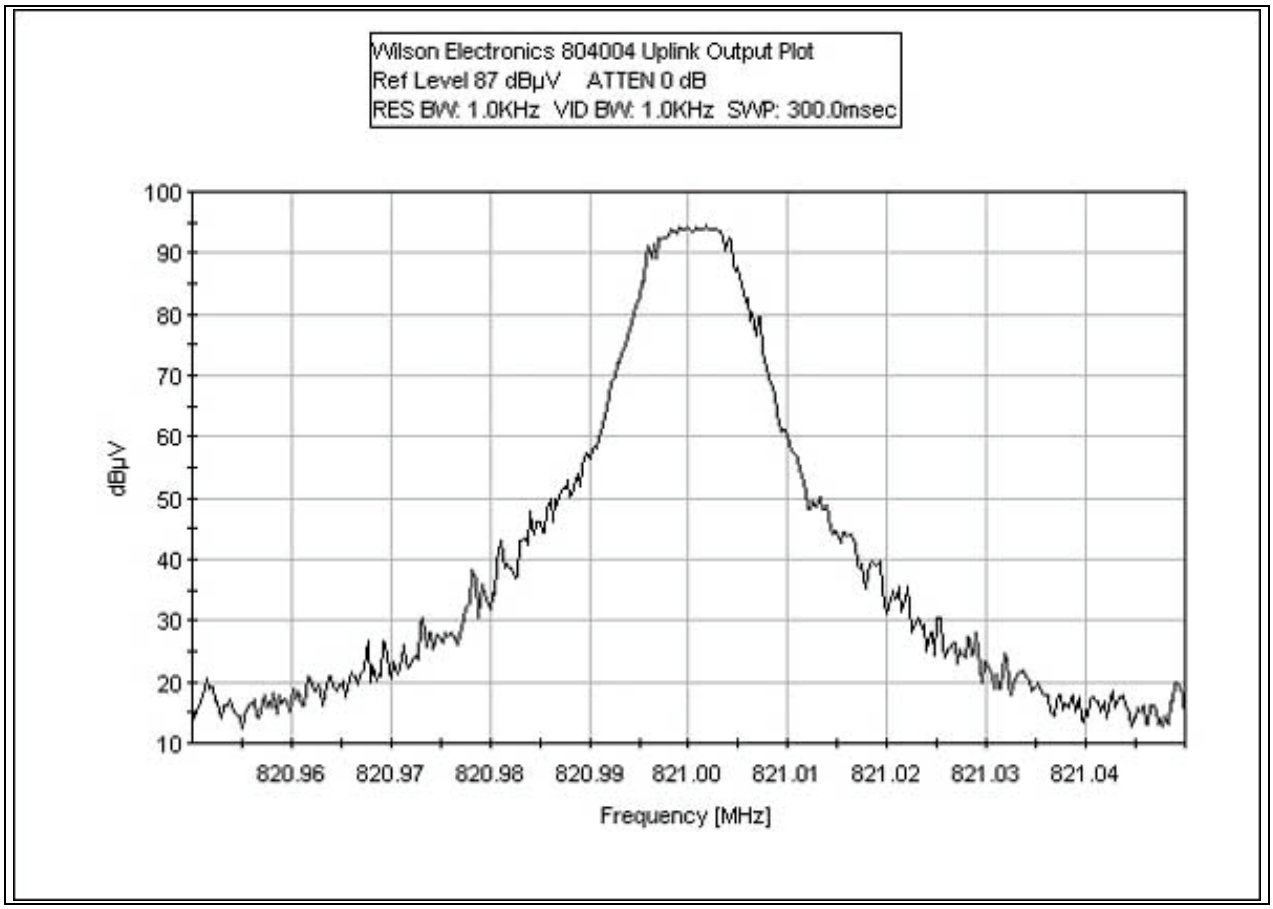
DOWNLINK OUTPUT PLOT

Test Conditions: EUT is a bidirectional amplifier repeater for the iDEN band. Uplink frequency range 806 - 821MHz. Downlink frequency range 851 - 866MHz.

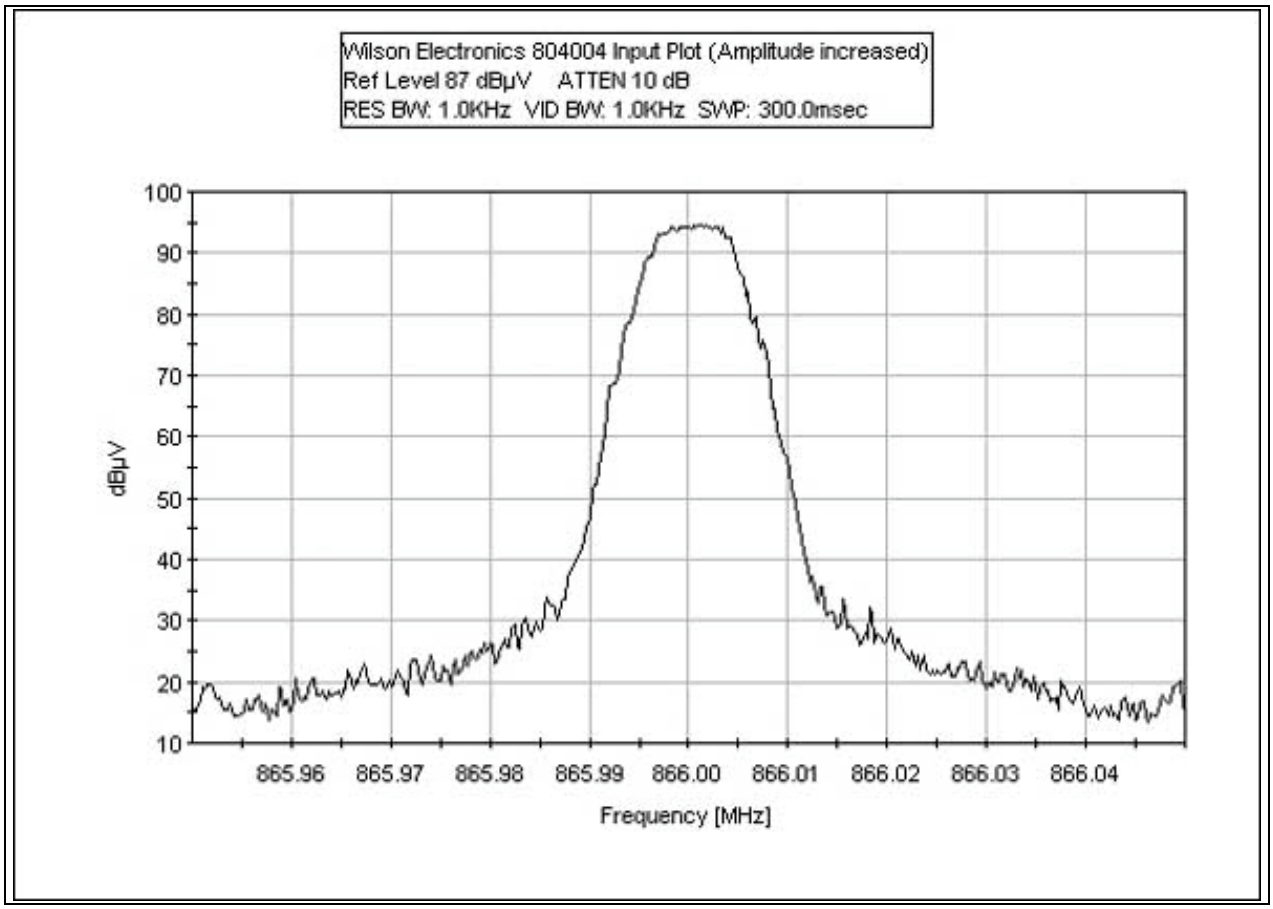
One signal is input to the amplifier. The input signal is set such that the maximum output per channel before compression is provided at the antenna terminals. The internal ALC of the amplifier limits the combined maximum power output to a factory set level. The input plot is taken with a different level than that used during testing; the input plot supplied more clearly shows the spectral purity of the input signal. The input and output plots are not intended to be used to determine amplifier gain.



UPLINK OUTPUT PLOT



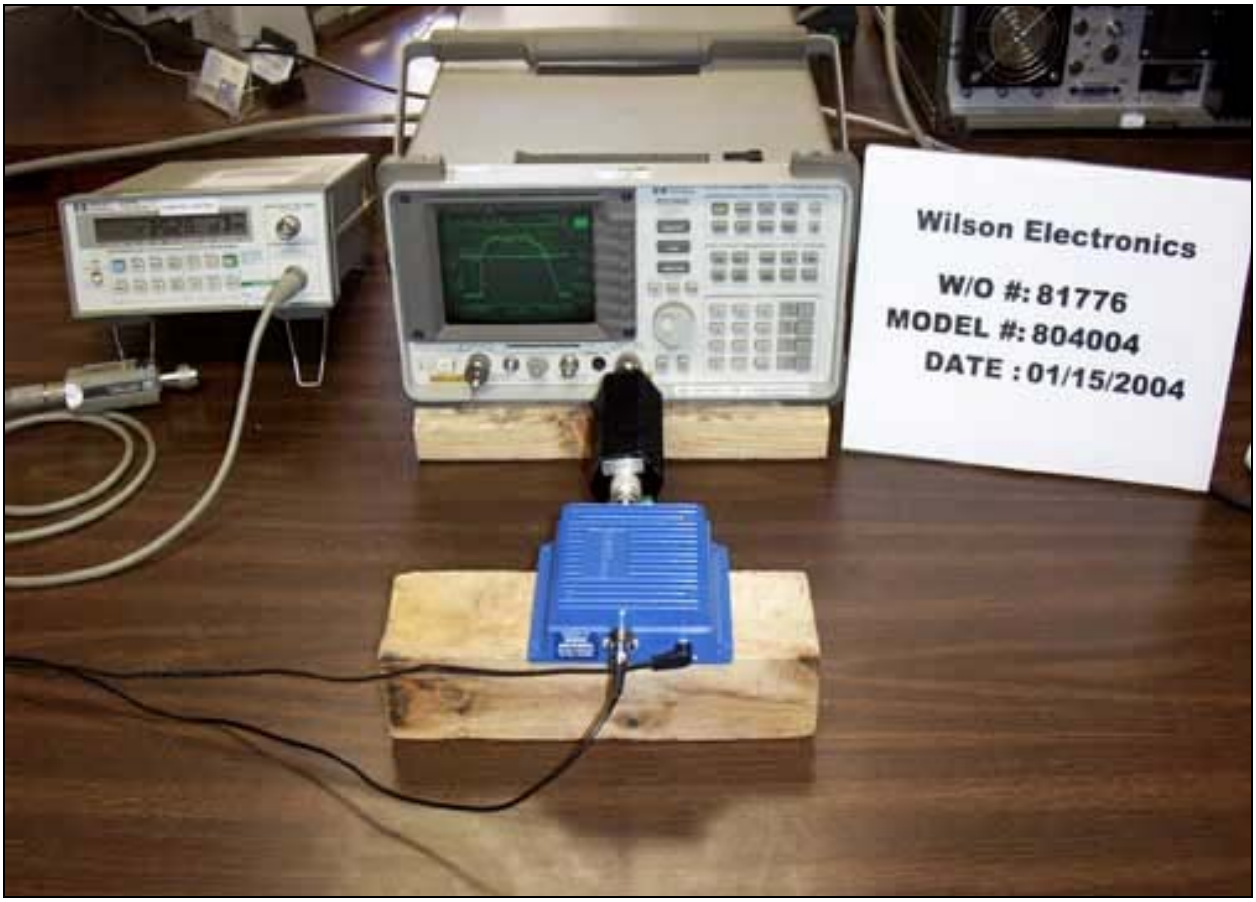
INPUT PLOT


Wilson Electronics 804004 Input Plot (Amplitude increased)
Ref Level 87 dBµV ATTEN 10 dB
RES BW: 1.0KHz VID BW: 1.0KHz SWP: 300.0msec
dBµV
100
90
80
70
60
50
40
30
20
10
865.96
865.97
865.98
865.99
866.00
866.01
866.02
866.03
866.04
Frequency [MHz]

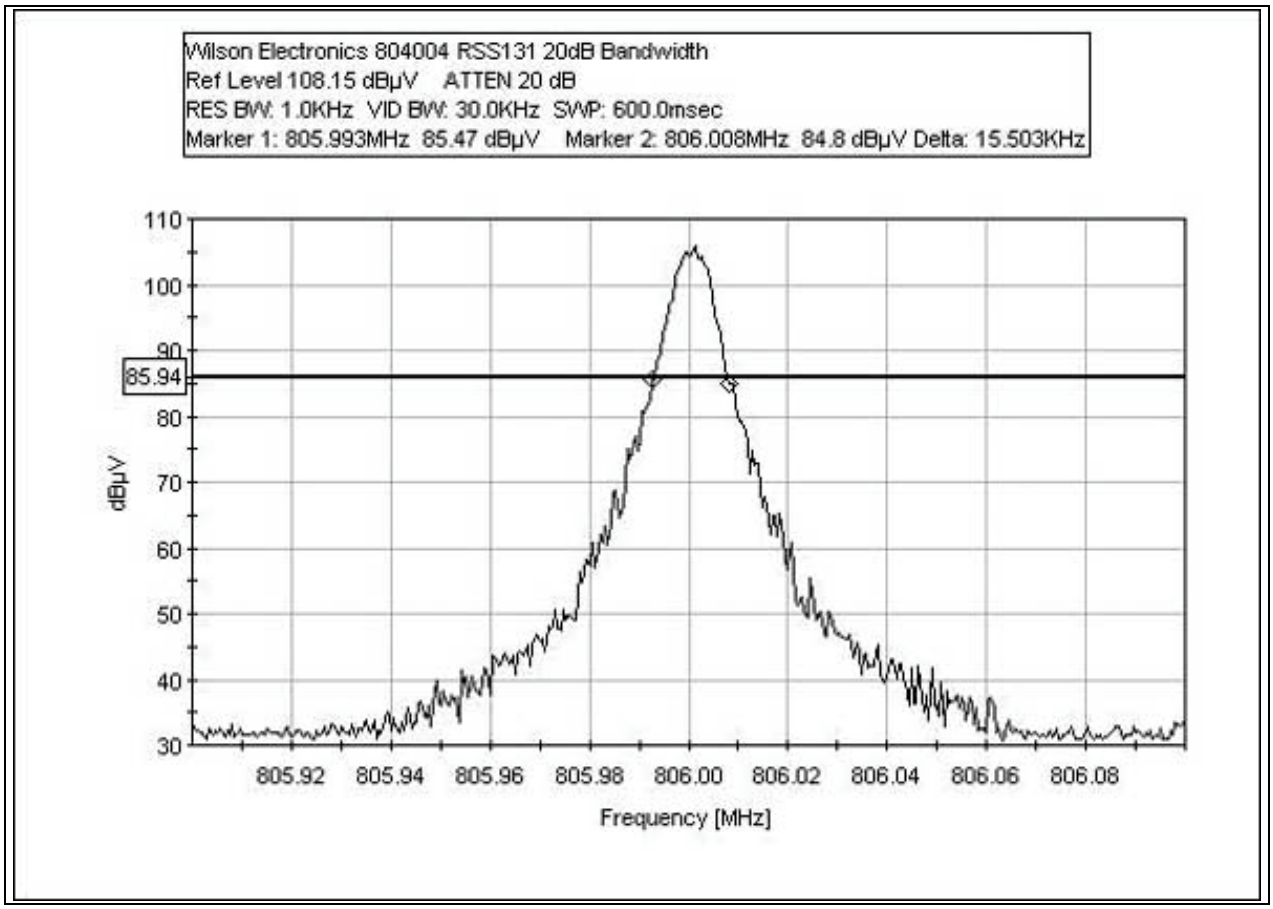
Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

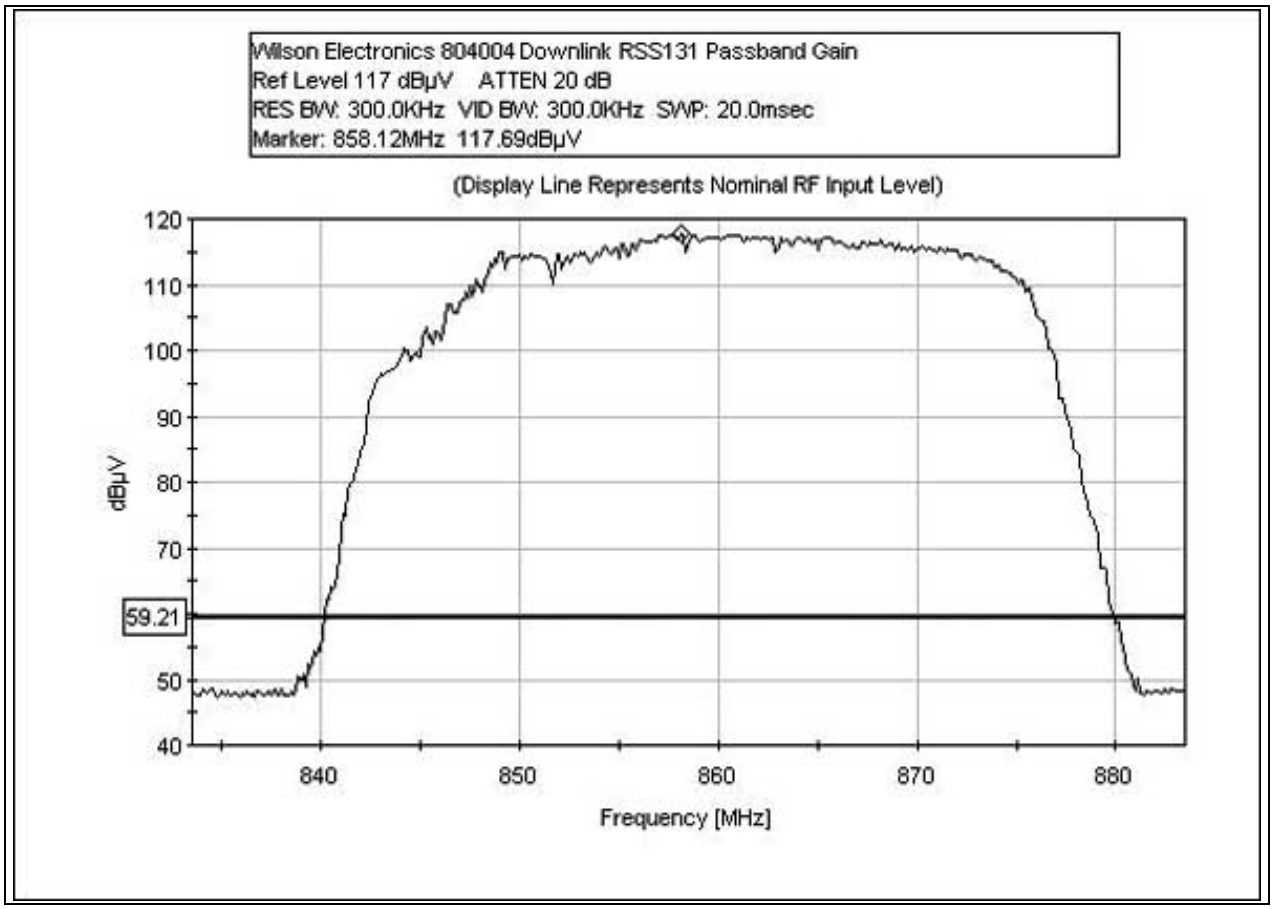
DIRECT CONNECT TEST SETUP



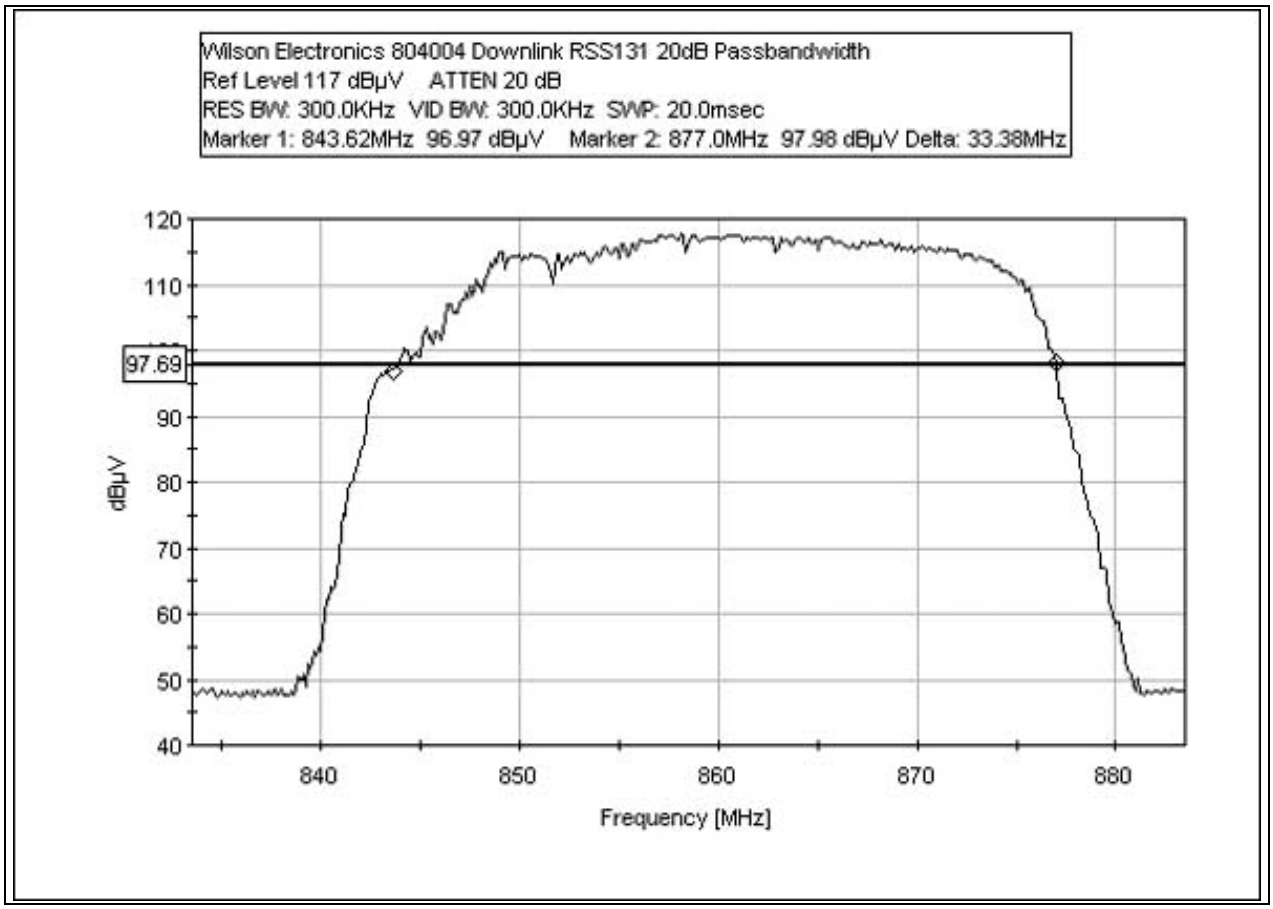
RSS 131 - 20dB BANDWIDTH PLOT



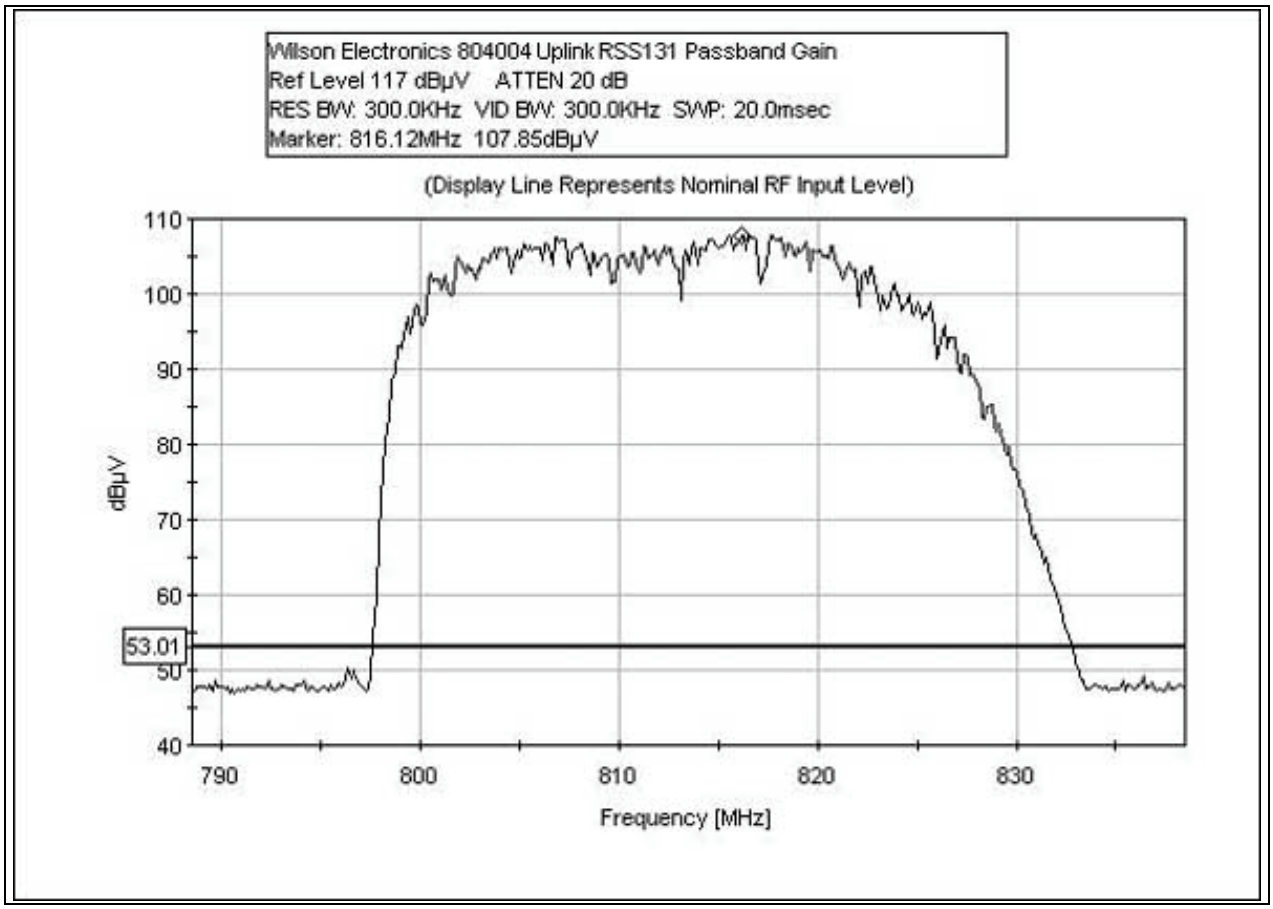
RSS 131 - DOWNLINK PASSBAND GAIN



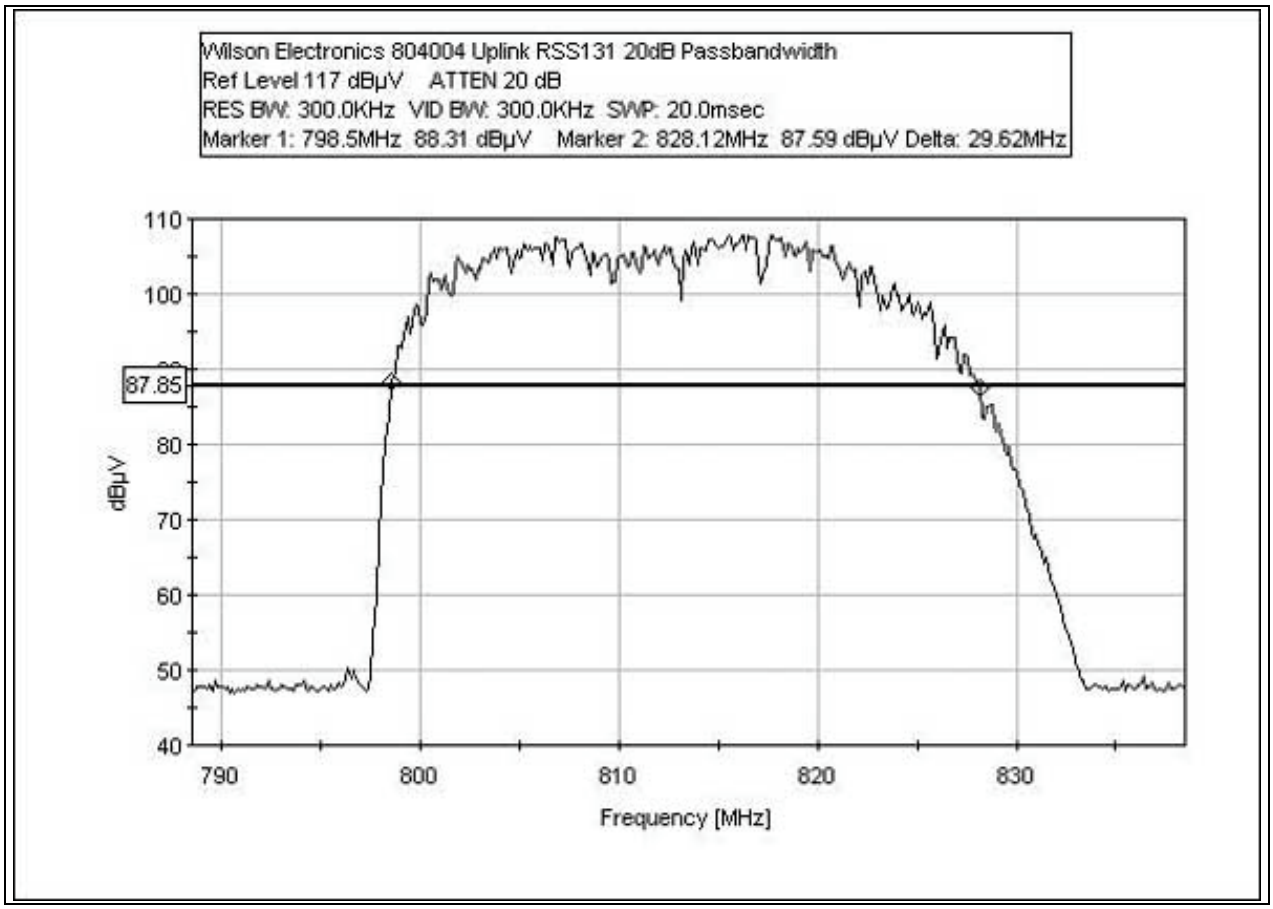
RSS 131 - DOWNLINK 20dB PASSBANDWIDTH



RSS 131 - UPLINK PASSBAND GAIN



RSS 131 - UPLINK 20dB PASSBANDWIDTH



Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8596E Spectrum Analyzer	3346A00225	06/24/2003	06/24/2004	00783
30 dB attenuator, Bird 25-A-MFN-30	9724	05/08/2003	05/08/2005	1577

DIRECT CONNECT TEST SETUP