



WILSON ELECTRONICS TEST REPORT
FOR THE
BIDIRECTIONAL AMPLIFIER, 271240
FCC PART 24 AND RSS-131 ISSUE 2
TESTING

DATE OF ISSUE: FEBRUARY 14, 2008

PREPARED FOR:

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

P.O. No.: DWB271240-1
W.O. No.: 87310

PREPARED BY:

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

Date of test: January 25 - February 1, 2008

Report No.: FC08-012

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ADMINISTRATIVE INFORMATION

DATE OF TEST: January 25 - February 1, 2008

DATE OF RECEIPT: January 25, 2008

REPRESENTATIVE: Riki Kline

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

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

FREQUENCY RANGE TESTED: 9 kHz-20 GHz

TEST METHOD: FCC Part 24, RSS-131 Issue 2 and RSS GEN Issue 2

PURPOSE OF TEST: To perform the testing of the Bidirectional Amplifier, 271240 with the requirements for FCC Part 24 and RSS-131 devices.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:

TEST PERSONNEL:

Randy Clark, EMC Engineer

Mike Wilkinson, EMC Engineer/Lab Manager



EQUIPMENT UNDER TEST (EUT) DESCRIPTION

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

EQUIPMENT UNDER TEST

Bidirectional Amplifier

Manuf: Wilson Electronics
Model: 271240
Serial: 00001
FCC ID: PWO271240SA
IC ID: 4726A-1240SA

PERIPHERAL DEVICES

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

Signal Generator (2 each)

Manuf: Agilent
Model: E4437B
Serial: MY41000126 &
US39261021

DC Power Supply

Manuf: Topward Electric Instruments Co., Ltd
Model: TPS-2000
Serial: 920027

SUMMARY OF RESULTS

Test	Specification/Method	Results
RF Power Output	FCC Part 24.232/ TIA/EIA 603	Pass
Occupied Bandwidth	TIA/EIA 603	Pass
Spurious Emissions – Antenna Terminal	FCC Part 24.238/TIA/EIA 603	Pass
Spurious Emissions – Field Strength	FCC Part 24.238/TIA/EIA 603	Pass
Block Edge	FCC 2.1053/TIA/EIA 603	Pass
Input vs Output Plots	RBW ~1% OBS	Pass
Intermodulation Attenuation	FCC 2.1051/TIA/EIA 603	Pass
Out of Band Rejection	FCC 2.1051/TIA/EIA 603	Pass
Block Edge	FCC 2.1053/TIA/EIA 603	Pass
Passband Gain and Bandwidth	RSS-131 Section 6.1	Pass
Output Power	RSS-131 Section 6.2	Pass

CONDITIONS DURING TESTING

No modifications to the EUT were necessary during testing.



TEMPERATURE AND HUMIDITY DURING TESTING

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

FCC 2.1033(c)(3) USER’S MANUAL

The necessary information is contained in a separate document.

FCC 2.1033 (c)(4) TYPE OF EMISSIONS

GXW, G7W, F9W

FCC 2.1033 (c)(5) FREQUENCY RANGE

Uplink 1850-1910 MHz and Downlink 1930-1990 MHz.

FCC 2.1033 (c)(6) OPERATING POWER

Uplink 151.4 mW and Downlink 14.1 mW.

FCC 2.1033 (c)(8) DC VOLTAGES

The necessary information is contained in a separate document.

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

The necessary information is contained in a separate document.

FCC 2.1033(c)(10) SCHEMATICS AND CIRCUITRY DESCRIPTION

The necessary information is contained in a separate document.

FCC 2.1033(c)(11) LABEL AND PLACEMENT

The necessary information is contained in a separate document.

FCC 2.1033(c)(12) SUBMITTAL PHOTOS

The necessary information is contained in a separate document.

FCC 2.1033 (c)(13) MODULATION INFORMATION

CDMA, EDGE, GSM, WCDMA. The base interface CDMA2000 and WCDMA modulation types tested are intended to additionally demonstrate compliance with 1xEVDO and HSPA extensions. Reference: FCC KDB Publication 935210.

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

Test Setup Photos



Downlink



Uplink



Test Data

Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**

Specification: **FCC 24.232**

Work Order #: **87310**

Date: 1/29/2008

Test Type:

Time: 13:08:56

Equipment: **Bidirectional Amplifier**

Sequence#: 1

Manufacturer: Wilson Electronics

Tested By: Randal Clark

Model: 271240

5 & 8 VDC

S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	US39261021
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation.

Reported power levels indicate one of the following: 1) measurements in compliance with intermodulation requirements for multi-channel operation; the maximum compliant power output is reported as a function of the input power supply voltage since the final amplifier for the uplink path is unregulated, or 2) the maximum output power just measured at an input level just below that which will cause the EUT to automatically attenuate the input signal level.

Frequency Range Investigated: Carrier

Temperature: 21°C

Relative Humidity: 30%

GSM/EDGE RBW = 1MHz

CDMA RBW = 3 MHz

WCDMA RBW = 8 MHz

VBW = 3 x RBW

Uplink	Part	Frequency	5V dBm	8V dBm	5V mW	8V mW
GSM Low	24	1850.29	20.1	20.8	102.3	120.2
GSM High	24	1909.72	20.6	20.7	114.8	117.5
EDGE Low	24	1850.30	20.3	21.8	107.2	151.4
EDGE High	24	1909.73	20.4	20.6	109.6	114.8
CDMA Low	24	1853.80	20.9	21.7	123.0	147.9
CDMA High	24	1906.23	21.3	21.8	134.9	151.4
WCDMA Low	24	1859.00	20.2	20.6	104.7	114.8
WCDMA High	24	1900.83	21.2	20.9	131.8	123.0

Downlink	Part	Frequency	dBm	mW
GSM Low	24	1930.55	11.0	12.6
GSM High	24	1989.44	10.7	11.7
EDGE Low	24	1930.61	10.8	12.0
EDGE High	24	1989.43	10.6	11.5
CDMA Low	24	1931.88	11.1	12.9
CDMA High	24	1986.96	11.0	12.6
WCDMA Low	24	1939.70	11.5	14.1
WCDMA High	24	1982.00	11.4	13.8



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

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain.
 Frequency Range Investigated: Carrier Mid Channel
 Temperature: 21°C, Relative Humidity: 30% +8VDC.

Mode	Frequency (MHz)	Modulation	99% BW (kHz)	20dB BW (kHz)
Downlink	1960	WCDMA	4558	5081
Downlink	1960	CDMA	1285	1412
Downlink	1960	GSM	252.6	297.2
Downlink	1960	EDGE	275.7	307.9
Uplink	1880	WCDMA	4164	4630
Uplink	1880	CDMA	1307	1426
Uplink	1880	GSM	244.7	285.9
Uplink	1880	EDGE	248.1	288.2

Test Setup Photos



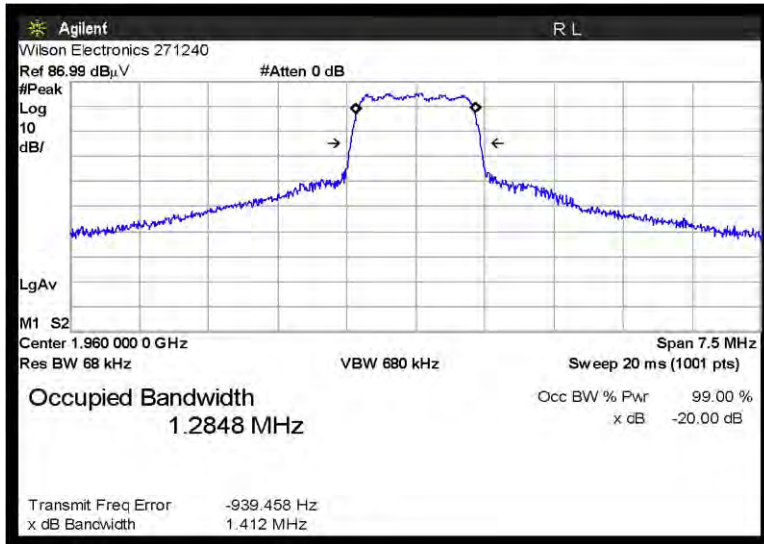
Downlink



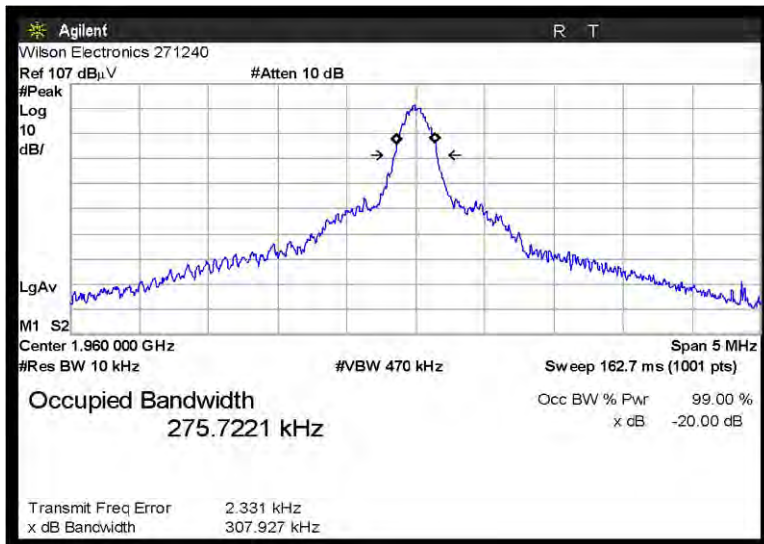
Uplink

Test Plots

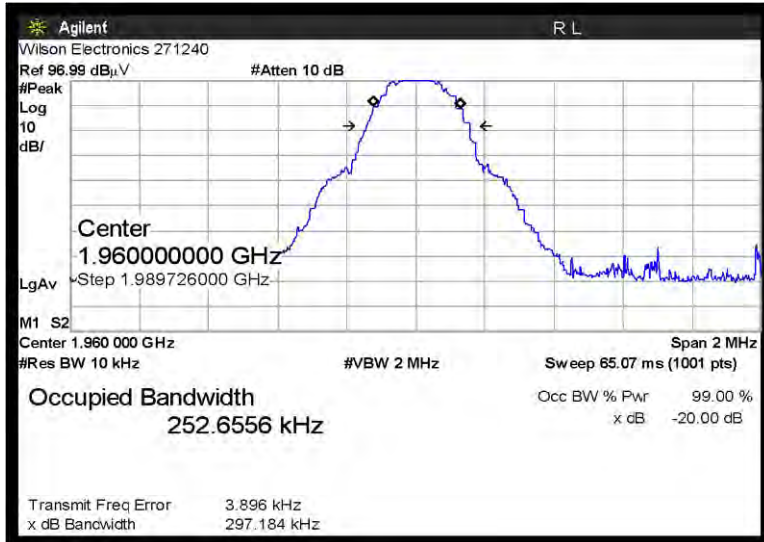
99% BANDWIDTH - DOWNLINK CDMA MID



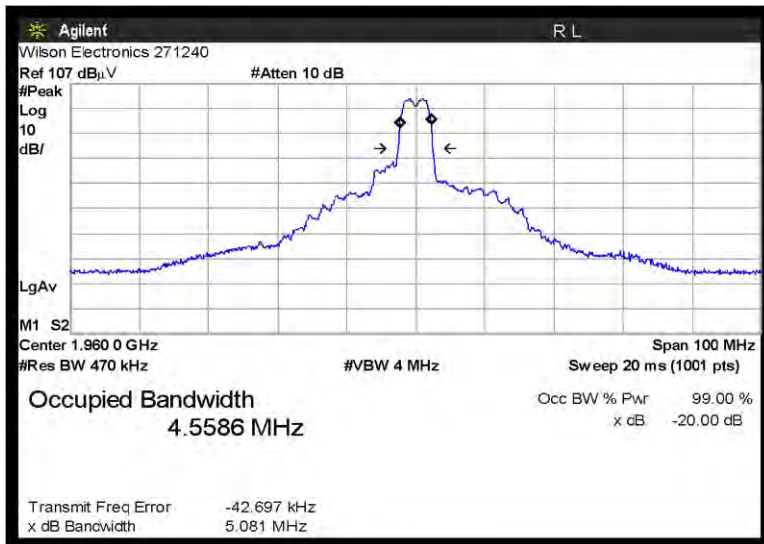
99% BANDWIDTH - DOWNLINK EDGE MID



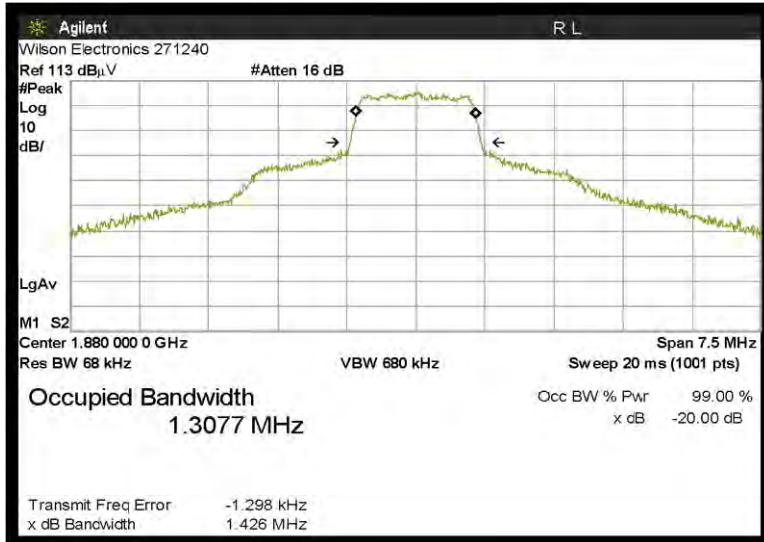
99% BANDWIDTH - DOWNLINK GSM MID



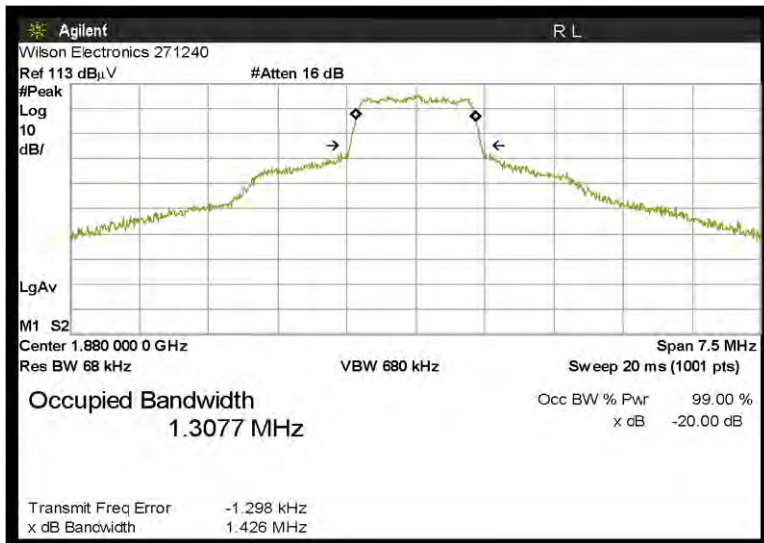
99% BANDWIDTH - DOWNLINK WCDMA MID



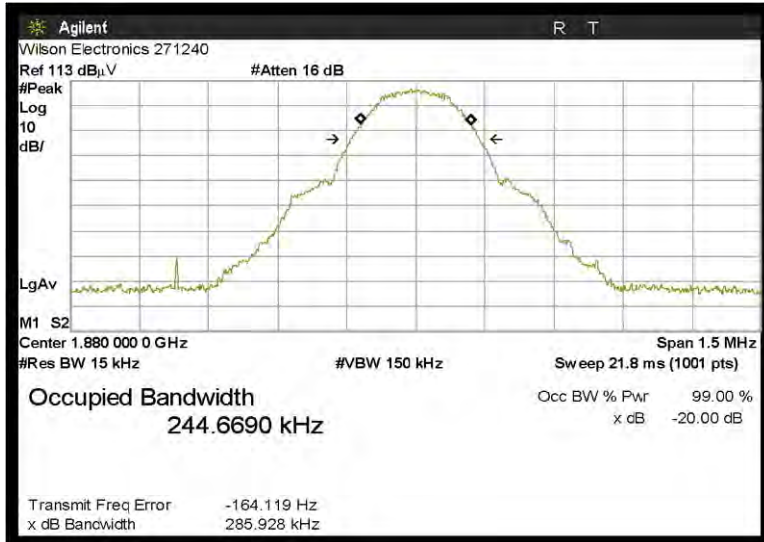
99% BANDWIDTH - UPLINK CDMA MID CHANNEL



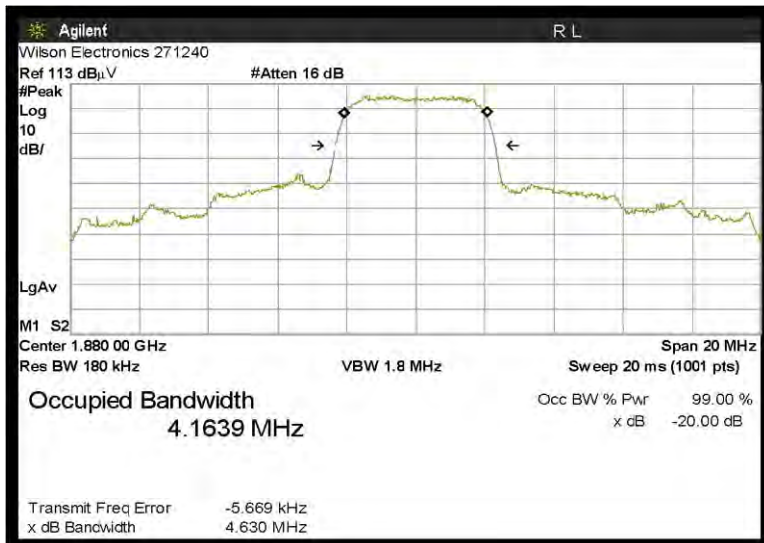
99% BANDWIDTH - UPLINK EDGE MID CHANNEL



99% BANDWIDTH - UPLINK GSM MID CHANNEL



99% BANDWIDTH - UPLINK WCDMA MID CHANNEL



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

Test Setup Photos



Downlink



Uplink



Test Data Sheets

Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 1/30/2008
 Test Type: **Conducted Emissions** Time: 13:30:00
 Equipment: **Bidirectional Amplifier** Sequence#: 13
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 271240 8 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. Downlink Path +8VDC Input.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

Measurement Data:

#	Freq MHz	Rdng dB μ V	Reading listed by margin.			Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Anten	Test Lead: Antenna Port
			T1 dB	T2 dB	T3 dB							
1	3920.004M	63.7	+0.5	+10.0	+5.7	+0.0	79.9	94.0	-14.1	Anten	Downlink EDGE Mid	
2	3860.568M	61.4	+0.5	+10.0	+5.7	+0.0	77.6	94.0	-16.4	Anten	Downlink EDGE Low	
3	3920.008M	59.6	+0.5	+10.0	+5.7	+0.0	75.8	94.0	-18.2	Anten	Downlink GSM Mid	

4	3920.310M	59.5	+0.5	+10.0	+5.7	+0.0	75.7	94.0	-18.3	Anten
								Downlink CDMA Mid		
5	3979.452M	57.1	+0.5	+10.0	+5.7	+0.0	73.3	94.0	-20.7	Anten
								Downlink EDGE High		
6	3860.548M	55.7	+0.5	+10.0	+5.7	+0.0	71.9	94.0	-22.1	Anten
								Downlink GSM Low		
7	3862.500M	55.0	+0.5	+10.0	+5.7	+0.0	71.2	94.0	-22.8	Anten
								Downlink CDMA Low		
8	3977.360M	54.7	+0.5	+10.0	+5.7	+0.0	70.9	94.0	-23.1	Anten
								Downlink CDMA High		
9	3920.000M	47.5	+0.5	+10.0	+5.7	+0.0	63.7	94.0	-30.3	Anten
								Downlink WCDMA Mid		
10	3979.448M	46.8	+0.5	+10.0	+5.7	+0.0	63.0	94.0	-31.0	Anten
								Downlink GSM High		
11	3958.100M	42.9	+0.5	+10.0	+5.7	+0.0	59.1	94.0	-34.9	Anten
								Downlink WCDMA High		
12	3868.970M	33.7	+0.5	+10.0	+5.7	+0.0	49.9	94.0	-44.1	Anten
								Downlink WCDMA Low		
13	5790.818M	28.3	+0.6	+10.0	+5.8	+0.0	44.7	94.0	-49.3	Anten
								Downlink EDGE Low		
14	5790.858M	27.5	+0.6	+10.0	+5.8	+0.0	43.9	94.0	-50.1	Anten
								Downlink GSM Low		
15	5945.200M	27.5	+0.6	+10.0	+5.7	+0.0	43.8	94.0	-50.2	Anten
								Downlink WCDMA High		
16	5965.990M	26.8	+0.6	+10.0	+5.7	+0.0	43.1	94.0	-50.9	Anten
								Downlink CDMA High		
17	5880.010M	25.9	+0.6	+10.0	+5.7	+0.0	42.2	94.0	-51.8	Anten
								Downlink EDGE Mid		
18	5969.182M	25.5	+0.6	+10.0	+5.7	+0.0	41.8	94.0	-52.2	Anten
								Downlink EDGE High		
19	5969.172M	25.2	+0.6	+10.0	+5.7	+0.0	41.5	94.0	-52.5	Anten
								Downlink GSM High		
20	5880.012M	24.4	+0.6	+10.0	+5.7	+0.0	40.7	94.0	-53.3	Anten
								Downlink GSM Mid		

21	5793.750M	24.1	+0.6	+10.0	+5.8	+0.0	40.5	94.0	-53.5	Anten
								Downlink CDMA Low		
22	5880.310M	23.8	+0.6	+10.0	+5.7	+0.0	40.1	94.0	-53.9	Anten
								Downlink CDMA Mid		
23	5879.940M	23.8	+0.6	+10.0	+5.7	+0.0	40.1	94.0	-53.9	Anten
								Downlink WCDMA Mid		
24	5803.470M	22.7	+0.6	+10.0	+5.8	+0.0	39.1	94.0	-54.9	Anten
								Downlink WCDMA Low		



Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 1/30/2008
 Test Type: **Conducted Emissions** Time: 10:46:51
 Equipment: **Bidirectional Amplifier** Sequence#: 10
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 271240 5 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. Uplink Path +5VDC Input.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

Measurement Data:

Reading listed by margin.

Test Lead: Antenna Port

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	3819.440M	60.0	+0.5	+10.0	+5.8	+0.0	76.3	94.0	-17.7	Anten	
Uplink GSM High											
2	3819.440M	60.0	+0.5	+10.0	+5.8	+0.0	76.3	94.0	-17.7	Anten	
Uplink EDGE High											
3	3760.000M	51.5	+0.5	+10.0	+5.8	+0.0	67.8	94.0	-26.2	Anten	
Uplink EDGE Mid											
4	3700.560M	50.3	+0.5	+10.0	+5.8	+0.0	66.6	94.0	-27.4	Anten	
Uplink GSM Low											
5	7520.000M	54.9	+0.7	+10.1	+0.0	+0.0	65.7	94.0	-28.3	Anten	
Uplink EDGE Mid											

6	3817.500M	48.4	+0.5	+10.0	+5.8	+0.0	64.7	94.0	-29.3	Anten
								Uplink CDMA High		
7	3760.000M	47.8	+0.5	+10.0	+5.8	+0.0	64.1	94.0	-29.9	Anten
								Uplink GSM Mid		
8	7638.880M	52.4	+0.7	+10.1	+0.0	+0.0	63.2	94.0	-30.8	Anten
								Uplink EDGE High		
9	7520.000M	52.3	+0.7	+10.1	+0.0	+0.0	63.1	94.0	-30.9	Anten
								Uplink GSM Mid		
10	3700.560M	46.4	+0.5	+10.0	+5.8	+0.0	62.7	94.0	-31.3	Anten
								Uplink EDGE Low		
11	7401.120M	51.9	+0.7	+10.1	+0.0	+0.0	62.7	94.0	-31.3	Anten
								Uplink GSM Low		
12	7401.120M	51.0	+0.7	+10.1	+0.0	+0.0	61.8	94.0	-32.2	Anten
								Uplink EDGE Low		
13	3809.560M	43.3	+0.5	+10.0	+5.8	+0.0	59.6	94.0	-34.4	Anten
								Uplink WCDMA High		
14	7622.000M	48.4	+0.7	+10.1	+0.0	+0.0	59.2	94.0	-34.8	Anten
								Uplink WCDMA High		
15	7519.990M	46.5	+0.7	+10.1	+0.0	+0.0	57.3	94.0	-36.7	Anten
								Uplink CDMA Mid		
16	7405.010M	46.3	+0.7	+10.1	+0.0	+0.0	57.1	94.0	-36.9	Anten
								Uplink CDMA Low		
17	7520.010M	46.2	+0.7	+10.1	+0.0	+0.0	57.0	94.0	-37.0	Anten
								Uplink WCDMA Mid		
18	7638.880M	46.2	+0.7	+10.1	+0.0	+0.0	57.0	94.0	-37.0	Anten
								Uplink GSM High		
19	7635.000M	45.9	+0.7	+10.1	+0.0	+0.0	56.7	94.0	-37.3	Anten
								Uplink CDMA High		
20	7418.000M	45.0	+0.7	+10.1	+0.0	+0.0	55.8	94.0	-38.2	Anten
								Uplink WCDMA Low		
21	3702.480M	39.4	+0.5	+10.0	+5.8	+0.0	55.7	94.0	-38.3	Anten
								Uplink CDMA Low		
22	5729.160M	38.3	+0.6	+10.0	+5.8	+0.0	54.7	94.0	-39.3	Anten
								Uplink GSM High		
23	3759.500M	38.3	+0.5	+10.0	+5.8	+0.0	54.6	94.0	-39.4	Anten
								Uplink CDMA Mid		
24	3708.950M	36.9	+0.5	+10.0	+5.8	+0.0	53.2	94.0	-40.8	Anten
								Uplink WCDMA Low		
25	5640.000M	36.6	+0.6	+10.0	+5.8	+0.0	53.0	94.0	-41.0	Anten
								Uplink GSM Mid		
26	5729.160M	36.0	+0.6	+10.0	+5.8	+0.0	52.4	94.0	-41.6	Anten
								Uplink EDGE High		

27	5640.000M	33.2	+0.6	+10.0	+5.8	+0.0	49.6	94.0	-44.4	Anten
								Uplink EDGE Mid		
28	9251.400M	36.7	+0.8	+10.1	+0.0	+0.0	47.6	94.0	-46.4	Anten
								Uplink GSM Low		
29	9548.600M	35.3	+0.8	+10.2	+0.0	+0.0	46.3	94.0	-47.7	Anten
								Uplink EDGE High		
30	11280.000 M	34.9	+0.9	+10.3	+0.0	+0.0	46.1	94.0	-47.9	Anten
								Uplink EDGE Mid		
31	9400.000M	34.2	+0.8	+10.2	+0.0	+0.0	45.2	94.0	-48.8	Anten
								Uplink EDGE Mid		



Test Location: CKC Laboratories, Inc. •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 1/31/2008
 Test Type: **Conducted Emissions** Time: 11:47:33
 Equipment: **Bidirectional Amplifier** Sequence#: 14
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 271240 5 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. Uplink Path +8VDC Input.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

Measurement Data:

Reading listed by margin.

Test Lead: Antenna Port

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	3817.295M	50.5	+0.5	+10.0	+5.8	+0.0	66.8	94.0	-27.2	Anten	
									Uplink CDMA High		
2	3700.576M	48.1	+0.5	+10.0	+5.8	+0.0	64.4	94.0	-29.6	Anten	
									Uplink GSM Low		
3	3700.566M	47.5	+0.5	+10.0	+5.8	+0.0	63.8	94.0	-30.2	Anten	
									Uplink EDGE Low		
4	3760.014M	45.1	+0.5	+10.0	+5.8	+0.0	61.4	94.0	-32.6	Anten	
									Uplink EDGE Mid		

5	3812.620M	44.7	+0.5	+10.0	+5.8	+0.0	61.0	94.0	-33.0	Anten
								Uplink WCDMA High		
6	7520.010M	47.5	+0.7	+10.1	+0.0	+0.0	58.3	94.0	-35.7	Anten
								Uplink EDGE Mid		
7	3702.730M	41.0	+0.5	+10.0	+5.8	+0.0	57.3	94.0	-36.7	Anten
								Uplink CDMA Low		
8	3819.314M	40.4	+0.5	+10.0	+5.8	+0.0	56.7	94.0	-37.3	Anten
								Uplink GSM High		
9	7519.764M	45.9	+0.7	+10.1	+0.0	+0.0	56.7	94.0	-37.3	Anten
								Uplink GSM Mid		
10	3759.926M	40.3	+0.5	+10.0	+5.8	+0.0	56.6	94.0	-37.4	Anten
								Uplink GSM Mid		
11	7401.206M	44.7	+0.7	+10.1	+0.0	+0.0	55.5	94.0	-38.5	Anten
								Uplink EDGE Low		
12	3760.590M	39.0	+0.5	+10.0	+5.8	+0.0	55.3	94.0	-38.7	Anten
								Uplink CDMA Mid		
13	3819.350M	38.5	+0.5	+10.0	+5.8	+0.0	54.8	94.0	-39.2	Anten
								Uplink EDGE High		
14	7401.342M	43.9	+0.7	+10.1	+0.0	+0.0	54.7	94.0	-39.3	Anten
								Uplink GSM Low		
15	7638.894M	43.2	+0.7	+10.1	+0.0	+0.0	54.0	94.0	-40.0	Anten
								Uplink EDGE High		
16	3707.400M	36.1	+0.5	+10.0	+5.8	+0.0	52.4	94.0	-41.6	Anten
								Uplink WCDMA Low		
17	5729.150M	35.4	+0.6	+10.0	+5.8	+0.0	51.8	94.0	-42.2	Anten
								Uplink EDGE High		
18	7638.614M	40.7	+0.7	+10.1	+0.0	+0.0	51.5	94.0	-42.5	Anten
								Uplink GSM High		
19	7520.410M	40.7	+0.7	+10.1	+0.0	+0.0	51.5	94.0	-42.5	Anten
								Uplink CDMA Mid		
20	3761.380M	34.8	+0.5	+10.0	+5.8	+0.0	51.1	94.0	-42.9	Anten
								Uplink WCDMA Mid		
21	7622.020M	39.8	+0.7	+10.1	+0.0	+0.0	50.6	94.0	-43.4	Anten
								Uplink WCDMA High		
22	7519.980M	39.8	+0.7	+10.1	+0.0	+0.0	50.6	94.0	-43.4	Anten
								Uplink WCDMA Mid		
23	7634.460M	39.5	+0.7	+10.1	+0.0	+0.0	50.3	94.0	-43.7	Anten
								Uplink CDMA High		

24	7421.840M	38.7	+0.7	+10.1	+0.0	+0.0	49.5	94.0	-44.5	Anten
								Uplink WCDMA Low		
25	7404.345M	38.6	+0.7	+10.1	+0.0	+0.0	49.4	94.0	-44.6	Anten
								Uplink CDMA Low		
26	5729.354M	32.2	+0.6	+10.0	+5.8	+0.0	48.6	94.0	-45.4	Anten
								Uplink GSM High		
27	5639.924M	31.4	+0.6	+10.0	+5.8	+0.0	47.8	94.0	-46.2	Anten
								Uplink EDGE Mid		

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

Test Setup Photos





Test Data Sheets

Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 2/1/2008
 Test Type: **Radiated Scan** Time: 10:52:47
 Equipment: **Bidirectional Amplifier** Sequence#: 17
 Manufacturer: Wilson Electronics Tested By: Mike Wilkinson
 Model: 271240
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/01/2007	05/01/2009	00226
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099
HP 8449B Preamp	3008A00301	12/13/2006	12/13/2008	2010
3M SITE CABLE 2GHZ	NA	03/23/2006	03/23/2008	SITED3M
3M SITE CABLE 20GHZ	NA	03/23/2006	03/23/2008	SITED3M1
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03008
Cable 2' 40 GHz Astrolab	NA	01/15/2008	01/15/2010	AN03011
Cable 10' 40 GHz Gore	NA	04/23/2007	04/23/2009	ANP04290
Antenna, Horn	4085	03/19/2007	03/19/2009	AN00656

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT antenna port is terminated into 50 Ohms. Input signal level is set such that the amplifier employs maximum amplification gain. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. DownlinkPath. Low, Mid and High channels tested as noted in the data. Worst case modulation used = GSM. Worst case position used = Vertical Measurement Res BW = 1 MHz Vid BW = 1 MHz. +5VDC Input.

Operating Frequency: 1850-1910 MHz & 1930-1990 MHz

Channels: Uplink and Downlink

Highest Measured Output Power: 51.80 ERP(dBm)= 151.4 ERP(mWatts)

Distance: 3 meters

Limit: $43+10\text{Log}(P)$ 64.80 dBc

Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
3,760.00	-19.3	Horiz	71.10
3,819.44	-22.9	Horiz	74.70
3,760.00	-29	Vert	80.80
3,819.44	-30.9	Vert	82.70
3,700.56	-31.4	Vert	83.20
3,700.58	-33.3	Horiz	85.10
5,550.83	-34.2	Vert	86.00
5,640.00	-35.3	Horiz	87.10
5,729.16	-36.4	Vert	88.20
7,638.88	-37.7	Horiz	89.50
7,520.00	-38.8	Vert	90.60
7,401.14	-38.8	Horiz	90.60
5,550.86	-40.2	Horiz	92.00
5,729.16	-40.4	Horiz	92.20
5,640.00	-41.1	Vert	92.90
3,819.44	-18.4	Vert	70.20
3,759.96	-19.5	Vert	71.30
3,760.00	-21	Horiz	72.80
3,700.45	-23.4	Horiz	75.20
3,700.56	-24.2	Vert	76.00
7,638.88	-25.4	Horiz	77.20
7,638.88	-25.4	Vert	77.20
11,280.36	-26	Vert	77.80
5,640.00	-26	Horiz	77.80
7,519.96	-26.5	Vert	78.30
5,550.92	-27.5	Horiz	79.30
5,729.16	-28.7	Vert	80.50
5,639.96	-29.7	Vert	81.50
9,400.38	-31.5	Horiz	83.30
7,401.02	-31.8	Horiz	83.60

3,819.44	-31.8	Horiz	83.60
7,401.01	-32.5	Vert	84.30
5,551.17	-35.7	Vert	87.50
7,520.00	-35.9	Horiz	87.70
7,721.12	-23	Vert	74.80
5,880.00	-23.4	Vert	75.20
7,840.00	-23.4	Vert	75.20
11,581.68	-23.8	Vert	75.60
3,860.56	-24.4	Vert	76.20
3,920.00	-24.8	Vert	76.60
11,760.00	-25.1	Vert	76.90
9,948.54	-25.8	Horiz	77.60
11,938.79	-26	Vert	77.80
3,860.56	-27.2	Vert	79.00
11,760.00	-27.7	Vert	79.50
3,920.00	-28	Vert	79.80
11,581.68	-28.6	Vert	80.40
3,979.38	-28.7	Vert	80.50
5,790.84	-29.4	Vert	81.20
9,948.29	-29.7	Vert	81.50
5,880.00	-29.8	Vert	81.60
3,979.38	-30.3	Horiz	82.10
9,800.00	-30.6	Vert	82.40
7,958.59	-30.7	Vert	82.50
9,651.40	-31	Vert	82.80
9,651.40	-32.1	Vert	83.90
7,721.12	-32.1	Vert	83.90
9,800.00	-32.3	Vert	84.10
7,958.82	-34.6	Horiz	86.40
7,840.00	-35.2	Vert	87.00
5,969.10	-36.1	Horiz	87.90
5,969.10	-37	Vert	88.80
5,790.84	-38.1	Vert	89.90

INPUT AND OUTPUT PLOTS

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. Input and output plots do not provide information regarding amplifier gain and the signal levels used vary significantly.

For output plots, EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain.

For input plots, signal generator is connected directly to spectrum analyzer without external attenuation. The signal generator level is adjusted to provide appropriate display of input signal spectral characteristics.

Frequency Range Investigated: Carrier Mid Channel
Temperature: 21°C, Relative Humidity: 30% +8VDC

Test Setup Photos



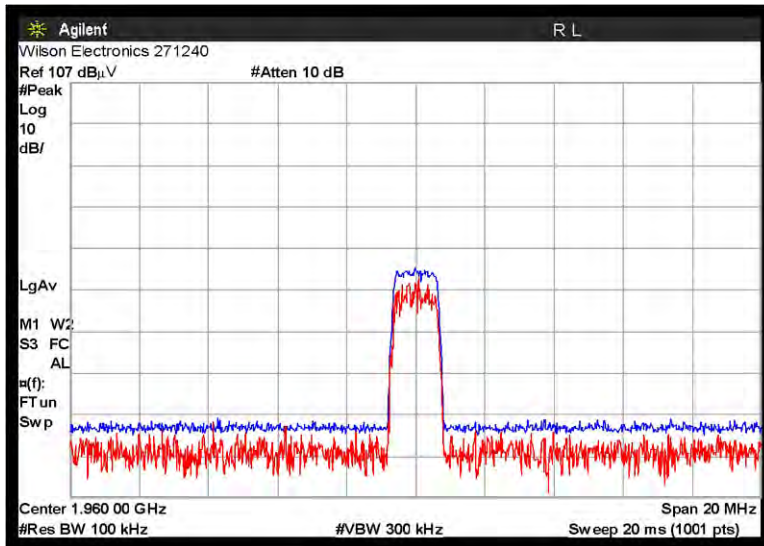
Downlink



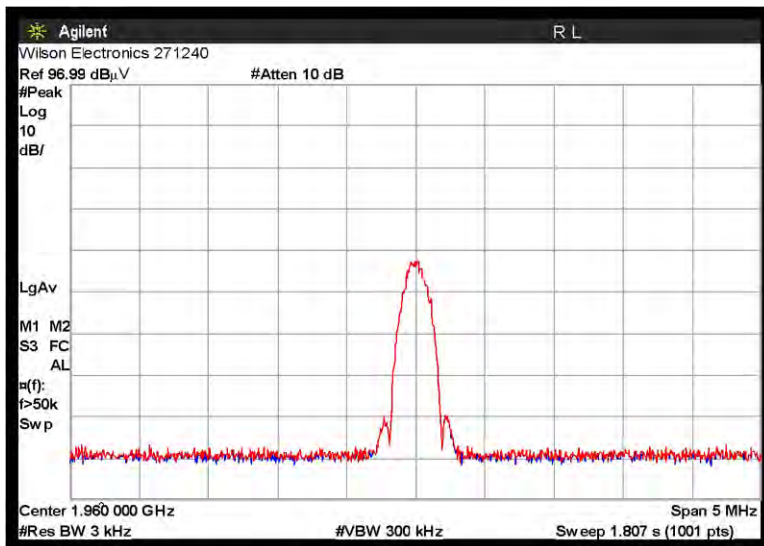
Uplink

Test Plots

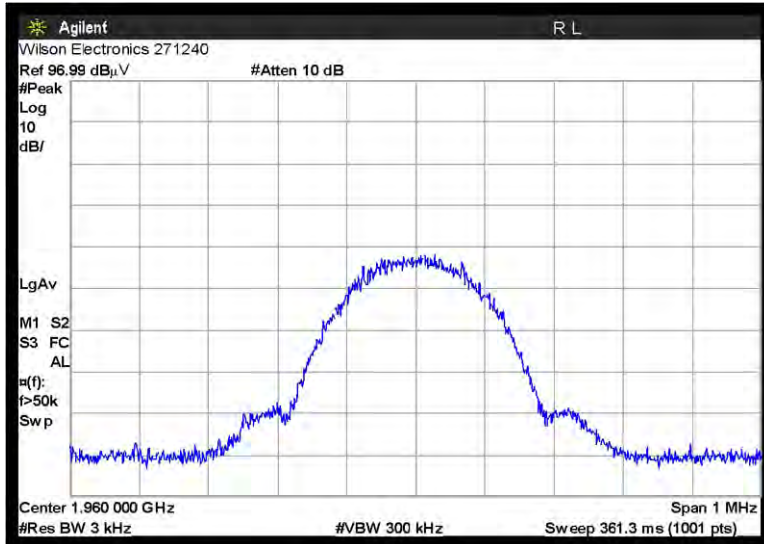
INPUT - DOWNLINK CDMA MID CHANNEL



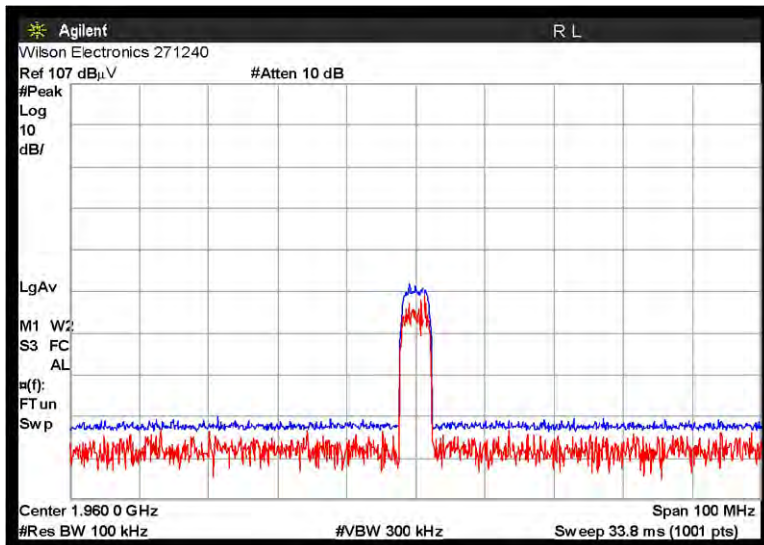
INPUT - DOWNLINK EDGE MID CHANNEL



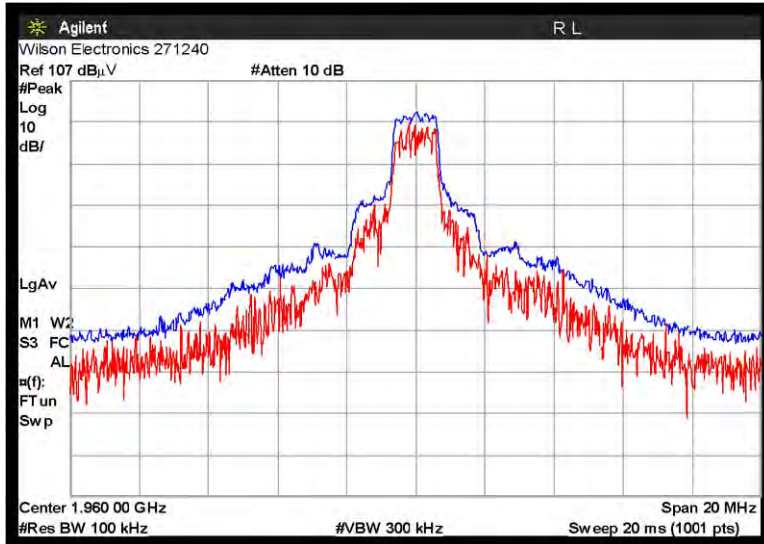
INPUT - DOWNLINK GSM MID CHANNEL



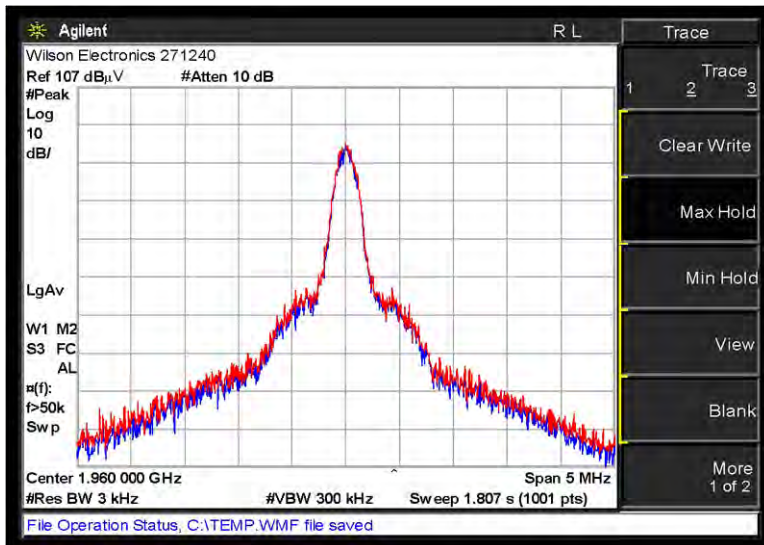
INPUT - DOWNLINK WCDMA MID CHANNEL



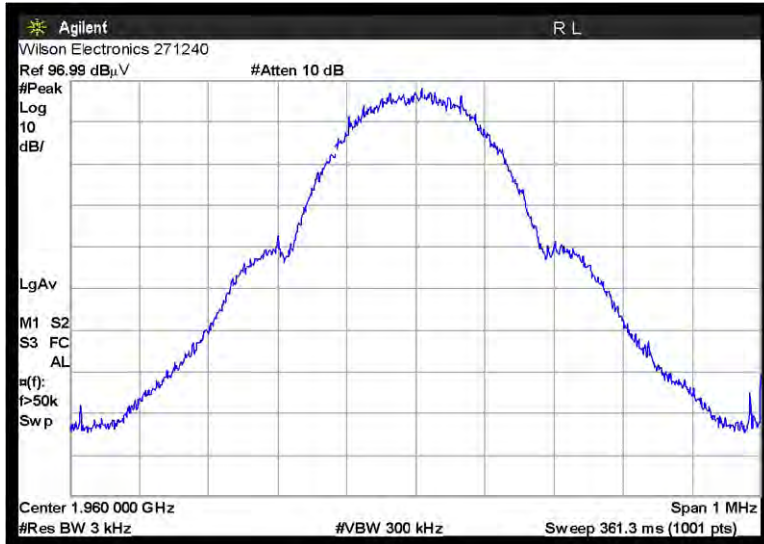
OUTPUT - DOWNLINK CDMA MID CHANNEL



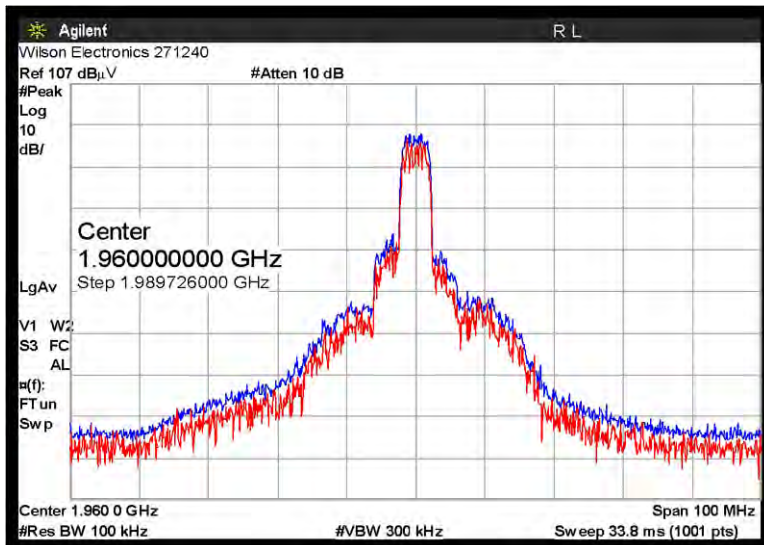
OUTPUT - DOWNLINK EDGE MID CHANNEL



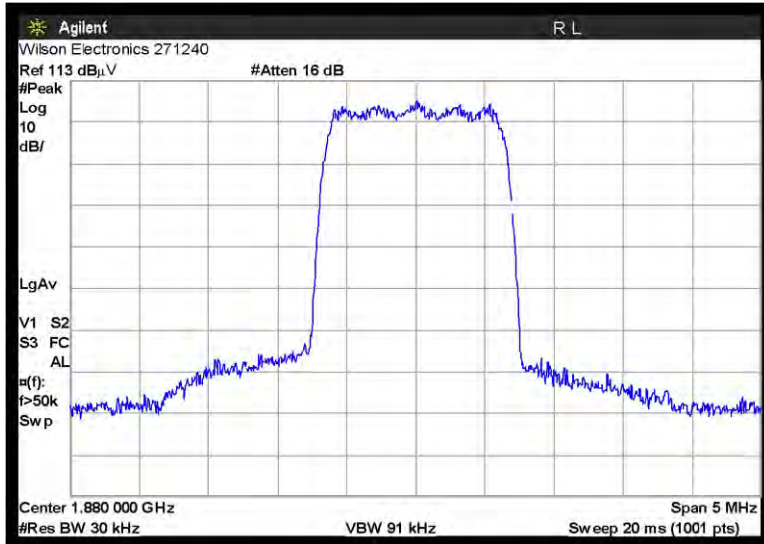
OUTPUT - DOWNLINK GSM MID CHANNEL



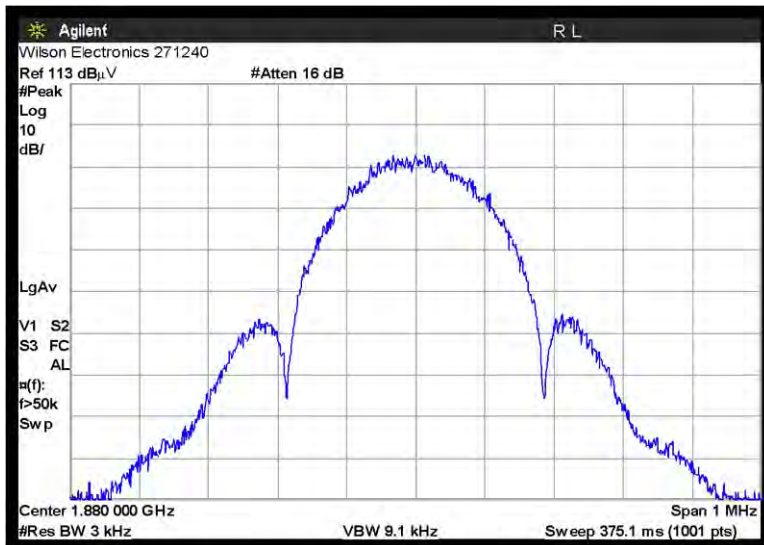
OUTPUT - DOWNLINK WCDMA MID CHANNEL



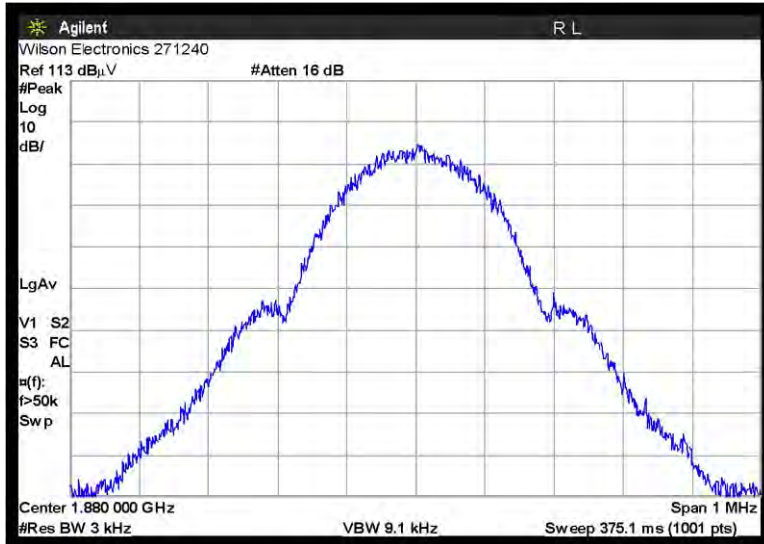
INPUT - UPLINK CDMA MID CHANNEL



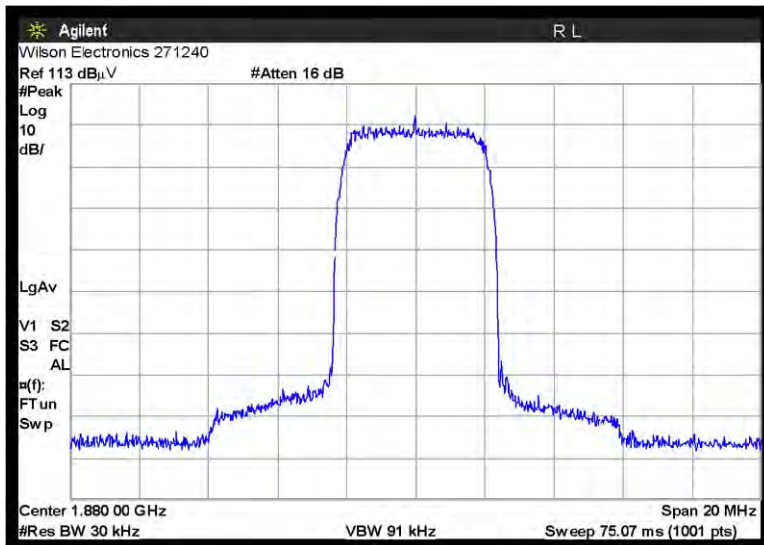
INPUT - UPLINK EDGE MID CHANNEL



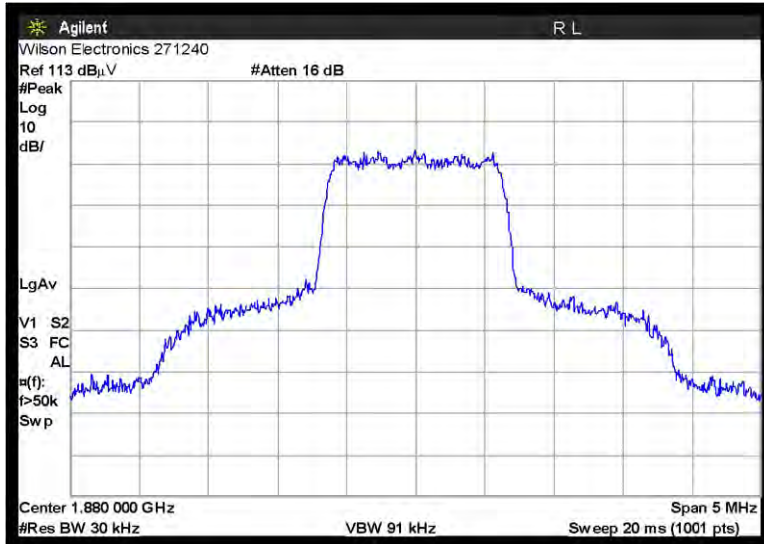
INPUT - UPLINK GSM MID CHANNEL



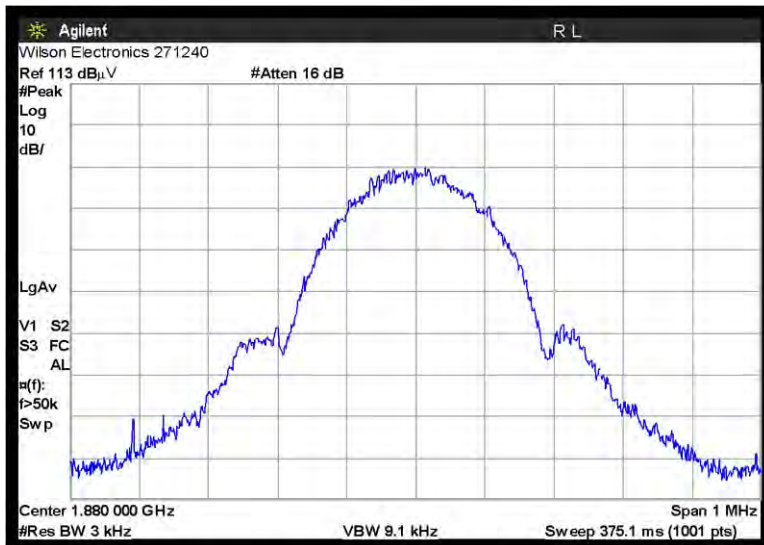
INPUT - UPLINK WCDMA MID CHANNEL



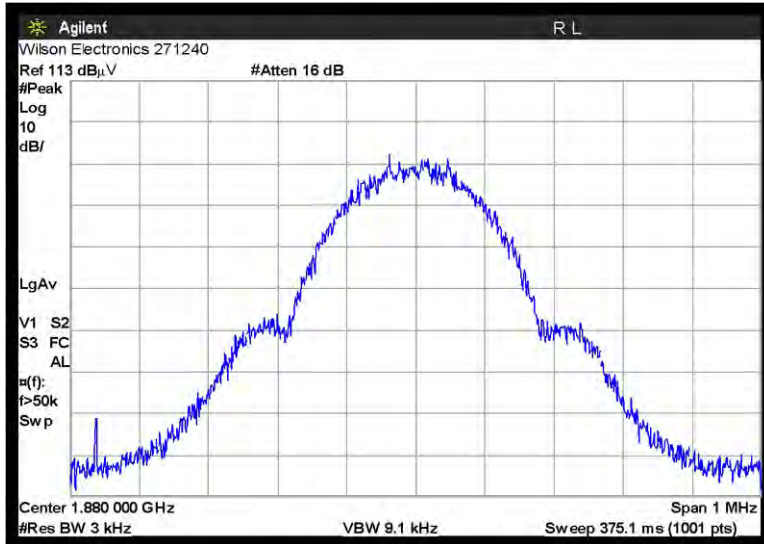
OUTPUT - UPLINK CDMA MID CHANNEL



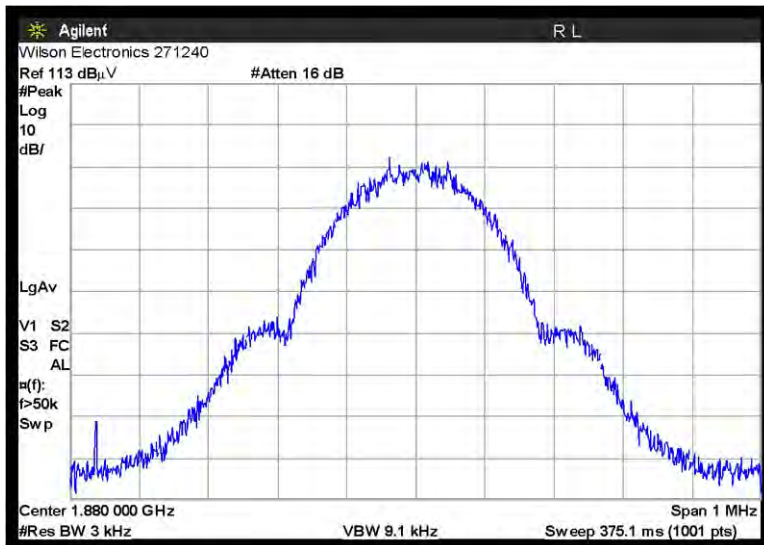
OUTPUT - UPLINK EDGE MID CHANNEL



OUTPUT - UPLINK GSM MID CHANNEL



OUTPUT - UPLINK WCDMA MID CHANNEL



FCC 2.1051 INTERMODULATION ATTENUATION

Test Setup Photos



Test Data

Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310**
 Test Type: **Conducted Emissions**
 Equipment: **Bidirectional Amplifier**
 Manufacturer: Wilson Electronics
 Model: 271240
 S/N: 00001

Date: 1/29/2008
 Time: 10:49:22
 Sequence#: 6
 Tested By: Randal Clark
 5 VDC

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	US39261021
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Frequency Range Investigated: 9kHz - 20 GHz. Temperature: 21°C, Relative Humidity: 30%. Downlink Path.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

Measurement Data:		Reading listed by margin.					Test Lead: Antenna Port				
#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	1928.740M	76.0	+0.4	+9.9	+5.7		+0.0	92.0	94.0	-2.0	Anten
									CDMA Low		
2	1991.080M	73.8	+0.4	+9.9	+5.7		+0.0	89.8	94.0	-4.2	Anten
									CDMA High		
3	1994.000M	73.2	+0.4	+9.9	+5.7		+0.0	89.2	94.0	-4.8	Anten
									WCDMA High		
4	1926.600M	71.7	+0.4	+9.9	+5.7		+0.0	87.7	94.0	-6.3	Anten
									WCDMA Low		
5	1990.260M	70.0	+0.4	+9.9	+5.7		+0.0	86.0	94.0	-8.0	Anten
									GSM High		
6	1929.670M	69.6	+0.4	+9.9	+5.7		+0.0	85.6	94.0	-8.4	Anten
									GSM Low		
7	1990.335M	69.4	+0.4	+9.9	+5.7		+0.0	85.4	94.0	-8.6	Anten
									EDGE High		
8	1929.705M	64.8	+0.4	+9.9	+5.7		+0.0	80.8	94.0	-13.2	Anten
									EDGE Low		



Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 1/29/2008
 Test Type: **Conducted Emissions** Time: 13:21:32
 Equipment: **Bidirectional Amplifier** Sequence#: 1
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 271240 8 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	US39261021
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. Uplink Path.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

Measurement Data:

Reading listed by margin.

Test Lead: Antenna Port

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	1910.250M	75.5	+0.4	+9.9	+5.7	+0.0	91.5	94.0	-2.5	Anten
GSM High										
2	1910.280M	73.8	+0.4	+9.9	+5.7	+0.0	89.8	94.0	-4.2	Anten
EDGE High										
3	1911.180M	73.3	+0.4	+9.9	+5.7	+0.0	89.3	94.0	-4.7	Anten
CDMA High										
4	1844.920M	72.8	+0.4	+9.9	+5.7	+0.0	88.8	94.0	-5.2	Anten
Uplink WCDMA										

5	1849.725M	70.8	+0.4	+9.9	+5.7	+0.0	86.8	94.0	-7.2	Anten
								EDGE Low		
6	1849.715M	68.8	+0.4	+9.9	+5.7	+0.0	84.8	94.0	-9.2	Anten
								GSM Low		
7	1914.250M	67.8	+0.4	+9.9	+5.7	+0.0	83.8	94.0	-10.2	Anten
								Uplink WCDMA		
8	1848.560M	66.7	+0.4	+9.9	+5.7	+0.0	82.7	94.0	-11.3	Anten
								CDMA Low		



Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **FCC 24.238**
 Work Order #: **87310** Date: 1/28/2008
 Test Type: **Conducted Emissions** Time: 11:38:40
 Equipment: **Bidirectional Amplifier** Sequence#: 1
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 271240 8 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	US39261021
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Frequency Range Investigated: 9kHz - 20GHz. Temperature: 21°C, Relative Humidity: 30%. Uplink Path +8VDC Input.

Transducer Legend:

T1=CAB-AN03011-40GHZ-2FT	T2=ATT 10d B AN02139
T3=ATT 6d B P01950	

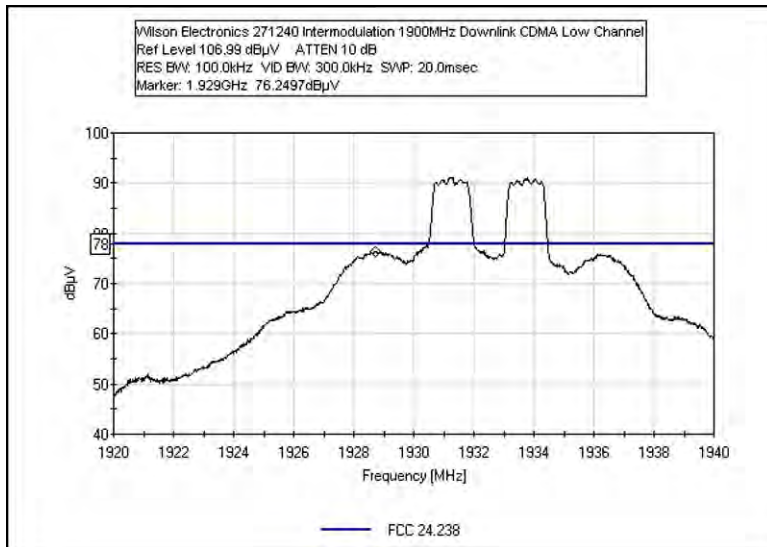
Measurement Data:

#	Freq MHz	Rdng dBμV	Reading listed by margin.			Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB					
1	1911.000M	67.7	+0.4	+9.9	+5.7	+0.0	83.7	94.0	-10.3	Anten
								Uplink CDMA High		
2	1848.600M	65.9	+0.4	+9.9	+5.7	+0.0	81.9	94.0	-12.1	Anten
								Uplink CDMA Low		
3	1910.270M	65.4	+0.4	+9.9	+5.7	+0.0	81.4	94.0	-12.6	Anten
								Uplink EDGE High		
4	1910.235M	64.8	+0.4	+9.9	+5.7	+0.0	80.8	94.0	-13.2	Anten
								Uplink GSM High		

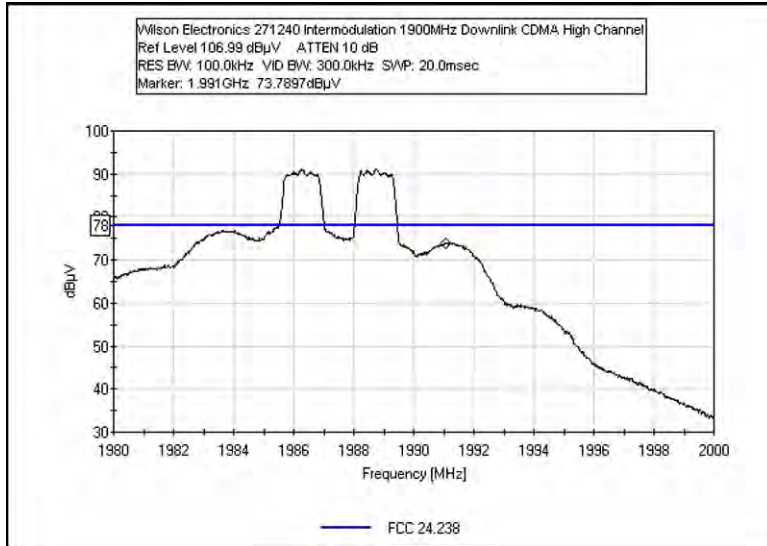
5	1849.705M	64.8	+0.4	+9.9	+5.7	+0.0	80.8	94.0	-13.2	Anten
								Uplink GSM Low		
6	1849.710M	63.5	+0.4	+9.9	+5.7	+0.0	79.5	94.0	-14.5	Anten
								Uplink EDGE Low		
7	1844.650M	60.6	+0.4	+9.9	+5.7	+0.0	76.6	94.0	-17.4	Anten
								Uplink WCDMA Low		
8	1912.750M	56.3	+0.4	+9.9	+5.7	+0.0	72.3	94.0	-21.7	Anten
								Uplink WCDMA High		

Test Plots

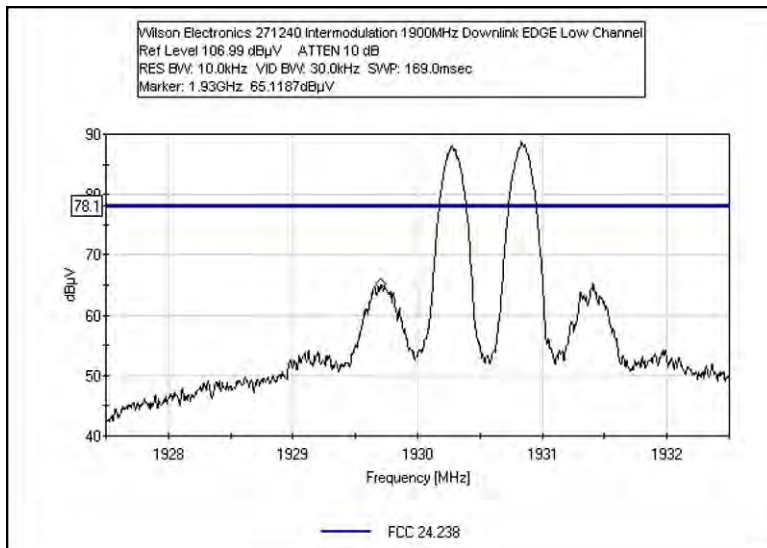
INTERMODULATION - DOWNLINK CDMA LOW



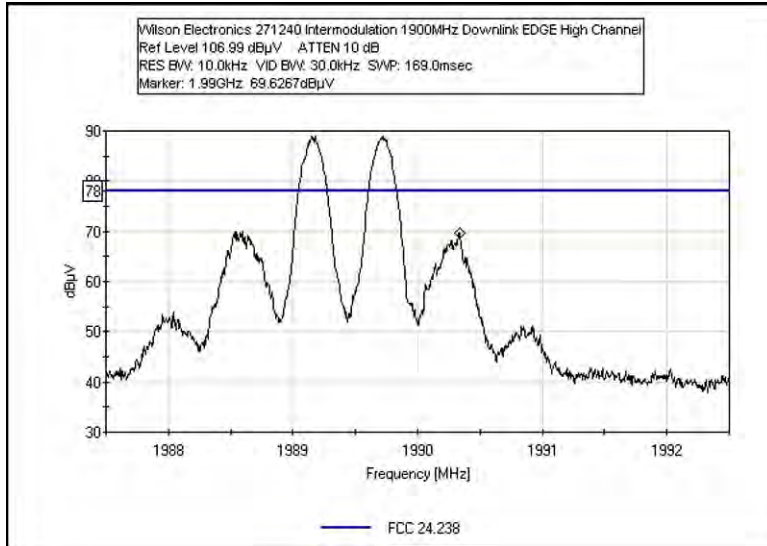
INTERMODULATION - DOWNLINK CDMA HIGH



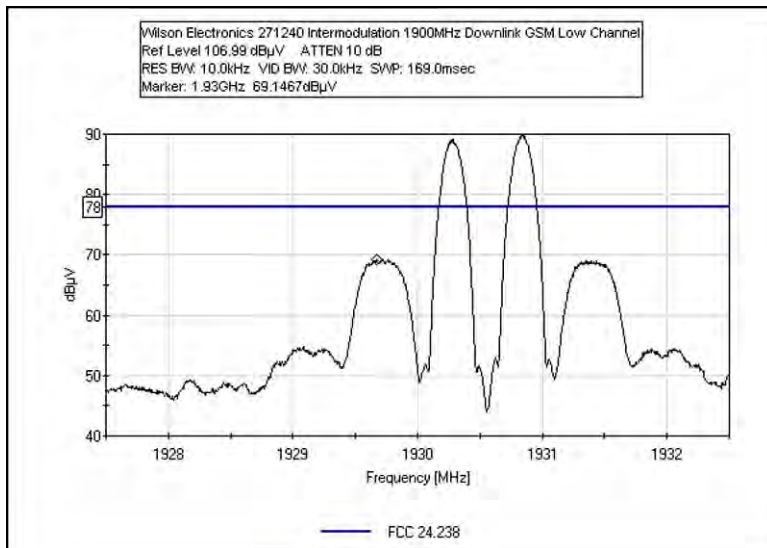
INTERMODULATION - DOWNLINK EDGE LOW



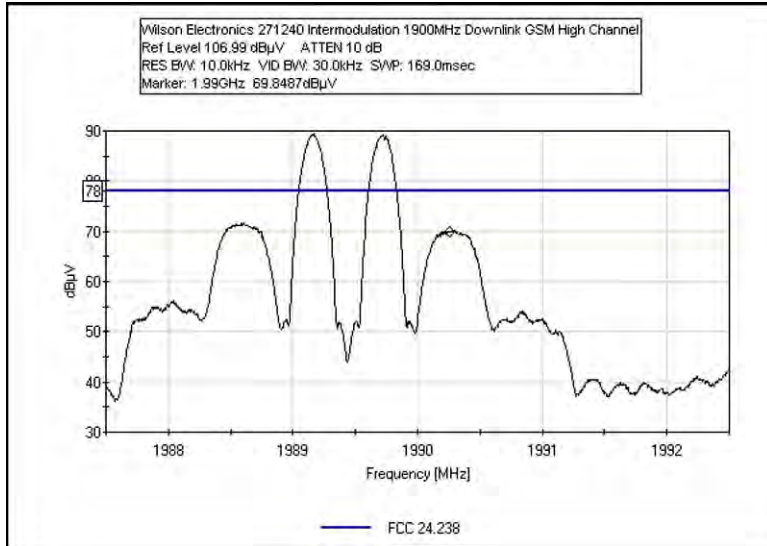
INTERMODULATION - DOWNLINK EDGE HIGH



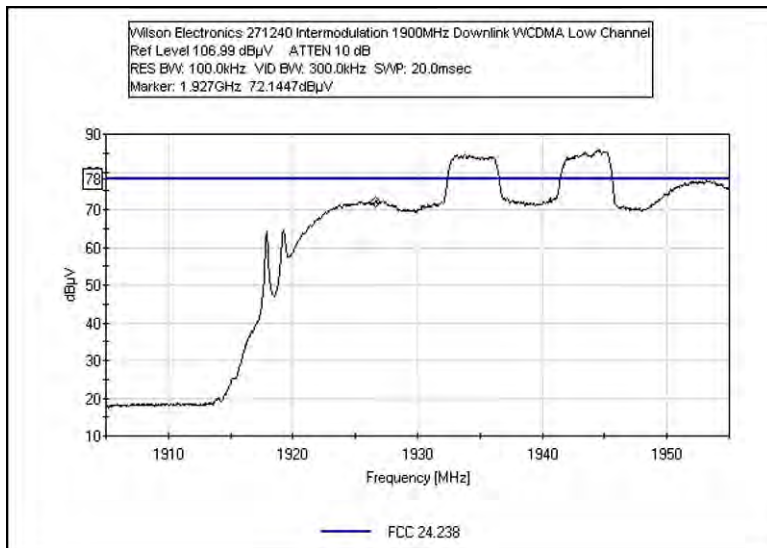
INTERMODULATION - DOWNLINK GSM LOW CHANNEL



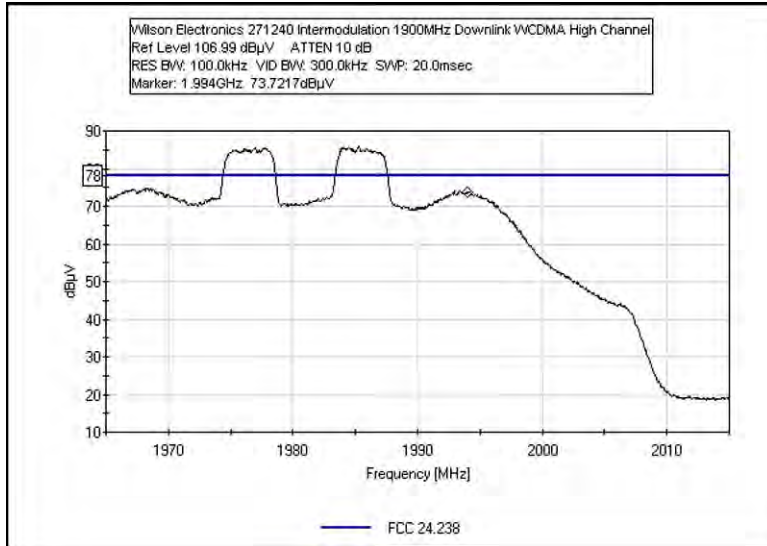
INTERMODULATION - DOWNLINK GSM HIGH CHANNEL



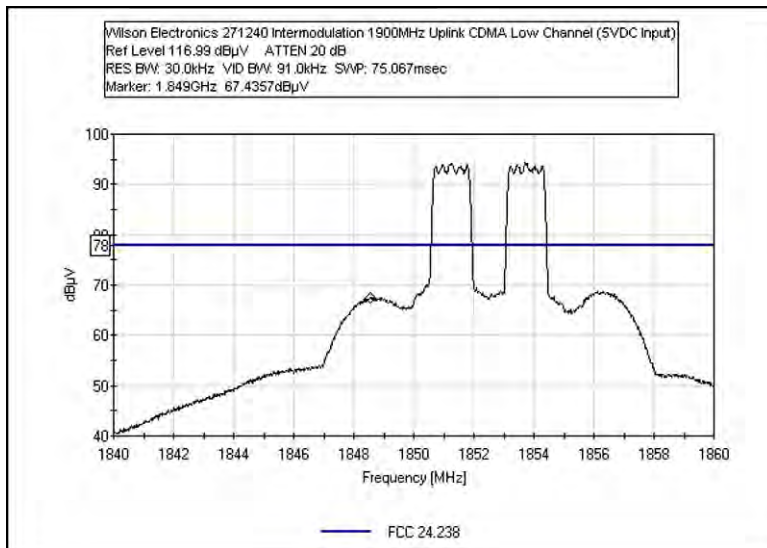
INTERMODULATION - DOWNLINK WCDMA LOW CHANNEL



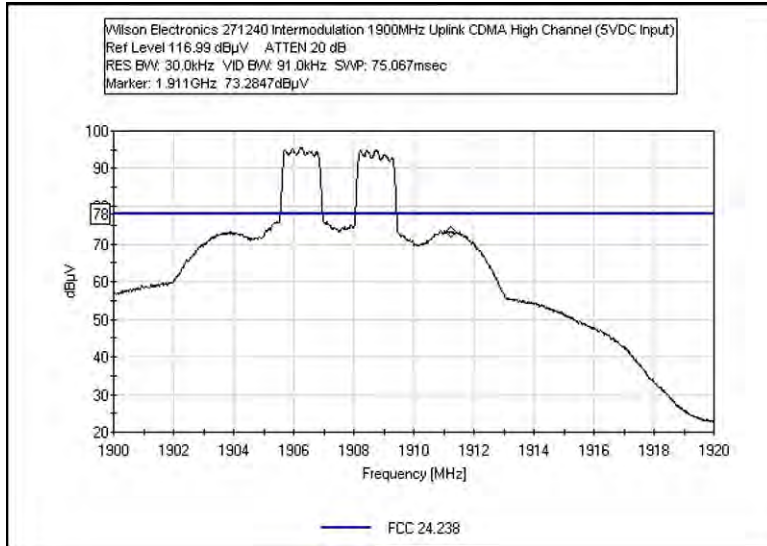
INTERMODULATION - DOWNLINK WCDMA HIGH CHANNEL



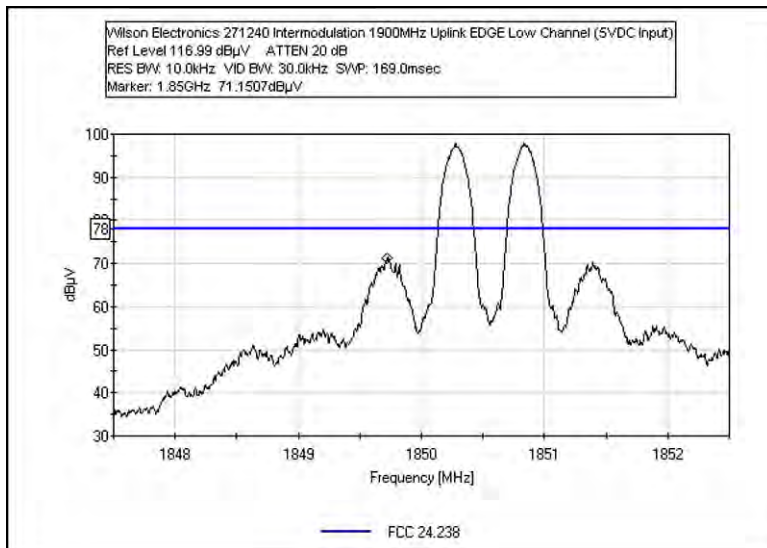
INTERMODULATION - UPLINK CDMA LOW CHANNEL – 5VDC



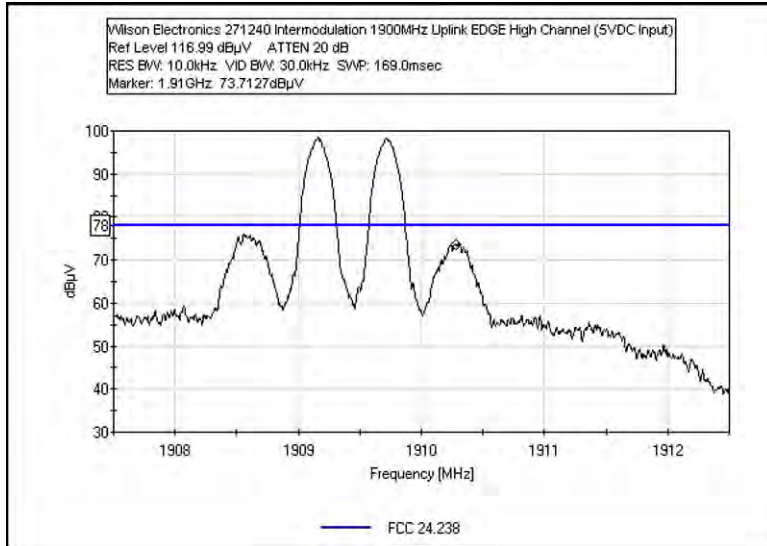
INTERMODULATION - UPLINK CDMA HIGH CHANNEL – 5VDC



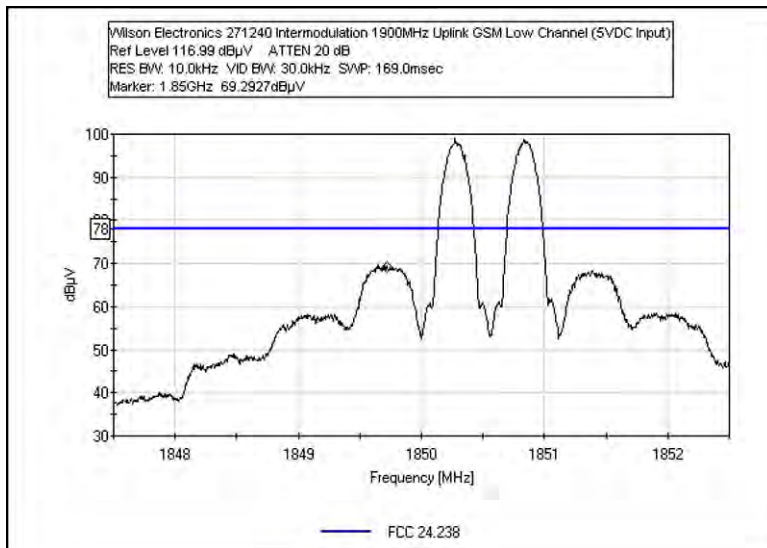
INTERMODULATION - UPLINK EDGE LOW CHANNEL – 5VDC



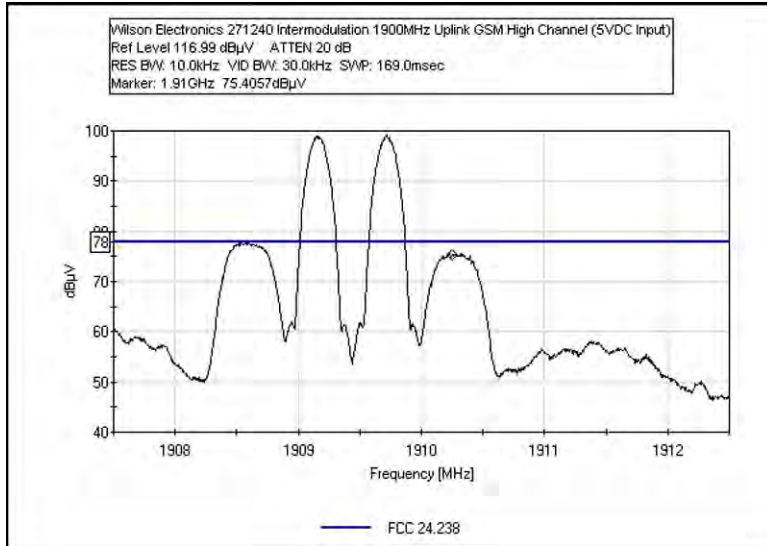
INTERMODULATION - UPLINK EDGE HIGH CHANNEL – 5VDC



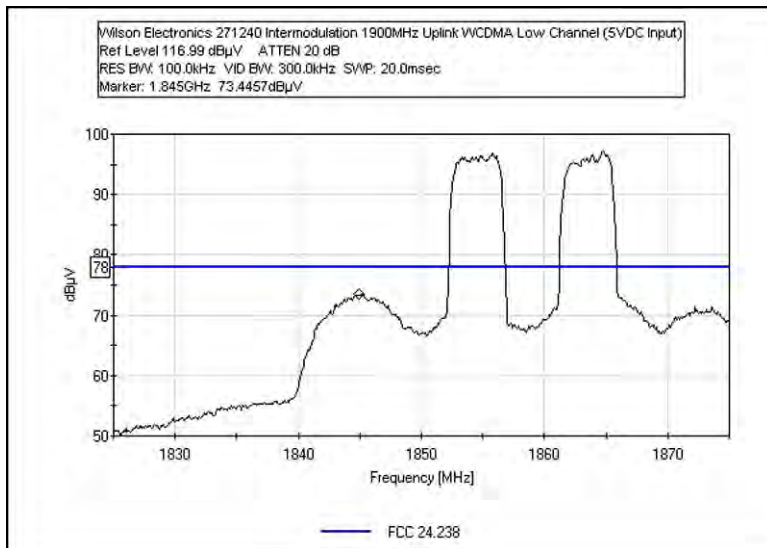
INTERMODULATION - UPLINK GSM LOW CHANNEL – 5VDC



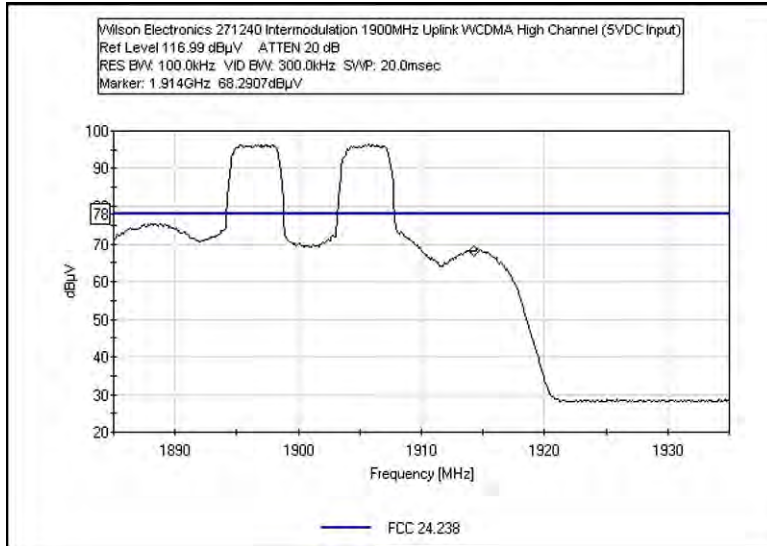
INTERMODULATION - UPLINK GSM HIGH CHANNEL – 5VDC



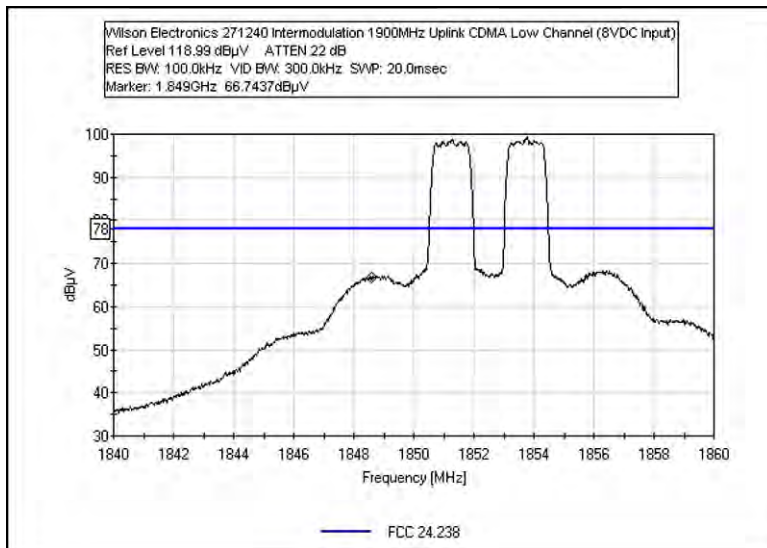
INTERMODULATION - UPLINK WCDMA LOW CHANNEL – 5VDC



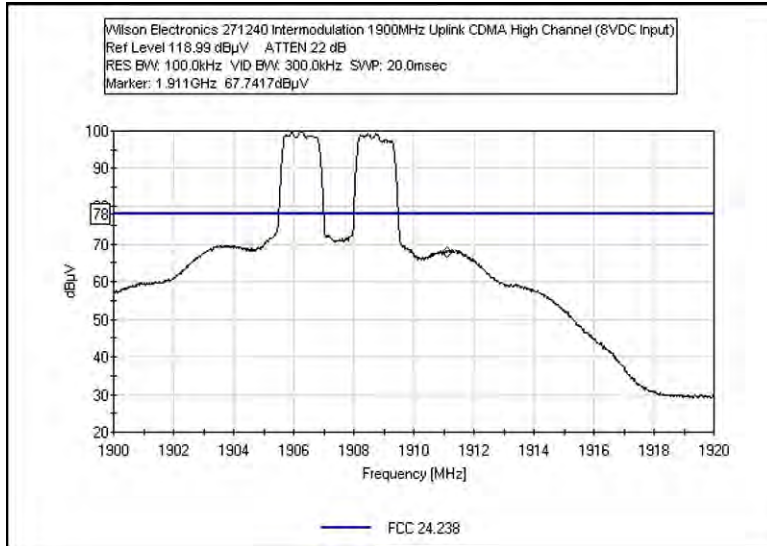
INTERMODULATION - UPLINK WCDMA HIGH CHANNEL – 5VDC



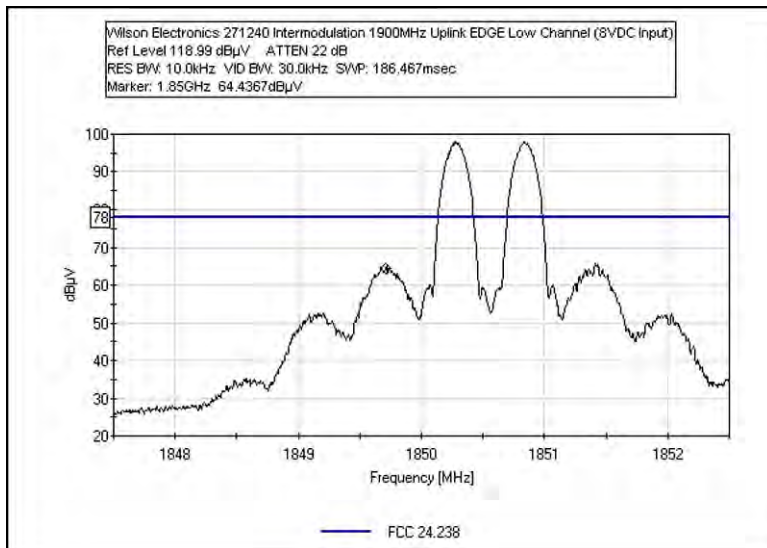
INTERMODULATION - UPLINK CDMA LOW CHANNEL – 8VDC



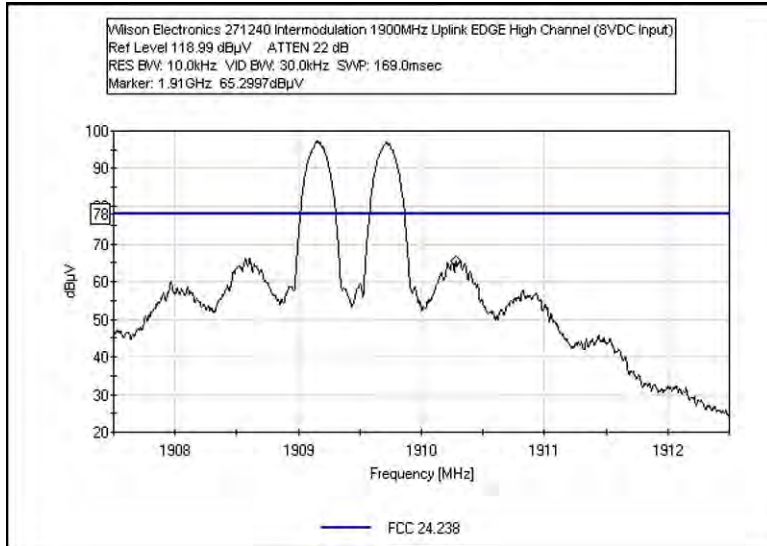
INTERMODULATION - UPLINK CDMA HIGH CHANNEL – 8VDC



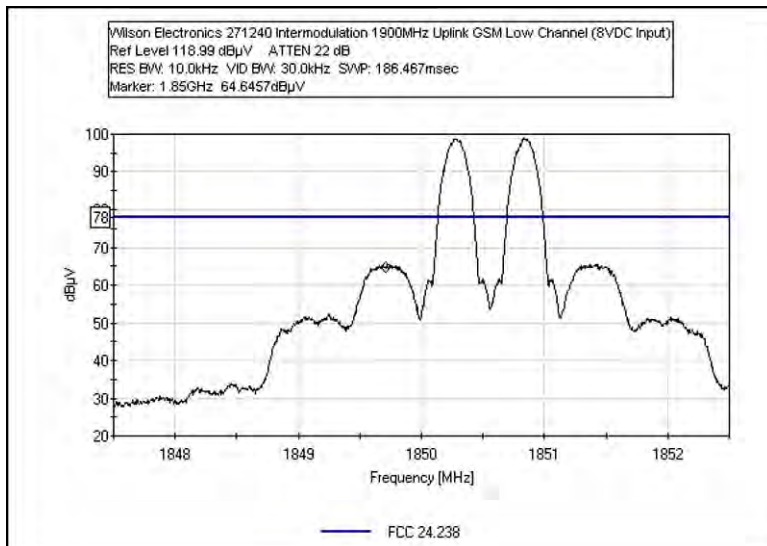
INTERMODULATION - UPLINK EDGE LOW CHANNEL – 8VDC



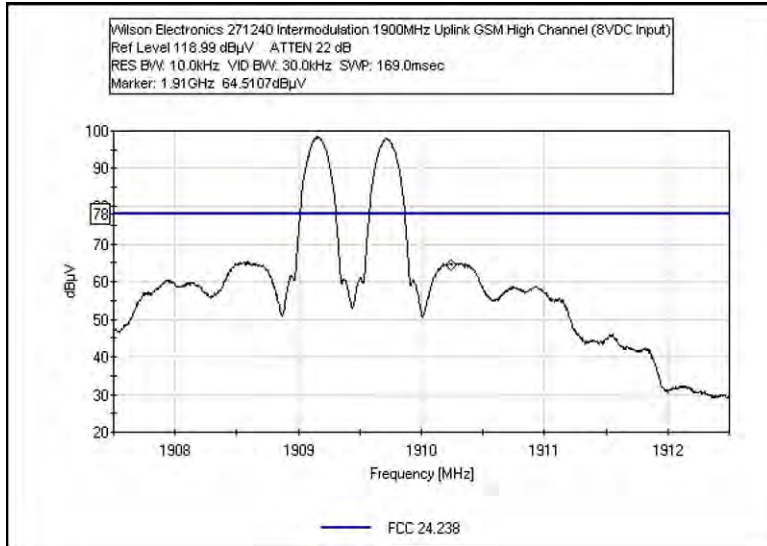
INTERMODULATION - UPLINK EDGE HIGH CHANNEL – 8VDC



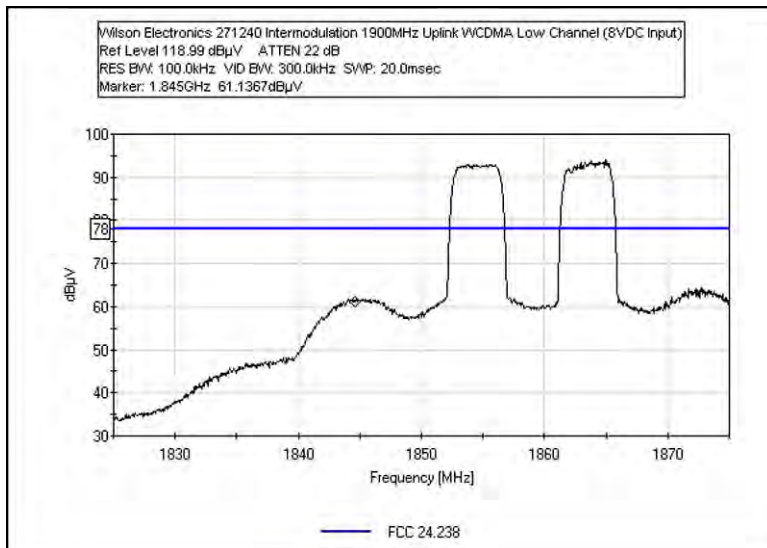
INTERMODULATION - UPLINK GSM LOW CHANNEL – 8VDC



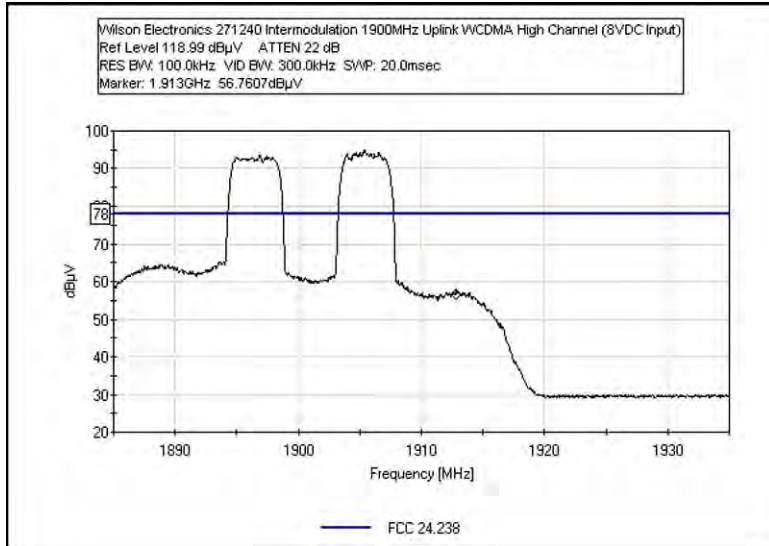
INTERMODULATION - UPLINK GSM HIGH CHANNEL – 8VDC



INTERMODULATION - UPLINK WCDMA LOW CHANNEL – 8VDC



INTERMODULATION - UPLINK WCDMA HIGH CHANNEL – 8VDC



FCC 2.1051 OUT OF BAND REJECTION

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Signal generator input signal used is WCDMA and is swept to provide out of band and passband spectrum characteristics..

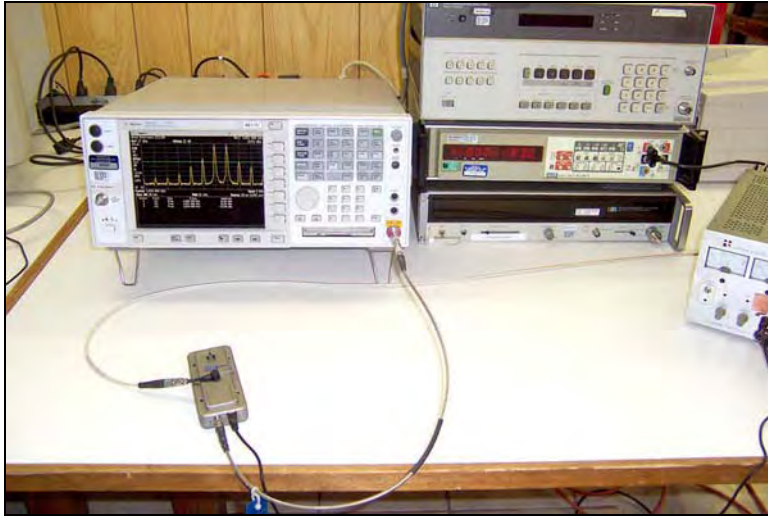
Frequency Range Investigated: See provide plots (frequency spectrum investigated up to three times the indicated span)

Temperature: 21°C, Relative Humidity: 30% +8VDC.

Test Setup Photos



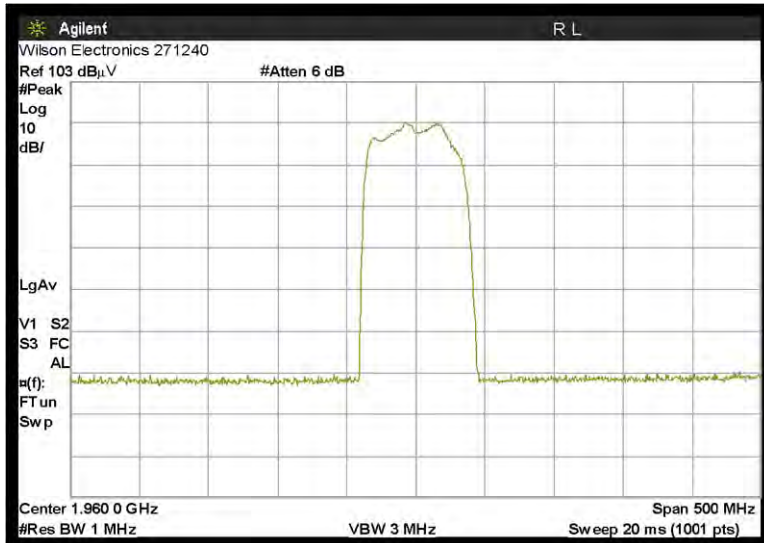
Downlink



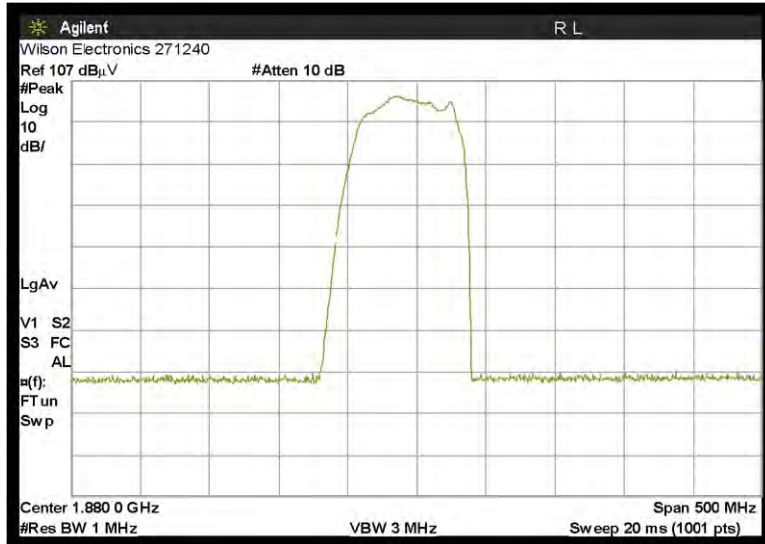
Uplink

Test Plots

OUT OF BAND REJECTION - DOWNLINK



OUT OF BAND REJECTION - UPLINK



RSS-131 SECTION 6.1 PASSBAND GAIN AND BANDWIDTH

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signal level is set such that the amplifier employs maximum amplification gain. Signal generator input signal used is WCDMA and is swept to provide amplification and bandwidth plots.

Amplifier Gain is measured from the maximum output level to the input signal level. The input signal level is adjusted 3dB below the point at which the amplifier attenuates an input signal in the midband of the amplifier path.

Passbandwidth is measured 20dBc from the maximum output level using the same settings as listed above.

Frequency Range Investigated: See provide plots (frequency spectrum investigated up to three times the indicated span)

Temperature: 21°C, Relative Humidity: 30% +8VDC.

Test Setup Photos



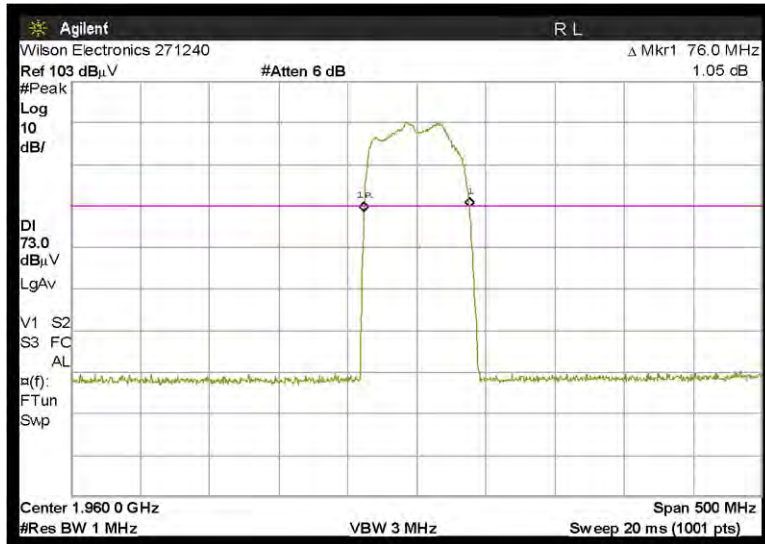
Downlink



Uplink

Test Plots

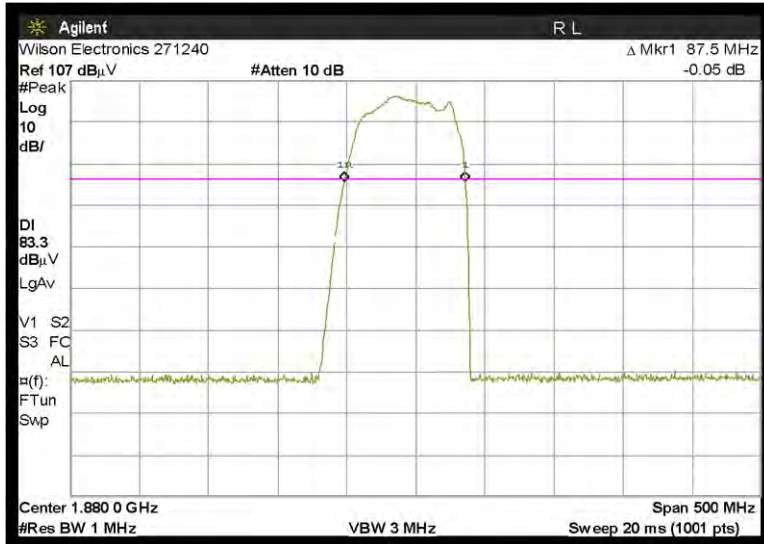
RSS-131 BANDWIDTH - DOWNLINK



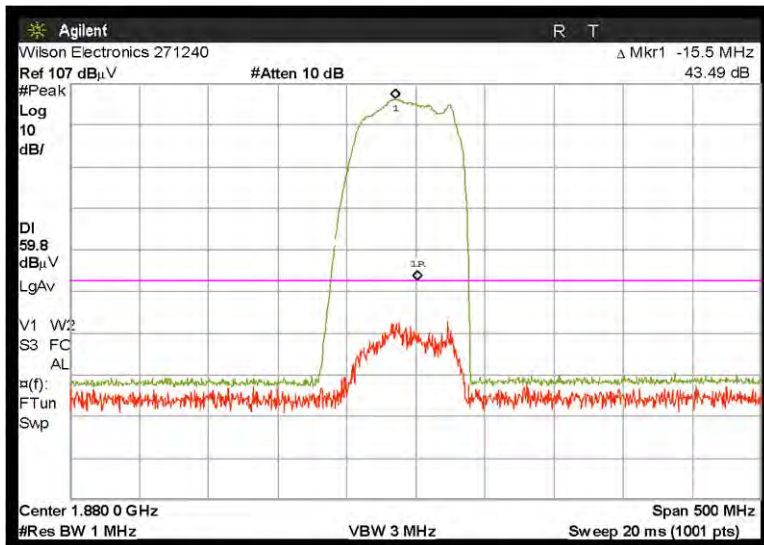
RSS-131 PASSBAND GAIN - DOWNLINK



RSS-131 BANDWIDTH - UPLINK



RSS-131 PASBAND GAIN - UPLINK





RSS-131 SECTION 6.2 OUTPUT POWER

Test Location: CKC Laboratories, Inc. • 4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **Wilson Electronics**
 Specification: **RSS 131**
 Work Order #: **87310** Date: 1/28/2008
 Test Type: **Conducted Emissions** Time: 13:10:49
 Equipment: **Bidirectional Amplifier** Sequence#: 5
 Manufacturer: Wilson Electronics Tested By: Randal Clark
 Model: 271240 8 VDC
 S/N: 00001

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Cable, Astrolab 24"	NA	01/15/2008	01/15/2010	03011
Weinchel 6dB attenuator	J7614	11/30/2006	11/30/2008	P01950
Weinchel 10dB attenuator	C8597	11/30/2006	11/30/2008	P02139

Equipment Under Test (= EUT):*

Function	Manufacturer	Model #	S/N
Bidirectional Amplifier*	Wilson Electronics	271240	00001

Support Devices:

Function	Manufacturer	Model #	S/N
Signal Generator	Agilent	E4437B	US39261021
Signal Generator	Agilent	E4437B	MY41000126
DC Power Supply	Topward Electric Instruments Co., Ltd	TPS-2000	920027

Test Conditions / Notes:

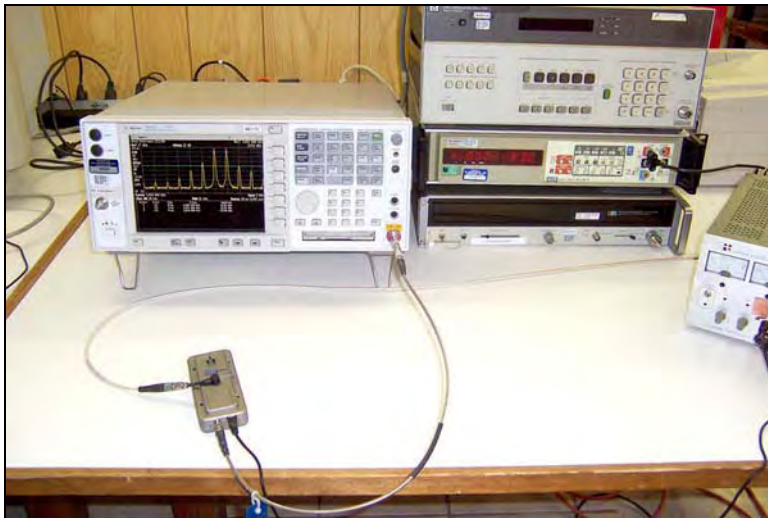
The EUT is a dual-band bi-directional amplifier for enhancing the range of cell phones and data communication devices (computers, PDAs, etc.) in both mobile (vehicular) and in-building environments. EUT operating frequency ranges are 824-849 MHz and 1850-1910 MHz for uplink path and 869-894 MHz and 1930-1990 MHz for downlink path. EUT is connected directly to a spectrum analyzer via suitable attenuation. Input signals are CW for Multi-Carrier Operation in accordance with RSS 131 Frequency Range Investigated: Carrier Temperature: 21°C, Relative Humidity: 30%. Uplink and Downlink Path.

Band	Frequency (MHz)	Power (dBm)	Po+3dB (dBm)	Rated Power (W)
Uplink (5V)	1850.5	14.67	17.67	0.058
Uplink (5V)	1851.0	14.68	17.68	0.059
Uplink (5V)	1909.0	14.33	17.33	0.054
Uplink (5V)	1909.5	14.34	17.34	0.054
Uplink (8V)	1850.5	15.90	18.90	0.078
Uplink (8V)	1851.0	15.91	18.91	0.078
Uplink (8V)	1909.0	15.29	18.29	0.067
Uplink (8V)	1909.5	15.30	18.30	0.068
Downlink	1989.0	5.43	8.43	0.007
Downlink	1989.5	5.43	8.43	0.007
Downlink	1930.5	5.66	8.66	0.007
Downlink	1931.0	5.66	8.66	0.007

Test Setup Photos



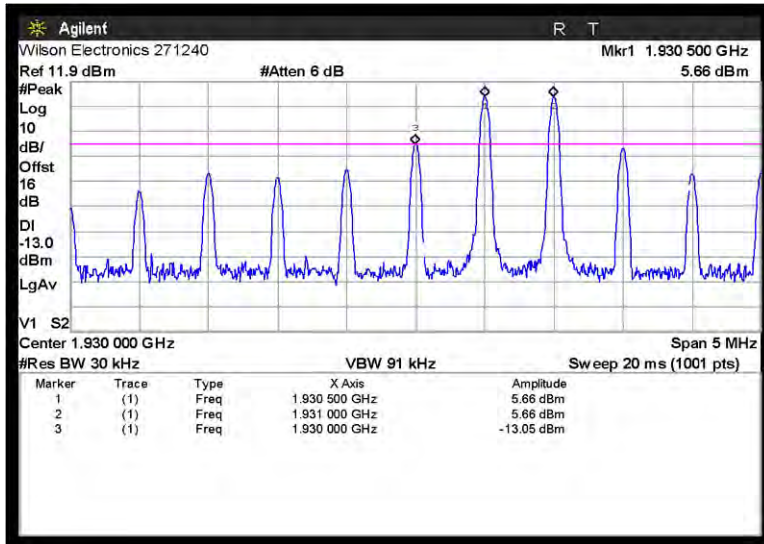
Downlink



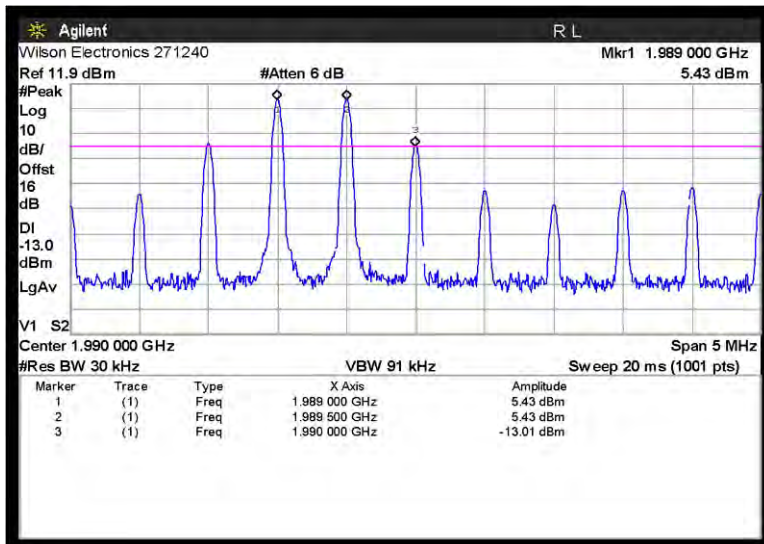
Uplink

Test Plots

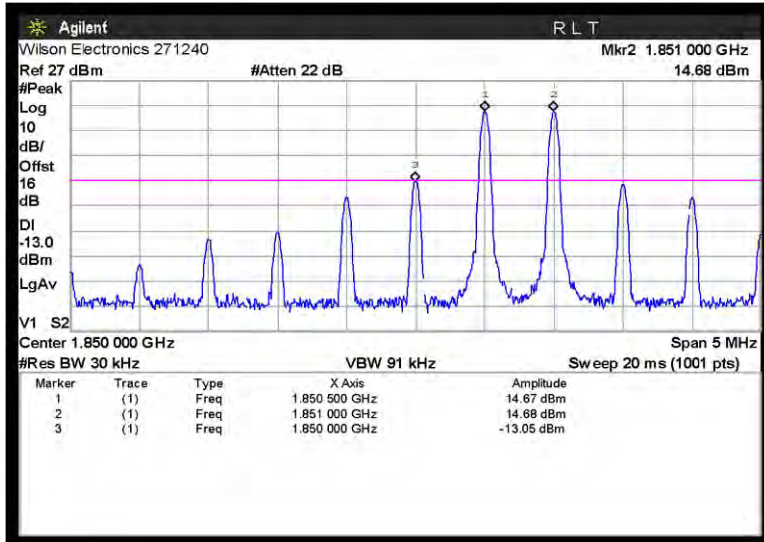
RSS-131 POWER - DOWNLINK LOW CHANNEL



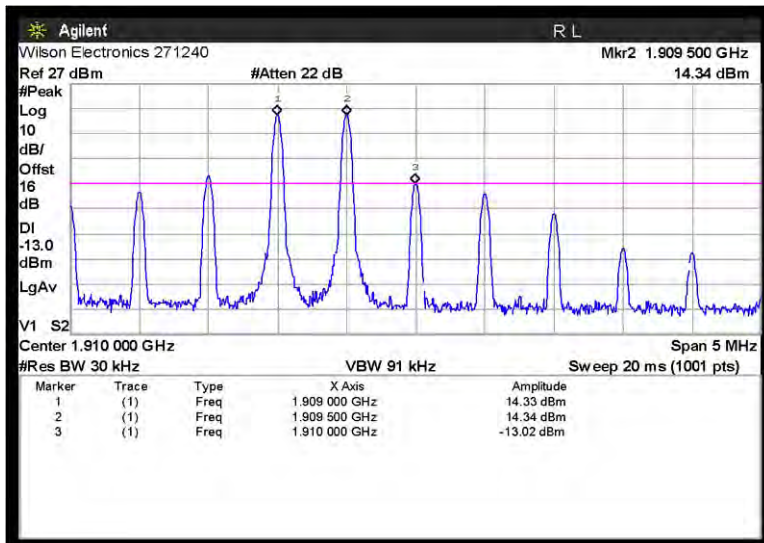
RSS-131 POWER - DOWNLINK HIGH CHANNEL



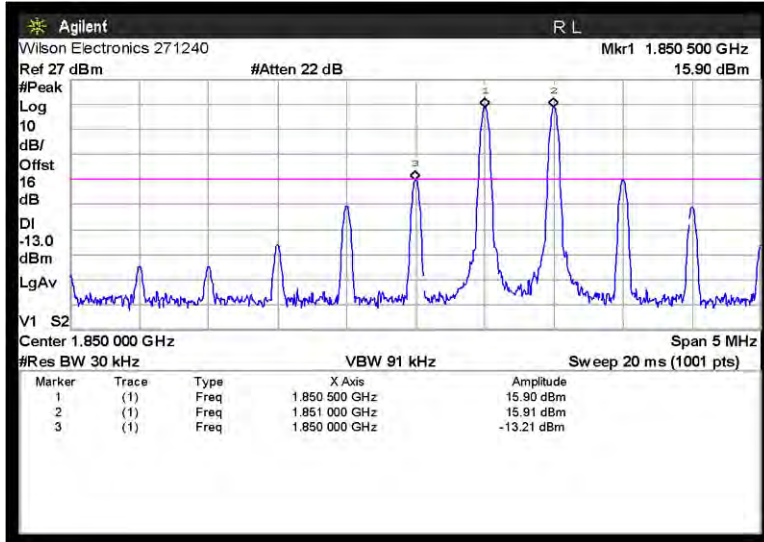
RSS-131 POWER - UPLINK LOW CHANNEL – 5VDC



RSS-131 POWER - UPLINK HIGH CHANNEL – 5VDC



RSS-131 POWER - UPLINK LOW CHANNEL – 8VDC



RSS-131 POWER - UPLINK HIGH CHANNEL – 8VDC

