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**FCC PT 22H, 24E AMPLIFIER
 AND IC RSS-131, RSS-GEN
 TEST REPORT**

APPLICANT	WILSON ELECTRONICS, INC.
ADDRESS	3301 E. DESERET DRIVE ST. GEORGE UTAH 84790 USA
FCC ID	PWO819DA
IC LABEL	4726A-819DA
MODEL NUMBER	811210
PRODUCT DESCRIPTION	SIGNALBOOSTER BI-DIRECTIONAL DUAL-BAND AMPLIFIER
DATE SAMPLE RECEIVED	4/15/2011
DATE TESTED	5/13/2011
TESTED BY	Nam Nguyen
APPROVED BY	Mario R. de Aranzeta
TIMCO REPORT NO.	764AUT11TestReport.doc
TEST RESULTS	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
 WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**





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ATTESTATION STATEMENT

This equipment has been tested in accordance with the standards identified in the referenced test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.



Test Certificate #0955-01

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made by me or under my supervision, at Timco Engineering, Inc. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.

Authorized by: **Mario R. de Aranzeta**



Signature:

Function: Test Lab Supervisor / Engineer

Date: 5/27/2011

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REPORT SUMMARY

Disclaimer	The test results relate only to the items tested.
Purpose of Test	To show the DUT in compliance with FCC CFR 47, Part 22H, 24E and IC RSS-131 requirements for amplifiers
Test Procedures	ANSI/TIA 603-C: 2004 FCC CFR 47 Part 22H, 24E IC RSS-131 ANSI C63.4: 2003
Related Approval	N/A

TEST ENVIRONMENT AND TEST SETUP

Test Facility	All tests were conducted by Timco Engineering Inc. located at 849 NW State Road 45, Newberry, FL 32669 USA
Laboratory Test Condition	Temperature: 26°C Relative humidity: 50%.
Deviation from the standards	No deviation
Modification to the DUT	No modification was made.
Test Exercise (software etc.)	The DUT was placed in continuous transmitting mode of operation.
System Setup	Stand alone device.

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DUT DESCRIPTION

Manufactured by	WILSON ELECTRONICS, INC.
Product Description	SIGNALBOOSTER BI-DIRECTIONAL DUAL-BAND AMPLIFIER
FCC ID	PWO819DA
IC Label	4726A-819DA
M/N	811210
Modulation	N/A Amplifier
Test Item	Preproduction
Type of DUT	Fixed/Mobile Amplifier

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TEST EQUIPMENT

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 3/10/10	3/10/12
AC Voltmeter	HP	400FL	2213A14499	CAL 3/23/09	3/23/12
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 6/10/09	6/10/11
Frequency Counter	HP	5385A	3242A07460	CAL 5/26/09	5/26/11
Hygro-Thermometer	Extech	445703	0602	CAL 1/30/09	1/30/12
Modulation Analyzer	HP	8901A	3435A06868	CAL 5/26/09	5/26/11
Digital Multimeter	Fluke	FLUKE-77-3	79510405	CAL 5/18/09	5/18/11
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 11/21/09	11/21/11
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 11/22/09	11/22/11
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 11/21/09	11/21/11
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 11/24/09	11/24/11
Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 4/25/10	4/25/12

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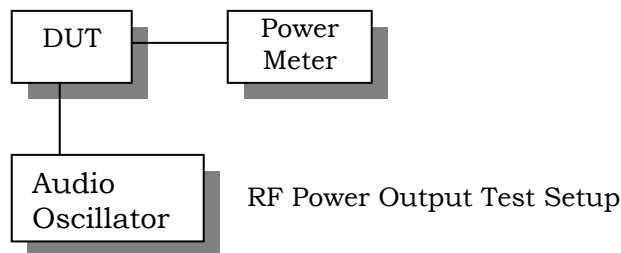
TEST PROCEDURES

Power Line Conducted Interference

The procedure used was ANSI 63.4-2003 using a 50uH LISN. Both lines were observed with the DUT transmitting. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

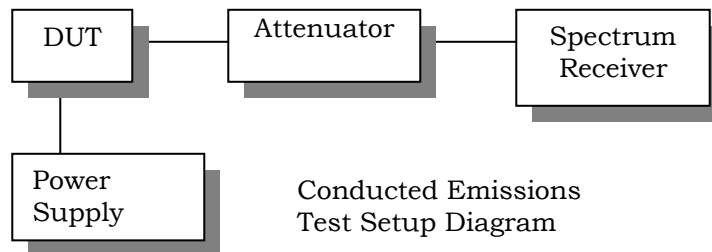
RF Power Output

The RF power output was measured at the antenna feed point using a peak power meter. A 50-ohm, resistive wattmeter was connected to the RF output connector. With a nominal battery voltage, and the transmitter properly adjusted the RF output measures:



Spurious Emissions At Antenna Terminals (Conducted)

The carrier was modulated 100%. The spectrum was scanned from 0.4 to at least the 10th harmonic of the fundamental. Above 1 GHz the resolution bandwidth was 1 MHz and the VBW = 3 MHz and the span to 50 MHz. The measurements were made in accordance with standard ANSI/TIA-603-C: 2004



Radiation Interference

The test procedure used was ANSI/TIA-603-C: 2004 and ANSI C63.4-2003 using an Agilent spectrum receiver with pre-selector. The bandwidth (RBW) of the spectrum receiver was 100 kHz up to 1 GHz and 1 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

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Modulation Characteristics

Audio frequency response

The audio frequency response was measured in accordance with ANSI/TIA 603-C: 2004.

Audio Low Pass Filter

The audio low pass filter for voice-modulated equipment was measured in accordance with ANSI/TIA 603-C: 2004.

Audio Input versus modulation

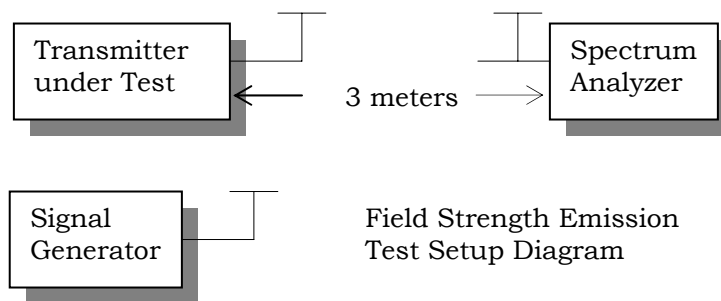
The audio input level needed for a particular percentage of modulation was measured in accordance with ANSI/TIA 603-C: 2004. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.

Frequency Stability

The frequency stability was measured per ANSI/TIA 603-C: 2004.

Field Strength of Spurious Emissions

The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per ANSI/TIA 603-C: 2004 using the substitution method.



RF POWER OUTPUT (conducted)

Rule Part(s) No.: Pt 2.1046(a)

Requirements: Pt 2.1046(a)

Test Result:

The power out is the same as that previous reported in the original filing with minor variation as can be found from unit to unit in the manufacturing process.

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SPURIOUS EMISSIONS AT ANTENNA TERMINALS (CONDUCTED)

Rule Part No.: FCC Pt 2.1051(a), IC RSS-119

Requirements: Emissions must be 43 +10log (Po) dB below the mean power output of the transmitter:

$$43 + 10\log (2.5) = 47 \text{ dBc (Uplink)}$$

$$43 + 10\log (0.01) = 23 \text{ dBc (Downlink)}$$

Test Result: The DUT meets the requirements.

Conducted Emissions - CDMA 1900 - Uplink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1851.25	0	1880.00	0	1908.75	0
3702.50	59.2	3760.00	54.6	3817.50	61.5
5553.75	88.1	5640.00	88.5	5726.25	88.6
7405.00	89.2	7520.00	90.0	7635.00	88.1
9256.25	89.9	9400.00	90.8	9543.75	89.2
11107.50	NF	11280.00	NF	11452.50	NF
12958.75	NF	13160.00	NF	13361.25	NF
14810.00	NF	15040.00	NF	15270.00	NF
16661.25	NF	16920.00	NF	17178.75	NF
18512.50	NF	18800.00	NF	19087.50	NF

Conducted Emissions - CDMA 1900 - Downlink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	DB Below Carrier (dBc)
1931.25	0	1960.00	0	1988.75	0
3862.50	56.4	3920.00	58.2	3977.50	60.7
5793.75	75.6	5880.00	71.5	5966.25	71.5
7725.00	78.9	7840.00	79.3	7955.00	79.1
9656.25	78.4	9800.00	80.2	9943.75	79.5
11587.50	NF	11760.00	NF	11932.50	NF
13518.75	NF	13720.00	NF	13921.25	NF
15450.00	NF	15680.00	NF	15910.00	NF
17381.25	NF	17640.00	NF	17898.75	NF
19312.50	NF	19600.00	NF	19887.50	NF

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Conducted Emissions – GSM 1900 - Uplink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1850.20	0	1880.00	0	1909.80	0
3700.40	76.2	3760.00	70.7	3819.60	69.8
5550.60	87.1	5640.00	86.3	5729.40	85.7
7400.80	87.4	7520.00	87.1	7639.20	85.6
9251.00	88.7	9400.00	87.5	9549.00	87.3
11101.20	NF	11280.00	NF	11458.80	NF
12951.40	NF	13160.00	NF	13368.60	NF
14801.60	NF	15040.00	NF	15278.40	NF
16651.80	NF	16920.00	NF	17188.20	NF
18502.00	NF	18800.00	NF	19098.00	NF

Test Data Table 20 – Conducted Emissions – GSM 1900 - Downlink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
1930.20	0	1960.00	0	1989.80	0
3860.40	61.9	3920.00	63.8	3979.60	64.5
5790.60	74.6	5880.00	75.0	5969.40	71.3
7720.80	75.9	7840.00	77.7	7959.20	76.5
9651.00	74.4	9800.00	78.3	9949.00	75.3
11581.20	NF	11760.00	NF	11938.80	NF
13511.40	NF	13720.00	NF	13928.60	NF
15441.60	NF	15680.00	NF	15918.40	NF
17371.80	NF	17640.00	NF	17908.20	NF
19302.00	NF	19600.00	NF	19898.00	NF

Conducted Emissions – CDMA 800 - Uplink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
825.25	0	836.50	0	847.75	0
1650.50	68.3	1673.00	68.4	1695.50	73.3
2475.75	73.4	2509.50	66.1	2543.25	65.6
3301.00	89.8	3346.00	88.1	3391.00	90.3
4126.25	84.1	4182.50	78.9	4238.75	86.7
4951.50	93.7	5019.00	94.2	5086.50	73.3
5776.75	NF	5855.50	NF	5934.25	NF
6602.00	NF	6692.00	NF	6782.00	NF
7427.25	NF	7528.50	NF	7629.75	NF
8252.50	NF	8365.00	NF	8477.50	NF

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Conducted Emissions – CDMA 800 - Downlink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
870.25	0	881.50	0	892.75	0
1740.50	49.4	1763.00	51.8	1785.50	56.7
2610.75	73.2	2644.50	72.8	2678.25	72.6
3481.00	72.2	3526.00	71.0	3571.00	67.2
4351.25	56.8	4407.50	57.4	4463.75	58.4
5221.50	NF	5289.00	NF	5356.50	NF
6091.75	NF	6170.50	NF	6249.25	NF
6962.00	NF	7052.00	NF	7142.00	NF
7832.25	NF	7933.50	NF	8034.75	NF
8702.50	NF	8815.00	NF	8927.50	NF

Conducted Emissions – GSM 800 – Uplink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
824.20	0	836.50	0	848.80	0
1648.40	66.0	1673.00	66.8	1697.60	73.4
2472.60	74.4	2509.50	71.7	2546.40	77.5
3296.80	92.6	3346.00	87.8	3395.20	89.1
4121.00	91.3	4182.50	75.0	4244.00	87.8
4945.20	92.1	5019.00	91.6	5092.80	90.3
5769.40	NF	5855.50	NF	5941.60	NF
6593.60	NF	6692.00	86.6	6790.40	NF
7417.80	NF	7528.50	89.0	7639.20	NF
8242.00	NF	8365.00	NF	8488.00	NF

Conducted Emissions – GSM 800 - Downlink

Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)	Emission Frequency MHz	dB Below Carrier (dBc)
869.20	0	881.50	0	893.80	0
1738.40	52.0	1763.00	48.5	1787.60	60.6
2607.60	72.2	2644.50	72.3	2681.40	71.5
3476.80	71.2	3526.00	68.9	3575.20	68.5
4346.00	66.1	4407.50	64.3	4469.00	67.5
5215.20	NF	5289.00	NF	5362.80	NF
6084.40	NF	6170.50	NF	6256.60	NF
6953.60	NF	7052.00	NF	7150.40	NF
7822.80	NF	7933.50	NF	8044.20	NF
8692.00	NF	8815.00	NF	8938.00	NF

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FIELD STRENGTH OF SPURIOUS EMISSIONS (RADIATED)

Rule Parts. No.: FCC Pt 2.1053, IC RSS-119

Requirements: Same as conducted emissions

Test Data:

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
836.50	0	0
1673.00	V	84.57
2509.50	V	79.55
3346.00	V	80.35
4182.50	H	80.13
5019.00	H/V	NF
5855.50	H/V	NF
6692.00	H/V	NF
7528.50	H/V	NF
8365.00	H/V	NF

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
1880.00	0	0
3760.00	V	81.37
5640.00	V	83.51
7520.00	V	83.97
9400.00	V	80.36
11280.00	H/V	NF
13160.00	H/V	NF
15040.00	H/V	NF
16920.00	H/V	NF
18800.00	H/V	NF

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
881.50	0	0
1763.00	H	62.57
2644.50	H	60.75
3526.00	H	57.85
4407.50	V	56.63
5289.00	H/V	NF
6170.50	H/V	NF
7052.00	H/V	NF
7933.50	H/V	NF
8815.00	H/V	NF

Emission Frequency MHz	Ant. Polarity	dB Below Carrier (dBc)
1960.00	0	0
3920.00	V	55.81
5880.00	V	51.21
7840.00	V	54.52
9800.00	V	52.32
11760.00	H/V	NF
13720.00	H/V	NF
15680.00	H/V	NF
17640.00	H/V	NF
19600.00	H/V	NF

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INPUT/OUTPUT MODULATED AMPLITUDE COMPARISON AND BAND-EDGES COMPLIANCE

Rule Parts No.: Pt 2.1049, Pt 2.1051, 22H, 24E

Requirements: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Test Data: The plots were compared to those in the original filing and were found to be the same as that previous reported in the original filing with minor variation as can be found from unit to unit in the manufacturing process.

INTERMODULATION PRODUCT SPURIOUS EMISSIONS

Rule Parts No.: Pt 2.1051

Requirements: Emissions must be $43 + 10 \log (P_o)$ dB below the mean power output of the transmitter or below the -13dBm

Test Data: The plots were compared to those in the original filing and were found to be the same as that previous reported in the original filing with minor variation as can be found from unit to unit in the manufacturing process.

MEAN OUTPUT POWER FOR MULTI-CHANNEL ENHANCER (FOR IC ONLY)

Rule Part(s) No.: RSS-131 Issue 2 Para.4.3.1

Requirements: For enhancers rated 500 watts or less: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, equals -43 dBW.

For enhancers rated over 500 watts: Raise the input level to the DUT until the greater level of the intermodulation products at the enhancer output terminals, Po3 or Po4, is 67 dB below the level of either output tone level, Po1 or Po2.

Record all signal levels and their frequencies. Calculate the mean output power (P_{mean}) under this testing condition using $P_{\text{mean}} = P_{o1} + 3$ dB.

Test Result: The data was compared to those in the original filing and were found to be the same as that previous reported in the original filing with minor variation as can be found from unit to unit in the manufacturing process.

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PASSBAND GAIN AND BANDWIDTH (FOR IC ONLY)

Rule Part No.: RSS-131 Issue 2 Para 4.2

Requirements: RSS-131 Issue 2 Para 4.2

Test Data: The plots were compared to those in the original filing and were found to be the same as that previous reported in the original filing with minor variation as can be found from unit to unit in the manufacturing process.

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POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: FCC Pt 15.207, IC RSS-GEN

Requirements:

Frequency (MHz)	Quasi Peak Limits (dBμV)	Average Limits (dBμV)
0.15 – 0.5	66 – 56 *	56 – 46 *
0.5 – 5.0	56	46
5.0 – 30	60	50
* Decreases with logarithm of frequency		

Test Data: Not applicable. DUT is DC operated exclusively.

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