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APPLICANT: WILSON ELECTRONICS, INC.

FCC ID: PWO8140SD

EXHIBITS CONTAINING:

REQUEST FOR CONFIDENTIALITY LETTER
FCC ID LABEL SAMPLE
FCC ID LABEL LOCATION
SCHEMATIC
BLOCK DIAGRAM
OPERATIONAL DESCRIPTION
USERS MANUAL
EXTERNAL PHOTOGRAPHS
INTERNAL PHOTOGRAPHS
TEST SET UP PHOTOGRAPHS

GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE

2.1033(c)(1)(2)
WILSON ELECTRONICS, INC. will sell the
FCC ID: PWO8140SD
Amplifier (one-way booster) for use under FCC RULES PART 90(S) SMR bands and Part 22(H).

2.1033 (c) TECHNICAL DESCRIPTION
2.1033 (3) User Manual – Included.

2.1033 (4) Type of Emission: 18K3D7W (iDEN)

99 % Power bandwidth = 18.3 kHz
Bn = 18.3kHz
D = Emission in which the main carrier is amplitude and angle -modulated either simultaneously or in a pre-established sequence
7 = Two or more channels containing quantized or digital information
W = Combination voice and data

2.1033 (5) Frequency Range: 806-821 MHz, 821-825MHz,

(6) Power Range and Controls: There are NO user Power controls.

(7) Maximum Output Power Rating per manufacturer specifications:
4 Watt = 35.7 dBm, conducted into 50 Ohm load

Maximum Input Power Rating per manufacturer specifications:
600mW = 27.8 dBm

(8) DC Voltages and Current into Final Amplifier:

POWER INPUT
FINAL AMPLIFIER ONLY
Vce = 13.8 Volts
IC = 1.26 A

(9) Tune-up procedure – this device does not have a tuning procedure.

(10) Complete Circuit Diagrams: Description of all circuitry and devices provided for determining and stabilizing frequency is included in the circuit description.
The circuit diagram is included. The block diagram is included.

2.1033(c)(11) A photograph or drawing of the equipment identification label is included.

2.1033(c)(12) Photographs of the equipment of sufficient clarity to reveal equipment construction and layout and label location are included.

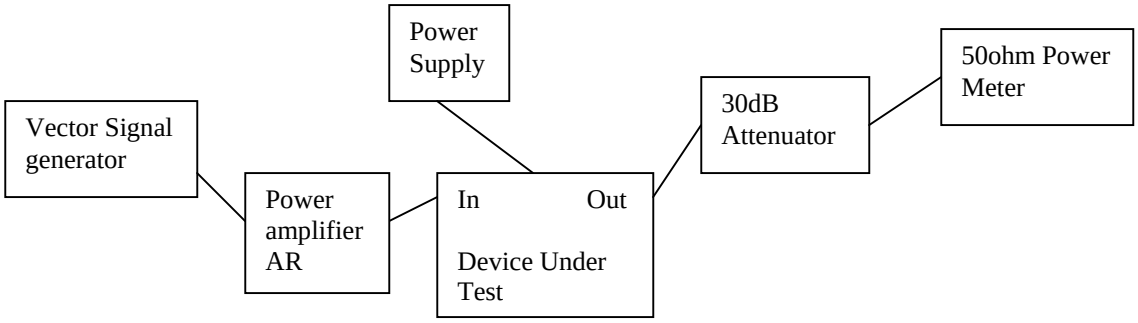
2.1033(c)(13) For equipment employing digital modulation, a detail description of the modulation technique. This uses QPSK, 16QAM, 64 QAM, and GMSK to modulate the amplifier.

2.1033(c)(14) Data required for 2.1046 to 2.1057 See Below

2.1046(a) RF power output:

RF power is measured by connecting a 50 ohm, resistive wattmeter to the RF output connector. With a nominal voltage of 12 VDC using the AC/DC switched mode power supply specified with this device, and the transmitter properly adjusted the RF output measures:

METHOD OF MEASURING RF POWER OUTPUT



Conducted power:

Tuned Frequency (MHz)	Power Input (mw)	Power Output (dBm)	Power Output (W)
806.0125	600	36	4
811.7	600	36	4
820.9875	600	35.5	3.5
824.9875	600	35.5	3.5

2.1049 Input/Output modulated amplitude comparison

The Reference level was calibrated using a 3MHz/3MHz RBW/VBW. A 30 dB Attenuator is accounted for on the display using a 30dB Offset. There is an additional cable loss of 1.6 dB, which yields to a 34.5dBm output power.

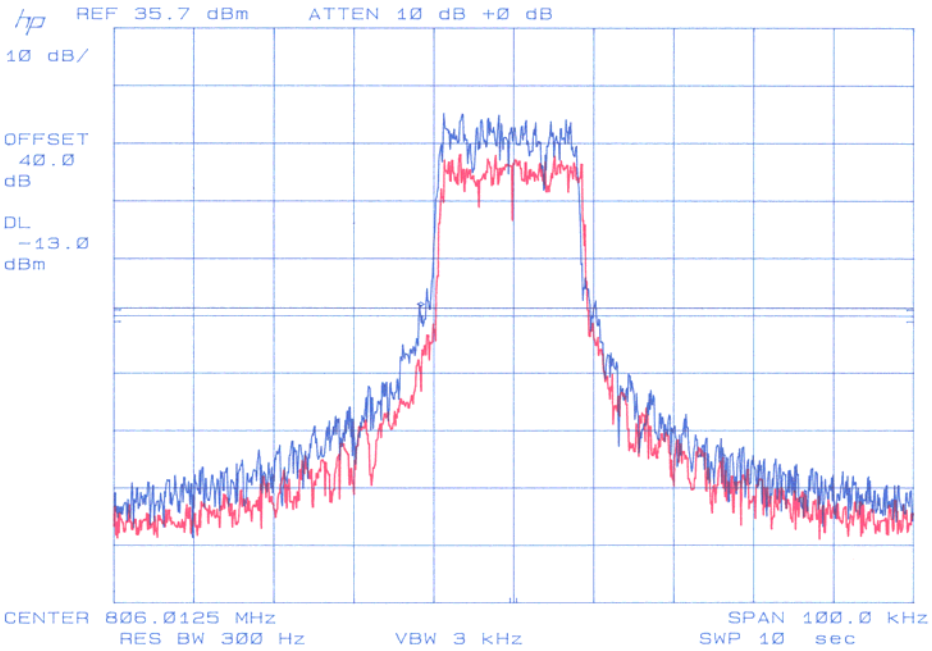


Figure 1: iDEN modulation – In/Out 806MHz

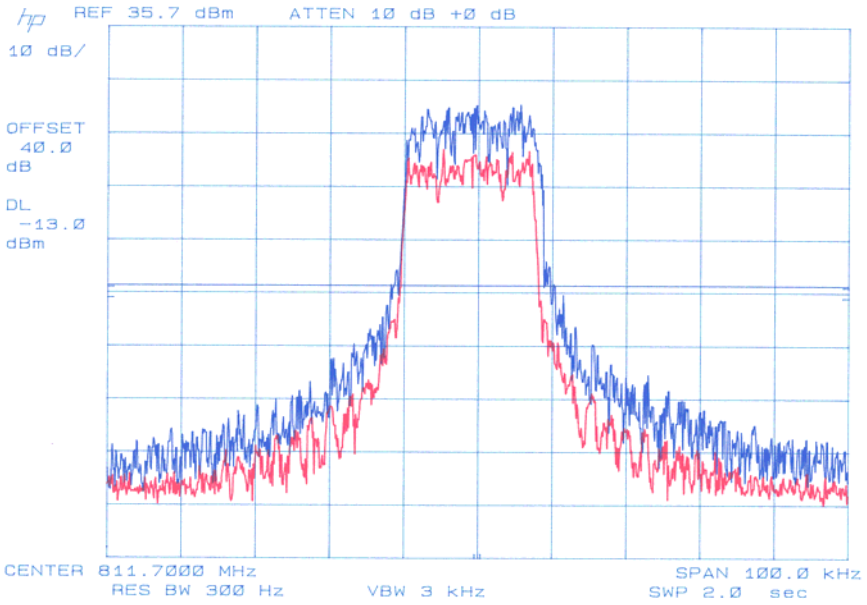


Figure 2: iDEN modulation – In/Out 811MHz

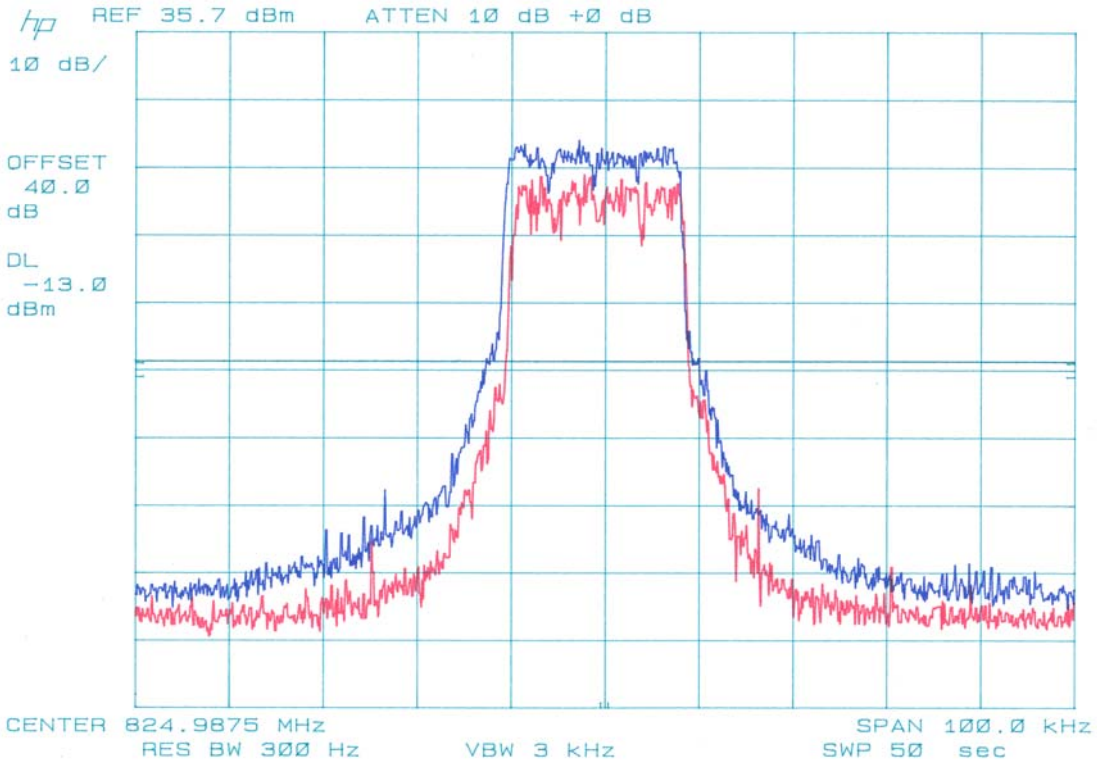


Figure 3: iDEN modulation – In/Out 825MHz

The Reference level, on the following plots, was calibrated using a 3MHz/3MHz RBW/VBW. A 40 dB Attenuator is accounted for on the display using a 40dB Offset.

2.1051, 22.917 (f) and 90 Out of band emissions:

The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency twice or more than twice the fundamental frequency by: At least 43+10 log(Po)dB.

Band-edges compliance: Measurement were performed in accordance with Part 22.917 (h), Part 90.210, Part 90.669 and Part 90.691

Conducted output power: 34.5 dBm

Channel (MHz)	Band-edge Frequency (MHz)	Amplitude level at the band-edge(dBm)	Limit (dBm)	
826.0125	806.0	-	-13.0	
820.9875	821.0	-	-13.0	
824.9875	825	-		

The Reference level on the following plots was calibrated using a 3MHz/3MHz RBW/VBW. A 40 dB Attenuator is accounted for on the display using a 40dB Offset.

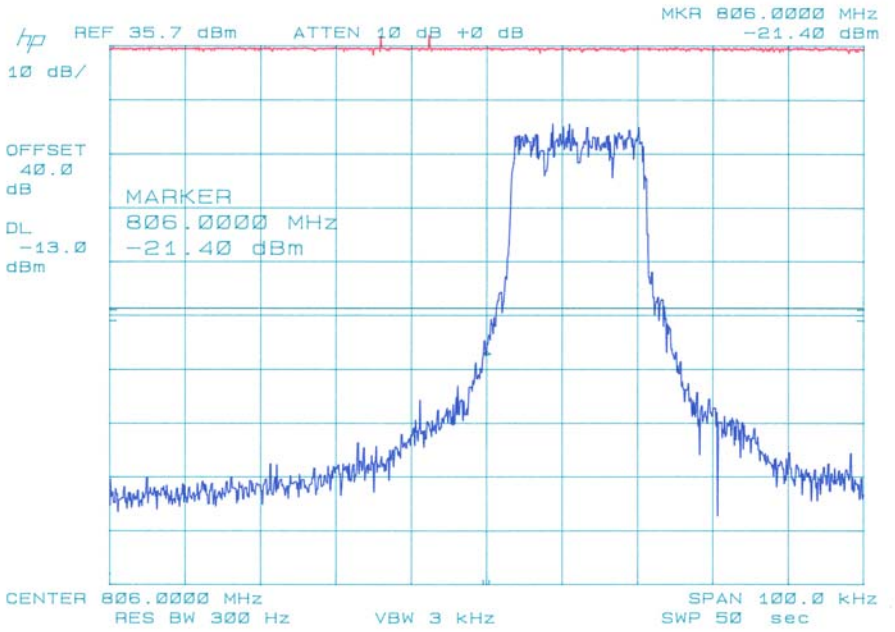


Figure 7: Band edge at 806M iDEN

NOTES:
840aut5 bandedge high iDEN

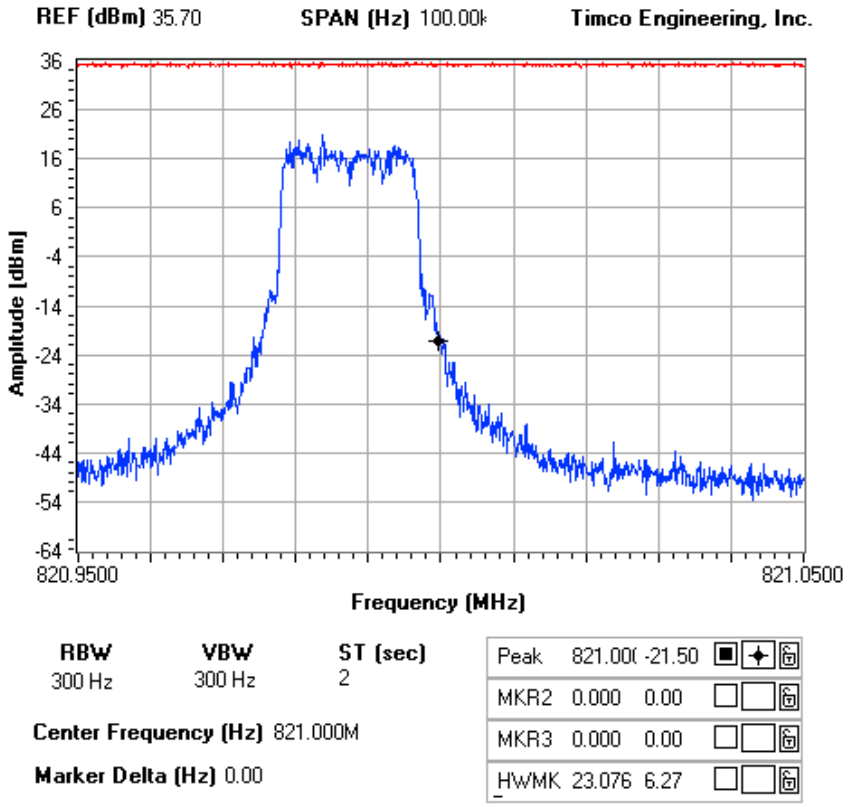
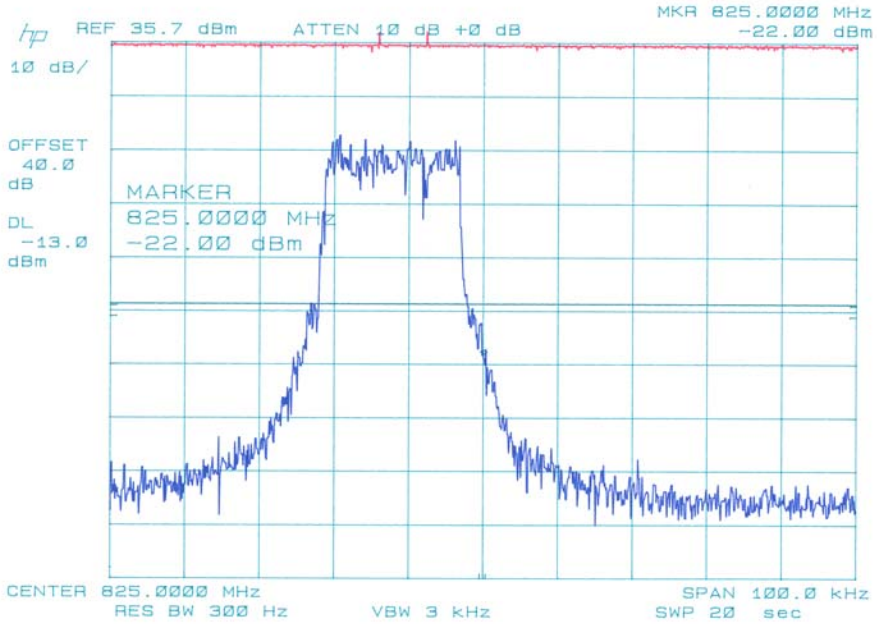


Figure 8: Band edge at 821M iDEN



Band edge 825 MHz

The Reference level, on the following plots, was calibrated using a 3MHz/3MHz RBW/VBW. A 40 dB Attenuator is accounted for on the display using a 40dB Offset.

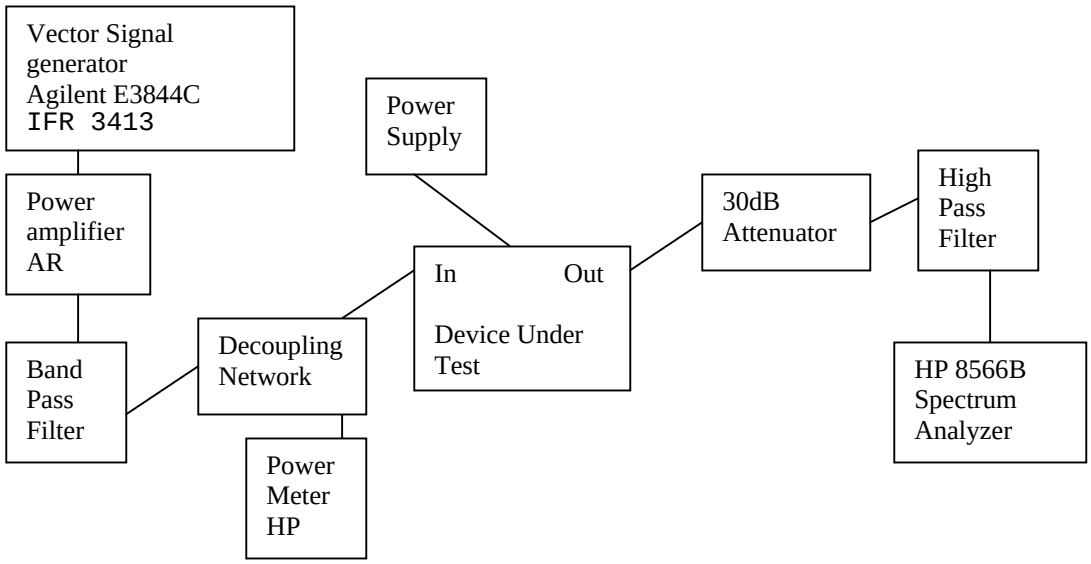
2.1051 Spurious emissions at antenna terminals:

Data on the following page shows the level of conducted spurious responses. For analog modulation, the carrier was modulated 100% using a 2500 Hz tone. For digital modulation, the carrier is modulated to its maximum extent. The spectrum was scanned from 9kHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA/EIA-603.

REQUIREMENTS: Emissions must be 43 +10log(Po) dB below the mean power output of the transmitter.
43 + 10log(4) = 49 dB

EMISSION FREQUENCY MHz Low Channel	dB BELOW CARRIER (dBc) HIGH POWER
806	0
1612	83.2
2418	63.5
3224	92.5
4030	107.1
4836	74.7
5642	90.9
6448	82
7254	89.2
8060	81.5
814	0
1628	76.9
2442	68.1
3256	90.9
4070	100.2
4884	83.9
5698	93.1
6512	96.9
7326	90.5
8140	94
824.9875	0
1649.9	75
2474.9	65.4
3299.9	81.2
4124.9	83.7
4949.9	83.5
5774.9	88.7
6599.9	81.2
7424.8	85.7
8249.8	85.3

Method of Measuring Conducted Spurious Emissions



The following test equipment was used:

(1)IFR 3413 : I/Q modulated signal source which is part of the 3410 series signal generators 250 kHz to 4 GHz

(2)Agilent E3844C: dual-mode baseband generator(arbitrary waveform and real-time I/Q) 250 kHz to 6 GHz

(3)iDEN: The file to program the iDEN baseband signal was provided by Motorola.

METHOD OF MEASUREMENT: The procedure used was TIA/EIA-603 STANDARD without any exceptions. An audio generator was connected to the UUT through a dummy microphone circuit and the output of the transmitter connected to a standard load and from the standard load through a pre-selector filter of the spectrum analyzer. The spectrum was scanned from 9kHz to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer. The measurements were made using the shielded room located at TIMCO ENGINEERING INC. 849 N.W. State Road 45, Newberry, Florida 32669.

2.1053 Field strength of spurious emissions:

NAME OF TEST: RADIATED SPURIOUS EMISSIONS

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

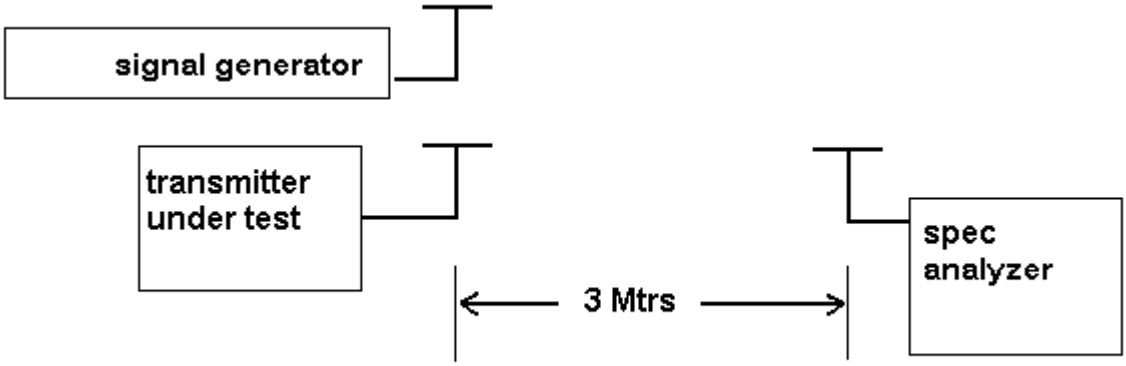
43 + 10log(4) = 49 dB

TEST DATA:

Emission Frequency MHz	Corrected EUT Signal Reading	Coax Loss in dB	Substitution Antenna	dB below carrier	
824.9875			dBd	dBc	
High Channel					
825.00	36.55	0	-0.55	0	
1650.00	-39.20	1.07	5.02	71.25	
2475.00	-41.90	1.21	6.65	72.46	
3300.00	-35.70	1.35	7.38	65.67	
4125.00	-43.70	1.49	7.82	73.37	
4950.00	-50.10	1.63	8.01	79.72	
5775.00	-49.60	1.77	8.74	78.63	
6600.00	-44.40	1.91	8.47	73.84	
7425.00	-45.20	2.05	8.54	74.71	
8250.00	-48.80	2.19	8.00	78.99	

METHOD OF MEASUREMENTS: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669. Channel frequencies from 806 to 824 MHz were tested and the worst case reported above.

Method of Measuring Radiated Spurious Emissions



Equipment placed 80 cm above ground
on a rotating table platform.

15.207 AC power Conducted Emissions

APPLICANT: DIGITAL ANTENNA

MODEL: DA4000N

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.207

MINIMUM REQUIREMENTS:

FREQUENCY	LEVEL			
__MHz___	_uV_			
0.450-30	250			
0.150-0.50	66 to 56 dBuV	QP	56 to 46	Ave
0.50-5.0	56	QP	46	Ave
5.0-30.0	60	QP	50	Ave

TEST PROCEDURE: ANSI STANDARD C63.4-2003
50 uH/50 ohm LISN was used
each line to ground was measured

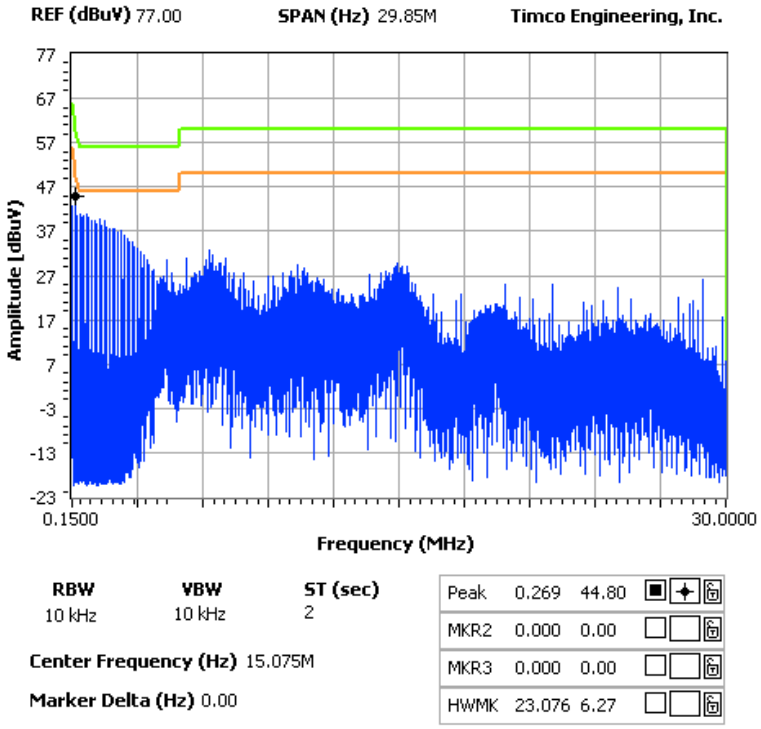
THE ATTACHED PLOTS REPRESENT THE EMISSIONS READ FOR POWERLINE CONDUCTED FOR THIS DEVICE.

TEST RESULTS: Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

PERFORMED BY: JOE SCOGLIO

NOTES:
840aut5 ac line conducted line 1

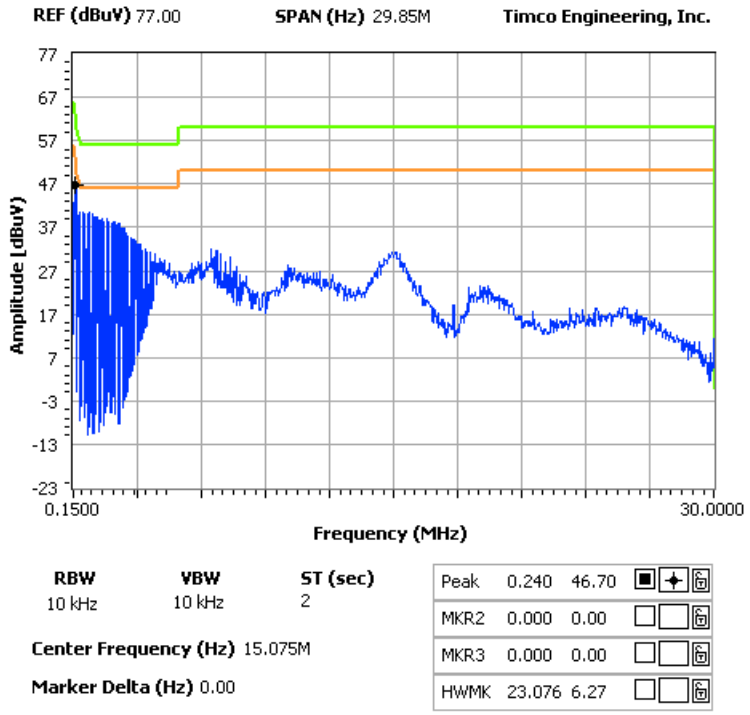
FCC 15.107 Mask Class B



L1 Peak

NOTES:
840aut5 ac line conducted line 2

FCC 15.107 Mask Class B



Line 2 Peak

Equipment List

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
X	3-Meter OATS	TEI	N/A	N/A	Listed 12/22/99	12/22/02
	3/10-Meter OATS	TEI	N/A	N/A	Listed 3/26/01	3/26/04
X	Receiver, Beige Tower					
X	Spectrum Analyzer (Tan)	HP	8566B Opt 462	3138A07786 3144A20661	CAL 8/31/01	8/31/02
X	RF Preselector (Tan)	HP	85685A	3221A01400	CAL 8/31/01	8/31/02
X	Quasi-Peak Adapter (Tan)	HP	85650A	3303A01690	CAL 8/31/01	8/31/02
	Receiver, Blue Tower					
	Spectrum Analyzer (Blue)	HP	8568B	2928A04729 2848A18049	CHAR 10/22/01	10/22/02
	RF Preselector (Blue)	HP	85685A	2926A00983	CHAR 10/22/01	10/22/02
	Quasi-Peak Adapter (Blue)	HP	85650A	2811A01279	CHAR 10/22/01	10/22/02
	Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
X	Biconnical Antenna	Eaton	94455-1	1096	CAL 10/1/01	10/1/02
	Biconnical Antenna	Eaton	94455-1	1057	CHAR 3/15/00	3/15/01
	BiconiLog Antenna	EMCO	3143	9409-1043		
X	Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 10/2/01	10/2/02
	Log-Periodic Antenna	Electro-Metrics	EM-6950	632	CHAR 10/15/01	10/15/02
	Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CHAR 10/16/01	10/16/02
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/02
	Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 11/24/00	11/24/01
X	Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 12/19/01	12/19/02
X	Horn Antenna	Electro-Metrics	EM-6961	6246	CAL 3/21/01	3/21/02
	Horn Antenna	ATM	19-443-6R	None	No Cal Required	
	Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/02
	Line Impedance Stabilization . . .	Electro-Metrics	ANS-25/2	2604	CAL 10/9/01	10/9/02

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
	Line Impedance Stabilization . . .	Electro-Metrics	EM-7820	2682	CAL 3/16/01	3/16/02
	Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 5/25/99	(5/25/00)
	Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CAL 12/12/01	12/12/02
	Oscilloscope	Tektronix	2230	300572	CHAR 2/1/01	2/1/02
	Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/03
X	AC Voltmeter	HP	400FL	2213A14499	CAL 10/9/01	10/9/02
	AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/02
	AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/02
X	Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/03
	Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/03
	Digital Multimeter	HP	E2377A	2927J05849	CHAR 1/8/02	1/8/03
	Multimeter	Fluke	FLUKE-77-3	79510405	CAL 9/26/01	9/26/02
X	Peak Power Meter	HP	8900C	2131A00545	CHAR 1/26/01	1/26/02
	Digital Thermometer	Fluke	2166A	42032	CAL 1/16/02	1/16/03
	Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/03
X	Temp/Humidity gauge	EXTech	44577F	E000901	CHAR 1/22/02	1/22/03
	Frequency Counter	HP	5352B	2632A00165	CAL 11/28/01	11/28/02
X	Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 1/26/01	1/26/02
	Injection Probe	Fischer Custom Communications	F-120-9A	270	CAL 6/1/01	6/1/02
	Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	11/22/01
	Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 11/12/99	11/12/00
	Signal Generator	HP	8640B	2308A21464	CAL 11/15/01	11/15/02
	Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/01	9/5/02
	Power Line Coupling/ Decoupling Network	Fischer Custom Communications	FCC-801-M2-16A	01048	CAL 8/29/01	8/29/02

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
	Power Line Coupling/ Decoupling Network	Fischer Custom Communications	FCC-801-M3-16A	01060	CAL 8/29/01	8/29/02
	VHF/UHF Current Probe	Fischer Custom Communications	F-52	130	CAL 8/30/01	8/30/02
	Passive Impedance Adapter	Fischer Custom Communications	FCC-801-150-50-CDN	01117 & 01118	CAL 8/29/01	8/29/02
	Radiating Field Coil	Fischer Custom Communications	F-1000-4-8/9/10-L-1M	9859	CAL 10/15/98	10/15/99
	Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	2/1/02
	BandReject Filter	Lorch Microwave	5BR4-2400/ 60-N	Z1	CHAR 3/2/01	3/2/02
	BandReject Filter	Lorch Microwave	6BR6-2442/ 300-N	Z1	CHAR 3/2/01	3/2/02
	BandReject Filter	Lorch Microwave	5BR4-10525/ 900-S	Z1	CHAR 3/2/01	3/2/02
X	High Pas Filter	Microlab	HA-10N		CHAR 10/4/01	10/4/02
	Audio Oscillator	HP	653A	832-00260	CHAR 3/1/01	3/1/02
	Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	3/2/02
	Frequency Counter	HP	5385A	3242A07460	CHAR 12/11/01	12/11/02
	Preamplifier	HP	8449B-H02	3008A00372	CHAR 3/4/01	3/4/02
	Amplifier	HP	11975A	2738A01969	CHAR 3/1/01	3/1/02
	Egg Timer	Unk			CHAR 2/28/01	2/28/02
	Measuring Tape, 20M	Kraftixx	0631-20		CHAR 2/28/01	2/28/02
	Measuring Tape, 7.5M	Kraftixx	7.5M PROFI		CHAR 2/28/01	2/28/02
	EMC Immunity Test System	Keytek	CEMASTER	9810210		
	AC Power Source	California Instruments	1251RP	L05865		
	AC Power Source	California Instruments	PACS-1	X71484		
	Isotropic Field Probe	Amplifier Research	FP5000	22839		
	Isotropic Field Probe	Amplifier Research	FP5000	300103		
	Capacitor Clamp	Keytek	CM-CCL	9811359	No Cal Required	
X	Amplifier	Amplifier Research	10W1000B	23117	No Cal Required	

	DEVICE	MFGR	MODEL	SER NO	CAL/CHAR DATE	DUE DATE or STATUS
	Field Monitor	Amplifier Research	FM5004	22288	No Cal Required	
	ELF Meter	F. W. Bell	4060	Not serialized		
	Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/03
	Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/03
	Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/03
	Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/03