TIMCO **ENGINEERING INC.**
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

Test Report

Product Name: WIRELESS ROUTER

FCC ID: SFJ-WPR-418-3A

Applicant:

POWERWEB TECHNOLOGIES, INC.
415 EAST BALTIMORE PIKE
MEDIA PA 19065
USA

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

TABLE OF CONTENTS

APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

TEST REPORT CONTAINING:

PAGE 1.....TEST EQUIPMENT LIST
PAGE 2.....TEST PROCEDURE
PAGE 3-4.....RADIATED EMISSIONS TEST DATA
PAGE 5-7.....POWERLINE CONDUCTED EMISSIONS
PAGE 8.....DUTY CYCLE
PAGE 9-11.....DUTY CYCLE PLOTS
PAGE 12.....OCCUPIED BANDWIDTH TEST DATA
PAGE 13.....OCCUPIED BANDWIDTH PLOT

EXHIBIT INCLUDING:

REQUEST FOR CONFIDENTIALITY LETTER
BLOCK DIAGRAM
SCHEMATIC
INSTRUCTION MANUAL
LABEL SAMPLE
LABEL LOCATION
EXTERNAL PHOTOGRAPHS
INTERNAL PHOTOGRAPHS
OPERATIONAL DESCRIPTION
TEST SET UP PHOTOGRAPH

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Biconnical Antenna	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/05	4/13/07
Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/05	9/5/07
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 12/14/05	12/14/07

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz. The ambient temperature of the UUT was 98.3ºF with a humidity of 40%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:
Freq (MHz) METER READING + ACF = FS
33 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

Measurements were made by TIMCO ENGINEERING INC. at the registered open field test site located at 849 N.W. State Road 45, Newberry, Fl 32669.

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.231

REQUIREMENTS:

Fundamental Frequency MHz	Field Strength of Fundamental dBuV	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94	51.48 to 61.94
470 and above	81.94	61.94

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE FUNDAMENTAL FREQUENCY = 80.28 dBuV/m. NO FUNDAMENTAL IS ALLOWED IN THE RESTRICTED BANDS.

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE HARMONICS AND SPURIOUS FREQUENCIES = 60.28 dBuV/m. SPURIOUS IN THE RESTRICTED BANDS MUST BE LESS THAN 54 dBuV/m OR 15.209.

TEST DATA:

Emission Frequency MHz	*	Meter Reading dBuV	Ant Pol	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
417.90		59.0	H	3.17	16.26	9.80	68.63	11.65
417.90		65.2	V	3.17	15.98	9.80	74.55	5.73
835.80		9.8	V	4.84	22.77	9.80	27.61	32.67
835.80		12.5	H	4.84	22.79	9.80	30.33	29.95
1,253.70		21.1	V	1.33	27.76	9.80	40.39	19.89
1,253.70		21.8	H	1.33	27.76	9.80	41.09	19.19
1,671.60	**	24.2	H	1.54	29.23	9.80	45.17	8.83
1,671.60	**	24.5	V	1.54	29.23	9.80	45.47	8.53
2,089.50		28.8	H	1.74	31.45	9.80	52.19	8.09
2,089.50		32.5	V	1.74	31.45	9.80	55.89	4.39
2,507.40		28.3	H	1.90	32.61	9.80	53.01	7.27
2,507.40		29.0	V	1.90	32.61	9.80	53.71	6.57
2,925.30		26.8	V	2.07	33.11	9.80	52.18	8.10
2,925.30		28.9	H	2.07	33.11	9.80	54.28	6.00

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

NAME OF TEST: RADIATION INTERFERENCE

TEST DATA CONTD.

Emission Frequency MHz	*	Meter Reading dBuV	Ant Pol	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
3,343.20		17.7	V	2.20	33.27	9.80	43.37	16.91
3,343.20		18.2	H	2.20	33.27	9.80	43.87	16.41
3,761.10	**	13.2	V	2.33	33.51	9.80	39.24	14.76
3,761.10	**	13.3	H	2.33	33.51	9.80	39.34	14.66
4,179.10	**	10.3	H	2.45	33.84	9.80	36.79	17.21
4,179.10	**	11.5	V	2.45	33.84	9.80	37.99	16.01

** DENOTES RESTRICTED BANDS.

Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:
1) for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F)-6136.3636;
2) for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F)-7083.3333.

SAMPLE CALCULATION OF LIMIT @ 418 MHz:

41.6667 (418)-7083.3333 = 10,333.35 uV/m
20log(10,333.35) = 80.82 dBuV/m limit @ 418 MHz

PERFORMED BY: Joseph Scoglio **DATE TESTED**: 02/16/2006

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NO.: 15.207

REQUIREMENTS:	**QUASI-PEAK**	**AVERAGE**
.15 – 0.5 MHz	66-56 dBuV	56-46 dBuV
0.5 – 5.0	56	46
5.0 – 30.	60	50

TEST PROCEDURE: ANSI STANDARD C63.4-2003. The spectrum was scanned from .15 to 30 MHz.

TEST DATA:

THE GRAPHS ON THE FOLLOWING PAGES REPRESENT THE EMISSIONS READ FOR POWER LINE CONDUCTED FOR THIS DEVICE.

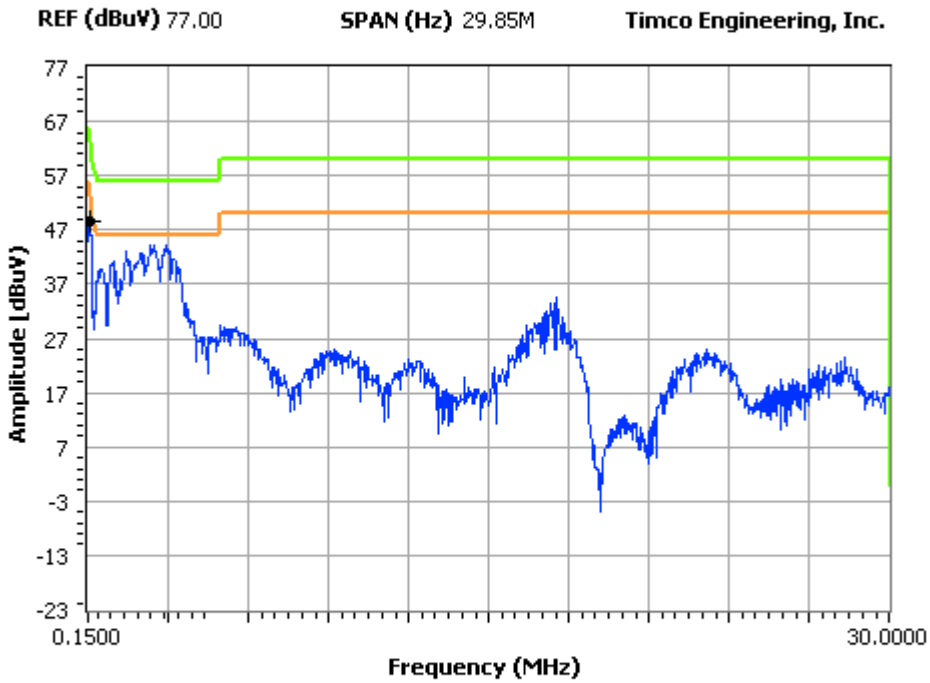
PERFORMED BY: Joseph Scoglio **DATE TESTED**: 02/16/2006

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

POWERLINE CONDUCTED – LINE 1

NOTES:
242ut6 ac line conducted line 1

FCC 15.107 Mask Class B



RBW	VBW	ST (sec)
10 kHz	10 kHz	2

Center Frequency (Hz) 15.075M

Marker Delta (Hz) 0.00

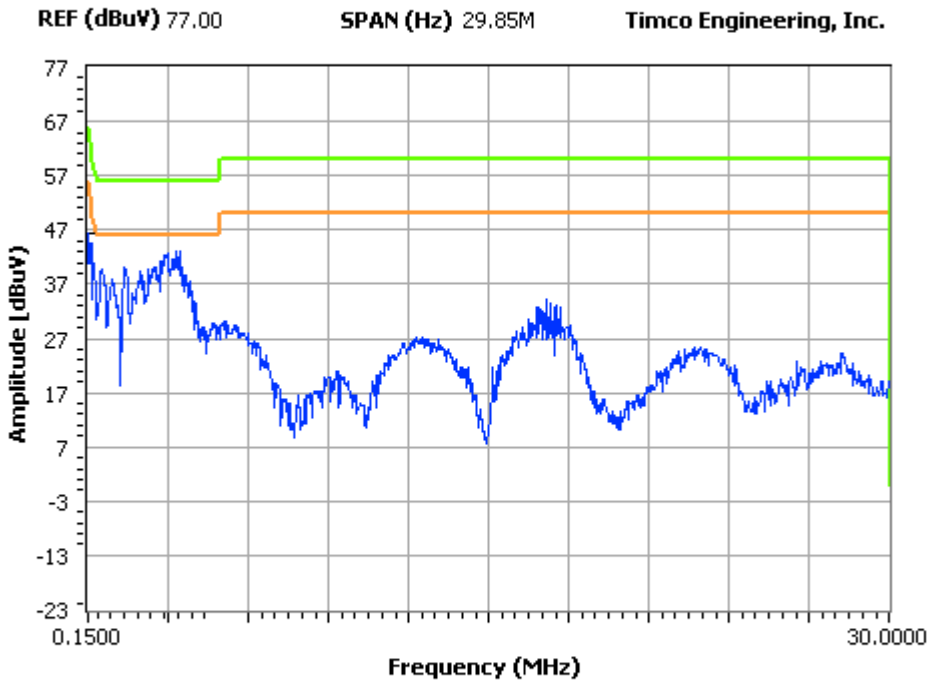
Peak	0.210	48.60
MKR2	0.000	0.00
MKR3	0.000	0.00
HWMK	23.076	6.27

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

POWERLINE CONDUCTED – LINE 2

NOTES:
242ut6 ac line conducted line 2

FCC 15.107 Mask Class B



TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com
APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

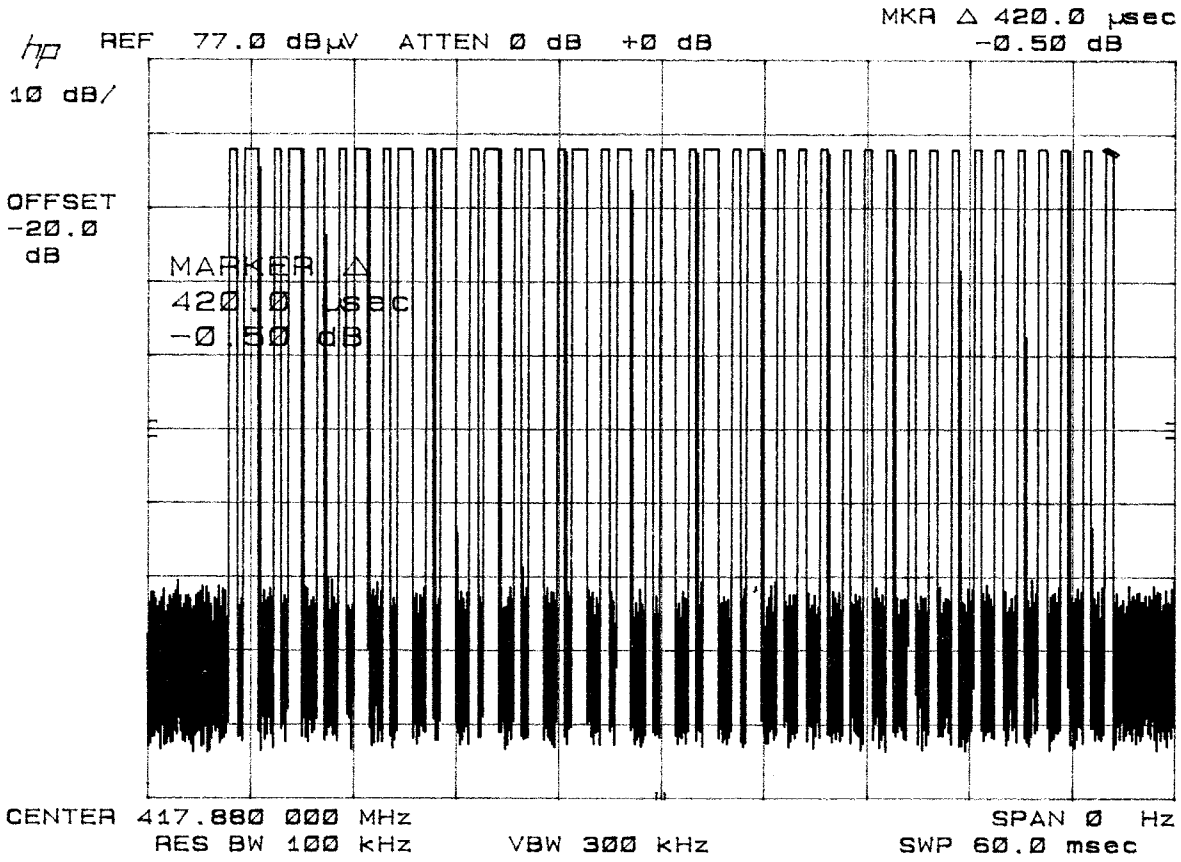
CALCULATION OF DUTY CYCLE:

The period of the pulse train is determined by observing it on an oscilloscope or a spectrum analyzer with zero (0) frequency span. A plot is then made of the pulse train with a sweep time of 100 milliseconds. This sweep determines the duration of the pulse train, which in this case is millisecond. This sweep allows the determination of the number of and type of pulses, i.e. long & short. Plots are then made showing the duration of each type of pulse and its duration. From the 100 millisecond Plot, the number of a given type of pulse is then multiplied by the duration of that type pulse. This allows the calculation of the amount of time the UUT is on within 100 ms. If the pulse train is longer than 100 ms then this number is multiplied by 100 to determine the percentage ON TIME. If the pulse train is less than 100 ms the total on time is divided by the length of the pulse train and then multiplied by 100 to determine the percentage ON TIME. In this case there were 29 short pulses 0.420 ms long and 12 long pulses 0.780 ms long for a total of 21.54 ms ON TIME within a 66.6 ms pulse train. The average field strength is determined by multiplying the peak field strength by the percent on time.

dB = 20*log(ON TIME)/PERIOD
dB = 20*log(21.54/66.6)
dB = 20*log(0.32)
dB = -9.8

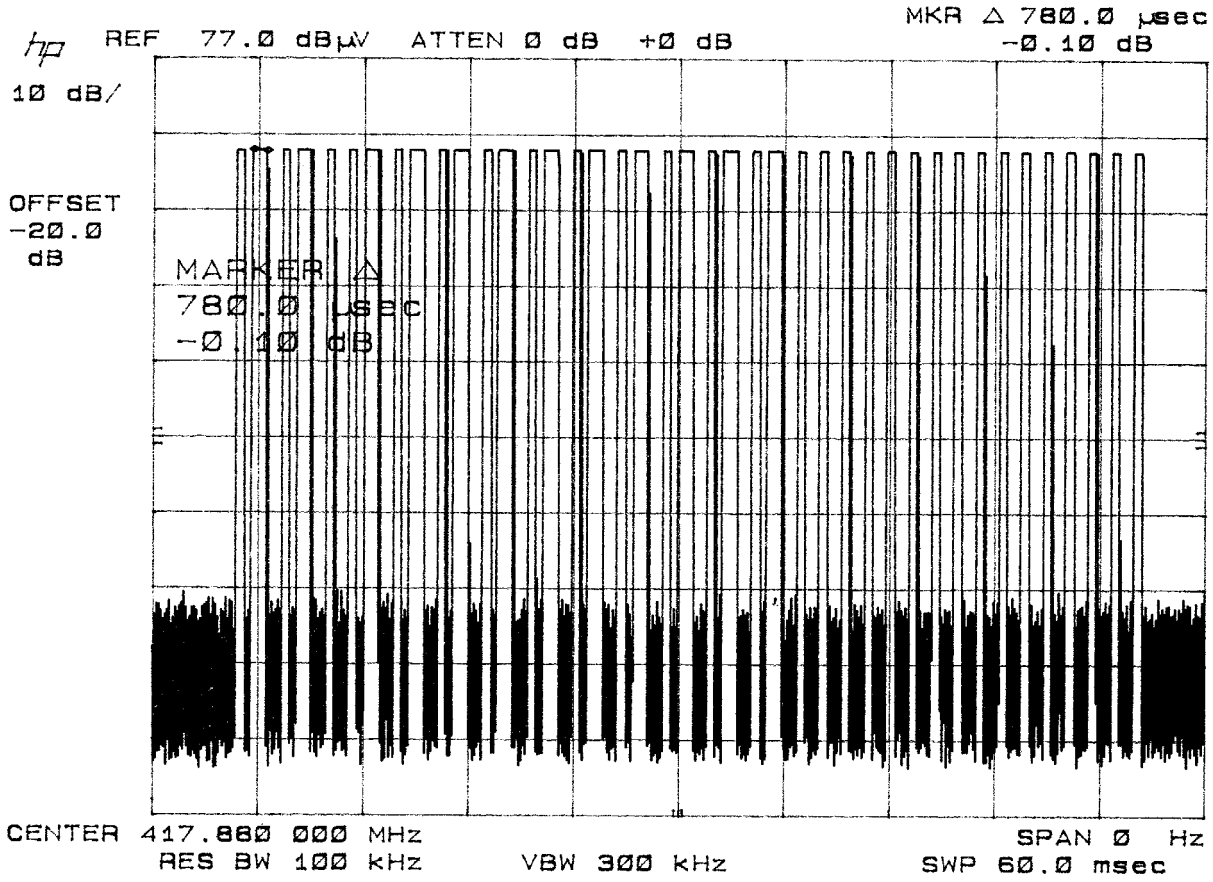
TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

DUTY CYCLE PLOT – SHORT PULSES



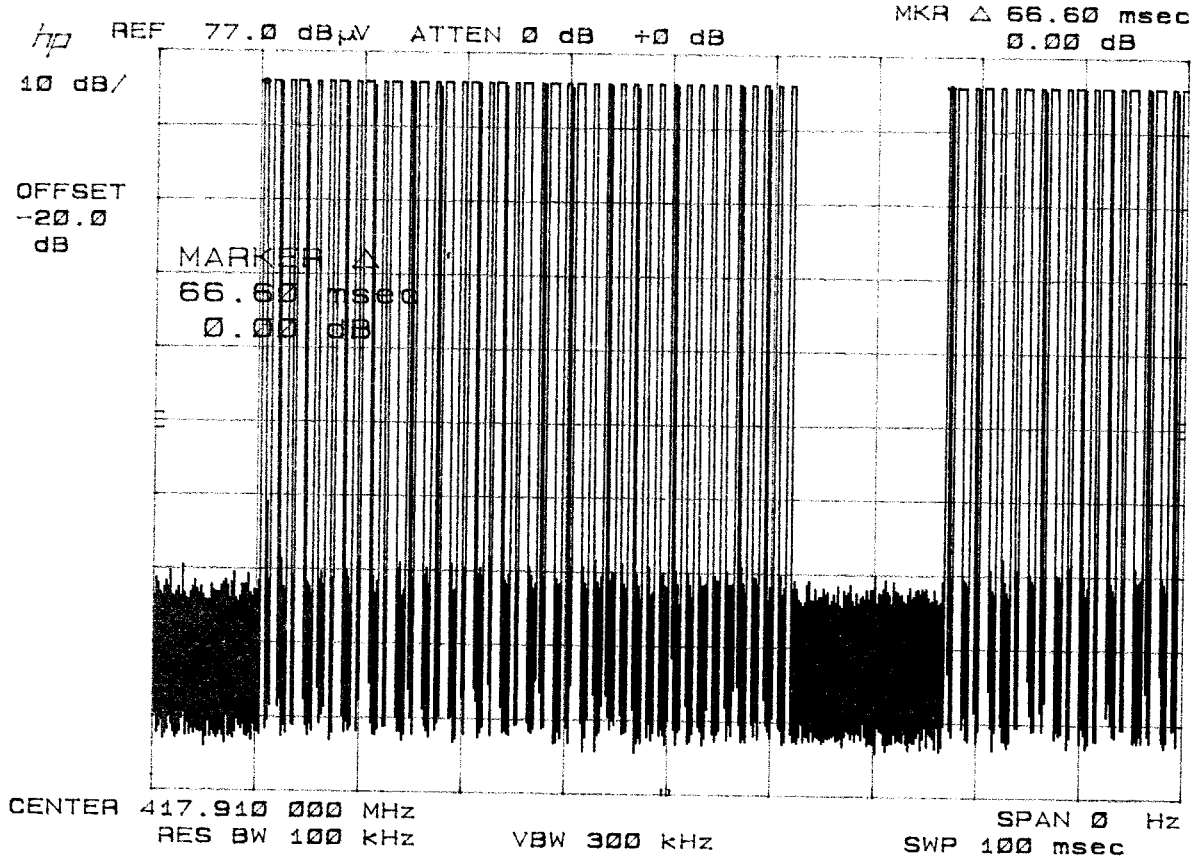
TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

DUTY CYCLE PLOT – LONG PULSES



TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

DUTY CYCLE PLOT



TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

APPLICANT: POWERWEB TECHNOLOGIES, INC.

FCC ID: SFJ-WPR-418-3A

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.231(C)

REQUIREMENTS: The bandwidth of the emission shall be no wider than .25% of the center frequency for devices operating between 70 and 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

THE FOLLOWING PLOT REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the following plot was generated. The vertical scale is set to 10 dB per division: the horizontal scale is set to 10 kHz per division.

PERFORMED BY: Joseph Scoglio **DATE**: 02/16/2006

TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: tei@timcoengr.com

NOTES:
242ut6 occupied bandwidth