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

Test Report

Product Name: 433MHz TRANSMITTER

FCC ID: SRW-KR433-BENZO

Applicant:

KEYLESS RIDE
800 PALOMA DRIVE SUITE 110
ROUND ROCK TX 78664

Date Receipt: 9/14/2005

Date Tested: 9/28/2005

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TEST REPORT CONTAINING:

EXHIBIT INCLUDING:

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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 1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
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 8/3/05	8/3/07
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/05	4/13/07
Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 12/29/04	12/29/06
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 5/8/03	5/8/05

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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.

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APPLICANT: KEYLESS RIDE

FCC ID: SRW-KR433-BENZO

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 = 80.84 dBuV/m. NO FUNDAMENTAL IS ALLOWED IN THE RESTRICTED BANDS.

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE HARMONICS AND SPURIOUS FREQUENCIES = 60.84 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. Polarity	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
434.21		51.2	H	3.24	16.77	10.15	61.06	19.78
434.21		53.6	V	3.24	16.41	10.15	63.10	17.74
868.44		14.5	H	4.87	22.87	10.15	32.09	28.75
868.44		17.6	V	4.87	22.48	10.15	34.80	26.04
1,736.88		20.3	H	1.57	29.71	10.15	41.43	19.41
1,736.88		22.1	V	1.57	29.71	10.15	43.23	17.61
3,039.54		14.3	H	2.11	33.39	10.15	39.65	21.18
3,473.76		14.5	H	2.24	33.31	10.15	39.90	20.93
3,907.98	*	14.6	V	2.37	33.79	10.15	40.61	13.39
3,907.98	*	15.0	H	2.37	33.79	10.15	41.01	12.99
434.22		48.9	V	3.24	16.41	10.15	58.40	22.44
434.22		54.4	H	3.24	16.77	10.15	64.26	16.58
868.44		11.0	V	4.87	22.48	10.15	28.20	32.64
868.44		15.0	H	4.87	22.87	10.15	32.59	28.25
1,736.88		18.3	V	1.57	29.71	10.15	39.43	21.41
1,736.88		24.6	H	1.57	29.71	10.15	45.73	15.11
3,473.76		14.9	H	2.24	33.31	10.15	40.30	20.53
3,473.76		15.5	H	2.24	33.31	10.15	40.90	19.93
434.23		48.9	H	3.24	16.77	10.15	58.76	22.08
434.23		54.1	V	3.24	16.41	10.15	63.60	17.24

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APPLICANT: KEYLESS RIDE

FCC ID: SRW-KR433-BENZO

NAME OF TEST: RADIATION INTERFERENCE

TEST DATA CONTD.

Emission Frequency MHz	*	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Duty Cycle Factor dB	Field Strength dBuV/m	Margin dB
868.44		14.5	V	4.87	22.48	10.15	31.70	29.14
1,736.88		19.1	V	1.57	29.71	10.15	40.23	20.61
1,736.88		27.1	H	1.57	29.71	10.15	48.23	12.61
2,171.10		15.5	H	1.77	31.94	10.15	39.06	21.78
3,473.76		17.6	H	2.24	33.31	10.15	43.00	17.83
3,907.98	*	14.8	V	2.37	33.79	10.15	40.81	13.19
3,907.98	*	14.8	H	2.37	33.79	10.15	40.81	13.19

SAMPLE CALCULATION OF LIMIT @ 304 MHz:

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 @ 434 MHz:

41.6667 (434)-7083.3333 = 11000.02 uV/m
20log(11000.2) = 80.84 dBuV/m limit @434 MHz

The transmitter ceases transmitting when the button is released.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: NAM NGUYEN **DATE TESTED**: 09/28/05

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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 14 short pulses 340 us long and 11 long pulses 1.02 ms long for a total of 15.98 ms ON TIME within a 51.4 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(15.98/51.4)
dB = 20*log(0.3109)
dB = -10.15

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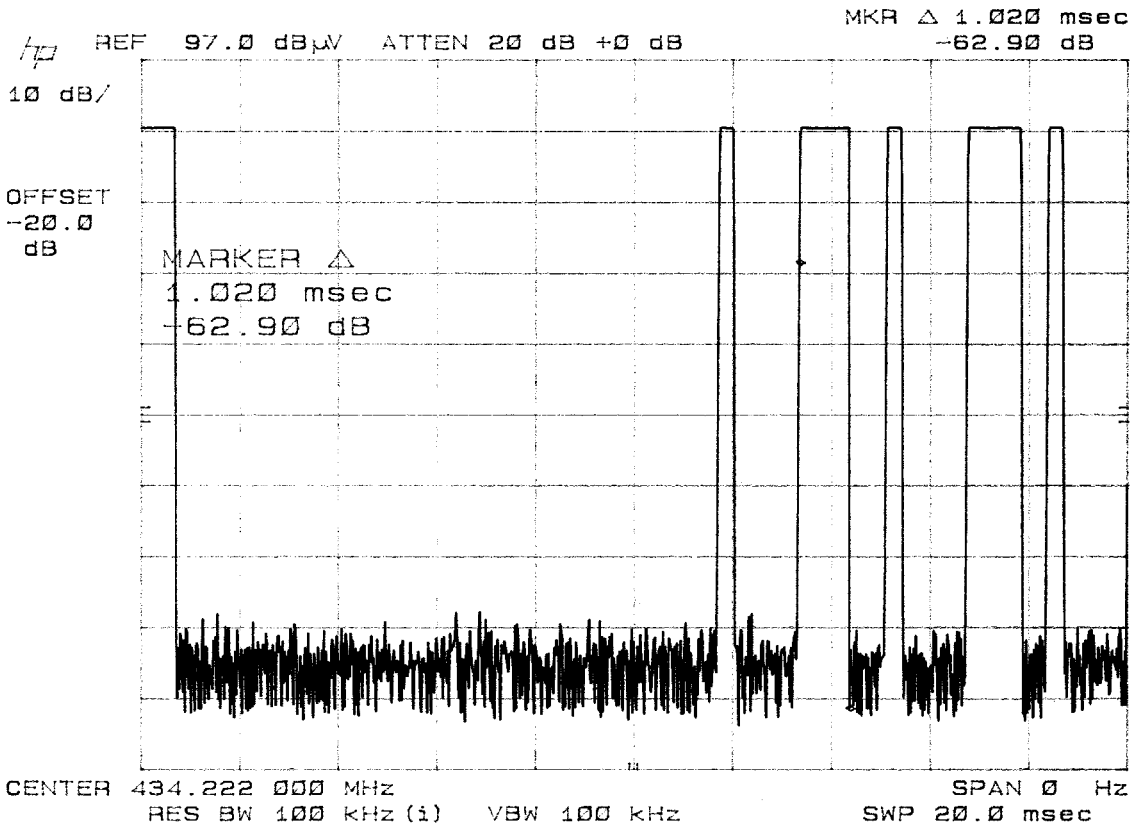

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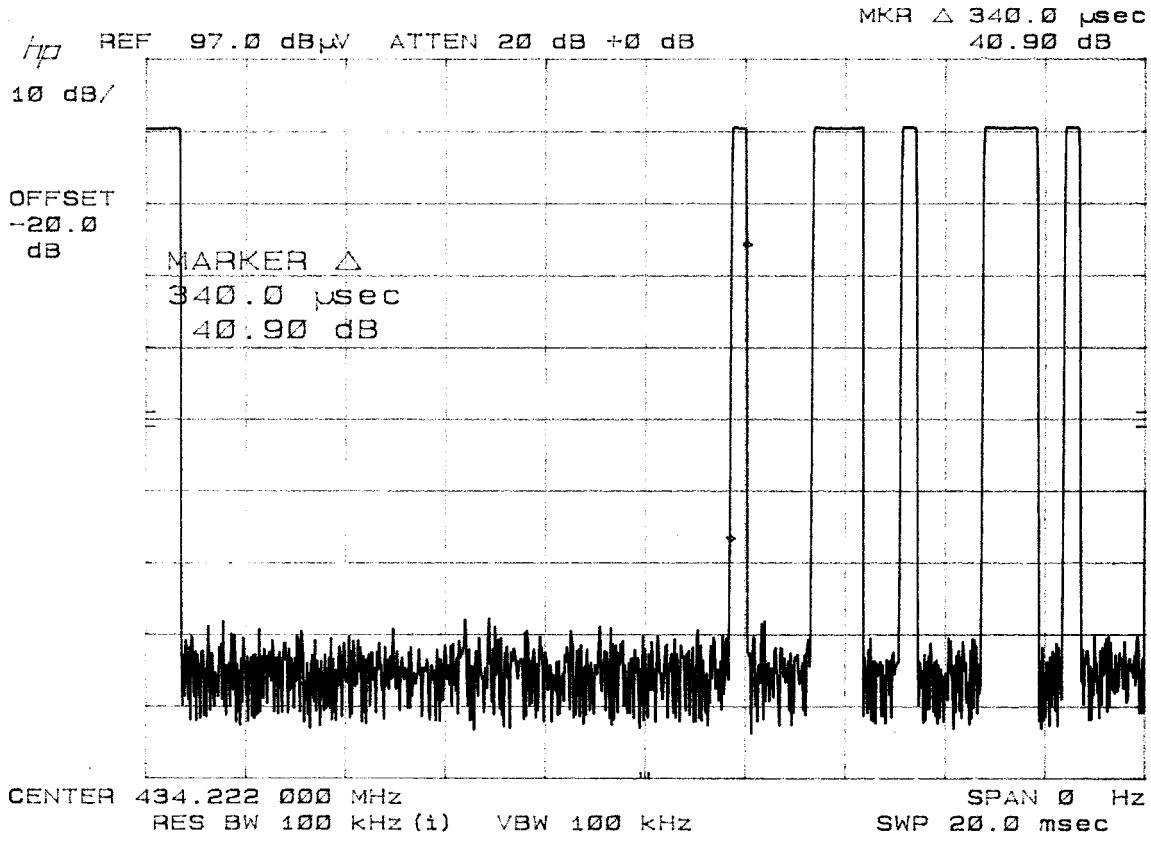

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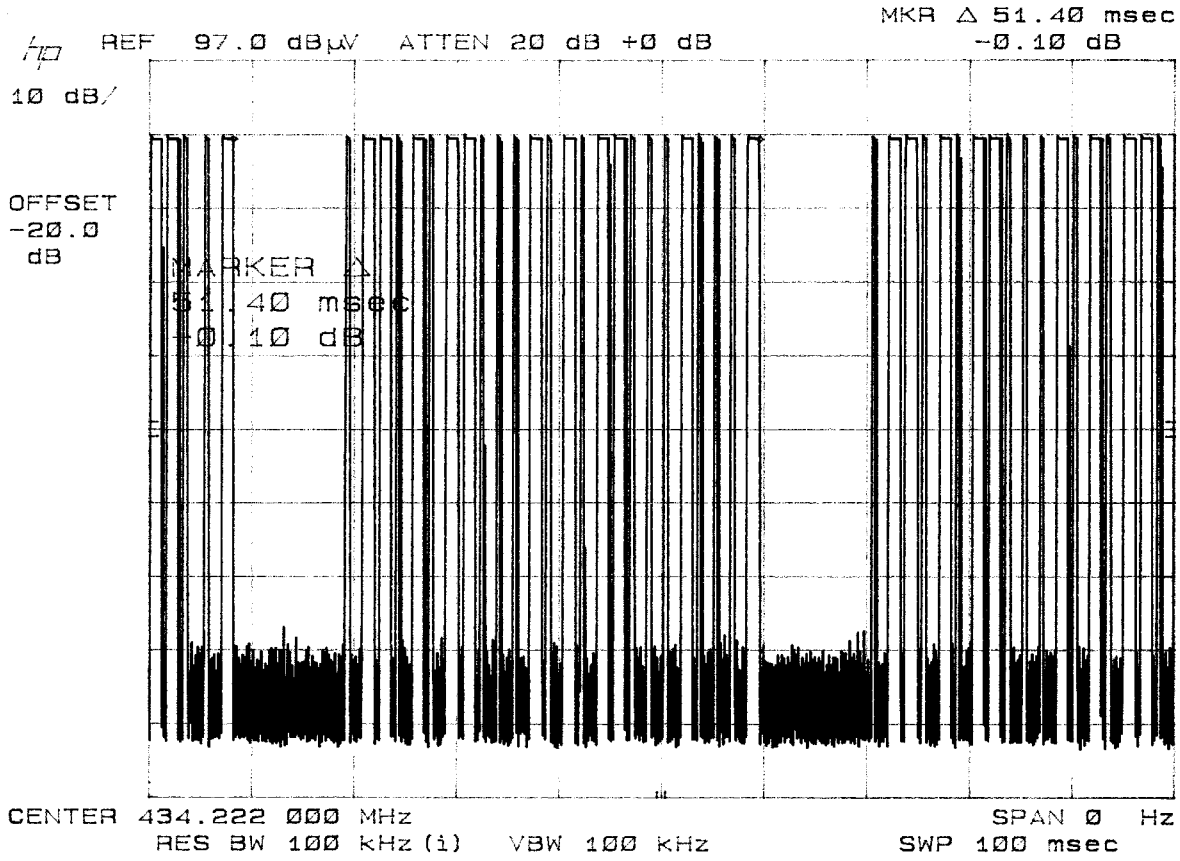

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APPLICANT: KEYLESS RIDE

FCC ID: SRW-KR433-BENZO

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 GRAPH ON THE FOLLOWING PAGE 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 plot on the next page was generated. The vertical scale is set to 10 dB per division: the horizontal scale is set to 100 kHz per division.

TEST RESULTS: The unit meets the FCC requirements.

PERFORMED BY: NAM NGUYEN **DATE**: 09/28/05

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