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## TEST REPORT

### PER FCC PART 15 B SUBPART

Applicant	Guard RFID
Address	11920 Forge Place Richmond, BC V7A 4V9 Canada
Model Number	VZKTR1
Product Description	RFID Receiver
Date Sample Received	12/3/2007
Date Tested	12/14/2007
Tested By	Richard Block
Approved By	Mario de Aranzeta
Report Number	3754CUT7Testreport.pdf
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.**



Certificate # 0955-01



## TABLE OF CONTENTS

ATTESTATION .....	3
REPORT SUMMARY .....	4
TEST ENVIRONMENT .....	4
TEST SETUP SUMMARY .....	4
DUT SPECIFICATION .....	5
TEST EQUIPMENT LIST .....	6
TEST PROCEDURES .....	7
RADIATED SPURIOUS EMISSIONS .....	8
POWER LINE CONDUCTED INTERFERENCE .....	10

## **ATTESTATION**

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

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



Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.  
849 NW State Road 45  
Newberry, Fl 32669

**Authorized Signatory Name:** *Mario de Aranzeta*

**Title:** Compliance Engineer/ Lab. Supervisor

**Date:** December 31, 2007

## REPORT SUMMARY

Disclaimer	The test results only relate to the item tested.
Applicable Rule(s)	Pt 15.109, Pt 15.107, ANSI C63.4: 2003, ICES-003
Related Report	No related report

## TEST ENVIRONMENT

Test Facility	Timco Engineering, Inc. 849 NW State Road 45 Newberry, FL 32669 USA.
Test Condition in the laboratory	Temperature: 26°C Relative humidity: 50%

## TEST SETUP SUMMARY

Test Setup Diagram/ Description	The DUT was placed on the turntable per setup per ANSI C63.4: 2003. A test set up photo is provided for clarification.
	<p>Supporting Equipment</p> <p>One (1) Personal Computer: supplied by the applicant</p> <p>One (1) Network Router: Supplied by the applicant</p> <p>One (1) Monitor: CTS, m/n: 6468ES</p> <p>One (1) Mouse: Logitech, m/n: MB-J58</p> <p>One (1) Keyboard: Positivo, m/n: KZ96</p> <p>Two DUTs were tested together along with the above supporting equipment as a system to collect data per the applicant's instruction.</p>
Deviation from the standard/procedure	No deviation
Modification of DUT	No modification

**DUT SPECIFICATION**

DUT Description	RFID Receiver
FCC ID	FCC ID: VZKTR1
Trade Name	Guard RFID
DUT Power Source	<input checked="" type="checkbox"/> 110-120Vac/50- 60Hz
	<input type="checkbox"/> DC Power
	<input type="checkbox"/> Battery Operated Exclusively
Test Item	<input checked="" type="checkbox"/> Prototype
	<input type="checkbox"/> Pre-Production
	<input type="checkbox"/> Production
Type of Equipment	<input checked="" type="checkbox"/> Fixed
	<input type="checkbox"/> Mobile
	<input type="checkbox"/> Portable
Modifications to DUT:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (explanation below)

### TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/07	3/26/10
3-Meter OATS	TEI	N/A	N/A	Listed 1/11/06	1/10/09
Antenna: Biconnical	Eaton	94455-1	1057	CAL 12/12/07	12/12/09
Antenna: Biconnical	Eaton	94455-1	1096	CAL 10/11/06	10/11/08
Antenna: Biconnical	Electro-Metrics	BIA-25	1171	CAL 4/29/07	4/29/09
Analyzer Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/13/07	4/13/09
Analyzer Blue Tower RF Preselector	HP	85685A	2926A00983	CAL 9/5/07	9/5/09
Analyzer Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/13/07	4/13/09
LISN	Electro-Metrics	ANS-25/2	2604	CAL 10/5/06	10/5/08
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/07	4/28/09
Antenna: Log- Periodic	Eaton	96005	1243	CAL 12/14/07	12/14/09

## TEST PROCEDURES

**Power line conducted Emission:** The test procedure used was ANSI C63.4-2003. The spectrum was scanned from 0.15 to 30 MHz.

**Radiation Interference:** The test procedure used was ANSI C63.4-2003 using a 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 video bandwidth was always greater than or equal to the RBW.

The frequency was scanned from 30 MHz to 1.0 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The DUT was measured in three (3) orthogonal planes when necessary.

**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	+CL	= FS
33	20 dBuV	+ 10.36 dB/m	+0.40 dB	=30.36 dBuV/m @ 3m

**ANSI C63.4-2003 Measurement Procedures:** The unit under test was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The table used for radiated measurements is capable of continuous rotation. 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.

## RADIATED SPURIOUS EMISSIONS

**Rules Part No.:** 15.109

**Requirements:**

Frequency MHz	Limits
30 – 88	40.0 dB $\mu$ V/m measured @ 3 meters
80 – 216	43.5 dB $\mu$ V/m measured @ 3 meters
216 – 960	46.0 dB $\mu$ V/m measured @ 3 meters
Above 960	54.0 dB $\mu$ V/m measured @ 3 meters

**Test Data:**

Emission Frequency MHz	Meter Reading dB $\mu$ V	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB	Field Strength dB $\mu$ V/m	Margin dB
30.61	26.4	V	0.40	11.70	38.50	1.50
30.62	16.5	H	0.40	12.98	29.88	10.12
47.79	19.5	H	0.49	10.86	30.85	9.15
47.80	25.5	V	0.49	10.58	36.57	3.43
60.23	22.9	V	0.53	10.44	33.87	6.13
60.24	19.4	H	0.53	10.85	30.78	9.22
69.02	16.9	V	0.56	8.07	25.53	14.47
74.26	20.5	H	0.58	6.82	27.90	12.10
84.05	23.2	H	0.61	6.79	30.60	9.40
84.69	22.3	V	0.61	7.97	30.88	9.12
92.24	19.5	V	0.63	9.73	29.86	13.64
92.45	24.3	H	0.63	8.74	33.67	9.83
95.77	22.6	V	0.64	10.68	33.92	9.58
95.98	23.5	H	0.64	9.77	33.91	9.59
111.62	19.9	V	0.66	13.99	34.55	8.95
112.24	15.7	H	0.66	13.72	30.08	13.42
115.60	16.7	V	0.67	14.62	31.99	11.51
117.66	16.4	H	0.67	13.86	30.93	12.57
130.27	16.2	H	0.68	12.90	29.78	13.72
139.94	19.9	V	0.69	13.00	33.59	9.91
144.05	21.3	H	0.69	13.41	35.40	8.10
146.70	20.4	H	0.70	13.64	34.74	8.76
146.71	21.9	V	0.70	13.84	36.44	7.06

[Continued]



Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
160.24	19.8	V	0.74	14.83	35.37	8.13
160.25	22.2	H	0.74	13.92	36.86	6.64
165.87	26.0	H	0.76	14.42	41.18	2.32
165.88	19.8	V	0.76	15.52	36.08	7.42
181.82	20.5	H	0.83	16.58	37.91	5.59
194.98	18.7	V	0.88	17.40	36.98	6.52
195.00	21.8	H	0.88	17.20	39.88	3.62
195.04	19.9	V	0.88	17.40	38.18	5.32
195.08	21.5	H	0.88	17.20	39.58	3.92
206.20	22.8	V	0.91	11.69	35.40	8.10
211.03	25.6	H	0.92	11.76	38.28	5.22
215.54	27.2	H	0.93	11.58	39.71	3.79
221.22	19.0	V	0.94	11.04	30.98	15.02
227.17	25.7	V	0.95	11.22	37.87	8.13
227.18	25.0	H	0.95	11.47	37.42	8.58
235.93	22.4	H	0.97	11.80	35.17	10.83
238.18	19.2	V	0.98	11.87	32.05	13.95
250.01	26.2	H	1.00	12.60	39.80	6.20
250.04	23.0	V	1.00	12.40	36.40	9.60
260.02	19.7	H	1.02	13.10	33.82	12.18
270.86	20.4	H	1.04	13.99	35.43	10.57
271.98	16.9	V	1.04	13.86	31.80	14.20
276.48	22.0	H	1.05	14.55	37.60	8.40
276.49	18.8	V	1.05	14.22	34.07	11.93
285.86	16.4	H	1.07	14.96	32.43	13.57
300.02	18.2	H	1.10	14.50	33.80	12.20
312.03	17.1	H	1.11	14.30	32.51	13.49
325.00	15.3	H	1.13	14.50	30.93	15.08
327.22	16.0	H	1.13	14.59	31.72	14.28
399.12	21.3	V	1.20	15.78	38.28	7.72
465.75	16.3	V	1.27	17.13	34.70	11.30
498.38	15.3	H	1.30	17.95	34.55	11.45
498.92	22.4	V	1.30	17.90	41.60	4.40
565.59	15.9	H	1.50	18.83	36.23	9.77
631.47	15.9	V	1.63	19.41	36.94	9.06
863.98	15.6	V	1.93	22.04	39.57	6.43

**POWER LINE CONDUCTED INTERFERENCE**

**Rules Part No.:** Part 15.107

**Requirements:**

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

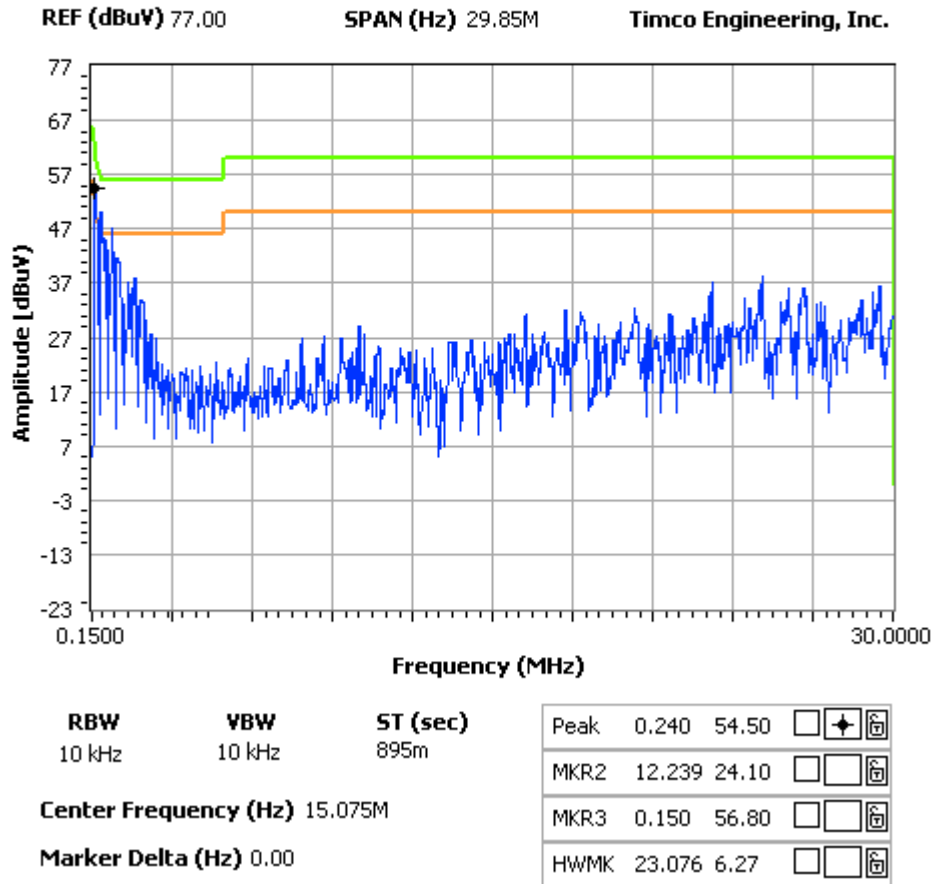
**Test Data:** The following plots represent the emissions read for power line conducted. Both lines were observed.

POWERLINE CONDUCTED EMISSIONS – LINE 1

**NOTES:**

POWERLINE CONDUCTED -- LINE 1  
GuardRFID -- Tag Reader

**FCC 15.107 Mask Class B**



QUASI-PEAK

Frequency (MHz)	Emission (dBuV)	Limit (dBuV)
0.212	51.23	63.09
0.258	50.21	61.50
0.460	44.56	56.69

AVERAGE

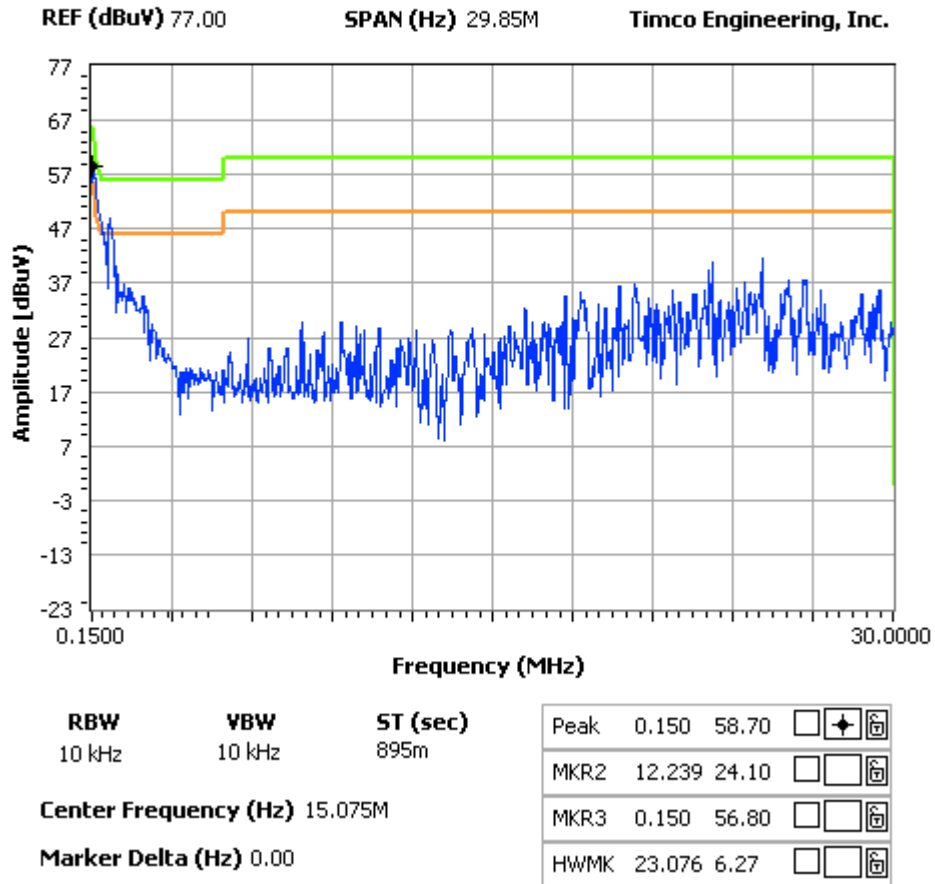
Frequency (MHz)	Emission (dBuV)	Limit (dBuV)
0.419	10.04	47.45

POWERLINE CONDUCTED EMISSIONS – LINE 2

**NOTES:**

POWERLINE CONDUCTED -- LINE 2  
GuardRFID -- Tag Reader

**FCC 15.107 Mask Class B**



QUASI-PEAK

Frequency (MHz)	Emission (dBuV)	Limit (dBuV)
0.152	50.93	65.88
0.199	50.28	63.62
0.458	44.01	56.73

AVERAGE

Frequency (MHz)	Emission (dBuV)	Limit (dBuV)
0.262	10.75	51.35