RADIATED EMISSION TEST REPORT

Product Name: HIGH CEILING MOUNT DETECTOR

FCC ID: JE4CAV006

Applicant:

RISCO LTD.
14 HACHOMA ST.
RISHON LET'ZION 75665
ISRAEL

Test Lab:
Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669 USA

Date Receipt:

Date Tested: 12/27/2010

Tested By: Joe Scoglio

Approved by: Mario de Aranzeta

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

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ATTESTATIONS

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: 2005 requirements.

A2LA ACCREDITED
Testing 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 USA

Authorized Signatory Name:

Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: January 3, 2011

REPORT SUMMARY

Disclaimer	The test results only relate to the item tested.
Applicable Rule(s)	Pt 15.245, Pt 15.109, Pt 15.107, ANSI C63.4: 2003

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.
Deviation from the standard/procedure	No deviation
Modification of DUT	No modification

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DUT SPECIFICATION

DUT Description	Dual Technology Outdoor Detector
FCC Identified	FCC ID: JE4CAV006
IC Cert. No.	N/A
Serial Number	N/A
Operating Frequency	10.525 GHz
Test Frequencies	10.525 GHz
DUT Power Source	☐ 110–120Vac/50– 60Hz
	☒ DC Power 12V
	☐ Battery Operated Exclusively
Test Item	☐ Prototype
	☒ Pre-Production
	☐ Production
Type of Equipment	☒ Fixed
	☐ Mobile
	☐ Portable

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EMC EQUIPMENT LIST

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	3/23/11
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	1/30/11
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

TEST PROCEDURES

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC. The UUT was transmitting a signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI C63.4-2003 using an Agilent/ HP spectrum receiver with a preselector. 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 up to 1.0 GHz and 1.0 MHz with a video BW of 3.0 MHz above 1.0 GHz.

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 dBµV + 10.36 dB = 30.36 dBµV/m @ 3m

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI C63.4-2003 using a 50 µH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed. The ambient temperature of in the laboratory was 26 C with a relative humidity of 30%.

ANSI STANDARD C63.4-2003 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 (1.5m side). 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 1 m to 4 m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The UUT was setup as described in ANSI C63.4-2003 with the UUT 40 cm from the vertical ground wall.

CONVERSION FACTORS AND PROCEDURES ABOVE 40 GHZ: Harmonic mixers were used above 40 GHz a measurement distance of 1 meter is usually used but in some cases if there is nothing to observe then a distance of 0.5 m is used. The antenna gain, mixer correction factor, and distance correction factor are corrected for in the field strength.

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RADIATION INTERFERENCE

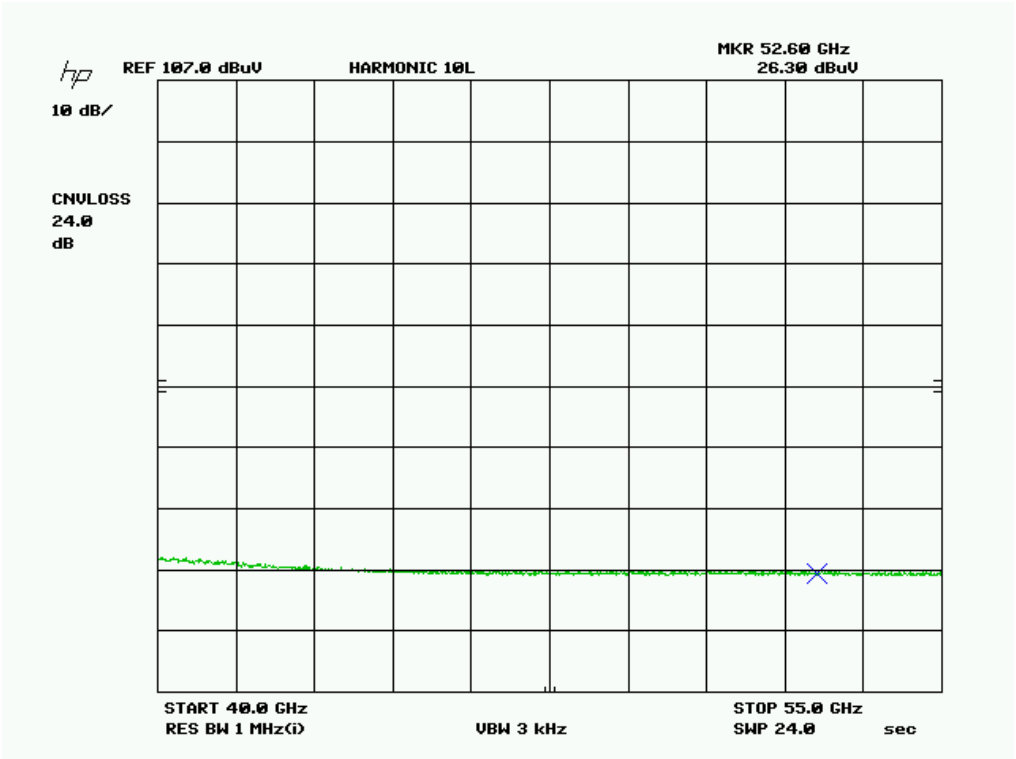
RULES PART NUMBER: 15.245, 15.205, 15.209

REQUIREMENTS:

Fundamental Frequency MHz	Field Strength of fundamental dBµV/m	Field Strength of Harmonics dBµV/m
902-928	114	64
2435-2465	114	64
5785-5815	114	64
10500-10550	128	88
24075-24175	128	88

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated to the general radiated emission limits in 15.209.

TEST DATA:



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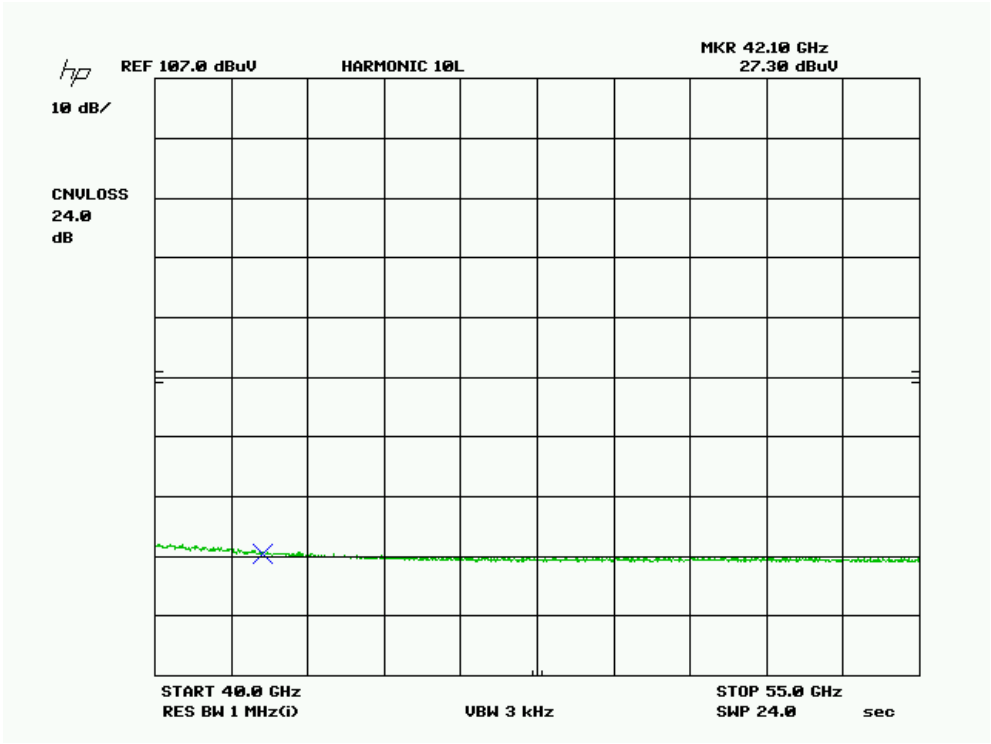

At 0.5 meter

Emission Frequency GHz	Meter Reading dBµV	Ant. Polarity	Conv Loss dB	Correction Factor dB/m	D.C.F. dB	Field Strength dBµV/m
40.1	27.3	V	0	38.7	-15.5	50.5
52.6	26.3	V	-2	41.5	-15.5	52.3

D.C.F. is a distance correction factor to correct the 0.5 meter measurement distance back to the 3 meter FCC limit distance

No significant emissions noted in either V or H polarity.

The conversion loss shown in the table is the difference between the nominal loss in the mixer 24 dB and the actual loss of the mixer at the frequency of interest in the table. This was done because the mixer's conversion loss isn't flat across the band of interest and the Agilent 8566B only allows 1 conversion loss to be input. This nominal value can be seen in the plot.

The device under test is a pulse modulated device which we examined in a normal mode and then a mode where we de-spread the modulation to a CW carrier. We measured the harmonic of the CW carrier with both peak and average detectors. This was done so a pulse desensitization factor would not need to be applied. No significant emissions were noted at this harmonic in either mode or using either detector. The average plot was included as the limit is expressed as an average value. The peak value again would be a noise floor measurement.