TIMCO ENGINEERING, Inc.

849 NW State Road 45
Newberry, Fl 32669 USA
Phone: 888.472.2424 or 352.472.5500
Fax: 352.472.2030
Email: info@timcoengr.com
Website: www.timcoengr.com

FCC PART 15

RADAR DETECTOR REPORT

Applicant	BG TECH AMERICA, INC.
Address	300 PARK BOULEVARD SUITE 335
	ITASCA IL IL USA
FCC ID:	U6BEF9
Product Description	RADAR DETECTOR
Date Sample Received	5/4/2011
Date Tested	5/26/2011
Tested By	Joe Scoglio
Approved By	Mario R. de Aranzeta
Report Number	914UT11TestReport.doc
Test Results	☒ PASS ☐ FAIL

ACCREDITED
Certificate # 0955-01

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

Summary

The device under test does:
☒ fulfill the general approval requirements as identified in this test report
☐ not fulfill the general approval requirements as identified in this test report

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 requirements.

ACCREDITED
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 C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 6/13/11

GENERAL INFORMATION

The test results relate only to the items tested.	
DUT Description	RADAR DETECTOR
FCC ID	U6BEF9
DUT Power Source	☐ 110–120Vac/50– 60Hz
	☒ DC Power
	☐ Battery Operated Exclusively
Test Item	☐ Prototype
	☒ Pre-Production
	☐ Production
Modifications to DUT	None
Test Standards	FCC Part 15, Subpart B, ANSI C63.4-2003

TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/10/10	5/10/12
Antenna: Dipole Kit	Electro-Metrics	TDA-30/1-4	153	CHAR 7/10/09	7/10/11
Frequency Counter	HP	5385A	2730A03025	CAL 8/4/09	8/4/11
Hygro-Thermometer	Extech	445703	0602	CAL 1/30/10	1/30/12
Modulation Analyzer	HP	8901A	3435A06868	CAL 6/26/09	6/26/11
Digital Multimeter	Fluke	FLUKE-77	35053830	CAL 11/18/09	11/18/11
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

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RADIATION INTERFERENCE: Testing was done in accordance with ANSI C63.4-2003. Section 15.35(b) specifies the use of an average detector in this band. In addition, the peak level of an emission shall not exceed the average limit by more than 20 dB using a minimum Resolution Bandwidth (RBW) of 1 MHz and minimum Video Bandwidth (VBW) OF 1 MHz. The following procedure is designed to determine if there are any spurious emissions from the local oscillator within the band of interest along with any additional spurious emissions caused by other circuitry within the device.

1) Determine the frequency of the peak emission:
   Start Frequency 11.7 GHz
   Stop Frequency 12.2 GHz
   RBW equal to or greater than 1 MHz
   VBW equal to or greater than 1 MHz
   Detector Function Peak
   Maximize the emissions with regards to device orientation, antenna polarization, and antenna height. Sweep the band using Max Hold for a minimum of 2 minutes. Record this frequency for measuring the peak emission. In addition record the frequency of other spurious emissions noted.
2) Determine the peak level of the emission:
   Center Frequency Set to the frequency determined in Step 1 RBW Equal to or greater than 1 MHz VBW Equal to or greater than 1 MHz Detector Function Peak Measure the value of the peak emission using Max Hold for a minimum of 2 minutes. This can be done at zero span or a frequency span where the analyzer does not show a "Measurement Uncalibrated" message. Record the peak value. If the peak measurement is compliant with the average limit an average measurement is not necessary. If the peak value exceeds the average limit by less than 20 dB proceed to Step 3.
3) Determine the average level of the emission:
   Center Frequency Set to the frequency determined in Step 1
   Span Zero
   RBW Equal to or greater than 1 MHz
   VBW Equal to or greater than 10 Hz
   Detector Function Peak
   This measurement uses video averaging and must be done in Linear mode. The analyzer Reference Level is adjusted so that a signal is clearly visible on the screen. Measure the value of the emission using Max Hold for a minimum of 2 minutes. Record this as the average value. Step 2 and Step 3 should be repeated for other spurious emissions.

TEST PROCEDURES CONTD.

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 dBµV) 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 dBµV	+ 10.36 dB/m	+0.40 dB	=30.76 dBµV/m @ 3m

ANSI STANDARD C63.4-2003 10.1.7 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	Limits
30 – 88	40.0 dBµV/m measured @ 3 meters
80 – 216	43.5 dBµV/m measured @ 3 meters
216 – 960	46.0 dBµV/m measured @ 3 meters
Above 960	54.0 dBµV/m measured @ 3 meters
11.7 to 12.2GHz	54.0 dBµV/m measured @ 3 meters

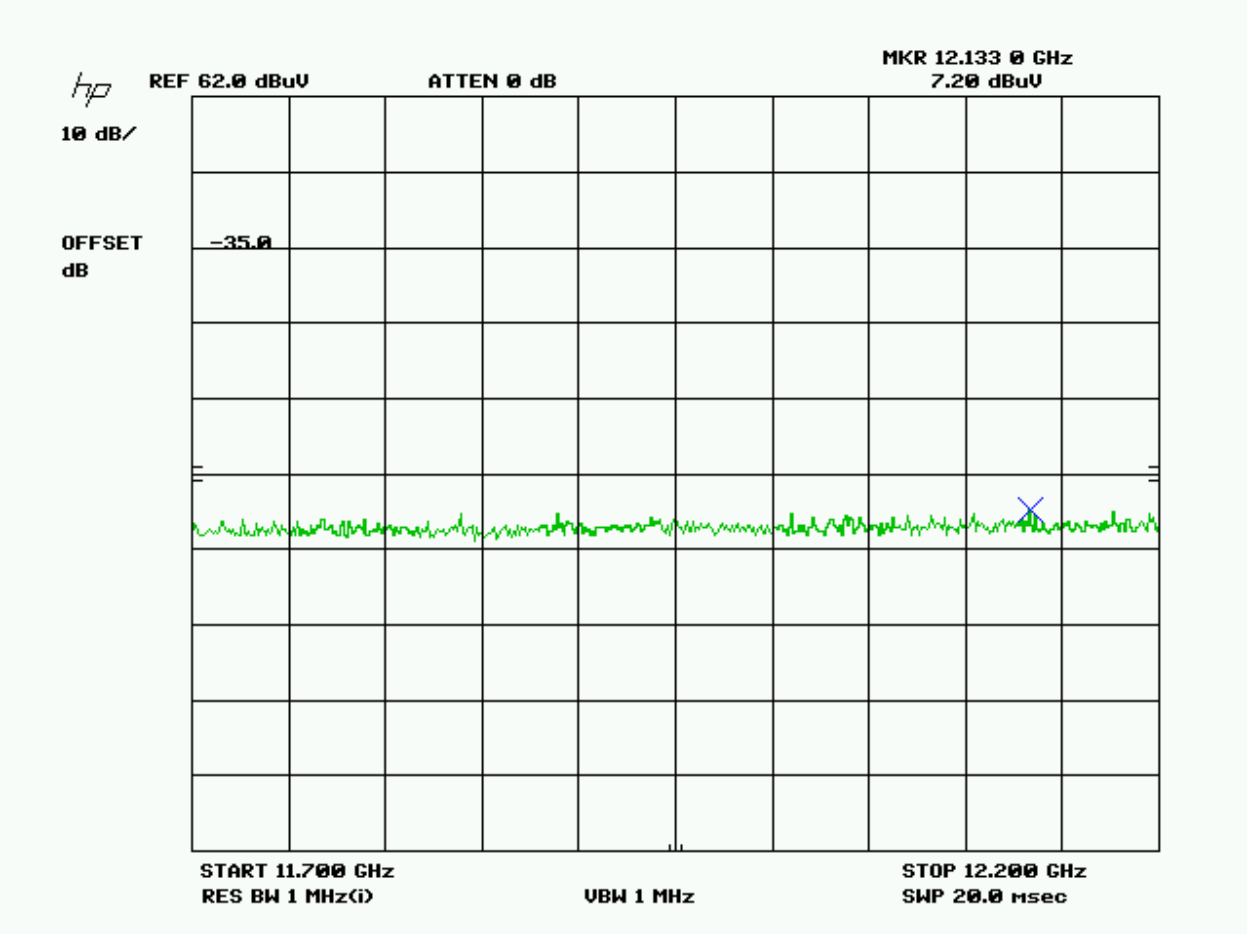
Test Procedure: A search was made of the spectrum from 30 to 1000MHz and from 11.7 to 12.2GHz. Measurements in the 11.7 to 12.2GHz band were made with a Standard Gain Horn. The measurements in the 11.7 to 12.2GHz band represent the ambient noise levels. The attached plots were made with peak detector with the analyzer in a maximum hold for 2 minutes.

Test Data:

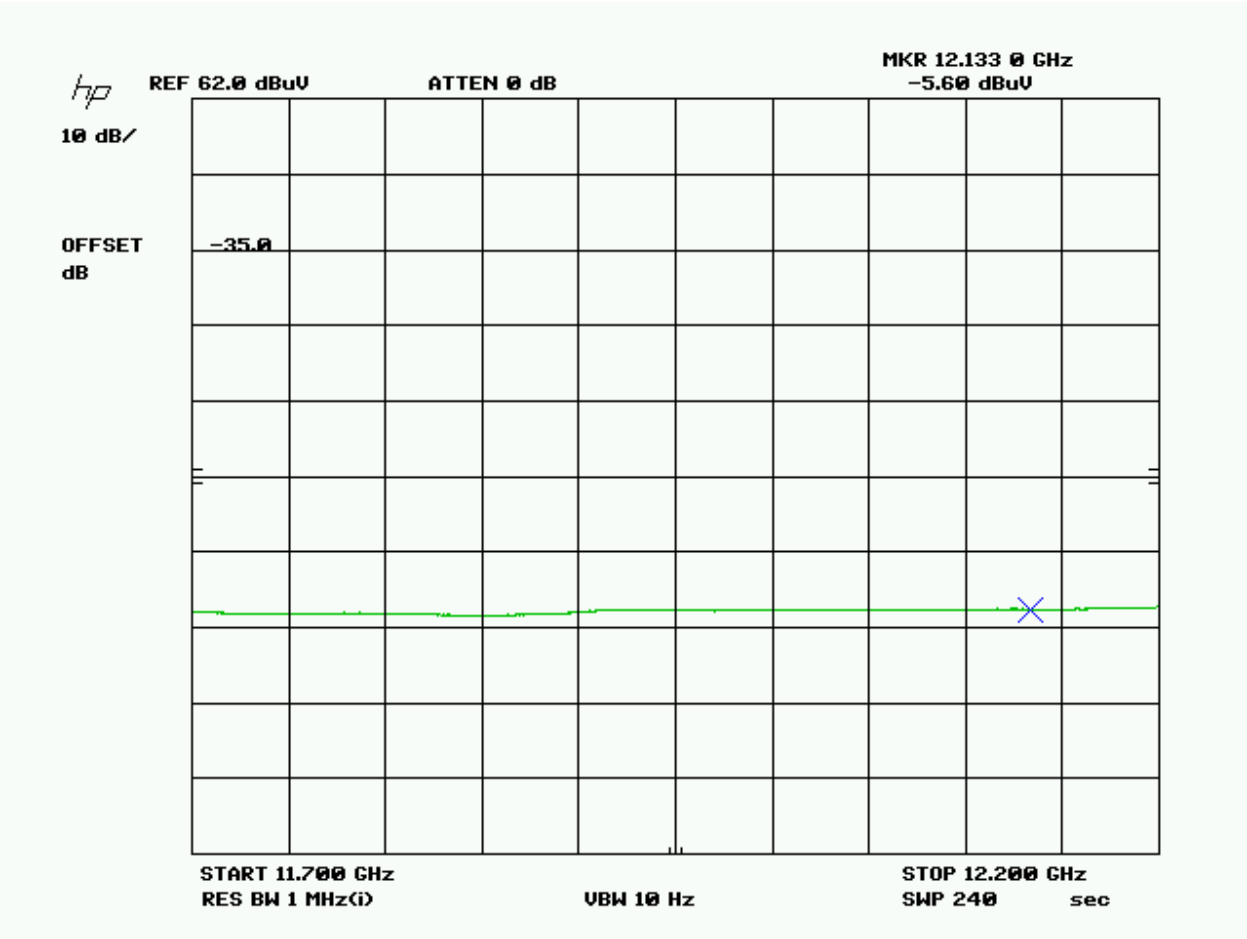
Emission Frequency MHz	Meter Reading dBµV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBµV/m	Margin dB
40.00	3.0	H	0.45	10.80	14.25	25.75
40.00	6.0	V	0.45	9.90	16.35	23.65
50.00	14.1	H	0.50	10.90	25.50	14.50
50.00	20.4	V	0.50	10.80	31.70	8.30
80.00	8.6	H	0.60	6.30	15.50	24.50
80.00	9.1	V	0.60	7.50	17.20	22.80
90.00	3.9	H	0.63	8.10	12.63	30.88
90.00	10.7	V	0.63	9.10	20.43	23.08
448.00	8.3	H	1.25	17.52	27.07	18.93
448.00	9.0	V	1.25	17.52	27.77	18.23
12,133.00	-5.6	V	7.89	29.80	32.09	21.91
12,133.00	8.3	V	7.89	29.80	45.99	8.01

* The EUT is operating on the following bands; 10.525GHz(X-Band), 24.150GHz(K-Band), 33.4-36.0GHz(KA Band)

PEAK PLOT


REF 62.0 dBuV
ATTEN 0 dB
MKR 12.133 0 GHz
7.20 dBuV
10 dB/
OFFSET
dB
-35.0
START 11.700 GHz
RES BW 1 MHz(i)
VBW 1 MHz
STOP 12.200 GHz
SWP 20.0 msec

AVERAGE PLOT



RADIATED EMISSIONS TEST SETUP PHOTO