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**FCC PART 15.109
RADAR DETECTOR REPORT**

Applicant	COBRA ELECTRONICS CORPORATION
Address	6500 WEST CORTLAND STREET CHICAGOIL60707
Product Model Number	RAD 350
Product Description	RADAR DETECTOR
FCC ID:	BBO2016B
Date Sample Received	3/9/2016
Date Tested	3/11/2016
Tested By	Cory Leverett
Approved By	Tim Royer

Report Number	Version Number	Description	Issue Date
67UT16TestReport_	Rev1	Initial Issue	3/16/2016

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

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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.

I attest that the necessary measurements were made at:

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



Authorized Signatory Name:

Engineering Project Manager

Date: 3/11/2016

GENERAL INFORMATION

EUT Description	RADAR DETECTOR
FCC ID	BBO2016B
Model Number	RAD 350
Receive Range	10.425 – 10.575 GHz (X-Band), 24.000 - 24.250 GHz (K-Band), 33.400 - 36.000 GHz (Ka Band)
Receiver Circuit	Radar Detector
EUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz
	<input checked="" type="checkbox"/> DC Power 12VDC Nominal
	<input type="checkbox"/> Battery Operated Exclusively
Test Item	<input type="checkbox"/> Prototype
	<input checked="" type="checkbox"/> Pre-Production
	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed
	<input checked="" type="checkbox"/> Mobile
	<input type="checkbox"/> Portable
Modification required for testing	None

REPORT SUMMARY

Regulatory Standard	CFR Title 47 FCC Rule part 15B § 15.109
Test Procedures	FCC 02-211 Interim Test Procedure for Radar Detector Compliance FCC Part 15.31, 15.33, 15.35 ANSI C63.4 – 2014
Operational Modes	Radar Detector was powered on and operating as intended.
Test Frequencies	Receiver circuit sweeping through all supported radar bands
Setup	Powered through supplied 12V automotive cigarette lighter plug, using 12 VDC lab power supply adjusted for 13.6 VDC output. See test setup photo.
Environmental Condition in the laboratory	Temperature: 24-26°C Relative humidity: 50-65% Barometric Pressure:
Deviation from the standard/procedure	No deviation

RESULTS SUMMARY

Requirement	Test Result	Limit	Pass/Fail
15.109 Radiated Emissions in VSAT band 11.7 – 12.2 GHz	37.19 dBuV/m @ 12.15 GHz (peak noise floor)	54 dBuV/m	Pass

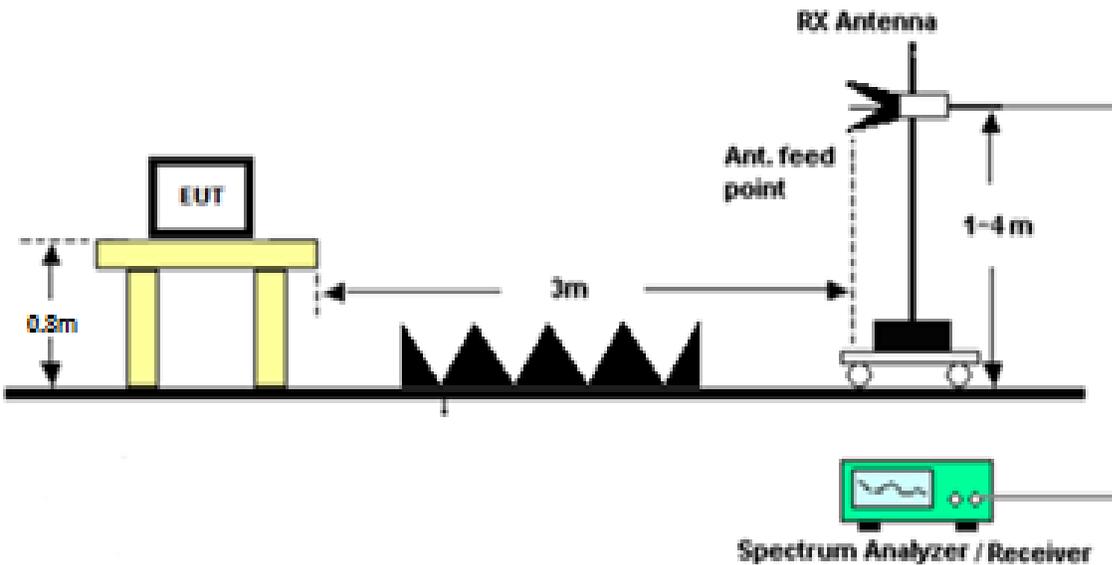
RADIATED EMISSIONS

Rules Part No.: 15.109

Requirements:

Frequency	Limits
11.7 to 12.2GHz	54.0 dB μ V/m measured @ 3 meters

Setup:



Procedure: FCC Part 15.35(a) Measurement detector functions and bandwidths

ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz

§ 6.2 Operating conditions

§ 6.3 Arrangement of EUT

§ 8.3.1 Exploratory radiated emissions measurements

§ 8.3.2 Final radiated emission measurements

Configuration: Placed on edge of turntable, 13.6 VDC power was supplied through a lab power supply and all functions of the radar detector operating normally.

Field Strength Formula:

The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer plus the coax loss. 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 Level (dBuV)	Pre-Amp Gain (dB)	Ant Cor Factor (dB)	Coax Loss (dB)	Field Strength (dBuV/m)
33	25.6	15.2	12.4	2.2	25

Procedure: Interim Test Procedure for Determining Radar Detector Compliance
With the Rules Adopted in Report and Order FCC 02-211 July 19, 2002

Many radar detectors sweep the local oscillator across a wide band. Typically the local oscillator is the primary spurious emission from radar detectors. 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 - 2 - 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:

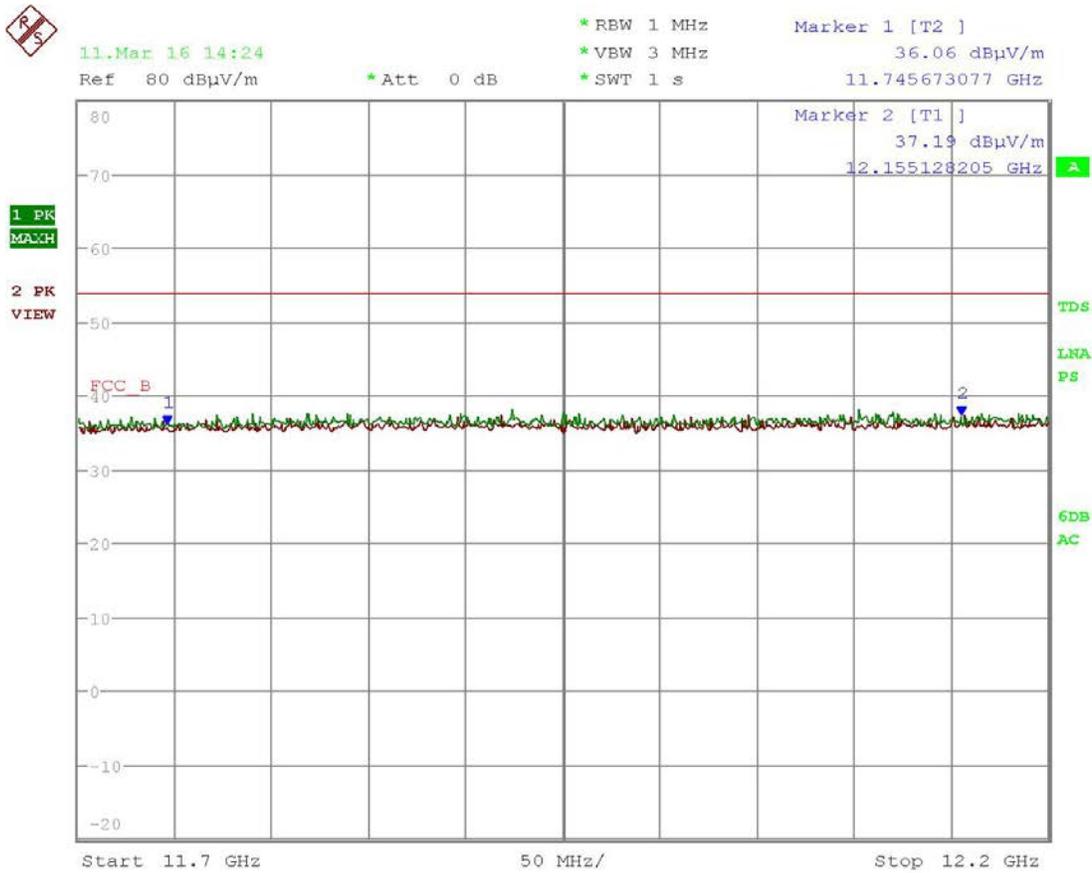
Center Frequency	Set to the frequency determined in Step 1
Span	Zero
RBW	Equal to or greater than 1 MHz
VBW	Equal to or greater than 10 Hz
Detector Function	Peak

This measurement uses video averaging and must be done in Linear mode. The analyzer Reference Level will have to be 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.

Note: Step 2 and Step 3 should be repeated for other spurious emissions within the band.

RADIATED SPURIOUS EMISSIONS

TEST DATA: 11.7 – 12.2 GHZ PEAK 3 METER FIELD STRENGTH



Date: 11.MAR.2016 14:24:04

Ant Polarity: T1 (Green) =Vertical, T2 (Red) =Horizontal

Notes:

No emissions were found in excess of the reported noise floor figures in the peak plot above

Results - Meets Requirements

TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
CHAMBER	Panashield	3M	N/A	02/18/16	02/18/19
Antenna: Double- Ridged Horn/ETS Horn 2	EMCO	3116	9011-2145	11/18/15	11/18/17
Software: Field Strength Program	Timco	N/A	Version 4.0	N/A	N/A
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	12/15/14	12/15/17
Pre-Amp	RF-Lambda	RLNA00M45GA	NA	01/04/16	01/04/18

*EMI RECEIVER SOFTWARE VERSION

The receiver firmware used was version 4.43 Service Pack 3