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## FCC PART 15 SUB PART B RADAR DETECTOR/RF LINK TEST REPORT

APPLICANT	COBRA ELECTRONICS CORPORATION
ADDRESS	6500 WEST CORTLAND STREET CHICAGO, IL 60707 USA
PROPOSED FCC ID	BBOXRSR7-MDU
MODEL NUMBER	XRSR7-MDU
PRODUCT DESCRIPTION	RF Link with Radar Detector
DATE SAMPLE RECEIVED	March 1, 2007
DATE TESTED	March 2, 2007
TESTED BY	Richard Block
APPROVED BY	Mario de Aranzeta C.E.T.
TIMCO REPORT NO	309EUT7TestReport.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

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## STATEMENT OF COMPLIANCE

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

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 by me or under my supervision, at Timco Engineering, Inc. located at 849 N.W. State Road 45, Newberry, Florida 32669 USA.



Certificate #0955-01

**Authorized by:** Mario de Aranzeta

**Signature:** On File

**Function:** Engineer

**Date:** March 7, 2007

**Tested By:** Richard Block

**Date:** March 5, 2007

## REPORT SUMMARY

Disclaimer:	The test results relate only to the items tested.
Purpose of Test:	To show the DUT is compliant with FCC Part 15
Applicable Standards:	ANSI C63.4: 2003, ANSI/TIA – 603-C: 2004, Pt 15.109
Related Report/Approvals:	Pt 15 Subpart B Digital Interface Portion Emission verified

## TEST ENVIRONMENT

Test Facilities:	All measurements were made at one or more of the test sites of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.
Laboratory Test Conditions:	Temperature: 26°C, Humidity: 55%

## TEST SETUP

Test Exercise (software, etc.):	The DUT was set in continuous receive mode of operation.
Deviation to the Standards:	No deviation.
Modification to the DUT:	No modification
Supporting Equipment:	The DUT has a GPS connector. During the testing, the DUT was connected to Cobra GPS device. (M/N: XRS-R96 GPSLS/N: 701000005)

## DUT DESCRIPTION

Product Description:	Radar Detector Portion of an RF Link System
FCC ID:	BBOXRSR7-MDU
Model Number:	XRSR7-MDU
Brand Name:	Cobra
Operating Frequency:	X-Band, K-Band, Ku-Band, Ka-Band
EUT Power Source:	Battery Operated Exclusively
Test Item:	Pre-production
Type of Equipment:	Mobile
Antennas:	Permanently attached
Antenna Connector:	None

## EMC EQUIPMENT LIST

	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 1/11/06	1/10/09
Biconnical Antenna	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303a01690	CAL 12/8/05	12/8/07
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 12/7/05	12/7/07
Analyzer Tan Tower Spectrum Analyzer	HP	8566B OPT 462	3188A07786 3144A20661	CAL 12/7/05	12/7/07
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 12/8/05	12/8/07
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 12/14/05	12/14/07

## TEST PROCEDURES

**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.

[Continued]

**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 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.

## RADIO INTERFERENCE

**Rules Part No.:** 15.109(a)

### Requirements:

Unwanted Emissions Frequency	Limits dBuV/m @ 3m
30 - 88	40.0
88 - 216	43.5
216 - 960	46.0
Above 960 MHz	54.0
11.7 to 12.2 GHz	54.0

**Test Data:** The EUT is operating on the following bands: X, Ka, and Ku bands. Emissions attenuated more than 20 dB below the permissible value are not reported.

Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity V/H	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
44.68	14.8	H	0.47	11.21	26.48	13.52
44.82	19.5	V	0.47	10.09	30.06	9.94
49.29	27.7	H	0.50	11.20	39.40	0.60
52.63	20.3	V	0.51	11.47	32.28	7.72
59.01	19.7	H	0.53	11.12	31.35	8.65
62.47	19.4	V	0.54	10.46	30.40	9.60
66.38	20.1	V	0.55	8.88	29.53	10.47
73.80	16.9	H	0.58	7.36	24.84	15.16
78.68	19.7	H	0.60	6.71	27.01	12.99
83.64	24.7	V	0.61	7.50	32.81	7.19
91.95	23.5	H	0.63	8.67	32.80	10.70
93.48	25.5	V	0.63	10.34	36.47	7.03
97.12	27.0	V	0.64	11.08	38.72	4.78
100.18	24.1	H	0.65	11.50	36.25	7.25
105.26	17.6	H	0.66	11.65	29.91	13.59
105.70	20.8	V	0.66	11.94	33.40	10.10
118.02	16.3	V	0.67	14.51	31.48	12.02
122.97	20.7	H	0.67	13.36	34.73	8.77
127.87	13.9	H	0.68	13.14	27.72	15.78
192.19	17.1	H	0.87	17.44	35.41	8.09
288.29	15.2	H	1.08	13.97	30.25	15.75