TEST REPORT

ACCREDITED

Certification # 1367-01

Laboratory ID
PRODUCT SAFETY ENGINEERING, INC.
12955 Bellamy Brothers Boulevard
Dade City, Florida 33525 USA
PH (352) 588-2209 FX (352) 588-2544

Submitter ID
XM Radio
7777 Glades Road
Boca Raton, FL 33434

Report Issue Date: 27 JAN 06
Sample Radio ID# JAB0949025
Sample Receipt Date: Dec 15, 2005

Test Report Number: 05F439B
Model Designation: VA-CP200
Product Description: Satellite Radio Cradle with FM Transmitter

Sample Test Date: see data sheets

Marketing Approval _____

Description of non-standard test method or test practice: ***None***

Estimated Measurement Uncertainty: ***Not Applicable***

Special limitations of use: ***None***

Traceability: ***reference standards of measurement have been calibrated by a competent body using standards traceable to the NIST.***

According to testing performed at Product Safety Engineering, Inc., the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in regulations indicated on page (3) of the test report. The test results contained herein relate only to the model(s) identified above. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Project Engineer, I hereby declare that the equipment tested as specified above conforms to the requirements indicated on page (3) of the test report.

Signature _____ Name David Foerstner

Title Engineering Group Leader Date 27 JAN 06

Reviewed by: Steven Hoke
Approved Signatory _____ Date 27 JAN 06

D I R E C T O R Y - EMISSIONS

Product Safety Engineering, Inc 12955 Bellamy Brothers Blvd. Dade City, FL 33525
Tel (352) 588-2209 Fax (352) 588-2544

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

□ - EN 61000-6-3:2001

□ - EN 61000-6-4:2001

□ - EN 55011 : 1998 / A1:1999 □ - Group 1 □ - Group 2

□ - Class A □ - Class B

□ - EN 55013 : 1990 / A12:1994 / A13:1996 / A14:1999

□ - EN 55014 -1: 2001 □ - Household appliances and similar

□ - Portable tools

□ - Semiconductor devices

□ - EN 55022 : 1998 □ - Class A □ - Class B

□ -AS/NZS 3548:1995 □ - Class A □ - Class B

□ - ICES-003 □ - Class A □ - Class B

□ - CNS 13438 □ - Class A □ - Class B

□ - VCCI : 1999 □ - Class A □ - Class B

■ - FCC Part 15 □ - Class A □ - Class B

■ - Certification (Intentional Radiator portion only)
□ - Verification
□ - Declaration of Conformity

□ - FCC Part 18

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Environmental conditions during testing:

	LAB	OATS
Temperature: *	_____	: _____
Relative Humidity: **	_____	: _____

* The ambient temperature during the testing was within the range of (50^{o} - 104^{o} F) unless indicted above.
** The humidity levels during the testing was within the range of (10% - 90%) relative humidity unless indicated above.

Power supply system : 12 Volts DC Hz _____ phase

Sign Explanations:

□ - not applicable
■ - applicable

Product Description -

The EUT is the Automobile docking cradle designed to accept the XM Radio models VP-X5X and VP-X5Z portable satellite receivers. The FM transmitter in totally enclosed in the cradle. The EUT can only be powered via the car DC power adapter.

The EUT may have the output frequency set at any standard broadcast FM frequency between (88.1 - 107.9) MHz. The testing was completed while the output frequency was set to a low, medium and high operating frequency. While operating at each of these (3) frequencies, the spurious emissions were measured up to the (10 th) harmonic.

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

■ **- Test not applicable**

□ - Darby Test Site (Open Area Test Site)
□ - Darby Laboratory

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	8028-50	Solar	50 Ω LISN	829012, 829022
□ -	3825/2	Solar	50 Ω LISN	924840
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	85662A	Hewlett Packard	Analyzer Display	2403A07352
□ -	8028-50	Solar	50 Ω LISN	903725, 903726
□ -	FCC-TLISN-T4	Fisher Custom Com.	Telecom ISN	20072

Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

□ - Darby Test Site (Open Area Test Site)
□ -
□ -

at a test distance of :

□ - 3 meters
□ - 30 meters

■ **- Test not applicable**

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	96005	Eaton	Log Periodic Antenna	1099
□ -	BIA-25	Electro-Metrics	Biconical Antenna	4283
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	ALR-30M	Electro-Metrics	Loop Antenna	824
□ -	8447D	Hewlett Packard	Preamplifier	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	ALA-130/A	Antenna Research	Loop Antenna	106

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Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

□ - Test not applicable

■ - Darby Site (Open Area Test Site)
□ - Darby Lab
□ -

at a test distance of :

■ - 3 meters
□ - 10 meters
□ - 30 meters

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	LPA30	eElectro-Metrics	Log Periodic Antenna	2280
■ -	BIA-30	Electro-Metrics	Biconical Antenna	3852
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
■ -	8447D	Hewlett-Packard	Preamplifier (26dB)	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8568B	Hewlett Packard	Spectrum Analyzer	2407A03213
□ -	85650A	Hewlett Packard	Quasi-Peak Adapter	2043A00358
□ -	85662A	Hewlett Packard	Analyzer Display	2340A05806
□ -	96005	Eaton	Log Periodic	1099
□ -	BIA 25	Electro-Metrics	Biconical Antenna	4283

Emissions Test Conditions): INTERFERENCE POWER

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

■ - Test not applicable

□ - Darby Lab
□ -

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	MDS-21	Rhode&Schwarz	Absorbing Clamp	8608447020
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	8447D	Hewlett-Packard	Amplifier (26 dB)	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 1.1 GHz were performed in a horizontal and vertical polarization at the following test location :

■ - Darby Test Site (Open Area Test Site)
□ -
□ -
□ -

at a test distance of:

□ - 1 meters
■ - 3 meters
□ - 10 meters

□ - Test not applicable

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
■ -	8449B	Hewlett-Packard	Preamplifier	3008A00320
■ -	3115	Electro-Mechanics	Double Ridge Guide Horn	3810

The *ANTENNA TERMINAL DISTURBANCE VOLTAGE* in the frequency range 30 MHz - 1,000 MHz were performed.

□ - Darby Test Site (Open Area Test Site)
□ - Laboratory
□ -
□ -

■ - Test not applicable

	Model Number	Manufacturer	Description	Serial Number
□ -	2F9-3C4-3C5	Wavecom	UHF PAL TV Modulator	185879
□ -	2F1-3C4-3C5	Wavecom	VHF PAL TV Modulator	157728
□ -	A-8000	IFR	Spectrum Analyzer	1306
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01433
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01477
□ -	LMV-182A	Leader	RMS Milli-Voltmeter	8010091
□ -	3202	Krhon-Hite	Active filter	5899
□-	FMT115	Leaming	FM Modulator	NONE
□ -	371	UDT	Optical power meter	06657
□ -	TSG95	Tektronix	PAL video / Audio generator	B028883
□-				

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Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

□ - Standby

□ - Test program (H - Pattern)

□ - Test program (color bar)

□ - Test program (customer specific)

□ - Practice operation

■ - Normal Operating Mode

□ -

Configuration of the device under test:

■ - See System Under Test Information in Appendix B

Rationale for EUT setup / configuration:

ANSI C63.4

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Emission Test Results:

Conducted emissions 150 kHz - 30 MHz

The requirements are ☐ **- MET** ☐ **- NOT MET**

Minimum limit margin dB at MHz
Remarks: Against Average Limit

Radiated emissions (magnetic field) 10 kHz - 30 MHz

The requirements are ☐ **- MET** ☐ **- NOT MET**

Minimum limit margin dB at MHz
Remarks:

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are ■ **- MET** ☐ **- NOT MET**

Minimum limit margin **0.6** dB at **107.5** MHz
Remarks:

Interference Power at the mains and interface cables 30 MHz - 300 MHz

The requirements are ☐ **- MET** ☐ **- NOT MET**

Minimum limit margin dB at MHz
Remarks:

Radiated emissions 1 GHz - 1.08 GHz

The requirements are ■ **- MET** ☐ **- NOT MET**

Minimum limit margin **>10** dB at **all** GHz
Remarks:

Antenna Terminal Disturbance Voltage 30 MHz - 1,000 MHz

The requirements are ☐ **- MET** ☐ **- NOT MET**

Minimum limit margin dB at MHz
Remarks:

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GENERAL REMARKS:

The EUT was tested in (3) orthogonal planes.

Measurements were made up to the tenth harmonic of each frequency transmitted.

The EUT transmits at 200 kHz intervals starting at 88.1 MHz and ending at 107.9 MHz.

We tested at 88.7, 98.5 & 107.5 MHz. Data is reported for all (3) operating frequencies.

The line out port was never cabled during this "intentional radiator" testing because it shuts off the transmitter.

SUMMARY:

The requirements according to the technical regulations are

■ - met

□ - **not** met.

The device under test does

■ - fulfill the general approval requirements mentioned on page 3.

□ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date **Dec 15, 2005**

Testing End Date: **Dec 15, 2005**

- PRODUCT SAFETY ENGINEERING INC -

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Test-setup photo(s):
Conducted emission 150 kHz - 30 MHz

NA

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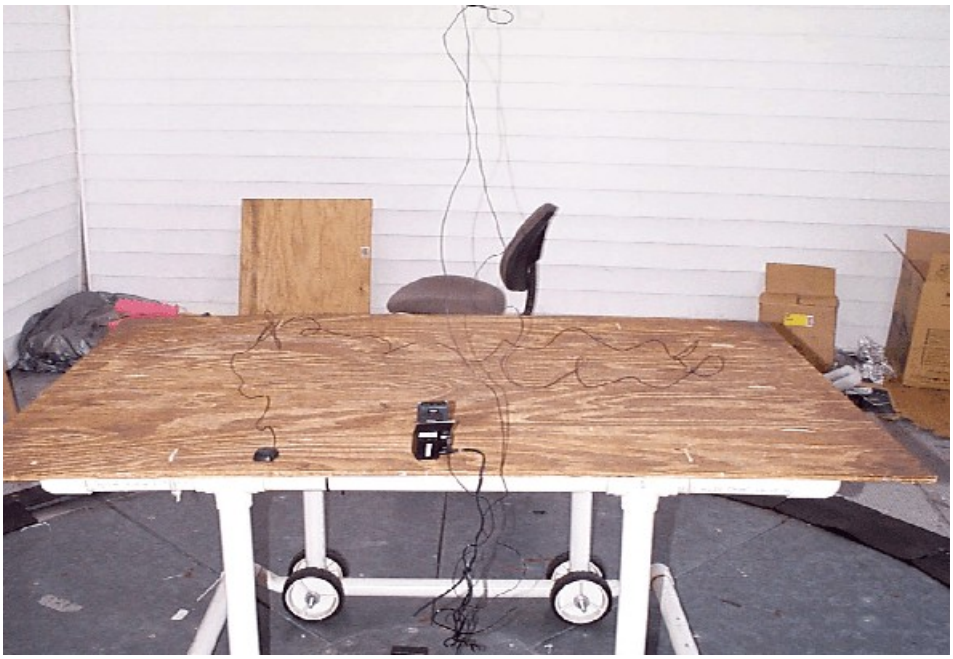
Test-setup photo(s):
Radiated emission 30 MHz - 1000 MHz



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APPENDIX

A

Test Equipment Calibration Information

&

Test Data Sheets

TEST EQUIPMENT CALIBRATION INFORMATION

Manufacturer	Model	Description	Serial Number	Cal Due
Hewlett Packard	8566B	Spectrum Analyzer	2421A00526	07/18/06
Hewlett Packard	85662A	Display	2403A07352	07/18/06
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00209	07/18/06
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06832	12/08/06
Hewlett Packard	8568B	Spectrum Analyzer	2407A03213	08/03/06
Hewlett Packard	85662A	Display	2340A05806	08/03/06
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00358	08/03/06
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06901	08/03/06
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	1937A03247	08/03/06
Hewlett Packard	8449B	Preamp 1 - 26.5 GHz	3008A00320	12/08/06
Hewlett Packard	8648B	Signal Generator	3443U00312	05/26/06
Hewlett Packard	8672A	Signal Generator	2211A02426	12/13/05
Eaton	96005	Log Periodic Antenna	1099	01/26/06
Electro-Metrics	LPA 30	Log Periodic Antenna	2280	01/11/06
Electro-Metrics	BIA 30	Biconical Antenna	3852	01/11/06
Electro-Metrics	BIA 25	Biconical Antenna	4283	01/27/06
Electro-Mechanics	3115	Double Ridge Guide Ant.	3810	11/28/07
Electro-Metrics	ALR30M	Magnetic Loop Antenna	824	01/10/06
Solar	8012	LISN	924840	03/10/06
Solar	8028	LISN	829012/809022	01/21/06
Solar	8028	LISN	903725/903726	11/22/06
Schwartzbeck	MDS-21	Absorbing Clamp	02581	12/09/05
Leader	LFG1310	Function Generator	8060233	05/26/06
Electro-Metrics	EMC-30	EMI Receiver	191	05/26/06
Antenna Research	ALA-130/A	Loop Antenna	106	06/02/06
Radio Shack	63-867	Temp/Hygrometer	N/A	05/27/06
Radio Shack	63-867A	Temp/Hygrometer	N/A	05/27/06

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PRODUCT EMISSIONS

PRODUCT SAFETY ENGINEERING Data File: PLAYER MOBILE FCC-B 12-15-2005

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	COMMENTS
1	88.726	43.5	45.9	2.4	QP	V	100	1	-19.3	
2	98.278	43.5	43.4	-0.1	QP	V	100	1	-16.2	
3	107.504	43.5	47.4	3.9	QP	V	100	1	-14.8	
4	177.402	43.5	28.1	-15.4	PK	V	100	1	N/T	
5	196.601	43.5	29.5	-14.0	PK	V	100	1	N/T	
6	215.000	43.5	23.1	-20.4	PK	V	100	1	-13.8	
7	266.100	46.0	18.5	-27.5	PK	V	100	1	-12.1	
8	294.900	46.0	17.6	-28.4	PK	V	100	1	-10.6	
9	322.503	46.0	21.1	-24.9	PK	V	100	1	-10.4	
10	354.800	46.0	17.6	-28.4	PK	V	100	1	-10.5	
11	393.200	46.0	19.2	-26.9	PK	V	100	1	-9.7	
12	430.000	46.0	21.3	-24.8	PK	V	100	1	-9.1	
13	443.499	46.0	20.8	-25.3	PK	V	100	1	-8.8	
14	491.500	46.0	28.2	-17.8	PK	V	100	1	-7.9	
15	532.200	46.0	22.6	-23.4	PK	V	100	1	-7.3	
16	537.500	46.0	24.6	-21.4	PK	V	100	1	-7.2	
17	589.799	46.0	23.3	-22.7	PK	V	100	1	-6.4	
18	620.900	46.0	28.3	-17.7	PK	V	100	1	-5.6	
19	645.000	46.0	24.1	-21.9	PK	V	100	1	-4.9	
20	688.099	46.0	26.4	-19.6	PK	V	100	1	-3.8	
21	709.600	46.0	25.4	-20.6	PK	V	100	1	-3.4	
22	752.500	46.0	24.7	-21.3	PK	V	100	1	-3.1	
23	786.400	46.0	26.2	-19.8	PK	V	100	1	-2.8	
24	798.307	46.0	25.6	-20.4	PK	V	100	1	-2.7	
25	860.000	46.0	29.9	-16.1	PK	V	100	1	-0.9	
26	884.700	46.0	28.1	-17.9	PK	V	100	1	-0.3	
27	887.000	46.0	29.3	-16.7	PK	V	100	1	-0.2	
28	967.501	54.0	28.7	-25.4	PK	V	100	1	1.	
29	983.000	54.0	29.0	-25.1	PK	V	100	1	1.3	
30	999.999	54.0	29.1	-24.9	PK	V	100	1	1.6	Mkr @ 1075 MHz

N/T in CORR FACTOR column denotes a non-traceable signal.

APPENDIX

B

System Under Test Description

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SYSTEM COMPONENTS

****

DEVICE TYPE: EUT, XM RADIO Mobile Cradel with FM Transmitter
MODEL# VA-CP200

****

DEVICE TYPE: EUT, XM RADIO Portable Satellite receiver model VP-X5X

****

DEVICE TYPE: EUT, XM RADIO Car power adapter

****

DEVICE TYPE: EUT, XM RADIO SATELLITE RADIO ANTENNA (MOBILE USE)

****

DEVICE TYPE:

****

DEVICE TYPE:

****

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INTERFACE CABLES

****

DEVICE TYPE: Car DC power adapter
SHIELD: no
LENGTH: 10 feet
CONNECTOR TYPE: mini jack
PORT: +5 input
****

DEVICE TYPE: MOBILE ANTENNA
SHIELD: COAX
LENGTH: 7 METERS
CONNECTOR TYPE: DEDICATED TO COAXIAL PLUG
PORT: ANTENNA IN ON MOBILE DOCKING STATION
****

DEVICE TYPE:
SHIELD: no
LENGTH:
CONNECTOR TYPE:
PORT:
****

DEVICE TYPE:
SHIELD:
LENGTH:
CONNECTOR TYPE:
PORT:
****

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AC LINE CORDS

****

DEVICE TYPE:
SHIELD:
LENGTH:
CONNECTOR TYPE:
****

DEVICE TYPE:
SHIELD:
LENGTH:
CONNECTOR TYPE:
****

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APPENDIX

C

Measurement Protocol

Product Safety Engineering, Inc 12955 Bellamy Brothers Blvd. Dade City, FL 33525
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The test methodology followed during the collection of the data included within this technical report was ANSI C63.4:1992.

The EUT was powered with (12) DC during the collection of data included within.

The data is compared to the FCC Part 15 Class B limits.

The "EMI" instrumentation is capable of calculating the final emission level based on the following formula:

Level at the receiver (dBµV) + Antenna Correction Factor (dB/M) + Cable Loss (dB) - Preamp Gain (dB) = Actual Level in dBµV/M.

The sample calculation below is based on the actual test data collected:

Observed Level		**63.3**	dBµV	
ACF	+	**8.7**	dB/M	
Cable Loss	+	**1.4**	dB	
Preamp Gain	–	**26.0**	dB	
Actual Level		**47.4**	dBµV/M	@ 107.5 MHz

Please have a company official review this report and sign.

_____

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