L.S. Compliance, Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012
262-375-4400 Fax: 262-375-4248

COMPLIANCE TESTING OF:

EVIRNET™ 2010© Hand-Held Interrogator

Prepared For:

Zonar Systems, L.L.C.
Attention: Mr. Mike McQuade
19518 International Boulevard
Seattle, WA 98188

Test Report Number:

304337-Tx TCB Rev. 1

Test Dates:

August 2ND , 2004

Table of Contents

1. L. S. Compliance In Review

L. S. Compliance, Inc. is located in Cedarburg, Wisconsin – United States.

We may be contacted by:

Mail: L. S. Compliance, Inc.
W66 N220 Commerce Court
Cedarburg, Wisconsin 53012

Phone: 262-375-4400
Fax: 262-375-4248
E-mail: eng@lsr.com

As an EMC Testing Laboratory, our Accreditation and Assessments are recognized through the following:

A2LA – American Association for Laboratory Accreditation
Accreditation based on ISO/IEC 17025 : 2001
with Electrical (EMC) Scope of Accreditation
A2LA Certificate Number: **1255.01**

U. S. Conformity Assessment Body (CAB) Validation
Validated by the European Commission as a U. S. Conformity Assessment Body operating under the U. S. /EU, Mutual Recognition Agreement (MRA) operating under the European Union EMC Directive 89/336/EEC, Article 10.2.
Date of Validation: **January 16, 2001**

Federal Communications Commission (FCC) – USA
Listing of 3 Meter Semi-Anechoic Chamber based on 47CFR 2.948
FCC Registration Number: **90756**

Listing of 3 and 10 meter OATS based on 47CFR 2.948
FCC Registration Number: **90757**

Industry Canada
On-file, 3 Meter Semi-Anechoic Chamber based on 47CFR 2.948
File Number: **IC 3088**

On-file 3 and 10 Meter OATS based on RSS-210
File Number: **IC 3088-A**

2. A2LA Certificate of Accreditation

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

L.S. COMPLIANCE, INC.
Cedarburg, WI

for technical competence in the field of

Electrical Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002 (1994).

Presented this 26th day of March 2003.

President
For the Accreditation Council
Certificate Number 1255.01
Valid to January 31, 2005

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

3. A2LA Scope of Accreditation

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

L.S. COMPLIANCE, INC.
W66 N220 Commerce Court
Cedarburg, WI 53012
James Blaha Phone: 262 375 4400

ELECTRICAL (EMC)

Valid to: January 31, 2005 Certificate Number: 1255-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests:

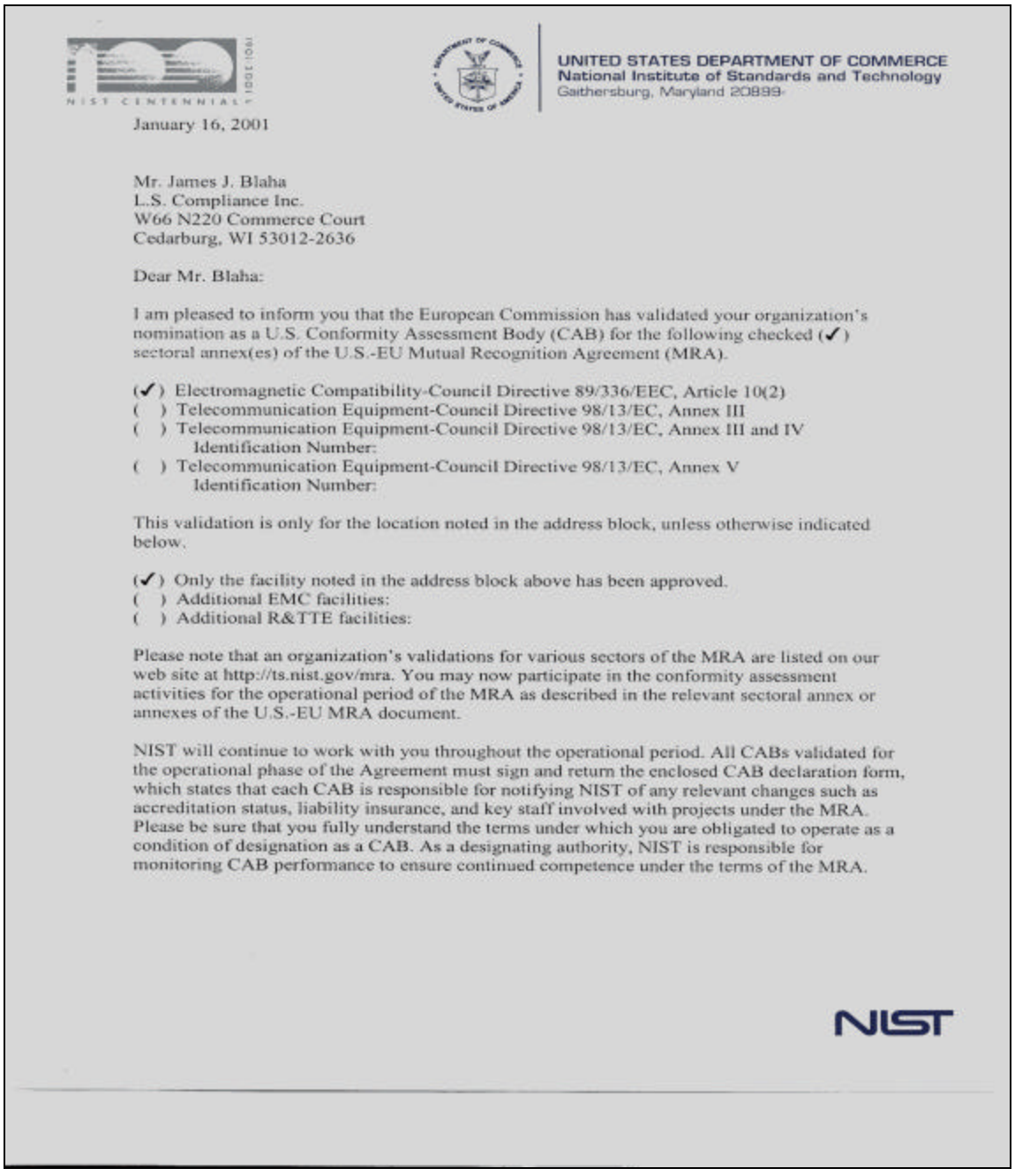
Test	Test Method(s)
Emissions	
Conducted	
Continuous/Discontinuous	Code of Federal Regulations (CFR) 47, FCC Method Parts 15, 18 using ANSI C63.4; EN: 55011, 55022, 50081-1, 50081-2; CISPR: 11, 12, 14-1, 22; CNS 13438
Radiated	Code of Federal Regulations (CFR) 47, FCC Method Parts 15, 18 using ANSI C63.4; EN: 55011, 55022, 50081-1, 50081-2; CISPR: 11, 12, 14-1, 22; CNS 13438
Current Harmonics	IEC 61000-3-2; EN 61000-3-2
Voltage Fluctuations & Flicker	IEC 61000-3-3; EN 61000-3-3
Immunity	EN: 50082-1, 50082-2 EN 61000-6-2 CISPR: 14-2, 24
Conducted Immunity	
Fast Transients/Burst	IEC 61000-4-4; EN 61000-4-4
Surge	IEC: 61000-4-5; ENV 50142; EN 61000-4-5
RF Fields	IEC: 61000-4-6; ENV 50141; EN 61000-4-6
Voltage Dips/Interruptions	IEC 61000-4-11; EN 61000-4-11

Roxanne M. Robinson

(A2LA Cert. No. 1255-01) 05/13/03 Page 1 of 2

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

4. Validation Letter – U.S. Competent Body for EMC Directive 89/336/EEC



UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

January 16, 2001

Mr. James J. Blaha
L.S. Compliance Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012-2636

Dear Mr. Blaha:

I am pleased to inform you that the European Commission has validated your organization's nomination as a U.S. Conformity Assessment Body (CAB) for the following checked (✓) sectoral annex(es) of the U.S.-EU Mutual Recognition Agreement (MRA).

(✓) Electromagnetic Compatibility-Council Directive 89/336/EEC, Article 10(2)
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III and IV
Identification Number:
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex V
Identification Number:

This validation is only for the location noted in the address block, unless otherwise indicated below.

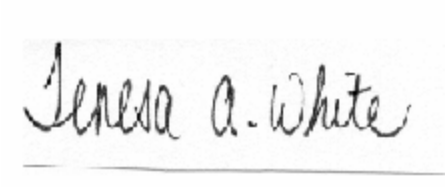
(✓) Only the facility noted in the address block above has been approved.
( ) Additional EMC facilities:
( ) Additional R&TTE facilities:

Please note that an organization's validations for various sectors of the MRA are listed on our web site at http://ts.nist.gov/mra. You may now participate in the conformity assessment activities for the operational period of the MRA as described in the relevant sectoral annex or annexes of the U.S.-EU MRA document.

NIST will continue to work with you throughout the operational period. All CABs validated for the operational phase of the Agreement must sign and return the enclosed CAB declaration form, which states that each CAB is responsible for notifying NIST of any relevant changes such as accreditation status, liability insurance, and key staff involved with projects under the MRA. Please be sure that you fully understand the terms under which you are obligated to operate as a condition of designation as a CAB. As a designating authority, NIST is responsible for monitoring CAB performance to ensure continued competence under the terms of the MRA.

NIST

5. Signature Page



Prepared By: **January 4, 2005**

Teresa A. White, Document Coordinator **Date**

Tested By: **January 4, 2005**

Abtin Spantman, EMC Engineer **Date**

Approved By: **January 4, 2005**

Kenneth L. Boston, EMC Lab Manager **Date**
PE #31926 Licensed Professional Engineer
Registered in the State of Wisconsin, United States

6. Product and General Information

Manufacturer:	Zonar Systems, LLC					
Date(s) of Test:	August 2ND , 2004					
Test Engineer(s):		Tom Smith	Ö	Abtin Spantman		Ken Boston
Model #:	EVIRNET™ 2010© Hand-Held Interrogator					
Serial #:	LSC-IN-2					
Voltage:	Internal 3.6 VDC Batteries, or 12VDC from the base Charger Unit					
Operation Mode:	Normal, and continuous transmit					

7. Introduction

On August 2ND, 2004, a series of Conducted and Radiated Emission tests were performed on one sample of the Zonar EVIRNET™ 2010© Hand-Held Interrogator, serial number LSC-IN-2, here forth referred to as the "*Equipment Under Test*" or "*EUT*". The data contained in this report is complementary to the data contained in L.S. Compliance report number 304340 (Test of the Zonar Remote Download Station 'RDS'), and uses the same download station sample as the charging station and peripheral attachments. These tests were performed using the procedures outlined in ANSI C63.4-2003 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.209 (Industry Canada RSS-210) for a low power transmitter. These tests were performed by Abtin Spantman, EMC Engineer of L.S. Compliance, Incorporated.

All Radiated and Conducted Emission tests were performed upon the EUT to measure the emissions in the frequency bands described in Title 47 CFR, FCC Part 15, including 15.35, 15.209 and Industry Canada RSS-210 to determine whether these emissions are below the limits expressed within the standards. These tests were performed in accordance with the procedures described in the American National Standard for methods of measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2003). Another document used as a reference for the EMI Receiver specification was the Comite International Special Des Perturbations Radioelelectriques (CISPR) Number 16-1, 2003.

All tests were performed at L.S. Compliance, Inc., in Cedarburg, Wisconsin, unless otherwise noted.

8. Product Description

The Zonar EVIRNET™ *2010© Hand-Held Interrogator* is an RFID Smart-Tag reader operating on a transmit frequency of 124.5 kHz.

The *2010© Hand-Held Interrogator* is part of a multi-component system to monitor, store and report safety inspection information. The *2010©* Interrogator is used in conjunction with RFID tags that would be placed in critical points of a vehicle, with automation software that prompts and aids the operator in record keeping. The *2010©* Interrogator operates on internal 3.6 VDC, 1500 mAh rechargeable batteries, while in use of recording inspection data. When the interrogator is not in use, it is placed in a "Remote Download Station (RDS)" that charges the batteries in the Interrogator, and allows for download of the collected inspection data via an RS-232 type serial link, to a computer with appropriate Zonar software. The 'RDS' uses a wall type transformer rated at 12 VDC, 1 A, as a power source.

Zonar EVIRNET™ *2010© Hand-Held Interrogator*

Sample Smart Tags and Operator Pass Card

Remote Download Station (RDS) and Charger

9. Test Requirements

FCC Requirement	FCC Part 15	Test Description
Title 47-CFR	FCC Part 15.209	Radiated RF Emissions
Title 47-CFR	FCC Part 15.207	Conducted RF Emissions

10. Summary of Test Report

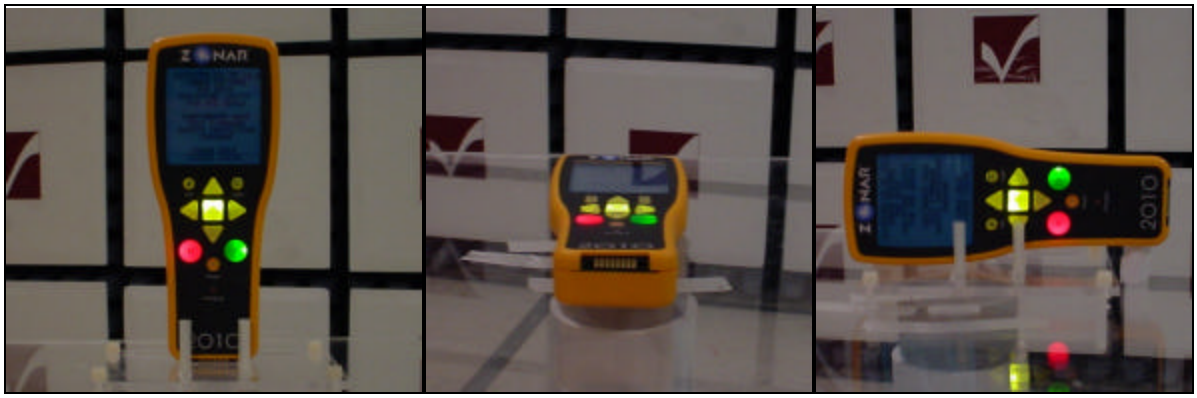
DECLARATION OF CONFORMITY

The EVIRNET™ 2010© Hand-Held Interrogator was found to **MEET** the requirements as described within the specification of Title 47 CFR FCC Parts 15.33(b)(2), 15.207, 15.209, and Industry Canada RSS-210, Section 6.2.2(c) for an intentional radiator.

11. Radiated RF Emissions Test

Test Setup

The test setup was assembled in accordance with Title 47, CRF FCC Part 15 and ANSI C63.4-2003. The EUT was placed on an 80cm high non-conductive pedestal centered on a flush mounted 2-meter diameter turntable inside the 3 Meter Semi-Anechoic, FCC listed Chamber located at L. S. Compliance, Inc., Cedarburg, Wisconsin. The EUT was operated in continuous transmit mode. The EUT was investigate as a stand-alone, in three orthogonal orientations with respect to the sense antenna, with fully charged batteries, with and without the spotlights on. The EUT was also investigated as placed in the 'RDS' cradle while the batteries were being charged, with and without communication through the RS-232 port.



Vertical **Horizontal** **Side**

Views of the three orthogonal orientations tested.

The highest RF emissions observed during the investigation was with the EUT in the 'RDS' cradle while the batteries were being charged, with the EUT communicating through the RS-232 port, and so was chosen as the setup for the final testing of the product. The applicable limits have been extrapolated for measurement at a 3 meter separation distance from the EUT. The calculations to determine these limits are detailed in the following pages.

Test Procedure

Preliminary radiation measurements were performed on the EUT in the 3 Meter FCC listed Semi-Anechoic, Chamber, located at L. S. Compliance, Inc. in Cedarburg, Wisconsin. The frequency range from 9 kHz to 1000 MHz was pre-scanned, and RF emission levels were manually noted at the various fixed degree settings of azimuth on the turntable and antenna height. The EUT was placed on the non-conductive pedestal in the 3 Meter Semi-Anechoic Chamber, with the antenna mast placed such that the antenna was 3 meters from the test object. An Active Loop Antenna was used to measure emissions from 9 kHz to 30 MHz, a Biconical Antenna was used to measure emissions from 25 MHz to 300 MHz, and a Log Periodic Antenna was used to measure emissions from 300 MHz to 1000 MHz. The attitude for maximum radiated RF emission was found while raising and lowering the antenna height between 1 and 4 meters, and changing the antenna polarization to horizontal and vertical.

Test Equipment Utilized

A list of the test equipment and antennas utilized for the Radiated Emissions test can be found in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. All calibrations of the antennas used were performed at a N.I.S.T. traceable site. In addition, the Connecting Cables were measured for losses using a calibrated Signal Generator and a HP 8546A EMI Receiver. The resulting correction factors and the cable loss factors from these calibrations were entered into the HP 8546A EMI Receiver database. As a result, the data taken from the HP 8546A EMI Receiver accounts for the antenna correction factor as well as cable loss or other corrections, and can therefore be entered into the database as a corrected meter reading. The HP 8546A EMI Receiver was operated with a bandwidth of 9 kHz (video bandwidth of 30 kHz) for measurements below 30 MHz, and a receiver bandwidth of 120 kHz (video bandwidth of 300 kHz) for measurements between 30 MHz and 1000 MHz. The Quasi-Peak Detector was used in this range of frequencies.

Test Results

The *EVIRNET™* 2010© Hand-Held Interrogator was found to **MEET** the Radiated Emissions requirements of Title 47 CFR, FCC Part 15.209 for an intentional radiator (Canada RSS-210). The frequencies with significant signals were recorded and plotted as shown in the Data Charts and Graphs.

CALCULATION OF RADIATED EMISSIONS LIMITS

The following table depicts the general emission limits for an intentional radiator. These limits are obtained from Title 47 CFR, Part 15.209(a), for radiated emissions measurements, for an intentional radiator.

Frequency (MHz)	3 m Limit (μV/m)	30 m Limit (μV/m)	300 m Limit (μV/m)	3 m Limit (dBμV/m)
(Note 1) 0.009-0.490	-	-	2400/F(kHz)	2400/F(kHz) + 80 dB
(Note 1) 0.490-1.705	-	24000/F(kHz)	-	24000/F(kHz) + 40 dB
(Note 1) 1.705-30.0	-	30.0	-	49.5
30-88	100	-	-	40.0
88-216	150	-	-	43.5
216-960	200	-	-	46.0
960-1000	500	-	-	54.0

(Note 1) Extrapolated from standard measurement distance to a 3 meter measurement distance.

Based on the above matrix, the allowable emission limit for the fundamental frequency of operation at 124.5 kHz would be:

Measurement Distance	3m	10m	30m
Fundamental Emission Limit	105.7 (dBμV/m)	84.7 (dBμV/m)	65.7 (dBμV/m)

Sample conversion from field strength μV/m to dBμV/m:

$dB\mu V/m = 20 \log_{10}$ (3m limit)

from 30-88 MHz for example: $dB\mu V/m = 20 \log_{10}$ (100)

$40.00\ dB\mu V/m = 20 \log_{10}$ (100)

To change from a measurement distance of 300 meters to a distance of 3.0 meter, a 40.0 dB/decade correction factor has been invoked.

$$80.0dB = 40xLog_{10}\left(\frac{300m}{3m}\right)$$

Note: Limits are rounded to the nearest whole number.

Summary of Results and Conclusions

Based on the procedures outlined in this report, and the test results, it can be determined that the EUT does **MEET** the emission requirements of Title 47 CFR, FCC Part 15, (Canada RSS-210) for an intentional radiator.

The enclosed test results pertain to the samples of the test item listed, and only for the tests performed per the data sheets. Any subsequent modification or changes to the test items could invalidate the data contained herein, and could therefore invalidate the findings of this report.

Measurements of Radiated RF Emissions

Test Standard: 47CFR, Part 15.209

Frequency Range Inspected: 9 kHz to 1000 MHz

Manufacturer:	Zonar Systems, LLC					
Date(s) of Test:	August 2ND , 2004					
Test Engineer(s):		Tom Smith	Ö	Abtin Spantman		Ken Boston
Model #:	EVIRNET™ 2010© Hand-Held Interrogator					
Serial #:	LSC-IN-2					
Voltage:	12VDC from the 'RDS' unit					
Operation Mode:	Normal, and continuous transmit					
EUT Power:	Ö	Single Phase 115VAC to supply		3 Phase ___VAC		
		Battery		Other:		
EUT Placement:	Ö	80cm non-conductive table		10cm Spacers		
EUT Test Location:	Ö	3 Meter Semi-Anechoic FCC Listed Chamber		3/10m OATS		
Measurements:		Pre-Compliance		Preliminary	Ö	Final
Detectors Used:	Ö	Peak	Ö	Quasi-Peak	Ö	Average

Environmental Conditions in the Lab:
Temperature: 20 – 25°C
Relative Humidity: 30 – 60 %

Test Equipment Used:
EMI Measurement Instrument: HP8546A and Agilent E4407B
Log Periodic Antenna: EMCO #93146
Horn Antenna: EMCO #3115
Biconical Antenna: EMCO 3110

The following table depicts the level of significant radiated RF fundamental and harmonic emissions

Frequency (MHz)	Antenna Polarity	Height (meters)	Azimuth (0° - 360°)	EMI Meter Reading (dBmV/m)	15.209 Limit (dBmV/m)	Margin (dB)
0.1245	V	1.00	0	73.8	105.7	31.9
0.2490	V	1.00	0	48.5	99.7	51.2
0.3735	V	1.00	0	44.4	96.2	51.8
0.4980	V	1.00	0	42.7	73.7	31.0
0.6225	V	1.00	0	40.5	71.7	31.2
0.7470	V	1.00	0	38.6	70.1	31.5
0.8715	V	1.00	0	37.1	68.8	31.7
0.9960	V	1.00	0	35.9	67.6	31.7
1.1205	V	1.00	0	34.6	66.6	32.0
1.2450	V	1.00	0	32.1	65.7	33.6
44.0	V	1.00	0	25.3	40.0	14.7

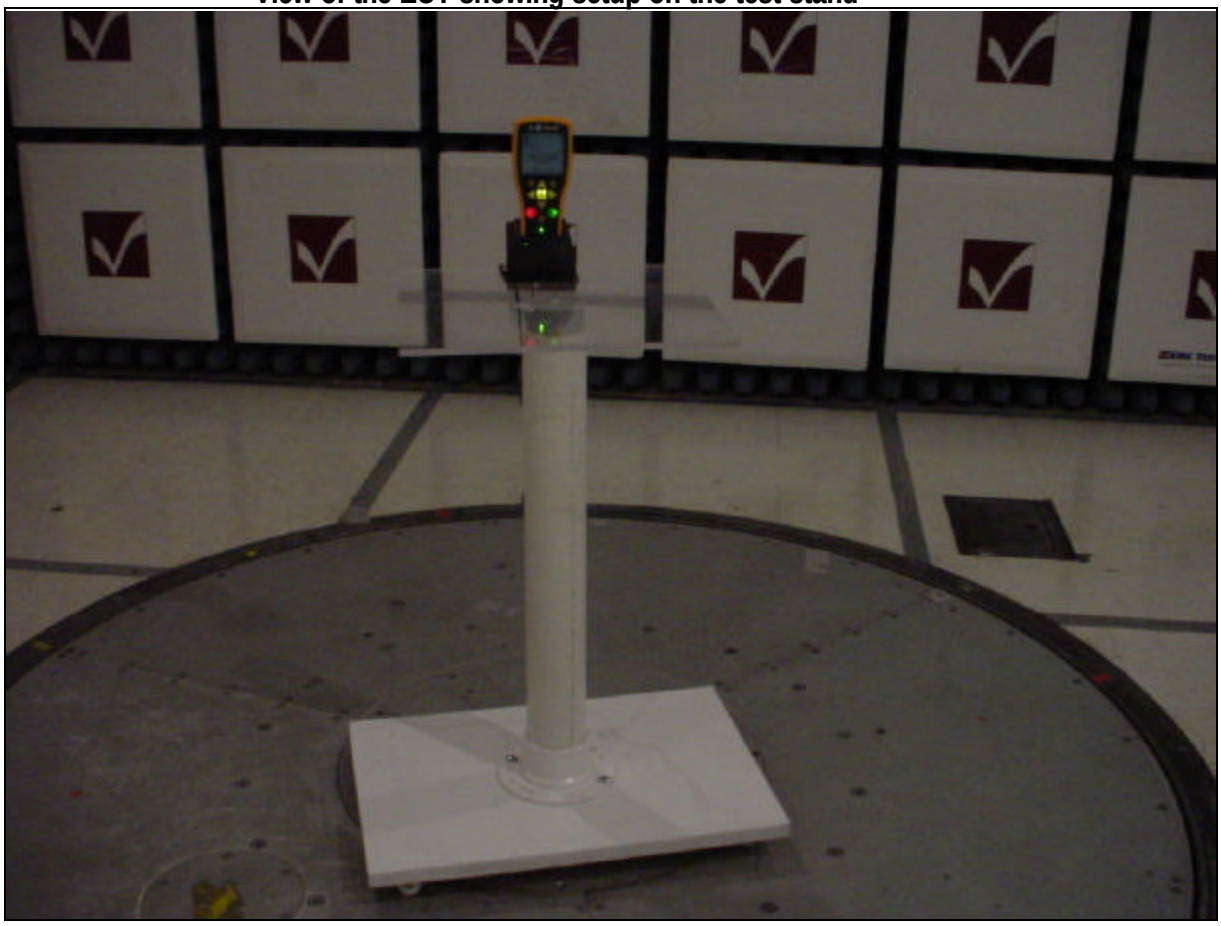
Notes:

1) An Average Detector, and a Quasi-Peak Detector were used in measurements below 30 MHz, and a Peak Detector as well as a Quasi-Peak Detector were used in measurements between 30 MHz and 1000 MHz. Only the results from the Quasi-Peak detector are published in the table above. The peak detector was used to ensure the peak emissions did not exceed 20 dB above the limits.

View of the EUT showing setup for worst-case RF emissions, with placed in the 'RDS' while the battery is being charged, and the EUT is communicating through the RS-232 port.

View of the EUT showing the spotlights on top of the unit

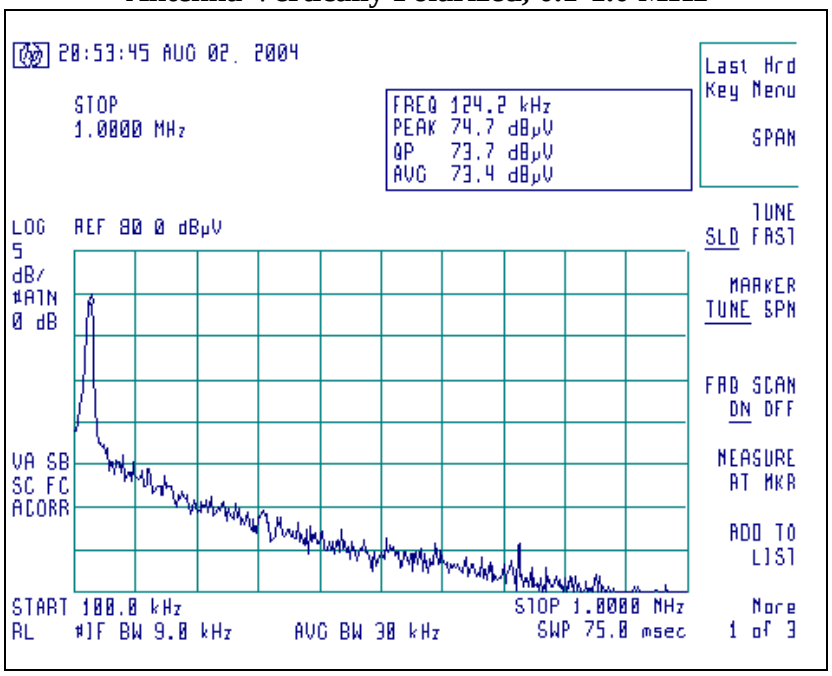
View of the EUT showing setup on the test stand



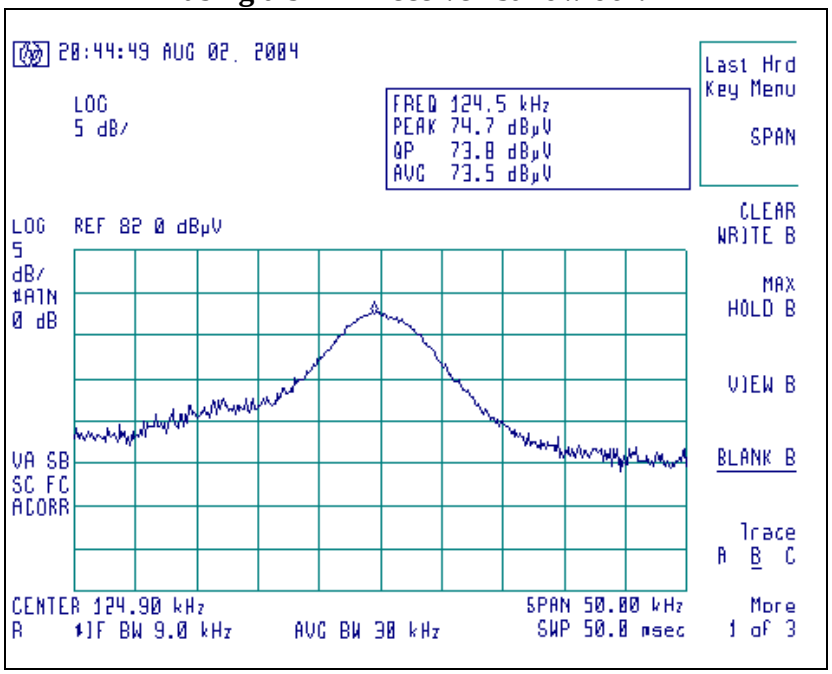
Screen Captures of Radiated RF Emissions:

Please note these screen captures represent Peak Emissions. For radiated emission measurements, we utilize a Quasi-Peak detector function when measuring frequencies below 1 GHz.

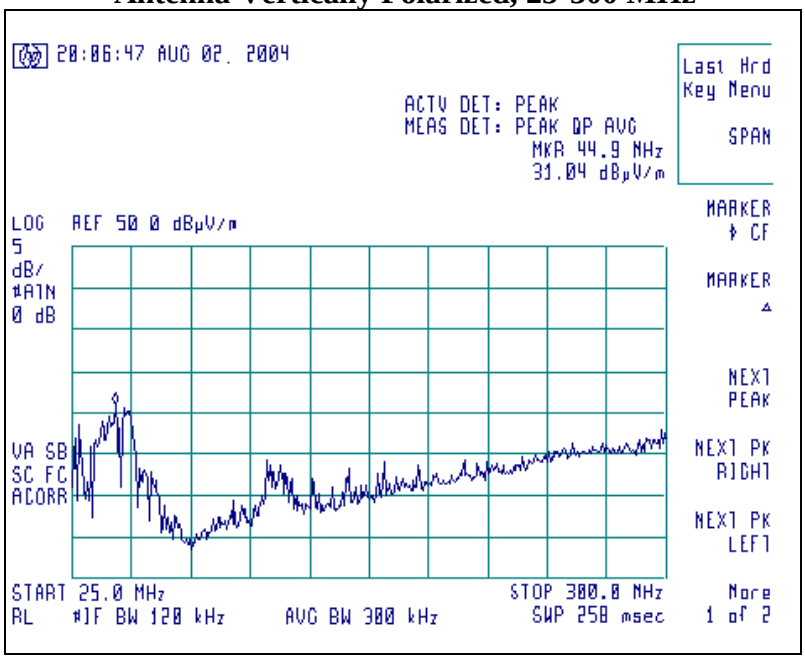
Antenna Vertically Polarized, 0.1-1.0 MHz



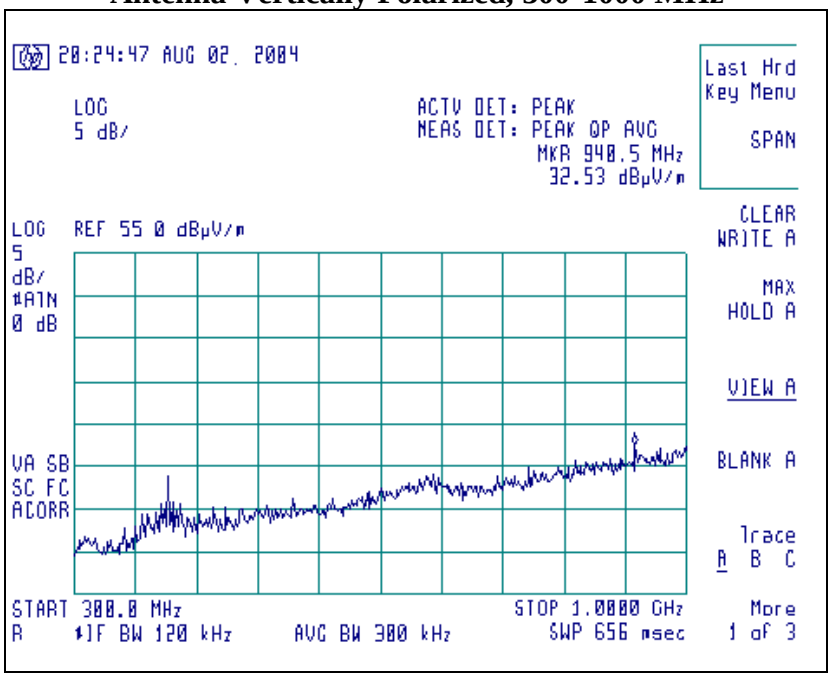
Antenna Vertically Polarized, showing the Fundamental Emission using a 9 kHz receiver bandwidth.



Antenna Vertically Polarized, 25-300 MHz



Antenna Vertically Polarized, 300-1000 MHz



12. Conducted Emissions Test, AC Power Line

Test Setup

The Conducted Emissions test was performed at L.S. Compliance, Inc. in Cedarburg, Wisconsin. The test area and setup are in accordance with ANSI C63.4-2003 and with Title 47 CFR, FCC Part 15 (Industry Canada RSS-210). The EUT was placed on a non-conductive wooden table, with a height of 80 cm above the reference ground plane. The EUT's were placed in the 'RDS' and the emissions were measured while the battery was charging and the EUT was in continuous transmit mode. The wall transformer for the 'RDS' was plugged into a 50Ω (ohm), 50/250 μH Line Impedance Stabilization Network (LISN). The AC power supply of 120V was provided inside the Shielded Room via an appropriate broadband EMI Filter, and then to the LISN line input. Final readings were then taken and recorded. After the EUT was setup and connected to the LISN, the RF Sampling Port of the LISN was connected to a 10 dB Attenuator-Limiter, and then to the HP 8546A EMI Receiver. The EMCO LISN used has the ability to terminate the unused port with a 50Ω (ohm) load when switched to either L1 (line) or L2 (neutral).

Test Procedure

The EUT was placed in continuous transmit mode for this portion of the testing. The appropriate frequency range and bandwidths were selected on the EMI Receiver, and measurements were made. The bandwidth used for these measurements is 9 kHz, as specified in CISPR 16-1 (2002), Section 1, Table 1, for Quasi-Peak and Average detectors in the frequency range of 150 kHz to 30MHz. Final readings were then taken and recorded.

Test Equipment Utilized

A list of the test equipment and accessories utilized for the Conducted Emissions test is provided in Appendix A. This list includes calibration information and equipment descriptions. All equipment is calibrated and used according to the operation manuals supplied by the manufacturers. Calibrations of the LISN and Limiter are traceable to N.I.S.T. All cables are calibrated and checked periodically for conformance. The emissions are measured on the HP 8546A EMI Receiver, which has automatic correction for all factors stored in memory and allows direct readings to be taken. Both the Quasi-Peak and Average detector functions were utilized.

Test Results

The EUT was found to **MEET** the Conducted Emission requirements of FCC Part 15, Conducted Emissions for an Intentional Radiator. See the Data Charts and Graphs for more details of the test results.

Calculation of Conducted Emissions Limits

The following table describes the Class **B** limits for an unintentional radiator. These limits are obtained from Title 47 CFR, Part 15.207 (a) for Conducted Emissions.

Frequency (MHz)	Quasi-Peak Limit (dBµV)	Average Limit (dBµV)
0.15 – 0.5	66 – 56 *(Note 1)*	56 – 46 *(Note 1)*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

(Note 1): Decreases with the logarithm of the frequency.

Sample calculation for the limits in the 0.15 to 0.5 MHz:

Limit = **-**19.12 (Log_{10} (F[MHz] / 0.15 [MHz])) + 66.0 dBµV

For a frequency of 200 kHz for example:

Quasi-Peak Limit (F=200kHz) = **-**19.12 (Log_{10} (0.2[MHz] / 0.15 [MHz])) + 66.0 dBµV

Quasi-Peak Limit (F=200kHz) = 63.6 dBµV

Average Limit (F=200kHz) = -19.12 (LOG_{10}(0.2[MHz]/0.15[MHz])) + 56.0 dBµV

Average Limit (F = 200 kHz) = 53.6 dBµV

Measurement of Electromagnetic Conducted Emission
In the Shielded Room

Frequency Range inspected: 150 KHz to 30 MHz

Manufacturer:	Zonar Systems, LLC							
Date(s) of Test:	August 2ND , 2004							
Test Engineer:		Tom Smith	Ö	Abtin Spantman		Ken Boston		
Model #:	EVIRNET™ 2010© Hand-Held Interrogator							
Serial #:	LSC-IN-2							
Voltage:	12VDC from the 'RDS' unit							
Operation Mode:	Normal, and continuous transmit							
Test Location:	Ö	Shielded Room				Chamber		
EUT Placed On:	Ö	40cm from Vertical Ground Plane				10cm Spacers		
	Ö	80cm above Ground Plane				Other:		
Measurements:		Pre-Compliance		Preliminary	Ö	Final		
Detectors Used:		Peak	Ö	Quasi-Peak	Ö	Average		

Environmental Conditions in the Lab:
Temperature: 20 – 25° C
Atmospheric Pressure: 86 kPa – 106 kPa
Relative Humidity: 30 – 60%

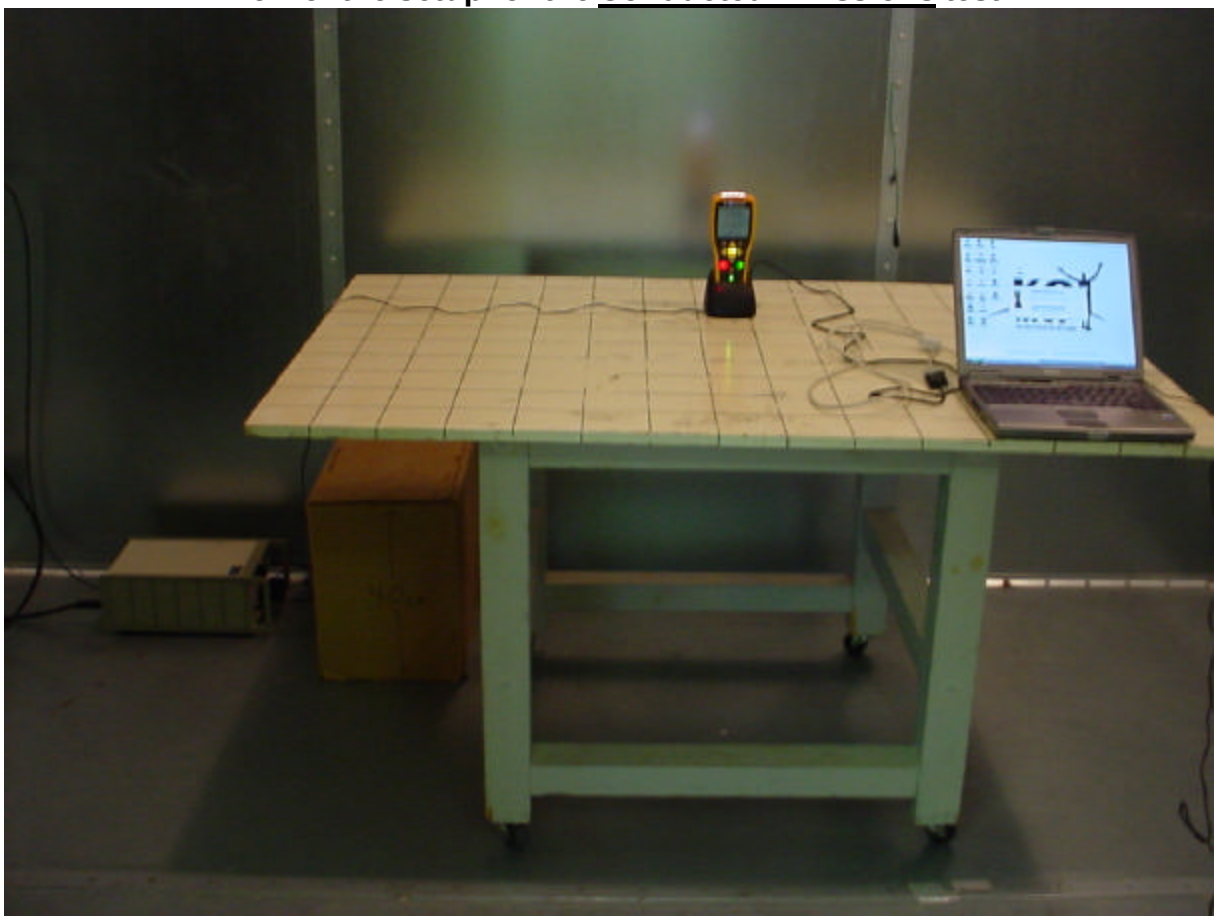
Test Equipment Utilized:
EMI Receiver: HP 8546A
LISN: EMCO 3816/2NM
Transient Limiter: HP 119474A

		QUASI-PEAK			AVERAGE		
Frequency (MHz)	Line	Q-Peak Reading (dBµV/m)	Q-Peak Limit (dBm V/m)	Quasi-Peak Margin (dB)	Average Reading (dBµV/m)	Average Limit (dBm V/m)	Average Margin (dB)
0.255	L1	46.8	61.5	14.7	45.1	51.5	6.4
0.511	L1	45.8	56.0	10.2	42.9	46.0	3.1
0.769	L1	44.0	56.0	12.0	40.5	46.0	5.5
1.787	L1	38.0	56.0	18.0	31.1	46.0	14.9
0.253	L2	49.4	61.6	12.2	48.1	51.6	3.5
0.505	L2	46.4	56.0	9.6	43.5	46.0	2.5
0.758	L2	40.0	56.0	16.0	35.7	46.0	10.3
1.508	L2	39.7	56.0	16.3	31.8	46.0	14.2

Notes:
1) All other emissions were better than 20 dB below the limits.

Photo(s) Taken During Conducted Emission Testing

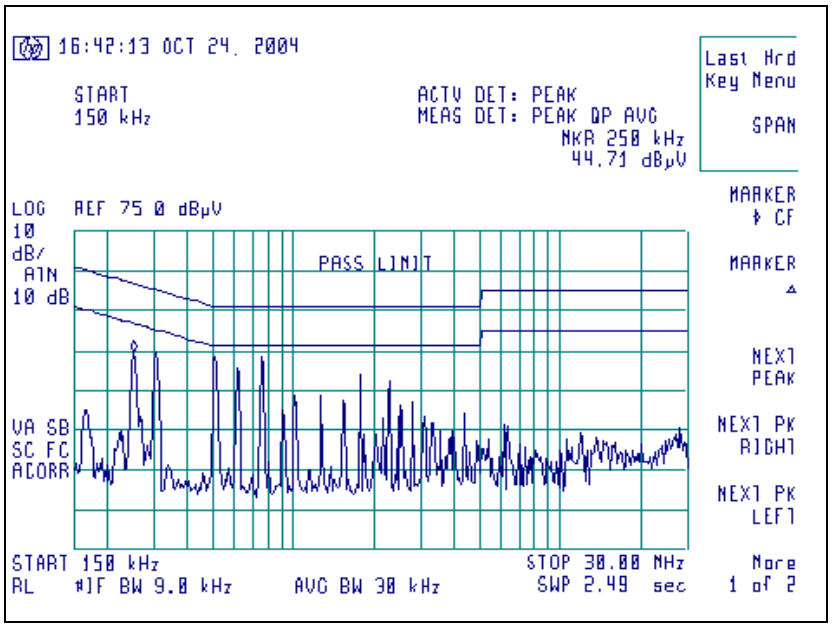
View of the setup for the Conducted Emissions test



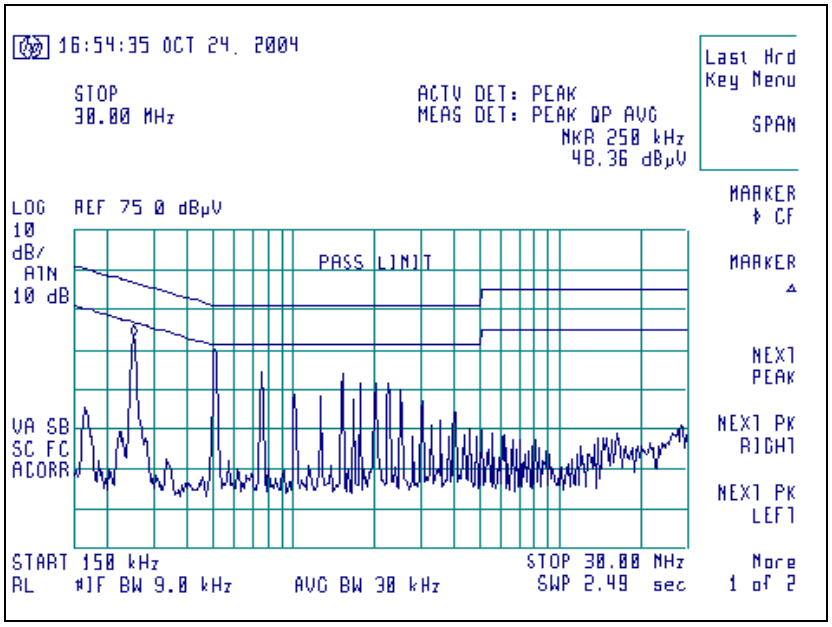
Screen Captures of Conducted AC Mains Emissions:

Please note these screen captures represent Peak Emissions. For conducted emission measurements, we utilize both a Quasi-Peak detector function as well as the Average detector function for measurements. The emissions must meet both the Quasi-peak limit and the Average limit as described in 47 CFR 15.209.

Line 1



Line 2



Appendix A

Test Equipment List

Asset #	Manufacturer	Model #	Serial #	Description	Calibration Information	
					Date	Due Date
AA960005	EMCO	3110B	9601-2280	Biconical Antenna	9-16-04	9-16-05
AA960006	EMCO	6502	9205-2753	Active Loop Antenna	9-16-04	9-16-05
AA960078	EMCO	93146	9701-4855	Log-Periodic Antenna	9-16-04	9-16-05
CC000221	HP	E4407b	Us39160256	26.5 GHz Spectrum Analyzer	12-07-04	12-07-05
EE960004	EMCO	2090	9607-1164	Device Controller	--	--
EE960013	HP	8546A	3617A00320	Receiver RF Section	9-16-04	9-16-05
EE960014	HP	85460A	3448A00296	Receiver Pre-Selector	9-04-03	9-04-04
N/A	LSC	Cable	0011	3 meter ½"Armored Cable	Note 1	Note 1
N/A	LSC	Cable	0038	1 meter RG 214 Cable	Note 1	Note 1
N/A	LSC	Cable	0050	10 meter RG 214 Cable	Note 1	Note 1
N/A	LSC	Attenuator		10 db Attenuator	Note 1	Note 1

Note 1: Equipment calibrated within an internal system.

Table of Expanded Uncertainty Values, (K=2) for Specified Measurements

Measurement Type	Particular Configuration	Uncertainty Values
Radiated Emissions	3 Meter Chamber, Biconical Antenna	4.24 dB
Radiated Emissions	3 Meter Chamber, Log Periodic Antenna	4.80 dB
Radiated Emissions	10 Meter OATS, Biconical Antenna	4.18 dB
Radiated Emissions	10 Meter OATS, Log Periodic Antenna	3.92 dB
Conducted Emissions	Shielded Room/EMCO LISN	1.60 dB
Radiated Immunity	3 Meter Chamber, 3 Volts/Meter	1.128 Volts/Meter
Conducted Immunity	3 Volt level	1.0 V