Science Applications International Corporation
Bell South Fleet Manager

Maximum Permissible Exposure (MPE) Evaluation Per IEEE/ANSI C95.1-1991

Date of Test
02 October 2002

Conducted For: Science Applications International Corporation
10260 Campus Point Drive
San Diego, CA 92121

Conducted By: Aegis Labs, Inc.
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CERTIFICATION OF TEST DATA

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual.

Testing and engineering functions provided by Aegis Labs are furnished through the use of part-time, full-time or consulting engineers with the appropriate qualifications to carry out their duties. Limits for testing are described under the referenced standards.

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the Equipment Under Test (EUT). The entity and/or person(s) for which this report has been prepared acknowledge that such the report - in its entirety - is for verification of the EUT to the requirements of FCC OET 65 & ANSI C95.1-1991.

The test results provided within this report are based upon the following global standards:

REFERENCE STANDARD	COMMENT
FCC OET Bulletin 65, Supplements A,B,C	N/A
ANSI/IEEE C95.1-1991	Uncontrolled Environment
ANSI/IEEE C95.3-1991	N/A

Prepared By:

10/02/02

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1.0 TEST REFERENCES:

Federal Communications Commission - *OET Bulletin 65 and Supplements A,B,C*
ANSI C95.1-1991 - *Safety Guideline for Human Exposure to RF Electromagnetic Fields*

2.0 EQUIPMENT SETUP REFERENCES:

Federal Communications Commission - *OET Bulletin 65 and Supplements A,B,C*
ANSI C95.3-1991 - *IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave*

2.1 Test Setup

The RIM / SAT were placed on an 80cm dielectric stand. The units were powered on and operational during testing. The satellite signal was acquired and the test data stream was generated on a laptop in HyperTerminal (19.2k baud, 8 bits, no parity) and was routed out Com1 to the RIM/SAT ICU. For testing, the ICU sent a continuous data stream to the appropriate antenna for transmission. The equipment setup information is given in Table 1.

2.2 Test Detection System

The test data collection system was a Broadband Isotropic Radiation Monitor - Narda Model 8616 – which has capability to measure RF fields in the 300kHz - 40GHz frequency range. The test probe – Narda model 8623D – was attached to the radiation meter. Both units were in current calibration (calibration due 03 February 2003).

2.3 Test Data

The test data collection was accomplished at a distance of 40cm from the perimeter of the EUT. A vertical plane of 0-to-2m was probed at 0.5 meter vertical increments on the 360° periphery of the EUT as the data stream was being transmitted by the EUT antenna. The data reported below were the highest readings received in each quadrant of the EUT periphery at a distance of 40cm and at the elevation stated.

The data were collected, corrected for the isotropic probe factor and are presented as corrected data in Table 2 herein. The MPE limit cited in the table is the ANSI C95.1-1991, Table 2 *"Maximum Permissible Exposure for Uncontrolled Environments".*

Table 1. Test Information

EUT & Mode:	*Model*	RIM with TriMode Antenna SAT with Sat Antenna
	Power [Max Rated] Watts	2
	Frequency MHz	RIM 896-902MHz SAT 1606-1681MHz
	Operating Mode: Signals Acquired & Transmitting	RIM with TriMode Antenna & SAT with Sat Antenna
Test Instruments:	*Radiation Meter*	Narda 8616 300kHz-40GHz
	E-Field Probe	Narda 8623D 300MHz-40GHz
ANSI C95.1 Limit: Uncontrolled Environment	*f/1500 mW/cm²*	0.6 @ 900MHz
	f/1500 mW/cm²	1.0707 @ 1600MHz
Measurement Distance:	*40cm*	

Test Data

MPE Data: Front Of Units	*Probe Elevation M*	*Probe Azimuth 000°*	*Power Density mW/cm²*
	RIM		**Limit 0.60**
	0.5	Front	0.05
	1.0	Front	0.05
	1.5	Front	0.05
	2.0	Front	0.05
	SAT MODEM		**Limit 1.07**
	0.5	Front	0.10
	1.0	Front	0.20
	1.5	Front	0.20
	2.0	Front	0.10
MPE Data: Right Side of Units	*Probe Elevation M*	*Probe Azimuth 090°*	*Power Density mW/cm²*
	RIM		**Limit 0.60**
	0.5	Right Side	0.1
	1.0	Right Side	0.1
	1.5	Right Side	0.15
	2.0	Right Side	0.15
	SAT MODEM		**Limit 1.07**
	0.5	Right Side	0.10
	1.0	Right Side	0.10
	1.5	Right Side	0.10
	2.0	Right Side	0.10
MPE Data: Left Side of Units	*Probe Elevation M*	*Probe Azimuth 270°*	*Power Density mW/cm²*
	RIM		**Limit 0.60**
	0.5	Left Side	0.10
	1.0	Left Side	0.10
	1.5	Left Side	0.10
	2.0	Left Side	0.10
	SAT MODEM		**Limit 1.07**
	0.5	Left Side	0.05
	1.0	Left Side	0.05
	1.5	Left Side	0.05
	2.0	Left Side	0.05
MPE Data: Rear of Units	*Probe Elevation M*	*Probe Azimuth 180°*	*Power Density mW/cm²*
	RIM		**Limit 0.60**
	0.5	Rear	0.05
	1.0	Rear	0.10
	1.5	Rear	0.10
	2.0	Rear	0.20
	SAT MODEM		**Limit 1.07**
	0.5	Rear	0.05
	1.0	Rear	0.20
	1.5	Rear	0.10
	2.0	Rear	0.10

3.0 CONCLUSION:

The RIM / SAT units were configured per ANSI C95.3-1991 & FCC OET 65. The units were evaluated in a typical configuration (satellite acquired and data transmitting) and exercised with a steady data transmissions stream. In this configuration, the RF Maximum Permissible Exposure (MPE) was measured in accordance with FCC OET 65 and ANSI C95.1-1991. The radiated electric field emissions were below the levels of MPE as stated in ANSI C95.1-1991, Table 2, for Uncontrolled Environments.