Underwriters Laboratories Inc.
1285 Walt Whitman Road
Melville, New York 11747-3081
(516) 271-6200

Report of Measurements
of Electromagnetic Compatibility Testing

Test Report File No.	:	**«File_Number»**	Date of issue: May 7, 1999
Applicant	:	«Company_InformationCompany_Name»	
Model / Serial No.	:	Sentinel –Prox. «Model_Number»	
Product Type	:	Doorframe «Product_Description»	
Power Supply	:	«Power_Requirements»	
Manufacturer	:	Same as Applicant	
License holder	:	Same as Applicant	
Address	:	«Street_Address»	
	:	«City», «State» «Zip_Code»	
FCC ID Number	:	OGSMR1824	
Test Result	:	☒ **Positive**	☐ **Negative**
Test Project Number	:	«Project_Number»	
References(s)			

Report Directory

1.0 G E N E R A L - Product Description

The Device is a Doorframe Proximity Reader which operates at 126 kHz and is powered by a DC source. This Radio Frequency Identification (RFID) reader or proximity reader uses radio frequency to identify, locate and track people and objects that carry the appropriate transponders. Proximity reader can work in none line-of-sight situations and in darkness, bright sunlight or through dirt, grime and smudges.

This Unit has a duty cycle of 50% on and 50% off. The MR1824 has a read range of 18 to 24 inches and operates with 600mA @ 12VDC.

1.1 Device Configuration During Test

The EUT was configured as a stand-alone device. Tests were performed with a 12VDC supply connected to the EUT.

1.1.1 Deviations from ANSI C63.4 Standard Test Set-up

☒ None

☐ As described below:

1.2 Device Modifications Necessary for Compliance

☒ N/A

☐ As described below:

Environmental conditions in the lab:

	Range
Temperature:	20-25°C
Relative Humidity	30 - 60 %
Atmospheric pressure	680 - 1060 mbar

2.0 EMISSIONS TEST REGULATIONS:

☐ EN 50081-1 /1992
☐ EN 50081-2 /1993
☐ EN 55011 / 3.1991 ☐ Group 1 ☐ Group 2
☐ Class A ☐ Class B
☐ EN 55013 / 6.1990
☐ EN 55014 / 2.1987 ☐ Household appliances and similar
☐ Portable tools
☐ Semiconductor devices

☐ EN 55014 / 12.1993 ☐ Household appliances and similar
☐ Portable tools
☐ Semiconductor devices

☐ EN 55015 / 1993
☐ EN 55022 / 4.1987 ☐ Class A ☐ Class B
☐ EN 55020 / 1994
☐ EN60555-2/1987, EN60555-3/1987
☐ EN61000-3-2, 1995, EN61000-3-3, 1995
☐ VCCI ☐ Class 1 ☐ Class 2
☐ FCC Part, 15, Subpart B ☐ Class A ☐ Class B
☒ FCC Part, 15, Subpart C, paragraphs 15.109, 15.209
☐ FCC Part 18
☐ CISPR 11 (1990)
☐ CISPR 14 (1993)
☐ CISPR 22
☐ DENTORI
☐ AS3548
☐ (OTHER) _____

2.1 EUT OPERATION MODE - EMISSIONS TESTS:

☐ Standby
☐ Test program (H-Pattern)
☐ Test program (color bar)
☐ Test program (customer specific)
☐ Practice operation
☒ Normal operation Mode: Continuous sense for entry badge.
☒ As per manufacturer's instructions
☐ other

2.1.1 Conducted Emissions Tests:

☐ **Test Applicable** ☒ **Test Not Applicable**

2.2.2 Radiated Emissions Test (10 Meter Semi-Anechoic Chamber):

☒ **Test Applicable** ☐ **Test Not Applicable**

All Data Pages located in Appendix A.

120kHz-30MHz Using Magnetic Loop Antenna
The measurement antenna distance ☒ 3 ☐ 10 meters from the EUT.

30MHz-1000MHz
The measurement antenna distance ☐ 3 ☒ 10 meters from the EUT.

Tests were performed on the transmitter in accordance with the limitations set forth by CFR47 FCC Part 15, Subpart B, Class A, Paragraph 15.209 and tested in accordance with the test procedures and methodologies in ANSI C63.4: 1992.

The EUT was checked throughout the frequency band 120KHz to 100MHz. The transmitter operated at 126KHz. The allowable field strength limits in accordance with 15.209 were applied to the frequency. All other emissions were tested in accordance with the general limitations in 15.209.

From 120KHz to 30MHz, measurements were made at a distance of 3 meters. The limit was adjusted using the 40dB/decade limit extrapolation method.

Test equipment used for final radiated emissions tests:

☒	**HP 8574A**	**Hewlett-Packard**	**EMI Receiver,**	**Equipment No.: ME5A-461**
	Consisting of:			
		☒ **HP - 8566B**	**Hewlett-Packard**	**Spectrum Analyzer,**
			Resolution BW: 1MHz	
			Video BW: 1MHz	
		☒ **HP - 85662A**	**Hewlett-Packard**	**Analyzer Display**
		☒ **HP - 85650A**	**Hewlett-Packard**	**Quasi-Peak Adapter,**
			BW: 120kHz	
		☒ **HP - 85685A**	**Hewlett-Packard**	**Preselector**
☐	**R3261C**	**Advantest**	**Spectrum Analyzer**	**Equipment No.: ME5A-228**
			Resolution BW: 1MHz	
			Video BW: 1MHz	
			QP BW: 120kHz	
☐	**R3551**	**Advantest**	**Pre-Selector**	**Equipment No.: ME5A-229**

For Measurements above 1GHz:

☒	**HP - 8566B**	**Hewlett-Packard Resolution BW: 1MHz Video BW: 1MHz**	**Spectrum Analyzer,**	**Equipment No.: ME5A-461**
☒	**HP - 85662A**	**Hewlett-Packard**	**Analyzer Display**	**Equipment No. ME5A-461**

Test Accessories:

☒	**6507**	**EMCO**	**Active Loop Antenna**	**Equipment No.: ME5A-288**
☒	**3104C**	**EMCO**	**Biconnical Antenna**	**Equipment No.: ME5-810**
☐	**94455-1**	**Ailtech**	**Biconnical Antenna**	**Equipment No.: ME5-439**
☐	**3146**	**EMCO**	**Log Periodic Antenna**	**Equipment No.: ME5-451**
☒	**3146**	**EMCO**	**Log Periodic Antenna**	**Equipment No.: ME5-811**
☐	**3142**	**EMCO**	**BiconiLog Antenna**	**Equipment No.:ME5A-131**
☐	**3142**	**EMCO**	**BiconiLog Antenna**	**Equipment No.:ME5A-261**

2.2.3 RFI Power Measurements:

☐ Test Applicable ☒ Test Not Applicable

2.2.4 Harmonic Disturbances:

☐ Test Applicable ☒ Test Not Applicable

2.3 EMISSIONS TEST RESULTS

☐ Conducted Emissions

☐Voltage(Section 2.1.1)	☐ MET	☐ NOT MET
☐ Current(Section 2.1.1)	☐ MET	☐ NOT MET
☐ Clicks(Section 2.1.2)	☐ MET	☐ NOT MET
☒ Radiated Emissions(Section 2.2.2)	☒ MET	☐ NOT MET
☐ RFI Power(Section 2.2.3)	☐ MET	☐ NOT MET

☐ Harmonic Disturbances

☐ Steady State(Section 2.2.4)	☐ MET	☐ NOT MET
☐ Fluctuating(Section 2.2.4)	☐ MET	☐ NOT MET

The tractability of the measurements contained in this report is achieved by the use of calibrated equipment which is traceable back to NIST.

3.0 IMMUNITY TEST REGULATIONS:

☒ NOT APPLICABLE

☐ EN50082-1:1992

☐ EN50082-2:1995

☐ EN55014-2: 1997

☐ FDA - Reviewer Guide

☐ Bellcore GR-1089, Core

☐ IEC 601-1-2

In accordance with:

☐	IEC 801-2,	☐ IEC 1000-4-2	Electrostatic Discharge (ESD)
☐	IEC 801-3,	☐ ENV50140	RF Immunity
☐	IEC 801-4,	☐ IEC 1000-4-4	Electrical Fast Transient (EFT)
☐	IEC 801-5,	☐ IEC 1000-4-5	Surge (Lighting)
☐	IEC 801-6,	☐ ENV50141	Conducted Immunity
☐	IEC 801-11,	☐ IEC 1000-4-11	Voltage Dips and Interruptions

3.1 EUT OPERATION MODE - IMMUNITY TESTS:

☒ NOT APPLICABLE
☐ Standby
☐ Test program (H-Pattern)
☐ Test program (color bar)
☐ Test program (customer specific)
☐ Practice operation
☐ Normal operating Mode:
☐ As per manufacture’s instructions

3.1.1 Electrostatic Discharge (ESD) Test:

☐ **Test Applicable** ☒ **Test Not Applicable**

3.1.2 Radiated Field (RF Immunity) Test:

☐ **Test Applicable** ☒ **Test Not Applicable**

3.1.3 Electrical Fast Transient (EFT)/Burst test:

☐ **Test Applicable** ☒ **Test Not Applicable**

3.1.4 Voltage Surge Test:

☐ **Test Applicable** ☒ **Test Not Applicable**

3.1.5 Conducted Immunity Test:

☐ **Test Applicable** ☒ **Test Not Applicable**

3.1.6 Voltage Dips and Interruptions:

☐ **Test Applicable** ☒ **Test Not Applicable**

4.0 SUMMARY:

The equipment under test has

☒ met the technical requirements as defined under section(s) ☒ 2.0 and ☐ 3.0.

☐ not met the technical requirements as defined under section(s) ☐ 2.0 and ☐ 3.0.

Test Start Date: «Date_Testing_Started»

Test Completion Date: «Date_Testing_Completed»

- UNDERWRITERS LABORATORIES, INC. -

Project Engineer	Reviewer
«Project_Handler» (Ext.23294)	«Reviewer» (Ext.22452)
EMC Senior Engineering Assistant	EMC Engineering Team Leader
International EMC Services	International EMC Services
Engineering Services-3014AMEL	Engineering Services-3014AMEL