

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)

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1.0 GENERAL - 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.

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Model Number: MR1824
FCC ID: OGSMR1824

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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:

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

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2.0 EMISSIONS TEST REGULATIONS:

- | | | |
|--|---|----------------------------------|
| <input type="checkbox"/> EN 50081-1 /1992 | | |
| <input type="checkbox"/> EN 50081-2 /1993 | | |
| <input type="checkbox"/> EN 55011 / 3.1991 | <input type="checkbox"/> Group 1 | <input type="checkbox"/> Group 2 |
| | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55013 / 6.1990 | | |
| <input type="checkbox"/> EN 55014 / 2.1987 | <input type="checkbox"/> Household appliances and similar | |
| | <input type="checkbox"/> Portable tools | |
| | <input type="checkbox"/> Semiconductor devices | |
|
 | | |
| <input type="checkbox"/> EN 55014 / 12.1993 | <input type="checkbox"/> Household appliances and similar | |
| | <input type="checkbox"/> Portable tools | |
| | <input type="checkbox"/> Semiconductor devices | |
|
 | | |
| <input type="checkbox"/> EN 55015 / 1993 | | |
| <input type="checkbox"/> EN 55022 / 4.1987 | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> EN 55020 / 1994 | | |
| <input type="checkbox"/> EN60555-2/1987, EN60555-3/1987 | | |
| <input type="checkbox"/> EN61000-3-2, 1995, EN61000-3-3, 1995 | | |
| <input type="checkbox"/> VCCI | <input type="checkbox"/> Class 1 | <input type="checkbox"/> Class 2 |
| <input type="checkbox"/> FCC Part, 15, Subpart B | <input type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input checked="" type="checkbox"/> FCC Part, 15, Subpart C, paragraphs 15.109, 15.209 | | |
| <input type="checkbox"/> FCC Part 18 | | |
| <input type="checkbox"/> CISPR 11 (1990) | | |
| <input type="checkbox"/> CISPR 14 (1993) | | |
| <input type="checkbox"/> CISPR 22 | | |
| <input type="checkbox"/> DENTORI | | |
| <input type="checkbox"/> AS3548 | | |
| <input type="checkbox"/> (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

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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:

<input checked="" type="checkbox"/> HP 8574A	Hewlett-Packard	EMI Receiver,	Equipment No.: ME5A-461
Consisting of:			
	<input checked="" type="checkbox"/> HP - 8566B	Hewlett-Packard	Spectrum Analyzer,
		Resolution BW: 1MHz	
		Video BW: 1MHz	
	<input checked="" type="checkbox"/> HP - 85662A	Hewlett-Packard	Analyzer Display
	<input checked="" type="checkbox"/> HP - 85650A	Hewlett-Packard	Quasi-Peak Adapter,
		BW: 120kHz	
	<input checked="" type="checkbox"/> HP - 85685A	Hewlett-Packard	Preselector
<input type="checkbox"/> R3261C	Advantest	Spectrum Analyzer	Equipment No.: ME5A-228
		Resolution BW: 1MHz	
		Video BW: 1MHz	
		QP BW: 120kHz	
<input type="checkbox"/> R3551	Advantest	Pre-Selector	Equipment No.: ME5A-229

For Measurements above 1GHz:

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<input checked="" type="checkbox"/> HP - 8566B	Hewlett-Packard Resolution BW: 1MHz Video BW: 1MHz	Spectrum Analyzer,	Equipment No.: ME5A-461
<input checked="" type="checkbox"/> HP - 85662A	Hewlett-Packard	Analyzer Display	Equipment No. ME5A-461

Test Accessories:

<input checked="" type="checkbox"/> 6507	EMCO	Active Loop Antenna	Equipment No.: ME5A-288
<input checked="" type="checkbox"/> 3104C	EMCO	Biconnical Antenna	Equipment No.: ME5-810
<input type="checkbox"/> 94455-1	Ailtech	Biconnical Antenna	Equipment No.: ME5-439
<input type="checkbox"/> 3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-451
<input checked="" type="checkbox"/> 3146	EMCO	Log Periodic Antenna	Equipment No.: ME5-811
<input type="checkbox"/> 3142	EMCO	BiconiLog Antenna	Equipment No.:ME5A-131
<input type="checkbox"/> 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

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2.3 EMISSIONS TEST RESULTS

☐ Conducted Emissions

<input type="checkbox"/> Voltage(Section 2.1.1)	<input type="checkbox"/> MET	<input type="checkbox"/> NOT MET
<input type="checkbox"/> Current(Section 2.1.1)	<input type="checkbox"/> MET	<input type="checkbox"/> NOT MET
<input type="checkbox"/> Clicks(Section 2.1.2)	<input type="checkbox"/> MET	<input type="checkbox"/> NOT MET

<input checked="" type="checkbox"/> Radiated Emissions(Section 2.2.2)	<input checked="" type="checkbox"/> MET	<input type="checkbox"/> NOT MET
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<input type="checkbox"/> RFI Power(Section 2.2.3)	<input type="checkbox"/> MET	<input type="checkbox"/> NOT MET
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☐ Harmonic Disturbances

<input type="checkbox"/> Steady State(Section 2.2.4)	<input type="checkbox"/> MET	<input type="checkbox"/> NOT MET
<input type="checkbox"/> Fluctuating(Section 2.2.4)	<input type="checkbox"/> MET	<input type="checkbox"/> 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.

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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:

- | | | |
|--------------------------------------|--|---------------------------------|
| <input type="checkbox"/> IEC 801-2, | <input type="checkbox"/> IEC 1000-4-2 | Electrostatic Discharge (ESD) |
| <input type="checkbox"/> IEC 801-3, | <input type="checkbox"/> ENV50140 | RF Immunity |
| <input type="checkbox"/> IEC 801-4, | <input type="checkbox"/> IEC 1000-4-4 | Electrical Fast Transient (EFT) |
| <input type="checkbox"/> IEC 801-5, | <input type="checkbox"/> IEC 1000-4-5 | Surge (Lighting) |
| <input type="checkbox"/> IEC 801-6, | <input type="checkbox"/> ENV50141 | Conducted Immunity |
| <input type="checkbox"/> IEC 801-11, | <input type="checkbox"/> 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

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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

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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)
EMC Senior Engineering Assistant
International EMC Services
Engineering Services-3014AMEL

«Reviewer» (Ext.22452)
EMC Engineering Team Leader
International EMC Services
Engineering Services-3014AMEL