

Report of Measurements of Electromagnetic Compatibility Testing

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Report Directory

<u>Title</u>	<u>Section</u>
☒ General Product Description	1.0
☒ Device Configuration During Test	1.1
☐ Deviations from ANSI C63.4 Standard Test Set-up	1.1.1
☐ Device Modifications	1.2
☒ Emissions Test Regulations	2.0
☒ Operational Mode	2.1
☒ Conducted Emissions (Voltage and Current)	2.1.1
☐ Conducted Click Emissions	2.1.2
☐ Reserved for Future Use	2.2.1
☒ Radiated Emissions Test (10 Meter Semi-Anechoic Chamber)	2.2.2
☐ RFI Power Measurements	2.2.3
☐ Harmonic Disturbances	2.2.4
☒ Emissions Test Results	2.3
☐ Immunity Test Regulations	3.0
☐ Operational Mode	3.1
☐ Electrostatic Discharge (ESD) Test	3.1.1
☐ Radiated Field (RF) Test	3.1.2
☐ Electrical Fast Transient (EFT)/Burst Test	3.1.3
☐ Surge Transient Tests	3.1.4
☐ Conducted Immunity Tests	3.1.5
☐ Voltage, Dips and Interruptions	3.1.6
☐ Immunity Test Results	3.2
☒ Summary of Test Results	4.0
☒ Emissions Test Data Pages	Appendix A
☒ Photographs and Diagrams	Appendix B

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.

File Number: BP7169
Project Number: 99ME34584
Model Number: MR1824
FCC ID: OGSMR1824

Issued: May 7, 1999

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:

- | | | |
|--|---|----------------------------------|
| ☐ 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

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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:

☒ 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:

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

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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
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☐ RFI Power(Section 2.2.3)	☐ MET	☐ NOT MET
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☐ 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.

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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:

- | | | |
|--------------------------------------|--|---------------------------------|
| ☐ 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

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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»

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