MOTOROLA

Systems Solutions Group
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Exhibit 11 – RF Exposure Information

Motorola M-Smart MultiPass™

13.56 MHz Smartcard

Access Control Reader

FCC ID: E9UMP1000

Model No. MP-1000

11.0 RF Exposure Information

The M-Smart MultiPass™ Access Control Reader complies with human radiation emission requirements. These requirements are based on the Maximum Permissible Exposure (MPE) levels of ANSI/IEEE C95.1-1992 and 47 CFR 1.1310, Table 1 for an uncontrolled environment.

The access control reader is a low power device intended to be used in a fixed location. The access control reader can arguably fit the definition of a portable device as defined in 47 CFR 2.1093(b) (i.e. "designed to be used so that the radiating structure of the device is within 20 cm of the body of the user", specifically the hand). However, it does not fit any of the equipment classification criteria for portable devices requiring SAR testing as defined in 47 CFR 2.1093(c). All other portable transmitting devices "are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use" per 2.1093(c) which includes the Access Control Reader.

RF Energy Exposure Assessment Record

Product or Equipment Name: M-Smart MultiPass™ Smartcard Reader Date: 8 May 2000

Program/Project Contact Person: Gilbert Roque Phone: (408) 383-4074

M/D: CA48

Location of Product/Equipment: Fixed locations

1. RF Emitting Product or Equipment Description

Manufacturer: Motorola Indala

Model: M-Smart MultiPass™ Serial Number: N*06500105

Describe the product or equipment, the environment(s) where it is used, and information about operators and others who might be exposed to its emitted RF energy.

The access control reader is a low power device intended to be installed at a permanent or fixed location. The access control reader can arguably fit the definition of a portable device as defined in 47 CFR 2.1093(b) (i.e. "designed to be used so that the radiating structure of the device is within 20 cm of the body of the user", specifically the hand). However, it does not fit any of the equipment classification criteria for portable devices requiring SAR testing as defined in 47 CFR 2.1093(c). All other portable transmitting devices "are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use" per 2.1093(c) which includes the Access Control Reader.

Frequencies of Operation (MHz): 13.56 MHz

Maximum Output Power Level (Watts): < 7.2 mW EIRP

Modulation Characteristics: 10% ASK

If pulsed; Pulse duration: N/A Pulse repetition frequency (PRF): N/A

Duty cycle: 100%

Antenna description: Loop antenna, multiple-turns

Antenna gain: N/A

Failure Modes

Are there credible failure modes in the product or equipment (hardware, software) or operations (controls, procedures, human error) that could cause the average output power to increase above the normal operating level?

Yes _____ No **X**

If Yes, describe the failure mode, probability of occurrence of the failure, and the expected level of output power.

Figure 11-1 RF Energy Exposure Assessment Record (1 of 3)

2. Maximum Permissible Exposure (MPE) Levels

MPE Levels based on ANSI/IEEE C95.1-1992 and 47 CFR 1.1310, Table 1 requirements, unless otherwise specified.

	Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Plane Wave Equiv. Power Density (S) (mW/cm^2)	Specific Absorption Rate (SAR) (mW/g)
Controlled Environment	N/A	N/A	N/A	N/A	N/A
Uncontrolled Environment	13.56	60.77	0.1615	N/A	N/A

Induced Current (mA): Both Feet 90 Each Foot N/A Frequency 13.56 MHz

Contact Current (mA): 45 Frequency 13.56 MHz

3. Measurement Results

Applicable Document: Radio Frequency (RF) Energy Exposure Test Procedure, Rev E.

	Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Plane Wave Equiv. Power Density (S) (mW/cm^2)	Specific Absorption Rate (SAR) (mW/g)
Controlled Environment	N/A	N/A	N/A	N/A	N/A
Uncontrolled Environment	13.56	6.5	0.02	N/A	N/A

Induced Current (mA): Both Feet 1.75 Each Foot 1.74 Frequency 13.56 MHz

Contact Current (mA): 3.4 Frequency 13.56 MHz

Is the Maximum Permissible Exposure Level for an uncontrolled environment exceeded?

Yes _____ No **X** If Yes, provide drawings to show the boundaries of the Restricted Access Area.

Is the Maximum Permissible Exposure Level for a controlled environment exceeded?

Yes _____ No **X** If Yes, define and implement necessary controls.

Figure 11-2 RF Energy Exposure Assessment Record (2 of 3)

4. RF Energy Measurement Equipment

Manufacturer	Description	Model	Asset No.	Date of Last Cal.	Cal. Due Date
Narda	Probe, H-Field, 10MHz-300MHz	8731	G52449	06/03/99	06/30/00
Narda	Probe, E-Field, 300kHz-40GHz	8741	T57980	04/26/00	04/30/01
Narda	Electromagnetic Survey Meter	8718	G58802	04/06/00	04/30/01
Narda	Human Body Antenna	8858	N/A	N/A	N/A
Narda	Induced Current Meter	8850	G52446	02/02/00	02/28/01
Boonton	RMS Voltmeter	92EA	G52041	11/10/99	05/31/01

Measurements made by: Harry Gaul Date: 9 May 2000

5. Required Hazard Controls

Fully describe all hazard controls to be implemented. Provide drawings and other attachments, as necessary, to describe Restricted Access Areas.

None required for its present configuration and intended state of use.

6. Review & Approval

_____ Date: _____
Project Leader

_____ Date: _____
Program / Product Manager

_____ Date: _____
Division Product Safety Representative

_____ Date: _____
Responsible Area Manager

_____ Date: _____
SSS RF Engineer

_____ Date: _____
Radiation Safety Officer

Figure 11-3 RF Energy Exposure Assessment Record (3 of 3)