TEST REPORT

Testing Certification # 1367-01

Laboratory ID	Submitter ID
PRODUCT SAFETY ENGINEERING, INC.	Disc Ice LLC
12955 Bellamy Brothers Boulevard	7603 Weeping Willow Circle
Dade City, Florida 33525 USA	
PH (352) 588-2209 FX (352) 588-2544	Sarasota, FL 34241

Report Issue Date: August 18, 2009
Sample S/N: 300226
Sample Receipt Date: July 17, 2009
Sample Test Date: see data sheets

Test Report Number: 09F345C
Model Designation: Disc Ice
Product Description: PC Access Control

Description of non-standard test method or test practice: ***None***

Estimated Measurement Uncertainty: ***Not Applicable***

Special limitations of use: ***None***

Traceability: ***reference standards of measurement have been calibrated by a competent body using standards traceable to the NIST.***

According to testing performed at Product Safety Engineering, Inc., the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in regulations indicated on page (3) of the test report. The test results contained herein relate only to the model(s) identified above. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

As the responsible EMC Project Engineer, I hereby declare that the equipment tested as specified above conforms to the requirements indicated on page (3) of the test report.

Signature _____ Name David Foerstner

Title Test Engineer Date August 18, 2009

Reviewed by:
Approved Signatory August 18, 2009

D I R E C T O R Y - EMISSIONS

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

□ - EN 61000-6-3:2001

□ - EN 61000-6-4:2001

□ - EN 55011 : 2006 /A2:2007	□ - Group 1	□ - Group 2
	□ - Class A	□ - Class B
□ - EN 55013 : 1990 / A12:1994 / A13:1996 / A14:1999		
□ - EN 55014 -1: 2001/A1:2001 A2:2002	□ - Household appliances and similar	
	□ - Portable tools	
	□ - Semiconductor devices	
□ - EN 55022:2006	□ - Class A	□ - Class B
□ -AS/NZS CISPR 22:2006	□ - Class A	□ - Class B
□ - ICES-003	□ - Class A	□ - Class B
□ - CNS 13438	□ - Class A	□ - Class B
□ - VCCI V-3/2007.4	□ - Class A	□ - Class B
■ - FCC Part 15.249 (per ANSI C63.4:2003)	□ - Class A	□ - Class B
	■ - Certification □ - Verification □ - Declaration of Conformity	

□ - FCC Part 18 (per FCC MP-5)

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Environmental conditions during testing:

	LAB	OATS
Temperature: *	_____	: _____
Relative Humidity: **	_____	: _____

* The ambient temperature during the testing was within the range of (50° - 104° F) unless indicted above.
** The humidity levels during the testing was within the range of (10% - 90%) relative humidity unless indicated above.

Power supply system : * Volts _____ Hz SINGLE phase

Internal battery

Sign Explanations:

□ - not applicable
■ - applicable

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Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)* measurements were performed at the following test location:

■ - Test not applicable

□ - Darby Test Site (Open Area Test Site)
□ - Darby Laboratory

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	8028-50	Solar	50 Ω LISN	829012, 829022
□ -	3825/2	Solar	50 Ω LISN	924840
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	85662A	Hewlett Packard	Analyzer Display	2403A07352
□ -	8028-50	Solar	50 Ω LISN	903725, 903726
□ -	FCC-TLISN-T4-02	Fisher Custom Com.	Telecom ISN	20454
□ -	FCC-TLISN-T8-02	Fisher Custom Com.	Telecom ISN	20452

Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

□ - Darby Test Site (Open Area Test Site)
□ -
□ -

at a test distance of :

□ - 3 meters
□ - 30 meters

■ - Test not applicable

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	3148	EMCO	Log Periodic Antenna	00044783
□ -	BIA-25	Electro-Metrics	Biconical Antenna	4283
□ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
□ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
□ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	ALR-30M	Electro-Metrics	Loop Antenna	824
□ -	8447D	Hewlett Packard	Preamplifier	2944A06832
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	ALA-130/A	Antenna Research	Loop Antenna	106

Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

□ - Test not applicable

■ - Darby Site (Open Area Test Site)
□ - Darby Lab
□ -

at a test distance of :

■ - 3 meters
□ - 10 meters
□ - 30 meters

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	HLP 3003C	EMC Automation	Hybrid Periodic Antenna	017501
■ -	8447D	Hewlett-Packard	Preamplifier (26dB)	2944A06832
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
□ -	BIA 25	Electro-Metrics	Biconical Antenna	4283
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	8568B	Hewlett Packard	Spectrum Analyzer	2407A03213
□ -	85650A	Hewlett Packard	Quasi-Peak Adapter	2043A00358
□ -	85662A	Hewlett Packard	Analyzer Display	2340A05806
■ -	LPA30	Electro-Metrics	Log Periodic	2280
■ -	BIA-30	Electro-Metrics	Biconical Antenna	3852
□ -	3148	EMCO	Log Periodic Antenna	00044783

Emissions Test Conditions): CONDUCTED EMISSIONS - TELECOMMUNICATIONS PORT

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

■ - Test not applicable

□ - Darby Lab
□ -

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
□ -	EMC-30	Electro-Metrics	EMI Receiver	191
□ -	FCC-TLISN-T8-02	Fischer Custom Com	T-LISN	20452
□ -	FCC-TLISN-T4-02	Fischer Custom Com	T_LISN	20454
□ -				
□ -				
□ -				

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The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 10 GHz were performed in a horizontal and vertical polarization at the following test location :

■ - Darby Test Site (Open Area Test Site)
□ -
□ -
□ -

at a test distance of:

□ - 1 meters
■ - 3 meters
□ - 10 meters

□ - Test not applicable

Test equipment used :

	Model Number	Manufacturer	Description	Serial Number
■ -	8566B	Hewlett-Packard	Spectrum Analyzer	2421A00526
■ -	85662A	Hewlett-Packard	Analyzer Display	2403A07352
■ -	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00209
■ -	8449B	Hewlett-Packard	Preamplifier	3008A00320
■ -	3115	Electro-Mechanics	Double Ridge Guide Horn	3810

The *ANTENNA TERMINAL DISTURBANCE VOLTAGE* in the frequency range 30 MHz - 1,000 MHz were performed.

□ - Darby Test Site (Open Area Test Site)
□ - Laboratory
□ -
□ -

■ - Test not applicable

	Model Number	Manufacturer	Description	Serial Number
□ -	2F9-3C4-3C5	Wavecom	UHF PAL TV Modulator	185879
□ -	2F1-3C4-3C5	Wavecom	VHF PAL TV Modulator	157728
□ -	A-8000	IFR	Spectrum Analyzer	1306
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01433
□ -	8648B	Hewlett-Packard	Signal Generator	3623A01477
□ -	LMV-182A	Leader	RMS Milli-Voltmeter	8010091
□ -	3202	Krhon-Hite	Active filter	5899
□-	FMT115	Leaming	FM Modulator	NONE
□ -	371	UDT	Optical power meter	06657
□ -	TSG95	Tektronix	PAL video / Audio generator	B028883
□-				

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Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

□ - Standby

□ - Test program (H - Pattern)

□ - Test program (color bar)

□ - Test program (customer specific)

□ - Practice operation

■ - Normal Operating Mode

□ -

Configuration of the device under test:

The device was tested in a stand alone configuration. The internal battery is designed to provide normal operation for (1-2) years. The device transmits periodically at intervals of about (1.5) seconds for a period of (10) mS.

Rationale for EUT setup / configuration:

ANSI C63.4:2003

Emission Test Results:

Conducted emissions 150 kHz - 30 MHz				
The requirements are		**□ - MET**		**□ - NOT MET**
Minimum limit margin		dB	at	MHz
Remarks:				

Radiated emissions (magnetic field) 10 kHz - 30 MHz				
The requirements are		**□ - MET**		**□ - NOT MET**
Minimum limit margin		dB	at	MHz
Remarks:				

Radiated emissions (electric field) 30 MHz - 1000 MHz				
The requirements are		**■ - MET**		**□ - NOT MET**
Minimum limit margin	**9.6**	dB	at	**914.9** MHz
Remarks:				

Interference Power at the mains and interface cables 30 MHz - 300 MHz				
The requirements are		**□ - MET**		**□ - NOT MET**
Minimum limit margin		dB	at	MHz
Remarks:				

Radiated emissions 1 GHz - 10 GHz				
The requirements are		**■ - MET**		**□ - NOT MET**
Minimum limit margin	**5.0**	dB	at	**1.82** GHz
Remarks:				

Conducted Emissions - Telecommunications Port 150kHz - 30 MHz				
The requirements are		**□ - MET**		**□ - NOT MET**
Minimum limit margin		dB	at	MHz
Remarks:				

GENERAL REMARKS:

The device was testing in (3) orthogonal positions.

SUMMARY:

The requirements according to the technical regulations are

■ - met

□ - **not** met.

The device under test does

■ - fulfill the general approval requirements mentioned on page 3.

□ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date **07/24/09**

Testing End Date: **08/13/09**

- PRODUCT SAFETY ENGINEERING INC -

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Test-setup photo(s):
Conducted emission 150 kHz - 30 MHz

N/A

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Test-setup photo(s):
Radiated emission 30 MHz - 1000 MHz

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APPENDIX

A

Test Equipment Calibration Information

&

Test Data Sheets

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TEST EQUIPMENT CALIBRATION INFORMATION

Manufacturer	Model	Description	Serial Number	Cal Due
Hewlett Packard	8566B	Spectrum Analyzer	2421A00526	07/07/10
Hewlett Packard	85662A	Display	2403A07352	07/07/10
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00209	07/07/10
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06832	12/18/09
Hewlett Packard	8568B	Spectrum Analyzer	2407A03213	
Hewlett Packard	85662A	Display	2340A05806	
Hewlett Packard	85650A	Quasi-Peak Adapter	2043A00358	
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	2944A06901	
Hewlett Packard	8447D	Preamp 0.1 - 1,000 MHz	1937A03247	
Hewlett Packard	8449B	Preamp 1 - 26.5 GHz	3008A00320	01/07/10
EMCO	3148	Log Periodic Antenna	00044783	01/21/10
Electro-Metrics	LPA 30	Log Periodic Antenna	2280	01/21/10
Electro-Metrics	BIA 30	Biconical Antenna	3852	
Electro-Metrics	BIA 25	Biconical Antenna	4283	
Electro-Mechanics	3115	Double Ridge Guide Ant.	3810	04/08/11
Electro-Metrics	ALR30M	Magnetic Loop Antenna	824	
Solar	8012	LISN	924840	
Solar	8028	LISN	829012/809022	
Solar	8028	LISN	903725/903726	
Schwartzbeck	MDS-21	Absorbing Clamp	02581	
Electro-Metrics	EMC-30	EMI Receiver	191	
Antenna Research	ALA-130/A	Loop Antenna	106	
Cole-Palmer	9970-00	Digital Barometer	61493735	
EMC Automation	HLP3003C	Hybrid Log Periodic	017501	
Fischer Custom	FCC-T4-02	Telecom ISN	20454	
Fischer Custom	FCC-T8-02	Telecom ISN	20452	

* Cal Due Date Format = MM/DD/YY

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Radiated Emissions Data
Per 15.249

15.249(a) - Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Freq	FS of Fundamental	FS of Harmonics
902-928	50 mV/m 94 dBuv/m	500 uV/m 54 dBuV/m

See Table 1

TABLE 1

Freq (MHz)	FS (dBuV/m)	Limit (dBuV/m)	Delta	Pass / Fail
914.93	84.4	94.0	9.6	Pass
1,828	49	54.0	5.0	Pass
2,744	41	54.0	13.0	Pass
3,659	28	54.0	26.0	Pass
4,574	20	54.0	34.0	Pass
5,489	16	54.0	38.0	Pass
6,404	28	54.0	26.0	Pass
>6,404	Noise floor	54.0	NA	Pass

Note 1: All spurious emissions meet the requirements for restricted bands of operation.
Note 2: All measurements in Table 1 were made with an average detector
Note 3: All measurements in Table 1 were made with the receive antenna in the vertical polarity
Note 4: Peak radiated emissions were below the allowable limit for radiated emissions >1 GHz
Note 5: The polarization data presented in this table is worst case of the H and V polarizations tested.

15.249(b) - This device is not fixed, point-to-point

15.249(c) - All measurements were made at a (3) meter distance.

15.249(d) - Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

See Table 2

TABLE 2

Freq (MHz)	FS (dBuV/m)	Limit (dBuV/m)	Delta	Polarity	Pass / Fail
33.2	30.2	40.0	9.8	V	Pass
35.2	34.6	40.0	5.4	V	Pass
55.4	26.7	40.0	13.3	V	Pass
57.3	30.9	40.0	9.1	V	Pass
59.0	28.1	40.0	11.9	V	Pass
62.4	29.0	40.0	11.0	V	Pass
79.6	25.2	40.0	14.8	V	Pass
142.7	31.9	43.5	11.6	V	Pass
152.6	31.9	43.5	11.6	V	Pass
160.0	26.2	43.5	17.3	V	Pass
228.0	38.0	46.0	8.0	V	Pass
229.8	38.0	46.0	8.0	H	Pass
240.0	38.9	46.0	7.1	H	Pass
285.8	35.2	46.0	10.8	H	Pass
336.0	30.5	46.0	15.5	H	Pass
428.3	31.9	46.0	14.1	H	Pass

Note 1: A quasi-peak detector was used for all measurements shown in Table 2.

15.249(e) - (e) As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

All measurements above (1) GHz were made with average detection.

15.249(f) - Parties considering the manufacture, importation, marketing or operation of equipment under this section should also note the requirement in §15.37(d). **(Not applicable)**

15.37(d) - (d) Prior to May 25, 1991, no person shall import, market or operate intentional radiators within the band 902-905 MHz under the provisions of §15.249. Until that date, the Commission will not issue a grant of equipment authorization for equipment operating under §15.249 if the equipment is designed to permit operation within the band 902-905 MHz. **(Not applicable)**

§15.205 Restricted bands of operation

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

§15.209 Radiated emission limits, general requirements.

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400F (kHz)	300
0.490-1.705	24000F (kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

APPENDIX

B

System Under Test Description

see page (8)

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APPENDIX

C

Measurement Protocol

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ANSCI C63.4 2003 was the guiding document for test procedures as required by 47 CFR Part 15 Subpart A Section 15.31(a)(3).

The EUT was powered with (195) VDC during the collection of data included within.

The data is compared to the CISPR-11 Class A limits.

The "EMI" instrumentation is capable of calculating the final emission level based on the following formula:

Level at the receiver (dBµV) + Antenna Correction Factor (dB/M) + Cable Loss (dB) - Preamp Gain (dB) = Actual Level in dBµV/M.

The sample calculation below is based on the actual test data collected:

Observed Level		**84.8**	dBµV	
ACF	+	**23.8**	dB/M	
Cable Loss	+	**1.8**	dB	
Preamp Gain	–	**26.0**	dB	
Actual Level		**84.4**	dBµV/M	@ 199.8 MHz

Please have a company official review this report and sign.

_____