COMPANY	Sensormatic Electronics Corp. 951 Yamato Road Boca Raton, Florida
PRODUCT TESTED	ACD/RM –13M reader FCC ID: BVCACDRM-13M
FCC RULES	15.207, 15.209, 15.225
TEST DATE	January 23-26, 2001
SUBMITTED BY	Donald J. Umbdenstock

INDEX

I. Summary of Results

47 CFR 15.207	CONDUCTED EMISSIONS	COMPLIES
47 CFR 15.225	RADIATED EMISSIONS	COMPLIES
47 CFR 15.209	RADIATED EMISSIONS	COMPLIES

II. General Information

1.1 Test Methodology

Both conducted and radiated emissions testing were performed according to the procedures in ANSI C63.4-1992, and the requirements of 15.31, 15.33, 15.35, 15.207, 15.209 and 15.225. Radiated emissions measurements below 30 MHz were performed at a distance of 3 meters and the results extrapolated to the distance specified per 15.31 and 15.209.

1.2 Test Facility

Measurements per 15.207, 15.209 and 15.225 were performed at Sensormatic Electronics Corporation.

The shielded room conducted emissions measurement facility is located at Sensormatic Electronics Corporation Headquarters at 951 Yamato Road, Boca Raton, Florida, 33431. The radiated emissions Open Area Test Site is located at Sensormatic Electronics Corporation manufacturing location, 6600 Congress Avenue, Boca Raton, Florida 33487. These sites have been found acceptable by and are on file with the FCC per FCC letter 31040/SIT 1300F2.

1.3 Test System Description.

The ACD/RM-13M reader consists of a 3rd party transmitting element not covered by the FCC "modular approach" and digital interface circuitry. The 3rd party product was previously approved under FCC ID: MES680SGEL. The reader transmits a pulse at 13.56 MHz, then receives a signal from an access control card in close proximity to the reader. The data from the card is then routed via the interface circuitry to an access control panel. DC Power to energize the reader is provided by the host access control panel.

The product tested was a pre-production unit built to production drawings.

15.203. The antenna is contained internally and is permanently attached, thus it is compliant with the requirements of this clause.

III. Conducted Emissions

Conducted emissions data are presented in Section VII "Data", Part A "Conducted Emissions". The product demonstrated compliance with the requirements of 15.207. The product was tested at 120 V, 60 Hz.

IV. Magnetic Field Radiated Emissions

Radiated emissions data for this product are presented in Section VII "Data", Part B "Radiated Emissions". The product demonstrated compliance with the requirements of 15.225 and 15.209. Radiated emissions measurements were performed at 3 meters. Propagation loss was determined measuring the emissions at 3 meters and extrapolating the results to 30 meters as required using linear extrapolation.

Maximum radiation was determined by first assessing symmetry while applying incremental rotation of the turntable. The product exhibited quadrant symmetry. Measurements were taken at radials of 22.5° throughout one quadrant; the measurement antenna was rotated for maximum pickup about the vertical axis of the measurement antenna at each radial. The maximum emission was determined to be with the measurement loop antenna in the vertical polarization, parallel to the plane of the transmit antenna.

The product was tested at input voltages to the transformer ranging from 102 – 138 V, 60 Hz with no measurable change in transmitter output. Stability under temperature extremes was verified with the original submission under FCC ID: MES680SGEL.

V. (This section intentionally left blank)

VI. LIST OF MEASURING EQUIPMENT

The equipment used for determining compliance of the Ultra Post system with the requirements of 15.207, 15.209 and 15.225 is marked with an "X" in the first column of the table below.

	Model	Description	Vendor	Serial #
X	ALP -70	Loop Antenna	Electro Metrics	163
X	3110B	Biconnical Antenna	Electro Metrics	1017
X	3146	Log Periodic Antenna	EMCO	3909
	3825/2	Line Imp Stable Network	EMCO	1562
X	3816/2NM	Line Imp Stable Network	EMCO	9703 1064
	6060B	Frequency Generator	Giga-tronics	5850202
	FM2000	Isotropic Field Monitor	Amplifier Research	15171
	FP2000	Isotropic Field Probe	Amplifier Research	15214
	888	Leveler	Amplifier Research	14998
	75A220	Low Band Amplifier	Amplifier Research	15208
	10W1000A	High Band Amplifier	Amplifier Research	15138
	PEFT Junior	EFT Generator	Haefely Trench	083 180-16
	PEFT Junior	Capacitive Cable Clamp	Haefely Trench	083-078-31
	NSG435	ESD Simulator	Schaffner	1197
	NSG431	ESD Simulator	Schaffner	1267
X	HP8591EM	EMC Analyzer	Hewlett - Packard	3520A00190
		Power Source	Pacific Instruments	
	F-2031	EM Injection Clamp	Fischer Cust. Comm.	30
	FCC-801-M3-16	Coupling Decoupling Nwk	Fischer Cust. Comm.	58
	FCC-801-M3-16	Coupling Decoupling Nwk	Fischer Cust. Comm.	59
	F-33-1	RF Current Probe	Fischer Cust. Comm.	304
	EM 7600	Transient Limiter	Electro-Metrics	187
	Roberts Ant	Tunable Dipole Set	Compliance Design	003282
	Roberts Ant	Tunable Dipole Set	Compliance Design	003283
	HP8594E	Spectrum Analyzer	Hewlett Packard	3246A00300
X	HP8447F Opt 64	Dual Preamplifier	Hewlett Packard	2805A03473

VII. Data

Part A contains conducted emissions data; Part B contains electrostatic field radiated emissions data, Part C is the Timco Report.

Part A — Conducted Emissions

Project Name	Conducted Emissions FCC Class B	Filename	GemPlus-Rdr_CondEMI_FCC_1-26-01.doc
EUT Name	GemPlus Reader + apC/8X	Serial Number	
Engineer	Ray Kozak	Phone Number	
Date of Test	01/26/2001 9:58:38 AM	Test Name	Conducted Emission
Reg. Technician	Stephen Krizmanich		

Comments	Line In 120vac 60Hz Ferrico ferrite NF-100 installed on line cord (outer jacket stripped back 6 inches) inside apC/8X enclosure.

Figure 1. L1 Full Range

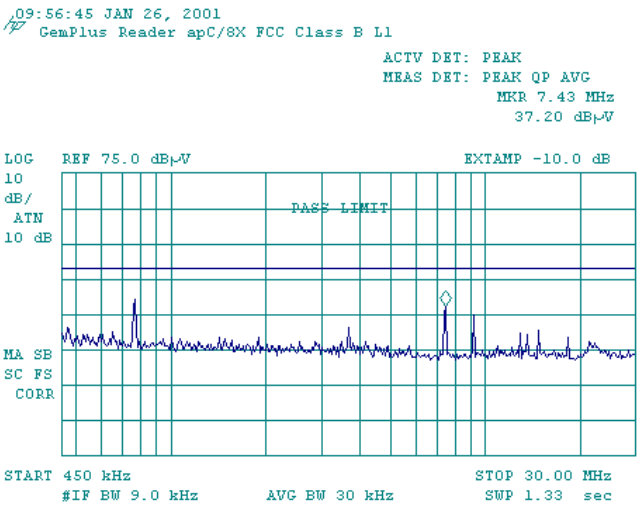
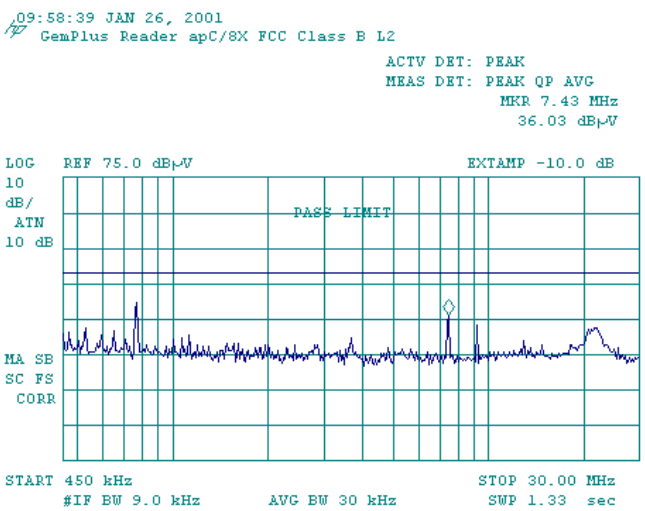


Figure 1. L2 Full Range



Part B
Radiated Emissions

Date Tested: 01/24/01

GemPlus Reader was placed on 1m high tabletop. (A box concrete block was placed on tabletop). An apc/8X panel (placed on turntable) powered the reader at 120vac 60hz for FCC readings. A plug-in transformer was used to power the reader at 230vac50hz for ETSI readings. The loop antenna (ALP70 N-S orientation used) was placed on tripod 1m from floor to center of loop for FCC measurements and 1m from floor to bottom of loop for ETSI. A Bicon (EMCO 3110B s/n 3380 E-W orientation) was used for frequencies above 30Mhz. 1-4m v/h. A distance of 3m was maintained between antenna and EUT.

Engineer: Ray Kozak **EMC Staff:** S. Krizmanich, D. J. Umbdenstock

FCC Data

Freq	S.A.	Det	BW	Ant Fac	DCF	Reading	Limit	Test Dist
MHz	dB			dBuV/m	dB	dBuV/m	dBuV/m	m
13.56	22.9	pk	9kHz	37	-20.0	39.9	80	30
27.12	nf	pk	9kHz	36	-20.0	nf	30	30
40.68	21.0	pk	9kHz	*	0	21	40	3
54.24	nf	pk	9kHz	*	0	nf	40	3
67.80	nf	pk	9kHz	*	0	nf	40	3
81.36	nf	pk	9kHz	*	0	nf	40	3
94.92	amb	pk	9kHz	*	0	amb	40	3
108.48	amb	pk	9kHz	*	0	amb	40	3
122.04	amb	pk	9kHz	*	0	amb	40	3
135.60	amb	pk	9kHz	*	0	amb	40	3

*programmed into spectrum analyzer
nf: not found (noise floor)