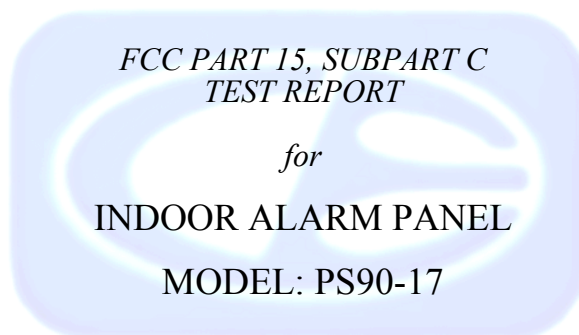




Prepared for

MILLENNIUM ELECTRONICS², INC.
3265 SOUTH SHORE DRIVE, SUITE #10
ALBANY, OREGON 97321

Prepared by: _____

KYLE FUJIMOTO

Approved by: _____

MICHAEL CHRISTENSEN

COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500

DATE: APRIL 29, 2002

	REPORT BODY	APPENDICES					TOTAL
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	
PAGES	17	2	2	13	20	2	56

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LIST OF APPENDICES

APPENDIX	TITLE
A	Modifications to the EUT
B	Additional Models Covered Under This Report
C	Diagrams, Charts and Photos • Test Setup Diagrams • Radiated Emissions Photos • Antenna and Effective Gain Factors
D	Data Sheets
E	Laboratory Recognitions

LIST OF FIGURES

FIGURE	TITLE
1	Conducted Emissions Test Setup
2	Plot Map And Layout of Test Site



GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: Indoor Alarm Panel
Model: PS90-17
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Millennium Electronics², Inc.
3265 South Shore Drive, Suite #10
Albany, Oregon 97321

Test Dates: April 25 and 26, 2002

Test Specifications: EMI requirements
CFR Title 47, Part 15 Subpart C, Sections 15.205, 15.207, and 15.231

Test Procedure: ANSI C63.4: 1992

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 450 kHz - 30 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Radiated RF Emissions, 10 kHz - 4300 MHz	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.231



1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Indoor Alarm Panel Model: PS90-17. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 1992. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the specification limits defined by CFR Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.231.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Millennium Electronics², Inc.

Michael Hargett	CEO
Mike Allen	Chief Ops. Officer

Compatible Electronics, Inc.

Kyle Fujimoto	Test Engineer
Michael Christensen	Test Engineer

2.4 Date Test Sample was Received

The test sample was received on April 24, 2002.

2.5 Disposition of the Test Sample

The test sample has not been returned to Millennium Electronics², Inc. as of April 29, 2002.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network



3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Subpart C.	FCC Rules – Radio frequency devices – Intentional Radiators
ANSI C63.4 1992	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz.



4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

Setup and operation of the equipment under test.

Specifics of the EUT and Peripherals Tested

For the Transmit Mode: The Indoor Alarm Panel Model: PS90-17 (EUT) was connected to a class 2 transformer via its power port. The EUT was transmitting on a continuous basis. The antenna connector is a Splatch antenna that is soldered directly to the PCB

For the Receive Mode: The Indoor Alarm Panel Model: PS90-17 (EUT) was connected to a class 2 transformer via its power port. The EUT was receiving on a continuous basis. The antenna connector is a Splatch antenna that is soldered directly to the PCB

The final radiated as well as the conducted data was taken in the modes above. Please see Appendix D for the data sheets.



4.1.1 Cable Construction and Termination

Cable 1

This is a 2 meter unshielded cable connecting the EUT to the class 2 transformer. It has a 1/8 inch power connector at the EUT end and is hard wired into the class 2 transformer.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
INDOOR ALARM PANEL (EUT)	MILLENNIUM ELECTRONICS ² , INC.	PS90-17	N/A	QCGPS90-17
CLASS 2 TRANSFORMER	CUI STACK	DPA120060-P1	N/A	N/A



5.2 EMI Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. DUE DATE
Radiated Emissions Manual Test – Radiated	Compatible Electronics	N/A	N/A	N/A	N/A
Conducted Emissions Program	Compatible Electronics	N/A	N/A	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	3638A08768	June 15, 2001	June 15, 2002
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	3701A22262	June 15, 2001	June 15, 2002
Spectrum Analyzer – Quasi-Peak Adapter	Hewlett Packard	85662A	2811A01363	June 15, 2001	June 15, 2002
Preamplifier	Com Power	PA-102	1017	Dec. 31, 2001	Dec. 31, 2002
Biconical Antenna	Com Power	AB-100	1548	Oct. 11, 2001	Oct. 11, 2002
Log Periodic Antenna	Com Power	AL-100	16089	Oct. 11, 2001	Oct. 11, 2002
Computer	Hewlett Packard	D5251A 888	US74458128	N/A	N/A
Printer	Hewlett Packard	C5886A	SG7CM1P090	N/A	N/A
Monitor	Hewlett Packard	D5258A	DK74889705	N/A	N/A
Loop Antenna	Com-Power	AL-130	17070	May 21, 2001	May 21, 2002
Horn Antenna	Antenna Research	DRG-118/A	1053	Jan. 13, 2002	Jan. 13, 2003
Microwave Preamplifier	Com-Power	PA-122	25195	Jan. 7, 2002	Jan. 7, 2003



6. TEST SITE DESCRIPTION

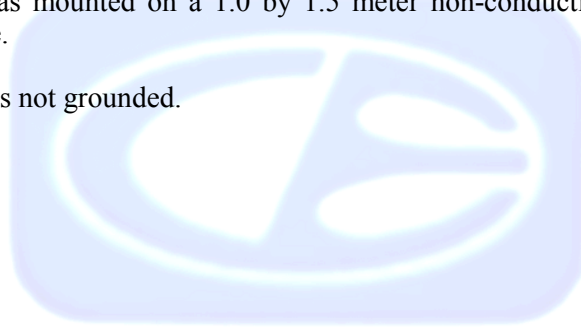
6.1 Test Facility Description

Please refer to section 2.1 and 7.1 of this report for EMI test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A 10 dB attenuation pad was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 1992. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.



7.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer was used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, and the Com-Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

For the peak readings below 1000 MHz that were within 3 dB of the spec limit or higher, the quasi-peak adapter was used.

For the peak readings above 1000 MHz that were within 3dB of the spec limit or higher, the readings were averaged manually by narrowing the video filter down to 10 Hz and slowing the sweep time to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 4.3 GHz	1 MHz	Horn Antenna

The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 1992. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.



Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance to obtain final test data. The final qualification data sheets are located in Appendix D.



7.3 Bandwidth of the Fundamental

The -20 dB bandwidth was checked to see that it was within 0.25% of the fundamental frequency for the EUT. A plot of the -20 dB bandwidth is located in Appendix D.



8. CONCLUSIONS

The Indoor Alarm Panel Model: PS90-17 meets all of the specification limits defined in CFR Title 47, Part 15, Subpart C, sections 15.205, 15.207, 15.209, and 15.231.



APPENDIX A

MODIFICATIONS TO THE EUT



MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.231 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.



APPENDIX B

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***



ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Indoor Alarm Panel
Model: PS90-17
S/N: N/A

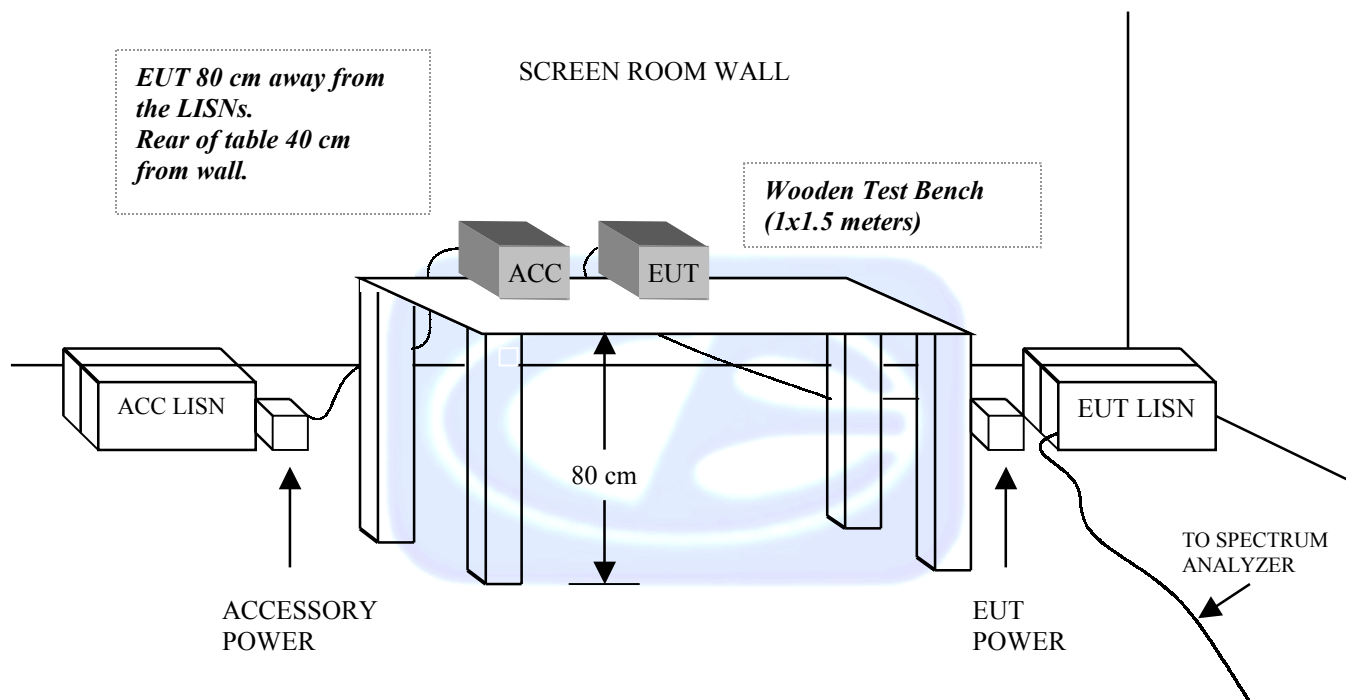
There were no additional models covered under this report.



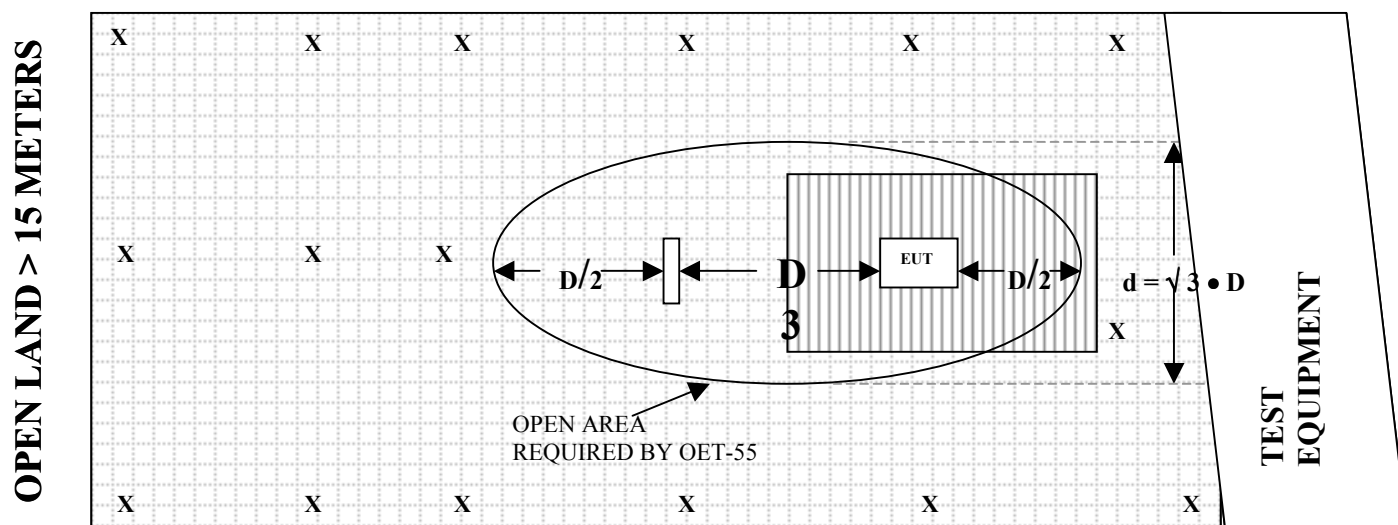
APPENDIX C

DIAGRAMS, CHARTS AND PHOTOS

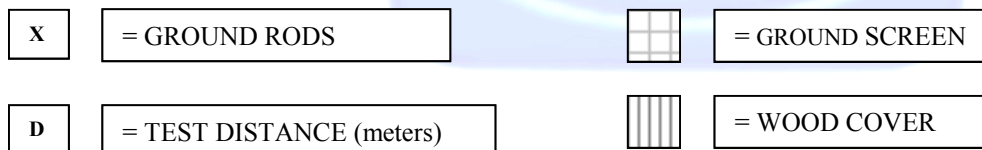


FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS





FRONT VIEW

MILLENNIUM ELECTRONICS², INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC SUBPART C - RADIATED EMISSIONS - 04-25-02

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

MILLENNIUM ELECTRONICS², INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC SUBPART C - RADIATED EMISSIONS – 04-25-02

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





FRONT VIEW

MILLENNIUM ELECTRONICS², INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC SUBPART C - CONDUCTED EMISSIONS – 04-26-02

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**





REAR VIEW

MILLENNIUM ELECTRONICS², INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC SUBPART C - CONDUCTED EMISSIONS – 04-26-02

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



COM-POWER AB-100
BICONICAL ANTENNA

S/N: 01548

CALIBRATION DATE: OCTOBER 11, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	13.70	120	11.00
35	13.70	125	11.20
40	11.80	140	12.50
45	12.30	150	13.20
50	11.00	160	13.50
60	10.40	175	14.60
70	8.60	180	14.40
80	8.30	200	15.90
90	8.30	250	17.60
100	8.80	300	19.90



COM-POWER AL-100
LOG PERIODIC ANTENNA

S/N: 16089

CALIBRATION DATE: OCTOBER 11, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	14.10	700	20.60
400	15.10	800	22.40
500	16.60	900	22.70
600	19.90	1000	26.50



COM-POWER PA-102

PREAMPLIFIER

S/N: 1017

CALIBRATION DATE: DECEMBER 31, 2001

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.5	300	38.5
40	38.5	350	38.4
50	38.5	400	38.2
60	38.5	450	37.8
70	38.5	500	38.0
80	38.5	550	38.2
90	38.3	600	38.2
100	38.3	650	38.0
125	38.6	700	38.1
150	38.5	750	37.7
175	38.4	800	37.4
200	38.5	850	37.9
225	38.5	900	37.2
250	38.4	950	36.8
275	38.4	1000	37.3



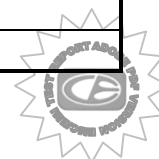
COM-POWER PA-122

MICROWAVE PREAMPLIFIER

S/N: 25195

CALIBRATION DATE: JANUARY 7, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	33.7	9.5	31.8
1.1	33.4	10.0	32.2
1.2	33.1	11.0	31.4
1.3	33.1	12.0	30.2
1.4	33.2	13.0	32.9
1.5	32.5	14.0	33.9
1.6	32.7	15.0	32.4
1.7	32.3	16.0	32.2
1.8	32.3	17.0	31.5
1.9	31.4	18.0	32.2
2.0	32.8	19.0	31.2
2.5	33.3	20.0	31.3
3.0	31.7	21.0	31.7
3.5	31.6	22.0	29.7
4.0	31.2		
4.5	31.2		
5.0	31.0		
5.5	31.3		
6.0	32.1		
6.5	32.1		
7.0	31.8		
7.5	32.0		
8.0	33.1		
8.5	32.0		
9.0	30.8		



ANTENNA RESEARCH DRG-118/A

HORN ANTENNA

S/N: 1053

CALIBRATION DATE: JANUARY 13, 2002

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	25.5	9.5	39.1
1.5	26.6	10.0	39.7
2.0	29.4	10.5	40.9
2.5	30.4	11.0	40.7
3.0	31.2	11.5	42.4
3.5	32.3	12.0	42.6
4.0	32.9	12.5	42.4
4.5	33.0	13.0	41.5
5.0	34.8	13.5	41.0
5.5	35.2	14.0	40.5
6.0	36.4	14.5	43.6
6.5	36.6	15.0	43.7
7.0	38.8	15.5	43.3
7.5	38.8	16.0	42.8
8.0	38.0	16.5	43.0
8.5	38.1	17.0	42.7
9.0	39.9	17.5	44.0
		18.0	41.8



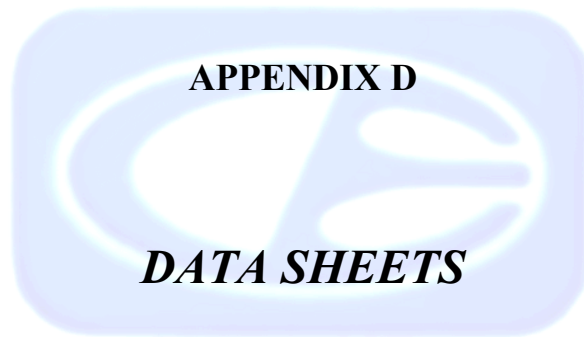
Com-Power Corporation

(949) 587-9800

Antenna Calibration

Antenna Type:		Active Loop Antenna
Model:		AL-130
Serial Number:		17930
Calibration Date:		05/21/01
Certificate Number:		071016
Frequency MHz	Magnetic (dB/m)	Electric (dB/m)
0.009	-40.5	11.0
0.01	-40.4	11.1
0.02	-41.4	10.1
0.03	-40.0	11.5
0.04	-40.4	11.1
0.05	-41.7	9.8
0.06	-41.2	10.3
0.07	-41.5	10.0
0.08	-41.8	9.7
0.09	-41.8	9.7
0.1	-41.8	9.7
0.2	-44.0	7.5
0.3	-41.6	9.9
0.4	-41.6	9.9
0.5	-41.6	9.9
0.6	-41.5	10.0
0.7	-41.4	10.1
0.8	-41.3	10.2
0.9	-41.3	10.2
1	-40.9	10.6
2	-40.3	11.2
3	-40.5	11.0
4	-40.8	10.7
5	-40.2	11.3
6	-40.0	11.5
7	-40.4	11.1
8	-40.5	11.0
9	-40.0	11.5
10	-40.7	10.8
12	-41.2	10.3
14	-41.3	10.2
15	-41.3	10.2
16	-41.4	10.1
18	-41.4	10.1
20	-41.4	10.1
25	-41.7	9.8
30	-43.1	8.4

Separation Distance: _____ meter



RADIATED EMISSIONS
DATA SHEETS



RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
418.0000	108.3	98.7 A	H	1.0	90	X	LOW	15.4	3.3	38.1	0.0	0.0	79.3	-0.9	80.2	
418.0000	95.9	86.3 A	H	1.0	0	Y	LOW	15.4	3.3	38.1	0.0	0.0	66.9	-13.3	80.2	
418.0000	106.9	97.3 A	H	1.0	90	Z	LOW	15.4	3.3	38.1	0.0	0.0	77.9	-2.3	80.2	
418.0000	108.6	99.0 A	V	1.0	0	X	LOW	15.4	3.3	38.1	0.0	0.0	79.6	-0.6	80.2	
418.0000	97.7	88.1 A	V	3.0	0	Y	LOW	15.4	3.3	38.1	0.0	0.0	68.7	-11.5	80.2	
418.0000	101.1	91.5 A	V	1.0	90	Z	LOW	15.4	3.3	38.1	0.0	0.0	72.1	-8.1	80.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
836.0000	65.9	56.3 A	H	1.0	90	X	LOW	22.5	4.8	37.8	0.0	0.0	45.8	-14.4	60.2	
836.0000	50.3	40.7 A	H	1.0	90	Y	LOW	22.5	4.8	37.8	0.0	0.0	30.2	-30.0	60.2	
836.0000	70.1	60.5 A	H	1.0	90	Z	LOW	22.5	4.8	37.8	0.0	0.0	50.0	-10.2	60.2	
836.0000	53.1	43.5 A	V	1.5	0	X	LOW	22.5	4.8	37.8	0.0	0.0	33.0	-27.2	60.2	
836.0000	63.0	53.4 A	V	2.0	180	Y	LOW	22.5	4.8	37.8	0.0	0.0	42.9	-17.3	60.2	
836.0000	53.6	44.0 A	V	1.5	0	Z	LOW	22.5	4.8	37.8	0.0	0.0	33.5	-26.7	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1254.0000	50.8	41.2 A	H	1.0	0	X	LOW	26.1	2.6	33.1	0.0	0.0	36.7	-23.5	60.2	
1254.0000	47.4	37.8 A	H	1.0	0	Y	LOW	26.1	2.6	33.1	0.0	0.0	33.3	-26.9	60.2	
1254.0000	51.2	41.6 A	H	1.0	0	Z	LOW	26.1	2.6	33.1	0.0	0.0	37.1	-23.1	60.2	
1254.0000	47.5	37.9 A	V	1.0	0	X	LOW	26.1	2.6	33.1	0.0	0.0	33.4	-26.8	60.2	
1254.0000	51.5	41.9 A	V	1.0	270	Y	LOW	26.1	2.6	33.1	0.0	0.0	37.4	-22.8	60.2	
1254.0000	48.8	39.2 A	V	1.0	0	Z	LOW	26.1	2.6	33.1	0.0	0.0	34.7	-25.5	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
1672.0000	51.2	41.6 A	H	1.0	0	X	LOW	27.6	3.3	32.4	0.0	0.0	40.0	-14.0	54.0	
1672.0000	53.3	43.7 A	H	1.0	0	Y	LOW	27.6	3.3	32.4	0.0	0.0	42.1	-11.9	54.0	
1672.0000	49.6	40.0 A	H	1.0	0	Z	LOW	27.6	3.3	32.4	0.0	0.0	38.4	-15.6	54.0	
1672.0000	51.0	41.4 A	V	1.0	0	X	LOW	27.6	3.3	32.4	0.0	0.0	39.8	-14.2	54.0	
1672.0000	49.7	40.1 A	V	1.0	0	Y	LOW	27.6	3.3	32.4	0.0	0.0	38.5	-15.5	54.0	
1672.0000	54.5	44.9 A	V	1.0	0	Z	LOW	27.6	3.3	32.4	0.0	0.0	43.3	-10.7	54.0	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2090.0000	48.7	39.1 A	H	1.0	0	X	LOW	29.6	3.6	32.2	0.0	0.0	40.0	-20.2	60.2	
2090.0000	52.1	42.5 A	H	2.0	0	Y	LOW	29.6	3.6	32.2	0.0	0.0	43.4	-16.8	60.2	
2090.0000	50.2	40.6 A	H	1.0	0	Z	LOW	29.6	3.6	32.2	0.0	0.0	41.5	-18.7	60.2	
2090.0000	50.6	41.0 A	V	1.0	90	X	LOW	29.6	3.6	32.2	0.0	0.0	41.9	-18.3	60.2	
2090.0000	49.9	40.3 A	V	1.0	0	Y	LOW	29.6	3.6	32.2	0.0	0.0	41.2	-19.0	60.2	
2090.0000	54.7	45.1 A	V	1.0	0	Z	LOW	29.6	3.6	32.2	0.0	0.0	46.0	-14.2	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2508.0000	40.7	31.1 A	H	1.0	0	X	LOW	30.4	3.5	33.3	0.0	0.0	31.8	-28.4	60.2	
2508.0000	42.0	32.4 A	H	1.0	90	Y	LOW	30.4	3.5	33.3	0.0	0.0	33.1	-27.1	60.2	
2508.0000	43.0	33.4 A	H	1.0	0	Z	LOW	30.4	3.5	33.3	0.0	0.0	34.1	-26.1	60.2	
2508.0000	45.4	35.8 A	V	2.0	0	X	LOW	30.4	3.5	33.3	0.0	0.0	36.5	-23.7	60.2	
2508.0000	45.0	35.4 A	V	1.0	0	Y	LOW	30.4	3.5	33.3	0.0	0.0	36.1	-24.1	60.2	
2508.0000	42.1	32.5 A	V	1.0	0	Z	LOW	30.4	3.5	33.3	0.0	0.0	33.2	-27.0	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
2926.0000	38.5	28.9 A	H	1.0	0	X	LOW	31.1	4.9	31.9	0.0	0.0	33.0	-27.2	60.2	
2926.0000	39.2	29.6 A	H	1.0	0	Y	LOW	31.1	4.9	31.9	0.0	0.0	33.7	-26.5	60.2	
2926.0000	41.3	31.7 A	H	1.0	0	Z	LOW	31.1	4.9	31.9	0.0	0.0	35.8	-24.4	60.2	
2926.0000	39.9	30.3 A	V	1.0	0	X	LOW	31.1	4.9	31.9	0.0	0.0	34.4	-25.8	60.2	
2926.0000	40.4	30.8 A	V	1.0	0	Y	LOW	31.1	4.9	31.9	0.0	0.0	34.9	-25.3	60.2	
2926.0000	40.1	30.5 A	V	1.0	0	Z	LOW	31.1	4.9	31.9	0.0	0.0	34.6	-25.6	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3344.0000	37.6	28.0 A	H	1.0	0	X	LOW	32.0	4.9	31.6	0.0	0.0	33.3	-26.9	60.2	
3344.0000	41.0	31.4 A	H	1.0	0	Y	LOW	32.0	4.9	31.6	0.0	0.0	36.7	-23.5	60.2	
3344.0000	39.9	30.3 A	H	1.0	0	Z	LOW	32.0	4.9	31.6	0.0	0.0	35.6	-24.6	60.2	
3344.0000	40.1	30.5 A	V	1.0	0	X	LOW	32.0	4.9	31.6	0.0	0.0	35.8	-24.4	60.2	
3344.0000	39.7	30.1 A	V	1.0	0	Y	LOW	32.0	4.9	31.6	0.0	0.0	35.4	-24.8	60.2	
3344.0000	36.5	26.9 A	V	1.0	0	Z	LOW	32.0	4.9	31.6	0.0	0.0	32.2	-28.0	60.2	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	MILLENNIUM ELECTRONICS2, INC.	DATE	4/25/02
EUT	INDOOR ALARM PANEL	DUTY CYCLE	33 %
MODEL	PS90-17	PEAK TO AVG	-9.6297212 dB
S/N	N/A	TEST DIST.	3 Meters
TEST ENGINEER	KYLE FUJIMOTO	LAB	D

Frequency MHz	Peak Reading (dBuV)	Average (A) or Quasi- Peak (QP)	Antenna Polar. (V or H)	Antenna Height (meters)	EUT Azimuth (degrees)	EUT Axis (X,Y,Z)	EUT Tx Channel	Antenna Factor (dB)	Cable Loss (dB)	Amplifier Gain (dB)	Distance Factor (dB)	Mixer Factor (dB)	*Corrected Reading (dBuV/m)	Delta ** (dB)	Spec Limit (dBuV/m)	Comments
3762.0000	39.5	29.9 A	H	1.0	0	X	LOW	32.6	5.2	31.4	0.0	0.0	36.3	-17.7	54.0	
3762.0000	42.3	32.7 A	H	1.0	0	Y	LOW	32.6	5.2	31.4	0.0	0.0	39.1	-14.9	54.0	
3762.0000	39.8	30.2 A	H	1.0	0	Z	LOW	32.6	5.2	31.4	0.0	0.0	36.6	-17.4	54.0	
3762.0000	40.8	31.2 A	V	1.0	0	X	LOW	32.6	5.2	31.4	0.0	0.0	37.6	-16.4	54.0	
3762.0000	38.7	29.1 A	V	1.0	0	Y	LOW	32.6	5.2	31.4	0.0	0.0	35.5	-18.5	54.0	
3762.0000	39.2	29.6 A	V	1.0	0	Z	LOW	32.6	5.2	31.4	0.0	0.0	36.0	-18.0	54.0	

* CORRECTED READING = METER READING + ANTENNA FACTOR + CABLE LOSS - AMPLIFIER GAIN
 ** DELTA = SPEC LIMIT - CORRECTED READING

No Harmonics nor Emissions Found After
the 9th Harmonic

PAGE 9 of PAGE 9

Test location: Compatible Electronics
 Customer : MILLENNIUM ELECTRONICS², INC. Date : 4/25/2002
 Manufacturer : MILLENNIUM ELECTRONICS², INC. Time : 15.10
 EUT name : INDOOR ALARM PANEL
 Model : PS90-17
 Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
 Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00
 Test Mode : INDOOR ALARM PANEL WITH A/C ADAPTER
 SPURIOUS EMISSIONS 30 MHz TO 9300 MHz
 RECEIVE MODE (WORST CASE)
 TEMPERATURE 73 DEGREES F., RELATIVE HUMIDITY 47%
 TESTED BY: KYLE FUJIMOTO

Pol	Freq	Rdng	Cable	Ant	Amp	Cor'd	limit	Delta
	MHz	dBuV	loss	factor	gain	rdg = R	= L	R-L
			dB	dB	dB	dBuV	dBuV/m	Db
HORIZONTAL POLARIZATION								
1H	45.20	49.10	1.00	12.25	38.50	23.85	40.00	-16.15
2H	334.14	44.70	3.34	14.44	38.43	24.05	46.00	-21.95
3H	462.46	36.20	3.95	16.04	37.85	18.34	46.00	-27.66
4H	508.86	39.90	4.15	16.89	38.04	22.91	46.00	-23.09
VERTICAL POLARIZATION								
5V	30.17	48.40	0.70	13.70	38.50	24.30	40.00	-15.70
6V	32.24	58.80	0.74	13.70	38.50	34.74	40.00	-5.26
7V	133.81	38.60	1.87	11.96	38.56	13.87	43.50	-29.63
8V	375.48	32.90	3.55	14.85	38.30	13.01	46.00	-32.99
9V	687.00	37.10	5.00	20.51	38.07	24.53	46.00	-21.47

Test location: Compatible Electronics
Customer : MILLENNIUM ELECTRONICS², INC. Date : 4/25/2002
Manufacturer : MILLENNIUM ELECTRONICS², INC. Time : 15.25
EUT name : INDOOR ALARM PANEL
Model : PS90-17
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor($20 \cdot \log(\text{test}/\text{spec})$) : 0.00
Test Mode : INDOOR ALARM PANEL WITH A/C ADAPTER
SPURIOUS EMISSIONS 10 kHz TO 30 MHz
RECEIVE MODE (WORST CASE)
TEMPERATURE 73 DEGREES F., RELATIVE HUMIDITY 47%
TESTED BY: KYLE FUJIMOTO

THERE WERE NO EMISSIONS FOUND FOR THE EUT BETWEEN 10 kHz AND 30 MHz.
BOTH THE VERTICAL AND HORIZONTAL POLARIZATIONS WERE INVESTIGATED.

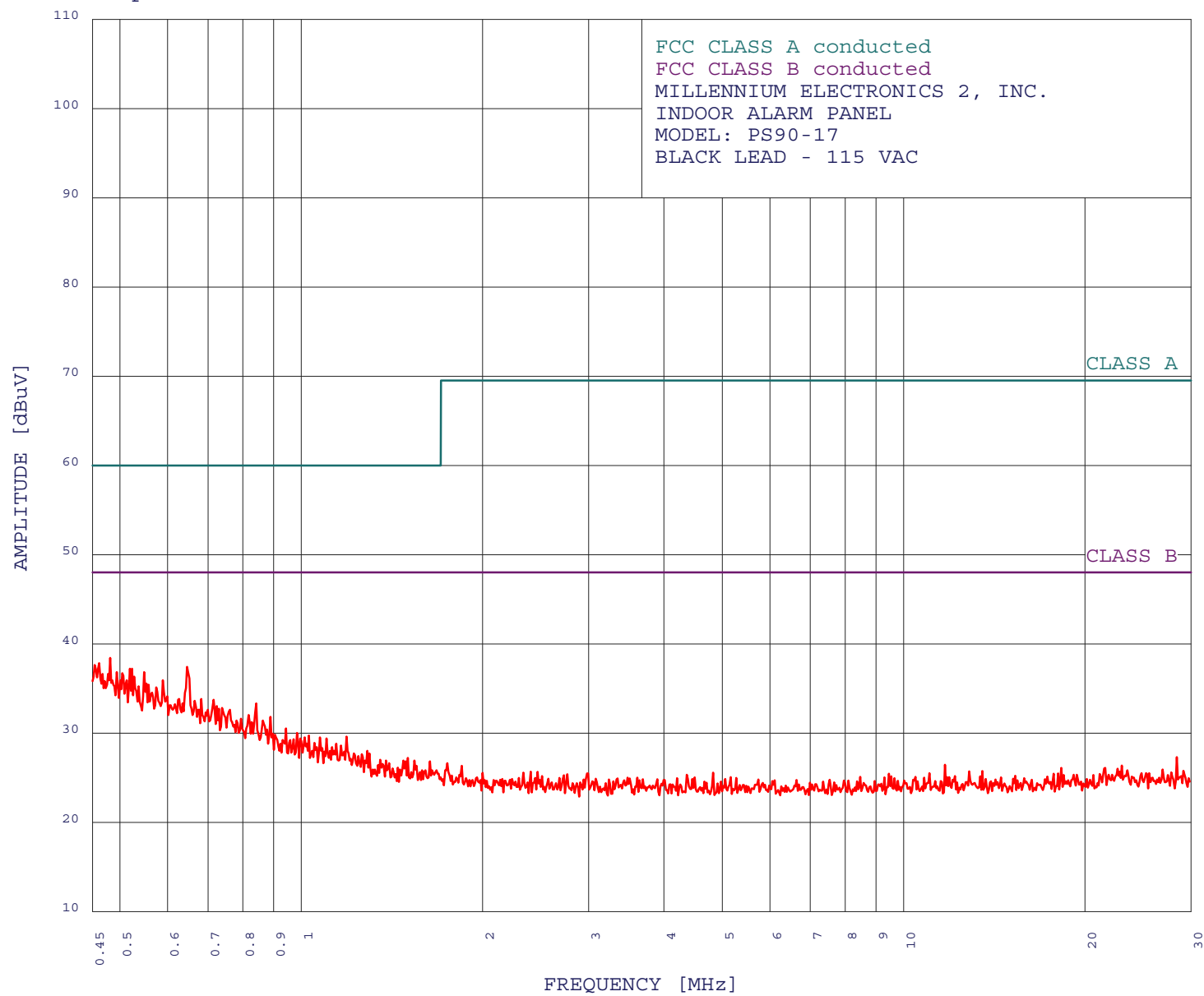
CONDUCTED EMISSIONS
DATA SHEETS



EMISSION LEVEL [dBuV] PEAK
Graph for Peak

4/26/2002

7:40:23





**COMPATIBLE
ELECTRONICS**

4/26/2002

7:40:23

MILLENNIUM ELECTRONICS 2, INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC CLASS B - BLACK LEAD - 115 VAC

TEST ENGINEER : KYLE FUJIMOTO

30 highest peaks above -50.00 dB of CLASS B limit line

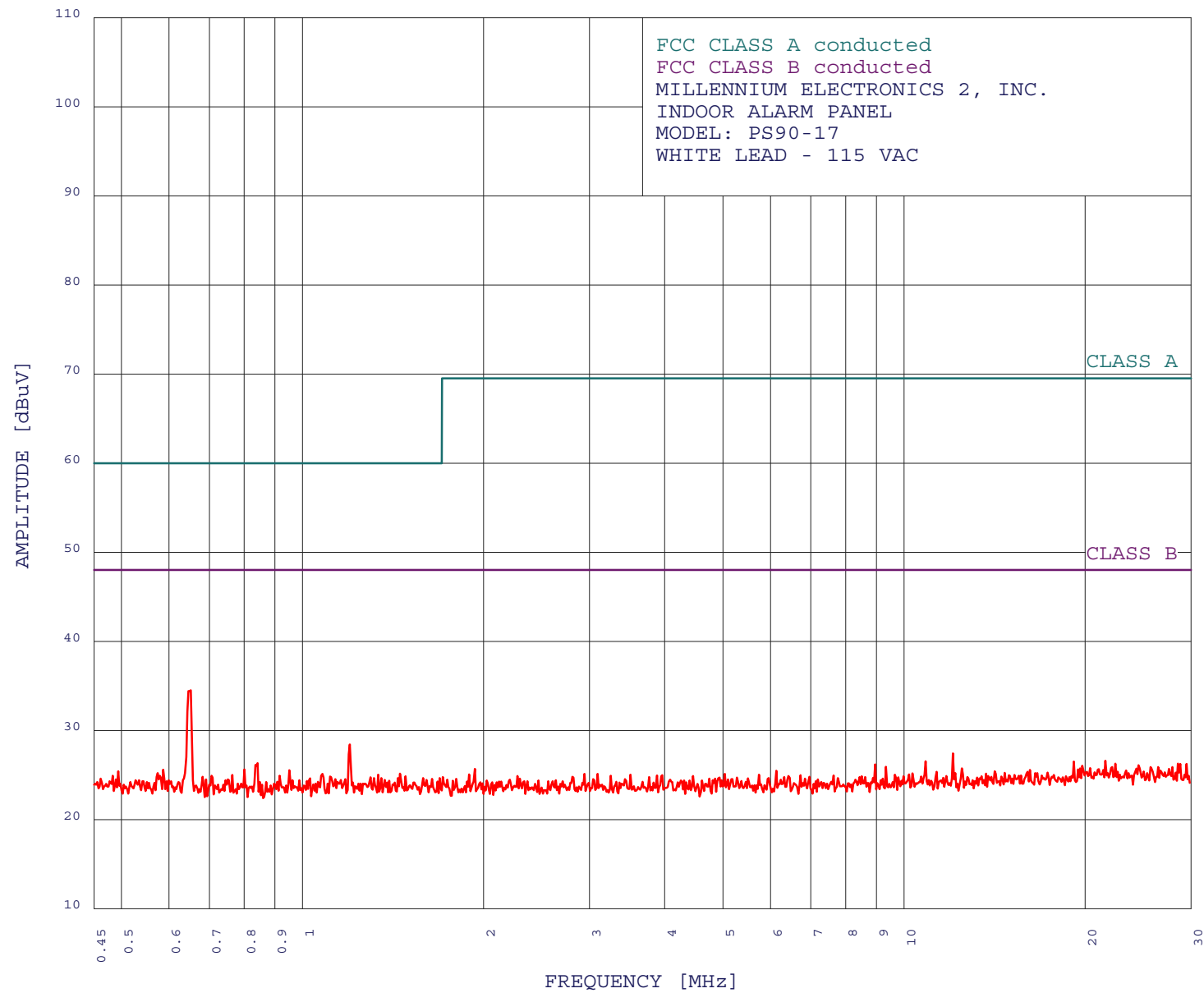
Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.482	38.42	48.00	-9.58
2	0.462	37.83	48.00	-10.17
3	0.454	37.63	48.00	-10.37
4	0.646	37.42	48.00	-10.58
5	0.519	37.22	48.00	-10.78
6	0.524	37.22	48.00	-10.78
7	0.494	36.82	48.00	-11.18
8	0.549	36.82	48.00	-11.18
9	0.504	36.72	48.00	-11.28
10	0.468	36.62	48.00	-11.38
11	0.528	36.32	48.00	-11.68
12	0.500	35.92	48.00	-12.08
13	0.513	35.92	48.00	-12.08
14	0.589	35.92	48.00	-12.08
15	0.558	35.42	48.00	-12.58
16	0.537	35.22	48.00	-12.78
17	0.574	35.12	48.00	-12.88
18	0.627	33.82	48.00	-14.18
19	0.682	33.82	48.00	-14.18
20	0.715	33.72	48.00	-14.28
21	0.666	33.62	48.00	-14.38
22	0.842	33.31	48.00	-14.69
23	0.617	33.22	48.00	-14.78
24	0.724	33.02	48.00	-14.98
25	0.739	32.82	48.00	-15.18
26	0.730	32.72	48.00	-15.28
27	0.700	32.62	48.00	-15.38
28	0.761	32.62	48.00	-15.38
29	0.817	32.01	48.00	-15.99
30	0.889	31.81	48.00	-16.19

EMISSION LEVEL [dBuV] PEAK
Graph for Peak

4/26/2002

7:42:14





**COMPATIBLE
ELECTRONICS**

4/26/2002

7:42:14

MILLENNIUM ELECTRONICS 2, INC.

INDOOR ALARM PANEL

MODEL: PS90-17

FCC CLASS B - WHITE LEAD - 115 VAC

TEST ENGINEER : KYLE FUJIMOTO

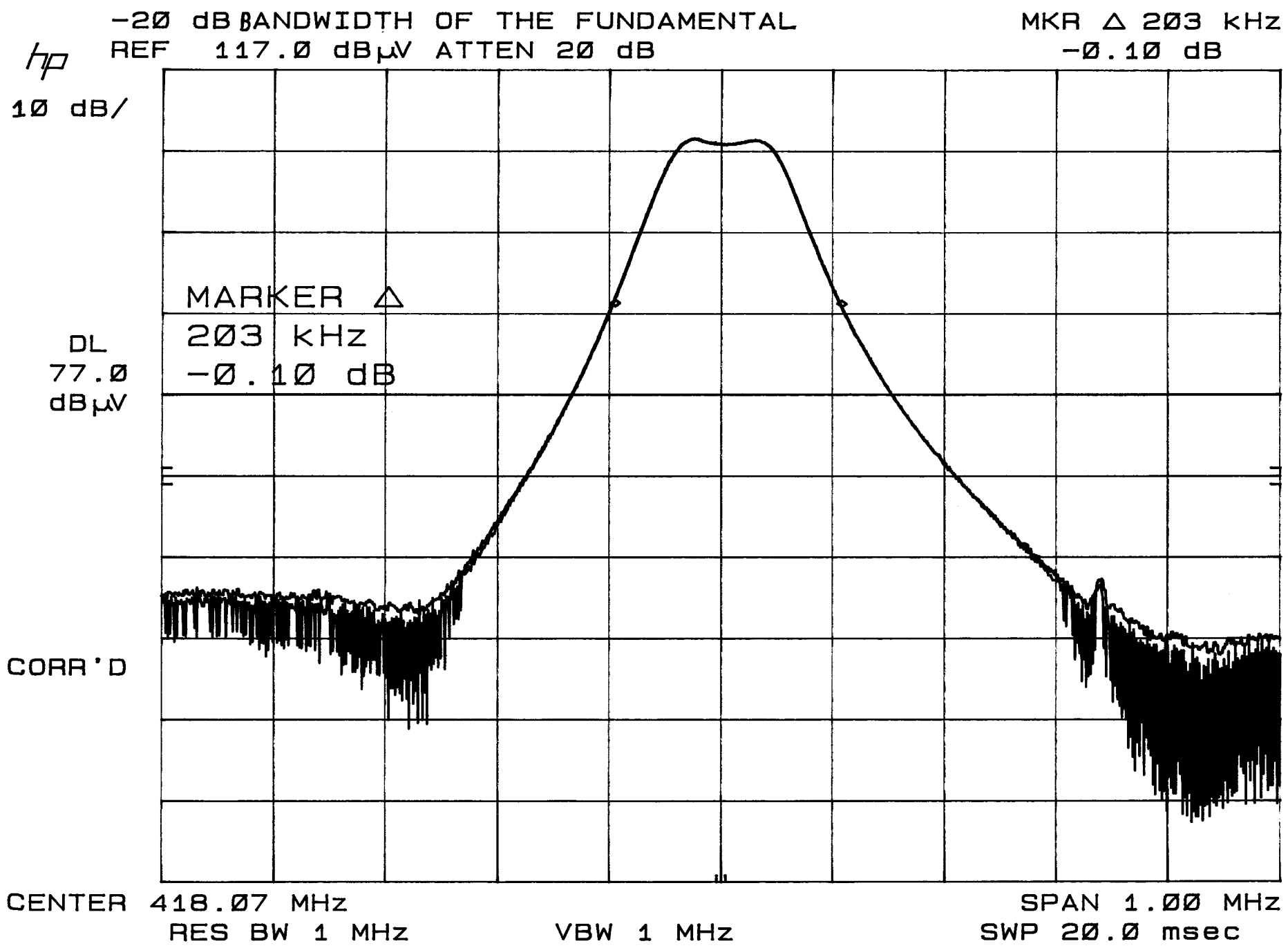
30 highest peaks above -50.00 dB of CLASS B limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.652	34.51	48.00	-13.49
2	1.198	28.43	48.00	-19.57
3	12.065	27.41	48.00	-20.59
4	21.627	26.59	48.00	-21.41
5	10.861	26.52	48.00	-21.48
6	19.156	26.50	48.00	-21.50
7	0.842	26.32	48.00	-21.68
8	22.472	26.26	48.00	-21.74
9	28.550	26.26	48.00	-21.74
10	29.517	26.23	48.00	-21.77
11	8.958	26.19	48.00	-21.81
12	24.544	26.10	48.00	-21.90
13	19.798	26.04	48.00	-21.96
14	9.337	25.90	48.00	-22.10
15	25.694	25.89	48.00	-22.11
16	26.472	25.89	48.00	-22.11
17	27.946	25.88	48.00	-22.12
18	22.191	25.88	48.00	-22.12
19	12.483	25.75	48.00	-22.25
20	19.633	25.73	48.00	-22.27
21	1.934	25.67	48.00	-22.33
22	0.800	25.61	48.00	-22.39
23	0.587	25.60	48.00	-22.40
24	16.194	25.57	48.00	-22.43
25	0.951	25.52	48.00	-22.48
26	23.420	25.51	48.00	-22.49
27	6.135	25.46	48.00	-22.54
28	14.149	25.40	48.00	-22.60
29	0.494	25.40	48.00	-22.60
30	16.060	25.36	48.00	-22.64

***-20 dB BANDWIDTH
DATA SHEET***





APPENDIX E

LABORATORY RECOGNITIONS



LABORATORY RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200063-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada

Radio-Frequency Technologies (Competent Body)

