FCC PART 15, SUBPART C
TEST REPORT

for

OUTDOOR CIRCUIT BOX / ALARM

MODEL: PHIL4-13

Prepared for

MILLENNIUM ELECTRONICS^2, 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
		A	***B***	***C***	***D***	***E***	
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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: Outdoor Circuit Box / Alarm
Model: PHIL4-13
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: Millennium Electronics[2], 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 15.249

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Outdoor Circuit Box / Alarm Model: PHIL4-13. 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 Electronics[2], Inc.

Michael HargettCEO
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 Electronics[2], 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 Outdoor Circuit Box / Alarm Model: PHIL4-13 (EUT) was connected to a class 2 transformer via its power port. One meter unterminated cables were also connected to the EUT's alarm out and sensor ports. The EUT was transmitting on a continuous basis. The antenna connector is a jumper that connects directly (hard wired) to the EUT's main PCB. The antenna cannot be removed unless the entire box is opened up and the jumper removed.

For the Transmit Mode: The Outdoor Circuit Box / Alarm Model: PHIL4-13 (EUT) was connected to a class 2 transformer via its power port. One meter unterminated cables were also connected to the EUT's alarm out and sensor ports. The EUT was receiving on a continuous basis. The antenna connector is a jumper that connects directly (hard wired) to the EUT's main PCB. The antenna cannot be removed unless the entire box is opened up and the jumper removed.

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 3 meter braid and foil shielded cable connecting the EUT to the class 2 transformer. It has a 2 pin power connector at the EUT end and is hard wired into the class 2 transformer. The shield of the cable was grounded to the chassis via the connector at the EUT end only.

Cable 2 This is a 1 meter unterminated, braid and foil shielded cable connected to the EUT's alarm out port. The cable has a 3 pin connector at the EUT end. The shield of the cable was grounded to the chassis via the connector at the EUT end only.

Cable 3 This is a 1 meter unterminated, braid and foil shielded cable connected to the EUT's sensor port. The cable has a 3 pin connector at the EUT end. The shield of the cable was grounded to the chassis via the connector at the EUT end only.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
OUTDOOR CIRCUIT BOX / ALARM (EUT)	MILLENNIUM ELECTRONICS[2], INC.	PHIL4-13	N/A	**QCGPHIL4-13**
CLASS 2 TRANSFORMER	AMSECO	XT-1820	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 Outdoor Circuit Box / Alarm Model: PHIL4-13 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	Outdoor Circuit Box / Alarm Model: PHIL4-13 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

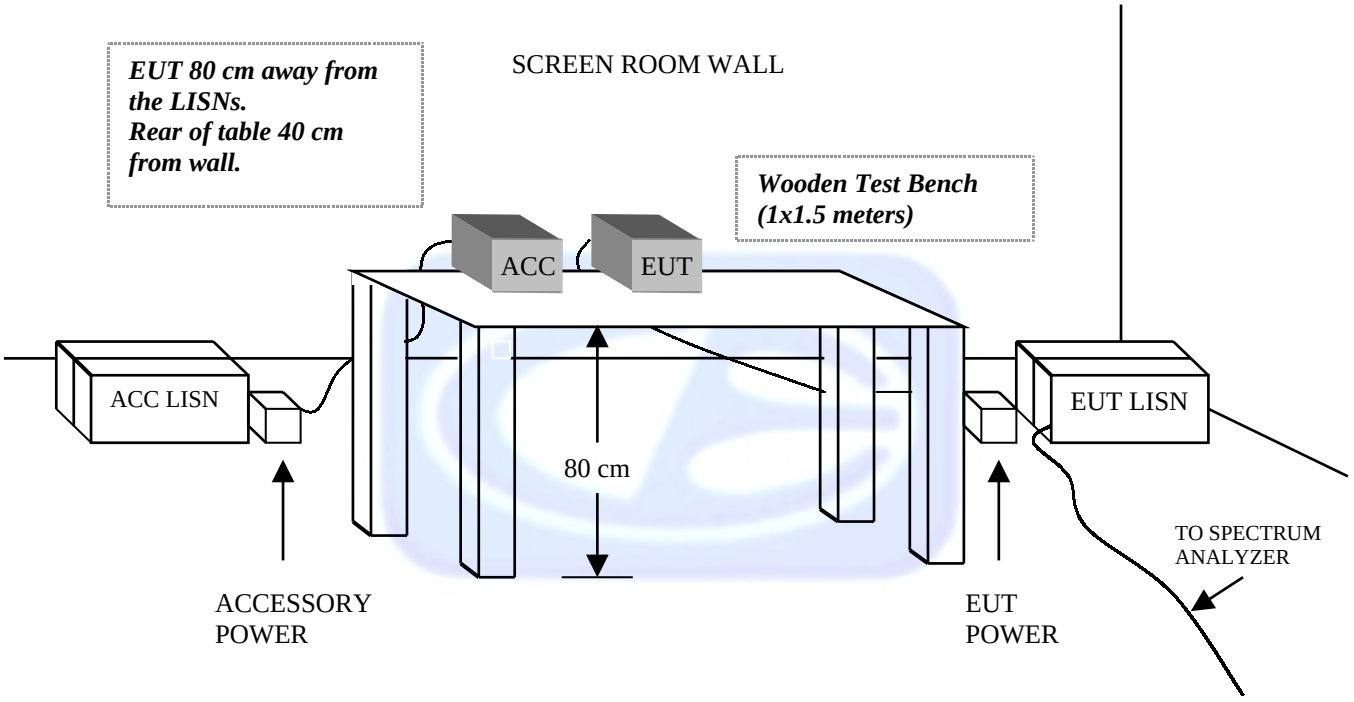
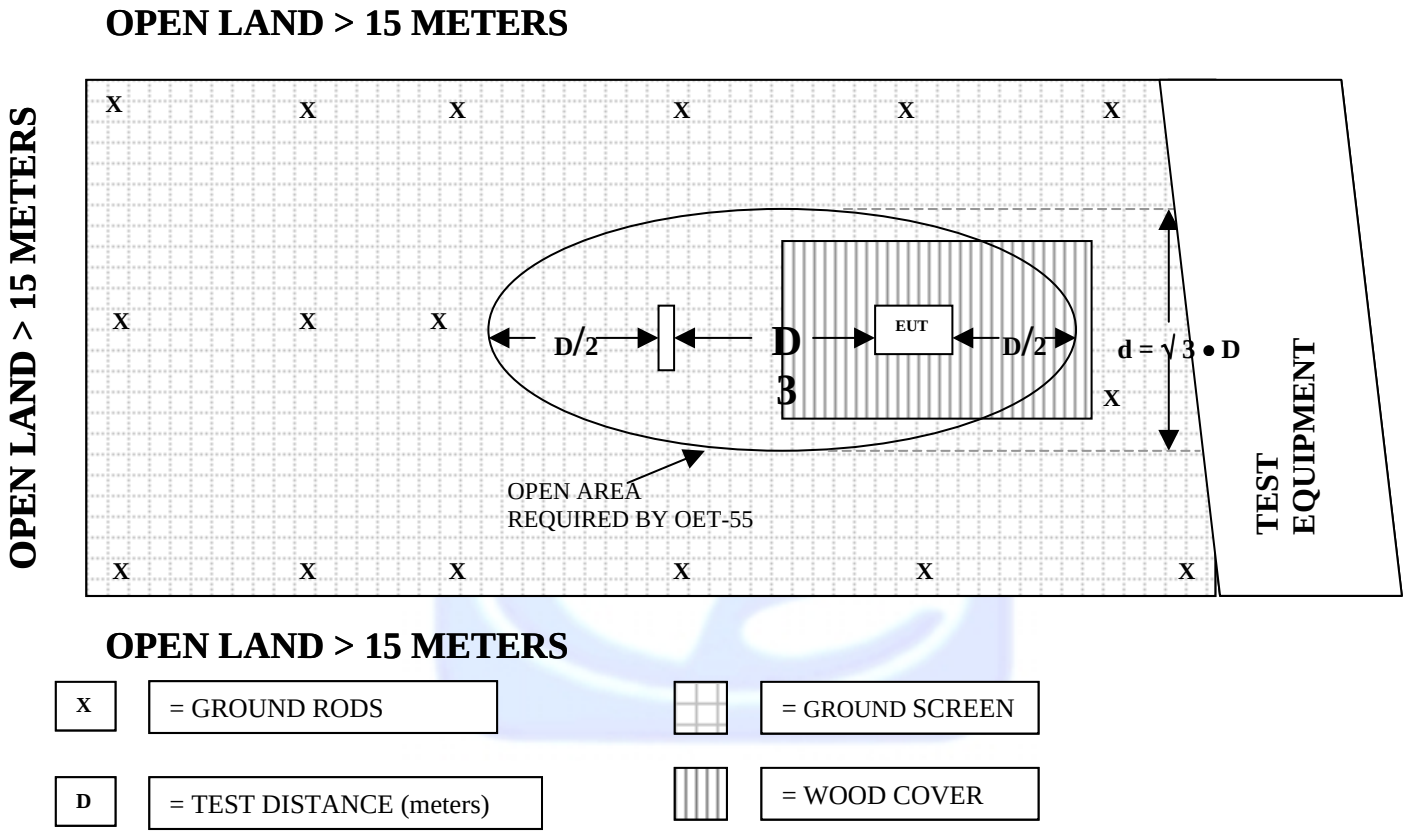


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE



FRONT VIEW

MILLENNIUM ELECTRONICS^2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
FCC SUBPART C - RADIATED EMISSIONS - 04-25-02

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

MILLENNIUM ELECTRONICS^2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
FCC SUBPART C - RADIATED EMISSIONS – 04-25-02

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

FRONT VIEW

MILLENNIUM ELECTRONICS^2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
FCC SUBPART C - CONDUCTED EMISSIONS – 04-26-02

PHOTOGRAPH SHOWING THE EUT CONFIGURATION FOR MAXIMUM EMISSIONS

REAR VIEW

MILLENNIUM ELECTRONICS^2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
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:	17030
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: 1 meter

APPENDIX D

DATA SHEETS

RADIATED EMISSIONS

DATA SHEETS

RADIATED EMISSIONS (FCC SECTION 15.205 AND 15.231)

COMPANY	**MILLENNIUM ELECTRONICS2, INC.**	**DATE**	**4/25/02**
EUT	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	95.9	86.3 A	H	2.0	180			15.4	3.3	38.1	0.0	0.0	**66.9**	**-13.3**	**80.2**	
418.0000	104.6	95.0 A	V	1.0	90			15.4	3.3	38.1	0.0	0.0	**75.6**	**-4.6**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	37.5	27.9 A	H	1.0	180			22.5	4.8	37.8	0.0	0.0	**17.4**	**-42.8**	**60.2**	
836.0000	41.1	31.5 A	V	1.5	180			22.5	4.8	37.8	0.0	0.0	**21.0**	**-39.2**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	46.9	37.3 A	H	1.0	180			26.1	2.6	33.1	0.0	0.0	**32.8**	**-27.4**	**60.2**	
1254.0000	44.5	34.9 A	V	1.0	180			26.1	2.6	33.1	0.0	0.0	**30.4**	**-29.8**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	43.4	33.8 A	H	1.0	180			27.6	3.3	32.4	0.0	0.0	**32.2**	**-21.8**	**54.0**	
1672.0000	39.1	29.5 A	V	1.0	0			27.6	3.3	32.4	0.0	0.0	**27.9**	**-26.1**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	41.3	31.7 A	H	1.0	180			29.6	3.6	32.2	0.0	0.0	**32.6**	**-27.6**	**60.2**	
2090.0000	40.8	31.2 A	V	1.0	0			29.6	3.6	32.2	0.0	0.0	**32.1**	**-28.1**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	37.3	27.7 A	H	1.0	180			30.4	3.5	33.3	0.0	0.0	**28.4**	**-31.8**	**60.2**	
2508.0000	35.9	26.3 A	V	1.0	180			30.4	3.5	33.3	0.0	0.0	**27.0**	**-33.2**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	38.3	28.7 A	H					31.1	4.9	31.9	0.0	0.0	**32.8**	**-27.4**	**60.2**	
2926.0000	38.6	29.0 A	V					31.1	4.9	31.9	0.0	0.0	**33.1**	**-27.1**	**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	**OUTDOOR CIRCUIT BOX / ALARM**	**DUTY CYCLE**	**33 %**
MODEL	**PHIL4-13**	**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	37.7	28.1 A	H					32.0	4.9	31.6	0.0	0.0	**33.4**	**-26.8**	**60.2**	
3344.0000	37.3	27.7 A	V					32.0	4.9	31.6	0.0	0.0	**33.0**	**-27.2**	**60.2**	

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

** DELTA = SPEC LIMIT - CORRECTED READING

No Harmonics nor Emissions Found After the 8th Harmonic

Test location: Compatible Electronics
Customer : MILLENNIUM ELECTRONICS^2, INC. Date : 4/25/2002
Manufacturer : MILLENNIUM ELECTRONICS^2, INC. Time : 13.35
EUT name : OUTDOOR CIRCUIT BOX / ALARM
Model : PHIL4-13
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode : OUTDOOR ALARM PANEL
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 loss	Ant factor	Amp gain	Cor'd rdg = R	limit = L	Delta R-L
	MHz	dBuV	dB	dB	dB	dBuV	dBuV/m	dB
VERTICAL POLARIZATION								
1V	30.15	42.60	0.70	13.70	38.50	18.50	40.00	-21.50
2V	32.22	47.60	0.74	13.70	38.50	23.54	40.00	-16.46
3V	49.25	58.00	1.09	11.20	38.50	31.78	40.00	-8.22
4V	67.87	58.80	1.28	8.98	38.50	30.56	40.00	-9.44
5V	69.86	53.90	1.30	8.63	38.50	25.32	40.00	-14.68
6V	84.30	10.00	1.50	8.30	38.41	-18.61	40.00	-58.61
7V	122.93	49.70	1.78	11.12	38.58	24.03	43.50	-19.47
8V	334.16	40.50	3.34	14.44	38.43	19.85	46.00	-26.15
9V	381.06	40.10	3.59	14.91	38.28	20.32	46.00	-25.68
10V	407.42	46.30	3.73	15.21	38.14	27.10	46.00	-18.90
11V	449.06	40.50	3.90	15.84	37.81	22.42	46.00	-23.58
12V	454.29	43.70	3.92	15.91	37.82	25.71	46.00	-20.29
13V	508.40	45.20	4.15	16.88	38.03	28.19	46.00	-17.81
14V	702.94	36.50	5.11	20.65	38.08	24.18	46.00	-21.82
15V	704.40	46.00	5.11	20.68	38.06	33.72	46.00	-12.28
HORIZONTAL POLARIZATION								
16H	44.71	55.40	0.99	12.27	38.50	30.16	40.00	-9.84
17H	72.09	47.50	1.34	8.54	38.50	18.88	40.00	-21.12
18H	110.70	47.20	1.69	9.98	38.43	20.43	43.50	-23.07
19H	137.81	52.00	1.90	12.31	38.55	27.66	43.50	-15.84
20H	221.22	39.60	2.48	16.62	38.50	20.21	46.00	-25.79
21H	309.74	45.10	3.24	14.20	38.48	24.06	46.00	-21.94
22H	334.20	46.10	3.34	14.44	38.43	25.45	46.00	-20.55
23H	448.60	42.10	3.89	15.83	37.81	24.01	46.00	-21.99

Test location: Compatible Electronics
Customer : MILLENNIUM ELECTRONICS^2, INC. Date : 4/25/2002
Manufacturer : MILLENNIUM ELECTRONICS^2, INC. Time : 14.45
EUT name : OUTDOOR CIRCUIT BOX / ALARM
Model : PHIL4-13
Specification: Fcc_B Test distance: 3.0 mtrs Lab: D
Distance correction factor(20*log(test/spec)) : 0.00
Test Mode : OUTDOOR ALARM PANEL
SPURIOUS EMISSIONS 30 MHz TO 9300 MHz
RECEIVE MODE (WORST CASE)
TEMPERATURE 73 DEGREES F., RELATIVE HUMIDITY 47%
TESTED BY: KYLE FUJIMOTO

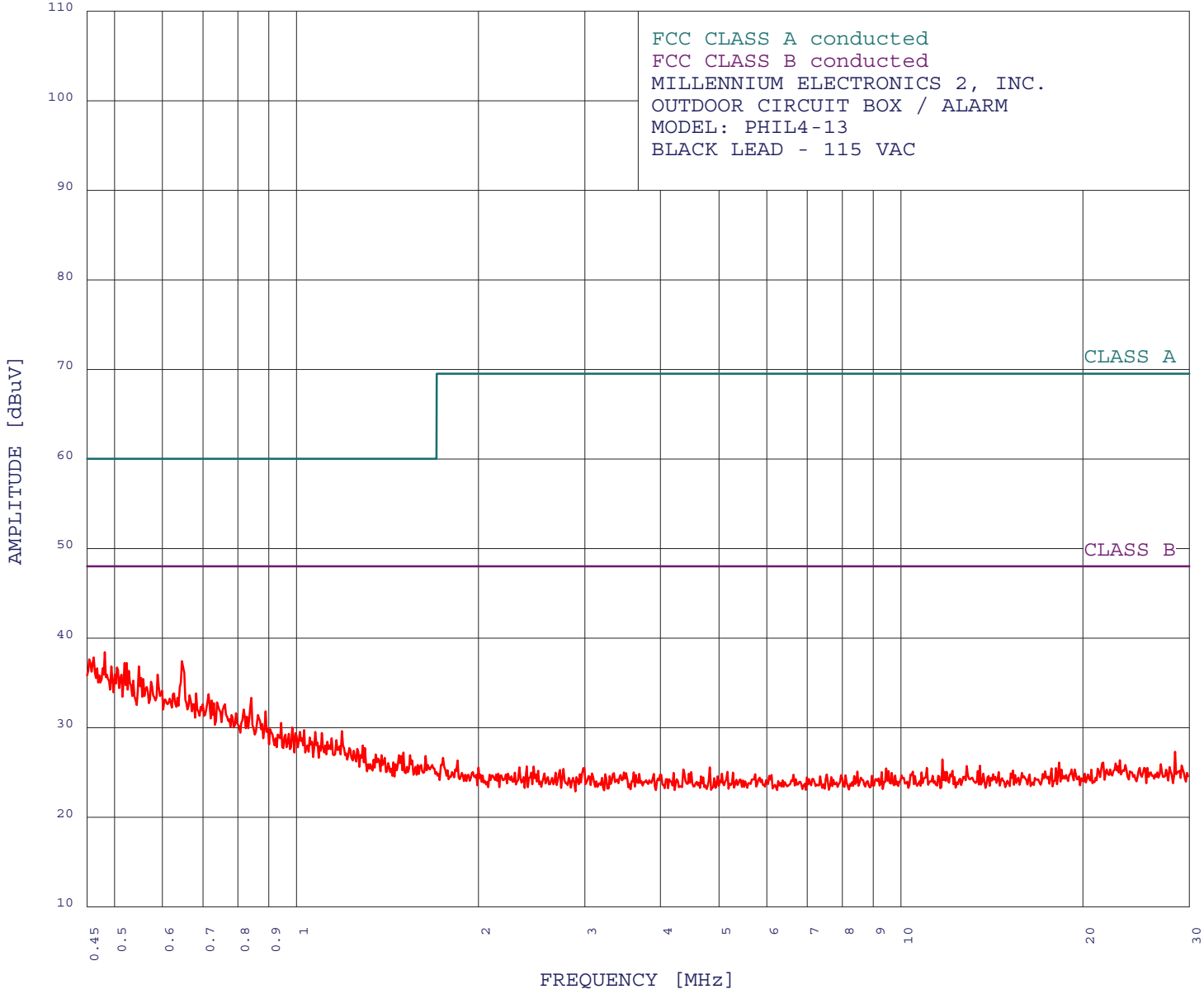
THERE WERE NO EMISSIONS FOUND FOR THE EUT BETWEEN 10 kHz AND 30 MHz.
BOTH THE VERTICAL AND HORIZONTAL POLARIZATIONS WERE INVESTIGATED.

CONDUCTED EMISSIONS

DATA SHEETS

EMISSION LEVEL [dBuV] PEAK 4/26/2002 7:40:23

Graph for Peak



COMPATIBLE ELECTRONICS

COMPATIBLE ELECTRONICS

4/26/2002 7:40:23

MILLENNIUM ELECTRONICS 2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
FCC CLASS B - BLACK LEAD - 115 VAC
TEST ENGINEER : KYLE FUJIMOTO

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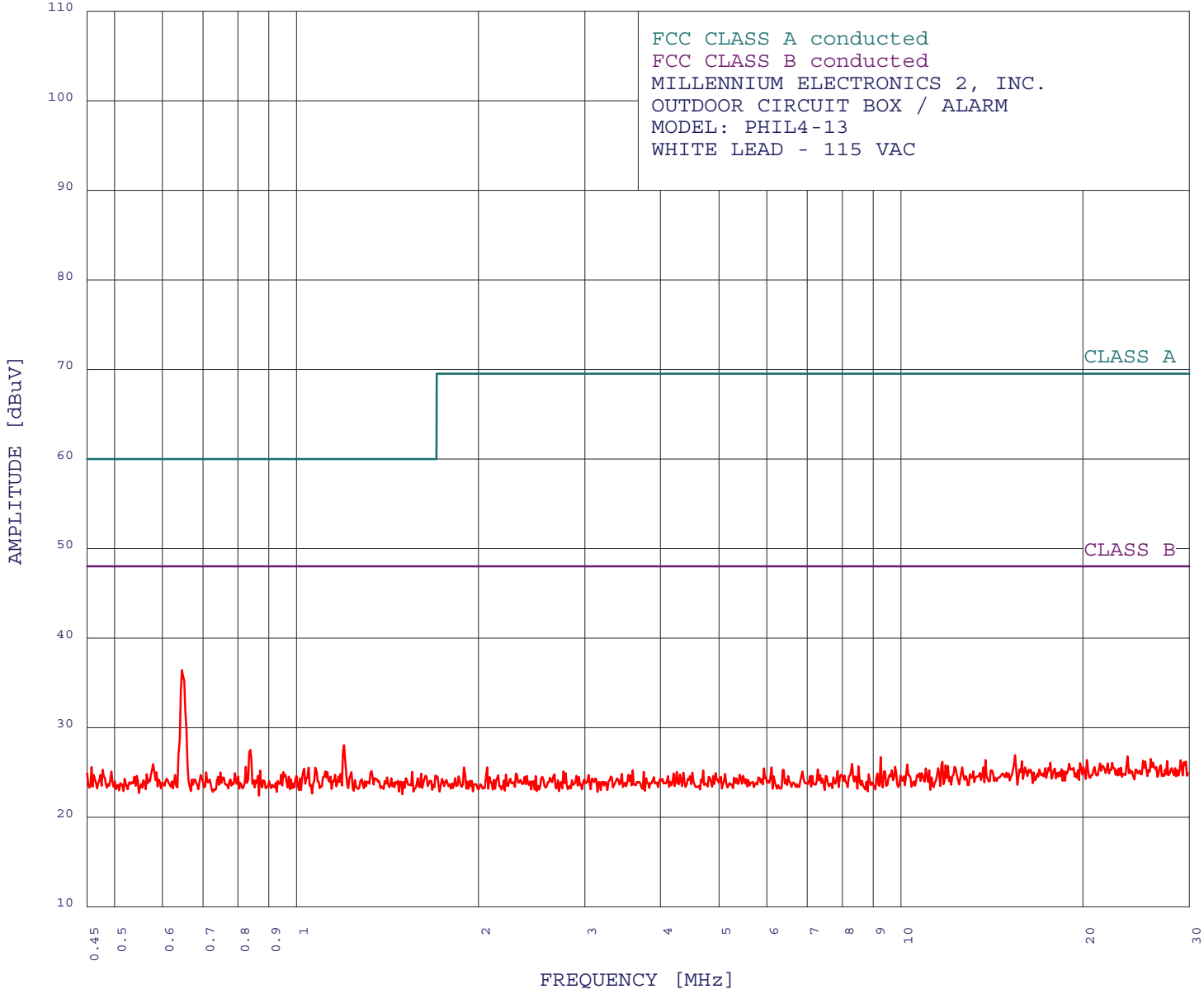
30 highest peaks above -50.00 dB of CLASS B limit line
Peak criteria : 1.00 dB, Curve : Peak

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 4/26/2002 8:12:17

Graph for Peak



COMPATIBLE ELECTRONICS

COMPATIBLE ELECTRONICS

4/26/2002 8:12:17

MILLENNIUM ELECTRONICS 2, INC.
OUTDOOR CIRCUIT BOX / ALARM
MODEL: PHIL4-13
FCC CLASS B - WHITE LEAD - 115 VAC
TEST ENGINEER : KYLE FUJIMOTO

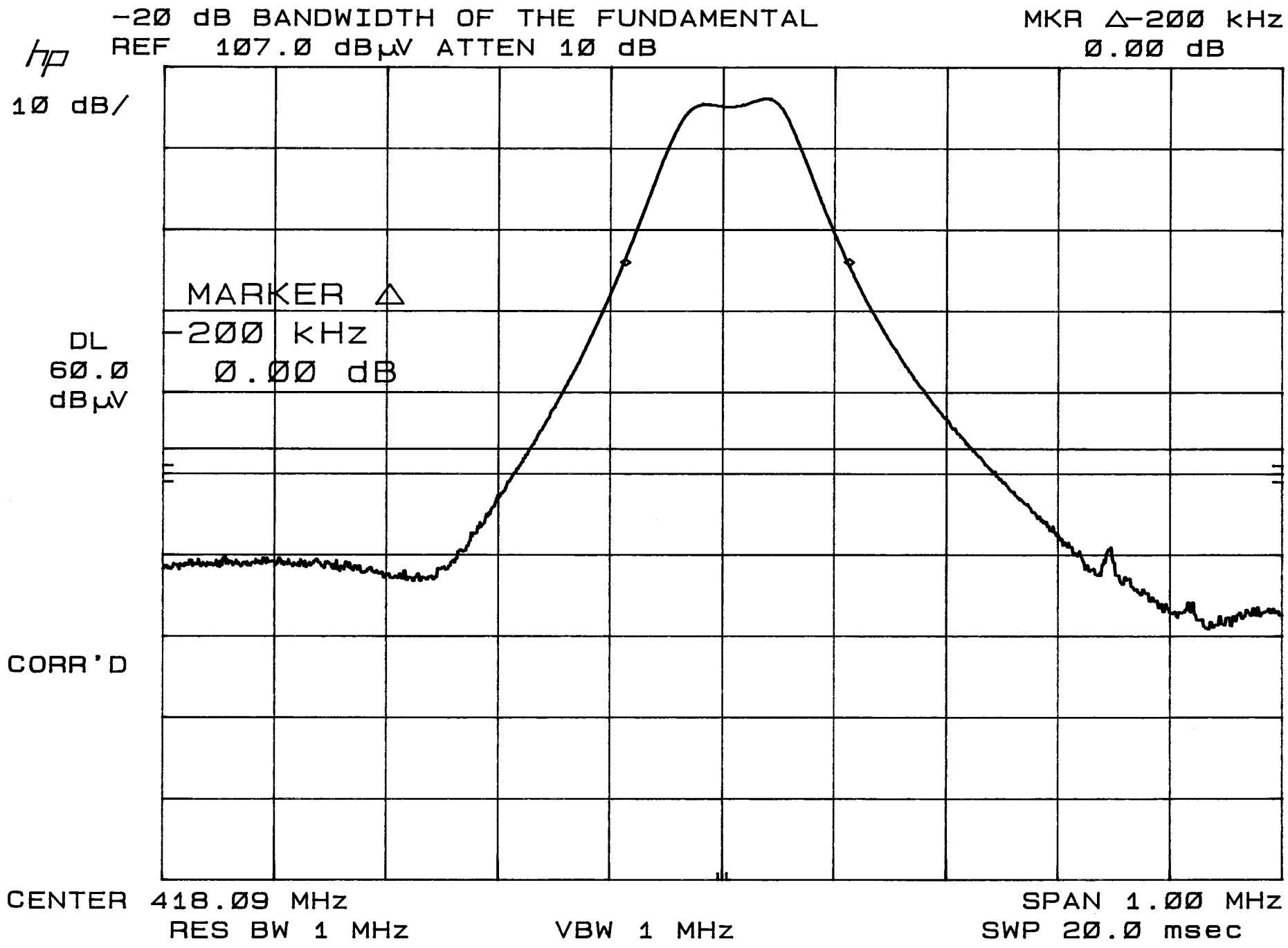
---

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	0.646	36.41	48.00	-11.59
2	1.198	28.03	48.00	-19.97
3	0.839	27.52	48.00	-20.48
4	15.456	26.91	48.00	-21.09
5	23.726	26.81	48.00	-21.19
6	9.256	26.70	48.00	-21.30
7	25.916	26.49	48.00	-21.51
8	20.317	26.37	48.00	-21.63
9	13.803	26.37	48.00	-21.63
10	29.033	26.34	48.00	-21.66
11	25.157	26.30	48.00	-21.70
12	27.583	26.28	48.00	-21.72
13	15.858	26.25	48.00	-21.75
14	29.637	26.22	48.00	-21.78
15	11.717	26.18	48.00	-21.82
16	17.686	26.10	48.00	-21.90
17	22.378	26.07	48.00	-21.93
18	19.798	26.04	48.00	-21.96
19	21.353	26.00	48.00	-22.00
20	22.003	25.99	48.00	-22.01
21	18.997	25.99	48.00	-22.01
22	8.305	25.96	48.00	-22.04
23	0.579	25.90	48.00	-22.10
24	10.244	25.87	48.00	-22.13
25	11.861	25.79	48.00	-22.21
26	26.916	25.79	48.00	-22.21
27	11.961	25.70	48.00	-22.30
28	8.510	25.67	48.00	-22.33
29	9.783	25.63	48.00	-22.37
30	12.274	25.63	48.00	-22.37

-20 dB BANDWIDTH

DATA SHEET


-20 dB BANDWIDTH OF THE FUNDAMENTAL
MKR Δ-200 kHz
REF 107.0 dBμV ATTEN 10 dB
0.00 dB
10 dB/
MARKER Δ
-200 kHz
0.00 dB
DL
60.0
dBμV
CORR'D
CENTER 418.09 MHz
SPAN 1.00 MHz
RES BW 1 MHz
VBW 1 MHz
SWP 20.0 msec

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)