CKC LABORATORIES, INC.
Testing the Future
5473A Clouds Rest • Mariposa, CA 95338 • 209-966-5640

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EMC/SAFETY

HID CORPORATION ADDENDUM TO FC01-026

FOR THE

PCPROX, 6070B (6070-310)

FCC PART 15 SUBPART C SECTIONS 15.207 & 15.209

COMPLIANCE

DATE OF ISSUE: JUNE 13, 2001

PREPARED FOR:

HID Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

P.O. No.: 6786
W.O. No.: 75968

PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: January 17 - March 22, 2001

Report No.: FC01-026A

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

DATE OF TEST:	January 17 - March 22, 2001
DATE OF RECEIPT:	January 17, 2001
PURPOSE OF TEST:	To demonstrate the compliance of the pcProx, 6070B (6070-310) with the requirements for FCC Part 15 Subpart C Section 15.209 and 15.207 devices. This addendum is to correct Table B, Bandwidth Settings on page 14.
TEST METHOD:	ANSI C63.4 (1992)
MANUFACTURER:	HID Corporation 9292 Jeronimo Road Irvine, CA 92618-1905
REPRESENTATIVE:	Frank de Vall
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the HID Corporation pcProx, 6070B (6070-310) was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart C Sections 15.207 & 15.209
- ANSI C63.4 (1992) method

Canada

RSS-210 using:

- FCC Part 15 Subpart C Sections 15.207 & 15.209
- ANSI C63.4 (1992) method

The results in this report apply only to the items tested, as identified herein.

Test Overview

Section	Test Type	Results
15.33	Frequency Ranges	
15.35	Bandwidth Settings	
15.203	Antenna Requirements	Pass
15.205	Restricted Band	Pass
15.207	Mains Conducted Emissions	Pass
15.215(c)	Bandwidth	Pass
15.209	Field Strength of Fundamental Frequency	Pass
15.209	Field Strength of Radiated Spurious Emissions	Pass

MODIFICATIONS REQUIRED FOR COMPLIANCE

APPROVALS

QUALITY ASSURANCE:

Dennis Ward

Dennis Ward, Quality Manager

Chuck Kendall

Chuck Kendall, EMC/Lab Manager

TEST PERSONNEL:

Randy Clark

Randy Clark, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit.

Proximity reader for secure computer log-on and secure network access. 5 VDC.

EQUIPMENT UNDER TEST

pcProx

Manuf:	HID Corporation
Model:	6070B (6070-310)
Serial:	001
FCC ID:	JQ66070BA(pending)

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Card

Manuf:	HID Corporation
Model:	ISOProx II
Serial:	00578
FCC ID:	DoC

Computer

Manuf:	IBM
Model:	310ED
Serial:	60A1130
FCC ID:	HLZ 315

Power Supply

Manuf:	IBM
Model:	310
Serial:	L4806012219
FCC ID:	CE, UL

MODE OF OPERATION

The EUT was configured by the manufacturer to operate in a continuous transmit mode for testing purposes. The EUT is normally in an idle state and is activated by the user via a push button on the front of the device.

15.33 FREQUENCY RANGE TESTED

15.209 Radiated Emissions:	9 kHz to 30 MHz
15.209 Radiated Emissions:	30 MHz to 1000 MHz
15.207 Conducted Emissions:	450 kHz to 30 MHz

EUT OPERATING FREQUENCY

The EUT was operating at 125kHz.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the pcProx, 6070B (6070-310). All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 1: 15.207 Six Highest Mains Conducted Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Lisn dB	dB	Cable dB	dB	CORRECTED READING dBµV	SPEC LIMIT dBµV	MARGIN dB	NOTES
15.165710	40.0	0.4		0.3		40.7	48.0	-7.3	W
15.253870	38.8	0.8		0.3		39.9	48.0	-8.1	B
15.606550	40.0	0.8		0.3		41.1	48.0	-6.9	B
15.871050	41.3	0.3		0.3		41.9	48.0	-6.1	W
16.135560	40.5	0.7		0.3		41.5	48.0	-6.5	B
16.532310	39.1	0.7		0.3		40.1	48.0	-7.9	B

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead

COMMENTS: EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.).

Table 2: 15.209 Field Strength of Fundamental Frequency

FREQUENCY	METER READING	CORRECTION FACTORS				CORRECTED READING	SPEC LIMIT	MARGIN	NOTES
		Ant	Amp	Cable	FCC 15.31				
MHz	dBµV	dB	dB	dB	dB	dBµV/m	dBµV/m	dB	
0.125	70.6	10.8	-24.2	0.1	-60.0	-2.7	25.6	-28.3	N

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 10 Meters

NOTES: N = No Polarization

COMMENTS: EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.). Correction factors in accordance with FCC 15.31 employed.

Table 3: 15.209 Six Highest Radiated Spurious Emission Levels: 9 kHz – 30 MHz

FREQUENCY	METER READING	CORRECTION FACTORS				CORRECTED READING	SPEC LIMIT	MARGIN	NOTES
		Ant	Amp	Cable	FCC 15.31				
MHz	dBµV	dB	dB	dB	dB	dBµV/m	dBµV/m	dB	
0.376	52.8	10.6	-24.9	0.0	-60.0	-21.5	16.1	-37.6	N
0.252	58.6	10.6	-24.6	0.1	-60.0	-15.3	19.6	-34.9	N
0.501	50.1	10.7	-25.1	0.1	-20.0	15.8	33.6	-17.8	N
0.749	51.5	10.8	-25.2	0.2	-20.0	17.3	30.1	-12.8	N
0.874	58.4	10.6	-25.3	0.2	-20.0	23.9	28.7	-4.8	N
0.999	56.8	10.7	-25.3	0.2	-20.0	22.4	27.6	-5.2	N

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 10 Meters

NOTES: N = No Polarization

COMMENTS: EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.). Correction factors in accordance with FCC 15.31 employed.

Table 4: 15.209 Six Highest Radiated Spurious Emission Levels: 30 MHz - 1000 MHz

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
431.074	46.2	16.8	-25.6	4.4		41.8	46.0	-4.2	H
448.148	44.1	17.2	-25.6	4.6		40.3	46.0	-5.7	H
448.372	48.0	17.2	-25.6	4.6		44.2	46.0	-1.8	VQ
457.168	46.5	17.4	-25.6	4.6		42.9	46.0	-3.1	VQ
465.998	44.0	17.6	-25.7	4.6		40.5	46.0	-5.5	VQ
466.004	44.1	17.6	-25.7	4.6		40.6	46.0	-5.4	VQ

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading

COMMENTS: EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pc Prox is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.).

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ± 4dB measurement uncertainty.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected. The interval between different pieces of equipment was approximately 10 centimeters. All excessive interconnecting cable was bundled in 30-40 centimeter lengths.

The radiated and conducted emissions data of the pcProx, 6070B (6070-310), was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS

	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

A typical data sheet will display the following in column format:

#	Freq	Rdng	Amp	Bicon	LOG S	Cable	Corr	Spec	Margin	Polar
			FCC 15.31	Dist	LISN		Mag L			

means reading number.
Freq is the frequency in MHz of the obtained reading.
Rdng is the reading obtained on the spectrum analyzer in dBµV.
Amp is the preamplifier factor or gain in dB.
Bicon is the biconical antenna factor in dB.
LOG S is the log periodic antenna factor in dB.
Cable is the cable loss in dB of the coaxial cable on the OATS.
Mag L is the magnetic loop antenna factor in dB.
Dist is the distance factor in dB used when testing at a different test distance than the one stated in the spec.
Corr is the corrected reading in dBµV/m (field strength).
Spec is the specification limit (dB) stated in the FCC regulations.
Margin is the closeness to the specified limit in dB; + is over and - is under the limit.
Polar is the polarity of the antenna with respect to earth.
LISN is the line impedance stabilization network factor in dB for conducted emissions.
FCC 15.31 is the average correction called in FCC Part 15.31.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the pcProx, 6070B (6070-310). For radiated measurements below 30 MHz, the mag loop antenna was used. For radiated measurements from 30 MHz to 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used.. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dBµV, and a vertical scale of 10 dB per division.

FCC SECTION 15.35:
TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the pcProx, 6070B (6070-310).

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual was followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For frequencies below 30 MHz, the mag loop antenna was used. The frequency range of 30 MHz to 88 MHz was scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. The frequency range of 100 to 300 MHz was then scanned in the same manner using the biconical antenna and the peaks recorded. Lastly, a scan of the FM band from 88 to 110 MHz was made, using a reduced resolution bandwidth and frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 to 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 to 1000 MHz was again scanned. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

For conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

TRANSMITTER CHARACTERISTICS

15.203 Antenna Requirements

Integral antenna.

15.205 Restricted Bands

Operating frequency: 125 kHz

The Fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules.

Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

15.209 Power Output

The maximum field strength of the fundamental measured at 10 meters and corrected in accordance with FCC 15.31 to a distance of 300 meters was –2.7 dBµV/m. This measurement was made with the EUT's integral antenna, as there is no provision for connecting an external antenna.

15.215(c) Additional Provisions To The General Radiated Emission Limitations

The fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. Refer to the Report of Measurements section for the fundamental table and Appendix B for the occupied bandwidth plot(s).

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	**4025-503-01**
CRT was displaying:	**NA**
Power Supply Manufacturer:	**Customer supplied PC or Laptop**
Power Supply Part Number:	**NA**
AC Line Filter Manufacturer:	**NA**
AC Line Filter Part Number:	**NA**
Line voltage used during testing:	**110V 60Hz**

I/O PORTS	
Type	#
DC Power	1
RS 232	2

CRYSTAL OSCILLATORS	
Type	Freq In MHz
Resonator, MCM Module	4
Resonator, Main Bd.	4

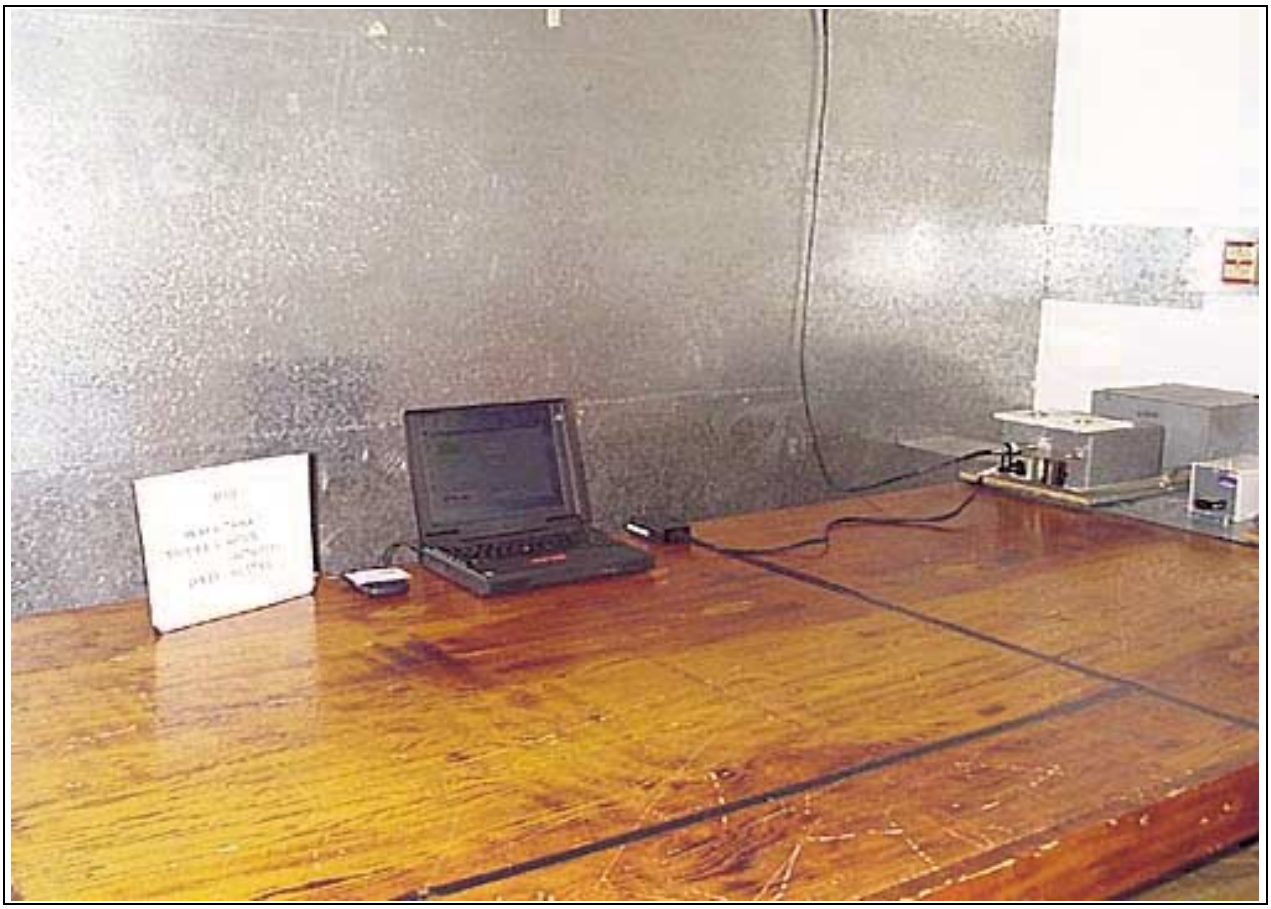
PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Transmitter, Receiver, And Microprocessor	4025A (4025-301)	4	4	Daughter Module
Control				
Microprocessor	6070-311-01	4	2	Main
Control, RS 232				Electronics
Interface, LED				Board

CABLE INFORMATION

Cable #:	1	Cable(s) of this type:	1
Cable Type:	Shielded	Shield Type:	Foil & Drain Wire
Construction:	Multiconductor	Length In Meters:	0.5
Connected To End (1):	pcProx	Connected To End (2):	DC power from PC or Laptop
Connector At End (1):	Direct Connect	Connector At End (2):	PS2
Shield Grounded At (1):	Cable 2 drain wire	Shield Grounded At (2):	Not connected
Part Number:	6070-211	Number of Conductors:	2
Notes and/or description:			

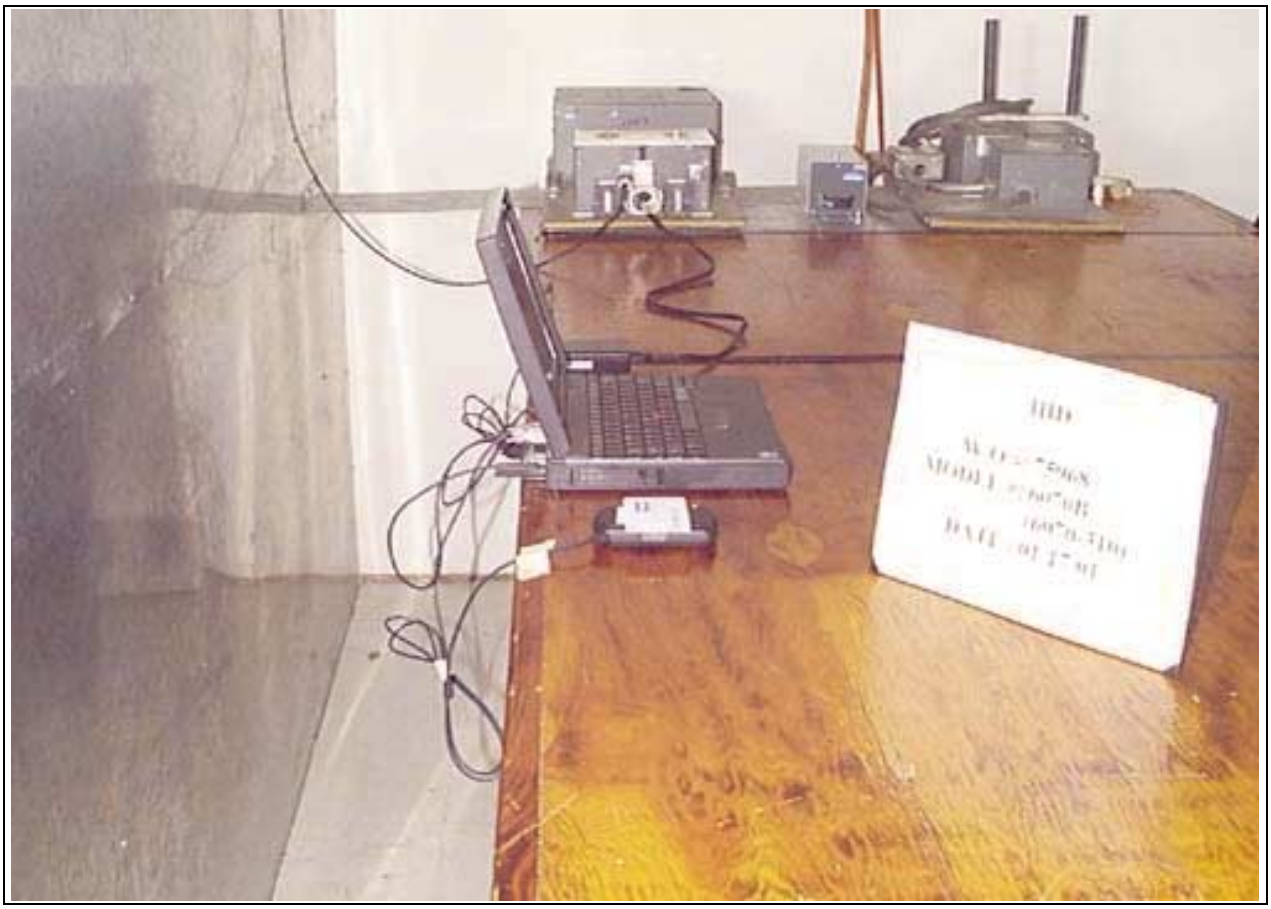
Cable #:	2	Cable(s) of this type:	1
Cable Type:	Shielded	Shield Type:	Foil & Drain Wire
Construction:	Multiconductor	Length In Meters:	1.83
Connected To End (1):	pcProx	Connected To End (2):	RS232 PC or Laptop Serial Port
Connector At End (1):	Direct Connect	Connector At End (2):	DB9
Shield Grounded At (1):	PcProx DC Gnd.	Shield Grounded At (2):	Cable 1 drain wire
Part Number:	6070-211	Number of Conductors:	8
Notes and/or description:			

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Side View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS

Radiated Emissions - Back View

:

APPENDIX B

TEST EQUIPMENT LIST

Mariposa B

Industry of Canada File No. IC 3082-D

Ref #	Equipment	Mfg.	Model #	Serial #	Asset #	Cal Date	Cal Due
502	Spectrum Analyzer	HP	8566B	2209A01404	00490	11/3/2000	11/3/2001
472	SA Display Section	HP	8566B	2403A08241	00489	11/3/2000	11/3/2001
401	Preamp	HP	8447D	1937A02604	00099	4/3/2000	4/3/2001
439	QP Adapter	HP	85650A	2811A01267	00478	11/3/2000	11/3/2001
327	LISN's set	Solar	8028-50-TS-24-BNC	814493, 474	02056	6/5/2000	6/5/2001
88	Antenna, Bicon	A&H	SAS 200/540	431	00565	12/8/2000	12/8/2001
340	Antenna, Log Periodic	EMCO	3146	2202	00147	12/4/2000	12/4/2001

APPENDIX C

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **HID**
Specification: **FCC 15.207**
Work Order #: **75968** Date: 01/17/2001
Test Type: **Conducted Emissions** Time: 12:27:49
Equipment: **Card Reader** Sequence#: 3
Manufacturer: HID Tested By: Randal Clark
Model: pcPROX - 6070B (6070-310)
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Card Reader*	HID	pcPROX - 6070B (6070-310)	001

Support Devices:

Function	Manufacturer	Model #	S/N
Card	HID	ISOProx II	00578
Power Supply	IBM	310	L4806012219
Computer	IBM	310ED	60A1130

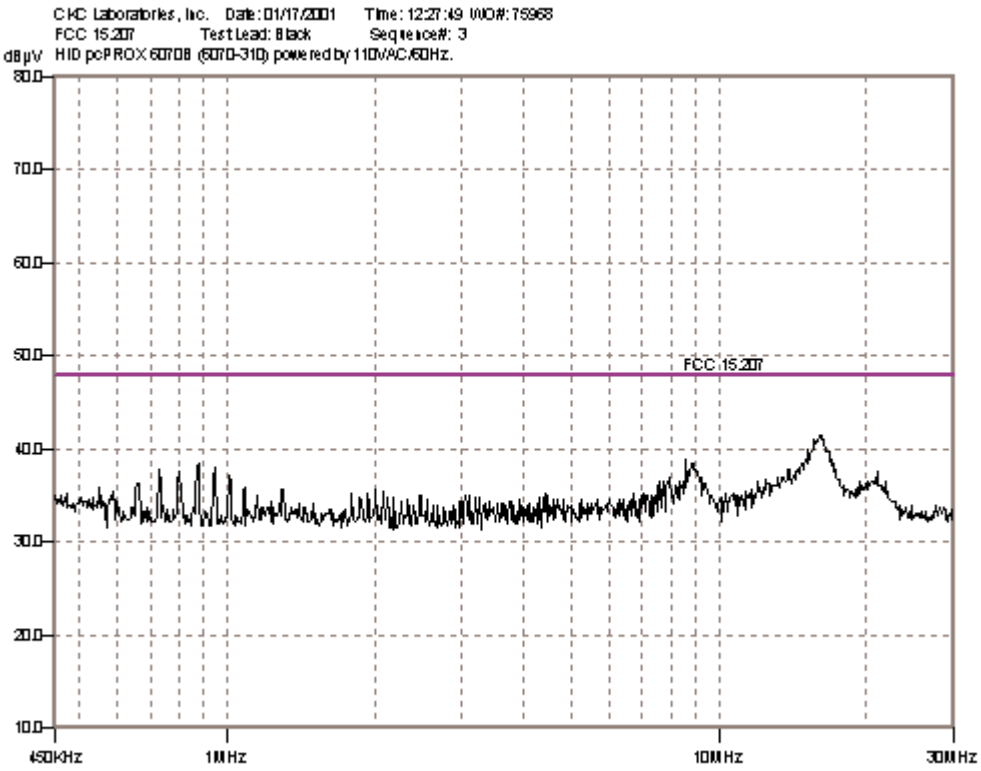
Test Conditions / Notes:

EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.).

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	16.136M	40.5	+0.3	+0.7			+0.0	41.5	48.0	-6.5	Black
2	15.607M	40.0	+0.3	+0.8			+0.0	41.1	48.0	-6.9	Black
3	16.532M	39.1	+0.3	+0.7			+0.0	40.1	48.0	-7.9	Black
4	15.254M	38.8	+0.3	+0.8			+0.0	39.9	48.0	-8.1	Black
5	875.712k	37.9	+0.1	+0.4			+0.0	38.4	48.0	-9.6	Black
6	947.406k	37.5	+0.1	+0.4			+0.0	38.0	48.0	-10.0	Black
7	729.207k	37.2	+0.1	+0.4			+0.0	37.7	48.0	-10.3	Black
8	804.018k	37.1	+0.1	+0.4			+0.0	37.6	48.0	-10.4	Black
9	1.013M	36.6	+0.1	+0.4			+0.0	37.1	48.0	-10.9	Black
10	659.072k	35.7	+0.1	+0.4			+0.0	36.2	48.0	-11.8	Black

11	1.088M	35.3	+0.1	+0.4	+0.0	35.8	48.0	-12.2	Black
12	552.908k	35.3	+0.1	+0.4	+0.0	35.8	48.0	-12.2	Black
13	1.298M	35.2	+0.1	+0.4	+0.0	35.7	48.0	-12.3	Black


CKC Laboratories, Inc. Date: 01/17/2001 Time: 12:27:49 WO#: 75968
FCC 15.207 Test Lead: Black Sequence#: 3
dBµV HID proPROX 60708 (6070-310) powered by 110VAC/60Hz.
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **HID**
Specification: **FCC 15.207**
Work Order #: **75968** Date: 01/17/2001
Test Type: **Conducted Emissions** Time: 12:33:45
Equipment: **Card Reader** Sequence#: 4
Manufacturer: HID Tested By: Randal Clark
Model: pcPROX - 6070B (6070-310)
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Card Reader*	HID	pcPROX - 6070B (6070-310)	001

Support Devices:

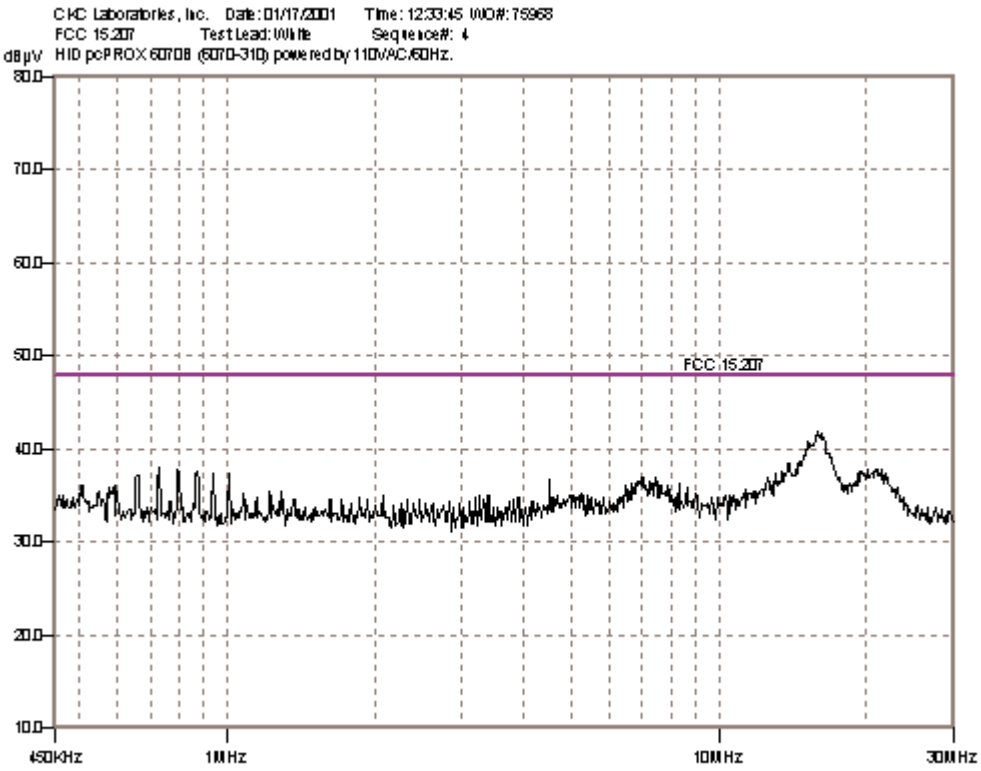
Function	Manufacturer	Model #	S/N
Card	HID	ISOProx II	00578
Power Supply	IBM	310	L4806012219
Computer	IBM	310ED	60A1130

Test Conditions / Notes:

EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.).

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dBµV	Cable dB	dB	LISN dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	15.871M	41.3	+0.3		+0.3		+0.0	41.9	48.0	-6.1	White
2	15.166M	40.0	+0.3		+0.4		+0.0	40.7	48.0	-7.3	White
3	729.207k	37.4	+0.1		+0.6		+0.0	38.1	48.0	-9.9	White
4	797.784k	37.2	+0.1		+0.6		+0.0	37.9	48.0	-10.1	White
5	872.595k	36.9	+0.1		+0.6		+0.0	37.6	48.0	-10.4	White
6	1.013M	36.6	+0.1		+0.6		+0.0	37.3	48.0	-10.7	White
7	939.613k	36.6	+0.1		+0.6		+0.0	37.3	48.0	-10.7	White
8	659.072k	36.4	+0.1		+0.6		+0.0	37.1	48.0	-10.9	White
9	4.548M	35.2	+0.1		+1.4		+0.0	36.7	48.0	-11.3	White
10	592.054k	35.4	+0.1		+0.6		+0.0	36.1	48.0	-11.9	White
11	508.555k	35.4	+0.1		+0.6		+0.0	36.1	48.0	-11.9	White
12	576.469k	35.1	+0.1		+0.6		+0.0	35.8	48.0	-12.2	White


CKC Laboratories, Inc. Date: 01/17/2001 Time: 12:33:45 WO#: 75968
FCC 15.207 Test Lead: White Sequence#: 4
dBµV HID pcPROX 60708 (6070-310) powered by 110VAC/60Hz.
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **HID**
Specification: **FCC 15 C PARA 15.209**
Work Order #: **75968** Date: 03/22/2001
Test Type: **Maximized Emissions** Time: 15:59:47
Equipment: **Card Reader** Sequence#: 7
Manufacturer: HID Tested By: Randal Clark
Model: pcPROX - 6070B (6070-310)
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Card Reader*	HID	pcPROX - 6070B (6070-310)	001

Support Devices:

Function	Manufacturer	Model #	S/N
Power Supply	IBM	310	L4806012219
Computer	IBM	310ED	60A1130
Card	HID	ISOProx II	00578

Test Conditions / Notes:

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Measurement Data: Reading listed by margin. Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	Amp dB	Mag L dB	Cable dB	FCC 15.31 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	874.330k	58.4	-25.3	+10.6	+0.2	-20.0	+0.0	23.9	28.7	-4.8	None
2	999.270k	56.8	-25.3	+10.7	+0.2	-20.0	+0.0	22.4	27.6	-5.2	None
3	749.190k	51.5	-25.2	+10.8	+0.2	-20.0	+0.0	17.3	30.1	-12.8	None
4	500.940k	50.1	-25.1	+10.7	+0.1	-20.0	+0.0	15.8	33.6	-17.8	None
5	125.176k	70.6	-24.2	+10.8	+0.1	-60.0	+0.0	-2.7	25.6	-28.3	None Funda-mental
6	251.890k	58.6	-24.6	+10.6	+0.1	-60.0	+0.0	-15.3	19.6	-34.9	None
7	376.170k	52.8	-24.9	+10.6	+0.0	-60.0	+0.0	-21.5	16.1	-37.6	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **HID**
Specification: **FCC 15.209**
Work Order #: **75968** Date: 03/22/2001
Test Type: **Radiated Scan** Time: 15:16:44
Equipment: **Card Reader** Sequence#: 5
Manufacturer: HID Tested By: Randal Clark
Model: pcPROX - 6070B (6070-310)
S/N: 001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Card Reader*	HID	pcPROX - 6070B (6070-310)	001

Support Devices:

Function	Manufacturer	Model #	S/N
Card	HID	ISOProx II	00578
Power Supply	IBM	310	L4806012219
Computer	IBM	310ED	60A1130

Test Conditions / Notes:

EUT is a computer secure log-on device continuously reading on 125kHz and is peripheral to a computer. Power supplied to the computer is 110VAC/60Hz. Power supplied to the pcProx is +5VDC from the computer. Computer is running a program, AIRID (RF IDeas, Inc.).

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	Amp	Bicon	LOG S	Cable	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	448.372M	48.0	-25.6	+0.0	+17.2	+4.6	+0.0	44.2	46.0	-1.8	Vert
	QP										
^	448.444M	51.1	-25.6	+0.0	+17.2	+4.6	+0.0	47.3	46.0	+1.3	Vert
3	457.168M	46.5	-25.6	+0.0	+17.4	+4.6	+0.0	42.9	46.0	-3.1	Vert
	QP										
^	457.178M	49.4	-25.6	+0.0	+17.4	+4.6	+0.0	45.8	46.0	-0.2	Vert
5	431.074M	46.2	-25.6	+0.0	+16.8	+4.4	+0.0	41.8	46.0	-4.2	Horiz
6	466.004M	44.1	-25.7	+0.0	+17.6	+4.6	+0.0	40.6	46.0	-5.4	Vert
	QP										
^	465.996M	47.0	-25.7	+0.0	+17.6	+4.6	+0.0	43.5	46.0	-2.5	Vert
8	465.998M	44.0	-25.7	+0.0	+17.6	+4.6	+0.0	40.5	46.0	-5.5	Vert
	QP										
^	465.900M	46.9	-25.7	+0.0	+17.6	+4.6	+0.0	43.4	46.0	-2.6	Vert
10	448.148M	44.1	-25.6	+0.0	+17.2	+4.6	+0.0	40.3	46.0	-5.7	Horiz
11	457.112M	43.6	-25.6	+0.0	+17.4	+4.6	+0.0	40.0	46.0	-6.0	Horiz

12	431.016M	43.7	-25.6	+0.0	+16.8	+4.4	+0.0	39.3	46.0	-6.7	Vert
13	474.774M QP	42.5	-25.8	+0.0	+17.8	+4.7	+0.0	39.2	46.0	-6.8	Vert
^	474.774M	45.9	-25.8	+0.0	+17.8	+4.7	+0.0	42.6	46.0	-3.4	Vert
15	185.452M	41.3	-24.8	+16.1	+0.0	+2.7	+0.0	35.3	43.5	-8.2	Vert
16	465.862M	40.7	-25.7	+0.0	+17.6	+4.6	+0.0	37.2	46.0	-8.8	Horiz
17	492.258M	40.1	-25.9	+0.0	+18.1	+4.7	+0.0	37.0	46.0	-9.0	Vert
18	439.804M	40.7	-25.6	+0.0	+17.0	+4.5	+0.0	36.6	46.0	-9.4	Horiz
19	115.329M	43.4	-25.0	+13.3	+0.0	+2.2	+0.0	33.9	43.5	-9.6	Horiz
20	483.594M	39.4	-25.8	+0.0	+18.0	+4.7	+0.0	36.3	46.0	-9.7	Vert
21	185.465M	39.7	-24.8	+16.1	+0.0	+2.7	+0.0	33.7	43.5	-9.8	Horiz
22	120.350M	42.8	-25.0	+13.7	+0.0	+2.2	+0.0	33.7	43.5	-9.8	Horiz
23	115.315M	43.1	-25.0	+13.3	+0.0	+2.2	+0.0	33.6	43.5	-9.9	Vert
24	325.774M	41.4	-24.9	+0.0	+15.8	+3.8	+0.0	36.1	46.0	-9.9	Horiz
25	200.517M	38.8	-24.7	+16.5	+0.0	+2.9	+0.0	33.5	43.5	-10.0	Horiz
26	130.354M	41.3	-25.0	+14.5	+0.0	+2.3	+0.0	33.1	43.5	-10.4	Horiz
27	194.044M	38.3	-24.7	+16.3	+0.0	+2.8	+0.0	32.7	43.5	-10.8	Vert
28	150.395M	39.9	-24.9	+15.3	+0.0	+2.3	+0.0	32.6	43.5	-10.9	Horiz
29	220.566M	40.4	-24.7	+16.4	+0.0	+3.0	+0.0	35.1	46.0	-10.9	Vert
30	36.417M	38.1	-25.0	+14.6	+0.0	+1.1	+0.0	28.8	40.0	-11.2	Vert
31	120.060M	41.3	-25.0	+13.7	+0.0	+2.2	+0.0	32.2	43.5	-11.3	Vert
32	200.529M	37.3	-24.7	+16.5	+0.0	+2.9	+0.0	32.0	43.5	-11.5	Vert
33	255.626M	39.4	-24.6	+16.6	+0.0	+3.1	+0.0	34.5	46.0	-11.5	Vert
34	150.409M	39.2	-24.9	+15.3	+0.0	+2.3	+0.0	31.9	43.5	-11.6	Vert
35	395.918M	39.7	-25.5	+0.0	+16.0	+4.1	+0.0	34.3	46.0	-11.7	Horiz
36	202.927M	37.0	-24.7	+16.5	+0.0	+2.9	+0.0	31.7	43.5	-11.8	Vert

37	140.364M	39.4	-24.9	+14.8	+0.0	+2.3	+0.0	31.6	43.5	-11.9	Horiz
38	45.170M	39.2	-24.9	+11.2	+0.0	+1.3	+0.0	26.8	40.0	-13.2	Vert
39	290.696M	34.6	-24.8	+19.0	+0.0	+3.6	+0.0	32.4	46.0	-13.6	Vert
40	360.835M	37.7	-25.1	+0.0	+15.9	+3.9	+0.0	32.4	46.0	-13.6	Horiz
41	474.492M	35.3	-25.8	+0.0	+17.8	+4.7	+0.0	32.0	46.0	-14.0	Horiz
42	195.010M	34.8	-24.7	+16.4	+0.0	+2.8	+0.0	29.3	43.5	-14.2	Horiz
43	42.772M	37.5	-25.0	+11.9	+0.0	+1.2	+0.0	25.6	40.0	-14.4	Vert
44	260.646M	35.6	-24.6	+17.0	+0.0	+3.2	+0.0	31.2	46.0	-14.8	Horiz
45	140.359M	36.4	-24.9	+14.8	+0.0	+2.3	+0.0	28.6	43.5	-14.9	Vert
46	122.304M	37.1	-25.0	+14.0	+0.0	+2.3	+0.0	28.4	43.5	-15.1	Vert
47	360.894M	36.2	-25.1	+0.0	+15.9	+3.9	+0.0	30.9	46.0	-15.1	Vert
48	255.625M	35.7	-24.6	+16.6	+0.0	+3.1	+0.0	30.8	46.0	-15.2	Horiz
49	260.601M	35.0	-24.6	+17.0	+0.0	+3.2	+0.0	30.6	46.0	-15.4	Vert
50	315.158M	35.9	-24.9	+0.0	+15.8	+3.8	+0.0	30.6	46.0	-15.4	Vert
51	290.651M	32.7	-24.8	+19.0	+0.0	+3.6	+0.0	30.5	46.0	-15.5	Horiz
52	220.549M	35.4	-24.7	+16.4	+0.0	+3.0	+0.0	30.1	46.0	-15.9	Horiz
53	260.638M	34.1	-24.6	+17.0	+0.0	+3.2	+0.0	29.7	46.0	-16.3	Vert
54	132.166M	35.2	-25.0	+14.6	+0.0	+2.3	+0.0	27.1	43.5	-16.4	Vert
55	45.137M	35.8	-24.9	+11.3	+0.0	+1.3	+0.0	23.5	40.0	-16.5	Horiz
56	42.406M	34.5	-25.0	+12.1	+0.0	+1.2	+0.0	22.8	40.0	-17.2	Horiz
57	41.754M	31.2	-25.0	+12.3	+0.0	+1.2	+0.0	19.7	40.0	-20.3	Horiz
58	131.172M	30.3	-25.0	+14.6	+0.0	+2.3	+0.0	22.2	43.5	-21.3	Horiz