



CERTIFICATION TEST REPORT

FOR THE

RFID PROXIMITY READER, 5375A MAXIPROX (5375-310-01)

**FCC PART 15 SUBPART C &
CANADIAN DEPARTMENT OF INDUSTRY RSS-210**

COMPLIANCE

DATE OF ISSUE: SEPTEMBER 14, 1999

PREPARED FOR:

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P.O. No: 008008
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Report No: FC99-030

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Date of test: August 30 & September 2, 1999

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A handwritten signature in cursive script that reads 'Dennis Ward'.

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

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CKC Laboratories, Inc. has Letters of Acceptance through an MRA for the following agencies:
ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); TUV Rheinland-Germany; TUV Rheinland-Korea; TUV Rheinland-Russia; Radio Communications Agency (RA); NEMKO (Norway).

ADMINISTRATIVE INFORMATION

DATE OF TEST: August 30 & September 2, 1999

PURPOSE OF TEST: To demonstrate the compliance of the RFID Proximity Reader, 5375A MaxiProx (5375-310-01), with the requirements for FCC Part 15 Subpart C & RSS-210 devices.

MANUFACTURER: HID Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

REPRESENTATIVE: Ken Long

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

TEST PERSONNEL: Dustin Oaks

TEST METHOD: ANSI C63.4 1992

FREQUENCY RANGE TESTED: 9kHz - 1000 MHz

EQUIPMENT UNDER TEST: **RFID Proximity Reader**
Manuf: HID Corporation
Model: 5375A MaxiPro
Final Assy: 5375-310-01
Serial: N/A
FCC ID: JQ6537Y(pending)

SUMMARY OF RESULTS

The HID Corporation RFID Proximity Reader, 5375A MaxiProx (5375-310-01), was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Subpart C and RSS-210.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15 Subpart C and RSS-210. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

RFID Proximity Reader

MEASUREMENT UNCERTAINTY

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

EUT OPERATING FREQUENCY

The EUT was operating at 0.125 MHz.

TEMPERATURE AND HUMIDITY DURING TESTING

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

PERIPHERAL DEVICES

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

DC Power Supply

Manuf: Topward Electric Instruments
Model: 2306
Serial: 920035
FCC ID: N/A

REPORT OF MEASUREMENTS

The following tables report the highest worst case levels recorded during the tests performed on the RFID Proximity Reader, 5375A MaxiProx (5375-310-01). All readings taken are peak readings unless otherwise noted by a “Q” or “A”. The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Highest Radiated Emission Levels – 9 kHz-30 MHz									
FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Mag Loop dB	Cable dB	15.31 DB	Dist dB				
0.125	48.5	12.2	0.1	-40.0		20.8	25.7	-4.9	NA-1
0.125	50.9	12.2	0.1	-40.0		23.2	25.7	-2.5	NA-2

Test Method: ANSI C63.4 1992
Spec Limit : FCC Part 15.209
Test Distance: 30 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
N = No Polarization
D = Dipole Reading
Q = Quasi Peak Reading
A = Average Reading
1 = 12VDC
2 = 24VDC

COMMENTS: EUT operating on 12/24VDC via DC power supply. EUT is in continuous read mode with no card in the field. 40dB correction factor IAW FCC 15.31. Frequency Range scanned from 9kHz to 30MHz.

Table 2: Six Highest Radiated Emission Levels – 30 MHz-1000 MHz

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
32.064	42.6	12.8	-27.0	1.0		29.4	40.0	-10.6	V-1
43.879	39.4	10.7	-27.0	1.2		24.3	40.0	-15.7	V-2
56.217	44.3	9.8	-26.8	1.3		28.6	40.0	-11.4	V-2
108.806	32.6	12.7	-26.8	1.9		20.4	43.5	-23.1	V-2
134.956	33.2	13.6	-26.8	2.1		22.1	43.5	-21.4	V-1
150.042	36.1	12.7	-26.8	2.2		24.2	43.5	-19.3	V-1

Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 1992
FCC Part 15.209
3 Meters

NOTES: H = Horizontal Polarization
 V = Vertical Polarization
 N = No Polarization
 D = Dipole Reading
 Q = Quasi Peak Reading
 A = Average Reading
 1 = 12VDC
 2 = 24VDC

COMMENTS: EUT operating on 12 VDC & 24VDC via power supply. EUT operating in normal configuration, no card in the field. Frequency Range scanned from 30MHz – 1000MHz.

Table 3: Six Highest Conducted Emission Levels - 12 & 24 VDC

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV	SPEC LIMIT dBμV	MARGIN dB	NOTES
		Lisn dB		Cable dB					
2.907180	37.7	0.0		0.10		37.8	48.0	-10.2	B-2
3.145198	38.0	0.0		0.10		38.1	48.0	-9.9	B-2
9.908866	40.2	0.0		0.20		40.4	48.0	-7.6	W-2
13.644450	40.7	0.0		0.20		40.9	48.0	-7.1	W-1
19.415950	41.0	0.0		0.30		41.3	48.0	-6.7	W-2
19.611300	38.0	0.0		0.30		38.3	48.0	-9.7	W-2

Test Method:
Spec Limit :

ANSI C63.4 1992
FCC 15.207

NOTES:

Q = Quasi Peak Reading
A = Average Reading
B = Black Lead
W = White Lead
1 = 12VDC
2 = 24VDC

COMMENTS: EUT operating in normal mode with no card in the field. EUT operating on 12VDC & 24VDC via power supply.

TABLE A

LIST OF TEST EQUIPMENT

Mariposa Site B Industry Canada File No. IC 3082-D

1. Spectrum Analyzer, Hewlett Packard, Model No. 8566B, CKC 1, S/N 2403A08241 (Display Unit), S/N 2209A01404 (rf Unit). Calibration date: July 7, 1999. Calibration due date: July 7, 2000.
2. Preamp, Hewlett Packard, Model No. 8447D, S/N 1937A02604. Calibration Date: April 28, 1999. Calibration Due: April 28, 2000.
3. Quasi-Peak Adapter, Hewlett Packard, Model No. 85650A, S/N 2811A01267. Calibration Date: July 7, 1999. Calibration Due; July 7, 2000.
4. Biconical Antenna, A & H Systems, Model No. SAS-200/542, S/N 156. Calibration Date: May 20, 1999. Calibration Due: May 20, 2000.
5. Log Periodic Antenna, A & H Systems, Model No. SAS-200/512, S/N 154. Calibration date: May 20, 1999. Calibration Due: May 20, 2000.
6. Magnetic Loop Antenna, EMCO, Model 6502, S/N 1074. Calibration date: June 16, 1999. Calibration due date: June 16, 2000.
7. LISN (FCC), Solar Electronics, S/N 855996, 992. Calibration date: June 4, 1999. Calibration due date: June 4, 2000.
8. LISN, Solar Electronics, S/N 8144793, 474. Calibration date: June 2, 1999. Calibration due date: June 2, 2000.
9. Mariposa Site B (Barn). Calibration date: June 18, 1998. Calibration due date: June 18 2001.
10. Test software, EMI Test 3.08.

EUT SETUP

The equipment under test (EUT) and the peripheral(s) listed were set up in a manner that represented their normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1-3 for 1 radiated and conducted emissions. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, 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. This configuration is typical for radiated emissions testing of table top devices.

I/O cables were connected to the EUT and peripherals in the manner required for normal operation of the system. Excess cabling was bundled in the center in a serpentine fashion using 30-40 centimeter lengths.

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 is 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. Conducted emissions tests required the use of the LISN's listed in Table A.

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 RFID Proximity Reader, 5375A MaxiProx (5375-310-01). For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. All antennas were located at a distance of 30 meters from the edge of the EUT while doing testing from 9kHz to 30 MHz, and 3 meters while doing testing from 30 MHz to 1 GHz. Conducted emissions tests required the use of the FCC type LISN's.

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 dB μ V, and a vertical scale of 10 dB per division.

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 Tables 1-3 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 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 RFID Proximity Reader, 5375A MaxiProx (5375-310-01).

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 were followed.

Average

When the frequencies are between 9-90 kHz, 110-490 kHz or exceed 1 GHz, 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.

TEST METHODS

The radiated and conducted emissions data of the RFID Proximity Reader, 5375A MaxiProx (5375-310-01) 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 the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C emissions limits to determine compliance.

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

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode with the I/O cables and line cords facing the antenna. The frequency range of 9 kHz – 30 MHz was scanned with the magnetic loop antenna. The frequency range of 30 MHz - 88 MHz was then 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 which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced 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 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 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.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the peripherals and cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Conducted Emissions Testing

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.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the emissions readings in Tables 1-3. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula:

$$\begin{aligned} & \text{Meter reading (dB}\mu\text{V)} \\ & + \text{Antenna Factor (dB)} \\ & + \text{Cable Loss (dB)} \\ & - \text{Distance Correction (dB)} \\ & - \text{Pre-amplifier Gain (dB)} \\ & = \text{Corrected Reading (dB}\mu\text{V/m)} \end{aligned}$$

This reading was then compared to the applicable specification limit to determine compliance.

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

#	Freq MHz	Rdng dBuV	Cable	Amp	Bicon	Mag Loop	Log	Dist	15.31	Corr dBuV/m	Spec	Margin	Polar
---	-------------	--------------	-------	-----	-------	-------------	-----	------	-------	----------------	------	--------	-------

means reading number

Freq MHz is the frequency in MHz of the obtained reading.

Rdng dBuV is the reading obtained on the spectrum analyzer in dB μ V.

Amp is short for the preamplifier factor or gain in dB.

Bicon is the biconical antenna factor in dB.

Log is the log periodic antenna factor in dB.

Mag Loop is the magnetic loop antenna factor in dB.

Cable is the cable loss in dB of the coaxial cable on the OATS.

Dist is the distance factor (in dB). It is used when testing at a different test distance than the one stated in the spec.

Corr dB μ V/m is the corrected reading which is now in dB μ V/m (field strength).

Spec is the specification limit (dB) stated in the agency's 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.

15.31 is the FCC extrapolation factor.

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/ Firmware:	5375-520-01
CRT was displaying:	NA
Power Supply Manufacturer:	Customer Supplied
Power Supply Part Number:	
AC Line Filter Manufacturer:	NA
AC Line Filter Part Number:	NA
Line voltage used during testing:	12 & 24 VDC

I/O PORTS	
Type	#
DC Power & IO Signals	1

CRYSTAL OSCILLATORS	
Type	Freq In MHz
Crystal	4.00

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
All	Rev. 3	4 0.001	4	

CABLE INFORMATION

Cable #:	Cable(s) of this type:
Cable Type: Shielded Construction: Multiconductor Connected To End (1): MaxiProx Connector At End (1): None Shield Grounded At (1): TB1-2 Part Number:	Shield Type: Foil with drain wire Length In Meters: * Connected To End (2): DC supply & controller Connector At End (2): Shield Grounded At (2): DC supply “-“ & chassis ground Number of Conductors: 5 to 14
Notes:	

*Up to 152m for Wiegand, 15.2m for RS232, or 1,220m for RS422

REQUIRED EUT CHANGES TO COMPLY:
None.

PHOTOGRAPH SHOWING RADIATED EMISSIONS



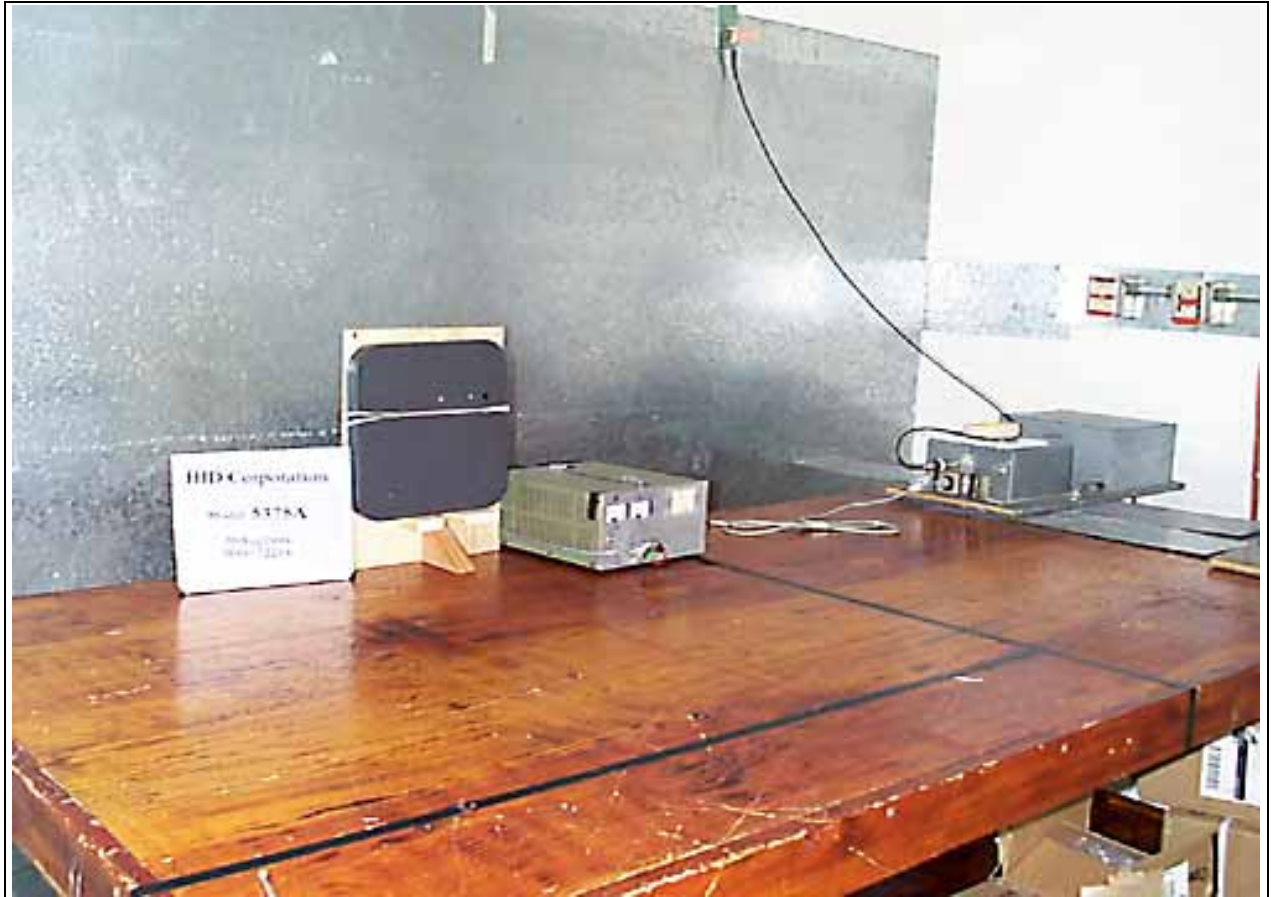
Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Front View

APPENDIX B

MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
Specification: **FCC 15 C PARA 15.209**
Work Order #: **72268**
Test Type: **Maximized Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Mon Aug-30-1999
Time: 16:51:41
Sequence#: 32
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

Test Conditions / Notes:

EUT operating on 12/24VDC via DC power supply. EUT is in continuous read mode with no card in the field. 40dB correction factor IAW FCC 15.31. Frequency Range scanned from 9kHz to 30MHz.

Measurement Data: Reading listed by order taken. Test Distance: 30 Meters

#	Freq MHz	Rdng dBµV	Mag Loop dB	Cable dB	15.31 dB	Dist Table dB	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	124.968k Ave	50.9	+12.2	+0.1	-40.0	+0.0	23.2	25.7 EUT operating on 24VDC	-2.5	None
2	124.982k Ave	48.5	+12.2	+0.1	-40.0	+0.0	20.8	25.7 EUT operating on 12VDC	-4.9	None

Test Location: CKC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
Specification: **FCC 15.209**
Work Order #: **72268**
Test Type: **Maximized Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Mon Aug-30-1999
Time: 16:58:37
Sequence#: 34
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

Test Conditions / Notes:

EUT operating on 12VDC via power supply. EUT operating in normal configuration, no card in the field.

Measurement Data: Reading listed by order taken. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Amp dB	Bicon dB	Log dB	Cable dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	56.219M	43.2	-26.8	+9.8	+0.0	+1.3	+0.0	27.5	40.0	-12.5	Vert
2	32.064M	42.6	-27.0	+12.8	+0.0	+1.0	+0.0	29.4	40.0	-10.6	Vert
3	43.870M	38.3	-27.0	+10.7	+0.0	+1.2	+0.0	23.2	40.0	-16.8	Vert
4	150.042M	36.1	-26.8	+12.7	+0.0	+2.2	+0.0	24.2	43.5	-19.3	Vert
5	108.813M	32.3	-26.8	+12.7	+0.0	+1.9	+0.0	20.1	43.5	-23.4	Vert
6	134.956M	33.2	-26.8	+13.6	+0.0	+2.1	+0.0	22.1	43.5	-21.4	Vert

Test Location: CKC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338• • •

Customer: **HID**
Specification: **FCC 15.209**
Work Order #: **72268**
Test Type: **Maximized Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Mon Aug-30-1999
Time: 14:50:44
Sequence#: 29
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

Test Conditions / Notes:

EUT operating on 24VDC via power supply. EUT operating in normal configuration, no card in the field.

Measurement Data: Reading listed by order taken. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	Amp dB	Bicon dB	Log dB	Cable dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	32.056M	40.2	-27.0	+12.8	+0.0	+1.0	+0.0	27.0	40.0	-13.0	Vert
2	43.846M	39.3	-27.0	+10.7	+0.0	+1.2	+0.0	24.2	40.0	-15.8	Vert
3	143.300M	31.5	-26.8	+13.2	+0.0	+2.1	+0.0	20.0	43.5	-23.5	Vert
4	150.037M	34.0	-26.8	+12.7	+0.0	+2.2	+0.0	22.1	43.5	-21.4	Vert
5	134.946M	31.5	-26.8	+13.6	+0.0	+2.1	+0.0	20.4	43.5	-23.1	Vert
6	108.806M	32.6	-26.8	+12.7	+0.0	+1.9	+0.0	20.4	43.5	-23.1	Vert
7	43.879M	39.4	-27.0	+10.7	+0.0	+1.2	+0.0	24.3	40.0	-15.7	Vert
8	56.217M	44.3	-26.8	+9.8	+0.0	+1.3	+0.0	28.6	40.0	-11.4	Vert

Test Location: CKC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
Specification: **FCC 15.207**
Work Order #: **72268**
Test Type: **Conducted Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Thur Sep-02-1999
Time: 18:35:41
Sequence#: 44
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

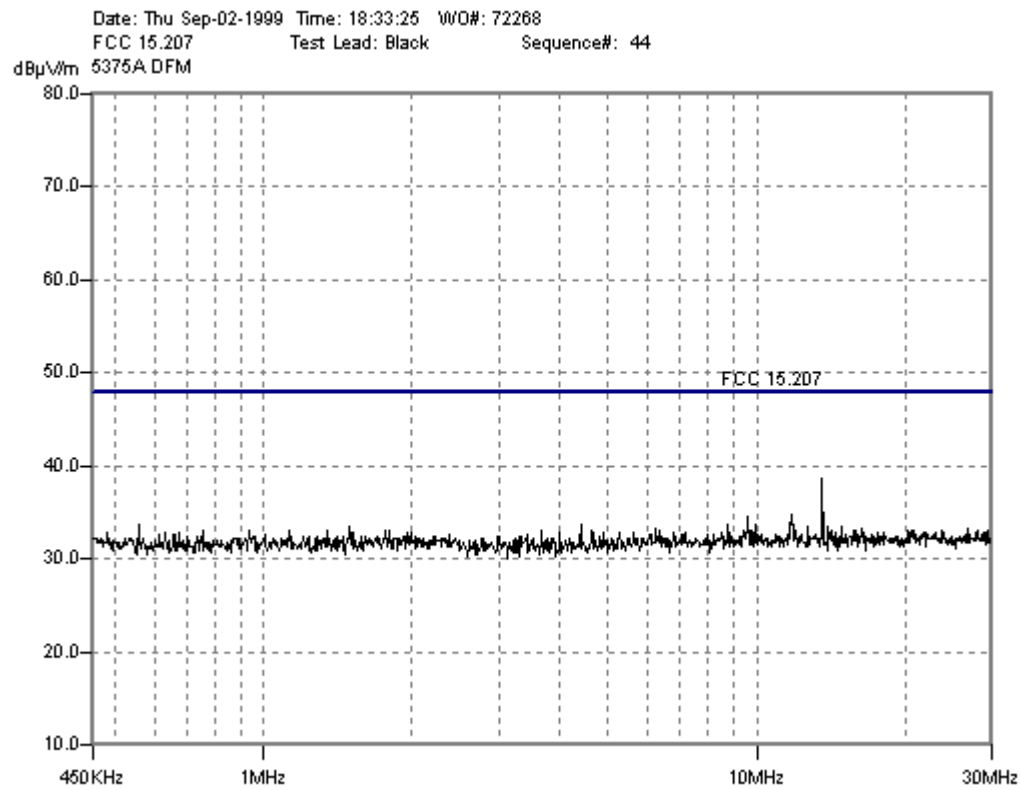
Test Conditions / Notes:

EUT operating in normal mode with no card in the field. EUT operating on 12VDC via power supply.
--

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

#	Freq MHz	Rdng dBμV	Cable				Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	13.644M	38.4	+0.2				+0.0	38.6	48.0	-9.4	Black
2	11.783M	34.6	+0.2				+0.0	34.8	48.0	-13.2	Black
3	9.611M	34.4	+0.2				+0.0	34.6	48.0	-13.4	Black
4	11.674M	33.8	+0.2				+0.0	34.0	48.0	-14.0	Black
5	4.395M	33.7	+0.1				+0.0	33.8	48.0	-14.2	Black
6	9.949M	33.4	+0.2				+0.0	33.6	48.0	-14.4	Black
7	8.758M	33.4	+0.2				+0.0	33.6	48.0	-14.4	Black
8	556.608k	33.5	+0.1				+0.0	33.6	48.0	-14.4	Black
9	14.000M	33.3	+0.2				+0.0	33.5	48.0	-14.5	Black
10	1.493M	33.4	+0.1				+0.0	33.5	48.0	-14.5	Black
11	14.888M	33.2	+0.2				+0.0	33.4	48.0	-14.6	Black
12	12.757M	33.2	+0.2				+0.0	33.4	48.0	-14.6	Black
13	16.379M	33.0	+0.3				+0.0	33.3	48.0	-14.7	Black
14	26.821M	32.9	+0.3				+0.0	33.2	48.0	-14.8	Black

15	6.259M	33.0	+0.2		+0.0	33.2	48.0	-14.8	Black
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Test Location: CKC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
Specification: **FCC 15.207**
Work Order #: **72268**
Test Type: **Conducted Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Thu Sep-02-1999
Time: 18:40:04
Sequence#: 45
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

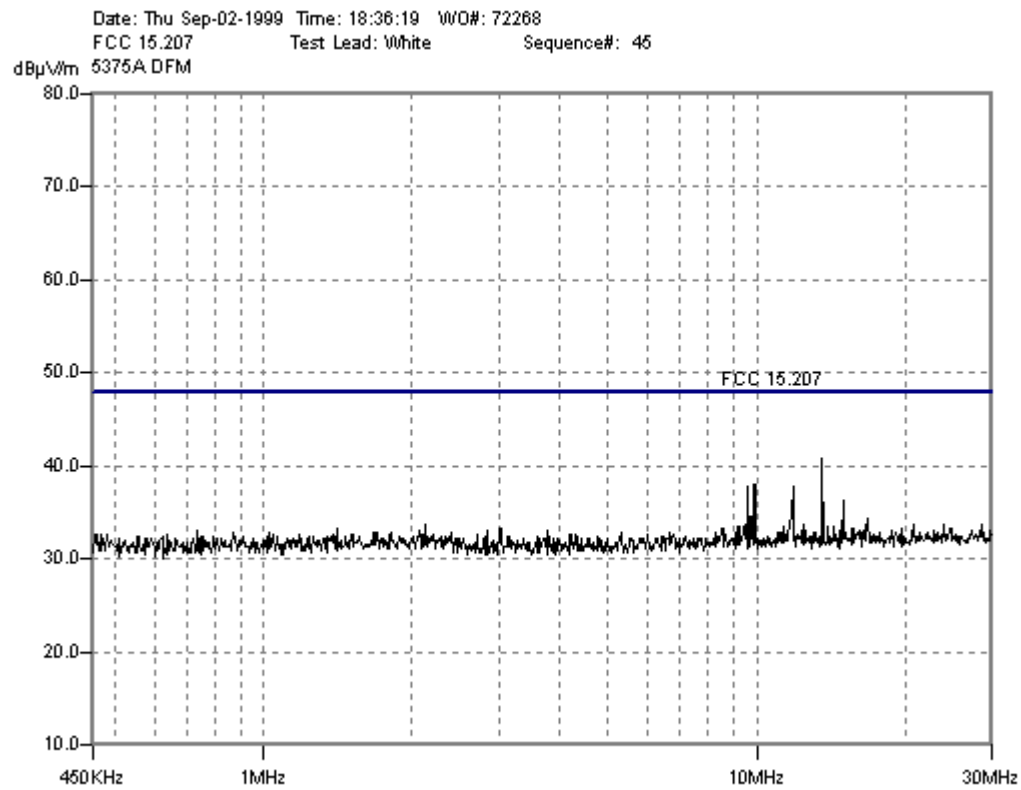
Test Conditions / Notes:

EUT operating in normal mode with no card in the field. EUT operating on 12VDC via power supply.

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

#	Freq MHz	Rdng dBµV	Cable				Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	13.644M	40.7	+0.2				+0.0	40.9	48.0	-7.1	White
2	9.919M	37.9	+0.2				+0.0	38.1	48.0	-9.9	White
3	11.873M	37.5	+0.2				+0.0	37.7	48.0	-10.3	White
4	9.611M	37.5	+0.2				+0.0	37.7	48.0	-10.3	White
5	15.030M	36.0	+0.3				+0.0	36.3	48.0	-11.7	White
6	9.830M	34.4	+0.2				+0.0	34.6	48.0	-13.4	White
7	16.876M	34.0	+0.3				+0.0	34.3	48.0	-13.7	White
8	11.674M	33.9	+0.2				+0.0	34.1	48.0	-13.9	White
9	9.512M	33.6	+0.2				+0.0	33.8	48.0	-14.2	White
10	12.508M	33.5	+0.2				+0.0	33.7	48.0	-14.3	White
11	2.137M	33.6	+0.1				+0.0	33.7	48.0	-14.3	White
12	28.704M	33.2	+0.4				+0.0	33.6	48.0	-14.4	White
13	24.086M	33.2	+0.4				+0.0	33.6	48.0	-14.4	White
14	20.819M	33.3	+0.3				+0.0	33.6	48.0	-14.4	White

15	11.337M	33.3	+0.2		+0.0	33.5	48.0	-14.5	White
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Test Location: KC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
Specification: **FCC 15.207**
Work Order #: **72268**
Test Type: **Conducted Emissions**
Equipment: **Proximity Reader**
Manufacturer: **HID**
Model: **5375A**
S/N: **N/A**

Date: Thu Sep-02-1999
Time: 18:33:00
Sequence#: 43
Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

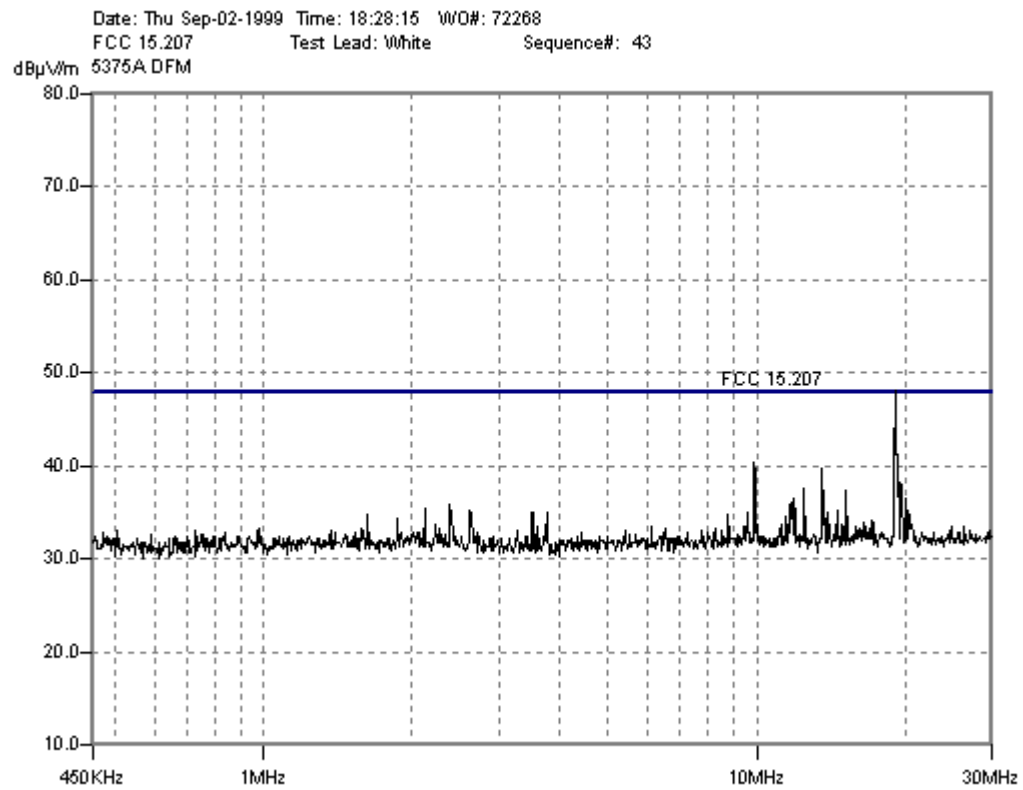
Test Conditions / Notes:

EUT operating in normal mode with no card in the field. EUT operating on 24VDC via power supply.

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

#	Freq MHz	Rdng dBµV	Cable				Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	19.150M	47.9	+0.3				+0.0	48.2	48.0	+0.2	White
2	19.416M	41.0	+0.3				+0.0	41.3	48.0	-6.7	White
3	9.909M	40.2	+0.2				+0.0	40.4	48.0	-7.6	White
4	13.644M	39.5	+0.2				+0.0	39.7	48.0	-8.3	White
5	19.611M	38.0	+0.3				+0.0	38.3	48.0	-9.7	White
6	12.508M	37.3	+0.2				+0.0	37.5	48.0	-10.5	White
7	15.278M	37.0	+0.3				+0.0	37.3	48.0	-10.7	White
8	13.751M	37.1	+0.2				+0.0	37.3	48.0	-10.7	White
9	20.144M	36.3	+0.3				+0.0	36.6	48.0	-11.4	White
10	11.873M	36.2	+0.2				+0.0	36.4	48.0	-11.6	White
11	11.754M	35.9	+0.2				+0.0	36.1	48.0	-11.9	White
12	11.674M	35.6	+0.2				+0.0	35.8	48.0	-12.2	White
13	2.391M	35.7	+0.1				+0.0	35.8	48.0	-12.2	White
14	2.125M	35.4	+0.1				+0.0	35.5	48.0	-12.5	White

15	12.011M	35.2	+0.2	+0.0	35.4	48.0	-12.6	White
16	19.150M	26.0	+0.3	+0.0	26.3	48.0	-21.7	White
QP								



Test Location: KC Laboratories, Inc / 5473A Clouds Rest / Mariposa, CA 95338 • • •

Customer: **HID**
 Specification: **FCC 15.207**
 Work Order #: **72268**
 Test Type: **Conducted Emissions**
 Equipment: **Proximity Reader**
 Manufacturer: **HID**
 Model: **5375A**
 S/N: **N/A**

Date: Thu Sep-02-1999
 Time: 18:27:20
 Sequence#: 42
 Tested By: Dustin Oaks

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Reader*	HID	5375A	N/A

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments	2306	920035

Test Conditions / Notes:

EUT operating in normal mode with no card in the field. EUT operating on 24VDC via power supply.

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

#	Freq MHz	Rdng dBμV	Cable				Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	3.145M	38.0	+0.1				+0.0	38.1	48.0	-9.9	Black
2	2.907M	37.7	+0.1				+0.0	37.8	48.0	-10.2	Black
3	3.403M	37.0	+0.1				+0.0	37.1	48.0	-10.9	Black
4	13.609M	36.4	+0.2				+0.0	36.6	48.0	-11.4	Black
5	19.931M	35.5	+0.3				+0.0	35.8	48.0	-12.2	Black
6	2.659M	35.7	+0.1				+0.0	35.8	48.0	-12.2	Black
7	14.994M	35.3	+0.3				+0.0	35.6	48.0	-12.4	Black
8	20.464M	35.2	+0.3				+0.0	35.5	48.0	-12.5	Black
9	20.286M	35.0	+0.3				+0.0	35.3	48.0	-12.7	Black
10	3.641M	35.2	+0.1				+0.0	35.3	48.0	-12.7	Black
11	29.982M	34.6	+0.3				+0.0	34.9	48.0	-13.1	Black
12	4.137M	34.8	+0.1				+0.0	34.9	48.0	-13.1	Black
13	19.327M	34.5	+0.3				+0.0	34.8	48.0	-13.2	Black
14	6.269M	34.6	+0.2				+0.0	34.8	48.0	-13.2	Black

15	2.123M	34.6	+0.1		+0.0	34.7	48.0	-13.3	Black
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