



ADDENDUM TO HID CORPORATION TEST REPORT FC99-026

FOR THE

4045C ENTRY PROX

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 AND RSS-210

COMPLIANCE

DATE OF ISSUE: MARCH 30, 2005

PREPARED FOR:

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Date of test: January 4 – February 23, 2005

Report No.: FC99-026A

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ADMINISTRATIVE INFORMATION

DATE OF TEST: January 4 – February 23, 2005

DATE OF RECEIPT: January 4, 2005

MANUFACTURER: HID Corporation
9292 Jeronimo Road
Irvine, CA 92718

REPRESENTATIVE: Frank de Vall

TEST LOCATION: CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

TEST METHOD: ANSI C63.4 (2001) and RSS-212

PURPOSE OF TEST: To demonstrate the compliance of the Proximity Reader, 4045AGN00, with the requirements for FCC Part 15 Subpart C & RSS-210 devices. **Addendum A** is to demonstrate the compliance of the 4045C Entry Prox with the requirements for FCC Part 15 Subpart C Sections 15.207 & 15.209 and RSS-210 devices. See page 6 for the differences between the models.

SUMMARY OF RESULTS

It is the opinion of CKC Laboratories that the 4045C Entry Prox 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 (2001) method
- FCC Site No. 784962

Canada

- RSS-210 using:
- FCC Part 15 Subpart C Sections 15.207 & 15.209
 - RSS-212 method
 - ANSI C63.4 (2001) method
- Industry of Canada File No. IC 3082-D

CONDITIONS FOR COMPLIANCE

Ferrite bead added to integral antenna lead.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Mike Wilkinson, Lab Manager



Randy Clark, EMC Engineer

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted: 150 kHz – 30 MHz

15.209 Radiated: 9 kHz – 1000 MHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 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

FCC 15.203 Antenna Requirements

The EUT has two antenna types. One is an integral part of the EUT and is non-removable. The other antenna is a professionally installed remote antenna. Therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands

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.

Eut Operating Frequency

The EUT was operating at 125 kHz.

Temperature And Humidity During Testing

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

The difference between the model originally tested and the current model 4045C are as follows:

1. The single microprocessor in the 4045B that handled both the transmitter drive and Wiegand interface communications was replaced with two different microprocessors in the 4045C. One handles the transmitter drive and the second the Wiegand communications. The transmitter and its drive signal do not change.
2. A RS485 serial interface circuit is added. It is unused in the 4045C, but is used in the IEI ProxPad Plus.
3. A ferrite bead is added on the two antenna wires next to the P4 connector inside the unit. The bead is a Fair-Rite P/N 2643166751 Split Round Cable EMI Suppression Core.

EQUIPMENT UNDER TEST

Entry Prox

Manuf: HID
Model: 4045C
Serial: 0018 & 0019
FCC ID: JQ64045

PERIPHERAL DEVICES

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

DC Power Supply

Manuf: Topward Electric Instruments Co., Ltd.
Model: TPS-2000
Serial: 920035
FCC ID: DoC

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. 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: FCC 15.207 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB	HPF dB	Cable dB					
14.518920	32.6	0.4	0.1	0.4		33.5	50.0	-16.5	W
15.023420	35.4	0.4	0.1	0.4		36.3	50.0	-13.7	B
15.032000	35.6	0.4	0.1	0.4		36.5	50.0	-13.5	W
15.275670	34.0	0.4	0.1	0.4		34.9	50.0	-15.1	W
15.780180	35.2	0.4	0.1	0.4		36.1	50.0	-13.9	W
15.780180	34.3	0.4	0.1	0.4		35.2	50.0	-14.8	B

Test Method: ANSI C63.4 (2001)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead

COMMENTS: EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote and integral antenna configurations. This table represents testing with both the integral and remote antennas but all the highest readings came from the remote antenna testing. EUT cable configuration notes:

- a) End-of Line (EOL) resistors simulate normally closed relay contacts.
- b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters.
- c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet.
- d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc.
- e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm.
- f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units.
- g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units.
- h) The P3 cable wires and drain wire at the end of the cables are left open circuit.

Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 16°C, Relative Humidity: 42%.

Table 2: FCC 15.209 Fundamental Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB	Corr dB	Cable dB	Dist dB				
0.126	74.6	9.6	-80.0	0.1		4.3	25.6	-21.3	V-I
0.126	69.4	9.6	-80.0	0.1		-0.9	25.6	-26.5	H-I
0.126	69.1	9.6	-80.0	0.1		-1.2	25.6	-26.8	V-R
0.126	64.7	9.6	-80.0	0.1		-5.6	25.6	-31.2	H-R

Test Method: ANSI C63.4 (2001)
 Spec Limit: FCC Part 15 Subpart C Section 15.209
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
 V = Vertical Polarization
 I = Integral Antenna
 R = Remote Antenna

COMMENTS: EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote and integral antenna configurations. Ferrite bead added to integral antenna lead. Test distance correction factor used in accordance with 15.13, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes:

- a) End-of Line (EOL) resistors simulate normally closed relay contacts.
- b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters.
- c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet.
- d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc.
- e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm.
- f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units.
- g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units.
- h) The P3 cable wires and drain wire at the end of the cables are left open circuit.

Frequency Range Investigated: Carrier. Temperature: 16°C, Relative Humidity: 42%.

Table 3: FCC 15.209 Six Highest Radiated Emission Levels: 9 kHz - 30 MHz

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB		Cable dB	Corr dB				
0.505	37.5	9.6		0.2	-40.0	7.3	33.5	-26.2	V
0.631	37.5	9.6		0.2	-40.0	7.3	31.6	-24.3	V
0.631	37.1	9.6		0.2	-40.0	6.9	31.6	-24.7	V
0.757	34.7	9.7		0.2	-40.0	4.6	30.0	-25.4	V
0.883	34.2	9.7		0.2	-40.0	4.1	28.6	-24.5	V
0.884	32.3	9.7		0.2	-40.0	2.2	28.6	-26.4	V

Test Method: ANSI C63.4 (2001)
 Spec Limit: FCC Part 15 Subpart C Section 15.209
 Test Distance: 3 Meters

NOTES: V = Vertical Polarization
 I = Integral Antenna
 R = Remote Antenna

COMMENTS: EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote and integral antenna configurations. Ferrite bead added to integral antenna lead. Test distance correction factor used in accordance with 15.13, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes:

- a) End-of Line (EOL) resistors simulate normally closed relay contacts.
- b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters.
- c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet.
- d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc.
- e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm.
- f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units.
- g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units.
- h) The P3 cable wires and drain wire at the end of the cables are left open circuit.

Frequency Range Investigated: 9kHz - 30MHz. Temperature: 16°C, Relative Humidity: 42%.

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

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN DB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
117.084	42.1	10.7	-27.2	2.4	10.0	38.0	43.5	-5.5	VQ-R
137.228	38.8	11.0	-27.1	2.7	10.0	35.4	43.5	-8.1	V-R
163.481	40.6	9.7	-26.9	2.9	10.0	36.3	43.5	-7.2	V-R
169.521	39.9	9.1	-26.8	3.0	10.0	35.2	43.5	-8.3	V-R
175.565	41.7	8.5	-26.8	3.0	10.0	36.4	43.5	-7.1	V-R
187.700	41.1	8.2	-26.7	3.2	10.0	35.8	43.5	-7.7	V-I

Test Method: ANSI C63.4 (2001)
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 3 Meters

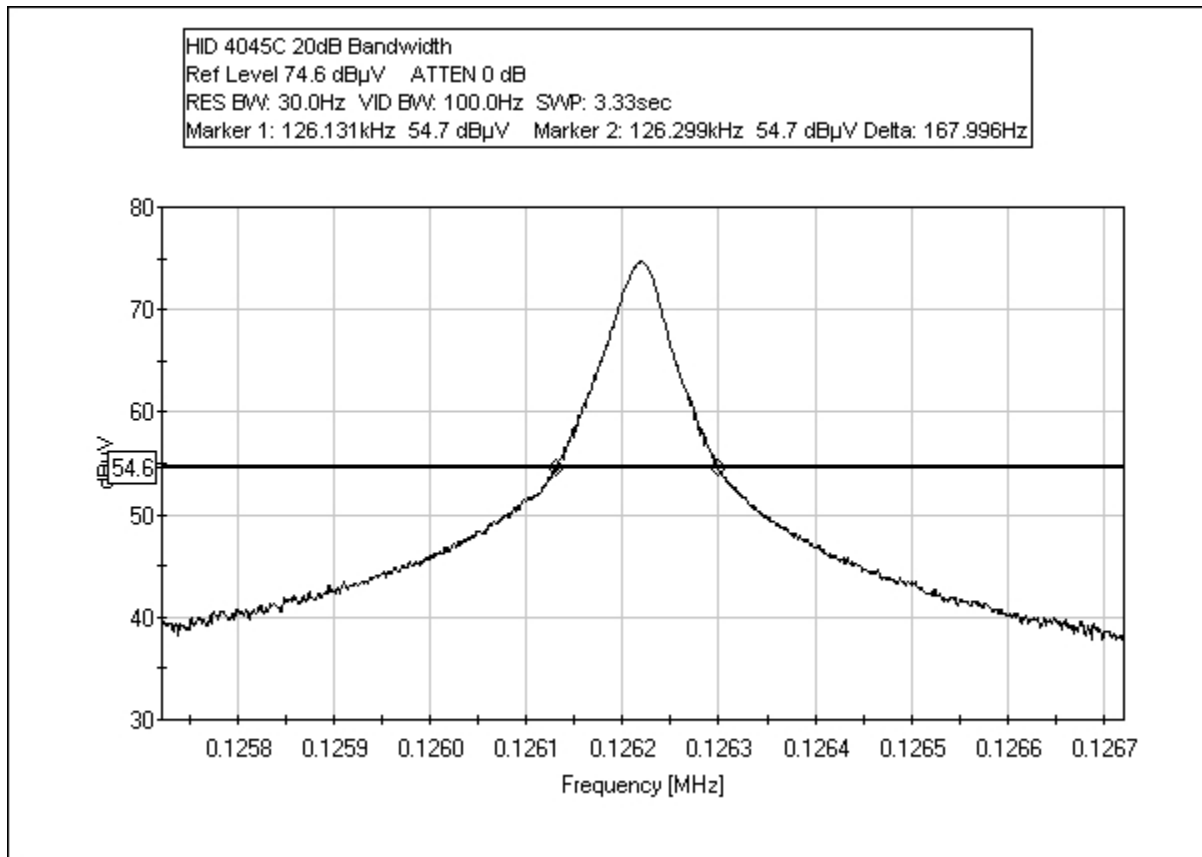
NOTES: Q = Quasi Peak Reading
V = Vertical Polarization
I = Integral Antenna
R = Remote Antenna

COMMENTS: EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote and integral antenna configurations. Ferrite bead added to integral antenna lead. Test distance correction factor used in accordance with 15.13, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes:

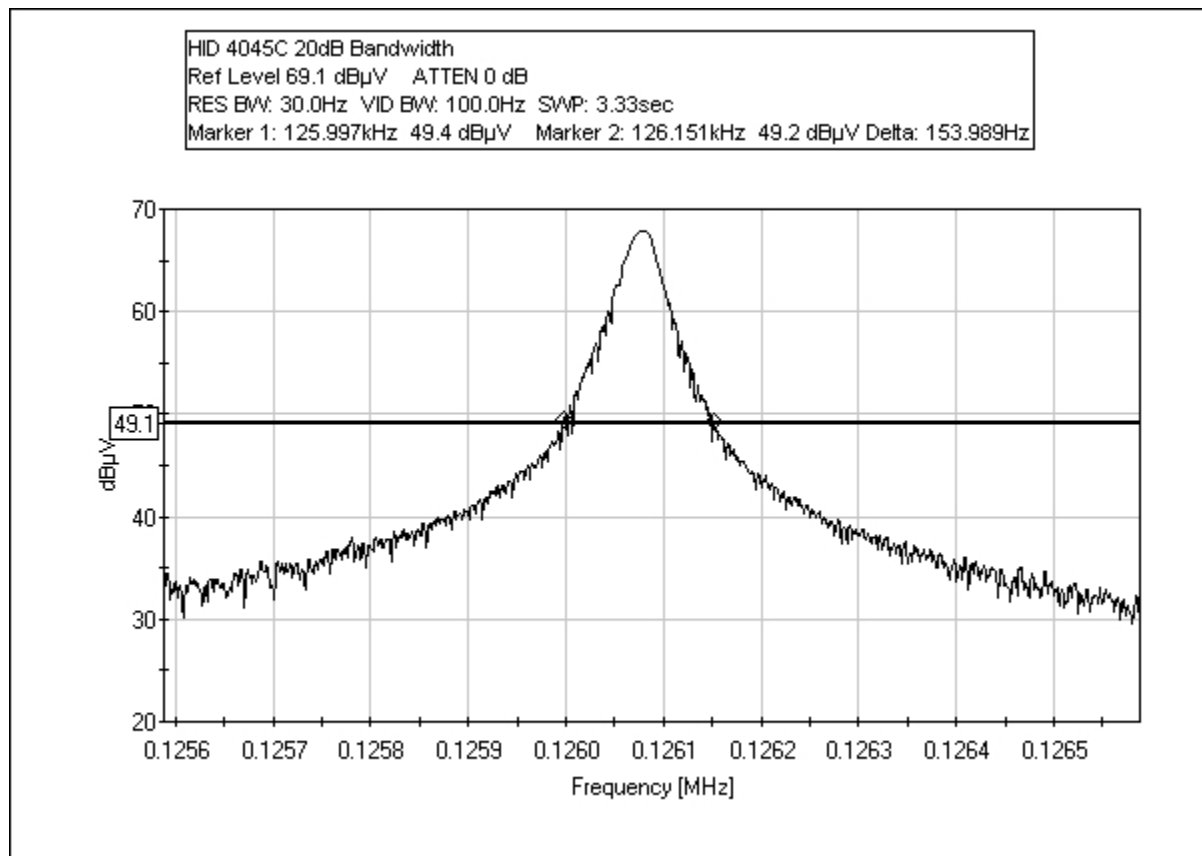
- a) End-of Line (EOL) resistors simulate normally closed relay contacts.
- b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters.
- c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet.
- d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc.
- e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm.
- f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units.
- g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units.
- h) The P3 cable wires and drain wire at the end of the cables are left open circuit.

Frequency Range Investigated: 30-1000MHz. Temperature: 16°C, Relative Humidity: 42%.

RSS-210 20dB BANDWIDTH PLOT - INTEGRAL ANTENNA



RSS-210 20dB BANDWIDTH PLOT - REMOTE ANTENNA



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 radiated and conducted emissions data of the EUT 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 dB μ V/m, the spectrum analyzer reading in dB μ V 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	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated and conducted emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog 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 dB μ V, and a vertical scale of 10 dB per division.

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.

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

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

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.

The LISNs used were 50 μH -/+50 ohms. Above 150 kHz, a 0.15 μF series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

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 radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. 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 and raising and lowering the antenna from one to four meters 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.

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - Integral Antenna

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Side View - Integral Antenna

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - Remote Antenna

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



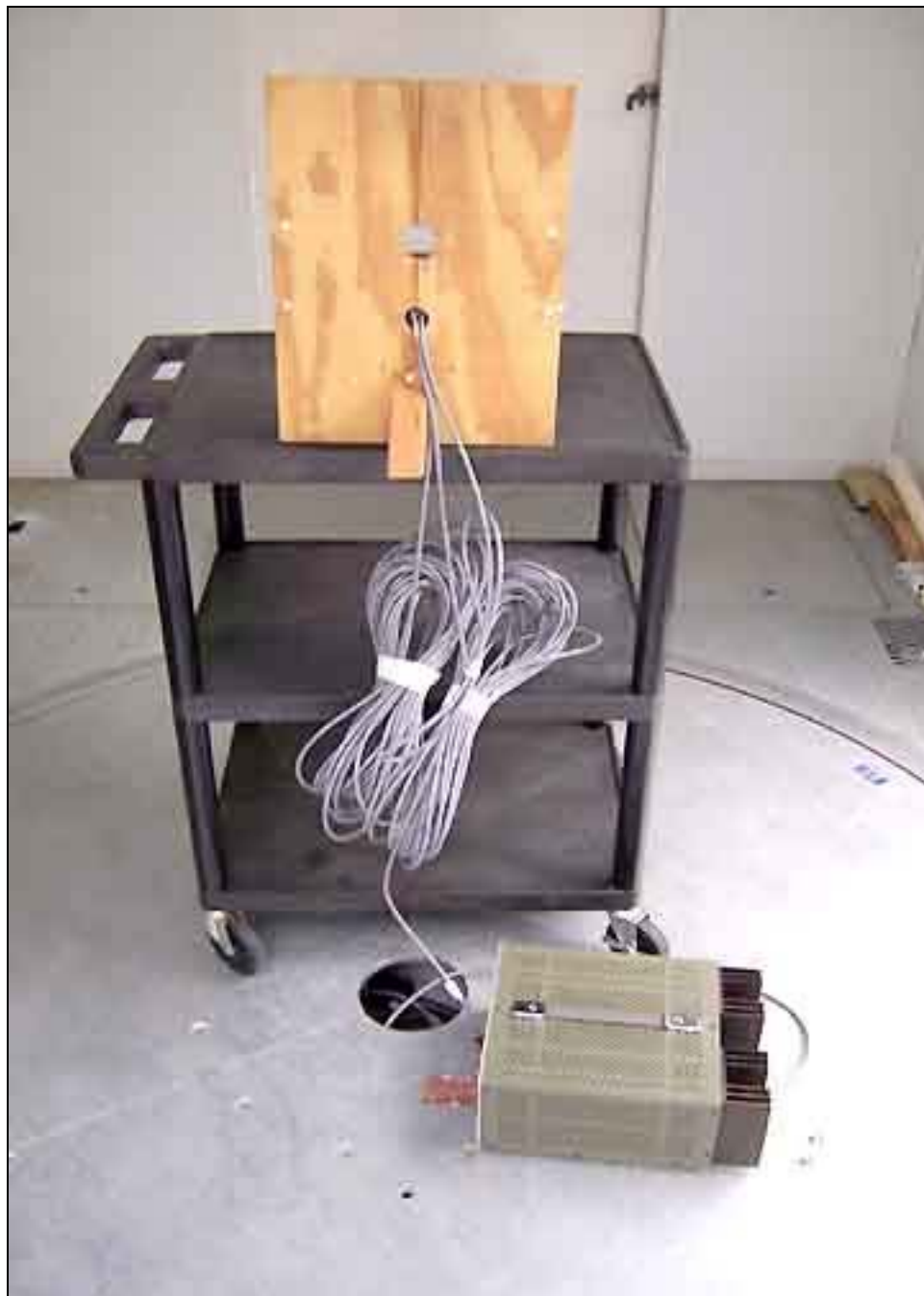
Mains Conducted Emissions - Side View - Remote Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - Integral Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View - Integral Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - Remote Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View - Remote Antenna

APPENDIX B

TEST EQUIPMENT LIST

15.207 Conducted Emissions

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
LISN, 8028-50-TS-24-BNC	8379276, 280	06/05/2003	06/05/2005	1248 & 1249

15.209 Carrier, 9 kHz – 30 MHz and RSS-210

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
EMCO Loop Antenna	1074	05/21/2003	05/21/2005	00226

15.209 30-1000 MHz

Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8566B SA	2209A01404	02/26/2003	02/26/2005	00490
HP 8566B SA Display	2403A08241	02/26/2003	02/26/2005	00489
HP 85650A QPA	2811A01267	02/26/2003	02/26/2005	00478
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2005	00099
Chase CBL6111C Bilog	2456	06/26/2003	06/26/2005	01991

APPENDIX C:
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82834**
 Test Type: **Conducted Emissions**
 Equipment: **Entry Prox**
 Manufacturer: **HID**
 Model: **4045C**
 S/N: **0018**

Date: 02/15/2005
 Time: 2:17:35 PM
 Sequence#: 19
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0018

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with integral antenna configuration. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Ferrite bead added to integral antenna lead. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

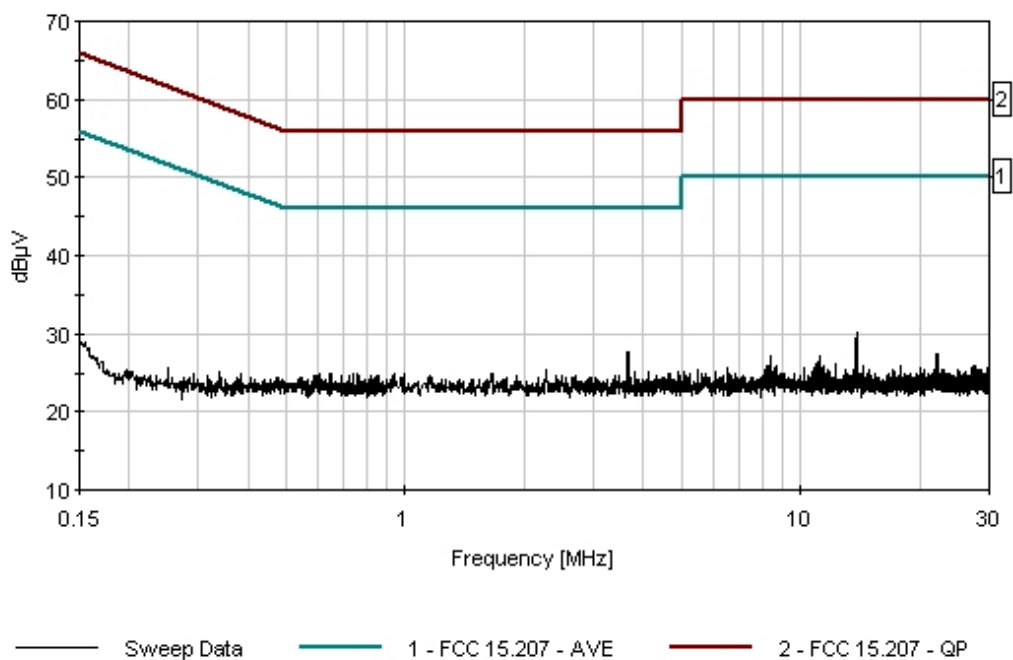
T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608	

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

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	3.654M	26.8	+0.3	+0.4	+0.1		+0.0	27.6	46.0	-18.4	Black
2	13.834M	29.1	+0.4	+0.5	+0.1		+0.0	30.1	50.0	-19.9	Black
3	22.132M	26.2	+0.5	+0.4	+0.2		+0.0	27.3	50.0	-22.7	Black
4	8.354M	26.3	+0.3	+0.5	+0.1		+0.0	27.2	50.0	-22.8	Black
5	11.234M	26.2	+0.3	+0.5	+0.1		+0.0	27.1	50.0	-22.9	Black
6	11.142M	25.7	+0.3	+0.5	+0.1		+0.0	26.6	50.0	-23.4	Black

7	11.024M	25.4	+0.3	+0.5	+0.1	+0.0	26.3	50.0	-23.7	Black
8	12.219M	25.1	+0.4	+0.5	+0.1	+0.0	26.1	50.0	-23.9	Black
9	339.799k	24.6	+0.1	+0.3	+0.1	+0.0	25.1	49.2	-24.1	Black
10	27.245M	24.8	+0.5	+0.4	+0.2	+0.0	25.9	50.0	-24.1	Black
11	27.708M	24.7	+0.6	+0.4	+0.2	+0.0	25.9	50.0	-24.1	Black
12	12.918M	24.5	+0.4	+0.5	+0.1	+0.0	25.5	50.0	-24.5	Black
13	13.557M	24.4	+0.4	+0.5	+0.1	+0.0	25.4	50.0	-24.6	Black
14	22.903M	24.3	+0.5	+0.4	+0.2	+0.0	25.4	50.0	-24.6	Black
15	150.000k	25.7	+0.1	+0.4	+2.7	+0.0	28.9	56.0	-27.1	Black

CKC Laboratories Date: 02/15/2005 Time: 2:17:35 PM HID WO#: 82834
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 19
 HID M/N 4045C



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82834**
 Test Type: **Conducted Emissions**
 Equipment: **Entry Prox**
 Manufacturer: **HID**
 Model: **4045C**
 S/N: **0018**

Date: 02/15/2005
 Time: 2:11:35 PM
 Sequence#: 18
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0018

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with integral antenna configuration. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Ferrite bead added to integral antenna lead. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

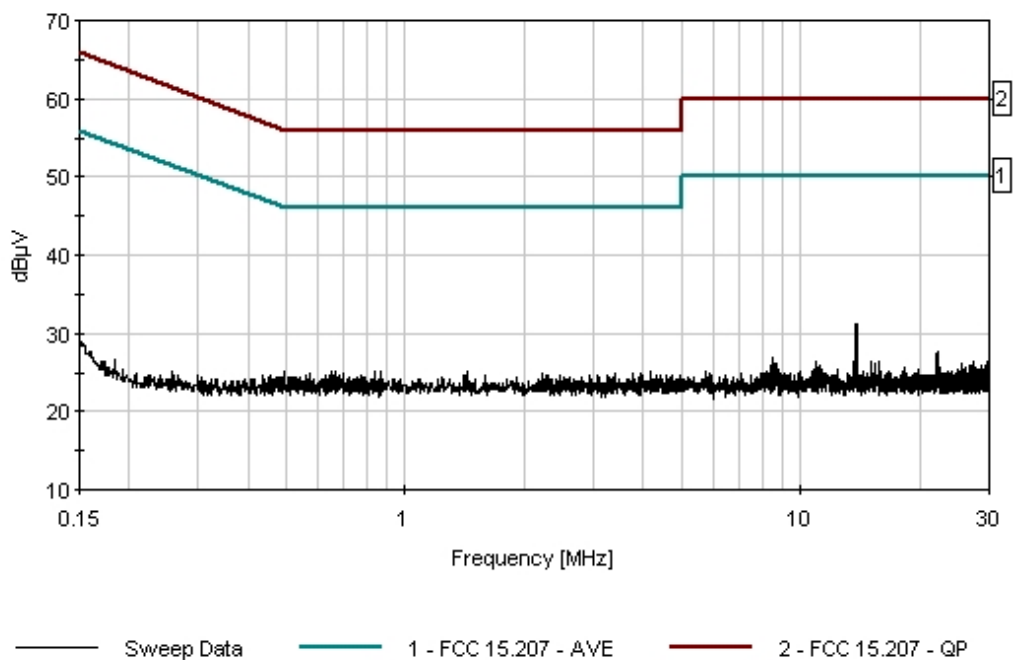
T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n280
T3=HP Filter AN02608	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	13.825M	30.2	+0.4	+0.4	+0.1	+0.0	31.1	50.0	-18.9	White
2	1.434M	24.5	+0.2	+0.3	+0.1	+0.0	25.1	46.0	-20.9	White
3	22.141M	26.6	+0.5	+0.4	+0.2	+0.0	27.7	50.0	-22.3	White
4	8.455M	26.0	+0.3	+0.5	+0.1	+0.0	26.9	50.0	-23.1	White
5	10.956M	25.7	+0.3	+0.4	+0.1	+0.0	26.5	50.0	-23.5	White
6	15.717M	25.6	+0.4	+0.4	+0.1	+0.0	26.5	50.0	-23.5	White

7	29.870M	25.2	+0.6	+0.5	+0.2	+0.0	26.5	50.0	-23.5	White
8	13.588M	25.5	+0.4	+0.4	+0.1	+0.0	26.4	50.0	-23.6	White
9	15.150M	25.5	+0.4	+0.4	+0.1	+0.0	26.4	50.0	-23.6	White
10	27.389M	25.1	+0.6	+0.5	+0.2	+0.0	26.4	50.0	-23.6	White
11	15.456M	25.2	+0.4	+0.4	+0.1	+0.0	26.1	50.0	-23.9	White
12	25.652M	24.9	+0.5	+0.5	+0.2	+0.0	26.1	50.0	-23.9	White
13	18.321M	24.6	+0.5	+0.4	+0.2	+0.0	25.7	50.0	-24.3	White
14	150.727k	25.9	+0.1	+0.3	+2.6	+0.0	28.9	56.0	-27.1	White

CKC Laboratories Date: 02/15/2005 Time: 2:11:35 PM HID W/O#: 82834
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 18
 HID M/N 4045C



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82834**
 Test Type: **Conducted Emissions**
 Equipment: **Entry Prox**
 Manufacturer: **HID**
 Model: **4045C**
 S/N: **0019**

Date: 02/15/2005
 Time: 1:23:08 PM
 Sequence#: 16
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0019

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote antenna configuration. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

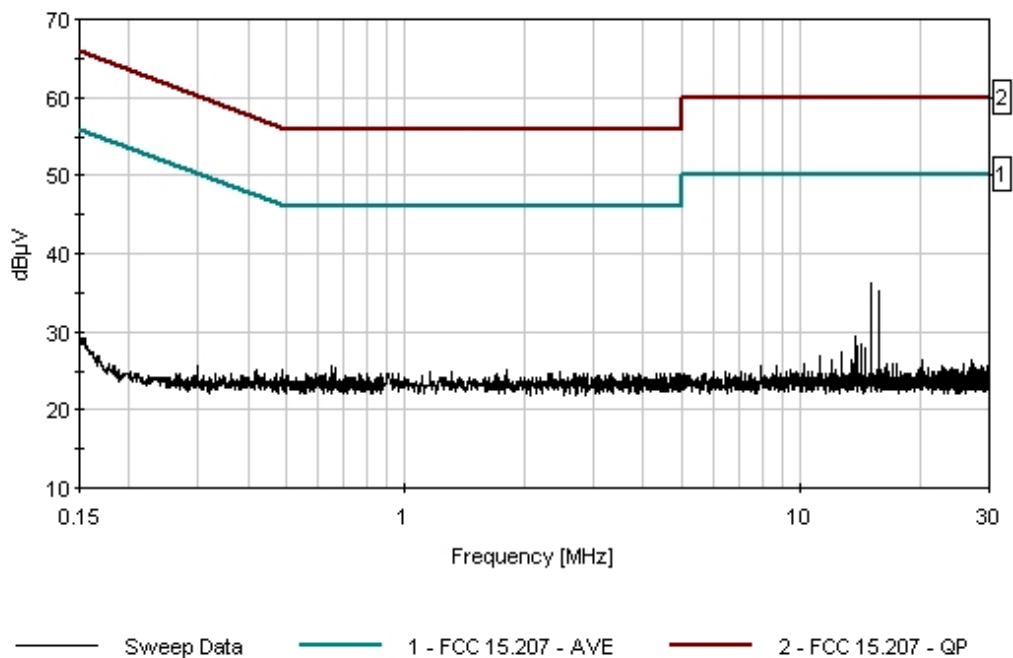
T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n276
T3=HP Filter AN02608	

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

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	Dist dB	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	15.023M	35.4	+0.4	+0.4	+0.1	+0.0	36.3	50.0	-13.7	Black
2	15.780M	34.3	+0.4	+0.4	+0.1	+0.0	35.2	50.0	-14.8	Black
3	651.768k	24.9	+0.1	+0.3	+0.3	+0.0	25.6	46.0	-20.4	Black
4	13.762M	28.5	+0.4	+0.5	+0.1	+0.0	29.5	50.0	-20.5	Black
5	13.744M	28.4	+0.4	+0.5	+0.1	+0.0	29.4	50.0	-20.6	Black
6	1.800M	24.5	+0.2	+0.4	+0.1	+0.0	25.2	46.0	-20.8	Black

7	14.276M	27.4	+0.4	+0.4	+0.1	+0.0	28.3	50.0	-21.7	Black
8	13.843M	27.2	+0.4	+0.5	+0.1	+0.0	28.2	50.0	-21.8	Black
9	14.510M	27.0	+0.4	+0.4	+0.1	+0.0	27.9	50.0	-22.1	Black
10	12.742M	26.4	+0.4	+0.5	+0.1	+0.0	27.4	50.0	-22.6	Black
11	14.195M	25.9	+0.4	+0.4	+0.1	+0.0	26.8	50.0	-23.2	Black
12	27.077M	25.2	+0.5	+0.4	+0.2	+0.0	26.3	50.0	-23.7	Black
13	25.876M	24.8	+0.5	+0.4	+0.2	+0.0	25.9	50.0	-24.1	Black
14	13.568M	24.8	+0.4	+0.5	+0.1	+0.0	25.8	50.0	-24.2	Black
15	27.513M	24.6	+0.6	+0.4	+0.2	+0.0	25.8	50.0	-24.2	Black
16	298.349k	25.1	+0.1	+0.3	+0.2	+0.0	25.7	50.3	-24.6	Black
17	153.636k	26.3	+0.1	+0.4	+2.4	+0.0	29.2	55.8	-26.6	Black

CKC Laboratories Date: 02/15/2005 Time: 1:23:08 PM HID WO#: 82834
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 16
 HID M/N 4045C



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82834**
 Test Type: **Conducted Emissions**
 Equipment: **Entry Prox**
 Manufacturer: **HID**
 Model: **4045C**
 S/N: **0019**

Date: 02/15/2005
 Time: 1:34:38 PM
 Sequence#: 17
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0019

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote antenna configuration. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

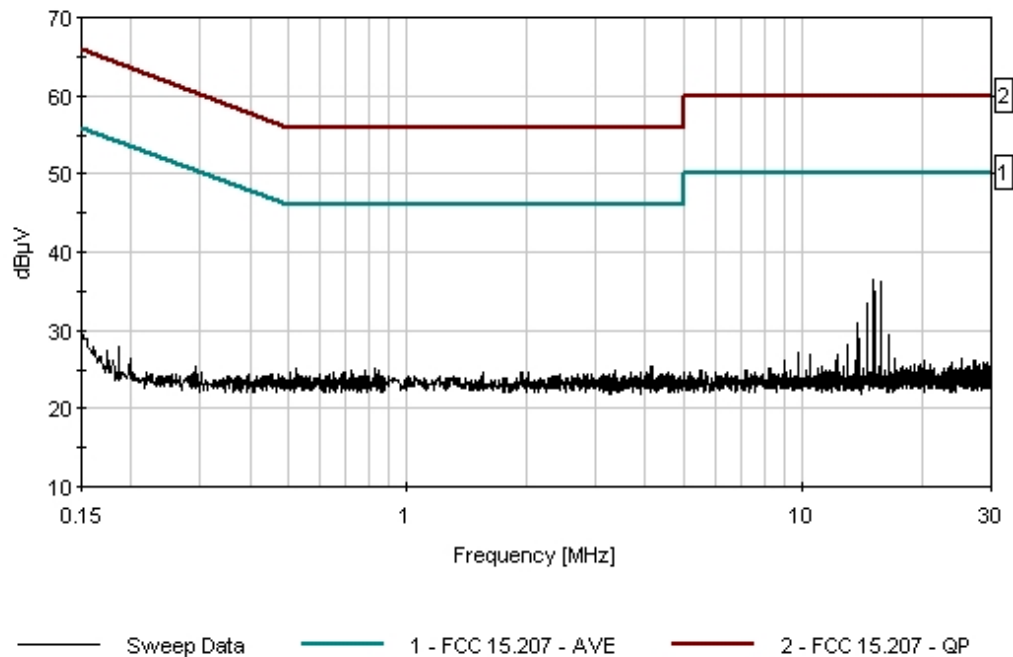
T1=Cable - Internal + cab	T2=LISN Insertion Loss s/n280
T3=HP Filter AN02608	

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

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	15.032M	35.6	+0.4	+0.4	+0.1	+0.0		36.5	50.0	-13.5	White
2	15.780M	35.2	+0.4	+0.4	+0.1	+0.0		36.1	50.0	-13.9	White
3	15.276M	34.0	+0.4	+0.4	+0.1	+0.0		34.9	50.0	-15.1	White
4	14.519M	32.6	+0.4	+0.4	+0.1	+0.0		33.5	50.0	-16.5	White
5	13.771M	30.1	+0.4	+0.4	+0.1	+0.0		31.0	50.0	-19.0	White
6	4.148M	24.6	+0.3	+0.4	+0.1	+0.0		25.4	46.0	-20.6	White

7	16.537M	28.4	+0.4	+0.4	+0.1	+0.0	29.3	50.0	-20.7	White
8	523.781k	24.5	+0.1	+0.3	+0.3	+0.0	25.2	46.0	-20.8	White
9	831.386k	24.6	+0.1	+0.2	+0.3	+0.0	25.2	46.0	-20.8	White
10	13.843M	28.0	+0.4	+0.4	+0.1	+0.0	28.9	50.0	-21.1	White
11	12.994M	27.3	+0.4	+0.4	+0.1	+0.0	28.2	50.0	-21.8	White
12	9.718M	26.3	+0.3	+0.4	+0.1	+0.0	27.1	50.0	-22.9	White
13	15.150M	26.0	+0.4	+0.4	+0.1	+0.0	26.9	50.0	-23.1	White
14	15.204M	25.9	+0.4	+0.4	+0.1	+0.0	26.8	50.0	-23.2	White
15	25.279M	25.3	+0.5	+0.5	+0.2	+0.0	26.5	50.0	-23.5	White
16	17.050M	25.5	+0.4	+0.4	+0.1	+0.0	26.4	50.0	-23.6	White
17	8.961M	25.3	+0.3	+0.5	+0.1	+0.0	26.2	50.0	-23.8	White
18	13.577M	25.3	+0.4	+0.4	+0.1	+0.0	26.2	50.0	-23.8	White
19	20.321M	25.1	+0.5	+0.4	+0.2	+0.0	26.2	50.0	-23.8	White
20	27.114M	25.0	+0.5	+0.5	+0.2	+0.0	26.2	50.0	-23.8	White

CKC Laboratories Date: 02/15/2005 Time: 1:34:38 PM HID W/O#: 82834
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 17
 HID M/N 4045C



Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/14/2005
 Test Type: **Maximized Emissions** Time: 14:15:41
 Equipment: **Entry Prox** Sequence#: 9
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 4045C
 S/N: 0018

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0018

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with integral antenna configuration. Test distance correction factor used in accordance with 15.13, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Ferrite bead added to integral antenna lead. Frequency Range Investigated: Carrier. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Mag Loop - Site B - AN 00226 - 9kHz-30M	T2=Cable - 10 Meter
T3=15.31 3m 40dB/Dec Correction	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	126.212k	74.6	+9.6	+0.1	-80.0		+0.0	4.3	25.6	-21.3	Verti
2	126.212k	69.4	+9.6	+0.1	-80.0		+0.0	-0.9	25.6	-26.5	Horiz

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/14/2005
 Test Type: **Maximized Emissions** Time: 16:47:53
 Equipment: **Entry Prox** Sequence#: 12
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 4045C
 S/N: 0019

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0019

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote antenna configuration. Test distance correction factor used, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Frequency Range Investigated: Carrier. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Mag Loop - Site B - AN 00226 - 9kHz-30M	T2=Cable - 10 Meter
T3=15.31 3m 40dB/Dec Correction	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	126.073k	69.1	+9.6	+0.1	-80.0		+0.0	-1.2	25.6	-26.8	Verti
2	126.065k	64.7	+9.6	+0.1	-80.0		+0.0	-5.6	25.6	-31.2	Horiz

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/14/2005
 Test Type: **Maximized Emissions** Time: 14:15:41
 Equipment: **Entry Prox** Sequence#: 10
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 4045C
 S/N: 0019

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0018

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with integral antenna configuration. Test distance correction factor used in accordance with 15.31, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Ferrite bead added to integral antenna lead. Frequency Range Investigated: 9kHz - 30MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Mag Loop - Site B - AN 00226 - 9kHz-30M	T2=Cable - 10 Meter
T3=15.31 3m 40dB/Dec Correction	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	631.260k	37.1	+9.6	+0.2	-40.0	+0.0	6.9	31.6	-24.7	Verti
2	883.684k	32.3	+9.7	+0.2	-40.0	+0.0	2.2	28.6	-26.4	Verti
3	505.048k	36.0	+9.6	+0.2	-40.0	+0.0	5.8	33.5	-27.7	Verti
4	757.472k	32.2	+9.7	+0.2	-40.0	+0.0	2.1	30.0	-27.9	Verti
5	378.836k	41.9	+9.6	+0.2	-80.0	+0.0	-28.3	16.0	-44.3	Verti
6	252.624k	42.5	+9.6	+0.1	-80.0	+0.0	-27.8	19.6	-47.4	Verti

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)
 Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/14/2005
 Test Type: **Maximized Emissions** Time: 17:01:36
 Equipment: **Entry Prox** Sequence#: 14
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 4045C
 S/N: 0019

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0019

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote antenna configuration. Test distance correction factor used, 40dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Frequency Range Investigated: 9kHz - 30MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Mag Loop - Site B - AN 00226 - 9kHz-30M	T2=Cable - 10 Meter
T3=15.31 3m 40dB/Dec Correction	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	630.970k	37.5	+9.6	+0.2	-40.0	+0.0	7.3	31.6	-24.3	Verti
2	883.390k	34.2	+9.7	+0.2	-40.0	+0.0	4.1	28.6	-24.5	Verti
3	757.180k	34.7	+9.7	+0.2	-40.0	+0.0	4.6	30.0	-25.4	Verti
4	504.760k	37.5	+9.6	+0.2	-40.0	+0.0	7.3	33.5	-26.2	Verti
5	378.540k	41.9	+9.6	+0.2	-80.0	+0.0	-28.3	16.0	-44.3	Verti
6	378.430k	41.3	+9.6	+0.2	-80.0	+0.0	-28.9	16.0	-44.9	Horiz
7	252.423k	43.0	+9.6	+0.1	-80.0	+0.0	-27.3	19.6	-46.9	Verti

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/14/2005
 Test Type: **Maximized Emissions** Time: 12:36:46
 Equipment: **Entry Prox** Sequence#: 6
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 4045C
 S/N: 0018

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0018

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with integral antenna configuration. Test distance correction factor used in accordance with 15.31, 20dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Ferrite bead added to integral antenna lead. Frequency Range Investigated: 30-1000MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Amp - S/N 604	T2=Bilog Site B
T3=Cable - 10 Meter	

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

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	187.700M	41.1	-26.7	+8.2	+3.2		+10.0	35.8	43.5	-7.7	Verti
2	183.890M	37.5	-26.8	+8.2	+3.1		+10.0	32.0	43.5	-11.5	Verti
3	200.620M	36.4	-26.7	+8.4	+3.3		+10.0	31.4	43.5	-12.1	Verti
4	194.560M	36.5	-26.7	+8.3	+3.2		+10.0	31.3	43.5	-12.2	Verti
5	180.150M	36.8	-26.8	+8.2	+3.1		+10.0	31.3	43.5	-12.2	Verti

6	202.080M	35.9	-26.7	+8.5	+3.3	+10.0	31.0	43.5	-12.5	Verti
7	170.300M	35.7	-26.8	+9.0	+3.0	+10.0	30.9	43.5	-12.6	Verti
8	165.950M	35.3	-26.9	+9.4	+2.9	+10.0	30.7	43.5	-12.8	Verti
9	200.860M	35.5	-26.7	+8.4	+3.3	+10.0	30.5	43.5	-13.0	Verti
10	172.390M	34.6	-26.8	+8.8	+3.0	+10.0	29.6	43.5	-13.9	Verti
11	200.350M	34.6	-26.7	+8.3	+3.3	+10.0	29.5	43.5	-14.0	Verti
12	171.760M	34.4	-26.8	+8.8	+3.0	+10.0	29.4	43.5	-14.1	Verti
13	169.020M	33.7	-26.8	+9.1	+3.0	+10.0	29.0	43.5	-14.5	Verti
14	161.580M	32.9	-26.9	+9.9	+2.9	+10.0	28.8	43.5	-14.7	Verti
15	173.400M	33.8	-26.8	+8.7	+3.0	+10.0	28.7	43.5	-14.8	Verti
16	160.010M	32.5	-26.9	+10.1	+2.9	+10.0	28.6	43.5	-14.9	Verti
17	198.620M	33.7	-26.7	+8.3	+3.3	+10.0	28.6	43.5	-14.9	Verti
18	195.050M	33.7	-26.7	+8.3	+3.2	+10.0	28.5	43.5	-15.0	Verti
19	196.620M	33.5	-26.7	+8.3	+3.3	+10.0	28.4	43.5	-15.1	Verti
20	215.030M	32.0	-26.6	+9.5	+3.4	+10.0	28.3	43.5	-15.2	Verti
21	198.390M	33.4	-26.7	+8.3	+3.3	+10.0	28.3	43.5	-15.2	Verti
22	164.030M	32.5	-26.9	+9.7	+2.9	+10.0	28.2	43.5	-15.3	Verti
23	167.070M	32.9	-26.9	+9.3	+2.9	+10.0	28.2	43.5	-15.3	Verti
24	201.420M	33.0	-26.7	+8.4	+3.3	+10.0	28.0	43.5	-15.5	Verti
25	168.560M	32.5	-26.8	+9.2	+3.0	+10.0	27.9	43.5	-15.6	Verti
26	202.420M	32.4	-26.7	+8.5	+3.3	+10.0	27.5	43.5	-16.0	Verti
27	223.290M	31.9	-26.5	+10.1	+3.4	+10.0	28.9	46.0	-17.1	Verti
28	221.600M	31.8	-26.5	+10.0	+3.4	+10.0	28.7	46.0	-17.3	Verti
29	216.240M	32.0	-26.6	+9.6	+3.4	+10.0	28.4	46.0	-17.6	Verti
30	222.460M	31.3	-26.5	+10.1	+3.4	+10.0	28.3	46.0	-17.7	Verti

31	219.570M	31.5	-26.5	+9.8	+3.4	+10.0	28.2	46.0	-17.8	Verti
32	219.060M	31.3	-26.5	+9.8	+3.4	+10.0	28.0	46.0	-18.0	Verti
33	217.080M	30.9	-26.6	+9.7	+3.4	+10.0	27.4	46.0	-18.6	Verti
34	236.000M	28.8	-26.5	+11.0	+3.5	+10.0	26.8	46.0	-19.2	Horiz
35	220.650M	29.9	-26.5	+9.9	+3.4	+10.0	26.7	46.0	-19.3	Verti

Test Location: CKC Laboratories •5473A Clouds Rest • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **82834** Date: 02/15/2005
 Test Type: **Maximized Emissions** Time: 12:50:31
 Equipment: **Entry Prox** Sequence#: 15
 Manufacturer: **HID** Tested By: Mike Wilkinson
 Model: 4045C
 S/N: 0019

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Entry Prox*	HID	4045C	0019

Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward Electric Instruments Co., Ltd.	TPS-2000	920035

Test Conditions / Notes:

EUT is a proximity device operating on a frequency of 125kHz. Equipment is powered by 12VDC via support power supply. EUT drain wire at power supply end of cable disconnected. EUT operating with remote antenna configuration. Test distance correction factor used in accordance with 15.31, 20dB per decade to correct test data for comparison to the applicable limit. EUT cable configuration notes: a) End-of Line (EOL) resistors simulate normally closed relay contacts. b) Cables for P1, P2, and P3 are Alpha 1295C. The lengths are all 3 meters. c) The remote antenna unit uses Alpha 1174C from P4 to the antenna. The cable length is 10 feet. d) Cable ends are marked with vertical lines for their numbers ie P3=P|||, etc. e) P2 cable end connections 5 & 6 (orange & white) are connected together to avoid door loop alarm. f) The P1 cables have two 6 ohm EOL resistors from both relay N/C to C. The other wire and drain wire is left open circuit at the cable ends away from the units. g) The P2 cables have two 12 ohm EOL resistors from both relay N/C to C. The other wires and drain wire are left open circuit at the cable ends away from the units. h) The P3 cable wires and drain wire at the end of the cables are left open circuit. Frequency Range Investigated: 30 to 1000 MHz. Temperature: 16°C, Relative Humidity: 42%.

Transducer Legend:

T1=Amp - S/N 604	T2=Bilog Site B
T3=Cable - 10 Meter	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	117.084M	42.1	-27.2	+10.7	+2.4		+10.0	38.0	43.5	-5.5	Verti
	QP										
2	175.565M	41.7	-26.8	+8.5	+3.0		+10.0	36.4	43.5	-7.1	Verti
3	163.481M	40.6	-26.9	+9.7	+2.9		+10.0	36.3	43.5	-7.2	Verti
4	137.228M	38.8	-27.1	+11.0	+2.7		+10.0	35.4	43.5	-8.1	Verti
5	169.521M	39.9	-26.8	+9.1	+3.0		+10.0	35.2	43.5	-8.3	Verti

6	159.412M	39.1	-26.9	+10.1	+2.9	+10.0	35.2	43.5	-8.3	Verti
7	177.598M	39.7	-26.8	+8.3	+3.0	+10.0	34.2	43.5	-9.3	Verti
8	153.402M	37.9	-27.0	+10.3	+2.8	+10.0	34.0	43.5	-9.5	Verti
9	187.006M	39.1	-26.8	+8.2	+3.1	+10.0	33.6	43.5	-9.9	Verti
10	129.144M	36.8	-27.2	+11.1	+2.6	+10.0	33.3	43.5	-10.2	Verti
11	185.640M	37.5	-26.8	+8.2	+3.1	+10.0	32.0	43.5	-11.5	Verti
12	139.258M	35.2	-27.1	+10.9	+2.7	+10.0	31.7	43.5	-11.8	Verti
13	183.658M	37.2	-26.8	+8.2	+3.1	+10.0	31.7	43.5	-11.8	Verti
14	145.296M	34.8	-27.0	+10.6	+2.7	+10.0	31.1	43.5	-12.4	Horiz
15	242.138M	34.1	-26.5	+11.5	+3.5	+10.0	32.6	46.0	-13.4	Verti
16	169.472M	34.7	-26.8	+9.1	+3.0	+10.0	30.0	43.5	-13.5	Horiz
17	117.023M	34.1	-27.2	+10.7	+2.4	+10.0	30.0	43.5	-13.5	Horiz
18	172.565M	35.0	-26.8	+8.8	+3.0	+10.0	30.0	43.5	-13.5	Verti
19	210.703M	33.0	-26.6	+9.2	+3.3	+10.0	28.9	43.5	-14.6	Verti
20	238.064M	33.0	-26.5	+11.2	+3.5	+10.0	31.2	46.0	-14.8	Verti
21	135.094M	30.9	-27.1	+11.0	+2.6	+10.0	27.4	43.5	-16.1	Horiz
22	225.984M	32.6	-26.5	+10.3	+3.4	+10.0	29.8	46.0	-16.2	Verti
23	203.178M	31.5	-26.7	+8.6	+3.3	+10.0	26.7	43.5	-16.8	Horiz
24	180.526M	31.7	-26.8	+8.2	+3.1	+10.0	26.2	43.5	-17.3	Verti
25	186.028M	30.9	-26.8	+8.2	+3.1	+10.0	25.4	43.5	-18.1	Verti
26	221.596M	30.0	-26.5	+10.0	+3.4	+10.0	26.9	46.0	-19.1	Verti