



**HID GLOBAL CORP. TEST REPORT**

**FOR THE**

**6131B (6306-310) iCLASS RWK400 READER/WRITER  
& 6130B (6306-310) iCLASS RK40 READER\***

**FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 & 15.225**

**COMPLIANCE**

**DATE OF ISSUE: OCTOBER 26, 2006**

**PREPARED FOR:**

HID Global Corp.  
9292 Jeromino Road  
Irvine, CA 92618-1905

P.O. No.: 11008009  
W.O. No.: 85766

**PREPARED BY:**

Mary Ellen Clayton  
CKC Laboratories, Inc.  
5046 Sierra Pines Drive  
Mariposa, CA 95338

Date of test: October 9-18, 2006

**Report No.: FC06-060**

\*This model was not tested by CKC Laboratories but is part of the family that was tested. See "EUT Description" in the test report for more details.

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## ADMINISTRATIVE INFORMATION

**DATE OF TEST:** October 9-18, 2006

**DATE OF RECEIPT:** October 9, 2006

**MANUFACTURER:** HID Global Corp.  
9292 Jeromino Road  
Irvine, CA 92618-1905

**REPRESENTATIVE:** Mat Aschenberg

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

**TEST METHOD:** ANSI C63.4 (2003)

**PURPOSE OF TEST:** To demonstrate the compliance of the 6131B (6306-310) iClass RWK400 Reader/Writer with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 and 15.225 devices.

### FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.2.2(e)	47CFR	15.225(a)*	Fundamental Requirements
RSS 210	6.2.2(e)	NA	NA	±150kHz to ±450kHz Emissions Requirement
RSS 210	6.2.2(e)	47CFR	15.225(b)*	Out of band emissions
RSS 210	6.2.2(e)	47CFR	15.225(c)*	Carrier Stability
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
	IC 3082A-1		784962	Site File No.

\* Indicates that FCC Requirements are more stringent than the Canadian Equivalent.

#### CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

#### APPROVALS

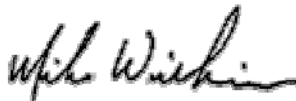
Steve Behm, Director of Engineering Services

#### QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

#### TEST PERSONNEL:



Mike Wilkinson, EMC Engineer/Lab Manager

**FCC 15.31(m) Number Of Channels**

This device operates on a single channel.

**FCC 15.33(a) Frequency Ranges Tested**

15.207 Conducted Emissions: 150 kHz – 30 MHz

15.209 Radiated Emissions: 30 kHz – 1000 MHz

<b>FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE</b>			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

**FCC 15.203 Antenna Requirements**

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

**EUT Operating Frequency**

The EUT was operating at 13.56 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%.

## **EQUIPMENT UNDER TEST (EUT) DESCRIPTION**

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

The following model has been tested by CKC Laboratories:

### **61xxB iCLASS Readers (PIV Readers)**

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets: **6131B (6306-310) iCLASS RWK400 Reader/Writer**

The manufacturer states that the following additional models are identical electrically to the one which was tested, or any differences between them do not affect their EMC characteristics, and therefore they comply to the level of testing equivalent to the tested models.

### **6130B (6306-310) iCLASS RK40 Reader**

## **EQUIPMENT UNDER TEST**

### **6131B (6306-310) iClass RWK400 Reader/Writer**

Manuf: HID Global Corp.  
Model: 6131B (6306-310) iClass RWK400  
Reader/Writer  
Serial: 101206  
FCC ID: pending

## **PERIPHERAL DEVICES**

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

### **DC Power Supply**

Manuf: Topward  
Model: TPS-2000  
Serial: 920035

## 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 $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V	SPEC LIMIT dB $\mu$ V	MARGIN dB	NOTES
		Lisn dB	HPF dB	Cable dB					
0.152000	12.6	04	2.9	11.6		27.5	55.9	-28.4	B
0.162600	13.6	0.4	1.6	11.7		27.3	55.3	-28.0	B
0.178300	15.8	0.3	0.3	11.7		28.1	54.6	-26.5	W
0.205500	18.1	0.3	0.2	11.8		30.4	53.4	-23.0	W
0.375600	7.5	0.4	0.1	12.0		20.0	48.4	-28.4	B
10.000000	12.6	0.4	0.1	10.8		23.9	50.0	-26.1	W

Test Method: ANSI C63.4 (2003)  
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead  
W = White Lead

COMMENTS: EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Frequency range investigated: 150 kHz to 30 MHz. Temperature: 22.5°C, Relative Humidity: 45%.

**Table 2: FCC 15.209 Six Highest Radiated Emission Levels**

FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS				CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
40.690	37.5	12.0	-27.0	1.7	10.0	34.2	40.0	-5.8	VQ
257.668	41.3	12.1	-26.0	5.1	10.0	42.5	46.0	-3.5	VQ
284.795	43.1	12.6	-26.1	5.4	10.0	45.0	46.0	-1.0	VQ
298.351	41.8	12.8	-26.2	5.5	10.0	43.9	46.0	-2.1	VQ
311.913	42.8	13.2	-26.3	5.5	10.0	45.2	46.0	-0.8	VQ
352.594	37.1	14.3	-26.5	5.6	10.0	40.5	46.0	-5.5	V

Test Method: ANSI C63.4 (2003)  
 Spec Limit: FCC Part 15 Subpart C Section 15.209  
 Test Distance: 10 Meters

NOTES: Q = Quasi Peak Reading  
 V = Vertical Polarization

COMMENTS: EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Test distance correction factor used in accordance with 15.35, 20dB per decade. Frequency range investigated: 30-1000 MHz. Temperature: 22.5°C, Relative Humidity: 45%.



**Table 3: FCC 15.225 Carrier Emission Levels**

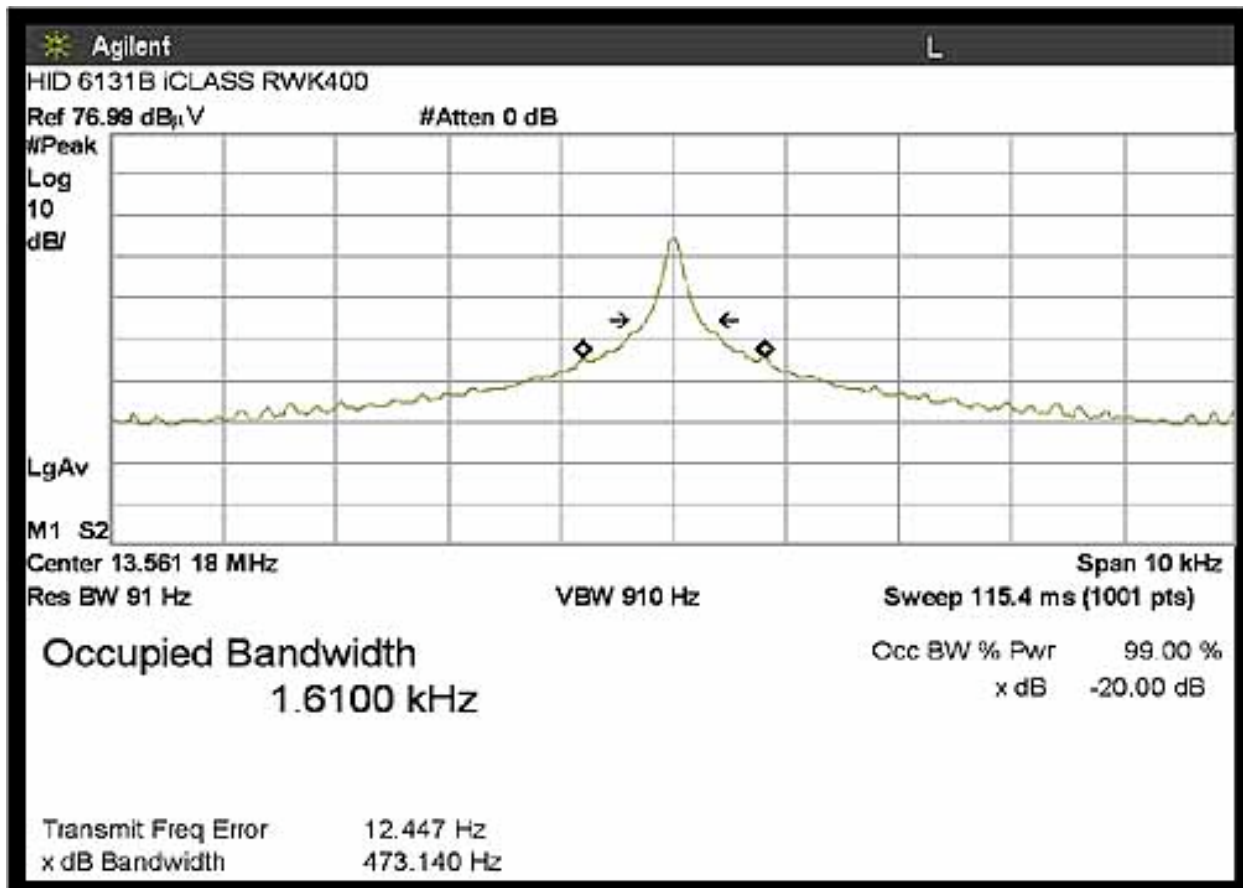
FREQUENCY MHz	METER READING dB $\mu$ V	CORRECTION FACTORS			CORRECTED READING dB $\mu$ V/m	SPEC LIMIT dB $\mu$ V/m	MARGIN dB	NOTES
		Cable dB	Ant dB	Corr dB				
13.561	51.8	1.0	9.6	-20.0	42.4	84.0	-41.6	H
13.561	50.5	1.0	9.6	-20.0	41.1	84.0	-42.9	V

Test Method: ANSI C63.4 (2003)  
 Spec Limit: FCC Part 15 Subpart C Section 15.225  
 Test Distance: 10 Meters

NOTES: H = Horizontal Polarization  
 V = Vertical Polarization

COMMENTS: EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency Range Investigated: Carrier. Temperature: 22.5°C, Relative Humidity: 45%.

### OCCUPIED BANDWIDTH



## FREQUENCY STABILITY

**Test Conditions:** EUT was placed inside the temperature chamber and was transmitting continuously. SA RBW = 1.0 kHz, VBW = 10 kHz, Span = 5 kHz.

**Customer:** HID Global  
**WO#:** 85766  
**Test Engineer:** Mike Wilkinson

6131B iCLASS

**Device Model #:** RWK400  
**Operating Voltage:** 12 VDC  
**Frequency Limit:** 0.01 %

### Temperature Variations

		Channel 1 (MHz)	Dev. (MHz)
Channel Frequency:		13.561190	
Temp (C)	Voltage		
-20	12	13.561305	0.00012
-10	12	13.561330	0.00014
0	12	13.561320	0.00013
10	12	13.561250	0.00006
20	12	13.561190	0.00000
30	12	13.561165	0.00002
40	12	13.561130	0.00006
50	12	13.561160	0.00003

### Voltage Variations ( $\pm 15\%$ )

20	10.2	13.561190	0.00000
20	12	13.561190	0.00000
20	13.8	13.561185	0.00000

<b>Max Deviation (MHz)</b>	<b>0.00014</b>
<b>PASS</b>	

## **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 $\mu$ V/m, the spectrum analyzer reading in dB $\mu$ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

<b>TABLE A: SAMPLE CALCULATIONS</b>		
	Meter reading	(dB $\mu$ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB $\mu$ 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 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 $\mu$ 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  $\mu$ H/+50 ohms. 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. 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



**PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS**



Mains Conducted Emissions - Side View

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Front View

**PHOTOGRAPH SHOWING RADIATED EMISSIONS**



Radiated Emissions - Back View

**PHOTOGRAPH SHOWING TEMPERATURE TESTING**



Temperature Testing

## APPENDIX B

### TEST EQUIPMENT LIST

***FCC 15.207***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
150kHz HP Filter TTE	G7754	03/09/2006	03/09/2008	02608
LISN, 8028-50-TS-24-BNC	8379276, 280	06/03/2005	06/03/2007	1248 & 1249

***FCC 15.209 & 15.225***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/12/2005	01/12/2007	02660
HP 8447D Preamp	1937A02604	03/11/2005	03/11/2007	00099
Chase CBL6111C Bilog	2456	06/07/2005	06/07/2007	01991

***Frequency Stability***

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer 8564E	3623A00539	8/01/2006	8/01/2008	1406
Temp Chamber S-1.2 MiniMax	11899	1/24/2005	1/24/2007	01879
Thermometer HH-26K	T-202884	1/18/2005	1/18/2007	02242
Multimeter 8520A		4/25/2005	4/25/2007	02369

**APPENDIX C:**  
**MEASUREMENT DATA SHEETS**

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corp.**  
 Specification: **FCC 15.207 - AVE**  
 Work Order #: **85766** Date: 10/18/2006  
 Test Type: **Conducted Emissions** Time: 09:09:24  
 Equipment: **61xxB iCLASS Readers (PIV Readers)** Sequence#: 6  
 Manufacturer: HID Global Corp. Tested By: Mike Wilkinson  
 Model: 6131BiClass RWK400 120V 60Hz  
 S/N: 101206

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

Function	Manufacturer	Model #	S/N
61xxB iCLASS Readers (PIV Readers)*	HID Global Corp.	6131BiClass RWK400	101206

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward	TPS-2000	920035

**Test Conditions / Notes:**

EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Frequency range investigated: 150 kHz to 30 MHz. Temperature: 22.5°C, Relative Humidity: 45%.

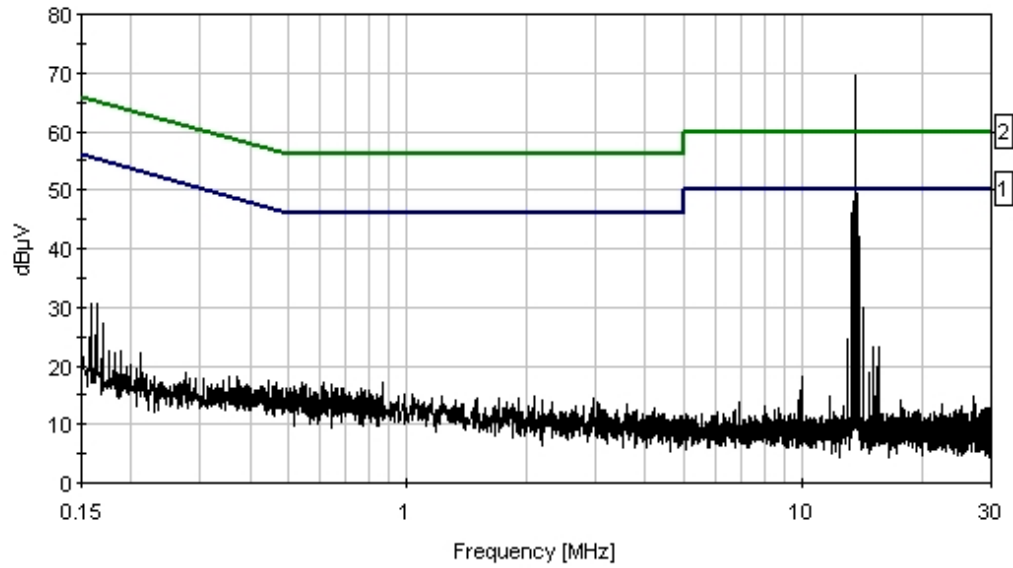
**Transducer Legend:**

T1=LISN Insertion Loss s/n276	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	162.600k	13.6	+0.4	+1.6	+11.7	+0.0		27.3	55.3	-28.0	Black
2	375.600k	7.5	+0.4	+0.1	+12.0	+0.0		20.0	48.4	-28.4	Black
3	152.000k	12.6	+0.4	+2.9	+11.6	+0.0		27.5	55.9	-28.4	Black
4	9.890M	10.0	+0.5	+0.1	+10.8	+0.0		21.4	50.0	-28.6	Black
5	17.720M	8.4	+0.4	+0.2	+10.9	+0.0		19.9	50.0	-30.1	Black
6	27.123M	4.0	+0.4	+0.1	+11.0	+0.0		15.5	50.0	-34.5	Black
7	13.563M	0.5	+0.5	+0.1	+10.9	+0.0		12.0	50.0	-38.0	Black
	Ave								Antenna replaced with dummy load		
^	13.563M	58.2	+0.5	+0.1	+10.9	+0.0		69.7	50.0	+19.7	Black
									Antenna installed		
^	13.562M	11.5	+0.5	+0.1	+10.9	+0.0		23.0	50.0	-27.0	Black
									Annett replaced with dummy load		

CKC Laboratories Date: 10/18/2006 Time: 09:09:24 HID Global WO#: 85766  
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 6  
 HID Global Corp. MN 6131 BiClass R/WK400





Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corp.**  
 Specification: **FCC 15.207 - AVE**  
 Work Order #: **85766** Date: 10/18/2006  
 Test Type: **Conducted Emissions** Time: 09:34:58  
 Equipment: **61xxB iCLASS Readers (PIV Readers)** Sequence#: 7  
 Manufacturer: HID Global Corp. Tested By: Mike Wilkinson  
 Model: 6131BiClass RWK400 120V 60Hz  
 S/N: 101206

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

Function	Manufacturer	Model #	S/N
61xxB iCLASS Readers (PIV Readers)*	HID Global Corp.	6131BiClass RWK400	101206

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward	TPS-2000	920035

**Test Conditions / Notes:**

EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Frequency range investigated: 150 kHz to 30 MHz. Temperature: 22.5°C, Relative Humidity: 45%.

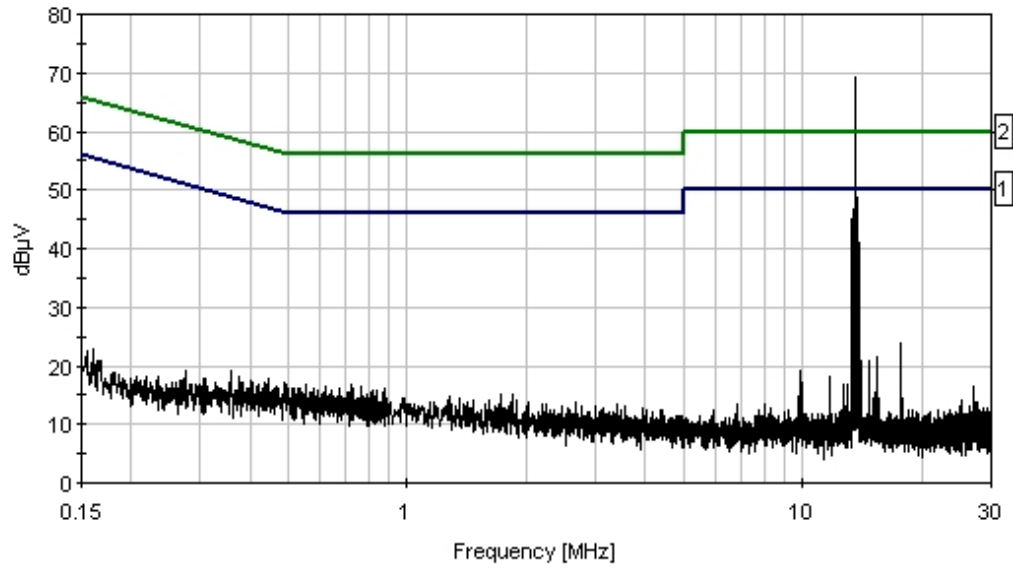
**Transducer Legend:**

T1=LISN Insertion Loss s/n280	T2=Filter 150kHz HP AN02608
T3=Cable - Site D LISN 100k-30M	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	205.500k	18.1	+0.3	+0.2	+11.8	+0.0		30.4	53.4	-23.0	White
2	10.000M	12.6	+0.4	+0.1	+10.8	+0.0		23.9	50.0	-26.1	White
3	178.300k	15.8	+0.3	+0.3	+11.7	+0.0		28.1	54.6	-26.5	White
4	358.700k	7.0	+0.3	+0.1	+12.0	+0.0		19.4	48.8	-29.4	White
5	27.120M	4.2	+0.5	+0.1	+11.0	+0.0		15.8	50.0	-34.2	White
6	13.561M	0.7	+0.4	+0.1	+10.9	+0.0		12.1	50.0	-37.9	White
	Ave								Antenna replaced with dummy load		
^	13.561M	57.7	+0.4	+0.1	+10.9	+0.0		69.1	50.0	+19.1	White
									Antenna installed		
^	13.561M	11.3	+0.4	+0.1	+10.9	+0.0		22.7	50.0	-27.3	White
									Antenna replaced with dummy load		

CKC Laboratories Date: 10/18/2006 Time: 09:34:58 HID Global WO#: 85766  
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 7  
 HID Global Corp. MN 6131 BiClass RVK400



— Sweep Data      — 1 - FCC 15.207 - AVE      — 2 - FCC 15.207 - QP

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corp.**

Specification: **FCC 15.209**

Work Order #: **85766**

Date: 10/13/2006

Test Type: **Radiated Scan**

Time: 09:53:40

Equipment: **61xxB iCLASS Readers (PIV Readers)**

Sequence#: 1

Manufacturer: HID Global Corp.

Tested By: Mike Wilkinson

Model: 6131BiClass RWK400

S/N: 101206

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

Function	Manufacturer	Model #	S/N
61xxB iCLASS Readers (PIV Readers)*	HID Global Corp.	6131BiClass RWK400	101206

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward	TPS-2000	920035

**Test Conditions / Notes:**

EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Test distance correction factor used in accordance with 15.35, 20dB per decade. Frequency range investigated: 30-1000 MHz. Temperature: 22.5°C, Relative Humidity: 45%.

**Transducer Legend:**

T1=Amp - S/N 604	T2=Bilog Site D
T3=Cable - Site D 10m 9k-1G	

**Measurement Data:**

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	311.913M	42.8	-26.3	+13.2	+5.5	+10.0	45.2	46.0	-0.8	Verti
	QP									
2	284.795M	43.1	-26.1	+12.6	+5.4	+10.0	45.0	46.0	-1.0	Verti
	QP									
3	298.351M	41.8	-26.2	+12.8	+5.5	+10.0	43.9	46.0	-2.1	Verti
	QP									
4	257.668M	41.3	-26.0	+12.1	+5.1	+10.0	42.5	46.0	-3.5	Verti
	QP									
5	352.594M	37.1	-26.5	+14.3	+5.6	+10.0	40.5	46.0	-5.5	Verti
	QP									
6	40.690M	37.5	-27.0	+12.0	+1.7	+10.0	34.2	40.0	-5.8	Verti
	QP									
7	339.039M	37.1	-26.4	+13.9	+5.6	+10.0	40.2	46.0	-5.8	Verti
	QP									
8	284.783M	36.6	-26.1	+12.6	+5.4	+10.0	38.5	46.0	-7.5	Horiz
	QP									
9	379.717M	33.6	-26.7	+14.9	+6.1	+10.0	37.9	46.0	-8.1	Verti
	QP									
10	311.907M	35.2	-26.3	+13.2	+5.5	+10.0	37.6	46.0	-8.4	Horiz
	QP									

11	81.362M	39.1	-27.0	+6.9	+2.5	+10.0	31.5	40.0	-8.5	Verti
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12	108.477M	37.8	-26.8	+10.1	+3.0	+10.0	34.1	43.5	-9.4	Verti
13	230.547M	36.4	-26.2	+10.7	+4.7	+10.0	35.6	46.0	-10.4	Verti
14	203.423M	36.4	-26.5	+8.6	+4.2	+10.0	32.7	43.5	-10.8	Verti
15	461.088M	28.8	-27.3	+16.7	+6.9	+10.0	35.1	46.0	-10.9	Verti
16	366.153M	31.1	-26.6	+14.6	+5.9	+10.0	35.0	46.0	-11.0	Verti
17	298.345M	32.5	-26.2	+12.8	+5.5	+10.0	34.6	46.0	-11.4	Horiz
18	433.979M	27.6	-27.1	+16.1	+6.7	+10.0	33.3	46.0	-12.7	Verti
19	176.294M	34.7	-26.7	+8.4	+3.9	+10.0	30.3	43.5	-13.2	Verti
20	216.985M	30.6	-26.3	+9.7	+4.4	+10.0	28.4	46.0	-17.6	Verti

Test Location: CKC Laboratories •4933 Sierra Pines Dr. • Mariposa, CA 95338 • 1-800-500-4EMC (4362)

Customer: **HID Global Corp.**  
 Specification: **FCC 15.225(a)**  
 Work Order #: **85766** Date: 10/13/2006  
 Test Type: **Radiated Scan** Time: 10:31:37  
 Equipment: **61xxB iCLASS Readers (PIV Readers)** Sequence#: 2  
 Manufacturer: HID Global Corp. Tested By: Mike Wilkinson  
 Model: 6131BiClass RWK400  
 S/N: 101206

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

Function	Manufacturer	Model #	S/N
61xxB iCLASS Readers (PIV Readers)*	HID Global Corp.	6131BiClass RWK400	101206

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	Topward	TPS-2000	920035

**Test Conditions / Notes:**

EUT is an iClass reader operating on a carrier frequency of 13.56 MHz. EUT is transmitting continuously with a tag in the field. Power supply chassis bonded to ground plane. Drain wire not connected to power supply. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency Range Investigated: Carrier. Temperature: 22.5°C, Relative Humidity: 45%.

**Transducer Legend:**

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
T3=15.31 10m 40dB/Dec Correction	

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.561M	51.8	+1.0	+9.6	-20.0	+0.0	42.4	84.0	-41.6	Horiz	
2	13.561M	50.5	+1.0	+9.6	-20.0	+0.0	41.1	84.0	-42.9	Vert	