



HID GLOBAL CORPORATION TEST REPORT

FOR THE

6136AXD MULTICLASS RPK40 READER

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209, 15.225 AND RSS-210

COMPLIANCE

DATE OF ISSUE: APRIL 20, 2007

PREPARED FOR:

HID Global Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

P.O. No.: 11009776
W.O. No.: 86371

PREPARED BY:

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Date of test: March 22 - April 11, 2007

Report No.: FC07-029

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ADMINISTRATIVE INFORMATION

DATE OF TEST: March 22 - April 11, 2007

DATE OF RECEIPT: March 22, 2007

MANUFACTURER: HID Global Corporation
9292 Jeronimo 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), RSS GEN and RSS-210

PURPOSE OF TEST: To demonstrate the compliance of the 6136AxD multiCLASS RPK40 Reader with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209, 15.225 and RSS-210 devices.

APPROVALS

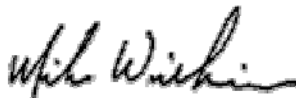
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Mike Wilkinson, EMC Engineer/Lab Manager



Randy Clark, EMC Engineer

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS GEN	7.1.4	47CFR	15.203	Antenna Connector Requirements
RSS GEN	7.2.1	47CFR	15.35(c)	Pulsed Operation
RSS GEN	7.2.2	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	2.1	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	2.2	47CFR	15.205	Restricted Bands of Operation
RSS 210	2.6	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	A2.6	47CFR	15.225(a-c)	Fundamental and Emissions Mask Requirements
RSS 210	A2.6	NA	NA	$\pm 150\text{kHz}$ to $\pm 450\text{kHz}$ Emissions Requirement
RSS 210	A2.6	47CFR	15.225(d)	Out of band emissions
RSS 210	A2.6	47CFR	15.225(e)	Carrier Stability
	3082A-1		784962	Site File No.

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted Emissions: 150 kHz – 30 MHz

15.209 Radiated Emissions: 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 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 and 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. This reader includes a 3126B Indala Expansion Module.

EQUIPMENT UNDER TEST

multiCLASS Reader

Manuf: HID Global Corporation
Model: 6136AxD multiCLASS RPK40 Reader
Serial: 021207
FCC ID: pending

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: NA

REPORT OF EMISSIONS MEASUREMENTS

TESTING PARAMETERS

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits to determine compliance. 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. This reading was then compared to the applicable specification limit to determine compliance.

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 were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. The following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions 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 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/receiver readings were recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device 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 quasi-peak detector.

Average

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

FCC 15.207 CONDUCTED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86371**

Date: 3/27/2007

Test Type: **Conducted Emissions**

Time: 14:45:44

Equipment: **multiCLASS Reader**

Sequence#: 16

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6136AxD multiCLASS RPK40 Reader

120V 60Hz

S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	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

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

Transducer Legend:

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

Measurement Data:

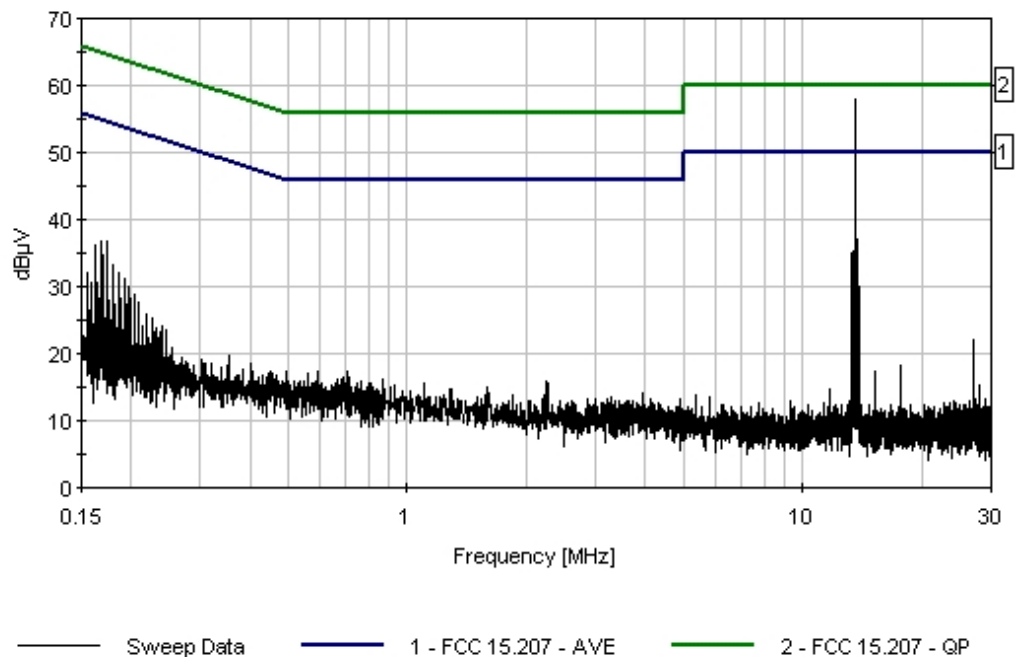
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	13.561M	26.5	+0.5	+0.1	+10.9		+0.0	38.0	50.0	-12.0	Black
Ave	13.561M	46.3	+0.5	+0.1	+10.9		+0.0	57.8	50.0	+7.8	Black
3	158.000k	20.0	+0.4	+2.2	+11.6		+0.0	34.2	55.6	-21.4	Black
4	27.122M	12.4	+0.4	+0.1	+11.0		+0.0	23.9	50.0	-26.1	Black
5	15.220M	8.2	+0.4	+0.1	+10.8		+0.0	19.5	50.0	-30.5	Black

6	17.790M	7.6	+0.4	+0.2	+10.9	+0.0	19.1	50.0	-30.9	Black
7	9.490M	7.4	+0.5	+0.1	+10.8	+0.0	18.8	50.0	-31.2	Black
8	15.820M	7.0	+0.4	+0.1	+10.8	+0.0	18.3	50.0	-31.7	Black
9	11.780M	3.8	+0.5	+0.1	+10.9	+0.0	15.3	50.0	-34.7	Black

CKC Laboratories Date: 3/27/2007 Time: 14:45:44 HID Global WO#: 86371
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 16
 HID Global M/N 6136AxD multiCLASS RPK40 Reader



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

Customer: **HID Global Corporation**

Specification: **FCC 15.207 - AVE**

Work Order #: **86371**

Date: 3/27/2007

Test Type: **Conducted Emissions**

Time: 14:38:16

Equipment: **multiCLASS Reader**

Sequence#: 15

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6136AxD multiCLASS RPK40 Reader

120V 60Hz

S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	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

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 150 kHz to 30 MHz. Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

Transducer Legend:

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

Measurement Data:

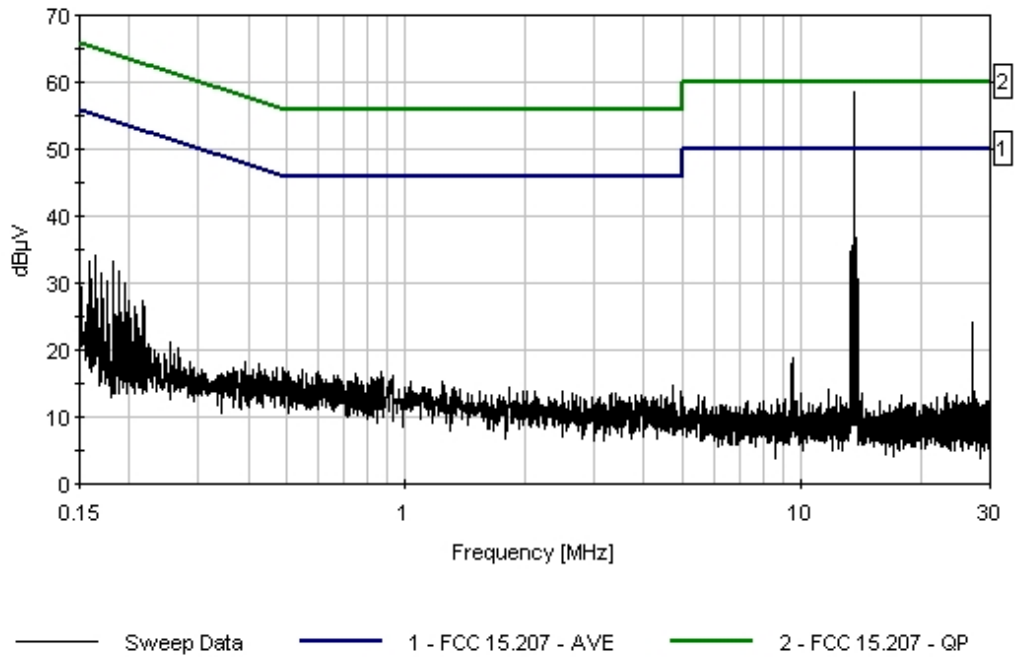
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng 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	13.561M	28.8	+0.4	+0.1	+10.9	+0.0		40.2	50.0	-9.8	White
	Ave										
^	13.561M	47.0	+0.4	+0.1	+10.9	+0.0		58.4	50.0	+8.4	White
3	162.000k	23.9	+0.3	+1.7	+11.7	+0.0		37.6	55.4	-17.8	White
4	169.000k	18.9	+0.3	+0.9	+11.7	+0.0		31.8	55.0	-23.2	White
5	9.490M	15.1	+0.4	+0.1	+10.8	+0.0		26.4	50.0	-23.6	White

6	27.123M	12.9	+0.5	+0.1	+11.0	+0.0	24.5	50.0	-25.5	White
7	17.800M	11.0	+0.4	+0.2	+10.9	+0.0	22.5	50.0	-27.5	White
8	13.000M	10.7	+0.4	+0.1	+10.9	+0.0	22.1	50.0	-27.9	White

CKC Laboratories Date: 3/27/2007 Time: 14:38:16 HID Global WO#: 86371
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 15
 HID Global M/N 6136AxD multiCLASS RPK40 Reader



FCC 15.209 RADIATED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **HID Global Corporation**
 Specification: **FCC 15.209**
 Work Order #: **86371** Date: 3/27/2007
 Test Type: **Maximized Emissions** Time: 09:31:00
 Equipment: **multiCLASS Reader** Sequence#: 8
 Manufacturer: HID Global Corporation Tested By: Mike Wilkinson
 Model: 6136AxD multiCLASS RPK40 Reader
 S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency Range Investigated: Carrier. Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

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 dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	124.964k	49.4	+0.2	+10.2	-60.0		+0.0	-0.2	25.7	-25.9	Vert
2	124.999k	40.1	+0.2	+10.2	-60.0		+0.0	-9.5	25.7	-35.2	Horiz

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

Customer: **HID Global Corporation**

Specification: **FCC 15.209**

Work Order #: **86371**

Date: 3/27/2007

Test Type: **Maximized Emissions**

Time: 10:10:47

Equipment: **multiCLASS Reader**

Sequence#: 9

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6136AxD multiCLASS RPK40 Reader

S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency Range Investigated: 9 kHz to 30 MHz. Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

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 dB μ V	T1 dB	T2 dB	T3 dB	Dist Table dB	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	27.124M	22.9	+1.4	+6.6	-20.0	+0.0	10.9	29.5	-18.6	Horiz
2	27.124M	15.3	+1.4	+6.6	-20.0	+0.0	3.3	29.5	-26.2	Vert
3	249.922k	40.0	+0.2	+10.2	-60.0	+0.0	-9.6	19.6	-29.2	Vert
4	249.925k	27.6	+0.2	+10.2	-60.0	+0.0	-22.0	19.6	-41.6	Horiz

FCC 15.225 RADIATED EMISSIONS

Test Setup Photos



Test Data Sheets

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

Customer: **HID Global Corporation**

Specification: **15.225/15.209**

Work Order #: **86371**

Date: 3/23/2007

Test Type: **Maximized Emissions**

Time: 11:13:31

Equipment: **multiCLASS Reader**

Sequence#: 2

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6136AxD multiCLASS RPK40 Reader

S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
Chase CBL6111C Bilog	2456	12/30/2006	12/30/2008	01991
HP 8447D Preamp	1937A02604	03/14/2007	03/14/2009	00099

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Frequency Range Investigated: 30-1000 MHz. Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

Transducer Legend:

T1=AMP AN00099	T2=Bilog Site D
T3=Cable - Site D 10m 9k-1G	

Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	40.687M	42.0	-27.2	+12.0	+1.7		+10.0	38.5	40.0	-1.5	Vert
QP											
^	40.693M	44.0	-27.2	+12.0	+1.7		+10.0	40.5	40.0	+0.5	Vert
3	230.543M	43.4	-26.5	+10.7	+4.7		+10.0	42.3	46.0	-3.7	Vert
4	298.352M	39.6	-26.4	+12.8	+5.5		+10.0	41.5	46.0	-4.5	Vert

5	203.423M	40.9	-26.7	+8.6	+4.2	+10.0	37.0	43.5	-6.5	Vert
	QP									
^	203.422M	42.4	-26.7	+8.6	+4.2	+10.0	38.5	43.5	-5.0	Vert
7	284.792M	37.7	-26.4	+12.6	+5.4	+10.0	39.3	46.0	-6.7	Vert
8	176.293M	41.0	-26.8	+8.4	+3.9	+10.0	36.5	43.5	-7.0	Vert
	QP									
^	176.293M	42.8	-26.8	+8.4	+3.9	+10.0	38.3	43.5	-5.2	Vert
10	40.695M	36.0	-27.2	+12.0	+1.7	+10.0	32.5	40.0	-7.5	Horiz
11	135.619M	37.1	-27.0	+11.0	+3.4	+10.0	34.5	43.5	-9.0	Vert
12	54.236M	38.1	-27.1	+7.3	+2.0	+10.0	30.3	40.0	-9.7	Vert
13	311.917M	33.4	-26.5	+13.2	+5.5	+10.0	35.6	46.0	-10.4	Vert
14	284.798M	33.7	-26.4	+12.6	+5.4	+10.0	35.3	46.0	-10.7	Horiz
15	298.361M	33.4	-26.4	+12.8	+5.5	+10.0	35.3	46.0	-10.7	Horiz
16	311.918M	32.4	-26.5	+13.2	+5.5	+10.0	34.6	46.0	-11.4	Horiz
17	325.482M	32.1	-26.6	+13.5	+5.6	+10.0	34.6	46.0	-11.4	Vert
18	325.478M	31.6	-26.6	+13.5	+5.6	+10.0	34.1	46.0	-11.9	Horiz
19	108.499M	35.4	-27.1	+10.1	+3.0	+10.0	31.4	43.5	-12.1	Vert
20	230.544M	33.8	-26.5	+10.7	+4.7	+10.0	32.7	46.0	-13.3	Horiz
21	244.129M	32.0	-26.4	+11.6	+4.9	+10.0	32.1	46.0	-13.9	Vert
22	203.415M	33.4	-26.7	+8.6	+4.2	+10.0	29.5	43.5	-14.0	Horiz
23	257.683M	30.6	-26.4	+12.1	+5.1	+10.0	31.4	46.0	-14.6	Horiz
24	149.179M	31.2	-26.9	+10.4	+3.6	+10.0	28.3	43.5	-15.2	Vert
25	216.983M	30.1	-26.6	+9.7	+4.4	+10.0	27.6	46.0	-18.4	Vert
26	122.059M	26.9	-27.0	+11.0	+3.3	+10.0	24.2	43.5	-19.3	Vert
27	216.961M	28.6	-26.6	+9.6	+4.4	+10.0	26.0	46.0	-20.0	Horiz

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

Customer: **HID Global Corporation**

Specification: **47 CFR 15.225 Mask**

Work Order #: **86371**

Date: 3/27/2007

Test Type: **Maximized Emissions**

Time: 08:35:17

Equipment: **multiCLASS Reader**

Sequence#: 7

Manufacturer: HID Global Corporation

Tested By: Mike Wilkinson

Model: 6136AxD multiCLASS RPK40 Reader

S/N: 021207

Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
multiCLASS Reader*	HID Global Corporation	6136AxD multiCLASS RPK40 Reader	021207

Support Devices:

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

Test Conditions / Notes:

Equipment is a multiCLASS Reader operating on a frequency of 13.56MHz and 125kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. Test data is corrected for proper test distance using 40dB per decade correction factor in accordance with 15.31. Frequency Range Investigated: Carrier Temperature: 21°C, Relative Humidity: 43%. 125 kHz transmitter module installed is Indala Module.

Transducer Legend:

T1=Cable - Site D 10m 9k-1G	T2=Mag Loop - AN 00226 - 9kHz-30M
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Measurement Data:

Reading listed by margin.

Test Distance: 10 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	Margin dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.561M	51.1	+1.0	+9.6		-19.0	42.7	84.0	-41.3	Horiz
2	13.561M	48.0	+1.0	+9.6		-19.0	39.6	84.0	-44.4	Vert

RSS-210 OCCUPIED BANDWIDTH

Test Equipment

Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

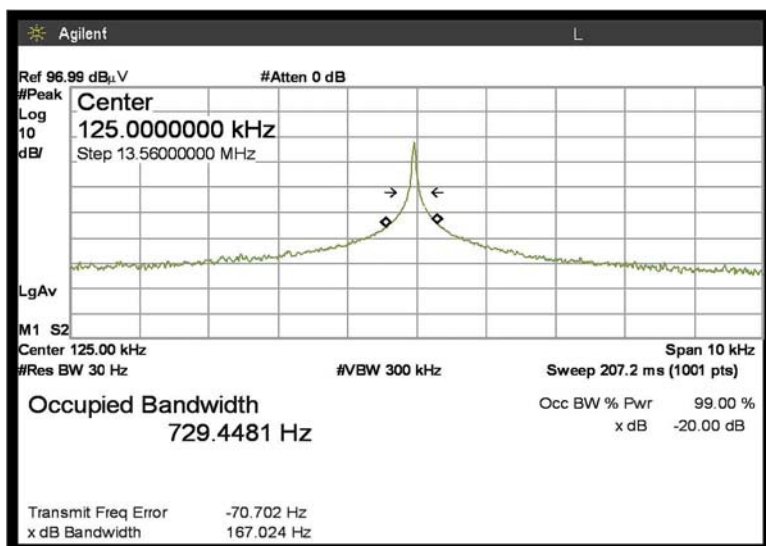
Test Setup Photos





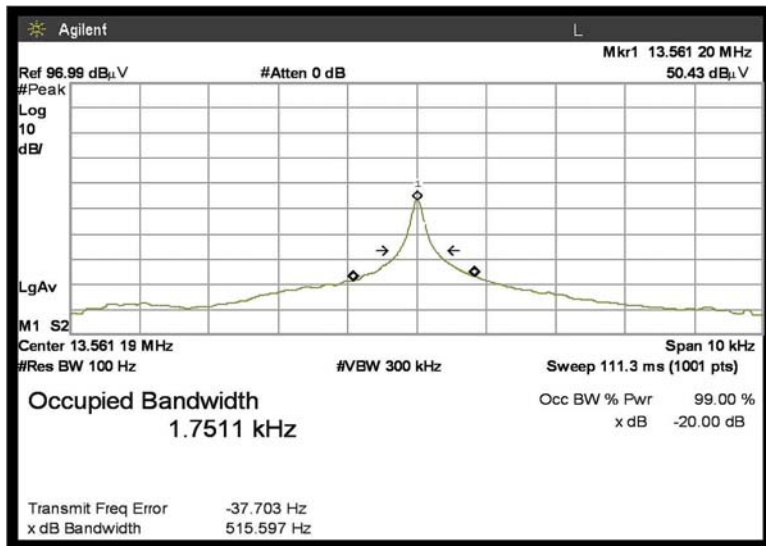
Test Conditions: Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. 125 kHz transmitter module installed is Indala Module.

RSS-210 OCCUPIED BANDWIDTH 125 kHz



Tested By: Mike Wilkinson

RSS-210 OCCUPIED BANDWIDTH 13.56 MHz



Tested By: Mike Wilkinson

FCC 15.225/RSS-210 EMISSIONS MASK

Test Equipment

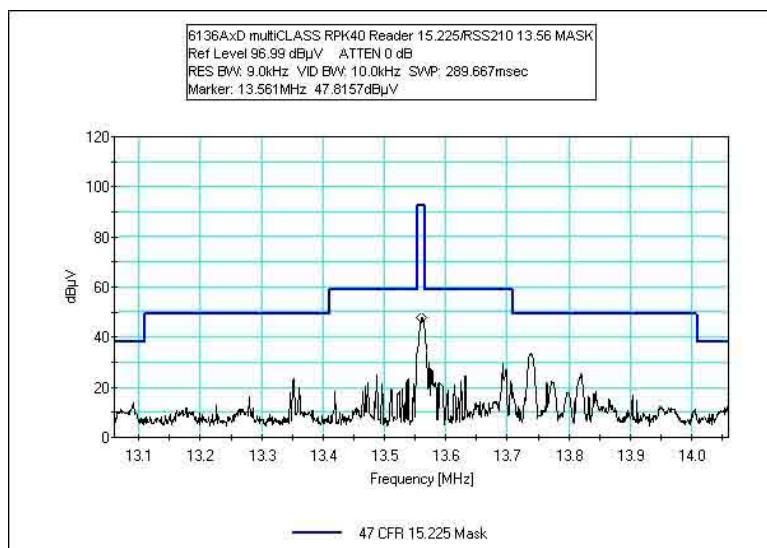
Function	S/N	Calibration Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	01/03/2007	01/03/2009	02660
EMCO Loop Antenna	1074	05/13/2005	05/13/2007	00226

Test Setup Photos



Test Conditions: Equipment is a multiCLASS Reader operating on a frequency of 13.56 MHz and 125 kHz. The EUT is mounted vertically on a support structure to simulate normal installation. DC power supply is bonded to ground. 125 kHz transmitter module installed is Indala Module.

Plot



Tested By: Mike Wilkinson

FREQUENCY STABILITY

Test Equipment

Function	S/N	Cal Date	Cal Due Date	Asset #
Agilent E4446A SA	US44300407	1/3/2007	1/3/2009	2660
Solar Loop Sensor	N/A	3/4/2007	3/4/2009	170
Thermotron Temperature Chamber	11899	12/21/2006	12/21/2008	1879
HP 6205C Dual DC Power Supply	2228A01775	8/15/2005	8/15/2007	762

Test Setup Photos



Test Conditions: Equipment is placed inside of a temperature chamber. EUT power is provided via bench supply. Power variations are performed while monitoring with a digital volt meter.

Device Model #: multiCLASS RPK40 Reader
Operating Voltage: 12 VDC
Frequency Limit: 0.01 %

Temperature Variations

Channel Frequency:		6136AxD	Dev. (MHz)
		13.561111	
Temp (C)	Voltage		
-30	12		
-20	12	13.56108	0.00004
-10	12	13.56110	0.00001
0	12	13.56112	0.00001
10	12	13.56112	0.00001
20	12	13.56111	0.00000
30	12	13.56111	0.00001
40	12	13.56108	0.00003
50	12	13.56107	0.00004

Voltage Variations (±15%)

20	10.2	13.56111	0.00000
20	12	13.56111	0.00000
20	13.8	13.56111	0.00000

Max Deviation (MHz)	0.00004
Max Deviation (%)	0.00028
PASS	

Tested By: Randal Clark