



HID CORPORATION ADDENDUM TO FC01-010A

FOR THE

HID MIFARE READER, 6055B (6055-320)

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

COMPLIANCE

DATE OF ISSUE: JANUARY 23, 2002

PREPARED FOR:

HID Corporation
9292 Jeronimo Road
Irvine, CA 92618-1905

P.O. No.: 10722
W.O. No.: 78015

PREPARED BY:

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

Date of test: December 27, 2001 &
January 16, 2002

Report No.: FC01-010B

This report contains a total of 31 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc. The results in this report apply only to the items tested, as identified herein.

TABLE OF CONTENTS

Administrative Information	3
Summary of Results	4
Conditions for Compliance	4
Approvals	4
Equipment Under Test (EUT) Description	5
EUT Operating Frequency	5
15.31(m) Number of Channels	5
15.33 Frequency Range Tested	5
15.203 Antenna Requirements	5
15.205 Restricted Bands	5
Equipment Under Test	6
Peripheral Devices	6
Temperature and Humidity During Testing	6
Report of Measurements	7
Table 1: 15.225(a) Fundamental Emission Level	7
Table 2: 15.209/15.225 Spurious Emission Levels - 9kHz-30MHz	8
Table 3: 15.209/15.225 Spurious Emission Levels - 30MHz-1000MHz	9
Table 4: 15.207 Conducted Emission Levels	10
Measurement Uncertainty	11
EUT Setup	11
Correction Factors	11
Table A: Sample Calculations	11
Test Instrumentation and Analyzer Settings	12
Table B: 15.35 Analyzer Bandwidth Settings Per Frequency Range	12
Spectrum Analyzer Detector Functions	12
Peak	13
Quasi-Peak	13
Average	13
EUT Testing	13
Radiated Emissions	13
Mains Conducted Emissions	14
Appendix A: Information about the Equipment Under Test	15
I/O Ports	16
Crystal Oscillators	16
Printed Circuit Boards	16
Cable Information	16
Photograph Showing Radiated Emissions	17
Photograph Showing Radiated Emissions	18
Photograph Showing Mains Conducted Emissions	19
Photograph Showing Mains Conducted Emissions	20
Appendix B: Test Equipment List	21
Appendix C: Measurement Data Sheets	22

CKC Laboratories, Inc. has received Certificates of Accreditation from the following agencies:

A2LA (USA); DATech (Germany); BSMI (Taiwan); Nemko (Norway); and GOST (Russia).

CKC Laboratories, Inc has received test site Registration Acceptance from the following agencies:

FCC (USA); VCCI (Japan); and Industry Canada.

CKC Laboratories, Inc. has received Letters of Acceptance through an MRA for the following agencies:

ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); Radio Communications Agency (RA); HOKLAS (Hong Kong); Bakom (Swiss); BIPT (Belgium); Denmark Teletyrelsen; RvA (Netherlands); SEE (Luxembourg) SITTEL (Bolivia); and UKAS (UK).

ADMINISTRATIVE INFORMATION

DATE OF TEST:	December 27, 2001 & January 16, 2002
DATE OF RECEIPT:	December 27, 2001
PURPOSE OF TEST:	To demonstrate the compliance of the HID MIFARE Reader, 6055B (6055-320) with the requirements for FCC Part 15 Subpart C Section 15.225/15.207/15.209 devices. The purpose of addendum B is to verify compliance after modifications were made to the EUT and roles the model from 6055B (6055-310) to 6055B (6055-320).
TEST METHOD:	ANSI C63.4 1992
MANUFACTURER:	HID Corporation 9292 Jeronimo Road Irvine, CA 92618-1905
REPRESENTATIVE:	Frank de Vall
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the HID Corporation HID MIFARE Reader, 6055B (6055-320) was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.225
- ANSI C63.4 (1992) method

Canada

RSS-210 using:

- FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.225
- ANSI C63.4 (1992) method

VCCI Acceptance No. R-565 & C-580

CONDITIONS FOR COMPLIANCE

For conducted testing a torroid was installed at DC power input with DC common tied to ground. No receiver testing was required.

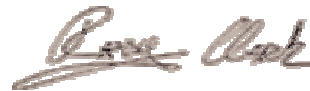
APPROVALS

QUALITY ASSURANCE:



Dennis Ward, Quality Manager

TEST PERSONNEL:



Randy Clark, EMC Engineer



Chuck Kendall, EMC/Lab Manager

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was a production unit. The EUT is a transceiver proximity card reader operating in full duplex mode.

EUT Operating Frequency

The EUT was operating at 13.56 MHz.

15.31(m) Number of Channels

The device operates on a single channel.

15.33 Frequency Range Tested

15.207 Conducted: 9 kHz – 30 MHz

15.209 Radiated: 30-1000 MHz

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.

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.

EQUIPMENT UNDER TEST

HID MIFARE Reader

Manuf: HID Corporation
Model: 6055B (6055-320)
Serial: 114
FCC ID: JQ66055BA

PERIPHERAL DEVICES

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

Power Supply

Manuf: Topward Electric Instruments
Model: TPS-2000
Serial: 920035
FCC ID: DoC

TEMPERATURE AND HUMIDITY DURING TESTING

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

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the HID MIFARE Reader, 6055B (6055-320). All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 1: 15.225(a) Fundamental Emission Level									
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	15.31 dB	Cable dB	Dist dB				
13.561	42.4	10.0	-20.0	0.7		33.1	80.0	-46.9	V
13.561	36.1	10.0	-20.0	0.7		26.8	80.0	-53.2	H

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Subpart C Section 15.225(a)
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization

COMMENTS: EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation. Data corrected for test distance in accordance with FCC 15.31 40dB/Decade.

Table 2: 15.209/15.225 Spurious Emission Levels - 9kHz-30MHz

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	15.31 dB	Cable dB	Dist dB				
27.113	19.2	7.2	-20.0	1.0		7.4	29.5	-22.1	H

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part Subpart C Sections 15.209/15.225
Test Distance: 10 Meters

NOTES: H = Horizontal Polarization

COMMENTS: EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation. Data corrected for test distance in accordance with FCC 15.31 40dB/Decade.

Table 3: 15.209/15.225 Spurious Emission Levels - 30MHz-1000MHz

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				
40.720	48.8	11.1	-27.2	1.2		33.9	40.0	-6.1	V
189.864	43.8	17.2	-26.7	2.8		37.1	43.5	-6.4	H
244.098	47.9	15.9	-26.6	3.2		40.4	46.0	-5.6	VQ
244.100	50.0	15.9	-26.6	3.2		42.5	46.0	-3.5	HQ
257.658	45.9	16.9	-26.5	3.3		39.6	46.0	-6.4	H
311.904	45.6	20.5	-26.6	3.8		43.3	46.0	-2.7	HQ

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part Subpart C Sections 15.209/15.225
Test Distance: 3 Meters

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

COMMENTS: EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation.

Table 4: 15.207 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		Cable dB					
6.226550	33.8	1.0		0.30		35.1	48.0	-12.9	B
6.281150	34.0	1.0		0.30		35.3	48.0	-12.7	B
6.335750	33.8	1.0		0.30		35.1	48.0	-12.9	B
6.499550	33.6	0.9		0.30		34.8	48.0	-13.2	B
13.549600	44.6	0.6		0.30		45.5	48.0	-2.5	WQ
13.549800	44.4	1.0		0.30		45.7	48.0	-2.3	BQ

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

NOTES: Q = Quasi Peak Reading
B = Black Lead
W = White Lead

COMMENTS: EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source powered by 120VAC 60Hz. EUT is placed in vertical orientation. Torroid installed at DC power input with DC common tied to ground.

MEASUREMENT UNCERTAINTY

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

EUT SETUP

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

A cable was routed consistent with the typical application by varying the configuration of the test sample. The interface cable was connected to the available I/O port of the test unit. The effect of varying the position of the cable was investigated to find the configuration that produced maximum emissions. The I/O cable was of the type and length specified in the individual requirements.

The radiated and conducted emissions data of the HID MIFARE Reader, 6055B (6055-320), 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 the HID MIFARE Reader, 6055B (6055-320). For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. Conducted emissions tests required the use of the FCC type LISNs.

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

FCC SECTION 15.35:			
TABLE B: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	450 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data for the HID MIFARE Reader, 6055B (6055-320).

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

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

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

Mains Conducted Emissions

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

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

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

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	6055-511-02
CRT was displaying:	NA
Power Supply Manufacturer:	Northern Computers
Power Supply Part Number:	PS-1-220
AC Line Filter Manufacturer:	NA
AC Line Filter Part Number:	NA

I/O PORTS	
Type	#
RS232	1

CRYSTAL OSCILLATORS	
Type	Freq In MHz
Ceramic Resonator	4.0
Ceramic Resonator	13.56

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Main Control Board	6055-321A	4.0, 13.56	2	
Antenna Board	6055-322A		2	

CABLE INFORMATION

Cable #:		Cable(s) of this type:	
Cable Type:	Multiconductor Shielded	Shield Type:	Aluminum foil with Drain wire
Construction:	Multiconductor	Length In Meters:	3
Connected To End (1):	Power & signal	Connected To End (2):	Host & Power Supply
Connector At End (1):	Hardwired	Connector At End (2):	Hardwired
Shield Grounded At (1):	Reader	Shield Grounded At (2):	Open
Part Number:	1299/12C	Number of Conductors:	12
Notes and/or description:			

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Side View

APPENDIX B

TEST EQUIPMENT LIST

Fundamental and <30MHz test equipment:

Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
10 Meter Site Cal				NA	4/24/01	4/24/02
Antenna, Loop	EMCO	6502	1074	00226	5/31/01	5/31/02
QPA	HP	85650A	2043A00202	02430	11/21/01	11/21/02
S/A Display	HP	85662A	2816A15964	P00708	11/21/01	11/21/02
S/A RF Section	HP	8567A	2727A00473	P00709	11/21/01	11/21/02

Emissions test equipment 30-1000MHz:

Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
10 Meter Site Cal				NA	4/24/2001	4/24/02
Antenna, Bicon	A&H	SAS-200/542	156	00225	12/06/01	12/6/02
Antenna, Log	A&H	SAS-200/510	154	01330	05/07/01	5/7/02
QPA	HP	85650A	2043A00202	02430	11/21/01	11/21/02
S/A Display	HP	85662A	2816A15964	P00708	11/21/01	11/21/02
S/A RF Section	HP	8567A	2727A00473	P00709	11/21/01	11/21/02

Conducted emissions test equipment:

Equipment	Manufacturer	Model #	Serial #	Asset #	Cal Date	Cal Due
LISN Set	Solar	8028-50-TS-24-BNC	814493, 474	02056	5/22/01	5/22/02
QPA	HP	85650A	2043A00202	02430	11/21/01	11/21/02
S/A Display	HP	85662A	2816A15964	P00708	11/21/01	11/21/02
S/A RF Section	HP	8567A	2727A00473	P00709	11/21/01	11/21/02

APPENDIX C

MEASUREMENT DATA SHEETS

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

Customer: **HID**
 Specification: **FCC 15.225(a)**
 Work Order #: **78015** Date: 12/27/2001
 Test Type: **Maximized Emissions** Time: 12:32:44
 Equipment: **Proximity Card Reader** Sequence#: 1
 Manufacturer: **HID** Tested By: Randal Clark
 Model: **6055B (6055-320)**
 S/N: **114**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Card Reader*	HID	6055B (6055-320)	114

Support Devices:

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

Test Conditions / Notes:

EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation. Data corrected for test distance in accordance with FCC 15.31 40dB/Decade.

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

#	Freq MHz	Rdng dBμV	Loop dB	Cable dB	15.31 dB	Dist Table dB	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.561M	42.4	+10.0	+0.7	-20.0	+0.0	33.1	80.0	-46.9	Vert
2	13.561M	36.1	+10.0	+0.7	-20.0	+0.0	26.8	80.0	-53.2	Horiz

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

Customer: **HID**
 Specification: **15.225 / 15.209**
 Work Order #: **78015** Date: 12/27/2001
 Test Type: **Maximized Emissions** Time: 12:44:34
 Equipment: **Proximity Card Reader** Sequence#: 3
 Manufacturer: **HID** Tested By: Randal Clark
 Model: **6055B (6055-320)**
 S/N: **114**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Card Reader*	HID	6055B (6055-320)	114

Support Devices:

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

Test Conditions / Notes:

EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation. Data corrected for test distance in accordance with FCC 15.31 40dB/Decade. Frequency range tested: 9kHz-30MHz.

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

#	Freq MHz	Rdng dBμV	Loop dB	Cable dB	15.31 dB	Dist Table dB	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	27.113M	19.2	+7.2	+1.0	-20.0	+0.0	7.4	29.5	-22.1	Horiz

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

Customer: **HID**
 Specification: **15.225/15.209**
 Work Order #: **78015** Date: 12/27/2001
 Test Type: **Maximized Emissions** Time: 16:09:09
 Equipment: **Proximity Card Reader** Sequence#: 5
 Manufacturer: **HID** Tested By: Randal Clark
 Model: **6055B (6055-320)**
 S/N: **114**

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Card Reader*	HID	6055B (6055-320)	114

Support Devices:

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

Test Conditions / Notes:

EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source. EUT is placed in vertical orientation. Frequency range tested: 30-1000MHz.

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

#	Freq MHz	Rdng dB μ V	Amp dB	Bicon dB	Log 1 dB	Cable dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	311.904M	45.6	-26.6	+0.0	+20.5	+3.8	+0.0	43.3	46.0	-2.7	Horiz
QP											
^	311.892M	47.4	-26.6	+0.0	+20.5	+3.8	+0.0	45.1	46.0	-0.9	Horiz
3	244.100M	50.0	-26.6	+15.9	+0.0	+3.2	+0.0	42.5	46.0	-3.5	Horiz
QP											
^	244.093M	51.5	-26.6	+15.9	+0.0	+3.2	+0.0	44.0	46.0	-2.0	Horiz
5	244.098M	47.9	-26.6	+15.9	+0.0	+3.2	+0.0	40.4	46.0	-5.6	Vert
QP											
^	244.095M	50.7	-26.6	+15.9	+0.0	+3.2	+0.0	43.2	46.0	-2.8	Vert
^	244.095M	49.4	-26.6	+15.9	+0.0	+3.2	+0.0	41.9	46.0	-4.1	Vert
8	40.720M	48.8	-27.2	+11.1	+0.0	+1.2	+0.0	33.9	40.0	-6.1	Vert
9	257.658M	45.9	-26.5	+16.9	+0.0	+3.3	+0.0	39.6	46.0	-6.4	Horiz
10	189.864M	43.8	-26.7	+17.2	+0.0	+2.8	+0.0	37.1	43.5	-6.4	Horiz
11	339.020M	42.5	-26.7	+0.0	+18.9	+3.9	+0.0	38.6	46.0	-7.4	Horiz
12	311.898M	40.8	-26.6	+0.0	+20.5	+3.8	+0.0	38.5	46.0	-7.5	Vert
13	352.581M	43.0	-26.7	+0.0	+18.2	+4.0	+0.0	38.5	46.0	-7.5	Horiz

14	325.452M	39.5	-26.6	+0.0	+19.7	+3.9	+0.0	36.5	46.0	-9.5	Horiz
15	339.021M	40.2	-26.7	+0.0	+18.9	+3.9	+0.0	36.3	46.0	-9.7	Vert
16	135.606M	44.7	-26.9	+13.5	+0.0	+2.3	+0.0	33.6	43.5	-9.9	Horiz
17	366.136M	41.3	-26.8	+0.0	+17.4	+4.1	+0.0	36.0	46.0	-10.0	Horiz
18	257.662M	42.0	-26.5	+16.9	+0.0	+3.3	+0.0	35.7	46.0	-10.3	Vert
19	298.328M	35.4	-26.5	+22.7	+0.0	+3.7	+0.0	35.3	46.0	-10.7	Horiz
20	352.572M	39.5	-26.7	+0.0	+18.2	+4.0	+0.0	35.0	46.0	-11.0	Vert
21	54.282M	43.7	-27.1	+10.9	+0.0	+1.4	+0.0	28.9	40.0	-11.1	Vert
22	67.816M	45.7	-27.1	+8.4	+0.0	+1.6	+0.0	28.6	40.0	-11.4	Vert
23	203.418M	37.7	-26.7	+17.8	+0.0	+2.9	+0.0	31.7	43.5	-11.8	Horiz
24	176.297M	39.7	-26.8	+16.2	+0.0	+2.6	+0.0	31.7	43.5	-11.8	Horiz
25	271.222M	38.1	-26.4	+18.9	+0.0	+3.5	+0.0	34.1	46.0	-11.9	Horiz
26	745.823M	33.8	-27.8	+0.0	+21.4	+6.1	+0.0	33.5	46.0	-12.5	Horiz
27	230.538M	40.4	-26.5	+16.5	+0.0	+3.1	+0.0	33.5	46.0	-12.5	Horiz
28	149.173M	42.4	-26.8	+13.0	+0.0	+2.4	+0.0	31.0	43.5	-12.5	Horiz
29	135.636M	41.5	-26.9	+13.5	+0.0	+2.3	+0.0	30.4	43.5	-13.1	Vert
30	366.140M	37.9	-26.8	+0.0	+17.4	+4.1	+0.0	32.6	46.0	-13.4	Vert
31	149.179M	41.5	-26.8	+13.0	+0.0	+2.4	+0.0	30.1	43.5	-13.4	Vert
32	298.337M	32.6	-26.5	+22.7	+0.0	+3.7	+0.0	32.5	46.0	-13.5	Vert
33	325.462M	34.8	-26.6	+0.0	+19.7	+3.9	+0.0	31.8	46.0	-14.2	Vert
34	271.210M	35.2	-26.4	+18.9	+0.0	+3.5	+0.0	31.2	46.0	-14.8	Vert
35	284.764M	31.8	-26.4	+20.8	+0.0	+3.6	+0.0	29.8	46.0	-16.2	Horiz
36	393.272M	36.4	-27.0	+0.0	+16.0	+4.3	+0.0	29.7	46.0	-16.3	Horiz
37	81.359M	41.4	-27.0	+7.2	+0.0	+1.8	+0.0	23.4	40.0	-16.6	Vert
38	379.705M	35.1	-26.9	+0.0	+16.7	+4.2	+0.0	29.1	46.0	-16.9	Horiz
39	122.049M	36.9	-27.0	+14.3	+0.0	+2.2	+0.0	26.4	43.5	-17.1	Horiz

40	230.555M	35.7	-26.5	+16.5	+0.0	+3.1	+0.0	28.8	46.0	-17.2	Vert
41	122.096M	36.7	-27.0	+14.3	+0.0	+2.2	+0.0	26.2	43.5	-17.3	Vert
42	569.583M	31.9	-27.8	+0.0	+18.9	+5.3	+0.0	28.3	46.0	-17.7	Vert
43	176.303M	33.8	-26.8	+16.2	+0.0	+2.6	+0.0	25.8	43.5	-17.7	Vert
44	420.385M	34.6	-27.3	+0.0	+16.2	+4.4	+0.0	27.9	46.0	-18.1	Horiz
45	515.323M	32.2	-27.8	+0.0	+18.0	+5.1	+0.0	27.5	46.0	-18.5	Vert
46	569.554M	31.1	-27.8	+0.0	+18.9	+5.3	+0.0	27.5	46.0	-18.5	Horiz
47	216.975M	33.7	-26.6	+17.2	+0.0	+3.0	+0.0	27.3	46.0	-18.7	Horiz
48	379.706M	32.9	-26.9	+0.0	+16.7	+4.2	+0.0	26.9	46.0	-19.1	Vert
49	461.076M	32.5	-27.6	+0.0	+17.0	+4.7	+0.0	26.6	46.0	-19.4	Horiz
50	108.483M	35.6	-27.1	+13.3	+0.0	+2.1	+0.0	23.9	43.5	-19.6	Horiz
51	406.833M	32.9	-27.2	+0.0	+15.9	+4.3	+0.0	25.9	46.0	-20.1	Horiz
52	461.073M	31.7	-27.6	+0.0	+17.0	+4.7	+0.0	25.8	46.0	-20.2	Vert
53	420.382M	32.4	-27.3	+0.0	+16.2	+4.4	+0.0	25.7	46.0	-20.3	Vert
54	40.691M	34.5	-27.2	+11.1	+0.0	+1.2	+0.0	19.6	40.0	-20.4	Horiz
55	393.282M	31.6	-27.0	+0.0	+16.0	+4.3	+0.0	24.9	46.0	-21.1	Vert

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

Customer: **HID**
 Specification: **FCC 15.207**
 Work Order #: **78015** Date: 01/16/2002
 Test Type: **Conducted Emissions** Time: 16:03:38
 Equipment: **Proximity Card Reader** Sequence#: 10
 Manufacturer: **HID** Tested By: Randal Clark
 Model: 6055B (6055-320)
 S/N: 114

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Card Reader*	HID	6055B (6055-320)	114

Support Devices:

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

Test Conditions / Notes:

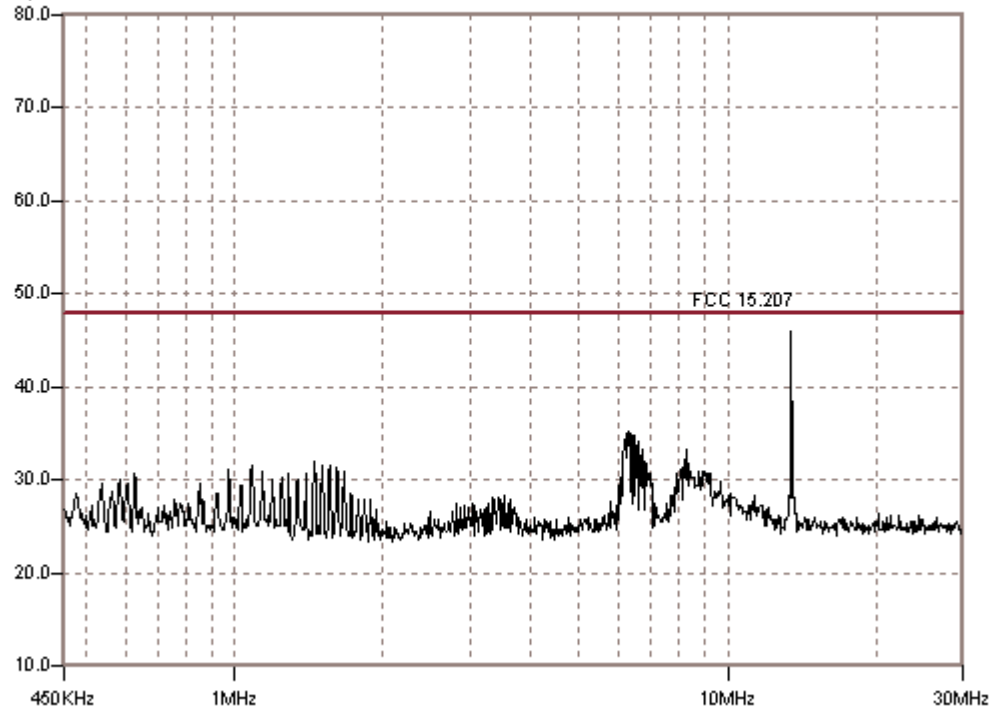
EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source powered by 120VAC 60Hz. EUT is placed in vertical orientation. Torroid installed at DC power input with DC common tied to ground. Frequency range tested: 450kHz-30MHz.

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

#	Freq MHz	Rdng dBμV	Cable LISN				Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	13.550M	44.4	+0.3	+1.0			+0.0	45.7	48.0	-2.3	Black
	QP										
^	13.549M	46.3	+0.3	+1.0			+0.0	47.6	48.0	-0.4	Black
3	6.281M	34.0	+0.3	+1.0			+0.0	35.3	48.0	-12.7	Black
4	6.336M	33.8	+0.3	+1.0			+0.0	35.1	48.0	-12.9	Black
5	6.227M	33.8	+0.3	+1.0			+0.0	35.1	48.0	-12.9	Black
6	6.500M	33.6	+0.3	+0.9			+0.0	34.8	48.0	-13.2	Black
7	6.390M	33.4	+0.3	+1.0			+0.0	34.7	48.0	-13.3	Black
8	6.445M	33.1	+0.3	+1.0			+0.0	34.4	48.0	-13.6	Black
9	6.622M	33.0	+0.3	+0.9			+0.0	34.2	48.0	-13.8	Black
10	6.554M	32.5	+0.3	+0.9			+0.0	33.7	48.0	-14.3	Black
11	8.260M	30.2	+0.2	+2.9			+0.0	33.3	48.0	-14.7	Black
12	6.732M	32.0	+0.3	+0.9			+0.0	33.2	48.0	-14.8	Black

13	6.117M	31.8	+0.3	+1.0	+0.0	33.1	48.0	-14.9	Black
14	6.677M	31.4	+0.3	+0.9	+0.0	32.6	48.0	-15.4	Black
15	8.151M	29.4	+0.2	+2.6	+0.0	32.2	48.0	-15.8	Black
16	1.448M	31.6	+0.1	+0.3	+0.0	32.0	48.0	-16.0	Black
17	6.773M	30.7	+0.3	+0.9	+0.0	31.9	48.0	-16.1	Black
18	8.370M	28.2	+0.2	+3.3	+0.0	31.7	48.0	-16.3	Black
19	6.841M	30.5	+0.3	+0.9	+0.0	31.7	48.0	-16.3	Black
20	1.503M	31.0	+0.2	+0.3	+0.0	31.5	48.0	-16.5	Black
21	1.089M	31.1	+0.1	+0.3	+0.0	31.5	48.0	-16.5	Black

CKC Laboratories, Inc. Date: 01/16/2002 Time: 3:59:29 PM W/O#: 78015
 FCC 15.207 Test Lead: Black Sequence#: 10
 dBµV HID 6055B (6055-320) Powered by 120VAC 60Hz through DC power supply.



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

Customer: **HID**
 Specification: **FCC 15.207**
 Work Order #: **78015**
 Test Type: **Conducted Emissions**
 Equipment: **Proximity Card Reader**
 Manufacturer: **HID**
 Model: **6055B (6055-320)**
 S/N: **114**

Date: 01/16/2002
 Time: 16:46:59
 Sequence#: 11
 Tested By: Randal Clark

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Proximity Card Reader*	HID	6055B (6055-320)	114

Support Devices:

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

Test Conditions / Notes:

EUT is placed in the center of a turntable on an 80cm wooden table. EUT power is supplied via 12VDC power source powered by 120VAC 60Hz. EUT is placed in vertical orientation. Torroid installed at DC power input with DC common tied to ground. Frequency range tested: 450kHz-30MHz.

Measurement Data:		Reading listed by margin.					Test Lead: White				
#	Freq MHz	Rdng dBμV	Cable		LISN		Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	13.550M	44.6	+0.3		+0.6		+0.0	45.5	48.0	-2.5	White
QP											
^	13.548M	46.4	+0.3		+0.6		+0.0	47.3	48.0	-0.7	White
3	6.718M	29.9	+0.3		+3.1		+0.0	33.3	48.0	-14.7	White
4	1.563M	31.7	+0.2		+0.3		+0.0	32.2	48.0	-15.8	White
5	1.510M	31.5	+0.2		+0.3		+0.0	32.0	48.0	-16.0	White
6	6.882M	28.0	+0.3		+3.6		+0.0	31.9	48.0	-16.1	White
7	6.950M	27.6	+0.3		+3.8		+0.0	31.7	48.0	-16.3	White
8	13.757M	30.7	+0.3		+0.6		+0.0	31.6	48.0	-16.4	White
9	1.453M	31.2	+0.1		+0.3		+0.0	31.6	48.0	-16.4	White
10	6.773M	27.9	+0.3		+3.3		+0.0	31.5	48.0	-16.5	White
11	6.663M	28.1	+0.3		+3.0		+0.0	31.4	48.0	-16.6	White
12	10.240M	30.4	+0.2		+0.7		+0.0	31.3	48.0	-16.7	White

13	1.288M	30.9	+0.1	+0.3	+0.0	31.3	48.0	-16.7	White
14	1.670M	30.7	+0.2	+0.3	+0.0	31.2	48.0	-16.8	White
15	11.163M	30.2	+0.2	+0.7	+0.0	31.1	48.0	-16.9	White
16	1.616M	30.4	+0.2	+0.3	+0.0	30.9	48.0	-17.1	White
17	1.084M	30.5	+0.1	+0.3	+0.0	30.9	48.0	-17.1	White
18	2.413M	30.3	+0.2	+0.3	+0.0	30.8	48.0	-17.2	White
19	1.251M	30.4	+0.1	+0.3	+0.0	30.8	48.0	-17.2	White
20	10.968M	29.8	+0.2	+0.7	+0.0	30.7	48.0	-17.3	White
21	1.396M	30.3	+0.1	+0.3	+0.0	30.7	48.0	-17.3	White

CKC Laboratories, Inc. Date: 01/16/2002 Time: 4:22:04 PM W/O#: 78015
FCC 15.207 Test Lead: White Sequence#: 11
dBµV HID 6055B (6055-320) Powered by 120VAC 60Hz through DC power supply.

