



CERTIFICATION TEST REPORT

FOR THE

**AMP1000 PORTAL READER,
6042A (6042-300)**

**FCC PART 15 SUBPART C
15.207/15.209**

COMPLIANCE

DATE OF ISSUE: MAY 26, 2000

PREPARED FOR:

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Report No: FC00-045

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Date of test: May 1-3, 2000

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ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); TUV Rheinland-Germany; TUV Rheinland-Korea; TUV Rheinland-Russia; Radio Communications Agency (RA); NEMKO (Norway).

ADMINISTRATIVE INFORMATION

DATE OF TEST: May 1-3, 2000

PURPOSE OF TEST: To demonstrate the compliance of the AMP1000 Portal Reader, 6042A (6042-300) with the requirements for FCC Part 15 Subpart C 15.207/15.209 devices.

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

TEST PERSONNEL: Dustin Oaks

TEST METHOD: ANSI C63.4 1992

FREQUENCY RANGE TESTED: 9 kHz - 1000 MHz

EQUIPMENT UNDER TEST: **AMP1000 Portal Reader**
Manuf: HID Corporation
Model: 6042A (6042-300)
Serial: 4591-1011
FCC ID: JQ66042AA

SUMMARY OF RESULTS

The HID Corporation AMP1000 Portal Reader, 6042A (6042-300), was tested in accordance with ANSI C63.4 1992 for compliance with FCC Part 15 Subpart C 15.207/15.209.

As received, the above equipment was found to be fully compliant with the limits of FCC Part 15 Subpart C 15.207/15.209. The results in this report apply only to the items tested, as identified herein.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The Portal is a Doorway sized Access and Asset control reader.

MEASUREMENT UNCERTAINTY

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

EUT OPERATING FREQUENCY

The EUT was operating at 125 kHz.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within $+15^{\circ}\text{C}$ and $+35^{\circ}\text{C}$.
The relative humidity was between 20% and 75%.

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the AMP1000 Portal Reader, 6042A (6042-300). All readings taken are peak readings unless otherwise noted by a “Q” or “A”. The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Six Highest Radiated 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
		Mag dB	Cable dB	FCC 15.31 dB	Filter dB				
0.372	53.7	11.0	0.0	-60.0	0.7	5.4	16.2	-10.8	N
0.500	32.8	10.8	0.0	-20.0	0.4	24.0	33.6	-9.6	N
0.624	37.7	10.9	0.0	-20.0	0.4	29.0	31.7	-2.7	NQ
0.750	30.9	11.0	0.0	-20.0	0.3	22.2	30.1	-7.9	N
0.875	29.5	11.0	0.0	-20.0	0.3	20.8	28.7	-7.9	N
1.000	28.6	10.9	0.1	-20.0	0.3	19.9	27.6	-7.7	N

Test Method: ANSI C63.4 1992
 Spec Limit : FCC Part 15.209
 Test Distance: 10 Meters

NOTES: N = No Polarization
 Q = Quasi Peak Reading

COMMENTS: EUT is operating in normal operating mode, no tag in the field.

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

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS				CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
84.985	37.9	8.3	-25.1	1.2	10.0	32.3	40.0	-7.7	V
320.082	29.1	20.3	-24.9	3.4	10.0	37.9	46.0	-8.1	H
368.088	32.8	18.0	-25.2	3.6	10.0	39.2	46.0	-6.8	V
384.097	35.8	17.3	-25.3	3.7	10.0	41.5	46.0	-4.5	HQ
400.083	34.0	16.6	-25.5	3.8	10.0	38.9	46.0	-7.1	V
432.086	39.1	17.0	-25.6	4.1	10.0	44.6	46.0	-1.4	VQ

Test Method:
Spec Limit :
Test Distance:

ANSI C63.4 1992
FCC Part 15.209
10 Meters

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

COMMENTS: EUT is operating in normal operating mode, no tag in the field. Transmitter antenna current was at 1 amp peak-to-peak current level.

Table 3: Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV	SPEC LIMIT dBμV	MARGIN dB	NOTES
		LISN dB		Cable dB					
6.249000	41.0	0.7		0.30		42.0	48.0	-48.0	B
8.441919	38.1	3.4		0.30		41.8	48.0	-48.0	W
8.701491	36.8	4.4		0.40		41.6	48.0	-48.0	B
9.384575	36.0	4.0		0.40		40.4	48.0	-48.0	B
9.521191	36.4	3.4		0.50		40.3	48.0	-48.0	W
10.958710	38.0	1.4		0.50		39.9	48.0	-48.0	W

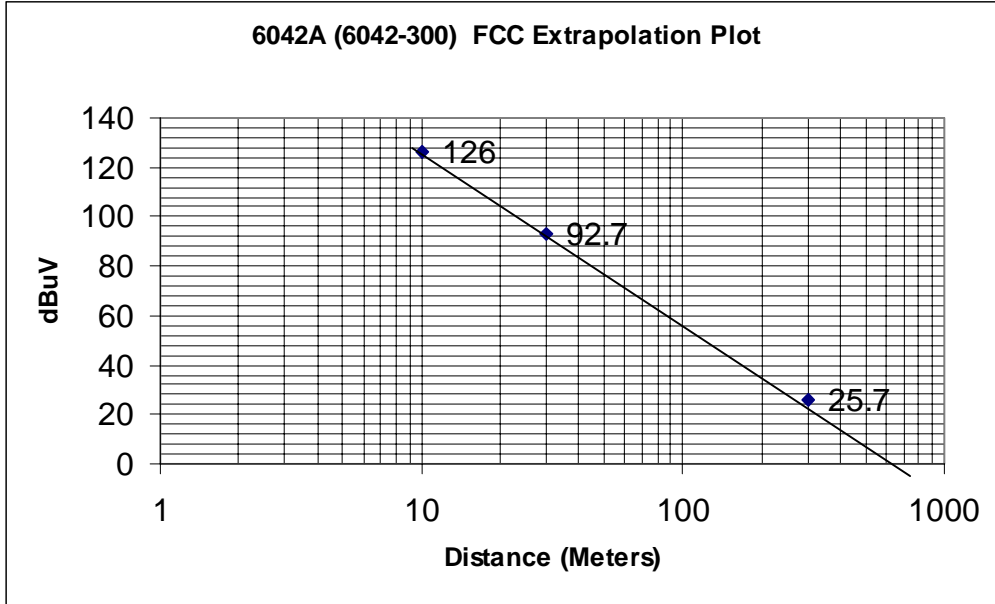
Test Method:
Spec Limit :

ANSI C63.4 1992
FCC Part 15.207

NOTES: W= White Lead
B = Black Lead

COMMENTS: EUT is operating in normal operating mode, no tag in the field. Transmitter antenna current was at 1 amp peak-to-peak current level.

FUNDAMENTAL FREQUENCY = 124.947 kHz



10 meter reading = 126.0 dBuV/m

30 meter reading = 92.7 dBuV/m

Extrapolated Reading \cong 23 dBuV/m @ 300 meters

Corrected	Spec	
<u>Reading</u>	<u>Limit</u>	<u>Margin</u>
23dBuV/m	25.7dBuV/m	-2.7dB

TABLE A
LIST OF TEST EQUIPMENT

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer (RF Section)	2209A01404	07/07/1999	07/07/2000	490
Spectrum Analyzer (Display)	2403A08241	07/07/1999	07/07/2000	489
QP Adapter	2811A01267	07/07/1999	07/07/2000	478
PreAmp	1937A02604	04/03/1999	04/03/2001	99
Bicon Antenna	156	05/20/1999	05/20/2000	225
Log Antenna	154	05/20/1999	05/20/2000	1330
Magnetic Loop Antenna	1074	06/16/1999	06/16/2000	226
3/10 meter cable		10/18/1999	10/18/2000	0

EUT SETUP

The equipment under test (EUT) and was set up in a manner that represented its normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Tables 1 & 2 for radiated emissions and Table 3 for conducted characteristics. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, the EUT was rolled out on a conducting, flush mounted turntable which was continuous with the ground plane. This configuration was used because the unit was a floor standing stationary device.

During conducted emissions testing, the EUT, as a floor standing unit, was located on top of insulating materail laid over the ground plane. The metal plane was grounded to the earth through various ground rods. Power to the EUT was provided via 3 meters of unshielded power cable from the LISN, which was grounded to the ground plane. All other objects were kept a minimum of 1 meter away from the EUT during the conducted test.

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the AMP1000 Portal Reader, 6042A (6042-300). For measurements below 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. All antennas were located at a distance of 10 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISN's.

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

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

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1, 2 and 3 indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the 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 AMP1000 Portal Reader, 6042A (6042-300).

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

When the frequencies are below 30 MHz, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

TEST METHODS

The radiated and conducted emissions data of the AMP1000 Portal Reader, 6042A (6042-300), was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C 15.207/15.209 emissions limits to determine compliance.

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

Radiated Emissions Testing

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode with the I/O cables and line cords facing the antenna. The magnetic loop antenna was used to scan below 30 MHz. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

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

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

Conducted Emissions Testing

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

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the emissions readings in Tables 1, 2 and 3. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula:

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

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

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

#	Freq MHz	Rdng dB μ V	Cable	Amp	Bicon	Mag	Log	Dist Table	Corr dB μ V/m	Spec	Margin	Polar
	LISN	FCC 15.31	Filter									

means reading number

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

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

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

Bicon is the biconical antenna factor in dB.

Log is the log periodic antenna factor in dB.

Mag is the magnetic loop antenna factor in dB.

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

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

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

Spec is the specification limit (dB) stated in the regulations.

Margin is the closeness to the specified limit in dB; + is over and - is under the limit.

Polar is the Polarity of the antenna with respect to earth.

LISN is the line impedance stabilization network factor in dB.

FCC 15.31 is the average correction called in FCC Part 15.31.

Filter is the band stop filter for 125kHz testing.

APPENDIX A
INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	1) DSP – AP96 2) HIT – CPN2
CRT was displaying:	None
Power Supply Manufacturer:	International Power, Condor
Power Supply Part Number:	40V- (IP)IHB48.5, 12V – (IP)IHCC15-3, (Condor)5V HC%-6/OVP-A+
AC Line Filter Manufacturer:	Corcomm
AC Line Filter Part Number:	3VQ1
Line voltage used during testing:	120VAC 60Hz

I/O PORTS	
Type	#
One of the following will be used:	
Cable – RS232	3 wire
Cable – Wiegand	3 wire
Cable – RS485	3 wire

CRYSTAL OSCILLATORS	
Type	Freq In MHz
SMT, fundamental, series	20
SMT, fundamental, series	96

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
DSP Controller	6042-301-01 Rev B	20, 96	8	Top
Exciter Controller	6042-303-01 Rev C	None	4	Top
Digital Receivers	6042-302-01 Rev C	None	4	Top
Exciter	6042-310-01 Rev 1	None	4	Top
Exciter Tuner	6042-310-01 Rev 1	None	2	Top
Receiver Cancellation Filter CCA	6042-306-01 Rev 3	None	2	Top, on receiver
Receiver Cancellation Circuit	6042-307-01 Rev 3	None	2	Top, on receiver
FSK Reader	6042-363-01 Rev 1	4	4	Primary panel assembly
LCD Module	6042-361-01 Rev 1	None	Unknown	Primary panel assembly
Sensor Splitter	6042-308-01 Rev 1	None	2	Primary panel assembly
Sensor I/O	6042-309-01 Rev 1	None	2	Primary panel assembly

CABLE INFORMATION

Cable #:	1	Cable(s) of this type:	
Cable Type:	Multiconductor	Shield Type:	Foil
Construction:	Shielded	Length In Meters:	Up to 15 meters
Connected To End (1):	DATA 2 Port, DSP Controller	Connected To End (2):	RS232 Comm Port
Connector At End (1):	DB9	Connector At End (2):	DB9 or DB25
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	
Part Number:	Alpha 1292C	Number of Conductors:	2 conductors and 1 drain
Notes and/or description:	RS232 Interface		

Cable #:	2	Cable(s) of this type:	
Cable Type:	Multiconductor	Shield Type:	Foil
Construction:	Shielded	Length In Meters:	Up to 300 meters
Connected To End (1):	DATA 2 Port, DSP Controller	Connected To End (2):	RS485 Comm Port
Connector At End (1):	DB9	Connector At End (2):	DB9 or DB25
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	
Part Number:	Alpha 1292C	Number of Conductors:	2 conductors and 1 drain
Notes and/or description:	RS485 Interface		

Cable #:	3	Cable(s) of this type:	
Cable Type:	Multiconductor	Shield Type:	Foil
Construction:	Shielded	Length In Meters:	Up to 150 meters
Connected To End (1):	DATA 2 Port, DSP Controller	Connected To End (2):	Wiegand Comm Port
Connector At End (1):	DB9	Connector At End (2):	DB9 or DB25
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	
Part Number:	Alpha 1292C	Number of Conductors:	2 conductors and 1 drain
Notes and/or description:	Wiegand Interface		

Note: Only one of the above 3 interface cables will be required, depending on the interface desired by the user.

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Side View

PHOTOGRAPH SHOWING CONDUCTED EMISSIONS



Conducted Emissions - Side View

APPENDIX B
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240
 Customer: **HID**
 Specification: **FCC 15 C PARA 15.209**
 Work Order #: **74176** Date: 05/02/2000
 Test Type: **Spurious Emissions** Time: 08:25:28
 Equipment: **AMP100 Portal Reader** Sequence#: 5
 Manufacturer: **HID** Tested By: Dustin Oaks
 Model: 6042A (6042-300)
 S/N: 4591-1011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AMP100 Portal Reader*	HID	6042A (6042-300)	4591-1011

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is operating in normal operating mode, no tag in the field.

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

#	Freq MHz	Rdng dBµV	Reading listed by margin.				Filter	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			Mag dB	Cable dB	FCC dB	15.31						
1	623.600k	37.7	+10.9	+0.0	-20.0	+0.4	+0.0	29.0	31.7	-2.7	None	
^	624.000k	40.5	+10.9	+0.0	-20.0	+0.4	+0.0	31.8	31.7	+0.1	None	
3	1.000M	28.6	+10.9	+0.1	-20.0	+0.3	+0.0	19.9	27.6	-7.7	None	
4	875.110k	29.5	+11.0	+0.0	-20.0	+0.3	+0.0	20.8	28.7	-7.9	None	
5	750.200k	30.9	+11.0	+0.0	-20.0	+0.3	+0.0	22.2	30.1	-7.9	None	
6	499.710k	32.8	+10.8	+0.0	-20.0	+0.4	+0.0	24.0	33.6	-9.6	None	
7	372.460k	53.7	+11.0	+0.0	-60.0	+0.7	+0.0	5.4	16.2	-10.8	None	
8	248.610k	54.9	+10.8	+0.0	-60.0	+1.2	+0.0	6.9	19.7	-12.8	None	

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **HID**
 Specification: **FCC 15.209**
 Work Order #: **74176** Date: 05/02/2000
 Test Type: **Spurious Emissions** Time: 14:53:41
 Equipment: **AMP100 Portal Reader** Sequence#: 11
 Manufacturer: **HID** Tested By: Dustin Oaks
 Model: 6042A (6042-300)
 S/N: 4591-1011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AMP100 Portal Reader*	HID	6042A (6042-300)	4591-1011

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is operating in normal operating mode, no tag in the field. Transmitter antenna current was at 1 amp peak-to-peak current level.

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

#	Freq MHz	Rdng dBµV	Reading listed by margin.				Test Distance: 10 Meters					
			Amp dB	Bicon dB	Log dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant	
1	432.086M	39.1	-25.6	+0.0	+17.0	+4.1	+10.0	44.6	46.0	-1.5	Vert	
	QP											
^	432.064M	40.5	-25.6	+0.0	+17.0	+4.1	+10.0	46.0	46.0	+0.0	Vert	
3	384.097M	35.8	-25.3	+0.0	+17.3	+3.7	+10.0	41.5	46.0	-4.5	Horiz	
	QP											
^	384.076M	37.3	-25.3	+0.0	+17.3	+3.7	+10.0	43.0	46.0	-3.0	Horiz	
5	384.072M	33.9	-25.3	+0.0	+17.3	+3.7	+10.0	39.6	46.0	-6.4	Vert	
6	368.088M	32.8	-25.2	+0.0	+18.0	+3.6	+10.0	39.2	46.0	-6.8	Vert	
7	400.083M	34.0	-25.5	+0.0	+16.6	+3.8	+10.0	38.9	46.0	-7.1	Vert	
8	84.985M	37.9	-25.1	+8.3	+0.0	+1.2	+10.0	32.3	40.0	-7.7	Vert	
9	320.082M	29.1	-24.9	+0.0	+20.3	+3.4	+10.0	37.9	46.0	-8.1	Horiz	
10	368.094M	31.4	-25.2	+0.0	+18.0	+3.6	+10.0	37.8	46.0	-8.2	Horiz	
	QP											
^	368.087M	34.3	-25.2	+0.0	+18.0	+3.6	+10.0	40.7	46.0	-5.3	Horiz	
12	352.094M	29.2	-25.0	+0.0	+18.7	+3.5	+10.0	36.4	46.0	-9.6	Horiz	
	QP											
^	352.073M	32.9	-25.0	+0.0	+18.7	+3.5	+10.0	40.1	46.0	-5.9	Horiz	
14	528.095M	28.2	-25.9	+0.0	+18.4	+4.8	+10.0	35.5	46.0	-10.5	Vert	
	QP											

^	528.078M	32.3	-25.9	+0.0	+18.4	+4.8	+10.0	39.6	46.0	-6.4	Vert
16	144.092M	32.8	-24.9	+13.1	+0.0	+1.9	+10.0	32.9	43.5	-10.6	Vert
17	192.045M	27.5	-24.7	+17.8	+0.0	+2.3	+10.0	32.9	43.5	-10.6	Vert
18	400.093M	30.1	-25.5	+0.0	+16.6	+3.8	+10.0	35.0	46.0	-11.0	Horiz
	QP										
^	400.074M	33.5	-25.5	+0.0	+16.6	+3.8	+10.0	38.4	46.0	-7.6	Horiz
20	336.086M	26.9	-24.9	+0.0	+19.5	+3.4	+10.0	34.9	46.0	-11.1	Horiz
	QP										
^	336.081M	30.9	-24.9	+0.0	+19.5	+3.4	+10.0	38.9	46.0	-7.1	Horiz
22	224.103M	28.3	-24.7	+17.1	+0.0	+2.5	+10.0	33.2	46.0	-12.8	Vert
23	299.120M	22.2	-24.8	+22.3	+0.0	+3.3	+10.0	33.0	46.0	-13.0	Horiz
	QP										
^	299.153M	28.8	-24.8	+22.3	+0.0	+3.3	+10.0	39.6	46.0	-6.4	Horiz
25	188.664M	25.1	-24.7	+17.5	+0.0	+2.3	+10.0	30.2	43.5	-13.3	Vert
	QP										
^	188.661M	30.6	-24.7	+17.5	+0.0	+2.3	+10.0	35.7	43.5	-7.8	Vert
27	226.980M	27.6	-24.7	+17.0	+0.0	+2.5	+10.0	32.4	46.0	-13.6	Vert
28	188.493M	24.4	-24.7	+17.5	+0.0	+2.3	+10.0	29.5	43.5	-14.0	Horiz
	QP										
^	188.481M	30.3	-24.7	+17.5	+0.0	+2.3	+10.0	35.4	43.5	-8.1	Horiz
30	187.662M	23.6	-24.7	+17.4	+0.0	+2.3	+10.0	28.6	43.5	-14.9	Horiz
	QP										
^	187.700M	30.1	-24.7	+17.4	+0.0	+2.3	+10.0	35.1	43.5	-8.4	Horiz
32	192.105M	23.0	-24.7	+17.8	+0.0	+2.3	+10.0	28.4	43.5	-15.1	Horiz
	QP										
^	192.056M	29.9	-24.7	+17.8	+0.0	+2.3	+10.0	35.3	43.5	-8.2	Horiz

Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **HID**
 Specification: **FCC 15.207**
 Work Order #: **74176** Date: 05/03/2000
 Test Type: **Conducted Emissions** Time: 09:13:11
 Equipment: **AMP100 Portal Reader** Sequence#: 14
 Manufacturer: **HID** Tested By: Dustin Oaks
 Model: 6042A (6042-300)
 S/N: 4591-1011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AMP100 Portal Reader*	HID	6042A (6042-300)	4591-1011

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is operating in normal operating mode, no tag in the field. Transmitter antenna current was at 1 amp peak-to-peak current level.

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

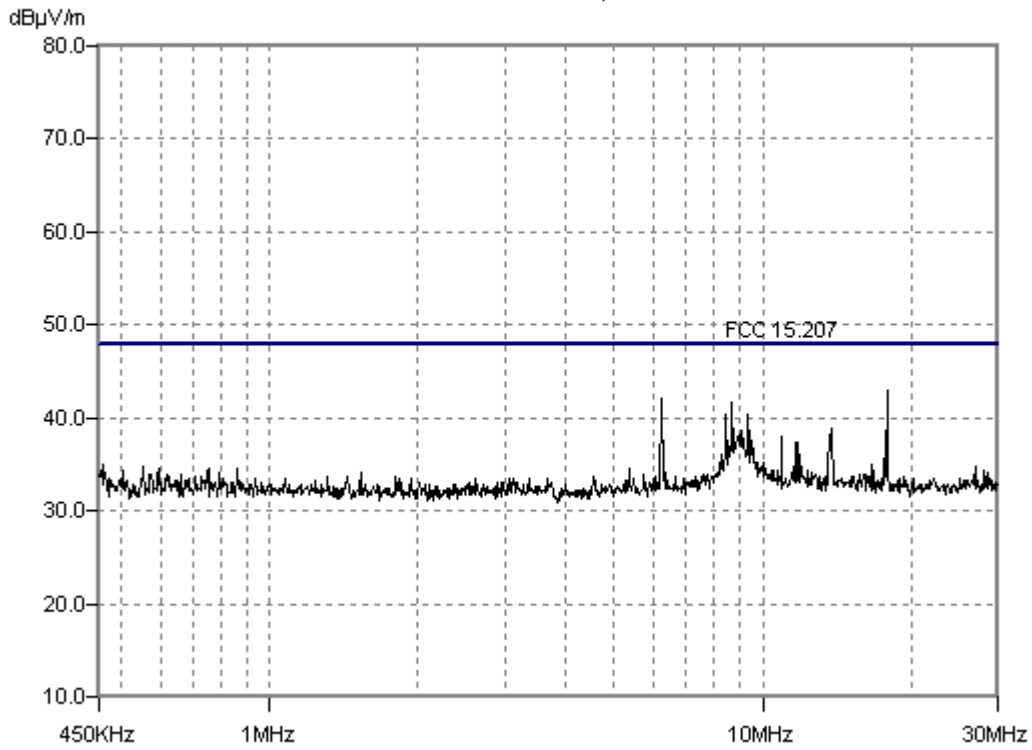
#	Freq MHz	Rdng dBµV	LISN		Cable		Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	17.872M Ambient	41.8	+0.5		+0.6		+0.0	42.9	48.0	-5.1	Black
2	6.249M	41.0	+0.7		+0.3		+0.0	42.0	48.0	-6.0	Black
3	8.701M	36.8	+4.4		+0.4		+0.0	41.6	48.0	-6.4	Black
4	9.385M	36.0	+4.0		+0.4		+0.0	40.4	48.0	-7.6	Black
5	8.442M	36.7	+3.4		+0.3		+0.0	40.4	48.0	-7.6	Black
6	13.810M	37.4	+1.0		+0.5		+0.0	38.9	48.0	-9.1	Black
7	9.098M	33.2	+5.1		+0.4		+0.0	38.7	48.0	-9.3	Black
8	17.755M	37.6	+0.5		+0.6		+0.0	38.7	48.0	-9.3	Black
9	13.693M	36.7	+1.0		+0.5		+0.0	38.2	48.0	-9.8	Black
10	9.016M	32.4	+5.4		+0.4		+0.0	38.2	48.0	-9.8	Black
11	8.961M	32.3	+5.4		+0.4		+0.0	38.1	48.0	-9.9	Black

12	10.959M	36.1	+1.4	+0.5	+0.0	38.0	48.0	-10.0	Black
13	9.521M	33.6	+3.4	+0.5	+0.0	37.5	48.0	-10.5	Black
14	11.720M	35.6	+1.3	+0.5	+0.0	37.4	48.0	-10.6	Black
15	8.620M	32.5	+4.1	+0.4	+0.0	37.0	48.0	-11.0	Black

CKC Laboratories
FCC B COND

Date: 05/03/2000
Test Lead: Black

Time: 09:02:45 WO#: 74176
Sequence#: 12



Test Location: CKC Laboratories • 5473A Clouds Rest • Mariposa Ca, 95338 • 209-966-5240

Customer: **HID**
 Specification: **FCC 15.207**
 Work Order #: **74176** Date: 05/03/2000
 Test Type: **Conducted Emissions** Time: 09:20:35
 Equipment: **AMP100 Portal Reader** Sequence#: 15
 Manufacturer: **HID** Tested By: Skip Doyle
 Model: 6042A (6042-300)
 S/N: 4591-1011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
AMP100 Portal Reader*	HID	6042A (6042-300)	4591-1011

Support Devices:

Function	Manufacturer	Model #	S/N
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Test Conditions / Notes:

EUT is operating in normal operating mode, no tag in the field. Transmitter antenna current was at 1 amp peak-to-peak current level.

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

#	Freq MHz	Rdng dB μ V	LISN		Cable		Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
			dB	dB	dB	dB					
1	8.442M	38.1	+3.4		+0.3		+0.0	41.8	48.0	-6.2	White
2	9.521M	36.4	+3.4		+0.5		+0.0	40.3	48.0	-7.7	White
3	10.959M	38.0	+1.4		+0.5		+0.0	39.9	48.0	-8.1	White
4	5.354M	38.2	+0.7		+0.3		+0.0	39.2	48.0	-8.8	White
5	9.221M	33.1	+4.6		+0.4		+0.0	38.1	48.0	-9.9	White
6	9.385M	33.6	+4.0		+0.4		+0.0	38.0	48.0	-10.0	White
7	8.934M	32.3	+5.3		+0.4		+0.0	38.0	48.0	-10.0	White
8	17.872M	36.5	+0.5		+0.6		+0.0	37.6	48.0	-10.4	White
9	11.545M	35.8	+1.3		+0.5		+0.0	37.6	48.0	-10.4	White
10	7.895M	35.7	+1.5		+0.3		+0.0	37.5	48.0	-10.5	White
11	13.771M	35.9	+1.0		+0.5		+0.0	37.4	48.0	-10.6	White

12	8.510M	33.2	+3.6	+0.4	+0.0	37.2	48.0	-10.8	White
13	8.599M	32.7	+4.0	+0.4	+0.0	37.1	48.0	-10.9	White
14	8.701M	32.0	+4.4	+0.4	+0.0	36.8	48.0	-11.2	White
15	12.814M	35.1	+1.1	+0.5	+0.0	36.7	48.0	-11.3	White

