



ADDENDUM TO RF IDEAS, INC. TEST REPORT FC04-062

FOR THE

125 KHZ PROXIMITY CARD READER, BSE-PCPRXM-232 & BSE-PCPROXM-USB

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

COMPLIANCE

DATE OF ISSUE: NOVEMBER 1, 2004

PREPARED FOR:

RF IDEas, Inc.
4238 B Arlington Heights Rd., #244
Arlington Heights, IL 60004

P.O. No.: R-04072201
W.O. No.: 82520

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: August 3-6, 2004

Report No.: FC04-062A

This report contains a total of 43 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 | 4 |
| Summary of Results | 5 |
| Conditions for Compliance | 5 |
| Approvals | 5 |
| FCC 15.31(e) Voltage Variation | 6 |
| Table 1: 15.31(e) Voltage Variation on Peak Power - 232 | 6 |
| Table 2: 15.31(e) Voltage Variation on Peak Power - USB | 6 |
| FCC 15.31(m) Number Of Channels | 6 |
| FCC 15.33(a) Frequency Ranges Tested | 6 |
| FCC 15.35 Analyzer Bandwidth Settings | 7 |
| FCC 15.203 Antenna Requirements | 7 |
| FCC 15.205 Restricted Bands | 7 |
| FCC 15.215 Additional Provisions to the General Radiated Emission Limitations | 7 |
| Mode Of Operation | 7 |
| Eut Operating Frequency | 7 |
| Temperature And Humidity During Testing | 7 |
| Equipment Under Test (EUT) Description | 8 |
| Equipment Under Test | 8 |
| Peripheral Devices | 8 |
| Report of Measurements | 9 |
| Table 3: FCC 15.207 Six Highest Conducted Emission Levels | 9 |
| Table 4: FCC 15.209 Fundamental Emission Levels | 10 |
| Table 5: FCC 15.209 Six Highest Radiated Emission Levels: 9 kHz - 30 MHz | 11 |
| Table 6: FCC 15.209 Six Highest Radiated Emission Levels: 30-1000 MHz | 12 |
| RSS-210 20 dB Bandwidth | 13 |
| EUT Setup | 14 |
| Correction Factors | 14 |
| Table A: Sample Calculations | 14 |
| Test Instrumentation and Analyzer Settings | 15 |
| Spectrum Analyzer Detector Functions | 15 |
| Peak | 15 |
| Quasi-Peak | 15 |
| Average | 15 |
| EUT Testing | 16 |
| Mains Conducted Emissions | 16 |
| Radiated Emissions | 16 |
| Appendix A: Test Setup Photographs | 17 |
| Photograph Showing Mains Conducted Emissions | 18 |
| Photograph Showing Mains Conducted Emissions | 19 |
| Photograph Showing Radiated Emissions | 20 |
| Photograph Showing Radiated Emissions | 21 |

| | |
|---|----|
| Photograph Showing Radiated Emissions | 22 |
| Photograph Showing Radiated Emissions | 23 |
| Appendix B: Test Equipment List | 24 |
| Appendix C: Measurement Data Sheets | 25 |

ADMINISTRATIVE INFORMATION

DATE OF TEST: August 3-6, 2004

DATE OF RECEIPT: August 3, 2004

PURPOSE OF TEST: To demonstrate the compliance of the 125 kHz Proximity Card Reader, BSE-PCPRXM-232 & BSE-PCPROXM-USB with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & RSS-210 devices.
Addendum A is to revise the test distance on Table 4.

TEST METHOD: ANSI C63.4 (2001)

MANUFACTURER: RF IDEas, Inc.
4238 B Arlington Heights Rd., #244
Arlington Heights, IL 60004

REPRESENTATIVE: Rick Landuyt

TEST LOCATION: CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the RF IDEas, Inc. 125 kHz Proximity Card Reader, BSE-PCPRXM-232 & BSE-PCPROXM-USB was found to be fully compliant with the following standards and specifications:

| 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 | 6.3 | 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 3082-D | | 784962 | | Site File Number |

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

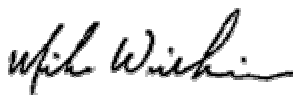
Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Mike Wilkinson, Lab Manager

FCC 15.31(e) Voltage Variations

| Table 1: 15.31(e) Voltage Variation on Peak Power - 232 | | | | |
|---|---|--|--|-------------------------------|
| FREQUENCY MHz | CORRECTED READING dB μ V/m 85% | CORRECTED READING dB μ V/m 100% | CORRECTED READING dB μ V/m 115% | SPEC LIMIT dB μ V/m |
| 125 | -6.7 | -6.6 | -6.6 | 25.7 |

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

| Table 2: 15.31(e) Voltage Variation on Peak Power - USB | | | | |
|---|---|--|--|-------------------------------|
| FREQUENCY MHz | CORRECTED READING dB μ V/m 85% | CORRECTED READING dB μ V/m 100% | CORRECTED READING dB μ V/m 115% | SPEC LIMIT dB μ V/m |
| 125 | -7.7 | -7.7 | -7.7 | 25.7 |

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

FCC 15.31(m) Number Of Channels

This device operates on a single channel.

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted: 150 kHz – 30 MHz

15.209 Radiated: 9 kHz – 1000 MHz

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

FCC 15.203 Antenna Requirements

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

FCC 15.205 Restricted Bands

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

FCC 15.215 Additional Provisions to the General Radiated Emission Limitations

The fundamental frequency was kept within the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. Refer to Appendix B for the test equipment used and Appendix C for the occupied bandwidth plot(s).

Mode Of Operation

The EUT was configured by the manufacturer to operate in a continuous transmit mode for testing purposes.

Eut Operating Frequency

The EUT was operating at 125 kHz.

Temperature And Humidity During Testing

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

The relative humidity was between 20% and 75%.

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

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

The following model has been tested by CKC Laboratories:

BSE-PCPRXM-U and BSE-PCPRXM-232

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.

BSE-PCPRXM-USB, BSE-PCPRXM-232, BSE-PCPRXM-232-R12, BSE-PCPRXM-TTL, BSE-PCPRXM-TTL-R12, OEM-PCPRXM-USB, OEM-PCPRXM-232, OEM-PCPRXM-232-R12, OEM-PCPRXM-TTL, OEM-PCPRXM-TTL-R12

EQUIPMENT UNDER TEST

125 kHz Proximity Card Reader

Manuf: RF Ideas, Inc.
Model: BSE-PCPRXM-232
Serial: M40409
FCC ID: pending

125 kHz Proximity Card Reader

Manuf: RF Ideas, Inc.
Model: BSE-PCPROXM-USB
Serial: 51203241
FCC ID: pending

PERIPHERAL DEVICES

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

Mouse

Manuf: Microsoft
Model: Mouse port compatible mouse 2.1A
Serial: 00653718
FCC ID: C3KKMP1

Host Computer (2 each)

Manuf: Toshiba
Model: 2595CDS
Serial: B997681A
FCC ID: DoC

Host Computer Power Supply

Manuf: Toshiba
Model: PA3083A-1ACN
Serial: 0201-A-06371300G
FCC ID: NA

Printer

Manuf: HP
Model: DeskJet 895 Cxi
Serial: MY9291B24N
FCC ID: DoC

REPORT OF MEASUREMENTS

The following tables report the worst case emissions levels recorded during the tests performed on the EUT. All readings taken were peak readings unless otherwise stated. The data sheets from which the emissions tables were compiled are contained in Appendix C.

Table 3: FCC 15.207 Six Highest Conducted Emission Levels

| FREQUENCY MHz | METER READING dB μ V | CORRECTION FACTORS | | | | CORRECTED READING dB μ V | SPEC LIMIT dB μ V | MARGIN dB | NOTES |
|------------------|--------------------------------|--------------------|-----------|-------------|--|------------------------------------|-----------------------------|--------------|-------|
| | | Lisn dB | HPF dB | Cable dB | | | | | |
| 0.156545 | 48.5 | 0.3 | 2.1 | 0.1 | | 51.0 | 55.6 | -4.6 | W-2 |
| 0.159454 | 50.2 | 0.3 | 1.8 | 0.1 | | 52.4 | 55.5 | -3.1 | W-U |
| 0.211085 | 48.4 | 0.3 | 0.1 | 0.1 | | 48.9 | 53.2 | -4.3 | W-2 |
| 0.211812 | 48.5 | 0.3 | 0.1 | 0.1 | | 49.0 | 53.1 | -4.1 | W-U |
| 0.213994 | 48.7 | 0.4 | 0.1 | 0.1 | | 49.3 | 53.0 | -3.7 | B-2 |
| 0.213994 | 48.7 | 0.4 | 0.1 | 0.1 | | 49.3 | 53.0 | -3.7 | B-U |

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

NOTES: B = Black Lead
W = White Lead
2 = 232
U = USB

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Word window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Table 4: FCC 15.209 Fundamental Emission Levels

| FREQUENCY MHz | METER READING dB μ V | CORRECTION FACTORS | | | | CORRECTED READING dB μ V/m | SPEC LIMIT dB μ V/m | MARGIN DB | NOTES |
|------------------|--------------------------------|--------------------|-------------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
| | | Ant dB | 15.31 dB | Cable dB | Dist dB | | | | |
| 0.125 | 63.7 | 9.6 | -80.0 | 0.1 | | -6.6 | 25.7 | -32.3 | V-2 |
| 0.125 | 62.6 | 9.6 | -80.0 | 0.1 | | -7.7 | 25.7 | -33.4 | V-U |
| 0.125 | 59.4 | 9.6 | -80.0 | 0.1 | | -10.9 | 25.7 | -36.6 | H-2 |
| 0.125 | 58.5 | 9.6 | -80.0 | 0.1 | | -11.8 | 25.7 | -37.5 | H-U |
| 0.125 | 51.0 | 9.6 | -80.0 | 0.1 | | -19.3 | 25.6 | -44.9 | V-U |
| 0.125 | 50.2 | 9.6 | -80.0 | 0.1 | | -20.1 | 25.7 | -45.8 | V-2 |

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

NOTES: H = Horizontal Polarization
 V = Vertical Polarization
 2 = 232
 U = USB

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's PS2 cable. EUT data is sent via RS232. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Test distance correction factor 40dB per decade applied in accordance with 15.31 to correct test data taken at 3 meters for comparison at the limit distance of 300 meters. Frequency investigated was - Fundamental. Temperature was 22°C and the humidity was 35%. Data represents the worst case of emissions from 3 orthogonal planes. The EUT is vertical (worst case orientation).

Table 5: FCC 15.209 Six Highest Radiated Emission Levels: 9 kHz - 30 MHz

| FREQUENCY MHz | METER READING dB μ V | CORRECTION FACTORS | | | | CORRECTED READING dB μ V/m | SPEC LIMIT dB μ V/m | MARGIN DB | NOTES |
|------------------|--------------------------------|--------------------|-------------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
| | | Ant dB | 15.31 dB | Cable dB | Dist dB | | | | |
| 0.625 | 28.5 | 9.6 | -40.0 | 0.2 | | -1.7 | 31.7 | -33.4 | V |
| 0.875 | 28.5 | 937 | -40.0 | 0.2 | | -1.6 | 28.7 | -30.3 | V |
| 1.002 | 27.2 | 938 | -40.0 | 0.2 | | -2.8 | 27.6 | -30.4 | H |
| 2.375 | 17.7 | 9.6 | -40.0 | 0.4 | | -12.3 | 29.5 | -41.8 | V |
| 3.500 | 17.9 | 9.4 | -40.0 | 0.4 | | -12.3 | 29.5 | -41.8 | V |
| 12.125 | 14.6 | 8.6 | -40.0 | 0.8 | | -16.0 | 29.5 | -45.5 | H |

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

NOTES: H = Horizontal Polarization
 V = Vertical Polarization

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 9 kHz to 30 MHz. Temperature: 23°C, Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit. **No EUT emissions detected within 20dB of the limit.**

Table 6: FCC 15.209 Six Highest Radiated Emission Levels: 30-1000 MHz

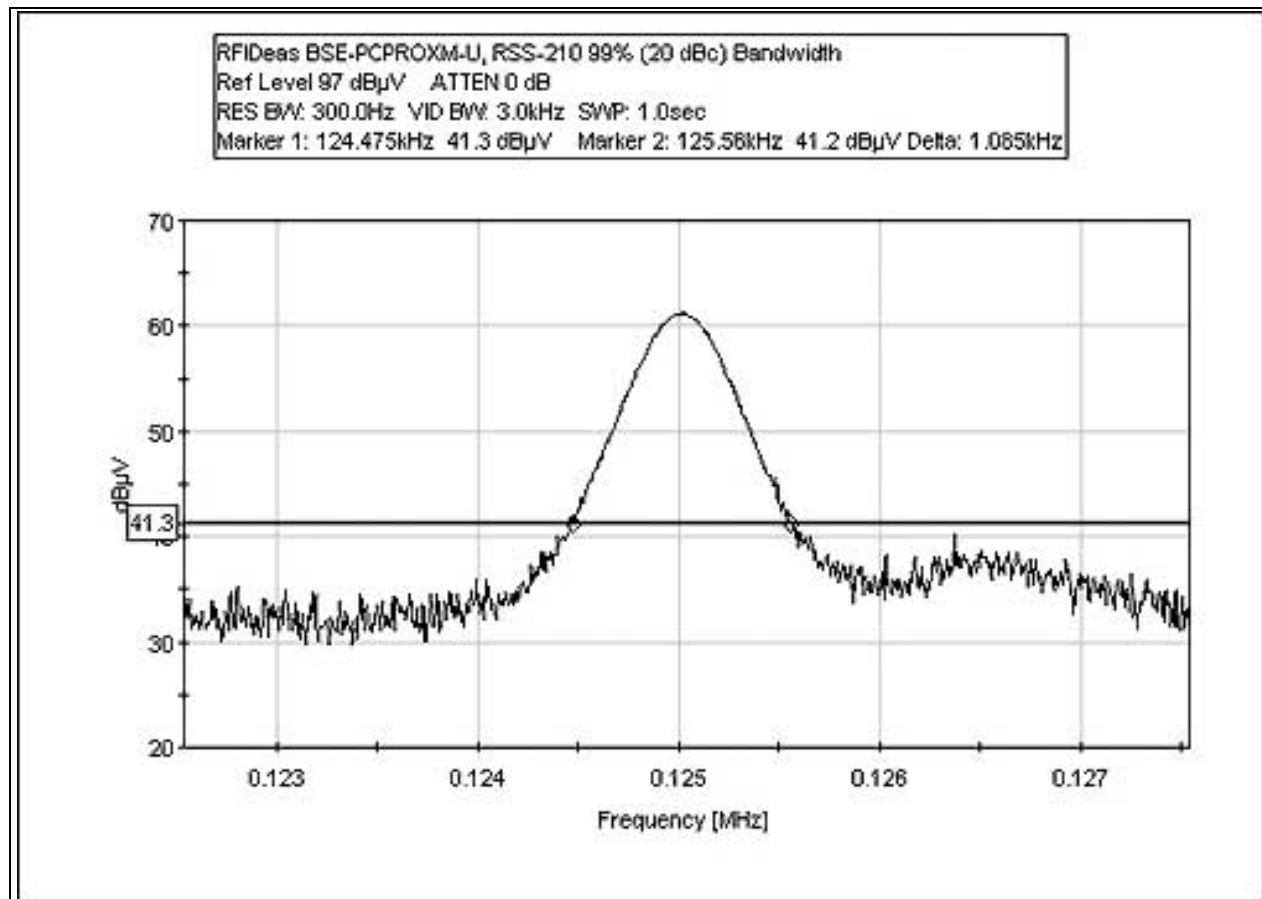
| FREQUENCY MHz | METER READING dB μ V | CORRECTION FACTORS | | | | CORRECTED READING dB μ V/m | SPEC LIMIT dB μ V/m | MARGIN DB | NOTES |
|------------------|--------------------------------|--------------------|-----------|-------------|------------|--------------------------------------|-------------------------------|--------------|-------|
| | | Ant dB | Amp dB | Cable dB | Dist dB | | | | |
| 39.982 | 38.0 | 12.4 | -27.3 | 1.4 | 10.0 | 34.5 | 40.0 | -5.5 | H |
| 240.106 | 38.4 | 11.3 | -26.5 | 3.5 | 10.0 | 36.7 | 46.0 | -9.3 | H |
| 320.900 | 34.8 | 13.4 | -26.6 | 4.3 | 10.0 | 35.9 | 46.0 | -10.1 | H |
| 365.030 | 33.9 | 14.6 | -26.9 | 4.7 | 10.0 | 36.3 | 46.0 | -9.7 | V |
| 365.100 | 38.3 | 14.6 | -26.9 | 4.7 | 10.0 | 40.7 | 46.0 | -5.3 | H |
| 366.100 | 37.4 | 14.6 | -26.9 | 4.7 | 10.0 | 39.8 | 46.0 | -6.2 | V |

Test Method: ANSI C63.4 (2001)
 Spec Limit: FCC Part 15 Subpart C Section 15.209
 Test Distance: 10 Meters

NOTES: H = Horizontal Polarization
 V = Vertical Polarization

COMMENTS: EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 30 MHz to 1000 MHz. Temperature: 23°C, Relative Humidity: 35%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit.

RSS-210 20 dB BANDWIDTH



EUT SETUP

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

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

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

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

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

| TABLE A: SAMPLE CALCULATIONS | | |
|-------------------------------------|---------------------|----------------|
| | Meter reading | (dB μ V) |
| + | Antenna Factor | (dB) |
| + | Cable Loss | (dB) |
| - | Distance Correction | (dB) |
| - | Preamplifier Gain | (dB) |
| = | Corrected Reading | (dB μ V/m) |

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Appendix B were used to collect both the radiated and conducted emissions data. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements below 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. Conducted emissions tests required the use of the FCC type LISNs.

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

SPECTRUM ANALYZER DETECTOR FUNCTIONS

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

Peak

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

Quasi-Peak

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

Average

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

EUT TESTING

Mains Conducted Emissions

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

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

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

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height, and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - 232

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - 232

PHOTOGRAPH SHOWING RADIATED EMISSIONS



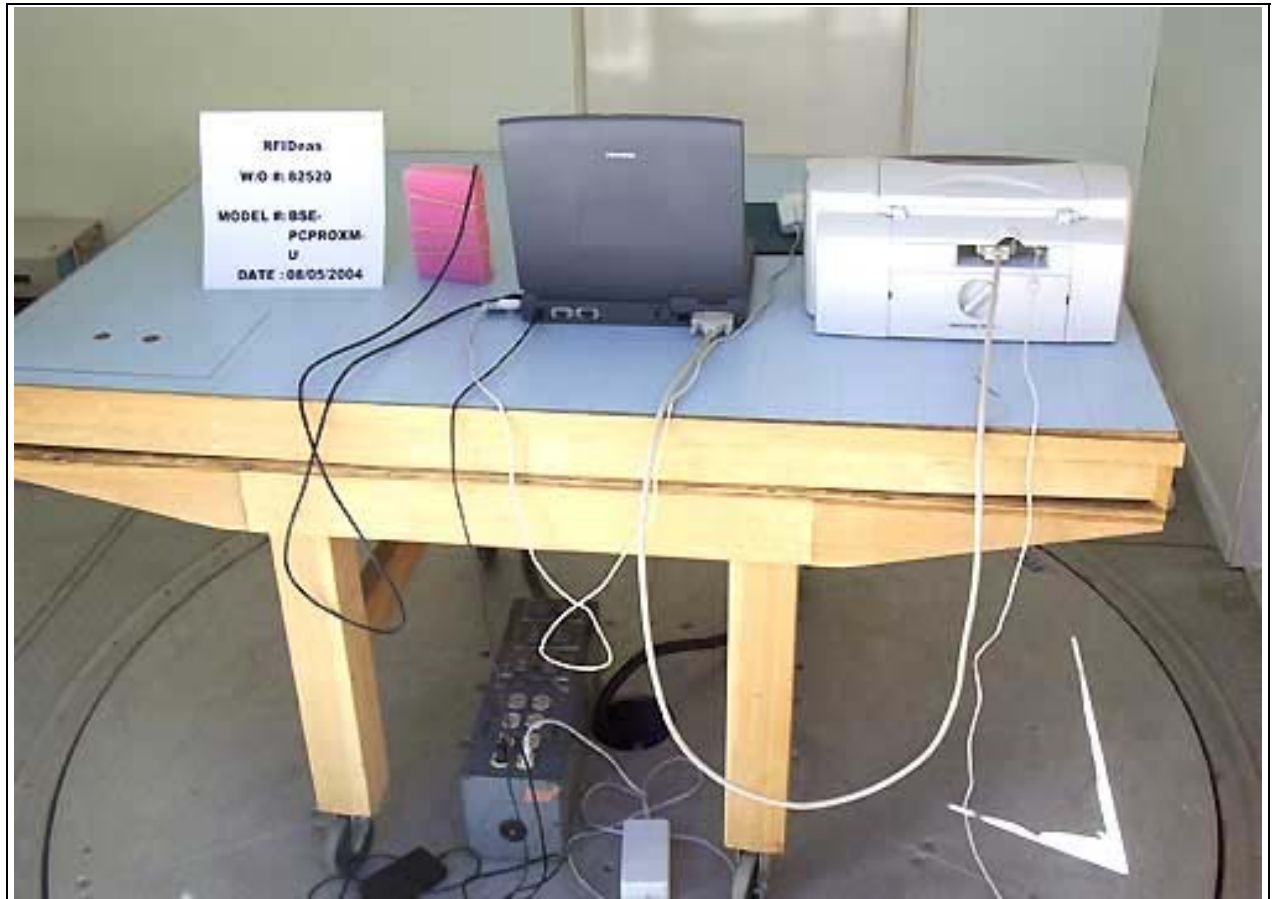
Radiated Emissions - Back View - 232

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Back View - USB

APPENDIX B

TEST EQUIPMENT LIST

FCC 15.207

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|-------------------------|--------------|------------------|--------------|----------------|
| HP 8566B SA | 2209A01404 | 02/26/2003 | 02/26/2005 | 00490 |
| HP 8566B SA Display | 2403A08241 | 02/26/2003 | 02/26/2005 | 00489 |
| HP 85650A QPA | 2811A01267 | 02/26/2003 | 02/26/2005 | 00478 |
| 150kHz HP Filter TTE | G7753 | 04/20/2004 | 04/20/2006 | 02609 |
| LISN, 8028-50-TS-24-BNC | 8379276, 280 | 06/05/2003 | 06/05/2005 | 1248 & 1249 |

FCC 15.209 Fundamental

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

FCC 15.209 9 kHz – 30 MHz

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

FCC 15.209 30-1000 MHz

| Function | S/N | Calibration Date | Cal Due Date | Asset # |
|----------------------|------------|------------------|--------------|---------|
| HP 8566B SA | 2209A01404 | 02/26/2003 | 02/26/2005 | 00490 |
| HP 8566B SA Display | 2403A08241 | 02/26/2003 | 02/26/2005 | 00489 |
| HP 85650A QPA | 2811A01267 | 02/26/2003 | 02/26/2005 | 00478 |
| HP 8447D Preamp | 1937A02604 | 03/07/2003 | 03/07/2005 | 00099 |
| Chase CBL6111C Bilog | 2456 | 12/13/2002 | 12/13/2004 | 01991 |

APPENDIX C:
MEASUREMENT DATA SHEETS

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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Conducted Emissions** Time: 3:30:56 PM
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 7
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPRXM-232 120V 60Hz
 S/N: M40409

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|----------------|--------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPRXM-232 | M40409 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|----------------------------|--------------|----------------------------------|------------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |
| Host Computer | Toshiba | 2595CDS | B997681A |
| Host Computer Power Supply | Toshiba | PA3083A-1ACN | 0201-A-06371300G |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Word window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

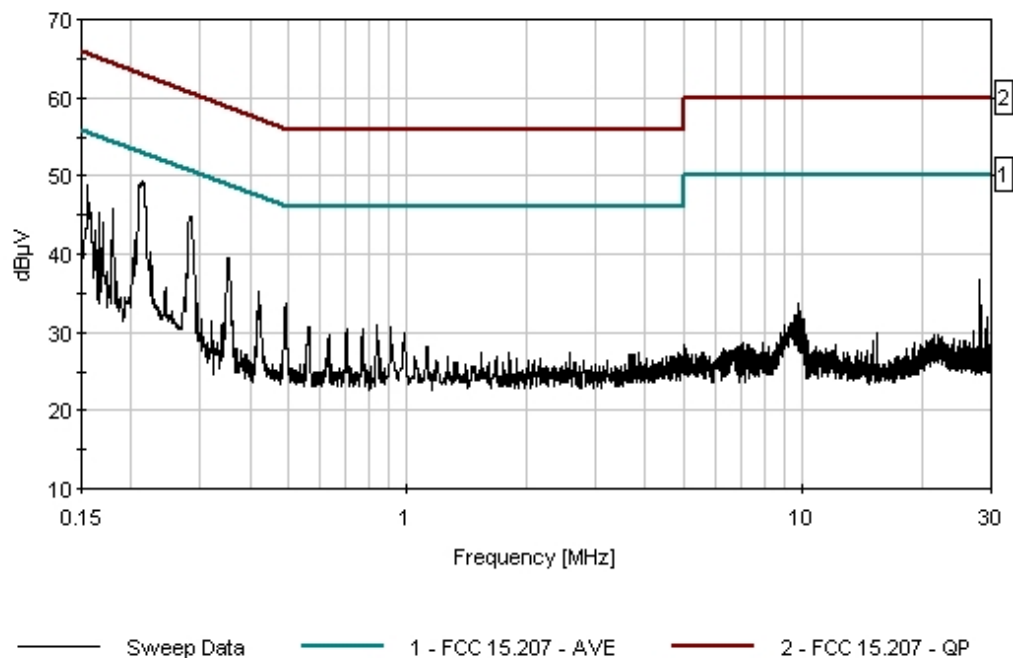
| | |
|---------------------------|-------------------------------|
| T1=Cable - Internal + cab | T2=LISN Insertion Loss s/n276 |
| T3=HP Filter AN02608 | |

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

| # | Freq MHz | Rdng dB μ V | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dB μ V | Spec dB μ V | Margin dB | Polar Ant |
|---|----------|-----------------|-------|-------|-------|---------------|-----------------|-----------------|-----------|-----------|
| 1 | 213.994k | 48.7 | +0.1 | +0.4 | +0.1 | +0.0 | 49.3 | 53.0 | -3.7 | Black |
| 2 | 283.078k | 44.3 | +0.1 | +0.3 | +0.2 | +0.0 | 44.9 | 50.7 | -5.8 | Black |
| 3 | 155.090k | 46.0 | +0.1 | +0.4 | +2.2 | +0.0 | 48.7 | 55.7 | -7.0 | Black |
| 4 | 179.815k | 44.8 | +0.1 | +0.4 | +0.4 | +0.0 | 45.7 | 54.5 | -8.8 | Black |
| 5 | 352.162k | 38.8 | +0.1 | +0.4 | +0.1 | +0.0 | 39.4 | 48.9 | -9.5 | Black |
| 6 | 165.998k | 43.5 | +0.1 | +0.4 | +1.3 | +0.0 | 45.3 | 55.2 | -9.9 | Black |
| 7 | 169.634k | 42.7 | +0.1 | +0.4 | +0.9 | +0.0 | 44.1 | 55.0 | -10.9 | Black |

| | | | | | | | | | | |
|----|----------|------|------|------|------|------|------|------|-------|-------|
| 8 | 203.813k | 41.2 | +0.1 | +0.4 | +0.0 | +0.0 | 41.7 | 53.5 | -11.8 | Black |
| 9 | 162.362k | 41.0 | +0.1 | +0.4 | +1.6 | +0.0 | 43.1 | 55.3 | -12.2 | Black |
| 10 | 423.427k | 34.4 | +0.1 | +0.4 | +0.2 | +0.0 | 35.1 | 47.4 | -12.3 | Black |
| 11 | 494.693k | 33.2 | +0.1 | +0.3 | +0.2 | +0.0 | 33.8 | 46.1 | -12.3 | Black |
| 12 | 150.000k | 40.0 | +0.1 | +0.4 | +2.7 | +0.0 | 43.2 | 56.0 | -12.8 | Black |
| 13 | 28.157M | 35.6 | +0.6 | +0.4 | +0.2 | +0.0 | 36.8 | 50.0 | -13.2 | Black |
| 14 | 225.629k | 37.8 | +0.1 | +0.4 | +0.2 | +0.0 | 38.5 | 52.6 | -14.1 | Black |
| 15 | 164.544k | 38.5 | +0.1 | +0.4 | +1.4 | +0.0 | 40.4 | 55.2 | -14.8 | Black |
| 16 | 837.931k | 30.4 | +0.1 | +0.2 | +0.3 | +0.0 | 31.0 | 46.0 | -15.0 | Black |
| 17 | 563.777k | 30.1 | +0.1 | +0.3 | +0.2 | +0.0 | 30.7 | 46.0 | -15.3 | Black |
| 18 | 911.024k | 29.9 | +0.2 | +0.3 | +0.2 | +0.0 | 30.6 | 46.0 | -15.4 | Black |
| 19 | 701.945k | 29.8 | +0.1 | +0.3 | +0.3 | +0.0 | 30.5 | 46.0 | -15.5 | Black |
| 20 | 770.302k | 29.8 | +0.1 | +0.2 | +0.3 | +0.0 | 30.4 | 46.0 | -15.6 | Black |

CKC Laboratories Date: 08/05/2004 Time: 3:30:56 PM RFIdeas WO#: 82520
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 7
 RFIdeas MN BSE-PCPRXM-232



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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Conducted Emissions** Time: 3:37:24 PM
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 8
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPRXM-232 120V 60Hz
 S/N: M40409

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|----------------|--------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPRXM-232 | M40409 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|----------------------------|--------------|----------------------------------|------------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |
| Host Computer | Toshiba | 2595CDS | B997681A |
| Host Computer Power Supply | Toshiba | PA3083A-1ACN | 0201-A-06371300G |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Word window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

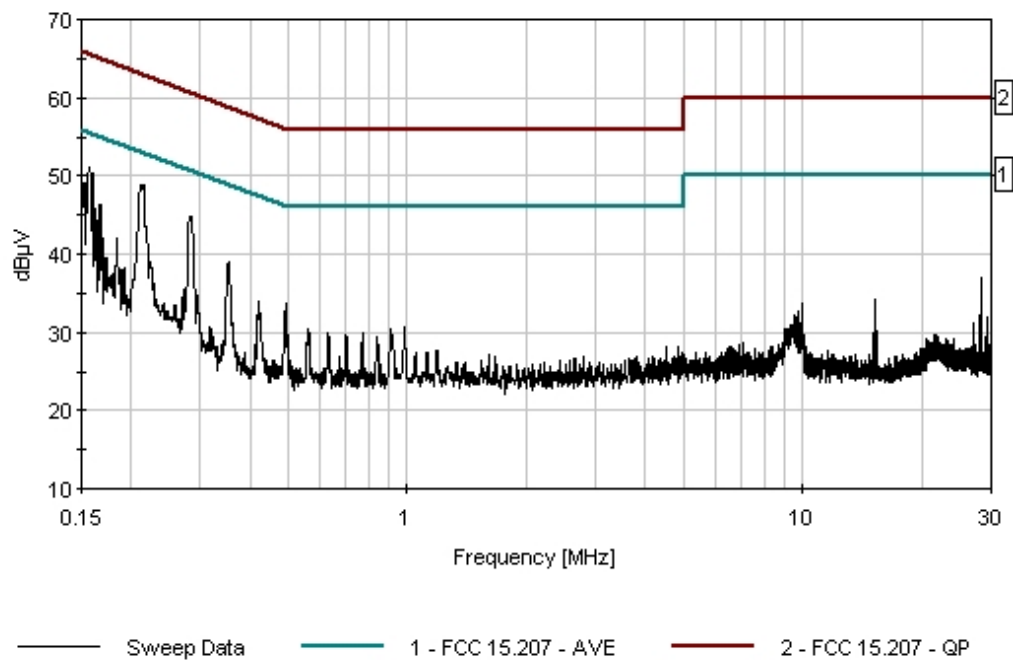
| | |
|---------------------------|-------------------------------|
| T1=Cable - Internal + cab | T2=LISN Insertion Loss s/n280 |
| T3=HP Filter AN02608 | |

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

| # | Freq MHz | Rdng dB μ V | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dB μ V | Spec dB μ V | Margin dB | Polar Ant |
|---|----------|-----------------|-------|-------|-------|---------------|-----------------|-----------------|-----------|-----------|
| 1 | 211.085k | 48.4 | +0.1 | +0.3 | +0.1 | +0.0 | 48.9 | 53.2 | -4.3 | White |
| 2 | 156.545k | 48.5 | +0.1 | +0.3 | +2.1 | +0.0 | 51.0 | 55.6 | -4.6 | White |
| 3 | 160.181k | 48.2 | +0.1 | +0.3 | +1.8 | +0.0 | 50.4 | 55.5 | -5.1 | White |
| 4 | 283.078k | 44.2 | +0.1 | +0.2 | +0.2 | +0.0 | 44.7 | 50.7 | -6.0 | White |
| 5 | 152.182k | 46.2 | +0.1 | +0.3 | +2.5 | +0.0 | 49.1 | 55.9 | -6.8 | White |
| 6 | 166.726k | 44.8 | +0.1 | +0.3 | +1.2 | +0.0 | 46.4 | 55.1 | -8.7 | White |
| 7 | 163.090k | 43.8 | +0.1 | +0.3 | +1.5 | +0.0 | 45.7 | 55.3 | -9.6 | White |

| | | | | | | | | | | |
|----|----------|------|------|------|------|------|------|------|-------|-------|
| 8 | 355.070k | 38.6 | +0.1 | +0.3 | +0.1 | +0.0 | 39.1 | 48.8 | -9.7 | White |
| 9 | 183.451k | 41.4 | +0.1 | +0.3 | +0.3 | +0.0 | 42.1 | 54.3 | -12.2 | White |
| 10 | 493.238k | 33.0 | +0.1 | +0.3 | +0.2 | +0.0 | 33.6 | 46.1 | -12.5 | White |
| 11 | 28.177M | 35.8 | +0.6 | +0.5 | +0.2 | +0.0 | 37.1 | 50.0 | -12.9 | White |
| 12 | 169.634k | 40.7 | +0.1 | +0.3 | +0.9 | +0.0 | 42.0 | 55.0 | -13.0 | White |
| 13 | 421.973k | 33.4 | +0.1 | +0.3 | +0.2 | +0.0 | 34.0 | 47.4 | -13.4 | White |
| 14 | 983.325k | 30.0 | +0.2 | +0.3 | +0.2 | +0.0 | 30.7 | 46.0 | -15.3 | White |
| 15 | 292.531k | 34.5 | +0.1 | +0.2 | +0.2 | +0.0 | 35.0 | 50.5 | -15.5 | White |
| 16 | 560.868k | 29.8 | +0.1 | +0.2 | +0.3 | +0.0 | 30.4 | 46.0 | -15.6 | White |
| 17 | 911.024k | 29.8 | +0.2 | +0.2 | +0.2 | +0.0 | 30.4 | 46.0 | -15.6 | White |
| 18 | 192.178k | 37.7 | +0.1 | +0.3 | +0.1 | +0.0 | 38.2 | 53.9 | -15.7 | White |
| 19 | 15.165M | 33.3 | +0.4 | +0.4 | +0.1 | +0.0 | 34.2 | 50.0 | -15.8 | White |
| 20 | 770.302k | 29.4 | +0.1 | +0.2 | +0.3 | +0.0 | 30.0 | 46.0 | -16.0 | White |

CKC Laboratories Date: 08/05/2004 Time: 3:37:24 PM RFIDeas WO#: 82520
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 8
 RFIDeas MN BSE-PCPRXM-232



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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Conducted Emissions** Time: 3:46:26 PM
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 10
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPROXM-U 120V 60Hz
 S/N: 51203241

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|---------------|----------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPROXM-U | 51203241 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|----------------------------|--------------|----------------------------------|------------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |
| Host Computer | Toshiba | 2595CDS | B997681A |
| Host Computer Power Supply | Toshiba | PA3083A-1ACN | 0201-A-06371300G |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Word window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

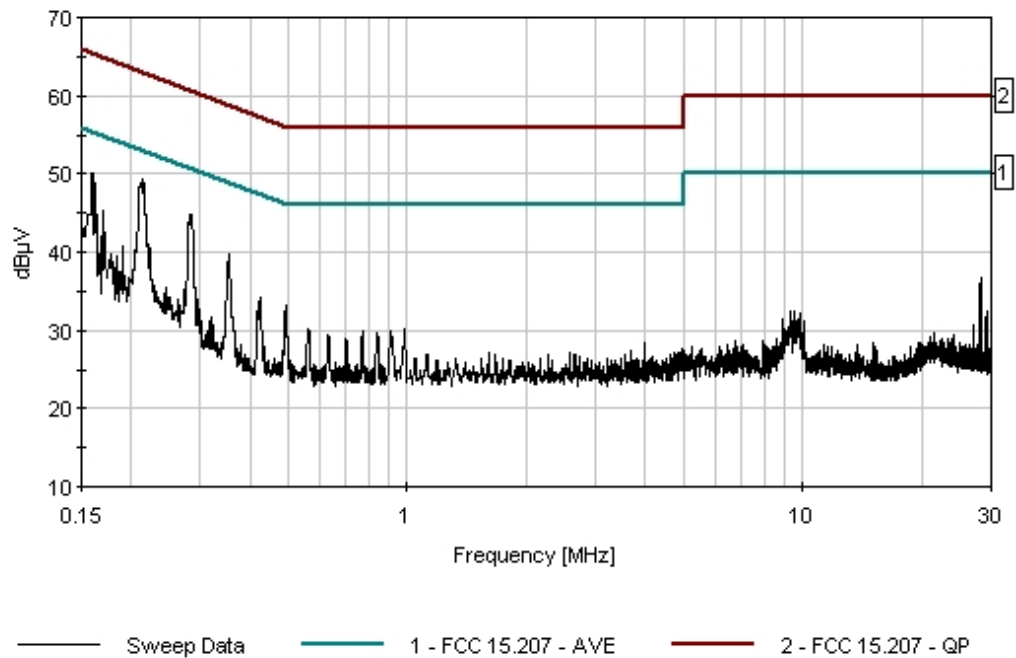
| | |
|---------------------------|-------------------------------|
| T1=Cable - Internal + cab | T2=LISN Insertion Loss s/n276 |
| T3=HP Filter AN02608 | |

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

| # | Freq MHz | Rdng dB μ V | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dB μ V | Spec dB μ V | Margin dB | Polar Ant |
|---|----------|-----------------|-------|-------|-------|---------------|-----------------|-----------------|-----------|-----------|
| 1 | 213.994k | 48.7 | +0.1 | +0.4 | +0.1 | +0.0 | 49.3 | 53.0 | -3.7 | Black |
| 2 | 159.454k | 47.9 | +0.1 | +0.4 | +1.8 | +0.0 | 50.2 | 55.5 | -5.3 | Black |
| 3 | 285.259k | 44.2 | +0.1 | +0.3 | +0.2 | +0.0 | 44.8 | 50.7 | -5.9 | Black |
| 4 | 162.362k | 46.6 | +0.1 | +0.4 | +1.6 | +0.0 | 48.7 | 55.3 | -6.6 | Black |
| 5 | 354.343k | 39.1 | +0.1 | +0.4 | +0.1 | +0.0 | 39.7 | 48.9 | -9.2 | Black |
| 6 | 169.634k | 43.9 | +0.1 | +0.4 | +0.9 | +0.0 | 45.3 | 55.0 | -9.7 | Black |
| 7 | 171.816k | 41.2 | +0.1 | +0.4 | +0.8 | +0.0 | 42.5 | 54.9 | -12.4 | Black |

| | | | | | | | | | | |
|----|----------|------|------|------|------|------|------|------|-------|-------|
| 8 | 493.966k | 32.7 | +0.1 | +0.3 | +0.2 | +0.0 | 33.3 | 46.1 | -12.8 | Black |
| 9 | 424.154k | 33.5 | +0.1 | +0.4 | +0.2 | +0.0 | 34.2 | 47.4 | -13.2 | Black |
| 10 | 28.177M | 35.6 | +0.6 | +0.4 | +0.2 | +0.0 | 36.8 | 50.0 | -13.2 | Black |
| 11 | 190.723k | 40.0 | +0.1 | +0.4 | +0.2 | +0.0 | 40.7 | 54.0 | -13.3 | Black |
| 12 | 183.451k | 38.8 | +0.1 | +0.4 | +0.3 | +0.0 | 39.6 | 54.3 | -14.7 | Black |
| 13 | 167.453k | 38.6 | +0.1 | +0.4 | +1.1 | +0.0 | 40.2 | 55.1 | -14.9 | Black |
| 14 | 559.414k | 29.4 | +0.1 | +0.3 | +0.3 | +0.0 | 30.1 | 46.0 | -15.9 | Black |
| 15 | 983.325k | 29.4 | +0.2 | +0.3 | +0.2 | +0.0 | 30.1 | 46.0 | -15.9 | Black |
| 16 | 769.574k | 29.3 | +0.1 | +0.2 | +0.3 | +0.0 | 29.9 | 46.0 | -16.1 | Black |
| 17 | 911.024k | 29.2 | +0.2 | +0.3 | +0.2 | +0.0 | 29.9 | 46.0 | -16.1 | Black |
| 18 | 294.713k | 33.4 | +0.1 | +0.3 | +0.2 | +0.0 | 34.0 | 50.4 | -16.4 | Black |
| 19 | 841.567k | 29.0 | +0.1 | +0.2 | +0.3 | +0.0 | 29.6 | 46.0 | -16.4 | Black |
| 20 | 628.498k | 28.6 | +0.1 | +0.3 | +0.3 | +0.0 | 29.3 | 46.0 | -16.7 | Black |

CKC Laboratories Date: 08/05/2004 Time: 3:46:26 PM RFIdeas WO#: 82520
 FCC 15.207 - AVE Test Lead: Black 120V 60Hz Sequence#: 10
 RFIdeas MN BSE-PCPROXM-U



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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.207 - AVE**
 Work Order #: **82520**
 Test Type: **Conducted Emissions**
 Equipment: **125 kHz Proximity Card Reader**
 Manufacturer: **RF IDEas, Inc.**
 Model: **BSE-PCPROXM-U**
 S/N: **51203241**

Date: 08/05/2004
 Time: 3:43:02 PM
 Sequence#: 9
 Tested By: Mike Wilkinson
 120V 60Hz

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|---------------|----------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPROXM-U | 51203241 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|----------------------------|--------------|----------------------------------|------------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |
| Host Computer | Toshiba | 2595CDS | B997681A |
| Host Computer Power Supply | Toshiba | PA3083A-1ACN | 0201-A-06371300G |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB port, EUT data is sent USB. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to a Word window displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency Range Investigated: 150kHz - 30MHz. Temperature: 23°C, Relative Humidity: 30%.

Transducer Legend:

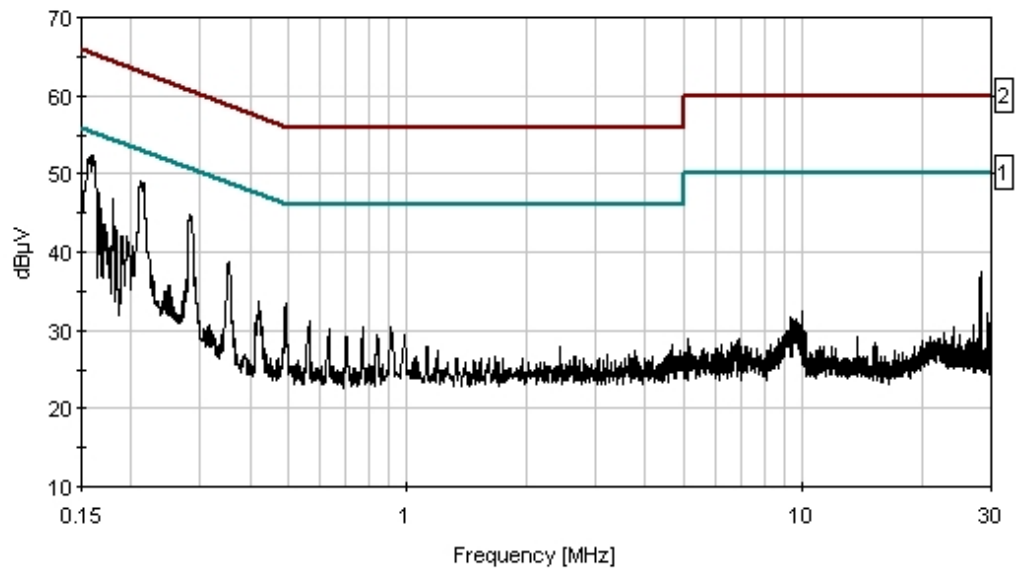
| | |
|---------------------------|-------------------------------|
| T1=Cable - Internal + cab | T2=LISN Insertion Loss s/n280 |
| T3=HP Filter AN02608 | |

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

| # | Freq MHz | Rdng dB μ V | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dB μ V | Spec dB μ V | Margin dB | Polar Ant |
|---|----------|-----------------|-------|-------|-------|---------------|-----------------|-----------------|-----------|-----------|
| 1 | 159.454k | 50.2 | +0.1 | +0.3 | +1.8 | +0.0 | 52.4 | 55.5 | -3.1 | White |
| 2 | 211.812k | 48.5 | +0.1 | +0.3 | +0.1 | +0.0 | 49.0 | 53.1 | -4.1 | White |
| 3 | 282.350k | 44.3 | +0.1 | +0.2 | +0.2 | +0.0 | 44.8 | 50.7 | -5.9 | White |
| 4 | 179.815k | 46.1 | +0.1 | +0.3 | +0.4 | +0.0 | 46.9 | 54.5 | -7.6 | White |
| 5 | 165.998k | 45.8 | +0.1 | +0.3 | +1.3 | +0.0 | 47.5 | 55.2 | -7.7 | White |
| 6 | 168.907k | 44.2 | +0.1 | +0.3 | +1.0 | +0.0 | 45.6 | 55.0 | -9.4 | White |
| 7 | 353.616k | 38.3 | +0.1 | +0.3 | +0.1 | +0.0 | 38.8 | 48.9 | -10.1 | White |

| | | | | | | | | | | |
|----|----------|------|------|------|------|------|------|------|-------|-------|
| 8 | 181.997k | 42.4 | +0.1 | +0.3 | +0.4 | +0.0 | 43.2 | 54.4 | -11.2 | White |
| 9 | 171.816k | 42.3 | +0.1 | +0.3 | +0.8 | +0.0 | 43.5 | 54.9 | -11.4 | White |
| 10 | 183.451k | 42.1 | +0.1 | +0.3 | +0.3 | +0.0 | 42.8 | 54.3 | -11.5 | White |
| 11 | 167.453k | 42.0 | +0.1 | +0.3 | +1.1 | +0.0 | 43.5 | 55.1 | -11.6 | White |
| 12 | 194.359k | 41.6 | +0.1 | +0.3 | +0.1 | +0.0 | 42.1 | 53.8 | -11.7 | White |
| 13 | 189.996k | 41.5 | +0.1 | +0.3 | +0.2 | +0.0 | 42.1 | 54.0 | -11.9 | White |
| 14 | 491.784k | 32.9 | +0.1 | +0.3 | +0.2 | +0.0 | 33.5 | 46.1 | -12.6 | White |
| 15 | 28.170M | 36.1 | +0.6 | +0.5 | +0.2 | +0.0 | 37.4 | 50.0 | -12.6 | White |
| 16 | 202.358k | 40.4 | +0.1 | +0.3 | +0.0 | +0.0 | 40.8 | 53.5 | -12.7 | White |
| 17 | 421.973k | 33.0 | +0.1 | +0.3 | +0.2 | +0.0 | 33.6 | 47.4 | -13.8 | White |
| 18 | 176.179k | 39.6 | +0.1 | +0.3 | +0.5 | +0.0 | 40.5 | 54.7 | -14.2 | White |
| 19 | 564.504k | 30.6 | +0.1 | +0.2 | +0.2 | +0.0 | 31.1 | 46.0 | -14.9 | White |
| 20 | 911.024k | 29.9 | +0.2 | +0.2 | +0.2 | +0.0 | 30.5 | 46.0 | -15.5 | White |

CKC Laboratories Date: 08/05/2004 Time: 3:43:02 PM RFIDeas WO#: 82520
 FCC 15.207 - AVE Test Lead: White 120V 60Hz Sequence#: 9
 RFIDeas MN BSE-PCPROXM-U



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

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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.209**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Maximized Emissions** Time: 08:38:07
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 2
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPRXM-232
 S/N: M40409

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|----------------|--------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPRXM-232 | M40409 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|---------------|--------------|----------------------------------|------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Printer | HP | DeskJet 895Cxi | MY9291B24N |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's PS2 cable. EUT data is sent via RS232. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Test distance correction factor 40dB per decade applied in accordance with 15.31 to correct test data taken at 3 meters for comparison at the limit distance of 300 meters. Frequency investigated was - Fundamental. Temperature was 22°C and the humidity was 35%. Data represents the worst case of emissions from 3 orthogonal planes. The EUT is vertical (worst case orientation).

Transducer Legend:

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

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

| # | Freq MHz | Rdng dBμV | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dBμV/m | Spec dBμV/m | Margin dB | Polar Ant |
|---|----------|-----------|-------|-------|-------|---------------|-------------|------------------------------------|-----------|--------------|
| 1 | 124.985k | 63.7 | +9.6 | +0.1 | -80.0 | +0.0 165 | -6.6 | 25.7 Vertical EUT Position | -32.3 | Vert 100 |
| 2 | 125.030k | 59.4 | +9.6 | +0.1 | -80.0 | +0.0 86 | -10.9 | 25.7 Vertical EUT Position | -36.6 | Horiz 100 |
| 3 | 125.040k | 50.2 | +9.6 | +0.1 | -80.0 | +0.0 86 | -20.1 | 25.7 Horizontal EUT Position | -45.8 | Vert 100 |
| 4 | 125.015k | 39.7 | +9.6 | +0.1 | -80.0 | +0.0 363 | -30.6 | 25.7 Horizontal EUT Position | -56.3 | Horiz 100 |

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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.209**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Maximized Emissions** Time: 07:24:25
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 1
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPROXM-U
 S/N: 51203241

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|--------------------------------|----------------|---------------|----------|
| 125 kHz Proximity Card Reader* | RF IDEas, Inc. | BSE-PCPROXM-U | 51203241 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|---------------|--------------|----------------------------------|------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Printer | HP | DeskJet 895Cxi | MY9291B24N |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer via the EUT's USB cable. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Test distance correction factor 40dB per decade applied in accordance with 15.31 to correct test data taken at 3 meters for comparison at the limit distance of 300 meters. Frequency investigated was - Fundamental. Temperature was 22°C and the humidity was 35%. Data represents the worst case of emissions from 3 orthogonal planes. The EUT is vertical (worst case orientation).

Transducer Legend:

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

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | Dist Table dB | Corr dBµV/m | Spec dBµV/m | Margin dB | Polar Ant |
|---|----------|-----------|-------|-------|-------|---------------|-------------|------------------------------------|-----------|--------------|
| 1 | 124.600k | 62.6 | +9.6 | +0.1 | -80.0 | +0.0 161 | -7.7 | 25.7 Vertical EUT Position | -33.4 | Vert 100 |
| 2 | 124.940k | 58.5 | +9.6 | +0.1 | -80.0 | +0.0 81 | -11.8 | 25.7 Vertical EUT Position | -37.5 | Horiz 100 |
| 3 | 125.280k | 51.0 | +9.6 | +0.1 | -80.0 | +0.0 2 | -19.3 | 25.6 Horizontal EUT Position | -44.9 | Vert 100 |
| 4 | 125.280k | 46.8 | +9.6 | +0.1 | -80.0 | +0.0 365 | -23.5 | 25.6 Horizontal EUT Position | -49.1 | Horiz 100 |

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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.209**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Maximized Emissions** Time: 10:14:55
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 5
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPRXM-xxx
 S/N:

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|-------------------------------|----------------|----------------|----------|
| 125 kHz Proximity Card Reader | RF IDEas, Inc. | BSE-PCPROXM-U | 51203241 |
| 125 kHz Proximity Card Reader | RF IDEas, Inc. | BSE-PCPRXM-232 | M40409 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|---------------|--------------|----------------------------------|------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Printer | HP | DeskJet 895Cxi | MY9291B24N |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 9 kHz to 30 MHz. Temperature: 23°C, Relative Humidity: 30%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit. **No EUT emissions detected within 20dB of the limit.**

Transducer Legend:

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

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | dB | Dist Table | Corr dBµV/m | Spec dBµV/m | Margin dB | Polar Ant |
|---|----------|-----------|-------|-------|-------|----|-------------|-------------|---------------------|-----------|--------------|
| 1 | 875.220k | 28.5 | +9.7 | +0.2 | -40.0 | | +0.0 165 | -1.6 | 28.7 | -30.3 | Vert 100 |
| 2 | 1.002M | 27.2 | +9.8 | +0.2 | -40.0 | | +0.0 79 | -2.8 | 27.6 | -30.4 | Horiz 100 |
| 3 | 125.020k | 63.5 | +9.6 | +0.1 | -80.0 | | +0.0 165 | -6.8 | 25.7 Fundamental | -32.5 | Vert 100 |
| 4 | 625.220k | 28.5 | +9.6 | +0.2 | -40.0 | | +0.0 163 | -1.7 | 31.7 | -33.4 | Vert 100 |
| 5 | 125.020k | 59.4 | +9.6 | +0.1 | -80.0 | | +0.0 79 | -10.9 | 25.6 Fundamental | -36.5 | Horiz 100 |

| | | | | | | | | | | |
|----|----------|------|------|------|-------|-------------|-------|------|-------|--------------|
| 6 | 3.500M | 17.9 | +9.4 | +0.4 | -40.0 | +0.0 214 | -12.3 | 29.5 | -41.8 | Vert 100 |
| 7 | 2.375M | 17.7 | +9.6 | +0.4 | -40.0 | +0.0 186 | -12.3 | 29.5 | -41.8 | Vert 100 |
| 8 | 12.125M | 14.6 | +8.6 | +0.8 | -40.0 | +0.0 79 | -16.0 | 29.5 | -45.5 | Horiz 100 |
| 9 | 252.440k | 41.6 | +9.6 | +0.1 | -80.0 | +0.0 160 | -28.7 | 19.6 | -48.3 | Vert 100 |
| 10 | 375.220k | 37.1 | +9.6 | +0.2 | -80.0 | +0.0 157 | -33.1 | 16.1 | -49.2 | Vert 100 |
| 11 | 251.600k | 39.7 | +9.6 | +0.1 | -80.0 | +0.0 79 | -30.6 | 19.6 | -50.2 | Horiz 100 |
| 12 | 24.000M | 2.0 | +6.0 | +1.0 | -40.0 | +0.0 200 | -31.0 | 29.5 | -60.5 | Vert 100 |

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

Customer: **RF IDEas, Inc.**
 Specification: **FCC 15.209**
 Work Order #: **82520** Date: 08/05/2004
 Test Type: **Maximized Emissions** Time: 13:09:44
 Equipment: **125 kHz Proximity Card Reader** Sequence#: 6
 Manufacturer: RF IDEas, Inc. Tested By: Mike Wilkinson
 Model: BSE-PCPRXM-xxx
 S/N:

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|-------------------------------|----------------|----------------|----------|
| 125 kHz Proximity Card Reader | RF IDEas, Inc. | BSE-PCPROXM-U | 51203241 |
| 125 kHz Proximity Card Reader | RF IDEas, Inc. | BSE-PCPRXM-232 | M40409 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|---------------|--------------|----------------------------------|------------|
| Host Computer | Toshiba | 2595CDS | B997681A |
| Printer | HP | DeskJet 895Cxi | MY9291B24N |
| Mouse | Microsoft | Mouse port compatible mouse 2.1A | 00653718 |

Test Conditions / Notes:

EUT is a Proximity Card Reader operating at 125 kHz. The EUT is DC powered by the host computer. EUT is transmitting continuously. Reader function was checked before and after the test by placing a card near the EUT and the EUT reading and reporting the card ID to the Word documents displayed on the host computer plus observing the EUT indicator light changing states from red to green. Frequency investigated was 30 MHz to 1000 MHz. Temperature: 23°C, Relative Humidity: 35%. Data represents the worst case of emissions from both products. Data represents the worst case of emissions from 3 orthogonal planes of each product. Test distance correction factor applied in accordance with 15.31 to correct test data for comparison to the applicable limit.

Transducer Legend:

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

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

| # | Freq MHz | Rdng dBµV | T1 dB | T2 dB | T3 dB | dB | Dist Table | Corr dBµV/m | Spec dBµV/m | Margin dB | Polar Ant |
|---|----------|-----------|-------|-------|-------|----|--------------|-------------|-------------|-----------|--------------|
| 1 | 365.100M | 38.3 | -26.9 | +14.6 | +4.7 | | +10.0 85 | 40.7 | 46.0 | -5.3 | Horiz 307 |
| 2 | 39.982M | 38.0 | -27.3 | +12.4 | +1.4 | | +10.0 306 | 34.5 | 40.0 | -5.5 | Horiz 307 |
| 3 | 366.100M | 37.4 | -26.9 | +14.6 | +4.7 | | +10.0 142 | 39.8 | 46.0 | -6.2 | Vert 114 |
| 4 | 240.106M | 38.4 | -26.5 | +11.3 | +3.5 | | +10.0 33 | 36.7 | 46.0 | -9.3 | Horiz 385 |
| 5 | 365.030M | 33.9 | -26.9 | +14.6 | +4.7 | | +10.0 79 | 36.3 | 46.0 | -9.7 | Vert 100 |
| 6 | 320.900M | 34.8 | -26.6 | +13.4 | +4.3 | | +10.0 326 | 35.9 | 46.0 | -10.1 | Horiz 307 |

| | | | | | | | | | | |
|----|----------|------|-------|-------|------|--------------|------|------|-------|--------------|
| 7 | 214.678M | 36.9 | -26.6 | +9.5 | +3.4 | +10.0 112 | 33.2 | 43.5 | -10.3 | Vert 122 |
| 8 | 200.036M | 38.0 | -26.7 | +8.3 | +3.3 | +10.0 263 | 32.9 | 43.5 | -10.6 | Vert 122 |
| 9 | 215.610M | 34.9 | -26.6 | +9.5 | +3.4 | +10.0 96 | 31.2 | 43.5 | -12.3 | Horiz 342 |
| 10 | 230.626M | 35.9 | -26.5 | +10.7 | +3.4 | +10.0 120 | 33.5 | 46.0 | -12.5 | Vert 114 |
| 11 | 310.778M | 32.2 | -26.6 | +13.1 | +4.2 | +10.0 262 | 32.9 | 46.0 | -13.1 | Horiz 307 |
| 12 | 235.624M | 31.8 | -26.5 | +11.0 | +3.5 | +10.0 365 | 29.8 | 46.0 | -16.2 | Vert 114 |
| 13 | 155.210M | 30.5 | -27.0 | +10.2 | +2.8 | +10.0 59 | 26.5 | 43.5 | -17.0 | Vert 114 |