



**ADDENDUM TO MAGTEK INCORPORATED TEST REPORT FC07-013**

**FOR THE**

**INTELLISTRIPE 65 CONTACTLESS CARD READER, 211650XX**

**FCC PART 15 SUBPART C SECTIONS 15.207 & 15.225 AND**  
**SUBPART B SECTIONS 15.107 & 15.109 CLASS B**

**COMPLIANCE**

**DATE OF ISSUE: MARCH 23, 2007**

**PREPARED FOR:**

Magtek Incorporated  
20725 South Annalee Avenue  
Carson, CA 90746

P.O. No.: 86878  
W.O. No.: 84991

**PREPARED BY:**

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

Date of test: February 23 - March 1, 2007

**Report No.: FC07-013A**

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**ADMINISTRATIVE INFORMATION**

**DATE OF TEST:** February 23 - March 1, 2007

**DATE OF RECEIPT:** February 23, 2007

**MANUFACTURER:** Magtek Incorporated  
20725 South Annalee Avenue  
Carson, CA 90746

**REPRESENTATIVE:** Brian Tahamzadeh

**TEST LOCATION:** CKC Laboratories, Inc.  
110 Olinda Place  
Brea, CA 92823

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

**PURPOSE OF TEST:** **Original Report:** To demonstrate the compliance of the IntelliStripe 65 Contactless Card Reader, 211650XX with the requirements for FCC Part 15 Subpart C Sections 15.207 & 15.225 and Subpart B Sections 15.107 & 15.109 Class B devices.  
**Addendum A:** To clarify data on pages 25 and 28 with no new testing.

**APPROVALS**

Steve Behm, Director of Engineering Services

**QUALITY ASSURANCE:**



Joyce Walker, Quality Assurance Administrative  
Manager

**TEST PERSONNEL:**



Eddie Wong, EMC Engineer

**CONDITIONS FOR COMPLIANCE**

No modifications to the EUT were necessary to comply.

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

This device operates on a single channel.

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

15.107 Conducted Emissions: 150 kHz – 30 MHz

15.109 Radiated Emissions: 9 kHz – 1000 MHz

15.207 Conducted Emissions: 150 kHz – 30 MHz

15.225 Radiated Emissions: 9 kHz – 1000 MHz

**FCC 15.203 Antenna Requirements**

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

**EUT Operating Frequency**

The EUT was operating at 13.56 MHz.

**Temperature And Humidity During Testing**

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

The relative humidity was between 20% and 75%.

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

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

The following model name at the time of testing by CKC Laboratories was: **21165046**  
It was actually 21165046 I65 B2,M3,C1,SG,L3,1H,H4,S1,LP,CF. I65 designates it is an IntelliStripe 65 card reader and the 46 is for the contactless option. A description of the other options is on the following page.

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore complies to the level of testing equivalent to the tested model name shown on the data sheets: **211650XX**. A list of the options represented by XX is on the following page.

### **EQUIPMENT UNDER TEST**

#### **Power Supply**

Manuf: DVE  
Model: DSA-0151D-12  
Serial: NA  
FCC ID: NA

#### **IntelliStripe 65 Contactless Card Reader**

Manuf: Magtek Incorporated  
Model: 211650XX  
Serial: NA  
FCC ID: pending

### **PERIPHERAL DEVICES**

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

#### **Laptop**

Manuf: Dell  
Model: Inspiron 8500  
Serial: 00043-480-957-106  
FCC ID: NA

## INTELLISTRIPE 60/65 OPTION ORDER SHEET

Customer \_\_\_\_\_ Date \_\_\_\_\_

OPTION	CHOICE	MARK CHOICE	CODE
PRINTED CIRCUIT BOARD	Old IntelliStripe 65		B1
	New IntelliStripe 65 w/ USB		B2
	None		
MOUNTING BRACKET CONFIG.	FRONT		M1
	SIDE		M2
	FRONT AND SIDE		M3
	NO MOUNT		M4
SMARTCARD IC CONTACTS	EIGHT CONTACTS		C1
	SIXTEEN CONTACTS		C2
	NO CONTACTS		
DELETE SAM SUPPORT	YES		DS
	NO		
SECURITY GATE	YES		SG
	NO		
CARD LATCH	CARD LATCH W/SWITCH &PF		L3
	PF THROUGH MAIN CONN.		L4
	MOTOR ONLY		L5
	NO LATCH		
MAGNETIC HEAD CONFIG.	1 HEAD		1H
	2 HEADS		2H
	1 HEAD on contact side		3H
	MagnePrint		MP
	NO HEAD		
MAGNETIC HEAD TYPE	TRACK 2		H1
	TRACK 1 & 2		H2
	TRACK 2 & 3		H3
	TRACK 1,2, AND 3		H4
	TRACK 1,2, AND 3 w/BACKING		H5
	Shift-Out IntelliHead		H6
GROUND LUG ON HEAD	YES		GL
	NO		
CARD SEATED SWITCH CONFIG.	CONTACT BLOCK		S1
	PCB WITH LEVER		S3
CONFORMAL COATING	YES		CT
	NO		
PCB STANDOFF FOR CUSTOMER PCB	YES		SO
	NO		
NO ZEROS REQUIRED AFTER LRC	YES		NZ
	NO		
BEZEL TYPE	International Plastic Bezel (21161202)		PB
	Int'l Plastic Bezel w/LED (21161209)		LP
	International Metal Bezel (21161204)		MB
	MT-215 Style Bezel (21161206)		TB
	Sankyo Bezel (21161208)		SB
	MT-215 Bezel with LED (21161207)		LB
	Desk Top Enclosure		DT
No Bezel			
CONTACTLESS SMART CARD	FULL (w/module & antenna installed)		CF
	READY (without module installed)		CR
	NONE (no circuitry included)		

FOR FACTORY USE ONLY:  
Unit Part Number \_\_\_\_\_

P/N 99875166-17 9/12/2006

## REPORT OF EMISSIONS MEASUREMENTS

### TESTING PARAMETERS

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

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

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits to determine compliance. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

### CORRECTION FACTORS

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

<b>SAMPLE CALCULATIONS</b>		
	Meter reading	(dB $\mu$ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB $\mu$ V/m)

## TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

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

## SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

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

### **Peak**

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

### **Quasi-Peak**

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

### **Average**

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



## FCC 15.107 CONDUCTED EMISSIONS

### Test Setup Photos



### Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.107 Class B COND [AVE]**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Conducted Emissions** Time: 15:10:38  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 7  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046 110V 60Hz  
 S/N: NA

#### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

#### Test Conditions / Notes:

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. Frequency=13.56MHz. RF port connected to 50 Ohm load. Frequency range of measurement = 150kHz - 30MHz. Frequency 150 kHz- 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

#### Transducer Legend:

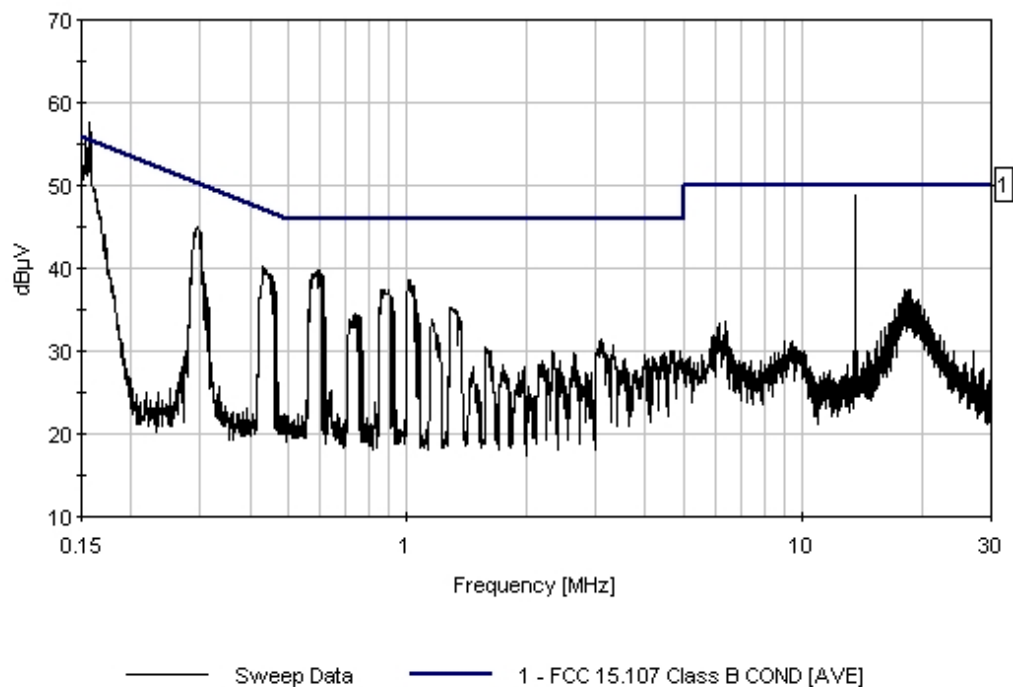
T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L1) Insertion Loss 00847 EMCO 3816/2NM

#### Measurement Data:

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.					Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB	T4 dB						
1	13.560M	40.9	+0.2	+6.1	+0.4	+0.7	+0.0	48.3	50.0	-1.7	Black	
	Ave								Fundamental			
^	13.560M	41.7	+0.2	+6.1	+0.4	+0.7	+0.0	49.1	50.0	-0.9	Black	
									Fundamental			
3	296.168k	38.3	+0.2	+6.2	+0.1	+0.1	+0.0	44.9	50.3	-5.4	Black	
4	603.777k	33.3	+0.2	+6.1	+0.1	+0.1	+0.0	39.8	46.0	-6.2	Black	
5	608.140k	32.6	+0.2	+6.1	+0.1	+0.1	+0.0	39.1	46.0	-6.9	Black	

6	611.049k	32.6	+0.2	+6.1	+0.1	+0.1	+0.0	39.1	46.0	-6.9	Black
7	429.247k	33.8	+0.2	+6.2	+0.1	+0.0	+0.0	40.3	47.3	-7.0	Black
8	1.009M	32.3	+0.1	+6.1	+0.0	+0.1	+0.0	38.6	46.0	-7.4	Black
9	614.685k	31.9	+0.2	+6.1	+0.1	+0.1	+0.0	38.4	46.0	-7.6	Black
10	609.594k	31.4	+0.2	+6.1	+0.1	+0.1	+0.0	37.9	46.0	-8.1	Black
11	461.971k	31.8	+0.2	+6.2	+0.1	+0.1	+0.0	38.4	46.7	-8.3	Black
12	859.026k	31.2	+0.1	+6.1	+0.0	+0.1	+0.0	37.5	46.0	-8.5	Black
13	898.468k	31.0	+0.1	+6.1	+0.0	+0.1	+0.0	37.3	46.0	-8.7	Black
14	151.295k	31.9	+2.3	+6.2	+0.1	+0.1	+0.0	40.6	55.9	-15.3	Black
Ave											
^	151.295k	50.9	+2.3	+6.2	+0.1	+0.1	+0.0	59.6	55.9	+3.7	Black

CKC Laboratories, Inc. Date: 2/26/2007 Time: 15:10:38 Magtek Incorporated W/O#: 84991  
 FCC 15.107 Class B COND [AVE] Test Lead: Black 110V 60Hz Sequence#: 7



Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.107 Class B COND [AVE]**  
 Work Order #: **84991**  
 Test Type: **Conducted Emissions**  
 Equipment: **IntelliStripe 65 Contactless Card Reader**

Date: 2/26/2007  
 Time: 15:05:27  
 Sequence#: 6

Manufacturer: Magtek Incorporated  
 Model: 21165046  
 S/N: NA

Tested By: E. Wong  
 110V 60Hz

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

**Test Conditions / Notes:**

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. Frequency=13.56MHz. RF port connected to 50 Ohm load. Frequency range of measurement = 150kHz- 30MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

**Transducer Legend:**

T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L2) Insertion Loss 00847 EMCO 3816/2NM

**Measurement Data:**

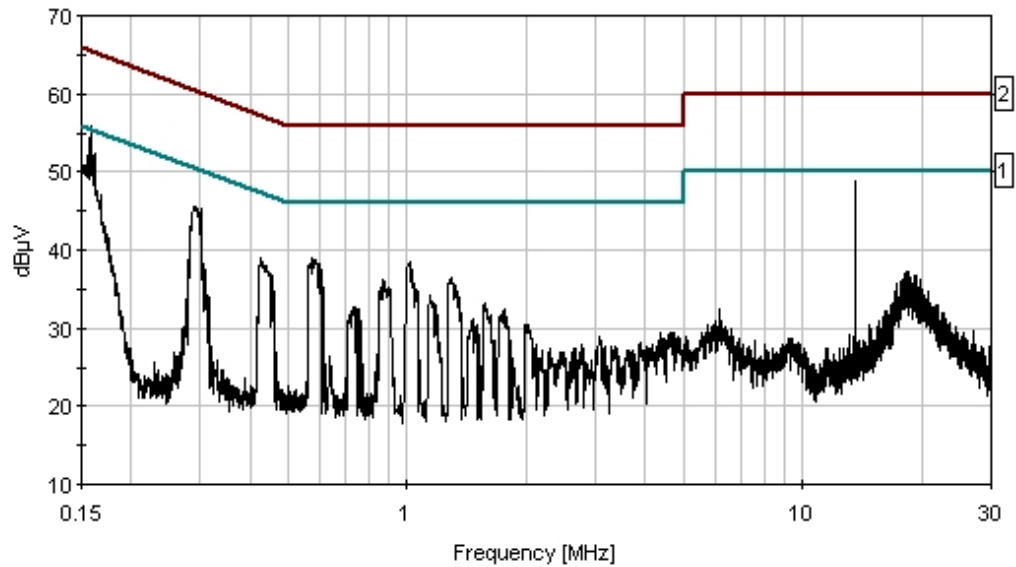
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	Polar Ant
1	161.635k	45.3	+0.6	+6.2	+0.1	+0.2	+0.0	52.4	55.4	-3.0	White
2	13.562M	38.9	+0.2	+6.1	+0.4	+0.7	+0.0	46.3	50.0	-3.7	White
^	13.562M	41.5	+0.2	+6.1	+0.4	+0.7	+0.0	48.9	50.0	-1.1	White
4	291.805k	39.0	+0.2	+6.2	+0.1	+0.1	+0.0	45.6	50.5	-4.9	White
5	576.143k	32.4	+0.2	+6.1	+0.1	+0.1	+0.0	38.9	46.0	-7.1	White

6	1.013M	32.3	+0.1	+6.1	+0.0	+0.1	+0.0	38.6	46.0	-7.4	White
7	602.322k	31.3	+0.2	+6.1	+0.1	+0.1	+0.0	37.8	46.0	-8.2	White
8	426.338k	32.3	+0.2	+6.2	+0.1	+0.1	+0.0	38.9	47.3	-8.4	White
9	606.685k	31.0	+0.2	+6.1	+0.1	+0.1	+0.0	37.5	46.0	-8.5	White
10	608.867k	30.4	+0.2	+6.1	+0.1	+0.1	+0.0	36.9	46.0	-9.1	White
11	1.290M	30.2	+0.1	+6.1	+0.0	+0.1	+0.0	36.5	46.0	-9.5	White
12	452.518k	30.5	+0.2	+6.2	+0.1	+0.1	+0.0	37.1	46.8	-9.7	White
13	869.207k	29.9	+0.1	+6.1	+0.0	+0.1	+0.0	36.2	46.0	-9.8	White
14	453.972k	30.2	+0.2	+6.2	+0.1	+0.1	+0.0	36.8	46.8	-10.0	White
15	877.204k	29.2	+0.1	+6.1	+0.0	+0.1	+0.0	35.5	46.0	-10.5	White
16	152.704k	24.3	+2.0	+6.2	+0.1	+0.2	+0.0	32.8	55.9	-23.1	White
	Ave										
^	152.704k	50.2	+2.0	+6.2	+0.1	+0.2	+0.0	58.7	55.9	+2.8	White

CKC Laboratories, Inc. Date: 2/26/2007 Time: 15:05:27 Magtek Incorporated W/O#: 84991  
 FCC 15.107 Class B COND [AVE] Test Lead: White 110V 60Hz Sequence#: 6



— Sweep Data  
 — 2 - FCC 15.107 Class B COND [QP]  
 — 1 - FCC 15.107 Class B COND [AVE]

## FCC 15.109 RADIATED EMISSIONS

### Test Setup Photos



### Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.109 Class B**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Radiated Scan** Time: 14:07:40  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 3  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046  
 S/N: NA

#### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Bilog Antenna	2451	02/02/2006	02/02/2008	01995
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Pre amp to SA Cable	Cable #10	05/16/2005	05/16/2007	P05050
Cable	Cable15	01/05/2007	01/05/2009	P05198
Pre Amp	1937A02548	06/01/2006	06/01/2008	00309
Loop Antenna	2014	06/14/2006	06/14/2008	00314

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

#### Test Conditions / Notes:

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. 20°C, 41% relative humidity.

#### Transducer Legend:

T1=Preamp 8447D 060108	T2=Bilog AN01995 020208 Chase
T3=Cable #10 051607	T4=Cable #15, Site A, 010509

#### Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	192.002M	56.1	-27.6	+8.9	+0.2	+2.5	+0.0	40.1	43.5	-3.4	Horiz
	QP										
^	192.002M	57.0	-27.6	+8.9	+0.2	+2.5	+0.0	41.0	43.5	-2.5	Horiz
3	224.006M	55.5	-27.6	+10.7	+0.2	+2.7	+0.0	41.5	46.0	-4.5	Horiz
	QP										
^	224.006M	57.1	-27.6	+10.7	+0.2	+2.7	+0.0	43.1	46.0	-2.9	Horiz
5	208.001M	54.0	-27.6	+9.5	+0.2	+2.6	+0.0	38.7	43.5	-4.8	Horiz



6	208.004M	53.8	-27.6	+9.5	+0.2	+2.6	+0.0	38.5	43.5	-5.0	Vert
	QP										
^	208.004M	54.7	-27.6	+9.5	+0.2	+2.6	+0.0	39.4	43.5	-4.1	Vert
8	256.006M	52.9	-27.7	+12.6	+0.2	+2.9	+0.0	40.9	46.0	-5.1	Horiz
9	192.002M	54.3	-27.6	+8.9	+0.2	+2.5	+0.0	38.3	43.5	-5.2	Vert
	QP										
^	192.002M	56.9	-27.6	+8.9	+0.2	+2.5	+0.0	40.9	43.5	-2.6	Vert
11	358.349M	48.9	-27.6	+14.7	+0.3	+3.5	+0.0	39.8	46.0	-6.2	Horiz
12	411.599M	47.2	-27.8	+16.1	+0.3	+3.8	+0.0	39.6	46.0	-6.4	Vert
13	175.988M	52.9	-27.7	+9.3	+0.2	+2.4	+0.0	37.1	43.5	-6.4	Horiz
14	67.800M	53.4	-27.7	+6.0	+0.1	+1.5	+0.0	33.3	40.0	-6.7	Vert
15	144.009M	50.7	-27.7	+11.2	+0.2	+2.2	+0.0	36.6	43.5	-6.9	Horiz
16	149.155M	50.8	-27.7	+11.0	+0.2	+2.2	+0.0	36.5	43.5	-7.0	Horiz
17	224.009M	52.4	-27.6	+10.7	+0.2	+2.7	+0.0	38.4	46.0	-7.6	Vert
18	128.045M	49.2	-27.6	+11.5	+0.1	+2.0	+0.0	35.2	43.5	-8.3	Vert
19	255.986M	49.6	-27.7	+12.6	+0.2	+2.9	+0.0	37.6	46.0	-8.4	Vert
20	160.002M	50.0	-27.7	+10.2	+0.2	+2.3	+0.0	35.0	43.5	-8.5	Horiz
21	149.140M	49.3	-27.7	+11.0	+0.2	+2.2	+0.0	35.0	43.5	-8.5	Vert
22	135.597M	48.9	-27.6	+11.4	+0.1	+2.1	+0.0	34.9	43.5	-8.6	Horiz
23	447.472M	43.6	-27.6	+17.0	+0.3	+4.0	+0.0	37.3	46.0	-8.7	Horiz
24	395.105M	45.4	-27.8	+15.7	+0.3	+3.7	+0.0	37.3	46.0	-8.7	Horiz
25	391.424M	45.2	-27.8	+15.6	+0.3	+3.7	+0.0	37.0	46.0	-9.0	Horiz
26	413.428M	44.3	-27.7	+16.2	+0.3	+3.8	+0.0	36.9	46.0	-9.1	Vert
27	664.442M	38.0	-27.1	+20.5	+0.5	+5.0	+0.0	36.9	46.0	-9.1	Horiz
28	154.648M	48.9	-27.7	+10.6	+0.2	+2.2	+0.0	34.2	43.5	-9.3	Horiz
29	420.355M	43.8	-27.7	+16.3	+0.3	+3.8	+0.0	36.5	46.0	-9.5	Vert
30	160.003M	48.8	-27.7	+10.2	+0.2	+2.3	+0.0	33.8	43.5	-9.7	Vert

31	399.986M	44.2	-27.8	+15.8	+0.3	+3.7	+0.0	36.2	46.0	-9.8	Horiz
32	271.992M	47.8	-27.7	+12.8	+0.3	+3.0	+0.0	36.2	46.0	-9.8	Horiz
33	127.991M	47.6	-27.6	+11.5	+0.1	+2.0	+0.0	33.6	43.5	-9.9	Horiz
34	240.000M	48.9	-27.7	+11.8	+0.2	+2.8	+0.0	36.0	46.0	-10.0	Horiz
35	366.114M	44.2	-27.7	+14.9	+0.3	+3.6	+0.0	35.3	46.0	-10.7	Horiz
36	406.780M	43.0	-27.8	+16.0	+0.3	+3.7	+0.0	35.2	46.0	-10.8	Horiz
37	704.053M	35.8	-27.1	+20.7	+0.5	+5.1	+0.0	35.0	46.0	-11.0	Horiz
38	122.035M	46.5	-27.6	+11.4	+0.1	+2.0	+0.0	32.4	43.5	-11.1	Horiz
39	383.374M	43.3	-27.7	+15.4	+0.3	+3.6	+0.0	34.9	46.0	-11.1	Horiz
40	173.412M	47.7	-27.7	+9.5	+0.2	+2.4	+0.0	32.1	43.5	-11.4	Horiz
41	432.031M	41.2	-27.7	+16.7	+0.3	+3.9	+0.0	34.4	46.0	-11.6	Vert
42	196.041M	47.6	-27.6	+8.8	+0.2	+2.6	+0.0	31.6	43.5	-11.9	Horiz
43	175.995M	47.4	-27.7	+9.3	+0.2	+2.4	+0.0	31.6	43.5	-11.9	Vert
44	151.544M	45.7	-27.7	+10.9	+0.2	+2.2	+0.0	31.3	43.5	-12.2	Vert
45	144.008M	45.4	-27.7	+11.2	+0.2	+2.2	+0.0	31.3	43.5	-12.2	Vert
46	379.674M	42.3	-27.7	+15.3	+0.3	+3.6	+0.0	33.8	46.0	-12.2	Horiz
47	259.972M	45.5	-27.7	+12.7	+0.2	+2.9	+0.0	33.6	46.0	-12.4	Horiz
48	135.610M	45.1	-27.6	+11.4	+0.1	+2.1	+0.0	31.1	43.5	-12.4	Vert
49	135.973M	45.0	-27.6	+11.4	+0.1	+2.1	+0.0	31.0	43.5	-12.5	Horiz
50	420.352M	40.8	-27.7	+16.3	+0.3	+3.8	+0.0	33.5	46.0	-12.5	Vert
51	271.998M	44.7	-27.7	+12.8	+0.3	+3.0	+0.0	33.1	46.0	-12.9	Vert
52	650.870M	34.4	-27.1	+20.4	+0.5	+4.9	+0.0	33.1	46.0	-12.9	Horiz
53	140.007M	44.5	-27.7	+11.3	+0.2	+2.1	+0.0	30.4	43.5	-13.1	Horiz
54	122.038M	44.4	-27.6	+11.4	+0.1	+2.0	+0.0	30.3	43.5	-13.2	Vert
55	387.848M	41.1	-27.8	+15.5	+0.3	+3.7	+0.0	32.8	46.0	-13.2	Vert

56	728.007M	32.6	-27.0	+21.5	+0.5	+5.2	+0.0	32.8	46.0	-13.2	Horiz
57	386.045M	40.9	-27.7	+15.5	+0.3	+3.6	+0.0	32.6	46.0	-13.4	Vert
58	360.508M	41.6	-27.6	+14.8	+0.3	+3.5	+0.0	32.6	46.0	-13.4	Vert
59	393.240M	40.7	-27.8	+15.6	+0.3	+3.7	+0.0	32.5	46.0	-13.5	Vert
60	384.490M	40.9	-27.7	+15.4	+0.3	+3.6	+0.0	32.5	46.0	-13.5	Horiz
61	336.002M	42.1	-27.6	+14.2	+0.3	+3.4	+0.0	32.4	46.0	-13.6	Vert
62	321.082M	42.5	-27.6	+13.8	+0.3	+3.3	+0.0	32.3	46.0	-13.7	Horiz
63	336.005M	41.9	-27.6	+14.2	+0.3	+3.4	+0.0	32.2	46.0	-13.8	Horiz
64	269.966M	43.7	-27.7	+12.8	+0.3	+3.0	+0.0	32.1	46.0	-13.9	Horiz
65	211.887M	44.6	-27.6	+9.8	+0.2	+2.6	+0.0	29.6	43.5	-13.9	Horiz
66	393.197M	40.3	-27.8	+15.6	+0.3	+3.7	+0.0	32.1	46.0	-13.9	Horiz
67	394.564M	40.1	-27.8	+15.7	+0.3	+3.7	+0.0	32.0	46.0	-14.0	Vert
68	203.419M	45.1	-27.6	+9.1	+0.2	+2.6	+0.0	29.4	43.5	-14.1	Vert
69	433.904M	38.7	-27.7	+16.7	+0.3	+3.9	+0.0	31.9	46.0	-14.1	Vert
70	311.878M	42.4	-27.6	+13.5	+0.3	+3.3	+0.0	31.9	46.0	-14.1	Horiz
71	332.017M	41.6	-27.6	+14.1	+0.3	+3.4	+0.0	31.8	46.0	-14.2	Horiz
72	732.235M	31.5	-27.0	+21.6	+0.5	+5.2	+0.0	31.8	46.0	-14.2	Horiz
73	325.420M	41.4	-27.6	+13.9	+0.3	+3.4	+0.0	31.4	46.0	-14.6	Horiz
74	300.017M	42.3	-27.6	+13.2	+0.3	+3.2	+0.0	31.4	46.0	-14.6	Horiz
75	352.539M	40.5	-27.6	+14.6	+0.3	+3.5	+0.0	31.3	46.0	-14.7	Vert
76	379.678M	39.8	-27.7	+15.3	+0.3	+3.6	+0.0	31.3	46.0	-14.7	Vert
77	220.005M	45.5	-27.6	+10.4	+0.2	+2.7	+0.0	31.2	46.0	-14.8	Horiz
78	162.460M	43.8	-27.7	+10.1	+0.2	+2.3	+0.0	28.7	43.5	-14.8	Horiz
79	164.026M	43.9	-27.7	+10.0	+0.2	+2.3	+0.0	28.7	43.5	-14.8	Horiz
80	319.997M	41.4	-27.6	+13.7	+0.3	+3.3	+0.0	31.1	46.0	-14.9	Vert

81	274.973M	42.6	-27.7	+12.9	+0.3	+3.0	+0.0	31.1	46.0	-14.9	Horiz
82	320.011M	41.4	-27.6	+13.7	+0.3	+3.3	+0.0	31.1	46.0	-14.9	Horiz
83	447.456M	37.3	-27.6	+17.0	+0.3	+4.0	+0.0	31.0	46.0	-15.0	Vert
84	204.025M	44.1	-27.6	+9.1	+0.2	+2.6	+0.0	28.4	43.5	-15.1	Vert
85	169.888M	43.8	-27.7	+9.7	+0.2	+2.4	+0.0	28.4	43.5	-15.1	Horiz
86	288.004M	42.1	-27.6	+13.0	+0.3	+3.1	+0.0	30.9	46.0	-15.1	Vert
87	420.365M	38.2	-27.7	+16.3	+0.3	+3.8	+0.0	30.9	46.0	-15.1	Horiz
88	338.998M	40.5	-27.6	+14.2	+0.3	+3.4	+0.0	30.8	46.0	-15.2	Horiz
89	338.987M	40.5	-27.6	+14.2	+0.3	+3.4	+0.0	30.8	46.0	-15.2	Vert
90	416.691M	38.0	-27.7	+16.3	+0.3	+3.8	+0.0	30.7	46.0	-15.3	Vert
91	94.919M	44.7	-27.7	+9.3	+0.1	+1.8	+0.0	28.2	43.5	-15.3	Horiz
92	264.027M	42.3	-27.7	+12.7	+0.3	+3.0	+0.0	30.6	46.0	-15.4	Horiz
93	383.987M	38.8	-27.7	+15.4	+0.3	+3.6	+0.0	30.4	46.0	-15.6	Vert
94	188.007M	43.8	-27.6	+8.9	+0.2	+2.5	+0.0	27.8	43.5	-15.7	Horiz
95	447.463M	36.6	-27.6	+17.0	+0.3	+4.0	+0.0	30.3	46.0	-15.7	Vert
96	813.553M	28.9	-27.1	+22.3	+0.6	+5.6	+0.0	30.3	46.0	-15.7	Horiz
97	172.002M	43.1	-27.7	+9.6	+0.2	+2.4	+0.0	27.6	43.5	-15.9	Vert
98	152.012M	42.1	-27.7	+10.8	+0.2	+2.2	+0.0	27.6	43.5	-15.9	Vert
99	139.978M	41.6	-27.7	+11.3	+0.2	+2.1	+0.0	27.5	43.5	-16.0	Vert
100	324.711M	40.0	-27.6	+13.9	+0.3	+3.4	+0.0	30.0	46.0	-16.0	Horiz
101	432.059M	36.6	-27.7	+16.7	+0.3	+3.9	+0.0	29.8	46.0	-16.2	Horiz
102	659.987M	31.0	-27.1	+20.4	+0.5	+4.9	+0.0	29.7	46.0	-16.3	Horiz
103	247.991M	41.9	-27.7	+12.4	+0.2	+2.9	+0.0	29.7	46.0	-16.3	Horiz
104	406.416M	37.4	-27.8	+16.0	+0.3	+3.7	+0.0	29.6	46.0	-16.4	Vert
105	692.029M	30.4	-27.1	+20.6	+0.5	+5.1	+0.0	29.5	46.0	-16.5	Horiz

106	202.536M	42.6	-27.6	+9.0	+0.2	+2.6	+0.0	26.8	43.5	-16.7	Vert
107	164.896M	42.1	-27.7	+9.9	+0.2	+2.3	+0.0	26.8	43.5	-16.7	Horiz
108	257.640M	41.3	-27.7	+12.6	+0.2	+2.9	+0.0	29.3	46.0	-16.7	Vert
109	235.981M	42.3	-27.6	+11.5	+0.2	+2.8	+0.0	29.2	46.0	-16.8	Horiz
110	474.591M	34.7	-27.6	+17.6	+0.4	+4.1	+0.0	29.2	46.0	-16.8	Horiz
111	268.004M	40.6	-27.7	+12.8	+0.3	+3.0	+0.0	29.0	46.0	-17.0	Horiz
112	328.009M	38.7	-27.6	+14.0	+0.3	+3.4	+0.0	28.8	46.0	-17.2	Vert
113	475.164M	34.3	-27.6	+17.6	+0.4	+4.1	+0.0	28.8	46.0	-17.2	Vert
114	716.029M	28.9	-27.1	+21.1	+0.5	+5.2	+0.0	28.6	46.0	-17.4	Horiz
115	357.296M	37.6	-27.6	+14.7	+0.3	+3.5	+0.0	28.5	46.0	-17.5	Vert
116	207.029M	41.4	-27.6	+9.4	+0.2	+2.6	+0.0	26.0	43.5	-17.5	Horiz
117	325.436M	38.4	-27.6	+13.9	+0.3	+3.4	+0.0	28.4	46.0	-17.6	Vert
118	352.563M	37.6	-27.6	+14.6	+0.3	+3.5	+0.0	28.4	46.0	-17.6	Horiz
119	299.996M	39.2	-27.6	+13.2	+0.3	+3.2	+0.0	28.3	46.0	-17.7	Vert
120	840.663M	26.1	-27.1	+23.0	+0.6	+5.7	+0.0	28.3	46.0	-17.7	Horiz
121	215.985M	40.4	-27.6	+10.1	+0.2	+2.7	+0.0	25.8	43.5	-17.7	Horiz
122	338.987M	37.9	-27.6	+14.2	+0.3	+3.4	+0.0	28.2	46.0	-17.8	Vert
123	216.940M	42.6	-27.6	+10.1	+0.2	+2.7	+0.0	28.0	46.0	-18.0	Vert
124	134.980M	39.4	-27.6	+11.4	+0.1	+2.1	+0.0	25.4	43.5	-18.1	Horiz
125	178.339M	41.2	-27.7	+9.1	+0.2	+2.4	+0.0	25.2	43.5	-18.3	Horiz
126	227.975M	41.4	-27.6	+11.0	+0.2	+2.7	+0.0	27.7	46.0	-18.3	Horiz
127	287.953M	38.9	-27.6	+13.0	+0.3	+3.1	+0.0	27.7	46.0	-18.3	Horiz
128	465.188M	32.9	-27.6	+17.4	+0.3	+4.1	+0.0	27.1	46.0	-18.9	Vert
129	162.714M	39.7	-27.7	+10.0	+0.2	+2.3	+0.0	24.5	43.5	-19.0	Vert
130	284.745M	38.3	-27.7	+13.0	+0.3	+3.1	+0.0	27.0	46.0	-19.0	Vert

131	170.034M	39.9	-27.7	+9.7	+0.2	+2.4	+0.0	24.5	43.5	-19.0	Vert
132	196.002M	40.4	-27.6	+8.8	+0.2	+2.6	+0.0	24.4	43.5	-19.1	Vert
133	224.994M	40.7	-27.6	+10.8	+0.2	+2.7	+0.0	26.8	46.0	-19.2	Horiz
134	400.887M	34.5	-27.8	+15.8	+0.3	+3.7	+0.0	26.5	46.0	-19.5	Vert
135	260.023M	38.2	-27.7	+12.7	+0.2	+2.9	+0.0	26.3	46.0	-19.7	Vert
136	375.010M	34.7	-27.7	+15.2	+0.3	+3.6	+0.0	26.1	46.0	-19.9	Horiz
137	242.985M	38.6	-27.7	+12.0	+0.2	+2.8	+0.0	25.9	46.0	-20.1	Vert
138	406.789M	33.6	-27.8	+16.0	+0.3	+3.7	+0.0	25.8	46.0	-20.2	Vert
139	404.991M	33.6	-27.8	+15.9	+0.3	+3.7	+0.0	25.7	46.0	-20.3	Vert
140	786.470M	24.5	-27.1	+22.0	+0.6	+5.4	+0.0	25.4	46.0	-20.6	Horiz
141	235.358M	38.5	-27.6	+11.5	+0.2	+2.8	+0.0	25.4	46.0	-20.6	Vert
142	303.990M	36.0	-27.6	+13.3	+0.3	+3.2	+0.0	25.2	46.0	-20.8	Vert
143	242.990M	37.7	-27.7	+12.0	+0.2	+2.8	+0.0	25.0	46.0	-21.0	Horiz
144	189.840M	38.5	-27.6	+8.9	+0.2	+2.5	+0.0	22.5	43.5	-21.0	Vert
145	447.042M	31.2	-27.6	+17.0	+0.3	+4.0	+0.0	24.9	46.0	-21.1	Vert
146	113.398M	37.1	-27.6	+10.9	+0.1	+1.9	+0.0	22.4	43.5	-21.1	Horiz
147	298.777M	35.6	-27.6	+13.2	+0.3	+3.2	+0.0	24.7	46.0	-21.3	Vert
148	374.976M	33.2	-27.7	+15.2	+0.3	+3.6	+0.0	24.6	46.0	-21.4	Vert
149	337.917M	34.2	-27.6	+14.2	+0.3	+3.4	+0.0	24.5	46.0	-21.5	Vert
150	366.118M	33.2	-27.7	+14.9	+0.3	+3.6	+0.0	24.3	46.0	-21.7	Vert
151	240.004M	36.8	-27.7	+11.8	+0.2	+2.8	+0.0	23.9	46.0	-22.1	Vert
152	230.545M	36.9	-27.6	+11.2	+0.2	+2.7	+0.0	23.4	46.0	-22.6	Horiz
153	343.998M	32.6	-27.6	+14.4	+0.3	+3.5	+0.0	23.2	46.0	-22.8	Vert

154	244.078M	34.3	-27.7	+12.1	+0.2	+2.9	+0.0	21.8	46.0	-24.2	Vert
155	406.800M	29.4	-27.8	+16.0	+0.3	+3.7	+0.0	21.6	46.0	-24.4	Vert
156	311.880M	32.0	-27.6	+13.5	+0.3	+3.3	+0.0	21.5	46.0	-24.5	Vert
157	230.520M	34.3	-27.6	+11.2	+0.2	+2.7	+0.0	20.8	46.0	-25.2	Vert

## FCC 15.207 CONDUCTED EMISSIONS

### Test Setup Photos





### Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.207 COND [AVE]**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Conducted Emissions** Time: 14:39:11  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 4  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046 110V 60Hz  
 S/N: NA

#### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

#### Test Conditions / Notes:

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. RF port connected to Antenna. Frequency range of measurement = 150kHz - 30MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

#### Transducer Legend:

T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L1) Insertion Loss 00847 EMCO 3816/2NM

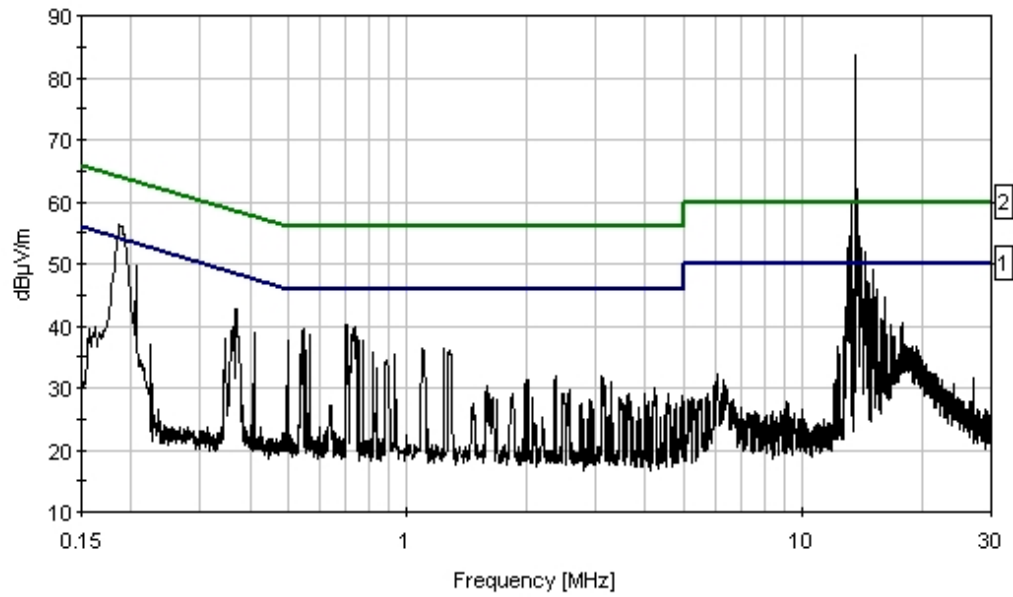
#### Measurement Data:

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.					Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB	T4 dB						
1	13.562M	76.4	+0.2	+6.1	+0.4	+0.7	+0.0	83.8	*	*	Black	
Fundamental frequency												

\*This reading is the fundamental frequency of the transmitter with the antenna installed. No limits exists for this reading. Compliant data is shown on page 31 with load attached.

2	182.338k	42.6	+0.3	+6.1	+0.1	+0.1	+0.0	49.2	54.4	-5.2	Black
	Ave										
^	182.338k	50.0	+0.3	+6.1	+0.1	+0.1	+0.0	56.6	54.4	+2.2	Black
4	13.634M	17.4	+0.2	+6.1	+0.4	+0.7	+0.0	24.8	50.0	-25.2	Black
	Ave										
^	13.634M	56.2	+0.2	+6.1	+0.4	+0.7	+0.0	63.6	50.0	+13.6	Black
6	13.697M	16.1	+0.2	+6.1	+0.4	+0.7	+0.0	23.5	50.0	-26.5	Black
	Ave										
^	13.697M	54.6	+0.2	+6.1	+0.4	+0.7	+0.0	62.0	50.0	+12.0	Black
8	13.346M	15.8	+0.2	+6.1	+0.4	+0.7	+0.0	23.2	50.0	-26.8	Black
	Ave										
^	13.346M	52.4	+0.2	+6.1	+0.4	+0.7	+0.0	59.8	50.0	+9.8	Black
10	13.770M	15.7	+0.2	+6.1	+0.4	+0.7	+0.0	23.1	50.0	-26.9	Black
	Ave										
^	13.770M	54.2	+0.2	+6.1	+0.4	+0.7	+0.0	61.6	50.0	+11.6	Black
12	13.986M	11.5	+0.2	+6.1	+0.4	+0.7	+0.0	18.9	50.0	-31.1	Black
	Ave										
^	13.986M	47.0	+0.2	+6.1	+0.4	+0.7	+0.0	54.4	50.0	+4.4	Black
14	14.409M	11.1	+0.2	+6.1	+0.4	+0.8	+0.0	18.6	50.0	-31.4	Black
	Ave										
^	14.409M	44.5	+0.2	+6.1	+0.4	+0.8	+0.0	52.0	50.0	+2.0	Black
16	14.058M	10.8	+0.2	+6.1	+0.4	+0.7	+0.0	18.2	50.0	-31.8	Black
	Ave										
^	14.058M	45.0	+0.2	+6.1	+0.4	+0.7	+0.0	52.4	50.0	+2.4	Black
18	15.049M	9.8	+0.2	+6.1	+0.4	+0.8	+0.0	17.3	50.0	-32.7	Black
	Ave										
^	15.049M	41.6	+0.2	+6.1	+0.4	+0.8	+0.0	49.1	50.0	-0.9	Black
20	12.995M	9.7	+0.2	+6.1	+0.4	+0.7	+0.0	17.1	50.0	-32.9	Black
	Ave										
^	12.995M	43.8	+0.2	+6.1	+0.4	+0.7	+0.0	51.2	50.0	+1.2	Black

CKC Laboratories, Inc. Date: 2/26/2007 Time: 14:39:11 Magtek Incorporated W/O#: 84991  
 FCC 15.207 COND [AVE] Test Lead: Black 110V 60Hz Sequence#: 4



— Sweep Data      — 1 - FCC 15.207 COND [AVE]      — 2 - FCC 15.207 COND [GP]

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.207 COND [AVE]**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Conducted Emissions** Time: 14:50:18  
 Equipment: **IntelliStripe Contactless Card Reader** Sequence#: 5  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046 110V 60Hz  
 S/N: NA

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
IntelliStripe Contactless Card Reader*	Magtek Incorporated	21165046	NA
Power Supply	DVE	DSA-0151D-12	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

**Test Conditions / Notes:**

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. RF port connected to 50 Ohm load. Frequency range of measurement = 150kHz - 30MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

**Transducer Legend:**

T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L2) Insertion Loss 00847 EMCO 3816/2NM

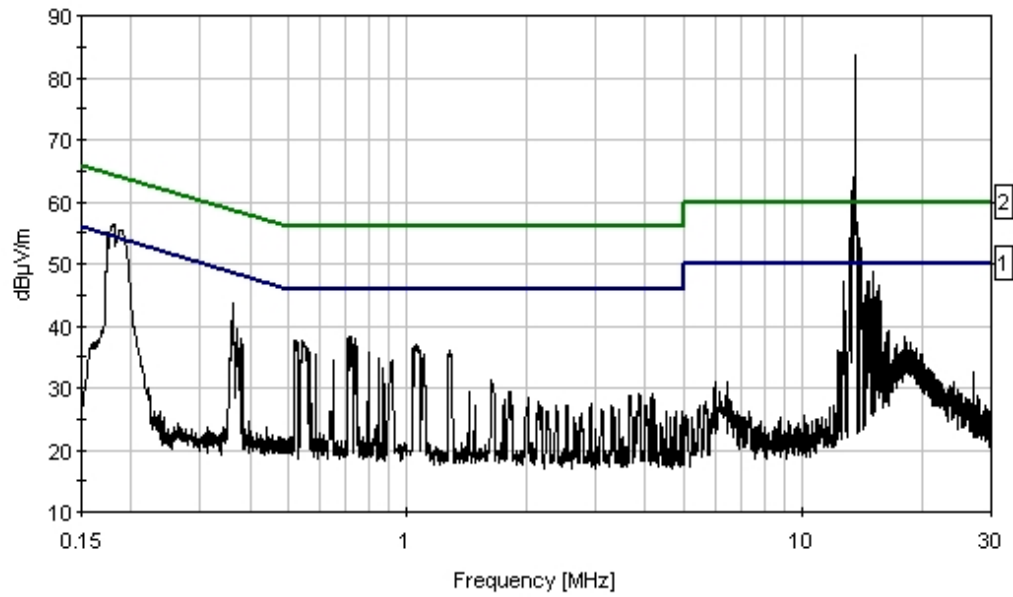
**Measurement Data:**

#	Freq MHz	Rdng dBµV	Reading listed by margin.				Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB	T4 dB					
1	13.562M	76.3	+0.2	+6.1	+0.4	+0.7	+0.0	83.7	*	*	White
Fundamental											
2	183.793k Ave	38.9	+0.3	+6.1	+0.1	+0.2	+0.0	45.6	54.3	-8.7	White
^	183.793k	48.8	+0.3	+6.1	+0.1	+0.2	+0.0	55.5	54.3	+1.2	White

\*This reading is the fundamental frequency of the transmitter with the antenna installed. No limits exists for this reading. Compliant data is shown on page 33 with load attached.

4	13.490M	19.2	+0.2	+6.1	+0.4	+0.7	+0.0	26.6	50.0	-23.4	White
	Ave										
^	13.490M	56.5	+0.2	+6.1	+0.4	+0.7	+0.0	63.9	50.0	+13.9	White
6	13.625M	18.3	+0.2	+6.1	+0.4	+0.7	+0.0	25.7	50.0	-24.3	White
	Ave										
^	13.625M	56.2	+0.2	+6.1	+0.4	+0.7	+0.0	63.6	50.0	+13.6	White
8	13.418M	16.9	+0.2	+6.1	+0.4	+0.7	+0.0	24.3	50.0	-25.7	White
	Ave										
^	13.418M	54.9	+0.2	+6.1	+0.4	+0.7	+0.0	62.3	50.0	+12.3	White
10	15.040M	10.6	+0.2	+6.1	+0.4	+0.8	+0.0	18.1	50.0	-31.9	White
	Ave										
^	15.040M	41.2	+0.2	+6.1	+0.4	+0.8	+0.0	48.7	50.0	-1.3	White
12	14.121M	10.1	+0.2	+6.1	+0.4	+0.7	+0.0	17.5	50.0	-32.5	White
	Ave										
^	14.121M	42.5	+0.2	+6.1	+0.4	+0.7	+0.0	49.9	50.0	-0.1	White
14	13.076M	9.3	+0.2	+6.1	+0.4	+0.7	+0.0	16.7	50.0	-33.3	White
	Ave										
^	13.076M	43.0	+0.2	+6.1	+0.4	+0.7	+0.0	50.4	50.0	+0.4	White
16	14.058M	9.0	+0.2	+6.1	+0.4	+0.7	+0.0	16.4	50.0	-33.6	White
	Ave										
^	14.058M	45.0	+0.2	+6.1	+0.4	+0.7	+0.0	52.4	50.0	+2.4	White
18	14.625M	8.7	+0.2	+6.1	+0.4	+0.8	+0.0	16.2	50.0	-33.8	White
	Ave										
^	14.625M	39.7	+0.2	+6.1	+0.4	+0.8	+0.0	47.2	50.0	-2.8	White
20	13.283M	8.1	+0.2	+6.1	+0.4	+0.7	+0.0	15.5	50.0	-34.5	White
	Ave										
^	13.283M	43.9	+0.2	+6.1	+0.4	+0.7	+0.0	51.3	50.0	+1.3	White
22	12.716M	6.1	+0.2	+6.1	+0.4	+0.6	+0.0	13.4	50.0	-36.6	White
	Ave										
^	12.716M	39.9	+0.2	+6.1	+0.4	+0.6	+0.0	47.2	50.0	-2.8	White

CKC Laboratories, Inc. Date: 2/26/2007 Time: 14:50:18 Magtek Incorporated W/O#: 84991  
 FCC 15.207 COND [AVE] Test Lead: White 110V 60Hz Sequence#: 5



— Sweep Data      — 1 - FCC 15.207 COND [AVE]      — 2 - FCC 15.207 COND [QP]

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.207 COND [AVE]**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Conducted Emissions** Time: 15:10:38  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 7  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046 110V 60Hz  
 S/N: NA

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

**Test Conditions / Notes:**

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. Frequency=13.56MHz. RF port connected to 50 Ohm load. Frequency range of measurement = 150kHz - 30MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

**Transducer Legend:**

T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L1) Insertion Loss 00847 EMCO 3816/2NM

**Measurement Data:**

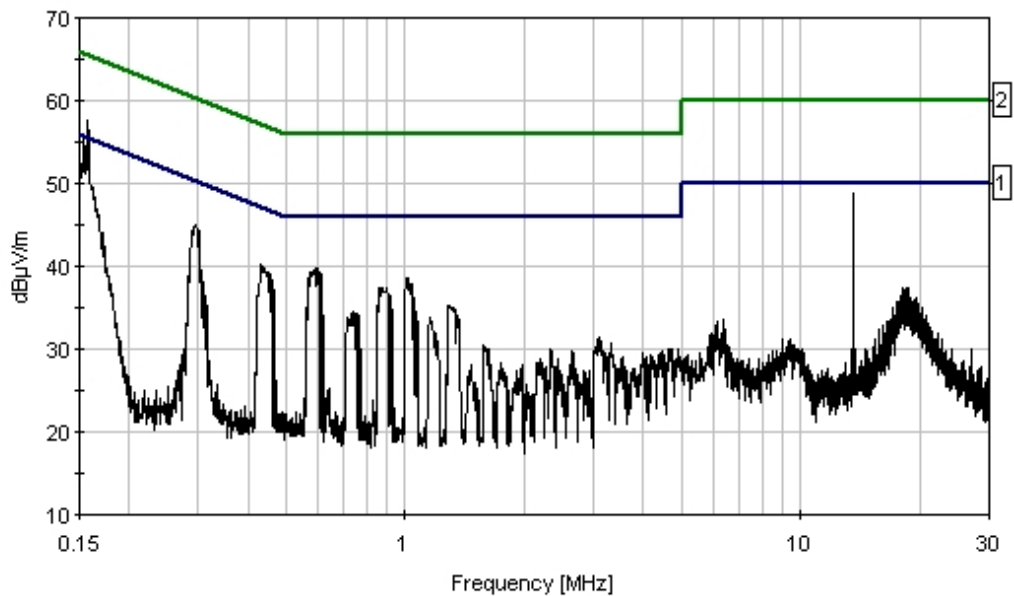
Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	13.560M	40.9	+0.2	+6.1	+0.4	+0.7	+0.0	48.3	50.0	-1.7	Black
	Ave								Fundamental		
^	13.560M	41.7	+0.2	+6.1	+0.4	+0.7	+0.0	49.1	50.0	-0.9	Black
									Fundamental		
3	296.168k	38.3	+0.2	+6.2	+0.1	+0.1	+0.0	44.9	50.3	-5.4	Black
4	603.777k	33.3	+0.2	+6.1	+0.1	+0.1	+0.0	39.8	46.0	-6.2	Black
5	608.140k	32.6	+0.2	+6.1	+0.1	+0.1	+0.0	39.1	46.0	-6.9	Black

6	611.049k	32.6	+0.2	+6.1	+0.1	+0.1	+0.0	39.1	46.0	-6.9	Black
7	429.247k	33.8	+0.2	+6.2	+0.1	+0.0	+0.0	40.3	47.3	-7.0	Black
8	1.009M	32.3	+0.1	+6.1	+0.0	+0.1	+0.0	38.6	46.0	-7.4	Black
9	614.685k	31.9	+0.2	+6.1	+0.1	+0.1	+0.0	38.4	46.0	-7.6	Black
10	609.594k	31.4	+0.2	+6.1	+0.1	+0.1	+0.0	37.9	46.0	-8.1	Black
11	461.971k	31.8	+0.2	+6.2	+0.1	+0.1	+0.0	38.4	46.7	-8.3	Black
12	859.026k	31.2	+0.1	+6.1	+0.0	+0.1	+0.0	37.5	46.0	-8.5	Black
13	898.468k	31.0	+0.1	+6.1	+0.0	+0.1	+0.0	37.3	46.0	-8.7	Black
14	151.295k	31.9	+2.3	+6.2	+0.1	+0.1	+0.0	40.6	55.9	-15.3	Black
Ave											
^	151.295k	50.9	+2.3	+6.2	+0.1	+0.1	+0.0	59.6	55.9	+3.7	Black

CKC Laboratories, Inc. Date: 2/26/2007 Time: 15:10:38 Magtek Incorporated W/O#: 84991  
 FCC 15.207 COND [AVE] Test Lead: Black 110V 60Hz Sequence#: 7



— Sweep Data      — 1 - FCC 15.207 COND [AVE]      — 2 - FCC 15.207 COND [QP]



Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.207 COND [AVE]**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Conducted Emissions** Time: 15:05:27  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 6  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046 110V 60Hz  
 S/N: NA

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Conducted Emission Cable	Cable #21	05/09/2006	05/09/2008	P04358
150kHz HPF	G7755	05/09/2006	05/09/2007	02610
6dB Attenuator	None	11/21/2006	11/21/2008	P05611
LISN	1104	11/10/2006	11/10/2008	00847

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

**Test Conditions / Notes:**

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. Frequency=13.56MHz. RF port connected to 50 Ohm load. Frequency range of measurement = 150kHz - 30MHz. Frequency 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 20°C, 41% relative humidity.

**Transducer Legend:**

T1=150kHz HPF Asset 02610	T2=6dB Attenuator P05611
T3=Cable #21 Conducted Site A 050908	T4=(L2) Insertion Loss 00847 EMCO 3816/2NM

**Measurement Data:**

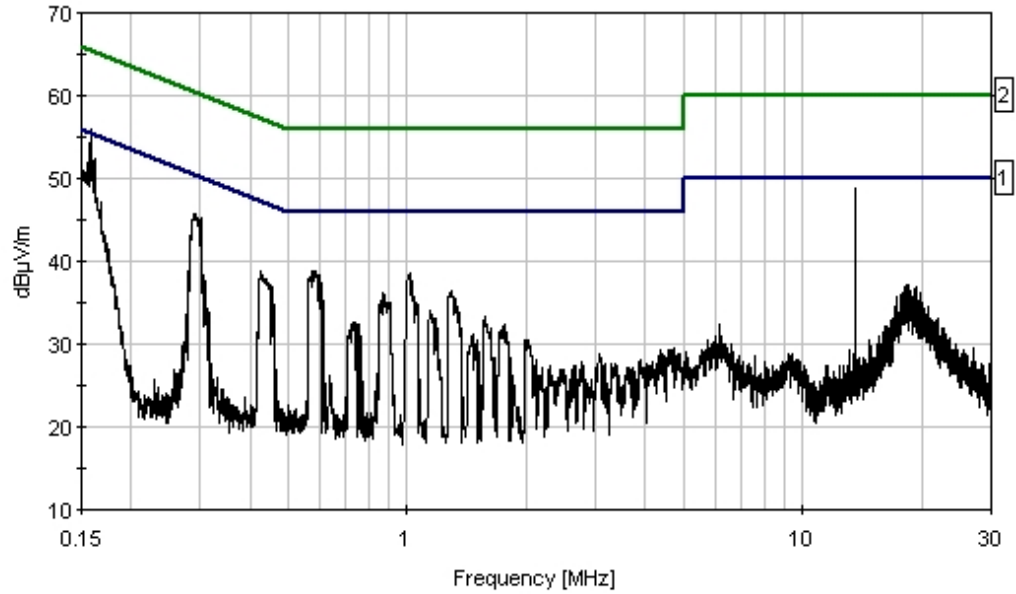
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	161.635k	45.3	+0.6	+6.2	+0.1	+0.2	+0.0	52.4	55.4	-3.0	White
2	13.562M	38.9	+0.2	+6.1	+0.4	+0.7	+0.0	46.3	50.0	-3.7	White
^	13.562M	41.5	+0.2	+6.1	+0.4	+0.7	+0.0	48.9	50.0	-1.1	White
4	291.805k	39.0	+0.2	+6.2	+0.1	+0.1	+0.0	45.6	50.5	-4.9	White
5	576.143k	32.4	+0.2	+6.1	+0.1	+0.1	+0.0	38.9	46.0	-7.1	White

6	1.013M	32.3	+0.1	+6.1	+0.0	+0.1	+0.0	38.6	46.0	-7.4	White
7	602.322k	31.3	+0.2	+6.1	+0.1	+0.1	+0.0	37.8	46.0	-8.2	White
8	426.338k	32.3	+0.2	+6.2	+0.1	+0.1	+0.0	38.9	47.3	-8.4	White
9	606.685k	31.0	+0.2	+6.1	+0.1	+0.1	+0.0	37.5	46.0	-8.5	White
10	608.867k	30.4	+0.2	+6.1	+0.1	+0.1	+0.0	36.9	46.0	-9.1	White
11	1.290M	30.2	+0.1	+6.1	+0.0	+0.1	+0.0	36.5	46.0	-9.5	White
12	452.518k	30.5	+0.2	+6.2	+0.1	+0.1	+0.0	37.1	46.8	-9.7	White
13	869.207k	29.9	+0.1	+6.1	+0.0	+0.1	+0.0	36.2	46.0	-9.8	White
14	453.972k	30.2	+0.2	+6.2	+0.1	+0.1	+0.0	36.8	46.8	-10.0	White
15	877.204k	29.2	+0.1	+6.1	+0.0	+0.1	+0.0	35.5	46.0	-10.5	White
16	152.704k	24.3	+2.0	+6.2	+0.1	+0.2	+0.0	32.8	55.9	-23.1	White
	Ave										
^	152.704k	50.2	+2.0	+6.2	+0.1	+0.2	+0.0	58.7	55.9	+2.8	White

CKC Laboratories, Inc. Date: 2/26/2007 Time: 15:05:27 Magtek Incorporated W/O#: 84991  
 FCC 15.207 COND [AVE] Test Lead: White 110V 60Hz Sequence#: 6



— Sweep Data      — 1 - FCC 15.207 COND [AVE]      — 2 - FCC 15.207 COND [QP]

## FCC 15.225 RADIATED EMISSIONS

### Test Setup Photos



### Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.225 Field Strength of Emission**  
 Work Order #: **84991** Date: 2/26/2007  
 Test Type: **Radiated Scan** Time: 09:54:49  
 Equipment: **IntelliStripe 65 Contactless Card Reader** Sequence#: 2  
 Manufacturer: Magtek Incorporated Tested By: E. Wong  
 Model: 21165046  
 S/N: NA

#### Test Equipment:

Function	S/N	Calibration Date	Cal Due Date	Asset #
Bilog Antenna	2451	02/02/2006	02/02/2008	01995
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Pre amp to SA Cable	Cable #10	05/16/2005	05/16/2007	P05050
Cable	Cable15	01/05/2007	01/05/2009	P05198
Pre Amp	1937A02548	06/01/2006	06/01/2008	00309
Loop Antenna	2014	06/14/2006	06/14/2008	00314

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

#### Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

#### Test Conditions / Notes:

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. Frequency range of measurement = 9 kHz - 1 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz. 20°C, 41% relative humidity.

#### Transducer Legend:

T1=Active loop antenna 061408 T2=Cable #15, Site A, 010509

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	Margin dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	13.560M	54.7	+10.7	+0.6		-19.0	47.0	84.0	-37.0	Paral
2	13.560M	52.7	+10.7	+0.6		-19.0	45.0	84.0	-39.0	Paral

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **Magtek Incorporated**  
 Specification: **FCC 15.225(d) Spurious emission**  
 Work Order #: **84991**  
 Test Type: **Radiated Scan**  
 Equipment: **IntelliStripe 65 Contactless Card Reader**

Date: 2/26/2007  
 Time: 14:07:40  
 Sequence#: 3

Manufacturer: Magtek Incorporated  
 Model: 21165046  
 S/N: NA  
 Tested By: E. Wong

**Test Equipment:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Bilog Antenna	2451	02/02/2006	02/02/2008	01995
Spectrum Analyzer	US44300438	01/03/2007	01/03/2009	02672
Pre amp to SA Cable	Cable #10	05/16/2005	05/16/2007	P05050
Cable	Cable15	01/05/2007	01/05/2009	P05198
Pre Amp	1937A02548	06/01/2006	06/01/2008	00309
Loop Antenna	2014	06/14/2006	06/14/2008	00314

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

Function	Manufacturer	Model #	S/N
Power Supply	DVE	DSA-0151D-12	NA
IntelliStripe 65 Contactless Card Reader*	Magtek Incorporated	21165046	NA

**Support Devices:**

Function	Manufacturer	Model #	S/N
Laptop	Dell	Inspiron 8500	00043-480-957-106

**Test Conditions / Notes:**

The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. Frequency range of measurement = 9 kHz - 1 GHz. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz RBW=120 kHz, VBW=120 kHz. 20°C, 41% relative humidity.

**Transducer Legend:**

T1=Active loop antenna 061408	T2=Cable #15, Site A, 010509
T3=Preamp 8447D 060108	T4=Bilog AN01995 020208 Chase
T5=Cable #10 051607	T6=Cable #15, Site A, 010509

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dB $\mu$ V	T5	T6			Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	192.002M	56.1	+0.0	+0.0	-27.6	+8.9	+0.0	40.1	43.5	-3.4	Horiz
	QP		+0.2	+2.5							
^	192.002M	57.0	+0.0	+0.0	-27.6	+8.9	+0.0	41.0	43.5	-2.5	Horiz
			+0.2	+2.5							

3	224.006M	55.5	+0.0	+0.0	-27.6	+10.7	+0.0	41.5	46.0	-4.5	Horiz
	QP		+0.2	+2.7							
^	224.006M	57.1	+0.0	+0.0	-27.6	+10.7	+0.0	43.1	46.0	-2.9	Horiz
			+0.2	+2.7							
5	208.001M	54.0	+0.0	+0.0	-27.6	+9.5	+0.0	38.7	43.5	-4.8	Horiz
			+0.2	+2.6							
6	208.004M	53.8	+0.0	+0.0	-27.6	+9.5	+0.0	38.5	43.5	-5.0	Vert
	QP		+0.2	+2.6							
^	208.004M	54.7	+0.0	+0.0	-27.6	+9.5	+0.0	39.4	43.5	-4.1	Vert
			+0.2	+2.6							
8	256.006M	52.9	+0.0	+0.0	-27.7	+12.6	+0.0	40.9	46.0	-5.1	Horiz
			+0.2	+2.9							
9	192.002M	54.3	+0.0	+0.0	-27.6	+8.9	+0.0	38.3	43.5	-5.2	Vert
	QP		+0.2	+2.5							
^	192.002M	56.9	+0.0	+0.0	-27.6	+8.9	+0.0	40.9	43.5	-2.6	Vert
			+0.2	+2.5							
11	358.349M	48.9	+0.0	+0.0	-27.6	+14.7	+0.0	39.8	46.0	-6.2	Horiz
			+0.3	+3.5							
12	175.988M	52.9	+0.0	+0.0	-27.7	+9.3	+0.0	37.1	43.5	-6.4	Horiz
			+0.2	+2.4							
13	411.599M	47.2	+0.0	+0.0	-27.8	+16.1	+0.0	39.6	46.0	-6.4	Vert
			+0.3	+3.8							
14	67.800M	53.4	+0.0	+0.0	-27.7	+6.0	+0.0	33.3	40.0	-6.7	Vert
			+0.1	+1.5							
15	144.009M	50.7	+0.0	+0.0	-27.7	+11.2	+0.0	36.6	43.5	-6.9	Horiz
			+0.2	+2.2							
16	149.155M	50.8	+0.0	+0.0	-27.7	+11.0	+0.0	36.5	43.5	-7.0	Horiz
			+0.2	+2.2							
17	224.009M	52.4	+0.0	+0.0	-27.6	+10.7	+0.0	38.4	46.0	-7.6	Vert
			+0.2	+2.7							
18	128.045M	49.2	+0.0	+0.0	-27.6	+11.5	+0.0	35.2	43.5	-8.3	Vert
			+0.1	+2.0							
19	255.986M	49.6	+0.0	+0.0	-27.7	+12.6	+0.0	37.6	46.0	-8.4	Vert
			+0.2	+2.9							
20	160.002M	50.0	+0.0	+0.0	-27.7	+10.2	+0.0	35.0	43.5	-8.5	Horiz
			+0.2	+2.3							
21	149.140M	49.3	+0.0	+0.0	-27.7	+11.0	+0.0	35.0	43.5	-8.5	Vert
			+0.2	+2.2							
22	135.597M	48.9	+0.0	+0.0	-27.6	+11.4	+0.0	34.9	43.5	-8.6	Horiz
			+0.1	+2.1							
23	447.472M	43.6	+0.0	+0.0	-27.6	+17.0	+0.0	37.3	46.0	-8.7	Horiz
			+0.3	+4.0							
24	395.105M	45.4	+0.0	+0.0	-27.8	+15.7	+0.0	37.3	46.0	-8.7	Horiz
			+0.3	+3.7							
25	391.424M	45.2	+0.0	+0.0	-27.8	+15.6	+0.0	37.0	46.0	-9.0	Horiz
			+0.3	+3.7							
26	664.442M	38.0	+0.0	+0.0	-27.1	+20.5	+0.0	36.9	46.0	-9.1	Horiz
			+0.5	+5.0							
27	413.428M	44.3	+0.0	+0.0	-27.7	+16.2	+0.0	36.9	46.0	-9.1	Vert
			+0.3	+3.8							

28	154.648M	48.9	+0.0 +0.2	+0.0 +2.2	-27.7	+10.6	+0.0	34.2	43.5	-9.3	Horiz
29	420.355M	43.8	+0.0 +0.3	+0.0 +3.8	-27.7	+16.3	+0.0	36.5	46.0	-9.5	Vert
30	160.003M	48.8	+0.0 +0.2	+0.0 +2.3	-27.7	+10.2	+0.0	33.8	43.5	-9.7	Vert
31	399.986M	44.2	+0.0 +0.3	+0.0 +3.7	-27.8	+15.8	+0.0	36.2	46.0	-9.8	Horiz
32	271.992M	47.8	+0.0 +0.3	+0.0 +3.0	-27.7	+12.8	+0.0	36.2	46.0	-9.8	Horiz
33	127.991M	47.6	+0.0 +0.1	+0.0 +2.0	-27.6	+11.5	+0.0	33.6	43.5	-9.9	Horiz
34	240.000M	48.9	+0.0 +0.2	+0.0 +2.8	-27.7	+11.8	+0.0	36.0	46.0	-10.0	Horiz
35	366.114M	44.2	+0.0 +0.3	+0.0 +3.6	-27.7	+14.9	+0.0	35.3	46.0	-10.7	Horiz
36	406.780M	43.0	+0.0 +0.3	+0.0 +3.7	-27.8	+16.0	+0.0	35.2	46.0	-10.8	Horiz
37	704.053M	35.8	+0.0 +0.5	+0.0 +5.1	-27.1	+20.7	+0.0	35.0	46.0	-11.0	Horiz
38	383.374M	43.3	+0.0 +0.3	+0.0 +3.6	-27.7	+15.4	+0.0	34.9	46.0	-11.1	Horiz
39	122.035M	46.5	+0.0 +0.1	+0.0 +2.0	-27.6	+11.4	+0.0	32.4	43.5	-11.1	Horiz
40	173.412M	47.7	+0.0 +0.2	+0.0 +2.4	-27.7	+9.5	+0.0	32.1	43.5	-11.4	Horiz
41	432.031M	41.2	+0.0 +0.3	+0.0 +3.9	-27.7	+16.7	+0.0	34.4	46.0	-11.6	Vert
42	196.041M	47.6	+0.0 +0.2	+0.0 +2.6	-27.6	+8.8	+0.0	31.6	43.5	-11.9	Horiz
43	175.995M	47.4	+0.0 +0.2	+0.0 +2.4	-27.7	+9.3	+0.0	31.6	43.5	-11.9	Vert
44	379.674M	42.3	+0.0 +0.3	+0.0 +3.6	-27.7	+15.3	+0.0	33.8	46.0	-12.2	Horiz
45	151.544M	45.7	+0.0 +0.2	+0.0 +2.2	-27.7	+10.9	+0.0	31.3	43.5	-12.2	Vert
46	144.008M	45.4	+0.0 +0.2	+0.0 +2.2	-27.7	+11.2	+0.0	31.3	43.5	-12.2	Vert
47	259.972M	45.5	+0.0 +0.2	+0.0 +2.9	-27.7	+12.7	+0.0	33.6	46.0	-12.4	Horiz
48	135.610M	45.1	+0.0 +0.1	+0.0 +2.1	-27.6	+11.4	+0.0	31.1	43.5	-12.4	Vert
49	420.352M	40.8	+0.0 +0.3	+0.0 +3.8	-27.7	+16.3	+0.0	33.5	46.0	-12.5	Vert
50	135.973M	45.0	+0.0 +0.1	+0.0 +2.1	-27.6	+11.4	+0.0	31.0	43.5	-12.5	Horiz
51	650.870M	34.4	+0.0 +0.5	+0.0 +4.9	-27.1	+20.4	+0.0	33.1	46.0	-12.9	Horiz
52	271.998M	44.7	+0.0 +0.3	+0.0 +3.0	-27.7	+12.8	+0.0	33.1	46.0	-12.9	Vert



53	140.007M	44.5	+0.0 +0.2	+0.0 +2.1	-27.7	+11.3	+0.0	30.4	43.5	-13.1	Horiz
54	728.007M	32.6	+0.0 +0.5	+0.0 +5.2	-27.0	+21.5	+0.0	32.8	46.0	-13.2	Horiz
55	387.848M	41.1	+0.0 +0.3	+0.0 +3.7	-27.8	+15.5	+0.0	32.8	46.0	-13.2	Vert
56	122.038M	44.4	+0.0 +0.1	+0.0 +2.0	-27.6	+11.4	+0.0	30.3	43.5	-13.2	Vert
57	386.045M	40.9	+0.0 +0.3	+0.0 +3.6	-27.7	+15.5	+0.0	32.6	46.0	-13.4	Vert
58	360.508M	41.6	+0.0 +0.3	+0.0 +3.5	-27.6	+14.8	+0.0	32.6	46.0	-13.4	Vert
59	393.240M	40.7	+0.0 +0.3	+0.0 +3.7	-27.8	+15.6	+0.0	32.5	46.0	-13.5	Vert
60	384.490M	40.9	+0.0 +0.3	+0.0 +3.6	-27.7	+15.4	+0.0	32.5	46.0	-13.5	Horiz
61	336.002M	42.1	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	32.4	46.0	-13.6	Vert
62	321.082M	42.5	+0.0 +0.3	+0.0 +3.3	-27.6	+13.8	+0.0	32.3	46.0	-13.7	Horiz
63	336.005M	41.9	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	32.2	46.0	-13.8	Horiz
64	393.197M	40.3	+0.0 +0.3	+0.0 +3.7	-27.8	+15.6	+0.0	32.1	46.0	-13.9	Horiz
65	269.966M	43.7	+0.0 +0.3	+0.0 +3.0	-27.7	+12.8	+0.0	32.1	46.0	-13.9	Horiz
66	211.887M	44.6	+0.0 +0.2	+0.0 +2.6	-27.6	+9.8	+0.0	29.6	43.5	-13.9	Horiz
67	394.564M	40.1	+0.0 +0.3	+0.0 +3.7	-27.8	+15.7	+0.0	32.0	46.0	-14.0	Vert
68	311.878M	42.4	+0.0 +0.3	+0.0 +3.3	-27.6	+13.5	+0.0	31.9	46.0	-14.1	Horiz
69	433.904M	38.7	+0.0 +0.3	+0.0 +3.9	-27.7	+16.7	+0.0	31.9	46.0	-14.1	Vert
70	203.419M	45.1	+0.0 +0.2	+0.0 +2.6	-27.6	+9.1	+0.0	29.4	43.5	-14.1	Vert
71	732.235M	31.5	+0.0 +0.5	+0.0 +5.2	-27.0	+21.6	+0.0	31.8	46.0	-14.2	Horiz
72	332.017M	41.6	+0.0 +0.3	+0.0 +3.4	-27.6	+14.1	+0.0	31.8	46.0	-14.2	Horiz
73	325.420M	41.4	+0.0 +0.3	+0.0 +3.4	-27.6	+13.9	+0.0	31.4	46.0	-14.6	Horiz
74	300.017M	42.3	+0.0 +0.3	+0.0 +3.2	-27.6	+13.2	+0.0	31.4	46.0	-14.6	Horiz
75	379.678M	39.8	+0.0 +0.3	+0.0 +3.6	-27.7	+15.3	+0.0	31.3	46.0	-14.7	Vert
76	352.539M	40.5	+0.0 +0.3	+0.0 +3.5	-27.6	+14.6	+0.0	31.3	46.0	-14.7	Vert
77	220.005M	45.5	+0.0 +0.2	+0.0 +2.7	-27.6	+10.4	+0.0	31.2	46.0	-14.8	Horiz

78	164.026M	43.9	+0.0 +0.2	+0.0 +2.3	-27.7	+10.0	+0.0	28.7	43.5	-14.8	Horiz
79	162.460M	43.8	+0.0 +0.2	+0.0 +2.3	-27.7	+10.1	+0.0	28.7	43.5	-14.8	Horiz
80	320.011M	41.4	+0.0 +0.3	+0.0 +3.3	-27.6	+13.7	+0.0	31.1	46.0	-14.9	Horiz
81	274.973M	42.6	+0.0 +0.3	+0.0 +3.0	-27.7	+12.9	+0.0	31.1	46.0	-14.9	Horiz
82	319.997M	41.4	+0.0 +0.3	+0.0 +3.3	-27.6	+13.7	+0.0	31.1	46.0	-14.9	Vert
83	447.456M	37.3	+0.0 +0.3	+0.0 +4.0	-27.6	+17.0	+0.0	31.0	46.0	-15.0	Vert
84	27.120M	24.1	+8.6 +0.0	+0.8 +0.0	+0.0	+0.0	-19.0	14.5	29.5	-15.0	Perpe
85	420.365M	38.2	+0.0 +0.3	+0.0 +3.8	-27.7	+16.3	+0.0	30.9	46.0	-15.1	Horiz
86	169.888M	43.8	+0.0 +0.2	+0.0 +2.4	-27.7	+9.7	+0.0	28.4	43.5	-15.1	Horiz
87	288.004M	42.1	+0.0 +0.3	+0.0 +3.1	-27.6	+13.0	+0.0	30.9	46.0	-15.1	Vert
88	204.025M	44.1	+0.0 +0.2	+0.0 +2.6	-27.6	+9.1	+0.0	28.4	43.5	-15.1	Vert
89	338.998M	40.5	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	30.8	46.0	-15.2	Horiz
90	338.987M	40.5	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	30.8	46.0	-15.2	Vert
91	94.919M	44.7	+0.0 +0.1	+0.0 +1.8	-27.7	+9.3	+0.0	28.2	43.5	-15.3	Horiz
92	416.691M	38.0	+0.0 +0.3	+0.0 +3.8	-27.7	+16.3	+0.0	30.7	46.0	-15.3	Vert
93	264.027M	42.3	+0.0 +0.3	+0.0 +3.0	-27.7	+12.7	+0.0	30.6	46.0	-15.4	Horiz
94	383.987M	38.8	+0.0 +0.3	+0.0 +3.6	-27.7	+15.4	+0.0	30.4	46.0	-15.6	Vert
95	813.553M	28.9	+0.0 +0.6	+0.0 +5.6	-27.1	+22.3	+0.0	30.3	46.0	-15.7	Horiz
96	188.007M	43.8	+0.0 +0.2	+0.0 +2.5	-27.6	+8.9	+0.0	27.8	43.5	-15.7	Horiz
97	447.463M	36.6	+0.0 +0.3	+0.0 +4.0	-27.6	+17.0	+0.0	30.3	46.0	-15.7	Vert
98	172.002M	43.1	+0.0 +0.2	+0.0 +2.4	-27.7	+9.6	+0.0	27.6	43.5	-15.9	Vert
99	152.012M	42.1	+0.0 +0.2	+0.0 +2.2	-27.7	+10.8	+0.0	27.6	43.5	-15.9	Vert
100	324.711M	40.0	+0.0 +0.3	+0.0 +3.4	-27.6	+13.9	+0.0	30.0	46.0	-16.0	Horiz
101	139.978M	41.6	+0.0 +0.2	+0.0 +2.1	-27.7	+11.3	+0.0	27.5	43.5	-16.0	Vert
102	432.059M	36.6	+0.0 +0.3	+0.0 +3.9	-27.7	+16.7	+0.0	29.8	46.0	-16.2	Horiz

103	659.987M	31.0	+0.0 +0.5	+0.0 +4.9	-27.1	+20.4	+0.0	29.7	46.0	-16.3	Horiz
104	247.991M	41.9	+0.0 +0.2	+0.0 +2.9	-27.7	+12.4	+0.0	29.7	46.0	-16.3	Horiz
105	406.416M	37.4	+0.0 +0.3	+0.0 +3.7	-27.8	+16.0	+0.0	29.6	46.0	-16.4	Vert
106	692.029M	30.4	+0.0 +0.5	+0.0 +5.1	-27.1	+20.6	+0.0	29.5	46.0	-16.5	Horiz
107	257.640M	41.3	+0.0 +0.2	+0.0 +2.9	-27.7	+12.6	+0.0	29.3	46.0	-16.7	Vert
108	164.896M	42.1	+0.0 +0.2	+0.0 +2.3	-27.7	+9.9	+0.0	26.8	43.5	-16.7	Horiz
109	202.536M	42.6	+0.0 +0.2	+0.0 +2.6	-27.6	+9.0	+0.0	26.8	43.5	-16.7	Vert
110	474.591M	34.7	+0.0 +0.4	+0.0 +4.1	-27.6	+17.6	+0.0	29.2	46.0	-16.8	Horiz
111	235.981M	42.3	+0.0 +0.2	+0.0 +2.8	-27.6	+11.5	+0.0	29.2	46.0	-16.8	Horiz
112	268.004M	40.6	+0.0 +0.3	+0.0 +3.0	-27.7	+12.8	+0.0	29.0	46.0	-17.0	Horiz
113	475.164M	34.3	+0.0 +0.4	+0.0 +4.1	-27.6	+17.6	+0.0	28.8	46.0	-17.2	Vert
114	328.009M	38.7	+0.0 +0.3	+0.0 +3.4	-27.6	+14.0	+0.0	28.8	46.0	-17.2	Vert
115	716.029M	28.9	+0.0 +0.5	+0.0 +5.2	-27.1	+21.1	+0.0	28.6	46.0	-17.4	Horiz
116	207.029M	41.4	+0.0 +0.2	+0.0 +2.6	-27.6	+9.4	+0.0	26.0	43.5	-17.5	Horiz
117	357.296M	37.6	+0.0 +0.3	+0.0 +3.5	-27.6	+14.7	+0.0	28.5	46.0	-17.5	Vert
118	352.563M	37.6	+0.0 +0.3	+0.0 +3.5	-27.6	+14.6	+0.0	28.4	46.0	-17.6	Horiz
119	325.436M	38.4	+0.0 +0.3	+0.0 +3.4	-27.6	+13.9	+0.0	28.4	46.0	-17.6	Vert
120	840.663M	26.1	+0.0 +0.6	+0.0 +5.7	-27.1	+23.0	+0.0	28.3	46.0	-17.7	Horiz
121	215.985M	40.4	+0.0 +0.2	+0.0 +2.7	-27.6	+10.1	+0.0	25.8	43.5	-17.7	Horiz
122	299.996M	39.2	+0.0 +0.3	+0.0 +3.2	-27.6	+13.2	+0.0	28.3	46.0	-17.7	Vert
123	338.987M	37.9	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	28.2	46.0	-17.8	Vert
124	216.940M	42.6	+0.0 +0.2	+0.0 +2.7	-27.6	+10.1	+0.0	28.0	46.0	-18.0	Vert
125	134.980M	39.4	+0.0 +0.1	+0.0 +2.1	-27.6	+11.4	+0.0	25.4	43.5	-18.1	Horiz
126	287.953M	38.9	+0.0 +0.3	+0.0 +3.1	-27.6	+13.0	+0.0	27.7	46.0	-18.3	Horiz
127	227.975M	41.4	+0.0 +0.2	+0.0 +2.7	-27.6	+11.0	+0.0	27.7	46.0	-18.3	Horiz

128	178.339M	41.2	+0.0 +0.2	+0.0 +2.4	-27.7	+9.1	+0.0	25.2	43.5	-18.3	Horiz
129	465.188M	32.9	+0.0 +0.3	+0.0 +4.1	-27.6	+17.4	+0.0	27.1	46.0	-18.9	Vert
130	284.745M	38.3	+0.0 +0.3	+0.0 +3.1	-27.7	+13.0	+0.0	27.0	46.0	-19.0	Vert
131	170.034M	39.9	+0.0 +0.2	+0.0 +2.4	-27.7	+9.7	+0.0	24.5	43.5	-19.0	Vert
132	162.714M	39.7	+0.0 +0.2	+0.0 +2.3	-27.7	+10.0	+0.0	24.5	43.5	-19.0	Vert
133	196.002M	40.4	+0.0 +0.2	+0.0 +2.6	-27.6	+8.8	+0.0	24.4	43.5	-19.1	Vert
134	224.994M	40.7	+0.0 +0.2	+0.0 +2.7	-27.6	+10.8	+0.0	26.8	46.0	-19.2	Horiz
135	400.887M	34.5	+0.0 +0.3	+0.0 +3.7	-27.8	+15.8	+0.0	26.5	46.0	-19.5	Vert
136	27.120M	19.5	+8.6 +0.0	+0.8 +0.0	+0.0	+0.0	-19.0	9.9	29.5	-19.6	Paral
137	260.023M	38.2	+0.0 +0.2	+0.0 +2.9	-27.7	+12.7	+0.0	26.3	46.0	-19.7	Vert
138	375.010M	34.7	+0.0 +0.3	+0.0 +3.6	-27.7	+15.2	+0.0	26.1	46.0	-19.9	Horiz
139	242.985M	38.6	+0.0 +0.2	+0.0 +2.8	-27.7	+12.0	+0.0	25.9	46.0	-20.1	Vert
140	406.789M	33.6	+0.0 +0.3	+0.0 +3.7	-27.8	+16.0	+0.0	25.8	46.0	-20.2	Vert
141	404.991M	33.6	+0.0 +0.3	+0.0 +3.7	-27.8	+15.9	+0.0	25.7	46.0	-20.3	Vert
142	786.470M	24.5	+0.0 +0.6	+0.0 +5.4	-27.1	+22.0	+0.0	25.4	46.0	-20.6	Horiz
143	235.358M	38.5	+0.0 +0.2	+0.0 +2.8	-27.6	+11.5	+0.0	25.4	46.0	-20.6	Vert
144	303.990M	36.0	+0.0 +0.3	+0.0 +3.2	-27.6	+13.3	+0.0	25.2	46.0	-20.8	Vert
145	189.840M	38.5	+0.0 +0.2	+0.0 +2.5	-27.6	+8.9	+0.0	22.5	43.5	-21.0	Vert
146	242.990M	37.7	+0.0 +0.2	+0.0 +2.8	-27.7	+12.0	+0.0	25.0	46.0	-21.0	Horiz
147	113.398M	37.1	+0.0 +0.1	+0.0 +1.9	-27.6	+10.9	+0.0	22.4	43.5	-21.1	Horiz
148	447.042M	31.2	+0.0 +0.3	+0.0 +4.0	-27.6	+17.0	+0.0	24.9	46.0	-21.1	Vert
149	298.777M	35.6	+0.0 +0.3	+0.0 +3.2	-27.6	+13.2	+0.0	24.7	46.0	-21.3	Vert
150	374.976M	33.2	+0.0 +0.3	+0.0 +3.6	-27.7	+15.2	+0.0	24.6	46.0	-21.4	Vert
151	337.917M	34.2	+0.0 +0.3	+0.0 +3.4	-27.6	+14.2	+0.0	24.5	46.0	-21.5	Vert
152	366.118M	33.2	+0.0 +0.3	+0.0 +3.6	-27.7	+14.9	+0.0	24.3	46.0	-21.7	Vert

153	240.004M	36.8	+0.0	+0.0	-27.7	+11.8	+0.0	23.9	46.0	-22.1	Vert
			+0.2	+2.8							
154	230.545M	36.9	+0.0	+0.0	-27.6	+11.2	+0.0	23.4	46.0	-22.6	Horiz
			+0.2	+2.7							
155	343.998M	32.6	+0.0	+0.0	-27.6	+14.4	+0.0	23.2	46.0	-22.8	Vert
			+0.3	+3.5							
156	244.078M	34.3	+0.0	+0.0	-27.7	+12.1	+0.0	21.8	46.0	-24.2	Vert
			+0.2	+2.9							
157	406.800M	29.4	+0.0	+0.0	-27.8	+16.0	+0.0	21.6	46.0	-24.4	Vert
			+0.3	+3.7							
158	311.880M	32.0	+0.0	+0.0	-27.6	+13.5	+0.0	21.5	46.0	-24.5	Vert
			+0.3	+3.3							
159	230.520M	34.3	+0.0	+0.0	-27.6	+11.2	+0.0	20.8	46.0	-25.2	Vert
			+0.2	+2.7							

## OCCUPIED BANDWIDTH -20dB

### Test Equipment

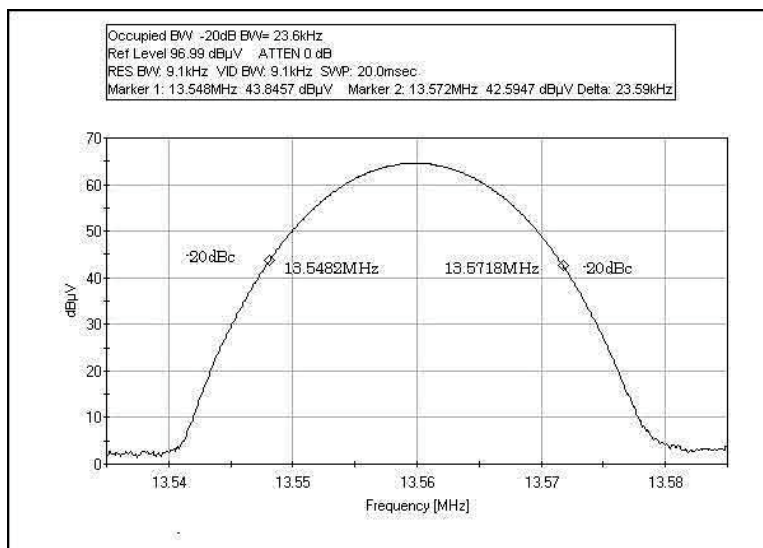
Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
Bilog Antenna	01995	Chase	CBL6111C	2451	020206	020208
Pre-amp	00309	HP	8447D	1937A02548	060106	060108
Antenna cable	P05198	Belden	8268 (RG-214)	Cable#15	010507	010509
Pre-amp to SA cable	P05050	Pasternack	RG223/U	Cable#10	051605	051607

### Test Setup Photos





**Test Conditions:** The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. Emission properties evaluated via radiated field.



## FCC 15.225(a), (b), (c) EMISSIONS MASK

### Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
Bilog Antenna	01995	Chase	CBL6111C	2451	020206	020208
Pre-amp	00309	HP	8447D	1937A02548	060106	060108
Antenna cable	P05198	Belden	8268 (RG-214)	Cable#15	010507	010509
Pre-amp to SA cable	P05050	Pasternack	RG223/U	Cable#10	051605	051607

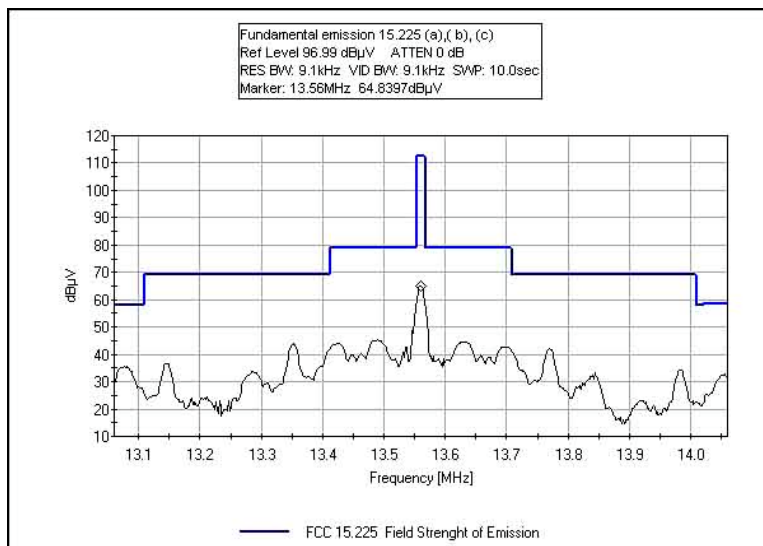
### Test Setup Photos







**Test Conditions:** The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. Emission properties evaluated via radiated field.



## BANDEDGE PLOTS

### Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
Bilog Antenna	01995	Chase	CBL6111C	2451	020206	020208
Pre-amp	00309	HP	8447D	1937A02548	060106	060108
Antenna cable	P05198	Belden	8268 (RG-214)	Cable#15	010507	010509
Pre-amp to SA cable	P05050	Pasternack	RG223/U	Cable#10	051605	051607

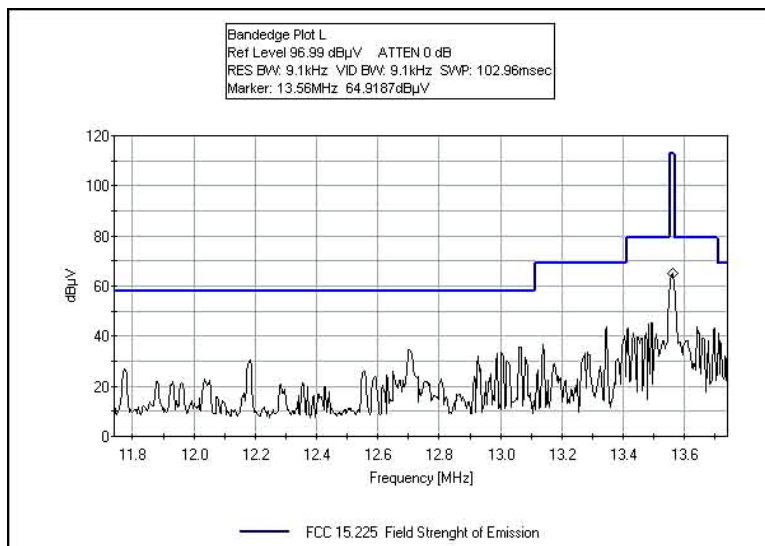
### Test Setup Photos



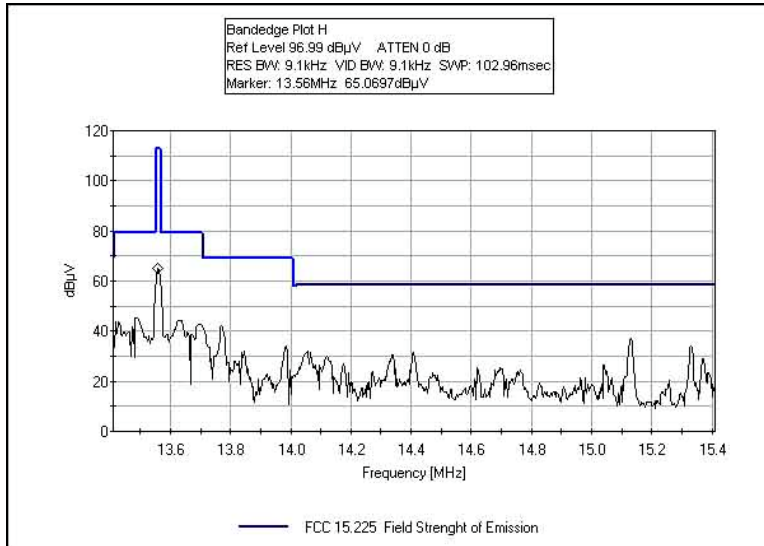


**Test Conditions:** The EUT is placed on the wooden table with Styrofoam surface. The USB port is connected to the USB port of a support laptop. A RFID card is placed in front of the EUT. The EUT continuously detects and reads the RFID card. Frequency=13.56MHz. Emission properties evaluated via radiated field.

### BANDEDGE PLOT LOW



## BANDEDGE PLOT HIGH



## FREQUENCY STABILITY AND VOLTAGE VARIATIONS

### Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Temperature Chamber	01878	Thermaltron	S1.2	NA	060106	060108
Temperature Data logger	01620	HP	34970A	US70131892	052206	052208
20 Ch Thermocouple module	01849	HP	34901A	US37603966	052206	052208
AC Power Source	01695 / 01696	Pacific Power	345AMX / UPC32	250 / 245	052305	052307
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309

### Test Setup Photos



**Test Conditions:** The EUT is placed in the temperature chamber. RF signal is monitored from the antenna port. A spectrum analyzer is employed to measure the frequency stability of the EUT.

**Customer:** Magtek Incorporated  
**WO#:** 84991  
**Test Engineer:** E. wong

**Device Model #:** IntelliStripe 65 Contactless Card Reader  
**Operating Voltage:** 110 Vac  
**Frequency Limit:** 0.01 %

**Temperature Variations**

		Channel 1 (MHz)	Dev. (MHz)
Channel Frequency:		13.55955	
Temp (C)	Voltage		
-20	110	13.559560	0.00001
-10	110	13.559597	0.00004
0	110	13.559610	0.00006
10	110	13.559607	0.00005
20	110	13.55955	0.00000
30	110	13.559543	0.00001
40	110	13.559527	0.00003
50	110	13.559517	0.00004

**Voltage Variations (±15%)**

Temp (C)	Voltage	Channel 1 (MHz)	Dev. (MHz)
20	93.5	13.55953	0.00002
20	110.0	13.55955	0.00000
20	126.5	13.55953	0.00002

<b>Max Deviation (MHz)</b>	<b>0.00006</b>
<b>Max Deviation (%)</b>	<b>0.00042</b>
<b>PASS</b>	