Magtek Incorporated

ADDENDUM TEST REPORT TO 93565-28

IPAD EMV
Model:
30056015 (uses 30019320 USB cable)
30056017 (uses 30019319 Ethernet/USB combo cable)

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.225
and
RSS 210 Issue 8

Report No.: 93565-28B

Date of issue: July 18, 2013

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Magtek Incorporated
1710 Apollo Court
Seal Beach, CA 90740

Representative: Alireza Ashani
Customer Reference Number: 96283

REPORT PREPARED BY:

Joyce Walker
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 93565

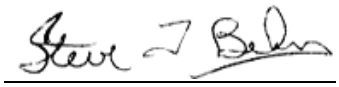
DATE OF EQUIPMENT RECEIPT: April 11, 2013
DATE(S) OF TESTING: April 11-18, 2013

Revision History

Original: Testing of IPAD EMV, 30056015 (uses 30019320 USB cable) and 30056017 (uses 30019319 Ethernet / USB combo cable) to FCC Part 15 Subpart C Sections 15.225 and RSS 210 Issue 8.
Addendum A: To add new partial 15.225 test data for the IPAD EMV, Model: 30056017 (uses 30019319 Ethernet/USB combo cable) due to modifications made to the EUT after the original testing had been completed. See appendix A for listing of modifications.
Addendum B: This change adds 15.207 test data and the equipment list used for frequency stability testing that were left out in the original testing, report 93565-28. In addition, to reduce confusion, the additional partial testing that appears in report 93565-28A was combined in Appendix A of this report in order to have one test report with all of the original testing and the testing that was performed after modifications were made to the EUT.
Note: the schematic that was in report 93565-28A was removed for confidentiality purposes.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C 15.225 & RSS 210 Issue 8

Description	Test Procedure/Method	Results
Conducted Emissions	FCC Part 15 Subpart C Section 15.207	Pass
RF Power Output	FCC Part 15 Subpart C Section 15.225(a) / 2.1046	Pass
-20 dBc & 99% Occupied Bandwidth	FCC Part 15 Subpart C Section 15.225 / 2.1049 / RSS 210	Pass
Field Strength of Spurious Radiated Emissions	FCC Part 15 Subpart C Section 15.225(b)(c) / 2.1053	Pass
Radiated Emissions / Frequency Stability	FCC Part 15 Subpart C Section 15.225 (d)(e) / 2.1055(d) / 15.209 / ANSI C63.4 (2003)	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
Modifications during testing with Ethernet Interface: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover.
15.207 Testing: There were two test configurations: USB cable and Ethernet/USB combo cable. Since this EUT is transmitting at 13.56MHz that fundamental emissions can be seen within the conducted emissions sweep (150kHz to 30MHz). Since the fundamental emission exceeds the limit line for 15.207 it is allowed to replace the transmit antenna with an equivalent resistive load and repeat the test to show that it is not conducted. Therefore, the test was performed a second time with the transmitter output terminated into an equivalent resistor load.
Modifications during 15.225(d) radiated emissions testing with USB Interface: Jumper wire added on top of PCBA from sense line of stylus pen from board jack to signature capture screen.
Modification during 15.225(d) radiated emissions testing with Ethernet Interface: Conductive paint over entire inside surface of back cover. Added jumper wire on top of PCBA from sense line of stylus pen from board jack to signature capture screen.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

IPAD EMV
Manuf: Magtek Incorporated
Model: 30056017
Serial: 30

AC to 5VDC Power Supply
Manuf: DVE
Model: DSA-12PFA-05 FUS 050200
Serial: NA

PERIPHERAL DEVICES

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

Laptop Computer
Manuf: Dell Corporation
Model: Latitude D520
Serial: H2JFYC1

Fast Ethernet Switch
Manuf: Netgear
Model: FS105
Serial: 1D52173U01B60

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

15.207 AC Conducted Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Conducted Emissions** Time: 10:00:34
Equipment: **IPAD EMV** Sequence#: 2
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T4	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
T5	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2013	3/12/2015
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2013	3/12/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB port is connected to a remotely located laptop. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Temperature: 20°C, Humidity: 50%, Pressure: 100kPa. Site A. EUT with integral antenna.

Ext Attn: 0 dB

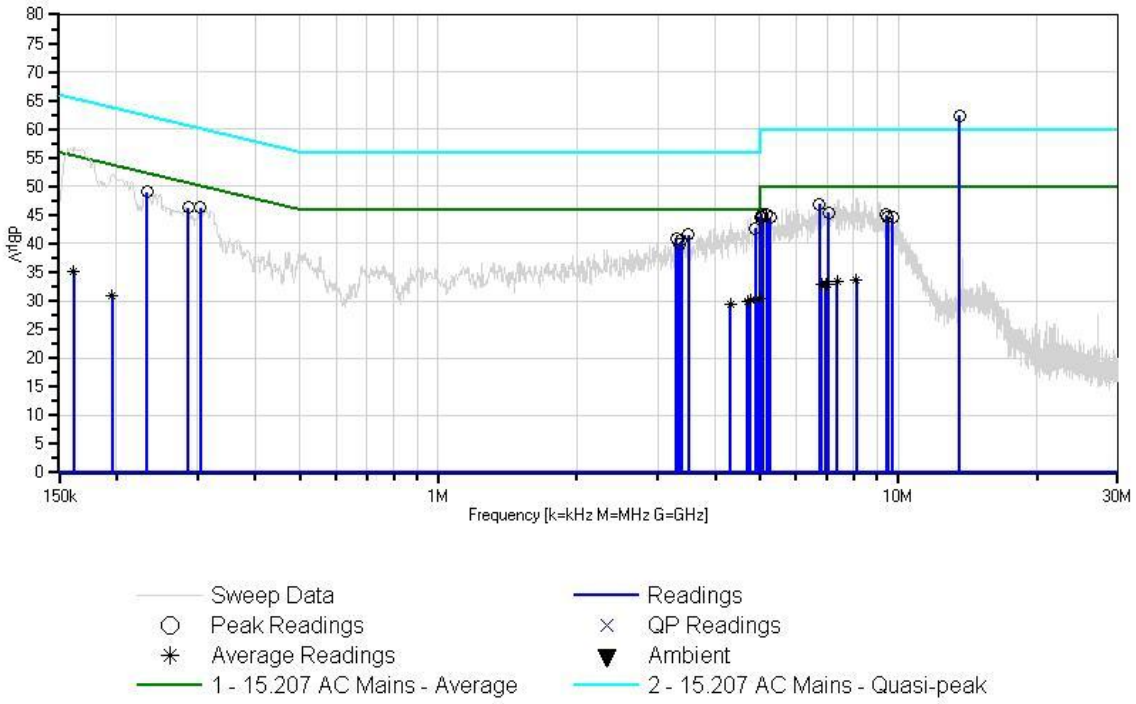
Measurement Data: Reading listed by margin. Test Lead: L1(L)

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.562M	55.8	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	62.4	50.0 Fundamental emission	+12.4	L1(L)
2	6.743M	40.6	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	46.9	50.0	-3.1	L1(L)
3	232.900k	43.0	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	49.0	52.3	-3.3	L1(L)
4	4.892M	36.5	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	42.7	46.0	-3.3	L1(L)
5	304.167k	40.2	+0.0 +0.0	+0.2	+0.1	+5.8	+0.0	46.3	50.1	-3.8	L1(L)
6	285.987k	40.2	+0.0 +0.0	+0.2	+0.1	+5.8	+0.0	46.3	50.6	-4.3	L1(L)
7	3.501M	35.4	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	41.6	46.0	-4.4	L1(L)
8	7.067M	39.1	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	45.4	50.0	-4.6	L1(L)
9	5.045M	39.0	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	45.2	50.0	-4.8	L1(L)
10	9.409M	38.6	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	45.1	50.0	-4.9	L1(L)
11	5.175M	38.8	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	45.0	50.0	-5.0	L1(L)
12	3.289M	34.7	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.9	46.0	-5.1	L1(L)
13	5.011M	38.5	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	44.7	50.0	-5.3	L1(L)
14	9.481M	38.2	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.7	50.0	-5.3	L1(L)
15	5.075M	38.4	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	44.6	50.0	-5.4	L1(L)
16	9.707M	38.1	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.6	50.0	-5.4	L1(L)
17	3.382M	34.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.5	46.0	-5.5	L1(L)
18	5.274M	38.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	44.5	50.0	-5.5	L1(L)
19	3.340M	33.8	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.0	46.0	-6.0	L1(L)

20 Ave	4.977M	24.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	30.5	46.0	-15.5	L1(L)
^	4.977M	38.8	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	45.0	46.0 see average data above	-1.0	L1(L)
22 Ave	4.777M	24.0	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	30.2	46.0	-15.8	L1(L)
^	4.777M	38.1	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	44.3	46.0 see average data above	-1.7	L1(L)
24 Ave	4.705M	23.7	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	29.9	46.0	-16.1	L1(L)
^	4.705M	37.9	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	44.1	46.0 see average data above	-1.9	L1(L)
26 Ave	8.112M	27.3	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	33.7	50.0	-16.3	L1(L)
^	8.112M	41.5	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	47.9	50.0 see average data above	-2.1	L1(L)
28 Ave	4.313M	23.1	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	29.3	46.0	-16.7	L1(L)
^	4.313M	37.4	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	43.6	46.0 see average data above	-2.4	L1(L)
30 Ave	7.355M	26.9	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	33.3	50.0	-16.7	L1(L)
^	7.355M	41.3	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	47.7	50.0 see average data above	-2.3	L1(L)
32 Ave	6.995M	26.7	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	33.0	50.0	-17.0	L1(L)
^	6.995M	41.8	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	48.1	50.0 see average data above	-1.9	L1(L)
34 Ave	6.950M	26.7	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	33.0	50.0	-17.0	L1(L)
^	6.950M	41.0	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	47.3	50.0 see average data above	-2.7	L1(L)
36 Ave	6.815M	26.5	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	32.8	50.0	-17.2	L1(L)
^	6.815M	41.8	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	48.1	50.0 see average data above	-1.9	L1(L)
38 Ave	161.634k	28.8	+0.0 +0.0	+0.5	+0.0	+5.8	+0.0	35.1	55.4	-20.3	L1(L)
^	161.634k	50.6	+0.0 +0.0	+0.5	+0.0	+5.8	+0.0	56.9	55.4 see average data above	+1.5	L1(L)

40 Ave	195.813k	24.8	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	30.8	53.8	-23.0	L1(L)
^	195.813k	46.1	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	52.1	53.8 see average data above	-1.7	L1(L)

CKC Laboratories, Inc Date: 4/16/2013 Time: 10:00:34 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: L1(L) 110V 60Hz Sequence#: 2 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Conducted Emissions** Time: 10:36:18
Equipment: **IPAD EMV** Sequence#: 4
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T2	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T3	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
T4	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2013	3/12/2015
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2013	3/12/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the styrofoam tabletop. The EUT USB port is connected to a remotely located laptop. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Temperature: 20°C, Humidity: 50%, Pressure: 100kPa. Site A. EUT with integral antenna replaced with 82.8 ohm resistor.

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1(L)

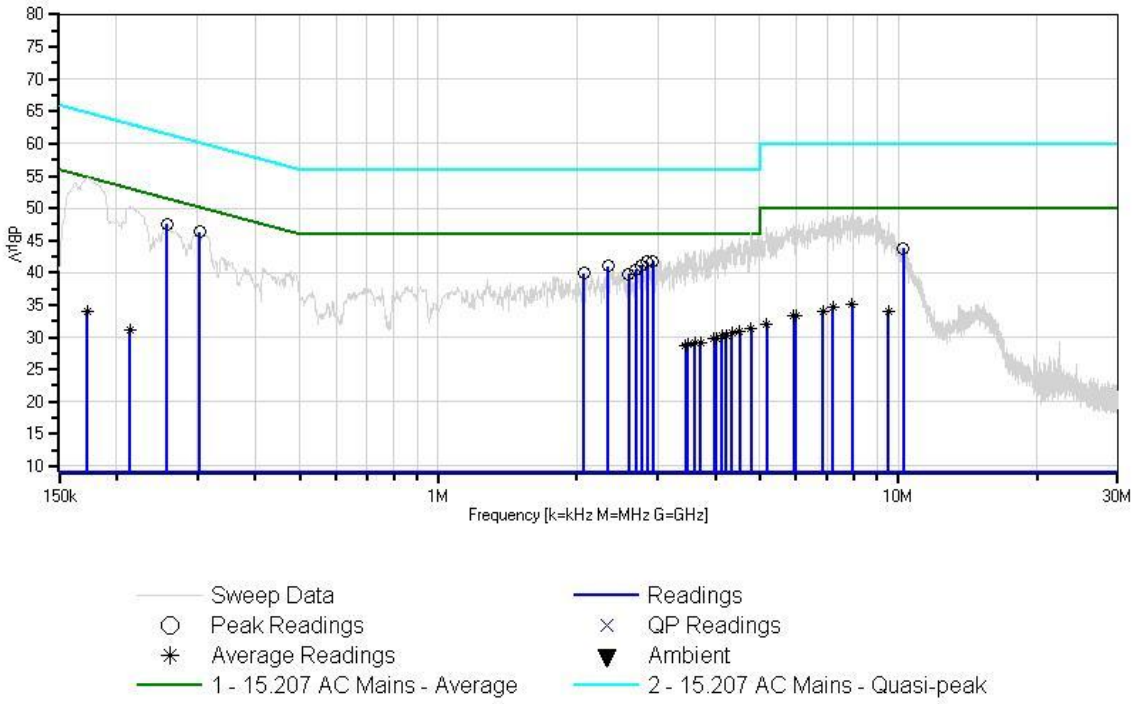
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	302.713k	40.2	+0.2	+0.1	+5.8	+0.0	+0.0	46.3	50.2	-3.9	L1(L)
2	257.626k	41.5	+0.2	+0.0	+5.8	+0.0	+0.0	47.5	51.5	-4.0	L1(L)

3	2.931M	35.5	+0.2	+0.2	+5.8	+0.1	+0.0	41.8	46.0	-4.2	L1(L)
4	2.842M	35.4	+0.2	+0.2	+5.8	+0.1	+0.0	41.7	46.0	-4.3	L1(L)
5	2.770M	34.8	+0.2	+0.2	+5.8	+0.1	+0.0	41.1	46.0	-4.9	L1(L)
6	2.340M	34.7	+0.2	+0.2	+5.8	+0.1	+0.0	41.0	46.0	-5.0	L1(L)
7	2.685M	34.2	+0.2	+0.2	+5.8	+0.1	+0.0	40.5	46.0	-5.5	L1(L)
8	2.076M	33.7	+0.2	+0.1	+5.8	+0.1	+0.0	39.9	46.0	-6.1	L1(L)
9	2.595M	33.5	+0.2	+0.2	+5.8	+0.1	+0.0	39.8	46.0	-6.2	L1(L)
10	10.238M	37.3	+0.2	+0.2	+5.8	+0.3	+0.0	43.8	50.0	-6.2	L1(L)
11	4.790M Ave	25.2	+0.1	+0.2	+5.8	+0.1	+0.0	31.4	46.0	-14.6	L1(L)
^	4.790M	40.0	+0.1	+0.2	+5.8	+0.1	+0.0	46.2	46.0 see average data above	+0.2	L1(L)
13	7.923M Ave	28.6	+0.2	+0.2	+5.8	+0.2	+0.0	35.0	50.0	-15.0	L1(L)
^	7.923M	42.6	+0.2	+0.2	+5.8	+0.2	+0.0	49.0	50.0 see average data above	-1.0	L1(L)
15	4.513M Ave	24.7	+0.1	+0.2	+5.8	+0.1	+0.0	30.9	46.0	-15.1	L1(L)
^	4.513M	39.2	+0.1	+0.2	+5.8	+0.1	+0.0	45.4	46.0 see average data above	-0.6	L1(L)
17	4.343M Ave	24.4	+0.1	+0.2	+5.8	+0.1	+0.0	30.6	46.0	-15.4	L1(L)
^	4.343M	38.7	+0.1	+0.2	+5.8	+0.1	+0.0	44.9	46.0 see average data above	-1.1	L1(L)
19	7.211M Ave	28.2	+0.2	+0.2	+5.8	+0.2	+0.0	34.6	50.0	-15.4	L1(L)
^	7.211M	42.5	+0.2	+0.2	+5.8	+0.2	+0.0	48.9	50.0 see average data above	-1.1	L1(L)
21	4.224M Ave	24.0	+0.1	+0.2	+5.8	+0.1	+0.0	30.2	46.0	-15.8	L1(L)
^	4.224M	37.5	+0.1	+0.2	+5.8	+0.1	+0.0	43.7	46.0 see average data above	-2.3	L1(L)
23	4.139M Ave	24.0	+0.1	+0.2	+5.8	+0.1	+0.0	30.2	46.0	-15.8	L1(L)
^	4.139M	39.0	+0.1	+0.2	+5.8	+0.1	+0.0	45.2	46.0 see average data above	-0.8	L1(L)

25	6.851M Ave	27.8	+0.1	+0.2	+5.8	+0.2	+0.0	34.1	50.0	-15.9	L1(L)
^	6.851M	42.2	+0.1	+0.2	+5.8	+0.2	+0.0	48.5	50.0	-1.5	L1(L)
									see average data above		
27	9.508M Ave	27.4	+0.2	+0.2	+5.8	+0.3	+0.0	33.9	50.0	-16.1	L1(L)
^	9.508M	41.3	+0.2	+0.2	+5.8	+0.3	+0.0	47.8	50.0	-2.2	L1(L)
									see average data above		
29	4.016M Ave	23.7	+0.1	+0.2	+5.8	+0.1	+0.0	29.9	46.0	-16.1	L1(L)
^	4.016M	37.2	+0.1	+0.2	+5.8	+0.1	+0.0	43.4	46.0	-2.6	L1(L)
									see average data above		
31	3.977M Ave	23.5	+0.1	+0.2	+5.8	+0.1	+0.0	29.7	46.0	-16.3	L1(L)
^	3.977M	37.5	+0.1	+0.2	+5.8	+0.1	+0.0	43.7	46.0	-2.3	L1(L)
									see average data above		
33	5.932M Ave	27.0	+0.1	+0.2	+5.8	+0.2	+0.0	33.3	50.0	-16.7	L1(L)
^	5.932M	41.0	+0.1	+0.2	+5.8	+0.2	+0.0	47.3	50.0	-2.7	L1(L)
									see average data above		
35	5.986M Ave	27.0	+0.1	+0.2	+5.8	+0.2	+0.0	33.3	50.0	-16.7	L1(L)
^	5.986M	41.6	+0.1	+0.2	+5.8	+0.2	+0.0	47.9	50.0	-2.1	L1(L)
									see average data above		
37	3.718M Ave	23.0	+0.1	+0.2	+5.8	+0.1	+0.0	29.2	46.0	-16.8	L1(L)
^	3.718M	37.4	+0.1	+0.2	+5.8	+0.1	+0.0	43.6	46.0	-2.4	L1(L)
									see average data above		
39	3.607M Ave	22.9	+0.1	+0.2	+5.8	+0.1	+0.0	29.1	46.0	-16.9	L1(L)
^	3.607M	37.1	+0.1	+0.2	+5.8	+0.1	+0.0	43.3	46.0	-2.7	L1(L)
									see average data above		
41	3.488M Ave	22.6	+0.1	+0.2	+5.8	+0.1	+0.0	28.8	46.0	-17.2	L1(L)
^	3.488M	36.8	+0.1	+0.2	+5.8	+0.1	+0.0	43.0	46.0	-3.0	L1(L)
									see average data above		
43	3.454M Ave	22.5	+0.1	+0.2	+5.8	+0.1	+0.0	28.7	46.0	-17.3	L1(L)
^	3.454M	36.9	+0.1	+0.2	+5.8	+0.1	+0.0	43.1	46.0	-2.9	L1(L)
									see average data above		
45	5.175M Ave	25.9	+0.1	+0.2	+5.8	+0.1	+0.0	32.1	50.0	-17.9	L1(L)

^	5.175M	40.9	+0.1	+0.2	+5.8	+0.1	+0.0	47.1	50.0	-2.9	L1(L)
									see average data above		
47	172.543k Ave	27.9	+0.4	+0.0	+5.8	+0.0	+0.0	34.1	54.8	-20.7	L1(L)
^	172.543k	48.6	+0.4	+0.0	+5.8	+0.0	+0.0	54.8	54.8	+0.0	L1(L)
									see average data above		
49	213.994k Ave	25.1	+0.2	+0.0	+5.8	+0.0	+0.0	31.1	53.0	-21.9	L1(L)
^	213.994k	44.3	+0.2	+0.0	+5.8	+0.0	+0.0	50.3	53.0	-2.7	L1(L)
									see average data above		

CKC Laboratories, Inc Date: 4/16/2013 Time: 10:36:18 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: L1(L) 110V 60Hz Sequence#: 4 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Conducted Emissions** Time: 10:04:18
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T4	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
T5	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2013	3/12/2015
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2013	3/12/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB port is connected to a remotely located laptop. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Temperature: 20°C, Humidity: 50%, Pressure: 100kPa. Site A. EUT with integral antenna.

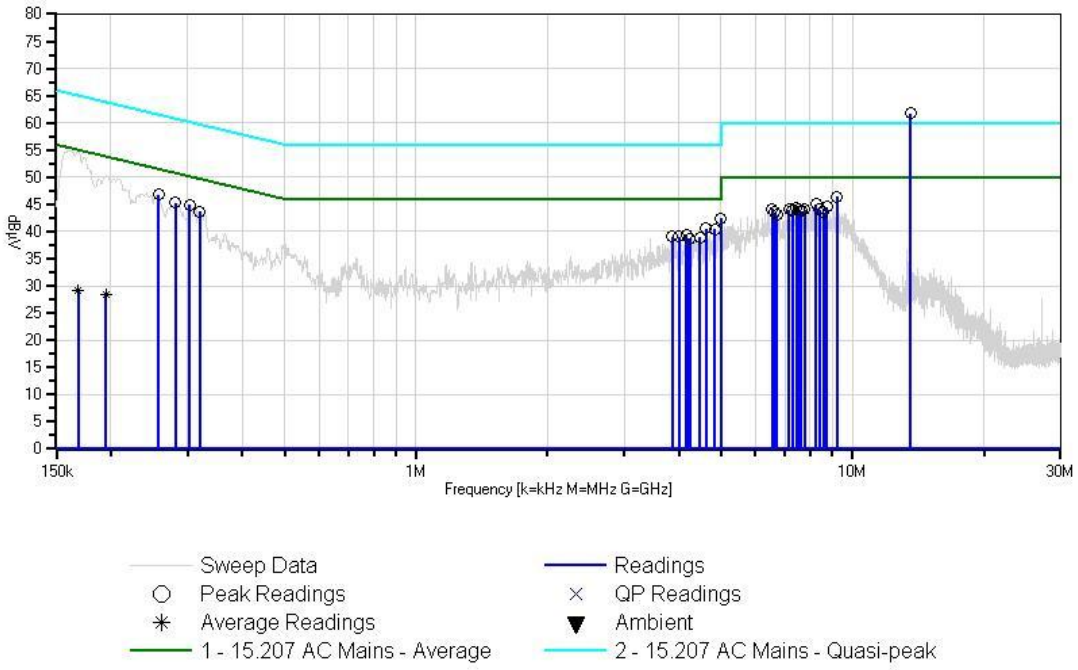
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: (N)L2

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.562M	55.1	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	61.7	50.0 Fundamental Emission	+11.7	(N)L2
2	4.994M	36.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	42.4	46.0	-3.6	(N)L2
3	9.211M	39.9	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.4	50.0	-3.6	(N)L2
4	256.899k	40.8	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	46.8	51.5	-4.7	(N)L2
5	8.265M	38.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.0	50.0	-5.0	(N)L2
6	303.440k	38.8	+0.0 +0.0	+0.2	+0.1	+5.8	+0.0	44.9	50.1	-5.2	(N)L2
7	280.897k	39.3	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	45.3	50.8	-5.5	(N)L2
8	4.620M	34.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.5	46.0	-5.5	(N)L2
9	8.734M	38.0	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.5	50.0	-5.5	(N)L2
10	4.832M	34.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.4	46.0	-5.6	(N)L2
11	7.436M	38.0	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.4	50.0	-5.6	(N)L2
12	6.553M	37.9	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	44.2	50.0	-5.8	(N)L2
13	7.562M	37.7	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.1	50.0	-5.9	(N)L2
14	7.770M	37.7	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.1	50.0	-5.9	(N)L2
15	320.166k	37.6	+0.0 +0.0	+0.2	+0.1	+5.8	+0.0	43.7	49.7	-6.0	(N)L2
16	7.166M	37.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.0	50.0	-6.0	(N)L2
17	8.400M	37.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.0	50.0	-6.0	(N)L2
18	7.292M	37.5	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	43.9	50.0	-6.1	(N)L2
19	7.625M	37.4	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	43.8	50.0	-6.2	(N)L2
20	6.643M	37.2	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	43.5	50.0	-6.5	(N)L2
21	8.580M	37.1	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	43.5	50.0	-6.5	(N)L2
22	4.160M	33.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	39.4	46.0	-6.6	(N)L2

23	3.863M	32.9	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	39.1	46.0	-6.9	(N)L2
24	4.003M	32.9	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	39.1	46.0	-6.9	(N)L2
25	6.707M	36.8	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	43.1	50.0	-6.9	(N)L2
26	4.471M	32.7	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	38.9	46.0	-7.1	(N)L2
27	4.220M	32.5	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	38.7	46.0	-7.3	(N)L2
28	4.237M	32.5	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	38.7	46.0	-7.3	(N)L2
29	195.087k Ave	22.4	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	28.4	53.8	-25.4	(N)L2
^	195.087k	44.3	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	50.3	53.8 see average data above	-3.5	(N)L2
31	168.180k Ave	22.9	+0.0 +0.0	+0.4	+0.0	+5.8	+0.0	29.1	55.0	-25.9	(N)L2
^	168.180k	48.5	+0.0 +0.0	+0.4	+0.0	+5.8	+0.0	54.7	55.0 see average data above	-0.3	(N)L2

CKC Laboratories, Inc Date: 4/16/2013 Time: 10:04:18 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: (N)L2 110V 60Hz Sequence#: 3 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Conducted Emissions** Time: 10:40:40
Equipment: **IPAD EMV** Sequence#: 5
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T2	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T3	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
T4	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00969A	50uH LISN-Line 1 (L1) (dB)	3816/2NM	3/12/2013	3/12/2015
	AN00969A	50uH LISN-Line 2 (L2) (dB)	3816/2NM	3/12/2013	3/12/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB port is connected to a remotely located laptop. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Temperature: 20°C, Humidity: 50%, Pressure: 100kPa. Site A. EUT with integral antenna replaced with 82.8 ohm resistor.

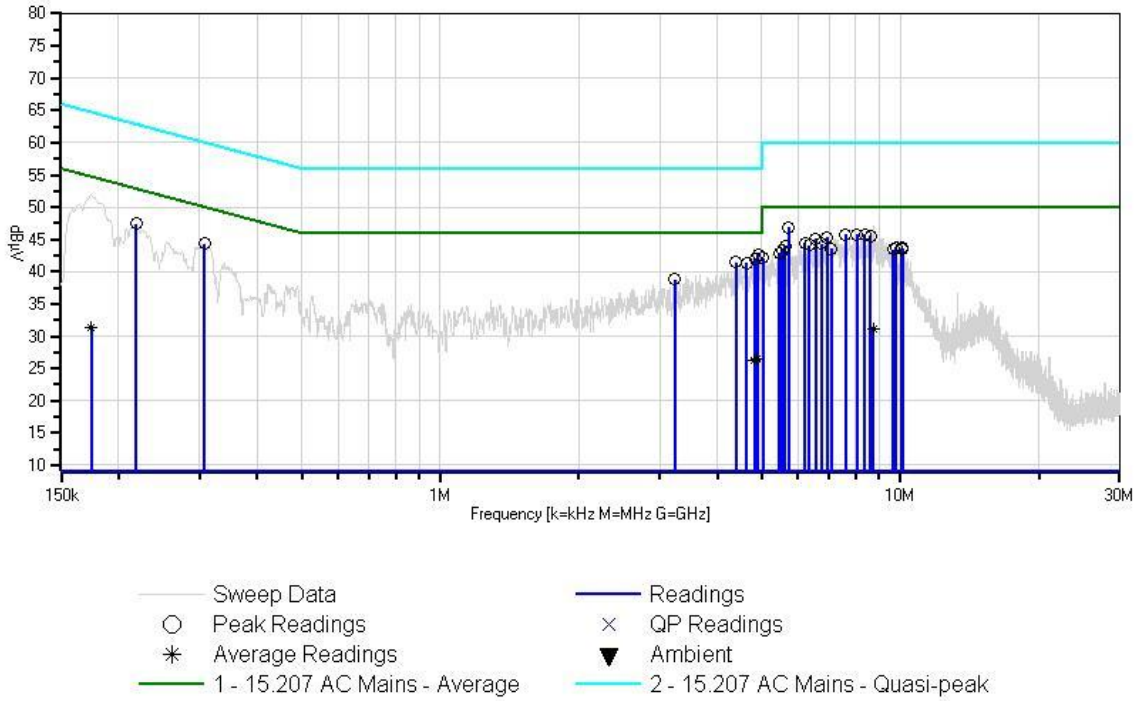
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: (N)L2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5.716M	40.7	+0.1	+0.2	+5.8	+0.1	+0.0	46.9	50.0	-3.1	(N)L2
2	4.913M	36.5	+0.1	+0.2	+5.8	+0.1	+0.0	42.7	46.0	-3.3	(N)L2
3	4.845M	35.7	+0.1	+0.2	+5.8	+0.1	+0.0	41.9	46.0	-4.1	(N)L2
4	7.616M	39.4	+0.2	+0.2	+5.8	+0.2	+0.0	45.8	50.0	-4.2	(N)L2
5	8.058M	39.4	+0.2	+0.2	+5.8	+0.2	+0.0	45.8	50.0	-4.2	(N)L2
6	8.373M	39.4	+0.2	+0.2	+5.8	+0.2	+0.0	45.8	50.0	-4.2	(N)L2
7	8.616M	39.2	+0.2	+0.2	+5.8	+0.2	+0.0	45.6	50.0	-4.4	(N)L2
8	4.394M	35.3	+0.1	+0.2	+5.8	+0.1	+0.0	41.5	46.0	-4.5	(N)L2
9	4.637M	35.1	+0.1	+0.2	+5.8	+0.1	+0.0	41.3	46.0	-4.7	(N)L2
10	6.923M	39.0	+0.1	+0.2	+5.8	+0.2	+0.0	45.3	50.0	-4.7	(N)L2
11	6.544M	38.8	+0.1	+0.2	+5.8	+0.2	+0.0	45.1	50.0	-4.9	(N)L2
12	218.357k	41.4	+0.2	+0.0	+5.8	+0.0	+0.0	47.4	52.9	-5.5	(N)L2
13	6.211M	38.2	+0.1	+0.2	+5.8	+0.2	+0.0	44.5	50.0	-5.5	(N)L2
14	307.076k	38.2	+0.2	+0.1	+5.8	+0.0	+0.0	44.3	50.0	-5.7	(N)L2
15	6.725M	38.0	+0.1	+0.2	+5.8	+0.2	+0.0	44.3	50.0	-5.7	(N)L2
16	6.337M	37.8	+0.1	+0.2	+5.8	+0.2	+0.0	44.1	50.0	-5.9	(N)L2
17	5.616M	37.8	+0.1	+0.2	+5.8	+0.1	+0.0	44.0	50.0	-6.0	(N)L2
18	9.779M	37.3	+0.2	+0.2	+5.8	+0.3	+0.0	43.8	50.0	-6.2	(N)L2
19	10.067M	37.2	+0.2	+0.2	+5.8	+0.3	+0.0	43.7	50.0	-6.3	(N)L2
20	7.085M	37.2	+0.2	+0.2	+5.8	+0.2	+0.0	43.6	50.0	-6.4	(N)L2
21	10.103M	37.1	+0.2	+0.2	+5.8	+0.3	+0.0	43.6	50.0	-6.4	(N)L2
22	9.634M	36.9	+0.2	+0.2	+5.8	+0.3	+0.0	43.4	50.0	-6.6	(N)L2
23	5.535M	37.0	+0.1	+0.2	+5.8	+0.1	+0.0	43.2	50.0	-6.8	(N)L2

24	5.463M	36.7	+0.1	+0.2	+5.8	+0.1	+0.0	42.9	50.0	-7.1	(N)L2
25	3.233M	32.6	+0.1	+0.2	+5.8	+0.1	+0.0	38.8	46.0	-7.2	(N)L2
26	5.028M	35.9	+0.1	+0.2	+5.8	+0.1	+0.0	42.1	50.0	-7.9	(N)L2
27	8.725M Ave	24.7	+0.2	+0.2	+5.8	+0.3	+0.0	31.2	50.0	-18.8	(N)L2
^	8.725M	40.6	+0.2	+0.2	+5.8	+0.3	+0.0	47.1	50.0 see average data above	-2.9	(N)L2
29	4.871M Ave	20.2	+0.1	+0.2	+5.8	+0.1	+0.0	26.4	46.0	-19.6	(N)L2
^	4.871M	36.8	+0.1	+0.2	+5.8	+0.1	+0.0	43.0	46.0 see average data above	-3.0	(N)L2
31	4.815M Ave	20.0	+0.1	+0.2	+5.8	+0.1	+0.0	26.2	46.0	-19.8	(N)L2
^	4.815M	37.6	+0.1	+0.2	+5.8	+0.1	+0.0	43.8	46.0 see average data above	-2.2	(N)L2
33	174.725k Ave	25.2	+0.4	+0.0	+5.8	+0.0	+0.0	31.4	54.7	-23.3	(N)L2
^	174.725k	45.6	+0.4	+0.0	+5.8	+0.0	+0.0	51.8	54.7 see average data above	-2.9	(N)L2

CKC Laboratories, Inc Date: 4/16/2013 Time: 10:40:40 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: (N)L2 110V 60Hz Sequence#: 5 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Conducted Emissions** Time: 14:50:42
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T4	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
T5	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 30MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 36%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz. EUT transmitting ON into normal antenna.

Ext Attn: 0 dB

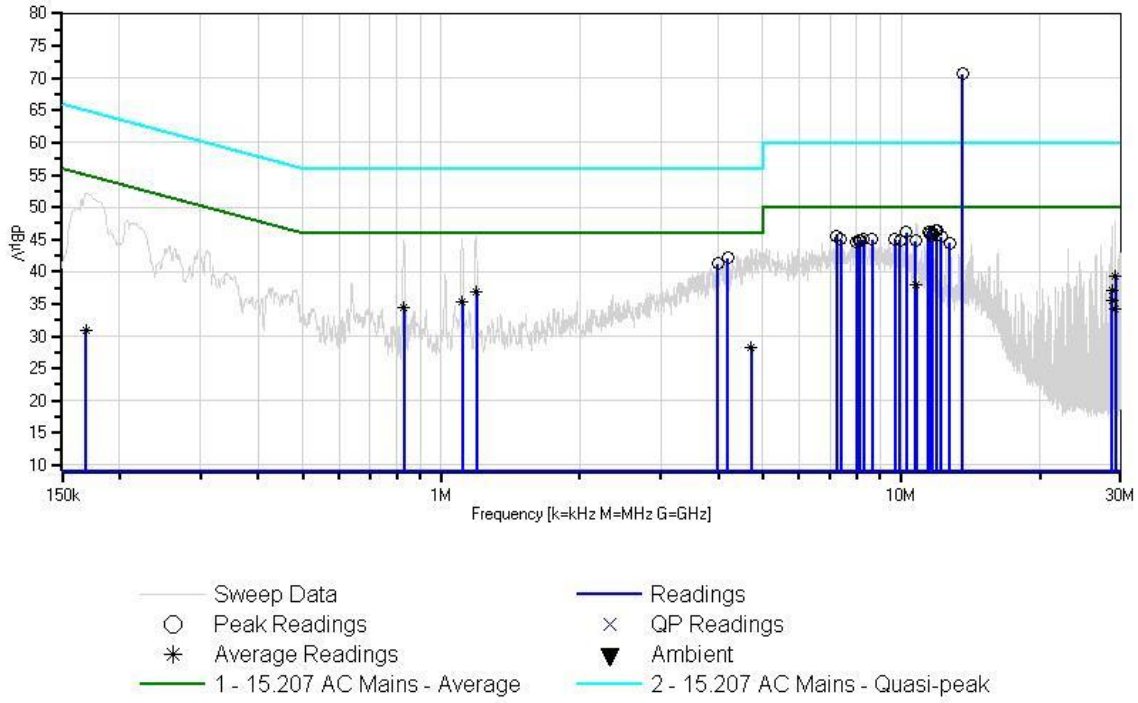
Measurement Data: Reading listed by margin. Test Lead: L1(L)

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.562M	64.1	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	70.7	50.0 Fundamental Frequency	+20.7	L1(L)
2	11.896M	39.9	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.4	50.0	-3.6	L1(L)
3	11.959M	39.9	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.4	50.0	-3.6	L1(L)

4	4.194M	35.9	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	42.1	46.0	-3.9	L1(L)
5	10.247M	39.6	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.1	50.0	-3.9	L1(L)
6	11.463M	39.6	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.1	50.0	-3.9	L1(L)
7	11.589M	39.5	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.0	50.0	-4.0	L1(L)
8	11.706M	39.5	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	46.0	50.0	-4.0	L1(L)
9	11.652M	39.1	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	45.6	50.0	-4.4	L1(L)
10	7.238M	39.1	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.5	50.0	-4.5	L1(L)
11	12.202M	38.9	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	45.4	50.0	-4.6	L1(L)
12	3.994M	35.0	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	41.2	46.0	-4.8	L1(L)
13	8.283M	38.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.0	50.0	-5.0	L1(L)
14	7.400M	38.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.0	50.0	-5.0	L1(L)
15	9.697M	38.5	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	45.0	50.0	-5.0	L1(L)
16	8.652M	38.6	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.0	50.0	-5.0	L1(L)
17	8.085M	38.5	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	L1(L)
18	8.121M	38.5	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	L1(L)
19	9.941M	38.4	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	L1(L)
20	10.734M	38.3	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.8	50.0	-5.2	L1(L)
21	7.995M	38.2	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.6	50.0	-5.4	L1(L)
22	12.752M	37.9	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	44.5	50.0	-5.5	L1(L)
23 Ave	1.192M	30.6	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	36.8	46.0	-9.2	L1(L)
^	1.192M	39.4	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	45.6	46.0 see average data above	-0.4	L1(L)
25 Ave	1.111M	29.2	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	35.4	46.0	-10.6	L1(L)
^	1.111M	38.8	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	45.0	46.0 see average data above	-1.0	L1(L)
27 Ave	29.237M	31.5	+0.0 +1.2	+0.3	+0.5	+5.8	+0.0	39.3	50.0	-10.7	L1(L)
28 Ave	829.210k	28.3	+0.0 +0.1	+0.2	+0.0	+5.8	+0.0	34.4	46.0	-11.6	L1(L)

^	829.210k	38.8	+0.0 +0.1	+0.2	+0.0	+5.8	+0.0	44.9	46.0 see average data above	-1.1	L1(L)	
30	10.797M Ave	31.5	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	38.0	50.0	-12.0	L1(L)	
^	10.797M	41.1	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	47.6	50.0 see average data above	-2.4	L1(L)	
32	28.687M Ave	29.4	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	37.1	50.0	-12.9	L1(L)	
33	28.684M Ave	27.8	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	35.5	50.0	-14.5	L1(L)	
^	28.684M	39.4	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	47.1	50.0 see average data above	-2.9	L1(L)	
35	29.233M Ave	26.5	+0.0 +1.2	+0.3	+0.5	+5.8	+0.0	34.3	50.0	-15.7	L1(L)	
^	29.233M	40.1	+0.0 +1.2	+0.3	+0.5	+5.8	+0.0	47.9	50.0 see average data above	-2.1	L1(L)	
37	4.726M Ave	22.0	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	28.2	46.0	-17.8	L1(L)	
^	4.726M	37.4	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	43.6	46.0 see average data above	-2.4	L1(L)	
39	168.907k Ave	24.7	+0.0 +0.0	+0.4	+0.0	+5.8	+0.0	30.9	55.0	-24.1	L1(L)	
^	168.907k	46.0	+0.0 +0.0	+0.4	+0.0	+5.8	+0.0	52.2	55.0 see average data above	-2.8	L1(L)	

CKC Laboratories, Inc Date: 4/11/2013 Time: 14:50:42 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: L1(L) 110V 60Hz Sequence#: 3 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Conducted Emissions** Time: 15:22:40
Equipment: **IPAD EMV** Sequence#: 5
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T2	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T3	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
T4	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 30MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 36%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz. EUT transmitting ON into 82.5 ohm resistive load.

Ext Attn: 0 dB

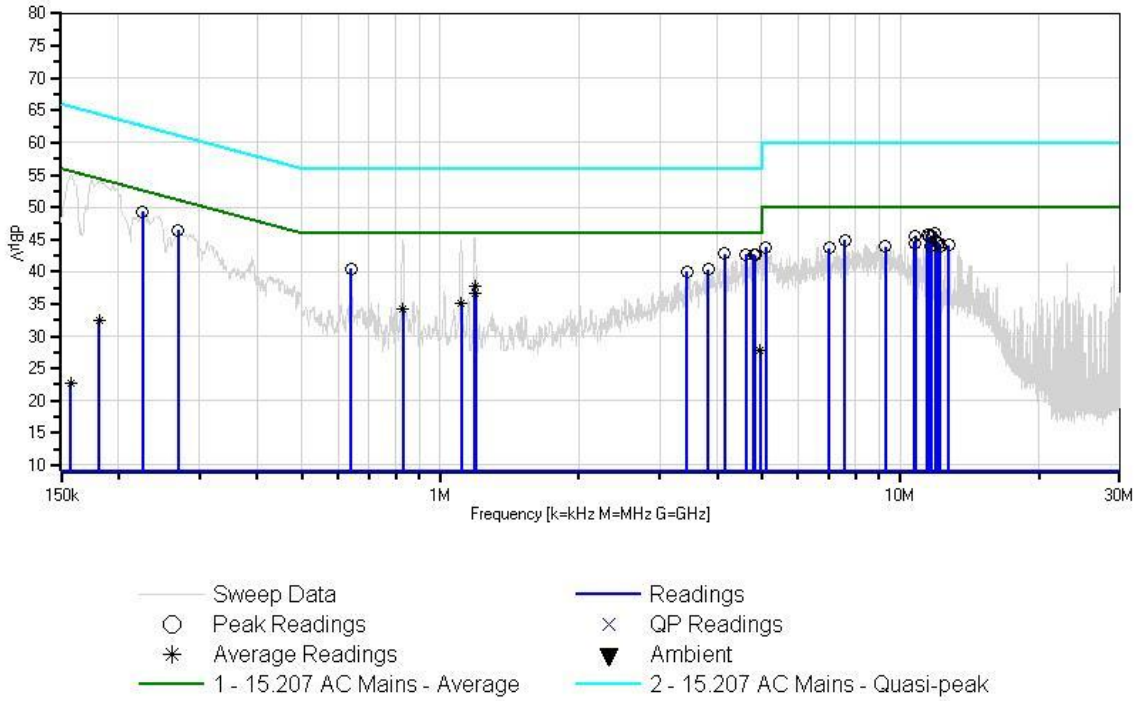
Measurement Data: Reading listed by margin. Test Lead: L1(L)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	4.143M	36.6	+0.1	+0.2	+5.8	+0.1	+0.0	42.8	46.0	-3.2	L1(L)
2	225.629k	43.3	+0.2	+0.0	+5.8	+0.0	+0.0	49.3	52.6	-3.3	L1(L)
3	4.620M	36.5	+0.1	+0.2	+5.8	+0.1	+0.0	42.7	46.0	-3.3	L1(L)

4	4.807M	36.5	+0.1	+0.2	+5.8	+0.1	+0.0	42.7	46.0	-3.3	L1(L)
5	4.841M	36.4	+0.1	+0.2	+5.8	+0.1	+0.0	42.6	46.0	-3.4	L1(L)
6	11.896M	39.5	+0.2	+0.2	+5.8	+0.3	+0.0	46.0	50.0	-4.0	L1(L)
7	11.463M	39.3	+0.2	+0.2	+5.8	+0.3	+0.0	45.8	50.0	-4.2	L1(L)
8	11.706M	39.1	+0.2	+0.2	+5.8	+0.3	+0.0	45.6	50.0	-4.4	L1(L)
9	10.797M	39.0	+0.2	+0.2	+5.8	+0.3	+0.0	45.5	50.0	-4.5	L1(L)
10	11.589M	38.9	+0.2	+0.2	+5.8	+0.3	+0.0	45.4	50.0	-4.6	L1(L)
11	269.262k	40.4	+0.2	+0.0	+5.8	+0.0	+0.0	46.4	51.1	-4.7	L1(L)
12	7.589M	38.5	+0.2	+0.2	+5.8	+0.2	+0.0	44.9	50.0	-5.1	L1(L)
13	11.950M	38.2	+0.2	+0.2	+5.8	+0.3	+0.0	44.7	50.0	-5.3	L1(L)
14	639.410k	34.4	+0.2	+0.0	+5.8	+0.1	+0.0	40.5	46.0	-5.5	L1(L)
15	12.139M	38.0	+0.2	+0.2	+5.8	+0.3	+0.0	44.5	50.0	-5.5	L1(L)
16	3.824M	34.2	+0.1	+0.2	+5.8	+0.1	+0.0	40.4	46.0	-5.6	L1(L)
17	10.734M	37.9	+0.2	+0.2	+5.8	+0.3	+0.0	44.4	50.0	-5.6	L1(L)
18	12.752M	37.5	+0.2	+0.3	+5.8	+0.3	+0.0	44.1	50.0	-5.9	L1(L)
19	3.437M	33.8	+0.1	+0.2	+5.8	+0.1	+0.0	40.0	46.0	-6.0	L1(L)
20	11.652M	37.5	+0.2	+0.2	+5.8	+0.3	+0.0	44.0	50.0	-6.0	L1(L)
21	9.274M	37.4	+0.2	+0.2	+5.8	+0.3	+0.0	43.9	50.0	-6.1	L1(L)
22	12.202M	37.4	+0.2	+0.2	+5.8	+0.3	+0.0	43.9	50.0	-6.1	L1(L)
23	5.096M	37.6	+0.1	+0.2	+5.8	+0.1	+0.0	43.8	50.0	-6.2	L1(L)
24	7.004M	37.4	+0.1	+0.2	+5.8	+0.2	+0.0	43.7	50.0	-6.3	L1(L)
25	1.190M Ave	31.5	+0.2	+0.1	+5.8	+0.1	+0.0	37.7	46.0	-8.3	L1(L)
26	1.192M Ave	30.4	+0.2	+0.1	+5.8	+0.1	+0.0	36.6	46.0	-9.4	L1(L)
^	1.192M	39.2	+0.2	+0.1	+5.8	+0.1	+0.0	45.4	46.0 see average data above	-0.6	L1(L)
28	1.111M Ave	29.0	+0.2	+0.1	+5.8	+0.1	+0.0	35.2	46.0	-10.8	L1(L)

^	1.111M	38.6	+0.2	+0.1	+5.8	+0.1	+0.0	44.8	46.0 see average data above	-1.2	L1(L)
30 Ave	829.210k	28.2	+0.2	+0.0	+5.8	+0.1	+0.0	34.3	46.0	-11.7	L1(L)
^	829.210k	38.8	+0.2	+0.0	+5.8	+0.1	+0.0	44.9	46.0 see average data above	-1.1	L1(L)
32 Ave	4.960M	21.6	+0.1	+0.2	+5.8	+0.1	+0.0	27.8	46.0	-18.2	L1(L)
^	4.960M	36.9	+0.1	+0.2	+5.8	+0.1	+0.0	43.1	46.0 see average data above	-2.9	L1(L)
34 Ave	181.270k	26.4	+0.3	+0.0	+5.8	+0.0	+0.0	32.5	54.4	-21.9	L1(L)
^	181.270k	48.0	+0.3	+0.0	+5.8	+0.0	+0.0	54.1	54.4 see average data above	-0.3	L1(L)
36 Ave	157.272k	16.1	+0.9	+0.0	+5.8	+0.0	+0.0	22.8	55.6	-32.8	L1(L)
^	157.272k	48.2	+0.9	+0.0	+5.8	+0.0	+0.0	54.9	55.6 see average data above	-0.7	L1(L)

CKC Laboratories, Inc Date: 4/11/2013 Time: 15:22:40 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: L1(L) 110V 60Hz Sequence#: 5 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Conducted Emissions** Time: 14:57:34
Equipment: **IPAD EMV** Sequence#: 4
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T4	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
T5	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 30MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 36%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz. EUT transmitting ON into normal antenna.

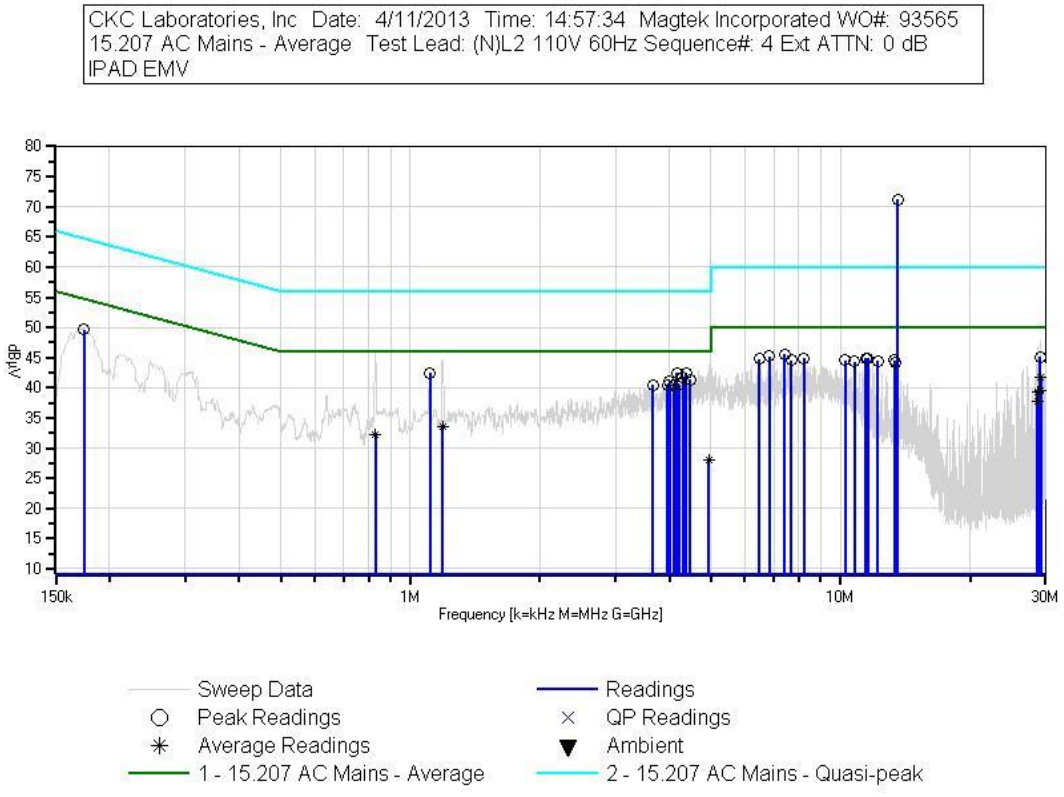
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: (N)L2

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	13.562M	64.6	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	71.2	50.0 Fundamental Frequency	+21.2	(N)L2
2	1.111M	36.3	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	42.5	46.0	-3.5	(N)L2
3	4.386M	36.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	42.5	46.0	-3.5	(N)L2

4	4.165M	36.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	42.4	46.0	-3.6	(N)L2
5	4.305M	35.6	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	41.8	46.0	-4.2	(N)L2
6	7.427M	39.1	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	45.5	50.0	-4.5	(N)L2
7	4.475M	35.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	41.4	46.0	-4.6	(N)L2
8	6.833M	38.9	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	45.2	50.0	-4.8	(N)L2
9	29.116M	37.4	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	45.1	50.0	-4.9	(N)L2
10	4.011M	34.8	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	41.0	46.0	-5.0	(N)L2
11	8.229M	38.5	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	(N)L2
12	11.463M	38.4	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	(N)L2
13	11.589M	38.4	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.9	50.0	-5.1	(N)L2
14	174.724k	43.4	+0.0 +0.0	+0.4	+0.0	+5.8	+0.0	49.6	54.7	-5.1	(N)L2
15	6.472M	38.5	+0.0 +0.2	+0.1	+0.2	+5.8	+0.0	44.8	50.0	-5.2	(N)L2
16	7.679M	38.2	+0.0 +0.2	+0.2	+0.2	+5.8	+0.0	44.6	50.0	-5.4	(N)L2
17	4.224M	34.4	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.6	46.0	-5.4	(N)L2
18	13.355M	38.0	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	44.6	50.0	-5.4	(N)L2
19	10.247M	38.1	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.6	50.0	-5.4	(N)L2
20	3.658M	34.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.5	46.0	-5.5	(N)L2
21	4.097M	34.3	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.5	46.0	-5.5	(N)L2
22	3.956M	34.2	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	40.4	46.0	-5.6	(N)L2
23	12.202M	37.9	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.4	50.0	-5.6	(N)L2
24	10.797M	37.8	+0.0 +0.3	+0.2	+0.2	+5.8	+0.0	44.3	50.0	-5.7	(N)L2
25	13.418M	37.6	+0.0 +0.3	+0.2	+0.3	+5.8	+0.0	44.2	50.0	-5.8	(N)L2
26	29.237M Ave	34.0	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	41.7	50.0	-8.3	(N)L2
27	29.239M Ave	31.8	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	39.5	50.0	-10.5	(N)L2
^	29.239M	40.1	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	47.8	50.0 see average data above	-2.2	(N)L2

29	28.686M Ave	31.7	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	39.4	50.0	-10.6	(N)L2
30	28.684M Ave	30.1	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	37.8	50.0	-12.2	(N)L2
^	28.684M	39.3	+0.0 +1.1	+0.3	+0.5	+5.8	+0.0	47.0	50.0 see average data above	-3.0	(N)L2
32	1.188M Ave	27.4	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	33.6	46.0	-12.4	(N)L2
^	1.188M	38.4	+0.0 +0.1	+0.2	+0.1	+5.8	+0.0	44.6	46.0 see average data above	-1.4	(N)L2
34	829.209k Ave	26.2	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	32.2	46.0	-13.8	(N)L2
^	829.209k	39.8	+0.0 +0.0	+0.2	+0.0	+5.8	+0.0	45.8	46.0 see average data above	-0.2	(N)L2
36	4.947M Ave	21.9	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	28.1	46.0	-17.9	(N)L2
^	4.947M	37.6	+0.0 +0.1	+0.1	+0.2	+5.8	+0.0	43.8	46.0 see average data above	-2.2	(N)L2



Test Location: CKC Laboratories, Inc • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.207 AC Mains - Average**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Conducted Emissions** Time: 15:26:29
Equipment: **IPAD EMV** Sequence#: 6
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017 110V 60Hz
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T2	ANP04358	Cable	RG142	4/10/2012	4/10/2014
T3	ANP06084	Attenuator	SA18N10W-06	12/14/2012	12/14/2014
	AN00848.1	50uH LISN-Line 1 (L1) (dB)	3816/2nm	3/14/2013	3/14/2015
T4	AN00848.1	50uH LISN-Line 2 (L2) (dB)	3816/2nm	3/14/2013	3/14/2015

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 30MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 36%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz. EUT transmitting ON into 82.5 ohm resistive load.

Ext Attn: 0 dB

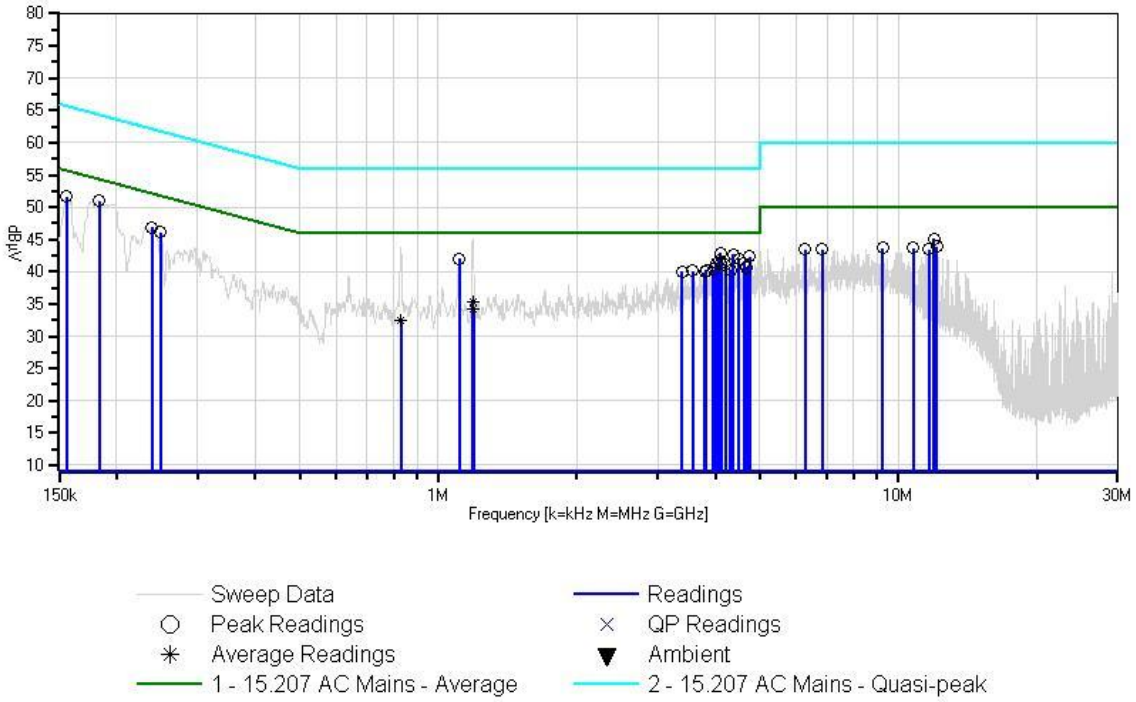
Measurement Data: Reading listed by margin. Test Lead: (N)L2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	4.109M	36.7	+0.1	+0.2	+5.8	+0.1	+0.0	42.9	46.0	-3.1	(N)L2
2	183.451k	44.9	+0.3	+0.0	+5.8	+0.0	+0.0	51.0	54.3	-3.3	(N)L2
3	4.373M	36.5	+0.1	+0.2	+5.8	+0.1	+0.0	42.7	46.0	-3.3	(N)L2

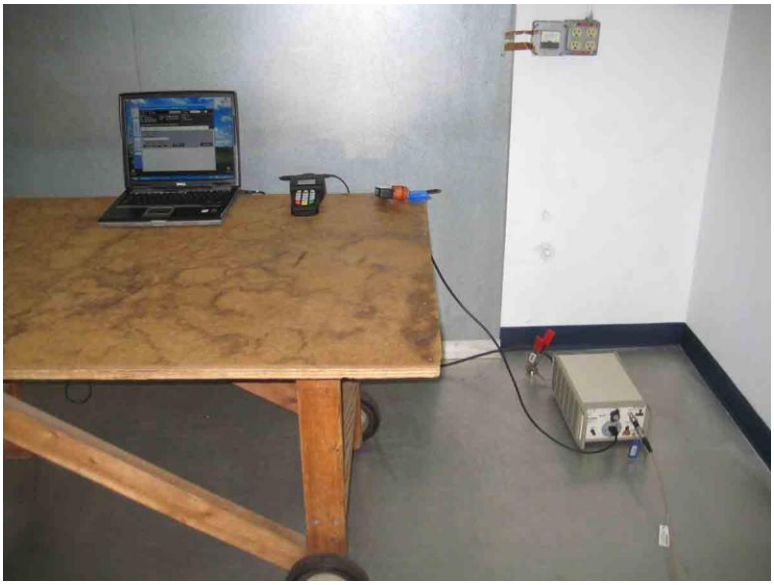
4	4.747M	36.1	+0.1	+0.2	+5.8	+0.1	+0.0	42.3	46.0	-3.7	(N)L2
5	1.111M	35.8	+0.2	+0.1	+5.8	+0.1	+0.0	42.0	46.0	-4.0	(N)L2
6	4.509M	35.8	+0.1	+0.2	+5.8	+0.1	+0.0	42.0	46.0	-4.0	(N)L2
7	155.818k	44.6	+1.2	+0.0	+5.8	+0.0	+0.0	51.6	55.7	-4.1	(N)L2
8	4.080M	35.6	+0.1	+0.2	+5.8	+0.1	+0.0	41.8	46.0	-4.2	(N)L2
9	4.615M	35.2	+0.1	+0.2	+5.8	+0.1	+0.0	41.4	46.0	-4.6	(N)L2
10	4.020M	35.1	+0.1	+0.2	+5.8	+0.1	+0.0	41.3	46.0	-4.7	(N)L2
11	4.122M	35.0	+0.1	+0.2	+5.8	+0.1	+0.0	41.2	46.0	-4.8	(N)L2
12	4.211M	34.9	+0.1	+0.2	+5.8	+0.1	+0.0	41.1	46.0	-4.9	(N)L2
13	11.950M	38.6	+0.2	+0.2	+5.8	+0.3	+0.0	45.1	50.0	-4.9	(N)L2
14	238.719k	40.9	+0.2	+0.0	+5.8	+0.0	+0.0	46.9	52.1	-5.2	(N)L2
15	4.688M	34.5	+0.1	+0.2	+5.8	+0.1	+0.0	40.7	46.0	-5.3	(N)L2
16	3.956M	34.2	+0.1	+0.2	+5.8	+0.1	+0.0	40.4	46.0	-5.6	(N)L2
17	248.900k	40.1	+0.2	+0.0	+5.8	+0.0	+0.0	46.1	51.8	-5.7	(N)L2
18	3.829M	34.0	+0.1	+0.2	+5.8	+0.1	+0.0	40.2	46.0	-5.8	(N)L2
19	4.313M	34.0	+0.1	+0.2	+5.8	+0.1	+0.0	40.2	46.0	-5.8	(N)L2
20	3.573M	33.9	+0.1	+0.2	+5.8	+0.1	+0.0	40.1	46.0	-5.9	(N)L2
21	3.386M	33.8	+0.1	+0.2	+5.8	+0.1	+0.0	40.0	46.0	-6.0	(N)L2
22	3.799M	33.7	+0.1	+0.2	+5.8	+0.1	+0.0	39.9	46.0	-6.1	(N)L2
23	12.139M	37.4	+0.2	+0.2	+5.8	+0.3	+0.0	43.9	50.0	-6.1	(N)L2
24	9.238M	37.2	+0.2	+0.2	+5.8	+0.3	+0.0	43.7	50.0	-6.3	(N)L2
25	10.797M	37.2	+0.2	+0.2	+5.8	+0.3	+0.0	43.7	50.0	-6.3	(N)L2
26	6.265M	37.2	+0.1	+0.2	+5.8	+0.2	+0.0	43.5	50.0	-6.5	(N)L2
27	6.833M	37.2	+0.1	+0.2	+5.8	+0.2	+0.0	43.5	50.0	-6.5	(N)L2
28	11.652M	37.0	+0.2	+0.2	+5.8	+0.3	+0.0	43.5	50.0	-6.5	(N)L2
29 Ave	1.190M	29.1	+0.2	+0.1	+5.8	+0.1	+0.0	35.3	46.0	-10.7	(N)L2

30 Ave	1.192M	28.1	+0.2	+0.1	+5.8	+0.1	+0.0	34.3	46.0	-11.7	(N)L2
^	1.192M	38.9	+0.2	+0.1	+5.8	+0.1	+0.0	45.1	46.0 see average data above	-0.9	(N)L2
32 Ave	829.210k	26.4	+0.2	+0.0	+5.8	+0.0	+0.0	32.4	46.0	-13.6	(N)L2
^	829.210k	37.8	+0.2	+0.0	+5.8	+0.0	+0.0	43.8	46.0 see average data above	-2.2	(N)L2

CKC Laboratories, Inc Date: 4/11/2013 Time: 15:26:29 Magtek Incorporated WO#: 93565
15.207 AC Mains - Average Test Lead: (N)L2 110V 60Hz Sequence#: 6 Ext ATTN: 0 dB
IPAD EMV



Test Setup Photos



USB Setup – Front

USB Setup – Side

Ethernet Setup – Front

Ethernet Setup - Side

15.225(a) RF Power Output

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(a) Field strength of any emissions within the band 13.553MHz to 13.567MHz**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Maximized Emissions** Time: 08:34:50
Equipment: **IPAD EMV** Sequence#: 1
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056015
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056015	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1

Test Conditions / Notes:

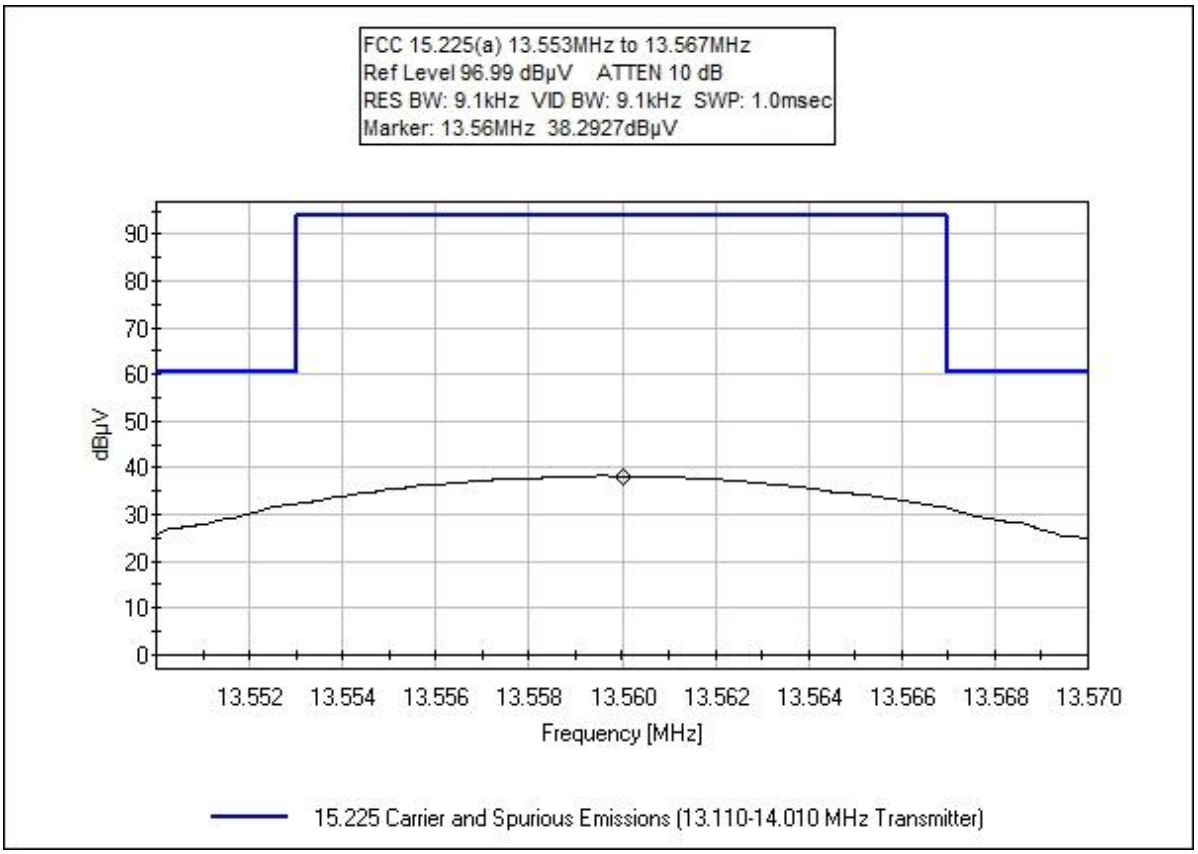
The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB cable is connected to the remotely located laptop. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.551MHz to 13.57MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 51%, Pressure: 100kPa. Site A OATS. Voltage to EUT is 110Vac 60Hz.

Test Data

Ext Attn: 0 dB

Measurement Data: Reading listed by order taken. 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	13.560M	37.8	+0.0	+0.6	+8.5		-19.1	27.8	84.0	-56.2	Axis 2
2	13.560M	35.8	+0.0	+0.6	+8.5		-19.1	25.8	84.0	-58.2	Axis 3
3	13.560M	38.3	+0.0	+0.6	+8.5		-19.1	28.3	84.0	-55.7	Axis 1
4	13.560M	38.3	+0.0	+0.6	+8.5		-19.1	28.3	84.0 85% Rated Voltage	-55.7	Axis 1
5	13.560M	38.3	+0.0	+0.6	+8.5		-19.1	28.3	84.0 115% Rated Voltage	-55.7	Axis 1



USB

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(a) Carrier and Spurious Emissions (13.553-13.567 MHz Transmitter)**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Maximized Emissions** Time: 08:38:38
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

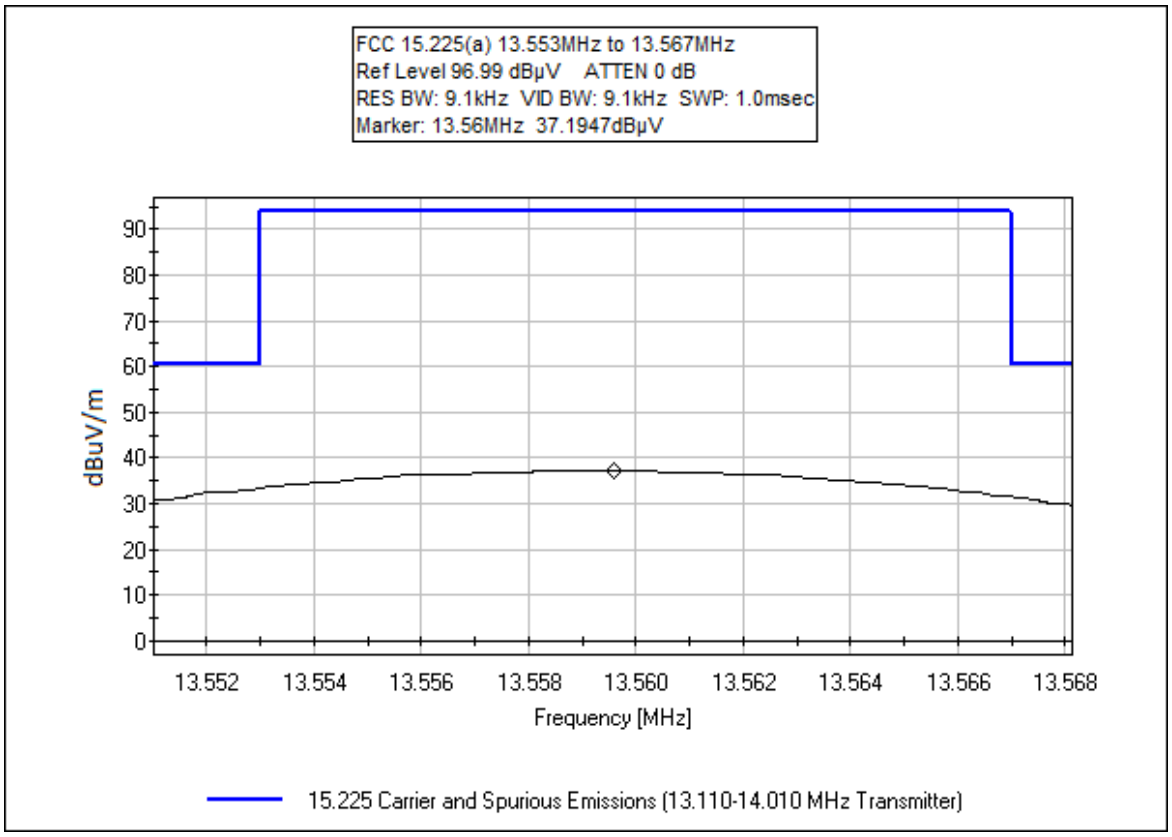
Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.553MHz to 13.567MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz.

Ext Attn: 0 dB

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	13.560M	37.9	+0.0	+0.6	+8.5		-19.1	27.9	84.0	-56.1	Axis 1
2	13.560M	36.3	+0.0	+0.6	+8.5		-19.1	26.3	84.0	-57.7	Axis 2
3	13.560M	34.2	+0.0	+0.6	+8.5		-19.1	24.2	84.0	-59.8	Axis 3


FCC 15.225(a) 13.553MHz to 13.567MHz
Ref Level 96.99 dBµV ATTEN 0 dB
RES BW: 9.1kHz VID BW: 9.1kHz SWP: 1.0msec
Marker: 13.56MHz 37.1947dBµV
dBuV/m
90
80
70
60
50
40
30
20
10
0
13.552
13.554
13.556
13.558
13.560
13.562
13.564
13.566
13.568
Frequency [MHz]
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)

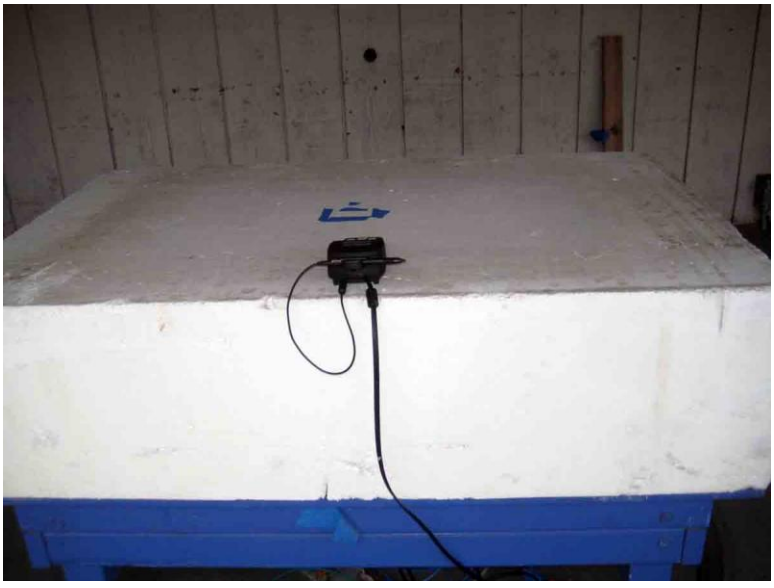
Ethernet

Test Setup Photos

USB, Front View

USB, Front View

Ethernet, Front View



Ethernet, Back View

-20dBc & 99% Occupied Bandwidth

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **2.1049 -20dBc & 99% RSS Occupied Bandwidth**
Work Order #: **93565** Date: 4/11/2013
Time: 08:38:38
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

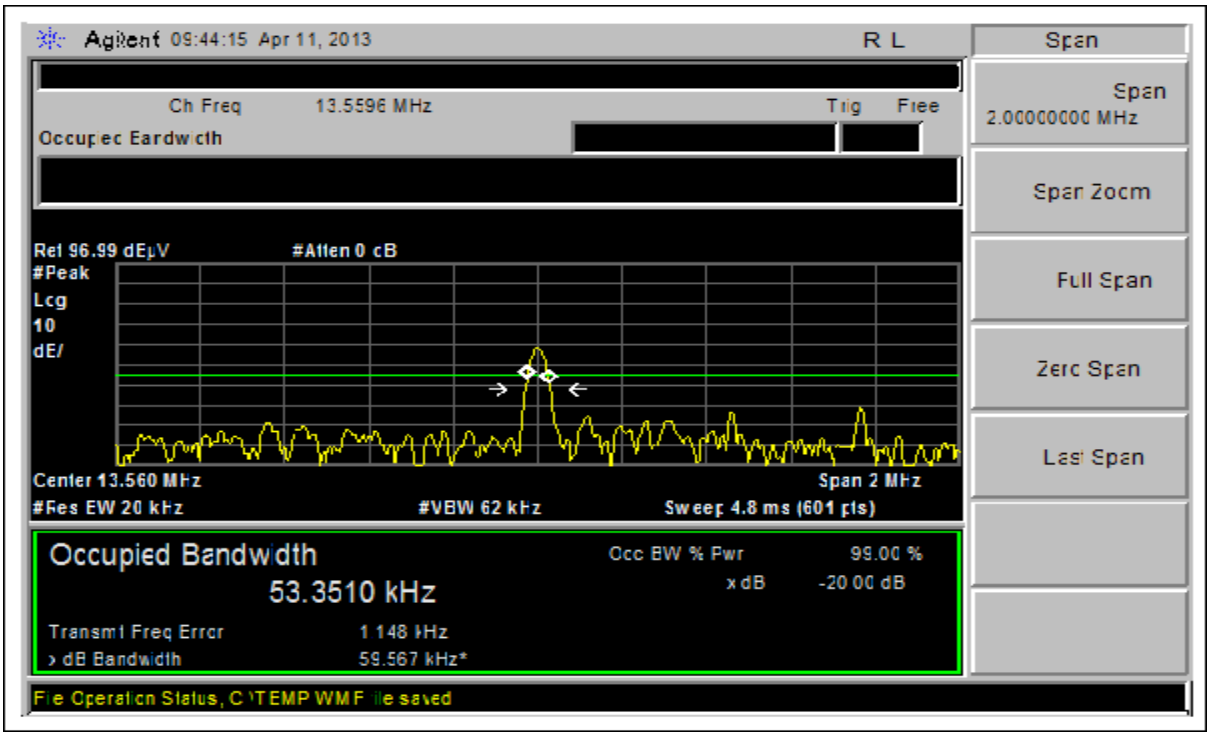
Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

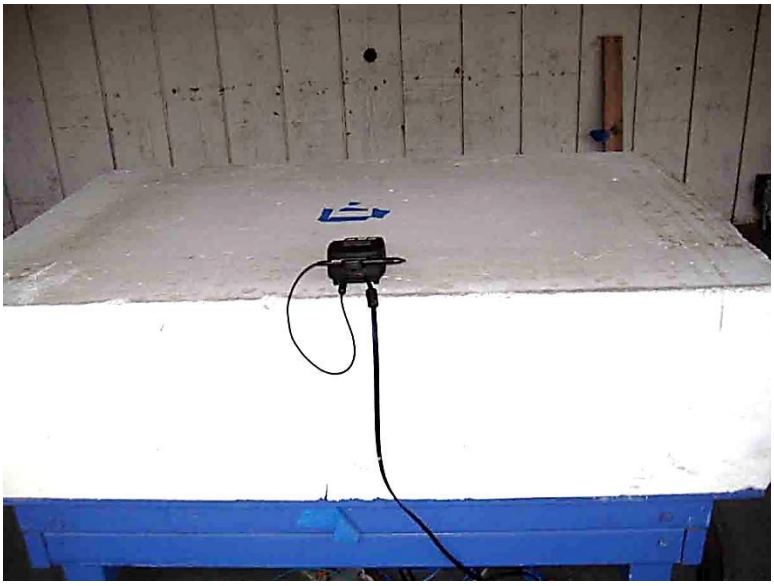
Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz.

Test Data


Agilent 09:44:15 Apr 11, 2013
R L
Span
Ch Freq 13.5596 MHz
Trig Free
Occupied Bandwidth
Span
2.00000000 MHz
Span Zoom
Full Span
Zero Span
Last Span
Ref 96.99 dBµV
#Atten 0 dB
#Peak
Log
10
dB/
Center 13.560 MHz
Span 2 MHz
#Res BW 20 kHz
#VBW 62 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
53.3510 kHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 1.148 kHz
x dB Bandwidth 59.567 kHz*
File Operation Status, C:\TEMP.WMF file saved

Test Setup Photos



15.249(b)(c) Field Strength of Spurious Radiated Emissions

Test Data

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(b) Field strength of any emissions within the band 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Maximized Emissions**
Equipment: **IPAD EMV**
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056015
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

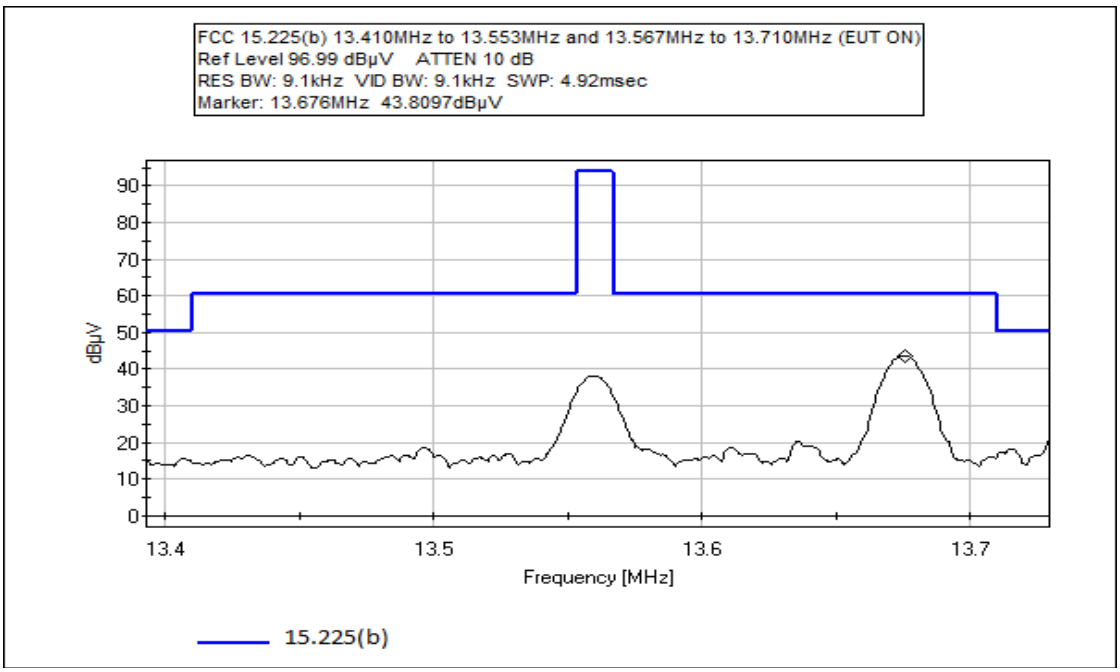
Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056015	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

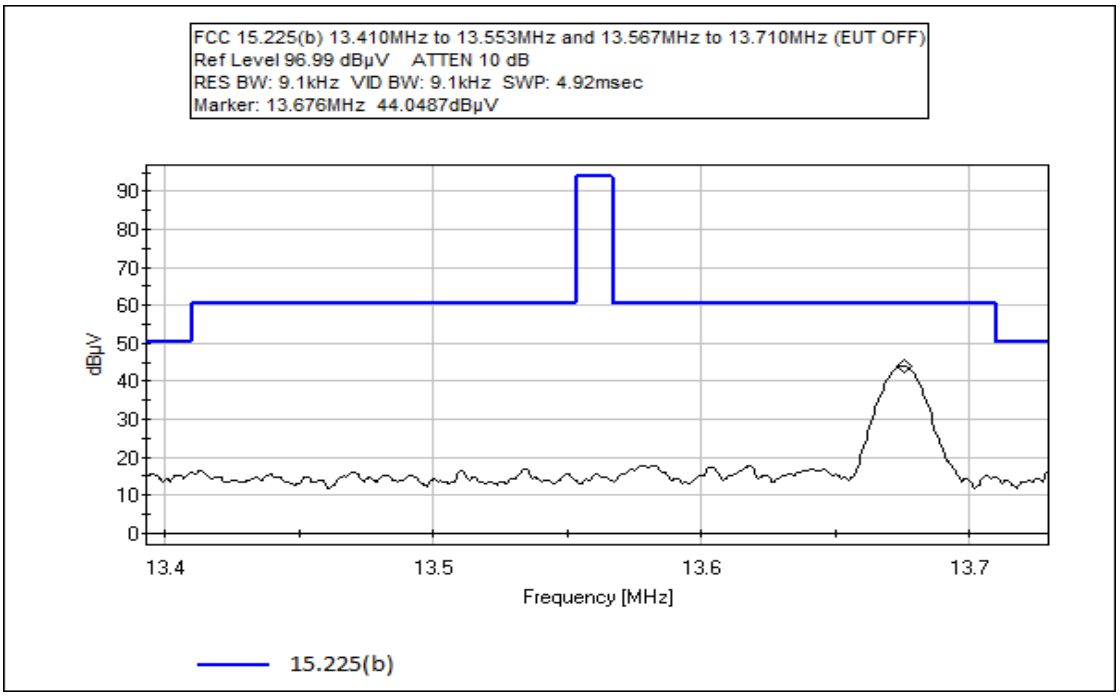
Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB cable is connected to the remotely located laptop. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.4MHz to 13.72MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 51%, Pressure: 100kPa. Site A OATS. Voltage to EUT is 110Vac 60Hz.


FCC 15.225(b) 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz (EUT ON)
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 9.1kHz VID BW: 9.1kHz SWP: 4.92msec
Marker: 13.676MHz 43.8097dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
13.4
13.5
13.6
13.7
Frequency [MHz]
15.225(b)

USB


FCC 15.225(b) 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz (EUT OFF)
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 9.1kHz VID BW: 9.1kHz SWP: 4.92msec
Marker: 13.676MHz 44.0487dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
13.4
13.5
13.6
13.7
Frequency [MHz]
15.225(b)

USB

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(b) Field Strength of Emissions within 13.410-13.553MHz and 13.567-13.710MHz**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Maximized Emissions** Time: 08:38:38
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

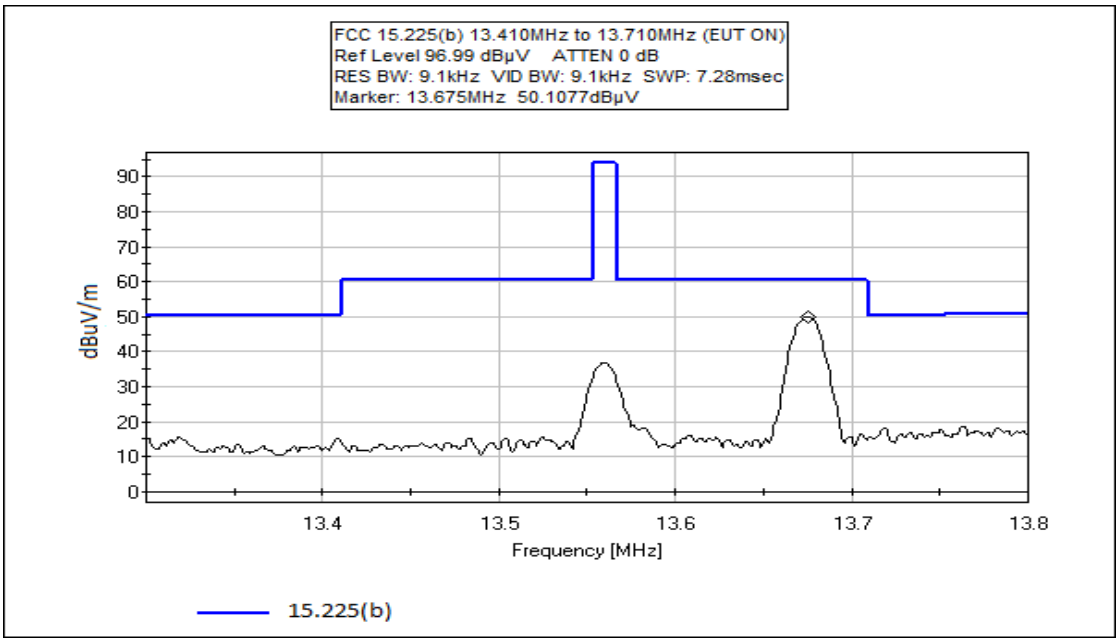
Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

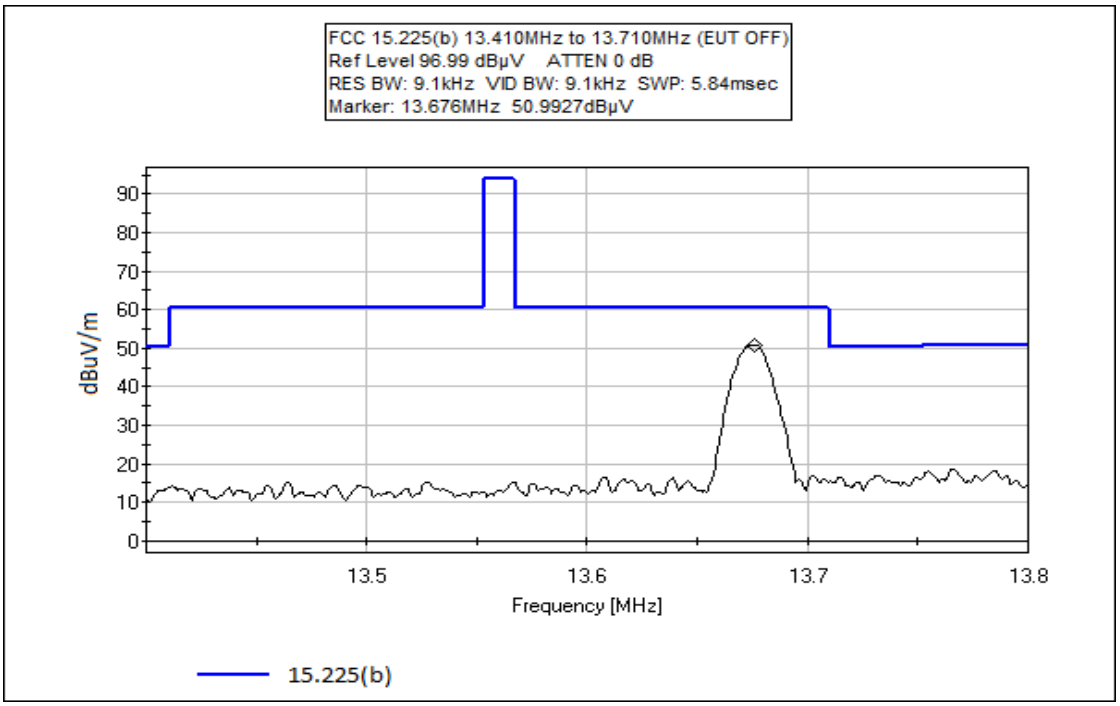
Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.40MHz to 13.80MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz.



Ethernet



Ethernet

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(c) Field strength of any emissions within the band 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz**
Work Order #: **93565** Date: 4/16/2013
Test Type: **Maximized Emissions**
Equipment: **IPAD EMV**
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056015
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

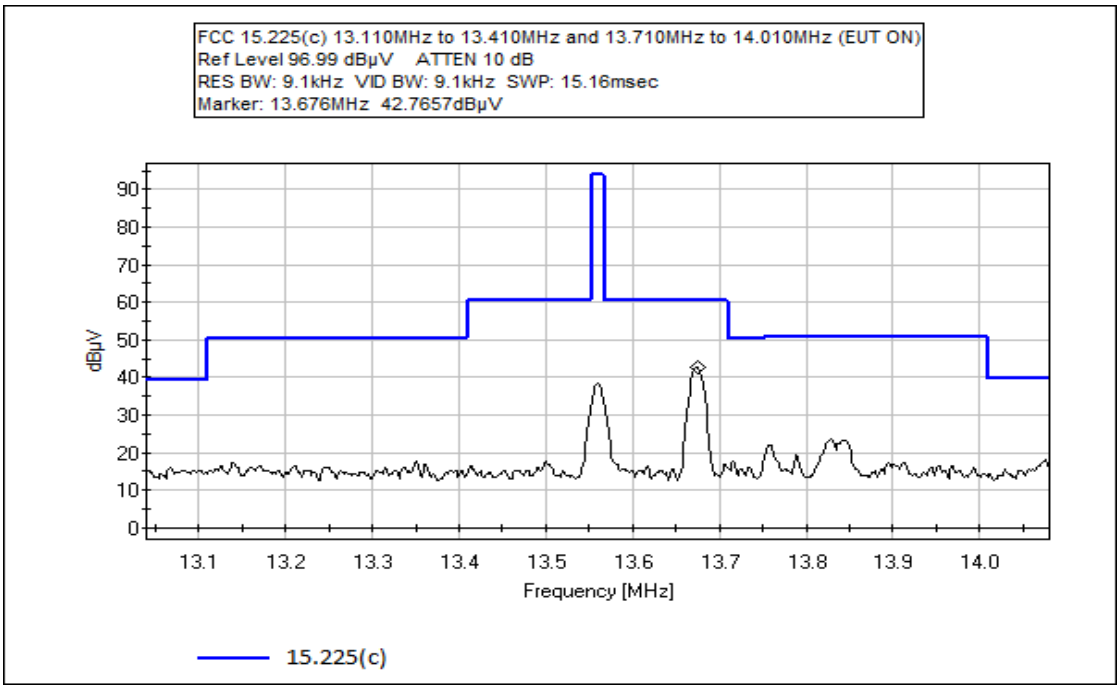
Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056015	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

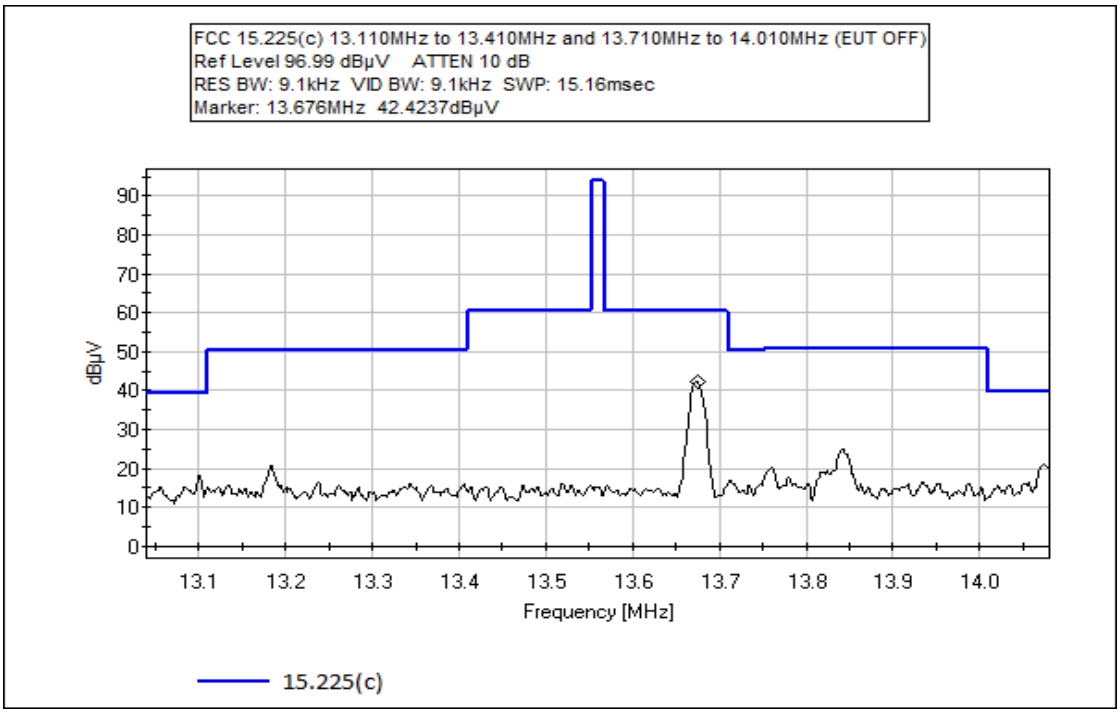
Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB cable is connected to the remotely located laptop. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.1MHz to 14.1MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 51%, Pressure: 100kPa. Site A OATS. Voltage to EUT is 110Vac 60Hz.


FCC 15.225(c) 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz (EUT ON)
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 9.1kHz VID BW: 9.1kHz SWP: 15.16msec
Marker: 13.676MHz 42.7657dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
13.1
13.2
13.3
13.4
13.5
13.6
13.7
13.8
13.9
14.0
Frequency [MHz]
15.225(c)

USB


FCC 15.225(c) 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz (EUT OFF)
Ref Level 96.99 dBµV ATTEN 10 dB
RES BW: 9.1kHz VID BW: 9.1kHz SWP: 15.16msec
Marker: 13.676MHz 42.4237dBµV
dBµV
90
80
70
60
50
40
30
20
10
0
13.1
13.2
13.3
13.4
13.5
13.6
13.7
13.8
13.9
14.0
Frequency [MHz]
15.225(c)

USB

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer:	**Magtek Incorporated**		
Specification:	**15.225(c) Field Strength of Emissions within 13.110-13.410MHz and 13.710-14.010MHz**		
Work Order #:	**93565**	Date:	4/11/2013
Test Type:	**Maximized Emissions**	Time:	08:38:38
Equipment:	**IPAD EMV**	Sequence#:	3
Manufacturer:	Magtek Incorporated	Tested By:	S. Yamamoto
Model:	30056017		
S/N:	30		

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
T3	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

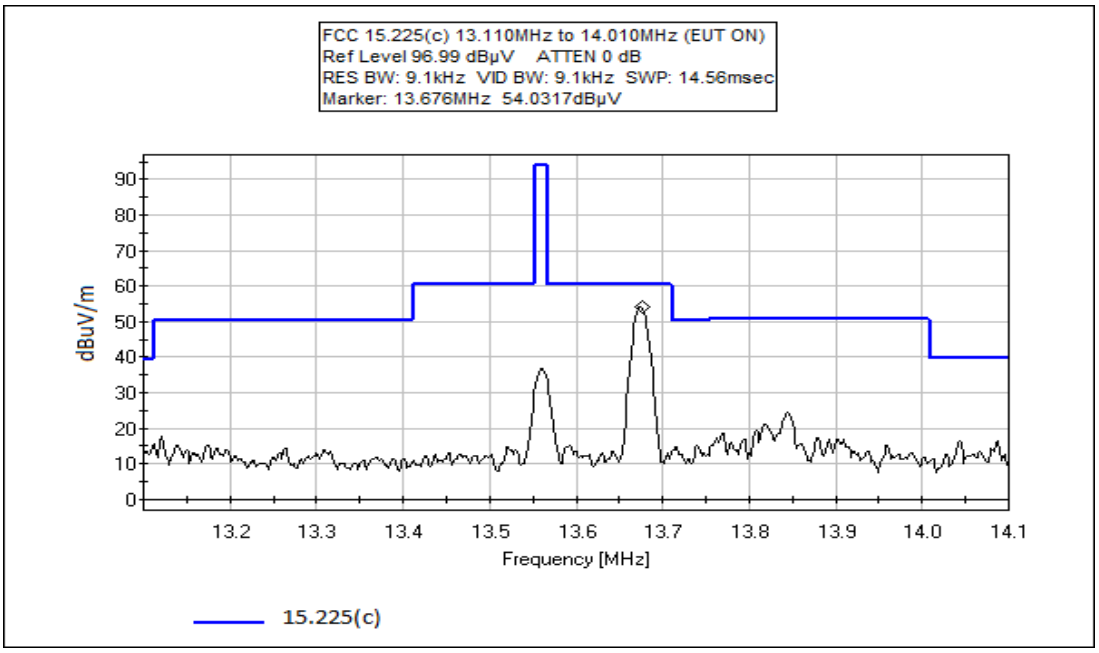
Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

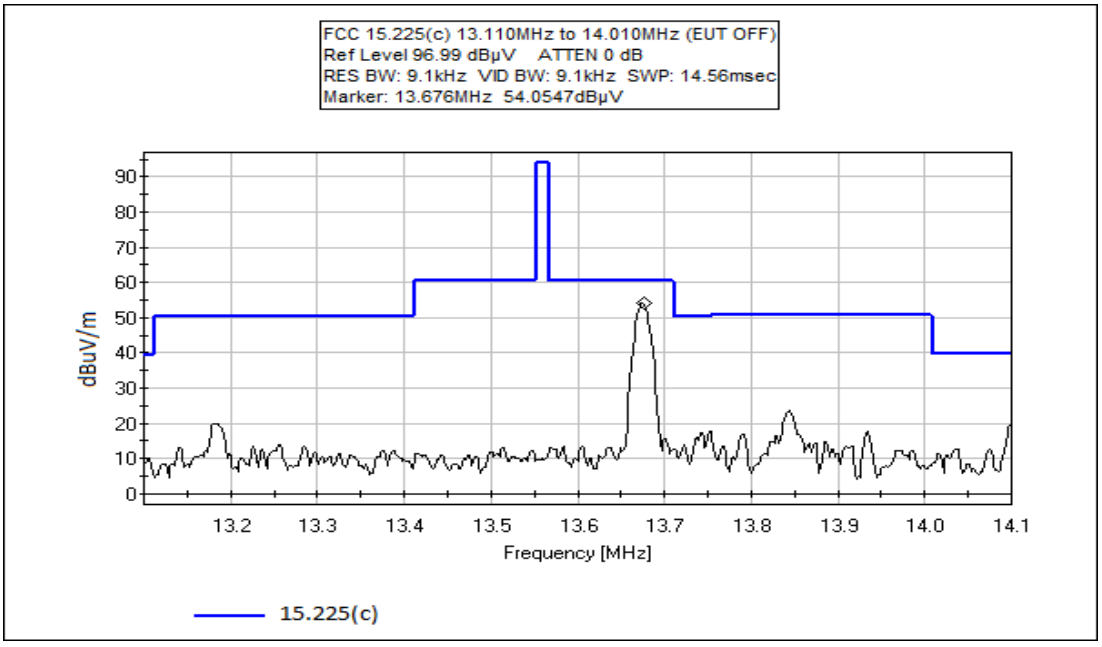
Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.110MHz to 14.10MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa. Site A OATS. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110Vac 60Hz.



Ethernet



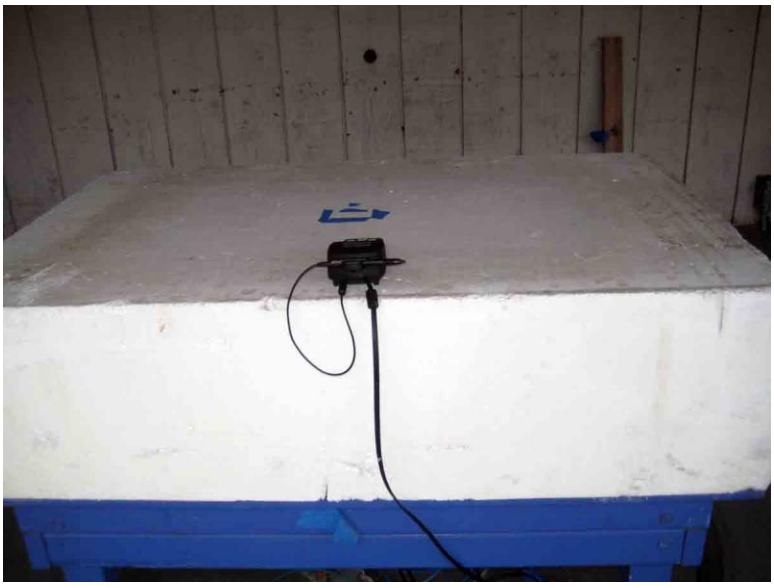
Ethernet

Test Setup Photos

USB, Front View

USB, Front View

Ethernet, Front View



Ethernet, Back View

15.225(d)(e) Radiated Emissions / Frequency Stability

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.209 Radiated Emissions**
Work Order #: **93565** Date: 4/17/2013
Test Type: **Maximized Emissions** Time: 14:20:52
Equipment: **IPAD EMV** Sequence#: 1
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056015
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
	ANP05198	Cable-Amplitude -15 to 15°C	8268	12/11/2012	12/11/2014
T5	AN01995	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056015	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1

Test Conditions / Notes:

The equipment under test (EUT) is stand alone on the Styrofoam tabletop. The EUT USB port is connected to a remotely located laptop. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Modification: Added jumper wire on top of PCBA from sense line of stylus pen from board jack to signature capture screen. Temperature: 19°C, Humidity: 59%, Pressure: 100kPa. Site A OATS. Voltage to EUT is 110Vac 60Hz.

Ext Attn: 0 dB

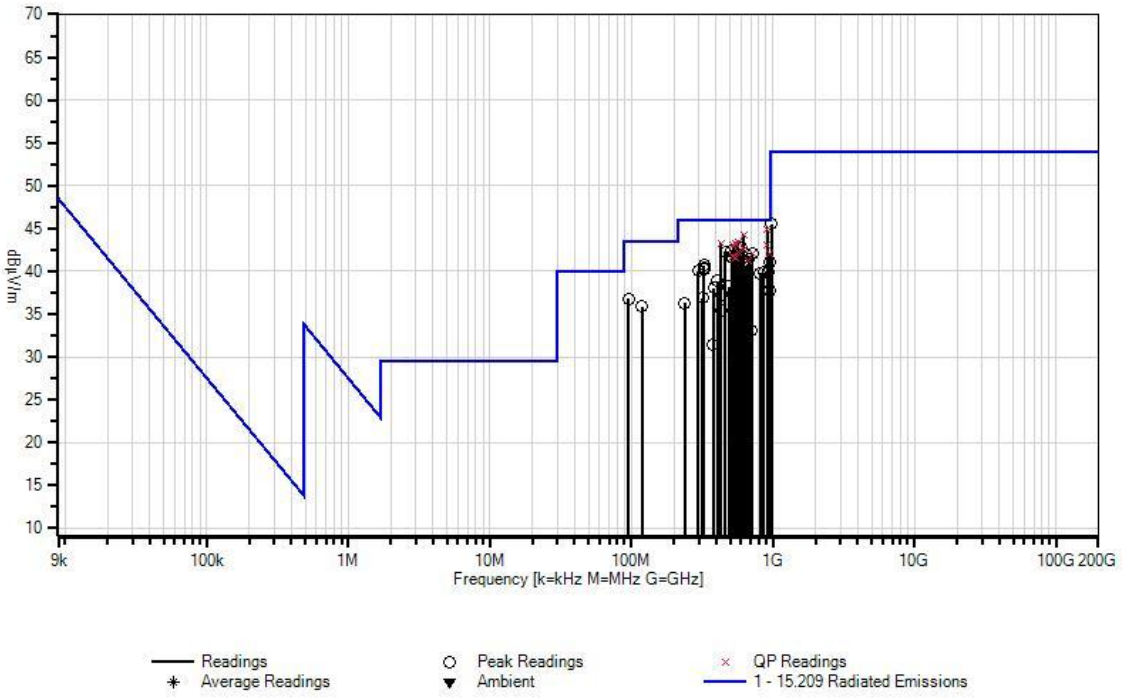
Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	911.982M	42.3	+0.0	+0.6	-27.2	+5.8	+0.0	44.8	46.0	-1.2	Horiz
	QP		+23.3								
^	911.982M	43.0	+0.0	+0.6	-27.2	+5.8	+0.0	45.5	46.0	-0.5	Horiz
			+23.3								
3	623.988M	46.4	+0.0	+0.4	-27.3	+4.7	+0.0	44.3	46.0	-1.7	Horiz
	QP		+20.1								
^	623.988M	46.6	+0.0	+0.4	-27.3	+4.7	+0.0	44.5	46.0	-1.5	Horiz
			+20.1								
5	569.505M	46.9	+0.0	+0.4	-27.5	+4.5	+0.0	43.4	46.0	-2.6	Vert
	QP		+19.1								
6	542.386M	47.6	+0.0	+0.4	-27.6	+4.4	+0.0	43.3	46.0	-2.7	Vert
	QP		+18.5								
^	542.386M	48.5	+0.0	+0.4	-27.6	+4.4	+0.0	44.2	46.0	-1.8	Vert
			+18.5								
8	431.992M	50.4	+0.0	+0.4	-27.8	+3.8	+0.0	43.3	46.0	-2.7	Horiz
	QP		+16.5								
^	431.992M	51.3	+0.0	+0.4	-27.8	+3.8	+0.0	44.2	46.0	-1.8	Horiz
			+16.5								
10	527.991M	47.9	+0.0	+0.4	-27.7	+4.3	+0.0	43.0	46.0	-3.0	Vert
	QP		+18.1								
11	911.982M	40.5	+0.0	+0.6	-27.2	+5.8	+0.0	43.0	46.0	-3.0	Vert
	QP		+23.3								
^	911.982M	41.3	+0.0	+0.6	-27.2	+5.8	+0.0	43.8	46.0	-2.2	Vert
			+23.3								
13	596.624M	45.4	+0.0	+0.4	-27.4	+4.6	+0.0	42.7	46.0	-3.3	Horiz
			+19.7								
14	623.989M	44.7	+0.0	+0.4	-27.3	+4.7	+0.0	42.6	46.0	-3.4	Vert
	QP		+20.1								
^	623.989M	46.0	+0.0	+0.4	-27.3	+4.7	+0.0	43.9	46.0	-2.1	Vert
			+20.1								
16	515.266M	47.7	+0.0	+0.4	-27.7	+4.2	+0.0	42.4	46.0	-3.6	Horiz
			+17.8								
17	461.028M	48.9	+0.0	+0.4	-27.8	+3.9	+0.0	42.3	46.0	-3.7	Vert
			+16.9								
18	569.505M	45.7	+0.0	+0.4	-27.5	+4.5	+0.0	42.2	46.0	-3.8	Vert
	QP		+19.1								
^	569.505M	47.8	+0.0	+0.4	-27.5	+4.5	+0.0	44.3	46.0	-1.7	Vert
			+19.1								
^	569.505M	47.0	+0.0	+0.4	-27.5	+4.5	+0.0	43.5	46.0	-2.5	Vert
			+19.1								
21	719.986M	42.5	+0.0	+0.5	-27.1	+5.1	+0.0	42.2	46.0	-3.8	Horiz
	QP		+21.2								
^	719.986M	43.6	+0.0	+0.5	-27.1	+5.1	+0.0	43.3	46.0	-2.7	Horiz
			+21.2								
23	949.175M	39.2	+0.0	+0.7	-27.3	+6.0	+0.0	42.1	46.0	-3.9	Horiz
	QP		+23.5								

^	949.175M	39.5	+0.0 +23.5	+0.7	-27.3	+6.0	+0.0	42.4	46.0	-3.6	Horiz
25	719.988M	42.4	+0.0 +21.2	+0.5	-27.1	+5.1	+0.0	42.1	46.0	-3.9	Vert
26	596.625M	44.6	+0.0 +19.7	+0.4	-27.4	+4.6	+0.0	41.9	46.0	-4.1	Horiz
27	515.266M	47.1	+0.0 +17.8	+0.4	-27.7	+4.2	+0.0	41.8	46.0	-4.2	Vert
28	527.990M QP	46.6	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	41.7	46.0	-4.3	Vert
^	527.991M	50.3	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	45.4	46.0	-0.6	Vert
^	527.990M	48.1	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	43.2	46.0	-2.8	Vert
31	527.991M	46.6	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	41.7	46.0	-4.3	Horiz
32	542.386M QP	45.8	+0.0 +18.5	+0.4	-27.6	+4.4	+0.0	41.5	46.0	-4.5	Horiz
^	542.386M	47.9	+0.0 +18.5	+0.4	-27.6	+4.4	+0.0	43.6	46.0	-2.4	Horiz
34	677.982M	42.6	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	41.5	46.0	-4.5	Vert
35	596.624M	44.0	+0.0 +19.7	+0.4	-27.4	+4.6	+0.0	41.3	46.0	-4.7	Vert
36	677.983M QP	42.4	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	41.3	46.0	-4.7	Horiz
^	677.983M	44.1	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	43.0	46.0	-3.0	Horiz
38	959.999M	38.1	+0.0 +23.5	+0.7	-27.3	+6.1	+0.0	41.1	46.0	-4.9	Horiz
39	569.505M	44.4	+0.0 +19.1	+0.4	-27.5	+4.5	+0.0	40.9	46.0	-5.1	Horiz
40	325.432M	51.1	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	40.7	46.0	-5.3	Horiz
41	650.853M	42.3	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	40.7	46.0	-5.3	Horiz
42	325.431M	50.8	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	40.4	46.0	-5.6	Horiz
43	325.432M	50.7	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	40.3	46.0	-5.7	Vert
44	298.313M	51.3	+0.0 +13.1	+0.3	-27.8	+3.1	+0.0	40.0	46.0	-6.0	Horiz
45	922.055M	37.4	+0.0 +23.3	+0.6	-27.2	+5.9	+0.0	40.0	46.0	-6.0	Horiz
46	863.997M	37.7	+0.0 +23.0	+0.7	-27.2	+5.7	+0.0	39.9	46.0	-6.1	Horiz
47	815.986M	38.3	+0.0 +22.7	+0.6	-27.3	+5.5	+0.0	39.8	46.0	-6.2	Horiz
48	650.862M	41.1	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	39.5	46.0	-6.5	Vert
49	95.998M	53.5	+0.0 +9.5	+0.1	-28.0	+1.7	+0.0	36.8	43.5	-6.7	Vert

50	406.789M	46.7	+0.0 +16.1	+0.4	-27.9	+3.6	+0.0	38.9	46.0	-7.1	Horiz
51	119.996M	50.2	+0.0 +11.7	+0.1	-28.0	+1.9	+0.0	35.9	43.5	-7.6	Vert
52	488.147M	44.3	+0.0 +17.2	+0.4	-27.8	+4.1	+0.0	38.2	46.0	-7.8	Vert
53	383.993M	46.5	+0.0 +15.6	+0.4	-27.9	+3.5	+0.0	38.1	46.0	-7.9	Horiz
54	949.174M	34.9	+0.0 +23.5	+0.7	-27.3	+6.0	+0.0	37.8	46.0	-8.2	Vert
55	976.294M	42.4	+0.0 +23.6	+0.6	-27.3	+6.2	+0.0	45.5	54.0	-8.5	Horiz
56	431.975M	44.3	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	37.2	46.0	-8.8	Vert
57	319.998M	47.4	+0.0 +13.8	+0.3	-27.8	+3.2	+0.0	36.9	46.0	-9.1	Vert
58	239.995M	49.2	+0.0 +11.8	+0.3	-27.8	+2.8	+0.0	36.3	46.0	-9.7	Vert
59	433.909M	42.6	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	35.5	46.0	-10.5	Vert
60	705.102M	33.8	+0.0 +20.9	+0.5	-27.1	+5.0	+0.0	33.1	46.0	-12.9	Horiz
61	379.671M	40.0	+0.0 +15.5	+0.4	-27.9	+3.5	+0.0	31.5	46.0	-14.5	Horiz

CKC Laboratories, Inc Date: 4/17/2013 Time: 14:20:52 Magtek Incorporated WO#: 93565
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 1 Ext ATTN: 0 dB
IPAD EMV



Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.209 Radiated Emissions**
Work Order #: **93565** Date: 4/17/2013
Test Type: **Maximized Emissions** Time: 11:25:08
Equipment: **IPAD EMV** Sequence#: 2
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP05198	Cable-Amplitude 15 to 45°C (dB)	8268	12/11/2012	12/11/2014
	ANP05198	Cable-Amplitude -15 to 15degC	8268	12/11/2012	12/11/2014
T5	AN01995	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. Temperature: 20°C, Humidity: 36%, Pressure: 100kPa. Site A OATS. Modification: Conductive paint over entire inside surface of back cover. Added jumper wire on top of PCBA from sense line of stylus pen from board jack to signature capture screen. Voltage to EUT is 110Vac 60Hz.

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	30.640M	48.1	+0.0	+0.0	-28.1	+0.9	+0.0	38.3	40.0	-1.7	Vert
	QP		+17.4								
2	542.386M	48.6	+0.0	+0.4	-27.6	+4.4	+0.0	44.3	46.0	-1.7	Horiz
	QP		+18.5								
^	542.386M	49.1	+0.0	+0.4	-27.6	+4.4	+0.0	44.8	46.0	-1.2	Horiz
			+18.5								
4	32.595M	48.7	+0.0	+0.0	-28.1	+1.0	+0.0	38.2	40.0	-1.8	Vert
	QP		+16.6								
^	32.595M	49.3	+0.0	+0.0	-28.1	+1.0	+0.0	38.8	40.0	-1.2	Vert
			+16.6								
6	33.449M	48.7	+0.0	+0.0	-28.1	+1.0	+0.0	37.9	40.0	-2.1	Vert
	QP		+16.3								
^	33.449M	49.7	+0.0	+0.0	-28.1	+1.0	+0.0	38.9	40.0	-1.1	Vert
			+16.3								
8	107.314M	56.6	+0.0	+0.1	-28.0	+1.8	+0.0	41.1	43.5	-2.4	Vert
	QP		+10.6								
^	107.314M	56.9	+0.0	+0.1	-28.0	+1.8	+0.0	41.4	43.5	-2.1	Vert
			+10.6								
10	104.749M	56.8	+0.0	+0.1	-28.0	+1.7	+0.0	41.0	43.5	-2.5	Vert
	QP		+10.4								
11	54.150M	57.0	+0.0	+0.1	-28.2	+1.2	+0.0	37.4	40.0	-2.6	Vert
	QP		+7.3								
^	54.150M	59.0	+0.0	+0.1	-28.2	+1.2	+0.0	39.4	40.0	-0.6	Vert
			+7.3								
13	104.199M	56.7	+0.0	+0.1	-28.0	+1.7	+0.0	40.8	43.5	-2.7	Vert
	QP		+10.3								
^	104.199M	57.8	+0.0	+0.1	-28.0	+1.7	+0.0	41.9	43.5	-1.6	Vert
			+10.3								
15	542.386M	47.6	+0.0	+0.4	-27.6	+4.4	+0.0	43.3	46.0	-2.7	Vert
	QP		+18.5								
^	542.386M	49.5	+0.0	+0.4	-27.6	+4.4	+0.0	45.2	46.0	-0.8	Vert
			+18.5								
17	30.580M	47.0	+0.0	+0.0	-28.1	+0.9	+0.0	37.3	40.0	-2.7	Vert
	QP		+17.5								
^	30.640M	49.2	+0.0	+0.0	-28.1	+0.9	+0.0	39.4	40.0	-0.6	Vert
			+17.4								
19	911.987M	40.7	+0.0	+0.6	-27.2	+5.8	+0.0	43.2	46.0	-2.8	Horiz
	QP		+23.3								
^	911.987M	42.3	+0.0	+0.6	-27.2	+5.8	+0.0	44.8	46.0	-1.2	Horiz
			+23.3								
21	31.432M	47.3	+0.0	+0.0	-28.1	+0.9	+0.0	37.2	40.0	-2.8	Vert
	QP		+17.1								
^	31.432M	48.1	+0.0	+0.0	-28.1	+0.9	+0.0	38.0	40.0	-2.0	Vert
			+17.1								
23	623.986M	45.2	+0.0	+0.4	-27.3	+4.7	+0.0	43.1	46.0	-2.9	Vert
			+20.1								

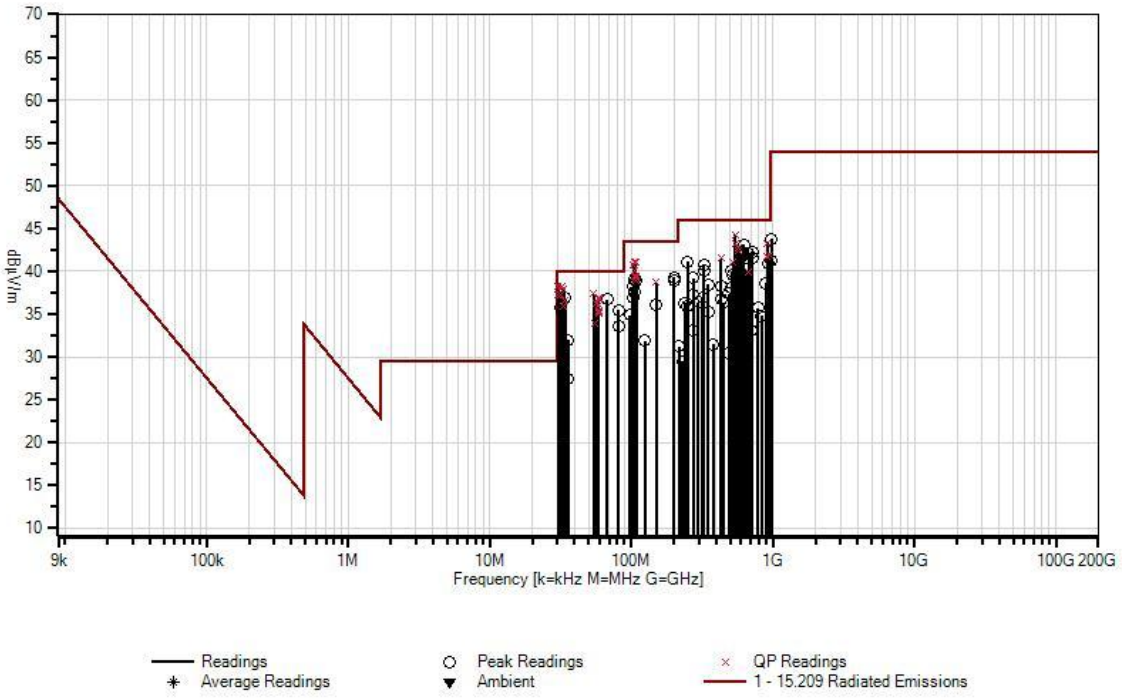
24	58.794M QP	57.6	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	37.0	40.0	-3.0	Vert
25	33.989M	48.0	+0.0 +16.1	+0.0	-28.1	+1.0	+0.0	37.0	40.0	-3.0	Vert
26	569.505M QP	46.3	+0.0 +19.1	+0.4	-27.5	+4.5	+0.0	42.8	46.0	-3.2	Vert
^	569.505M	47.1	+0.0 +19.1	+0.4	-27.5	+4.5	+0.0	43.6	46.0	-2.4	Vert
28	59.253M QP	57.5	+0.0 +6.0	+0.1	-28.1	+1.3	+0.0	36.8	40.0	-3.2	Vert
^	59.253M	58.5	+0.0 +6.0	+0.1	-28.1	+1.3	+0.0	37.8	40.0	-2.2	Vert
30	67.798M	57.3	+0.0 +6.0	+0.1	-28.1	+1.4	+0.0	36.7	40.0	-3.3	Vert
31	106.764M QP	55.7	+0.0 +10.5	+0.1	-28.0	+1.8	+0.0	40.1	43.5	-3.4	Vert
^	106.764M	58.3	+0.0 +10.5	+0.1	-28.0	+1.8	+0.0	42.7	43.5	-0.8	Vert
33	34.121M QP	47.7	+0.0 +16.0	+0.0	-28.1	+1.0	+0.0	36.6	40.0	-3.4	Vert
34	104.690M QP	55.8	+0.0 +10.4	+0.1	-28.0	+1.7	+0.0	40.0	43.5	-3.5	Vert
^	104.690M	58.2	+0.0 +10.4	+0.1	-28.0	+1.7	+0.0	42.4	43.5	-1.1	Vert
^	104.749M	57.1	+0.0 +10.4	+0.1	-28.0	+1.7	+0.0	41.3	43.5	-2.2	Vert
37	569.505M QP	45.9	+0.0 +19.1	+0.4	-27.5	+4.5	+0.0	42.4	46.0	-3.6	Horiz
^	569.505M	46.9	+0.0 +19.1	+0.4	-27.5	+4.5	+0.0	43.4	46.0	-2.6	Horiz
39	719.988M	42.5	+0.0 +21.2	+0.5	-27.1	+5.1	+0.0	42.2	46.0	-3.8	Horiz
40	56.016M QP	56.1	+0.0 +6.8	+0.1	-28.1	+1.3	+0.0	36.2	40.0	-3.8	Vert
^	56.016M	58.8	+0.0 +6.8	+0.1	-28.1	+1.3	+0.0	38.9	40.0	-1.1	Vert
42	596.625M	44.9	+0.0 +19.7	+0.4	-27.4	+4.6	+0.0	42.2	46.0	-3.8	Horiz
43	58.791M QP	56.7	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	36.1	40.0	-3.9	Vert
44	32.899M QP	46.6	+0.0 +16.5	+0.0	-28.1	+1.0	+0.0	36.0	40.0	-4.0	Vert
^	32.899M	48.1	+0.0 +16.5	+0.0	-28.1	+1.0	+0.0	37.5	40.0	-2.5	Vert
46	677.982M	43.1	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	42.0	46.0	-4.0	Vert
47	623.989M	44.0	+0.0 +20.1	+0.4	-27.3	+4.7	+0.0	41.9	46.0	-4.1	Horiz
48	108.817M QP	54.8	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	39.4	43.5	-4.1	Vert
49	105.847M QP	55.0	+0.0 +10.5	+0.1	-28.0	+1.8	+0.0	39.4	43.5	-4.1	Vert

^	105.847M	57.5	+0.0 +10.5	+0.1	-28.0	+1.8	+0.0	41.9	43.5	-1.6	Vert
51	949.175M QP	39.0	+0.0 +23.5	+0.7	-27.3	+6.0	+0.0	41.9	46.0	-4.1	Horiz
^	949.175M	40.2	+0.0 +23.5	+0.7	-27.3	+6.0	+0.0	43.1	46.0	-2.9	Horiz
53	596.624M	44.5	+0.0 +19.7	+0.4	-27.4	+4.6	+0.0	41.8	46.0	-4.2	Vert
54	911.983M QP	39.3	+0.0 +23.3	+0.6	-27.2	+5.8	+0.0	41.8	46.0	-4.2	Vert
^	911.983M	40.8	+0.0 +23.3	+0.6	-27.2	+5.8	+0.0	43.3	46.0	-2.7	Vert
56	200.014M	55.4	+0.0 +9.1	+0.2	-27.9	+2.5	+0.0	39.3	43.5	-4.2	Horiz
57	108.780M QP	54.7	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	39.3	43.5	-4.2	Vert
^	108.780M	58.1	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	42.7	43.5	-0.8	Vert
^	108.817M	56.3	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	40.9	43.5	-2.6	Vert
60	32.002M	46.0	+0.0 +16.9	+0.0	-28.1	+0.9	+0.0	35.7	40.0	-4.3	Vert
61	105.298M	54.9	+0.0 +10.4	+0.1	-28.0	+1.7	+0.0	39.1	43.5	-4.4	Vert
62	719.986M	41.9	+0.0 +21.2	+0.5	-27.1	+5.1	+0.0	41.6	46.0	-4.4	Vert
63	107.070M QP	54.5	+0.0 +10.6	+0.1	-28.0	+1.8	+0.0	39.0	43.5	-4.5	Vert
^	107.070M	55.5	+0.0 +10.6	+0.1	-28.0	+1.8	+0.0	40.0	43.5	-3.5	Vert
65	81.488M	54.4	+0.0 +7.6	+0.1	-28.1	+1.5	+0.0	35.5	40.0	-4.5	Vert
66	58.700M QP	56.1	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	35.5	40.0	-4.5	Vert
67	108.182M	54.3	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	38.9	43.5	-4.6	Vert
68	200.014M	55.0	+0.0 +9.1	+0.2	-27.9	+2.5	+0.0	38.9	43.5	-4.6	Vert
69	58.731M QP	55.8	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	35.2	40.0	-4.8	Vert
70	150.010M QP	53.4	+0.0 +10.9	+0.2	-27.9	+2.1	+0.0	38.7	43.5	-4.8	Vert
^	150.010M	55.8	+0.0 +10.9	+0.2	-27.9	+2.1	+0.0	41.1	43.5	-2.4	Vert
72	250.017M	53.4	+0.0 +12.4	+0.3	-27.8	+2.8	+0.0	41.1	46.0	-4.9	Horiz
73	58.700M QP	55.7	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	35.1	40.0	-4.9	Vert
^	58.700M	60.2	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	39.6	40.0	-0.4	Vert
^	58.700M	58.9	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	38.3	40.0	-1.7	Vert

^	58.731M	57.8	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	37.2	40.0	-2.8	Vert
^	58.791M	57.4	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	36.8	40.0	-3.2	Vert
^	58.761M	55.9	+0.0 +6.1	+0.1	-28.1	+1.3	+0.0	35.3	40.0	-4.7	Vert
79	527.988M QP	45.9	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	41.0	46.0	-5.0	Vert
^	527.988M	47.6	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	42.7	46.0	-3.3	Vert
81	922.051M	38.3	+0.0 +23.3	+0.6	-27.2	+5.9	+0.0	40.9	46.0	-5.1	Horiz
82	103.344M	54.2	+0.0 +10.2	+0.1	-28.0	+1.7	+0.0	38.2	43.5	-5.3	Vert
83	325.430M	51.1	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	40.7	46.0	-5.3	Horiz
84	515.267M	43.4	+0.0 +17.8	+0.4	-27.7	+4.2	+0.0	38.1	43.4	-5.3	Horiz
85	650.862M	41.8	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	40.2	46.0	-5.8	Horiz
86	106.092M	53.2	+0.0 +10.5	+0.1	-28.0	+1.8	+0.0	37.6	43.5	-5.9	Vert
87	325.431M	50.4	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	40.0	46.0	-6.0	Vert
88	515.266M	45.3	+0.0 +17.8	+0.4	-27.7	+4.2	+0.0	40.0	46.0	-6.0	Vert
89	55.890M QP	53.8	+0.0 +6.9	+0.1	-28.1	+1.3	+0.0	34.0	40.0	-6.0	Vert
^	55.890M	57.3	+0.0 +6.9	+0.1	-28.1	+1.3	+0.0	37.5	40.0	-2.5	Vert
91	488.147M	43.5	+0.0 +17.2	+0.4	-27.8	+4.1	+0.0	37.4	43.4	-6.0	Vert
92	677.983M QP	41.0	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	39.9	46.0	-6.1	Horiz
^	677.983M	44.7	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	43.6	46.0	-2.4	Horiz
94	527.989M	44.5	+0.0 +18.1	+0.4	-27.7	+4.3	+0.0	39.6	46.0	-6.4	Horiz
95	81.198M	52.5	+0.0 +7.6	+0.1	-28.1	+1.5	+0.0	33.6	40.0	-6.4	Vert
96	102.485M	53.0	+0.0 +10.1	+0.1	-28.0	+1.7	+0.0	36.9	43.5	-6.6	Vert
97	275.019M	51.0	+0.0 +12.8	+0.3	-27.9	+3.0	+0.0	39.2	46.0	-6.8	Horiz
98	894.936M	36.2	+0.0 +23.2	+0.6	-27.2	+5.8	+0.0	38.6	46.0	-7.4	Horiz
99	352.549M	48.0	+0.0 +14.7	+0.3	-27.9	+3.4	+0.0	38.5	46.0	-7.5	Vert
100	98.460M	51.3	+0.0 +9.8	+0.1	-28.0	+1.7	+0.0	34.9	43.5	-8.6	Vert
101	275.003M	49.1	+0.0 +12.8	+0.3	-27.9	+3.0	+0.0	37.3	46.0	-8.7	Vert

102	319.998M	47.4	+0.0 +13.8	+0.3	-27.8	+3.2	+0.0	36.9	46.0	-9.1	Vert
103	433.910M	43.8	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	36.7	46.0	-9.3	Vert
104	298.313M	47.7	+0.0 +13.1	+0.3	-27.8	+3.1	+0.0	36.4	46.0	-9.6	Horiz
105	454.621M	43.1	+0.0 +16.8	+0.4	-27.8	+3.9	+0.0	36.4	46.0	-9.6	Vert
106	239.995M	49.2	+0.0 +11.8	+0.3	-27.8	+2.8	+0.0	36.3	46.0	-9.7	Vert
107	650.864M	37.6	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	36.0	46.0	-10.0	Vert
108	250.016M	48.3	+0.0 +12.4	+0.3	-27.8	+2.8	+0.0	36.0	46.0	-10.0	Vert
109	976.295M	40.7	+0.0 +23.6	+0.6	-27.3	+6.2	+0.0	43.8	54.0	-10.2	Horiz
110	786.460M	34.7	+0.0 +22.4	+0.6	-27.3	+5.3	+0.0	35.7	46.0	-10.3	Horiz
111	352.551M	44.8	+0.0 +14.7	+0.3	-27.9	+3.4	+0.0	35.3	46.0	-10.7	Horiz
112	832.061M	33.0	+0.0 +22.8	+0.7	-27.2	+5.5	+0.0	34.8	46.0	-11.2	Vert
113	125.006M	46.3	+0.0 +11.6	+0.1	-28.0	+1.9	+0.0	31.9	43.5	-11.6	Vert
114	976.295M	38.1	+0.0 +23.6	+0.6	-27.3	+6.2	+0.0	41.2	54.0	-12.8	Vert
115	275.019M	44.9	+0.0 +12.8	+0.3	-27.9	+3.0	+0.0	33.1	46.0	-12.9	Vert
116	705.102M	33.8	+0.0 +20.9	+0.5	-27.1	+5.0	+0.0	33.1	46.0	-12.9	Horiz
117	488.147M	36.6	+0.0 +17.2	+0.4	-27.8	+4.1	+0.0	30.5	43.4	-12.9	Horiz
118	379.671M	40.0	+0.0 +15.5	+0.4	-27.9	+3.5	+0.0	31.5	46.0	-14.5	Horiz
119	216.955M	45.9	+0.0 +10.3	+0.2	-27.8	+2.6	+0.0	31.2	46.0	-14.8	Horiz
120	230.508M	43.2	+0.0 +11.2	+0.2	-27.8	+2.7	+0.0	29.5	46.0	-16.5	Vert
121	431.983M QP	48.6	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	41.5	61.4	-19.9	Horiz
^	431.983M	49.8	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	42.7	61.4	-18.7	Horiz
123	431.992M	45.3	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	38.2	61.4	-23.2	Vert
124	150.010M	50.8	+0.0 +10.9	+0.2	-27.9	+2.1	+0.0	36.1	61.4	-25.3	Horiz
125	36.000M	43.8	+0.0 +15.2	+0.0	-28.1	+1.0	+0.0	31.9	61.4	-29.5	Vert
126	35.973M	39.4	+0.0 +15.2	+0.0	-28.1	+1.0	+0.0	27.5	61.4	-33.9	Horiz

CKC Laboratories, Inc Date: 4/17/2013 Time: 11:25:08 Magtek Incorporated WO#: 93565
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 2 Ext ATTN: 0 dB
IPAD EMV



Frequency Stability

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(e)**
Work Order #: **93565** Date: 4/11/2013
Test Type: **Frequency Stability**
Equipment: **IPAD EMV**
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

Asset #	Description	Model	Calibration Date	Cal Due Date
02869/MY46186290	Spectrum Analyzer	E4440A	020613	020615
01878/25-1758-25	Temperature Chamber	S 1.2 Mini-Max	040213	040215
P04358/cable21	Cable	RG142	041012	041014
(none)/(none)	Near field probe	(none)	NCR	NCR
01695/0250 01696/0245	AC Power Source	345AMXT/UPC32	012213	012215

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

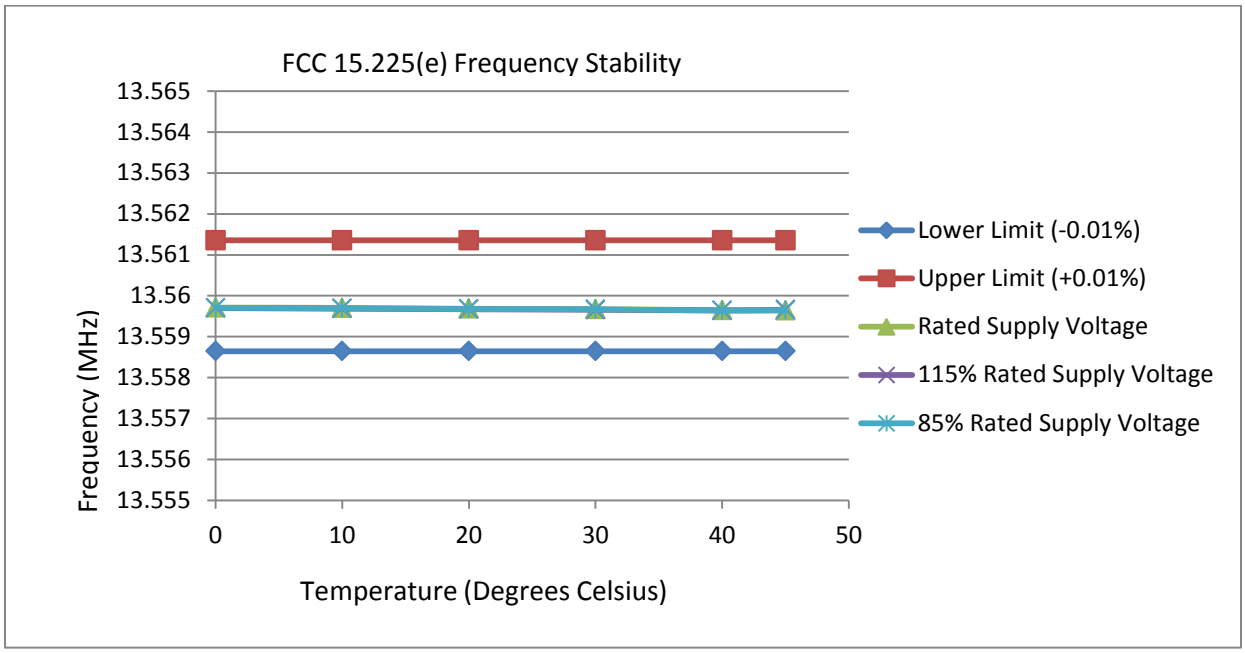
Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5VDC Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) is placed inside the temperature chamber. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. Site A. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Voltage to EUT is 110VAC 60Hz. Near field probe placed on top of EUT to measure frequency and amplitude.


FCC 15.225(e) Frequency Stability
13.565
13.564
13.563
13.562
13.561
13.56
13.559
13.558
13.557
13.556
13.555
Frequency (MHz)
0
10
20
30
40
50
Temperature (Degrees Celsius)
Lower Limit (-0.01%)
Upper Limit (+0.01%)
Rated Supply Voltage
115% Rated Supply Voltage
85% Rated Supply Voltage

Test Setup Photos

Frequency Stability

APPENDIX A
MODIFIED EUT TEST RESULTS

MANUFACTURER'S DESCRIPTION OF CHANGES TO ANTENNA DRIVER BOARD IPAD EMV (30050735.5.01)

Robert Rodriguez

Thursday, May 23, 2013

The antenna driver board was modified in order to pass EMVCo load modulation tests. The changes affect mainly capacitors C16, C49.

Capacitors C16, and C49 changed from 130pF to 100pF. This reflects the latest changes to the hardware and MagTek Documentation.

The changes impact load modulation reception for EMVCo specifications, and do not affect power transmission for FCC/CE radiated emissions.

To confirm this change didn't affect the radiated emission, pre-scans were performed on the fundamental frequency (i.e., 13.56MHz) and its harmonics. Test results at CKC laboratory for FCC Class B show there is no performance change when comparing before and after the capacitor magnitude changes.

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Magtek Incorporated
1710 Apollo Court
Seal Beach, CA 90740

Representative: Alireza Ashani
Customer Reference Number: 96283

REPORT PREPARED BY:

Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 93565

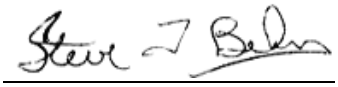
DATE OF EQUIPMENT RECEIPT: May 20, 2013
DATE(S) OF TESTING: May 20-23, 2013

Revision History

Original: Testing of IPAD EMV, 30056015 (uses 30019320 USB cable) and 30056017 (uses 30019319 Ethernet / USB combo cable) to FCC Part 15 Subpart C Sections 15.225 and RSS 210 Issue 8.
Addendum A: To add new partial 15.225 test data for the IPAD EMV, Model: 30056017 (uses 30019319 Ethernet/USB combo cable) due to modifications made to the EUT after the original testing had been completed. See appendix A for listing of modifications.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.



Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Software Versions

CKC Laboratories Proprietary Software	Version
EMITest Emissions	5.00.14
Immunity	5.00.07

Site Registration & Accreditation Information

Location	CB #	TAIWAN	CANADA	FCC	JAPAN
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	A-0147

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C 15.225 & RSS 210 Issue 8

Description	Test Procedure/Method	Results
RF Power Output	FCC Part 15 Subpart C Section 15.225(a) / 2.1046	Pass
Radiated Emissions / Frequency Stability	FCC Part 15 Subpart C Section 15.225 (d) / 2.1055(d) / 15.209 / ANSI C63.4 (2003)	Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
Modifications 15.225(a) RF Power testing: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Changed values of C16, C49 on the Antenna Driver PCB from 130pf to 100pf. Voltage to EUT is 110Vac 60Hz.
Modifications 15.225(d) radiated emissions testing: Conductive paint over entire inside surface of back cover. Added jumper wire on top of PCBA from sense line of stylus pen from board jack to signature capture screen. Changed values of C16, C49 on the Antenna Driver PCB from 130pf to 100pf. Voltage to EUT is 110Vac 60Hz.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

IPAD EMV
Manuf: Magtek Incorporated
Model: 30056017
Serial: 30

AC to 5VDC Power Supply
Manuf: DVE
Model: DSA-12PFA-05 FUS 050200
Serial: NA

PERIPHERAL DEVICES

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

Laptop Computer
Manuf: Dell Corporation
Model: Latitude D520
Serial: H2JFYC1

Fast Ethernet Switch
Manuf: Netgear
Model: FS105
Serial: 1D52173U01B60

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

15.225(a) RF Power Output

Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.225(a) Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
Work Order #: **93565** Date: 5/23/2013
Test Type: **Maximized Emissions** Time: 11:34:35
Equipment: **IPAD EMV** Sequence#: 3
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T1	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
T2	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. Also connected to the remotely located switch is the laptop computer. The AC to 5Vdc power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 13.56MHz. 150kHz to 30MHz, RBW=VBW=9kHz. Temperature: 20°C, Humidity: 49%, Pressure: 100kPa. Site A OATS. **Data sheet is only a measurement of the fundamental frequency**. Modification: Copper tape shield installed into bottom cover over interface connections. Shield covers entire internal surface of the cover. Changed values of C16, C49 on the Antenna Driver PCB from 130pf to 100pf. Voltage to EUT is 110Vac 60Hz.

Ext Attn: 0 dB

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	13.560M	37.9	+0.6	+8.5			-19.1	27.9	84.0	-56.1	Axis
2	13.560M	36.3	+0.6	+8.5			-19.1	26.3	84.0	-57.7	Axis
3	13.560M	34.1	+0.6	+8.5			-19.1	24.1	84.0	-59.9	Axis

Test Setup Photos

Ethernet, Front View

Ethernet, Back View

15.225(d) Radiated Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 North Olinda Place • Brea, CA 92823 • 7149936112

Customer: **Magtek Incorporated**
Specification: **15.209 Radiated Emissions**
Work Order #: **93565** Date: 5/23/2013
Test Type: **Maximized Emissions** Time: 11:02:26
Equipment: **IPAD EMV** Sequence#: 2
Manufacturer: Magtek Incorporated Tested By: S. Yamamoto
Model: 30056017
S/N: 30

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02672	Spectrum Analyzer	E4446A	9/4/2012	9/4/2014
T2	ANP05050	Cable	RG223/U	1/21/2013	1/21/2015
T3	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T4	ANP05198	Cable-Amplitude 15 to 45degC (dB)	8268	12/11/2012	12/11/2014
	ANP05198	Cable-Amplitude -15 to 15degC	8268	12/11/2012	12/11/2014
T5	AN01995	Biconilog Antenna	CBL6111C	5/16/2012	5/16/2014
	AN00314	Loop Antenna	6502	6/29/2012	6/29/2014

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

Function	Manufacturer	Model #	S/N
IPAD EMV*	Magtek Incorporated	30056017	30
AC to 5Vdc Power Supply	DVE	DSA-12PFA-05 FUS 050200	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop Computer	Dell Corporation	Latitude D520	H2JFYC1
Fast Ethernet Switch	Netgear	FS105	1D52173U01B60

Test Conditions / Notes:

The equipment under test (EUT) and its AC to DC adapter are stand alone on the Styrofoam tabletop. The EUT Ethernet port is connected to a remotely located switch. The EUT combo interface cable is part number 30019319. Also connected to the remotely located switch is the laptop computer. The AC to 5VDC power adapter is connected to the interface cable and providing power to the EUT. The EUT wireless 13.56 MHz is on and continuously transmitting. Frequency range of this data sheet: 9kHz to 1000MHz. 9kHz to 150kHz, RBW=VBW=200Hz. 150kHz to 30MHz, RBW=VBW=9kHz. 30MHz to 1000MHz, RBW=VBW=120kHz. Highest fundamental frequency is 13.56MHz. This data sheet contains only harmonics of the 13.56MHz fundamental. Temperature: 20°C, Humidity: 49%, Pressure: 100kPa. Site A OATS. Modification: Conductive paint over entire inside surface of back cover. Added jumper wire on top of PCBA from sense line of stylus pen from board jack to signature capture screen. Changed values of C16, C49 on the Antenna Driver PCB from 130pf to 100pf. Voltage to EUT is 110Vac 60Hz.

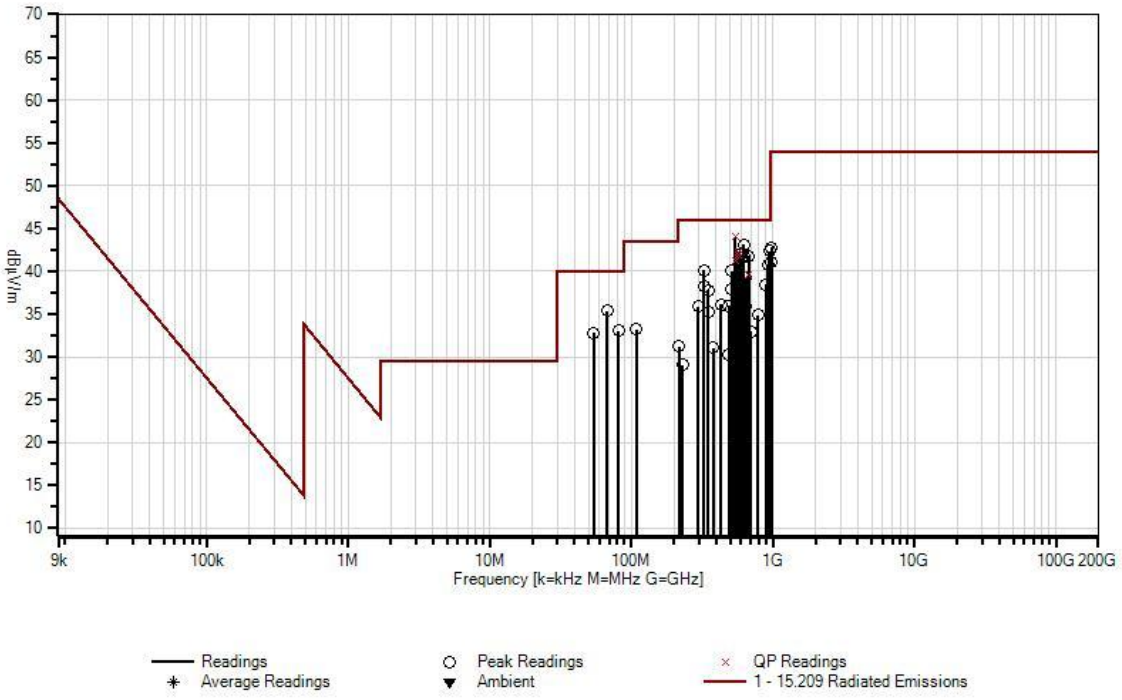
Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	542.386M	48.3	+0.0	+0.4	-27.6	+4.4	+0.0	44.0	46.0	-2.0	Horiz
	QP		+18.5								
^	542.386M	48.5	+0.0	+0.4	-27.6	+4.4	+0.0	44.2	46.0	-1.8	Horiz
			+18.5								
3	623.743M	45.2	+0.0	+0.4	-27.3	+4.7	+0.0	43.1	46.0	-2.9	Vert
			+20.1								
4	949.178M	39.5	+0.0	+0.7	-27.3	+6.0	+0.0	42.4	46.0	-3.6	Horiz
			+23.5								
5	569.505M	45.8	+0.0	+0.4	-27.5	+4.5	+0.0	42.3	46.0	-3.7	Vert
	QP		+19.1								
^	569.505M	46.9	+0.0	+0.4	-27.5	+4.5	+0.0	43.4	46.0	-2.6	Vert
			+19.1								
7	596.622M	44.7	+0.0	+0.4	-27.4	+4.6	+0.0	42.0	46.0	-4.0	Horiz
			+19.7								
8	569.505M	45.4	+0.0	+0.4	-27.5	+4.5	+0.0	41.9	46.0	-4.1	Horiz
	QP		+19.1								
^	569.505M	46.3	+0.0	+0.4	-27.5	+4.5	+0.0	42.8	46.0	-3.2	Horiz
			+19.1								
10	677.982M	42.9	+0.0	+0.5	-27.1	+4.9	+0.0	41.8	46.0	-4.2	Vert
			+20.6								
11	623.743M	43.9	+0.0	+0.4	-27.3	+4.7	+0.0	41.8	46.0	-4.2	Horiz
			+20.1								
12	596.625M	44.2	+0.0	+0.4	-27.4	+4.6	+0.0	41.5	46.0	-4.5	Vert
			+19.7								
13	67.798M	56.0	+0.0	+0.1	-28.1	+1.4	+0.0	35.4	40.0	-4.6	Vert
			+6.0								
14	542.385M	45.5	+0.0	+0.4	-27.6	+4.4	+0.0	41.2	46.0	-4.8	Vert
	QP		+18.5								
^	542.385M	48.0	+0.0	+0.4	-27.6	+4.4	+0.0	43.7	46.0	-2.3	Vert
			+18.5								
16	922.042M	38.1	+0.0	+0.6	-27.2	+5.9	+0.0	40.7	46.0	-5.3	Horiz
			+23.3								
17	325.437M	50.5	+0.0	+0.3	-27.9	+3.3	+0.0	40.1	46.0	-5.9	Horiz
			+13.9								

18	515.266M	45.3	+0.0 +17.8	+0.4	-27.7	+4.2	+0.0	40.0	46.0	-6.0	Vert
19	677.982M QP	40.7	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	39.6	46.0	-6.4	Horiz
^	677.982M	43.3	+0.0 +20.6	+0.5	-27.1	+4.9	+0.0	42.2	46.0	-3.8	Horiz
21	650.866M	40.9	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	39.3	46.0	-6.7	Horiz
22	81.358M	52.0	+0.0 +7.6	+0.1	-28.1	+1.5	+0.0	33.1	40.0	-6.9	Vert
23	54.239M	52.4	+0.0 +7.3	+0.1	-28.2	+1.2	+0.0	32.8	40.0	-7.2	Vert
24	894.962M	36.1	+0.0 +23.2	+0.6	-27.2	+5.8	+0.0	38.5	46.0	-7.5	Horiz
25	325.429M	48.7	+0.0 +13.9	+0.3	-27.9	+3.3	+0.0	38.3	46.0	-7.7	Vert
26	515.267M	43.3	+0.0 +17.8	+0.4	-27.7	+4.2	+0.0	38.0	46.0	-8.0	Horiz
27	352.547M	47.3	+0.0 +14.7	+0.3	-27.9	+3.4	+0.0	37.8	46.0	-8.2	Vert
28	433.912M	43.2	+0.0 +16.5	+0.4	-27.8	+3.8	+0.0	36.1	46.0	-9.9	Vert
29	488.150M	42.1	+0.0 +17.2	+0.4	-27.8	+4.1	+0.0	36.0	46.0	-10.0	Vert
30	650.863M	37.6	+0.0 +20.3	+0.5	-27.2	+4.8	+0.0	36.0	46.0	-10.0	Vert
31	298.311M	47.2	+0.0 +13.1	+0.3	-27.8	+3.1	+0.0	35.9	46.0	-10.1	Horiz
32	108.477M	48.6	+0.0 +10.7	+0.1	-28.0	+1.8	+0.0	33.2	43.5	-10.3	Vert
33	352.550M	44.8	+0.0 +14.7	+0.3	-27.9	+3.4	+0.0	35.3	46.0	-10.7	Horiz
34	786.463M	33.9	+0.0 +22.4	+0.6	-27.3	+5.3	+0.0	34.9	46.0	-11.1	Horiz
35	976.320M	39.7	+0.0 +23.6	+0.6	-27.3	+6.2	+0.0	42.8	54.0	-11.2	Horiz
36	976.294M	38.0	+0.0 +23.6	+0.6	-27.3	+6.2	+0.0	41.1	54.0	-12.9	Vert
37	705.099M	33.7	+0.0 +20.9	+0.5	-27.1	+5.0	+0.0	33.0	46.0	-13.0	Horiz
38	216.954M	45.9	+0.0 +10.3	+0.2	-27.8	+2.6	+0.0	31.2	46.0	-14.8	Horiz
39	379.664M	39.6	+0.0 +15.5	+0.4	-27.9	+3.5	+0.0	31.1	46.0	-14.9	Horiz
40	488.148M	36.4	+0.0 +17.2	+0.4	-27.8	+4.1	+0.0	30.3	46.0	-15.7	Horiz
41	230.514M	42.8	+0.0 +11.2	+0.2	-27.8	+2.7	+0.0	29.1	46.0	-16.9	Vert

CKC Laboratories, Inc Date: 5/23/2013 Time: 11:02:26 Magtek Incorporated WO#: 93565
15.209 Radiated Emissions Test Distance: 3 Meters Sequence#: 2 Ext ATTN: 0 dB
IPAD EMV



Test Setup Photos

Ethernet, Front View

Ethernet, Front View

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: 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. 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 dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/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. Unless otherwise specified, 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.

MEASURING EQUIPMENT 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
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 "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. 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 receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent 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

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. 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.