RJC Enterprises, LLC

ADDENDUM TEST REPORT TO 93114-11

Endophys Pressure Monitor, Endophys 651 Power Supply, GTM 21091-5012

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.207, 15.225
and
RSS 210 Issue 8

Report No.: 93114-11A

Date of issue: October 2, 2012

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:

RJC Enterprises, LLC
11711 N. Creek Parkway S., Ste. D-103
Bothell, WA 98011

Representative: Rondii Lynberg
Customer Reference Number: 12-05029

REPORT PREPARED BY:

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

Project Number: 93114

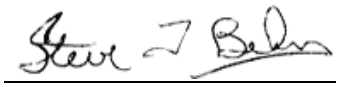
DATE OF EQUIPMENT RECEIPT: May 18, 2012
DATE(S) OF TESTING: May 18-30, 2012

Revision History

Original: Testing of the Endophys Pressure Monitor and Endophys 651 Power Supply, GTM 21091-5012 to FCC Part 15 Subpart C Sections 15.207, 15.225 and rss 210 issue 8.
Addendum A: This addendum adds test conditions in the "Summary of Conditions" section and adds two peripheral devices.

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.
22116 23rd Drive S.E., Suite A
Bothell, WA 98021-4413

Site Registration & Accreditation Information

Location	CB #	Taiwan	Canada	FCC	Japan
Bothell	US0081	SL2-IN-E-1145R	3082C-1	318736	R-2296 C-2506 T-1489 G-284

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Description	Test Procedure/Method	Results
Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2009)	Pass
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C Section / ANSI C63.4 (2009)	Pass
Field Strength of Spurious Emissions	FCC Part 15 Subpart C Section 15.225(a)(b)(c)(d) / ANSI C63.4 (2009)	Pass
Frequency Tolerance and Voltage Variations	FCC Part 15 Subpart C Section 15.225(e)/ ANSI C63.4 (2009)	Pass
99% Bandwidth	RSS 210 Issue 8	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
Radiated measurements: EUT was located on the test table, 80cm above the ground plane. The EUT was separated from the table by a piece of Styrofoam. The EUT's USB is connected to a laptop outside the test chamber through a USB-Fiber optic converter. The fiber optic port was populated with a fiber optic. The BPN port was connected to a terminated cable.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Endophys Pressure Monitor
Manuf: RJC Enterprises, LLC
Model: Endophys 651
Serial: 8989

Power Supply (#1)
Manuf: Glob Tek, Inc.
Model: GTM 21091-5012
Serial: RoHS022581010612

PERIPHERAL DEVICES

The EUT was tested with the following peripheral devices:

Laptop
Manuf: Compaq
Model: 2105US
Serial: CN30215791

USB 2.0 to Fiber Bit-Driver
Manuf: S.I. Tech
Model: 2172
Serial: 079535

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. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **RJC Enterprises, LLC**
Specification: **15.207 AC Mains - Average**
Work Order #: **93114** Date: 5/30/2012
Test Type: **Conducted Emissions** Time: 4:19:27 PM
Equipment: **Endophys Pressure Monitor** Sequence#: 3
Manufacturer: RJC Enterprises, LLC Tested By: Armando Del Angel
Model: Endophys 651 120V 60Hz
S/N: 8989

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05435	Attenuator	PE7015-10	9/8/2010	9/8/2012
T2	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T3	ANP05542	Cable	Heliax	9/27/2011	9/27/2013
T4	AN01492	50uH LISN-Line	3816/2NM	6/14/2011	6/14/2013
	AN01492	50uH LISN-Neutral	3816/2NM	6/14/2011	6/14/2013
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T5	AN01717	High Pass Filter	F3440-P005	5/11/2012	5/11/2014

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

Function	Manufacturer	Model #	S/N
Endophys Pressure Monitor*	RJC Enterprises, LLC	Endophys 651	8989
Power Supply (#1)	Glob Tek, Inc.	GTM 21091-5012	RoHS022581010612

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Temp: 24°C
Humidity: 33%
Pressure: 102.9kPa
Frequency: 0.150-30MHz

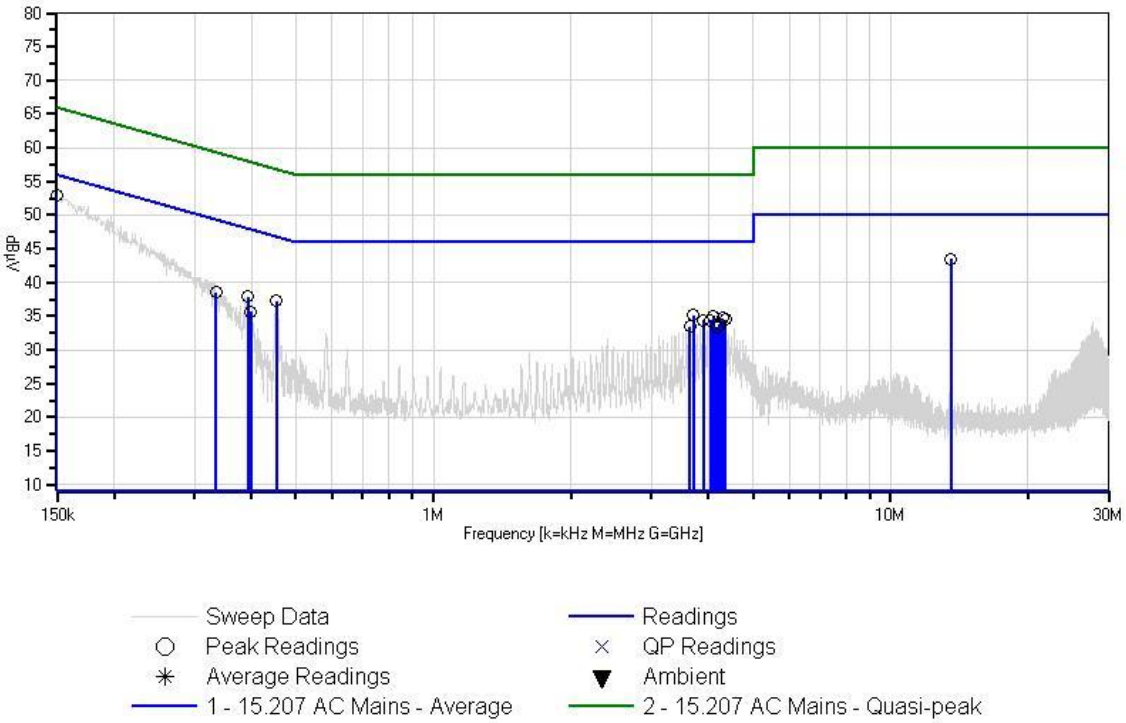
Vertical ground plane is 40cm from the EUT.
TX frequency is 13.56MHz.

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	150.000k	40.9	+9.7 +0.0	+0.0	+0.0	+2.4	+0.0	53.0	56.0	-3.0	Line
2	13.562M	33.1	+9.7 +0.0	+0.1	+0.2	+0.4	+0.0	43.5	50.0	-6.5	Line
3	453.972k	27.0	+9.7 +0.0	+0.0	+0.0	+0.6	+0.0	37.3	46.8	-9.5	Line
4	392.160k	27.5	+9.7 +0.0	+0.0	+0.0	+0.7	+0.0	37.9	48.0	-10.1	Line
5	334.710k	28.0	+9.7 +0.0	+0.0	+0.0	+0.8	+0.0	38.5	49.3	-10.8	Line
6	3.705M	25.1	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	35.2	46.0	-10.8	Line
7	4.097M	24.7	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	34.9	46.0	-11.1	Line
8	4.292M	24.5	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	34.7	46.0	-11.3	Line
9	4.356M	24.3	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	34.5	46.0	-11.5	Line
10	3.901M	24.3	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	34.4	46.0	-11.6	Line
11	4.033M	24.2	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	34.4	46.0	-11.6	Line
12	398.704k	25.3	+9.7 +0.0	+0.0	+0.0	+0.7	+0.0	35.7	47.9	-12.2	Line
13	4.228M	23.6	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	33.8	46.0	-12.2	Line
14	3.641M	23.4	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	33.5	46.0	-12.5	Line
15	4.165M	23.2	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	33.4	46.0	-12.6	Line

CKC Laboratories, Inc. Date: 5/30/2012 Time: 4:19:27 PM RJC Enterprises, LLC WO#: 93114
15.207 AC Mains - Average Test Lead: Line Line Sequence#: 3 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **RJC Enterprises, LLC**
Specification: **15.207 AC Mains - Average**
Work Order #: **93114** Date: 5/30/2012
Test Type: **Conducted Emissions** Time: 4:24:40 PM
Equipment: **Endophys Pressure Monitor** Sequence#: 4
Manufacturer: RJC Enterprises, LLC Tested By: Armando Del Angel
Model: Endophys 651 120V 60Hz
S/N: 8989

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05435	Attenuator	PE7015-10	9/8/2010	9/8/2012
T2	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T3	ANP05542	Cable	Heliax	9/27/2011	9/27/2013
	AN01492	50uH LISN-Line	3816/2NM	6/14/2011	6/14/2013
T4	AN01492	50uH LISN-Neutral	3816/2NM	6/14/2011	6/14/2013
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T5	AN01717	High Pass Filter	F3440-P005	5/11/2012	5/11/2014

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

Function	Manufacturer	Model #	S/N
Endophys Pressure Monitor*	RJC Enterprises, LLC	Endophys 651	8989
Power Supply (#1)	Glob Tek, Inc.	GTM 21091-5012	RoHS022581010612

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Temp: 24°C
Humidity: 33%
Pressure: 102.9kPa
Frequency: 0.150-30MHz
Vertical ground plane is 40cm from the EUT.
TX frequency is 13.56MHz.

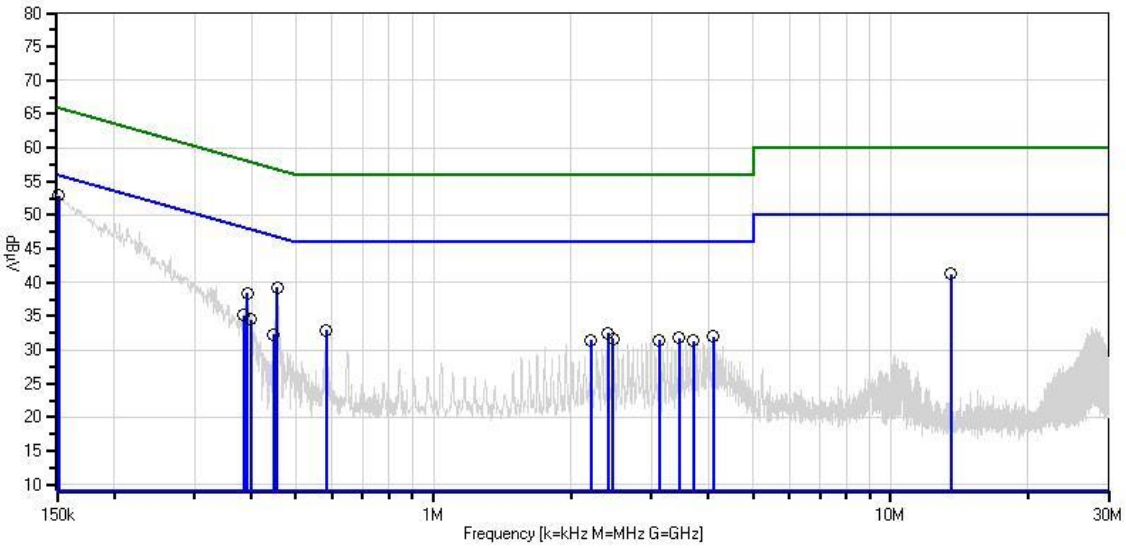
Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	dB	Ant
1	151.454k	40.9	+9.7 +0.0	+0.0	+0.0	+2.3	+0.0	52.9	55.9	-3.0	Neutr
2	455.427k	29.0	+9.7 +0.0	+0.0	+0.0	+0.6	+0.0	39.3	46.8	-7.5	Neutr
3	13.562M	30.9	+9.7 +0.0	+0.1	+0.2	+0.4	+0.0	41.3	50.0	-8.7	Neutr

4	390.705k	28.0	+9.7 +0.0	+0.0	+0.0	+0.7	+0.0	38.4	48.0	-9.6	Neutr
5	384.160k	24.8	+9.7 +0.0	+0.0	+0.0	+0.7	+0.0	35.2	48.2	-13.0	Neutr
6	582.688k	22.6	+9.7 +0.0	+0.0	+0.1	+0.5	+0.0	32.9	46.0	-13.1	Neutr
7	398.704k	24.1	+9.7 +0.0	+0.0	+0.0	+0.7	+0.0	34.5	47.9	-13.4	Neutr
8	2.408M	22.4	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	32.5	46.0	-13.5	Neutr
9	4.097M	21.8	+9.7 +0.0	+0.1	+0.1	+0.3	+0.0	32.0	46.0	-14.0	Neutr
10	3.446M	21.7	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	31.8	46.0	-14.2	Neutr
11	2.472M	21.6	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	31.7	46.0	-14.3	Neutr
12	2.208M	21.4	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	31.5	46.0	-14.5	Neutr
13	446.700k	22.0	+9.7 +0.0	+0.0	+0.0	+0.6	+0.0	32.3	46.9	-14.6	Neutr
14	3.123M	21.3	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	31.4	46.0	-14.6	Neutr
15	3.705M	21.2	+9.7 +0.0	+0.0	+0.1	+0.3	+0.0	31.3	46.0	-14.7	Neutr

CKC Laboratories, Inc. Date: 5/30/2012 Time: 4:24:40 PM RJC Enterprises, LLC WO#: 93114
15.207 AC Mains - Average Test Lead: Neutral Neutral Sequence#: 4 Ext ATTN: 0 dB



Sweep Data
Peak Readings
Average Readings
1 - 15.207 AC Mains - Average
Readings
QP Readings
Ambient
2 - 15.207 AC Mains - Quasi-peak

Test Setup Photos

-20dBc Occupied Bandwidth

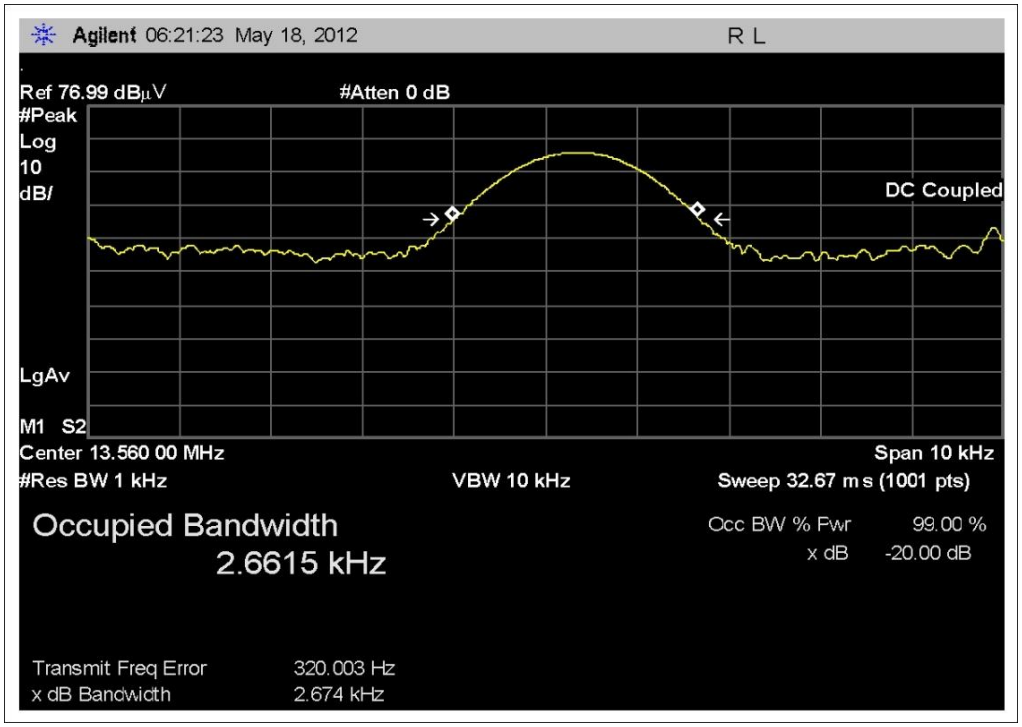
Test Conditions / Setup

The EUT is located on the test table over a block of Styrofoam. The antenna is located at 3m from the EUT. Measurement performed at ambient temperature. TX frequency is 13.56MHz.
Frequency: 0.009-1000MHz
Temp: 24°C
Humidity: 33%
Pressure: 102.9kPa

Engineer Name: Armando Del Angel

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
02872	Spectrum Analyzer	E4440A	Agilent	7/23/2011	7/23/2013
00052	Loop Antenna	6502	EMCO	5/16/2012	5/16/2014
03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
P05542	Cable	Heliax	Andrews	9/27/2011	9/27/2013

Test Plots



Test Setup Photos

15.225(a)(b)(c)(d) Field Strength of Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **RJC Enterprises, LLC**
Specification: **15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter)**
Work Order #: **93114** Date: 5/30/2012
Test Type: **Radiated Scan** Time: 16:03:50
Equipment: **Endophys Pressure Monitor** Sequence#: 1
Manufacturer: RJC Enterprises, LLC Tested By: Armando Del Angel
Model: Endophys 651
S/N: 8989

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00052	Loop Antenna	6502	5/16/2012	5/16/2014
T2	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T3	ANP05542	Cable	Heliax	9/27/2011	9/27/2013
T4	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T5	AN01316	Preamp	8447D	4/3/2012	4/3/2014
T6	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T7	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T8	AN01993	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014

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

Function	Manufacturer	Model #	S/N
Endophys Pressure Monitor*	RJC Enterprises, LLC	Endophys 651	8989
Power Supply	Glob Tek, Inc.	GTM 21091-5012	RoHS022581010612

Support Devices:

Function	Manufacturer	Model #	S/N

Test Conditions / Notes:

Temp: 24°C
Humidity: 33%
Pressure: 102.9kPa
Frequency: 0.009-1000MHz
EUT is located on the test table over a block of Styrofoam.
Antenna is located at 3m from the EUT.
TX frequency is 13.56MHz.
9-150kHz 200Hz RBW 600Hz VBW
0.150-30MHz 9kHz RBW 27kHz VBW
30-1000MHz 120kHz RBW 360kHz VBW
Voltage Variations of 85% and 115% from nominal voltage was performed to satisfy FCC 15.31(e).

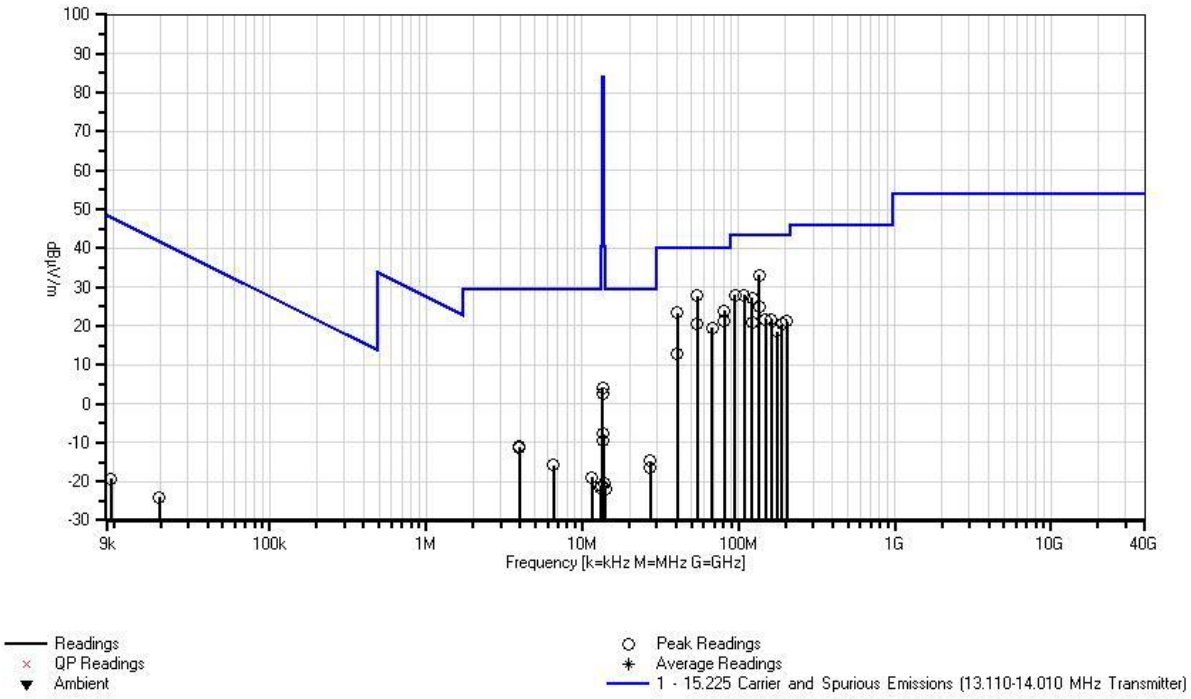
Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	135.600M	48.9	+0.0 -29.1	+0.3 +0.6	+0.0 +0.7	+0.0 +11.7	+0.0 360	33.1	43.5	-10.4	Horiz 152
2	54.240M	48.4	+0.0 -29.3	+0.2 +0.3	+0.0 +0.3	+0.0 +7.8	+0.0 214	27.7	40.0	-12.3	Vert 99
3	94.920M	46.5	+0.0 -29.3	+0.3 +0.5	+0.0 +0.5	+0.0 +9.5	+0.0 214	28.0	43.5	-15.5	Vert 99
4	108.482M	45.1	+0.0 -29.3	+0.3 +0.6	+0.0 +0.6	+0.0 +10.6	+0.0 360	27.9	43.5	-15.6	Horiz 152
5	108.480M	45.1	+0.0 -29.3	+0.3 +0.6	+0.0 +0.6	+0.0 +10.6	+0.0 214	27.9	43.5	-15.6	Vert 99
6	94.918M	46.3	+0.0 -29.3	+0.3 +0.5	+0.0 +0.5	+0.0 +9.5	+0.0	27.8	43.5	-15.7	Horiz 148
7	81.360M	44.0	+0.0 -29.4	+0.3 +0.5	+0.0 +0.5	+0.0 +8.1	+0.0 214	24.0	40.0	-16.0	Vert 99
8	122.066M	43.5	+0.0 -29.2	+0.3 +0.6	+0.0 +0.6	+0.0 +11.5	+0.0	27.3	43.5	-16.2	Horiz 152
9	40.680M	38.1	+0.0 -29.4	+0.2 +0.3	+0.0 +0.3	+0.0 +13.8	+0.0 214	23.3	40.0	-16.7	Vert 99
10	135.600M	40.6	+0.0 -29.1	+0.3 +0.6	+0.0 +0.7	+0.0 +11.7	+0.0 214	24.8	43.5	-18.7	Vert 99
11	81.368M	41.2	+0.0 -29.4	+0.3 +0.5	+0.0 +0.5	+0.0 +8.1	+0.0 360	21.2	40.0	-18.8	Horiz 156
12	54.232M	41.2	+0.0 -29.3	+0.2 +0.3	+0.0 +0.3	+0.0 +7.8	+0.0 360	20.5	40.0	-19.5	Horiz 178
13	67.800M	41.3	+0.0 -29.3	+0.2 +0.4	+0.0 +0.4	+0.0 +6.6	+0.0 214	19.6	40.0	-20.4	Vert 99
14	67.794M	41.3	+0.0 -29.3	+0.2 +0.4	+0.0 +0.4	+0.0 +6.6	+0.0	19.6	40.0	-20.4	Horiz 178
15	162.720M	38.2	+0.0 -28.9	+0.4 +0.7	+0.0 +0.8	+0.0 +10.6	+0.0	21.8	43.5	-21.7	Vert 99
16	149.160M	37.4	+0.0 -29.0	+0.4 +0.7	+0.0 +0.7	+0.0 +11.5	+0.0	21.7	43.5	-21.8	Vert 99
17	203.386M	38.7	+0.0 -28.8	+0.4 +0.8	+0.0 +0.9	+0.0 +9.2	+0.0 303	21.2	43.5	-22.3	Vert 99
18	122.040M	37.2	+0.0 -29.2	+0.3 +0.6	+0.0 +0.6	+0.0 +11.5	+0.0 214	21.0	43.5	-22.5	Vert 99
19	189.836M	38.2	+0.0 -28.8	+0.4 +0.8	+0.0 +0.8	+0.0 +9.0	+0.0 305	20.4	43.5	-23.1	Vert 99
20	176.280M	36.2	+0.0 -28.9	+0.4 +0.7	+0.0 +0.8	+0.0 +9.4	+0.0 306	18.6	43.5	-24.9	Vert 99
21	40.666M	27.8	+0.0 -29.4	+0.2 +0.3	+0.0 +0.3	+0.0 +13.8	+0.0 106	13.0	40.0	-27.0	Horiz 178
22	3.941M	19.1	+9.7 +0.0	+0.0 +0.0	+0.1 +0.0	+0.0 +0.0	-40.0	-11.1	29.5	-40.6	Perpe 99
23	3.941M	19.0	+9.7 +0.0	+0.0 +0.0	+0.1 +0.0	+0.0 +0.0	-40.0 360	-11.2	29.5	-40.7	Paral 99

24	27.120M	49.1	+5.2 -29.5	+0.1 +0.2	+0.0 +0.2	+0.0 +0.0	-40.0 360	-14.7	29.5	-44.2	Paral 99
25	6.580M	14.0	+9.8 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 360	-15.9	29.5	-45.4	Paral 99
26	27.120M	47.4	+5.2 -29.5	+0.1 +0.2	+0.0 +0.2	+0.0 +0.0	-40.0 360	-16.4	29.5	-45.9	Perpe 99
27	11.553M	11.0	+9.7 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0	-19.0	29.5	-48.5	Perpe 99
28	13.110M	8.7	+9.5 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-21.5	29.5	-51.0	Perpe 99
29	14.010M	8.3	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-22.0	29.5	-51.5	Perpe 99
30	13.567M	22.5	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-7.8	50.5	-58.3	Perpe 99
31	13.553M	20.6	+9.5 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-9.6	50.5	-60.1	Perpe 99
32	13.710M	9.7	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-20.6	40.5	-61.1	Perpe 99
33	13.410M	9.0	+9.5 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	-21.2	40.5	-61.7	Perpe 99
34	58.180k	40.0	+9.6 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	-80.0 360	-30.4	32.3	-62.7	Paral 99
35	19.704k	43.5	+12.5 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	-80.0 360	-24.0	41.7	-65.7	Perpe 99
36	9.640k	44.5	+16.2 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	-80.0	-19.3	47.9	-67.2	Paral 99
37	13.560M	34.3	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	4.0	84.0 Fundamental @ 115% Nominal Voltage	-80.0	Perpe 99
38	13.560M	34.3	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	4.0	84.0 Fundamental @ 100% Nominal Voltage	-80.0	Perpe 99
39	13.560M	34.3	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 262	4.0	84.0 Fundamental @ 85% Nominal Voltage	-80.0	Perpe 99
40	13.560M	32.9	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 -16	2.6	84.0 Fundamental @ 100% Nominal Voltage	-81.4	Paral 99
41	13.560M	32.9	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 -16	2.6	84.0 Fundamental @ 85% Nominal Voltage	-81.4	Paral 99
42	13.560M	32.9	+9.4 +0.0	+0.1 +0.0	+0.2 +0.0	+0.0 +0.0	-40.0 -16	2.6	84.0 Fundamental @ 115% Nominal Voltage	-81.4	Paral 99

CKC Laboratories, Inc. Date: 5/30/2012 Time: 16:03:50 RJC Enterprises, LLC WO#: 93114
15.225 Carrier and Spurious Emissions (13.110-14.010 MHz Transmitter) Test Distance: 3 Meters Vert Sequence#: 1 Ext ATTN: 0 dB



Test Setup Photos


05/30/2012 16:09

15.225(e) Frequency Tolerance and Voltage Variations

Test Conditions / Setup

The EUT is located inside the temperature chamber. All ports are terminated. EUT is connected to a variable power supply to change the input voltage into the unit. This change will be performed at ambient temperature (+20°C). The temperature will change from -20°C to +50°C in 10° increments. An infrared thermometer with a thermocouple attachment is being used to monitor the actual temperature on the EUT. After the EUT has reached thermal stabilization the measurements are performed. The EUT will be transmitting an un-modulated signal at 13.56MHz. Frequency variation cannot be higher than ±0.01% or ±1.356kHz .

Engineer Name: Armando Del Angel

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
02757	Temperature Chamber	F100/350-8	Bemco	1/30/2011	1/30/2013
03029	Thermometer, Digital Infrared	566	Fluke	1/24/2011	1/24/2013
02872	Spectrum Analyzer	E4440A	Agilent	7/23/2011	7/23/2013

Test Data

Temp	Voltage	Freq (MHz)
-20°C	120V/60Hz	13.56028
-10°C	120V/60Hz	13.56034
0°C	120V/60Hz	13.56036
10°C	120V/60Hz	13.56022
20°C	102V/60Hz	13.56038
	120V/60Hz	13.5603
	138V/60Hz	13.56028
30°C	120V/60Hz	13.56046
40°C	120V/60Hz	13.56032
50°C	120V/60Hz	13.5604

Test Setup Photos


05/31/2012 16:16

RSS-210

99 % Bandwidth

Test Conditions / Setup

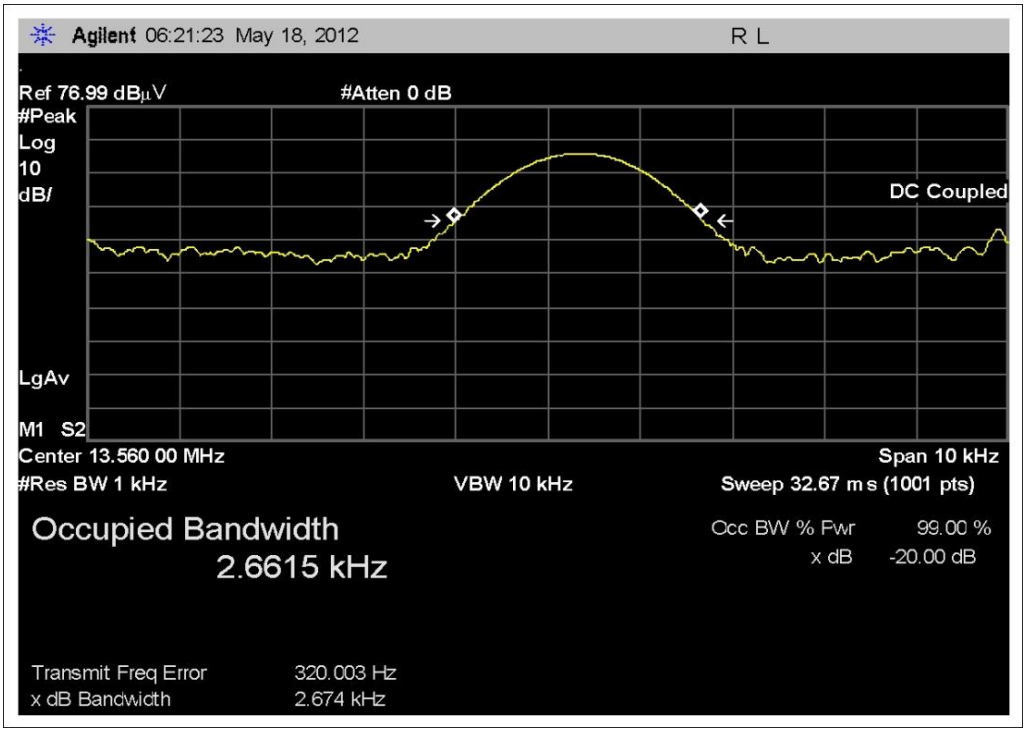
The EUT is located on the test table over a block of Styrofoam. The antenna is located at 3m from the EUT. Measurement performed at ambient temperature. TX frequency is 13.56MHz.
Frequency: 0.009-1000MHz
Temp: 24°C
Humidity: 33%
Pressure: 102.9kPa

Engineer Name: Armando Del Angel

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
02872	Spectrum Analyzer	E4440A	Agilent	7/23/2011	7/23/2013
00052	Loop Antenna	6502	EMCO	5/16/2012	5/16/2014
03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
P05542	Cable	Heliax	Andrews	9/27/2011	9/27/2013

Test Data

Freq	99% BW	Limit
13.56MHz	2.6615kHz	14kHz



Test Setup Photos

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	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.