

EWA, Inc. (Electronic Warfare Associates, Inc.)

ADDENDUM TEST REPORT TO 91974-5

Lock, SRCED-2

Tested To The Following Standards:

FCC Part 15 Subpart C Section 15.249
and
RSS-210 Issue 8

Report No.: 91974-5A

Date of issue: July 1, 2011



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.

TABLE OF CONTENTS

Administrative Information	3
Test Report Information	3
Revision History	3
Report Authorization	3
Test Facility Information	4
Site Registration & Accreditation Information	4
Summary of Results	5
Conditions During Testing	5
Equipment Under Test.....	6
Peripheral Devices	6
FCC Part 15 Subpart C	7
15.249(a) Carrier & Spurious Emissions	7
-20dBc Occupied Bandwidth	9
Bandedge	11
15.249(d) Field Strength Of Spurious Emissions.....	14
RSS-210	27
99 % Bandwidth.....	27
Supplemental Information.....	29
Measurement Uncertainty	29
Emissions Test Details.....	29

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

EWA, Inc. (Electronic Warfare Associates, Inc.)
13873 Park Center Rd. Suite 500
Herndon, VA 20171

Representative: Jason Pizzillo

REPORT PREPARED BY:

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

Project Number: 91071

DATE OF EQUIPMENT RECEIPT:

May 27, 2011

DATE(S) OF TESTING:

May 27 - June 1, 2011

Revision History

Original: Testing of the Lock, SRCED-2 to FCC Part 15 Subpart C Section 15.249 and RSS-210 Issue 8.

Addendum A: To revise the data in sequence 9 of section 15.249(d) to include the 40 dB correction factor and also correct an error in the RBW that was listed on the data sheet. No new test data was added.

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.
1120 Fulton Place
Fremont, CA 94539

Site Registration & Accreditation Information

Location	CB #	Japan	Canada	FCC
Fremont	US0082	R-2160, C2332 & T-228	3082B-1	958979

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C 15.249 and RSS-210 Issue 8

Description	Test Procedure/Method	Results
Carrier & Spurious Emissions	FCC Part 15 Subpart C Section 15.249(a) / ANSI C63.4 (2005)	Pass
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C / ANSI C63.4 (2005)	Pass
Bandedge	FCC Part 15 Subpart C / ANSI C63.4 (2005)	Pass
Field Strength of Spurious Emissions	FCC Part 15 Subpart C Section 15.249 (d) / ANSI C63.4 (2005)	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
The EUT is battery operated. Testing is performed with the EUT operating on a fresh set of batteries.



EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Lock

Manuf: EWA, Inc. (Electronic Warfare Associates, Inc.)

Model: SRCED-2

Serial: None

PERIPHERAL DEVICES

The EUT was not tested with peripheral devices.

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.

15.249(a) Carrier & Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**

Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**

Work Order #: **91071** Date: 5/31/2011

Test Type: **Maximized Emissions** Time: 09:31:15

Equipment: **Lock** Sequence#: 1

Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: A. Brar

Model: SRCED-2

S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013
T1	ANP04241	Cable	FSJ1-50A	3/2/2010	3/2/2012
T2	ANP05138	Cable	FSJ1P-50A-4	3/19/2010	3/19/2012
T3	AN02061	Horn Antenna-ANSI C63.5	DRG-118A	1/17/2011	1/17/2013

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission.

The device is single channel NB modulation device with low data rate.

Temp: 65.7°F

Relative Humidity: 40%

AP: 1026mbar

2.480967GHz Fundamental Readings. RBW 1MHz / VBW 3MHz.

FCC 15.31e is covered by this data sheet by operating the EUT on a fresh set of batteries.

EUT's Power Amplifier output is set to -2dBm.

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	2480.967M	59.9	+0.5	+2.3	+27.9		+0.0 293	90.6	94.0	-3.4	Vert 137
2	2481.000M	55.3	+0.5	+2.3	+27.9		+0.0 228	86.0	94.0	-8.0	Horiz 100

Test Setup Photos



-20dBc Occupied Bandwidth

Test Engineer: A. Brar / N. Gamez

Test Set up

Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission. The device is single channel NB modulation device with low data rate.

Temp: 65.7°F

Relative Humidity: 40%

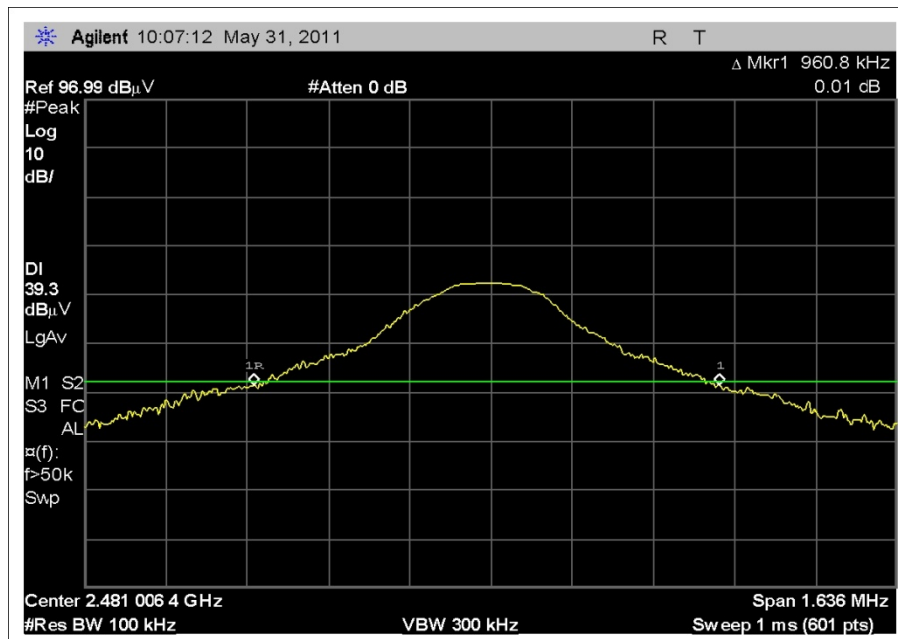
AP: 1026mbar

2.480967GHz Fundamental Frequency. RBW 100kHz / VBW 300kHz.

EUT's Power Amplifier output is set to -2dBm.

Test Equipment					
Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
02668	Spectrum Analyzer	E4446A	Agilent	2/23/2011	2/23/2013
P04241	Cable	FSJ1-50A	Andrews	3/2/2010	3/2/2012
P05138	Cable	FSJ1P-50A-4	Andrews	3/19/2010	3/19/2012
02061	Horn Antenna- ANSI C63.5	DRG-118A	ARA	1/17/2011	1/17/2013

Test Data



Test Setup Photos



Bandedge

Test Engineer: A. Brar / N. Gamez

Test Set up

Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission. The device is single channel NB modulation device with low data rate.

Temp: 65.7°F

Relative Humidity: 40%

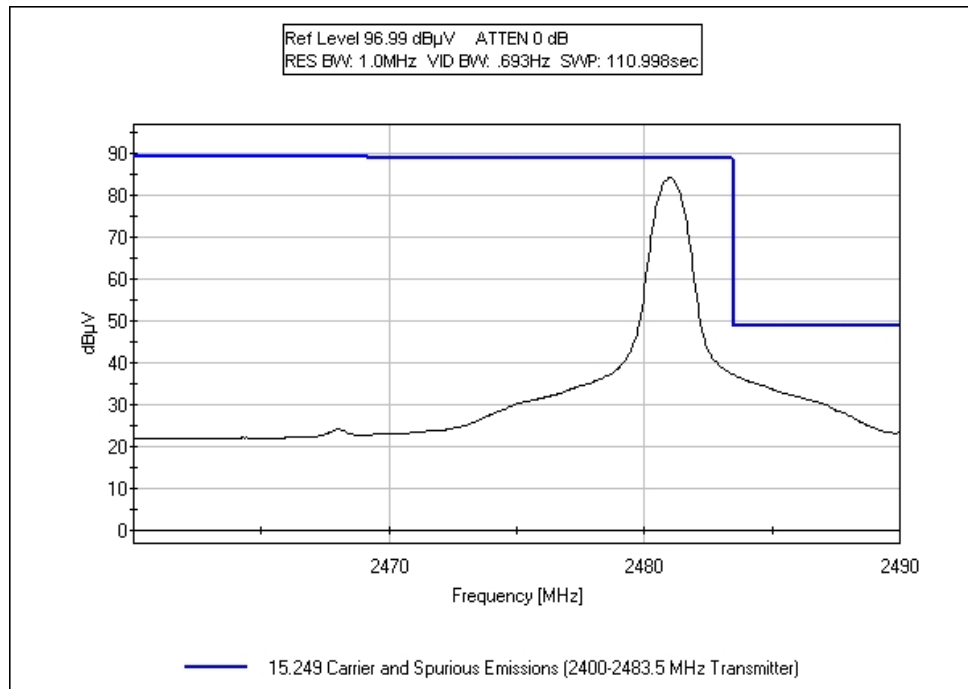
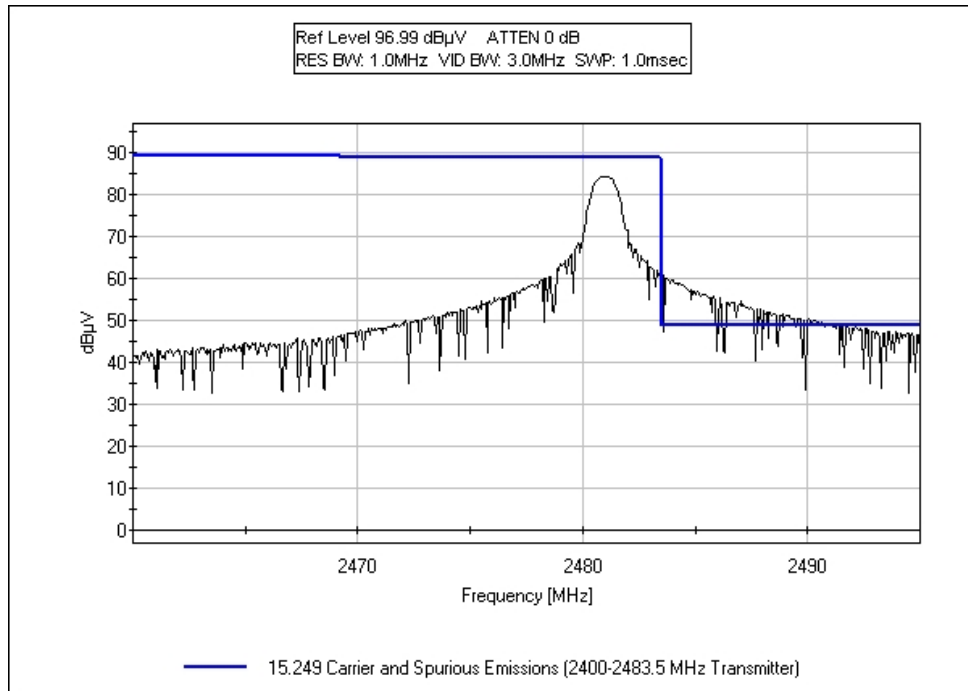
AP: 1026mbar

2.480967GHz Fundamental Frequency. RBW 1MHz / VBW 3MHz.

EUT's Power Amplifier output is set to -2dBm.

Test Equipment					
Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
02668	Spectrum Analyzer	E4446A	Agilent	2/23/2011	2/23/2013
P04241	Cable	FSJ1-50A	Andrews	3/2/2010	3/2/2012
P05138	Cable	FSJ1P-50A-4	Andrews	3/19/2010	3/19/2012
02061	Horn Antenna- ANSI C63.5	DRG-118A	ARA	1/17/2011	1/17/2013
02810	Preamp	83051A	HP	1/15/2010	1/15/2012
P05843	Cable	32022-2-29094K-48TC	AstroLab	7/30/2010	7/30/2012

Test Data



Average

Test Setup Photos



15.249(d) Field Strength Of Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **91071** Date: 6/1/2011
 Test Type: **Maximized Emissions** Time: 13:35:53
 Equipment: **Lock** Sequence#: 9
 Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: N. Gamez
 Model: SRCED-2
 S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	3/31/2011	3/31/2013
T2	ANP05440	Cable		3/7/2011	3/7/2013
T3	ANP05300	Cable	RG214/U	3/7/2011	3/7/2013
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Spurious Emissions. 0.009-30MHz. Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission. The device is single channel NB modulation device with low data rate.
 T: 63.9°F
 RH: 44%
 AP: 1029mbar
 2.480967GHz Fundamental Frequency.
 9k-150kHz 100Hz RBW / 300Hz VBW
 150k-30MHz 9kHz RBW / 30kHz VWB
 EUT's Power Amplifier output is set to -2dBm.
 FCC 15.249a is covered by this data sheet, harmonics and spurious emissions were collected in the same data sheet.

Ext Attn: 0 dB

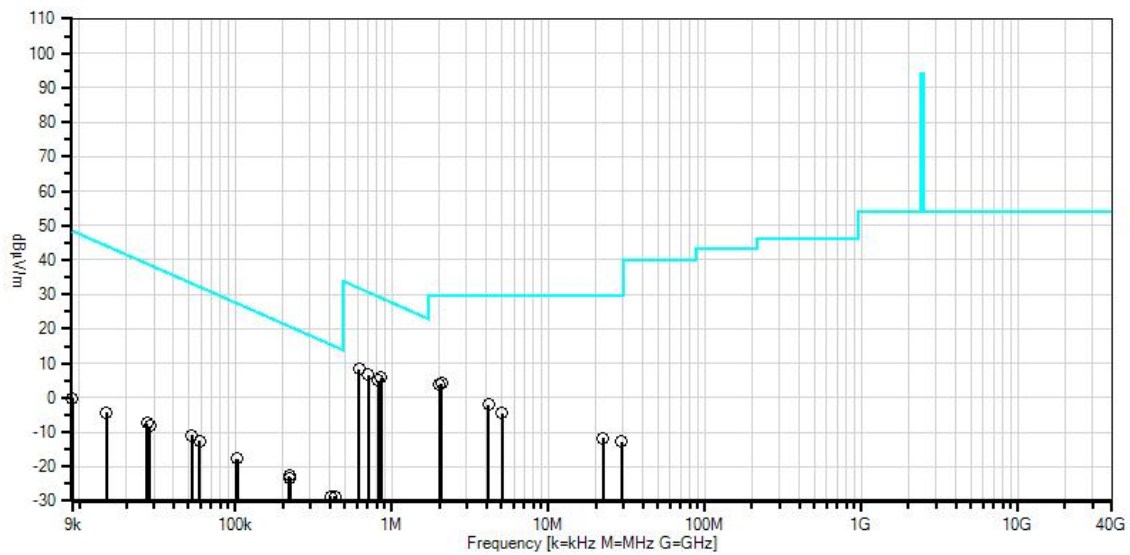
Measurement Data:

Reading listed by margin.

Test Distance: 5 Meters

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	851.200k	25.5	+11.4	+0.0	+0.0		-31.1 -5	5.8	29.0	-23.2	Paral 100
2	615.800k	28.0	+11.3	+0.0	+0.0		-31.1 365	8.2	31.8	-23.6	Perpe 100
3	704.120k	26.2	+11.5	+0.0	+0.0		-31.1 365	6.6	30.6	-24.0	Paral 100
4	813.200k	24.8	+11.4	+0.0	+0.0		-31.1 -5	5.1	29.4	-24.3	Perpe 100
5	2.070M	23.9	+11.3	+0.1	+0.0		-31.1 -5	4.2	29.5	-25.3	Perpe 100
6	2.014M	23.4	+11.3	+0.1	+0.0		-31.1 364	3.7	29.5	-25.8	Paral 100
7	4.121M	18.0	+11.1	+0.1	+0.0		-31.1 -5	-1.9	29.5	-31.4	Paral 100
8	5.050M	15.4	+11.1	+0.1	+0.0		-31.1 -5	-4.5	29.5	-34.0	Perpe 100
9	22.296M	9.4	+9.6	+0.2	+0.1		-31.1 365	-11.8	29.5	-41.3	Paral 100
10	29.355M	11.4	+6.6	+0.3	+0.1		-31.1 365	-12.7	29.5	-42.2	Perpe 100
11	220.000k	37.5	+10.9	+0.0	+0.0		-71.1 365	-22.7	20.8	-43.5	Perpe 100
12	430.700k	31.4	+11.0	+0.0	+0.0		-71.1 -5	-28.7	14.9	-43.6	Paral 100
13	223.500k	36.9	+10.9	+0.0	+0.0		-71.1 365	-23.3	20.6	-43.9	Paral 100
14	52.520k	49.0	+11.3	+0.0	+0.0		-71.1 365	-10.8	33.2	-44.0	Perpe 100
15	403.900k	31.4	+11.0	+0.0	+0.0		-71.1 -5	-28.7	15.5	-44.2	Perpe 100
16	58.780k	47.2	+11.3	+0.0	+0.0		-71.1 365	-12.6	32.2	-44.8	Paral 100
17	102.300k	42.4	+11.1	+0.0	+0.0		-71.1 -5	-17.6	27.4	-45.0	Paral 100
18	101.500k	42.2	+11.1	+0.0	+0.0		-71.1 -5	-17.8	27.5	-45.3	Perpe 100
19	27.294k	51.0	+12.6	+0.0	+0.0		-71.1 -5	-7.5	38.9	-46.4	Perpe 100
20	28.295k	50.3	+12.5	+0.0	+0.0		-71.1 -5	-8.3	38.6	-46.9	Paral 100
21	14.951k	52.8	+14.0	+0.0	+0.0		-71.1 364	-4.3	44.1	-48.4	Perpe 100
22	9.093k	53.0	+18.0	+0.0	+0.0		-71.1 365	-0.1	48.4	-48.5	Paral 100

CKC Laboratories, Inc. Date: 6/1/2011 Time: 13:35:53 EWA, Inc. (Electronic Warfare) WO#: 91071
 Model: SRCED-2 SN: None
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 5 Meters Sequence#: 9
 Parallel



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **91071** Date: 5/31/2011
 Test Type: **Maximized Emissions** Time: 16:36:52
 Equipment: **Lock** Sequence#: 5
 Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: N. Gamez
 Model: SRCED-2
 S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00852	Biconilog Antenna	CBL 6111C	11/16/2010	11/16/2012
T2	ANP05440	Cable		3/7/2011	3/7/2013
T3	ANP05300	Cable	RG214/U	3/7/2011	3/7/2013
T4	AN00730	Preamp		1/31/2011	1/31/2013
T5	ANP05299	Cable	RG214	3/6/2011	3/6/2013
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Spurious Emissions. 30-1000MHz. Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission.
FCC 15.249a is covered by this data sheet; harmonics and spurious emissions were collected at the same time.
 The device is single channel NB modulation device with low data rate.
 Temp: 67.8°F
 Relative Humidity: 40%
 AP: 1028mbar
 2.480967GHz Fundamental Frequency. RBW 120kHz / VBW 120kHz.
 EUT's Power Amplifier output is set to -2dBm.

Ext Attn: 0 dB

Measurement Data:

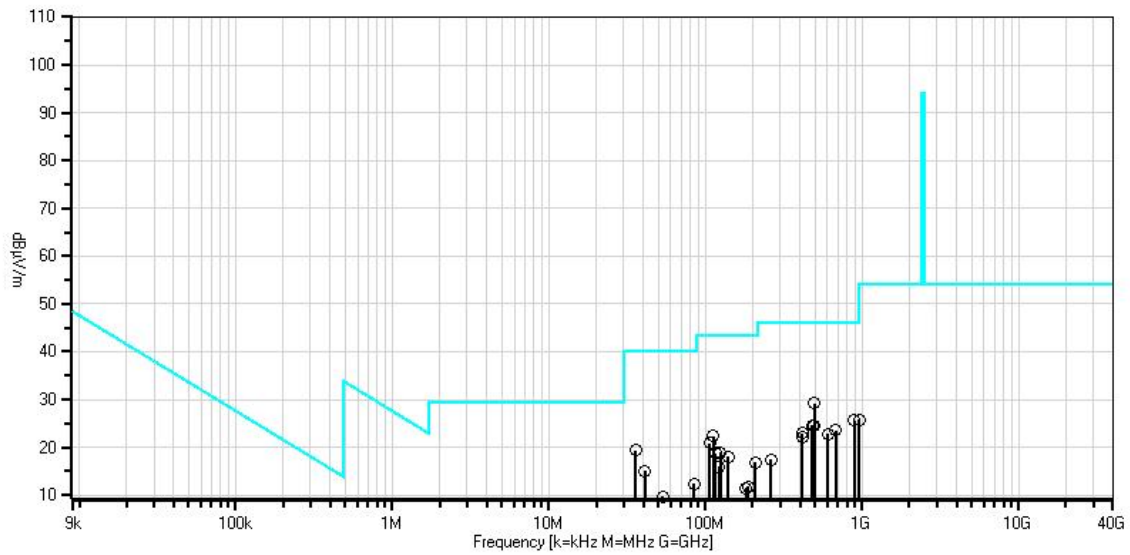
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	494.000M	36.7	+17.7 +0.2	+1.3	+0.6	-27.3	+0.0 165	29.2	46.0	-16.8	Vert 100
2	889.800M	28.0	+21.8 +0.2	+1.9	+1.0	-27.3	+0.0 -5	25.6	46.0	-20.4	Vert 101
3	35.700M	28.8	+17.6 +0.0	+0.3	+0.2	-27.6	+0.0 365	19.3	40.0	-20.7	Horiz 101
4	112.200M	37.9	+10.9 +0.1	+0.6	+0.3	-27.5	+0.0 365	22.3	43.5	-21.2	Horiz 147
5	481.000M	32.4	+17.4 +0.2	+1.3	+0.6	-27.4	+0.0 165	24.5	46.0	-21.5	Vert 100

6	494.000M	32.0	+17.7 +0.2	+1.3	+0.6	-27.3	+0.0 -5	24.5	46.0	-21.5	Horiz 139
7	676.000M	28.6	+19.6 +0.2	+1.6	+0.8	-27.3	+0.0 365	23.5	46.0	-22.5	Horiz 101
8	106.700M	36.9	+10.5 +0.1	+0.6	+0.3	-27.5	+0.0 365	20.9	43.5	-22.6	Horiz 147
9	416.000M	32.5	+15.9 +0.1	+1.2	+0.6	-27.4	+0.0 165	22.9	46.0	-23.1	Vert 100
10	602.800M	28.5	+19.1 +0.2	+1.5	+0.7	-27.2	+0.0 365	22.8	46.0	-23.2	Vert 119
11	416.000M	31.6	+15.9 +0.1	+1.2	+0.6	-27.4	+0.0 -5	22.0	46.0	-24.0	Horiz 139
12	124.350M	33.7	+11.6 +0.1	+0.6	+0.3	-27.4	+0.0 365	18.9	43.5	-24.6	Horiz 147
13	114.900M	34.0	+11.1 +0.1	+0.6	+0.3	-27.4	+0.0 365	18.7	43.5	-24.8	Horiz 147
14	41.100M	28.7	+13.3 +0.0	+0.3	+0.2	-27.5	+0.0 364	15.0	40.0	-25.0	Vert 101
15	138.950M	32.9	+11.6 +0.1	+0.6	+0.3	-27.5	+0.0 365	18.0	43.5	-25.5	Horiz 147
16	208.000M	33.3	+9.6 +0.1	+0.8	+0.4	-27.4	+0.0 365	16.8	43.5	-26.7	Horiz 101
17	122.000M	30.9	+11.5 +0.1	+0.6	+0.3	-27.4	+0.0 -5	16.0	43.5	-27.5	Vert 101
18	84.425M	31.0	+8.2 +0.0	+0.5	+0.2	-27.5	+0.0 168	12.4	40.0	-27.6	Horiz 102
19	962.200M	28.1	+22.1 +0.3	+2.0	+1.0	-27.8	+0.0 -5	25.7	54.0	-28.3	Horiz 101
20	260.000M	30.8	+12.6 +0.1	+0.9	+0.4	-27.4	+0.0 106	17.4	46.0	-28.6	Vert 101
21	53.125M	28.6	+7.9 +0.0	+0.4	+0.2	-27.5	+0.0 -5	9.6	40.0	-30.4	Vert 101
22	75.300M	28.6	+7.1 +0.0	+0.5	+0.2	-27.5	+0.0 365	8.9	40.0	-31.1	Vert 97
23	55.575M	28.6	+7.1 +0.0	+0.4	+0.2	-27.5	+0.0 -5	8.8	40.0	-31.2	Horiz 135
24	186.300M	28.9	+9.0 +0.1	+0.8	+0.4	-27.5	+0.0 -5	11.7	43.5	-31.8	Horiz 166
25	180.650M	28.9	+8.9 +0.1	+0.7	+0.4	-27.5	+0.0 364	11.5	43.5	-32.0	Vert 101

CKC Laboratories, Inc. Date: 5/31/2011 Time: 16:36:52 EWA, Inc. (Electronic Warfare) WO#: 91071
 Model: SRCED-2 SN: None
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 5
 Horiz



— Readings
 × QP Readings
 ▼ Ambient
 ○ Peak Readings
 * Average Readings
 — 1 - 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **91071** Date: 5/31/2011
 Test Type: **Maximized Emissions** Time: 11:44:12
 Equipment: **Lock** Sequence#: 2
 Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: A. Brar
 Model: SRCED-2
 S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013
T1	ANP04241	Cable	FSJ1-50A	3/2/2010	3/2/2012
T2	ANP05138	Cable	FSJ1P-50A-4	3/19/2010	3/19/2012
T3	AN02061	Horn Antenna-ANSI C63.5	DRG-118A	1/17/2011	1/17/2013
T4	AN02810	Preamp	83051A	1/15/2010	1/15/2012
T5	ANP05843	Cable	32022-2-29094K-48TC	7/30/2010	7/30/2012

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Spurious Emissions. 1-12.5GHz. Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission.
FCC 15.249a is covered by this data sheet; harmonics and spurious emissions were collected at the same time.
 The device is single channel NB modulation device with low data rate.
 Temp: 65.7°F
 Relative Humidity: 40%
 AP: 1026mbar
 2.480967GHz Fundamental Frequency. RBW 1MHz / VBW 3MHz.
 EUT's Power Amplifier output is set to -2dBm.

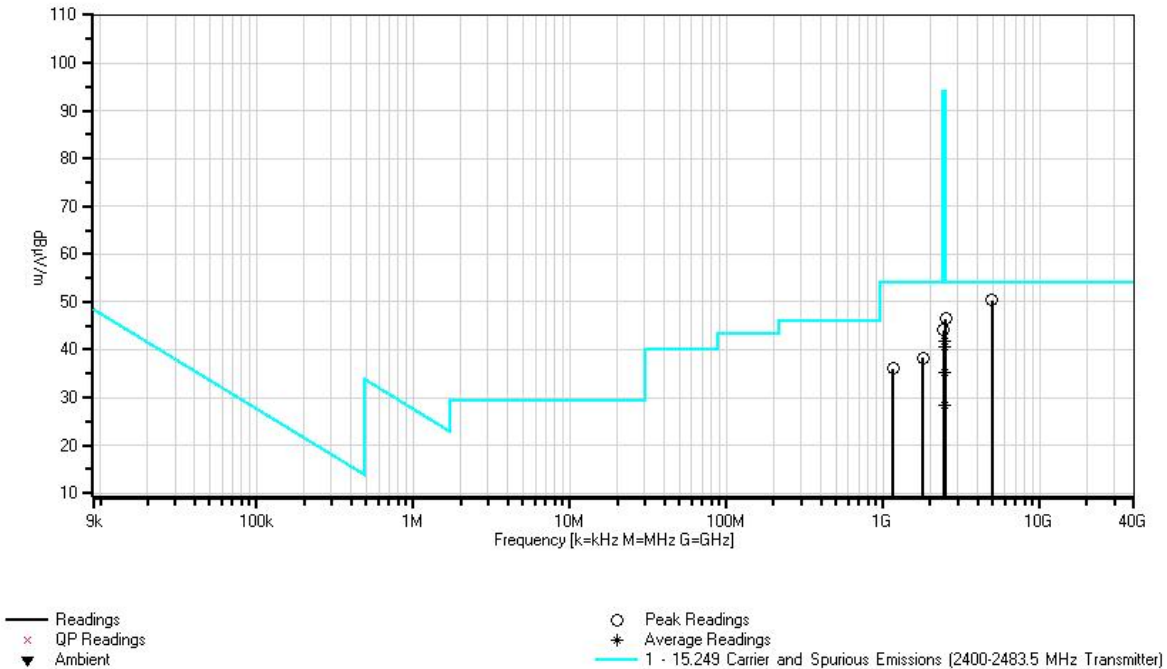
Ext Attn: 0 dB

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

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	4962.500M	38.9	+0.8 +1.1	+3.5	+32.9	-26.8	+0.0 -5	50.4	54.0	-3.6	Vert 138
2	2502.500M	41.4	+0.5 +0.7	+2.4	+27.9	-26.4	+0.0 76	46.5	54.0	-7.5	Vert 138
3	2483.500M	36.9	+0.5 +0.7	+2.3	+27.9	-26.5	+0.0 292	41.8	54.0	-12.2	Vert 138
^	2483.500M	60.9	+0.5 +0.7	+2.3	+27.9	-26.5	+0.0 292	65.8	54.0	+11.8	Vert 138

5	2484.000M	35.6	+0.5	+2.3	+27.9	-26.5	+0.0	40.5	54.0	-13.5	Vert
	Ave		+0.7				292				138
^	2484.000M	59.7	+0.5	+2.3	+27.9	-26.5	+0.0	64.6	54.0	+10.6	Vert
			+0.7				292				138
7	1793.500M	37.9	+0.4	+1.9	+25.7	-28.2	+0.0	38.3	54.0	-15.7	Horiz
			+0.6				86				117
8	1156.000M	38.5	+0.4	+1.5	+23.5	-28.3	+0.0	36.1	54.0	-17.9	Vert
			+0.5				365				138
9	2486.850M	30.3	+0.5	+2.3	+27.9	-26.5	+0.0	35.2	54.0	-18.8	Vert
	Ave		+0.7				292				138
^	2486.850M	52.9	+0.5	+2.3	+27.9	-26.5	+0.0	57.8	54.0	+3.8	Vert
			+0.7				292				138
11	2489.350M	23.5	+0.5	+2.4	+27.9	-26.5	+0.0	28.5	54.0	-25.5	Vert
	Ave		+0.7				292				138
^	2489.350M	50.4	+0.5	+2.4	+27.9	-26.5	+0.0	55.4	54.0	+1.4	Vert
			+0.7				292				138
13	2429.500M	39.3	+0.5	+2.3	+27.8	-26.5	+0.0	44.1	94.0	-49.9	Vert
			+0.7				365				138

CKC Laboratories, Inc. Date: 5/31/2011 Time: 11:44:12 EWA, Inc. (Electronic Warfare) WO#: 91071
 Model: SRCED-2 SN: None
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 2
 Horiz





Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **91071** Date: 5/31/2011
 Test Type: **Maximized Emissions** Time: 14:33:25
 Equipment: **Lock** Sequence#: 3
 Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: N. Gamez
 Model: SRCED-2
 S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02693	Active Horn Antenna-ANSI C63.5 Antenna Factors (dB)	AMFW-5F-12001800-20-10P	11/23/2010	11/23/2012
T2	AN03143	Cable	32022-29094K-144TC	9/10/2009	9/10/2011
T3	ANP00928	Cable	various	3/29/2010	3/29/2012
T4	ANP05843	Cable	32022-2-29094K-48TC	7/30/2010	7/30/2012
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Spurious Emissions. 12.5-18GHz. Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission.
FCC 15.249a is covered by this data sheet; harmonics and spurious emissions were collected at the same time.
 The device is single channel NB modulation device with low data rate.
 Temp: 67.8°F
 Relative Humidity: 40%
 AP: 1028mbar
 2.480967GHz Fundamental Frequency. RBW 1MHz / VBW 3MHz.
 EUT's Power Amplifier output is set to -2dBm.

Ext Attn: 0 dB

Measurement Data:

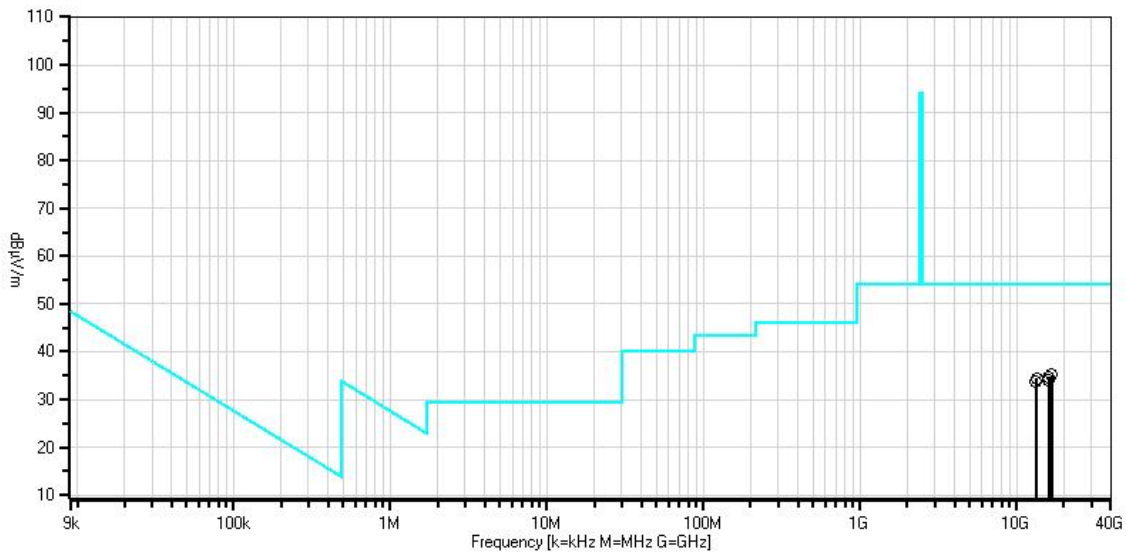
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	16734.000 M	42.7	-16.1	+5.8	+0.7	+2.0	+0.0	35.1	54.0	-18.9	Horiz
							-5				100
2	16674.000 M	42.8	-16.2	+5.8	+0.7	+2.0	+0.0	35.1	54.0	-18.9	Vert
							365				99

3	15948.000 M	42.6	-16.1	+5.6	+0.7	+1.9	+0.0	34.7	54.0	-19.3	Vert
							-5				99
4	13353.500 M	42.5	-15.8	+5.1	+0.8	+1.8	+0.0	34.4	54.0	-19.6	Horiz
							365				100
5	15974.000 M	41.8	-16.1	+5.6	+0.7	+1.9	+0.0	33.9	54.0	-20.1	Horiz
							-5				100
6	13263.500 M	41.6	-15.6	+5.1	+0.8	+1.8	+0.0	33.7	54.0	-20.3	Vert
							364				99

CKC Laboratories, Inc. Date: 5/31/2011 Time: 14:33:25 EWA, Inc. (Electronic Warfare) WO#: 91071
 Model: SRCED-2 SN: None
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 3
 Vert



Test Location: CKC Laboratories, Inc. • 1120 Fulton Place. • Fremont, CA 94539 • (510) 249-1170

Customer: **EWA, Inc. (Electronic Warfare)**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **91071** Date: 5/31/2011
 Test Type: **Maximized Emissions** Time: 15:02:07
 Equipment: **Lock** Sequence#: 4
 Manufacturer: EWA, Inc. (Electronic Warfare) Tested By: N. Gamez
 Model: SRCED-2
 S/N: None

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02694	Active Horn Antenna-ANSI C63.5 Antenna Factors (dB)	AMFW-5F-18002650-20-10P	11/10/2010	11/10/2012
T2	AN03143	Cable	32022-29094K-144TC	9/10/2009	9/10/2011
T3	ANP00929	Cable	various	3/29/2010	3/29/2012
T4	ANP05843	Cable	32022-2-29094K-48TC	7/30/2010	7/30/2012
	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Lock*	EWA, Inc. (Electronic Warfare)	SRCED-2	None

Support Devices:

Function	Manufacturer	Model #	S/N
----------	--------------	---------	-----

Test Conditions / Notes:

Spurious Emissions. 18-25GHz. Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission.
FCC 15.249a is covered by this data sheet; harmonics and spurious emissions were collected at the same time.
 The device is single channel NB modulation device with low data rate.
 Temp: 67.8°F
 Relative Humidity: 40%
 AP: 1028mbar
 2.480967GHz Fundamental Frequency. RBW 1MHz / VBW 3MHz.
 EUT's Power Amplifier output is set to -2dBm.

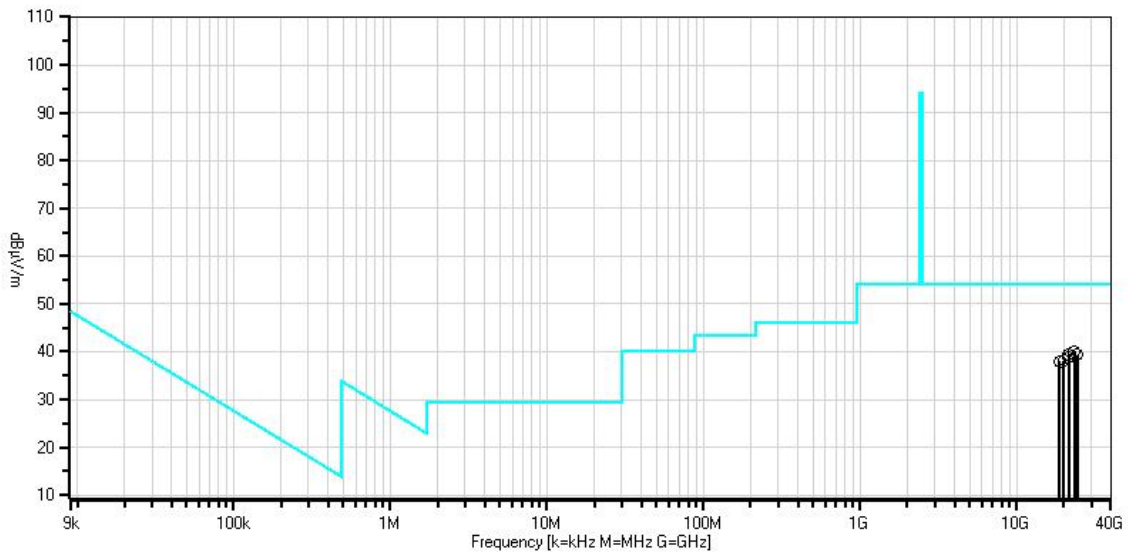
Ext Attn: 0 dB

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

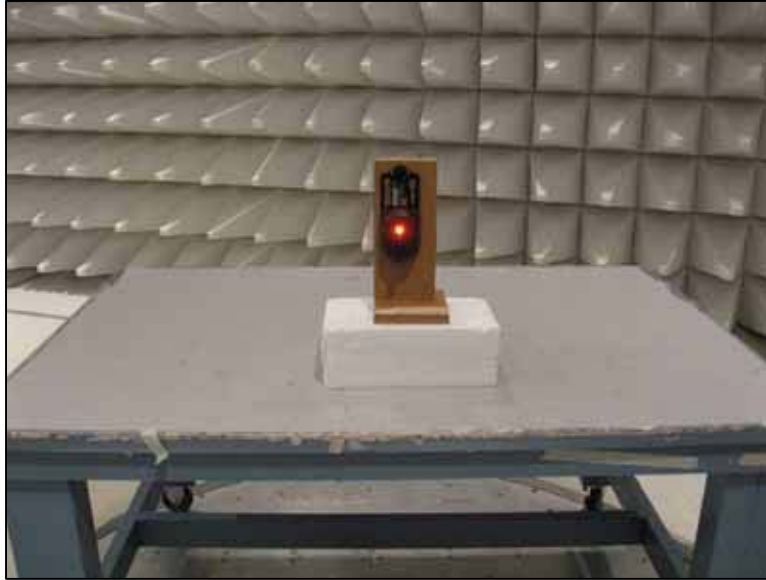
#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	23257.000 M	44.3	-16.8	+6.9	+3.1	+2.5	+0.0	40.0	54.0	-14.0	Vert
							365				99
2	21530.000 M	43.1	-15.8	+6.6	+3.1	+2.4	+0.0	39.4	54.0	-14.6	Vert
							-5				99

3	24289.000 M	44.0	-17.4	+7.1	+3.0	+2.6	+0.0	39.3	54.0	-14.7	Horiz
							-5				99
4	21546.000 M	42.4	-15.8	+6.6	+3.1	+2.4	+0.0	38.7	54.0	-15.3	Horiz
							365				99
5	19874.000 M	41.7	-15.4	+6.3	+3.3	+2.2	+0.0	38.1	54.0	-15.9	Horiz
							-5				99
6	18656.000 M	41.8	-15.7	+6.2	+3.4	+2.2	+0.0	37.9	54.0	-16.1	Vert
							364				99

CKC Laboratories, Inc. Date: 5/31/2011 Time: 15:02:07 EWA, Inc. (Electronic Warfare) WO#: 91071
 Model: SRCED-2 SN: None
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 4
 Vert



Test Setup Photos



RSS-210

99 % Bandwidth

Test Engineer: A. Brar / N. Gamez

Test Setup

The Lock is installed in a wooden fixture standing up vertical on a foam piece. It is powered by fresh batteries. The Lock is set to continuous transmission. The device is single channel NB modulation device with low data rate.

Temp: 65.7°F

Relative Humidity: 40%

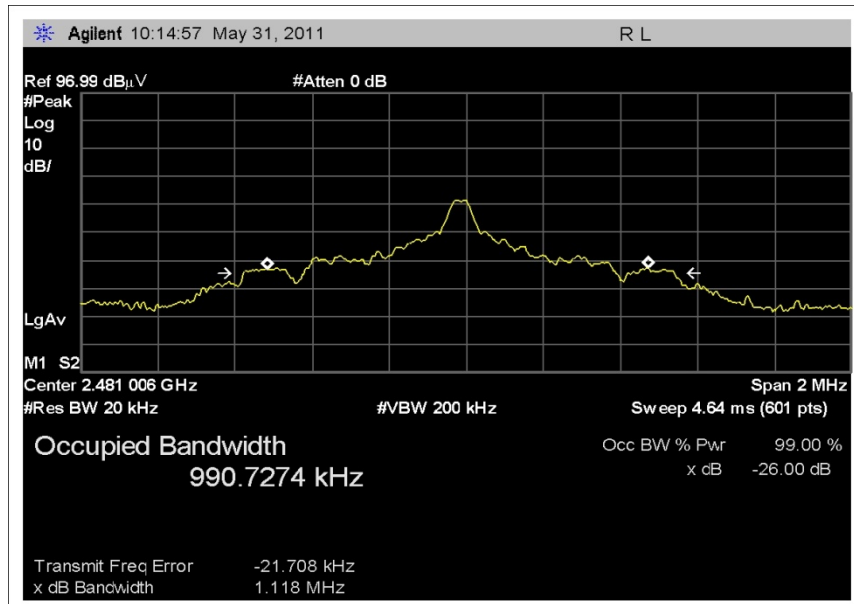
AP: 1026mbar

2.480967GHz Fundamental Frequency. RBW 20kHz / VBW 200kHz.

EUT's Power Amplifier output is set to -2dBm.

Test Equipment					
Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
02668	Spectrum Analyzer	E4446A	Agilent	2/23/2011	2/23/2013
P04241	Cable	FSJ1-50A	Andrews	3/2/2010	3/2/2012
P05138	Cable	FSJ1P-50A-4	Andrews	3/19/2010	3/19/2012
02061	Horn Antenna- ANSI C63.5	DRG-118A	ARA	1/17/2011	1/17/2013

Test Data



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

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	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

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

Peak

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

Quasi-Peak

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

Average

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