

# Electronic Warfare Associates, Inc.

## ADDENDUM TO TEST REPORT 95598-5

**Remote Control  
Model: SKEY-FB2**

**Tested To The Following Standards:**

**FCC Part 15 Subpart C, Section 15.249**

**Report No.: 95598-5A**

**Date of issue: June 19, 2014**



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.

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## ADMINISTRATIVE INFORMATION

### Test Report Information

**REPORT PREPARED FOR:**

Electronic Warfare Associates, Inc.  
13873 Park Center Rd  
Herndon, VA 20171

Representative: Jason Pizzillo  
Customer Reference Number: P210000066

**REPORT PREPARED BY:**

Morgan Tramontin  
CKC Laboratories, Inc.  
5046 Sierra Pines Drive  
Mariposa, CA 95338

Project Number: 95598

**DATE OF EQUIPMENT RECEIPT:**

April 25, 2014

**DATE(S) OF TESTING:**

April 25, 2014

June 17, 2014

### Revision History

**Original:** Testing of the Remote Control, SKEY-FB2 to FCC Part 15 Subpart C, Section 15.249.

**Addendum A:** Replaces the Band Edge plots because the original plots did not provide enough clarity to indicate compliance.

### 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

## 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
Fremont	US0082	SL2-IN-E-1148R	3082B-1	958979	A-0149

## SUMMARY OF RESULTS

### Standard / Specification: FCC Part 15 Subpart C

Test Procedure/Method	Description	Results
15.249(a)(b)	RF Power Output	Pass
15.31(e)	Voltage Variation	Pass
15.215(c)	Occupied Bandwidth	Pass
15.249(d)	Field Strength of Spurious Emissions and Band Edge	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
None

## EQUIPMENT UNDER TEST (EUT)

### EQUIPMENT UNDER TEST

#### Remote Control

Manuf: Electronic Warfare Associates, Inc.

Model: SKEY-FB2

Serial: PCB 1

### 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) CFR 47 Section 15 Subpart C requirements for Intentional Radiators.

### 15.249(a)(b) RF Power Output

#### Test Conditions / Setup

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

Customer: **Electronic Warfare Associates, Inc.**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: **4/25/2014**  
 Test Type: **Radiated Scan** Time: **09:21:12**  
 Equipment: **Remote Control** Sequence#: **1**  
 Manufacturer: Electronic Warfare Associates, Inc. Tested By: Hieu Song Nguyenpham  
 Model: **SKEY-FB2**  
 S/N: **PCB 1**

#### *Test Equipment:*

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc.	SKEY-FB2	PCB 1

#### *Support Devices:*

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Fundamental of the EUT

Temperature: 21.2°C

Humidity: 36 %

Atmospheric Pressure: 101.1 kPa

Highest Generation Frequency=2481MHz

Transmitting operating frequency= 2481MHz

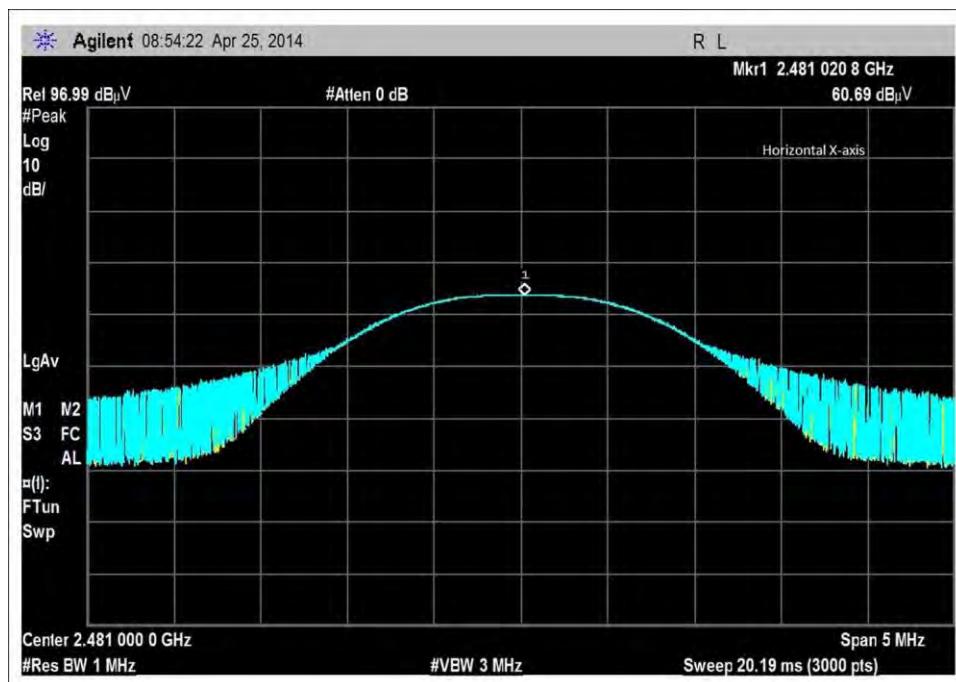
RF Output= -2dBm

The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.

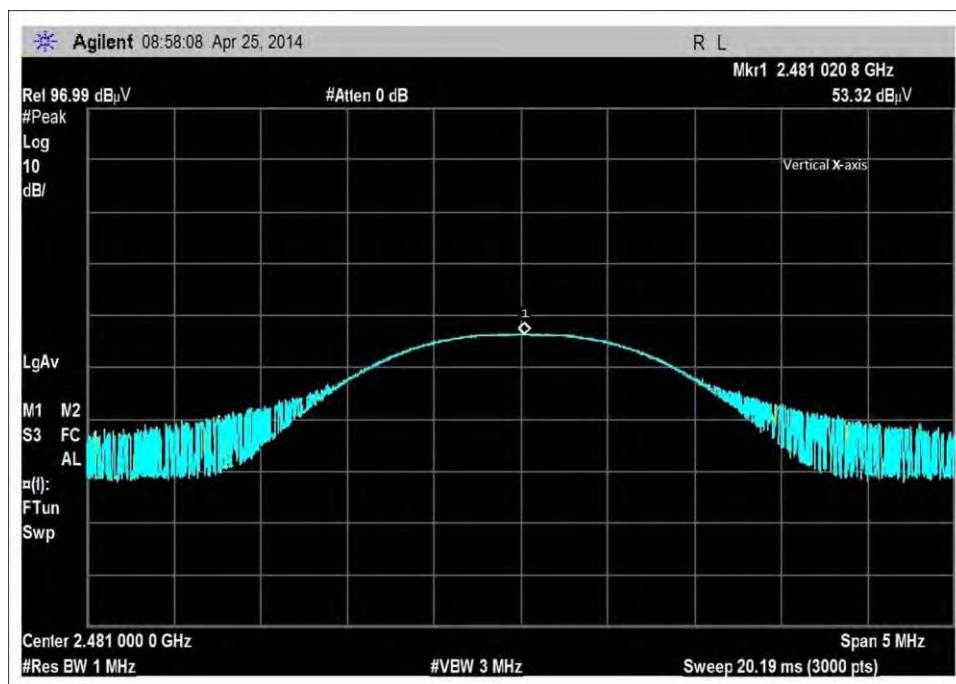
Ext Attn: 0 dB

#	Freq MHz	Reading listed by margin.				Test Distance: 3 Meters				
		Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	2481.021M	60.7	+28.9	+1.2	+2.7	+0.0	93.5	94.0	-0.5	Horiz
								X-axis		
2	2481.021M	60.5	+28.9	+1.2	+2.7	+0.0	93.3	94.0	-0.7	Horiz
								Z-axis		
3	2481.021M	57.8	+28.9	+1.2	+2.7	+0.0	90.6	94.0	-3.4	Vert
								Z-axis		
4	2481.021M	56.5	+28.9	+1.2	+2.7	+0.0	89.3	94.0	-4.7	Horiz
								Y-axis		
5	2481.021M	55.2	+28.9	+1.2	+2.7	+0.0	88.0	94.0	-6.0	Vert
								Y-axis		
6	2481.021M	53.3	+28.9	+1.2	+2.7	+0.0	86.1	94.0	-7.9	Vert
								X-axis		

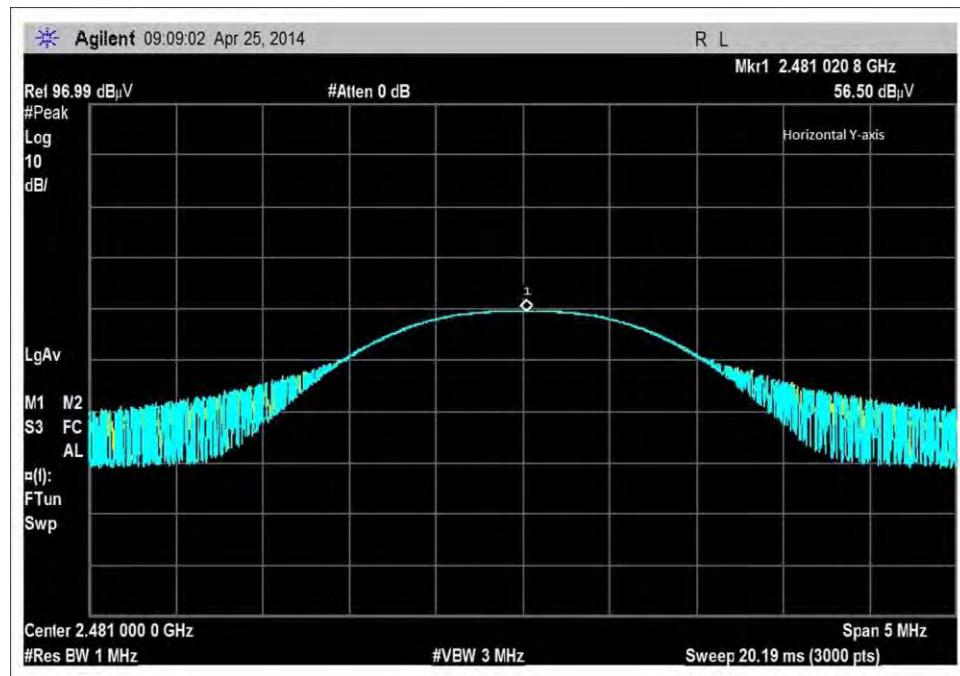
## Test Data



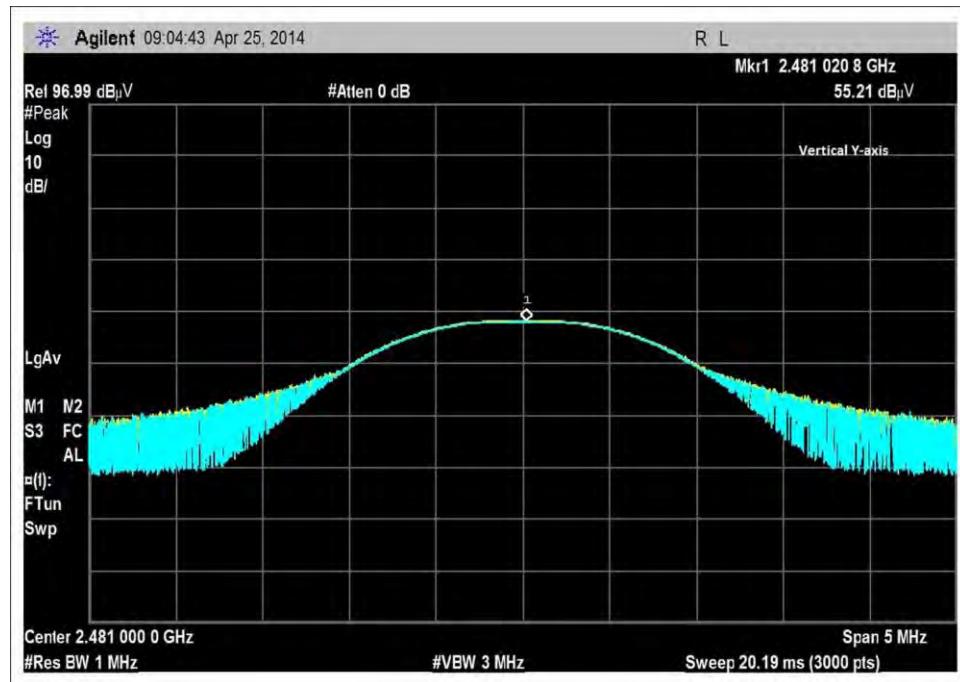
X-Axis, Horizontal



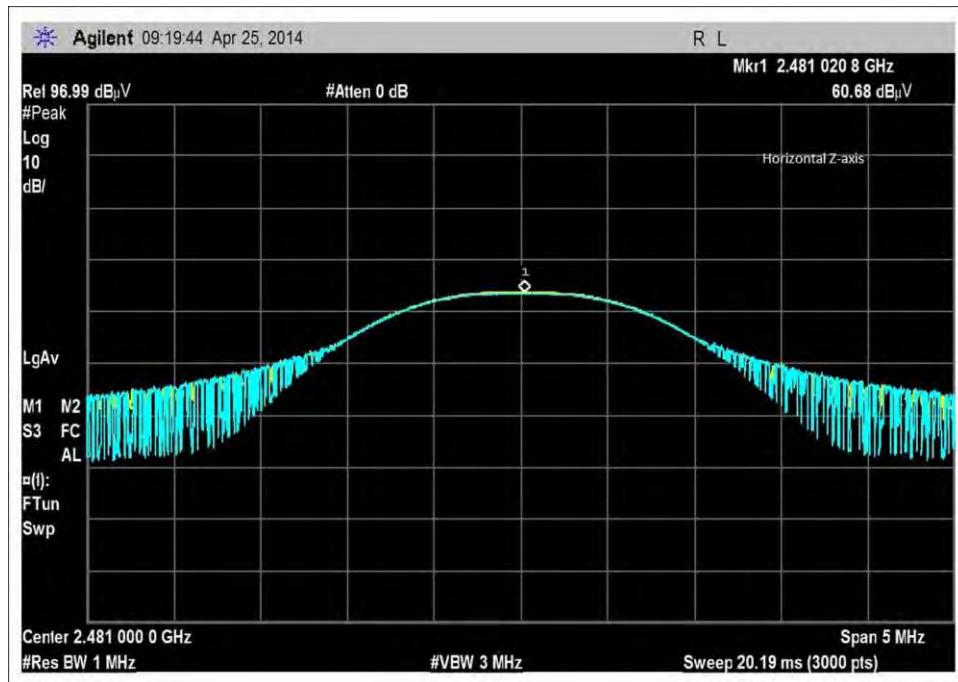
X-Axis, Vertical



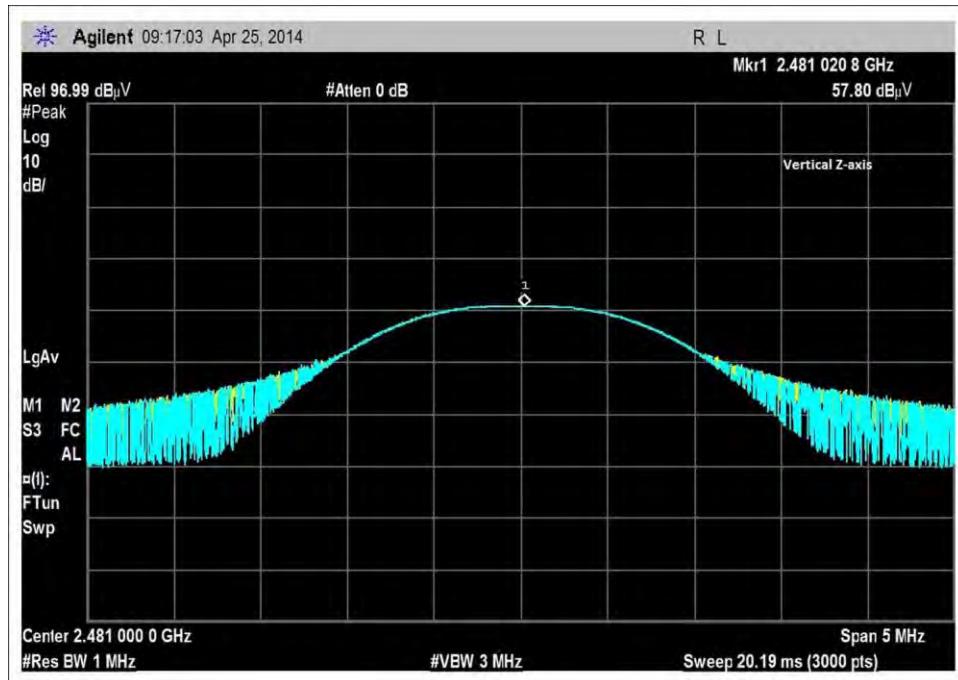
Y-Axis, Horizontal



Y-Axis, Vertical



Z-Axis, Horizontal

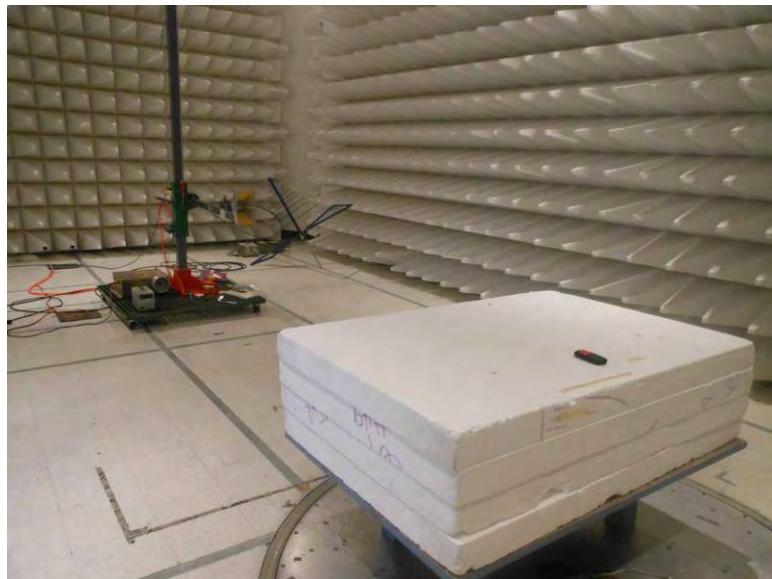


Z-Axis, Vertical

## Test Setup Photo(s)



Front View



Back View



X-Axis



Y-Axis



Z-Axis

## 15.31(e) Voltage Variations

### Test Conditions / Setup

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

Customer: **Electronic Warfare Associates, Inc.**  
 Specification: **15.31e**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 09:21:12  
 Equipment: **Remote Control** Sequence#: 1  
 Manufacturer: Electronic Warfare Associates, Inc. Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc.	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Temperature: 21.2°C  
 Humidity: 36 %  
 Atmospheric Pressure: 101.1 kPa

Highest Generation Frequency=2481MHz  
 Transmitting operating frequency= 2481MHz  
 RF Output= -2dBm

The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.

15.31e. Using new batteries

## 15.215(c) Occupied Bandwidth

### Test Conditions / Setup

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

Customer: **Electronic Warfare Associates, Inc.**  
 Specification: **OBW Set up**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 09:21:12  
 Equipment: **Remote Control** Sequence#: 1  
 Manufacturer: Electronic Warfare Associates, Inc. Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc.	SKEY-FB2	PCB 1

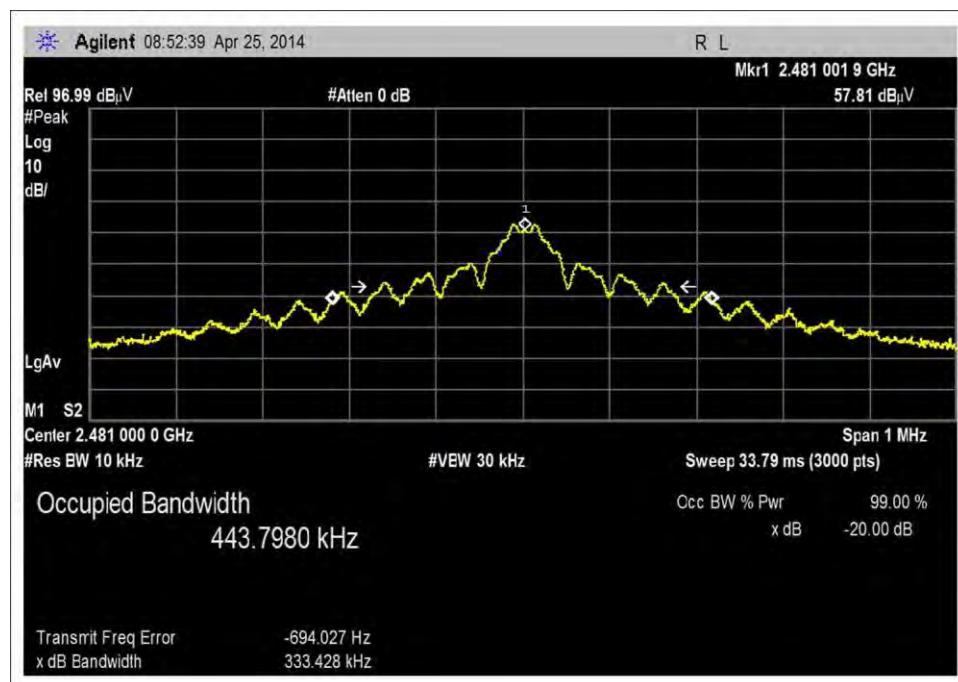
**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

OBW set up
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz
Transmitting operating frequency= 2481MHz
RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.

## Test Data



## Test Setup Photo(s)



## 15.249(d) Field Strength of Spurious Emissions and Band Edge

### Test Data

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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: **4/25/2014**  
 Test Type: **Radiated Scan** Time: **16:49:22**  
 Equipment: **Remote Control** Sequence#: **46**  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission  
 Frequency Range: 9kHz to 30MHz

Temperature: 21.2°C  
 Humidity: 36 %  
 Atmospheric Pressure: 101.1 kPa

Highest Generation Frequency=2481MHz  
 Transmitting operating frequency= 2481MHz  
 RF Output= -2dBm

The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set in continuously transmit.

Note: X-axis

**No emissions found.**

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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 16:49:48  
 Equipment: **Remote Control** Sequence#: 47  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 9kHz to 30MHz  Temperature: 21.2°C Humidity: 36 % Atmospheric Pressure: 101.1 kPa  Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.  Note: Y-axis  <b>No emissions found.</b>

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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 16:50:12  
 Equipment: **Remote Control** Sequence#: 48  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 9kHz to 30MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA Batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Z-axis
<b>No emissions found.</b>

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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 15:34:40  
 Equipment: **Remote Control** Sequence#: 34  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz
Transmitting operating frequency= 2481MHz
RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA Batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: X-axis

Ext Attn: 0 dB

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB					T2 dB					T3 dB					T4 dB					Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
			T5 dB					T6 dB					T7 dB					T8 dB									
1	953.878M	27.8 +0.9	-27.1	+23.5	+3.5	+1.2	+0.0	29.8	46.0	-16.2	Horiz																
2	879.149M	28.3 +0.9	-27.1	+23.1	+3.4	+1.0	+0.0	29.6	46.0	-16.4	Horiz																
3	812.010M	28.9 +0.9	-26.8	+21.6	+3.2	+1.1	+0.0	28.9	46.0	-17.1	Vert																
4	718.015M	28.8 +0.8	-26.8	+20.8	+3.0	+1.0	+0.0	27.6	46.0	-18.4	Horiz																
5	678.315M	29.1 +0.7	-26.8	+20.0	+2.9	+1.1	+0.0	27.0	46.0	-19.0	Vert																
6	38.080M	29.9 +0.2	-27.1	+14.3	+0.6	+0.2	+0.0	18.1	40.0	-21.9	Vert																

CKC Laboratories, Inc Date: 4/25/2014 Time: 15:34:40 Electronic Warfare Associates, Inc WO#: 95598  
Test Distance: 3 Meters Sequence#: 34


— 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 Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 15:52:36  
 Equipment: **Remote Control** Sequence#: 37  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz
Transmitting operating frequency= 2481MHz
RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA Batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Y-axis

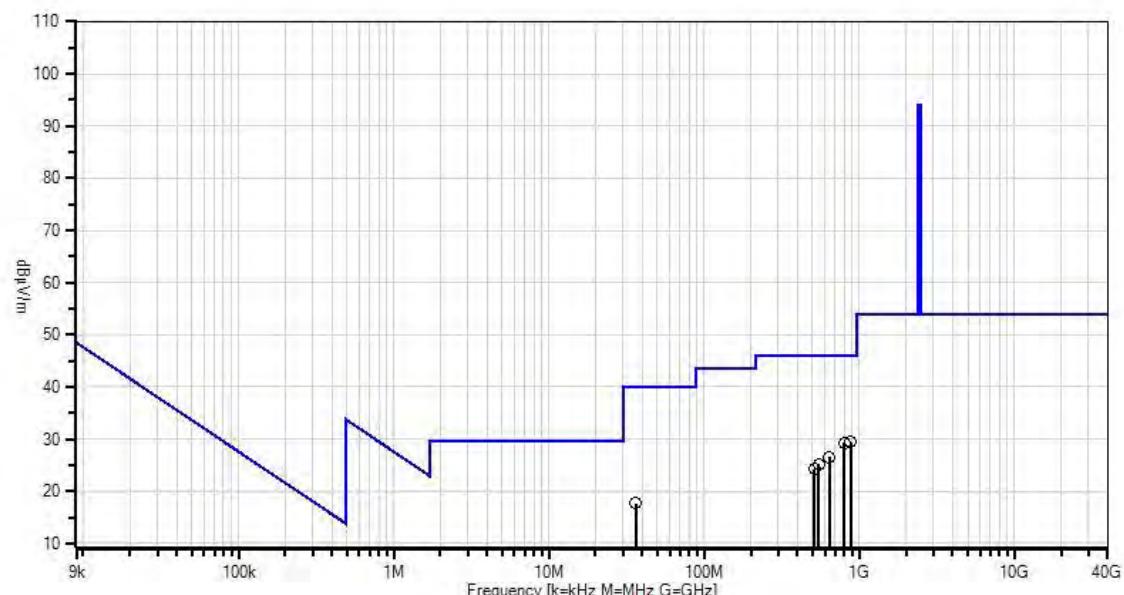
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5				Table	dB $\mu$ V/m	dB $\mu$ V/m		
			MHz	dB $\mu$ V	dB	dB	dB			dB	Ant
1	881.484M	28.2	-27.1 +0.9	+23.0	+3.4	+1.0	+0.0	29.4	46.0	-16.6	Horiz
2	799.166M	29.1	-26.7 +0.9	+21.7	+3.2	+1.1	+0.0	29.3	46.0	-16.7	Horiz
3	638.615M	29.1	-26.8 +0.7	+19.8	+2.8	+1.0	+0.0	26.6	46.0	-19.4	Vert
4	544.620M	28.9	-26.9 +0.7	+19.0	+2.5	+0.8	+0.0	25.0	46.0	-21.0	Vert
5	511.342M	29.2	-27.0 +0.7	+18.1	+2.4	+0.8	+0.0	24.2	46.0	-21.8	Horiz
6	36.439M	28.9	-27.1 +0.1	+15.1	+0.5	+0.2	+0.0	17.7	40.0	-22.3	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 15:52:36 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 37


— 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 Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 16:07:34  
 Equipment: **Remote Control** Sequence#: 40  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00730	Preamp	8447D	1/17/2013	1/17/2015
T2	AN00852	Biconilog Antenna	CBL 6111C	11/28/2012	11/28/2014
T3	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T4	ANP01183	Cable	CNT-195	9/3/2013	9/3/2015
T5	ANP05300	Cable	RG214/U	3/25/2013	3/25/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission
Frequency Range: 30MHz to 1000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz
Transmitting operating frequency= 2481MHz
RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit
Note: Z-axis

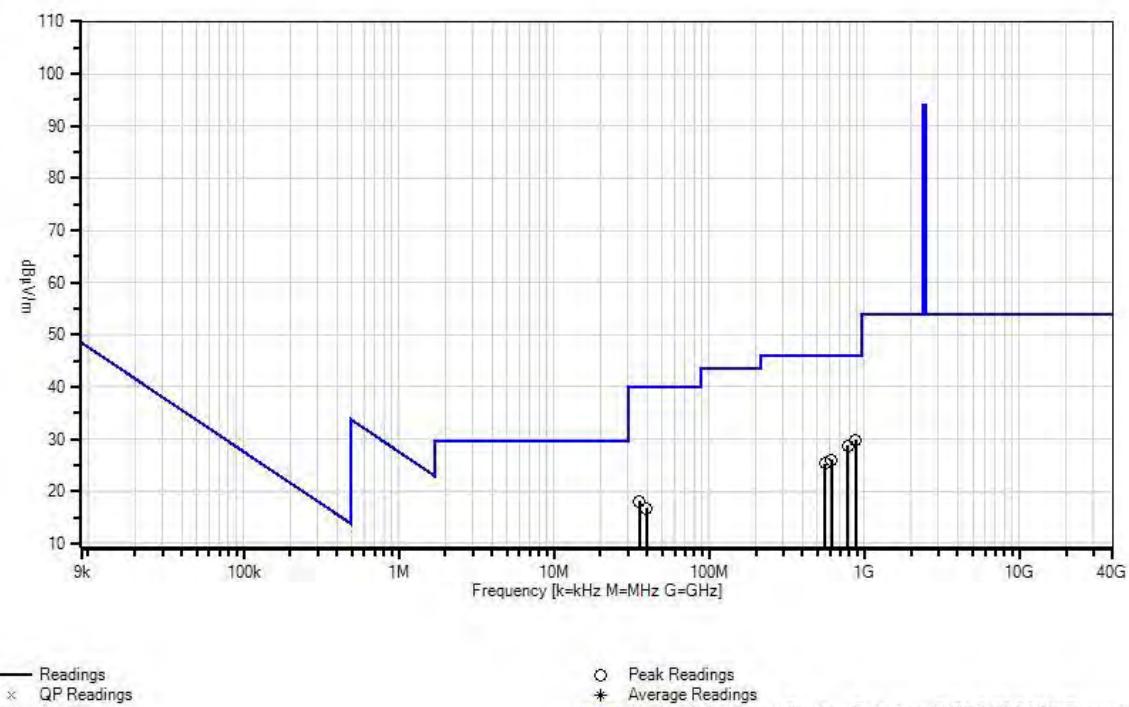
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5				Table	dB $\mu$ V/m	dB $\mu$ V/m		
			MHz	dB $\mu$ V	dB	dB	dB			dB	Ant
1	879.733M	28.5	-27.1 +0.9	+23.1	+3.4	+1.0	+0.0	29.8	46.0	-16.2	Horiz
2	784.570M	28.6	-26.7 +0.8	+21.6	+3.2	+1.2	+0.0	28.7	46.0	-17.3	Horiz
3	615.262M	28.7	-26.9 +0.7	+19.8	+2.7	+1.0	+0.0	26.0	46.0	-20.0	Horiz
4	562.134M	28.8	-26.9 +0.7	+19.3	+2.6	+0.8	+0.0	25.3	46.0	-20.7	Vert
5	35.471M	28.7	-27.0 +0.1	+15.6	+0.5	+0.2	+0.0	18.1	40.0	-21.9	Vert
6	39.427M	29.1	-27.1 +0.2	+13.7	+0.6	+0.2	+0.0	16.7	40.0	-23.3	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 16:07:34 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 40


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 10:33:45  
 Equipment: **Remote Control** Sequence#: 4  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T4	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	6/12/2012	6/12/2014

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 1000MHz to 12000MHz  Temperature: 21.2°C Humidity: 36 % Atmospheric Pressure: 101.1 kPa  Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm  The EUT is a handheld device and operated by 2-AAA Batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.  Note: X-axis
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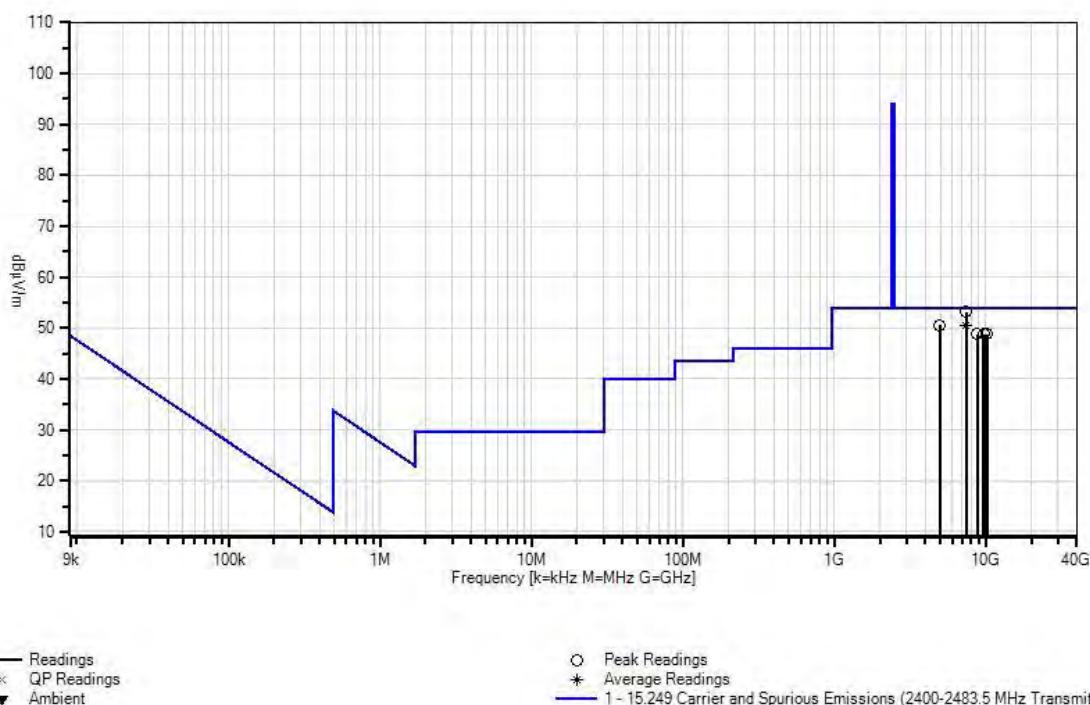
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
			T5 dB	T6 dB						Ant	
1	7443.439M	66.0	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	53.2	54.0	-0.8	Horiz
2	7443.040M Ave	63.3	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	50.5	54.0	-3.5	Horiz
^	7443.040M	67.3	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	54.5	54.0	+0.5	Horiz
4	4961.960M	67.4	+33.6 +1.6	+1.7 +0.2	+3.9	-57.9	+0.0	50.5	54.0	-3.5	Vert
5	9807.801M	56.2	+39.3 +2.2	+2.4 +0.1	+6.2	-57.6	+0.0	48.8	54.0	-5.2	Vert
6	9675.669M	56.3	+38.8 +2.2	+2.4 +0.3	+6.2	-57.4	+0.0	48.8	54.0	-5.2	Horiz
7	8822.817M	56.1	+38.1 +2.4	+2.3 +0.3	+5.9	-56.3	+0.0	48.8	54.0	-5.2	Horiz
8	10174.167 M	56.1	+39.7 +2.3	+2.5 +0.1	+6.3	-58.2	+0.0	48.8	54.0	-5.2	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 10:33:45 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 4


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 11:09:06  
 Equipment: **Remote Control** Sequence#: 7  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T4	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	6/12/2012	6/12/2014

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 1000MHz to 12000MHz  Temperature: 21.2°C Humidity: 36 % Atmospheric Pressure: 101.1 kPa  Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm  The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.  Note: Y-axis
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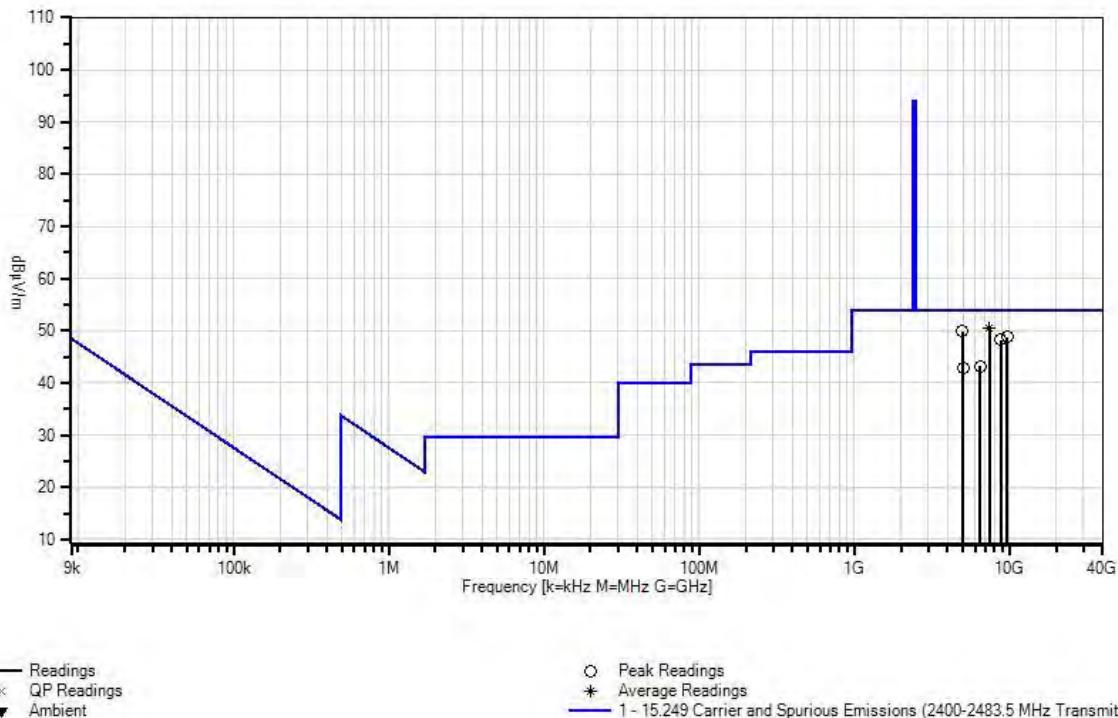
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar
			T5 dB	T6 dB						Ant	
1	7443.011M Ave	63.2	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	50.4	54.0	-3.6	Vert
^	7443.011M	67.6	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	54.8	54.0	+0.8	Vert
^	7443.011M	65.3	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	52.5	54.0	-1.5	Vert
4	4961.960M	66.8	+33.6 +1.6	+1.7 +0.2	+3.9	-57.9	+0.0	49.9	54.0	-4.1	Horiz
5	9683.677M	56.3	+38.8 +2.2	+2.4 +0.3	+6.2	-57.4	+0.0	48.8	54.0	-5.2	Vert
6	8837.832M	55.6	+38.1 +2.4	+2.3 +0.3	+5.9	-56.3	+0.0	48.3	54.0	-5.7	Vert
7	6461.458M	58.2	+34.4 +1.7	+1.9 +0.2	+4.6	-57.8	+0.0	43.2	54.0	-10.8	Horiz
8	5000.999M	59.7	+33.7 +1.6	+1.7 +0.2	+3.9	-58.0	+0.0	42.8	54.0	-11.2	Horiz

 CKC Laboratories, Inc Date: 4/25/2014 Time: 11:09:06 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 7


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 11:39:58  
 Equipment: **Remote Control** Sequence#: 10  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T4	AN03114	Preamp	AMF-7D-00101800-30-10P	4/11/2013	4/11/2015
T5	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T6	AN03309	High Pass Filter	11SH10-3000/T10000-O/O	6/12/2012	6/12/2014

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 1000MHz to 12000MHz  Temperature: 21.2°C Humidity: 36 % Atmospheric Pressure: 101.1 kPa  Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.  Note: Z-axis
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Ext Attn: 0 dB

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	7443.044M Ave	63.0 +2.0	+36.8 +0.2	+2.1 +0.2	+5.4	-59.3	+0.0	50.2	54.0	-3.8	Horiz
^	7443.044M	67.3	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	54.5	54.0	+0.5	Horiz
^	7443.044M	65.3	+36.8 +2.0	+2.1 +0.2	+5.4	-59.3	+0.0	52.5	54.0	-1.5	Horiz
4	4961.960M	66.8	+33.6 +1.6	+1.7 +0.2	+3.9	-57.9	+0.0	49.9	54.0	-4.1	Vert
5	10152.145 M	57.0	+39.7 +2.3	+2.4 +0.1	+6.3	-58.3	+0.0	49.5	54.0	-4.5	Horiz
6	10151.144 M	56.8	+39.7 +2.3	+2.4 +0.1	+6.3	-58.3	+0.0	49.3	54.0	-4.7	Vert
7	8871.866M	55.9	+38.2 +2.3	+2.3 +0.3	+6.0	-56.3	+0.0	48.7	54.0	-5.3	Horiz
8	9324.318M	56.1	+38.4 +2.2	+2.3 +0.4	+6.2	-57.2	+0.0	48.4	54.0	-5.6	Vert

CKC Laboratories, Inc Date: 4/25/2014 Time: 11:39:58 Electronic Warfare Associates, Inc WO#: 95598  
Test Distance: 3 Meters Sequence#: 10

— 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 Places • Fremont, CA 94539 • (510) 249-1170

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 13:45:30  
 Equipment: **Remote Control** Sequence#: 16  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANANT-AN02693-20130221	Active Horn Antenna	AMFW-5F-18002650-20-10P	2/21/2013	2/21/2015
T2	ANP00928	Cable	various	1/23/2014	1/23/2016
T3	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T4	ANP06126	Cable	32022-29094K-29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 12000MHz to 18000MHz  Temperature: 21.2°C Humidity: 36 % Atmospheric Pressure: 101.1 kPa  Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm  The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.  Note: X-axis
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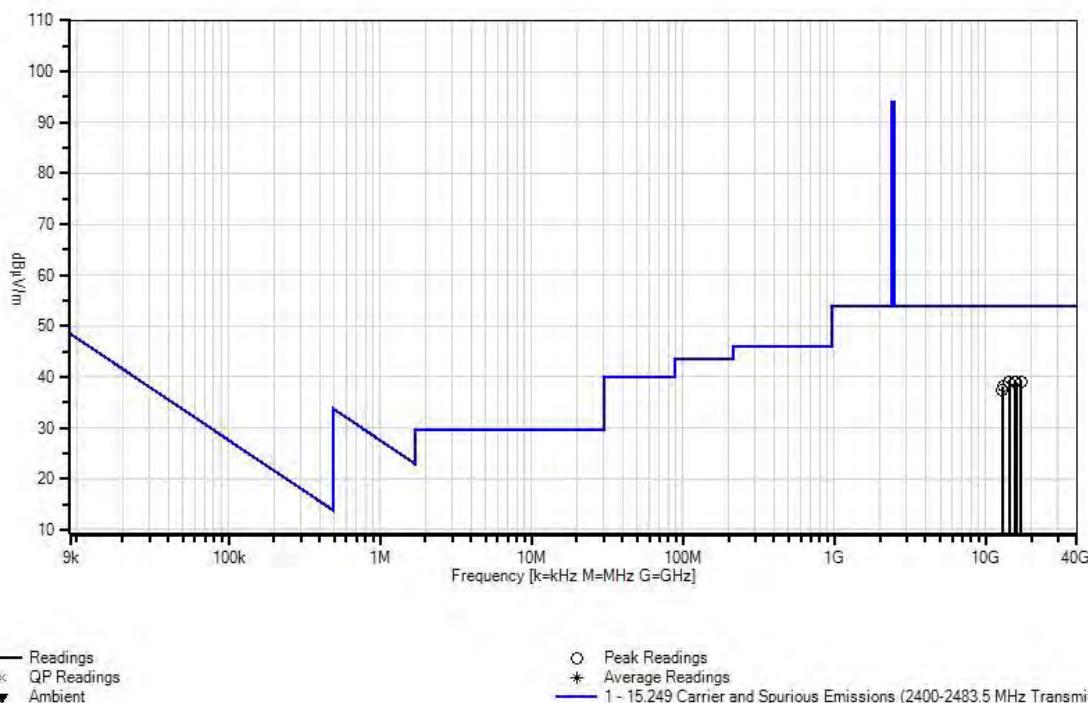
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	17089.779 M	43.5	-15.4	+0.7	+3.0	+7.3	+0.0	39.1	54.0	-14.9	Vert
2	14330.328 M	44.5	-15.6	+0.8	+2.8	+6.5	+0.0	39.0	54.0	-15.0	Horiz
3	15870.084 M	44.3	-16.3	+0.7	+3.2	+7.0	+0.0	38.9	54.0	-15.1	Vert
4	15553.550 M	43.7	-15.8	+0.8	+3.2	+7.0	+0.0	38.9	54.0	-15.1	Horiz
5	13054.053 M	44.4	-16.0	+0.8	+2.6	+6.3	+0.0	38.1	54.0	-15.9	Horiz
6	12826.608 M	43.6	-15.9	+0.8	+2.6	+6.2	+0.0	37.3	54.0	-16.7	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 13:45:30 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 16


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 13:58:05  
 Equipment: **Remote Control** Sequence#: 19  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANANT-AN02693-20130221	Active Horn Antenna	AMFW-5F-18002650-20-10P	2/21/2013	2/21/2015
T2	ANP00928	Cable	various	1/23/2014	1/23/2016
T3	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T4	ANP06126	Cable	32022-29094K-29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 12000MHz to 18000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Y-axis

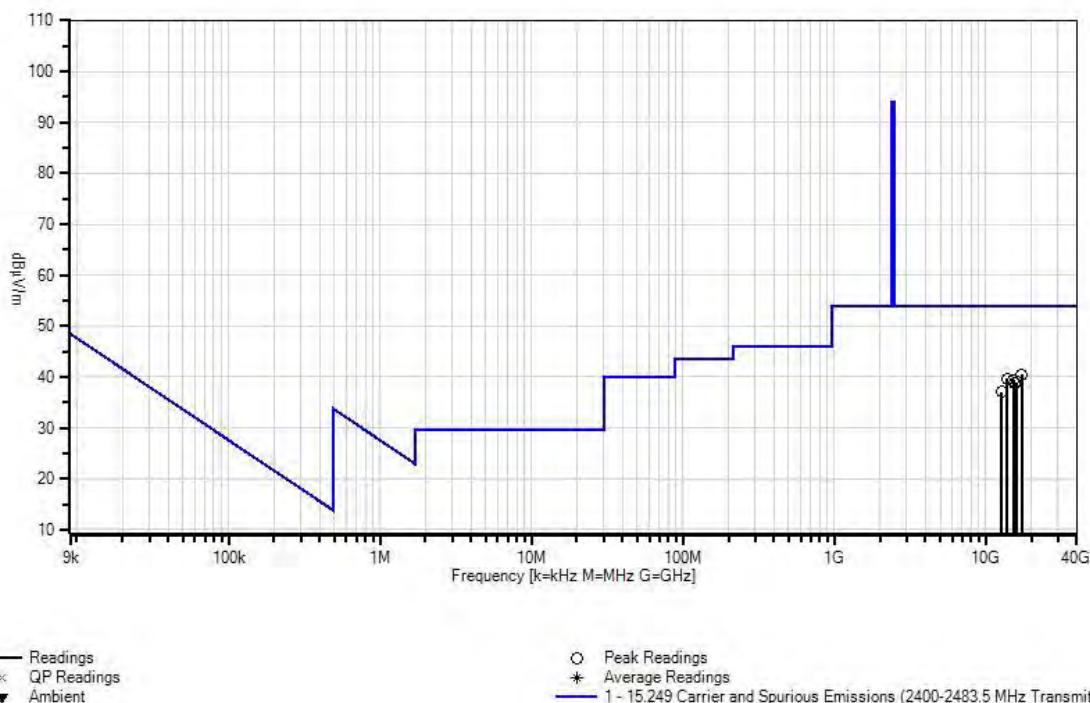
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	17308.232 M	44.1	-14.6	+0.7	+3.0	+7.3	+0.0	40.5	54.0	-13.5	Horiz
2	13796.207 M	45.6	-16.0	+0.8	+2.7	+6.5	+0.0	39.6	54.0	-14.4	Horiz
3	15235.431 M	44.1	-15.5	+0.8	+3.1	+6.9	+0.0	39.4	54.0	-14.6	Horiz
4	16099.914 M	44.7	-16.6	+0.7	+3.1	+7.0	+0.0	38.9	54.0	-15.1	Vert
5	15625.054 M	43.8	-16.0	+0.7	+3.2	+7.0	+0.0	38.7	54.0	-15.3	Vert
6	12732.833 M	43.2	-15.7	+0.8	+2.6	+6.1	+0.0	37.0	54.0	-17.0	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 13:58:05 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 19


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 14:17:38  
 Equipment: **Remote Control** Sequence#: 22  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANANT-AN02693-20130221	Active Horn Antenna	AMFW-5F-18002650-20-10P	2/21/2013	2/21/2015
T2	ANP00928	Cable	various	1/23/2014	1/23/2016
T3	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T4	ANP06126	Cable	32022-29094K-29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 12000MHz to 18000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Z-axis

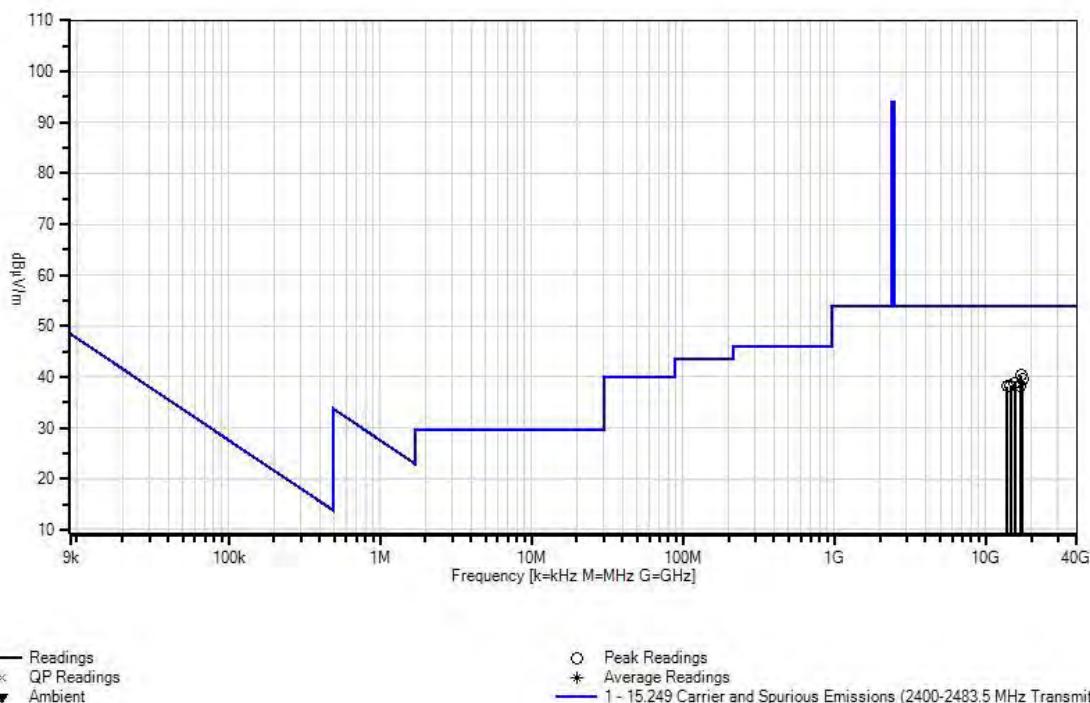
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	17189.904 M	44.0	-14.8	+0.7	+3.1	+7.3	+0.0	40.3	54.0	-13.7	Horiz
2	17549.441 M	42.5	-14.1	+0.7	+3.1	+7.3	+0.0	39.5	54.0	-14.5	Vert
3	15593.248 M	43.7	-15.9	+0.8	+3.2	+7.0	+0.0	38.8	54.0	-15.2	Vert
4	16978.277 M	42.8	-15.5	+0.7	+3.0	+7.3	+0.0	38.3	54.0	-15.7	Horiz
5	14543.649 M	43.4	-15.4	+0.8	+2.9	+6.6	+0.0	38.3	54.0	-15.7	Horiz
6	13873.734 M	44.2	-16.0	+0.8	+2.7	+6.5	+0.0	38.2	54.0	-15.8	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 14:17:38 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 22


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 15:02:13  
 Equipment: **Remote Control** Sequence#: 31  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06125	Cable	32022-29094K- 29094K-72TC	5/6/2013	5/6/2015
T2	ANP06126	Cable	32022-29094K- 29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T3	AN02694	Horn Antenna-ANSI C63.5 Antenna Factors (dB)	AMFW-5F- 18002650-20-10P	2/4/2013	2/4/2015
T4	ANP00929	Cable	various	1/23/2014	1/23/2016

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

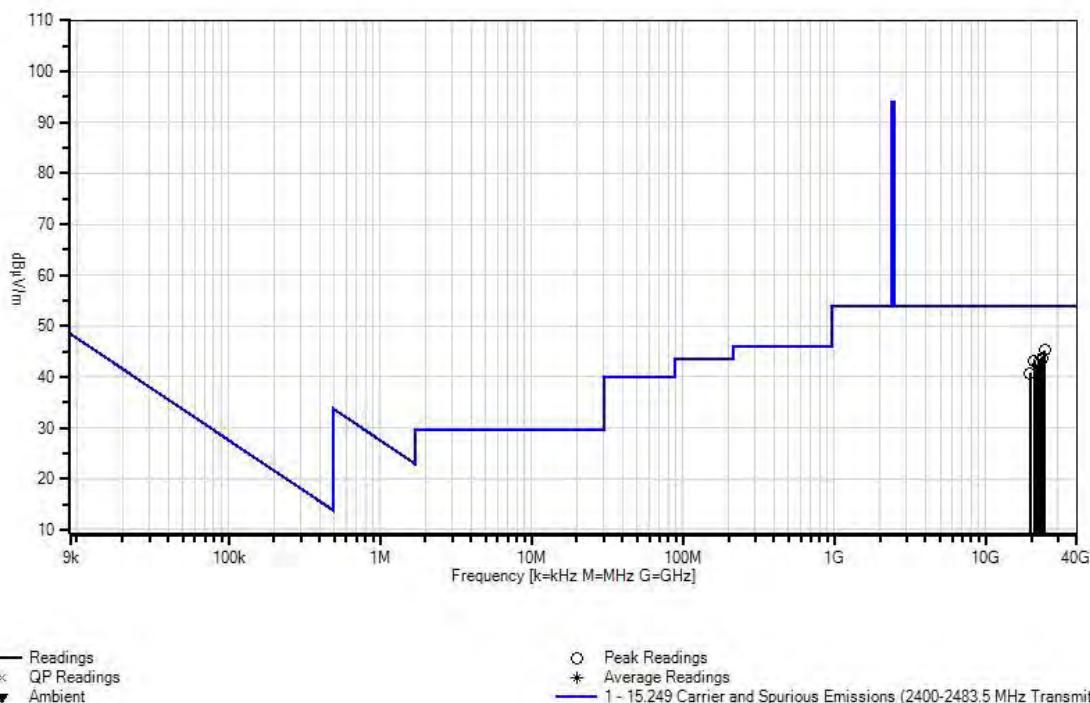
**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 18000MHz to 25000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: X-axis

Ext Attn: 0 dB

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

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	24385.465 M	46.4	+4.5	+8.7	-17.3	+3.0	+0.0	45.3	54.0	-8.7	Horiz
2	23384.576 M	45.7	+4.4	+8.5	-17.8	+3.0	+0.0	43.8	54.0	-10.2	Vert
3	20856.892 M	44.8	+4.2	+8.0	-17.0	+3.2	+0.0	43.2	54.0	-10.8	Vert
4	22572.974 M	45.0	+4.3	+8.3	-17.6	+3.0	+0.0	43.0	54.0	-11.0	Vert
5	21995.669 M	44.1	+4.3	+8.2	-17.3	+3.0	+0.0	42.3	54.0	-11.7	Horiz
6	19653.893 M	42.6	+3.7	+7.8	-16.6	+3.3	+0.0	40.8	54.0	-13.2	Horiz

CKC Laboratories, Inc Date: 4/25/2014 Time: 15:02:13 Electronic Warfare Associates, Inc WO#: 95598  
Test Distance: 3 Meters Sequence#: 31


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 14:50:17  
 Equipment: **Remote Control** Sequence#: 28  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06125	Cable	32022-29094K- 29094K-72TC	5/6/2013	5/6/2015
T2	ANP06126	Cable	32022-29094K- 29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T3	AN02694	Horn Antenna-ANSI C63.5 Antenna Factors (dB)	AMFW-5F- 18002650-20-10P	2/4/2013	2/4/2015
T4	ANP00929	Cable	various	1/23/2014	1/23/2016

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 18000MHz to 25000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Y-axis

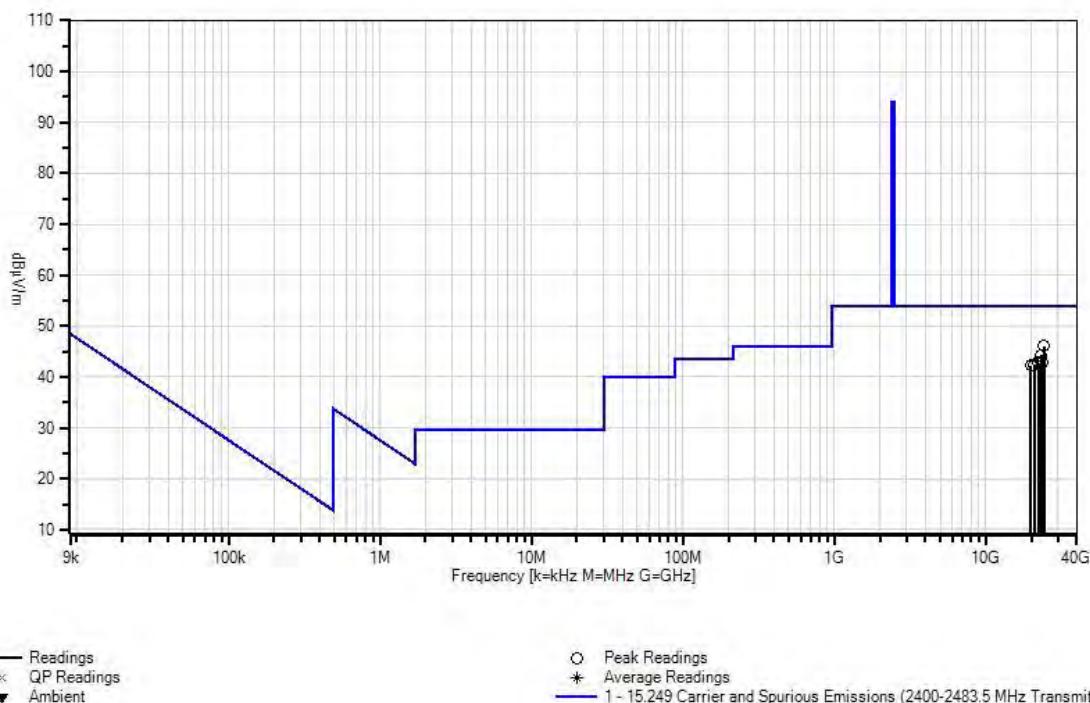
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	24149.504 M	47.5	+4.4	+8.6	-17.5	+3.0	+0.0	46.0	54.0	-8.0	Horiz
2	23340.495 M	46.2	+4.4	+8.5	-17.8	+3.0	+0.0	44.3	54.0	-9.7	Vert
3	23827.975 M	44.6	+4.4	+8.5	-17.6	+3.0	+0.0	42.9	54.0	-11.1	Horiz
4	22167.648 M	44.7	+4.4	+8.2	-17.5	+3.0	+0.0	42.8	54.0	-11.2	Horiz
5	20868.512 M	44.0	+4.2	+8.0	-17.0	+3.2	+0.0	42.4	54.0	-11.6	Vert
6	19778.872 M	44.1	+3.7	+7.8	-16.6	+3.3	+0.0	42.3	54.0	-11.7	Vert

 CKC Laboratories, Inc Date: 4/25/2014 Time: 14:50:17 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 28


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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 14:38:48  
 Equipment: **Remote Control** Sequence#: 25  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP06125	Cable	32022-29094K- 29094K-72TC	5/6/2013	5/6/2015
T2	ANP06126	Cable	32022-29094K- 29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T3	AN02694	Horn Antenna-ANSI C63.5 Antenna Factors (dB)	AMFW-5F- 18002650-20-10P	2/4/2013	2/4/2015
T4	ANP00929	Cable	various	1/23/2014	1/23/2016

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

Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Radiated Spurious Emission Frequency Range: 18000MHz to 25000MHz
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz Transmitting operating frequency= 2481MHz RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.
Note: Z-axis

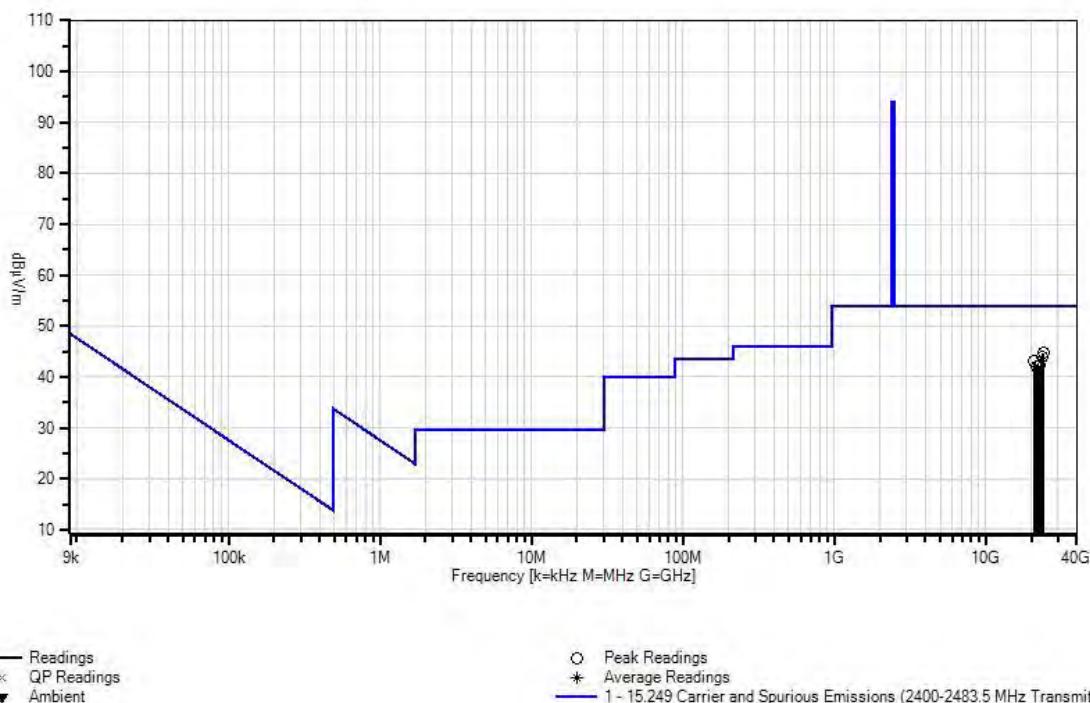
Ext Attn: 0 dB

**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	24053.564 M	46.3	+4.4	+8.5	-17.5	+3.0	+0.0	44.7	54.0	-9.3	Horiz
2	23734.628 M	45.7	+4.4	+8.5	-17.7	+3.0	+0.0	43.9	54.0	-10.1	Vert
3	23387.169 M	45.8	+4.4	+8.5	-17.8	+3.0	+0.0	43.9	54.0	-10.1	Horiz
4	20856.892 M	44.7	+4.2	+8.0	-17.0	+3.2	+0.0	43.1	54.0	-10.9	Vert
5	22619.648 M	44.3	+4.2	+8.3	-17.6	+3.0	+0.0	42.2	54.0	-11.8	Vert
6	21586.639 M	43.8	+4.2	+8.2	-17.2	+3.1	+0.0	42.1	54.0	-11.9	Horiz

 CKC Laboratories, Inc Date: 4/25/2014 Time: 14:38:48 Electronic Warfare Associates, Inc WO#: 95598  
 Test Distance: 3 Meters Sequence#: 25


## Bandedge Test Setup / Data

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

Customer: **Electronic Warfare Associates, Inc**  
 Specification: **Band Edge Set up**  
 Work Order #: **95598** Date: 4/25/2014  
 Test Type: **Radiated Scan** Time: 09:21:12  
 Equipment: **Remote Control** Sequence#: 1  
 Manufacturer: Electronic Warfare Associates, Inc Tested By: Hieu Song Nguyenpham  
 Model: SKEY-FB2  
 S/N: PCB 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/23/2013	1/23/2015
T2	AN03302	Cable	32026-29094K-29094K-72TC	3/24/2014	3/24/2016
T3	ANP01210	Cable	FSJ1P-50A-4A	2/19/2013	2/19/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015

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

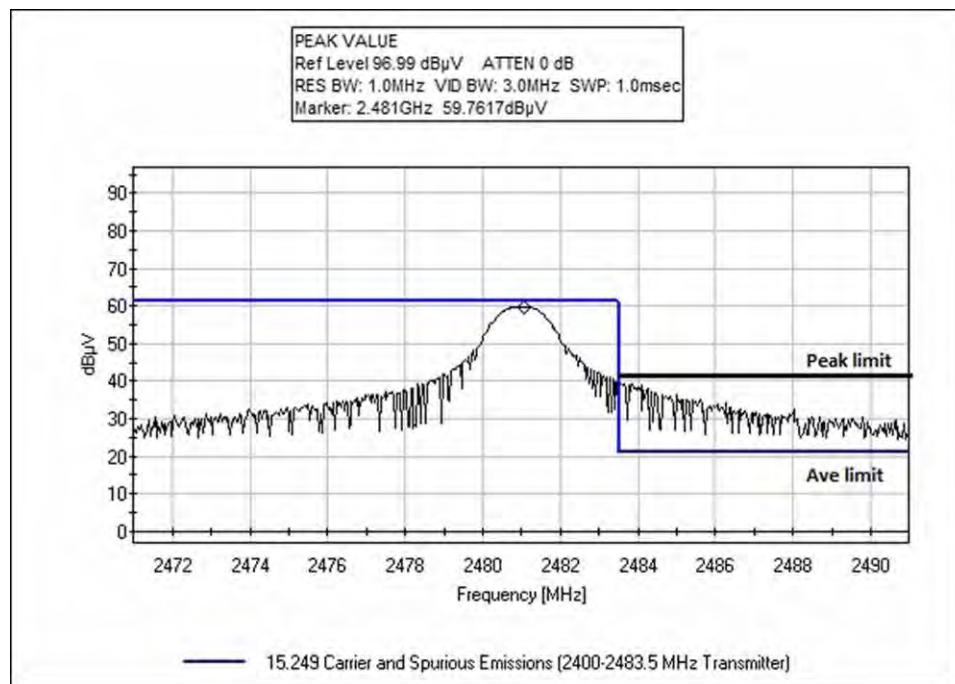
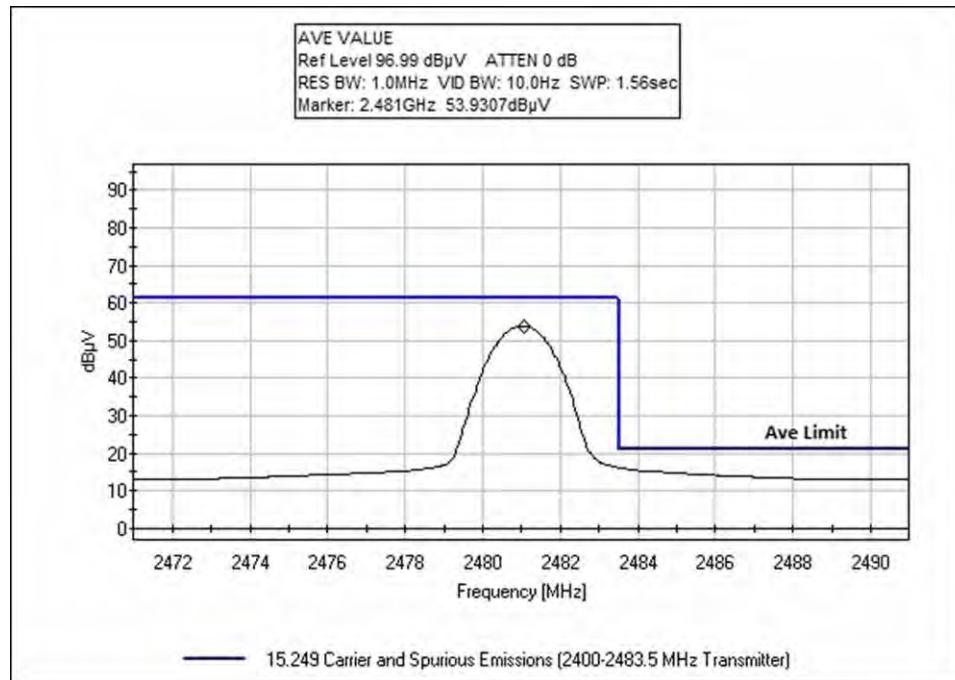
Function	Manufacturer	Model #	S/N
Remote Control*	Electronic Warfare Associates, Inc	SKEY-FB2	PCB 1

**Support Devices:**

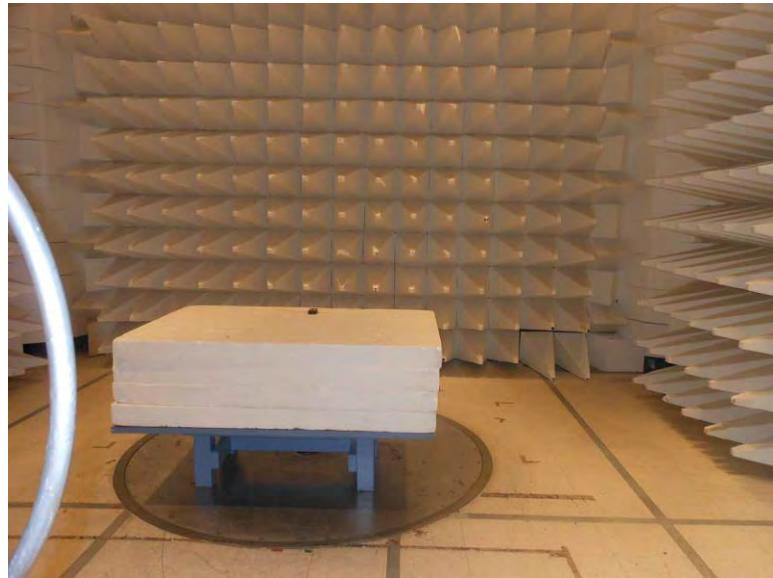
Function	Manufacturer	Model #	S/N

**Test Conditions / Notes:**

Band edge Set up
Temperature: 21.2°C
Humidity: 36 %
Atmospheric Pressure: 101.1 kPa
Highest Generation Frequency=2481MHz
Transmitting operating frequency= 2481MHz
RF Output= -2dBm
The EUT is a handheld device and operated by 2-AAA batteries at 3VDC. It is placed on the 80cm Styrofoam table and at the center of a turning table. The EUT is set to continuously transmit.



## Test Setup Photo(s)



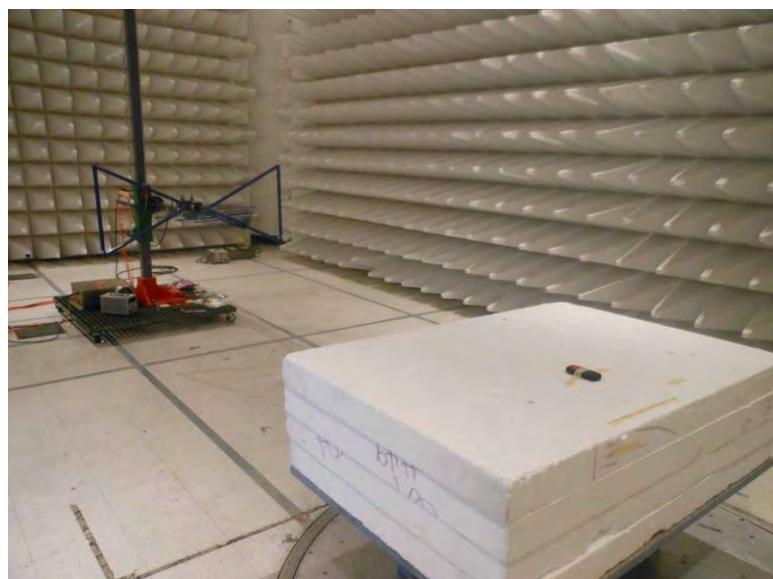
9kHz-30MHz



9kHz-30MHz



30MHz-1GHz



30MHz-1GHz



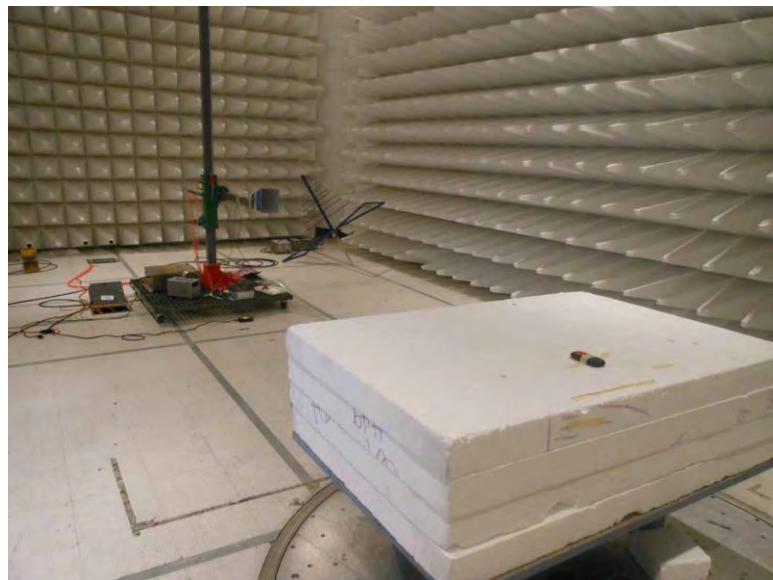
1GHz-12GHz



1GHz-12GHz



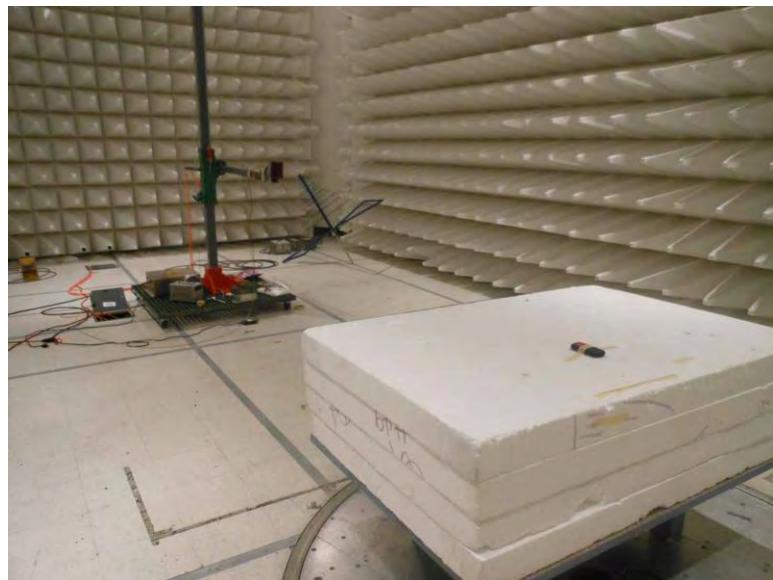
12GHz-18GHz



12GHz-18GHz



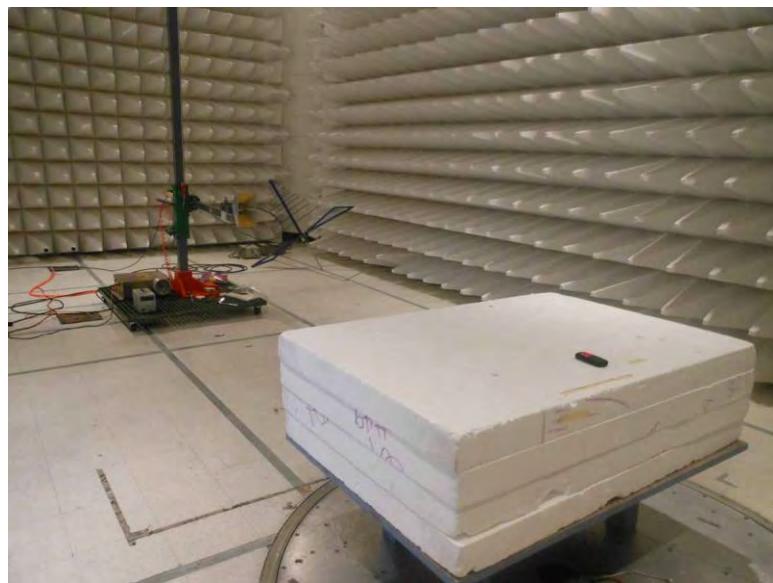
18GHz-25GHz



18GHz-25GHz



Bandedge Test Setup, View #1



Bandedge Test Setup, View #2

## 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  $\text{dB}\mu\text{V}/\text{m}$ , the spectrum analyzer reading in  $\text{dB}\mu\text{V}$  was corrected by using the following formula. This reading was then compared to the applicable specification limit.

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

#### TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. 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.

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