

# Automatic Labs

## ADDENDUM TO TEST REPORT 95286-4

Link  
Model: 1

### Tested To The Following Standards:

FCC Part 15 Subpart C  
Section: 15.249

Report No.: 95286-4A

Date of issue: March 18, 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:**

Automatic Labs  
101 Howard Street, Ste. E  
San Francisco, CA 94105

Representative: Don Robinson

**REPORT PREPARED BY:**

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

Project Number: 95286

**DATE OF EQUIPMENT RECEIPT:**

January 9, 2014

**DATE(S) OF TESTING:**

January 9 - 13, 2014

### Revision History

**Original:** Testing of the Link, 1 to FCC Part 15 Subpart C, section 15.249.

**Addendum A:** To insert test data for Modulation Type: 8 DPSK (3Mbps) in the 15.249(d) Radiated Spurious Emissions section. To replace data and photos in the 15.249(d) Band edge section.

### 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 § 15.249

Test Procedure/Method	Description	Results
15.249(a)(b) / ANSI C63.4 / ANSI C63.10	RF Power Output	Pass
15.31(e)	Voltage Variation	Pass
15.215(c) / ANSI C63.4 / ANSI C63.10	Occupied Bandwidth	Pass
15.249(d) / ANSI C63.4 / ANSI C63.10	Radiated Spurious Emissions	Pass
15.249(d) / ANSI C63.4 / ANSI C63.10	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
Note: The EUT tested in Modulation Type: 4 DQPSK (2Mbps) and Modulation Type: 8 DPSK (3Mbps).

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

### **EQUIPMENT UNDER TEST**

#### **Link**

Manuf: Automatic Labs

Model: 1

Serial: FW1 1

### **PERIPHERAL DEVICES**

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

#### **DC Power Supply**

Manuf: TekPower

Model: HY1803D

Serial: 259223

## 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)(b) RF Power Output

#### Test Data – 4 DQPSK

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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/9/2014  
 Test Type: **Radiated Scan** Time: 13:44:04  
 Equipment: **Link** Sequence#: 1  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

#### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Fundamental of the EUT

Temperature: 21.2°C

Humidity: 36%

Atmospheric Pressure: 102.0 kPa

RBW=3MHz

VBW=8MHz

High Clock: 40MHz

Software Used: FCC test

Transmitter operating frequency: 2.4GHz

Number of Channel: 40

Low Frequency: 2.402GHz

Middle Frequency: 2.442GHz

High Frequency: 2.480GHz

RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.

Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK ( 2Mbps)

Ext Attn: 0 dB

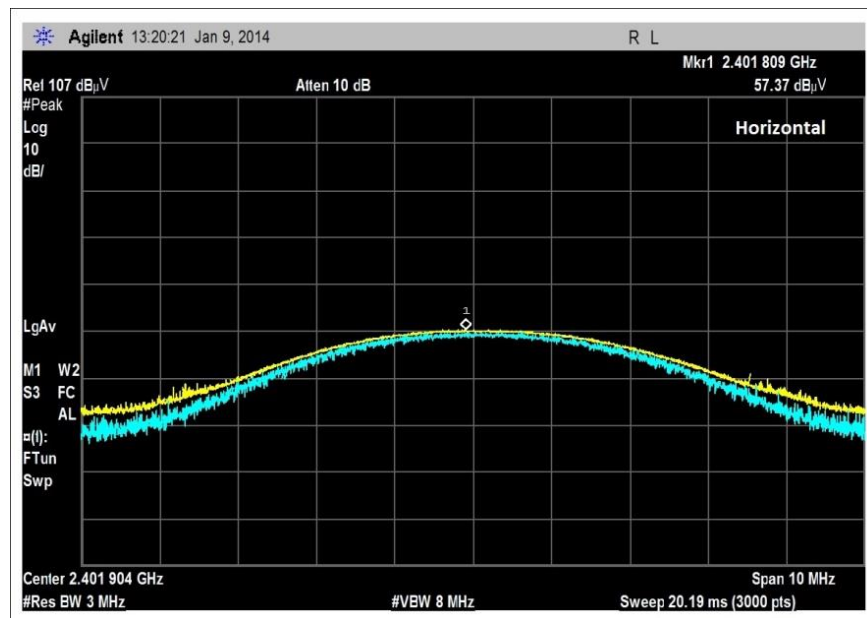
**Measurement Data:**

Reading listed by margin.

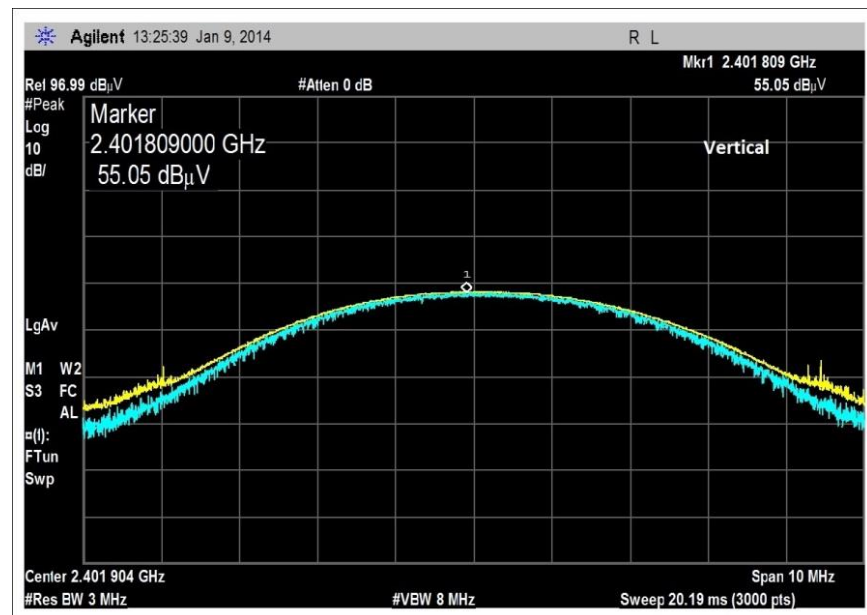
Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	2480.072M	57.2	+28.9	+1.1	+2.7		+0.0	89.9	94.0	-4.1	Horiz
									High Channel		
2	2401.809M	57.4	+28.6	+1.1	+2.7		+0.0	89.8	94.0	-4.2	Horiz
									Low Channel		
3	2480.070M	55.3	+28.9	+1.1	+2.7		+0.0	88.0	94.0	-6.0	Vert
									High Channel		
4	2441.919M	55.3	+28.7	+1.1	+2.7		+0.0	87.8	94.0	-6.2	Horiz
									Middle Channel		
5	2401.809M	55.1	+28.6	+1.1	+2.7		+0.0	87.5	94.0	-6.5	Vert
									Low Channel		
6	2441.935M	53.8	+28.7	+1.1	+2.7		+0.0	86.3	94.0	-7.7	Vert
									Middle Channel		

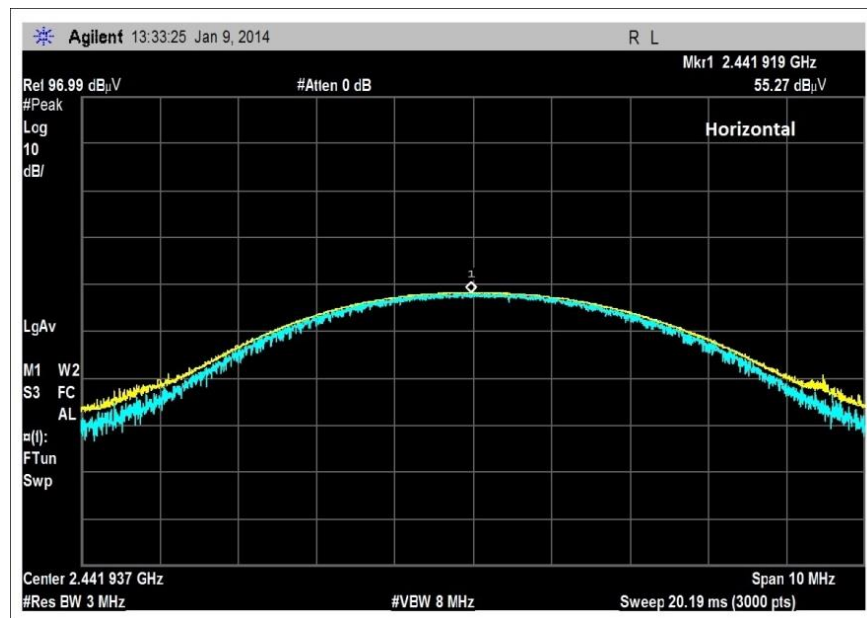




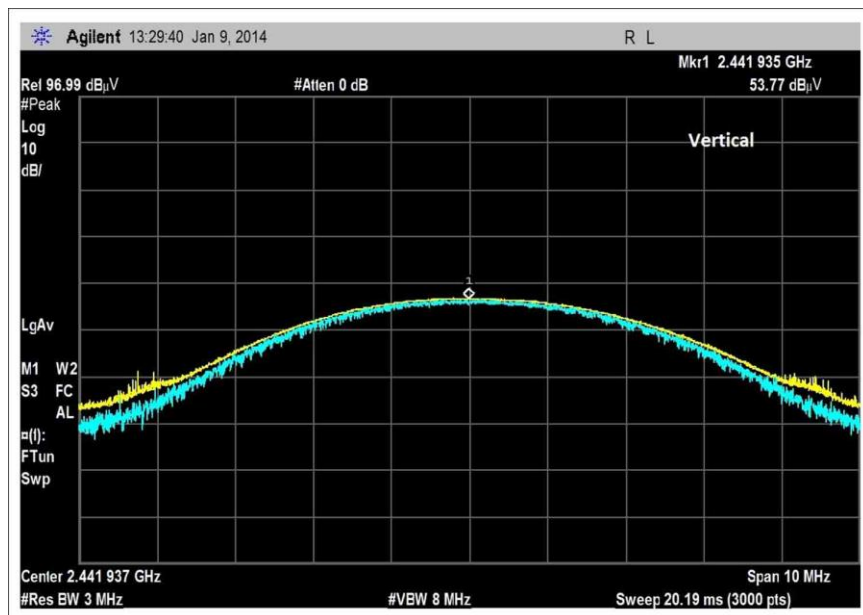
Low Channel, Horizontal Polarity



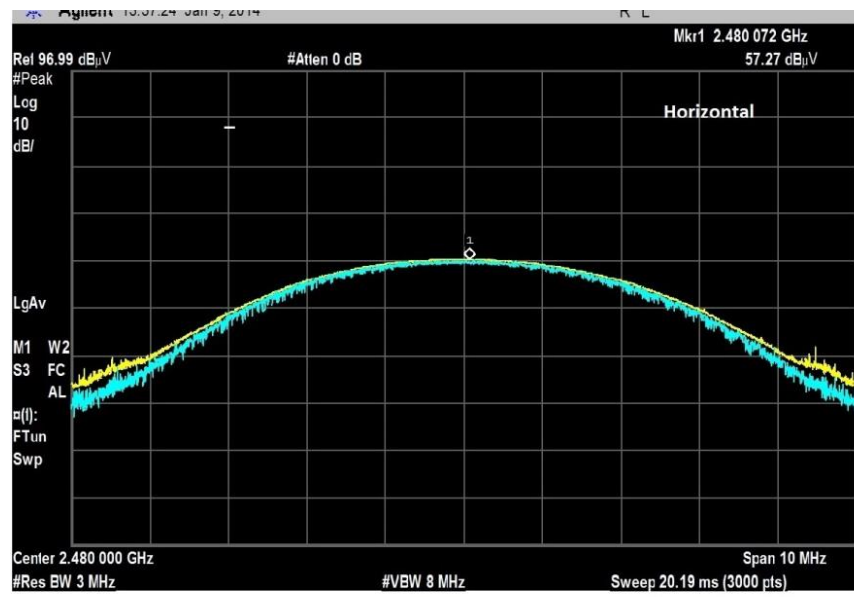
Low Channel, Vertical Polarity



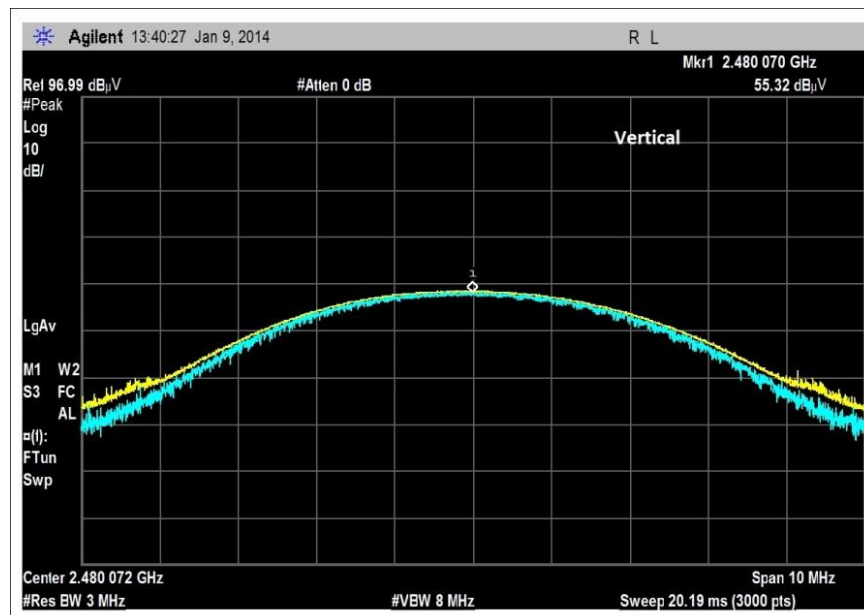
Middle Channel, Horizontal Polarity



Low Channel, Vertical Polarity



High Channel, Horizontal Polarity



High Channel, Vertical Polarity

## Test Data - 8 DPSK

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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/9/2014  
 Test Type: **Radiated Scan** Time: 14:45:26  
 Equipment: **Link** Sequence#: 2  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

### Test Conditions / Notes:

Fundamental of the EUT  
 Temperature: 21.2°C, Humidity: 36%, Atmospheric Pressure: 102.0 kPa

RBW=3MHz  
 VBW=8MHz

High Clock: 40MHz  
 Software Used: FCC test

Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
 Note: Modulation Type: 8 DPSK (3Mbps)

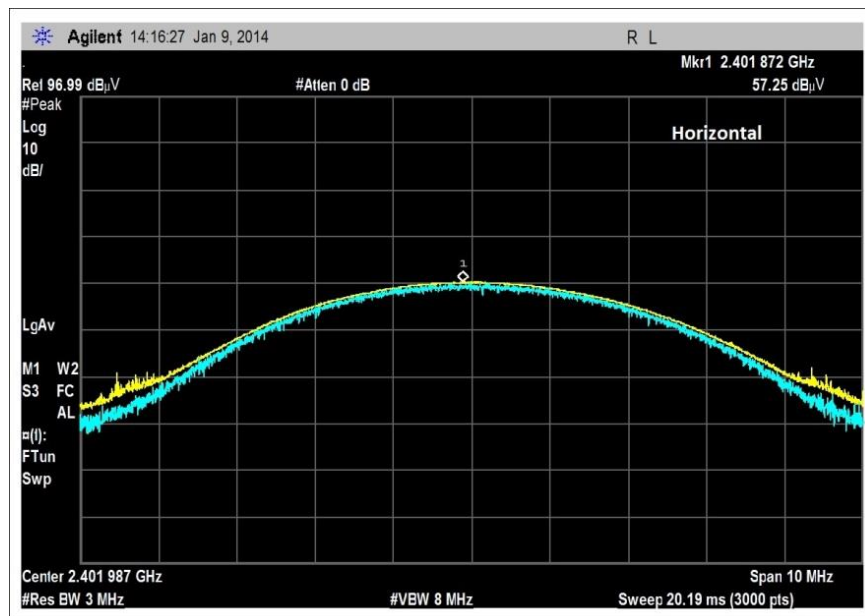
Ext Attn: 0 dB

**Measurement Data:**

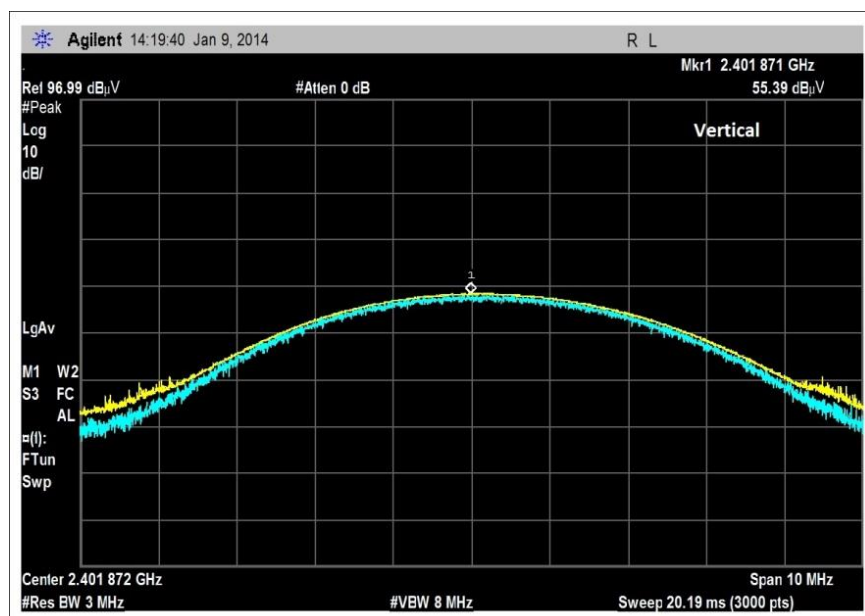
Reading listed by margin.

Test Distance: 3 Meters

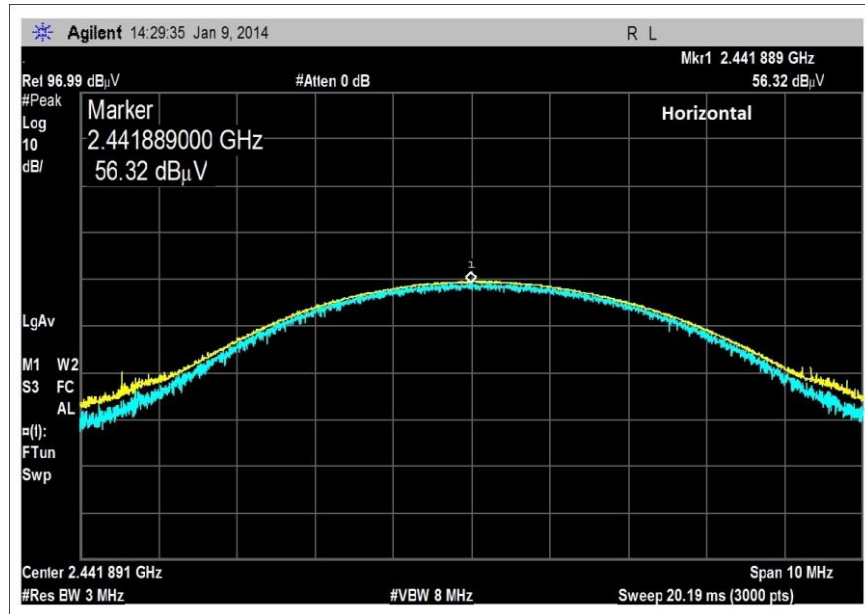
#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	2480.135M	60.5	+28.9	+1.1	+2.7		+0.0	93.2	94.0	-0.8	Horiz
									High Channel		
2	2401.872M	57.3	+28.6	+1.1	+2.7		+0.0	89.7	94.0	-4.3	Horiz
									Low channel		
3	2480.135M	56.3	+28.9	+1.1	+2.7		+0.0	89.0	94.0	-5.0	Vert
									High Channel		
4	2441.819M	56.3	+28.7	+1.1	+2.7		+0.0	88.8	94.0	-5.2	Horiz
									Middle Channel		
5	2441.819M	55.7	+28.7	+1.1	+2.7		+0.0	88.2	94.0	-5.8	Vert
									Middle Channel		
6	2401.872M	55.4	+28.6	+1.1	+2.7		+0.0	87.8	94.0	-6.2	Vert
									Low channel		



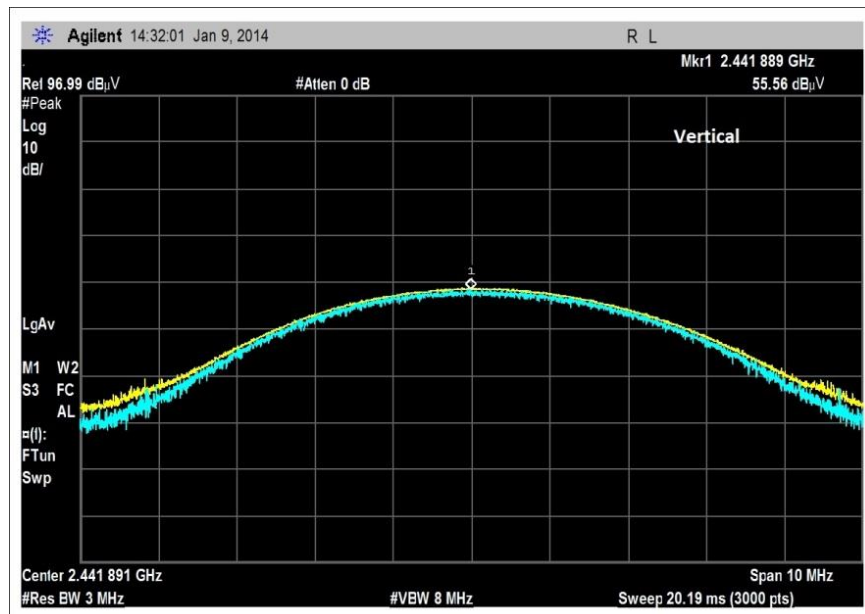
Low Channel, Horizontal Polarity



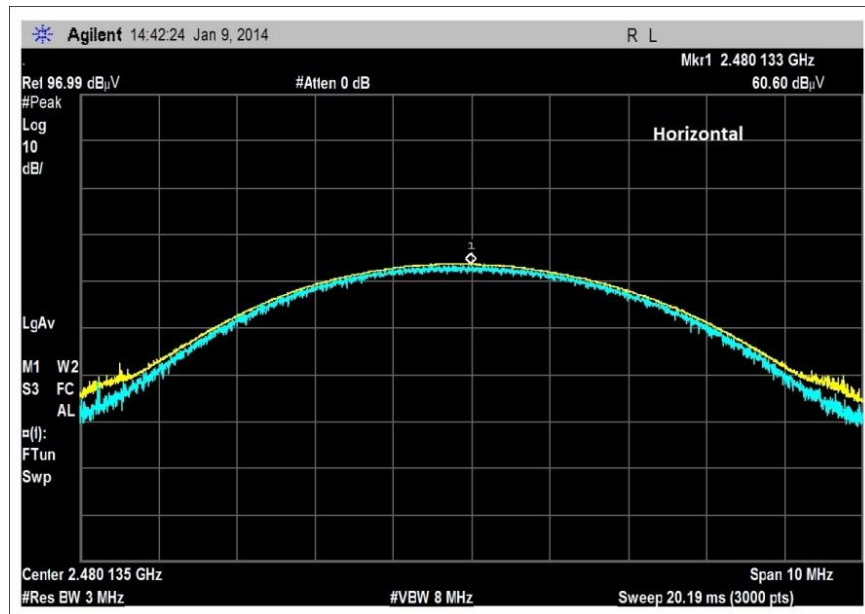
Low Channel, Vertical Polarity



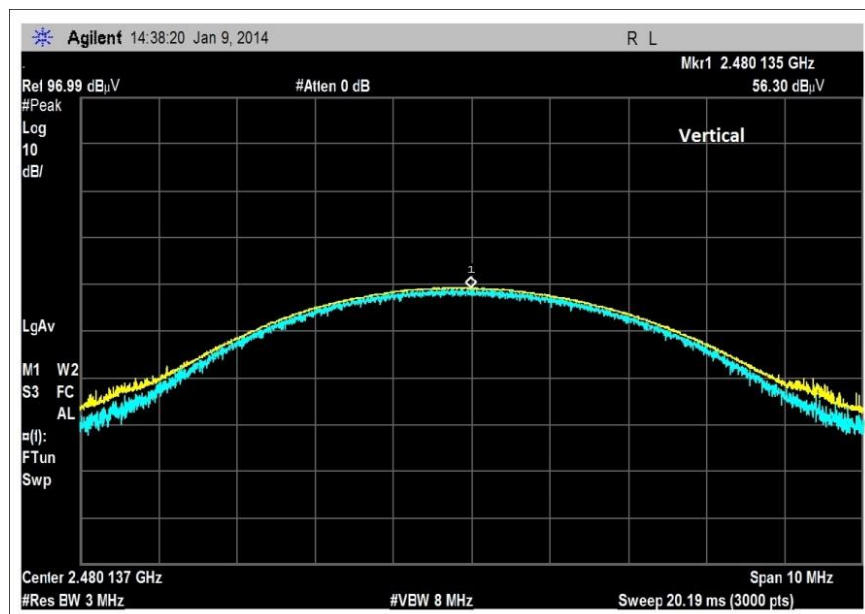
Middle Channel, Horizontal Polarity



Middle Channel, Vertical Polarity



High Channel, Horizontal Polarity



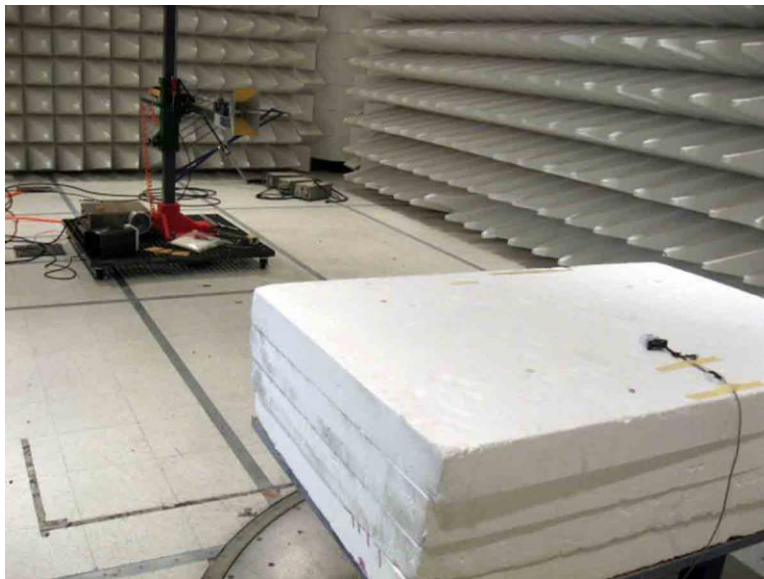
High Channel, Vertical Polarity



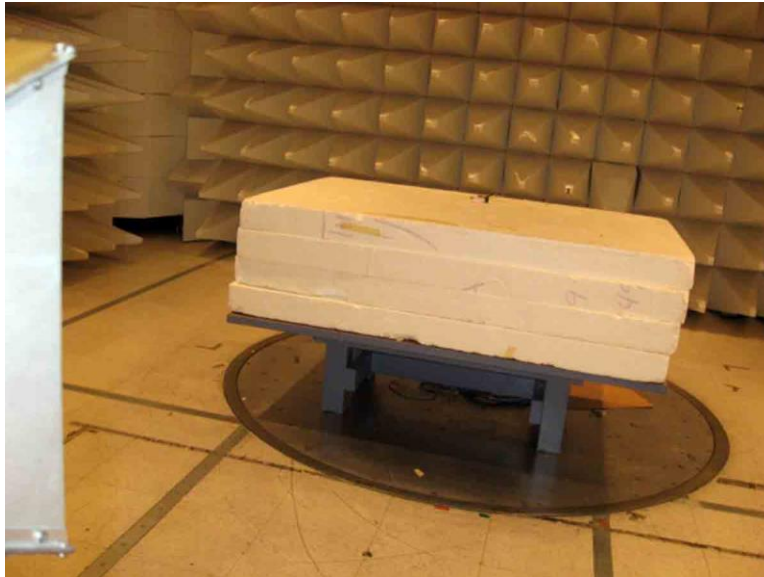
**Test Setup Photo(s)**



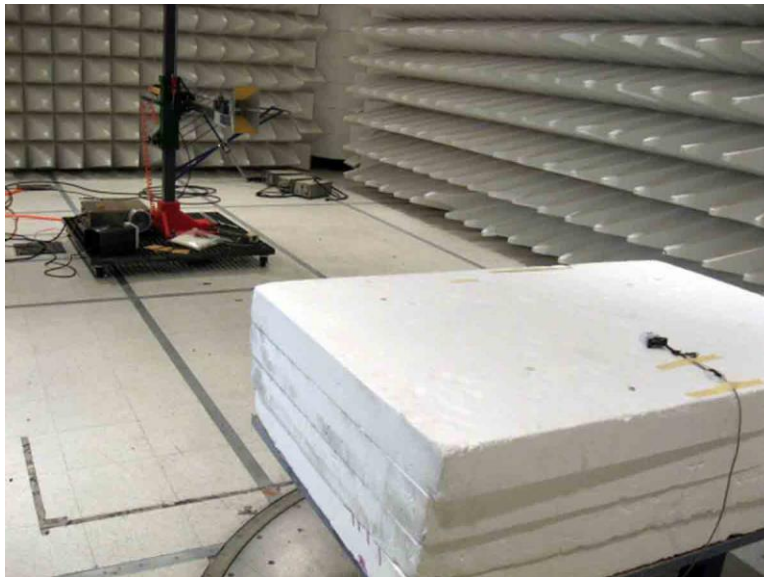
Front View - 4 DQPSK



Back View - 4 DQPSK



Front View - 8 DPSK



Back View - 8 DPSK

## 15.31(e) Voltage Variations

### Test Conditions / Setup

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

Customer: **Automatic Labs**

Specification: **15.31e**

Work Order #: **95286**

Date: 1/9/2014

Test Type: **Radiated Scan**

Time: 13:44:04

Equipment: **Link**

Sequence#: 1

Manufacturer: Automatic Labs

Tested By: Hieu Song Nguyenpham

Model: 1

S/N: FW2 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW2 1

#### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

***Test Conditions / Notes:***

15.31e Set up

Temperature: 21.2°C

Humidity: 36%

Atmospheric Pressure: 102.0 kPa

High Clock: 40MHz

Software Used: FCC test

Transmitter operating frequency: 2.4GHz

Number of Channel: 40

Low Frequency: 2.402GHz

Middle Frequency: 2.442GHz

High Frequency: 2.480GHz

RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.

Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK ( 2Mbps)

**15.31e. According to 15.31e, the RF output power does not change when going down to 85% (10.2V) and up to 115% (13.8V)**

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

Customer: **Automatic Labs**

Specification: **15.31e**

Work Order #: **95286**

Test Type: **Radiated Scan**

Equipment: **Link**

Manufacturer: Automatic Labs

Model: 1

S/N: FW2 1

Date: 1/9/2014

Time: 13:44:04

Sequence#: 1

Tested By: Hieu Song Nguyenpham

**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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW2 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

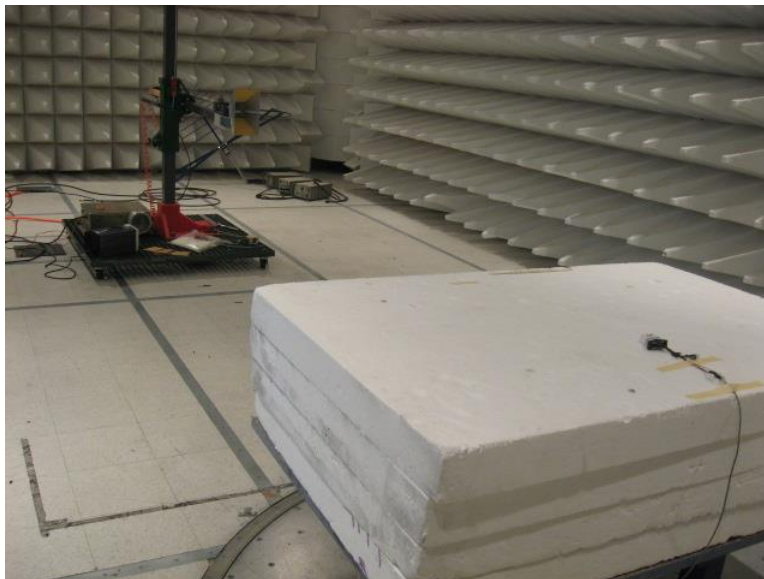
**Test Conditions / Notes:**

<p>15.31e Set up</p> <p>Temperature: 21.2°C Humidity: 36% Atmospheric Pressure: 102.0 kPa</p> <p>High Clock: 40MHz Software Used: FCC test</p> <p>Transmitter operating frequency: 2.4GHz Number of Channel: 40 Low Frequency: 2.402GHz Middle Frequency: 2.442GHz High Frequency: 2.480GHz RF output power: 2dBm</p> <p>The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT. Test mode firmware installed for testing that modifies frequency based on input voltage.</p> <p>Note: Modulation Type: 8 DPSK ( 3Mbps)</p> <p><b>15.31e. According to 15.31e, the RF output power does not change when going down to 85% (10.2V) and up to 115% (13.8V)</b></p>
--

**Test Setup Photo(s)**

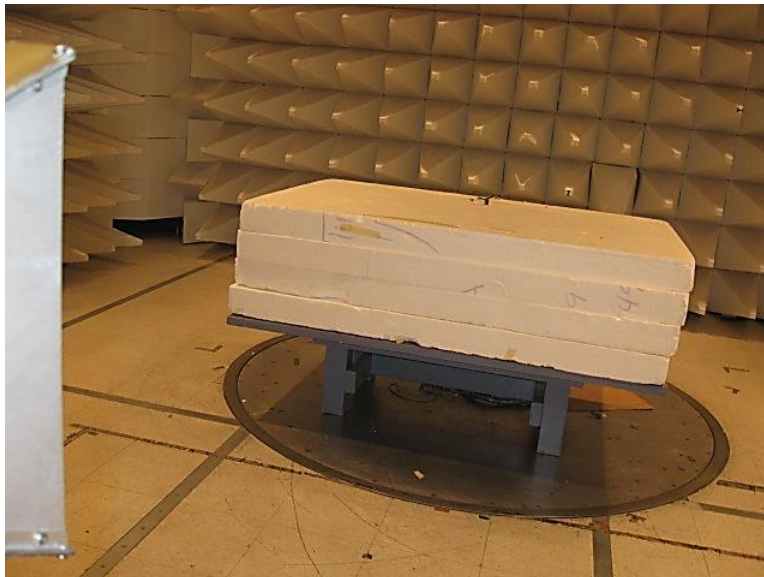


Front View - 4 DQPSK

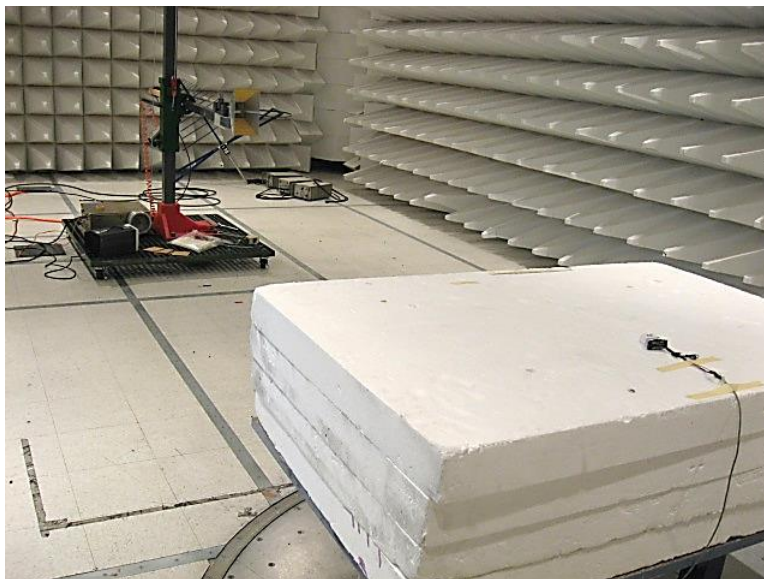


Back View - 4 DQPSK





Front View - 8 DPSK



Back View - 8 DPSK

## 15.215(c) Occupied Bandwidth

### Test Data - 4 DQPSK

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

Customer: **Automatic Labs**

Specification: **OBW**

Work Order #: **95286**

Test Type: **Radiated Scan**

Equipment: **Link**

Manufacturer: Automatic Labs

Model: 1

S/N: FW1 1

Date: 1/9/2014

Time: 13:44:04

Sequence#: 1

Tested By: Hieu Song Nguyenpham

#### 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

#### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223



**Test Conditions / Notes:**

OBW Set up

Temperature: 21.2°C

Humidity: 36%

Atmospheric Pressure: 102.0 kPa

High Clock: 40MHz

Software Used: FCC test

Transmitter operating frequency: 2.4GHz

Number of Channel: 40

Low Frequency: 2.402GHz

Middle Frequency: 2.442GHz

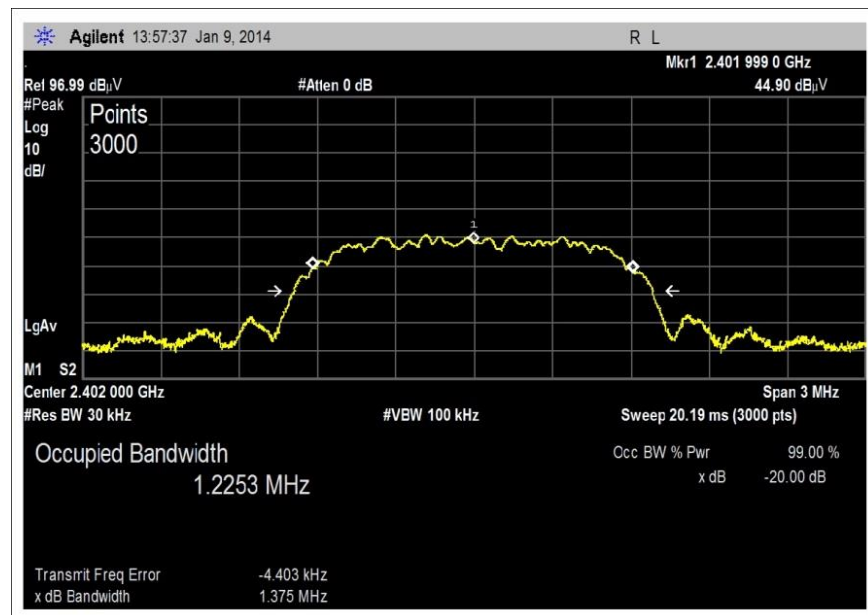
High Frequency: 2.480GHz

RF output power: 2dBm

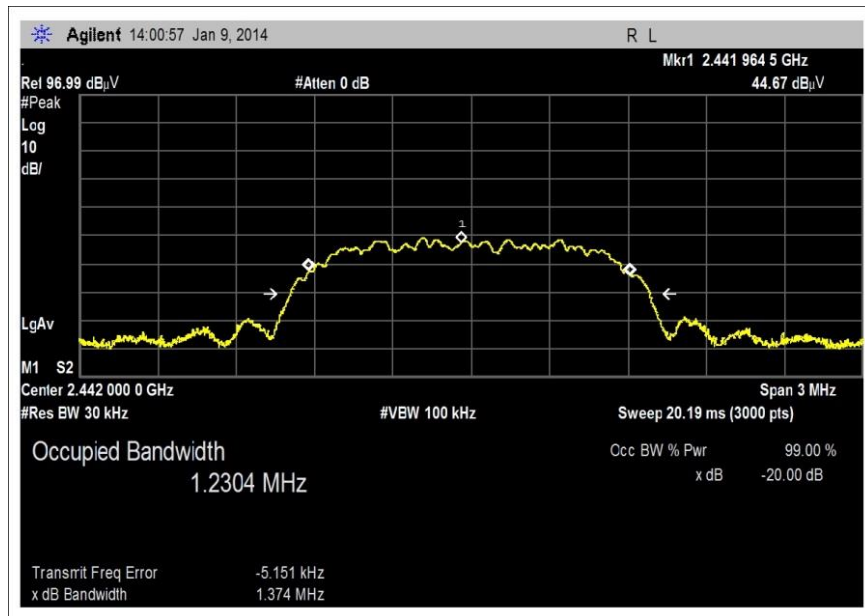
The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.

Test mode firmware installed for testing that modifies frequency based on input voltage.

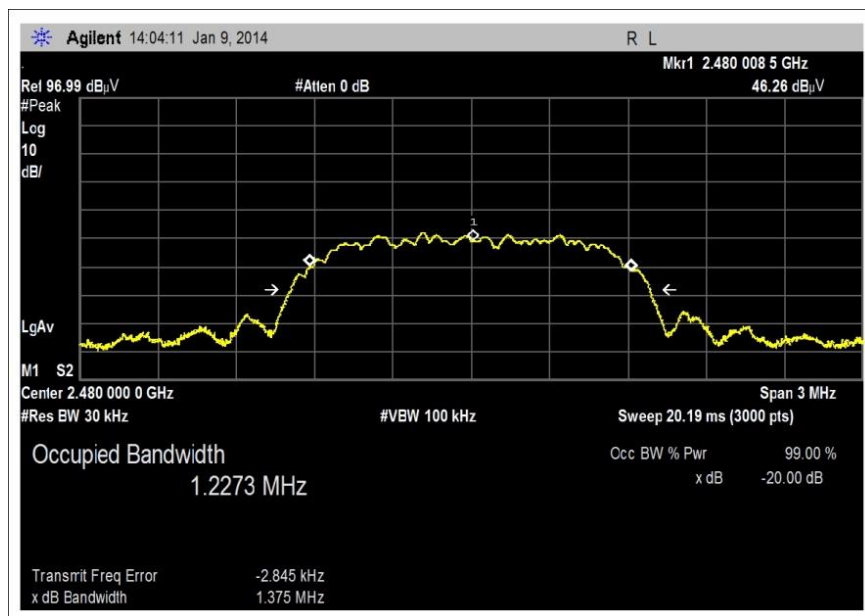
Note: Modulation Type: 4 DQPSK ( 2Mbps)



Low Channel



Middle Channel



High Channel

## Test Data - 8 DPSK

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

Customer: **Automatic Labs**

Specification: **OBW**

Work Order #: **95286**

Date: 1/9/2014

Test Type: **Radiated Scan**

Time: 13:44:04

Equipment: **Link**

Sequence#: 1

Manufacturer: Automatic Labs

Tested By: Hieu Song Nguyenpham

Model: 1

S/N: FW1 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

### Test Conditions / Notes:

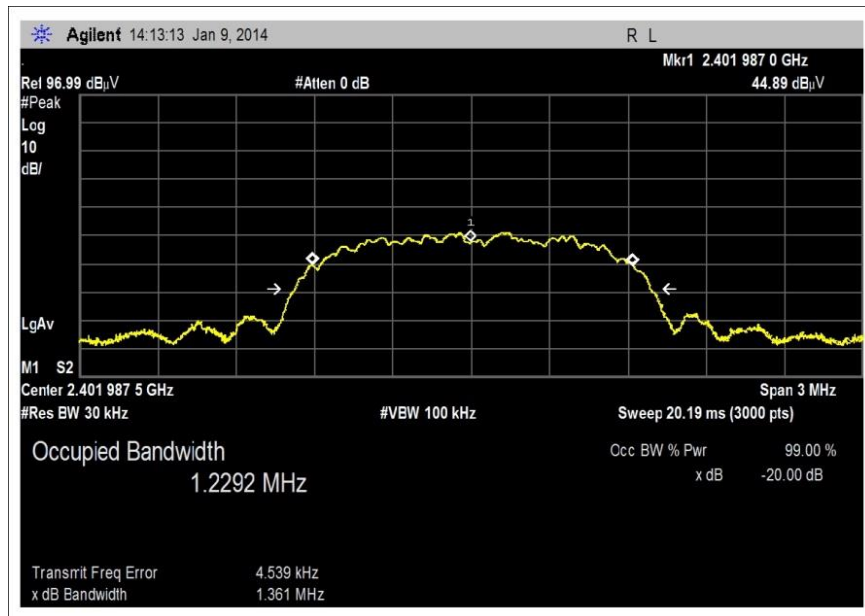
OBW Set up  
 Temperature: 21.2°C, Humidity: 36%, Atmospheric Pressure: 102.0 kPa

High Clock: 40MHz  
 Software Used: FCC test

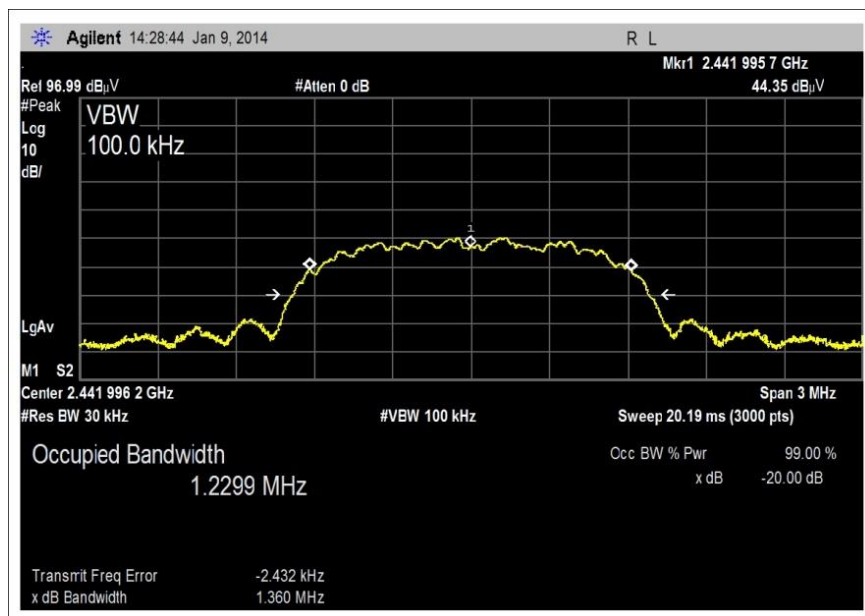
Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.

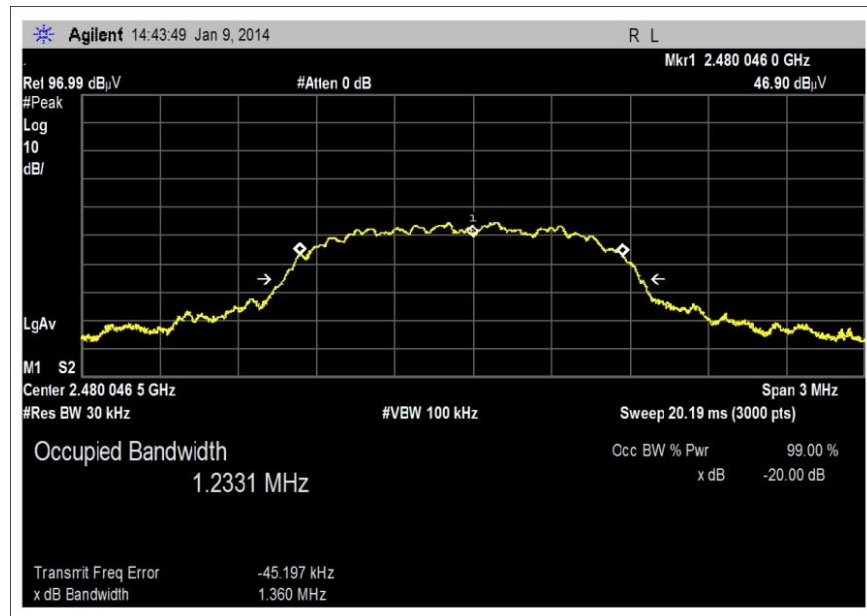
Note: Modulation Type: 8 DPSK ( 3Mbps)



Low Channel



Middle Channel

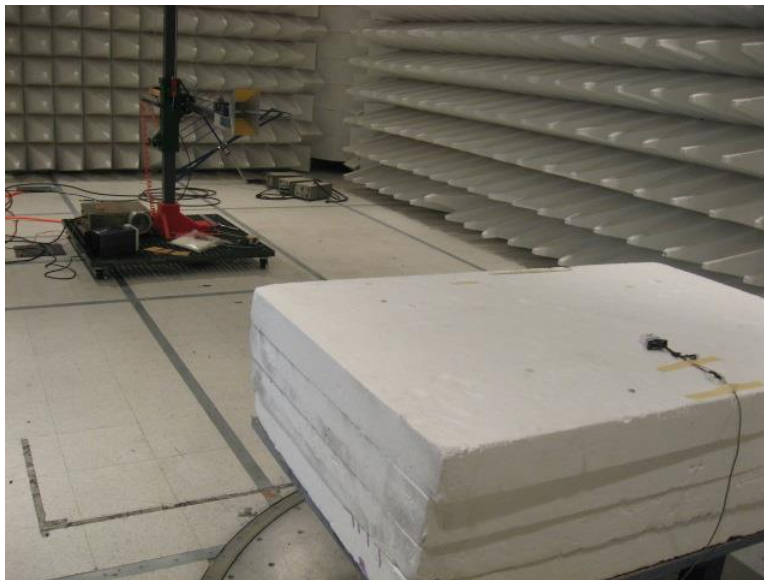


High Channel

**Test Setup Photo(s)**



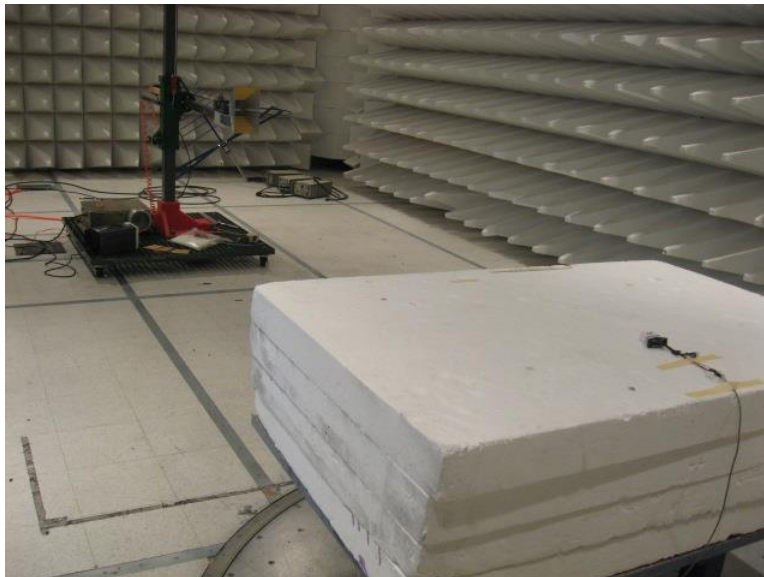
Front View - 4 DQPSK



Back View - 4 DQPSK



Front View - 8 DPSK



Back View - 8 DPSK



## 15.249(d) Spurious Emissions

### Test Data – 4 DQPSK

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

Customer: **Automatic Labs**

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

Work Order #: **95286**

Date: 1/13/2014

Test Type: **Radiated Scan**

Time: 10:20:09

Equipment: **Link**

Sequence#: 77

Manufacturer: Automatic Labs

Tested By: Hieu Song Nguyenpham

Model: 1

S/N: FW1 1

#### Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	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
Link*	Automatic Labs	1	FW1 1

#### Support Devices:

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

#### Test Conditions / Notes:

Radiated Emission

Frequency Range: 9kHz to 30MHz

Temperature: 20.8°C, Humidity: 39%, Atmospheric Pressure: 102.6kPa

RBW=VBW=200Hz from 9kHz to 150kHz

RBW=VBW=9kHz from 150kHz to 30MHz

High Clock: 40MHz

Software Used: FCC test

Transmitter operating frequency: 2.4GHz

Number of Channel: 40

Low Frequency: 2.402GHz, Middle Frequency: 2.442GHz, High Frequency: 2.480GHz

RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT. Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK (2Mbps)

Low Channel



Ext Attn: 0 dB

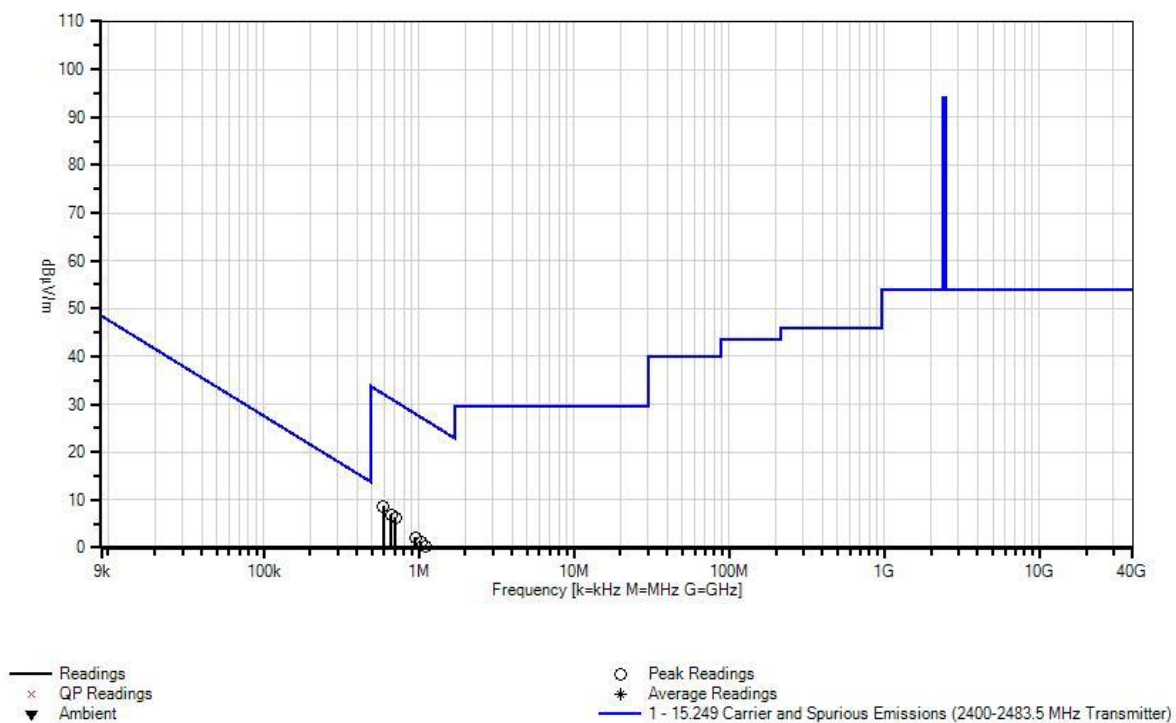
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	593.410k	38.8	+9.8	+0.1	+0.0		-40.0	8.7	32.1	-23.4	Perpe
2	665.662k	36.9	+9.9	+0.1	+0.0		-40.0	6.9	31.1	-24.2	Paral
3	709.211k	36.3	+9.9	+0.1	+0.0		-40.0	6.3	30.6	-24.3	Perpe
4	947.742k	32.4	+9.6	+0.1	+0.0		-40.0	2.1	28.0	-25.9	Perpe
5	1.032M	31.4	+9.7	+0.1	+0.0		-40.0	1.2	27.3	-26.1	Paral
6	1.118M	30.5	+9.7	+0.1	+0.0		-40.0	0.3	26.6	-26.3	Paral

CKC Laboratories, Inc Date: 1/13/2014 Time: 10:20:09 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 77



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 15:54:13  
 Equipment: **Link** Sequence#: 59  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 30MHz to 1000MHz  
 Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1kPa  
 RBW=VBW=120kHz  
 High Clock: 40MHz  
 Software Used: FCC test  
 Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm  
 The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
 Note: Modulation Type: 4 DQPSK (2Mbps)  
 Low Channel

Ext Attn: 0 dB

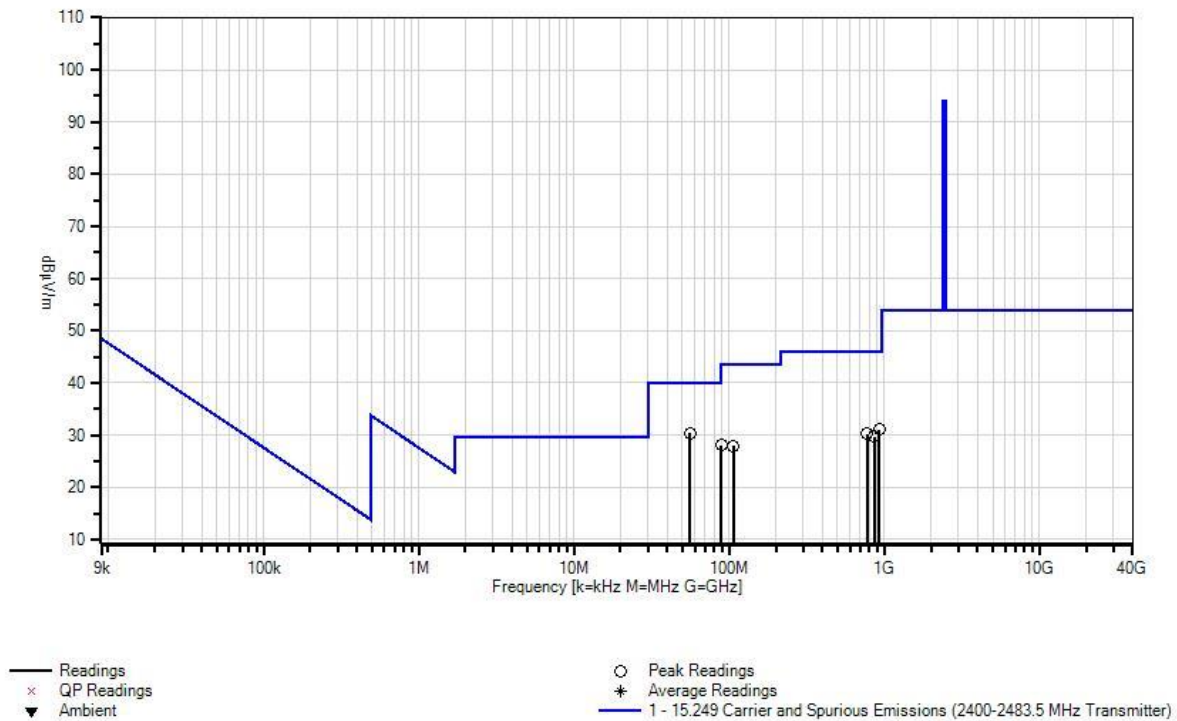
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	56.220M	49.5	-27.0 +0.2	+6.8	+0.7	+0.2	+0.0	30.4	40.0	-9.6	Vert
2	928.860M	29.8	-27.1 +0.9	+22.8	+3.5	+1.1	+0.0	31.0	46.0	-15.0	Horiz
3	89.295M	44.7	-27.0 +0.3	+8.9	+0.9	+0.3	+0.0	28.1	43.5	-15.4	Vert
4	106.038M	42.9	-27.1 +0.3	+10.6	+1.0	+0.2	+0.0	27.9	43.5	-15.6	Vert
5	777.629M	30.0	-26.8 +0.8	+21.8	+3.2	+1.2	+0.0	30.2	46.0	-15.8	Horiz
6	860.632M	28.6	-27.0 +0.9	+22.9	+3.3	+1.0	+0.0	29.7	46.0	-16.3	Horiz

CKC Laboratories, Inc Date: 1/10/2014 Time: 15:54:13 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 59



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/9/2014  
 Test Type: **Radiated Scan** Time: 15:46:14  
 Equipment: **Link** Sequence#: 5  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 1000MHz to 12000MHz  
 Temperature: 21.2°C, Humidity: 36%, Atmospheric Pressure: 102.0kPa  
 RBW=VBW=1MHz  
 High Clock: 40MHz  
 Software Used: FCC test  
 Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz, Middle Frequency: 2.442GHz, High Frequency: 2.480GHz  
 RF output power: 2dBm  
 The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
 Note: Modulation Type: 4 DQPSK (2Mbps)  
 Low Channel

Ext Attn: 0 dB

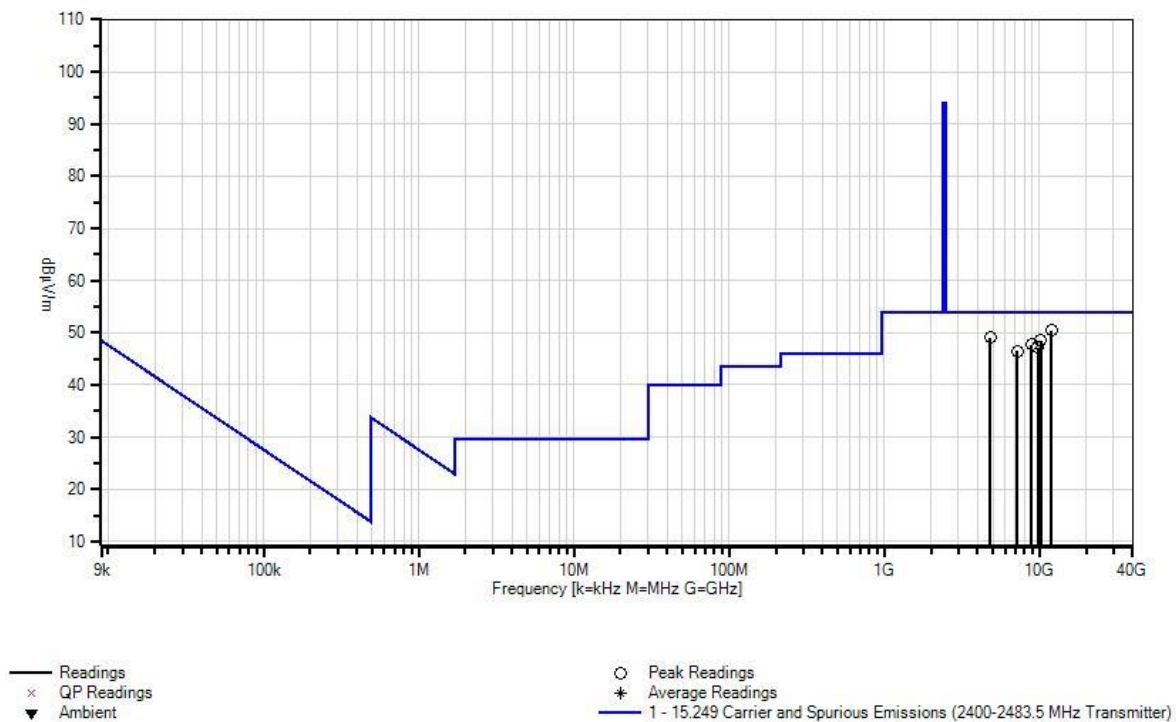
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	11984.128 M	55.4	+39.7 +2.4	+2.4 +0.3	+6.4	-56.2	+0.0	50.4	54.0	-3.6	Horiz
2	4802.801M	67.1	+33.2 +1.6	+1.5 +0.2	+3.8	-58.3	+0.0	49.1	54.0	-4.9	Horiz
3	10195.188 M	56.0	+39.7 +2.3	+2.3 +0.1	+6.3	-58.2	+0.0	48.5	54.0	-5.5	Horiz
4	8897.892M	55.2	+38.2 +2.3	+2.1 +0.3	+6.0	-56.4	+0.0	47.7	54.0	-6.3	Vert
5	9795.789M	54.7	+39.3 +2.2	+2.3 +0.1	+6.2	-57.6	+0.0	47.2	54.0	-6.8	Vert
6	7186.182M	60.4	+36.0 +1.9	+1.9 +0.2	+5.3	-59.3	+0.0	46.4	54.0	-7.6	Vert

CKC Laboratories, Inc Date: 1/9/2014 Time: 15:46:14 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 5



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 10:02:02  
 Equipment: **Link** Sequence#: 23  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP00928	Cable	various	2/10/2012	2/10/2014
T2	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T3	ANP06126	Cable	32022-29094K-29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T4	ANANT-AN02693-20130221	Active Horn Antenna	AMFW-5F-18002650-20-10P	2/21/2013	2/21/2015

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

Function	Manufacturer	Model #	S/N
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 12000MHz to 18000MHz  
 Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1 kPa  
 RBW=VBW=1MHz  
 High Clock: 40MHz  
 Software Used: FCC test  
 Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm  
 The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
 Note: Modulation Type: 4 DQPSK (2Mbps)  
 Low Channel

Ext Attn: 0 dB

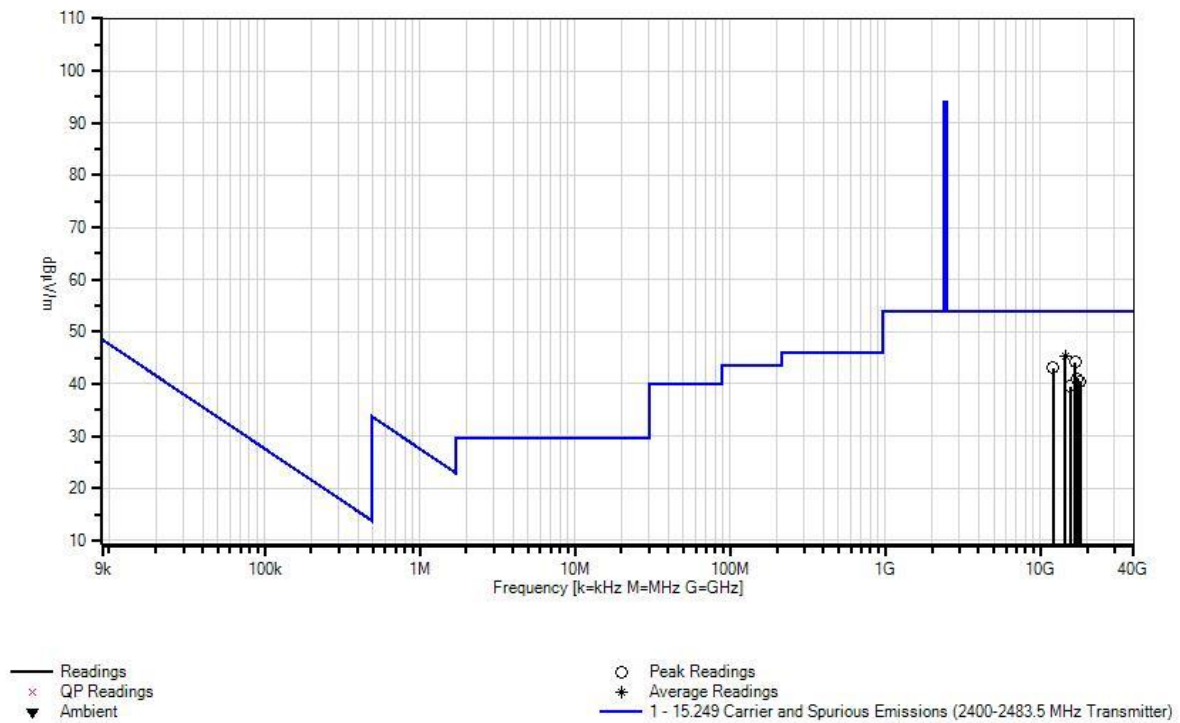
**Measurement Data:**

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	14412.850 M	50.6	+0.9	+2.8	+6.5	-15.5	+0.0	45.3	54.0	-8.7	Vert
	Ave										
^	14412.850 M	60.4	+0.9	+2.8	+6.5	-15.5	+0.0	55.1	54.0	+1.1	Vert
^	14412.850 M	58.2	+0.9	+2.8	+6.5	-15.5	+0.0	52.9	54.0	-1.1	Vert
4	16798.794 M	49.1	+0.9	+2.9	+7.3	-16.0	+0.0	44.2	54.0	-9.8	Horiz
5	12011.011 M	48.6	+1.0	+2.4	+5.8	-14.7	+0.0	43.1	54.0	-10.9	Horiz
6	17246.785 M	44.5	+0.8	+3.1	+7.3	-14.7	+0.0	41.0	54.0	-13.0	Vert
7	17961.195 M	42.4	+0.8	+3.3	+7.3	-13.4	+0.0	40.4	54.0	-13.6	Horiz
8	15603.600 M	44.2	+1.0	+3.2	+7.0	-15.9	+0.0	39.5	54.0	-14.5	Vert

CKC Laboratories, Inc Date: 1/10/2014 Time: 10:02:02 Automatic Labs WO#: 95286  
 Test Distance: 3 Meters Sequence#: 23





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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 13:31:24  
 Equipment: **Link** Sequence#: 41  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	2/16/2012	2/16/2014

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

Function	Manufacturer	Model #	S/N
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 18000MHz to 25000MHz  
 Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1kPa  
 RBW=VBW=1MHz  
 High Clock: 40MHz

Software Used: FCC test  
 Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK (2Mbps)  
 Low Channel

Ext Attn: 0 dB

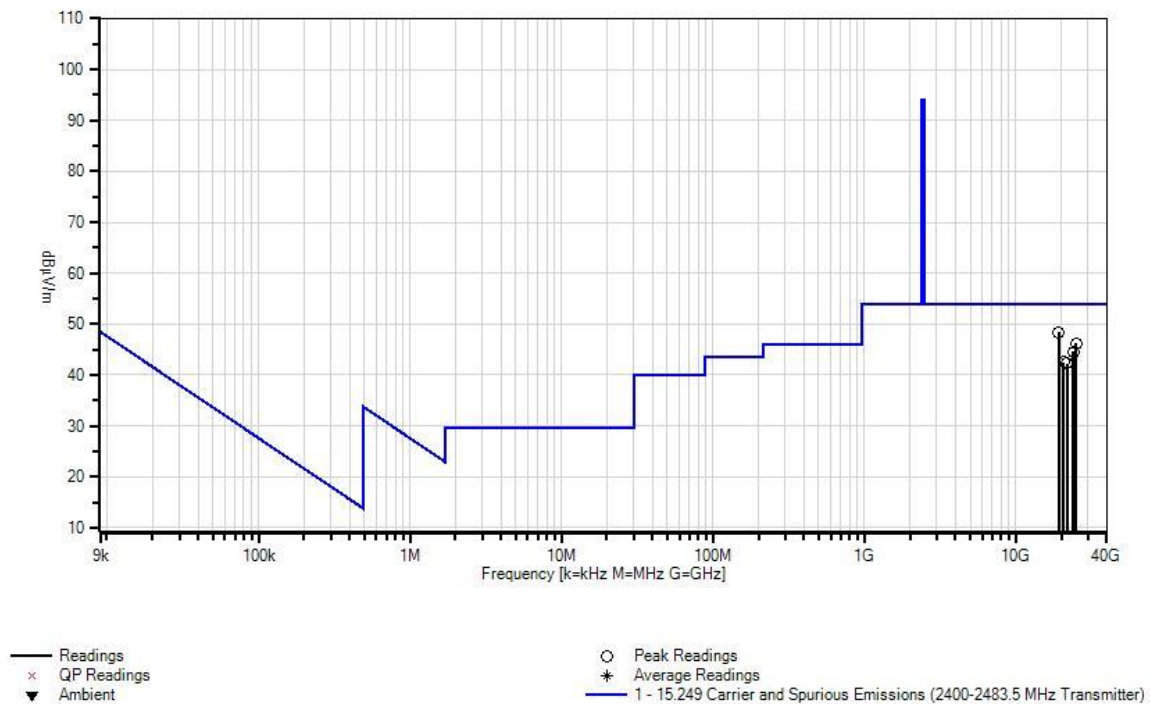
**Measurement Data:**

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	19217.216 M	50.4	+3.6	+7.6	-16.5	+3.3	+0.0	48.4	54.0	-5.6	Horiz
2	19214.213 M	50.3	+3.6	+7.6	-16.5	+3.3	+0.0	48.3	54.0	-5.7	Horiz
3	24878.732 M	46.9	+4.3	+9.0	-16.9	+2.9	+0.0	46.2	54.0	-7.8	Horiz
4	23976.971 M	46.1	+4.4	+8.5	-17.5	+3.0	+0.0	44.5	54.0	-9.5	Vert
5	20622.620 M	44.2	+4.2	+7.9	-16.9	+3.1	+0.0	42.5	54.0	-11.5	Vert
6	21836.833 M	44.2	+4.2	+8.2	-17.3	+3.0	+0.0	42.3	54.0	-11.7	Vert

CKC Laboratories, Inc Date: 1/10/2014 Time: 13:31:24 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 41



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/13/2014  
 Test Type: **Radiated Scan** Time: 10:36:45  
 Equipment: **Link** Sequence#: 80  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00432	Loop Antenna	6502	4/2/2013	4/2/2015
T2	ANP00880	Cable	RG214U	7/30/2012	7/30/2014
T3	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
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

<p>Radiated Emission          Frequency Range: 9kHz to 30MHz</p> <p>Temperature: 20.8°C, Humidity: 39%, Atmospheric Pressure: 102.6kPa</p> <p>RBW=VBW=200Hz from 9kHz to 150kHz          RBW=VBW=9kHz from 150kHz to 30MHz</p> <p>High Clock: 40MHz          Software Used: FCC test</p> <p>Transmitter operating frequency: 2.4GHz          Number of Channel: 40          Low Frequency: 2.402GHz          Middle Frequency: 2.442GHz          High Frequency: 2.480GHz          RF output power: 2dBm</p> <p>The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.          Test mode firmware installed for testing that modifies frequency based on input voltage.</p> <p>Note: Modulation Type: 4 DQPSK (2Mbps)          Middle Channel</p>
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Ext Attn: 0 dB

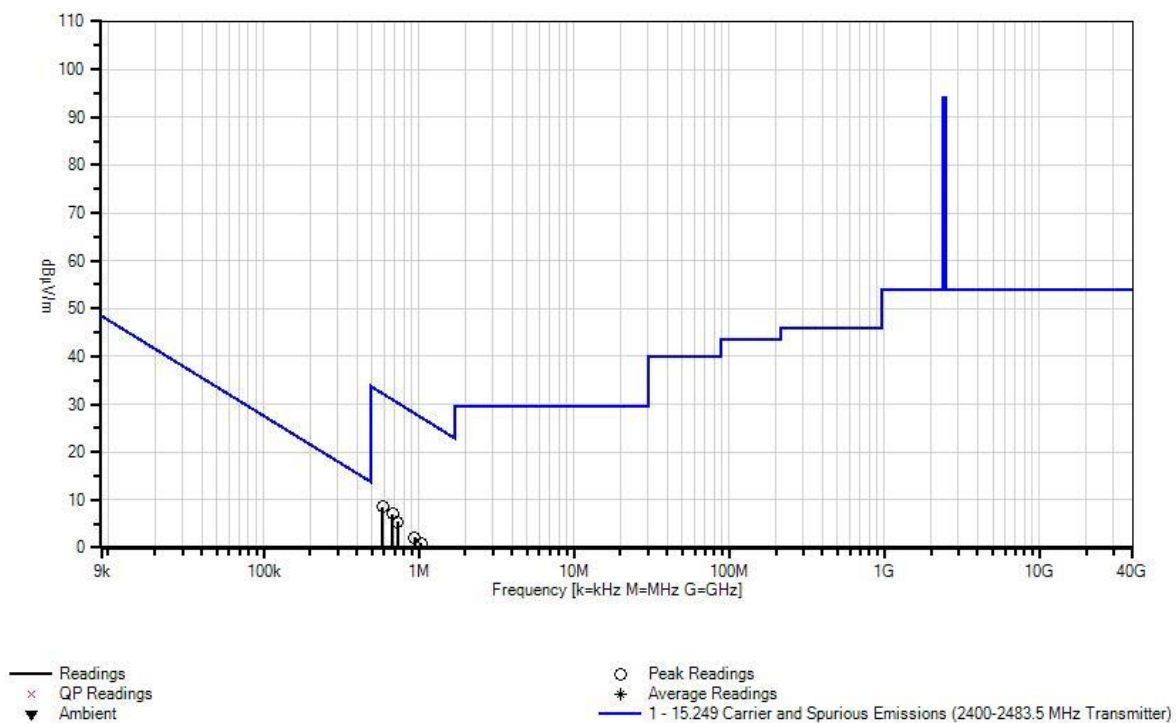
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 dB	T2 dB	T3 dB		Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	582.522k	38.7	+9.8	+0.1	+0.0		-40.0	8.6	32.3	-23.7	Perpe
2	677.539k	37.0	+9.9	+0.1	+0.0		-40.0	7.0	31.0	-24.0	Paral
3	732.965k	35.7	+9.7	+0.1	+0.0		-40.0	5.5	30.3	-24.8	Perpe
4	939.824k	32.5	+9.6	+0.1	+0.0		-40.0	2.2	28.1	-25.9	Paral
5	1.038M	31.2	+9.7	+0.1	+0.0		-40.0	1.0	27.2	-26.2	Perpe
6	1.116M	30.1	+9.7	+0.1	+0.0		-40.0	-0.1	26.6	-26.7	Paral

CKC Laboratories, Inc Date: 1/13/2014 Time: 10:36:45 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 80



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 16:17:42  
 Equipment: **Link** Sequence#: 62  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 30MHz to 1000MHz  
  
 Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1kPa  
  
 RBW=VBW=120kHz  
 High Clock: 40MHz  
 Software Used: FCC test  
  
 Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm  
  
 The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
  
 Note: Modulation Type: 4 DQPSK (2Mbps)  
 Middle Channel

Ext Attn: 0 dB

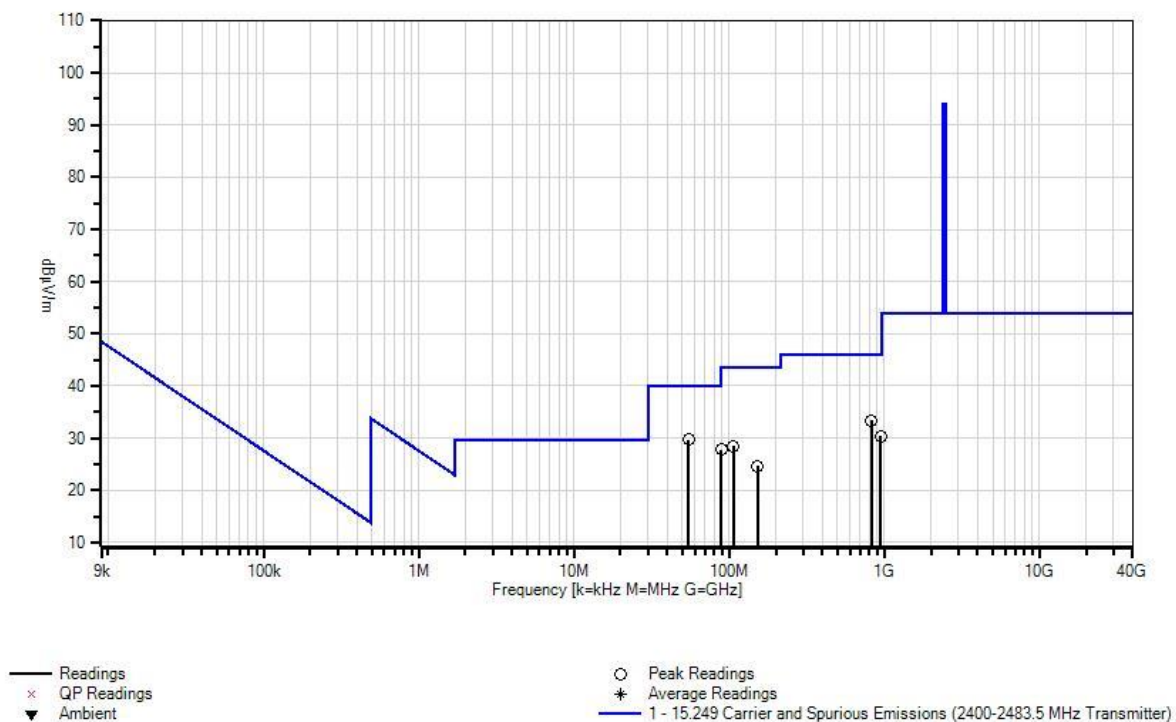
**Measurement Data:**

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB $\mu$ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V/m	Spec dB $\mu$ V/m	Margin dB	Polar Ant
1	54.557M	48.3	-27.0 +0.2	+7.3	+0.7	+0.2	+0.0	29.7	40.0	-10.3	Vert
2	824.356M	32.7	-26.8 +0.9	+22.1	+3.3	+1.1	+0.0	33.3	46.0	-12.7	Horiz
3	106.038M	43.4	-27.1 +0.3	+10.6	+1.0	+0.2	+0.0	28.4	43.5	-15.1	Vert
4	947.908M	28.4	-27.1 +0.9	+23.5	+3.5	+1.2	+0.0	30.4	46.0	-15.6	Horiz
5	89.362M	44.4	-27.0 +0.3	+8.9	+0.9	+0.3	+0.0	27.8	43.5	-15.7	Vert
6	152.885M	38.8	-27.0 +0.4	+10.7	+1.2	+0.5	+0.0	24.6	43.5	-18.9	Horiz

CKC Laboratories, Inc Date: 1/10/2014 Time: 16:17:42 Automatic Labs WO#: 95286  
Test Distance: 3 Meters Sequence#: 62



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/9/2014  
 Test Type: **Radiated Scan** Time: 16:10:40  
 Equipment: **Link** Sequence#: 8  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	3/21/2012	3/21/2014
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
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission

Frequency Range: 1000MHz to 12000MHz

Temperature: 21.2°C, Humidity: 36%, Atmospheric Pressure: 102.0 kPa

RBW=VBW=1MHz

High Clock: 40MHz

Software Used: FCC test

Transmitter operating frequency: 2.4GHz

Number of Channel: 40

Low Frequency: 2.402GHz

Middle Frequency: 2.442GHz

High Frequency: 2.480GHz

RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.

Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK ( 2Mbps)

Middle Channel

Ext Attn: 0 dB

**Measurement Data:**

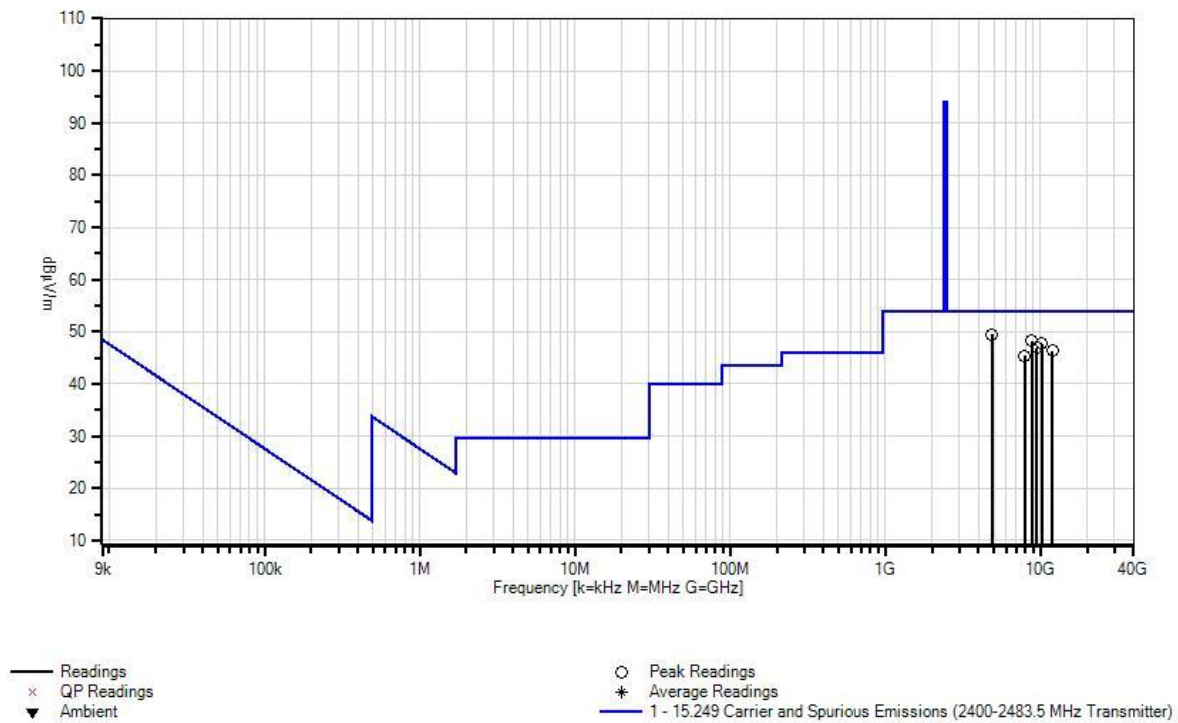
Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	4884.883M	67.0	+33.4 +1.6	+1.5 +0.3	+3.8	-58.2	+0.0	49.4	54.0	-4.6	Horiz
2	8772.767M	56.0	+37.9 +2.4	+2.1 +0.3	+5.8	-56.3	+0.0	48.2	54.0	-5.8	Vert
3	10163.156 M	55.3	+39.7 +2.3	+2.3 +0.1	+6.3	-58.3	+0.0	47.7	54.0	-6.3	Vert
4	9515.509M	54.9	+38.6 +2.2	+2.2 +0.3	+6.3	-57.6	+0.0	46.9	54.0	-7.1	Vert
5	11943.456 M	51.3	+39.7 +2.4	+2.4 +0.3	+6.4	-56.2	+0.0	46.3	54.0	-7.7	Horiz
6	7915.911M	56.7	+36.8 +2.2	+2.0 +0.2	+5.4	-57.9	+0.0	45.4	54.0	-8.6	Horiz



CKC Laboratories, Inc Date: 1/9/2014 Time: 16:10:40 Automatic Labs WO#: 95286  
 Test Distance: 3 Meters Sequence#: 8



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 10:20:58  
 Equipment: **Link** Sequence#: 26  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 1

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP00928	Cable	various	2/10/2012	2/10/2014
T2	ANP06125	Cable	32022-29094K-29094K-72TC	5/6/2013	5/6/2015
T3	ANP06126	Cable	32022-29094K-29094K-168TC	7/12/2013	7/12/2015
	AN02668	Spectrum Analyzer	E4446A	2/22/2013	2/22/2015
T4	ANANT-AN02693-20130221	Active Horn Antenna	AMFW-5F-18002650-20-10P	2/21/2013	2/21/2015

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

Function	Manufacturer	Model #	S/N
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 12000MHz to 18000MHz

Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1kPa  
 RBW=VBW=1MHz  
 High Clock: 40MHz  
 Software Used: FCC test

Transmitter operating frequency: 2.4GHz  
 Number of Channel: 40  
 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
 High Frequency: 2.480GHz  
 RF output power: 2dBm

The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.

Note: Modulation Type: 4 DQPSK (2Mbps)  
 Middle Channel

Ext Attn: 0 dB

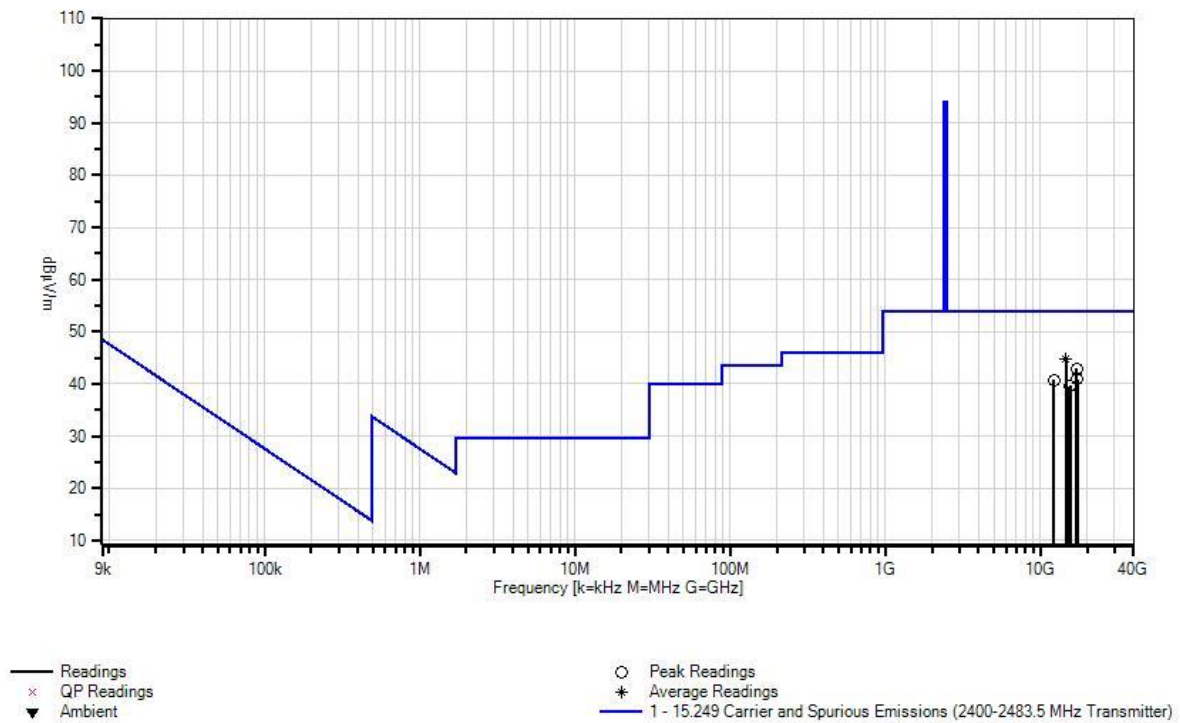
**Measurement Data:**

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	14651.649 M	49.7	+0.9	+2.9	+6.6	-15.4	+0.0	44.7	54.0	-9.3	Vert
	Ave										
^	14651.649 M	59.4	+0.9	+2.9	+6.6	-15.4	+0.0	54.4	54.0	+0.4	Vert
^	14651.649 M	57.6	+0.9	+2.9	+6.6	-15.4	+0.0	52.6	54.0	-1.4	Vert
4	17092.560 M	47.1	+0.9	+3.0	+7.3	-15.4	+0.0	42.9	54.0	-11.1	Vert
5	17352.255 M	44.4	+0.8	+3.0	+7.3	-14.6	+0.0	40.9	54.0	-13.1	Horiz
6	12211.211 M	46.7	+1.0	+2.4	+5.9	-15.3	+0.0	40.7	54.0	-13.3	Horiz
7	15605.602 M	44.3	+1.0	+3.2	+7.0	-15.9	+0.0	39.6	54.0	-14.4	Horiz
8	15378.375 M	44.3	+1.0	+3.1	+6.9	-15.8	+0.0	39.5	54.0	-14.5	Vert

CKC Laboratories, Inc Date: 1/10/2014 Time: 10:20:58 Automatic Labs WO#: 95286  
 Test Distance: 3 Meters Sequence#: 26



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

Customer: **Automatic Labs**  
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**  
 Work Order #: **95286** Date: 1/10/2014  
 Test Type: **Radiated Scan** Time: 13:50:46  
 Equipment: **Link** Sequence#: 44  
 Manufacturer: Automatic Labs Tested By: Hieu Song Nguyenpham  
 Model: 1  
 S/N: FW1 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	2/16/2012	2/16/2014

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

Function	Manufacturer	Model #	S/N
Link*	Automatic Labs	1	FW1 1

**Support Devices:**

Function	Manufacturer	Model #	S/N
DC Power Supply	TekPower	HY1803D	259223

**Test Conditions / Notes:**

Radiated Emission  
 Frequency Range: 18000MHz to 25000MHz  
 Temperature: 20.5°C, Humidity: 37%, Atmospheric Pressure: 102.1 kPa  
 RBW=VBW=1MHz  
 High Clock: 40MHz  
 Software Used: FCC test  
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 Low Frequency: 2.402GHz  
 Middle Frequency: 2.442GHz  
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 RF output power: 2dBm  
 The EUT is a fixed device. It is placed on the 80 cm table, at the center of a turning table and 3 meters away from the measurement antenna. The EUT is connected to DC power supply which is outside of the chamber in order to control a transmitting operating frequency of the EUT.  
 Test mode firmware installed for testing that modifies frequency based on input voltage.  
 Note: Modulation Type: 4 DQPSK (2Mbps)  
 Middle Channel