

FX ConnectX LLC

TEST REPORT FOR

Wireless Main 19" Rack Controller
Model: STAGE PRO-8 WIRELESS CONTROL SYSTEM

Tested To The Following Standards:

FCC Part 15 Subpart C Section(s)
15.207 AND 15.249

Report No.: 94710-22

Date of issue: February 13, 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.

TABLE OF CONTENTS

| | |
|--|----|
| Administrative Information | 3 |
| Test Report Information | 3 |
| Report Authorization | 3 |
| Test Facility Information | 4 |
| Software Versions | 4 |
| Site Registration & Accreditation Information | 4 |
| Summary of Results | 5 |
| Conditions During Testing | 5 |
| Equipment Under Test | 6 |
| Peripheral Devices | 6 |
| FCC Part 15 Subpart C | 7 |
| 15.207 AC Conducted Emissions | 7 |
| 15.249(a) Fundamental Field Strength | 14 |
| 15.215(c) Occupied Bandwidth | 19 |
| 15.249(d) Field Strength of Spurious Emissions & Band Edge | 23 |
| Supplemental Information | 29 |
| Measurement Uncertainty | 29 |
| Emissions Test Details | 29 |

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

FX ConnectX LLC
1250 Avenida Acaso, Ste F
Camarillo, CA 93012

REPORT PREPARED BY:

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

REPRESENTATIVE: David Nichols
Customer Reference Number: 190767

Project Number: 94710

DATE OF EQUIPMENT RECEIPT:

January 24, 2014

DATE(S) OF TESTING:

January 24, 2014

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.

A handwritten signature in black ink, reading "Steve Behm", is written over a horizontal line.

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

Test Facility Information



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

TEST LOCATION(S):
CKC Laboratories, Inc.
22116 23rd Drive S.E., Suite A
Bothell, WA 98021-4413

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 |
|----------|--------|----------------|---------|--------|--------|
| Bothell | US0081 | SL2-IN-E-1145R | 3082C-1 | 318736 | A-0148 |

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

| Test Procedure/Method | Description | Results |
|---|--|---------|
| 15.207 / ANSI C63.4 | Conducted Emissions | Pass |
| 15.249(a) / 558074 DO1 DTS Measurement Guidance V01 | Fundamental Field Strength | Pass |
| 15.215(c) | Occupied Bandwidth | Pass |
| 15.249(d) / 558074 DO1 DTS Measurement Guidance V01 | Field Strength of Spurious Emissions & 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 |
|--|
| <p>The Main 19" Rack Controller had the following characteristics that dictated testing:</p> <ol style="list-style-type: none"> 1. -EUT is powered by 12VDC power adaptor. 2. -All audio ports are terminated with appropriate audio cables. 3. -Has option to be rack mounted or non-rack mounted. |

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Wireless Main 19" Rack Controller

Manuf: Applied Wireless Inc.

Model: STAGE PRO-8 WIRELESS CONTROL SYSTEM

Serial: 5842C801V3R40214A01

PERIPHERAL DEVICES

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

DC Power Supply

Manuf: ULL Power

Model: SAW-1200500

Serial: None

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.

15.207 AC Conducted Emissions

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **FX ConnectX LLC**
 Specification: **15.207 AC Mains - Quasi-peak**
 Work Order #: **94710**
 Test Type: **Conducted Emissions**
 Equipment: **Wireless Main 19" Rack Controller**
 Manufacturer: **Applied Wireless Inc.**
 Model: **STAGE PRO-8 WIRELESS CONTROL SYSTEM**
 S/N: **5842C801V3R40214A01**

Date: 1/21/2014
 Time: 10:53:41 AM
 Sequence#: 4
 Tested By: Eddie Mariscal
 120V 60Hz

Test Equipment:

| ID | Asset # | Description | Model | Calibration Date | Cal Due Date |
|----|----------|--|---------------------|------------------|--------------|
| | AN02660 | Spectrum Analyzer | E4446A | 8/23/2012 | 8/23/2014 |
| T1 | AN02609 | High Pass Filter | HE9615-150K-50-720B | 3/15/2012 | 3/15/2014 |
| T2 | ANMACOND | Cable | | 8/17/2012 | 8/17/2014 |
| T3 | ANP06230 | Cable | CXTA04A-50 | 8/16/2012 | 8/16/2014 |
| T4 | ANP05624 | Attenuator | PE7010-10 | 8/13/2012 | 8/13/2014 |
| T5 | AN00374 | 50uH LISN-Black Lead Amplitude (dB) | 8028-TS-50-BNC | 3/15/2013 | 3/15/2015 |
| | AN00374 | 50uH LISN-White Lead Amplitude (dB) | 8028-TS-50-BNC | 3/15/2013 | 3/15/2015 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------|-----------------------|---|---------------------|
| Wireless Main 19" Rack Controller* | Applied Wireless Inc. | STAGE PRO-8 WIRELESS CONTROL SYSTEM | 5842C801V3R40214A01 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|-----------------|--------------|-------------|------|
| DC Power Supply | ULL Power | SAW-1200500 | None |

Test Conditions / Notes:

EUT is set atop wooden, nonconductive turntable of height 80cm. EUT is a simplex transceiver with transmit operating in the band 2400-2483MHz. During testing the EUT is in standby mode. All IO ports of the EUT are terminated with appropriate cables. EUT is powered by 12VDC power adaptor.

Frequency Range of Interest:

0.15-30MHz

RBW = 9kHz

VBW > 9kHz

Environmental conditions:

Temperature: 19°C

Relative Humidity: 33%

Atmospheric Pressure: 98.7kPa

Ext Attn: 0 dB

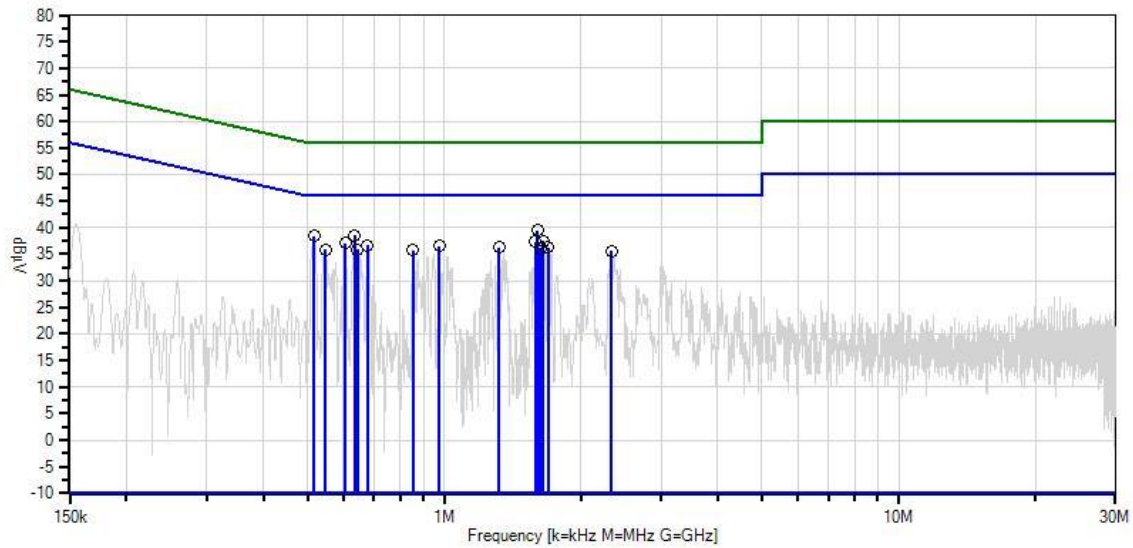
Measurement Data:

Reading listed by margin.

Test Lead: Black

| # | Freq MHz | Rdng dBμV | T1 T5 dB | T2 dB | T3 dB | T4 dB | Dist Table | Corr dBμV | Spec dBμV | Margin dB | Polar Ant |
|----|-------------|--------------|----------------|----------|----------|----------|---------------|--------------|--------------|--------------|--------------|
| 1 | 1.602M | 28.6 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 39.5 | 46.0 | -6.5 | Black |
| 2 | 634.515k | 27.5 | +0.3 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 38.5 | 46.0 | -7.5 | Black |
| 3 | 518.162k | 27.5 | +0.2 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 38.4 | 46.0 | -7.6 | Black |
| 4 | 1.651M | 26.6 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 37.5 | 46.0 | -8.5 | Black |
| 5 | 1.587M | 26.4 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 37.3 | 46.0 | -8.7 | Black |
| 6 | 605.427k | 26.2 | +0.2 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 37.1 | 46.0 | -8.9 | Black |
| 7 | 678.147k | 25.8 | +0.2 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 36.7 | 46.0 | -9.3 | Black |
| 8 | 974.847k | 25.6 | +0.2 +0.3 | +0.3 | +0.1 | +10.0 | +0.0 | 36.5 | 46.0 | -9.5 | Black |
| 9 | 1.322M | 25.3 | +0.2 +0.3 | +0.4 | +0.1 | +10.0 | +0.0 | 36.3 | 46.0 | -9.7 | Black |
| 10 | 1.696M | 25.4 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 36.3 | 46.0 | -9.7 | Black |
| 11 | 1.625M | 25.2 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 36.1 | 46.0 | -9.9 | Black |
| 12 | 547.250k | 25.0 | +0.2 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 35.9 | 46.0 | -10.1 | Black |
| 13 | 644.696k | 24.9 | +0.3 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 35.9 | 46.0 | -10.1 | Black |
| 14 | 852.677k | 24.9 | +0.2 +0.3 | +0.3 | +0.1 | +10.0 | +0.0 | 35.8 | 46.0 | -10.2 | Black |
| 15 | 2.333M | 24.7 | +0.1 +0.3 | +0.5 | +0.1 | +9.9 | +0.0 | 35.6 | 46.0 | -10.4 | Black |

CKC Laboratories, Inc. Date: 1/21/2014 Time: 10:53:41 AM FX ConnectX LLC WO#: 94710
15.207 AC Mains - Quasi-peak Test Lead: Black 120V 60Hz Sequence#: 4 Ext ATTN: 0 dB



| | |
|---------------------------------|------------------------------------|
| — Sweep Data | — Readings |
| ○ Peak Readings | × QP Readings |
| * Average Readings | ▼ Ambient |
| — 1 - 15.207 AC Mains - Average | — 2 - 15.207 AC Mains - Quasi-peak |

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **FX ConnectX LLC**
 Specification: **15.207 AC Mains - Quasi-peak**
 Work Order #: **94710**
 Test Type: **Conducted Emissions**
 Equipment: **Wireless Main 19" Rack Controller**
 Manufacturer: **Applied Wireless Inc.**
 Model: **STAGE PRO-8 WIRELESS CONTROL SYSTEM**
 S/N: **5842C801V3R40214A01**

Date: 1/21/2014
 Time: 10:58:53 AM
 Sequence#: 5
 Tested By: Eddie Mariscal
 120V 60Hz

Test Equipment:

| ID | Asset # | Description | Model | Calibration Date | Cal Due Date |
|----|----------|--|---------------------|------------------|--------------|
| | AN02660 | Spectrum Analyzer | E4446A | 8/23/2012 | 8/23/2014 |
| T1 | AN02609 | High Pass Filter | HE9615-150K-50-720B | 3/15/2012 | 3/15/2014 |
| T2 | ANMACOND | Cable | | 8/17/2012 | 8/17/2014 |
| T3 | ANP06230 | Cable | CXTA04A-50 | 8/16/2012 | 8/16/2014 |
| T4 | ANP05624 | Attenuator | PE7010-10 | 8/13/2012 | 8/13/2014 |
| | AN00374 | 50uH LISN-Black Lead Amplitude (dB) | 8028-TS-50-BNC | 3/15/2013 | 3/15/2015 |
| T5 | AN00374 | 50uH LISN-White Lead Amplitude (dB) | 8028-TS-50-BNC | 3/15/2013 | 3/15/2015 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------|-----------------------|--|---------------------|
| Wireless Main 19" Rack Controller* | Applied Wireless Inc. | STAGE PRO-8 WIRELESS CONTROL SYSTEM | 5842C801V3R40214A01 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|-----------------|--------------|-------------|------|
| DC Power Supply | ULL Power | SAW-1200500 | None |

Test Conditions / Notes:

EUT is set atop wooden, nonconductive turntable of height 80cm. EUT is a simplex transceiver with transmit operating in the band 2400-2483MHz. During testing the EUT is in standby mode. All IO ports of the EUT are terminated with appropriate cables. EUT is powered by 12VDC power adaptor.

Frequency Range of Interest:

0.15-30MHz

RBW = 9kHz

VBW > 9kHz

Environmental conditions:

Temperature: 19°C

Relative Humidity: 33%

Atmospheric Pressure: 98.7kPa

Ext Attn: 0 dB

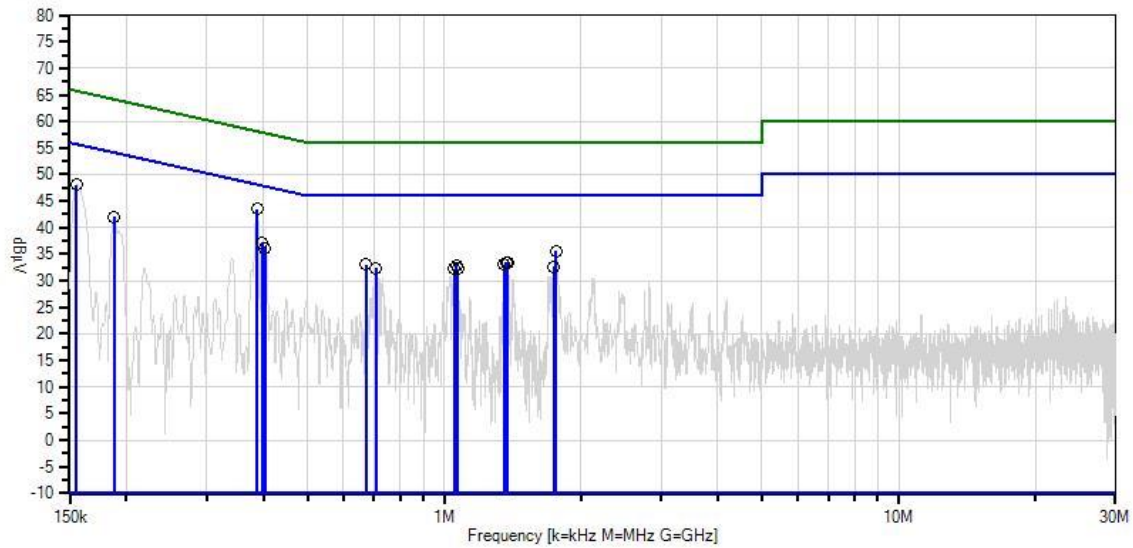
Measurement Data:

Reading listed by margin.

Test Lead: White

| # | Freq MHz | Rdng dB μ V | T1 T5 dB | T2 dB | T3 dB | T4 dB | Dist Table | Corr dB μ V | Spec dB μ V | Margin dB | Polar Ant |
|----|-------------|--------------------|----------------|----------|----------|----------|---------------|--------------------|--------------------|--------------|--------------|
| 1 | 387.265k | 32.5 | +0.2 +0.5 | +0.2 | +0.1 | +10.0 | +0.0 | 43.5 | 48.1 | -4.6 | White |
| 2 | 155.400k | 32.9 | +3.6 +1.5 | +0.1 | +0.0 | +10.0 | +0.0 | 48.1 | 55.7 | -7.6 | White |
| 3 | 1.763M | 24.7 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 35.6 | 46.0 | -10.4 | White |
| 4 | 397.446k | 26.2 | +0.2 +0.5 | +0.2 | +0.1 | +10.0 | +0.0 | 37.2 | 47.9 | -10.7 | White |
| 5 | 403.263k | 25.2 | +0.2 +0.5 | +0.2 | +0.1 | +10.0 | +0.0 | 36.2 | 47.8 | -11.6 | White |
| 6 | 187.650k | 30.4 | +0.3 +1.2 | +0.1 | +0.0 | +10.0 | +0.0 | 42.0 | 54.1 | -12.1 | White |
| 7 | 1.368M | 22.5 | +0.2 +0.3 | +0.4 | +0.1 | +10.0 | +0.0 | 33.5 | 46.0 | -12.5 | White |
| 8 | 1.379M | 22.4 | +0.2 +0.3 | +0.4 | +0.1 | +10.0 | +0.0 | 33.4 | 46.0 | -12.6 | White |
| 9 | 673.784k | 22.2 | +0.2 +0.4 | +0.2 | +0.1 | +10.0 | +0.0 | 33.1 | 46.0 | -12.9 | White |
| 10 | 1.353M | 22.1 | +0.2 +0.3 | +0.4 | +0.1 | +10.0 | +0.0 | 33.1 | 46.0 | -12.9 | White |
| 11 | 1.065M | 22.0 | +0.2 +0.3 | +0.3 | +0.1 | +10.0 | +0.0 | 32.9 | 46.0 | -13.1 | White |
| 12 | 1.746M | 21.7 | +0.2 +0.3 | +0.4 | +0.1 | +9.9 | +0.0 | 32.6 | 46.0 | -13.4 | White |
| 13 | 708.690k | 21.4 | +0.2 +0.4 | +0.3 | +0.1 | +10.0 | +0.0 | 32.4 | 46.0 | -13.6 | White |
| 14 | 1.052M | 21.3 | +0.2 +0.3 | +0.3 | +0.1 | +10.0 | +0.0 | 32.2 | 46.0 | -13.8 | White |
| 15 | 1.072M | 21.3 | +0.2 +0.3 | +0.3 | +0.1 | +10.0 | +0.0 | 32.2 | 46.0 | -13.8 | White |

CKC Laboratories, Inc. Date: 1/21/2014 Time: 10:58:53 AM FX ConnectX LLC WO#: 94710
15.207 AC Mains - Quasi-peak Test Lead: White 120V 60Hz Sequence#: 5 Ext ATTN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— 1 - 15.207 AC Mains - Average
— Readings
× QP Readings
▼ Ambient
— 2 - 15.207 AC Mains - Quasi-peak

Test Setup Photo(s)



15.249(a) Fundamental Field Strength

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **FX ConnectX LLC**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **94710** Date: 1/24/2014
 Test Type: **Maximized Emissions** Time: 10:57:25
 Equipment: **Wireless Main 19" Rack Controller** Sequence#: 1
 Manufacturer: Applied Wireless Inc. Tested By: Eddie Mariscal
 Model: STAGE PRO-8 WIRELESS CONTROL SYSTEM
 S/N: 5842C801V3R40214A01

Test Equipment:

| ID | Asset # | Description | Model | Calibration Date | Cal Due Date |
|----|----------|-------------------|----------------------|------------------|--------------|
| T1 | AN00327 | Horn Antenna | 3115 | 4/13/2012 | 4/13/2014 |
| T2 | AN03355 | Cable | 32026-2-29094K-48TC | 2/7/2013 | 2/7/2015 |
| T3 | AN03155 | Preamp | 83017A | 6/26/2013 | 6/26/2015 |
| T4 | ANP05904 | Cable | 32022-2-29094K-144TC | 2/15/2013 | 2/15/2015 |
| T5 | AN03360 | Cable | 32022-2-29094-36TC | 2/4/2013 | 2/4/2015 |
| T6 | AN03359 | Cable | | 2/4/2013 | 2/4/2015 |
| T7 | AN03358 | Cable | 32022-2-29094K-36TC | 2/7/2013 | 2/7/2015 |
| T8 | AN02660 | Spectrum Analyzer | E4446A | 8/23/2012 | 8/23/2014 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------|-----------------------|-------------------------------------|---------------------|
| Wireless Main 19" Rack Controller* | Applied Wireless Inc. | STAGE PRO-8 WIRELESS CONTROL SYSTEM | 5842C801V3R40214A01 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|-----------------|--------------|-------------|------|
| DC Power Supply | ULL Power | SAW-1200500 | None |

Test Conditions / Notes:

EUT is set atop Styrofoam supports on a wooden, nonconductive turntable at a height of 1.5m. EUT is a simplex transceiver operating within the band 2400-2483MHz. EUT is powered via AC-DC power adaptor. EUT is in constant transmit mode.

Per 15.31(e), the Voltage was varied from 85% to 115% on the AC-DC power adaptor and no change in power was noted.

Frequency of Interest: Fundamental

RBW = 1MHz

VBW > 1MHz

Environmental conditions:

Temperature: 19°C

Relative Humidity: 33%

Atmospheric Pressure: 98.7kPa

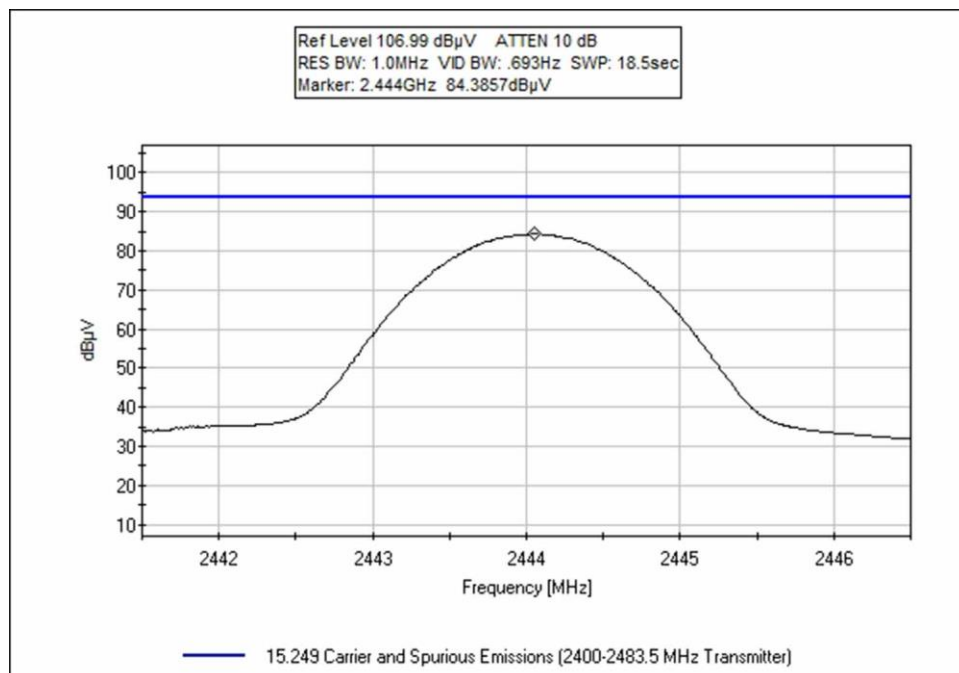
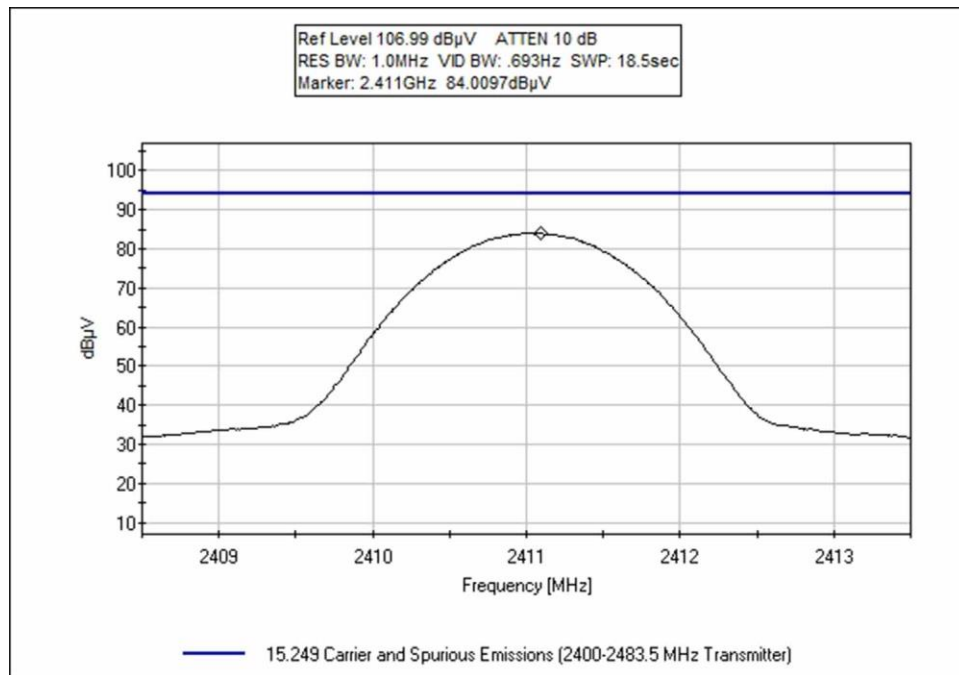
Ext Attn: 0 dB

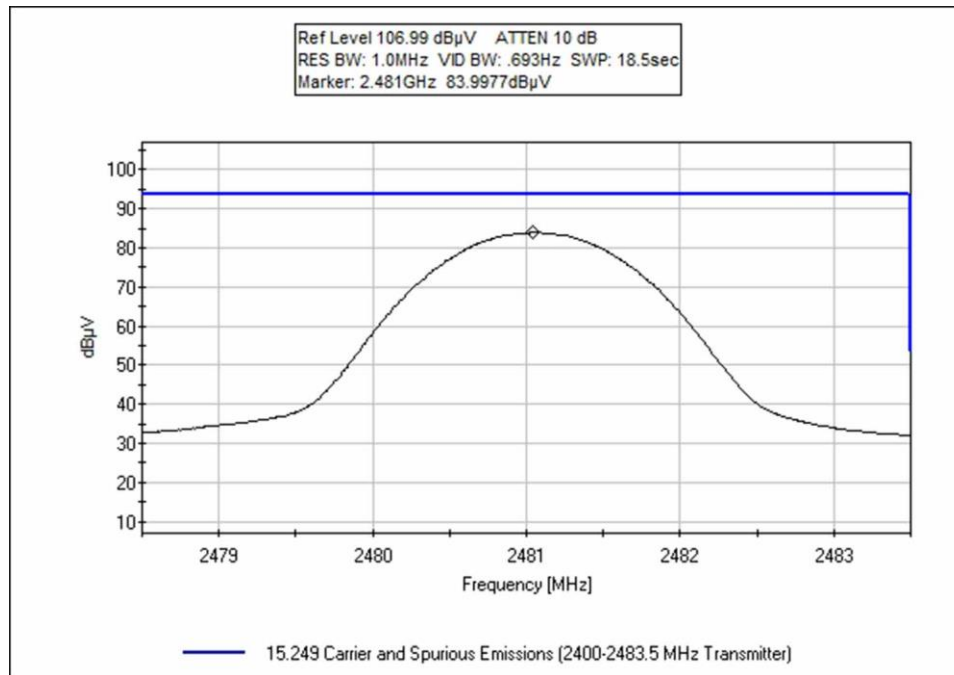
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

| # | Freq MHz | Rdng dBμV | T1 T5 dB | T2 T6 dB | T3 T7 dB | T4 T8 dB | Dist Table | Corr dBμV/m | Spec dBμV/m | Margin dB | Polar Ant |
|---|------------------|--------------|----------------|----------------|----------------|----------------|---------------|----------------|----------------|--------------|--------------|
| 1 | 2444.000M Ave | 84.4 | +28.6 +0.7 | +0.5 +0.6 | -32.9 +0.6 | +2.2 +0.0 | +0.0 | 84.7 | 94.0 | -9.3 | Vert |
| 2 | 2481.042M Ave | 83.8 | +28.7 +0.7 | +0.5 +0.6 | -32.9 +0.6 | +2.3 +0.0 | +0.0 | 84.3 | 94.0 | -9.7 | Vert |
| 3 | 2411.000M Ave | 84.1 | +28.5 +0.7 | +0.5 +0.6 | -32.9 +0.5 | +2.2 +0.0 | +0.0 | 84.2 | 94.0 | -9.8 | Vert |
| 4 | 2481.000M Ave | 77.3 | +28.7 +0.7 | +0.5 +0.6 | -32.9 +0.6 | +2.3 +0.0 | +0.0 | 77.8 | 94.0 | -16.2 | Horiz |
| 5 | 2411.000M Ave | 74.7 | +28.5 +0.7 | +0.5 +0.6 | -32.9 +0.5 | +2.2 +0.0 | +0.0 | 74.8 | 94.0 | -19.2 | Horiz |
| 6 | 2444.000M Ave | 74.4 | +28.6 +0.7 | +0.5 +0.6 | -32.9 +0.6 | +2.2 +0.0 | +0.0 | 74.7 | 94.0 | -19.3 | Horiz |





Test Setup Photo(s)



15.215(c) Occupied Bandwidth

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **FX ConnectX LLC**

Specification: **15.215 (c) 20dB bandwidth**

Work Order #: **94710**

Date: 1/24/2014

Test Type: **Maximized Emissions**

Time: 10:57:25

Equipment: **Wireless Main 19" Rack Controller**

Sequence#: 1

Manufacturer: Applied Wireless Inc

Tested By: Eddie Mariscal

Model: STAGE PRO-8 WIRELESS CONTROL
SYSTEM

S/N: 5842C801V3R40214A01

Test Equipment:

| ID | Asset # | Description | Model | Calibration Date | Cal Due Date |
|----|----------|-------------------|--------------------------|------------------|--------------|
| T1 | AN00327 | Horn Antenna | 3115 | 4/13/2012 | 4/13/2014 |
| T2 | AN03355 | Cable | 32026-2-29094K- 48TC | 2/7/2013 | 2/7/2015 |
| T3 | AN03155 | Preamp | 83017A | 6/26/2013 | 6/26/2015 |
| T4 | ANP05904 | Cable | 32022-2-29094K- 144TC | 2/15/2013 | 2/15/2015 |
| T5 | AN03360 | Cable | 32022-2-29094- 36TC | 2/4/2013 | 2/4/2015 |
| T6 | AN03359 | Cable | | 2/4/2013 | 2/4/2015 |
| T7 | AN03358 | Cable | 32022-2-29094K- 36TC | 2/7/2013 | 2/7/2015 |
| T8 | AN02660 | Spectrum Analyzer | E4446A | 8/23/2012 | 8/23/2014 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|---------------------------------------|----------------------|---|---------------------|
| Wireless Main 19" Rack Controller* | Applied Wireless Inc | STAGE PRO-8 WIRELESS CONTROL SYSTEM | 5842C801V3R40214A01 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|-----------------|--------------|-------------|------|
| DC Power Supply | ULL Power | SAW-1200500 | None |

Test Conditions / Notes:

EUT is set atop Styrofoam supports on a wooden, nonconductive turntable at a height of 1.5m. EUT is a simplex transceiver operating within the band 2400-2483MHz. EUT is powered via AC-DC power adaptor. EUT is in constant transmit mode.

Frequency of Interest: Fundamental

RBW = 100kHz

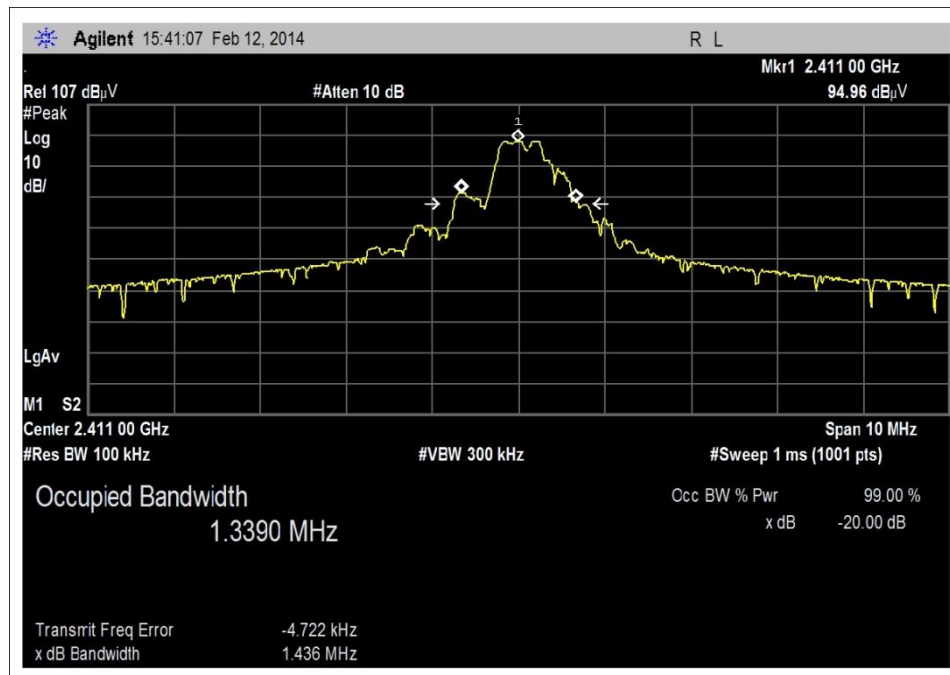
VBW = 300kHz

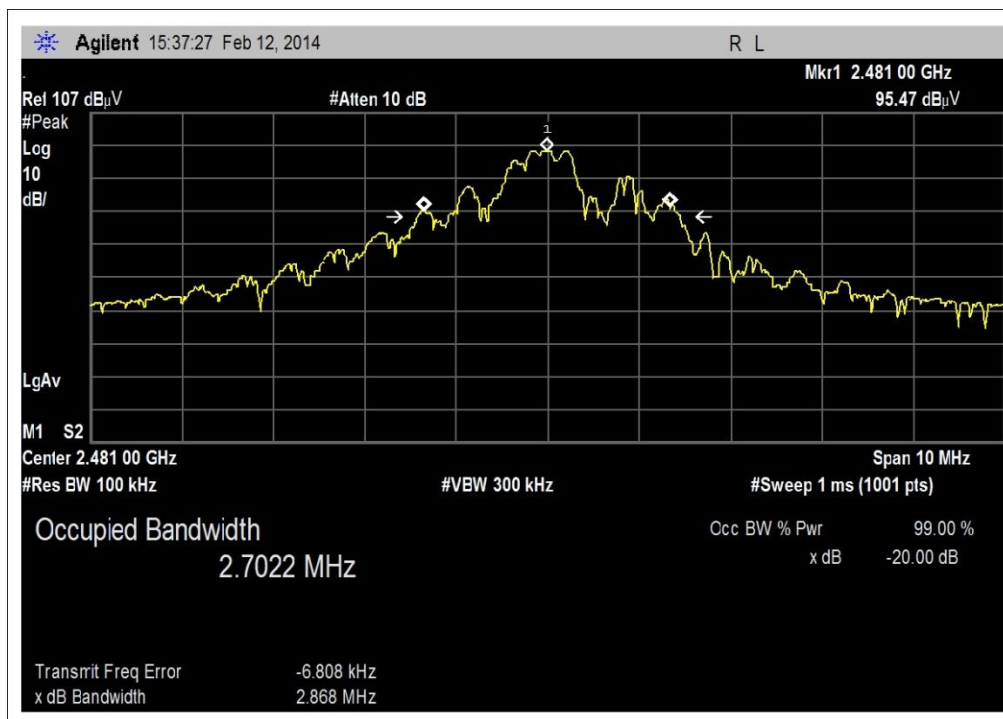
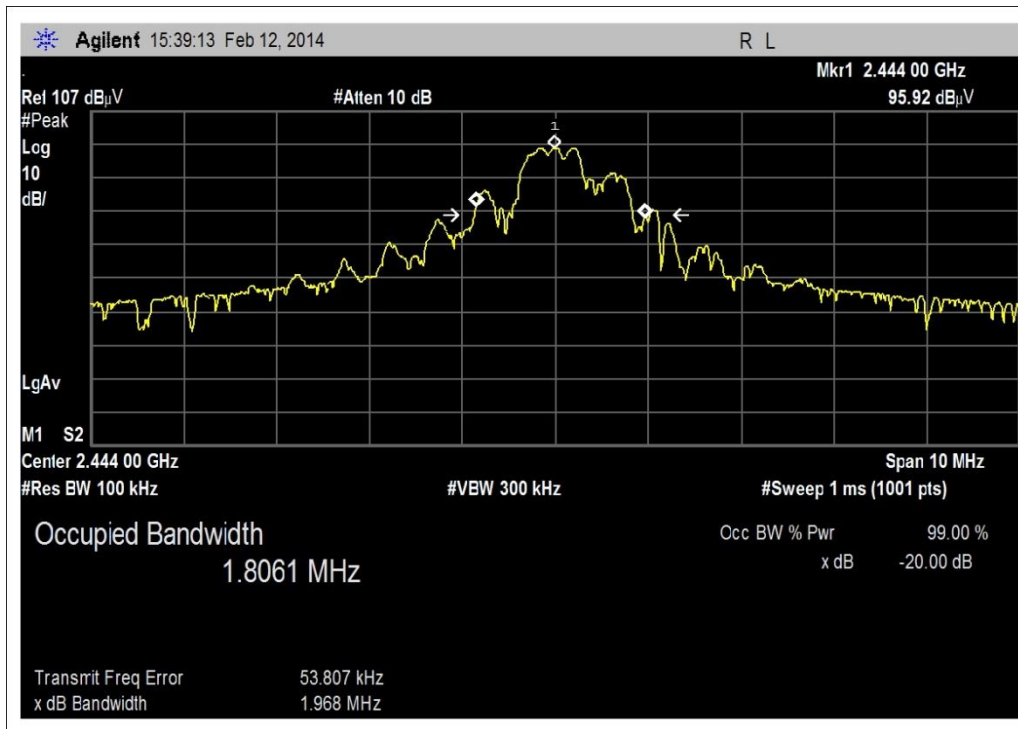
Environmental conditions:

Temperature: 19°C

Relative Humidity: 33%

Atmospheric Pressure: 98.7kPa





Test Setup Photo(s)



15.249(d) Field Strength of Spurious Emissions & Band Edge

Test Data

Test Location: CKC Laboratories, Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • (209) 966-5240

Customer: **FX ConnectX LLC**
 Specification: **15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter)**
 Work Order #: **94710** Date: 1/24/2014
 Test Type: **Maximized Emissions** Time: 15:30:00
 Equipment: **Wireless Main 19" Rack Controller** Sequence#: 1
 Manufacturer: Applied Wireless Inc. Tested By: Eddie Mariscal
 Model: STAGE PRO-8 WIRELESS CONTROL SYSTEM
 S/N: 5842C801V3R40214A01

Test Equipment:

| ID | Asset # | Description | Model | Calibration Date | Cal Due Date |
|-----|----------|--|----------------------|------------------|--------------|
| T1 | AN00327 | Horn Antenna | 3115 | 4/13/2012 | 4/13/2014 |
| | AN02046 | Horn Antenna-ANSI C63,5 (2006) 3m (dB) | MWH-1826/B | 2/4/2013 | 2/4/2015 |
| T2 | AN03355 | Cable | 32026-2-29094K-48TC | 2/7/2013 | 2/7/2015 |
| T3 | AN03155 | Preamp | 83017A | 6/26/2013 | 6/26/2015 |
| T4 | ANP05904 | Cable | 32022-2-29094K-144TC | 2/15/2013 | 2/15/2015 |
| T5 | AN03360 | Cable | 32022-2-29094-36TC | 2/4/2013 | 2/4/2015 |
| T6 | AN03359 | Cable | | 2/4/2013 | 2/4/2015 |
| T7 | AN03358 | Cable | 32022-2-29094K-36TC | 2/7/2013 | 2/7/2015 |
| T8 | AN02660 | Spectrum Analyzer | E4446A | 8/23/2012 | 8/23/2014 |
| T9 | AN00226 | Loop Antenna | 6502 | 3/28/2012 | 3/28/2014 |
| T10 | ANP06230 | Cable | CXTA04A-50 | 8/16/2012 | 8/16/2014 |
| | AN00062 | Preamp | 8447D | 6/6/2012 | 6/6/2014 |
| | AN01991 | Biconilog Antenna | CBL6111C | 3/14/2012 | 3/14/2014 |
| | ANP05922 | Cable | RG/214 | 8/15/2012 | 8/15/2014 |

Equipment Under Test (* = EUT):

| Function | Manufacturer | Model # | S/N |
|------------------------------------|-----------------------|-------------------------------------|---------------------|
| Wireless Main 19" Rack Controller* | Applied Wireless Inc. | STAGE PRO-8 WIRELESS CONTROL SYSTEM | 5842C801V3R40214A01 |

Support Devices:

| Function | Manufacturer | Model # | S/N |
|-----------------|--------------|-------------|------|
| DC Power Supply | ULL Power | SAW-1200500 | None |

Test Conditions / Notes:

EUT is set atop Styrofoam supports on a wooden, nonconductive turntable at a height of 1.5m. EUT is a simplex

transceiver operating within the band 2400-2483MHz. EUT is powered via 12VDC power adaptor. EUT is in constant transmit mode.

Frequency range of Interest: 9kHz-25GHz
 9-150kHz: RBW = 200Hz; VBW > 200Hz
 0.15-30MHz: RBW = 9kHz; VBW > 9kHz
 30-1000MHz: RBW = 120kHz; VBW > 120kHz
 1-25GHz: RBW = 1MHz; VBW > 1MHz

Environmental conditions:
 Temperature: 19°C
 Relative Humidity: 33%
 Atmospheric Pressure: 98.7kPa

Ext Attn: 0 dB

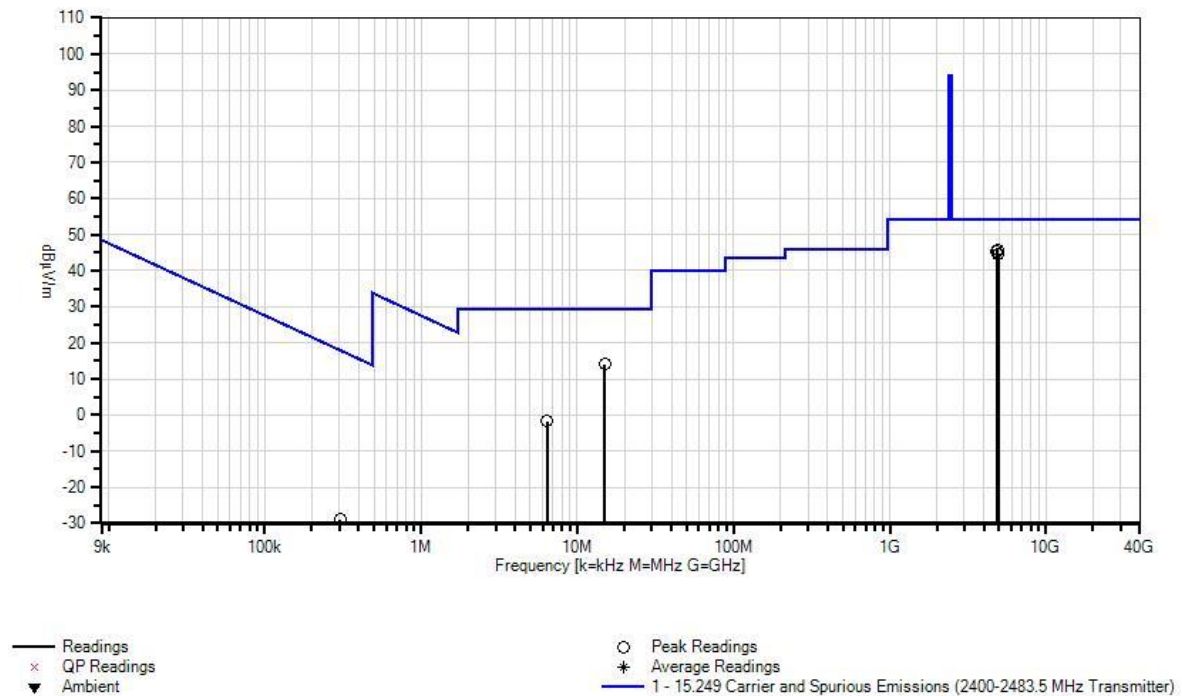
Measurement Data:

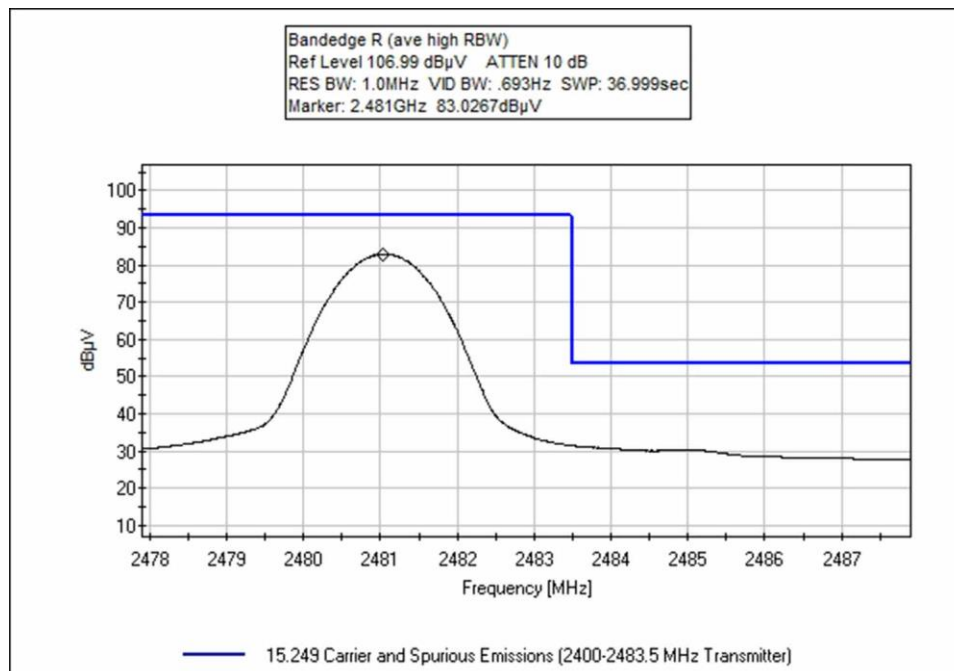
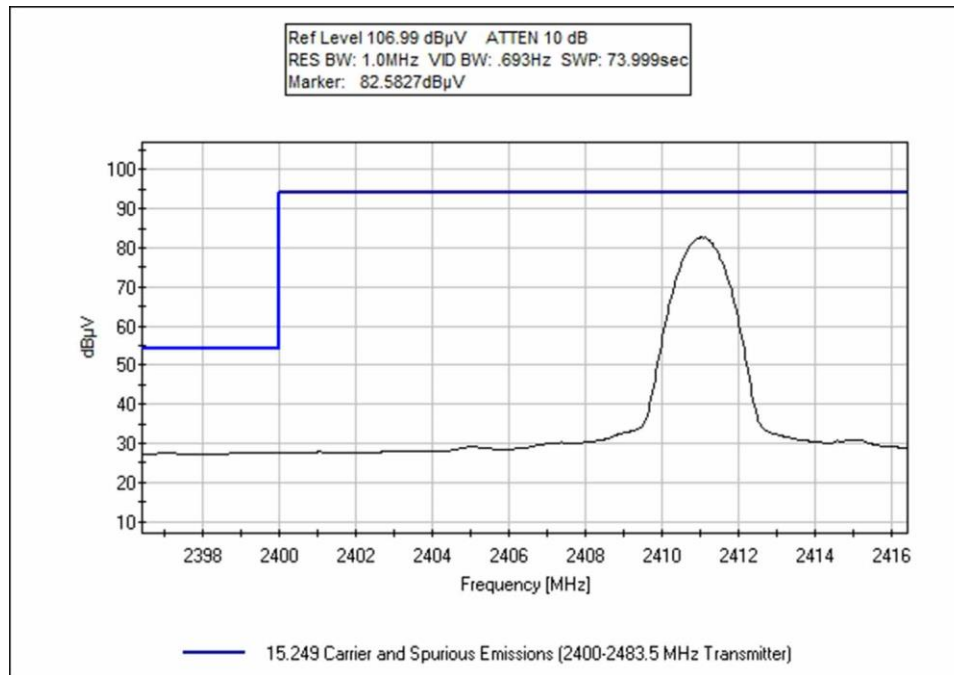
Reading listed by margin.

Test Distance: 3 Meters

| # | Freq | Rdng | T1 T5 T9 | T2 T6 T10 | T3 T7 | T4 T8 | Dist | Corr | Spec | Margin | Polar |
|---|-----------|------------|-----------------------|----------------------|---------------|--------------|-------|--------------|--------------|--------|-------|
| | MHz | dB μ V | dB | dB | dB | dB | Table | dB μ V/m | dB μ V/m | dB | Ant |
| 1 | 4888.083M | 40.1 | +31.6 +1.0 +0.0 | +0.8 +0.8 +0.0 | -32.9 +1.2 | +3.2 +0.0 | +0.0 | 45.8 | 54.0 | -8.2 | Vert |
| 2 | 4822.008M | 39.7 | +31.6 +0.9 +0.0 | +0.8 +0.9 +0.0 | -33.0 +1.2 | +3.2 +0.0 | +0.0 | 45.3 | 54.0 | -8.7 | Vert |
| 3 | 4962.050M | 39.0 | +31.5 +1.0 +0.0 | +0.8 +0.8 +0.0 | -33.0 +1.2 | +3.3 +0.0 | +0.0 | 44.6 | 54.0 | -9.4 | Horiz |
| 4 | 15.000M | 44.2 | +0.0 +0.0 +9.5 | +0.0 +0.0 +0.4 | +0.0 +0.0 | +0.0 +0.0 | -40.0 | 14.1 | 29.5 | -15.4 | Vert |
| 5 | 6.402M | 28.0 | +0.0 +0.0 +9.9 | +0.0 +0.0 +0.3 | +0.0 +0.0 | +0.0 +0.0 | -40.0 | -1.8 | 29.5 | -31.3 | Vert |
| 6 | 304.500k | 41.3 | +0.0 +0.0 +9.8 | +0.0 +0.0 +0.0 | +0.0 +0.0 | +0.0 +0.0 | -80.0 | -28.9 | 17.9 | -46.8 | Vert |

CKC Laboratories, Inc. Date: 1/24/2014 Time: 15:30:00 FX ConnectX LLC WO#: 94710
 15.249 Carrier and Spurious Emissions (2400-2483.5 MHz Transmitter) Test Distance: 3 Meters Sequence#: 1 Ext
 ATTN: 0 dB





Test Setup Photo(s)



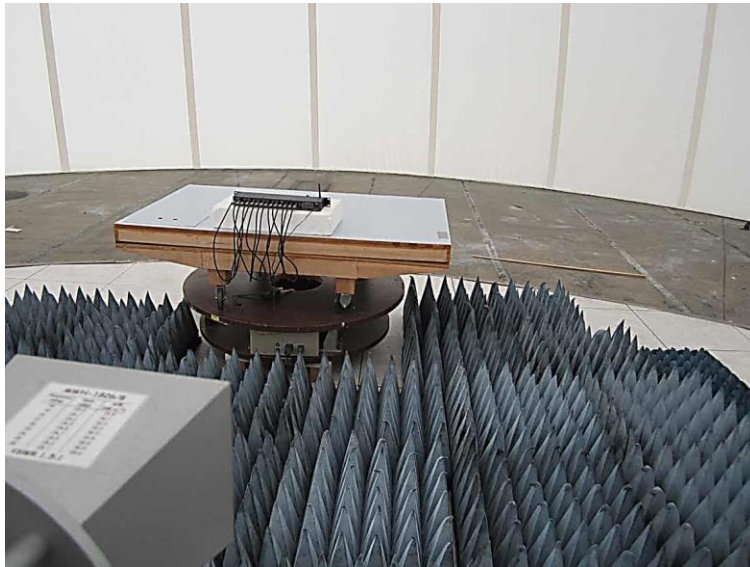
Low



Middle



High



High

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 dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula. This reading was then compared to the applicable specification limit.

| SAMPLE CALCULATIONS | | |
|---------------------|---------------------|----------|
| | Meter reading | (dBμV) |
| + | Antenna Factor | (dB) |
| + | Cable Loss | (dB) |
| - | Distance Correction | (dB) |
| - | Preamplifier Gain | (dB) |
| = | Corrected Reading | (dBμV/m) |

TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

| MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE | | | |
|--|---------------------|------------------|-------------------|
| TEST | BEGINNING FREQUENCY | ENDING FREQUENCY | BANDWIDTH SETTING |
| CONDUCTED EMISSIONS | 150 kHz | 30 MHz | 9 kHz |
| RADIATED EMISSIONS | 9 kHz | 150 kHz | 200 Hz |
| RADIATED EMISSIONS | 150 kHz | 30 MHz | 9 kHz |
| RADIATED EMISSIONS | 30 MHz | 1000 MHz | 120 kHz |
| RADIATED EMISSIONS | 1000 MHz | >1 GHz | 1 MHz |

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

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

Quasi-Peak

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

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.