



# **CERTIFICATION TEST REPORT**

**Report Number. :** 16U23300-E4V7

**Applicant :** Insight Energy Ventures, LLC DBA Powerley  
333 W. Seventh St. #200  
Royal Oak, MI 48067, U.S.A.

**Model :** EB2.0

**FCC ID :** 2AHFD-N1O9A911

**IC ID :** 21573-482A2

**EUT Description :** Wireless Sensor Bridge for Home Energy Control

**Date of Issue:**

Monday, August 15, 2016

**Prepared by:**

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NVLAP LAB CODE 200065-0

## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	6/14/2016	Initial Issue	D. CORONIA
V2	6/21/2016	Updated Section 5.2	J. WU
V3	7/25/2016	Updated Section 3.2	D. CORONIA
V4	8/2/2016	Updated Section 3.2, 4.2, 4.3 & 5.2	D. CORONIA
V5	8/2/2016	Updated Section 5.3	D. CORONIA
V6	8/12/2016	Updated Section 5.3	D. CORONIA
V7	8/15/2016	Band-edge Marker-Delta procedure page 26	D. CORONIA

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS .....</b>	<b>4</b>
<b>3. SUMMARY OF TESTING .....</b>	<b>5</b>
3.1. <i>FACILITIES AND ACCREDITATION .....</i>	<i>5</i>
3.2. <i>SUMMARY TABLE .....</i>	<i>5</i>
3.3. <i>TEST METHODOLOGY.....</i>	<i>5</i>
3.4. <i>CALIBRATION AND UNCERTAINTY .....</i>	<i>6</i>
3.5. <i>MEASUREMENT METHOD.....</i>	<i>6</i>
3.6. <i>TEST AND MEASUREMENT EQUIPMENT.....</i>	<i>7</i>
<b>3. EQUIPMENT UNDER TEST .....</b>	<b>8</b>
3.1. <i>EUT DESCRIPTION .....</i>	<i>8</i>
3.2. <i>MAXIMUM RADIATED E-FIELD STRENGTH.....</i>	<i>8</i>
3.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS .....</i>	<i>8</i>
3.4. <i>SOFTWARE AND FIRMWARE.....</i>	<i>8</i>
3.5. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>8</i>
3.6. <i>DESCRIPTION OF TEST SETUP.....</i>	<i>9</i>
<b>4. ANTENNA PORT TEST RESULTS .....</b>	<b>11</b>
4.1. <i>ON TIME, DUTY CYCLE .....</i>	<i>11</i>
4.2. <i>20 dB BANDWIDTH.....</i>	<i>12</i>
4.3. <i>99% BANDWIDTH.....</i>	<i>14</i>
<b>5. RADIATED TEST RESULTS.....</b>	<b>16</b>
5.1. <i>LIMITS AND PROCEDURE .....</i>	<i>16</i>
5.2. <i>TRANSMITTER ABOVE 1 GHz .....</i>	<i>18</i>
5.3. <i>TRANSMITTER BELOW 1 GHz.....</i>	<i>25</i>
<b>6. SETUP PHOTOS.....</b>	<b>33</b>

# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Insight Energy Ventures, LLC DBA Powerley  
**EUT DESCRIPTION:** Wireless Sensor Bridge for Home Energy Control  
**MODEL:** EB2.0  
**SERIAL NUMBER:** Conducted: AMJ001532-0002, AMJ001532-0007,  
Radiated: AMJ001532-0008, AMJ001532-0010,  
**DATE TESTED:** MAY 23–JUNE 21 & AUGUST 2 & 4, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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### 3. SUMMARY OF TESTING

#### 3.1. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street		47266 Benicia Street	
<input type="checkbox"/>	Chamber A(IC: 2324B-1)	<input type="checkbox"/>	Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/>	Chamber B(IC: 2324B-2)	<input type="checkbox"/>	Chamber E(IC: 2324B-5)
<input checked="" type="checkbox"/>	Chamber C(IC: 2324B-3)	<input type="checkbox"/>	Chamber F(IC: 2324B-6)
		<input type="checkbox"/>	Chamber G(IC: 2324B-7)
		<input type="checkbox"/>	Chamber H(IC: 2324B-8)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

#### 3.2. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.207	AC Power Line conducted emission	Section 10	Conducted	Pass
15.249 (c)	Field Strength of Fundamental	< 50mV/m	Radiated	Pass
15.209, 15.205	Band Edge (marker-delta method)	< 46dBuV/m		Pass
15.205, 15.209, 15.249	Radiated Spurious Emission	< 54dBuV/m		Pass

#### 3.3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 4, and RSS-210 Issue 8.

### 3.4. CALIBRATION AND UNCERTAINTY

#### MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

#### SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

#### MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance, 1000 to 6000 MHz	3.86 dB
Radiated Disturbance, 6000 to 18000 MHz	4.23 dB
Radiated Disturbance, 18000 to 26000 MHz	5.30 dB
Radiated Disturbance, 26000 to 40000 MHz	5.23 dB

Uncertainty figures are valid to a confidence level of 95%.

### 3.5. MEASUREMENT METHOD

On time and duty cycle: ANSI C63.10-2013, Section 11.6.

Radiated emissions: ANSI C63.10-2013, Sections 6.5 and 6.6.

Band-edge (Marker-delta method): ANSI C63.10-2013, Section 6.10.6.2)

Occupied bandwidth (99% dB): ANSI C63.10-2013, Sections 6.9.3.

AC Power Line Conducted Emissions: ANSI C63.10-2013 Section 6.2.

### 3.6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	T Number	Cal Due
Spectrum Analyzer, 40 GHz	Agilent / HP	8564E	106	08/14/16
Spectrum Analyzer, 44 GHz	Keysight	N9030A	907	01/06/17
ESR7 EMI Test Receiver 7GHz	Rohde & Schwarz	ESR	1436	12/19/16
Amplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	493	03/09/17
Amplifier, 1-8GHz, 35 dB	Miteq	AMF-4D-01000800-30-29P	1156	03/09/17
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
RF Preamplifier, 26GHz - 40GHz	Miteq	NSP4000-SP2	88	04/07/17
Antenna, Horn, 18GHz	ETS Lindgren	3117	119	02/04/17
Antenna, Horn, 18GHz	ETS Lindgren	3117	345	02/22/17
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	130	09/01/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	485	03/09/17
High Pass Filter 3GHz	Micro-Tronics	HPS17543	486	07/20/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	483	03/09/17
High Pass Filter 6GHz	Micro-Tronics	HPS17542	484	07/20/16
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	482	03/09/17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	481	07/20/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Apr 12, 2016
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Conducted Port Software	UL	UL RF	Ver 4.7, Apr 28, 2016

### 3. EQUIPMENT UNDER TEST

#### 3.1. EUT DESCRIPTION

The EUT is a wireless sensor bridge for home energy control.

#### 3.2. MAXIMUM RADIATED E-FIELD STRENGTH

The transmitter has a maximum peak E-field as follows:

Frequency Range (MHz)	Output PK E-Field Strength (dBuV/m)
902.3-927.7	93.54

#### 3.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PCB trace antenna, with a maximum gain of 4 dBi.

#### 3.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 7.45.41.24 <r608913 WLTEST>

The EUT driver software installed during testing was 1.107 RC 5.0 W10: Apr 6, 2016.

The test utility software used during testing was Tera Term, Version 4.90(SVN# 6338).

#### 3.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

### 3.6. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Lenovo	T430	PBB4M4Y	N/A
Laptop AC Adapter	Lenovo	ADLS90NLT2A	11S36200297ZZ30036RDM2	N/A
AC Adapter	ITE	YMC1801UW	N/A	N/A
TTL Converter	B&B electronics	232LPTTL33	N/A	N/A

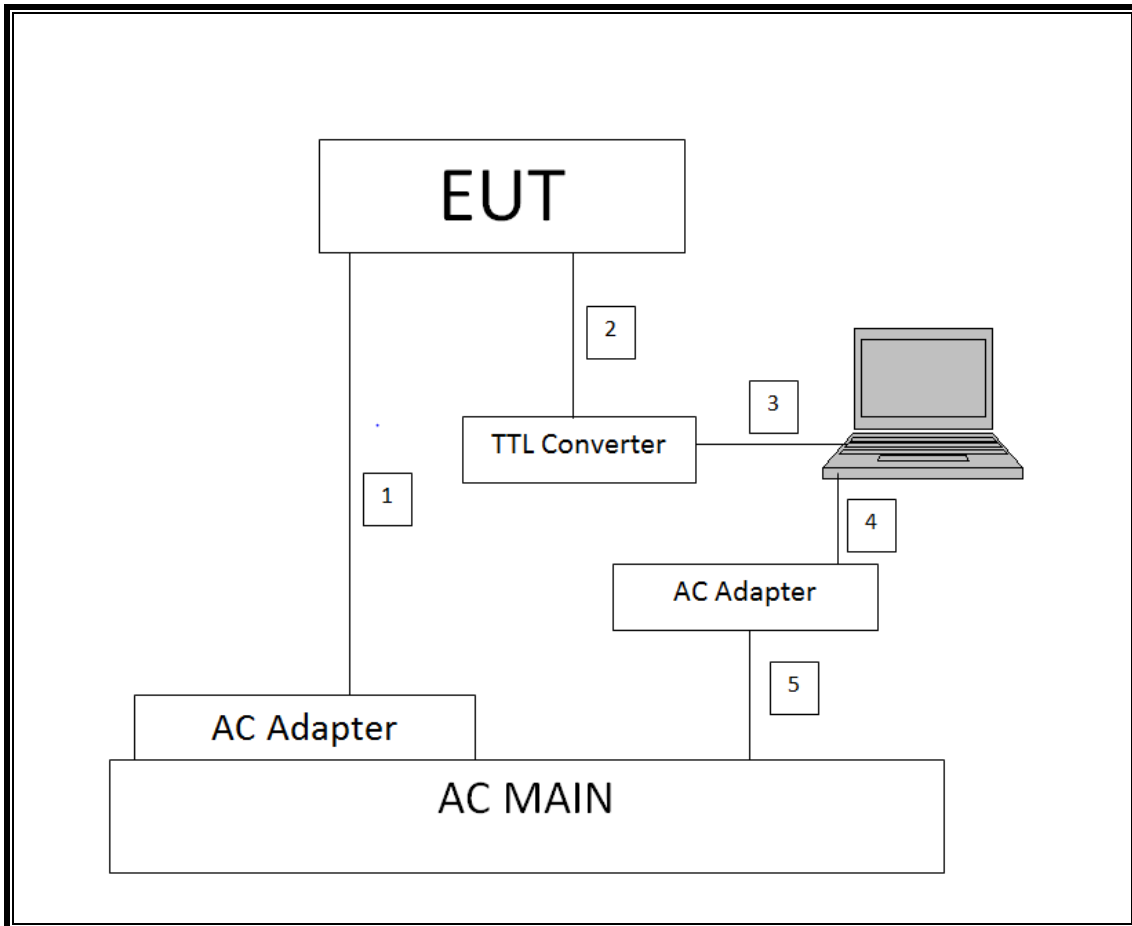
#### I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Micro-USB	Shielded	1.6	
2	Comm	1	Serial 9 Pins/3 Pins	Unshielded	0.8	
3	Comm	1	USB/Serial 9 Pins	Unshielded	0.4	
4	DC	1	20V DC	Unshielded	1.5	
5	AC	1	US115V	Unshielded	1	

#### TEST SETUP

The EUT is a standalone unit, and the radio is exercised by Tera Term software, via a USB/Serial cable.

**SETUP DIAGRAM FOR TESTS**



## 4. ANTENNA PORT TEST RESULTS

### 4.1. ON TIME, DUTY CYCLE

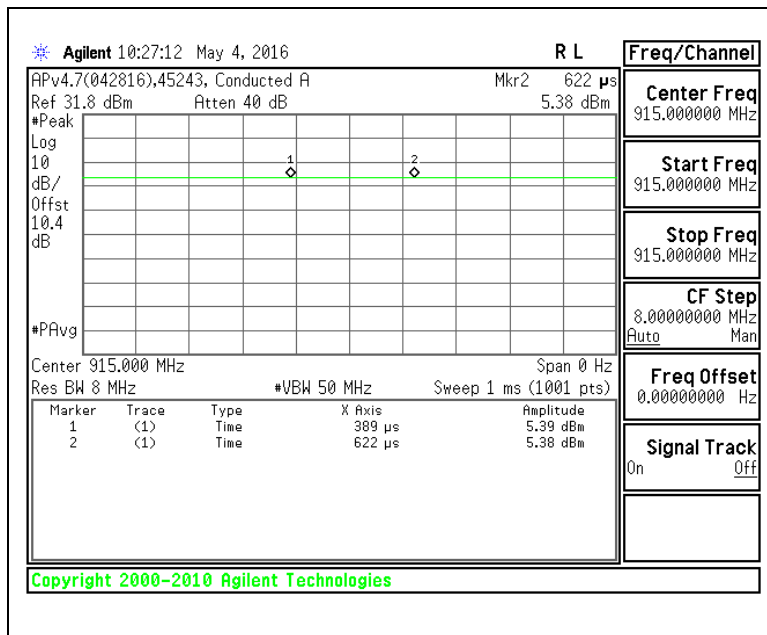
#### LIMITS

None; for reporting purposes only.

#### ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
915 MHz	100.0	100.0	1.000	100.00%	0.00	0.010

#### DUTY CYCLE PLOT



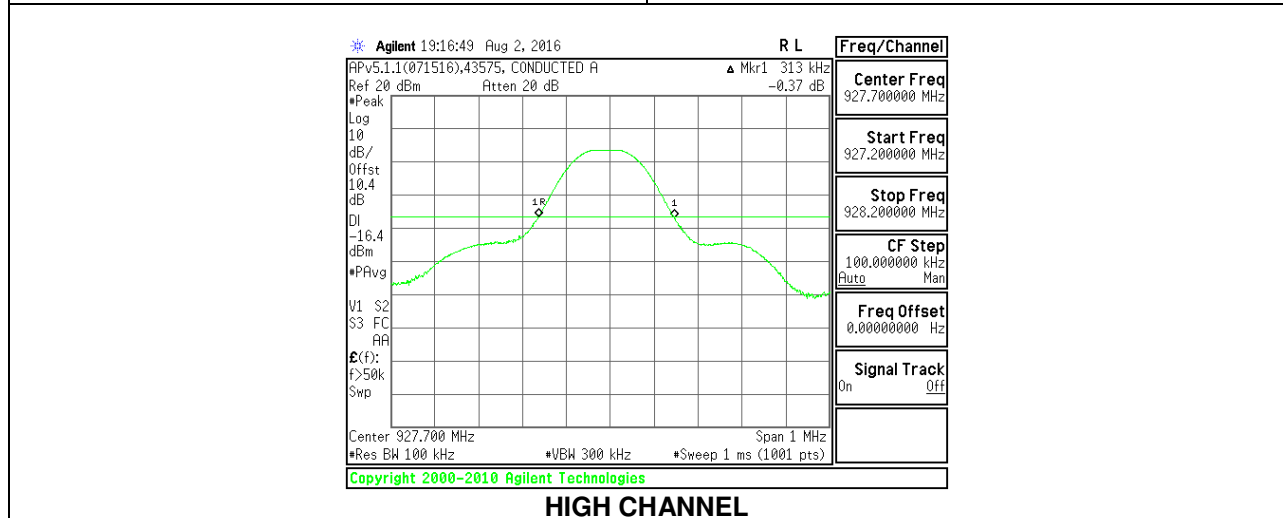
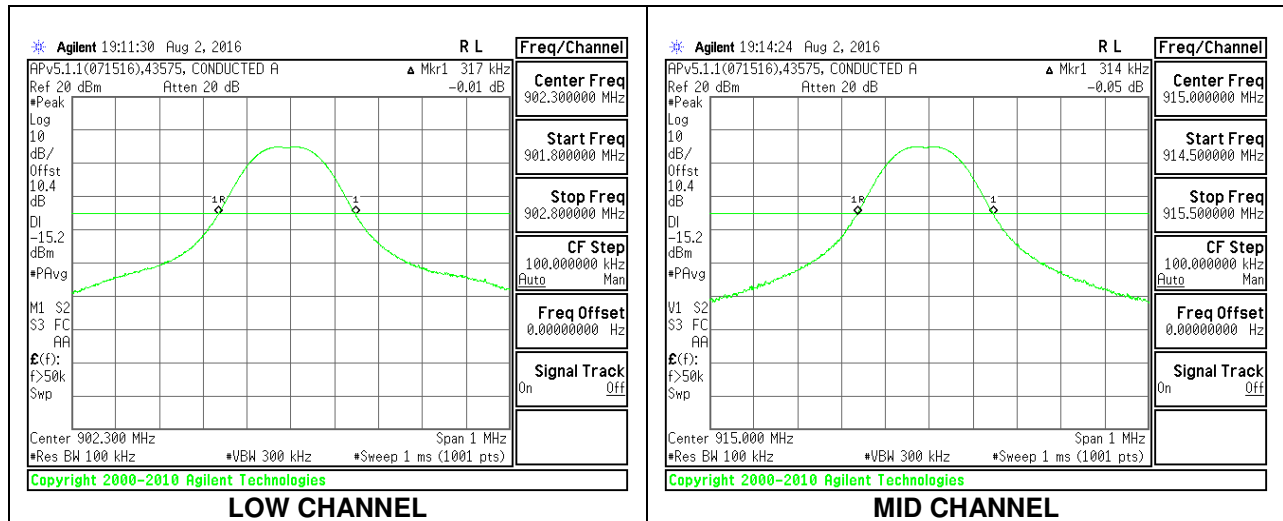
## **4.2. 20 dB BANDWIDTH**

### **LIMITS**

None; for reporting purposes only.

### **RESULTS**

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	902.3	0.317
Middle	915.0	0.314
High	927.7	0.313



### **4.3. 99% BANDWIDTH**

#### **LIMITS**

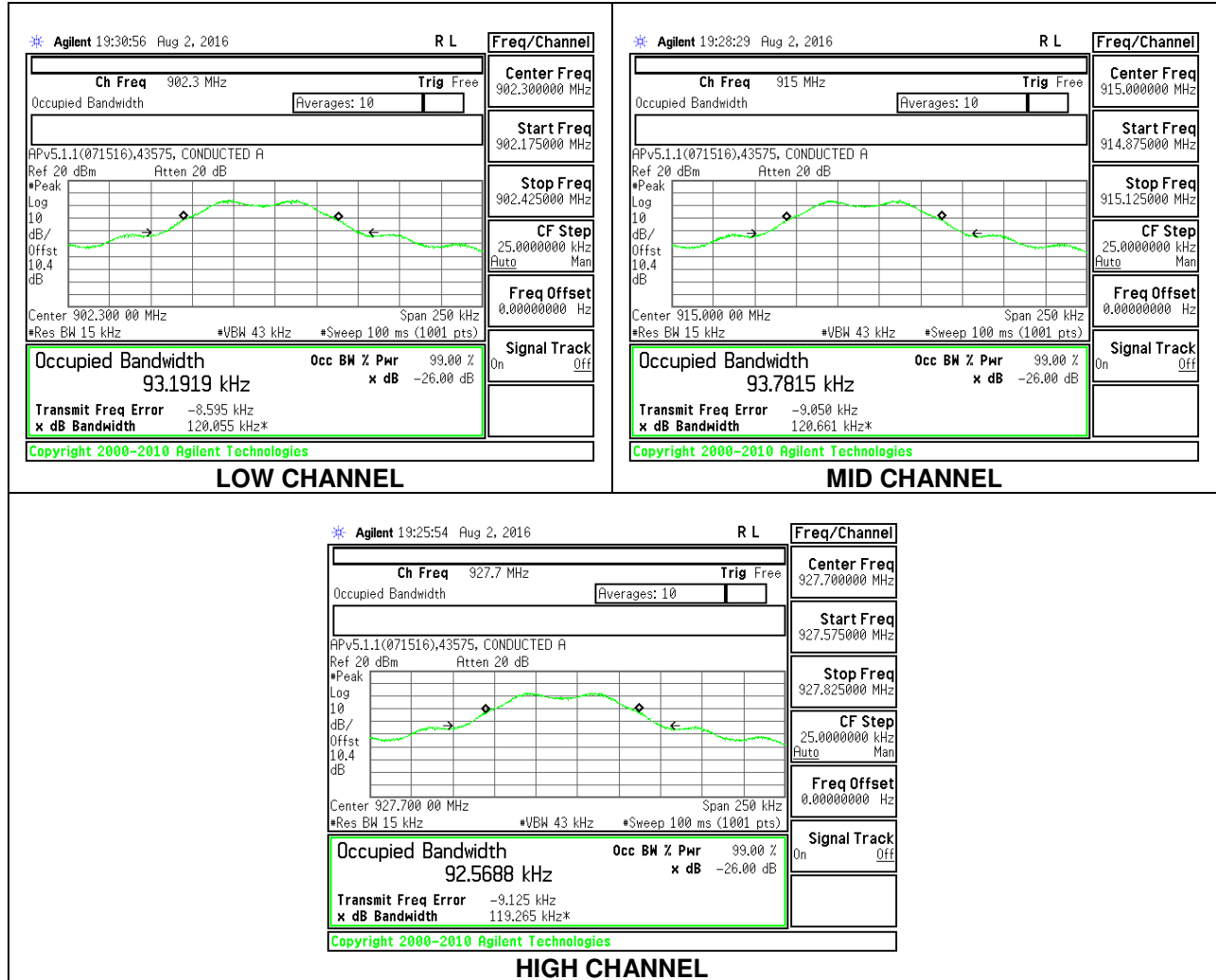
None; for reporting purposes only.

#### **TEST PROCEDURE**

ANSI C63.10: 2013 Section 6.9.3

#### **RESULTS**

Channel	Frequency (MHz)	99% Bandwidth (KHz)
Low	902.3	93.1919
Middle	915.0	93.7815
High	927.7	92.5688



## 5. RADIATED TEST RESULTS

### 5.1. LIMITS AND PROCEDURE

#### LIMITS

FCC 15.249

Operation within the bands 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHz, and 24.0–24.25 GHz.

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz .....	50	500
2400–2483.5 MHz .....	50	500
5725–5875 MHz .....	50	500
24.0–24.25 GHz .....	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490 .....	2400/F(kHz)	300
0.490–1.705 .....	24000/F(kHz)	30
1.705–30.0 .....	30	30
30–88 .....	100 **	3
88–216 .....	150 **	3
216–960 .....	200 **	3
Above 960 .....	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

IC RSS-210, A2.9

The field strength measured at 3 metres shall not exceed the limits in the following table:

Fundamental Frequencies (MHz)	Field Strength (millivolts/m)	
	Fundamental	Harmonics
902-928	50	0.5
2400-2483.5	50	0.5
5725-5875	50	0.5

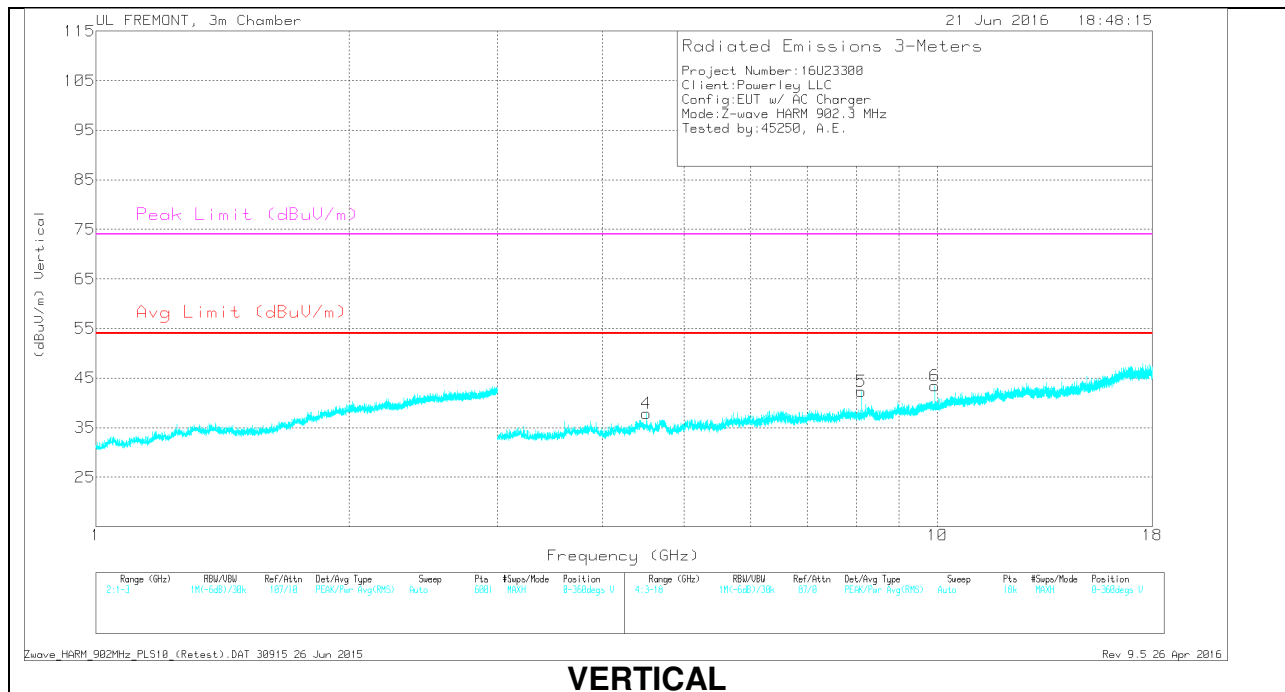
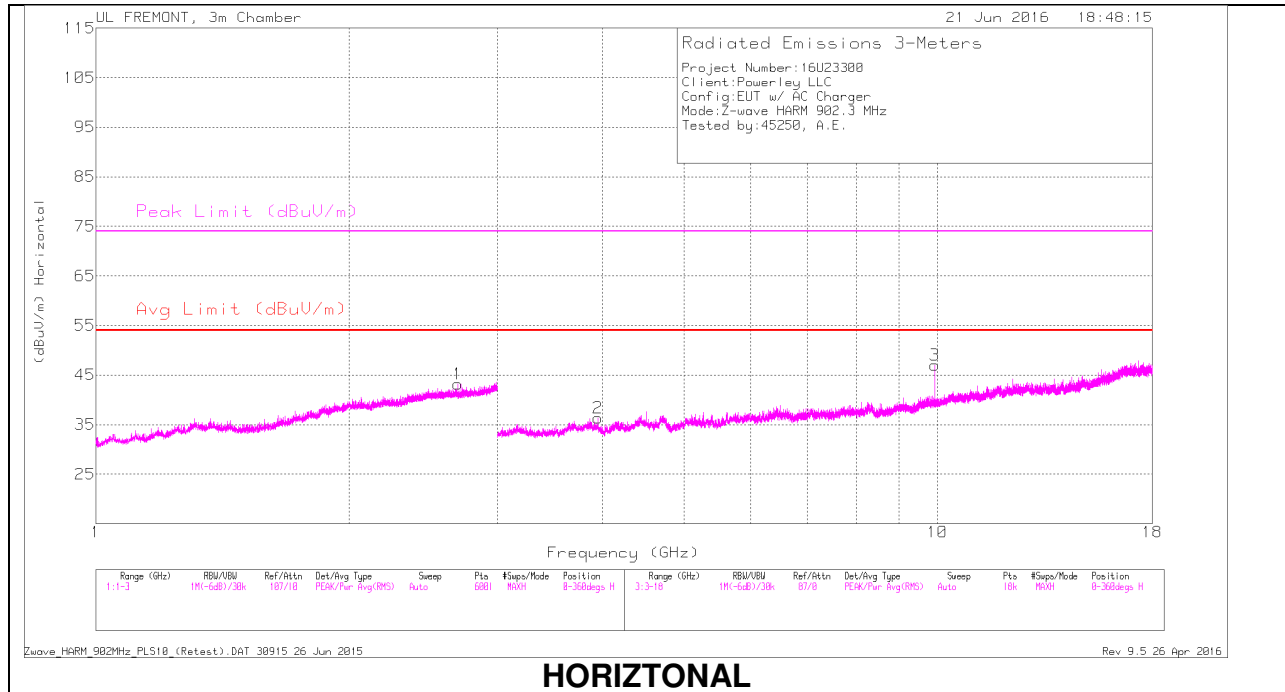
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general field strength limits listed in RSS-Gen, whichever is less stringent.

Frequency (MHz)	Field Strength ( $\mu\text{v}/\text{m}$ at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

## 5.2. TRANSMITTER ABOVE 1 GHz

### HARMONICS AND SPURIOUS EMISSIONS

#### LOW CHANNEL RESULTS





### LOW CHANNEL DATA

#### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.692	32.85	Pk	32.3	-22	0	43.15	-	-	74	-30.85	0-360	199	H
2	* 3.947	35.38	Pk	33.3	-32.3	0	36.38	-	-	74	-37.62	0-360	199	H
4	* 4.51	35.21	Pk	34	-31.4	0	37.81	-	-	74	-36.19	0-360	101	V
5	* 8.117	35.27	Pk	35.8	-28.8	0	42.27	-	-	74	-31.73	0-360	101	V
6	9.921	32.88	Pk	37.3	-26.7	0	43.48	-	-	-	-	0-360	199	V
3	9.922	36.45	Pk	37.3	-26.7	0	47.05	-	-	-	-	0-360	101	H

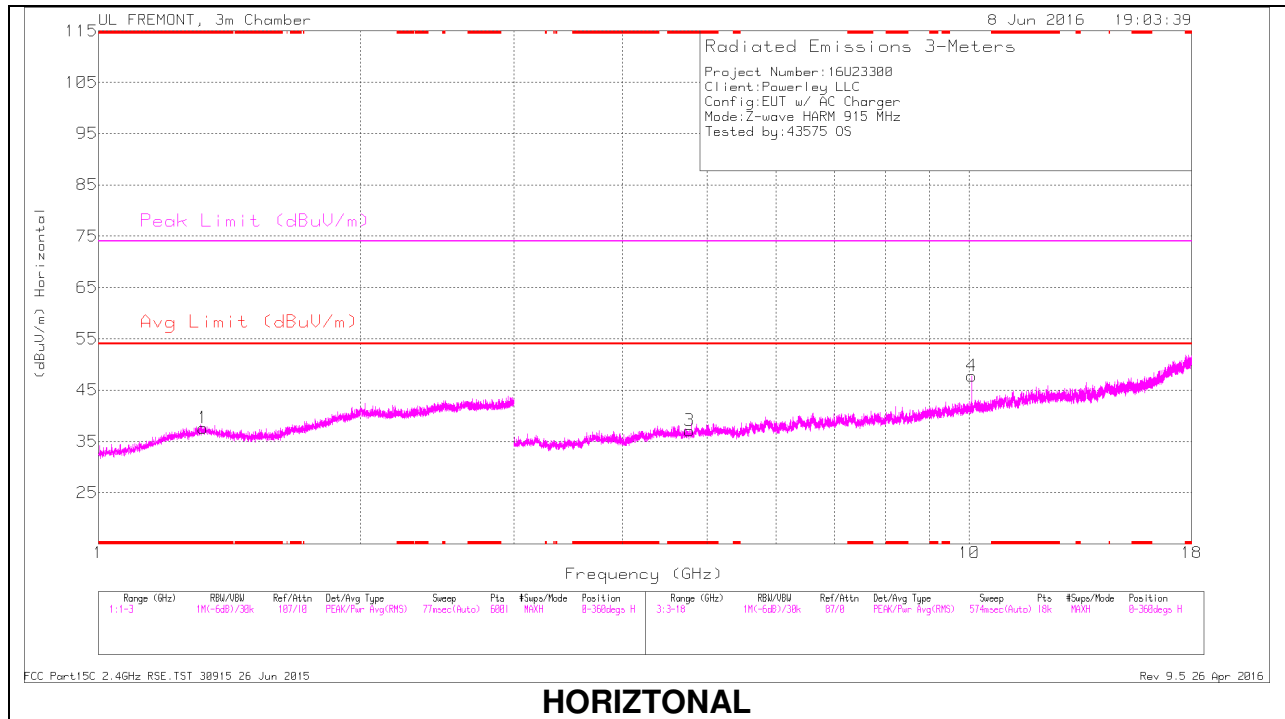
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector

#### Radiated Emissions

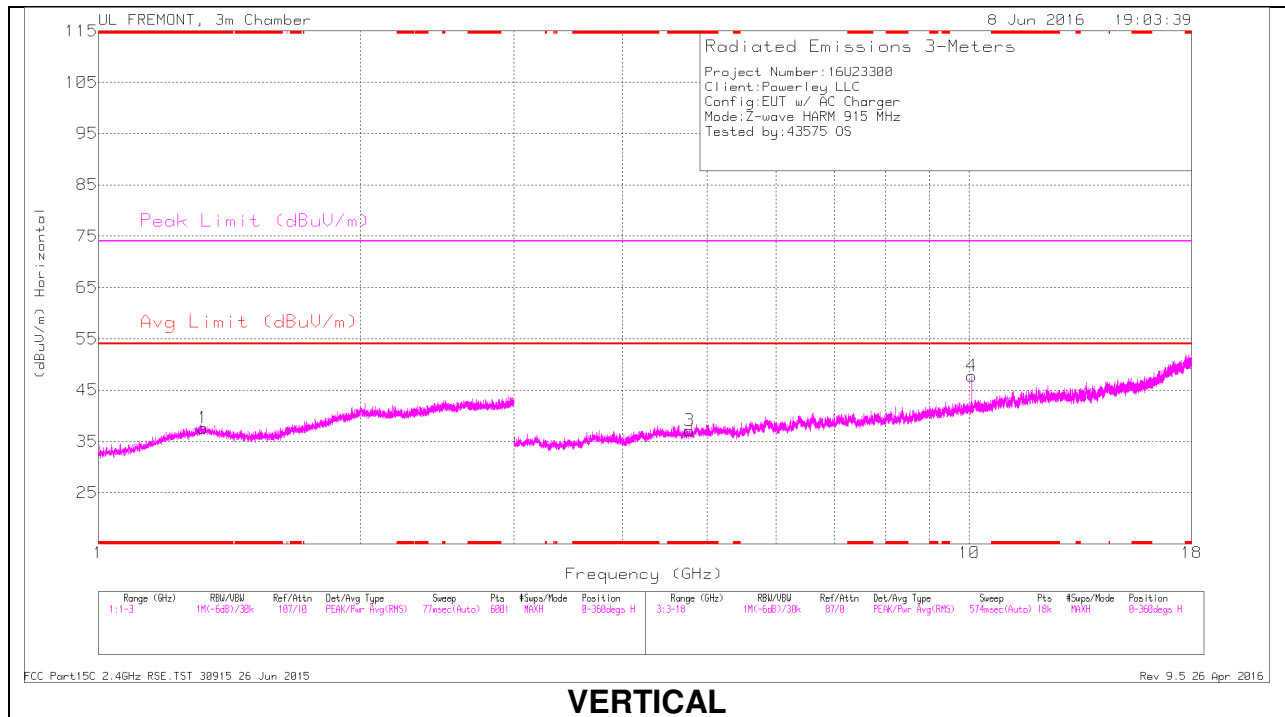
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.694	36.78	PK2	32.3	-22	0	47.08	-	-	74	-26.92	37	229	H
* 2.694	26.01	MAV1	32.3	-22	0	36.31	54	-17.69	-	-	37	229	H
* 3.947	40.31	PK2	33.3	-32.3	0	41.31	-	-	74	-32.69	345	141	H
* 3.947	29.42	MAV1	33.3	-32.3	0	30.42	54	-23.58	-	-	345	141	H
* 4.51	41.8	PK2	34	-31.4	0	44.4	-	-	74	-29.6	84	318	V
* 4.51	34.6	MAV1	34	-31.4	0	37.2	54	-16.8	-	-	84	318	V
* 8.118	40.51	PK2	35.8	-28.8	0	47.51	-	-	74	-26.49	121	340	V
* 8.118	34.02	MAV1	35.8	-28.8	0	41.02	54	-12.98	-	-	121	340	V
9.922	36.88	PK2	37.3	-26.7	0	47.48	-	-	74	-26.52	341	180	V
9.923	36.1	PK2	37.3	-26.7	0	46.7	-	-	74	-27.3	269	291	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 MAV1 - KDB558074 Option 1 Maximum RMS Average

### MID CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

### MID CHANNEL DATA

#### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.318	28.37	Pk	29.7	-20.5	0	37.57	-	-	74	-36.43	0-360	100	H
2	* 2.245	30.06	Pk	31.7	-20.9	0	40.86	-	-	74	-33.14	0-360	200	V
3	* 4.776	30.41	Pk	34.2	-27.5	0	37.11	-	-	74	-36.89	0-360	200	H
5	* 4.575	33.13	Pk	34.3	-28	0	39.43	-	-	74	-34.57	0-360	100	V
6	* 11.233	25.43	Pk	38.1	-19.4	0	44.13	-	-	74	-29.87	0-360	100	V
4	10.065	32.59	Pk	37.2	-22	0	47.79	-	-	-	-	0-360	100	H

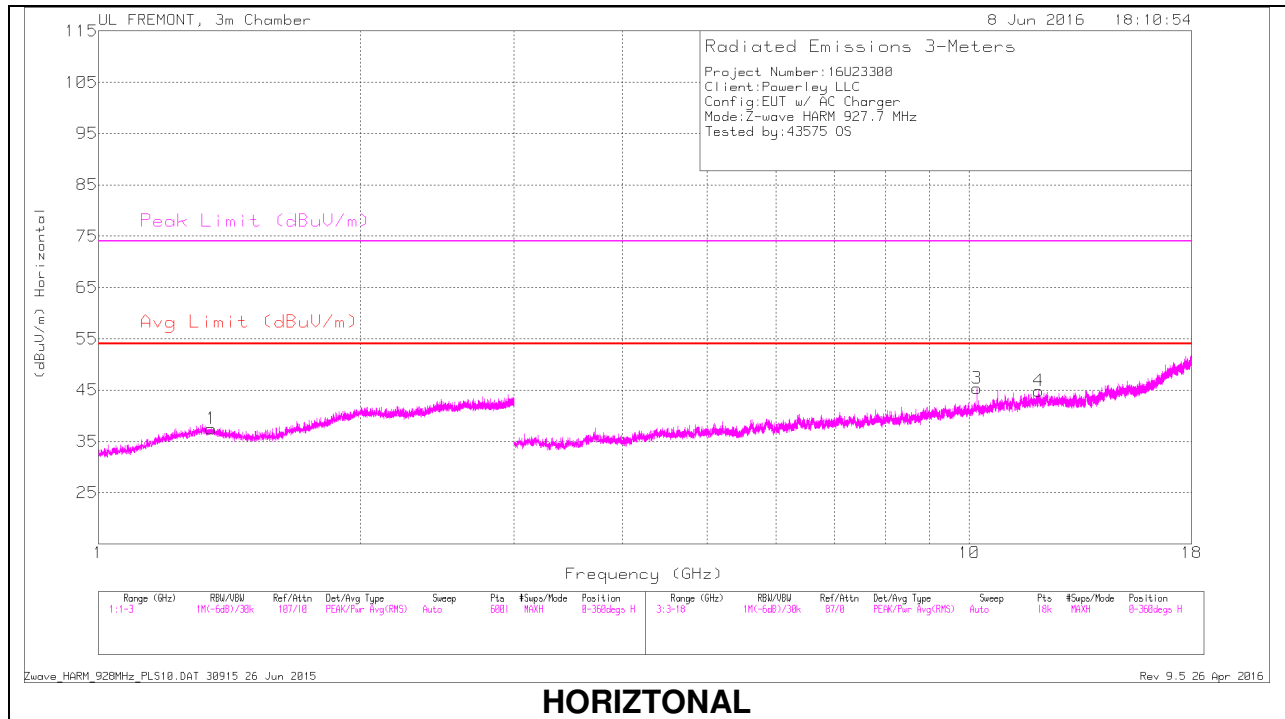
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector

#### Radiated Emissions

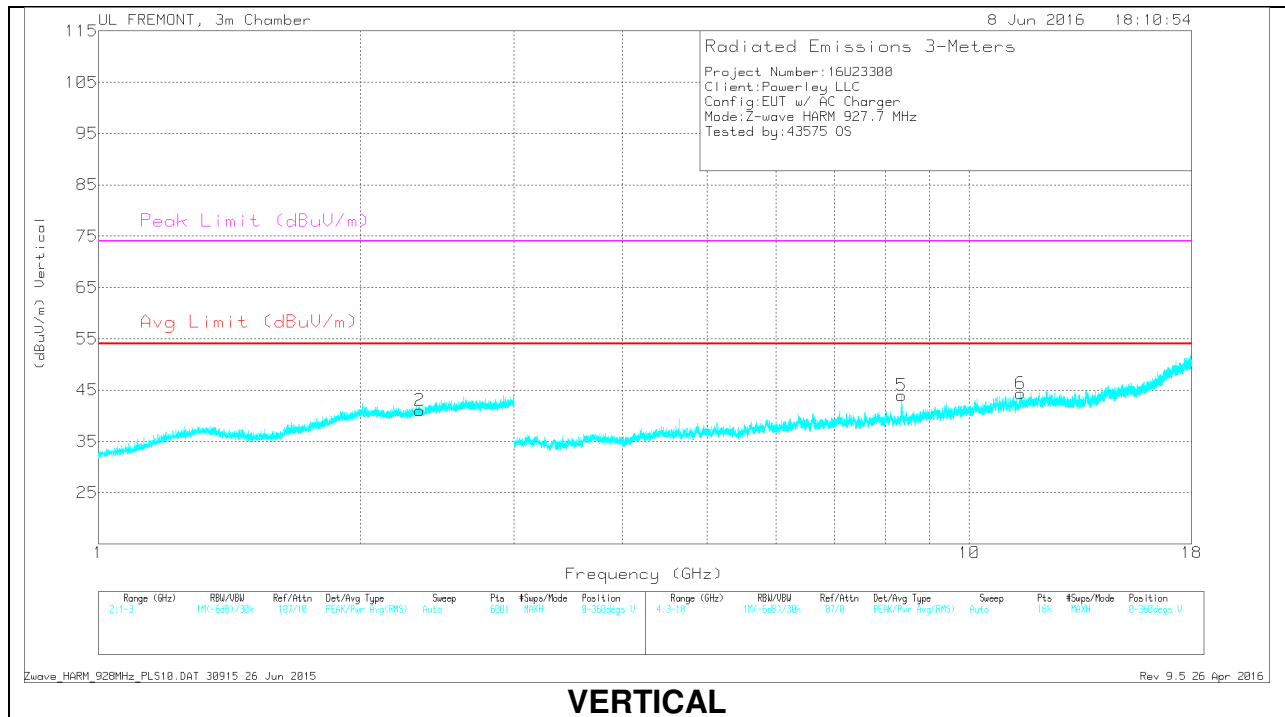
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.319	34.14	PK2	29.7	-20.4	0	43.44	-	-	74	-30.56	190	381	H
* 1.318	23.24	MAv1	29.7	-20.4	0	32.54	54	-21.46	-	-	190	381	H
* 2.243	34.67	PK2	31.7	-21	0	45.37	-	-	74	-28.63	271	149	V
* 2.246	24.44	MAv1	31.7	-21	0	35.14	54	-18.86	-	-	271	149	V
* 4.777	36.41	PK2	34.2	-27.5	0	43.11	-	-	74	-30.89	119	332	H
* 4.777	25.96	MAv1	34.2	-27.5	0	32.66	54	-21.34	-	-	119	332	H
* 4.575	39.23	PK2	34.3	-28	0	45.53	-	-	74	-28.47	209	296	V
* 4.575	31.17	MAv1	34.3	-28	0	37.47	54	-16.53	-	-	209	296	V
* 11.234	31.64	PK2	38.1	-19.4	0	50.34	-	-	74	-23.66	124	377	V
* 11.233	21.24	MAv1	38.1	-19.4	0	39.94	54	-14.06	-	-	124	377	V
10.065	36.66	PK2	37.2	-22	0	51.86	-	-	74	-22.14	204	100	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 MAv1 - KDB558074 Option 1 Maximum RMS Average

### HIGH CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

### HIGH CHANNEL DATA

#### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.347	28.37	Pk	29.4	-20.3	0	37.47	-	-	74	-36.53	0-360	242	H
2	* 2.34	30.42	Pk	31.8	-21.2	0	41.02	-	-	74	-32.98	0-360	100	V
4	* 12.004	26.19	Pk	39.1	-20.5	0	44.79	-	-	74	-29.21	0-360	200	H
5	* 8.351	31.61	Pk	35.7	-23.4	0	43.91	-	-	74	-30.09	0-360	100	V
6	* 11.454	26.23	Pk	38.5	-20.4	0	44.33	-	-	74	-29.67	0-360	100	V
3	10.207	28.97	Pk	37.3	-20.9	0	45.37	-	-	-	-	0-360	100	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

#### Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.319	34.14	PK2	29.7	-20.4	0	43.44	-	-	74	-30.56	190	381	H
* 1.318	23.24	MAV1	29.7	-20.4	0	32.54	54	-21.46	-	-	190	381	H
* 2.243	34.67	PK2	31.7	-21	0	45.37	-	-	74	-28.63	271	149	V
* 2.246	24.44	MAV1	31.7	-21	0	35.14	54	-18.86	-	-	271	149	V
* 4.777	36.41	PK2	34.2	-27.5	0	43.11	-	-	74	-30.89	119	332	H
* 4.777	25.96	MAV1	34.2	-27.5	0	32.66	54	-21.34	-	-	119	332	H
* 4.575	39.23	PK2	34.3	-28	0	45.53	-	-	74	-28.47	209	296	V
* 4.575	31.17	MAV1	34.3	-28	0	37.47	54	-16.53	-	-	209	296	V
* 11.234	31.64	PK2	38.1	-19.4	0	50.34	-	-	74	-23.66	124	377	V
* 11.233	21.24	MAV1	38.1	-19.4	0	39.94	54	-14.06	-	-	124	377	V
10.065	36.66	PK2	37.2	-22	0	51.86	-	-	74	-22.14	204	100	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

KDB558074 Option 1 Maximum RMS Average

### 5.3. TRANSMITTER BELOW 1 GHz

#### FUNDAMENTAL FREQUENCY RADIATED EMISSION

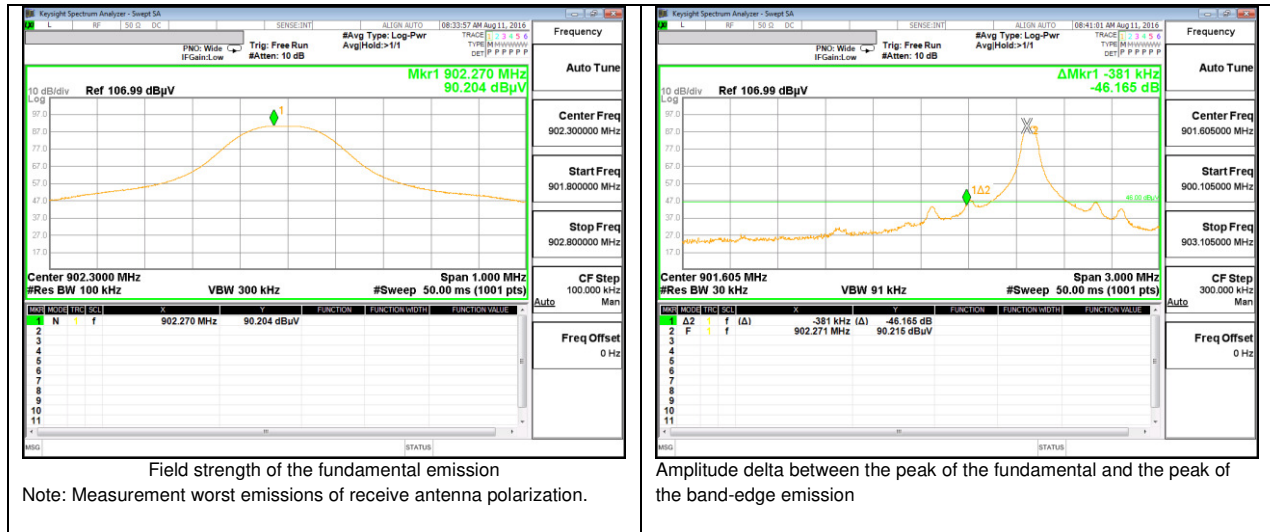
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	AF T122 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
902.3	89.74	PK	26.5	-22.7	93.54	114.00	-20.46	279	165	H
902.3	89.64	AVE	26.5	-22.7	93.437	94.00	-0.56	279	165	H
902.3	81.59	PK	26.5	-22.7	85.39	114.00	-28.62	189	160	V
902.3	81.39	AVE	26.5	-22.7	85.189	94.00	-8.81	189	160	V
915.0	89.19	PK	26.4	-22.6	92.988	114.00	-21.01	280	149	H
915.0	89.12	AVE	26.4	-22.6	92.919	94.00	-1.08	279	165	H
915.0	82.52	PK	26.4	-22.6	86.324	114.00	-27.68	150	150	V
915.0	82.36	AVE	26.4	-22.6	86.157	94.00	-7.84	150	150	V
927.7	88.97	PK	26.5	-22.5	92.97	114.00	-21.03	277	156	H
927.7	88.87	AVE	26.5	-22.5	92.869	94.00	-1.13	277	156	H
927.7	81.55	PK	26.5	-22.5	85.545	114.00	-28.46	185	165	V
927.7	81.31	AVE	26.5	-22.5	85.31	94.00	-8.69	185	165	V

## BAND-EDGE (Marker-Delta Method)

### TEST PROCEDURE

ANSI C63.10: 2013 Section 6.10.6.2

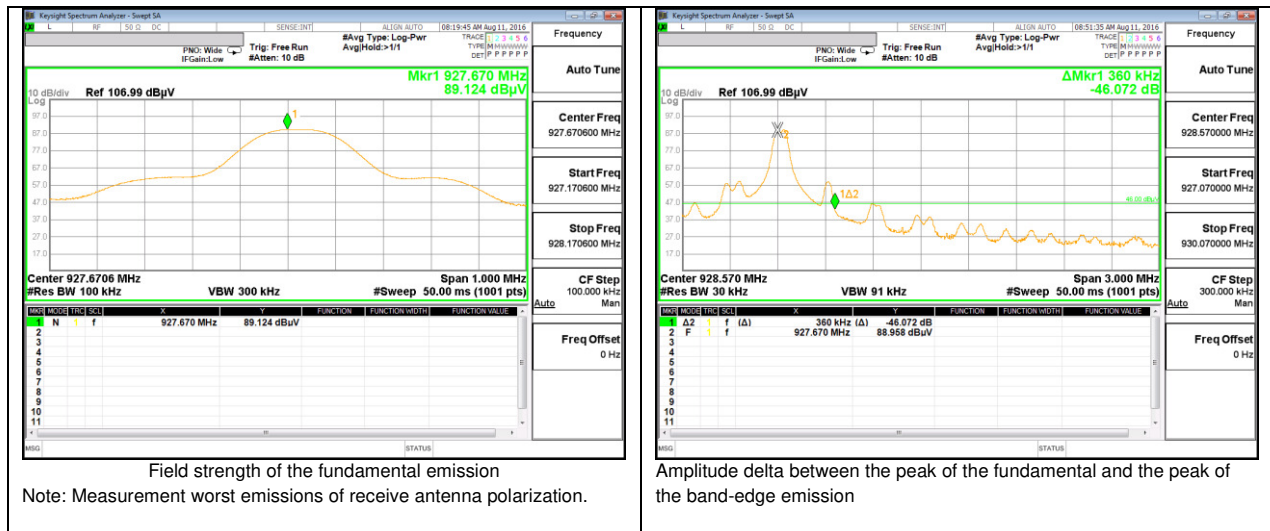
### BANDEDGE (LOW CHANNEL, HORIZONTAL)



Marker	Frequency (MHz)	*Reading (dBuV/m)	Det	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	902.270	44.039	Pk	46.00	-1.961	328	104	H

Legend: \* Measured field strengths subtract delta between peak of the fundamental and peak of the band-edge emission.

### BANDEDGE (HIGH CHANNEL, HORIZONTAL)

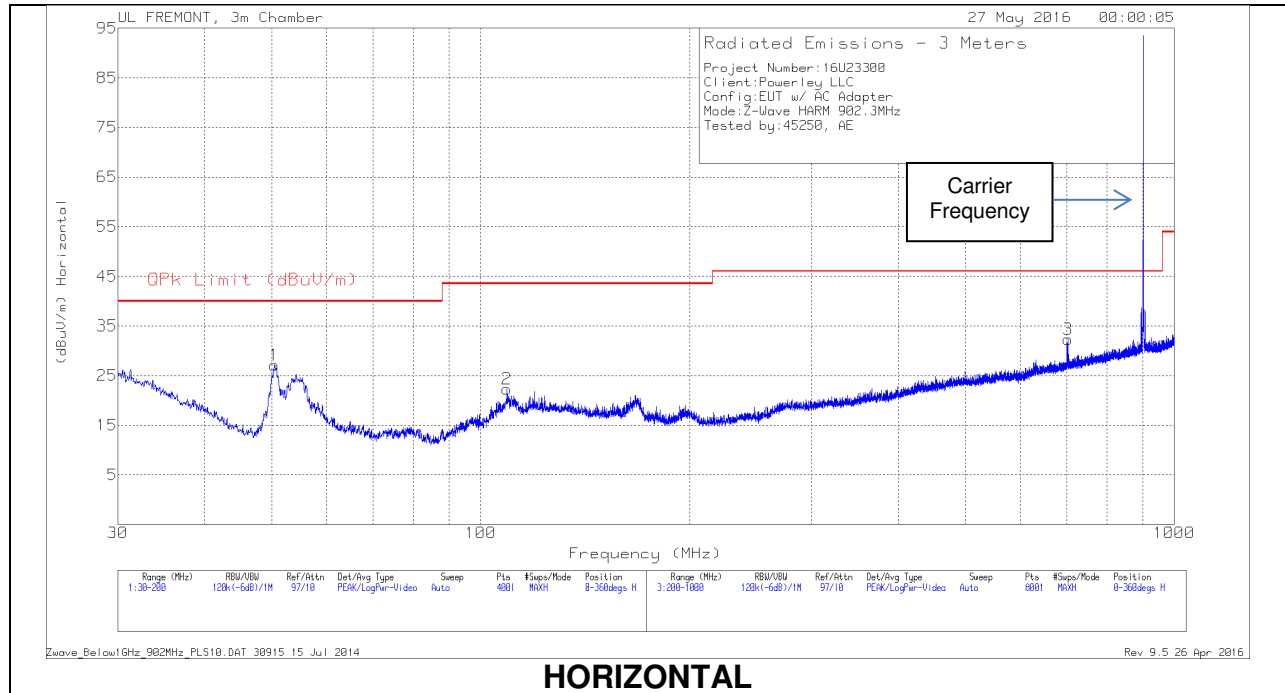


Marker	Frequency (MHz)	*Reading (dBuV/m)	Det	Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	927.670	43.052	Pk	46.00	-2.948	329	104	H

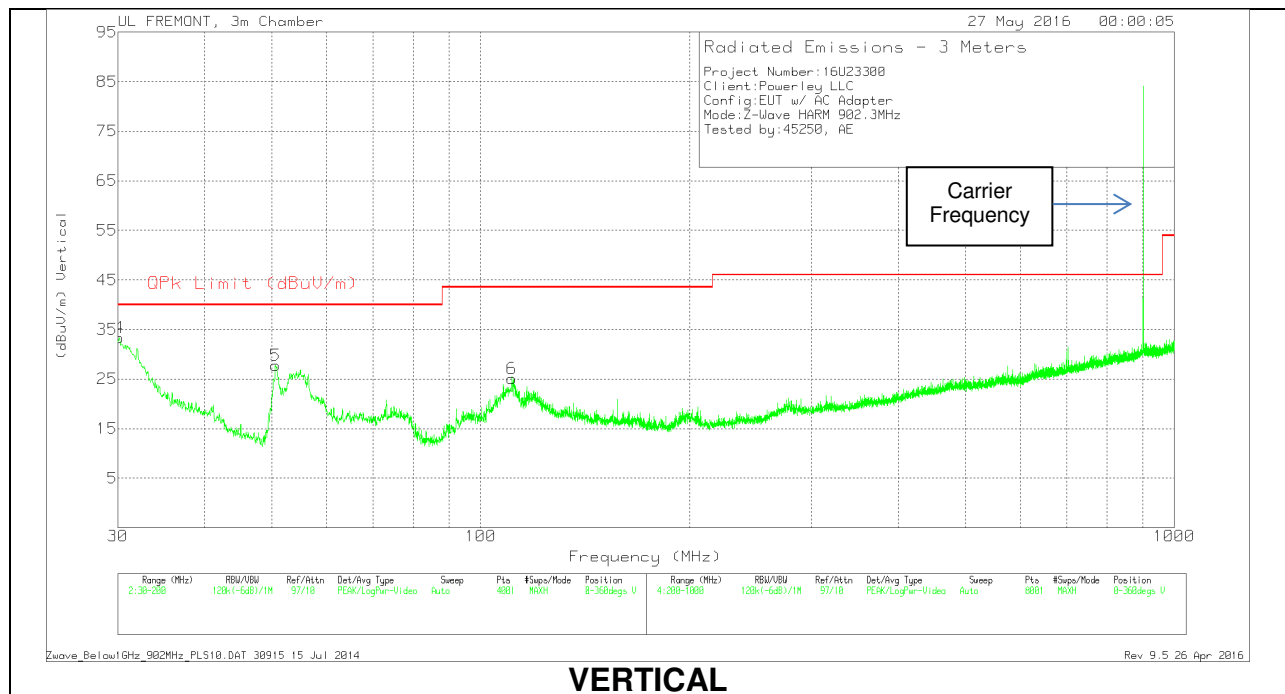
Legend: \* Measured field strengths subtract delta between peak of the fundamental and peak of the band-edge emission.

**SPURIOUS EMISSIONS 30 TO 1000 MHz**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**

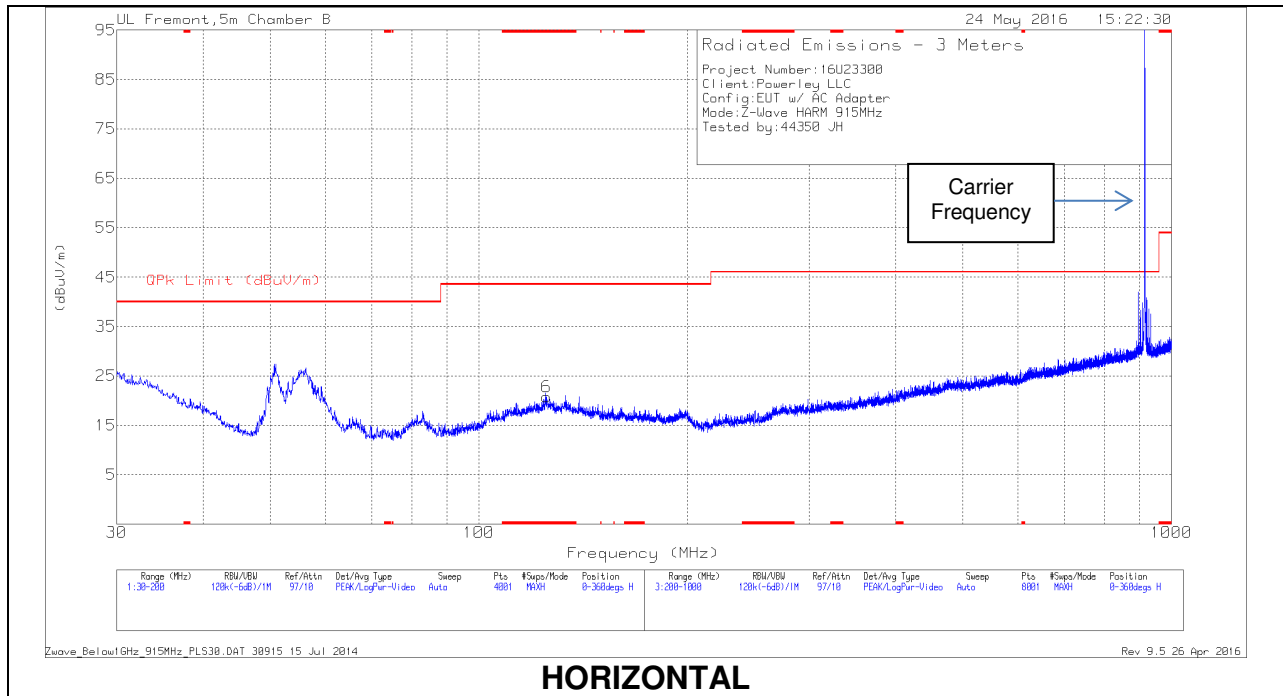
*LOW CHANNEL DATA*

Trace Markers

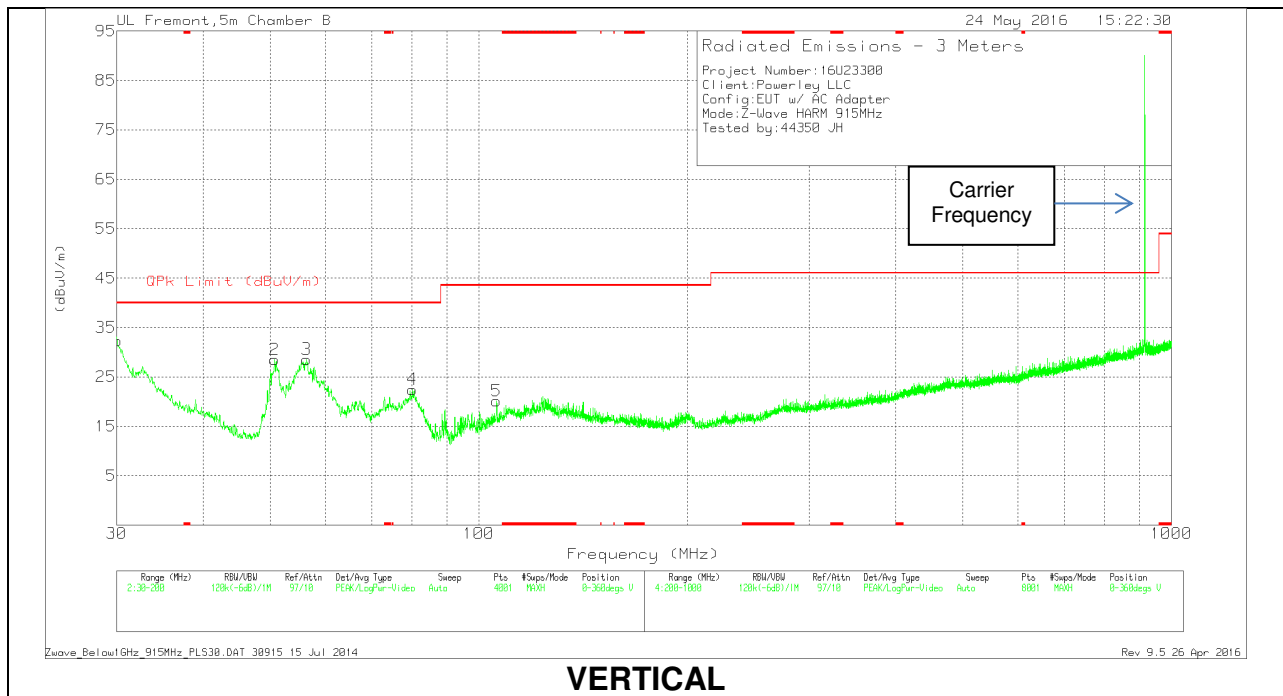
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 109.135	33.89	Pk	16.4	-28	22.29	43.52	-21.23	0-360	300	H
6	* 110.92	36.44	Pk	16.7	-28	25.14	43.52	-18.38	0-360	100	V
4	30.1275	37.01	Pk	25.1	-28.8	33.31	40	-6.69	0-360	100	V
1	50.4425	44.33	Pk	11.5	-28.7	27.13	40	-12.87	0-360	300	H
5	50.655	45.03	Pk	11.4	-28.7	27.73	40	-12.27	0-360	100	V
3	703.3	33.47	Pk	24.2	-25.3	32.37	46.02	-13.65	0-360	200	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

*MID CHANNEL DATA*

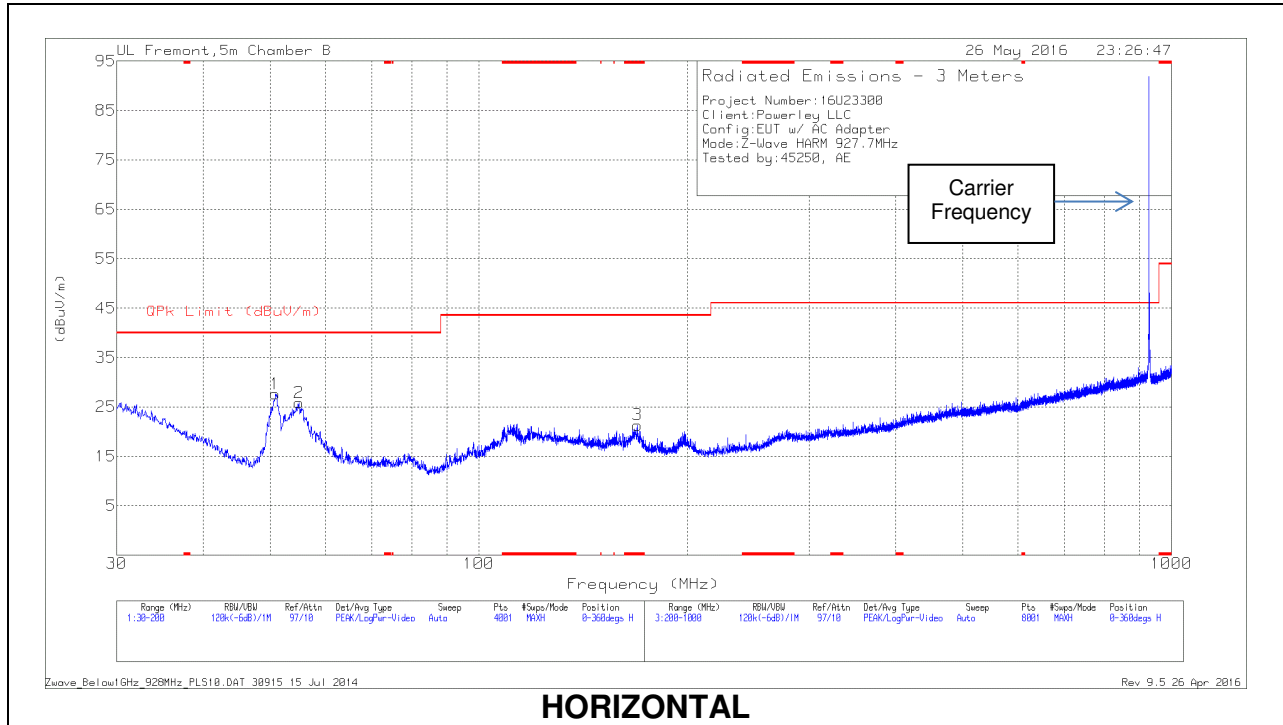
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 125.3275	30.76	Pk	17.8	-27.8	0	20.76	43.52	-22.76	0-360	300	H
1	30.0425	35.94	Pk	25.2	-28.8	0	32.34	40	-7.66	0-360	100	V
2	50.6975	45.82	Pk	11.4	-28.7	0	28.52	40	-11.48	0-360	100	V
3	56.3925	45.98	Pk	11.1	-28.5	0	28.58	40	-11.42	0-360	100	V
4	80.235	39.29	Pk	11.5	-28.3	0	22.49	40	-17.51	0-360	100	V
5	106.0325	32.26	Pk	15.9	-28	0	20.16	43.52	-23.36	0-360	100	V

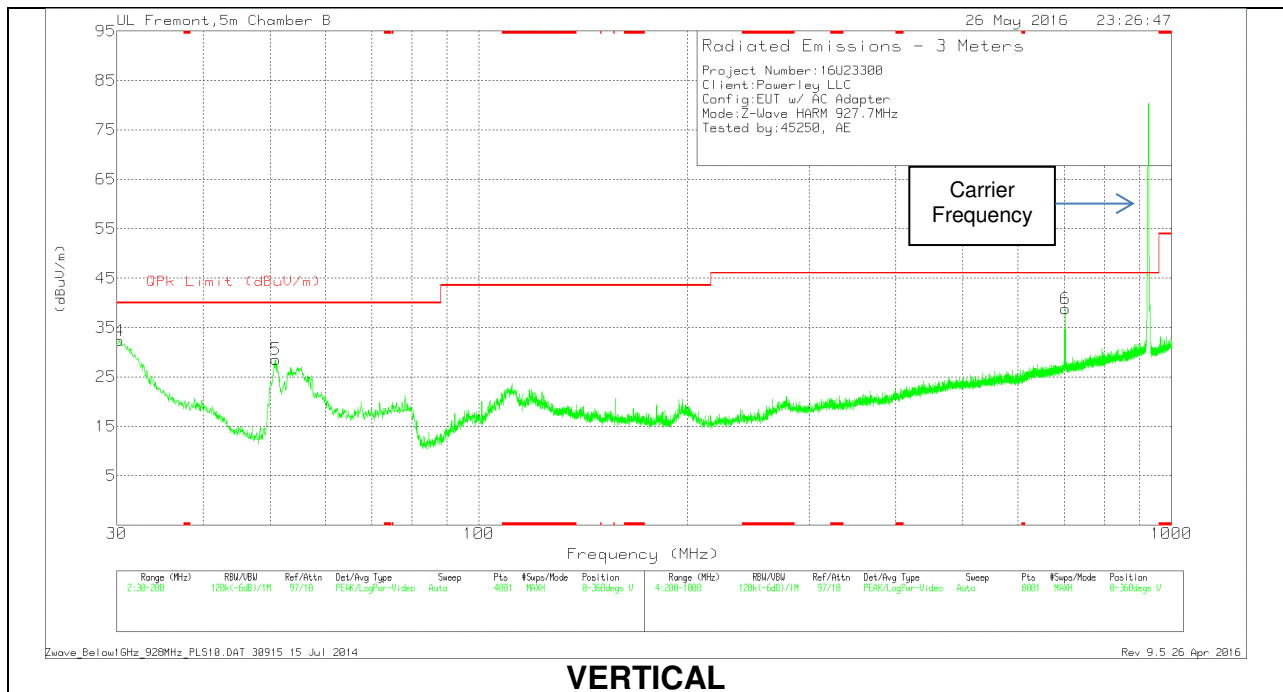
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

*HIGH CHANNEL DATA*

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBUV/m)	QPk Limit (dBUV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 169.315	32.85	Pk	15.8	-27.3	21.35	43.52	-22.17	0-360	100	H
4	30.255	36.12	Pk	25	-28.8	32.32	40	-7.68	0-360	100	V
1	50.825	44.89	Pk	11.4	-28.7	27.59	40	-12.41	0-360	400	H
5	50.8675	45.98	Pk	11.3	-28.7	28.58	40	-11.42	0-360	100	V
2	54.99	43.28	Pk	11.1	-28.5	25.88	40	-14.12	0-360	400	H
6	703.1	39.86	Pk	24.2	-25.3	38.76	46.02	-7.26	0-360	100	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector