

# ltron, Inc.

## ADDENDUM TEST REPORT TO 92467-4

### Hand Held AMR, FC300

#### Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.207, 15.231  
and  
RSS 210 Issue 8

Report No.: 92467-4A

Date of issue: January 5, 2012



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:**

Ittron, Inc.  
2111 N. Molter Road  
Liberty Lake, WA 99019

**REPORT PREPARED BY:**

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

REPRESENTATIVE: Jay Holcomb  
Customer Reference Number: 34448

Project Number: 92467

**DATE OF EQUIPMENT RECEIPT:**  
**DATE(S) OF TESTING:**

October 26, 2011  
October 26, 2011 - December 23, 2011

### Revision History

**Original:** Testing of the Hand Held AMR, FC300SRW to FCC Part 15 Subpart C Sections 15.207, 15.231 and RSS-210 Issue 8.

**Addendum A:** Testing was repeated with EUT connected to peripheral devices. Old test data was replaced with new test data for all tests except occupied bandwidth.

### 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.  
22116 23rd Drive S.E., Suite A  
Bothell, WA 98021-4413

## Site Registration & Accreditation Information

Location	CB #	JAPAN	CANADA	FCC
Bothell	US0081	R-2296, C-2506, T-1489 & G-284	3082C-1	318736

## SUMMARY OF RESULTS

**Standard / Specification: FCC Part 15 Subpart C 15.207, 15.231 and RSS-210 Issue 8**

Description	Test Procedure/Method	Results
AC Mains Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2003)	Pass
Field Strength of Fundamental Emissions	FCC Part 15 Subpart C Section 15.231(b)	Pass
Field Strength of Spurious Emissions	FCC Part 15 Subpart C Section 15.231(b)	Pass
-20dB Occupied Bandwidth	FCC Part 15 Subpart C Section 15.231(c)	Pass
99% Bandwidth	RSS 210 Issue 8	Pass
Spurious Field Strength Radiated Emissions	RSS 210 Issue 8	Pass

## Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
Ferrite number 0443164251 was added to the USB cable at the EUT.

## EQUIPMENT UNDER TEST (EUT)

The following model has been tested by CKC Laboratories: **FC300SRW**

Since the time of testing the manufacturer has chosen to use the following model name in its place. Any differences between the names does not affect their EMC characteristics and therefore meets the level of testing equivalent to the tested model name shown on the data sheets: **FC300**

### EQUIPMENT UNDER TEST

#### Hand Held AMR

Manuf: Itron, Inc.  
Model: FC300SRW  
Serial: FC30011242858

#### Optical Probe

Manuf: uData Net Corp.  
Model: PM-500-124  
Serial: 092559

#### Power Supply

Manuf: GlobTek, Inc.  
Model: GT-81081-6015-T3  
Serial: ROHS100187103109

### PERIPHERAL DEVICES

The EUT was tested with following peripheral device.

#### Support Laptop

Manuf: Dell  
Model: PP27L  
Serial: 917Q5M

#### Power Supply

Manuf: SI Tech  
Model: 02E03  
Serial: 20120-0014829

#### Power Supply

Manuf: SI Tech  
Model: 02E03  
Serial: 20120-0014905

#### USB Converter

Manuf: SI Tech  
Model: 2173  
Serial: 079536

#### USB Converter

Manuf: SI Tech  
Model: 2172  
Serial: 079535

#### Support Power Supply

Manuf: Dell  
Model: FA90PE1-00  
Serial: CN-OCM889-73245-9CI-5497-A01

## 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.

### 15.207 AC Mains Conducted Emissions

#### Test Data Sheets

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **92467** Date: **12/23/2011**  
 Test Type: **Conducted Emissions** Time: **15:52:07**  
 Equipment: **Hand Held AMR** Sequence#: **28**  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW 120V 60Hz  
 S/N: FC30011242858

#### **Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02872	Spectrum Analyzer	E4440A	7/23/2011	7/23/2013
T1	ANP05435	Attenuator	PE7015-10	9/8/2010	9/8/2012
T2	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T3	ANP05547	Cable	Heliax	7/26/2011	7/26/2013
T4	AN02611	High Pass Filter	HE9615-150K-50-720B	5/26/2010	5/26/2012
T5	AN01492	50uH LISN-Line	3816/2NM	6/14/2011	6/14/2013
	AN01492	50uH LISN-Neutral	3816/2NM	6/14/2011	6/14/2013

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

#### **Support Devices:**

Function	Manufacturer	Model #	S/N
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.

Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.

Support laptop is located on test table.

EUT transmitting at high power ISM High channel (923.8MHz), continuous transmit with modulation enabled.

Manufacturer declares this operational mode represents worst case of all operational modes.

Power is set to EE03.

Temp: 24°C

Humidity: 30%

Pressure: 102.8kPa

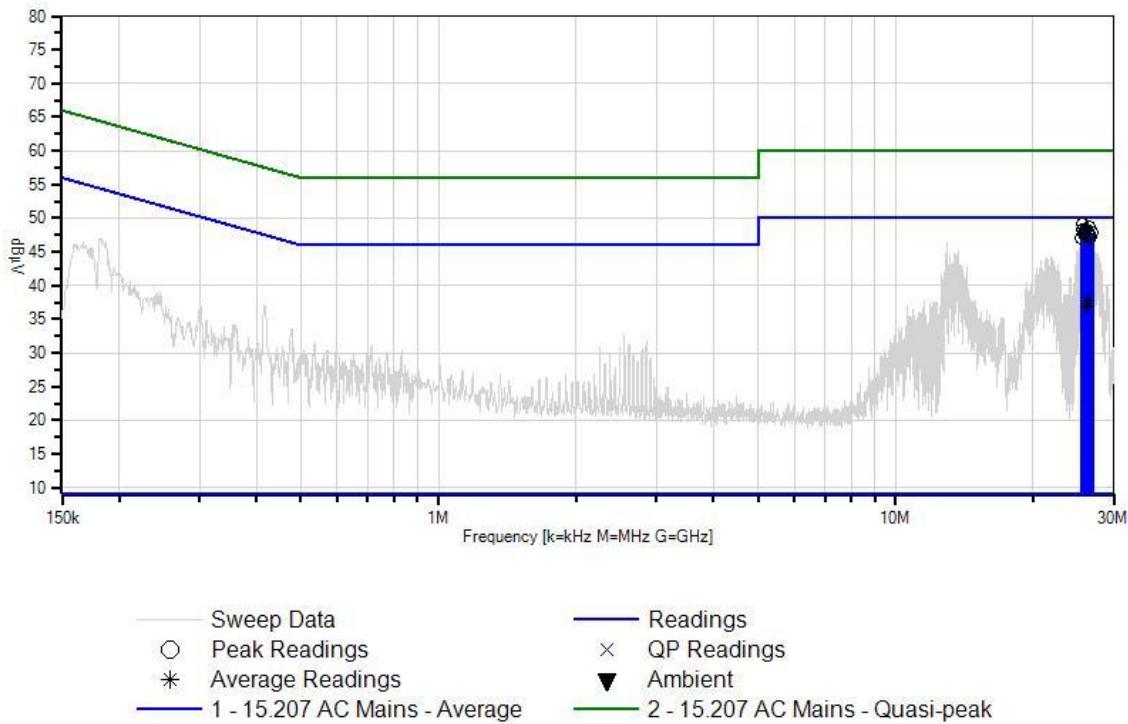
Frequency Range Investigated: 150kHz to 30MHz

Ext Attn: 0 dB

#	Freq MHz	Rdng dB $\mu$ V	Reading listed by margin.				Test Lead: Line				
			T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB $\mu$ V	Spec dB $\mu$ V	Margin dB	
			T5 dB							Ant	
1	25.676M	38.2	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	49.1	50.0	-0.9	Line
2	26.464M	37.8	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.7	50.0	-1.3	Line
3	25.574M	37.4	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.3	50.0	-1.7	Line
4	26.067M	37.4	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.3	50.0	-1.7	Line
5	26.163M	37.3	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.2	50.0	-1.8	Line
6	25.971M	37.2	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.1	50.0	-1.9	Line
7	26.944M	36.9	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.8	50.0	-2.2	Line
8	25.772M	36.9	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.8	50.0	-2.2	Line
9	25.868M	36.8	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.7	50.0	-2.3	Line
10	26.560M	36.7	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.6	50.0	-2.4	Line
11	26.752M	36.4	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.3	50.0	-2.7	Line
12	25.471M	36.2	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.1	50.0	-2.9	Line
13	26.649M	36.2	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.1	50.0	-2.9	Line
14	26.355M Ave	26.8	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	37.7	50.0	-12.3	Line
^	26.355M	38.5	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	49.4	50.0	-0.6	Line
16	26.264M Ave	26.0	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	36.9	50.0	-13.1	Line
^	26.264M	38.6	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	49.5	50.0	-0.5	Line

^	26.259M	38.5	+9.7	+0.1	+0.2	+0.2	+0.0	49.4	50.0	-0.6	Line
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CKC Laboratories, Inc. Date: 12/23/2011 Time: 15:52:07 Itron, Inc. WO#: 92467  
 15.207 AC Mains - Average Test Lead: Line Line Sequence#: 28 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.207 AC Mains - Average**  
 Work Order #: **92467** Date: 12/23/2011  
 Test Type: **Conducted Emissions** Time: 3:40:11 PM  
 Equipment: **Hand Held AMR** Sequence#: 27  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW 120V 60Hz  
 S/N: FC30011242858

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02872	Spectrum Analyzer	E4440A	7/23/2011	7/23/2013
T1	ANP05435	Attenuator	PE7015-10	9/8/2010	9/8/2012
T2	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T3	ANP05547	Cable	Heliax	7/26/2011	7/26/2013
T4	AN02611	High Pass Filter	HE9615-150K-50-720B	5/26/2010	5/26/2012
	AN01492	50uH LISN-Line	3816/2NM	6/14/2011	6/14/2013
T5	AN01492	50uH LISN-Neutral	3816/2NM	6/14/2011	6/14/2013

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.  
 Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.  
 Support laptop is located on test table.  
 EUT transmitting at high power ISM High channel (923.8MHz), continuous transmit with modulation enabled.  
 Manufacturer declares this operational mode represents worst case of all operational modes.  
 Power is set to EE03.

Temp: 24°C  
 Humidity: 30%  
 Pressure: 102.8kPa  
 Frequency Range Investigated: 150kHz to 30MHz

Ext Attn: 0 dB

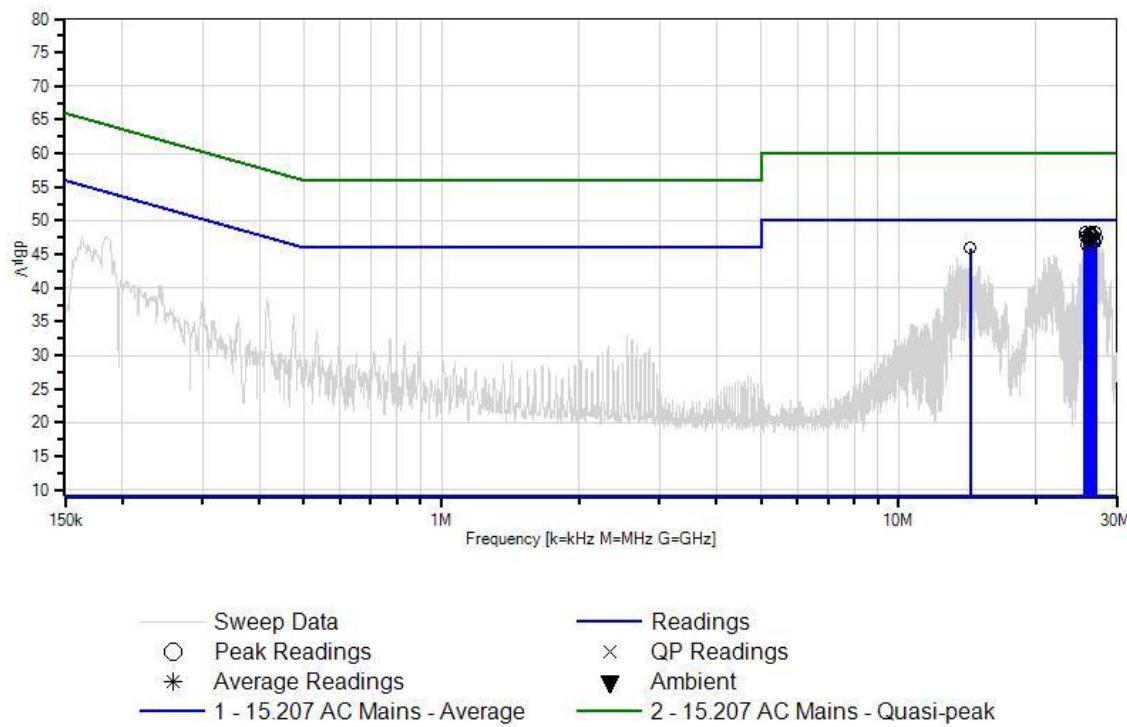
**Measurement Data:**

Reading listed by margin.

Test Lead: Neutral

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar	
			MHz	dB $\mu$ V	dB	dB	dB	Table	dB $\mu$ V	dB $\mu$ V	dB	Ant
1	25.676M	37.5	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.4	50.0	-1.6	Neutr	
2	26.951M	37.4	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.3	50.0	-1.7	Neutr	
3	26.457M	37.3	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.2	50.0	-1.8	Neutr	
4	26.266M	37.1	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.0	50.0	-2.0	Neutr	
5	26.355M	37.1	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	48.0	50.0	-2.0	Neutr	
6	26.553M	36.9	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.8	50.0	-2.2	Neutr	
7	25.574M	36.8	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.7	50.0	-2.3	Neutr	
8	25.971M	36.7	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.6	50.0	-2.4	Neutr	
9	27.054M	36.6	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.5	50.0	-2.5	Neutr	
10	26.156M	36.4	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.3	50.0	-2.7	Neutr	
11	26.074M	36.2	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	47.1	50.0	-2.9	Neutr	
12	26.656M	36.0	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	46.9	50.0	-3.1	Neutr	
13	26.855M	36.0	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	46.9	50.0	-3.1	Neutr	
14	25.772M	35.5	+9.7 -0.7	+0.1	+0.2	+0.2	+0.0	46.4	50.0	-3.6	Neutr	
15	14.364M	35.4	+9.7 -0.4	+0.1	+0.2	+0.1	+0.0	45.9	50.0	-4.1	Neutr	

CKC Laboratories, Inc. Date: 12/23/2011 Time: 3:40:11 PM Itron, Inc. WO#: 92467  
 15.207 AC Mains - Average Test Lead: Neutral Neutral Sequence#: 27 Ext ATTN: 0 dB



**Test Setup Photos**



## 15.231(b) Field Strength of Fundamental Emissions

### Test Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.231(b) Fundamental Field Strength**  
 Work Order #: **92467** Date: **12/23/2011**  
 Test Type: **Maximized Emissions** Time: **13:12:18**  
 Equipment: **Hand Held AMR** Sequence#: **19**  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T2	AN01316	Preamp	8447D	5/21/2010	5/21/2012
T3	AN01994	Biconilog Antenna	CBL6111C	3/8/2010	3/8/2012
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T6	ANP05366	Cable	RG-214	10/14/2011	10/14/2013

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.

Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.

Support laptop is located outside the testing area via USB-fiber extension.

Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251.

Power is set to 87.

EUT is transmitting at 952MHz

Temp: 22°C

Humidity: 21%

Pressure: 103.2kPa

Frequency Range Investigated: Fundamental

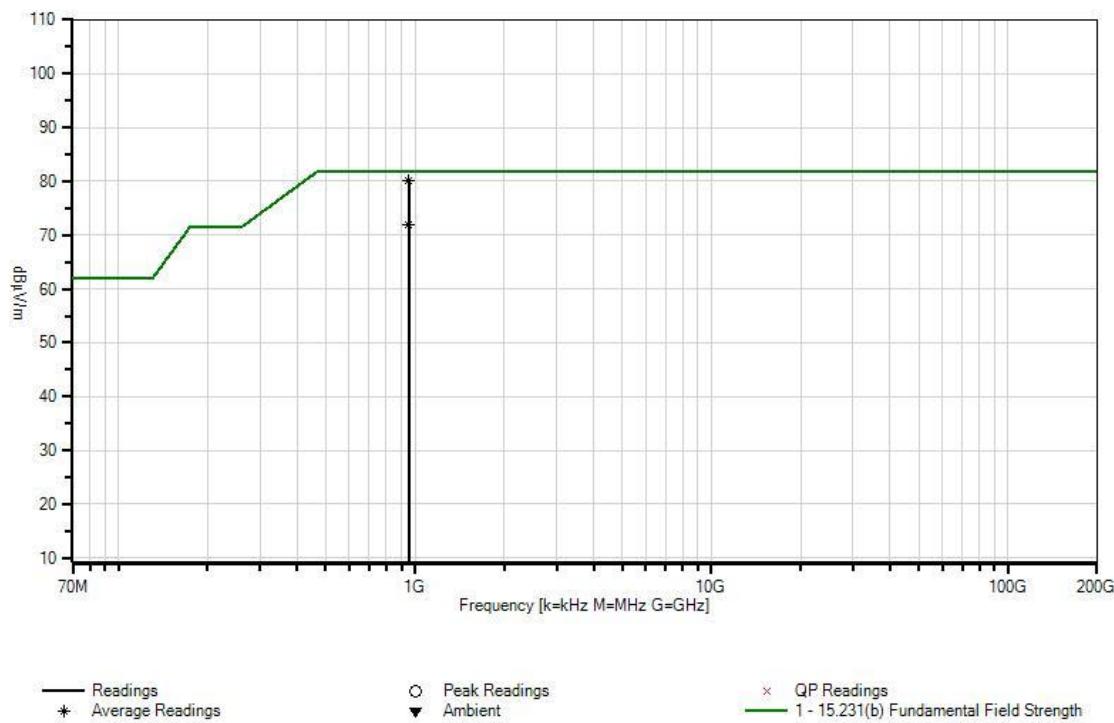
Bandwidths used: CISPR

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
1	952.005M	80.0	+0.0	-29.1	+24.0	+0.9	+0.0	80.2	81.9	-1.7	Horiz
	Ave		+2.0	+2.4			275				145
^	952.000M	96.7	+0.0	-29.1	+24.0	+0.9	+0.0	96.9	81.9	+15.0	Horiz
			+2.0	+2.4			275				145
3	952.002M	71.8	+0.0	-29.1	+24.0	+0.9	+0.0	72.0	81.9	-9.9	Vert
	Ave		+2.0	+2.4			11				154
^	952.000M	88.6	+0.0	-29.1	+24.0	+0.9	+0.0	88.8	81.9	+6.9	Vert
			+2.0	+2.4			11				154

CKC Laboratories, Inc. Date: 12/23/2011 Time: 13:12:18 Itron, Inc. WO#: 92467  
15.231(b) Fundamental Field Strength Test Distance: 3 Meters Vert Sequence#: 19 Ext ATTN: 0 dB



**Test Setup Photos**



## 15.231(b) Field Strength of Spurious Emissions

### Test Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.231(b) Spurious Field Strength (>470 MHz Transmitter)**  
 Work Order #: **92467** Date: **12/23/2011**  
 Test Type: **Maximized Emissions** Time: **2:24:32 PM**  
 Equipment: **Hand Held AMR** Sequence#: **23**  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

#### **Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T1	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T2	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T3	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T4	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109
Optical Probe	uData Net Corp.	PM-500-124	092559

#### **Support Devices:**

Function	Manufacturer	Model #	S/N
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535

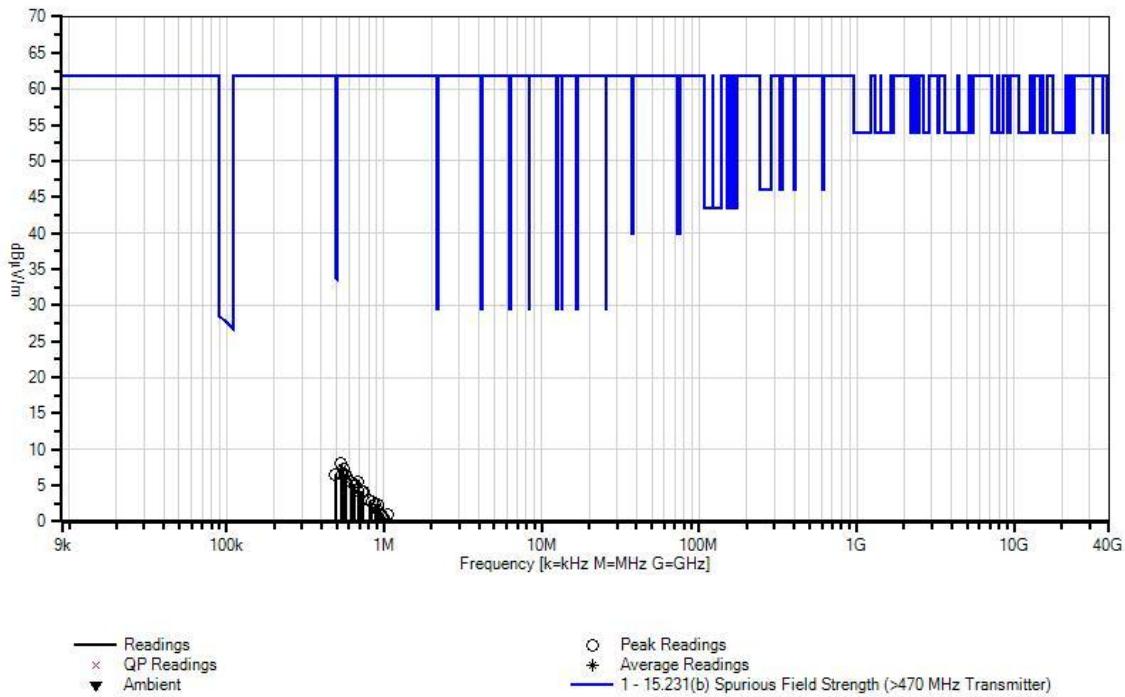
**Test Conditions / Notes:**

EUT is located on the test table.  
 Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.  
 Support laptop is located outside the testing area via USB-fiber extension.  
 Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251.  
 EUT is transmitting at 952MHz  
 Power is set to 87.  
 Temp: 23°C  
 Humidity: 22%  
 Pressure: 103.3kPa  
 Frequency range investigated: 9kHz - 30MHz  
 Bandwidths: CISPR

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	532.598k	38.5	+0.0	+0.0	+0.1	+9.4	-40.0	8.0	61.9	-53.9	Horiz 99
2	549.324k	37.7	+0.0	+0.0	+0.1	+9.4	-40.0 -16	7.2	61.9	-54.7	Vert 99
3	490.784k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0 -16	6.6	61.9	-55.3	Vert 99
4	540.961k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	61.9	-55.3	Horiz 99
5	568.140k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	61.9	-55.3	Horiz 99
6	574.413k	36.8	+0.0	+0.0	+0.1	+9.4	-40.0	6.3	61.9	-55.6	Horiz 99
7	616.227k	36.1	+0.0	+0.0	+0.1	+9.4	-40.0	5.6	61.9	-56.3	Horiz 99
8	681.038k	35.8	+0.0	+0.0	+0.1	+9.6	-40.0	5.5	61.9	-56.4	Horiz 99
9	647.587k	35.5	+0.0	+0.0	+0.1	+9.5	-40.0 -16	5.1	61.9	-56.8	Vert 99
10	649.678k	35.3	+0.0	+0.0	+0.1	+9.5	-40.0	4.9	61.9	-57.0	Horiz 99
11	683.129k	34.7	+0.0	+0.0	+0.1	+9.6	-40.0 -16	4.4	61.9	-57.5	Vert 99
12	737.487k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	61.9	-57.7	Horiz 99
13	722.852k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	61.9	-57.7	Horiz 99
14	808.571k	33.3	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.9	61.9	-59.0	Vert 99
15	831.569k	33.1	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.7	61.9	-59.2	Vert 99

16	877.564k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0	2.4	61.9	-59.5	Horiz 99
17	919.378k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0	2.4	61.9	-59.5	Vert 99
18	931.923k	31.7	+0.0	+0.0	+0.1	+9.6	-40.0	1.4	61.9	-60.5	Horiz 99
19	959.102k	31.2	+0.0	+0.0	+0.1	+9.6	-40.0	0.9	61.9	-61.0	Horiz 99
20	1.057M	31.2	+0.0	+0.0	+0.1	+9.6	-40.0	0.9	61.9	-61.0	Vert 99
21	977.918k	31.1	+0.0	+0.0	+0.1	+9.6	-40.0	0.8	61.9	-61.1	Horiz 99
22	1.039M	30.1	+0.0	+0.0	+0.1	+9.6	-40.0	-0.2	61.9	-62.1	Vert 99
23	1.062M	29.8	+0.0	+0.0	+0.1	+9.6	-40.0	-0.5	61.9	-62.4	Vert 99
24	1.126M	29.5	+0.0	+0.0	+0.1	+9.6	-40.0	-0.8	61.9	-62.7	Horiz 99
25	1.126M	29.4	+0.0	+0.0	+0.1	+9.6	-40.0	-0.9	61.9	-62.8	Vert 99
26	1.204M	28.9	+0.0	+0.0	+0.1	+9.6	-40.0	-1.4	61.9	-63.3	Vert 99
27	1.254M	28.5	+0.0	+0.0	+0.1	+9.6	-40.0	-1.8	61.9	-63.7	Vert 99
28	1.354M	28.0	+0.0	+0.0	+0.1	+9.6	-40.0	-2.3	61.9	-64.2	Horiz 99
29	1.446M	27.5	+0.0	+0.0	+0.1	+9.6	-40.0	-2.8	61.9	-64.7	Vert 99
30	1.603M	26.6	+0.0	+0.0	+0.1	+9.6	-40.0	-3.7	61.9	-65.6	Vert 99

CKC Laboratories, Inc. Date: 12/23/2011 Time: 2:24:32 PM Itron, Inc. WO#: 92467  
15.231(b) Spurious Field Strength (>470 MHz Transmitter) Test Distance: 3 Meters Horiz Sequence#: 23 Ext  
ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.231(b) Spurious Field Strength (>470 MHz Transmitter)**  
 Work Order #: **92467** Date: 12/23/2011  
 Test Type: **Maximized Emissions** Time: 11:02:13  
 Equipment: **Hand Held AMR** Sequence#: 13  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T2	AN01316	Preamp	8447D	5/21/2010	5/21/2012
T3	AN01994	Biconilog Antenna	CBL6111C	3/8/2010	3/8/2012
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T6	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T7	ANC00059*	Band Reject Filter		1/2/2012	1/2/2014

\*Calibration was performed after testing and data was recalculated to validate proper test results.

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.  
 Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.  
 Support laptop is located outside the testing area via USB-fiber extension.  
 Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251.  
 EUT is transmitting at 952MHz  
 Power is set to 87.

Temp: 23°C  
 Humidity: 22%  
 Pressure: 103.3kPa  
 Frequency Range Investigated: 30 MHz - 1GHz  
 Bandwidths used: CISPR

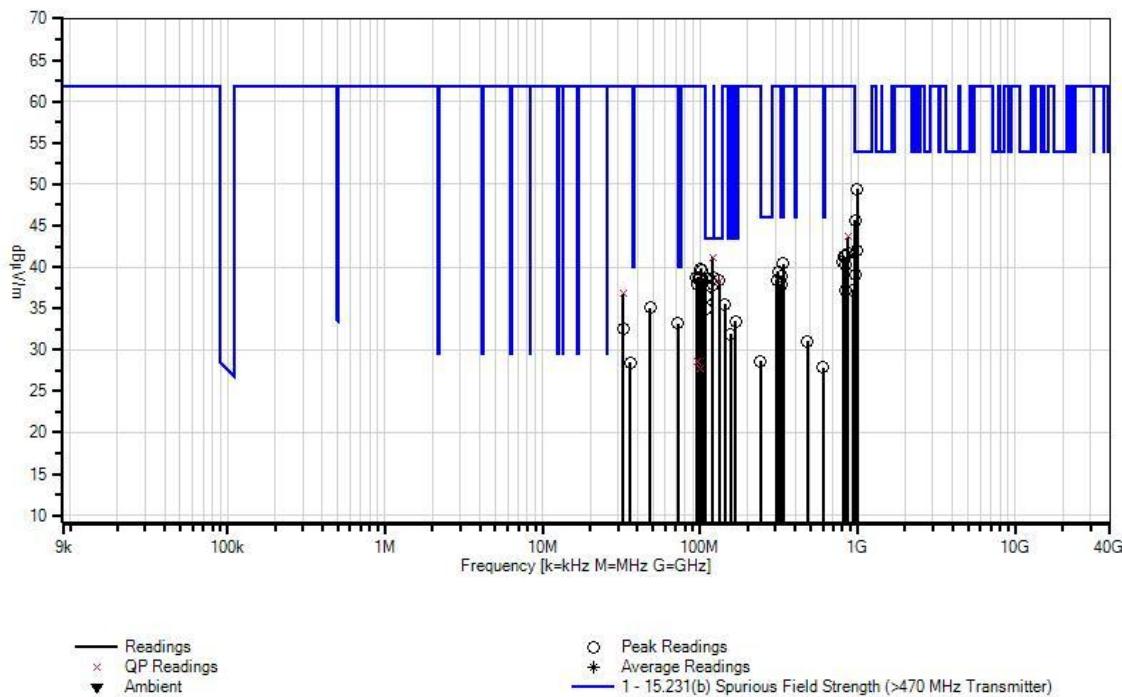
Ext Attn: 0 dB

<b>Measurement Data:</b>			Reading listed by margin.				Test Distance: 3 Meters				
#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7		Table	dB $\mu$ V/m	dB $\mu$ V/m		
			MHz	dB $\mu$ V	dB	dB					
1	120.003M	57.2	+0.0	-29.2	+11.7	+0.3	+0.0	41.2	43.5	-2.3	Horiz
	QP		+0.6	+0.6	+0.0		97				295
^	120.006M	61.6	+0.0	-29.2	+11.7	+0.3	+0.0	45.6	43.5	+2.1	Horiz
			+0.6	+0.6	+0.0		97				295
3	990.018M	48.0	+0.0	-28.9	+24.4	+0.9	+0.0	49.4	54.0	-4.6	Vert
			+2.1	+2.5	+0.4		224				110
4	120.005M	54.6	+0.0	-29.2	+11.7	+0.3	+0.0	38.7	43.5	-4.8	Vert
			+0.6	+0.6	+0.1		360				116
5	108.005M	55.7	+0.0	-29.3	+10.7	+0.3	+0.0	38.6	43.5	-4.9	Vert
			+0.5	+0.6	+0.1		83				126
6	131.997M	54.2	+0.0	-29.2	+11.7	+0.3	+0.0	38.4	43.5	-5.1	Vert
			+0.6	+0.7	+0.1		168				116
7	132.005M	54.1	+0.0	-29.2	+11.7	+0.3	+0.0	38.2	43.5	-5.3	Horiz
	QP		+0.6	+0.7	+0.0		111				178
^	132.003M	57.3	+0.0	-29.2	+11.7	+0.3	+0.0	41.4	43.5	-2.1	Horiz
			+0.6	+0.7	+0.0		111				178
9	334.867M	51.8	+0.0	-28.6	+14.5	+0.5	+0.0	40.4	46.0	-5.6	Horiz
			+1.0	+1.2	+0.0		360				132
10	119.972M	53.8	+0.0	-29.2	+11.7	+0.3	+0.0	37.8	43.5	-5.7	Vert
			+0.6	+0.6	+0.0						129
11	108.030M	53.6	+0.0	-29.3	+10.7	+0.3	+0.0	36.5	43.5	-7.0	Horiz
			+0.5	+0.6	+0.1		360				103
12	328.741M	50.5	+0.0	-28.6	+14.3	+0.5	+0.0	38.9	46.0	-7.1	Horiz
			+1.0	+1.2	+0.0		360				132
13	326.218M	49.5	+0.0	-28.6	+14.2	+0.5	+0.0	37.8	46.0	-8.2	Horiz
			+1.0	+1.2	+0.0		360				132
14	960.009M	45.3	+0.0	-29.1	+24.1	+0.9	+0.0	45.6	54.0	-8.4	Vert
			+2.0	+2.4	+0.0		199				99
15	167.993M	50.6	+0.0	-29.0	+9.8	+0.4	+0.0	33.4	43.5	-10.1	Vert
			+0.7	+0.8	+0.1						116
16	990.021M	41.0	+0.0	-28.9	+24.4	+0.9	+0.0	42.0	54.0	-12.0	Horiz
			+2.1	+2.5	+0.0		360				295
17	870.000M	44.8	+0.0	-29.3	+23.2	+0.9	+0.0	43.7	61.9	-18.2	Vert
	QP		+1.9	+2.2	+0.0		198				122
^	870.010M	46.6	+0.0	-29.3	+23.2	+0.9	+0.0	45.5	61.9	-16.4	Vert
			+1.9	+2.2	+0.0		198				122
19	870.002M	42.8	+0.0	-29.3	+23.2	+0.9	+0.0	41.7	61.9	-20.2	Horiz
			+1.9	+2.2	+0.0		360				132
20	810.062M	43.4	+0.0	-29.4	+22.6	+0.8	+0.0	41.3	61.9	-20.6	Horiz
			+1.8	+2.1	+0.0		360				132
21	840.001M	42.6	+0.0	-29.3	+22.9	+0.9	+0.0	41.3	61.9	-20.6	Vert
			+1.9	+2.2	+0.1		353				112
22	809.942M	42.8	+0.0	-29.4	+22.6	+0.8	+0.0	40.7	61.9	-21.2	Vert
			+1.8	+2.1	+0.0						129
23	839.972M	41.6	+0.0	-29.3	+22.9	+0.9	+0.0	40.2	61.9	-21.7	Vert
			+1.9	+2.2	+0.0						129

24	100.513M	57.8	+0.0 +0.5	-29.3 +0.5	+10.0 +0.0	+0.3	+0.0	39.8	61.9	-22.1	Vert 129
25	101.714M	57.5	+0.0 +0.5	-29.3 +0.5	+10.1 +0.0	+0.3	+0.0	39.6	61.9	-22.3	Vert 129
26	312.044M	51.4	+0.0 +1.0	-28.5 +1.2	+13.8 +0.0	+0.5	+0.0	39.4	61.9	-22.5	Horiz 132
27	959.992M	38.7	+0.0 +2.0	-29.1 +2.4	+24.1 +0.0	+0.9	+0.0	39.0	61.9	-22.9	Horiz 132
28	97.630M	57.0	+0.0 +0.5	-29.3 +0.5	+9.7 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 129
29	94.686M	57.3	+0.0 +0.5	-29.3 +0.5	+9.4 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 129
30	100.010M	56.8	+0.0 +0.5	-29.3 +0.5	+9.9 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 99
31	306.158M	50.7	+0.0 +0.9	-28.5 +1.2	+13.6 +0.0	+0.5	+0.0	38.4	61.9	-23.5	Horiz 132
32	102.315M	56.0	+0.0 +0.5	-29.3 +0.5	+10.2 +0.0	+0.3	+0.0	38.2	61.9	-23.7	Vert 129
33	97.029M	56.2	+0.0 +0.5	-29.3 +0.5	+9.7 +0.0	+0.3	+0.0	37.9	61.9	-24.0	Vert 129
34	102.795M	55.7	+0.0 +0.5	-29.3 +0.5	+10.2 +0.0	+0.3	+0.0	37.9	61.9	-24.0	Vert 129
35	839.972M	38.6	+0.0 +1.9	-29.3 +2.2	+22.9 +0.0	+0.9	+0.0	37.2	61.9	-24.7	Horiz 132
36	930.062M	37.3	+0.0 +2.0	-29.1 +2.3	+23.8 +0.0	+0.9	+0.0	37.2	61.9	-24.7	Horiz 132
37	32.367M QP	47.5	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	36.8	61.9	-25.1	Vert 152
^	32.367M	49.6	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	38.9	61.9	-23.0	Vert 152
39	143.996M	51.6	+0.0 +0.6	-29.1 +0.7	+11.3 +0.0	+0.4	+0.0	35.5	61.9	-26.4	Horiz 132
40	47.968M	54.1	+0.0 +0.3	-29.4 +0.3	+9.6 +0.0	+0.2	+0.0	35.1	61.9	-26.8	Vert 129
41	107.960M	52.2	+0.0 +0.5	-29.3 +0.6	+10.7 +0.0	+0.3	+0.0	35.0	61.9	-26.9	Horiz 132
42	72.007M	55.1	+0.0 +0.4	-29.3 +0.4	+6.3 +0.0	+0.3	+0.0	33.2	61.9	-28.7	Vert 145
43	32.462M	43.2	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	32.5	61.9	-29.4	Horiz 132
44	155.997M	48.2	+0.0 +0.7	-29.0 +0.8	+10.7 +0.1	+0.4	+0.0	31.9	61.9	-30.0	Vert 116
45	480.003M	39.4	+0.0 +1.3	-29.6 +1.5	+17.6 +0.1	+0.7	+0.0	31.0	61.9	-30.9	Vert 99
46	96.703M QP	47.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0	28.6	61.9	-33.3	Vert 154
^	96.703M	61.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0	42.6	61.9	-19.3	Vert 154
48	239.999M	42.8	+0.0 +0.9	-28.6 +1.0	+12.0 +0.0	+0.5	+0.0	28.6	61.9	-33.3	Vert 116
49	35.998M	40.6	+0.0 +0.3	-29.4 +0.2	+16.6 +0.0	+0.2	+0.0	28.5	61.9	-33.4	Vert 99

50	600.001M	33.4	+0.0	-29.8	+20.2	+0.7	+0.0	27.9	61.9	-34.0	Vert
			+1.5	+1.7	+0.2		40				112
51	99.882M	45.8	+0.0	-29.3	+9.9	+0.3	+0.0	27.7	61.9	-34.2	Vert
	QP		+0.5	+0.5	+0.0		128				99
^	99.902M	60.9	+0.0	-29.3	+9.9	+0.3	+0.0	42.8	61.9	-19.1	Vert
			+0.5	+0.5	+0.0		128				99

CKC Laboratories, Inc. Date: 12/23/2011 Time: 11:02:13 Itron, Inc. WO#: 92467  
 15.231(b) Spurious Field Strength (>470 MHz Transmitter) Test Distance: 3 Meters Vert Sequence#: 13 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **15.231(b) Spurious Field Strength (>470 MHz Transmitter)**  
 Work Order #: **92467** Date: 12/22/2011  
 Test Type: **Radiated Scan** Time: 16:42:20  
 Equipment: **Hand Held AMR** Sequence#: 5  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T1	AN01271	Preamp	83017A	8/18/2011	8/18/2013
T2	AN01467	Horn Antenna-ANSI	3115	5/7/2010	5/7/2012
		C63.5 Calibration			
T3	AN03123	Cable	32026-2-29801-12	10/14/2011	10/14/2013
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05547	Cable	Heliax	7/26/2011	7/26/2013
T6	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.

Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.

Support laptop is located outside the testing area via USB-fiber extension.

EUT is transmitting at 952MHz

Power is set to 87.

Temp: 23°C

Humidity: 22%

Pressure: 103.3kPa

Frequency: 1-9.52GHz

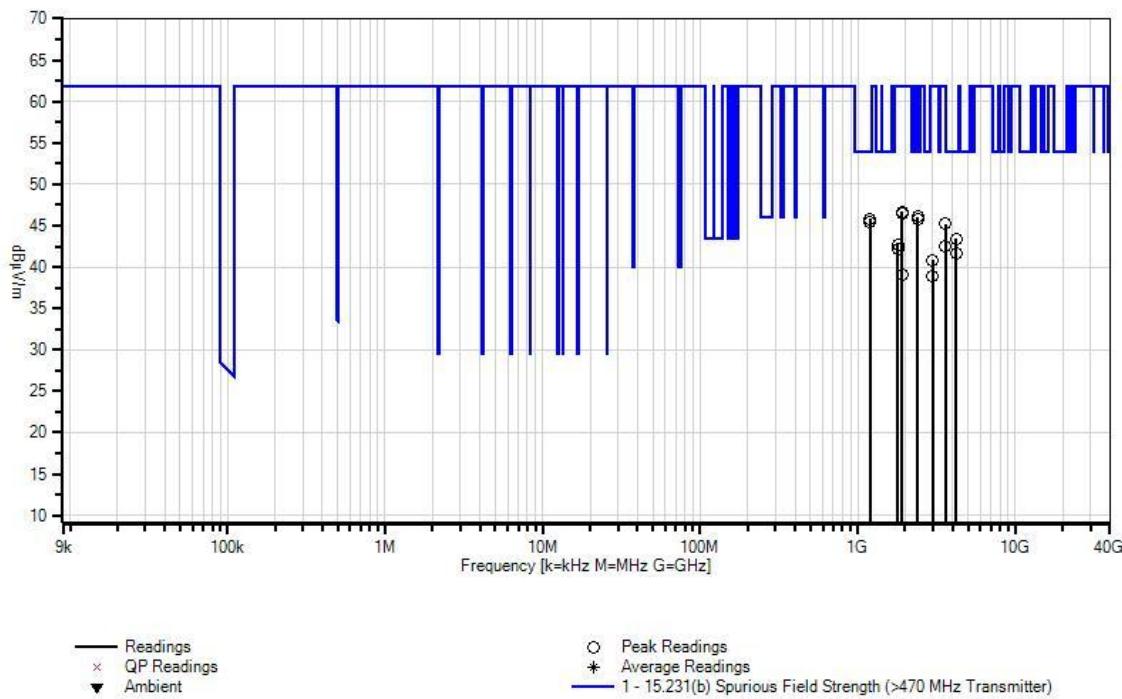
Bandwidths: CISPR

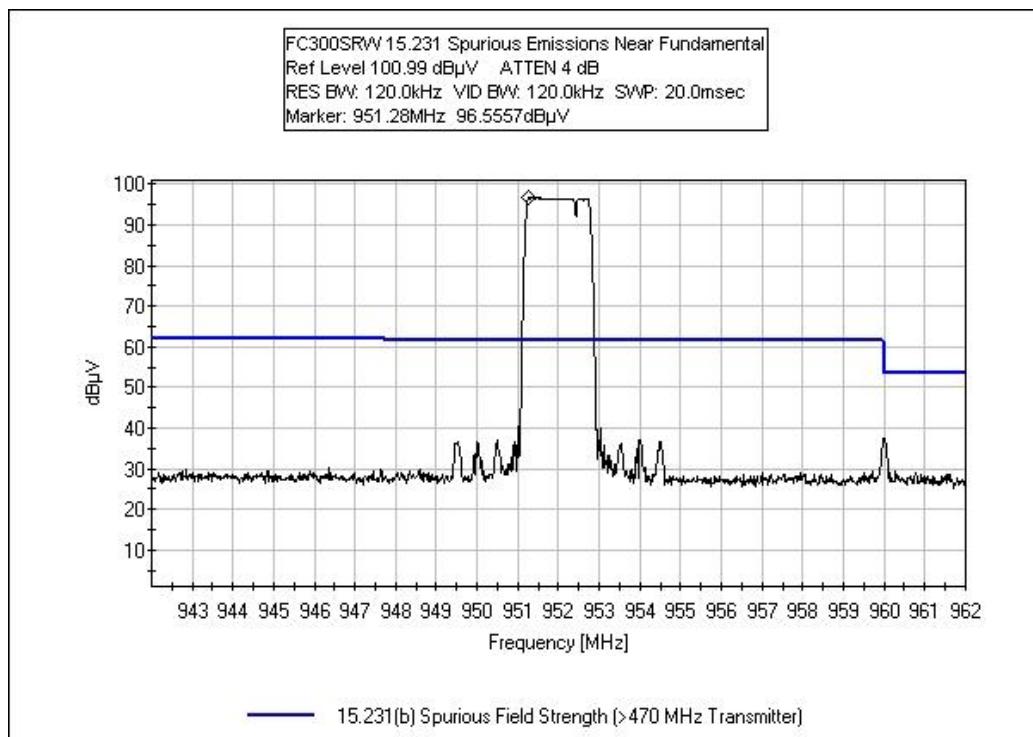
Ext Attn: 0 dB

**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
1	1200.000M	53.9	-35.9 +1.5	+24.2 +0.8	+0.3	+1.0	+0.0 23	45.8	54.0	-8.2	Horiz 99
2	1200.020M	53.6	-35.9 +1.5	+24.2 +0.8	+0.3	+1.0	+0.0 360	45.5	54.0	-8.5	Vert 99
3	3600.070M	42.7	-33.6 +2.8	+30.6 +0.4	+0.4	+1.9	+0.0 360	45.2	54.0	-8.8	Vert 99
4	4199.880M	38.8	-33.4 +3.3	+32.1 +0.3	+0.3	+2.0	+0.0	43.4	54.0	-10.6	Horiz 99
5	3600.200M	40.0	-33.6 +2.8	+30.6 +0.4	+0.4	+1.9	+0.0	42.5	54.0	-11.5	Horiz 99
6	4199.880M	37.1	-33.4 +3.3	+32.1 +0.3	+0.3	+2.0	+0.0	41.7	54.0	-12.3	Vert 99
7	1903.585M	49.7	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0 279	46.7	61.9	-15.2	Horiz 99
8	1905.380M	49.4	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0 286	46.4	61.9	-15.5	Vert 99
9	2400.000M	48.1	-34.0 +1.7	+27.9 +0.4	+0.5	+1.5	+0.0 360	46.1	61.9	-15.8	Horiz 99
10	2400.045M	47.8	-34.0 +1.7	+27.9 +0.4	+0.5	+1.5	+0.0 360	45.8	61.9	-16.1	Vert 99
11	1799.920M	46.3	-34.6 +2.0	+27.1 +0.3	+0.3	+1.3	+0.0	42.7	61.9	-19.2	Vert 99
12	1800.000M	45.8	-34.6 +2.0	+27.1 +0.3	+0.3	+1.3	+0.0	42.2	61.9	-19.7	Horiz 99
13	3000.045M	40.7	-33.8 +2.2	+29.1 +0.4	+0.5	+1.7	+0.0	40.8	61.9	-21.1	Vert 99
14	1902.810M	42.0	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0	39.0	61.9	-22.9	Vert 129
15	3000.000M	38.8	-33.8 +2.2	+29.1 +0.4	+0.5	+1.7	+0.0	38.9	61.9	-23.0	Horiz 99

CKC Laboratories, Inc. Date: 12/22/2011 Time: 16:42:20 Itron, Inc. WO#: 92467  
 15.231(b) Spurious Field Strength (>470 MHz Transmitter) Test Distance: 3 Meters Vert Sequence#: 5 Ext ATTN: 0  
 dB





**Test Setup Photos**



## -20dB Occupied Bandwidth

### Test Conditions / Setup

Temp: 24°C

Humidity: 30%

Pressure: 102.8kPa

Frequency: 9kHz - 9.52GHz

EUT is located on the test table. Receiving antenna is 3m from the EUT. EUT is laying on its side (screen is facing sideways). EUT is transmitting at 952MHz. Power is set to 87. Antenna gain is 2.1dBi.

Engineering Name: A. del Angel

### **Test Equipment**

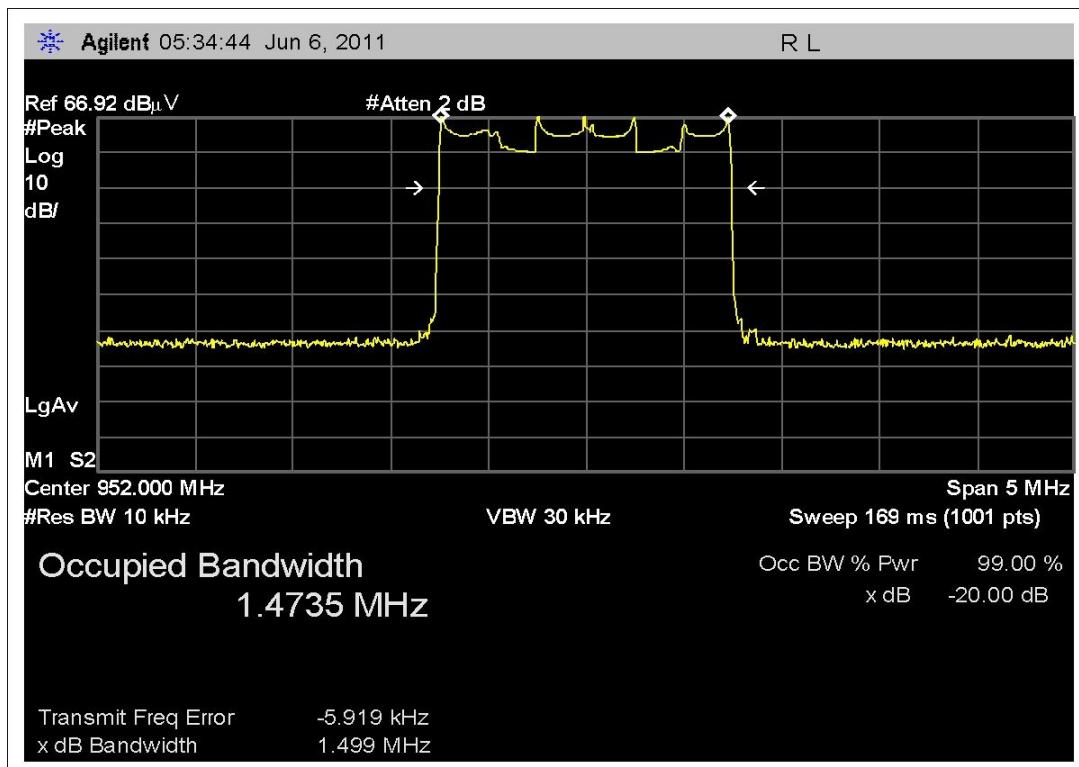
Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
AN02872	Spectrum Analyzer	E4440A	Agilent	7/23/2011	7/23/2013
AN03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
AN01316	Preamp	8447D	HP	5/21/2010	5/21/2012
AN01994	Biconilog Antenna	CBL6111C	Chase	3/8/2010	3/8/2012
ANP05360	Cable	RG214	Belden	11/8/2010	11/8/2012
ANP05366	Cable	RG-214	Belden	10/14/2011	10/14/2013

### Test Data

### **Test Results**

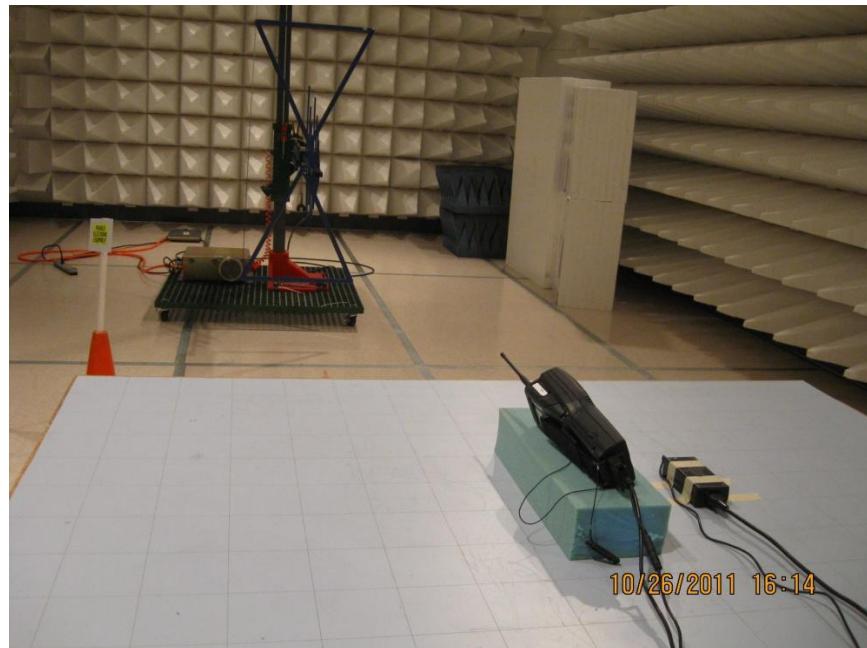
Frequency	-20dB Bandwidth	Limit	Result
952MHz	1.499MHz	0.5% Fc (4.76MHz)	Pass

**Test Plot**



Note: The above plot contains a software default date of June 6, 2011 which was not changed at the time of testing. Actual date of testing was October 28, 2011.

**Test Setup Photos**



## RSS-210

### 99 % Bandwidth

#### **Test Conditions / Setup**

Temp: 24°C

Humidity: 30%

Pressure: 102.8kPa

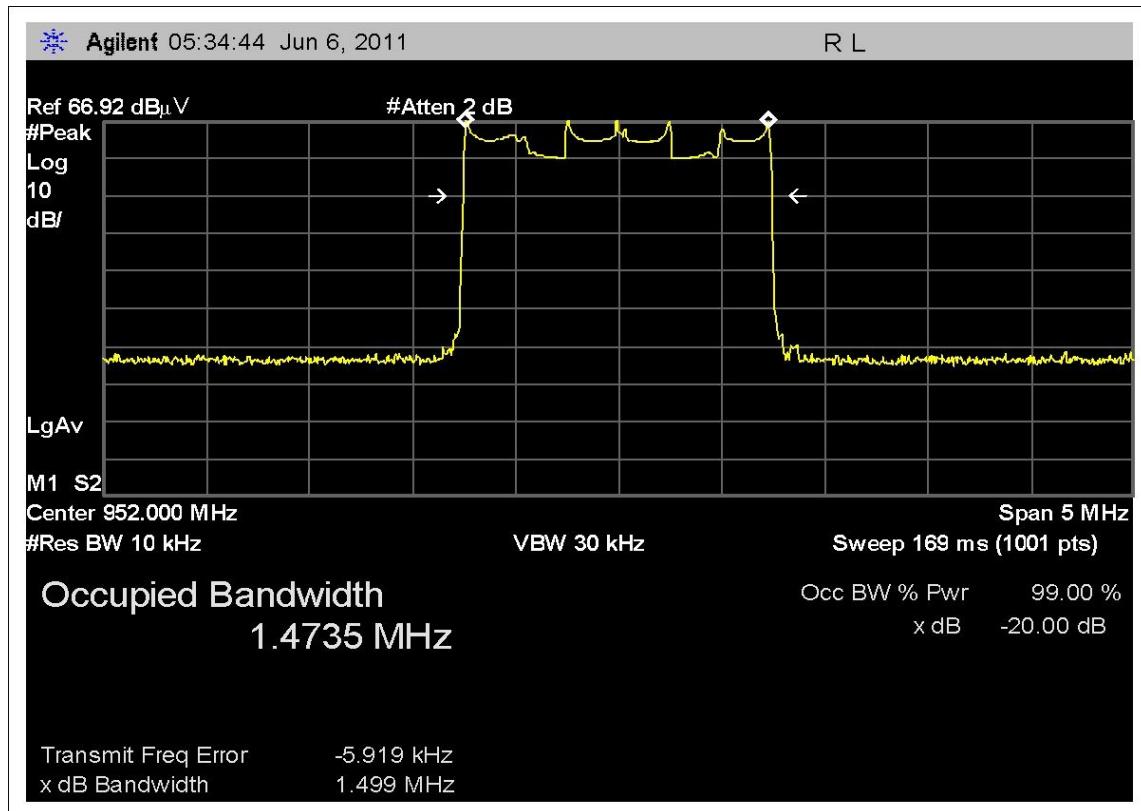
Frequency: 9kHz-9.52GHz

EUT is located on the test table. Receiving antenna is 3m from the EUT. EUT is laying on its side (screen is facing sideways). EUT is transmitting at 952MHz. Power is set to 87. Antenna gain is 2.1dBi.

Test Engineer: A. del Angel

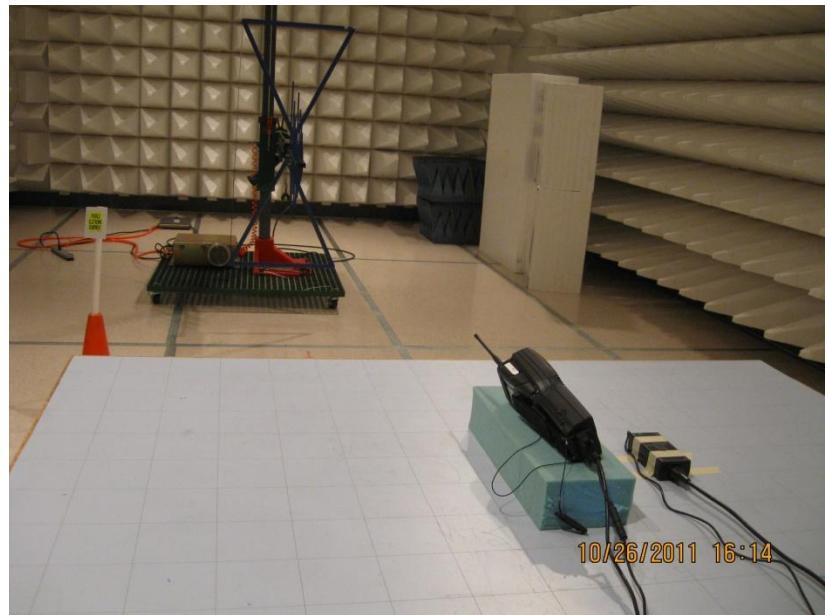
<b>Test Equipment</b>					
<b>Asset/Serial #</b>	<b>Description</b>	<b>Model</b>	<b>Manufacturer</b>	<b>Cal Date</b>	<b>Cal Due</b>
AN02872	Spectrum Analyzer	E4440A	Agilent	7/23/2011	7/23/2013
AN03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
AN01316	Preamp	8447D	HP	5/21/2010	5/21/2012
AN01994	Biconilog Antenna	CBL6111C	Chase	3/8/2010	3/8/2012
ANP05360	Cable	RG214	Belden	11/8/2010	11/8/2012
ANP05366	Cable	RG-214	Belden	10/14/2011	10/14/2013

**Test Data**



Note: The above plot contains a software default date of June 6, 2011 which was not changed at the time of testing. Actual date of testing was October 28, 2011.

**Test Setup Photos**



## RSS 210 Spurious Field Strength Radiated Emissions

### Test Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **RSS 210 A.1.1 Table A Spurious Field Strength (418 MHz Transmitter)**  
 Work Order #: **92467** Date: 12/23/2011  
 Test Type: **Maximized Emissions** Time: 2:24:32 PM  
 Equipment: **Hand Held AMR** Sequence#: 23  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

#### ***Test Equipment:***

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T1	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T2	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T3	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T4	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109
Optical Probe	uData Net Corp.	PM-500-124	092559

#### ***Support Devices:***

Function	Manufacturer	Model #	S/N
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535

**Test Conditions / Notes:**

EUT is located on the test table.  
 Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.  
 Support laptop is located outside the testing area via USB-fiber extension.  
 Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251.  
 EUT is transmitting at 952MHz  
 Power is set to 87.

Temp: 23°C  
 Humidity: 22%  
 Pressure: 103.3kPa  
 Frequency range investigated: 9kHz - 30MHz

Bandwidths: CISPR

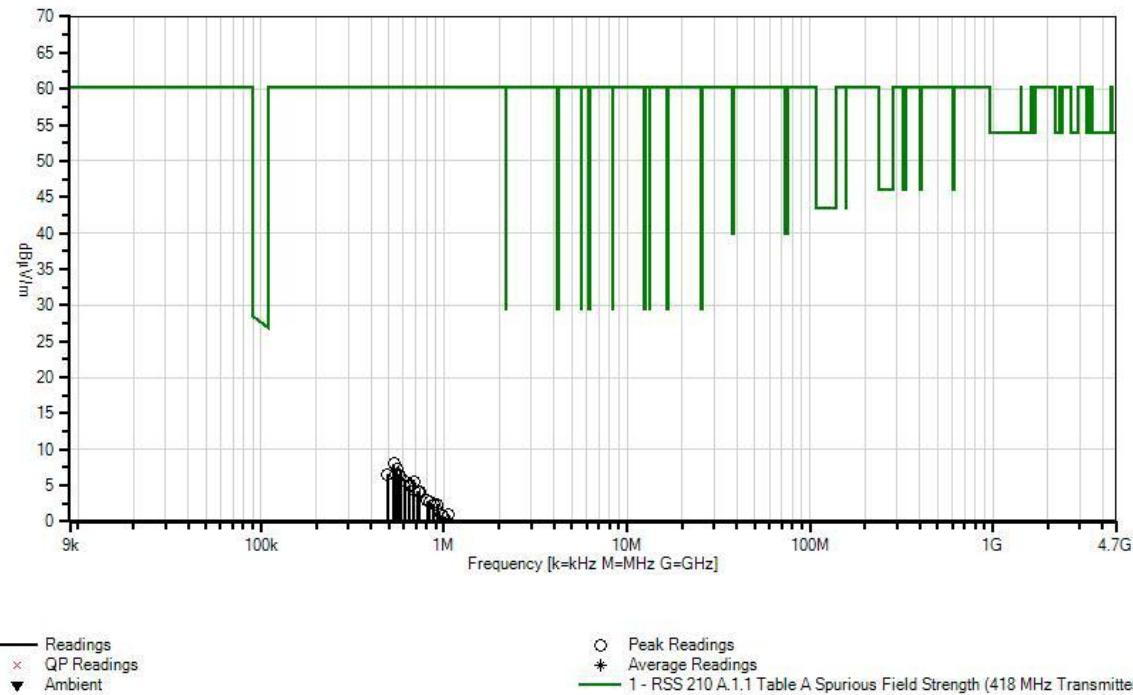
Ext Attn: 0 dB

**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	532.598k	38.5	+0.0	+0.0	+0.1	+9.4	-40.0	8.0	60.3	-52.3	Horiz 99
2	549.324k	37.7	+0.0	+0.0	+0.1	+9.4	-40.0 -16	7.2	60.3	-53.1	Vert 99
3	490.784k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0 -16	6.6	60.3	-53.7	Vert 99
4	540.961k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	60.3	-53.7	Horiz 99
5	568.140k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	60.3	-53.7	Horiz 99
6	574.413k	36.8	+0.0	+0.0	+0.1	+9.4	-40.0	6.3	60.3	-54.0	Horiz 99
7	616.227k	36.1	+0.0	+0.0	+0.1	+9.4	-40.0	5.6	60.3	-54.7	Horiz 99
8	681.038k	35.8	+0.0	+0.0	+0.1	+9.6	-40.0	5.5	60.3	-54.8	Horiz 99
9	647.587k	35.5	+0.0	+0.0	+0.1	+9.5	-40.0 -16	5.1	60.3	-55.2	Vert 99
10	649.678k	35.3	+0.0	+0.0	+0.1	+9.5	-40.0	4.9	60.3	-55.4	Horiz 99
11	683.129k	34.7	+0.0	+0.0	+0.1	+9.6	-40.0 -16	4.4	60.3	-55.9	Vert 99
12	737.487k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	60.3	-56.1	Horiz 99
13	722.852k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	60.3	-56.1	Horiz 99
14	808.571k	33.3	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.9	60.3	-57.4	Vert 99
15	831.569k	33.1	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.7	60.3	-57.6	Vert 99
16	877.564k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0	2.4	60.3	-57.9	Horiz 99

17	919.378k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0	2.4	60.3	-57.9	Vert 99
18	931.923k	31.7	+0.0	+0.0	+0.1	+9.6	-40.0	1.4	60.3	-58.9	Horiz 99
19	959.102k	31.2	+0.0	+0.0	+0.1	+9.6	-40.0	0.9	60.3	-59.4	Horiz 99
20	1.057M	31.2	+0.0	+0.0	+0.1	+9.6	-40.0	0.9	60.3	-59.4	Vert 99
21	977.918k	31.1	+0.0	+0.0	+0.1	+9.6	-40.0	0.8	60.3	-59.5	Horiz 99
22	1.039M	30.1	+0.0	+0.0	+0.1	+9.6	-40.0	-0.2	60.3	-60.5	Vert 99
23	1.062M	29.8	+0.0	+0.0	+0.1	+9.6	-40.0	-0.5	60.3	-60.8	Vert 99
24	1.126M	29.5	+0.0	+0.0	+0.1	+9.6	-40.0	-0.8	60.3	-61.1	Horiz 99
25	1.126M	29.4	+0.0	+0.0	+0.1	+9.6	-40.0	-0.9	60.3	-61.2	Vert 99
26	1.204M	28.9	+0.0	+0.0	+0.1	+9.6	-40.0	-1.4	60.3	-61.7	Vert 99
27	1.254M	28.5	+0.0	+0.0	+0.1	+9.6	-40.0	-1.8	60.3	-62.1	Vert 99
28	1.354M	28.0	+0.0	+0.0	+0.1	+9.6	-40.0	-2.3	60.3	-62.6	Horiz 99
29	1.446M	27.5	+0.0	+0.0	+0.1	+9.6	-40.0	-2.8	60.3	-63.1	Vert 99
30	1.603M	26.6	+0.0	+0.0	+0.1	+9.6	-40.0	-3.7	60.3	-64.0	Vert 99

CKC Laboratories, Inc. Date: 12/23/2011 Time: 2:24:32 PM Itron, Inc. WO#: 92467  
 RSS 210 A.1.1 Table A Spurious Field Strength (418 MHz Transmitter) Test Distance: 3 Meters Horiz Sequence#: 23 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **RSS 210 A.1.1 Table A Spurious Field Strength (>470 MHz Transmitter)**  
 Work Order #: **92467** Date: **12/23/2011**  
 Test Type: **Maximized Emissions** Time: **11:02:13**  
 Equipment: **Hand Held AMR** Sequence#: **13**  
 Manufacturer: **Itron, Inc.** Tested By: **Randal Clark**  
 Model: **FC300SRW**  
 S/N: **FC30011242858**

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T2	AN01316	Preamp	8447D	5/21/2010	5/21/2012
T3	AN01994	Biconilog Antenna	CBL6111C	3/8/2010	3/8/2012
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05360	Cable	RG214	11/8/2010	11/8/2012
T6	ANP05366	Cable	RG-214	10/14/2011	10/14/2013
T7	ANC00059*	Band Reject Filter		1/2/2012	1/2/2014

\*Calibration was performed after testing and data was recalculated to validate proper test results.

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.  
 Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.  
 Support laptop is located outside the testing area via USB-fiber extension.  
 Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251.  
 EUT is transmitting at 952MHz  
 Power is set to 87.

Temp: 23°C  
 Humidity: 22%  
 Pressure: 103.3kPa  
 Frequency Range Investigated: 30 MHz - 1GHz  
 Bandwidths used: CISPR

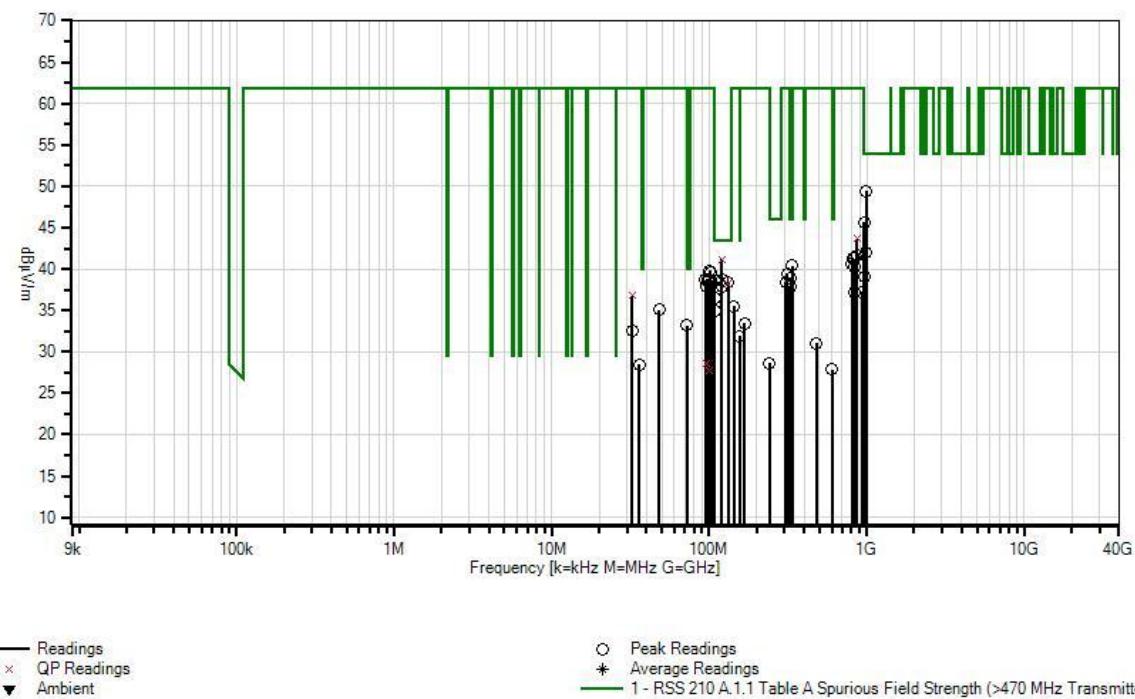
Ext Attn: 0 dB

<b>Measurement Data:</b>			Reading listed by margin.				Test Distance: 3 Meters					
#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar	
			MHz	dB $\mu$ V	dB	dB	dB	Table	dB $\mu$ V/m	dB $\mu$ V/m	dB	Ant
1	120.003M	57.2	+0.0	-29.2	+11.7	+0.3	+0.0	41.2	43.5	-2.3	Horiz	
			+0.6	+0.6	+0.0		97				295	
^	120.006M	61.6	+0.0	-29.2	+11.7	+0.3	+0.0	45.6	43.5	+2.1	Horiz	
			+0.6	+0.6	+0.0		97				295	
3	990.018M	48.0	+0.0	-28.9	+24.4	+0.9	+0.0	49.4	54.0	-4.6	Vert	
			+2.1	+2.5	+0.4		224				110	
4	120.005M	54.6	+0.0	-29.2	+11.7	+0.3	+0.0	38.7	43.5	-4.8	Vert	
			+0.6	+0.6	+0.1		360				116	
5	108.005M	55.7	+0.0	-29.3	+10.7	+0.3	+0.0	38.6	43.5	-4.9	Vert	
			+0.5	+0.6	+0.1		83				126	
6	131.997M	54.2	+0.0	-29.2	+11.7	+0.3	+0.0	38.4	43.5	-5.1	Vert	
			+0.6	+0.7	+0.1		168				116	
7	132.005M	54.1	+0.0	-29.2	+11.7	+0.3	+0.0	38.2	43.5	-5.3	Horiz	
			+0.6	+0.7	+0.0		111				178	
^	132.003M	57.3	+0.0	-29.2	+11.7	+0.3	+0.0	41.4	43.5	-2.1	Horiz	
			+0.6	+0.7	+0.0		111				178	
9	334.867M	51.8	+0.0	-28.6	+14.5	+0.5	+0.0	40.4	46.0	-5.6	Horiz	
			+1.0	+1.2	+0.0		360				132	
10	119.972M	53.8	+0.0	-29.2	+11.7	+0.3	+0.0	37.8	43.5	-5.7	Vert	
			+0.6	+0.6	+0.0						129	
11	108.030M	53.6	+0.0	-29.3	+10.7	+0.3	+0.0	36.5	43.5	-7.0	Horiz	
			+0.5	+0.6	+0.1		360				103	
12	328.741M	50.5	+0.0	-28.6	+14.3	+0.5	+0.0	38.9	46.0	-7.1	Horiz	
			+1.0	+1.2	+0.0		360				132	
13	326.218M	49.5	+0.0	-28.6	+14.2	+0.5	+0.0	37.8	46.0	-8.2	Horiz	
			+1.0	+1.2	+0.0		360				132	
14	960.009M	45.3	+0.0	-29.1	+24.1	+0.9	+0.0	45.6	54.0	-8.4	Vert	
			+2.0	+2.4	+0.0		199				99	
15	990.021M	41.0	+0.0	-28.9	+24.4	+0.9	+0.0	42.0	54.0	-12.0	Horiz	
			+2.1	+2.5	+0.0		360				295	
16	870.000M	44.8	+0.0	-29.3	+23.2	+0.9	+0.0	43.7	61.9	-18.2	Vert	
			+1.9	+2.2	+0.0		198				122	
^	870.010M	46.6	+0.0	-29.3	+23.2	+0.9	+0.0	45.5	61.9	-16.4	Vert	
			+1.9	+2.2	+0.0		198				122	
18	870.002M	42.8	+0.0	-29.3	+23.2	+0.9	+0.0	41.7	61.9	-20.2	Horiz	
			+1.9	+2.2	+0.0		360				132	
19	810.062M	43.4	+0.0	-29.4	+22.6	+0.8	+0.0	41.3	61.9	-20.6	Horiz	
			+1.8	+2.1	+0.0		360				132	
20	840.001M	42.6	+0.0	-29.3	+22.9	+0.9	+0.0	41.3	61.9	-20.6	Vert	
			+1.9	+2.2	+0.1		353				112	
21	809.942M	42.8	+0.0	-29.4	+22.6	+0.8	+0.0	40.7	61.9	-21.2	Vert	
			+1.8	+2.1	+0.0						129	
22	839.972M	41.6	+0.0	-29.3	+22.9	+0.9	+0.0	40.2	61.9	-21.7	Vert	
			+1.9	+2.2	+0.0						129	
23	100.513M	57.8	+0.0	-29.3	+10.0	+0.3	+0.0	39.8	61.9	-22.1	Vert	
			+0.5	+0.5	+0.0						129	

24	101.714M	57.5	+0.0 +0.5	-29.3 +0.5	+10.1 +0.0	+0.3	+0.0	39.6	61.9	-22.3	Vert 129
25	312.044M	51.4	+0.0 +1.0	-28.5 +1.2	+13.8 +0.0	+0.5	+0.0	39.4	61.9	-22.5	Horiz 132
26	959.992M	38.7	+0.0 +2.0	-29.1 +2.4	+24.1 +0.0	+0.9	+0.0	39.0	61.9	-22.9	Horiz 132
27	100.010M	56.8	+0.0 +0.5	-29.3 +0.5	+9.9 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 99
28	97.630M	57.0	+0.0 +0.5	-29.3 +0.5	+9.7 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 129
29	94.686M	57.3	+0.0 +0.5	-29.3 +0.5	+9.4 +0.0	+0.3	+0.0	38.7	61.9	-23.2	Vert 129
30	306.158M	50.7	+0.0 +0.9	-28.5 +1.2	+13.6 +0.0	+0.5	+0.0	38.4	61.9	-23.5	Horiz 132
31	102.315M	56.0	+0.0 +0.5	-29.3 +0.5	+10.2 +0.0	+0.3	+0.0	38.2	61.9	-23.7	Vert 129
32	102.795M	55.7	+0.0 +0.5	-29.3 +0.5	+10.2 +0.0	+0.3	+0.0	37.9	61.9	-24.0	Vert 129
33	97.029M	56.2	+0.0 +0.5	-29.3 +0.5	+9.7 +0.0	+0.3	+0.0	37.9	61.9	-24.0	Vert 129
34	839.972M	38.6	+0.0 +1.9	-29.3 +2.2	+22.9 +0.0	+0.9	+0.0	37.2	61.9	-24.7	Horiz 132
35	930.062M	37.3	+0.0 +2.0	-29.1 +2.3	+23.8 +0.0	+0.9	+0.0	37.2	61.9	-24.7	Horiz 132
36	32.367M QP	47.5	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	36.8	61.9	-25.1	Vert 152
^	32.367M	49.6	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	38.9	61.9	-23.0	Vert 152
38	143.996M	51.6	+0.0 +0.6	-29.1 +0.7	+11.3 +0.0	+0.4	+0.0	35.5	61.9	-26.4	Horiz 132
39	47.968M	54.1	+0.0 +0.3	-29.4 +0.3	+9.6 +0.0	+0.2	+0.0	35.1	61.9	-26.8	Vert 129
40	107.960M	52.2	+0.0 +0.5	-29.3 +0.6	+10.7 +0.0	+0.3	+0.0	35.0	61.9	-26.9	Horiz 132
41	167.993M	50.6	+0.0 +0.7	-29.0 +0.8	+9.8 +0.1	+0.4	+0.0	33.4	61.9	-28.5	Vert 116
42	72.007M	55.1	+0.0 +0.4	-29.3 +0.4	+6.3 +0.0	+0.3	+0.0	33.2	61.9	-28.7	Vert 145
43	32.462M	43.2	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0	32.5	61.9	-29.4	Horiz 132
44	155.997M	48.2	+0.0 +0.7	-29.0 +0.8	+10.7 +0.1	+0.4	+0.0	31.9	61.9	-30.0	Vert 116
45	480.003M	39.4	+0.0 +1.3	-29.6 +1.5	+17.6 +0.1	+0.7	+0.0	31.0	61.9	-30.9	Vert 99
46	239.999M	42.8	+0.0 +0.9	-28.6 +1.0	+12.0 +0.0	+0.5	+0.0	28.6	61.9	-33.3	Vert 116
47	96.703M QP	47.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0	28.6	61.9	-33.3	Vert 154
^	96.703M	61.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0	42.6	61.9	-19.3	Vert 154
49	35.998M	40.6	+0.0 +0.3	-29.4 +0.2	+16.6 +0.0	+0.2	+0.0	28.5	61.9	-33.4	Vert 99

50	600.001M	33.4	+0.0	-29.8	+20.2	+0.7	+0.0	27.9	61.9	-34.0	Vert
			+1.5	+1.7	+0.2		40				112
51	99.882M	45.8	+0.0	-29.3	+9.9	+0.3	+0.0	27.7	61.9	-34.2	Vert
	QP		+0.5	+0.5	+0.0		128				99
^	99.902M	60.9	+0.0	-29.3	+9.9	+0.3	+0.0	42.8	61.9	-19.1	Vert
			+0.5	+0.5	+0.0		128				99

CKC Laboratories, Inc. Date: 12/23/2011 Time: 11:02:13 Itron, Inc. WO#: 92467  
 RSS 210 A.1.1 Table A Spurious Field Strength (>470 MHz Transmitter) Test Distance: 3 Meters Vert Sequence#: 13 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717

Customer: **Itron, Inc.**  
 Specification: **RSS 210 A.1.1 Table A Spurious Field Strength (>470 MHz Transmitter)**  
 Work Order #: **92467** Date: 12/22/2011  
 Test Type: **Radiated Scan** Time: 16:42:20  
 Equipment: **Hand Held AMR** Sequence#: 5  
 Manufacturer: Itron, Inc. Tested By: Randal Clark  
 Model: FC300SRW  
 S/N: FC30011242858

**Test Equipment:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02871	Spectrum Analyzer	E4440A	4/22/2011	4/22/2013
T1	AN01271	Preamp	83017A	8/18/2011	8/18/2013
T2	AN01467	Horn Antenna-ANSI	3115	5/7/2010	5/7/2012
		C63.5 Calibration			
T3	AN03123	Cable	32026-2-29801-12	10/14/2011	10/14/2013
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	ANP05547	Cable	Heliax	7/26/2011	7/26/2013
T6	AN02750	High Pass Filter	9SH10-1000/T10000-O/O	3/15/2010	3/15/2012

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

Function	Manufacturer	Model #	S/N
Hand Held AMR*	Itron, Inc.	FC300SRW	FC30011242858
Optical Probe	uData Net Corp.	PM-500-124	092559
Power Supply	GlobTek, Inc.	GT-81081-6015-T3	ROHS100187103109

**Support Devices:**

Function	Manufacturer	Model #	S/N
Power Supply	SI Tech	02E03	20120-0014829
Power Supply	SI Tech	02E03	20120-0014905
USB Converter	SI Tech	2173	079536
USB Converter	SI Tech	2172	079535
Support Power Supply	Dell	FA90PE1-00	CN-OCM889-73245-9CI-5497-A01
Support Laptop	Dell	PP27L	917Q5M

**Test Conditions / Notes:**

EUT is located on the test table.

Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements.

Support laptop is located outside the testing area via USB-fiber extension.

EUT is transmitting at 952MHz

Power is set to 87.

Temp: 23°C

Humidity: 22%

Pressure: 103.3kPa

Frequency: 1-9.52GHz

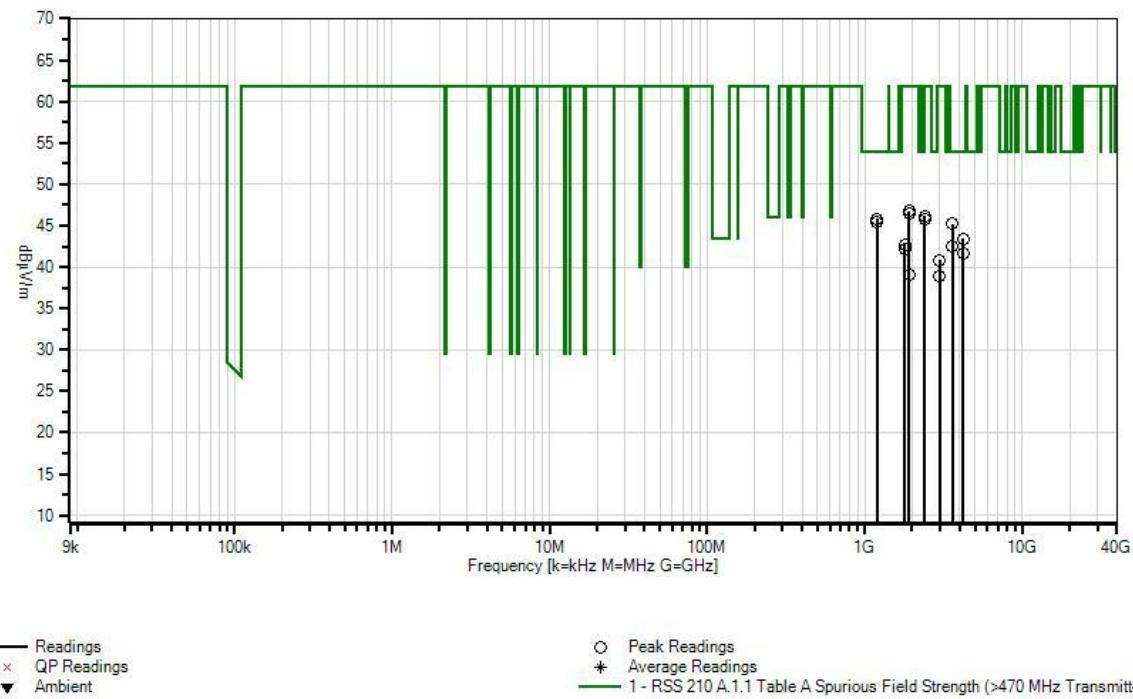
Bandwidths: CISPR

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
1	1200.000M	53.9	-35.9 +1.5	+24.2 +0.8	+0.3	+1.0	+0.0 23	45.8	54.0	-8.2	Horiz 99
2	1200.020M	53.6	-35.9 +1.5	+24.2 +0.8	+0.3	+1.0	+0.0 360	45.5	54.0	-8.5	Vert 99
3	3600.070M	42.7	-33.6 +2.8	+30.6 +0.4	+0.4	+1.9	+0.0 360	45.2	54.0	-8.8	Vert 99
4	4199.880M	38.8	-33.4 +3.3	+32.1 +0.3	+0.3	+2.0	+0.0	43.4	54.0	-10.6	Horiz 99
5	3600.200M	40.0	-33.6 +2.8	+30.6 +0.4	+0.4	+1.9	+0.0	42.5	54.0	-11.5	Horiz 99
6	4199.880M	37.1	-33.4 +3.3	+32.1 +0.3	+0.3	+2.0	+0.0	41.7	54.0	-12.3	Vert 99
7	1903.585M	49.7	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0 279	46.7	61.9	-15.2	Horiz 99
8	1905.380M	49.4	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0 286	46.4	61.9	-15.5	Vert 99
9	2400.000M	48.1	-34.0 +1.7	+27.9 +0.4	+0.5	+1.5	+0.0 360	46.1	61.9	-15.8	Horiz 99
10	2400.045M	47.8	-34.0 +1.7	+27.9 +0.4	+0.5	+1.5	+0.0 360	45.8	61.9	-16.1	Vert 99
11	1799.920M	46.3	-34.6 +2.0	+27.1 +0.3	+0.3	+1.3	+0.0	42.7	61.9	-19.2	Vert 99
12	1800.000M	45.8	-34.6 +2.0	+27.1 +0.3	+0.3	+1.3	+0.0	42.2	61.9	-19.7	Horiz 99
13	3000.045M	40.7	-33.8 +2.2	+29.1 +0.4	+0.5	+1.7	+0.0	40.8	61.9	-21.1	Vert 99
14	1902.810M	42.0	-34.5 +1.9	+27.7 +0.3	+0.3	+1.3	+0.0	39.0	61.9	-22.9	Vert 129
15	3000.000M	38.8	-33.8 +2.2	+29.1 +0.4	+0.5	+1.7	+0.0	38.9	61.9	-23.0	Horiz 99

CKC Laboratories, Inc. Date: 12/22/2011 Time: 16:42:20 Itron, Inc. WO#: 92467  
 RSS 210 A.1.1 Table A Spurious Field Strength (>470 MHz Transmitter) Test Distance: 3 Meters Vert Sequence#:  
 5 Ext ATTN: 0 dB



**Test Setup Photos**



## SUPPLEMENTAL INFORMATION

### Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ . Compliance is deemed to occur provided measurements are below the specified limits.

### Emissions Test Details

#### TESTING PARAMETERS

Unless otherwise indicated, the following configuration parameters are used for equipment setup: The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

#### CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in  $\text{dB}\mu\text{V}/\text{m}$ , the spectrum analyzer reading in  $\text{dB}\mu\text{V}$  was corrected by using the following formula. This reading was then compared to the applicable specification limit.

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

#### TEST INSTRUMENTATION AND ANALYZER SETTINGS

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

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