Itron, Inc.

ADDENDUM TEST REPORT TO 92467-5

Hand Held AMR, FC300

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.207, 15.249
and
RSS 210 Issue 8

Report No.: 92467-5A

Date of issue: January 5, 2012

ACCREDITED
Testing Certificates:
803.01, 803.02, 803.05, 803.06

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.

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

Itron, Inc.
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Representative: Jay Holcomb
Customer Reference Number: 34448

REPORT PREPARED BY:

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CKC Laboratories, Inc.
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Project Number: 92467

DATE OF EQUIPMENT RECEIPT: October 26, 2011
DATE(S) OF TESTING: 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, 15.249 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, 15.249 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
RF Power Output	FCC Part 15 Subpart C Section 15.249(a)	Pass
Spurious Emissions	FCC Part 15 Subpart C Section 15.249(a)	Pass
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C Section 15.249	Pass
Bandedge	FCC Part 15 Subpart C Section 15.249(d)	Pass
99% Bandwidth	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 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

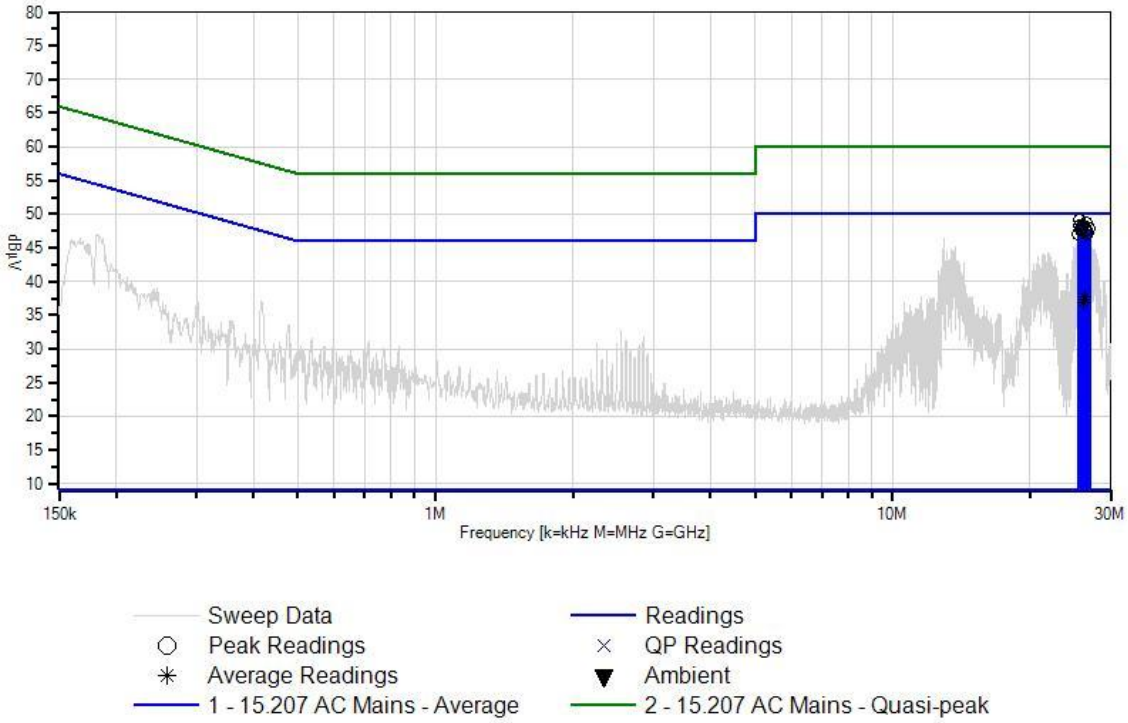
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: Line

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV	dBµV	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 -0.7	+0.1	+0.2	+0.2	+0.0	49.4	50.0	-0.6	Line

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.

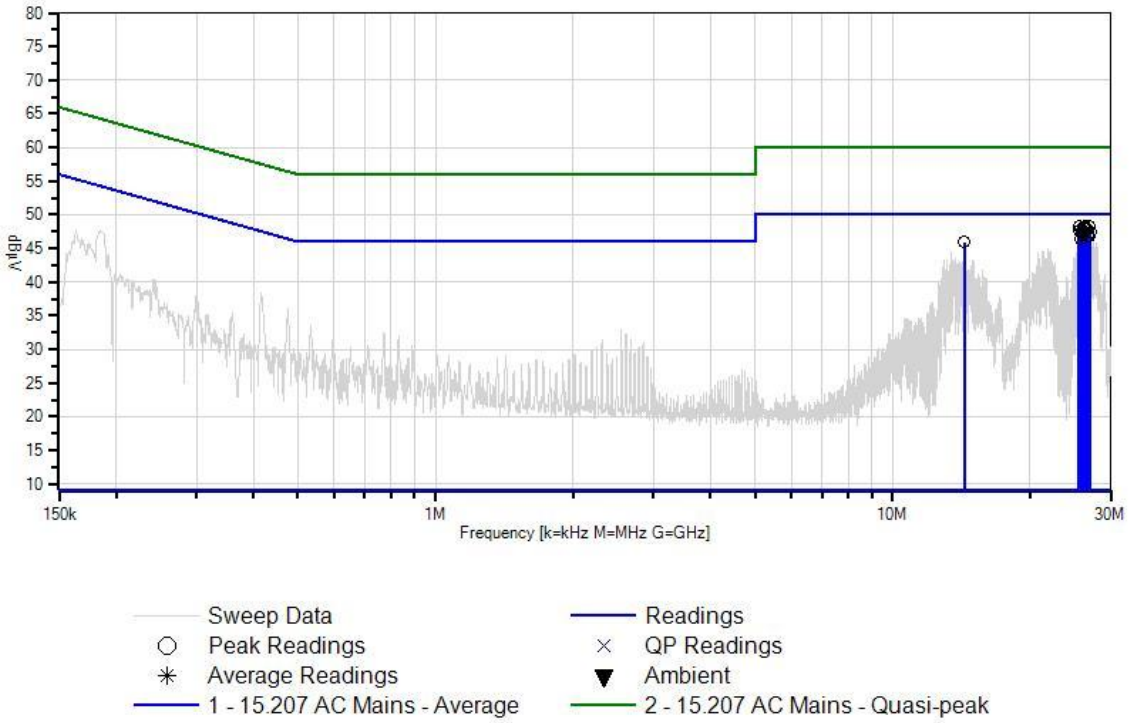
Temp: 24°C
Humidity: 30%
Pressure: 102.8kPa
Frequency Range Investigated: 150kHz to 30MHz

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: Neutral

#	Freq MHz	Rdng dBµV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar 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

15.249(a) RF Power Output

Test Data

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

Customer: **Itron, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **92467** Date: 12/23/2011
Test Type: **Maximized Emissions** Time: 12:22:33
Equipment: **Hand Held AMR** Sequence#: 17
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.
EUT is transmitting at 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010.

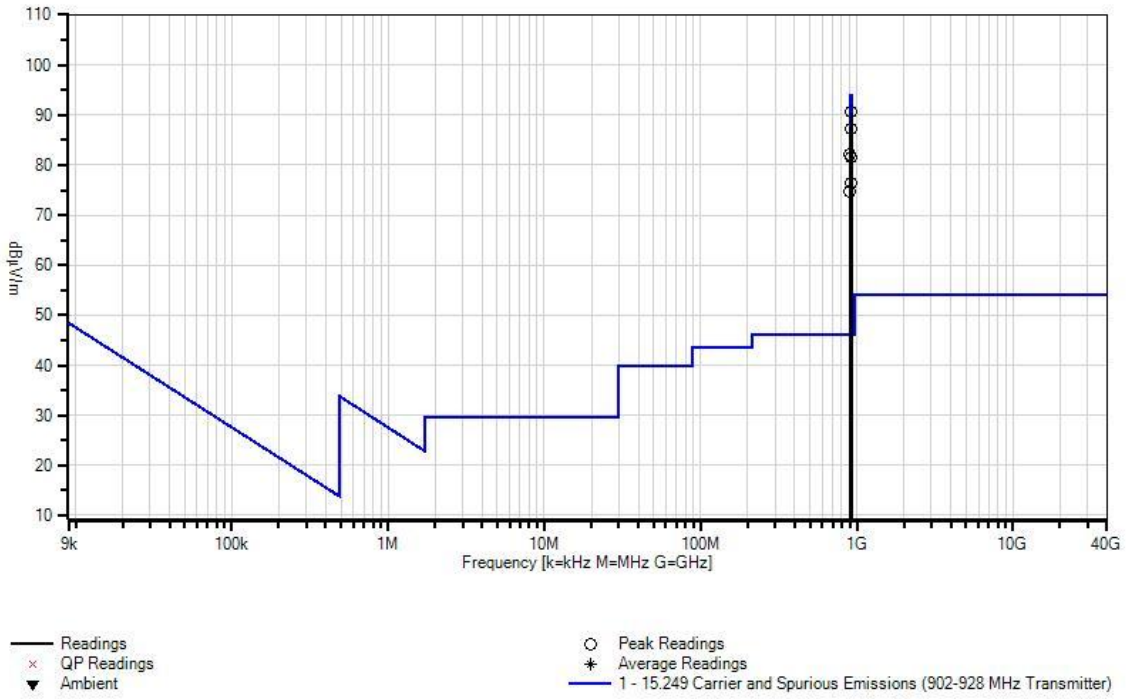
Temp: 23°C
Humidity: 21%
Pressure: 103.3kPa
Frequency: Fundamental
Bandwidths used: CISPR

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	923.851M	90.9	+0.0 +2.0	-29.2 +2.3	+23.7	+0.9	+0.0 374	90.6	94.0 High Channel	-3.4	Horiz 104
2	916.049M	87.7	+0.0 +2.0	-29.2 +2.3	+23.6	+0.9	+0.0 281	87.3	94.0 Mid Channel	-6.7	Horiz 158
3	908.049M	82.6	+0.0 +1.9	-29.2 +2.3	+23.5	+0.9	+0.0 77	82.0	94.0 Low Channel	-12.0	Horiz 99
4	923.850M	81.8	+0.0 +2.0	-29.2 +2.3	+23.7	+0.9	+0.0	81.5	94.0 High Channel	-12.5	Vert 104
5	916.049M	76.8	+0.0 +2.0	-29.2 +2.3	+23.6	+0.9	+0.0 11	76.4	94.0 Mid Channel	-17.6	Vert 144
6	908.049M	75.4	+0.0 +1.9	-29.2 +2.3	+23.5	+0.9	+0.0 360	74.8	94.0 Low Channel	-19.2	Vert 156

CKC Laboratories, Inc. Date: 12/23/2011 Time: 12:22:33 Itron, Inc. WO#: 92467
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Horiz Sequence#: 17
Ext ATTN: 0 dB



Test Setup Photos

15.249(a) Spurious 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: **15.249 Carrier and Spurious Emissions (902-928 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 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010.

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

Bandwidths: CISPR

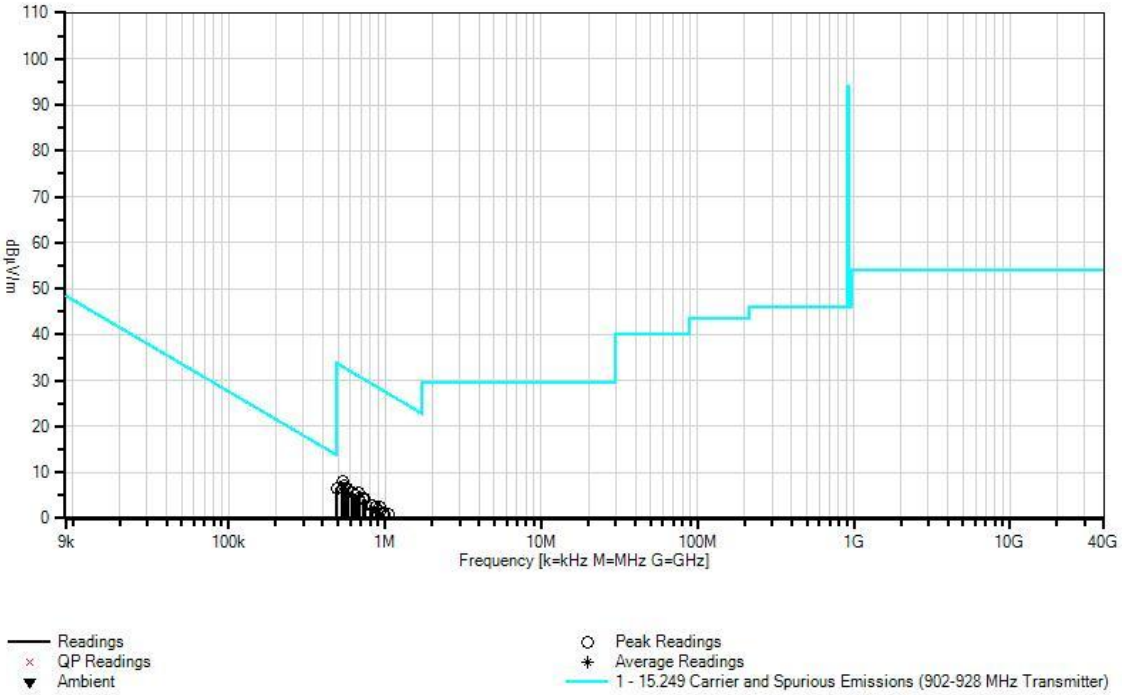
Ext Attn: 0 dB

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

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	532.598k	38.5	+0.0	+0.0	+0.1	+9.4	-40.0	8.0	33.1	-25.1	Horiz 99
2	681.038k	35.8	+0.0	+0.0	+0.1	+9.6	-40.0	5.5	30.9	-25.4	Horiz 99
3	549.324k	37.7	+0.0	+0.0	+0.1	+9.4	-40.0 -16	7.2	32.8	-25.6	Vert 99
4	568.140k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	32.5	-25.9	Horiz 99
5	919.378k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0 -16	2.4	28.3	-25.9	Vert 99
6	737.487k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	30.2	-26.0	Horiz 99
7	574.413k	36.8	+0.0	+0.0	+0.1	+9.4	-40.0	6.3	32.4	-26.1	Horiz 99
8	1.057M	31.2	+0.0	+0.0	+0.1	+9.6	-40.0 -16	0.9	27.1	-26.2	Vert 99
9	616.227k	36.1	+0.0	+0.0	+0.1	+9.4	-40.0	5.6	31.8	-26.2	Horiz 99
10	722.852k	34.5	+0.0	+0.0	+0.1	+9.6	-40.0	4.2	30.4	-26.2	Horiz 99
11	540.961k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0	6.6	32.9	-26.3	Horiz 99
12	647.587k	35.5	+0.0	+0.0	+0.1	+9.5	-40.0 -16	5.1	31.4	-26.3	Vert 99
13	877.564k	32.7	+0.0	+0.0	+0.1	+9.6	-40.0	2.4	28.7	-26.3	Horiz 99
14	649.678k	35.3	+0.0	+0.0	+0.1	+9.5	-40.0	4.9	31.3	-26.4	Horiz 99
15	831.569k	33.1	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.7	29.2	-26.5	Vert 99
16	808.571k	33.3	+0.0	+0.0	+0.1	+9.5	-40.0 -16	2.9	29.4	-26.5	Vert 99

17	683.129k	34.7	+0.0	+0.0	+0.1	+9.6	-40.0 -16	4.4	30.9	-26.5	Vert 99
18	931.923k	31.7	+0.0	+0.0	+0.1	+9.6	-40.0	1.4	28.2	-26.8	Horiz 99
19	977.918k	31.1	+0.0	+0.0	+0.1	+9.6	-40.0	0.8	27.8	-27.0	Horiz 99
20	959.102k	31.2	+0.0	+0.0	+0.1	+9.6	-40.0	0.9	27.9	-27.0	Horiz 99
21	1.603M	26.6	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-3.7	23.4	-27.1	Vert 99
22	1.446M	27.5	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-2.8	24.3	-27.1	Vert 99
23	490.784k	37.1	+0.0	+0.0	+0.1	+9.4	-40.0 -16	6.6	33.8	-27.2	Vert 99
24	1.354M	28.0	+0.0	+0.0	+0.1	+9.6	-40.0	-2.3	24.9	-27.2	Horiz 99
25	1.204M	28.9	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-1.4	25.9	-27.3	Vert 99
26	1.126M	29.5	+0.0	+0.0	+0.1	+9.6	-40.0	-0.8	26.5	-27.3	Horiz 99
27	1.039M	30.1	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-0.2	27.2	-27.4	Vert 99
28	1.126M	29.4	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-0.9	26.5	-27.4	Vert 99
29	1.254M	28.5	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-1.8	25.6	-27.4	Vert 99
30	1.062M	29.8	+0.0	+0.0	+0.1	+9.6	-40.0 -16	-0.5	27.0	-27.5	Vert 99

CKC Laboratories, Inc. Date: 12/23/2011 Time: 2:24:32 PM Itron, Inc. WO#: 92467
15.249 Carrier and Spurious Emissions (902-928 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: **15.249 Carrier and Spurious Emissions (902-928 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	ANC00058*	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 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010.

Temp: 22°C
Humidity: 21%
Pressure: 103.2kPa
Frequency Range Investigated: 30 MHz - 1GHz
Bandwidths used: CISPR

Ext Attn: 0 dB

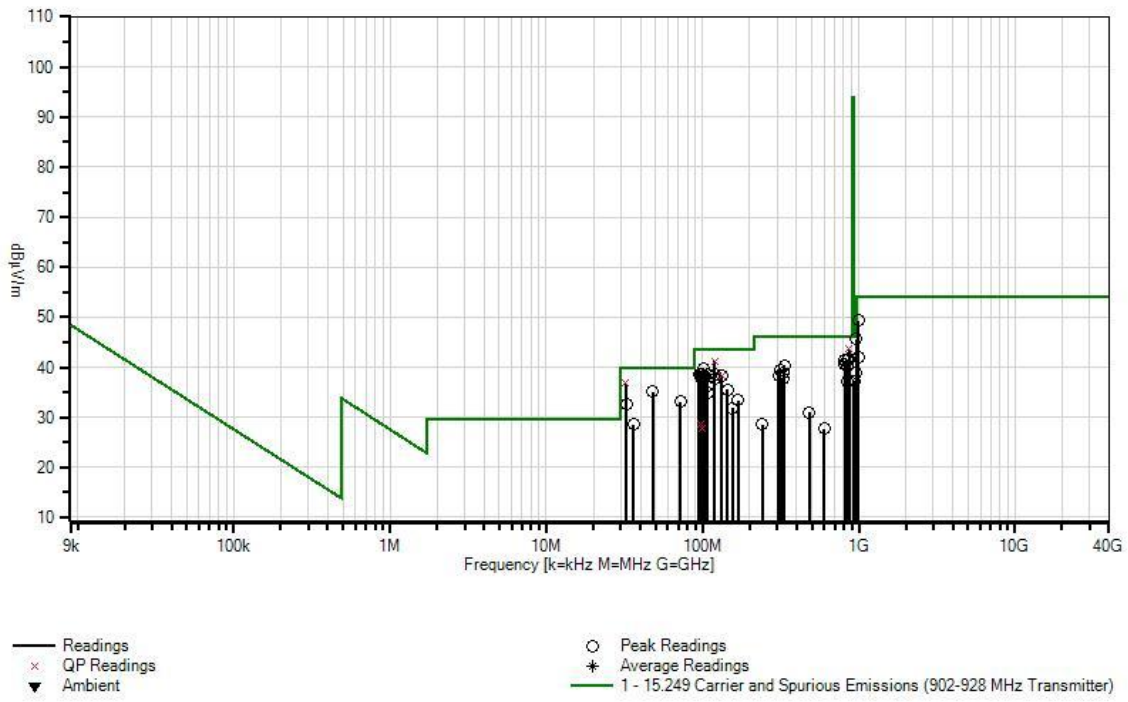
Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/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
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	870.000M	44.8	+0.0	-29.3	+23.2	+0.9	+0.0	43.7	46.0	-2.3	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	46.0	-0.5	Vert
			+1.9	+2.2	+0.0		198				122
5	32.367M	47.5	+0.0	-29.4	+18.1	+0.2	+0.0	36.8	40.0	-3.2	Vert
QP			+0.2	+0.2	+0.0		360				152
^	32.367M	49.6	+0.0	-29.4	+18.1	+0.2	+0.0	38.9	40.0	-1.1	Vert
			+0.2	+0.2	+0.0		360				152
7	100.513M	57.8	+0.0	-29.3	+10.0	+0.3	+0.0	39.8	43.5	-3.7	Vert
			+0.5	+0.5	+0.0						129
8	101.714M	57.5	+0.0	-29.3	+10.1	+0.3	+0.0	39.6	43.5	-3.9	Vert
			+0.5	+0.5	+0.0						129
9	870.002M	42.8	+0.0	-29.3	+23.2	+0.9	+0.0	41.7	46.0	-4.3	Horiz
			+1.9	+2.2	+0.0		360				132
10	840.001M	42.6	+0.0	-29.3	+22.9	+0.9	+0.0	41.4	46.0	-4.6	Vert
			+1.9	+2.2	+0.2		353				112
11	810.062M	43.4	+0.0	-29.4	+22.6	+0.8	+0.0	41.3	46.0	-4.7	Horiz
			+1.8	+2.1	+0.0		360				132
12	990.018M	48.0	+0.0	-28.9	+24.4	+0.9	+0.0	49.3	54.0	-4.7	Vert
			+2.1	+2.5	+0.3		224				110
13	100.010M	56.8	+0.0	-29.3	+9.9	+0.3	+0.0	38.7	43.5	-4.8	Vert
			+0.5	+0.5	+0.0		128				99
14	97.630M	57.0	+0.0	-29.3	+9.7	+0.3	+0.0	38.7	43.5	-4.8	Vert
			+0.5	+0.5	+0.0						129
15	94.686M	57.3	+0.0	-29.3	+9.4	+0.3	+0.0	38.7	43.5	-4.8	Vert
			+0.5	+0.5	+0.0						129
16	120.005M	54.6	+0.0	-29.2	+11.7	+0.3	+0.0	38.6	43.5	-4.9	Vert
			+0.6	+0.6	+0.0		360				116
17	47.968M	54.1	+0.0	-29.4	+9.6	+0.2	+0.0	35.1	40.0	-4.9	Vert
			+0.3	+0.3	+0.0						129
18	108.005M	55.7	+0.0	-29.3	+10.7	+0.3	+0.0	38.5	43.5	-5.0	Vert
			+0.5	+0.6	+0.0		83				126
19	131.997M	54.2	+0.0	-29.2	+11.7	+0.3	+0.0	38.3	43.5	-5.2	Vert
			+0.6	+0.7	+0.0		168				116
20	102.315M	56.0	+0.0	-29.3	+10.2	+0.3	+0.0	38.2	43.5	-5.3	Vert
			+0.5	+0.5	+0.0						129
21	809.942M	42.8	+0.0	-29.4	+22.6	+0.8	+0.0	40.7	46.0	-5.3	Vert
			+1.8	+2.1	+0.0						129
22	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

24	334.867M	51.8	+0.0 +1.0	-28.6 +1.2	+14.5 +0.0	+0.5	+0.0 360	40.4	46.0	-5.6	Horiz 132
25	97.029M	56.2	+0.0 +0.5	-29.3 +0.5	+9.7 +0.0	+0.3	+0.0	37.9	43.5	-5.6	Vert 129
26	102.795M	55.7	+0.0 +0.5	-29.3 +0.5	+10.2 +0.0	+0.3	+0.0	37.9	43.5	-5.6	Vert 129
27	119.972M	53.8	+0.0 +0.6	-29.2 +0.6	+11.7 +0.0	+0.3	+0.0	37.8	43.5	-5.7	Vert 129
28	839.972M	41.6	+0.0 +1.9	-29.3 +2.2	+22.9 +0.0	+0.9	+0.0	40.2	46.0	-5.8	Vert 129
29	312.044M	51.4	+0.0 +1.0	-28.5 +1.2	+13.8 +0.0	+0.5	+0.0 360	39.4	46.0	-6.6	Horiz 132
30	72.007M	55.1	+0.0 +0.4	-29.3 +0.4	+6.3 +0.0	+0.3	+0.0 48	33.2	40.0	-6.8	Vert 145
31	959.992M	38.7	+0.0 +2.0	-29.1 +2.4	+24.1 +0.0	+0.9	+0.0 360	39.0	46.0	-7.0	Horiz 132
32	108.030M	53.6	+0.0 +0.5	-29.3 +0.6	+10.7 +0.0	+0.3	+0.0 360	36.4	43.5	-7.1	Horiz 103
33	328.741M	50.5	+0.0 +1.0	-28.6 +1.2	+14.3 +0.0	+0.5	+0.0 360	38.9	46.0	-7.1	Horiz 132
34	32.462M	43.2	+0.0 +0.2	-29.4 +0.2	+18.1 +0.0	+0.2	+0.0 360	32.5	40.0	-7.5	Horiz 132
35	306.158M	50.7	+0.0 +0.9	-28.5 +1.2	+13.6 +0.0	+0.5	+0.0 360	38.4	46.0	-7.6	Horiz 132
36	143.996M	51.6	+0.0 +0.6	-29.1 +0.7	+11.3 +0.0	+0.4	+0.0 360	35.5	43.5	-8.0	Horiz 132
37	326.218M	49.5	+0.0 +1.0	-28.6 +1.2	+14.2 +0.0	+0.5	+0.0 360	37.8	46.0	-8.2	Horiz 132
38	960.009M	45.3	+0.0 +2.0	-29.1 +2.4	+24.1 +0.0	+0.9	+0.0 199	45.6	54.0	-8.4	Vert 99
39	107.960M	52.2	+0.0 +0.5	-29.3 +0.6	+10.7 +0.0	+0.3	+0.0 360	35.0	43.5	-8.5	Horiz 132
40	930.062M	37.3	+0.0 +2.0	-29.1 +2.3	+23.8 +0.0	+0.9	+0.0 360	37.2	46.0	-8.8	Horiz 132
41	839.972M	38.6	+0.0 +1.9	-29.3 +2.2	+22.9 +0.0	+0.9	+0.0 360	37.2	46.0	-8.8	Horiz 132
42	167.993M	50.6	+0.0 +0.7	-29.0 +0.8	+9.8 +0.1	+0.4	+0.0	33.4	43.5	-10.1	Vert 116
43	35.998M	40.6	+0.0 +0.3	-29.4 +0.2	+16.6 +0.0	+0.2	+0.0 360	28.5	40.0	-11.5	Vert 99
44	155.997M	48.2	+0.0 +0.7	-29.0 +0.8	+10.7 +0.0	+0.4	+0.0 360	31.8	43.5	-11.7	Vert 116
45	990.021M	41.0	+0.0 +2.1	-28.9 +2.5	+24.4 +0.0	+0.9	+0.0 360	42.0	54.0	-12.0	Horiz 295
46 QP	96.703M	47.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0 240	28.6	43.5	-14.9	Vert 154
^	96.703M	61.0	+0.0 +0.5	-29.3 +0.5	+9.6 +0.0	+0.3	+0.0 240	42.6	43.5	-0.9	Vert 154
48	480.003M	39.4	+0.0 +1.3	-29.6 +1.5	+17.6 +0.1	+0.7	+0.0 246	31.0	46.0	-15.0	Vert 99

49	99.882M	45.8	+0.0	-29.3	+9.9	+0.3	+0.0	27.7	43.5	-15.8	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	43.5	-0.7	Vert
			+0.5	+0.5	+0.0		128				99
51	239.999M	42.8	+0.0	-28.6	+12.0	+0.5	+0.0	28.6	46.0	-17.4	Vert
			+0.9	+1.0	+0.0		360				116
52	600.001M	33.4	+0.0	-29.8	+20.2	+0.7	+0.0	27.8	46.0	-18.2	Vert
			+1.5	+1.7	+0.1		40				112

CKC Laboratories, Inc. Date: 12/23/2011 Time: 11:02:13 Itron, Inc. WO#: 92467
15.249 Carrier and Spurious Emissions (902-928 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: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **92467** Date: 12/22/2011
Test Type: **Maximized Emissions** Time: 15:08:17
Equipment: **Hand Held AMR** Sequence#: 4
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	AN01271	Preamp	83017A	8/18/2011	8/18/2013
T3	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	5/7/2010	5/7/2012
T4	AN03227	Cable	32026-29080-29080-84	5/2/2011	5/2/2013
T5	AN03123	Cable	32026-2-29801-12	10/14/2011	10/14/2013
T6	ANP05547	Cable	Heliax	7/26/2011	7/26/2013
T7	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 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010.

Temp: 23°C
Humidity: 21%
Pressure: 103.3kPa
Frequency: 1 - 9.238GHz
Bandwidths used: CISPR

Ext Attn: 0 dB

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

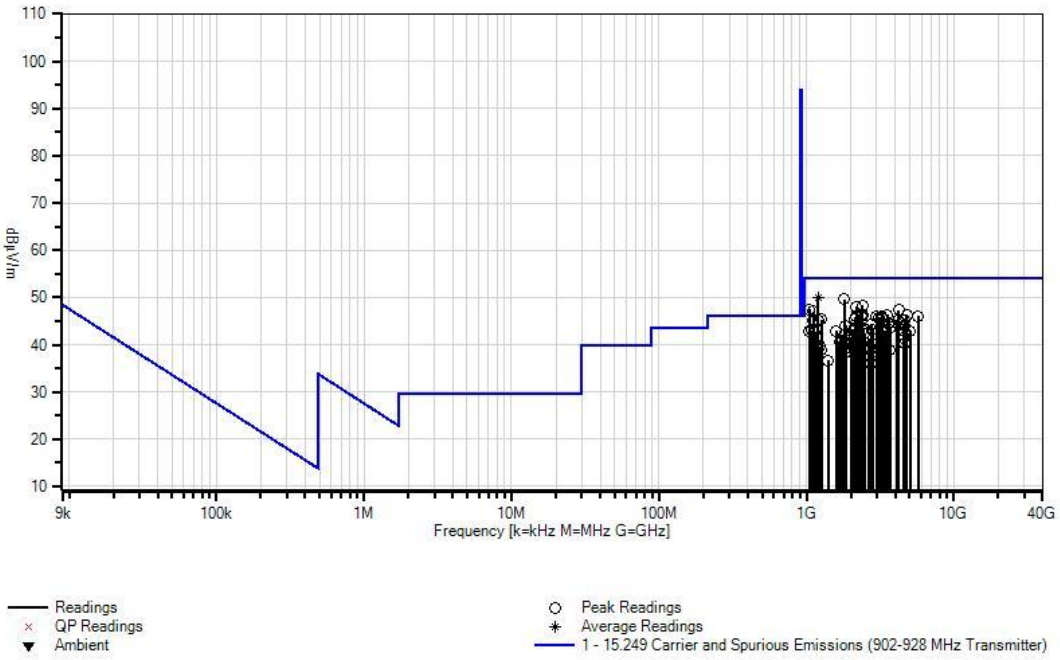
#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	1200.003M Ave	58.2	+0.0 +0.3	-35.9 +1.5	+24.2 +0.8	+1.0	+0.0 171	50.1	54.0	-3.9	Vert 99
^	1199.990M	60.6	+0.0 +0.3	-35.9 +1.5	+24.2 +0.8	+1.0	+0.0 171	52.5	54.0	-1.5	Vert 99
^	1200.000M	59.5	+0.0 +0.3	-35.9 +1.5	+24.2 +0.8	+1.0	+0.0 315	51.4	54.0	-2.6	Vert 99
4	1800.060M	53.2	+0.0 +0.3	-34.6 +2.0	+27.1 +0.3	+1.3	+0.0 2	49.6	54.0	-4.4	Vert 99
5	2400.070M	50.3	+0.0 +0.5	-34.0 +1.7	+27.9 +0.4	+1.5	+0.0 360	48.3	54.0	-5.7	Vert 99
6	2190.100M	50.0	+0.0 +0.4	-34.2 +2.0	+28.1 +0.4	+1.4	+0.0 360	48.1	54.0	-5.9	Vert 99
7	1050.100M	56.9	+0.0 +0.2	-36.6 +1.3	+23.7 +1.1	+0.9	+0.0 360	47.5	54.0	-6.5	Vert 99
8	4200.100M	42.7	+0.0 +0.3	-33.4 +3.3	+32.1 +0.3	+2.0	+0.0	47.3	54.0	-6.7	Vert 99
9	1110.000M	56.0	+0.0 +0.3	-36.3 +1.4	+23.9 +0.8	+1.0	+0.0 360	47.1	54.0	-6.9	Vert 99
10	2400.000M	48.4	+0.0 +0.5	-34.0 +1.7	+27.9 +0.4	+1.5	+0.0 332	46.4	54.0	-7.6	Horiz 106
11	4800.080M	40.6	+0.0 +0.2	-33.3 +3.7	+32.9 +0.1	+2.2	+0.0 306	46.4	54.0	-7.6	Vert 103
12	3539.700M	44.0	+0.0 +0.3	-33.7 +2.7	+30.4 +0.7	+1.9	+0.0 360	46.3	54.0	-7.7	Vert 103
13	2340.100M	48.2	+0.0 +0.5	-34.1 +1.8	+28.0 +0.4	+1.5	+0.0 360	46.3	54.0	-7.7	Vert 99
14	5730.110M	38.4	+0.0 +0.5	-33.7 +3.8	+34.5 +0.2	+2.4	+0.0 3	46.1	54.0	-7.9	Vert 103
15	2340.000M	47.9	+0.0 +0.5	-34.1 +1.8	+28.0 +0.4	+1.5	+0.0 360	46.0	54.0	-8.0	Horiz 106
16	3000.100M	45.8	+0.0 +0.5	-33.8 +2.2	+29.1 +0.4	+1.7	+0.0	45.9	54.0	-8.1	Vert 99

17	3240.100M	44.9	+0.0 +0.1	-33.9 +2.7	+29.7 +0.6	+1.8	+0.0 360	45.9	54.0	-8.1	Vert 103
18	2160.100M	47.9	+0.0 +0.4	-34.2 +1.9	+28.1 +0.4	+1.4	+0.0 360	45.9	54.0	-8.1	Vert 99
19	3210.100M	44.9	+0.0 +0.1	-33.8 +2.6	+29.6 +0.6	+1.8	+0.0 360	45.8	54.0	-8.2	Vert 103
20	3090.100M	45.5	+0.0 +0.3	-33.9 +2.4	+29.3 +0.4	+1.8	+0.0	45.8	54.0	-8.2	Vert 99
21	3210.100M	44.9	+0.0 +0.1	-33.8 +2.6	+29.6 +0.6	+1.8	+0.0 350	45.8	54.0	-8.2	Vert 103
22	2130.100M	47.5	+0.0 +0.4	-34.2 +1.9	+28.1 +0.4	+1.4	+0.0 360	45.5	54.0	-8.5	Vert 99
23	1259.900M	53.3	+0.0 +0.3	-35.7 +1.5	+24.4 +0.6	+1.0	+0.0 360	45.4	54.0	-8.6	Vert 99
24	3150.100M	44.5	+0.0 +0.2	-33.8 +2.5	+29.5 +0.5	+1.8	+0.0 38	45.2	54.0	-8.8	Vert 99
25	4140.100M	40.6	+0.0 +0.3	-33.3 +3.3	+32.0 +0.3	+2.0	+0.0	45.2	54.0	-8.8	Vert 99
26	4619.100M	39.8	+0.0 +0.1	-33.4 +3.6	+32.7 +0.2	+2.1	+0.0	45.1	54.0 High Channel	-8.9	Horiz 99
27	1200.000M	53.1	+0.0 +0.3	-35.9 +1.5	+24.2 +0.8	+1.0	+0.0 360	45.0	54.0	-9.0	Horiz 106
28	1110.000M	53.9	+0.0 +0.3	-36.3 +1.4	+23.9 +0.8	+1.0	+0.0 358	45.0	54.0	-9.0	Horiz 106
29	3600.025M Ave	42.4	+0.0 +0.4	-33.6 +2.8	+30.6 +0.4	+1.9	+0.0 28	44.9	54.0	-9.1	Vert 99
^	3600.000M	48.5	+0.0 +0.4	-33.6 +2.8	+30.6 +0.4	+1.9	+0.0 28	51.0	54.0	-3.0	Vert 99
^	3600.100M	47.3	+0.0 +0.4	-33.6 +2.8	+30.6 +0.4	+1.9	+0.0	49.8	54.0	-4.2	Vert 99
32	3600.000M	42.2	+0.0 +0.4	-33.6 +2.8	+30.6 +0.4	+1.9	+0.0 360	44.7	54.0	-9.3	Horiz 104
33	3660.100M	41.6	+0.0 +0.4	-33.6 +2.9	+30.8 +0.6	+1.9	+0.0	44.6	54.0	-9.4	Vert 99
34	2760.100M	46.0	+0.0 +0.5	-33.9 +1.2	+28.5 +0.5	+1.6	+0.0	44.4	54.0	-9.6	Vert 99
35	2279.700M	46.3	+0.0 +0.5	-34.1 +1.9	+28.0 +0.3	+1.5	+0.0 360	44.4	54.0	-9.6	Vert 99
36	4200.000M	39.7	+0.0 +0.3	-33.4 +3.3	+32.1 +0.3	+2.0	+0.0 326	44.3	54.0	-9.7	Horiz 104
37	1847.485M	47.3	+0.0 +0.3	-34.5 +1.9	+27.4 +0.4	+1.3	+0.0	44.1	54.0 High Channel	-9.9	Horiz 116
38	4579.765M	38.9	+0.0 +0.1	-33.4 +3.6	+32.6 +0.2	+2.1	+0.0	44.1	54.0 Mid Channel	-9.9	Horiz 104
39	2190.000M	45.7	+0.0 +0.4	-34.2 +2.0	+28.1 +0.4	+1.4	+0.0 360	43.8	54.0	-10.2	Horiz 106
40	3720.100M	40.3	+0.0 +0.4	-33.6 +3.0	+31.0 +0.6	+2.0	+0.0	43.7	54.0	-10.3	Vert 99
41	2438.500M	45.4	+0.0 +0.5	-34.0 +1.6	+27.9 +0.5	+1.6	+0.0	43.5	54.0	-10.5	Vert 99
42	2790.100M	44.5	+0.0 +0.5	-33.9 +1.4	+28.6 +0.5	+1.6	+0.0	43.2	54.0	-10.8	Vert 99

43	4540.165M	38.0	+0.0 +0.2	-33.4 +3.5	+32.6 +0.2	+2.1	+0.0	43.2	54.0	-10.8	Vert 102
44	1079.800M	52.2	+0.0 +0.3	-36.4 +1.4	+23.8 +0.9	+0.9	+0.0 360	43.1	54.0	-10.9	Vert 99
45	2070.100M	45.1	+0.0 +0.4	-34.2 +1.9	+28.2 +0.3	+1.4	+0.0 360	43.1	54.0	-10.9	Vert 99
46	3390.100M	41.6	+0.0 +0.2	-34.0 +2.7	+30.0 +0.6	+1.9	+0.0 360	43.0	54.0	-11.0	Vert 103
47	1589.900M	48.1	+0.0 +0.3	-34.9 +1.8	+25.8 +0.6	+1.2	+0.0	42.9	54.0	-11.1	Vert 99
48	1050.000M	52.3	+0.0 +0.2	-36.6 +1.3	+23.7 +1.1	+0.9	+0.0 360	42.9	54.0	-11.1	Horiz 106
49	5040.100M	36.5	+0.0 +0.5	-33.4 +3.8	+33.2 +0.1	+2.2	+0.0	42.9	54.0	-11.1	Vert 103
50	2100.100M	44.8	+0.0 +0.4	-34.2 +1.9	+28.2 +0.3	+1.4	+0.0 360	42.8	54.0	-11.2	Vert 99
51	4580.280M	37.6	+0.0 +0.1	-33.4 +3.6	+32.6 +0.2	+2.1	+0.0 360	42.8	54.0 Mid Channel	-11.2	Vert 104
52	1139.700M	51.2	+0.0 +0.3	-36.1 +1.4	+24.0 +0.8	+1.0	+0.0 360	42.6	54.0	-11.4	Vert 99
53	2460.100M	44.2	+0.0 +0.5	-34.0 +1.6	+27.9 +0.5	+1.6	+0.0	42.3	54.0	-11.7	Vert 99
54	1847.600M	45.5	+0.0 +0.3	-34.5 +1.9	+27.4 +0.4	+1.3	+0.0 62	42.3	54.0 High Channel	-11.7	Vert 99
55	2039.700M	44.2	+0.0 +0.4	-34.3 +1.8	+28.2 +0.3	+1.4	+0.0 360	42.0	54.0	-12.0	Vert 99
56	1800.000M	45.5	+0.0 +0.3	-34.6 +2.0	+27.1 +0.3	+1.3	+0.0 -15	41.9	54.0	-12.1	Horiz 106
57	2220.100M	43.6	+0.0 +0.4	-34.2 +2.0	+28.1 +0.4	+1.5	+0.0 360	41.8	54.0	-12.2	Vert 99
58	2010.100M	43.9	+0.0 +0.4	-34.3 +1.8	+28.2 +0.3	+1.4	+0.0 360	41.7	54.0	-12.3	Vert 99
59	2640.100M	43.3	+0.0 +0.5	-33.9 +1.3	+28.2 +0.4	+1.6	+0.0	41.4	54.0	-12.6	Vert 99
60	4540.060M	36.1	+0.0 +0.2	-33.4 +3.5	+32.6 +0.2	+2.1	+0.0 360	41.3	54.0 Low Channel	-12.7	Horiz 104
61	1816.090M	44.8	+0.0 +0.3	-34.6 +1.9	+27.2 +0.3	+1.3	+0.0 325	41.2	54.0 Low Channel	-12.8	Vert 102
62	1679.900M	45.0	+0.0 +0.3	-34.8 +1.9	+26.4 +0.7	+1.2	+0.0	40.7	54.0	-13.3	Vert 99
63	1739.800M	44.5	+0.0 +0.3	-34.7 +2.0	+26.8 +0.4	+1.3	+0.0	40.6	54.0	-13.4	Vert 99
64	1831.875M	43.9	+0.0 +0.3	-34.5 +1.9	+27.3 +0.3	+1.3	+0.0	40.5	54.0 Mid Channel	-13.5	Horiz 104
65	1140.000M	49.0	+0.0 +0.3	-36.1 +1.4	+24.0 +0.8	+1.0	+0.0 360	40.4	54.0	-13.6	Horiz 106
66	2771.595M	41.7	+0.0 +0.5	-33.9 +1.3	+28.6 +0.5	+1.6	+0.0	40.3	54.0 High Channel	-13.7	Horiz 99
67	4619.025M	35.0	+0.0 +0.1	-33.4 +3.6	+32.7 +0.2	+2.1	+0.0 360	40.3	54.0 High Channel	-13.7	Vert 99
68	1831.990M	43.6	+0.0 +0.3	-34.5 +1.9	+27.3 +0.3	+1.3	+0.0	40.2	54.0 Mid Channel	-13.8	Vert 104

69	1230.200M	47.7	+0.0 +0.3	-35.8 +1.5	+24.3 +0.7	+1.0	+0.0 360	39.7	54.0	-14.3	Vert 99
70	2748.075M	40.9	+0.0 +0.5	-33.9 +1.2	+28.5 +0.4	+1.6	+0.0	39.2	54.0 Mid Channel	-14.8	Horiz 104
71	1816.060M	42.8	+0.0 +0.3	-34.6 +1.9	+27.2 +0.3	+1.3	+0.0 74	39.2	54.0 Low Channel	-14.8	Horiz 104
72	1260.000M	46.9	+0.0 +0.3	-35.7 +1.5	+24.4 +0.6	+1.0	+0.0 360	39.0	54.0	-15.0	Horiz 106
73	1710.100M	43.0	+0.0 +0.3	-34.7 +2.0	+26.6 +0.5	+1.2	+0.0	38.9	54.0	-15.1	Vert 99
74	3695.225M	35.8	+0.0 +0.4	-33.6 +2.9	+30.9 +0.5	+1.9	+0.0	38.8	54.0 High Channel	-15.2	Vert 99
75	2771.425M	39.7	+0.0 +0.5	-33.9 +1.3	+28.6 +0.5	+1.6	+0.0 360	38.3	54.0 High Channel	-15.7	Vert 99
76	1830.020M	41.8	+0.0 +0.3	-34.6 +1.9	+27.3 +0.3	+1.3	+0.0 68	38.3	54.0 Mid Channel	-15.7	Vert 99
77	1410.000M	43.5	+0.0 +0.3	-35.3 +1.6	+24.9 +0.5	+1.1	+0.0 360	36.6	54.0	-17.4	Horiz 106
78	2724.060M	37.7	+0.0 +0.5	-33.9 +1.2	+28.4 +0.4	+1.6	+0.0 360	35.9	54.0 Low Channel	-18.1	Horiz 104
79	1169.900M	43.9	+0.0 +0.3	-36.0 +1.4	+24.1 +0.9	+1.0	+0.0 360	35.6	54.0	-18.4	Vert 99

CKC Laboratories, Inc. Date: 12/22/2011 Time: 15:08:17 Itron, Inc. WO#: 92467
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Horiz Sequence#: 4
Ext ATTN: 0 dB



Test Setup Photos

-20dBc Occupied Bandwidth

Test Conditions / Setup

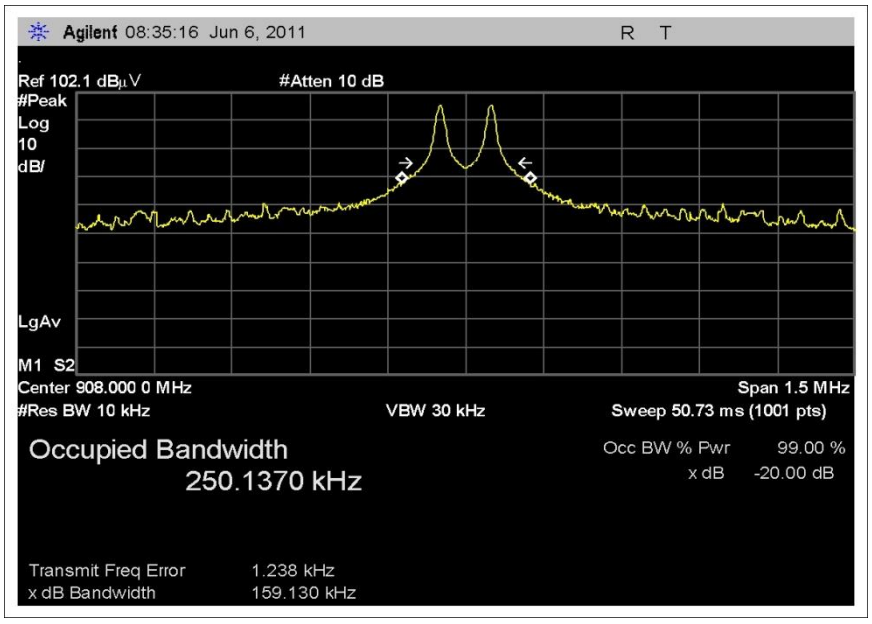
Temp: 24°C
Humidity: 30%
Pressure: 102.8kPa
Frequency: 9kHz - 9.52GHz

EUT is located on the test table. Receiving antenna is 3m from the EUT. EUT is lying on its side (screen is facing sideways). EUT is transmitting at 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010. Antenna gain is 2.1dBi.

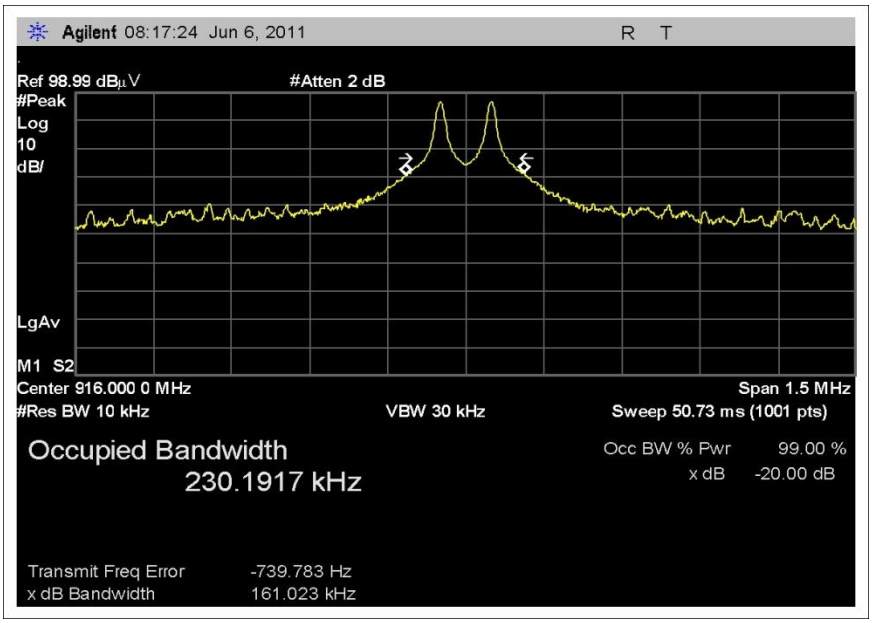
Engineer Name: A. del Angel

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 Plots

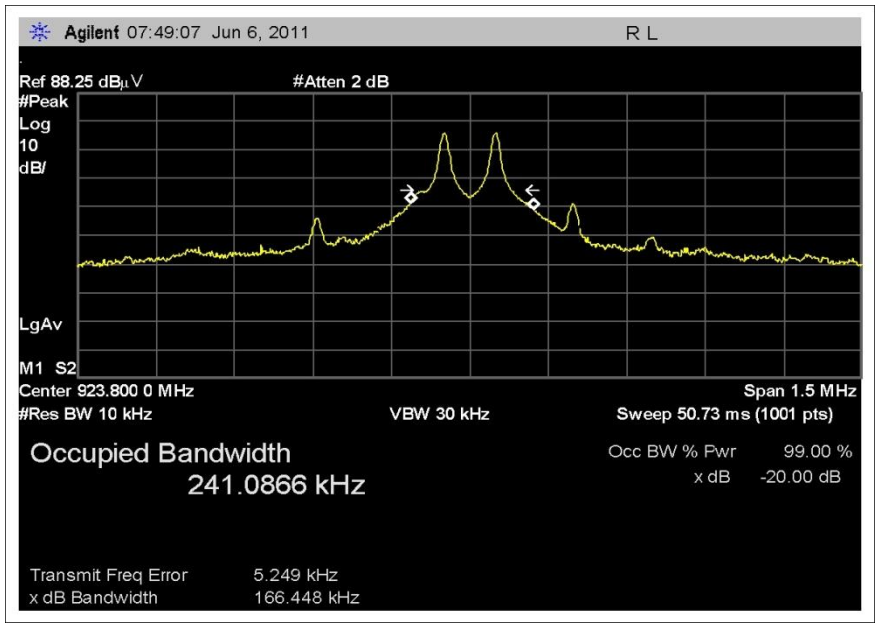


Low Channel



Mid Channel

Note: The above plots contain a software default date of June 6, 2011 which was not changed at the time of testing. Actual date of testing was October 27, 2011.



High Channel

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 27, 2011.

Test Setup Photos

Bandedge

Test Conditions / Setup

Temp: 22°C
Humidity: 21%
Pressure: 103.2kPa

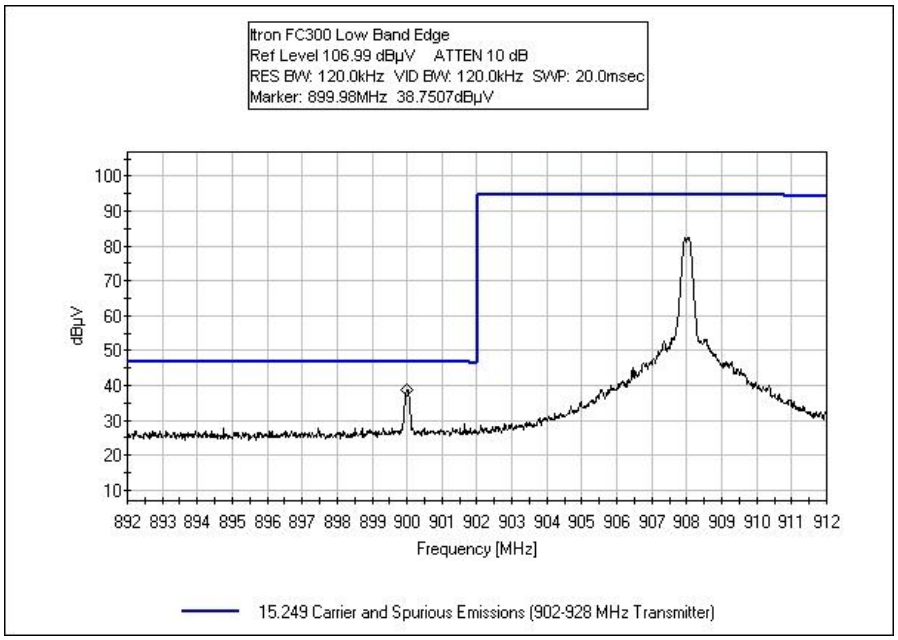
Screen is facing sideways. This orientation was determined to be worst case from preliminary measurements. Support laptop is located outside the testing area via USB-fiber extension. Ferrite added to USB Cable at EUT. Fair-Rite part number 0443164251. EUT is transmitting at 908MHz (Low), 916MHz (Mid), and 923.8MHz (High). Power is set to 7010.

Engineer Name: R. Clark

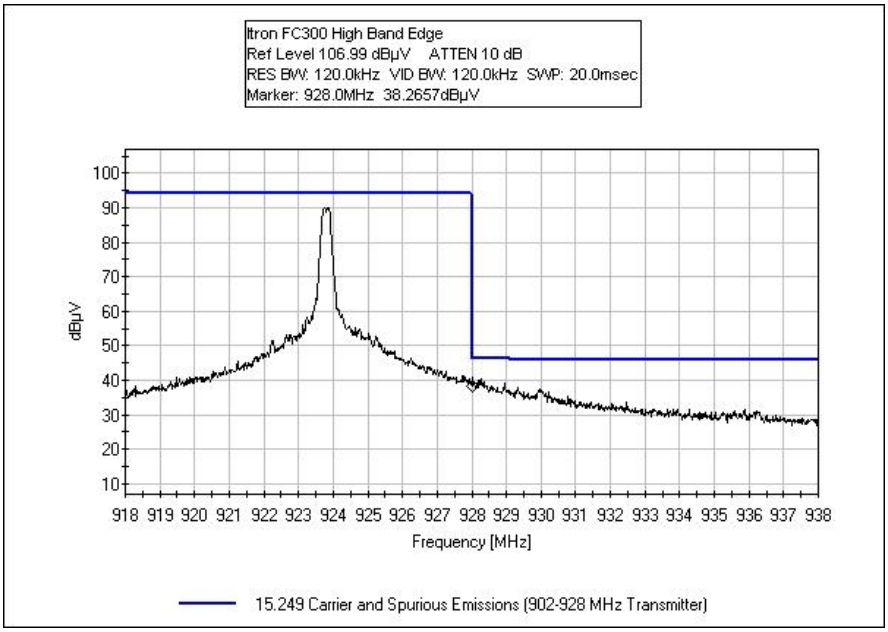
Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN02871	Spectrum Analyzer	E4440A	Agilent	4/22/2011	4/22/2013
AN01316	Preamp	8447D	HP	5/21/2010	5/21/2012
AN01994	Biconilog Antenna	CBL6111C	Chase	3/8/2010	3/8/2012
AN03227	Cable	32026-29080-29080-84	Astrolab	5/2/2011	5/2/2013
ANP05360	Cable	RG214	Belden	11/8/2010	11/8/2012
ANP05366	Cable	RG-214	Belden	10/14/2011	10/14/2013
ANC00058*	Band Reject Filter	N03916M1	Microwave Circuits	1/2/2012	1/2/2014

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

Test Data



Low



High

Test Setup Photos

RSS-210

99 % Bandwidth

Test Conditions / Setup

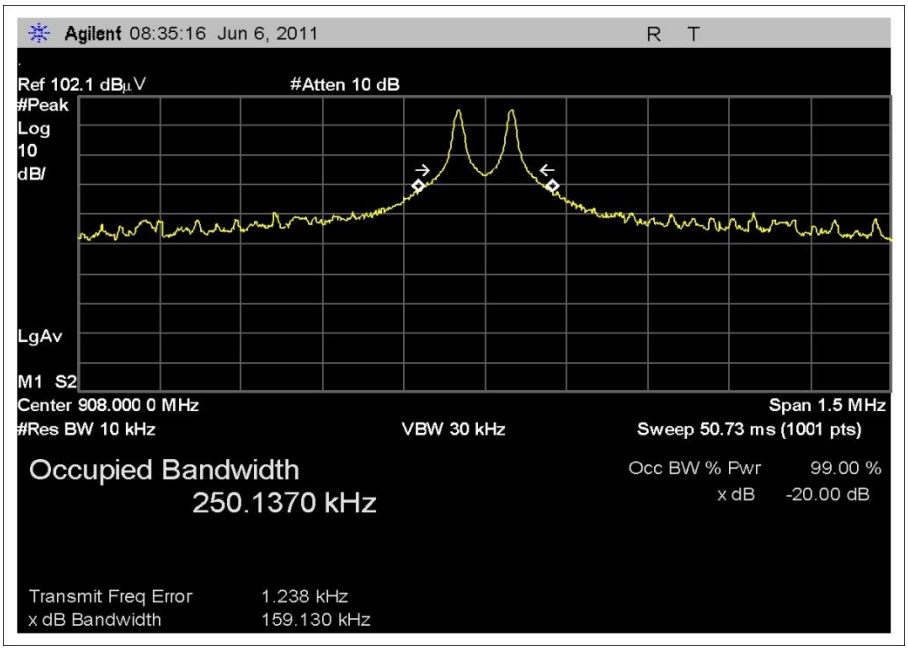
Temp: 24°C
Humidity: 30%
Pressure: 102.8kPa
Frequency: 9kHz - 9.52GHz

EUT is located on the test table. Receiving antenna is 3m from the EUT. EUT is lying on its side (screen is facing sideways). EUT is transmitting at 908MHz (Low), 916MHz (Mid), and 923.8MHz (High).
Power is set to 7010. Antenna gain is 2.1dBi.

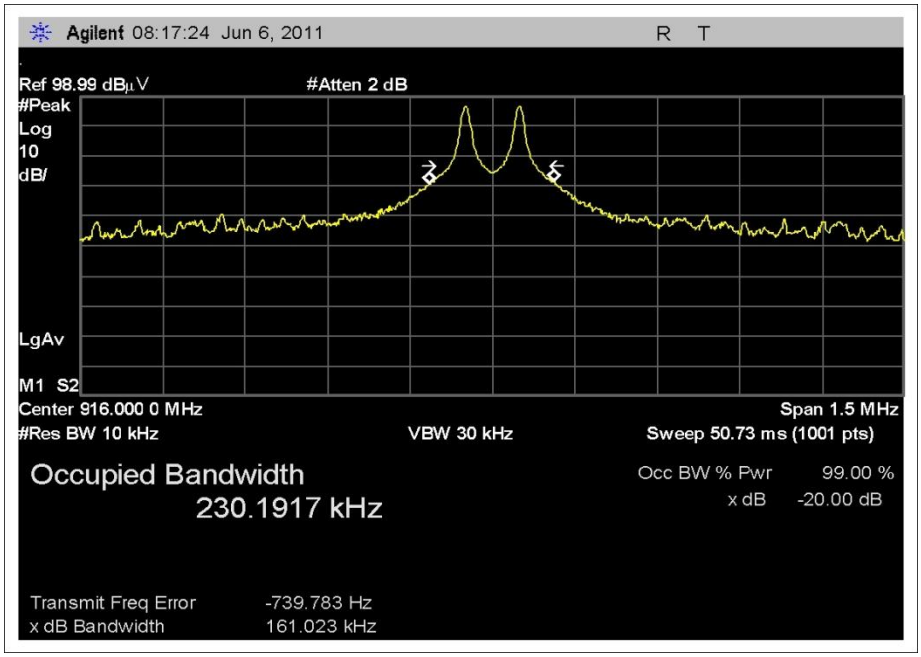
Engineer Name: A. del Angel

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

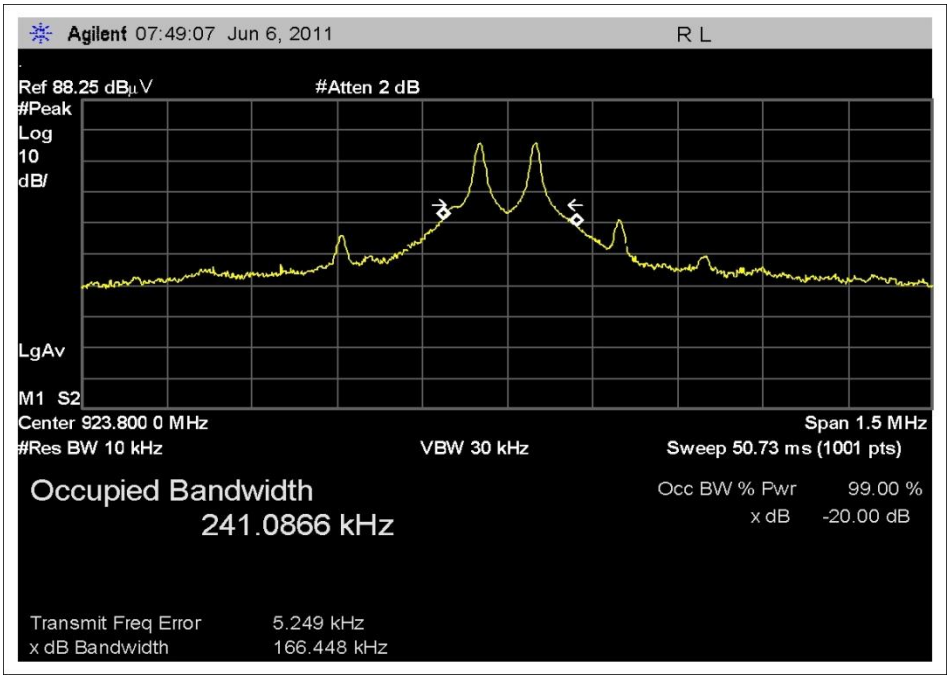


Low Channel



Mid Channel

Note: The above plots contain a software default date of June 6, 2011 which was not changed at the time of testing. Actual date of testing was October 27, 2011.



High Channel

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 27, 2011.

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 dBµV/m, the spectrum analyzer reading in dBµV 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	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.