

Ittron, Inc.

ADDENDUM TEST REPORT FOR 90820-8

CCU100T (SRR+WWAN+WIFI+GPS RX)

Tested to the following standards:

FCC Part 15 Subpart C Sections 15.207 and 15.247 (FHSS)
and
RSS-210 Version 7

Report No.: 90820-8A

Date of issue: October 22, 2010



TESTING
CERT #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.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

ltron, Inc.
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Liberty Lake, WA 99019

REPORT PREPARED BY:

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

REPRESENTATIVE: Jay Holcomb
Customer Reference Number: 19103

Project Number: 90820

DATE OF EQUIPMENT RECEIPT:

August 2, 2010

DATE(S) OF TESTING:

August 2 – September 8, 2010

Revision History

Original: Testing of the CCU100T, (SRR+WWAN+WIFI+GPS RX) to FCC Part 15 Subpart C Sections 15.207 and 15.247 (FHSS) and RSS-210 Version 7.

Addendum A: Corrected references from 15.107 to 15.207 in the report and added a clarification statement about the testing for Voltage Variations. Added a manufacturer's declaration statement to the "result" section under the plot for Time of Occupancy.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

A handwritten signature in black ink that reads "Steve Behm".

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	JAPAN	CANADA	FCC
Bothell	R-2296, C-2506 & T-1489	3082C-1	318736

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C 15.247 (FHSS)

Description	Test Procedure/Method	Results
Voltage Variation	FCC Part 15 Subpart C Section 15.31(e) / ANSI C63.4 (2003)	Pass
AC Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2003)	Pass
Carrier Frequency Separation	FCC Part 15 Subpart C Section 15.247 (a)(1) / DA00-705	Pass
20dB Bandwidth	FCC Part 15 Subpart C Section 15.247(a)(1)(i) / DA00-705	Pass
Number of Hopping Frequencies	FCC Part 15 Subpart C Section 15.247(a)(1)(i) / DA00-705	Pass
Time of Occupancy	FCC Part 15 Subpart C Section 15.247(a)(1)(i) / DA00-705	Pass
Peak Conducted Power	FCC Part 15 Subpart C Section 15.247(b)(2)/ DA00-705	Pass
Antenna Conducted Spurious	FCC Part 15 Subpart C Section 15.247(d)/ DA00-705	Pass
Radiated Spurious	FCC Part 15 Subpart C Section 15.247(d)/ DA00-705	Pass
99% Bandwidth	RSS-210 Version 7/RSS-GEN	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
Cell modem power cable has Laird ferrite 28A0392-0A2 added. Main power supply cable has Laird ferrite 28A2432-0A2 added. Ground wire added between ground lug and cell modem bracket. RF power was lowered for transmission using Amplitude Modulation on 915 MHz. The RFIC DAC setting shown in the picture below was used in order for the device to comply with the 36 dBm EIRP limit.



FERRITE ON CELL MODEM POWER CABLE



FERRITE ON INPUT POWER CABLE



GROUND WIRE

ISM Transmitter Calibration

Frequency (MHz):	915.0	Update	(903 - 926.8 MHz)
RFIC DAC:	18	Update	(0-63)
Power DAC:	63	Update	(0-63)

Mode

☐ Mod Burst ☐ CW
☐ Mod Burst Sweep ☐ CW Sweep
☒ Mod Continuous

Modulation Type

☒ AM
☐ FM 12.5K
☐ FM 37.5K

Turn ON Turn OFF Close

TX Status: OFF

TRANSMITTER ADJUSTMENTS

EQUIPMENT UNDER TEST (EUT)

SRR+WWAN+WIFI+GPS RX

(Internal WWAN & GPS Antenna)

Manuf: Itron, Inc.

Model: CCU100

Serial: 7404FCC5

SRR+WWAN+WIFI+GPS RX

(Always External Antennas)

Manuf: Itron, Inc.

Model: CCU100T (model: Tower CCU)

Serial: 7404FCC6

Lighting Surge Arrestor

Manuf: Polyphaser

Model: DSXL-ME

Serial: NA

External GPS Antenna

Manuf: Trimble

Model: 57861-00

Serial: 213100323

External ISM Antenna

Manuf: Laird Technologies

Model: FG9026

Serial: 40241

H-Pol Omni Antenna

Manuf: Taoglas

Model: TIC.95.2F11

Serial: NA

External RF Filter

Manuf: Delta Microwave

Model: U1993

Serial: 101

External Battery

Manuf: Excel Battery Company

Model: 2EXL7360

Serial: S10166003-023

External WWAN Antenna

Manuf: Laird Technologies

Model: FG821/18503

Serial: 40353

PERIPHERAL DEVICES

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

Laptop

Manuf: Dell

Model: Latitude D630

Serial: 9JQRJH1

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.

15.31(e) Voltage Variation

Test Set up

The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable and 10 dB attenuator. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable.

Engineer Name: J. Gilbert

Test Equipment				
Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121
Programmable Power Source	9999-0190	05/27/2010	05/27/2012	01314

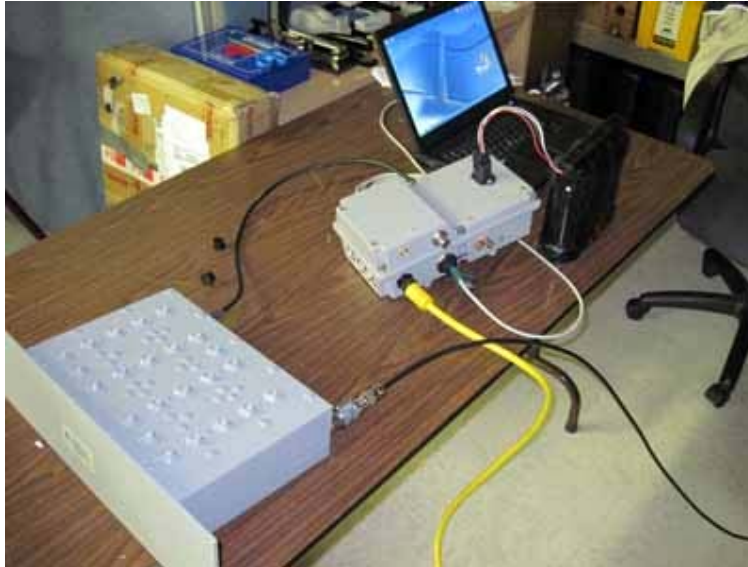
Test Data

FHSS-AM 16 kBaud	903 MHz	915 MHz	926.8 MHz
Voltage	dBm	dBm	dBm
102	25.9	27.8	11.5
120	26.0	27.9	11.3
138	26.0	27.8	11.3
204	25.9	27.8	11.4
240	26.0	27.9	11.4
265	25.9	27.8	11.3

FHSS-FM 12.5 kBaud	903 MHz	915 MHz	926.8 MHz
Voltage	dBm	dBm	dBm
102	24.7	26.5	12.0
120	24.7	26.5	11.9
138	24.8	26.6	12.0
204	24.8	26.6	11.9
240	24.9	26.6	11.8
265	24.8	26.6	11.8
FHSS-FM 37.5 kBaud	903 MHz	915 MHz	926.8 MHz
Voltage	dBm	dBm	dBm
102	24.6	26.4	11.5
120	24.6	25.9	11.5
138	24.6	26.4	11.6
204	24.6	26.5	11.4
240	24.6	26.5	11.5
265	24.6	26.5	11.4

Note: The maximum voltage tested (265VAC) is less than 240 +15% because the EUT power supply is only spec'd to 265VAC.

Test Setup Photos



15.207 AC Conducted Emissions

For this requirement, only one model was tested; **CCU100 (SRR+WWAN+WIFI+GPS RX Internal WWAN & GPS Antenna)**. The manufacturer declares that, with regards to this particular test, all models are electrically identical and therefore meet the level of testing equivalent to the tested model.

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 #: **90893** Date: 8/3/2010
 Test Type: **Conducted Emissions** Time: 3:28:49 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (internal WWAN & GPS antenna)** Sequence#: 2
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100 240V 60Hz
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN01492	50uH LISN-Line (dB)	3816/2NM	6/2/2009	6/2/2011
T1	AN01492	50uH LISN-Neutral (dB)	3816/2NM	6/2/2009	6/2/2011
T2	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
T3	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T6	AN01717	High Pass Filter	F3440-P005	5/27/2010	5/27/2012
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (internal WWAN & GPS antenna)*	Itron, Inc.	CCU100	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 150 kHz - 30 MHz
 Temp: 24°C
 Humidity: 39%
 Pressure: 102.3 kPa

EUT has the Cell modem, Wi-Fi radio, and ISM radio transmitting continuously.
 GPS receiver is active.

Ext Attn: 0 dB

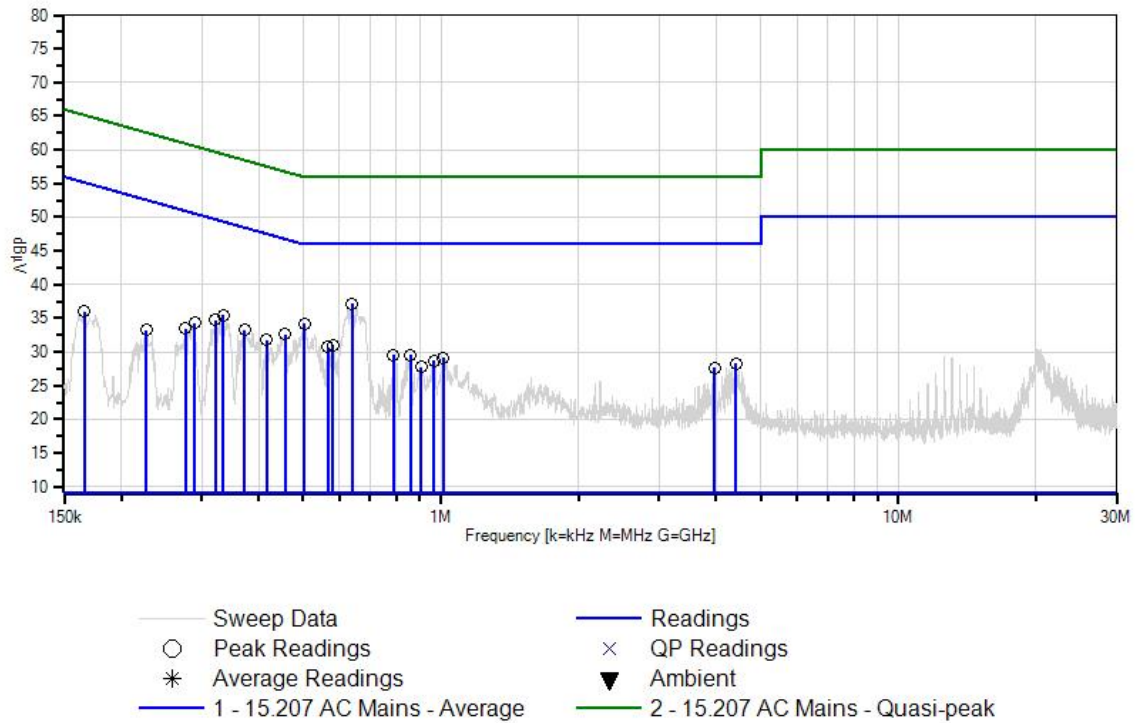
Measurement Data:

Reading listed by margin.

Test Lead: Neutral

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	638.682k	27.4	+0.0 +0.0	+9.6 +0.0	+0.1	+0.1	+0.0	37.2	46.0	-8.8	Neutr
2	503.422k	24.3	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	34.2	46.0	-11.8	Neutr
3	334.710k	25.6	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	35.5	49.3	-13.8	Neutr
4	456.881k	22.7	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	32.6	46.7	-14.1	Neutr
5	320.893k	24.8	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	34.7	49.7	-15.0	Neutr
6	581.233k	21.2	+0.0 +0.0	+9.6 +0.0	+0.1	+0.1	+0.0	31.0	46.0	-15.0	Neutr
7	372.525k	23.4	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	33.3	48.4	-15.1	Neutr
8	565.235k	20.9	+0.0 +0.0	+9.6 +0.0	+0.1	+0.1	+0.0	30.7	46.0	-15.3	Neutr
9	415.430k	21.9	+0.0 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	31.8	47.5	-15.7	Neutr
10	289.624k	24.4	+0.0 +0.0	+9.6 +0.1	+0.2	+0.0	+0.0	34.3	50.5	-16.2	Neutr
11	788.487k	19.9	+0.0 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	29.6	46.0	-16.4	Neutr
12	858.299k	19.9	+0.0 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	29.6	46.0	-16.4	Neutr
13	1.013M	19.4	+0.0 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	29.1	46.0	-16.9	Neutr
14	966.512k	19.0	+0.0 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	28.7	46.0	-17.3	Neutr
15	276.534k	23.6	+0.0 +0.0	+9.6 +0.1	+0.2	+0.0	+0.0	33.5	50.9	-17.4	Neutr
16	4.420M	18.3	+0.1 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	28.3	46.0	-17.7	Neutr
17	906.974k	18.1	+0.0 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	27.8	46.0	-18.2	Neutr
18	3.969M	17.7	+0.1 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	27.7	46.0	-18.3	Neutr
19	165.999k	26.0	+0.1 +0.0	+9.6 +0.1	+0.2	+0.0	+0.0	36.0	55.2	-19.2	Neutr
20	227.084k	23.3	+0.0 +0.0	+9.6 +0.1	+0.2	+0.0	+0.0	33.2	52.6	-19.4	Neutr

CKC Laboratories, Inc. Date: 8/3/2010 Time: 3:28:49 PM Itron, Inc. WO#: 90893
15.207 AC Mains - Average Test Lead: Neutral Neutral Sequence#: 2 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 #: **90893** Date: 8/3/2010
 Test Type: **Conducted Emissions** Time: 3:19:53 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX** Sequence#: 1
(internal WWAN & GPS antenna)
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100 240V 60Hz
 S/N: 7404FCC5

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01492	50uH LISN-Line (dB)	3816/2NM	6/2/2009	6/2/2011
	AN01492	50uH LISN-Neutral (dB)	3816/2NM	6/2/2009	6/2/2011
T2	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
T3	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T6	AN01717	High Pass Filter	F3440-P005	5/27/2010	5/27/2012
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (internal WWAN & GPS antenna)*	Itron, Inc.	CCU100	7404FCC5
H-pol omni antenna	Taoglas	TIC.95.2F11	

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 150 kHz - 30 MHz
Temp: 24°C
Humidity: 39%
Pressure: 102.3 kPa
EUT has the Cell modem, Wi-Fi radio, and ISM radio transmitting continuously.
GPS receiver is active.

Ext Attn: 0 dB

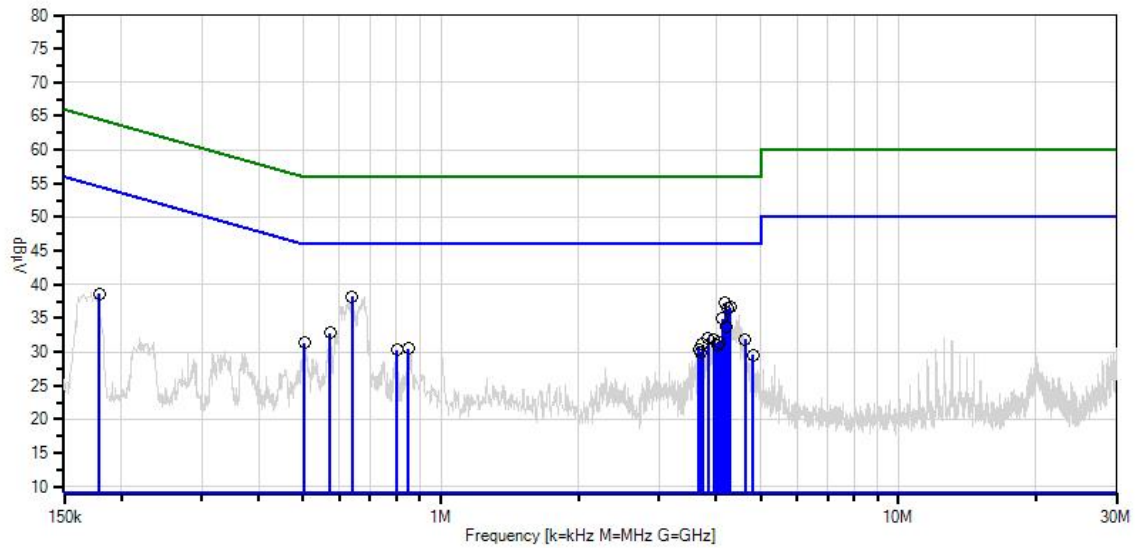
Measurement Data:

Reading listed by margin.

Test Lead: Line

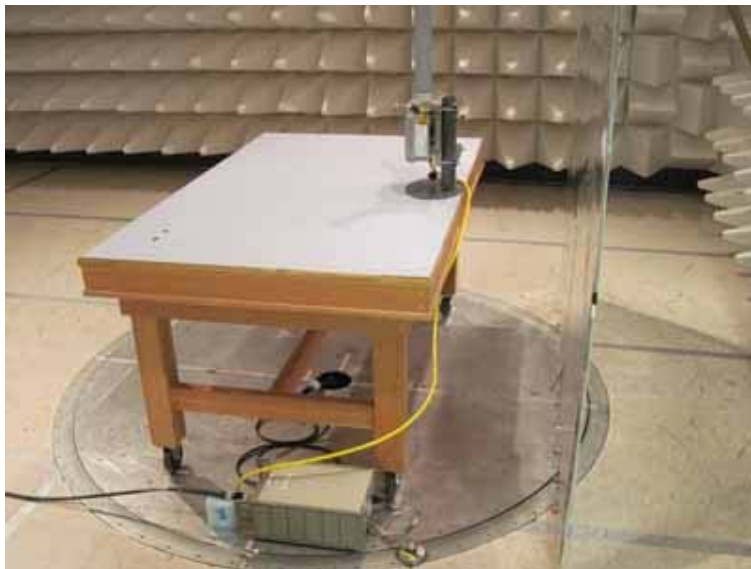
#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 T6 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	638.682k	28.3	+0.1 +0.0	+9.6 +0.0	+0.1	+0.1	+0.0	38.2	46.0	-7.8	Line
2	4.182M	27.2	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	37.3	46.0	-8.7	Line
3	4.296M	26.5	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	36.6	46.0	-9.4	Line
4	4.241M	26.3	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	36.4	46.0	-9.6	Line
5	4.126M	24.8	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	34.9	46.0	-11.1	Line
6	4.220M	23.7	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	33.8	46.0	-12.2	Line
7	571.779k	22.9	+0.1 +0.0	+9.6 +0.0	+0.1	+0.1	+0.0	32.8	46.0	-13.2	Line
8	3.846M	22.0	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	32.1	46.0	-13.9	Line
9	4.620M	21.6	+0.3 +0.0	+9.5 +0.1	+0.2	+0.2	+0.0	31.9	46.0	-14.1	Line
10	3.952M	21.7	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	31.8	46.0	-14.2	Line
11	4.067M	21.4	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	31.5	46.0	-14.5	Line
12	502.695k	21.3	+0.1 +0.0	+9.6 +0.1	+0.1	+0.1	+0.0	31.3	46.0	-14.7	Line
13	3.731M	21.0	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	31.1	46.0	-14.9	Line
14	4.020M	20.9	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	31.0	46.0	-15.0	Line
15	847.391k	20.7	+0.1 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	30.5	46.0	-15.5	Line
16	3.667M	20.3	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	30.4	46.0	-15.6	Line
17	801.577k	20.5	+0.1 +0.0	+9.6 +0.0	+0.0	+0.1	+0.0	30.3	46.0	-15.7	Line
18	179.088k	28.6	+0.1 +0.0	+9.6 +0.1	+0.2	+0.0	+0.0	38.6	54.5	-15.9	Line
19	3.701M	19.9	+0.2 +0.0	+9.5 +0.0	+0.2	+0.2	+0.0	30.0	46.0	-16.0	Line
20	4.819M	19.2	+0.3 +0.0	+9.5 +0.1	+0.2	+0.2	+0.0	29.5	46.0	-16.5	Line

CKC Laboratories, Inc. Date: 8/3/2010 Time: 3:19:53 PM Itron, Inc. WO#: 90893
15.207 AC Mains - Average Test Lead: Line Line Sequence#: 1 Ext ATTN: 0 dB



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

Test Setup Photos



15.247(a)(1) Carrier Frequency Separation

Test Set up

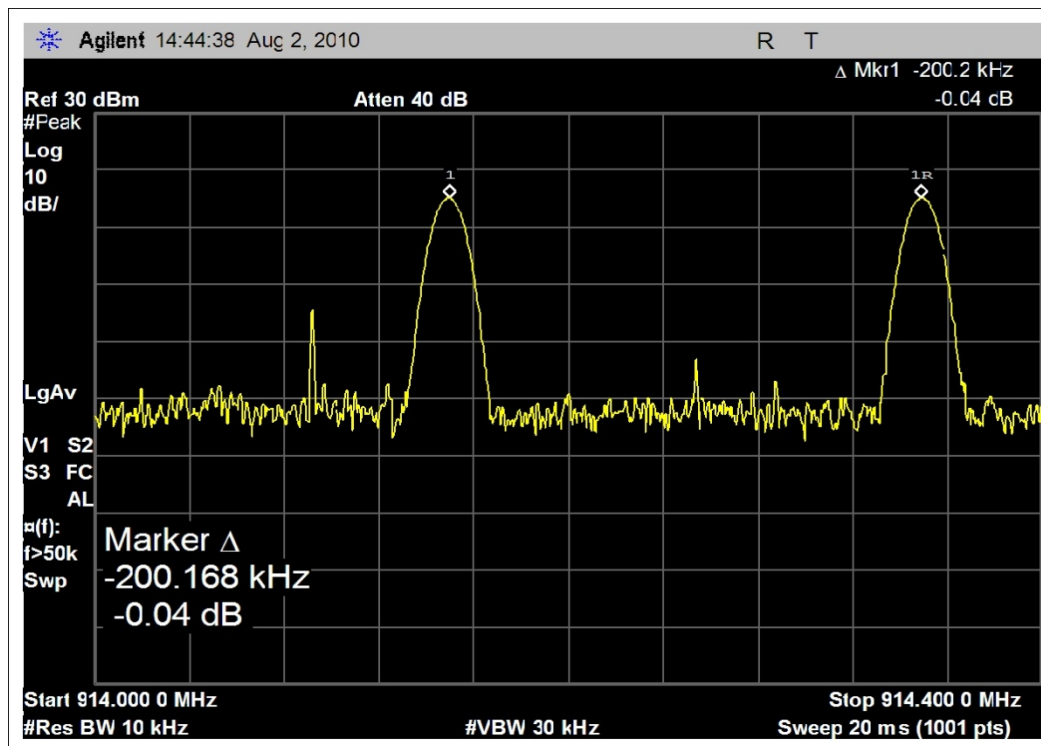
The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable and 10 dB attenuator. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable.

Engineer Name: J. Gilbert

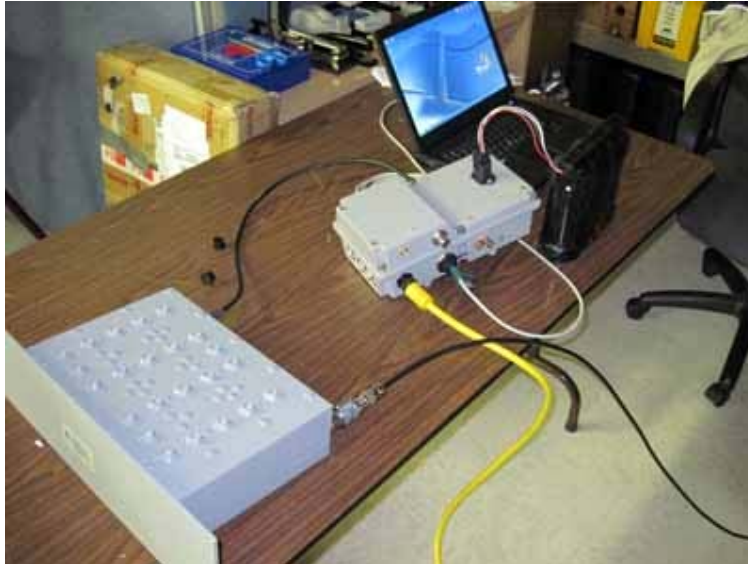
Test Equipment

Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121

Test Data



Test Setup Photos



15.247(a)(1)(i) 20dB Bandwidth

Test Set up

The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable and 10 dB attenuator. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable.

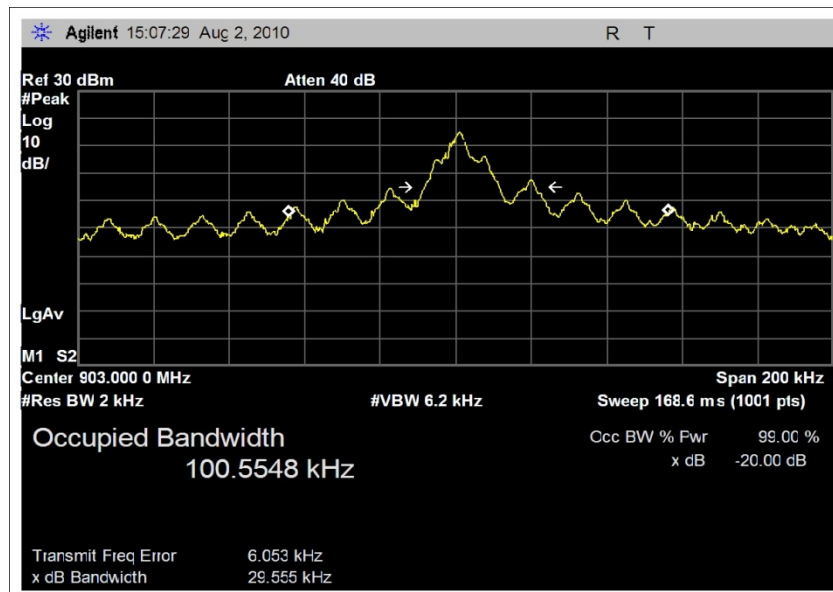
Engineer Name: J. Gilbert

Test Equipment				
Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121

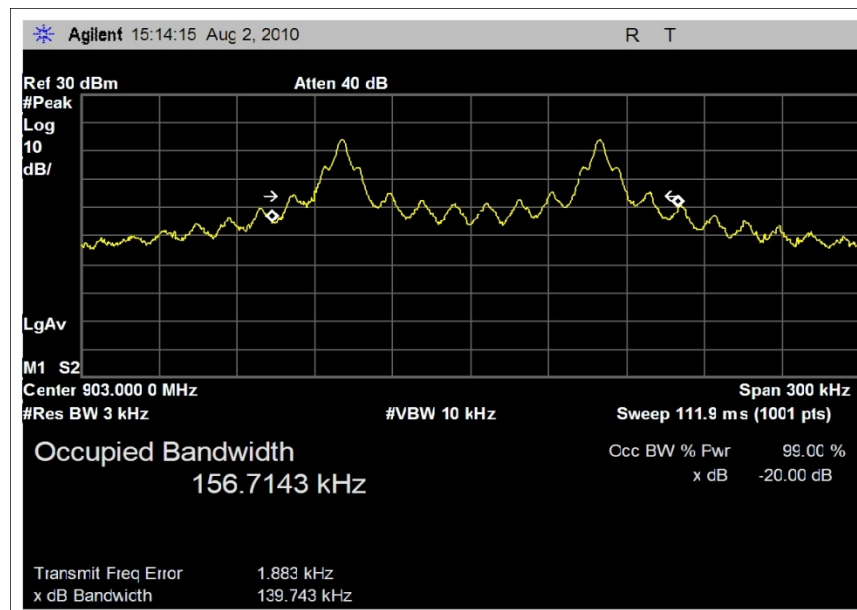
Test Data Sheets

903 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	29.56 kHz	139.74 kHz	53.95 kHz
915 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	29.69 kHz	139.91 kHz	54.25 kHz
926.8 MHz	AM	FM-12.5 kBaud	FM-37.5 kBaud
	29.07 kHz	129.50 kHz	53.03 kHz

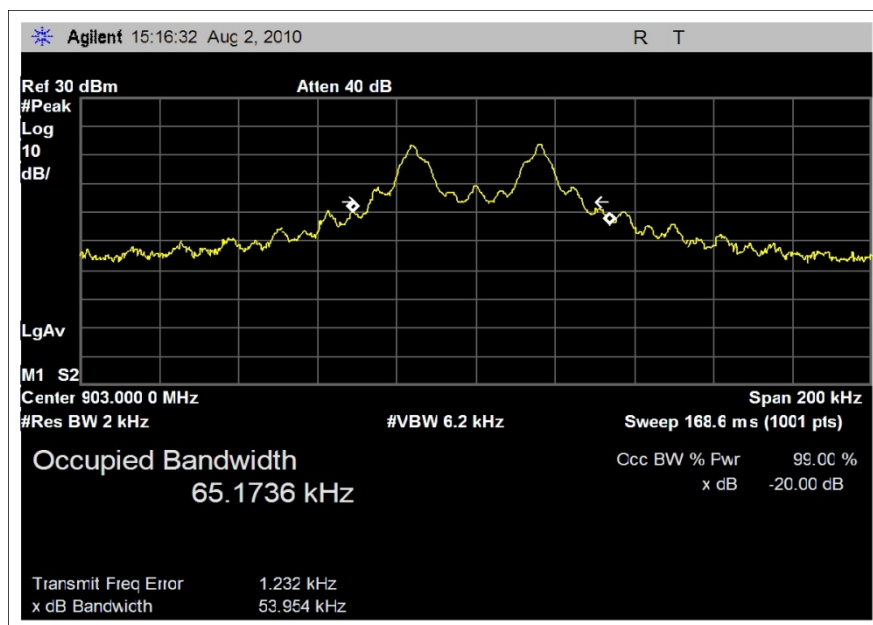
Requirement: The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.



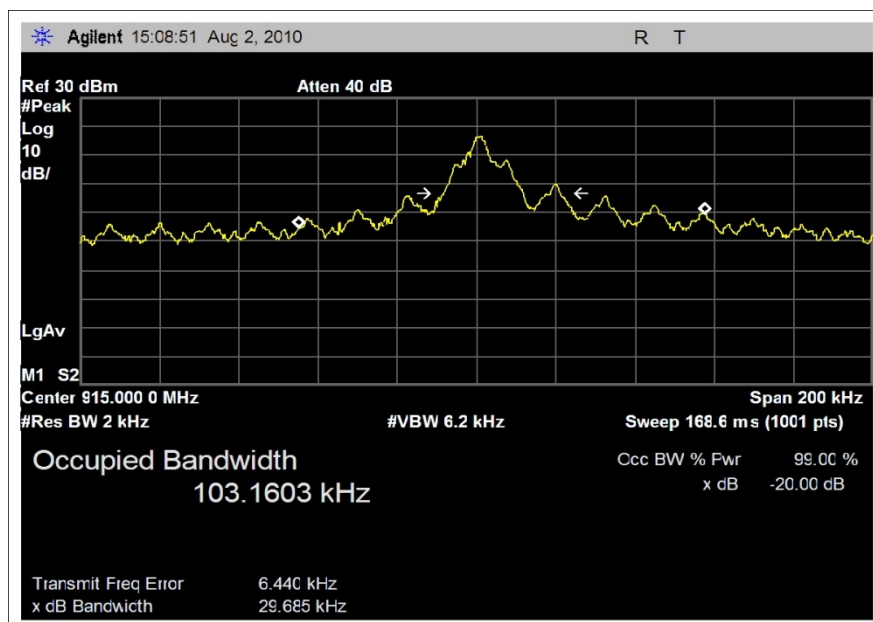
903-AM



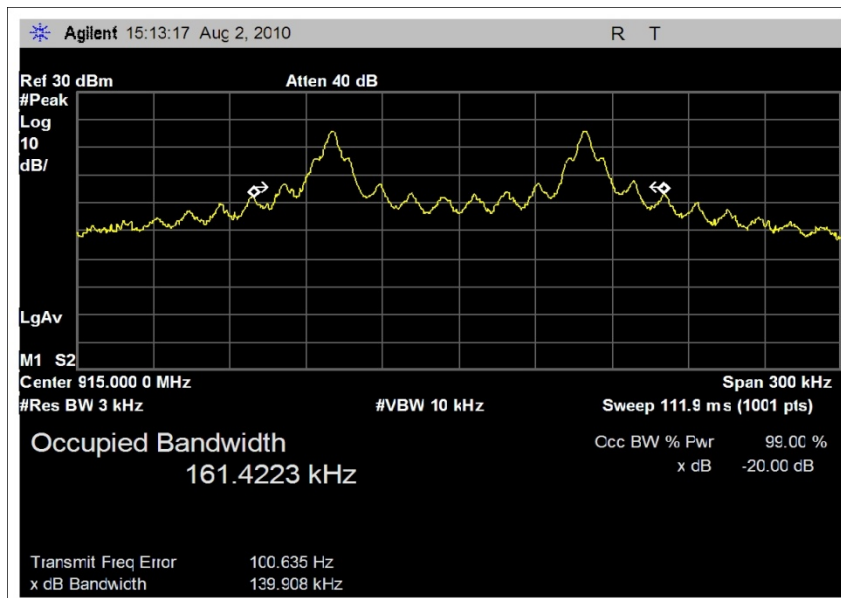
903-FM-12.5



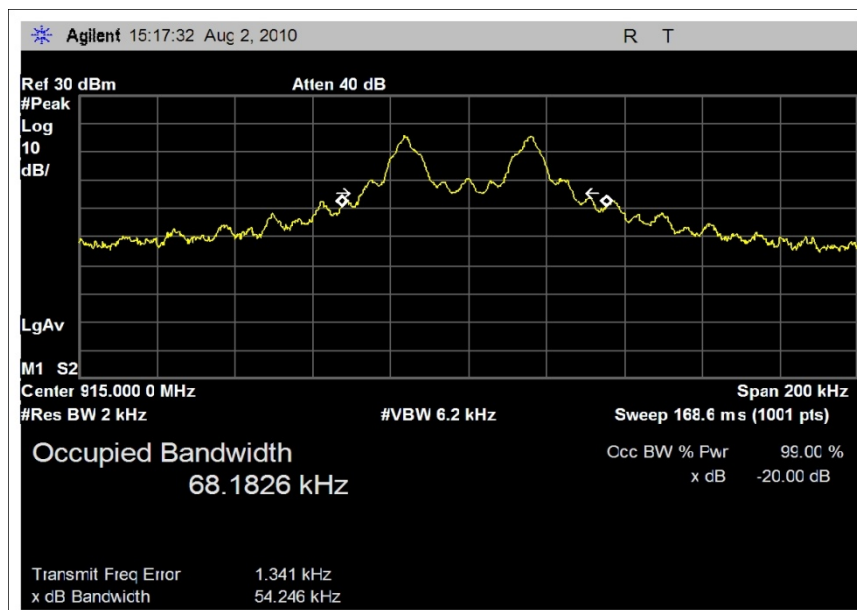
903-FM-37.5



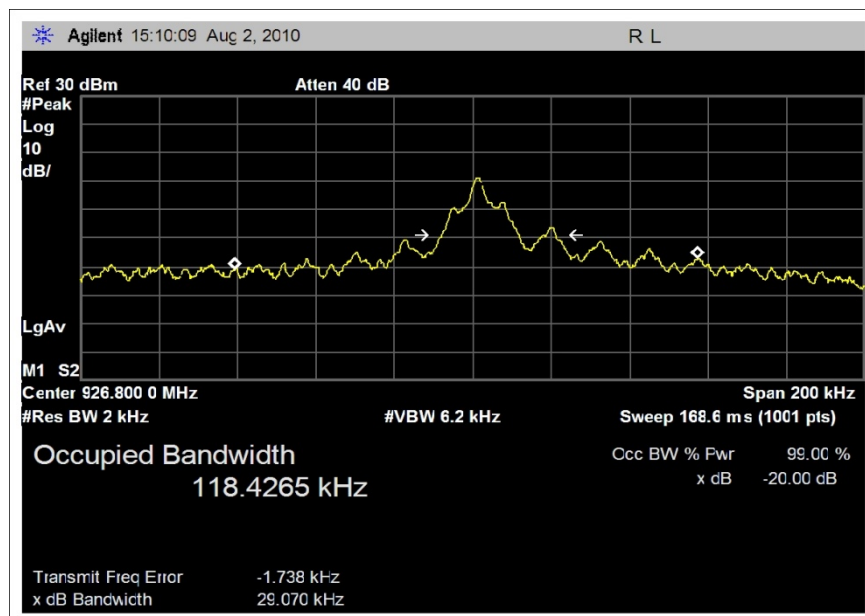
915-AM



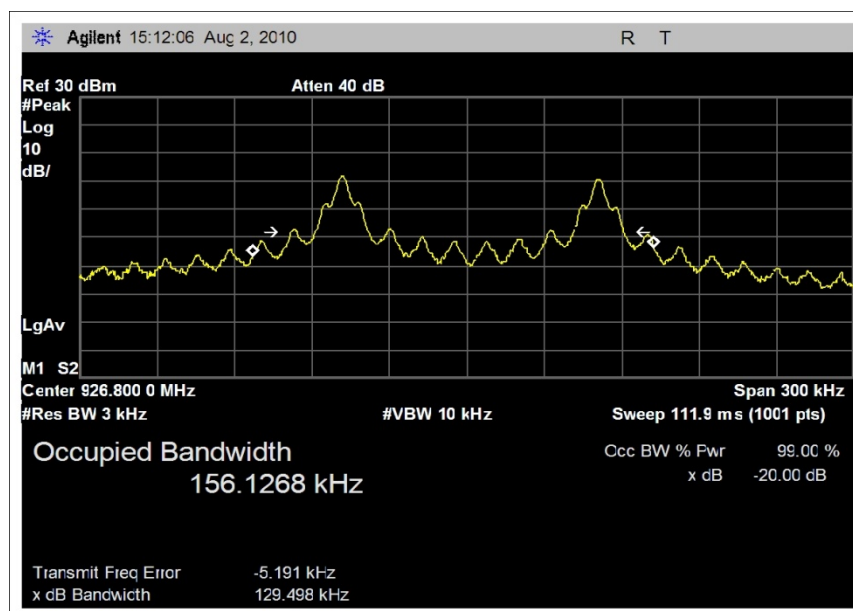
915-FM-12.5



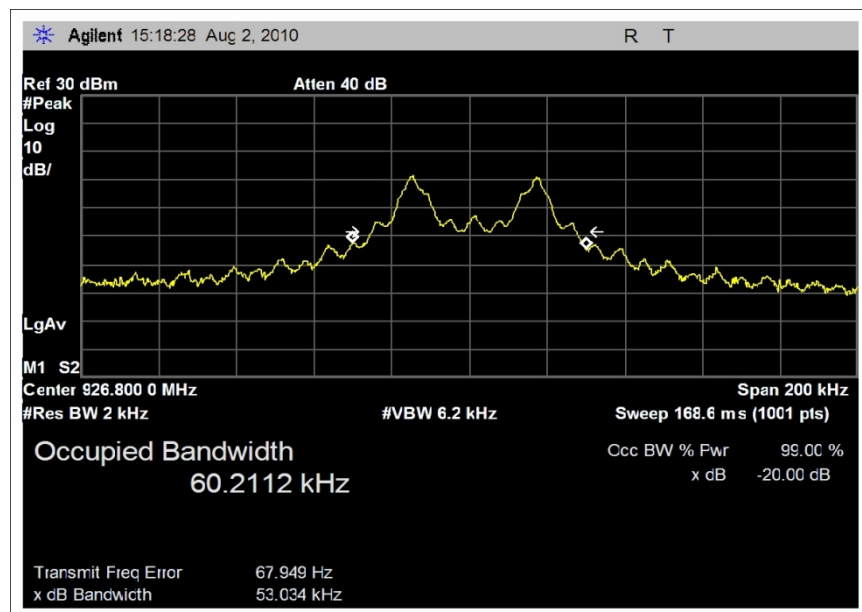
915-FM-37.5



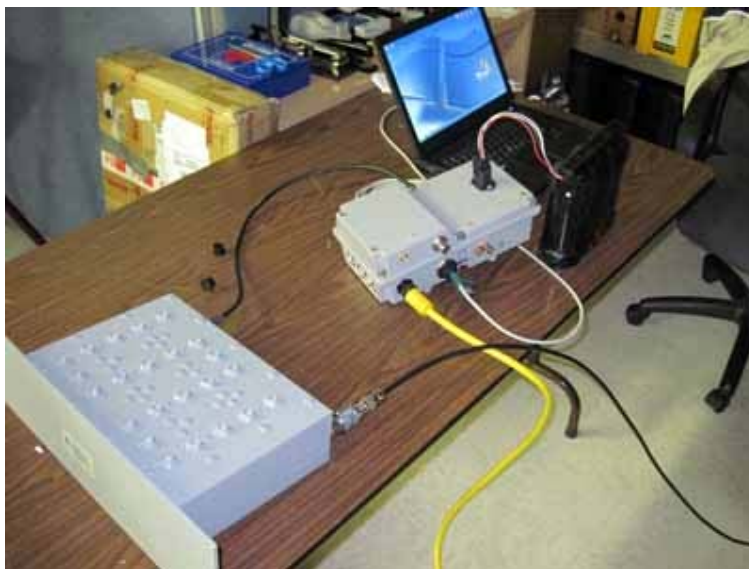
926.8-AM



926.8-FM-12.5



926.8-FM37.5



15.247(a)(1)(i) Number of Hopping Frequencies

Test Set up

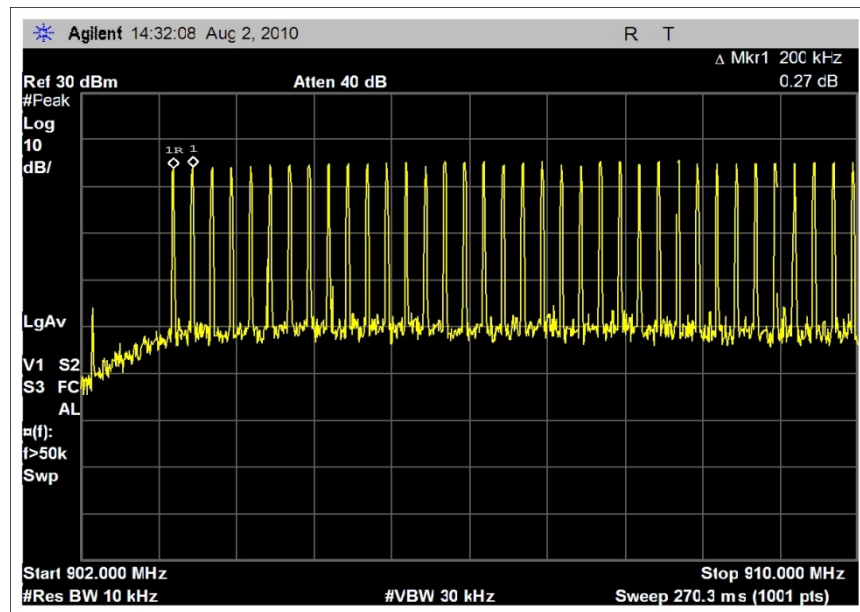
The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable. For this testing, all models (CCU100, CCU100-Repeater, CCU100R, and CCU100R-Repeater) are identical.

Engineer Name: J. Gilbert

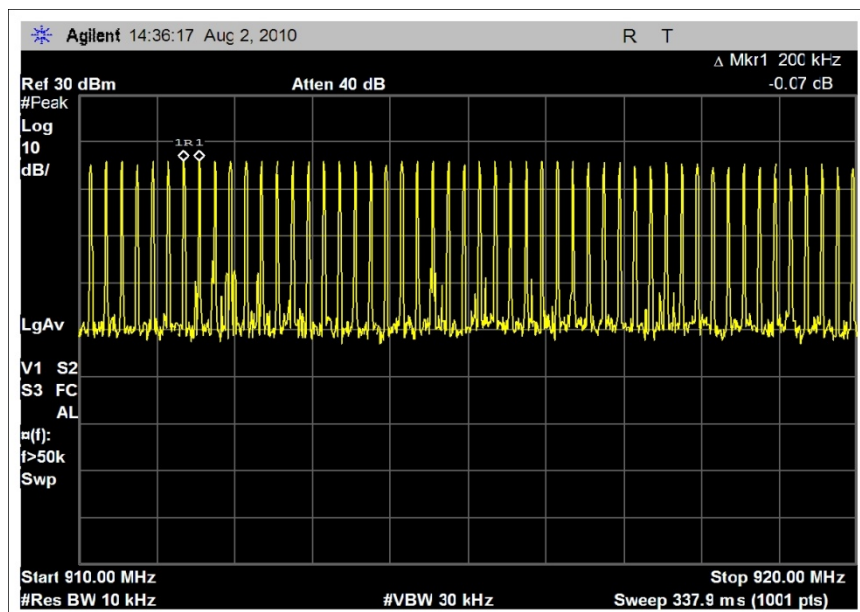
Test Equipment

Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121

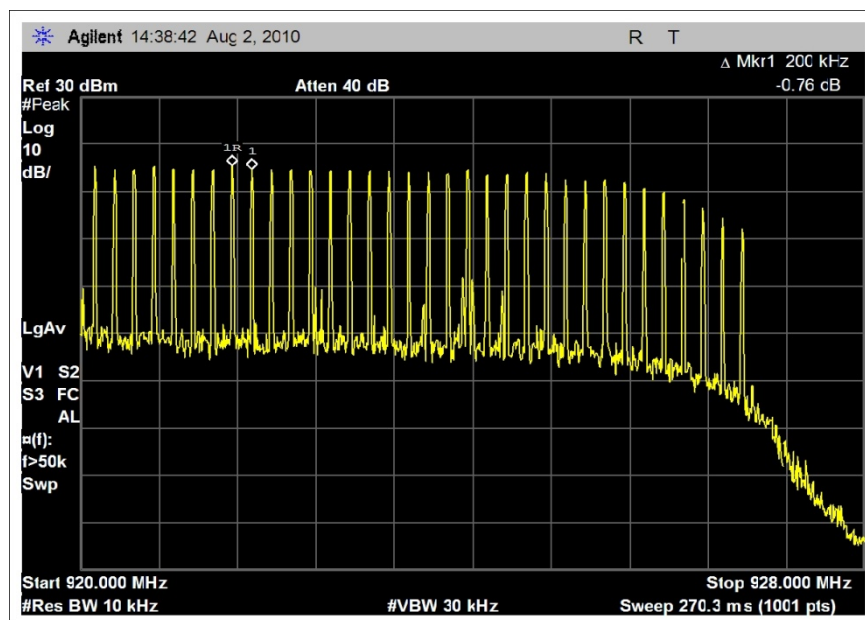
Test Data



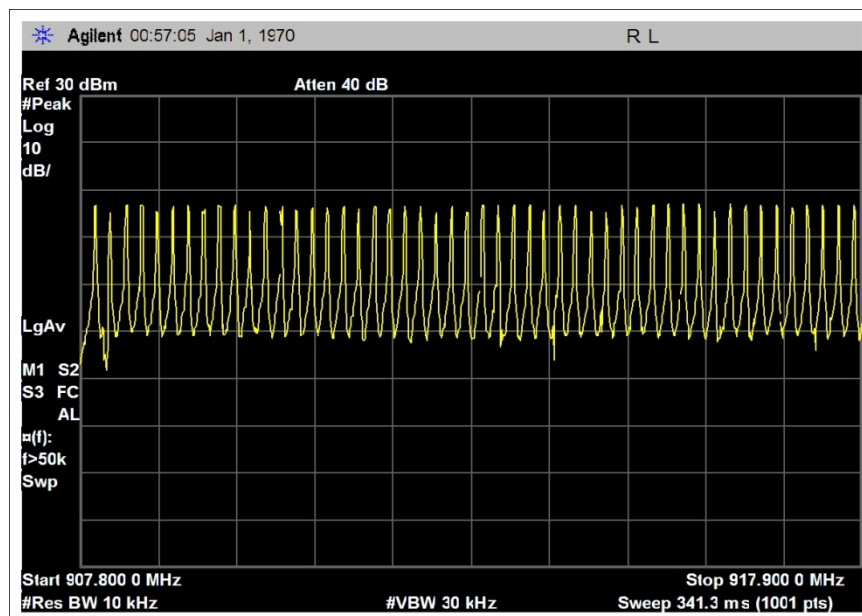
902M-910M-FM



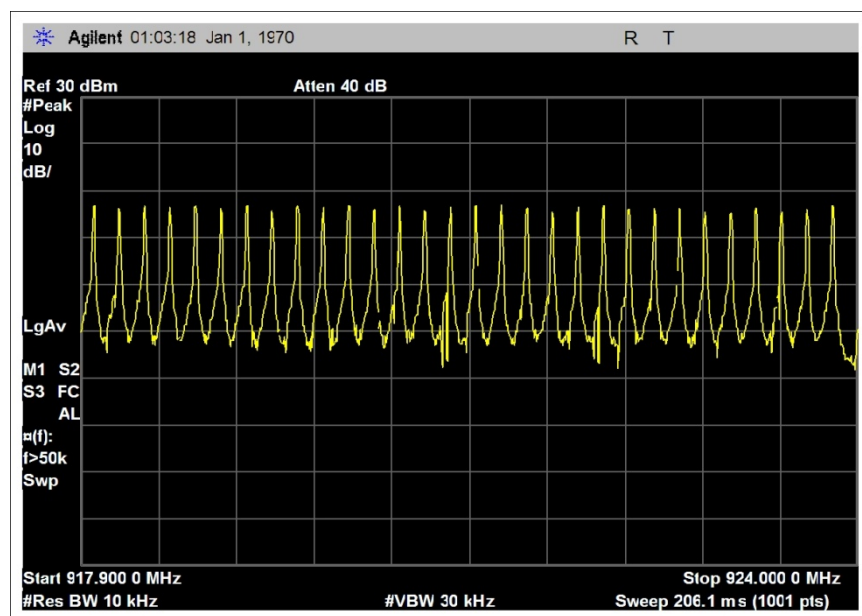
910M-920M-FM



920M-928M-FM



908-917.8 MHz-AM

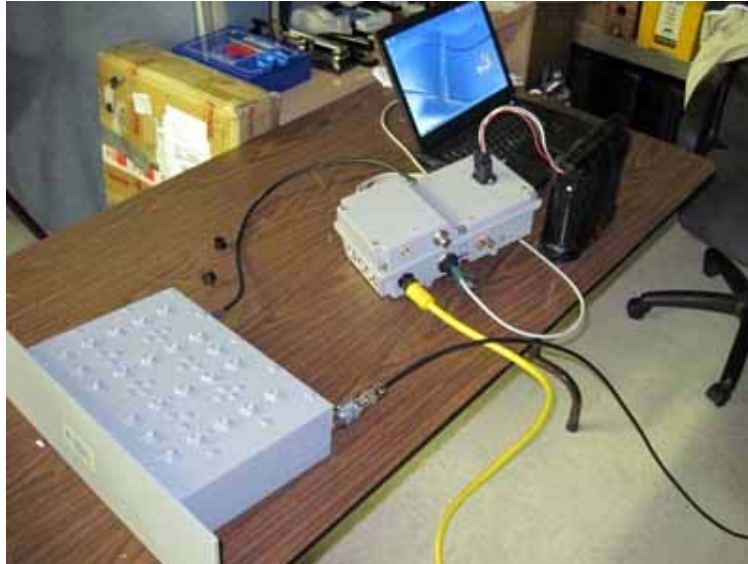


918-923.8 MHz-AM

Requirement: If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies.

Result: The manufacturer declares that the system uses from 50 to 120 hopping frequencies for FM and 80 hopping frequencies for AM. PASS

Test Setup Photos



15.247(a)(1)(i) Time of Occupancy

Test Set Up

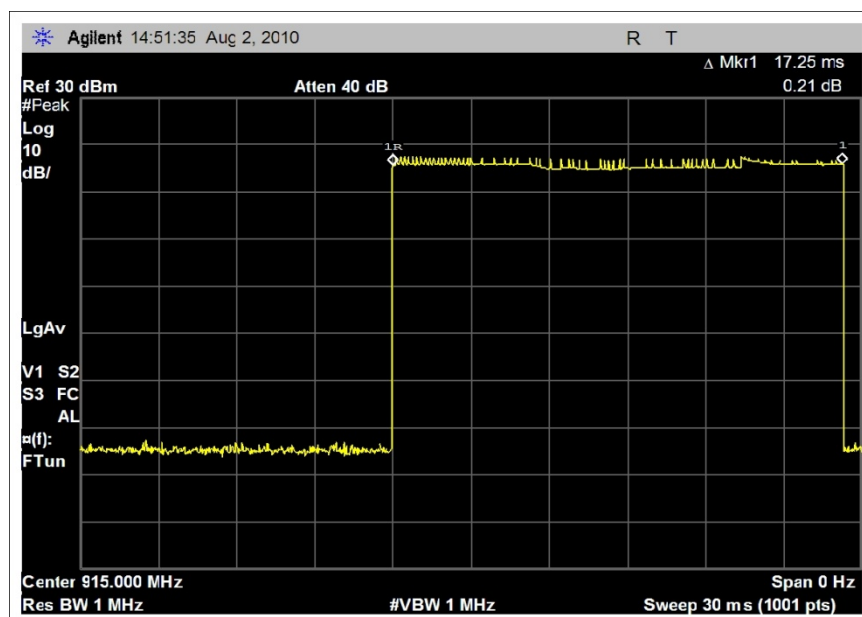
The EUT was setup on the bench and connected to a spectrum analyzer via an RF cable and 10 dB attenuator. The EUT was cycled through the different channels and modes by test software on a support laptop, connected to the EUT by an Ethernet cable.

Engineer Name: J. Gilbert

Test Equipment

Equipment	Serial	Cal Date	Cal Due	Asset
Spectrum Analyzer	MY46186330	08/25/2009	08/25/2011	02872
Cable 10k-18G	NA	10/23/2009	10/23/2011	03121

Test Data



TIME OF OCCUPANCY

Requirement: If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

Result: The average time of occupancy is 0.01725 seconds. The manufacturer declares that the maximum individual transmission is < 20mS as shown in this report, however, there could be up to 10 transmissions on a channel within a 20 second period. Therefore, the maximum on channel time in a 20 second period would be < 200mS. PASS.

Test Setup Photos



15.247(b)(2) Peak Conducted Power

Test Data

Test Location: CKC Laboratories, Inc. • 22116 23rd Drive SE, Suite A • Bothell, WA 98021 • (425) 402-1717
 Customer: **Itron, Inc.**
 Specification: **15.247(b) Power Output (902-928 MHz FHSS >50 Channels)**
 Work Order #: **90820** Date: 9/8/2010
 Test Type: **Maximized Emissions** Time:
 Equipment: **SRR+WWAN+WIFI+GPS RX** Sequence#: 2
(always external antennas)
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05748	Attenuator	PE7004-20	5/11/2010	5/11/2012
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 902 - 928 MHz
 Temp: 22° C
 Humidity: 48%
 Pressure: 101.4 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Peak RF Output power tested per DA-00-705.
 AM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB				Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	914.990M	7.8	+20.0				+0.0	27.8	30.0	-2.2	Condu 100
2	926.799M	6.2	+20.0				+0.0	26.2	30.0	-3.8	Condu 100
3	903.004M	5.4	+20.0				+0.0	25.4	30.0	-4.6	Condu 100

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

Customer: **Itron, Inc.**
 Specification: **15.247(b) Power Output (902-928 MHz FHSS >50 Channels)**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 11:46:08
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 3
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T2	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 902 - 928 MHz
 Temp: 24° C
 Humidity: 41%
 Pressure: 102.0 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Peak RF Output power tested per DA-00-705.
 FM Modulation - 12.5
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB	Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	915.052M	16.4	+0.8	+9.6		+0.0	26.8	30.0	-3.2	Condu 100
2	926.741M	15.1	+0.8	+9.6		+0.0	25.5	30.0	-4.5	Condu 100
3	903.058M	13.9	+0.8	+9.6		+0.0	24.3	30.0	-5.7	Condu 100

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

Customer: **Itron, Inc.**
 Specification: **15.247(b) Power Output (902-928 MHz FHSS >50 Channels)**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 11:53:47
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 4
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T2	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 902 - 928 MHz
 Temp: 24° C
 Humidity: 41%
 Pressure: 102.0 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Peak RF Output power tested per DA-00-705.
 FM Modulation - 37.5 kBaud
 240VAC / 60 Hz

Ext Attn: 0 dB

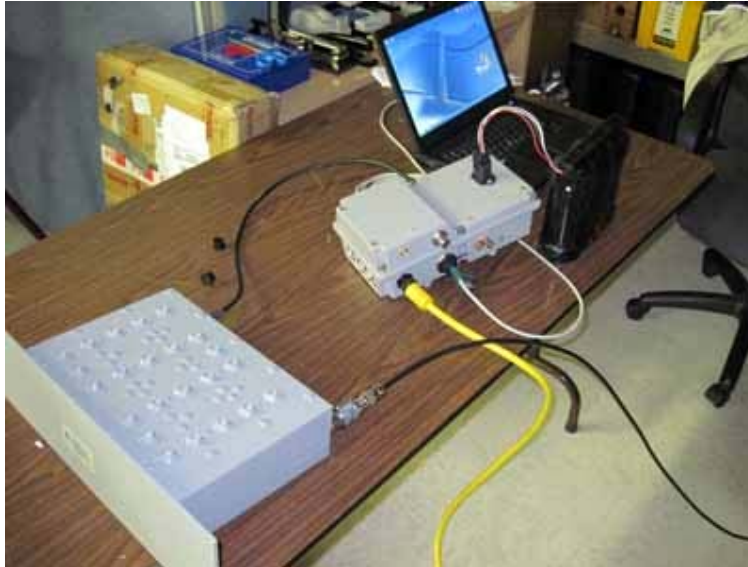
Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	dB	Dist Table	Corr dBm	Spec dBm	Margin dB	Polar Ant
1	915.010M	16.4	+0.8	+9.6		+0.0	26.8	30.0	-3.2	Condu 100
2	926.778M	14.8	+0.8	+9.6		+0.0	25.2	30.0	-4.8	Condu 100
3	903.009M	13.6	+0.8	+9.6		+0.0	24.0	30.0	-6.0	Condu 100

Test Setup Photos



15.247(d) Antenna Conducted Spurious

Test Data

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:07:34 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 5
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T2	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 903 - AM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

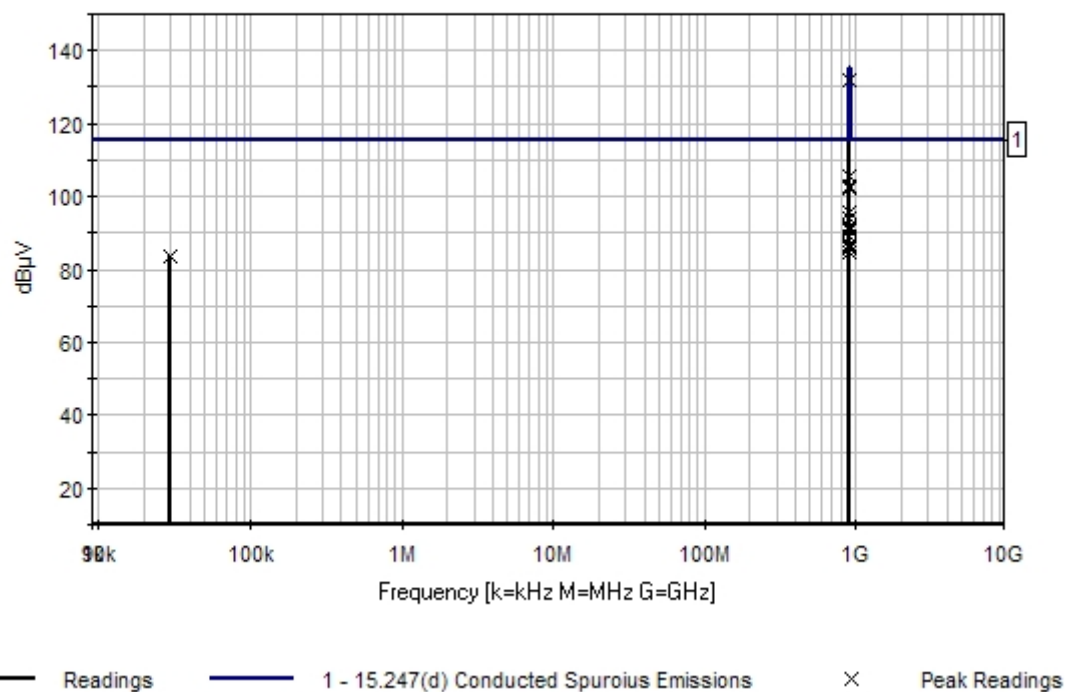
Measurement Data:

Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB			Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	903.032M	121.5	+0.8	+9.6			+0.0	131.9	135.3	-3.4	Condu 100
2	903.633M	95.4	+0.8	+9.6			+0.0	105.8	135.3	-29.5	Condu 100
3	30.000k	73.8	+0.0	+9.5			+0.0	83.3	115.3	-32.0	Condu 100
4	904.714M	92.4	+0.8	+9.6			+0.0	102.8	135.3	-32.5	Condu 100
5	904.354M	91.9	+0.8	+9.6			+0.0	102.3	135.3	-33.0	Condu 100
6	905.194M	85.3	+0.8	+9.6			+0.0	95.7	135.3	-39.6	Condu 100
7	902.672M	83.5	+0.8	+9.6			+0.0	93.9	135.3	-41.4	Condu 100
8	905.915M	81.4	+0.8	+9.6			+0.0	91.8	135.3	-43.5	Condu 100
9	906.516M	81.1	+0.8	+9.6			+0.0	91.5	135.3	-43.8	Condu 100
10	906.756M	80.8	+0.8	+9.6			+0.0	91.2	135.3	-44.1	Condu 100
11	906.155M	80.4	+0.8	+9.6			+0.0	90.8	135.3	-44.5	Condu 100
12	908.077M	78.9	+0.8	+9.6			+0.0	89.3	135.3	-46.0	Condu 100
13	907.236M	78.7	+0.8	+9.6			+0.0	89.1	135.3	-46.2	Condu 100
14	908.678M	76.6	+0.8	+9.6			+0.0	87.0	135.3	-48.3	Condu 100
15	909.278M	76.0	+0.8	+9.6			+0.0	86.4	135.3	-48.9	Condu 100
16	910.720M	75.9	+0.8	+9.6			+0.0	86.3	135.3	-49.0	Condu 100
17	907.717M	75.7	+0.8	+9.6			+0.0	86.1	135.3	-49.2	Condu 100
18	910.119M	75.6	+0.8	+9.6			+0.0	86.0	135.3	-49.3	Condu 100
19	908.918M	75.4	+0.8	+9.6			+0.0	85.8	135.3	-49.5	Condu 100
20	909.879M	74.5	+0.8	+9.6			+0.0	84.9	135.3	-50.4	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:07:34 PM Itron, Inc. WO#: 90820
 15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 5 Ext ATTN: 0 dB



Note: No trace data available for this plot.

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:35:45 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 11
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 903 - FM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

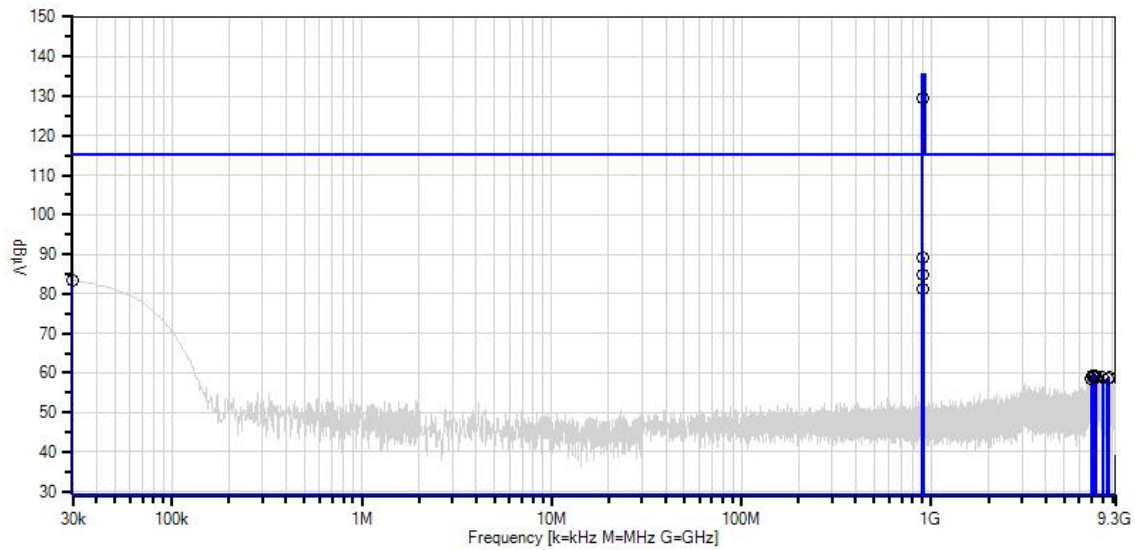
Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	902.912M	128.8	+0.8				+0.0	129.6	135.3	-5.7	Condu 100
2	30.000k	83.4	+0.0				+0.0	83.4	115.3	-31.9	Condu 100
3	906.035M	88.5	+0.8				+0.0	89.3	135.3	-46.0	Condu 100
4	906.876M	84.0	+0.8				+0.0	84.8	135.3	-50.5	Condu 100

5	907.837M	80.4	+0.8	+0.0	81.2	135.3	-54.1	Condu 100
6	7106.509M	56.9	+2.5	+0.0	59.4	115.3	-55.9	Condu 100
7	7288.731M	56.8	+2.4	+0.0	59.2	115.3	-56.1	Condu 100
8	7083.567M	56.6	+2.5	+0.0	59.1	115.3	-56.2	Condu 100
9	7162.245M	56.6	+2.5	+0.0	59.1	115.3	-56.2	Condu 100
10	7164.888M	56.6	+2.5	+0.0	59.1	115.3	-56.2	Condu 100
11	8616.178M	56.3	+2.7	+0.0	59.0	115.3	-56.3	Condu 100
12	7151.675M	56.4	+2.5	+0.0	58.9	115.3	-56.4	Condu 100
13	7199.963M	56.4	+2.5	+0.0	58.9	115.3	-56.4	Condu 100
14	7231.074M	56.3	+2.5	+0.0	58.8	115.3	-56.5	Condu 100
15	7230.593M	56.3	+2.5	+0.0	58.8	115.3	-56.5	Condu 100
16	7997.079M	56.4	+2.4	+0.0	58.8	115.3	-56.5	Condu 100
17	7367.170M	56.5	+2.3	+0.0	58.8	115.3	-56.5	Condu 100
18	6938.341M	56.3	+2.4	+0.0	58.7	115.3	-56.6	Condu 100
19	6956.359M	56.3	+2.4	+0.0	58.7	115.3	-56.6	Condu 100
20	8516.238M	56.1	+2.5	+0.0	58.6	115.3	-56.7	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:35:45 PM Itron, Inc. WO#: 90820
15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 11 Ext ATN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— Readings
× QP Readings
▼ Ambient
— 1 - 15.247(d) Conducted Spurious Emissions

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:20:33 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 7
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 915 - AM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

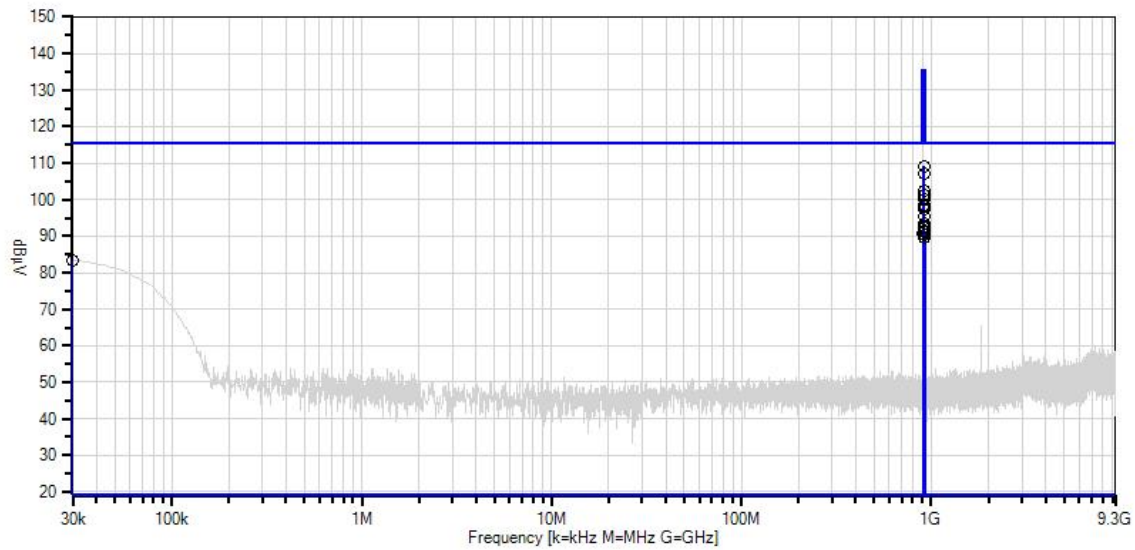
Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	915.405M	108.4	+0.8				+0.0	109.2	135.3	-26.1	Condu 100
2	915.645M	106.2	+0.8				+0.0	107.0	135.3	-28.3	Condu 100
3	30.000k	83.5	+0.0				+0.0	83.5	115.3	-31.8	Condu 100
4	914.083M	101.5	+0.8				+0.0	102.3	135.3	-33.0	Condu 100

5	913.603M	100.6	+0.8	+0.0	101.4	135.3	-33.9	Condu 100
6	916.245M	100.6	+0.8	+0.0	101.4	135.3	-33.9	Condu 100
7	913.843M	99.2	+0.8	+0.0	100.0	135.3	-35.3	Condu 100
8	913.242M	97.7	+0.8	+0.0	98.5	135.3	-36.8	Condu 100
9	913.002M	97.5	+0.8	+0.0	98.3	135.3	-37.0	Condu 100
10	916.846M	96.7	+0.8	+0.0	97.5	135.3	-37.8	Condu 100
11	917.567M	94.8	+0.8	+0.0	95.6	135.3	-39.7	Condu 100
12	917.927M	92.6	+0.8	+0.0	93.4	135.3	-41.9	Condu 100
13	912.281M	92.0	+0.8	+0.0	92.8	135.3	-42.5	Condu 100
14	918.528M	92.0	+0.8	+0.0	92.8	135.3	-42.5	Condu 100
15	912.041M	91.5	+0.8	+0.0	92.3	135.3	-43.0	Condu 100
16	918.167M	90.7	+0.8	+0.0	91.5	135.3	-43.8	Condu 100
17	919.609M	90.3	+0.8	+0.0	91.1	135.3	-44.2	Condu 100
18	910.720M	90.0	+0.8	+0.0	90.8	135.3	-44.5	Condu 100
19	919.969M	89.7	+0.8	+0.0	90.5	135.3	-44.8	Condu 100
20	919.368M	88.7	+0.8	+0.0	89.5	135.3	-45.8	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:20:33 PM Itron, Inc. WO#: 90820
15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 7 Ext ATTN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— 1 - 15.247(d) Conducted Spurious Emissions
— Readings
× QP Readings
▼ Ambient

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:31:53 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 10
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 915 - FM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

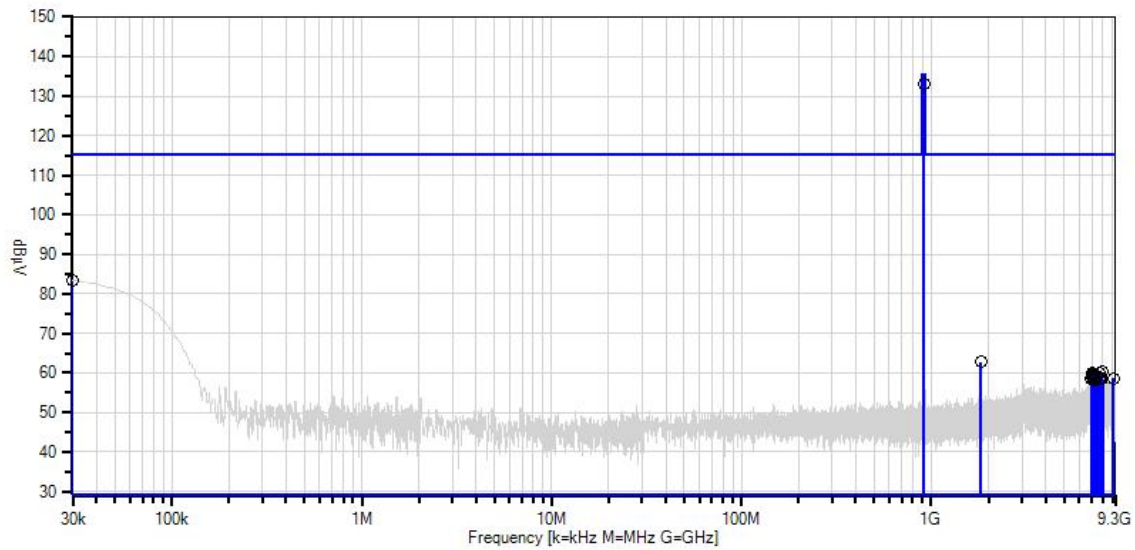
Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	915.044M	132.4	+0.8				+0.0	133.2	135.3	-2.1	Condu 100
2	30.000k	83.2	+0.0				+0.0	83.2	115.3	-32.1	Condu 100
3	1830.118M	61.5	+1.2				+0.0	62.7	115.3	-52.6	Condu 100
4	7907.830M	57.8	+2.4				+0.0	60.2	115.3	-55.1	Condu 100
5	7049.332M	57.4	+2.6				+0.0	60.0	115.3	-55.3	Condu 100

6	7066.990M	57.5	+2.5	+0.0	60.0	115.3	-55.3	Condu 100
7	7685.248M	57.3	+2.5	+0.0	59.8	115.3	-55.5	Condu 100
8	7039.482M	56.9	+2.6	+0.0	59.5	115.3	-55.8	Condu 100
9	7032.516M	56.6	+2.6	+0.0	59.2	115.3	-56.1	Condu 100
10	7410.653M	56.8	+2.3	+0.0	59.1	115.3	-56.2	Condu 100
11	7017.861M	56.2	+2.6	+0.0	58.8	115.3	-56.5	Condu 100
12	7208.131M	56.2	+2.5	+0.0	58.7	115.3	-56.6	Condu 100
13	7662.785M	56.2	+2.5	+0.0	58.7	115.3	-56.6	Condu 100
14	6939.182M	56.2	+2.4	+0.0	58.6	115.3	-56.7	Condu 100
15	9091.973M	56.0	+2.6	+0.0	58.6	115.3	-56.7	Condu 100
16	7835.277M	56.1	+2.4	+0.0	58.5	115.3	-56.8	Condu 100
17	7991.433M	56.1	+2.4	+0.0	58.5	115.3	-56.8	Condu 100
18	7335.939M	56.0	+2.4	+0.0	58.4	115.3	-56.9	Condu 100
19	7909.632M	56.0	+2.4	+0.0	58.4	115.3	-56.9	Condu 100
20	7271.554M	55.9	+2.4	+0.0	58.3	115.3	-57.0	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:31:53 PM Itron, Inc. WO#: 90820
15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 10 Ext ATTN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— 1 - 15.247(d) Conducted Spurious Emissions
— Readings
× QP Readings
▼ Ambient

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:24:35 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 8
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 926.8 - AM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

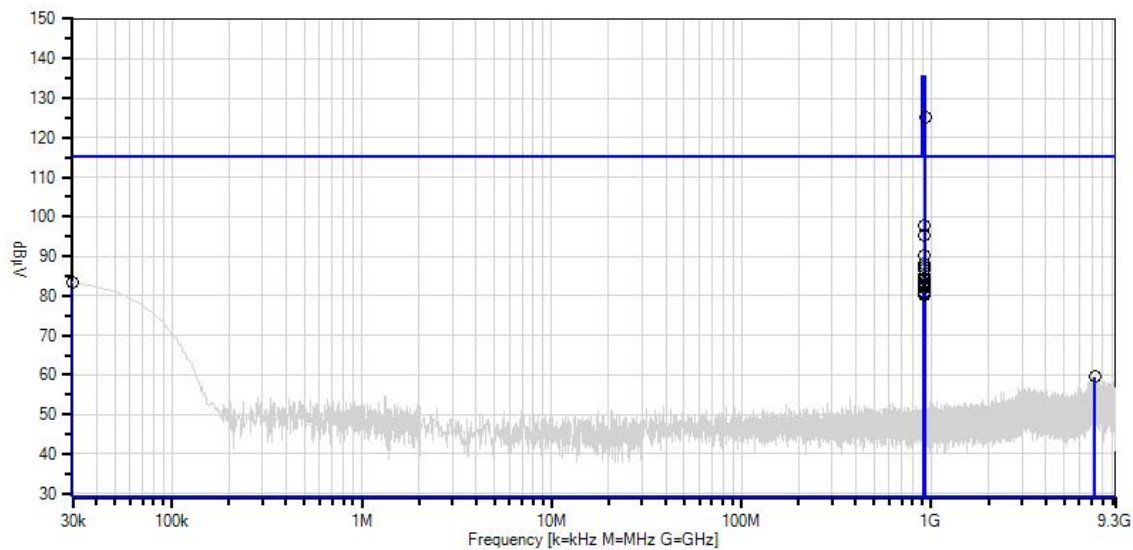
Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	926.936M	124.4	+0.8				+0.0	125.2	135.3	-10.1	Condu 100
2	30.000k	83.3	+0.0				+0.0	83.3	115.3	-32.0	Condu 100
3	925.495M	97.0	+0.8				+0.0	97.8	135.3	-37.5	Condu 100
4	924.173M	94.3	+0.8				+0.0	95.1	135.3	-40.2	Condu 100

5	925.254M	89.6	+0.8	+0.0	90.4	135.3	-44.9	Condu 100
6	923.092M	87.1	+0.8	+0.0	87.9	135.3	-47.4	Condu 100
7	922.371M	86.7	+0.8	+0.0	87.5	135.3	-47.8	Condu 100
8	921.531M	85.7	+0.8	+0.0	86.5	135.3	-48.8	Condu 100
9	920.810M	84.3	+0.8	+0.0	85.1	135.3	-50.2	Condu 100
10	919.969M	83.7	+0.8	+0.0	84.5	135.3	-50.8	Condu 100
11	923.573M	83.3	+0.8	+0.0	84.1	135.3	-51.2	Condu 100
12	919.128M	82.6	+0.8	+0.0	83.4	135.3	-51.9	Condu 100
13	918.167M	81.8	+0.8	+0.0	82.6	135.3	-52.7	Condu 100
14	917.807M	81.1	+0.8	+0.0	81.9	135.3	-53.4	Condu 100
15	916.365M	80.0	+0.8	+0.0	80.8	135.3	-54.5	Condu 100
16	923.332M	79.6	+0.8	+0.0	80.4	135.3	-54.9	Condu 100
17	915.405M	79.5	+0.8	+0.0	80.3	135.3	-55.0	Condu 100
18	914.684M	79.3	+0.8	+0.0	80.1	135.3	-55.2	Condu 100
19	920.329M	79.2	+0.8	+0.0	80.0	135.3	-55.3	Condu 100
20	7251.975M	57.1	+2.4	+0.0	59.5	115.3	-55.8	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:24:35 PM Itron, Inc. WO#: 90820
15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 8 Ext ATTN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— 1 - 15.247(d) Conducted Spurious Emissions
— Readings
× QP Readings
▼ Ambient

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

Customer: **Itron, Inc.**
 Specification: **15.247(d) Conducted Spurious Emissions**
 Work Order #: **90820** Date: 8/13/2010
 Test Type: **Maximized Emissions** Time: 12:27:56 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 9
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	ANP05435	Attenuator	PE7015-10	9/5/2008	9/5/2010
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External Battery	Excel Battery Company	2EXL7360	S10166003-023

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 9.3 GHz
 Temp: 25° C
 Humidity: 41%
 Pressure: 101.9 kPa
 EUT is a FHSS radio operating in the 902 - 928 MHz ISM band.
 Antenna Conducted Spurious tested per DA-00-705.
 926.8 - FM Modulation
 240VAC / 60 Hz

Ext Attn: 0 dB

Measurement Data:

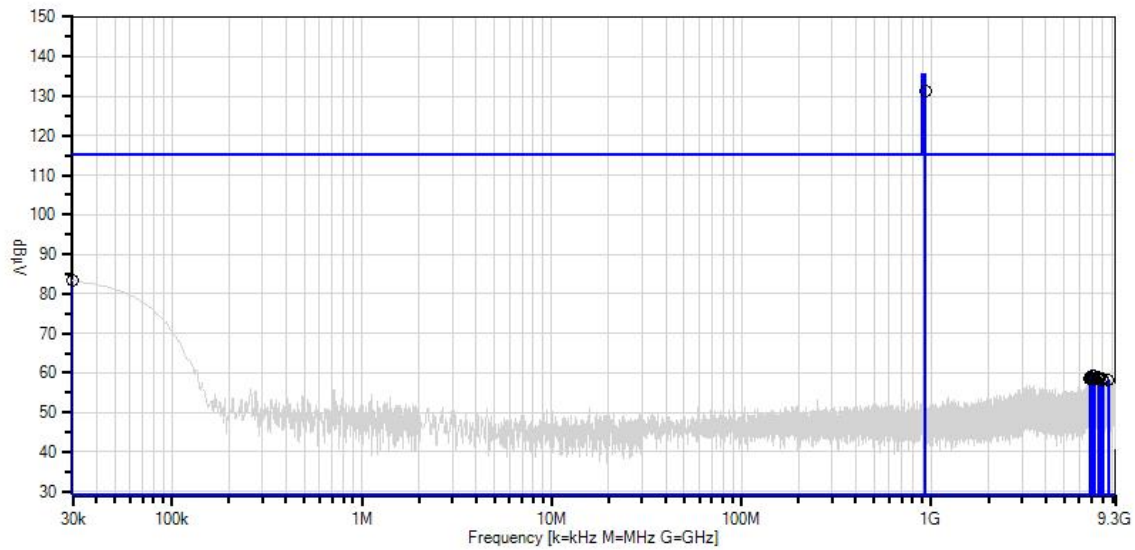
Reading listed by margin.

Test Distance: None

#	Freq MHz	Rdng dBμV	T1 dB	dB	dB	dB	Dist Table	Corr dBμV	Spec dBμV	Margin dB	Polar Ant
1	926.816M	130.6	+0.8				+0.0	131.4	135.3	-3.9	Condu 100
2	30.000k	83.3	+0.0				+0.0	83.3	115.3	-32.0	Condu 100
3	7117.080M	56.7	+2.5				+0.0	59.2	115.3	-56.1	Condu 100
4	7023.266M	56.5	+2.6				+0.0	59.1	115.3	-56.2	Condu 100

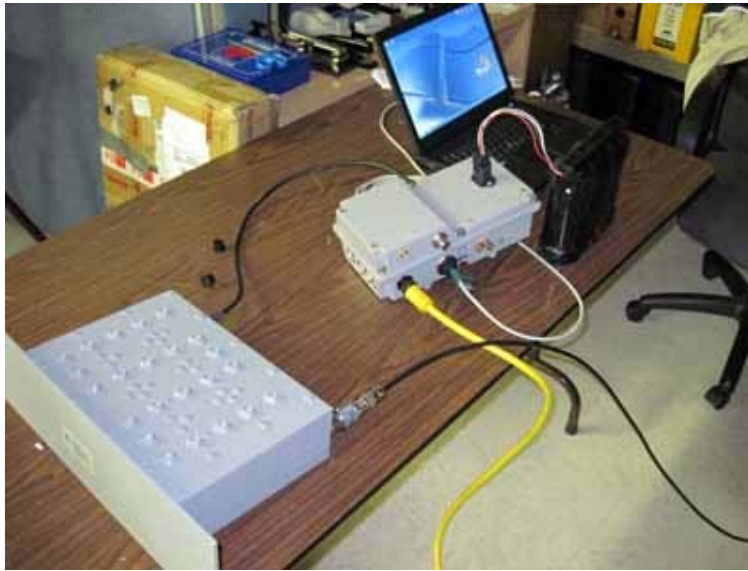
5	6992.996M	56.4	+2.6	+0.0	59.0	115.3	-56.3	Condu 100
6	7598.401M	56.2	+2.6	+0.0	58.8	115.3	-56.5	Condu 100
7	7267.470M	56.3	+2.4	+0.0	58.7	115.3	-56.6	Condu 100
8	7121.645M	56.1	+2.5	+0.0	58.6	115.3	-56.7	Condu 100
9	7233.356M	56.1	+2.5	+0.0	58.6	115.3	-56.7	Condu 100
10	7243.206M	56.1	+2.5	+0.0	58.6	115.3	-56.7	Condu 100
11	6830.354M	56.2	+2.4	+0.0	58.6	115.3	-56.7	Condu 100
12	7066.389M	56.1	+2.5	+0.0	58.6	115.3	-56.7	Condu 100
13	7168.011M	56.0	+2.5	+0.0	58.5	115.3	-56.8	Condu 100
14	7202.605M	56.0	+2.5	+0.0	58.5	115.3	-56.8	Condu 100
15	7717.560M	56.0	+2.5	+0.0	58.5	115.3	-56.8	Condu 100
16	6959.122M	56.0	+2.4	+0.0	58.4	115.3	-56.9	Condu 100
17	7612.695M	55.8	+2.6	+0.0	58.4	115.3	-56.9	Condu 100
18	7981.944M	56.0	+2.4	+0.0	58.4	115.3	-56.9	Condu 100
19	7893.536M	55.9	+2.4	+0.0	58.3	115.3	-57.0	Condu 100
20	8545.667M	55.8	+2.5	+0.0	58.3	115.3	-57.0	Condu 100

CKC Laboratories, Inc. Date: 8/13/2010 Time: 12:27:56 PM Itron, Inc. WO#: 90820
15.247(d) Conducted Spurious Emissions Test Distance: None Conducted Sequence#: 9 Ext ATTN: 0 dB



— Sweep Data
○ Peak Readings
* Average Readings
— 1 - 15.247(d) Conducted Spurious Emissions
— Readings
× QP Readings
▼ Ambient

Test Setup Photos



15.247(d) Radiated 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: **15.247(d) Radiated Spurious Emissions**

Work Order #: **90820**

Date: 8/16/2010

Test Type: **Maximized Emissions**

Time: 4:38:02 PM

Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)**

Sequence#: 18

Manufacturer: Itron, Inc.

Tested By: Jeff Gilbert

Model: CCU100T (model: Tower CCU)

S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T4	AN01717	High Pass Filter	F3440-P005	5/27/2010	5/27/2012
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 30 MHz
Temp: 25° C
Humidity: 42%
Pressure: 102.1 kPa
FHSS radio transmitting on 915 - FM
Cell radio in RX mode (1880 MHz).
GPS receiver Active.
Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

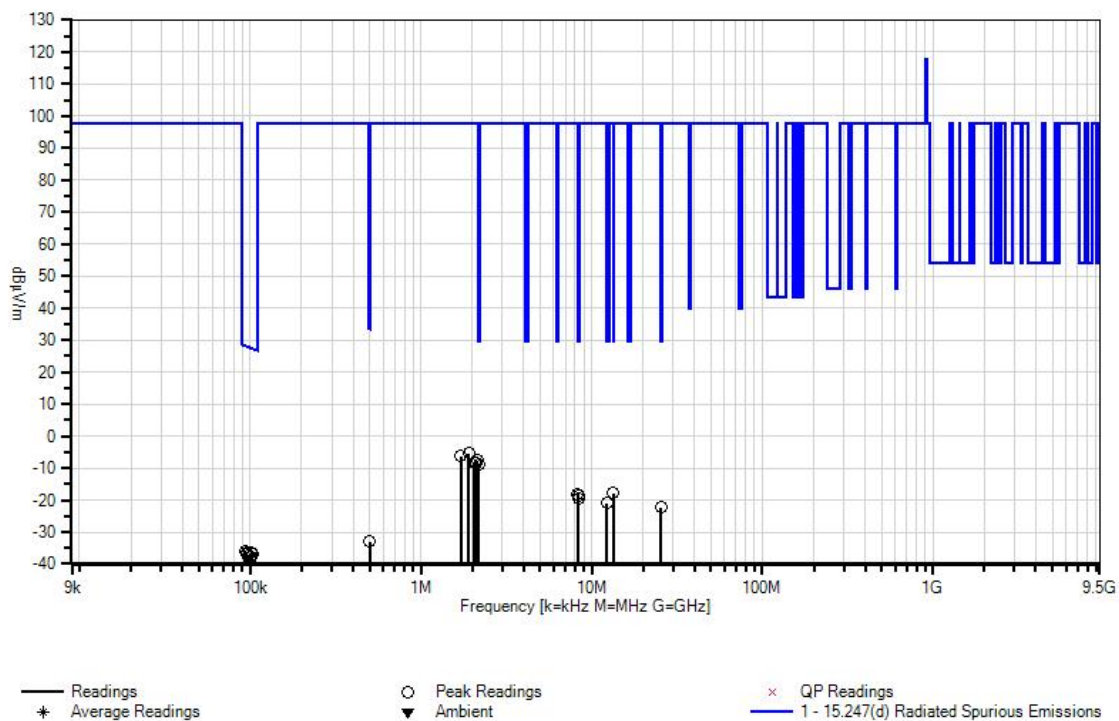
Reading listed by margin.

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	2.176M	21.4	+9.7	+0.1	+0.0	+0.0	-40.0	-8.8	29.5	-38.3	Verti 100
2	13.392M	12.4	+9.3	+0.3	+0.0	+0.1	-40.0	-17.9	29.5	-47.4	Verti 100
3	8.293M	12.2	+9.5	+0.2	+0.0	+0.1	-40.0	-18.0	29.5	-47.5	Verti 100
4	8.383M	11.7	+9.5	+0.2	+0.0	+0.1	-40.0	-18.5	29.5	-48.0	Verti 100
5	8.365M	10.8	+9.5	+0.2	+0.0	+0.1	-40.0	-19.4	29.5	-48.9	Verti 100
6	12.293M	9.5	+9.3	+0.2	+0.0	+0.1	-40.0	-20.9	29.5	-50.4	Verti 100
7	25.536M	10.8	+6.3	+0.4	+0.1	+0.1	-40.0	-22.3	29.5	-51.8	Verti 100
8	101.640k	33.5	+9.7	+0.1	+0.0	+0.1	-80.0	-36.6	27.5	-64.1	Verti 100
9	93.360k	34.1	+9.7	+0.1	+0.0	+0.1	-80.0	-36.0	28.2	-64.2	Verti 100
10	103.200k	33.1	+9.7	+0.1	+0.0	+0.1	-80.0	-37.0	27.3	-64.3	Verti 100
11	95.160k	33.6	+9.7	+0.1	+0.0	+0.1	-80.0	-36.5	28.0	-64.5	Verti 100
12	94.680k	33.3	+9.7	+0.1	+0.0	+0.1	-80.0	-36.8	28.1	-64.9	Verti 100
13	96.600k	32.8	+9.7	+0.1	+0.0	+0.1	-80.0	-37.3	27.9	-65.2	Verti 100
14	101.160k	32.2	+9.7	+0.1	+0.0	+0.1	-80.0	-37.9	27.5	-65.4	Verti 100
15	502.350k	37.4	+9.4	+0.1	+0.0	+0.1	-80.0	-33.0	33.6	-66.6	Verti 100
16	1.905M	24.7	+9.7	+0.1	+0.0	+0.0	-40.0	-5.5	97.6	-103.1	Verti 100
17	1.707M	24.1	+9.6	+0.1	+0.0	+0.0	-40.0	-6.2	97.6	-103.8	Verti 100

18	2.140M	22.5	+9.7	+0.1	+0.0	+0.0	-40.0	-7.7	97.6	-105.3	Verti 100
19	2.095M	22.0	+9.7	+0.1	+0.0	+0.0	-40.0	-8.2	97.6	-105.8	Verti 100
20	2.059M	21.9	+9.7	+0.1	+0.0	+0.0	-40.0	-8.3	97.6	-105.9	Verti 100

CKC Laboratories, Inc. Date: 8/16/2010 Time: 4:38:02 PM Itron, Inc. WO#: 90820
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 18 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 4:30:51 PM
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 17
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00052	Loop Antenna	6502	6/8/2010	6/8/2012
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
T4	AN01717	High Pass Filter	F3440-P005	5/27/2010	5/27/2012
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 kHz - 30 MHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa
 FHSS radio transmitting on 915 - AM
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

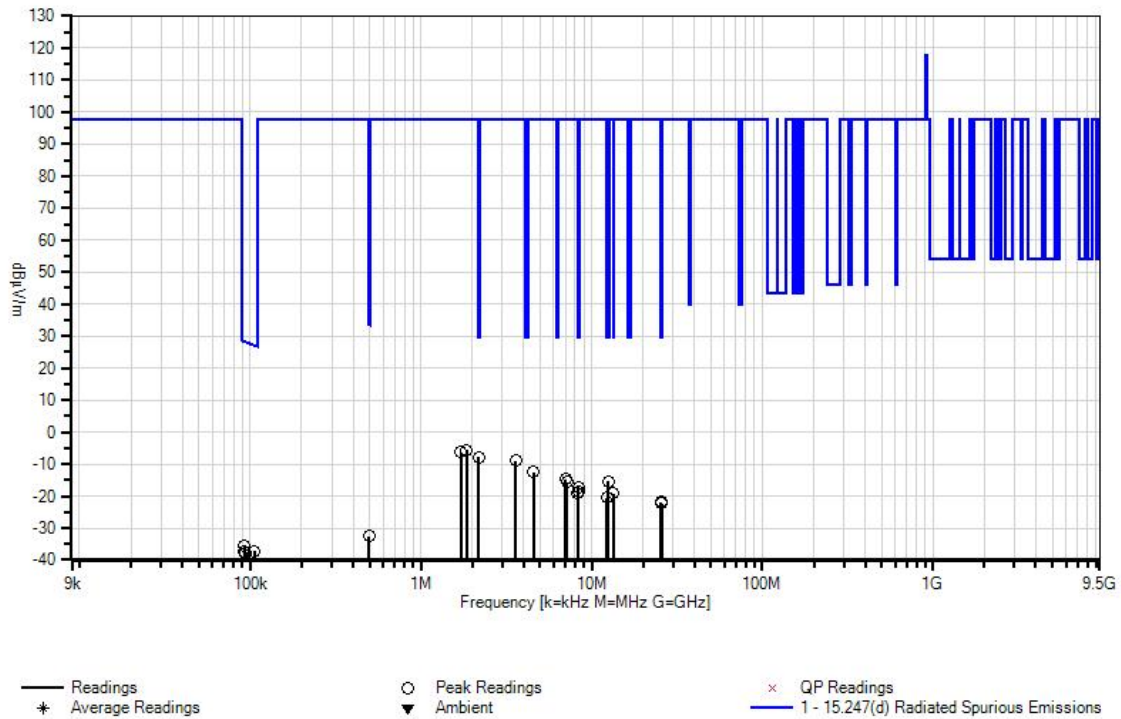
Ext Attn: 0 dB

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	2.176M	22.3	+9.7	+0.1	+0.0	+0.0	-40.0 360	-7.9	29.5	-37.4	Verti 100
2	8.365M	12.8	+9.5	+0.2	+0.0	+0.1	-40.0 360	-17.4	29.5	-46.9	Verti 100

3	8.383M	11.4	+9.5	+0.2	+0.0	+0.1	-40.0 360	-18.8	29.5	-48.3	Verti 100
4	8.293M	11.3	+9.5	+0.2	+0.0	+0.1	-40.0 360	-18.9	29.5	-48.4	Verti 100
5	13.383M	11.1	+9.3	+0.3	+0.0	+0.1	-40.0 360	-19.2	29.5	-48.7	Verti 100
6	12.293M	9.9	+9.3	+0.2	+0.0	+0.1	-40.0 360	-20.5	29.5	-50.0	Verti 100
7	25.581M	11.2	+6.3	+0.4	+0.1	+0.1	-40.0 360	-21.9	29.5	-51.4	Verti 100
8	25.644M	10.9	+6.3	+0.4	+0.1	+0.1	-40.0 360	-22.2	29.5	-51.7	Verti 100
9	92.280k	34.5	+9.7	+0.1	+0.0	+0.1	-80.0 360	-35.6	28.3	-63.9	Verti 100
10	105.840k	32.9	+9.7	+0.1	+0.0	+0.1	-80.0 360	-37.2	27.1	-64.3	Verti 100
11	92.760k	32.7	+9.7	+0.1	+0.0	+0.1	-80.0 360	-37.4	28.2	-65.6	Verti 100
12	94.200k	32.4	+9.7	+0.1	+0.0	+0.1	-80.0 360	-37.7	28.1	-65.8	Verti 100
13	495.600k	37.8	+9.4	+0.1	+0.0	+0.1	-80.0 360	-32.6	33.7	-66.3	Verti 100
14	1.851M	24.5	+9.7	+0.1	+0.0	+0.0	-40.0 360	-5.7	97.6	-103.3	Verti 100
15	1.707M	24.0	+9.6	+0.1	+0.0	+0.0	-40.0 360	-6.3	97.6	-103.9	Verti 100
16	3.581M	21.1	+9.7	+0.2	+0.0	+0.0	-40.0 360	-9.0	97.6	-106.6	Verti 100
17	4.554M	17.5	+9.6	+0.2	+0.0	+0.1	-40.0 360	-12.6	97.6	-110.2	Verti 100
18	7.050M	15.5	+9.5	+0.2	+0.0	+0.0	-40.0 360	-14.8	97.6	-112.4	Verti 100
19	12.518M	15.0	+9.3	+0.2	+0.0	+0.1	-40.0 360	-15.4	97.6	-113.0	Verti 100
20	7.167M	14.7	+9.5	+0.2	+0.0	+0.0	-40.0 360	-15.6	97.6	-113.2	Verti 100

CKC Laboratories, Inc. Date: 8/16/2010 Time: 4:30:51 PM Itron, Inc. WO#: 90820
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 17 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 10:44:55
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 5
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 903 - AM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

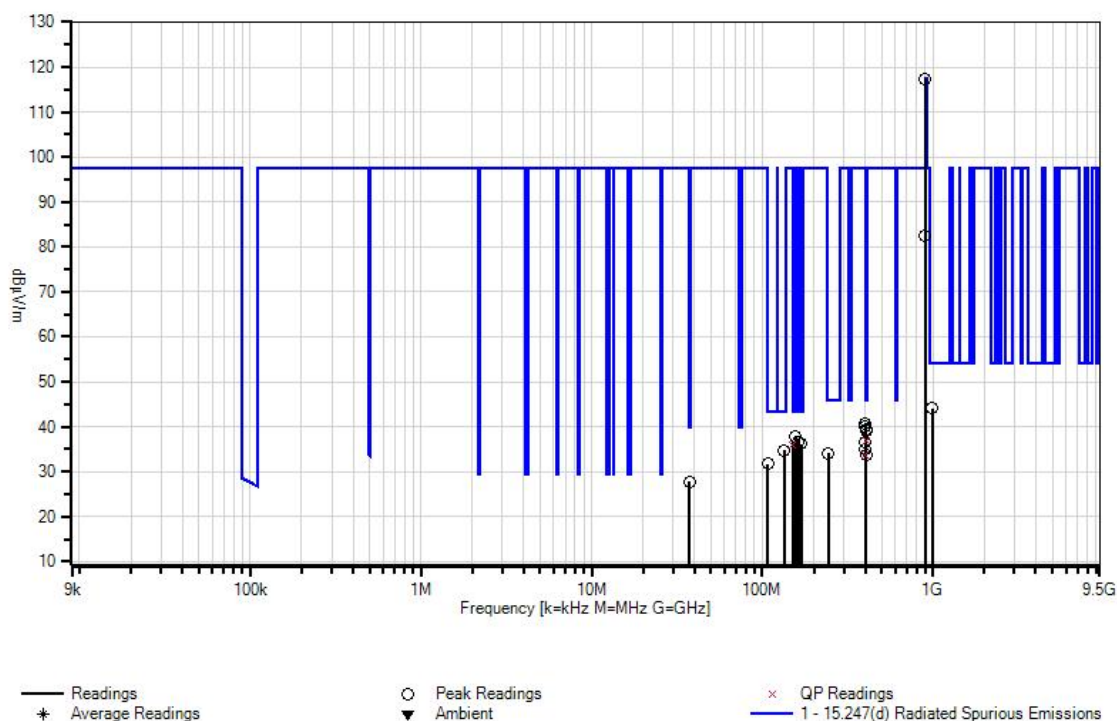
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	903.035M	118.4	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0	117.4	117.6	-0.2	Verti 130
2	402.014M	49.9	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	40.8	46.0	-5.2	Verti 130
3	156.729M	52.9	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.9	43.5	-5.6	Verti 130
4	401.654M	49.0	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	39.9	46.0	-6.1	Verti 130
5	404.416M	48.5	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	39.5	46.0	-6.5	Verti 130
6	404.777M	48.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	39.2	46.0	-6.8	Verti 130
7	162.495M	52.2	+11.1 +0.3	+0.9	-28.6	+0.8	+0.0	36.7	43.5	-6.8	Verti 130
8	169.462M	52.3	+10.4 +0.3	+0.9	-28.5	+0.8	+0.0	36.2	43.5	-7.3	Verti 130
9	149.906M QP	50.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 353	36.0	43.5	-7.5	Verti 100
^	149.909M	55.1	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 353	40.5	43.5	-3.0	Verti 100
^	150.002M	54.3	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	39.7	43.5	-3.8	Verti 130
12	134.507M	49.7	+12.1 +0.3	+0.8	-28.8	+0.7	+0.0	34.8	43.5	-8.7	Verti 130
13	403.356M QP	45.9	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	36.9	46.0	-9.1	Verti 150
^	403.369M	56.0	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	47.0	46.0	+1.0	Verti 150
^	403.456M	54.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	45.2	46.0	-0.8	Verti 130
16	401.053M	45.7	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	36.6	46.0	-9.4	Verti 130
17	986.977M	43.7	+24.2 +0.8	+2.4	-29.0	+2.0	+0.0	44.1	54.0	-9.9	Verti 130
18	400.813M	44.0	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	34.9	46.0	-11.1	Verti 130
19	401.413M	44.0	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	34.9	46.0	-11.1	Verti 130
20	108.080M	48.5	+10.6 +0.2	+0.7	-28.8	+0.6	+0.0	31.8	43.5	-11.7	Verti 130
21	242.375M	47.6	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	34.1	46.0	-11.9	Verti 130
22	37.520M	43.3	+12.4 +0.1	+0.5	-28.9	+0.4	+0.0	27.8	40.0	-12.2	Verti 130
23	402.824M QP	42.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 183	33.6	46.0	-12.4	Verti 156

^	402.798M	55.8	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 183	46.7	46.0	+0.7	Verti 156
^	402.735M	53.1	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	44.0	46.0	-2.0	Verti 130
26	405.377M	42.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	33.6	46.0	-12.4	Verti 130
27	902.000M	83.5	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0	82.5	97.6 Bandedge	-15.1	Verti 110

CKC Laboratories, Inc. Date: 8/16/2010 Time: 10:44:55 Iron, Inc. WO#: 90820
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 5 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 13:37:24
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 6
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 903 - AM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

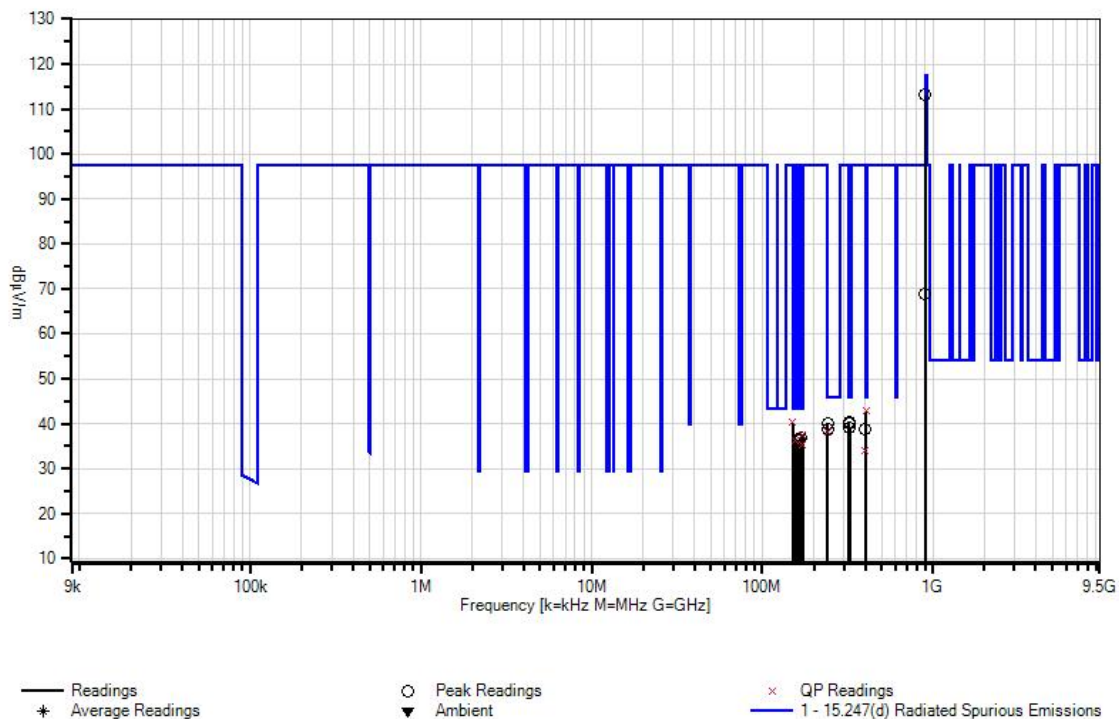
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	149.939M QP	54.9	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	40.3	43.5	-3.2	Horiz 230
^	149.959M	57.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	43.0	43.5	-0.5	Horiz 230
^	150.002M	55.9	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 360	41.3	43.5	-2.2	Horiz 130
4	403.197M QP	51.8	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 185	42.8	46.0	-3.2	Horiz 215
^	403.141M	58.5	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 185	49.5	46.0	+3.5	Horiz 215
^	403.215M	50.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	41.1	46.0	-4.9	Horiz 130
7	903.035M	114.2	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 360	113.2	117.6	-4.4	Horiz 130
8	322.375M	51.6	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0 360	40.4	46.0	-5.6	Horiz 130
9	172.917M QP	54.1	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 285	37.6	43.5	-5.9	Horiz 220
^	172.907M	58.3	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 285	41.8	43.5	-1.7	Horiz 220
^	172.825M	56.7	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 360	40.2	43.5	-3.3	Horiz 130
12	322.735M	51.1	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0 360	39.9	46.0	-6.1	Horiz 130
13	241.173M	53.4	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	39.9	46.0	-6.1	Horiz 130
14	166.939M	53.0	+10.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	37.0	43.5	-6.5	Horiz 130
15	323.456M	50.1	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0 360	39.1	46.0	-6.9	Horiz 130
16	323.095M	50.2	+14.2 +0.4	+1.3	-28.3	+1.3	+0.0 360	39.1	46.0	-6.9	Horiz 130
17	165.978M	52.3	+10.7 +0.3	+0.9	-28.6	+0.8	+0.0 360	36.4	43.5	-7.1	Horiz 130
18	165.378M	52.2	+10.8 +0.3	+0.9	-28.6	+0.8	+0.0 360	36.4	43.5	-7.1	Horiz 130
19	164.897M	52.0	+10.9 +0.3	+0.9	-28.6	+0.8	+0.0 360	36.3	43.5	-7.2	Horiz 130
20	240.933M	52.3	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	38.8	46.0	-7.2	Horiz 130
21	402.495M	47.9	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 360	38.8	46.0	-7.2	Horiz 130
22	156.888M QP	51.2	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 325	36.2	43.5	-7.3	Horiz 195
^	156.899M	54.8	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 325	39.8	43.5	-3.7	Horiz 195

^	156.849M	53.9	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0 360	38.9	43.5	-4.6	Horiz 130
25	241.919M QP	51.6	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 180	38.1	46.0	-7.9	Horiz 120
^	241.989M	59.3	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 180	45.8	46.0	-0.2	Horiz 120
^	241.894M	55.7	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 360	42.2	46.0	-3.8	Horiz 130
28	171.532M QP	51.5	+10.2 +0.3	+0.9	-28.5	+0.8	+0.0 300	35.2	43.5	-8.3	Horiz 176
^	171.536M	56.5	+10.2 +0.3	+0.9	-28.5	+0.8	+0.0 300	40.2	43.5	-3.3	Horiz 176
^	171.624M	55.5	+10.1 +0.3	+0.9	-28.5	+0.8	+0.0 360	39.1	43.5	-4.4	Horiz 130
31	402.232M QP	43.0	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 185	33.9	46.0	-12.1	Horiz 200
^	402.134M	54.8	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 185	45.7	46.0	-0.3	Horiz 200
^	402.134M	50.8	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0 360	41.7	46.0	-4.3	Horiz 130
34	901.963M	69.9	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 295	68.9	97.6 Bandedge	-28.7	Horiz 100

CKC Laboratories, Inc. Date: 8/16/2010 Time: 13:37:24 Itron, Inc. WO#: 90820
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 6 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 13:02:23
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 7
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 903 - FM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

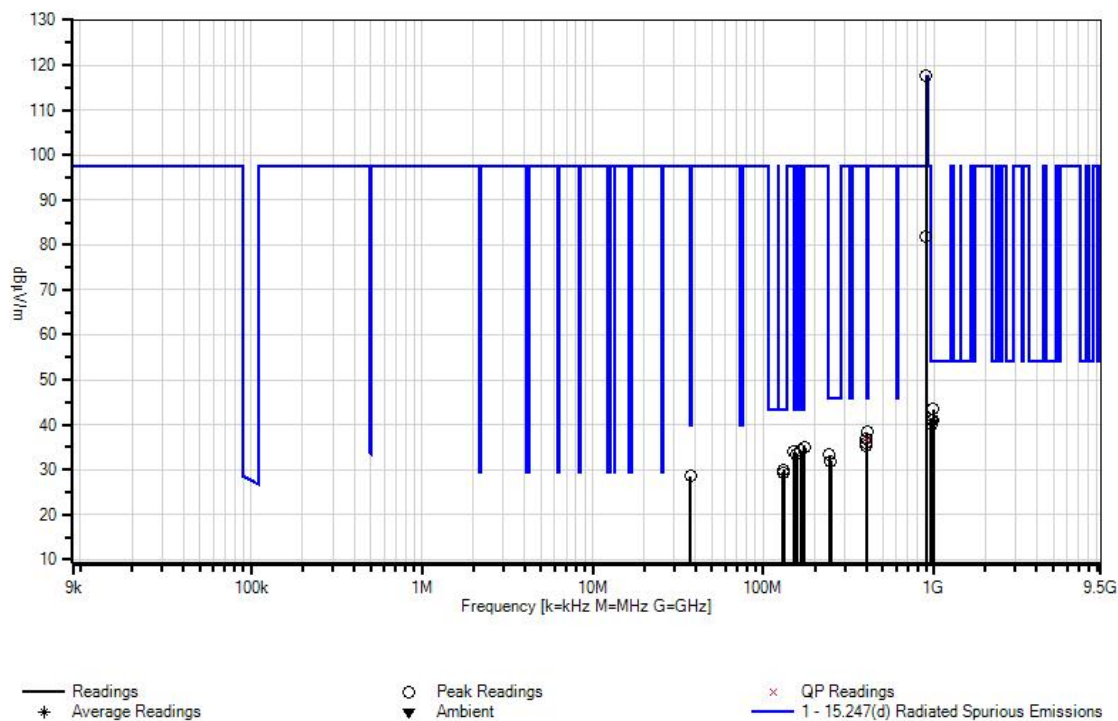
Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	903.035M	118.5	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0	117.5	117.6	-0.1	Verti 130
2	404.657M	47.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	38.4	46.0	-7.6	Verti 130
3	173.185M	51.5	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0	35.0	43.5	-8.5	Verti 130
4	401.894M	46.0	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	36.9	46.0	-9.1	Verti 130
5	165.137M	50.0	+10.8 +0.3	+0.9	-28.6	+0.8	+0.0	34.2	43.5	-9.3	Verti 130
6	150.002M	48.5	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	33.9	43.5	-9.6	Verti 130
7	403.645M QP	45.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 145	36.4	46.0	-9.6	Verti 205
^	403.576M	55.9	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 145	46.9	46.0	+0.9	Verti 205
^	403.576M	50.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	41.1	46.0	-4.9	Verti 130
10	156.729M	48.5	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	33.5	43.5	-10.0	Verti 130
11	402.495M	44.9	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	35.8	46.0	-10.2	Verti 130
12	401.293M	44.5	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	35.4	46.0	-10.6	Verti 130
13	986.977M	43.0	+24.2 +0.8	+2.4	-29.0	+2.0	+0.0	43.4	54.0	-10.6	Verti 130
14	37.520M	44.1	+12.4 +0.1	+0.5	-28.9	+0.4	+0.0	28.6	40.0	-11.4	Verti 130
15	242.615M	46.7	+12.3 +0.4	+1.1	-28.2	+1.0	+0.0	33.3	46.0	-12.7	Verti 130
16	960.492M	41.5	+23.9 +0.8	+2.2	-29.1	+1.8	+0.0	41.1	54.0	-12.9	Verti 130
17	987.728M	40.6	+24.2 +0.8	+2.4	-28.9	+2.0	+0.0	41.1	54.0	-12.9	Verti 130
18	131.984M	44.8	+12.2 +0.3	+0.8	-28.8	+0.7	+0.0	30.0	43.5	-13.5	Verti 130
19	247.900M	45.0	+12.6 +0.4	+1.1	-28.2	+1.0	+0.0	31.9	46.0	-14.1	Verti 130
20	129.942M	44.1	+12.3 +0.3	+0.8	-28.8	+0.7	+0.0	29.4	43.5	-14.1	Verti 130
21	961.056M	40.3	+23.9 +0.8	+2.2	-29.1	+1.8	+0.0	39.9	54.0	-14.1	Verti 130
22	249.221M	44.9	+12.7 +0.4	+1.1	-28.2	+1.0	+0.0	31.9	46.0	-14.1	Verti 130
23	901.940M	82.7	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 205	81.7	97.6 Bandedge	-15.9	Verti 144

CKC Laboratories, Inc. Date: 8/16/2010 Time: 13:02:23 Iron, Inc. WO#: 90820
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 7 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 12:58:22
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 8
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 903 - FM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

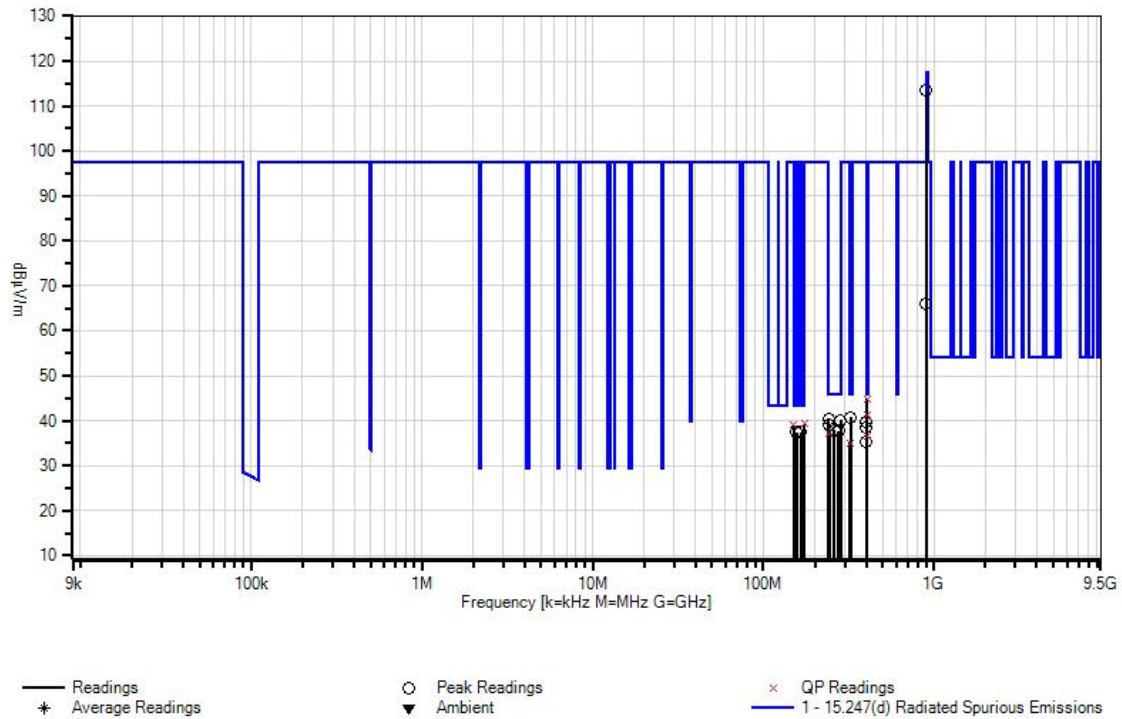
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	403.198M QP	53.9	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	44.9	46.0	-1.1	Horiz 100
^	403.209M	60.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	51.2	46.0	+5.2	Horiz 100
^	403.209M	53.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	44.2	46.0	-1.8	Horiz 130
4	903.035M	114.4	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0	113.4	117.6	-4.2	Horiz 130
5	173.165M QP	55.8	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 285	39.3	43.5	-4.2	Horiz 215
^	173.136M	59.1	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 285	42.6	43.5	-0.9	Horiz 215
^	173.065M	57.7	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0	41.2	43.5	-2.3	Horiz 130
8	150.050M QP	53.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	39.0	43.5	-4.5	Horiz 190
^	150.004M	56.6	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 335	42.0	43.5	-1.5	Horiz 190
^	150.002M	55.3	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	40.7	43.5	-2.8	Horiz 130
11	403.742M QP	50.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	41.4	46.0	-4.6	Horiz 100
^	403.724M	60.3	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 360	51.3	46.0	+5.3	Horiz 100
^	403.816M	51.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	42.1	46.0	-3.9	Horiz 130
14	323.215M	51.7	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0	40.7	46.0	-5.3	Horiz 130
15	241.414M	54.0	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	40.5	46.0	-5.5	Horiz 130
16	241.053M	53.8	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	40.3	46.0	-5.7	Horiz 130
17	283.215M	52.6	+13.2 +0.4	+1.1	-28.2	+1.0	+0.0	40.1	46.0	-5.9	Horiz 130
18	156.729M	52.5	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.5	43.5	-6.0	Horiz 130
19	165.017M	53.3	+10.8 +0.3	+0.9	-28.6	+0.8	+0.0	37.5	43.5	-6.0	Horiz 130
20	402.855M	48.7	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	39.7	46.0	-6.3	Horiz 130
21	240.693M	52.6	+12.1 +0.4	+1.1	-28.2	+1.0	+0.0	39.0	46.0	-7.0	Horiz 130
22	401.654M	47.5	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	38.4	46.0	-7.6	Horiz 130
23	259.912M	50.7	+12.9 +0.4	+1.1	-28.2	+1.0	+0.0	37.9	46.0	-8.1	Horiz 130

24	274.807M	50.3	+13.1 +0.4	+1.1	-28.2	+1.0	+0.0	37.7	46.0	-8.3	Horiz 130
25	242.305M QP	50.8	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 195	37.3	46.0	-8.7	Horiz 120
^	242.220M	60.1	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 195	46.6	46.0	+0.6	Horiz 120
^	242.254M	55.8	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	42.3	46.0	-3.7	Horiz 130
28	404.692M QP	45.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 199	36.4	46.0	-9.6	Horiz 100
^	404.682M	55.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 199	46.6	46.0	+0.6	Horiz 100
^	404.777M	51.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	42.2	46.0	-3.8	Horiz 130
31	401.173M	44.3	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	35.2	46.0	-10.8	Horiz 130
32	322.644M QP	46.3	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0 20	35.1	46.0	-10.9	Horiz 100
^	322.735M	56.0	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0 20	44.8	46.0	-1.2	Horiz 100
^	322.735M	52.8	+14.2 +0.4	+1.3	-28.3	+1.2	+0.0	41.6	46.0	-4.4	Horiz 130
35	901.945M	67.0	+23.1 +0.8	+2.3	-29.1	+1.9	+0.0 315	66.0	97.6 Bandedge	-31.6	Horiz 145

CKC Laboratories, Inc. Date: 8/16/2010 Time: 12:58:22 Itron, Inc. WO#: 90820
 15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 8 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 14:07:34
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 9
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 926.8 - AM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

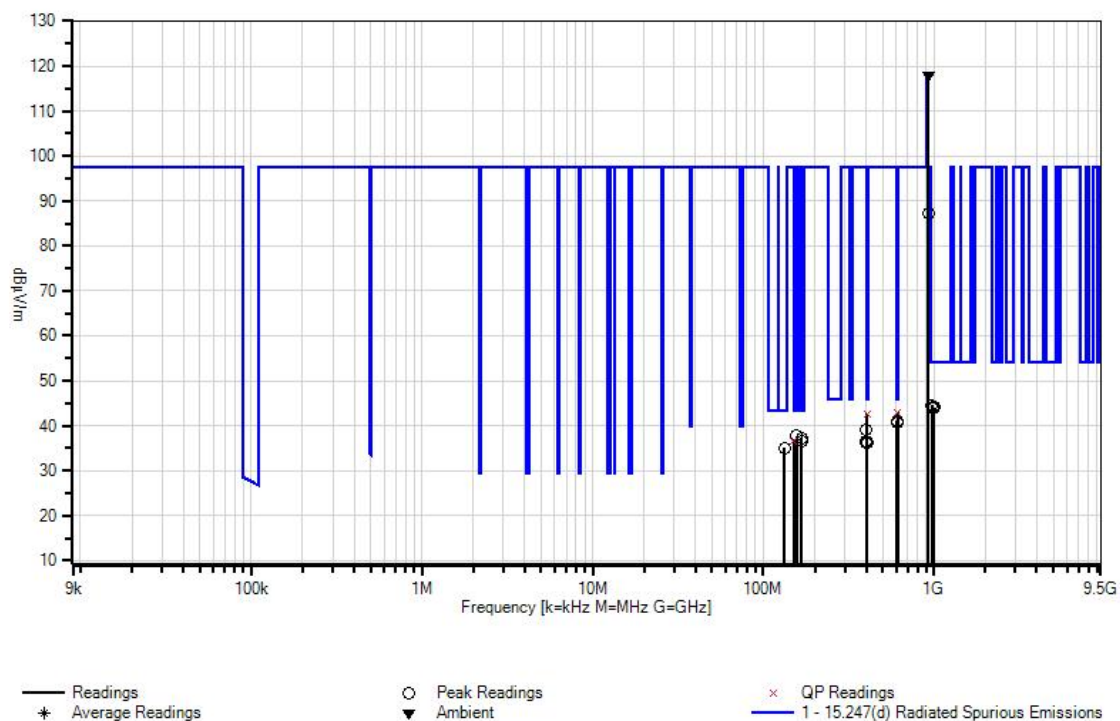
Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	926.818M Ambient	118.5	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0	118.1	117.6	+0.5	Verti 130
2	609.253M QP	48.5	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	43.0	46.0	-3.0	Verti 100
^	609.341M	62.6	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	57.1	46.0	+11.1	Verti 100
^	609.341M	55.7	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0	50.2	46.0	+4.2	Verti 130
5	609.921M QP	48.5	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	43.0	46.0	-3.0	Verti 100
^	609.891M	59.7	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	54.2	46.0	+8.2	Verti 100
^	609.822M	54.5	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0	49.0	46.0	+3.0	Verti 130
8	610.378M QP	48.4	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	42.9	46.0	-3.1	Verti 100
^	610.390M	60.1	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0 180	54.6	46.0	+8.6	Verti 100
^	610.422M	55.7	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0	50.2	46.0	+4.2	Verti 130
11	403.214M QP	51.7	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 190	42.7	46.0	-3.3	Verti 160
^	403.288M	58.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 190	49.6	46.0	+3.6	Verti 160
^	403.288M	55.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	46.1	46.0	+0.1	Verti 130
14	609.101M	46.6	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0	41.1	46.0	-4.9	Verti 130
15	610.903M	46.1	+20.0 +0.6	+1.8	-29.5	+1.6	+0.0	40.6	46.0	-5.4	Verti 130
16	156.849M	52.8	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.8	43.5	-5.7	Verti 130
17	166.939M	53.2	+10.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.2	43.5	-6.3	Verti 130
18	168.020M	52.7	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0	36.6	43.5	-6.9	Verti 130
19	149.956M QP	51.2	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	36.6	43.5	-6.9	Verti 100
^	149.958M	55.7	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	41.1	43.5	-2.4	Verti 100
^	150.002M	53.9	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	39.3	43.5	-4.2	Verti 130
22	402.134M	48.1	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	39.0	46.0	-7.0	Verti 130
23	133.186M	49.9	+12.2 +0.3	+0.8	-28.8	+0.7	+0.0	35.1	43.5	-8.4	Verti 130

24	974.643M	44.6	+24.1 +0.8	+2.2	-29.0	+1.8	+0.0	44.5	54.0	-9.5	Verti 130
25	401.173M	45.5	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	36.4	46.0	-9.6	Verti 130
26	402.495M	45.4	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	36.3	46.0	-9.7	Verti 130
27	405.017M	45.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	36.2	46.0	-9.8	Verti 130
28	976.646M	44.1	+24.1 +0.8	+2.3	-29.0	+1.9	+0.0	44.2	54.0	-9.8	Verti 130
29	995.555M	43.3	+24.3 +0.8	+2.5	-28.9	+2.1	+0.0	44.1	54.0	-9.9	Verti 130
30	989.419M	43.4	+24.3 +0.8	+2.4	-28.9	+2.0	+0.0	44.0	54.0	-10.0	Verti 130
31	928.014M	87.6	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0	87.2	97.6 Bandedge	-10.4	Verti 100

CKC Laboratories, Inc. Date: 8/16/2010 Time: 14:07:34 Itron, Inc. WO#: 90820
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Vertical Sequence#: 9 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: **15.247(d) Radiated Spurious Emissions**
 Work Order #: **90820** Date: 8/16/2010
 Test Type: **Maximized Emissions** Time: 14:39:45
 Equipment: **SRR+WWAN+WIFI+GPS RX (always external antennas)** Sequence#: 10
 Manufacturer: Itron, Inc. Tested By: Jeff Gilbert
 Model: CCU100T (model: Tower CCU)
 S/N: 7404FCC6

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01993	Biconilog Antenna	CBL6111C	10/9/2009	10/9/2011
T2	ANP05366	Cable	RG-214	10/20/2009	10/20/2011
T3	AN01517	Preamp	8447D	5/21/2010	5/21/2012
T4	ANP05360	Cable	RG214	11/10/2008	11/10/2010
T5	AN03121	Cable	32026-2-29080-84	10/23/2009	10/23/2011
	AN02872	Spectrum Analyzer	E4440A	8/25/2009	8/25/2011

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
SRR+WWAN+WIFI+GPS RX (always external antennas)*	Itron, Inc.	CCU100T (model: Tower CCU)	7404FCC6
External RF Filter	Delta Microwave	U1993	101
External Battery	Excel Battery Company	2EXL7360	S10166003-023
Lighting Surge Arrestor	Polyphaser	DSXL-ME	
External GPS Antenna	Trimble	57861-00	213100323
External WWAN Antenna	Laird Technologies	FG821/18503	40353
External ISM Antenna	Laird Technologies	FG9026	40241

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Dell	Latitude D630	9JQRJH1

Test Conditions / Notes:

Frequency Range Investigated: 30 MHz - 1 GHz
 Temp: 25° C
 Humidity: 42%
 Pressure: 102.1 kPa

FHSS radio transmitting on 926.8 - AM.
 Cell radio in RX mode (1880 MHz).
 GPS receiver Active.
 Cannot put Wi-Fi radio into RX only mode.

Ext Attn: 0 dB

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dB μ V	T1 T5 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	403.201M QP	52.0	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 205	43.0	46.0	-3.0	Horiz 216
^	403.237M	58.4	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 205	49.4	46.0	+3.4	Horiz 216
^	403.215M	50.2	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	41.2	46.0	-4.8	Horiz 130
4	926.818M	114.1	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0	113.7	117.6	-3.9	Horiz 130
5	169.342M	54.3	+10.4 +0.3	+0.9	-28.5	+0.8	+0.0	38.2	43.5	-5.3	Horiz 130
6	169.702M	54.1	+10.3 +0.3	+0.9	-28.5	+0.8	+0.0	37.9	43.5	-5.6	Horiz 130
7	149.986M QP	51.8	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 338	37.2	43.5	-6.3	Horiz 190
^	149.981M	55.5	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0 338	40.9	43.5	-2.6	Horiz 190
^	150.002M	54.2	+12.1 +0.3	+0.9	-28.7	+0.8	+0.0	39.6	43.5	-3.9	Horiz 130
10	166.939M	53.1	+10.6 +0.3	+0.9	-28.6	+0.8	+0.0	37.1	43.5	-6.4	Horiz 130
11	173.032M QP	53.6	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 275	37.1	43.5	-6.4	Horiz 190
^	173.065M	58.0	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0 275	41.5	43.5	-2.0	Horiz 190
^	173.065M	56.1	+10.0 +0.3	+0.9	-28.5	+0.8	+0.0	39.6	43.5	-3.9	Horiz 130
14	323.335M	50.5	+14.3 +0.4	+1.3	-28.3	+1.3	+0.0	39.5	46.0	-6.5	Horiz 130
15	156.849M	51.0	+11.6 +0.3	+0.9	-28.6	+0.8	+0.0	36.0	43.5	-7.5	Horiz 130
16	168.006M QP	52.0	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0 240	35.9	43.5	-7.6	Horiz 200
^	168.009M	56.7	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0 240	40.6	43.5	-2.9	Horiz 200
^	168.020M	55.1	+10.5 +0.3	+0.9	-28.6	+0.8	+0.0	39.0	43.5	-4.5	Horiz 130
19	240.693M	52.0	+12.1 +0.4	+1.1	-28.2	+1.0	+0.0	38.4	46.0	-7.6	Horiz 130
20	403.745M QP	47.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	38.1	46.0	-7.9	Horiz 220
^	403.730M	57.1	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	48.1	46.0	+2.1	Horiz 220
^	403.696M	50.5	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	41.5	46.0	-4.5	Horiz 130
23	240.933M	51.5	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	38.0	46.0	-8.0	Horiz 130

24	401.654M	46.9	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	37.8	46.0	-8.2	Horiz 130
25	283.456M	50.0	+13.3 +0.4	+1.1	-28.2	+1.0	+0.0	37.6	46.0	-8.4	Horiz 130
26	989.544M	44.8	+24.3 +0.8	+2.4	-28.9	+2.0	+0.0	45.4	54.0	-8.6	Horiz 130
27	402.374M	46.1	+16.4 +0.5	+1.5	-28.8	+1.3	+0.0	37.0	46.0	-9.0	Horiz 130
28	404.079M QP	45.8	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	36.8	46.0	-9.2	Horiz 225
^	404.175M	55.7	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0 180	46.7	46.0	+0.7	Horiz 225
^	404.176M	50.6	+16.5 +0.5	+1.5	-28.8	+1.3	+0.0	41.6	46.0	-4.4	Horiz 130
31	162.014M	49.6	+11.2 +0.3	+0.9	-28.6	+0.8	+0.0	34.2	43.5	-9.3	Horiz 130
32	242.149M QP	49.2	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 185	35.7	46.0	-10.3	Horiz 120
^	242.077M	61.4	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0 185	47.9	46.0	+1.9	Horiz 120
^	242.134M	55.7	+12.2 +0.4	+1.1	-28.2	+1.0	+0.0	42.2	46.0	-3.8	Horiz 130
35	928.011M	70.3	+23.5 +0.8	+2.4	-29.1	+2.0	+0.0 314	69.9	97.6 Bandedge	-27.7	Horiz 147

CKC Laboratories, Inc. Date: 8/16/2010 Time: 14:39:45 Itron, Inc. WO#: 90820
15.247(d) Radiated Spurious Emissions Test Distance: 3 Meters Horizontal Sequence#: 10 Ext ATTN: 0 dB

