REGULATORY COMPLIANCE REPORT

TITLE: FCC & IC Test Report for 15.247 & RSS-210 Frequency Hopping Device
Itron 100W+
AUTHOR: Roger Mulcahy

REV	CCO	DESCRIPTION OF CHANGE	DATE	APPROVALS	
001		INITIAL RELEASE		Engineering	
				Regulatory	

REVISION HISTORY

	a	initial upload	09nov12	Engineering	
				Regulatory	
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				Regulatory	

Test Data Summary

FCC 15.247 / IC RSS-210; Frequency Hopping Transmitter;
100W+ – Residential, 903 MHz – 926.85 MHz for EUT
FCC ID:EWQ100WD IC:864D-100WD IC Device Models (for IC): 100WD and 100WRD
Part Numbers: ERW-1300-201 through 220 Serial Numbers 69501161,69501228,67400051
OATS Registration Number: FCC 90716, IC 864D-1

Rule	Description	Spec Limit	Max. Reading	Pass/ Fail
Parts 1.1310 & 2.1091(mobile) or 2.1093 (portable)/RSS-102 Sec 4.2	Limits for Maximum Permissible Exposure (MPE)	formula	0.315 mW / cm^2 @ 20 cm 3.15 W/M^2 @ 0.2 M	Pass

Rule versions: FCC Part 1; FCC Part 2; FCC Part 15, RSS-102 Issue 4 (03-2010); RSS-210 Issue 8 (12-2010); RSS-Gen Issue 3 (12-2010).
Reference docs: ANSI C63.4-2003; DA 00-705 (03-30-2000); OET65 (08-1997); OET65C (06-2001); IEEE C95.3-2002.

Cognizant Personnel

Name	Title
Roger Mulcahy	Test Technician
Jay Holcomb	Regulatory Manager
Jason Woodruff	Project Lead

CONDITIONS DURING TESTING

No Modifications to the EUT were necessary during the testing.

FCC 15.31(m) – IC _n/a_; Number of Channels
This device was tested on three channels.

ANSI C63.4 - Temperature and Humidity During Testing
The temperature during testing was within +10º C and +40º C.
The Relative humidity was between 10% and 90%.
RSS-Gen 4.3: Tests shall be performed at ambient temperature

EQUIPMENT UNDER TEST (EUT) DESCRIPTION
Itron declares that the EUT tested was representative of a production unit.

EQUIPMENT UNDER TEST

EUT Module

Manuf:	Itron, Inc.
Itron Model:	Itron 100W+ and 100WP+ Endpoint
Serial Number(s)	Listed Below
Power source	Fresh Batteries

Plot Information
In the zero span measurements, the line in the display is the trigger level.

Peripheral Devices
None

15.247(a)(1)
1.1310 & 2.1091(mobile) or 2.1093(portable) / RSS-102 Sec 4.2-Canada Safety Code 6; Table 5

Maximum Permissible Exposure (MPE)

Radiofrequency radiation exposure limits. - The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

1.1307 (b) In addition to the actions listed in paragraph (a) of this section, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the preparation of an Environmental Assessment (EA) if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits in §§1.1310 and 2.1093 of this chapter.

unit 46550128 Field strength (dbuV/m)	EIRP (dbm)	unit 69501228 conducted power (dbm)	conducted power (watts)	antenna gain (dbi)	antenna gain numeric
109.27	15.27	8.54	.0072	6.73	4.710
120.69	26.69	21.84	.153	4.85	3.036
126.01	32.00	25.89	0.388	6.11	4.083

Determine the maximum power density for the general / uncontrolled population minimum separation distance of 20 cm. ($f_{MHz\ /}$ 1500 mW/cm^2 == $f_{MHz\ /}$ 150 W/M^2)
The power density is calculated as:

P_d = power density in *mW/cm^2*

P_t = transmit power in milliwatts

$$P_d = \frac{P_t \times G}{4 \times \pi \times r^2}$$

G = numeric antenna gain
r = distance between body and transmitter in centimeters.

FCC Limits: 926.8MHz / 1500 = 0.618 mW / cm^2 @ 20cm
IC Limits: 926.8MHz / 150 = 6.18 W / M^2 (@ 0.2M)

Power level E
Max antenna gain = 6.11 dBi = 4.083 numeric
Max TX power = 25.89 dBm = .388 milliwatts
results: P_D = (388 x 4.083) / (4 x pi x 20cm^2) = 0.315 mW / cm^2 @ 20 cm
W/m2 = 10 times mW/cm^2 = 3.15 *W/M^2* @ 0.2 M

Power level C
Max antenna gain = 4.85 dBi = 3.036 numeric
Max TX power = 21.84 dBm = .153milliwatts
results: P_D = (153 x 3.036) / (4 x pi x 20cm^2) = 0.0294 mW / cm^2 @ 20 cm
W/m2 = 10 times mW/cm^2 = .294 W/M^2 @ *0.2 M*

Power level 8
Max antenna gain = 6.73 dBi = 4.710 numeric
Max TX power = 8.54 dBm = .0072 milliwatts
results: P_D = (7.2x 4.710) / (4 x pi x 20cm^2) = 0..0068 mW / cm^2 @ 20 cm
*W/m2 = 10 times mW/cm^2 = ..068*W/M^2 @ *0.2 M*