

# MPE/RF EXPOSURE EVALUATION REPORT



Evaluation of: Itron Inc NIC-510

to

To: FCC CFR 47 Part 15 RF Exposure requirements

Test Report Serial No.: ITRO01-U2 900 MHz FHSS MPE Rev A

This report supersedes: NONE

Applicant: Itron, Inc.  
230 W Tasman Dr  
San Jose, California 95134  
USA

Product Function: Modular radio device, will  
communicate over 900 MHz.

Issue Date: 18th April 2018

## This Test Report is Issued Under the Authority of:

**MiCOM Labs, Inc.**  
575 Boulder Court  
Pleasanton California 94566  
USA  
Phone: +1 (925) 462-0304  
Fax: +1 (925) 462-0306  
[www.micomlabs.com](http://www.micomlabs.com)



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

## 1. MAXIMUM PERMISSABLE EXPOSURE

### Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4\pi d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10^{\text{G (dBi)}}/10$$

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is f/1500 mW/cm<sup>2</sup>

These calculations represent worst case in terms of the exposure levels for the device operating in the 900 MHz band in FHSS mode.

Freq. Band (MHz)	Frequency of Calculation (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm <sup>2</sup> ) @ 20cm	Power Density Limit (mW/cm <sup>2</sup> )	Min Calculated safe distance for Limit (cm)
902 - 928	915.2	3.00	2.00	29.87	970.51	0.39	0.610	15.89

**Note:** for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

### Specification

#### Maximum Permissible Exposure Limits

FCC §1.1310 Limit = f/1500 mW/cm<sup>2</sup> from 1.310 Table 1 for devices operating in the 900 MHz band

---

This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

**Specification - Maximum Permissible Exposure Limits**

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f <sup>2</sup>	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density



575 Boulder Court  
Pleasanton, California 94566, USA  
Tel: +1 (925) 462 0304  
Fax: +1 (925) 462 0306  
[www.micomlabs.com](http://www.micomlabs.com)