MPE/RF EXPOSURE EVALUATION REPORT

FROM

Evaluation of: Itron Networked Solutions, Inc. NIC 414

to

To: FCC CFR 47 Part 15 RF Exposure requirements

Test Report Serial No.: ITRO15-U2 Rev A FCC MPE

This report supersedes: NONE

Applicant:	Itron Networked Solutions, Inc. 230 West Tasman Drive San Jose, California 95134 USA
Product Function:	Plug in radio device, mesh and HAN networks
Issue Date:	11th July 2019

This Test Report is Issued Under the Authority of:

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1. MAXIMUM PERMISSABLE EXPOSURE

Calculations for Maximum Permissible Exposure Levels
Power Density = Pd (mW/cm^2) = $EIRP/(4*\pi*d^2)$
EIRP = P * G
P = Peak output power (mW)
G = Antenna numeric gain (numeric)
d = Separation distance (cm)
Numeric Gain = 10 ^ (G (dBi)/10)

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1 mW/cm^2

These calculations represent worst case in terms of the exposure levels for the device.

Freq. Band (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm^2) @ 20cm	Power Density Limit (mW/cm^2)	Min Calculated safe distance for Limit (cm)
902- 928	4.0	2.51	27.13	516.42	0.258	0.6	13.12
2400 - 2483.5	4.0	2.51	21.9	154.88	0.077	1.0	5.56

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 Table 1 (B) Limits for General Population/Uncontrolled Exposure

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^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	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

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