



Maximum Permissible Exposure (MPE) Report

FCC ID: 2AOGW610-1003-142

Product Name: Xiphos Micro Radio
Model: Xiphos® Micro Radio Equipment (610-1003-142)

APPLICANT: Oceus Networks
5801 Tennyson Parkway, Suite 250
Plano, TX 75024

TEST SITE(S): National Technical Systems - Plano
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REPORT DATE: November 22nd

FINAL TEST DATES: 10/9/2017

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REVISION HISTORY

Rev#	Date	Comments	Modified By
1	November 22 nd 2017	Draft	Armando Del Angel
2	April 27 th	Modified calculations to show compliance with 2.1091 and 2.1093	Armando Del Angel
3	May 3 rd 2018	Added both occupational and General Population limits.	Armando Del Angel

SCOPE

Oceus Networks product Xiphos Micro Radio Model Xiphos[®] Micro Radio Equipment (610-1003-142), is evaluated in accordance with the following guidelines

- OET Guide 65
- ANSI C95.1 for the US and
- Health Canada Safety Code 6
- RSS 102 for Canada.

OBJECTIVE

To demonstrate compliance with United States and Canada RF Exposure requirements for Mobile and Portable Equipment (devices used >20cm from the body and within 20cm from the body), where Maximum Permissible Exposure (MPE) Calculations apply.

STATEMENT OF COMPLIANCE

This device demonstrates compliance under the operating conditions specified in this document. Under normal operating conditions, the antenna is designed to be installed in accordance with the manufacturer's instructions in such a manner to maintain the minimum separation distance. The MPE calculations shown in this report demonstrate compliance to the provisions of US and Canadian requirements.

As can be seen from the MPE results, this device passes the specified limits at a minimum distance of 20cm at the maximum output power under normal operating conditions.

United States MPE Limits in accordance with 1.1310:***Occupational / Controlled Exposure***

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
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	6
300-1500	---	---	f/300	6
1500-100,000	---	---	5	6

General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
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
300-1500	---	---	f/1500	30
1500-100,000	---	---	1	30

Canadian MPE Limits in accordance with RSS-102:**Occupational / Controlled Exposure:**

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²³	170	180	-	Instantaneous*
1-10	-	1.6/ f	-	6**
1.29-10	193/ $f^{0.5}$	-	-	6**
10-20	61.4	0.163	10	6
20-48	129.8/ $f^{0.25}$	0.3444/ $f^{0.25}$	44.72/ $f^{0.5}$	6
48-100	49.33	0.1309	6.455	6
100-6000	15.60 $f^{0.25}$	0.04138 $f^{0.25}$	0.6455 $f^{0.5}$	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	616000/ $f^{1.2}$
150000-300000	0.354 $f^{0.5}$	9.40 x 10 ⁻⁴ $f^{0.5}$	3.33 x 10 ⁻⁴ f	616000/ $f^{1.2}$
Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ $f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ $f^{0.25}$	0.1540/ $f^{0.25}$	8.944/ $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619 $f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21 x 10 ⁻⁴ $f^{0.5}$	6.67 x 10 ⁻⁵ f	616000/ $f^{1.2}$
Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).				

MPE Calculations:

Limit used:

X	Occupational / Controlled Exposure
X	General Population / Uncontrolled Exposure

$$PowerDensity(mW / cm^2) = \frac{EIRP}{4\pi d^2}$$

Given: **EIRP** in *mW* and **d** in *cm*

Frequency (MHz)	EIRP (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Power Density (W/m ²)	Limit (W/m ²)	Type
763	5797	20	1.153276	2.543333	0.115327	.254333	Occupational
763	5797	30.15	0.507479	0.508666	0.050747	0.0508666	Gen. Pop.