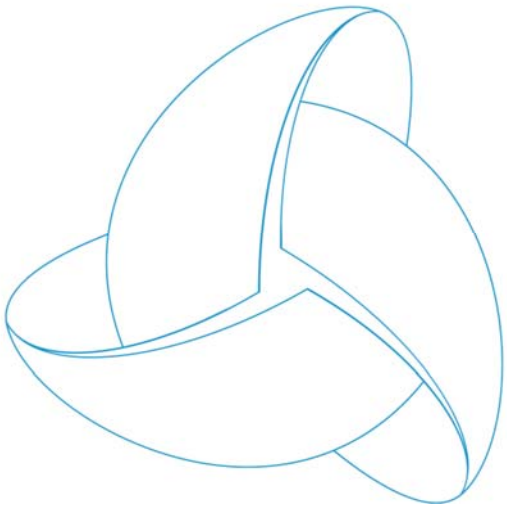

RF EXPOSURE TRAINING AND SAFETY INFORMATION

Xiphos Micro Training Guide & Safety Instructions

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Oceus Networks Inc. shall have no liability for any error or damage of any kind resulting from the use of this document.

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1 Introduction

This document gives practical guidance for personnel working with Xiphos Micro Equipment and antennas on how to take exposure to Radio Frequency (RF) Electromagnetic Field (EMF) emissions into account to make sure applicable exposure guidelines are not exceeded. It is primarily directed at RF workers, but some content will be relevant to other workers who may have reason to come close to transmitting equipment.

BEFORE USING THE XIPHOS MICRO RADIO, READ THIS IMPORTANT RF AWARENESS INFORMATION AND CONTROL INFORMATION AND OPERATIONAL INSTRUCTIONS TO ENSURE COMPLIANCE WITH THE FCC'S RF EXPOSURE GUIDELINES

NOTICE: This radio is intended for use in occupational/controlled conditions, where users have full knowledge of their exposure and can exercise control over the exposure to meet FCC limits. The Xiphos Micro is not authorized for general population, consumer, or any other use.

2 RF Energy Exposure Awareness and Control Information

Wireless communication is based on radio wave propagation, like other commonly known forms of radio communication such as broadcast radio and television. These systems operate in designated frequency bands within the electromagnetic spectrum and health effects have been extensively studied for over 50 years.

This document gives safety instructions which ensure, when followed, that the worker's exposure to RF fields will be within the applicable safety limit. Where local guidelines already exist, they should be followed.

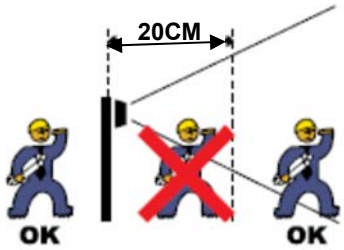
Experts in science, engineering, medicine, health and industry work with organizations to develop standards for exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins or protection. All radios marketed in North America are designed and tested to ensure they meet government established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of mobile radio equipment. These instructions are important because they inform users about RF energy exposure and provide simple information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits.

2.1 Federal Communications Commission Regulations

The FCC requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness is facilitated using a product label directing users to specific user awareness information. The Xiphos Micro has a RF exposure product label. Also, the Xiphos Micro product has a Site Engineering Guide and a separate Safety Guide that includes information and operating instructions required to protect workers and the general public.

2.2 Compliance Distance

In principle, RF levels decrease rapidly when a person moves further away from the source, e.g., a transmitting antenna. The RF level can be calculated based on its electrical characteristics or measured. The distance at which the RF level is always below the RF limit is called the compliance distance and incorporates a substantial safety margin. The figure shows an example of the 20 CM compliance distance for RF workers using the Xiphos Micro system.



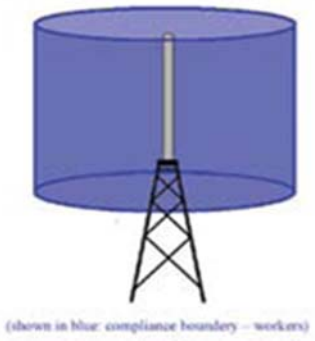
The Xiphos Micro radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) for human exposure to radio frequency electromagnetic energy. This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 100% % transmitting and is authorized by the FCC for occupational use only.

The Xiphos Micro complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR §§ 1.1307, 1.1310, 2.1091 and 2.1093
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition

2.3 Compliance Boundary / exclusion zone

It is also possible to determine a three-dimensional (3D) compliance boundary around an antenna. The region inside the compliance boundary is often called the exclusion zone. The advantage of defining a compliance boundary is that it specifies the compliance distance in all directions.

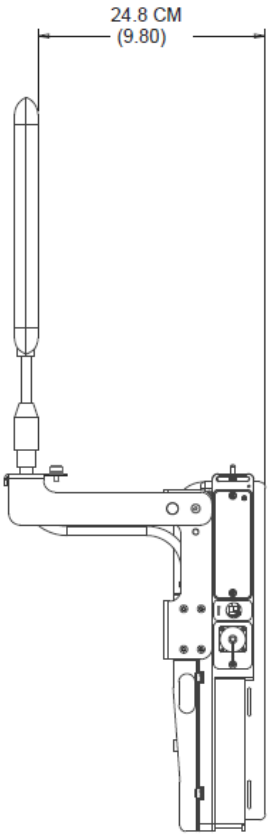


An omnidirectional cylindrical compliance boundary uses “Diameter, Height, and Distance from antenna”. **The compliance boundary for Xiphos Micro is defined as the minimum separation that should be kept between the antenna and a person is 20 CM.**

The Xiphos Micro product with recommended antenna shows the resulting dimensions, in centimeters, for a compliance boundary for both general public and occupational exposure. The recommended minimum lateral distance from the transmitting antenna (15" Manpack Antenna; Hascall-Denke MPDP700X4AD / 700-2500 MHz) is listed below:

Band 14 MPE
Occupational Distance = 20 cm
General Population Distance = 30.15 cm

Band 4 MPE
Occupational Distance = 20 cm
General Population Distance = 21.5 cm



2.4 RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits always adhere to the following procedures.

Guidelines:

- Do not remove the RF Exposure Label from the radio equipment.
- User awareness instructions should accompany the radio equipment when transferred to other users.
- Do not use the radio equipment if the operational instructions described herein are not met.

2.5 Operating Instructions

- When worn on the body, always place the radio in a Oceus Networks approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of the Xiphos Micro radio equipment or other manufacturer's non-approved accessories may result in exposure levels, which exceed the FCC's occupational/controlled environment RF exposure limits.

- If you are not using a body-worn accessory and are not using the radio in the intended use position, then ensure the antenna and the radio are kept at least 20 cm (7.87 inches) from the body when transmitting. Keeping the radio at the proper distance is important because RF exposures decreases with increasing distance from the antenna.

- Transmit only when people outside the vehicle are at least the recommended minimum lateral distance away, as shown, from a properly installed according to installation instructions, externally-mounted antenna.

- Use only Oceus Networks approved supplied antennas and accessories. Use of non-Oceus Networks approved antennas and accessories may exceed the FCC RF exposure guidelines.

- Contact Information: For additional information on exposure requirements or other information, contact Oceus Networks Customer Support at 1-855-GO OCEUS or customersupport@oceusnetworks.com.

2.6 Approved Accessories

This radio has been tested and meets the FCC RF exposure guidelines when used with the Hascall-Denke accessories supplied or designated for this product. Use of other accessories may not ensure compliance with the FCC's RF exposure guidelines and may violate FCC regulations.

2.7 FCC Warning

Xiphos Micro complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.8 RF Exposure Warning Statement

Caution!

Excessive RF exposure can result in potentially adverse health effects. If it is suspected that RF exposure limits may be exceeded, ensuring that transmitting antennas are switched off, or reduce output power while working or near antennas.

3 References

Xiphos Micro Site Engineering Guide, 2016-141856517-1491

Xiphos Personal Health and Safety Information, 2016-553290872-1167

FCC, Code of Federal Regulations CFR title 47, part 1.1307, 1.1310, 2.1091 and 2.1093 “Radiofrequency radiation exposure limits”, Federal Communications Commission (FCC), August 1997.

EN/IEC 62232:2017, Determination of RF field strength, power density and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure, August 2017.

FCC OET Bulletin 65, Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields. Edition 97-01, August 1997.

FCC KDB 447498 D01, “RF exposure procedures and equipment authorization policies for mobile and portable devices”.

EN 50663:2017, “Generic standard for assessment of low power electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)”, European
Committee for Electrotechnical Standardization (CENELEC), May 2017.