



Futurecom Systems Group, ULC

PDR8000 Portable Digital Repeater  
RF Safety Booklet

**ATTENTION!**

Before using this equipment, please read this booklet which contains important operating instructions for safe usage, RF energy control and compliance with exposure limits.

Document: 8K088X06

Revision: R2.0

Date: 2017-10-02

## Document Revisions

Revision	Date	Notes & References
R1.0	2017-06-1	Initial Version
R2.0	2017-10-02	Contents applicable to R2.0 and R1.0, newsletter signup info



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## Table of Contents

- 1 RF Exposure..... 5**
  - 1.1 RF Exposure Label ..... 6
  - 1.2 FCC Label..... 6
- 2 Installation Requirements for Compliance with Radio Frequency (RF) Energy Exposure Safety Standards..... 7**
- 3 Antenna Installation Instructions ..... 8**
  - 3.1 Fixed PDR8000 Site Antennas..... 8
  - 3.2 Temporary-Fixed Site..... 8

## Table of Figures

**Table 1 Recommended Lateral Distance – PDR8000.....6**

**Table 2 Approved PDR8000 Combinations.....7**

# 1 RF EXPOSURE

## **NOTE:**

This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

## **ATTENTION!**

Changes or modifications not expressly approved by Futurecom Systems Group, ULC could void the User's authority to operate the equipment.

**USA Users:** Do not use the PDR8000 in the frequency band 406.0 – 406.1MHz. This frequency band is reserved for distress beacons.

## **ATTENTION!**

**This radio device is intended for use in occupational / controlled conditions, where users have full knowledge of their exposure and can exercise control over their exposure to meet FCC limits. This radio device is NOT authorized for general population, consumer, or any other use.**

**It is the responsibility of the PDR8000 Operator to ensure that Maximum Permissible Exposure (MPE) limits are observed at all times during repeater transmissions.**

**The minimum lateral distance between all possible personnel and the PDR8000 antenna must be as specified in Table 1 (Recommended Lateral Distance- PDR8000).**

**Failure to observe the MPE distance exclusion area around the antenna may expose persons within this area to RF energy above the FCC exposure limit for bystanders (general population).**

PDR8000 (20W)	Recommended Lateral Distance from Antenna
VHF	82cm (32.3 inches) (up to 50% Tx duty cycle)
UHF 380-512MHz	75cm (29.5 inches) (up to 50% Tx duty cycle)
700MHz	73cm (28.7 inches) (up to 100% Tx duty cycle)
800MHz	76cm (29.9 inches) (up to 100% Tx duty cycle)

**Table 3 Recommended Lateral Distance – PDR8000**

**NOTE:**

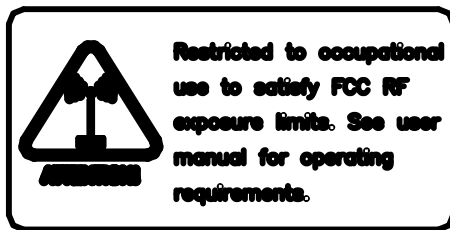
50% Tx duty cycle is defined as Push To Talk (PTT), 50% Talk - 50% Listen.

100% Tx duty cycle is defined as Push To Talk (PTT), 100% Talk.

**IMPORTANT**

The maximum allowed gain of the  $\lambda/4$  omni-directional antenna for the PRD8000 is Unity (0dBd).

## 1.1 RF EXPOSURE LABEL



The PDR8000 RF Exposure Label should be in the direct view of the operator.

## 1.2 FCC LABEL

This device 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 INSTALLATION REQUIREMENTS FOR COMPLIANCE WITH RADIO FREQUENCY (RF) ENERGY EXPOSURE SAFETY STANDARDS

### ATTENTION!

To ensure compliance with RF Energy Safety Standards:

- Install only Futurecom / Motorola approved antennas and accessories and set conducted power into the PDR8000 antenna equal to or lower than the approved power levels – refer to **Table 2** (Approved PDR8000 Combinations).
- Ensure the antenna installation is consistent with the PDR8000 Antenna Installation instructions described in this document.
- Ensure the **Product & RF Safety Booklet** is available to the end user upon completion of the installation.

ANTENNA				PDR8000 MODEL					
#	Kit #	Freq. Range [MHz]	Type	700 MHz (20W) (up to 100% Tx duty cycle)	800 MHz (20W) (up to 100% Tx duty cycle)	380-430 (20W) (up to 50% Tx duty cycle)	450-470 (20W) (up to 50% Tx duty cycle)	470-512 (20W) (up to 50% Tx duty cycle)	VHF (20W) (up to 50% Tx duty cycle)
1	HAF4016	764-870	¼ wave	20W	20W				
2	HAE6012A	380-433	¼ wave			20W			
3	HAE4003A	450-470	¼ wave				20W		
4	HAE4004	470-512	¼ wave					20W	
5	HAD4006	136-144	¼ wave						20W
6	HAD4007	144-150.8	¼ wave						20W
7	HAD4008	150.8-162	¼ wave						20W
8	HAD4009	162-174	¼ wave						20W

**Table 4 Approved PDR8000 Combinations**

## 3 ANTENNA INSTALLATION INSTRUCTIONS

### 3.1 FIXED PDR8000 SITE ANTENNAS

Radio equipment is sometimes installed at a fixed location and operated as a control station or as a fixed unit. In such cases the antenna installation must comply with the following requirements in order to assure optimal performance and make sure human exposure to radio frequency electromagnetic energy is within the guidelines set forth in the above standards.

- The antennas must be mounted outside the building.
- Mount the antennas on a tower if at all possible.
- If the antennas are to be mounted on a building then it must be mounted on the roof.
- As with all fixed site antenna installations, it is the responsibility of the licensee to manage the site in accordance with applicable regulatory requirements and may require additional compliance actions such as site survey measurements, signage, and site access restrictions in order to insure that exposure limits are not exceeded.

### 3.2 TEMPORARY-FIXED SITE

Futurecom requires the PDR8000 operator to ensure FCC/IC Requirements for Radio Frequency Exposure are met. It is the responsibility of the Licensee to ensure that the appropriate separation distances between the antennas and bystanders are established and followed to meet the FCC and ISED Canada Maximum Permissible Exposure (MPE) Requirements in any particular Temporary-Fixed location. In situations where a site assessment is not practical, it is recommended that the antennas be located **at least 9 feet from bystanders**. This should ensure MPE compliance in any Temporary-Fixed application and is likely to be a much greater separation distance than is necessary in most cases. Failure to observe the MPE distance exclusion area around the antenna may expose persons within this area to RF energy above the FCC/ISED Canada exposure limits for bystanders (general population).