



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: R3.0

Date: 2018-07-06

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
R3.0	2018-06-06	Content updated for PDR8000 R3.0 product release.



Subscribe to our newsletter if you want to be informed about new releases and updates. Please visit <http://futurecom.com/support/newsletter/>

Proprietary Statement

© 2018 Futurecom Systems Group ULC.
Printed in Canada. All Rights Reserved

No part of this document, or any software included with it, may be reproduced and distributed without the prior written permission of the copyright holder.

Futurecom Systems Group ULC. reserves the right to make changes or improvements to the equipment, software or specification described in this document at any time and without prior notice. These changes will be incorporated in the new releases of this document.

This document may contain technical inaccuracies or typographical errors.

Futurecom Systems Group ULC. waives responsibility for any labour, materials or costs incurred by any party as a result of using this document.

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners.

Table of Contents

- 1 RF Exposure..... 4**
 - 1.1 FCC And RF Exposure Label..... 5
- 2 Installation Requirements for Compliance with Radio Frequency (RF) Energy Exposure Safety Standards..... 6**
- 3 Antenna Installation Instructions 7**
 - 3.1 Fixed PDR8000 Site Antennas..... 7
 - 3.2 Temporary-Fixed Site..... 7

- Table 1 Minimum Lateral Distance – PDR8000..... 5
- Table 2 Approved PDR8000 Combinations..... 6

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 Minimum 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)	Minimum Lateral Distance from Antenna
VHF	82cm (32.3 inches) (up to 50% Tx duty cycle)
UHF 380-430MHz, 450-470MHz	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 1 Minimum 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 FCC AND RF EXPOSURE LABEL

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

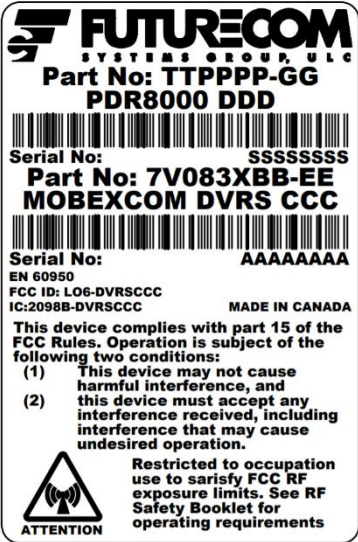


Figure 1 FCC and RF Exposure Label

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 prior to use.

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)	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	HAD4006	136-144	¼ wave					20W
5	HAD4007	144-150.8	¼ wave					20W
6	HAD4008	150.8-162	¼ wave					20W
7	HAD4009	162-174	¼ wave					20W

Table 2 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/ISED 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).