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.

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Document Revisions

Revision	Date	Notes & References
1.0	2017-06-1	Initial Version
2.0	2017-10-02	Contents applicable to R2.0 and R1.0, newsletter signup info
3.0	2018-06-06	Content updated for PDR8000 R3.0 product release.
3.01	2022-08-04	Minor wording & formatting updates
3.02	2022-12-07	Updated logo
3.03	2024-06-13	Content updated for PDR8000 UHF 470-512MHz band Updated FCC and RF Exposure Label

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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, 470-512MHz	75cm (29.5 inches) (up to 50% Tx duty cycle)
700MHz	73cm (28.7 inches) (up to100% Tx duty cycle)
800MHz	76cm (29.9 inches) (up to100% 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 λ/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)	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**	
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 PDR8000 ANTENNA SITE

Radio equipment is sometimes installed at a predetermined location. 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 where possible.

• If the antennas are to be mounted on a building then they must be mounted on the roof.

• As with all predetermined 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 PDR8000 TEMPORARY 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 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 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).