PHARAD

Antennas, Photonics, & RF Communications

octane®

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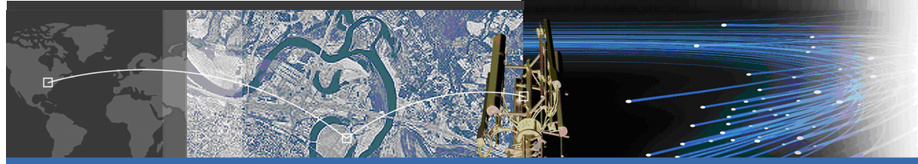

octane®

UAV Antennas

High Performance UAV Antennas

Platforms Supported

- Composite UAVs
- Metallic UAVs
- Micro-UAVs
- Small UAVs

Applications

- Communications and Control
- Signal intelligence
- VHF through C-band

Smaller and lighter weight Unmanned Aerial Vehicles (UAVs) are increasingly being used for more complex communications and intelligence applications. To increase loitering capability and persistence of these aircraft, lighter weight, more aerodynamic antennas are required. Pharad has developed and manufactures a variety of high performing, lightweight, low profile antennas for UAVs. Each antenna class developed by Pharad has been optimized for low weight, aerodynamics, and electromagnetic performance. These state-of-the-art antennas enable increased flight range and link performance over traditional airborne antennas. Additionally, the wideband antennas reduce the number of required apertures in an airframe, further reducing aerodynamic drag and logistics costs.

The electromagnetic designs of the Pharad UAV antennas account for the material from which the UAV is constructed. Different solutions are provided for UAVs built from composites such as fiberglass, Kevlar, or polypropylene, and for UAVs constructed from aluminum or carbon fiber. Frequency ranges available include VHF through C-band.

In addition to our standard COTS (commercial off-the-shelf) antennas, Pharad offers custom engineered solutions that conform to a customer's exact specifications. Pharad's Antenna Development Team can develop custom UAV antennas to meet specific form factor and radiation requirements.

Ultra-Lightweight Blade Antennas

Features

- Very lightweight
- Broadband operation
- Dipole pattern
- Performs independent of fuselage material

Pharad's UAV blade antennas are the smallest, lightest weight, highest performing UAV antennas on the market, weighing as little as 18 grams. These antennas provide broadband performance from UHF to C-band, enabling fewer apertures on a UAV to cover multiple communications links. Efficient broadband dipole performance of these antennas is maintained regardless of the mounting environment, as the performance is independent of UAV fuselage material. The thin blades are designed to minimize drag. The reduced weight and improved aerodynamics of theses antennas, along with the elimination of multiple apertures, provide improved range and persistence of lightweight UAVs. When UHF to C-band broadband performance is required, the deployment of Pharad's ultra-lightweight blade antennas improve the mission capabilities of lightweight UAVs.

Frequency	Model Number
800 – 6000 MHz	AU-800-6000
1600 – 4400 MHz	AU-1600-4400

Low Profile Antennas

Features

- Small footprint
- Low height
- Highly efficient
- Moderate gain
- Hemispherical pattern
- Performs independent of fuselage material

Pharad offers a number of moderate-gain, low-profile UAV antennas operating in the L- and S-bands. These low-profile antennas provide hemispherical coverage under the UAVs, allowing communication links to be maintained even when the UAV is directly overhead. Antenna performance is maintained independent of the UAV fuselage material. Mounting the antenna to a small metallic or composite UAV is easily accomplished with standard fasteners. These small, hockey puck shaped antennas are less than 1.1″ in height and 3.5″ in diameter; minimizing the impact on UAV aerodynamics.

Frequency	Model Number
1500 – 1700 MHz	LP-1500-1700
1500 – 2100 MHz	LP-1500-2100
1750 – 1815 MHz	LP-1750-1815
1850 – 1990 MHz	LP-1850-1990

Ultra-Thin Appliqué Antennas

Features

- Extremely thin
- Low visibility design
- Very lightweight
- Easy to mount: Adheres directly to fuselage
- Large variety of communication bands supported

The Pharad appliqué antenna is unlike any other UAV antenna available; a result of the innovation of Pharad's antenna design team. Pharad has developed a series of appliqué antennas that are mounted to the UAV by simply adhering to the fuselage and provide a high quality radiating solution. These antennas are nearly as thin as a piece of paper; less than 10 mils thick. They are suitable for UAVs constructed from non-metallic, low-loss composites, such as fiberglass, Kevlar, polycarbonate, polyethylene, or other plastics. A durable one-time use pressure sensitive adhesive on one side of the radiator allows the Pharad appliqué antenna to adhere to the UAV surface.

Frequency	Model Number
350 – 450 MHz	AA-350-450
420 – 450 MHz	AA-400-450
420 – 480 MHz	AA-420-480
430 – 600 MHz	AA-420-460
470 – 480 MHz	AA-470-480
800 – 900 MHz	AA-800-900
800 – 900/1800 – 1900 MHz	AA-800-900/1800-1900
800 – 6000 MHz	AA-800-6000
1700 – 6000 MHz	AA-1700-6000