Wraparound™ Antennas

The Haigh-Farr Wraparound™ is a self-contained omnidirectional antenna for cylindrical or conical shaped bodies. A single point feed is used and no external splitters, combiners or cable harnesses are required for installation. The antenna is conformal, and may be mounted flush, or on the exterior of the vehicle.

Designs are available from 300 MHz to 13 GHz with typical applications including Flight Termination, GPS, Telemetry, Data Links and Transponder. Multiple antenna elements may be combined within the same physical Wraparound™, providing multi-band capability in a single, compact package.

Wraparound™ antennas have been flown on vehicles from subsurface sea to space, including high-mach kinetic kill weapons, high-G projectiles and re-entry vehicles. The Wraparound™ has been qualified for use on several high performance vehicles flown on test and launch ranges throughout the United States and Europe.

For high aero-heating applications an ablative heat shield may be added to the antenna for additional thermal protection.

FEATURES:
- Omnidirectional: Full Spherical Coverage
- 300 MHz to 13 GHz
- Multi-Channel Designs
- Single Point Feed
- No External Dividers and Cables Required
- Thin, Aerodynamic Shape
- Conformal – Flush or External Mounting
- Fastened or Bonded to the Vehicle
- OEM or Retro-Fit Applications
- Rugged Construction - Designed for High-G, High Radial G (Spinup), and Extreme Vibration Environments

APPLICATIONS:
- Launch Vehicles, Atmospheric Rockets, Missiles
- High Speed UAV’s and Targets
- Artillery Rounds
- Spacecraft, Guided Bombs
- Scoring Systems
- Oil Rigs

DESIGN CAPABILITY:
Haigh-Farr has an over 50 year history of designing and producing exceptionally rugged, high-performance antennas. If you don’t find an antenna meeting your requirements in our standard list of products, Haigh-Farr has the experience and modeling capability to customize a solution. Adaptations of existing designs can be done with very short lead times.

Contact Haigh-Farr for a review of your antenna requirements.
TYPICAL SPECIFICATIONS:

Operating Band: 300 MHz to 13 GHz

Number of Channels: Design parameter – 1, 2, 3, 4 or greater

Input Impedance: 50 Ohms

Bandwidth: Design parameter, 1% - 5%

VSWR Across Band: 2:1 Max across Band

Polarization: Design Parameter

Power: 40 W cw, 5 kW peak

Radiation Pattern: See plots below

Connector: SMA standard, other connector options available including direct cable feeds

Weight: Design parameter - Function of diameter and electrical requirements

Dimensions: Design parameter - Function of diameter and electrical requirements; Thickness: .05” (1.25mm) to .3” (7.6 mm)

Mounting Surface: Antenna is flexible and designed to naturally mate with specified cylindrical or conical surface

Securing: Screw and/or Bond

Altitude: Any

Environment: Design parameter - typical of tactical supersonic missiles and kinetic kill weapons

---

1 Radiation patterns are a function of the vehicle shape and size since the vehicle serves as the ground plane for the antenna. The patterns shown were measured on a typical smooth cylindrical ground plane.