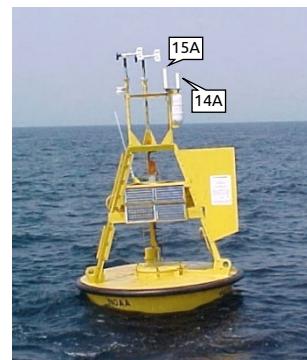


Harsh 14A Antenna

Model 14A-N | 401 MHz Half-Wave QFH Antenna

Overview

The Harsh 14A is a durable 401 MHz half-wave quadrifilar helix (QFH) antenna designed for both uplink and downlink applications. This antenna's approximate hemispheric omnidirectional pattern provides 3 dBi gain at zenith, ideal for radiosonde ground stations and communications with overhead satellites. This antenna's lightweight resonant design, featuring our MicroFeed circuit board, delivers superior performance in demanding research and operational environments.



Key Features

- Transmit up to 50W or receive with low-noise performance
- Hemispheric omnidirectional coverage with 160° half-power beamwidth for reliable communication regardless of platform orientation
- RHCP optimized for satellite and radiosonde communications
- Harsh's MicroFeed PCB ensures low SWR and consistent circular polarization
- Sealed G-10 fiberglass radome with polyurethane finish for long-term outdoor and marine use
- Lightweight design (0.59 kg / 1.3 lb) with minimal wind loading (0.023 m² / 0.25 ft² effective area)
- Extreme environment rated: -65 to +65°C, 100 kn wind survival, ice/snow loading to 4.8 kPa

Applications

Downlink Applications:

- Ground stations for radiosonde tracking and atmospheric research (weather balloons transmitting at ~401 MHz)
- Reception of 401 MHz satellite beacons for research, education, and specialized applications

Uplink Applications:

- Argos satellite data collection platforms for wildlife tracking, oceanographic monitoring, and remote environmental sensing
- Marine buoy networks transmitting to satellites
- Remote automated weather stations and research platforms
- Asset tracking and IoT applications via satellite uplink

PROVEN PERFORMANCE: Recommended by NOAA Global Monitoring Laboratory for radiosonde ground stations. Model 14A deployed in Canadian Meteorological Service ocean buoy networks for GOES satellite uplinks.

NOTE: Satellite transmission requires appropriate regulatory authorization. Consult local regulations before transmitting.

Specifications

Electrical	
Frequency	401 MHz nominal
Bandwidth	≥ 4 MHz
Input Power	≤ 50 W
Input Impedance	50 Ω nominal
VSWR	≤ 1.5:1
Axial Ratio	≤ 5 dB
Gain	≥ 3 dBi (at zenith)
Antenna Type	Half-Wave Quadrifilar Helix (QFH)
Polarization	Right-Hand Circular (RHCP)
Radiation Pattern	Hemispherical omnidirectional, zenith opt
½-Power Beamwidth	160° nominal
Connector	Type N

Environmental Ratings	
Temperature	-65 to +65 °C (-85 to +149 °F)
Wind Survival	51 m/s (100 kn, 115 mph)
Ice/Snow Loading	4.8 kPa (100 lb/ft ²)
Rain Submersion	127 mm/hr (5 in/hr)
Humidity	0–100% RH, condensing
Altitude	-305 to +4,572 m MSL (-1,000 to +15,000 ft)

Physical Measurements	
Radome Dimensions	76 mm Ø × 381 mm (3.0" Ø × 15.0")
Mount Dimensions	108 mm (4 1/4") diameter flange with 6 evenly spaced holes on 3 5/8" bolt circle for 1/4" bolts
Wind Area	0.023 m ² (0.25 ft ²)
Weight	≤ 0.59 kg (1.3 lb)

Shipping Information	
Packaging	Boxed in heavy-duty cartons
Shipping weight	1.36 kg (3 lb)
Shipping size	46 × 15 × 15 cm (18 × 6 × 6 in)

Notes	
Cable and mounting hardware not included with the antenna	
Connector retaining nut ships loose; tighten to 0.68–1.13 N·m (6–10 in-lb) at installation	
Mount torque: ≤ 6.8 N·m (5 ft-lb) to prevent flange finish damage	