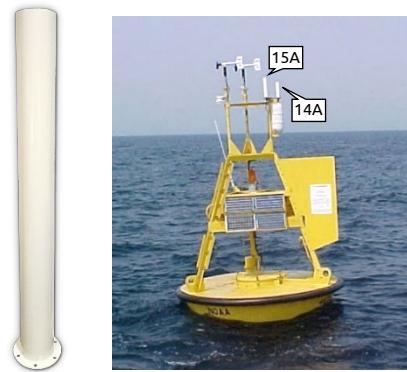


# Harsh 15A Antenna

**Model 15A-N** | 401 MHz Full-Wave QFH Antenna

## Overview

The Harsh 15A is a durable 401 MHz full-wave quadrifilar helix (QFH) antenna designed for uplink and downlink applications requiring optimized low-elevation performance. This antenna's hemispheric omnidirectional pattern provides 3.5 dBi gain at low elevation angles, ideal for tracking low-orbiting satellites, polar and high-latitude ground stations, and extended communication windows near the horizon. This 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 185° half-power beamwidth for reliable communication, optimized for maximum gain at low elevation angles
- 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 (0.91 kg / 2.0 lb) with minimal wind loading (0.044 m<sup>2</sup> / 0.47 ft<sup>2</sup> 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	≥ 3.5 dBi (at 25° elevation angle)
Antenna Type	Full-Wave Quadrifilar Helix (QFH)
Polarization	Right-Hand Circular (RHCP)
Radiation Pattern	Hemispherical omnidirectional, low elev opt
½-Power Beamwidth	185° 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 <sup>2</sup> )
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 × 719 mm (3.0" Ø × 28.3")
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	0.044 m <sup>2</sup> (0.47 ft <sup>2</sup> )
Weight	≤ 0.91 kg (2.0 lb)

Shipping Information	
Packaging	Boxed in heavy-duty cartons
Shipping weight	1.81 kg (4 lb)
Shipping size	89 × 15 × 15 cm (35 × 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	