



communications
Communication Systems-West

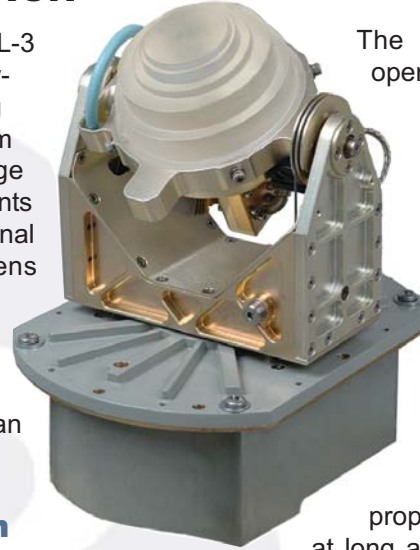
Compact Lens Antenna

The L-3 Compact Lens antenna provides 20 dBic of Ku-band gain using a 2-axis pedestal in a small and lightweight package allowing its use in small UAV's or manned applications without the drag penalties usually associated with horn or dish antennas.

Data Link Products

PRODUCT DESCRIPTION

The Compact Lens Antenna is L-3 Communications' low profile, low-drag solution to implementing CDL and STANAG 7085 system requirements where long-range and high availability requirements require use of airborne directional antennas. The Compact Lens Antenna offers 20 dBic of gain and is right-hand circularly polarized. This antenna uses a unique RF lens approach that requires 36% less volume than an equivalent-gain horn antenna.



The antenna pedestal operates as a pointing antenna receiving its pointing commands over the RS-485 bus at up to 20Hz ensuring that the antenna will remain properly pointed even during dynamic airborne maneuvers. The two-degree-of-freedom pedestal ensures proper antenna pointing at long and short ranges and during aircraft maneuvers.

Product Customization

The Compact Lens Antenna is a member of the L-3 data link product family, but can be used in any application requiring a Ku band high-gain two-axis antenna. The antenna interfaces with 28VDC standard power, a standard RF coaxial connector, and an RS-485 antenna control port. The antenna consists of the following major components: 1) a directional radiating RF element; 2) RF interconnecting components; 3) a two degree-of-freedom antenna pedestal for pointing; 4) motors and angular position feedback sensors; 5) an electronic module for motor drive, position sensing interface, data interfaces and power conversion; and 6) a radome to protect the antenna from the environment.

A maximum of eight antennas can be controlled with one user-supplied antenna controller. The antenna assembly uses Non-Volatile Memory to store user-defined boresight offsets as necessary. The antenna assembly contains Built-In-Test capability to detect 95% of possible faults and report the results of the test on the RS-485 status bus.

The antenna's radome will survive air-speeds up to 250 knots. If desired, the customer can provide their own radome as needed for each airborne application, or L-3 can provide a custom design.

KEY FEATURES AND BENEFITS

Features

- High Gain, Low Cost, 2-Axis
- Hemispherical Constant Index Lens

Options

- Custom Radome

Benefits

- Long range, high availability relative to Omni antennas
- Minimizes losses at any attitude and range
- Low drag for minimum impact to flight efficiency
- Application on any aircraft, optimizing drag

640 North 2200 West
P.O. Box 16850
Salt Lake City, UT 84116
Tel: 801-594-3473
FAX: 801-594-3003
www.L-3com.com/csw

Cleared by DoD/OFOISR for Public Release under 07-S-2579 on 27 August 2007

SPECIFICATIONS

Compact Lens Antenna

PERFORMANCE CHARACTERISTICS

RF Characteristics

- Ku-band CDL

Frequency Range

- 14.4 GHz to 15.35 GHz

Gain

- 19.3 dBic

Beam width (3 dB) Max

- 12.0 degrees

Side lobes

- 14.0 dB maximum

Polarization

- Right hand Circular

Axial Ratio at beam peak

- 2.0 dB maximum

VSWR (over frequency)

- 1.7:1, maximum

RF Power handling

- 50 W maximum

Control/Status Interface

- RS-485A interface from/to the Data Link Antenna Controller

Input Power

- 1 Amp max. @ +28 VDC +/- 10%

Weight

- < 6.75 lbs

Size

- 6.0-inch diameter cylinder 10.6 inches tall, includes radome

Humidity

- Operating: (Antenna) 95% w/condensation

Shock

- Operating: 20g, 11msec, half sine Non-operating: 30g, 18msec, half sine

Vibration

- Operating: 8.5 GRMS

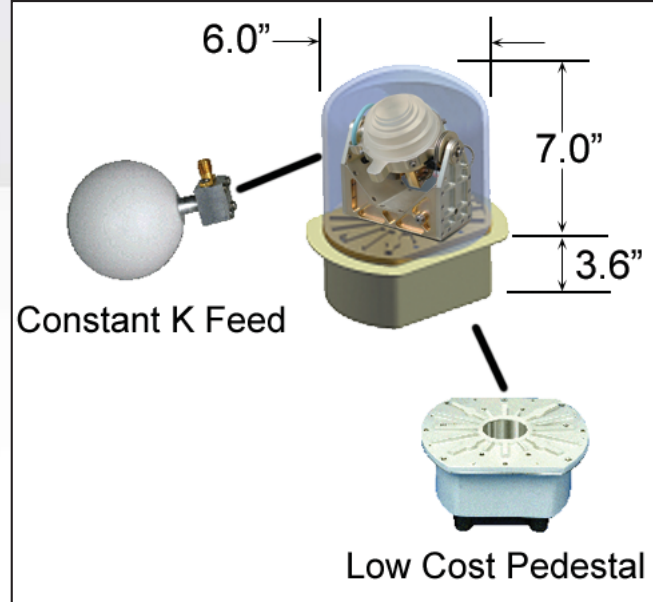
Altitude

- Operating: 40k ft Maximum

Temperature

- Operating: -40°C to +71°C Non-operating: -57°C to +95°C

PHYSICAL CHARACTERISTICS



Data Link Products

For further information on Compact Lens Antenna contact Al Modrovsky:

L-3 Communications

Communication Systems - West

640 North 2200 West

P.O. Box 16850

Salt Lake City, Utah 84116-0850

Telephone: 801-594-3473

Fax: 801-594-3003

www.L-3com.com/csw/product

Albert.T.Modrovsky@L-3com.com

Data contained within this document are summary in nature and subject to change at any time at L-3 Communications' discretion.



communications

Communication Systems-West