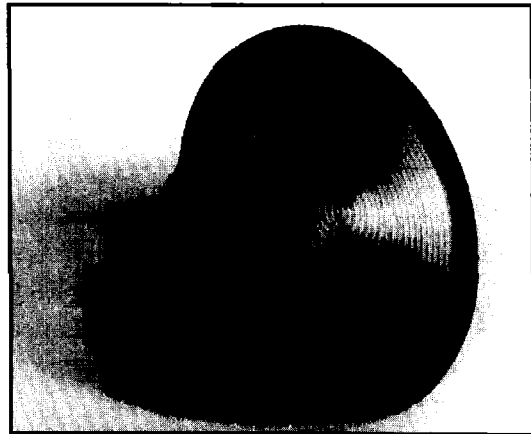


# Series 856 Horn Lens Antenna

## Features

- ▶ Compact and Rugged Horn-Lens Combinations
- ▶ Variety of Available Gain-Beamwidth Characteristics
- ▶ Clean Radiation Pattern Characteristics



## Description

The Series 856 horn lens antenna consists of a conical feed horn and a standard dielectric lens. These antennas feature a Rexolite<sup>®</sup> 1422 lens in a plano-convex configuration that changes the aperture field from a spherical wave to a planar wave with excellent radiation characteristics. Each lens is matched to the feed over a 10 percent band by machined quarter-wave grooves on the plane surface of the lens. Tapered holes are provided on the cast aluminum support mount for balanced mounting.

The Series 856 lens antennas are available in 3, 6, 9, and 12-inch diameters to provide a variety of beamwidth and gain characteristics from 12.4 to 220 GHz. Sidelobes are nominally -25 dB in the H-plane and -17 dB in the E-plane. Efficiencies are greater than 55 percent.

## Applications

Lens antennas, as compared to their optical reflector counterparts, offer improved performance since they

have no aperture blockage and reduced surface tolerance requirements. Unlike a reflector, surface irregularities in the lens will not double the phase error. The effects of these irregularities are further reduced by the factor  $(N-1)$  where  $N$  equals the index of refraction.

The Series 856 conical lens antennas are used for flush-mounted and/or pressurized applications. These antennas can also be used in microwave links due to their low radiation level in the backward direction. The comparative absence of backward radiation allows a high gain amplifier to be coupled between the antennas without instability. In addition, the clean radiation patterns of these antennas makes them suitable for use in microwave interferometer or plasma diagnosis applications.

Test data will include principal E and H plane radiation patterns at the designated frequency. The Series 856 and 856 horn lens antennas are linearly polarized, although either dual or circular polarization can be achieved using the circular mode components described later in this section.

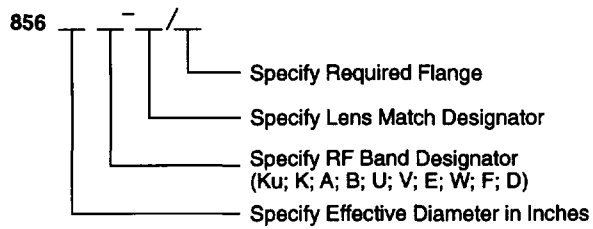
## Typical Specifications

Model Number	Effective Diameter	A		B	
		Inches	Millimeters	Inches	Millimeters
856 Ku through 856 W	3	4.2	107	4.0	102
	6	7.4	188	7.5	190
	9	10.6	269	11.0	280
	12	14.0	356	14.6	370

Note: Final dimensions are subject to variations from the tabulated data due to tuning, focusing, and mechanical tolerances.

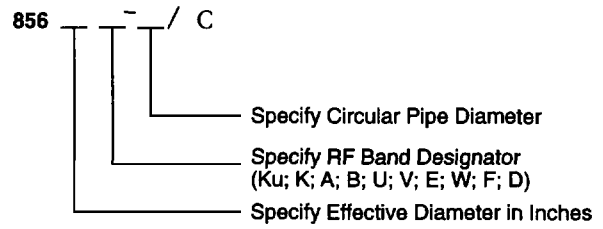
## Ordering Information

### Linear Mode:



For example: Model number 856009U-2/383 is a Series 856 antenna with a 9 inch effective aperture operating in U-band at 50 GHz with a 383 type flange.

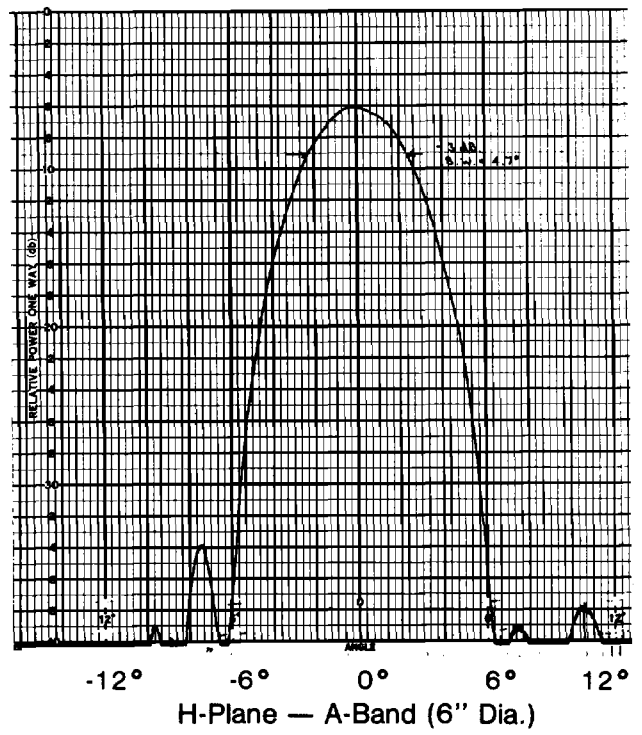
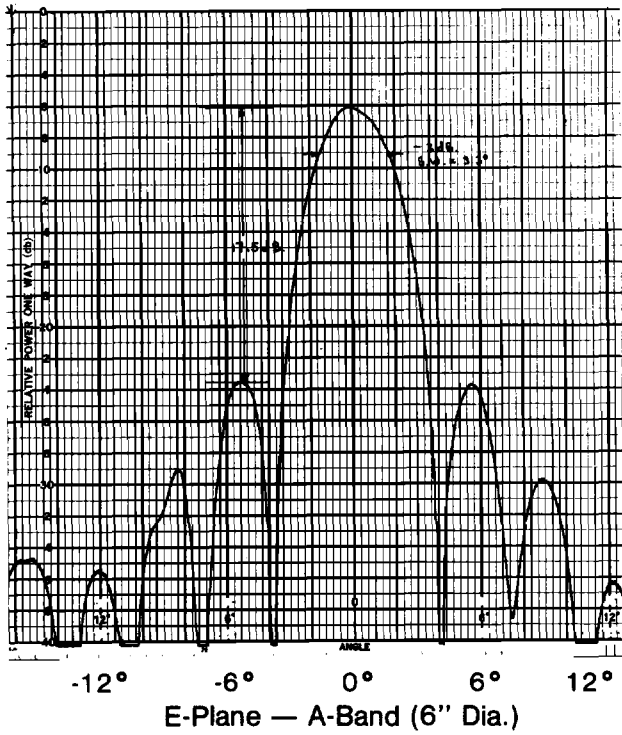
### Circular Mode:



For example: Model number 856009U-165/C is a Series 856 antenna with a 9 inch effective aperture operating in U-band at 50GHz with circular polarization.

The center frequency should be specified when ordering these antennas. Each antenna is tested at the customer's center frequency up to 100 GHz and optimum focal adjustments are made. Higher frequency units (F, D, and G-band) are also available without testing, which is quoted separately due to the limited availability of test sources in these band ranges.

### Typical Antenna Patterns for Series 856 Antenna



### Outline Drawing

