

## DLH SERIES DIELECTRIC HORN ANTENNAS



### FEATURES:

- Compact Construction
- Highly efficient, low loss
- Multiple polarization options

### APPLICATIONS:

- Radars and transceivers
- Communication Systems
- Underwater devices
- Surveillance/EW

### DESCRIPTION:

Millitech series DLH dielectrically loaded horn antennas offer advantages of both horn lens antennas and simple horn antennas. These antennas offer high gain, superb return loss and low sidelobes over full circular waveguide bands. At the same time, they are also compact and rugged due to their solid dielectric construction. The performance characteristics are very repeatable between units, and their simple mechanical design allows them to be easily integrated with frontends.

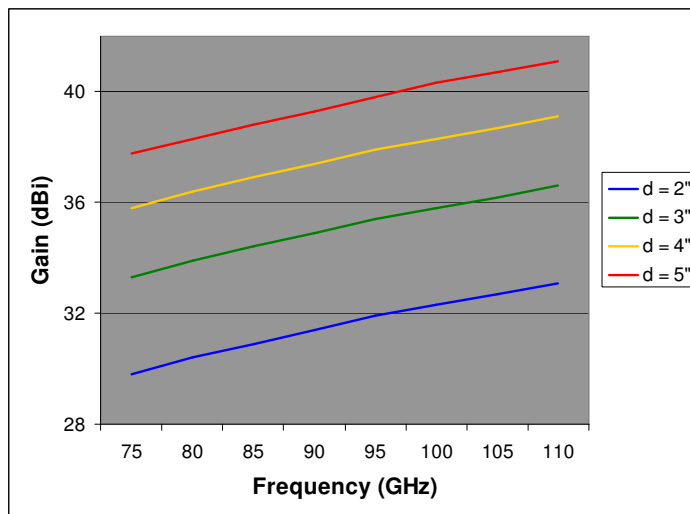
The principle of operation is based on launching energy into a horn and creating a well-defined spherical wave which is then phase corrected by a meniscus lens on the exit surface (the meniscus lens is an integral part of the dielectrically loaded horn). The resulting radiated signal is a phase-collimated plane wave which yields excellent Gaussian beams shown in the accompanying radiation patterns.

DLH antennas are currently available for frequencies from 75 – 110 GHz with aperture diameters from 2 to 5 inches. Efficiencies vary from 60% to 70% with sidelobes ranging from -17 to -25 dB over any specific 10% band. Typical VSWR is 1.3:1. Other frequency bands may be quoted upon request.

**ELECTRICAL SPECIFICATIONS:**

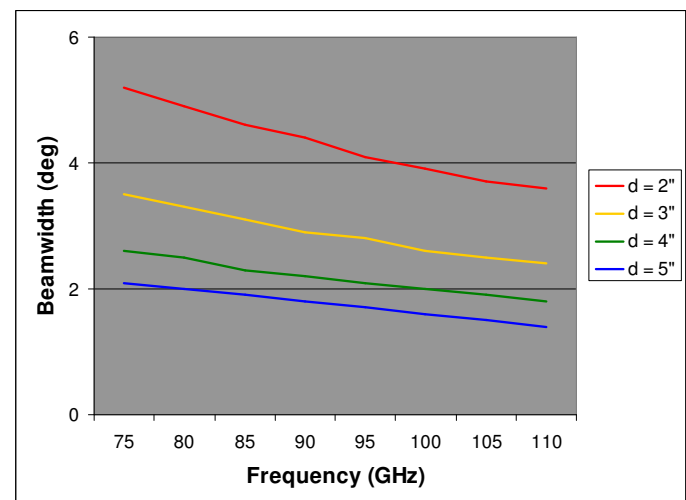
PARAMETER	PERFORMANCE	UNITS
Frequency Range	75 – 110	GHz
Aperture Diameters	2, 3, 4, 5	Inches
*Beamwidth	1.5° to 10.5°	Degrees
*Gain	23.8 to 41.1	dB
Sidelobes	17 to 25 typ.	dB
VSWR	1.3:1 typ.	
Cross Polarization	-25 typ.	dB

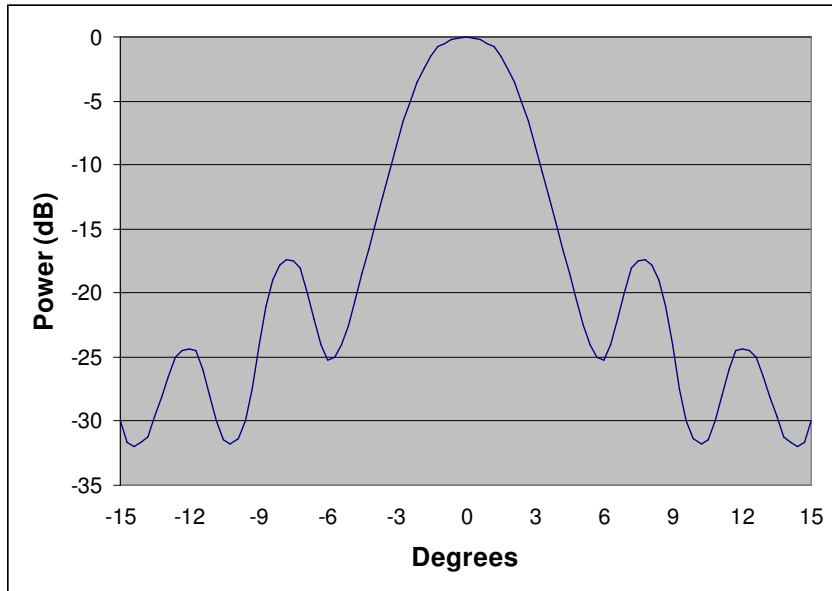
\*Depends on frequency and aperture diameter

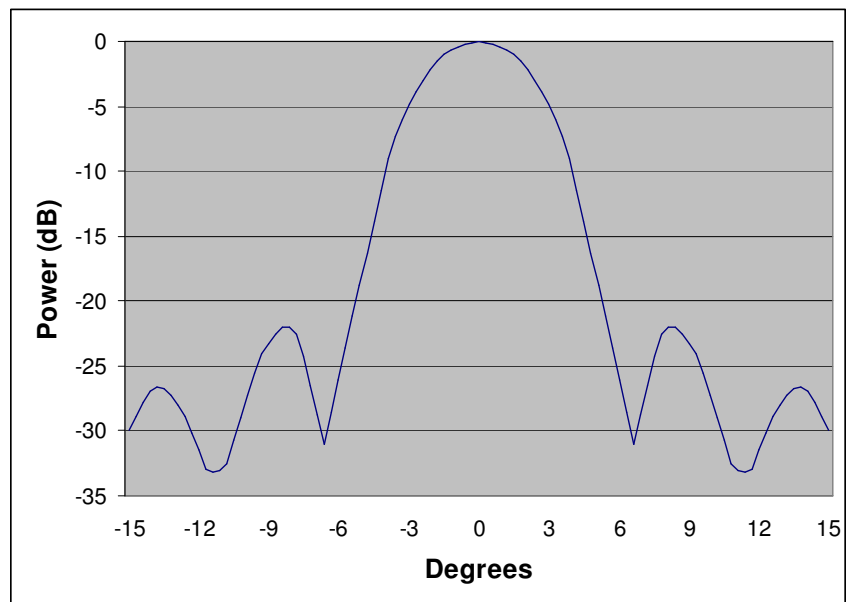


**Typical Gain  
vs  
Aperture Diameter**

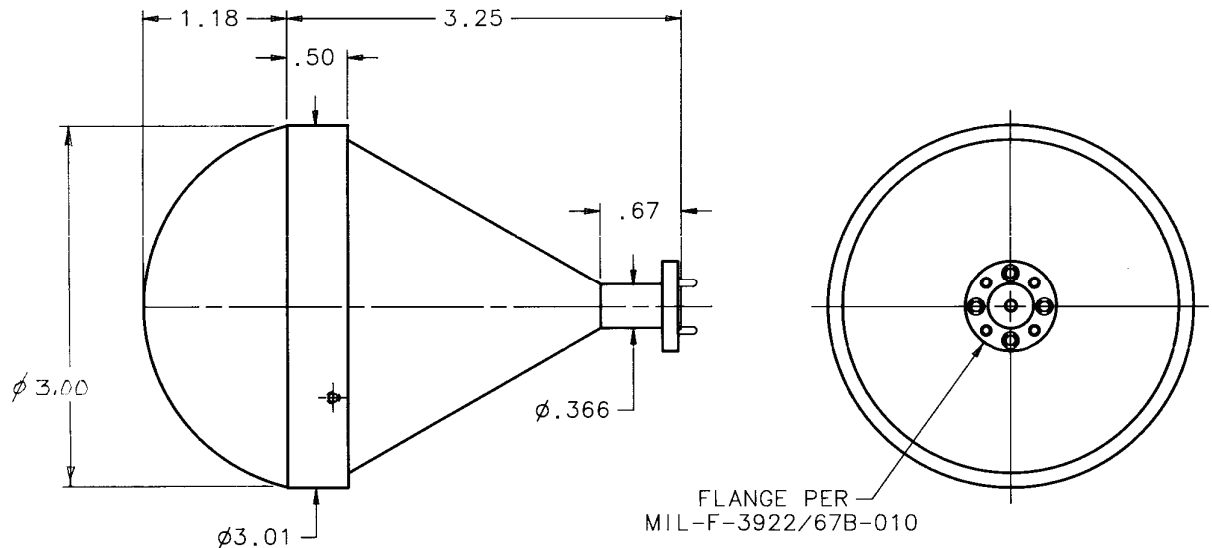
**Typical Beamwidth  
vs  
Aperture Diameter**



**TYPICAL RADIATION PATTERNS:**

 E-Plane  
Pattern of  
DLH-28

 H-Plane  
Pattern of  
DLH-28


**OUTLINE DRAWINGS:**



**DLH-10-R0943**

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES  
.XX  $\pm .01$  .XXXX  $\pm .0005$   
.XXX  $\pm .005$  ANGULAR  $\pm 0^{\circ}30'$   
SURFACE FINISH  $68\sqrt{\text{RMS}}$   
DO NOT SCALE DRAWING

**HOW TO ORDER:**

<b>Specify Model Number</b> <b>DLH-10-RXXX</b>
<b>XXX = Waveguide Type</b> 110 – Circular (75 – 88 GHz) 094 – Circular (88 – 110 GHz)
<b>Y = Aperture Diameter</b> 2 – 2" 3 – 3" 4 – 4" 5 – 5"