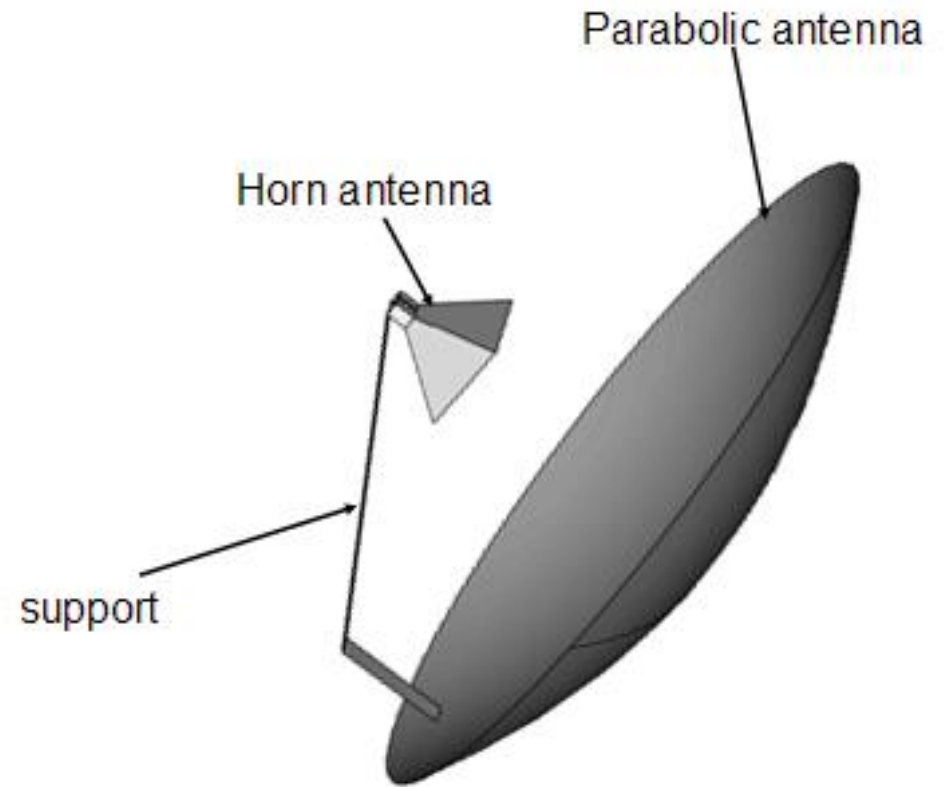


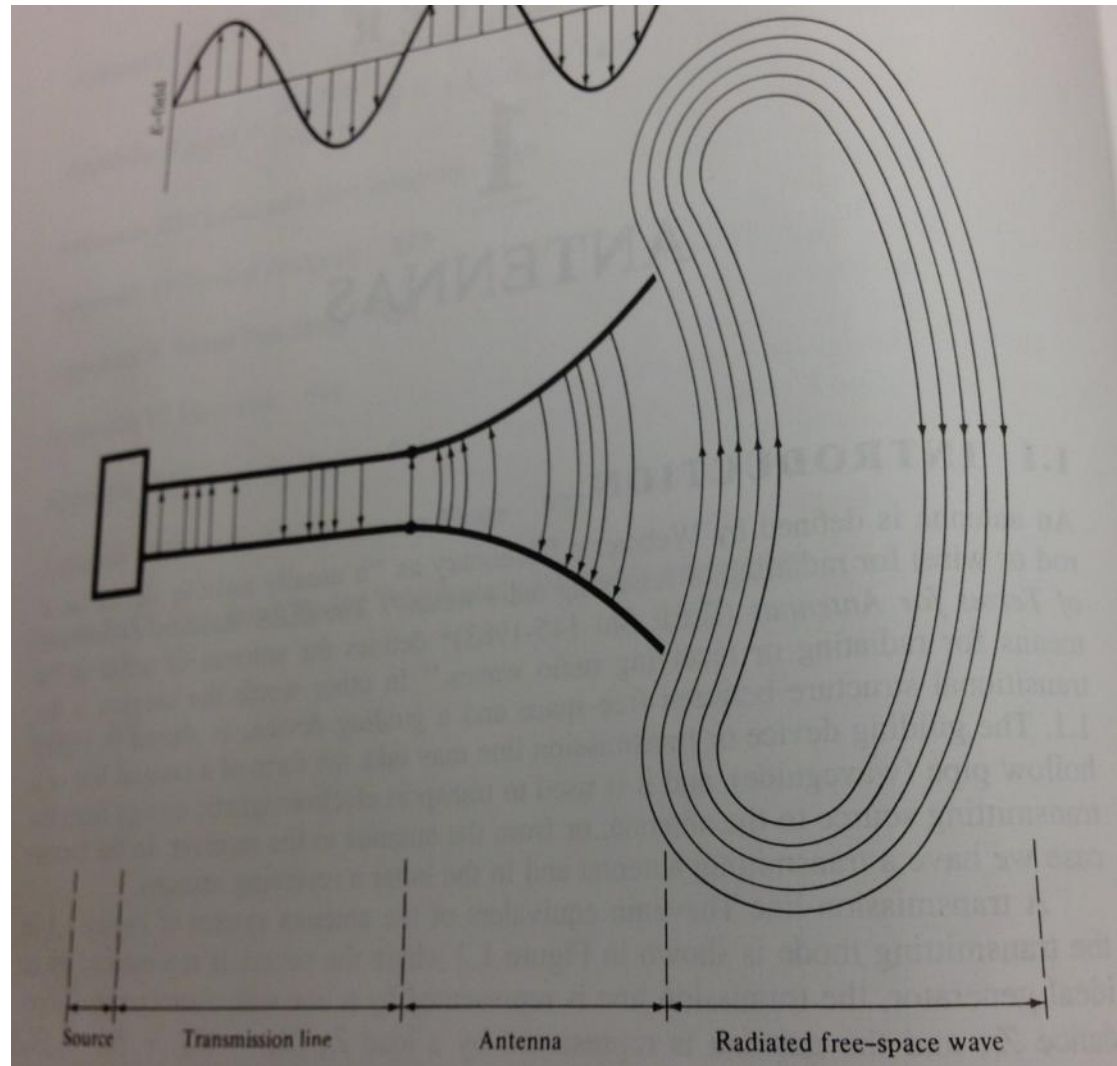
# Rectangular horn antennas

Francesco Amato

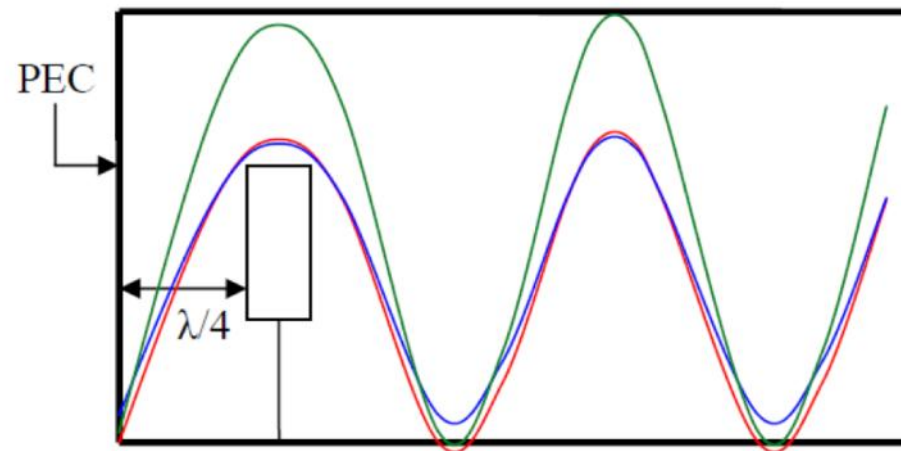
Nov 12 2015

# Horn Antennas





# Radiating element

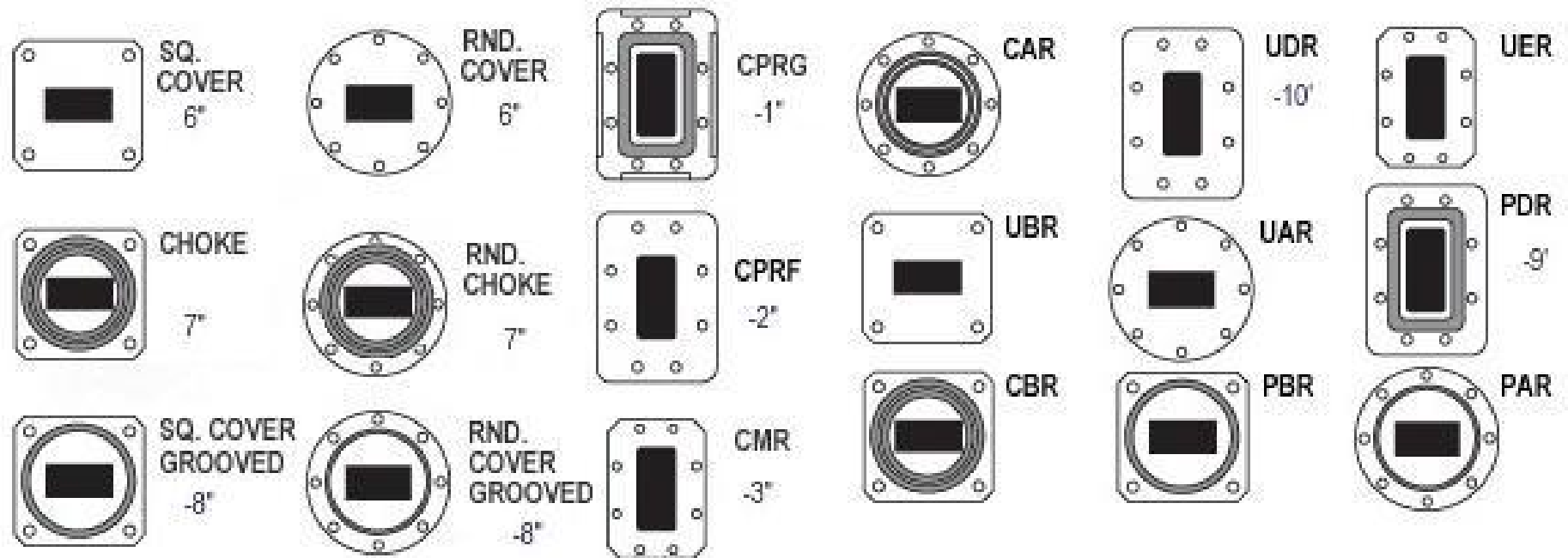


$f = 915 \text{ MHz}$   
 $\lambda/4 = 8.197 \text{ cm}$

Blue = incident wave  
Red = reflected wave from PEC  
Green = Total wave propagation

**Figure 2.3.1** Sinusoidal wave inside the waveguide.

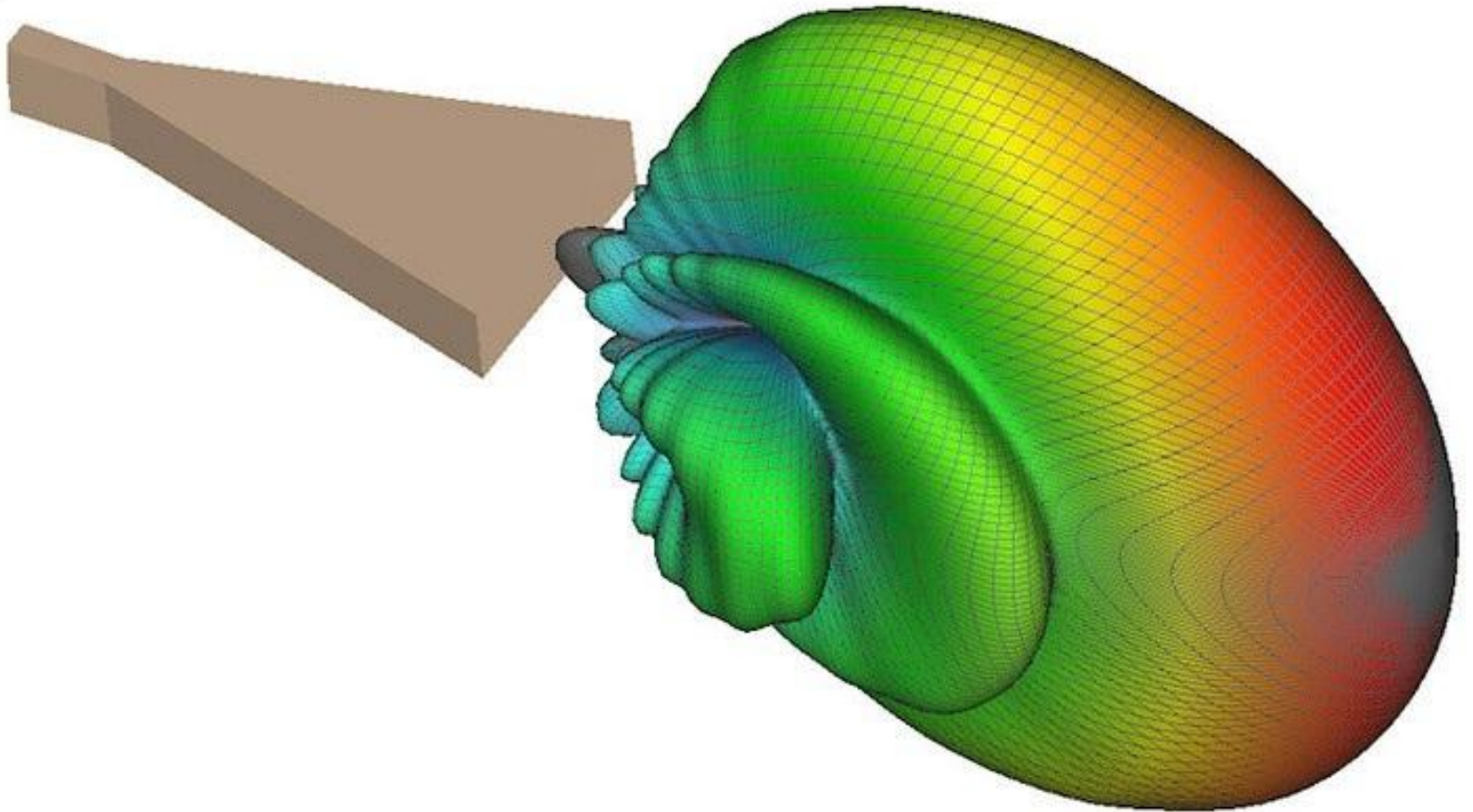
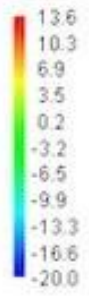
# Waveguide flanges

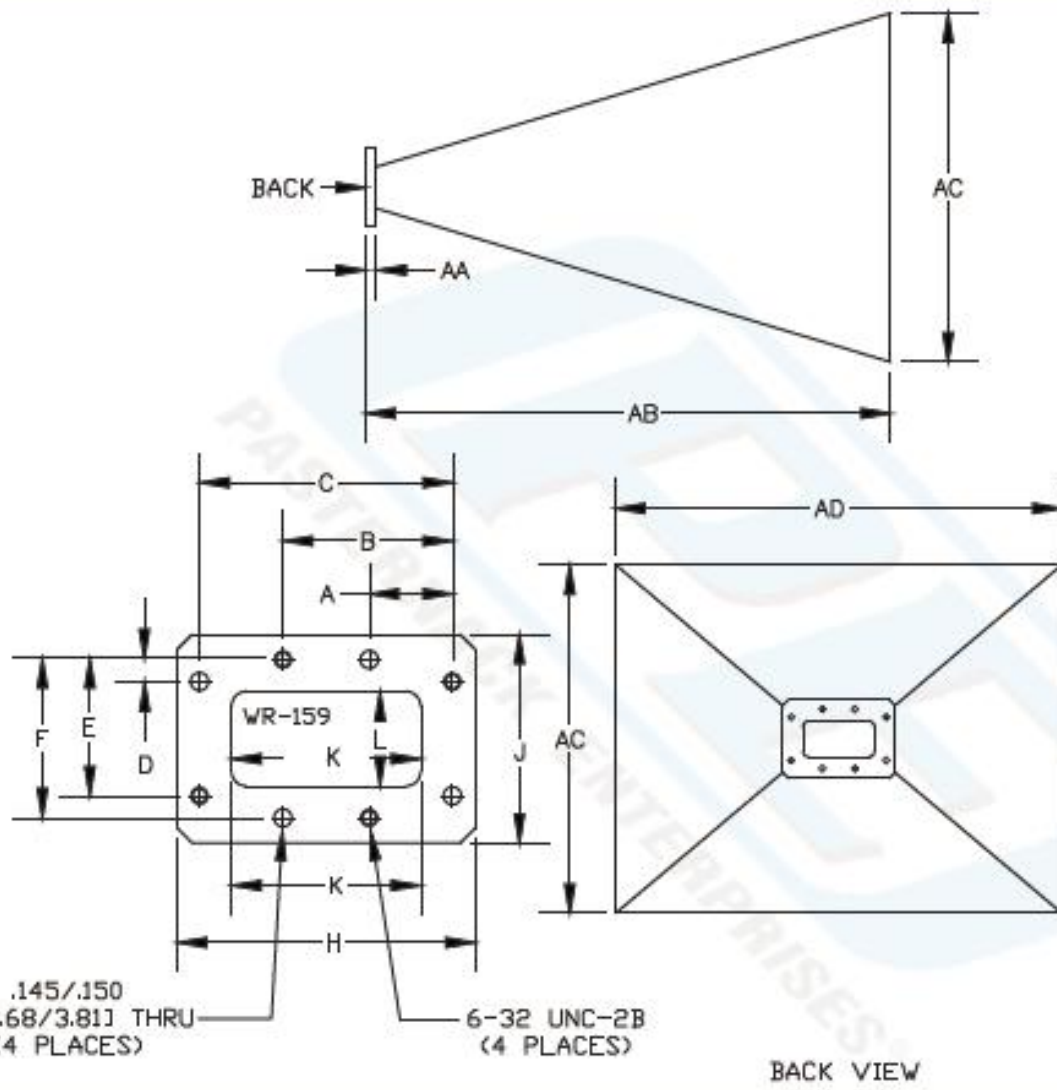


**North American EIA Standard Flanges**

**European IEC Standard Flanges**

Gain\_Tot[dB]



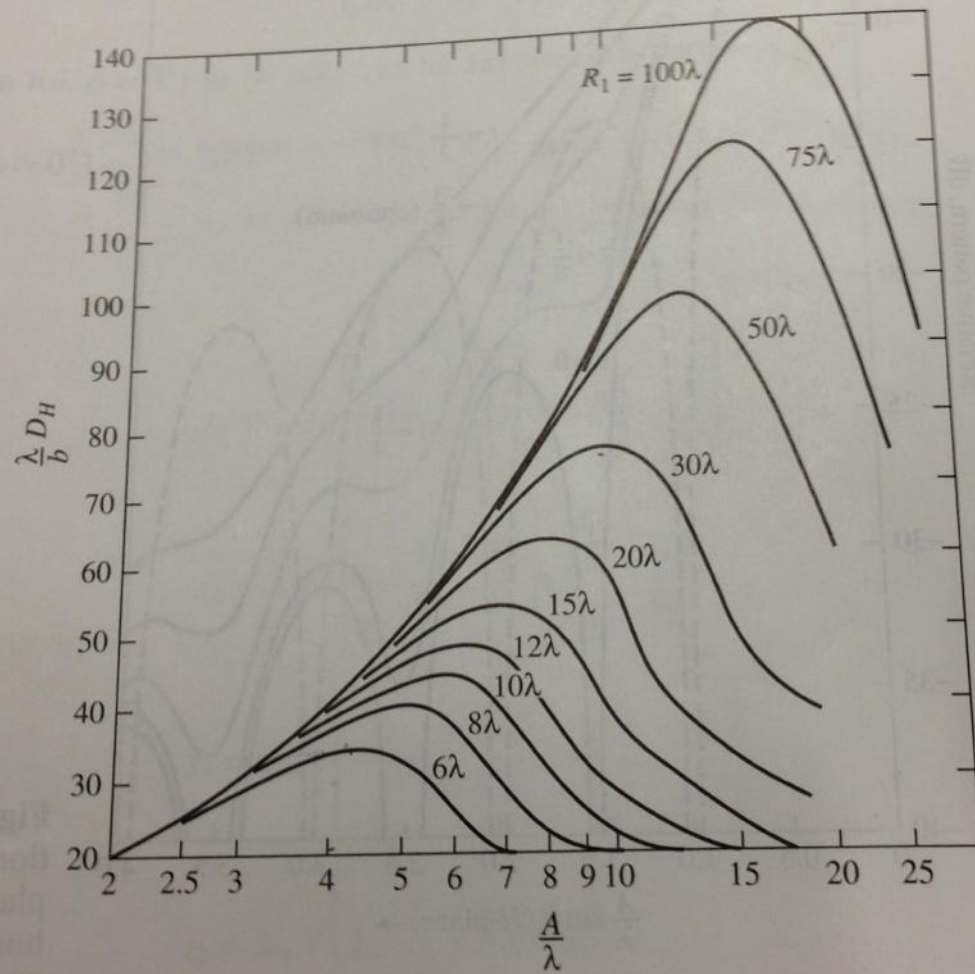


WR159		
Dimension	Inches	mm
A	0.699	17.75
B	1.423	36.14
C	2.122	53.90
D	0.184	4.67
E	1.142	29.01
F	1.326	33.68
H	2.500	63.50
J	1.750	44.45
K (± 0.004)	1.590	40.39
L (± 0.004)	0.795	20.19

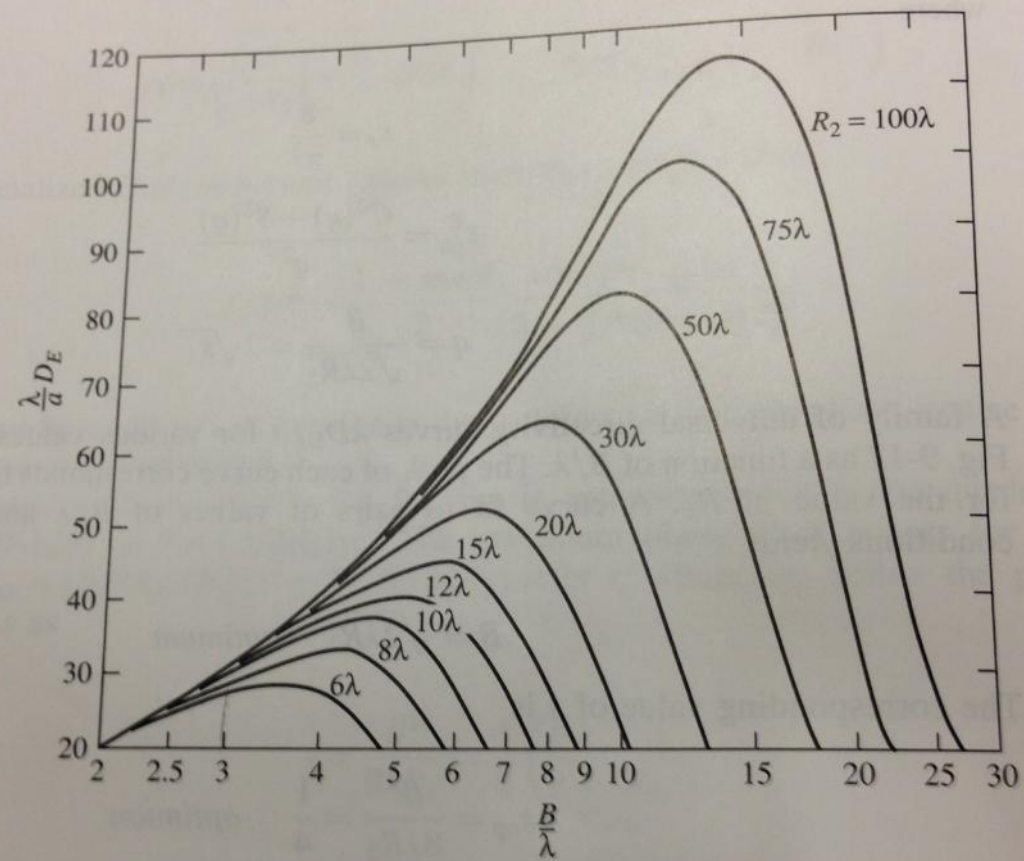
AA	0.250	6.35
AB	11.750	298.45
AC	7.800	198.12
AD	10.000	254.00





**Figure 9-14** Universal directivity curves for an *H*-plane sectoral horn.





**Figure 9-17** Universal directivity curves for an *E*-plane sectoral horn.

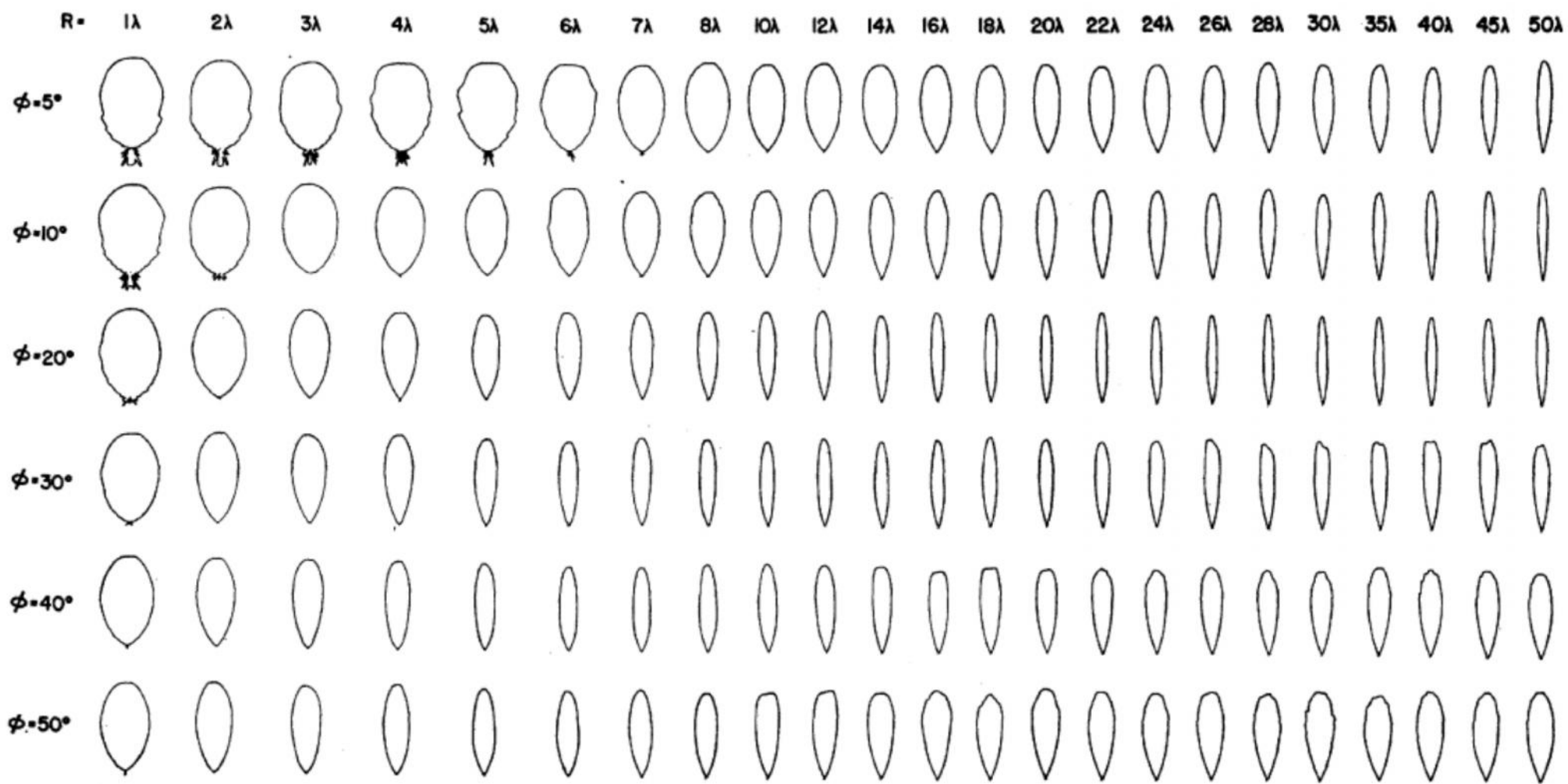


Fig. 5— $H$ -plane patterns of a rectangular horn antenna as a function of radial horn length  $R$  and  $H$ -plane flare angle  $\phi$ .

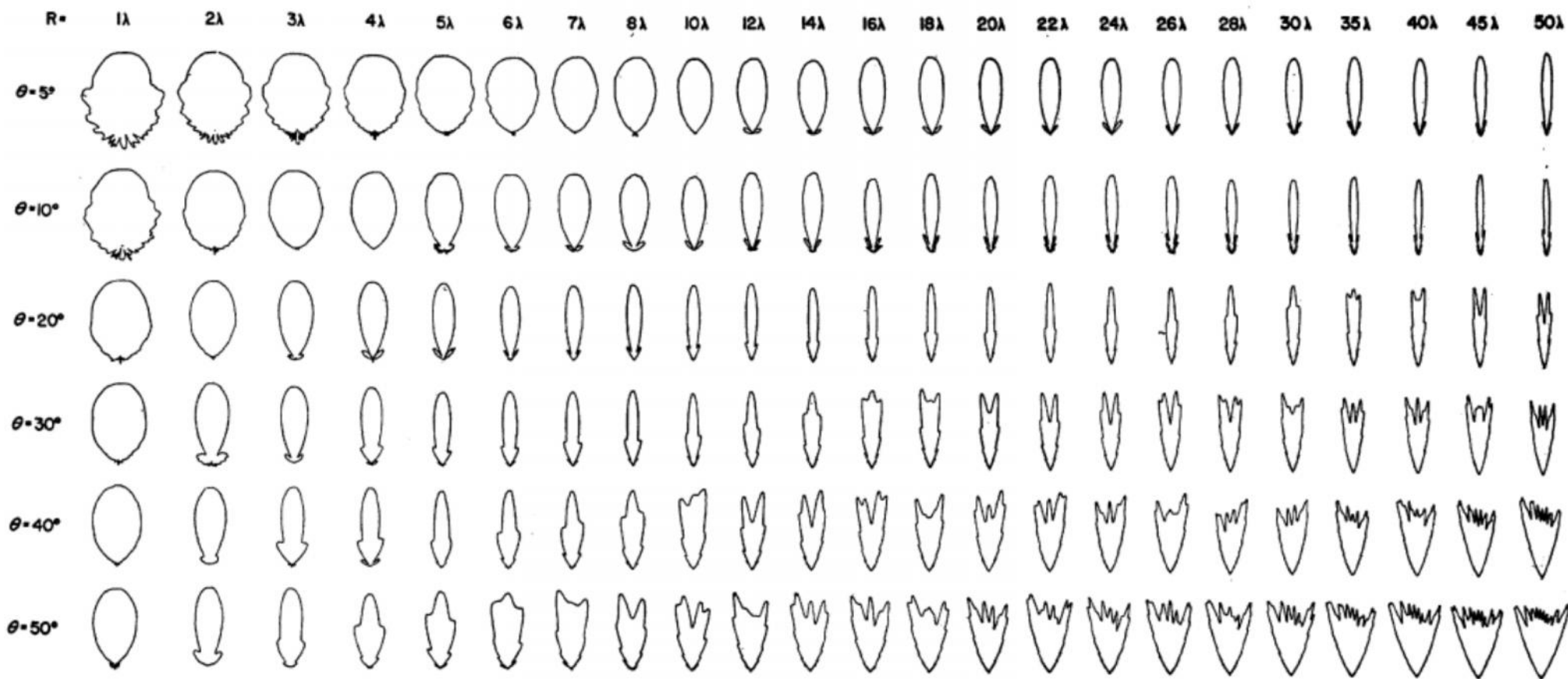
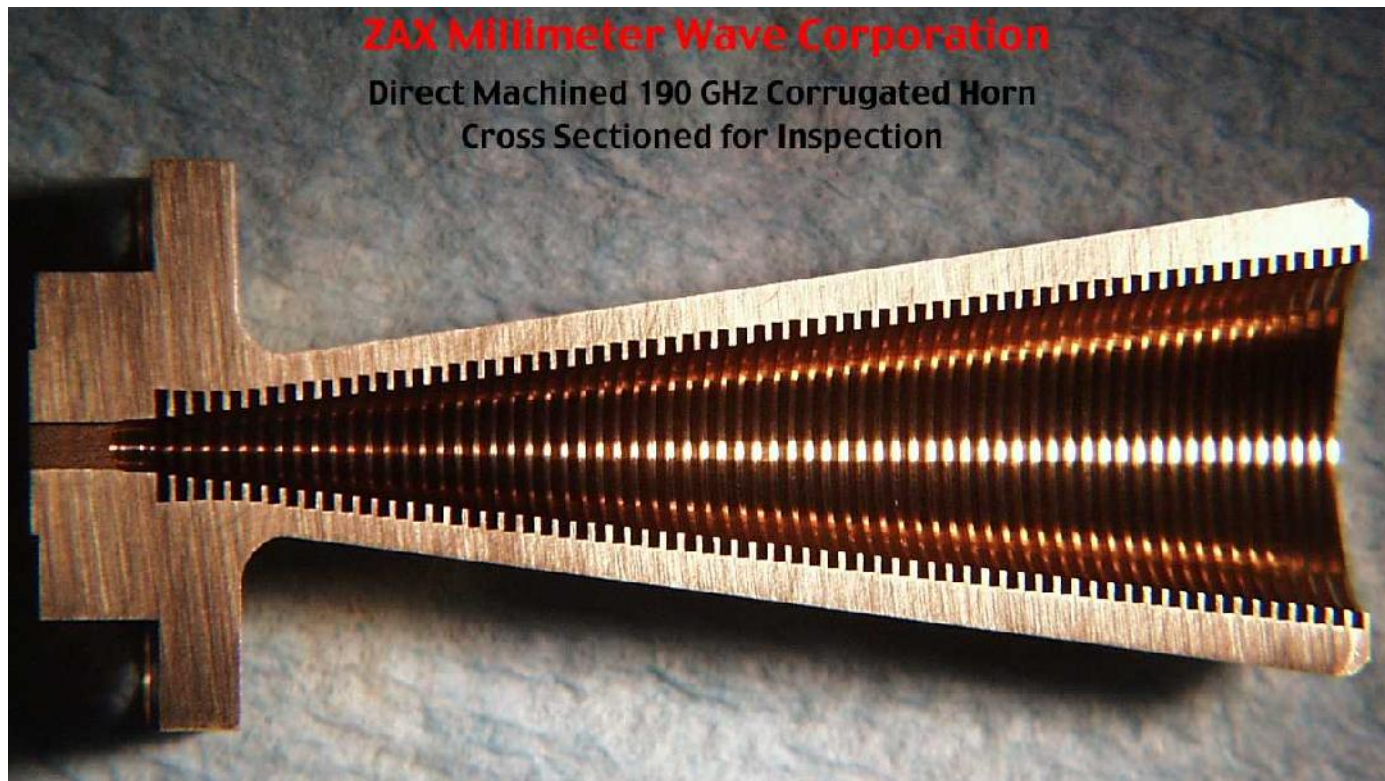
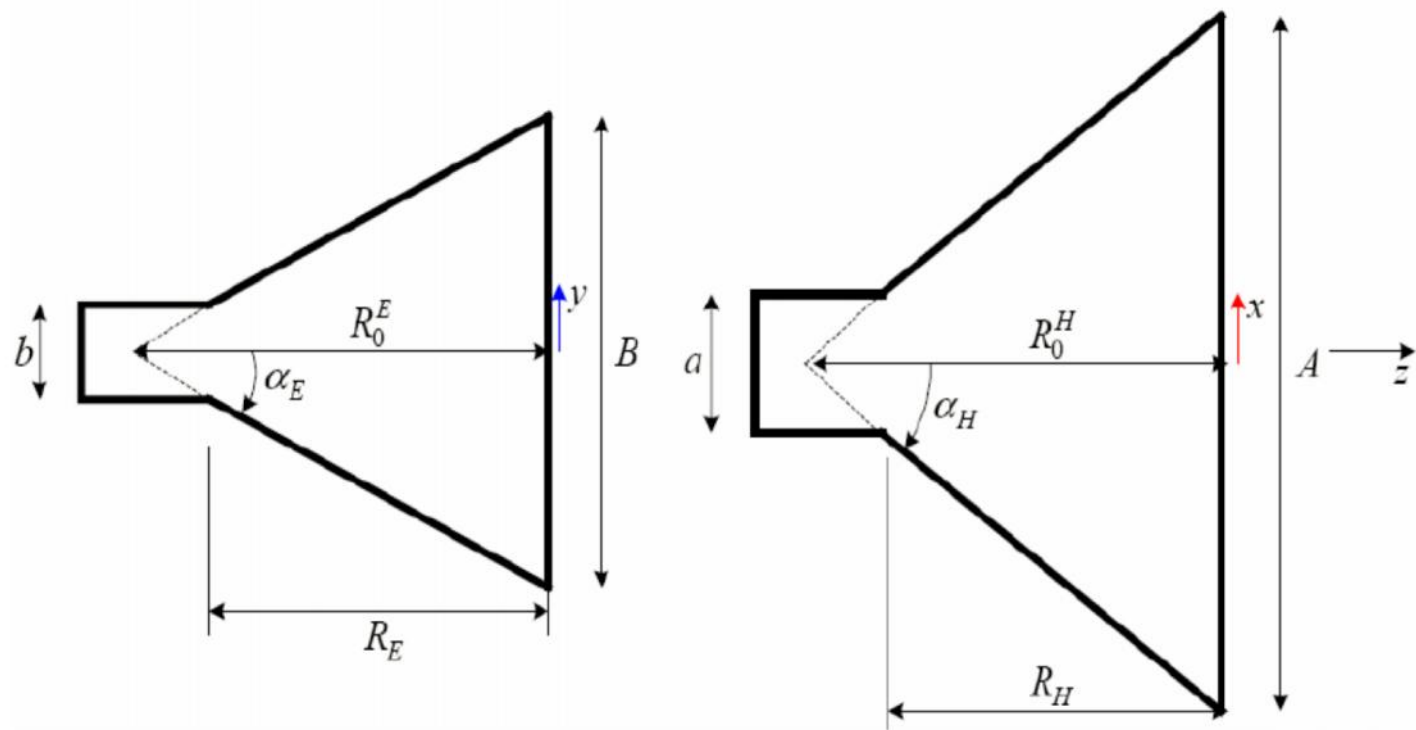


Fig. 4—*E*-plane patterns of a rectangular horn antenna as a function of radial horn length  $R$  and *E*-plane flare angle  $\theta$ .

# Corrugated horn





**Figure 2.2.1** Side view (left) and top view (right) of a pyramidal horn.