

Table 10.6 OPTIMIZED UNCOMPENSATED LENGTHS OF PARASITIC ELEMENTS FOR YAGI-UDA ANTENNAS OF SIX DIFFERENT LENGTHS

$d/\lambda = 0.0085$ $s_{12} = 0.2\lambda$		LENGTH OF YAGI-UDA (IN WAVELENGTHS)					
		0.4	0.8	1.20	2.2	3.2	4.2
LENGTH OF REFLECTOR (l_1/λ)		0.482	0.482	0.482	0.482	0.482	0.475
LENGTH OF DIRECTORS, λ	l_3	0.442	0.428	0.428	0.432	0.428	0.424
	l_4		0.424	0.420	0.415	0.420	0.424
	l_5		0.428	0.420	0.407	0.407	0.420
	l_6			0.428	0.398	0.398	0.407
	l_7				0.390	0.394	0.403
	l_8				0.390	0.390	0.398
	l_9				0.390	0.386	0.394
	l_{10}				0.390	0.386	0.390
	l_{11}				0.398	0.386	0.390
	l_{12}				0.407	0.386	0.390
	l_{13}					0.386	0.390
	l_{14}					0.386	0.390
	l_{15}					0.386	0.390
	l_{16}					0.386	
l_{17}					0.386		
SPACING BETWEEN DIRECTORS (s_{ij}/λ)		0.20	0.20	0.25	0.20	0.20	0.308
DIRECTIVITY RELATIVE TO HALF-WAVE DIPOLE (dB)		7.1	9.2	10.2	12.25	13.4	14.2
DESIGN CURVE (SEE FIGURE 10.25)		(A)	(B)	(B)	(C)	(B)	(D)

SOURCE: Peter P. Viezbicke, *Yagi Antenna Design*, NBS Technical Note 688, December 1976.

Table 1 Available tubing/pipe/rod sizes

Nominal Diameter		Outer Diameter*	
(inches)	(cm)	(inches)	(cm)
3/32	0.238125	3/32	0.238125
1/8	0.3175	1/8	0.3175
5/32	0.397	5/32	0.397
3/16	0.476	3/16	0.476
7/32	0.556	7/32	0.556
1/4	0.635	1/4	0.635
9/32	0.714	9/32	0.714
5/16	0.794	5/16	0.794
11/32	0.873	11/32	0.873
3/8	0.9525	3/8	0.9525
13/32	1.032	13/32	1.032
7/16	1.111	7/16	1.111
1/2	1.27	1/2	1.27
1/2	1.27	9/16	1.429
1/2	1.27	5/8	1.5875
3/4	1.905	7/8	2.223

* For brass tubing/pipe/rods, the nominal or outer diameters are the same (wall thickness negligible). For copper pipes, the wall thickness is substantial and should be measured as it varies between manufacturers.

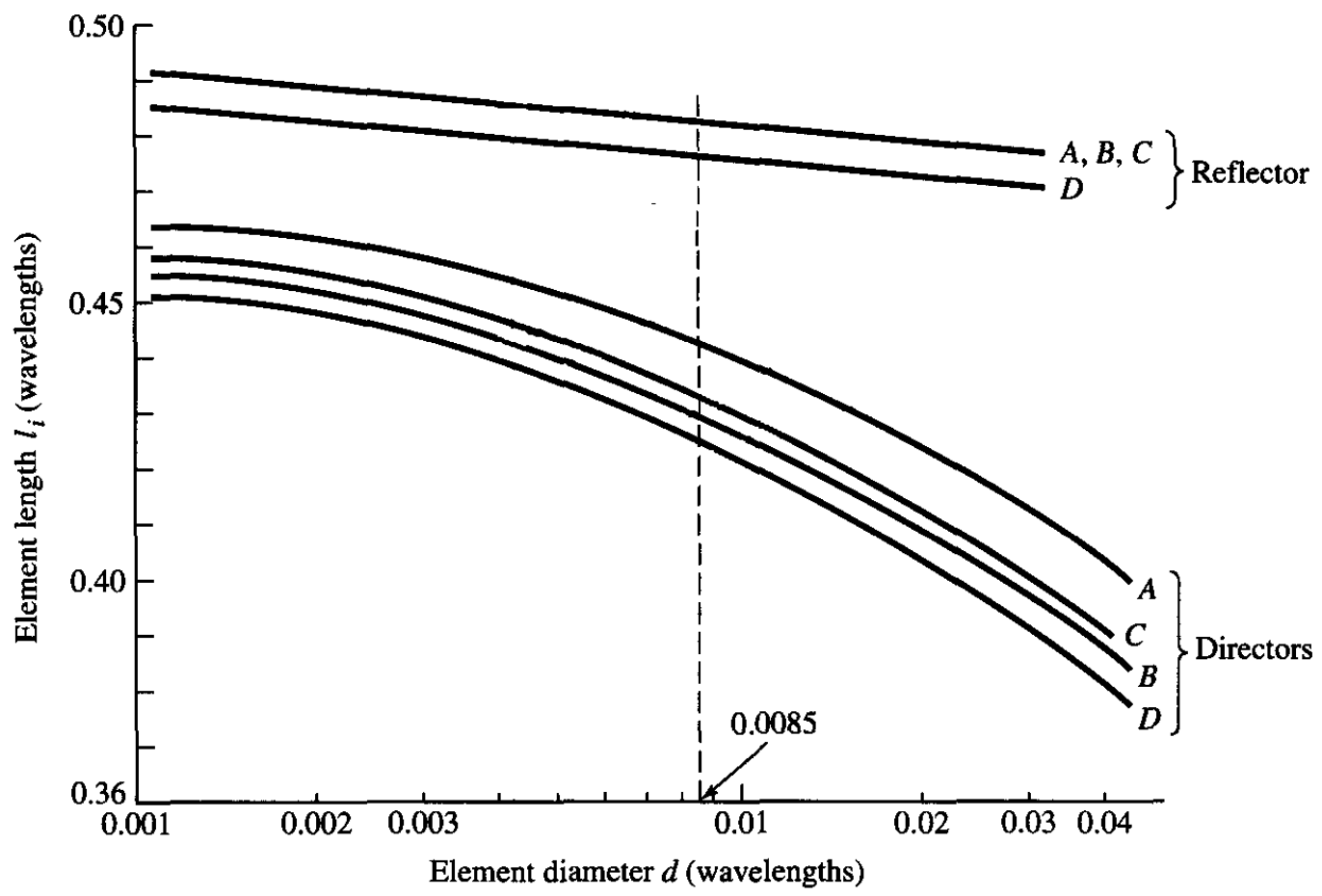


Figure 10.25 Design curves to determine element lengths of Yagi-Uda arrays. (SOURCE: P. P. Vezbicke, "Yagi Antenna Design," NBS Technical Note 688, U.S. Department of Commerce/National Bureau of Standards, December 1976)

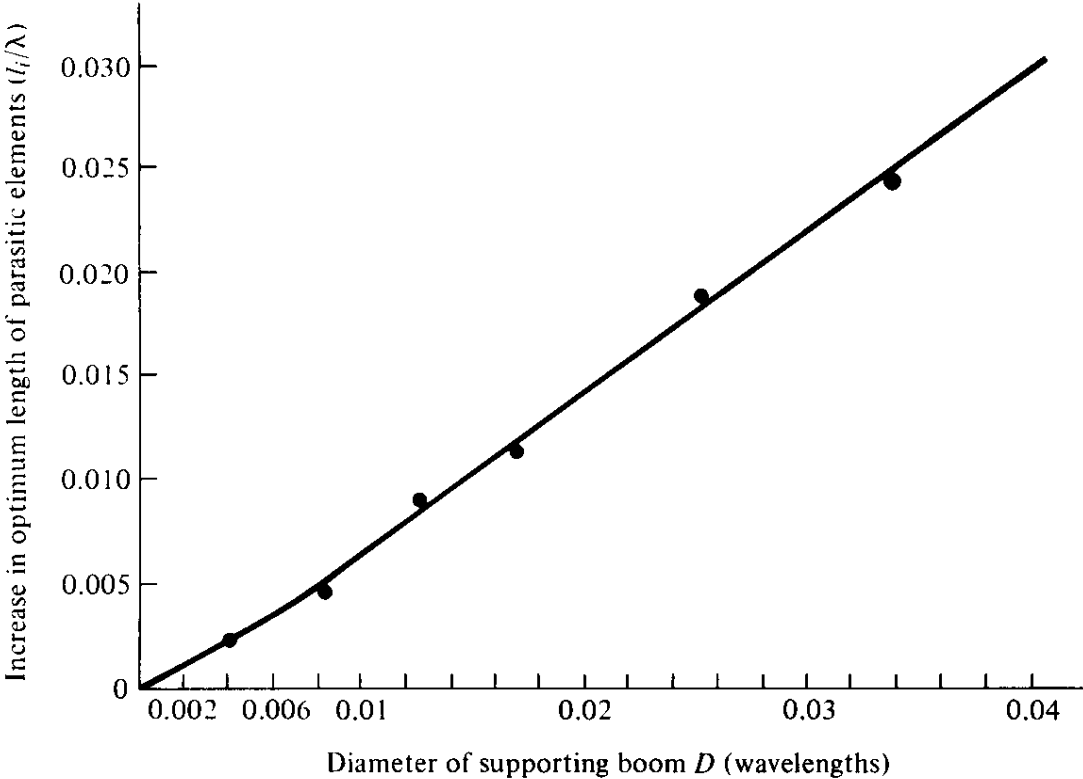


Figure 10.26 Increase in optimum length of parasitic elements as a function of metal boom diameter. (SOURCE: P. P. Vierzicke, "Yagi Antenna Design," NBS Technical Note 688, U.S. Department of Commerce/National Bureau of Standards, December 1976)