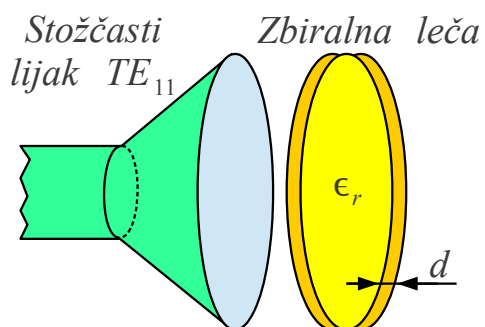
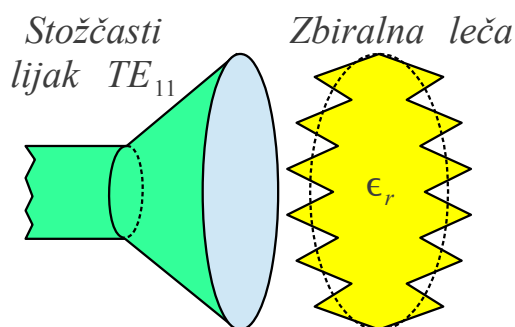


9. Umetni dielektriki

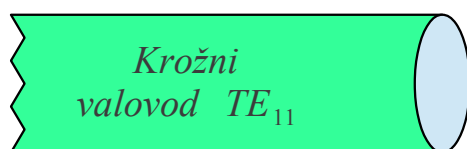
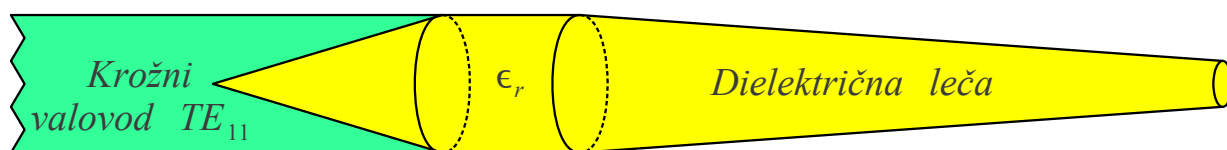
Večina nalog iz anten in razširjanje valov zahteva obravnavo v treh dimenzijah prostora. Tako skalarne kot tudi vektorske veličine so funkcije časa in vseh treh dimenzij prostora. Ozkopasovne signale $B \ll f$ radia največkrat smemo v izračunih ponazoriti s harmonskim signalom ene same krožne frekvence $\omega = 2\pi f$, kar poenostavi časovne odvode v $\partial/\partial t = j\omega$.



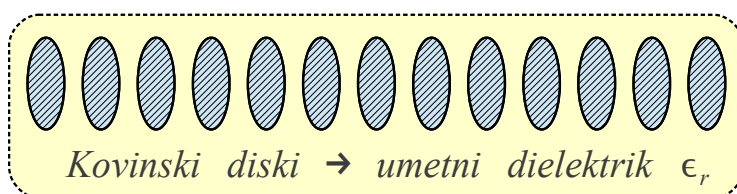
Antirefleksni sloj
 $\epsilon_r' = \sqrt{\epsilon_r}$ $d = \lambda'/4$

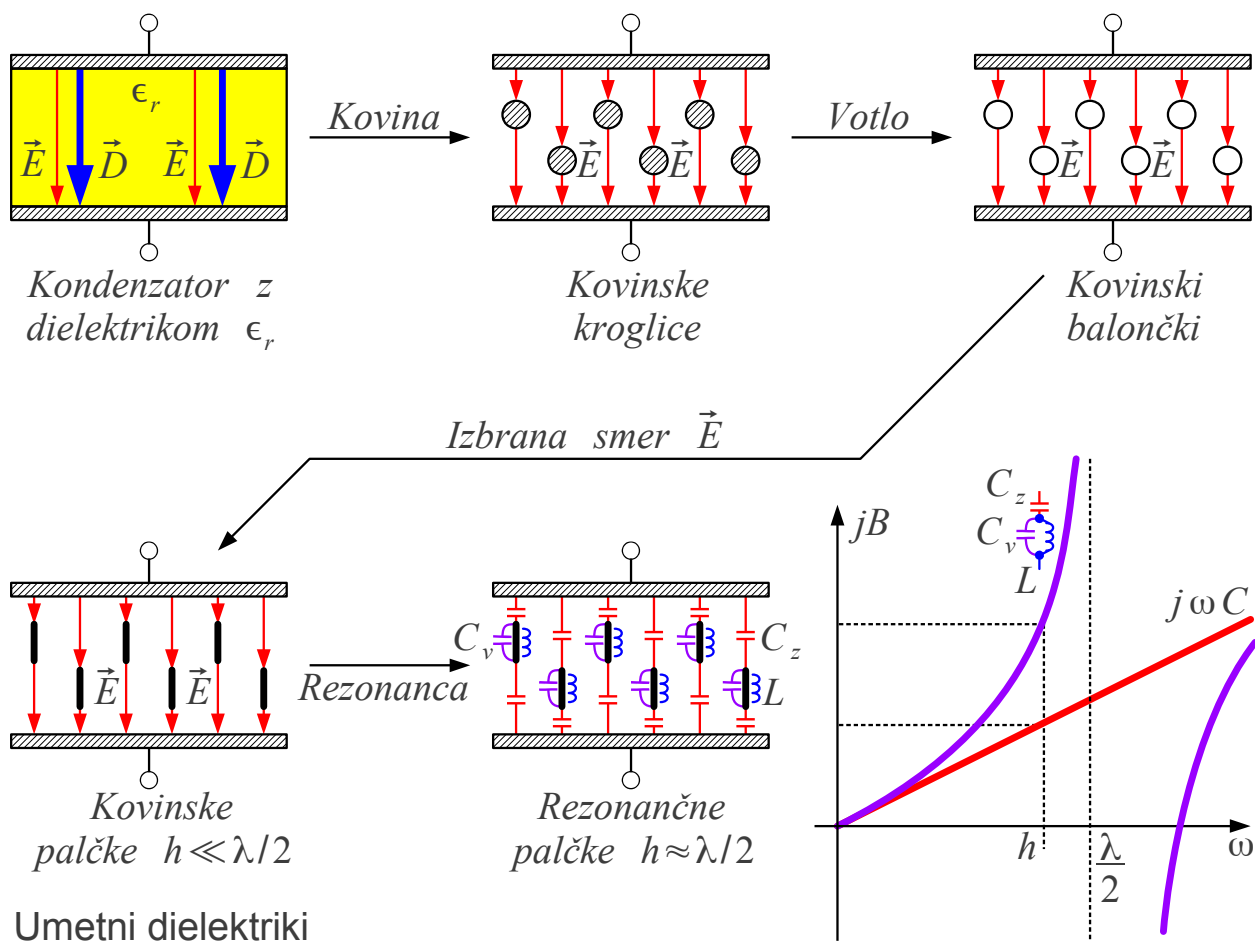


Oblikovana površina
 dielektrika ϵ_r

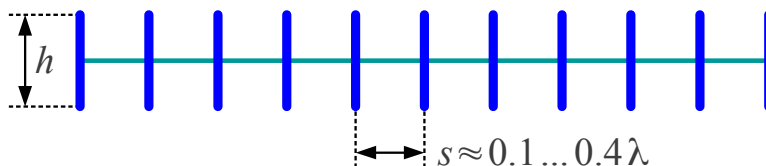


Dielektrične leče

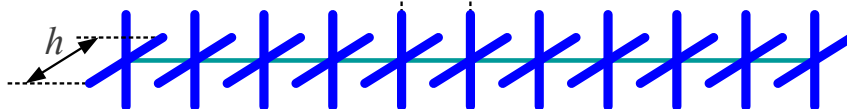




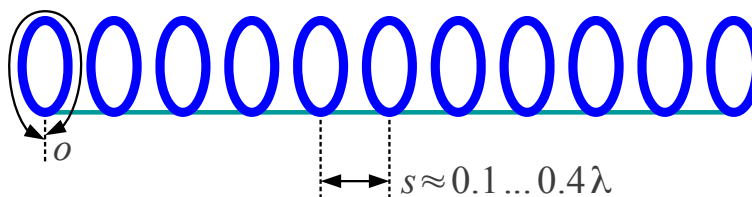
Palčke $h \approx 0.4 \dots 0.45 \lambda$
(Shintaro Uda 1926)



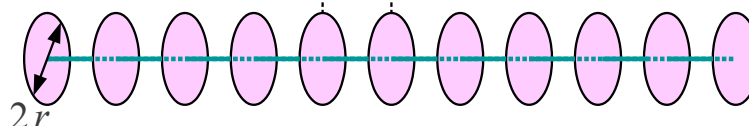
Križne palčke
(obe polarizaciji)



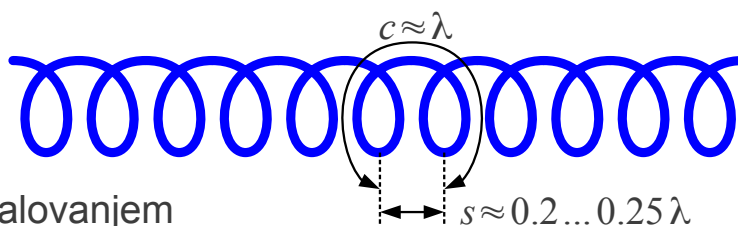
Žične zanke $o \approx 0.9 \lambda$
(krožne, kvadratne)



Kovinski diski $2r \approx 0.3 \lambda$
(obe polarizaciji)



Vijačnica $0.75 \lambda < c < 1.33 \lambda$
(krožna polarizacija)



Strukture z upočasnjenim valovanjem

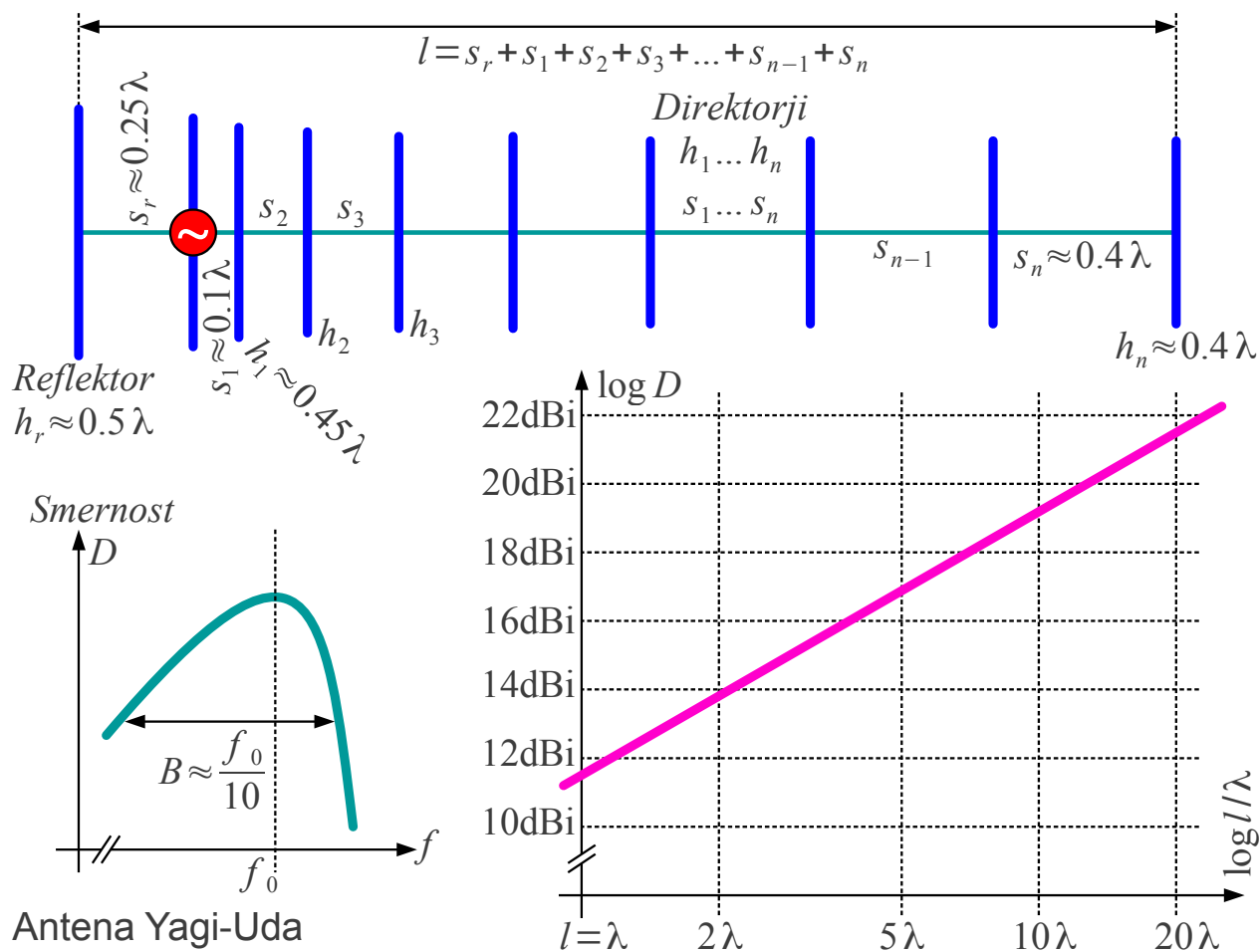


TABLE 1. OPTIMIZED LENGTHS OF PARASITIC ELEMENTS
FOR YAGI ANTENNAS OF SIX DIFFERENT LENGTHS

		LENGTH OF YAGI IN WAVELENGTHS					
		0.4	0.8	1.20	2.2	3.2	4.2
LENGTH OF REFLECTOR, λ		0.482	0.482	0.482	0.482	0.482	0.475
LENGTH OF DIRECTOR, λ	1st	0.424	0.428	0.428	0.432	0.428	0.424
	2nd		0.424	0.420	0.415	0.420	0.424
	3rd		0.428	0.420	0.407	0.407	0.420
	4th			0.428	0.398	0.398	0.407
	5th				0.390	0.394	0.403
	6th				0.390	0.390	0.398
	7th				0.390	0.386	0.394
	8th				0.390	0.386	0.390
	9th				0.398	0.386	0.390
	10th				0.407	0.386	0.390
	11th					0.386	0.390
	12th					0.386	0.390
	13th					0.386	0.390
	14th					0.386	
	15th					0.386	
SPACING BETWEEN DIRECTORS, IN λ		0.20	0.20	0.25	0.20	0.20	0.308
GAIN RELATIVE TO HALF-WAVE DIPOLE IN dB		7.1	9.2	10.2	12.25	13.4	14.2
DESIGN CURVE (SEE FIG. 9)		(A)	(B)	(B)	(C)	(B)	(D)

ELEMENT DIAMETER = 0.0085

f = 400 MHz

REFLECTOR SPACED 0.2λ BEHIND DRIVEN ELEMENT

Tabela NBS

Graf NBS

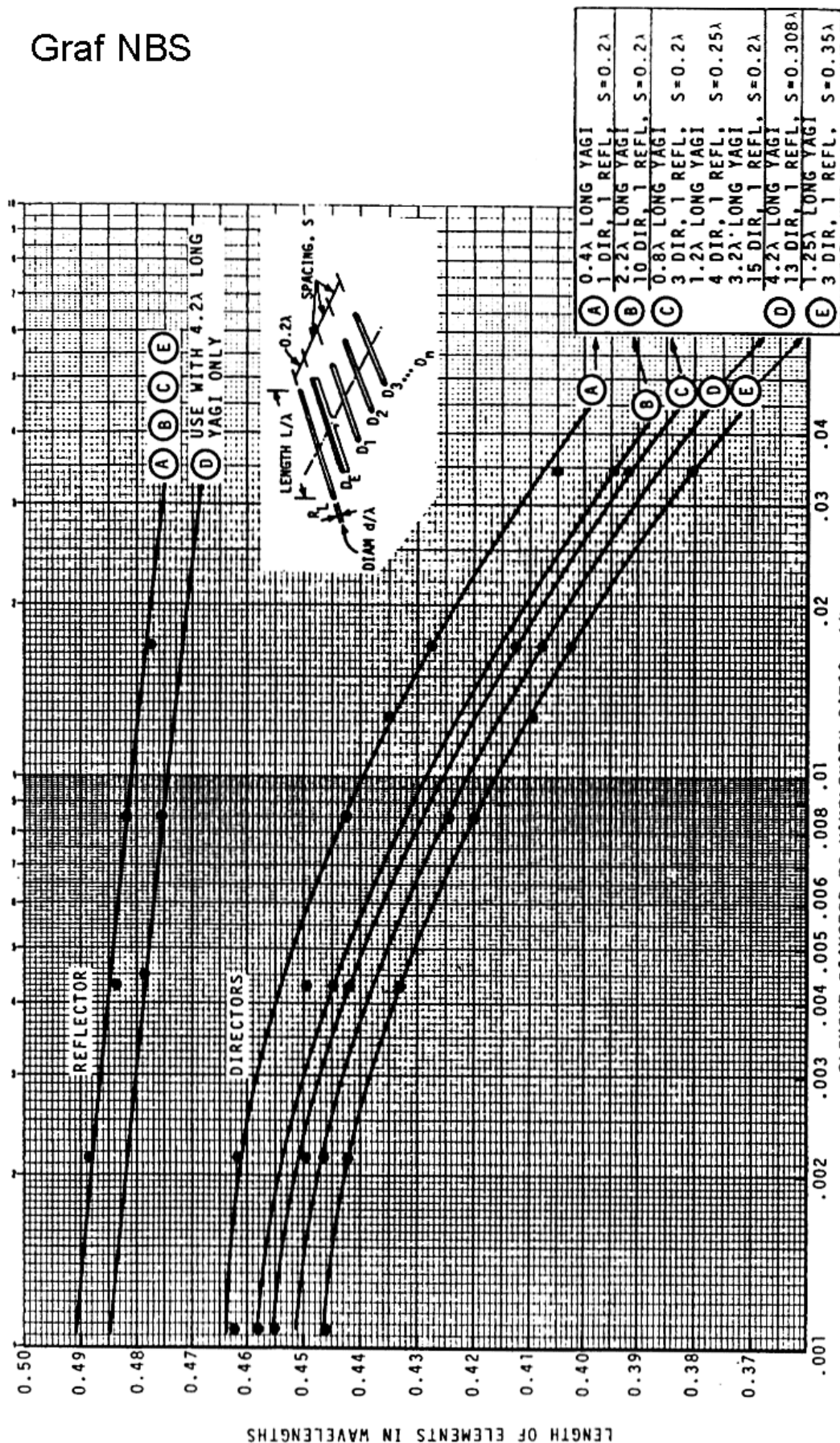


FIG. 9 YAGI ANTENNA DESIGN DATA SHOWING THE RELATIONSHIP BETWEEN ELEMENT DIAMETER TO WAVELENGTH RATIO AND ELEMENT LENGTH FOR DIFFERENT ANTENNAS

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