

VAJA 7: Merjenje smernega diagrama in računanje smernosti

Iz izmerjenih prerezov smernega diagrama izračunamo smernost po naslednjem postopku:

$\varphi = 0^\circ$ (E-ravnina)	$\varphi = 90^\circ$ (H-ravnina)
$D_E = \frac{4\pi}{2\pi \left(\sum_{\theta=0}^{\pi} \overline{F_E}(\theta) [\text{lin.}]^2 \sin\theta \cdot \Delta\theta \right)}$	$D_H = \frac{4\pi}{2\pi \left(\sum_{\theta=0}^{\pi} \overline{F_H}(\theta) [\text{lin.}]^2 \sin\theta \cdot \Delta\theta \right)}$

$$D = \frac{2}{\frac{1}{D_E} + \frac{1}{D_H}}$$

Integracija smernega diagrama:

Θ [°]	Θ [rad]	F_E [dB]	F_E	\bar{F}_E	$ \bar{F}_E ^2 \sin\theta \cdot \Delta\theta$	F_H [dB]	F_H	\bar{F}_H	$ \bar{F}_H ^2 \sin\theta \cdot \Delta\theta$
0	0								
5	$\pi/36$								
10	$2\pi/36$								
15	$3\pi/36$								
20	$4\pi/36$								
25	$5\pi/36$								
30	$\pi/6$								
35	$7\pi/36$								
40	$8\pi/36$								
45	$\pi/4$								
50	$10\pi/36$								
55	$11\pi/36$								
60	$\pi/3$								
65	$13\pi/36$								
70	$14\pi/36$								
75	$15\pi/36$								
80	$16\pi/36$								
85	$17\pi/36$								
90	$\pi/2$								
95	$19\pi/36$								
100	$20\pi/36$								
105	$21\pi/36$								
110	$22\pi/36$								
115	$23\pi/36$								
120	$2\pi/3$								
125	$25\pi/36$								
130	$26\pi/36$								
135	$3\pi/4$								
140	$28\pi/36$								
145	$29\pi/36$								
150	$5\pi/6$								
155	$31\pi/36$								
160	$32\pi/36$								
165	$33\pi/36$								
170	$34\pi/36$								
175	$35\pi/36$								
180	π								

Dobljena smernost:

Smernost v E-ravnini:

Smernost v H-ravnini:

Celotna smernost antene: