

Obtenga el patrón de radiación del arreglo de antenas verticales, con las siguientes características:

$$F = 167.25 \text{ MHz}$$

$$E_0 = 100 \text{ mV/m}$$

$$d = 1 \text{ m} \quad \text{distancia física}$$

$$l_2 = 44.8 \text{ cm}$$

$$l_1 = 22.3 \text{ cm}$$

} líneas de Transmisión de Alimentación.
de Antenas

$$\text{Longitud de Onda } \lambda = \frac{C}{F} = \frac{3 \times 10^8}{1.6725 \times 10^8} \quad \lambda = 1.792 \text{ m}$$

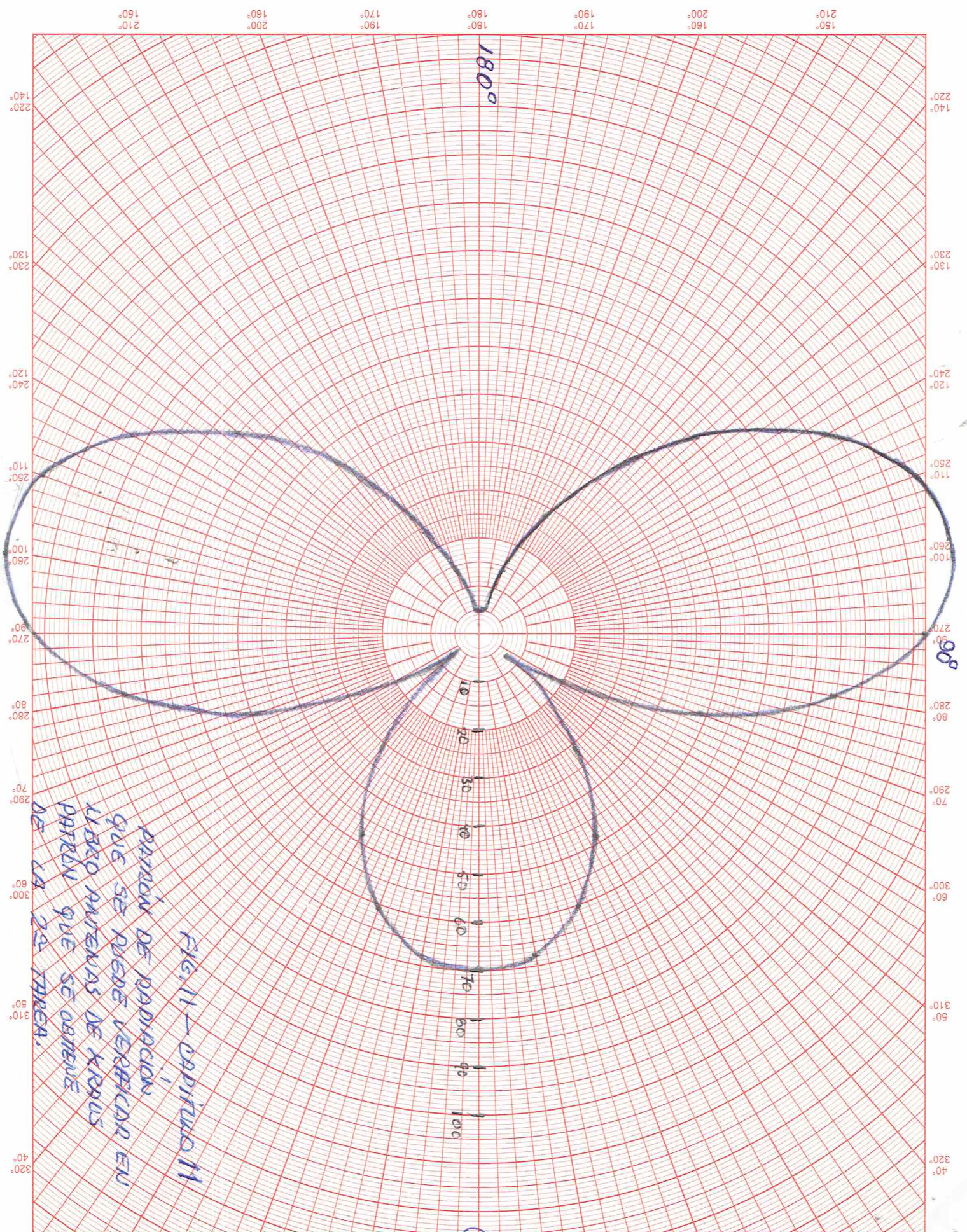
Defasamiento Eléctrico = α

$$\alpha = \frac{(l_2 - l_1)(360^\circ)}{\lambda} = \frac{(22.5)(360^\circ)}{1.792} \quad \alpha = 45^\circ$$

$$\alpha = (I_1 \angle 0^\circ - I_2 \angle 45^\circ)$$

Defasamiento Físico

$$\beta d = \left(\frac{360^\circ}{\lambda}\right) d = \left(\frac{360^\circ}{1.792 \text{ m}}\right) (1 \text{ m}) \quad \beta d = 225^\circ$$



180°

0°

270°

FIG. 11 - CAPITULO 11

PARTE DE RADIAÇÃO
 QUE SE PODE VERIFICAR EM
 UM RAYONAMENTO DE KIPUS
 PARTIR QUE SE OBTÉM
 DE LA 2ª TAREA.

| ϕ | $\cos \phi$ | βd | $\beta d \cos \phi$ | α | $\beta d \cos \phi + \alpha$ | $\left(\frac{\beta d \cos \phi + \alpha}{2}\right)$ | $\left \cos\left(\frac{\beta d \cos \phi + \alpha}{2}\right)\right $ | $2E_0 \left \cos\left(\frac{\beta d \cos \phi + \alpha}{2}\right)\right $ |
|--------|-------------|-----------|---------------------|----------|------------------------------|---|--|---|
| 0 | 1 | 222.77° | 222.77° | 45.38° | 268.15° | 134° | 0.694 | 2 X 69.4 mV/m |
| 10 | 0.9848 | 222.77° | 219.38° | 45.38° | 264.76° | 132.3° | 0.673 | 2 X 67.3 mV/m |
| 20 | 0.9396 | 222.77° | 209.33° | 45.38° | 254.71° | 127.3° | 0.605 | 2 X 60.5 mV/m |
| 30 | 0.8660 | 222.77° | 192.92° | 45.38° | 238.3° | 119.1° | 0.48 | 2 X 48.6 mV/m |
| 40 | 0.76604 | 222.77° | 170.65° | 45.38° | 216.03° | 108° | 0.3 | 2 X 30.9 mV/m |
| 50 | 0.64278 | 222.77° | 143.19° | 45.38° | 188.57° | 94.2° | 0.073 | 2 X 7.3 mV/m |
| 60 | 0.5 | 222.77° | 111.385° | 45.38° | 156.76° | 78.4° | 0.201 | 2 X 20.1 mV/m |
| 70 | 0.3420 | 222.77° | 76.1918° | 45.38° | 121.57° | 60.8° | 0.488 | 2 X 48.8 mV/m |
| 80 | 0.1736 | 222.77° | 38.6836° | 45.38° | 84.063° | 42° | 0.74 | 2 X 74.3 mV/m |
| 90 | 0 | 222.77° | 0 | 45.38° | 45.38° | 22.7° | 0.92 | 2 X 92 mV/m |
| 100 | -0.1736 | 222.77° | -38.6836° | 45.38° | 6.696° | 3.3° | 0.99 | 2 X 99 mV/m |
| 110 | -0.3420 | 222.77° | -76.1918° | 45.38° | -30.811° | -15.4° | 0.96 | 2 X 96 mV/m |
| 120 | -0.5 | 222.77° | -111.385° | 45.38° | -66.005° | -33° | 0.83 | 2 X 83 mV/m |
| 130 | -0.64278 | 222.77° | -143.19° | 45.38° | -97.81° | -48.9° | 0.65 | 2 X 65 mV/m |
| 140 | -0.76604 | 222.77° | -170.65° | 45.38° | -125.27° | -62.6° | 0.46 | 2 X 46 mV/m |
| 150 | -0.8660 | 222.77° | -192.92° | 45.38° | -147.54° | -73.7° | 0.28 | 2 X 28 mV/m |
| 160 | -0.9396 | 222.77° | -209.33° | 45.38° | -163.95° | -81.9° | 0.14 | 2 X 14 mV/m |
| 170 | -0.9848 | 222.77° | -219.38° | 45.38° | -174° | -87° | 0.052 | 2 X 5.2 mV/m |
| 180 | -1 | 222.77° | -222.77° | 45.38° | -177.39° | -88.7° | 0.022 | 2 X 2.2 mV/m |
| 190 | -0.9848 | 222.77° | -219.38° | 45.38° | -174° | -87° | 0.052 | 2 X 5.2 mV/m |
| 200 | -0.9396 | 222.77° | -209.33° | 45.38° | -163.95° | -81.9° | 0.14 | 2 X 14 mV/m |
| 210 | -0.8660 | 222.77° | -192.92° | 45.38° | -147.54° | -73.7° | 0.28 | 2 X 28 mV/m |
| 220 | -0.76604 | 222.77° | -170.65° | 45.38° | -125.27° | -62.6° | 0.46 | 2 X 46 mV/m |
| 230 | -0.64278 | 222.77° | -143.19° | 45.38° | -97.81° | -48.9° | 0.65 | 2 X 65 mV/m |
| 240 | -0.5 | 222.77° | -111.385° | 45.38° | -66.005° | -33° | 0.83 | 2 X 83 mV/m |
| 250 | -0.3420 | 222.77° | -6.1918° | 45.38° | -30.811° | -15.4° | 0.96 | 2 X 96 mV/m |
| 260 | -0.1736 | 222.77° | -38.6836° | 45.38° | 6.696° | 3.3° | 0.99 | 2 X 99 mV/m |
| 270 | 0 | 222.77° | 0 | 45.38° | 45.38° | 22.7° | 0.92 | 2 X 92 mV/m |
| 280 | 0.1736 | 222.77° | 38.6836° | 45.38° | 84.063° | 42° | 0.74 | 2 X 74.3 mV/m |
| 290 | 0.3420 | 222.77° | 76.1918° | 45.38° | 121.571° | 60.8° | 0.48 | 2 X 48.8 mV/m |
| 300 | 0.5 | 222.77° | 111.385° | 45.38° | 156.765° | 78.4° | 0.201 | 2 X 20.1 mV/m |

| | | | | | | | | |
|-----|---------|---------|---------|--------|---------|--------|-------|--------------------------|
| 310 | 0.64278 | 222.77° | 143.19° | 45.38° | 188.57° | 94.2° | 0.073 | 2 X 7.3 mV/m |
| 320 | 0.76604 | 222.77° | 170.65° | 45.38° | 216.03° | 108° | 0.309 | 2 X 30.9 mV/m |
| 330 | 0.8660 | 222.77° | 192.92° | 45.38° | 238.3° | 119.1° | 0.486 | 2 X 48.6 mV/m |
| 340 | 0.9396 | 222.77° | 209.33 | 45.38° | 254.71° | 127.3° | 0.605 | 2 X 60.5 mV/m |
| 350 | 0.9848 | 222.77° | 219.38 | 45.38° | 264.76° | 132.3° | 0.694 | 2 X 67.3 mV/m |