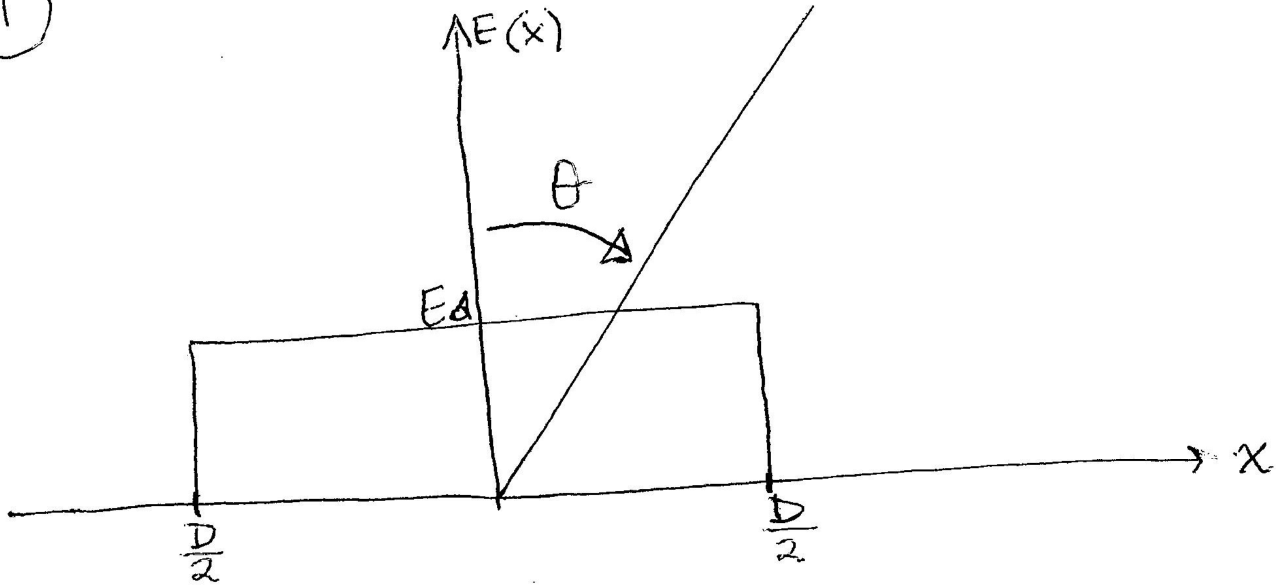


$$E(\theta) = \int_{-\infty}^{\infty} \mathcal{E}(x)\, e^{-i2\pi\theta x}\, dx \quad \text{——— (1)}$$

$$\mathcal{E}(x) = \int_{-\infty}^{\infty} E(\theta)\, e^{i2\pi\theta x}\, d\theta \quad \text{——— (2)}$$

Sea $\mathcal{E}(x) = \mathcal{E}_0$ para el intervalo de $\begin{cases} -\frac{D}{2} \le x \le \frac{D}{2} \\ 0 \quad \text{otherwise} \end{cases}$ --- (3)

Substituyendo en (1)

$$E(\theta) = \mathcal{E}_0 \int_{-\infty}^{\infty} \left[\cos(2\pi\theta x) - i\,\mathrm{sen}(2\pi\theta x)\right] dx \quad \text{--- (4)}$$

Parte Real $E(\theta) = \mathcal{E}_0 \int_{-\infty}^{\infty} \cos(2\pi\theta x)\, dx$ ——— (5)

$$= \left[\int_{-\infty}^{-\frac{D}{2}-\varepsilon} + \int_{-\frac{D}{2}+\varepsilon}^{\frac{D}{2}-\varepsilon} \mathcal{E}_0 \cos(2\pi\theta x)\, dx + \int_{\frac{D}{2}+\varepsilon}^{\infty}\right] \quad \text{---- (6)}$$

0 $E(x)=0$ 0

$$= \int_{-\frac{D}{2}}^{\frac{D}{2}} \mathcal{E}_0 \cos(2\pi\theta x)\, dx \quad \text{——— (7)}$$

$$= \mathcal{E}_0 \frac{1}{2\pi\theta}\, \mathrm{sen}(2\pi\theta x)\Big|_{-\frac{D}{2}}^{\frac{D}{2}} \quad \text{——— (8)}$$

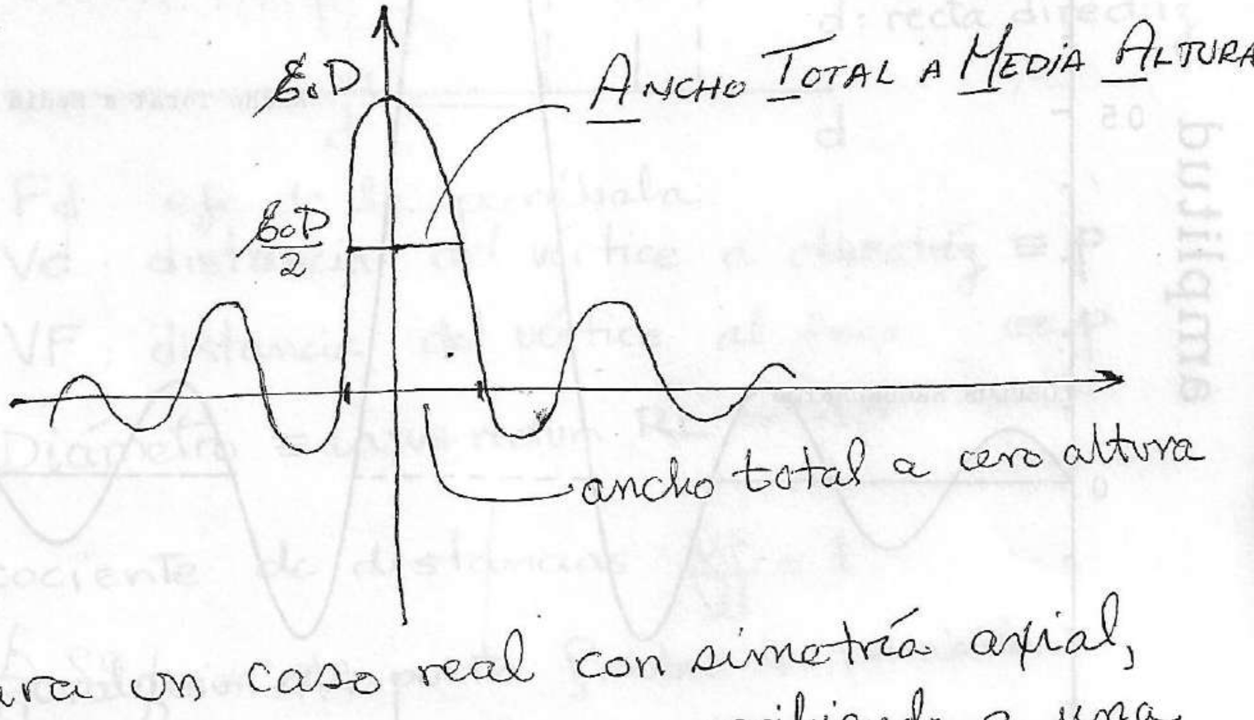
(2) $= \mathcal{E}_0 \frac{1}{2\pi\theta}\left[\mathrm{sen}\, 2\pi\theta\frac{D}{2} - \mathrm{sen}\left(\ldots\frac{D}{2}\right)\right]$

$$= \mathcal{E}_0 \frac{1}{2\pi\theta}\left[\mathrm{sen}\, 2\pi\theta\frac{D}{2} - \left(-\mathrm{sen}\left(2\pi\theta\frac{D}{2}\right)\right)\right] \quad (11)$$

$$= \mathcal{E}_0 \frac{D}{2\pi\theta D}\, 2\,\mathrm{sen}(\pi\theta D)$$

$$E(\theta) = \mathcal{E}_0 D \frac{\mathrm{sen}(\pi\theta D)}{\pi\theta D} \quad (12)$$

$$= \mathcal{E}_0 D \frac{\mathrm{sen}(x)}{x} \quad (13)$$



Para un caso real con simetría axial, diámetro D de la apertura y recibiendo a una longitud de onda λ

$$\mathrm{ATMA} = 1.02\,\frac{\lambda}{D}$$

$$\mathrm{atca} = \mathbf{2.44}\;\frac{\lambda}{D}$$