

Hoja de fórmulas Ev 3 – E3 – 2019

Modulación en ángulo:

$$v_{PM}(t) = V_C \cos(\omega_c t + m_p \text{ sen } \omega_m t)$$

$$m_p = \Delta\theta_{PM} = K_p V_m$$

$$\Delta f = K_p V_m f_m$$

$$v_{FM}(t) = V_C \cos(\omega_c t + m_f \text{ sen } \omega_m t)$$

$$m_f = \frac{K_\omega V_m}{\omega_m} = \frac{K_f V_m}{f_m}$$

$$\Delta f = K_f V_m$$

$$AB = 2(\Delta f_{\text{máx}} + f_{m \text{ máx}})$$

Trasmisores de FM

$$e\% = \frac{m_f - \text{tg}(m_f)}{m_f}$$

$$C_D = \frac{C_0}{(1 + 2V)^{1/2}}$$

Receptores de FM

$$\frac{A_0}{A_1} = \sqrt{1 + Q_c^2 \left(\frac{f_0}{f_1} - \frac{f_1}{f_0} \right)^2}$$

$$2.Q_c \cdot \frac{\Delta f}{f_0} \leq 0,25$$

(Detector de Cuadratura)

Modulaciones especiales:

$$f_s \geq 2 f_{a\text{Máx}}$$

$$AB_{PCM} \geq \frac{1}{2} n f_s$$

$$AB_{FSK} = 2(\Delta f_{\text{máx}} + \frac{1}{2} R_{b \text{ máx}})$$