

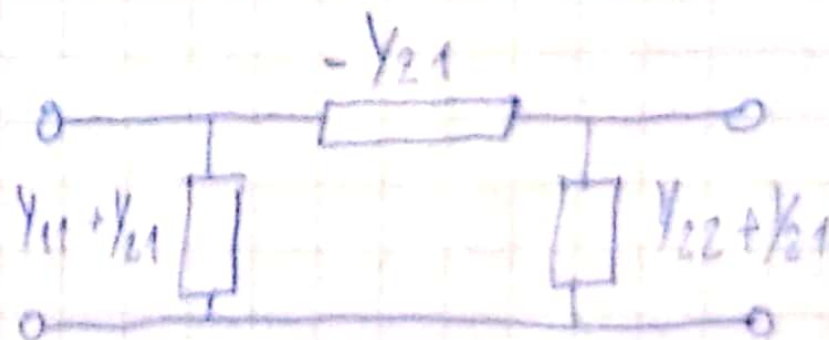
TP8

1) Atenuador Tipo PI de 20dB con $Z_0 = 50\Omega$

20dB $\rightarrow \gamma \approx 2 = 2,003$ *refer. de potencia*

$$T = \begin{pmatrix} \cosh \gamma & \sinh \gamma Z_0 \\ \frac{\sinh \gamma}{Z_0} & \cosh \gamma \end{pmatrix} = \begin{pmatrix} 5,052 & 247,6 \\ 0,1 & 5,052 \end{pmatrix}$$

$$\begin{cases} V_1 = A V_2 + B (-I_2) \\ I_1 = C V_2 + D (-I_2) \end{cases}$$

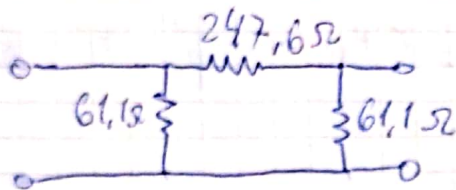


$$Y_{21} = \frac{I_2}{V_1} \Big|_{V_2=0} = \frac{-1}{B} = \frac{-1}{247,6 \Omega} = -4,039 \text{ mS}$$

$$Y_{12} = \frac{I_1}{V_2} \Big|_{V_1=0} = \frac{-10 \text{ mS}}{B} = \frac{-1}{B} = -4,039 \text{ mS}$$

$$Y_{11} = \frac{D}{B} = 0,02 \rightarrow Y_{11} + Y_{12} = 0,0164 \text{ S}$$

$$Y_{22} = \frac{A}{B} = 0,02 \rightarrow Y_{22} + Y_{21} = 0,0164 \text{ S}$$



2) Acoplador de banda ancha de 75Ω a 50Ω

$$2 \text{ pot dB} = 10 \log \left(\frac{V_1^2 / 75 \Omega}{V_2^2 / 50 \Omega} \right)$$

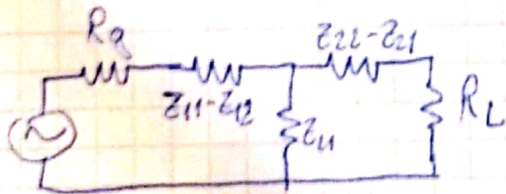
Z_{in1}

Z_{in2}

$$\gamma = 0,6585$$

$$2 \text{ pot dB} = 20 \log \left(\frac{V_1}{V_2} \right) + 10 \log \left(\frac{50 \Omega}{75 \Omega} \right) = -1,761$$

$$A > D \rightarrow D = 1$$



$$T = \begin{pmatrix} \cosh \frac{\sqrt{6}}{2} & \tanh 61,237 \\ \tanh 0,063 & \frac{\sqrt{6}}{3} \cosh \end{pmatrix}$$

$$T = \begin{pmatrix} 1,5 & 43,103 \\ 0,012 & 1 \end{pmatrix}$$

$$Z = \begin{pmatrix} \frac{A}{C} & \frac{AD-BC}{C} \\ 0 & D/C \end{pmatrix}$$

límites realizables

$$A \geq 1$$

$$D \geq 1$$

$$\begin{cases} Z_{21} \leq 86,6 \Omega \\ Z_{11} - Z_{12} = 41,66 \\ Z_{22} - Z_{21} \leq 0 \end{cases}$$