

4EV25

2º EXAMEN
2ª PARTE

L-TX-2020

1

PROBLEMA

$$Z_0 = 50 + j10$$

$$Z_r = 25 - j100$$

$$f = ?$$

$$Z_n = ?$$

$$V_{SWR} = ?$$

$$\phi = ?$$

PARA PODER ENTRAR A LA CARTA DE SMITH ES NECESARIA LA IMPEDANCIA NORMALIZADA

$$Z_n = \frac{Z_r}{Z_0} = \frac{25 - j100}{50 + j10} = \frac{\sqrt{25^2 + 100^2} \left| \tan^{-1} \left(\frac{-100}{25} \right) \right.}{\sqrt{50^2 + 10^2} \left| \tan^{-1} \left(\frac{+10}{+50} \right) \right.}$$

$$Z_n = \frac{\sqrt{625 + 10000}}{\sqrt{2500 + 100}} \frac{\tan^{-1}(-4)}{\tan^{-1}(0.2)} \approx \frac{103.07}{50.99} \left| \frac{-75.96^\circ}{11.30^\circ} \right.$$

$$Z_n = 2.02 \left(-64.66^\circ \right)$$

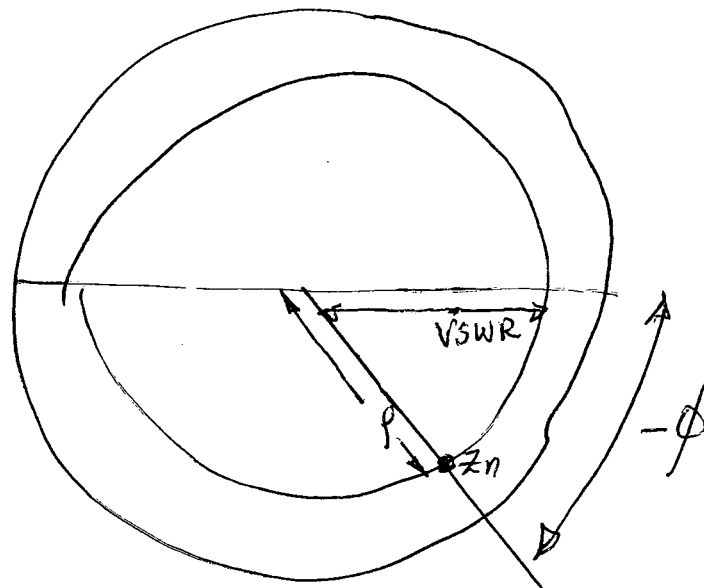
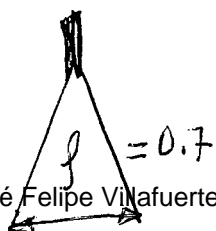
$$Z_n = 2.02 \left(0.427 - j0.90 \right) = \left(0.86 - j1.82 \right)$$

$$Z_n = \left(0.86 - j1.82 \right) \text{ LOCALIZAR}$$

$$f = 0.7$$

$$V_{SWR} = 1.3$$

$$\phi = 52^\circ$$



4EV25

2º EXAMEN
2ª PARTE

2

PROBLEMA

LA CARGA DE LA LÍNEA TELEFÓNICA
ES DE 600Ω , $V_{SWR} = \text{MÁXIMO PERMITIDO}$
PARA TELEFONÍA, CON REFLEJO DE 60°

V_{SWR} } TELEFONÍA
MÁXIMO }

$$V_{SWR} = 1,2$$

CRUCE DEL CÍRCULO $V_{SWR}=1,2$

$$Z_n = 1,05 + j0,2$$

$$Z_r = (Z_0)(Z_n) = (600)(1,05 + j0,2)$$

$$Z_r = 630 + j120 \quad \underline{\underline{CARGA}}$$

