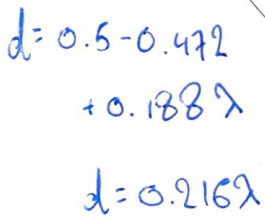


Black Magic Design


$$\Gamma = 0.264 \text{ } 22^\circ$$

$$R_A = \frac{251}{2} = 125.5 \, \Omega$$

$$Z_0 = 50$$

$$X_A = \frac{251}{1.5} = 167.3 \, \Omega$$

$$Z_A = 125.5 + j 167.3 \, \Omega$$

$$f_{\text{req}} = 2.2 \times 10^9 \, \text{Hz}$$

$$\Gamma = \frac{Z_L - Z_0}{Z_L + Z_0}$$

$$Z_L = 2.51 + 3.346j \, \Omega$$

$$\lambda = \frac{c}{f}$$

$$d = (0.5 - 0.472 + 0.188) \lambda$$

$$\lambda =$$

$$d = 0.216 \lambda = \frac{0.216 \cdot c}{2.2 \text{GHz}}$$

$$= 0.029 \text{m}$$

$$\ell = 0.313 - 0.25 \lambda$$

$$= 0.063 \lambda = \frac{0.063 \cdot c}{2.2 \text{GHz}} = 0.0085 \text{m}$$