5. $E_r = 2.2 \quad t_F = 8n$s

What would flight time be if $E_r = 4.5$

\[ t_F = \frac{l}{V_F} \quad \text{And} \quad V_F = \frac{c}{\sqrt{E_r}} \quad \text{Substituting,} \]

\[ t_F = \frac{l}{c} = \frac{l}{\sqrt{E_r}} \]

For the first PCB we can find $l$:

\[ 8 \times 10^{-2} = \frac{l}{ \sqrt{2.2} } \quad \text{in m/s} \]

\[ l = 1.6181 \text{ meters} \]

On the second PCB,

\[ t_F = \frac{1.6181 \times 1.5}{300 \times 10^6 \text{m/s}} = 11.44n$s