

Closed loop gain calculation. Inp summer =a, fb summer=b, forw gain=K

$$\text{Closed loop gain } G_{cl} = \frac{K \cdot a}{1 + b \cdot a(K-1)}$$

$$\omega := 10^3, 10^4 \dots 10^7$$

$$\omega_k := 5 \cdot 10^6 \quad \omega_b := 5 \cdot 10^6$$

$$K := 0.95$$

$$b := 0.9, 1.0 \dots 1.1$$

$$a := 1$$

$$\omega_a := 5 \cdot 10^6$$

$$G_{clc}(b, \omega) := \frac{\left( \frac{K}{1 + j \cdot \frac{\omega}{\omega_k}} \right) \cdot \left( \frac{a}{1 + j \cdot \frac{\omega}{\omega_a}} \right)}{1 - \left( \frac{a}{1 + j \cdot \frac{\omega}{\omega_a}} \right) \left( \frac{b}{1 + j \cdot \frac{\omega}{\omega_b}} \right) + \left( \frac{K}{1 + j \cdot \frac{\omega}{\omega_k}} \right) \left( \frac{b}{1 + j \cdot \frac{\omega}{\omega_b}} \right) \left( \frac{a}{1 + j \cdot \frac{\omega}{\omega_a}} \right)}$$

