

$$Z_E = \eta_0 * \frac{\frac{j}{\beta^* r} + \frac{1}{(\beta^* r)^2} - \frac{j}{(\beta^* r)^3}}{\frac{j}{\beta^* r} + \frac{1}{(\beta^* r)^2}} =$$

$$\frac{1 + \frac{1}{(\beta^* r)} - \frac{j}{(\beta^* r)^2}}{1 + \frac{1}{(\beta^* r)}} ,$$