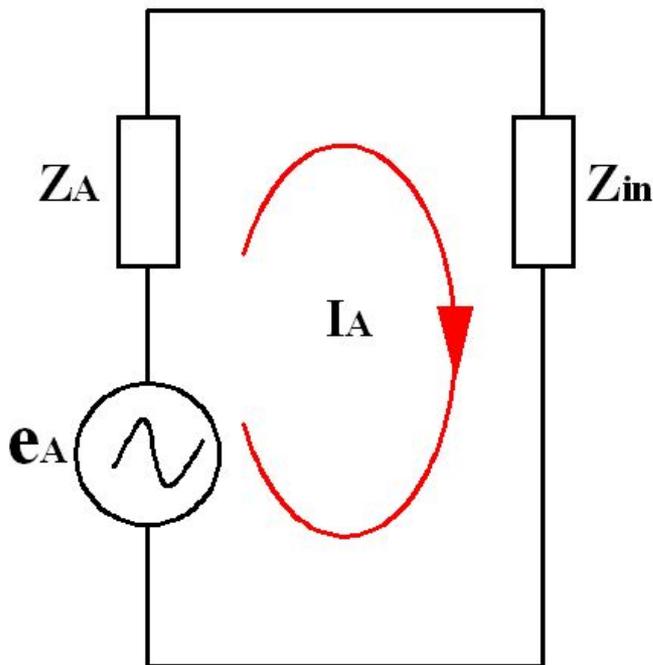


Согласование антенны со входом приемника



$$I_A = \frac{e_A}{Z_A + Z_{in}};$$

$$U_A = e_A \frac{Z_{in}}{Z_A + Z_{in}};$$

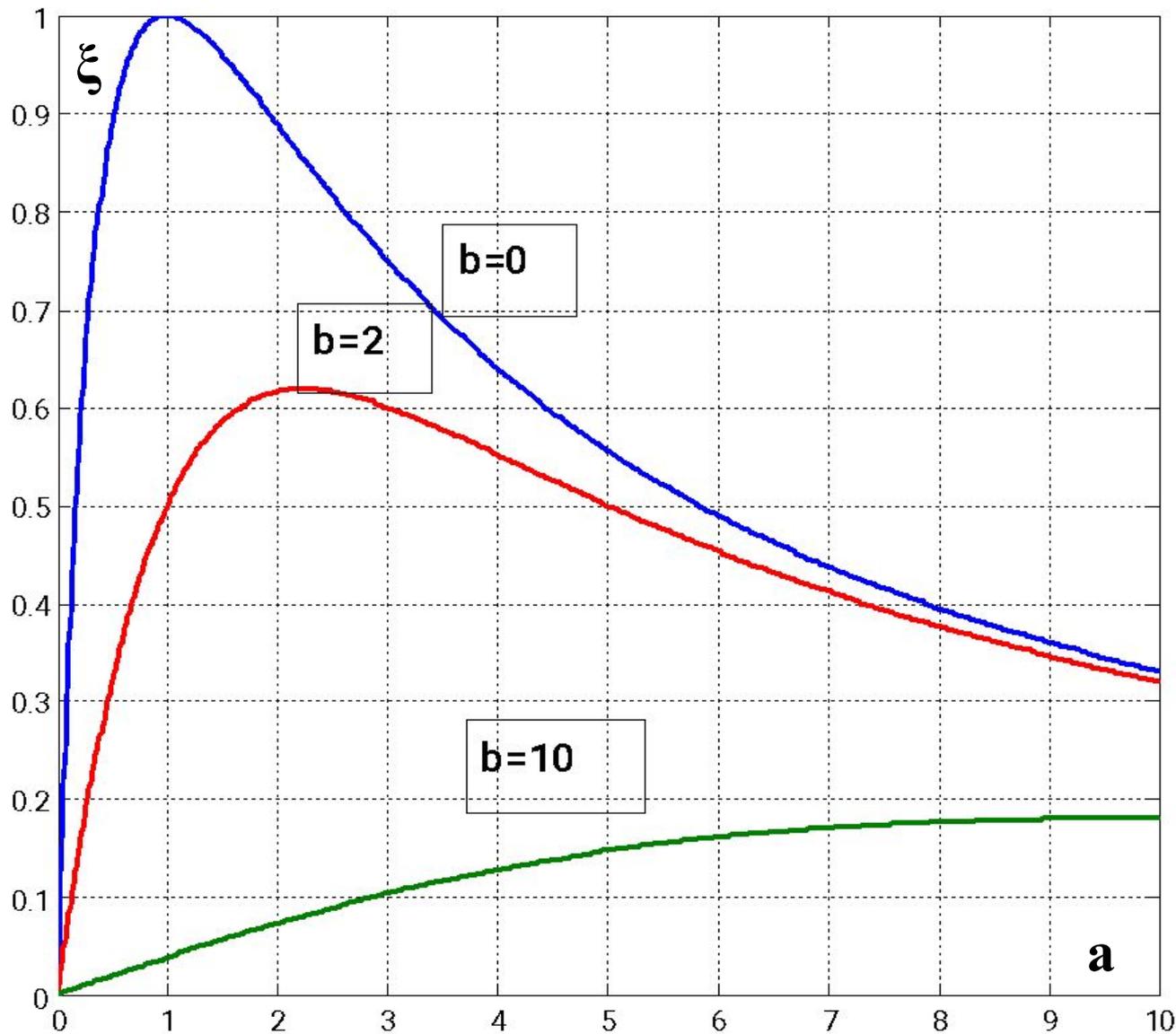
$$P = \frac{1}{2} |I_A|^2 R_{in} = \frac{1}{2} \frac{|e_A|^2 R_{in}}{(R_A + R_{in})^2 + (X_A + X_{in})^2};$$

Согласование:

$$R_A = R_{in}; X_A = -X_{in}; \Rightarrow P_{\max} = \frac{|e_A|^2}{8R_A};$$

$$\xi = \frac{P}{P_{\max}} = \frac{4R_A R_{in}}{(R_A + R_{in})^2 + (X_A + X_{in})^2};$$

Согласование антенны со входом приемника

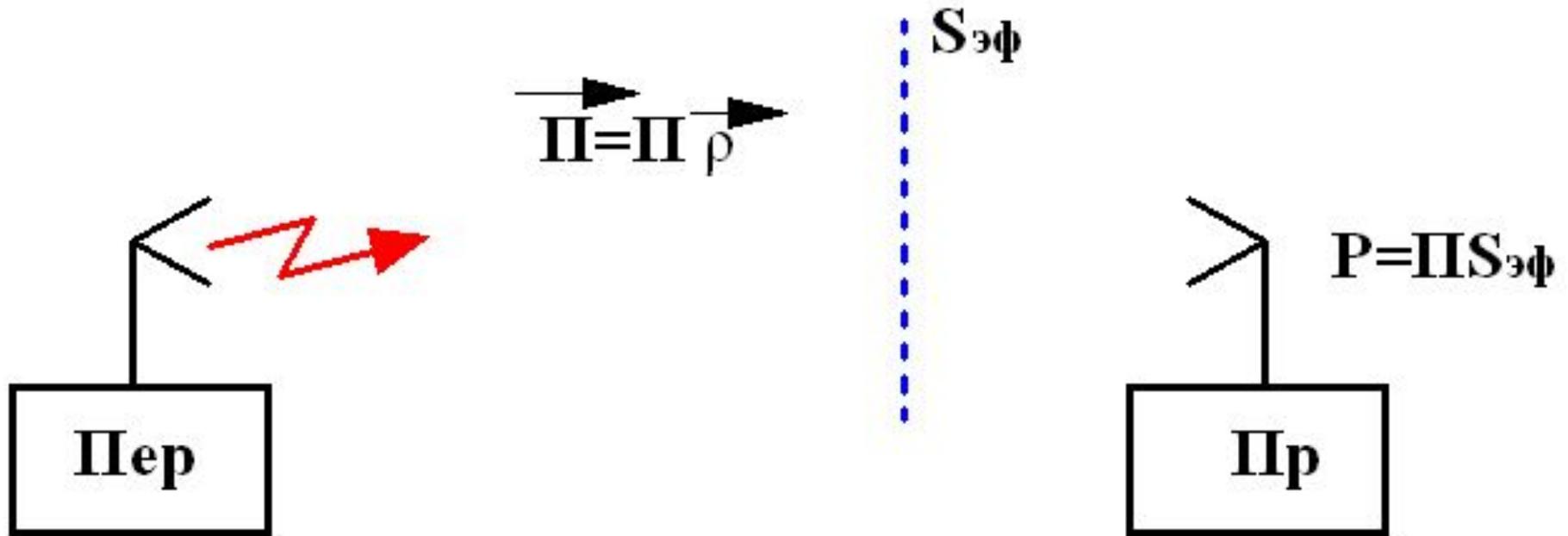


$$a = \frac{R_{in}}{R_A};$$

$$b = \frac{X_A + X_{in}}{R_A};$$

$$\xi = \frac{4a}{(1+a)^2 + b^2};$$

Эффективная площадь приемной антенны.



$$S_{ef} = \frac{P}{\Pi}; \Pi = \frac{1}{2} \mathbf{E}_{\theta} \mathbf{H}_{\varphi}^* = \frac{1}{2} \mathbf{E}_{\theta} \mathbf{E}_{\theta}^* \frac{1}{Z} = \frac{|\mathbf{E}_{\theta}|^2}{240\pi}; P_{\max} = \frac{|e_A|^2}{8R_A};$$

$$S_{ef} = \frac{30\pi}{R_A} \frac{|e_A|^2}{|\mathbf{E}_{\theta}|^2} = \frac{\lambda^2}{4\pi} G;$$