Neper

$$a_{Np} = \ln \frac{|U_1|}{|U_2|}$$

$$P = \frac{|U|^2}{2 Z_K} \qquad |U| = \sqrt{2 Z_K P}$$

$$a_{Np} = \ln \sqrt{\frac{P_1}{P_2}} = \frac{1}{2} \ln \frac{P_1}{P_2}$$

Prilagoditev
(povratno slabljenje, return loss)

$$\Gamma_{dB} = 10 \cdot \log |\Gamma|^2 = 20 \cdot \log |\Gamma|$$

Decibel

$$a_{dB} = 10 \cdot \log \frac{P_1}{P_2}$$

$$a_{dB} = 10 \cdot \log \left| \frac{U_1}{U_2} \right|^2 = 20 \cdot \log \frac{|U_1|}{|U_2|}$$

$$a_{dB} = \frac{20}{\ln 10} \cdot \ln \frac{|U_1|}{|U_2|} = \frac{20}{2.3026} \cdot a_{Np}$$

Slabljenje voda

$$|U_N(z)| = |U_N(0)| \cdot e^{-\alpha z} \qquad \alpha \approx \frac{R/l}{2 Z_K}$$

$$a_{Np} = \ln \frac{|U_N(0)|}{|U_N(l)|} = \alpha l \qquad a_{Np}/l = \alpha$$

$$a_{dB} = \frac{20}{\ln 10} \cdot a_{Np} = \frac{20}{\ln 10} \cdot \alpha l \qquad a_{dB}/l = \frac{20}{\ln 10} \cdot \alpha$$

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