

$$\Delta \beta = \frac{2\pi c}{\lambda^2} \Delta \lambda^2 \left( D - \frac{dD}{d\lambda} \right) \Delta \lambda$$

$$\eta = \frac{\alpha^2}{\alpha^2 + \Delta \beta^2}$$

$$P_{FWM} = \eta \frac{1024 \pi^6 \chi^2 d^2}{n^4 \lambda^2 c^2} \left( \frac{L_{eff}}{A_{eff}} \right)^2 P_{in}^3 e^{-\alpha L}$$

$$d = 6$$

$$L = 80 \text{ km}$$

$$\alpha = 0.21 \text{ dB/km}$$

$$\chi = 4 \cdot 10^{-15} \text{ esu}$$

$$\frac{dD}{d\lambda} = 0.08 \text{ ps/nm}^2/\text{km}$$

$$P_{in} = 1 \text{ mW}$$

$$L_{eff} = 20 \text{ km}$$

$$A_{eff} = 55 \mu\text{m}^2$$

$$\lambda = 1.55 \mu\text{m}$$

$$c = 3 \cdot 10^8 \text{ m/s}$$

$$\Delta \lambda = 0.4 \text{ nm}$$