

SISTEM KOMUNIKASI OPTIK

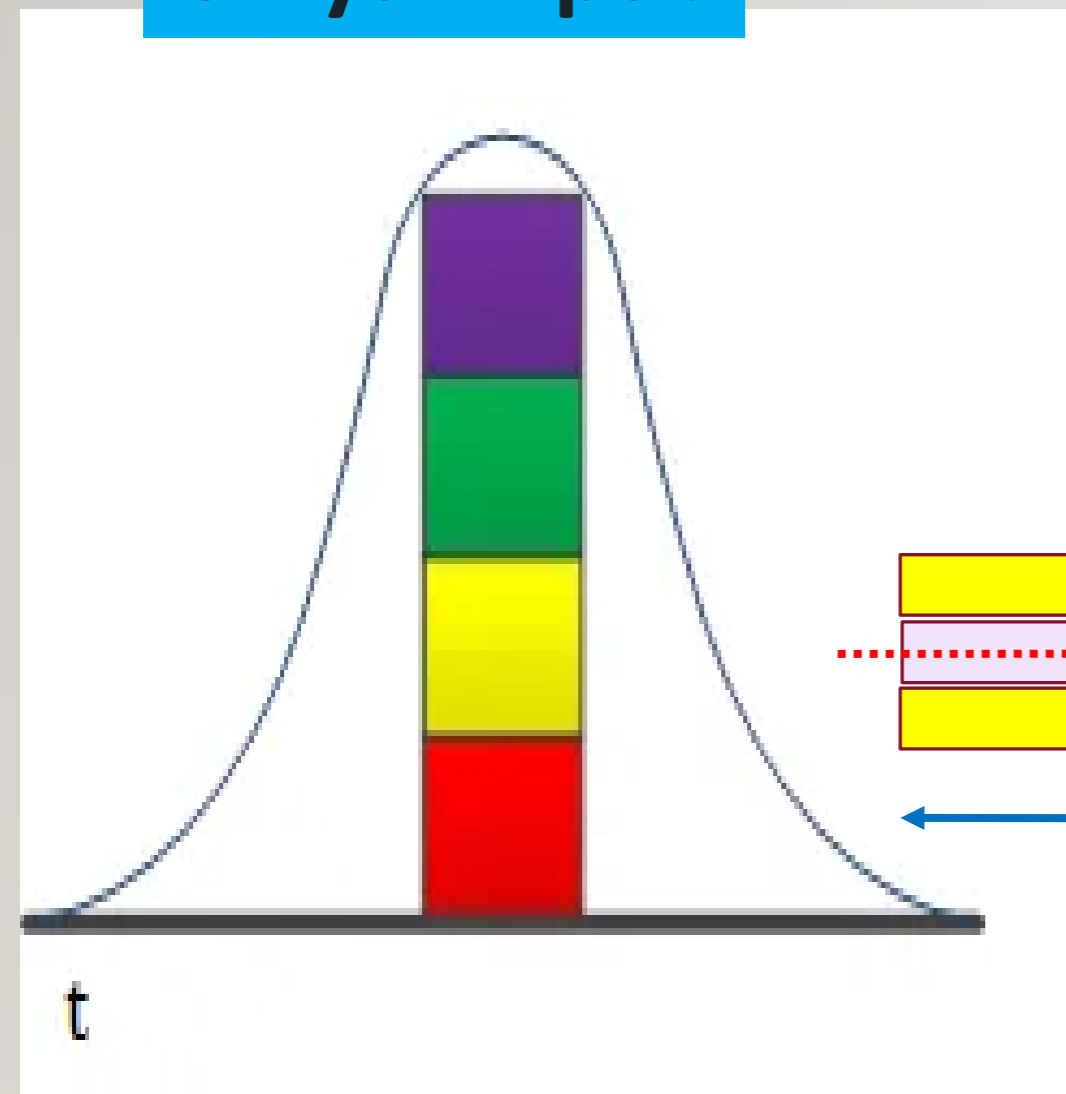
- **MATERI 5**
- **DISPERSI PADA SERAT OPTIK**

- D3 Teknologi Telekomunikasi – Fakultas Ilmu Terapan



DISPERSI

Sinyal Input

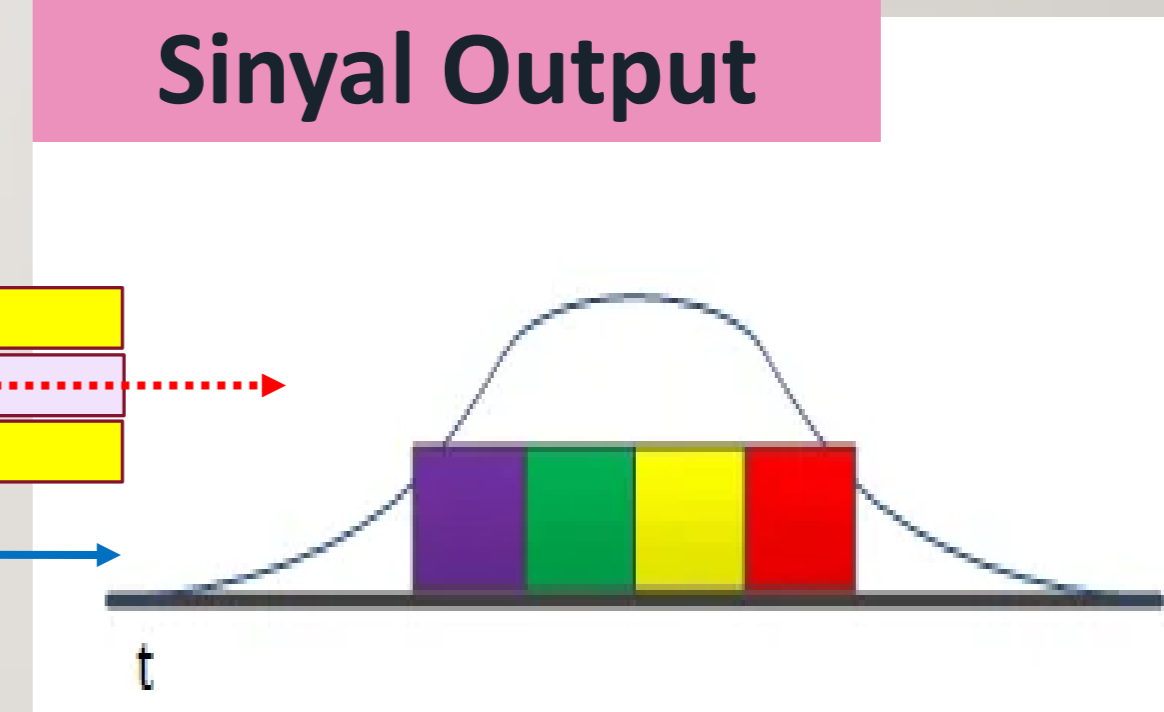


Serat Optik



Panjang Serat Optik = L

Sinyal Output

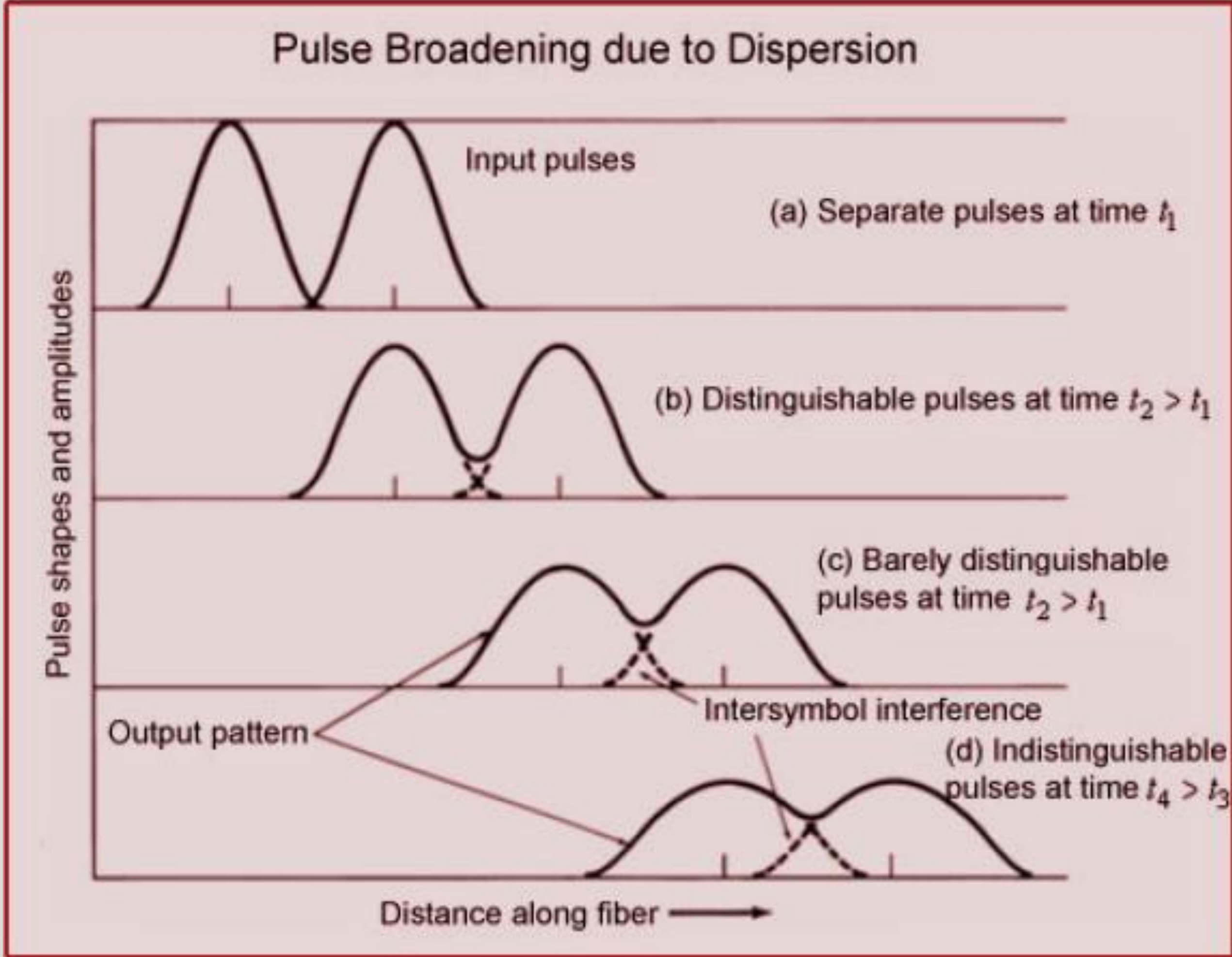


Hubungan bit rate dengan dispersi :

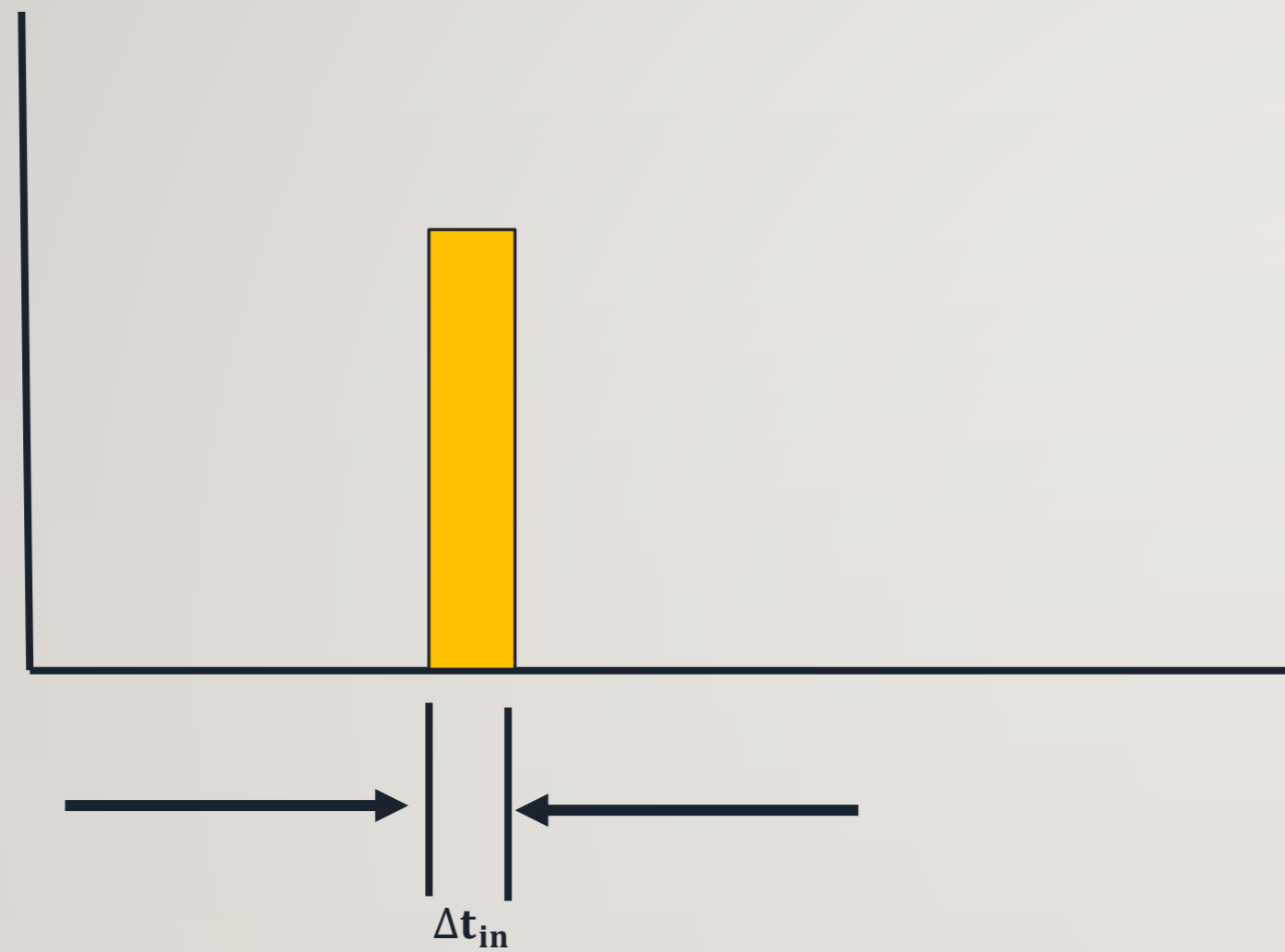
$$b \leq \frac{0.2}{\tau}$$

Konversi dari bit rate (b) ke bandwidth (BW) : $b = 2 \times BW$

INTERSYMBOL INTERFERENCE

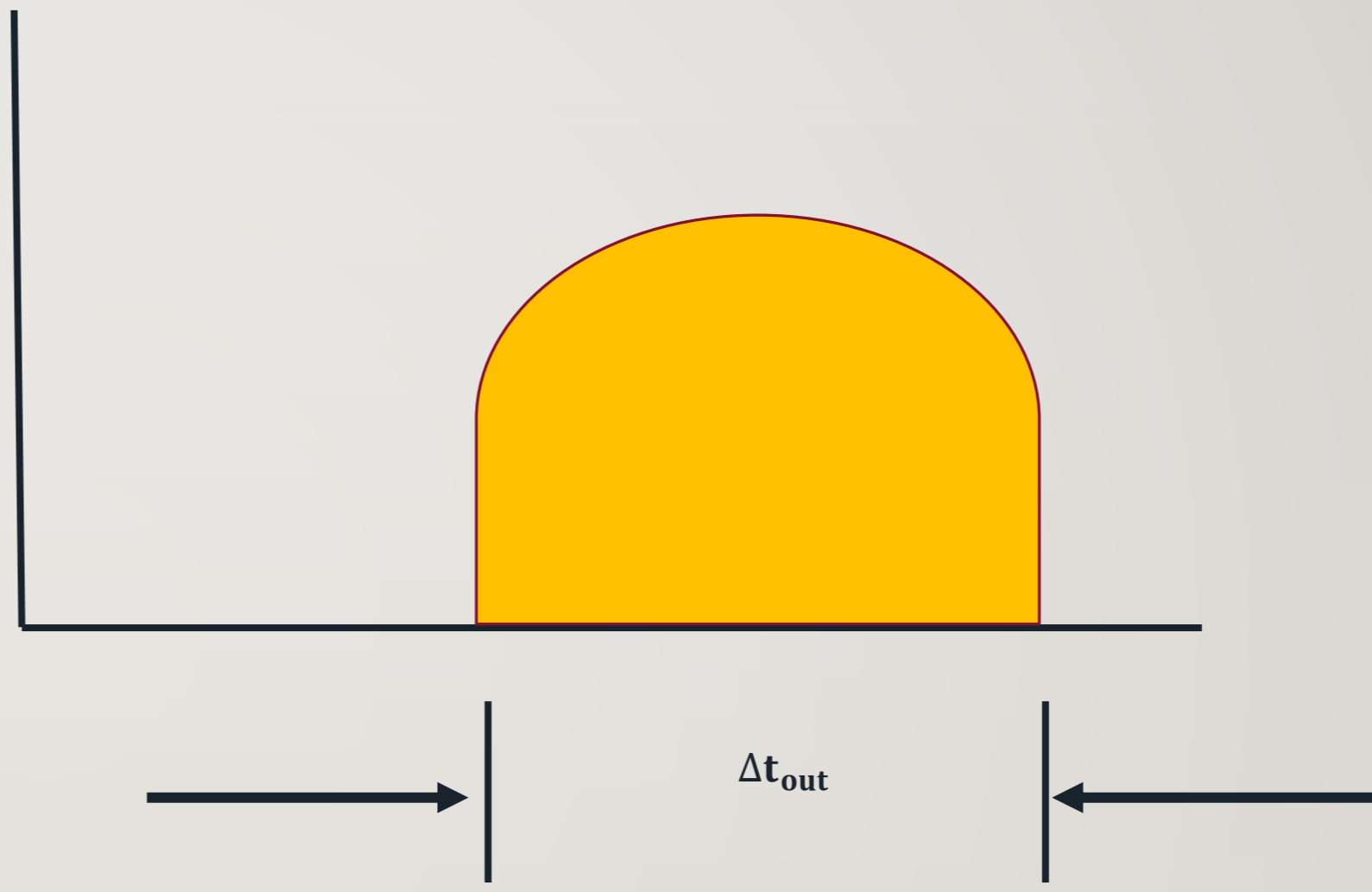


Pulsa Input



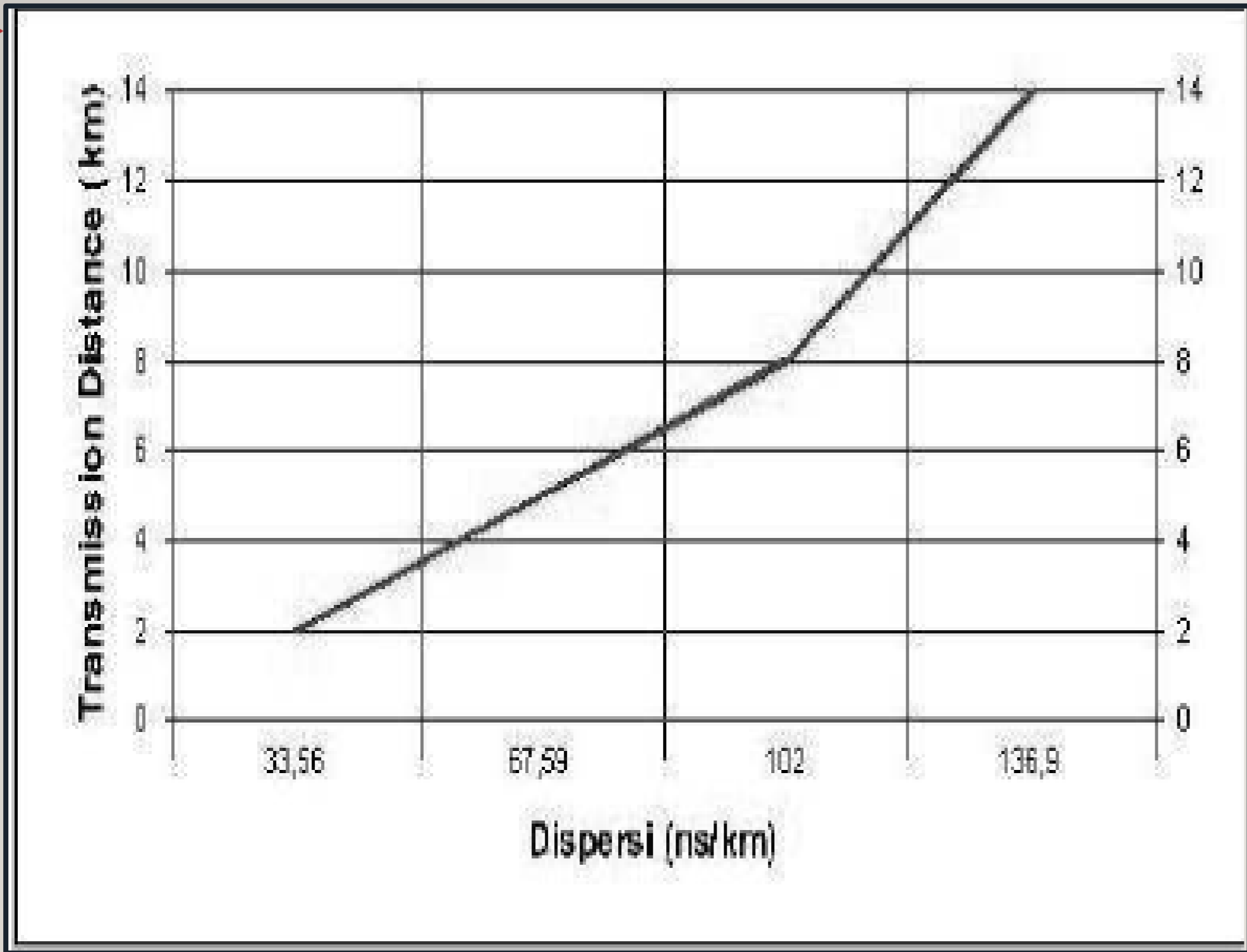
$$\Delta t = \sqrt{(\Delta t_{out} - \Delta t_{in})}$$

Pulsa Output

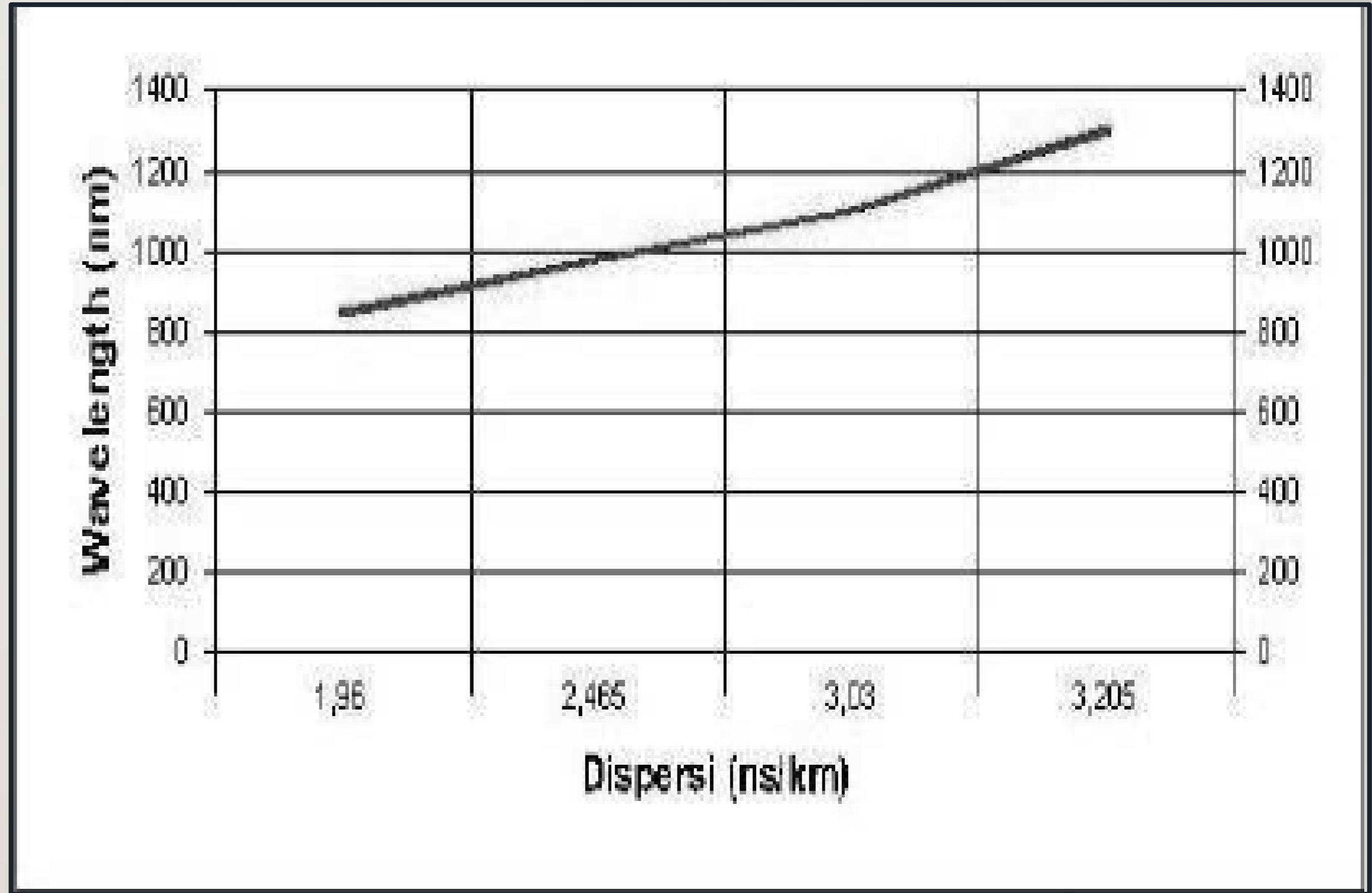


$$\Delta_{total} = L \times \left(\frac{\text{Dispersi}}{\text{km}} \right)$$

PENGARUH DISPERSI



Gambar 1. Dispersi Terhadap Jarak Transmisi



Gambar 2. Dispersi Terhadap Panjang Gelombang



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