

## LAMPIRAN

### Lampiran 1 Perhitungan Rise Time Budget

Sistem CWDM :

c. Link Rektorat Unmul – FKIP Kampus I

$$\begin{aligned}t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (6 \text{ km}) \\ &= 21 \text{ ps}\end{aligned}$$

$$\begin{aligned}t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 21^2} \\ &= 781,30 \text{ ps}\end{aligned}$$

d. Link Rektorat Unmul – Fak. Kedokteran

$$\begin{aligned}t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,5 \text{ km}) \\ &= 1,75 \text{ ps}\end{aligned}$$

$$\begin{aligned}t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 1,75^2} \\ &= 781,026 \text{ ps}\end{aligned}$$

e. Link Fak. Kedokteran – Fak. Hukum

$$\begin{aligned}t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,7 \text{ km}) \\ &= 2,45 \text{ ps}\end{aligned}$$

$$\begin{aligned}t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 2,45^2}\end{aligned}$$

$$= 781,03 \text{ ps}$$

f. Link FKIP Kampus II – Fak. Ilmu Budaya

$$\begin{aligned} t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,55 \text{ km}) \\ &= 1,925 \text{ ps} \end{aligned}$$

$$\begin{aligned} t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 1,925^2} \\ &= 781,027 \text{ ps} \end{aligned}$$

g. Link Rektorat Unmul – Fak. Kedokteran

$$\begin{aligned} t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,5 \text{ km}) \\ &= 1,75 \text{ ps} \end{aligned}$$

$$\begin{aligned} t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 1,75^2} \\ &= 781,026 \text{ ps} \end{aligned}$$

h. Link Fak. Kedokteran – Fak. Hukum

$$\begin{aligned} t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,7 \text{ km}) \\ &= 2,45 \text{ ps} \end{aligned}$$

$$\begin{aligned} t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 2,45^2} \\ &= 781,03 \text{ ps} \end{aligned}$$

i. Link Fak. Kedokteran – Fak. Hukum

$$t_f = D \times \alpha_\lambda \times L$$

$$= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,24 \text{ km})$$

$$= 0,84 \text{ ps}$$

$$t_r = \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2}$$

$$= \sqrt{600^2 + 500^2 + 0,84^2}$$

$$= 781,025 \text{ ps}$$

Sistem DWDM :

c. Link Rektorat Unmul – FKIP Kampus I

$$t_f = D \times \alpha_\lambda \times L$$

$$= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (6 \text{ km})$$

$$= 2,1 \text{ ps}$$

$$t_r = \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2}$$

$$= \sqrt{600^2 + 500^2 + 2,1^2}$$

$$= 69,493 \text{ ps}$$

d. Link Rektorat Unmul – Fak. Kedokteran

$$t_f = D \times \alpha_\lambda \times L$$

$$= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (0,5 \text{ km})$$

$$= 0,175 \text{ ps}$$

$$t_r = \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2}$$

$$= \sqrt{600^2 + 500^2 + 0,175^2}$$

$$= 69,4624 \text{ ps}$$

e. Link Fak. Kedokteran – Fak. Hukum

$$t_f = D \times \alpha_\lambda \times L$$

$$= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (0,7 \text{ km})$$

$$= 0,245 \text{ ps}$$

$$\begin{aligned}
 t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\
 &= \sqrt{600^2 + 500^2 + 0,245^2} \\
 &= 69,4626 \text{ ps}
 \end{aligned}$$

f. Link FKIP Kampus II – Fak. Ilmu Budaya

$$\begin{aligned}
 t_f &= D \times \alpha_\lambda \times L \\
 &= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (0,55 \text{ km}) \\
 &= 0,192 \text{ ps}
 \end{aligned}$$

$$\begin{aligned}
 t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\
 &= \sqrt{600^2 + 500^2 + 0,192^2} \\
 &= 69,4624 \text{ ps}
 \end{aligned}$$

g. Link Rektorat Unmul – Fak. Kedokteran

$$\begin{aligned}
 t_f &= D \times \alpha_\lambda \times L \\
 &= (3,5 \text{ ps/nm.km}) \times (1 \text{ nm}) \times (0,5 \text{ km}) \\
 &= 0,175 \text{ ps}
 \end{aligned}$$

$$\begin{aligned}
 t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\
 &= \sqrt{600^2 + 500^2 + 1,75^2} \\
 &= 69,4624 \text{ ps}
 \end{aligned}$$

h. Link Fak. Kedokteran – Fak. Hukum

$$\begin{aligned}
 t_f &= D \times \alpha_\lambda \times L \\
 &= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (0,7 \text{ km}) \\
 &= 0,245 \text{ ps}
 \end{aligned}$$

$$\begin{aligned}
 t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\
 &= \sqrt{600^2 + 500^2 + 0,245^2} \\
 &= 69,4626 \text{ ps}
 \end{aligned}$$

i. Link Fak. Kedokteran – Fak. Hukum

$$\begin{aligned}t_f &= D \times \alpha_\lambda \times L \\ &= (3,5 \text{ ps/nm.km}) \times (0,1 \text{ nm}) \times (0,24 \text{ km}) \\ &= 0,084 \text{ ps}\end{aligned}$$

$$\begin{aligned}t_r &= \sqrt{t_{tx}^2 + t_{rx}^2 + t_f^2} \\ &= \sqrt{600^2 + 500^2 + 0,084^2} \\ &= 69,4622 \text{ ps}\end{aligned}$$

