LAMPIRAN

Perhitungan Power Link Budget Cascading

OLT to FDT

- $a_{total} = L.a_{serat} + Nc.a_c + Ns.a_s + Sp$ 1:4
- $a_{total} = (1{,}85 \text{ X } 0{,}35) + (2 \text{ X } 0{,}25) + (0{,}1) + (7{,}2)$
- $a_{total} = (0{,}6475) + (0{,}5) + (0{,}1) + (7{,}2)$
- $a_{total} = 8{,}447$ dB

FDT to FAT

- $a_{total} = L.a_{serat} + Nc.a_c + Ns.a_s + Sp$ 1:8
- $a_{total} = (0{,}14 \text{ X } 0{,}35) + (3 \text{ X } 0{,}25) + 0{,}2 + 7{,}2 + 10{,}3$
- $a_{total} = 0{,}049 + 0{,}75 + 0{,}2 + 7{,}2 + 10{,}3$
- $a_{total} = 18{,}499$ dB

Redaman Total

$a_{total} = (\alpha_{feeder\ to\ FDT}) + (\alpha_{FDT\ to\ FAT})$

$a_{total} = (8{,}447) + (18{,}499)$

$a_{total} = 26{,}946$ dB

Selanjutnya akan dilakukan perhitungan nilai daya terima (Prx) dengan persamaan :

$Prx = Ptx - \alpha_{total}$

- $Prx = Ptx - \alpha_{total}$
- $Prx = 3\ dBm - 26{,}946\ dB$
- $Prx = -23{,}946\ dBm$

Setelah didapat nilai daya penerima (Prx) maka akan dilakukan perhitungan safety margin dengan persamaan

- M = (Ptx – Prx) - α total – SM

- M = (3 − (−28) − 26,946 − 3)
- M = 2,946 Db

Perhitungan Power link budget Pre-Connection ODN

OLT to FDT

- $a_{total} = L.a_{serat} + Nc.a_c + Ns.a_s + Sp$ 1:2
- $a_{total} = (1{,}707$ X $0{,}35) + (2$ X $0{,}15) + (0{,}35) + (3{,}6)$
- $a_{total} = (0{,}59745)+(0{,}3)+(0{,}35)+(3{,}6)$
- $a_{total} = 4{,}847$ dB

FDT to FAT

- $a_{total} = L.a_{serat} + Nc.a_c + Ns.a_s + Sp$ 1:2+ Sp 1:9
- $a_{total} = (0{,}0291$ X $0{,}35) + (2$X $0{,}21) + 0{,}35 + 3{,}6 + 15{,}6$
- $a_{total} = 0{,}010185 + 0{,}42 + 0{,}35 + 3{,}6 + 15{,}6$
- $a_{total} = 19{,}980185$ dB

Redaman Total

$a_{total} = (\alpha_{feeder\ to\ FDT}) + (\alpha_{FDT\ to\ FAT})$

$a_{total} = (4{,}847) + (19{,}980185)$

$a_{total} = 24{,}827185$ dB

Selanjutnya akan dilakukan perhitungan nilai daya terima (Prx) dengan persamaan :

$Prx = Ptx - \alpha_{total}$

- $Prx = Ptx - \alpha_{total}$
- $Prx = 3\ dBm - 24{,}827185 dB$
- Prx $= -21{,}827185\ dBm$

Setelah didapat nilai daya penerima (Prx) maka akan dilakukan perhitungan safety margin dengan persamaan

- M = (Ptx – Prx) - α total – SM
- M = ($3 - (-28) - 24{,}827185 - 3$)
- M = 3,172815 dB

Perhitungan IRR CASCADING

$$IRR = 6 + (\frac{117{,}873{,}066}{117{,}873{,}066 + 1{,}479{,}368} x\ 22 - 6)$$

$$IRR = 6 + (0{,}592x\ 16)$$

Perhitungan IRR Pre-Connection ODN

$$IRR = 6 + (\frac{312{,}938{,}087}{312{,}938{,}087 + 837{,}403} x\ 37 - 6)$$

$$IRR = 6 + (0{,}997x\ 31)$$

Perhitungan 20% Home Connect + Profit Sharing

- Cascading

Homepass	95
Harga layanan internet/ Bulan	Rp. 295,190
Total Revenue/ Bulan	Rp. 28,043,050

$$Home\ Connect = Total\ Revenue/Bulan\ X\ 20\%$$

$$Home\ Connect = 28{,}043{,}050\ X\ 20\%$$

$$Home\ Connect = Rp.5{,}608{,}610$$

Maka, keuntungan home connect adalah Rp. 5,608,610

Dengan profit sharing homepass seharga 150.000 maka,

$$Profit\ Sharing = 150.000\ X\ 95$$

$$Profit\ Sharing = Rp, 14{,}250{,}000$$

20% Home Connect + Profit Sharing = Rp. 14,250,000 + Rp. 5,608,610

= **Rp. 19,858,610**

- Pre-Connection ODN

Homepass	95
Harga layanan internet/ Bulan	Rp. 315,000
Total Revenue/ Bulan	Rp. 29,925,000

$$Home\ Connect = Total\ Revenue/Bulan\ X\ 20\%$$

$$Home\ Connect = 29{,}925{,}000\ X\ 20\%$$

$$Home\ Connect = Rp. 5{,}985{,}000$$

Maka, keuntungan home connect adalah Rp. 5,985,000

Dengan profit sharing homepass seharga 170.000 maka,

$$Profit\ Sharing = 170.000\ X\ 95$$

$$Profit\ Sharing = Rp, 16{,}250{,}000$$

20% Home Connect + Profit Sharing = Rp. 16,250,000 + Rp. 5,985,000

= **Rp. 22,235,000**

Payback Period

Cascading

$$Payback\ Period = Tahun\ Payback + (Net\ cash\ flow/\ cumulatif\ cash\ flow)$$

$$Payback\ Period = 2 + (\ 94{,}672{,}182\ /\ 60{,}886{,}886.54\ )$$

$$Payback\ Period = 2\ tahun\ 6\ bulan$$

Pre-Connection

$$Payback\ Period = \ Tahun\ Payback\ + \ (Net\ cash\ flow/\ cumulatif\ cash\ flow)$$

$$Payback\ Period = 1\ +\ (\ 149{,}072{,}319\ /\ 82{,}156{,}954\ )$$

$$Payback\ Period = 1\ tahun\ 5\ bulan$$