

## ABSTRACT

Facing the third era millennium, all organizer of Indonesia telecommunications have committed to support process of national development through prepare a fluent and rely on information tool and infrastructure also the telecommunications system which can coverage Indonesian region. So to overcome limitation and improve mainstay of system, it have been developed technology that is *Synchronous Digital Hierarchy* (SDH) which capable to overcome previous technology insufficiency that is PDH. SDH Transmission represent a synchronize way/standart to transmit digital signal. Synchronize transmission mean transmitter and receiver have same timing condition. For this matter between transmitter and receiver must be always in a synchronize condition , in order to always in the synchronize condition need to taken care of timing difference between transmitter and receiver.

At this final duty conducted a planning of submarine cable communication system Link Balikpapan-Palu which representing configuraton of point to point network using single mode fiber optic with 1550 nm wavelength. The format of transmittion signal is NRZ with Laser Diode (LD) as the optical source and Avalanche Photodiode (APD) as the detector. This network using two kind of cable, which is land cable and submarine cable. The type of used land cable is direct buried cable, mean while in the sea used 2 type of cable which is *Single Armoured Cable* (SAC) dan *Double Armoured Cable* (DAC). This planning also need 2 piece EDFA (G= 33 dB) and it also 4 core EDFA, 24 piece ADM-1 (the other 8 as a reserve) and 2 piece ADM-16, PFE as a power feeding equipment with maximum voltage 0,6 Kvolt.