

297. AN ATTEMPT TO DEVELOP A MULTIPLEXER UNIT WITH REDUNDANCY FOR OPTICAL COMMUNICATIONS

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The explosive growth in data communications has stimulated the development of optical systems for high channel capacity and high bandwidth. Today almost all voice & data traffic is routed through terrestrial and submarine optical fiber link. Practically in all kind of communication system, more or less losses are involved. To make the system more efficient, it is needed to identify and trace the faults & losses so that suitable techniques can be implemented to eliminate or reduce the losses. In optical fiber communication, optical time domain reflectometry (OTDR) is a commonly used technique for characterization and fault location of optical fiber transmission systems. It involves measuring the fraction of a probe pulse that is scattered back (by Rayleigh scattering) from a silica fiber. Because of the very small levels of backscatter in single-mode fiber at long wavelengths, very sensitive optical detection is necessary to achieve adequate range performance. This paper presents a proposed work of implementing a lossless transmission through optical fiber by providing a redundancy mechanism. If there is any fault detection occurs, the data transmission is assumed by the redundant circuit (backup) and starts sending copies of the signal. There are two likely scenarios, either the transmit link fault or the receive link fault could trigger the redundant link. Thereby the data will not be lost and the communication link becomes more efficient.