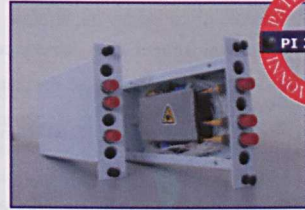


Fiber Optic Duplexer Module (FDM)

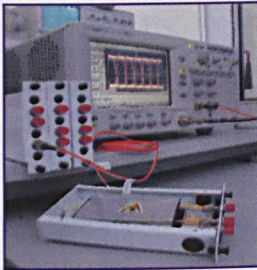


Telecommunications and Internet Service Providers, the content developers, and the ICT end-customers are always looking for ways to increase the communication system bandwidth in order to satisfy the ever-increasing demand. In the big cities and metropolitan areas, fiber optics installed only several years back are used to its full capacity. Therefore, new fiber have to be constantly installed, but at a very high cost. Thus, a new but simple way of solving this problem is desirable and is introduced by UPM. Fiber Duplexer Module (FDM) is a totally passive optical device capable of doubling fiber utilization. It converts fiber optics simplex transmission mode (one fiber in each direction) into full duplex transmission (bi-directional transmission in a fiber). Thus using only a single fiber core per link instead of two cores in the existing systems. This is achieved without wavelength conversions, optical-electrical conversion and without power supplies.

Award Winner



Fiber Duplexer Module (FDM)



FDM installed in the existing networks

This device comes with some special features. Totally passive components used to develop FDM make this device transparent of bit rate, transmission format and network architecture. It is a plug-and-play device that can be installed in less than five minutes without requiring any high skill personnel. All the features mentioned make FDM very flexible to support a single fiber bi-directional transmission with no maintenance required. FDM can support up to 70 km fiber distance. This is a fiber optics typical transmission distance without amplifier. The quality of the data is maintained at zero Bit Error Rate (BER) at up to 2.5 Gbps (STM-16) transmission rate as successfully tested at Telekom Malaysia Testbed.

The main advantage of FDM is that it could be installed in the existing networks without interfering with the communication equipment. The existing fibers that are used to support simplex transmission could now support full duplex transmission without any modification to the equipments involved. This capability gives advantage to most system users, especially lease line companies, where maximum fiber utilization has become among their main objectives.

By doubling the fiber utilization, more bandwidth is suddenly available, thus the service providers could offer more applications to the customers. This could benefit the telecommunication companies in the country such as Telekom Malaysia, Maxis, Time dot Com, and MIMOS. The bandwidth increment leads to the increment in the number of customers and the applications. FDM also enables the use of some of the fiber cores as the back-up or protection channels at no additional cost.

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FDM basically could support fiber optics LAN, SONET/SDH System and DWDM System and transparent to protocols such as ATM, FDDI and IP.

The product has won several medals and is patent-pending under Malaysian Patent registration number PI 20030426.

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