

BENCHMARK

OFS
WDM&CD

Wavelength Division Multiplexing & Chromatic dispersion

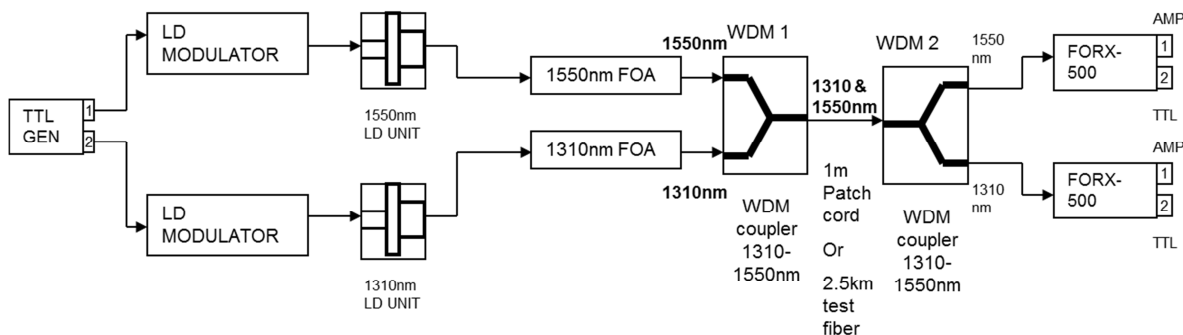


Wavelength-division Multiplexing (WDM) is a method by which several wavelengths of light are carried in a single optical fiber. This allows for a multiplication in capacity, in addition to making it possible to perform bidirectional communication. Several Gbps signals are combined using WDM technique to utilize the vast bandwidth of fiber which is essential to meet the ever growing demand of communication.

Chromatic dispersion results from variation in the propagation delay with wavelength and is depending on the fiber material and dimension. Chromatic dispersion occurs due to the dependence of the velocity of light on the optical frequency when light propagates through the fiber. Different wavelength of light propagates at different velocity in a given medium whose effective index of refraction (n_{eff}) varies with respect to the wavelength of light. The first derivative of this delay versus wavelength is the chromatic dispersion value typically specified for fiber.

Benchmark WDM & CD teaches the characteristics of the key components used for WDM and CD study. It teaches the concept of wavelength division multiplexing and Chromatic dispersion measurement of single mode fiber. The study of the response of the photo detector at the receiver for the multiplexed wavelength gives a clear understanding of how the lights of two different wavelengths are combined in the fiber. The

setup includes a signal generator which gives out two identical signals having a fixed delay between them to facilitate better observation of WDM concept. The knowledge of chromatic dispersion is essential for students while designing high speed fiber optic communication system with dispersion compensation.



Chromatic dispersion measurement setup

List of Topics

- Study of characteristics of Laser diodes
- Measurement of isolation and insertion loss of WDM coupler
- Study of WDM concept
- WDM – End to END operation
- Study of Chromatic Dispersion effect



Photo-detector response of multiplexed wavelength

List of Items

LD Modulator - FOTX-610	2
1310&1550nm LD Unit - FOSM-U900 & FOSM-U1000	1 each
Receiver - FORX-500	2
LD Driver - FOSM-D600	1
WDM Coupler - WTS-WDMV1.0	2
Fixed Attenuators - 1310nm & 1550nm WTS-FA-1310V1.0 & WTS-FA-1550V1.0	1 each
TTL Generator - TTL GENV1.0	1

Ordering Information

Benchmark WDM & CD Training System

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BENCHMARK

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