CAD tool for DWDM Network Routing and Restoration

Project Group: WA1-02
Final Year Project 2002-2003
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In the previous year, a group of two FYP students have developed a simple CAD tool for modeling power and dispersion budget in optical networks that included a variety of components and devices. This tool is based on a publicly available graphical-programming language known as *Ptolemy*.

In order to improve and extend the functions of the CAD tool, we develop in our project a user-friendly graphical tool, based on *PtolemyII*, for optical network management and network model simulation.

In this project, we improved the CAD tool so it has better network management functions. Originally, we implemented the CAD tool with modeling the Dense wavelength division multiplexing (DWDM) optical network in mind. DWDM is used mainly in the long-haul space. Its application is to help long-distance carriers deal with fiber exhaust between cities.

Later on in the project, we decided to simulate an optical network for Hong Kong, and shifted our focus to metropolitan networks where the Coarse Wavelength Division Multiplexing (CWDM) technology is more suitable economically.
Implement Hong Kong Optical Network

Implement Hong Kong optical network using optical component libraries in Graph Editor of Vergil

Manage HK optical network in management interface

Run Simulation inside Vergil

Build optical network using optical component libraries in Graph Editor of Vergil.

Edit or build new optical network

Input Characteristic Curve with Matlab

Execute simulation in management interface
The interface of the “Configure” which allows users to configure the parameters of the network model.

Simulation Result in Node 1.