

ABSTRACT

Optical fiber communication systems in present day have a lot of used for analog or digital communication benefit because level of capacities capable to be provided by this optic fibre cable. This time in our country has emerge many optical fiber network star from cross city until cross between country. But it doesn't meaning that nothing problem in provide optical fiber network because if this cable more length then the performance will decrease or used to know as degradation of optical fiber that usually cause of attenuation and dispersion.

These final projects develop how to reduce one of degradation of fiber optic dispersion. The alternative solution used is by using dispersion compensating fiber (DCF). Dispersion compensation fiber is designed to provide very large negative dispersion to compensate for the accumulated dispersion over the length. Optical fibers designed for use at 1330 *nm* wavelength have lower fiber dispersion at this wavelength. However, such fibers at 1550 *nm* have lower fiber attenuation at this wavelength.

To get a very large negative dispersion with triple cladding fiber is with manipulating all parameter that build triple cladding fiber it self. And the parameter are refractive index core and cladding and of course radius of core and cladding it self. The result from this final project gets a fiber that achieve -195,6 (ps/nm.Km) dispersion and single mode in range wavelengths 1.53 μm - 1.58 μm .

Key word: dispersion, triple cladding, single mode, 1550 nm wavelength.