Ministry of Higher Education

And Scientific Research

University of Diyala

College of Engineering

Communication Engineering Department



Design of optical switch in one optical Communication system

A Project
Submitted to the Department of Communication
University of Diyala-College of Engineering in partial Fulfillment of the Requirement for the Degree of Bachelor in Communication Engineering

By

Mamoon Ahmed Mohee
Amjed Hamza Ali
Ali Habeeb Hameed
Fatima Salah Al-deen Abd Al-fattah

Supervised by

Asst.Lec.

MSc. Sadeq Adnan MSc. Ahmed Sulyman

2013م

Abstract:

هذا مي الرفيد

This project present a mathematical model is established to show the (wavelength, distance between two branches, difference refractive index, length of branch, phase difference voltage) effect on the efficiency of the optical switch by using matlab simulations. Additionally, it can be use the variables values for the (wavelength, distance between two branches, difference refractive index, length of branch, phase difference voltage) under the condition to the value of voltage of the optical switch.

to be improved, this model leads to enhancement the performance of optical modulator.

References:

- [1] J.M senior(1992)."Optial Fiber Communication: Principle and Practice."2nd edition. U.K: Prentic Hall
- [2] Jinguji, K., N. Takato, A. Sugita, and M. Kawachi, "Mach-zehnder Interferometer, Type Optical Waveguide Coupler With Wavelenth-falttened Coupling Ratio." Electron. Lett., Vol. 26, 1990, p. 1326.
- [3] Gerd Keiser(2000). "Optical Fiber Communication." 3rd ed. USA:McGraw-Hill
- [4] Yasuhiro Matsui, Hitoshi Murai, Shin Arahira, Satoko Kutsuzawa, and Yoh Ogawa, "30-GHz bandwidth 1.55-μm strain-compensated InGaAlAs-InGaAsP MQW laser," IEEE Photon. Technol. Lett., vol. 9, no. 1, pp. 25–27, Jan. 1997.
- [5] I.F. Lealman, M. Bagley, D.M. Cooper, N. Fletcher, M. Harlow, S.D. Perrin, R.H. Walling, and L.D. Westbrook, "Wide bandwidth multiple quantum well 1.55 μm lasers," Electron. Lett., vol. 27, no. 13, pp. 1191–1193, June 1991.
- [6] K. Hagimoto, M. Yoneyama, A. Sano, A. Hirano, T. Kataoka, T. Otsuji, K. Sato, and K. Noguchi, "Limitations and challenges of single-carrier full 40-Gbit/s repeater system based on optical equalization and new circuit design," OSA OFC'97, Dallas, TX, pp. 242-243, 1997.
- [7] J.E. Bowers, "High speed semiconductor laser design and performance," Solid-State Electronics, vol. 30, no. 1, pp. 1–11, Jan. 1985.
- [8] M. Smit, "New focusing and dispersive planar component based on an optical phased array" Electron. Lett., vol. 24, no. 7, pp. 385–386, 1988.
- [9] Raymond L. Tricker, "Optoelectronic Line Transmission", Heinemann Newnes, Oxford, 1989.
- [10] Kam Y. Lau and Amnon Yariv, "Ultra-high speed semiconductor lasers," IEEE J. Quantum Electron., vol. 21, no. 2, pp. 121–138, Feb. 1985.