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Design of High Speed Optical Switches

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Abstract - It has been observed from literature that traditional optical networks are gradually envolving towards intelligent optical networks due to the need for faster bandwith provisioning, protection and restoration of the network, which can be accomplished with devices like optical switches , add drop mutiplexer and cross connects. Since dense wavelength multiplexing forms the physical layer for intelligent optical networking, the roll of high speed all optical switches is important In this paper we analyze , model and design ultra-high speed optical switches which can be used in intelligent optical networks. This paper discusses the results of the 2x2 optical switches based on optical waveguide grating directional couplers. Results are presented for the various critical parameters on the performance of the 2x2 optical switches based on rectangular , triangular and trapezoidal waveguide grating profiles. The optimized waveguide structural parameters for high speed 2x2 optical switch which forms the building block for large scale OXCs is been presented.