

ULTRA HIGH SPEED LiNbO₃ AND POLYMER ELECTROOPTIC MODULATORS IN LIGHTWAVE OPTICAL ACCESS COMMUNICATION NETWORKS

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ABSTRACT

In the present paper, we have been modeled parametrically and numerically the high speed of materials based electrooptic (EO) modulators in advanced optical communication systems. The modulated bandwidth is deeply and parametrically studied over wide ranges of the affecting sets of parameters via specially designed software which processes the interaction of causes and effects. The design parameters of the lumped circuit have been processed over large operating requirements. Lithium niobate (LiNbO₃) external modulators can also offer pure phase modulation in coherent systems and can realize various optical signal processors. As the bit rate of optical network systems becomes higher, it becomes more difficult to drive a modulator with a high voltage. Therefore, reduction of the driving voltage of LiNbO₃ modulator with a broadband characteristic is an extremely important issue for realizing future high speed optical transmission systems. Moreover polymer electrooptic devices have been extensively studied and explored due to its intrinsic advantages over conventional materials such as high speed operation, compatibility with other materials and substrates.

KEY WORDS: *Electrooptic devices, electrooptic modulation, optical polymers, Lithium niobat, slab and rib waveguides.*