Abstracts

Time domain optical response of electro-optic modulator using FDTD (2001 Vol. II [MWSYM])

M.M. Tomeh, S. Goasguen and S.M. El-Ghazaly. "Time domain optical response of electro-optic modulator using FDTD (2001 Vol. II [MWSYM])." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 1049-1052 vol.2.

We perform a time domain analysis of a LiNbO/sub 3/ electro-optic modulator using the finite difference time domain (FDTD) technique. This allows us to obtain the optical modulation and the time domain optical response of an electro-optic modulator. The electromagnetic fields computed by FDTD are coupled to standard electro-optic relations that characterize electo-optic interactions inside the embedded Ti diffused LiNbO/sub 3/ optical waveguides. The change in index of refraction inside these optical waveguides is determined in time, allowing for the simulation of optical intensity modulation. This novel approach to LiNbO/sub 3/ electrooptic modulators using a coupled FDTD technique allows for previously unattainable investigations into device operating bandwidth and data transmission speed.

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