

ABSTRACT

Radio-over-Fiber (RoF) technology is an integration between radio communication and fiber optic communication. Therefore an optical modulator is needed to convert radio signals into optical signals.

This final project designed optical modulator with structure coplanar stripline (CPS) at a frequency of 10 GHz. Electro-optic effect used to design this optical modulator is a linear electro-optic effect. The method used is pure science research because the results are not applied directly to the RoF technology. Once the design is done by varying the value of physical variables to produce specifications working frequency of 10 GHz, the input impedance of 50Ω and the return loss that can be tolerated is -10 dB. In the last stage, analyzing the physical variables that affect the working frequency parameter and return loss and link it to support the theory.

Based on the simulation results, obtained structure CPS 4×1 array corresponding to an optical modulator used in the technology of Radio-over-Fiber. The simulation results have value ≤ -10 dB return loss at specified frequency of 10 GHz. Maximum return loss results in this simulation is -50.6 dB.

Keywords: *optical modulator, RoF, coplanar stripline, electrooptic, return loss, array*