

Template of presentation slides

InP-Based Mach-Zehnder Modulator Integrated with Planar Antenna

Title: 24 point, bold

Presenter underlined

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16 point*

Abstract

Millimeter-wave (MMW) has attracted much attention for its application to high resolution radar, remote sensing, broadband wireless communications. The radio-over-fiber (RoF) system is effective for MMW signal transmission since it enables us to transfer and to relay MMW signals over low-loss silica optical fiber. We proposed an InP-based Mach-Zehnder modulator (MZM) integrated with planar antennas for 60-GHz-band RoF systems. The device is driven by an electric field induced from the planar antenna when MMW signals are received. Compared to conventional planar-antenna-integrated phase modulators based on lithium niobate or nonlinear polymers, the proposed device length is very small of less than 3 mm and its driving power of 50 W/m² is comparable to them.

Abstract: 100-150 words, 16 point

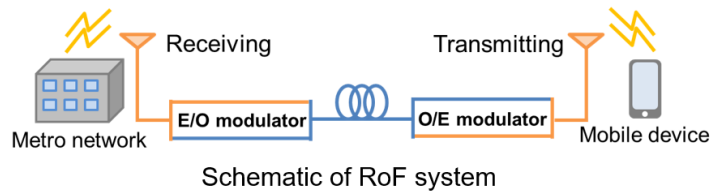
These two-page slides are printed in one A4 page as a poster, and published in Symposium Abstracts, as shown in Poster Example.

Introduction

Radio-over-fiber (RoF) technology

Transferring and relaying MMB signals over low-loss silica fibers

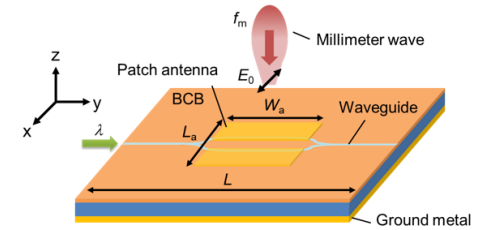
➔ **Electro-optic (EO) modulator** is essential as converter



Mach-Zehnder modulator with planar antenna

Proposed device

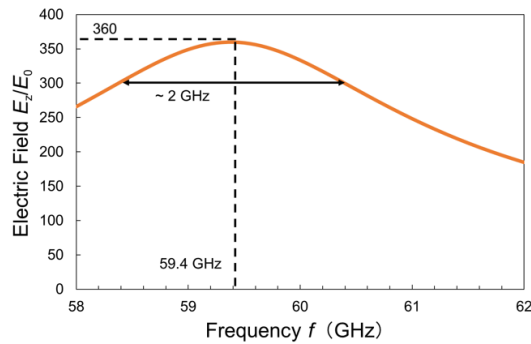
Device structure



- Gap embedded patch antenna is adopted as planar one
- Semi-insulating InP (Fe doped InP: Fe-InP)

Results and Discussion

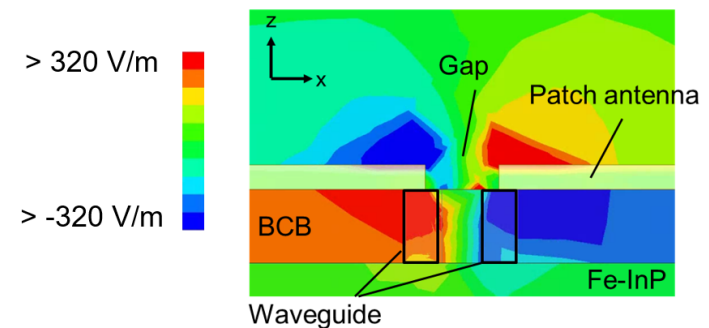
Antenna characteristics



Resonance characteristics

- Applied electric field was 360 times larger compared to input one
- As gap gets larger, peak frequency shifts to shorter wavelength

Electric field distribution of proposed device



Field distribution in modulator

- Z-component of electric field was induced in gap
- The field was uniformly applied to entire waveguide