Liquid Crystal-Based Tunable Dimmable Attenuator



Overview

This article introduces a novel design for a tunable millimeter-wave (MMW) attenuator utilizing liquid crystal (LC) material. Liquid opens up a new stage of device tunability and gradually replaced solid-state devices and mechanical tuning. It optimizes the control method and improves the dynamic range of many optical devices, exhibiting several attractive features, such as rapid prototyping, miniaturization, easy. Purpose : Tunable attenuators may play an important role in treatment of amblyopia, smart sunglass, head-mounted displays, and various ophthalmic imaging systems. Photochromic materials are slow as it takes a couple minutes to change the transmission from bright to dark conditions. Electronically Controlled Birefringence (ECB) Mode: Versatile tunable retarder.

Article Content

A Liquid Crystal-Based Tunable Millimeter-Wave Attenuator Design

This article introduces a novel design for a tunable millimeter-wave (MMW) attenuator utilizing liquid crystal (LC) material. The design features a microstrip transmission line integrated with multiple,

Recent Development of Tunable Optical Devices Based on Liquid

Here, we review the tunable liquid devices, including isotropic liquid and anisotropic liquid crystal devices.

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Low-voltage, high-contrast ratio, broadband tunable attenuator based

Last year we reported a tunable liquid crystal (LC) attenuator with unprecedented contrast ratio (> 200) and fast response (200 milliseconds). It is also critical to maintain the operation voltages below the

Low threshold optical attenuator based on electrically tunable liquid ...

A polymer core planar waveguide-based electro-optic attenuator with 5CB LC as upper cladding layer has been designed and fabricated on ITO coated glass substrates.

Review: electrically tunable and adaptive antennas using liquid ...

Liquid crystals (LCs) have developed from pure electro-optic (E-O) display materials towards the functional media for reconfigurable microwave and millimetre wave (MMW) antenna

Low threshold optical attenuator based on electrically tunable liquid ...

We propose a multimode planar waveguide with polymer core of negative photoresist AZ15nXT with an upper cladding of electrically tunable 4-cyano-4''-pentylbiphenyl (5CB) nematic

Liquid Crystals – Bolder Vision Optik

Precision liquid crystal components can be custom designed to meet customer specifications. Small and large lot sizes targeted for OEM developers and optical

Recent Development of Tunable Optical Devices Based on Liquid

The advantage makes optical devices widely used in imaging, optical control, telecommunications, autopilot and lab-on-a-chip. Here, we review the tunable liquid devices,

Low-voltage, high-contrast ratio, broadband tunable attenuator based

Conclusions : A low-voltage, high-contrast ratio, broadband tunable attenuator based on liquid crystal materials has been achieved. It is promising for many ophthalmic applications, including treatment of

tunable SIW filter fabricated in LTCC technology

Abstract Tunable microwave devices will play an important role in future wireless systems, in which high-frequency bands, e.g. millimeter waves, will become promising, due to its huge spectrum availability.

Liquid-crystal-based amplitude tuner and tunable SIW

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Liquid-Crystal-Based Controllable Attenuators

Liquid-Crystal-Based Controllable Attenuators Operating in the 1–4 T erahertz Band Aniela Dunn, Zhaopeng Zhang, Michael D. Horbury, Eleanor V.

A Liquid Crystal-Based Tunable Millimeter-Wave Attenuator Design

Based on the LC display (LCD) process, each element comprises a wideband coupling switch and an indium tin oxide (ITO) film that acts as a wave absorber. Notably, the permittivity of the LC is

A Liquid Crystal-Based Tunable Millimeter-Wave Attenuator Design

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Electrically tunable liquid crystal waveguide attenuators

Abstract: The attenuator for the wavelength at 1550 nm is fabricated by using the capillary effect to infiltrate liquid crystal (LC) E7 into hollow waveguides (HWGs) on silicon substrate with SiO2 ...

[2306.07665] Liquid-Crystal-Based Controllable Attenuators Operating

Liquid-crystal devices (LCDs) offer a potential route toward adaptive optical components for use in the < 2 THz band of the electromagnetic spectrum. We demonstrate LCDs using a commercially available

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