

Findings-

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Name of Topic- "DESIGN OF MICROSTRIP PATCH ANTENNA BY IMPROVING THE PERFORMANCE PARAMETERS WITH EBG STRUCTURES"

Keywords-microstrip patch antenna, electromagnetic band-gap, dual band, ultra wave band, milli meter wave band, linear polarization, circular polarization

Microstrip patch antennas offer several advantages, including cost-effective construction, simplicity, lightweight design, and suitability for array antennas, and compatibility with both planar and non-planar surfaces. One particularly intriguing and innovative avenue of exploration in microstrip patch antenna (MPA) research is the incorporation of Electromagnetic Band Gap (EBG) layer for improving its performance properties. A key advantage of EBG layers lies in their capability to mitigate the influence of surface surge effects. This research study explore on the incorporation of EBG configurations with a patch antenna, focussing on investigating and improving of its performance properties such as peak gain, impedance bandwidth, and radiation efficiency for dual band/dual band circularly polarized operation. Exploring various distinct innovative configurations of EBG structures is undertaken to devise patch antennas with achieving of dual-band, ultra wideband and milli-meter wave bands. This study also focuses on achieving of single/dual sense circular polarization in dual-band behaviour. A sum of seven different designs are created, with six of them are manufactured and examined for the authentication of the software simulation results. All the seven designs employs innovative EBG structures as well as innovative patch antennas for its performance characteristic in dual band, ultra-wide band and milli-meter bands characteristics,