

Tri-band Dual-polarized Omnidirectional Antenna



Communications & Information

Consumer Electronics

Digital Broadcasting, Telecommunication and Optoelectronics

Opportunity

The current practice of using monopole antennas, which possess only a single linear polarization, or existing dual-polarized omnidirectional antenna designs, which require additional antennas for broad coverage, have limitations in providing stable, expansive signal coverage across all Wi-Fi 6 frequencies (2.4, 5.2, 5.8 GHz). Moreover, designing compact-sized omnidirectional dual-polarized antennas capable of sustaining these frequencies is a significant challenge in today's consumer router market. The opportunity lies in creating a robust, all-encompassing single antenna that can cover all three Wi-Fi bands simultaneously without compromising the size of the consumer router.

Technology

This invention is a tri-band omnidirectional dual-polarized antenna which encompasses a dielectric resonator and two feeding circuits sandwiching the resonator. Each feeding circuit is responsible for creating either vertical or horizontal polarizations across all three Wi-Fi bands making the design compact. This single antenna can cover all three frequency bands (2.4, 5.2, and 5.8 GHz) concurrently, eliminating the need for extra antennas. The design provides improved stability and enhanced signal coverage over the Wi-Fi 6 technology.

Advantages

- Single antenna for all three Wi-Fi bands, reducing the need for additional antennas
- Creates both vertical and horizontal polarizations, increasing stability and signal coverage
- Compact design suitable for consumer routers
- Greater performance in Wi-Fi 6 technology
- Minimizes signal interferences and maximizes signal strength

Applications

- Use in advanced wireless routers utilizing Wi-Fi 6 technology
- Application in enterprise-level networking hardware for better signal stability

IP Status

Patent granted

Technology Readiness
Level (TRL) ?

5

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- Potentially in wireless network infrastructure for IoT devices
- Application in personal computing devices for enhanced Wi-Fi capability
- Use in public Wi-Fi hotspots to improve signal coverage and strength

