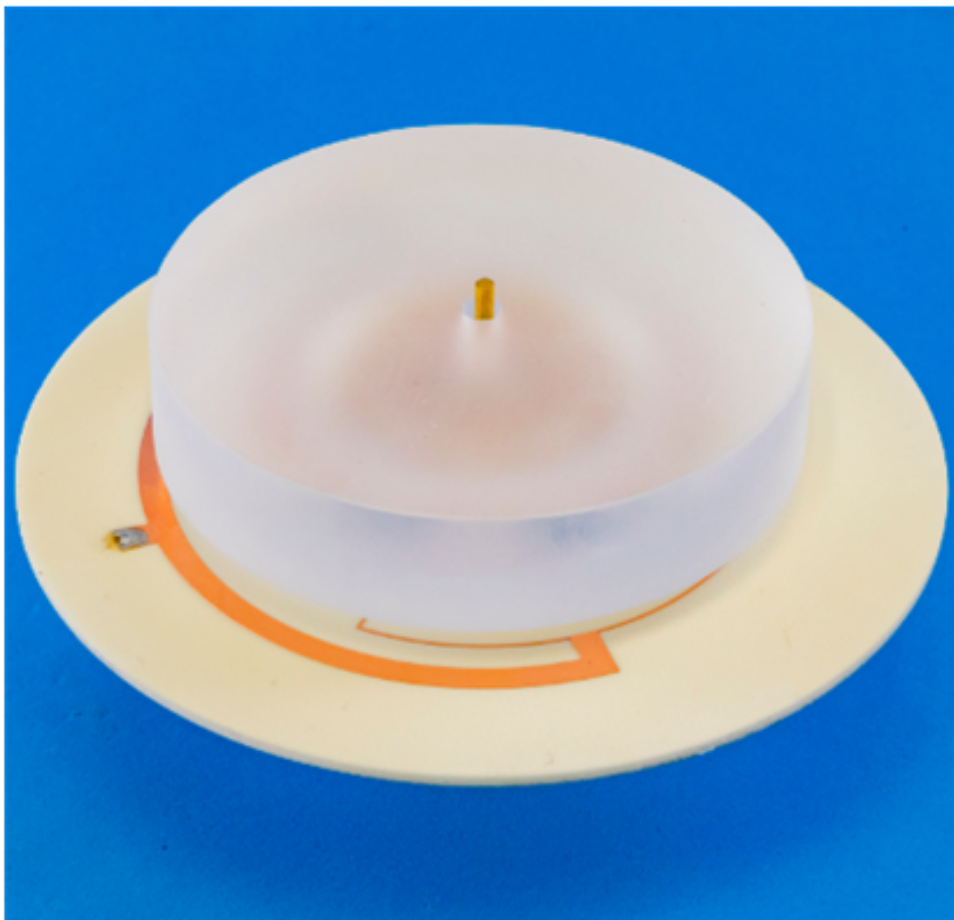
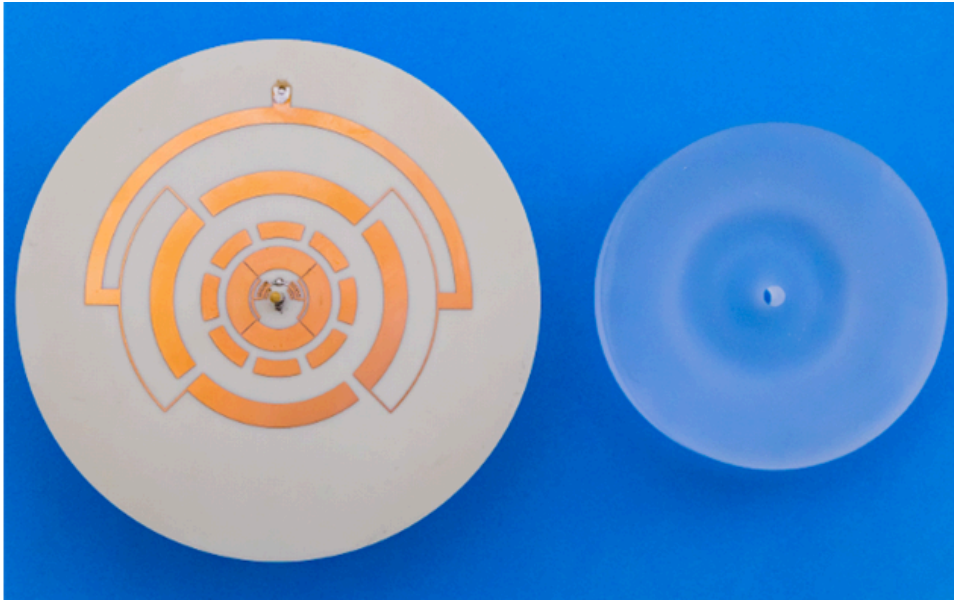


TRI-FREQUENCY MULTI-POLARISATION OMNIDIRECTIONAL ANTENNA

Communications & Information

Consumer Electronics



IP Status

Patent filed



Technology Readiness
Level (TRL)

7

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Funding

Develop
concept

Proof
Concept

Build Value

Opportunity

Currently, antenna technology is unable to provide simultaneous coverage across multiple frequency bands and polarizations using a single device. Existing solutions typically require multiple antennas—an approach that complicates installation, increases cost, and reduces efficiency in space utilization. As a result, there is a growing demand for more versatile antennas, particularly for important everyday applications such as Wi-Fi, whose coverage is improved when a plurality of both frequencies and polarizations is used. The invention will help to meet this demand by introducing a tri-frequency multi-polarization omnidirectional antenna that integrates various frequencies and polarizations into a single device.

Technology

The novel technology is a tri-frequency multi-polarization omnidirectional antenna. It consists of a single substrate on which several curved metal loops are arranged, with each loop designed to work at a different frequency. These loops are specifically shaped to enhance signal reception and transmission of horizontal polarization. A cylindrical dielectric resonator is also part of the design. A probe that extends through the resonator allows it to handle signals of vertical polarization. This means that the antenna can effectively transmit and receive signals at three frequency bands, specifically 2.4 GHz, 5.2 GHz, and 5.8 GHz bands. As a result, the technology has the potential to improve Wi-Fi coverage by handling multiple types of signals simultaneously without requiring multiple antennas.

Advantages

- The novel antenna can operate at three frequency bands (2.4 GHz, 5.2 GHz, and 5.8 GHz) simultaneously, enhancing versatility in communication without needing multiple antennas.
- The antenna supports both vertically and horizontally polarized signals, which improves signal clarity and reception quality.
- The integration of loops and a dielectric resonator on a single substrate removes the need for multiple devices, thus saving space and simplifying installation.
- Combining multiple frequencies and polarizations in a single antenna improves WiFi coverage.

Applications

- Telecommunications companies, especially WiFi providers
- WiFi equipment manufacturers

