

Design of Broadband Miniaturized Microstrip Array Antenna with Circular Polarization for Use in Anti-GPS Systems

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Abstract

In this paper, a broadband miniaturized microstrip array antenna with circular polarization is proposed and designed for use in anti-GPS systems that has a single port. The working process is that first, a broadband antenna is designed to increase the bandwidth and the appropriate gain with circular polarization. Then, by designing a one-to-four divider whose output has a 90 degree phase difference and connecting it to four antennas that rotate 90 degrees to each other, a 2 by 2 array antenna is obtained. The distance of these antennas is designed so that the zero pattern is located at $+90^\circ$ and -90° angles to be resistant to GPS jammers. The results of the designed full-wave antenna are discussed and evaluated in this article. One of the uses of this antenna is to use it on drones that find their position through GPS.

Keywords: Microstrip antenna, circular polarization, wide band, GPS.

Highlights

- Miniaturized microstrip array antenna.
- Circularly polarized microstrip array antenna.
- The designed antenna is used in anti-GPS systems and has a single port.

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