

ABSTRACT

Wireless long-distance communication technology is often called Wireless Local Area Network (WLAN) or Wireless Fidelity (Wi-Fi), and in its application an antenna is a device used to access WiFi. Microstrip antenna is an antenna that is commonly used because it is very suitable for telecommunications equipment by considering the shape and size of the antenna. This study describes the design of a circular slotted array microstrip patch antenna with a Defect Ground Structure (DGS) at an operating frequency of 5.8 GHz for Wi-Fi applications. FR-4 is the type of substrate used in this study with a relative permittivity (ϵ_r) = 4.3 with a substrate thickness (h) = 1.6 mm. The feeding technique applied is direct feeding using microstrip line feeding. To increase the bandwidth and increase the gain, the antennas are placed in additional arrays and slots, arranged according to the DGS scheme. Antenna parameters analyzed are return loss value -10 dB, VSWR 2, bandwidth and gain value. The simulation results of a 2x1 array design with a board size of 40 mm x 73.85 mm and a radius of 9 mm produce a return loss value of -34.86 dB, VSWR 1.03, bandwidth 327 MHz, and operating gain value 5.346 dBi. frequency of 5.8 GHz.

Keywords: antenna, microstrip, array, slot, DGS, Gain, Bandwidth