ABSTRACT

The development of wireless communication technology continues to increase along with the need for more efficient, reliable, and high-capacity communication systems. One important aspect in a communication system is the antenna, which plays a role in transmitting and receiving electromagnetic signals with high efficiency. Microstrip antennas are one of the widely used solutions because of their compact size, light weight, and ability to be integrated with other electronic devices. The Yagi type microstrip antenna is one of the antenna configurations designed to increase gain by using a combination of reflector, driven, and director elements. This antenna has a more directional radiation pattern than conventional microstrip antennas, making it suitable for applications that require medium to long-distance communication with better efficiency. In this study, a Yagi microstrip antenna was developed that operates in the frequency range of 1.35–1.48 GHz. This range is used in various communication applications, including radar, navigation systems, and satellite communications. To achieve optimal performance, the antenna is fabricated using Rogers RT/duroid 5880 substrate with a dielectric constant of 4.4 which allows stable wave propagation and minimizes dielectric losses. Through simulation and measurement, this study aims to evaluate the antenna performance in terms of gain, return loss ($S11$), and directivity, and to ensure that the proposed design can be effectively used in communication applications at the targeted frequencies.

Keywords: *Antenna, Microstrip, Directivity, Gain, Yagi*