ABSTRACT

In today's digital world, the demand for rapid and efficient information exchange is constantly increasing. This is essential for the development of various applications and services. To address this need, the Institute of Electrical and Electronics Engineers (IEEE) introduced WI-FI *7. Representing the seventh generation of the 802.11 standard,* WI-FI *7 offers significant advancements over its predecessor,* WI-FI *6. Key improvements in* WI-FI *7 include a peak data rate of up to 46 gigabits per second (Gbps), a bandwith of 320 megahertz (MHz), 4K-QAM modulation, multi-link operation, and multi-resource units. These features are expected to fulfill the requirements of applications and services that demand low latency and high throughput, such as 8K A/V streaming, augmented reality (AR), virtual reality (VR), cloud gaming, Industry 4.0, tele-diagnosis, and remote operations. This research focuses on designing a rectangular microstrip patch antenna for seventh-generation* WI-FI *technology, capable of operating within the specified frequency bands. The study employs a log-periodic array and an inset feed technique. The log-periodic array method aims to create frequency bands, while the inset feed microstrip line technique aims to enhance bandwith, gain, return loss, and voltage standing wave ratio (VSWR) values. The research findings demonstrate that the simulation of a single element microstrip antenna and the log-periodic array successfully met all desired specifications, including operational frequencies at 2.4 GHz, 5 GHz, and 6 GHz, oomnidirectional radiation patterns, gain greater than 2 dBi, bandwith greater than 50 MHz, return loss less than -10 dB, and VSWR less than 2.*

Key word: Microstrip antenna, IEEE 802.11 be, multi band, WI-FI *7*