

ABSTRACT

Wireless Body Area Network technology or commonly abbreviated as WBAN is a technology that is a development of the PAN concept. This technology can see how human body tissue is integrated with the surrounding tissue. Capsule endoscopy is one of the WBAN technologies, which has the ability to record images in the human digestive tract, especially in the small intestine, so that doctors can more easily diagnose digestive diseases. The endoscopy capsule has supporting components such as LEDs, batteries, cameras and antennas. This antenna is useful for transmitting the results obtained when the capsule works in the human body.

After carrying out simulation work and measurements, the results were obtained in accordance with the specifications. From the simulation results, the simulation results obtained under normal conditions were VSWR 1,08, return loss -28,16 dB, gain 1,97 dBi. Simulation results in capsule conditions VSWR 1,455, return loss -14,57 dB, gain 1,87. Simulation results for phantom conditions VSWR 1,2, return loss -18,46 dB, gain -35 dBi. After carrying out the simulation, antenna realization and antenna measurements are carried out. Antenna measurement results under normal conditions VSWR 1,47, return loss -14 dB. Antenna measurement results for capsule condition VSWR 1,57, return loss -13 dB. Antenna measurement results in phantom condition VSWR 1,2, return loss -22,7 dB. Based on simulation and measurement results, the antenna can work well at the 5 GHz frequency.

Keywords: Microstrip Antenna, Wireless Capsule Endoscopy, Ultra Wideband.