ABSTRACT

Antenna becomes one of the important parts in wireless communication which acts as a sender and receiver that connects between two or more nodes. Antenna that can support Wireless Body Area Network (WBAN) applications must be light and easy to maintenance. This final project proposes an antenna with a rectangular patch of textile jeans with dielectric values of substrate 1.7, 1mm thickness, and tangent loss value of 0.025. The antenna is mounted on the surface of the body to support the application of Wireless Body Area Network (WBAN) at a frequency of 5.8 GHz with the technique of unification using feeding line method. From the simulation results, obtained bandwidth of 615 MHz and VSWR 1.1533 value that has met the initial antenna specification, the gain on the antenna simulation is 4.28 dB. From the result of measurement, got the bandwidth that has fulfilled the requirement of VSWR <1.6, that is 502 MHz, the gain of microstrip antenna is 3.86 dB with Specific Absorption Rate (SAR) is 0.53717 W/kg. The radiation patterns results of both simulation and measurement are unidirectional. The polarization result is an ellipse. Based on frequency, bandwidth, gain, SAR value and antenna dimension, this antenna can be used as an antenna for Wireless Body Area Network (WBAN) application.

Keyword: ***Wearable Antenna, Wireless Body Area Network (WBAN), Square Patch.***