

ABSTRACT

Telemedicine is an application of telecommunications technology in the health sector. This application uses wireless technology that requires a compatible antenna. In this study, the researcher tried to design an antenna, namely a wearable antenna. It is expected that this antenna will be very useful for telemedicine purposes, especially to make the process easier and comfortable. The textile wearable antenna technology enables the researcher to manufacture antennas using textile materials. The use of these textile materials is magnificent because of the characteristics and natures of the textile materials which are light, soft, and flexible.

In this study, the researcher has conducted several processes such as design, simulation, and realization of rectangular microstrip patch textiles with microstrip line feed. The process was carried out by using a substrate with fleece material, and then by using aluminum foil tape on the patch and groundplane. In this final project, the working frequency follows the Industrial, Scientific, and Medical (ISM) frequency of 2.45 GHz.

The textile antenna has dimensions of 83 mm x 68 mm. The results of the simulation conducted on the condition of off body generated a bandwidth of 65.9 MHz, S11 -32,414 dB and a gain of 7.38 dBi at a frequency of 2.45 GHz. On the other hand, on body gets a bandwidth of 67 MHz, S11 -23,836 dB and a gain of 7.97 dBi at a frequency of 2.45 GHz. The results of the measurement of off body conditions generated a bandwidth of 358 MHz, S11 of -23,241 dB and a gain of 6.953 dBi at a frequency of 2.45 GHz. Meanwhile, the on-body condition generated a bandwidth of 160 MHz, S11 of -20,218 dB and a gain of 6.093 dBi at 2.45 GHz frequency. The antenna radiation pattern obtained is unidirectional.

Kata Kunci: *Telemedicine, wearable antenna, aluminum foil tape, Textile Antenna*