

ABSTRACT

Telemedicine is one of the technologies used for long-distance health services with wireless communication in the human body. This final project is designing an antenna for telemedicine, namely a wearable antenna. Textile Patch Antenna is a wearable antenna with a textile material substrate. The selection of textile materials used is a good choice for telemedicine applications because it has a relatively small size, can be bent, and is comfortable to be used.

This final project is designing a rectangular microstrip antenna with a dual-band rectangular slot in the ISM range of 2.45 and 5.85 GHz with a feed-line. This antenna uses fleece textile material with a thickness of 2.5 mm and a permittivity value of 1.17.

The measurement at a frequency of 2.45 GHz in a normal condition generates a gain value of 6.01 dB, VSWR 1.2844, and a bandwidth of 160 MHz. For a frequency of 5.85 GHz, it generates a gain value of 5.45 dB, VSWR 1.3614, and a bandwidth of 230 MHz. Meanwhile, when the antenna is placed on the arm with a distance of 2 mm at a frequency of 2.45 GHz, it generates a gain value of 5.45 dB, VSWR 1.4550, and a bandwidth of 180 MHz. For 5.85 GHz, it generates a gain value of 5.11 dB, VSWR 1.5082, and a bandwidth of 260 MHz. The results of the polaradiation in a normal condition and on body are unidirectional. Overall, the antenna can work well and can be used for telemedical applications on frequencies of 2.45 GHz and 5.85 GHz, on Industrial, Scientific, and Medical (ISM).

Keywords: *Telemedicine, Microstrip Antenna, Wearable Antenna, Dual Band*