

ABSTRACT

Telemedicine is the use of telecommunication technology to conduct health services remotely. One component of the telemedical application is the antenna, currently widely developed wearable antenna technology that is expected to make it convenient for use by hospital patients and other users. Tekxtile Patch Antenna is a type of wearable antenna that uses textile material, the use of textile material is very good to be applied in the telemedical world because of the nature of light textile materials, soft and flexible. In this final project, designed a textile microstrip antenna with circular patch at 2.45 GHz Industrial Scientific and Medical (ISM) frequency using 4 layer of jeans fabric as substrate and copper tape as conductor material for patch and groundplane. For the technique of stripping using strip line method and using insert feed method for optimization the value of VSWR.

From the simulation results on normal condition obtained bandwidth of 101,50 MHz with VSWR 1.05 and gain of 7.28 dB. From the simulation result when approaching with phantom wrist obtained bandwidth of 95 MHz with value VSWR 1.13 and gain equal to 7.59 dB and SAR value equal to 0.76 W / kg at 1 mm distance from phantom. From the measurement results on the normal condition obtained bandwidth of 168 MHz with VSWR 1.40 and gain of 5.39 dB. From the measurement results when close to the wrist body part obtained bandwidth of 153 MHz with VSWR 1.50 and the gain of 5.03 dB and unidirectional radiation pattern. Based on the parameters generated the antenna can be used as an antenna for telemedical applications in the frequency of 2.45 GHz.

Keywords: Telemedicine, Textile Patch Antenna, Jeans, Phantom