

ABSTRACT

Telemedical technology is the use of technology to provide services to the public remotely. Ultra-Wideband (UWB) is a wireless technology developed to transfer data at rates over short distances with low power usage. Wearable antennas in Wireless Body Area Network communication are antennas that have advantages such as small size, lightweight, easy and inexpensive fabrication and also able to work in a fairly wide frequency. Wearable antennas also can be bent due to the flexible, lightweight, and comfortable substrate material for use in patient applications. In this final project, a wearable triangular patch antenna is designed at the Industrial, Scientific, Medical (ISM Band) 2.4 GHz frequency using Cordura Delinova 2000 textile as a substrate and copper tape as a conductor for the patch and ground plane. The feeding technique used is the mikrostrip line. To obtain ultra-wideband characteristics, the Defected Ground Structure technique is used.

From the simulation results carried out under normal conditions, a bandwidth of 1403.9 MHz is obtained with a VSWR value of 1.004 and a gain of 2.355 dBi. a simulation was performed using the Phantom value and then the hand obtained a bandwidth of 1354.1 MHz VSWR 1.36, gain 7.35 dBi, SAR 0.4 W/Kg at a distance of 30 mm from the Phantom. From the measurements made under normal conditions, the bandwidth is 684.3 MHz with a VSWR value of 1.1045 MHz and a gain of 2.01 dBi. a simulation is performed using Phantom then hand obtained a bandwidth of 615.2 MHz VSWR 1.4027, at a distance of 30 mm from the Phantom. Based on the parameters obtained in the measurement and simulation, the antenna can be used in the 2.4 GHz frequency.

Keywords: Ultra-Wideband, UWB, Wearable Antenna, Cordura Delinova 2000, Triangular Patch Mikrostrip, Textile Antenna