

ABSTRACT

Along with the development of the telecommunications industry as well as the demand for communications services are increasingly high, then there is also an increasing public demand for communication. The reason that triggered the development of communication technology, especially in the field of the wireless. Actually, not only in the wireless field, but also in other technologies that utilize broadband technology networks. One important part of wireless technology is part of its antenna which are components of the antenna receiving and sending electromagnetic waves from and to the free space. In order to work properly, then these components requires an antenna that works in accordance with the operating frequency.

Microstrip antenna Archimedean spiral is one type of antenna microstrip, which consists of a patch (conductor) thin spiral and printed on a substrate. This antenna is capable of working at very high frequencies and wide (ultra wideband).

The final task is to design a prototype spiral microstrip antenna Archimedean using FR4 Epoxy substrate and matching techniques with balun impedance to match the antenna impedance produced 188.5Ω to 50Ω channels in order to get the antenna VSWR is less than 2 on the working frequency range of 0.8-2.5 GHz antennas. Antenna design simulation using CST software Suit Studio 2014. From the design of the prototype antenna Archimedean spiral rectangular two-arm with the addition of a balun for impedance matching the corresponding values obtained VSWR antenna specification is $VSWR \leq 2$ at the frequency range of 0.8-2.5 GHz with a gain $> 3\text{dBi}$ and has a bidirectional radiation pattern.

Keywords: microstrip, Archimedean spiral, wideband, ultra wideband, balun.