

ABSTRACT

Microstrip antennas are widely used in wireless communication systems due to their compact form and ease of fabrication. The design process requires accurate calculation of patch dimensions to match the desired frequency and substrate specifications. This final project aims to design and develop a microstrip antenna calculator using the Python programming language with a graphical user interface (GUI) built with the Tkinter library. The calculator computes key parameters such as patch length (L), patch width (W), effective permittivity (ϵ_{eff}), bandwidth (BW), and the dimensions of the substrate and stripline. The development process includes literature study, system design, coding, testing, and finalization. Testing results show that the calculator can accurately compute antenna parameters and display a 2D visualization of the patch using matplotlib. The application is designed to run locally without requiring an internet connection, making it usable offline. Consequently, this calculator is designed to efficiently facilitate the microstrip antenna design process and serve as a practical learning medium within the telecommunications domain.

Keywords: Microstrip Antenna, Python, Dimension Calculation, GUI, Tkinter, Bandwidth