Antenna Radiation Pattern Using Python

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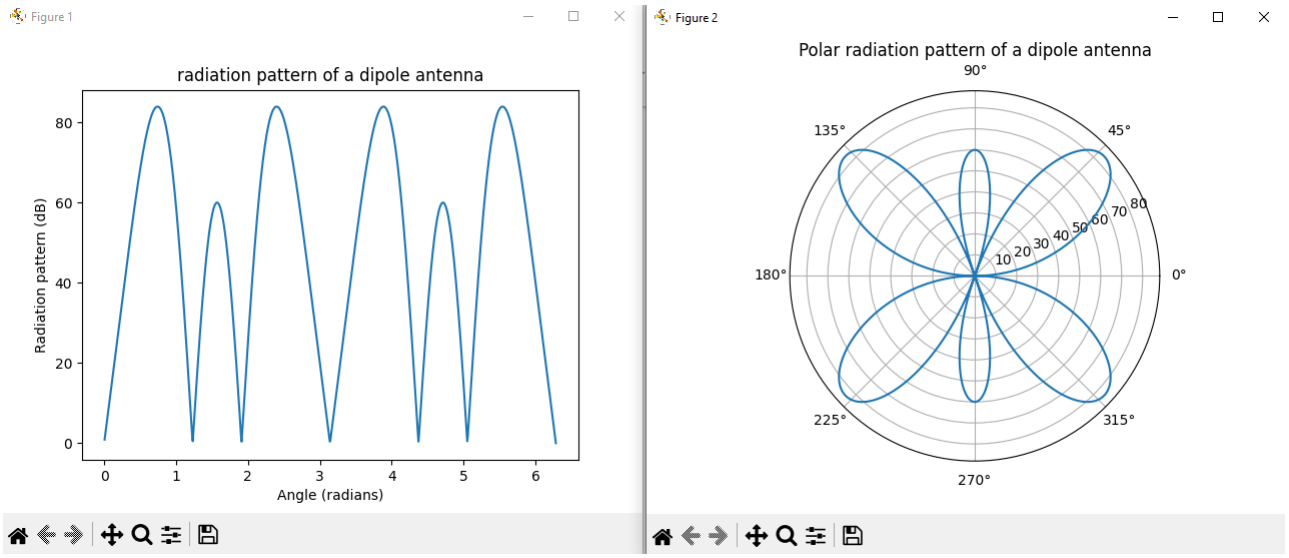
I. Introduction

This application was developed using Python, Matplotlib, and Tkinter to allow users to easily visualize the radiation pattern of an antenna. The radiation pattern of an antenna is a graphical representation of the relative strength of the radio waves emitted by the antenna in different directions. It is an important characteristic of an antenna, as it determines how effectively the antenna transmits or receives signals in different directions. Using this application, users can plot the radiation pattern of an antenna by inputting the necessary parameters and choosing a suitable plot type. The application also allows users to customize the appearance of the plot, including the plot range, axis labels, and color map. Whether you are a student learning about antennas or a professional engineer working on antenna design, this software will be a useful tool for you.

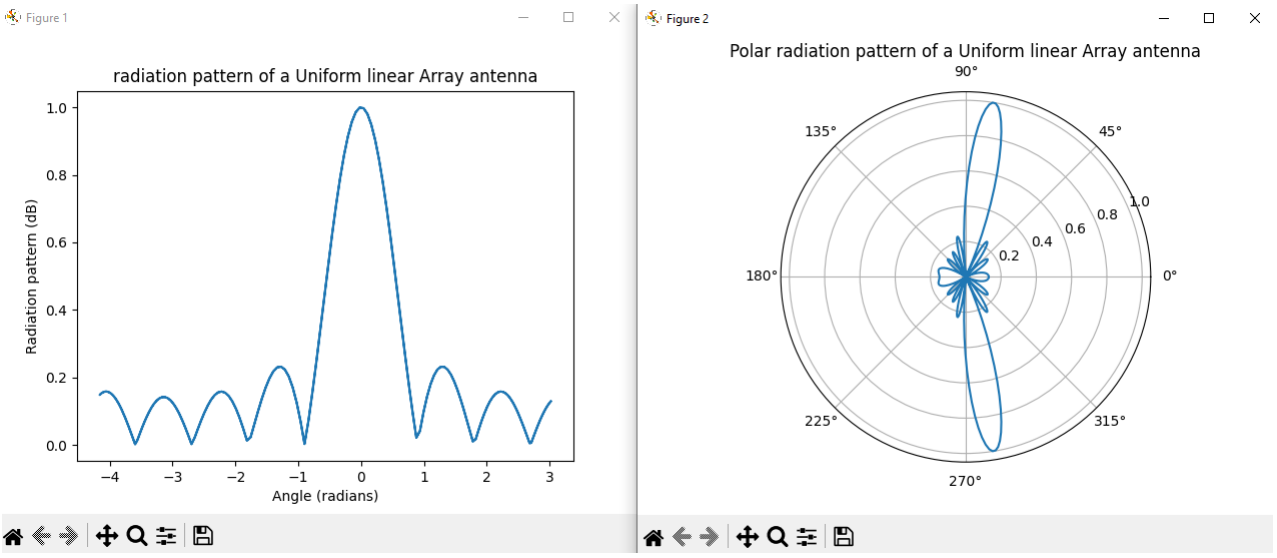
II. Results

A. *Dipole Antenna*



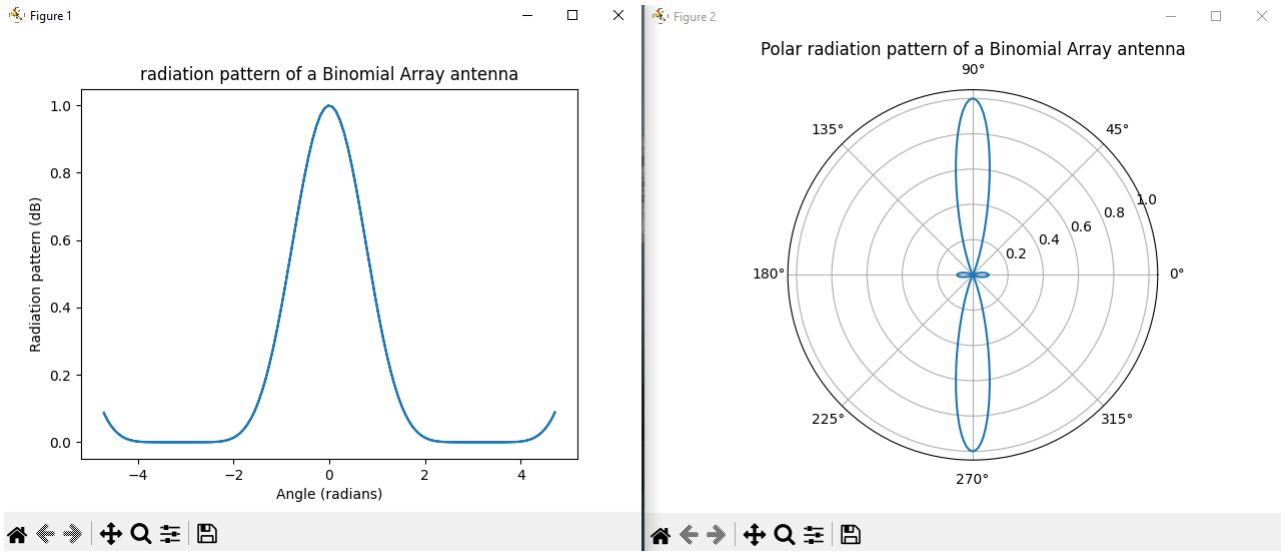
L	$\frac{3}{4} * \lambda$

B. Uniform linear array antenna



d	$\frac{4}{7} * \lambda$	N	7	α	$\frac{-4}{7} * \pi$

C. Binomial Arrays Antenna



d	$\frac{3}{4} * \lambda$	N	8	α	0