October 27, 2023

1 Part 1 : linear antenna (dipole of general length)

In this part we graph the antenna pattern of different linear dipole antenna. Figures 1-4 show the results for different inputs.
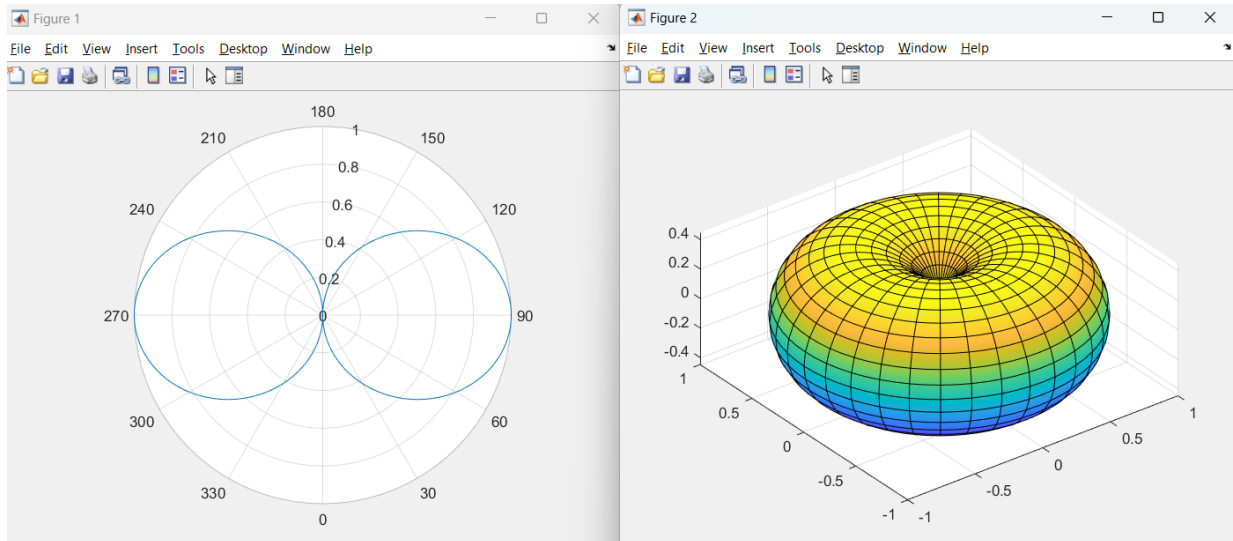
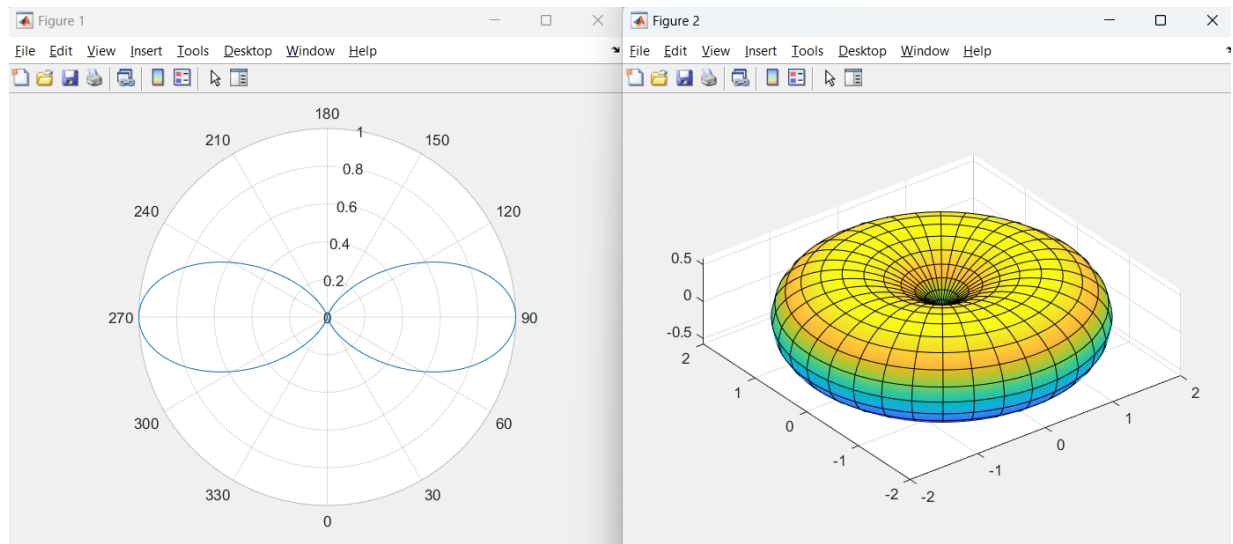## 1.1 Examples

Figure 1: $l = \frac{\lambda}{2}$

Figure 2: $l = \lambda$

2   Part 2 : Uniform linear antenna array

In this part we will be graphing the Array Factor of uniform linear antenna arrays. Figures 5-7 show the results for different inputs.
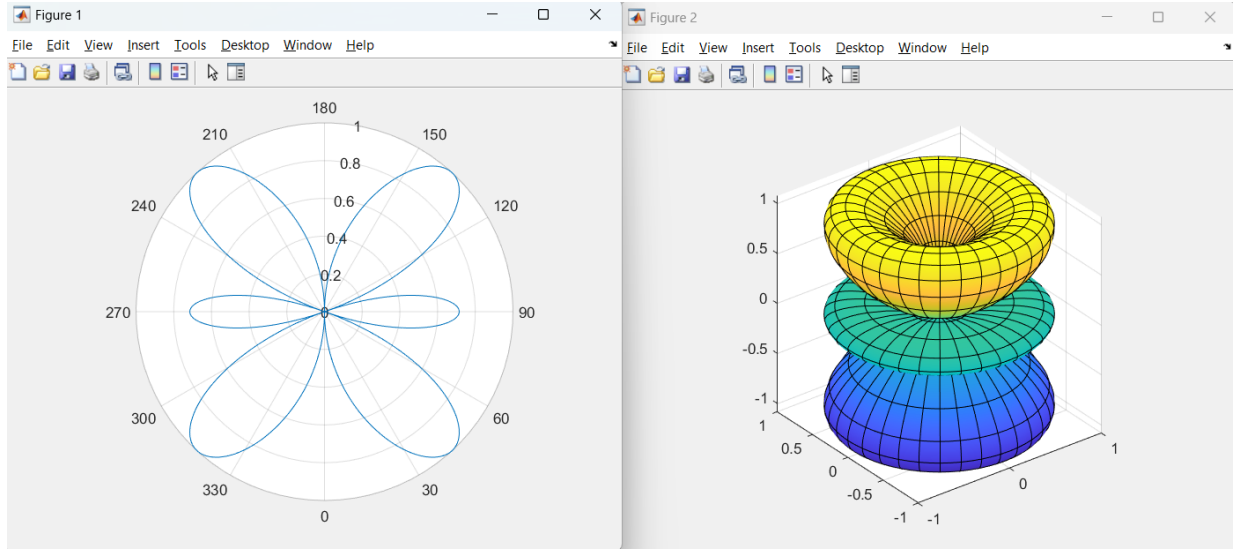
2.1   Examples
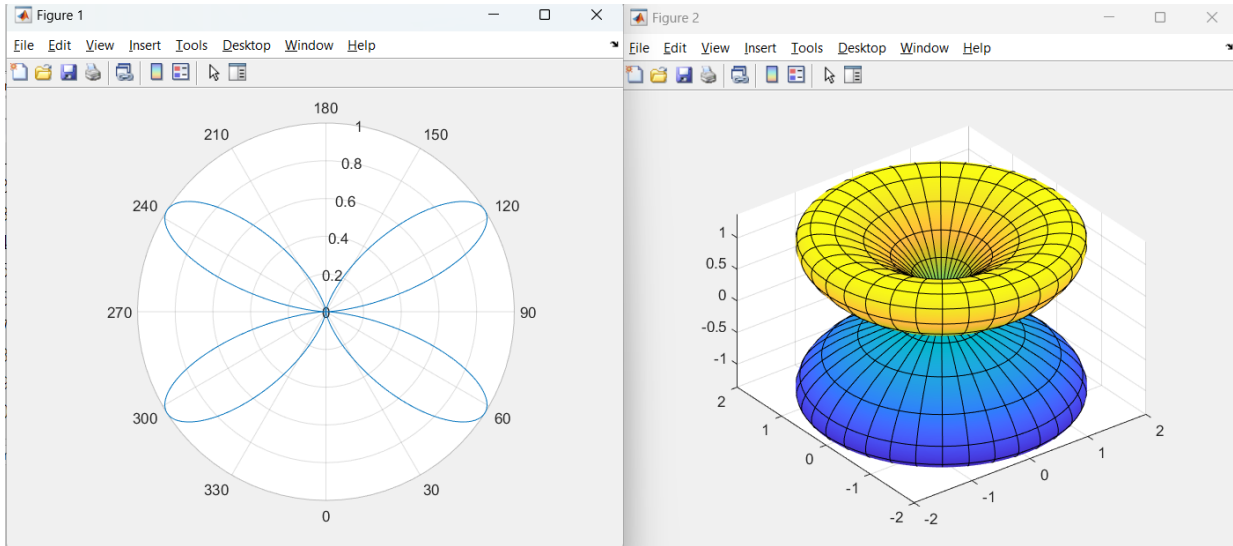
Figure 3: $l = \frac{3\lambda}{2}$
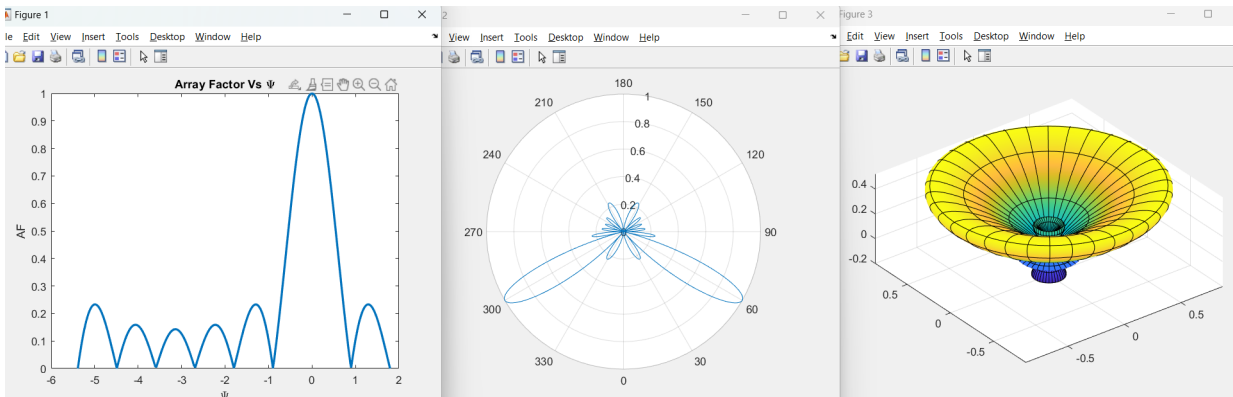

Figure 4: $l = 2\lambda$

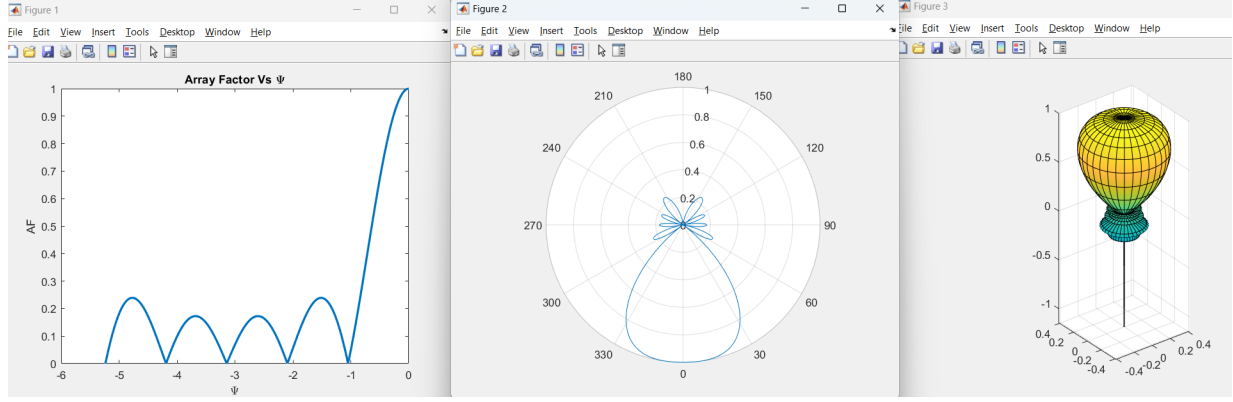Figure 5: $d = \frac{4\lambda}{7}$, $N = 7$, $\alpha = \frac{-4\pi}{7}$

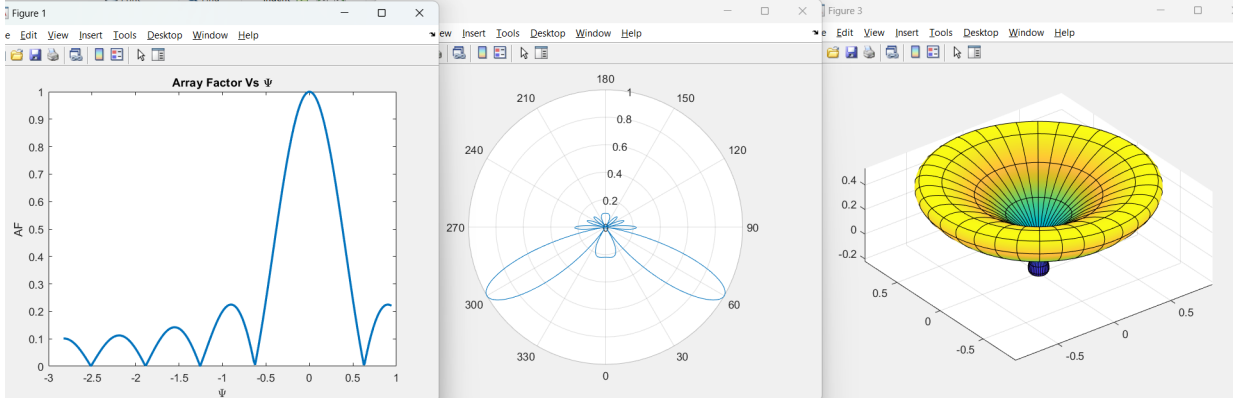Figure 6: $d = \frac{5\lambda}{12}$, $N = 6$, $\alpha = \frac{-5\pi}{12}$

Figure 7: $d = \frac{3\lambda}{10}$, $N = 10$, $\alpha = \frac{-3\pi}{10}$