

HOME WORK # 4

1. Develop a computer program to compute and plot (both rectangular and polar) the array factor of linear arrays of N number of elements, inter-element spacing d , and progressive phase shift β . Compute the directivity of the array and the half power beam-width.
2. Use the developed program to plot the array factor, and calculate the directivity and half-power beam-width, of a uniform linear 8 element broadside array. The separation between the elements is $\lambda/2$.
3. Repeat problem 2 for the same array when the separation between the elements is $\lambda/4$.
4. Repeat problem 3 when the array is adjusted to be end-fire with the direction of the main beam along the positive z axis.