Abstract

In this paper, equation for computing the radiated far field of broadside arrays of uniformly spaced elements, assuming sinusoidal current distribution is derived. Computational data are obtained for the antenna parameters such as array factor patterns, overall radiation patterns and directivity of arrays consisting of 5, 9, 13, and 21 elements with values of inter-element spacing ranging from 0.25λ to 2λ. Computational results for array factor patterns and overall radiation patterns, represented in graphical formats are consistent with those reported in literature and clearly suggest that array structures with inter-element spacing below λ would produce remarkable and desirable beam radiations which may find useful applications for long range transmission. Numerical data for directivity as a function of number of elements for values of spacing considered display feature that is consistent with the expectation, as being characteristic of any antenna type.

References
11. 

Index Terms

Computer Science Information Sciences

Keywords

Broadside array, array factor, radiated far field, distant communication, inter-element spacing.