Synthesis of a Linear Antenna Array for Maximum Side-lobe Level Reduction

Abstract

There are number of Techniques used to reduce Side Lobe Level (SLL) of antenna arrays to save power and improve Quality of Service (QoS) by ensuring maximum radiation in desired direction, several methods are available in literature. It is a well known fact that when an attempt is made to reduce the first sidelobe level of an antenna array, the beamwidth increases. However, in the present work, an array for a specified first side lobe level of -35dB was synthesized using Dolph Chebyshev method. A real-value Genetic Algorithm (RGA) was also used to optimize the current excitations. The weighting vectors are compared. Using these vectors, patterns are generated for arrays of different elements. The resultant patterns are compared and the result shows greater improvement in the SLL reduction from the RGA method without deteriorating the main beamwidth.

References

- S. Joseph, R. Kulandai, and S. Joerg, Matlab - Modelling, Programming and
Synthesis of a Linear Antenna Array for Maximum Side-lobe Level Reduction


Index Terms

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Keywords

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