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Abstract

For pattern synthesis of arrays, it is required to find out appropriate weighting vectors to yield a desired radiation pattern. It is well known that several methods for above purpose are available in literature. It is an established fact that when an attempt is made to reduce the first sidelobe level, the beamwidth increases. However, it is of interest in the present work to synthesize an

array for a specified first side lobe level without deteriorating the beamwidth. For this purpose, well known analytical technique for array synthesis to control side lobe level, Dolph Chebyshev method is used with the application of WIPL-D Microwave EM software, and the excitation levels are found out. They are also found out using Genetic Algorithm (GA). The weighting vectors are compared in the form of a Table. Using these vectors, the patterns are generated for arrays of different elements. The resultant patterns are compared for the above methods.

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Side lobe level
Array synthesis
WIPL-D Microwave
Dolph Chebyshev method

