Abstract

Certain antenna applications require Dual-beam radiation patterns. The main aim of this paper is to generate the dual-beam radiation patterns from an array of isotropic radiators with single pre-fixed amplitude distribution. The optimal phase excitations are obtained using Particle Swarm Optimization. Beam 1 is a highly directive pencil beam and beam 2 is a ramp pattern. It is well known that, ramp patterns are generated from waveform generators. Interestingly, an attempt has been made to produce these patterns from radiating elements in the form of far-field radiation pattern. Ramp shape radiation patterns do not exhibit symmetry about the bore sight direction. All the excitation phases are set to 0° to generate pencil beam and are varied in the range of -? to +? to generate ramp pattern. Results obtained for different scan angles are presented.
Generation of Dual-Beam Patterns using Particle Swarm Optimization


Index Terms

Computer Science

Communications
Keywords
Dual-beam  Pencil beam  Ramp pattern  Phase only synthesis  Particle Swarm Optimization.