

SIDE LOBE LEVEL OPTIMISATION OF CIRCULAR MICROSTRIP ARRAY ANTENNA USING GENETIC ALGORITHM

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ABSTRACT

In the recent years the development in communication systems requires the development of low cost, minimal weight, low profile antennas that are capable of maintaining high performance over a wide spectrum of frequencies. This technological trend has focused much effort into the design of a micro strip patch antennas. The popularity of micro strip antennas are increasing day by day because of ease of analysis and fabrication, and their attractive radiation characteristics. So the micro strip Antenna are very useful & essential device for effective wireless communication. This paper focuses on the application of binary coded Genetic Algorithm (BGA) which is applied to the Circular Patch Microstrip antenna with linear and non linear (Dolph-Chebyshev) arrays. The cost function of Genetic Algorithm(GA) is maximum reduction in side lobe level of the radiation pattern of the antenna .The genetic algorithm finds the optimum amplitude current excitations co-efficient of the antenna array elements to provide the radiation pattern with maximum reduction in the side lobe level and also achieved the minimum possible null to null beam width, the resultant radiation patterns for both before GA and after GA of Microstrip array are compared. The Radiation patterns are presented for different number of elements. All the simulated results are obtained by using MATLAB software.

KEYWORDS: Microstrip Circular Patch Antenna, Genetic Algorithms, Linear Array Antenna, Dolph-Chebyshev Array, MATLAB Software