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[54] **METHOD FOR OPTIMIZATION OF ELEMENT PLACEMENT IN A THINNED ARRAY**

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"Element Placement in Thinned Arrays Using Genetic Algorithms", by D.J. O'Neill, IEEE, Proceedings of OCEANS '94 Conference, 13-16 Sep. 1994, pp. II-301-II-306.

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[57] ABSTRACT

[51] Int. Cl.⁶ **H04B 17/00**

[52] U.S. Cl. **395/500; 395/13; 367/13; 367/56; 367/62**

[58] Field of Search 395/500.13; 364/726
364/491; 342/379; 382/159; 367/13. 19.
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A method for generating a thinned array having an optimal directional response wherein an initial population of possible element occupancy patterns is generated and a relative fitness value for each of the element occupancy patterns in the initial population is determined. Successive populations are generated by manipulating the element occupancy patterns using reproduction, crossover, mutation, elitism, and equality operators. The array response of each occupancy pattern in the successive population is evaluated to determine a fitness value for each. The process of generating and evaluating successive populations is repeated for a specified number of generations, until the maximum population fitness does not significantly increase between generations, or until the population diversity decreases.

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17 Claims, 3 Drawing Sheets

