

VERIFICA: PERFORMANCES ANALYSIS OF A PSO-BASED OPTIMIZATION PROCEDURE FOR THE SYNTHESIS OF DIRECTIVE TIME-MODULATED PLANAR ARRAYS WITH MINIMUM POWER LOSSES

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Abstract

In the recent years, TMAAs have been studied by a new perspective in which part of the sideband radiation is exploited for useful purposes. In particular, the possibility to consider the switch-on instants added to the switch-on times as a new degree of freedom in the synthesis process allows to better control the harmonics radiated patterns, and hence to synthesize patterns at the central frequency and at the harmonic frequencies, as well. This project proposes an harmonic beam-forming synthesis technique based on the particle swarm optimizer (PSO) algorithm: multiple patterns are generated at the central and harmonic frequencies, realizing a multi-frequencies beam patterns with a single antenna array in order to simultaneously receive multiple signal from different direction. The pulse splitting technique is applied, in order to better control the power associated to the harmonic frequencies.

Reference Bibliography: Time Modulated Arrays [1]-[8]; Evolutionary Optimization [9]-[10].

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