

Optimization of Side-Band Power of TMAs via Pulse Shaping

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Abstract

Time modulated Antenna Array (TMA) has been a topic of research interest in the antenna design community, mainly due to the additional degree of freedom, time. Using time modulation, it is possible to design antenna arrays with ultra low side lobe levels having very low dynamic range (as low as 1). The main drawback of TMA is the presence of an avoidable side-band radiation. Several techniques have been proposed to reduce the amount of power lost in the form of side-band radiation. Towards this end, evolutionary optimization techniques have been extensively used to solve the joint problem of obtaining favorable radiation performance in central frequency whilst combating the side-band radiation. Pulse shaping has recently been proposed to reduce the amount of side-band radiation in TMAs. This project studies the joint application of pulse shaping and pulse timing optimization to control side-band radiation in TMAs.

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*This report is submitted in partial fulfillment of the degree of the course "ACM".
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