Abstracts

Optically Generated True-Time Delay In Phased-Array Antennas

I. Frigyes and A.J. Seeds. "Optically Generated True-Time Delay In Phased-Array Antennas." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2378-2386.

This tutorial review paper deals with various methods for solving a basic problem of wideband phased arrays, i.e. beam squinting, using optical technologies. The problem of beam squinting in phased arrays is analyzed and the concept of true-time delay is introduced. The advantages of realizing variable delay lines by optical rather than by microwave means are reviewed, together with principles of operation. Among the techniques described are switched-path length delay lines, fiber stretchers, tunable lasers with highly dispersive fiber, and coherent techniques incorporating dispersive delay. Recent experimental results are discussed in the light of practical system requirements.

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