Abstracts

Variable delay line for phased-array antenna based on a chirped fiber grating

B. Ortega, J.L. Cruz, J. Capmany, M.V. Andres and D. Pastor. "Variable delay line for phased-array antenna based on a chirped fiber grating." 2000 Transactions on Microwave Theory and Techniques 48.8 (Aug. 2000 [T-MTT]): 1352-1360.

We present a theoretical and experimental analysis of the performance of phased-array antennas steered by a single chirped fiber grating. Two approaches consisting of conventional and single-sideband (SSB) modulation techniques of the optical signal are presented in order to compare their performance and suitability for beamforming applications in microwave antennas. By using a 40-cm-long chirped grating, we measure the phase and amplitude response and calculate the corresponding radiation patterns to demonstrate wide-band operation and continuous spatial scanning properties of both configurations. SSB modulation Is presented as a real alternative to the first one offering broader operation band (4-18 GHz) for a given chirped grating and being less demanding on the fiber grating characteristics.

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