Abstracts

Continuously variable true time-delay optical feeder for phased-array antenna employing chirped fiber grating

J.L. Corral, J. Marti, S. Regidor, J.M. Foster, R. Laming and M.J. Cole. "Continuously variable true time-delay optical feeder for phased-array antenna employing chirped fiber grating." 1997 Transactions on Microwave Theory and Techniques 45.8 (Aug. 1997, Part II [T-MTT]): 1531-1536.

In this paper, we present and demonstrate a novel approach of a true time-delay (TTD) optical feeder for phased-array antennas (PAAs). A continuously variable TTD is achieved by employing tunable lasers and a wide-bandwidth chirped fiber Bragg grating (FBG) as the dispersive element. The results show that a very high resolution performance (equivalent to a 6-b microwave phase shifter) is obtained for an L-band PAA employing narrow-tuning bandwidth lasers with a wavelength stability of 0.005 nm and a 4-nm bandwidth chirped grating with a dispersion of 835 ps/nm.

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