Abstracts

Use of Direct-Modulated/Gain-Switched Optical Links in Monopulse-Type Active Phased Array Systems

S.T. Chew, D.T.K. Tong, M.C. Wu and T. Itoh. "Use of Direct-Modulated/Gain-Switched Optical Links in Monopulse-Type Active Phased Array Systems." 1996 Transactions on Microwave Theory and Techniques 44.2 (Feb. 1996 [T-MTT]): 326-330.

With the advance of high speed laser technology, optical interaction with microwave circuits has become highly viable. Such interaction is advantageous as the fiber is low-loss, lightweight, and immune to electromagnetic interference. In this paper, interaction of direct-modulated and gain-switched optical links with active antenna phased array systems is demonstrated. In the direct-modulated optical system, the RF signal directly modulates the DFB laser. In the gain-switched optical system, the laser is gain-switched to function as a RF frequency doubler. The modulated signal is transmitted via an optical fiber and recovered at the receiving end by a high-speed photodetector. The recovered RF is then injected into the active antenna phased array systems as an injection-locking reference signal. Two active antenna systems are used for this demonstration: beam-switching and Doppler transceiver.

❑ Return to main document.