Abstracts

Integrated 6-Bit Photonic True-Time-Delay Unit for Lightweight 3-6 GHz Radar Beamformer

E. Ackerman, S. Wanuga, D. Kasemset, W. Minford, N. Thorsten and J. Watson. "Integrated 6-Bit Photonic True-Time-Delay Unit for Lightweight 3-6 GHz Radar Beamformer." 1992 MTT-S International Microwave Symposium Digest 92.2 (1992 Vol. II [MWSYM]): 681-684.

Photonics will provide the interconnect solution for next-generation phased array raclar antennas and satellite communications links, which have conformality, bandwidth, EMI immunity, size, and weight requirements increasingly difficult, if not impossible, to meet using conventional electrical interconnect methods. GE and AT&T aim to develop and implement fiber optic signal distribution networks that afford an octave of instantaneous bandwidth and that are 75 percent smaller and lighter than their electronic equivalents. We have developed a low-loss (nominally 14.0 ± 0.4 dB for lambda=l.3 µm) integrated 6-bit photonic time-delay unit to be used in the demonstration of a photonic beamformer for eight subarrays of a 3-6 GHz phased array radar.

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