Abstracts

X-band RF MEMS phase shifters for phased array applications

A. Malczewski, S. Eshelman, B. Pillans, J. Ehmke and C.L. Goldsmith. "X-band RF MEMS phase shifters for phased array applications." 1999 Microwave and Guided Wave Letters 9.12 (Dec. 1999 [MGWL]): 517-519.

In this work, development of a low-loss radio frequency (RF) microelectromechanical (MEMS) 4-bit X-band monolithic phase shifter is presented. These microstrip circuits are fabricated on 0.021-in-thick high-resistivity silicon and are based on a reflection topology using 3-dB Lange couplers. The average insertion loss of the circuit is 1.4 dB with the return loss >11 dB at 8 GHz. To the best of our knowledge, this is a lowest reported loss for X-band phase shifter and promises to greatly reduce the cost of designing and building phase arrays.

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