Abstracts

A DC-to-40 GHz four-bit RF MEMS true-time delay network

M. Kim, J.B. Hacker, R.E. Mihailovich and J.F. DeNatale. "A DC-to-40 GHz four-bit RF MEMS true-time delay network." 2001 Microwave and Wireless Components Letters 11.2 (Feb. 2001 [MWCL]): 56-58.

A monolithic true-time delay (TTD) network containing sixteen metal-to-metal contact RF microelectromechanical systems (MEMS) switches has been successfully fabricated and characterized. The TTD network was designed to produce flat delay time over a dc-to-40 GHz bandwidth with full 360-degree phase control at 22.5-degree intervals at 10.8 GHz. Measurements show a close match to the designed delay times for all sixteen switch states with 2.2 to 2.6 dB of insertion loss at 10 GHz. The worst group delay ripple in the dc-to-30 GHz range was 3 ps, well within the single bit delay time of 5.8 ps.

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