Abstracts

Wide-Band Superconductive Chirp Filters

M.S. DiIorio, R.S. Withers and A.C. Anderson. "Wide-Band Superconductive Chirp Filters." 1989 Transactions on Microwave Theory and Techniques 37.4 (Apr. 1989 [T-MTT]): 706-710.

Chirp filters are described that consist of miniature tapped superconductive stripline. The stripline consists of 40-µm-wide niobium thin films in a spiral pattern on 125-µm-thick silicon wafers, and tapping is effected by backward-wave couplers between neighboring lines. Sophisticated fabrication and packaging techniques have led to a now mature technology. Devices with 2.6 GHz bandwidth and time-bandwidth products of 98 are routinely fabricated that exhibit amplitude errors within a few tenths of a decibel and phase errors within a fraction of a degree of theoretical. In pulse-compression tests, matched amplitude-weighted devices yield peak relative side-lobe levels of -32 dB.

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