# Abstracts

## A Programmable Surface Acoustic Wave Matched Filter for Phase-Coded Spread Spectrum Waveforms (Short Papers)

*P.J. Hagon, F.B. Micheletti, R.N. Seymour and C.Y. Wrigley. "A Programmable Surface Acoustic Wave Matched Filter for Phase-Coded Spread Spectrum Waveforms (Short Papers)." 1973 Transactions on Microwave Theory and Techniques 21.4 (Apr. 1973 [T-MTT] (Special Issue on Microwave Acoustic Signal Processing)): 303-306.*

A programmable surface acoustic wave (SAW) matched filter for biphase-coded spread spectrum waveforms has been constructed using a temperature-stable ST-cut quartz tapped delay line (TDL) and silicon-on-sapphire integrated control circuits. Construction is hybrid with wire stitch bond interconnections between the acoustic and microelectronic portions of the device. The SAW TDL operates at 120-MHz center frequency with 100-ns spacing between adjacent taps for a 10-MHz chip rate. The output of each tap can be individually switched to a load with 0 or 180° phase shift by the silicon-on-sapphire integrated control circuits. The high-speed capability of silicon-on-sapphire integrated circuits allows programming (code changing) to be achieved with a serial data input at 10-MHz rates, while the low temperature coefficient of ST-cut quartz allows satisfactory operation over a wide temperature range (-25°C to +85°C).

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