Abstracts

New SAW-convolver demodulation technique using Costas-loop synchronization for high-speed spread-spectrum signal

M. Hikita, C. Takubo and K. Asai. "New SAW-convolver demodulation technique using Costas-loop synchronization for high-speed spread-spectrum signal." 2001 Transactions on Microwave Theory and Techniques 49.4 (Apr. 2001, Part II [T-MTT] (Special Issue on Microwave Acoustic Wave Devices for Wireless Communications and Sensing)): 749-753.

A new synchronous-demodulation method for a high-speed spread-spectrum (SS) signal, which combines a surface acoustic wave convolver with a Costas-loop circuit has been proposed. From the convolver, in-phase and quadrature-phase components of the correlated signal can be directly derived. A control voltage obtained by a Costas-loop circuit adjusts the frequency and phase of a local-oscillation (LO) signal to those of the SS signal. Thus, in the receiver, synchronization of the LO signal and the received signal can be carried out independently of the transmitter. A quadrature phase-shift keying SS signal with 9 Mb/s and 60 Mc/s has been successfully demodulated using this method.

❑ Return to main document.