Abstracts

The IMCON Pulse Compression Filter and its Applications

T.A. Martin. "The IMCON Pulse Compression Filter and its Applications." 1973 Transactions on Microwave Theory and Techniques 21.4 (Apr. 1973 [T-MTT] (Special Issue on Microwave Acoustic Signal Processing)): 186-194.

The IMCON is a reflection-mode dispersive delay line capable of high performance in large time-bandwidth product pulse compression systems. As developed in this paper, the unique characteristics of the IMCON are obtained by reflection from a double grating array that is applied to the surface of a strip. Current models of the device have center frequencies in the 4-30-MHz range with bandwidth up to 15 MHz, dispersion to 320 µs time sidelobes on the order of --40 dB (with equalization), and other spurious signals at least 70 dB below the compressed output. The characteristics of IMCON operation are developed from a consideration of the device's transfer function. In particular, the IMCON'S high linearity and low sensitivity to fabrication and propagation problems are shown to be due to a unique error rejection effect. By comparison, the error rejection characteristics of single grating and dispersive transducer devices are found to be inferior to the IMCON. Data derived from operating pulse compression systems are utilized to demonstrate the low time sidelobe and high time-bandwidth capability of the IMCON.

❑ Return to main document.