Abstracts

A New Microwave Phase Equalizer Network (Correspondence)

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This correspondence describes a new microwave allpass phase equalizer network using directly connected TEM mode transmission lines. Networks of this type have found recent application in wideband radar systems employing microwave matched filters. In the network described, transmission lines are interconnected to closely approximate a periodic repetition of the lowpass transfer function H(p)=(p-a)/p+a), where p is the complex frequency variable p=sigma+j omega. A synthesis technique is presented which permits the designer to arbitrarily locate the pole-zero pair of the transfer function in the left and right half-plane, respectively. The correspondence concludes with an illustrative filter design. A network meeting the design specifications is fabricated in the shop and its response is evaluated in the laboratory using time-domain reflectometer techniques. The experiment results are shown to be in close agreement with the theory.

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