Abstracts

Predistorted Waveguide Filters for Use in Communications Systems

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Predistortion is a standard technique for correcting the effects of energy dissipation in filters, making their response conform to that of ideal filters. The problem of dissipation is particularly noticeable in narrowband bandpass filters used in microwave communications systems. Dissipation makes the passband edges slump downward, as shown in Figure 1, which can cause distortion and intermodulation. In predistorting a filter, we allow for dissipation in the initial design. A response approximating the ideal response can be approximated at the price of increased insertion loss. The flat response of predistorted filters is advantageous when used in high-capacity microwave communications systems; however, the filters have an additional property which makes them especially attractive for certain applications in microwave communications systems.

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