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Compact dual-wideband bandpass filter for wireless applications

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Abstract

In this paper, a compact dual-wideband bandpass filter with two reflection zeros in both passbands and two transmission zeros in the stopband, based on a signal interference technique is presented. The proposed filter is formed by a transmission line connected in parallel with a series connection of transmission lines and a short circuited edge coupled line. A simple lossless transmission line model is used to derive the condition for transmission zeros. To validate the theoretical predictions, a compact dual-wideband bandpass filter has been fabricated to operate at GPS and INSAT Satellite bands. The measured 3 dB passband fractional bandwidths are 82.16% and 41.52%, respectively.

Keywords: Bandpass filter, coupled-line, dual-band, wideband.

1. Introduction

Bandpass filters (BPF) are essential components in modern wireless communication systems to prevent signal interference, unwanted signal rejection and to maintain low insertion loss in the passband. Due to the rapid development of dual/multiband communication systems with high bitrates, BPFs with

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