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Microstrip coupled line bandpass filter with radial stubs for narrow-band applications (Article)

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Abstract

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The necessity of creating channels by utilizing narrow-bands in high frequency regions is a matter of concern for the next generation-oriented wireless communication systems. A microstrip bandpass filter for narrow-band applications has been proposed in this article. Two coupled line filters with tapered line resonators are loaded at the mid-points of two identical pairs of radial stubs. The scalable length of microstrip lines to extend the radial stubs provides over 536 MHz shift of the resonant frequency with a narrow-band at each perturbing step. The proposed filter has been designed on Taconic TLX-8 substrate with 0.5 mm thickness and its filtering parts occupy a nominal area of 131.09 mm² without feedlines. The fabricated filter exhibits nearly a 50 MHz pass-band at 6.428 GHz center frequency according to the measurement. Steep response of this filter entirely attenuates the out-band signal which enables it to be suitable for narrow-band applications in the higher frequency regions of C-band and ultra-wideband. © Int. J. of GEOMATE.

Author keywords

Bandpass filter Coupled line Microstrip Narrow-band Radial stubs

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