DESIGN OF MULTILAYER BANDPASS FILTER FOR WIMAX APPLICATION

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ABSTRACT

Nowadays, there are many new telecommunication technologies developed such as Wimax technology. Filters are essential to the operation of this technology. Interdigital bandpass filter is one of the available compact configurations. This thesis focuses on the design of multilayer bandpass filter for Wimax application. The design consist of two sets of multilayer interdigital band pass filter structures at operating frequency 2.3 GHz and provided the comparison the performance each other. These two designs have been proposed; two layers consist of four-pole and four layers for eight-pole. They were designed using CST Studio. The results showed that both filter operates well at the frequency of operation. The filters have excellent return losses of approximately -20 dB at the center frequency. From the results obtained, the fractional bandwidth for two layers and four layers is 33% and 65% respectively. In contrast, two layer interdigital band pass filters have narrower bandwidth about 0.76 GHz while four layer configurations showed that with the addition of dielectric substrates, the center frequency is shifted to 2.3 GHz and the bandwidth is broad is about 1.3 GHz.

TABLE OF CONTENTS