To reduce insertion loss of cross-coulping filters on FR4 at passband using defected ground structures

黃啟鑫、吳俊德

E-mail: 321373@mail.dyu.edu.tw

ABSTRACT

RF and microwave filter circuits play an important role. They can be used to split or combine different frequency bands. However, the electromagnetic spectrum is limited, and each band has its own standard agreement. Therefore, in the design of RF or microwave circuits, the engineers should design the circuits carefully to meet the required frequency ranges for the specifications. This thesis presents a typical cross-coupled bandpass filter fabricated on a FR4 substrate. Since the dielectric loss of FR4 substrate is very high, the original design features are unable to meet the design specifications. Therefore, we use defected ground structures (DGS) to improve the pass band characteristics. By using DGS, the dielectric loss and passband insertion loss can be reduced. The simulation and measurement results are matched. It proves the validity of the present method.

Keywords : cross-coupled、DGS、BPF

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