

Current developments of microwave filters for wideband applications

ABSTRACT

This paper presents a compilation of important review in the development of microwave filters for wideband technology used in previous years. The major research work for each year is reviewed. Several wideband filters based on the planar and non-planar circuits are compared and examined in order to propose a new topology of wideband filter using Suspended Stripline Structure (SSS). More importantly, this new proposed structure will be integrated with the Defects Ground Structure (DGS) to form an advanced hybrid system for wideband applications. This system will produce the band-pass and band-stop responses simultaneously in order to discriminate between the desired and undesired signals in the wideband spectrum. The proposed system outlined in this paper, featuring new innovation in hybrid structure as well as providing an insight of the direction of future research works. The contribution of this study is useful for applications where the reduction of physical volume is very important, while maintaining its good performance such as Ultra-Wideband (UWB), commercial radar as well as the wideband warfare receiver. As for future works, integration techniques between the UWB filter and DGS will be designed and analyzed to form an advanced new microwave device in order to produce bandpass and bandreject response in the same structure simultaneously.

Keyword: Hybrid microwave device; Microwave filter; Defected ground structure (DGS); Suspended stripline structure (SSS)