



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-19

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/5712>

Title:	PCB based Microwave Resonators and Filters
Authors:	Nitish
Keywords:	Resonators Transmission Dielectric Constant
Issue Date:	Apr-2024
Publisher:	IISER Mohali
Abstract:	<p>Microwave circuits play an indispensable role in communication systems, radar technologies, and an array of high-frequency applications, facilitating the transmission and processing of signals vital for modern society. However, the inherent presence of noise and ripples within these circuits poses formidable challenges, often compromising their performance. This thesis addresses this critical issue by proposing innovative solutions to enhance the functionality and precision of microwave circuits through the integration of balanced bridges. In pursuit of improved circuitry, this study focuses on the utilization of Microstrip and Coplanar Waveguide transmission lines, recognized for their versatility, ease of fabrication, and advantageous properties. The methodology employed in this thesis involves electro-magnetic simulation tools, notably Ansys Hfss, to optimize circuit parameters, ensuring optimal performance across a range of operating conditions. Furthermore, CAD software such as Eagle CAD is employed for circuit design, while PCB milling machines enable precise fabrication to exacting specifications. Subsequent circuit measurements are conducted using a Vector Network Analyzer (VNA), facilitating comprehensive characterization and validation of circuit performance. By incorporating balanced bridges into microwave circuits and employing sophisticated simulation and fabrication methodologies, this research endeavors to mitigate noise and enhance signal integrity during measurements, thereby increasing overall circuit performance. The findings of this study contribute to the advancement of microwave circuit design and measurement techniques, with potential applications in a wide range of high-frequency systems.</p>
Description:	Under Embargo Period
URI:	http://hdl.handle.net/123456789/5712
Appears in Collections:	MS-19

Files in This Item:

File	Description	Size	Format	
embargo period.pdf		6.04 kB	Adobe PDF	View/Open

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.