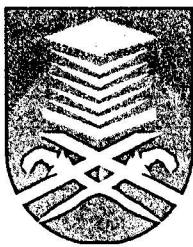


DESIGN OF DUAL-BAND BANPASS FILTER FOR BROADBAND APPLICATION

**Project report presented in the partial fulfillment for the award of the
Bachelor of Electrical Engineering (Hons)
UNIVERSITI TEKNOLOGI MARA**



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ACKNOWLEDGEMENT

Alhamdulillah to Allah SWT the Beneficent, the Merciful, with the deepest sense of gratitude of the Almighty who has given the strength and ability to complete this project as it is today.

First and foremost, I would like to express my sincere appreciation to my project supervisor Puan Nor Ayu Zalina binti Zakaria for her valuable advice and instructions in my final year project. I never know which way to go without her enormous assistance.

Secondly, I would like to dedicate my love and thank towards my family for their encouragement and moral support throughout the years. You are the source of my strength and inspiration

My thanks also go to all of lectures in Faculty of Electrical Engineering, UiTM for their contribution of precious ideas, support, and their willingness in sharing knowledge towards the completion of this thesis.

Finally I also would like to say thank you to my entire friend especially Saiful Anuar, Fadzilah Aion, Lili Sara, Zahiruddin, Asmidar, Razi, Diana and Shazwan for their support and other who have helped and supported me in completing this project. Thank you and may Allah bless all of you.

ABSTRACT

The Purpose of this project is to design and simulate a Dual-band bandpass filter for broadband application. This filter is designed using 6-poles cavity filter as it is offer better performance in losses and power handling. The first center frequency operates at 1.5 GHz with bandwidth of 500 MHz while the second center frequency operates at 3 GHz with a same value of bandwidth which is 500 MHz . A 20 -dB return loss in each passband and a 10-dB insertion loss in the intermediate stop band are required. An insertion loss greater than 25- dB is also desired in the lower and upper stopbands

In this design, there are six cavity build with the different length based on f_H , f_C and f_L of the each center frequency. There are also component need be design such as input and output disk using RT Duroid which have relative dielectric contant, $\epsilon_r = 2.33$ and dielectric loss tangent of 0.001. Besides the adjacent resonator are coupled along the length equal to the guide quarter-wavelength of the center frequency of the filter. The analysis of the project is based on the simulation using Computer Simulation Technology. CST MICROWAVE STUDIO (CST MWS) is used to optimize or tune the bandpass filter response in complete model complete model by applying new, fast MOR-frequency Domain Solver. In this paper, a procedure for the design and synthesis of asymmetrical dual-band bandpass filter is designed with in-line dual-mode cavities is proposed.

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