CAD AND FABRICATION OF LOW - PASS FILTER

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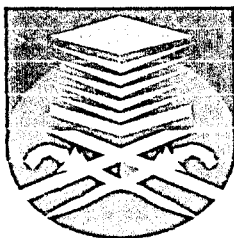## UNIVERSITI TEKNOLOGI MARA
MALAYSIA

CAD AND FABRICATION OF LOW-PASS FILTER

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ABSTRACT

The purpose of this project is to design, simulate, fabricate and measure the characteristics of a microstrip low-pass filter operating at microwave frequencies using computer-aided design (CAD) package. A maximally flat low-pass filter with cutoff frequency of 3GHz was designed to have an insertion loss not exceeding 1dB in the passband and an insertion loss of more than 15dB in the stopband.

The microstrip laminates used are 'Duroid/Rogers 5872' with a 0.5mm substrate thickness and relative permittivity (ε_r) of 2.33. The filter was designed, simulated and optimized with the aid of a CAD package HP-Eesof and Genesys V8 with different type of network. In Libra, the type of network used for the filter is π-network while T-network type is used in Genesys. The responses in simulation and experiment from both software are compared and found that the simulation responses from both software gave similar results but Genesys gave better responses than Libra in experimental results.

The circuits from both software were fabricated at UKM Fabrication Department. The filters characteristics were determined using a Wiltron 562 Vector Network Analyser.

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