

**UNIVERSITI TEKNOLOGI MARA**

**CAPACITANCE INSERTION FOR  
A SINGLE RING TUNABLE DUAL-BAND  
BANDPASS FILTER**

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## **ABSTRACT**

In this thesis, capacitance insertion for a single ring tunable dual-band bandpass filter is investigated. The study based on an existing single ring dual-band bandpass filter topology using Ansoft High Frequency Structural Simulator (HFSS) to simulate their performance with the different parameter value. The frequency analyzed is 2.65 GHz and 5.33 GHz with center frequency 4.00 GHz. The existing topology results are compared with the best value of four capacitance insertion at the edge of the ring in order to shift the frequency response. The result shows that the frequency response shifted from 2.65 GHz to 2.48 GHz which is 6.4% shifted for the lower passband while for upper passband the frequency response is shifted from 5.33 GHz to 5.00GHz (6.2% shifted). The findings of this research will benefit RF researchers and designers considering re-configurable dual-band bandpass filter in the design, particularly on WiMax applications

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