

**TITLE**

**IMPLEMENTATION OF CURVED TRANSMISSION LINE FOR  
BANDPASS FILTER REALIZATION BASED ON RING AND  
COUPLED-LINE COMBINATION**

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**This report is submitted in partial fulfillment of the requirements  
needed for the award of Bachelor in Electrical Engineering (Hons)**

## **ACKNOWLEDGMENT**

I would like to express my gratitude towards Almighty ALLAH S.W.T for giving me patience and strength to successfully complete the Communication Engineering Project 2.

I wish to give a big thank to M. K. M. Salleh of University of Technology MARA for his comprehensive supervision, guidance and useful suggestion in developing this project. He had been my major source of consulting during completing the project.

Thanks also to postgraduate students of University of Technology MARA for their tips and information regarding this project.

## ABSTRACT

In this paper, a realization of curved transmission line for combination of a one-wavelength ring and two identical quarter-wavelength coupled-lines for compact and selective band-pass filter has been performed successfully. The 3<sup>rd</sup> order curved micro-strip filter was designed using Computer Simulation Technology (CST) Microwave Studio software. The scattering parameters of input return loss, S<sub>11</sub> and insertion loss, S<sub>12</sub> for the 3<sup>rd</sup> order curved micro-strip filter has been successfully simulated and obtained. The 3<sup>rd</sup> order band-pass response can be controlled by altering the line impedance of the ring and the even- and odd-mode impedance of the coupled-lines. The comparison between both simulation and measurement results comprising of both scattering parameters; S<sub>11</sub> and S<sub>12</sub> are also included in this paper. The 3<sup>rd</sup> order curved micro-strip filter had been realized using micro-strip technology on FR4 epoxy glass substrate.

**Keyword:** microwave, band-pass filter, coupled-line, curved-bend transmission line, curved micro strip.

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