

ABSTRACT

Smithchart is a graphic aid or nomogram designed to help solve problems in transmission line and matching impedance. The Smithchart method is often used by engineers and students to analyze the transmission channel but the calculations performed manually are considered to require a complex and less efficient calculation process. So the necessary tools to overcome these problems.

In this final project, the learning media of the smithchart calculation in the form of transmission line analysis has been designed which contains calculations about load impedance analysis (ZL), input impedance (Zin) and distance impedance (ZD). Utilizing the MATLAB version R2017b software so that it can process Smithchart's calculations digitally. From this final project, the results of accuracy calculations are not much different from the theory. The influence of real and imaginary numbers is very influential on the intersection of the points plotted on the smithchart as well as the distance values that affect the value of the rotation and angle of the smithchart.

Keywords: *Transmission line, Smithchart, MATLAB, matching impedance.*