

ABSTRACT

THE HARMONIC ANALYSIS CAUSED BY USE OF THE CONVERTER ON ELECTRICAL RAILWAY 1X25 kV JOGYAKARTA-SOLO

By

Muhammad Reza Fauzan

As a means of transportation that can accommodate more passengers, Electrical Railway (KRL) needs to have a good working system to support the need for mass transportation in Indonesia. However, due to the use of non-linear load on Electrical Railway systems work can cause problems in the system that is causing the harmonics that can lead to decreased quality of power on the system. One example is contained in the converter Electrical Railway system Jogyakarta-Solo. can produce harmonic distortion that equipment can be more heat can even be damaged.

Therefore, to determine the value of harmonics in the system is required analysis and design a tool to overcome the problems of the harmonics. To overcome the problem of harmonics that occur on the system is installed the equipment in the form of a passive filter tuned filter. Single type of passive filter is installed in the bus load converters, transformers and motors to reduce the harmonic order of 5.

The simulation results show the installation of the single tuned filter can reduce the value of current and voltage Once installed filter harmonics, the current on bus of converter up 0.03%, and a voltage down 8%, a bus of the transformer, the current down 0.3%, and 44.71% of voltage down and the current on bus load of the motor down 19.85% while voltage down 43.91%.

Keywords : Converter, harmonic distortion, singel tuned filter.