

عنوان مقاله:

Different Hybrid Filters Configurations Impact on an AC 25 kV Electric Train's Harmonic Mitigation

محل انتشار:

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خلاصه مقاله:

Nowadays power quality is one of the crucial issues in power systems. Among power quality issues, harmonics caused by nonlinear loads are of great importance as causing great problems in power systems such as malfunction of electrical devices, efficiency reduction as well as reduction of effective lifetime of electrical devices. Electric railways utilizing thyristor rectifiers in order to control speed consume enormous lead current and inject huge harmonic to the grid. In order to eliminate harmonic and compensate reactive power in electric railways, it is proper to use hybrid filters. Hybrid filters are a combination of active and passive filters. Regarding the way active and passive filters are connected in hybrid filters, they have different structures. In this paper, harmonic model of electric railway as well as some of the hybrid filters configurations are evaluated and their performance in electric railways are simulated in MATLAB/SIMULINK. Finally, performances of different configurations are compared to demonstrate their advantages (and disadvantages in reducing current total harmonic distortion (THD

کلمات کلیدی:

electric railways; harmonic elimination; hybrid filters configurations; nonlinear loads; reactive power compensation

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