

电力系统谐波检测与防治方案研究

摘 要

在过去的几年里，随着广泛运用了大量的电子元器件，在电网的非线性负荷持续增长，这已经引起了电网的谐波含量连续增多，谐波污染越来越吃紧。大量谐波的存在不光减少电能质量，也作用了电网的安全平稳运行。有需求检测谐波并治理依据谐波检测效果，以确保电源的质量和确保电网的安定运行的谐波。谐波检测是谐波治理的基本和根源，检测的准确性与检测举措密切关联，本论文采集一系列数据，通过基于一种加窗傅里叶变换对谐波分析算法进行了仿真验证，采用不同种窗函数，比较误差曲线，观察频谱泄露和栅栏效应的好坏，通过验证得到四阶三项 Nuttall 窗函数的仿真精度较高，我学会了如何去谐波分析，为后期的谐波抑制提供了指导方法提供了一定的参考。

关键词：谐波 电能质量 谐波检测 傅里叶加窗函数

Abstract

In the past few years, with the wide use of a great amount of electronic elements, the nonlinear load in the power grid continues to grow, which has caused the successive enhancement of harmonic bulk in the power circuit, and the harmonic pollution becomes a growing hard. The existence of a large number of harmonics not only reduces the energy quality, but also take part in the secure and settled operation of the energy grid. There is a need to detect harmonics and control harmonics according to the harmonic detection effect to ensure the quality of the power supply and ensure the stable operation of the power grid harmonics. Harmonic detection is a fundamental and harmonic governance root, the accuracy of the test closely associated with detection measures, a series of data, this paper based on an add window Fourier transform algorithm for harmonic analysis has carried on the simulation, using different kinds of window function, more error curve, observe the stand or fall of frequency spectrum leakage and fence effect, the fourth order three Nuttal window function is obtained by validation of the simulation accuracy is higher, I learned how to harmonic analysis, provides guidance for harmonic suppression in the late method provides a certain reference.

Key Words: harmonic power quality ; harmonic detection ; Fourier; windowing function

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