

Phongphat Waraphok 2008: Database Development for Power Quality Analysis in Central Area of Provincial Electricity Authority (PEA). Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Associate Professor Trin Saengsuwan, Ph.D. 152 pages.

The PEA has been planning to create a new type of power quality database for analysis and assessment to follow up the EN 50160 standards. Basically, PEA's power quality data to be stored in the new database type are obtained from two types of PQ meter used in the central area of Thailand. Such data include PQSecure database from Unipower meter type U902 and ION_Data database from Power Measurement type ION7650.

In this thesis, the EN 50160 standard and related standards are first reviewed. Two types of data structure of PQSecure and ION_Data database are studied. Also structure of PQView database and original software are surveyed in parts of viewer and creating report. Then comparison of the advantages and disadvantages of each existing database are considered to design PQPEA database structure and develop PEA ASSESSMENT software.

The PQPEA database is a new database structure that are more flexible than the PQSecure database type structure and can support other power quality types without a need of re-design on database.

Finally the PEA ASSESSMENT software is developed to analyse the results, display graphs and creating reports similar to the original software. In addition, automatic functions are added to operate tasks fast and easy.

Student's signature

Thesis Advisor's signature