Saknarin Rakphant 2009: Correlations between Power Quality Indices with Reliability Indices of Provincial Electricity Authority for Central Area. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Associate Professor Trin Saengsuwan, Ph.D. 264 pages.

At Present, the power quality plays a vital role in distribution system of Provincial Electricity Authority and consumers. The consumers bring high technology electronic devices into the distribution system such as computer system, controlling system, and communication system including the cause of operating in switching devices, the power system malfunction, and natural phenomenon interference. Consequently, they directly effect to stability of distribution system of Provincial Electricity Authority and economical investment.

Therefore, in this research the data for considering the statistic to the power quality indices and power system reliability indices taken from the power quality meter of Provincial Electricity Authority. Then the equation of correlations between the power quality indices and power system reliability indices was perform using the Minitab's linear regression method.

As a result, this research has found that the correlative equation indicated the correlation between power quality index and power system reliability index of the substation depend on the different variables. The use of correlation equation will be proper if the highest values are considered from the correlation coefficient (R) and the coefficient of determination (R^2). The equation of correlations between power quality indices with power system reliability indices can show both to the line and substation.

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