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Performance Evaluation of Discrete Fourier Transform Algorithm Based PMU for Wide Area Measurement System

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Abstract : Implementation of advanced technologies requires sophisticated instruments that deal with the operation, control, restoration and protection of rapidly growing power system network under normal and abnormal conditions. Presently, the applications of Phasor Measurement Unit (PMU) are widely found in real time operation, monitoring, controlling and analysis of power system network as it eliminates the various limitations of Supervisory Control and Data Acquisition System (SCADA) conventionally used in power system. The use of PMU data is very rapidly increasing its importance for online and offline analysis. Wide Area Measurement System (WAMS) is developed as new technology by use of multiple PMUs in power system. The present paper proposes a model of MATLAB based PMU using Discrete Fourier Transform (DFT) algorithm and evaluation of its operation under different contingencies. In this paper, PMU based two bus system having WAMS network is presented as a case study.

Keywords : GPS global positioning system, PMU phasor measurement system, WAMS wide area monitoring system, DFT, PDC
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