

## **AN ADVANCED POWER QUALITY MONITORING SCHEME**

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General solutions for power quality monitoring are only focused on swells, sags, and other events, which can be extracted from r.m.s voltage level of the power system. More advanced power monitoring solutions may equip with harmonic level detection. However, transient event capturing, within the neighborhood of several cycles in the power lines, is very limited. Those limited schemes are not very trustworthy due to their inability of comparing the successive cycles on frequency varying environments. This research is mainly targeted on developing a prototype card for a PC with the capability of comparing successive cycles.

To implement the correct comparison with the input frequency variations, a frequency adaptive algorithm with variable sampling frequency is used. In this method, sampling frequency is varied according to the input cyclic frequency variations. This ensured a constant number of samples per input voltage cycle. Providing a same initiating point for successive cycles, the method allows direct sample-to-sample data comparison. However, frequency-tracking possibility is limited to the previous cycle. Therefore, a second order predicting algorithm is used to obtain the present frequency.

Events are identified by manipulating successive sample deviations. Identification software environment is developed through a C program platform, which is also the interfacing tool developer for the prototype card. Events are reported in a database which contains the event, time stamp, as well as the corresponding wave shape. Software environment also includes real time monitoring, which overrules the sample correction and forces the card to continuously feed the data. These data is used to indicate the present parameters. Basically this research is an initiation of the technical background for correct event logging.