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A Wireless Power and Data Acquisition System for Large Detectors HIMANSU SAHOO, PATRICK DE LURGIO, ZELIMIR DJURCIC, GARY DRAKE, ANDREW KREPS, Argonne National Laboratory, REZA HASHEMIAN, Northern Illinois University, MICHAEL OBERLING, Argonne National Laboratory, TIMOTHY PEARSON, Northern Illinois University — A new prototype wireless data acquisition system has been developed with the intended application to read-out instrumentation systems having thousands of channels. The data acquisition and control is based on a compliant implementation of 802.11 based hardware and protocols. Our case study is for a large detector containing photomultiplier tubes. The front-end circuitry, including a high-voltage power supply is powered wirelessly thus creating an all-wireless detector readout. The goal of this project is to build a single detector module that operates from wireless power and then sends data wirelessly. The benchmarked performance of the prototype system and how a large scale implementation of the system might be realized will be presented.

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