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Performance of the ARIANNA Neutrino Telescope

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The ARIANNA experiment currently has four detector stations installed in the Ross Ice Shelf of Antarctica. These stations make use of low noise, low power and inexpensive radio detection technology to measure the intense radio pulse emitted by neutrino-induced charged particle showers in ice. Each station operates autonomously, drawing power from solar panels, a wind turbine and lithium batteries. A station uses around 7 Watts while collecting data, and as little as 1 Watt while in a low power, diagnostic monitoring state. Data is stored locally on non-volatile memory cards and is shipped north upon request using wireless Internet and satellite modem peripherals. The performance of these stations will be discussed. First results from the in situ data will be presented, including studies of the angular resolution of the detector. The effectiveness of the Ross Ice Shelf for neutrino astronomy and as a radio quiet environment will be also explored.

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