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The Dark Matter Radio Pathfinder ARRAN PHIPPS, Stanford University, DM RADIO COLLABORATION COLLABORATION — There is compelling evidence for the existence of vast quantities of dark matter throughout the universe, however its identity remains a mystery. While weakly interacting massive particles (WIMPs) have been the focus of direct detection searches for several decades, there is growing interest in ultra-light, wave-like dark matter. The Dark Matter Radio (DM Radio) is a sensitive search for axion and hidden photon dark matter covering the peV to μeV mass range. The DM Radio Pathfinder is a proof-of-concept detector operating in a liquid helium bath. The detector consists of a superconducting, tunable lumped-element LC resonator with dc SQUID readout. The Pathfinder experiment has two main goals: to serve as a technology development platform for the full-sized cubic meter DM Radio, and to search a new portion of hidden photon parameter space. We present the design and preliminary data from the Pathfinder, which will search for hidden photon dark matter between 100 kHz and 10 MHz in its full scan.

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