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Design Improvements to Cables and Connectors in the MAJORANA DEMONSTRATOR[1] ANNA REINE, CHRISTOPHER HAUFE, University of North Carolina at Chapel Hill, MAJORANA COLLABORATION — The MAJORANA DEMONSTRATOR is an experiment constructed to search for neutrinoless double-beta decays in germanium-76 and to demonstrate the feasibility to deploy a large-scale experiment in a phased and modular fashion. It consists of two modular arrays of natural and 76Ge-enriched germanium p-type point contact detectors totaling 44.1 kg, located at the 4850' level of the Sanford Underground Research Facility in Lead, South Dakota, USA. The DEMONSTRATOR uses custom high voltage cables to bias the detectors, as well as custom signal cables and connectors to read out the charge deposited at each detectors point contact. These low-mass cables and connectors must meet stringent radiopurity requirements while being subjected to thermal and mechanical stress. A number of issues have been identified with the currently installed cables and connectors. An improved set of cables and connectors for the MAJORANA DEMONSTRATOR are being developed with the aim of increasing their overall reliability and connectivity. We will discuss some of the issues encountered with the current cables and connectors, the initial performance of our improved designs, and applications for development of LEGEND, a next-generation tonne-scale 76Ge experiment.

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