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Development of new semi-rigid coaxial cables for low temperature experiments AKIHIRO KUSHINO, Asahikawa National College of Technology, SOICHI KASAI, COAX CO., LTD. — Coaxial cables with seamless outer electrical conductors are promising for low-noise readout from novel cryogenic devices such as superconducting radiation or particle detectors, operating below helium temperature. Low thermal conductance as well as small signal attenuation is essential in wiring with coaxial cables for array detectors consisting of hundreds of pixels. We developed thin semi-rigid coaxial cables employing normal alloys (CuNi, SUS and beryllium copper) and superconducting alloys (NbTi and Nb). Superconducting coaxial cables with outer diameters from 0.86 mm to 2.19 mm showed good superconducting transitions at 9 10 K, and flat attenuation properties up to above 5 GHz.

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