

Performance Testing of the Engineering Model Astro-H 3-stage ADR

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The Japanese Astro-H mission will include the Soft X-ray Spectrometer (SXS) instrument provided by NASA/GSFC. The SXS will perform imaging spectroscopy in the soft x-ray band using a 6x6 array of silicon microcalorimeters operated at 50 mK. The detectors are cooled by a 3-stage adiabatic demagnetization refrigerator (ADR), which is configured to use either a 1.3 K superfluid helium tank or a 4.5 K Joule-Thomson cryocooler as a heat sink. At present, the engineering model SXS, including the detectors and ADR, has been performance tested at GSFC and integrated with the EM dewar in Japan. The flight model SXS is currently being fabricated. This paper presents test results of the EM ADR and changes that will be implemented in the flight version.