



Contribution ID: 445

Type: **Contributed Oral Presentation**

MatISSE Microcryocooler

Monday, 29 June 2015 16:45 (15 minutes)

Lockheed Martin Space Systems Company has built and delivered an engineering model microcryocooler to the Jet Propulsion Laboratory for use with instruments for deep space and earth science missions. Funding for this cryocooler was through JPL's Maturation of Instruments for Solar System Exploration (MatISSE). This cooler is nearly identical to the compact coaxial microcryocooler presented at the 2014 International Cryocooler Conference. The cryocooler mass is just 320 grams for the entire thermal mechanical unit, and is compact enough to be packaged in a CubeSat. This paper describes the measured performance of the MatISSE cryocooler, including the performance at the very cold heat rejection temperatures expected for JPL deep space missions.

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Session Classification: C1OrH - Aerospace Cryocoolers

Track Classification: CEC-04 - Cryocoolers (Aerospace)