

TIRS II Cryocooler System Performance and Initial On-Orbit Data

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The Thermal Infrared Sensor II (TIRS II) is the next generation of the original TIRS instrument on Landsat 8, launched in February 2013. TIRS and the Ball TIRS two-stage Stirling cryocooler for has been successfully operating on orbit for over nine years. Recently the TIRS II instrument and TIRS II cryocooler successfully completed all ground testing and was launched in December 2021. The TIRS II infrared focal plane is cooled by the second stage of a two-stage Ball Aerospace Stirling cycle cryocooler, operating at 40K. The first stage of this cryocooler provides shield cooling at 85K. This paper describes the TIRS II Cryocooler System, performance test results of two flight cryocoolers, and initial on-orbit performance.