

## Vacuum Radiance Temperature Standard Facility for Infrared Remote Sensing at NIM

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As infrared remote sensors are very important parts of Earth observation satellites, they must be calibrated based on the radiance temperature of a blackbody in a vacuum chamber prior to launch. The uncertainty of such temperature is thus an essential component of the sensors' uncertainty.

This paper describes the Vacuum Radiance Temperature Standard Facility (VRTSF) at the National Institute of Metrology (NIM) of China, which will serve to calibrate infrared remote sensors on Chinese meteorological satellites. The VRTSF can be used to calibrate vacuum blackbody radiance temperature, including those used to calibrate infrared remote sensors. The components of the VRTSF are described in this paper, including the VLTBB, the VMTBB, the LNBB, the FTIR spectrometer, the reduced-background optical system, the vacuum chamber used to calibrate customers' blackbody, the vacuum-pumping system and the liquid-nitrogen-support system. The experimental methods and results are expounded. The temperature range of the standard blackbodies is cover from 125K to 400K with 30mm in diameter aperture and 0.9999 emissivity.

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