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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 31010-2014

**Laboratory spectral calibration for dispersive hyperspectral
sensors**

色散型高光谱遥感器实验室光谱定标

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Quarantine;
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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. This standard was proposed by the Chinese Academy of Sciences. This standard by the National Remote Sensing Technology Standardization Technical Committee (SAC/TC327) centralized. This standard was drafted. Institute of Physics, Changchun Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, Anhui Optics and Fine Mechanics Research The Chinese Academy of Sciences Shanghai Institute of Technical Physics. The main drafters of this standard. Yanchang Xiang, Shaojian Bing, Zheng Xiaobing, Ma Yanhua. Dispersive spectroscopy Hyperspectral Sensor Calibration Laboratory

1 Scope

China's national standard for the laboratory spectral calibration of dispersive hyperspectral remote sensors. It specifies the equipment and laboratory conditions and the experimental methods for that calibration, and it applies to the laboratory spectral calibration of airborne and spaceborne dispersive imaging hyperspectral sensors working in the band from 0.4 to 2.5 micrometres, including filter, grating and prism dispersive types; other dispersive spectral sensors may take it as a reference. A hyperspectral sensor is defined here as an optical remote sensor whose spectral resolution is of the order of one hundredth of the operating wavelength, and spectral calibration is the process of determining, for each of its channels, the peak wavelength and the spectral bandwidth. That is the measurement on which everything the instrument produces depends. A hyperspectral image is used to identify materials from their absorption features, and an absorption feature is identified by where it sits in wavelength; an error in the assigned wavelength of a channel does not degrade the data, it misidentifies the material. Because the instrument cannot be recovered once it is in orbit and because its dispersive element and detector alignment can shift with launch and with thermal cycling, the laboratory calibration performed before launch is the reference against which every later in-flight check is interpreted. The standard therefore specifies the laboratory itself as carefully as the method: cleanliness better than class one hundred thousand, suppression of stray light within the sensor's working band and field of view, and a temperature of 20 degrees Celsius within 3 degrees at 50 per cent relative

humidity within 10 per cent, with stricter conditions where the sensor requires them. Issued on 3 September 2014 and in force since 1 February 2015.

This standard specifies the dispersive spectroscopy hyperspectral remote sensor calibration laboratory equipment conditions and experimental methods. This standard applies to working band is $0.4\mu\text{m} \sim 2.5\mu\text{m}$ dispersion imaging type (such as filter type, type diffraction grating, prism dispersive) Airborne/spaceborne hyperspectral remote sensor spectral calibration laboratories. Other dispersive spectral remote sensor calibration laboratories can use the reference.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document. GJB2700-1996 Satellite Terminology GJB3007A-2009 anti-static work area technical requirements

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Hyperspectral Sensor hyperspectralremotesensor $10-2\lambda$ spectral resolution in the order of optical remote sensor, λ is the operating wavelength.

3.2 Spectral calibration spectralcalibration Hyperspectral Sensor determination process for each channel spectrum peak wavelength and spectral bandwidth.

3.3 Laboratory spectral calibration laboratoryspectralcalibration Spectroscopy in the laboratory to conduct hyperspectral remote sensor calibration.

3.4 Spectral bandwidth spectralbandwidth Hyperspectral Sensor for each spectral channel relative spectral response curve, the spectral response is maximum corresponding to half the difference between the wavelengths.

4 General requirements

4.1 Calibration Laboratory Calibration laboratory environmental conditions are as follows:

- a) the level of cleanliness should be better than one hundred thousand. TBD elevation spectral remote sensor for cleanliness have special requirements, they should be required to perform;
- b) In the remote sensor working band and the field of view to suppress stray light;
- c) a temperature of $20\text{ }^{\circ}\text{C} \pm 3\text{ }^{\circ}\text{C}$, relative humidity of $50\% \pm 10\%$. TBD elevation spectral remote sensor for temperature and humidity have special requirements, should be Requests the Executive;

d) should have good anti-static condition, anti-static work area should be consistent with the relevant provisions of GJB3007A-2009.

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