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

GB/T 36540-2018

**Visible and shortwave infrared spectral reflectance
measurement of water**

水体可见光-短波红外光谱反射率测量

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed by the Chinese Academy of Sciences. This standard is under the jurisdiction of the National Remote Sensing Technology Standardization Technical Committee (SAC/TC327). This standard was drafted. Shanghai Meteorological Bureau, Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Institute of Optoelectronics, Chinese Academy of Sciences, China Institute of Remote Sensing and Digital Earth, Shanghai Institute of Satellite Engineering. The main drafters of this standard. Yin Qiu, Gong Cailan, Hu Yong, Jia Yuanyuan, Xu Hua, Zhang Fengli, Chen Qiang, Wang Xinhong. Visible light-short wave infrared spectrum reflectance measurement of water

1 Scope

China's national standard for measuring the spectral reflectance of water across the visible and shortwave infrared. It specifies the measurement conditions - environment, personnel and instrument - the preparation, the procedure and the treatment of results. It is the companion to the standard for urban surfaces, and water is by far the harder target. The signal is faint: water absorbs almost all the light that enters it, so what returns is a small fraction of what a land surface reflects, and much of what a sensor records is the sky reflected off the surface rather than anything from the water at all. Removing that skylight reflection is the central difficulty, and it depends on the viewing geometry, the sun position, the wind roughening the surface and the cloud overhead. The measurement is worth the trouble because water's spectrum carries what is in it: chlorophyll from algae, suspended sediment, and dissolved organic matter each have a signature, so a reflectance spectrum is a water quality measurement made without touching the water.

This standard specifies the terms and definitions, measurement conditions, measurement preparation, basic measurement of visible light-short-wave infrared spectral reflectance measurement of water bodies. Volume, supporting measurement, measurement record, measurement data processing and measurement work summary. This standard is applicable to the acquisition of unfrozen land surface water bodies and coastal water bodies in the wavelength range of 380 nm ~ 2500 nm. Spectral reflectance data, spectral reflectance measurements of water in the near-ultraviolet range from 300 nm to 380 nm and other unfrozen waters The visible-short-wave infrared spectral reflectance measurement of the body can be performed by reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 12936 solar heat utilization terminology

GB/T 13195 Determination of water quality and water temperature Thermometer or reverse thermometer method

GB/T 14950 Photogrammetry and Remote Sensing Terminology

GB 17378.3 Marine monitoring specification Part 3. Sample collection, storage and transport

GB/T 33988 Visible light-short-wave infrared spectrum reflectance measurement of urban features

HJ493 Technical regulations for the preservation and management of water sampling samples

HJ494 Water Quality Sampling Technical Guidance QX/T

46 Ground meteorological observation specification Part 2. Observation of clouds QX/T

47 Surface meteorological observation specification Part 3. Meteorological visibility observation QX/T

51 Ground meteorological observation specification Part 7. Wind direction and wind speed observation

3 Terms and definitions

GB/T 12936, GB/T 13195, GB/T 14950, GB 17378.3, GB/T 33988, HJ493, HJ494, QX/T 46, The following terms and definitions defined by QX/T 47, QX/T 51 apply to this document.

3.1 Total sunlight totalsunlight The sum of direct sunlight and sky light (also known as diffuse sunlight) reaching the measurement surface.

Note 1. The quantitative expression is. the total solar irradiance is equal to the sum of the direct sunlight irradiance and the sky light irradiance.

Note 2. If there is no limit to sunlight, it means total sunlight.

3.2 Sky light ratio proportionofskylight The proportion of sky light that reaches the measurement surface to the total sunlight.

Note. The quantitative expression is the ratio of sky light irradiance to total solar irradiance.

3.3 Container background spectral reflectivity background spectral reflectivity of container A container for measuring the spectral reflectance of a water sample, in the vacant state, the absorption and reflection process of the incident light through the inner surface is opened

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