

ICS 07.060

CCS A47



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

GB/T 43238-2023

**Test requirements for satellite field experiments of China
radiometric calibration sites - General rule**

中国遥感卫星辐射校正场外场试验要求 通则

Issued on: September 7, 2023

Implemented on: January 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

1 Scope	1
2 Normative reference documents	1
3 Terms and Definitions	1
4 Test principles	2
5 Test site requirements	2
6 Test preparation	3
7 Test conditions	4
8 Measurement elements	4
9 Data measurement requirements	5
8 Reference	10

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed by the China Meteorological Administration. This document is under the jurisdiction of the National Satellite Meteorology and Space Weather Standardization Technical Committee (SAC/TC347). This document was drafted by: National Satellite Meteorological Center, China Meteorological Administration Earth System Numerical Prediction Center, Chinese People's Liberation Army 61646 Military, China Resources Satellite Application Center, National Satellite Ocean Application Center, Ministry of Natural Resources Land Satellite Remote Sensing Application Center, Ministry of Ecology and Environment Satellite Environmental Application Center, Space Application Engineering and Technology Center of Chinese Academy of Sciences, China Institute of Metrology, Aerospace Information of Chinese Academy of Sciences Innovation Institute, Hefei Institute of Physical Sciences, Chinese Academy of Sciences, and Unit 61741 of the Chinese People's Liberation Army. The main drafters of this document. Zhang Yong, Zhang Lijun, Wang Fu, Gong Xinya, Si Yidan, Li Yuan, Rong Zhiguo, Sun Tong, Liu Li, Song Qingjun, Xiao Chenchao, Wang Zhongting, Li Shengyang, Hao Xiaopeng, Gao Hailiang, Li Xin, Li Honglin.

The China Remote Sensing Satellite Radiation Correction Field was established by my country relying on its independent technical strength to provide information for my country's

meteorology, resources, oceans, surveying and mapping, earthquakes, Multi-purpose remote sensing satellites such as high-definition and military satellites provide large-scale infrastructure supported by radiation calibration technology, including Dunhuang Gobi, Qinghai Lake water bodies, Pu'er Rain The multi-scale, full-spectrum radiation calibration field composed of forests plays an important role in ensuring the quantitative application of remote sensing satellites. This document is formulated to clarify the overall requirements for conducting field tests of radiation correction of China's remote sensing satellites, from the ultraviolet band, On-orbit field radiation calibration and authenticity of Earth observation satellite remote sensors in the full wavelength range of visible near-infrared, infrared and microwave bands The overall technical requirements for inspection, on-orbit performance analysis and satellite status monitoring field testing, thereby ensuring the field testing of China's remote sensing satellite radiation correction field Standardized development of test work. China Remote Sensing Satellite Radiation Correction Field General rules for field testing requirements

1 Scope

GB/T 43238-2023 sets the general requirements for the field campaigns at China's satellite radiometric calibration sites. A remote sensing satellite's calibration drifts from the day it launches, and the only way to recover it is vicarious calibration: a team goes to a large, flat, bright, uniform surface - Dunhuang, Qinghai Lake - measures the surface reflectance and the atmosphere while the satellite passes overhead, and computes what the sensor should have seen. The whole radiometric record of the mission depends on those few hours being done consistently. The standard sets the test principles, the requirements on the site, the preparation, the test conditions, the elements to be measured, the data measurement requirements and the processing and archiving of the data, with informative annexes on the common radiative transfer models and on the uncertainty analysis. It took effect on 1 January 2024.

This document establishes the test principles for off-site tests of radiation correction of Chinese remote sensing satellites, and stipulates its test site requirements, test preparation, Test conditions, measurement elements, data measurement requirements, data processing and archiving requirements. This document is applicable to the on-orbit field of Earth observation satellite remote sensors in the ultraviolet band, visible near-infrared band, infrared band and microwave band. Ground radiation calibration, authenticity testing, on-orbit performance analysis and satellite status monitoring field tests, other types of load field tests can be implemented as a reference.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated

referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 35221-2017 General principles for surface meteorological observation specifications

GB/T 35222-2017 Surface meteorological observation specifications cloud

GB/T 35223-2017 Specifications for surface meteorological observations Meteorological visibility

GB/T 35225-2017 Standard air pressure for surface meteorological observations

GB/T 35226-2017 Surface meteorological observation specifications air temperature and humidity

GB/T 35227-2017 Specification for surface meteorological observation wind direction and speed

GB/T 35237-2017 Surface meteorological observation specifications automatic observation

QX/T 69-2007 Solar photometer method for observing atmospheric turbidity QX/T

587-2020 Specification for testing of special technical equipment for meteorological observation High-altitude meteorological observation instruments China Meteorological Administration. Business specifications for routine upper-altitude weather observation [M]. Beijing. Meteorological Press,.2010.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Bandband The range of electromagnetic wavelengths used to effectively achieve the intended detection (or remote sensing) purpose.

3.2 Entrancepupil Limits the effective aperture of the incident beam.

Note. This generally refers to the entrance of the satellite optical system for earth observation.

3.3 Ultraviolet band ultravioletband The electromagnetic wave range with wavelength between 4nm~380nm.