

ICS 17.180.01

CCS N 38



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

GB/Z 43082-2023

**General specification of lunar and planetary in-situ exploration
camera**

月球与行星原位探测相机通用规范

Issued on: November 27, 2023

Implemented on: November 27, 2023

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

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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 Chinese Academy of Sciences. This document is under the jurisdiction of the National Standardization Technical Committee on Space Science and Its Applications (SAC/TC312). This document was drafted by: Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, National Astronomical Observatory of the Chinese Academy of Sciences, Optoelectronics of the Chinese Academy of Sciences Institute of Technology. The main drafters of this document. Yang Jianfeng, Lu Juan, Yu Guobin, Li Chunlai, Xue Bin, Liu Jianjun, Zhou Xiangdong, Qiao Weidong, Ren Xin, Zhao Rujin, Xue Xun, Yan Wei, Zhao Jianke, Li Fu. General specifications for lunar and planetary in-situ detection cameras

1 Scope

This document sets out the general specification for cameras used in in-situ exploration of the Moon and the planets: the requirements such an instrument has to satisfy and the

conditions under which it is qualified. A camera on a lander is not a camera with a rugged case. It has to survive launch, work in vacuum across a swing of two hundred degrees, tolerate radiation that would fog a terrestrial sensor, and return usable data through a link measured in kilobits. China has landed on the Moon and on Mars, and this document is the accumulated specification behind those instruments. Issued on 27 November 2023 by SAMR and SAC as a guiding technical document, in force from the same day, under the technical jurisdiction of the Chinese Academy of Sciences. There is very little published elsewhere on how Chinese planetary instruments are specified.

This document specifies the functional indicators, performance indicators, and environmental adaptability of lunar and planetary in-situ detection cameras operating in the visible light band. Safety and other technical requirements, the corresponding tests and test methods are described. This document applies to the design, testing and experimental development process of lunar and planetary in-situ detection cameras operating in the visible light band. It will be used as a reference for the development of in-situ detection cameras for the moon and planets in the ultraviolet and infrared bands.

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 2423.1-2008 Environmental testing of electrical and electronic products Part

3 Terms and definitions

The terms and definitions defined in GB/T 13962-2009 and the following apply to this document.

18 Ionizing radiation (total dose)

GB/T 10987-2009 Determination of optical system parameters

GB/T 10988-2009 Measurement method for stray light in optical systems

GB/T 12085.3-2022 Optics and photonics environmental test methods Part