

ICS 27.120.99

CCS F 92



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

GB/T 47340-2026

Solid-state power source systems for particle accelerators

粒子加速器用固态功率源系统

Issued on: March 31, 2026

Implemented on: October 1, 2026

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

Table of Contents

1.Scope	1
2 Normative References	1
3.Terms and Definitions	1
4.Solid-state power source system composition and operating conditions	3
5 Technical Requirements	4
7.Inspection Rule	15
18 Appendix B (Informative) Technical Requirements and Test Methods for Passive Devices	21

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 involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Nuclear Instruments and Meters (SAC/TC30). This document was drafted by: Institute of Modern Physics, Chinese Academy of Sciences; Institute of High Energy Physics, Chinese Academy of Sciences; and China Institute of Atomic Energy. The Chinese Academy of Sciences, Shanghai Advanced Research Institute of the Chinese Academy of Sciences, Peking University, National University of Defense Technology, Dalian Institute of Chemical Physics of the Chinese Academy of Sciences, and the Chinese Academy of Sciences Technical University, Chengdu Kaiteng Sifang Digital Broadcasting and Television Equipment Co., Ltd., Chengdu 630 Electronic Equipment Co., Ltd., Chengdu Dexin Digital Technology Co., Ltd. Technology Co., Ltd., Beijing Beiguang Technology Co., Ltd., and Wuxi Huakang Broadcasting and Television Equipment Factory. The main drafters of this document are. He Yuan, Wang Zhijun, Huang Guirong, Sun Liepeng, Wang Sheng, Zhang Tianjue, Zhao Yubin, Liu Kexin, Zhang Zicheng, and Zhang Weiqing. Feng Guangyao and Jiang Guodong. Solid-state power source system for particle accelerators

1 Scope

GB/T 47340-2026 is the Chinese national standard covering the solid-state RF power source that drives an accelerator cavity - hundreds of transistor amplifier modules combined into one output, which has replaced the klystron in many machines because a

single module can fail without stopping the beam. First edition, 17,000 words, in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the composition, operating conditions, technical requirements, test methods, and inspection rules for solid-state power source systems used in particle accelerators. Marking, packaging, transportation, storage and accompanying documents. This document applies to the design, production, and... of solid-state power source systems for particle accelerators with a frequency range of 30MHz to 4000MHz. test.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 191 Pictorial Symbols for Packaging and Storage

GB 4208 Enclosure protection ratings (IP code)

GB/T 17799.2-2023 Electromagnetic compatibility - General standards - Part

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Rated output power The rated operating conditions specified in the design documents of the solid-state power source and its signal amplification unit (including the preamplifier unit and the final amplifier unit) Under operating conditions, the maximum output power value that enables long-term safe and stable operation.

3.2 The output power value is calculated based on the linear correspondence between input power and output power.

Note. Linear correspondence means that the output power changes proportionally to the input power, without gain compression.

3.3 When the actual output power (in dBm) decreases by 1 dB relative to the ideal linear output power (in dBm), the solid-state power... The output power point corresponding to the source input-output power curve.

Note. dBm is a unit used to express the absolute value of power, with a reference standard

of 1 milliwatt (mW). It is mainly used for power measurement, recording, and plotting. dB is used in... The unit for expressing relative power is the difference between two absolute powers (dBm).

3.4 When the actual output power (in dBm) decreases by 1 dB relative to the ideal linear output power (in dBm), the solid-state power...

chinastandards.org · PREVIEW