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

GB/T 24975-2023

Replacing GB/T 24975.1-2010

**Guideline of environmentally conscious design for low-voltage
apparatus**

低压电器环境意识设计导则

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Foreword

This document was issued on 7 September 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 April 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 29.020, Chinese classification K04.

It replaces GB/T 24975.1-2010, which is superseded.

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.

This document replaces GB/T 24975.1-2010 "Guidelines for environmental design of low-voltage electrical appliances Part 1. General provisions" and GB/T 24975.2-

2010 "Guidelines for the Environmental Design of Low-Voltage Electrical Appliances Part 2. Isolators", GB/T 24975.3-2010 "Guidelines for the Environmental Design of Low-Voltage Electrical Appliances Part 2. Isolators"

Part 3. Circuit Breakers", GB/T 24975.4-2010 "Guidelines for Environmental Design of Low-Voltage Electrical Appliances Part 4. Contactors", GB/T 24975.5-

2010 "Guidelines for Environmental Design of Low-Voltage Electrical Appliances Part 5. Fuses", GB/T 24975.6-2010 "Guidelines for Environmental Design of Low-Voltage Electrical Appliances Part 5. Fuses"

Part 6. Button Signal Lights" and GB/T 24975.7-2010 "Guidelines for Environmental Design of Low-Voltage Electrical Appliances Part 7. Terminal Blocks", and

GB/T 24975.1-2010, GB/T 24975.2-2010, GB/T 24975.3-2010, GB/T 24975.4-2010,

Compared with GB/T 24975.5-2010, GB/T 24975.6-2010 and GB/T 24975.7-2010, except

for structural adjustments and editorial changes

In addition, the main technical changes are as follows.

---Changed the scope of application (see Chapter 1, Chapter 1 of GB/T 24975.1-2010);

---Updated terms and definitions (see Chapter 3, Chapter 3 of GB/T 24975.1-2010);

---Deleted "Introducing environmental factors into the overall consideration of product design and development" (see Chapter 4 of GB/T 24975.1-2010);

---Added the principles of environmentally conscious design (see Chapter 4);

---Added the content of environmentally conscious design (see Chapter 5);

---Change "Introducing environmental factors into the basic principles of product design and development" to "Introducing elements of environmentally conscious design into design and development"

Development guidance" (see Chapter 6, Chapter 5 of GB/T 24975.1-2010);

---Changed the guidance on environmentally conscious design and replaced GB/T 24975.2-2010, GB/T 24975.3-2010,

GB/T 24975.4-2010, GB/T 24975.5-2010, GB/T 24975.6-2010, GB/T 24975.7-2010 regulations

Summary of special considerations for certain low-voltage electrical products (see 6.3, GB/T 24975.1-2010, GB/T 24975.2-2010,

GB/T 24975.3-2010, GB/T 24975.4-2010, GB/T 24975.5-2010, GB/T 24975.6-2010 and Chapter 5 of GB/T 24975.7-2010);

--- Increased review and information sharing of environmentally aware design (see 6.4 and 6.5).

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 and coordinated by the National Technical Committee on Environmental Standardization of Electronic and Electrical Products and Systems (SAC/TC297).

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The previous versions of this document and the documents it replaces are as follows.

---First published in 2010 as GB/T 24975 (all parts) "Guidelines for Environmental Design of Low-Voltage Electrical Appliances";

Guidelines for Environmentally Conscious Design.

Environmentally Aware Design Guidelines for Low Voltage Electrical Appliances

1 Scope

GB/T 24975-2023 covers environmentally conscious design for low-voltage apparatus - the switching, protection and control devices that sit between a distribution board and the equipment it feeds. After the scope, the normative references and the terms it draws from the vocabulary and the quality and environmental management standards it cites, it sets out the design principles a manufacturer works to, and then the design content itself: the points in design and development at which environmental characteristics are settled, and what has to be considered at each of them. The guidance exists because most of the environmental burden of a low-voltage device is fixed on the drawing board - the metals and plastics it consumes, the energy it gives up as losses across decades of service, and how readily its parts can be separated when it is finally taken out. A team that treats environmental performance as something to be measured after the tooling is cut has already given away the room to change it, and is left arguing about a product it can no longer alter. Of use to makers of low-voltage switchgear and controlgear, their design and standardisation staff, and the bodies that review green design claims.

This document gives the principles and content of environmentally conscious design of low-voltage electrical products, and provides guidance on how to introduce environmentally conscious design elements into the design.

and development guidance.

This document applies to the environmentally conscious design of the following categories of low-voltage electrical products. Other categories of low-voltage electrical products can be used as a reference.

---Isolator;

---breaker;

---Contactor;

---Fuse;

---Button signal light;

---Terminals;

---Transfer switch electrical appliances.

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 2900.18-2008 Electrical terminology for low-voltage electrical appliances

GB/T 14048.2 Low-voltage switchgear and control equipment Part 2.Circuit breakers

GB/T 14048.4 Low-voltage switchgear and control equipment Part 4-1.Contactors and electromechanical contactors for motor starters

and motor starter (including motor protector)

GB/T 18455 packaging recycling mark

GB/T 18499 Residual current protective devices (RCD) for household and similar purposes
Electromagnetic compatibility

GB/T 19001-2016 Quality Management System Requirements

GB/T 23686-2022 Environmentally conscious design principles, requirements and guidance

GB/T 24001-2016 Environmental management system requirements and usage guidelines

GB/T 26572 Limit requirements for restricted substances in electronic and electrical