



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

GB/T 2423.38-2021

**Environmental testing - Part 2: Test methods - Test R: Water test
method and guidance**

Issued on: May 21, 2021

Implemented on: December 1, 2021

Issued by: SAMR; SAC

Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative references...	6
3 Terms and definitions...	6
4 Survey of water tests...	8
5 Test Ra. falling drops...	9
6 Test Rb. impacting water...	16
7 Test Rc. immersion...	29

Foreword

This document is drafted in accordance with GB/T 1.1-2020 "Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

This document is Part 38 of GB/T 2423.For the issued parts of GB/T 2423, see Annex NA.

This document replaces GB/T 2423.38-2008 "Environmental testing for electric and electronic products - Part 2.Test methods - Test R. Water test method and guidance". Compared with GB/T 2423.38-2008, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

- a) Add test method Rb 3.fan jet nozzle (see 6.4);
- b) Add test guidance for test method Rb 3.fan jet nozzle (see D.2.3).

This document, using translation method, is identical to IEC 60068-2-18.2017 "Environmental testing - Part 2-18.Tests - Test R and guidance. Water".

This document has mainly made the following editorial changes.

- a) Change the name of this document to "Environmental testing - Part 2.Test methods - Test R. Water test method and guidance";

b) Add an annex "Constituent documents of GB/T 2423" (see Annex NA).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by and shall be under the jurisdiction of National Technical Committee 8 on Environmental Conditions of Electric and Electronic Products and Environmental Test of Standardization Administration of China (SAC/TC 8).

Drafting organizations of this document. China National Electric Apparatus Research Institute Co., Ltd.; Tsinghua Shenzhen International Graduate School; AVIC Changcheng Metrology & Measurement (Tianjin) Co., Ltd.; Guangzhou Power Supply Bureau of Guangdong Power Grid Co., Ltd.; Zhejiang Province Institute of Metrology; Wuxi Soyater Test Equipment Co., Ltd.; Wuxi Sunan Experimental Equipment Co., Ltd.; Nanjing Wuhe Test Equipment Co., Ltd.; Electric Power Research Institute of Hainan Power Grid Co., Ltd.; CVC Certification & Testing Co., Ltd.; CCIC Southern Testing Co., Ltd.; Shenzhen Polytechnic; Fujian Xinneng Offshore Wind Power R&D Center Co., Ltd.; Hainan Power Grid Co., Ltd.; Shinry Technologies Co., Ltd.; South China University of Technology.

Main drafters of this document. Wang Jun, Xu Xuedong, Jia Zhidong, Lv Guoyi, Feng Wenxi, Mo Wenxiong, Zhang Hongyu, Zhou Zhongming, Ni Yangyi, Zhang Dinghu, Zhang Ruian, Che Hansheng, Deng Chuntao, Wang Xintao, Huang Xiangsheng, Fang Lianhang, Gao Jun, Wang Xilin, Huang Qingdan, Zeng Chen.

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

- It was first issued in 1990 as GB/T 2423.38-1990;
- When it was first revised in 2005, the content of GB/T 2424.23-1990 "Basic

environmental test procedures for electric and electronic products -

Guidance for water test" was incorporated;

- It was second revised in 2008;
- This is the third revision.

1 Scope

This document provides methods of test applicable to products which, during transportation, storage or in service, can be subjected to falling water drops, impacting water, immersion or high pressure water impact. The purpose is to verify the ability of enclosures, covers and seals to maintain components and equipment in good working order after and during testing.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardisation at the following addresses.

4 Survey of water tests

The water tests are structured into three groups.

- Ra. "falling drops" which, in principle, is a test with artificial rain and a test simulating falling drops from condensation or leakage.
- Rb. "impacting water" where water jets impinge upon the test specimen with a certain force and may assume any angle towards the test specimen.

5 Test Ra. falling drops

The water used for the test shall be fresh tap water of good quality. In order to avoid clogging of the nozzles, the water shall be filtered and may be demineralized. Details of the characteristics of the water are given in Annex

A. During the test, the water temperature shall not differ by more than 5 K from the temperature of the specimen under test. If the water temperature is more than 5 K below the temperature of the specimen, a pressure balance shall be provided for the specimen.

Where this test is included in the relevant specification, the following details shall be given in so far as they are applicable. The relevant specification shall supply information as required in the subclauses listed below, paying particular attention to the items marked with an asterisk (*) as this information is always required.

6 Test Rb. impacting water

Preconditioning of the specimen and seals shall be carried out if specified in the relevant specification.

The specimen shall be submitted to the visual, dimensional and functional checks specified in the relevant specification. All features of the specimen likely to affect the test result, such as surface treatment, enclosures, covers or sealing, shall be inspected to ensure that the instructions of the relevant specification have been followed.

7 Test Rc. immersion

The specimen shall be submitted to the visual, dimensional and functional checks specified in the relevant specification. All features of the specimen likely to affect the test result, such as surface treatment, enclosures, covers or sealing, shall be inspected to ensure that the instructions of the relevant specification have been followed.

The specimen shall be placed in the position as specified in the relevant specification and shall be completely immersed in a pressurized water chamber. A water soluble dye such as fluorescein may be added to the water in order to facilitate indication of leakage.

.....