



DPC: 23 / 30469457 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

Date: 26 July 2023
Origin: International**Latest date for receipt of comments: 16 August 2023**

Project No. 2023/00292

Responsible committee: GEL/104 Environmental conditions, classification and testing

Interested committees:

Title: BS EN IEC 60068-2-30 Environmental testing

Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)

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Responsible Committee Secretary: **Mr Simon Bounds (BSI)**
Direct tel: **0208 996 7281**
E-mail: simon.bounds@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



104/1018/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
IEC 60068-2-30 ED4

DATE OF CIRCULATION:
2023-07-21

CLOSING DATE FOR COMMENTS:
2023-09-15

SUPERSEDES DOCUMENTS:
104/969/RR

IEC TC 104 : ENVIRONMENTAL CONDITIONS, CLASSIFICATION AND METHODS OF TEST

SECRETARIAT:
Sweden

SECRETARY:
Mr Henrik Lagerström

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:

☐

Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

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Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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TITLE:

Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

**Part 2-30: Tests – Test Db:
Damp heat, cyclic (12 h + 12 h cycle)**

FOREWORD

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International Standard IEC 60068-2-30 has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

This fourth edition cancels and replaces the third edition, published in 2005 and constitutes a technical revision.

The major changes with regard to the previous edition concern:

- a) revision of the requirements for the test chamber;
- b) revision of the temperature tolerances of the test;
- c) updating of the figures for clarification purposes;
- d) revision of the limits of the temperature and relative humidity during conditioning;
- e) revision of the intermediate measurements;
- f) revision of standardized requirements for the test report.

105 The text of this standard is based on the following documents:

FDIS	Report on voting
104/369/FDIS	104/374/RVD

106

107 Full information on the voting for the approval of this standard can be found in the report on
108 voting indicated in the above table.

109 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

110 This standard forms Part 2-30 of IEC 60068 which consists of the following major parts, under
111 the general title *Environmental testing*:

112 Part 1: General and guidance;

113 Part 2: Tests;

114 Part 3: Supporting documentation and guidance;

115 Part 4: Information for specification writers;

116 Part 5: Guide to drafting of test methods.

117 The committee has decided that the contents of this publication will remain unchanged until the
118 maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data
119 related to the specific publication. At this date, the publication will be

- 120 • reconfirmed,
- 121 • withdrawn,
- 122 • replaced by a revised edition, or
- 123 • amended.

124

ENVIRONMENTAL TESTING –

Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)

1 Scope

This document specifies a test procedure to determine the suitability of components, equipment, or other articles for use, transportation, and storage under conditions of high humidity combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen. This test method can also be used to validate the packaging of specimen for transportation and storage.

This document does only in exceptional cases apply to specimens that are energized throughout the test.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-67, *Environmental testing – Part 2-67: Tests – Test Cy: Damp heat, steady state, accelerated test primarily intended for components*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60068-2-1 and IEC 60068-2-2 apply.

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO online browsing platform: available at <http://www.iso.org/obp>

4 General description

This test comprises one or more temperature cycles in which the relative humidity is maintained at a high level.

Two variants of the cycle are given which are identical except for the cooling period; during this part of the cycle, Variant 2 allows wider tolerances of relative humidity and the temperature change rate.

164 The conditioning temperature and the number of cycles (see Clause 6) determine the test
165 severity.

166 Test profiles illustrating the procedure are shown in Figure 2 and Figure 3.

167 NOTE For small, low mass specimens, it can be difficult to produce condensation on the surface of the specimen
168 using this procedure; considering an alternative test such as Test Z/AD (IEC 60068-2-38) can be helpful.

169 5 Description of test chamber

170 The test chamber shall be so constructed that:

171 a) the temperature in the working space can be varied cyclically between $25\text{ °C} \pm 3\text{ K}$ and the
172 appropriate conditioning temperature $\pm 2\text{ K}$ in a period specified in 7.5 as well as Figure 2
173 and Figure 3, as applicable;

174 b) the relative humidity in the working space can be maintained within the limits of Variant 1
175 or Variant 2 or both as given in 7.5 as well as in Figure 2 and Figure 3, as applicable;

176 c) the conditions prevailing at any point in the working space are uniform and are as similar
177 as possible to those prevailing in the immediate vicinity of suitably located temperature- and
178 humidity-sensing devices;

179 The air in the chamber shall therefore be continuously stirred at a rate necessary to maintain
180 the specified conditions of temperature and humidity;

181 d) the specimens under test shall not be subjected to radiant heat from the chamber
182 conditioning processes;

183 e) the water used for the chamber humidity system shall comply with the limits given in IEC
184 60068-2-67;

185 f) any water is continuously drained from the chamber and not used again unless it has been
186 re-purified;

187 g) the materials used in the construction should not cause any significant corrosion of the
188 specimen, or degradation of the quality of the humidifying water;

189 h) injected moisture, when applicable, is not directly applied to the specimen but injected
190 remotely from the specimen;

191 i) the volume of the test chamber is at least five times the total volume of the specimen under
192 test.

193 NOTE All temperatures and humidity values measured refer to the control sensor of the test chamber.

194 Precautions should be taken to ensure that no condensed water from the walls and roof of the
195 test chamber can fall on the specimens. The specimen should not significantly impede the air
196 flow.

197 Where no specific mounting is prescribed, the thermal conduction of the mounting shall be low,
198 so that for all practical purposes the specimen is thermally isolated.

199 6 Severities

200 The combination of the conditioning temperature and the number of cycles define the severity
201 of this test.

202 The severity shall be chosen from the following:

- 203 a) conditioning temperature: 40 °C ,
204 number of cycles: 2, 6, 12, 21, 56;