

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Environmental testing –
Part 2-82: Tests – Test Xw₁: Whisker test methods for components and parts
used in electronic assemblies**

**Essais d'environnement –
Partie 2-82: Essais – Essai Xw₁: Méthodes de vérification des trichites
pour les composants et les pièces utilisés dans les ensembles électroniques**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL TESTING –

Part 2-82: Tests – Test Xw₁: Whisker test methods for components and parts used in electronic assemblies

FOREWORD

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International Standard IEC 60068-2-82 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- extension of the scope of the test standard from electronic to electromechanic components and press-fit pins, which are used for assembly and interconnect technology;
- significant reduction of the testing effort by a knowledge-based selection of test conditions i.e. tests not relevant for a given materials system can be omitted (see Annex D);
- harmonization with JESD 201A by omission of severities M, N for temperature cycling tests;

- highly reduced test duration (1 000 h instead of 4 000 h) for damp-heat test by introducing test condition at elevated humidity of 85 % R.H. and a temperature of 85 °C providing increased severity.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
91/1562/FDIS	91/1573/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 60068 series, published under the general title *Environmental testing*, can be found on the IEC website.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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ENVIRONMENTAL TESTING –

Part 2-82: Tests – Test Xw₁: Whisker test methods for components and parts used in electronic assemblies

1 Scope

This part of IEC 60068 specifies tests for the whiskering propensity of surface finishes of electric or electronic components and mechanical parts such as punched/stamped parts (for example, jumpers, electrostatic discharge protection shields, mechanical fixations, press-fit pins and other mechanical parts used in electronic assemblies) representing the finished stage, with tin or tin-alloy finish. Changes of the physical dimensions of mould compounds, plastics and the like during the required test flow are not considered or assessed. The test methods have been developed by using a knowledge-based approach.

This document can also be used at sub-suppliers, like plating shops, stamping shops or other service providers to ensure a consistent surface quality within the supply chain.

These test methods are employed with defined acceptance criteria by a relevant component or application specification.

The tests described in this document are applicable for initial qualification, for periodic monitoring in accordance with Clause 7, and for changes of technology or manufacturing processes of existing surfaces in accordance with Clause 9.

The mating area of connectors is not covered by this test method. IEC 60512-16-21 applies for the mating areas of connectors.

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 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-58, *Environmental testing – Part 2-58: Tests – Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

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

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*