

Basic environmental testing procedures —

Part 2.1 Tests —

Test Ta: Soldering. Solderability testing by the wetting balance method

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The Committees responsible for this British Standard are shown in Part 1.1.
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Contents

	Page
National foreword	ii
1 Object	1
2 General description of the test	1
3 Description of the test apparatus	1
4 Preparation of specimens	1
5 Conditions of test	1
6 Presentation of results	2
7 Information to be given in the relevant specification	3
Appendix A Characteristics of the apparatus	4
Appendix B Guide to the use of the wetting balance for solderability testing	4
Figure 1 — <i>Untitled</i>	1
Figure 2 — <i>Untitled</i>	3
Publication referred to	Inside back cover

National foreword

This Part of BS 2011 has been prepared under the direction of the General Electrotechnical Engineering Standards Policy Committee. It is identical with IEC Publication 68-2-54:1985 “*Basic environmental testing procedures. Part 2: Tests — Test Ta: Soldering — Solderability testing by the wetting balance method*”, published by the International Electrotechnical Commission (IEC). All Parts of IEC Publication 68 are endorsed by CENELEC Harmonization Document (HD) 323, as a general rule, although in some cases an enquiry is made before endorsement.

Terminology and conventions. The text of the international standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following. For the purposes of this Part of this standard, clause 1 is to be read as the scope clause.

Wherever page numbers are quoted, they are IEC page numbers.

NOTE In BS 2011-2.1 T (IEC 68-2-20) there already exists a test, referenced Ta, which deals with “Solderability of wire and tag terminations”. The text of this standard, which is identical to IEC 68-2-54, should therefore be regarded as an additional test to those given in BS 2011-2.1 T.

Cross-references

International standard	Corresponding British Standard
IEC 68-2-20:1979	BS 2011 Basic environmental testing procedures Part 2.1 T:1981 Test T. Soldering (Identical)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Object

This test is to determine the solderability of component terminations of any shape. It is specially suitable for reference testing and for components that cannot be quantitatively tested by other methods.

2 General description of the test

The specimen is suspended from a sensitive balance (typically a spring system) and immersed edgewise to a set depth in a bath of molten solder at a controlled temperature. The resultant of the vertical forces of buoyancy and surface tension acting upon the immersed specimen is detected by a transducer and converted into a signal which is continuously recorded as a function of time on a high-speed chart recorder. The trace may be compared with that derived from a perfectly-wetted specimen of the same nature and dimensions.

Two modes of testing exist:

- The stationary mode, intended to study the solderability of a particular place on the specimen. It is this mode which is standardized in this standard.
- The scanning mode, intended to study the homogeneity of the solderability of an extended region of the surface of the specimen. The standardization of this mode is still under consideration.

3 Description of the test apparatus

A diagram of an arrangement suitable for the test is shown in Figure 1.

Any other system capable of measuring the vertical forces acting on the specimen is admissible, provided that the system has the characteristics given in Appendix A

4 Preparation of specimens

Care shall be taken to ensure that no part of the surface to be tested becomes contaminated, especially by contact with the fingers, during preparation of the specimen. The specimen may be cleaned by immersion in a neutral organic solvent at room temperature, but only if required by the relevant specification; no other cleaning is permitted. Accelerated ageing, if required, shall be done in accordance with Sub-clause 4.5 of the fourth edition (1979) of IEC Publication 68-2-20: Basic Environmental Testing Procedures, Part 2: Tests — Test T: Soldering.

5 Conditions of test

5.1 Solder

The solder to be used shall be as defined in IEC Publication 68-2-20, fourth edition (1979), Appendix B.

5.2 Flux

The flux to be used shall be one of those defined in IEC Publication 68-2-20, fourth edition (1979), Appendix C.

5.3 Procedure

After mounting the specimen in a suitable holder, the portion of the surface specified shall be immersed in flux at room temperature. Excess flux is immediately drained off by standing the specimen vertically on clean filter paper for 1 s to 5 s.

