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Environmental testing - Part 2-69: Tests - Test Te/Tc: Solderability testing of electronic components and printed boards by the wetting balance (force measurement) method

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/17

Obsahuje: EN 60068-2-69:2017, IEC 60068-2-69:2017

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Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD

**EN 60068-2-69**

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2017

ICS 19.040; 31.190

Supersedes EN 60068-2-54:2006, EN 60068-2-69:2007

English Version

Environmental testing -  
Part 2-69: Tests - Test Te/Tc: Solderability testing of electronic  
components and printed boards by the wetting balance (force  
measurement) method  
(IEC 60068-2-69:2017)

Essais d'environnement -  
Partie 2-69: Essais - Essai Te/Tc: Essai de brasabilité des  
composants électroniques et cartes imprimées par la  
méthode de la balance de mouillage (mesure de la force)  
(IEC 60068-2-69:2017)

Umgebungseinflüsse - Teil 2-69: Prüfungen - Prüfung  
Te/TC: Prüfung der Lötbarkeit von Bauelementen der  
Elektronik und Leiterplatten mit der Benetzungswaage  
(Kraftmessung)  
(IEC 60068-2-69:2017)

This European Standard was approved by CENELEC on 2017-04-11. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN 60068-2-69:2017****European foreword**

The text of document 91/1405/FDIS, future edition 3 of IEC 60068-2-69, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60068-2-69:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-01-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-11

This document supersedes EN 60068-2-69:2007 and EN 60068-2-54:2006.

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-3-13:2016	NOTE	Harmonized as EN 60068-3-13:2016 (not modified).
IEC 61190-1-1:2002	NOTE	Harmonized as EN 61190-1-1:2002 (not modified).
ISO 9453:2014	NOTE	Harmonized as EN ISO 9453:2014 (not modified).

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-20	2008	Environmental testing - Part 2-20: Tests - Test T: Test methods for solderability and resistance to soldering heat of devices with leads	EN 60068-2-20	2008
IEC 60068-2-66	-	Environmental testing - Part 2-66: Test methods - Test Cx: Damp heat, steady state (unsaturated pressurized vapour)	EN 60068-2-66	-
IEC 61190-1-3	2007	Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications	EN 61190-1-3	2007
+A1	2010		+A1	2010
ISO 683	Series	Heat treatable steels, alloy steels and free-cutting steels	EN ISO 683	Series <sup>1)</sup>
ISO 6362	Series	Wrought aluminium and aluminium alloys extruded rods/bars, tubes and profiles	-	-

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<sup>1)</sup> At draft stage.



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Environmental testing –  
Part 2-69: Tests – Test Te/Tc: Solderability testing of electronic components  
and printed boards by the wetting balance (force measurement) method**

**Essais d'environnement –  
Partie 2-69: Essais – Essai Te/Tc: Essai de brasabilité des composants  
électroniques et cartes imprimées par la méthode de la balance de mouillage  
(mesure de la force)**





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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Environmental testing –  
Part 2-69: Tests – Test Te/Tc: Solderability testing of electronic components  
and printed boards by the wetting balance (force measurement) method**

**Essais d'environnement –  
Partie 2-69: Essais – Essai Te/Tc: Essai de brasabilité des composants  
électroniques et cartes imprimées par la méthode de la balance de mouillage  
(mesure de la force)**

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## CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 General description of the method .....	8
4.1 General.....	8
4.2 Components .....	8
4.3 Printed boards .....	8
4.4 Measurement.....	8
5 Description of the test apparatus .....	8
6 Preparation of specimens .....	10
6.1 Cleaning .....	10
6.2 Preconditioning.....	10
7 Materials .....	11
7.1 Solder.....	11
7.1.1 General .....	11
7.1.2 Solder alloy containing lead.....	11
7.1.3 Lead-free solder alloy .....	11
7.1.4 Solder contamination control .....	11
7.1.5 Solder mass for solder globule wetting balance method.....	12
7.2 Flux .....	13
7.2.1 Rosin based flux.....	13
7.2.2 Flux maintenance .....	13
7.2.3 Test flux selection criteria.....	13
8 Procedure.....	13
8.1 Test temperature .....	13
8.1.1 Solder alloy containing lead .....	13
8.1.2 Lead-free solder alloy .....	13
8.2 Test procedure.....	13
8.2.1 Applicable test procedure .....	13
8.2.2 Solder bath wetting balance procedure .....	14
8.2.3 Solder globule wetting balance procedure.....	17
8.2.4 Procedure for testing printed board specimens .....	20
9 Presentation of results.....	21
9.1 Form of force versus time trace.....	21
9.2 Test requirements .....	22
10 Information to be given in the relevant specification.....	23
Annex A (normative) Equipment specification .....	24
A.1 Characteristics of the apparatus.....	24
A.2 Solder bath .....	24
A.3 Globule support blocks .....	25
Annex B (informative) Use of the wetting balance for SMD solderability testing.....	26
B.1 Definition of the measure of solderability .....	26
B.2 Gauge R&R – Test protocol for wetting balance gauge repeatability and reproducibility using copper foil coupons.....	26



B.2.1	Test coupon.....	26
B.2.2	Test parameters .....	27
B.2.3	Known good coupon .....	27
B.3	Solder globule mass and pin size.....	28
B.4	Specimen orientation and immersion depth.....	28
B.4.1	General .....	28
B.4.2	Resistors and capacitors .....	29
B.4.3	Small-leaded components.....	29
B.4.4	Multi-leaded devices .....	29
B.5	Test flux.....	30
B.6	Test temperature .....	30
B.6.1	Solder alloy containing lead .....	30
B.6.2	Solder alloy without lead.....	31
B.7	Characteristics of the test apparatus .....	31
B.7.1	Recording device.....	31
B.7.2	Balance system .....	32
B.7.3	Lifting mechanism and controls.....	32
B.7.4	Parameters to be measured from the force-time trace.....	37
B.7.5	Reference wetting force .....	37
B.7.6	Equipment location .....	38
B.7.7	Globule pins .....	38
B.7.8	Globule modules.....	38
B.8	Test flux – IPC-J-STD-002/J-STD-003 activated solderability test flux rationale committee letter.....	38
B.8.1	General .....	38
B.8.2	Proactive solderability testing approach to the implementation of non-tin finishes.....	39
B.8.3	Reduced solderability test variability.....	39
B.8.4	Standardization of solderability test flux composition on a global scale .....	39
Annex C (normative)	Test methods for SMD components sizes 0603M (0201) or smaller.....	40
C.1	General.....	40
C.2	General description of the test method.....	40
C.3	Preconditioning.....	40
C.3.1	Preparation of the specimens .....	40
C.3.2	Ageing .....	40
C.4	Materials.....	40
C.4.1	Solder.....	40
C.4.2	Flux .....	41
C.5	Method 1.....	41
C.5.1	Description of the test apparatus .....	41
C.5.2	Procedures .....	41
C.5.3	Presentation of results.....	44
C.5.4	Information to be given in the relevant specification.....	45
C.6	Method 2.....	46
C.6.1	Test apparatus .....	46
C.6.2	Observation equipment.....	46
C.6.3	Test method 2 .....	46
C.6.4	Presentation of results.....	47

Annex D (informative) Evaluation criteria – Guidance .....	48
D.1 General considerations .....	48
D.2 Evaluation criteria for components .....	48
D.3 Evaluation criteria for printed boards.....	49
Annex E (informative) Method of calculating the maximum theoretical force and integrated value of the area of the wetting curve for leaded non-SMD .....	50
E.1 Method of calculating the maximum theoretical force .....	50
E.2 Method of calculating the integrated value of the area of the wetting curve .....	50
Bibliography.....	52
Figure 1 – Arrangement for the test apparatus (solder bath wetting balance method).....	9
Figure 2 – Arrangement for the test apparatus (solder globule wetting balance method) .....	9
Figure 3 – Immersion conditions for solder bath method .....	16
Figure 4 – Immersion conditions for solder globule method .....	19
Figure 5 – Suggested wetting balance test specimens and soldering immersion .....	20
Figure 6 – Printed board immersion .....	21
Figure 7 – Typical wetting balance trace .....	22
Figure B.1 – Understanding wetting curves .....	35
Figure B.2 – Typical wetting curve .....	35
Figure B.3 – Representative force-time curves.....	36
Figure C.1 – Cross-section of aluminium body .....	41
Figure C.2 – Dipping position and relative position.....	42
Figure C.3 – Time and test sequence.....	44
Figure C.4 – Typical wetting balance trace.....	45
Figure D.1 – Set A wetting curve.....	49
Figure D.2 – Set B wetting curve.....	49
Table 1 – Preconditioning .....	10
Table 2 – Maximum limits of solder bath contaminants.....	12
Table 3 – Globule and pellet sizes .....	12
Table 4 – Rosin based flux compositions .....	13
Table 5 – Recommended solder bath wetting balance test conditions .....	15
Table 6 – Time sequence of the test (solder bath).....	17
Table 7 – Recommended solder globule wetting balance test conditions.....	18
Table 8 – Time sequence of the test (solder globule) .....	20
Table B.1 – Carboxylic acid based flux (water solution) .....	30
Table B.2 – Carboxylic acid based flux (alcohol solution).....	30
Table C.1 – Time sequence of the test procedure .....	43
Table D.1 – Wetting balance parameter and suggested evaluation criteria.....	48
Table D.2 – Printed board test parameter and suggested criteria .....	49

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ENVIRONMENTAL TESTING –

**Part 2-69: Tests – Test Te/Tc: Solderability testing of  
electronic components and printed boards  
by the wetting balance (force measurement) method**

## FOREWORD

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International Standard IEC 60068-2-69 has been prepared by IEC technical committee 91: Electronics assembly technology.

This third edition cancels and replaces the second edition published in 2007 as well as the second edition of IEC 60068-2-54 published in 2006 and constitutes a technical revision.

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

- integration of IEC 60068-2-54;
- inclusion of tests of printed boards;
- inclusion of new component types, and updating test parameters for the whole component list;

- inclusion of a new gauge R & R test protocol to ensure that the respective wetting balance equipment is correctly calibrated.

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

FDIS	Report on voting
91/1405/FDIS	91/1426/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.

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

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

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- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## ENVIRONMENTAL TESTING –

### **Part 2-69: Tests – Test Te/Tc: Solderability testing of electronic components and printed boards by the wetting balance (force measurement) method**

#### **1 Scope**

This part of IEC 60068 outlines test Te/Tc, the solder bath wetting balance method and the solder globule wetting balance method to determine, quantitatively, the solderability of the terminations. Data obtained by these methods are not intended to be used as absolute quantitative data for pass–fail purposes.

The procedures describe the solder bath wetting balance method and the solder globule wetting balance method. They are applicable to components and printed boards with metallic terminations and metallized solder pads.

This document provides the measurement procedures for solder alloys both with and without lead (Pb).

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

IEC 60068-2-20:2008, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-66, *Environmental testing – Part 2: Test methods – Test Cx: Damp heat, steady state (unsaturated pressurized vapour)*

IEC 61190-1-3:2007, *Attachment materials for electronic assembly – Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solders for electronic soldering applications*

IEC 61190-1-3:2007/AMD1:2010

ISO 683 (all parts), *Heat-treatable steels, alloy steels and free-cutting steels*

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