

# ILNAS

Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

## ILNAS-EN IEC 62025-2:2019

### **High frequency inductive components - Non-electrical characteristics and measuring methods - Part 2: Test methods for non-electrical**

Composants inductifs à haute fréquence  
- Caractéristiques non électriques et  
méthodes de mesure - Partie 2: Méthodes  
d'essai pour caractéristiques non

Induktive Hochfrequenzbauelemente -  
Nichtelektrische Eigenschaften und  
Messmethoden - Teil 2: Messverfahren für  
nichtelektrische Eigenschaften

## National Foreword

This European Standard EN IEC 62025-2:2019 was adopted as Luxembourgish Standard ILNAS-EN IEC 62025-2:2019.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

### THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

## English Version

High frequency inductive components - Non-electrical  
characteristics and measuring methods - Part 2: Test methods  
for non-electrical characteristics  
(IEC 62025-2:2019)

Composants inductifs à haute fréquence - Caractéristiques  
non électriques et méthodes de mesure - Partie 2:  
Méthodes d'essai pour caractéristiques non électriques  
(IEC 62025-2:2019)

Induktive Hochfrequenzbauelemente - Nichtelektrische  
Eigenschaften und Messmethoden - Teil 2: Messverfahren  
für nichtelektrische Eigenschaften  
(IEC 62025-2:2019)

This European Standard was approved by CENELEC on 2019-10-25. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## European foreword

The text of document 51/1273/CDV, future edition 2 of IEC 62025-2, prepared by IEC/TC 51 "Magnetic components, ferrite and magnetic powder materials" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62025-2:2019.

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) 2020-07-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-10-25

This document supersedes EN 62025-2:2005 and all of its amendments and corrigenda (if any).

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

## Endorsement notice

The text of the International Standard IEC 62025-2:2019 was approved by CENELEC as a European Standard without any modification.

**Annex ZA**  
(normative)

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

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.

NOTE 1 Where 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 EN 60068-1 and guidance		-
IEC 60068-2-6	2007	Environmental testing - Part 2-6: Tests - EN 60068-2-6 Test Fc: Vibration (sinusoidal)		2008
IEC 60068-2-20	-	Environmental testing - Part 2-20: Tests - EN 60068-2-20 Test T: Test methods for solderability and resistance to soldering heat of devices with leads		-
IEC 60068-2-21	2006	Environmental testing - Part 2-21: Tests - EN 60068-2-21 Test U: Robustness of terminations and integral mounting devices		2006
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - EN 60068-2-27 Test Ea and guidance: Shock		-
IEC 60068-2-45	1980	Basic environmental testing procedures - EN 60068-2-45 Part 2-45: Tests - Test XA and guidance: Immersion in cleaning solvents		1992
+ A1	1993		+ A1	1993
IEC 60068-2-58	2015	Environmental testing - Part 2-58: Tests - EN 60068-2-58 Test Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)		2015
+ A1	2017		+ A1	2018
IEC 60068-2-69	-	Environmental testing – Part 2-69: Tests – EN 60068-2-69 Test Te/Tc: Solderability testing of electronic components and printed boards by the wetting balance (force measurement) method		-
IEC 60068-2-77	-	Environmental testing - Part 2-77: Tests - EN 60068-2-77 Test 77: Body strength and impact shock		-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61188-5-2	-	Printed boards and printed board EN 61188-5-2 assemblies - Design and use - Part 5-2: Attachment (land/joint) considerations - Discrete components		-
IEC 61190-1-2	2014	Attachment materials for electronic assembly - Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly	EN 61190-1-2	2014
IEC 61190-1-3	-	Attachment materials for electronic assembly - Part 1-3: Requirements for electronic grade solder alloys and fluxed and non-fluxed solid solder for electronic soldering applications	IEC 61190-1-3	
IEC 62211	2017	Inductive components – Reliability management	EN 62211	2017



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**High frequency inductive components – Non-electrical characteristics and measuring methods –  
Part 2: Test methods for non-electrical characteristics**

**Composants inductifs à haute fréquence – Caractéristiques non électriques et méthodes de mesure –  
Partie 2: Méthodes d'essai pour caractéristiques non électriques**

## CONTENTS

FOREWORD .....	4
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 Test conditions .....	7
4.1 Standard atmospheric conditions for test .....	7
4.2 Referee conditions .....	7
5 Mechanical characteristics test .....	7
5.1 Body strength test .....	7
5.1.1 Body strength test procedures .....	7
5.1.2 Information to be given in the detail specification .....	9
5.2 Robustness of terminations (electrodes) .....	9
5.2.1 Resistance to bending of printed-circuit board .....	9
5.2.2 Adherence test (see test of Ue <sub>3</sub> of IEC 60068-2-21) .....	13
5.3 Solderability .....	15
5.3.1 General .....	15
5.3.2 Preconditioning .....	15
5.3.3 Initial measurement .....	15
5.3.4 Test method .....	15
5.3.5 Recovery .....	17
5.3.6 Final measurement .....	17
5.3.7 Items to be specified in detail specification .....	17
5.4 Resistance to soldering heat .....	18
5.4.1 General .....	18
5.4.2 Preconditioning .....	18
5.4.3 Initial measurement .....	18
5.4.4 Test method .....	18
5.4.5 Recovery .....	19
5.4.6 Final measurement .....	19
5.4.7 Items to be specified in detail specification .....	19
5.5 Resistance to dissolution of metallization .....	20
5.5.1 General .....	20
5.5.2 Preconditioning .....	20
5.5.3 Initial measurement .....	20
5.5.4 Test methods .....	20
5.5.5 Final measurements .....	20
5.5.6 Items to be specified in detail specification .....	21
5.6 Vibration .....	21
5.6.1 Test equipment .....	21
5.6.2 Preparation .....	21
5.6.3 Test method .....	21
5.6.4 Items to be specified in detail specification .....	21
5.7 Resistance to shock .....	22
5.7.1 Mechanical shock method .....	22
5.7.2 Items to be specified in detail specification .....	22

Annex A (normative) Mounting of surface mounting inductor on test printed-circuit board .....	23
A.1 General.....	23
A.2 Mounting printed-circuit board and mounting land .....	23
A.3 Solder .....	23
A.4 Preparation .....	24
A.5 Preheating .....	24
A.6 Soldering .....	24
A.7 Cleaning .....	24
 Figure 1 – Method for pressurizing the body .....	8
Figure 2 – Pressurizing jig .....	9
Figure 3 – Example of printed-circuit board.....	10
Figure 4 – Layout.....	12
Figure 5 – Pressurizing jig .....	12
Figure 6 – Pressurizing .....	12
Figure 7 – Pressurizing and shape of jig .....	14
Figure 8 – Reflow temperature profile .....	17
 Table 1 – Size of soldering lands according to the code of multi-layer chip inductors .....	10
Table 2 – Thickness of solder paste by the size code of inductors .....	11
Table 3 – Conditions of immersion into solder.....	16
Table 4 – Reflow temperature .....	16
Table 5 – Severity.....	18
Table 6 – Reflow temperature .....	19
Table 7 – Conditions of vibration.....	21