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Interested committees:

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Part 21: Solderability

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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.

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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.	



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IEC 60749-21 ED3

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2024-09-06

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2024-11-29

SUPERSEDES DOCUMENTS:

47/2857/RR

IEC TC 47 : SEMICONDUCTOR DEVICES

SECRETARIAT:

Korea, Republic of

SECRETARY:

Mr Cheolung Cha

OF INTEREST TO THE FOLLOWING COMMITTEES:

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

☐ SUBMITTED FOR CENELEC PARALLEL VOTING☒ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
MECHANICAL AND CLIMATIC TEST METHODS –****Part 21: Solderability**

FOREWORD

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International Standard IEC 60749-21 has been prepared by IEC technical committee 47: Semiconductor devices.

This standard cancels and replaces the second edition published in 2011 and constitutes a technical revision. The significant change is revision to certain operating conditions in line with current working practices.

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

FDIS	Report on voting
47/XXXX/FDIS	47/YYYY/RVD

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

- 54 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.
- 55 A list of all parts in the IEC 60749 series, under the general title *Semiconductor devices –*
56 *Mechanical and climatic test methods* can be found on the IEC website.
- 57 The committee has decided that the contents of this publication will remain unchanged until
58 the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data
59 related to the specific publication. At this date, the publication will be
- 60 • reconfirmed,
 - 61 • withdrawn,
 - 62 • replaced by a revised edition, or
 - 63 • amended.
- 64
- 65

SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 21: Solderability

1 Scope

This part of IEC 60749 establishes a standard procedure for determining the solderability of device package terminations that are intended to be joined to another surface using tin-lead (SnPb) or lead-free (Pb-free) solder for the attachment.

This test method provides a procedure for 'dip and look' solderability testing of through hole, axial and surface mount devices (SMDs) as well as an optional procedure for a board mounting solderability test for SMDs for the purpose of allowing simulation of the soldering process to be used in the device application. The test method also provides optional conditions for ageing.

This test is considered destructive unless otherwise detailed in the relevant specification.

NOTE 1 This test method does not assess the effect of thermal stresses which may occur during the soldering process. Reference should be made IEC 60749-15 or IEC 60749-20.

2 Normative references

The following referenced documents are indispensable for the application 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 61190-1-2:2014, *Attachment materials for electronic assembly – Part 1-2: Requirements for soldering pastes for high-quality interconnects in electronics assembly*

IEC 61190-1-3:2018, *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*

3 Test apparatus and materials

3.1 Solder bath

The solder bath shall be not less than 40 mm in depth and not less than 300 ml in volume such that it can contain at least 1 kg of solder. The apparatus shall be capable of maintaining the solder at the specified temperature within ± 5 °C. The solder in solder baths used for solderability testing shall be analysed or replaced to ensure that the composition complies with 3.6.2

3.2 Dipping device

A mechanical dipping device capable of controlling the rates of immersion and emersion of the terminations and providing a dwell time (time of total immersion to the required depth) in the solder bath as specified shall be used.