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Interested committees:

Title: Draft BS ISO 13060 An adhesion evaluation method for microcircuits on PCB (Printed Circuit Board) by scratch test.

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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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



DRAFT
International
Standard

ISO/DIS 13060

**An adhesion evaluation method
for microcircuits on PCB (Printed
Circuit Board) by scratch test**

ICS: 25.220.40; 31.180

ISO/TC 107/SC 3

Secretariat: **KATS**

Voting begins on:
2024-08-09

Voting terminates on:
2024-11-01

This document is circulated as received from the committee secretariat.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 107, Subcommittee SC 3, *Electrodeposited coatings and related finishes*.

Introduction

This document is developed in response to the worldwide demand for a method to directly measure the adhesion between microcircuits and substrates of printed circuit boards traded internationally.

In the meantime, circuits on PCBs have been formed in a subtractive process. In a subtractive process, fine lines are formed by coating the thick copper foil with an etch resist, applying photolithography to image the areas where the copper should be retained, and etching away the un-imaged material. In this case, the adhesion of the circuit was measured by the peel test of the adhesion of the copper foil raw material before the circuit was formed.

In contrast, with mSAP(modified semi-additive process), a much thinner copper layer is coated onto the laminate, and plated in the areas where the resist isn't applied. The thin copper remaining in the spaces between conductors is then etched away. Whereas trace geometries are chemically defined during subtractive processes, mSAP allows trace geometries to be defined via photolithography. The traces are therefore formed with much greater precision, in straight vertical lines, yielding a rectangular-shaped cross-section that maximizes circuit density and enables accurate impedance control with lower signal loss.

However, in the case of the mSAP process, it is difficult to measure the adhesion force because the thickness of the copper layer is thin before circuit formation. After the circuit is formed, the peel test is impossible due to the narrow circuit width. Therefore, the formulation of standardization, requirements, indicators for a method to directly measure the adhesion of microcircuits will benefit PCB manufacturers and related companies.