



DPC: 24 / 30485597 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Responsible committee: AMT/9 Printed Electronics

Interested committees:

Title: BS IEC 62899-402-8 Printed electronics

Part 402-8: Printability - Measurement of qualities - Shape pattern dimension

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- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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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.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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

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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.	



119/477/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:

IEC 62899-402-8 ED1

DATE OF CIRCULATION:

2024-01-05

CLOSING DATE FOR COMMENTS:

2024-03-29

SUPERSEDES DOCUMENTS:

119/430/NP, 119/457/RVN

IEC TC 119 : PRINTED ELECTRONICS

SECRETARIAT:

Korea, Republic of

SECRETARY:

Mr Kyung-Tae Kang

OF INTEREST TO THE FOLLOWING COMMITTEES:

TC 91

PROPOSED HORIZONTAL STANDARD:

☐

Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

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Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any local regulations or technical reasons that may exist and should be considered should this proposal proceed, recognizing that failure to address such requirements could result in the need for new or existing "In Some Countries" clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Printed electronics - Part 402-8: Printability - Measurement of qualities - Shape pattern dimension

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRINTED ELECTRONICS –

**Part 402-8: Printability – Measurement of qualities –
Shape pattern dimension**

FOREWORD

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IEC 62899-402-xx has been prepared by subcommittee **WG4: Printability**, of IEC technical committee **119: Printed Electronics**. It is an International Standard.

The text of this **International Standard** is based on the following documents:

Draft	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

The language used for the development of this **International Standard** is **English**.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

142 The committee has decided that the contents of this document will remain unchanged until the
143 stability date indicated on the IEC website under webstore.iec.ch in the data related to the
144 specific document. At this date, the document will be

- 145 • reconfirmed,
- 146 • withdrawn,
- 147 • replaced by a revised edition, or
- 148 • amended.

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INTRODUCTION

This document specifies the measurement of dimensions of the shape patterns in printed electronics. The shape patterns include various patterns with shapes such as circle, ellipse, square, rectangle, etc. as well as combination of two or more of these, which are commonly used as the parts of printed electronics devices. Various shape patterns constitute printed electronics devices, and consequently, printability of patterns including dimension, gain, loss and distortion affects device performance. Therefore, it is required to measure the dimensions of shape patterns from the view point of printability.

Some parts of pattern measurement have been specified for line pattern width, edge, and voids as the standards IEC 62899-402-1, -402-2, and -402-3, respectively. IEC 62899-403-xx series include basic patterns for evaluation of printing machine, basic patterns for plating, etc, and moreover, IEC 62899-301-2 is for the measurement of plate master pattern dimension. However, there is no standard for the measurement of printed patterns with general shapes. Therefore, this document is used to measure the dimensions of printed patterns as the results of the pattern design of IEC 62899-403-xx series and plate patterns of IEC 62899-301-2 as well as to compare the dimensions of printed patterns with the pattern design for evaluating the printability.

This standard includes two methods for the measurement of dimensions of the shape patterns: The first one is to simply specify the dimension of shape and compare with the original design, and the second one is to specify the dimension as well as to quantize the related attributes such as variation of dimension. For more accurate measurement of dimensions of the shape patterns, it is recommended to apply the second method which requires the proper software to recognize the boundaries or edges differentiating pattern area from non-pattern area of the captured image as well as to identify the 2-dimensional coordinates of pixels that constitute the image. This standard does not specify the software to recognize the edge nor the edge detection algorithm. Depending on the user's concern and purpose, the first method and/or the second method can be used.

This document excludes the standardization of the measurement system. It specifies the properties related to the shaped patterns of the printed pattern obtained from the optical measurement system.

PRINTED ELECTRONICS –

Part 402-8: Printability – Measurement of qualities – Shape pattern dimension

1 Scope

This part of IEC 62899 specifies the measurement methods of dimensions of the shape patterns in printed electronics. These printed patterns are treated as two-dimensional on a substrate. When the patterns are definitely affected by three-dimensional configurations, these are specified in measurement methods for vertical variance referring to IEC TR62899-402-4 in printed electronics.

Note 1: The measurement methods of dimensions of the shape patterns considering three-dimensional characteristics can be developed later after the measurement methods for vertical variance are established.

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.

ISO 291, *Plastics – Standard atmospheres for conditioning and testing*

IEC 62899-402-1, Printed electronics - Part 402-1: Printability - Measurement of qualities - Pattern width

ISO 187:2022, *Paper, board and pulps – Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

shape pattern

two-dimensional pattern figure with various shapes

3.2

basic shape pattern

patterns with shape of circle and rectangle as well as line pattern

3.3

shape pattern dimension

two-dimensional dimension of shape pattern

3.4

reference side

line that best fits each edge of rectangle