Printed boards and printed board assemblies - Design and use - Part 7: Electronic component zero orientation for CAD library construction

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NATIONAL FOREWORD

See Eesti standard EVS-EN 61188-7:2017 sisaldab Euroopa standardi EN 61188-7:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 61188-7:2017 consists of the English text of the European standard EN 61188-7:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.06.2017.	Date of Availability of the European standard is 30.06.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Printed boards and printed board assemblies - Design and use - Part 7: Electronic component zero orientation for CAD library construction (IEC 61188-7:2017)

Cartes imprimées et cartes imprimées équipées - Conception et utilisation - Partie 7: Orientation nulle des composants électroniques pour l'élaboration de la bibliothèque CAO (IEC 61188-7:2017)

Leiterplatten und Flachbaugruppen - Konstruktion und Anwendung - Teil 7: Nullorientierung elektronischer Bauelemente für CAD-Bibliotheksaufbau (IEC 61188-7:2017)

This European Standard was approved by CENELEC on 2017-05-15. 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.

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

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European foreword

The text of document 91/1382/CDV, future edition 2 of IEC 61188-7, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61188-7:2017.

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)	2018-02-15
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-05-15

This document supersedes EN 61188-7:2009.

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 61188-7:2017 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, 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.

Publication	Year	Title	EN/HD	Year
IEC 61188-5	series	Printed boards and printed board assemblies - Design and use	EN 61188-5	series

CONTENTS

INTRODUCTION

One of the factors of establishing a CAD library component description and land pattern standard is to adopt a fixed zero component orientation so that all CAD images are built with the same rotation for the purpose of assembly machine automation.

The land pattern standards clearly define all the properties necessary for standardization and acceptability of a one world CAD library. The main objective in defining a one world CAD library is to achieve the highest level of electronic product development automation. This encompasses all the processes involved from engineering to PCB layout to fabrication, assembly and test. The data format standards need this type of consistency in order to meet the efficiency that electronic data transfer can bring to the industry.

Many large firms have spent millions of dollars creating and implementing their own unique standards for their own electronic product development automation. These standards are proprietary to each firm and are not openly shared with the rest of the industry. This has resulted in massive duplication of effort, costing the industry millions of man hours in waste and creating industry chaos and global non-standardization.

The main purpose of creating the land pattern standards is to achieve reliable solder joint formation platforms; the reason for developing the data transfer structure is to improve the efficiency with which engineering intelligence is converted into manufacturing reality. Even if the neutral CAD format can drive all the manufacturing machines, it would be meaningless unless the component description standard for CAD land patterns were implemented with some consistency. Zero component orientation has a key role in machine automation.

The obvious choice for global standardization for EE hardware engineering, PCB design layout, manufacturing, assembly and testing processes is to incorporate the standard land pattern conventions. Any other option continues the confusion and additional manual hours of intervention in order to achieve the goals of automation. In addition, the ease of having one system export a file so that another system can accomplish the work can require unnecessary manipulation of the neutral format in order to meet the object of clear, unambiguous software code.

The design of any assembly will continue to permit arrangement and orientation of components at any orientation consistent with design standards. Starting from a commonly understood data capture concept will benefit the entire supply chain.

This standard defines angle and origin point of land patterns for land pattern designing.