

ESL measuring method - Part 1: Capacitors with lead terminal for use in electronic equipment

This document is a preview generated by EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 62490-1:2010 sisaldab Euroopa standardi EN 62490-1:2010 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.10.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.09.2010.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 62490-1:2010 consists of the English text of the European standard EN 62490-1:2010.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.10.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 03.09.2010.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 31.060.01

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

**ESL measuring method -
Part 1: Capacitors with lead terminal for use in electronic equipment
(IEC 62490-1:2010)**

Méthode de mesure de l'ESL -
Partie 1: Condensateurs à bornes
de sortie utilisés dans les équipements
électroniques
(CEI 62490-1:2010)

ESL-Messverfahren -
Teil 1: Kondensatoren
mit Anschlussdrähten zur Verwendung
in Geräten der Elektrotechnik
und Elektronik
(IEC 62490-1:2010)

This European Standard was approved by CENELEC on 2010-09-01. 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 Central Secretariat 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 Central Secretariat 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 40/2044/FDIS, future edition 1 of IEC 62490-1, prepared by IEC TC 40, Capacitors and resistors for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62490-1 on 2010-09-01.

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

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2011-06-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2013-09-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62490-1:2010 was approved by CENELEC as a European Standard without any modification.

Preview generated by EVS

Annex ZA
(normative)**Normative references to international publications
with their corresponding European publications**

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60384-1	2008	Fixed capacitors for use in electronic equipment - Part 1: Generic specification	EN 60384-1	2009

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 Measurement jig, short compensation jig, and spacer.....	5
4.1 Measurement jig (test fixture).....	5
4.2 Short compensation jig	5
4.3 Spacer	6
5 Measuring method.....	7
5.1 Measuring instrument	7
5.2 Measurement conditions.....	7
5.3 Preparation of sample	8
5.4 Measurement points	8
5.5 Frequency and signal level.....	8
5.6 Measurement procedure.....	8
5.6.1 General	8
5.6.2 Open compensation.....	9
5.6.3 Short compensation.....	9
5.6.4 ESL measurement	9
6 Items to be indicated in test result report.....	10
Annex A (informative) The basic concept on ESL measuring method	11
Figure 1 – Short compensation jig.....	6
Figure 2 – Constructional example of the short compensation spacer and the measurement spacer	7
Figure 3 – Measure points: seating plane or flange of capacitor on the printed circuit board	8
Figure 4 – Method of short compensation	9
Figure 5 – Example in state where electrode of measurement jig shifted.....	10
Figure A.1 – Fundamental view of ESL measurement	11

ESL MEASURING METHOD –

Part 1: Cap with lead terminal for use in electronic equipment

1 Scope

This part of IEC 62490 provides the equivalent series inductance L (ESL) measuring method for capacitors with lead terminal type for use in electronic equipment.

The inductance values of capacitors provided for this document are within the range of 1 nH to 10 nH.

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 60384-1:2008, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 60384-1 and the following apply.

3.1

equivalent series inductance L

ESL

inductive part of the impedance of capacitors

NOTE 1 The unit of ESL is Henry (H).

4 Measurement jig, short compensation jig, and spacer

4.1 Measurement jig (test fixture)

The measurement jig shall have the following features:

- a) the lead terminal holding method shall be screw up;
- b) the measurement jig has two pairs of screw-fixation electrodes for fixing the lead terminals of the capacitor to be measured. In pairs, one of the electrodes is fixed to the measurement jig and the other is adjustable for fixing the lead wire. The adjustable electrode shall move only in a direction to hold the lead terminal and shall not rotate around the electrode fixing screw.

4.2 Short compensation jig

The short compensation jig shall be the lead wire rod which has the following features of the materials and dimensions, which includes the diameter or the cross-section area:

- a) materials shall be the same materials as the lead wire of the capacitor to be measured;
- b) shape shall be as shown in Figure 1;