INTERNATIONAL STANDARD



First edition 2003-07

Measurement of quartz crystal unit parameters –

Part 8: Test fixture for surface mounted quartz crystal units

Mesure des paramètres des résonateurs à quartz -

Partie 8: Dispositif d'essai pour les résonateurs à quartz montès en surface

3e0b7-fcaa-4a75-b866-113d7f9d879f/iec-60444-8-2003



Reference number IEC 60444-8:2003(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following;

- IEC Web Site (<u>www.iec.ch</u>)
- Catalogue of IEC publications

The on-line catalogue on the IEC web site (www.iec.ch/searchoub) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

IEC Just Published

This summary of recently issued publications (www.iec.ch/online_news/justpub) is also available by email. Please contact the Customer Service Centre (see below) for further information.

Customer Service Centre

If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

kec/Xe3e0b7-fcaa-4a75-b866-113d7f9d879f/iec-60444-8-2003

Email: <u>custserv@iec.ch</u>/ Tel: +41 22 919 02 11 Fax: +41 22 919 03 00

INTERNATIONAL STANDARD



First edition 2003-07

Measurement of quartz crystal unit parameters –

Part 8: Test fixture for surface mounted quartz crystal units

Mesure des paramètres des résonateurs à quartz -

Partie 8: Dispositif d'essai pour les résonateurs à quartz montés en surface

b7-fcaa-4a75-b866-113d7f9d879f/iec-60444-8-2003

© IEC 2003 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale International Electrotechnical Commission Международная Электротехническая Комиссия



For price, see current catalogue

CONTENTS

FO	DREWORD	
IN	TRODUCTION	5
1	Scope	6
2	Normative references	6
3	General issue	6
4	Leadless surface mounted quartz crystal units	7
	4.1 Enclosure	7
	4.2 Overtone and frequency range	
5	Specifications of measurement method, test fixture	7
	5.1 Specifications of measurement method	
_	5.2 Specifications of test fixture	
6	Calibration of measurement system and C _L adapter board	10
	6.1 Calibration of measurement system	
	6.2 Calibration of C _L adapter board	10
BID	bilography	
Fig	gure 1 – Equivalent circuit of the test fixture	
Fig	gure 2 – Equivalent circuit of the test fixture with load capacitance	
Fio	gure 3 – Three-dimensional projection for the test fixture	
Fio	gure 4 – Design of the test fixture	
Fio	gure 5 – Structure of the test fixture	
		°''
	standards.iten.a xit (x) (standards) ec/22e3eUb /-fcaa-4a/5-b866-113d/19d8/91	

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEASUREMENT OF QUARTZ CRYSTAL UNIT PARAMETERS –

Part 8: Test fixture for surface mounted quartz crystal units

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be beld responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and

- members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
 - 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
 - 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60444-8 has been prepared by IEC technical committee 49: Piezoelectric and dielectric devices for frequency control and selection.

This International Standard cancels and replaces IEC/PAS 62277 published in 2001, of which it constitutes a technical revision.

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

FDIS	Report on voting
49/599/FDIS	49/611/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This standard forms Part 8 of a series of publications dealing with measurements of quartz crystal unit parameters.

IEC 60444 consists of the following parts under the general title *Measurement of quartz crystal unit parameters:*

- Part 1: Basic method for the measurement of resonance frequency and resonance resistance of quartz crystal units by zero phase technique in a π -network
- Part 2: Phase offset method for measurement of motional capacitance of quartz crystal units
- Part 4: Method for the measurement of the load resonance frequency f_L , load resonance resistance, R_L and the calculation of other derived values of quartz crystal units, up to 30 MHz
- Part 5: Methods for the determination of equivalent electrical parameters using automatic network analyzer techniques and error correction
- Part 6: Measurement of drive level dependence (DLD)
- Part 7: Measurement of activity and frequency dips of quartz crystal units

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

https://standards.iteh.a

b7-fcaa-4a75-b866-113d7f9d879f/iec-60444-8-2003

¹ Under consideration.