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Standards

Irish Standard  
I.S. EN 62884-2:2017

# Measurement techniques of piezoelectric, dielectric and electrostatic oscillators - Part 2: Phase jitter measurement method

**I.S. EN 62884-2:2017**

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I.S. EN 62884-2:2017 is the adopted Irish version of the European Document EN 62884-2:2017, Measurement techniques of piezoelectric, dielectric and electrostatic oscillators - Part 2: Phase jitter measurement method

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EUROPEAN STANDARD

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**Measurement techniques of piezoelectric, dielectric and  
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(IEC 62884-2:2017)**

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diélectriques et électrostatiques - Partie 2 : méthode de  
mesure des giges de phase  
(IEC 62884-2:2017)

Messverfahren für piezoelektrische, dielektrische und  
elektrostatische Oszillatoren - Teil 2: Messverfahren für  
Phasenjitter  
(IEC 62884-2:2017)

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Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

EN 62884-2:2017 (E)

## **European foreword**

The text of document 49/1212/CDV, future edition 1 of IEC 62884-2:2017, prepared by IEC/TC 49 "Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62884-2:2017.

The following dates are fixed:

- latest date by which this document has (dop) 2018-07-04  
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## Annex ZA (normative)

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<u>Publication</u>	<u>Year</u> <u>series</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> <u>series</u>
IEC 60027		Letter symbols to be used in electrical technology	EN 60027	
IEC 60050-561	-	International electrotechnical vocabulary - Part 561: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection	-	-
IEC 60469	-	Transitions, pulses and related waveforms - Terms, definitions and algorithms	EN 60469	-
IEC 60617	-	Standard data element types with associated classification scheme for electric components -- Part 4: IEC reference collection for standard data element types and component classes	-	-
IEC 60679-1	2017	Piezoelectric, dielectric and electrostatic oscillators of assessed quality - Part 1 : Generic specification	EN 60679-1	2017
IEC 62884-1	2017	Measurement techniques of piezoelectric, dielectric and electrostatic oscillators - Part 1: Basic methods for the measurement	EN 62884-1	2017
ISO 80000-1	-	Quantities and units -- Part 1: General	EN ISO 80000-1	-

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Edition 1.0 2017-08

# INTERNATIONAL STANDARD



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**Measurement techniques of piezoelectric, dielectric and electrostatic  
oscillators –  
Part 2: Phase jitter measurement method**



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**IEC 62884-2**

Edition 1.0 2017-08

# INTERNATIONAL STANDARD



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**Measurement techniques of piezoelectric, dielectric and electrostatic  
oscillators –  
Part 2: Phase jitter measurement method**

INTERNATIONAL  
ELECTROTECHNICAL  
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ICS 31.140

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MEASUREMENT TECHNIQUES OF PIEZOELECTRIC,  
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International Standard IEC 62884-2 has been prepared by IEC technical committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

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

CDV	Report on voting
49/1212/CDV	49/1243/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC 62884 series, published under the general title *Measurement techniques of piezoelectric, dielectric and electrostatic oscillators*, can be found on the IEC website.

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## INTRODUCTION

A crystal oscillator as a highly efficient and highly precise source of a frequency oscillation is widely used for fields such as the electronic equipment, communication equipment, measurement equipment and a clock. Also recently, digitalization of these equipments is advancing rapidly. In this situation, the frequency of crystal oscillator requires high precision and high stability and reduction of noise with oscillating phenomenon. A phase jitter is one of the noise characteristic in oscillation characteristic and precise measurement which is needed when shipping a component to a customer.

For advance application in electronic information and communication technology, (e.g. advanced satellite communications, control circuits for electric vehicle (EV)), necessity arises for the measurement method for common guidelines of phase jitter. In these days, measurement method of phase jitter also becomes more important from the electromagnetic influence (EMI) point of view.

This document has been restructured from IEC 60679-1:2007 (third edition) and IEC 60679-6:2011 (first edition). The test methods for oscillators have been separated from IEC 60679-6:2011 into IEC 62884 (all parts). This document covers the phase jitter measurement.



# MEASUREMENT TECHNIQUES OF PIEZOELECTRIC, DIELECTRIC AND ELECTROSTATIC OSCILLATORS –

## Part 2: Phase jitter measurement method

### 1 Scope

This part of IEC 62884 specifies the methods for the measurement and evaluation of the phase jitter measurement of piezoelectric, dielectric and electrostatic oscillators, including dielectric resonator oscillators (DROs) and oscillators using a thin-film bulk acoustic resonator (FBAR) (hereinafter referred to as an "Oscillator") and gives guidance for phase jitter that allows the accurate measurement of RMS jitter.

In the measurement method, phase noise measurement equipment or a phase noise measurement system is used.

NOTE Dielectric resonator oscillators (DROs) and oscillators using FBAR are under consideration.

### 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.

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050-561, *International Electrotechnical Vocabulary – Part 561: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection*

IEC 60679-1:2017, *Piezoelectric, dielectric and electrostatic oscillators of assessed quality – Part 1: Generic specification*

IEC 60469, *Transitions, pulses and related waveforms – Terms, definitions and algorithms*

IEC 60617, *Graphical symbols for diagrams (available at <http://std.iec.ch/iec60617>)*

IEC 62884-1:2017, *Measurement techniques of piezoelectric, dielectric and electrostatic oscillators – Part 1: Basic methods for the measurement*

ISO 80000-1, *Quantities and units – Part 1: General*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60027 (all parts), IEC 60050-561, IEC 60469, IEC 60617, IEC 60679-1 and ISO 80000-1 apply.

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