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Standards

Irish Standard
I.S. EN 60758:2016

Synthetic quartz crystal - Specifications and guidelines for use

I.S. EN 60758:2016

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National Foreword

I.S. EN 60758:2016 is the adopted Irish version of the European Document EN 60758:2016, Synthetic quartz crystal - Specifications and guidelines for use

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EUROPEAN STANDARD

EN 60758

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2016

ICS 31.140

Supersedes EN 60758:2009

English Version

Synthetic quartz crystal - Specifications and guidelines for use (IEC 60758:2016)

Cristal de quartz synthétique - Spécifications et lignes
directrices d'utilisation
(IEC 60758:2016)

Synthetischer Quarzkristall - Festlegungen und Leitfaden
für die Anwendung
(IEC 60758:2016)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 60758:2016

European foreword

The text of document 49/1185/FDIS, future edition 5 of IEC 60758, 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 60758:2016.

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) 2017-04-07
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-10-07

This document supersedes EN 60758:2009.

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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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	2013	Environmental testing - Part 1: General and guidance	EN 60068-1	2014
IEC 60122-1	2002	Quartz crystal units of assessed quality - Part 1: Generic specification	EN 60122-1	2002
IEC 60410	-	Sampling plans and procedures for inspection by attributes	-	-
IEC 61994	Series	Piezoelectric and dielectric devices for frequency control and selection - Glossary	-	-

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IEC 60758

Edition 5.0 2016-05

INTERNATIONAL STANDARD

Synthetic quartz crystal – Specifications and guidelines for use





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Edition 5.0 2016-05

INTERNATIONAL STANDARD

Synthetic quartz crystal – Specifications and guidelines for use

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SYNTHETIC QUARTZ CRYSTAL –
SPECIFICATIONS AND GUIDELINES FOR USE**

FOREWORD

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International Standard IEC 60758 has been prepared by IEC technical committee 49: Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection.

This fifth edition cancels and replaces the fourth edition, published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- order rearrangement and review of terms and definitions;
- abolition as a standard of the infrared absorbance coefficient α_3 410;
- addition of the α value measurement explanation by FT-IR equipment in annex;
- addition of the synthetic quartz crystal standards for optical applications.

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

FDIS	Report on voting
49/1185/FDIS	49/1190/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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

INTRODUCTION

The reason for adding synthetic quartz crystal for optical application to this International Standard is as follows.

Quartz crystal produced for optical applications is produced by many of the same suppliers manufacturing quartz for electronic applications. The equipment and methods to produce optical quartz are similar to those used in the production of electronic quartz. Also, with a few exceptions the characterization methods of electronic and optical material are similar. Therefore, IEC 60758 serves as the proper basis for including addenda related to quartz crystal for optical applications.

SYNTHETIC QUARTZ CRYSTAL – SPECIFICATIONS AND GUIDELINES FOR USE

1 Scope

This International Standard applies to synthetic quartz single crystals intended for manufacturing piezoelectric elements for frequency control, selection and optical applications.

2 Normative references

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.

IEC 60068-1:2013, *Environmental testing – Part 1: General and guidance*

IEC 60122-1:2002, *Quartz crystal units of assessed quality – Part 1: Generic specification*

IEC 60410, *Sampling plans and procedures for inspection by attributes*

IEC 61994 (all parts), *Piezoelectric and dielectric devices for frequency control and selection – Glossary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61994 and the following apply.

3.1

hydrothermal crystal growth

crystal growth in the presence of water, elevated temperatures and pressures by a crystal growth process believed to proceed geologically within the earth's crust

Note 1 to entry: The industrial synthetic quartz growth processes utilize alkaline water solutions confined within autoclaves at supercritical temperatures (330 °C to 400 °C) and pressures (700 to 2 000 atmospheres).

Note 2 to entry: The autoclave is divided into two chambers: the dissolving chamber, containing raw quartz chips at the higher temperature; the growing chamber, containing cut seeds at the lower temperature (see 7.1.2).

3.2

synthetic quartz crystal

single crystal of α quartz grown by the hydrothermal method

Note 1 to entry: Cultured quartz has the same meaning as synthetic quartz crystal.

3.3

as-grown synthetic quartz crystal

state of synthetic quartz crystal prior to grinding or cutting

3.4

as-grown Y-bar

crystals which are grown by using long stick seed in the Y-direction

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