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EVS-EN 62276:2016

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Single crystal wafers for surface acoustic wave (SAW) device applications - Specifications and measuring methods

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NORME EUROPÉENNE
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EN 62276

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English Version

Single crystal wafers for surface acoustic wave (SAW) device applications - Specifications and measuring methods (IEC 62276:2016)

Tranches monocristallines pour applications utilisant des dispositifs à ondes acoustiques de surface (OAS) - Spécifications et méthodes de mesure (IEC 62276:2016)

Einkristall-Wafer für Oberflächenwellen-(OFW-)Bauelemente - Festlegungen und Messverfahren (IEC 62276:2016)

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European foreword

The text of document 49/1144/CDV, future edition 3 of IEC 62276, 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 62276:2016.

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)	2017-08-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-11-28

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IEC 61019-1	NOTE	Harmonized as EN 61019-1.
IEC 61019-2	NOTE	Harmonized as EN 61019-2.
IEC 61019-3	NOTE	Harmonized as EN 61019-3.
ISO 4287:1997	NOTE	Harmonized as EN ISO 4287:1998.

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INTRODUCTION

A variety of piezoelectric materials are used for surface acoustic wave (SAW) filter and resonator applications. Prior to an IEC meeting in 1996 in Rotterdam, wafer specifications were typically negotiated between users and suppliers. During this meeting, a proposal was announced to address wafer standardization. This standard has been prepared in order to provide industry standard technical specifications for manufacturing piezoelectric single crystal wafers to be used in surface acoustic wave devices.

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SINGLE CRYSTAL WAFERS FOR SURFACE ACOUSTIC WAVE (SAW) DEVICE APPLICATIONS – SPECIFICATIONS AND MEASURING METHODS

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1 Scope

This document applies to the manufacture of synthetic quartz, lithium niobate (LN), lithium tantalate (LT), lithium tetraborate (LBO), and lanthanum gallium silicate (LGS) single crystal wafers intended for use as substrates in the manufacture of surface acoustic wave (SAW) filters and resonators.

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 60758:2016, *Synthetic quartz crystal – Specifications and guidelines for use*

ISO 2859-1: 1999, *Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Single crystals for SAW wafer

3.1.1
as-grown synthetic quartz crystal
right-handed or left-handed single crystal quartz grown hydrothermally

Note 1 to entry: The term “as-grown” indicates a state prior to mechanical fabrication.

Note 2 to entry: See IEC 60758 for further information concerning crystalline quartz.

3.1.2
lithium niobate
LN
single crystals approximately described by chemical formula $LiNbO_3$, grown by Czochralski (crystal pulling from melt) or other growing methods

3.1.3
lithium tantalate
LT
single crystals approximately described by chemical formula $LiTaO_3$, grown by Czochralski (crystal pulling from melt) or other growing methods