



**NSAI**  
Standards

Irish Standard  
I.S. EN ISO 22232-1:2020

# Non-destructive testing - Characterization and verification of ultrasonic test equipment - Part 1: Instruments (ISO 22232-1:2020)

**I.S. EN ISO 22232-1:2020**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN ISO 22232-1:2020 is the adopted Irish version of the European Document EN ISO 22232-1:2020, Non-destructive testing - Characterization and verification of ultrasonic test equipment - Part 1: Instruments (ISO 22232-1:2020)

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EUROPEAN STANDARD

**EN ISO 22232-1**

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Supersedes EN 12668-1:2010

English Version

**Non-destructive testing - Characterization and verification  
of ultrasonic test equipment - Part 1: Instruments (ISO  
22232-1:2020)**

Essais non destructifs - Caractérisation et vérification  
de l'appareillage de contrôle par ultrasons - Partie 1:  
Appareils (ISO 22232-1:2020)

Zerstörungsfreie Prüfung - Charakterisierung und  
Verifizierung der Ultraschall-Prüfausrüstung - Teil 1:  
Prüfgeräte (ISO 22232-1:2020)

This European Standard was approved by CEN on 4 July 2020.

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**EN ISO 22232-1:2020 (E)**

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## **European foreword**

This document (EN ISO 22232-1:2020) has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" in collaboration with Technical Committee CEN/TC 138 "Non-destructive testing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2021, and conflicting national standards shall be withdrawn at the latest by February 2021.

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

This document supersedes EN 12668-1:2010.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Endorsement notice**

The text of ISO 22232-1:2020 has been approved by CEN as EN ISO 22232-1:2020 without any modification.

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STANDARD**

**ISO  
22232-1**

First edition  
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**Non-destructive testing —  
Characterization and verification of  
ultrasonic test equipment —**

**Part 1:  
Instruments**

*Essais non destructifs — Caractérisation et vérification de  
l'appareillage de contrôle par ultrasons —*

*Partie 1: Appareils*



Reference number  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 3, *Ultrasonic testing*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 138, *Non-destructive testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 22232 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).



# Non-destructive testing — Characterization and verification of ultrasonic test equipment —

## Part 1: Instruments

### 1 Scope

This document specifies methods and acceptance criteria within the frequency range of 0,5 MHz to 15 MHz, for assessing the electrical performance of digital ultrasonic instruments for pulse operation using A-scan display, for manual ultrasonic non-destructive testing with single- or dual-transducer probes. This document is also applicable for multi-channel instruments. This document can partly be applicable to ultrasonic instruments in automated systems, but other tests can be needed to ensure satisfactory performance.

This document excludes ultrasonic instruments for continuous waves.

This document also excludes ultrasonic phased array instruments, see e.g. ISO 18563-1. If a phased array instrument has dedicated connectors for single- or dual-transducer probes this document is applicable for these channels.

### 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.

ISO 5577, *Non-destructive testing — Ultrasonic testing — Vocabulary*

ISO/IEC 17050-1, *Conformity assessment — Supplier's declaration of conformity — Part 1: General requirements*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577 and the following apply.

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

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

#### 3.1

##### **analogue output**

output from the ultrasonic instrument which gives a d.c. voltage nominally proportional to the amplitude of the largest received signal within a monitor gate

#### 3.2

##### **cross talk during transmission**

amount of signal transfer from the transmitter output to the receiver input during the transmission pulse, with the ultrasonic instrument set for separate transmitter-receiver operation (dual-transducer probe)

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