

Non-destructive testing - Characterization and  
verification of ultrasonic phased array equipment -  
Part 2: Array probes (ISO 18563-2:2024)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>See Eesti standard EVS-EN ISO 18563-2:2024 sisaldab Euroopa standardi EN ISO 18563-2:2024 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.10.2024.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN ISO 18563-2:2024 consists of the English text of the European standard EN ISO 18563-2:2024.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 02.10.2024.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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EUROPEAN STANDARD

EN ISO 18563-2

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Supersedes EN ISO 18563-2:2017

English Version

Non-destructive testing - Characterization and verification  
of ultrasonic phased array equipment - Part 2: Array  
probes (ISO 18563-2:2024)

Essais non destructifs - Caractérisation et vérification  
de l'appareillage de contrôle par ultrasons en  
multiéléments - Partie 2: Traducteurs multiéléments  
(ISO 18563-2:2024)

Zerstörungsfreie Prüfung - Charakterisierung und  
Verifizierung der Ultraschall-Prüfausrüstung mit  
Phased-Array - Teil 2: Array-Prüfköpfe (ISO 18563-  
2:2024)

This European Standard was approved by CEN on 22 September 2024.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

## European foreword

This document (EN ISO 18563-2:2024) 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 April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

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 ISO 18563-2:2017.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

## Endorsement notice

The text of ISO 18563-2:2024 has been approved by CEN as EN ISO 18563-2:2024 without any modification.

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Quantities and symbols</b> .....	<b>2</b>
<b>5 General compliance</b> .....	<b>2</b>
<b>6 Technical information for array probes</b> .....	<b>3</b>
<b>7 Test equipment</b> .....	<b>4</b>
7.1 Electronic equipment.....	4
7.2 Test setup.....	4
7.2.1 General.....	4
7.2.2 Contact technique.....	4
7.2.3 Immersion technique.....	5
<b>8 Performance tests for array probes</b> .....	<b>5</b>
8.1 General.....	5
8.2 Physical aspects.....	5
8.2.1 Method.....	5
8.2.2 Acceptance criterion.....	5
8.3 Relative pulse-echo sensitivity variation.....	5
8.3.1 General.....	5
8.3.2 Method.....	5
8.3.3 Acceptance criteria.....	6
8.4 Frequency, bandwidth and pulse duration.....	6
8.4.1 General.....	6
8.4.2 Method.....	6
8.4.3 Acceptance criteria.....	7
8.5 Array probe sensitivity.....	7
8.5.1 General.....	7
8.5.2 Method.....	7
8.5.3 Acceptance criteria.....	7
8.6 Inter-element cross-talk attenuation (optional).....	8
8.6.1 General.....	8
8.6.2 Method.....	8
8.6.3 Acceptance criterion.....	8
8.7 Number of elements out of specification.....	8
8.7.1 General.....	8
8.7.2 Method.....	9
8.7.3 Acceptance criteria.....	9
<b>Bibliography</b> .....	<b>10</b>

## 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)).

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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 ISO Technical Committee 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).

This second edition cancels and replaces the first edition (ISO 18563-2:2017), which has been technically revised.

The main changes are as follows:

- terminology and types of array probes modified according to ISO 23243;
- the wording 'measurement' is replaced by 'determination' or 'evaluation', where applicable.

A list of all parts in the ISO 18563 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 phased array equipment —

## Part 2: Array probes

### 1 Scope

This document specifies characterization tests to be performed at the end of the fabrication of an array probe. It defines both methodology and acceptance criteria.

This document is applicable to the following array probes used for ultrasonic non-destructive testing [phased array technique or signal processing technique, e.g. full-matrix capture (FMC) and total-focusing technique (TFM)] in contact technique (with or without a wedge or delay line) or in immersion technique, with centre frequencies in the range 0,5 MHz to 10 MHz:

- a) array probes with elements in one direction:
  - 1-D-linear array (linear array);
  - 1-D-curved array;
  - annular array;
- b) array probes with elements in two directions:
  - 2-D-array (matrix array);
  - sectorial annular array;
  - partial sectorial annular array.

This document does not give methods and acceptance criteria to characterize the performance of an ultrasonic phased array instrument or the performance of a complete system, which are given in ISO 18563-1 and in ISO 18563-3.

### 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 2400, *Non-destructive testing — Ultrasonic testing — Specification for calibration block No. 1*

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

ISO 23243, *Non-destructive testing — Ultrasonic testing with arrays — Vocabulary*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577, ISO 23243 and the following apply.