

Non-destructive testing - Characterization and
verification of ultrasonic phased array equipment - Part
1: Instruments (ISO 18563-1:2015)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 18563-1:2015 sisaldab Euroopa standardi EN ISO 18563-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 18563-1:2015 consists of the English text of the European standard EN ISO 18563-1:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.06.2015.	Date of Availability of the European standard is 17.06.2015.
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English Version

**Non-destructive testing - Characterization and verification of
ultrasonic phased array equipment - Part 1: Instruments (ISO
18563-1:2015)**

Essais non destructifs - Caractérisation et vérification de
l'appareillage de contrôle par ultrasons en multiéléments -
Partie 1: Appareils (ISO 18563-1:2015)

Zerstörungsfreie Prüfung - Charakterisierung und
Verifizierung der Ultraschall-Prüfausrüstung mit
phasengesteuerten Arrays - Teil 1: Prüfgeräte (ISO 18563-
1:2015)

This European Standard was approved by CEN on 21 February 2015.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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

European foreword

This document (EN ISO 18563-1:2015) has been prepared by Technical Committee CEN/TC 138 "Non-destructive testing" the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 135 "Non-destructive testing".

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of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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Endorsement notice

The text of ISO 18563-1:2015 has been approved by CEN as EN ISO 18563-1:2015 without any modification.

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

ISO 18563-1 was prepared by the European Committee for Standardization (CEN), Technical Committee CEN/TC 138, *Non-destructive testing*, in collaboration with ISO/TC 135, *Non-destructive testing*, Subcommittee SC 3 *Ultrasonic testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 18563 consists of the following parts, under the general title *Non-destructive testing — Characterization and verification of ultrasonic phased array equipment*:

- *Part 1: Instruments*
- *Part 3: Combined systems*

An additional part on *Probes* is planned.

Non-destructive testing — Characterization and verification of ultrasonic phased array equipment —

Part 1: Instruments

1 Scope

This part of ISO 18563 identifies the functional characteristics of a multichannel ultrasonic phased array instrument used for phased array probes and provides methods for their measurement and verification.

This part of ISO 18563 can partly be applicable to ultrasonic phased array instruments in automated systems, but then, other tests might be needed to ensure satisfactory performance. When the phased array instrument is a part of an automated system, the acceptance criteria can be modified by agreement between the parties involved.

This part of ISO 18563 gives the extent of the verification and defines acceptance criteria within a frequency range of 0,5 MHz to 10 MHz.

The evaluation of these characteristics permits a well-defined description of the ultrasonic phased array instrument and comparability of instruments.

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.

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

EN 1330-4, *Non-destructive testing — Terminology — Part 4: Terms used in ultrasonic testing*

EN 12668-1, *Non-destructive testing — Characterization and verification of ultrasonic examination equipment — Part 1: Instruments*

EN 16018, *Non-destructive testing — Terminology — Terms used in ultrasonic testing with phased arrays*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1330-4, EN 12668-1, EN 16018, and the following apply.

3.1

maximum number of channels that can be simultaneously activated

maximum number of transmitting and/or receiving channels which can be used for one shot

3.2

parallel phased array instrument

phased array instrument featuring a *maximum number of channels that can be simultaneously activated* (3.1) equal to the number of channels in the instrument

EXAMPLE In a type 64/64 (or 64//), the number of channels that can be simultaneously activated is 64 and the number of channels of the instrument is 64.