International Standard

ISO 18563-2

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

Part 2: Array probes

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

Partie 2: Traducteurs multiéléments

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Foreword

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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.

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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.

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