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Introduction

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 8203-2

Fibre-reinforced plastic composites — Non-destructive testing —

Part 2: Array and air-coupled ultrasonics

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ISO/TC 61/SC 13

Secretariat: JISC

Voting begins on:
2024-12-12

Voting terminates on:
2025-03-06

This document is circulated as received from the committee secretariat.

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Foreword

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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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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 13, *Composites and reinforcement fibres*.

A list of all parts in the ISO 8203 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.

Fibre-reinforced plastic composites — Non-destructive testing —

Part 2: Array and air-coupled ultrasonics

1 Scope

This document is intended for mechanized array ultrasonic testing techniques (A-UT) using the total focusing method (TFM) data processing and for air-coupled ultrasonic testing technique (AC-UT) applied to non-destructive testing of carbon fibre-reinforced plastic (CFRP) and glass fibre-reinforced plastic (GFRP) composites.

The techniques contained within this document are intended to be used on flat, plane test objects where the material thickness differs by less than 20 %.

This document addresses ultrasonic testing via contact or immersion techniques using ultrasonic array probes as well as testing in pitch-catch or through-transmission technique using single element air-coupled ultrasonic probes.

Advanced mechanized ultrasonic testing using array probes and signal processing or air-coupled probes enables the detection, sizing, and characterization of a wide range of manufacturing and in-service imperfections in fibre-reinforced plastic (FRP) composites by image evaluation.

By scanning the test object under test using linear or matrix array ultrasonic probes or air-coupled ultrasonic probes, inhomogeneities and discontinuities can be detected and be characterized by the evaluation of C-scan and B-scan images generated by the space-resolved and processed acoustical response from the test object.

The objectives of testing with array probes are:

- Detection of imperfections, inclusions and inhomogeneities;
- Determination of material thickness;
- Determination of sound velocities;
- Determination of position and size of imperfections;
- Determination of depth position of imperfections (coverage);

The objectives of testing with air-coupled probes are:

- Detection of imperfections, inclusions and inhomogeneities;
- Determination of lateral position and size of imperfections.

Usually, ultrasonic array tests are performed from one side of the test object. If access to both sides of the test object is possible, additional testing from the opposite side of the test object can be performed to enhance the outcome of the tests.

Testing with air-coupled ultrasonic probes is usually performed in transmission, meaning that the test object is positioned between the transmitting and receiving probes. Air-coupled testing is performed using air as the couplant.