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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 11343-2008

Replacing GB/T 11343-1989

**Non-destructive testing -- Practice for ultrasonic angle-beam
testing by the contact method**

无损检测接触式超声斜射检测方法

(English Translation)

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Foreword

This revised standard adopts ASTM E587-00 (2005) "oblique-contact ultrasonic detection method" (in English).

This standard redrafted according to ASTM E587-00 (2005).

Taking into account China's national conditions, when using ASTM E587-00 (2005), we made some changes in this standard. About the technical differences are as follows.

- Delete ASTM standards 1.2 and 1.3;
- The Normative references ASTM E114 to JB/T 4009;
- The Normative references ASTM E317 to JB/T 9214;
- The Normative references ASTM E543 to GB/T 5616;
- The Normative references ASTM E1316 to GB/T 12604.1 and GB/T 20737;
- The Normative references SNT-TC-1A and ANSI/ASNTCP-189 to GB/T 9445;
- Increase Normative references GB/T 19799.1;
- Delete Normative references MIL-STD-410 and NAS410;
- Delete ASTM standard Chapter 12.

For ease of use, this standard also made the following editorial changes.

- "The method" be replaced by "this standard";
- Insert GB/T 1.1-2000 provisions introductory phrase;
- English units and delete data, retaining only SI units and data;
- Reorganized part number and title bars to meet GB/T 1.1-2000 requirements.

This standard replaces GB/T 11343-1989 "oblique-contact ultrasonic flaw detection

method." this standard compared with GB/T 11343-1989 main changes are as follows.

--- Modification and increased the detection principle and application examples;

--- Increased detection project contract requirements.

The standard proposed by China Machinery Industry Federation.

The standard non-destructive testing by the National Standardization Technical Committee (SAC/TC56) centralized.

This standard was drafted. Shanghai Baosteel Industry Inspection Corporation, Shanghai Research Institute of Materials, Changzhou ultrasound Electronics Co., Ltd.

1 Scope

This standard specifies the use of oblique contact ultrasonic pulse echo technique (including ultrasound oblique longitudinal wave, shear wave, Rayleigh wave, Laimu Bo) on the timber Material ultrasonic testing method, while the system equipment and calibration made adequate provision.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 5616 NDT Applications Guide GB/T 9445 NDT personnel qualification and certification (GB/T 9445-2008, ISO 9712:2005, IDT) GB/T 12604.1 Terminology for nondestructive testing Ultrasonic testing (GB/T 12604.1-2005, ISO 5577:2000, IDT) GB/T 19799.1 NDT ultrasonic testing calibration block No. 1 (GB/T 19799.1-2005, ISO 2400. 1972, IDT) GB/T 20737 Non-destructive testing - General terms and definitions (GB/T 20737-2006, ISO/T S18173.2005, IDT) JB/T 4009-contact ultrasonic longitudinal wave direct detection method JB/T 9214 A-type ultrasonic pulse echo system performance test method

3 Terms and Definitions

Terms and definitions GB/T 12604.1 and GB/T 20737 apply to this standard established.

4 Points and Applications

4.1

electric pulse is applied on the piezoelectric transducer that is capable of electrical energy into mechanical energy. In the oblique wave probe, transducer thickness usually occurs Changes, resulting in compression and expansion. This longitudinal wave (compression wave) through the wedge (usually a plastic). Transducer surface with wedge contact surface it is equal to the angle between the normal of the surface of the subject and the angle between the incident beam. Figure 1 shows the angle of incidence of the ultrasonic beam refraction angle ϕ_{ii} and ϕ_{ir} .

1 Refraction

4.2

When checking the surface of the material when the coupling angle probes, ultrasonic wave propagation in the material, as shown in FIG. Ultrasonic wave propagation in the material