

Non-destructive testing - Acoustic emission testing -
Equipment characterisation - Part 2: Verification of
operating characteristics

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13477-2:2021 sisaldab Euroopa standardi EN 13477-2:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 13477-2:2021 consists of the English text of the European standard EN 13477-2:2021.
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English Version

**Non-destructive testing - Acoustic emission testing -
Equipment characterisation - Part 2: Verification of
operating characteristics**

Essais non destructifs - Essais d'émission acoustique -
Caractérisation de l'équipement - Partie 2 :
Vérifications des caractéristiques de fonctionnement

Zerstörungsfreie Prüfung - Schallemissionsprüfung -
Charakterisierung der Prüfausrüstung - Teil 2:
Überprüfung der Betriebskenngrößen

This European Standard was approved by CEN on 30 May 2021.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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European foreword

This document (EN 13477-2:2021) has been prepared by 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of an identical text or by endorsement, at the latest by April 2022, and conflicting national standards shall be withdrawn at the latest by April 2022.

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 13477-2:2010.

In comparison with the previous edition, the following technical modifications have been made:

- Improvement of Clause 3 “Terms & Definitions”;
- Improvement of Clause 5 “Sensor verification”;
- Improvement of Clause 6 “Pre-amplifier verification”;
- Improvement of Clause 7 “Acoustic emission signal processor verification”;
- Improvement of Clause 8 “Verification of the system performance”.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Turkey and the United Kingdom.

1 Scope

This document specifies test routines for the periodic verification of the performance of acoustic emission (AE) test equipment, i.e. sensors, pre-amplifiers, signal processors, external parametric inputs.

It is intended for use by qualified personnel to implement an automated verification process.

Verification of the measurement characteristics is advised after purchase of equipment, in order to obtain reference data for later verifications. Verification is also advised after repair, modifications, use under extraordinary conditions, or if one suspects a malfunction.

The procedures specified in this document do not exclude other qualified methods, e.g. verification in the frequency domain. These procedures apply in general unless the manufacturer specifies alternative equivalent procedures.

Safety aspects of equipment for use in potentially explosive zones are not considered in this document.

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.

EN 1330-1:2014, *Non destructive testing - Terminology - Part 1: List of general terms*

EN 1330-2:1998, *Non destructive testing - Terminology - Part 2: Terms common to the non-destructive testing methods*

EN 1330-9:2017, *Non-destructive testing - Terminology - Part 9: Terms used in acoustic emission testing*

EN 13477-1:2001, *Non-destructive testing - Acoustic emission - Equipment characterisation - Part 1: Equipment description*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1330-1:2014, EN 1330-2:1998 and EN 1330-9:2017, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

acoustic emission signal processor

ASP

part of an AE channel for the conversion of the output of the pre-amplifier to digital signal parameters

Note 1 to entry: An AE signal processor can include additional support functions, e.g. pre-amplifier power supply, test pulse control, transient recorder and more.

3.2

arbitrary function generator

AFG

electronic device for generating programmable test signals, various waveforms and direct current (DC)