



SLOVENSKI STANDARD

oSIST prEN 1330-9:2008

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Non-destructive testing - Terminology - Part 9: Terms used in acoustic emission testing

iTeh STANDARD PREVIEW

Essais non-destructifs - Terminologie - Partie 9 : Termes utilisés en contrôle par
émission acoustique

Ta slovenski standard je istoveten z: prEN 1330-9

ICS:

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19.100	Neporušitveno preskušanje	Non-destructive testing

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English Version

Non-destructive testing - Terminology - Part 9: Terms used in acoustic emission testing

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 138.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	4
1 Scope	5
2 Acoustic emission (AE).....	5
3 Terms relating to the physical phenomenon	5
3.1 acoustic emission event	5
3.2 acoustic emission source	6
3.3 acoustic emission wave	6
3.4 acoustic emission wave	6
4 Terms relating to the detection of the acoustic emission	6
4.1 acoustic emission sensor	6
4.2 acoustic emission couplant.....	6
4.3 burst emission	6
4.4 continuous emission	7
4.5 acoustic emission waveguide	7
4.6 acoustic emission signal	7
4.7 burst signal (burst)	7
4.8 continuous signal	8
4.9 acoustic emission noise	9
4.10 acoustic emission channel	9
4.11 dynamic range of an acoustic emission channel.....	9
5 Terms relating to the measured acoustic emission signal(s).....	10
5.1 acoustic emission detection threshold	10
5.2 hit.....	10
5.3 acoustic emission evaluation threshold	10
5.4 burst signal parameters	11
5.5 continuous signal parameters.....	11
5.6 arrival time.....	11
5.7 delta t	12
5.8 burst signal duration	12
5.9 ring down count.....	12
5.10 burst signal peak amplitude	12
5.11 burst signal rise-time	12
5.12 burst signal energy.....	12
5.13 burst signal strength	13
5.14 acoustic emission decibel scale; dB _{AE} scale.....	13
5.15 average signal level (ASL)	13
5.16 acoustic emission data set	13
5.17 attenuation curve.....	13
5.18 acoustic emission instrument calibrator	14
6 Terms relating to acoustic emission applications	14
6.1 acoustic emission testing (AT).....	14
6.2 acoustic emission monitoring.....	14
6.3 acoustic emission analysis	14
6.4 acoustic emission activity	15
6.5 acoustic emission intensity.....	15
6.6 event location determination.....	15
6.7 acoustic emission location cluster	15
6.8 source location	16
6.9 planar location	16

6.10	linear location	16
6.11	zone location.....	17
6.12	continuous emission source location.....	17
6.13	source location error.....	18
6.14	Felicity effect.....	18
6.15	Felicity ratio	18
6.16	Hsu-Nielsen source (pencil lead break)	18
6.17	Kaiser effect	18
6.18	pulser	19
6.19	sensor array	19
6.20	guard sensor.....	19
6.21	acoustic emission sensor sensitivity.....	19
6.22	apparent acoustic emission velocity.....	20

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Foreword

This document (prEN 1330-9:2007) has been prepared by Technical Committee CEN/TC 138 "Non-destructive testing", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1330-9:2000.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

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1 Scope

This European standard is concerned only with terms used specifically in acoustic emission testing (AT) and these fall into four parts:

- Terms relating to the physical phenomenon;
- Terms relating to the detection of the acoustic emission;
- Terms relating to the measured characteristics of the signal(s);
- Terms relating to acoustic emission applications.

2 Acoustic emission (AE)

Phenomena whereby transient elastic waves are generated by e.g. plastic deformation, crack propagation, erosion, corrosion, impact, leakage.

3 Terms relating to the physical phenomenon

3.1 acoustic emission event

physical phenomenon giving rise to acoustic emission.

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3.2 acoustic emission source

spatial element from which one or more acoustic emission events originate.

3.3 acoustic emission wave

transient elastic waves generated by the release of energy within a material or by a process

3.4 acoustic emission wave

elastic wave energy released by an acoustic emission event.

4 Terms relating to the detection of the acoustic emission

4.1 acoustic emission sensor

device that converts the particle motion produced by an elastic wave into an electrical signal.

4.2 acoustic emission couplant

material used at the test object-to-sensor interface to improve the transmission of acoustic emission waves across the interface.

4.3 burst emission

occurrence of acoustic emission events which can be separated in time.

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4.4 continuous emission

occurrence of acoustic emission events which cannot be separated in time.

4.5 acoustic emission waveguide

a device used for the transmission of acoustic emission waves from the test object to the acoustic emission sensor, when direct coupling is impractical.

4.6 acoustic emission signal

electrical signal from an acoustic emission sensor produced by the acoustic emission wave.

NOTE: Other disturbances e.g. EMI may be present on this signal.

4.7 burst signal (burst)

acoustic emission signal having identifiable beginning and end (see figure 1).

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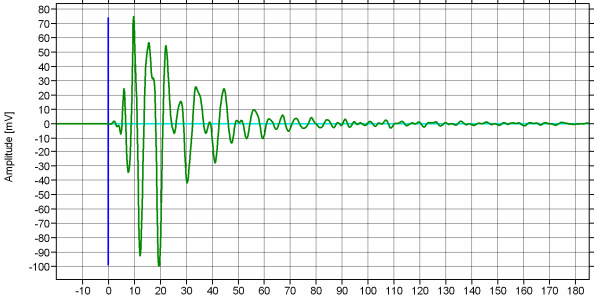


Figure 1 – Burst signal (voltage vs. time)

4.8 continuous signal

acoustic emission signal having no identifiable beginning and end (see figure 2).

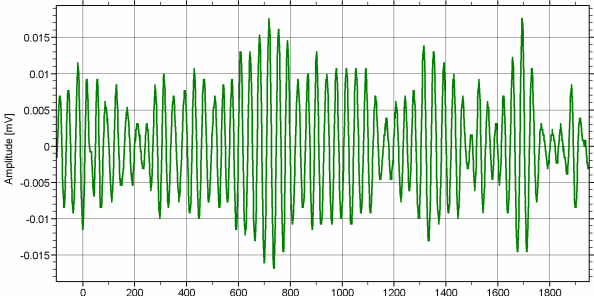


Figure 2 – Continuous signal (voltage vs. time)

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4.9 acoustic emission noise

signals that are not relevant to the purpose of the test. It is called background noise, if it can be rejected by raising the detection threshold or frequency filtering. Otherwise it is called spurious noise, which might be rejected by logical filtering.

NOTE: E.g. it can have electromagnetic, thermal or mechanical origins.

4.10 acoustic emission channel

single acoustic emission sensor and related measurement and processing instrumentation.

4.11 dynamic range of an acoustic emission channel

The dynamic range is the ratio of the largest signal voltage (without distortion) to the peak voltage of the electronic noise. It shall be given in dB defined by:

$$\text{dynamic range} = 20 \log (V_{\text{peak (signal)}} / V_{\text{peak (electronic noise)}})$$

NOTE: The electronic peak noise is the maximum voltage within a defined time period without acoustic emission

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