



**SLOVENSKI STANDARD**  
**oSIST prEN 1330-9:2016**  
**01-januar-2016**

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**Neporušitveno preskušanje - Terminologija - 9. del: Izrazi, ki se uporabljajo pri akustični emisiji**

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

Zerstörungsfreie Prüfung - Terminologie - Teil 9: Begriffe der Schallemissionsprüfung

Essais Non Destructifs - Terminologie - Partie 9 : Termes utilisés en contrôle par émission acoustique

**Ta slovenski standard je istoveten z: prEN 1330-9**

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**ICS:**

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19.100	Neporušitveno preskušanje	Non-destructive testing

**oSIST prEN 1330-9:2016**

**en**



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English Version

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

Essais Non Destructifs - Terminologie - Partie 9 :  
Termes utilisés en contrôle par émission acoustique

Zerstörungsfreie Prüfung - Terminologie - Teil 9:  
Begriffe der Schallemissionsprüfung

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

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**prEN 1330-9:2015 (E)**

## **European foreword**

This document (prEN 1330-9:2015) 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 1330-9:2009.

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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

### 3.2 Acoustic emission source

spatial element from where one or more acoustic emission events originate

### 3.3 Acoustic emission source mechanism

dynamic process or combination of processes occurring within a material, generating acoustic emission events

Note 1 to entry: AE source mechanisms can be subdivided into several categories: material and mechanical, macroscopic and microscopic, primary and secondary.

### 3.4 Acoustic emission wave

transient elastic waves generated by an acoustic emission event

### 3.5 Acoustic emission wave energy

elastic wave energy released by an acoustic emission event

### 3.6 Acoustic emission stimulation

application of a stimulus such as force, pressure, heat, and so forth, to a test object to cause activation of acoustic emission sources

### 3.7 Event location

computed location of an individual AE event using, e.g. delta measurement

**prEN 1330-9:2015 (E)****3.8 Cluster location**

spatial area encompassing several AE events, defining an AE cluster

**3.9 Source location**

spatial area comprising one or more clusters associated with an AE source and importantly encompassing the true physical location of the AE events giving rise to the AE source

**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

**4.4 Continuous emission**

occurrence of acoustic emission events which cannot be separated in time

**4.5 Acoustic emission waveguide**

device used for the transmission of acoustic emission waves from the test object to the acoustic emission sensor

**4.6 Acoustic emission signal**

electrical signal from an acoustic emission sensor converted from the acoustic emission wave

Note 1 to entry: Other disturbances, e.g. EMI may affect the signal.

**4.7 Burst signal (burst)**

acoustic emission signal having an identifiable beginning and an end

Note 1 to entry: See Figure 1.



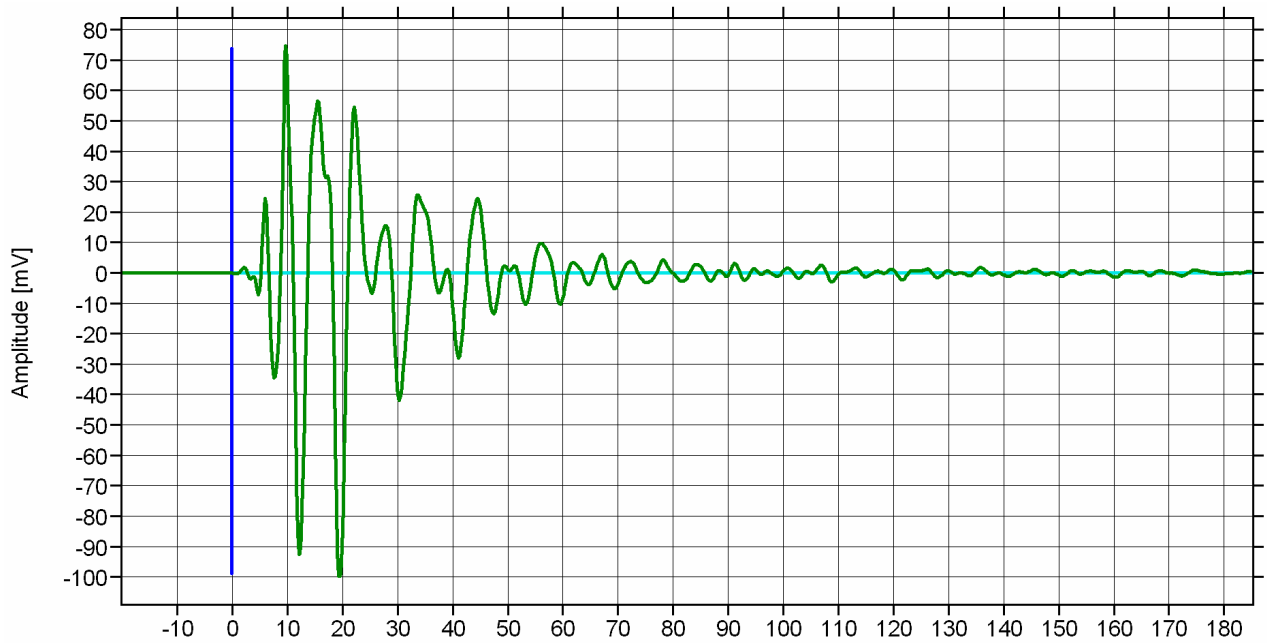


Figure 1 — Burst signal (voltage vs. time)

#### 4.8 Continuous signal

acoustic emission signal having no identifiable beginning and end

Note 1 to entry: See Figure 2.

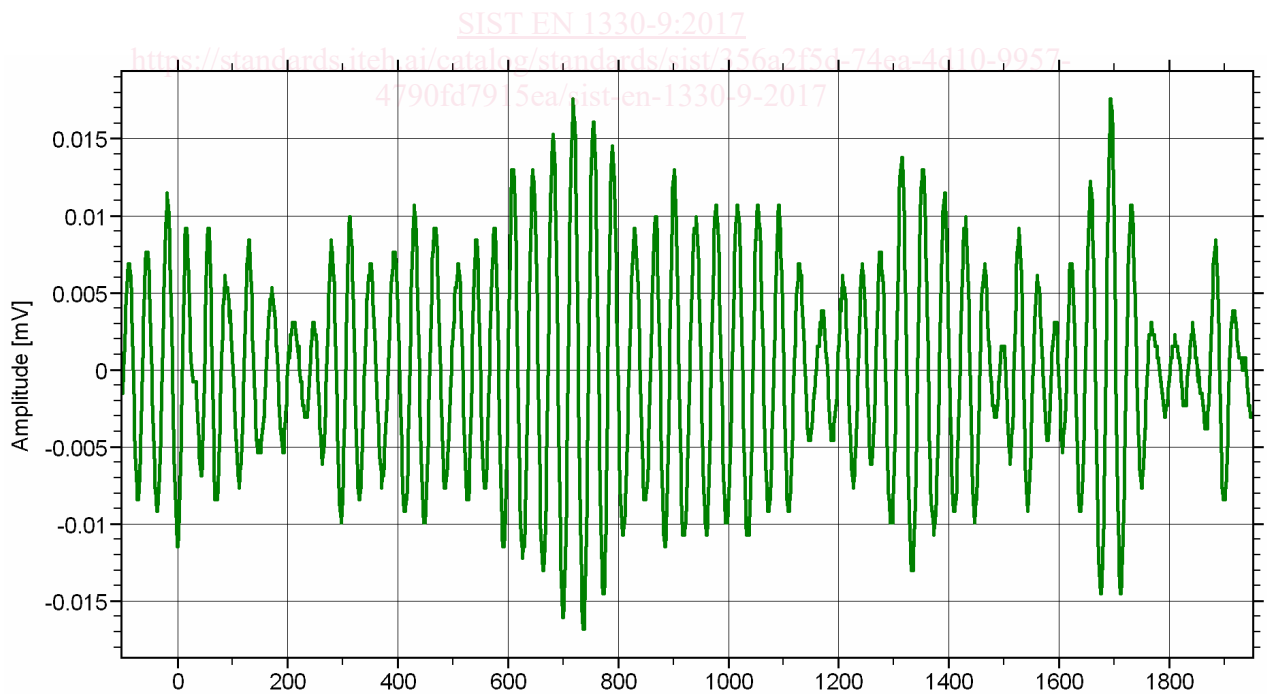


Figure 2 — Continuous signal (voltage vs. time)

**prEN 1330-9:2015 (E)****4.9 Acoustic emission noise**

signals that are not relevant to the purpose of the test

Note 1 to entry: It can have electromagnetic, thermal or mechanical origins.

**4.10 Background noise**

acoustic emission noise which can be rejected by raising the detection threshold or frequency filtering

**4.11 Disturbance noise**

acoustic emission noise which cannot be rejected by raising the detection threshold or frequency filtering and which might be rejected by logical filtering

**4.12 Acoustic emission channel**

complete measurement and signal processing chain for one AE signal, including sensor, cable, preamplifier and signal processor

Note 1 to entry: Some applications may utilize more than one sensor per channel.

**4.13 Dynamic range of an acoustic emission channel**

ratio of the largest signal voltage (without distortion) to the peak voltage of the electronic noise

Note 1 to entry: It shall be given in dB defined by: dynamic range =  $20 \log (V_{\text{peak}}(\text{signal}) / V_{\text{peak}}(\text{electronic noise}))$ .

Note 2 to entry: The electronic peak noise is the maximum voltage within a defined time period without acoustic emission.

**4.14 Acoustic emission detection threshold**

oltage level that must be exceeded in order to detect an acoustic emission signal

**5 Terms relating to the measured acoustic emission signal(s)****5.1 Hit**

detection of one burst signal on one acoustic emission channel

**5.2 Burst signal parameters**

specific parameters describing a burst signal (e.g. maximum amplitude, duration, rise time, energy)

Note 1 to entry: See Figure 3.