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Air quality - Certification of automated measuring systems - Part 3: Performance specifications and test procedures for automated measuring systems for monitoring emissions from stationary sources

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EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

<p>Käesolev Eesti standard EVS-EN 15267-3:2008 sisaldab Euroopa standardi EN 15267:2007 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 28.01.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 19.12.2007.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15267-3:2008 consists of the English text of the European standard EN 15267:2007.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 28.01.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 19.12.2007.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 13.040.40

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English Version

**Air quality - Certification of automated measuring systems - Part
3: Performance criteria and test procedures for automated
measuring systems for monitoring emissions from stationary
sources**

Qualité de l'air - Certification des systèmes de mesurage automatisés - Partie 3: Spécifications de performance et procédures d'essai pour systèmes de mesurage automatisés des émissions de sources fixes

Luftbeschaffenheit - Zertifizierung von automatischen Messeinrichtungen - Teil 3: Mindestanforderungen und Prüfprozeduren für automatische Messeinrichtungen zur Überwachung von Emissionen aus stationären Quellen

This European Standard was approved by CEN on 17 November 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 15267-3:2007) has been prepared by Technical Committee CEN/TC 264 "Air quality", the secretariat of which is held by DIN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2008 and conflicting national standards shall be withdrawn at the latest by June 2008.

This document is Part 3 of a series of European Standards:

- EN 15267-1, *Air quality — Certification of automated measuring systems — Part 1: General principles*
- EN 15267-2, *Air quality — Certification of automated measuring systems — Part 2: Initial assessment of the AMS manufacturer's quality management system and post certification surveillance for the manufacturing process*
- EN 15267-3, *Air quality — Certification of automated measuring systems — Part 3: Performance criteria and test procedures for automated measuring systems for monitoring emissions from stationary sources*
- EN 15267-4, *Air quality — Certification of automated measuring systems — Part 4: Performance criteria and test procedures for automated measuring systems for monitoring ambient air quality*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

0 Introduction

0.1 General

CEN has established standards for the certification of automated measuring systems (AMS) used for monitoring emissions from stationary sources and ambient air quality. This product certification is based on the following four sequential stages:

- a) performance testing of an AMS;
- b) initial assessment of the AMS manufacturer's quality management system;
- c) certification;
- d) post certification surveillance.

This European Standard defines the performance criteria and test procedures for performance testing of AMS used to monitor emissions from stationary sources. Testing applies to complete measuring systems.

The overall assessment for the purposes of certification is *conformity testing*, whilst the evaluation of performance against specified performance criteria is *performance testing*.

0.2 Legal drivers

This European Standard supports the requirements of the following EU Directives:

- Directive on the limitation of emissions of certain pollutants into the air from large combustion plants (2001/80/EC);
- Directive on the incineration of waste (2000/76/EC);
- Directive on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (1999/13/EC);
- Integrated Pollution Prevention and Control Directive (1996/61/EC);
- Directive on processes emitting greenhouse gases (2003/87/EC).

However, this European Standard can also be applied to the monitoring requirements specified in other EU Directives.

0.3 Relationship to EN 14181

The Quality Assurance Levels (QAL) defined in EN 14181 cover the suitability of an AMS for its measuring task (QAL1), the regular calibration and validation of the AMS (QAL2), and the control of the AMS during its ongoing operation on an industrial plant (QAL3). An Annual Surveillance Test (AST) is also defined in EN 14181.

This European Standard provides the detailed procedures covering the QAL1 requirements of EN 14181. Furthermore, it provides input data for QAL3.

0.4 Processes

Field testing of an AMS is ordinarily carried out on the most highly demanding industrial process in the range of applications for which a manufacturer seeks certification. The premise is that if the AMS performs acceptably on this process, then experience has shown that the AMS generally performs well on the majority of other processes. However, there are always exceptions and it is the responsibility of the manufacturer in conjunction with the user to ensure that the AMS performs adequately on a specific process.

0.5 Performance characteristics

A combination of laboratory and field testing is detailed within this European Standard. Laboratory testing is designed to assess whether an AMS can meet, under controlled conditions, the relevant performance criteria. Field testing, over a minimum three month period, is designed to assess whether an AMS can continue to work and meet the relevant performance criteria in a real application. Field testing is carried out on an industrial process representative of the intended application for the AMS for which the manufacturer seeks certification.

The main AMS performance characteristics are

- response time,
- repeatability standard deviation at zero and span points,
- lack of fit (linearity) under laboratory and field conditions,
- zero and span drift under laboratory and field conditions,
- influence of ambient temperature,
- influence of sample gas pressure,
- influence of sample gas flow for extractive AMS,
- influence of voltage variations,
- influence of vibration,
- cross-sensitivity to likely interferences contained in the waste gas other than the measured component,
- excursion of measurement beam of in-situ AMS,
- converter efficiency for NO_x AMS,
- response factors,
- performance and accuracy of the AMS against a standard reference method (SRM) under field conditions,
- maintenance interval under field conditions,
- availability under field conditions and
- reproducibility under field conditions.

The quality of reference or surrogate materials used under QAL3 for particulate matter measuring AMS is also assessed.

This European Standard is an application and elaboration of EN ISO 9169 with additional and alternative provisions for paired testing. Where this European Standard appears to differ from EN ISO 9169, it either elaborates upon the requirements of EN ISO 9169 or differs in minor ways owing to the necessity to conduct paired testing.

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1 Scope

This European Standard specifies the performance criteria and test procedures for automated measuring systems that measure gases and particulate matter in, and flow of, the waste gas from stationary sources.

This European Standard supports the requirements of particular EU Directives. It provides the detailed procedures covering the QAL1 requirements of EN 14181 and, where required, input data used in QAL3.

2 Normative references

The following referenced documents are indispensable for the application 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 12619, *Stationary source emissions — Determination of the mass concentration of total gaseous organic carbon at low concentrations in flue gases — Continuous flame ionisation detector method*

EN 13284-1, *Stationary source emissions — Determination of low range mass concentration of dust — Part 1: Manual gravimetric method*

EN 13284-2, *Stationary source emissions — Determination of low range mass concentration of dust — Part 2: Automated measuring systems*

EN 13526, *Stationary source emissions — Determination of the mass concentration of total gaseous organic carbon in flue gases from solvent using processes — Continuous flame ionisation detector method*

EN 14181:2004, *Stationary source emissions — Quality assurance of automated measuring systems*

EN 15259:2007, *Air quality — Measurement of stationary source emissions — Requirements for measurement sections and sites and for the measurement objective, plan and report*

EN 50160, *Voltage characteristics of electricity supplied by public distribution systems*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60068-1, *Environmental testing — Part 1: General and guidance (IEC 60068-1:1988 + Corrigendum 1988 + A1:1992)*

EN 60068-2 (all tests), *Environmental testing — Part 2: Tests*

EN ISO 14956, *Air quality — Evaluation of the suitability of a measurement procedure by comparison with a required measurement uncertainty (ISO 14956:2002)*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

automated measuring system

AMS

entirety of all measuring instruments and additional devices for obtaining a result of measurement