

Air quality - Assessment of air quality monitoring equipment - Part 3: Performance criteria and test procedures for stationary automated measuring systems for continuous monitoring of emissions from stationary sources

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>See Eesti standard EVS-EN 15267-3:2023 sisaldab Euroopa standardi EN 15267-3:2023 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.12.2023.</p> <p>Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.</p>	<p>This Estonian standard EVS-EN 15267-3:2023 consists of the English text of the European standard EN 15267-3:2023.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 20.12.2023.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p>
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English Version

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

Qualité de l'air - Évaluation des équipements de
surveillance de la qualité de l'air - Partie 3: Critères de
performance et modes opératoires d'essai pour les
systèmes de mesurage automatisés fixes de
surveillance en continu des émissions de sources fixes

Luftbeschaffenheit - Beurteilung von Einrichtungen zur
Überwachung der Luftbeschaffenheit - Teil 3:
Mindestanforderungen und Prüfprozeduren für
stationäre automatische Messeinrichtungen zur
kontinuierlichen Überwachung von Emissionen aus
stationären Quellen

This European Standard was approved by CEN on 27 November 2023.

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European foreword

This document (EN 15267-3:2023) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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 15267-3:2007.

The main changes compared to the previous edition are listed below:

- a) The title of the revised EN 15267 series has been clarified to avoid the impression that all parts deal with the certification of automated measuring systems. The title has been generalized so that specifically Part 1 and Part 2 are also applicable to other air quality monitoring equipment.
- b) The title of revised EN 15267-3 has been clarified to make it clear that Part 3 deals with stationary automated measuring systems for continuous monitoring of emissions from stationary sources.
- c) The performance criteria and test procedures were adapted to the state of the art in measurement technology.
- d) Requirements for stationary automated measuring systems measuring mercury have been added.
- e) References have been updated.

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

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

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, Türkiye and the United Kingdom.

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Introduction

0.1 General

The assessment of air quality monitoring equipment (AQME) supports the requirements of certain Directives of the European Union (EU), which require, either directly or indirectly, that this equipment complies with performance criteria, maximum permissible measurement uncertainties and test requirements. These Directives include Directive 2010/75/EU on industrial emissions (IED), Directive (EU) 2015/2193 on medium combustion plants and Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

The assessment of AQME consists of the following sequential stages:

- a) performance testing;
- b) initial assessment of the manufacturer's quality management system (QMS);
- c) certification;
- d) surveillance for the manufacturing process.

This document specifies the performance criteria and test procedures for performance testing of stationary AMS for continuous monitoring of emissions from stationary sources. Testing applies to complete measuring systems.

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

0.2 Legal drivers

This document supports at least the requirements of the following EU Directives:

- Directive 2010/75/EU on industrial emissions;
- Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants;
- Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading.

However, this document 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 document 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 test and field test is detailed within this document. The laboratory test is designed to assess whether an AMS can meet, under controlled conditions, the relevant performance criteria. The field test 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;
- lack of fit (linearity);
- drift;
- influence of ambient temperature;
- influence of supply voltage variations;
- influence of vibration;
- influence of sample gas pressure;
- influence of sample gas flow for extractive AMS;
- cross-sensitivity to likely interferents contained in the waste gas other than the measured component;
- excursion of measurement beam of cross-stack *in situ* AMS;
- converter efficiency for AMS measuring NO_x;
- converter efficiency for AMS measuring Hg;
- response factors for AMS measuring TOC;
- performance and accuracy of the AMS against the standard reference method (SRM) or alternative method (AM);
- maintenance interval;
- availability;
- reproducibility.

The quality of reference or surrogate materials used under QAL3 for both gaseous measured components and particulate matter measuring AMS is also assessed.

This document is an application and elaboration of EN ISO 9169 with additional and alternative provisions for paired testing. Where this document 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.

0.6 Relationship to EN 15267-4

This document forms the basis of EN 15267-4, which specifies the performance test of portable automated measuring systems (P-AMS) for periodic measurements of emissions from stationary sources. Many requirements of EN 15267-4 are identical to those of this document. EN 15267-4 deviates from this document only where the portable use and the use as SRM or AM require different or additional requirements. Therefore, this document allows a combined testing according to EN 15267-3 and EN 15267-4 where an AMS is designed for stationary and portable use.

1 Scope

This document specifies the performance criteria and test procedures for the performance test of stationary automated measuring systems (AMS) that continuously measure gases and particulate matter in, and flow of, the waste gas from stationary sources.

This document 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 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 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: Quality assurance of automated measuring systems*

EN 14181:2014, *Stationary source emissions - Quality assurance of automated measuring systems*

EN 15259, *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 electricity networks*

EN 60068-2-6, *Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)*

EN 60529, *Degrees of protection provided by enclosures (IP Code)*

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

ISO/IEC 60559, *Floating-point arithmetic*

3 Terms and definitions

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

ISO and IEC maintain terminology 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

air quality monitoring equipment

AQME

automated measuring system or data acquisition and handling system

[SOURCE: EN 15267-1:2023, 3.1]