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Stationary source emissions - Demonstration of equivalence of an alternative method with a reference method

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 14793

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Supersedes CEN/TS 14793:2005

English Version

Stationary source emissions - Demonstration of equivalence of an alternative method with a reference method

Émissions de sources fixes - Démonstration de l'équivalence d'une méthode alternative avec une méthode de référence

Emissionen aus stationären Quellen - Nachweis der Gleichwertigkeit eines Alternativverfahrens mit einem Referenzverfahren

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

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Contents

Page

European foreword

This document (EN 14793:2017) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

This document supersedes CEN/TS 14793:2005.

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of an identical text or by endorsement, at the latest by July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Introduction

Much has been published in the literature concerning method validation by collaborative study. CEN/TC 264 working groups try to follow these method validations when a new standard is prepared and the collaborative study is probably the preferred way of carrying out the validation. However, it is not always a suitable option for accredited laboratories. The application for which the method is required can be esoteric to the extent that no other laboratories would be interested in collaboration. Those that might be interested can be competitors.

This European Standard provides one of possible methods of testing the equivalence of an alternative method (AM) with the standard reference method (SRM) or with a reference method (RM) if the legislator has not defined a standard reference method.

NOTE The term “reference method” is used in this standard to cover reference methods as well as standard reference methods.

In the framework of certification of automated measuring systems used for the measurement of stationary source emissions this European Standard can be used in conjunction with EN 15267-4:2017 to demonstrate the equivalence of portable automated measuring systems (P-AMS) based on an AM with the standard reference method (SRM).

1 Scope

This European Standard specifies a procedure to demonstrate the equivalence of an alternative method (AM) with the reference method (RM) or the standard reference method (SRM), both implemented to determine the same measurand.

In particular, this European Standard provides the statistical tools and different criteria to evaluate the alternative method. This does not release the body performing the equivalence testing from bearing technical and analytical judgement on the evaluation of the different criteria.

Three steps are required for demonstration of equivalence:

— description of the alternative method and setting of the field of application (measurement range and type of gas matrix);

— determination of the performance characteristics of the alternative method and calculation of the expanded uncertainty where appropriate and check of compliance with the maximum expanded uncertainty allowed for the reference method;

— check of repeatability and lack of systematic deviation of the alternative method in the field or on a recognized test bench in comparison with the reference method for the type of matrix defined in the field of equivalence.

This European Standard requires that a reference method has been defined and validated.

This European Standard only considers the case of linear quantitative methods.

This European Standard is applicable to manual and automated methods.

This European Standard has been drawn up for laboratories working in air quality measurements and consequently an example taken from this sector are presented in Annex A.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 5725-1:1994, *Accuracy (trueness and precision) of measurement methods and results — Part 1: General principles and definitions*

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*