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BSI Standards Publication

# Ambient air — Methodology to assess the performance of receptor oriented source apportionment modelling applications for particulate matter



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# National foreword

This Published Document is the UK implementation of CEN/TS 17458:2020.

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# CEN/TS 17458

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English Version

# Ambient air - Methodology to assess the performance of receptor oriented source apportionment modelling applications for particulate matter

Air ambiant - Méthode d'évaluation de la performance d'applications d'un système de modélisation de la contribution des sources de particules en suspension de type " récepteur-orienté "

Außenluft - Methodik zur Erfassung der Leistungsfähigkeit von Systemanwendungen zur Quellenzuordnung

This Technical Specification (CEN/TS) was approved by CEN on 24 February 2020 for provisional application.

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Ref. No. CEN/TS 17458:2020 E

# Contents

Page

## European foreword

This document (CEN/TS 17458:2020) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

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# 1 Scope

The European Directive on ambient air quality and cleaner air for Europe (2008/50/EC; AQD) identifies different uses for modelling: Assessment, planning, forecast and source apportionment (SA). This document addresses source apportionment modelling and specifies performance tests to check whether given criteria for receptor oriented source apportionment models (RM) are met. The scope of the tests set out in this document is the performance assessment of SA of particulate matter using RM in the context of the European Directives 2004/107/EC and AQD, including the Commission Implementing Decision 2011/850/EU of 12 December 2011. The application of RM does not quantify the spatial origin of particulate matter; hence, this document does not test spatial SA.

This document addresses RM users: practitioners of individual source apportionment studies as well as participants and organizers of source apportionment intercomparison studies. This document is suitable for the evaluation of results of a specific SA modelling system with respect to reference values (*a priori* known or calculated on the basis of intercomparison participants' values) in the following application areas:

— Assessment of performance and uncertainties of a modelling system or modelling system set up using the indicators laid down in this document.

— Testing and comparing different source apportionment outputs in a specific situation (applying an evaluation data set) using the indicators laid down in this document.

— QA/QC tests every time practitioners run a modelling system.

It should be noted for clarity that the procedures and calculations presented in this document cannot be used to check the performance of a specific SA modelling result without having any a priori reference information about the contributions of sources/source categories.

NOTE The application of this document implies that the intercomparison is organized and coordinated by an institution with the necessary technical capabilities and independence; the definition of which is beyond the scope of this document.

The principles of RM are summarized in Annex A. An overview of uncertainty sources and recommendations about steps to follow in SA studies are provided in Annex B and Annex C. For further information about SA methodologies, refer to e.g. [1; 2; 3].

There are methodologies different from RM which are widely used to accomplish SA, e.g. source oriented models. These other methodologies cover aspects of SA which are required in the AQD and are not addressed by RM (e.g. allocation of pollutants to geographic emission areas). Performance assessment of such methodologies is out of the scope of this document.

# 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.

ISO 13528:2015, *Statistical methods for use in proficiency testing by interlaboratory comparison*