



Status of CEN TC264 WG43 on Modelling quality objectives

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CEN/TC 264/WG 43 on Modelling Quality Objectives

Appointed member from 10 countries (so far):

Germany (5, secretary), Belgium (2), Austria (2), the Netherlands (2), France (4), United Kingdom (2), Finland (1), Denmark (1), Sweden (1), and Norway (1, *convenor*)

Represented in **1st meeting in Düsseldorf, 13-14 October 2015:**

15 participants from: Germany, Belgium, France, United Kingdom, Finland, Denmark, Sweden, Norway,

and EC, JRC (observers: Philippe Thunis, Claudio Belis)

Proposed deliverable CEN/TC 264/WG 43 on MQO

Ambient air — Definition and use of modelling quality objectives for air quality assessment

Technical Specification (TS):

A TS is a normative document, the development of which can be envisaged *when various alternatives need to coexist in anticipation of future harmonization, or for providing specifications in experimental circumstances and/or evolving technologies.*

➔ At a later stage ***the TS can be transferred into a European Standard***, if desired.

European Standard (EN)

A EN is a normative document:

- Its elaboration includes a public enquiry, approval by weighted vote of CEN national members, and final ratification.
- Every conflicting national standard is withdrawn.

As the basis for the European Standard, it shall first be established whether:

- a) there is published international work in the field and that international work would be acceptable as a European Standard;
- b) the work can be developed within the framework of the international agreements that CEN and CENELEC have with ISO and IEC respectively.

Scope of the proposed deliverable

- Describe the methodology to define and calculate:
 - Modelling Quality Objectives (MQO) and
 - Modelling Performance Indicators (MPI), where these can be calculated on the basis of measurements.

The MPI together with the MQO constitute a benchmarking report.

Fulfilment of the MQOs within the modelling domain is essential, whereas fulfilment of the MPI is not (the latter are provided as support information).

- The TS does not address modelling applications in domains where measurements are not available.

Model Quality Objectives (MQO)

MQO are described in Annex I of the AQ Directive (along with monitoring QO):

- Expressed as a *relative uncertainty (%)*;
- Defined as the *maximum deviation of the measured and calculated concentration levels for 90 % of individual monitoring points over the period considered near the LV / TV, without taking into account the timing of the events.*

➔ But the wording of the AQ directive text needs further clarification in order to become operational.

Model performance indicators

- provide insight on model performance for a given application
- are generally use to assess the performance of a model against measurements.
- They do not tell whether model results have reached a sufficient level of quality for a given application.

➔ Need to set **modelling quality objectives**, defined as the minimum level of quality to be achieved by a model for policy use.

Outcome of first meeting I

Scope of the Technical Specification :

- restricted to assessment purposes in the context of the Air Quality Directive only, and will not be applicable for planning, forecast and source apportionment.
- covering PM_{2.5}, PM₁₀, NO₂ and O₃. Other pollutants may be included at a later stage.
- shall cover all concentration ranges.
- covering the national, regional, urban and street scales.

Outcome of first meeting II

The time averages for the pollutants covered by the Technical Specification shall be:

- hourly/annual/hourly percentile 99.8 for NO₂;
- daily/annual/daily percentile 90.4 for PM10;
- annual for PM2.5;
- maximum daily 8-hour mean/AOT40/ maximum daily 8-hour mean percentile 93.2 for O₃.

Outcome of first meeting III

“How the models calculate concentrations at measurement points is part of the modelling approach and the model methodology is not a part of this (TS) document.”

The Delta Tool output will be given as an example for a benchmarking report in an informative annex.

Work in CEN is related to:

- ✓ Generally relates to FAIRMODE work undertaken;
- ✓ Joint/parallel work with FAIRMODE is envisaged;
- ✓ Interaction with FAIRMODE is established:
 - The convenor is also the co-chair of FAIRMODE's WG 1 on assessment,
 - Several CEN/TC 264/WG 43 members are also FAIRMODE members (BE, NL, FR, FI, DK, NO, UK)
- Interaction with the measurement community (AQUILA) needs to be established.
- Liaison with COST Actions 728, 732 on model evaluation (Heinke Schlünzen, Helge Olesen).

Next meeting:

19 and 20 April 2016 in Kjeller, Norway

The main topic on the agenda is:

*Discussion on CEN/ Technical Specification is
"Ambient air — Definition and use of modelling
quality objectives for air quality assessment"*