

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

(Not to be reproduced without permission of BIS or used as an Indian Standard)

भारतीय मानक मसौदा

स्वचालित मापन प्रणालियों की प्रदर्शन विशेषताएँ

भाग 1 स्थिर स्तोत्रो से उत्सर्जित कार्बन मोनोआक्साइड ,
कार्बन डाईऑक्साइड और आक्सीजन

(पहला पुनरीक्षण)

Draft Indian Standard

**Performance Characteristics of
Automated Measurement Systems**

**Part 1 Carbon Monoxide, Carbon
Dioxide and Oxygen from Stationary Sources**

(First Revision)

ICS 13.040.40

Air Quality Sectional Committee, CHD 35

Last Date for Comments: 14-05-2024

Air Quality Sectional Committee, CHD 35

NATIONAL FOREWORD

(Formal clause shall be added later)

Deterioration in air quality due to pollution is a pertinent global problem. Monitoring industrial emissions so as to minimize its environmental and health effects is a major concern in a developing economy like India. Automated measurement systems (AMS) help in continuous monitoring of emissions. For accurate and effective functioning, these measurement systems shall fulfill certain performance criteria. This standard has been developed to ensure production and availability of good quality AMS instruments in India. This standard forms a part of a series of standards on performance characteristics of AMS and it is applicable for the AMS utilized for determination of carbon monoxide, carbon dioxide and oxygen from stationary source emissions.

This standard was originally published in 2019 which was identical to ISO 12039: 2001. The first revision of this standard has been undertaken in order to adopt the latest version with ISO 12039: 2019. In this revision following modification have been done:

- The structure and the components are changed to be similar to the latest ISO standards; ISO 17179 (measurement of NH₃), ISO 13199 (measurement of total VOC), ISO 25140 (measurement of CH₄), ISO 21258 (measurement of N₂O) and others.
- Addition or deletion and change in terms and definitions.

- c) Addition of a new analytical technique (tuneable laser spectroscopy) for in-situ measurement of CO, CO₂ and O₂
- d) The performance characteristics and criteria as well as QA/QC procedures are changed to harmonize with latest ISO standards.
- e) Examples of performance test results and the results of uncertainty calculation are shown for CO, CO₂ and O₂ measurement

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions and terminologies are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

The technical committee has reviewed the provisions of the following International Standards referred in this adopted standard and has decided that they are acceptable for use in conjunction with this standard.

<i>International Standard No</i>	<i>Title</i>
ISO 14956	<i>Air quality — Evaluation of the suitability of a measurement procedure by comparison with a required measurement uncertainty</i>

In this adopted standard, reference appears to certain International Standards where the standard atmospheric conditions to be observed are stipulated which are not applicable to tropical/subtropical countries. The applicable standard atmospheric conditions for Indian conditions are $(27 \pm 2)^{\circ}\text{C}$ and (65 ± 5) percent, relative humidity and shall be observed while using this standard.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'