Cabinet Resolution No. (86) of 2023

Concerning the Technical Regulations for Air Quality Measurement

The Cabinet,

- Having reviewed the Constitution; and
- Based upon the proposal submitted by the Minister of Industry and Advanced Technology, and the Cabinet's approval,

Has resolved as follows:

Article (1)

Definitions

In application of the provisions of this Resolution, the words and expressions set forth herein shall bear the meanings ascribed to them, unless the context otherwise requires:

State	:	United Arab Emirates (UAE).
Ministry	:	Ministry of Industry and Advanced Technology.
Competent Authority	:	The federal and local government authority in the State that falls within its jurisdiction to implement any of the provisions of this Resolution.
Accreditation	:	Official third-party certification of a conformity assessment body competence to conduct a specific conformity assessment activity.
Laboratory	:	The entity that conducts air quality measurements for the tests specified in this resolution.
Weather Monitoring	:	Monitoring, evaluating, or measuring one or more meteorological elements of the weather conditions in a specific area and at a specified time, describing the state of the atmosphere—whether at the Earth surface or at higher altitudes—using designated instruments and devices in accordance with approved monitoring standards.

Environmental Monitoring Networks	:	Air quality monitoring stations that monitor environmental components and pollutants.
Non-industrial Establishments	:	All infrastructure establishments and any other similar ones.
Competence Test	:	Evaluation of the participant performance according to pre-defined criteria through environmental laboratory comparisons/environmental monitoring network.
Uncertainty in Measurement	:	It is the range within which it is believed that the true value of the measured quantity lies with a certain level of confidence, based on the data of the measurement process.
Measurement Series	:	A characteristic of a measurement result that indicates its relationship to a metrological reference through a documented and continuous series of calibrations, each stage of which is accompanied by a measurement uncertainty.
Permissible Limits	:	The maximum limits for pollutants in accordance with the conditions stipulated in the legislation issued by the competent authorities.
Maximum Permissible Error	:	The Maximum Permissible Error of the Measuring Device specified in this Resolution, not to be exceeded.
Standard Specification	:	A document that specifies the characteristics of a commodity, product, service, or any item subject to measurement, including its description, properties, quality level, dimensions, metrics, or safety and security requirements. It also encompasses terms, symbols, testing methods, sampling, packaging, labels, and marks

Article (2)

Scope of Application

This resolution shall apply to laboratories, environmental monitoring networks, and bodies working in measuring air pollutants specified in Cabinet Resolution No. (12) of 2006 for the Regulation Concerning Protection of Air from Pollution, and the atmospheric monitoring measurement instruments used in environmental monitoring networks, which include the following:

1. Ambient air quality measurements.
2. Indoor air quality measurements.
3. Air pollutants emitted from constant sources.
4. Air quality measurement instruments specified in table No. (1) attached to this resolution.
5. Sensors for measuring air quality and environmental pollutants specified in table No. (2) attached hereto; and
6. Sensors for measuring air quality and environmental pollutants for specific elements for non-industrial establishments and workplaces specified in table No. (3) attached hereto.

Article (3)

Jurisdictions of the Ministry

For the purposes of this resolution, the Ministry, in coordination with the competent authority and as case may be, shall implement the provisions hereof, and to this end it may undertake the following:

1. Ensure that measuring instruments used in environmental monitoring networks and air quality measurement laboratories are calibrated and that there are calibration certificates for such instruments in accordance with national and international requirements and prevent the use of instrument that do not conform to the specifications and technical regulations approved in the State.
2. Ensure that environmental monitoring networks are registered in the Ministry registration system in accordance with the procedures issued for this purpose.

3. Ensure that air quality measurement laboratories obtain international accreditation in accordance with the international standard (ISO/IEC 17025).
4. Take the necessary administrative measures to implement the requirements of this resolution, including contacting the competent authorities to cancel the licence for entities or laboratories that violate the requirements stipulated herein.
5. Determine competency testing programmes in collaboration with the relevant authorities to organise such programmes and supervise implementation thereof.

Article (4)

Requirements for Laboratories/Environmental Monitoring Networks

Laboratories and environmental monitoring networks shall adhere to the following:

1. Register at the Ministry in accordance with the procedures and requirements issued by the Ministry for this purpose.
2. Obtain accreditation according to the standard specification (ISO/IEC 17025) in accordance with the requirements of the National Accreditation System issued pursuant to Cabinet Resolution No. (22) of 2004 by laboratories working in the field of testing air quality.
3. Acknowledge that tests or calibrations specified herein shall not be submitted if they have not obtained accreditation within one year from the effective date of this resolution.
4. Participate in competence programmes determined by the Ministry on an annual basis.
5. Limits for accepting results for competence programmes shall be determined by the Ministry within the programme details.
6. If the errors in the measurement results of laboratories or environmental monitoring networks exceed the permissible limits as specified by this resolution, operations in this field shall continue until compliance is achieved or appropriate corrective action is taken.

Article (5)

Measuring Instruments Requirements

1. **Maximum permissible errors in air quality measuring sensors:**
   a. Errors in the measuring instruments used for the purposes of measuring air quality shall not exceed the maximum permissible error in accordance with the stipulations outlined in table No. (1) attached hereto.
   b. Errors in the measuring instruments used for air pollutants shall not exceed the maximum permissible error in accordance with the stipulations outlined in table No. (2) and table No. (3) attached hereto.
   c. In case of lack of determination of the value of the maximum permissible error, the owner or user shall provide the value of the measurement uncertainty, provided that this value shall be verified by appropriate methods (for example: results of suitability tests, use of certified reference materials).
   d. Any measuring instrument that does not fulfil the requirements stated in this article shall not be used.

2. **Measurement Series:**

The legal measurement units specified in Cabinet Resolution No. (64) of 2022 regarding the National System of Measurement shall be used through:

   a. Direct calibration using reliable measuring standards serialised to national or international standards.
   b. Use of Certified Reference Material (CRM) in accordance with the requirements of the standard (ISO/IEC 17034) whenever possible.

3. **Adjusting Measuring Instruments:**
   a. All measuring instruments used in air quality measurements for the purposes of this resolution shall be adjustable and calibrated. The measurements thereof shall be verifiable, with the necessary technical documentation provided.
      b. The testing methods shall be validated and verified in accordance with the requirements of the standard (ISO/IEC 17025) and shall be issued by reliable bodies

such as: the United States Environmental Protection Agency, the European Union, or equivalent.

Article (6)

Competence Testing Programmes

1. Competence tests serve as a necessary means to measure the efficiency of the performance of the laboratory/environmental monitoring network. They enable the competent authorities and accreditation bodies to measure the performance of environmental monitoring laboratories/networks and the extent of applying measurement procedures in a way that achieves the desired goals of measurement. The evaluation process is based on the requirements contained in the standard specification (ISO/IEC 17043).
2. Laboratories/environmental monitoring networks shall commit to participating in competence testing programmes announced by the Ministry or the competent authority and shall commit not to exceed the permissible limits in accordance with the requirements of this resolution and the procedures issued by the ministry for such purpose.

Article (7)

General Provisions

1. The Ministry may address the competent authorities to take appropriate measures against laboratories and environmental monitoring networks that do not comply with the requirements for registration with the ministry.
2. The laboratory or environmental monitoring station network for measuring air quality shall comply with the requirements stipulated herein.
3. Laboratories or environmental monitoring networks shall bear the costs of participating in competence testing programmes.
4. The Minister shall have the authority to add any tests to the tests specified herein.
5. In violating the provisions of this resolution, the administrative penalties contained in Cabinet Resolution No. (64) of 2022 regarding the National Metrology System shall be applied.

6. The Minister may add or cancel any specific measurement instruments from table No. (1) attached hereto as required by the public interest.
7. If any situation arises that cannot be addressed in accordance with the provisions of this resolution, or if any dispute arises in its application, the Ministry shall take whatever action it deems appropriate to address the situation or resolve the dispute.

Article (8)

Executive Resolutions

The Minister, in collaboration with the competent authority, shall issue the resolutions necessary to apply the provisions of this Resolution.

Article (9)

Reconciliation

Laboratories that do not have accreditation shall apply for accreditation within (6) six months from the effective date of this resolution.

Article (10)

Publication and Entry into Force

This Resolution shall be published in the Official newspaper and shall implement after six (6) months of its publication date.

Mohammed Bin Rashid Al Maktoum

Prime Minister

Issued by Us:

Date: 02 Muharram 1445 A.H.

Corresponding to: 20 July 2023 AD

Table (1)

Maximum Permissible Error for Ambient Air Quality Measuring Instruments

#	Type of measuring instrument Instruments (sensors)	Maximum Permissible Error MPE (Maximum Permissible Errors)
1	Lighting	±10Lux
2	Noise	±10 Db
3	Thermometer	±0.5°C
4	Relative Humidity	±5%
5	Wind speed	±1.2 m/s
6	Wind direction	±5°
7	Air pressure	±50 pa

Table (2)

Maximum Permissible Error Limits for Sensors Measuring Air Quality and Environmental Pollutants for Specific Elements of Industrial Establishments

Air quality analysers Permissible error				
#	**Pollutants Gas Monitored**	**Symbol Abbreviation**	**Zero level permissible error Zero level permissible error**	**Working range Permissible error (During operation) Working range Permissible error (During operation)**
1	Sulfur dioxide	SO_2	$\pm 3 \times 10^{-9}$	±10%
2	Hydrogen Sulfide	H_2S	$\pm 3 \times 10^{-9}$	±10%
3	Nitrogen Oxides	NO_x	$\pm 3 \times 10^{-9}$	±10%
4	Carbon Monoxide	CO	$\pm 0.2 \times 10^{-6}$	±10%
5	Carbon Dioxide	CO_2	$\pm 4 \times 10^{-6}$	±10%
6	Ozone	O_3	$\pm 3 \times 10^{-9}$	±10%
7	Hydrocarbon	HC	$\pm 0.2 \times 10^{-6}$	±10%
8	Methane	CH_4	$\pm 0.2 \times 10^{-6}$	±10%
9	Benzene, Toluene, Ethylbenzene and Xylene	BTEX	$\pm 1 \times 10^{-9}$	±10%

Table No. (3)

Maximum Permissible Error Limits for Sensors Measuring Air Quality and Environmental Pollutants for Specific Elements for Non-Industrial Establishments and Workplaces

Instrument/ Sensors	MPE
Volatile organic compounds (VOC)	±5%
CO2	±5%
CO	±5%
CH2O	±5%
O3	±5%
NO2	±5%
PM2.5, PM10, TSP	±5%
T	±0.3°C
RH%	±5%