

Australian/New Zealand Standard™

**Cleanrooms and associated controlled environments**

**Part 3: Test methods  
(ISO 14644-3:2005, MOD)**



### **AS/NZS 14644.3:2009**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-060, Controlled Environment. It was approved on behalf of the Council of Standards Australia on 19 January 2007 and on behalf of the Council of Standards New Zealand on 23 February 2009.  
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The following are represented on Committee ME-060:

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Australian Chamber of Commerce and Industry  
Australian Industry Group  
Australian Institute of Refrigeration Air Conditioning and Heating  
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# Australian/New Zealand Standard™

## Cleanrooms and associated controlled environments

### Part 3: Test methods (ISO 14644-3:2005, MOD)

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AS 1386.3—1989, AS 1386.4—1989 and AS 1386.7—1989.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-060, Controlled Environment to supersede AS 1386.1—1989, AS 1386.2—1989, AS 1386.3—1989, AS 1386.4—1989 and AS 1386.7—1989. This Standard has been adopted with national modifications, and has been reproduced from, ISO 14644-3:2005, *Cleanrooms and associated controlled environments, Part 3: Test methods*. Additional requirements for Australia and New Zealand are given in Appendix ZZ.

The objective of this Standard is to specify test methods for designated classification of airborne particulate cleanliness and for characterizing the performance of cleanrooms and clean zones.

The following additional documents are referenced in Appendix ZZ:

AS

1807	Cleanrooms, workstations, safety cabinets and pharmaceutical isolators—Methods of test
1807.0	Part 0: List of methods and apparatus
1807.1	Part 1: Determination of air velocity and uniformity of air velocity in clean workstations, laminar flow safety cabinets and pharmaceutical isolators
1807.3	Part 3: Determination of air velocity and uniformity of air velocity in laminar flow cleanrooms
1807.6	Part 6: Determination of integrity of terminally mounted HEPA filter installations
1807.7	Part 7: Determination of integrity of HEPA filter installations not terminally mounted
1807.10	Part 10: Determination of air pressure of cleanrooms and pharmaceutical isolators
1807.11	Part 11: Determination of airflow parallelism in laminar flow cleanrooms
1807.12	Part 12: Determination of temperature in work zones
1807.13	Part 13: Determination of relative humidity in cleanrooms
1807.15	Part 15: Determination of illuminance
1807.16	Part 16: Determination of sound level in cleanrooms
1807.24	Part 24: Determination of recovery times of cleanrooms

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- (a) Its number appears on the cover and title page while the international standard number appears only on the cover.
- (b) In the source text ‘this part of ISO 14644’ should read ‘this Australian/New Zealand Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
ISO		AS/NZS ISO	
14644	Cleanrooms and associated controlled environments	14644	Cleanrooms and associated controlled environments
14644-1	Part 1: Classification of air cleanliness	14644.1	Part 1: Classification of air cleanliness
14644-2	Part 2: Specifications for testing and monitoring to prove continued compliance with ISO 14644-1	14644.2	Part 2: Specifications for testing and monitoring to prove continued compliance with ISO 14644-1 (ISO 14644-2, MOD)

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
ISO	AS/NZS ISO
14644-4 Part 4: Design, construction and start-up	14644.4 Part 4: Design construction and start-up

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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## INTRODUCTION

Cleanrooms and associated controlled environments provide for the control of airborne contamination to levels appropriate for accomplishing contamination-sensitive activities. Products and processes that benefit from the control of airborne contamination include those in such industries as aerospace, microelectronics, pharmaceuticals, medical devices, healthcare and food.

This part of ISO 14644 sets out test methods that may be used for the purpose of characterizing a cleanroom as described and specified in other parts of ISO 14644.

**NOTE** Not all cleanroom parameter test procedures are shown in this part of ISO 14644. The procedures and apparatus to characterize other parameters, of concern in cleanrooms and clean zones used for specific products or processes, are discussed elsewhere in other documents prepared by ISO/TC 209 [for example, procedures for control and measurement of viable materials (ISO 14698), testing cleanroom functionality (ISO 14644-4), and testing of separative devices (ISO 14644-7)]. In addition, other standards can be considered to be applicable.

Statements in this part of ISO 14644 reference the standards of ASTM, CEN, DIN, IEST, JACA, JIS and SEMI.

AUSTRALIAN/NEW ZEALAND STANDARD

## Cleanrooms and associated controlled environments

Part 3:

Test methods (ISO 14644-3:2005, MOD)

**WARNING** — The use of this part of ISO 14644 may involve hazardous materials, operations and equipment. This part of ISO 14644 does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this part of ISO 14644 to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

### 1 Scope

This part of ISO 14644 specifies test methods for designated classification of airborne particulate cleanliness and for characterizing the performance of cleanrooms and clean zones. Performance tests are specified for two types of cleanrooms and clean zones: those with unidirectional flow and those with non-unidirectional flow, in three possible occupancy states: as-built, at-rest and operational. The test methods recommend test apparatus and test procedures for determining performance parameters. Where the test method is affected by the type of cleanroom or clean zone, alternative procedures are suggested. For some of the tests, several different methods and apparatus are recommended to accommodate different end-use considerations. Alternative methods not included in this part of ISO 14644 may be used if based on agreement between customer and supplier. Alternative methods do not necessarily provide equivalent measurements.

This part of ISO 14644 is not applicable to the measurement of products or of processes in cleanrooms or separative devices.

### 2 Normative references

The following referenced documents are indispensable for the application 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 7726:1998, *Ergonomics of the thermal environment — Instruments for measuring physical quantities*

ISO 14644-1:1999, *Cleanrooms and associated controlled environments — Part 1: Classification of air cleanliness*

ISO 14644-2:2000, *Cleanrooms and associated controlled environments — Part 2: Specifications for testing and monitoring to prove continued compliance with ISO 14644-1*

ISO 14644-4:2001, *Cleanrooms and associated controlled environments — Part 4: Design, construction and start-up*