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AIR-CONDITIONING UNITS—METHODS OF ASSESSING AND RATING PERFORMANCE

Part 1—REFRIGERATED ROOM AIR-CONDITIONERS

[Title allocated by Defence Cataloguing Authority: AIR-CONDITIONER (Refrigerated, Room) NSC 4120]

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This Australian Standard was prepared by Committee ME/16, Unitary Air-Conditioners. It was approved on behalf of the Council of the Standards Association of Australia on 2 November 1987 and published on 4 January 1988.

The following interests are represented on Committee ME/16:

Air-conditioning and Refrigeration Equipment Manufacturers Association of Australia

Confederation of Australian Industry

Consumer Electronics Suppliers Association

Department of Administrative Services

Institution of Engineers Australia

Electricity Supply Association of Australia

Metal Trades Industry Association of Australia

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AUSTRALIAN STANDARD

AIR-CONDITIONING UNITS— METHODS OF ASSESSING AND RATING PERFORMANCE

Part 1 REFRIGERATED ROOM AIR-CONDITIONERS

AS 1861.1—1988

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PREFACE

This Standard was prepared by the Association's Committee on Unitary Air-conditioners, to supersede AS 1861—1981, Refrigerated Room Air-conditioners. It is the latest in a series of editions and amendments since the first issue of a Standard on this subject, AS B210, in 1966.

The Standard has become Part 1 of a projected two part Standard, which will cover the general subject of assessing and rating the performance of air-conditioners that are built as factory-assembled units. It is intended that Part 2 will deal with 'Package' units, of which the main characteristic is that they are of a size which are not amenable to room-calorimeter methods.

A number of adjustments of detail have been made to align with developments in the field of sound level measurement including, in particular, a major revision of AS 1217—1972, Methods of Measurement of Airborne Sound Emitted by Machines.*

The Standard now applies to both single-unit appliances and split systems and, as indicated in the Scope Clause, it is restricted to equipment having a maximum rating of 12 kW.

Earlier editions had included in Section 2 a few very general requirements on design and construction, which were too brief to be useful, and which were, in fact, not enforceable. They have been deleted, and the format is now more clearly that of a product information standard that is oriented towards the determination and the presentation of performance characteristics.

Section 3 includes provisions to conduct energy consumption tests at the same time as the normal thermal capacity test. The energy consumption tests are part of an energy-labelling program that is being introduced by regulation in some States, and the purpose of the alteration in this Standard is to ensure that energy data can be acquired as economically as possible by integrating it with other tests.

Section 5 now gives general principles rather than the specific calculation method for one particular situation.

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* Now AS 1217.1 to AS 1217.7

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

AIR-CONDITIONING UNITS—METHODS OF ASSESSING AND RATING PERFORMANCE

PART 1—REFRIGERATED ROOM AIR-CONDITIONERS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This Standard sets out test conditions and test procedures for determining the performance ratings of electrically driven refrigerated room air-conditioners, either as single-unit appliances or split systems with or without heating capabilities. It provides for the smaller ranges of factory built appliances of a size generally applicable to household or small office installations.

NOTES:

1. The appliances envisaged do not normally exceed 12 kW nominal rating, and the equipment specified in this Standard is limited to that level.
2. The Standard also incorporates, in Appendix A, specific directives concerning its adoption by the Department of Defence.

1.2 REFERENCED DOCUMENTS. The following Standards are referred to in this Standard:

AS 1024 Direct Recording Electrical Measuring Instruments and Their Accessories.

AS 1042 Direct-acting Indicating Electrical Measuring Instruments and Their Accessories.

AS 1044 Limits of Electromagnetic Interference for Electrical Appliances and Equipment.

AS 1199 Sampling Procedures and Tables for Inspection by Attributes.

AS 1217 Acoustics—Determination of Sound Power Levels of Noise Sources.

- AS 1217.1 Guidelines for the Use of Basic Standards for the Preparation of Noise Test Codes.
- AS 1217.2 Precision Methods for Broad-band Sources in Reverberation Rooms.
- AS 1217.3 Precision Methods for Discrete-frequency and Narrow-band Sources in Reverberation Rooms.
- AS 1217.4 Engineering Methods for Special Reverberation Test Room.
- AS 1217.5 Engineering Methods for Free-field Conditions Over a Reflecting Plane.
- AS 1217.6 Precision Methods for Anechoic and Hemi-anechoic Rooms.

AS 1259 Sound Level Meters.

AS 1284.1 Electricity Meters
Part 1: General Purpose Watthour Meters.

AS 1399 Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes.

AS 1633 Acoustics—Glossary of Terms and Related Symbols.

AS 1677 Refrigerating Systems.

AS 2582 Complete, Filled Transport Packages—Methods of Test.

AS 3179 Approval and Test Specification—Small Self-contained Refrigerated Air Conditioners.

AS Z41 Octave, Half Octave and One-third Octave Band Pass Filters Intended for the Analysis of Sound and Vibrations.

1.3 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 1633 and those below apply.

1.3.1 Airflow—the volumetric flow rate of air corrected to standard conditions 20°C, 101.3 kPa, and 65% relative humidity, as specifically defined in (a) to (l) below and illustrated in Figure 1.1.

(a) *Bypassed outside air*—air that flows from the outside-air discharge back into the outside-air intake.

(b) *Bypassed room air*—air that passes from the roomside-air discharge back into the room-air intake.

(c) *Condenser air*—air that passes through the condenser coil.

(d) *Equalizer-opening air*—air that passes from the conditioned space through the equalizer opening in the partition wall of the calorimeter.

(e) *Exhaust air*—air that passes from the conditioned space through the unit to outside.

(f) *Leakage air*—air that passes between roomside and outside in either direction through or around the unit as a result of construction features or imperfect sealing techniques.

(g) *Outside air*—air that is taken from outside the conditioned space and introduced into the conditioned space through the unit.

(h) *Outside discharge air*—air that is discharged from the unit to outside.

(j) *Outside-intake air*—air that enters the intake of the unit from outside.

(k) *Room-discharge air*—air that is discharged from the unit to the conditioned space.

(l) *Room-intake air*—air that enters the intake of the unit from the conditioned space.

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