AS 1861—1981
UDC ~~669.975~~

awful

Australian Standard 1861—1981

REFRIGERATED ROOM AIR CONDITIONERS

[Title Allocated by Defence Cataloguing Authority: AIR CONDITIONER, REFRIGERATED]

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

E

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Confederation of Australian Industry

Department of Defence

Department of Housing and Construction

Electricity Supply Association of Australia

Institution of Engineers, Australia

Metal Trades Industry Association of Australia

Universities

This standard, prepared by Committee ME/16, Unitary Air Conditioners, was approved on behalf of the Council of the Standards Association of Australia on 17 April 1981, and was published on 1 July 1981.

AUSTRALIAN STANDARD

REFRIGERATED ROOM AIR CONDITIONERS

AS 1861—1981

First published (as AS B210) 1966
AS 1861 first issued 1976
Second edition 1981

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 2271 2

PREFACE

This edition of this standard was prepared by the Association's Committee on Unitary Air Conditioners. It is emphasized that it is not a general revision, but merely incorporates an alteration to Clause 3.12 plus some updating of references. In addition the opportunity has been taken to reset the standard in the A4 size and in accordance with current SAA practice.

The Electricity Supply Association of Australia amended its Model Service Rules in November 1978, as they related to the starting characteristics of motors. This move rendered Clause 3.12 largely obsolete, as then written, so the clause was simplified, becoming little more than an information requirement and a reminder of the existence of supply authority requirements. There remains a body of opinion within the committee that the tests should be described fully in this standard for the sake of uniformity, so it is possible that this clause may be rewritten in some future edition, as agreement on various details becomes possible.

Sound-level testing is under review by another SAA committee, and is likely to result in further alterations to the standard, but recommendations are not expected to be available in the immediate future.

This standard requires reference to the following Australian standards:

AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1217	Methods of Measurement of Airborne Sound Emitted by Machines
AS 1259	Sound Level Meters Part 2—Type 2, Precision
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1571	Seamless Copper Tubes for Use in Refrigeration
AS 1633	Glossary of Acoustic Terms
AS 1677	SAA Refrigeration Code
AS 3179	Approval and Test Specification for Small Self-contained Refrigerated Air Conditioners
AS Z41	Octave, Half Octave and One-third Octave and Band Pass Filters Intended for the Analysis of Sound and Vibrations
AS ....*	Testing of Complete Filled Transport Packages

*In course of preparation.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
REFRIGERATED ROOM AIR CONDITIONERS

SECTION 1. SCOPE AND DEFINITIONS

1.1 SCOPE. This standard specifies performance requirements, and standard test conditions and test procedures, for refrigerated room air conditioners. It also provides a standard basis for rating according to functions, and sets out the essential test procedures and the test equipment for each form of rating.

The standard also incorporates, in Appendix A, specific directives concerning its adoption by the Department of Defence.

1.2 DEFINITIONS. For the purpose of this standard, the following definitions apply:

1.2.1 Airflow—the volumetric flow rate of air corrected to standard temperature and pressure, as specifically defined in (a) to (l) below and illustrated in Fig. 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 room-side 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 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 room-side 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.

1.2.2 Heat flowrate—the rate of removal of latent and/or sensible heat from the conditioned space.

1.2.3 Dehumidifying effect (latent cooling effect)—the removal of latent heat in the form of water vapour from the conditioned space.

1.2.4 Sensible cooling effect—the removal of sensible heat from the conditioned space.

1.2.5 Sensible heat ratio—the ratio of the sensible cooling effect to the total cooling effect.

1.2.6 Total cooling effect—the removal of sensible and latent heat from the conditioned space.

1.2.7 Room calorimeter—a test facility consisting of two contiguous calorimeters with a common partition; one designated as the room-side compartment and the other as the outside compartment. Each side is equipped with instrumented reconditioning equipment, the thermal performance of which can be measured and controlled to counterbalance the thermal effects of the appliance under test.

1.2.8 'Shall' and 'should'—'shall' is taken to be mandatory; 'should' is taken to be advisory.

1.2.9 Refrigerated room air conditioner—an encased assembly designed as a unit, primarily for mounting in a window or through a wall, or as a console. It is designed to provide free delivery of conditioned air to an enclosed space, room or zone (conditioned space). It includes a source of refrigeration for cooling and dehumidification, an air-cooled condenser, and means for the circulation and cleaning of air. It may also include means for heating, humidifying, introducing outside air and exhausting air.

1.2.10 Heat pump room air conditioner—a room air conditioner that employs means for reversing the function of the indoor and outdoor coils such that the indoor coil becomes the refrigeration system condenser, allowing for heating of the air in the conditioned space; similarly, the outdoor coil becomes the evaporator, utilizing outdoor air as a source of heat.

1.2.11 Type tests—tests performed on a single representative air conditioner to establish whether the type of air conditioner represented is capable of complying with the stated requirements. Results of type tests are assumed to apply to production units of the same type, provided that they are identical with the sample tested.

1.2.12 Check tests—tests performed on individual samples of a model of air conditioner that has previously been subject to a type test, to ensure that the samples are representative of the type.

1.2.13 Sound Terminology. The meanings of any terms relating to sound shall be those given in AS 1633.