

Australian/New Zealand Standard™

**Incandescent lamps—Safety
specifications**

**Part 1: Tungsten filament lamps for
domestic and similar general lighting
purposes**



AS/NZS 60432.1:2007

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-041, Lamps and Related Equipment. It was approved on behalf of the Council of Standards Australia on 1 June 2007 and on behalf of the Council of Standards New Zealand on 4 May 2007.

This Standard was published on 31 August 2007.

The following are represented on Committee EL-041:

Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
Certification Interests (New Zealand)
Consumers' Federation of Australia
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Energy Efficiency and Conservation Authority of New Zealand
IES: The Lighting Society
Institution of Professional Engineers New Zealand
Ministry of Economic Development (New Zealand)

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 07124.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION
OF
AS/NZS 60432.1:2007
Incandescent lamps–Safety specifications
Part 1: Tungsten filament lamps for domestic
and similar general lighting purposes

RECONFIRMATION NOTICE

Technical Committee EL-041 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 13 July 2018.

Approved for reconfirmation in New Zealand on behalf of the New Zealand Standards Approval Board on 20 July 2018.

The following are represented on Technical Committee EL-041:

Australian Industry Group
Consumers Federation of Australia
Department of the Environment and Energy (Australian Government)
Electrical Compliance Testing Association of Australia
Electrical Contractors Association of New Zealand
Electrical Regulatory Authorities Council
Energy Efficiency & Conservation Authority of New Zealand
IES: The Lighting Society
Joint Accreditation System of Australia and New Zealand
Joint Accreditation System of Australia and New Zealand - New Zealand
Lighting Council Australia
Lighting Council New Zealand
Master Electricians Australia
NSW Fair Trading
Worksafe New Zealand

NOTES

Australian/New Zealand Standard™

Incandescent lamps—Safety specifications

Part 1: Tungsten filament lamps for domestic and similar general lighting purposes

Originated as AS 4091—1993.
Revised and redesignated AS/NZS 60432.1:2007.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8337 6

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment, to supersede AS 4091—1993, *Tungsten filament lamps for general service - Safety requirements*.

The objective of this Standard is to specify safety requirements for tungsten filament lamps for general lighting service.

This Standard is identical with, and has been reproduced from IEC 60432-1, Ed. 2.1 (2005), *Incandescent lamps—Safety specifications – Part 1: Tungsten filament lamps for domestic and similar general lighting purposes*.

This Standard is Part 1 of a series which, when complete, will consist of the following:

AS/NZS

60432	Incandescent lamps—Safety specifications
60432.1	Part 1: Tungsten filament lamps for domestic and similar general lighting purposes (this Standard)
60432.2	Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes
60432.3	Part 3: Tungsten halogen lamps (non-vehicle)

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text ‘IEC 60432-1’ should read ‘AS/NZS 60432.1’.
- (c) A full point should be substituted for a comma when referring to a decimal marker.

The terms ‘normative’ and ‘informative’ are used 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.

CONTENTS

	<i>Page</i>
1 General.....	1
1.1 Scope	1
1.2 Normative references.....	1
1.3 Definitions.....	2
2 Requirements.....	4
2.1 General.....	4
2.2 Marking.....	4
2.3 Protection against accidental contact in screw lampholders	5
2.4 Lamp cap temperature rise (Δt_s).....	5
2.5 Resistance to torque	6
2.6 Insulation resistance of B15d, B22d, E26/50×39 and E27/51×39 capped lamps and other lamps having insulated skirts	8
2.7 Accidentally live parts	8
2.8 Creepage distances for B15d and B22d capped lamps.....	9
2.9 Safety at end of life.....	9
2.10 Interchangeability	9
2.11 Information for luminaire design	9
3 Assessment	10
3.1 General.....	10
3.2 Whole production assessment by means of the manufacturer's records	10
3.3 Assessment of the manufacturer's records of particular tests	12
3.4 Rejection conditions of batches.....	12
3.5 Sampling procedures for whole production testing	12
3.6 Sampling procedures for batch testing	14
Annex A (normative) Miscellaneous test procedures.....	15
Annex B (normative) Packaging marking symbols.....	16
Annex C (normative) Resistance to torque test procedures.....	17
Annex D (normative) Induced-failure test.....	20
Annex E (normative) Operation-to-failure test.....	23
Annex F (normative) Acceptance numbers for various sample sizes and AQLs.....	25
Annex G (normative) Acceptance criteria – Continuously variable results	31
Annex H (normative) Induced-failure test – Grouping, sampling and compliance	33
Annex J (normative) Method of measuring mains impedance.....	36
Annex K (informative) Information for luminaire design	38

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Incandescent lamps—Safety specifications****Part 1: Tungsten filament lamps for domestic and similar general lighting purposes**

1 General**1.1 Scope**

International Standard IEC 60432-1 specifies the safety and interchangeability requirements of tungsten filament incandescent lamps for general lighting service having:

- rated wattage up to and including 200 W;
- rated voltage of 50 V to 250 V inclusive;
- bulbs of the A, B, C, G, M, P, PS, PAR or R shapes* , or other bulb shapes where the lamps are intended to serve the same purpose as lamps with the foregoing bulb shapes;
- bulbs with all kinds of finishes;
- caps B15d, B22d, E12, E14, E17, E26** , E26d, E26/50×39, E27 or E27/51×39.

As far as is reasonably practicable, this standard is also applicable to lamps with bulbs and caps other than those mentioned above, but which serve the same purpose.

This standard specifies the method a manufacturer should use to show that his product conforms to this standard on the basis of whole production appraisal in association with his test records on finished products. This method can also be applied for certification purposes. Details of a batch test procedure which can be used to make limited assessment of batches are also given.

This standard is concerned with safety criteria only and does not take into account the performance of tungsten filament lamps with respect to luminous flux, life or power consumption characteristics. Readers should refer to IEC 60064 for such characteristics with respect to types normally used for general lighting service.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

* See IEC 60887 for description of the letter symbols. Associated traditional names are:

- | | |
|-----------------------|---------------------------|
| – Pear shape | = A, PS |
| – Mushroom | = M |
| – Candle | = B, C (in North America) |
| – Round bulb | = P |
| – Globular | = G |
| – Reflector | = R |
| – Parabolic reflector | = PAR |

** There are two variations of E26 caps which are not fully compatible. In this standard separate references are made to E26/24 caps used in North America and E26/25 caps used in Japan.