

AS/NZS 4847.1(Int):2008  
Expires 28 March 2010

AS/NZS 4847.1(Int):2008

Interim  
Australian/New Zealand Standard™

**Self-ballasted lamps for general lighting  
services**

**Part 1: Test methods—Energy  
performance**



### **AS/NZS 4847.1(Int):2008**

This Joint Australian/New Zealand Interim 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 18 February 2008 and on behalf of the Council of Standards New Zealand on 29 February 2008.  
This Standard was published on 28 March 2008.

---

The following are represented on Committee EL-041:

Australian Electrical and Electronic Manufacturers Association  
Australian Greenhouse Office, Department of the Environment and Water Resources  
Consumers' Federation of Australia  
Electrical Compliance Testing Association  
Energy Efficiency and Conservation Authority of New Zealand  
Institution of Professional Engineers New Zealand  
National Appliance and Equipment Energy Efficiency Committee

---

### **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 Standards may also be withdrawn.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](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://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.

---

Interim  
Australian/New Zealand Standard™

**Self-ballasted lamps for general lighting  
services**

**Part 1: Test methods—Energy  
performance**

First published as AS/NZS:4847.1(Int):2008.

**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 8601 4

## PREFACE

This Interim Standard was prepared by the Joint Standards Australia/Standards New Zealand constituted Subcommittee EL-041-08, Lamps and Lighting Equipment—Energy Performance to complement the testing requirements specified in AS/NZS 60969.

The objective of this part of the Interim Standard is to specify test methods for key performance attributes of self-ballasted compact fluorescent lamps (CFLs) that have integrated means for starting, controlling and stable operation. Part 2 of this Interim Standard is intended to cover Minimum Energy Performance Standards requirements with compliance values or limits.

This Interim Standard is structured to be suitable for reference in minimum performance standards legislation.

The Standard consists of the following parts:

### AS/NZS

- 4847 Self-ballasted fluorescent lamps for general lighting services
- 4847.1 Part 1: Test methods—Energy performance (this Interim Standard)
- 4847.2 Part 2: Minimum Energy Performance Standards requirements

This series of Interim Standards is published with the approval of the combined state and territory energy regulatory authorities in Australia and the New Zealand energy efficiency regulatory authority who approve the Standard prior to its publication.

It is hoped that this part of the Standard will help in the formation of a new international Standard for test methods. The feedback will be incorporated into this Interim Standard based on international review.

Standards Australia/Standards New Zealand invite comments on this Interim Standard from persons and organizations concerned with this subject. The closing date for comment is 6 months after publication. The date of expiry is two years after publication. After the closing date for comment, the Committee will consider revising the Standard in the light of public comment, with a view to the publication of a Joint Australian/New Zealand Standard before the expiry date. Please forward all comments to the Projects Manager of Committee EL-041-08.

Attention is drawn to the fact that this document is an Interim Joint Australian/New Zealand Standard only and should be regarded as a developmental Standard and liable to future alteration.

The terms ‘normative’ and ‘informative’ are used in this Interim Standard to define the application of the Appendix to which they apply. A normative appendix is an integral part of a Standard, whereas an informative appendix is for information and guidance.

Statements expressed in mandatory terms in notes to figures, are deemed to be requirements of this Interim Standard. ‘Shall’ indicates a requirement is mandatory, while ‘should’ indicates a recommendation and good practice.

## CONTENTS

|   | <i>Page</i> |
|---|-------------|
| FOREWORD.....   | 4           |
| 1 SCOPE.....  | 5           |
| 2 REFERENCED DOCUMENTS.....   | 5           |
| 3 DEFINITIONS.....  | 6           |
| 4 LAMP REQUIREMENTS .....   | 7           |
| 5 SAMPLING .....  | 8           |
| APPENDICES  |             |
| A TEST FOR STARTING TIME .....  | 13          |
| B TEST FOR STARTING TIME .....  | 13          |
| C TEST FOR RUN-UP TIME.....   | 16          |
| D MEASUREMENT OF INITIAL LUMINOUS FLUX, EFFICACY AND LUMEN<br>MAINTENANCE ..... | 18          |
| E TEST FOR LOW TEMPERATURE STARTING TIME .....                                  | 22          |
| F TEST FOR SWITCHING WITHSTAND.....   | 23          |
| G TEST FOR LAMP LIFE.....   | 24          |
| H TEST FOR LIGHT DISTRIBUTION.....  | 25          |
| I TEST REPORT .....   | 26          |
| J BIBLIOGRAPHY.....   | 27          |

## FOREWORD

The development of this Interim Standard was based on the need for an improved set of international test methods for self-ballasted compact fluorescent lamps (CFLs) that was highlighted in 2005 at the Right Light 6 conference in Shanghai. At this meeting of government and industry representatives, members agreed to work towards the harmonization of test methods and performance requirements for self-ballasted CFLs over a two year period.

A comparison of existing test methods used by a number of countries in the Asia-Pacific Economic Cooperation (APEC) region—the comparison is also believed to be valid worldwide—has clearly shown that for many performance criteria these test methods are very similar and there is great potential for harmonization based around the existing IEC protocol. However, discussions with a variety of test laboratories demonstrate that the existing test methods require considerable interpretation and this may also introduce variations in results, depending upon the assumptions made by individual laboratories. As a consequence, there is a need not only for a single test method, but one which is sufficiently clear and robust so that it can be easily followed, and the results replicated, by different laboratories.

In addition, the existing test methods do not all specify the full range of tests relating to the performance criteria of most CFL programs. Having all potential tests contained within the single test method will also clarify the requirements for manufacturers and laboratories and improve the potential for products to conform to program requirements.

This Interim Standard specifies a new test method for electronic self-ballasted CFLs and is largely based on the existing test methods, such as AS/NZS 60969. However unlike AS/NZS 60969 it contains no performance requirements and only describes relevant test methodologies. Initial drafts of this document drew on work done by the Joint Standards Australia/Standards New Zealand constituted subcommittee EL-041-08, and by the National Lighting Test Centre (NLTC) in Beijing. However, later developments from the combined views of a wide range of market actors are incorporated into this Interim Standard.

This Interim Standard is structured to allow common requirements in Australia and New Zealand.

Comprehensive details of the International CFL Harmonisation Initiative can be found at:

<http://www.apec-esis.org/cfl/>

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard**  
**Self-ballasted lamps for general lighting services**

Part 1: Test methods—Energy performance

**1 SCOPE**

This Interim Standard specifies the test methods and conditions for self-ballasted compact fluorescent lamps (CFLs) and other gas-discharge lamps with integrated means for controlling starting and stable operation that are intended for domestic and similar general lighting purposes.

This Interim Standard applies to self-ballasted lamps of all voltages and wattages irrespective of the type of lamp cap.

The requirements in this Interim Standard relate only to type testing and are in addition to the safety requirements that are specified in AS/NZS 60968.

**2 REFERENCED DOCUMENTS**

The following documents are referred to in this Interim Standard:

AS/NZS

- |             |   |
|-------------|---|
| 4782        | Double-capped fluorescent lamps—Performance specifications  |
| 4782.1      | Part 1: General (IEC 60081:2000, MOD)   |
| 4782.3(Int) | Part 3: Procedure for quantitative analysis of mercury present in fluorescent lamps   |
| 60968       | Self-ballasted lamps for general lighting services—Safety requirements (IEC 60968:1988, MOD)  |
| 60969       | Self-ballasted lamps for general lighting services—Performance requirements   |
| 61000       | Electromagnetic compatibility (EMC)   |
| 61000.3.2   | Part 3.2: Limits—Limits for harmonic current emissions (equipment input current $\leq 16$ A per phase) (IEC 61000-3-2, Ed 3.0 (2005) MOD) |
| CISPR 15    | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment                       |
| IEC         |   |
| 61547       | Equipment for general lighting purposes—EMC immunity requirements   |
| CIE         |   |
| 13.3        | Method of measuring and specifying colour rendering properties of light sources   |
| 15          | Colorimetry   |
| 63          | The spectroradiometric measurement of light sources   |
| 84:1989     | Measurement of luminous flux  |
| 121:1996    | The photometry and goniophotometry of luminaires  |