Australian/New Zealand Standard™

Auxiliaries for lamps—A.C. supplied electronic ballasts for tubular fluorescent lamps—General and safety requirements (IEC 60928:1995 MOD)

Standards Australia

STANDARDS NEW ZEALAND

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL/41, Lamps and Related Equipment. It was approved on behalf of the Council of Standards Australia on 3 July 2000 and on behalf of the Council of Standards New Zealand on 10 August 2000. It was published on 21 August 2000.

The following interests are represented on Committee EL/41:
Association of Consulting Engineers, Australia
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Electrical Compliance Testing Association of Australia
Electrical Regulatory Authorities Council
Energy Efficiency and Conservation Authority of New Zealand
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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 International or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 99296.

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Auxiliaries for lamps—A.C. supplied electronic ballasts for tubular fluorescent lamps—General and safety requirements (IEC 60928:1995 MOD)

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, EL/41**,** Lamps and Related Equipment to supersede (in Australia) AS 3134—1992, *Approval and tests specification—a.c. supplied electronic ballasts for tubular fluorescent lamps* 12 months after publication.

The objective of this Standard is to provide the lighting industry with safety requirements for electronic ballasts for tubular fluorescent lamps for use on a.c. supplies up to 1000 V at 50 Hz or 60 Hz with operating frequencies deviating from the supply frequency.

This Standard has been adopted with national modifications and has been reproduced from IEC 60928:1995, *Auxiliaries for lamps—A.C. supplied electronic ballasts for tubular fluorescent lamps—General and safety requirements* with Amendment 1:1999 cut in. The clauses changed by Amendment 1 are indicated by a single marginal bar.

The varied requirements for Australia and New Zealand are given in Annex ZZ. Changes to the IEC text are indicated by shading (example) for additional material and strikeout (~~example~~) for deleted material.

In January 1997, the IEC commenced numbering its publications from 60000 by adding 60000 to the number of each publication. This coordinates IEC numbering with ISO numbering. During the transition period an IEC document might be identified by its new number or its old number (for example, IEC 60050 or IEC 50).

A reference to an International Standard identified in the Normative References Clause by strikeout (~~example~~) is replaced by a reference to the Standards Australia/Standards New Zealand Standard(s) listed immediately thereafter and identified by shading (example). Where the struck-through referenced document and the referenced Australian or Australian/New Zealand Standard are identical, this is indicated in parenthesis after the title of the latter.

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 ‘this International Standard’ should read ‘this Standards Australia/Standards New Zealand Standard’.

(c) A full point should be substituted for a comma when referring to a decimal marker.

In this Standard, the following print types are used:

– requirements proper: in arial type;

– *test specifications: in italic type;*

– explanatory matter: in smaller arial type.

The term ‘normative’ has been used in this Standard to define the application of the annex to which it applies. A ‘normative’ annex is an integral part of a Standard.

Attention is drawn to Electromagnetic Compatibility (EMC) schemes introduced in their respective countries by the Australian Communications Authority (ACA) and the Ministry of Commerce New Zealand (MOC) to manage the use and performance of devices that either intentionally or unintentionally emit electromagnetic energy in the radiofrequency spectrum. Mandated Standards form an integral part of the EMC compliance schemes. Electrical lighting products fall within the scope of AS/NZS 4051, *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*. AS/NZS 4051 has been reproduced from IEC/CISPR 15 (same title) but contains some changes to limits to protect local radio services.

Information on EMC compliance for lighting equipment is to be found on the Internet for Australia at http://www.aca.gov.au/standards/emcindex.htm and for NZ at http://www.moc.govt.nz/rsm.

CONTENTS

INTRODUCTION

This standard covers general and safety requirements for a.c. supplied electronic ballasts for tubular fluorescent lamps generally operating with a frequency deviating from the supply frequency. Described ballasts may operate with a.c./d.c. supply in maintained emergency lighting luminaires.

This standard refers to a.c. and a.c./d.c. supplied electronic ballasts for use with high-frequency operated tubular fluorescent lamps as specified in IEC 60081 and IEC 60901 (except for lamps with internal starters) and other tubular fluorescent lamps for high-frequency operation.

Performance requirements are the subject of IEC 60929.

NOTE - Safety requirements ensure that electric equipment constructed in accordance with these requirements does not endanger the safety of persons, domestic animals or property, when properly installed and maintained and used in applications for which it was intended.

Requirements for supply current waveform regarding all types of ballasts are presently being considered by specialist panels. Pending the outcome of these considerations, such requirements are not yet specified.

Requirements for electronic ballasts for other types of discharge lamps will be the subject of a separate standard, as need arises.

Tests in this standard are type tests. Requirements for testing individual ballasts during production are not included.

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SECTION 1: GENERAL REQUIREMENTS

1 Scope

This standard specifies general and safety requirements for electronic ballasts for use on a.c. supplies up to 1 000 V at 50 Hz or 60 Hz with operating frequencies deviating from the supply frequency, associated with tubular fluorescent lamps as specified in IEC 60081 and other tubular fluorescent lamps for high-frequency operation.

Particular requirements for electronic ballasts with means of protection against overheating are given in annex B.

Particular requirements for a.c./d.c. supplied electronic ballasts for maintained emergency lighting are given in annex C.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and 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. Members of IEC and ISO maintain registers of currently valid International Standards.

References to International Standards that are struck through in this Clause are replaced by references to equivalent Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is appropriately identified.

~~IEC 60081:1984, *Tubular fluorescent lamps for general lighting service*~~

AS 1201, *Tubular fluorescent lamps for general lighting service*

~~IEC 60112:1979, *Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions*~~

AS/NZS 4695.112, *Fire hazard testing of electrotechnical products, Part 112: Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions* (identical to IEC 60112)

IEC 60249, *Base materials for printed circuits*

IEC 60317: *Specifications for particular types of winding wires*