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Interim Australian Standard®

Electrical installations—Extra low voltage (d.c.) power supplies in public telecommunications networks

STANDARDS AUSTRALIA

This Interim Australian Standard was prepared by Committee EL/1, Wiring Rules. It was approved on behalf of the Council of Standards Australia on 25 January 1991 and published on 4 March 1991.

The following interests are represented on Committee EL/1:

Association of Consulting Engineers Australia
Australian Consumers Association
Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Department of Administrative Services
Electrical Contractors Associations of Australia
Electrical Regulatory Authorities
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Electricity Supply Association of Australia
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Telecom Network Engineering, Structures and Telepower Branch

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PREFACE

This Interim Standard was prepared by the Standards Australia Committee on Wiring Rules following a request from Telecom Australia.

The purpose of the Interim Standard is to establish safety requirements for the installation of extra-low voltage equipment and circuits in public telecommunications networks.

Standards Australia invites comment on this Interim Standard from persons and organizations concerned with this subject. The date of expiry for comment is 2 years after publication at which time this Interim Australian Standard will either be withdrawn or revised in the light of public comment, with the view to the preparation of an Australian Standard.

During the life of this document the Committee will monitor all comment as it is received.

Attention is drawn to the fact that this document is an Interim Australian Standard only and should be regarded as a Draft Standard and hence liable to alteration after the expiry date.

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CONTENTS

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FOREWORD

Most telecommunications equipment is powered from either a nominal 24 V or 48 V d.c. power supply. Consequently these supplies and their power distribution systems fall into the category of ELV as defined in AS 3000.

The power supplies form an integral part of a telecommunications facility and their proper function is vital to the continuation of such a facility. The ELV (d.c.) portion of the power supply is shown in Figure 1. The practices which are included in this Standard have been developed over many years of safe operation of the telecommunications network.

If this Standard conflicts with the ELV Section of AS 3000 or with any other Standard, then the provisions of this Standard apply to the ELV (d.c.) installations of telecommunications carriers.

STANDARDS AUSTRALIA

Interim Australian Standard

Electrical installations—Extra-low voltage (d.c.) power supplies in public telecommunications networks

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard sets out requirements for the design and installation of telecommunications ELV (d.c.) power supplies which are used by telecommunications carriers in the provision of public telecommunications networks.

1.2 APPLICATION This Standard applies to the installation of ELV (d.c.) power supplies in public telecommunications networks, e.g. telephone exchanges and mains or solar powered microwave repeaters and optical fibre regenerators, which are in restricted premises. Where there is conflict between this Standard and the telecommunications carrier's internal documents, this Standard shall apply.

The requirements of this Standard do not apply to power supplies installed in customer owned premises or other premises not owned or operated by the telecommunications carrier.

The appropriate requirements of AS 3000 and related Standards shall apply to power supplies which are not installed in restricted premises.

1.3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
1939 Degrees of protection provided by enclosures for electrical equipment (IP Code)
1981 Stationary batteries of lead-acid pasted plate type
2430 Classification of hazardous areas
2430.1 Part 1: Explosive gas atmospheres
2676 Guide to the installation, maintenance, testing and replacement of secondary batteries in buildings
2676.1 Part 1: Vented cells
2676.2 Part 2: Sealed (valve-regulated) cells
2692 Busbar trunking systems (busways)
3000 SAA Wiring Rules
3008 Electrical installations—Selection of cables
3008.1 Part 1: Cables for alternating voltages up to and including 0.6/1 kV
3011 Electrical installations—Secondary batteries installed in buildings
3011.1 Part 1: Vented cells
3011.2 Part 2: Sealed (valve regulated) cells

1.4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.4.1 Authorized personnel—person or persons in charge of the restricted premises, or any other person duly authorized by the telecommunications carrier.

1.4.2 Battery—an electrochemical system capable of storing, in chemical form, the electrical energy received and which can reconvert it to electrical energy.

1.4.3 Battery circuits—the cable or busbar conductors connecting the battery to the point of common connection.

1.4.4 Battery enclosure—a cabinet or enclosed rack suitable for mounting of battery cells.

1.4.5 Battery room—a room containing batteries which normally have no other protective enclosure.

1.4.6 Boost charge (boost)—a partial charge at higher voltage for a short period. Typically, for lead-acid cells, the voltage is taken above 2.35 V per cell at 20°C.

1.4.7 Cell—an assembly of electrodes and electrolyte which constitutes the basic unit of a battery.

1.4.8 Charge (of a cell, string or battery)—an operation during which a cell, string or battery receives, from an external circuit, electrical energy which is converted into chemical energy.

1.4.9 Equalizing charge—an extended charge to ensure complete charging of all the cells in a string or battery. During equalizing, the applied voltage is above the float voltage but below the boost charge voltage.

1.4.10 Float operation—a method of maintaining a lead-acid secondary battery in a fully charged state by applying a steady voltage above the open circuit voltage of the cell, but below the boost charge voltage.

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