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Reconfirmed 2015

Australian Standard[®]

**High-voltage test techniques
for low-voltage equipment**

**Part 1: Definitions, test and
procedure requirements**

This Australian Standard was prepared by Committee EL/7, Power Switchgear. It was approved on behalf of the Council of Standards Australia on 22 November 1995 and published on 5 February 1996.

The following interests are represented on Committee EL/7:

Australian British Chamber of Commerce
Australian Chamber of Commerce and Industry
Australian Electrical and Electronic Manufacturers Association
Electricity Supply Association of Australia
Institution of Engineers, Australia
Railways of Australia
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RECONFIRMATION

OF

AS 4362.1—1996

High-voltage test techniques for low-voltage equipment

Part 1: Definitions, test and procedure requirements

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NOTES

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**Part 1: Definitions, test and
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL/7 on Power Switchgear. It is identical with and has been reproduced from IEC 1180-1:1992, *High-voltage test techniques for low-voltage equipment*, Part 1: *Definitions, test and procedure requirements*.

It is the result of a consensus among representatives on the Joint Committee to produce it as an Australian Standard.

This Standard is Part 1 of AS 4362, *High-voltage test techniques for low-voltage equipment*, which is published in two Parts as follows:

Part 1: Definitions, test and procedure requirements

Part 2: Test equipment

It covers the high-voltage testing of low-voltage equipment and is based on AS 1931.1—1996.

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68-1	Part 1: General and guidance	1099.1	Part 1: General
270	Partial discharge measurements	1018	Partial discharge measurements
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AUSTRALIAN STANDARD

**HIGH-VOLTAGE TEST TECHNIQUES
FOR LOW-VOLTAGE EQUIPMENT****Part 1: Definitions, test and procedure requirements**

SECTION 1: GENERAL

1.1 Scope

This part of IEC 1180 is applicable to:

- dielectric tests with direct voltage;
- dielectric tests with alternating voltage;
- dielectric tests with impulse voltage;
- tests with impulse current;
- tests with combinations of the above.

This standard is applicable only to tests on equipment having a rated voltage of not more than 1 kV a.c. or 1,5 kV d.c.

This standard is mainly applicable to type testing. It may also be applied or adapted for sample and routine testing as specified by the relevant technical committee.

It is not intended to be used for electromagnetic compatibility tests on electric or electronic equipment.

This standard provides the relevant technical committees as far as possible with:

- defined terms of both general and specific applicability;
- general requirements regarding test objects and test procedures;
- methods for generation and measurement of test voltages and currents;
- test procedures;
- methods for the evaluation of test results and to indicate criteria for acceptance;
- requirements concerning approved measuring devices and checking methods.

Alternative test procedures may be required and these shall be specified by the relevant technical committees.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 1180. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to

agreements based on this part of IEC 1180 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.

IEC 68-1:1988, *Environmental testing. Part 1: General and guidance*.

IEC 270:1981, *Partial discharge measurements*

IEC 664:1980, *Insulation co-ordination within low-voltage systems including clearances and creepage distances for equipment*.
Amendment No.1, 1989.

SECTION 2: DEFINITIONS

2.1 Impulse techniques and insulation

2.1.1 Impulse

An intentionally applied aperiodic transient voltage or current which usually rises rapidly to a peak value and then falls more slowly to zero.

NOTE - The term "impulse" is distinguished from the term "surge", which refers to transients occurring in electrical equipment or networks in service.

2.1.2 Partial breakdown

This phenomenon may occur when solid insulation is stressed by impulse voltages. It is indicated by a stepwise reduction in impulse voltage waveform which occurs earlier in time in successive impulses, or by other effects specified by the relevant technical committee. This indicates progressive deterioration of the insulation.

2.1.3 Clearance [IEV 441-17-31]

The shortest distance in air between two conductive parts.

2.1.4 Creepage distance [IEV 151-03-37]

The shortest distance along the surface of an insulating material between two conductive parts.

2.1.5 Solid insulation

Solid insulating material interposed between two conductive parts.

2.2 Characteristics related to disruptive discharge and test voltages

2.2.1 Disruptive discharge

The failure of insulation under electrical stress, in which the discharge completely bridges the insulation under test, reducing the voltage between the electrodes practically to zero. it applies to electrical breakdown in solid, liquid and gaseous dielectrics and combinations of these.