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NEW ZEALAND ELECTRICAL CODE OF PRACTICE

for

ELECTRICAL SAFETY

of

FITTINGS AND ELECTRICAL APPLIANCES

Issued by the
Office of the Chief Electrical Engineer,
Energy and Resources Division, Ministry of Commerce
Wellington, New Zealand

THE ELECTRICITY ACT 1992

Approval of the New Zealand Electrical Code of Practice for Electrical Safety of Fittings and Electrical Appliances 1995 (NZECP 3:1995) and the Revocation of the New Zealand Electrical Code of Practice for Electrical Safety of Apparatus and Materials 1993 (NZECP 3:1993)

Pursuant to section 38 of the Electricity Act 1992, I, hereby approve the New Zealand Electrical Code of Practice for Electrical Safety of Fittings and Electrical Appliances 1995 (NZECP 3:1995), and the Revocation of the New Zealand Electrical Code of Practice for Electrical Safety of Apparatus and Materials 1993 (NZECP 3:1993).

The New Zealand Electrical Code of Practice for Electrical Safety of Fittings and Electrical Appliances 1995 (NZECP 3:1995) and the Revocation of the New Zealand Electrical Code of Practice for Electrical Safety of Apparatus and Materials 1993 (NZECP 3:1993) were issued by the Acting Secretary of Commerce on the 12th day of October 1995.

Dated this 28th day of March 1996.

Douglas Lorimer Kidd
Minister of Energy

COMMITTEE REPRESENTATION

This Code of Practice was prepared by the Ministry of Commerce, Chief Electrical Inspector's Office with reference to the following organisations:

Electrical Consultants
New Zealand Electrical Institute
Electrical Contractors' Association of NZ Inc
Electrical Retailer
NZ Electrical Manufacturers Federation Inc
Electrical Testing Laboratories

REVIEW

This Code of Practice will be revised as occasions arise. Suggestions for improvements of this Code are welcome. They should be sent to the Chief Electrical Engineer's Office, Ministry of Commerce, PO Box 1473, WELLINGTON

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INTRODUCTION

This Code sets out the safety requirements for the design, construction, or manufacture of fittings and electrical appliances used in New Zealand.

ELECTRICAL SAFETY OF FITTINGS AND ELECTRICAL APPLIANCES

SECTION 1

SCOPE, REFERENCED DOCUMENTS, INTERPRETATION, GLOSSARY, NUMBERING AND ELECTRICITY SUPPLY SYSTEM

1.1 SCOPE

- 1.1.1 This Code defines the requirements for the electrical safety of fittings and electrical appliances, that are intended to be connected to a low voltage electrical installation.

1.2 REFERENCE DOCUMENTS

- (a) Testing Laboratories Registration Act 1972.
- (b) The following Standards are referred to in this Code:
- | | |
|--------------------|---|
| AS 1939 | Degrees of Protection Provided by Enclosures for Electrical Equipment (<i>IP Code</i>). |
| AS/NZS 3112:1993 | Approval and Test Specifications-Plugs and Socket-outlets. |
| AS/NZS 3350.1 1994 | Safety of Household and Similar Electrical Appliances Part 1: General Requirements. |
| IEC 83:1975 | Plugs and Socket-outlets for Domestic and Similar General Use. |
| IEC 364-3:1993 | Assessment of General Characteristics. |
| NZS/AS 3100:1994 | General Requirements for Electrical Equipment. |

1.3 INTERPRETATION

In this Code, unless the context otherwise requires:

- 1.3.1 Class I electrical appliance - means an electrical appliance:
- (a) In respect of which protection against electric shock does not rely on basic insulation only; and
- (b) That is designed so that exposed conductive parts are connected to the protective earthing conductor of the installation to which the appliances is connected, so that those exposed conductive parts do not become live in the event of the failure of the basic insulation.
- 1.3.2 Official electrical safety standard - means any of the standards listed in the First Schedule to this Code.
- 1.3.3 Reinforced insulation - means a single insulation system applied to live parts that provides the degree of protection against electric shock that is provided by the use of double insulation.
- 1.3.4 Tool - means any object that could be used to fix or unfix any fitting, and without limitation includes objects such as screwdrivers, knives, and coins.

1.4 GLOSSARY OF ABBREVIATIONS USED IN THIS CODE

a.c.	Alternating current
AS	Australian Standard
AS/NZS	Australian/New Zealand joint Standard
d.c.	Direct current
Hz	Hertz
IEC	International Electrotechnical Commission
NZS/AS	New Zealand Australia Harmonised Standard
RCD	Residual current device
V	Volts
VA	Volt-amperes

1.5 NUMBERING SYSTEM OF THIS CODE

- 1.5.1 Sections are numbered from 1 to 2.
- 1.5.2 Subsections are numbered by one full stop between two numbers (*e.g.* 1.4).
- 1.5.3 Clauses are numbered by two full stops between three numbers (*e.g.* 1.1.2).
- 1.5.4 Paragraphs contain numbering punctuated by one or more full stops together with a parenthesised letter.
- 1.5.5 Unless otherwise specified, references in this Code to sections, subsections, clauses, and paragraphs, are references to those of this Code.

1.6 ELECTRICITY SUPPLY SYSTEM

- 1.6.1 Electrical installations operating at standard low voltage may be of two kinds:
- (a) 230 volts single phase; or
 - (b) 400 volts three phase with neutral.
- 1.6.2 The injection of frequencies for load control, other than the standard frequency of 50 Hz, into a system of supply of electricity is widespread in New Zealand, and the design of fittings and electrical appliances shall take account of this.

SECTION 2

GENERAL REQUIREMENTS

2.1 PROTECTION AGAINST HAZARDS DURING NORMAL USE

- 2.1.1 Electrical appliances shall be designed and constructed so that in normal use they cause no danger from electric shock, heat, or fire.
- 2.1.1.1 Electrical appliances shall be designed and constructed so that, should careless use of the appliance occur in normal service, the dangers of electric shock or fire, and the risks of injury or damage from heat, are minimised.
- 2.1.2 Electrical appliances shall be constructed and enclosed so that there is adequate protection against accidental contact with:
- (a) Live parts;
 - (b) Basic insulation; and
 - (c) Unearthed metal parts separated from live parts by only basic insulation.
- 2.1.3 The requirements of clause 2.1.2 apply for all positions of an electrical appliance when connected to a supply of electricity and operated in normal conditions -
- (a) Whether or not lids and doors are open; and
 - (b) Whether or not detachable parts have been removed, including those parts that the manufacturer advises may be removed by the user for maintenance purposes.

2.2 ABNORMAL OPERATION

- 2.2.1 Electrical appliances shall be designed so that -
- (a) The risk of fire; and
 - (b) The risk of mechanical damage impairing safety; and
 - (c) The risk of electric shock -
- as a result of abnormal or careless operation is minimised as far as is reasonably practicable.
- 2.2.2 Electrical appliances shall be designed so that, during abnormal operation, they do not trigger the operation of protective fittings used to protect the electrical installation to which the electrical appliance is connected.

2.3 PREVENTION OF ADVERSE EFFECTS ON THE SUPPLY SYSTEM

Fittings and electrical appliances shall be constructed so that they do not cause harmful effects to fittings and other electrical appliances and so that they do not impair the supply of electricity to the electrical installation during normal service (*including switching operations*). Causes that may produce harmful effects or impairment to the supply of electricity are:

- inrush current;
- asymmetrical load;
- harmonics; and
- flicker.

2.4 SHARP EDGES

Electrical appliances shall be constructed so that there are no sharp edges which could cause injury to persons transporting the appliances, to persons installing the appliances, or to persons operating the appliances. This requirement does not apply to edges of an electrical appliance that are designed for cutting as an operational part of the appliance.

2.5 IDENTIFICATION OF CONDUCTORS


2.5.1 The conductors of single phase flexible cords shall be identified throughout their length by the colour of the insulation of the conductors as follows:

Active conductor	brown
Neutral conductor	light blue
Earth-continuity conductor	the colours green and yellow in combination

2.5.2 Where the power supply cord of an electrical appliance is able to be replaced, other than by the manufacturer, then the appliance terminals shall be marked in accordance with AS/NZS 3350.1.

2.6 MARKING

2.6.1 Fittings and electrical appliances shall include the following marking:

- (a) The name or registered trade name or marking of the manufacturer or supplier;
- (b) Subject to clause 2.6.2, the rated voltage of the fitting or appliance;
- (c) The rated current, or rated power input, of the fitting or appliance;
- (d) Where the use of a fitting or electrical appliance is limited by its own nature to a particular system of supply of electricity, it shall be marked with details of that system (*e.g. a.c., d.c., number of phases, frequency*);
- (e) Where applicable, the IP (*Ingress Protection*) Code designation for the required degree of protection against harmful ingress of moisture (*including any pressure, head, or time*), in accordance with AS 1939;
- (f) For class II appliances, the symbol for class II construction . The marking shall be legible and indelible.

- 2.6.2 For the purpose of paragraph (b) of clause 2.6.1:
- (a) Low voltage single phase electrical appliances rated 200-250V shall have a marking of 230V or a range including 230V; and
 - (b) Low voltage fittings, a voltage of 230V or greater shall be included.

2.7 ELECTRICAL APPLIANCES AND PROTECTIVE FITTINGS

- 2.7.1 Switches intended as the principal means of isolating an electrical appliance from a supply of electricity shall operate in the active conductor or conductors, and shall have the "off" position clearly marked when the switch is in the "off" position.
- 2.7.2 Any protective fitting (fuse, thermal cutout or the like) incorporated in a class I electrical appliance, which provides protection during the occurrence of earth faults within the appliance, shall operate in the active conductor or conductors.

2.8 SPECIFIC REQUIREMENTS FOR ELECTRICAL APPLIANCES THAT HEAT LIQUID, PORTABLE ELECTRICAL APPLIANCES, ELECTRIC TOYS, ISOLATING TRANSFORMERS, AND PROTECTIVE IMPEDANCES

Information note: The most widely used single phase socket-outlet configuration is the 3-pin flat pin pattern generally described in IEC 83 Group A, Standard A10-20 and detailed in AS/NZS 3112.

- 2.8.1 Electrical appliances for heating liquids shall be designed so that liquid entering into, or issuing from, the appliance is at earth potential.
- 2.8.2 Portable electrical appliances operating on the electrode boiler principle shall be used only where RCD protection is incorporated into the appliance, or into the plug or supply cord of the appliance.
- 2.8.3 Portable electrical appliances intended for domestic use that -
- (a) Have an input current not exceeding 10 amps; and
 - (b) Are connected to a supply of electricity by a supply cord and plug, or by pins for direct insertion into a socket-outlet, -
- shall have a plug or pin configuration that is compatible with the socket-outlet configuration referred to in the information note at the beginning of this subsection.
- 2.8.4 The rated voltage of any electric toy shall not exceed 24 volts a.c. or 32 volts d.c. The rated input of any electric toy shall not exceed 200 VA. The input current of any electric toy shall not exceed 10 amps.
- 2.8.5 Electric toys shall be operated from a battery or from the secondary side of an isolating transformer. The isolating transformer shall comply with an official electrical safety standard relating to transformers for use with electrically operated toys.

- 2.8.6 Circuits connected to the secondary side of a safety isolating transformer shall not be earthed.
- 2.8.7 Where fittings and electrical appliances employ protective impedances for protection against electric shock:
- (a) The protective impedance shall comprise at least two impedances connected in series; and
 - (b) Each impedance shall be rated to withstand the maximum voltage at which electricity will be supplied; and
 - (c) Parts separated by protective impedances shall be insulated from each other by double or reinforced insulation.

SECTION 3**COMPLIANCE WITH OFFICIAL ELECTRICAL SAFETY STANDARDS****3.1 APPLICABLE OFFICIAL STANDARDS**

- 3.1.1 The requirements of this Code are deemed to be complied with by fittings and electrical appliances that comply with the relevant parts of the official electrical safety standards (*including amendments*) set out in the First Schedule to this Code, that are relevant and applicable to those fittings and electrical appliances.
- 3.1.2 Where any fitting or electrical appliance is tested for compliance with a relevant and applicable official electrical safety standard, the organisations from which the results of those tests will be *prima facie* acceptable are:
- (a) Those organisations located in New Zealand which are registered for the relevant tests and inspections pursuant to section 13(2) of the Testing Laboratory Registration Act 1972; and
 - (b) Those organisations located outside New Zealand which are accredited pursuant to a national laboratory accreditation scheme, which at least meets the standard of the New Zealand national laboratory accreditation scheme.
- 3.1.3 A list of organisations that are known, at the time of making this Code, to meet the requirements of clause 3.1.2 is contained in the Second Schedule to this Code.
- 3.1.4 Where there is no official electrical safety standard that is relevant and applies to any particular fitting or electrical appliance, NZS/AS 3100 may be used for compliance with this Code.

FIRST SCHEDULE**STANDARDS SET AND ENDORSED UNDER THIS CODE****PART 1 ELECTRICAL APPLIANCE AND LUMINAIRE STANDARDS**

AS/NZS 3101:1992 Approval and test specification - Electric bread toasters (*including Amendments 1 and 2*).

AS 3102:1983 Approval and test specification for electric duct heating (*including Amendment 1*).

AS/NZS 3103:1993 Approval and test specification - Electric room heaters (*including Amendments 1, 2 and 3*).

AS 3104:1995 Approval and test specification - Electric portable immersion heaters.

AS/NZS 3114:1993 Approval and test specification - Electric soldering irons (*including Amendment 1*).

AS 3115:1990 Approval and test specification for motor operated appliances (*including Amendment 1*).

AS/NZS 3118:1993 Approval and test specification - Electric inspection lamps (*including Amendment 1*).

AS 3125:1990 Approval and test specification - Electric dry shavers and hair clippers (*including Amendments 1 and 2*).

AS/NZS 3128:1993 Approval and test specification - Portable lamp standards and brackets (*including Amendment 1*).

AS/NZS 3129.1:1993 Approval and test specification - Electric fence energisers - Part 1: Safety requirements for mains-operated electric fence energisers (*including Amendments 1 and 2*).

AS/NZS 3129.2:1993 Approval and test specification - Electric fence energisers - Part 2: Safety requirements for battery-operated electric fence energisers suitable for connection to the supply mains.

AS/NZS 3129.3:1993 Approval and test specification - Electric fence energisers - Part 3: Safety requirements for battery operated electric fence energisers not for connection to the supply mains (*including Amendment 1*).

AS/NZS 3130:1995 Approval and test specification - Beauty therapy equipment.

AS 3136:1992/NZS 6232:1992 Approval and test specification - Electrical equipment for spa-baths and spa and swimming pools (*including Amendments 1 and 2*).

AS 3137:1992 Approval and test specification - Luminaires (*including Amendments 1 and 2*).

AS/NZS 3150:1993 Approval and test specification - Insect Electrocuters (*including Amendments 1 and 2*).

AS/NZS 3152:1992 Approval and test specification - Decorative lighting outfits (*including Amendments 1 and 2*).

AS/NZS 3156:1995 Approval and test specification - Electric lawnmowers.

AS/NZS 3157:1993 Approval and test specification - Electric floor polishers (*including Amendments 1 and 2*).

AS/NZS 3160:1993 Approval and test specification - Hand-held portable electric tools (*including Amendments 1, 2, 3 and 4*).

AS/NZS 3162:1995 Approval and test specification - Electric kitchen machines for household use.

AS/NZS 3164:1994 Approval and test specification - Safety of electrically heated blankets, pads and similar flexible heating appliances for household use (*including Amendments 1 and 2*).

AS/NZS 3172:1993 Approval and test specification - Electric cooking appliances for household use (*including Amendments 1, 2, 3 and 4*).

AS/NZS 3179:1993 Approval and test specification - Refrigerated room air-conditioners (*including Amendment 1*).

AS 3181:1995 Electrically operated projectors for household and similar use.

AS/NZS 3182:1995 Approval and test specification - Refrigerated food commercial cabinets.

AS 3184:1990 Approval and test specification - Electric dish washing machines for household use (*including Amendment 1*).

AS 3192:1992 Approval and test specification - Electrically operated aquarium equipment (*including Amendments 1, 2 and 3*).

AS 3193:1995 Approval and test specification - Transformer type battery chargers.

AS/NZS 3195:1995 Approval and test specification - Portable machines for electric arc welding and allied processes (*including Amendment 1*).

AS 3196:1995 Approval and test specification - Electric clothes drying cabinets for household use.

AS/NZS 3250:1995 Approval and test specification - Mains-operated electronic and related equipment for household and similar use (*including Amendment 1*).

AS/NZS 3260:1993 Approval and test specification - Safety of information technology equipment including electrical business equipment (*including Amendments 1 and 2*).

AS 3300:1992/NZS 6300:1992 Approval and test specification - General requirements for household and similar electrical appliances (*including Amendments 1, 2, 3, and 4*).

AS 3301:1992/NZS 6325:1992 Approval and test specification - Particular requirements for microwave ovens.

AS/NZS 3302:1992 Approval and test specification - Particular requirements for electric fans (*including Amendment 1*).

AS 3303:1995/NZS 6324:1995 Approval and test specification - Particular requirements for refrigerators and food freezers.

AS 3304:1995/NZS 6323:1995 Approval and test specification - Particular requirements for skin or hair care appliances.

AS 3305:1988 Approval and test specification - Particular requirements for motor compressors (*including Amendments 1 and 2*).

AS 3306:1995 Approval and test specification - Particular requirements for spin extractors.

AS 3307:1992/NZS 6303:1992 Approval and test specification - Particular requirements for electric irons (*including Amendments 1 and 2*).

AS 3308:1992/NZS 6302:1992 Approval and test specification - Particular requirements for vacuum cleaners and water suction cleaning appliances (*including Amendment 1*).

AS 3309:1992/NZS 6328:1992 Approval and test specification - Particular requirements for electric sewing machines.

AS 3310:1992/NZS 6306.2:1992 Approval and test specification - Particular requirements for range hoods.

AS 3311:1992/NZS 6332:1992 Approval and test specification - Particular requirements for massage appliances.

AS 3312:1989 Approval and test specification - Particular requirements for garment or fabric steamers (*including Amendments 1 and 2*).

AS 3313:1993/NZS 6315:1993 Approval and test specification - Particular requirements for appliances for heating liquids (*including Amendments 1, 2 and 3*).

AS 3314:1991/NZS 6307:1991 Approval and test specification - Particular requirements for washing machines (*including Amendments 1, 2, 3 and 4*).

AS 3315:1992/NZS 6327:1992 Approval and test specification - Particular requirements for ultra-violet and infra-red radiation skin treatment appliances for household and similar use.

AS 3316:1992/NZS 6353:1992 Approval and test specification - Particular requirements for electric sauna heating appliances.

AS 3317:1993/NZS 6317:1993 Approval and test specification - Particular requirements for Tumbler dryers.

AS/NZS 3350.1:1994 Approval and test specification - Safety of household and similar appliances - Part 1: General requirements (*including Amendment 1 and 2*).

AS/NZS 3350.2.2:1995 Approval and test specification - Particular requirements for vacuum cleaners and water suction cleaning appliances.

AS/NZS 3350.2.3:1995 Approval and test specification - Particular requirements for electric irons.

AS/NZS 3350.2.4:1995 Approval and test specification - Particular requirements for spin extractors.

AS/NZS 3350.2.5:1995 Approval and test specification - Particular requirements for dishwashers.

AS/NZS 3350.2.7:1995 Approval and test specification - Particular requirements for washing machines.

AS/NZS 3350.2.8:1995 Approval and test specification - Particular requirements for electric shavers and hair clippers and similar appliances.

AS/NZS 3350.2.11:1995 Approval and test specification - Particular requirements for tumbler-dryers.

AS/NZS 3350.2.14:1995 Approval and test specification - Particular requirements for kitchen machines.

AS/NZS 3350.2.61:1995 Approval and test specification - Particular requirements for thermal storage room heaters.

NZS 6203.1:1987 Specification for agricultural electric fencing - Part 1: a.c. mains-operated electric fence energisers (*including Amendments 1 and 2*).

NZS 6343:1994 Safety of household and similar electrical appliances - Particular requirements for clothes dryers and towels rails.

EN 60335-2-35:1995 Safety of household and similar electrical appliances Part 2: Particular requirements - Instantaneous water heaters.

EN 60598-1:1993 Luminaires - Part 1: General requirements and tests.

EN 60598-2-1:1989 Luminaires - Part 2: Particular requirements - Section 1 - Fixed general purpose luminaires.

- EN 60598-2-2:1989** Luminaires - Part 2: Particular requirements - Section 2 - Recessed luminaires.
- EN 60598-2-3:1994** Luminaires - Part 2: Particular requirements - Section 3 - Luminaires for road and street lighting.
- EN 60598-2-4:1993** Luminaires - Part 2: Particular requirements - Section 4 - Portable general purpose luminaires.
- EN 60598-2-5:1994** Luminaires - Part 2: Particular requirements - Section 5 - Floodlights.
- EN 60598-2-6:1994** Luminaires - Part 2: Particular requirements - Section 6 - Luminaires with built-in transformers for filament lamps.
- EN 60598-2-7:1995** Luminaires - Part 2: Particular requirements - Section 7 - Portable luminaires for garden use.
- EN 60598-2-8:1993** Luminaires - Part 2: Particular requirements - Section 8 - Handlamps.
- EN 60598-2-9:1994** Luminaires - Part 2: Particular requirements - Section 9 - Photo and film luminaires (non-professional).
- EN 60598-2-10:1991** Luminaires - Part 2: Particular requirements - Section 10 - Portable child-appealing luminaires.
- EN 60598-2-17:1991** Luminaires - Part 2: Particular requirements - Section 17 - Luminaires for stage lighting, television and film studios (outdoor and indoor).
- EN 60598-2-18:1994** Luminaires - Part 2: Particular requirements - Section 18 - Luminaires for swimming pools and similar applications.
- EN 60598-2-19:1989** Luminaires - Part 2: Particular requirements - Section 19 - Air-handling luminaires (safety requirements).
- EN 60598-2-20:1992** Luminaires - Part 2: Particular requirements - Section 20 - Lighting chains.
- EN 60598-2-22:1990** Luminaires - Part 2: Particular requirements - Section 22 - Luminaires for emergency lighting.
- IEC 335-2-66:1993** Part 2: Particular requirements for waterbed heaters.
Modification: use AS/NZS 3350.1:1994 as the Part 1 (*including Amendments 1 and 2*).
- IEC 432-1:1993** Part 1: Safety specification for incandescent lamps - Tungsten filament lamps for domestic and similar general lighting purposes (*including Amendment 1*).
- IEC 598-1:1992** Part 1: Luminaires - General requirements and tests (*including Amendment 1*).

IEC 598-2-1:1979 Part 2: Section 1 - Particular requirements for general purpose luminaires (including Amendment 1).

IEC 598-2-2:1979 Part 2: Section 2 - Particular requirements for recessed luminaires (including Amendment 2).

IEC 598-2-3:1993 Part 2: Section 3 - Particular requirements for luminaires for road and street lighting.

IEC 598-2-4:1979 Part 2: Section 4 - Particular requirements for portable general purpose luminaires (including Amendments 1, 2 and 3).

IEC 598-2-5:1979 Part 2: Section 5 - Particular requirements for floodlights (including Amendments 1 and 2).

IEC 598-2-6:1994 Part 2: Section 6 - Particular requirements for luminaires with built-in transformers for filament lamps.

IEC 598-2-7:1982 Part 2: Section 7 - Particular requirements for portable luminaires for garden use (including Amendments 1 and 2).

IEC 598-2-8:1981 Part 2: Section 8 - Particular requirements for handlamps (including Amendments 1 and 2).

IEC 598-2-9:1987 Luminaires - Part 2: Particular requirements - Section 9 Photo and film luminaires (non-professional) (including Amendment 1).

IEC 598-2-10:1987 Part 2: Section 10 - Particular requirements for portable child-appealing luminaires (including Amendment 1).

IEC 598-2-17:1984 Luminaires - Part 2: Particular requirements (including Amendments 1 and 2) - Section 17 - Luminaires for stage lighting, television and film studios (outdoor and indoor) (including Amendment 2).

IEC 598-2-18:1993 Part 2: Section 18 - Particular requirements for luminaires for swimming pools and similar applications.

IEC 598-2-19:1981 Luminaires - Part 2: Particular requirements (including Amendment 1). Section 19 - Air-handling luminaires (safety requirements)

IEC 598-2-20:1982 Part 2: Section 20 - Particular requirements for lighting chains (including Amendments 1 and 2).

IEC 598-2-22:1990 Part 2: Section 22 - Particular requirements for luminaires for emergency lighting.

PART 2 FITTING STANDARDS

AS 1308:1987 Electric water heaters - Thermostats and thermal cutouts (*including Amendment 1*).

AS 2005.1:1981 Low voltage fuses - Fuses with enclosed fuse links (*up to and including 100V a.c. and 1500V d.c.*) - Part 1: General requirements.

AS 2005.10:1988 Low voltage fuses - Fuses with enclosed fuse links - Part 10: General requirements (*including Amendment 1*).

AS 2005.20:1990 Low voltage fuses - Fuses with enclosed fuse links - Part 20: Supplementary requirements for fuses for use by authorised persons. (*Fuses mainly for industrial applications*) - Common requirements.

AS 2005.21.1:1990 Low voltage fuses - Fuses with enclosed fuse-links - Part 21.1: Supplementary requirements for fuses for use by authorised persons. (*Fuses mainly for industrial application*) - Standardised fuse systems - Fuse-links with blade contacts.

AS 2005.21.2:1990 Low voltage fuses - Fuses with enclosed fuse-links - Part 21.2: Supplementary requirements for fuses mainly for industrial application - Standardised fuse systems - Fuses with fuse-links for bolted connections.

AS 2005.29:1990 Low voltage fuses - Fuses with enclosed fuse-links - Part 29: Supplementary requirements for fuses for use by authorised persons. (*Fuses mainly for industrial application*) - Standardised fuses with compact dimensions.

AS 2005.30:1991 Low voltage fuses - Fuses with enclosed fuse-links - Part 30: Supplementary requirements for fuses for use by unskilled persons. (*Fuses mainly for household and similar applications*).

AS 2005.40:1989 Low voltage fuses - Fuses with enclosed fuse-links - Part 40: Supplementary requirements for fuse-links for the protection of semi-conductor devices.

AS/NZS 3105:1993 Approval and test specification - Electric portable outlet devices (*including Amendment 1*).

AS/NZS 3108:1994 Approval and test specification - Particular requirements for isolating transformers and safety isolating transformers (*including Amendment 1*).

AS 3109.1:1987 Approval and test specification -Appliance couplers for household and similar general purposes - Part 1: General requirements (*including Amendments 1 and 2*).

AS 3111:1994 Approval and test specification for miniature overcurrent circuit breakers.

AS/NZS 3112:1993 Approval and test specification - Plugs and socket-outlets (*including Amendments 1, 2 and 3*).

AS 3113:1986 Approval and test specification - Ceiling roses.

AS 3117:1994 Approval and test specification - Bayonet lampholders.

AS/NZS 3120:1993 Approval and test specification - Cord extension sockets.

AS/NZS 3122:1993 Approval and test specification - Socket-outlet adaptors (*including Amendment 1*).

AS/NZS 3123:1994 Approval and test specification - Plugs, socket-outlets and couplers for general industrial application (*including Amendment 1*).

AS 3124:1982 Approval and test specification - Overhead line connector boxes (*including Amendment 1*).

AS 3127:1987 Approval and test specification - Cord-line switches (*including Amendments 1 and 2*).

AS 3131:1995 Approval and test specification - Plugs and socket-outlets for use in installation wiring systems.

AS 3133:1989 Approval and test specification for air break switches (*including Amendment 1*).
Note: AS3133:1989 superseded in part by AS/NZS 3139.1:1995 (including Amendment 1).

AS 3134:1992 Approval and test specification - a.c. supplied electronic ballasts for tubular fluorescent lamps.

AS 3138:1993 Approval and test specification - Starters for fluorescent lamps (*including Amendment 1*).

AS/NZS 3139.1:1995 Approval and test specification - Switches for appliances. Part 1: General requirements.

AS 3140:1994 Approval and test specification - Edison-type screw lampholders.

AS/NZS 155:1995 Approval and test specification - Electric cables - Neutral screened - For working voltages of 0.6/1 kV.

AS 3161:1995 Approval and test specification - Thermostats and energy regulators.

AS 3168:1991 Approval and test specification - Fluorescent lamp ballasts (*including Amendment 1*).

AS 3169:1989 Approval and test specification - Flat, quick-connect terminations.

AS/NZS 3175.1:1994 Approval and test specification - Residual current-operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's).
Part 1: General rules (*including Amendment 1*).

AS/NZS 3175.2.1:1994 Approval and test specification - Residual current-operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's).

- (a) Part 2: Applicability of the general rules to RCCB's.
- (b) Part 2.1: Functionally independent of line voltage.

AS/NZS 3175.2.2:1994 RCCB's functionally dependent on line voltage.

- (a) Part 2: Applicability of the general rules to RCCB's.
- (b) Part 2.2: Functionally dependent on line voltage.

AS/NZS 3189.1:1994 Approval and test specification - Residual current operated circuit breakers without integral over current protection for household and similar use (RCCB's). General rules.

AS 3190:1994 Approval and test specification - Residual current devices (*current-operated earth leakage devices*).

AS/NZS 3194:1993 Approval and test specification - Electric shaver supply units (*including Amendment 1*).

AS/NZS 3197:1993 Approval and test specification - Portable electrical control or conditioning devices (*including Amendment 1*).

AS/NZS 3199:1982 Approval and test specification for cord extension sets (*including Amendment 1*).

IEC 127 Cartridge fuse-links for miniature fuses.

Modification: only the following Parts of this standard shall apply.

- (a) Part 1:1988 - Definitions for miniature fuses and general.
- (b) Part 2:1989 - Cartridge fuses (*including Amendment 1*).
- (c) Part 3:1988 - Sub-miniature fuse-links (*including Amendment 1*).
- (d) Part 4:1989 - Universal modular fuses (*UMF*).
- (e) Part 6:1994 - Fuse-holders for miniature cartridge fuse-links.

IEC 238:1991 Edison screw lampholders (*including Amendment 1*).

IEC 320 Appliance couplers for household and similar general purposes.

- (a) Part 1:1994 - General requirements.
- (b) Part 2-1:1984 - Sewing machine couplers.
- (c) Part 2-2:1990 - Interconnection couplers.

IEC 669 Switches for household and similar fixed electrical installations.

- (a) Part 1:1993 - General requirements (*including Amendment 1*).
- (b) Part 2:1994 - Section 1 - Electronic switches (*including Amendment 1*).
- (c) Part 2-2:1984 - Particular requirements for electromagnetic remote control switches (*R.C.S.*).
- (d) Part 2-3:1984 - Particular requirements for time delay switches (*T.D.S.*).

IEC 898:1987 Circuits breakers for overcurrent protection for household and similar installations (*including Amendments 1, 2 and 3*).

IEC 1058 Switches for appliances.

- (a) Part 1:1990 - General requirements (*including Amendments 1 and 2*).
- (b) Part 2.1:1992 - Particular requirements for cord switches.
- (c) Part 2-5:1994 - Particular requirements for change-over selectors.

IEC 1184:1993 Bayonet lampholders.

IEC 1210:1993 Connecting devices - Flat quick-connect terminations for electrical copper conductors - Safety requirements.

EN 60238:1992 Edison screw lampholders.

JIS C8371:1992 Residual current operated circuit breakers.

PART 3 CABLES, CONDUITS & WIRING FITTINGS STANDARDS

AS 1074:1989 Steel tubes and tubulars for ordinary service.

AS 1125:1993 Conductors in insulated electric cables and flexible cords (*including Amendment 1*).

AS/NZS 1802:1995 Electric cables - Reeling and trailing - For underground coal mining purposes.

AS 1977:1977 Flexible insulating sleeving for electrical purposes.

AS/NZS 1995:1995 Welding cables.

AS/NZS 2053.1:1995 Conduits and fittings for electrical installations - Part 1: General requirements.

AS/NZS 2053.2:1995 Conduits and fittings for electrical installations - Part 2: Rigid plain conduits and fittings of insulating material (*including Amendment 1*).

AS/NZS 2053.3:1995 Conduits and fittings for electrical installations - Part 3: Rigid plain conduits and fittings of fibre-reinforced concrete material.

AS/NZS 2053.4:1995 Conduits and fittings for electrical installations - Part 4: Flexible plain conduits and fittings of insulating material.

AS/NZS 2053.5:1995 Conduits and fittings for electrical installations - Part 5: Corrugated conduits and fittings of insulating material.

AS/NZS 2053.6:1995 Conduits and fittings for electrical installations - Part 6: Profile-wall, smooth-bore conduits and fittings of insulating material.

AS/NZS 2053.7:1995 Conduits and fittings for electrical installations - Part 7: Rigid metal conduits and fittings (*including Amendment 1*).

AS/NZS 2053.8:1995 Conduits and fittings for electrical installations - Part 8: Flexible conduits and fittings of metal or composite material.

AS/NZS 2648.1:1995 Underground marking tape - Part 1: Non-detectable tape.

AS 2802:1992 Electric cables - Reeling and trailing - For mining and general use (*other than underground coal mining*).

AS/NZS 3085.1:1995 Telecommunication, installation - Administration of communication cabling systems. Part 1: Basic requirements.

AS 3116:1990 Approval and test specification - Electric cables - Elastomer insulated - For working voltages up to and including 0.6/1kV.

AS 3147:1992 Approval and test specification - Electric cables - Thermoplastic - Insulated for working voltages up to and including 0.6/1kV (*including Amendments 1 and 2*).

AS 3155:1995 Approval and test specification - Neutral screened cables for working voltages of 0.6/1kV.

AS 3158:1994 Approval and test specification - Electric cables - Glass fibre insulated for working voltages up to and including 0.6/1kV.

AS 3178:1991 Approval and test specification - Electric cables - Silicon rubber insulated - For working voltages up to and including 0.6/1kV.

AS 3187:1995 Approval and test specification - Mineral-insulated metal-sheathed cables.

AS 3188:1995 Approval and test specification for terminations and glands for mineral-insulated metal-sheathed cables.

AS 3191:1994 Approval and test specification for electric flexible cords.

AS 3198:1990 Approval and test specification - Electric cables - XLPE insulated - for working voltages up to and including 0.6/1kV.

AS 3439.2:1994 Low-voltage switchgear and controlgear assemblies - Part 2: Particular requirements for busbar trunking systems (*busways*).

AS 3560:1991 Electric cables - XLPE insulated - Aerial bundled - for working voltages up to and including 0.6/1kV (*including Amendments 1 and 2*).

AS 3675:1993 Conductors - covered overhead - for working voltages 6.35/11kV up to and including 19/33kV.

AS 3766:1990 Mechanical fittings for low voltage aerial bundled cables.

AS 4026:1992 Electric cables - For underground residential distribution systems.

AS/NZS 4193.1:1994 Electrical cables for use in ships - Part 1: Low voltage shipboard power cables - General construction and test requirements (*including Amendment 1*).

AS/NZS 4193.2:1994 Electrical cables for use in ships - Part 2: Insulating materials for shipboard power cables (*including Amendment 1*).

AS/NZS 4193.3:1994 Electrical cables for use in ships - Part 3: Sheathing materials for shipboard power, control and Telecommunication cables (*including Amendment 1*).

AS/NZS 4193.4:1994 Electrical cables for use in ships - Part 4: Single and multicore cables with extruded solid insulation for rated voltages 0.6/1kV (*including Amendment 1*).

AS/NZS 4193.5:1994 Electrical cables for use in ships - Part 5: Shipboard multicore cables for control circuits (*including Amendment 1*).

AS/NZS 4296:1995 Cable trunking systems.

NZS 2265:1969 Earthing clamps (*including Amendment 1*).

NZS 6401:1973 PVC-insulated cables for electric power and lighting.

BS 951:1986 Specification for clamps for earthing and bonding purposes (*including Amendment 6635*).

PART 4 SWITCHGEAR AND CONTROLGEAR STANDARDS

AS 1023.1:1985 Low voltage switchgear and controlgear - Protection of electric motors - Part 1: Built-in thermal detectors and associated control units.

AS 1023.3:1973 Low voltage switchgear and controlgear - Protection of electric motors - Part 3: Inherent overheat protectors.

AS 2395:1980 Terminals for switchgear assemblies for alternating current voltages above 1kV.

AS 3132:1991 Approval and test specification - Enclosures of insulation material for switchgear and controlgear (*including Amendment 1*).

AS 3439.1:1993 Low voltage switchgear and controlgear assemblies - Part 1: Type-tested and partially type tested assemblies (*including Amendment 1*).

AS 3439.2:1994 Low voltage switchgear and controlgear assemblies - Part 2: Particular requirements for busbar trunking systems (*Busways*).

AS 3439.3:1995 Low voltage switchgear and controlgear assemblies - Part 3: Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards.

AS 3439.4:1995 Low voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (*ACS*).

AS 3639.1:1989 Low voltage switchgear and controlgear - Multiple function devices - Part 1: Automatic transfer switching equipment (*automatic transfer switches*).

AS 3858:1990 Low voltage switchgear and controlgear - Circuit-breakers.

AS 3947.1:1993 Low-voltage switchgear and controlgear - Part 1: General rules (*including Amendments 1 and 2*).

AS 3947.3:1994 Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units (*including Amendment 1*).

AS 3947.3 Supplement 1:1995 Fuse-switch-disconnectors and switch-disconnectors for use with low voltage aerial bundled cables - (*supplement to AS 3947.3:1994*).

AS 3947.4.1:1995 Low-voltage switchgear and controlgear - Part 4.1: Contactors and motor-starters - Electromechanical contactors and motor-starters (*including Amendment 1*).

AS 3947.5.1:1995 Low-voltage switchgear and controlgear - Part 5.1: Control circuit devices and switching elements - Electromechanical control circuit devices.

AS 4278:1995 A method of assessing the short-circuit withstand strength of partially type-tested assemblies (*PTTA*).

IEC 898:1995 Circuit - breakers for overcurrent protection for household and similar installations.

IEC 947-1:1988 Low-voltage switchgear and controlgear - Part 1: General rules (*including Amendment 1*).

IEC 947-2:1989 Low-voltage switchgear and controlgear - Part 2: Circuit-breakers (*including Amendments 1 and 2*).

IEC 947-6-1:1989 Low-voltage switchgear and controlgear - Part 6.1: Multiple function equipment - Section 1 - Automatic transfer switching equipment (*including Amendment 1*).

IEC 947-7-1:1989 Low-voltage switchgear and controlgear - Part 7: Ancillary equipment - Section 1 - Terminal blocks for copper conductors (*including Amendment 1*).

PART 5 GENERAL SPECIFICATION STANDARDS

AS 1647.2:1992 Children's Toys (*safety requirements*) - Part 2: Constructional requirements.

Modification: only the following clauses of this standard shall apply:

Clause 8 - Electrical Requirements (*including Amendment 1*).

Clause 9.2 - Hazardous sharp Areas (*including Amendment 1*).

AS 1795.1:1983 Sheets and boards for electrical purposes - Part 1: Classification and general requirements.

AS 1795.2:1983 Sheets and boards for electrical purposes - Part 2: Dimensions of switchboard panels.

AS 1939:1990 Degrees of protection provided by enclosures for electrical equipment (IP Code).

AS 2286:1989 Space heating appliances - Secondary guards.

AS/NZS 2293.1:1995 Emergency evacuation lighting in buildings - Part 1: Design and installation.

AS/NZS 2293.2:1995 Emergency evacuation lighting in buildings - Part 2: Inspection and maintenance.

AS/NZS 2293.3:1995 Emergency evacuation lighting in buildings - Part 3: Emergency luminaires and exit signs.

AS 2676.1:1992 Guide to the installation, maintenance, testing and replacement of batteries in buildings - Part 1: Vented cells.

AS 2676.2:1992 Guide to the installation, maintenance, testing and replacement of batteries in buildings - Part 2: Sealed cells.

AS 2768:1985 Electrical insulating materials - Evaluation and classification based on thermal endurance.

AS 2790:1989 Electricity generating sets - Transportable (*up to 25kW*) (*including Amendment 1*).

NZS/AS 3100:1994 General Requirements for electrical equipment (*including Amendment 1*).

AS 3760:1990 In-service safety inspection and testing of electrical equipment (*including Amendment 1*).

NZS 4515:1990 Automatic fire sprinkler systems.

NZS 4541:1987 Automatic fire sprinkler systems (*including Amendment 1*).

NZS 4606:1989 Storage water heaters:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1: General requirements;
- (b) Part 2: Specific requirements for water heaters with single shells (*including Amendment A*); and
- (c) Part 3: Specific requirements for water heaters with composite shells (*including Amendment A*).

NZS 5807:1980 Code of Practice for industrial identification by colour, wording or other coding:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1: Identification of signs, safety colours and fire extinguishers (*including Amendments 1 and 2*);
- (b) Part 2: Identification of contents of piping, conduits and ducts (*including Amendments 1 and 2*); and
- (c) Part 3: Identification of industrial gas cylinders (*including Amendments 1 and 2*).

NZS 5820:1982 Specification for the safety of toys (*including Amendment 1*).

NZS 6104:1981 Specification for emergency electricity supply in buildings.

BS 6351:1983 Electric surface heating:

Modification: only the following Parts of this standard shall apply:

- (a) Part 1: Specification for electric surface heating systems;
- (b) Part 2: Guide to the design of electric surface heating systems; and
- (c) Part 3: Code of Practice for the installation, testing and maintenance of electric surface heating systems.

EN 60529:1993 Degrees of protection provided by enclosures (IP code).

IEC 414:1973 Specification for safety requirements for indicating and recording electrical measuring instruments and their accessories.

IEC 529:1989 Degrees of protection provided by enclosures (IP code).

PART 6 HARMONIC AND VOLTAGE FLICKER STANDARDS

AS 2279.1:1991 Disturbances in mains supply networks - Part 1: Limitation of harmonics caused by household and similar electrical appliances.

AS 2279.2:1991 Disturbances in mains supply networks - Part 2: Limitation of harmonics caused by industrial equipment.

AS 2279.3:1991 Disturbances in mains supply networks - Part 3: Limitation of voltage fluctuations caused by household and similar electrical appliances.

AS 2279.4:1991 Disturbances in mains supply networks - Part 4: Limitation of voltage fluctuations caused by industrial equipment.

IEC 1000 Electromagnetic compatibility (*EMC*).

IEC 1000-3-2:1995 Part 3: Limits - Section 2 - Limits for harmonic current emissions (*equipment input current less than or equal to 16 A per phase*).

IEC 1000-3-3:1994 Part 3: Limits - Section 3 - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current less than or equal to 16 A.

IEC 1000-3-5:1994 Part 3: Limits - Section 5 - Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current greater than 16 A.

PART 7 ELECTRICITY DISTRIBUTION SAFETY STANDARDS

AS 1028:1992 Power reactors and earthing transformers.

AS/NZS 1891.1:1995 Industrial safety belts and harnesses.

AS 2225:1994 Insulating gloves for electrical purposes.

AS 2626:1983 Industrial safety belts and harnesses - Selection, use and maintenance.

AS/NZS 2978:1995 Insulating mats for electrical purposes.

NZS 3609:1978 Specification for timber ladders (*including Amendment 1*).

NZS 4203:1992 Code of Practice for general structural design loadings for buildings.

NZS 6108:1984 Specification for accommodation for electricity supply substations in consumers buildings.

EN 60903:1992 Specification for gloves and mits of insulating material for live working.

IEC 903:1988 Specification for gloves and mits of insulating material for live working.

ASTM D120:87a Rubber insulating gloves.

SECOND SCHEDULE**ORGANISATIONS FROM WHICH TEST RESULTS FOR COMPLIANCE WITH THE STANDARDS LISTED IN THIS CODE SHALL BE PRIMA FACIE ACCEPTABLE****NEW ZEALAND**

Laboratory: Wakefield Laboratories Limited
 NLAO: TELARC 69
 Address: 37 ANZAC Avenue
 PO Box 4512
 AUCKLAND 1

Laboratory: Auckland Testing Laboratories Ltd
 NLAO: TELARC 374
 Address: 10/32 Moselle Avenue
 Henderson
 AUCKLAND

Laboratory: Industrial Research Limited
 NLAO: TELARC 42
 Address: 175 Roydvale Avenue
 Bishopdale
 CHRISTCHURCH

Laboratory: Parkside Laboratories Ltd
 NLAO: TELARC 363
 Address: 14 Hazeldean Road
 CHRISTCHURCH 2

AUSTRALIA

Laboratory: TCA
 NLAO: NATA 62
 Address: Testing & Certification
 Australia
 PO Box 841 Artarmon
 NSW 2064

Laboratory: S G S Australia Pty Ltd
 Appliance Testing Laboratory
 NLAO: NATA 3637
 Address: 73 Williams Road
 BLACKBURN VIC 3130

Laboratory: SEQEB
 NLAO: NATA 74
 Address: South East Queensland
 Electricity Board
 Approvals Laboratory
 Building 4 Blinzinger Road
 BANYO Queensland 4014

Laboratory: Australian Electrical Testing Centre
 NLAO: NATA 1848
 Address: Warrendi Road
 The Levels
 POORAKA SA 5098

OTHER COUNTRIES**AUSTRIA**

Laboratory: BFVA/ETI
 NCB: ÖVE
 Address: Elektrotechnische Institut
 der Prüf- und Versuchsanstalt
 im Arsenal
 Arsenal, Faradaygasse 3
 A-1030 WIEN

Laboratory: PVEW
 NCB: ÖVE
 Address: Prüf- und Versuchsanstalt der
 Elektrizitätswerke Österreichs
 Obere Augartenstrasse 14 a
 A-1020 WIEN

Laboratory: TGM/VA/E
 NCB: ÖVE
 Address: Versuchsanstalt für Elektro-
 technik am Technologischen
 Gewerbemuseum
 Wexstrasse 19-23
 A-1200 WIEN

Laboratory: TGM/VA/R
 NCB: ÖVE
 Address: Versuchsanstalt für Radio-
 technik am Technologischen
 Gewerbemuseum Wexstrasse
 19-23
 A-1200 WIEN

Laboratory: CTI
 NCB: ÖVE
 Address: Cooperative Testing Institute
 for Electrotechnical Products
 Ltd
 - Gesellschaft zur Prüfung
 elektro-technischer
 Industrieprodukte G.m.b.H
 Geinergasse 30, Postfach 3
 A-1195 WIEN

Laboratory: TÜV Österreich
 NCB: ÖVE
 Address: Prüfstelle des TÜV Österreich
 Deutschstrasse 10
 A-12030 WIEN

BELGIUM

Laboratory: Laboratoire d'Electricite
 Address: c/o LABORELEC
 rue de Rhode, 125
 B-1630 LINKEBEEK

Laboratory: LCE-CLE
 NCB: CEBEC
 Address: Laboratoire Central
 d'Electricite (L.C.E.)
 Central laboratorium voor
 Elektriciteit (C.L.E.)
 Avenue F. van Kalken 9 A
 B-1070 Brussels

BRITAIN

Laboratory: BSI
NCB: BEAB
Address: BSI Testing
Marylands Avenue
Hemel Hempstead
HERTS HP2 4SQ

Laboratory: ERA
NCB: ASTA
Address: Electrical Engineering Centre
Test and Assessment Dept
Cleeve Road
Leatherhead
SURREY KT22 7SA

CANADA

Laboratory: CSA
NCB: CSA
Address: Canadian Standards Association
178 Rexdale Boulevard
Rexdale (Toronto)
ONTARIO M9W 1R3

CZECH REPUBLIC

Laboratory: EZU
NCB: EZU
Address: Elektrotechnicky zkusebni ustav
Pod lisem 129
CS-171 02 PRAHA 8 TROJA

CHINA

Laboratory: BTIHEA
NCB: CCEE
Address: Beijing Testing and
Inspection Station for
Household Electric
Appliances (BTIHEA)
29 Xia Xie Jie, Xuan Wu
District
100053 BEIJING

Laboratory: GTIEP
NCB: CCEE
Address: Guangzhou Testing and
Inspection Station for Electric
Products (GTIEP)
1 Dongguan Zhuang Road
510610 GUANGZHOU

CHINA

Laboratory: GTIES
 NCB: CCEE
 Address: Guangzhou Testing and
 Inspection Station for
 Electrical Safety (GTIES)
 3 Taishanmiaoquian, Nancun
 Henan
 510220 GUANGZHOU

Laboratory: GTIHEA
 NCB: CCEE
 Address: Guangzhou Testing and
 Inspection Station for
 Household Electric
 Appliances (GTIHEA)
 204 Xingang West Road
 GUANGZHOU

Laboratory: STIEP
 NCB: CCEE
 Address: Shanghai Testing and
 Inspection Station for
 Electronic Products (STIEP)
 627 Yong Ja lu
 20031 SHANGHAI

Laboratory: TICW
 NCB: CCEE
 Address: Testing and Inspection Station
 for Cable and Wire (TICW)
 1000 Yun Gong Road
 200093
 SHANGHAI

Laboratory: TIET
 NCB: CCEE
 Address: Testing and Inspection
 Station for Electric Tools
 (TIET)
 10 Bao Qing Road
 200031 SHANGHAI

Laboratory: TILVA
 NCB: CCEE
 Address: Testing and Inspection Station
 for Low-Voltage Apparatus
 (TILVA)
 505 Wu Ning Road
 200063 SHANGHAI

Laboratory: TIRT
 NCB: CCEE
 Address: Testing and Inspection
 Station for Radio and
 Television Products (TIRT)
 Da Shanzi Dong Zhi Men
 Wai
 100015 BEIJING

Laboratory: BTIEP
 NCB: CCEE
 Address: Beijing Testing and Inspection
 Station for Electronic
 Products
 (BTIEP)
 Post box 1101
 10007 BEIJING

DENMARK

Laboratory: DEMKO
 NCB: DEMKO
 Address: Lyskaar 8
 Postbox 514
 DK-2730 HERLEV

FINLAND

Laboratory: FIMKO
 Address: Särkiniementie 3
 P.O.Box 31
 FIN-00211 HELSINKI

FRANCE

Laboratory: LCIE
 NCB: UTE
 Address: Laboratoire Cental des
 Industries Electriques (LCIE)
 33, avenue du General Leclerc
 F-92260 FONTENAY-AUX-
 ROSES
 (Seine)

Laboratory: LNE
 Address: Laboratoire National D'Essais
 1, rue Gaston Boissier
 75015 PARIS

GERMANY

Laboratory: VDE-PZI
 NCB: VDE-PZI
 Address: VDE, Prüf- und
 Zertifizierungs-institut
 Merianstrasse 28
 D-63069 OFFENBACH
 (MAIN)

Laboratory: TÜV Product Service
 Address: TÜV Product Service
 Ridlerstrasse 31
 D-8000 MÜNCHEN 2

Laboratory: TÜV
 Address: TÜV Rheinland/TSU GmbH
 Postfach
 D-51101 KÖLN

Laboratory: TÜV
 NCB: TÜV
 Address: TÜV Rheinland Sicherheit und
 Umweltschutz GmbH
 Am Grauen Stein
 D-51105 COLOGNE

Laboratory: LGA
 NCB: VDE-PZI
 Address: LGA Bayern
 Tillystrasse 2
 D-90431 NÜRNBERG

GREECE

Laboratory: ELOT
 NCB: ELOT
 Address: Elot Testing Laboratory
 12-14 Kolonou Street
 GR-10437 ATHENS

HOLLAND

Laboratory: KEMA
 NCB: KEMA
 Address: Kema Nederland B.V
 Utrechtseweg 310
 P.O. Box 9035
 NL-6800 ET ARNHEM

HUNGARY

Laboratory: MEEI
 NCB: MEEI
 Address: Hungarian Institute for
 Testing and Certification of
 electrical Equipment
 Vaci ut 48/a-b
 Pf 441
 H-1395 BUDAPEST XIII

INDIA

Laboratory: CPRI
 NCB: BIS
 Address: Central Power Research
 Institute
 Switchgear testing &
 Development Station
 PO Govindpura
 BHOPAL - 461023

Laboratory: CPRI
 NCB: BIS
 Address: Central Power Research Institute
 Cables & Capacitors Laboratory
 PO Govindpura
 BHOPAL - 461023

Laboratory: CPRI
 NCB: BIS
 Address: Central Power Research
 Institute
 Prof. Sir. C.V. Raman Road
 PO Box No 9401
 BANGALORE - 560094

Laboratory: ERDA
 NCB: BIS
 Address: Electrical Research &
 Development Association
 PO Box No 760 Makarpura
 Industrial Estate
 Makarpura road
 VADODARA - 390010

INDIA

Laboratory: ERTL(W)
NCB: BIS
Address: Electronics Regional Test
Laboratory
(West)
Midc. Area Plot Nos. 7 & 8
Andheri (East)
BOMBAY

Laboratory: ERTL(E)
NCB: BIS
Address: Electronics Regional Test
Laboratory
(East)
DN Block Bidhannager
Sector V
Salt Lake City
CALCUTTA - 700 091

Laboratory: ERTL(N)
NCB: BIS
Address: Electronics Regional Test
Laboratory
(North)
Okhia Ind. Area Phase II
NEW DELHI - 110 020

IRELAND

Laboratory: EOLAS
NCB: NSAI
Address: The Irish Science and
Technology Agency
Glasnevin
IE-DUBLIN 9

ITALY

Laboratory: IMQ
NCB: IMQ
Address: Istituto Italiano del Marchio
di Qualitata
Via Quintiliano 43
1-20138 MILANO

ISRAEL

Laboratory: SII
NCB: SII
Address: The Standards Institute of Israel
42 Chaim Levanon Str.
IL-TEL-AVIV 69977

JAPAN

Laboratory: JQA
 NCB: IECEE-JP
 Address: Japan Quality Assurance
 Organization
 9-15 Akasaka
 1 Chome
 Minato-ku
 TOKOYO 107

Laboratory: JET
 NCB: IECEE-JP
 Address: Japan Electrical Testing
 Laboratory
 5-14-12 Yoyogi, Shibuya-Ku
 TOKYO, 151

Laboratory: JCII
 NCB: IECEE-JP
 Address: Japan Camera and Optical
 Instruments Inspection and
 Testing Institute
 25 Ichiban-cho Chiyoda-Ku
 TOKYO 102

KOREA

Laboratory: KAITECH
 NCB: IECEE-KR
 Address: Korea Academy of Industrial
 Technology
 222-13 Guro Dong Guro-ku
 152-650 SEOUL

NORWAY

Laboratory: NEMKO
 NCB: NEMKO
 Address: Norges Elektriske
 Materiellkontroll
 Gaustadelleen No. 30
 PO Box 73 Blindern
 N-0314 OSLO

POLAND

Laboratory: PCBC
 NCB: PCBC
 Address: CBJW Central Office for
 Quality of Products
 Electrical laboratory
 ul. Swietojerska 5/7
 PL-00-236 WARSZAWA

Laboratory: BBJ-SEP
 NCB: PCBC
 Address: Association of Polish
 Electrical Engineers
 Quality Testing Office
 ul. Pozarskyiego 28 Building
 10A
 PL-04-703 WARSZAWA

SINGAPORE

Laboratory: SISIR
NCB: SISIR
Address: Singapore Institute of Standards
& Industrial Research
No 1 Science Park Drive
SINGAPORE 0511

SWITZERLAND

Laboratory: SEV
NCB: SEV
Address: Schweizerischer
Elektrotechnischer Verein
Division Testing and
Certification
Luppennstrasse 1
CH-8320 FEHRALTORF

SLOVENIA

Laboratory: Slovenian Institute of Quality
and Metrology
Testing Division
Address: Trzaskn 2
61000 LJUBLJANA

YUGOSLAVIA

Laboratory: The Federal Institute for
Standardization Quality
Assurance and Certification
Department
Address: Slobodena Penezica-Krcuna 35
Pb. 933
YU-11001 BEOGRAD

SOUTH AFRICA

Laboratory: South African Bureau of
Standards
Address: 1 Dr Lategan Road
GROENKLOOF

SPAIN

Laboratory: ASINEL
Address: ctra. de Vjllaviciosa de Oden
u Mostoles Km 1.6
E-Mostoles
MADRID

SWEDEN

Laboratory: SEMKO
NCB: SEMKO
Address: Torshamnsgatan 43 Kista
Box 1103
S-164 22 KISTA
STOCKHOLM