



National Differences For

UL 61010-1

**Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -
Part 1: General Requirements**

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Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements

Edition: 3

Edition Date: May 11, 2012

This publication is the adoption of the Third Edition of IEC 61010-1, Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements (issued June 2010) as an ANSI-approved UL standard. It is harmonized with Canada and co-published by CSA (Canadian Standards Association), ISA, and UL.

This document provides a single listing of the National Differences included in the UL adoption of the corresponding IEC standard.

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Preface

This document provides a single listing of the technical National Differences included in the UL adoption of the corresponding IEC standard.

In its IEC-based standards, UL uses the notations indicated below to identify national difference type, and these types are additionally noted in this document. The standard may not use all types of these deviations.

D1 - These are deviations which are based on basic safety principles and requirements, elimination of which would compromise safety for U.S. consumers and users of products.

D2 - These are deviations based on safety practices. These are deviations for IEC requirements that may be acceptable, but adopting the IEC requirements would require considerable retesting or redesign on the manufacturer's part.

DC - These are deviations based on the component standards and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE - These are deviations based on editorial comments or corrections.

DR - These are deviations based on the national regulatory requirements.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

Deletion / Delete - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

Modification / Modify - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

National Differences

1.1.4DV DR Addition of the following referencing the National Electrical Code and the Canadian Electrical Code:

This standard applies to equipment:

- a) To be employed in accordance with ANSI/NFPA 70, National Electrical Code® (NEC);
- b) Designed to comply with the general requirements of CAN/CSA C22.2 No. 0 and to be installed in accordance with the Canadian Electrical Code (CEC), Part I, CSA C22.1; or
- c) Both (a) and (b).

2DV DC Addition of the following:

**ANSI/NFPA 70,
National Electrical Code**

**ANSI/UL 94,
Tests for Flammability of Plastic Materials for Parts in Devices and Appliances**

**ANSI/UL 498,
Attachment Plugs and Receptacles**

**ANSI/UL 746C,
Polymeric Materials – Use in Electrical Equipment Evaluations**

**ANSI/UL 817,
Cord Sets and Power Supply Cords**

**ANSI/UL 1310,
Class 2 Power Units**

**ANSI/UL 60950-1,
Information Technology Equipment - Safety - Part 1: General Requirements**

**CSA C22.1,
Canadian Electrical Code, Part I**

**CSA C22.2 No. 0,
General Requirements - Canadian Electrical Code, Part II**

**CAN/CSA C22.2 No. 0.17,
Evaluation of Properties of Polymeric Materials**

CAN/CSA C22.2 No. 0.4,
Bonding of electrical equipment

CSA C22.2 No. 21,
Cord Sets and Power Supply Cords

CSA C22.2 No. 42,
General Use Receptacles, Attachment Plugs, and Similar Wiring Devices

CSA C22.2 No. 182.1,
Plugs, Receptacles, and Cable Connectors of the Pin and Sleeve Type

CSA C22.2 No. 182.2,
Industrial Locking Type, Special Use Attachment Plugs, Receptacles, and Connectors

CSA C22.2 No. 182.3,
Special Use Attachment Plugs, Receptacles, and Connectors

CAN/CSA C22.2 No. 223,
Power Supplies With Extra-Low Voltage Class 2 Outputs

CAN/CSA C22.2 No. 60950-1,
Information Technology Equipment - Safety - Part 1: General Requirements

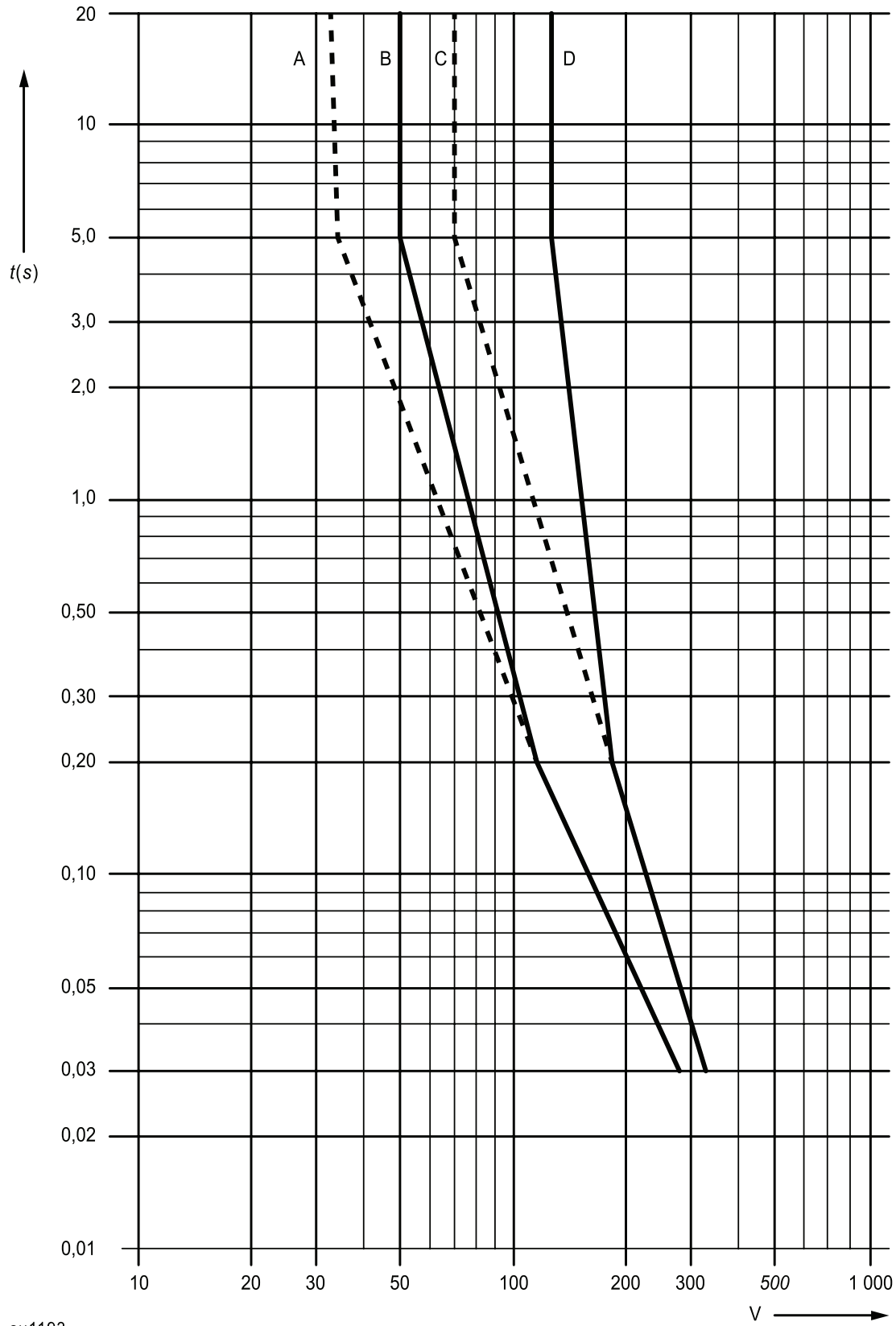
6.3.1DV D2 Modification by replacing item (a) with the following:

The a.c. voltage levels are 30 V r.m.s., 42,4 V peak and the d.c. voltage level is 60 V. For equipment intended to be used in WET LOCATIONS, the a.c. voltage levels are 16 V r.m.s., 22,6 V peak and the d.c voltage level is 35 V d.c.

6.3.2DV D2 Modification by replacing item (a) with the following:

The a.c. voltage levels are 50 V r.m.s., 70 V peak and the d.c. voltage level is 120 V. For equipment intended to be used in WET LOCATIONS, the a.c. voltage levels are 33 V r.m.s., 46,7 V peak and the d.c voltage level is 70 V d.c. For voltages of short duration, the duration versus voltage levels are those of Figure 2DV, measured across a 50 k Ω resistor.

Figure 2DV D2 Modification by replacement of Figure 2 with the following Figure 2DV:



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6.5.2.4DV D2 Modification by replacing the text and the conformity statement with the following:

The impedance between the PROTECTIVE CONDUCTOR TERMINAL and each ACCESSIBLE part for which PROTECTIVE BONDING is specified shall not cause a potential drop of more than 4 V. Metal that is part of the protective bond shall not melt, and heating and burning shall not occur to the extent that could cause a fire HAZARD.

Conformity is checked by inspection and by applying an a.c. test current for the duration specified in Table 6.5.2.4DV.1 and then measuring the voltage drop. See 4.4.4.3 for test conditions regarding the spread of fire.

The test current is twice the rating of the attachment plug cap, but not less than 40 A. If the equipment contains overcurrent protection devices for all poles of the MAINS supply, and if the wiring on the supply side of the overcurrent protection devices cannot become connected to ACCESSIBLE conductive parts in the case of a single fault, the test current need not be more than twice the RATED current of the internal overcurrent protection devices. If the test current exceeds 500 A, see CAN/CSA-C22.2 No. 0.4.

Table 6.5.2.4DV.1 D2 Addition:

Table 6.5.2.4DV.1 – Duration of protective bonding test

Value of building MAINS supply overcurrent protection means (A)	Time (Min)
0 - 30	2
31 - 60	4
61 - 100	6
101 - 200	8
201 and over	10

6.5.2.5DV D2 Modification:

In the first sentence of the conformity statement, replace “1 min” with “the duration specified in Table 6.5.2.4DV.1”. In the second sentence of the conformity statement, replace “10 V” with “4 V”.

6.10.1DV D2 Modification of 6.10.1 as follows:

6.10.1DV.1 Delete the reference to the requirements of IEC 60227 or IEC 60245 for MAINS supply cords in the second paragraph.

6.10.1DV.2 Replace the fifth paragraph with the following:

Green covered conductors (with or without yellow stripes) shall be used only for connection to PROTECTIVE CONDUCTOR TERMINALS.