BSI Standards Publication

Guidelines for safety related risk assessment and risk reduction for low voltage equipment

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National foreword

This Published Document is the UK implementation of IEC GUIDE 116:2018.

The UK participation in its preparation was entrusted to Technical Committee L/1, Electrotechnical Technical Policy Committee.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Guidelines for safety related risk assessment and risk reduction for low voltage equipment

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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GUIDELINES FOR SAFETY RELATED RISK ASSESSMENT AND RISK REDUCTION FOR LOW VOLTAGE EQUIPMENT

FOREWORD

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This second edition of IEC Guide 116 has been prepared, in accordance with ISO/IEC Directives, Part 1, Annex A, by the IEC Advisory Committee on Safety (ACOS). This is a non-mandatory guide in accordance with SMB Decision 136/8.

This second edition of IEC Guide 116 cancels and replaces its first edition published in 2010 and constitutes a technical revision; main changes with respect to the first edition are as follows:

- addition of a clause dealing with safety related security aspects, derived from the IEC 62443 series (Clause A.8);
- reference to "domestic animals" rather than to "livestock", throughout the text of the guide;
- alignment of definitions and Figure 2 with the latest edition of ISO/IEC Guide 51 (2014);
- editorial improvements throughout the text;
- updates of the links to the IEC website.

The text of this IEC Guide is based on the following documents:

FDIS	Report on voting
ACOS/2084/DV	ACOS/2108/RV

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This non-mandatory IEC Guide is intended to be applied to RISK ASSESSMENT and risk reduction for SAFETY of LOW VOLTAGE EQUIPMENT.

This Guide provides guidance to those developing and revising standards, specifications and similar publications. However, the RISK ASSESSMENT method of this guide can be useful as background information for, amongst others, designers, architects, manufacturers, service providers, educators, communicators, auditors, SAFETY inspectors and policy makers.

This IEC Guide reflects ISO/IEC Guide 51 and gives additional guidance to ISO/IEC Guides 50, 51, and 71 on more detailed practical way of carrying out RISK ASSESSMENT and implementing RISK reduction for RISKs commonly considered during all relevant phases of the life of LOW VOLTAGE EQUIPMENT.

The user of this Guide is expected to take into account safety-related standards when available (see also Annex B) and their use automatically reflects the state of the art as defined in ISO/IEC Guide 2.

This Guide provides useful information in the absence of a specific standard.

GUIDELINES FOR SAFETY RELATED RISK ASSESSMENT AND RISK REDUCTION FOR LOW VOLTAGE EQUIPMENT

1 Scope and object

1.1 Scope

This non-mandatory IEC Guide complements ISO/IEC Guide 51 and establishes guidelines useful for achieving SAFETY in low voltage (LV) equipment. These guidelines include RISK ASSESSMENT, in which the knowledge and experience of the design, use, incidents, accident and HARM related to LOW VOLTAGE EQUIPMENT are brought together in order to assess the RISKS during the relevant phases of the life of the equipment, as specified in Clause 5, and to implement the basic principles for RISK REDUCTION MEASURES. This IEC guide should be used by technical committees as far as appropriate and to the extent they decide to apply it.

This IEC Guide gives additional guidance to ISO/IEC Guides 50, 51 and 71 on the information required to allow RISK ASSESSMENT to be performed. Procedures are described for identifying hazards, estimating and evaluating RISK (including comparison of RISKS) and RISK reduction where necessary. Harms considered in this document include possible damages to persons, property, or domestic animals. It is not intended that the structure of this guide be adopted by technical committees.

This IEC Guide also includes requirements for the equipment documentation to include adequate information for the safe use of equipment.

1.2 Object

The purpose of this IEC Guide is to provide guidance for technical committees for decisions to be made on the SAFETY of LOW VOLTAGE EQUIPMENT and the type of documentation required to verify the RISK ASSESSMENT carried out.

This IEC Guide applies to all electrical equipment designed for use with a voltage range up to 1 000 V a.c. (1 500 V d.c.). Voltage ratings refer to the voltage of the electrical input or output, not to voltages that may appear inside the equipment.

Annex A of this Guide identifies basic health and SAFETY requirements, typically for LOW VOLTAGE EQUIPMENT.

Annex D can be used as a tool for documenting a self-assessment by a Technical Committee.

1.3 Exclusion and limitation

This guide does not apply to those basic components whose RISK ASSESSMENT depends to a very large extent on how they are used and incorporated into a machine, electrical system or installation. However, other electrical components that are intended to be incorporated into other electrical equipment and for which a RISK ASSESSMENT can be undertaken are covered by this IEC Guide, in general requiring a further assessment of the SAFETY aspects related to the way in which such components are incorporated.

NOTE 1 The scope of the exclusion of basic components should not be misunderstood and extended to items like lamps, starters, fuses, switches for household use, elements of electrical installations, etc.

These components, even if they are often used in conjunction with other electrical equipment and have to be properly installed in order to deliver their useful function, are themselves to be considered electrical equipment in the sense of this Guide.